FOR CONTRACT NO.: 11-261404

INFORMATION HANDOUT

PERMITS

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FOUNDATION REPORT – RETAINING WALLS

FOUNDATION RECOMMENDATIONS FOR NORTHBOUND ALISO CREEK SRRA

FOUNDATION RECOMMENDATIONS FOR SOUTHBOUND ALISO CREEK SRRA

ROUTE: 11-SD-5-R59.4/R60.0

CALIFORNIA COASTAL COMMISSION
San Diego Coast Area Office
7575 Metropolitan Drive, Suite 103
San Diego, CA 92108-4421
(619) 767-2370
www.coastal.ca.gov

Date: **December 29, 2009**
Permit Application No.: **6-09-049**

COASTAL DEVELOPMENT PERMIT

On **December 9, 2009**, the California Coastal Commission granted to:

California Department of Transportation

this permit subject to the attached Standard and Special Conditions, for development consisting of

The proposed project includes site and building rehabilitation of the northbound and southbound I-5 Aliso Creek Roadside Rest Area. Proposed development includes the demolition of four existing comfort stations and the construction of five new comfort stations; the construction of two 3,000 gallon water towers and associated pump equipment; the reconfiguration of existing scenic outlooks; and landscape improvements

more specifically described in the application filed in the Commission offices.

The development is within the coastal zone at

Interstate 5 (I-5) at the northbound and southbound Aliso Creek Roadside Rest Areas, adjacent to Camp Pendleton (San Diego County).

Issued on behalf of the California Coastal Commission by

PETER M. DOUGLAS
Executive Director

By: **Gabriel Buhr**
Coastal Program Analyst

ACKNOWLEDGMENT:

The undersigned permittee acknowledges receipt of this permit and agrees to abide by all terms and conditions thereof.

The undersigned permittee acknowledges that Government Code Section 818.4 which states in pertinent part that: "A Public entity is not liable for injury caused by the issuance. . . of any permit. . . " applies to the issuance of this permit.

IMPORTANT: THIS PERMIT IS NOT VALID UNLESS AND UNTIL A COPY OF THE PERMIT WITH THE SIGNED ACKNOWLEDGMENT HAS BEEN RETURNED TO THE COMMISSION OFFICE. 14 Cal. Admin. Code Section 13158(a).

1/11/10
Date

Signature of Permittee

STANDARD CONDITIONS:

1. **Notice of Receipt and Acknowledgment.** The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. **Expiration.** If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. **Interpretation.** Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.

4. **Assignment.** The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. **Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

SPECIAL CONDITIONS:

The permit is subject to the following conditions:

1. **Drainage and Run-Off Control Plan**

   A. The applicant shall conform to the drainage and run-off control plan received on October 12, 2009 showing all roof drainage and runoff directed to area collection drains and sub-drain systems on site for discharge to on-site infiltration basins.

   B. The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved plan shall be reported to the Executive Director. No changes to the approved plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

2. **Storage of Construction Materials, Mechanized Equipment and Removal of Construction Debris**

   The permittee shall comply with the following construction-related requirements:

   - Best Management Practices (BMPs) and Good Housekeeping Practices (GHPs) designed to prevent spillage and/or runoff of construction-related materials, and to contain sediment or contaminants associated with construction activity, shall be implemented prior to the on-set of such activity;
   - No construction materials, debris, or waste shall be placed or stored where it may enter a storm drain
   - All trash and debris shall be disposed in the proper trash or recycling receptacle at the end of every construction day.
   - Construction debris and sediment shall be properly contained and secured on site with BMPs, to prevent the unintended transport of sediment and other debris into coastal waters by wind, rain or tracking. All stock piles and construction materials shall be covered, enclosed on all sides, shall be located as far away as possible from drain inlets and any waterway, and shall not be stored in contact with the soil;
   - Construction debris and sediment shall be removed from construction areas as necessary to prevent the accumulation of sediment and other debris which may be discharged into coastal waters. All debris and trash shall be disposed of in the proper trash and recycling receptacles at the end of each construction day;
   - The discharge of any hazardous materials into any receiving waters shall be prohibited;
   - A pre-construction meeting shall be held for all personnel to review procedural and BMP/GHP guidelines;
   - All BMPs shall be maintained in a functional condition throughout the duration of the project.
   - Debris shall be disposed at a legal disposal site or recycled at a recycling facility. If the disposal site is located in the coastal zone, a coastal development permit or an amendment to this permit shall be required before disposal can take place.

3. **Revised Landscaping Plan**

A. **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit for review and written approval of the Executive Director, two (2) sets of a finalized landscaping plan prepared by an appropriately licensed professional that satisfies the following requirements:

(1) The plan shall demonstrate that:

a. No plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or as may be identified from time to time by the State of California shall be utilized on the property. No plant species listed as a 'noxious weed' by the State of California or the U.S. Federal Government shall be utilized within the property. Any existing landscaping within the limits of the proposed project that doesn't meet the above requirements in this paragraph and those requirements listed in subsection b below shall be removed;

b. All plants employed on the site shall be drought tolerant, (low water use) plants identified by U. C. Davis and/or the Water Resources Board;

c. All planting will be completed within 60 days after completion of construction;

d. All vegetation shall be maintained in good growing condition throughout the life of the project, and whenever necessary, shall be replaced with new plant materials to ensure continued compliance with the landscaping plan.

(2) The plan shall include, at a minimum, the following components:

a. A map showing the type, size, and location of all plant materials that will be on the developed site, the irrigation system, topography of the developed site, and all other landscape features;

b. A schedule for installation of plants.

B. The permittee shall undertake development in accordance with the approved plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

LIMITED ASBESTOS AND LEAD-BASED PAINT SURVEY REPORT ALISO CREEK REST AREA NORTHBOUND AND SOUTHBOUND INTERSTATE 5 OCEANSIDE, CALIFORNIA

CALTRANS DISTRICT 11 EA 261401
CONTRACT NO. 11A1638
TASK ORDER NO. 4

February 25, 2009

A report prepared for:

California Department of Transportation
District 11
4050 Taylor Street
San Diego, California 92110

Attention: Ms. Diane Vermeulen, PE, Department Task Order Manager

LIMITED ASBESTOS AND LEAD-BASED PAINT SURVEY REPORT
ALISO CREEK REST AREA
NORTHBOUND AND SOUTHBOUND INTERSTATE 5
OCEANSIDE, CALIFORNIA
CALTRANS DISTRICT 11 EA 261401
CONTRACT NO. 11A1638
TASK ORDER NO. 4

Kleinfelder Project No. 100424

Prepared by:

Richard H. Stevenson
Certified Asbestos Consultant No. 06-3992
Lead Inspector/Assessor No. 14042

Reviewed By:

Gary Goodemote
Certified Asbestos Consultant No. 01-2870
Task Order Manager

KLEINFELDER WEST, INC.
5015 Shoreham Place
San Diego, California 92122
858-320-2000

February 25, 2009

KLEINFELDER
Bright People. Right Solutions.

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1.0 INTRODUCTION AND BUILDING DESCRIPTION

1.1 INTRODUCTION

This report presents the results of the limited surveys conducted to assess the presence, quantities, and conditions of asbestos-containing materials (ACMs) and lead-based paint (LBP) materials at the northbound and southbound Interstate 5 Aliso Creek Rest Area, located in Oceanside, California, (site, Plate 1). The limited asbestos and lead-based paint surveys were performed per the Scope of Services in Task Order No. 4 of Contract No. 11A1638, and in accordance with Kleinfelder's "Workplan to Conduct Asbestos and Lead-Based Paint Surveys" dated December 17, 2008. Kleinfelder conducted the surveys on December 23, 2008 to evaluate the presence of ACM and LBP materials in the four comfort building structures (two on the northbound side and two on the southbound side) that will be affected during future demolition/renovation activities. The surveys are considered "limited" because destructive sampling methods were not utilized during the surveys.

1.2 BUILDING DESCRIPTION

The surveys were conducted at the four comfort building structures located at the northbound and southbound Interstate 5 Aliso Creek Rest Area. Comfort station buildings 1 and 2 (Buildings 1 and 2) are located at the southbound Aliso Creek Rest Area. Comfort station buildings 3 and 4 (Buildings 3 and 4) are located at the northbound Aliso Creek Rest Area. Buildings 1, 2, and 4 each house two restrooms (one woman's and one men's restroom) and one utility room. Building 3 houses four restrooms (two men's and two women's restrooms) and one utility room.

Each of the buildings is constructed of concrete masonry or wood structural walls. Interior walls of the restrooms are finished with ceramic tiles. Interior walls of the utility rooms are unfinished concrete masonry. Flooring materials consist of ceramic tile or bare concrete. The ceiling deck of the building consists of wood, and roofing materials consist of rolled mineral roofing and tar with a gravel cap. .

1.3 PHYSICAL LIMITATIONS

The surveys included accessible areas of the interior and exterior of the comfort building structures at the site. Since limited destructive sampling techniques were used, there is a possibility that additional ACMs, and/ or LBPs may be encountered in inaccessible areas (e.g. interstitial wall and ceiling spaces, under inaccessible flooring areas, etc.) during building renovation activities. For instance, undiscovered asbestos cement (transite) septic system pipe may be present within floor cavities in the surveyed areas

In the future, suspect materials encountered during the subsequent demolition and renovation activities, which have not been assessed as part of this survey, either may be assumed to be hazardous and handled accordingly, or may be sampled and analyzed to assess whether they are hazardous.

2.0 ASBESTOS SURVEY

2.1 ASBESTOS SURVEY METHODS

Kleinfelder personnel conducted a visual survey of each of the four comfort station buildings at the site and collected representative bulk samples of building materials suspected to contain asbestos. Mr. Richard Stevenson, a California Occupational Safety and Health Administration (Cal-OSHA) Certified Asbestos Consultant (CAC) (No. 06-3992) performed the survey. The survey was completed in general accordance with the federal Asbestos Hazard Emergency Response Act (AHERA) methods (40 Code of Federal Regulations [CFR] Part 763) as a guideline. Limited destructive inspection and sampling methods were used, where possible, in the survey area.

The building material samples collected during the survey were delivered to Forensic Analytical in Hayward, California, a U.S. Environmental Protection Agency (EPA) and California State certified laboratory and National Voluntary Laboratory Accreditation Program (NVLAP) participant for analysis by Polarized Light Microscopy (PLM). A summary of building material samples collected, sample locations, asbestos content, condition, friability, and area estimates are summarized in Table 1, Appendix A. Sample location maps, indicating the locations of building material samples collected, are provided in Appendix B. Photographs of sample locations are presented in Appendix C. Copies of the analytical laboratory reports and chain-of-custody forms are included in Appendix D.

2.2 ASBESTOS SURVEY RESULTS

Kleinfelder collected a total of 16 representative building material samples during the asbestos survey at the site. Based on our review of the results, the following building materials at the site were found to contain asbestos.

Building 1

- Black roof penetration mastic noted on the skylight and vent pipe roof penetrations of the comfort building roof (Sample Nos. ACS-2C and ACS-2D) contains less than 1% ("trace") chrysotile asbestos by PLM analysis and 0.12% chrysotile asbestos by point count analysis. This material appeared to be in good condition and is estimated to encompass approximately 40 square feet.

This material is classified as an asbestos-containing construction material (ACCM) by Cal-OSHA, but is not regulated by the National Emission Standard for Hazardous Air Pollutants (NESHAPS).

Building 2

- Black roof penetration mastic noted on the skylight and vent pipe roof penetrations of the comfort building roof (Sample Nos. ACS-2A and ACS-2B) contains less than 1% ("trace") chrysotile asbestos by PLM analysis and 0.41% chrysotile asbestos by point count analysis. This material appeared to be in good condition and is estimated to encompass approximately 40 square feet. This material is classified as an ACCM by Cal-OSHA, but is not regulated by NESHAPS.

Building 4

- Black roof penetration mastic noted on the skylight and vent pipe roof penetrations of the comfort building roof (Sample Nos. ACN-2A and ACN-2B) contains less than 1% ("trace") chrysotile asbestos by PLM analysis and 0.02% chrysotile asbestos by point count analysis. This material appeared to be in good condition and is estimated to encompass approximately 36 square feet. This material is not classified as either an ACM or ACCM, and is not regulated by NESHAPS.

Asbestos was not detected in the building material samples collected from Building 3. Table 2, provided in Appendix A, provides a summary of these building materials that were identified as containing asbestos. Plates 2 and 3 show the approximate locations of these materials.

2.3 REGULATORY OVERVIEW FOR ASBESTOS

Regulatory oversight for the management, removal, and disposal of ACMs is provided by a variety of Federal, State, and local agencies.

The three primary regulations enforced by regulatory agencies that govern various activities (e.g., inspection, assessment, abatement, etc.) relating to ACMs include the following: AHERA, NESHAP, and the Asbestos Construction Safety Standard

(as codified in Federal OSHA and Cal-OSHA regulations). EPA regulations concerning the identification, handling, management, and abatement of ACMs (as found in the AHERA and NESHAP) are implemented locally by the San Diego County Air Pollution Control District (SDCAPCD). Both Cal-OSHA and Federal OSHA regulate asbestos as a worker health and safety issue. In addition, the transportation and disposal of asbestos-containing wastes are overseen by the California EPA Department of Toxic Substance Control (DTSC). The Federal OSHA, EPA, DTSC, and SDCAPCD define ACMs as materials containing greater than one-percent asbestos.

The following is a brief description of the three major regulations relating to ACMs.

Asbestos Hazard Emergency Response Act (AHERA)

AHERA (40 CFR part 763), as implemented by the EPA, primarily pertains to the assessment and management of ACMs in Kindergarten (K) through 12, non-profit schools. However, many of the procedures, training requirements, and certifications defined by AHERA have become the industry standard for all other facilities. For this survey, AHERA protocols were generally utilized in the identification, assessment, and sampling of building materials suspected of containing asbestos.

National Emission Standard for Hazardous Air Pollutants (NESHAP)

NESHAP (40 CFR Part 61) is an asbestos standard that protects the general public from asbestos exposure due to renovation or demolition activities. NESHAP requires surveying for suspect materials (as defined above), notifying of intent to renovate or demolish, removal of regulated ACM (RACM) prior to renovation or demolition, and proper management of asbestos containing wastes. A RACM is defined by NESHAP as follows:

- Any friable ACM;
- A Category I non-friable ACM (such as floor tiles and asphalt roofing products) that has become friable or will be subject to sanding, grinding, cutting, or abrading during renovation or demolition activities; or
- A Category II non-friable ACM (all other non-friable ACMs) that has a high probability of becoming friable during demolition or renovation activities.

NESHAP requires that demolition activities be conducted with no visible emissions using wet methods. It should be noted that while NESHAP regulates renovation and demolition activities, it does not protect individual workers conducting asbestos abatement or provide instructions for how asbestos abatement projects should be conducted.

Asbestos Standard for the Construction Industry

The Asbestos Standard for the Construction Industry (Federal OSHA, 29 CFR 1926.1101, and Cal-OSHA Title 8 California Code of Regulations [CCR] 1529) regulates asbestos exposure in the work place. This includes both persons working in a building containing ACMs and asbestos abatement workers/contractors. For abatement workers and contractors, the Asbestos Standard for Construction (Construction Standard) regulates the following:

- Protection of workers and the public during the removal.
- Medical surveillance requirements for workers.
- Detailed requirements for how asbestos is to be removed.
- Training requirements for abatement personnel.

Cal-OSHA defines ACCM as any building material that contains more than 0.1-percent (one-tenth of one percent) asbestos by weight. In addition, building materials presumed or known to contain at least "trace" amounts (less than 1 percent but greater than 0.1 percent by weight) of asbestos should be considered as ACCM, and should be managed according to Cal-OSHA regulations (as presented in Title 8, CCR, and Section 1529).

3.0 LEAD-BASED PAINT SURVEY

3.1 LEAD-BASED PAINT SURVEY METHODS

On December 23, 2008, Kleinfelder performed a survey of painted and/or coated surfaces in the survey area suspected to contain lead. Mr. Richard Stevenson, a California Department of Health Services (DHS) Certified Lead Inspector/Assessor (No. 14042) performed the lead-based paint (LBP) survey using the U.S. EPA, U.S. Housing and Urban Development (HUD), and DHS protocols as general guidance.

Predominant interior painted and/or coated surfaces were tested for the presence of lead utilizing a Niton XLp portable X-Ray Fluorescence (XRF) analyzer unit. The XRF allows for non-destructive/non-intrusive measurements of paints up to 3/8-inch thick. Measurements of painted surfaces by the XRF were recorded electronically and on field notations.

Six paint chip samples were also collected to further test materials for lead content. Paint chip samples were collected from paint and thermoplastic striping that contained greater than milligrams lead per square centimeter (mg/cm^2) total lead, based on XRF measurements. The paint chip samples were submitted to Forensic Analytical in Hayward, California, a U.S. EPA and California State certified laboratory, and Environmental Lab Accreditation Program (ELAP) participant, for lead analysis by Flame Atomic Absorption (Method SW 846 3050B).

3.2 LEAD-BASED PAINT SURVEY RESULTS

Kleinfelder collected 176 XRF readings (including calibration checks) from painted building components suspected of containing LBP throughout each of the four site buildings. A summary of the XRF measurements and various paints applied to building components is included as Table 3, in Appendix A. Based on our review of results, the following lead-based paints and coated materials are present at the site.

Building 1

- The glaze noted on the blue ceramic tiles located on the men's restroom walls and bathroom stall walls contained up to 11.4 mg/cm^2 of lead by XRF measurement. This glaze was noted to be in intact and in good condition and is estimated to encompass approximately 820 square feet.
- The glaze noted on the blue ceramic tiles located on the women's restroom walls and bathroom stall walls contained up to 9.0 mg/cm^2 of lead by XRF measurement. This glaze was noted to be in intact and in good condition and is estimated to encompass approximately 880 square feet.
- The glaze noted on the yellow ceramic decorative wall tiles located on the east side of the building's exterior contained 10.2 mg/cm^2 of lead by XRF measurement. This glaze was noted to be in intact and in good condition and is estimated to encompass approximately 40 square feet.
- The brown paint noted on the door of the women's restroom contained 1.7 mg/cm^2 of lead by XRF by measurement. Further analysis by paint chip sampling indicated the paint contains 1.9% lead by weight (19,000 parts per million [ppm]). This paint was noted to be intact and in good condition, and is estimated to encompass approximately 40 square feet.
- The yellow thermoplastic floor stripe located in the utility room contained 4.8 mg/cm^2 of lead by XRF measurement. Further analysis by paint chip sample indicated the thermoplastic contains 4.4% lead by weight (44,000 ppm). The thermoplastic striping was noted to be intact and in good condition, and is estimated to encompass approximately 6 linear feet.

One bulk sample (ACS-P5) of ceramic tiles as a whole (i.e. glaze and tile substrate) was collected from Building 1 restrooms and analyzed for total lead by U.S. EPA Method 3050B/7420, in order to determine disposal options for the ceramic tiles once they have been removed during demolition activities. Based on laboratory analysis, the bulk sample of blue ceramic tiles located on the walls and bathroom stall walls in the restrooms of Building 1 contained total lead concentrations of less than 7 milligrams per kilogram (mg/kg).

Building 2

- The glaze noted on the blue ceramic tiles located on the men's restroom walls and bathroom stall walls contained up to 10.5 mg/cm^2 of lead by XRF measurement. This glaze was noted to be in intact and in good condition and is estimated to encompass approximately 820 square feet.
- The glaze noted on the blue ceramic tiles located on the women's restroom walls and bathroom stall walls contained up to 11.1 mg/cm^2 of lead by XRF measurement. This glaze was noted to be in intact and in good condition and is estimated to encompass approximately 880 square feet.
- The glaze noted on the yellow ceramic decorative wall tiles located on the west side of the building's exterior contained 13.2 mg/cm^2 of lead by XRF measurement. This glaze was noted to be in intact and in good condition and is estimated to encompass approximately 40 square feet.
- The yellow thermoplastic floor stripe located in the utility room contained 4.0 mg/cm^2 of lead by XRF measurement. Further analysis by paint chip sample indicated the thermoplastic contains 4.3% lead by weight (43,000 ppm). The thermoplastic striping was noted to be intact and in good condition, and is estimated to encompass approximately 6 linear feet.

One bulk sample (ACS-P4) of ceramic tiles as a whole (i.e. glaze and tile substrate) was collected from Building 2 restrooms and analyzed for total lead by U.S. EPA Method 3050B/7420, in order to determine disposal options for the ceramic tiles once they have been removed during demolition activities. Based on laboratory analysis, the bulk sample of blue ceramic tiles located on the walls and bathroom stall walls in the restrooms of Building 2 contained total lead concentrations of 12 mg/kg.

Building 3

- The glaze noted on the blue ceramic tiles located in each of the two men's restrooms, on the restroom walls and bathroom stall walls, contained between 4.0 and 16.3 mg/cm^2 of lead by XRF measurement. This glaze was noted to be in intact and in good condition and is estimated to encompass approximately 1,310 square feet.

- The glaze noted on the blue ceramic tiles located in each of the two women's restrooms, on the restroom walls and bathroom stall walls, contained between 8.8 and 17.8 mg/cm^2 of lead by XRF measurement. This glaze was noted to be in intact and in good condition and is estimated to encompass approximately 1,430 square feet.
- The glaze noted on the yellow ceramic decorative wall tiles located on the east side of the building's exterior contained 12.3 mg/cm^2 of lead by XRF measurement. This glaze was noted to be in intact and in good condition and is estimated to encompass approximately 40 square feet.
- The brown paint noted on the door of women's restroom 1 contained 1.5 mg/cm^2 of lead by XRF by measurement. Further analysis by paint chip sampling indicated the paint contains 3.6% lead by weight (36,000 ppm). This paint was noted to be intact and in good condition, and is estimated to encompass approximately 40 square feet.
- The yellow thermoplastic floor stripe located in the utility room contained 3.4 mg/cm^2 of lead by XRF measurement. Further analysis by paint chip sample indicated the thermoplastic contains 7.0% lead by weight (70,000 ppm). The thermoplastic striping was noted to be intact and in good condition, and is estimated to encompass approximately 6 linear feet.

One bulk sample (ACN-P4) of ceramic tiles as a whole (i.e. glaze and tile substrate) was collected from Building 3 restrooms and analyzed for total lead by U.S. EPA Method 3050B/7420, in order to determine disposal options for the ceramic tiles once they have been removed during demolition activities. Based on laboratory analysis, the bulk sample of blue ceramic tiles located on the walls and bathroom stall walls in the restrooms of Building 3 contained total lead concentrations of 1,200 mg/kg.

Building 4

- The glaze noted on the beige ceramic tiles located on the men's restroom walls and bathroom stall walls contained between 12.6 and 15.5 mg/cm^2 of lead by XRF measurement. This glaze was noted to be in intact and in good condition and is estimated to encompass approximately 1,040 square feet.

- The glaze noted on the beige ceramic tiles located on the women's restroom walls and bathroom stall walls contained between 13.7 and 14.5 mg/cm^2 of lead by XRF measurement. This glaze was noted to be in intact and in good condition and is estimated to encompass approximately 1,100 square feet.

- The yellow thermoplastic floor stripe located in the utility room contained 3.4 mg/cm^2 of lead by XRF measurement. Further analysis by paint chip sample indicated the thermoplastic contains 4.2% lead by weight (42,000 ppm). The thermoplastic striping was noted to be intact and in good condition, and is estimated to encompass approximately 6 linear feet.

One bulk sample (ACN-P5) of ceramic tiles as a whole (i.e. glaze and tile substrate) was collected from Building 4 restrooms and analyzed for total lead by U.S. EPA Method 3050B/7420, in order to determine disposal options for the ceramic tiles once they have been removed during demolition activities. Based on laboratory analysis, the bulk sample of beige ceramic tiles located on the walls and bathroom stall walls in the restrooms of Building 4 contained total lead concentrations of 1,900 mg/kg.

Table 4, provided in Appendix A, summarizes these lead-based painted or coated surfaces that met or exceeded the established HUD and EPA criteria of 1.0 milligrams per square centimeter (mg/cm^2) for lead by XRF and therefore are classified as LBPs. Paint chip sample results are summarized in Table 5 in Appendix A. Ceramic tile bulk sample results are summarized in Table 6 of Appendix A. Plates 2 and 3 show the approximate locations these lead-based painted or coated surfaces.

3.3 REGULATORY OVERVIEW FOR LEAD-BASED PAINTS

The EPA, HUD, and California DHS define LBPs as paints containing greater than 0.5% lead by weight or 5,000 parts per million (ppm) or 1.0 mg/cm^2 total lead. Federal OSHA and Cal-OSHA regulations (Lead Construction Standard) do not provide a definition for "lead-based paint", but do refer to the EPA, HUD, and DHS numbers mentioned above. Cal-OSHA is primarily concerned with worker protection and regulates any amount of lead contained within painted building components.

According to Cal-OSHA (Title 8 CCR Section 1532.1), employers may assume that disturbance of coatings or materials shown to contain less than 0.06% lead by weight (or 600 ppm lead) will not result in exposures above the applicable Action Level of 30 micrograms per cubic meter ($\mu g/m^3$), as long as workers are not performing any of the designated trigger tasks (such as building demolition, manual sanding or scraping, and abrasive blasting, etc.).

In addition, Cal-OSHA does provide a Permissible Exposure Limit (PEL) for worker exposure to airborne lead particles of 50 $\mu g/m^3$ of air for an 8-hour time-weighted average. The Federal OSHA Lead Construction Standard also lists an Action Level of 30 $\mu g/m^3$ for an 8-hour time-weighted average. Therefore, renovation or demolition activities that include materials with lead in any concentration could, under certain circumstances, trigger the Federal OSHA and Cal-OSHA regulations.

The concentrations of airborne lead generated by disturbing the paints at the site would vary based upon several factors, including the type of activity (including "trigger tasks") and the severity of disturbance to the building materials. Determination of airborne lead concentrations would require air monitoring during building material disturbance by a trained lead professional.

The results of the LBP survey should be provided to contractors and subcontractors performing work at the site that may disturb painted components.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon our survey and subsequent laboratory analysis, the following building materials containing asbestos, and paints or coatings containing lead are present in the survey area of the Site.

Asbestos Containing Materials

- Black roof penetration mastics, located on the roof penetrations of Buildings 1 and 2.

Lead-Based Materials

- Glaze on blue ceramic tiles located in men's and women's restrooms, on the restroom walls and bathroom stall walls, of Buildings 1, 2, and 3.
- Glaze on beige ceramic tiles located in men's and women's restrooms, on the restroom walls and bathroom stall walls, of Building 4.
- Glaze on yellow decorative ceramic tiles located on the exteriors of Buildings 1, 2, and 3.
- Brown paint located on the door of the women's restroom of Building 1 and women's restroom 1 of Building 3.
- Yellow thermoplastic floor striping located in the utility rooms of Buildings 1-4.

Any future demolition or renovation activities that could disturb the above-noted building materials that contain ACCMs, or LBPs should be performed by properly trained and certified personnel, and in accordance with all Federal, State, and local regulations, as implemented by the Cal-OSHA, Federal OSHA, EPA, DTSC, and the SDCAPCD. Prior to any future demolition or renovation work, Kleinfelder recommends that the following actions be taken:

- The owner should provide notification to employees, contractors, and subcontractors as to the presence and location of ACCMs, and LBPs at the site comfort buildings. Notification should be provided to those workers performing duties in areas where these materials may be reasonably accessed and

disturbed. At this time, and in their current physical state, the identified ACCMs and LBPs do not pose a significant health risk as long as they are not disturbed.

