



**MILLER PACIFIC
ENGINEERING GROUP**

May 23, 2017
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San Rafael City Schools
310 Nova Albion Way
San Rafael, California 94903
Attn: Mr. Dan Zaich

Re: Proposal for Supplemental Geotechnical Investigation
Davidson Middle School
San Rafael, California

Introduction

Based on our review of the preliminary site plan, and discussions with you, we are pleased to propose our supplemental geotechnical services to aid in the development of the proposed improvements to Davidson Middle School campus in San Rafael, California. The project includes construction a new, two-story, ~9,200-square foot (footprint area) science classroom building; and a new ~1,400-square foot, art building. Ancillary improvements include concrete pedestrian areas and landscape areas.

Scope of Services

We customarily provide our services in phases to match project development. Based on our experience with similar projects we recommend the following three phases of work:

Phase 2 – Supplemental Geotechnical Investigation

We previously performed a Preliminary Geotechnical Investigation dated April 27, 2017, utilized by the design team for planning purposes, which included previous subsurface data obtained by Miller Pacific Engineering Group. We understand the design portion of this project will be reviewed by DSA and by CGS. Therefore, we will perform a subsurface exploration with that complies with CGS' Note 48. Per Note 48 one boring is required for every 5,000-square feet, with a minimum of two-borings per structure. Therefore, we will perform three-soil borings excavated with track mounted drilling equipment to supplement our existing borings. We anticipate the borings will extend 20 to 30-feet below the existing ground surface or at least 5-feet into firm materials. During our exploration we will collect select soil samples for laboratory testing. We anticipate our testing will include moisture content, dry density, unconfined compressive strength, material passing the #200 sieve, plasticity index, expansive index, consolidation, and Caltrans corrosion resistance testing.

We will prepare a geotechnical investigation report to aid in the design and construction of the proposed improvements. Our report will include a summary of the existing subsurface conditions, a summary of the pertinent geologic hazards and associated mitigation measures, site grading recommendations; and foundation and seismic design criteria. The report will also include a site plan showing our approximate boring locations, boring logs, and laboratory test results.

Phase 2a – Site Specific Seismic Response Analysis

If necessary, we will perform a site specific seismic response analyses based on the results of our subsurface exploration and/or if requested by the Project Structural Engineer. Per CGS requirements we will input at least 5-acceleration time histories into a seismic hazard analyses software that will include a model of the anticipated soil column. The results of our analyses will be presented in our Geotechnical Investigation Report and will include a design acceleration response spectra and a plot of the acceleration time histories input into the program.

Phase 3 – Supplemental Consultation

We will provide supplemental consultation with the design team, as requested, during the design and permitting process. We will address and respond to the comments made by OSHPD/CGS if any. Additionally, we will review the final plans to verify that the intent of our geotechnical recommendations has been implemented and will summarize the results of our review in a brief letter.

Phase 4 – Construction Observation & Testing

We will provide intermittent site visits to observe and test the geotechnical portions of the work performed to form an opinion of the Contractor's compliance with the project plans and specifications. We anticipate observing and testing the following items:

- Building pad preparation,
- Foundation excavations,
- Pavement section compaction testing,
- Utility trench backfill testing, and
- Other geotechnical items, as needed.

We will also provide a letter report summarizing our observations upon satisfactory completion of the project.

Schedule and Fee

We propose our services per the terms on the attached Agreement and Schedule of Charges and the following fee arrangements:

Phase 2 – Geotechnical Investigation:.....Fixed Fee, \$6,200
Phase 2a – Site Specific Seismic Response Analysis (if required):.....Fixed Fee, \$3,500
Phase 3 – Supplemental Consultation:.....Time & Expense, Estimate, \$3,500
Phase 4 – Construction Observation & Testing:..... Time& Expense, TBD*

*Budget to be determined when the project details and construction schedule are known.

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We are pleased to have the opportunity to provide geotechnical services on this project and are prepared to begin our work soon after your authorization. When you wish us to proceed, please return one signed copy of the attached Agreement. If you have any questions regarding our proposal, please do not hesitate to call.

Very truly yours,
MILLER PACIFIC ENGINEERING GROUP

A handwritten signature in black ink, appearing to read "Benjamin S. Pappas", written over a horizontal line.

Benjamin S. Pappas
Geotechnical Engineer No. 2786
(Expires 9/30/18)

Attachments: Agreement and Schedule of Charges