



**Cost Proposal – Geotechnical
Engineering Services
Dickinson Baler Building Expansion
Project Number 165820**

3389 Energy Dr
Dickinson, North Dakota

AET Proposal No. P-0030259

Date:

January 26, 2024

Prepared for:



City of Dickinson – Engineering Department
38 1st Street West
Dickinson, North Dakota 58601

Geotechnical • Materials
Forensic • Environmental
Building Technology
Petrography/Chemistry

American Engineering Testing

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January 26, 2024

Mr. Joshua M. Skluzacek, PE – Engineering and Community Development Director
City of Dickinson
38 1st Street West
Dickinson, North Dakota 58601

Subject: Cost Proposal – Geotechnical Engineering Services
Baler Building Expansion
Project Number 165820
3389 Energy Dr
Dickinson, North Dakota 58601
AET Proposal No. P-00330259

Greetings Mr. Skluzacek,

American Engineering Testing (AET) is pleased to submit this proposal for the geotechnical exploration for use in the planning and development of the proposed Baler Building Expansion project in Dickinson, North Dakota. We understand our geotechnical services as indicated below will be provided for this project as an amendment to the current contract we have with the City of Dickinson for the City of Dickinson 2024 Geotechnical Engineering Services for Various Infrastructure and Engineering Improvements Projects.

AET is an employee-owned engineering consulting firm, founded in 1971. We specialize in geotechnical, pavement, and construction materials engineering and testing; environmental consulting; forensic engineering; building technology; and petrography/chemistry. A few factors that uniquely qualify AET as the preferred choice for geotechnical engineering services are:

- **Safety** – At AET, the health, safety and well-being of our employees is of the greatest importance, and we strive to provide a healthy and safe work environment. We are Achievement Awarded members of the ND safety Council. We promote and deliver a strong safety culture, hold corporate weekly safety meetings and encourage employees to actively participate.
- **Experience** – AET personnel have completed numerous municipal projects in western North Dakota including the geotechnical exploration for the 2024 and 2022 City of Dickinson Various Infrastructure and Engineering projects, the McKenzie County Route 10 & 14 Subgrade Improvements, Asphalt Patch, and Mill and Overlay and the Williston Northeast Truck Reliever project.
- **Resources** – We back our project personnel with a network of professional engineers with unique backgrounds and experience with challenging subsurface soil conditions. Our

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engineering staff have extensive project experience in the Dickinson area with conditions similar to those anticipated at the project sites.

- **Community Involvement** – AET is committed to making a difference in the quality of life within western North Dakota by providing high-quality solutions. AET has geotechnical engineering and drilling staff located in Dickinson and Williston who are actively involved in the community and are committed to bettering the lives of the residents in the region.

Our proposal is based on our review of the Request for Geotechnical Engineering Services Investigation and Report Checklist attached to your email sent to me on January 19, 2024. In this proposal, we present our understanding of the project, an outline of the scope of services we are to provide, and the lump sum fee for our services.

PROJECT INFORMATION

The City of Dickinson is planning to expand an existing baler building. The expansion includes a new waste and recycling processing area, reuse room, and office space. The project also includes a new scale house and scales, z-wall (retaining wall), cold storage building, and other site improvements. The final grading of the site is anticipated to be 0-1:10 in pavement areas and 1:50-1:3 in greenspace. The maximum cut/fill is anticipated to be approximately 5 feet and is not anticipated to exceed 10 feet.

The structure will utilize conventional, continuous, and spread foundations to support moderate structural loads. We anticipate maximum design loads for the proposed structure are estimated to be 4 kips per lineal foot and axial 100 kips/uplift 20 kips for wall and column loads, respectively, with expected slab loadings of approximately 100 pounds per square foot. Tolerable settlement criteria for this structure have not been provided. Unless otherwise informed, we have assumed that total and differential settlements on the order of 1 inch and ½ inch in 25 feet are acceptable. No basement is planned for the building.

