COMPETENT MATERIAL

COMPACTED FILL

OVERFILL
(IF REQUIRED)

MAINTAIN 15’ MIN. HORIZONTAL WIDTH FROM SLOPE FACE TO BENCH/BACKCUT

TOE OF SLOPE SHOWN ON GRADING PLAN

PROJECT SLOPE GRADIENT (1:1 MAX.)

2” MINIMUM KEY DEPTH

BACKCUT - VARIES

PLACE COMPACTED BACKFILL TO ORIGINAL GRADE

KEYWAY IN COMPETENT MATERIAL; MINIMUM WIDTH OF 15” OF AS RECOMMENDED BY THE GEOPTEHNICAL ENGINEER. KEYWAY MAY NOT BE REQUIRED IF FILL SLOPE IS LESS THAN 5’ IN HEIGHT. AS RECOMMENDED BY THE SOIL ENGINEER.

MINIMUM 1’ TILT BACK OR 2% SLOPE (WHICHEVER IS GREATER)

VARIABLE

4” MIN.

MINIMUM HEIGHT OF BENCHES IS 4” OR AS RECOMMENDED BY THE GEOPTEHNICAL ENGINEER.

NOTES:

BENCHING SHALL BE REQUIRED WHEN NATURAL SLOPES ARE EQUAL TO OR STEEPER THAN 5:1 OR WHEN RECOMMENDED BY THE GEOPTEHNICAL ENGINEER.

WHERE THE NATURAL SLOPE APPROACHES OR EXCEEDS THE DESIGN SLOPE RATIO, SPECIAL RECOMMENDATIONS WILL BE PROVIDED BY THE GEOPTEHNICAL ENGINEERS.
APPENDIX A

Field Investigation

Twenty seven small-diameter borings (designated B-1 through B-27) were performed between March 27 and April 11, 2008 to depths ranging from about 25 to 85 feet below existing grade. The borings were advanced by Pacific Drilling of San Diego, California with a Unimog Marl M5 all terrain truck mounted drill rig that utilized 6-inch or 8-inch diameter hollow stem augers. The borings were backfilled according to County of San Diego Department of Environmental Health (DEH) requirements. URS obtained approval for alternate backfill materials consisting of a 3-foot bentonite seal at the bottom of the boring followed by native soil cuttings with 2-foot bentonite seal placed every 10 feet and a surface seal placed from 1 to 3 feet below the ground surface.

Relatively intact samples were obtained from the borings with a modified California sampler lined with four-inch-long brass tubes and driven using a 140-pound hammer dropping 30 inches. Disturbed samples were obtained from the borings using Standard Penetration Test (SPT) samplers driven with a 140-pound hammer dropping 30 inches. The number of blows shown on the logs is the field blow count for the last 12 inches of penetration (or less for blowcounts greater than 50). The reported field blowcounts have not been corrected for sampler size. Bulk samples were collected in 5-gallon buckets and sealed with lids and smaller grab samples were placed in sealed plastic bags prior to transport to our laboratory.

Twenty-three test pits (designated TP-1 through TP-23) were excavated between April 15 and 18, 2008 to depths ranging from about 4 to 10 feet below existing grade. The test pits were excavated by San Diego Concrete Cutting of San Diego, California with a rubber tired, four wheel drive Komatsu WB140 backhoe with a 24 inch bucket. The upper 1.5 to 2 feet of material was removed and placed to the side of the excavation for observation by the environmental monitors on site. This upper material was then replaced on the surface of the nominally compacted backfilled excavation. Bulk and grab samples were collected by hand from the spoils pile or from the sidewalls of the trench no deeper than 5 feet below the surface. Deeper bulk and grab samples were collected using the backhoe bucket. All samples were preserved in the same manner previously described.

The materials encountered in the borings and test pits were classified in accordance with the Unified Soil Classification System. Samples were typically collected at five-foot depth intervals or changes in stratigraphy, removed from the sampler, classified in the field, sealed to preserve the natural moisture content, and returned to our laboratory for further examination and testing.

The locations of all explorations were recorded on a hand-held Global Positioning System (GPS) unit and plotted on the site plan using the topography on the conceptual grading plan provided by SDG&E. The ground surface elevation at each exploration was obtained from the plotted locations on the electronic topographic layer.

