

July 6, 2017

Craven Thompson & Associates

3563 NW 53rd Street
Fort Lauderdale, FL 33309

Attention: Mr. Leonard (Zach) Gamble, P.E.

Re: Report of Geotechnical Services
Gladiator Lake Restoration in Greenacres
Gladiator Circle and Toga Way,
Greenacres, Florida
PSI Project No. 0772-727

Dear Mr. Gamble:

Professional Service Industries, Inc. (PSI) has completed a geotechnical engineering study in connection with the referenced project. Our services were provided in general accordance with PSI Proposal No. 0772-198758, dated January 9, 2017. This report provides an overview of the services completed by us in connection with the study and provides results of the laboratory testing program to determine the natural angle of repose of the embankment soils, above the water table.

As we understand, the project rehabilitates the existing lake located within the City of Greenacres, Florida. At the time of report preparation, site grading information was not provided, therefore we have assumed existing site grades will be within 2 feet of final site grades. As a part of this project, the natural angle of repose of in-situ soils is required for design purposes.

Gladiator Lake is a man-made lake located within a residential subdivision. The project location is shown on Figure 1.

If any of the above information is incorrect, please notify us so we can make any necessary changes to our proposal.

We obtained 3 bulk samples of the near surface soils at selected locations around the lake. The locations are shown on Figure 2. A geotechnical engineer visually classified the soil samples and performed testing to measure the angle of repose. The samples were oven dried prior to determining the angle of repose. Test results are presented below.

Sample No.	Soil Description	USCS Classification	Angle of Repose
S-1	Poorly graded fine-grained SAND, with trace of silt, brown, moist	SP	27 ⁰
S-2	Poorly graded fine-grained SAND, with roots and organic material, with shell fragments, gray and black, moist	SP	37 ⁰
S-3	Poorly graded fine-grained SAND with trace organic material, gray, moist	SP	34 ⁰

The angle of repose is a measure of the steepest slope angle for a soil to which the will not slump. It is impacted by the material properties such as gradation, and particle size and shape. Sample 2 has a higher angle of repose due to the presence of shell and root fragments. The angle of repose for this material may degrade over time as the organic material decomposes.

Our experience in the vicinity suggests that the material represented by Sample 1 will be the predominate material with depth, and that the material represented by Samples 2 and 3 will primarily be found near the natural soil surface that existed prior to development. Therefore, we recommend assuming a natural angle of repose of 27⁰ for design purposes.

Our professional services have been performed, findings obtained, and recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices at the time of this report. This company is not responsible for the conclusions, opinions or recommendations made by others based on this data. No other warranties are implied or expressed. After the plans and specifications are complete, it is recommended that PSI be provided the opportunity to review the final design and specifications, in order to verify that the earthwork and foundation recommendations are properly interpreted and implemented. At that time, it may be necessary to submit supplemental recommendations.

The scope of our services did not include an environmental assessment for the presence or absence of hazardous or toxic materials in the soil and groundwater. Any statements in this report regarding odors, staining of soils, or other unusual conditions observed are strictly for the information of our client.

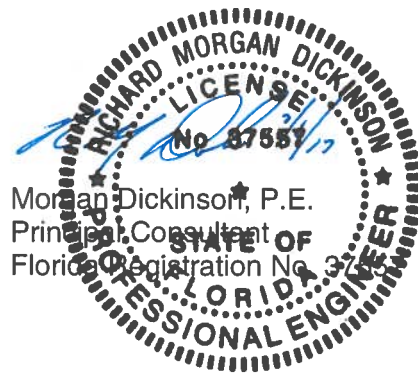
This report has been prepared for the exclusive use of Craven Thompson & Associates for the specific application to the rehabilitation of Gladiator Lake Deerfield Beach, Florida.

PSI appreciates the opportunity to provide these services. We look forward to working with you in the future.

