



CITY OF GRAND JUNCTION, COLORADO

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**CONTRACT**

This CONTRACT made and entered into this 9<sup>th</sup> day of November, 2020 by and between the City of Grand Junction, Colorado, a government entity in the County of Mesa, State of Colorado, hereinafter in the Contract Documents referred to as the "Owner" and Blythe Group + Co hereinafter in the Contract Documents referred to as the "Firm."

WITNESSETH:

WHEREAS, the Owner advertised that sealed Responses would be received for furnishing all labor, services, supplies, equipment, materials, and everything necessary and required for the Project described by the Contract Documents and known as Professional Architectural Services for Fire Station #3 4824-20-DH.

WHEREAS, the Contract has been awarded to the above named Firm by the Owner, and said Firm is now ready, willing and able to perform the Services specified in the Notice of Award, in accordance with the Contract Documents;

NOW, THEREFORE, in consideration of the compensation to be paid the Firm, the mutual covenants hereinafter set forth and subject to the terms hereinafter stated, it is mutually covenanted and agreed as follows:

ARTICLE 1

Contract Documents: It is agreed by the parties hereto that the following list of instruments, drawings, and documents which are attached hereto, bound herewith, or incorporated herein by reference constitute and shall be referred to either as the "Contract Documents" or the "Contract", and all of said instruments, drawings, and documents taken together as a whole constitute the Contract between the parties hereto, and they are fully a part of this agreement as if they were set out verbatim and in full herein:

The order of contract document governance shall be as follows:

- a. The body of this contract agreement;
- b. Negotiated Scope of Work;
- c. Firms Response, including revised Pricing Proposal Responses;
- d. Services Change Requests (directing that changed Services be performed);
- e. Change Orders.

## ARTICLE 2

Definitions: The clauses provided in the Solicitation apply to the terms used in the Contract and all the Contract Documents.

## ARTICLE 3

Contract Services: The Firm agrees to furnish all labor, tools, supplies, equipment, materials, and all that is necessary and required to complete the tasks associated with the Services described, set forth, shown, and included in the Contract Documents as indicated in the Solicitation Document.

## ARTICLE 4

Contract Price and Payment Procedures: The Firm shall accept as full and complete compensation for the performance and completion of all of the Services specified in the Contract Documents, the not to exceed pricing of **One Hundred Twelve Thousand Eight Hundred Eighty Eight and 00/100 Dollars (\$112,888.00)**. **This not to exceed pricing does not include potential costs for "Bidding" services, which will be billed at the hourly rates, as stated in the Firm's revised pricing proposal.** If this Contract contains unit price pay items, the Contract Price shall be adjusted in accordance with the actual quantities of items completed and accepted by the Owner at the unit prices quoted in the Solicitation Response. The amount of the Contract Price is and has heretofore been appropriated by the Grand Junction City Council for the use and benefit of this Project. The Contract Price shall not be modified except by Change Order or other written directive of the Owner. The Owner shall not issue a Change Order or other written directive which requires additional Services to be performed, which Services causes the aggregate amount payable under this Contract to exceed the amount appropriated for this Project, unless and until the Owner provides Firm written assurance that lawful appropriations to cover the costs of the additional Services have been made.

Unless otherwise provided in the Solicitation, monthly partial payments shall be made as the Services progresses. Applications for partial and Final Payment shall be prepared by the Firm and approved by the Owner in accordance with the Solicitation.

## ARTICLE 5

Contract Binding: The Owner and the Firm each binds itself, its partners, successors, assigns and legal representatives to the other party hereto in respect to all covenants, agreements and obligations contained in the Contract Documents. The Contract Documents constitute the entire agreement between the Owner and Firm and may only be altered, amended or repealed by a duly executed written instrument. Neither the Owner nor the Firm shall, without the prior written consent of the other, assign or sublet in whole or in part its interest under any of the Contract Documents and specifically, the Firm shall not assign any moneys due or to become due without the prior written consent of the Owner.

## ARTICLE 6





**Purchasing Division**

## **Contract Negotiation**

**4824-20-DH**

### **Professional Architectural Services for Fire Station #3**

#### **SECTION 4.0: SPECIFICATIONS/SCOPE OF SERVICES**

- 41. General/Background:** The City of Grand Junction is interested in hiring a professional licensed architect to provide design and construction collaboration services for the construction of the new Fire Station #3 facility to be located south of the existing Fire Station #3, in Grand Junction, CO. This property is currently owned by School District 51 and will be swapped with the current Fire Station #3 property owned by the City once the new fire station is completed.

Fire station #3 shall be a full-service fire station with firefighters certified as emergency medical service (EMS) technicians. Station square footage requirements are estimated to be approximately 10,900 square feet and capable of housing 3 to 4 pieces of fire equipment including an engine and ambulance. The station will be staffed 24 hours a day (3 shifts of up to 8 fire personnel). Central HVAC plus special ventilation systems will be required. An amount equal to one percent (1%) of the construction expenditures will be used to provide for artwork at the facility. A list of minimum and optional building/site requirements are included in this solicitation package.

The timeline for this project is ambitious. All planning, design and construction efforts will be expedited to the extent possible. The City is desirous of a late (Fall) 2021 occupancy date.

**NOTE:** The City of Grand Junction owns plans from the previously developed and constructed Fire Station #6 and intends to use these plans as the basis for the new Fire Station #3 development and construction (See attached PDF plans). Actual electronic plans will be provided to the awarded architectural firm. The architect will work with the City to modify the existing plans, as needed, for the new fire station. From this, the awarded firm shall provide final drawings, scope, and specifications for the new proposed Fire Station #3. It is the City's intent that

**these plans serve as a prototype design for future fire stations of similar size.**

#### **4.2. Special Conditions/Provisions:**

**4.2.1 Price/Fees:** Project pricing shall be all inclusive, to include, but not be limited to: labor, materials, equipment, travel, design, meetings, drawings, engineering work, shipping/freight, licenses, fees, etc.

Provide a not to exceed cost using Solicitation Response Form found in Section 7, accompanied by a complete list of costs breakdown.

All fees will be considered by the Owner to be negotiable.

**4.2.2 Codes:** All designs shall be in accordance with most current and applicable State, Federal, County, and Municipal building codes and regulations pertaining to fire station construction.

#### **4.3. Specifications/Scope of Services:**

##### **Primary Areas:**

- Residential Space
- Office Space
- Public Space
- Fire Equipment Storage and Maintenance Space
- Apparatus Storage Space
- Department Special Equipment Storage (throughout facility).

##### **Residential Space:**

- Dayroom to accommodate 8-10 personnel.
- Kitchen with three (3) separate food storage lockers (min. 28 cu. ft. ea.) and provisions for three (3) refrigerators (min. 22 cu. ft. ea.), two (2) microwaves, one (1) dishwasher, and one (1) gas stove.
- Dining area sufficient in size for 8-10 personnel
- Eight (8) individual bedrooms each with: 3 clothing lockers (min. 44 cu. ft. ea.), cable service, phone service and computer connections with sufficient space for a desk.
- Minimum of three (3) individual restrooms with one (1) shower, one (1) sink, one (1) toilet, and one (1) urinal in each.
- Laundry room with washer and dryer hookups, a utility sink, and storage for laundry supplies. (2 washer/dryer sets preferred)

##### **Office Space:**

- Office #1 with individual workspace for 4 fire personnel, each with a computer, 1-2 shared desk phones and 1 shared printer/fax/copier unit. Combine FS6 BC office to this space to make workspace and conference/training area.
- Office #2 is a private office with workspace for 1 fire Captain with a desk phone, computer and printer.

##### **Public Space:**

- One (1) public unisex restroom.

- Space for a drinking fountain/bottle fill.

**Fire Fighter and Equipment Storage/Maintenance Space:**

- Shop area
- Bunker storage and cleaning area (28 bunker set minimum)
- Physical fitness room
- Hose cleaning, drying and storage area. A hose tower is preferred for drying hose.
- EMS storage area
- General supplies storage area
- 900 Square foot storage room for Hazmat supplies

**Fire Apparatus Storage Space:**

- Three (3) drive-through bays (minimum - 60 feet long) with full length floor trench drains in each
- Apparatus exhaust system, AIRVAC 911 Exhaust Removal System
- Infrared radiant heat throughout
- Three (3) phase electrical power (208 volt) supply for air trailer
- Six (6) ceiling mounted, retractable, compressed air cord reels (copper piped to fixed compressor)
- Six (6) ceiling mounted, retractable, electric cord reels
- Two (2) ceiling mounted, 2" cold water outlets with shut-off valves

**Miscellaneous Equipment Space (located in various places throughout the site):**

- Emergency generator
- Industrial capacity, stationary air compressor
- Bunker gear extraction washer
- Hose washer
- Hose racks
- Radio antenna (800MHz)
- Communication line, fiber optic preferred
- First In station alerting system
- Flagpole
- Information Technology (IT) room (minimum 8 ft. x 8 ft.)
- Fire sprinkler system
- Employee parking
- Public parking
- Dumpster enclosure

**The architectural firm awarded as a result of this RFP and subsequent proposal shall:**

- Based on previously developed Fire Station #6 plans, drawings, scope, and specifications, prepare all necessary plans, drawings, scope, and specifications for the construction of Fire Station #3 facility to include site and utility infrastructure.
- Site/utility planning and design, including:
  - Relocation of an existing 18-inch sanitary sewer line to avoid the new building

- Collection of site stormwater into existing storm sewer along 25 ½ Road, including drainage report and Stormwater Management Plan for construction
- Driveway entrance with detached sidewalk to match existing
- Landscape design
  
- Building design and engineering based on the drawings and specifications from Bid Documents #1 and #2, as well as the Requests For Information and Architect's Supplemental Instructions from the construction of Fire Station #6
  
- Develop layout and flow of facility in collaboration with the City Fire Department team
  
- On-site inspection of engineered features
  
- Assurance of specification compliance
  
- Participate with the City Fire Department, Public Works Department, Community Development Department to facilitate required public hearings and neighborhood meetings as a part of the zoning and permit process. In addition, neighborhood stakeholder meetings may be held throughout the process to ensure the neighboring community is kept informed of the process.
  
- All construction drawings shall be stamped by a professional architect, registered in the State of Colorado.
  
