Town of Johnstown

Police Department Renovation and Expansion Project

Construction Manager at Risk – Request for Proposals

Addendum 2

07/03/2023

RFP Issue Date – June 1, 2023

RFP Questions Due – June 30, 2023

Submission Due Date – July 14, 2023

Point of Contact – Kyle Williams

kwilliams@johnstownco.gov

Town of Johnstown
Police Department Renovation & Expansion Project
Construction Manager @ Risk

Questions and Answers

1. Is the building currently sprinkled?
   No.
2. Do we know the current milling and asphalt depth for the parking lot?
   Please see the attached Geotechnical Report.
3. Do you have an idea of how deep the current asphalt is and possibly what mix we would be using?
   Please see the attached Geotechnical Report.
4. What depth should we expect for base course?
   Please see the attached Geotechnical Report.
5. Is the project going to be tax exempt?
   Yes it should be tax exempt
6. Is third-party testing by the GC?
   Testing and Inspection will be hired by the Town.
7. Are permits and fees by owner?
   Permits and fees should be included in the GC's proposal.
8. Are the added windows to be Bullet resistant glass? If so, if this supplied by owner?
   This is to be determined. Bullet resistant glass will be considered based on budget. Glazing and products will not be supplied by the owner.
9. I see where the added roof is bolded, but just to clarify, is the entire roof to be replaced?
   The base fee should include a full roof replacement, but this will determined later in the build process.
10. Is there a method that the design team has in mind to build the new additions? CMU, Cold-Formed Metal Framing, Wood Framing, etc.?
    The new addition will generally be steel stud with masonry veneer and stucco. Masonry will be used for the Evidence Addition.
11. Should all flooring and Acoustic ceiling be replaced?
    Yes. It will need to match throughout the building.
12. Should all walls be painted in the current space?
    Yes. Interior walls will all need to be painted to match.
13. Should all rubber base be replaced?
    Yes. This will also need to match throughout.

14. In order to keep the department operational, the remodel will likely be done in phases by area. Were the clouded areas on the drawings created for this purpose or is the phasing determined by GC?

    Phasing can be determined as we work through design and consider cost impacts. The shaded areas were not done for phasing purposes but rather pricing exercises. Please breakdown your pricing based on the shaded areas.

15. Is the GC responsible for Fire alarm work? If so, can we know the existing system manufacturer?

    The contractor is responsible for Fire Alarm work yes. The existing system manufacturer is Silent Knight

16. Is the GC responsible for Low Voltage work?

    Yes

17. The existing evidence lockers are to be relocated, correct?

    They can be relocated and may need to be replaced due to their age and the manufacture not servicing them anymore. Please provide a price to relocate and please provide an alternate price to replace them.

18. There is a portion of the qualifications asking for the GC to make edits or suggestion to contract documents provided. We do not see these documents, are they going to be provided?

Attached.

Attachment A

TOWN OF JOHNSTOWN
PROFESSIONAL SERVICES AGREEMENT

THIS PROFESSIONAL SERVICES AGREEMENT (the "Agreement") is made and entered into this ____ day of _____ 20__ (the "Effective Date") by and between the Town of Johnstown, Colorado, a Colorado home-rule municipal corporation (the "Town") and _____, a _____ ("Contractor") (collectively, the "Parties").

RECITALS

WHEREAS, the Town desires to engage the services of Contractor and Contractor desires to provide those services more fully described on Exhibit A, attached hereto and incorporated herein by reference ("Services"), to the Town; and

WHEREAS, the Parties wish to memorialize their contractual relationship.

AGREEMENT

NOW, THEREFORE, incorporating the foregoing Recitals herein and in consideration of the mutual promises, agreements, undertakings and covenants set forth herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby mutually agree as follows:

SECTION 1: PARTIES

1.01 Town. The Town is a home-rule municipal corporation located in Johnstown, Colorado.

1.02 Contractor. Contractor is a private, independent business entity who will exercise discretion and judgment of an independent contractor in the performance and exercise of its rights and obligations under this Agreement.

SECTION 2: SERVICES, COMPENSATION AND TERM

2.01 Services. Contractor agrees to perform the Services for the Town.

2.02 Compensation. In consideration of Contractor's performance of the Services contemplated herein, the Town agrees to pay Contractor the compensation set forth on Exhibit A. Contractor shall submit detailed invoices reflecting the portion of the Services completed to the date of the invoice. The Town shall provide payment for Services to Contractor within thirty (30) days of receipt of the invoice. In its discretion, the Town may withhold payment for disputed portions of invoices on the condition that the Town provides written notice to Contractor of the dispute. Upon delivery of notice, the Town and Contractor shall promptly

endeavor to resolve such dispute.

2.03 Expenses: Contractor shall not incur any expense or debt on behalf of the Town without the Town's prior written authorization.

2.04 Term. Unless otherwise terminated in accordance with Section 5, the term of this Agreement shall be from the Effective Date through August 31, 2023, and shall not extend beyond that date absent the written approval of the Town.

SECTION 3: OPERATIONS

3.01 Contractor Status. Contractor avers that it has the background, expertise and education to provide the Services. Contractor shall be responsible for the proper performance of the Services in accordance with the terms hereof. Contractor shall obtain the necessary permits, if any, and maintain all required licenses, including but not limited to a Town business license.

3.02 Schedule. Unless otherwise set forth in Exhibit A, Contractor shall provide the Services in accordance with the timeline requested by the Town

SECTION 4: INSURANCE AND INDEMNITY PROVISIONS

4.01 Insurance.

A. Contractor understands and agrees that Contractor shall have no right of coverage under any existing or future Town comprehensive or personal injury liability insurance policies. As a material term of this Agreement, Contractor agrees to maintain and keep in force during the term of this Agreement one or more policies of insurance written by one or more responsible insurance carrier(s) authorized to do business in the State of Colorado in the following amounts:

1. Workers' compensation insurance as required by law;

2. Commercial general or business liability insurance with minimum combined single limits of ONE MILLION DOLLARS ($1,000,000.00) each occurrence and TWO MILLION DOLLARS ($2,000,000.00) general aggregate;

3. Automobile liability insurance with minimum combined single limits for bodily injury and property damage of not less than ONE MILLION DOLLARS ($1,000,000) for any one occurrence, with respect to each of Contractor's owned, hired or non-owned vehicles assigned to or used in performance of the Services. In the event that Contractor's insurance does not cover non-owned automobiles, the requirements of this paragraph shall be met by each employee of Contractor who utilizes an automobile in providing services to Town under this Agreement; and

4. Professional liability insurance with minimum limits of ONE MILLION DOLLARS ($1,000,000.00) each claim and TWO MILLION

DOLLARS ($2,000,000.00) general aggregate.

B. Contractor shall procure and maintain the minimum insurance coverages listed herein. All coverages shall be continuously maintained to cover all liability, claims, demands and other obligations assumed by Contractor pursuant to this Agreement. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage. The Town shall have the right to request and receive a certified copy of any policy and any endorsement thereto. Except for workers compensation insurance, the Town shall be listed as an additional insured party on Contractor's insurance policies.

C. A certificate of insurance shall be completed by Contractor's insurance agent(s) as evidence that policies providing the required coverages, conditions and minimum limits are in full force and effect, and, upon request by the Town, shall be subject to review and approval by the Town. The certificate shall identify this Agreement and shall provide that the coverages afforded under the policies shall not be canceled, terminated or materially changed until at least thirty (30) days prior written notice has been given to Town. If the words "endeavor to" appear in the portion of the certificate addressing cancellation, those words shall be stricken from the certificate by the agent(s) completing the certificate. The completed certificate of insurance shall be provided to the Town.

4.02 Damage and Indemnity. Contractor assumes full responsibility for any and all damages caused by Contractor's exercise of its activities, or failures to act, under this Agreement. Contractor agrees that it will at all times protect, defend, indemnify and hold harmless the Town, its elected officials, employees, agents, and their successors and assigns, from and against all liabilities, losses, claims, demands, actions and costs (including reasonable attorneys' fees), arising from or related to loss or damage to property or injury to or death to any persons arising from or resulting in any manner from the actions or failures to act of Contractor or any invitees, guests, agents, employees or subcontractors of Contractor, whether brought by any of such persons or any other person.

SECTION 5: TERMINATION

5.01 Termination. The Town or Contractor may terminate this Agreement, with or without cause, by providing thirty (30) days prior written notice to the other Party. Notwithstanding the foregoing, if the Town terminates this Agreement for cause and determines that a notice period is not in the best interests of the Town, the Town may terminate this Agreement by providing written notice to Contractor effective immediately.

SECTION 6: INDEPENDENT CONTRACTOR

6.01 Independent Contractor. Contractor understands and agrees that Contractor is an independent contractor and not an employee of the Town. The Town shall not provide benefits of any kind to Contractor. The Town shall not be responsible for withholding any portion of Contractor's compensation for the payment of Federal Insurance Contributions Act (FICA) tax, workers' compensation, or other taxes or benefits. CONTRACTOR IS NOT ENTITLED TO UNEMPLOYMENT COMPENSATION COVERAGE FROM THE TOWN. CONTRACTOR

IS OBLIGATED TO PAY FEDERAL AND STATE INCOME TAX ON MONEYS PAID PURSUANT TO THIS AGREEMENT. As long as there is not a conflict of interest with the Town, Contractor may engage in any other lawful business activities during the term of this Agreement.

