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Project: Exterior Stair Replacement
Ohlone Community College
Fremont, CA
DASSE Project No. 04B265x1

Subject: Proposal to Provide Certain Additional Services

Dear Bill:

As requested, this proposal addresses our efforts associated with the resolution of the non-conforming handrail base plate anchors. Specifically, the expansion anchors at limited locations, as noted in the testing report and RFI 13 were tested to failure (i.e. pull-out).

The failed anchorages occur where the existing handrails, removed to allow the installation of the new stair treads, connect to the existing concrete slab. The existing site concrete is relatively thin and weak and has been compromised by the previous handrail attachment. DASSE initially suggested the use of epoxy anchors in lieu of the expansion anchors but the existing concrete is inadequate for those as well. All anchors installed into the new concrete treads were tested without failure.

Remediation measures could include installing new posts or removing and replacing the existing concrete slab at the failure locations. These measures would require the removal of the existing handrail and likely would be costly.

In most cases where an anchor failed there is an adjacent handrail post attached to the new concrete; in other cases there are multiple posts attached to the existing concrete supporting the handrail. For these reasons it is our opinion that the handrail installation is adequate to resist the design loads required by the CBC. In some cases we should be able to prove this by calculation; in others additional testing is necessary to verify adequacy.

In order to limit additional efforts by the contractor, we propose to prepare calculations to substantiate the adequacy of the handrail installations where possible, and to develop a custom testing program to verify the handrail capacity at the other locations. Discussions with Yung Su, DSE at DSA and the testing lab indicate a testing program where the handrail itself is tested in lieu of the anchors is feasible. DASSE has already visited the site and performed a preliminary review of the issue.