- Assist the City in the development of the Invitation for Bid (IFB) for release to the public after Construction Documents have been completed, including attendance at the pre-bid meeting, answering contractor's questions, and reviewing IFB responses.
  
- The Architectural Firm will be required to fully collaborate with the City Project Manager, City Fire Department Team. They shall insure the final design and construction of the facility complies with the requirements of the Fire Department, and City of Grand Junction conditions, covenants and restrictions. The City shall require maximum collaboration by the Design Firm and the Construction Management Firm to insure value engineering through constructability assessments during the preconstruction phase as well as the construction phase of the project.
  
- All finalized drawings, plans, scope, specifications (both hard copy and electronic, to include CAD versions), shall become the property of the City.

**The City of Grand Junction shall:**

- Provide a Geotechnical Report for the proposed Fire Station #3 project site.
  
- Apply for and coordinate all City required permits, zoning changes, etc. including costs.
  
- Coordinate all utility connections (electric, gas, cable, fiber optic) with the utility owners.

- Provide plans, drawings, scope, and specifications originally developed for Fire Station #6, which shall be the basis for development of plans, drawings, scope and specifications for Fire Station #3.
- Provide a base map of the property showing topographic contour, existing features, property pins, boundary survey, existing ditches, etc. as necessary to develop building site plan. Base map will be provided electronically in AutoCAD Civil3D drawing format.
- Schedule any neighborhood meetings including public notices and mailings.
- Provide a list of mandatory station requirements and optional desires, such as:
  - Delete SCBA Room, not required.
  - Delete lighting control panel.
  - Landscape design shall be a part of this contract.
  - Smoke removal system, AIRVAC 911 Exhaust Removal System.
  - Power for Air Trailer.
  - Move tower windows to the front of the tower (currently at the back at Fire Station #6)
  - Re-evaluate corner windows in shared office/training room for SW orientation
  - Commercial dishwasher in kitchen

**END – Section 4**





**Huddleston-Berry**  
Engineering & Testing, LLC

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**GEOLOGIC HAZARDS AND  
GEOTECHNICAL INVESTIGATION  
FIRE STATION #3  
GRAND JUNCTION, COLORADO  
PROJECT#00208-0112**

**CITY OF GRAND JUNCTION  
333 WEST AVENUE, BLDG C  
GRAND JUNCTION, COLORADO 81501**

**MARCH 26, 2020**

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**Huddleston-Berry Engineering and Testing, LLC  
2789 Riverside Parkway  
Grand Junction, Colorado 81501**

## SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

As part of the development process, a geotechnical investigation was conducted for the proposed new Fire Station #3 in Grand Junction, Colorado. The project location is shown on Figure 1 – Site Location Map. The purpose of the investigation was to evaluate the subsurface conditions at the site with respect to foundation design, pavement design, and earthwork for the proposed construction. This summary has been prepared to include the information required by civil engineers, structural engineers, and contractors involved in the project.

### Subsurface Conditions (p. 2)

The subsurface investigation consisted of five geotechnical borings. The locations of the borings are shown on Figure 2 – Site Plan. The borings generally encountered very soft to medium stiff clay soils to depths of between 37 and 39 feet. The clay soils were underlain by dense gravel and cobble soils to the bottoms of the borings. Groundwater was encountered at depths of between 6.0 and 15.5 feet at the time of the investigation. The native clay soils were indicated to be slightly to moderately plastic and slightly expansive.

### Summary of Foundation Recommendations

- *Foundation Type* – Driven Piles or Helical Piles. (p. 3)

#### *Driven Piles*

- *Pile Type* - Minimum 10¾ inch diameter pipe piles (p. 4)
- *Anticipated Length* – 40 to 49 feet possible. (p. 4)
- *Axial Capacity* – 50 tons for 10¾ inch pipe piles without pile load testing. (p. 4)

#### *Helical Piles*

- *Anticipated Length* – 40 to 54 feet possible. (p. 5)
- *Axial Capacity* – Dependent upon pile load testing; however, 30 to 40 tons anticipated. (p. 5)

#### *General*

- *Seismic Design* – Site Class E (p. 5)
- *Lateral Earth Pressure* – 55 pcf active for controlled fill. 75 pcf at-rest. (p. 7)

### Summary of Pavement Recommendations (p. 8)

#### **Automobile Parking Areas**

EDLA = 5, Structural Number = 2.75

ALTERNATIVE	PAVEMENT SECTION (Inches)				TOTAL
	Hot-Mix Asphalt Pavement	CDOT Class 6 Base Course	CDOT Class 3 Subbase Course	Concrete Pavement	
Full Depth HMA	7.0				7.0
A	3.0	10.0			13.0
B	4.0	7.0			11.0
C	3.0	6.0	6.0		15.0
Rigid Pavement		6.0		6.0	12.0

**Truck Traffic Areas**

EDLA = 30, Structural Number = 3.70

<b>ALTERNATIVE</b>	<b>PAVEMENT SECTION (Inches)</b>				
	<b>Hot-Mix Asphalt Pavement</b>	<b>CDOT Class 6 Base Course</b>	<b>CDOT Class 3 Subbase Course</b>	<b>Concrete Pavement</b>	<b>TOTAL</b>
Full Depth HMA	9.0				9.0
A	3.0	17.0			20.0
B	4.0	14.0			18.0
C	3.0	6.0	16.0		25.0
Rigid Pavement		6.0		8.0	14.0

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## FIGURES

- Figure 1 – Site Location Map
- Figure 2 – Site Plan

## APPENDICES

- Appendix A – USDA Soil Survey Data
- Appendix B – Typed Boring Logs
- Appendix C – Laboratory Testing Results



## **1.0 INTRODUCTION**

As part of continued infrastructure improvements, the City of Grand Junction proposes to construct a new Fire Station. As part of the design development process, Huddleston-Berry Engineering and Testing, LLC (HBET) was retained by the City of Grand Junction to conduct a geotechnical investigation for the project.

### **1.1 Scope**

As discussed above, a geotechnical investigation was conducted for the proposed new Fire Station #3 in Grand Junction, Colorado. The scope of the investigation included the following components:

- Conducting a subsurface investigation to evaluate the subsurface conditions at the site.
- Collecting soil samples and conducting laboratory testing to determine the engineering properties of the soils at the site.
- Providing recommendations for foundation type and subgrade preparation.
- Providing recommendations for bearing capacity.
- Providing recommendations for lateral earth pressure.
- Providing recommendations for drainage, grading, and general earthwork.
- Providing recommendations for pavement section alternatives.

The investigation and report were prepared by a Colorado registered professional engineer in accordance with generally accepted engineering practices. This report has been prepared for the exclusive use of the City of Grand Junction.

### **1.2 Site Location and Description**

The site is located at 582 25½ Road in Grand Junction, Colorado. The project location is shown on Figure 1 – Site Location Map.

At the time of the investigation, the northern portion of the site was occupied by the existing Fire Station #3. The southern portion of the site was a paved parking lot. The site was fairly flat and vegetation was limited to grasses, trees, and bushes in landscaped areas. The site was bordered to the north by Pomona Elementary School, to the south and east by sports fields, and to the west by 25½ Road.

### **1.3 Proposed Construction**

The proposed construction is anticipated to include a new fire station. The structure is anticipated to be grouted masonry construction.



## **2.0 GEOLOGIC SETTING**

### **2.1 Soils**

Soils data was obtained from the USDA Natural Resource Conservation Service Web Soil Survey. The data indicates that the soils at the site consist of Sagers silty clay loam, 0 to 2 percent slopes. Soil survey data is included in Appendix A.

Structure construction in the Sagers soils is described as being somewhat limited due to shrink-swell. Pavement construction in the site soils is indicated to be very limited due to frost action, low strength, and/or shrink-swell. Excavation in the site soils is described as being somewhat limited due to dust and/or unstable excavation walls. The site soils are indicated to have a moderate potential for frost action, moderate risk of corrosion of steel, and moderate risk of corrosion of concrete

### **2.2 Geology**

According to the *Geologic Map of the Grand Junction Quadrangle, Mesa County, Colorado* (2002), the site is underlain by undivided alluvium and colluvium.

### **2.3 Groundwater**

Groundwater was encountered in the subsurface at depths of between 6.0 and 15.5 feet below the existing ground surface at the time of the investigation.

## **3.0 SUBSURFACE INVESTIGATION**

The subsurface investigation consisted of five geotechnical borings drilled on February 21<sup>st</sup>, 2020. The locations of the borings are shown on Figure 2 – Site Plan. Typed boring logs are included in Appendix B. Samples of the subsurface soils were collected using Standard Penetration Testing (SPT) and bulk sampling methods at the depths shown on the logs.

As indicated on the logs, the subsurface conditions at the site were fairly consistent. The borings generally encountered 3 to 4-inches of asphalt pavement above granular base course to depths of between 1 and 2 feet. The base course was underlain by brown, moist to wet, very soft to medium stiff silty clay with sand to lean clay soils to depths of between 37 and 39 feet. The clay soils were underlain by brown, wet, dense to very dense sandy gravel and cobble soils. As discussed previously, groundwater was encountered in the subsurface at depths of between 6.0 and 15.5 feet at the time of the investigation.



## **4.0 LABORATORY TESTING**

Selected soil samples collected from the borings were tested in the Huddleston-Berry Engineering and Testing LLC geotechnical laboratory for natural moisture content, gradation, Atterberg limits, California Bearing Ratio (CBR), and optimum moisture/maximum dry density (Proctor). The laboratory testing results are included in Appendix C.

The laboratory testing results indicate that the native clay soils are slightly to moderately plastic. In addition, the CBR results suggest that the native clay soils are slightly expansive with up to 1.0% expansion measured in the laboratory.

## **5.0 CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Structure Foundations**

As discussed previously, very soft clay soils were encountered in the shallow subsurface. Unfortunately, these soils will provide limited structural support. As a result, HBET recommends that the structure be supported by deep foundations bearing on the dense gravel and cobble soils. Specifically, the recommended foundation alternatives include driven piles and helical piles. The alternatives are discussed in the following sections.

#### Driven Piles

It is anticipated that most of the axial pile capacity will be developed in end bearing in the dense gravel and cobble soils. Therefore, concrete filled pipe piles are recommended.