SECTION 7: NOTICE

7.01 Notices. All notices required under this Agreement shall be in writing and shall be: 1) hand-delivered; 2) sent by registered or certified mail, return receipt requested, postage prepaid, to the addresses of the Parties herein set forth; or 3) sent by electronic mail ("email") return receipt or written acknowledgment requested and received. All notices by hand-delivery shall be effective upon receipt. All notices by mail shall be considered effective seventy-two (72) hours after deposit in the United States mail with the proper address as set forth below. All notices by email shall be effective upon acknowledgment of receipt by the intended recipient. Either party, by notice to be given, may change the address to which future notices shall be sent.

TO THE TOWN:
Town of Johnstown
Attn: _____
450 S. Parish Avenue
P.O. Box 609
Johnstown, CO 80534
Email: _____

TO CONTRACTOR:
[__]
Email: _____

SECTION 8: MISCELLANEOUS

8.01 Time. Time is of the essence of this Agreement and of each covenant hereof.

8.02 Non-Appropriation of Funds. Pursuant to Section 29-1-110, C.R.S., as amended, financial obligations of the Town payable as set forth herein, after the current fiscal year, are contingent upon funds for that purpose being budgeted, appropriated and otherwise made available. This Agreement shall be terminated effective January 1 of the first fiscal year for which funds are not budgeted and appropriated.

8.03 Laws and Regulations. In the conduct of the Services, Contractor shall comply with all applicable laws, rules and regulations, and the directives or instructions issued by the Town or its designated representatives.

8.04 Assignment; Third Party Rights. Contractor may not assign, delegate or subcontract any part of its rights, duties or obligations under this Agreement. The Parties do not intend to confer any benefit hereunder on any person or entity other than the Parties hereto.

8.05 Amendment. This Agreement may not be amended or modified except by a subsequent written instrument signed by the Parties. Course of performance, no matter how long, shall not constitute an amendment to this Agreement.

8.06 Severability. If any part, term or provision of this Agreement is declared unlawful or unenforceable, the remainder of this Agreement shall remain in full force and effect, except that, in the event any state or federal governmental agency or court determines that the relationship between the Town and Contractor is one of employment rather than independent contractor, this Agreement shall become null and void in its entirety.

8.07 Waiver. No consent or waiver, express or implied, by the Town to or of any breach or default by Contractor in the performance by Contractor of its obligations hereunder shall be deemed or construed to be a consent or waiver to or of any other breach or default by the Town. Failure on the part of the Town to complain of any act or failure to act or to declare Contractor in default, irrespective of how long such failure continues, shall not constitute a waiver by the Town of its rights hereunder.

8.08 Governmental Immunity. The Parties agree that the Town is relying on, and does not waive or intend to waive by any provision of the Agreement, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, §§ 24-10-101 *et seq.*, C.R.S., as amended from time, or otherwise available to the Town, its elected officials, employees or agents.

8.09 Applicable Law and Venue. This Agreement shall be construed according to the laws of the State of Colorado. Venue for any claim, proceeding or action arising out of this Agreement shall be in Weld County, State of Colorado.

8.10 Mediation. In the event of any dispute arising under this Agreement, except in the case of an action for injunctive relief, the Parties shall submit the matter to mediation prior to commencing legal action and shall share equally in the cost of the mediation.

8.11 Costs and Attorney's Fees. If any judicial proceedings may hereafter be brought to enforce any of the provisions of this Agreement, the Town, if the prevailing party, shall be entitled to recover the costs of such proceedings, including reasonable attorney's fees and reasonable expert witness fees.

8.12 Entire Agreement. The provisions of this Agreement represent the entire and integrated agreement between the Town and Contractor and supersede all prior negotiations, representations and agreements, whether written or oral.

8.13 Public Official Personal Liability. Nothing herein shall be construed as creating any personal liability on the part of any elected official, employee or agent of the Town.

8.14 No Presumption. Each Party acknowledges that it has carefully read and reviewed the terms of this Agreement. Each Party acknowledges that the entry into and execution of this Agreement is of its own free and voluntary act and deed, without compulsion. Each Party acknowledges that it has obtained, or has had the opportunity to obtain, the advice of legal counsel of its own choosing in connection with the negotiation and execution of this

Agreement and with respect to all matters set forth herein. The Parties agree that this Agreement reflects the joint drafting efforts of all Parties and in the event of any dispute, disagreement or controversy arising from this agreement, the Parties shall be considered joint authors and no provision shall be interpreted against any Party because of authorship.

8.15 Controlling Document. In the event of a conflict between the provisions in this Agreement and Exhibit A, the provisions in this Agreement shall control.

8.16 Headings. The headings in this Agreement are inserted only for the purpose of convenient reference and in no way define, limit or prescribe the scope or intent of this Agreement or any part thereof.

8.17 Counterparts. This Agreement may be executed in counterparts, each of which shall be an original, but all of which, together, shall constitute one and the same instrument.

8.18 Data Security. If Contractor has access to personal identifying information during the term of this Agreement, Contractor shall, pursuant to Section 24-73-101, *et seq.*, C.R.S., destroy all paper and electronic documents containing such personal identifying information within six months of termination of this Agreement, unless otherwise required by law. During the term of this Agreement, Contractor shall implement and maintain reasonable security procedures that are appropriate to the nature of the personal identifying information disclosed or maintained and that are reasonably designed to help protect the information from unauthorized access, use, modification, disclosure or destruction. If Contractor discovers or is informed of a security breach, Contractor shall give the Town notice in the most expedient time and without unreasonable delay, no later than ten (10) calendar days after it is determined a security breach occurred. Contractor shall cooperate with the Town in the event of a security breach that compromises computerized data, if misuse of personal information about a Colorado resident occurred or is likely to occur. Cooperation includes sharing with the Town information relevant to the security breach.

8.19 Right to Injunction. The Parties hereto acknowledge that the Services to be rendered by Contractor and the rights and privileges granted to the Town under the Agreement are of a special, unique, unusual and extraordinary character which gives them a peculiar value, the loss of which may not be reasonably or adequately compensated by damages in any action at law, and the breach by Contractor of any of the provisions of this Agreement may cause the Town irreparable injury and damage. Contractor agrees that the Town, in addition to other relief at law, shall be entitled to injunctive and other equitable relief in the event of, or to prevent, a breach of any provision of this Agreement by Contractor.

[Remainder of page intentionally left blank.]

IN WITNESS WHEREOF, the parties have executed this Agreement on the date first written above.

TOWN OF JOHNSTOWN, COLORADO

ATTEST:

By:_____ By:_____
Hannah Hill, Town Clerk , Mayor or Town Manager

_____

By:_____
Name:
Title:

STATE OF COLORADO)
) ss
COUNTY OF _____)

SUBSCRIBED AND SWORN to before me this _____day of _____, 20_____, by _____ as the _____ of _____.

WITNESS my hand and official seal.

My commission expires:_____

_____
Notary Public

EXHIBIT A
SERVICES

Kumar & Associates, Inc.®
Geotechnical and Materials Engineers
and Environmental Scientists

800 Stockton Avenue, #4
Fort Collins, CO 80524
phone: (970) 416-9045
fax: (970) 416-9040
email: kaftcollins@kumarusa.com
www.kumarusa.com

An Employee Owned Company

Office Locations: Denver (HQ), Parker, Colorado Springs, Fort Collins, Glenwood Springs, and Summit County, Colorado

GEOTECHNICAL ENGINEERING STUDY
AND PAVEMENT THICKNESS DESIGN
PROPOSED JOHNSTOWN POLICE DEPARTMENT IMPROVEMENTS
430 SOUTH PARISH AVENUE
JOHNSTOWN, COLORADO

Prepared By:

Jacob A. Hanson, P.E.

COLORADO REGISTERED
JACOB ALEXANDER HANSON
54404
4-18-23
PROFESSIONAL ENGINEER

Reviewed By:

Joshua L. Barker, P.E.

Prepared For:

D2C Architects
1212 South Broadway, Suite 250
Denver, CO 80210

Attn: Mr. Eric Combs

Project No. 23-3-133

April 18, 2023

TABLE OF CONTENTS

SUMMARY

1. A total of five (5) exploratory borings were drilled for this study at the approximate locations shown on Fig. 1. The borings generally encountered either sod surfacing or approximately 3.5 to 4.5 inches of asphalt pavement overlying approximately 10 to 14.5 inches of aggregate base course. The surface materials were underlain by about 2.5 to 4 feet of man-placed fill which was in turn underlain by layers of naturally deposited (natural) clayey and granular soils. The natural soils were underlain by claystone bedrock with sandstone bedrock interbeds that extended to the explored depths of about 30 to 35 feet below the ground surface. Borings P-1 through P-3 encountered the natural soils underlying the man-placed fill that extended to the explored depths of about 5 to 10 feet below the ground surface.

   The man-placed fill consisted of sandy lean clay to clayey sand. The natural clayey soils consisted of lean clay with sand to sandy lean clay. The natural granular soils consisted of silty sand to clayey sand to poorly graded sand with silt.

   Groundwater was encountered in Borings 1 and 2 at depths of about 12 to 15 feet below the ground surface at the time of drilling. Groundwater was encountered in Boring 2 at a depth of about 12 feet when subsequently checked 8 days after drilling. Groundwater levels are expected to fluctuate with time and may fluctuate upward after wet weather.