PROJECT TEAM

The project team we have assembled at AET possesses additional understanding based on experience that includes similar work for the City of Dickinson and other municipalities in Western North Dakota. Our staffing and qualifications, described below, demonstrates the varied services we have provided successfully in support of similar construction projects in North Dakota. Furthermore, we have two geotechnical drill rigs and a Geoprobe based in our Williston office that allows us to provide exploration services in a timely manner with minimal mobilization expenses.

The AET project team will communicate results to you in a way that helps you address larger issues, such as finding the balance between cost savings and quality. AET understands that the City of Dickinson desires a consultant that can be relied upon as a resource, and not just as an entity performing tests and providing results. This proposal demonstrates AET's resourcefulness in terms of staffing and approach. In short, the AET project team is qualified to meet your needs, however



they evolve over the course of the project.

Finally, AET understands that the City of Dickinson values accessibility and responsiveness in communication. For this reason, AET will provide services out of our Dickinson and Williston, North Dakota offices. We will provide bi-weekly progress reports summarizing what was completed in the previous period, what is anticipated to be completed in the next period, issues or concerns for the City of Dickinson, and deliverables/milestones achieved during the previous period.

Josh Holmes, PE, Geotechnical Engineer

Josh will serve as the technical reviewer and internal quality control for the project. He is a geotechnical engineer with over 5 years of experience in North Dakota and the Upper Great Plains. Josh has focused on geotechnical investigations, laboratory testing, construction material testing services, and training of field engineering and technical staff.

Alec Hovick, Dickinson Manager

Al will serve as the main point of contact for the City of Dickinson staff. He will interface with staff on a regular basis and coordinate project assignments within AET. Al has over 37 years of experience in geotechnical engineering and construction material testing services in North Dakota and Minnesota. Al is the manager of our Dickinson office and will visit each project site prior to mobilization and review potential impacts to proposed field service with city of Dickinson Personnel.

Connor Thompson, EI, Engineer I

Connor will serve as the field engineer for the project. Connor will oversee the field work for the project and coordinate with Josh and Al on the geotechnical exploration, laboratory testing, and evaluation. Connor has over 5 years of experience in geotechnical engineering and construction material testing in western North Dakota. Connor is located in our Dickinson office.

SCOPE OF SERVICES

Site Field Exploration

The City of Dickinson has requested soil borings and laboratory tests be performed at the project site in order to evaluate the existing soil conditions, the potential for shallow groundwater, the soil properties to be encountered during construction, special considerations for water infiltration. The following tables summarize the requested soil borings to be performed, the locations, depths, and specified tests.

Boring ID	Latitude (deg)	Longitude (deg)	Minimum Depth (ft)	Notes
B-1	46.882481	-102.729074	40	
B-2	46.882250	-102.728704	25	
B-3	46.882484	-102.728713	40	Corrosion testing suite



Boring ID	Latitude (deg)	Longitude (deg)	Minimum Depth (ft)	Notes
B-4	46.882532	-102.728409	25	
B-5	46.883378	-102.730158	30	Corrosion testing suite
B-6	46.883325	-102.730517	25	
B-7	46.881705	-102.727519	30	2 TW samples/Corrosion testing suite
B-8	46.881992	-102.727511	30	2 TW samples
B-9	46.881904	-102.728709	25	
B-10	46.883105	-102.730900	30	
B-11	46.883159	-102.730587	25	
B-12	46.883545	-102.730005	15	Infiltration testing

We anticipate the following tests shall be included in the laboratory testing program:

- Moisture Content (AASHTO T-265)
- Proctor Test (ASTM D698 or D1557)
- Atterberg Limits (ASTM D4318)
- Sieve Analysis of Coarse and Fine Material (ASTM C136)
- California Bearing Ratio (CBR - ASTM: D1883)
- Unconfined Compression (ASTM D2166)
- Direct Shear (ASTM D3080/D3080M)
- One-Dimensional Consolidation (ASTM D2435/D2435M-11)
- Soil Chemistry (Sulfates in Soil, Resistivity, and pH)
- Double-ring infiltration (ASTM D3385)

We will advance the borings with hollow stem auger (HSA) borings using a truck-mounted geotechnical drill rig. The borings will be backed filled with on-site cuttings and patched at the surface with cold-patch asphalt or concrete, as appropriate.

