Goodwyn Mills Cawood
117 Jefferson Street North
Huntsville, AL 35801

TRANSMITTAL COVER SHEET

DATE: 4/19/2024

TO: ALL PLAN HOLDERS

FROM: JENNIFER FARINEAU

PROJECT: HANGAR DEVELOPMENT
FRANKLIN FIELD AIRPORT
GMC PROJECT NO.: TMGM230019

RE: ADDENDUM #1

PLEASE COMPLETE BELOW AND RETURN IMMEDIATELY VIA EMAIL to:

Jennifer Farineau
Email: jennifer.farineau@gmcnetwork.com

I, the undersigned, hereby acknowledge receipt of this Addendum #1.

____ ____________________
Authorized Representative Date

____
Company Name

ADDENDUM NUMBER 1

Hangar Development Project
Franklin Field Airport
GMC Project No.: TMGM230019

I. General

The following clarifications, revisions, additions are hereby made a part of same, and shall be incorporated in the Project Manual, Drawings, and Work of the Contract the same as if originally included in the Bid and Construction Documents.

Bidders shall acknowledge receipt of this Addendum in writing, as provided on the Transmittal Cover Sheet and the Proposal Form.

When a revision and/or addition is called for to the Drawings or Project Manual, they shall be fully coordinated with and carried through all applicable Drawings and portions of the Project Manual, including in part, all related Civil, Landscaping, Architectural, Structural, Electrical, and other Documents.

II. Changes to Project Manual

- Revised Bid Proposal Form
- Added Report of Geotechnical Exploration

III. Changes to Plans

- Revised quantities on plan sheet C13 "Summary of Quantities (Proposal A)"
- Revised quantities on plan sheet C14 "Summary of Quantities (Proposal B)"
- Revised dimension on plan sheet C16 "Demolition Plan (Proposal A)"
- Revised dimension on plan sheet C17 "Demolition Plan (Proposal B)"
- Revised note 3 on plan sheet C30 "Box Hangar Layout (Proposal A)"
- Revised note 3 on plan sheet C31 "T-Hangar Layout (Proposal B)"
- Eliminated text conflict on electrical sheet E4 "Electrical Plan T-Hangar (Proposal B)"

IV. Conclusion

This is the end of Addendum Number 1

FRANKLIN FIELD AIRPORT
BULLOCK COUNTY
UNION SPRINGS, AL
HANGAR DEVELOPMENT
FAA AIP/AIG: 3-01-0014-009/010-2024
GMC PROJECT NO.: TMGM230019

ITEM	SPEC. NO.	DESCRIPTION OF ITEM	BID QTY	UNIT	UNIT PRICE	TOTAL PRICE
PROPOSAL A BASE BID						
1.	210A-000	Unclassified Excavation	1,650	CU YD		
2.	210D-021	Borrow Excavation (Loose Truckbed Measurement) (A4 or Better)	800	CU YD		
3.	301A-012	Crushed Aggregate Base Course, Type B, Plant Mixed, 6" Compacted Thickness	1,090	SQ YD		
4.	401A-000	Bituminous Treatment A	1,090	SQ YD		
5.	405A-000	Tack Coat	110	GAL		
6.	424A-360	Superpave Bituminous Concrete Wearing Surface Layer, 1/2" Maximum Aggregate Size Mix, ESAL Range C/D (Approximatley 165 lbs/sy)	90	TON		
7.	424B-002	Superpave Bituminous Concrete Upper Binder Layer, 1/2" Maximum Aggregate Size Mix, ESAL Range C/D (Approximatley 165 lbs/sy)	90	TON		
8.	610D-003	Filter Blanket, Geotextile	20	SQ YD		
9.	623A-001	Concrete Gutter (Valley)	185	LF		
10.	637A-000	Fence Reset	253	LF		
11.	650B-000	Topsoil From Stockpiles	180	CU YD		
12.	652A-100	Seeding	1	ACRE		
13.	656A-010	Mulching	1	ACRE		
14.	665A-000	Temporary Seeding	1	ACRE		
15.	665J-002	Silt Fence	500	LF		
16.	665Q-002	Wattle	20	LF		
17.	C-105	Mobilization	1	LS		
18.	F-162-5.1	8' Galvanized Chain Link Fence with 3 Strand Barb Wire, Complete in Place	78	LF		
19.	F-162-5.2	12' Double Swing Driveway Gate, Complete in Place	1	EACH		
20.	P-620-5.1a	Surface Preparation	1	LS		
21.	P-620-5.2b	Marking	180	SQ FT		
22.	P-620-5.3c	Reflective Media	1	LS		
23.	P-620-5.4d	Temporary Runway and Taxiway Marking	180	SQ FT		
					PROPOSAL A BASE BID TOTAL	

PROPOSAL A ADD. ALTERNATE

ITEM	SPEC. NO.	DESCRIPTION OF ITEM	BID QTY	UNIT	UNIT PRICE	TOTAL PRICE
AA1-1	210A-000	Unclassified Excavation	630	CU YD		
AA1-2	210D-021	Borrow Excavation (Loose Truckbed Measurement) (A4 or Better)	690	CU YD		
AA1-3	H-100	4-Unit Box Hangar with Bi-Folding Doors, Complete in Place (Includes Foundation, Building, Utilities, etc.)	1	LS		
					PROPOSAL A ADDITIVE ALTERNATE TOTAL	
					PROPOSAL A BASE BID + ADD. ALT. TOTAL	

Contractor: ______________________________

FRANKLIN FIELD AIRPORT BULLOCK COUNTY
UNION SPRINGS, AL
HANGAR DEVELOPMENT
FAA AIP/AIG: 3-01-0014-009/010-2024 GMC
PROJECT NO.: TMGM230019

ITEM	SPEC. NO.	DESCRIPTION OF ITEM	BID QTY	UNIT	UNIT PRICE	TOTAL PRICE
PROPOSAL B BASE BID						
1.	206D-000	Removing Pipe	30	LF		
2.	210A-000	Unclassified Excavation	3,720	CU YD		
3.	210D-021	Borrow Excavation (Loose Truckbed Measurement) (A4 or Better)	2,070	CU YD		
4.	214A-000	Structure Excavation	55	CU YD		
5.	214B-001	Foundation Backfill, Commercial	25	CU YD		
6.	301A-012	Crushed Aggregate Base Course, Type B, Plant Mixed, 6" Compacted Thickness	2,970	SQ YD		
7.	401A-000	Bituminous Treatment A	2,970	SQ YD		
8.	405A-000	Tack Coat	270	GAL		
9.	424A-360	Superpave Bituminous Concrete Wearing Surface Layer, 1/2" Maximum Aggregate Size Mix, ESAL Range C/D (Approximatley 165 lbs/sy)	240	TON		
10.	424B-002	Superpave Bituminous Concrete Upper Binder Layer, 1/2" Maximum Aggregate Size Mix, ESAL Range C/D (Approximatley 165 lbs/sy)	240	TON		
11.	530B-000	18" Span, 11" Rise Roadway Pipe (Class 3 R.C.)	80	LF		
12.	610D-003	Filter Blanket, Geotextile	40	SQ YD		
13.	619B-015	18" Span, 11" Rise Roadway Pipe End Treatment, Class 2	2	EACH		
14.	623A-001	Concrete Gutter (Valley)	172	LF		
15.	637A-000	Fence Reset	253	LF		
16.	650B-000	Topsoil From Stockpiles	440	CU YD		
17.	652A-100	Seeding	2	ACRE		
18.	656A-010	Mulching	2	ACRE		
19.	665A-000	Temporary Seeding	2	ACRE		
20.	665J-002	Silt Fence	850	LF		
21.	665Q-002	Wattle	60	LF		
22.	C-105	Mobilization	1	LS		
23.	F-162-5.1	8' Galvanized Chain Link Fence with 3 Strand Barb Wire, Complete in Place	256	LF		
24.	P-620-5.1a	Surface Preparation	1	LS		
25.	P-620-5.2b	Marking	425	SQ FT		
26.	P-620-5.3c	Reflective Media	1	LS		
27.	P-620-5.4d	Temporary Runway and Taxiway Marking	425	SQ FT		
					PROPOSAL B BASE BID TOTAL	

PROPOSAL B ADD. ALTERNATE

AA1-1	210A-000	Unclassified Excavation	690	CU YD		
AA1-2	210D-021	Borrow Excavation (Loose Truckbed Measurement) (A4 or Better)	750	CU YD		
AA1-3	H-100	6-Unit T-Hangar with Bi-Folding Doors, Complete in Place (Includes Foundation, Building, Utilities, etc.)	1	LS		
					PROPOSAL B ADDITIVE ALTERNATE TOTAL	
					PROPOSAL B BASE BID + ADD. ALT. TOTAL	

Contractor: ____________________

Franklin Field Airport
2024 Hangar Development

Union Springs, Bullock County, Alabama

April 17, 2024

REPORT OF GEOTECHNICAL EXPLORATION

Prepared By

Goodwyn, Mills and Cawood, Inc.
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GMC PROJECT NUMBER: GMGM240006

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April 17, 2024

Mr. Jordan Russell, PE
GMC
PO Box 242128
Montgomery, AL 36124

RE: REPORT OF GEOTECHNICAL EXPLORATION
FRANKLIN FIELD AIRPORT
2024 HANGAR DEVELOPMENT
UNION SPRINGS, BULLOCK COUNTY, ALABAMA
GMC PROJECT NO. GMGM240006

Dear Mr. Russell,

Goodwyn Mills Cawood, LLC (Geotechnical & Construction Services Division) is pleased to provide this report of geotechnical exploration performed for the above referenced project. This report includes the results of field and laboratory testing, recommendations for foundation design, and general site preparation recommendations.

We appreciate the opportunity to perform this study on this phase of the project for you and look forward to continued participation during the construction phase of this project. If you have any questions pertaining to this report, or if we may be of further service, please do not hesitate to call.

Sincerely,
GOODWYN MILLS CAWOOD, LLC

ALABAMA LICENSED No. 26331 PROFESSIONAL 4.17.24 ENGINEER MICHAEL JOSEPH McNEILL

Michael J. McNeill, PE
Senior Geotechnical Engineer
Licensed AL 26331

Kevin W. Wales, PE
Executive Vice President
Licensed AL 20146

GMC

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GMC

1.0 EXECUTIVE SUMMARY

The summary of conclusions and recommendations contained in this section of the report are provided for your convenience. A geotechnical exploration has been conducted for the proposed Hangar Development located at Franklin Field in Union Springs, Bullock County, Alabama. We understand that the proposed hangar will consist of a pre-engineered metal building (PEMB) frame with turn-down footings.

Ten (10) soil test borings were drilled across the site. The borings were drilled to the boring termination depths of 10.5 to 25.5 feet below the existing ground surface. The borings were drilled to the planned depth of 10.5 to 25.5 feet below existing ground surface. The borings initially encountered approximately 3- to 4-inches of organic laden material. Below the organic laden material, very loose to loose silty sand (SM) was encountered to a depth of 1.5 to 4 feet below existing grade. Standard Penetration Test (SPT) N-values in these materials ranged from 4 to 5 blows per foot (bpf). In borings B-07, B-08, and B-10, below the OLM, the borings encountered sandy clay (CL) to an approximate depth of 4 to 6 feet with SPT N-values from 2 to 9 bpf. The borings then encountered very soft to stiff fat clay (CH) with sand to the boring termination depth. SPT N-values in these materials ranged from 1 to 12 bpf.

Groundwater was encountered at a depth of about 6.5 to 9 feet below the existing ground surface at the time of drilling. We recommend 6-inches of topsoil should be budgeted for removal of the organic laden material.

The borings encountered very loose to loose silty sand (SM) and soft sandy clay (CL) in the upper 3 feet. Once the site is at grade and prior to the placement of any new fill, the areas should first be thoroughly proofrolled once the subgrade elevation is reached. **Based on the soils encountered, we recommend that an allowance of 2 feet of undercut below the planned subgrade elevation and replacement in the building and paving areas be set up in the allowances.** The soils on the surface should be suitable for reuse as fill material, however, moisture conditioning of these soils should be anticipated. Once the areas are undercut, we recommend moisture conditioning and densifying the subgrade soils at -2 feet prior to replacing with structural fill material.

We recommend that conventional shallow or turn-down foundations be used and sized for a net allowable bearing capacity of 2,000 pounds per square foot (psf). The foundations should bear at a minimum depth of 18-inches below the proposed final exterior grade. We anticipate a total and differential settlements of up to 1-inch and ½-inch, respectively.

2.0 PROJECT INFORMATION AND SCOPE OF WORK

2.1 Project Information

A geotechnical exploration has been conducted for the proposed Hangar Development located at Franklin Field in Union Springs, Bullock County, Alabama. A six (6) bay hangar is planned with associated pavement and infrastructure. Structural loading information was not provided; however, we assume wall and column loads will be less than 5 kips per foot and 50 kips, respectively.

2.2 Scope of Work

The purpose of this exploration was to perform a general evaluation of the subsurface soil conditions at the site and to provide general sitework recommendations, pavement recommendations, and recommendations for foundation design. The scope of the exploration and evaluation included a site reconnaissance, field and laboratory testing, and an engineering evaluation of the foundation materials.

The scope of the exploration included drilling a total of ten (10) soil test borings to the planned depth of 10 to 25 feet. The borings were performed using a Geoprobe drill rig equipped with a rotary head and hollow stem augers (HSA). Soils were sampled using a two-inch OD split barrel sampler in accordance with ASTM D1586 driven with an automatic hammer.

The scope of services for the geotechnical study did not include any environmental assessment for the presence or absence of wetlands or hazardous or toxic materials in the soil, surface water, groundwater, or air, on or below or around this site. Any statements in this report or on the boring records regarding odors, colors, or unusual or suspicious items or conditions are strictly for the information of the client.

3.0 SITE AND SUBSURFACE CONDITIONS

3.1 General

At the time of this study, the proposed hangar site was located in a grassed field adjacent to an existing hangar and taxilane. A fence was present between the existing taxilane and the proposed hangar site. The site is relatively level with low lying grass.

3.2 Site Geology

Published geologic information indicates that the site is underlain by the Mooreville Chalk. The Mooreville Chalk is generally characterized by yellowish-gray to olive-gray compact fossiliferous clayey chalk and chalky marl which weathers to form a moderately to highly plastic clay overburden.

3.3 Subsurface Conditions

The borings were drilled to the planned depth of 10.5 to 25.5 feet below existing ground surface. The borings initially encountered approximately 3- to 4-inches of organic laden material. Below the organic laden material, very loose to loose silty sand (SM) was encountered to a depth of 1.5 to 4 feet below existing grade. Standard Penetration Test (SPT) N-values in these materials ranged from 4 to 5 blows per foot (bpf). In borings B-07, B-08, and B-10, below the OLM, the borings encountered sandy clay (CL) to an approximate depth of 4 to 6 feet with SPT N-values from 2 to 9 bpf. The borings then encountered very soft to stiff fat clay (CH) with sand to the boring termination depth. SPT N-values in these materials ranged from 1 to 12 bpf.

The subsurface descriptions contained herein are of a generalized nature to highlight the major soil stratification features and soil characteristics. The boring records included in the Appendix should be reviewed for specific information as to individual boring locations. The stratification shown on the boring records represents conditions only at the actual boring locations. Variations may occur and should be expected between boring locations. The stratifications represent the approximate boundary between subsurface materials, and the transition may be gradual.