2. Shallow spread footing foundations should be feasible provided they are underlain by a minimum of 2 feet of properly compacted structural fill underlain by undisturbed natural soils. Footings should be designed for a net allowable bearing pressure of 2,000 psf.

3. Slab-on-grade construction is also feasible at the site. Slab on grade floors should be underlain by a minimum of 2 feet of properly compacted fill material extending to undisturbed natural soils. Additional design considerations and recommendations are presented herein.

4. For proper performance of the building foundation and floor slab, existing fill, underlying building areas should be completely removed, and replaced at the moisture and density requirements provided herein.

5. The following table presents the minimum pavement thickness recommendations for this development.

Paved Area	Full Depth Asphalt (inches)	Composite Section Asphalt/ABC (inches)	PCCP (inches)
Light Duty	6.0	4.0 / 7.0	6.0
Heavy Duty	7.0	4.5 / 7.0	7.0

ABC – Aggregate Base Course
PCCP – Portland Cement Concrete Pavement

All pavements should be placed on a minimum of 2 feet of moisture-density conditioned on-site overburden soils.

PURPOSE AND SCOPE OF STUDY

This report presents the results of a geotechnical engineering study and pavement thickness design for the proposed Johnstown Police Department improvements and associated development to be located at 430 South Parish Avenue in Johnstown, Colorado. The study was conducted for the purpose of developing building foundation, floor slab and site paving recommendations. This study was performed in general accordance with our Proposal No. P3-22-323 to D2C Architects dated December 8, 2022.

A field exploration program consisting of exploratory borings was conducted to obtain information on subsurface conditions. Samples of the soils and bedrock obtained during the field exploration program were tested in the laboratory to determine their classification and engineering characteristics. The results of the field exploration program and laboratory testing were analyzed to develop geotechnical engineering recommendations for use in site earthwork and in design and construction of the proposed development.

This report has been prepared to summarize the data obtained during this study and to present our conclusions and recommendations based on the proposed construction and the subsurface conditions encountered. Design parameters and a discussion of geotechnical engineering considerations related to construction of the proposed development are included in the report.

PROPOSED DEVELOPMENT

Based on the site plans provided, the proposed improvements will consist of two (2) covered parking canopies as well as additions to the existing building near the northwest and southwest corners of the existing building. The building additions will include construction an approximately 1,150 ft^2 dual-bay Sally Port on the west side of the existing building and an approximate 550 ft^2 evidence vehicle bay will be constructed west of the proposed Sally Port. Additionally, an approximately 500 ft^2 evidence processing room will be constructed near the northwest corner of the building and an approximately 1,200 ft^2 training room expansion will be constructed near the southwest corner of the existing building.

If the proposed development varies significantly from that generally described above or depicted throughout this report, we should be notified to reevaluate the recommendations provided herein.

SITE CONDITIONS

The site contained the existing police station building surrounded by asphalt paved parking lots and drive lanes. Areas away from the building contained landscaped areas with sod surfacing and trees. A drainage area was noted west of the west parking lot. The site is generally flat with minimal slope down towards the east. The site is bounded to the north by a library building, to the east by County Road 17, to the south by Settler Way and to the west by Castle Pines Avenue.

SUBSURFACE CONDITIONS

Information on the subsurface conditions was obtained by drilling a total of six (6) exploratory borings at the locations shown on Fig. 1. Graphic logs of the borings are presented on Fig. 2 and a legend and notes describing the soils encountered is presented on Fig. 3.

The borings generally encountered either sod surfacing or approximately 3.5 to 4.5 inches of asphalt pavement overlying approximately 10 to 14.5 inches of aggregate base course. The surface materials were underlain by about 2.5 to 4 feet of man-placed fill which was in turn underlain by layers of naturally deposited (natural) clayey and granular soils. The natural soils were underlain by claystone bedrock with sandstone bedrock interbeds that extended to the explored depths of about 30 to 35 feet below the ground surface. Borings P-1 through P-3 encountered the natural soils underlying the man-placed fill that extended to the explored depths of about 5 to 10 feet below the ground surface.

The man-placed fill consisted of sandy lean clay to clayey sand. The natural clayey soils consisted of lean clay with sand to sandy lean clay. The natural granular soils consisted of silty sand to clayey sand to poorly graded sand with silt.

The man-placed fill contained a fine to coarse grained sand fraction and was slightly moist to moist and brown to dark brown. The natural clayey soils contained a fine to coarse grained sand fraction and were moist to wet below groundwater and brown. The natural granular soils were fine to coarse grained, slightly moist to wet below groundwater and brown. The claystone bedrock with sandstone bedrock interbeds was fine to medium grained, moist and brown to gray. Based on sampler penetration resistance, the natural clayey soils had consistencies ranging from soft to very stiff, the natural granular soils were loose to medium dense and the bedrock was hard to very hard. Nil to weak cementation was noted in the sandstone bedrock.

Groundwater was encountered in Borings 1 and 2 at depths of about 12 to 15 feet below the ground surface at the time of drilling. Groundwater was encountered in Boring 2 at a depth of about 12 feet when subsequently checked 18 days after drilling. Groundwater levels are expected to fluctuate with time and may fluctuate upward after wet weather.

LABORATORY TESTING

Laboratory testing was performed on selected samples obtained from the borings to determine in-situ moisture content and dry density, Atterberg limits, swell-consolidation characteristics, and water soluble sulfates. The results of the laboratory tests are shown next to the boring logs on Fig. 2, graphically plotted on Figs. 4 and 5, and summarized in the attached Table I. The testing was conducted in general accordance with recognized test procedures, primarily those of ASTM and the Colorado Department of Transportation (CDOT).

Index Properties: Samples were classified into categories of similar engineering properties in general accordance with the Unified Soil Classification System. This system is based on index properties, including liquid limit and plasticity index and gradation characteristics. Values for moisture content and dry density, liquid limit and plasticity index, and the percent of soil passing the U.S. No. 4 and No. 200 sieves are presented in Table I and adjacent to the corresponding sample on the boring logs.

Swell-Consolidation: Swell-consolidation tests were conducted on samples of the man-placed fill, natural clayey soils and bedrock in order to determine their compressibility and swell characteristics under loading and when submerged in water. Each sample was prepared and placed in a confining ring between porous discs, subjected to a surcharge pressure of 200 or 1,000 psf, and allowed to consolidate before being submerged in water. The samples were then inundated with water, and the change in sample height was measured with a dial gauge. The sample heights were monitored until deformation practically ceased under each load increment.

Results of the swell-consolidation tests are presented on Figs. 4 and 5 as plots of the curve of the final strain at each increment of pressure against the log of the pressure. Based on the results of the laboratory swell-consolidation testing, samples of the man-placed fill exhibited low swell potential (0.2% and 0.4%) upon wetting under a 200 psf surcharge pressure. A sample of the natural clayey soils exhibited low swell potential (0.1%) upon wetting under a 1,000 psf surcharge pressure. A sample of claystone bedrock exhibited low consolidation potential (0.1%) upon wetting under a 1,000 psf surcharge pressure. Based on our experience with claystone bedrock

in the area, the consolidation of the sample of claystone bedrock was likely due to sample disturbance.

WATER SOLUBLE SULFATES

The concentration of water soluble sulfates measured in a sample of the natural clayey soils obtained from the exploratory borings was 0.03%. This concentration of water soluble sulfates represents a Class S0 severity exposure to sulfate attack on concrete exposed to these materials. These degrees of attack are based on a range of Class S0, Class S1, Class S2, and Class S3 severity exposure as presented in ACI 201.2R-16.

Based on the laboratory test results, we believe special sulfate resistant cement will not be required for concrete exposed to the on-site soils.

GEOTECHNICAL ENGINEERING CONSIDERATIONS

Existing Fill: Without documentation of placement conditions including density testing documenting the degree of compaction, the existing fill materials are considered non-engineered and generally not suitable for support of foundations or floor slabs. Based upon the results of the laboratory testing, the existing fill materials are estimated to have erratic moisture contents well below to near the assumed optimum moisture content, which in turn indicates a potential for movement of structures or slabs constructed on the undocumented fills upon structural loading.

Criteria for shallow spread footing foundations are presented below; however, it is very important to the long-term performance of the building that all of the existing fill materials be removed from below the proposed foundation elements and floor slabs and to a distance beyond the building area as outlined in Item 7 of the “Foundation Recommendations” section below. In our opinion, the removed fill, excluding deleterious materials, is suitable to be moisture conditioned and recompacted as structural fill below foundation elements, floor slabs and exterior flatwork. We have no way to accurately predict the total magnitude of potential settlements if the existing fill is left in place; however, movements exceeding 1-inch are possible. As discussed above, to reduce settlement potential, all existing fills beneath planned foundations and slabs-on-grade should be removed and replaced with structural fill, placed and compacted according to the material and placement criteria presented in the “Site Grading” section of this report.

Our experience indicates that the subgrade soils below existing pavements may have moisture contents above the optimum moisture content and may require drying and processing before use as site fill.

Removal of Existing Structures: Projects, such as this one, that may require demolition of existing structures can be problematic unless the contractor is careful during structure removal and backfill. The contractor should anticipate the need to completely remove the existing structure foundations during demolition. The voids left by the foundation removal process should be properly backfilled according the requirements outlined in the "Site Grading" section of this report. Failure to properly moisture condition and compact the materials may result in unacceptable movements of the proposed structure foundation elements and floor slabs.