Based upon the anticipated working loads and pile driving conditions, pipe piles should be a minimum of 10¾ inch diameter. The piles should penetrate the soft clay soils and bear into the dense gravel and cobble soils. The actual penetration of individual piles will be dependent upon driving conditions and size of pile used; however, it is anticipated that the piles will reach refusal within 3 to 10 feet of the top of the gravel and cobble layer. As indicated in the boring logs, the gravel and cobble soils were encountered at depths of between 37 and 39 feet. Therefore, pile lengths of up to approximately 49 feet may be possible (measured from existing grade).

The refusal criterion for driven piles is dependent upon the type and size of the hammer. However, the refusal criteria should be established as the number of blows required for the last few inches of penetration. For a hammer delivering 20,000 foot-pounds of energy to a 10¾ inch pipe pile, we would expect refusal to be at approximately 5 to 8 blows per inch. However, the contractor should coordinate with HBET to develop specific pile refusal criteria for the specific hammer. Due to the nature of the gravel and cobble soils, to reduce the possibility of excessive tip deflection and tip damage, pile tip reinforcement is recommended.



For 10<sup>3</sup>/<sub>4</sub>-inch diameter, concrete filled pipe piles driven to refusal, HBET recommends an allowable geotechnical capacity of 50 tons. In general, a minimum 3/8-inch wall thickness is recommended. However, 1/4-inch wall thickness may be utilized provided the structural engineer and/or contractor can verify that the driving stresses will not damage the thinner walled piles. The lateral capacity of the piles should consider the low lateral support provided by the soft clay soils.

To eliminate reductions in capacity from group effects, the minimum center-to-center spacing of piles should be 3 pile diameters. Group effects should be considered for piles grouped less than 3 diameters apart.

In general, for steel pipe piles driven to refusal, HBET anticipates total settlement will be 1.0-inch or less.

### Helical Piles

Helical piles consist of circular or square steel shafts with load carrying helices attached to them. Some of these types of piers are proprietary. Helical piles typically provide slightly less bearing capacity than driven piles; however, helical piles can be easily battered to accommodate lateral loads. In general, the precise type, size, and quantity of piles should be established by the contractor in conjunction with the structural engineer. However, HBET provides the following design comments.

In general, helical piles should be designed to penetrate the soft clay soils and bear into the dense gravel and cobble soils. It is anticipated that the helical piles will reach refusal within 3 to 15 feet of the top of the gravel and cobble soils. Therefore, pile lengths of up to approximately 54 feet may be possible (measured from existing grade). To eliminate reductions in capacity from group effects, the piles should be spaced a distance equal to three times the diameter of the largest helix.

Based upon our experience with other projects utilizing helical piles, allowable axial capacities of between approximately 30 and 40 tons are anticipated for piles with a minimum shaft diameter of 4-inches. However, higher capacities are possible depending on the specific pile type/size proposed. The actual allowable capacity should be determined based upon the results of pile load testing conducted on the project site prior to final design. Where necessary, piles battered up to 15° should be utilized to carry lateral loads.

In general, for properly installed helical piles, HBET anticipates that total settlements will be 1.0-inch or less. However, this should be verified during pile load testing. A reduction in capacity may be necessary where pile load tests indicate excessive deflection.

## **5.2 Seismic Design Criteria**

As discussed above, the subsurface profile at the site generally consists of soft clay soils above dense gravel and cobble soils. In general, based upon the presence of soft clay soils, the site classifies as Site Class E.



### 5.3 Lateral Resistance for Seismic and Wind Loads

As discussed above, the native clay soils are soft through most of the profile and are anticipated to provide limited lateral capacity for deep foundations. Based upon the results of the subsurface investigation, the following soil parameters are recommended for use in lateral pile capacity analyses:

Depth from Grade (in).	0 to 72	72+
Soil Type	Soft Clay	Soft Clay
Density (pci)	0.0637	0.0318
Cohesion (psi)	3	3
Friction Angle ( $\phi$ )	0	0
$\epsilon_{50}$ (in/in)	0.02	0.02
K (pci)	200	200
Modulus – $K_h$ (pcf)	15	15

In addition to lateral resistance of the piles, lateral resistance can be developed from sliding friction between the floor slab and the ground. In general, for the native soils, a sliding friction angle of 18° is recommended. This corresponds to a friction factor of 0.32.

### 5.4 Non-Structural Floor Slabs and Exterior Flatwork

As discussed previously, moisture sensitive soils were encountered at the site. In general, the only way to eliminate the risk of differential movement of the floor slab would be to support the floor slab on the deep foundations. However, this may be cost prohibitive. Where a conventional floor slab is used, to reduce the potential for excessive differential movement, it is recommended that the floor slab be constructed above a minimum of 24-inches of structural fill. It is also recommended that exterior slabs-on-grade be constructed above a minimum of 12-inches of structural fill.

As discussed previously, the native clay soils were indicated to be slightly expansive when compacted and introduced to excess moisture. However, the magnitude of swell measured in the laboratory was fairly low. Therefore, with careful moisture control and proper compaction, the native soils are generally suitable for re-use as structural fill. Imported structural fill should consist of a granular, non-free draining, non-expansive material approved by HBET.

Prior to placement of structural fill, it is recommended that the bottoms of the excavations be scarified to a depth of 6 to 8-inches, moisture conditioned, and compacted to a minimum of 95% of the standard Proctor maximum dry density within  $\pm 2\%$  of the optimum moisture content as determined in accordance with ASTM D698. However, as discussed previously, shallow groundwater and associated soft soils were present at the site. Therefore, geotextile and/or geogrid reinforcement and up to 30-inches of additional granular fill may be required to stabilize the subgrade. HBET can provide specific recommendations for subgrade stabilization based upon the actual subgrade conditions encountered during construction.



Structural fill should be moisture conditioned, placed in maximum 8-inch loose lifts, and compacted to a minimum of 95% of the standard Proctor maximum dry density for fine grained soils and modified Proctor maximum dry density for coarse grained soils, within  $\pm 2\%$  of the optimum moisture content as determined in accordance with ASTM D698 and D1557, respectively.

For the slab pads prepared as recommended with structural fill consisting of the native soils or imported granular materials, a maximum allowable bearing capacity of 1,000 psf may be used, where necessary. In addition, a modulus of subgrade reaction of 150 pci may be used for structural fill consisting of the native soils. A modulus of 200 pci may be used for approved imported structural fill materials.

Due to the presence of shallow groundwater, a vapor retarder is recommended below floor slabs where moisture sensitive floor coverings are utilized.

### **5.5 Corrosion of Concrete and Steel**

The Soil Survey data indicate that the native soils have a moderate degree of potential sulfate attack on concrete. In addition, water soluble sulfates can vary widely in Western Colorado. Therefore, at a minimum, Type I-II sulfate resistant cement is recommended for construction at this site.

The Soil Survey data also indicates that the native soils are moderately corrosive to uncoated steel. In addition, shallow groundwater was encountered at the site and fluctuations in groundwater levels will increase the risk of corrosion. As a result, HBET recommends that the foundation elements consider corrosion in their design either through galvanization or accounting for section loss.

### **5.6 Lateral Earth Pressures**

Stemwalls, below grade walls, and/or retaining walls should be designed to resist lateral earth pressures. For backfill consisting of the native soils or suitable imported materials, we recommend that the walls be designed for an active equivalent fluid unit weight of 55 pcf in areas where no surcharge loads are present. An at-rest equivalent fluid unit weight of 75 pcf is recommended for basement or other braced walls. Lateral earth pressures should be increased as necessary to reflect any surcharge loading behind the walls.

In general, HBET recommends that passive pressure be ignored for retaining walls. However, if passive pressure is used, a passive equivalent fluid unit weight of 350 pcf is appropriate for the native soils.



## 5.7 Site Grading and Drainage

The success of the foundations, pavements, floor slabs, and exterior flatwork is dependent upon proper drainage. Therefore, grading at the site should be designed to carry precipitation and runoff away from the structure. It is recommended that the finished ground surface drop at least six inches within the first ten feet away from the structure. However, where impermeable surfaces (i.e. sidewalks, pavements, etc.) are adjacent to the structure, the grade can be reduced to 2.5-inches (ADA grade) within the first ten feet away from the structure.

Downspouts should empty beyond the backfill zone. It is recommended that landscaping within five feet of the structure include primarily desert plants with low water requirements. In addition, it is recommended that automatic irrigation within ten feet of foundations be minimized.

## 5.8 Excavations

Excavations in the native soils at the site may stand for short periods of time but should not be considered to be stable. Trenching and excavations should be sloped back, shored, or shielded for worker protection in accordance with applicable OSHA standards. The existing fill generally classify as Type C soil with regard to OSHA's *Construction Standards for Excavations*. For Type C soils, the maximum allowable slope in temporary cuts is 1.5H:1V.

## 5.9 Pavements

The design California Bearing Ratio (CBR) of the native soils was determined in the laboratory to be less than 2.0. Therefore, the minimum recommended Resilient Modulus of 3,000 psi was used for the pavement section design.

Based upon the subgrade conditions and anticipated traffic loading, pavement section alternatives were developed in accordance with AASHTO design methodologies. The following minimum pavement section alternatives are recommended:

### Automobile Parking Areas

EDLA = 5, Structural Number = 2.75

ALTERNATIVE	PAVEMENT SECTION (Inches)				TOTAL
	Hot-Mix Asphalt Pavement	CDOT Class 6 Base Course	CDOT Class 3 Subbase Course	Concrete Pavement	
Full Depth HMA	7.0				7.0
A	3.0	10.0			13.0
B	4.0	7.0			11.0
C	3.0	6.0	6.0		15.0
Rigid Pavement		6.0		6.0	12.0



### Truck Traffic Areas

EDLA = 30, Structural Number = 3.70

ALTERNATIVE	PAVEMENT SECTION (Inches)				TOTAL
	Hot-Mix Asphalt Pavement	CDOT Class 6 Base Course	CDOT Class 3 Subbase Course	Concrete Pavement	
Full Depth HMA	9.0				9.0
A	3.0	17.0			20.0
B	4.0	14.0			18.0
C	3.0	6.0	16.0		25.0
Rigid Pavement		6.0		8.0	14.0

Prior to pavement placement, areas to be paved should be stripped of all topsoil and other deleterious materials. It is recommended that the subgrade be scarified to a depth of 12-inches; moisture conditioned, and recompact to a minimum of 95% of the standard Proctor maximum dry density, within  $\pm 2\%$  of optimum moisture content as determined by AASHTO T-99. However, as discussed previously, soft soils were encountered at the site and subgrade stabilization using geotextile and/or geogrid in conjunction with up to 30-inches of granular fill may be required. HBET should be contacted to provide specific recommendations for subgrade stabilization based upon the actual subgrade conditions during construction.

