

September 5, 2024

Thaden School

800 Southeast C Street
Bentonville, Arkansas 72712

ATTN: Ms. Cheryl Humann
Construction Manager
Walton Enterprises, Inc.

RE: Addendum #1 for
Thaden Athletic Facility Development
Bentonville, Arkansas
MCE Project No.: 23-3887

Dear Ms. Humann:

We are pleased to present this Addendum #1 relevant to the Geotechnical Investigation conducted for the Thaden Athletic Facility Development to be located in Bentonville, Arkansas. This addendum serves to update the recommended undercut allowance within the planned building footprint, following coordination with the project Design Team intended to ensure the recommendations outlined in the original Geotechnical Report (MCE Project No. 23-3887, dated September 20, 2023) remain current with the project scope.

The changes contained herein should replace their respective sections in the previously submitted Geotechnical Report.

Site Grading Considerations – Proposed Building Footprint

Based on the data obtained during this investigation, it is anticipated that subgrade materials suitable for the placement of imported select fill are present beginning immediately underlying the Stratum I surface materials. It should be noted that the Stratum II Lean Clay (CL) materials within project borings B-01, B-02, and B-04 exhibited stiff to very stiff relative consistency values underlying the Stratum I topsoil materials, with relatively low-consistency subsurface materials (soft to medium-stiff) encountered beginning at depths ranging from 3.5 to five (5) feet below the existing surface elevations. This occurrence is likely due, in part, to the higher moisture contents of the deeper materials.

Materials anticipated to be suitable within project boring B-03 were first encountered at a depth of approximately six (6) feet below the existing surface elevation.

It should be noted that a majority of the materials observed and encountered at the surface of the project site are anticipated to be suitable for the placement of imported select fill immediately following stripping of the Stratum I topsoil materials, assuming site and weather conditions at the time of construction are similar to those at the time of this investigation, i.e. hot and dry. Should finalized grading plans result in raising subgrade elevations 2.5 feet or more above those of existing, it is anticipated that necessary undercut across the site will be limited to isolated areas. However, should final site grades be near that of existing, it is recommended that the Project Team carry an allowance for the undercut and replacement of up to four (4) feet of imported select fill materials below the footing dimensions, for a total of six (6) feet of imported select fill within the building pad (based on an estimated footing depth of two (2) feet below the slab-on-grade).

As may be observed on the boring logs, the CL materials across the project site are known to be susceptible to reduced shear strengths upon introduction to increased moisture conditions. This may result in very low-strength conditions following rain events, or if perched water is encountered during construction, resulting in additional undercut and/or subgrade remediation efforts to be necessary.

To reduce the potential for necessary undercut due to increased moisture conditions, it is recommended that earthwork operations take place during historically dry portions of the calendar year (June through October).

Undercut operations should only be conducted at the direction of the Geotechnical Engineer or his/her representative. Proper coordination should occur between all parties involved to ensure that exposed subgrade materials may be covered with imported select fill to avoid prolonged exposure to the elements.

Pre-loading the building pad following mass undercut and backfilling may reduce the effects of long-term settlement by allowing a period of “pre-loading” directly following fill placement and prior to the subsequent placement of structural elements.

Thickened lifts or “bridging” lifts should not be utilized within the structure footprint. MCE highly recommends that the Geotechnical Engineer or his/her representative be on-site during the undercut operations to provide directive and to help reduce the total undercut, where applicable.

Shallow Foundation Recommendations

Through coordination with the Design Team, it is understood that the athletic facility development is planned to have maximum column and wall loads on the order of 100 kips and 6.5 kips per linear foot (klf). Based on these communicated loading conditions, as well as the subsurface information obtained during this investigation, it is recommended that a shallow foundation system composed of continuous and/or individual (spread) footings will be suitable for the support of the planned gymnasium structure.

It is recommended that the shallow foundations bear on a minimum of one (1) foot of newly-placed, properly compacted, and moisture-conditioned select fill materials meeting the criteria outlined in the *Select Fill Materials* section of the issued Geotechnical Report. Subgrade materials in suitable condition for the placement of imported fill should be exposed prior to the placement of fill. For the purposes of this report, “suitable” subgrade conditions include stiff to very stiff Stratum II CL materials encountered at varying depths across the site.

As noted in the *Site Grading Considerations – Proposed Building Footprint* section of this report, suitable materials were generally encountered immediately underlying the topsoil materials, though varied with depth across the site. As such, it is recommended that the Project Team budget for the placement of up to four (4) feet of imported select fill below the planned foundation elements, in the event that the low-consistency materials encountered during the Geotechnical Investigation are uncovered during construction.

Footings bearing on properly placed select fill materials bearing on native subgrade materials recommended as being stable may utilize safe allowable bearing capacities of 2,500 pounds per square foot (psf) for continuous foundations and 3,000 psf for spread or individual foundations.

The allowable bearing pressures provide a minimum factor of safety of three (3) and were calculated using a minimum footing width of five (5) feet for spread footings and 2.5 feet for continuous footings, and a minimum footing depth of two (2) feet below exterior ground elevations for each scenario, which is adequate to protect against frost heave in the project vicinity.

The total long-term foundation settlement for footings bearing on properly placed select fill material with the assumed dimensions and loading is anticipated to be approximately $\frac{3}{4}$ -inch. The maximum differential settlement between footings is anticipated to be on the order of $\frac{1}{2}$ -inch between individual footings or along a 40-foot span for continuous footings.

Closing

We greatly appreciate the opportunity to continue to contribute to this project. If there are any questions, comments, or concerns regarding the information contained within this document please do not hesitate to reach out to us at your convenience.

Respectfully Submitted,

McClelland Consulting Engineers, Inc.



Steven J. Head, P.E.
Principal | Geotechnical Department Head



William M. Hopkins, E.I.
Geotechnical Specialist



09/05/2024