Before we drill, we will contact ND One Call to locate public underground utilities. ND One Call does not locate private underground utilities or structures. Examples of private utilities include, but are not limited to, propane lines, sewer laterals, sprinkler systems, site lighting, and electric and data lines between buildings. The client/property owner(s) are responsible for locating all private underground utilities and structures. Please provide us with any maps, plans, and records showing the location of all private utilities and structures.

If requested, we will also arrange for the location of private underground utilities through a private utility locator. These companies usually charge a fee for their services. Also, please note that private locators cannot guarantee that all private utilities will be located. For the private locator to be accurate and effective, the property owner must provide maps, plans and records showing the location of all private utilities and structures. The client/property owner must also provide a knowledgeable site representative to meet with the private locator and AET personnel.

AET shall be entitled to rely upon the accuracy of all location information supplied by any source. We will not be responsible for any damage to underground utilities or structures not located or incorrectly identified by the property owner, any maps, plans or records, or public or private utility locator providers. This is particularly important as the overall planning of the project develops, evolves and progresses.

We will drill the borings using hollow stem augers, and sampling by split-barrel sampler and possibly the ring lined-barrel method (ASTM D1586 & D3550). In addition, we will collect bulk samples from auger cuttings. Our crew will keep field logs noting the methods of drilling and sampling, the Standard Penetration Values (N-values, “blows per foot”), preliminary soil classification, and observed groundwater levels. We will collect samples at 2½ foot intervals to 15-feet, then at 5-foot interval thereafter to the planned termination depths. Representative portions of recovered samples will be collected in bags and capped brass tubes to prevent moisture loss and submitted to our laboratory for review, testing, and final classification.

We will back fill the boreholes to comply with State requirements. Even after backfilling, some sloughing of the backfill may occur, resulting in a potential tripping hazard. We assume that the property owner will back fill and repair any boreholes that may slough after our exploration is complete. AET cannot accept any liability associated with injury or loss after we leave the site.

Accessing the boring locations may leave ruts in the ground. We assume that the property owner will perform any site restoration work. We have not included a fee for site restoration in our cost estimate.

On completion of testing, we will visually/manually classify each sample on the basis of texture and plasticity in accordance with the Unified Soil Classification System and prepare the boring logs.

Geotechnical Report

We will prepare a report in which we will present logs of the test borings, laboratory test results, a review of engineering properties of the on-site soils, and our geotechnical engineering opinions and recommendations. We anticipate the following geotechnical design areas will be evaluated.

- Earthwork for Foundations, Slabs, and Pavement
 - Site preparation
 - Excavation characteristics
 - Structural fill criteria
 - Required compaction and moisture conditioning
 - Wet weather construction
 - Cold weather construction
 - Structural fill benching requirements
 - Suitability of the on-site soils for use as subgrade
 - Use of geosynthetics

- Trenching
 - USCS soil classification
 - OSHA soil classification
 - Backfill and compaction
 - Dewatering recommendations
- Typical Shallow Foundation Design
 - Suitable foundation types
 - IBC site class based on explored depths
 - Allowable foundation bearing pressure
 - Soil improvement requirements (if needed)
 - Total and differential settlement estimates
 - Short-term loading increases
 - Lateral foundation base sliding friction coefficients
 - Frost depth
- Concrete Slabs-on-grade
 - Minimum slab support section
 - Modulus of subgrade reaction
 - Vapor retarder use
- Pavement Design
 - Subgrade preparation
 - Base course thickness
 - Asphalt pavement section
 - Concrete pavement section
- Retaining Wall Recommendations
 - Allowable bearing pressure
 - Friction coefficients
 - Internal friction angle
 - Drainage recommendations
- Lateral Earth Pressure Considerations
 - Static equivalent fluid pressures
 - Lateral swell pressures (if warranted)
- Drainage Recommendations
 - Surface drainage
 - Foundation/subsurface drainage
 - Double Ring Infiltration test
- Soil Chemistry
 - Sulfate attack
- Additional Recommended Services
 - Geotechnical design continuity

Additional services that could be performed by AET, if needed (These are not part of this proposal):

- Plan and specification review



- Geotechnical observation during construction

SCHEDULE

Weather and site access permitting, AET anticipates the following work schedule.