Aggregate base course and subbase course should be placed in maximum 9-inch loose lifts, moisture conditioned, and compacted to a minimum of 95% and 93% of the maximum dry density, respectively, at  $-2\%$  to  $+3\%$  of optimum moisture content as determined by AASHTO T-180. In addition to density testing, base course should be proofrolled to verify subgrade stability.

It is recommended that Hot-Mix Asphaltic (HMA) pavement conform to CDOT grading SX or S specifications and consist of an approved 75 gyration Superpave method mix design. HMA pavement should be compacted to between 92% and 96% of the maximum theoretical density. An end point stress of 50 psi should be used. It is recommended that rigid pavements consist of CDOT Class P concrete or alternative approved by the Engineer. Dowels at transverse joints and tie bars at longitudinal joints should be considered to limit the potential for differential movements between panels. In addition, reinforcement of the concrete should be considered to limit cracking.

The long-term performance of the pavements is dependent on positive drainage away from the pavements. Ditches, culverts, and inlet structures in the vicinity of paved areas must be maintained to prevent ponding of water on the pavement.

## 6.0 GENERAL

The recommendations included above are based upon the results of the subsurface investigation and on our local experience. These conclusions and recommendations are valid only for the proposed construction.



As discussed previously, the subsurface conditions at the site were fairly consistent. Although HBET believes that the investigation was sufficient to adequately characterize the range of subsurface conditions at the site, the precise nature and extent of subsurface variability may not become evident until construction. Therefore, it is recommended that a representative of HBET be retained to provide engineering oversight and construction materials testing services during the construction. This is to verify compliance with the recommendations included in this report or permit identification of variations in the subsurface conditions which may require modification of the recommendations.

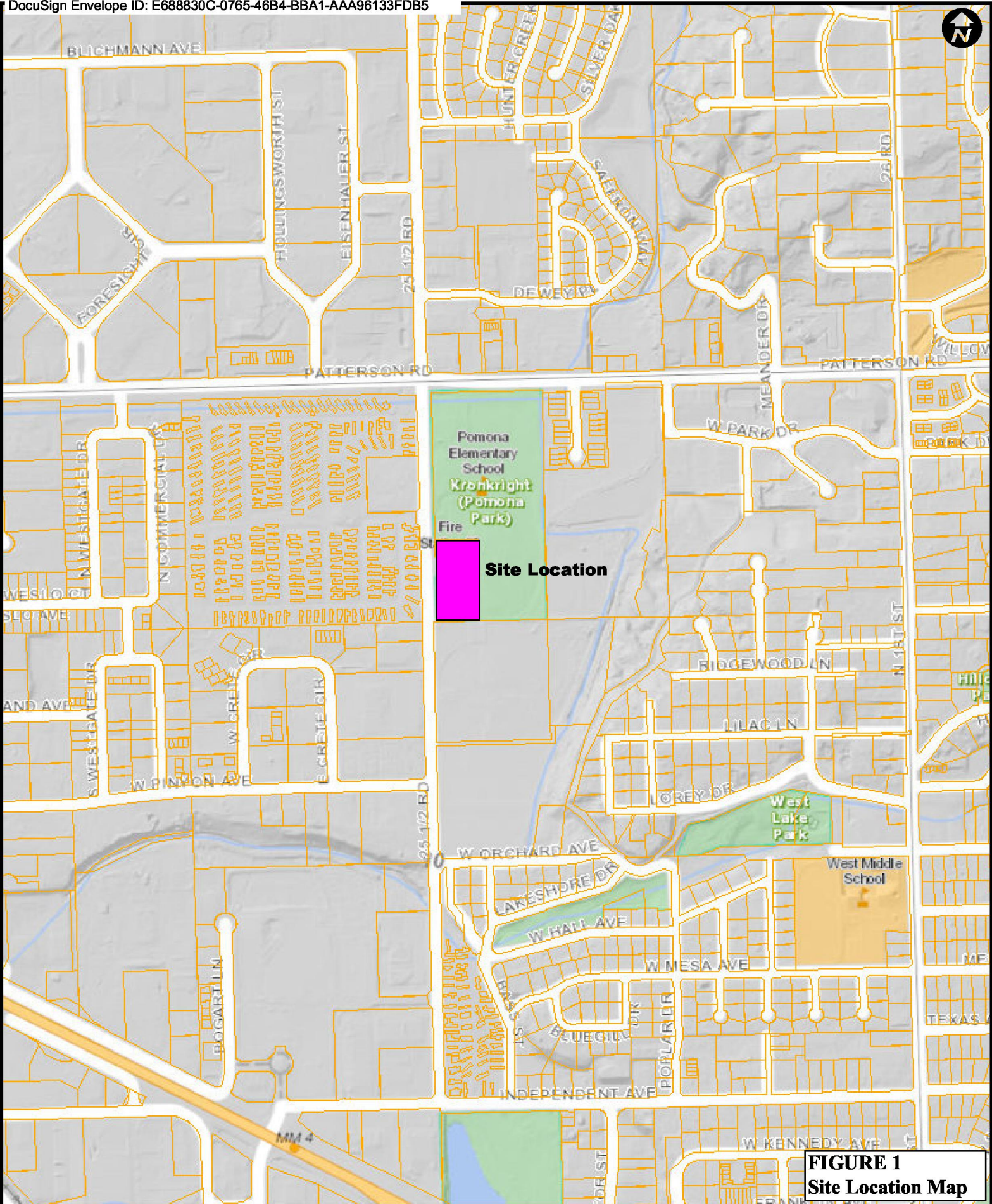
Huddleston-Berry Engineering and Testing, LLC is pleased to be of service to your project. Please contact us if you have any questions or comments regarding the contents of this report.

Respectfully Submitted:  
**Huddleston-Berry Engineering and Testing, LLC**



Michael A. Berry, P.E.  
Vice President of Engineering

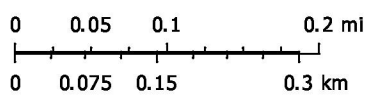
**FIGURES**



**FIGURE 1**  
**Site Location Map**

### Mesa County Map

The Geographic Information System (GIS) and its components are designed as a source of reference for answering inquiries, for planning and for modeling. GIS is not intended or does not replace legal description information in the chain of title and other information contained in official government records such as the County Clerk and Records office or the courts. In addition, the representations of location in this GIS cannot be substituted for actual legal surveys. The information contained herein is believed accurate and suitable for the limited uses, and subject to the limitations, set forth above. Mesa County makes no warranty as to the accuracy or suitability of any information contained herein. Users assume all risk and responsibility for any and all damages, including consequential damages, which may flow from the user's use of this information.



Print Date: March 26, 2020



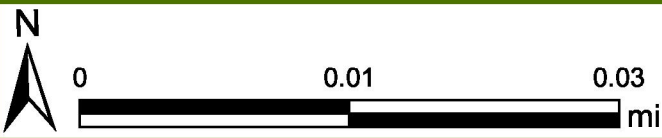
**Mesa County, Colorado**

GIS/IT Department  
gis.mesacounty.us

# City of Grand Junction



**FIGURE 2**  
**Site Plan**



Printed: 3/26/2020  
1 inch equals 47 feet  
Scale: 1:564



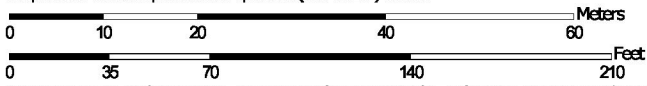
**APPENDIX A**  
**USDA Soil Survey Data**

Soil Map—Mesa County Area, Colorado



Soil Map may not be valid at this scale.

Map Scale: 1:803 if printed on A portrait (8.5" x 11") sheet.




Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84



Soil Map—Mesa County Area, Colorado

**MAP LEGEND**

**Area of Interest (AOI)**

 Area of Interest (AOI)

**Soils**

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

**Special Point Features**

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

**Water Features**

 Streams and Canals

**Transportation**

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

**Background**

 Aerial Photography

**MAP INFORMATION**

The soil surveys that comprise your AOI were mapped at 1:24,000.

**Warning:** Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Mesa County Area, Colorado  
 Survey Area Data: Version 10, Sep 13, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 13, 2010—Aug 8, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Bc	Sagers silty clay loam, 0 to 2 percent slopes	2.5	100.0%
<b>Totals for Area of Interest</b>		<b>2.5</b>	<b>100.0%</b>

## Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named, soils that are similar to the named components, and some minor components that differ in use and management from the major soils.

Most of the soils similar to the major components have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Some minor components, however, have properties and behavior characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

## Report—Map Unit Description

### Mesa County Area, Colorado

#### Bc—Sagers silty clay loam, 0 to 2 percent slopes

##### Map Unit Setting

*National map unit symbol:* k0bq

*Elevation:* 4,490 to 5,900 feet

*Mean annual precipitation:* 6 to 9 inches  
*Mean annual air temperature:* 50 to 55 degrees F  
*Frost-free period:* 140 to 180 days  
*Farmland classification:* Prime farmland if irrigated

### Map Unit Composition

*Sagers and similar soils:* 90 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Sagers

#### Setting

*Landform:* Terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear, concave  
*Across-slope shape:* Linear  
*Parent material:* Cretaceous source alluvium derived from sandstone and shale

#### Typical profile

*Ap - 0 to 12 inches:* silty clay loam  
*C - 12 to 25 inches:* silty clay loam  
*Cy - 25 to 60 inches:* silty clay loam

#### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):*  
 Moderately high (0.21 to 0.71 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum in profile:* 15 percent  
*Gypsum, maximum in profile:* 5 percent  
*Salinity, maximum in profile:* Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)  
*Available water storage in profile:* High (about 9.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 4e  
*Land capability classification (nonirrigated):* 7c  
*Hydrologic Soil Group:* C  
*Ecological site:* Desert Loam (Shadscale) (R034BY106UT)  
*Hydric soil rating:* No

## Data Source Information

Soil Survey Area: Mesa County Area, Colorado  
 Survey Area Data: Version 10, Sep 13, 2019

## Dwellings and Small Commercial Buildings

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. This table shows the degree and kind of soil limitations that affect dwellings and small commercial buildings.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

*Dwellings* are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.



