



November 12, 2013

Mr. Marc A. Zaid Esq., P.C.  
920 Matsonford Road, Suite 100  
West Conshohocken, PA 19428

Phone: 610.940.3612  
Fax: 610.940.3612  
Email: [zaidesq@cs.com](mailto:zaidesq@cs.com)

Re.: Engineering Services – Joshua Hill, Inc.  
Parcel ID No.: 650006406009  
Latitude: +40d 04' 58.619" Longitude: -75d 16' 36.552"  
Whitemarsh Township, Montgomery County, Pennsylvania  
Alta Project No.: 1323-01

Dear Mr. Zaid,

The intent of this letter is to provide an engineering summary of previous investigations for the referenced project. This report also provides a foundation system increased cost estimate with regards to the existing landfill and a deep foundation system supporting some of the structures.

#### Existing Conditions

The project site is a former landfill (waste disposal) site for Whitemarsh Township that was used during the 1960s and early 1970s. It is approximately 11.63 acres, and is situated along the northern side of Joshua Road, approximately one mile southeast of the intersection of Joshua Road and Ridge Pike. The site is located at a topographic high point and extends Northwest down a gently sloping hill. Maximum relief across the site is approximately 45 to 50 feet. The site consists of a wooded lot, covered almost entirely by dense underbrush.

The method of disposal at the former landfill was a “trench fill” operation. Shallow trenches were excavated into the earth and subsequently backfilled with waste material. Regulations at that time did not require a liner beneath the waste nor a cap over the waste. Available information indicates that a total of nine disposal trenches exist in a general east-west orientation, with a total area of approximately 7.5 acres. Information from shallow test pits completed during previous investigations indicated that the maximum depth of trash-fill is on the order of twenty feet below the existing ground surface.

Available information indicates that the waste fill consists of miscellaneous municipal refuse, incinerator ash, and sewage sludge. No evidence of hazardous waste materials or priority pollutants were identified during the previous investigations. Given that the on-site waste is over 40 years old, significant degradation is likely to have already occurred. Previous investigations groundwater and modeling data together indicate that there was a lack of or minimal detections of regulated constituents in the groundwater which was further supported by minimal methane soil gas detections.

Based on the available information, the ground surface in the area of the landfill trenches is underlain by a layer of fill soils and topsoil that extended to depths ranging from one to four feet, below the ground surface. The layer of fill/topsoil is in-turn underlain by a layer of solid waste that extended to depths of seven to fourteen feet below the ground surface. The solid waste consisted of paper, wood, rags, ash, grass, metal, incinerator ash, sludge, and general municipal waste. Beneath the waste materials lies saprolite, which is very severely weathered schist of the Wissahickon bedrock formation.



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610.825.1485 [altadesign.com](http://altadesign.com)

Analysis

Based on the available information Alta Design Associates believes a deep drilled foundation system, such as helical piers/anchors produced by "Chance Civil Construction" with grade beams and structural slabs, may be the most cost effective approach for providing structural support for those buildings to be built as "slab on grade" over the top plane of landfill trenches. Alta Design Associates also recommends providing that any one building should be built with only one foundation type, either a shallow foundation or a deep foundation system.

Attached please find Drawing No. SP-1, which overlays available information regarding the proposed development and existing landfill trenches. The proposed construction is shown per a Sketch Plan No. T-3, dated June 15, 2006, by E. Van Rieker, AICP, which is attached to a Settlement Agreement dated March 15, 2007. The existing landfill trenches as shown on Figure No. 2, dated October 10, 2008, by Blazosky Associates, Inc. For ease of discussion we have labeled the proposed structures as Building Nos. 1 through 10.

Based on the locations shown on Sketch Plan No. T-3, Building Nos. 1, 2, 3, 4, 9, and 10 could be relocated and/or reconfigured slightly to be moved outside of the top plane of the landfill trenches. These proposed relocations and configurations appear not to violate the setback criteria stated in the Settlement Agreement. Thus, we can make a cost estimate based on using deep foundation system for Building Nos. 5 through 8, and a minor soil exchange beneath some of the proposed utilities. Building Nos. 1, 2, 3, 4, 9 and 10 would be on a standard shallow spread footing foundation system.

We estimate that the increased cost to the building foundation construction and additional bedding material for utilities to be on the order of five hundred and thirty thousand dollars (\$530,000) for Building Nos. 5 through 8.

Based on the available information, any long-term adverse impacts on the project are unlikely, in terms of odors or integrity of the structures, if the recommendations in this report are followed. The cost estimates above were based on a sketch design of a proposed foundation design, and the undersigned engineer's experience with helical pier and grade beam foundation systems.

If you have any questions or comments, please feel free to email [tmb@altadesign.com](mailto:tmb@altadesign.com) or telephone 610.825.1485.

Thank you.

Sincerely,  
**ALTA DESIGN ASSOCIATES, INC.**



Timothy M. Brouse, P.E.  
Engineer

Enclosures: As Noted



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References:

“Sketch plan – T3” for Joshua Hill, Inc.,  
Whitemarsh Township, Montgomery County, Pennsylvania  
Issued on June 15, 2006  
Prepared by E. Van Rieker, AICP  
Professional Land Planner  
215 Old Church Road, North Wales, PA. 19454  
PH.: 215.599.4070

“Site Layout” for Joshua Hill, Inc.  
Whitemarsh Township, Montgomery County, Pennsylvania  
Issued on June 15, 2006  
Prepared by Balanced Environmental Solutions  
215 Old Church Road, North Wales, PA. 19454  
State Park: 814.238.2060  
Pittsburgh: 724.733.2060  
Royersford: 610.495.5585

“Final Act 2 Report” for Joshua Hill, Inc.  
Whitemarsh Township, Montgomery County, Pennsylvania  
Issued on May 19, 2009  
Prepared by Balanced Environmental Solutions  
215 Old Church Road, North Wales, PA. 19454  
State Park: 814.238.2060  
Pittsburgh: 724.733.2060  
Royersford: 610.495.5585