3.4 Groundwater Information

Groundwater was encountered in several borings at depths of 6.5 to 9 feet below existing grade at the time of drilling. During previous studies at the site, groundwater as shallow as 4 feet has been recorded. The borings were backfilled prior to leaving the site for safety reasons and therefore no long-term groundwater levels were recorded. It is important to note that the groundwater levels may not have stabilized in the borings. Furthermore, groundwater levels may vary due to seasonal conditions, proximity to bodies of water, and recent rainfall.

3.5 Laboratory Analysis

The laboratory testing program included visual classification of all soil samples and laboratory testing of selected samples. Atterberg limits, sieve analysis and natural moisture content tests were performed on selected samples. The laboratory-testing program was conducted in general accordance with applicable ASTM standards and the results are summarized in the Appendix.

4.0 SITEWORK RECOMMENDATIONS

4.1 Sitework Recommendations

Clearing and Stripping

Sitework should begin with clearing and grubbing of the site and should include the removal of any organic laden materials. We recommend 6-inches should be budgeted for the removal of the organic laden material. This should include abandoned utilities and asphalt paving/aggregate base.

Proofrolling

The borings encountered very loose to loose silty sand (SM) and soft sandy clay (CL) in the upper 3 feet. Once the site is at the planned subgrade elevation and prior to the placement of any new fill, the areas should first be thoroughly proofrolled with repeated passes of a loaded tandem axle dump truck to locate deeper soft soils.

Soils that are observed to rut or deflect excessively under the moving load will require remediation. **Based on the soils encountered, we recommend that an allowance of 2 feet of undercut below the planned subgrade elevation and replacement in the building and paving areas be set up in the allowances. The soils on the surface should be suitable for reuse as fill material, however, moisture conditioning of these soils should be anticipated. Once the areas are undercut, we recommend moisture conditioning and densifying the subgrade soils at -2 feet prior to replacing with structural fill material.** The proofrolling, densification, undercutting, and filling activities should be witnessed by a qualified representative of the geotechnical engineer and should be performed during a period of dry weather.

If the proofroll reveals excessive rutting or deflection, attempts can first be made to compact problem soils. If dry weather conditions exist prior to and at the time of construction, re-compaction and densification may prove successful. The soils should be scarified and the soil moisture should be adjusted to within 3 percent of optimum moisture for low plasticity soils. Once proofrolling has been accomplished, then re-compaction of the soils may be attempted. In pavement areas where unsuitable soils are encountered, stabilization using geotextile or geogrid with stone may be a more economical option than removal and replacement of the soils.

4.2 Time of Year Site Preparation Considerations

The time of the year that the sitework begins can affect the project considerably. In this area, the "wet" season is generally between the months of November to April, and the "dry" season from May to October. There are many considerations that need to be addressed prior to bidding a project that could affect the budget based on the time of year a project starts earthwork activities. The time of the year that the geotechnical borings were performed can provide a false sense of actual near surface conditions depending on the time of year and weather conditions. Below are considerations that should be addressed based on the time of the year earthwork is started.

"Wet" Season

During the "wet" season, the amount of undercutting may be greater, therefore resulting in greater excavation costs. The soils are typically proofrolled to determine their suitability for the placement of new fill or subgrade support. During the wet season, the surface soils have a higher moisture content and will tend to pump, therefore, hindering the placement of new fill. In addition, the drying time, time period between rain events, and temperature is not conducive to scarify soils, allow to dry, and recompact. At this time, the decision should be made by the owner to try either scarify/dry/compact the in-place soils, which could take time, or undercut and replace with suitable material, which could increase the sitework costs. Based on our experience, the amount of undercut could be an additional 1 to 2 feet (or greater in localized areas), whereas in drier weather, lesser amounts of undercutting may be necessary, if recompaction or stabilization of soils left in place can be achieved.

Some undercut soils are not always "unsuitable" soil and can be moisture conditioned and reused as fill in the deep areas, if drying conditions are favorable.

"Dry" Season

During the "dry" season, the surface soils have a lower moisture content and will tend to "bridge" or "crust" softer underlying soils. They will generally allow the placement of new fill, but the crust can break down if repeated passes with heavily loaded equipment is persistent. In addition, new fill from cuts or other sources may need to be moisture conditioned prior to compaction. The soils can dry significantly, requiring the addition of water for proper compaction. Water trucks should be used, as necessary, by the contractor to condition the soils within the required specifications.

Contractor Responsibility

The grading contractors have the option of performing their own evaluation of the site conditions to assess the excavation considerations based on the time of year a project is bid. We strongly suggest that the grading contractors conduct their own exploration and evaluation of the site conditions and material management requirements to cost effectively develop the site.

Typically, due to the movement of heavy equipment and weather conditions, the subgrade becomes disturbed during construction. As a result, fine grained clayey and silty soils have a tendency to lose shear strength and support capability. Therefore, additional effort on the Contractor's part will be required to reduce traffic and limit disturbance of soils. It is essential that the subgrade be restored to a properly compacted condition based on optimum moisture and density requirements. Restoration of the subgrade should be addressed in the project specifications.

4.3 Drainage Considerations

Adequate drainage should be provided at the site to reduce the increase in moisture content of the foundation soils. We recommend that the parking lots, walkways, and the ground surface be sloped away from the structure on all sides. Roof drainage should be collected by gutters and downspouts and transmitted by pipe to the storm water drainage system or discharge a minimum of 5 feet away from the building.

4.4 Fill Placement

Soil Fill Material

Soil fill material in any structural area should be placed in loose lifts not exceeding 8-inches in thickness with a maximum particle size of 3 inches. The following table summarizes the compacted fill requirements:

Location	Test Method	Compaction Required (minimum)	Moisture Content
Building and Paving Areas and 5' beyond perimeter	ASTM D698 (Standard Proctor)	98 %	-/+3 percentage points of optimum moisture

Structural fill material should meet the following characteristics:

Property	Requirement
Organic Material	≤ 5%
Liquid Limit	‹ 50%
Plasticity Index	≤ 25%
Maximum Dry Density	≥ 95 lb/ft^3
Maximum Particle Size	3 inches or less

Samples of the proposed fill materials, either from on-site or borrow, should be provided to the geotechnical engineer for Proctor testing and evaluation prior to placement. Density tests should be performed to document compaction and moisture content of any earthwork involving soils and other applicable materials. Density tests should be performed frequently, with a recommended minimum of one test per 5,000 square feet per lift of fill in structural areas and one test per 10,000 square feet per lift in other areas. Fill material must meet the specified density and moisture requirements to be considered acceptable.

4.5 Backfilling of Utility Trenches

Backfilling of storm drain and utility trenches must be performed in a controlled manner to reduce settlement of the fill and cracking of overlying floor slabs and pavements. We recommend that utility trenches be backfilled with acceptable borrow or dense-graded crushed stone in 6-inch loose lifts compacted with mechanical piston tampers to the project requirements. Should seepage occur in utility trenches, it may be necessary to "floor" the trench with dense-graded gravel to provide a working surface. If crushed stone is used to backfill utility trenches, we recommend that #57 stone be used. Open-graded crushed stone can serve as a channel for seepage toward structures and therefore is not recommended for use as utility trench backfill.

5.0 STRUCTURAL RECOMMENDATIONS

5.1 Shallow Foundations

Properly sized shallow or turn-down foundations can be used for support of the structure. The foundations may be sized using a net allowable bearing pressure of 2,000 pounds per square foot (psf) bearing in either the existing soils or compacted structural fill material. Footings should be founded at least 18-inches below the proposed final grade. Total settlements of foundations due to the building loads are expected to be about 1-inch, with differential settlements of approximately ½ the total settlement value.

Even though computed footing dimensions may be less, column footings and continuous footings should have minimum width dimensions of 24-inches and 18-inches, respectively. This allows for hand cleaning of materials disturbed during the excavation process and reduces the potential for punching shear failure.

Foundation concrete should be placed the same day as footings are excavated so that the foundation bearing soils can remain near the existing moisture content. Foundation bearing surfaces should not be disturbed or left exposed during inclement weather. Saturation of the on-site soils can cause a loss of strength and increased compressibility. If bearing soils dry excessively, the can later well and heave foundations. Excavations for footings should be hand cleaned to remove loose soil or mud and the bearing surface should be thoroughly compacted. If concrete placement is not possible immediately after excavation, we recommend that a thin layer (approximately 2-inches) of lean concrete or CLSM be placed on the bearing surface for protection after we have observed and evaluated the exposed bearing surfaces.

All foundation excavations should be observed by the geotechnical engineer or his representative. The engineer can provide geotechnical guidance to the owner's design team should any unforeseen foundation problems develop during construction.

5.2 Lateral Resistance

Lateral loads may be resisted by the passive pressure of the soil acting against the side of the footing and/or the friction developed between the base of the footing and the underlying soil. For foundations cast against the residual soils or properly compacted fill, the passive pressure can be taken as an equivalent to the pressure exerted by a fluid weighing 120 pcf (Ø = 0°, moist unit weight of soil = 120 pcf). A coefficient of friction of 0.35 may be used for calculating the frictional resistance at the base of the shallow footings.

The resistance values discussed are based on assumption that the foundations can withstand horizontal movements of up to ¼-inch. In addition, the excavation of the footing walls should be near vertical and the concrete placed directly against the soil. The passive pressure will be reduced if the loaded side is benched or sloped. Lateral resistance determined in accordance with these recommendations should be considered the total available resistance. The design should include a minimum factor of safety of 1.5.

5.3 Floor Slabs

It is our opinion that floor slabs can be built on-grade achieving support from properly compacted fills. For select fill subgrade soils compacted to at least 98 percent of the materials standard Proctor maximum dry density, we recommend a modulus of subgrade reaction of 125 psi/in (pci). Ground supported slabs should be founded on a minimum of 4-inches of compacted, granular materials such as crushed stone or a clean sand with less than 10% passing the #200 sieve. This layer should provide uniform and immediate support of the slab and act as a capillary break. A vapor retarder should be used on top of the granular layer, as required by the building use.

Care should be taken so that fines from the subgrade are not allowed to contaminate the granular layer. If fines do contaminate this layer, capillary rise and subsequent damage to moisture sensitive floor coverings could occur. On most projects, there is some time lag between initial grading and the time when the contractor is ready to place concrete for the slab-on-grade. Inclement weather just prior to placement of concrete for the slab-on-grade can result in trapped water in the granular layer.

5.4 Seismic Considerations

Subsurface information (SPT and soil classification) from the borings, published geologic information, and our experience was used to estimate the seismic site classification according to methods in the 2021 International Building Code. Based upon this information, we recommend a Seismic Class of D (Stiff Soil) for this site. Based on our understanding of the project, we have assumed a Risk Category of II. If the Risk Category is different, the values below may need to be revised. According to the ASCE 7/SEI 7-16 hazard standard information, the site has mapped 0.2 second spectral response acceleration (S_S) of approximately 0.113g and a mapped 1.0 second spectral response acceleration (S_1) of approximately 0.071g.

Using this information, Site Class C and Risk Category II, the site coefficients Fa and Fv have been determined to be 1.6 and 2.4, respectively. The design spectral response accelerations S_{DS} and S_{D1} were 0.121g and 0.113g, respectively.

6.0 PAVEMENT RECOMMENDATIONS

6.1 Flexible Pavement

Aircraft traffic information for pavement design was not provided, however the largest aircraft to be used is assumed to consist of light weight aircraft with a gross taxi weight of 10,000 pounds or less. If the traffic information changes, we request to review the design for compliance. Based on the size and anticipated use of the taxilanes, we recommend the following minimum pavement section:

Minimum Pavement Section

Layer	Pavement Materials	Thickness (inches)
1	424A-360 Superpave Bituminous Concrete Wearing Surface Layer, 1/2" Maximum Aggregate Size Mix, ESAL Range C/D, Approximately 165 lb/sy	1.5
2	405A-000 Tack Coat	--
3	424B-002 Superpave Bituminous Concrete Upper Binder Layer, 1/2" Maximum Aggregate Size Mix, ESAL Range C/D, Approximately 165 lb/sy	1.5
4	401A-000 Bituminous Treatment A	--
5	301A-012 Crushed Aggregate Base Course, Type B, Plant Mixed, 6" Compacted Thickness	6.0
Total Design Thickness		9.0

The above pavement sections represent minimum recommended thickness for a pavement section designed for a 15-year life. However, periodic maintenance should be anticipated over the pavement design life. All pavement materials and construction procedures should conform to the *FAA Standards for Specifying Construction of Airports (Advisory Circular AC 150/5370-10H)* or the *State of Alabama Department of Transportation Standard Specifications for Highway Construction, Latest Edition.* The crushed aggregate base should be an aggregate as outlined in Section 825, Type B and should be compacted to at least 98 percent of the modified Proctor (AASHTO T180) maximum dry density. The hot mix asphalt should conform to Section 424.

7.0 REPORT LIMITATIONS

The recommendations submitted are based on the available soil information obtained by GMC and design details furnished by GMC for the proposed project. Additional borings should be drilled at the site to help characterize the subsurface conditions. In addition, building and loading condition specific geotechnical explorations should be performed for individual building sites so that site-specific recommendations can be provided.

The recommendations submitted are based on the available soil information obtained by GMC and design details furnished by GMC for the proposed project. If there are any revisions to the plans for this project or if deviations from the subsurface conditions noted in this report are encountered during construction, we should be notified immediately to determine if changes in the foundation, or other, recommendations are required. If GMC is not retained to perform these functions, GMC cannot be responsible for the impact of those conditions on the performance of the project.

The findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

After the plans and specifications are more complete, the geotechnical engineer should be provided the opportunity to review the final design plans and specifications to check that our engineering recommendations have been properly incorporated into the design documents. At that time, it may be necessary to submit supplementary recommendations.