*Small commercial buildings* are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design.

## Report—Dwellings and Small Commercial Buildings

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Dwellings and Small Commercial Buildings—Mesa County Area, Colorado							
Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Bc—Sagers silty clay loam, 0 to 2 percent slopes							
Sagers	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.03	Shrink-swell	0.03	Shrink-swell	0.03

## Data Source Information

Soil Survey Area: Mesa County Area, Colorado

Survey Area Data: Version 10, Sep 13, 2019

## Roads and Streets, Shallow Excavations, and Lawns and Landscaping

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. This table shows the degree and kind of soil limitations that affect local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

*Local roads and streets* have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

*Shallow excavations* are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

*Lawns and landscaping* require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design.

## Report—Roads and Streets, Shallow Excavations, and Lawns and Landscaping

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Mesa County Area, Colorado							
Map symbol and soil name	Pct. of map unit	Lawns and landscaping		Local roads and streets		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Bc—Sagers silty clay loam, 0 to 2 percent slopes							
Sagers	90	Somewhat limited		Very limited		Somewhat limited	
		Dusty	0.50	Low strength	1.00	Dusty	0.50
				Frost action	0.50	Unstable excavation walls	0.01
				Shrink-swell	0.03		

## Data Source Information

Soil Survey Area: Mesa County Area, Colorado

Survey Area Data: Version 10, Sep 13, 2019

## Soil Features

This table gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

*Subsidence* is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage, or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

*Potential for frost action* is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, saturated hydraulic conductivity (Ksat), content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

*Risk of corrosion* pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

## Report—Soil Features

Soil Features—Mesa County Area, Colorado									
Map symbol and soil name	Restrictive Layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<i>Low-RV-High</i>	<i>Range</i>		<i>Low-High</i>	<i>Low-High</i>			
		<i>In</i>	<i>In</i>		<i>In</i>	<i>In</i>			
Bc—Sagers silty clay loam, 0 to 2 percent slopes									
Sagers		—	—		0	0	Moderate	Moderate	Moderate

## Data Source Information

Soil Survey Area: Mesa County Area, Colorado

Survey Area Data: Version 10, Sep 13, 2019



**APPENDIX B**  
**Typed Boring Logs**





Huddlestone-Berry Engineering & Testing, LLC  
 2789 Riverside Parkway  
 Grand Junction, CO 81501  
 970-255-8005

**BORING NUMBER B-1**  
 PAGE 1 OF 1

**CLIENT** City of Grand Junction **PROJECT NAME** Fire Station #3  
**PROJECT NUMBER** 00208-0112 **PROJECT LOCATION** Grand Junction, CO  
**DATE STARTED** 2/21/20 **COMPLETED** 2/21/20 **GROUND ELEVATION** \_\_\_\_\_ **HOLE SIZE** 4-inches  
**DRILLING CONTRACTOR** S. McKracken **GROUND WATER LEVELS:**  
**DRILLING METHOD** Simco 2000 Track Rig **▽ AT TIME OF DRILLING** 15.5 ft  
**LOGGED BY** SD **CHECKED BY** MAB **▽ AT END OF DRILLING** 15.5 ft  
**NOTES** \_\_\_\_\_ **AFTER DRILLING** --

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		ASPHALT Pavement										
		Granular BASE COURSE										
		Silty CLAY with Sand (CL-ML) to Lean CLAY (cl), brown, moist to wet, very soft to medium stiff ***Lab Classified SS1	SS 1	83	3-3-3 (6)			20	23	18	5	70
5												
			SS 2	89	1-1-1 (2)							
10												
			SS 3	56	1-2-1 (3)							
15												
20												
25												
30												
35												
40		Sandy GRAVEL and COBBLES (gw), brown, wet, dense to very dense										

Bottom of hole at 40.0 feet.

GEO TECH BH COLUMNS 00208-0112 FIRE STATION 3.GPJ GINT US LAB.GDT 3/26/20



Huddleston-Berry Engineering & Testing, LLC  
 2789 Riverside Parkway  
 Grand Junction, CO 81501  
 970-255-8005

**BORING NUMBER B-2**

**CLIENT** City of Grand Junction **PROJECT NAME** Fire Station #3  
**PROJECT NUMBER** 00208-0112 **PROJECT LOCATION** Grand Junction, CO  
**DATE STARTED** 2/21/20 **COMPLETED** 2/21/20 **GROUND ELEVATION** \_\_\_\_\_ **HOLE SIZE** 4-inches  
**DRILLING CONTRACTOR** S. McCracken **GROUND WATER LEVELS:**  
**DRILLING METHOD** Simco 2000 Track Rig **▽ AT TIME OF DRILLING** 7.0 ft  
**LOGGED BY** SD **CHECKED BY** MAB **▽ AT END OF DRILLING** 7.0 ft  
**NOTES** \_\_\_\_\_ **AFTER DRILLING** --

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		ASPHALT Pavement										
		Granular BASE COURSE										
		Silty CLAY with Sand (cl-mI) to Lean CLAY (cl), brown, moist to wet, soft to medium stiff	SS 1	22	5-3-4 (7)							
5												
			SS 2	100	1-1-2 (3)							
10												
			SS 3	100	1-2-3 (5)							
15												
20												
25												
30												
35												
		***Cone driven from 37' to 41'	SS 4	0	27-30-32-36 (62)							
40		Sandy GRAVEL and COBBLES (gw), brown, wet, dense to very dense	SS 5	0	46-45-48-50 (93)							
		Bottom of hole at 41.0 feet.										

GEOTECH BH COLUMNS 00208-0112 FIRE STATION 3.GPJ GINT US LAB.GDT 3/26/20



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 970-255-8005

**BORING NUMBER B-3**

PAGE 1 OF 1

**CLIENT** City of Grand Junction **PROJECT NAME** Fire Station #3  
**PROJECT NUMBER** 00208-0112 **PROJECT LOCATION** Grand Junction, CO  
**DATE STARTED** 2/21/20 **COMPLETED** 2/21/20 **GROUND ELEVATION** \_\_\_\_\_ **HOLE SIZE** 4-inches  
**DRILLING CONTRACTOR** S. McCracken **GROUND WATER LEVELS:**  
**DRILLING METHOD** Simco 2000 Track Rig **▽ AT TIME OF DRILLING** 6.0 ft  
**LOGGED BY** SD **CHECKED BY** MAB **▽ AT END OF DRILLING** 6.0 ft  
**NOTES** \_\_\_\_\_ **AFTER DRILLING** --

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		ASPHALT Pavement										
		Granular BASE COURSE										
		Silty CLAY with Sand (cl-mI) to Lean CLAY (CL), brown, moist to wet, very soft to medium dense	SS 1	22	2-1-1 (2)							
5			SS 2	0	2-1-2 (3)							
10												
		***Lab Classified SS3	SS 3	94	2-3-3 (6)			23	34	18	16	96
15												
20												
25												
30												
35												
		***Cone driven from 36' to 43'	SS 4	0	24-30-36-35 (66)							
		Sandy GRAVEL and COBBLES (gw), brown, wet, dense to very dense	SS 5	0	30-38-44-43 (82)							
			SS 6	0	40-43-44-40 (87)							
			SS 7	0	45-73							
		Bottom of hole at 43.0 feet.										

GEOTECH\BH COLUMNS 00208-0112 FIRE STATION 3.GPJ GINT US LAB.GDT 3/26/20



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 2789 Riverside Parkway  
 Grand Junction, CO 81501  
 970-255-8005

**BORING NUMBER B-4**

PAGE 1 OF 1

**CLIENT** City of Grand Junction **PROJECT NAME** Fire Station #3  
**PROJECT NUMBER** 00208-0112 **PROJECT LOCATION** Grand Junction, CO  
**DATE STARTED** 2/21/20 **COMPLETED** 2/21/20 **GROUND ELEVATION** \_\_\_\_\_ **HOLE SIZE** 4-inches  
**DRILLING CONTRACTOR** S. McCracken **GROUND WATER LEVELS:**  
**DRILLING METHOD** Simco 2000 Track Rig **▽ AT TIME OF DRILLING** 9.0 ft  
**LOGGED BY** SD **CHECKED BY** MAB **▽ AT END OF DRILLING** 9.0 ft  
**NOTES** \_\_\_\_\_ **AFTER DRILLING** --

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		ASPHALT Pavement										
		Granular BASE COURSE										
5		Silty CLAY with Sand (cl-mI) to Lean CLAY (cl), brown, moist to wet, very soft to medium stiff	SS 1	0	1-2-1 (3)							
10			SS 2	100	0-1-1 (2)							
15												
20												
25												
30												
35		***Cone driven from 35' to 44'	SS 3	0	25-31-34-32 (65)							
			SS 4	0	32-30-31-31 (61)							
40		Sandy GRAVEL and COBBLES (gw), brown, wet, dense to very dense	SS 5	0	36-37-38-37 (75)							
			SS 6	0	38-40-40-36 (80)							
			SS 7	0	38-65							
		Bottom of hole at 44.0 feet.										

GEO TECH BH COLUMNS 00208-0112 FIRE STATION 3.GPJ GINT US LAB.GDT 3/26/20



Huddleston-Berry Engineering & Testing, LLC  
 2789 Riverside Parkway  
 Grand Junction, CO 81501  
 970-255-8005

**BORING NUMBER B-5**

**CLIENT** City of Grand Junction **PROJECT NAME** Fire Station #3  
**PROJECT NUMBER** 00208-0112 **PROJECT LOCATION** Grand Junction, CO  
**DATE STARTED** 2/21/20 **COMPLETED** 2/21/20 **GROUND ELEVATION** \_\_\_\_\_ **HOLE SIZE** 4-inches  
**DRILLING CONTRACTOR** S. McCracken **GROUND WATER LEVELS:**  
**DRILLING METHOD** Simco 2000 Track Rig **AT TIME OF DRILLING** dry  
**LOGGED BY** SD **CHECKED BY** MAB **AT END OF DRILLING** dry  
**NOTES** \_\_\_\_\_ **AFTER DRILLING** --

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0.0		ASPHALT Pavement										
		Granular BASE COURSE										
2.5		Silty CLAY with Sand (cl-mi) to Lean CLAY (cl), brown, moist, medium stiff										
5.0												
7.5												
10.0												
		Bottom of hole at 11.5 feet.										