Sincerely,
PROFESSIONAL SERVICE INDUSTRIES, INC.
Certificate of Authorization No. 3684



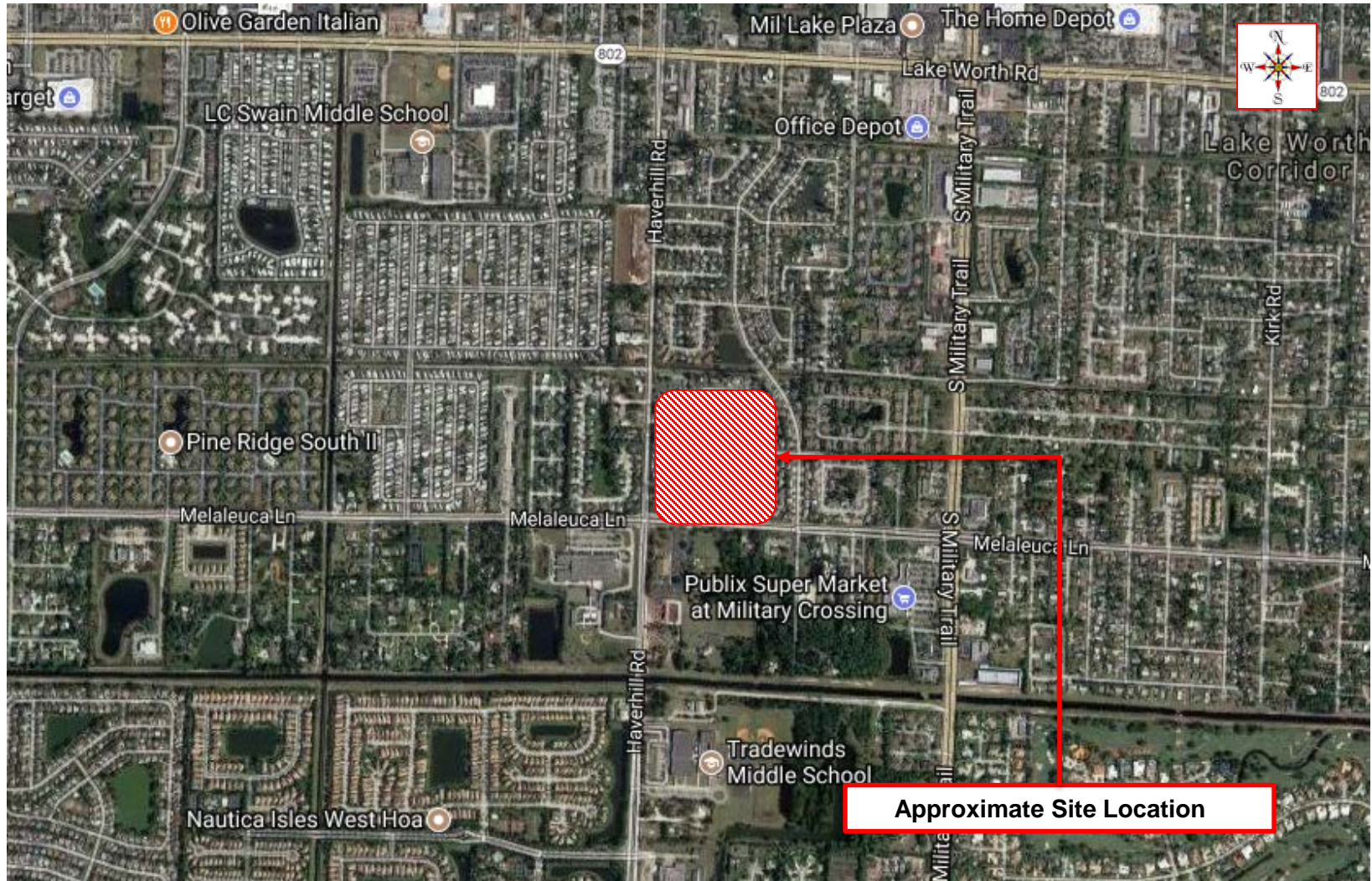
Wesley Foster
District Manager



Attachment: Appendix A

APPENDIX

SITE VICINITY MAP



GEOTECHNICAL ENGINEERING SERVICES
Gladiator Lake Restoration in Greenacres
Gladiator Circle and Toga Way, Greenacres, Florida