- The removal of ACCMs is regulated by Cal-OSHA. ACCMs located at Buildings 1 and 2 of the site should be removed and disposed of only by properly licensed asbestos abatement contractors in compliance with applicable Federal, State, and local regulations. Prior to building demolition or renovations, the property owner should retain a State of California-licensed asbestos abatement contractor to perform the abatement of the ACCMs, at Buildings 1 and 2. The general contractor for the demolition project may be a source for local licensed abatement contractors. Kleinfelder can also provide names of licensed and qualified abatement contractors in the area upon request. ACCMs are not regulated by SDCAPCD or DTSC, and therefore may be disposed of as construction debris once removed from the site buildings.
- Ceramic tiles located on bathroom walls and bathroom stall walls in the restrooms of Buildings 1 and 2 are coated with a lead-based glaze. Laboratory analyses of bulk samples of the ceramic tiles from Buildings 1 and 2 indicate that the ceramic tiles, as a whole, contain lead in concentrations ranging from less than 7 to 12 mg/kg. The total threshold limit concentration (TTLC) for lead (as presented in Title 22, CCR), which determines whether a lead-containing waste is hazardous or not, is 1,000 mg/kg. If the ceramic tiles in the restrooms of Buildings 1 and 2 are to be removed prior to building demolition, they should be removed by a State of California-licensed lead abatement contractor, due to the lead content in the glaze of the ceramic tiles. However, the ceramic tiles may remain in place during demolition of Buildings 1 and 2, provided that the building demolition is performed by mechanical means (e.g., using bulldozers or excavators). Wastes generated from either abatement of the ceramic tiles prior to building demolition or building demolition by mechanical means with the ceramic tiles in place would be considered non-hazardous based on the analytical results of the ceramic tile bulk samples being below the TTLC, and could be disposed of as general construction debris.
- Ceramic tiles located on bathroom walls and bathroom stall walls in the restrooms of Buildings 3 and 4 are coated with a lead-based glaze. Laboratory analyses of bulk samples of the ceramic tiles from Buildings 3 and 4 indicate that

the ceramic tiles, as a whole, contain lead in concentrations ranging from 1,200 to 1,900 mg/kg. The total threshold limit concentration (TTLC) for lead (as presented in Title 22, CCR), which determines whether a lead-containing waste is hazardous or not, is 1,000 mg/kg. Kleinfelder recommends that ceramic tiles located on bathroom walls and bathroom stall walls of Buildings 3 and 4 be removed by a State of California-licensed abatement contractor prior to the demolition of the two buildings. Wastes generated from abatement of the ceramic tiles in Buildings 3 and 4 would be considered hazardous based on the analytical results of the ceramic tile bulk samples exceeding the TTLC, and should be disposed of at State of California-licensed Class I disposal site.

- A ten **working** day notification is required for every demolition project even when no ACMs are present, and for each abatement project where the amount of friable ACM is equal to or greater than 160 square feet or 260 linear feet. Prior to the initiation of the demolition or abatement work, the abatement contractor must complete a *Notification of Demolition or Asbestos Removal* form and submit it with the appropriate permit fee to the SDCAPCD. The SDCAPCD will return the Notification form with a "notification number" to the abatement contractor.
- An advance written notification to the local Cal-OSHA office is required from a contractor regarding their "Intent to Conduct Asbestos Related Work" and for lead-related construction work.
- The general contractor should obtain a building demolition permit from the local building department. The local building department will request the "notification number" provided by the SDCAPCD in order to receive the demolition permit.

5.0 LIMITATIONS

Kleinfelder performed this survey in accordance with generally accepted standards of care practiced by other members of our profession in San Diego County, California at the time the work was completed. The completed survey was limited to the areas sampled and the number of samples collected. Our findings are limited to the conditions and results reported for the time the survey was completed. The survey was conducted using approved sampling methodologies from visible and accessible areas. A subsurface investigation was not a part of the scope of work. No warranty, expressed or implied, is made.

The findings of this survey report are not intended to be used as asbestos or lead-based paint abatement specifications, and should not be used as such.

The scope of services described here is not intended to be inclusive, to identify all potential concerns, or to eliminate the possibility of other environmental problems. Within current technology, no level of assessment can show conclusively that a property or its structures are completely free of hazardous substances. Therefore, Kleinfelder cannot offer a certification that the property is free of environmental liability. Kleinfelder will assume no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury which results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Kleinfelder offers a range of investigative and engineering services to suit the varying needs of our clients. Although risk can never be eliminated, more detailed and extensive investigations yield more information, which may help understand and manage the degree of risk. Since such detailed services involve greater expense, our clients participate in determining the level of service that provides adequate information for their purposes at an acceptable level of risk.

This report may be used only by the client and only for the purposes stated within a reasonable time from its issuance, *but in no event later than one year from the date of the report.* Land or facility use, on and off-site conditions, regulations, or other factors

may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party *and client agrees to defend, indemnify, and hold harmless Kleinfelder from any claim or liability associated with such unauthorized use or non-compliance.*

APPENDIX A

Tables

Table 1
Summary of Asbestos Survey Results
Aliso Creek Rest Area
Oceanside, California

Sample No.	Sample Description	Sample Location	Asbestos Content	Condition/ Friability	Amount of Material
SOUTHBOUND					
ACS-1A	Stone layer/roof tar/roof felt/roof tar/roof felt	Building 2 Roof	ND/ND/ND/ND/ND	NA	NA
ACS-1B	Stone layer/roof tar/roof felt/roof tar/roof felt	Building 2 Roof	ND/ND/ND/ND/ND	NA	NA
ACS-1C	Stone layer/roof tar/roof felt/roof tar/roof felt/roof tar/roof felt	Building 1 Roof	ND/ND/ND/ND/ND/ND/ND	NA	NA
ACS-1D	Stone layer/roof tar/roof felt/roof tar/roof felt	Building 1 Roof	ND/ ND/ ND/ ND/ND	NA	NA
ACS-2A	**Black roof penetration mastic**	**Building 2 Roof Penetration**	**Trace (0.41 % by point count)**	**Good/NF**	**40 SF**
ACS-2B	Black roof penetration mastic	Building 2 Roof Penetration	ND	Good/NF	40 SF
ACS-2C	**Black roof penetration mastic**	**Building 1 Roof Penetration**	**Trace (0.12% by point count)**	**Good/NF**	**40 SF**
ACS-2D	Black roof penetration mastic	Building 1 Roof Penetration	ND	Good/NF	40 SF

Table 1
Summary of Asbestos Survey Results
Aliso Creek Rest Area
Oceanside, California

Sample No.	Sample Description	Sample Location	Asbestos Content	Condition/ Friability	Amount of Material
NORTHBOUND					
ACN-1A	Stone layer/roof tar/roof felt/roof tar/roof felt	Building 3 Roof	ND/ ND/ ND/ND/ND	NA	NA
ACN-1B	Stone layer/roof tar/roof felt/roof tar/roof felt/roof tar/roof felt/roof tar/roof felt/roof tar/roof felt	Building 3 Roof	ND/ND/ND/ND/ ND/ND/ND/ND/ ND/ND/ND	NA	NA
ACN-1C	Stone layer/roof tar/roof felt/roof tar/roof felt	Building 4 Roof	ND/ ND/ ND/ND/ND	NA	NA
ACN-1D	Stone layer/roof tar/roof felt/roof tar/roof felt	Building 4 Roof	ND/ ND/ ND/ND/ND	NA	NA
ACN-2A	Black roof penetration mastic	Building 3 Roof Penetration	ND	NA	NA
ACN-2B	Black roof penetration mastic	Building 3 Roof Penetration	ND	NA	NA
ACN-2C	**Black roof penetration mastic**	**Building 4 Roof Penetration**	**Trace (0.02% by point count)**	**Good/NF**	**36 SF**
ACN-2D	Black roof penetration mastic	Building 4 Roof Penetration	ND	Good/NF	36 SF

Notes:
Trace= Asbestos detected in sample at a concentration of less that 1%.
ND= Non-detect
SF = Square feet
NA= Not Applicable
NF= Non-friable
Material quantities are estimates only, and are not intended for bidding purposes. Contractors are responsible for verifying quantities prior to bid.

Table 2
Summary of Asbestos-Containing Materials
Aliso Creek Rest Area
Oceanside, California

Asbestos Containing Material	Material Location	Asbestos Content	Condition/Friability/Category	Estimated Quantity
SOUTHBOUND				
Black roof penetration mastic	Building 1 Roof Penetrations	0.12%	Good/NF/Non-regulated ACCM	40 SF
Black roof penetration Mastic	Building 2 Roof Penetrations	0.42%	Good/NF/Non-regulated ACCM	40 SF

Notes:

SF = Square feet

NF= Non-friable

Category- Designated NESHAPS Regulated ACM Category

ACCM- Asbestos containing construction material, defined by Cal-OSHA as building material that contains less than 1% asbestos but greater than 0.1% asbestos, by weight.

Material quantities are estimates only, and are not intended for bidding purposes. Contractors are responsible for verifying quantities prior to bid.

Table 3
Summary of Lead-Based Paint Survey Results
Aliso Creek Rest Area
Oceanside, California

Reading No	Component	Substrate	Side	Condition	Color	Building	Room	Results	mg/cm2	+/- Error
1	CALIBRATION							Negative	0.9	0.1
2	**CALIBRATION**							**Positive**	**1.1**	**0.1**
3	**CALIBRATION**							**Positive**	**1.2**	**0.2**
				SOUTHBOUND						
4	Wall	Concrete	A	Intact	Brown	Building 2	Exterior	Negative	0.0	0.02
5	Vising Screen	Wood	A	Intact	Brown	Building 2	Exterior	Negative	0.0	0.03
6	Vising Screen Column	Metal	A	Intact	Brown	Building 2	Exterior	Negative	0.13	0.21
7	Rafter Beam	Wood	A	Intact	Brown	Building 2	Exterior	Negative	0.0	0.02
8	Wall	Wood	B	Intact	Brown	Building 2	Exterior	Negative	0.0	0.02
9	Door	Wood	B	Intact	Brown	Building 2	Exterior	Negative	0.0	0.02
10	Wall	Concrete	C	Intact	Brown	Building 2	Exterior	Negative	0.0	0.02
11	Vising Screen	Wood	C	Intact	Brown	Building 2	Exterior	Negative	0.0	0.02
12	Vising Screen Column	Metal	C	Intact	Brown	Building 2	Exterior	Negative	0.02	0.91
13	Support Column	Wood	D	Intact	Brown	Building 2	Exterior	Negative	0.01	0.05
14	Bulletin Board	Wood	D	Intact	Brown	Building 2	Exterior	Negative	0.0	0.02
15	Drinking Fountain	Concrete	D	Intact	Brown	Building 2	Exterior	Negative	0.0	0.02
16	**Wall**	**Ceramic Tile**	**D**	**Intact**	**Yellow**	**Building 2**	**Exterior**	**Positive**	**13.2**	**5.2**
17	Wall	Ceramic Tile	A	Intact	Blue	Building 2	Men's Restroom	Negative	0.03	0.11
18	**Wall**	**Ceramic Tile**	**B**	**Intact**	**Blue**	**Building 2**	**Men's Restroom**	**Positive**	**9.4**	**5.0**
19	**Wall**	**Ceramic Tile**	**C**	**Intact**	**Blue**	**Building 2**	**Men's Restroom**	**Positive**	**10.5**	**0.7**
20	Wall	Ceramic Tile	D	Intact	Blue	Building 2	Men's Restroom	Negative	-0.56	0.73
21	Wall	Ceramic Tile	D	Intact	Blue	Building 2	Men's Restroom	Negative	0.03	0.09
22	Sink	Porcelain	A	Intact	White	Building 2	Men's Restroom	Negative	0.12	0.31
23	Urinal	Porcelain	A	Intact	White	Building 2	Men's Restroom	Negative	0.01	0.03
24	Ceiling	Wood	A	Intact	Brown	Building 2	Men's Restroom	Negative	0.0	0.02
25	Ceiling Beam	Wood	A	Intact	Brown	Building 2	Men's Restroom	Negative	0.0	0.02
26	Floor	Concrete	A	Intact	Blue	Building 2	Men's Restroom	Negative	0.0	0.02
27	Door	Wood	A	Intact	Brown	Building 2	Men's Restroom	Negative	0.11	0.16
28	Door Jamb	Wood	A	Intact	Brown	Building 2	Men's Restroom	Negative	0.02	0.07
29	Stall Door	Wood	A	Intact	White	Building 2	Men's Restroom	Negative	0.0	0.03

Table 3
Summary of Lead-Based Paint Survey Results
Aliso Creek Rest Area
Oceanside, California

Reading No	Component	Substrate	Side	Condition	Color	Building	Room	Results	mg/cm2	+/- Error
30	Stall Door	Metal	A	Intact	Blue	Building 2	Men's Restroom	Negative	0.22	0.24
31	Wall	Ceramic Tile	C	Intact	Blue	Building 2	Women's Restroom	Negative	0.05	0.04
32	Wall	Ceramic Tile	D	Intact	Blue	Building 2	Women's Restroom	Negative	0.08	0.14
33	**Wall**	**Ceramic Tile**	**A**	**Intact**	**Blue**	**Building 2**	**Women's Restroom**	**Positive**	**11.1**	**1.5**
34	**Wall**	**Ceramic Tile**	**B**	**Intact**	**Blue**	**Building 2**	**Women's Restroom**	**Positive**	**10.5**	**1.5**
35	Sink	Porcelain	C	Intact	White	Building 2	Women's Restroom	Negative	0.06	0.18
36	Stall Door	Wood	B	Intact	White	Building 2	Women's Restroom	Negative	0.0	0.02
37	Floor	Ceramic Tile	B	Intact	Blue	Building 2	Women's Restroom	Negative	0.01	0.03
38	Wall	Ceramic Tile	C	Intact	Blue	Building 2	Women's Restroom	Negative	0.02	0.06
39	Wall	Ceramic Tile	C	Intact	Blue	Building 1	Women's Restroom	Negative	0.09	0.25
40	**Wall**	**Ceramic Tile**	**B**	**Intact**	**Blue**	**Building 1**	**Women's Restroom**	**Positive**	**9.0**	**3.2**
41	**Wall**	**Ceramic Tile**	**A**	**Intact**	**Blue**	**Building 1**	**Women's Restroom**	**Positive**	**4.4**	**1.7**
42	Wall	Ceramic Tile	D	Intact	Blue	Building 1	Women's Restroom	Negative	0.02	0.06
43	**Door**	**Wood**	**A**	**Intact**	**Brown**	**Building 1**	**Women's Restroom**	**Positive**	**1.4**	**0.2**
44	**Door**	**Wood**	**A**	**Intact**	**Brown**	**Building 1**	**Women's Restroom**	**Positive**	**1.7**	**0.6**
45	Door Jamb	Wood	A	Intact	Brown	Building 1	Women's Restroom	Negative	0.0	0.02
46	Sink	Porcelain	C	Intact	White	Building 1	Women's Restroom	Negative	0.03	0.02
47	Stall Door	Wood	D	Intact	White	Building 1	Women's Restroom	Negative	0.0	0.02
48	Door	Wood	B	Intact	Brown	Building 2	Utility Room	Negative	0.0	0.02
49	Electric Panel	Wood	B	Intact	Grey	Building 2	Utility Room	Negative	0.0	0.02
50	**Floor Stripe**	**Thermoplastic**	**A**	**Intact**	**Yellow**	**Building 2**	**Utility Room**	**Positive**	**4.0**	**1.6**
51	**Floor Stripe**	**Thermoplastic**	**A**	**Intact**	**Yellow**	**Building 1**	**Utility Room**	**Positive**	**4.8**	**2.0**
52	Cabinet	Wood	D	Intact	Brown	Building 1	Utility Room	Negative	0.0	0.02
53	Shelf	Wood	D	Intact	Brown	Building 1	Utility Room	Negative	0.0	0.02
54	Wall Beam	Wood	D	Intact	Brown	Building 1	Utility Room	Negative	0.0	0.02
55	Rafter Beam	Wood	B	Intact	Brown	Building 1	Utility Room	Negative	0.0	0.02
56	Door	Wood	D	Intact	Brown	Building 1	Utility Room	Negative	0.0	0.02
57	Door Jamb	Wood	D	Intact	Brown	Building 1	Utility Room	Negative	0.01	0.04
58	Door Jamb	Wood	B	Fair	Brown	Building 1	Men's Restroom	Negative	0.01	0.05
59	Door	Wood	B	Fair	Brown	Building 1	Men's Restroom	Negative	0.04	0.09
60	**Wall**	**Ceramic Tile**	**C**	**Intact**	**Blue**	**Building 1**	**Men's Restroom**	**Positive**	**11.4**	**2.8**
61	Wall	Ceramic Tile	A	Intact	Blue	Building 1	Men's Restroom	Negative	0.03	0.08

Table 3
Summary of Lead-Based Paint Survey Results
Aliso Creek Rest Area
Oceanside, California

Reading No	Component	Substrate	Side	Condition	Color	Building	Room	Results	mg/cm2	+/- Error
62	Wall	Ceramic Tile	D	Intact	Blue	Building 1	Men's Restroom	Negative	0.05	0.13
63	Rafter	Wood	D	Intact	Brown	Building 1	Men's Restroom	Negative	0.0	0.02
64	Sink	Porcelain	A	Intact	White	Building 1	Men's Restroom	Negative	0.01	0.04
65	Urinal	Porcelain	A	Intact	White	Building 1	Men's Restroom	Negative	0.02	0.05
66	Wall	Ceramic Tile	B	Intact	Blue	Building 1	Men's Restroom	Negative	0.05	0.16
67	Wall	Concrete	A	Intact	Brown	Building 1	Exterior	Negative	0.0	0.02
68	Vising Screen	Wood	A	Intact	Brown	Building 1	Exterior	Negative	0.01	0.05
69	Vising Screen Column	Metal	A	Intact	Brown	Building 1	Exterior	Negative	0.07	0.13
70	Support Column	Wood	B	Intact	Brown	Building 1	Exterior	Negative	0.0	0.02
71	Bulletin Board	Wood	B	Intact	Brown	Building 1	Exterior	Negative	0.0	0.02
72	Wall	Concrete	B	Intact	Brown	Building 1	Exterior	Negative	0.0	0.02
73	**Wall**	**Ceramic Tile**	**B**	**Intact**	**Yellow**	**Building 1**	**Exterior**	**Positive**	**10.2**	**3.6**
74	Wall	Concrete	C	Intact	Brown	Building 1	Exterior	Negative	0.0	0.02
75	Vising Screen	Wood	C	Intact	Brown	Building 1	Exterior	Negative	0.0	0.02
76	Vising Screen Column	Metal	C	Intact	Brown	Building 1	Exterior	Negative	-0.08	0.8
77	Wall	Wood	D	Intact	Brown	Building 1	Exterior	Negative	0.01	0.02
78	Overhang	Wood	D	Intact	Brown	Building 1	Exterior	Negative	0.0	0.02
NORTHBOUND										
79	**CALIBRATION**							**Positive**	**1.0**	**0.1**
80	**CALIBRATION**							**Positive**	**1.0**	**0.1**
81	Wall	Concrete	A	Intact	Brown	Building 3	Exterior	Negative	0.0	0.02
82	Bulletin Board	Wood	A	Intact	Brown	Building 3	Exterior	Negative	0.01	0.04
83	Support Column	Wood	A	Intact	Brown	Building 3	Exterior	Negative	0.0	0.02
84	Rafter Beam	Wood	A	Intact	Brown	Building 3	Exterior	Negative	0.0	0.02
85	**Wall**	**Ceramic Tile**	**A**	**Intact**	**Yellow**	**Building 3**	**Exterior**	**Positive**	**12.3**	**5.4**
86	Wall	Concrete	B	Intact	Brown	Building 3	Exterior	Negative	0.0	0.02
87	Vising Screen	Wood	B	Intact	Brown	Building 3	Exterior	Negative	0.0	0.02
88	Vising Screen Column	Metal	B	Intact	Brown	Building 3	Exterior	Negative	0.17	0.44
89	rafter	Wood	B	Intact	Brown	Building 3	Exterior	Negative	0.0	0.02

Table 3
Summary of Lead-Based Paint Survey Results
Aliso Creek Rest Area
Oceanside, California

Reading No	Component	Substrate	Side	Condition	Color	Building	Room	Results	mg/cm2	+/- Error
90	Wall	Wood	C	Intact	Brown	Building 3	Exterior	Negative	0.0	0.02
91	Ceiling	Wood	C	Intact	Brown	Building 3	Exterior	Negative	0.0	0.02
92	Overhang	Wood	C	Intact	Brown	Building 3	Exterior	Negative	0.0	0.02
93	Wall	Concrete	D	Intact	Brown	Building 3	Exterior	Negative	0.0	0.02
94	Vising Screen	Wood	D	Intact	Brown	Building 3	Exterior	Negative	0.0	0.02
95	Vising Screen Column	Metal	D	Intact	Brown	Building 3	Exterior	Negative	0.14	0.22
96	**Floor Stripe**	**Thermoplastic**	**D**	**Intact**	**Yellow**	**Building 3**	**Utility Room**	**Positive**	**3.4**	**1.6**
97	Wall	Wood	A	Intact	Brown	Building 3	Utility Room	Negative	0.0	0.02
98	Cabinet	Wood	A	Intact	Brown	Building 3	Utility Room	Negative	0.01	0.03
99	Shelf	Wood	A	Intact	Brown	Building 3	Utility Room	Negative	0.0	0.02
100	Door	Wood	B	Intact	Brown	Building 3	Utility Room	Negative	0.02	0.03
101	Door Jamb	Wood	B	Intact	Brown	Building 3	Utility Room	Negative	0.0	0.02
102	Cabinet	Wood	C	Intact	Brown	Building 3	Utility Room	Negative	0.0	0.02
103	Shelf	Wood	C	Intact	Brown	Building 3	Utility Room	Negative	0.01	0.05
104	Door	Wood	D	Intact	Brown	Building 3	Utility Room	Negative	0.02	0.06
105	Door Jamb	Wood	D	Intact	Brown	Building 3	Utility Room	Negative	0.0	0.02
106	Wall	Ceramic Tile	A	Intact	Blue	Building 3	Men's Restroom 1	Negative	0.02	0.06
107	**Wall**	**Ceramic Tile**	**B**	**Intact**	**Blue**	**Building 3**	**Men's Restroom 1**	**Positive**	**4.0**	**1.7**
108	**Wall**	**Ceramic Tile**	**C**	**Intact**	**Blue**	**Building 3**	**Men's Restroom 1**	**Positive**	**9.5**	**4.8**
109	Wall	Ceramic Tile	D	Intact	Blue	Building 3	Men's Restroom 1	Negative	0.02	0.02
110	Sink	Porcelain	D	Intact	White	Building 3	Men's Restroom 1	Negative	0.01	0.02
111	Sink	Porcelain	D	Intact	White	Building 3	Men's Restroom 1	Negative	0.01	0.02
112	Urinal	Porcelain	D	Intact	White	Building 3	Men's Restroom 1	Negative	0.05	0.12
113	Stall Door	Wood	D	Intact	White	Building 3	Men's Restroom 1	Negative	0.0	0.02
114	Door	Wood	B	Intact	Brown	Building 3	Men's Restroom 1	Negative	0.4	0.2
115	Door Jamb	Wood	B	Intact	Brown	Building 3	Men's Restroom 1	Negative	0.0	0.02
116	Door Jamb	Metal	A	Intact	Brown	Building 3	Men's Restroom 2	Negative	0.13	0.16
117	Door	Metal	A	Intact	Brown	Building 3	Men's Restroom 2	Negative	0.03	0.06
118	**Wall**	**Ceramic Tile**	**A**	**Intact**	**Blue**	**Building 3**	**Men's Restroom 2**	**Positive**	**16.3**	**9.5**
119	**Wall**	**Ceramic Tile**	**B**	**Intact**	**Blue**	**Building 3**	**Men's Restroom 2**	**Positive**	**14.5**	**4.9**
120	**Wall**	**Ceramic Tile**	**C**	**Intact**	**Blue**	**Building 3**	**Men's Restroom 2**	**Positive**	**16.0**	**5.9**

Table 3
Summary of Lead-Based Paint Survey Results
Aliso Creek Rest Area
Oceanside, California

Reading No	Component	Substrate	Side	Condition	Color	Building	Room	Results	mg/cm2	+/- Error
121	**Wall**	**Ceramic Tile**	**D**	**Intact**	**Blue**	**Building 3**	**Men's Restroom 2**	**Positive**	**14.7**	**5.7**
122	Sink	Porcelain	B	Intact	White	Building 3	Men's Restroom 2	Negative	0.01	0.03
123	Partition Wall	Metal	A	Intact	Blue	Building 3	Men's Restroom 2	Negative	0.0	0.02
124	Urinal	Porcelain	A	Intact	White	Building 3	Men's Restroom 2	Negative	0.02	0.06
125	**Wall**	**Ceramic Tile**	**A**	**Intact**	**Blue**	**Building 3**	**Women's Restroom**	**Positive**	**17.4**	**6.2**
126	**Wall**	**Ceramic Tile**	**B**	**Intact**	**Blue**	**Building 3**	**Women's Restroom**	**Positive**	**17.8**	**5.4**
127	**Wall**	**Ceramic Tile**	**C**	**Intact**	**Blue**	**Building 3**	**Women's Restroom**	**Positive**	**15.7**	**5.3**
128	**Wall**	**Ceramic Tile**	**D**	**Intact**	**Blue**	**Building 3**	**Women's Restroom**	**Positive**	**16.8**	**6.1**
129	Door	Metal	A	Intact	Brown	Building 3	Women's Restroom 2	Negative	0.01	0.03
130	Door Jamb	Metal	A	Intact	Brown	Building 3	Women's Restroom 2	Negative	0.0	0.02
131	Sink	Porcelain	D	Intact	White	Building 3	Women's Restroom 2	Negative	0.09	0.27
132	Stall Door	Wood	A	Intact	White	Building 3	Women's Restroom 2	Negative	0.0	0.02
133	**Wall**	**Ceramic Tile**	**A**	**Intact**	**Blue**	**Building 3**	**Women's Restroom**	**Positive**	**8.8**	**4.8**
134	Wall	Ceramic Tile	B	Intact	Blue	Building 3	Women's Restroom 1	Negative	0.02	0.06
135	Wall	Ceramic Tile	B	Intact	Blue	Building 3	Women's Restroom 1	Negative	0.01	0.03
136	**Wall**	**Ceramic Tile**	**C**	**Intact**	**Blue**	**Building 3**	**Women's Restroom**	**Positive**	**9.8**	**4.8**
137	**Wall**	**Ceramic Tile**	**D**	**Intact**	**Blue**	**Building 3**	**Women's Restroom**	**Positive**	**10.0**	**8.0**
138	**Door**	**Wood**	**D**	**Intact**	**Brown**	**Building 3**	**Women's Restroom**	**Positive**	**1.5**	**0.5**
139	Door Jamb	Wood	D	Intact	Brown	Building 3	Women's Restroom 1	Negative	0.0	0.02
140	**Wall**	**Ceramic Tile**	**A**	**Intact**	**Beige**	**Building 4**	**Women's Restroom**	**Positive**	**14.2**	**4.9**
141	**Wall**	**Ceramic Tile**	**B**	**Intact**	**Beige**	**Building 4**	**Women's Restroom**	**Positive**	**14.5**	**5.5**
142	**Wall**	**Ceramic Tile**	**C**	**Intact**	**Beige**	**Building 4**	**Women's Restroom**	**Positive**	**14.4**	**9.2**
143	**Wall**	**Ceramic Tile**	**D**	**Intact**	**Beige**	**Building 4**	**Women's Restroom**	**Positive**	**13.7**	**9.1**
144	Floor	Ceramic Tile	D	Intact	Beige	Building 4	Women's Restroom	Negative	0.01	0.03
145	Door	Wood	D	Intact	White	Building 4	Women's Restroom	Negative	0.0	0.02
146	Sink	Porcelain	D	Intact	White	Building 4	Women's Restroom	Negative	0.02	0.07
147	Door	Wood	B	Intact	Brown	Building 4	Women's Restroom	Negative	0.0	0.02
148	Door Jamb	Wood	B	Intact	Brown	Building 4	Women's Restroom	Negative	0.01	0.03
149	Door Jamb	Metal	B	Intact	Brown	Building 4	Utility Room	Negative	0.0	0.02
150	Door	Wood	B	Intact	Brown	Building 4	Utility Room	Negative	0.0	0.02
151	Wall	Wood	C	Intact	Brown	Building 4	Utility Room	Negative	0.01	0.06
152	Wall	Wood	A	Intact	Brown	Building 4	Utility Room	Negative	0.0	0.02

Table 3
Summary of Lead-Based Paint Survey Results
Aliso Creek Rest Area
Oceanside, California