We recommend that excavation not be performed within 1 horizontal to 1 vertical of the adjacent existing building foundations.

FOUNDATION RECOMMENDATIONS

Considering the subsurface conditions encountered in the exploratory borings and the nature of the proposed construction, we recommend the structures be founded on spread footings placed on a minimum of 2 feet of properly compacted structural fill extending to undisturbed natural soils. Areas of existing fill, loose and/or soft material (including natural soils), or deleterious substances encountered within foundations excavations should be removed and replaced with properly compacted structural fill.

Spread Footings: The design and construction criteria presented below should be observed for a spread footing foundation system. The construction details should be considered when preparing project documents.

1. Footings placed on a minimum of 2 feet of properly compacted structural fill extending to undisturbed natural soils should be designed for a net allowable soil bearing pressure of 2,000 psf. The fill should meet the material and placement requirements provided in the "Site Grading" section of this report.

2. Based on experience, we estimate total settlement for footings designed and constructed as discussed in this section will be less than 1-inch. Differential foundation settlements across the building are estimated to be approximately ½ to ¾ of the total settlement.

3. Spread footings should have a minimum footing width of 16 inches for continuous footings and of 24 inches for isolated pads.

4. Exterior footings and footings beneath unheated areas should be provided with adequate soil cover above their bearing elevation for frost protection. Placement of foundations at least 30 inches below the exterior grade is typically used in this area.

5. The lateral resistance of a spread footing placed on properly compacted structural fill will be a combination of the sliding resistance of the footing on the foundation materials and passive earth pressure against the side of the footing. Resistance to sliding at the bottoms of the footings can be calculated based on a coefficient of friction of 0.30. Passive pressure against the sides of the footings can be calculated using an equivalent fluid unit weight of 185 pcf. The above values are working values with a factor of safety applied.

6. Compacted fill placed against the sides of the footings to resist lateral loads should be a non-expansive material. Fill should be placed and compacted to at least 95% of the standard Proctor (ASTM D698) maximum dry density at a moisture content near optimum.

7. The results of our field exploration program indicate existing fill may be encountered in foundation excavations below the proposed foundation bearing elevations. The existing fill material should be removed to adequate natural bearing material. Areas of loose or soft material and/or deleterious substances encountered within the foundation excavation should also be removed and the zone of sub-excavation extended to adequate bearing material. Removed materials should be replaced per the recommendations listed in the "Site Grading" section of this report. New compacted structural fill should extend down and out from the edges of the footings at a 1 horizontal to 1 vertical projection.

8. Continuous foundation walls should be reinforced top and bottom to span an unsupported length of at least 10 feet.

9. Areas of existing fill, loose and/or soft material, or deleterious substances encountered within footing excavations should be removed and replaced with structural fill.

10. Care should be taken when excavating the foundations to avoid disturbing the supporting materials.

11. A representative of the geotechnical engineer should observe all footing excavations prior to concrete placement.

FLOOR SLABS

We recommend that slabs on grade be placed on a minimum of 2 feet of properly compacted structural fill extending to undisturbed natural soils to mitigate the potential for movement due to swelling of existing fill material remaining beneath the floor slabs. The owner should be made aware that there is an increased risk of floor slab movements if existing fills are left in place below floor slabs.

To reduce the effects of some differential movement, floor slabs should be separated from all bearing walls and columns with expansion joints which allow unrestrained vertical movement. Interior non-bearing partitions resting on floor slabs should be provided with slip joints so that, if the slabs move, the movement cannot be transmitted to the upper structure. This detail is also important for wallboards, stairways and door frames. Slip joints which will allow at least 1½ inches of vertical movement are recommended.

Floor slab control joints should be used to reduce damage due to shrinkage cracking. Joint spacing is dependent on slab thickness, concrete aggregate size, and slump, and should be consistent with recognized guidelines such as those of the Portland Cement Association (PCA) and American Concrete Institute (ACI). The joint spacing and slab reinforcement should be established by the designer based on experience and the intended slab use. We suggest joints be provided on the order of about 12 to 15 feet apart in both directions. The requirements for slab reinforcement should be established by the designer based on experience and the intended slab use.

If moisture-sensitive floor coverings will be used, mitigation of moisture penetration into the slabs, such as by use of a vapor barrier, may be required. If an impervious vapor barrier membrane is used, special precautions will be required to prevent differential curing problems which could cause the slabs to warp. ACI 302 “Guide for Concrete Floor and slab construction”, provides guidance on these issues.

SITE SEISMIC CRITERIA

The soil profile generally consists of approximately 22 to 25 feet of overburden soils overlying hard to very hard claystone. According to the International Building Code (IBC) and Chapter 20

of ASCE 7, the overburden soils encountered at the site generally classify as IBC Site Class C or D, and the bedrock encountered classifies as Site Class C. Based on the soil and bedrock profile encountered in our borings and the standard penetration testing from the field exploration, the estimated weighted average of shear wave velocity in the upper 100 feet indicates that IBC Site Class D should be used in the design. Based on the subsurface profile, site seismicity, and the anticipated ground water conditions, liquefaction is not a design consideration.

SURFACE DRAINAGE

Proper surface drainage is very important for acceptable performance of the building during construction and after the construction has been completed. Drainage recommendations provided by local, state and national entities should be followed based on the intended use of the structures. The following recommendations should be used as guidelines and changes should be made only after consultation with the geotechnical engineer.

1. Excessive wetting or drying of the foundation and slab subgrades should be avoided during construction.

2. Exterior backfill should be adjusted to near optimum moisture content (generally within 2 percentage points of optimum unless indicated otherwise in the report) and compacted to at least 95% of the ASTM D 698 (standard Proctor) maximum dry density. Backfill material should meet the requirements stated in the “Site Grading” section of the report.

3. Care should be taken when compacting around the foundation walls and underground structures to avoid damage to the structure. Hand compaction procedures, if necessary, should be used to prevent lateral pressures from exceeding the design values.

4. The ground surface surrounding the exterior of the building should be sloped to drain away from the foundation in all directions. We recommend a minimum slope of 6 inches in the first 10 feet in unpaved areas. Site drainage beyond the 10-foot zone should be designed to promote runoff and reduce infiltration. A minimum slope of 3 inches in the first 10 feet is recommended in the paved areas. These slopes may be changed as required for handicap access points in accordance with the Americans with Disabilities Act.

5. The upper 1 to 2 feet of the backfill should be relatively impervious material compacted as recommended above to limit infiltration of surface runoff.

6. Ponding of water should not be allowed in backfill material of in a zone within 10 feet of the foundation walls, whichever is greater.

7. Roof downspouts and drains should discharge well beyond the limits of all backfill.

8. Landscaping which requires relatively heavy irrigation and lawn sprinkler heads should be located at least 10 feet from foundation walls. Irrigation schemes are available which allow placement of lightly irrigated landscape near foundation walls in moisture sensitive soil areas. Drip irrigation heads with main lines located at least 10 feet from the foundation walls are acceptable provided irrigation quantities are limited.

9. Plastic membranes should not be used to cover the ground surface adjacent to foundation walls.

Surface Drainage Considerations: Proper surface drainage during and after construction is very important to mitigate wetting of the subgrade soils. We recommend that landscape areas adjacent to the building be provided with the maximum slope possible to promote good surface drainage. A means of allowing water to readily leave the landscape areas, such as drain pans or chases through a sidewalk, are recommended. All efforts possible should be made to ensure that surface water on the site is allowed to sheet-flow to an off-site location such as a storm sewer inlet or water quality pond located as far from the building as possible.

SITE GRADING

Temporary Excavations: For temporary excavations that occur during site grading, the natural granular soils classify as OSHA Type C soil. All excavations should be constructed in accordance with the applicable OSHA regulations. If groundwater is encountered, the geotechnical engineer should be notified so that additional recommendations can be provided, if necessary.

Material Specifications: The following recommendations for material specifications are presented for new fills on the project site. A geotechnical engineer should evaluate the suitability of all proposed import fill material, if required, for the project prior to placement.

1. Structural Fill beneath Footings, Slab-on-Grade Floors, and Settlement-Sensitive Exterior Flatwork: Structural fill should consist of moisture conditioned on-site soils or, if necessary, imported non-expansive soils with a maximum of 50% passing the No. 200

sieve, a maximum Liquid Limit of 30, and a maximum Plasticity Index of 12. Fill source materials, including on-site soils, not meeting one or more of these criteria may be acceptable if they meet the swell criteria presented in Item 5 below.

2. Pavement Subgrade: The upper 2 feet of pavement subgrade fill should consist of the moisture conditioned on-site overburden soils.

3. Pipe Bedding Material: Pipe bedding material should be a free draining, coarse grained sand and/or fine gravel.

4. Utility Trench Backfill: Material excavated from the utility trenches may be used for backfill provided it does not contain unsuitable material or particles larger than 4 inches.

5. Material Suitability: Unless otherwise defined herein, all fill material should be a non-expansive soil free of vegetation, brush, sod, trash and debris, and other deleterious substances, and should not contain rocks or lumps having a diameter of more than 4 inches. A fill material should be considered non-expansive if the swell potential of the material, when remolded to 95% of the standard Proctor (ASTM D698) maximum dry density at optimum moisture content, does not exceed 0.5% when wetted under a 200 psf surcharge pressure. If grading is performed during times of freezing weather, the fill should not contain frozen materials, and, if the subgrade is allowed to freeze, all frozen material should be removed prior to additional fill placement or footing, slab or pavement construction.

