COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
http://dpw.lacounty.gov

GAIL FARBER, Director

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

IN REPLY PLEASE
REFER TO FILE: AE-3

November 20, 2012

OLIVE VIEW-UCLA MEDICAL CENTER CHILD CARE CENTER REPLACEMENT PROJECT
SPECS. NO. 7051

NOTICE TO BIDDERS "A"

This Notice to Bidders A forms a part of the Contract Documents and clarifies certain portions of the Project Manual and Plans.

PROJECT MANUAL

1. Refer to Section 00300, Form of Bid.

   Delete all previous versions and replace with the attached revised Form of Bid, Section 00300.

2. Refer to Section 01010, Project General Requirements.

   Delete all previous versions and replace with the attached revised Section 01010, Project General Requirements.

3. Refer to Section 01310, Construction Schedules.

   Delete all previous versions and replace with the attached revised Section 01310, Construction Schedules.

4. Refer to Attachment 1, Fault Rupture Hazard Investigation Report.

   Delete all previous versions and replace with the attached Attachment 1, Fault Rupture Hazard Investigation Report.

5. Refer to Attachment 2, Geotechnical Investigation.

   Delete all previous versions and replace with the attached Attachment 2, Geotechnical Investigation.

PLANS:

1. Refer to plans.

    - Add Sheet S. Sheet Title: Existing Utility Map dated 7/19/12.
      Contractor shall verify the exact locations and depths of the existing utility lines and relocate them as necessary if they interfere with excavation.

    - Delete Sheet A-1.06.1, Drawing Title: Overall Site Plan dated 10/2/12 and replace with revised Sheet A-1.06.1, Drawing Title: Overall Site Plan dated 11/19/12. The fire hydrants are already installed (existing). Do not include fire hydrants in the bid.

QUESTIONS AND ANSWERS

1. Question: Is this project under OSHPD (Office of Statewide Health Planning and Development) jurisdiction?

   Answer: This project is not under OSHPD jurisdiction.

2. Question: Is this a design-build project?

   Answer: This is not a design-build project.

3. Question: Is the bid for the building itself or does the bid include site and earthwork too? Are the plans to be included in the bid or are the plans for reference only?

   Answer: The bid is for the building and all the site and earthwork shown on the plans. All the plans are to be included in the bid.

4. Question: Is this a prevailing wage project?

   Answer: Yes, please refer to the Project Manual, General Conditions, Section 00700, Article 26, "PREVAILING WAGE SCALE."

5. Question: I have reviewed the specs for Section 06402-Interior Architectural Woodwork in the Olive View- UCLA Medical Center Child Care Center Replacement Project and cannot determine what the cabinets shall be constructed from. Door and drawer fronts are listed as Thermofoil but no description is given for the cabinets and exposed surfaces. Thermofoil is only used on door and drawer fronts. What shall the cabinets be constructed from?

   Answer: Please refer to Specification 06402 Interior Architectural Woodwork, Section 2.6 E & F. This section specifies the material for the cabinets. The exposed surfaces are typically Thermoset (melamine).

6. Question: On plan sheet L-0.00 Landscape Planting Specifications, 4.PLANTING, E. says, "Mulch all shrub and ground cover areas with a 2" layer of ¾" to 1 ½"redwood or fir bark."
   But, plan sheet L-1.00 NOTES, 1. Says, ". . . mulched with 3" minimum layer of type II aggregate available from local quarry source." Which mulch should be used for the planting area?

   Answer: Refer to the following notes and plans:

   - Delete Sheet L-1.00, Drawing Title: Planting Plan dated 10/2/12 and replace with revised Sheet L-1.00, Drawing Title: Planting Plan dated 11/19/12. The highlighted green area indicates the areas to receive rock mulch as indicated in the keynote. Two planters are noted near the southwest corner of the site which do not require any rock or bark mulch. The remainder of planter areas for the site shall be mulched per planting note #4E on Sheet L-0.00, Drawing Title: Cover Sheet and Notes dated 10/2/12.

   - Delete Sheet L-3.00, Drawing Title: Planting Details dated 10/2/12 and replace with revised Sheet L-3.00, Drawing Title: Planting Details dated 11/19/12. Refer to clouded areas shown on Detail 1, 2, 3, 5, and 6.

Bid submittals are due **December 4, 2012, no later than 2:00 p.m.**

Kindly notify your subcontractors to this effect.

If you have any questions regarding this project, please contact Ms. Cheryl Wong by email at cwong@dpw.lacounty.gov.

Very truly yours,

GAIL FARBER
Director of Public Works

For SHARI AFSHARI
Assistant Deputy Director
Architectural Engineering Division

CW
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Enc.

______________________________ Name of Bidder (Firm Name)

______________________________ Vendor Identification Number

SECTION 00300

FORM OF BID TO BE USED BY BIDDERS

The undersigned proposes to furnish all materials, labor, and equipment required for the construction to complete the **Olive View - UCLA Medical Center Child Care Center Replacement Project**, in accordance with Drawings and Specifications 7051, including addenda thereto, if any, adopted by the Board of Supervisors, and on file in the office of the Board of Supervisors, as follows:

1. CONTRACTOR'S LUMP SUM BID:

The Contractor's Lump Sum Bid for the work (exclude Additive Alternate 1), including Best Management Practices (BMP) and Construction and Demolition Debris Recycling requirements complete according to the Drawings and Specifications, will be:

($ ______________________) (______________________________________)

Lump Sum Bid Price in figures — Lump Sum Bid Price in words

2. ADDITIVE ALTERNATE: Items designated on drawings as "(Bid As Alternate 1)" in Drawing Notes.

The amount to be added to the lump sum bid price for the inclusion of the work of Additive Alternate as specified.

($ ______________________) (______________________________________)

Amount in figures for Additive Alternate — Amount in words for Additive Alternate

3. EXTENDED OVERHEAD DAILY RATE:

The daily rate for the sum of the Contractor's home office and field office overhead applicable to this project, for each day of compensable delay will be:

($ ______________________) (______________________________________)

Daily Rate in figures — Daily Rate in words

4. LOCAL SMALL BUSINESS ENTERPRISE PREFERENCE:

The Local Small Business Enterprise Preference is provided by the County for purposes of bid evaluation only. The Local Small Business Enterprise Preference Program is described in Article 1.30 of the Instructions to Bidders, Section 00100. The Local SBE Preference shall not exceed $50,000 for any one solicitation. Thus, if Bidder is a qualifying Local Small Business Enterprise, deduct fifty-thousand dollars ($50,000) from the submitted Contractor's base bid. If non-qualifying, enter zero dollars ($0.00).

($______________________________)
Local Small Business Enterprise Preference in figures

($______________________________)
Local Small Business Enterprise Preference in words

5. TOTAL PRICE:

The Total Price is equal to the sum of the Contractor's Lump Sum Bid Price, Additive Alternate, Extended Overhead Daily Rate multiplied by 10 days of Compensable Delay, and subtract applicable Local Small Business Enterprise Preference, which will be used to determine the lowest bid amount.

($______________________________)
The Total Price in figures

(______________________________)
The Total Price in words

6. **RECEIPT OF NOTICE TO BIDDERS A:**

I hereby certify and declare that I have received, reviewed and incorporated Notice to Bidders **A** dated November 20, 2012 into my Bid.

Executed this day of ________________________ (Month and Year)

By: ____
(Authorized Signature of a Principal Owner, Officer, or Manager)

____

____

NOTE: Any alteration or addition to the Form of Bid may invalidate same. All blank spaces shall be filled out completely. Line out nonapplicable blanks. An incomplete form may invalidate bid. The County reserves the right to waive any informalities or to reject any or all bids or to accept any alternatives when called for.

I (We) certify that on _________, 20____, License No. ___________, license classification(s) ___________________________, was issued to me (us), in the name of ___________________________, by the Contractors' State License Board, pursuant to California Statutes of 1929, as amended, and that said license has not been revoked.

Firm Ownership Information
Check where applicable:

1. ( ) Minority-Owned
( ) Woman-Owned
( ) Disadvantaged-Owned
( ) Disabled Veteran-Owned
( ) Other

If minority-owned, indicate the appropriate category:

( ) African American
( ) Hispanic or Latino
( ) Asian/Pacific Islander
( ) Filipino
( ) American Indian/Alaskan Native

2. ( ) An individual
( ) A corporation. Name state or territory of Incorporation
____
( ) A copartnership
( ) A joint venture

If a copartnership or joint venture, list names of individuals comprising same below

____
____
____

Date signed _____________, 20_____

Place ____________________________
City and State

Respectfully submitted,

____
Firm Name (if applicable)

Bidder's address, E-mail address, and telephone:

____
Number and Street

____
City and State

____
Telephone

____
Fax

____
Signature and Print Name

____
Title and E-mail Address

____
Signature and Print Name

____
Title and E-mail Address

PROJECT GENERAL REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

1.02 SCOPE OF THE CONTRACT

A. Work to be done under the Contract consists of furnishing all materials, all equipment, and performing the Work required by these Specifications and the Drawings hereinafter, described and necessary, to complete the construction of the **Olive View - UCLA Medical Center Child Care Center Replacement Project.**

B. The work includes but is not limited to the following:

The proposed project, located at 14445 Olive View Drive, Sylmar, California, will replace the Child Care Center that was severely damaged by the Sayre Fire Disaster in November 2008 and, consequently, had to be demolished. The damaged Child Care Center was a 5,200-square-foot, single-story, wood-framed building with wood siding and an asphalt shingle roof, and had a capacity for 84 children. The new Child Care Center will be a single-story, 5,200-square-foot building that will include classrooms, a director's office, staff room, storage room, kitchen, restrooms, play areas, capacity for 84 children, and will carry the same programming as prior to the disaster. In addition, the new Child Care Center has been designed and will be constructed as a licensed facility for child care, as it was prior to the disaster, and will be in compliance with the required building codes. The jurisdictional approval process took longer than planned. Fire Department plan review corrections required improving the campus fire hydrants and bringing the flow rate to Countywide standard of 2,250 gallons per minute. All required jurisdictional approvals for the construction plans have been obtained.

1.03 PERMANENT UTILITY SERVICES

The Work shall include all operations necessary to place required utility services in operating condition, including service lines from points of connection shown on Drawings, permanent meters, connections, and inspections. The work (when so scheduled) includes installation of telephone conduit, backboards, and terminal cabinets as shown, and cooperation with the serving utility company for the installation of other telephone equipment and cables. The County will arrange and pay for telephone switchboards, instruments, and cables.

All other expenses in connection with utility service installations shall be borne by the Contractor; however, upon receipt of certified cost statements, the County will reimburse Contractor for all charges made by serving companies in connection with permanent utility service installations.

Drawing notes and/or specification provisions of trade sections concerning utilities shall take precedence over the foregoing provisions.

1.04 WORK NOT INCLUDED

All items indicated on the Drawings as "N.I.C." (not in contract).

1.05 DRAWINGS

The Work shall conform to the Drawings entitled Olive View - UCLA Medical Center Child Care CenterReplacement Project with sheet numbers and titles as listed on Sheet No. 1 of the Drawings.

1.06 TIME OF COMPLETION

A. The work to be performed under the contract shall be completed within 240 calendar days including the 60 day County contingency, beginning with the date stipulated in the written notice to proceed issued by the Director.

B. Failure to complete the work by the identified completion date will be subject to the Liquidated Damages identified in Paragraph 1.08.

C. Final Payment Request shall be submitted within twenty (20) days after completion of the contract work, including all punch list items.

1.07 LONG LEAD TIME MATERIALS AND EQUIPMENT

A. The Contractor shall make every effort to demand of his Subcontractors and suppliers, relative to long lead time items, that they order such items well in advance of the scheduled time of installation. Time extensions for late ordering of such materials will not be allowed.

1.08 LIQUIDATED DAMAGES

A. All time limits stated in the Contract Documents are of the essence of the Contract and should the Contractor fail to complete the work required to be done on or before the time of completion as set forth in these specifications, including any authorized extension of time, it is mutually understood and agreed by and between the awarding entity and the Contractor that the use by the public of the Contract Work will be correspondingly delayed, and that by reason thereof, the awarding entity and the public will necessarily suffer great damages; that such damages from the nature of the case will be extremely difficult and impractical to fix; and that the awarding entity and the Contractor have endeavored to fix the amount of said damages in advance as follows:

1. The sum of $1,500 a day for each day's delay in the completion of the work to be performed in number of calendar days completion period specified.

B. It is further mutually understood and agreed by and between the awarding entity and the Contractor that the sum of liquidated damages set forth above will be additive to a total of $1,500 a day for each and every day's delay in the event that the time limits, as hereinbefore specified, are concurrently exceeded. Any authorized extensions of time will be added to the time limits stipulated.

C. The Extended Overhead Daily Rate is not applicable when it is determined that liquidated damages apply due to Contractor delay.

1.09 EXAMINATION OF SITE AND WORK

A. Bidders must examine the location, physical conditions, and surroundings of the proposed Work and judge for themselves the extent to which these factors will influence the performance of the Contract Work.

B. The plans for the Work show conditions as they are supposed or believed by the Department to exist, but it is not intended, or to be inferred, that the conditions as shown thereon constitute a representation, express or implied by the County or its officers, that such conditions are actually existent, nor shall the Contractor be relieved of the liability under his Contract, nor the County, or any of its officers, be liable for any loss sustained by the Contractor as a result of any variance between conditions as shown on the plans or referred to in the Specifications and the actual conditions revealed during the progress of the Work.

C. The County will conduct a prebid conference and job walk of the project site on November 8, 2012.

1.10 COOPERATION

In the entrance and exit of all workers and in bringing in, storing, or removing of materials and the erection and maintenance of equipment and in the manner and time of prosecuting the work, the Contractor shall cooperate with those in authority on the premises to prevent the entrance of those whose presence is forbidden or undesirable, and he shall observe all rules and regulations in force on the premises and avoid undue interference with the convenience, sanitation, and routine of County departments occupying the premises.

1.11 RESTRICTIONS TO THE WORK

A. The Department reserves the right to determine which of the Contractor's operations are noise, dust, or dirt producing, or which disrupt utility service, or which constitute blocking of passageways, exits, entrances, etc., or which in any way constitute an interference in the proper function of the building.

B. Contractor shall maintain clear access to all protection equipment at all times, including access to fire hydrants.

C. Control of Tools: During the progress of the work, all hand tools, including power driven hand tools, cables, ropes, and other implements shall be transported and retained, except when in use in an approved locked toolbox. Care shall be taken that no tool is left unguarded or left where it might be taken by an unauthorized person.

D. All work by the Contractor is subject to inspection at any time and without notice by the County.

E. The working hours are Monday through Friday between 7:00 a.m. to 4:00 p.m. unless otherwise specified by the County.

1.12 CUTTING AND PATCHING

The Contractor shall perform all cutting, patching, and finishing operations occasioned by the Work under the Contract, whether or not such operations are indicated on the Drawings or specifically mentioned in the various sections of the Specifications. All such operations shall be performed in the best practices of the various trades involved and to the satisfaction of the Department. All patching and finishing materials shall match existing adjacent surfaces in every respect, including design, type and quality of materials, finish, and color. Cutting, patching, and finishing shall include all such operations in existing areas required by the Work under the Contract.

1.13 AIR QUALITY MANAGEMENT DISTRICT RULES

The Contractor shall become familiar with requirements of the South Coast Air Quality Management District Rules 50, 66, 66.l, 66.2, and 1113. The Contractor is responsible for conforming to and using materials which meet the requirements of the above-specified rules.

1.14 SHOP DRAWINGS

Furnish shop drawings as required in the various sections of the Specifications or as requested by the Department. Unless otherwise specified, submit six (6) copies of shop drawings to the Department for review. One set will be returned to Contractor marked "no exceptions noted" or "exceptions noted." If changes are required, six (6) copies of corrected shop drawings shall be delivered to the Department. Shop drawings shall be of sufficient size and scale to clearly show all details; shop drawings of millwork and cabinet work shall show molding full size. No materials shall be furnished or Work done on items requiring shop drawings prior to acceptance. Acceptance of shop drawings shall not relieve the Contractor from responsibility for deviations from the Contract Documents, nor from responsibility for errors or omissions of any sort in the shop drawings. Neither does such acceptance relieve the Contractor from his responsibility for the correct installation, or for the proper operation in service, of items requiring shop drawings.

1.15 CLEANING

During progress of Work and upon completion of each part of the Work as defined by the sections into which these Specifications are divided or as separated by the various trades involved in the Work, each area shall be cleaned of debris emanating from the Work. The Contractor shall remove excess materials, waste, rubbish, and debris, and his construction and installation equipment from the premises. Any dirt and stains caused by the Work under the Contract shall be removed from the surfaces of the structures and from equipment and fixtures. Final acceptance of the Work done under these Specifications will not be given until the cleaning has been inspected and approved by the Department.

1.16 EXISTING UTILITY LINES

Except as indicated on the Drawings or in the Specifications, the Contractor will not be liable for the rerouting of existing active underground lines, which may be discovered during the progress of the Work.

1.17 PROTECTIVE MEASURES

The Contractor shall provide and maintain substantial and adequate protection as may be required to protect new and existing Work and all items of equipment and furnishings for the entire duration of Work.

The Contractor shall repair or make good any and all damage or loss he may cause to the building or other County property to the full satisfaction of the Department.

1.18 PROJECT ADMINISTRATION

All materials supplied and all Work done by the Contractor shall be under the general administration of the Department and in accordance with the Drawings and Specifications.

1.19 BEST MANAGEMENT PRACTICES (BMP) REQUIREMENTS

A. The Contractor shall comply with the Los Angeles County Municipal Storm Water National Pollution Discharge Elimination System (NPDES) Permit, and the California Stormwater Quality Association's "Stormwater Best Management Practice Handbook for Construction", dated January 2007. A copy of the BMP Manual can be downloaded at the following website: www.cabmphandbooks.com.

For projects where the disturbed area is one acre or more, the Contractor must submit a Local Storm Water Pollution Prevention Plan (LSWPPP) and file a Notice of Intent (NOI) and a SWPPP with the State Water Resources Control Board, and the required annual fee and Notice of Termination.

Note: A NOI and SWPPP is not required if the disturbed area is less than one acre.

B. Related Work:

Cleaning; Section 01710.

C. The Contractor shall submit to the Department of Public Works, Building and Safety Division for permit approval, a stormwater construction permit. The Contractor shall not commence with any Work without such approval.

1.20 WORK IN PROGRESS UNDER OTHER CONTRACTS

It is anticipated that the work of a developer may be concurrently in progress with the work of this contract. Refer to General Conditions articles, "Other Contracts" and Cooperation with Others."

* * * *

SECTION 01310

CONSTRUCTION SCHEDULES

Critical Path Method Schedule Integration System

1. GENERAL

DESCRIPTION – The work specified in this section consists of developing and maintaining a Critical Path Method (CPM) schedule integration system for the contract. Planning, scheduling, management, and execution of work in accordance with contract documents are the sole responsibility of the Contractor.

1.1 Related General Conditions/General Requirements Articles, and Specifications Sections

a.	General Conditions Articles	12.A, 12.B, 12.C
b.	General Conditions Articles	14
c.	General Conditions Articles	15.B.e.3
d.	General Requirements Articles	1.02
e.	General Requirements Articles	1.06

1.2 Generate a CPM schedule integration system using commercially available CPM scheduling software program containing direct file interchange capability with the software program used by the Los Angeles County Department of Public Works. The Los Angeles County Department of Public Works uses the Primavera software program, Primavera Project Planner 3.1.

1.3 For scheduling submittals produce Precedence Diagram Method (PDM) and time scaled network diagram submittals on D-Size (22-inch by 34-inch) or E-Size (34-inch by 44-inch) medium suitable for reproduction. Print schedule submittal tabular reports on A-Size (8 ½-inch by 11-inch) paper. For scheduling submittals, the Contractor shall include backup diskettes. The backup diskettes shall be made directly from the CPM scheduling software and shall contain all files of the project that can be restored by the County for its evaluation and analysis.

1.4 Contract milestone dates, County furnished goods, availability dates, and real estate availability dates, are unique zero duration activities as a "start no earlier than" or "finish no later than" milestone. Each milestone activity will constrain its dependent work. Assume Notice to Proceed (NTP) is given at day zero for calculation of constraint dates for milestones.

1.5 Float is not for exclusive use or benefit of either the County or Contractor but is an expiring resource available to both parties on a nondiscriminatory basis. Float is used by either party, as needed to meet contract milestones and contract completion dates. Contract time extensions for contract performance will be granted only to extent that delays or disruptions to affected work paths exceed total float along those paths of current contract schedule (update schedule) in effect at time of delay or disruption. These delays or disruptions must also cause end date of work to exceed current contract date or milestone date and be beyond control and without fault or negligence of Contractor or any subcontractor at any tier. If delays or disruptions impact an already negative float path, Contractor will not receive a time extension unless and until activity with highest float is driven even further negative.

1.6 Use of float suppression techniques such as preferential sequencing or logic, special lead/lag logic restraints, and extended activity times or durations should be submitted with written justification to obtain the County's acceptance. Use of float time disclosed or implied by use of alternate float suppression techniques shall be shared to proportionate benefit of the County and Contractor. Use of any technique solely for purposes of suppressing float will be cause for rejection of schedule submittal.

1.7 Planning units – Scheduling software supports schedule Planning Units of hours, days, weeks or months. The standard time unit applied to the schedule integration system is defined as days.

1.8 Schedule network – Use Retained Logic CPM Precedence Diagram Method of scheduling.

1.9 Analyze in detail, activities included in contract schedule to determine activity time durations in units of working days. Base durations on engineering and design resources, drawing production, submittal review periods, procurement lead time and duration, manufacturing times, labor (crafts), equipment, and materials required to perform each activity on a normal workday basis. No on-site activity shall have a duration over 10 working days except non-construction activities such as submittals, submittal reviews, procurement and delivery of materials or equipment, and concrete curing.

2. PRODUCTS

SUBMITTALS – Submit one original, four copies, and electronic copy of schedule unless specified otherwise. Provide submittals specified in this section to the County for review and acceptance.

2.1 Baseline CPM Contract Schedule

Provide the County with a means to monitor and follow progress of all phases of work, with contractually specified interim milestones and completion dates, and with constraints, restraints or sequences included in the contract. Degree of schedule detail required shall include factors to the satisfaction of the County, including but not limited to the following:

2.1.1 Master list of submittals and all other requirement as referenced in Section 01300 Submittals.

2.1.2 Contract interim milestones and contract completion date, substantial completion dates, constraints, restraints, sequence of work indicated.

2.1.3 Type of work to be performed, sequences, and labor trades involved.

2.1.4 Purchases, manufacture, tests, delivery, and installation activities for major materials and equipment.

2.1.5 Deliveries of County furnished goods and/or materials in accordance with dates or schedule windows of such times set forth in the contract or furnished by the County.

2.1.6 Preparation, submittal, and acceptance of shop and/or working drawings and material samples showing a 30-day minimum time specified for the County and third party reviews of normal or routine submittals, so identified in the specifications, and the same time frame shall be allowed for at least one re-submittal or submittals so identified in the contract documents.

2.1.7 Approvals and permits required by regulatory agencies or other third parties.

2.1.8 Schedules for subcontract work.

2.1.9 Assignment of responsibility for performing specific activities.

2.1.10 Access and availability to work areas.

2.1.11 Identification of interfaces and dependencies with preceding, concurrent and follow-on construction or contractors and utilities.

2.1.12 Actual tests, submissions of test reports, and acceptance of test results.

2.1.13 Start up, testing, training, and assistance required under the contract.

2.1.14 Planning for phased or total takeover by the County.

2.1.15 Punch-list and final clean up.

2.1.16 Identification of construction restrictions as well as any activity requiring unusual shift work, such as two shifts, six day weeks, specified overtime, or work at times other than a standard work day.

2.2 The schedule of values shall be prepared and submitted together with the construction schedule.

2.3 Failure to meet these requirements may result in a determination and recommendation that the Board of Supervisors determine that the successful bidder as non-responsible because such failure reflects the bidder's ability to manage the work.

3. Current CPM Contract Schedule Updates

3.1 Initially, upon approval of the baseline CPM contract schedule, establish the current CPM contract schedule from the baseline CPM contract schedule. Thereafter, update the current contract schedule monthly with data date designated by the County. Use updated current contract schedule for subsequent planning, scheduling, and execution of work to be accomplished. Obtain County prior acceptance before making deviations in logic and activity durations in the current CPM contract schedule.

3.2 Participate with the County in periodic meetings, at least monthly, on dates directed by the County and seven days prior to monthly status. At meeting held seven days prior to the data date, provide preliminary updated current CPM contract schedule that forecasts project status on the data date and contains actual start and actual finish dates for activities in progress or completed, remaining durations of activities already in progress, percent completed, logic changes, new or deleted activities, and new change order/modifications.

3.3 Submit a stand alone portion of the network (fragnet), if current progress reflects negative float of minus 10 days or more for a milestone activity, as indicated by most recent CPM contract schedule, allowed by contract as amended by approved change orders/modifications. Show activities affected, date delay or disruption occurred or how productivity was impacted, and unmitigated impacts to schedule caused delay or disruption. Submit similar fragnet showing Contractor's plan to mitigate delay or disruption and subsequent impacts to schedule at the County's request. Provide written narrative describing circumstances that caused delay or disruption and methodology used to determine extent of delay or disruption. Submission of such fragnets does not constitute permission to proceed with plan. Execute some or all of the following remedial actions, and submit a recovery schedule that may include:

3.3.1 Increase construction manpower in such quantities and crafts as necessary to eliminate the backlog of work.

3.3.2 Increase the number of working hours per shift, shifts per working day, working days per week, the amount of construction equipment, or combination of the foregoing to eliminate the backlog of work.

3.3.3 Reschedule the work in conformance with the specifications requirements.

4. Before implementing any of the above actions, notify and obtain acceptance from the County. If such actions are accepted, incorporate current CPM contract schedule revisions before next update.

5. Addition of equipment or construction forces, increasing working hours or other methods, manner, or procedure to return to contractually required completion date will not be considered justification for a change order/modification, nor be treated as acceleration where the need for a recovery schedule has been caused by the Contractor and/or its subcontractors or suppliers at any tier.

6. When the Contractor experiences change order/modifications or delays and a time extension is requested, submit to the County a written time impact analysis illustrating the influence of each change or delay on current contract schedule completion date utilizing current CPM contract schedule. Include in each time impact analysis a fragnet demonstrating how the Contractor proposes to incorporate the change order/modification or delay into the current CPM contract schedule. The fragnet shall contain a sequence of new and/or activity revisions that are proposed to be added to the current CPM contract schedule in effect at the time change or delay is encountered to demonstrate influence of delay and method of incorporating the delay and its impact into the schedule as they are encountered.

   6.1 Each time impact analysis shall demonstrate estimated time impact based on events of delay, date of change order/modifications, proceed order, or unilateral change order/modification given to the Contractor, status of construction at that point in time, and event time computation of activities affected by change or delay. Event times used in analysis shall be those included in latest version of the current CPM contract schedule, in effect at time change or delay was encountered.

   6.2 Submit each time impact analysis in triplicate, within ten days after a delay occurs. If the Contractor does not submit a time impact analysis for a specific change order/modification or delay within specified period of time, the Contractor will be deemed to have irrevocably waived rights to additional time and cost.

   6.3 Because float time within current CPM contract schedule is jointly owned, it is acknowledged and agreed by the Contractor that the County caused delays on the project may be offset by County caused time savings (including, but not limited to: critical path submittals returned in less time than allowed for the contract, acceptance of substitution requests which result in a savings of time along the critical path for the Contractor, etc.). In such an event, the Contractor will not be entitled to receive an extension of time or delay damages until the County caused time savings are exceeded and contract completion data also exceeded.

6.4 The County will accept or reject each time impact analysis. Upon acceptance, a copy of a time impact analysis signed by the County will be returned to the Contractor for incorporation into the schedule.

6.5 Upon mutual agreement by both parties, incorporate fragnets illustrating the influence of change orders/modifications and delays into the current CPM contract schedule during first update after agreement is reached.

6.6 In the event the Contractor does not agree with the decision of the County regarding impact of a change or delay, the County's determination shall govern.

4. The Contractor shall resolve out-of-sequence progress, if any, to provide the actual construction sequence to calculate the current critical path(s) and identify any deviations of interim milestones and/or project completion.

3. As-built schedule – Submit as-built schedule covering work performed under the Contract within 30 days after final completion. As-built schedule – Certified by a planner/scheduler and Contractor's project manager as being the manner in which Contract was executed. Submittal and acceptance of the schedule will be a condition precedent to reduction/release of retainage at the end of the contract.

4. Schedule reviews – The County will review and respond to scheduling submittals within 14 days after submittal, unless a different review period is specified in this section. Submit a revised schedule within seven days after receipt of the County's response if the County requires changes or additional information.

5. Early completion schedule – If the schedule duration proposed by the Contractor is less than the completion date in the NTP, the proposed schedule will not nullify the Contractor's right to the NTP duration. The Contractor agrees that in the event a proposed early completion schedule (or any subsequent update) which is found to be acceptable by the County, indicating a duration which is less than time allowed by Contract for completion of work or of interim milestone, Contract completion time shall only be shortened by a change order/modification to equal Contractor's proposed baseline CPM contract schedule duration.

   If the schedule duration proposed by the Contractor is less than the completion date in the NTP, the proposed schedule will not nullify the Contractor's right to the NTP duration.

6. Three week rolling bar chart schedule – Once a week, on a day mutually agreed to by the County and the Contractor, a meeting will be held to assess the progress achieved by the Contractor during previous work week. Submit a project schedule listing activities completed and in progress for the previous week and the activities scheduled for the succeeding two weeks based on the current CPM contract schedule. The three week rolling bar chart schedule shall be provided from the current CPM contract schedule and include all activities scheduled including: activity ID, description, early start and early finish, total float, original duration, remaining duration, percent complete, performance of the activity, and pertinent remarks as to activity status. The schedule shall be submitted to the County before the weekly meeting for review. Submit copies of schedule on 11-inch by 17-inch paper.

2.2 Monthly Updated Current Contract Schedule

a. One computer generated backup copy of monthly updated current CPM contract schedule file.

b. Written narrative for updated current CPM contract schedule.

2.3 Fragnets

a. One computer generated backup copy of fragnet files.

b. Written narrative of fragnet assumptions.

2.4 Contract Time Scaled Network Diagrams – Submit computer generated time-scaled network diagram entitled "Current Time Scaled Network Diagram" with submittal of items referenced below.

a. Submit with initial early work schedule submittal.

b. Submit every month with updated current CPM contract schedule.

2.5 Written Narrative Reports – Include a stand alone narrative of sufficient detail to explain basis of Contractor's submittal with each schedule submittal.