Reading No	Component	Substrate	Side	Condition	Color	Building	Room	Results	mg/cm2	+/- Error
153	Cabinet	Wood	C	Intact	Brown	Building 4	Utility Room	Negative	0.0	0.02
154	**Floor Stripe**	**Thermoplastic**	**A**	**Intact**	**Yellow**	**Building 4**	**Utility Room**	**Positive**	**3.4**	**1.5**
155	Door	Wood	C	Intact	Brown	Building 4	Utility Room	Negative	0.0	0.02
156	Door Jamb	Metal	C	Intact	Brown	Building 4	Utility Room	Negative	0.01	0.03
157	**Wall**	**Ceramic Tile**	**A**	**Intact**	**Beige**	**Building 4**	**Men's Restroom**	**Positive**	**15.5**	**9.5**
158	**Wall**	**Ceramic Tile**	**B**	**Intact**	**Beige**	**Building 4**	**Men's Restroom**	**Positive**	**12.6**	**8.9**
159	**Wall**	**Ceramic Tile**	**C**	**Intact**	**Beige**	**Building 4**	**Men's Restroom**	**Positive**	**13.2**	**5.2**
160	**Wall**	**Ceramic Tile**	**D**	**Intact**	**Beige**	**Building 4**	**Men's Restroom**	**Positive**	**13.4**	**5.5**
161	Floor	Ceramic Tile	D	Intact	Beige	Building 4	Men's Restroom	Negative	0.01	0.04
162	Urinal	Porcelain	B	Intact	White	Building 4	Men's Restroom	Negative	0.03	0.09
163	Stall Door	Wood	B	Intact	White	Building 4	Men's Restroom	Negative	0.0	0.02
164	Door	Wood	D	Intact	Brown	Building 4	Men's Restroom	Negative	0.0	0.02
165	Door Jamb	Metal	D	Intact	Brown	Building 4	Men's Restroom	Negative	0.0	0.02
166	Wall	Concrete	A	Intact	Brown	Building 4	Exterior	Negative	0.0	0.02
167	Wall	Ceramic Tile	A	Intact	Brown	Building 4	Exterior	Negative	0.0	0.02
168	Bulletin Board	Wood	A	Intact	Brown	Building 4	Exterior	Negative	0.04	0.07
169	Support Column	Wood	A	Intact	Brown	Building 4	Exterior	Negative	0.0	0.02
170	Wall	Concrete	B	Intact	Brown	Building 4	Exterior	Negative	0.0	0.02
171	Vising Screen	Wood	B	Intact	Brown	Building 4	Exterior	Negative	0.01	0.03
172	Rafter Beam	Wood	B	Intact	Brown	Building 4	Exterior	Negative	0.01	0.04
173	Wall	Concrete	C	Intact	Brown	Building 4	Exterior	Negative	0.0	0.02
174	Vising Screen	Wood	D	Intact	Brown	Building 4	Exterior	Negative	0.02	0.05
175	**CALIBRATION**							**Positive**	**1.0**	**0.1**
176	**CALIBRATION**							**Positive**	**1.2**	**0.2**

Notes:
Bold text indicates XRF reading greater than 1.0 mg/cm^2
mg/cm^2 - milligrams per centimeter squared
ND- Not detected

Table 4
Summary of Lead-Based Paint Materials
Aliso Creek Rest Area
Oceanside, California

Location	Component	Substrate	Color	Condition	Reading mg/ cm2	Estimated Quantity
SOUTHBOUND						
Building 1 Men's Restroom	Wall Tiles and Bathroom Stall Tiles	Ceramic	Blue	Intact	11.4	820 SF
Building 1 Women's Restroom	Wall Tiles and Bathroom Stall Tiles	Ceramic	Blue	Intact	4.4-9.0	880 SF
Building 1 Women's Restroom	Door	Wood	Brown	Intact	1.7	40 SF
Building 1 Utility Room	Floor Stripe	Thermoplastic	Yellow	Intact	4.8	6 LF
Building 1 Exterior, east side	Decorative Tiles	Ceramic	Yellow	Intact	10.2	40 SF
Building 2 Men's Restroom	Wall Tiles and Bathroom Stall Tiles	Ceramic	Blue	Intact	9.4-10.5	820 SF
Building 2 Women's Restroom	Wall Tiles and Bathroom Stall Tiles	Ceramic	Blue	Intact	10.5-11.1	880 SF
Building 2 Utility Room	Floor Stripe	Thermoplastic	Yellow	Intact	4.0	6 LF
Building 2 Exterior, west side	Decorative Tiles	Ceramic	Yellow	Intact	13.2	40 SF

Table 4
Summary of Lead-Based Paint Materials
Aliso Creek Rest Area
Oceanside, California

Location	Component	Substrate	Color	Condition	Reading mg/ cm2	Estimated Quantity
NORTHBOUND						
Building 3 Men's Restroom 1	Wall Tiles and Bathroom Stall Tiles	Ceramic	Blue	Intact	4.0-9.5	690 SF
Building 3 Men's Restroom 2	Wall Tiles and Bathroom Stall Tiles	Ceramic	Blue	Intact	14.5-16.3	620 SF
Building 3 Women's Restroom 1	Wall Tiles and Bathroom Stall Tiles	Ceramic	Blue	Intact	8.8-10.0	810 SF
Building 3 Women's Restroom 2	Wall Tiles and Bathroom Stall Tiles	Ceramic	Blue	Intact	15.7-17.8	620 SF
Building 3 Women's Restroom 1	Door	Wood	Brown	Intact	1.5	40 SF
Building 3 Utility Room	Floor Stripe	Thermoplastic	Yellow	Intact	3.4	6 LF
Building 3 Exterior, east side	Decorative Tiles	Ceramic	Yellow	Intact	12.3	40 SF
Building 4 Men's Restroom	Wall Tiles and Bathroom Stall Tiles	Ceramic	Beige	Intact	12.6-15.5	1,040 SF
Building 4 Women's Restroom	Wall Tiles and Bathroom Stall Tiles	Ceramic	Beige	Intact	13.7-14.5	1,100 SF
Building 4 Utility Room	Floor Stripe	Thermoplastic	Yellow	Intact	3.4	6 LF

Notes:
mg/cm^2- milligrams per square centimeter
SF- square feet
LF-linear feet

Table 5
Summary of Lead Paint Chip Results
Aliso Creek Rest Area
Oceanside, California

Sample No.	Sample Location and Description	Lead Concentration (% wt/ppm)	Condition
SOUTHBOUND			
ACS-P1	Building 1, Women's Restroom Door - Brown Paint	1.9/19,000	Good
ACS-P2	Builiding 1, Utility Room - Yellow Thermoplastic Floor Stripe	4.4/44,000	Good
ACS-P3	Builiding 2, Utility Room - Yellow Thermoplastic Floor Stripe	4.3/44,000	Good
NORTHBOUND			
ACN-P1	Builiding 3, Utility Room - Yellow Thermoplastic Floor Stripe	7.0/70,000	Good
ACN-P2	Building 3, Women's Restroom Door - Brown Paint	3.6/36,000	Good
ACN-P3	Builiding 4, Utility Room - Yellow Thermoplastic Floor Stripe	4.2/42,000	Good

Notes:
% wt= Percent by weight.
ppm= Parts per million, converted from laboratory reported weight percent result

Table 6
Summary of Bulk Sample Analytical Results
Aliso Creek Rest Area
Oceanside, California

Sample No.	Sample Location and Description	Lead Concentration (mg/kg)	Condition
SOUTHBOUND			
ACS-P4	Building 2, Men's Restroom Wall - Blue Ceramic Tile	12	Good
ACS-P5	Builiding 1, Men's Restroom - Blue Ceramic Tile	<7	Good
NORTHBOUND			
ACN-P4	Building 3, Men's Restroom Wall - Blue Ceramic Tile	1,200	Good
ACN-P5	Building 4, Men's Restroom Wall - Beige Ceramic Tile	1,900	Good

Notes:
mg/kg= milligrams per kilogram

APPENDIX B

Plates

NOT TO SCALE

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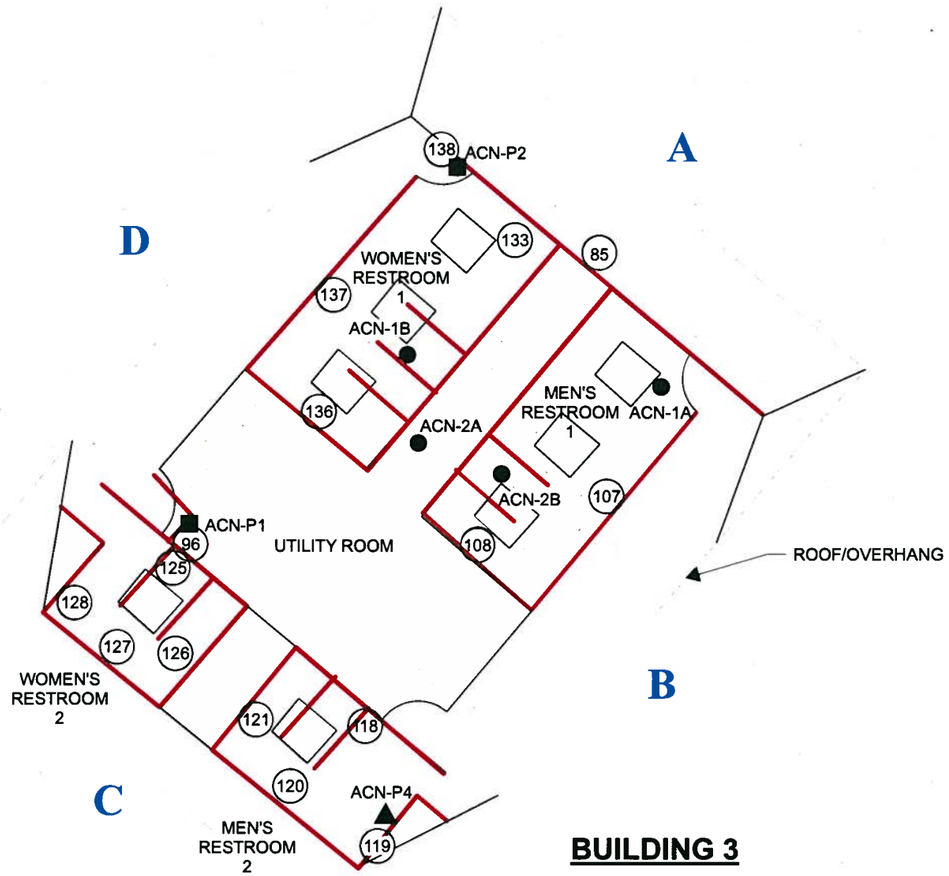
DRAWN:	1/7/09
DRAWN BY:	JP
CHECKED BY:	RS
FILE NAME:	100424_VIC.MDX

SITE LOCATION MAP

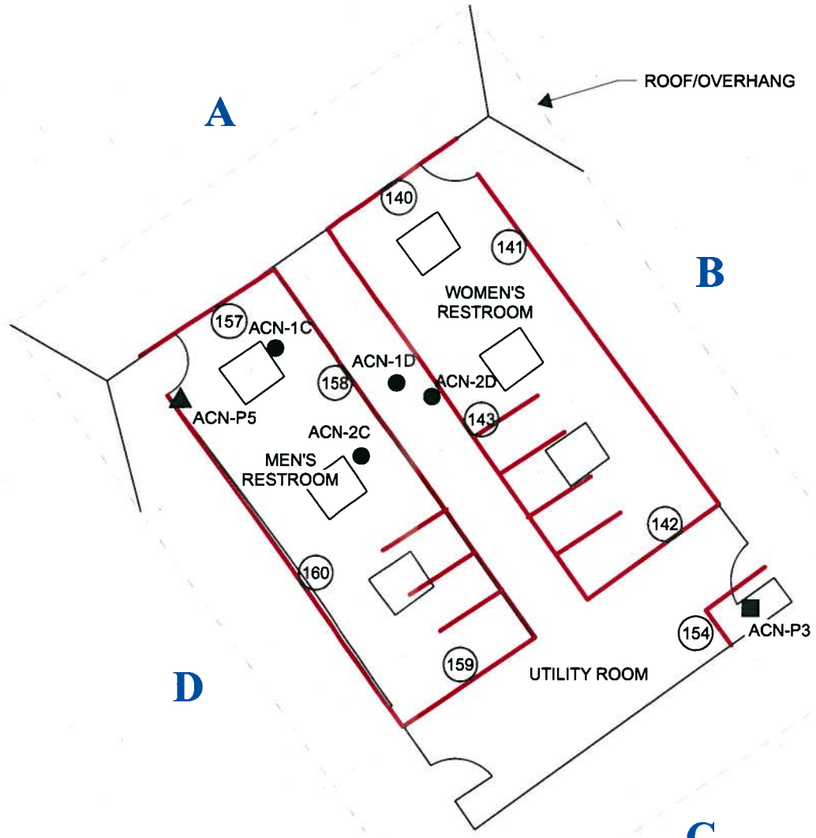
ASBESTOS AND LEAD-BASED PAINT SURVEY REPORT
ALISO CREEK REST AREA
OCEANSIDE, CALIFORNIA

PLATE

1



BUILDING 3



BUILDING 4

LEGEND

ACN-2D ●	APPROXIMATE LOCATION OF ASBESTOS BULK SAMPLE
ACN-P3 ■	APPROXIMATE LOCATION OF PAINT CHIP SAMPLE
ACN-P5 ▲	APPROXIMATE LOCATION OF BULK CERAMIC TILE SAMPLE
(160)	APPROXIAMTE LOCATION OF POSITIVE XRF READING
A	ORIENTATION OF LEAD-BASED PAINT SURVEY
———	LOCATION OF LEAD-BASED PAINT (CERAMIC WALL TILE, THERMOPLASTIC STRIPING, BROWN DOOR PAINT)

NOTE:

DISTANCE BETWEEN BUILDINGS IS NOT TO SCALE.

0 5 10 20 Feet

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FILE NAME:	100424_northsite.MDX

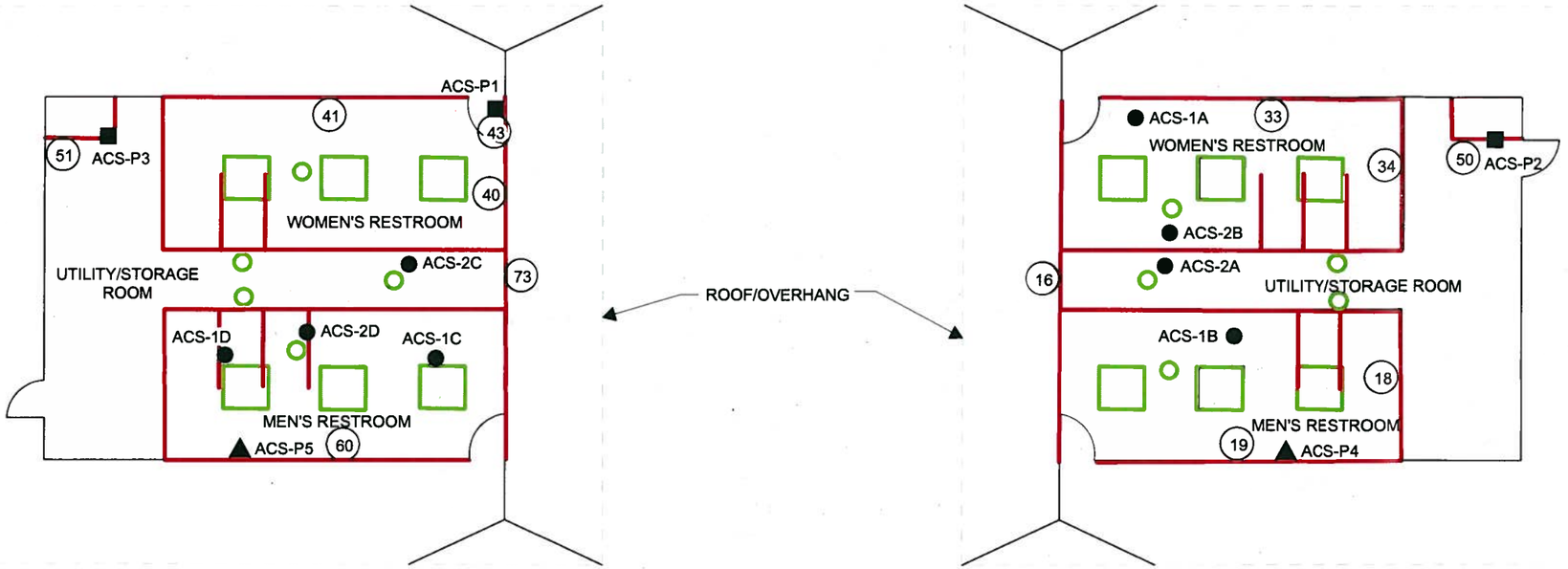
ALISO CREEK REST AREA
NORTHBOUND
SAMPLE LOCATION MAP

ASBESTOS AND LEAD-BASED PAINT SURVEY REPORT
ALISO CREEK REST AREA
OCEANSIDE, CALIFORNIA

PLATE **2**

A

D



B

C

BUILDING 1

BUILDING 2

LEGEND

ACS-2D ●	APPROXIMATE LOCATION OF ASBESTOS BULK SAMPLE
ACS-P3 ■	APPROXIMATE LOCATION OF PAINT CHIP SAMPLE
ACS-P5 ▲	APPROXIMATE LOCATION OF BULK CERAMIC TILE SAMPLE
(73)	APPROXIAMTE LOCATION OF POSITIVE XRF READING
A	ORIENTATION OF LEAD-BASED PAINT SURVEY
———	LOCATION OF LEAD-BASED PAINT (CERAMIC WALL TILE, THERMOPLASTIC STRIPING, BROWN DOOR PAINT)
———	LOCATION OF NON-FRIABLE ASBESTOS-CONTAINING CONSTRUCTION MATERIALS (ROOF PENETRATION MASTICS)

NOTE:

DISTANCE BETWEEN BUILDINGS IS NOT TO SCALE.

0 5 10 20 Feet

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FILE NAME:	100424_southsite.MDX

ALISO CREEK REST AREA
SOUTHBOUND
SAMPLE LOCATION MAP

ASBESTOS AND LEAD-BASED PAINT SURVEY REPORT
ALISO CREEK REST AREA
OCEANSIDE, CALIFORNIA

PLATE
3

APPENDIX C

Photographs

VIEW OF BUILDING 1.

VIEW OF BUILDING 2.

KLEINFELDER Bright People. Right Solutions. www.kleinfelder.com	PROJECT NO. 100424	SITE PHOTOGRAPHS	PLATE 1
	DRAWN: 01/09/09		
	DRAWN BY: DMF		
	CHECKED BY: RS	ASBESTOS AND LEAD-BASED PAINT SURVEY REPORT ALISO CREEK REST AREA - SOUTHBOUND OCEANSIDE, CALIFORNIA	
	FILE NAME: 100424p1.dwg		

ATTACHED IMAGES: Images: 1. View of BUilding 1.jpg Images: 2. View of Building 2.jpg
ATTACHED XREFS:
Diamond Bar, CA CAD FILE: L:\2009\CADD\100424\ LAYOUT: 1 PLOTTED: 09 Jan 2009, 10:28am, dfahmey

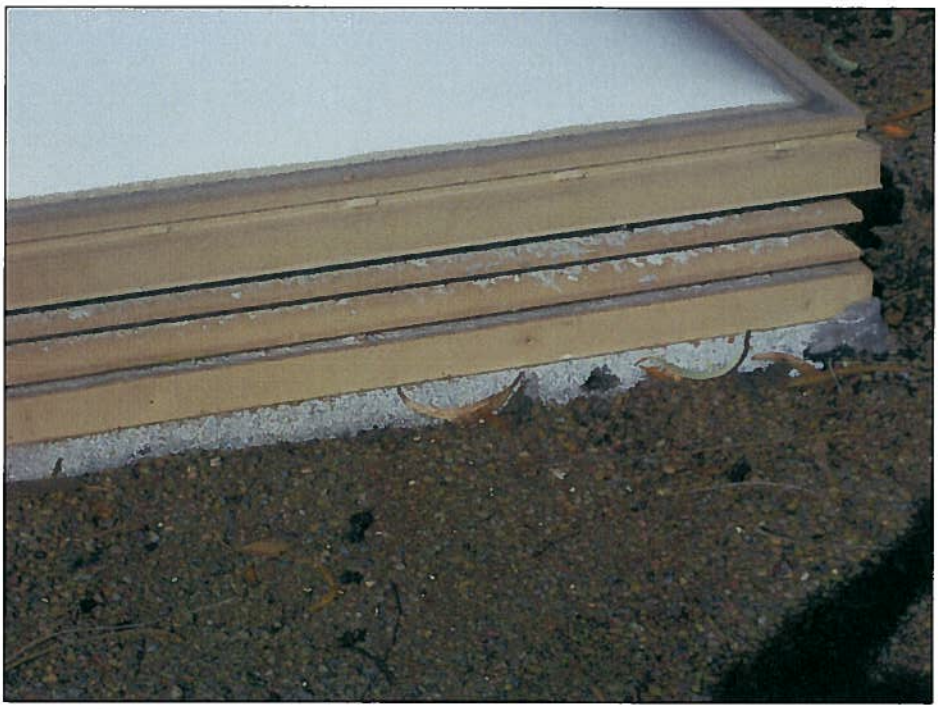
ACS-1A SAMPLE LOCATION-BUILDING 2 ROOF.

ACS-1B SAMPLE LOCATION- BUILDING 2 ROOF.

KLEINFELDER Bright People. Right Solutions. www.kleinfelder.com	PROJECT NO. 100424 DRAWN: 01/09/09 DRAWN BY: DMF CHECKED BY: RS FILE NAME: 100424p2.dwg	**SITE PHOTOGRAPHS** ASBESTOS AND LEAD-BASED PAINT SURVEY REPORT ALISO CREEK REST AREA - SOUTHBOUND OCEANSIDE, CALIFORNIA	PLATE **2**

ATTACHED IMAGES: Images: 3. ACS-1A sample location-Building 2 Roof.jpg Images: 4. ACS-1B sample location- Building 2 Roof.jpg
ATTACHED XREFS:
Diamond Bar, CA
CAD FILE: L:\2009\CADD\100424\ LAYOUT: 1
PLOTTED: 09 Jan 2009, 10:30am, dfahmey

ACS-1C SAMPLE LOCATION-BUILDING 1 ROOF.



ACS-1D SAMPLE LOCATION-BUILDING 1 ROOF.

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Diamond Bar, CA
CAD FILE: L:\2009\CADD\100424\ LAYOUT: 1
PLOTTED: 09 Jan 2009, 10:32am, dfahmey

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SITE PHOTOGRAPHS

ASBESTOS AND LEAD-BASED PAINT
SURVEY REPORT
ALISO CREEK REST AREA - SOUTHBOUND
OCEANSIDE, CALIFORNIA

PLATE
3

ACS-2A SAMPLE LOCATION-BUILDING 2 ROOF PENETRATION MASTIC.

ACS-2B SAMPLE LOCATION-BUILDING 2 ROOF PENETRATION MASTIC.

KLEINFELDER Bright People. Right Solutions. www.kleinfelder.com	PROJECT NO. 100424 DRAWN: 01/09/09 DRAWN BY: DMF CHECKED BY: RS FILE NAME: 100424p4.dwg	**SITE PHOTOGRAPHS** ASBESTOS AND LEAD-BASED PAINT SURVEY REPORT ALISO CREEK REST AREA - SOUTHBOUND OCEANSIDE, CALIFORNIA	PLATE **4**

ATTACHED IMAGES: Images: 7. ACS-2A sample location-Building 2 Roof penetration mastic.jpg Images: 8. ACS-2B sample location-Building 2 Roof penetration mastic.jpg
ATTACHED XREFS:
Diamond Bar, CA
CAD FILE: L:\2009\CADD\100424\ LAYOUT: 1
PLOTTED: 09 Jan 2009, 10:34am, dfahmey

ACS-2C SAMPLE LOCATION-BUILDING 1 ROOF PENETRATION MASTIC.

ACS-2D SAMPLE LOCATION-BUILDING 1 ROOF PENETRATION MASTIC.

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ATTACHED IMAGES: Images: 10. ACS-2D sample location-Building 1 roof Penetration Mastic.jpg Images: 9. ACS-2C sample location-Building 1 Roof Penetration mastic.jpg
ATTACHED XREFS:
Diamond Bar, CA
CAD FILE: L:\2009\CADD\100424\ LAYOUT: 1
PLOTTED: 09 Jan 2009, 10:39am, dfahmey

ACS-P1 SAMPLE LOCATION-BUILDING 1 WOMEN'S RESTROOM DOORACS-2C SAMPLE.

ACS-P2 SAMPLE LOCATION-TERMOPLASTIC STRIPE IN BUILDING 2 UTILITY ROOM.

ATTACHED IMAGES: Images: 11. ACS-P1 Sample Location-Building 1 Women's Restroom Door.jpg Images: 12. ACS-P2 sample location-Termoplastic stripe in Building 2 Utility Room.jpg
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Diamond Bar, CA
CAD FILE: L:\2009\CADD\100424\ LAYOUT: 1
PLOTTED: 09 Jan 2009, 10:41am, dfahmey

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FILE NAME:	100424p6.dwg

SITE PHOTOGRAPHS

ASBESTOS AND LEAD-BASED PAINT SURVEY REPORT
ALISO CREEK REST AREA - SOUTHBOUND
OCEANSIDE, CALIFORNIA

PLATE
6

ACS-P3 SAMPLE LOCATION-THERMOPLASTIC STRIP IN BUILDING 1 UTILITY ROOM.

BUILDING 1 ROOF WITH VIEW OF ROOF PENETRATIONS.

ATTACHED IMAGES: Images: 13. ACS-P3 Sample Location-Thermoplastic strip in Building 1 Utility Room.jpg Images: 14. Building 1 Roof with view of roof penetrations..jpg
ATTACHED XREFS:
Diamond Bar, CA CAD FILE: L:\2009\CADD\100424\ LAYOUT: 1 PLOTTED: 09 Jan 2009, 10:43am, dfahmey

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SITE PHOTOGRAPHS

ASBESTOS AND LEAD-BASED PAINT SURVEY REPORT
ALISO CREEK REST AREA - SOUTHBOUND
OCEANSIDE, CALIFORNIA

PLATE
7

BUILDING 2 ROOF WITH VIEW OF ROOF PENETRATIONS.

TYPICAL RESTROOM WALLS WITH LEAD-CONTAINING WALL TILES.

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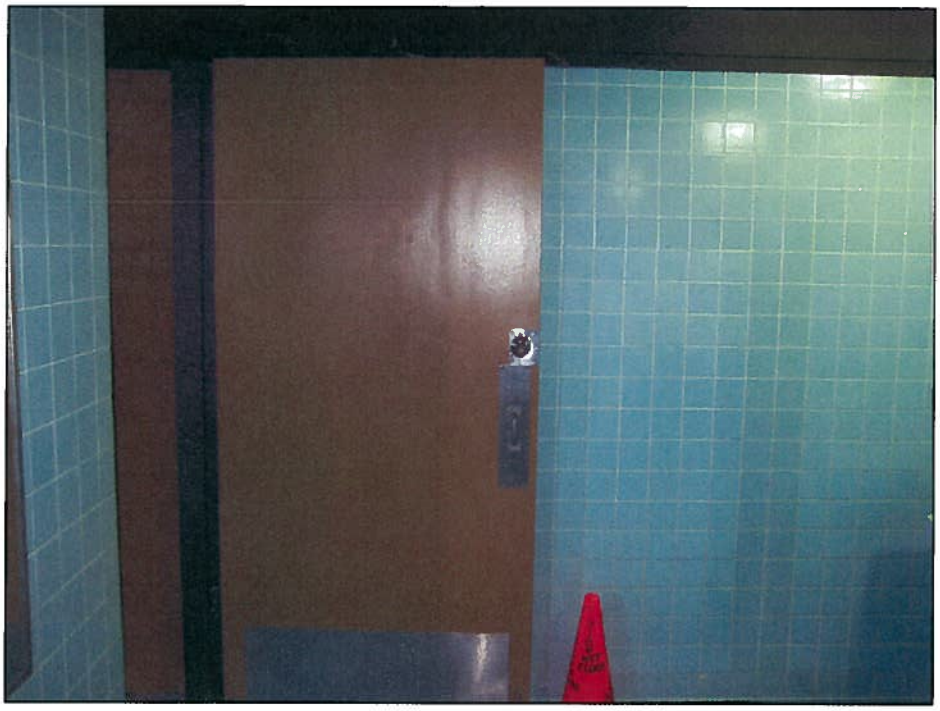
ATTACHED IMAGES: Images: 15. Building 2 Roof, with view of roof penetrations..jpg Images: 16. Typical restroom walls with lead-containing wall tiles..jpg
ATTACHED XREFS:
Diamond Bar, CA CAD FILE: L:\2009\CADD\100424\ LAYOUT: 1 PLOTTED: 09 Jan 2009, 10:47am, dfahmey



BUILDING 1 WOMEN'S RESTROOM DOOR WITH LEAD-CONTAINING BROWN PAINT.