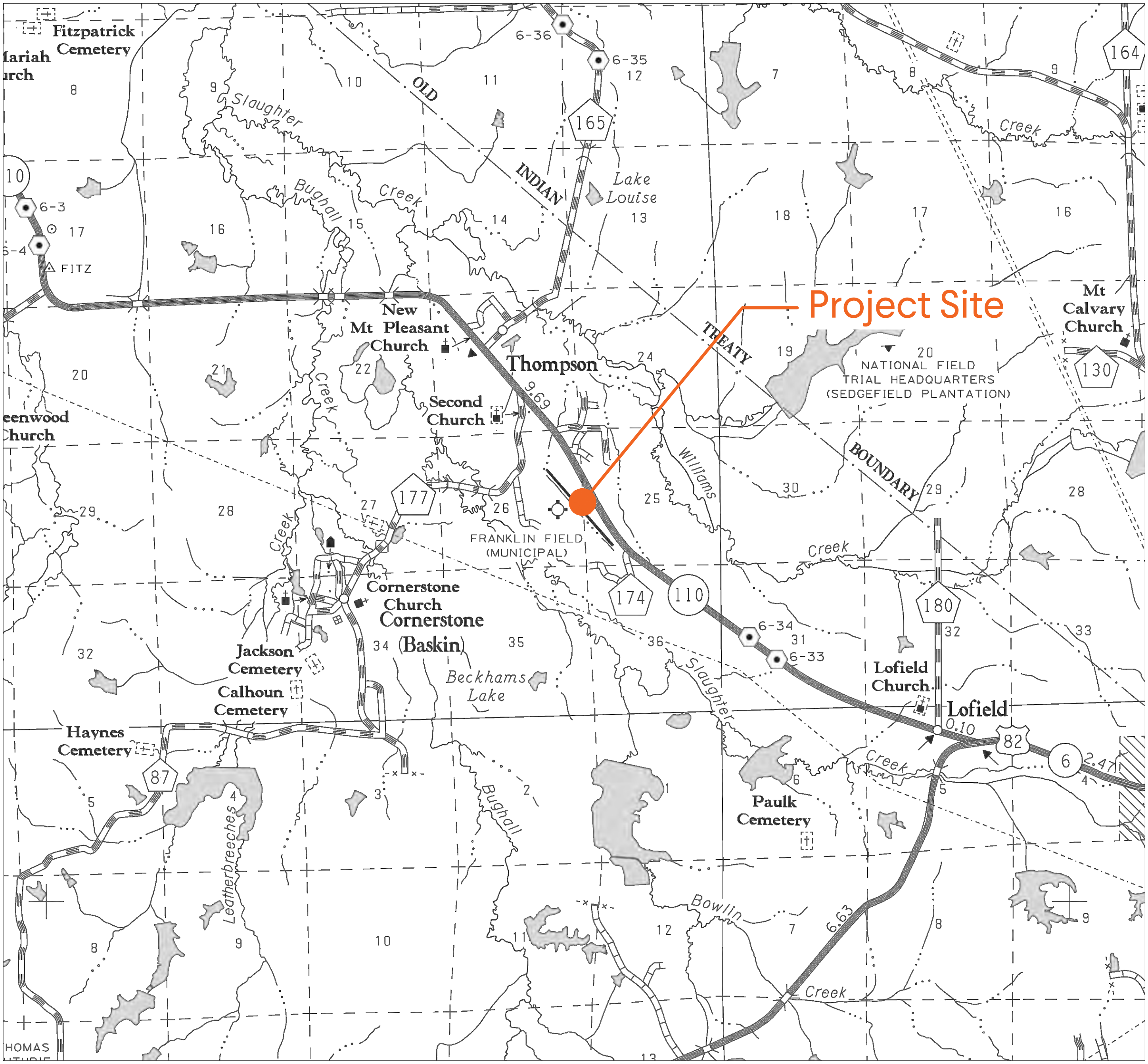
We emphasize that this report was prepared for design and informational purposes only and may not be sufficient to prepare an accurate construction budget. Contractors reviewing this report should acknowledge that the recommendations contained herein are for design and informational purposes only. A more comprehensive exploration and testing program would be required to assist the contractor in preparing the final building pad preparation, grading, and foundation construction budgets. In no case should this report be utilized as a substitute for development of specific earthwork specifications.

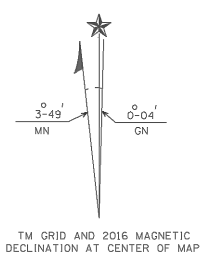
The information contained in this report is not intended, nor is sufficient, to aid in the design of segmental or mechanically stabilized earth (MSE) retaining walls. Segmental or MSE wall designers and builders should not rely on this report and should perform independent analysis to determine all necessary soil characteristics for use in their wall design, including but not limited to, soil shear strengths, bearing capacities, global stability, etc.

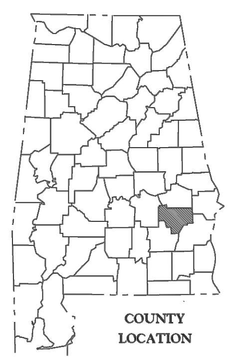
GMC

APPENDIX

Figure 1 – Site Location Map
Figure 2 – Site Geology Map
Figure 3 – USGS Site Map
Figure 4 – Boring Location Plan
Soil Classification Chart
Subsurface Diagrams
Boring Records
Summary of Laboratory Results
Field and Laboratory Procedures







Reference: General Highway Map of Bullock County, ALDOT, 2016

Franklin Field Airport
2024 Hangar Development
Union Springs, Bullock County, Alabama

Site Location Map

Figure 1

SUPPLEMENTAL DRAWING

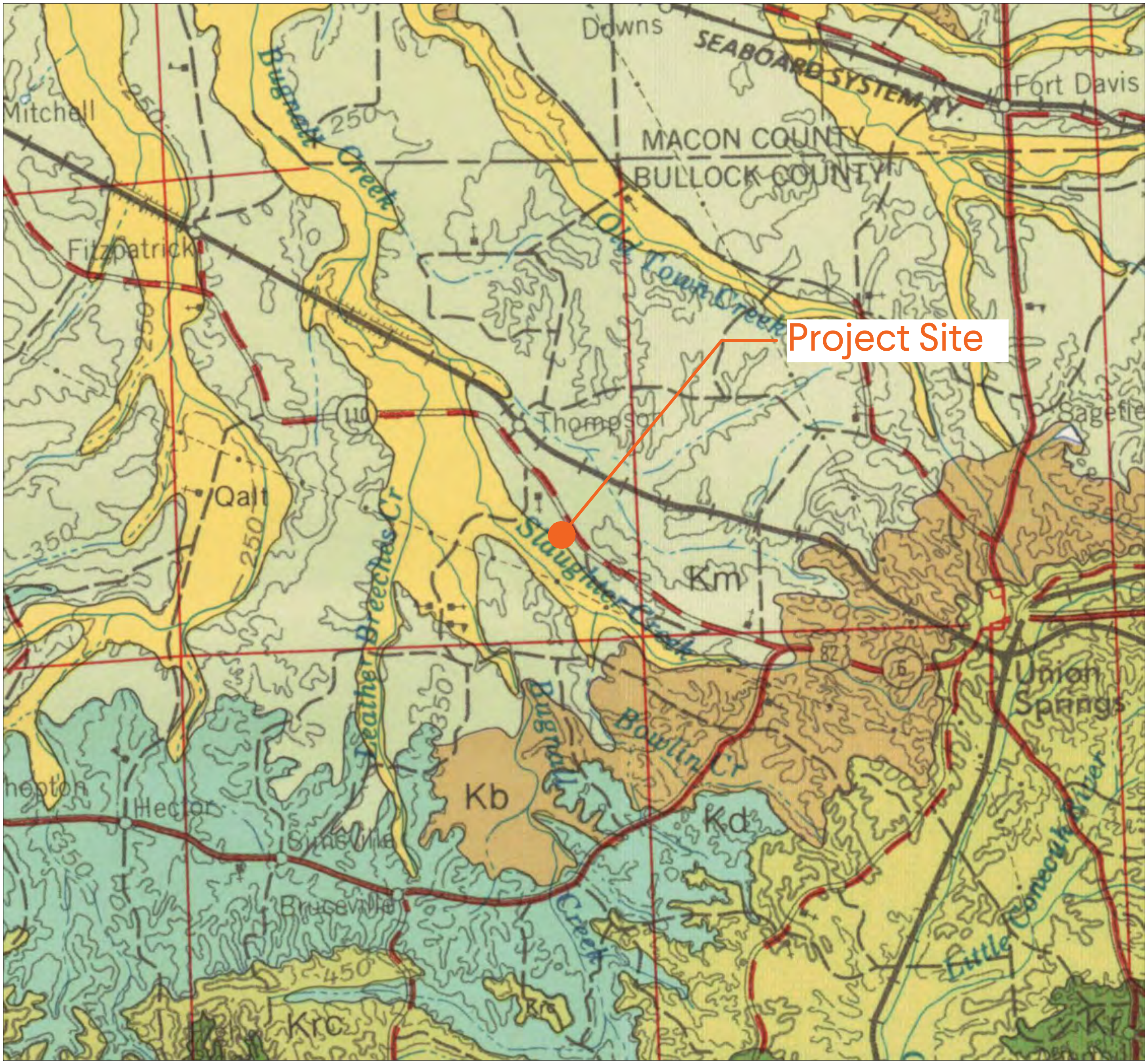
GMC # GMGM240006

04/16/2024

DRAWN BY: MJM

2660 East Chase Lane, Suite 200
Montgomery, AL 36117
T 334.271.3200
GMCNETWORK.COM

GMC



Km **Mooreville Chalk** - Medium-light-gray to yellowish-gray finely sandy, argillaceous, fossiliferous chalk that extends eastward into Russell County. The Arcola Limestone Member at the top extends eastward through Montgomery County. The Arcola consists of two to four beds of light-gray dense thin-bedded fossiliferous limestone separated by thin beds of calcareous clay.

Qalt **Alluvial and Low Terrace Deposits** - Very pale-orange to grayish-orange fine to coarse quartz and sand containing clay lenses and gravel in places. Gravel composed mainly of quartz pebbles.

Reference: Szabo, M.W., Osborne, E.W., Copeland, C.W. Jr., and Neathery, T.L., 1988, Geologic Map of Alabama, Geological Survey of Alabama Special Map 220

Franklin Field Airport
2024 Hangar Development
Union Springs, Bullock County, Alabama

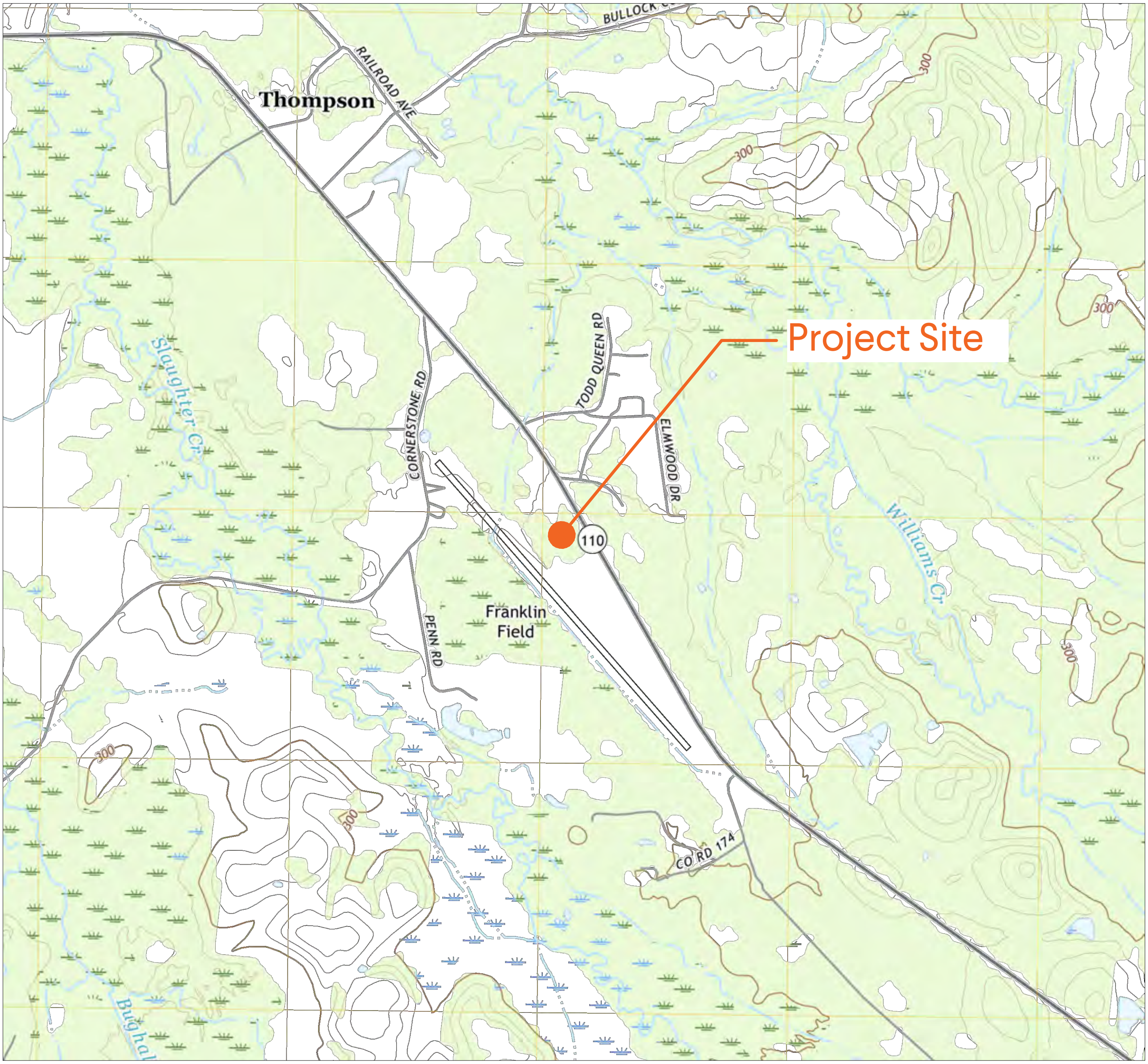
Site Geology Map

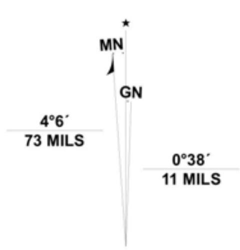
Figure 2

SUPPLEMENTAL DRAWING

GMC # GMGM240006
04/16/2024
DRAWN BY: MJM

2660 East Chase Lane, Suite 200
Montgomery, AL 36117
T 334.271.3200
GMCNETWORK.COM





UTM GRID AND 2019 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

QUADRANGLE LOCATION

Reference: USGS Quadrangles 7.5 Minute Series (Topographic)

Franklin Field Airport
2024 Hangar Development
Union Springs, Bullock County, Alabama

Thompson, AL (2020)
USGS Site Map

Figure 3

SUPPLEMENTAL DRAWING

GMC # GMGM240006
04/16/2024
DRAWN BY: MJM

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Montgomery, AL 36117
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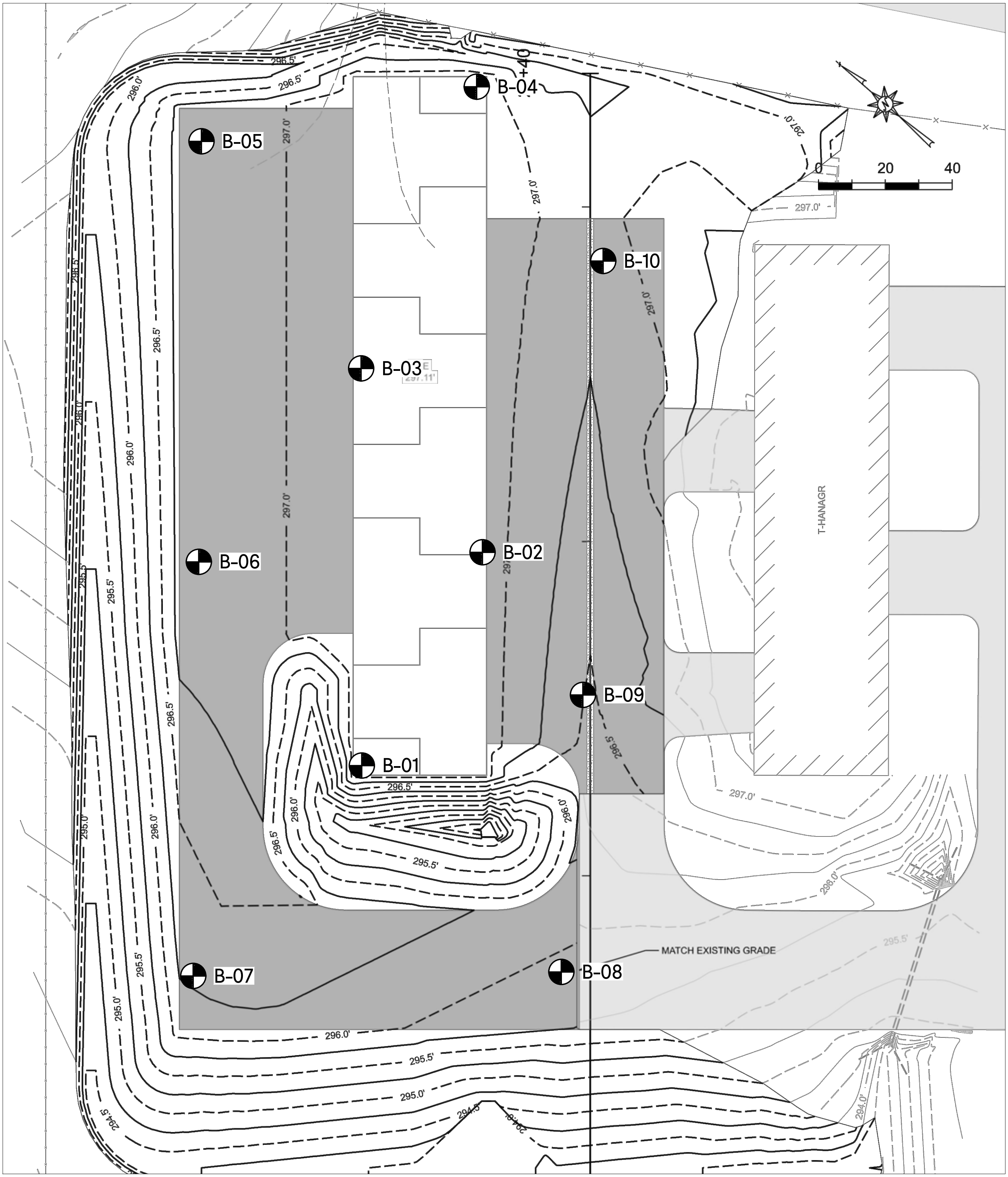

Approximate Boring Location

Reference: GMC drawing adapted from Grading Plan (Proposal B) C21 dated March 29, 2024.

