

Exhibit O,  
Winnsboro Industrial Park  
Geotechnical Report



# Exhibit O, Winnsboro Industrial Park Geotechnical Report

**GEOTECHNICAL SERVICES  
PROPOSED PROPERTY FOR SMALL SITE CERTIFICATION  
VICINITY OF CAJUN DRIVE AND INDUSTRIAL DRIVE  
WINNSBORO, LOUISIANA  
AAI PROJECT NO. 21-2858**



**Ardaman & Associates, Inc.**

**NEW ORLEANS BRANCH**

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**Branch Office Locations**

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American Council of Engineering Companies

Denmon Engineering, Inc.  
P.O. Box 8460  
Monroe, LA 71211

Reference: Geotechnical Services  
Proposed Property for Small Site Certification  
Vicinity of Cajun Drive and Industrial Drive  
Winnsboro, Louisiana

To whom it may concern:

My name is Mark Woodward. I am a registered geotechnical engineer in the state of Louisiana by the Louisiana Professional Engineering and Land Surveying Board (LAPELS)); registration #21206. I have been practicing in Louisiana for 39 years. I also have 3 years of experience in the states of Texas, California, Mississippi, and Alabama.

I have been asked to render an opinion about the expected/likely soils located at the Winnsboro Park site composed of 23.5 acres in Franklin Parish as part of the LED site certification requirements.

I have completed 27 projects in Northern Louisiana and my opinion expressed below is based on my experience on those projects. However, my experience with other sites, even sites close by, is no guarantee that the soils on this site will match with my expectations. I did not visit the site and I did not examine or test any soil samples from the site. The insights below are merely my opinion based on my prior experience working in Northern Louisiana and in Franklin Parish.

**Type of Soils Typically Expected in this Area:** I would expect the site's soils would generally be characterized as a Braided Stream Terrace deposit formed by glacial outwash of ancestral Arkansas River. The soils likely to be encountered would consist of 5 to 15 feet of loose silt or medium stiff lean clays underlain by loose sand to a depth of at least 25 feet.

**Groundwater Depth:** Typically, in this area of the state, the depth to groundwater will be shallow, in the range of 10 ft – 15 ft.

**Soil Bearing Pressure:** I estimate the soils in the vicinity of this site will likely have a soil bearing pressure in the range of 1200 – 1500 psf.

**Shallow Spread Footing Expectations for a 100,000 ft<sup>2</sup> light manufacturing building:** The soils can be expected to support a light building using 4 foot square footings are 3 foot wide continuous footings.

**Pile Loading Expectations for a 100,000 ft<sup>2</sup> light manufacturing building:** For a lightly loaded structures piles may not be needed, timber piles may have to be avoided due to sands near surface. If a deep foundation is desired, drilled shafts are recommended to a likely depth of 20 to 40 feet with a diameter of 12 to 36 inches.

**Disclaimer/Limitations:** The insights given above are an opinion, are extremely preliminary, and are not based on any actual visits to the site or tests on the soils at the site. No construction or design should ever be undertaken using the above observations. These observations are not to be used for construction, bidding, recordation, conveyance, sales or as the basis for the issuance of a permit. Design and construction should always be based on actual soil data extracted via professional drilling rigs, CPTs, and laboratory testing. No warranties are implied or expressed by the observations presented above.

### **Closing**

Ardaman & Associates, Inc. (Ardaman) would be pleased to conduct the detailed geotechnical studies when a project is planned for the site and would also welcome an opportunity to assist on the project by furnishing any Construction Materials Testing and Inspection (CMT) Services the owner or his general contractor may require during the construction phase of the project. Ardaman's local Shreveport office is AASHTO accredited in soils, aggregate, and concrete testing procedures that may be required by the project specifications during the construction phase of this project. We appreciate the opportunity to serve you. Please contact us should you have any questions.

Sincerely,  
ARDAMAN & ASSOCIATES, INC.

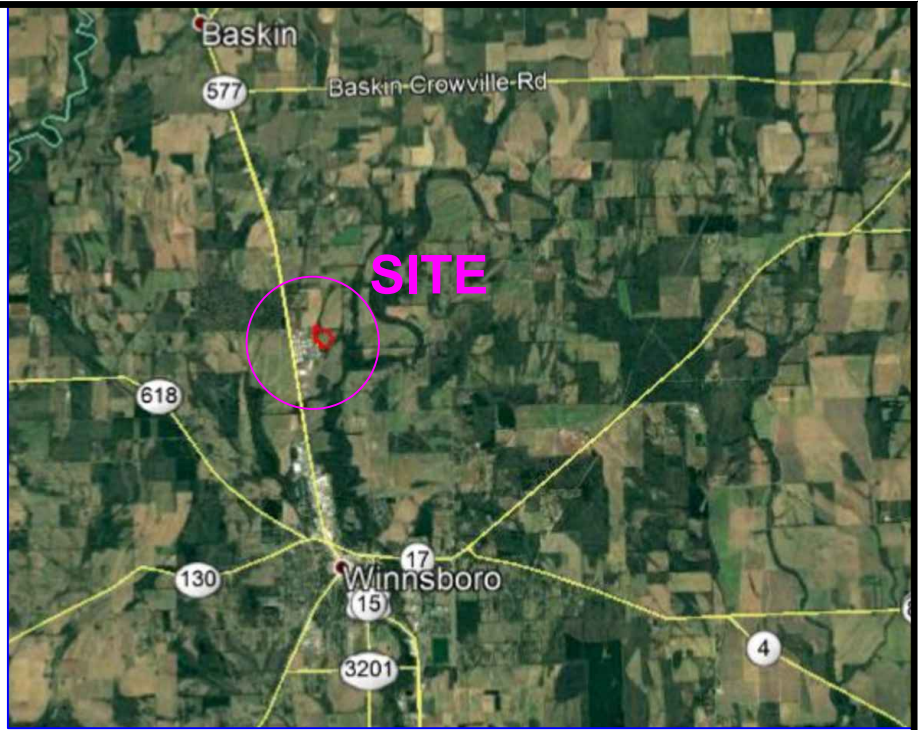
A handwritten signature in blue ink, reading "Mark L. Woodward". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

**MARK L. WOODWARD, P.E.**  
**PE LA#21206**  
**SENIOR GEOTECHNICAL ENGINEER**

## **LIST OF FIGURES**

Figure 1: Site Location Plan





**VICINITY MAP**  
NOT TO SCALE



REFERENCE:  
SITE IMAGE BY GOOGLE.

NOTE:  
LOCATIONS ARE APPROXIMATE.

<b>Proposed Property for Small Site Certification</b> Vicinity of Cajun Drive and Industrial Drive Winnboro, LA		
 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
ENG <b>S.C.</b>	Drawn by: <b>S.C.</b>	Checked by: <b>M.W.</b>
File No.: <b>21-84-2858</b>	Date: <b>07/01/21</b>	FIG <b>No. 1</b>
Title: <b>Site Location Plan</b>		