

FOR CONTRACT NO.: 06-0M1401

INFORMATION HANDOUT

MATERIALS INFORMATION

1. FOUNDATION REPORT

Dated 7/30/10

Memorandum

*Flex your power!
Be energy efficient!*

To: MR. JOE ESFANDIARY
Branch Chief
Structural Design Branch 1
Office of Transportation Architecture
Structure Design Services
Division of Engineering Services

Date: July 30, 2010

File: 06-KER-178
PM 41.6
EA 06-0M4001
Bodfish MS

Attention: Gang Hong

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

Subject: Foundation Report

Introduction

This report has been prepared to provide foundation recommendations for the proposed office building at Bodfish Maintenance Station in Kern County, California. The footing for the proposed building will consist of a 2 ft wide by 2 ft deep strip footing around the perimeter and 3 ft square by 2 ft deep isolated footings for the columns. A Location Map is presented as Plate No. 1 and a Site Plan is presented as Plate No. 2.

Pertinent Reports and Investigations

The following publications and plans were reviewed to assist in the assessment of site conditions:

- California Building Code, 2007 edition.
- Bodfish MS proposed building plans, April 2010, Division of Engineering Services, Architectural and Structural Design.
- Log of Test Borings (LOTB), Bodfish Sand Storage Building, June 1989.
- Foundation Plan, Bodfish Sand Storage Building, June 1989.

Subsurface Investigation

A Sand Storage Building was constructed at Bodfish Maintenance Station in 1990. For that project, four exploratory borings were performed on May 17, 1989. Based on the logs, the subsurface soils consist primarily of interbedded layers of very stiff silty fine to

coarse sandy clay with rock fragments, very dense silty fine to coarse sand and gravel, medium dense to dense silt to clayey silt with fine to coarse sand and gravel, and medium dense sandy silt with rock fragments. The borings indicate that the soils were dry and were drilled to a depth of 10 feet below the existing ground surface. The boring locations are shown on the Site Plan on Plate No. 2. Additionally, the existing cut adjacent to the sand storage building consists predominately of sand with interspersed rocks and boulders.

Geotechnical Recommendations

1. A maximum allowable bearing pressure based on the soil classification per 2007 CBC Table 1804.2 of 2000 psf may be used. The soil conditions are anticipated to be non-corrosive.
2. As mentioned above, four borings were advanced to a depth of 10 feet below existing site grade. Ground water was not encountered in the borings. Additionally, Department of Water Resources well data indicates that the ground water depth in the area is in excess of 30 feet. Ground water is not anticipated to affect the proposed construction.
3. As the density of the subsurface soils are medium dense to very dense, and ground water is anticipated to be in excess of 30 feet, the potential for liquefaction is considered low.
4. Where upward capillary moisture is not desired, a moisture barrier should be used. A vinyl membrane with a minimum thickness of 6 mils should be placed over 4 inches of clean sand. The membrane should be covered by 3 inches of sand to aid in uniform curing of the concrete. Care should be taken not to puncture the membrane.
5. Total and differential settlements are estimated to be on the order of 1 inch and 0.5 inch, respectively.
6. A design lateral soil load of 38 psf / foot of depth for active pressure and 375 psf / foot of depth for passive pressure may be used. A friction coefficient of 0.38 may be used for sliding resistance between foundation bottom and subgrade soil.
7. Soil supported slab should be designed using a subgrade reaction modulus, k , of 120 psi / inch.

Seismic Recommendations

1. As determined from Table 1613.5.2 of the 2007 California Building Code, the site class of the soil is type D.
2. The nearest fault is the White Wolf fault that lies about 14 miles to the southwest and has a slip rate of 2 mm per year.
3. White Wolf is a left lateral strike slip (LLSS) fault with a maximum potential magnitude of 7.75.
4. The mapped MCE spectral response at short period (S_s) is 1.18g.
5. The mapped MCE spectral response at a period of 1 second (S_1) is 0.39g.
6. As there are no known faults crossing beneath or extending toward the site, the potential of surface displacement due to faulting or lateral spreading is considered to be low.

Construction Considerations

1. Groundwater is not anticipated to be encountered during the footing excavation.
2. Footings shall be placed on firm soil. If unsuitable materials are encountered during excavation, these materials should be removed and replaced with suitable material compacted to 95% relative compaction or the footing elevation should be lowered to a firm base. Footing excavations shall be inspected and approved by the Engineer prior to placement of concrete.
3. As mentioned previously, the existing cut adjacent to the sand storage building consists of predominantly of sand with interspersed rocks and boulders. If boulders are encountered within the footing excavation, the boulders should be removed and the void filled and compacted per Caltrans Standard Specifications.
4. If any unforeseen geologic conditions are encountered during footing excavation, this Office should be contacted for additional recommendations.