2.5.1 CPM Contract Schedule Submittals – Explain determination of activity durations and describe Contractor's approach for meeting required interim and final completion milestone dates, as specified in the Contract. Include as a minimum basis and assumptions used in preparing the submittal, including crew sizes, equipment requirements, and anticipated delivery dates; restraints; critical path activities; production rates; activities requiring overtime or additional shifts; activities that contain time contingencies for impacts to be expected from normal rainfall; holidays and other non-work days; potential problem areas; permits; coordination required with the County; utilities and other parties; and long lead delivery items requiring more than 30 days from order to delivery. Identify work items that may be expedited by use of overtime or additional shifts. Identify and explain sequencing and other constraints such as manpower, material, and equipment. Include listing of holidays and special non-work days.

2.5.2 Current CPM Contract Schedule Submittals – State in narrative, work actually completed and reflect progress along critical path in terms of days ahead of or behind allowable dates. Specific requirements of narrative are as follows:

2.5.2.1 If updated current CPM contract schedule indicates an actual or potential delay to contract completion date or interim milestone dates as specified under the contract documents or modified by change order/modification, identify causes of delays, disruptions and interruptions and provide explanation of work affected and proposed corrective action to meet milestone dates involved or to mitigate potential delays or disruptions. Document and log in a matrix format activities with non-mitigated negative float until the negative float is mitigated. Identify deviations from previous month's critical path. The matrix will include applicable activity number, description, planned start and finish dates, current start and finish dates, and float quantity.

2.5.2.2 Identify by activity number and description, activities in progress and which activities are scheduled to complete during the next period.

2.5.2.3 Identify by activity number and description, activities to be started during the month following the report period. Show Contractor's forecast early and late start, and finish dates.

2.5.2.4 Discuss added change order/modification work items.

3. EXECUTION

3.1 Baseline CPM Contract Schedule

3.1.1 Provide Contractor's detailed activities and sequencing for work included in the contract. Assign unique activity identification for each detailed activity.

3.1.2 Indicate Contractor's best estimate for original durations, early dates, late dates, logic ties, constraint dates, and total float. Schedule activities in the sequence which Contractor intends to perform work.

3.1.3 Include following activity sequence for major material and equipment procurement:

3.1.3.1 Submital preparation; review for acceptance; and fabricate/deliver – Divide procurement items that may contain multiple submittals occurring at different time intervals into separate sequences that can be tracked on individual basis. Include a maximum original duration of 20 working days for re-review. Resubmittal activities shall contain submittal preparation activities for other material and equipment procurement (non-major) to schedule.

3.1.4 Baseline CPM contract schedule activity requirement are as follows:

3.1.4.1 Activity descriptions – Briefly convey scope and location of work indicated.

3.1.4.2 Activities – Discrete items of work accomplished under contract that provide measurable and recognizable parts of work.

3.1.4.3 Include as contract deliverables, submittal and approval of permit applications and variances, samples of materials, shop drawings, working drawings, inspection and test plans, safety and security plans, and site traffic control plans. Include activities of the County that may affect progress as well as those of affected utility companies and other similarly involved third parties. Include activities in the baseline CPM contract schedule as stipulated in general requirements.

3.1.4.4 Work activities – Show duration in work days.

3.1.4.5 Work activities – Durations of 10 working days or less except for non-construction activities such as procurement of materials, or fabrication of equipment. Should a work activity require more than 10 working days, subdivide work activity to define appropriate work items.

3.1.4.6 Critical path is defined as the sequence(s) of activities with the least amount of float.

3.1.4.7 Failure to include any element of work required for performance of the contract in baseline CPM contract schedule will not excuse Contractor from completing work required to achieve milestone completion, notwithstanding acceptance of baseline CPM contract schedule submittals.

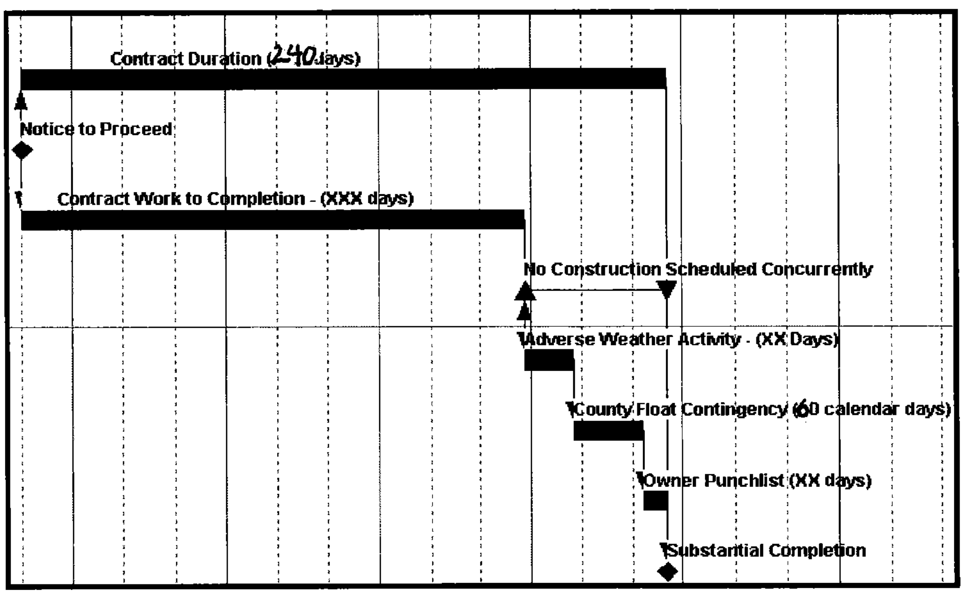
3.1.4.8 The Contractor shall identify 60 days of float to be used at the discretion of the District.

3.1.4.9 Normal weather conditions shall be considered and included in the planning and scheduling of all Work, and included as a single activity in the Construction Schedule as the last activity prior to substantial completion. No Work may be scheduled concurrent with the "adverse weather contingency" activity. Adverse weather days are based on the monthly statistics provided below. Statistics in the table are based on a record of Climatological Data 10 year average, and are adjusted to reflect "Working Days". The original duration of the adverse weather activity shall be computed by totaling the number of days in the chart below, starting with the date of the Notice to Proceed, and concluding with the date of Substantial Completion.

January	--- 4 days	July	--- 1 day
February	--- 4 days	August	--- 0 days
March	--- 2 days	September	--- 1 day
April	--- 2 days	October	--- 1 day
May	--- 1 day	November	--- 2 days
June	--- 0 days	December	--- 3 days

In order to reduce the number of adverse weather days, District acknowledgement of the weather day(s) claimed must be obtained, and the acknowledged day(s) added to the schedule as an activity on the next regular update. The original duration of the adverse weather contingency activity may be reduced by the number of days authorized by the District.

An adverse weather day shall be defined as: "weather, or a condition of the site, or a condition of Work resulting from weather, which prevents the Contractor from beginning at the regular starting time of any regular Work shift, and the crew(s) is dismissed as a result thereof; or the Contractor is prevented by inclement weather after the start of the Work from continuing Work and the Contractor cannot proceed with at least fifty percent (50%) of the normal Work engaged in the 'Current Controlling Operation' (Critical Path)." Approval of an adverse weather day is not an approval of an extension of the overall Contract Time for project completion. In the event the cumulative number of days of adverse weather exceeds the number of days stipulated above, the Contractor will be entitled to a day-for-day, non-compensable time extension. In the event the adverse weather days are not all authorized, the duration becomes zero (0) days on the date of Substantial Completion.



<u>Sample Schedule with Adverse Weather & County Contingency</u>

3.2 Baseline CPM Contract Schedule Changes

When commencing new work associated with a change order/modification, incorporate work into the current baseline CPM contract schedule submittal as new activities after discussion with the County concerning how changes will be placed into the revised baseline CPM contract schedule. After an official change order/modification has been issued for work, add it to the schedule.

3.3 Fragnets

3.3.1 Submit revised current CPM contract schedule within 14 days of request. If Contractor falls behind in prosecution of work, as indicated by negative critical path, or submittal of current CPM contract schedule no longer appears to represent actual prosecution of work.

3.3.2 Properly connect to and constrain by, previously existing predecessor and successor activities, as applicable, activities of revised portion(s) of schedule. Band impacted activities in separate networks (fragnets); indicating specific delay or impact issues and submit to the County for review. Combine approved fragnets into current CPM contract schedule.

3.3.3 Time extensions will be granted only to the extent that equitable time adjustments for activity or activities affected exceed total or remaining float along critical path of activities at time of actual delay, or at time a change order/modification was issued. Float or slack time is not for the exclusive use or benefit of the Contractor but is an expiring resource available to all parties as needed to meet contract milestones and contract completion date. Time extensions will not be granted nor delay damages paid until delay occurs:

3.3.3.1 Which is beyond the control and without the fault or negligence of the Contractor and its subcontractors or suppliers, at any tier; and

3.3.3.2 Which extends actual performance of work beyond applicable current Contract completion date and most recent date predicted for completion of project on approved schedule update, current as of time of the delay or as of time of issuance of a change order/modification.

3.4 Submittal of Schedule

3.4.1 Contractor shall submit the construction schedule within ten (10) calendar days, per Section 00100, Paragraph 1.14e, after receipt of the Notice to Proceed (NTP) on hard copies and CD that is compatible with P3. The Contractor shall provide to the County for review four (4) copies of the construction schedule indicating the sequence of operations, description of the work, calendar definition and duration showing entire job performed within the specified contract time.

3.4.2 If the schedule duration proposed by the Contractor is less than the completion date in the NTP, the proposed schedule will not nullify the Contractor's right to the NTP duration.

3.4.3 The County shall review the Contractor's construction schedule. The Contractor shall incorporate all the revisions requested by the County and submit the final schedule within seven (7) calendar days of its receipt from the County.

3.4.4 The schedule of values shall be prepared and submitted together with the construction schedule.

3.4.5 Failure to meet these requirements may result in a determination and recommendation that the Board of Supervisors determine that the successful bidder as non-responsible because such failure reflects the bidder's ability to manage the work.

3.4.6 The schedule shall be revised at no additional cost to the County and resubmitted for review when:

3.4.6.1 Changes to contract affect contract completion time.

3.4.6.2 "Slippage" occurs because of procurement delays, rain, strikes and other delays.

3.4.6.3 Any activities are modified from previous submittal.

3.4.6.4 Delay on initial non-critical items is of such magnitude as to change the critical path.

3.5 Responsibility for Completion

The Contractor shall furnish sufficient forces, offices, facilities and equipment, and shall work such hours including night shift and overtime operations, as necessary to ensure the prosecution of the work in accordance with the current monthly construction schedule update. If, in the opinion of the County, the Contractor falls behind in meeting the construction schedule as presented in the current monthly schedule update, the Contractor shall take such steps as may be necessary to improve its progress, and the County may require it to increase the hours of work, the number of shifts, overtime operations and/or the amount of construction plant and equipment without additional cost to the County.

END OF SECTION

7/2008

ATTACHMENT 1

FAULT RUPTURE HAZARD INVESTIGATION REPORT

REPORT

FAULT RUPTURE HAZARD INVESTIGATION FOR THE PROPOSED DAY CARE FACILITY

OLIVE VIEW-UCLA MEDICAL CENTER

EAST OF EAST WAY AND COMSTOCK WAY

SYLMAR CALIFORNIA

Prepared For

County of Los Angeles
Department of Public Works
Project Management Division, 5th Floor
900 South Fremont Avenue

April 28, 2010

URS

URS Corporation
915 Wilshire Boulevard, Suite 700
Los Angeles, California 90017
Project No. 29405101

URS

April 28, 2010

County of Los Angeles
Department of Public Works
Project Management Division, 5th Floor
900 South Freemont Avenue
Alhambra, CA 91803-1331

ATTN: Ms. Wenling Wu

Subject: Fault Rupture Hazard Investigation for the Proposed Day Care Facility
Olive View - UCLA Medical Center
East of East Way and Comstock Way
Sylmar, California
URS Project Number: 29405434

Dear Ms. Wu:

In accordance with our task order, URS Corporation has completed a surface fault rupture hazard investigation for the proposed Day Care Facility at Olive View – UCLA Medical Center. Our findings are presented in the accompanying report.

We hope this report meets your current project needs. If you have any questions or require additional information, please call.

Very truly yours,
URS Corporation

Garry Lay, P.E., G.E.
Principal Engineer/Vice President

URS Corporation
915 Wilshire Boulevard, Suite 700
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SECTION PAGE

1.0 INTRODUCTION

1.1 GENERAL

This report presents the findings of a fault rupture hazard investigation conducted at the Olive View Medical Center for the County of Los Angeles. The County of Los Angeles Public Works Department is planning to construct a new Day Care Facility (DCF) at the Olive View – UCLA Medical Center property in Sylmar, California (Figure 1) to replace the Day Care Facility that had been destroyed in the 2008 Sayre Fire. A large portion of the Olive View – UCLA Medical Center property, including the site for the DCF building is located within an Alquist-Priolo Earthquake Fault Zone.

The Alquist-Priolo Earthquake Fault Zoning Act, which was signed into State law in December of 1972, prohibits the location of most structures for human occupancy across the trace of active faults (California Division of Mines and Geology, 1997). Consequently, the application for a development permit for any project within a delineated earthquake fault zone must be accompanied by a geologic report, prepared by a geologist registered in the State of California, which is directed to the problem of potential surface fault displacement through the project site. This report is intended to fulfill that requirement of the Alquist-Priolo Earthquake Fault Zoning Act.

This investigation was requested initially by the County of Los Angeles Department of Public Works (LACDPW), Project Management Divisions (PMD) and our work was subsequently authorized through LACDPW Geotechnical and Materials Engineering Division (GMED)'s contract (PW 13099).

The proposed DCF will be a one-story building with a footprint of approximately 5,200 square feet. The site being considered by the County for the DCF is partially covered by the destroyed previous Day Care Facility immediately east of the intersection of East Way and Comstock Way.

1.2 GEOLOGIC AND TECTONIC SETTING

The project site is located within the northern portion of the San Fernando Valley where it borders the San Gabriel Mountains to the north. The San Gabriel Mountains, which are a prominent east-west trending mountain range within the Transverse Ranges Province of southern California, are comprised of an igneous-metamorphic complex that is overlain along the southern margin by folded and faulted sedimentary rocks of Pliocene and Pleistocene age. The San Gabriel Mountains owe their present height to mid Pleistocene to recent uplift along generally east-west trending, northerly dipping reverse faults that border the southern front of the range (Ehlig, 1975). This uplift is the result of crustal shortening that is generally believed to be the consequence of compressional forces arising from the "Big Bend" in the San Andreas fault (Norris and Webb, 1990). Along the southern front of these mountains lies the San Fernando

Valley, which is a (geologically) recent alluvial surface composed of coalescing alluvial fans that have built out from the numerous southward-draining canyons in the bordering hills.

As shown on Figure 2, geologic mapping by Barrows and others (1974) indicates that the project site is directly underlain by Pleistocene age alluvial deposits. According to the mapping of Barrow and others (1974) and other subsequent geologic maps (Hitchcock and Wills, 2000; California Division of Mines and Geology, 1998; United States Geological Survey, 2005), the project site is underlain by middle to late Pleistocene age alluvium. Sedimentary rock comprising Pleistocene age Pacoima Formation, and Miocene age Towsley Formation crop out in the foothills of the San Gabriel Mountains to the north of the site.

Approximately 700 feet north of the project site is the Olive View fault zone. The Olive View fault zone is a northeast trending, steeply north dipping, reverse fault that cuts the Pacoima and Towsley formations as well as Pleistocene alluvium. It connects with the Hospital Fault to the east and the Lower Susan Fault to the west. Collectively these faults form a complex system of parallel and branching faults that accommodate north over south uplift along the San Gabriel range front.

The project site is located in a seismically active region that has in the past and will in the future be subjected to strong seismic shaking. Figure 3 shows the project site with respect to known active or potentially active faults and historic earthquake epicenters in southern California. The most significant historic earthquake to effect the project site was the February 9, 1971 San Fernando Earthquake. This Magnitude 6.6 earthquake caused extensive damage in the greater Los Angeles area. This event claimed 65 lives and caused more than 500 million dollars in property damage, including destruction of the Olive View – UCLA Hospital, a near-by freeway interchange, and the Van Norman Dam (Elsworth, 1990; California Geological Survey, 2005). The earthquake produced an approximately 15 kilometer (9 mile) long zone of surface rupture through the communities of Sunland and Sylmar (CDMG, 1976, 1979a, 1979b).

Analysis of the ground breakage in the San Fernando Valley and the pattern of seismicity have shown that the earthquake was associated with movement on a north dipping reverse fault, now known as the San Fernando fault. This fault intersects the ground surface approximately 1 ½ miles south of the Olive View site (see Figure 4) and dips towards the north at approximately 45 degrees (Woodward McNeill and Associates, 1971). The Olive View facility lies on the upthrust block, which moved both vertically and to the south. Although the San Fernando earthquake did not result in primary surface rupture at the Olive View – UCLA Medical Center, extensive ground cracking from seismic shaking was documented in the area (Woodward McNeill and Associates, 1971).

2.0 SCOPE OF WORK

2.1 GENERAL

Our work was performed in general accordance with the scope outlined in our proposal, dated February 19, 2009. The scope of work for this investigation consisted of the following tasks:

- Literature Review
- Analysis of Historic Aerial Photographs
- Geologic Site Reconnaissance
- Excavation and Logging of six test pits
- Excavation and Logging of two fault trenches

2.2 LITERATURE REVIEW

The literature review consisted of gathering available sources of data and information relevant to the project site. Principal sources of published information included geologic maps by Barrows and others (1974), Dibblee (1991), Hitchcock and Wills (2000), California Division of Mines and Geology (1998), and United States Geological Survey (2005). Other pertinent published maps included the Alquist-Priolo Earthquake Fault Zone Map (CDMG, 1976, 1979a, 1979b) and maps showing surface breaks from the San Fernando earthquake (Barrows and others, 1971; Barrow and others, 1974). Several unpublished consultant reports regarding the Olive View - UCLA Hospital were available from our company library and project files (Woodward McNeil and Associates, 1971 and 1974; Woodward Clyde Consultants, 1993a and 1993b; and URS Corporation, 2002 and 2005).

Also available for review are two fault trenching investigations that were performed by URS for sites being evaluated for the Proposed Psychiatric Urgent Care Facility. One of these investigations was performed in the vicinity of West Way, between Olive View Drive and Jacaranda Terrace, approximately 800 feet west of the DCF site (URS 2008). The other fault trench investigation was performed near the intersection of Cobalt Avenue and Bucher Avenue, approximately 200 feet northeast of the DCF site. The findings from the fault trench investigation near Cobalt and Bucher, particularly from the south end of the trench are relevant to this investigation; therefore, the trench log is presented and discussed in this report.

2.3 AERIAL PHOTOGRAPH ANALYSIS

Aerial Photograph Analysis of the project vicinity was previously performed by URS for the proposed Psychiatric Urgent Care Facility, which is located within the same general area of the DCF. Historic aerial photographs from the Fairchild Collection at Whittier College and from Continental Aerial Photo Inc. were observed to determine if there is geomorphic evidence and/or tonal lineaments suggestive of faulting within the project area. The available aerial photographs included multiple flight lines which spanned a time frame from 1928 to 1999. Most of these photographs provided stereographic coverage of the subject site. The scale of the photographs ranged from about 1:10,000 to 1:60,000. The photographs that were reviewed are listed on the following Table 1.

TABLE 1
LIST OF AERIAL PHOTOS REVIEWED

Date Flown	Flight No.	Photo No.(s)	Source
1928	C-300	F:19-22	Fairchild
1930	C-1001	A:326-328, B91-92, 103-105	Fairchild
1-1939	C-5526A	64-66	Fairchild
11-12-43	C-8624	15-19, 35-36, 49-52	Fairchild
1-1945	C-9220	12:8-11	Fairchild
7-8-48	C-12720	1:84-86	Fairchild
6-1949	C-13775	A-16-18, B:13-15	Fairchild
10-1950	C-15695	2:35-37	Fairchild
5-1952	C-17727	2:46-49, 12:18-20, 14:5-8	Fairchild
8-15-52	C-17979	6:79-80, 89-91	Fairchild
12-1952	C-18590	1:97-100; 2:49-52	Fairchild
1953	C-19400	3:77-78	Fairchild
7-12-54	C-20645	1:24-25, 4:28-30	Fairchild
10-54	C-20941	6:12-14, 7:12-14	Fairchild
1956	C-22555	1:15-16, 2:17	Fairchild
1958	C-23023	LA:2:3	Fairchild
11-4-52	AXJ-4K	51-52	Continental
1-30-70	-	60-1: 7- 8	Continental
5-12-79	FCLA-1	260-262	Continental
1-28-86	-	F:463-464	Continental
7-6-88	-	19059, 19077	Continental
6-7-90	C-82	4:31-32	Continental
5-10-93	C-88		Continental
6-12-95	C-112	19:80-81	Continental
4-19-99	C-136		Continental

2.4 SUBSURFACE FIELD INVESTIGATIONS

The subsurface field investigation was divided into 2 phases. Phase 1 included an initial subsurface investigation consisting of six backhoe test pits. These test pits were excavated to determine the optimum location for the Phase 2 fault trench investigation. The location of the test pits are shown on the Site Plan/Geologic Map presented as Figure 5 and the Test Pit logs are presented in Appendix A.

Based on the Phase 1 subsurface investigation, geologic reconnaissance, and physical constraints (ie. the location of underground utilities) of the project site, the Phase 2 fault trenches were excavated along a northerly trend, to the east of the subject site and to the west of Cobalt Avenue. Two overlapping excavations, Trenches T-1 and T-2, were excavated across a south facing slope that is between Bucher Avenue and Olive View Drive. The locations of Trenches T-1 and T-2 are shown on Figure 5; and the trench logs are presented in Appendix B.

In addition to the two trenches, which were specifically performed for the DCF, the finding of a prior fault trench performed for the proposed Psychiatric Urgent Care Facility (PUCF) are directly relevant to this investigation. Consequently the trench log of the Psychiatric Urgent Care Facility investigation is reproduced in this report and presented in Appendix C. The location of the PUCF Trench is shown on Figure 5

The equipment used for excavation included a John Deere 310 backhoe with a 24-inch wide bucket. The trenches were excavated to depths ranging from 10 to 20 feet below the existing ground surface and were shored in accordance with Cal OSHA requirements. Following excavation and placement of shoring, the west wall of the trenches were scraped clean and prepared for logging. A reference string line, which was constructed to aid trench logging, was attached to the trench wall by nails. A line (bubble) level was used to check the horizontality of the string line and the string line was marked at 5-foot intervals for horizontal control. The fault trenches were located by compass bearing and tape measurements from distinct hardscape features such as road intersections.

Peer review and inspections of the trenches were performed upon completion of trench logging. On April 1, 2009, Dr. Thomas Rockwell of San Diego State University (who is a recognized expert in the fields of paleoseismology, geomorphology, and soil stratigraphy), reviewed Trenches 1 and 2 to provide his opinions regarding the age of the alluvium and the recency of minor fractures and shears that were exposed in the trenches. Dr. Rockwell previously performed a review of the PUCF Trench on July 17, 2007. Mr. Clayton Masters (reviewing geologist for the County of Los Angeles) performed a field inspection of Trenches 1 and 2 on April 2, 2009 and also had performed an inspection of the PUCF Trench on July 17, 2007.

3.0 DISCUSSION OF FINDINGS

3.1 LITERATURE REVIEW AND AERIAL PHOTOGRAPH ANALYSIS

The Alquist-Priolo Earthquake Fault Zone map of the site area, presented as Figure 4, shows that the project site is located within an earthquake fault zone associated with surface rupture from the 1971 San Fernando earthquake. Specifically the portion of the fault zone that encompasses the site, appears to be associated with two 1971 surface breaks that trend approximately N70°W. These surface breaks, which occurred in residential streets of Sylmar approximately 2000 to 4000 feet south of the project site, are described by Weber (1975) as "a zone comprised of two segments of relatively strong street cracks and lesser ground cracks, which extend southeast in alluvium for about 1 km (3300 feet)." Weber (1975) interpreted these street cracks as a possible fault break that may follow the trend of bedding in the Saugus Formation beneath the alluvium.

The inspection of historic aerial photographs that are listed on Table 1 did not reveal obvious geomorphic evidence of faulting crossing the project site. Also, there was no manifestation of faulting at the location of the two 1971 street cracks, noted above, on either the pre or post 1971 photographs. However, the photographs, as well as topographic maps of the project area, and site reconnaissance reveal that there is a south facing slope that approximately coincides with the general vicinity of the project site and the projection of the street cracks. Before, trenching was performed; a working hypothesis was that this slope might be a fault scarp associated with an east-west to northwest trending fault, with probable north over south displacement. However, the findings of the trenching investigation don't support this hypothesis.

3.2 RESULTS OF PHASE 1 TEST PIT INVESTIGATIONS

3.2.1 Overview

As shown on Figure 2, the project site was geologically mapped as underlain by Pleistocene age alluvium. Pleistocene alluvium is characterized by generally hard, reddish brown, clayey sand and gravel which contained slightly to intensely weathered (decomposed) gravel and cobble clasts of igneous and metamorphic lithologies. However, prior to the Phase 1 investigation it was not known if the Pleistocene age alluvium was shallow enough to be reached by conventional trenching at the site. Therefore Phase 1 investigations were principally performed to check the depth to the Pleistocene alluvium and to assess whether or not it was buried by thick colluvial or fill deposits that would make trenching impractical.

3.2.2 Findings

Six backhoe test pits were excavated and logged at the locations shown on site plan that is presented as Figure 5. As shown on test pit logs presented in Appendix A, the subsurface investigations generally encountered thin fill and colluvial soils overlying native alluvium. The native alluvium at the site is typically silty sand with occasional layers of clayey sand and sand with gravel. The upper 1- to 4.5-feet of test pits TP-1, TP-2, TP-3 and TP-5 encountered artificial fill overlying dark yellowish brown alluvium that was interpreted to be Holocene alluvium. Below the surface in test Pit 4 and below the fill and younger alluvium in test pit 5, native alluvial soils were generally dark yellowish brown to light olive brown, medium dense to dense, and interpreted to be the Pleistocene age alluvium.

Based on the Phase 1 investigations it was determined that adequate exposures of Pleistocene alluvium would be within reach of an approximately 10 to 15 foot deep single slot trench. Therefore, Phase 2 fault trenching was performed.

3.3 Results of the Phase 2 and PUC Fault Trench Investigations

3.3.1 Overview

The fault trenches that were excavated for the investigation ranged from about 8 to 12 feet deep at the locations shown on Figure 5. The trenches specifically performed for the DCF are designated as T-1 and T-2, and the previously excavated trench for the Psychiatric Urgent Care facility is designated PUCF T-1. The three trenches cross unpaved ground located between Bucher Avenue and Olive View Drive approximately 100 feet east of the DCF site. Trenches 1 and 2 cross the south facing slope that is discussed in Section 3.1, and the PUCF Trench crosses a level pad at the upper side of this slope that was the location of Wards 124 and 126 (now razed) of the former Olive View Tuberculosis Sanatorium. The alluvial stratigraphy exposed in the trenches consisted of horizontal to south dipping Pleistocene age alluvium (older alluvium) that is unconformably overlain by horizontally stratified Holocene age alluvium (younger alluvium), colluvium, and artificial fill. As described on the legend for the trench logs (Figure B-1, sheet 1 of 7), the older (Pleistocene age) alluvial strata were subdivided according to their grain size, color, density, and degree of stratification or lamination (i.e. massive versus finely laminated). At the extreme southern end of Trench T-2, the older alluvium is uncomformably overlain by very young alluvium of presumably Holocene age. A surficial layer of artificial fill and/or colluvium overlies most of all three trenches.

The Pleistocene alluvial strata exposed in the three trenches are cut by numerous very narrow fractures. Most of these fractures exhibit no recognizable displacement and are presumably ground cracks that are the consequence of strong seismic shaking, associated ground shattering, and possibly lateral spreading that has occurred during past earthquakes, such as the 1971 Sylmar earthquake. A few fractures in the PUCF Trench and Trench T-1 exhibit small displacements, and therefore are considered to be minor shears. Of these minor shears, most are overlain by unbroken Pleistocene alluvium and therefore are demonstrably inactive (of pre-Holocene age). However, eight minor shears in the PUCF Trench cut the uppermost Pleistocene unit exposed in the trench. Although we consider it likely that these are also Pleistocene age features, they cannot be unequivocally proven to be inactive (pre-Holocene) based on the available trench exposures. However, these eight minor shears, which are not demonstrably pre-Holocene, do not project towards the DCF, and therefore they do not represent a surface fault rupture hazard for the facility. The stratigraphy and fracture features exposed in each of the fault trenches are described in further detail in the following paragraphs.

Trench T-1

The T-1 fault trench was approximately 150 feet long, about 10 feet deep, and oriented approximately N23°W to N02°E at the location shown on Figure 5. Its northern end is located at the south end of the Wards 124 & 126 Pad and its southern end is located partially down the south facing slope that is south of the pad. The trench exposed a horizontal to very gently south dipping sequence of Pleistocene alluvium consisting of sands and gravels (see Figure B-1 sheets 2 through 4). The Pleistocene alluvium is covered by a surficial layer of very dense artificial fill from about Station 0 to Station 42, and generally loose colluvium from about Station 42 to Station 93. From about Station 0 to Station 70 the older alluvium generally consisted of a reddish brown (7.5 YR Munsell colors), very dense, massive, clayey sand near the top of the trench exposure, overlying yellowish brown (10 YR Munsell colors), massive to well stratified gravel and sand layers which were generally more friable. South of Station 70 reddish brown, very dense, massive, silty sands occur interfingered, with generally well stratified, more friable sand and gravel layers. The strata in Trench T-1 exhibited an apparent dip of about 0 to 5 degrees towards the south.

Ground cracks with no recognizable displacement were exposed at Stations 74, 87, 96, 105, 108, 112, 115, 124 and 133 in Trench T-1. Many of these fractures are rootless (cannot be traced to the bottom of the trench) or cannot be traced to the opposite wall of the trench and all were capped by, and/or demonstrably did not displace Pleistocene age alluvium. Minor shears with small displacement were exposed at Stations 61 and 106. Both of these shears occurred only within the lowermost strata of the trench and both were overlain by uncut Pleistocene alluvium.

Trench T-2

The T-2 fault trench was approximately 100 feet long, about 6 to 12 feet deep, and oriented approximately N02-08°E at its north and south ends, and about N70°E in its south central portion as shown on Figure 5. Its northern end was midway down the south facing slope, and its southern end was at the base of the slope. The trench exposed a gently south dipping sequence of Pleistocene alluvium consisting of sands and gravels. The Pleistocene age alluvium is covered by an up to 5 foot thick layer of artificial fill from about Station 25 to Station 100, and a wedge of younger alluvium (presumably Holocene age) consisting of well stratified sand and fine gravel from about Station 84 to Station 103. An approximately 1 foot thick colluvial layer is sandwiched between the fill and the older alluvium between about Station 56 and Station 84.

