

Stan Yeh - Re: San Gabriel - Geotech Report

From:
To: "Stan Yeh"
Date: 8/15/2007 3:57 PM
Subject: Re: San Gabriel - Geotech Report
CC: , ,
Attachments: , ,

DOCKET	
07-AFC-2	
DATE	AUG 15 2007
RECD.	AUG 15 2007

Stan:

These are the geotechnical reports:

- Dames & Moore, May 1, 1951, Report of Foundation Investigation, Proposed Etiwanda Steam Station
- Dames & Moore, May 18, 1951, Report of Testing of Compacted Fill, Proposed Etiwanda Steam Station
- URS, April 12, 2005, Summary Report of Geophysical Utility Survey and Surface Wave Investigation, Etiwanda Steam Station

The first 2 are attached to this email. The 2005 report will be sent in 3 emails (since it has color photos and is a big file)

Regards,

Anne

(See attached file: 0032 Report of Foundation Investigation.pdf)(See attached file: 0033 Report of Compacted Fill.pdf)

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"Stan Yeh" <Syeh@energy.state.ca.us>

"Stan Yeh"
 <Syeh@energy.state.ca.us>

08/15/2007 10:23 AM

To<Anne_Connell@URSCorp.com>
 cc
 SubjectSan Gabriel - Geotech Report

Anne,

In Appendix A, under section 3.1.1, you mention a geotechnical investigation. Can you please provide me with this report.

Thanks,
 Stan

DAMES & MOORE, *Civil Engineers*

FOUNDATION INVESTIGATIONS · SOIL MECHANICS ENGINEERING

LOS ANGELES · SAN FRANCISCO · PORTLAND · SEATTLE · NEW YORK

TRENT R. DAMES
WILLIAM W. MOORE
L. LEROY CRANDALL
WILLIAM W. BREWER
VERNON A. SMOOTS
WILLIAM ENKEBOLL

MICHIGAN 0748
818 WEST FIFTH STREET
LOS ANGELES 17, CALIF.
L. LEROY CRANDALL
RESIDENT PARTNER

May 18, 1951

Southern California Edison Company
Edison Building
601 West Fifth Street
Los Angeles 17, California

Attention: Mr. T. M. Hotchkiss,
Assistant Chief Mechanical Engineer

Gentlemen:

Eight copies of our "Report of Testing of Compacted
Fill, Proposed Etiwanda Steam Station, Etiwanda, California,
for the Southern California Edison Company" are herewith
submitted.

Yours very truly,

DAMES & MOORE

By


L. LeRoy Crandall

LLC-WDC DE

REPORT OF TESTING OF COMPACTED FILL
PROPOSED ETIWANDA STEAM STATION
ETIWANDA, CALIFORNIA
for the
SOUTHERN CALIFORNIA EDISON COMPANY

SCOPE

This report presents the results of tests performed to determine the quality of compacted fills placed for the support of certain foundations at the location of Unit 1 and Unit 2 of the Proposed Steam Station that is to be constructed for the Southern California Edison Company at Etiwanda, California. The site of the proposed development is shown in relation to Etiwanda Street, the adjacent railroad tracks, and the aqueduct of the Metropolitan Water District, which traverses the site, on the Plot Plan on the attached Plate, Plot Plan and Test Data.

Attention is invited to our "Report of Foundation Investigation, Proposed Etiwanda Steam Station, Etiwanda, California, for the Southern California Edison Company" dated May 1, 1951. The recommendations for foundation design contained in that report are based both on studies of natural soils at the site, and on tests on compacted fills. The studies of the natural soils are described in the Appendix of the reference report; the results of the tests on the compacted fills are submitted herewith.

Grading plans required fills of as much as ten feet on the eastern portion of the development; the materials for the fills were obtained from cuts throughout the remainder of the site. The initial and final grades

are shown on the Plot Plan. The fills were compacted to specified requirements under the supervision of the Stone & Webster Engineering Corporation. Dames & Moore was authorized to determine the foundation characteristics of those portions of the fills which would be used for foundation support. At the time of our testing, the fills had generally been placed to approximately Elevation 1110.