VIEW OF BUILDING 1 TO THE RIGHT WITH VIEW OF LEAD-CONTAINING YELLOW WALL TILES AROUND DRINKING FOUNTAINS.

ATTACHED IMAGES: Images: 17. Building 1 Women's Restroom Door with lead-containing brown paint..jpg Images: 18. View of Building 1 to the right, with view of lead-containing yellow wall tiles around drinki
ATTACHED XREFS:
Diamond Bar, CA CAD FILE: L:\2009\CADD\100424\ LAYOUT: 1 PLOTTED: 09 Jan 2009, 10:50am, dfahmey

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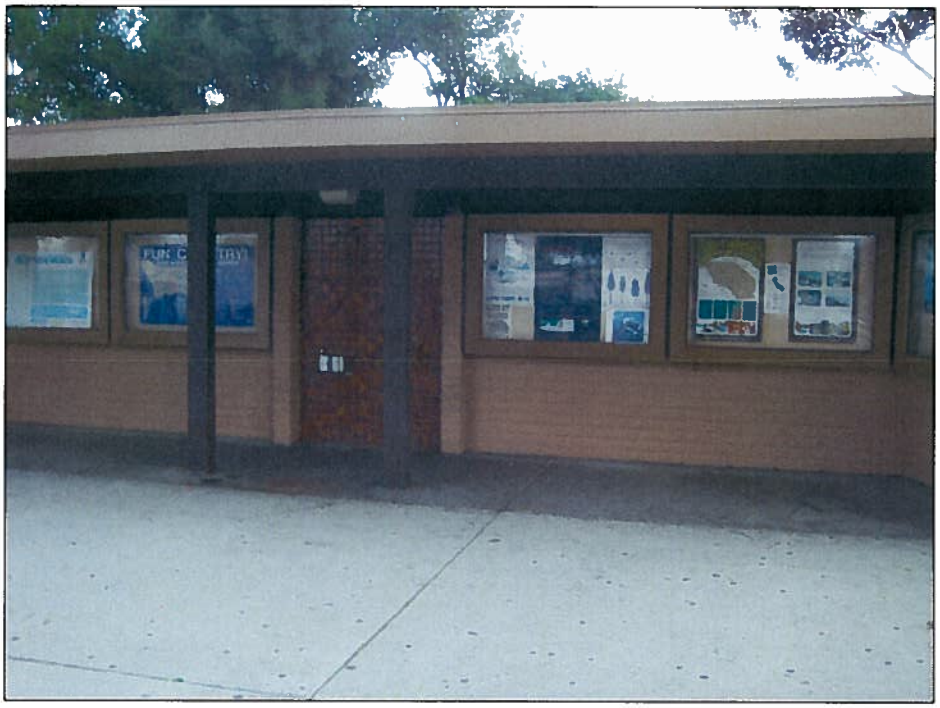
SITE PHOTOGRAPHS

ASBESTOS AND LEAD-BASED PAINT SURVEY REPORT
ALISO CREEK REST AREA - SOUTHBOUND
OCEANSIDE, CALIFORNIA

PLATE
9

VIEW OF BUILDING 3 WITH VIEW OF LEAD-CONTAINING YELLOW WALL TILES AROUND DRINKING FOUNTAINS.



VIEW OF BUILDING 4.

ATTACHED IMAGES: Images: 1. View of Building 3, with view of lead-containing yellow wall tiles around drinking fountains..jpg Images: 2. View of Building 4.jpg
ATTACHED XREFS:
Diamond Bar, CA CAD FILE: L:\2009\CADD\100424\ LAYOUT: 1 PLOTTED: 09 Jan 2009, 11:09am, dfahmey

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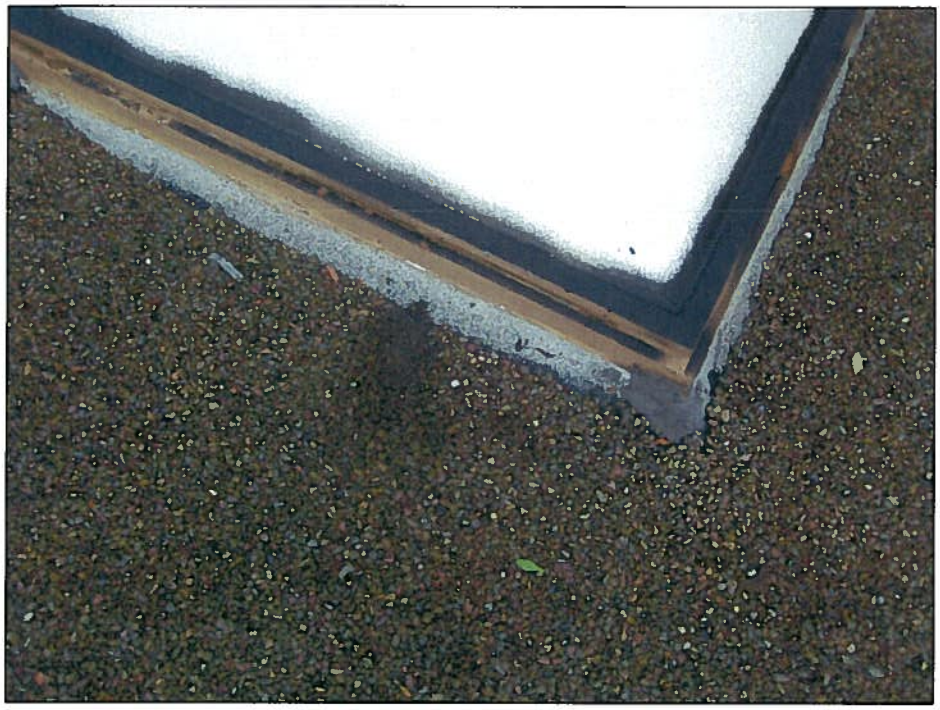
FILE NAME:	100424p10.dwg

SITE PHOTOGRAPHS

ASBESTOS AND LEAD-BASED PAINT SURVEY REPORT
ALISO CREEK REST AREA - NORTHBOUND
OCEANSIDE, CALIFORNIA

PLATE
10



ACN-1A SAMPLE LOCATION-BUILDING 3 ROOF.

ACN-1B SAMPLE LOCATION-BUILDING 3 ROOF.

ATTACHED IMAGES: Images: 3. ACN-1A sample location-building 3 Roof.jpg Images: 4. ACN-1B sample location-building 3 Roof.jpg
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Diamond Bar, CA

CAD FILE: L:\2009\CADD\100424\ LAYOUT: 1

PLOTTED: 09 Jan 2009, 11:10am, dfahmey

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CHECKED BY:	RS
FILE NAME:	100424p11.dwg

SITE PHOTOGRAPHS

ASBESTOS AND LEAD-BASED PAINT
SURVEY REPORT
ALISO CREEK REST AREA - NORTHBOUND
OCEANSIDE, CALIFORNIA

PLATE

11

ACN-1C SAMPLE LOCATION-BUILDING 4 ROOF.

ACN-1D AND ACN-2D SAMPLE LOCATIONS-BUILDING 4 ROOF AND ROOF PENETRATION.

ATTACHED IMAGES: Images: 5. ACN-1C sample location-Building 4 Roof.jpg Images: 6. ACN-1D and ACN-2D sample locations-building 4 Roof and roof penetration..jpg
ATTACHED XREFS:
Diamond Bar, CA
CAD FILE: L:\2009\CADD\100424\ LAYOUT: 1
PLOTTED: 09 Jan 2009, 11:17am, dfahmey

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CHECKED BY:	RS
FILE NAME:	100424p12.dwg

SITE PHOTOGRAPHS

ASBESTOS AND LEAD-BASED PAINT SURVEY REPORT
ALISO CREEK REST AREA - NORTHBOUND
OCEANSIDE, CALIFORNIA

PLATE
12

ACN-2A SAMPLE LOCATION-BUILDING 3 ROOF PENETRATION.

ACN-2B SAMPLE LOCATION-BUILDING 3 ROOF PENETRATION.

ATTACHED IMAGES: Images: 7. ACN-2A sample location-Building 3 Roof Penetration.jpg Images: 8. ACN-2B sample location-Building 3 Roof Penetration.jpg
ATTACHED XREFS:
Diamond Bar, CA CAD FILE: L:\2009\CADD\100424\ LAYOUT: 1 PLOTTED: 09 Jan 2009, 11:19am, dfahmey

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DRAWN:	01/09/09
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CHECKED BY:	RS
FILE NAME:	100424p13.dwg

SITE PHOTOGRAPHS

ASBESTOS AND LEAD-BASED PAINT
SURVEY REPORT
ALISO CREEK REST AREA - NORTHBOUND
OCEANSIDE, CALIFORNIA

PLATE
13

ACN-2C SAMPLE LOCATION-BUILDING 4 ROOF PENETRATION.

ACN-P1 SAMPLE LOCATION-YELLOW THERMOPLASTIC STRIPE IN BUILDING 3 UTILITY ROOM.

ATTACHED IMAGES: Images: 10. ACN-P1 sample location-Yellow thermoplastic stripe in Building 3 Utility Room.jpg Images: 9. ACN-2C sample location-building 4 roof penetration..jpg
ATTACHED XREFS:
Diamond Bar, CA CAD FILE: L:\2009\CADD\100424\ LAYOUT: 1 PLOTTED: 09 Jan 2009, 11:21am, dfahrney

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PROJECT NO.	100424
DRAWN:	01/09/09
DRAWN BY:	DMF
CHECKED BY:	RS
FILE NAME:	100424p14.dwg

SITE PHOTOGRAPHS

ASBESTOS AND LEAD-BASED PAINT
SURVEY REPORT
ALISO CREEK REST AREA - NORTHBOUND
OCEANSIDE, CALIFORNIA

PLATE
14

ACN-P2 SAMPLE LOCATION-BUILDING 3 WOMEN'S RESTROOM 1 BROWN DOOR PAINT.

VIEW OF BUILDING 4 ROOF AND ROOF PENETRATIONS.

ATTACHED IMAGES: Images: 11. ACN-P2 sample location-Building 3 Women's Restroom 1 brown door paint..jpg Images: 12. View of Building 4 Roof and roof penetrations..jpg
ATTACHED XREFS:
Diamond Bar, CA CAD FILE: L:\2009\CADD\100424\ LAYOUT: 1 PLOTTED: 09 Jan 2009, 11:24am, dfahmey

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FILE NAME:	100424p15.dwg

SITE PHOTOGRAPHS

ASBESTOS AND LEAD-BASED PAINT SURVEY REPORT
ALISO CREEK REST AREA - NORTHBOUND
OCEANSIDE, CALIFORNIA

PLATE
15

VIEW OF BUILDING 3 ROOF AND ROOF PENETRATIONS.

VIEW OF TYPICAL RESTROOM WITH BEIGE LEAD-CONTAINING CERAMIC WALL TILES.

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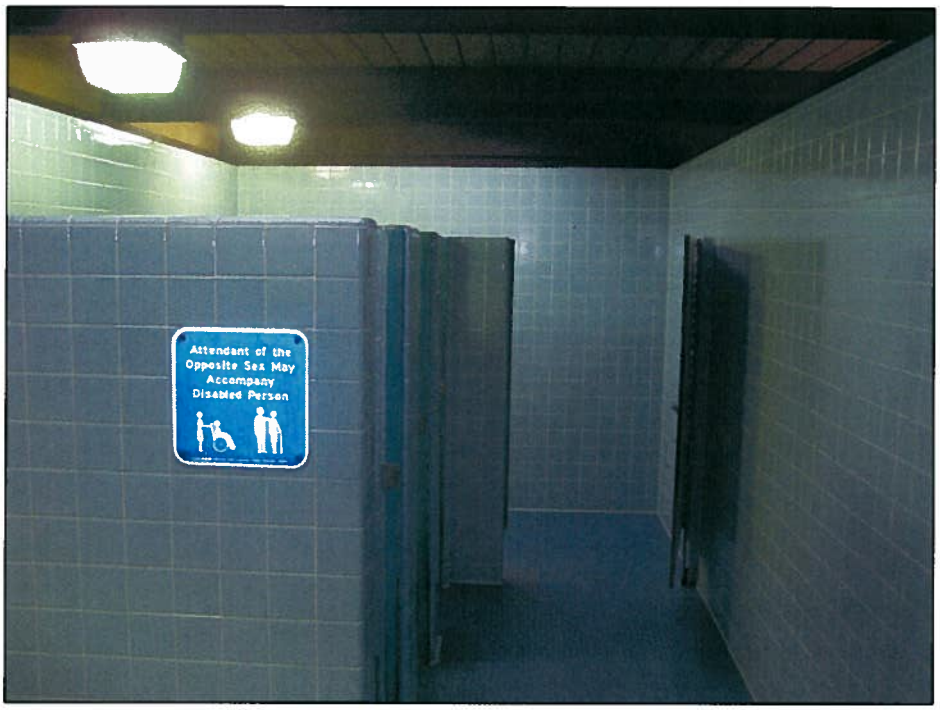
ATTACHED IMAGES: Images: 13. View of Building 3 Roof and Roof Penetrations..jpg Images: 14. View of typical restroom with beige lead-containing ceramic wall tiles..jpg
ATTACHED XREFS:
Diamond Bar, CA CAD FILE: L:\2009\CADD\100424\ LAYOUT: 1 PLOTTED: 09 Jan 2009, 11:28am, dfahmey



VIEW OF TYPICAL RESTROOM WITH BLUE LEAD-CONTAINING CERAMIC WALL TILES.

ATTACHED IMAGES: Images: 15. View of typical restroom with blue lead-containing ceramic wall tiles..jpg
ATTACHED XREFS:
Diamond Bar, CA CAD FILE: L:\2009\CADD\100424\ LAYOUT: 1 PLOTTED: 09 Jan 2009, 11:29am, dfahrney

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PROJECT NO.	100424
DRAWN:	01/09/09
DRAWN BY:	DMF
CHECKED BY:	RS
FILE NAME:	100424p17.dwg

SITE PHOTOGRAPHS

ASBESTOS AND LEAD-BASED PAINT
SURVEY REPORT
ALISO CREEK REST AREA - NORTHBOUND
OCEANSIDE, CALIFORNIA

PLATE
17

APPENDIX D

Analytical Data Reports and Chain of Custody Forms

Forensic Analytical

Final Report

Bulk Asbestos Material Analysis

(EPA Method 600/R-93/116, Point Count Analysis)

Kleinfelder, Inc.
Rich Stevenson
8 Pasteur
Suite 190
Irvine, CA 92618

Client ID:	6640
Report Number:	N001231
Date Received:	12/26/08
Date Analyzed:	01/09/09
Date Printed:	01/09/09

Job ID/Site: Aliso Creek Rest Area - PO# 10424

FASI Job ID: 6640

Sample Preparation and Analysis:

Each sample was prepared using the gravimetric technique. A representative subsample was weighed, ashed for eight hours, and reweighed to determine the proportion of the organic component. The ashed residue was ground in concentrated hydrochloric acid, dried and reweighed to determine the acid-soluble component weight percentage. The residual material was analyzed for asbestos using polarized light microscopy. Asbestos quantitation was performed using the semi-quantitative Point Count method following the general guidelines in EPA Method 600/R-93/116. The analytical sensitivity for the method is calculated as the asbestos concentration that results from one point counted in the analysis adjusted using the residual weight of the sample. The limit of detection for this method has not been determined.

Sample ID	Lab Number	Sample Description
ACS-2A	10828652	**Black Mastic**

Point Count Results:

Number of asbestos points counted:	25
Number of non-empty points:	1000
Percent asbestos in layer:	**0.41**
Analytical sensitivity (%):	0.02
Asbestos type(s) detected:	Chrysotile

Gravimetry Results:

Organic weight percentage:	67.20
Acid-soluble weight percentage	16.33
Residual weight percentage:	16.47

Comment:

ACS-2C 10828654 **Black Mastic**

Point Count Results:

Number of asbestos points counted:	21
Number of non-empty points:	1000
Percent asbestos in layer:	**0.12**
Analytical sensitivity (%):	0.006
Asbestos type(s) detected:	Chrysotile

Gravimetry Results:

Organic weight percentage:	71.31
Acid-soluble weight percentage	22.93
Residual weight percentage:	5.76

Comment:

2777 Depot Road, Suite 400, Hayward, CA 94545 / Telephone (510) 887-8828, (800) 827-FASI / Fax (510) 887-421

Bulk Asbestos Material Analysis

(EPA Method 600/R-93/116, Point Count Analysis)

Kleinfelder, Inc.
Rich Stevenson
8 Pasteur
Suite 190
Irvine, CA 92618

Client ID:	6640
Report Number:	N001231
Date Received:	12/26/08
Date Analyzed:	01/09/09
Date Printed:	01/09/09

Job ID/Site: Aliso Creek Rest Area - PO# 10424

FASI Job ID: 6640

Sample Preparation and Analysis:

Each sample was prepared using the gravimetric technique. A representative subsample was weighed, ashed for eight hours, and reweighed to determine the proportion of the organic component. The ashed residue was ground in concentrated hydrochloric acid, dried and reweighed to determine the acid-soluble component weight percentage. The residual material was analyzed for asbestos using polarized light microscopy. Asbestos quantitation was performed using the semi-quantitative Point Count method following the general guidelines in EPA Method 600/R-93/116. The analytical sensitivity for the method is calculated as the asbestos concentration that results from one point counted in the analysis adjusted using the residual weight of the sample. The limit of detection for this method has not been determined.

Sample ID	Lab Number	Sample Description
ACN-2C	10828662	**Black Mastic**

Point Count Results:

Number of asbestos points counted:	1
Number of non-empty points:	1000
Percent asbestos in layer:	**0.02**
Analytical sensitivity (%):	0.02
Asbestos type(s) detected:	Chrysotile

Gravimetry Results:

Organic weight percentage:	56.87
Acid-soluble weight percentage	23.22
Residual weight percentage:	19.91

Comment:

James Flores, Laboratory Supervisor, Hayward Laboratory

2777 Depot Road, Suite 400, Hayward, CA 94545 / Telephone (510) 887-8828, (800) 827-FASI / Fax (510) 887-421

Forensic Analytical

Analysis Request Form

Client Name & Address:

Kleinfelder
8 Pasteur, Suite 190
Irvine, CA 92618

Contact: Rich Stevenson
Phone #: 949-727-4466
Fax #: 949-727-9242
Site: Aliso Creek Rest Areas
Job:

P.O. #: 10424 **Date:** 12/23/08
Turn Around Time: ___ hr / 12hr / 24hr / X 48hr / Ext:
Due Date: **Due Time:**

X PLM: X Standard / Point Count 400 / Point Count 1000 / PCM: NIOSH 7400
TEM Air: AHERA / Yamate2 / NIOSH 7402
TEM Bulk: Quantitative / Qualitative / Chatfield
TEM Water: Potable / Non-Potable / WI %
TEM Microvac:
Special Project:
X Metals Analysis: Method: Flame AA
Matrix: Paint Chip
Analytes: Lead

Comments / Email Reports To: rhstevenson@kleinfelder.com
See attached data sheet for bulk sample data.

Sample ID	Date/ Time	Sample Location/Description	FOR AIR SAMPLES ONLY: Type	Time On/Off	Avg. LPM	Total Time	Sample Area or Air Volume
ACS-P1	12/23/08	Brown Paint Building 2 - Womens Rest Door	A P C				
ACS-P2	"	Yellow Stripe Building 2 - Utility Room Stripe	A P C				
ACS-P3	"	Yellow Stripe Building 1 - Utility Room	A P C				
ACN-P1	12/23/08	Yellow Stripe Building 3 utility room	A P C				
ACN-P2	"	Brown paint Bldg 3 - Womens 1 Restroom	A P C				
ACN-P3	"	Yellow stripe Bldg 3 utility closet	A P C				
			A P C				
			A P C				
			A P C				

Sampled by: Rich Stevenson **Date:** 12/23/08 **Time:** 17:00

Shipped via: X Fed Ex / Airborne / UPS / US Mail / Courier / Drop Off / Other:

Relinquished by:	Relinquished by:	Relinquished by:
Date / Time: 12/24/08 12:50	Date / Time:	Date / Time:
Received by: BP 10:12AM	**Received by:**	**Received by:**
Date / Time: 12/26/7 AE	Date / Time:	Date / Time:
Condition Acceptable? X Yes / No	Condition Acceptable? Yes / No	Condition Acceptable? Yes / No

San Francisco Office: 3777 Depot Road, Suite 409, Hayward, California 94545 / Telephone: (510) 887-8828 (800) 827-FASI / Fax: (510) 887-4218
Los Angeles Office: 2959 Pacific Commerce Drive, Rancho Dominguez, California 90221 / Telephone: (310) 763-2374 / Fax: (310) 763-8684
Las Vegas Office: 6765 S. Eastern Avenue, Suite 3, Las Vegas, Nevada 89119 / Telephone: (702) 387-0040 / Fax: (702) 784-0030

2478-1968-4

ASBESTOS BULK SAMPLE DATA SHEET

1-949-279-3915

Kleinfelder, Inc. 8 Pasteur, Suite 190 Irvine, CA 92618 Tel: (949)727-4466 Fax: (949)727-9242	**Project Name:** Aliso Creek Rest Areas Project No.: 10424 Project Manager: Gary Goodmote Site Address: Aliso Creek Rest Area	Sampled By: Rich Stevenson Sampled By: Sampled By: Date Sampled: 12/23/08	**Laboratory:** Forensic Analytical Hayward, CA

CHAIN OF CUSTODY INFORMATION:

Relinquished By. (sign/print)	Company	Date	Time (24 hr)	Received By: (sign/print)	Laboratory
	Kleinfelder	12/23/08	12:50	Bharti Prasad	FAL 1052pm 12/23/08

Sample ID	Building Number	Room Number	Sample Location	Sample Description	Quantity (SF/LF/E	Friable (Y/N)	Condition
ACS-1A	South		Building 2 Roof	Rolled Roof / Roof Felt			
ACS-1B			↓	↓			
ACS-1C			Building 1 Roof				
ACS-1D			↓	↓			
ACS-2A			Building 2 Roof	Penetration Mastic			
ACS-2B			↓	↓			
ACS-2C			Building 1 Roof				
ACS-2D	↓		↓	↓			
ACN-1A	North		Bldg. 3 Roof	Rolled Roof / Roof Felt			
ACN-1B			↓	↓			
ACN-1C			Bldg. 4 Roof				
ACN-1D			↓	↓			
ACN-2A			Bldg. 3 Roof	Penetration Mastic			
ACN-2B			↓	↓			
ACN-2C			Bldg. 4 Roof				
	↓		↓	↓			

APPENDIX E

Lead Hazard Evaluation Report

State of California—Health and Human Services Agency | California Department of Public Health

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation December 23, 2008

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☑ Lead Inspection ☐ Risk assessment ☐ Clearance Inspection ☐ Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
Aliso Creek Rest Area	Oceanside	San Diego	92054

Construction date (year) of structure	Type of structure (check one box only)
1960s	☐ Multi-unit building ☐ School or daycare ☐ Single family dwelling ☑ Other (specify) Four rest area comfort buildings

Section 4 — Owner of Structure (If business/agency, list contact person)

Name	Telephone number
Caltrans, District 11-Diane Vermeulen	619-688-3148

Address [number, street, apartment (if applicable)]	City	State	Zip Code
4050 Taylor Street, MS-242	San Diego	CA	92110

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

☐ No lead-based paint detected. ☑ Lead-based paint detected.

☐ No lead hazards detected. ☐ Lead hazards detected.

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Richard H. Stevenson	949-727-4466

Address [number, street, apartment (if applicable)]	City	State	Zip Code
8 Pasteur, Suite 190	Irvine	CA	92618

CDPH certification number	Signature	Date
14042		1/8/09

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

CDPH 8552 (6/07)

CALIFORNIA DEPARTMENT OF TRANSPORTATION

FOUNDATION REPORT

Retaining Walls Within the Northbound and Southbound Interstate-5 Aliso Creek Safety Roadside Rest Areas Near Oceanside, San Diego County, California

11/San Diego/5/PM R59.4 & R60.6/EA 11-261401

February 25, 2010

Prepared By:

OFFICE OF GEOTECHNICAL DESIGN-SOUTH 2
7177 OPPORTUNITY ROAD
SAN DIEGO, CA 92111

State of California Business, Transportation and Housing Agency

Memorandum

To: Mr. Hanh H. Nguyen
District 11
Transportation Engineer

Date: February 25, 2010

File: 11-SD-5-PM R59.4, R60.0
EA 11-261401

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 2

Subject: Foundation Report for the Retaining Walls Within the Northbound and Southbound Interstate-5 Aliso Creek Safety Roadside Rest Areas

Pursuant to your request, the Office of Geotechnical Design-South 2 (OGDS2) has prepared this Foundation Report for the proposed retaining walls within the northbound and southbound Interstate-5 Aliso Creek Roadside Safety Rest Areas, near the City of Oceanside, in San Diego County, California. This report defines the geotechnical conditions as evaluated from field investigation data and used in the development of the geotechnical design. It provides recommendations and specifications for project design and construction.

This Foundation Report was prepared in accordance with the Guidelines for Structures Foundation Reports Version 2.0, March 2006 and Memorandum to Designers 1-35, June 2008.

Please ensure that this Foundation Report is included in the District Construction Resident Engineer Pending File.

OGDS2 staff will be available for further assistance. Should you have any questions or comments regarding this report, please contact Richard Rusnak at (858) 467-4065.

Richard Rusnak P.E.
Transportation Engineer (Civil)
Office of Geotechnical Design - South 2

REGISTERED PROFESSIONAL ENGINEER
RICHARD RUSNAK
C 69228
EXP 6/30/2010
CIVIL
STATE OF CALIFORNIA

cc: District Project Manager — Lou Melendez
District Materials Engineer: — Art Padilla
Office Chief, OGDS2: — Abbas Abghari
OGDS2 Senior Transportation Engineer — Brian Hinman
Geotechnical Services Corporate — Mark Willian
Geotechnical Services File Room — gs_file_room@dot.ca.gov
OGDS2 File Room

TABLE OF CONTENTS

Section **Page**

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TABLES

FIGURES

APPENDIX

1.0 SCOPE OF WORK

This foundation report has been prepared by the Office of Geotechnical Design-South 2 (OGDS2) to address the geotechnical design considerations for the retaining walls to be constructed within the northbound and southbound Interstate-5 (I-5) Aliso Creek Safety Roadside Rest Areas (SRRAs), Post Mile (PM) 59.4-60.0, near the City of Oceanside, San Diego County, California.

The geotechnical investigation consisted of site reconnaissance, research of archived resources, subsurface exploration, and data analysis. OGDS2 performed the subsurface exploration on February 16-17, 2010. The subsurface investigation consisted of two (2) exploratory borings using a three-inch (3.0in) hand auger combined with one-inch (1.0in) soil probe tests along the alignment of each retaining wall. The boring logs for borings HA-10-101 through HA-10-104 are included in the appendix.

The purpose of this foundation report is to document subsurface geotechnical conditions, provide engineering evaluation of site conditions, and to provide recommendations relevant to the design and construction of the retaining walls. This report also establishes a geotechnical baseline to be used in assessing the existence and scope of changed site conditions.

2.0 PROJECT DESCRIPTION

Two (2) retaining walls are to be constructed within the landscape of the SRRAs. One will be constructed in the northbound SRRA and the other in the southbound SRRA. No retaining wall names were included in the plans prepared for the retaining walls and provided to OGDS2, therefore, for the purpose of this report; the retaining walls will be referred to as RW-NB and RW-SB for the northbound and southbound SRRAs, respectively.

District 11 designers have proposed that RW-NB and RW-SB will be Type-5 retaining walls. RW-NB will be approximately seventy-six-feet (76ft) long and have a maximum height of approximately eight and one-half-feet (8.5ft) from the bottom of the footing to the top of the wall. RW-SB will be approximately sixty-nine-feet (69ft) long and have a maximum height of approximately seven and one-half-feet (7.5ft) from the bottom of the footing to the top of the wall. The retaining walls will be landscape features that will border the access paths to elevated areas atop embankment fills. The location and aerial photograph of the project sites are depicted in Figure 1. Figure 2A through 2E are the layout sheets referenced in the preparation of this FR. Photographs of the project sites are included in Figure 3.

Existing structures at the project location include four (4) comfort buildings that house restrooms and janitorial closets. Two (2) buildings are in the northbound rest area and two (2) buildings are in the southbound rest area. One (1) of the existing comfort buildings will be upgraded and the other will be demolished and a new comfort building will be constructed in the northbound SRRA. Both of the existing comfort buildings will be demolished and three (3) new comfort buildings will be constructed in the southbound SRRA. Existing vending machine kiosks are located in both SRRAs. These vending machine kiosks will remain after the upgrade. The nearest bridge to the project location is the Aliso Creek Bridge (57-0006 R/L) is located at PM 59.62.

