



ALBUS-KEEFE & ASSOCIATES, INC.

GEOTECHNICAL CONSULTANTS

May 13, 2009

J.N.: 1708.00

Mr. Tom Moore
The Olson Company
3010 Old Ranch Parkway, Suite 100
Seal Beach, California 90740

Subject: **Supplemental Foundation Design Recommendations for Post-Tension Mat Slabs, Proposed North Campus Faculty Housing Project Between Phelps Road/Marymount Way and Ocean Meadows Golf Course, City of Goleta, County of Santa Barbara, California.**

Reference: Precise Grading Plan Review, Proposed North Campus Faculty Housing Project Between Phelps Road/Marymount Way and Ocean Meadows Golf Course, City of Goleta, County of Santa Barbara, California, by Albus-Keefe & Associates, Inc., dated April 15, 2009 (J.N.: 1708.00).

Dear Mr. Moore:

Albus-Keefe & Associates, Inc. is pleased to present to you supplemental foundation recommendations pertaining to the use of post-tension mat slabs at the subject project. Previously, this firm's referenced report only presented recommendations related to the use of "conventional" post-tension slabs on the order of 5 inches thick. Two paragraphs from Section 6.3.8 "Post-Tensioned Slabs" of the referenced report have been revised to address post-tension mat slabs. The paragraphs are presented below and the revisions are italicized for ease of reference. Recommendations in the reference report remain valid unless specifically superseded herein.

Post-Tensioned Slabs

Perimeter edge beams for structures designed for **Medium** to **High** expansion potential should be embedded a minimum depth of 24 inches respectively below the lowest adjacent final ground surface. Perimeter edge beams for structures designed for **Very High** expansion potential should be embedded at a minimum depth of 30 inches respectively below the lowest adjacent final ground surface. *If a post-tension mat is used, the outer 12 inches should be thickened to provide a minimum embedment of 4 inches below lowest grade, or to the depth of the underlying sand, whichever is deeper.* Interior beams may be founded at a minimum depth of 12 inches below the tops of the finish floor slabs.

All dwelling area floor slabs constructed on-grade should be underlain with a moisture vapor barrier consisting of a membrane such as 10-mil Visqueen or equivalent. A minimum of four (4) inches of clean sand having an SE of at least 30 should be placed over the membrane to promote uniform curing of the concrete. *If a post-tension mat is used, the sand thickness over the membrane can be*

reduced to a minimum of two (2) inches. This vapor barrier system is anticipated to be suitable for most flooring finishes that can accommodate some vapor emissions. However, this system may emit more than 4 pounds of water per 1,000 sq. ft. and therefore, may not be suitable for all flooring finishes. Additional steps should be taken if such vapor emission levels are too high for anticipated flooring finishes.

We appreciate this opportunity to be of service to you. If you have any questions regarding the contents of this correspondence, please do not hesitate to call.

Sincerely,

ALBUS-KEEFE & ASSOCIATES, INC.



Ronald A. Reed
Principal Engineer
GE 2524 Exp. 6-30-2009