The north edge of the young alluvium also appears to overlie the colluvium at Station 84. The Pleistocene alluvium in Trench T-2 exhibited an apparent dip of about 10 to 15 degrees towards the south.

As shown on the trench log (Figure B-1, sheets 5 and 6) ground cracks with no recognizable displacement were exposed at Stations 13, 17, 29-32, 36-39, 40, 45-55, and 61 in Trench T-2. Many of these fractures are rootless (cannot be traced to the bottom of the trench) or cannot be traced to the opposite wall of the trench and all were capped by, and/or demonstrably did not displace older Pleistocene age alluvium. No minor shears were found in Trench T-2.

PUCF Trench

The PUCF fault trench was approximately 325 feet long, about 10 feet deep, and oriented approximately N10°E to N10°W at the location shown on Figure 5. The trench exposed a stratified sequence of Pleistocene alluvium, consisting of sands and gravels, covered by a surficial layer of very dense artificial fill (see Figure C-1, sheets 1 through 7). Across the length of the trench the Pleistocene alluvium consisted of a reddish brown (7.5 YR Munsell Colors), very dense, massive, clayey sand near the top of the trench exposure that overlies yellowish brown (10 YR Munsell Colors) gravel and sand layers which were generally more stratified and friable. Between about Stations 10 and 35 and between Stations 68 and 270, the lowermost alluvium in the trench was a massive, very dense, silty sand.

In the southern approximately 1/3 of the trench, the alluvium is cut by many steeply south dipping fractures that include several ground cracks with no recognizable displacement and a few minor shears which exhibit small displacements. Collectively these fractures were typically spaced from about 1 to 6 feet apart for the southernmost 120 feet of the trench. North of this zone, from about Station 120 to Station 235 there were a few widely spaced fractures, and north of Station 236 to the end of the trench at Station 325 there were no observable fractures. Ground cracks with no recognizable displacement were exposed at Stations 11, 20, 22, 31 to 39, 50, 80, 81, 84, 85, 88, 91, 105, 106, 114, 116, 117, 131, 150, 169, 184, 220, 229, and 236. Minor shears with small displacement were exposed at Stations 25, 39-41, 46, 57, 61, 94-95, 99, 102, 129, and 164.

The shears exposed in the PUCF Trench generally had an extensional component of slip (normal slip) and some shears might also have some component of strike slip. None of the shears could be traced to the top of the trench and in most cases the actual displacement across the shears could be shown to die out upward and be capped by unfaulted Pleistocene age alluvium. Seven of these shears, at Stations 25, 39-41, 46, 57, 99, 102, and 164 extended to within the uppermost Pleistocene alluvium near the top of the trench exposure. Although these shears died out before reaching the top of the alluvial exposure they could not be shown to unequivocally be capped by unfaulted alluvium. The ground cracks often cut only the lowermost unit in the trench. In other places the ground cracks extended up into the uppermost Pleistocene alluvium exposed in the trench, and in one case actually reached to the surface, and cut through artificial fill (at Stations 31-39).

3.3.2 Alluvium Age Assessment

As noted above and shown on Figure 2, the surficial deposits at the project site have been mapped as Pleistocene age (i.e., from 11,000 years to 1.6 million years old), alluvium (Qos) by Barrows and others (1974). To further substantiate and refine the age of the Pleistocene deposits, the strength of the soil development was characterized in the trench exposures. In general, soils underlying stable surfaces develop weathering profiles that are physically and chemically distinct from their original condition (parent material). With time soils follow predictable trends, which include accumulation of clay, general hardening, and rubification (reddening).

To aid in our assessment of the soils exposed in the trenches, URS retained the services of Dr. Thomas Rockwell, who is a recognized expert at estimating the age of alluvial deposits based on geomorphic analysis and soil profile development. Dr. Rockwell noted that the upper part of the soil profile had been mostly graded away. Therefore, the age of the alluvium could not be determined based on the strength of the soil alone. However, Dr. Rockwell indicated that the presence of clay film colors of 5YR 4/6 and mixed soil colors of 7.5 YR along with the presence of substantial secondary clay suggests that the older alluvium exposed in the trenches are Pleistocene deposits. Dr. Rockwell further stated that a complete assessment of the age cannot be made because the soils are not associated with a stable surface; however, the minimum age is likely in the 20 to 30 thousand year range based on the degree of rubification, abundance and thickness of clay films, and comparison of these qualities with the Ventura Soil Chronosequence.

Dr. Rockwell noted other qualities of the soil profile exposed in the trenches, which suggested considerably older age as described in the following:

1) Many of the fractures are lined with secondary silica. Secondary silica is only described in southern California soils from deposits that are generally older then the last interglacial epoch, or more than about 100 ka (100,000 years). In Ventura Basin, Rockwell et al. (1985) describe secondary silica only in their oldest profiles (Q7) that date to about 200 ka. In the San Diego area, only the mid-Pleistocene Lindavista Formation has accumulated secondary silica.

2) Another indicator of substantial age is the degree of clast weathering observed within alluvial deposits in the trench. Many clasts exposed in the trench are grussified to the

point that they can be easily cut with a scrapper. This includes granitic clasts that were presumably quite hard at the time of deposition. The degree of clast weathering is consistent with the age inferred from deposition of secondary silica and implies substantial age to the deposits.

3) The general hardness of the soil suggests substantial age. The soil, when dry, is very hard and difficult to scrape to the point that the weathered granitic and metamorphic clasts are softer. Soil hardness (dry consistency, as defined by the Soil Conservation Service) is an indicator of age (Harden, 1982), with hardness generally increasing with age, all other things being equal.

Based on all of the above, Dr. Rockwell estimated that the age of the older alluvium exposed in the trenches likely exceeds 100,000 years.

Horizontally stratified younger alluvium, overlies the Pleistocene alluvium at the southern end of Trench T-2. This younger alluvium, which lacks the soil hardness, rubification, and the clast weathering of the older alluvium, is presumably of Holocene age.

3.3.3 Nature and Age of the Fractures Exposed in the Trenches

As discussed above, the Pleistocene alluvial strata exposed in Trenches T-1, T-2, and the PUCF Trench are cut by numerous very narrow fractures. Most of these fractures exhibit no recognizable displacement. These fractures are most certainly ground cracks that are the consequence of strong seismic shaking, ground shattering, and possibly lateral spreading during past earthquakes, such as the 1971 Sylmar earthquake. These cracks, which typically narrow and/or die out with depth, appear to have accommodated minor dilational movements on the order of about ¼ inch or less. The fractures at Station 31 to 39 of the PUCF Trench, which cuts the fill, likely is a ground crack that originated during the 1971 Sylmar earthquake, whereas the majority of ground cracks, which do not reach the surface or cut the uppermost strata exposed in the trenches, likely originated during prior earthquake events.

Fractures with recognizable displacement are exposed at Stations 59 and 106 in Trench T-1 and at stations 25, 39-41, 46, 57, 61, 94-95, 99, 102, 129, and 164 in the PUCF Trench. These minor shears generally exhibited an extensional component of slip (normal slip). None of the shears could be traced to the top of the trenches and in many cases the actual displacement across the shears could be shown to terminate upward and be capped by unfaulted Pleistocene age alluvium. Eight of these shears in the PUCF Trench, at Stations 25, 39, 41, 46, 57, 99, 102, and 164, extended into the uppermost Pleistocene alluvial unit near the top of the trench exposure. Although all these shears "died out" before reaching the top of the alluvial exposure, they were not unequivocally capped by unfaulted alluvium. Although these are likely Pleistocene age shears, a pre-Holocene age cannot be proven based on the available trench exposures.

3.3.4 Primary Faulting Near the Project Site

None of the shears encountered in Trenches T-1 and T-2 are considered to be an indication of primary, thoroughgoing faulting at the project site. The observation that the Pleistocene alluvium exposed in Trenches T-1 and T-2 dip approximately 0 to 15 degrees to the south with dips becoming steeper towards the south suggests that these strata have been folded. This observation was also apparent in trenches excavated for the Psychiatric Urgent Care facility near the intersection of West Way and Jacaranda Terrace (URS, 2008). Dr. Rockwell suggested that this deformation may be related to "fault roll over" and therefore. there may be a fault at depth, beneath the site, that either daylights to the south of the project site, or is a blind thrust that is closer to the surface towards the south (i.e. is north dipping). It appears that motion on this inferred fault not only folded the older alluvium, but may also have elevated the project area above the generally lower terrain to the south. Therefore, if a primary fault cuts the surface in this general area, it is likely to be south of the project site and unlikely to be north of the project site. The minor shears with small displacements that were observed in Trench T-1 and the PUCF Trench are likely secondary shears accommodating bending moment on fold scarps (Yeats, 1982) as the alluvium above the neutral surface of the fold is warped thereby producing normal extension and shearing.

4.0 CONCLUSIONS & RECOMMENDATIONS

4.1 SUMMARY AND CONCLUSIONS

The principal conclusion of this investigation is that Trenches T-1, T-2, and the PUCF Trench exposed Pleistocene alluvium that is not cut by an active (Holocene age) primary fault. Based only on the published geologic mapping (Barrows et al., 1971; CDMG, 1998; CDMG, 2005), it is evident that the older alluvium exposed in the trenches is of Pleistocene age. The minimum age of the older alluvium is likely in the 20 to 30 thousand year range based on the abundance and thickness of clay films, and degree of rubification. Based on the presence of silica lined fractures and the presence of decomposed gravel clasts, the minimum age of the Pleistocene alluvium likely exceed 100,000 years.

Based on the conclusion that Trenches T-1 and T-2, and the southernmost portion of the PUCF Trench exposed Pleistocene age alluvium that is not cut by Holocene active faulting, we have established a "Trench Shadow Corridor" in the vicinity of the DCF. We believe the available data indicate that the ground in the "Trench Shadow Corridor" is free of active faulting (see Figure 5). The trend of the southern and northern boundaries (N70°W) of the "Trench Shadow Corridor" (as shown on Figure 5) is based on the trend of the two 1971 Sylmar Earthquake surface ruptures that are to the southeast of the project site and are shown on Figures 2 and 4. The southern corridor boundary is located 5 feet (inward) from the southernmost exposure of Pleistocene alluvium exposed in Trench T-2 to accommodate a 5 foot setback from a hypothetical active fault that could be just beyond the limit of trenching. Note that the area south of the southern corridor may also be clear of active faulting, however, further investigation would need to be performed to verify that possibility. The northern boundary of the "Trench Shadow Corridor" also trends N70°W and is located 10 feet south of the minor shears that were exposed at stations 39-40 in the PUCF Trench. This allows an ample setback from this minor shear zone which we have conservatively assumed to be active. The area north of the northern corridor may also be clear of active faulting, however further investigation would need to be performed to verify that possibility.

4.2 RECOMMENDATIONS

We recommend that structures intended for human occupancy be allowed within the "Trench Shadow Corridor" shown on Figure 5, in accordance with the provisions of the Alquist-Priolo Earthquake Fault Zoning Act. Construction of the DCF should be permitted within this area.

4.3 GENERAL CONDITIONS

This report presents conclusions and recommendations pertaining to the subject sites based on the assumption that the geologic conditions do not deviate appreciably from those disclosed by our exploratory investigations. In view of the general geology of the area, the possibility of different conditions cannot be discounted. Professional judgments presented in this report are based on evaluations of the technical information gathered, our understanding of the proposed project, and our general experience in the geologic profession. We do not guarantee the performance of the project in any respect, only that our geologic work and judgments rendered meet the standard of care in our profession at this time and location.

-o0o-

It has been a pleasure to assist you with this project. We look forward to being of further assistance as construction begins. Should you have any questions regarding this report, please contact us.

Respectfully yours,

URS CORPORATION

Reviewed by:

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Senior Engineering Geologist

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Principal Engineer

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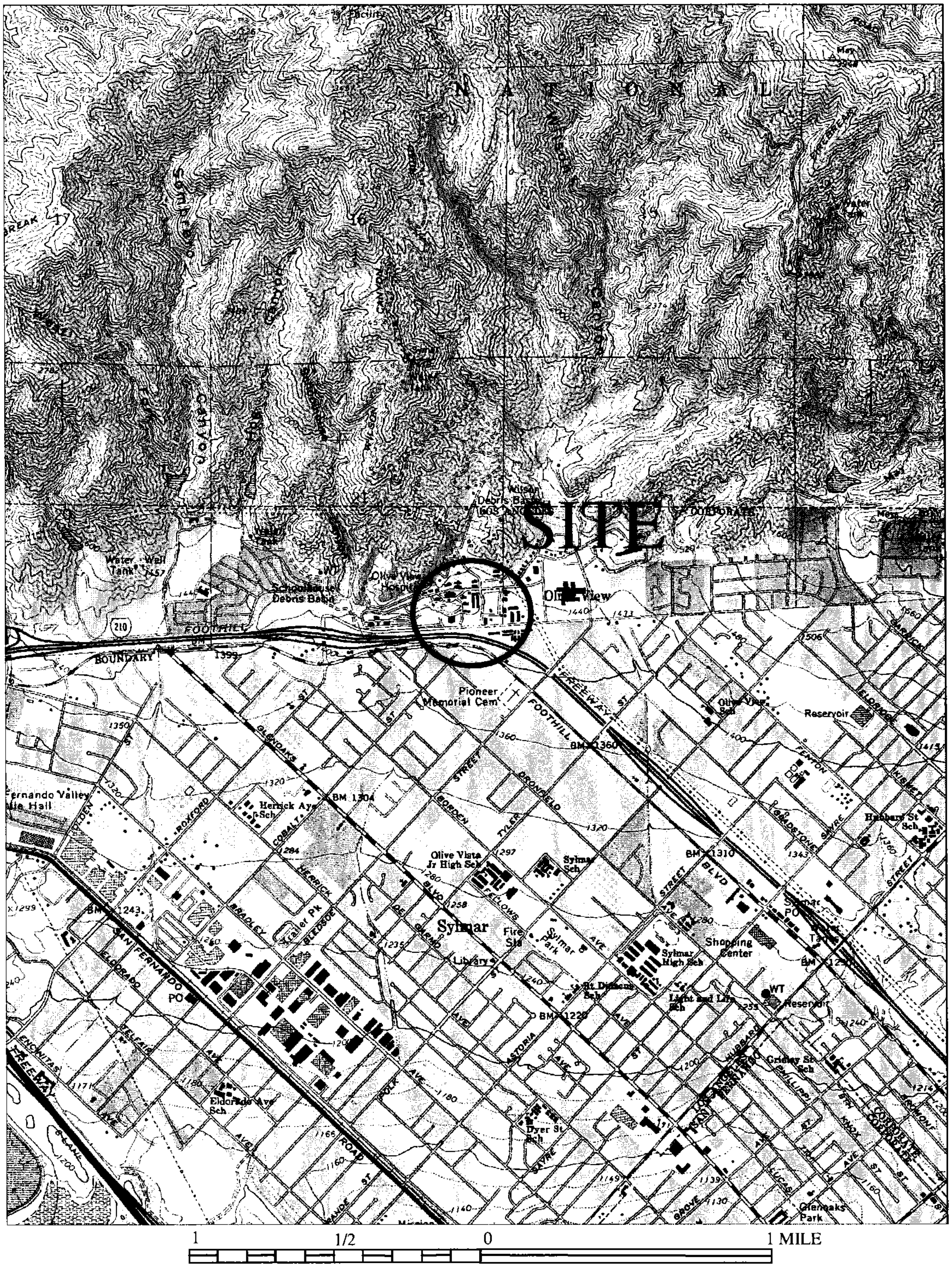


N

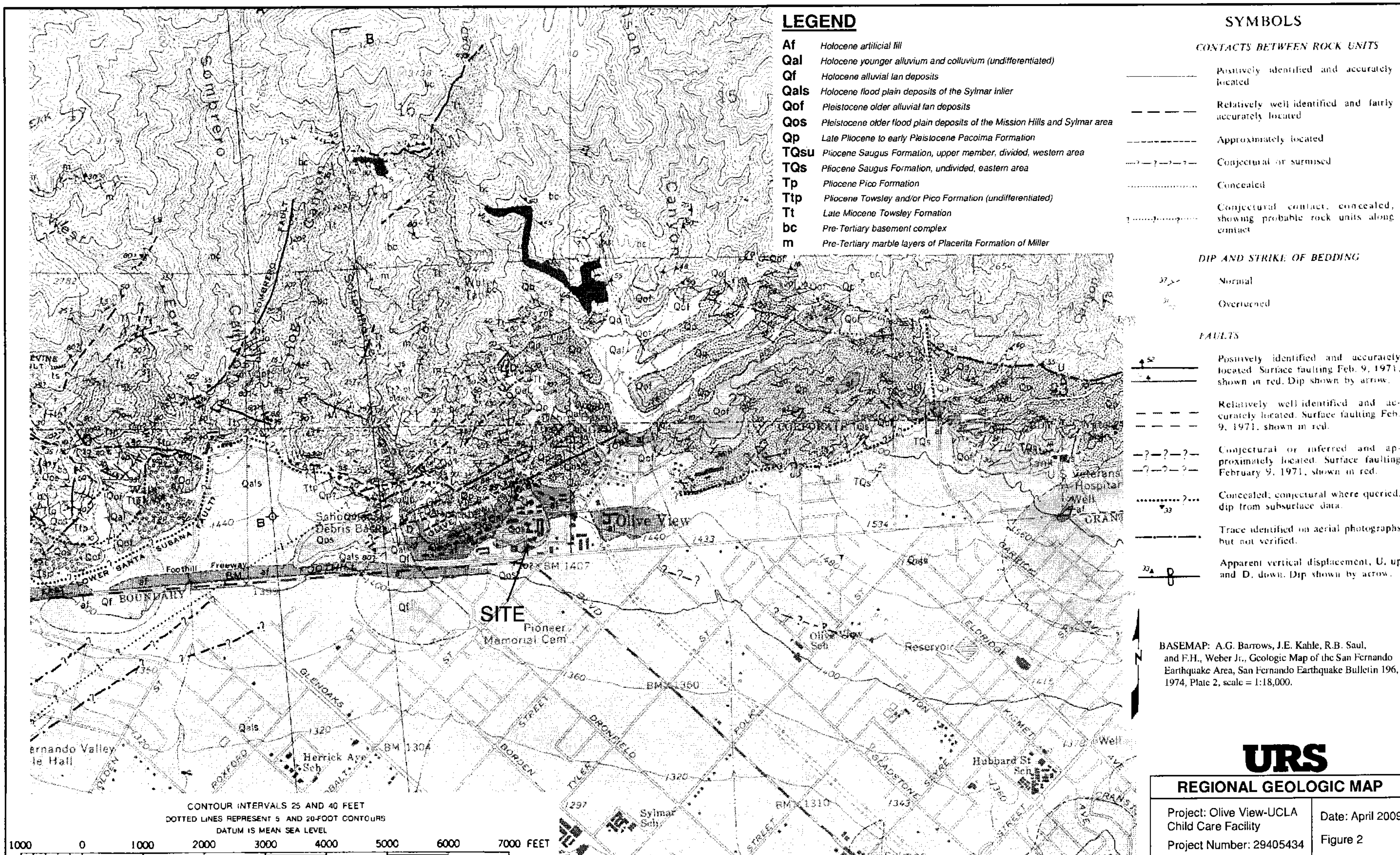
REGIONAL TOPOGRAPHIC MAP

OLIVE VIEW MEDICAL CENTER CHILD CARE CENTER
14445 OLIVE VIEW DRIVE, SYLMAR, CALIFORNIA

FOR: COLA/DPW

REFERENCES: USGS 7.5 Minute Series Topographic Map,
"San Fernando, California". Quadrangles, 1995.

URS
FIGURE 1



BASEMAP: A.G. Barrows, J.E. Kahle, R.B. Saul, and F.H., Weber Jr., Geologic Map of the San Fernando Earthquake Area, San Fernando Earthquake Bulletin 196, 1974, Plate 2, scale = 1:18,000.

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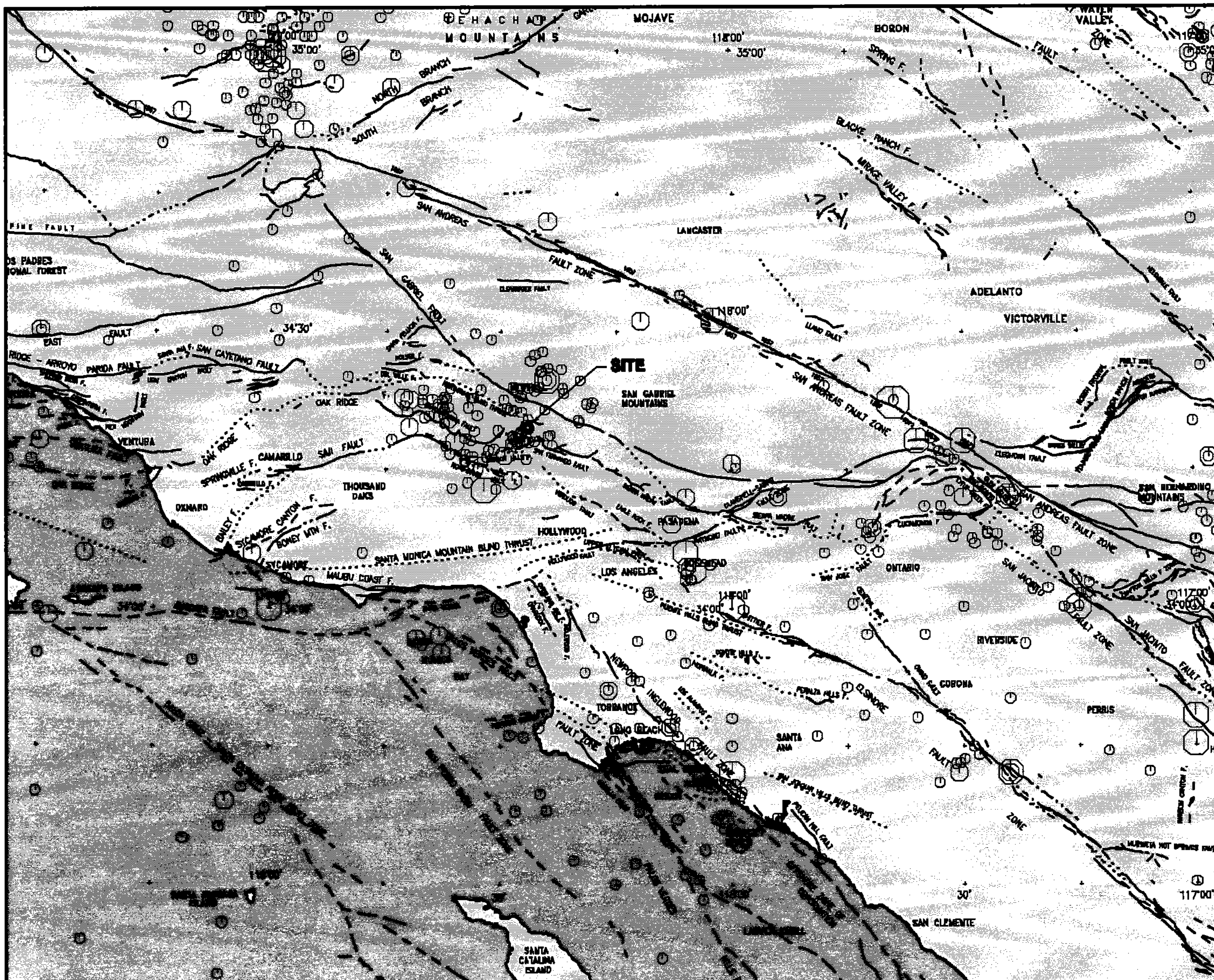
REGIONAL GEOLOGIC MAP

Project: Olive View-UCLA Child Care Facility	Date: April 2009
Project Number: 29405434	Figure 2



0 20 40

SCALE, kilometers

LEGEND

REPORTED EARTHQUAKE MAGNITUDES.

- 4.0 TO 4.9
- 5.0 TO 5.9
- 6.0 TO 6.9
- 7.0 AND GREATER

SOUTH OF LATITUDE 35°N, EPICENTER AND MAGNITUDE DATA ARE FROM THE CALIFORNIA GEOLOGICAL SURVEY (2001) EARTHQUAKE CATALOG FOR THE PERIOD FROM 1769 TO 2000. ONLY EARTHQUAKES OF MAGNITUDE 4.0 AND LARGER ARE SHOWN. AFTERSHOCKS ARE NOT INCLUDED.

APPROXIMATE LOCATION OF HOLOCENE AND PLEISTOCENE FAULTS, DOTTED WHERE CONCEALED, QUERIED WHERE CONJECTURAL. FAULT LOCATIONS BASED ON: ZIONY AND JONES, 1989; CDMG GEOLOGIC MAP SERIES OF CALIFORNIA, 1977–1986 (1:250,000 SCALE); CDMG GEOLOGIC MAP SERIES, CALIFORNIA CONTINENTAL MARGIN, 1987 (1:250,000 SCALE); HAUKSSON, 1990; SHAW AND SHEARER, 1999; WRIGHT, 1991; GRANT ET AL. 1999.

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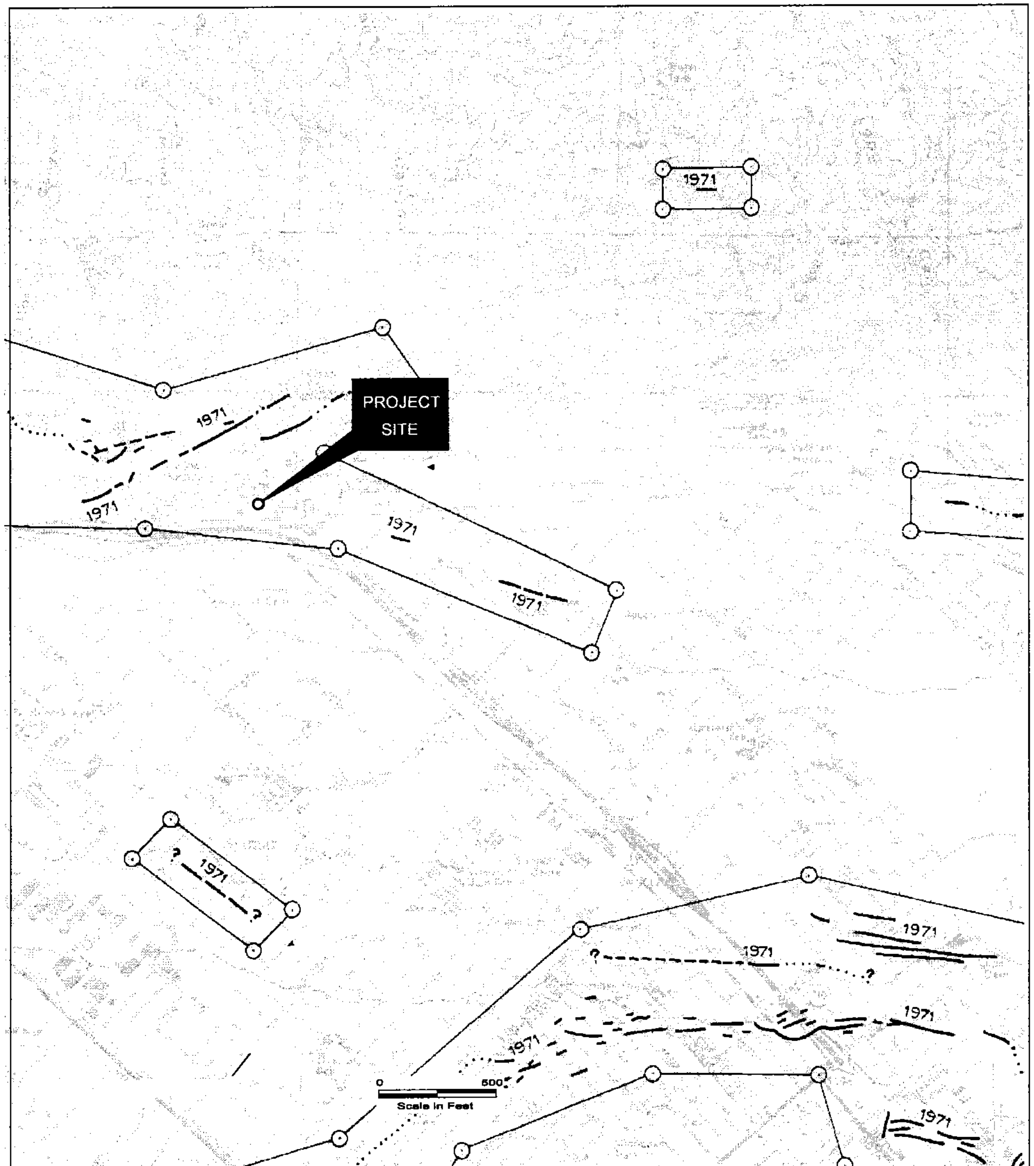
REGIONAL FAULT AND EPICENTER MAP

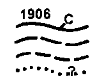
Proj. No.:	29405434	Date:	MAY 2009
Project:	OLIVE VIEW - UCLA CHILD CARE CENTER	Figure:	3

T:\112\Olive View Hospital\Sheet Files\Figure 7.dwg Jun 29, 2005 - 8:31am



MAP EXPLANATION

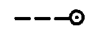
Active Faults



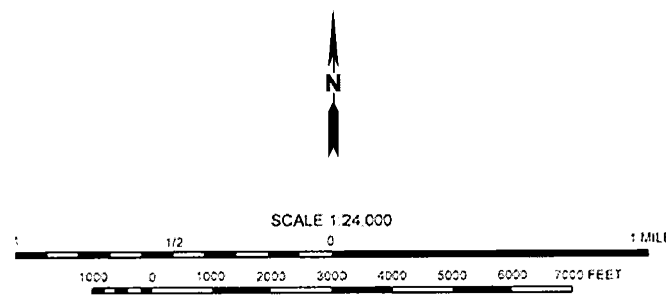
Faults considered to have been active during Holocene time and to have potential for surface rupture; solid line where accurately located, long dash where approximately located, short dash where inferred, dotted where concealed, query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by fault creep.

Earthquake Fault Zone Boundaries

There are delineated as straight-line segments that connect encircled turning points so as to define Earthquake Fault Zone segments.