Task	Completion Date
Field Work	February 18, 2024
Laboratory Testing	March 11, 2024
Report	March 29, 2024

FEES

Our fees for the scope of services described above will be charged on a lump sum basis of **\$27,550** as itemized below.

• Mobilization of drill rig and perform twelve (12) soil borings:	\$12,300
• Laboratory testing:	\$7,000
• Private Utility Locate	\$750.00
• Infiltration Test (does not include excavation)	\$3,000.00
• Geotechnical and report preparation:	<u>\$4,500</u>
Estimated Total	\$27,550

If additional or reduction in the drilling is required beyond that specified in the Scope of Services above, we will charge an additional/reduction rate of **\$30.00** per foot. Please note, our fees will be in effect for thirty (30) days after issuance of this proposal, after which they will be subject to review and adjustment where necessary. Should subsurface conditions warrant a change in scope, i.e., additional services such as more exploration or laboratory testing, we will request any fee changes prior to exceeding the proposed budget.

LIMITATIONS & INHERENT RISKS

This proposal is presented for engineering services to evaluate the structural properties of the soil at the specified site and is developed based on our understanding of the project. This proposal does not cover an environmental assessment of the site or environmental testing of the soil or groundwater, presence of abandoned mines or mine shafts, retaining system design, global slope stability, stormwater or septic disposal design, erosion control design, deep foundation evaluation, or any other services not explicitly discussed above. If you wish to have us provide these additional services, please contact us. We will endeavor to perform our evaluation referencing the standard of care as it exists in western North Dakota at the time of this proposal. This acknowledgement will be in lieu of any express or implied warranties.

There are inherent risks whenever soil, geologic, or hydrogeologic conditions are involved with a development. These risks must be emphasized when potential damage of property also exists. Soil and geologic material, including groundwater, are variable in nature. AET's exploration will identify



the conditions at the time of the evaluation and the locations explored. Geologic conditions may change between exploration points and at depth.

ACCEPTANCE

AET requests written acceptance of this proposal in the Proposal Acceptance box below, but the following actions shall constitute your acceptance of this proposal together with the Terms and Conditions and Amendments: 1) issuing an authorizing purchase order for any of the Services described above, 2) authorizing AET's presence on site, or 3) written or electronic notification for AET to proceed with any of the Services described in this proposal. Please indicate your acceptance of this proposal by signing below and returning a copy to us. When you accept this proposal, you represent that you are authorized to accept on behalf of the Client.

CLOSING

AET appreciates the opportunity to provide this service for you and we look forward to working with you on this project. If you have questions or need additional information, please contact us.

Sincerely,
American Engineering Testing, Inc.

A handwritten signature in blue ink, appearing to read 'Alec Hovick'.

Alec Hovick
Dickinson Manager

Josh Holmes, P.E. (ND, MN, SD)
Senior Engineer

ACCEPTANCE AND AUTHORIZATION: AET Proposal No. P-00330259

SIGNATURE: _____

PRINTED NAME: _____

COMPANY: _____

ADDRESS: _____

PHONE NUMBER AND EMAIL: _____

DATE: _____

INVOICING INFORMATION (Provide Company AP Department Information, if present.)

AP CONTACT NAME: _____

BILLING/MAILING ADDRESS: _____

AP PHONE NUMBER AND INVOICE EMAIL: _____

P.O. NO./ PROJECT NO.: _____