Franklin Field Airport
2024 Hangar Development
Union Springs, Bullock County, Alabama

Boring Location Plan

Figure 4

SUPPLEMENTAL DRAWING

GMC # GMGM240006
04/16/2024
DRAWN BY: MJM

2660 East Chase Lane, Suite 200
Montgomery, AL 36117
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GMCNETWORK.COM

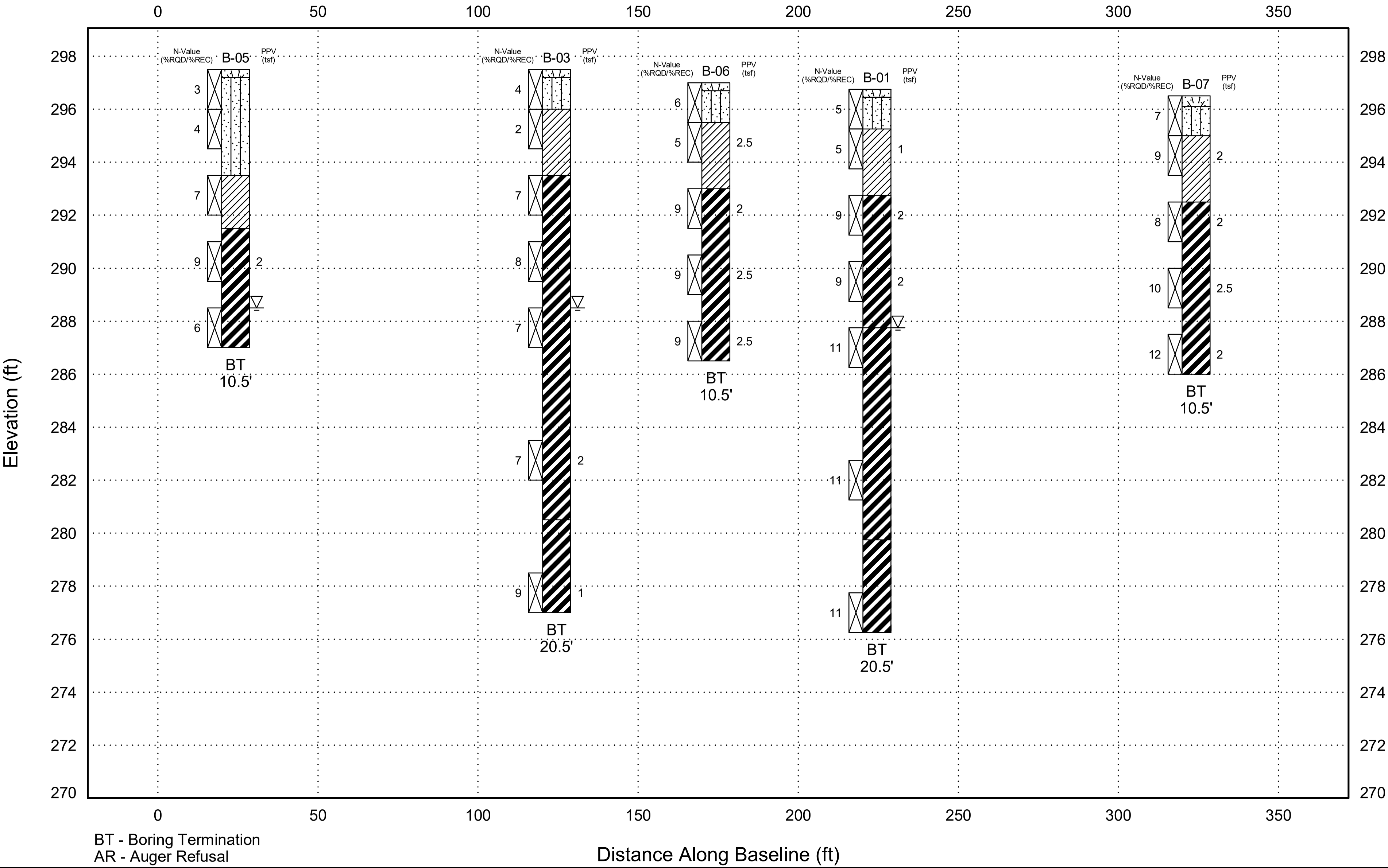
SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

SUBSURFACE DIAGRAM
A-A'

CLIENT Franklin Field Airport Authority
PROJECT NUMBER GMGM240006
PROJECT NAME Franklin Field Airport 2024 Hangar
PROJECT LOCATION Union Springs, Alabama



BT - Boring Termination
AR - Auger Refusal

GMC

SUBSURFACE DIAGRAM
B-B'

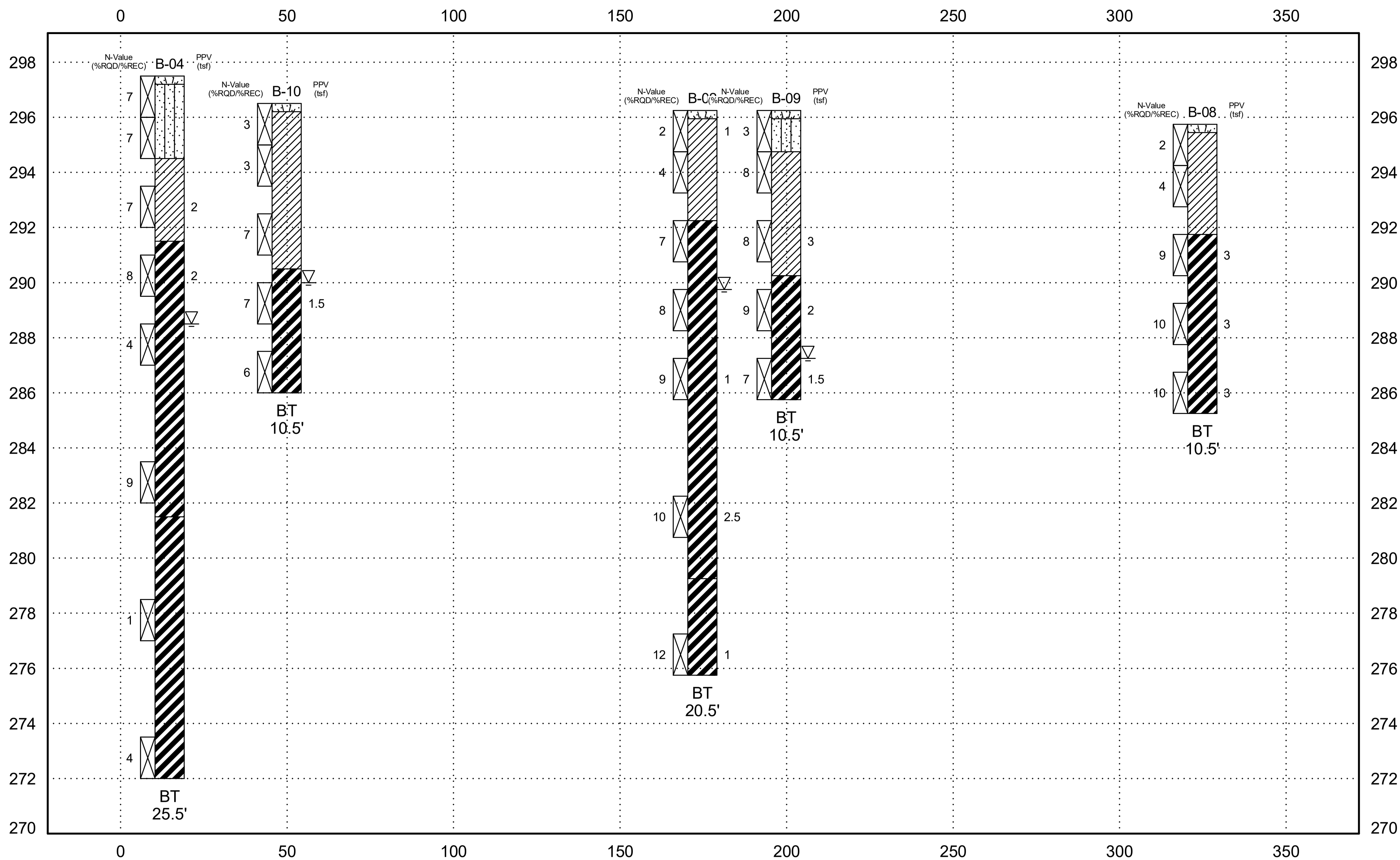
TOPSOIL | CL | CH | SM

CLIENT Franklin Field Airport Authority

PROJECT NUMBER GMGM240006

PROJECT NAME Franklin Field Airport 2024 Hangar

PROJECT LOCATION Union Springs, Alabama



BT - Boring Termination
AR - Auger Refusal

BORING NUMBER B-01

GMC

CLIENT Franklin Field Airport Authority
PROJECT NAME Franklin Field Airport 2024 Hangar
PROJECT NUMBER GMGM240006
PROJECT LOCATION Union Springs, Alabama
DATE STARTED 3/18/24 **COMPLETED** 3/18/24
GROUND ELEVATION 296.75 ft **HOLE SIZE** 4"
DRILLING CONTRACTOR Earth Core, LLC
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7822DT, Auto-Hammer, HSA w/ SPT
AT TIME OF DRILLING 9.00 ft / Elev 287.75 ft
LOGGED BY M. McNeill **CHECKED BY** K. Wales
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (%)
0	Organic Laden Material (OLM), 3" SILTY SAND (SM), brown, loose	SS		3-3-2 (5)			17				
	SANDY LEAN CLAY (CL), brown, medium	SS		2-2-3 (5)	1		18	33	16	17	53
5	FAT CLAY with SAND (CH), brown, light gray, red, yellowish brown, stiff	SS		3-5-4 (9)	2		24				
		SS		4-4-5 (9)	2		23				
10	FAT CLAY with SAND (CH), light gray, yellowish brown, stiff	SS		3-4-7 (11)			23				
15		SS		3-5-6 (11)			23				
	FAT CLAY with SAND (CH), dark gray, stiff										
20		SS		5-5-6 (11)			40				
	Boring was terminated at 20.5 feet.										

Elevation scale (ft): 295, 290, 285, 280, 275, 270; Depth scale (ft): 0, 5, 10, 15, 20, 25, 30

GMC

BORING NUMBER B-02

CLIENT Franklin Field Airport Authority
PROJECT NAME Franklin Field Airport 2024 Hangar
PROJECT NUMBER GMGM240006
PROJECT LOCATION Union Springs, Alabama
DATE STARTED 3/18/24 **COMPLETED** 3/18/24
GROUND ELEVATION 296.25 ft **HOLE SIZE** 4"
DRILLING CONTRACTOR Earth Core, LLC
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7822DT, Auto-Hammer, HSA w/ SPT
▽ **AT TIME OF DRILLING** 6.50 ft / Elev 289.75 ft
LOGGED BY M. McNeill **CHECKED BY** K. Wales
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

ELEVATION (ft)	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: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
	0		Organic Laden Material (OLM), 3"										
295			SANDY LEAN CLAY (CL), yellowish brown, light gray, very soft	SS		1-2-0 (2)	1						
				SS		1-2-2 (4)							
	5		FAT CLAY with SAND (CH), yellowish brown, light gray, medium to stiff	SS		2-3-4 (7)							
290		▽											
				SS		2-3-5 (8)							
	10			SS		2-3-6 (9)	1						
285													
	15			SS		3-4-6 (10)	2.5						
280													
			FAT CLAY with SAND (CH), dark gray, stiff										
	20			SS		5-5-7 (12)	1						
275			Boring was terminated at 20.5 feet.										
	25												
270													
	30												

BORING NUMBER B-03

CLIENT Franklin Field Airport Authority
PROJECT NAME Franklin Field Airport 2024 Hangar
PROJECT NUMBER GMGM240006
PROJECT LOCATION Union Springs, Alabama
DATE STARTED 3/18/24 **COMPLETED** 3/18/24
GROUND ELEVATION 297.50 ft **HOLE SIZE** 4"
DRILLING CONTRACTOR Earth Core, LLC
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7822DT, Auto-Hammer, HSA w/ SPT
AT TIME OF DRILLING 9.00 ft / Elev 288.50 ft
LOGGED BY M. McNeill **CHECKED BY** K. Wales
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

ELEVATION (ft)	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: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
	0		Organic Laden Material (OLM), 3"										
			SILTY SAND (SM), brown, gray, very loose	SS		2-2-2 (4)			16				
295			SANDY LEAN CLAY (CL), gray, brown, very soft	SS		0-1-1 (2)			21				
	5		FAT CLAY with SAND (CH), yellowish brown, light gray, medium	SS		2-3-4 (7)			23				
290				SS		3-3-5 (8)			23				
	10	▽		SS		2-3-4 (7)			30				
285													
	15			SS		3-3-4 (7)	2						
280			FAT CLAY with SAND (CH), dark gray, stiff										
	20			SS		3-4-5 (9)	1						
			Boring was terminated at 20.5 feet.										
275													
	25												
270													
	30												

BORING NUMBER B-04

GMC

CLIENT Franklin Field Airport Authority
PROJECT NAME Franklin Field Airport 2024 Hangar
PROJECT NUMBER GMGM240006
PROJECT LOCATION Union Springs, Alabama
DATE STARTED 3/18/24 **COMPLETED** 3/18/24
GROUND ELEVATION 297.50 ft **HOLE SIZE** 4"
DRILLING CONTRACTOR Earth Core, LLC
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7822DT, Auto-Hammer, HSA w/ SPT
▽ **AT TIME OF DRILLING** 9.00 ft / Elev 288.50 ft
LOGGED BY M. McNeill **CHECKED BY** K. Wales
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

ELEVATION (ft)	DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
	0	Organic Laden Material (OLM), 3"										
		SILTY SAND (SM), brown, gray, loose	SS		3-4-3 (7)							
295			SS		2-3-4 (7)							
		SANDY LEAN CLAY (CL), gray, brown, medium										
	5		SS		2-3-4 (7)	2						
		FAT CLAY with SAND (CH), yellowish brown, light gray, soft to stiff										
290			SS		2-3-5 (8)	2						
	▽											
	10		SS		3-2-2 (4)							
285												
	15		SS		2-4-5 (9)							
		FAT CLAY with SAND (CH), dark gray, very soft to soft										
280												
	20		SS		0-0-1 (1)							
275												
	25		SS		2-2-2 (4)							
		Boring was terminated at 25.5 feet.										
270												
	30											

