

FOR CONTRACT NO.: 06-0E9704

INFORMATION HANDOUT

SUPPLEMENTAL MATERIALS INFORMATION

GEOTECHNICAL DESIGN REPORT

ASHLAN AVENUE OVERCROSSING AS BUILT LOG OF TEST BORINGS BR. #42-277

ROUTE 168/41 SEPARATION (SHAW AVENUE OC) AS BUILT LOG OF TEST BORINGS
BR. #42-301

BULLARD AVENUE OVERCROSSING AS BUILT LOG OF TEST BORINGS BR. #42-303

ROUTE: 06-FRE-41-R44.4/R47.7

CONTRACT NO. 06-0E9704
ADDED PER ADDENDUM NO. 2 DATED FEBRUARY 25, 2010

Memorandum

*Flex your power!
Be energy efficient!*

To: MR. GETACHEW ESHETE- 06
Senior Transportation Engineer
Project Development Division, Design 1
Attention: Mr. Mike Bettega

Date: July 14, 2008

File: 06-FRE-41-R27.6/R29.6
EA: 06-0E9704
Retaining Walls

From: DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES – MS 5

Subject: Geotechnical Design Report

Introduction

Per your request, we are providing foundation recommendations for the ramp metering project referenced above. This work is in association with the ramp improvements near the Ashlan Avenue OC (42-0277), Shaw Avenue (42-0301) and Bullard Avenue (42-0303) bridges. The purpose of this report is to recommend design and construction criteria for the retaining wall portion of the project. This report is for use by the project design engineer, construction personnel, bidders and contractors.

Pertinent Plans, Maps and Data

The following resources were used in the assessment of the site conditions:

1. The layouts of the proposed retaining walls and aerial photographs of the project area.
2. As-Built Logs of Test Borings (LOTB) for the existing bridges at Ashlan Avenue, Shaw Avenue and Bullard Avenue.
3. A geologic inspection of the proposed sound wall alignments.
4. Caltrans Seismic Hazard Map 1996.
5. Groundwater level data, Department of Water Resources (DWR), California

Site Geology

The subsurface materials along the project alignment consist of alluvium composed of dense to very dense silt, silty sand and fine sands.

Groundwater

Groundwater was not encountered during the site investigations for the original bridges at the three project locations. Department of Water Resources well records show that the depth of groundwater below the project region is approximately 80-90 feet below existing ground surface. Groundwater is not expected to be factor during the proposed retaining wall construction. Shallow water may occur adjacent to the recharge basin at the northeast corner of the Bullard Avenue OC.

Seismicity

Based on the 1996 Caltrans Seismic Hazard Map, the controlling fault for the project alignment is the Coast Ranges-Sierran Block Boundary (CRSB, reverse thrust). This fault possesses a Maximum Credible Earthquake moment magnitude of $M_w = 7.0$, and is located 45 miles from the project site to the southwest. Based on the referenced map, the peak bedrock acceleration along the project alignment is estimated to be 0.1g.

The potential for surface rupture due to fault movement at the site is considered insignificant, as there are no known faults projecting towards or passing through the project site.

Since the project locations are underlain by dense soil with a relatively deep groundwater condition, the potential for liquefaction under the proposed sound walls is considered very low.

Retaining Wall Information

The retaining wall information for the three project sites is summarized below.

Table 1

Wall #	Location	Standard Type	Begin STA	End STA	Length (ft)	Max. Height (ft)	Foundation Type
1	Ashlan Ave.	1	12+50	21+29	879	17.1	Spread Footing
2	Shaw Ave.	1	13+50	26+10.5	1260.5	13.8	Spread Footing
3	Bullard Ave.	1	101+50	118+97	1747	18.0	Spread Footing

Geotechnical Recommendations

The optimum foundation type for all three walls from a geotechnical perspective is spread footings.

The alluvial soils beneath the three project areas are adequate for support of the walls using continuous spread footing foundations. This material will provide the minimum required bearing capacity for toe pressures as outlined for all cases in the Standard Plans, Sheet B3-1 for the wall parameters outlined in Table 1.

The minimum embedment of the footing (dimension "F" in the Standard Plans) should be a minimum of 3 feet.

Due to the granular nature of the foundation soils differential settlement is expected to occur immediately.

Construction Considerations

The backfill placed behind the retaining walls should meet the requirements set forth in the Standard Specifications and Plans.

All foundation excavations, when completed, shall be inspected and approved by the Engineer prior to placement of any steel reinforcement or concrete.

The footing concrete shall be placed neat against undisturbed soil at the bottom of the footing. Any loose soils at the bottom of the footing shall be compacted to 95% relative compaction.

If any conceptual changes are proposed during final project design, the Office of Geotechnical Design-North should review those changes to determine if the recommendations contained herein are still applicable.

The recommendations presented in this report are limited to retaining walls that do not require special design by Structure Design.

Project Information

Standard Special Provision S5-280, "Project Information", discloses to bidders and contractors a list of pertinent information available for their inspection prior to bid opening. The following is an excerpt from SSP S5-280 disclosing information originating from Geotechnical Services. Items listed to be included in the Information Handout will be provided in Acrobat (.pdf) format to the addressee(s) of this report via electronic mail.

Data and information attached with the project plans are:

3 as-built Logs of Test Borings, Bridge Nos. 42-0277, -0301 and -0303

Data and information included in the Information Handout provided to the bidders and contractors are:

None.

Data and information available for inspection at the District Office:

None.

Data and information available for inspection at the Transportation Laboratory are:

None.

If you have any questions or comments, please contact Christopher Koepke at (916) 227-1040.

Report by:



Christopher Koepke, C.E.G.
Engineering Geologist
Office of Geotechnical Design – North
Branch E

cc: GDN Senior – Qiang Huang
DME – Ron Sekhon (e-copy)
GDN File

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DATE 06 Feb 41
 PROJECT NO. 129 3/22 8 130 749
 CONTRACT NO. 66-025654
 DATE 11-27-89, 5-23-92
 FEBRUARY 3 1947

AS BUILT
 CORRECTIONS BY R. L. Lopez
 CONTRACT NO. 66-025654
 DATE 11-27-89, 5-23-92

PLAN
 1"=20'

APPROXIMATE GROUND LINE ALONG & BULLARD AVE.



PROFILE
 1"=10'

TO YOSEMITE

TO LEMOORE

BENCH MARK
 BM - BR. RP # 3
 ELEV. 332.09

LEGEND OF BORING OPERATIONS

LEGEND OF EARTH MATERIALS

CONSISTENCY CLASSIFICATION

UNIFIED SOIL CLASSIFICATION SYSTEM

NOTE: Classification of earth material is based upon field inspection and is not to be construed to imply mechanical analysis.

State of CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

STRUCTURES - DESIGN 1
 BRIDGE NO. 42-303
 POST MILE 29.46

LEGEND OF BORING OPERATIONS

LEGEND OF EARTH MATERIALS

CONSISTENCY CLASSIFICATION

UNIFIED SOIL CLASSIFICATION SYSTEM

NOTE: Classification of earth material is based upon field inspection and is not to be construed to imply mechanical analysis.

State of CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

STRUCTURES - DESIGN 1
 BRIDGE NO. 42-303
 POST MILE 29.46

LOG OF TEST BORINGS

AS BUILT PLANS
 Contract No. 06-025654
 Date Completed 11-27-89
 Document No.

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