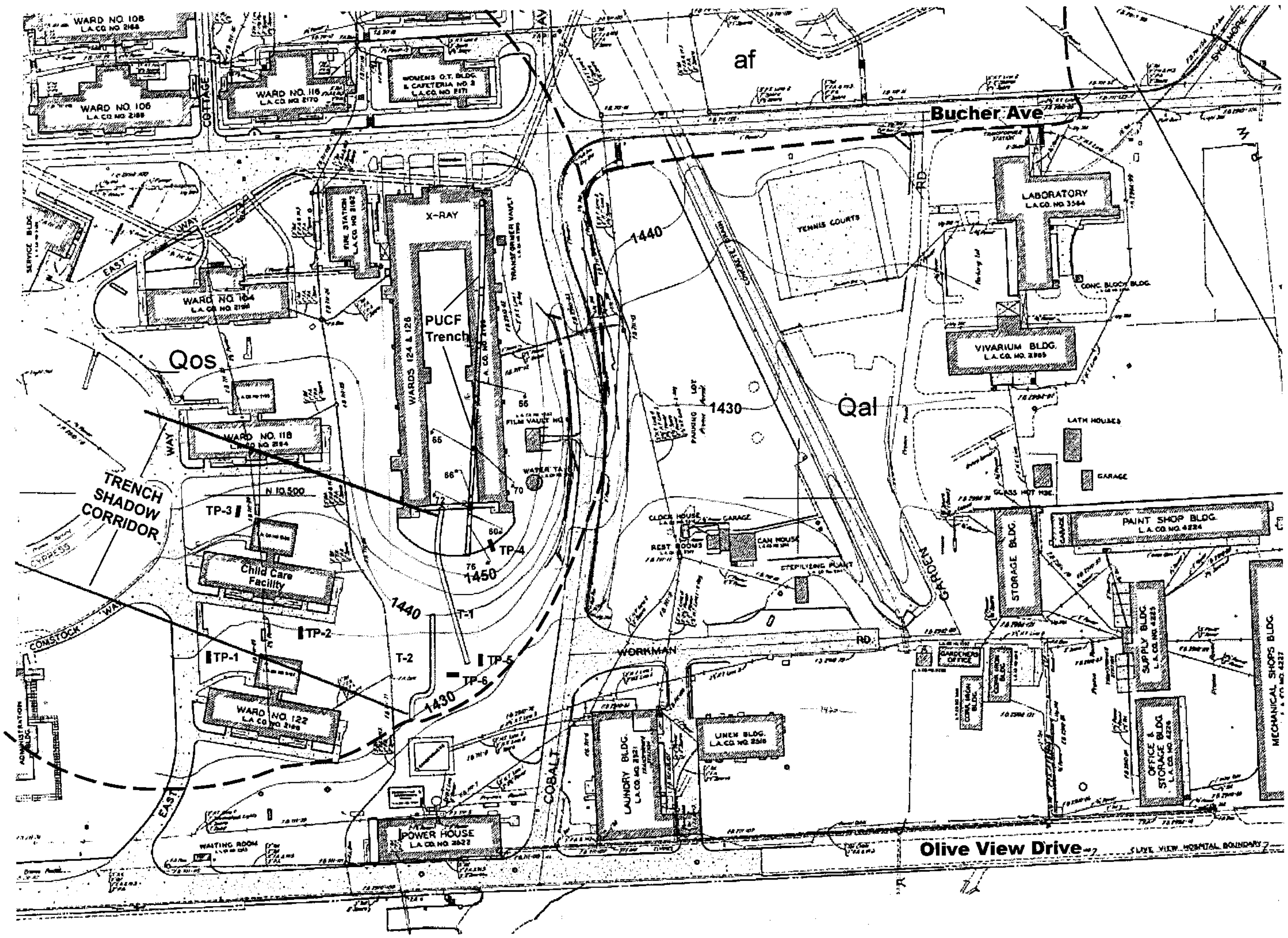
Seaward projection of zone boundary.



SOURCE:
"State of California, Earthquake Fault Zones, San Fernando Quadrangle, Revised Official Map, January 1, 1979,"
California Division of Mines and Geology

EARTHQUAKE FAULT ZONES MAP	
Project: OLIVE VIEW - UCLA CHILD CARE CENTER	
Project No.: 29405434	Figure 4
Date: May 2009	

URS



LEGEND

TP-1	Test pit
T-1 (70)	Fault trench showing strike & dip of shears that were not proven to be pre-holocene
— —	Geologic Contact
af	Holocene artificial fill
Qal	Holocene (younger) alluvium
Qos	Pleistocene (older) deposits alluvium

NOTES:

Topographic contours taken from geological map that is in McNeil and Associates 1971

Base map is modified from September 1963 electronic system map of Olive View Hospital Survey Division File No. 63-40 Slat No. B-1E, many of the buildings and facilities shown on this map were damaged or destroyed by the 1971 San Fernando earthquake & subsequently razed.

N

0 100 200

SCALE IN FEET
1" = 100'

URS Corporation

Site Plan / Geologic Map

Project No.: 29405434 | Date: May 2009

Project: Olive View Child Care Facility | Figure 5

URS

Appendix A

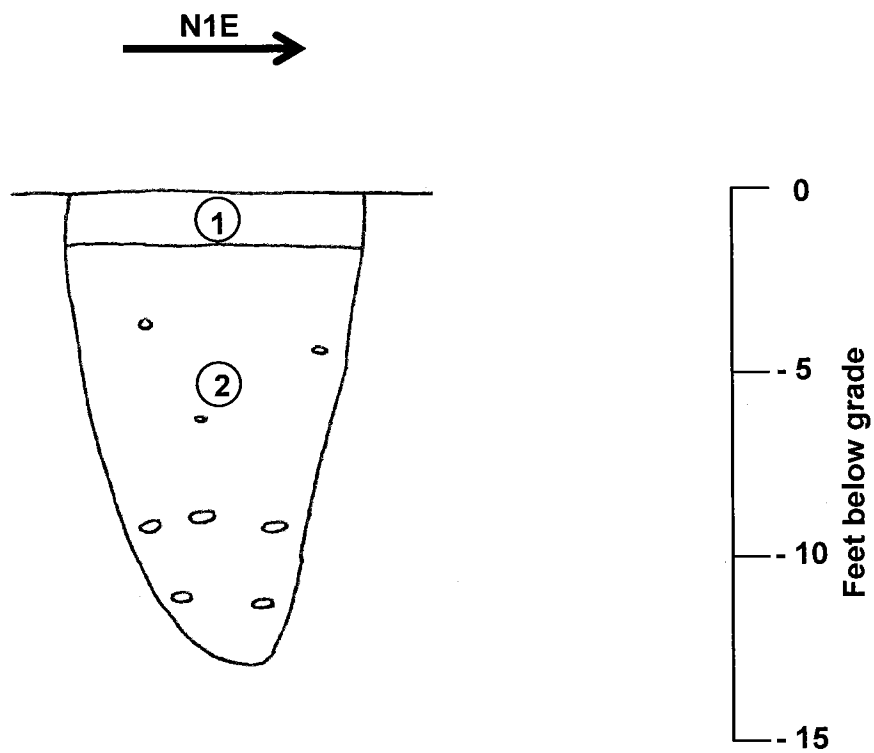
Test Pit Logs

Date(s) Excavated	3/20/2009	Logged By	Mike Snyder
Excavation Method	Case Excavator 590	Bucket Size/Type	2-foot bucket
Excavator Type	Backhoe	Test Pit Orientation	N1E
Sampling Method(s)	California Modified, Bulk sample		
Approximate Groundwater Depth and Date Measured	Not Encountered on 3/20/2009		
Comments	N34.32466°, W118.45182° NAD83		

Test Pit TP-1

Sheet 1 of 1

Job Number	29405434
Total Depth Excavated (ft)	13.0
Approximate Ground Surface Elevation(ft)	1437.0



1 – <u>0-1.5' (AF) ARTIFICIAL FILL</u>- Silty SAND (SM), 10YR3/4 dark yellowish brown, medium dense, moist, fine grained matrix, trace fine gravel, subangular clasts which are equant, with fine organics, non plastic.

2 – <u>1.5-13' (Qa) ALLUVIUM (Younger)</u>- SAND (SW), 10YR4/6-3/6 dark yellowish brown, loose to medium dense, moist, fine to medium grained sand, some fine to medium gravel, subrounded clasts which are prolate, non plastic, below 8-feet becomes lighter gray, loose, coarser grained sand with fine to medium gravel, rounded to subrounded clasts which are oblate to prolate, clasts of granitic lithologies and Pacoima Formation, Clasts from 3- to 6-inches in diameter, clasts are not grussified, non plastic.

LOG OF TEST PIT

Olive View Medical Center Child Care Center Project
14445 Olive View Drive, Sylmar, California
FOR: COLA/DPW

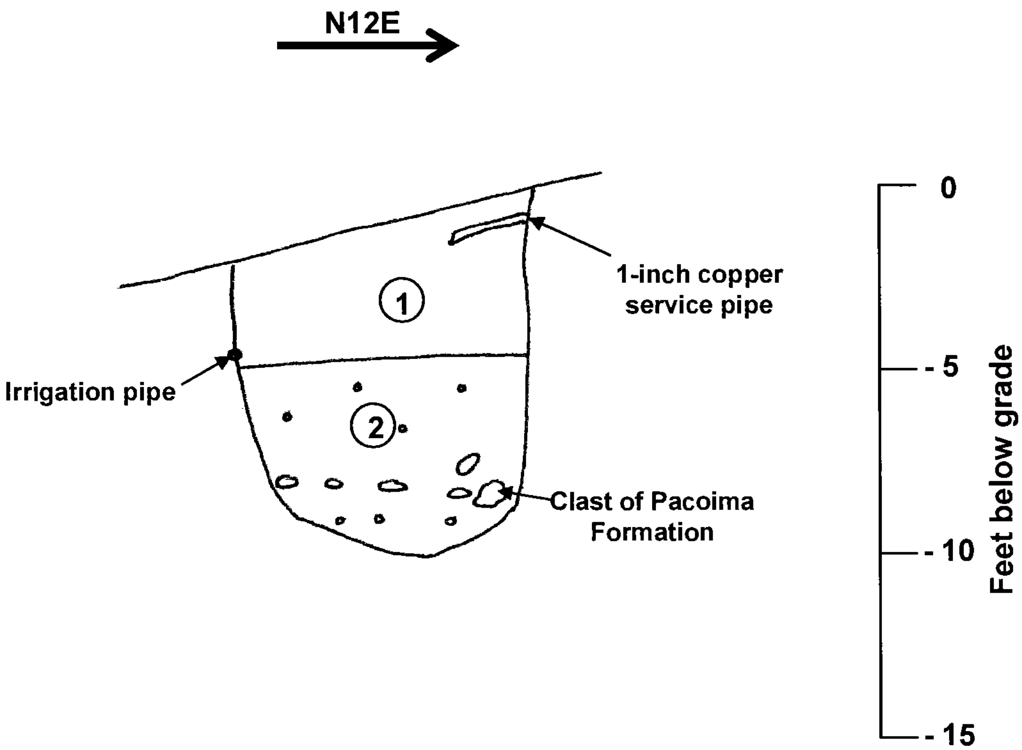
URS

Date(s) Excavated	3/20/2009	Logged By	Mike Snyder
Excavation Method	Case Excavator 590	Bucket Size/Type	2-foot bucket
Excavator Type	Backhoe	Test Pit Orientation	N12E
Sampling Method(s)	California Modified, Bulk sample		
Approximate Groundwater Depth and Date Measured	Not Encountered on 3/20/2009		
Comments	N34.32474°, W118.45151° NAD83		

Test Pit TP-2

Sheet 1 of 1

Job Number	29405434
Total Depth Excavated (ft)	10.0
Approximate Ground Surface Elevation(ft)	1440.0



1 – **<u>0-4.5' (AF) ARTIFICIAL FILL</u>- Silty SAND (SM), 10YR3/4 dark yellowish brown, medium dense, moist, fine matrix with fine gravel, subrounded clasts which are equant, with irrigation pipes and copper service pipes, non plastic.**

2 – **<u>4.5-10' (Qa) ALLUVIUM (Younger)</u>- SAND (SW), 10YR3/4 dark yellowish brown, medium dense to loose, moist, fine to medium grained sand, some fine to medium gravel, subrounded clasts which are oblate to prolate, below 7.5-feet becomes lighter gray, loose, moist, increasing gravel content, cobbles up to 11-inches in diameter, clasts of varying granitic lithologies and Pacoima Formation, clasts are oblate to prolate, clasts are not grussified, nonplastic.**

LOG OF TEST PIT

Olive View Medical Center Child Care Center Project
14445 Olive View Drive, Sylmar, California
FOR: COLA/DPW

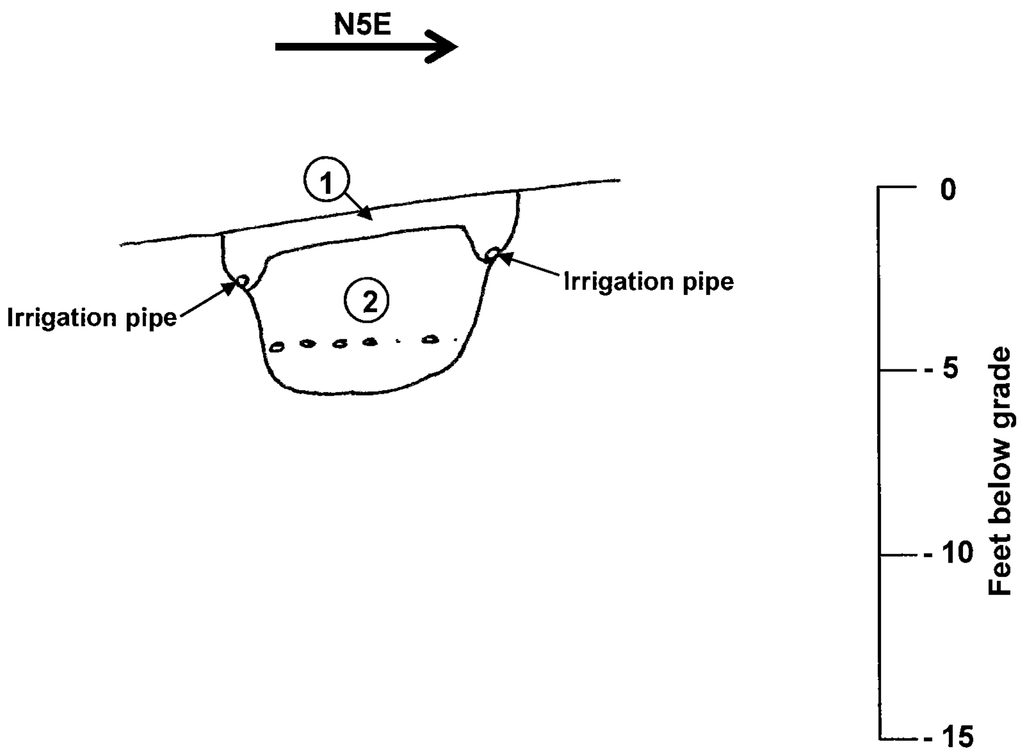
URS

Date(s) Excavated	3/20/2009	Logged By	Mike Snyder
Excavation Method	Case Excavator 590	Bucket Size/Type	2-foot bucket
Excavator Type	Backhoe	Test Pit Orientation	N5E
Sampling Method(s)	Bulk sample		
Approximate Groundwater Depth and Date Measured	Not Encountered on 3/20/2009		
Comments	N34.32503°, W118.45166° NAD83		

Test Pit TP-3

Sheet 1 of 1

Job Number	29405434
Total Depth Excavated (ft)	5.0
Approximate Ground Surface Elevation(ft)	1445.0



1 – 0-1' (AF) ARTIFICIAL FILL- Silty SAND (SM), 10YR3/4 dark yellowish brown, medium dense, moist, fine matrix with fine gravel, subrounded clasts which are equant, with irrigation pipes, non plastic.

2 – 1-5' (Qa) ALLUVIUM (Younger)- SAND (SW), 10YR3/6 dark yellowish brown, medium dense to loose, moist, fine to medium grained sand, fine to coarse gravel to cobbles, rounded to subangular clasts which are oblate to prolate, clasts are not grussified, non plastic.

LOG OF TEST PIT

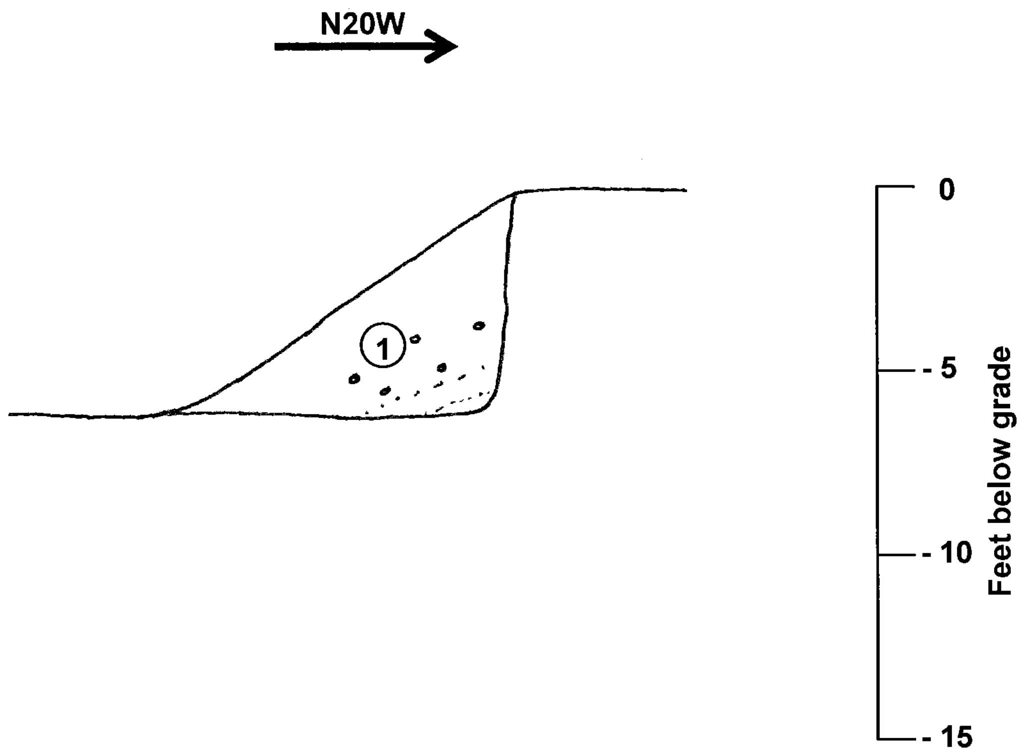
Olive View Medical Center Child Care Center Project
14445 Olive View Drive, Sylmar, California
FOR: COLA/DPW

URS

Date(s) Excavated	3/20/2009	Logged By	Mike Snyder
Excavation Method	Case Excavator 590	Bucket Size/Type	2-foot bucket
Excavator Type	Backhoe	Test Pit Orientation	N20W
Sampling Method(s)	California Modified, Bulk sample		
Approximate Groundwater Depth and Date Measured	Not Encountered on 3/20/2009		
Comments	N34.32486°, W118.45100° NAD83		

Test Pit TP-4
Sheet 1 of 1

Job Number	29405434
Total Depth Excavated (ft)	6.0
Approximate Ground Surface Elevation(ft)	1448.0



1 – <u>0-6' (Qoa) ALLUVIUM (Older)</u>- **Silty fine SAND to SAND (SM), 10YR3/6 dark yellowish brown to 2.5Y5/6 light olive brown, color becomes lighter with depth, medium dense to dense, moist, fine matrix with fine to coarse gravel to cobbles, subrounded clasts which are equant to oblate, cobbles up to 6-inches in diameter, some clasts are grussified, non plastic.**

This log is part of the report prepared by URS for this project and should be read together with the report. This summary applies only at the location of the exploration and at the time of drilling or excavation. Subsurface conditions may differ at other locations and may change at this location with time. Data presented are a simplification of actual conditions encountered.

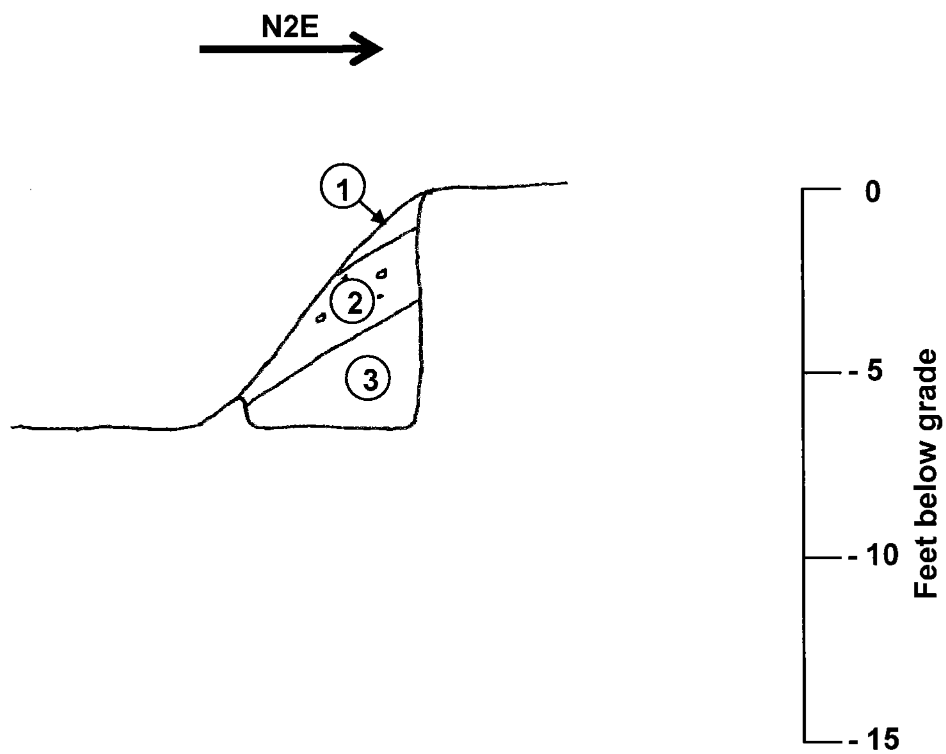
LOG OF TEST PIT
Olive View Medical Center Child Care Center Project
14445 Olive View Drive, Sylmar, California
FOR: COLA/DPW

URS

Date(s) Excavated	3/20/2009	Logged By	Mike Snyder
Excavation Method	Case Excavator 590	Bucket Size/Type	2-foot bucket
Excavator Type	Backhoe	Test Pit Orientation	N2E
Sampling Method(s)	Bulk sample		
Approximate Groundwater Depth and Date Measured	Not Encountered on 3/20/2009		
Comments	N34.32472°, W118.45094° NAD83		

Test Pit TP-5

Job Number	29405434
Total Depth Excavated (ft)	6.5
Approximate Ground Surface Elevation(ft)	1438.0



1 – 0-1' (AF) ARTIFICIAL FILL- Silty SAND (SM), 10YR3/4 dark yellowish brown, medium dense, moist, fine matrix with fine gravel, subrounded clasts which are equant, non plastic.

2 – 1-3' (Qa) ALLUVIUM (Younger)- SAND (SW), 10YR3/4 dark yellowish brown, medium dense to loose, moist, fine to medium grained sand, some fine to medium gravel to cobbles, subrounded clasts which are oblate to prolate, cobbles up to 5-inches in diameter, clasts are not grussified, non plastic.

3 – 3-6.5' (Qoa) ALLUVIUM (Older)- SAND (SW), 10YR3/6 dark yellowish brown to 2.5Y5/6 light olive brown, color becomes lighter with depth, medium dense to dense, moist, fine to medium matrix, few cobbles up to 8-inches in diameter, subrounded clasts which are oblate to equant, clasts are grussified, non plastic.

LOG OF TEST PIT

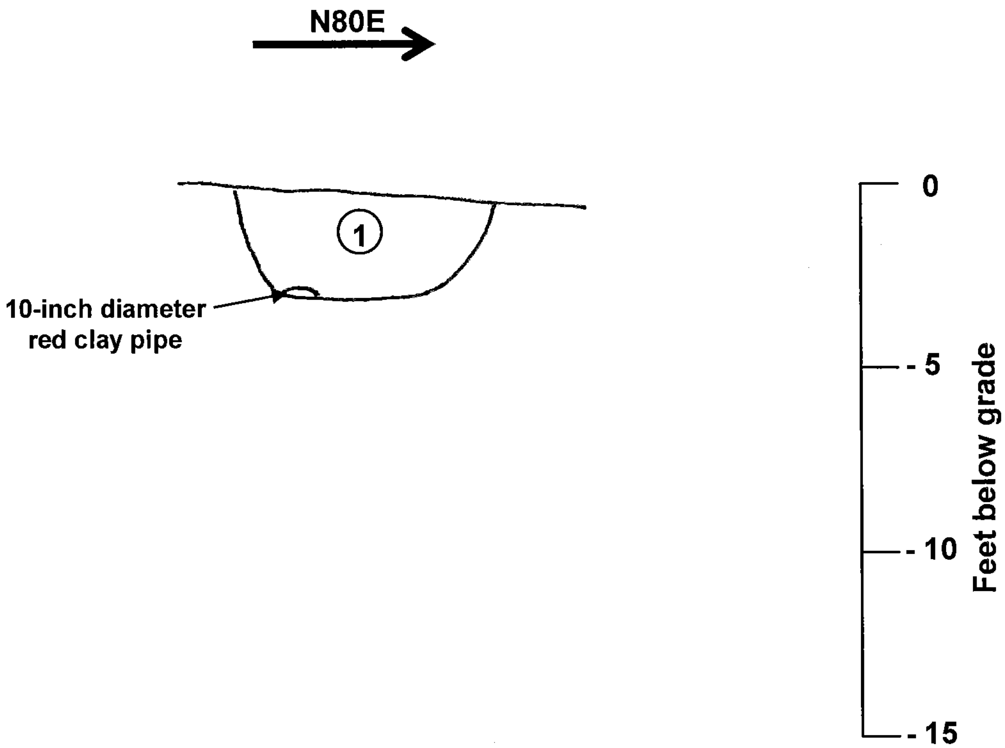
Olive View Medical Center Child Care Center Project
14445 Olive View Drive, Sylmar, California
FOR: COLA/DPW

URS

Date(s) Excavated	3/20/2009	Logged By	Mike Snyder
Excavation Method	Case Excavator 590	Bucket Size/Type	2-foot bucket
Excavator Type	Backhoe	Test Pit Orientation	N80E
Sampling Method(s)	Not sampled		
Approximate Groundwater Depth and Date Measured	Not Encountered on 3/20/2009		
Comments	N34.32484°, W118.45104° NAD83		

Test Pit TP-6

Job Number	29405434
Total Depth Excavated (ft)	2.5
Approximate Ground Surface Elevation(ft)	1438.0



1 – **<u>0-2.5' (AF) ARTIFICIAL FILL</u>- Silty SAND (SM), 10YR3/4 dark yellowish brown, medium dense, moist, fine grained matrix, trace fine gravel, subangular clasts which are equant, with 10-inch diameter red clay pipe, non plastic.**

LOG OF TEST PIT

Olive View Medical Center Child Care Center Project
14445 Olive View Drive, Sylmar, California
FOR: COLA/DPW

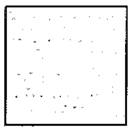
URS

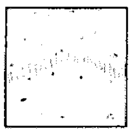
Appendix B

Trench Logs

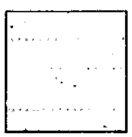
LEGEND

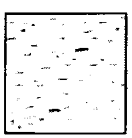

(ARTIFICIAL FILL), VERY DENSE, HARD, BROWN (7.5 YR, 5/4D, 3/4M), CLAYEY SAND AND SANDY CLAY, FROM STATIONS 0 TO 42 IN TRENCH 1, LOOSE YELLOWISH BROWN (10YR 5/4D) SILTY SAND FROM STATIONS 42 TO 95 IN TRENCH 1 AND IN TRENCH 2


YOUNGER ALLUVIUM (HOLOCENE), PALE YELLOW (2.5Y, 7/4D), POORLY GRADED SAND AND FINE GRAVEL, VERY WELL/THINLY STRATIFIED, FINE GRAVEL CLASTS ARE SUBROUNDED TO ROUNDED, FRESH TO SLIGHTLY WEATHERED

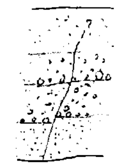

OLDER ALLUVIUM (PLEISTOCENE), MASSIVE, VERY DENSE (HARD) REDDISH BROWN (5YR 5/3D, 4/3M), SANDY CLAY, CLAYEY SAND (SHOWN AS SHADED AREAS ON LOG), GRADES TO BROWN (7.5YR 5/3D, 4/3M) SILTY SAND


OLDER ALLUVIUM (PLEISTOCENE), COMPRISED OF GRAVEL, COBBLES, AND BOULDERS IN A MEDIUM TO COARSE SAND MATRIX, VARIES LOCALLY FROM CLAST TO MATRIX SUPPORTED, LOCALLY WITH SOME SAND LENSES, GRAVEL TO BOULDER SIZE CLASTS ARE SUBANGULER TO SUBROUNDED AND COMPRISED OF IGNEOUS AND METAMORPHIC LITHOLOGIES, MANY CLASTS ARE EXTREMELY WEATHERED TO SAPROLITE


OLDER ALLUVIUM (PLEISTOCENE) LAMINATED SAND, CONSISTS OF CRUDELY LAMINATED, VERY PALE BROWN (10YR, 7/4D, 5/4M), SAND WITH COMMON CLAY BANDS AND STONE LINES (LAYERS OF FINE GRAVEL)


OLDER ALLUVIUM (PLEISTOCENE), SILTY SAND TO SANDY SILT, IS VERY DENSE (HARD) YELLOWISH BROWN (10YR 5/6D, 4/6M), MASSIVE


GROUND CRACK- A FRACTURE ALONG WHICH THERE HAS BEEN NO DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER, SOLID WHERE CLEARLY VISIBLE, DASHED AND QUERIED WHERE UNCERTAIN OR INFERRED


SHEAR- A FRACTURE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER, SOLID WHERE CLEARLY VISIBLE, DASHED AND QUERIED WHERE UNCERTAIN OR INFERRED

CONTACT- THE BOUNDARY BETWEEN DIFFERENTIATED DEPOSITIONAL UNITS, SOLID WHERE WELL DEFINED AND SHARP, DASHED WHERE POORLY DEFINED AND INFERRED, VERTICAL HACHURES WHERE GRADATIONAL