BORING NUMBER B-05

GMC

CLIENT Franklin Field Airport Authority
PROJECT NAME Franklin Field Airport 2024 Hangar
PROJECT NUMBER GMGM240006
PROJECT LOCATION Union Springs, Alabama
DATE STARTED 3/18/24 **COMPLETED** 3/18/24
GROUND ELEVATION 297.50 ft **HOLE SIZE** 4"
DRILLING CONTRACTOR Earth Core, LLC
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7822DT, Auto-Hammer, HSA w/ SPT
AT TIME OF DRILLING 9.00 ft / Elev 288.50 ft
LOGGED BY M. McNeill **CHECKED BY** K. Wales
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

ELEVATION (ft)	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: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
	0		Organic Laden Material (OLM), 3"										
			SILTY SAND (SM), brown, gray, very loose	SS		1-1-2 (3)							
295				SS		2-2-2 (4)							
	5		SANDY LEAN CLAY (CL), light gray, medium	SS		2-3-4 (7)							
290			FAT CLAY with SAND (CH), yellowish brown, light gray, stiff to medium	SS		3-3-6 (9)	2						
	10			SS		3-3-3 (6)							
			Boring was terminated at 10.5 feet.										
285													
	15												
280													
	20												
275													
	25												
270													
	30												

GMC

BORING NUMBER B-06

CLIENT Franklin Field Airport Authority
PROJECT NAME Franklin Field Airport 2024 Hangar
PROJECT NUMBER GMGM240006
PROJECT LOCATION Union Springs, Alabama
DATE STARTED 3/18/24 **COMPLETED** 3/18/24
GROUND ELEVATION 297.00 ft **HOLE SIZE** 4"
DRILLING CONTRACTOR Earth Core, LLC
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7822DT, Auto-Hammer, HSA w/ SPT
AT TIME OF DRILLING None Encountered
LOGGED BY M. McNeill **CHECKED BY** K. Wales
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

ELEVATION (ft)	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: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
	0		Organic Laden Material (OLM), 3"										
			SILTY SAND (SM), brown, gray, loose	SS		4-4-2 (6)							
295			SANDY LEAN CLAY (CL), light brown, light gray, medium	SS		2-2-3 (5)	2.5						
	5		FAT CLAY with SAND (CH), yellowish brown, light gray, stiff	SS		2-4-5 (9)	2						
290				SS		3-3-6 (9)	2.5						
	10			SS		2-4-5 (9)	2.5						
			Boring was terminated at 10.5 feet.										
285													
	15												
280													
	20												
275													
	25												
270													
	30												

BORING NUMBER B-07

GMC

CLIENT Franklin Field Airport Authority
PROJECT NAME Franklin Field Airport 2024 Hangar
PROJECT NUMBER GMGM240006
PROJECT LOCATION Union Springs, Alabama
DATE STARTED 3/18/24 **COMPLETED** 3/18/24
GROUND ELEVATION 296.50 ft **HOLE SIZE** 4"
DRILLING CONTRACTOR Earth Core, LLC
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7822DT, Auto-Hammer, HSA w/ SPT
AT TIME OF DRILLING None Encountered
LOGGED BY M. McNeill **CHECKED BY** K. Wales
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

ELEVATION (ft)	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: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
	0		Organic Laden Material (OLM), 4"										
295			SILTY SAND (SM), brown, gray, loose	SS		3-4-3 (7)							
			SANDY LEAN CLAY (CL), light brown, light gray, stiff	SS		3-4-5 (9)	2						
	5		FAT CLAY with SAND (CH), light brown, red, light gray, medium to stiff	SS		3-3-5 (8)	2						
290				SS		3-4-6 (10)	2.5						
	10			SS		3-6-6 (12)	2						
			Boring was terminated at 10.5 feet.										
285													
	15												
280													
	20												
275													
	25												
270													
	30												

BORING NUMBER B-08

GMC

CLIENT Franklin Field Airport Authority
PROJECT NAME Franklin Field Airport 2024 Hangar
PROJECT NUMBER GMGM240006
PROJECT LOCATION Union Springs, Alabama
DATE STARTED 3/18/24 **COMPLETED** 3/18/24
GROUND ELEVATION 295.75 ft **HOLE SIZE** 4"
DRILLING CONTRACTOR Earth Core, LLC
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7822DT, Auto-Hammer, HSA w/ SPT
AT TIME OF DRILLING None Encountered
LOGGED BY M. McNeill **CHECKED BY** K. Wales
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

ELEVATION (ft)	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 LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (%)
295	0		Organic Laden Material (OLM), 3"										
			SANDY LEAN CLAY (CL), brown, light gray, red, very soft to soft	SS		2-1-1 (2)							
				SS		2-2-2 (4)							
290	5		FAT CLAY with SAND (CH), yellowish brown, light gray, red, stiff	SS		3-4-5 (9)	3						
				SS		3-4-6 (10)	3						
285	10			SS		3-5-5 (10)	3						
			Boring was terminated at 10.5 feet.										
280	15												
275	20												
270	25												
	30												

BORING NUMBER B-09

CLIENT Franklin Field Airport Authority
PROJECT NAME Franklin Field Airport 2024 Hangar
PROJECT NUMBER GMGM240006
PROJECT LOCATION Union Springs, Alabama
DATE STARTED 3/15/24 **COMPLETED** 3/15/24
GROUND ELEVATION 296.25 ft **HOLE SIZE** 4"
DRILLING CONTRACTOR Earth Core, LLC
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7822DT, Auto-Hammer, HSA w/ SPT
▽ **AT TIME OF DRILLING** 9.00 ft / Elev 287.25 ft
LOGGED BY M. McNeill **CHECKED BY** K. Wales
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

ELEVATION (ft)	DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
296.25	0	Organic Laden Material (OLM), 3"										
		SILTY SAND (SM), brown, gray, very loose	SS		3-2-1 (3)							
		SANDY LEAN CLAY (CL), yellowish brown, red, light gray	SS		3-3-5 (8)							
			SS		2-3-5 (8)	3						
290		FAT CLAY with SAND (CH), yellowish brown, light gray, stiff to medium	SS		2-3-6 (9)	2						
	9 ▽											
			SS		3-4-3 (7)	1.5						
	10.5	Boring was terminated at 10.5 feet.										

GMC

BORING NUMBER B-10

CLIENT Franklin Field Airport Authority
PROJECT NAME Franklin Field Airport 2024 Hangar
PROJECT NUMBER GMGM240006
PROJECT LOCATION Union Springs, Alabama
DATE STARTED 3/18/24 **COMPLETED** 3/18/24
GROUND ELEVATION 296.50 ft **HOLE SIZE** 4"
DRILLING CONTRACTOR Earth Core, LLC
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7822DT, Auto-Hammer, HSA w/ SPT
▽ **AT TIME OF DRILLING** 6.50 ft / Elev 290.00 ft
LOGGED BY M. McNeill **CHECKED BY** K. Wales
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

ELEVATION (ft)	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: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
	0		Organic Laden Material (OLM), 3"										
295			SANDY LEAN CLAY (CL), light gray, brown, yellowish brown, soft to medium	SS		1-2-1 (3)							
				SS		1-1-2 (3)							
	5			SS		1-3-4 (7)							
290		▽	FAT CLAY with SAND (CH), yellowish brown, light gray, medium	SS		3-3-4 (7)	1.5						
	10			SS		3-2-4 (6)							
285			Boring was terminated at 10.5 feet.										
	15												
280													
	20												
275													
	25												
270													
	30												

SUMMARY OF LABORATORY RESULTS

CLIENT Franklin Field Airport Authority
PROJECT NAME Franklin Field Airport 2024 Hangar
PROJECT NUMBER GMGM240006
PROJECT LOCATION Union Springs, Alabama

Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	Max. Sieve Size Tested (mm)	%<#200 Sieve	Natural Moisture (%)	Class-ification	Opt. Moisture Content (%)	Max Dry Density (pcf)	Specific Gravity
B-01	0-1.5						17.5				
B-01	1.5-3	33	16	17	0.85	53	18.3	CL			
B-01	4-5.5						24.5				
B-01	6.5-8						22.9				
B-01	9-10.5						23.5				
B-01	14-15.5						23.2				
B-01	19-20.5						39.8				
B-03	0-1.5						16.5				
B-03	1.5-3						20.7				
B-03	4-5.5						23.1				
B-03	6.5-8						23.2				
B-03	9-10.5						29.8				

ATTERBERG LIMITS' RESULTS

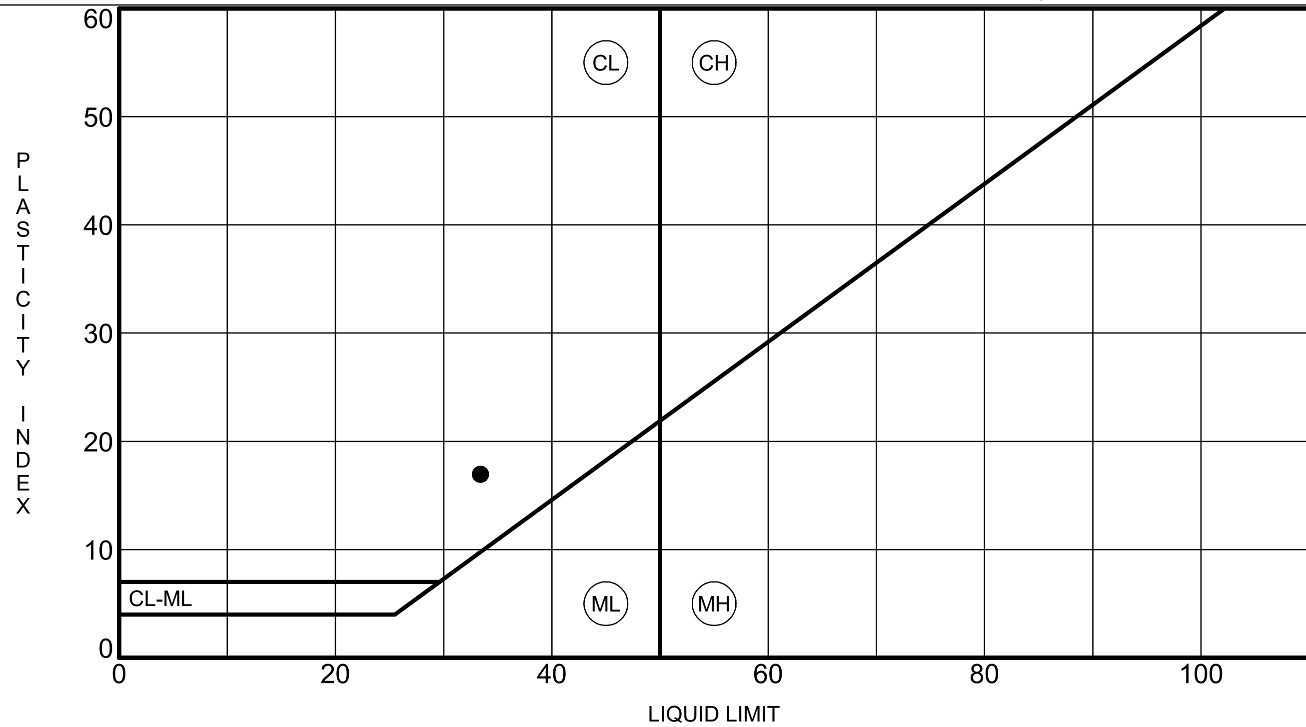
GMC

CLIENT Franklin Field Airport Authority

PROJECT NAME Franklin Field Airport 2024 Hangar

PROJECT NUMBER GMGM240006

PROJECT LOCATION Union Springs, Alabama



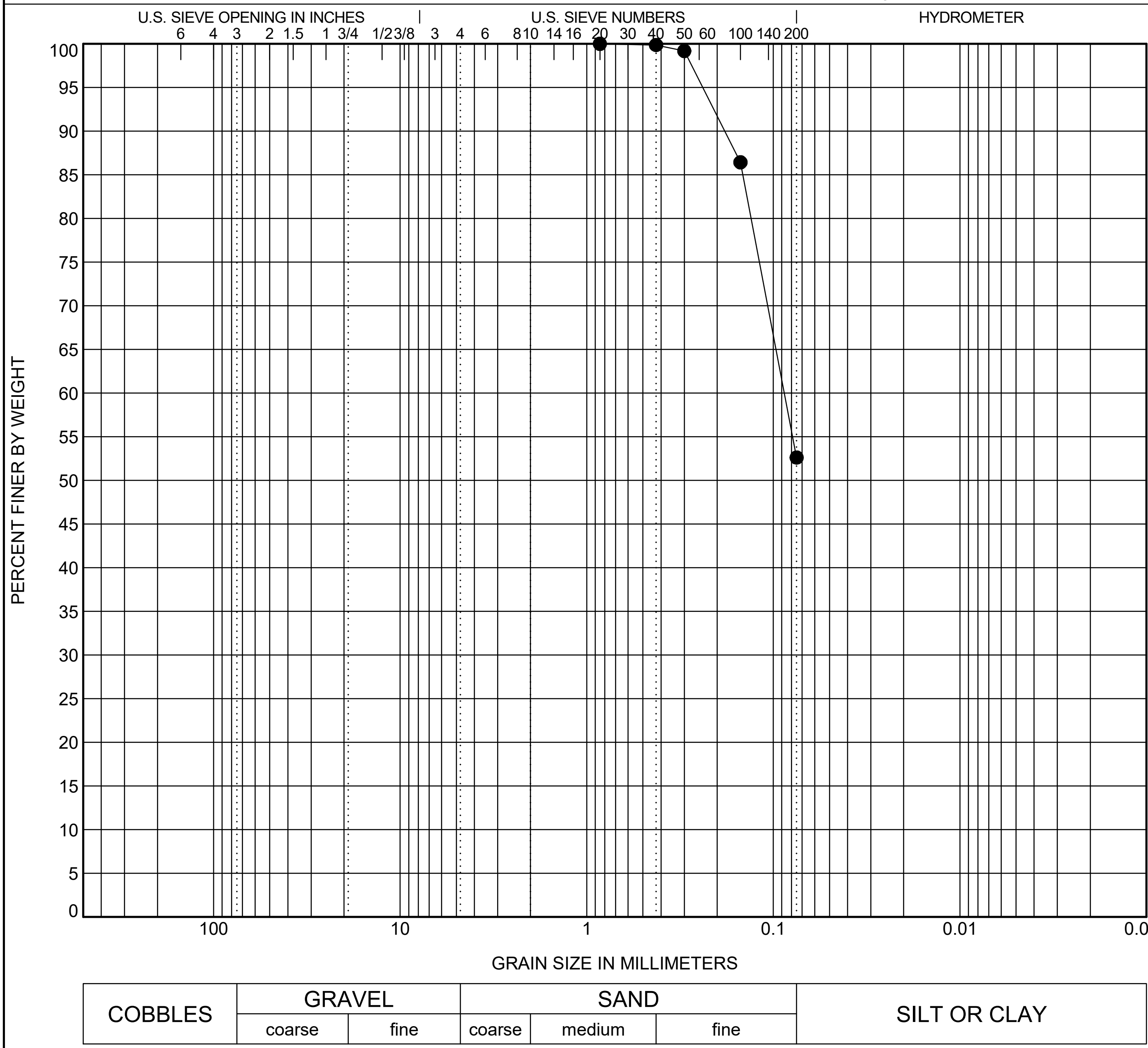
	Specimen Identification		LL	PL	PI	Fines	Classification
●	**B-01**	**1.5-3.0**	**33**	**16**	**17**	**53**	**SANDY LEAN CLAY(CL)**

GRAIN SIZE DISTRIBUTION

GMC

CLIENT Franklin Field Airport Authority **PROJECT NAME** Franklin Field Airport 2024 Hangar

PROJECT NUMBER GMGM240006 **PROJECT LOCATION** Union Springs, Alabama



	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**B-01**	**1.5-3.0**	**SANDY LEAN CLAY(CL)**	**33**	**16**	**17**		

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-01**	**1.5-3.0**	**0.85**	**0.087**			**0.0**	**47.4**	**52.6**	

GMC

FIELD TEST PROCEDURES

General

The general field procedures employed by Goodwyn Mills Cawood, LLC (GMC), are summarized in the American Society for Testing and Materials (ASTM) Standard D420 which is entitled "Investigating and Sampling Soil and Rock". This recommended practice lists recognized methods for determining soil and rock distribution and groundwater conditions. These methods include geophysical and in-situ methods as well as borings.