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:

A. As-Built LOTB, Bodfish Sand Storage Building

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

A. Foundation Report for 06-0M4001, dated 7/30/2010.

Data and Information available for inspection at the District Office:

A. None

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

A. None

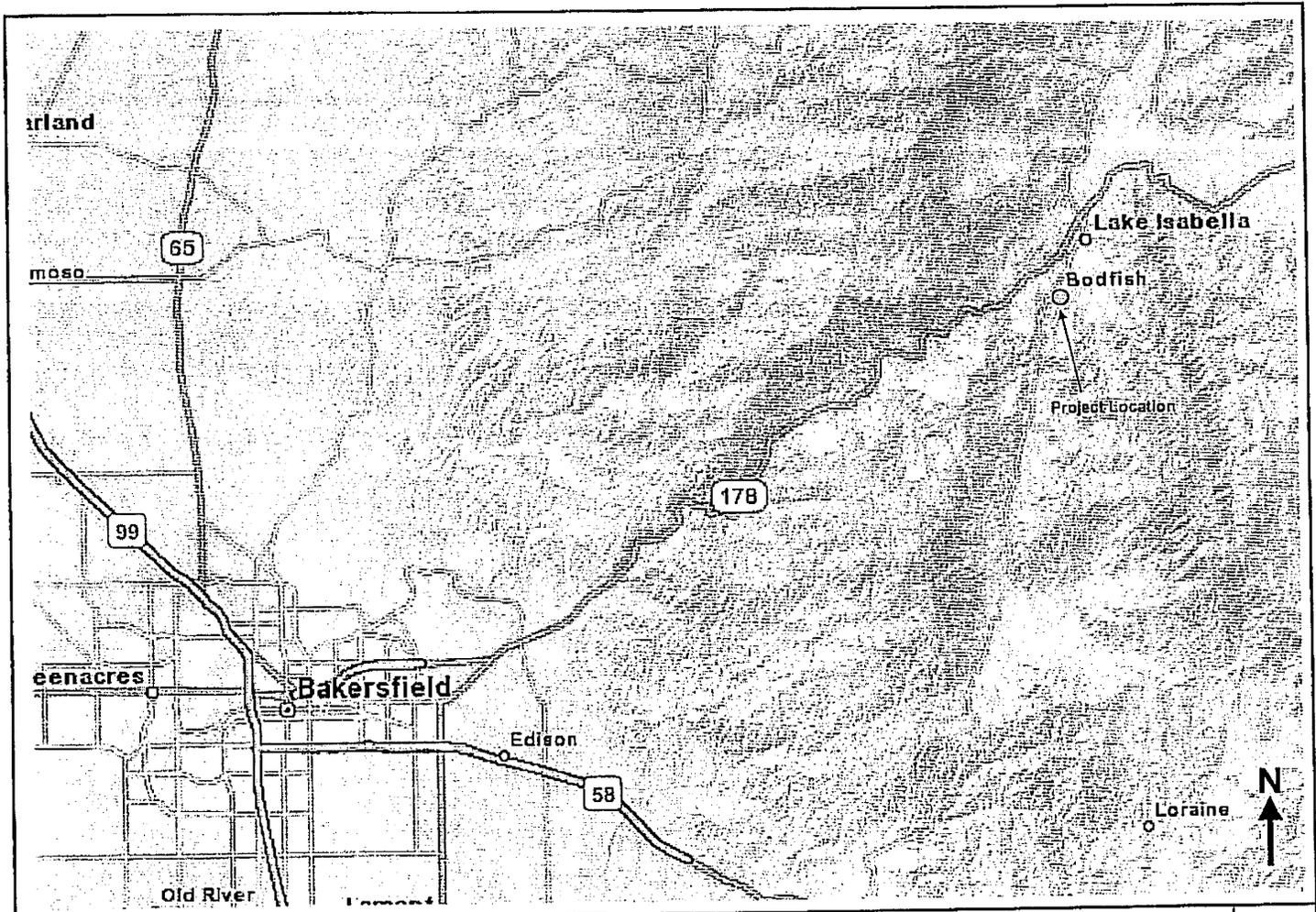
If you have any questions regarding the above recommendations, you may contact Ben Barnes at (916) 227-1039.



