

## TECHNICAL MEMORANDUM

February 9, 2023

**From:** Daniel C. Stanfill, P.E. and Richard P. McCormick, P.G.

**To:** Mr. Bronce L. Stephenson, MPA  
Lead Planner

**Subject:** Existing Geotechnical Conditions Technical Memorandum  
**SR 528 AT DALLAS BOULEVARD INTERCHANGE**  
CFX Project No. 528-307  
GEC Project No. 5228G

Based on TWO No. 4 under Contract Number 001844 dated December 1, 2022, Geotechnical and Environmental Consultants, Inc. (GEC) is pleased to present this Existing Geotechnical Conditions Memorandum for the SR 528 at Dallas Boulevard Interchange. GEC has reviewed available documents, the USGS Quadrangle Map, the NRCS Orange County Soil Survey and current plans to prepare this Memorandum. The attached **Figure 1** shows the USGS Quadrangle Map and NRCS Soil Survey for the project location. The following observations are noted.

- Natural ground surface topography varies from +55 to +70 feet NGVD.
- Land use is primarily residential north of SR 528 and undeveloped to the south.
- The newly constructed Brightline Railroad is also located south of the interchange.
- Near surface soils are primarily poorly drained sand soils.
- Groundwater depth is generally within 1 to 3 feet of natural grade.
- Review of available plans indicate the bridges were originally supported on 18-inch precast piles extending about 80 feet below natural grade.
- Geotechnical considerations include exploration for any highly compressible organic muck soils, evaluation of variable groundwater conditions and deep Standard Penetration Test (SPT) borings for bridge foundation design.
- Bridges should be supported on a deep driven pile substructure due to Karst environment and likely high Factored Loads required.
- Wet stormwater ponds will likely be required due to the near surface groundwater levels.

## USE OF THIS MEMORANDUM

GEC has prepared this memorandum for the exclusive use of our client, The Balmoral Group, and CFX and for application to our client's project. GEC will not be held responsible for any other party's interpretation or use of this report's data or recommendations without our written authorization.

GEC has performed the services described in this report in a manner consistent with that level of care and skill ordinarily exercised by members of our profession currently practicing in Central Florida. No other representation is made or implied in this document.

The conclusions and recommendations should be disregarded if the final project design differs from the project description in this report. If such changes are contemplated, GEC should be retained to review the new plans to assess the applicability of this report in light of proposed changes.

We appreciate the opportunity to work with The Balmoral Group and CFX on this project. If you have any questions concerning this report, or if we may be of further assistance, please contact us.

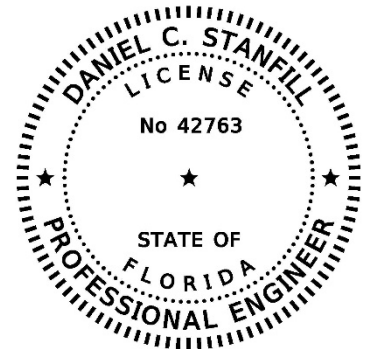
Sincerely,

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS, INC.



Richard P. McCormick, P.G.  
Chief Geologist  
Florida License No. 2096

Daniel C. Stanfill, P.E.  
Senior Vice President  
Florida License No. 42763



This Report has been digitally signed and sealed by Daniel C. Stanfill, P.E. on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

## **ATTACHMENTS**

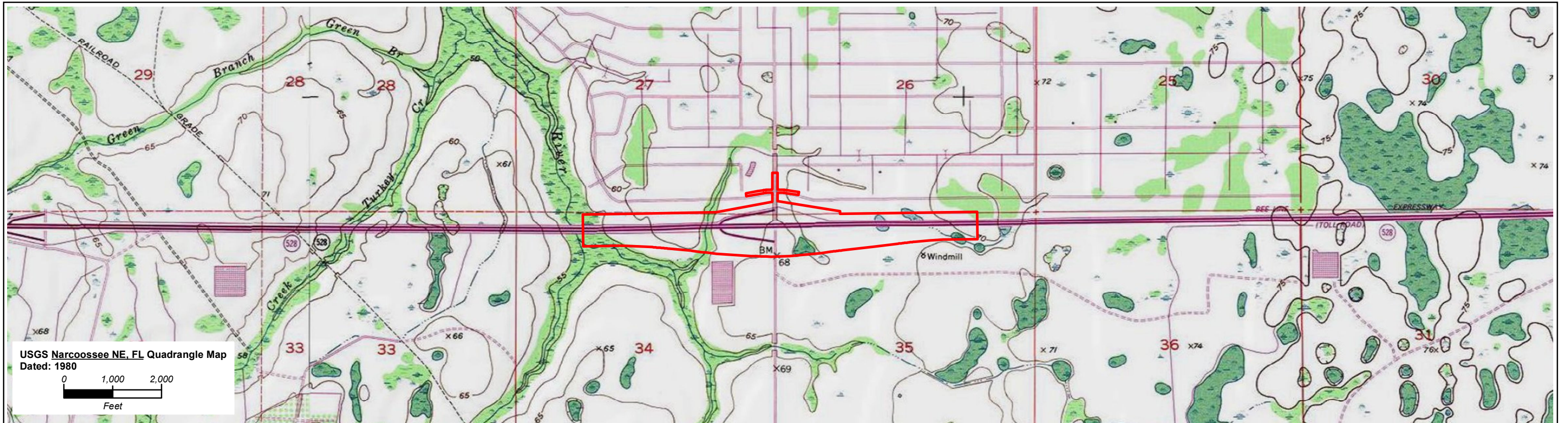


FIGURE 1

DANIEL C. STANFILL, P.E.  
P.E. LICENSE NUMBER 42763  
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CONSULTANTS, INC.  
919 LAKE BALDWIN LANE  
ORLANDO, FL 32814

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 528	ORANGE	528-307

USGS QUADRANGLE AND  
NRCS SOIL SURVEY MAPS

SHEET  
NO.