CLAY LAM (CLAY BAND) THIN LAYERS OF TRANSLOCATED CLAY

STONE LINE, THIN PLANER LAYER OF STONES

FUS — FINING UPWARD SEQUENCE, GRADATIONAL FINING OF GRAIN SIZE TOWARDS THE TOP OF THE DEPOSITIONAL BED

N10° E — TREND (BEARING) OF TRENCH

REFERENCE STRING LINE

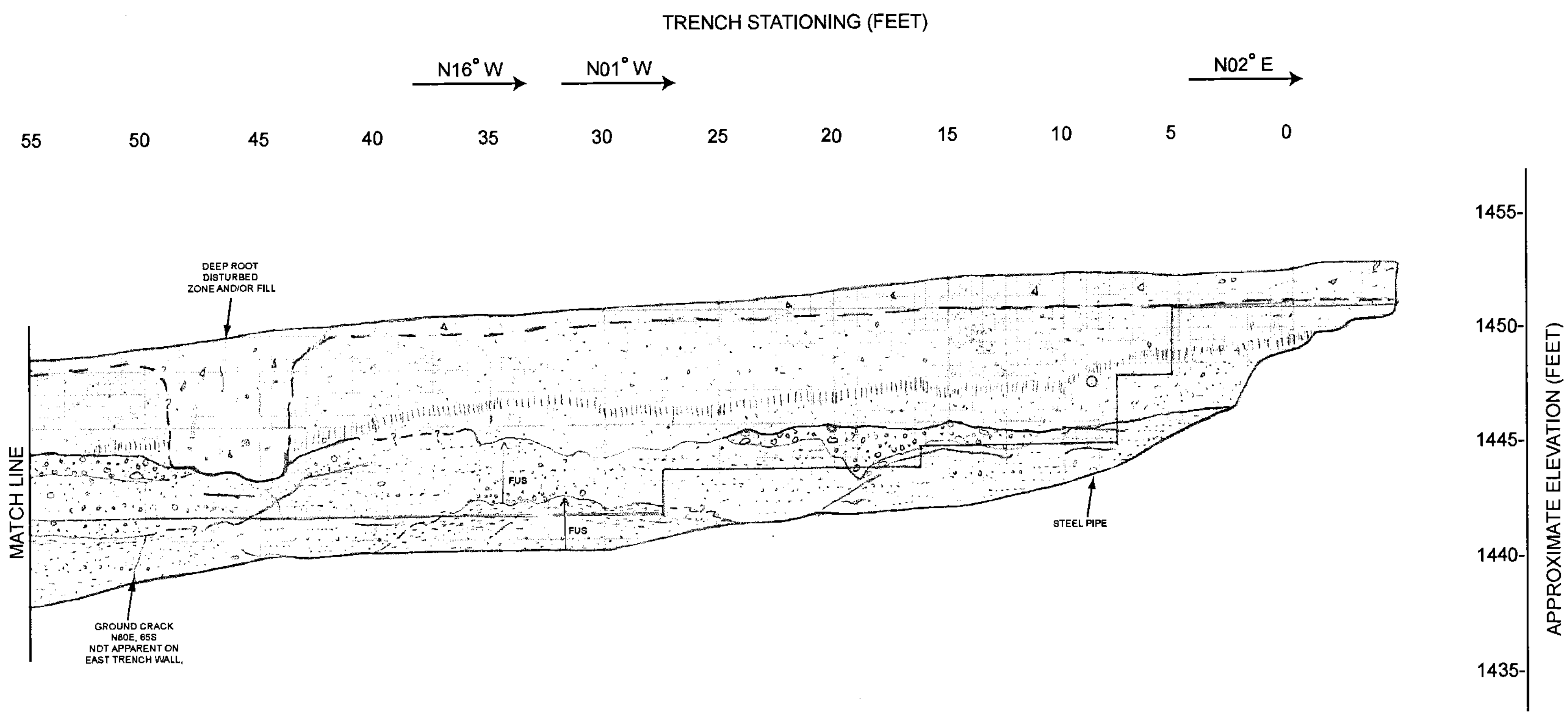
NOTES:

SOIL COLORS WERE MEASURED BY COMPARISON WITH MUNSELL SOIL COLOR CHART

ELEVATIONS ARE APPROXIMATE BASED ON TOPOGRAPHIC CONTOURS FROM THE GEOLOGIC MAP THAT WAS PROVIDED IN THE 1971 WOODWARD MCNEILL AND ASSOCIATES REPORT(SITE STUDIES OLIVE VIEW HOSPITAL LOS ANGELES COUNTY

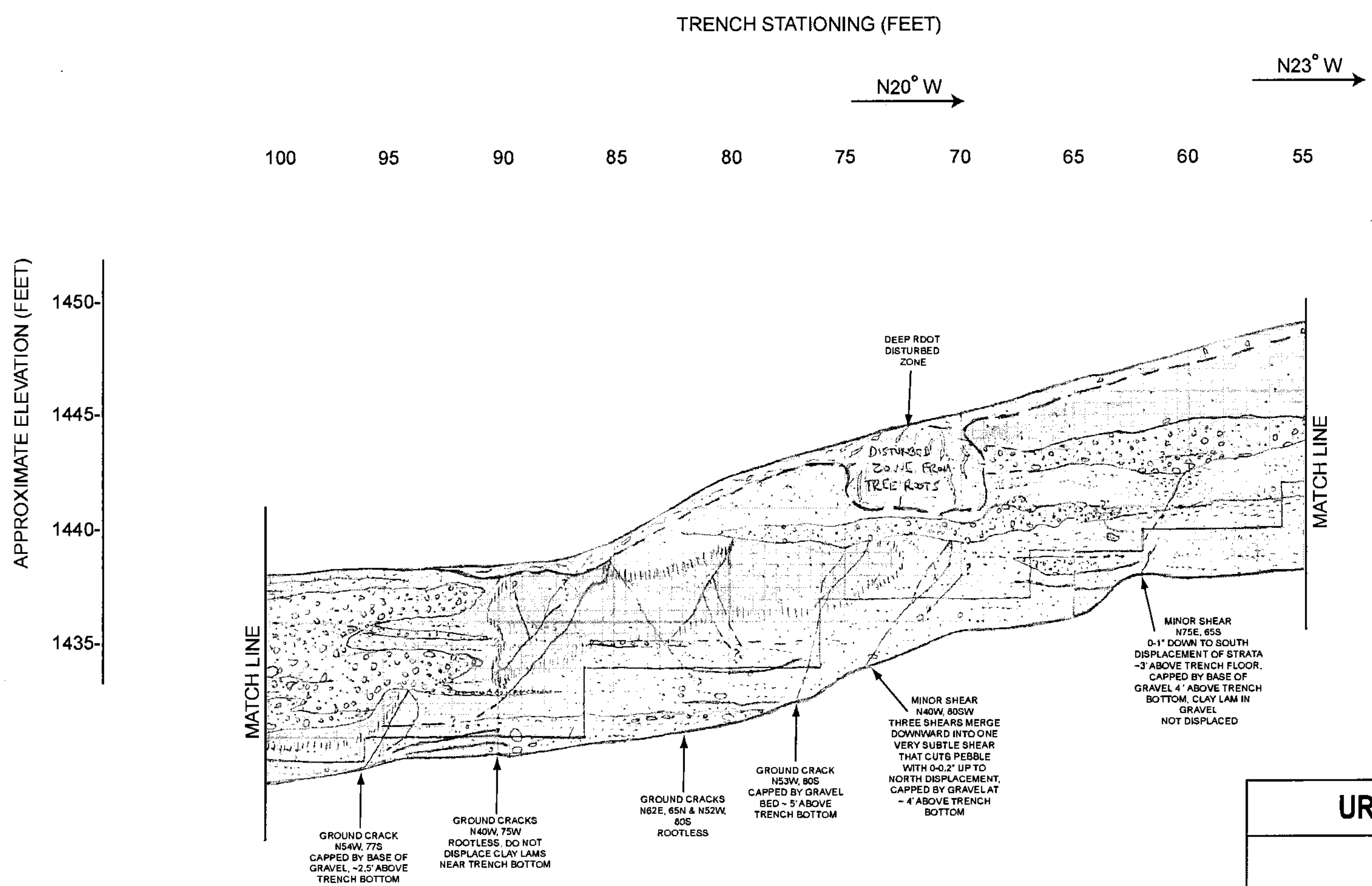
URS Corporation	
Trench Log Legend	
Project No.: 29405434	Date: May 2009
Project: Olive View Child Care Facility	Figure B-1 Sheet 1 of 6

URS



URS Corporation	
Trench Log T-1	
Project No.: 29405434	Date: May 2009
Project: Olive View Child Care Facility	Figure B-1 Sheet 2 of 6

URS



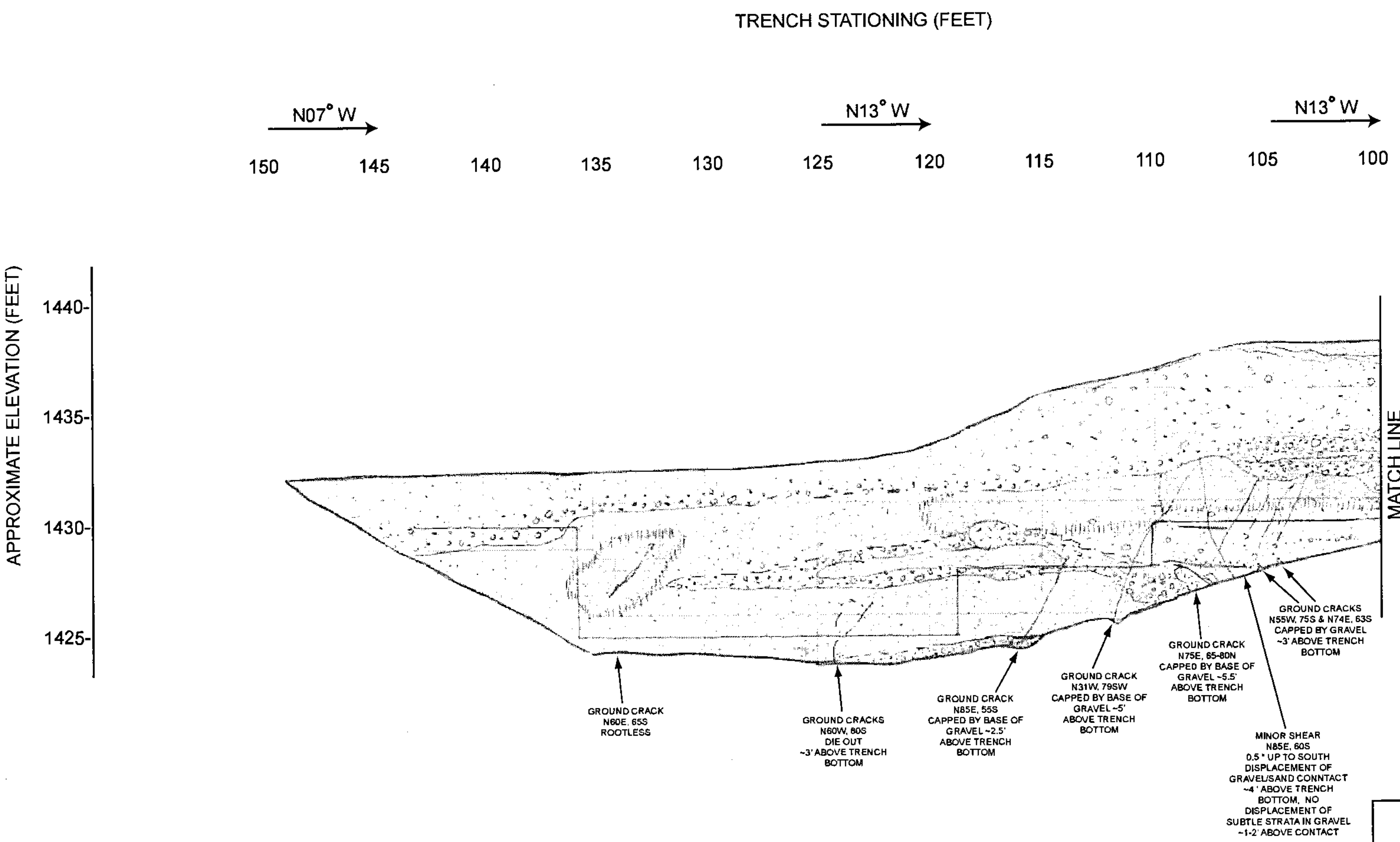
URS Corporation

Trench Log
T-1

Project No.: 29405434	Date: May 2009
Project: Olive View Child Care Facility	Figure B-1 Sheet 3 of 6

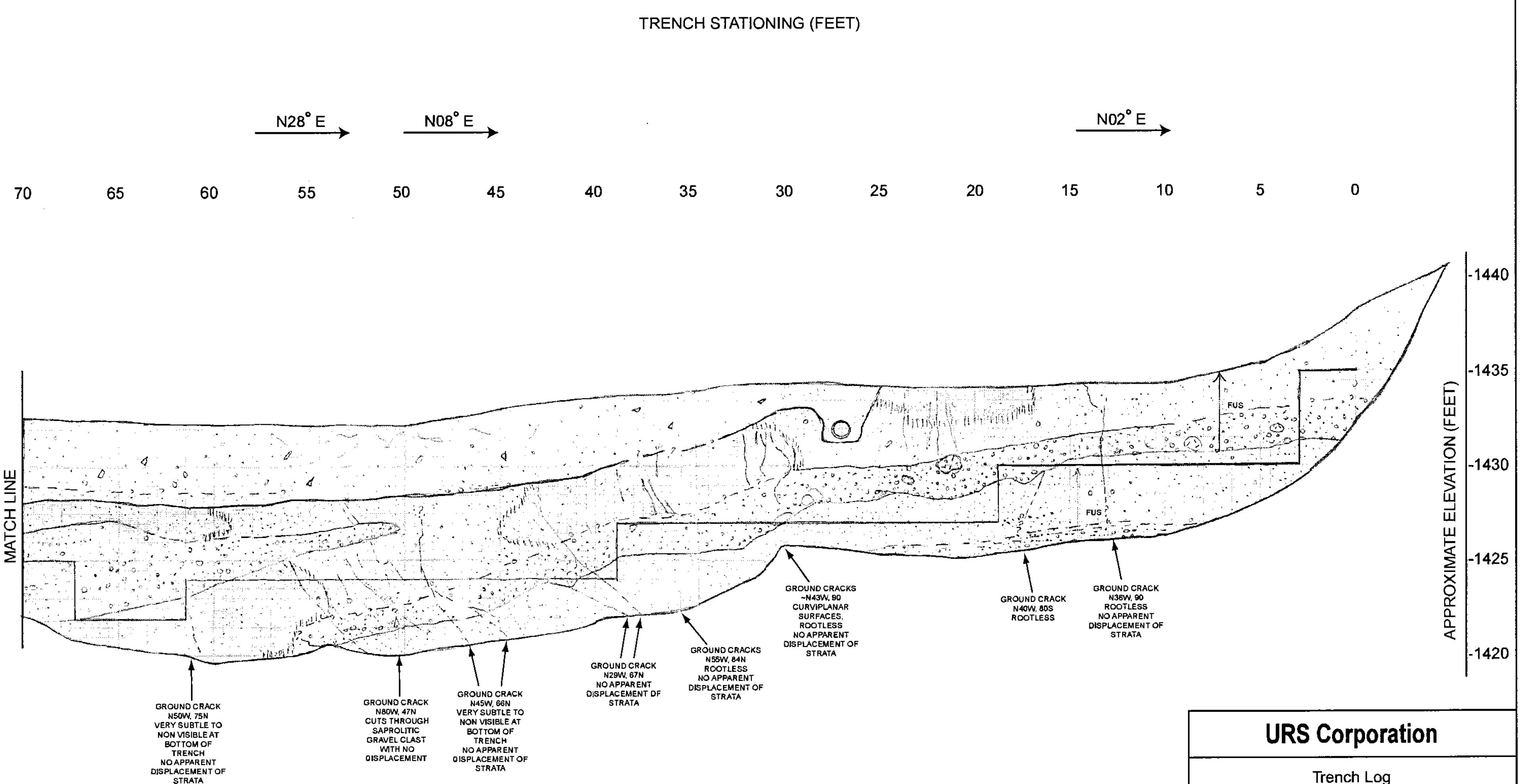
URS

K:/2009/ Olive View/ Child Care Center/ Figure B1_Sh-3of6.ai



URS Corporation	
Trench Log T-1	
Project No.: 29405434	Date: May 2009
Project: Olive View Child Care Facility	Figure B-1 Sheet 4 of 6

URS



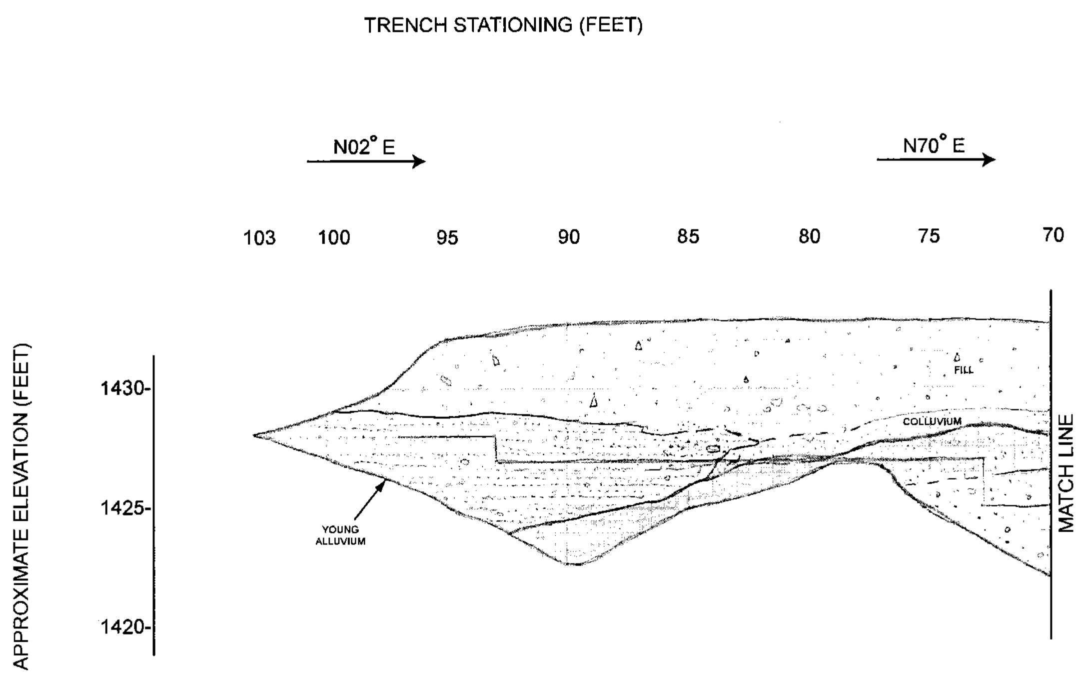
URS Corporation

Trench Log
T-2

Project No.: 29405434	Date: May 2009
Project: Olive View Child Care Facility	Figure B-1 Sheet 5 of 6

URS

K:/2009/ Olive View/ Child Care Center/ Figure B1_Sh-5of6.ai



URS Corporation	
Trench Log T-2	
Project No.: 29405434	Date: May 2009
Project: Olive View Child Care Facility	Figure B-1 Sheet 6 of 6

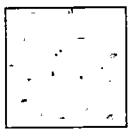
URS

Appendix C

PUCF Trench Log

LEGEND

(ARTIFICIAL FILL), OCCURS AT THE TOP OF THE TRENCH, TYPICALLY RANGES FROM 0.5 TO 3.0 FEET THICK, VERY DENSE, HARD, BROWN (7.5 YR, 5/4D, 3/4M), CLAYEY SAND AND SANDY CLAY, WITH FRAGMENTS OF CONCRETE, BRICK, AND CLAY PIPE



(UPPER SANDY CLAY UNIT) OCCURS IMMEDIATELY BELOW THE FILL, TYPICALLY IS 2 ½ TO 8 FEET THICK, VERY DENSE, HARD, REDDISH BROWN (5YR, 4/4D, 3/4M) TO BROWN (7.5YR, 5/3D, 3/3M), MASSIVE, SANDY CLAY AND CLAYEY SAND, WITH TRACE FINE GRAVEL CLASTS OF IGNEOUS/METAMORPHIC LITHOLOGY

(GRAVEL UNIT) RANGES FROM ZERO AT THE SOUTH END OF THE TRENCH TO 7 FEET THICK AT THE NORTH END, COMPRISED OF GRAVEL, COBBLES, AND BOULDERSIN A MEDIUM TO COARSE SAND MATRIX, VARIES LOCALLY FROM CLAST TO MATRIX SUPPORTED, LOCALLY WITH SOME SAND LENSES, CLASTS ARE COMPRISED OF IGNEOUS AND METAMORPHIC LITHOLOGIES, MANY CLASTS ARE EXTREMELY WEATHERED TO SAPROLITE

(LAMINATED SAND UNIT) TYPICALLY OCCURS NEAR THE BOTTOM OF AND AT THE SOUTHERLY END OF THE TRENCH, CONSISTS OF CRUDELY LAMINATED, VERY PALE BROWN (10YR, 7/4D, 5/4M), SAND WITH COMMON CLAY BANDS AND STONE LINES (LAYERS OF FINE GRAVEL), LOCALLY GRADES LATERALLY TO LOWER SILTY SAND UNIT

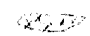
(LOWER SILTY SAND UNIT) OCCURS AS THE BASAL UNIT FOR MOST OF THE TRENCH, TYPICALLY IS VERY DENSE, HARD, YELLOWISH BROWN (10YR, 5/6D, 4/6M), MASSIVE, SILTY FINE TO MEDIUM SAND, LOCALLY GRADES LATERALLY TO LAMINATED SAND UNIT

GROUND CRACK- A FRACTURE ALONG WHICH THERE HAS BEEN NO DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER, SOLID WHERE CLEARLY VISIBLE, DASHED AND QUERIED WHERE UNCERTAIN OR INFERRED

SHEAR- A FRACTURE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER, SOLID WHERE CLEARLY VISIBLE, DASHED AND QUERIED WHERE UNCERTAIN OR INFERRED

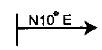
CONTACT- THE BOUNDARY BETWEEN DIFFERENTIATED DEPOSITIONAL UNITS OF VARIED GRAIN SIZE

KROTAVINA- INFILLED ANIMAL BURROW



CONCRETE

CLAY BAND



TREND (BEARING) OF TRENCH

REFERENCE STRING LINE

NOTES:

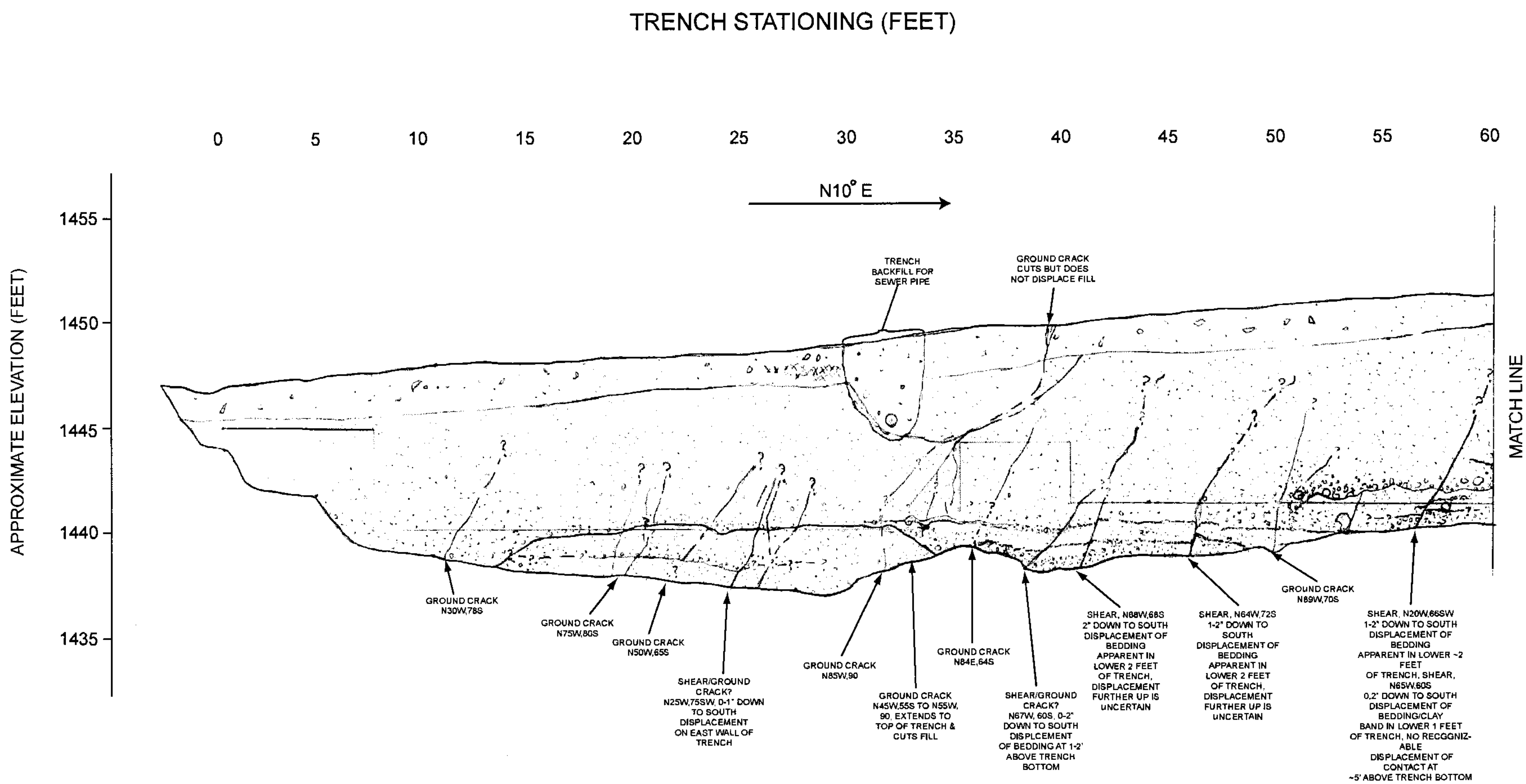
SOIL COLORS WERE MEASURED BY COMPARISON WITH MUNSELL SOIL COLOR CHART

ELEVATIONS ARE APPROXIMATE BASED ON TOPOGRAPHIC CONTOURS FROM THE GEOLOGIC MAP THAT WAS PROVIDED IN THE 1971 WOODWARD MCNEILL AND ASSOCIATES REPORT(SITE STUDIES OLIVE VIEW HOSPITAL LOS ANGELES COUNTY

URS Corporation	
Trench Log	
Project No.: 29405004	Date: August 2007
Project: Olive View UCLA Medical Center Psychiatric Urgent Care Facility	Figure C-1 Sheet 1 of 7

URS

K:/2009/ Olive View/ Child Care Center/ Old Figures/ Figure C-1_sh-1of7.ai



URS Corporation	
Trench Log	
Project No.: 29405004	Date: August 2007
Project: Olive View UCLA Medical Center Psychiatric Urgent Care Facility	Figure C-1 Sheet 2 of 7

URS

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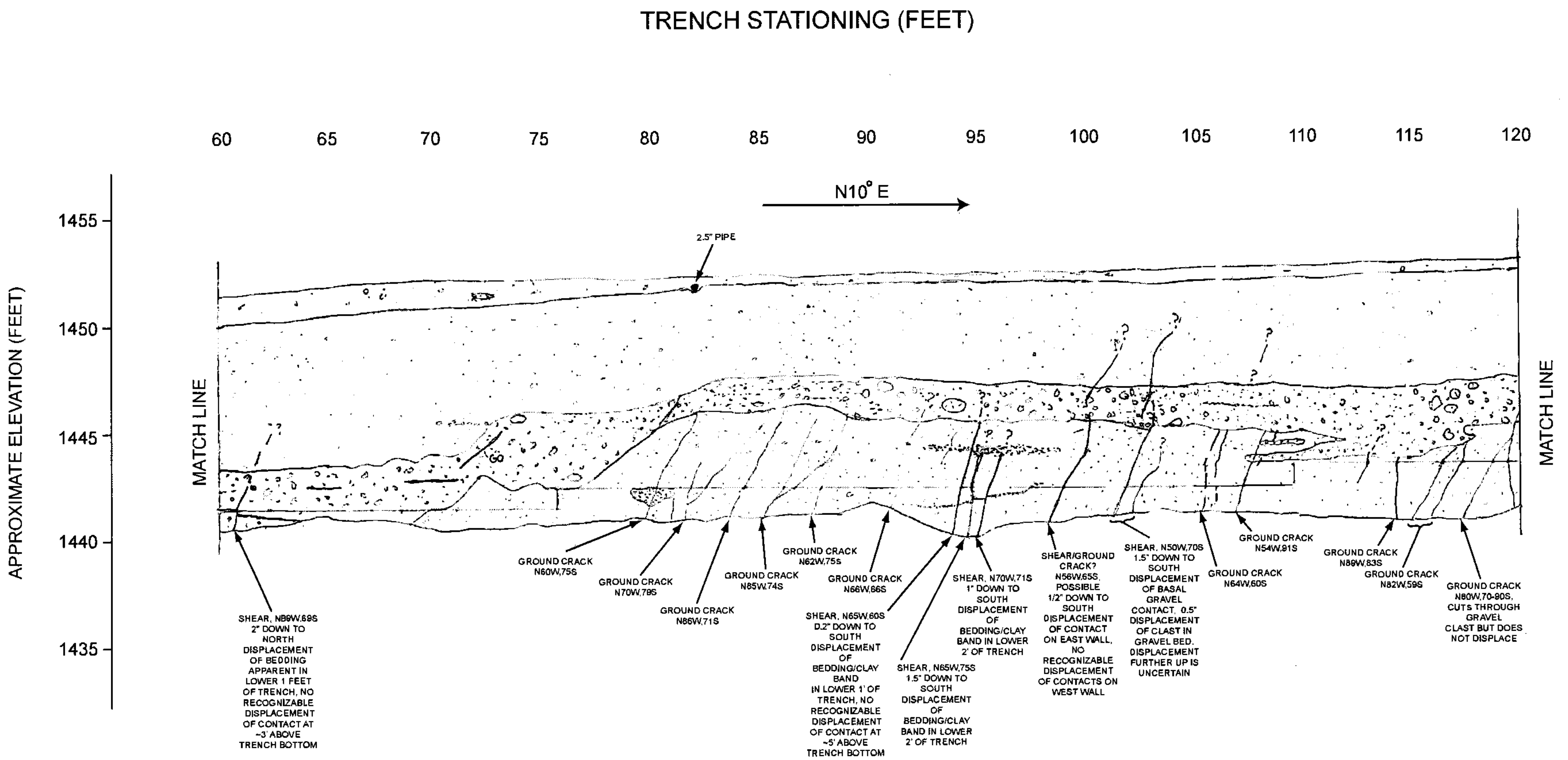
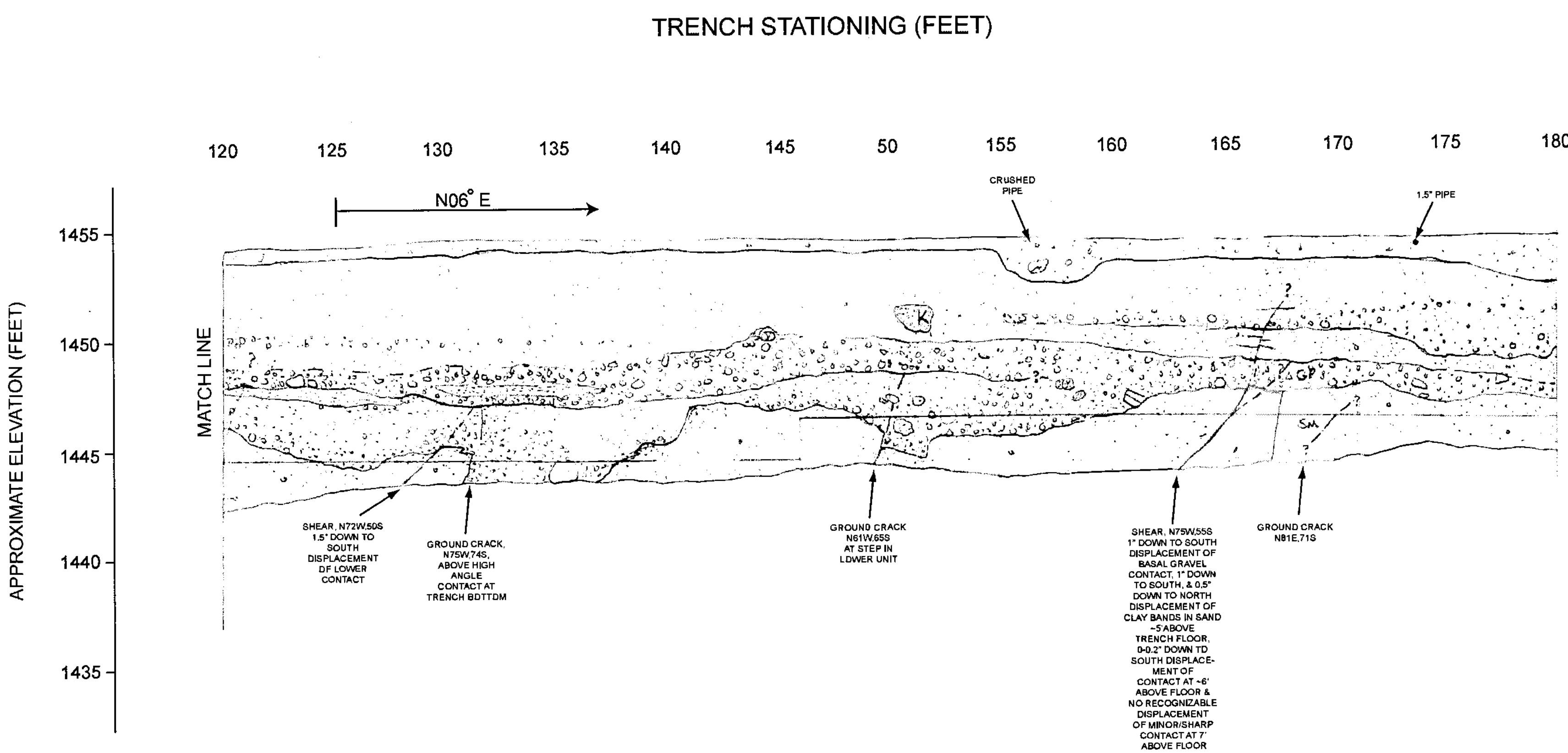