EXPLORATIONS

The compacted fills were explored by drilling nine exploration borings to depths varying from one to six feet below the surface of the fill with a six-inch-diameter hand auger. All of the borings penetrated through the fill into undisturbed natural soils. The locations of the borings, and the elevations of the upper surface of the fill at the points of exploration are defined on the Plot Plan. Undisturbed core samples were extracted from the compacted fills with the "Soil Sampler Type D" illustrated on Page 3.

TESTS

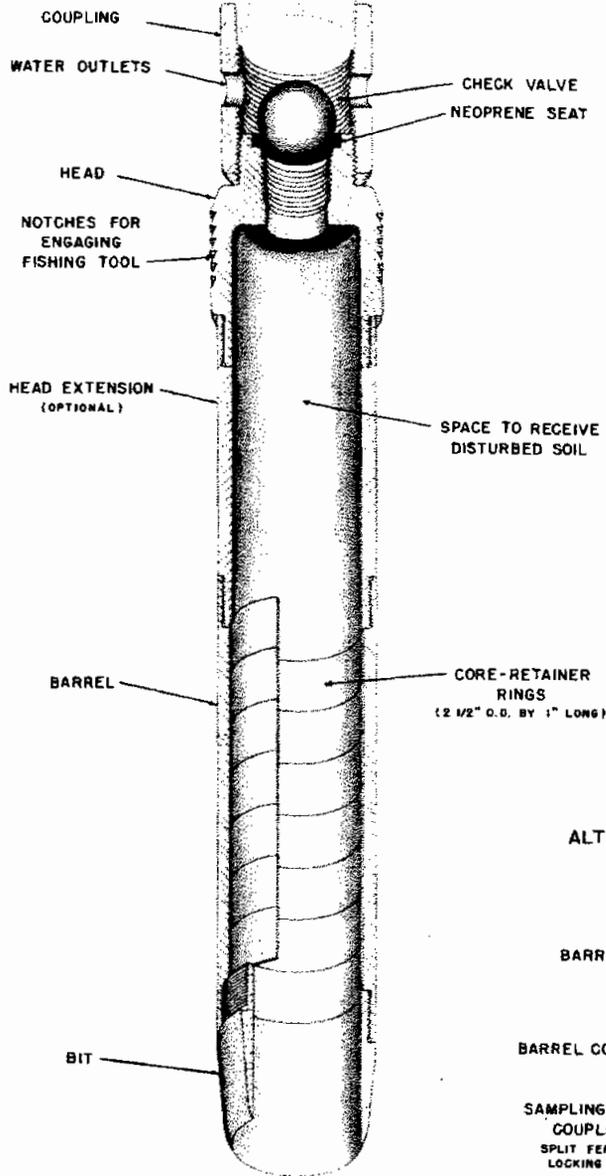
To determine the quality of the compacted fills, ten selected samples were subjected to shear tests that were performed in accordance with the "Method of Performing Shear Tests" described on Page 4. The results of the shear tests, and of the associated moisture and density studies, are presented in tabular form under the heading "Shear Test Data" on the upper right of the attached Plate. The shearing strengths and the surcharge pressures at which the individual tests were performed are summarized on the graph entitled "Summary of Shear Test Data" on the right of the Plate.