The detailed collection methods used during this exploration are presented in the following paragraphs.

Standard Drilling Techniques

General: To obtain subsurface samples, borings are drilled using one of several alternate techniques depending upon the subsurface conditions. These techniques are as follows:

In Soils:

a) Continuous hollow stem augers.
b) Rotary borings using roller cone bits or drag bits, and water or drilling mud to flush the hole.
c) "Hand" augers.

In Rock:

a) Core drilling with diamond-faced, double or triple tube core barrels.
b) Core boring with roller cone bits.

Hollow Stem Auger: A hollow stem augers consists of a hollow steel tube with a continuous exterior spiral flange termed a flight. The auger is turned into the ground, returning the cuttings along the flights. The hollow center permits a variety of sampling and testing tools to be used without removing the auger.

Rotary Borings: Rotary drilling involves the use of roller cone or drag type drill bits attached to the end of drill rods. A flushing medium, normally water or bentonite slurry, is pumped through the rods to clear the cuttings from the bit face and flush them to the surface. Casing is sometimes set behind the advancing bit to prevent the hole from collapsing and to restrict the penetration of the drilling fluid into the surrounding soils. Cuttings returned to the surface by the drilling fluid are typically collected in a settling tank, to allow the fluid to be recirculated.

Hand Auger Boring: Hand auger borings are advanced by manually twisting a 4" diameter steel bucket auger into the ground and withdrawing it when filled to observe the sample collected. Posthole diggers are sometimes used in lieu of augers to obtain shallow soil samples. Occasionally these hand auger borings are used for driving 3-inch diameter steel tubes to obtain intact soil samples.

Core Drilling: Soil drilling methods are not normally capable of penetrating through hard cemeted soil, weathered rock, coarse gravel or boulders, thin rock seams, or the upper surface of sound, continuous rock. Material that cannot be penetrated by auger or rotary soil-drilling methods at a reasonable rate is designated as "refusal material". Core drilling procedures are required to penetrate and sample refusal materials.

Prior to coring, casing may be set in the drilled hole through the overburden soils, to keep the hole from caving and to prevent excessive water loss. The refusal materials are then cored according to ASTM D2113 using a diamond studded bit fastened to the end of a hollow, double or triple tube core barrel. This device is rotated at high speeds, and the cuttings are brought to the surface by circulating water. Core samples of the material penetrated are protected and retained in the swivel-mounted inner tube. Upon completion of each drill run, the core barrel is brought to the surface, the core recovery is measured, and the core is placed, in sequence, in boxes for storage and transported to our laboratory.

Sampling and Testing in Boreholes

General: Several techniques are used to obtain samples and data in soils; however, the most common methods in this area are:
a) Standard Penetrating Testing
b) Water Level Readings

These procedures are presented below. Any additional testing techniques employed during this exploration are contained in other sections of the Appendix.

Standard Penetration Testing: At regular intervals, the drilling tools are removed and soil samples obtained with a standard 2-inch diameter split tube sampler connected to an A or N-size rod. The sampler is first seated 6 inches to penetrate any loose cuttings, and then driven an additional 12 inches with blows of a 140-pound safety hammer falling 30 inches. Generally, the number of hammer blows required to drive the sampler the final 12 inches is designated the "penetration resistance" or "N" value, in blows per foot (bpf). The split barrel sampler is designed to retain the soil penetrated, so that it may be returned to the surface for observation. Representative portions of the soil samples obtained from each split barrel sample are placed in jars, sealed and transported to our laboratory.

The standard penetration test, when properly evaluated, provides an indication of the soil strength and compressibility. The tests are conducted according to ASTM Standard D1586. The depths and N-values of standard penetration tests are shown on the Boring Records. Split barrel samples are suitable for visual observation and classification tests but are not sufficiently intact for quantitative laboratory testing.

Water Level Readings: Water table readings are normally taken in the borings and are recorded on the Boring Records. In sandy soils, these readings indicate the approximate location of the hydrostatic water table at the time of our field exploration. In clayey soils, the rate of water seepage into the borings is low and it is generally not possible to establish the location of the hydrostatic water table through short-term water level readings. Also, fluctuation in the water table should be expected with variations in precipitation, surface run-off, evaporation, and other factors. For long-term monitoring of water levels, it is necessary to install piezometers.

The water levels reported on the Boring Records are determined by field crews immediately after the drilling tools are removed, and several hours after the borings are completed, if possible. The time lag is intended to permit stabilization of the groundwater table, which may have been disrupted by the drilling operation.

Occasionally the borings will cave-in, preventing water level readings from being obtained or trapping drilling water above the cave-in zone. The cave-in depth is measured and recorded on the Boring Records.

Boring Records

The subsurface conditions encountered during drilling are reported on a field boring record prepared by the Driller. The record contains information concerning the boring method, samples attempted and recovered, indications of the presence of coarse gravel, cobbles, etc., and observations of ground water. It also contains the driller's interpretation of the soil conditions between samples. Therefore, these boring records contain both factual and interpretive information. The field boring records are kept on file in our office.

After the drilling is completed, a geotechnical professional classifies the soil samples and prepares the final Boring Records, which are the basis for all evaluations and recommendations. The following terms are taken from ASTM D2487 or Deere's Technical Description of Rock Cores for Engineering Purposes, Rock Mechanical Engineering Geology 1, pp. 18-22.

Relative Density of Cohesionless Soils From Standard Penetration Test		Consistency of Cohesive Soils	
Very Loose	≤ 4 bpf	Very Soft	≤ 2 bpf
Loose	5 - 10 bpf	Soft	3 - 4 bpf
Medium	11 – 30 bpf	Medium	5 - 8 bpf
Dense	31 - 50 bpf	Stiff	9 - 15 bpf
Very Dense	> 50 bpf	Very Stiff	16 - 30 bpf
(bpf = blows per foot, ASTM D 1586)		Hard	> 30 bpf

Relative Hardness of Rock	Particle Size Identification	
Very Soft Rock disintegrates or easily compresses to touch; can be hard to very hard soil.	Boulders	Larger than 12"
	Cobbles	3" - 12"
Soft Rock may be broken with fingers.	Gravel	
	Coarse	3/4" - 3"
Moderately Soft Rock may be scratched with a nail, corners and edges may be broken with fingers.	Fine	4.76mm - 3/4"
	Sand	
	Coarse	2.0 - 4.76 mm
Moderately Hard Rock a light blow of hammer is required to break samples.	Medium	0.42 - 2.00 mm
	Fine	0.42 - 0.074 mm
Hard Rock a hard blow of hammer is required to break sample.	Fines (Silt or Clay)	Smaller than 0.074 mm

Rock Continuity

$$\textbf{RECOVERY} = \frac{\text{Total Length of Core}}{\text{Length of Core Run}} \times 100\ \%$$

Description	Core Recovery %
Incompetent	Less than 40
Competent	40 - 70
Fairly Continuous	71 - 90
Continuous	91 - 100

Relative Quality of Rocks

$$\textbf{RQD} = \frac{\text{Total core, counting only pieces} > 4\text{" long}}{\text{Length of Core Run}} \times 100\ \%$$

Description	RQD %
Very Poor	0 - 25 %
Poor	25 - 50 %
Fair	50 - 75 %
Good	75 - 90 %
Excellent	90 - 100 %

LABORATORY TESTING

GENERAL

The laboratory testing procedures employed by Goodwyn Mills Cawood, LLC (GMC) are in general accordance with ASTM standard methods and other applicable specifications.

Several test methods, described together with others in this Appendix, were used during the course of this exploration. The Laboratory Data Summary sheet indicates the specific tests performed.

SOIL CLASSIFICATION

Soil classifications provide a general guide to the engineering properties of various soil types and enable the engineer to apply past experience to current problems. In our investigations, samples obtained during drilling operations are examined in our laboratory and visually classified by an engineer. The soils are classified according to consistency (based on number of blows from standard penetration tests), color and texture. These classification descriptions are included on our "Boring Records".

The classification system discussed above is primarily qualitative and for detailed soil classification, two laboratory tests are commonly performed: grain size tests and plasticity tests. Using these test results the soil can be classified according to the AASHTO or Unified Classification Systems (ASTM D-2487). Each of these classification systems and the in-place physical soil properties provides an index for estimating the soil's behavior. The soil classification and physical properties obtained are presented in this report.

POCKET PENETROMETER TEST

A pocket penetrometer test is performed by pressing the tip of a small, spring-loaded penetrometer with even pressure to a prescribed depth into a soil sample. This test yields a value for unconfined compressive strength, which may be correlated with unconfined compressive strengths obtained by other laboratory methods.

MOISTURE CONTENT

Moisture contents are determined from representative portions of the specimen. The soil is dried to a constant weight in an oven at 100° C and the loss of moisture during the drying process is measured. From this data, the moisture content is computed.

ATTERBERG LIMITS

Liquid Limit (LL), Plastic Limit (PL) and Shrinkage Limit (SL) tests are performed to aid in the classification of soils and to determine the plasticity and volume change characteristics of the materials. The Liquid Limit is the minimum moisture content at which a soil will flow as a heavy viscous fluid. The Plastic Limit is the minimum moisture content at which the soil behaves as a plastic material. The Shrinkage Limit is the moisture content below which no further volume change will take place with continued drying. The Plasticity Index (PI) is the numeric difference of Liquid Limit and Plastic Limit and indicates the range of moisture content over which a soil remains plastic. These tests are performed in accordance with ASTM D4318, D4943 and D427.

PARTICLE SIZE DISTRIBUTION

The distribution of soils coarser than the No. 200 (75-mm) sieve is determined by passing a representative specimen through a standard set of nested sieves. The weight of material retained on each sieve is determined and the percentage retained (or passing) is calculated.

A specimen may be washed through only the No. 200 sieve, if the full range of particle sizes is not required. The percentage of material passing the No. 200 sieve is reported.

The distribution of materials finer than the No. 200 sieve is determined by use of a hydrometer. The particle sizes and distribution are computed from the time rate of settlement of the different size particles while suspended in water. These tests are performed in accordance with ASTM D-421, D-422 and D-1140.

PROPOSAL A

ADD ALT	BASE BID	ITEM NO.	UNIT	DESCRIPTION
630	1,650	210A-000	CU YD	Unclassified Excavation
690	800	210D-021	CU YD	Borrow Excavation (Loose Truckbed Measurement) (A4 or Better)
	1,090	301A-012	SQ YD	Crushed Aggregate Base Course, Type B, Plant Mixed, 6" Compacted Thickness
	1,090	401A-000	SQ YD	Bituminous Treatment A
	110	405A-000	GAL	Tack Coat
	90	424A-360	TON	Superpave Bituminous Concrete Wearing Surface Layer, 1/2" Maximum Aggregate Size Mix, ESAL Range C/D (Approximatley 165 lbs/sy)
	90	424B-002	TON	Superpave Bituminous Concrete Upper Binder Layer, 1/2" Maximum Aggregate Size Mix, ESAL Range C/D (Approximatley 165 lbs/sy)
	20	610D-003	SQ YD	Filter Blanket, Geotextile
	185	623A-001	LF	Concrete Gutter (Valley)
	253	637A-000	LF	Fence Reset
	180	650B-000	CU YD	Topsoil From Stockpiles
	1	652A-100	ACRE	Seeding
	1	656A-010	ACRE	Mulching
	1	665A-000	ACRE	Temporary Seeding
	500	665J-002	LF	Silt Fence
	20	665Q-002	LF	Wattle
	1	C-105	LS	Mobilization
	78	F-162-5.1	LF	8' Galvanized Chain Link Fence with 3 Strand Barb Wire, Complete in Place
	1	F-162-5.2	EACH	12' Double Swing Driveway Gate, Complete in Place
	1	P-620-5.1a	LS	Surface Preparation
	180	P-620-5.2b	SQ FT	Marking
	1	P-620-5.3c	LS	Reflective Media
	180	P-620-5.4d	SQ FT	Temporary Runway and Taxiway Marking
1		H-100	LS	4-Unit Box Hangar with Bi-Folding Doors, Complete in Place (Includes Foundation, Building, Utilities, etc.)

GMC

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Addendum 1	4/19/2024

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checked by: JMR

FRANKLIN FIELD AIRPORT
HANGAR DEVELOPMENT
UNION SPRINGS, ALABAMA
AIP/AIG 3-01-0014-009/010-2024
TMGM230019
SCALE: NOT TO SCALE

SUMMARY OF QUANTITIES
(PROPOSAL A)

PROPOSAL B

ADD ALT	BASE BID	ITEM NO.	UNIT	DESCRIPTION
	30	206D-000	LF	Removing Pipe
690	3,720	210A-000	CU YD	Unclassified Excavation
750	2,070	210D-021	CU YD	Borrow Excavation (Loose Truckbed Measurement) (A4 or Better)
	55	214A-000	CU YD	Structure Excavation
	25	214B-001	CU YD	Foundation Backfill, Commercial
	2,970	301A-012	SQ YD	Crushed Aggregate Base Course, Type B, Plant Mixed, 6" Compacted Thickness
	2,970	401A-000	SQ YD	Bituminous Treatment A
	270	405A-000	GAL	Tack Coat
	240	424A-360	TON	Superpave Bituminous Concrete Wearing Surface Layer, 1/2" Maximum Aggregate Size Mix, ESAL Range C/D (Approximatley 165 lbs/sy)
	240	424B-002	TON	Superpave Bituminous Concrete Upper Binder Layer, 1/2" Maximum Aggregate Size Mix, ESAL Range C/D (Approximatley 165 lbs/sy)
	80	530B-000	LF	18" Span, 11" Rise Roadway Pipe (Class 3 R.C.)
	40	610D-003	SQ YD	Filter Blanket, Geotextile
	2	619B-015	EACH	18" Span, 11" Rise Roadway Pipe End Treatment, Class 2
	172	623A-001	LF	Concrete Gutter (Valley)
	253	637A-000	LF	Fence Reset
	440	650B-000	CU YD	Topsoil From Stockpiles
	2	652A-100	ACRE	Seeding
	2	656A-010	ACRE	Mulching
	2	665A-000	ACRE	Temporary Seeding
	850	665J-002	LF	Silt Fence
	60	665Q-002	LF	Wattle
	1	C-105	LS	Mobilization
	256	F-162-5.1	LF	8' Galvanized Chain Link Fence with 3 Strand Barb Wire, Complete in Place
	1	P-620-5.1a	LS	Surface Preparation
	425	P-620-5.2b	SQ FT	Marking
	1	P-620-5.3c	LS	Reflective Media
	425	P-620-5.4d	SQ FT	Temporary Runway and Taxiway Marking
1		H-100	LS	6-Unit T-Hangar with Bi-Folding Doors, Complete in Place (Includes Foundation, Building, Utilities, etc.)

