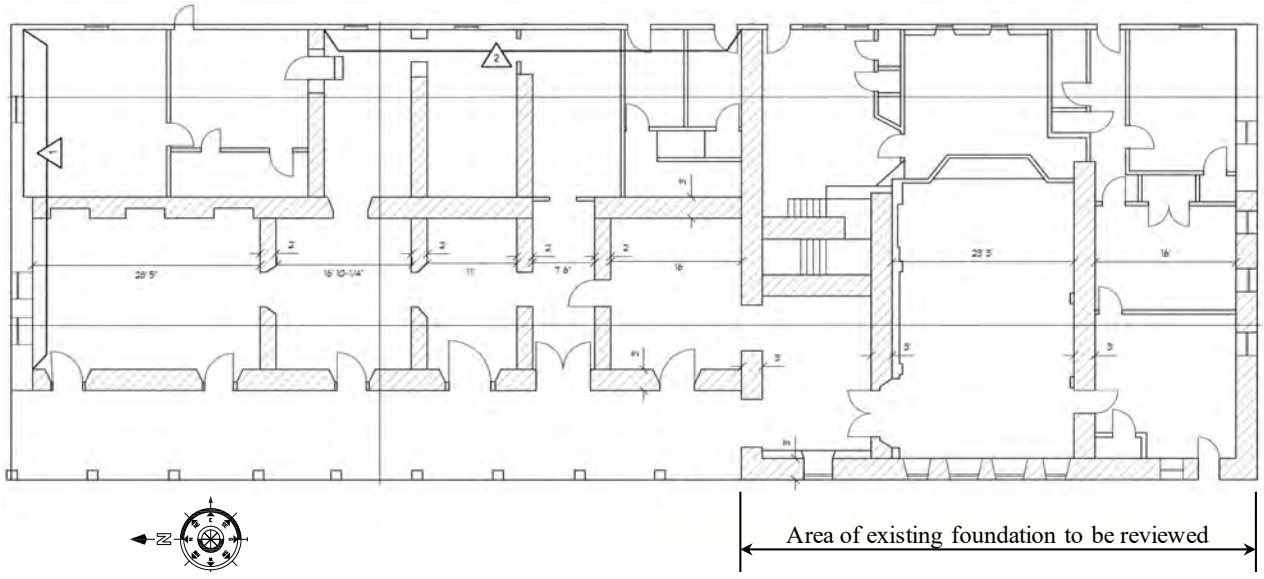
2) Repair the Museum Building Foundation

St. Joseph's Parish
Structural Assessment Rock Foundation at Old Mission San Jose
43300 Mission Boulevard, Fremont, CA

This report summarizes the results of our preliminary investigation and assessment of the West wall foundation at the Old Mission San Jose site located on Mission Boulevard in Fremont, CA.

Objectives of the Structural Assessment

The purpose of this structural assessment is to observe the existing west wall foundation in the area of where rodents (ground squirrels) have been observed burrowing into the rock rubble foundation and provide conceptual recommendations to mitigate any potential structural damage that this may be causing to the adobe structure above. The scope of services for this project was limited to an assessment of the rock foundation. The length of the foundation to be investigated is approximately 64'-6".



Existing Floor Plan – Old Mission San Jose

INTERACTIVE RESOURCES architects + engineers

St. Joseph's Parish
Structural Assessment Rock Foundation at Old Mission San Jose
43300 Mission Boulevard, Fremont, CA

Documents reviewed

The following documents were reviewed as part of our structural assessment:

- *Seismic Rehabilitation of the Old Mission San Jose*, drawings S-1 through S-7, prepared by Melvyn Green & Associates, Inc (Project No. 2000122), dated Jan. 1997
- *Seismic Rehabilitation of the Old Mission San Jose*, drawings A-1 through A-6, prepared by Melvyn Green & Associates, Inc (Project No. 2000122), dated Oct. 2, 2000
- *Geotechnical Evaluation, Old Mission San Jose, Mission Museum Building, 43300 Mission Boulevard, Fremont, CA* prepared by Ninyo & Moore (Project No. 404078001), dated October 25, 2021
- Adobe materials test report prepared by Applied Materials & Engineering, Inc (AME), dated September 13, 2021

Existing Conditions / History of the Site

The original building is a single story adobe structure with a timber roof that was constructed in the late 1800's. There is very limited information on any additions or alterations that may have been made to the structure since is was built up until 2000 when a seismic rehabilitation was performed. It was mentioned that sometime in recent history, when Mission Boulevard was widened, that the existing grade adjacent to the rock foundation sloped down from the finished floor elevation away from the structure to the original road. Today, that slope grade no longer exists, but is much lower either exposing the rock foundation or possibly having the rock foundation installed as part of the roadwork. This is unknown.

West wall looking NE

St. Joseph's Parish
Structural Assessment Rock Foundation at Old Mission San Jose
43300 Mission Boulevard, Fremont, CA

Closer view of West wall

Detailed view of rock / adobe wall interface

INTERACTIVE RESOURCES architects + engineers

St. Joseph's Parish
Structural Assessment Rock Foundation at Old Mission San Jose
43300 Mission Boulevard, Fremont, CA

Geotechnical Investigation

A geotechnical investigation was performed by Ninyo & Moore. Test pits were dug at two locations in the vicinity of the existing rock retaining wall and the adobe brick foundations. In addition, two soil borings were taken to establish geotechnical parameters for the on-site soils.

The test pits revealed that the rock retaining walls are located approximately 3 feet in front of the existing adobe brick walls and do not extend below the main building adobe walls. As such, erosion due to water damage and ground squirrel activity are leading to degradation of the soil between the rock wall and the adobe brick and to an unknown extent below the adobe wall.

Recommendations

Accounting for the low compressive strength of the adobe material (approximately 300 psi per the AME report) we do not believe that any form of excavation below the adobe wall should be performed as this could lead to further damage to the walls. It is therefore recommended that the existing rock wall be temporarily removed, the soil below the adobe wall be jet grouted to a depth of at least 8 feet below the adobe wall and at least 2 feet laterally from the face of the adobe wall, a permanent concrete retaining wall be built immediately adjacent to the adobe wall and jet grouted subgrade, and that the rock retaining wall be reconstructed to conceal the concrete wall. Since the new rock wall will no longer act as a true retaining wall, it can be rebuilt as loose material, or if desired it can be rebuilt by grouting the rocks to more closely match the grouted rock wall immediately north of the wall to be replaced.