URS Corporation

Trench Log

Project No.: 29405004	Date: August 2007
Project: Olive View UCLA Medical Center Psychiatric Urgent Care Facility	Figure C-1 Sheet 3 of 7

URS

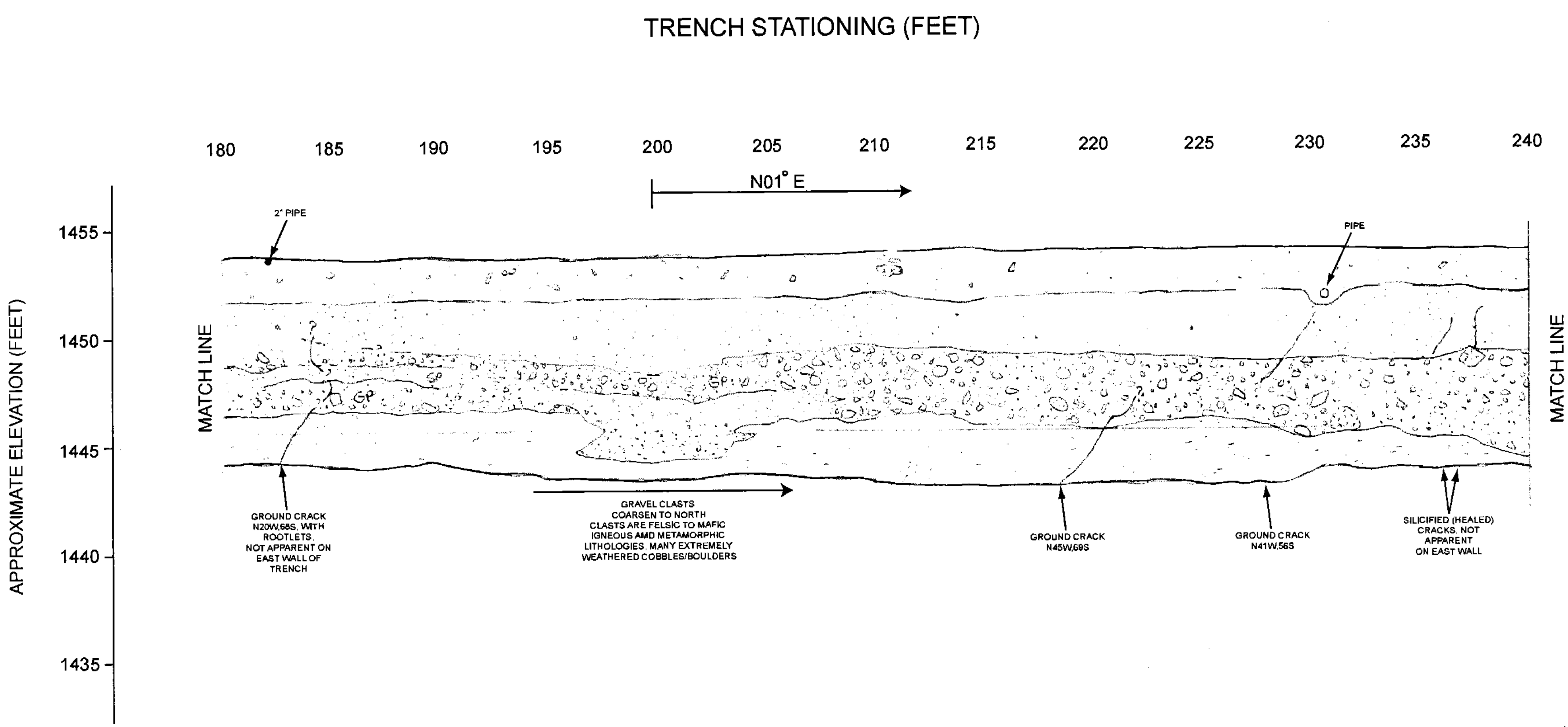


URS Corporation

Trench Log

Project No.: 29405004	Date: August 2007
Project: Olive View UCLA Medical Center Psychiatric Urgent Care Facility	Figure C-1 Sheet 4 of 7

URS



URS Corporation	
Trench Log	
Project No.: 29405004	Date: August 2007
Project: Olive View UCLA Medical Center Psychiatric Urgent Care Facility	Figure C-1 Sheet 5 of 7

URS

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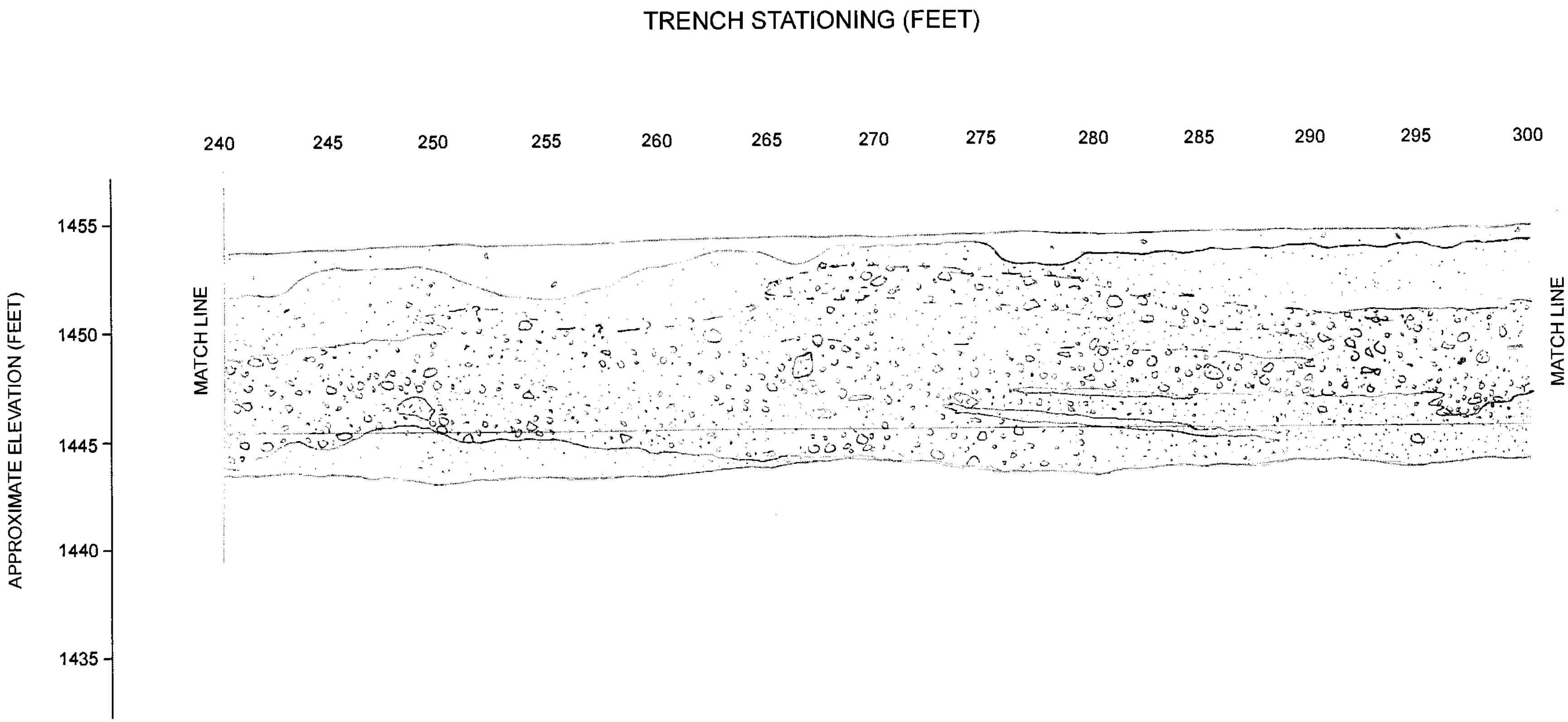

URS Corporation	
Trench Log	
Project No.: 29405004	Date: August 2007
Project: Olive View UCLA Medical Center Psychiatric Urgent Care Facility	Figure C-1 Sheet 6 of 7

URS

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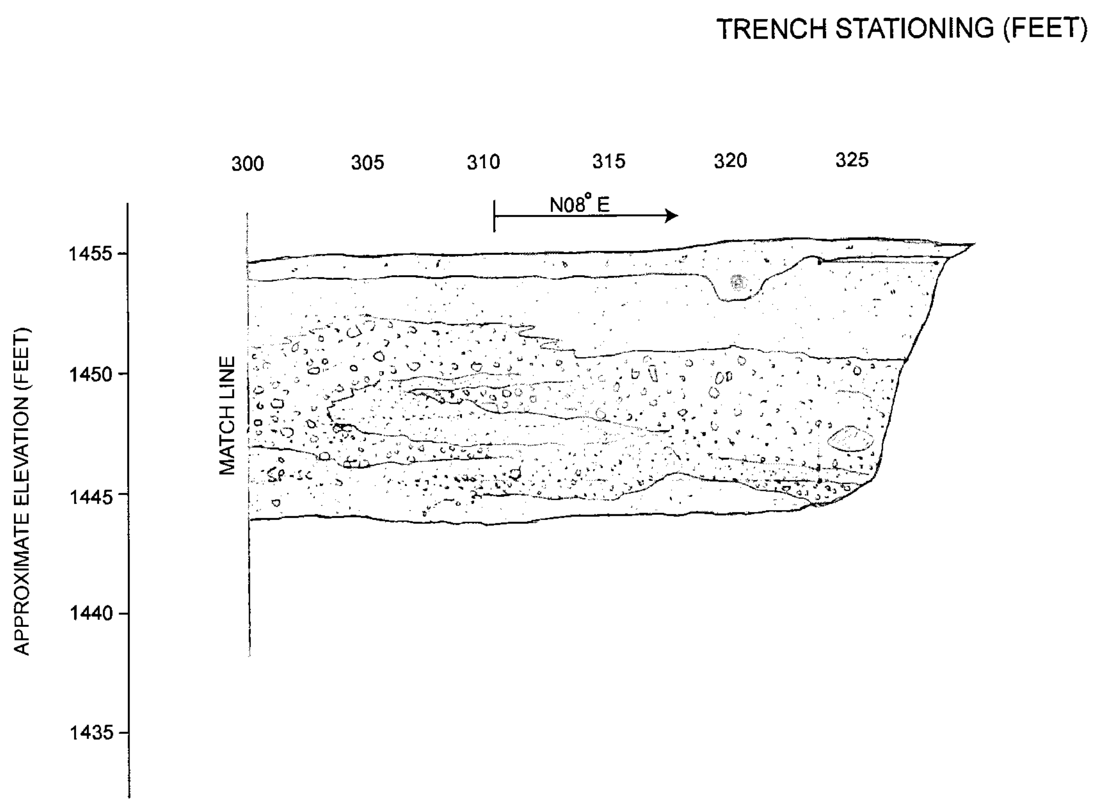

URS Corporation	
Trench Log	
Project No.: 29405004	Date: August 2007
Project: Olive View UCLA Medical Center Psychiatric Urgent Care Facility	Figure C-1 Sheet 7 of 7

URS

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ATTACHMENT 2

GEOTECHNICAL INVESTIGATION

GEOTECHNICAL INVESTIGATION

DAY CARE FACILITY
OLIVE VIEW – UCLA MEDICAL CENTER

CONTRACT NUMBER PW 13099
URS JOB NUMBER 29405434

Prepared for

County of Los Angeles
Department of Public Works
Project Management Division, 5th Floor
900 South Fremont Avenue
Alhambra, California 91803-1331

April 29, 2010

Prepared by

URS

URS Corporation
915 Wilshire Boulevard, Suite 700
Los Angeles, CA 90017

April 29, 2010

County of Los Angeles
Department of Public Works
Project Management Division, 5th Floor
900 South Fremont Avenue
Alhambra, California 91803-1331

Attention: Ms. Wenling Wu

Subject: Report
Geotechnical Investigation
Day Care Facility
Olive View – UCLA Medical Center
14445 Olive View Drive
Sylmar, California
Contract No. PW 13099
URS Job No.: 29405434

Dear Ms. Wu:

URS Corporation is pleased to present our report, "Geotechnical Investigation, Day Care Facility, Olive View – UCLA Medical Center, 14445 Olive View Drive, Sylmar, California." This report summarizes the results of our investigation and contains geotechnical recommendations for design and construction of the project.

If you have any questions regarding this report, please contact us. We look forward to being of further assistance as construction begins.

Very truly yours,

URS

Garry Lay, P.E., G.E.
Principal Engineer/Vice President
Manager, Geotechnical Department

TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

TABLES

1.0 INTRODUCTION

1.1 GENERAL

This report presents the results of a geotechnical investigation performed by URS Corporation (URS) for the proposed rebuilding of the Day Care Facility (Project) located east of the Main Hospital Complex at the Olive View – UCLA Medical Center campus in Sylmar, California. This investigation was requested by the County of Los Angeles Department of Public Works/Project Management Division (PMD). The URS geotechnical investigation was performed in general accordance with the scope of services outlined in our proposal, dated February 19, 2009 and in accordance with the existing As-needed Geotechnical Engineering, Testing, and Inspection Services Contract (PW 13099) between PMD and URS.

This geotechnical investigation was performed in accordance with the 2008 Los Angeles County Building Code, 2007 California Building Code (CBC), 2006 Manual for Preparation of Geotechnical Reports by the County of Los Angeles Department of Public Works. Our laboratory testing was performed in accordance with the latest American Society for Testing and Materials (ASTM) Standards and California Test Methods (CTM).

Conclusions and recommendations presented in this report are based on subsurface conditions encountered at our exploration locations and our previous experience on similar projects. As subsurface conditions may vary at different locations, these conclusions and recommendations should not be extrapolated to other areas, or used for other facilities, without our prior review.

1.2 PROJECT DESCRIPTION

The location of the proposed Day Care Facility and the Olive View Medical Center relative to the surrounding area is shown on the Vicinity Map, Figure 1. The project site under consideration for the Day Care Facility is part of the Olive View Medical Center complex and is located north of Olive View Drive and on the east side of East Way. The subject site currently contains the burned remnants of the previous Day Care Facility, and the area is currently fenced with temporary fencing. The site coordinates used for this study are 34°19'29.6" North and 118°27'05.9" West. We understand that the Project will consist of a new one-story Day Care Facility building structure with a footprint of approximately 5,200 square feet.. The ground surface of the Project is relatively flat and the existing ground surface elevations varies from approximately 1,440 to 1,445 feet (from south to north) above mean sea level (MSL).

2.0 PERTINENT PREVIOUS INVESTIGATIONS

Between 1971 and 1974, URS (as Woodward-McNeill & Associates and then Woodward-Clyde Consultants, both predecessor companies of URS) conducted several geotechnical investigations for the reconstruction of the original main hospital building, which was severely damaged during the 1971 San Fernando earthquake. URS also conducted a geotechnical investigation in 1993/1994 for the then proposed Perinatal/Emergency Room Project, which was not constructed. In 2002, URS updated the geologic/seismic hazards of the hospital site as part of the SB1953 Seismic Evaluation Program. In 2005 URS performed a geotechnical investigation for the Emergency Services Expansion and Tuberculosis Isolation Unit Project, which is currently under construction. Our March 1, 2002 Update Geohazards Report and June 23, 2005 Geotechnical Investigation Report were reviewed and approved by CGS, who is the reviewer for site-specific geohazards reports for the Office of Statewide Health Planning and Development (OSHPD). Between 2007 and 2008, URS conducted fault rupture hazard investigation at various locations within the campus and geotechnical investigation for the Psychiatric Urgent Care Facility at Site 4, which is currently under construction.

Table 1 provides a list of previous geotechnical reports for the Project site. Pertinent results of these investigations were reviewed for the preparation of this report. The reports are also listed in Section 11 References.

Table 1 – LIST OF PAST REPORTS

Report Title	Date	Author
Geotechnical Investigation, Propose Psychiatric Urgent Care Building at Site 4, Olive View – UCLA Medical Center, 14445 Olive View Drive, Sylmar, California	05-14-2008	URS Corporation
Report (Revised), Fault Rupture Hazard Investigation for the Proposed Psychiatric Urgent Care Facility at Site 4, 14445 Olive View Drive, Sylmar, California	05-05-2008	URS Corporation
Report, Geological Screening at Sites 7, 9 and 12, Olive View-UCLA Medical Center, 14445 Olive View Drive, Sylmar, California	2-22-2008	URS Corporation
Report, Fault Rupture Hazard Investigation for the Proposed Psychiatric Urgent Care Facility Olive View-UCLA Medical Center, Sylmar, California	09-17-2007	URS Corporation
Report, Geotechnical Investigation Emergency Services Expansion and Tuberculosis Isolation Unit Project	06-23-2005	URS Corporation
Updated Geohazards Report Olive View – UCLA Medical Center, 14445 Olive View Drive, Sylmar, California	03-01-2002	URS Corporation
Report Addendum – Response to DMG Comments, Geologic/Seismic Report, Olive View/UCLA Central Perinatal/ER, Sylmar, California	12-19-1994	Woodward-Clyde Consultants
Geotechnical Investigation, Olive View + UCLA Medical Center, Perinatal/Emergency Room Project, Sylmar, California	12-07-1993	Woodward-Clyde Consultants
Engineering Geologic Investigation, Olive View + UCLA Medical Center Perinatal/Emergency Room Project, Sylmar, California	12-06-1993	Woodward-Clyde Consultants
Geotechnical Investigation, Olive View Medical Center, Proposed Central Cogeneration Plant Renovation, Sylmar, California	11-8-1993	Woodward-Clyde Consultants
Engineering Geologic Investigation, Olive View + UCLA Medical Center, Perinatal/Emergency Room Project, Sylmar, California	5-11-1993	Woodward-Clyde Consultants
Geotechnical Investigation for the Reconstruction of Olive View Hospital, Part I, Geologic - Seismic Investigation, unpublished consultant report to the County of Los Angeles	11-21-1974	Woodward-McNeill and Associates
Report of Site Studies - Olive View Hospital, Los Angeles County, unpublished consultant report to the Los Angeles County Board of Supervisors	12-13-1971	Woodward-McNeill and Associates

3.0 PURPOSE AND SCOPE OF SERVICES

The purpose of our investigation was to explore and evaluate the subsurface conditions at the site, to identify the key geotechnical issues or constraints that could potentially impact the proposed Project and to develop geotechnical recommendations for design and construction of the Project. The scope of our services as outlined in our proposal dated February 19, 2009, included performing the following tasks:

- Review plans and documents provided by PMD relative to the proposed Project;
- Field marking of boring locations and notifying Underground Service Alert (USA) prior to beginning our field investigation program to identify underground utility lines;
- Exploration of the subsurface conditions at the site by drilling and sampling 2 soil borings to depths of approximately 50 feet below the existing ground surface;
- Classification of samples obtained during the field investigation according to the Unified Soil Classification System (USCS) and in accordance with ASTM D-2488 to evaluate index, strength, and other pertinent parameters of the subsurface soils;
- Laboratory Analysis/Testing of Soil Samples in accordance with the ASTM and CTM standard procedures;
- Perform geological/seismic hazards evaluation;
- Perform engineering analyses upon which to base our geotechnical recommendations for design and construction of the Project; and
- Prepare this report containing our findings and preliminary recommendations that address geotechnical aspects of the Project in accordance with the current standards and requirements outlined in the Manual for Preparation of Geotechnical Reports (LACDPW, 2006).

4.0 FIELD INVESTIGATION AND LABORATORY TESTING

4.1 FIELD EXPLORATION PROGRAM

The subsurface conditions at the site were explored by drilling and sampling two (2) borings using a truck-mounted CME-55 drill rig, equipped with 8-inch diameter hollow-stem augers, and operated by our subcontractor, 2R Drilling of Chino, California. The depths of the borings were approximately 50 feet below the ground surface (bgs). Our exploratory boring program was initiated on April 9, 2009 and completed on the same day under the supervision of a URS geologist. Both borings were drilled at the west side of the proposed building and no borings are performed on the east side of the proposed building due to limited accessibility. Two trenches were excavated during the fault rupture hazard investigation phase and are located to the east of the proposed building. Data obtained from the trenches will be presented in a separate Surface Fault Rupture Hazard Investigation Report. The boring and trench locations are shown on Figure 2.

From the soil borings, both relatively undisturbed ring-lined soil samples from a Modified California sampler and Standard Penetration Test (SPT) samples (per ASTM D 1586) were obtained by driving the samplers 18 inches into the subsurface soils using a 140-pound hammer successively falling 30 inches. All blow counts were recorded at 6-inch intervals. The number of blows required to drive the sampler the final 12 inches was recorded on the logs of boring. Bulk samples from the near-surface soils were also collected from all borings. Soil samples were placed in sealed containers and transported to our soil mechanics laboratory for testing. Upon completion of the drilling activities, all boreholes were backfilled with soil cuttings and the surfaces were patched by asphalt concrete.

Our geologist maintained logs of the borings and classified the soils encountered according to the Unified Soil Classification System. A Key to the Log of Boring and description of the Unified Soil Classification System is presented in Figure A-1 of Appendix A. The logs of exploratory borings are presented in Figures A-2 through A-3 in Appendix A.

4.2 LABORATORY TESTING

Geotechnical soil samples obtained from the borings were carefully sealed and packaged in the field to reduce moisture loss and disturbance. The samples were delivered to our soil mechanics laboratory located in Los Angeles, where they were further examined and classified. Laboratory testing was performed on selected samples to confirm (and to modify if necessary) the visual classification of the soils based on the field identification, and to evaluate their physical and chemical properties. Geotechnical tests performed included:

- soil classification (ASTM D 2488);
- moisture content (ASTM D 2216);
- in-situ density test (ASTM D 2937);
- grain size analysis (ASTM D 422);
- direct shear test (ASTM D 3080);
- maximum density/optimum moisture content (ASTM D 1557); and
- corrosivity analyses (CTM 417, 422, 532, and 643).

A description of the laboratory testing and the test results are presented in Appendix B of this report. For ease of reference, test results of in-situ moisture and density, and fines content of soils tested are also shown on the Logs of Borings in Appendix A.

5.0 GEOLOGIC AND SUBSURFACE CONDITIONS

5.1 REGIONAL GEOLOGY

The Olive View-UCLA Medical Center site lies at the northern margin of the San Fernando Valley near the southern front of the San Gabriel Mountains. This region lies within the geologically complex and seismically active Transverse Ranges physiographic province of southern California. East-west trending mountain ranges and valleys characterize the Transverse Ranges physiographic province. This topographic pattern is formed by north-south crustal compression acting across numerous east-west trending active faults. Features that are representative of this east-west trending structure include the San Gabriel Mountains and the Sierra Madre fault system, a north-dipping system of reverse faults that trends along the southern front of the San Gabriel Mountains. It is along this system of faults that the San Gabriel Mountains have been elevated to their present position, and along which they continue to be uplifted. Most active faults in the Transverse Ranges province exhibit thrust or high-angle reverse left lateral oblique slip. The north-south compression affecting the province is generated by the westward bend in the northwest-trending San Andreas fault.

Locally, the San Gabriel Mountains are comprised of an igneous-metamorphic rock complex that is overlain along the southern margin by folded and faulted sedimentary rocks of Pliocene and Pleistocene age (Barrows et al., 1974; Dibblee, 1991; Hitchcock and Wills, 2000). Along the southern front of these mountains, lies the San Fernando Valley, which is a (geologically) recent alluvial surface composed of coalescing alluvial fans that have built out from the numerous southward-draining canyons in the bordering hills.

The site is located near the northern margin of the Sylmar groundwater basin, in the northern portion of the San Fernando Valley. Alluvial sediments that are several hundred feet in thickness form the Sylmar basin. These deposits thin at the basin margins, except along the southern edge, where thickening occurs across the San Fernando fault, toward the San Fernando basin.

5.2 LOCAL GEOLOGIC CONDITIONS

Geologic mapping by Barrows and others (1974) indicates that the project site is directly underlain by Pleistocene age alluvial deposits. According to the mapping of Barrow and others (1974) and other subsequent geologic maps (Hitchcock and Wills, 2000; California Division of Mines and Geology, 1998; United States Geological Survey, 2005), the project site is underlain by middle to late Pleistocene age alluvium. Sedimentary rock comprising Pleistocene age Pacoima Formation, and Miocene age Towsley Formation crop out in the foothills of the San Gabriel Mountains to the north of the site. The materials encountered during the site exploration within the Project site consist of artificial fill and native alluvium, as described in the following sections:

Artificial Fill - Artificial fill (non-documented human-placed fill material) was not observed in both borings drilled for the current investigation. Approximately 4 feet of fill was encountered at the north side of Trench T-1. No evidence was found that this fill was previously compacted and documented. The fill encountered in the Trench T-1 consisted of silty sand (SM).

Alluvium – Alluvial sediments were encountered in the borings and trenches below the ground surface. The alluvial materials are composed of mostly sand and gravel units. As observed during our current geotechnical investigation, the alluvium generally consists of silty sand (SM) and sand with silt (SP-SM). The alluvium also contained occasional gravels and cobbles. Blow counts recorded in the borings indicate the alluvium is mostly medium dense to the depth of about 35 feet below the ground surface, and dense to very dense thereafter.

5.3 GROUNDWATER

The Medical Center site lies within the northern margin of the Sylmar groundwater basin. As reported by Woodward-McNeill & Associates (1974), the depth to groundwater was believed to be at least 110 feet below existing grade. This depth appears consistent with the water level depth of the historic high groundwater level in the vicinity of the site, which is approximately 120 feet below the ground surface (California Division of Mines and Geology, 1998). However, perched groundwater was encountered at a depth of 25 feet below the ground surface (elevation of 1,445 feet MSL) in boring B-2 of the 2008 URS study, while the boring was located at a distance of greater than 1,000 feet to the east of the Day Care Facility site.

Groundwater was not encountered during the current investigation which included borings advanced to as much as 50 feet below ground surface. No surficial groundwater seeps have been observed or are known to exist at the site. The regional groundwater is anticipated to be relatively deep compared to the proposed excavations and would not likely be encountered during construction activities. However, perched water could be encountered, depending on rainfall and possible groundwater recharge in the site vicinity. Therefore, minor subsurface seepage could exist in excavations, particularly during and immediately after periods of heavy rainfall.

5.4 FAULTS AND SEISMICITY

Faults - The project site is located within a seismically active region that is well known for its many active faults and historic seismicity. Because the site is in a seismically active region, it follows that it will be subjected to future seismic shaking that will occur along local or regional faults. The characteristics of some of the faults considered by the California Geological Survey as potential seismic sources within about 50 kilometers (approximately 31 miles) of the site are listed in the following table, including an estimate of the maximum earthquake magnitude that might be generated by each fault. In general, the distances noted in the table are the closest distance from the site to the surface trace of the fault, unless otherwise noted.

Table 2 – MAJOR FAULT CHARACTERIZATION IN THE PROJECT VICINITY

FAULT	APPROXIMATE DISTANCE[1] (km)	MAXIMUM EARTQUAKE MAGNITUDE[1] (Mw)
Sierra Madre (San Fernando)	2.3	6.7
Santa Susana	4.0	6.7
Northridge (E. Oak Ridge)	5.7	7.0
San Gabriel	5.9	7.2
Verdugo	7.0	6.9
Holser	13.3	6.5
Sierra Madre	15.8	7.2
Simi – Santa Rosa	21.2	7.0
Hollywood	24.6	6.4
Oak Ridge (Onshore)	26.1	7.0
Upper Elysian Park Blind Thrust	27.6	6.4
Santa Monica	28.4	6.6
Raymond	30.3	6.5
San Cayetano	31.1	7.0
Puente Hills Blind Thrust	31.5	7.1
Newport-Inglewood (L.A. Basin)	31.8	7.1
Malibu Coast	32.5	6.7
San Andreas – Mojave M-1c-3	35.7	7.4
San Andreas – Whole M-1a	35.7	8.0
San Andreas – 1857 Rupture M-2a	35.7	7.8
San Andreas – Cho-Moj M-1b-1	35.7	7.8
Clamshell-Sawpit	37.0	6.5
Anacapa-Dume	39.6	7.5
San Andreas – Carrizo M-1c-2	41.9	7.4
Palos Verdes	43.5	7.3

Notes:
1. Distance is defined as the closest distance to rupture surface using the EQFAULT computer program (Blake, 2000 and 2004) with the relationship by Sadigh et al. (1997).
- km = kilometer; 1 km = 0.62 mile.