For comparative purposes, a line describing the shearing strengths previously selected for the design of foundations on the basis of tests on the undisturbed natural soils has been entered on the Summary of Shear

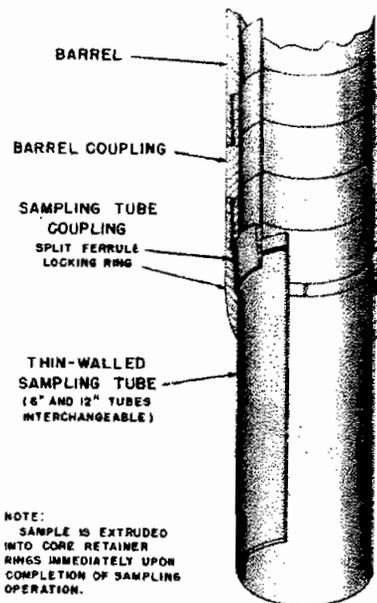
SOIL SAMPLER TYPE D

FOR SOILS EASY TO RETAIN IN SAMPLER

DRIVING OR PUSHING
MECHANISM



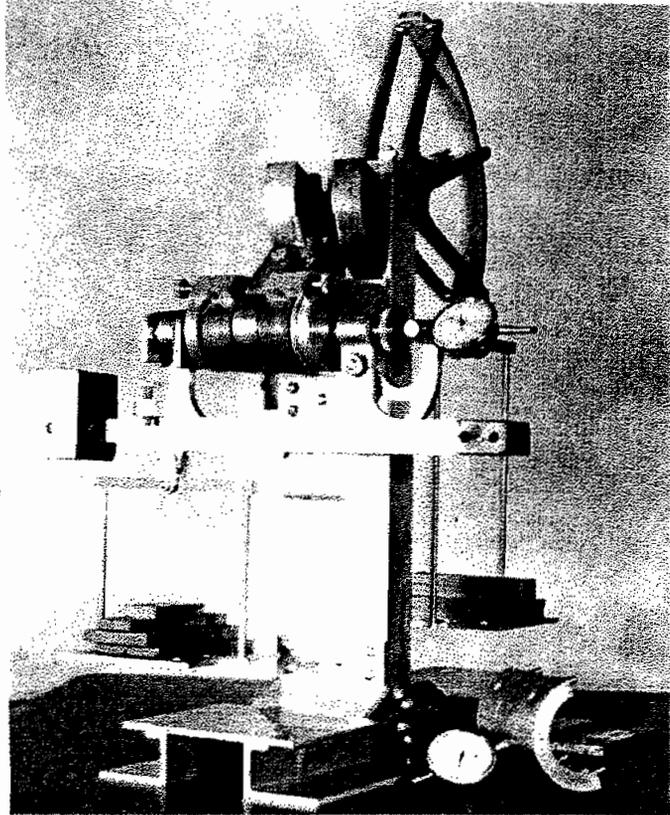
ALTERNATE ATTACHMENTS



NOTE:
SAMPLE IS EXTRUDED
INTO CORE RETAINER
RINGS IMMEDIATELY UPON
COMPLETION OF SAMPLING
OPERATION.

METHOD OF PERFORMING SHEAR AND FRICTION TESTS

In the performance of the shear tests, a three-inch length of the core sample is tested in double shear while confined within three of the retainer rings in which the sample was obtained. The sample is placed in the shearing apparatus under the surcharge pressure at which it is desired to determine the shearing strength of the soil and then, at equal time intervals, equal increments of load are applied in a direction perpendicular to the axis of the sample to the center ring of the three-ring sample of soil, while all transverse movements of the outer rings are prevented. The deflections of the center ring and the axial movements of the sample are measured for each load increment by micrometer dial gauges. These deflections are plotted against the shearing load, giving a stress-strain curve which is used to determine the yield point shearing strength of the core, this shearing strength being related to the bearing value in the ratio 3.14^{16} . The bearing value so computed is that yield point bearing value which would be established by a properly conducted field load test performed at the same conditions of moisture and confinement as the shear tests.



APPARATUS FOR PERFORMING SHEAR AND FRICTION TESTS
Shows lower half of sample carriage including shear dial removed to expose partly sheared core sample of soil.