All elevations referenced in this report are in feet and referenced to the NAVD88 vertical datum. The request for survey and subsequent survey notes provided to OGDS2 by District 11-Office of Land Surveys are included in the appendix. Retaining wall names R-1 corresponds to RW-NB and R-2 corresponds to RW-SB in these notes.

3.0 SITE GEOLOGY AND SUBSURFACE CONDITIONS

This section describes the project site geology and known existing subsurface conditions. Data used to prepare this section were derived from numerous sources including previous field investigations, geotechnical archives, as-built documents, and published resources. This section includes information pertaining to the site topography and geology, soil and rock, pertinent soil conditions or geologic hazards, and the depth to bedrock,

Topography and Geology

The project site lies within the coastal plain section of the Peninsular Ranges Geomorphic Province of California. The Peninsular Ranges are a group of mountain ranges that extend nine-hundred-miles (900mi) from the Transverse Ranges and the Los Angeles Basin in Southern California to the southern tip of Mexico's Baja California (Wikipedia). The southern segment of the Peninsular Ranges in Southern California is referred to as the San Diego Embayment. The San Diego Embayment consists of thick sequences of marine and non-marine sediments. The sedimentary rocks within the San Diego Embayment form an eastward thinning wedge of continental margin deposits that extend from Oceanside to the US-Mexico border.

A review of previously developed data and a visual inspection of the geology in the surrounding area indicate that the location is comprised of parallel wave cut terraces with cut and fill grading operations within the State right-of-way to construct the I-5 and SRRAs.

Pertinent Soil Conditions or Geologic Hazards

Conditions such as sanitary landfill or collapsible, highly expansive, frost-heave susceptible, or frozen soils have not been encountered at the project site.

Project Site Soils

In general, the soil below the wall alignments consists of engineered and non-engineered fill that overlies wave cut terrace deposits. The fill generally consists of very soft, dark-brown, moist, sandy medium plasticity clay, and/or very soft, medium-brown, moist, sandy non-plastic silt. The underlying terrace deposit are medium dense, light to yellowish-brown, moist, fine-grained silty sand.

Project Site Rocks

Bedrock was not encountered at the project location.

4.0 GROUNDWATER

Groundwater was not encountered during the subsurface investigation. Groundwater is indicated at an approximate elevation of ten-feet (10.0ft) in the Aliso Creek Bridge LOTBs. These borings were conducted in January 1964. Perched water from irrigation and/or surface runoff may be encountered at the project site.

5.0 SCOUR EVALUATION

RW-NB and RW-SB are not located along stream courses. A scour evaluation is not applicable to this project.

6.0 CORROSION EVALUATION

Soil samples taken from the exploratory borings were not saved for laboratory testing. However, the results of the corrosion testing conducted for the foundation investigation for the northbound and southbound Aliso Creek SRRA building upgrades and additions indicate that the soil is corrosive. Therefore, all site soils should be considered corrosive. Refer to the memorandums prepared the northbound and southbound Aliso Creek SRRAs building upgrades and additions for the results of the corrosion testing.

7.0 SEISMIC STUDY

This section includes the preliminary seismic study and addresses ground motion, soil liquefaction, surface fault rupture potential, seismic settlement, and seismic slope instability of the project site.

The one-inch (1.0in) soil probe test results within the wave cut terrace deposits below the fill range from one hundred and seventy-four-blows per foot (174blows/ft) to three hundred-blows per foot (300 blows/ft). This correlates to Standard Penetration Test results of ten to twenty-blows per foot (10-20-blows/ft). According to the SDC, Soil Profile Type "D" has SPT results with the number of blows per twelve-inches (12in) greater than fifteen and less than fifty (15<N<50). Therefore, the Soil Profile Type as defined in the Appendix B of Seismic Design Criteria (SDC) August 2009 is "D".

The closest active faults as indicated by the Caltrans ARS Online tool are included in Table 1. The latitude and longitude input into the Caltrans ARS Online tool were 33.270592 and –117.439814, respectively. The shear wave velocity used in the ARS online tool was three hundred and sixty-meters per second (360m/s) which correspond to Soil Profile Type "D".

TABLE 1: REGIONAL ACTIVE FAULTS

Fault Name	Fault ID	Maximum Magnitude (MMax)	Fault Type	Fault Dip (deg)	Dip Direction	Bottom of Rupture Plane	Top of Rupture Plane (Ztor)	Rrup	Rjb	Rx	Fnorm	Frev
Newport Inglewood-Rose Canyon fz (Offshore or Dana Point Section)	222	7.5	RLSS	90	Vertical	13.0km (8.1mi)	0.0	7.7km (12.4mi)	7.7km (12.4mi)	7.7km (12.4mi)	0	0

The Caltrans Deterministic Peak Ground Acceleration (PGA) Map, 2007 pertaining to the project site is depicted in Figure 4. This map depicts the deterministic PGA for sites with the average small strain shear wave velocity for the upper thirty-meters (30m) (a.k.a. V_{S30}) of seven hundred and sixty-meters per second (760m/s). The anticipated PGA of the project site is three-tenths-gravity (0.3g).

The project site is located within sedimentary formation and clayey fill. There is no potential for liquefaction at the project site.

No active faults are known to transect the project site. There is no potential for surface fault rupture at the project site.

The retaining wall structure will be located above dense sedimentary formations. There is no potential for seismically induced settlement.

Features that would create a potential for seismically induced instability in the form of landslides, mudslides, and/or rockslides as it relates to the safety and performance of RW-NB and RW-SB do not exist at the project site.

8.0 AS-BUILT FOUNDATION DATA

Log of Test Borings (LOTBs) for the Aliso Creek Bridge are included in the appendix.

LOTBs were also prepared for the northbound and southbound Aliso Creek SRRA building upgrade and addition. Refer to the memorandums prepared the northbound and southbound Aliso Creek SRRAs building upgrades and additions for these LOTBs.

9.0 FOUNDATION RECOMMENDATIONS

The soil conditions at the project site are not suitable for the support of Caltrans standard retaining walls without a program of excavation and remedial grading along the wall alignment. Note that the cross sections provided to OGDS2 reveal that at some of the wall alignment locations the planned bottom of the footing elevation is above the existing grade.

The RW-NB alignment is underlain by approximately two-and one-half-feet (2.5ft) of uncompacted fill. This two and one-half-feet (2.5ft) of uncompacted material must be removed and replaced with structure backfill. The removal and replacement of unsuitable material should extend a lateral distance beyond the limits of the footing equal to the depth between the bottom of footing and bottom of the removed material. For example, if material is removed to two and one-half-feet (2.5ft) below the bottom of footing elevation than the removal should extend two and one-half-feet (2.5ft) beyond the edges of the footing.

The RW-SB alignment is underlain by about two-feet (2.0ft) to seven and one-half-feet (7.5ft) of very soft, clayey, non-engineered fill. The non-engineered fill is deeper on the north end of the wall where the terrain is higher. The non-engineered fill appears to have a uniform bottom elevation. This non-engineered fill must be removed to an elevation of seventy-six and one-half-feet (76.5ft) and replaced with structure backfill. The previously described lateral limits of removal and replacement apply.

The excavated material may be used as fill outside the limits of the structure backfill.

Driven piles and Cast-In-Drill-Hole (CIDH) pile foundations were considered as an alternative to limit the impact of material removal and replacement. The site is not suited to the application of driven piles due to the medium dense wave cut terrace deposits underlying the project site. The use of CIDH piles would require a special structure design and a likely delay to the project.

The project site soils are considered corrosive. The potential for corrosion should be factored into the design of the retaining walls.

The existing and proposed structures at the SRRAs will not affect or be affected by the design of the retaining walls.

The design team should consider impacts that excavation and remedial grading will have on adjacent features (e.g. trees).

OGDS2 proposed a practical alternative to the design and construction of these retaining walls on October 30, 2009. These recommendations included substituting embankment fills in lieu of the proposed retaining walls. The recommendations to substitute embankment fills in place of the retaining walls has not been further developed in this report because the project designers did not wish to pursue the development of this strategy. Please refer to the email correspondence pertaining to these recommendations included in the appendix.

10.0 CONSTRUCTION CONSIDERATIONS

The excavation must be sloped or shored according to California trenching and shoring standards.

The fill overlying sedimentary formation along the wall alignment may be excavated using standard excavation equipment.

Discreet sites of perched groundwater may be encountered along the excavation if wall construction occurs following periods of heavy rainfall. These seeps could cause the weak areas of fill to slough.

The existing and proposed structures at the SRRAs will not affect or be affected by the construction of the retaining walls.

11.0 ACTUAL VS. REPORTED SITE CONDITIONS

The recommendations contained in this report are based on specific project information regarding structure type and locations that have been provided to OGDS2. If any conceptual changes are made during final project design, OGDS2 should review those changes to determine if these foundation recommendations are still applicable.

The information used to characterize the geotechnical conditions in this area was gathered from project plans, pertinent maps, geologic literature, archived reports, field reconnaissance, subsurface investigation, testing, and engineering analysis. Project design features may change, and localized soil conditions encountered during construction grading and excavation may vary from those described in this report. If suspected differing site conditions are encountered during construction, or if construction difficulties related to soil conditions are encountered, a representative of OGDS2 should be consulted to assist with the assessment of the prevailing geotechnical conditions and to assist in formulating appropriate strategies to facilitate project completion.

Any questions regarding the above recommendations should be directed to the attention of Richard Rusnak, (619) 467-4065 or Brian Hinman, (619) 467-4051.

12.0 REFERENCES

California Department of conservation, Division of Mines and Geology, Geologic Map of the Northwest Part of San Diego County, California – Plate 1 – Geologic Map of the Oceanside, San Luis Rey, and San Marcos 7.5' Quadrangle, San Diego County California, by Siang S. Tan and Michael P. Kennedy, 1996.

Caltrans, Corrosion Guidelines, Version 1.0, September 2003

Caltrans, Deterministic Peak Ground Acceleration (PGA) Map, September 2007

Caltrans, Guidelines for Structures Foundation Reports, Version 2.0, March 2006

Caltrans, Memorandum Foundation Recommendations: Northbound Aliso Creek Safety Roadside Rest Area Upgrade and Addition, February 2008

Caltrans, Memorandum Foundation Recommendations: Southbound Aliso Creek Safety Roadside Rest Area Upgrade and Addition, February 2008

Caltrans, Memorandum to Designers 1-35, Foundation Recommendation and Reports, June 2008

Caltrans, Memorandum to Designers 20-10, Surface Fault Rupture Displacement Hazard Investigations, January 2007

Caltrans, Seismic Design Criteria, Appendix B, August 2009

California Geologic Survey, Fault-Rupture Hazard Zones (Alquist-Priolo Earthquake Fault Zones), http://www.consrv.ca.gov/cgs/rghm/ap/Map_index/Pages/F4F.aspx

Wikipedia: http://en.wikipedia.org/wiki/Peninsular_Ranges

FIGURES

FIGURE 1: PROJECT LOCATION MAP AND AERIAL PHOTOGRAPH

Foundation Report for the Retaining Walls Within the Northbound and Southbound
Interstate-5 Aliso Creek Safety Roadside Rest Areas, February 25, 2010
EA 11-261401

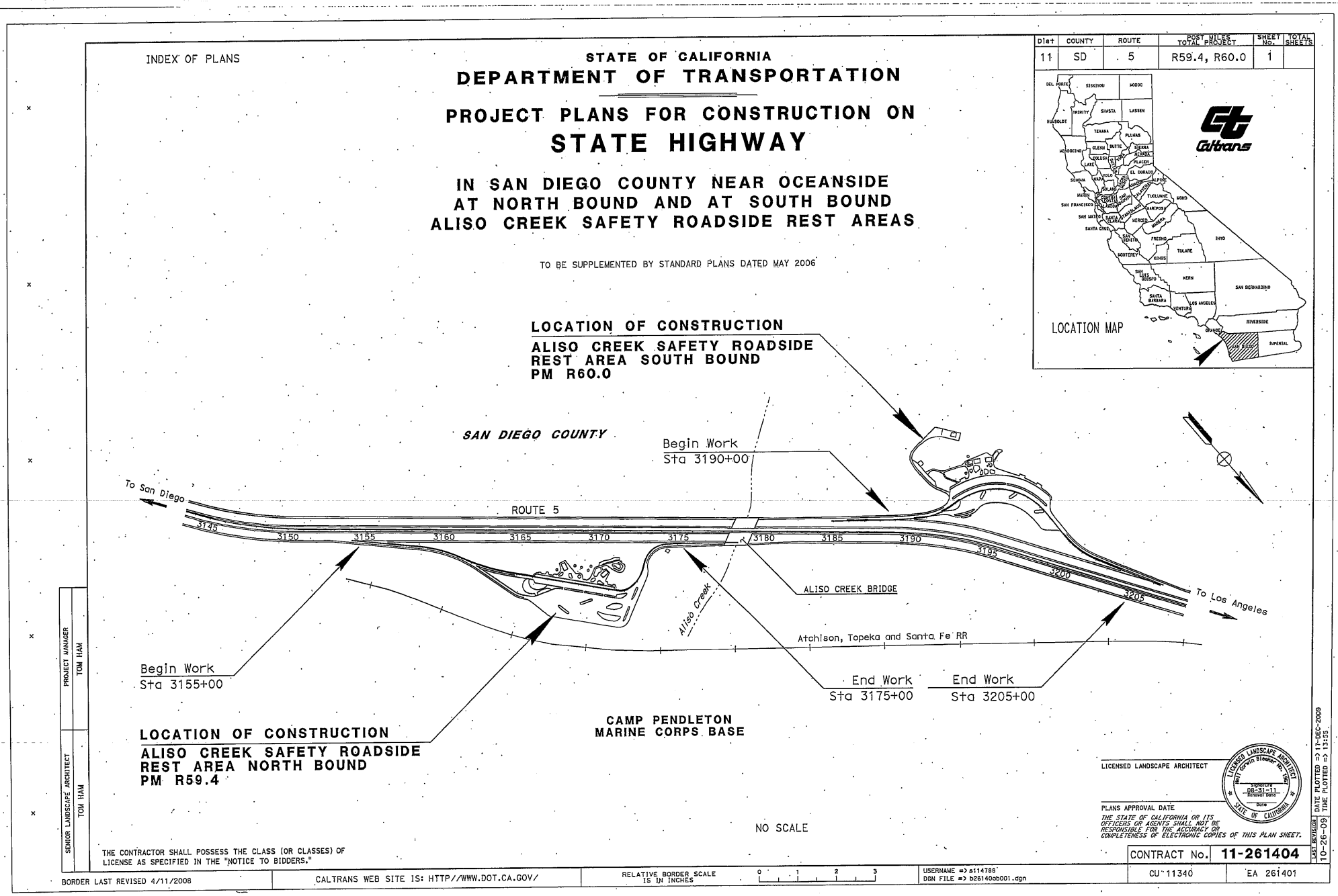


FIGURE 2A: LAYOUT SHEET

Foundation Report for the Retaining Walls Within the Northbound and Southbound Interstate-5 Aliso Creek Safety Roadside Rest Areas, February 25, 2010
EA 11-261401

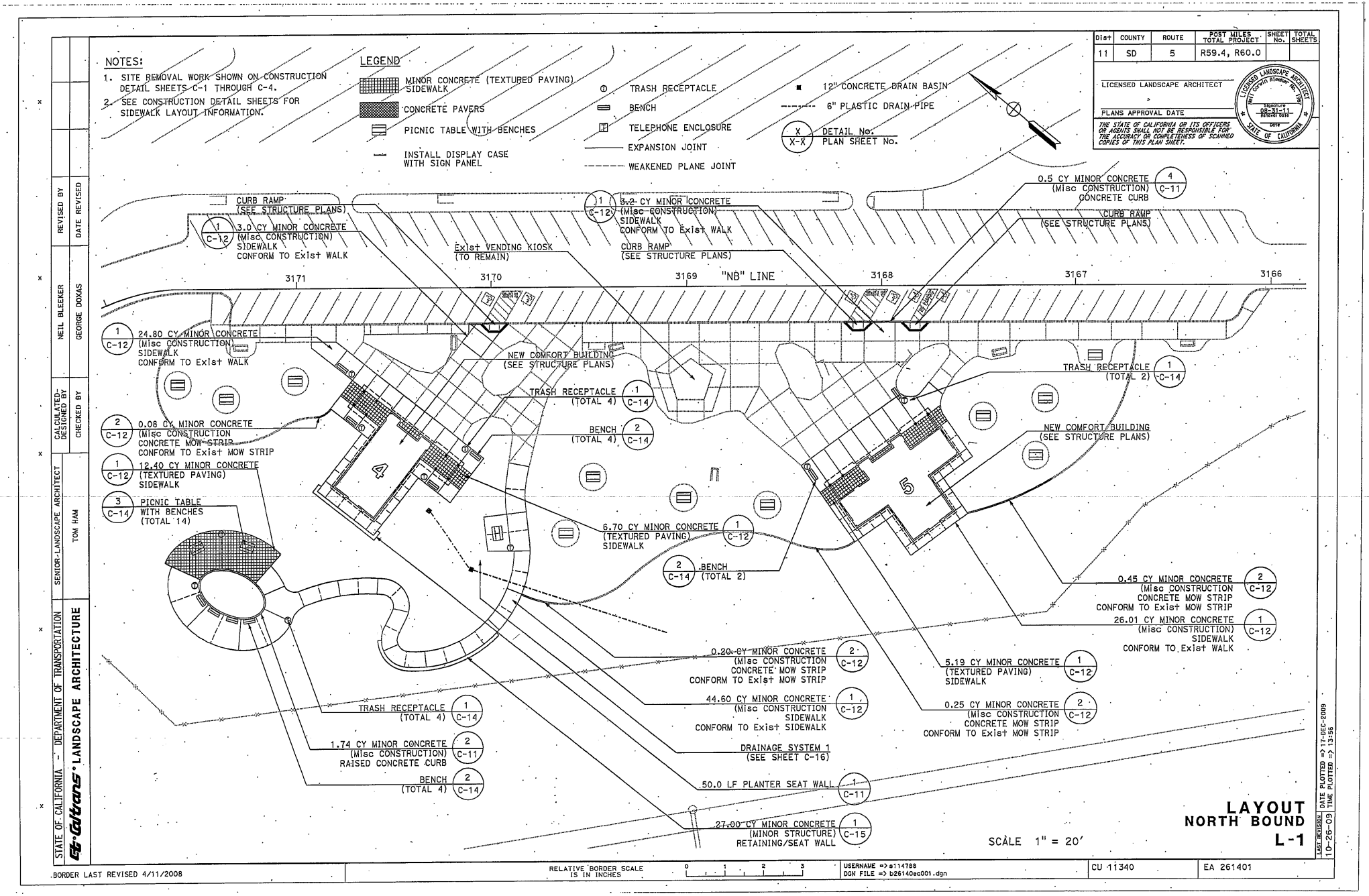


FIGURE 2B: LAYOUT SHEET

Foundation Report for the Retaining Walls Within the Northbound and Southbound Interstate-5 Aliso Creek Safety Roadside Rest Areas, February 25, 2010
EA 11-261401

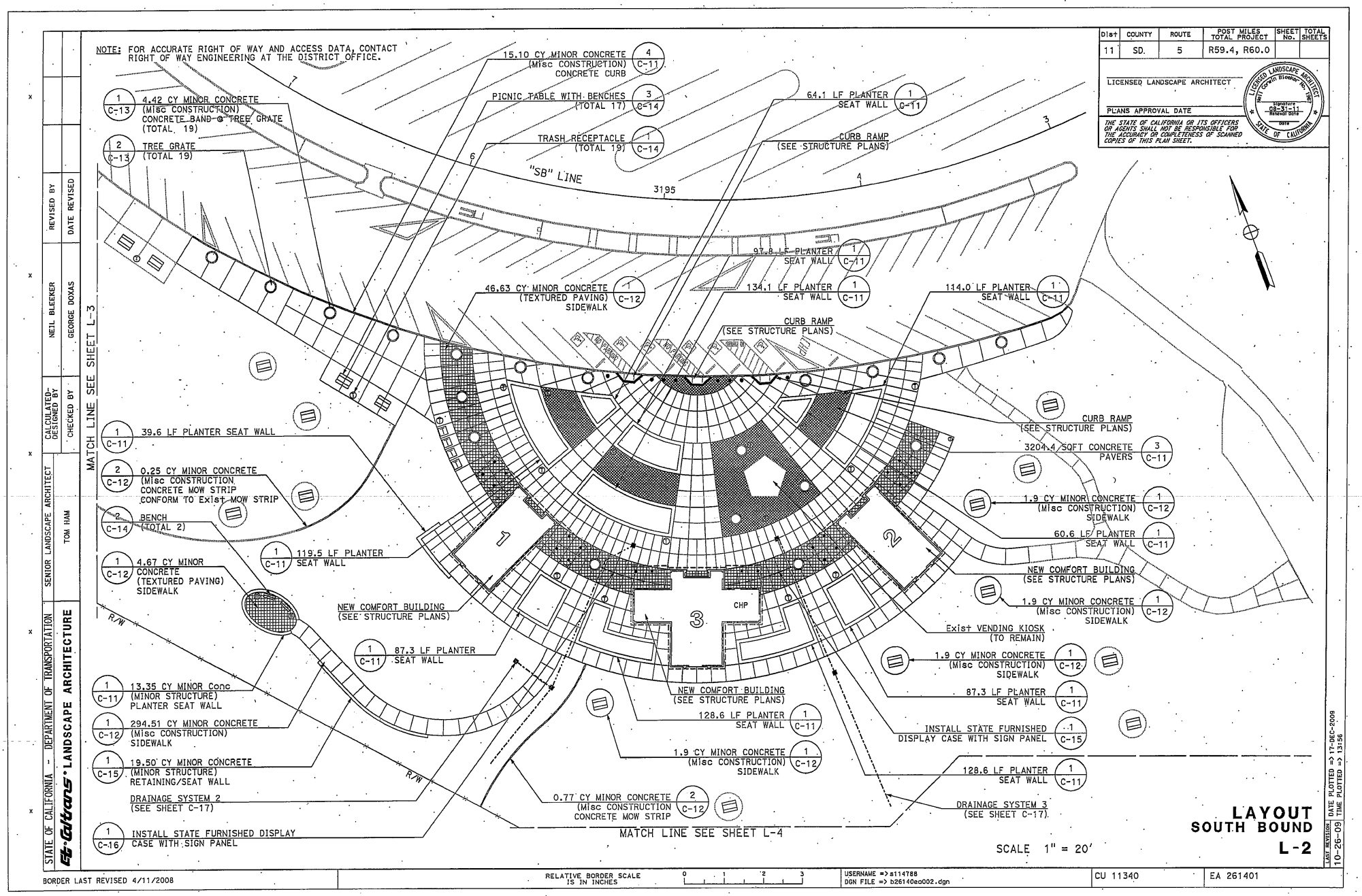


FIGURE 2C: LAYOUT SHEET

Foundation Report for the Retaining Walls Within the Northbound and Southbound Interstate-5 Aliso Creek Safety Roadside Rest Areas, February 25, 2010
EA 11-261401

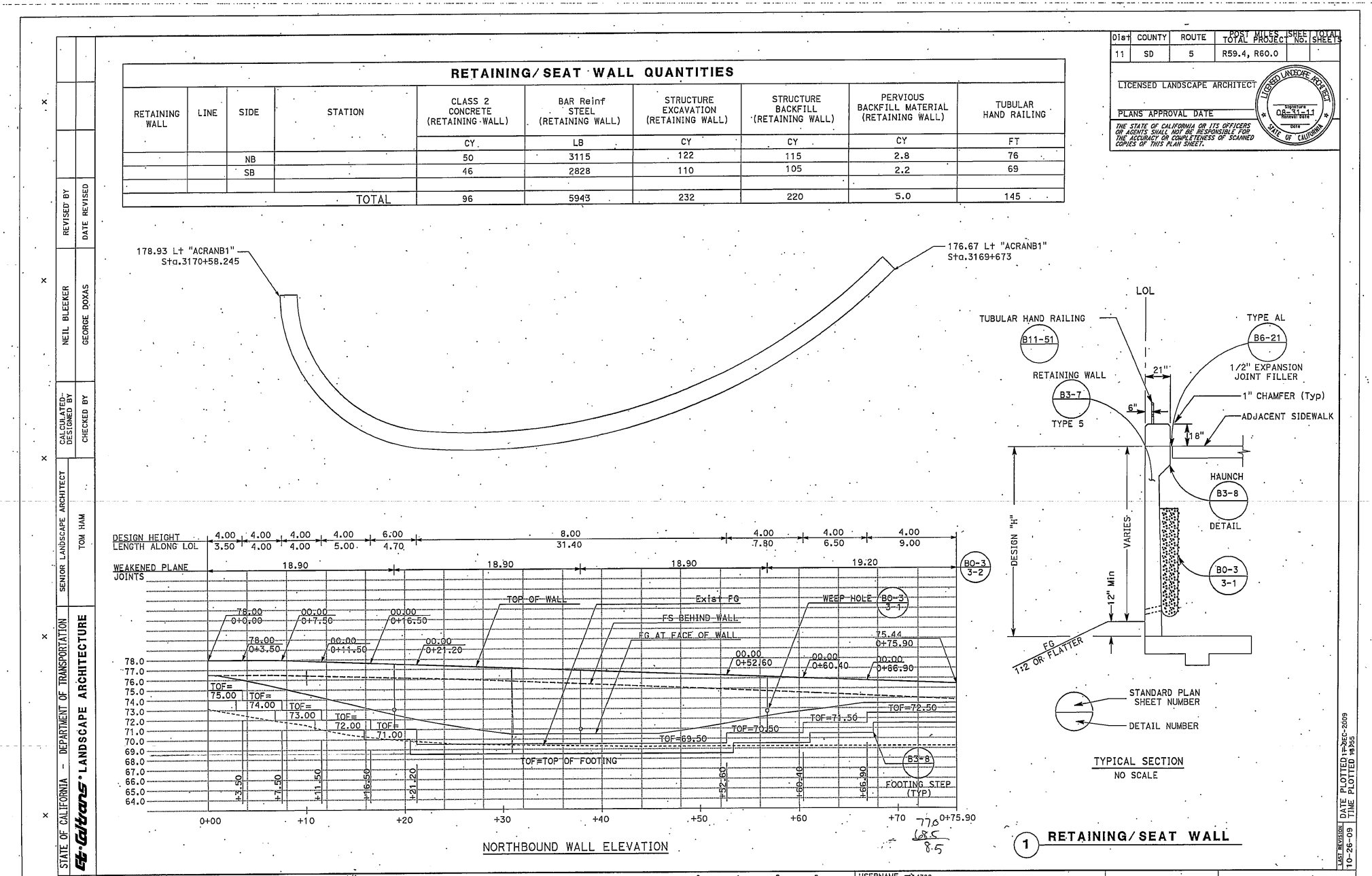


FIGURE 2D: LAYOUT SHEET

Foundation Report for the Retaining Walls Within the Northbound and Southbound Interstate-5 Aliso Creek Safety Roadside Rest Areas, February 25, 2010
EA 11-261401

RETAINING/SEAT WALL QUANTITIES

RETAINING WALL	LINE	SIDE	STATION	STRUCTURAL CONCRETE (RETAINING WALL)	BAR Reinf STEEL (RETAINING WALL)	STRUCTURE EXCAVATION (RETAINING WALL)	STRUCTURE BACKFILL (RETAINING WALL)	TUBULAR HAND RAILING
				CY	LB	CY	CY	FT
		NB		44	2690	105	100	64
		SB		34	2152	84	80	52
			TOTAL	78	4842	189	180	116