   Based on the data from the borings and results of the laboratory testing, the on-site soils and man-placed fill should be suitable for reuse as compacted site grading fill and as structural fill.

   Evaluation of potential structural fill sources, particularly those not meeting the above liquid limit and plasticity index criteria for imported fill materials, should include determination of laboratory moisture-density relationships and swell-consolidation tests on remolded samples prior to acceptance.

Fill Placement Specifications: We recommend the following compaction criteria be used on the project:

1. Moisture Content: Fill materials should be compacted as outlined below with moisture contents of +/- 2 percent for granular soils and between optimum and 3 percentage points above optimum moisture for clayey soils. The on-site clay soils may become somewhat unstable and deform under wheel loads if placed near the upper end of the recommended moisture range.

2. Degree of Compaction: Structural fill beneath foundations, floor slabs, exterior flatwork, and adjacent to foundations, should be placed in maximum 8-inch lifts. The following compaction criteria should be followed during construction:

AREA	MINIMUM PERCENTAGE OF STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D 698)
Beneath Spread Footing Foundations and Underslab Fill More than 4 Feet Below Slab Subgrade Elevation	98%
Underslab Fill less than 4 Feet Beneath Building Floor Slabs	95%
Fills Beneath Pavements and Exterior Flatwork	95%
Utility Trenches	95%
Foundation Wall Backfill	95%

3. A representative of the geotechnical engineer should observe fill placement on a full time basis.

PAVEMENT DESIGN

A pavement section is a layered system designed to distribute concentrated traffic loads to the subgrade. Performance of the pavement structure is directly related to the physical properties of the subgrade soils and traffic loadings. Pavement design procedures are based on strength properties of the subgrade and pavement materials assuming stable, uniform conditions. Soils are represented for pavement design purposes by means of a soil support value for flexible pavements and a modulus of subgrade reaction for rigid pavements. Both values are empirically related to strength.

Subgrade Materials: Based on the results of the field and laboratory studies, the near surface subgrade materials at the site classify as A-2-4 to A-6 soils with group indices between 0 and 9 in accordance with the American Association of State Highway and Transportation Officials (AASHTO) classification system. Soils classifying A-2-4 and A-2-6 are generally considered to

provide fair subgrade support and soils classifying A-6 are generally considered to provide poor subgrade support. For design purposes, a soil support value of 3,025 psi was selected for flexible pavements.

Design Traffic: Since anticipated traffic loading information was not available at the time of report preparation, an equivalent 18-kip daily load application (EDLA) of 5 was assumed for automobile and light truck traffic areas and an EDLA of 10 was assumed for areas that will be accessed by multi-unit trucks as well as fire lanes elsewhere on the site.

Pavement Design: The following table presents the minimum pavement thickness recommendations for this development.

Paved Area	Full Depth Asphalt (inches)	Composite Section Asphalt/ABC (inches)	PCCP (inches)
Light Duty	6.0	4.0 / 7.0	6.0
Heavy Duty	7.0	4.5 / 7.0	7.0

ABC – Aggregate Base Course
PCCP – Portland Cement Concrete Pavement

Truck loading dock areas and other areas where truck turning movements are concentrated should be paved with 7.0 inches of Portland cement concrete. The concrete pavement should contain sawed or formed joints to ¼ of the depth of the slab at a maximum distance of 12 to 14 feet on center.

The above PCCP thicknesses are presented as un-reinforced slabs. If heavy vehicular loading will occur in certain areas, we recommend that dowels be provided at transverse and longitudinal joints within the slabs located in the travel lanes of heavily loaded vehicles, loading docks and areas where truck turning movements are likely to be concentrated. Additionally, curbs and/or pans should be tied to the slabs. The dowels and tie bars will help minimize the risk for differential movements between slabs to assist in more uniformly transferring axle loads to the subgrade. The current CDOT *"Standard Specifications for Road and Bridge Construction"* provides some guidance on dowel and tie bar placement, as well as in the Standard Plans: M&S Standards. The proper sealing and maintenance of joints to minimize the infiltration of surface water is critical to the performance of PCCP, especially if dowels and tie bars are not installed.

Pavement Materials: The following are recommended material and placement requirements for pavement construction for this project site. We recommend that properties and mix designs for all

materials proposed to be used for pavements be submitted for review to the geotechnical engineer prior to placement.

1. *Aggregate Base Course*: Aggregate base course (ABC) used beneath hot mixed asphalt (HMA) pavements should meet the material specifications for Class 6 ABC stated in the current Colorado Department of Transportation (CDOT) *"Standard Specifications for Road and Bridge Construction"*. The ABC should be placed and compacted as outlined in the Site Grading section of this report.

2. *Hot Mix Asphalt:* Hot mix asphalt (HMA) materials and mix designs should meet the applicable requirements indicated in the current CDOT *"Standard Specifications for Road and Bridge Construction"*. We recommend that the HMA used for this project is designed in accordance with the Super Pave gyratory mix design method. The mix should generally meet Grading S or SX specifications with a Super Pave gyratory design revolution (N_{DESIGN}) of 75. The mix design for the HMA should use a performance grade PG 58-28 asphalt binder. Placement and compaction of HMA should follow current CDOT standards and specifications.

3. *Portland Cement Concrete*: Portland cement concrete pavement (PCCP) should meet Class P specifications and requirements in the current CDOT *"Standard Specifications for Road and Bridge Construction"*. Rigid PCCP is more sensitive to distress due to movement resulting from settlement or heave of the underlying base layer and/or subgrade than flexible asphalt pavements.

Subgrade Preparation: The pavement subgrade within 2 feet of the subgrade elevation should be properly moisture conditioned and compacted as outlined in the "Site Grading" section of this report. Prior to placing the pavement section, the entire subgrade area should be thoroughly plowed and well mixed to a minimum depth of 12 inches, adjusted to a moisture content within 2 percentage points of optimum and compacted to 95% of the standard Proctor maximum dry density.

Pavement design procedures assume a stable subgrade. The pavement subgrade should be proof-rolled with a heavily loaded pneumatic-tired vehicle with a tire pressure of at least 100 psi capable of applying a minimum load of 18-kips per axle. Areas which deform excessively under heavy wheel loads are not stable and should be removed and replaced to achieve a stable

subgrade prior to paving. Areas of existing fill may also require deeper removal and replacement if they are unstable.

Drainage: The collection and diversion of surface drainage away from paved areas is extremely important to the satisfactory performance of pavement. Drainage design should provide for the removal of water from paved areas and prevent the wetting of the subgrade soils.

It is critical to the performance of the structure and surrounding pavement that the pavement surfaces be properly maintained. Proper maintenance includes sealing of cracks that appear in the pavement surface. More aggressive cleaning and sealing techniques may be required if larger cracks develop.

DESIGN AND CONSTRUCTION SUPPORT SERVICES

Kumar & Associates, Inc. should be retained to review the project plans and specifications for conformance with the recommendations provided in this report. We are also available to assist the design team in preparing specifications for geotechnical aspects of the project and, if necessary, perform additional studies to accommodate any changes in the proposed construction.

We recommend that Kumar & Associates, Inc. be retained to provide construction observation and testing services to document that the intent of this report and the requirements of the plans and specifications are being followed during construction. This will allow us to identify possible variations in subsurface conditions from those encountered during this study and to allow us to re-evaluate our recommendations, if needed. We will not be responsible for implementation of the recommendations presented in this report by others, if we are not retained to provide construction observation and testing services.

LIMITATIONS

This study has been conducted for exclusive use by the client for geotechnical related design and construction criteria for the project. The conclusions and recommendations submitted in this report are based upon the data obtained from the exploratory borings at the locations indicated on Fig. 1 or as described in the report, and the proposed type of construction. This report may not reflect subsurface variations that occur between the exploratory borings, and the nature and extent of variations across the site may not become evident until site grading and excavations are performed. If during construction, fill, soil, bedrock, or groundwater conditions appear to be different from those described herein, Kumar & Associates, Inc. should be advised at once so that

a re-evaluation of the recommendations presented in this report can be made. Kumar & Associates, Inc. is not responsible for liability associated with interpretation of subsurface data by others.

Swelling soils occur on this site. Such soils are stable at their natural moisture content but will undergo high volume changes with changes in moisture content. The extent and amount of perched water beneath the building site as a result of area irrigation and inadequate surface drainage is difficult, if not impossible, to foresee.

The recommendations presented in this report are based on current theories and experience of our engineers on the behavior of swelling soil in this area. The owner should be aware that there is a risk of constructing a building in an expansive soil area. Following the recommendations given by a geotechnical engineer, careful construction practice and prudent maintenance by the owner can, however, decrease the risk of foundation movement due to expansive soils.