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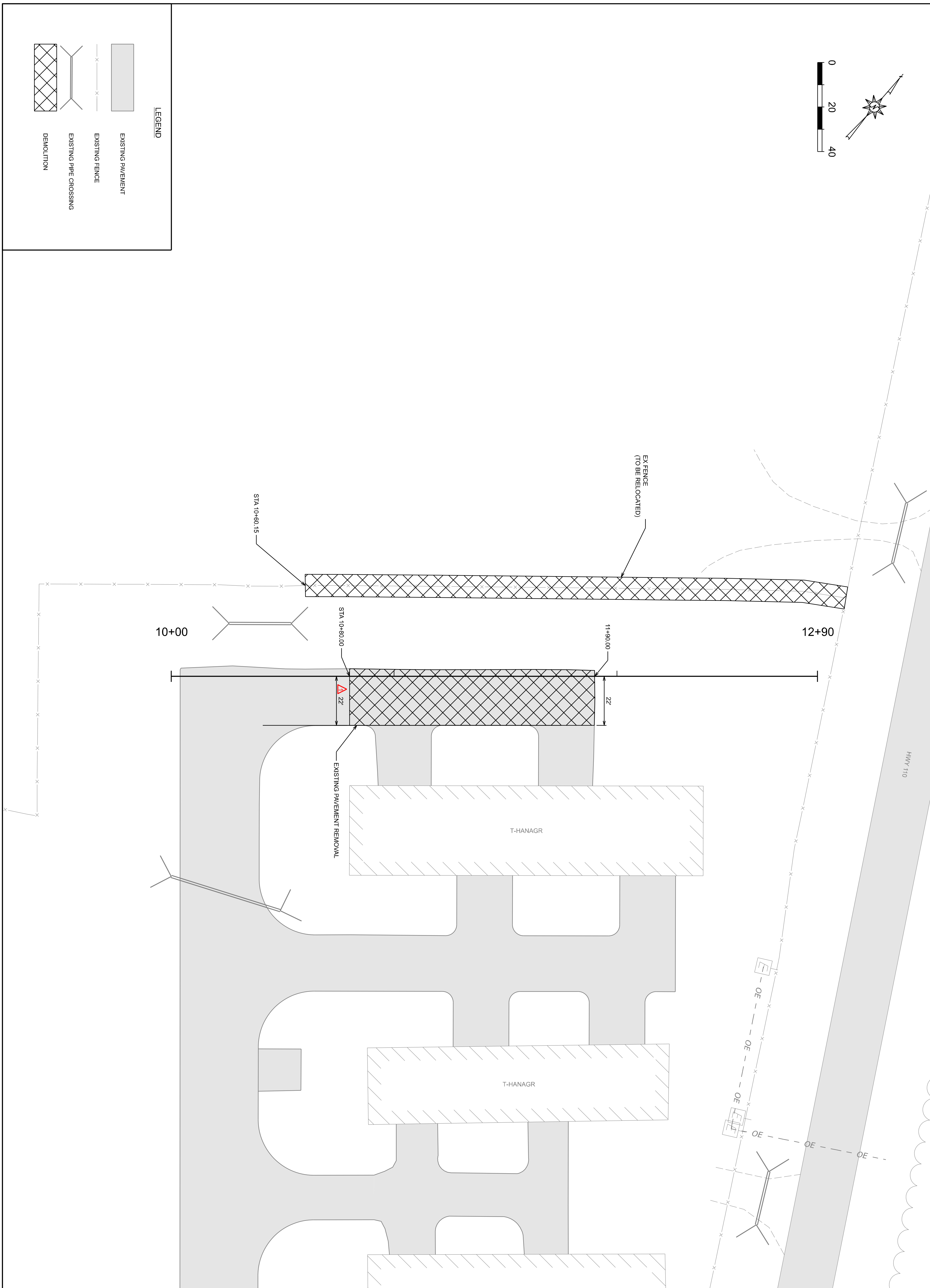
SUMMARY OF QUANTITIES
(PROPOSAL B)

C14



DEMOLITION PLAN
(PROPOSAL A)

C16

sheet 16 of 35

FRANKLIN FIELD AIRPORT
HANGAR DEVELOPMENT
UNION SPRINGS, ALABAMA

AIP/AIG 3-01-0014-009/010-2024
TMGM230019
SCALE: 1" = 20'

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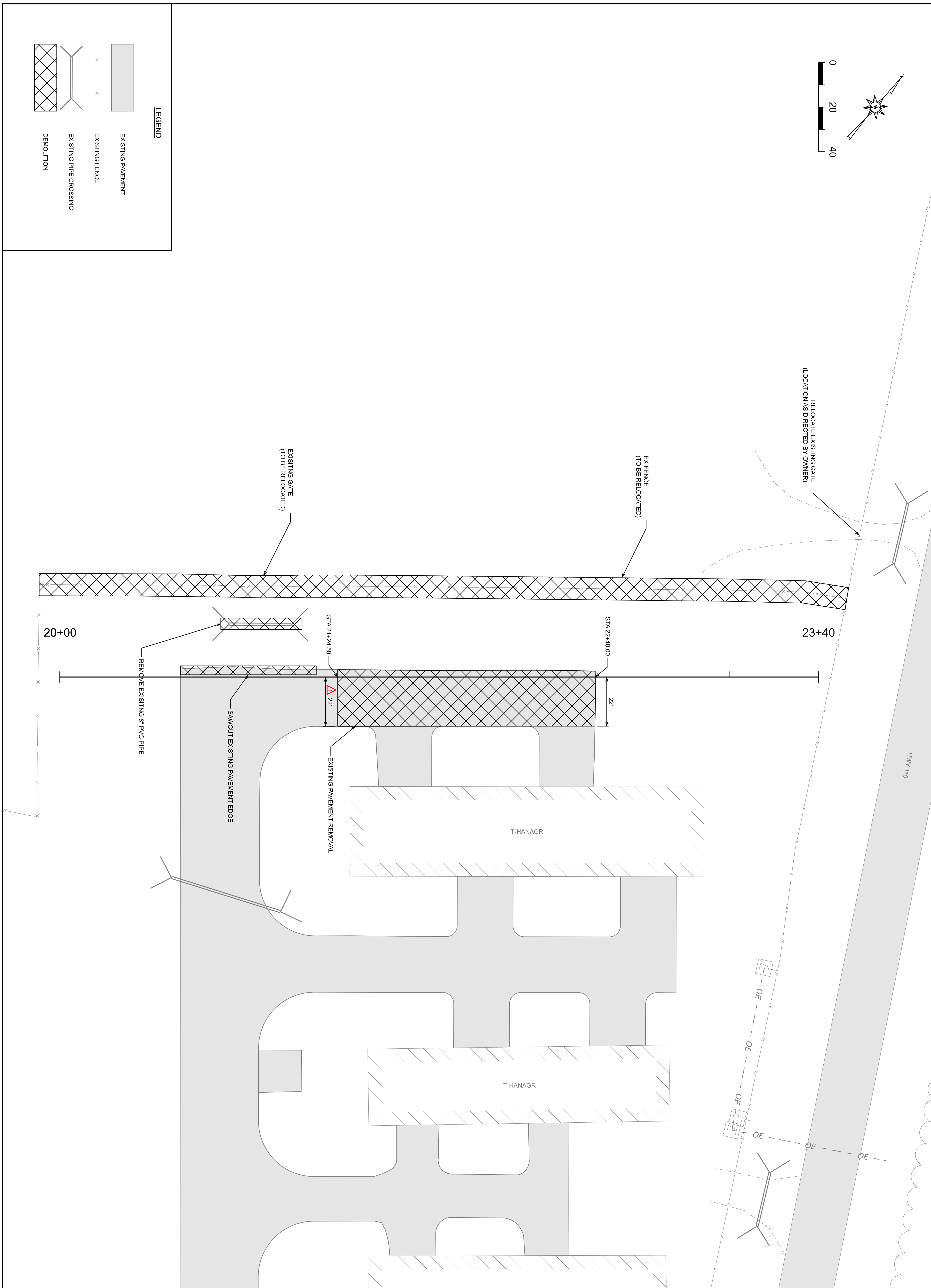
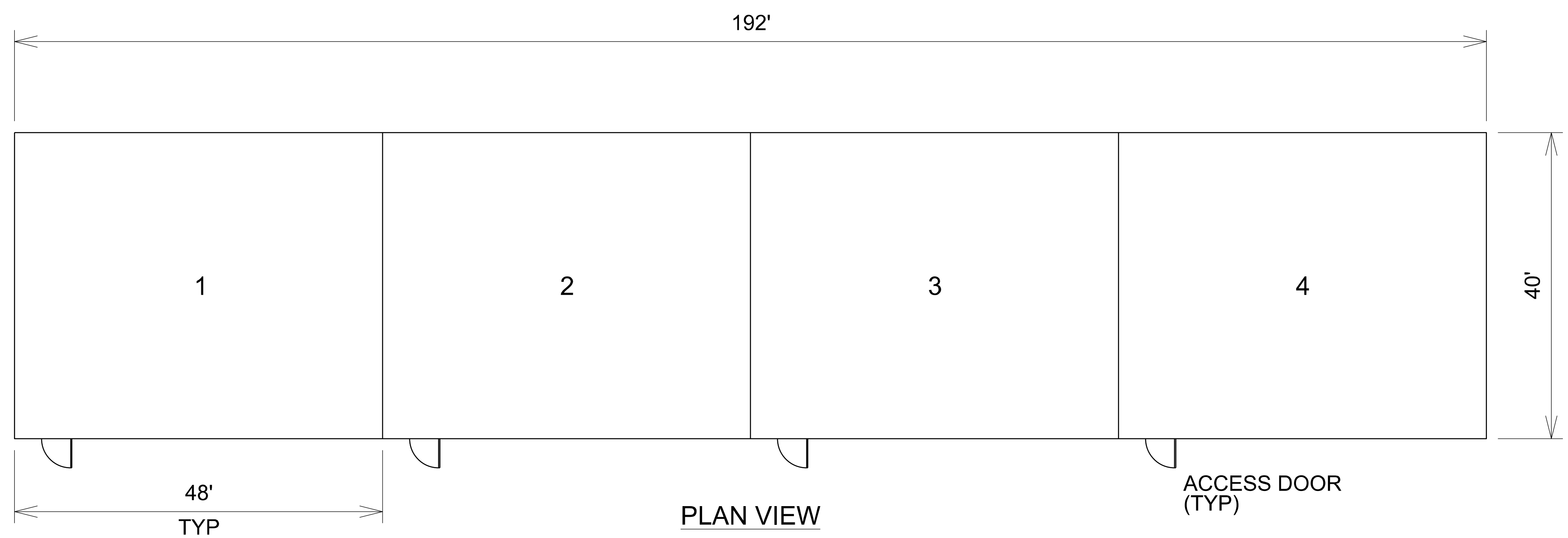
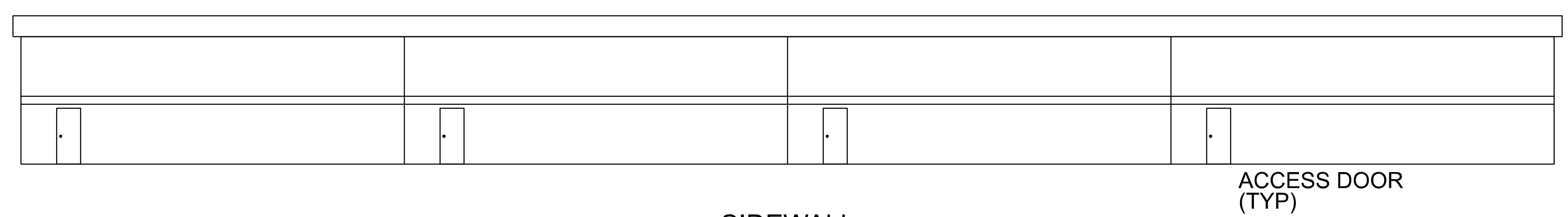


DEMOLITION PLAN (PROPOSAL B)	FRANKLIN FIELD AIRPORT HANGAR DEVELOPMENT UNION SPRINGS, ALABAMA	ISSUE	DATE	GMC
C17	AIP/AIG 3-01-0014-009/010-2024	100%	3/29/2024	2660 East Chase Lane, Suite 200
sheet 17 of 35	TMGM230019	Addendum 1	4/19/2024	Montgomery, AL 36117
	SCALE: 1" = 20'	drawn by:	CAM	T 334.271.3200
		checked by:	JMR	GMCNETWORK.COM

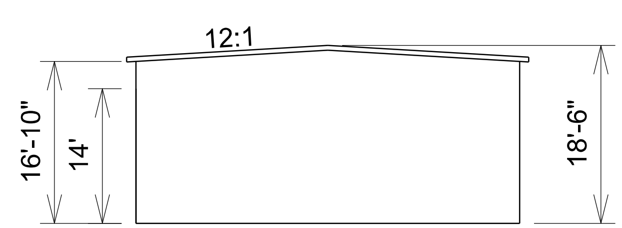


PLAN VIEW

4 UNIT BOX HANGAR
ELECTRIC BIFOLD DOORS
47'-8" x 14'-0" CLEAR



SIDEWALL



ENDWALL

NOTES:

1. A STANDARDIZED FOUNDATION PLAN WILL NOT BE PROVIDED FOR THIS BID AS THIS MAY LIMIT THE PROJECT TO CERTAIN BUILDING MODELS AND/OR MANUFACTURERS. IN ORDER TO PROVIDE THE MOST ECONOMICAL PRODUCT FOR THE OWNER, THE CONTRACTOR IS TO PROVIDE A FOUNDATION AND BUILDING DESIGN SUFFICIENT TO OBTAIN THE MINIMUM CLEAR WIDTHS, HEIGHTS, AND DEPTHS AS SPECIFIED IN THE PLAN SET.
2. NO WATER/SEWER WILL BE REQUIRED FOR THE BOX HANGAR BUILDING.
3. (Addendum 1) PROVIDE VINYL FACED BATT INSULATION AS PER METAL BUILDING MANUFACTURER STANDARDS.
ROOF = R-13 (MIN), WALLS = R-13 (MIN)

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FRANKLIN FIELD AIRPORT
HANGAR DEVELOPMENT
UNION SPRINGS, ALABAMA
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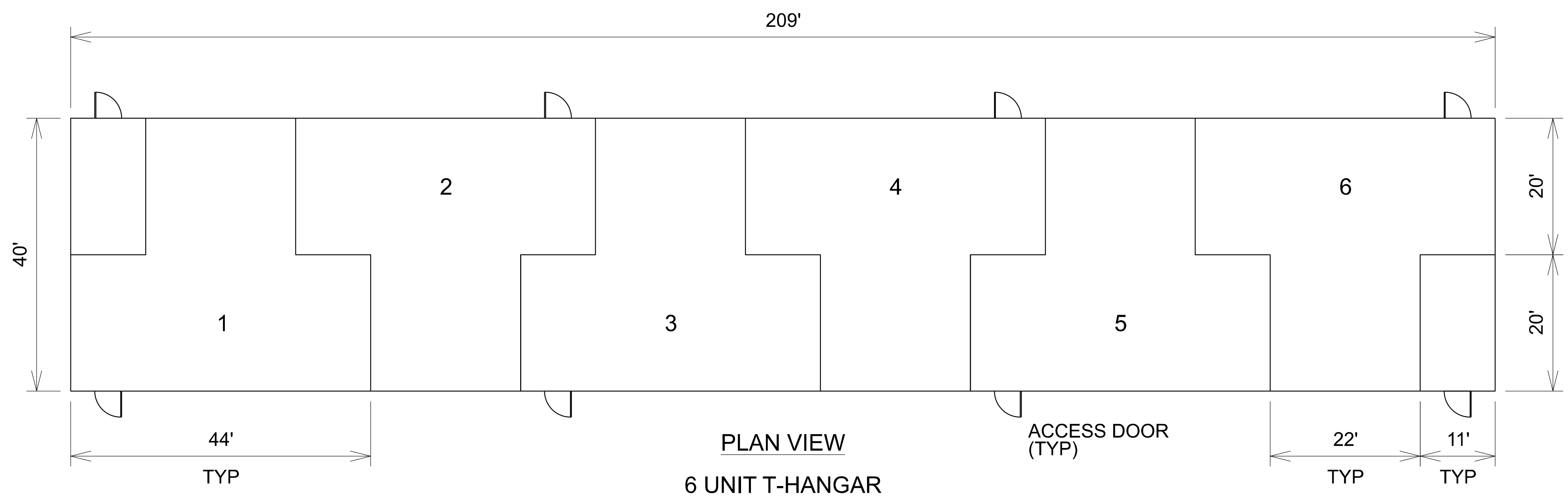
TMGM230019
SCALE: NOT TO SCALE