In order to determine the decrease in strength which may occur with future increases in moisture content, the strength of the soil at possible future moisture conditions is determined by performing the shear test at an artificially increased moisture content. The change in moisture content is accomplished by immersing the sample in water for a period of at least 18 hours (The period is varied depending on the characteristics of the soil and the probable amount of moisture infiltration which may occur in the field.) while the sample is confined under the desired surcharge pressure.

Friction tests of the soil in contact with steel, wood, or concrete, representing the surfaces of the various types of driven piling, are performed in the same apparatus and at the same surcharge pressures, moisture contents, and densities as the corresponding shear tests. The method of performing the test is identical to that of the shear tests, the only difference being that the center ring of soil is replaced by a disk of steel, wood, or concrete.

¹⁶"Practical Shear Tests for Foundation Design", Civil Engineering, December, 1940, Pages 784 and 785.

Test Data. The individual tests on the compacted fills indicate shearing strengths equal to or greater than those selected for design.

Comparisons were also made between the densities of the compacted fills and the densities of the undisturbed natural soils. Density data for the fills were obtained in conjunction with the shear tests, and by field density tests conducted by Stone & Webster. Density studies of the natural soils were conducted in conjunction with our foundation investigation. The densities of the fills were observed to be generally greater than the densities of the undisturbed natural soils.

CONCLUSIONS

The fills that were placed for the direct support of foundations have been compacted to a quality comparable to the undisturbed natural soils at the site. Accordingly, in using the foundation recommendations contained in our report of May 1, no differentiation need be made between undisturbed natural soils and the compacted fills.

Respectfully submitted,

DAMES & MOORE

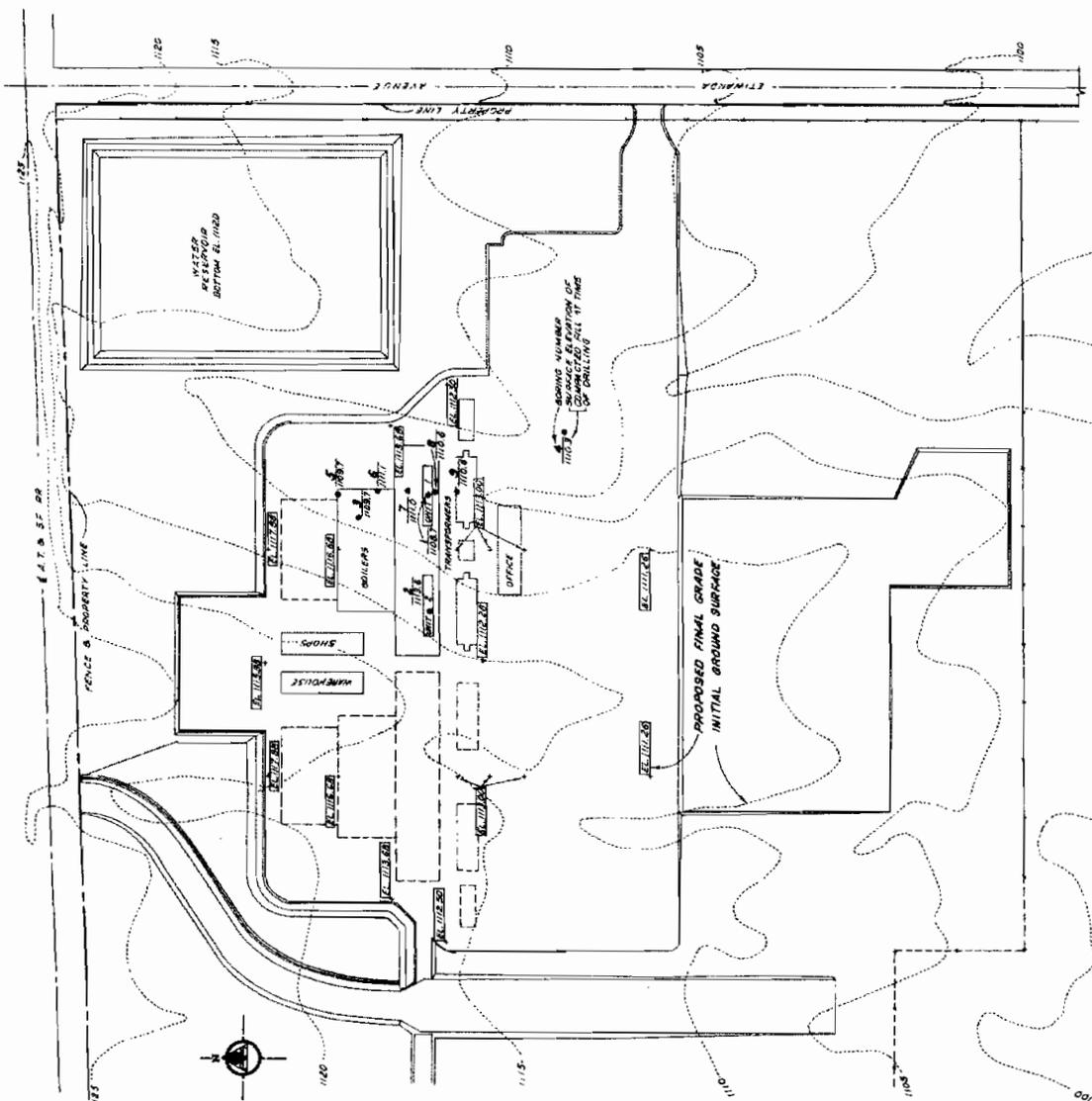
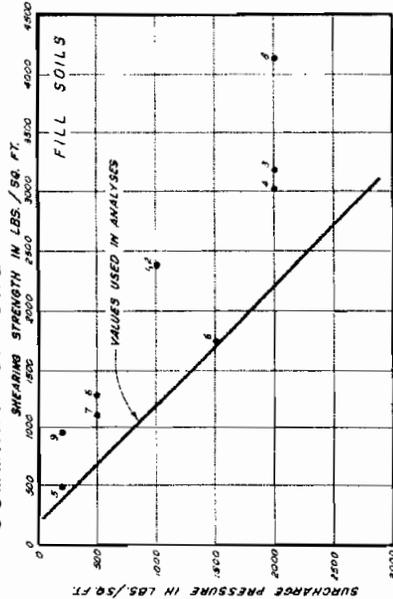
By