JAH/mm
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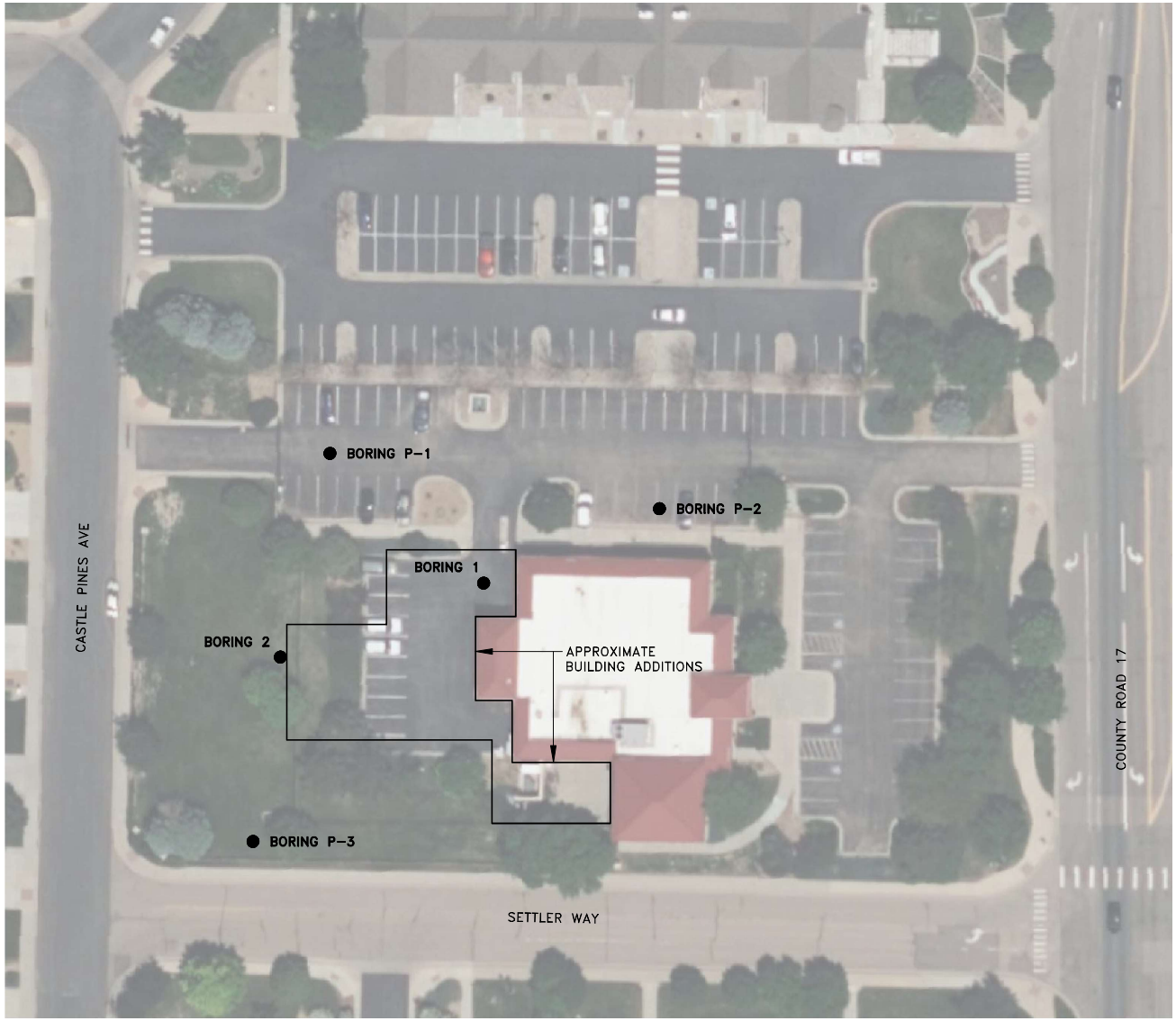
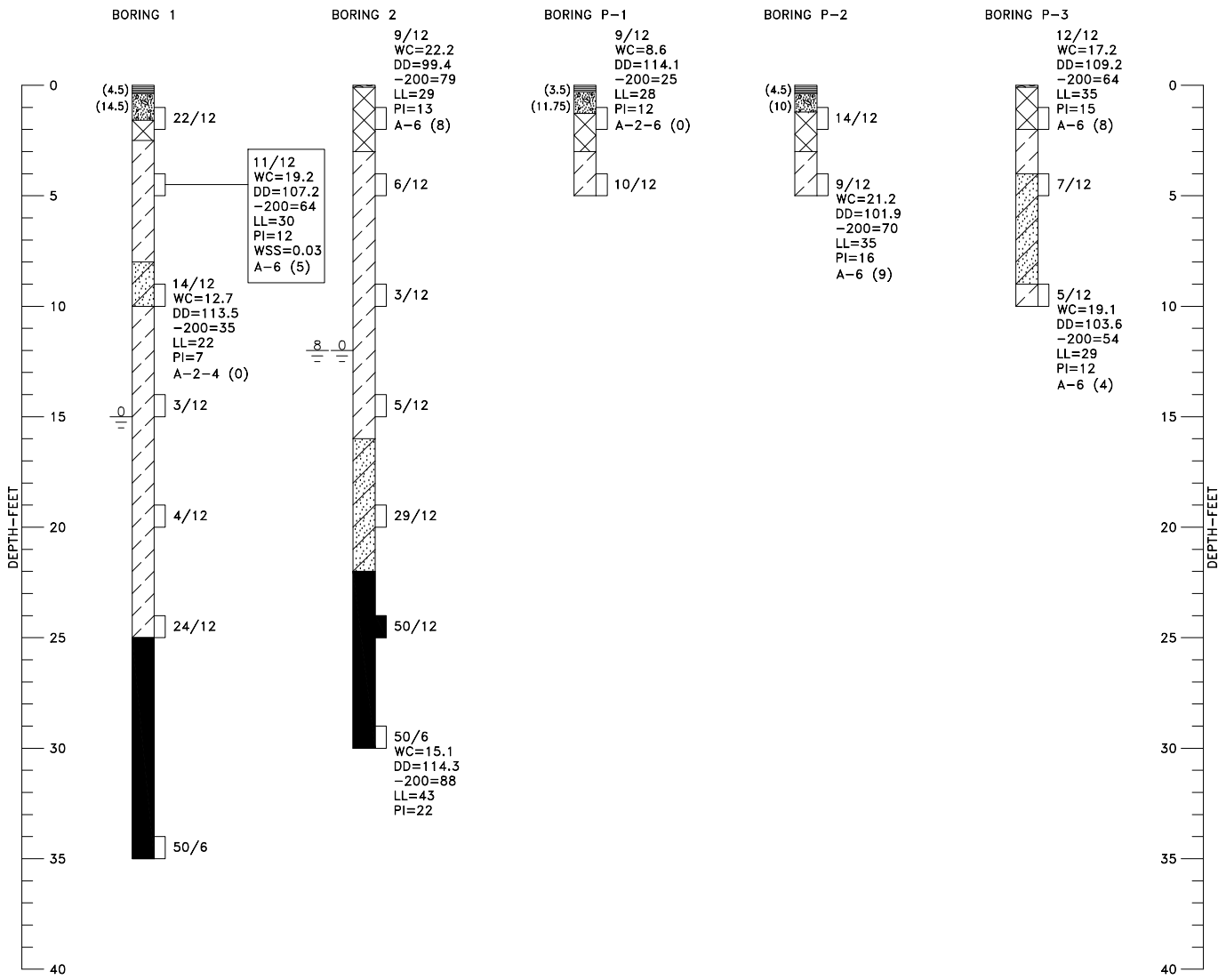


25 0 25 50

APPROXIMATE SCALE-FEET

VICINITY MAP
NOT TO SCALE

23-3-133	Kumar & Associates	JOHNSTOWN POLICE DEPARTMENT IMPROVEMENTS	LOCATION OF EXPLORATORY BORINGS	Fig. 1



23-3-133	Kumar & Associates	JOHNSTOWN POLICE DEPARTMENT IMPROVEMENTS	LOGS OF EXPLORATORY BORINGS	Fig. 2

LEGEND


SOD

(4.5) ASPHALT, THICKNESS IN INCHES SHOWN IN PARENTHESES TO LEFT OF THE LOG.

(14.5) BASE COURSE, THICKNESS IN INCHES SHOWN IN PARENTHESES TO LEFT OF THE LOG.

FILL: SANDY LEAN CLAY (CL) TO CLAYEY SAND (SC), FINE TO COARSE GRAINED SAND FRACTION, SLIGHTLY MOIST TO MOIST, BROWN TO DARK BROWN.

SILTY SAND (SM) TO CLAYEY SAND (SC) TO POORLY GRADED SAND WITH SILT (SP-SM), FINE TO COARSE GRAINED, LOOSE TO MEDIUM DENSE, SLIGHTLY MOIST TO WET BELOW GROUNDWATER, BROWN.

LEAN CLAY WITH SAND (CL) TO SANDY LEAN CLAY (CL), FINE TO COARSE GRAINED SAND FRACTION, SOFT TO VERY STIFF, MOIST TO WET BELOW GROUNDWATER, BROWN.

CLAYSTONE BEDROCK WITH SANDSTONE BEDROCK INTERBEDS, FINE TO MEDIUM GRAINED, HARD TO VERY HARD, MOIST, BROWN TO GRAY.

DRIVE SAMPLE, 2-INCH I.D. CALIFORNIA LINER SAMPLE.