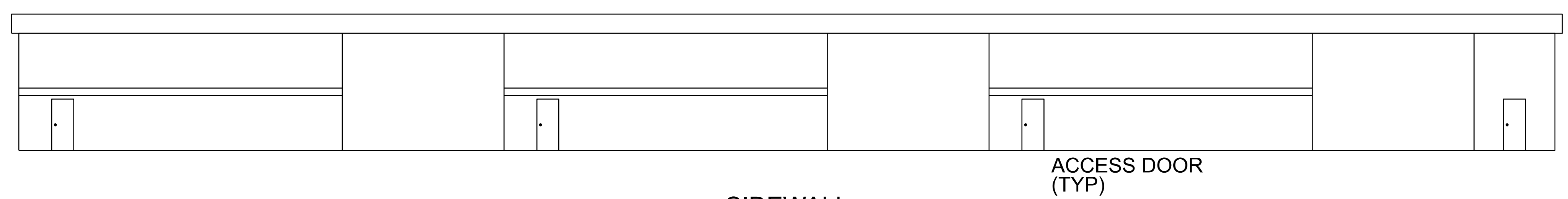
BOX HANGAR LAYOUT
(PROPOSAL A)

C30

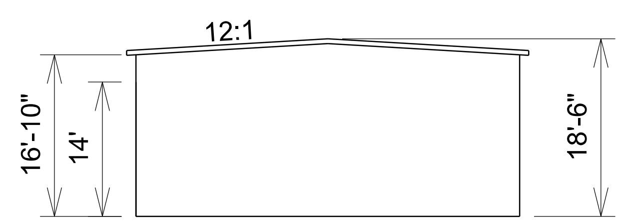


PLAN VIEW

6 UNIT T-HANGAR
ELECTRIC BIFOLD DOORS
43'-8" x 14'-0" CLEAR



SIDEWALL



ENDWALL

NOTES:

1. A STANDARDIZED FOUNDATION PLAN WILL NOT BE PROVIDED FOR THIS BID AS THIS MAY LIMIT THE PROJECT TO CERTAIN BUILDING MODELS AND/OR MANUFACTURERS. IN ORDER TO PROVIDE THE MOST ECONOMICAL PRODUCT FOR THE OWNER, THE CONTRACTOR IS TO PROVIDE A FOUNDATION AND BUILDING DESIGN SUFFICIENT TO OBTAIN THE MINIMUM CLEAR WIDTHS, HEIGHTS, AND DEPTHS AS SPECIFIED IN THE PLAN SET.
2. NO WATER/SEWER WILL BE REQUIRED FOR THE T-HANGAR BUILDING.
3. PROVIDE VINYL FACED BATT INSULATION AS PER METAL BUILDING MANUFACTURER STANDARDS. ROOF = R-13 (MIN), WALLS = R-13 (MIN)

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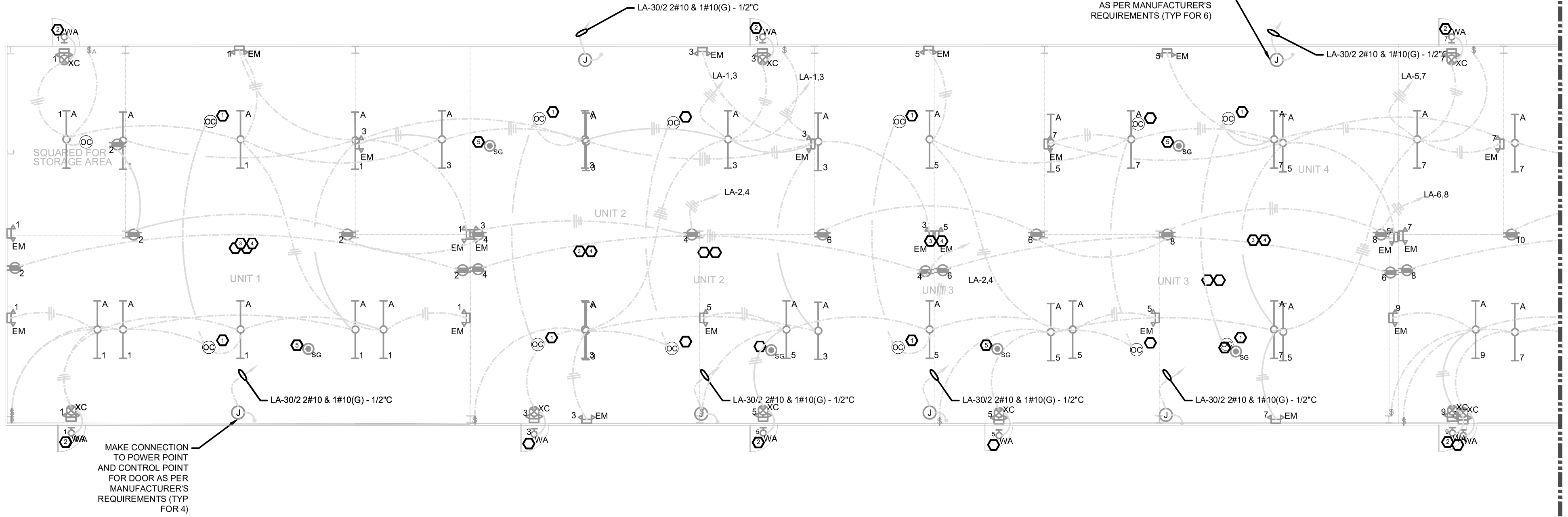
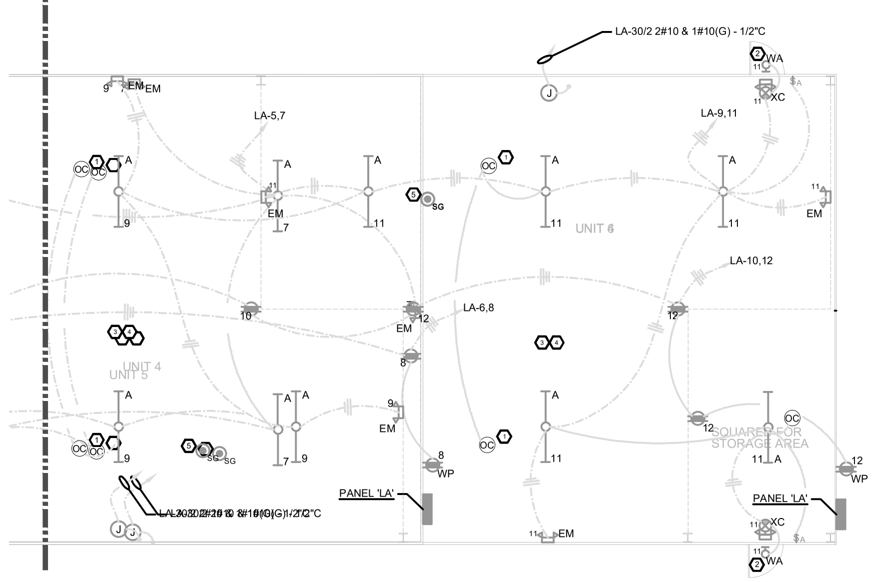
TMGM230019
SCALE: NOT TO SCALE

T-HANGAR LAYOUT (PROPOSAL B)

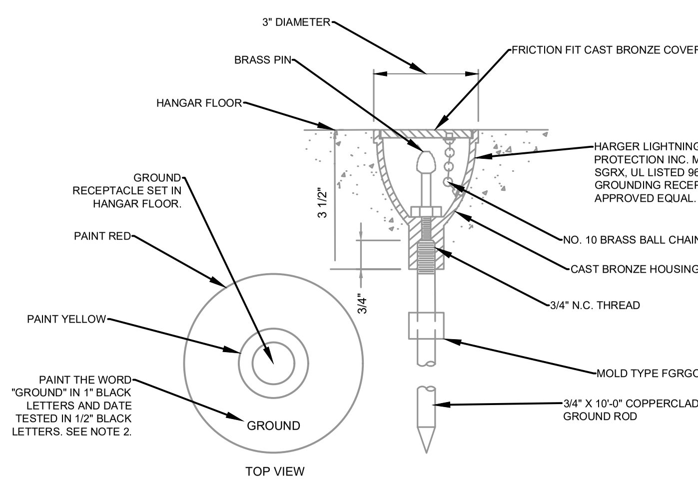
KEYED NOTES:
1. INTERCONNECT EACH OCCUPANCY SENSOR IN THIS AREA SO EACH SENSOR WILL OPERATE AS ONE.
2. CONNECT TO UNSWITCHED HOTLEG SO THAT UNIT WILL OPERATE UPON POWER FAILURE. MOUNT UNIT 1'-0" ABOVE DOOR ON CENTER.
3. ALL RECEPTACLES IN HANGAR ARE TO BE GFCI RATED AND MOUNTED AT 48" AFF.
4. VERIFY FINAL LOCATION OF HANGAR RECEPTACLES WITH OWNER PRIOR TO ROUGH-IN.
5. INSTALL NEW STATIC GROUND RECEPTACLE, COORDINATE FINAL LOCATION WITH OWNER/ENGINEER PRIOR TO FOUNDATION INSTALL. INSTALL A 10' x 3/4" COPPER CLAD STEEL GROUND ROD TO GROUND EACH RECEPTACLE. GROUND PER NEC. SEE DETAIL 1/11.



1 E4 ELECTRICAL PLAN - T-HANGAR - PART A



2 E4 ELECTRICAL PLAN - T-HANGAR - PART B



4 E4 T-HANGAR GROUND RECEPTACLE DETAIL
DIAGRAMMATIC

NOTES:
1. MAX RESISTANCE TO GROUND SHALL BE 25 OHMS FROM ANY GROUND ROD.
2. PAINT COLORS ASSOCIATED WITH STATIC GROUNDING SERVICES VARY WITH APPLICATION AND SERVICE. THE PAINT IS APPLIED DIRECTLY TO THE HANGAR FLOOR AND IS NOT APPLIED TO THE RECEPTACLE.

ELECTRICAL LEGEND	
(symbol)	CONDUIT OR RACEWAY CONCEALED IN WALLS OR CEILINGS.
(symbol)	CONDUIT OR RACEWAY EXPOSED TO VIEW, RUN PARALLEL OR PERPENDICULAR TO STRUCTURE.
(symbol)	EXPOSED HOMERUN TICKS INDICATE NUMBER OF CONDUCTORS NO TICKS INDICATE HOT, NEUTRAL, AND GROUND.
A	4' LED STRIP SURFACE MOUNTED LITHONIA #CSVT-L48-6000LM-MVOLT-40K-80CRI OR APPROVED EQUAL.
$	WALL SWITCH, SPST 48" A.F.F. TO CENTER UNO 120/277V.
(symbol)	DUPLEX GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE WALL MOUNTED 18" AFF TO CENTER UNO. "WP" INDICATES WEATHERPROOF "IN-USE" HEAVY DUTY METAL COVER.
$A	WALL MOUNTED OCCUPANCY SENSOR SWITCH. LOCATE AS PER MANUFACTURER'S REQUIREMENTS.
OC	CEILING MOUNTED LINE VOLTAGE OCCUPANCY SENSOR WITH EXTENDED RANGE. LOCATE AS PER MANUFACTURER'S RECOMMENDATIONS. SENSOR TO CONTROL "ON-OFF" OPERATION OF ALL LIGHTS IN DESIGNATED AREAS.
EM	TWO HEAD EMERGENCY LIGHT, WALL MOUNTED BY 9'-0" AFF. LITHONIA #EUZC OR APPROVED EQUAL.
XC	EXIT / EMERGENCY FIXTURE, SURFACE MOUNTED AT 1'-0" ABOVE DOOR. LITHONIA #ECRG RD M6 OR APPROVED EQUAL.
WA	EXTERIOR WALL PACK FIXTURE, SURFACE MOUNTED AT 1'-0" ABOVE DOOR. LITHONIA #DSXW1 LED/20C/1000mA/40K/TFTM/120/PE/E20WC.
SG	STATIC GROUNDING RECEPTACLE WITH 10'X3/4" COPPER CLAD STEEL GROUND ROD.SEE DETAIL 4/12

PANELBOARD LA SCHEDULE

LOCATION: HANGER — MAIN: 100 A MCB — SERVICE ENTRANCE RATED
VOLTAGE: 120/240 — SYSTEM: 1Ø 3 WIRE
TRIM SURFACE NEMA 3R — INTERRUPTING RATING: 10K AIC

CKT	LOAD	BREAKER		PHASE (KW)		PHASE (KW)		BREAKER		LOAD	CKT
#	DESCRIPTION	P	TRIP	A	B	A	B	TRIP	P	DESCRIPTION	#
1	LIGHTING	1	20	0.5		0.4		20	1	RECEPTACLES	2
3	LIGHTING	1	20		0.5		0.4	20	1	RECEPTACLES	4
5	LIGHTING	1	20	0.5		0.4		20	1	RECEPTACLES	6
7	LIGHTING	1	20		0.5		0.4	20	1	RECEPTACLES	8
9	LIGHTING	1	20	0.5		0.4		20	1	RECEPTACLES	10
11	LIGHTING	1	20		0.5		0.4	20	1	RECEPTACLES	12
13	DOOR - UNIT 1	2	30	0.9		0.9		30	2	DOOR - UNIT 2	14
15					0.9		0.9				16
17	DOOR - UNIT 3	2	30	0.9		0.9		30	2	DOOR - UNIT 4	18
19					0.9		0.9				20
21	DOOR - UNIT 5	2	30	0.9		0.9		30	2	DOOR - UNIT 6	22
23					0.9		0.9				24
25	AVAILABLE BUSSED SPACE									AVAILABLE BUSSED SPACE	26
27	AVAILABLE BUSSED SPACE									AVAILABLE BUSSED SPACE	28
29	AVAILABLE BUSSED SPACE									AVAILABLE BUSSED SPACE	30

GMC

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ISSUE	DATE
100%	3/29/2024
Addendum 1	4/19/2024

drawn by: CAM
checked by: JMR

FRANKLIN FIELD AIRPORT
HANGAR DEVELOPMENT
UNION SPRINGS, ALABAMA
AIP/AIG 3-01-0014-009/010-2024
TMGM230019
SCALE: 1" = 20'

ELECTRICAL PLAN
- T-HANGAR (PROPOSAL B)

E4
sheet E4 of 35