GEOTECH\BH COLUMNS 00208-0112 FIRE STATION 3.GPJ GINT US LAB.GDT 3/26/20

**APPENDIX C**  
**Laboratory Testing Results**



Huddlestone-Berry Engineering & Testing, LLC  
 2789 Riverside Parkway  
 Grand Junction, CO 81501  
 970-255-8005

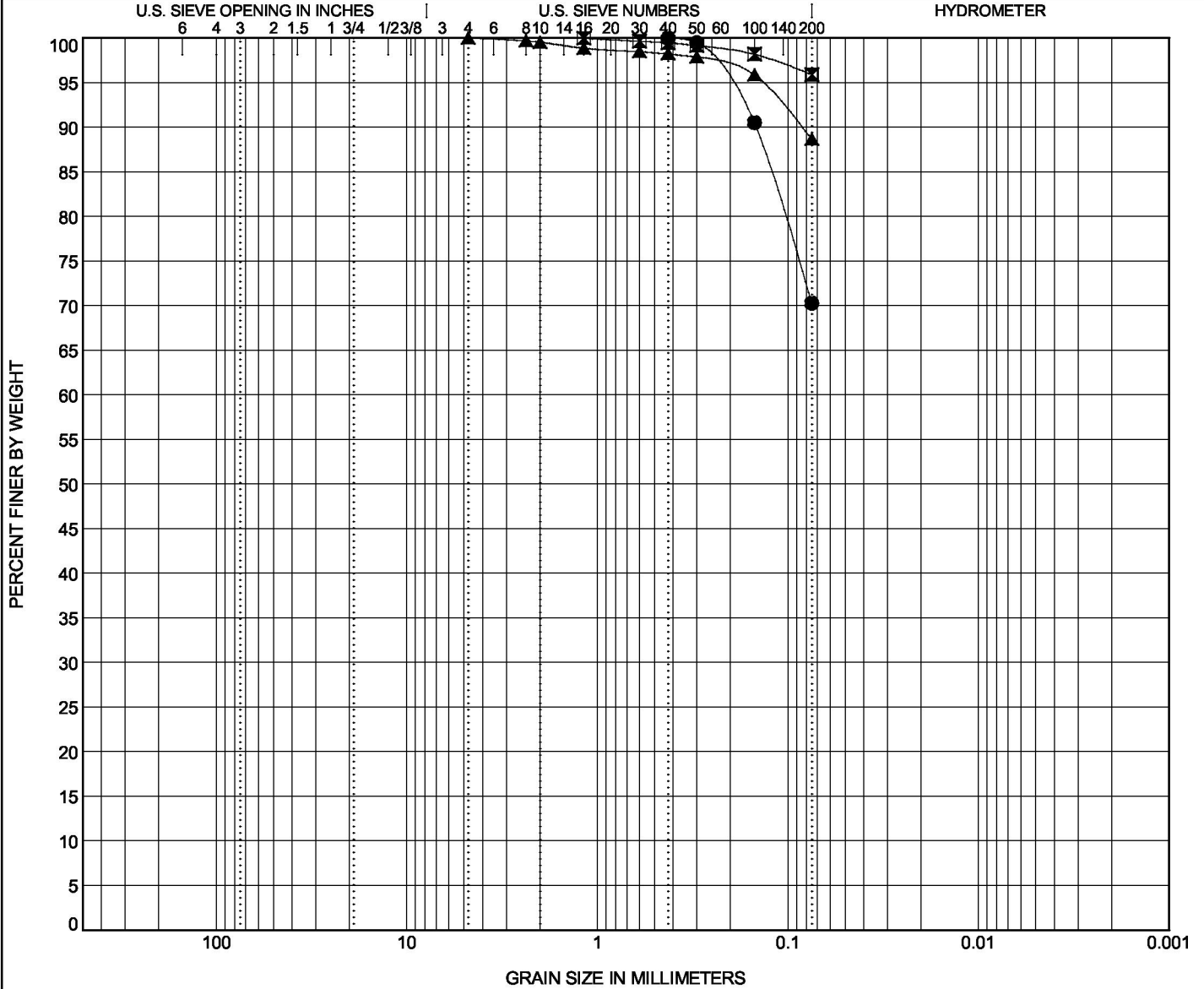
# GRAIN SIZE DISTRIBUTION

CLIENT City of Grand Junction

PROJECT NAME Fire Station #3

PROJECT NUMBER 00208-0112

PROJECT LOCATION Grand Junction, CO



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	LL	PL	PI	Cc	Cu
● B-1, SS1 2/20	<b>SILTY CLAY with SAND(CL-ML)</b>	<b>23</b>	<b>18</b>	<b>5</b>		
⊠ B-3, SS3 2/20	<b>LEAN CLAY(CL)</b>	<b>34</b>	<b>18</b>	<b>16</b>		
▲ Composite 2/20	<b>LEAN CLAY(CL)</b>	<b>30</b>	<b>19</b>	<b>11</b>		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-1, SS1 2/20	<b>0.425</b>				<b>0.0</b>	<b>29.7</b>	<b>70.3</b>	
⊠ B-3, SS3 2/20	<b>1.18</b>				<b>0.0</b>	<b>4.1</b>	<b>95.9</b>	
▲ Composite 2/20	<b>4.75</b>				<b>0.0</b>	<b>11.4</b>	<b>88.6</b>	

GRAIN SIZE 00208-0112 FIRE STATION 3.GPJ GINT US LAB.GDT 3/26/20







Huddleston-Berry Engineering & Testing, LLC  
 2789 Riverside Parkway  
 Grand Junction, CO 81501  
 970-255-8005

# MOISTURE-DENSITY RELATIONSHIP

CLIENT City of Grand Junction

PROJECT NAME Fire Station #3

PROJECT NUMBER 00208-0112

PROJECT LOCATION Grand Junction, CO

Sample Date: 2/21/2020  
 Sample No.: 1  
 Source of Material: Composite  
 Description of Material: LEAN CLAY(CL)  
 Test Method: ASTM D698A

## TEST RESULTS

Maximum Dry Density 114.5 PCF  
 Optimum Water Content 15.0 %

### GRADATION RESULTS (% PASSING)

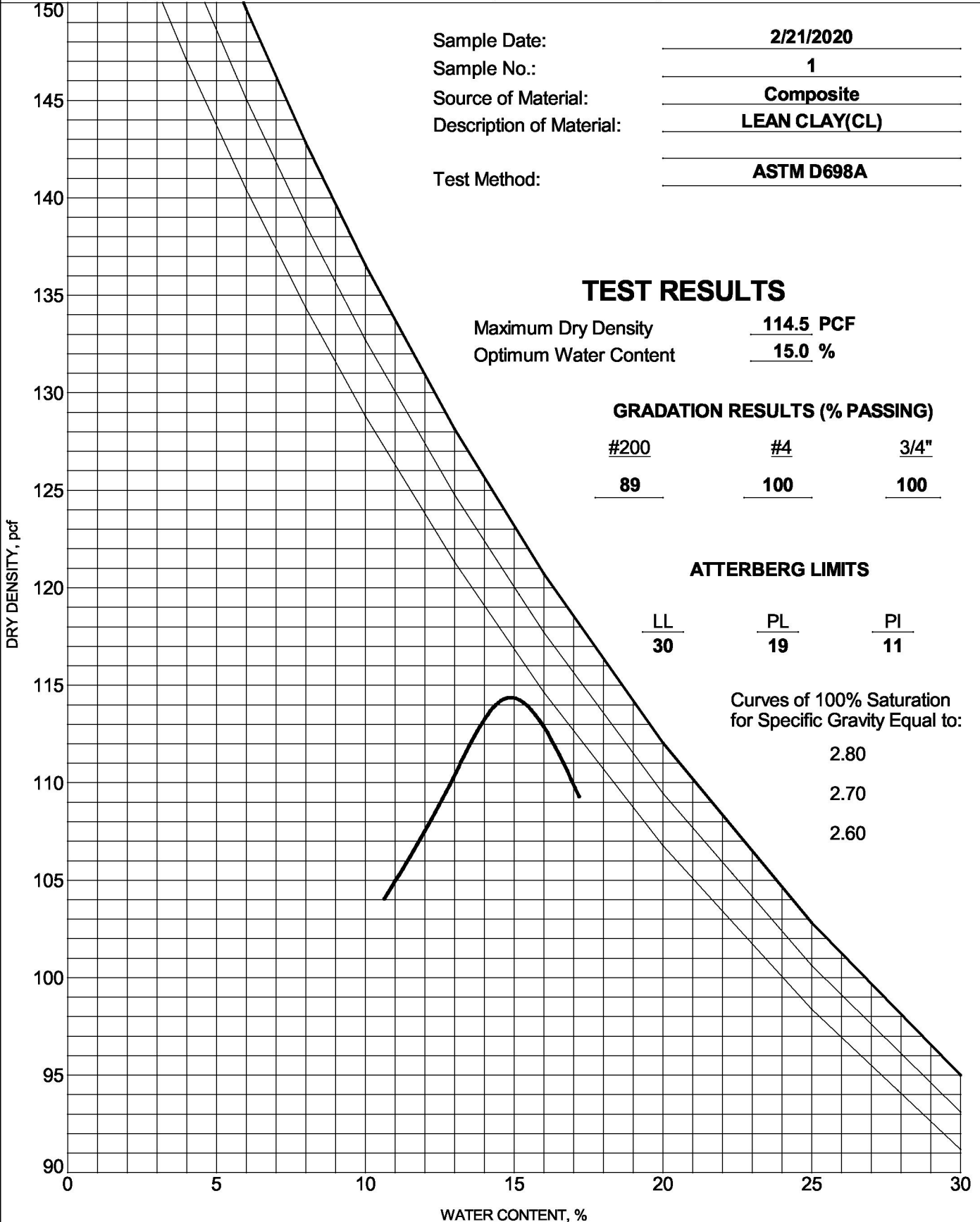
#200	#4	3/4"
<u>89</u>	<u>100</u>	<u>100</u>

### ATTERBERG LIMITS

LL	PL	PI
<u>30</u>	<u>19</u>	<u>11</u>

Curves of 100% Saturation  
 for Specific Gravity Equal to:

- 2.80
- 2.70
- 2.60



COMPACTION 00208-0112 FIRE STATION 3.GPJ GINT US LAB.GDT 3/26/20



**Huddleston-Berry**  
Engineering & Testing, LLC

**CALIFORNIA BEARING RATIO**  
**ASTM D1883**

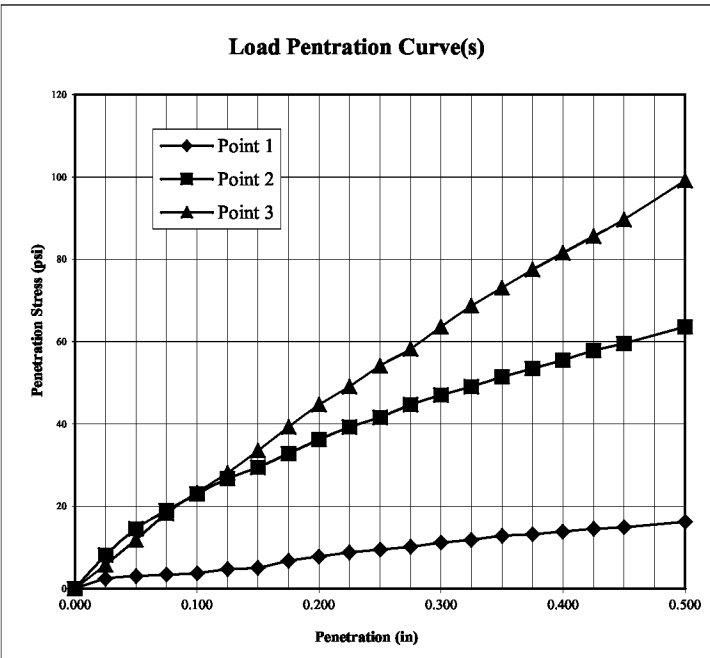
**Project No.:** 00208-0112  
**Project Name:** Fire Station #3  
**Client Name:** City of Grand Junction  
**Sample Number:** 20-0140 **Location:** Composite

**Authorized By:** Client **Date:** 02/21/20  
**Sampled By:** SD **Date:** 02/21/20  
**Submitted By:** SD **Date:** 02/21/20  
**Reviewed By:** MAB **Date:** 03/25/20

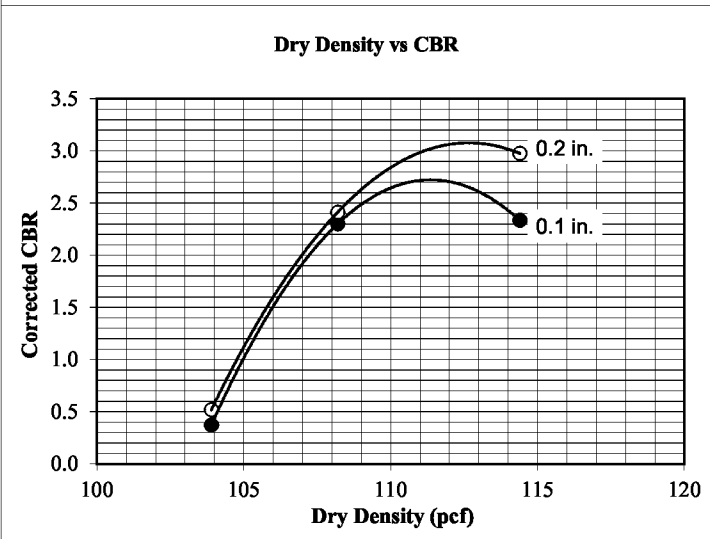
**Compaction Method:** ASTM D698, Method A

**Maximum Dry Density (pcf):** 114.5  
**Opt. Moisture Content (%):** 15.0  
**Sample Condition:** Soaked  
**Remarks:**

Sample Data			
	Point 1	Point 2	Point 3
Blows per Compacted Lift:	15	25	56
Surcharge Weight (lbs):	10.0	10.0	10.0
Dry Density Before Soak (pcf):	103.9	108.2	114.4
Dry Density After Soak (pcf):	103.0	107.1	113.5
Moisture Content (%)	Bottom Pre-Test	14.5	13.9
	Top Pre-Test	14.6	14.3
	Top 1" After Test	20.5	18.3
	Average After Soak:	25.0	17.6
Percent Swell After Soak:	0.9	1.0	0.8



Penetration Data								
Point 1			Point 2			Point 3		
Dist. (in)	Load (lbs)	Stress (psi)	Dist. (in)	Load (lbs)	Stress (psi)	Dist. (in)	Load (lbs)	Stress (psi)
0.000	0	0	0.000	0	0	0.000	0	0
0.025	7	2	0.025	24	8	0.025	17	6
0.050	9	3	0.050	43	15	0.050	35	12
0.075	10	3	0.075	56	19	0.075	54	18
0.100	11	4	0.100	68	23	0.100	69	23
0.125	14	5	0.125	79	27	0.125	83	28
0.150	15	5	0.150	87	29	0.150	99	33
0.175	20	7	0.175	97	33	0.175	116	39
0.200	23	8	0.200	107	36	0.200	132	45
0.225	26	9	0.225	116	39	0.225	145	49
0.250	28	9	0.250	123	42	0.250	160	54
0.275	30	10	0.275	132	45	0.275	172	58
0.300	33	11	0.300	139	47	0.300	188	64
0.325	35	12	0.325	145	49	0.325	203	69
0.350	38	13	0.350	152	51	0.350	216	73
0.375	39	13	0.375	158	53	0.375	229	77
0.400	41	14	0.400	164	55	0.400	241	82
0.425	43	15	0.425	171	58	0.425	253	86
0.450	44	15	0.450	176	60	0.450	265	90
0.500	48	16	0.500	188	64	0.500	293	99



Corrected CBR @ 0.1"		
0.4	2.3	2.3
Corrected CBR @ 0.2"		
0.5	2.4	3.0

Penetration Distance Correction (in)		
0.000	0.000	0.000

**Figure:** \_\_\_\_\_

# City of Grand Junction

**REVISED** Proposal for Professional Architectural Services for Fire Station #3

Grand Junction, CO

November 3, 2020

Response to Contract Negotiation 4824-20-DH



**BG+**co.

Architecture  
Interior Design  
Project Management

622 Read Avenue  
Grand Junction, CO 81501  
970-242-1058 office

BLYTHE GROUP + co.

## Table of Contents

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C	Strategy and Implementation Plan	3
D	Fee Proposal	5
E	Solicitation Response Form	7



*Grand Junction Public Safety Center*

October 16, 2020

City of Grand Junction  
Duane Hoff, Jr, Senior Buyer  
250 North 5th Street  
Grand Junction, CO 81501



Re: Contract Negotiation for  
Professional Architectural Services for Fire Station #3

Dear Mr. Hoff,

BG+co. is pleased to have the opportunity to propose for Professional Architectural Services for Fire Station #3. Our team is well-qualified to provide the necessary services to the City of Grand Junction in development of the construction documents for this new facility. We believe our approach to this project will permit the City time to review the updated drawings while maintaining the tight schedule.

Our service and team will make your time more efficient by bringing the following items to this project:

- Ability to quickly produce drawings for this Fire Station with requested updates.
- Knowledge and experience with tricky geotechnical conditions such as those present at this site.
- Review time with City staff to ensure we have included all updates.

We believe western Colorado is a unique place to do projects; we know you will relate to this statement. Outside firms often come to these areas to do a project and we are greatly surprised at their lack of real knowledge of available labor and materials, soil conditions, approval process, the difference in climates and temperatures. All of this leads to different expectations, promises made which cannot be kept, and delays and additional costs to your projects. We live here and we take a very personal interest in all the projects, just like you, and will be able to account in our schedule, budget, and planning efforts for these differences.

Our team can start on your project as soon as authorized. We can begin creating drawings for the new facility immediately and be ready to meet with appropriate staff shortly thereafter. Our process includes inputting your current design into Revit 3D BIM software. This will permit you to have this BIM model after completion of the project for use in maintenance of the facility.

We would be pleased to have an opportunity to meet with you face to face to discuss our qualifications and how we believe we could make your project successful. We will offer servant leadership to the City of Grand Junction and would love to assist you with this important project.

Sincerely,

A handwritten signature in blue ink that reads 'Peter Icenogle'.

Peter T. Icenogle, AIA  
Director of Architecture  
(970) 778-3439 (d)  
(970) 623-4016 (c)  
picenogle@bgco.com

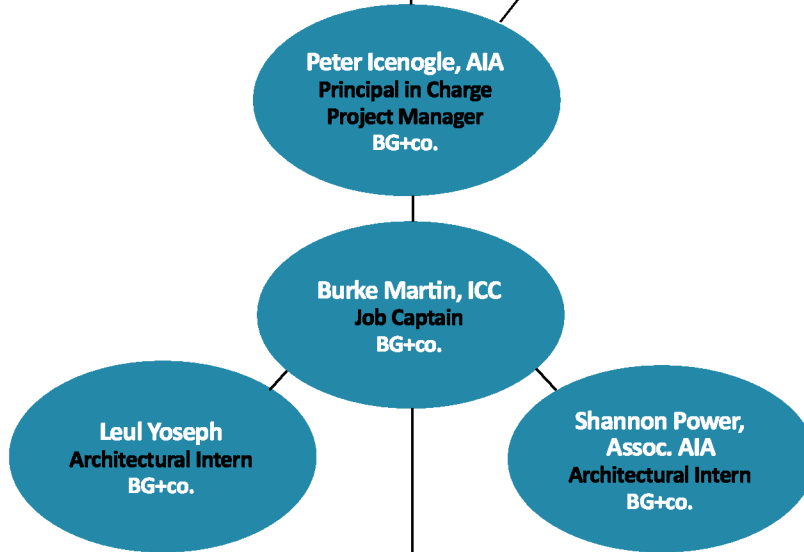
BG+co.  
622 Rood Avenue  
Grand Junction, CO 81501  
www.bgco.com

# Project Team

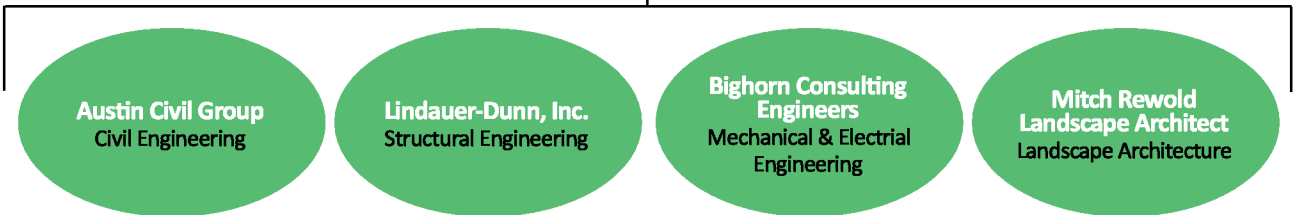
Owner Team



Architecture Team



Consultants



## C Strategy and Implementation Plan

---

The BG+co. team proposes to conduct the scope of services required by the RFP as outlined in the Specifications/ Scope of Services section. The following is a general task and phase outline for the project. Included for each phase of the project are the anticipated time frames for the work.