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R59.4, R60.0		

LICENSED LANDSCAPE ARCHITECT

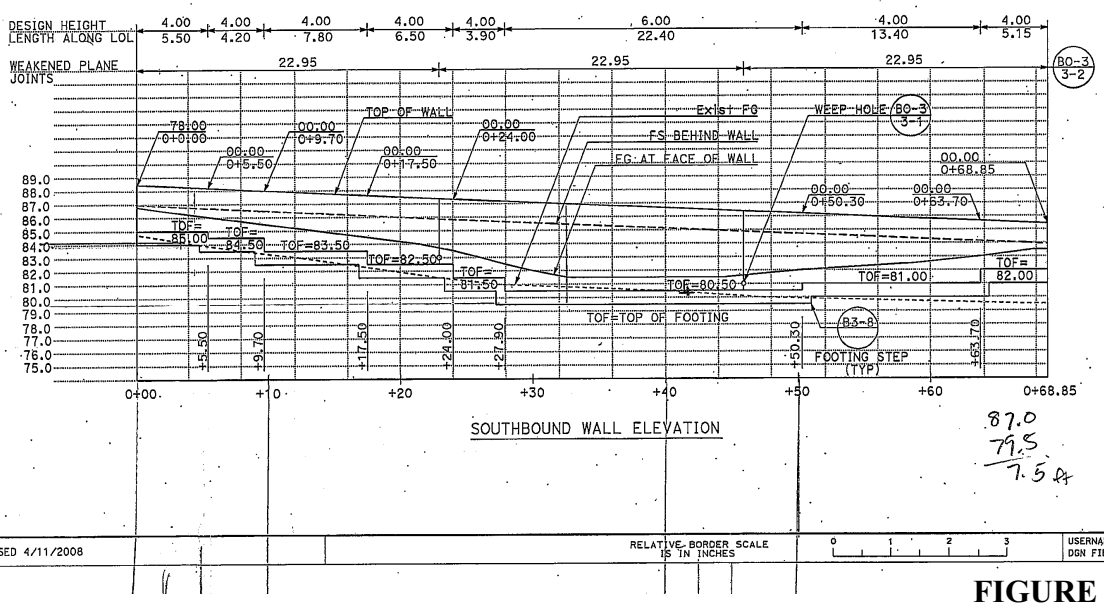
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

LICENSED LANDSCAPE ARCHITECT — Neil Corwin Bleeker — No. 1961 — Signature — 08-31-11 Renewal date — Date — STATE OF CALIFORNIA

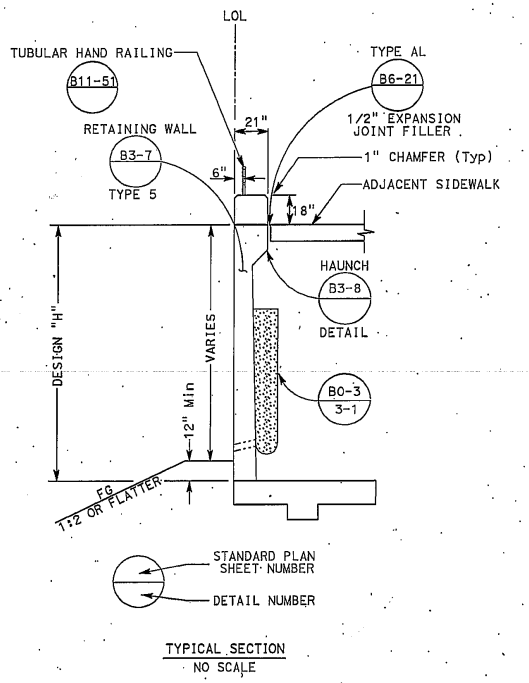
259.98 Lt "SB" LINE
Sta 3196+01.462

282.87 Lt "SB" LINE
Sta 3195+62.815



SOUTHBOUND WALL ELEVATION

87.0
79.5
7.5 ft



TYPICAL SECTION
NO SCALE

1 RETAINING/SEAT WALL

RETAINING WALL PLAN
SOUTH BOUND
R-2

NO SCALE

STATE OF CALIFORNIA – DEPARTMENT OF TRANSPORTATION
Caltrans LANDSCAPE ARCHITECTURE

SENIOR LANDSCAPE ARCHITECT	CALCULATED-DESIGNED BY	REVISED BY	DATE REVISED
TOM HAM	CHECKED BY	NEIL BLEEKER	GEORGE DOXAS

LAST REVISION — DATE PLOTTED => 17-DEC-2009 — TIME PLOTTED => 13:55
10-26-09

BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => s114788
DGN FILE => b261400b001.dgn

CU 11340

EA 261401

FIGURE 2E: LAYOUT SHEET

Foundation Report for the Retaining Walls Within the Northbound and Southbound Interstate-5 Aliso Creek Safety Roadside Rest Areas, February 25, 2010
EA 11-261401

Photographs of Interstate 5 Northbound Safety Roadside Rest Area Retaining Wall Location

Photographs of Interstate 5 Southbound Safety Roadside Rest Area Retaining Wall Location

FIGURE 3: PROJECT SITE PHOTOGRAPHS

Foundation Report for the Retaining Walls Within the Northbound and Southbound Interstate-5 Aliso Creek Safety Roadside Rest Areas, February 25, 2010
EA 11-261401

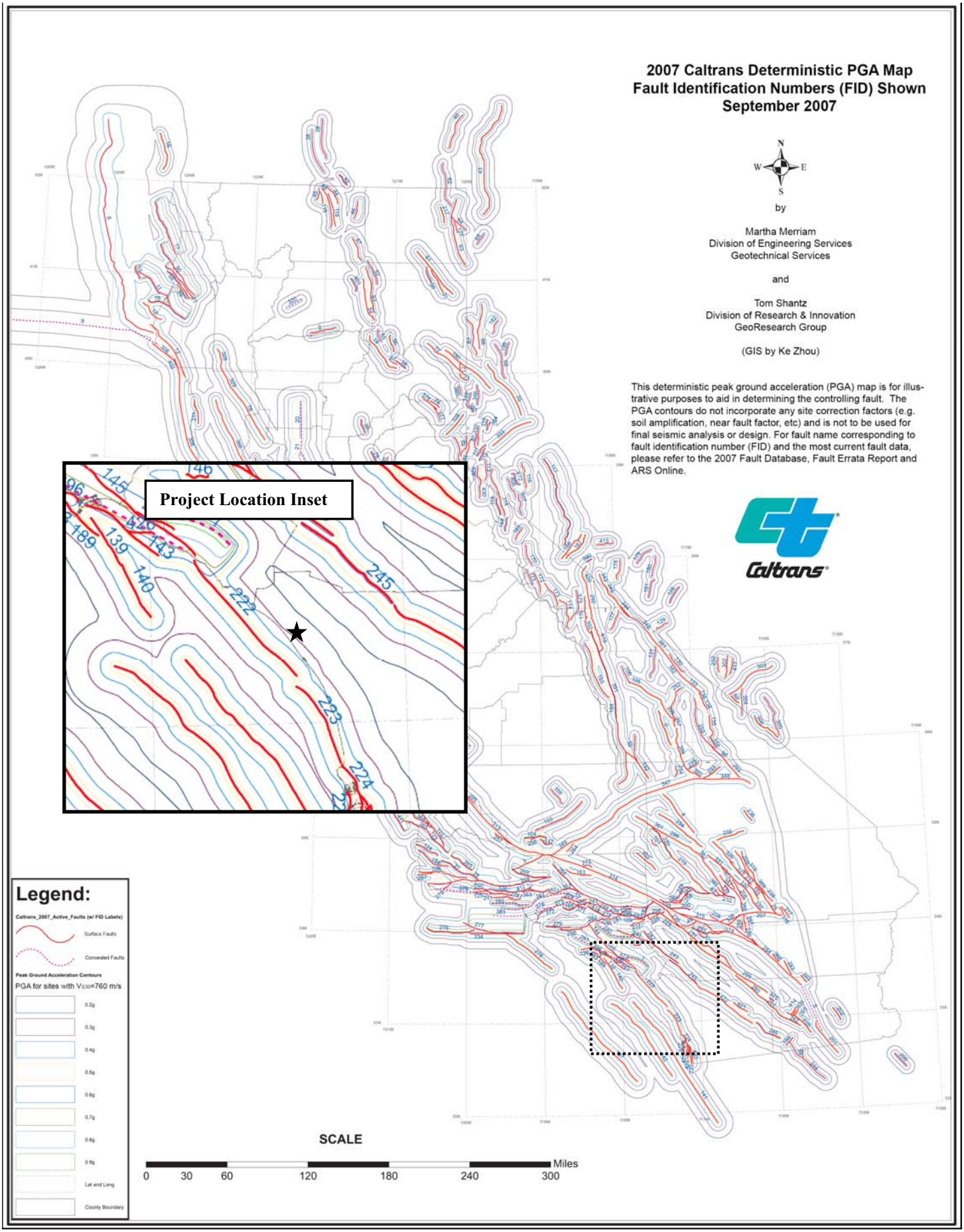


FIGURE 4: CALTRANS DETERMINISTIC PEAK GROUND ACCELERATION MAP, 2007

Foundation Report for the Retaining Walls Within the Northbound and Southbound
Interstate-5 Aliso Creek Safety Roadside Rest Areas, February 25, 2010
EA 11-261401

APPENDIX

LOGGED BY Brian Hinman	**BEGIN DATE** 02/16/10	**COMPLETION DATE** 02/16/10
BOREHOLE LOCATION (Lat/Long or North/East and Datum)		**HOLE ID:** HA-10-101
DRILLING CONTRACTOR Caltrans	**BOREHOLE LOCATION (Station, Offset, and Line)** STA 40+00 of Northbound Retaining Wall LOL	**SURFACE ELEVATION** 69.3 ft
DRILLING METHOD Hand Auger	**DRILL RIG** NA	**BOREHOLE DIAMETER** 3.0-inch
SAMPLER TYPE(S) AND SIZE(S) [ID] 3-inch	**SPT HAMMER TYPE** 1.0-inch Soil Probe	**HAMMER EFFICIENCY (ER)** NA %
BOREHOLE BACKFILL AND COMPLETION Backfilled with cuttings	**GROUNDWATER READINGS** **DURING DRILLING** Not Encountered **AFTER DRILLING (DATE)** Not Measured	**TOTAL DEPTH OF BORING** 6.0 ft

ELEVATION (ft)	DEPTH (ft)	Depth (ft)	DESCRIPTION	Sample Location	Sample Number	Blows Per 6 in	Blows Per 1.0 ft	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	REMARKS
69.3			SANDY LEAN CLAY (CL): estimated very soft, dark brown, moist, trace gravel, little sand, medium plasticity												Soil probe seated to 6-inches
						13									
68.3	1	1.0	SANDY SILT (ML): estimated soft, medium brown, moist, little sand, non-plastic				58								
	2														
66.8		2.5	SANDY LEAN CLAY (CL): estimated very stiff, dark brown, moist, little sand, medium plasticity				136								
	3														
							98								
	4														
							271								
	5														
63.8		5.5	SILTY SAND (SM): medium dense, medium brown, moist, little fines												
63.3	6	6.0	Borehole terminated.												
	7														
	8														
	9														
	10														
	11														
	12														
	13														
	14														
	15														
	16														
	17														
	18														
	19														
	20														

DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES
OFFICE OF GEOTECHNICAL DESIGN-SOUTH 2

REPORT TITLE
Foundation Report for Retaining Walls (Appendix)

HOLE ID: HA-10-101

DISTRICT	COUNTY	ROUTE	POST MILE	EA
11	San Diego	5	59.4-60.0	261401

PROJECT OR BRIDGE NAME
Interstate-5 Northbound & Southbound Aliso Creek Safety Roadside Rest Area Restoration

BRIDGE NUMBER	PREPARED BY	DATE	SHEET
NA	Richard Rusnak	02/18/10	1 of 1

LOGGED BY Brian Hinman	**BEGIN DATE** 02/16/10	**COMPLETION DATE** 02/16/10	**BOREHOLE LOCATION (Lat/Long or North/East and Datum)**	**HOLE ID:** HA-10-102
DRILLING CONTRACTOR Caltrans			**BOREHOLE LOCATION (Station, Offset, and Line)** STA 10+00 of Northbound Retaining Wall LOL	**SURFACE ELEVATION** 71.0 ft
DRILLING METHOD Hand Auger			**DRILL RIG** NA	**BOREHOLE DIAMETER** 3.0-inch
SAMPLER TYPE(S) AND SIZE(S) [ID] 3-inch			**SPT HAMMER TYPE** 1.0-inch Soil Probe	**HAMMER EFFICIENCY (ER)** NA %
BOREHOLE BACKFILL AND COMPLETION Backfilled with cuttings			**GROUNDWATER READINGS** **DURING DRILLING** Not Encountered **AFTER DRILLING (DATE)** Not Measured	**TOTAL DEPTH OF BORING** 6.0 ft

ELEVATION (ft)	DEPTH (ft)	Depth (ft)	DESCRIPTION	Sample Location	Sample Number	Blows Per 6 in	Blows Per 1.0 ft	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	REMARKS
71.0			LEAN CLAY w/ SAND (CL): estimated very soft, dark brown, moist, medium plasticity				15								
	1						13								
	2														
68.4		2.6					56								
	3		SILT w/ SAND (ML): estimated soft, medium brown, moist, non-plastic												Penetration of soil probe becomes more difficult at 2.6-feet.
	4						300								
66.3		4.7													
	5		SANDY LEAN CLAY (CL): estimated very stiff, dark brown, moist, little sand, medium plasticity												
65.0	6	6.0	Borehole terminated.												
	7														
	8														
	9														
	10														
	11														
	12														
	13														
	14														
	15														
	16														
	17														
	18														
	19														
	20														

DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES
OFFICE OF GEOTECHNICAL DESIGN-SOUTH 2

REPORT TITLE
Foundation Report for Retaining Walls (Appendix)

HOLE ID: HA-10-102

DISTRICT	COUNTY	ROUTE	POST MILE	EA
11	San Diego	5	59.4-60.0	261401

PROJECT OR BRIDGE NAME
Interstate-5 Northbound & Southbound Aliso Creek Safety Roadside Rest Area Restoration

BRIDGE NUMBER	PREPARED BY	DATE	SHEET
NA	Richard Rusnak	02/18/10	1 of 1

LOGGED BY Brian Hinman	**BEGIN DATE** 02/16/10	**COMPLETION DATE** 02/16/10	**BOREHOLE LOCATION (Lat/Long or North/East and Datum)**	**HOLE ID:** HA-10-103
DRILLING CONTRACTOR Caltrans			**BOREHOLE LOCATION (Station, Offset, and Line)** STA 42+00 of Southbound Retaining Wall LOL	**SURFACE ELEVATION** 80.2 ft
DRILLING METHOD Hand Auger			**DRILL RIG** NA	**BOREHOLE DIAMETER** 3.0-inch
SAMPLER TYPE(S) AND SIZE(S) [ID] 3-inch			**SPT HAMMER TYPE** 1.0-inch Soil Probe	**HAMMER EFFICIENCY (ER)** NA %
BOREHOLE BACKFILL AND COMPLETION Backfilled with cuttings			**GROUNDWATER READINGS** **DURING DRILLING** Not Encountered **AFTER DRILLING (DATE)** Not Measured	**TOTAL DEPTH OF BORING** 6.0 ft

ELEVATION (ft)	DEPTH (ft)	Depth (ft)	DESCRIPTION	Sample Location	Sample Number	Blows Per 6 in	Blows Per 1.0 ft	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	REMARKS
80.2			LEAN CLAY w/ SAND (CL): estimated very soft, dark brown, moist, medium plasticity				16								
	1						16								
78.2	2	2.0	SANDY LEAN CLAY (CL): estimated very soft, dark brown, moist, some sand, medium plasticity				30								
	3														
76.5	4	3.7	LEAN CLAY (CL): estimated very soft, dark brown, moist, medium plasticity, trace sand				46								Penetration of soil probe becomes more difficult at 3.7-feet.
							48								
74.9	5	5.3	SILTY SAND (SM): medium dense, moist, yellowish-brown, fine-grained				136								Penetration of soil probe becomes more difficult at 5.3-feet.
	6		Borehole terminated.				174								Penetration of soil probe becomes more difficult at 6.7-feet.
	7														
	8														
	9														
	10														
	11														
	12														
	13														
	14														
	15														
	16														
	17														
	18														
	19														
	20														

DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES
OFFICE OF GEOTECHNICAL DESIGN-SOUTH 2

REPORT TITLE
Foundation Report for Retaining Walls (Appendix)

HOLE ID: HA-10-103

DISTRICT	COUNTY	ROUTE	POST MILE	EA
11	San Diego	5	59.4-60.0	261401

PROJECT OR BRIDGE NAME
Interstate-5 Northbound & Southbound Aliso Creek Safety Roadside Rest Area Restoration

BRIDGE NUMBER	PREPARED BY	DATE	SHEET
NA	Richard Rusnak	02/18/10	1 of 1

LOGGED BY Brian Hinman	**BEGIN DATE** 02/16/10	**COMPLETION DATE** 02/16/10	**BOREHOLE LOCATION (Lat/Long or North/East and Datum)**	**HOLE ID:** HA-10-104
DRILLING CONTRACTOR Caltrans			**BOREHOLE LOCATION (Station, Offset, and Line)** STA 4+00 of Southbound Retaining Wall LOL	**SURFACE ELEVATION** 84.1 ft
DRILLING METHOD Hand Auger			**DRILL RIG** NA	**BOREHOLE DIAMETER** 3.0-inch
SAMPLER TYPE(S) AND SIZE(S) [ID] 3-inch			**SPT HAMMER TYPE** 1.0-inch Soil Probe	**HAMMER EFFICIENCY (ER)** NA %
BOREHOLE BACKFILL AND COMPLETION Backfilled with cuttings			**GROUNDWATER READINGS** **DURING DRILLING** Not Encountered **AFTER DRILLING (DATE)** Not Measured	**TOTAL DEPTH OF BORING** 9.0 ft

ELEVATION (ft)	DEPTH (ft)	Depth (ft)	DESCRIPTION	Sample Location	Sample Number	Blows Per 6 in	Blows Per 1.0 ft	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	REMARKS
84.1			LEAN CLAY w/ SAND (CL): estimated very soft, yellowish-brown, moist, medium plasticity				17								
	1						30								
	2						45								
81.3		2.8	SANDY SILT (ML): estimated very soft, yellowish-brown, moist, low plasticity												
	3						40								
80.1	4	4.0	LEAN CLAY (CL): estimated very soft, reddish-brown, moist, trace sand, medium plasticity				39								
	5														
78.6		5.5	...little sand				33								
	6														
77.6		6.5	...dark brown				33								
	7														
76.6		7.5	...soft				80								Penetration of soil probe becomes more difficult at 7.5-feet.
76.1	8	8.0	SILTY SAND (SM): medium dense, yellowish-brown, moist, fine-grained				188								
75.1	9	9.0	Borehole terminated.												
	10														
	11														
	12														
	13														
	14														
	15														
	16														
	17														
	18														
	19														
	20														

DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES
OFFICE OF GEOTECHNICAL DESIGN-SOUTH 2

REPORT TITLE
Foundation Report for Retaining Walls (Appendix)

HOLE ID: HA-10-104

DISTRICT	COUNTY	ROUTE	POST MILE	EA
11	San Diego	5	59.4-60.0	261401

PROJECT OR BRIDGE NAME
Interstate-5 Northbound & Southbound Aliso Creek Safety Roadside Rest Area Restoration

BRIDGE NUMBER	PREPARED BY	DATE	SHEET
NA	Richard Rusnak	02/18/10	1 of 1

(Note to user -- Click on field and Use F1 for help)

REQUEST FOR SURVEY

California
Department of Transportation
District 11

Request Number: 10-113

Date: 1/29/2010

Co. SD Rte. 5 PM: 59.40 to R60.0

EA: 261401

Subjob: Spec. Des.:

Request by: Richard Rusnak Division: Office of Geotech Ph: 858-467-4065

Project Desc: Aliso Creek Roadside Ret Area Near Camp Pendleton Retaining Walls

Job Location: Northbound and Southbound Aliso Creek Roadside Ret Areas Near Camp Pendleton

Project Mgr: Arturo Jacobo / Hahn Nguyen Ph: 7187837 Units: Feet ☒ Meters ☐

Descriptions and Limits of Work:

Stake the alignement of the retainnig walls at the northbound and southbound Aliso Creek Rest Areas near Camp Pendleton (Refer to attached Layout L1 and L2 for locations)

DUE TO THE HIGH VOLUME OF PEDESTRIANS IN THE AREA, IT IS HIGHLY PROBABLE THAT THE SURVEYING STAKES WILL BE DISTURBED. THEREFORE, PLEASE ADVISE RICHARD RUSNAK (858) 467-4065 OR BRIAN HINMAN (858) 467-4051 WHEN THE SURVEYING IS BEING CONDUCTED OR WHEN THE SURVEYING IS COMPLETED, SO THE GEOTECHNICAL INVESTIGATION CAN BE IMMEDIATELY CONDUCTED.

Attachments and/or References:

Layout Northbound L1 and Layout Southbound L2 , RETAINING WALL R-1 & R-2

Approved by (Project Engineer or above)

Desired Completion Date: 02-05-2010

FOR SURVEYS USE ONLY

Date Received: WBS Codes: 255.35.10

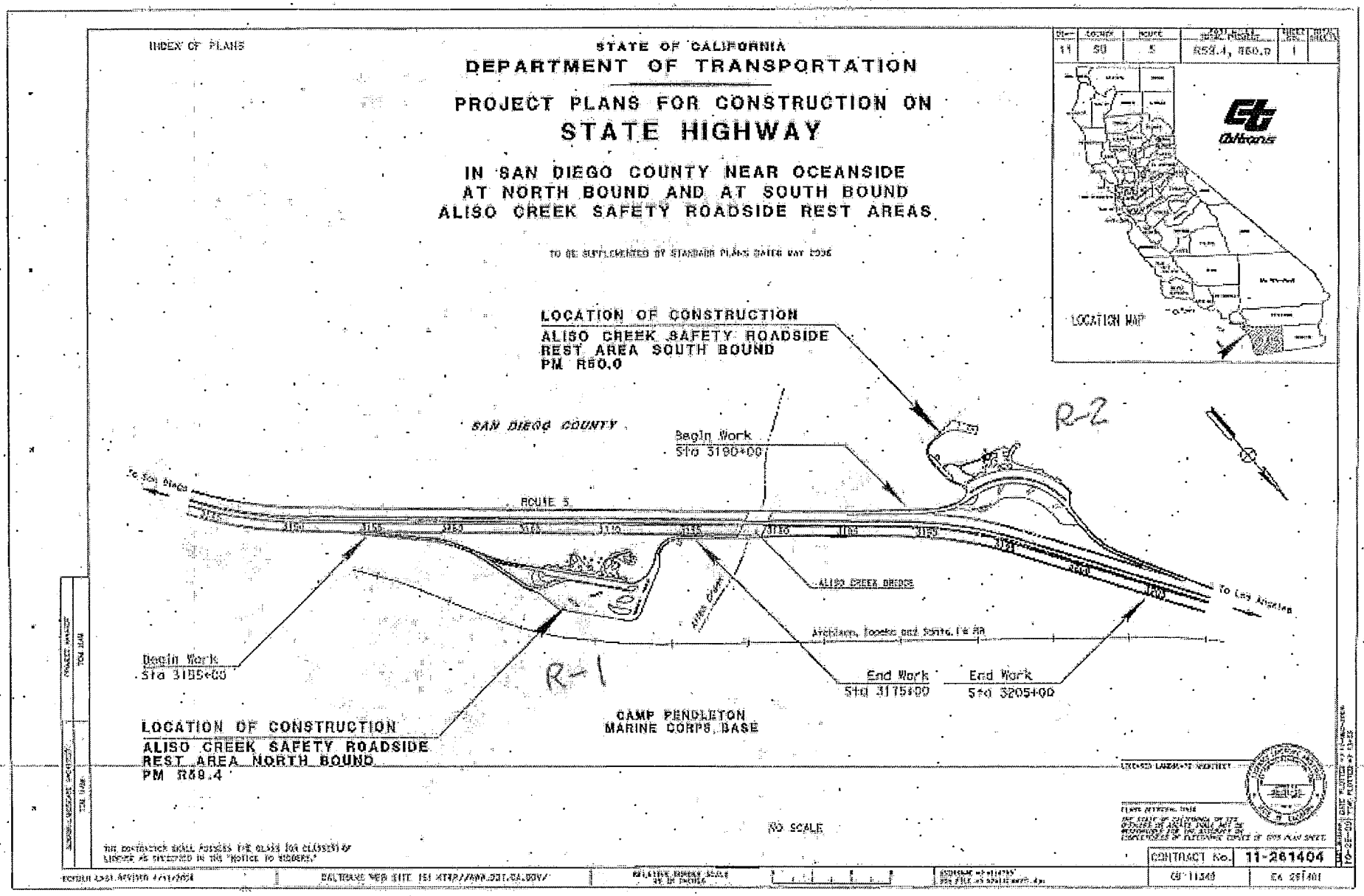
Horiz.Datum: Spec. NAD83 (HPGN) ☒ NAD83 (2007) ☐

Vert.Datum: Spec. NAVD88 +328.08' ☐ NAVD88 ☒ NAVD88 (CGPS) ☐

Rev. 7/2008

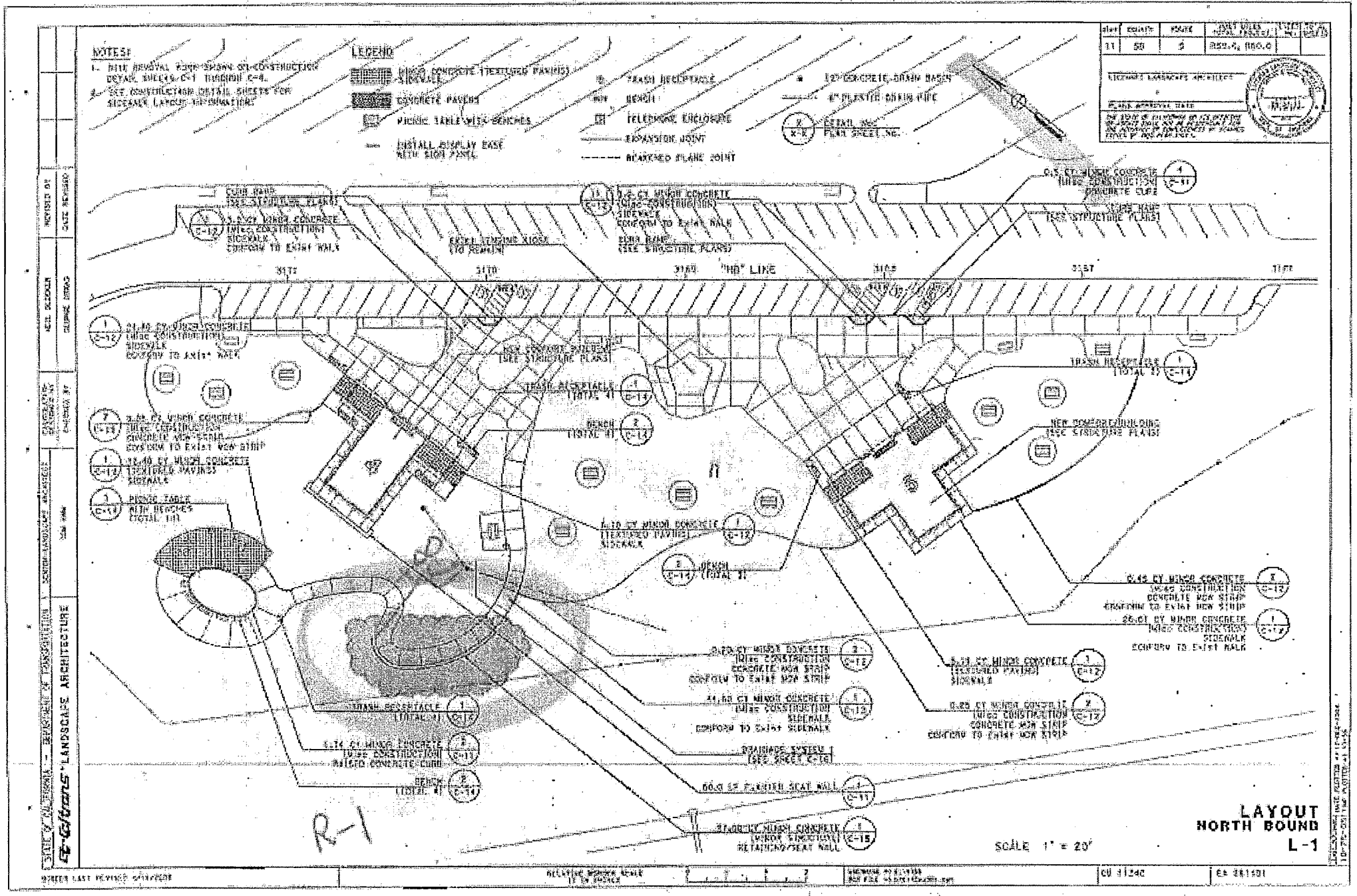
Station/Offset	dStation	dOffset	dElev	Code
0+00.000/0.000	-0.088	-0.052	?	RWNB1(RETWALLS)
0+11.640/0.000	-0.039	0.119	?	RWNB1(RETWALLS)
0+23.279/0.000	-0.051	-0.077	?	RWNB1(RETWALLS)
0+38.000/0.000	-0.003	0.020	?	RWNB1(RETWALLS)
0+50.000/0.000	-0.017	0.095	?	RWNB1(RETWALLS)
0+62.000/0.000	0.075	0.011	?	RWNB1(RETWALLS)
0+75.900/0.000	0.075	0.002	?	RWNB1(RETWALLS)
0+23.416/0.000	-0.012	0.124	?	SBWALL1(RETWALLS)
0+38.000/0.000	0.080	0.200	?	SBWALL1(RETWALLS)
0+69.038/0.000	0.081	0.008	?	SBWALL1(RETWALLS)

Please see attached Ref. with plans w/ show additional stations set.

