399 Lindbergh Avenue
Livermore CA 94551
P 925.315.3151
F 925.315.3152
www.bskassociates.com

Sent via email: carmen.burky@vanir.com

December 3, 2018 BSK Project No.: G16-054-11L

Ms. Carmen Burky
Construction Manager
Vanir Construction Management, Inc.
24400 Amador Street
Hayward, California 94544

SUBJECT: Supplemental Pavement Recommendations
Harder Elementary School Campus Reconstruction
495 Wyeth Road
Hayward, California

Dear Ms. Burky:

As requested, BSK Associates is pleased to present our supplemental pavement recommendations for the planned Harder Elementary School campus reconstruction located at 495 Wyeth Road in Hayward, California. We initially provided geotechnical pavement recommendations in Section 5.7 of our July 22, 2016 geotechnical report[1] for the project for Traffic Indices ranging from 4.0 to 6.5. Subsequent to the issuance of that report, we were requested to provide supplemental design recommendations for heavily trafficked concrete pavements and higher traffic indices for asphalt concrete pavements.

CONCRETE PAVEMENTS

Portland Cement Concrete (PCC) pavement should have a minimum thickness of 7 inches supported over 6 inches of Caltrans Class 2 aggregate base compacted per Exhibit 1 of the referenced report. Construction joints should be located no more than 10 feet apart in both directions. Concrete compressive strength should be tested in lieu of third point loading for rupture strength. A minimum 28-day compressive strength of 3,000 pounds per cubic foot (psi) should be specified for the concrete mix design. The PCC pavement should be continuously reinforced using No. 4 bars (or larger) spaced no more than 18 inches on center in both directions. Steel reinforcement should be located near the mid thickness of the concrete slab.

[1] Geotechnical Investigation Report and Geologic Hazard Assessment, Harder Elementary School Campus Reconstruction, Hayward, California, dated July 22, 2016, BSK Project No. G16-054-11L

ASPHALT CONCRETE PAVEMENTS

The original geotechnical report provided asphalt concrete pavement sections based on traffic indices ranging from 4.0 to 6.5. The following table extends that range of design traffic indices to a maximum of 8.0

ASPHALT CONCRETE PAVEMENT DESIGN Design R-Value = 5								
	Alternative 1		Alternative 2			Alternative 3		
Traffic index	AC	AB	AC	AB	ASB	AC	AB	LTS
4.0	2.5	7.5	2.5	4.0	4.0	2.5	4.0	12.0
4.5	2.5	9.0	2.5	4.5	5.0	2.5	4.0	12.0
5.0	2.5	11.0	2.5	5.0	6.5	2.5	4.0	12.0
5.5	3.0	12.0	3.0	5.5	7.0	3.0	4.5	12.0
6.0	3.0	13.5	3.0	6.5	8.0	3.0	4.5	12.0
6.5	3.5	14.5	3.5	6.5	9.0	3.5	6.0	12.0
7.0	4.0	15.5	4.0	6.5	10.0	4.0	6.5	12.0
7.5	4.5	16.5	4.5	7.0	10.5	4.5	7.0	12.0
8.0	4.5	18.5	4.5	8.0	11.5	4.5	8.0	12.0

CLOSURE

We appreciate the opportunity of providing our services to the District on this project and trust this meets your needs currently. Please, contact us at (925) 315-3151 if you have any questions or require additional information.

Respectfully submitted,
BSK Associates

REGISTERED PROFESSIONAL ENGINEER
CARRIE L. FOULK
No. 3016
Exp. 09/30/19
GEOTECHNICAL
STATE OF CALIFORNIA

Omar K. Khan
Project Geologist

Carrie Foulk, PE, GE
Senior Geotechnical Engineer