The closest known active fault to the proposed project that is considered by the California Geological Survey as a potential seismic source is the Sierra Madre (San Fernando) fault, located about 2.3 kilometers (1.4 miles) from the site. Approximately 700 feet north of the project site is the mapped trace of the Olive View fault zone. The Olive View fault zone is a northeast trending, steeply north dipping, reverse fault that cuts the Pacoima and Towsley formations as well as Pleistocene alluvium. It connects with the Hospital Fault to the east and the Lower Susan

Fault to the west. Collectively these faults form a complex system of parallel and branching faults that accommodate north over south uplift along the San Gabriel range front.

URS conducted a surface fault rupture study at the site, which consisted of excavation and logging of fault trenches. The findings from this study are included in a separate report dated April 29, 2009. Based on the results of the study, there is no hazard of surface fault rupture at this site.

Seismicity - Several historical earthquakes have produced significant seismic shaking at the project site. More notable examples of these include the magnitude 6.6 (Mw) San Fernando earthquake of February 9, 1971 and the magnitude 6.7 (Mw) Northridge earthquake of January 17, 1994. The epicenter of the San Fernando earthquake was approximately 11 kilometers (6.8 miles) north of the project site. The epicenter of the Northridge earthquake was approximately 17 kilometers (10.6 miles) southwest of the project site. Ground motions recorded during the Northridge earthquake in the parking lot of the Olive View Hospital (east of the proposed development) had a peak amplitude of 0.843g (California Division of Mines and Geology, 1999). The San Fernando earthquake caused significant damage to the previously existing hospital facilities, necessitating demolition of the original hospital building and replacement with the current structure. The Northridge earthquake caused minor damage to the existing hospital facilities.

6.0 GEOLOGIC AND SEISMIC HAZARDS

Geologic and seismic hazards are those hazards that could impact a site due to the surrounding geologic and seismic conditions. Geological hazards include landslides, erosion, subsidence, volcanic eruptions, and poor soil conditions. Seismic hazards include phenomena that occur during an earthquake such as ground shaking, ground rupture, liquefaction, ground lurching, and seiche. The potential impact of these hazards to the site has been assessed and is summarized in the following sections. Our assessment of these hazards was based on guidelines established by the California Geological Survey (California Division of Mines and Geology, 1986 and 1997), and outlined in California Division of Mines and Geology Special Publication 117.

6.1 GEOLOGICAL HAZARDS

6.1.1 Subsidence

The extraction of water or petroleum from sedimentary source rocks can cause the permanent collapse of the pore space previously occupied by the removed fluid. The compaction of subsurface sediments by fluid withdrawal will cause subsidence of the ground surface overlying a pumped reservoir. If the volume of water or petroleum removed is sufficiently great, the amount of resulting subsidence may be sufficient to damage nearby engineered structures. Significant quantities of water or petroleum are not being extracted beneath the area occupied by the proposed project. The project site, as located on the Munger Map Book (2001), is not located within an oil field and there are no producing oil wells within several miles of the proposed project. Subsidence is therefore not anticipated to pose a significant hazard to the project site, barring such extraction in the future.

6.1.2 Landslides

The potential for landslides is not anticipated to pose a significant geologic hazard to the proposed project. The proposed project lies in a relatively flat-lying to gently sloping area over 400 feet away from the closest slope. The California Geological Survey has designated certain areas within California as having the potential for earthquake-induced landsliding. These are areas where previous occurrence of landslide movement, or local topographic, geologic, geotechnical and subsurface water conditions indicate a potential for permanent ground displacement during a seismic event. The same site conditions that are conducive to seismically induced landslides are also conducive to landslides associated with other causes. As shown on Figure 3, the project site is not delineated by the California Geological Survey as having the potential for earthquake-induced landsliding and therefore is not considered by the California Geological Survey to be at high risk of landsliding during a seismic event (California Division of Mines and Geology, 1999). The lack of any significant slopes on the project site indicates that the hazard from slope instability, from both landslides and debris flows, is considered negligible.

6.2 SEISMIC HAZARDS

6.2.1 Surface Fault Rupture

The "Alquist-Priolo Earthquake Fault Zoning Act" is a state law that regulates development projects near active faults to mitigate the hazard of surface fault rupture. The act requires that development permits for projects within an "Earthquake Fault Zone" be withheld until geologic investigations demonstrate that the sites are not threatened by surface displacement from future fault rupture. To be zoned under the Alquist-Priolo Fault Zoning Act, a fault must be considered active or both sufficiently active and well-defined (California Division of Mines and Geology, 1997). The California Geological Survey defines an active fault as one that has had surface displacement within Holocene time (about the last 11,000 years), and a sufficiently active fault as one that has evidence of Holocene surface displacement along one or more of its segments or branches (California Division of Mines and Geology, 1997). The California Geological Survey considers a fault to be well defined if its trace is clearly detectable as a physical feature at or just below the ground surface. The site is within an Alquist-Priolo Earthquake Fault Zone, therefore a fault rupture hazard investigation was conducted by URS for the site, and the results of the investigation are included in a separate report dated April 28, 2010. Based on our investigation, the proposed building location is not subject to fault rupture hazard.

6.2.2 Seismic Ground Motion

As indicated by the numbers and distribution of recorded earthquake epicenters shown on Seismic Hazard Zones Map, the site will continue to be subjected to periodic seismic shaking. The effect of seismic ground motion to the planned one-story building should be mitigated by proper building design, in accordance to 2007 CBC.

6.2.3 Liquefaction and Seismic-induced Settlements

Liquefaction is defined as significant and relatively sudden reduction in stiffness and shear strength of saturated sandy soils caused by a seismically induced increase in pore water pressures. Potential for seismically induced liquefaction exists whenever relatively loose, sandy soils exist with high groundwater level and/or potential for long duration, high seismic shaking. When liquefaction occurs, the site can experience damage induced by permanent ground movements resulting in differential settlement and flotation of structures. The reported historic high groundwater level is approximately 120 feet bgs.

The California Geological Survey has designated certain areas within California as potential liquefaction hazard zones. These are areas considered at greater risk of liquefaction-related ground failure during a seismic event, based upon mapped surficial deposits and the presence of a relatively shallow water table. The site is not delineated by the California Geological Survey as being within a zone having the potential for earthquake-induced liquefaction (California

Division of Mines and Geology, 1999b). Therefore, the site area is not considered by the California Geological Survey to be at high risk of liquefaction during a seismic event. Although shallower perched groundwater was encountered at a depth of 37 feet, the dense to very dense nature of the underlying soils below the groundwater table renders the risk for liquefaction of soils underlying the site to be very low. Therefore, liquefaction is not anticipated to present a significant seismic hazard at the site. For soils above ground water table, dry sand settlement could occur from the sandy soils due to the ground shaking. Dry sand settlement evaluation was performed and adopted the existing ground water table, which is deeper than 50 feet bgs, earthquake magnitude of 6.6 and the peak ground acceleration of 0.63g (per CBC Section 1802.2.7). The dry sand settlement is estimated to be approximately ½ inch and therefore the potential for seismically-induced settlement is considered low. The calculation for dry sand settlement is presented in Appendix C. In addition, soil strength loss due to liquefaction-type effects is not considered a significant risk to the proposed project.

6.2.4 Ground Lurching

Ground lurching is permanent displacement or shift of the ground in response to seismic shaking. Ground lurching occurs in areas with high topographic relief, and usually occurs near the source of an earthquake, where shaking and permanent ground displacements are highest. These displacements can result in permanent cracks in the ground surface, which are sometimes confused with surface fault ruptures. The fault study report dated April 28, 2010 documents ground cracks in the trench logs with no to very small displacements and were between approximately 2 feet bgs to the bottom of the trench (greater than 10 feet bgs). Cracks from lurching do not extend to great depths, usually only several feet to tens of feet below the ground surface, depending on specific site conditions. At the project site, ground lurching represents a potential hazard to the Project because of the history of seismic shaking and evidence of past cracks produced by seismic shaking documented in fault trenches.

6.2.5 Tsunami

Tsunamis are great sea waves (commonly called a tidal wave) produced by a significant undersea disturbance. The proposed building at site 4 is located approximately 20.5 miles (33 kilometers) from the ocean, and about 1435 feet above MSL. Therefore, there is no potential for tsunamis at the proposed project.

6.2.6 Flooding

Earthquake induced flooding occurs when nearby water retaining structures, such as dams or storage tanks, are breached or damaged during an earthquake. According to the County of Los Angeles Safety Element (Los Angeles County, 1990), the site is not within a flood inundation hazard zone. The site is located approximately 2500 feet south of the Wilson Canyon debris dam. The spillway for the Wilson Canyon Dam empties into a concrete lined channel, which passes approximately 300 feet east of the main hospital building. Based on previous investigations, the dam is reported to meet current seismic and flood requirements. Therefore the overall risk for earthquake induced flooding appears to be low.

6.2.7 Seiche

A seiche is an oscillation of a body of water in an enclosed or semi-enclosed basin, such as a reservoir, harbor, lake, or storage tank, resulting from earthquakes or other large environmental disturbances. No such bodies of water that would be subjected to failure due to seiche lie directly upstream of the proposed project; therefore, the potential for a seiche hazard at the site is considered negligible.

7.0 DISCUSSIONS AND RECOMMENDATIONS

7.1 GENERAL

Based on the results of our geotechnical investigation and our understanding of the project requirements, the proposed Project is feasible from a geotechnical engineering perspective provided recommendations in this report are incorporated in the design and implemented during earthwork and construction of the project.

Based on the results of our subsurface investigation and the fault trenching, the Project site is generally underlain by alluvium, consisting of sand with varying amount of silt. The sandy soil is medium dense in the upper 30 feet and becomes dense to very dense below 30 feet bgs. Similar alluvial soil was encountered during the fault trenching, except approximately 4 feet of fill was encountered at the north side of Trench T-1. No evidence was found that this fill was previously compacted and documented. Groundwater was not encountered in the borings and trenches performed at the Project. Recommendations for site earthwork, and foundation design are provided below.

7.2 EARTHWORK

The following presents the earthwork recommendations where the option of shallow foundation system is selected for the proposed buildings. It is also applicable to areas of the Project site where grading is required to achieve design elevations.

7.2.1 Site Preparation

7.2.2 General

Prior to site grading, any surficial debris, organic materials and deleterious materials should be removed and disposed of outside the construction limits. All active or inactive subsurface utilities within the construction area should be identified and then relocated or abandoned in-place, as necessary. Abandonment techniques for utility lines may involve filling smaller pipes and other cavities with sand/cement slurry after review of their location and approval by the geotechnical engineer. Any cavities resulted from the demolition of the previous building should also be filled with sand/cement slurry or compacted structural fill.

It is our understanding that there is an existing active steam tunnel and a sewer line running in a north-south direction under the Project site. These utilities should be relocated or if it is not feasible, proposed building footings adjacent to the influence zone of the underground structures should be deepened to the same elevation with the underground structures to avoid any surcharge imposed on the underground structures.

Following site stripping and any required overexcavations, and prior to placement of any structural fill, the subgrade in areas to receive fills should be proof-rolled by making several passes with a heavy, rubber tired or vibratory compaction equipment. All loose zones should be compacted in-place or excavated and replaced with properly compacted backfill to the extent possible.

7.2.3 Overexcavation and Bottom Preparation

Based on our current investigation, the fill thickness may vary from 0 to 4 feet. The fill materials are compressible and not considered suitable to support any structural footings. In addition to undocumented fill, the Project site is subject to potential ground cracking as a result of seismic-induced ground lurching. To provide a uniform bearing support and to mitigate for ground lurching hazard below the building foundation and slab-on-grade, all footings and slab-on-grade should be founded on 4 feet thick of compacted fill. Assuming the finished floor grade will be similar to the existing grade, with proposed footings a minimum depth of 2 feet below the lowest final adjacent grade (to be discussed in the Foundation Section), we recommend the overexcavation below the building pad to be performed to a minimum depth of 4 feet below the bottom of new footings and replaced by recompacted structural fill. If additional undocumented fill is encountered during excavation, then it should also be removed and replaced as compacted structural fill. The excavation should extend a minimum of 6 feet outside the building footprint, or equal to the depth of the overexcavation, whichever is greater.

The exposed bottom surface in the overexcavation areas should be scarified to a depth of about 6 inches, watered as necessary to achieve near-optimum moisture conditions, and then recompacted in-place to at least 95 percent relative compaction.

7.2.4 Temporary Excavations

All excavations should comply with the current California or Federal OSHA requirements, as applicable. All cuts greater than 5 feet in depth should be sloped and/or shored. Temporary excavations may be sloped at 1(horizontal): 1(vertical) or flatter, up to a maximum depth of 20 feet. Flatter slopes than recommended above may be required if very loose sandy soils are encountered along the slope face and the contractor should be prepared to flatten the slope at the direction of the geotechnical engineer. Steeper cuts could be utilized for cuts less than or equal to 5 feet deep depending on the strength and homogeneity of the soils as observed in the field.

Runoff water should be prevented from entering the excavation, and collected and disposed of outside the construction limits. To prevent runoff from adjacent areas from entering the excavation, a perimeter berm may be constructed at the top of the slope. Heavy construction equipment, building materials, excavated soil stockpiles and vehicle traffic should not be allowed near the top of the slope within a horizontal distance equal to the depth of the excavation.

Surface water within the excavation should be collected at selected low points and removed using sump pumps as appropriate.

7.2.5 Fills and Backfills

General area fills, utility trench backfills, and structural fills supporting footings, slab-on-grade, and other structures should be placed in loose lifts not exceeding 8 inches in thickness, brought to near-optimum moisture content in-place, and compacted to at least 95 percent relative compaction using mechanical equipment specifically designed for compaction purposes.

Most of the onsite existing alluvial and fill soils to be overexcavated would comprise generally of sandy to gravelly soils with some possible construction debris. Due to their predominately granular nature, the onsite soils can be re-used as structural fill for this Project from a geotechnical engineering standpoint.

Import soils where needed for this Project should be predominantly granular, non-plastic, less than 3 inches in any dimensions, free of organic and inorganic debris, environmentally clean, less than 35 percent passing the No. 200 sieve and with a maximum Expansion Index of 20. All import soil should be observed and tested at the designated borrow site by the geotechnical engineer prior to their use in order to evaluate the suitability.

7.3 FOUNDATIONS

7.3.1 Shallow Foundations

The proposed building may be supported on spread footings established in compacted structural fills prepared in accordance with the preceding earthwork recommendations. All footings should be a minimum of 1.5 feet wide and established at a minimum depth of 2 feet below the lowest final adjacent grade. An allowable bearing pressure of 2,500 pounds per square foot (psf) may be used for footings with the above minimum dimensions provided anticipated settlements are at or below acceptable limits..

The allowable bearing pressure is a net value. Therefore, the weight of the foundation and the backfill over the foundation may be neglected when computing dead loads. The bearing pressure applies to dead plus live loads and includes a calculated factor of safety of about 3. The allowable pressure may be increased by 33 percent for short-term loading due to wind or seismic forces.

Resistance to lateral loads may be provided by frictional resistance between poured-in-place concrete foundations (slabs and footings) and the underlying soils and by passive soil pressure against the sides of the footings. The coefficient of friction between poured-in-place concrete footings and the underlying compacted granular soils may be taken as 0.4. Passive pressure available in the compacted footing backfill may be taken as equivalent to the pressure exerted by a fluid weighing 300 pounds per cubic foot (pcf) to a maximum 5,000 psf. The above-recommended values include a factor of safety of at least 1.5; therefore, frictional and passive resistances may be used in combination without reduction.

Total settlements of individual foundations will vary, depending on the width of the foundation and the actual load supported. Settlements of spread footings designed and constructed in accordance with the preceding recommendations are anticipated to be less than 1-inch. Differential settlements between similarly loaded adjacent footings may be assumed to be about half of the total settlement.

Settlements will primarily be due to elastic recompression of the foundation materials. Settlements of the foundations are generally expected to occur shortly after initial application of the design loads. As a precaution, utility connections to new construction supported on shallow foundations should be deferred until the majority of the dead loads have been applied.

7.3.2 Slab-on-Grade Floors

For design of slab-on-grade floors in conjunction with the shallow foundation scheme, we anticipate the floor slabs will be supported by structural fill. The slab thickness and reinforcement should be designed by the structural engineer for the anticipated floor loads and other structural considerations.

The onsite soil is granular in nature and is considered to have low expansion potential. For this reason, no additional recommendations with regard to expansive soils are necessary.

If moisture-sensitive floor covering (such as carpeting, linoleum, tiles, etc.) is to be used, we recommend that the floor slabs be underlain by an impermeable polyethylene membrane, at least ten-mil thick, and covered with a two-inch layer of moistened clean sand to protect the membrane and to promote concrete curing. In addition, another two-inch thick layer of clean, coarse sand should be placed beneath the membrane to act as a capillary break and to protect the membrane from the underlying subgrade materials. Care should be taken not to puncture the membrane during construction. Select clean onsite soils may be considered for used as the aforementioned sand and gravel layers beneath the floor slabs.

7.3.3 Seismic Site Coefficients

The site, like most of southern California, is located within a seismically active region and will be subject to strong ground shaking during major earthquakes. The subject site can be classified as Site Class D and seismic design can be performed in accordance with the criteria listed in Table 3 based on the 2007 CBC and the current County codes.

Table 3 - 2007 CBC SEISMIC DESIGN CRITERIA

Site Class	D
Mapped Spectral Accelerations for Short Periods per Figure 1613.5(3), S_S	2.374 g
Mapped Spectral Accelerations for One Second Period per Figure 1613.5(4), S_1	0.794 g
Site Coefficient per Table 1613.5.3(1), F_a	1.00
Site Coefficient per Table 1613.5.3(2), F_v	1.50
Maximum Considered Earthquake Spectral Response Accelerations for Short Period, S_{MS}	2.374 g
Maximum Considered Earthquake Spectral Response Accelerations for One Second Period, S_{M1}	1.191 g
5% Damped Design Spectral Response Acceleration at Short Periods, S_{DS}	1.583 g
5% Damped Design Spectral Response Acceleration at One Second Periods, S_{D1}	0.794 g

7.3.4 Soil Corrosivity

Selected tests were conducted on a representative soil sample to evaluate if special precautions or considerations should be made with respect to materials in contact with soils. Specifically, the soil sample was tested to assess corrosivity parameters, which include pH, resistivity, sulfate and chloride content. The test results are summarized in Table 4.

Table 4 – CORROSION POTENTIAL

Location	Material	pH	Minimum Resistivity (Ohm-cm)	Sulfate Content (ppm)	Chloride Content (ppm)
B-1	Poorly graded SAND with Silt (SP-SM)	7.59	1,350	94	30

A commonly accepted correlation between electrical resistivity and corrosivity potential for ferrous metals is as the following:

Below 1,000 ohm-cm	-	Severely corrosive
1,000 to 2,000 ohm-cm	-	Corrosive
2,000 to 10,000 ohm-cm	-	Moderately corrosive
Over 10,000 ohm-cm	-	Mildly corrosive

The minimum resistivity test result indicates that the surface soil may be corrosive to metals.

Based on the 2007 CBC, the sulfate concentration detected is at a negligible level. As a result, no special precautions are required for the Project. Minimum strength and code requirements and workmanlike concrete construction practices are sufficient to protect against the low sulfate concentrations encountered.

The chloride test indicates that the chloride content present at the on-site soil is at a negligible concentration. Consequently, no consideration of additional concrete cover would be necessary for the reinforcing steel.

7.3.5 Site Drainage and Moisture Control

Drainage control of surface water and seepage infiltration should be provided during and after construction. During construction, provisions should be made to divert surface water away from the excavations. Any water that collects in open excavations should be pumped out to avoid softening of the soils.

It is recommended that the final ground surface be adequately sloped away from the building to provide positive drainage. Adequate measures should be provided to collect and drain water properly away from the structures. Due to their relatively higher conductivity, the predominately granular engineered fills are expected to attract excess water from adjacent areas, landscaping and other various sources. Therefore, planters may need to be contained in special boxes with impermeable bottoms to prevent irrigation water from infiltrating into the compacted structural fill. The planter boxes should be equipped with a drainage system to carry excess water to appropriate receptacles.

Precautions should be taken in the design and routing of underground water or sewer lines under building areas to allow for monitoring of water leakage into the subsurface soils. These precautions may include encasement, placing water lines outside building limits or above grade, or providing impermeable barriers/underdrains to prevent any piping leakage from entering below the buildings.

We recommend that periodic checks and maintenance be performed to evaluate the integrity of the concrete slabs, sidewalks and pavements. Such maintenance activities would involve epoxy sealing of any cracks in the concrete and other repairs to prevent water from infiltrating into the underlying soils.

7.4 UNDERGROUND UTILITIES

Utility trenches should be founded above an imaginary line measured at a gradient of 1:1 (horizontal to vertical) projected down from the bottom edges of any footings. The trenches should be placed in accordance with Sections 306-1.2.1 and 306-1.3, Standard Specifications for

Public Works (Green Book) or similar standards. The trench backfill should be compacted to a minimum relative compaction of 95 percent.

7.5 COUNTY BUILDING CODE SECTION 111 STATEMENT

Based on the findings of this geotechnical investigation, and provided that the recommendations of this report are followed, and the designs and construction are properly and adequately executed, it is our opinion that the proposed construction work within the Project site would not be subjected to geotechnical and geologic hazards from existing landslides, slippage, or excessive settlement. Further, it is our opinion that the proposed construction would not adversely affect the existing stability of the site, or adjacent properties, with the same provisions listed above.

8.0 DESIGN REVIEW

The geotechnical aspects of the Project should be reviewed by the Geotechnical-Engineer-of-Record during the design process. The scope of services may include:

- Assisting the design team in providing specific recommendations for special cases;
- Reviewing the design grading plan to ensure that all geotechnical recommendations contained in this report have been included in the design;
- Reviewing foundation design drawings;
- Reviewing the geotechnical portions of the Project for possible cost savings through alternative approaches;
- Reviewing the proposed construction techniques to evaluate if they satisfy the intent of the recommendations presented in this report.

9.0 CONSTRUCTION MONITORING

We recommend that all earthwork and foundation construction be monitored by a qualified representative from our office, including:

- Site preparation - site stripping, excavation and grading;
- All shallow foundation excavations and slab sugrades; and
- Placement of all compacted structural fill and backfill.

Our representative should be present to observe the soil conditions encountered during construction, to evaluate the applicability of the recommendations presented in this report to the soil conditions encountered, and to recommend appropriate changes in design or construction procedures, if conditions differ from those described herein.

10.0 LIMITATIONS

URS has observed only a very small portion of the pertinent subsurface conditions. The recommendations presented herein are based on the assumption that the soil and geologic conditions do not deviate appreciably from those found during our investigation.

We recommend that URS or the Geotechnical-Engineer-of-Record review the design plans to verify that the intent of the recommendations presented herein has been properly interpreted and incorporated into the contract documents. We further recommend that geotechnically-relevant construction be observed by a qualified Geotechnical Engineer or Engineering Geologist to evaluate if the site conditions encountered are as anticipated, or to provide revised recommendations, if necessary. If variations or undesirable geotechnical conditions are encountered during construction, a Geotechnical Engineer should be consulted for further recommendations.

Geotechnical engineering and the geologic sciences are characterized by uncertainty. Professional judgments presented herein are based partly on our understanding of the proposed construction, and partly on our general experience. Our engineering work and judgments rendered meet current professional standards; we do not guarantee the performance of the Project in any respect.

–o0o –

It has been a pleasure to assist you with this project. We look forward to being of further assistance as construction begins. Should you have any questions regarding this report, please contact us.

Respectfully submitted:

URS

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FIGURES

TOPO! map printed on 05/08/08

118°28'00" W 118°27'00" W 118°26'00" W NAD27 118°25'00" W

118°28'00" W 118°27'00" W 118°26'00" W NAD27 118°25'00" W

TN MN 13½°

05/08/08

NATIONAL GEOGRAPHIC

0.0 0.5 1.0 miles

0.0 0.5 1.0 1.5 km

VICINITY MAP

CHILD CARE CENTER
OLIVE VIEW – UCLA MEDICAL CENTER
14445 OLIVE VIEW DRIVE
SYLMAR, CALIFORNIA

URS
FIGURE 1

FOR: COUNTY OF LOS ANGELES

URS

Child Care Center
Olive View–UCLA Medical Center

PLOT PLAN

Proj. No.: 29405434	Date: April 2010
Project: Child Care Center Olive View–UCLA Medical Center	Figure: 2

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APPENDIX A

FIELD INVESTIGATION AND LOGS OF BORINGS

FIELD INVESTIGATION AND LOGS OF BORINGS

This appendix describes the geotechnical boring program conducted by URS for the proposed rebuilding of the Day Care Facility (Project) to be added to the east of the Main Hospital Complex on the campus of Olive View – UCLA Medical Center in Sylmar, California.. The exploratory boring locations were first marked in the field and checked through Underground Services Alert (USA).

Our exploratory boring program was initiated on April 9, 2009 and completed on the same date under the supervision of a California registered geologist from our Los Angeles Office.

Subsurface exploration included drilling and sampling 2 borings (Borings B-1 and B-2) to depths of approximately 50 feet below the existing ground surface by our subcontractor, 2R Drilling of Chino, California. All borings were drilled using a truck-mounted CME-55 drill rig with hollow-stem augers. The borings was backfilled with soil cuttings and the surrounding ground surface was reinstated following borehole completion. The locations of the borings are shown on Figure 2.

URS geotechnical representative maintained field boring logs and visually classified the soils according to the Unified Soil Classification System. The boring logs, key to the boring logs and other pertinent information are presented in Figures A-1 through A-3. When subsurface conditions permitted, relatively undisturbed samples were recovered with the California Soil Sampler (with 2.42-inch I.D.). Standard Penetration Testing (SPT) and testing with the California Soil Sampler were performed in the subsurface soils using a 140-pound automatic-tripped hammer with a 30-inch drop. The number of blows required to drive the sampler was recorded at 6-inch intervals for each sample taken. SPT was performed in accordance with ASTM D1586 procedures. The total number of blows required to drive the sampler the last 12 inches is recorded on the boring logs presented in this Appendix.

Geotechnical samples obtained in the field were carefully sealed and packaged to reduce moisture loss and disturbance and were transported to our laboratory for further testing.

The blow count for the final 12 inches of sampler penetration is commonly referred to as the "N-value". This value generally reflects the resistance to penetration of the soil at the sample depth. The degree of relative density of granular soils and the degree of consistency of cohesive soils are generally described on the boring logs according to the conventional correlation presented below:

Granular Soils			Cohesive Soils	
SPT Blow Count	Description		SPT Blow Count	Description
< 4	Very Loose		< 2	Very Soft
4 – 10	Loose		2 – 4	Soft
11 – 30	Medium Dense		5 – 8	Firm
31 – 50	Dense		9 – 15	Stiff
> 50	Very Dense		16 - 30	Very Stiff
			> 30	Hard

The relative density and consistency descriptions on the attached boring log are based on unadjusted blow counts recorded in the field. These numbers are considered useful in providing an estimate of the relative density or consistency of soils. The relative density and consistency descriptions on the log may deviate from the correlation for a number of reasons, including reliance on other test results or the engineer's judgment based on manual manipulation of the sample.

It is widely accepted that the above-listed SPT blow count correlation is overly simplistic. For most applications in non-gravelly soils, the blow count is usually adjusted for the effective vertical pressure at the sampling depth and for other sampling system parameters such as the efficiency of the sampling system and/or sampling techniques used. In gravelly soils, it is recognized that the blow counts are higher than would be expected in non-gravelly soils of similar density or consistency. This occurs because the sampler tends to push larger gravel clasts ahead of it. The area of the gravel clast may be significantly greater than that of the sampler, causing increased resistance and higher blow counts.

The blow count obtained from nonstandard penetration tests using a California Soil Sampler, N, may be converted to standard blow count, N_{60}, by the relationship between SPT values and hammer ratios [$R_s = f$(inner/outer diameter of sampler, weight of hammer, and height of drop)] (Fang, 1991). In this project using a 140-pound hammer and 30-inch drop, N_{60} is equivalent to approximately $0.5 \times N$ for the sampler in sandy soils and $0.6 \times N$ in cohesive soils.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	*GRAVEL AND GRAVELLY SOILS* MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	*CLEAN GRAVELS* (LITTLE OR NO FINES)	GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
			GP	POORLY GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)	GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
			GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	*CLEAN SANDS* (LITTLE OR NO FINES)	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	SM	SILTY SANDS, SAND - SILT MIXTURES
			SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	*SILTS AND CLAYS*	LIQUID LIMIT LESS THAN 50	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Dual symbols are used to indicate gravels or sand with 5-12% fines and soils with fines classifying as CL-ML. Symbols separated by a slash indicate borderline soil classifications.

Other Material Symbols (examples)

Asphalt

Sampler and Symbol Descriptions

- Modified California sample
- Standard Penetration Test
- No Recovery
- Bk Bulk sample
- Disturbed Type-U Sample
- Pitcher Tube Sample
- Shelby Tube Sample
- Rock Core Sample
- Approximate depth of perched water or groundwater

Note: Number of blows required to advance driven sample 12" (or length noted) is recorded; blow count recorded for seating interval (initial 6" of drive) is indicated by an asterisk.