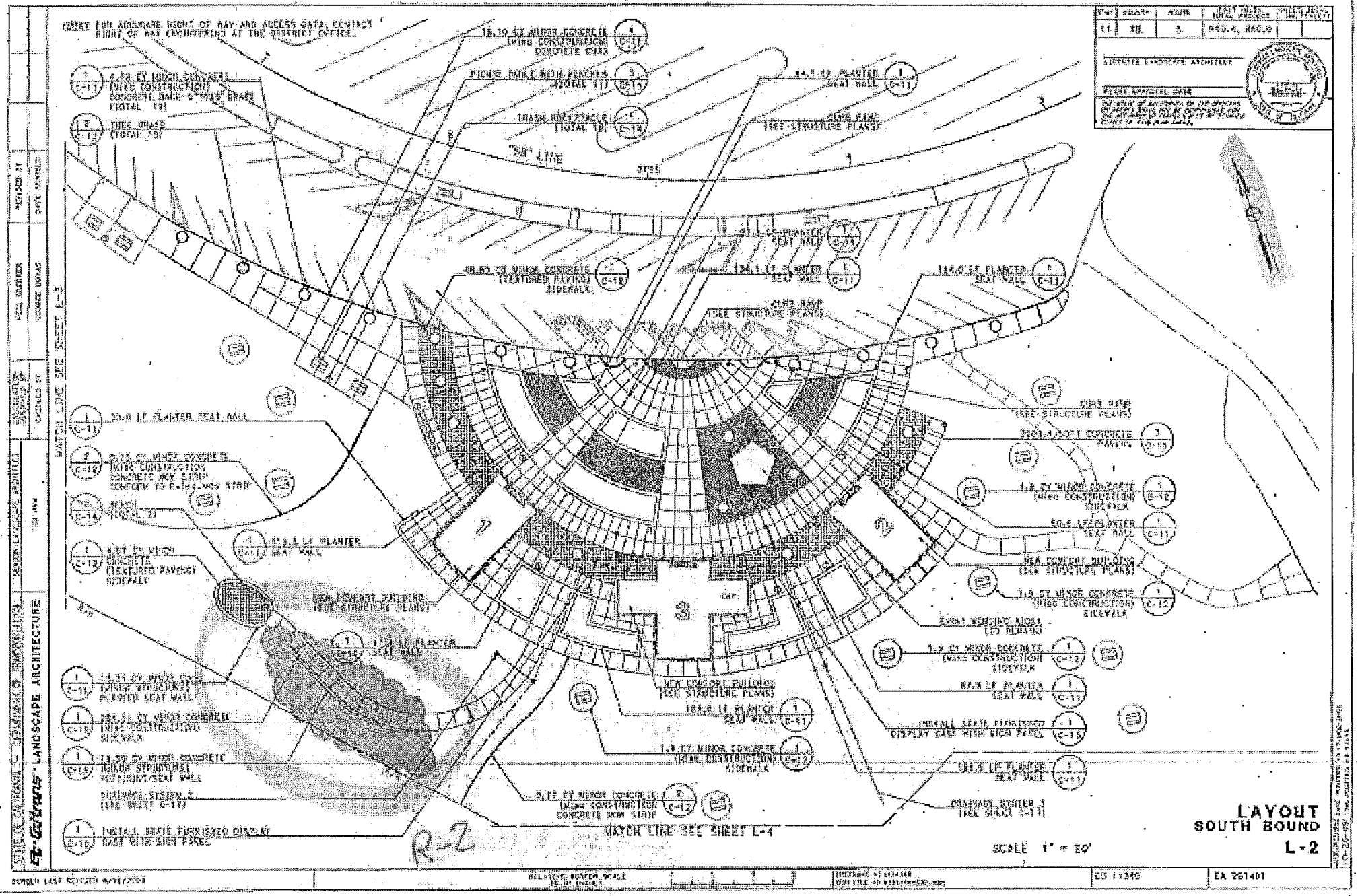


10-113

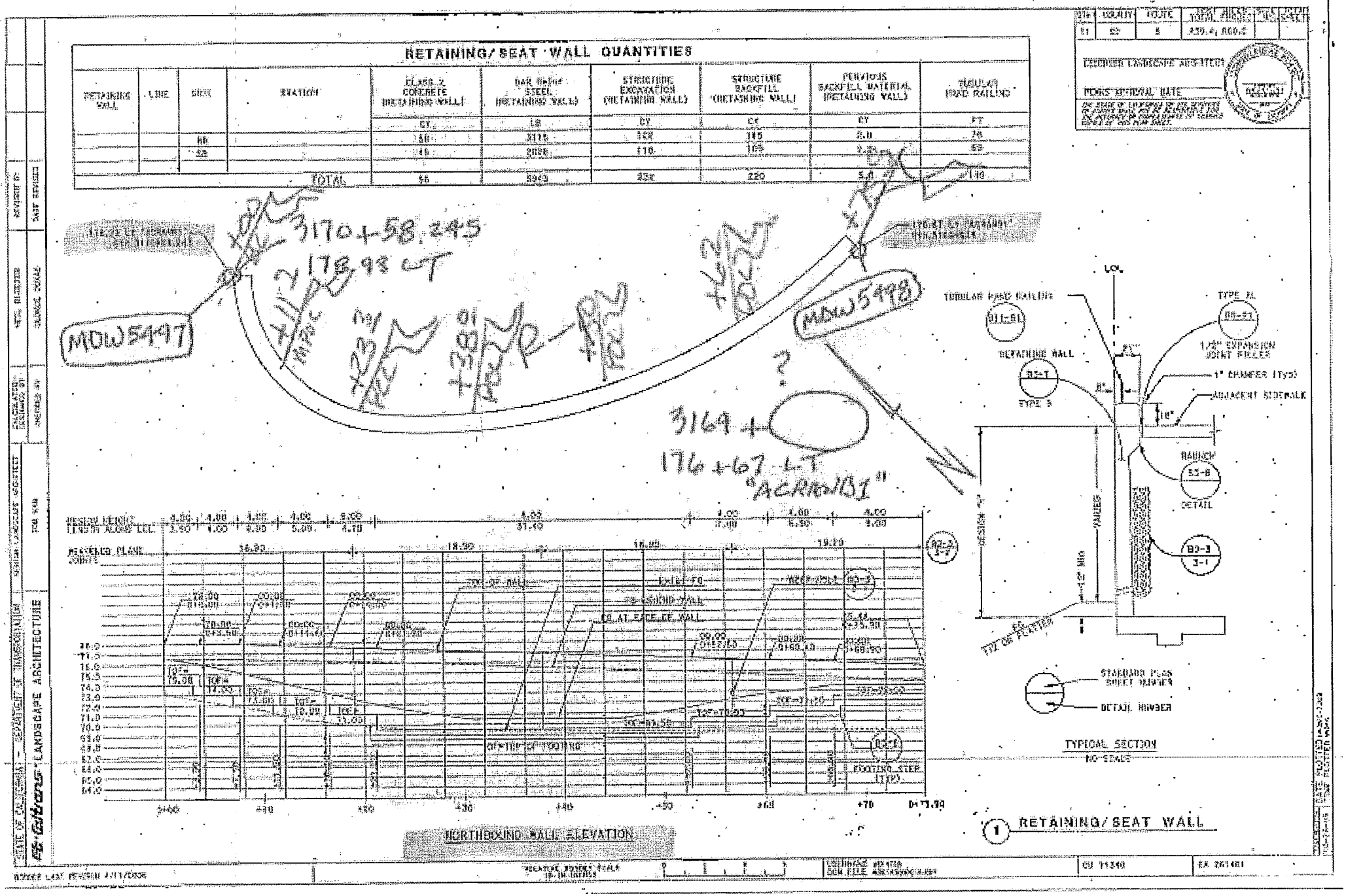
APPENDIX
Foundation Report for the Retaining Walls Within the Northbound and Southbound
Interstate-5 Aliso Creek Safety Roadside Rest Areas, February 25, 2010
EA 11-261401



APPENDIX
Foundation Report for the Retaining Walls Within the Northbound and Southbound
Interstate-5 Aliso Creek Safety Roadside Rest Areas, February 25, 2010
EA 11-261401

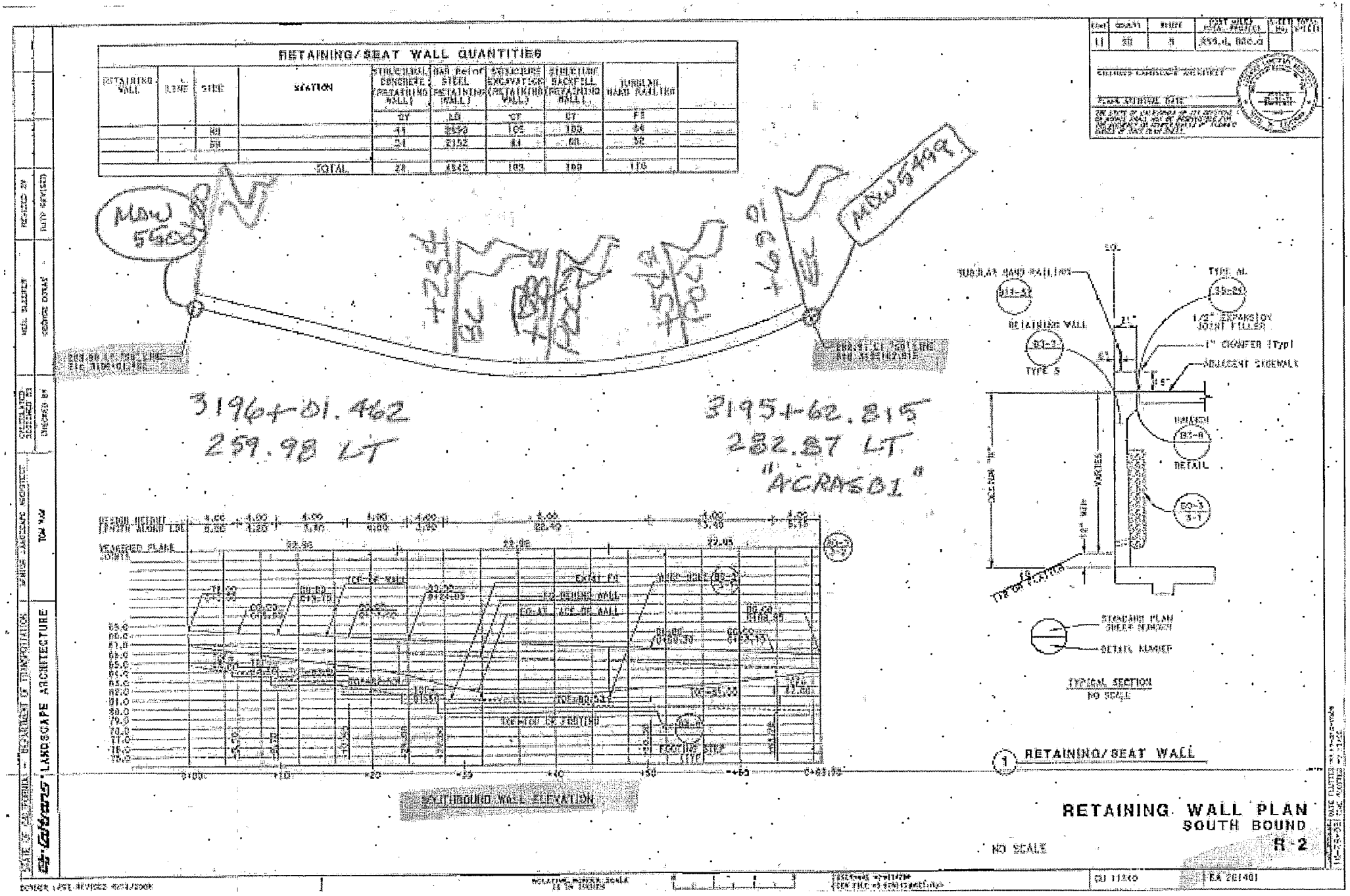


APPENDIX
Foundation Report for the Retaining Walls Within the Northbound and Southbound
Interstate-5 Aliso Creek Safety Roadside Rest Areas, February 25, 2010
EA 11-261401



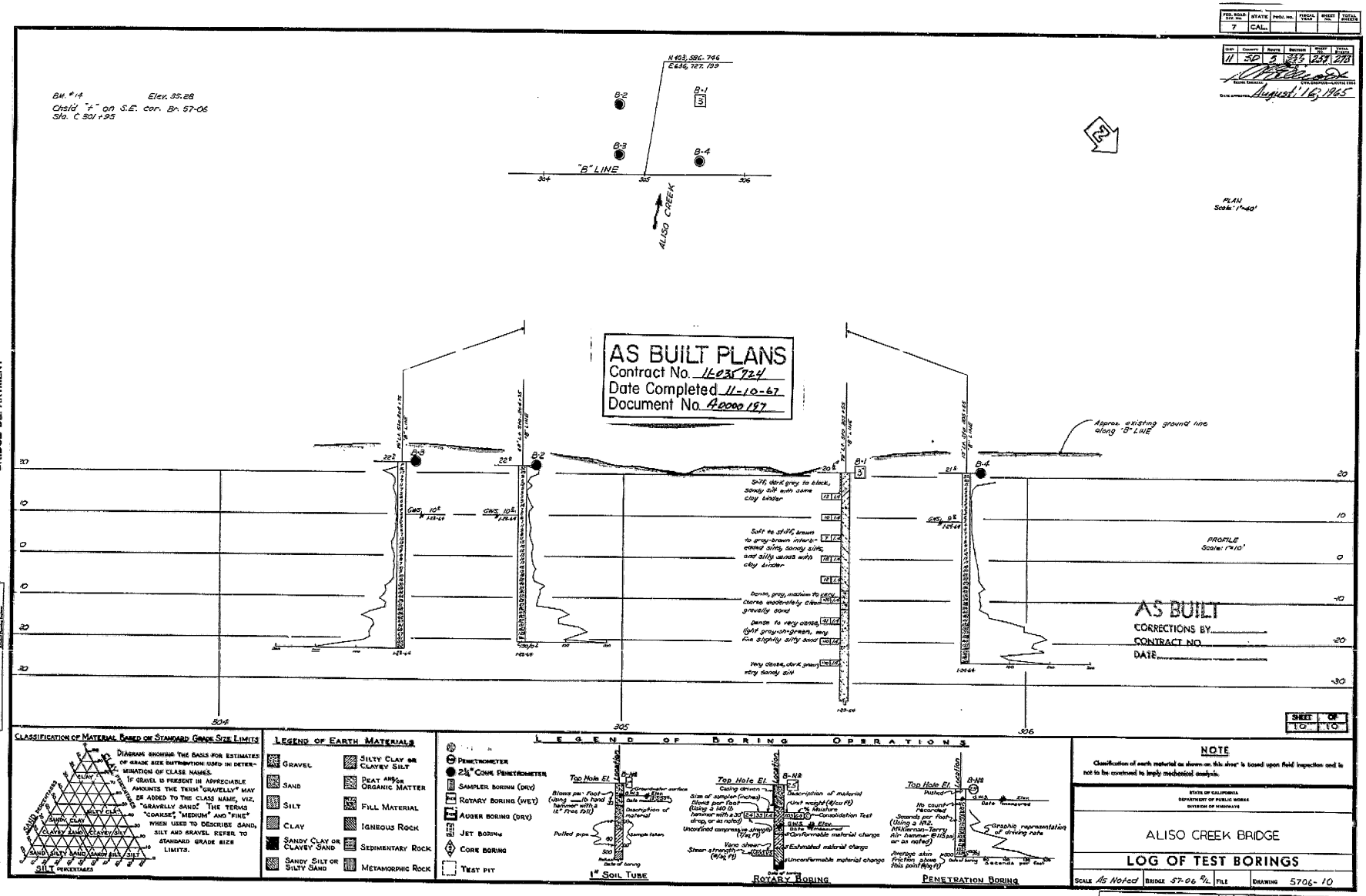
APPENDIX
Foundation Report for the Retaining Walls Within the Northbound and Southbound
Interstate-5 Aliso Creek Safety Roadside Rest Areas, February 25, 2010
EA 11-261401

R-1



APPENDIX
Foundation Report for the Retaining Walls Within the Northbound and Southbound
Interstate-5 Aliso Creek Safety Roadside Rest Areas, February 25, 2010
EA 11-261401

APPENDIX
Foundation Report for the Retaining Walls Within the Northbound and Southbound
Interstate-5 Aliso Creek Safety Roadside Rest Areas, February 25, 2010
EA 11-261401



257

Brian Hinman/HQ/Caltrans/CAGov
02/24/2010 01:29 PM

To Richard Rusnak/D11/Caltrans/CAGov@DOT
cc
bcc
Subject Fw: Log of Test Borings for EA 261401

----- Forwarded by Brian Hinman/HQ/Caltrans/CAGov on 02/24/2010 01:29 PM -----

Brian Hinman/HQ/Caltrans/CAGov
11/05/2009 12:29 PM

To Hanh H Nguyen/D11/Caltrans/CAGov@DOT
cc Tom Ham/D11/Caltrans/CAGov@DOT, Neil Bleeker/D11/Caltrans/CAGov@DOT
Subject Re: Fw: Log of Test Borings for EA 261401

Hanh:

If we are to proceed with fulfilling the request we will require the following:

Send a request for service to my supervisor Abbas Abghari in Sacramento.
Provide most critical (tallest) cross section of each wall showing existing terrain, proposed grading, and proposed retaining wall. Provide cross sections at 10 foot intervals on either side of the tallest wall section
Provide layout plans with existing trees in proximity to the walls accurately located on the plans.
Have CT Surveys stake the proposed wall alignments. Provide existing and proposed grade and top of footing elevation information on the staking.

There is plenty of room between the proposed walls and the R/W. Wall design based on a Type 1 configuration will result in a smaller footing than a Type 5.

Neil Bleeker/D11/Caltrans/CAGov

Neil Bleeker/D11/Caltrans/CAGov
11/05/2009 10:35 AM

To Brian Hinman/HQ/Caltrans/CAGov@DOT
cc Hanh H Nguyen/D11/Caltrans/CAGov@DOT, Tom Ham/D11/Caltrans/CAGov@DOT
Subject Re: Fw: Log of Test Borings for EA 261401

Hello Brian,

Thanks for your suggestion and I would concur with you if we were not concerned with saving existing trees. The walk is configured as such so as to avoid these trees. Therefore the retaining wall is necessary.

So please proceed with providing shallow boring records and wall foundation recommendations.

Thanks for your assistance.

NEIL C. BLEEKER / LANDSCAPE ASSOCIATE
Landscape Architecture / 619.220.5361
Brian Hinman/HQ/Caltrans/CAGov

Brian Hinman/HQ/Caltrans/CAGov
11/02/2009 03:14 PM

To Hanh H Nguyen/D11/Caltrans/CAGov@DOT
cc Neil Bleeker/D11/Caltrans/CAGov@DOT
Subject Re: Fw: Log of Test Borings for EA 261401

Hanh:

I reviewed the two sites today with a member of my staff. I was able to locate the proposed wall locations with some accuracy by using a scaled bearing and distance off the pentagonal shaped kiosks and then correlating with other site features for assurance. It definitely appears that no retaining walls would be necessary with minor walkway realignments away from the R/W line. Gentle walkway gradients appear readily achievable given the suggested realignment. Sloped embankment placed to accommodate the walkway would be similar to the sloped embankment already supporting the raised view areas. There may be a small increase in import material but that would be much less costly than retaining wall construction.

Please let me know how you would like us to proceed. If necessary, it would be our pleasure to provide shallow boring records and wall foundation recommendations. Otherwise it does not appear that this project will require geotechnical services not related to the building foundations.

Brian

Hanh H Nguyen/D11/Caltrans/CAGov

Hanh H Nguyen/D11/Caltrans/CAGov

11/02/2009 08:55 AM

To Neil Bleeker/D11/Caltrans/CAGov@DOT
cc Brian Hinman/HQ/Caltrans/CAGov@DOT
Subject Fw: Log of Test Borings for EA 261401

Hello Neil,

I'm working with Brian Hinman, our Geotech senior, to get the log of test borings for this project. However, Brian thinks that with minor realignment of the sidewalks
and grading, we could avoid building the walls and still have the concrete seat. He will review the site and let me know if we would need the walls or not. If the walls are needed, he's suggesting Type 5 wall which is similar to what you have on the plans. What do you think?

Hanh Nguyen
Design
619-718-7837

----- Forwarded by Hanh H Nguyen/D11/Caltrans/CAGov on 11/02/2009 08:47 AM -----

Brian Hinman/HQ/Caltrans/CAGov
10/30/2009 03:41 PM

To Hanh H Nguyen/D11/Caltrans/CAGov@DOT
cc
Subject Re: Fw: Log of Test Borings for EA 261401

Yes, most likely. I will review the sites and let you know. The more room between the R/W and the sidewalk the more likely any grade differences can be accomodated with slopes.

I used to build concrete structures to make my living. A curved cast in place wall up to 8.5 feet high (when you include the bench portion) on a stepped footing is an expensive feature in comparison to the value it gives the project. The wall is something I would only recommend if alternative grading was not possible, if level ground could not be created otherwise (such as on a very limit lot size), or if someone just had excess money to spend.

Brian

Hanh H Nguyen/D11/Caltrans/CAGov

Hanh H Nguyen/D11/Caltrans/CAGov
10/30/2009 02:44 PM

To Brian Hinman/HQ/Caltrans/CAGov@DOT
cc
Subject Re: Fw: Log of Test Borings for EA 261401

Brian,

Yes, it should be C-15. Do you still think we can realign the sidewalks and do some grading to build the concrete seat without the retaining walls (Type 5)? Thanks

Hanh

Brian Hinman/HQ/Caltrans/CAGov

Brian Hinman/HQ/Caltrans/CAGov
10/30/2009 02:10 PM

To Hanh H Nguyen/D11/Caltrans/CAGov@DOT
cc
Subject Fw: Log of Test Borings for EA 261401

Hanh:

There are Retaining/Seat Walls shown on the Layout sheets that refer to Construction Details sheet C-16. Are these the subject walls? Should the reference on the Layout sheets be to sheet C-15?

It appears that if you realigned the sidewalks you could simply do some grading and still build a concrete seat. If you keep to one foot or less of grade separation on either side of the concrete seat you won't need any special engineering.

Brian

----- Forwarded by Brian Hinman/HQ/Caltrans/CAGov on 10/30/2009 02:00 PM -----

Brian Hinman/HQ/Caltrans/CAGov
10/30/2009 12:05 PM

To Hanh H Nguyen/D11/Caltrans/CAGov

cc

Subject Re: Log of Test Borings for EA 261401

Hanh:

I cannot find the walls on the Layout sheets.

It looks like the wall foundation will be placed atop existing OG or on a relatively thin layer of newly placed fill. It would be beneficial to determine the quality of the OG along the wall layout line so some shallow hand augers or soil probes would be prudent to assure appropriate bearing capacity. Boring Records could be included in an abbreviated Foundation Report to go out with the project so there may be no need to draft LOTB's.

It appears the wall will retain up to about six (maybe seven) feet of soil (we don't count the sloping backfill above the footing on the downhill side). If there is an existing slope along the wall LOL it looks like you will need another one foot of footing embedment to develop the necessary lateral resistance (hence possibly as much as 7 feet retained). The current wall design appears to be closest to a Caltrans Standard Plan Type 5. If you review the Standard Plans you will see that the footing width for a Type 5 wall retaining seven feet of soil is 6'-6" which is significantly greater than the width of the retaining/seat wall detail provided in the plans. There also appears to be enough of a drop off that a safety rail should be included. I can see why someone wanted borings, calculations, and an engineer to sign the sheet.

Using a Type 1 retaining wall would result in a smaller footing than using a Type 5. Where the wall is short, a Type 1 footing may even be smaller than the footing detail shown in the plans. The only change would be to eliminate the batter of the Type 1 and specify a top width of 18-inches

Please let me know how I can locate the wall LOL and let me know how you would like us to proceed.

Brian

Hanh H Nguyen/D11/Caltrans/CAGov

Hanh H Nguyen/D11/Caltrans/CAGov
10/30/2009 10:43 AM

To Brian Hinman/HQ/Caltrans/CAGov@DOT

cc

Subject Log of Test Borings for EA 261401

Hello Brian,

I'm helping out our Landscape Architechture in designing two small retaining/seat walls for the rest stops along I-5 near Camp Pendleton.
The walls are as shown on the detail sheet or they could be changed to standard Type I walls.
Do we need log of test borings for these walls. If we do, can I request it from you? Thanks

Aliso_Creek_261401.pdf

Hanh Nguyen
Design
619-718-7837

State of California
Housing Agency

Business, Transportation and

Memorandum

Flex your power!
Be energy efficient!

To: MR. SEAN SAMUEL, CHIEF

Date: February 20, 2008

STRUCTURAL DESIGN SECTION 2
OFFICE OF TRANSPORTATION ARCHITECTURE
STRUCTURE DESIGN SERVICES & EARTHQUAKE ENGINEERING
DIVISION OF ENGINEERING SERVICES

File: 11-SD-I5-R59.4/R60.0
11-261400

Attention: Mr. Joseph Camilleri

Northbound
Aliso Creek Safety
Roadside Rest Area
Upgrade and Addition

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES - MS #5
OFFICE OF GEOTECHNICAL DESIGN SOUTH-2

Subject: Foundation Recommendations

This report presents the Foundation Recommendations for the proposed Northbound Aliso Creek Safety Roadside Rest Area (SRRA). The proposed project site is adjacent to the Interstate 5 Northbound, and the Aliso Creek Bridge (57-0006 R/L) is the closest bridge to project site. The following Foundation Recommendations are based on a review of existing comfort building, upgrade, and addition buildings' General Plan dated April 12, 2007 and subsurface geotechnical investigations. The General Plan and subsurface geotechnical investigation for the proposed site is provided by the Office of Transportation Architecture and the Office of Geotechnical Design South-2, respectively. All elevations referenced in this memorandum are in feet, and are referenced to the NAVD 1988 vertical datum.

Project/Site Description

The proposed Aliso Creek Safety Roadside Rest Area (SRRA) is located along Interstate 5 north, north of Oceanside, near Camp Pendleton in San Diego County, California. The site is southeast of Aliso Creek Bridge (57-0006 R/L) and east of the Interstate 5 northbound. The project site is located on moderate level irrigation terrain.

The Aliso Creek Safety Roadside Rest Area (SRRA) General Plan dated May 4, 2007 shows that the project generally consists of construction of single –story buildings at this site.

The project includes rebuilding two existing comfort buildings, number 3 and 4. The CHP Office and Crew Break Rooms with its necessities will be added to building number 3, and additional restrooms to the existing building number 4. The existing restroom and the additional comfort buildings will have concrete masonry walls with wood rafters and plywood roof decks.

Geology

The Office of Geotechnical Design South-2 drilled one (1) mud rotary soil boring July 25, 2007. The maximum depth of this investigation was reached approximately at elevation 37.4 feet, corresponding to 30.0 feet below the ground surface at the location of boring B07-1. Based on above field investigations, the soil beneath the proposed Aliso Creek Safety Roadside Rest Area (SRRA) consists of soft to very stiff silty / silty sandy clay overlaying granular soil. The depth of the granular soil was encountered approximately 22 feet below the ground surface and consists of dense to very dense poorly graded sands and gravely sands. Bedrock was not encountered during the 2007 subsurface investigation.

Groundwater

Groundwater was not encountered during the 2007 subsurface geotechnical investigation. As mentioned previously, Aliso Creek Bridge (57-0006 R/L) is the nearest bridge with available Log of Test Borings (LOTBs). The Aliso Creek LOTB shows the groundwater was measured at approximate elevation 10.0 feet during January, 1964. Shallow perched water from surface runoff and irrigation may be encountered depending on annual rainfall at the site.