DATE: 07/06/2017

DRAWN: WF

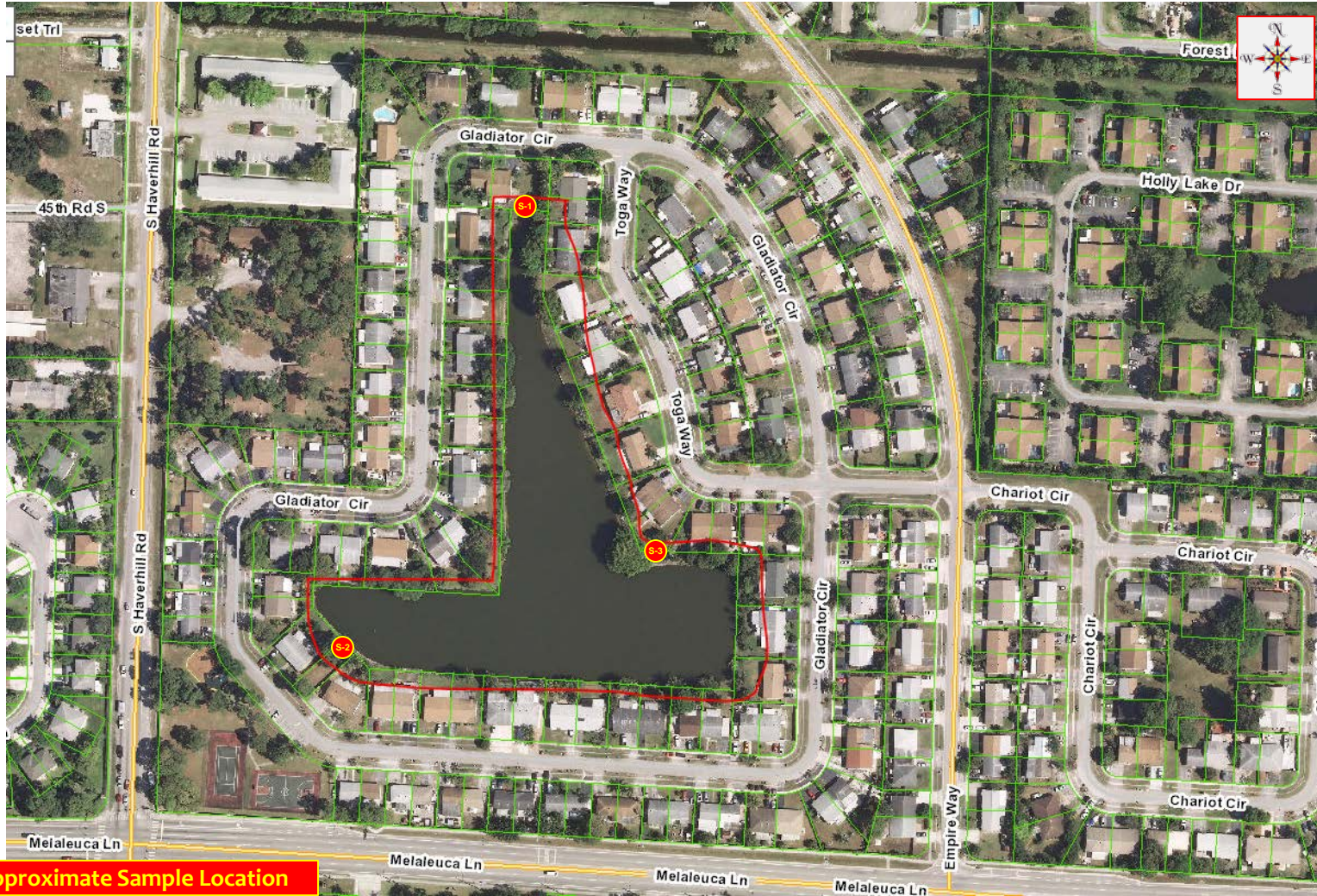
SHEET No.: 1

PSI PROJECT No.: 0772-727

CHKD: MD

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SAMPLE LOCATION PLAN



GEOTECHNICAL ENGINEERING SERVICES
Gladiator Lake Restoration in Greenacres
Gladiator Circle and Toga Way, Greenacres, Florida

DATE: 07/06/2017

DRAWN: WF

SHEET No.: 2

PSI PROJECT No.: 0772-727

CHKD: MD

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