L. LeRoy Crandall

SHEAR TEST DATA

SOIL SAMPLE NUMBER	ELEVATION	SURCHARGE PRESSURE (LBS./SQ. FT.)	MOISTURE CONTENT PER CENT	DRY DENSITY (LBS./CU. FT.)	SHEARING STRENGTH (LBS./SQ. FT.)
1 AT 108.2	108.2	1000	8.9	113	2130
2 AT 108.2	108.2	2000	8.1	110	2130
3 AT 108.2	108.2	3000	7.8	104	1180
4 AT 108.5	108.5	2000	8.1	107	1600
5 AT 108.5	108.5	3000	11.2	109	1750
6 AT 108.5	108.5	4000	10.2	102	1750
7 AT 108.0	108.0	1000	10.2	113	1110
8 AT 108.0	108.0	2000	10.2	115	1140
9 AT 107.4	107.4	200	8.7	111	850

SUMMARY OF SHEAR TEST DATA



PLOT PLAN



REFERENCE:
 DRAWING NUMBER: 17120, 194210
 AND 17121, 194210
 P-2-21, BY STOKES & HENNING, ENGINEERS
 2142 N. 2ND ST. SOUTHERN CALIFORNIA Edison CO.

DAMES & MOORE
 FOUNDATION ENGINEERS

DAMES & MOORE
 1110 L Street, N.W.
 Washington, D.C. 20004
 DATE: 5-27-51
 DRAWN BY: J. L. MOORE
 CHECKED BY: J. L. MOORE
 DATE: 5-27-51
 REPORT DATED BY: J. L. MOORE
 DATE: 5-27-51