Laboratory and Field Test Abbreviations

CBR	California Bearing Ratio(result in parentheses)
COMP	Compaction test
CORR	Corrosivity test
CON	Consolidation Test
DSCD	Consolidated drained direct shear test (normal pressure and shear strength results shown)
EI	Expansion Index(result in parentheses)
LL=29	Liquid limit (Atterberg limits test)
PP	Pocket Penetrometer (result in parentheses [tsf])
PI=11	Plasticity Index (Atterberg limits test)
R-value	R-Value Test(result in parentheses)
SA	Sieve Analysis (-200 result in parentheses)
SA/HA	Sieve and Hydrometer Analysis(-200 result in parentheses)
UC	Unconfined Compressive Strength test
(0,21.4,0,0)	(Methane/LEL in %,O2 in %,CO in ppm, H2S in ppm)
-200	Percent passing #200 sieve (test result in parentheses)

KEY TO LOG OF BORING

Child Care Center
Olive View-UCLA Medical Center
FOR: LACDPW

URS

FIGURE A-1

Template: DMG4KEY; Prj ID: CHILD CARE CENTER.GPJ; Printed: 4/13/09

Report: DMG4PORT; Project File: L:\DA WULA COUNTY GEOTECH ON-CALL\OLIVE VIEW\CHILD CARE CENTER\CHILD CARE CENTER.GPJ; Data Template:DMLA.GDT Printed: 4/7/10

Date(s) Drilled	April 9, 2009	Logged By	M. Snyder
Drilling Method	Hollow-stem Auger	Drill Bit Size/Type	CME-55
Drill Rig Type	CME-55	Hammer Data	30-inch autotrip, 140lb hammer
Sampling Method(s)	SPT, Modified California, Bulk		
Approximate Groundwater Depth and Date Measured	No groundwater encountered		
Comments			

Boring B-1

Sheet 1 of 2

Job Number	29405434
Total Depth Drilled (ft)	50.8
Approximate Ground Surface Elevation (ft)	1445.0 MSL

Elevation (ft) (MLLW)	Depth (ft)	SAMPLES Type	SAMPLES Number	SAMPLES Blows per Foot	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
	0	Bulk	BK-1				ASPHALT CONCRETE - 8 inches			Hand augered to 6.5 feet bgs CORR
						SP-SM	**ALLUVIUM** Poorly graded SAND with Silt (SP-SM) Yellowish brown, dry, loose to medium dense, poorly-graded, fine-grained sand, trace coarse gravel			
1440	5									
			1	23			Grades medium dense, trace fine to coarse gravel	2		-200 (9)
	10		2	36				2	114	
			3	13		SM	Silty SAND (SM) Yellowish brown, moist, medium dense, fine-grained sand	5		-200 (21)
1430	15		4	60		SP-SM	Poorly graded SAND with Silt (SP-SM) Yellowish brown, medium dense to dense, poorly-graded, fine- to medium-grained sand, trace fine to medium gravel	2	122	
	20		5	28			Grades dark yellowish brown, medium dense, few medium to coarse gravel			
1420	25		6	68		SM	Silty SAND (SM) Yellowish brown, dense, fine- to coarse-grained sand, trace fine gravel	5	114	-200 (13)
	30		7	21			Grades medium dense, trace medium gravel			
1410	35		8	72			Grades dense, trace fine to medium gravel	4	115	
	40									

This log is part of the report prepared by URS for this project and should be read together with the report. This summary applies only at the location of the exploration and at the time of drilling or excavation. Subsurface conditions may differ at other locations and may change at this location with time. Data presented are a simplification of actual conditions encountered.

LOG OF BORING

Child Care Center
Olive View-UCLA Medical Center
FOR: LACDPW

URS

Figure A-2

Elevation (ft) (MLLW)	Depth (ft)	SAMPLES Type	Number	Blows per Foot	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
	40		9	57			Grades very dense, grace medium to coarse gravel			
1400	45		10	50/6"			Grades micaceous			
	50		11	45 50/4"						
1390	55						Boring terminated at 50.8 feet below ground surface. Groundwater was not encountered. Boring backfilled with soil cuttings. Surface patched with asphalt concrete.			
	60									
1380	65									
	70									
1370	75									
	80									
1360	85									
	90									

Date(s) Drilled	April 9, 2009	Logged By	M. Snyder
Drilling Method	Hollow-stem Auger	Drill Bit Size/Type	CME-55
Drill Rig Type	CME-55	Hammer Data	30-inch autotrip, 140lb hammer
Sampling Method(s)	SPT, Modified California, Bulk		
Approximate Groundwater Depth and Date Measured	No groundwater encountered		
Comments			

Boring B-2

Sheet 1 of 2

Job Number	29405434
Total Depth Drilled (ft)	50.3
Approximate Ground Surface Elevation (ft)	1442.0 MSL

Elevation (ft) (MLLW)	Depth (ft)	Samples: Type	Samples: Number	Samples: Blows per Foot	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
	0	Bulk	BK-1				ASPHALT CONCRETE			Hand augered to 6.5 feet bgs
1440						SM	**ALLUVIUM** Silty SAND Brown, moist, loose to medium dense, fine- to coarse-grained sand, trace fine gravel			SA, -200 (22) COMP
	5									
			1	27			Grades medium dense, fine- to medium-grained sand, fine to coarse gravel	4	113	DSCD
	10		2	14			Grades dark yellowish brown, trace fine to coarse gravel with orange-red mottles	7		-200 (13)
1430			3	28			Grades, fine-grained sand, few fine to medium gravel	7	120	-200 (17)
	15		4	20			Grades fine- to coarse-grained sand			
	20		5	35				8	120	-200 (16)
1420										
	25		6	19			Grades trace medium gravel			
	30		7	26 50/6"			Grades dense, fine to coarse gravel	5	116	
1410										
	35		8	50/3"			Grades very dense, fine- to coarse-grained gravel			
	40									

This log is part of the report prepared by URS for this project and should be read together with the report. This summary applies only at the location of the exploration and at the time of drilling or excavation. Subsurface conditions may differ at other locations and may change at this location with time. Data presented are a simplification of actual conditions encountered.

LOG OF BORING

Child Care Center
Olive View-UCLA Medical Center
FOR: LACDPW

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Figure A-3

Elevation (ft) (MLLW)	Depth (ft)	SAMPLES Type	Number	Blows per Foot	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
	40		9	50/6"				6	118	
1400										
	45		10	66			increased gravels and cobbles			
	50		11	50/3"						
1390										
	55						Boring terminated at 50.3 feet below ground surface. Groundwater was not encountered. Boring backfilled with soil cuttings. Surface patched with asphalt concrete.			
	60									
1380										
	65									
	70									
1370										
	75									
	80									
1360										
	85									
	90									

APPENDIX B

GEOTECHNICAL LABORATORY TESTING

GEOTEHNICAL LABORATORY TESTING

Geotechnical soil samples obtained from the borings were carefully sealed and packaged in the field to reduce moisture loss and disturbance. The samples were subsequently delivered to our laboratory where they were further examined and classified. Selected representative samples were tested to evaluate moisture content, gradation of particle sizes, and corrosivity of the soils. All tests discussed below were performed in accordance with the latest American Society of Testing and Materials (ASTM) and California Test Method (CTM) guidelines.

Moisture Content and In-situ Density (ASTM D 2216 and D 2937) Tests

The moisture content and in-situ density tests were performed on selected soil samples obtained from the borings to a depth of 50 feet bgs. Moisture content and in-situ density tests were performed in accordance with ASTM Test Methods D 2216. The test results are presented on the Log of Borings on Figures A-2 through A-5.

Wash Analysis (ASTM D 1140)

Percent passing no. 200 sieve tests were performed on selected soils samples obtained from the borings. These tests were performed to aid in classification of the soils and to help in evaluating the liquefaction potential of the soils. The tests were performed in accordance with ASTM Test Method D 1140. The results of the tests are presented on the Logs of Boring on Figures A-2 through A-3.

Sieve Analysis (ASTM D 422)

One test was performed to determine the particle size distribution of the selected sample. The test was performed in accordance with ASTM Test Method D 422. Test result is presented on Figure B-1, Particle Size Distribution Curve, and the Logs of Boring on Figure A-3.

Compaction Test (ASTM D 1557)

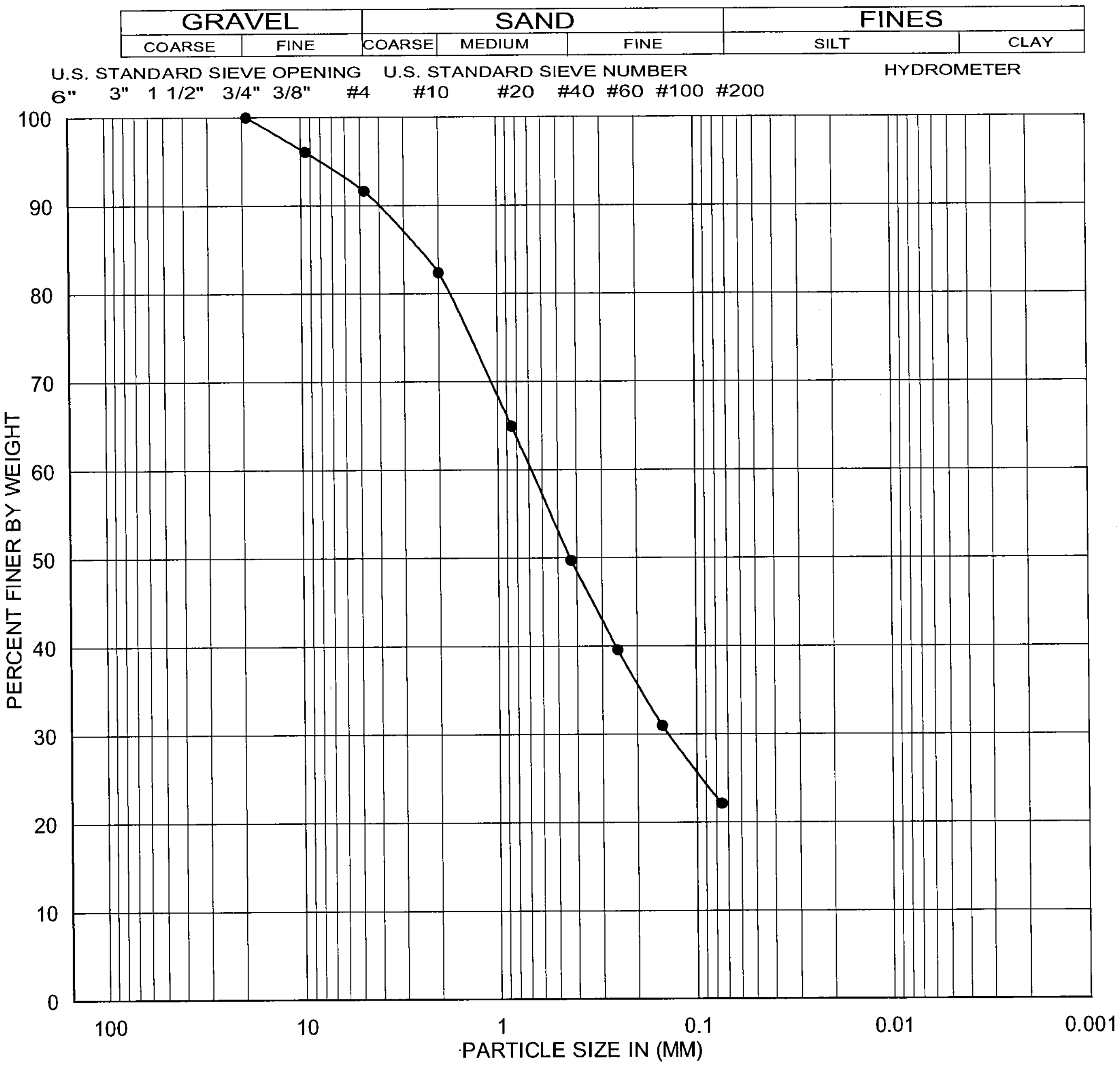
A compaction test was performed on a representative bulk sample of the near-surface soils in order to evaluate compaction characteristics of the soils. The test was performed in accordance with ASTM Test Method D-1557. The result is presented in Figure B-2.

Direct Shear Test (ASTM D 3080)

One Consolidated-drained (saturated) direct shear test was performed on a selected undisturbed sample to evaluate shear strength parameters of the on-site soils. The direct shear tests were performed in accordance with ASTM Test Method D 3080. Test result is presented on Figure B-3.

Corrosivity Tests (CTM 417, 422, 532 and 643)

Selected representative sample obtained from the boring was tested for corrosion. Determination of the soluble sulfate and water-soluble chloride content of on-site soils were performed in accordance with CTM Test Method 417 and 422. Minimum resistivity and pH testing were conducted in accordance with CTM Test Method 532 and 643. The results of the corrosion tests are summarized in Table 4 of the report.



Symbol	Boring No.	Sample No.	Depth (ft.)	GR:SA:SI-CL (%)	Sample Description (USCS Symbol)
●	B-2	BK-2	0-6	8:70:22	Silty SAND (SM)

PARTICLE-SIZE DISTRIBUTION CURVE
(ASTM D-422)

CHILD CARE CENTER
OLIVE VIEW-UCLA MEDICAL CENTER
FOR: LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS

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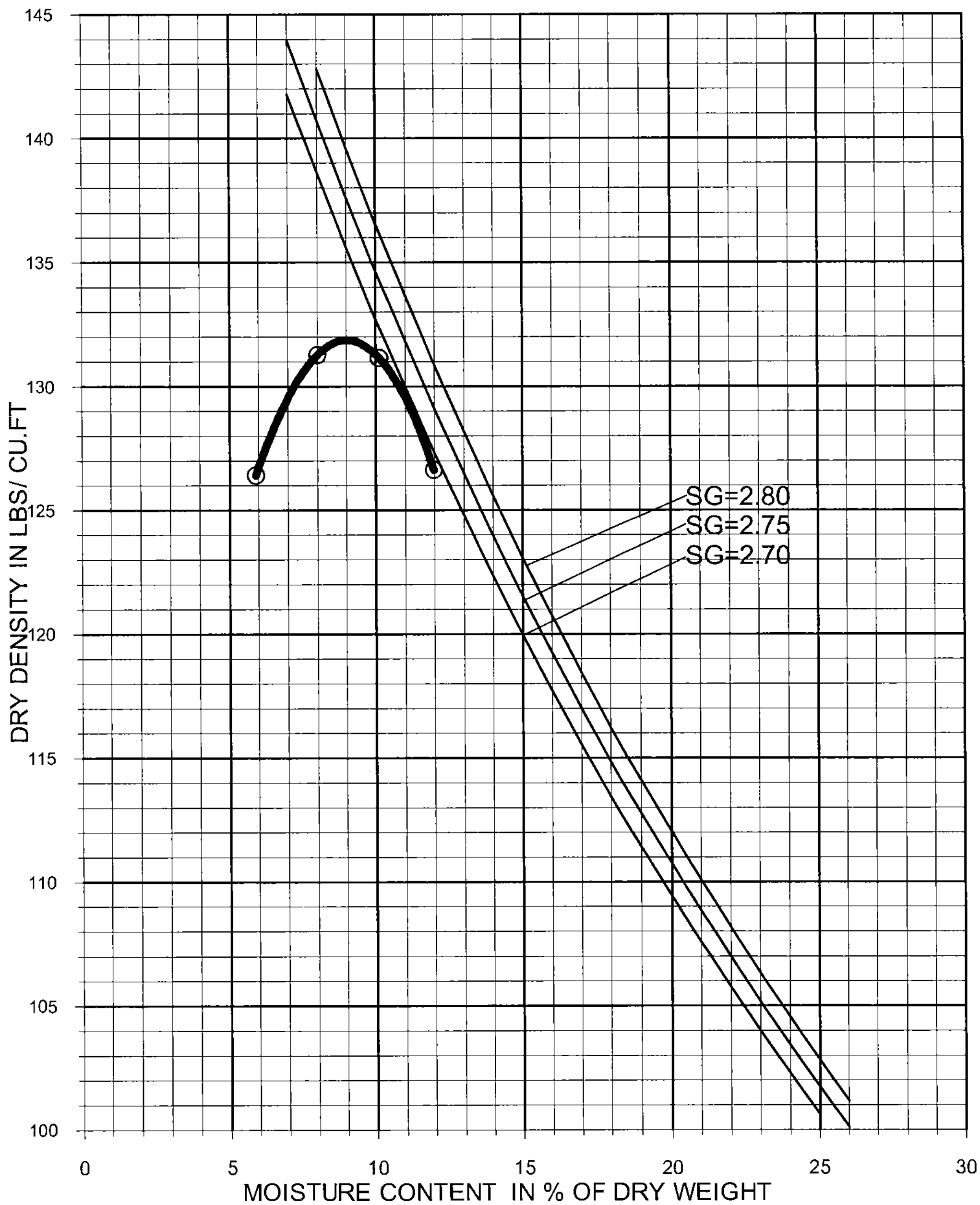
FIGURE B-1



SYMBOL	BORING NUMBER	SAMPLE NUMBER	Depth (ft)	SOIL DESCRIPTION	TEST METHOD	OPT. MOISTURE CONTENT (%)	MAX. DRY DENSITY (pcf)
○	B-2	BK-2	0-6	**Silty SAND (SM)**	ASTM D1557-B	**9.0**	**132**

COMPACTION TEST RESULTS
(ASTM D1557-B)

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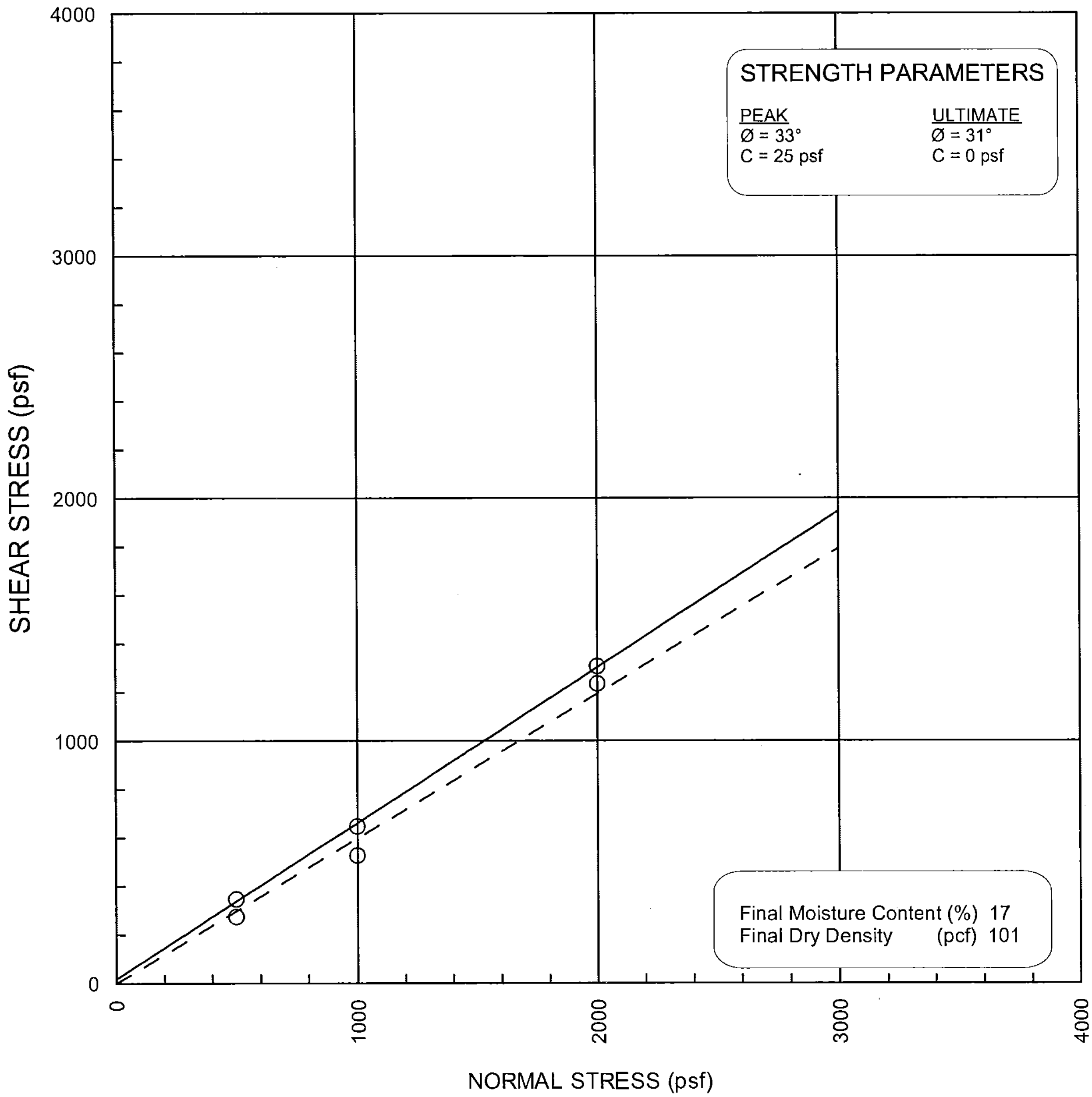
FIGURE B-2



BORING NO.	SAMPLE NO.	DEPTH (ft)	STRAIN RATE (in/min)	NORMAL STRESS (psf)	PEAK STRESS (psf)	ULTIMATE STRESS (psf)
B-2	1	7.5	0.010	O 500	348	276
				O 1000	648	528
				O 2000	1308	1236

Sample Description: Silty SAND (SM)

DIRECT SHEAR TEST RESULTS
CONSOLIDATED DRAINED
ASTM D 3080

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FIGURE B-3

APPENDIX C

DRY SAND SETTLEMENT EVALUATION

URS

PROJECT: OLIVE VIEW CHILD CARE CENTER
SUBJECT: DRY SAND SETTLEMENT DUE TO EARTHQUAKE SHAKING

SHEET 1 OF 1
PROJECT NO. 29405434
DATE 4/7/2018
COMPUTED BY DW
CHECKED BY GL

INPUT

CLAYS (CL,CH) and ELASTIC SILTS (MH) not considered in analyses

Soil Unit Weight (pcf)	=	110
Energy Ratio (%)	=	80
Atmospheric Pressure, Pa (ksf)	=	2.1
Groundwater level for shaking analysis (feet)	=	50
Peak Ground Acceleration (g)	=	0.77
Earthquake Magnitude	=	8.6

BORING (No.)	DEPTH (feet)	SPT-N (bl/ft)	SOIL CLASSIF.	PI	D_{50} (mm)	DEPTH TO WATER (feet)	Borehole Diameter (inches)	SAMPLE TYPE	LINER USED
B-1	7.5	23	SP-SM	0.0	8.200	50	9	SPT	NO
B-1	18	18	SP-SM	0.0	8.200	50	8	MC	YES
B-1	12.5	13	SM	0.0	8.200	50	8	SPT	NO
B-1	15	30	SP-SM	0.0	0.200	50	8	MC	YES
B-1	28	29	SP-SM	0.0	8.200	50	0	SPT	NO
B-1	25	34	SM	0.0	0.200	50	9	MC	YES
B-1	30	21	SM	0.0	0.200	50	9	SPT	NO
B-1	35	38	SM	0.0	0.200	50	0	MC	YES
B-1	40	57	SM	0.0	0.200	50	9	SPT	ND
B-1	45	100	SM	0.0	8.200	58	8	MC	YES
B-1	58	100	SM	0.0	8.200	50	9	SPT	NO

BORING (No.)	DEPTH (feet)	TOTAL PRESSURE (ksf)	EFFECTIVE PRESSURE (ksf)	DEPTH FACTOR Cn (See Table 2)	ENERGY FACTOR Ce=ER/60 (See Table 2 for input to cell H11)	BORING DIAMETER FACTOR Cb (See Table 2)	ROD FACTOR Cr (See Table 2)	SAMPLER FACTOR Cs (See Table 2 &Seed et al, 1988)	MODIFIED PENETR. (N1)60 (Eqn 10)	RELATIVE DENSITY Dr (%)	REDUCTION FACTOR Rd (Eqn 2)	e (rad)
B-1	7.5	0.83	0.93	1.60	1.33	1.15	0.75	1.20	50.6	100	8.99	0.78
B-1	18	1.10	1.10	1.38	1.33	1.15	8.75	1.88	28.6	92	0.98	0.78
B-1	12.5	1.39	1.38	1.24	1.33	1.15	0.75	1.10	20.3	69	8.97	8.70
B-1	15	1.65	1.65	1.13	1.33	1.15	0.85	1.00	44.1	100	0.87	8.70
B-1	28	2.28	2.20	0.98	1.33	1.15	0.95	1.28	47.8	100	8.95	8.70
B-1	25	2.75	2.75	0.87	1.33	1.15	0.95	1.00	43.3	100	0.94	8.70
B-1	30	3.30	3.38	0.80	1.33	1.15	8.95	1.20	29.3	93	8.93	0.70
B-1	35	3.85	3.65	0.74	1.33	1.15	1.00	1.00	40.9	98	0.89	8.70
B-1	40	4.40	4.40	0.69	1.33	1.15	1.00	1.20	72.5	100	8.85	8.70
B-1	45	4.85	4.95	0.85	1.33	1.15	1.00	1.80	98.8	100	8.81	0.78
B-1	58	5.50	5.50	0.62	1.33	1.15	1.00	1.20	113.7	100	0.77	8.70

BORING (No.)	DEPTH (feet)	EFFECTIVE PRESSURE AT DESIGN WATER TABLE (ksf)	σ_m' (kPa)	Gmax (psf)	$\gamma_{eff} \cdot G_{eff}/G_{max}$ (%)	n(PI)	γ (%)	ε (%)	ε_m (%)	LAYER (feet)	SETTLE LAYER (in)	SETTLE TOTAL (in)
B-1	7.5	0.93	23	1606641	0.03	8.00E+00	0.09	0.03	0.02	18	0.05	
B-1	18	1.18	30	1533588	0.04	0.00E+00	0.14	0.08	0.07	2.5	0.04	
B-1	12.5	1.38	38	1529950	0.04	0.00E+00	8.20	0.19	0.15	2.5	0.09	
B-1	15	1.65	45	2168962	0.04	8.00E+00	0.12	0.03	8.03	5	0.03	
B-1	28	2.20	60	2573994	0.04	8.00E+00	8.12	0.03	0.03	5	8.83	
B-1	25	2.75	75	2783700	0.05	8.00E+00	0.13	0.04	8.03	5	0.04	
B-1	30	3.30	90	2677051	0.06	8.00E+00	0.17	0.10	8.09	5	0.09	
B-1	35	3.85	105	3228730	0.05	8.00E+00	0.13	0.04	0.03	5	0.04	
B-1	40	4.40	128	4181001	8.04	8.00E+00	0.09	0.03	0.82	5	0.03	
B-1	45	4.95	135	4935287	0.04	8.00E+00	0.07	0.82	8.82	5	8.02	
B-1	58	5.58	150	5431986	0.04	0.00E+00	8.07	8.82	8.02	5	0.02	0.5

URS

SHEET	1 OF 1
PROJECT NO.	29405434
DATE	4/7/2018
COMPUTED BY	DW
CHECKED BY	GL

PROJECT: OLIVE VIEW CHILD CARE CENTER
SUBJECT: DRY SAND SETTLEMENT DUE TO EARTHQUAKE SHAKING

INPUT

CLAYS (CL,CH) and ELASTIC SILTS (MH) not considered in analyses

Soil Unit Weight (pcf)	=	118
Energy Ratio (%)	=	80
Atmospheric Pressure, Pa (ksf)	=	2.1
Groundwater level for shaking analysis (feet)	=	50
Peak Ground Acceleration (g)	=	0.77
Earthquake Magnitude	=	8.6

BORING (No.)	DEPTH (feet)	SPT-N (bl/ft)	SOIL CLASSIF.	PI	D_{50} (mm)	DEPTH TO WATER (feet)	Borehole Diameter (inches)	SAMPLE TYPE	LINER USED	TOTAL PRESSURE (ksf)	EFFECTIVE PRESSURE (ksf)	DEPTH FACTOR Cn (See Table 2)	ENERGY FACTOR Ce=ER/68 (See Table 2 for input to cell H11)	BORING DIAMETER FACTOR Cb (See Table 2)	ROD FACTOR Cr (See Table 2)
B-2	7.5	14	SM	0.0	8.200	50	8	MC	YES	8.83	0.83	1.68	1.33	1.15	8.75
B-2	18	14	SM	0.0	0.200	50	0	SPT	ND	1.18	1.18	1.38	1.33	1.15	0.75
8-2	12.5	14	SM	0.0	8.200	50	8	MC	YES	1.38	1.38	1.24	1.33	1.15	0.75
B-2	15	28	SM	0.0	0.200	50	8	SPT	NO	1.65	1.65	1.13	1.33	1.15	8.85
B-2	28	17	SM	0.0	8.200	50	8	MC	YES	2.28	2.28	0.98	1.33	1.15	8.95
B-2	25	19	SM	0.0	8.200	50	8	SPT	ND	2.75	2.75	0.87	1.33	1.15	8.95
0-2	38	100	SM	0.0	8.200	50	8	MC	YES	3.38	3.38	0.88	1.33	1.15	0.95
8-2	35	100	SM	0.0	8.200	50	8	SPT	NO	3.95	3.95	0.74	1.33	1.15	1.00
0-2	48	100	SM	0.0	8.200	50	8	MC	YES	4.48	4.48	0.69	1.33	1.15	1.00
8-2	45	86	SM	0.0	0.200	50	8	SPT	NO	4.95	4.85	0.85	1.33	1.15	1.00
8-2	58	100	SM	0.0	8.200	50	8	MC	YES	5.58	5.50	0.62	1.33	1.15	1.00

BORING (No.)	SAMPLER FACTOR Cs (See Table 2 &Seed et al, 1985)	MODIFIED PENETR. (N1)68 (Equn 10)	RELATIVE DENSITY Dr (%)	REDUCTION FACTOR Rd (Equn 2)	θ (rad)	EFFECTIVE PRESSURE AT DESIGN WATER TABLE (ksf)	σ_m' (kPa)	Gmax (psf)	$\gamma_{eff} \cdot G_{eff}/G_{max}$ (%)	n(PI)	γ (%)	ε (%)	ε_M (%)	LAYER (feet)	SETTLE LAYER (in)	SETTLE TOTAL (in)
B-2	1.00	25.7	70	8.98	8.78	0.83	23	1281322	0.83	8.00E+00	8.14	8.18	8.88	18	0.19	
B-2	1.18	24.5	76	8.98	8.70	1.18	30	1455802	0.04	0.00E+00	8.16	8.12	8.18	2.5	0.06	
8-2	1.00	19.8	68	8.97	0.78	1.39	38	1519176	0.04	0.00E+00	8.20	8.20	8.16	2.5	0.10	
B-2	1.18	32.3	97	8.97	8.78	1.65	45	1856827	0.04	8.00E+00	0.14	8.87	8.06	5	0.07	
B-2	1.00	24.2	75	8.95	8.70	2.28	60	2851048	0.05	8.00E+00	8.19	0.14	8.11	5	8.14	
B-2	1.18	28.8	79	8.04	8.78	2.75	75	2366881	0.05	8.00E+00	0.18	8.12	8.18	5	0.11	
0-2	1.00	116.2	100	0.93	8.78	3.30	90	4238282	0.04	8.00E+00	0.87	0.82	8.82	5	8.02	
8-2	1.28	135.9	188	8.89	8.70	3.85	105	4923082	0.04	8.00E+00	0.87	8.82	8.82	5	0.02	
0-2	1.00	105.9	100	0.85	8.70	4.40	128	4745277	8.04	8.00E+00	0.07	8.82	8.82	5	0.02	
8-2	1.20	78.1	100	8.81	8.78	4.85	135	4566191	0.04	0.00E+00	0.88	8.82	8.82	5	0.02	
8-2	1.00	94.7	100	0.77	0.70	5.50	150	5111695	0.04	8.00E+00	8.87	8.82	8.82	5	0.02	0.8