### Task 1: Drawing Input

- Duration: (3) weeks
- Meetings: (1) to review drawings
- Key Staff: Burke Martin, Peter Icenogle

The goal of Task 1 will be to create our base model of the previous design for use on the project. This model will incorporate drawing sheets matching the previous drawing set utilized on Fire Station #6. We understand this will need to be updated and revised for the current requirements of the facility.

After creation of the base model, we will include all updates as given in the Contract Negotiation and listed during the site visit. The model and drawing sheets will then be reviewed with City personnel for completion of necessary changes and to receive any final updates.

When the model has been updated, it will be distributed to our design team for use in creation of their drawings.

Concurrently with the model creation, we will provide the necessary footprint and building access information to Austin Civil Group to enable creation of the initial site plan. With this plan we will discuss with you any concerns and issues we see. Armed with the solutions to those concerns, our team will move forward with the necessary documents for the site plan review process.

### Task 1A: Site Design

- Duration: (6) weeks (begins concurrently with Task 1)
- Meetings: (1) additional from Task 1 to review drawing status and questions
- Key Staff: Peter Icenogle, Burke Martin

Task 1A will be to complete the drawing set required for submittal for the planning clearance. This will begin concurrently with Task 1 and will extend into Task 2.

### Task 2: Drawing Completion

- Duration: (4) weeks
- Meetings: (1) to review drawing status and comments
- Key Staff: Burke Martin

Task 2 will be to complete the drawing set and project manual for bidding and permitting purposes.

The work in this task is expected to run concurrently with the City Planning submittal preparation.

### Task 3: Planning Clearance

- Duration: (8) weeks (to be verified with City staff, will run concurrently with Task 2)
- Meetings: (1) to review planning clearance comments and formulate responses
- Key Staff: Peter Icenogle, Burke Martin

Task 3 will be to assist the City in making the site plan review submittal to City Planning. This task will likely require the longest time frame which may allow the design team time to complete the drawings and project manual required for bidding purposes.

## C Strategy and Implementation Plan

---

### Task 4: Bidding and Permitting

- Duration: (4) weeks
- Meetings: (2) to attend pre-bid meeting and bid opening
- Key Staff: Burke Martin

During Task 4, BG+co. will attend a pre-bid meeting, receive and respond to bidder questions via addenda, attend the bid opening and provide construction documents for the City to submit for permit review to the Mesa County Building Department.

### Task 5: Construction

- Duration: (6) months (to be verified with successful Contractor)
- Meetings: (1) Owner/ Architect/ Contractor meeting per week to review construction progress and provide construction administration services.
- Key Staff: Burke Martin

During construction, BG+co will provide weekly site visits concurrent with attendance at the OAC meeting. Throughout construction, we will respond to Requests for Information (RFI), issue Architect's Supplemental Instructions (ASI), create Proposal Requests (PR), review General Contractor pay applications, review project submittals, perform regular construction observation and other activities typically associated with the Construction Administration phase. As the project nears occupancy, we will provide a punchlist walkthrough and project closout services. BG+co. will also provide a warranty walkthrough, with associated punchlist, at 11 months after occupancy.



## D Fee Proposal

### Fee To Complete Scope of Services

Our proposed fee is presented below and on the "Solicitation Response Form". The following table illustrates our total fee along with breakdowns by design discipline and project phase.

We have also included on the following page:

- BG+co's current hourly rate schedule
- A breakdown of estimated reimbursable expenses

Phase	BG	ACG	MRLA	LDI	BCE	Parametric	Total
Schematic Design	\$ 4,390	\$ 3,500	\$ 400	\$ 3,000	\$ 1,500	\$ -	\$ 12,790
Design Development	\$ 5,580	\$ 12,000	\$ 400	\$ 3,500	\$ 4,500	\$ -	\$ 25,980
Construction Documents	\$ 14,790	\$ 3,200	\$ 2,600	\$ 6,000	\$ 6,000	\$ 3,800	\$ 36,390
Bidding	Hourly	\$ -	\$ -	\$ -	Hourly	\$ -	Hourly
Construction Administration	\$ 24,620	\$ 5,800	\$ 400	\$ 3,500	\$ 2,250	\$ -	\$ 36,570
<b>Total Fee</b>	<b>\$ 49,380</b>	<b>\$ 24,500</b>	<b>\$ 3,800</b>	<b>\$ 16,000</b>	<b>\$ 14,250</b>	<b>\$ 3,800</b>	<b>\$ 111,730</b>
Estimated Expenses							\$ 1,158
<b>Total Contract Amount</b>							<b>\$ 112,888</b>

### Fee Assumptions

Our proposed fee is based on the following assumptions:

- The City will provide a single point of contact with which the Design Team will communicate.
- As stated in the Contract Negotiation, .rvt or .dwg files will be provided to the design team for creation of the drawing set.
- No changes to the design other than those listed in the Contract Negotiation and clarified during the Site Visit Meeting are included in the fee above. **Collaboration as requested under section 4.3 of the Contract Negotiation is included. Design Team will work with the City to ensure that budget and design requirements are met.**
- All of the requirements listed in Section 4.0 Specifications/ Scope of Services in the Contract Negotiation are included in our scope of services.
- Finish materials will remain as specified and used for Fire Station #6.
- The project manual will include only those specification sections previously included for Fire Station #6. Any front-end specification sections necessary for bidding purposes are also included. Any updates required for specifications based on current software are included.
- Meetings beyond those listed in our response are not included.
- Our design team works in Revit. If required, exported .dwg files will be provided after completion of the project.
- City will provide services and documents as stipulated in the Contract Neogotiation.
- Per the Contract Negotiation, our fee includes design of the 18-inch sanitary sewer relocation; a drainage report and a stormwater management plan (SWMP) for collection of stormwater into the existing storm sewer in 25-1/2 Road; a driveway entrance with detached walk; and, landscape design.
- Per our discussion, our proposal includes a (1) cost estimate to be completed at approximately 75% CD's.
- Our proposal excludes all other services not listed in Section 4.3 of the Contract Negotiation in the "Architectural Firm Shall" bulleted list near the end.

## D Fee Proposal

---

### BG+co Hourly Rates

Principal	\$ 165
Director	\$130
Architect III	\$ 110
Architect II	\$ 90
Architect I	\$ 80
Job Captain	\$ 90
Architectural Intern III/ Job Captain	\$ 75
Architectural Intern II	\$ 65
Architectural Intern I	\$ 55
Project Manager/ Inspector III	\$ 115
Project Manager/ Inspector II	\$ 100
Project Manager/ Inspector I	\$ 85
Clerical	\$ 40

### Estimated Expenses

Included in our fee is an estimated total for reimbursable expenses on the project broken down as follows:

- Construction Documents, (4) printed sets for permitting \$ 828
- Miscellaneous printing \$ 330

**SECTION 7.0: SOLICITATION RESPONSE FORM**

**Contract Neogotation 4824-20-DH Professional Architectural Services for Fire Station #3**

*Offeror must submit entire Form completed, dated and signed.*

**1) Not to exceed cost to provide design services for Fire Station #3, per solicitation documents:**

**NOT TO EXCEED COST \$** 112,888

**WRITTEN:** One Hundred Twelve Thousand, Eight Hundred Eighty-Eight dollars.

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*The Owner reserves the right to accept any portion of the services to be performed at its discretion*  
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The undersigned has thoroughly examined the entire Request for Proposals and therefore submits the proposal and schedule of fees and services attached hereto.

This offer is firm and irrevocable for sixty (60) days after the time and date set for receipt of proposals.

The undersigned Offeror agrees to provide services and products in accordance with the terms and conditions contained in this Request for Proposal and as described in the Offeror's proposal attached hereto; as accepted by the Owner.

Prices in the proposal have not knowingly been disclosed with another provider and will not be prior to award.

- Prices in this proposal have been arrived at independently, without consultation, communication or agreement for the purpose of restricting competition.
- No attempt has been made nor will be to induce any other person or firm to submit a proposal for the purpose of restricting competition.
- The individual signing this proposal certifies they are a legal agent of the offeror, authorized to represent the offeror and is legally responsible for the offer with regard to supporting documentation and prices provided.
- Direct purchases by the City of Grand Junction are tax exempt from Colorado Sales or Use Tax. Tax exempt No. 98-903544. The undersigned certifies that no Federal, State, County or Municipal tax will be added to the above quoted prices.
- City of Grand Junction payment terms shall be Net 30 days.
- Prompt payment discount of zero (0) percent of the net dollar will be offered to the Owner if the invoice is paid within N/A days after the receipt of the invoice.

RECEIPT OF ADDENDA: the undersigned Firm acknowledges receipt of Addenda to the Solicitation, Specifications, and other Contract Documents. State number of Addenda received: \_\_\_\_\_

It is the responsibility of the Proposer to ensure all Addenda have been received and acknowledged.

Blythe Group + co  
Company Name – (Typed or Printed)

  
Authorized Agent Signature

622 Rood Ave  
Address of Offeror

Grand Junction, CO 81501  
City, State, and Zip Code

John M. Potter  
Authorized Agent – (Typed or Printed)

970-242-1058  
Phone Number

jpotter@bgco.com  
E-mail Address of Agent

November 3, 2020  
Date



BG+  
co.

Architecture  
Interior Design  
Project Management

622 Reed Avenue  
Grand Junction, CO 81501  
970-242-1038 office

BLYTHE GROUP + co.