BENJAMIN M. BARNES, P.E.
Transportation Engineer – Civil
Geotechnical Design – North



- c: Qiang Huang,
- Christina Dyer (District Project Manager)
- Mark Willian (GS Corporate)
- Structure Construction R.E. Pending File
- Rebecca Harnagel (DES Office Engineer, Office of PS&E)
- Ted Mooradian (District Materials Engineer)



Division of Engineering Services
 Geotechnical Services
 Office of Geotechnical Design - North

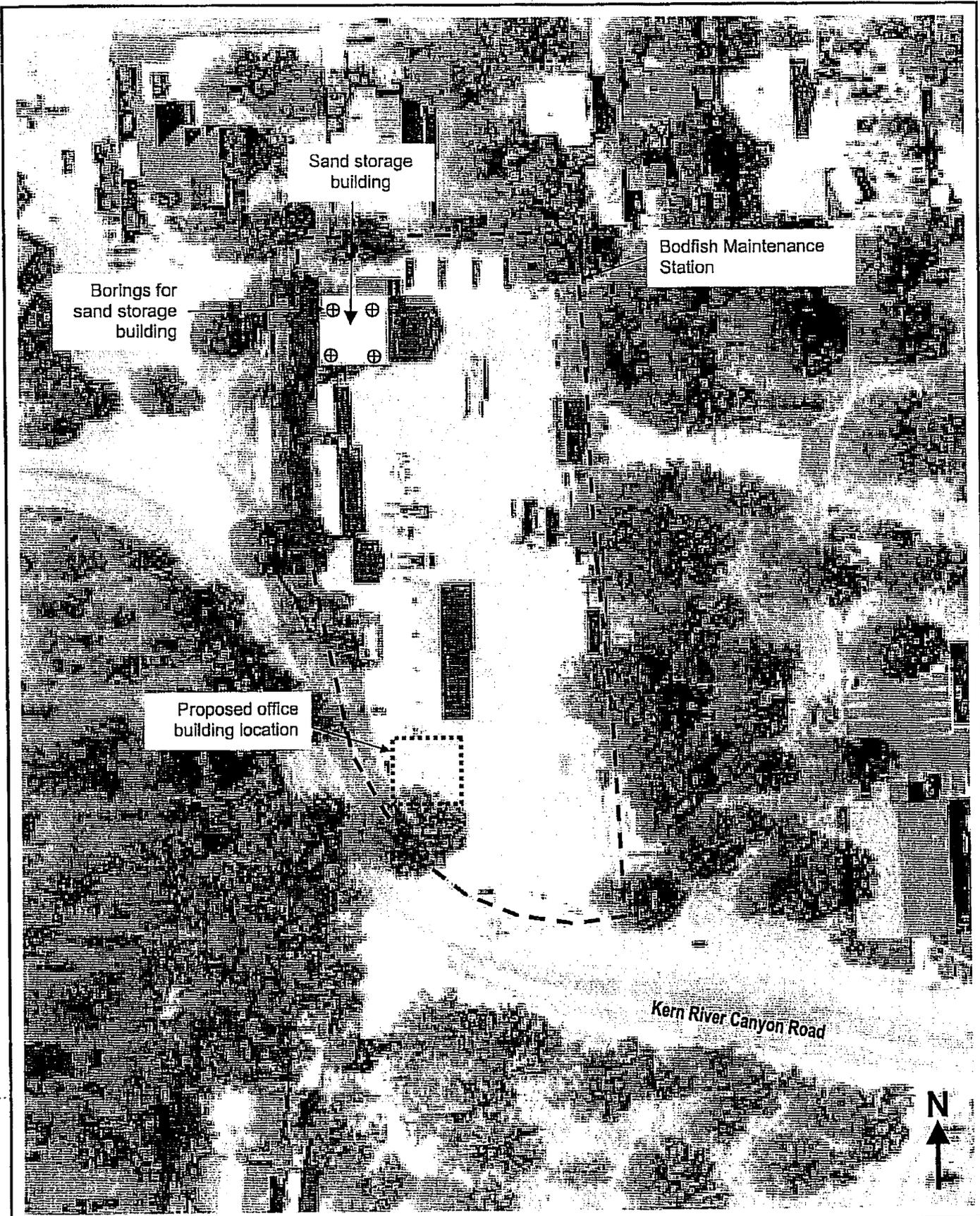
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July 2010

LOCATION MAP

05-KER-178 PM 41.6 Bodfish MS

Plate
 No. 1



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SITE PLAN

06-KER-178 PM 41.6 Bodfish MS

Plate
 No. 2