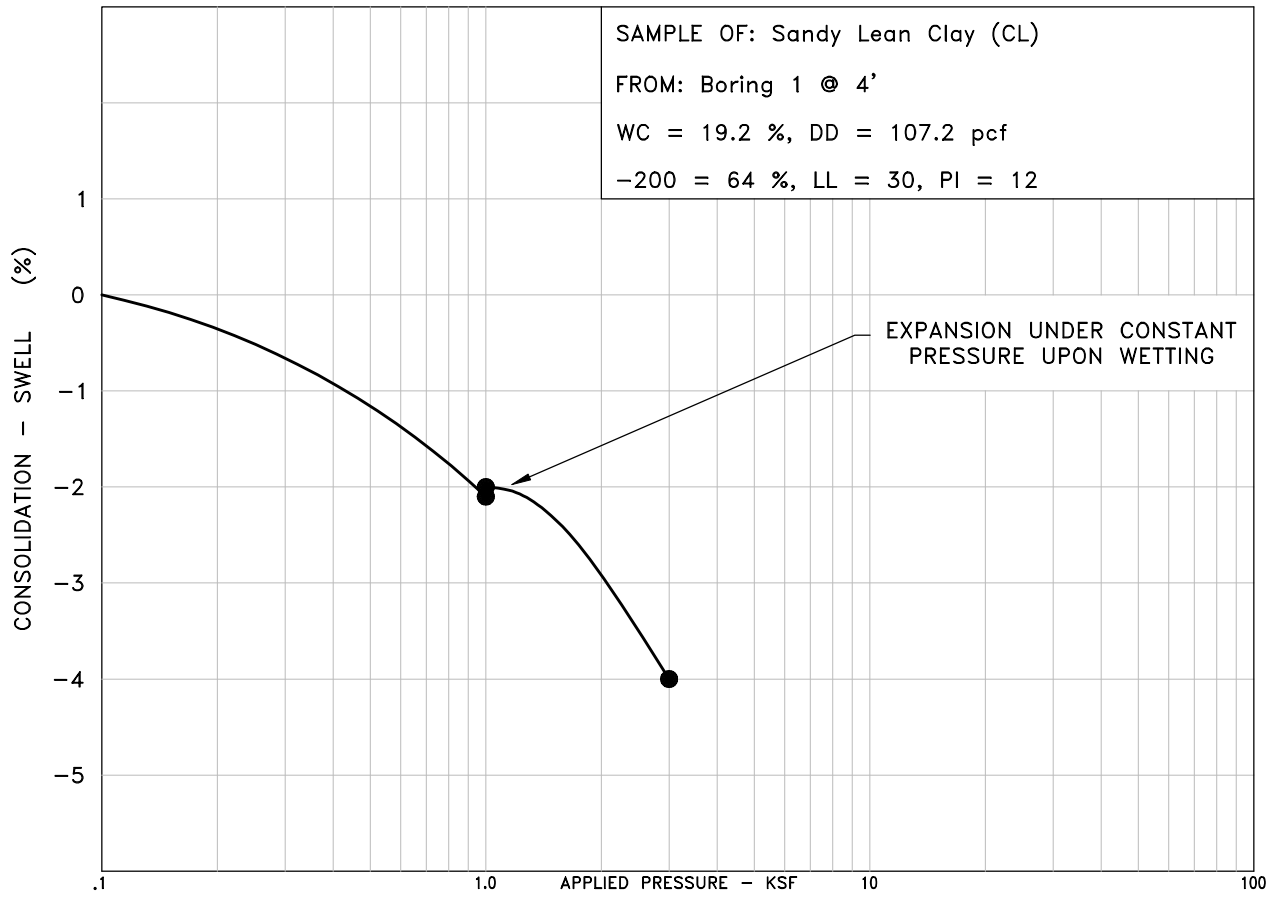
DRIVE SAMPLE, 1 3/8-INCH I.D. SPLIT SPOON STANDARD PENETRATION TEST.

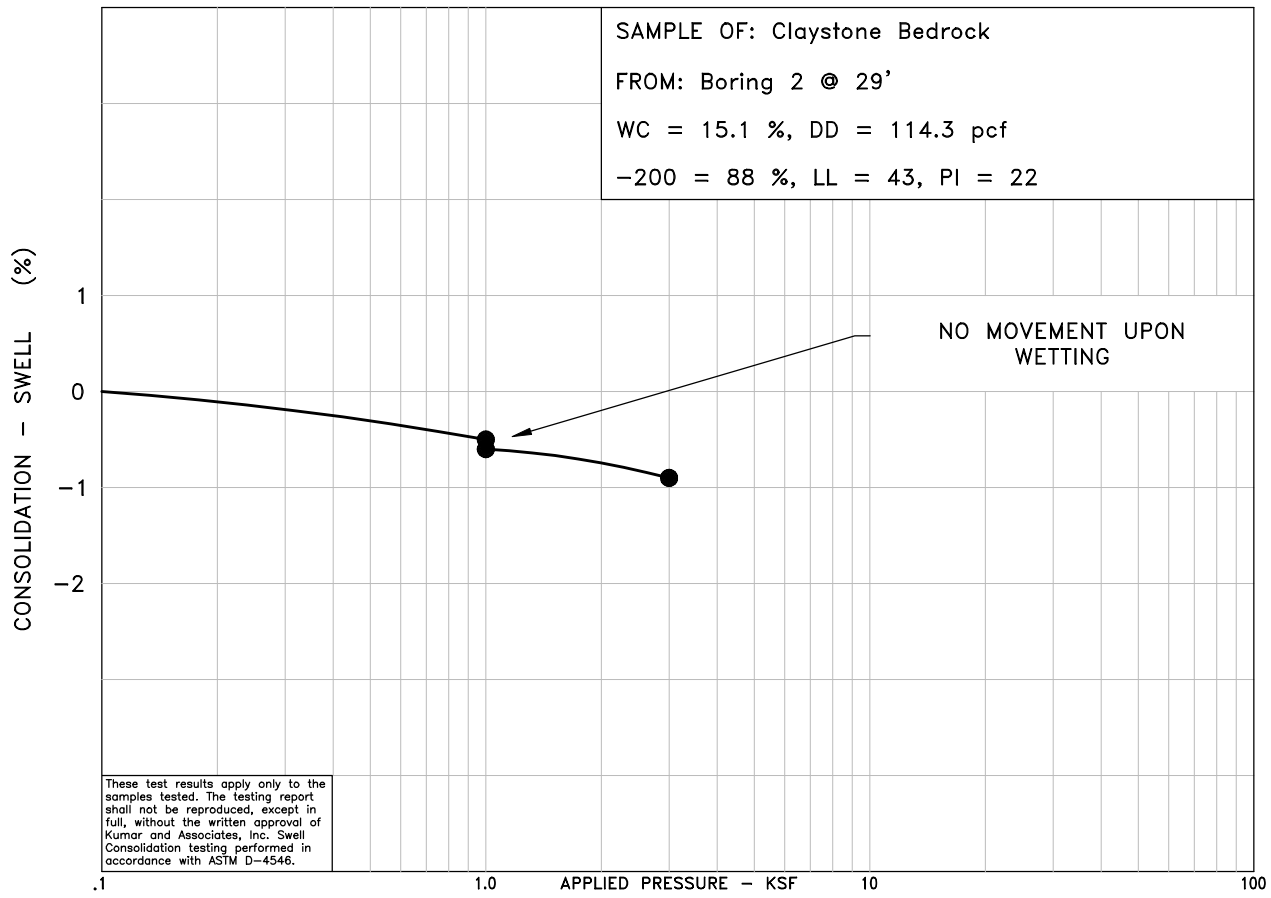
22/12 DRIVE SAMPLE BLOW COUNT. INDICATES THAT 22 BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES WERE REQUIRED TO DRIVE THE SAMPLER 12 INCHES.

DEPTH TO WATER LEVEL ENCOUNTERED AT THE TIME OF DRILLING.

