

GEO-TECHNOLOGY ASSOCIATES, INC.

GEOTECHNICAL AND
ENVIRONMENTAL CONSULTANTS

A Practicing Geoprofessional Business Association Member Firm



May 23, 2023

BioStar Renewables
9400 Reeds Road, Suite 150
Overland Park, Kansas 66207

Attn: Mr. Mike Eckard

Re: Report of Geotechnical Exploration, Addendum
Westtown School Solar- Emergency Access Road
Chester County, Pennsylvania

Mr. Eckard:

In accordance with our Proposal dated January 6, 2023, and per the subsequent request by Mr. Andy Stancati, Geo-Technology Associates, Inc. (GTA) has prepared this addendum to our Geotechnical Engineering Report dated April 14, 2023. This addendum includes recommendations for the design and construction of a fifteen-foot-wide, emergency fire department access road for the proposed ground-mounted solar panel system located behind the Westtown School, in Chester County, Pennsylvania. We understand the road is to be designed to support a typical, full-size fire truck (EV-3, 40-ton).

The proposed fire department access road is to begin at the existing gravel road for the ball field parking lot, and end in the approximate middle of the solar array. The site's topography is gently sloping, with a north- to south-oriented high area running through the middle part of the site. Minimal grading is expected to install the road, as the road is anticipated to generally follow the existing ground contours.

The access road subgrade should be first stripped of topsoil to at least two feet beyond the road edges. Following removal of the topsoil, the exposed subgrade soils should be evaluated by proofrolling with a loaded triaxle dump truck. Soft, loose, or unstable areas that are detected by proofrolling should be removed and replaced with compacted dense graded aggregate (PennDOT 2A). The roadbed should then be graded as necessary to provide positive drainage and prevent ponding of water.

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Swales may be used to collect overland flow and direct it away from the road section to reduce erosion and subgrade saturation. Low areas may require subsurface drains to collect and remove water.

After the roadbed is shaped and stable, we recommend that the emergency access road section consist of a 12-inch-thick layer of PennDOT 2A crushed stone over a layer of Tensar BX1100 biaxial geogrid. The geogrid should be placed over firm subgrades and per manufacturer's recommendations, and the crushed stone should be placed in one lift and compacted to at least 95 percent of the maximum dry density, per the Standard Proctor (ASTM D698).

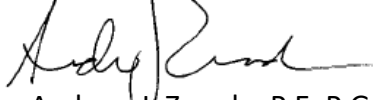
Periodic work should be performed to maintain the road in a serviceable condition. This may entail periodic regrading, adding and compacting aggregate, filling erosion features and ruts, and providing drainage measures in areas damaged by water flow.

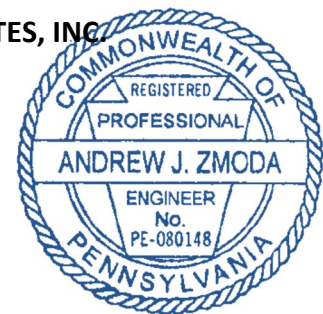
This report has been prepared for the exclusive use of BioStar Renewables pursuant to the Agreement for Services between GTA and BioStar Renewables dated January 6, 2023, and in accordance with generally accepted engineering practice. All terms and conditions set forth in the Agreement for Services and the General Provisions attached thereto are incorporated herein by reference. No warranty, express or implied, is made herein. Use and reproduction of this report by any other person without the expressed written permission of GTA and BioStar Renewables is unauthorized and such use is at the sole risk of the user.

GTA appreciates the opportunity to have been of assistance to you on this project. Should you have questions or require additional information, please contact our office at (717)318-5451.

Very truly yours,

GEO-TECHNOLOGY ASSOCIATES, INC.


Andrew J. Zmoda, P.E., P.G.
Associate



AJZ/ ajz
GTA Project No. 31230392