The test boring information in this report including approximate stations, top of borehole elevations, depths, and groundwater level measurements are summarized in Table 1.

Table 1. Summary of Geotechnical Exploration Information

Boring Number	Station (feet)	Top of Borehole Elevation (feet)	Exploration Depth (feet)	Bottom of Borehole Elevation (feet)	Groundwater Surface Elevation (feet)
B07-1	295+00	67.4	30	37.4	Was not encountered

Corrosion Evaluation

Selected representative soil samples collected from boring B07-1 during the 2007 field subsurface investigation were tested for pH, resistivity, soluble chloride, and soluble sulfate content to determine the corrosion potential of the in-situ soils. The results of these tests are presented in Table 2. Caltrans corrosion criteria currently defines a corrosive area as an area where the soil and water has a minimum resistivity of less than 1000 ohm-cm, and either contains more than 500 parts per million (ppm) of chloride, more than 2000 ppm of sulfate, or has a pH 5.5 or less.

Table 2. Summary of Laboratory Corrosion Tests

Boring No.	Top of Borehole Elevation (Feet)	Sample at Elevation (Feet)	Soil Type	Minimum Resistivity (ohm-cm)	pH	Chloride Content (ppm)	Sulfate Content (ppm)
B07-1	67.4	65	Silty Clay	503	7.12	423	1460
		61	Silty Clay	310	7.41	1160	1015
		56	Silty Sandy Clay	359	7.63	1195	306
		52	Silty Sandy Clay	310	7.54	1550	477
		46	Sandy Silty Clay	644	6.80	825	85
		43	Sands	739	6.78	735	43

Comparison between the laboratory test results and Caltrans corrosion criteria indicates that the soil underlying the site is considered corrosive.

Fault and Seismic Data

Based on Figure 16-2 of the California Building Code (CBC, 2001), the site is located in Seismic Zone 4. According to the Department's Seismic Hazard Map (1996), the Newport-Inglewood-Rose Canyon East (NIE, Strike-Slip) fault is the controlling seismic source for this site. This fault is located approximately 5 miles (8.1 kilometers) southwest of the site, and is capable of generating a Maximum Credible Earthquake (MCE) of moment magnitude Mw =7.0. The slip rate for this fault is estimated to be about 1.5 ± 0.5 millimeters per year.

The soil profile at this site may be classified as Type *SD* as defined in section 1636.2 and Table 16-J of the CBC 2001. According to Figure 16-2 and Table 16-I of the 2001 CBC, the site is located in the Seismic Zone with a Zone Factor of Z=0.4. The pertinent seismic design parameters as per Chapter 16 of the 2001 UBC are presented in table 2.

Table 2. Design Seismic Parameters per Chapter 16 of the 2001 CBC

Seismic Zone Factor *Z*	(Table 16-I)	0.40
Soil Profile Type	(Table 16-J)	*SD*
Seismic Coefficient, *Ca*	(Table 16-Q)	0.44
Seismic Coefficient, *Cv*	(Table 16-R)	0.69
Near-Source Factor *Na*	(Table 16-S)	1.00
Near-Source Factor *Nv*	(Table 16-T)	1.08
Seismic Source type	(Table 16-U)	B

The corresponding 2001 CBC Acceleration Response Spectrum (ARS) with control period of To=0.125 seconds and Ts = 0.626 seconds, as define in figure 16-3 of the 2001 California Uniform Code, is attached as Figure 1.

Liquefaction Potential Evaluation

Based on the above information, the site is not considered prone to surface rupture hazard due to fault movement since no know fault crosses the site. The site is not susceptible to liquefaction or lateral spreading during earthquakes. The potential for any additional secondary seismic hazards including seismically induced ground settlement is considered very low.

Foundation Recommendations

The following Foundation Recommendations are for the proposed Northbound Aliso Creek Safety Roadside Rest Area (SRRA), as shown on the site plan sheets provided by Office of Transportation Architecture on May 4, 2007. Conventional strip, mat or spread footings may be used to support the proposed single story structure.

The following recommendations for Allowable Bearing Capacities and Sliding pressure per CBC Table 18-I-A are listed below in Table 2.

Table 2 – Allowable Foundation and Lateral pressure

Class of Materials[1]	Allowable Foundation Pressure (TSF)[2]	Lateral Bearing Ton/SQ/FT/FT of Depth Below Natural Grade[3]	Lateral Sliding[4]	
			Coefficient[5]	Resistance[6] (TSF)
Clay, sandy clay, silty clay and clayey silt (CL, ML, MH and CH)	0.50[7]	0.05	--	0.065

Notes: 1) For soil classifications OL, OH and PT (i.e., organic clays and peat), a foundation investigation shall be required.
2) All values of allowable foundation pressure are for footing having a minimum width of 12 inches and a minimum depth of 12 inches into natural grade. Except as in Footnote 6, an increase of 20 percent shall be allowed for each additional foot of width or depth to a maximum value of three times the designated value. Additionally, an increase of one third shall be permitted when considering load combinations, including wind or earthquake loads, as permitted section 1612A.3.2.
3) May be increased the amount of the designated value for each additional foot of depth to a maximum of 15 times the designated value. Isolated poles for uses such as flagpoles or signs and poles used to support buildings that are not adversely affected by a 0.5-inch motion at ground surface due to short-term lateral loads may be designed using lateral bearing values equal to two times the tabulated values.
4) Lateral bearing and lateral sliding resistance me be combined.
5) Coefficient to be multiplies by the dead load.
6) Lateral sliding resistance value to be multiplied by the contact area. In no case shall the lateral sliding resistance exceed one half the dead load.
7) No increase for width is allowed.

Lateral Earth Pressures

Because of the clay and silty clay soils, we recommend $K_a=K_p=K_o=1.0$ with unit weight of 100 pcf. Adhesion at the bottom of the footing should be taken as 130 psf and the lateral sliding coefficient at the bottom of footing is recommended zero.

Construction Considerations

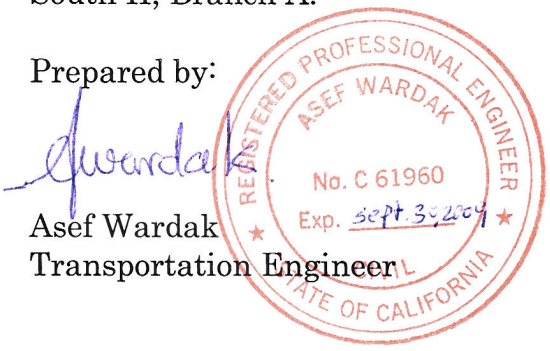
1. Concrete slabs-on-grade for the one-story new addition building should be designed for thickness, reinforcement, joint spacing, etc., by the project structural engineer. The modulus of subgrade reaction, k_s, for the properly compacted subgrade soils may be taken as 150 kips per cubic foot (kcf). The slab-on-grade should be at least four inches thick and provided with a six-mil Visqueen moisture barrier.
2. The moisture barrier should be covered by approximately two inches of sand to minimize punctures and to aid in concrete curing. Minimum reinforcement of 6 inches x 6 inches -#10/#10, or equivalent, properly centered in the middle of the slab, is recommended. The structural design may require thickness and or reinforcement.

3. Subgrade must be firm and nonyielding prior to placement of concrete. In hot weather, the contractor should take appropriate curing precautions after placement of concrete to minimize cracking of the slabs. The potential for slab cracking may be lessened by the addition of fibre mesh in the concrete and or control of the water / cement ratio.
4. Joints for concrete slab-on-grade must be carefully designed. Joint spacing is dependent upon slab thickness and concrete properties and should be selected by the structural engineer.
5. Concrete should be cured by protecting it against loss of moisture and rapid temperature change for at least seven days after placement. Moist curing, waterproof paper, white polyethylene sheeting, white liquid membrane compound, or a combination thereof may be used after finishing operations have been competed. The edges of concrete slabs exposed after removal of forms should immediately protected to provide continuous curing.
6. As mentioned before, the soil at the proposed site is corrosive, therefore, per Caltrans' Bridge Design Specification (September 2003), section 8, Type I-P (MS) modified or Type II modified Portland Cement should be used. All reinforced steel bars should be protected with at least three-inch-thick concrete cover and maximum water to cementitious material ratio shall not exceed 0.40.

The Foundation Recommendations contained in this report are based on very limited information provided by the Office of Transportation Architecture. If any conceptual changes are made, the Office of Geotechnical Design-South II, Design Branch A should review those changes to determine if these Foundation Recommendations are still applicable.

Any questions regarding the above recommendations should be directed to the attention of Asef Wardak, (916) 227-1219 (CALNET 498-1219), or Angel' Perez-Cobo, (916) 227-7167 (CALNET 498-7167), at the Office of Geotechnical Design-South II, Branch A.

Prepared by:



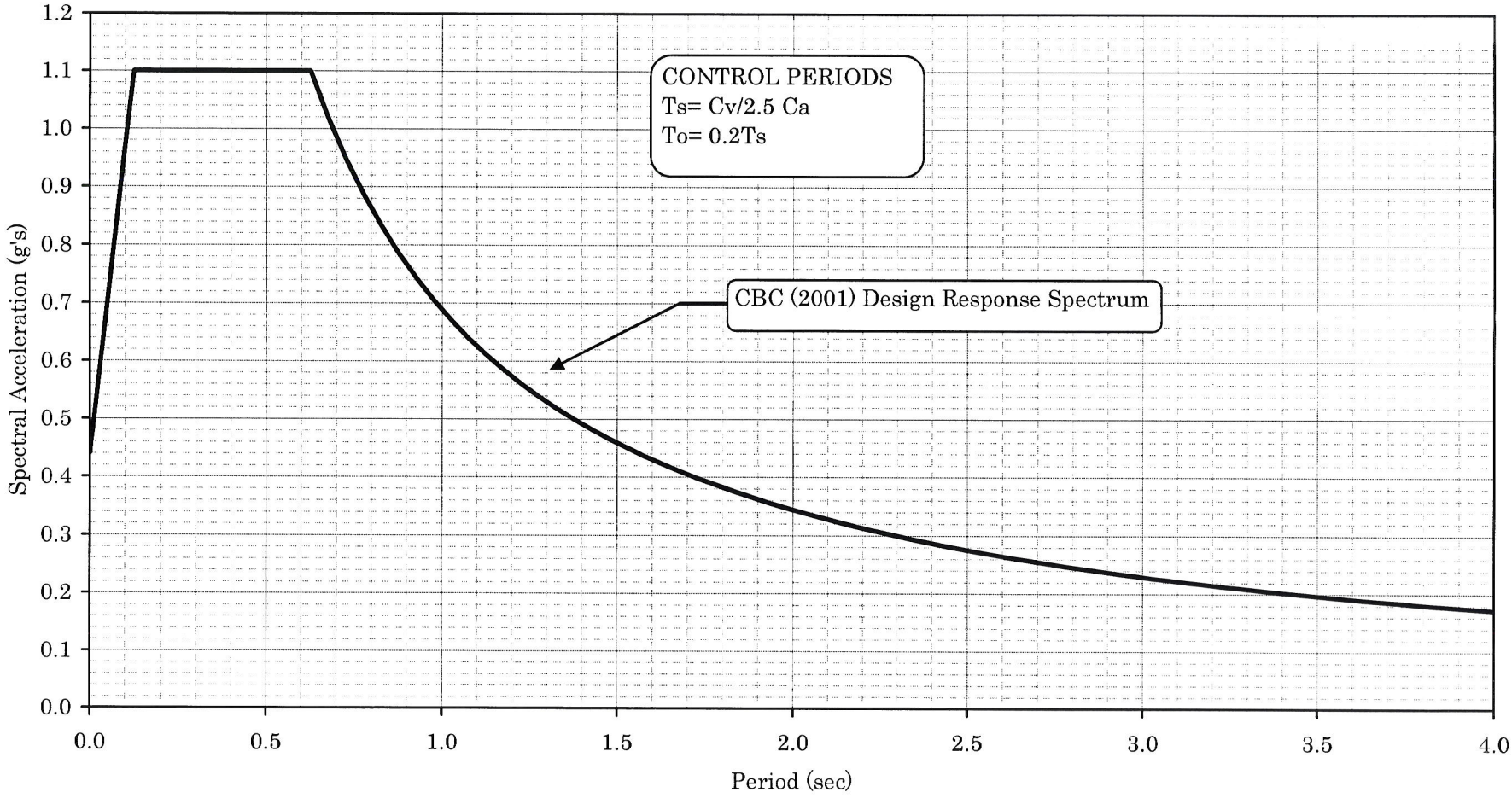
Asef Wardak
Transportation Engineer

Supervised by:

Angel Perez-Cobo
Senior Transportation Engineer
Office of Geotechnical Design South-2

Attachment: CBC-ARS Curve
c: APerez-Cobo
HIbrahim, OGDS-2
RE Pending File
Specs and Estimates
Project File

CBC-2001 Design Response Spectrum
for Aliso Creek Safety Roadside Rest Area (SRRA)
along Interstate 5 Northbound in San Diego County



DESIGN RESPONSE SPECTRUM

State of California
Housing Agency

Business, Transportation and

Memorandum

Flex your power!
Be energy efficient!

To: MR. SEAN SAMUEL, CHIEF

Date: February 20, 2008

STRUCTURAL DESIGN SECTION 2
OFFICE OF TRANSPORTATION ARCHITECTURE
STRUCTURE DESIGN SERVICES & EARTHQUAKE ENGINEERING
DIVISION OF ENGINEERING SERVICES

File: 11-SD-I5-R59.4/R60.0
11-261400

Attention: Mr. Joseph Camilleri

Southbound
Aliso Creek Safety
Roadside Rest Area
Upgrade and Addition

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES - MS #5
OFFICE OF GEOTECHNICAL DESIGN SOUTH-2

Subject: Foundation Recommendations

This report presents the Foundation Recommendations for the proposed Southbound Aliso Creek Safety Roadside Rest Area (SRRA). The proposed project site is adjacent to the Interstate 5 Southbound, and the Aliso Creek Bridge (57-0006 R/L) is the closest bridge to project site. The following Foundation Recommendations are based on a review of existing comfort building, upgrade, and addition buildings' General Plan dated April 12, 2007 and subsurface geotechnical investigations. The General Plan and subsurface geotechnical investigation for the proposed site is provided by the Office of Transportation Architecture and the Office of Geotechnical Design South-2, respectively. All elevations referenced in this memorandum are in feet, and are referenced to the NAVD 1988 vertical datum.

Project/Site Description

The proposed Aliso Creek Safety Roadside Rest Area (SRRA) is located along Interstate 5 south, north of Oceanside, near Camp Pendleton in San Diego County, California. The site is northwest of Aliso Creek Bridge (57-0006 R/L) and west of the Interstate 5 Southbound. The project site is located on moderate level irrigation terrain.

The Aliso Creek Safety Roadside Rest Area (SRRA) General Plan dated May 4, 2007 shows that the project generally consists of construction of single –story buildings at this site.

The project includes rebuilding two existing comfort buildings, numbers 1, 2 and a new comfort building number 5. The new comfort building number 5 with its necessities will be located southeast of existing building number 1. The proposed new comfort building consists of Crew Break Room, men and women restrooms, maintenance storage, janitor, storage and family assist restroom. The additions to the existing restrooms and the new comfort building will have concrete masonry walls with wood rafters and plywood roof decks.

Geology

The Office of Geotechnical Design South-2 drilled one (1) mud rotary soil boring July 25, 2007. The maximum depth of this investigation was reached approximately at elevation 55.0 feet, corresponding to 25.0 feet below the ground surface at the location of boring B07-2. Based on above field investigations, the soil beneath the proposed Aliso Creek Safety Roadside Rest Area (SRRA) consists of very stiff to hard silty / silty sandy clay overlaying granular soil. The depth of the granular soil was encountered approximately 15 feet below the ground surface and consists of medium dense clayey silty sands and poorly graded sands with pea gravels. Bedrock was not encountered during the 2007 subsurface investigation.

Groundwater

Groundwater was not encountered during the 2007 subsurface geotechnical investigation. As mentioned previously, Aliso Creek Bridge (57-0006 R/L) is the nearest bridge with available Log of Test Borings (LOTBs). The Aliso Creek LOTB shows the groundwater was measured at approximate elevation 10.0 feet during January, 1964. Shallow perched water from surface runoff and irrigation may be encountered depending on annual rainfall at the site.

The test boring information in this report including approximate stations, top of borehole elevations, depths, and groundwater level measurements are summarized in Table 1.

Table 1. Summary of Geotechnical Exploration Information

Boring Number	Station (feet)	Top of Borehole Elevation (feet)	Exploration Depth (feet)	Bottom of Borehole Elevation (feet)	Groundwater Surface Elevation (feet)
B07-2	320+00	80.0	25.0	55.0	Was not encountered

Corrosion Evaluation

Selected representative soil samples collected from boring B07-2 during the 2007 field subsurface investigation were tested for pH, resistivity, soluble chloride, and soluble sulfate content to determine the corrosion potential of the in-situ soils. The results of these tests are presented in Table 2. Caltrans corrosion criteria currently defines a corrosive area as an area where the soil and water has a minimum resistivity of less than 1000 ohm-cm, and either contains more than 500 parts per million (ppm) of chloride, more than 2000 ppm of sulfate, or has a pH 5.5 or less.

Table 2. Summary of Laboratory Corrosion Tests

Boring No.	Top of Borehole Elevation (Feet)	Sample at Elevation (Feet)	Soil Type	Minimum Resistivity (ohm-cm)	pH	Chloride Content (ppm)	Sulfate Content (ppm)
B07-2	80.0	75.0	Silty Sandy Clay	423	7.73	538	908
		70.0	Silty Clay	395	7.21	439	1155
		64.0	Clayey Silty Sandy	474	7.39	719	327

Comparison between the laboratory test results and Caltrans corrosion criteria indicates that the soil underlying the site is considered corrosive.

Fault and Seismic Data

Based on Figure 16-2 of the California Building Code (CBC, 2001), the site is located in Seismic Zone 4. According to the Department's Seismic Hazard Map (1996), the Newport-Inglewood-Rose Canyon East (NIE, Strike-Slip) fault is the controlling seismic source for this site. This fault is located approximately 5 miles (8.1 kilometers) southwest of the site, and is capable of generating a Maximum Credible Earthquake (MCE) of moment magnitude Mw =7.0. The slip rate for this fault is estimated to be about 1.5 ± 0.5 millimeters per year.

The soil profile at this site may be classified as Type *SD* as defined in section 1636.2 and Table 16-J of the CBC 2001. According to Figure 16-2 and Table 16-I of the 2001 CBC, the site is located in the Seismic Zone with a Zone Factor of Z=0.4. The pertinent seismic design parameters as per Chapter 16 of the 2001 UBC are presented in table 2.

Table 2. Design Seismic Parameters per Chapter 16 of the 2001 CBC

Seismic Zone Factor *Z*	(Table 16-I)	0.40
Soil Profile Type	(Table 16-J)	*SD*
Seismic Coefficient, *Ca*	(Table 16-Q)	0.44
Seismic Coefficient, *Cv*	(Table 16-R)	0.69
Near-Source Factor *Na*	(Table 16-S)	1.00
Near-Source Factor *Nv*	(Table 16-T)	1.08
Seismic Source type	(Table 16-U)	B

The corresponding 2001 CBC Acceleration Response Spectrum (ARS) with control period of To=0.125 seconds and Ts = 0.626 seconds, as define in figure 16-3 of the 2001 California Uniform Code, is attached as Figure 1.

Liquefaction Potential Evaluation

Based on the above information, the site is not considered prone to surface rupture hazard due to fault movement since no know fault crosses the site. The site is not susceptible to liquefaction or lateral spreading during earthquakes. The potential for any additional secondary seismic hazards including seismically induced ground settlement is considered very low.

Foundation Recommendations

The following Foundation Recommendations are for the proposed Southbound Aliso Creek Safety Roadside Rest Area (SRRA), as shown on the site plan sheets provided by Office of Transportation Architecture on May 4, 2007. Conventional strip, mat or spread footings may be used to support the proposed single story structure.

The following recommendations for Allowable Bearing Capacities and Sliding pressure per CBC Table 18-I-A are listed below in Table 2.

Table 2 – Allowable Foundation and Lateral pressure

Class of Materials[1]	Allowable Foundation Pressure (TSF)[2]	Lateral Bearing Ton/SQ/FT/FT of Depth Below Natural Grade[3]	Lateral Sliding[4]	
			Coefficient[5]	Resistance[6] (TSF)
Clay, sandy clay, silty clay and clayey silt (CL, ML, MH and CH)	0.50[7]	0.05	--	0.065

Notes: 1) For soil classifications OL, OH and PT (i.e., organic clays and peat), a foundation investigation shall be required.

2) All values of allowable foundation pressure are for footing having a minimum width of 12 inches and a minimum depth of 12 inches into natural grade. Except as in Footnote 6, an increase of 20 percent shall be allowed for each additional foot of width or depth to a maximum value of three times the designated value. Additionally, an increase of one third shall be permitted when considering load combinations, including wind or earthquake loads, as permitted section 1612A.3.2.

3) May be increased the amount of the designated value for each additional foot of depth to a maximum of 15 times the designated value. Isolated poles for uses such as flagpoles or signs and poles used to support buildings that are not adversely affected by a 0.5-inch motion at ground surface due to short-term lateral loads may be designed using lateral bearing values equal to two times the tabulated values.

4) Lateral bearing and lateral sliding resistance me be combined.

5) Coefficient to be multiplies by the dead load.

6) Lateral sliding resistance value to be multiplied by the contact area. In no case shall the lateral sliding resistance exceed one half the dead load.

7) No increase for width is allowed.

Lateral Earth Pressures

Because of the clay and silty clay soils, we recommend $K_a=K_p=K_o=1.0$ with unit weight of 100 pcf. Adhesion at the bottom of the footing should be taken as 130 psf and the lateral sliding coefficient at the bottom of footing is recommended zero.

Construction Considerations

1. Concrete slabs-on-grade for the one-story new addition building should be designed for thickness, reinforcement, joint spacing, etc., by the project structural engineer. The modulus of subgrade reaction, k_s, for the properly compacted subgrade soils may be taken as 150 kips per cubic foot (kcf). The slab-on-grade should be at least four inches thick and provided with a six-mil Visqueen moisture barrier.
2. The moisture barrier should be covered by approximately two inches of sand to minimize punctures and to aid in concrete curing. Minimum reinforcement of 6 inches x 6 inches -#10/#10, or equivalent, properly centered in the middle of the slab, is recommended. The structural design may require thickness and or reinforcement.
3. Subgrade must be firm and nonyielding prior to placement of concrete. In hot weather, the contractor should take appropriate curing precautions after placement of concrete to minimize cracking of the slabs. The potential for slab cracking may be lessened by the addition of fibre mesh in the concrete and or control of the water / cement ratio.
4. Joints for concrete slab-on-grade must be carefully designed. Joint spacing is dependent upon slab thickness and concrete properties and should be selected by the structural engineer.
5. Concrete should be cured by protecting it against loss of moisture and rapid temperature change for at least seven days after placement. Moist curing, waterproof paper, white polyethylene sheeting, white liquid membrane compound, or a combination thereof may be used after finishing operations have been competed. The edges of concrete slabs exposed after removal of forms should immediately protected to provide continuous curing.
6. As mentioned before, the soil at the proposed site is corrosive, therefore, per Caltrans' Bridge Design Specification (September 2003), section 8, Type I-P (MS) modified or Type II modified Portland Cement should be used. All reinforced steel bars should be protected with at least three-inch-thick concrete cover and maximum water to cementitious material ratio shall not exceed 0.40.

The Foundation Recommendations contained in this report are based on very limited information provided by the Office of Transportation Architecture. If any conceptual changes are made, the Office of Geotechnical Design-South II, Design Branch A should review those changes to determine if these Foundation Recommendations are still applicable.

Any questions regarding the above recommendations should be directed to the attention of Asef Wardak, (916) 227-1219 (CALNET 498-1219), or Angel' Perez-Cobo, (916) 227-7167 (CALNET 498-7167), at the Office of Geotechnical Design-South II, Branch A.

Prepared by:

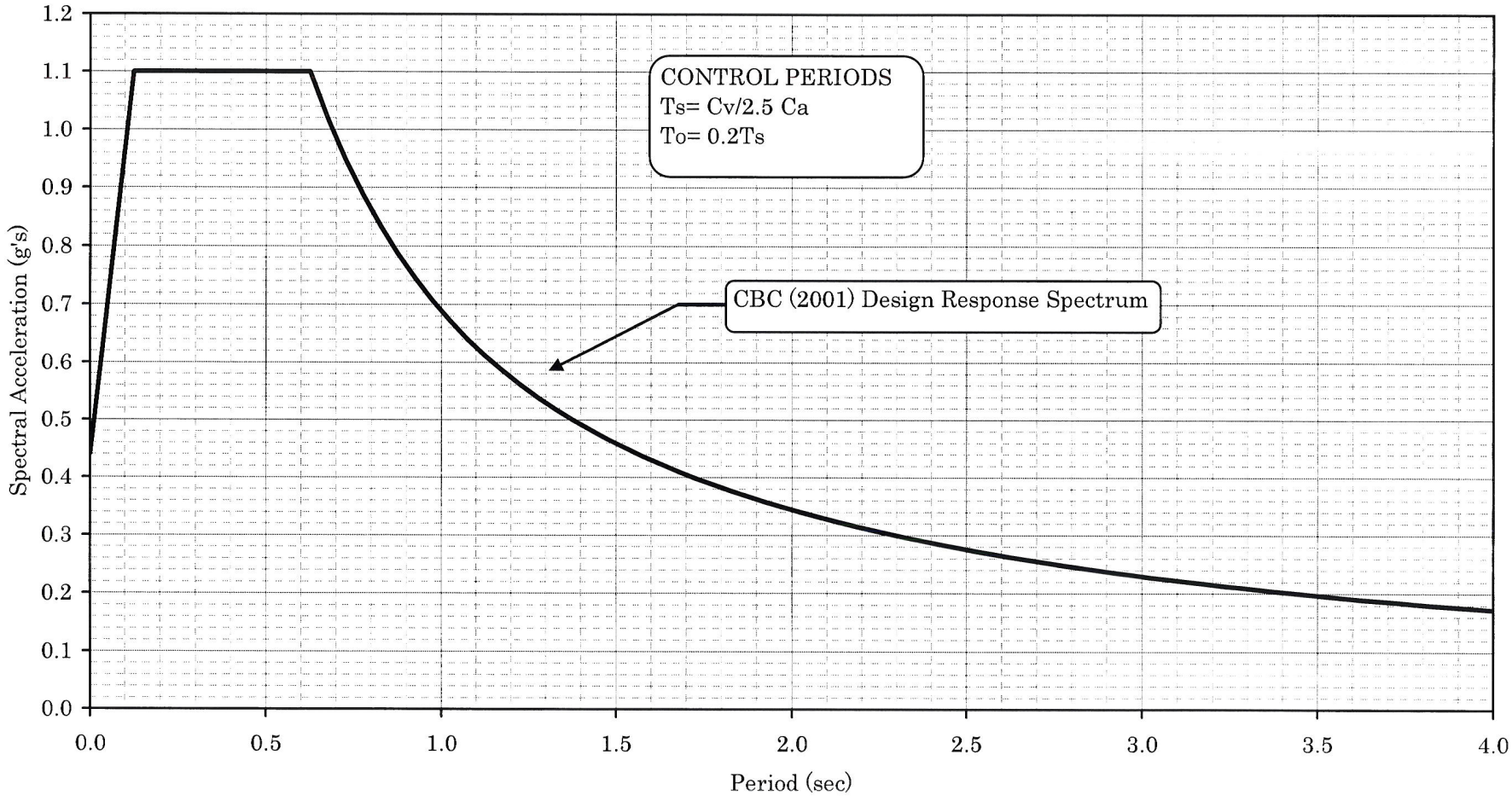
Asef Wardak
Transportation Engineer

Supervised by:

Angel Perez-Cobo
Senior Transportation Engineer
Office of Geotechnical Design South-2

Attachment: CBC-ARS Curve
c: APerez-Cobo
HIbrahim, OGDS-2
RE Pending File
Specs and Estimates
Project File

CBC-2001 Design Response Spectrum
for Aliso Creek Safety Roadside Rest Area (SRRA)
along Interstate 5 Southbound in San Diego County



DESIGN RESPONSE SPECTRUM