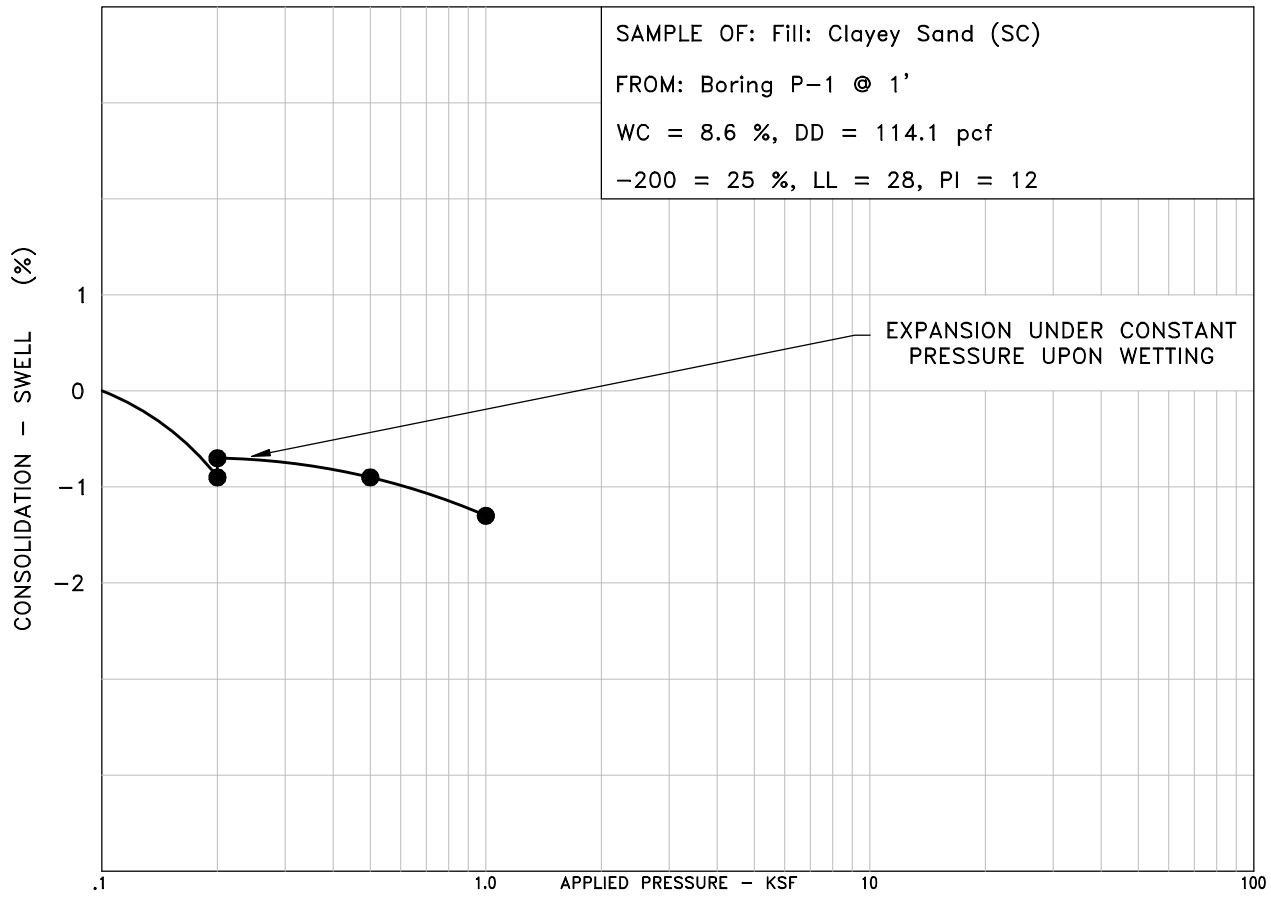
NOTES

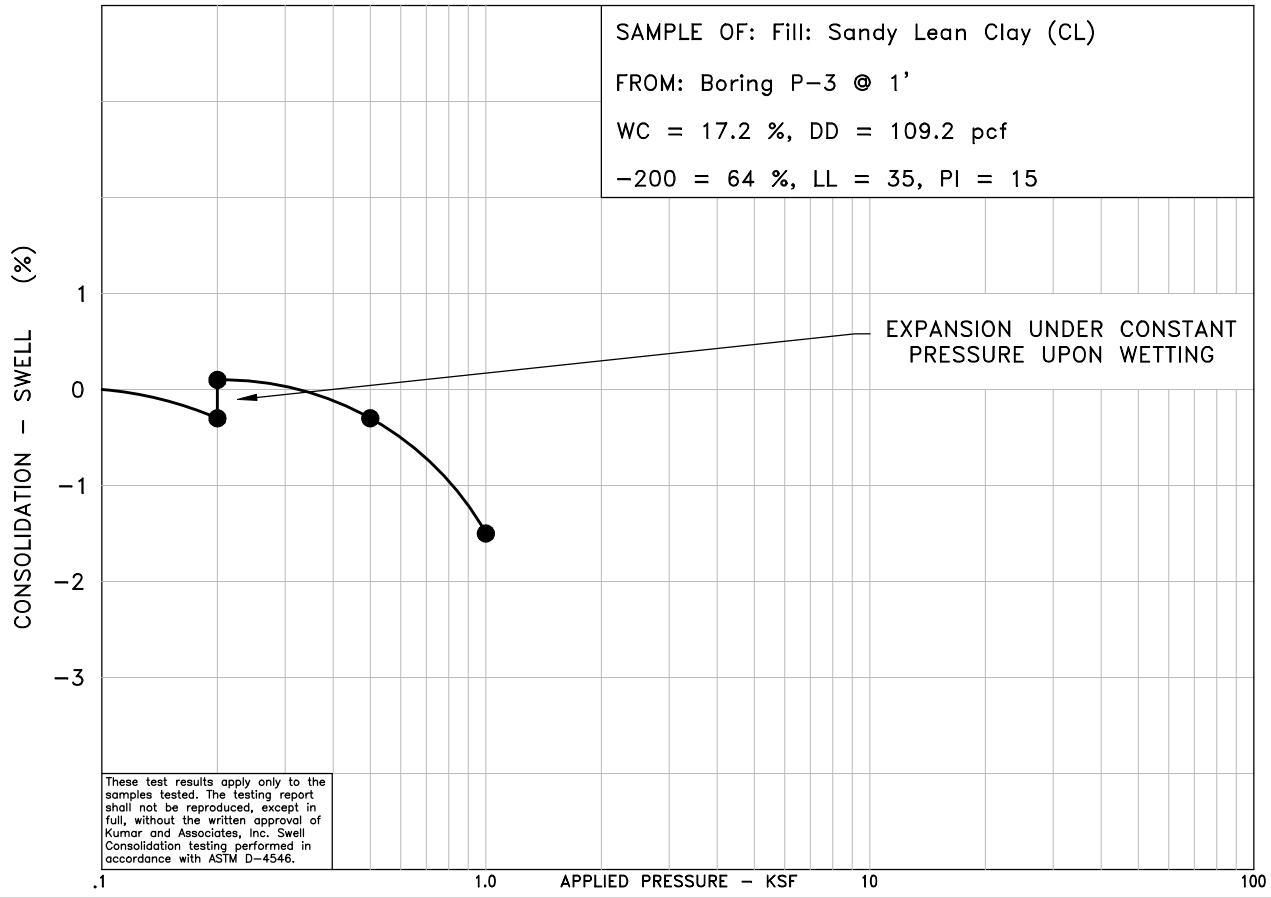
1. THE EXPLORATORY BORINGS WERE DRILLED ON MARCH 30, 2023 WITH A 4-INCH-DIAMETER CONTINUOUS-FLIGHT POWER AUGER.
2. THE LOCATIONS OF THE EXPLORATORY BORINGS WERE MEASURED APPROXIMATELY BY HANDHELD GPS DEVICE.
3. THE ELEVATIONS OF THE EXPLORATORY BORINGS WERE NOT MEASURED AND THE LOGS OF THE EXPLORATORY BORINGS ARE PLOTTED TO DEPTH.
4. THE EXPLORATORY BORING LOCATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
5. THE LINES BETWEEN MATERIALS SHOWN ON THE EXPLORATORY BORING LOGS REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN MATERIAL TYPES AND THE TRANSITIONS MAY BE GRADUAL.
6. GROUNDWATER LEVELS SHOWN ON THE LOGS WERE MEASURED AT THE TIME AND UNDER CONDITIONS INDICATED. FLUCTUATIONS IN THE WATER LEVEL MAY OCCUR WITH TIME.
7. LABORATORY TEST RESULTS:
   - WC = WATER CONTENT (%) (ASTM D2216);
   - DD = DRY DENSITY (pcf) (ASTM D2216);
   - +4 = PERCENTAGE RETAINED ON NO. 4 SIEVE (ASTM D6913);
   - -200 = PERCENTAGE PASSING NO. 200 SIEVE (ASTM D1140);
   - LL = LIQUID LIMIT (ASTM D4318);
   - PI = PLASTICITY INDEX (ASTM D4318);
   - WSS = WATER SOLUBLE SULFATES (%) (CP-L 2103);
   - A-2-6 (0) = AASHTO CLASSIFICATION (GROUP INDEX) (AASHTO M 145).





23−3−133	Kumar & Associates	SWELL−CONSOLIDATION TEST RESULTS	Fig. 4





These test results apply only to the samples tested. The testing report shall not be reproduced, except in full, without the written approval of Kumar and Associates, Inc. Swell Consolidation testing performed in accordance with ASTM D-4546.

23-3-133	Kumar & Associates	SWELL-CONSOLIDATION TEST RESULTS	Fig. 5

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Table I
Summary of Laboratory Test Results

Project No.: 23-3-137
Project Name: Johnstown Police Station Improvements
Date Sampled: March 30, 2023
Date Received: April 5, 2023

Sample Location		Date Tested	Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation		Percent Passing No. 200 Sieve	Atterberg Limits		Water Soluble Sulfates (%)	AASHTO Classification (Group Index)	Soil or Bedrock Type
Boring	Depth (Feet)				Gravel (%)	Sand (%)		Liquid Limit (%)	Plasticity Index(%)			
1	4	4/6/23	19.2	107.2			64	30	12	0.03	A-6 (5)	Sandy Lean Clay (CL)
1	9	4/6/23	12.7	113.5			35	22	7		A-2-4 (0)	Silty, Clayey Sand (SC-SM)
2	4	4/6/23	22.2	99.4			79	29	13		A-6 (8)	Lean Clay with Sand (CL)
2	29	4/6/23	15.1	114.3			88	43	22			Claystone Bedrock
P-1	1	4/6/23	8.6	114.1			25	28	12		A-2-6 (0)	Fill: Clayey Sand (SC)
P-2	4	4/6/23	21.2	101.9			70	35	16		A-6 (9)	Sandy Lean Clay (CL)
P-3	1	4/6/23	17.2	109.2			64	35	15		A-6 (8)	Fill: Sandy Lean Clay (CL)
P-3	9	4/6/23	19.1	103.6			54	29	12		A-6 (4)	Sandy Lean Clay (CL)