The Key to Logs is presented on Figure A-1. Logs of the borings are presented on Figures A-2 through A-28; test pit logs are presented on Figures A-29 through A-51.
**COLUMN DESCRIPTIONS**

1. **Elevation:** Elevation in feet referenced to mean sea level (MSL) or site datum.
2. **Depth:** Depth in feet below the ground surface.
3. **Sample Type:** Type of soil sample collected at depth interval shown; sampler symbols are explained below.
4. **Sample Number:** Sample identification number.
5. **Sampling Resistance:** Number of blows required to advance driven sampler each 6-inch drive interval, or distance noted, using a 140-lb hammer with a 30-inch drop.
6. **Graphic Log:** Graphic depiction of subsurface material encountered; typical symbols are explained below.
7. **Material Description:** Description of material encountered; may include relative density / consistency, moisture, color, and grain size.
8. **Well Detail:** Graphic depiction of piezometer or well installation; materials are listed in header block; graphic symbols are explained below.
9. **Water Content:** Water content of soil sample measured in laboratory, expressed as percentage of dry weight of specimen.
10. **Dry Unit Weight:** Dry density of soil sample measured in laboratory, in pounds per cubic foot.
11. **Remarks and Other Tests:** Comments and observations regarding drilling or sampling made by driller or field personnel. Other field and laboratory test results, using the following abbreviations:

**TYPICAL SOIL GRAPHIC SYMBOLS**

- Silty SAND (SM)
- SAND (SP)
- CLAY (CL)
- GRAVEL (GM)
- Well graded SAND (SW)
- SAND with silt (SP-SM)
- Well graded SAND with silt (SW-SM)
- Clayey SAND (SC)
- SILT (ML)

**TYPICAL WELL GRAPHIC SYMBOLS**

- Blank screen in concrete
- Blank casing in Bentonite seal
- Blank screen in sand filter pack
- 0.020" dia. PVC slotted screen in sand filter pack
- End cap
- Modified California sampler
- Standard Penetration Test sampler

**OTHER GRAPHIC SYMBOLS**

- First water encountered at time of drilling and sampling (ATD)
- Water level measured at specified time after completion of drilling and sampling
- Minor change in material properties within a stratum
- Inferred or gradational contact between strata

**GENERAL NOTES**

1. Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive; actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2. Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

**Figure A-1**
**Log of Boring B-1**

**Project: East County Substation**
**Project Location: Jacumba, California**
**Project Number: 27667021.00030**

### Date(s) Drilled
- 03/27/08

### Drilling Method
- Hollow Stem Auger

### Drilling Contractor
- Pacific Drilling

### Water Level Depth (Feet)
- Not encountered

### Sampling Method(s)
- ModCal/SPT

### Backfill
- Soil cuttings/bentonite chips

### Depth, feet

<table>
<thead>
<tr>
<th>Elevation, feet</th>
<th>Depth, feet</th>
<th>SAMPLES</th>
<th>MATERIAL DESCRIPTION</th>
<th>Water Content, %</th>
<th>Dry Density, pcf</th>
<th>REMARKS AND OTHER TESTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>3320</td>
<td>0</td>
<td>1-1</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1-2</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1-3</td>
<td>39</td>
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<td></td>
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<td>1-4</td>
<td>30</td>
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<tr>
<td></td>
<td></td>
<td>1-5</td>
<td>35</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

- **ALLUVIUM**
  - Medium dense, moist, light grayish brown, well graded SAND (SW), trace silt
  - Trace gravel, mica
  - Very dense, moist, reddish brown, silty fine to medium SAND (SM), trace gravel
  - Becomes dense, silty fine to coarse sand, trace gravel
  - Dense, moist, grayish brown, poorly graded SAND with silt (SP-SM), trace gravel
  - Dense, moist, grayish brown, silty SAND (SM)

- **SA(4), CORR**
- **CORR**
- **LL(23), PI(NP)**
- **SA(10)**
<table>
<thead>
<tr>
<th>Depth, feet</th>
<th>Elevation, feet</th>
<th>Type</th>
<th>Number</th>
<th>Blows per foot</th>
<th>Graphic Log</th>
<th>MATERIAL DESCRIPTION</th>
<th>Water Content, %</th>
<th>Dry Density,pcf</th>
<th>REMARKS AND OTHER TESTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>36.5</td>
<td>3280</td>
<td></td>
<td>1-6</td>
<td>58</td>
<td></td>
<td>Becomes very dense</td>
<td></td>
<td></td>
<td>WA(14)</td>
</tr>
<tr>
<td>37.5</td>
<td>3285</td>
<td></td>
<td>1-7</td>
<td>44</td>
<td></td>
<td>Becomes dense</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42.5</td>
<td>3290</td>
<td></td>
<td>1-8</td>
<td>55</td>
<td></td>
<td>Becomes very dense, brown</td>
<td></td>
<td></td>
<td>WA(15)</td>
</tr>
<tr>
<td>47.5</td>
<td>3295</td>
<td></td>
<td>1-9</td>
<td>50/5&quot;</td>
<td></td>
<td>Very dense, moist, dark brown, clayey silty SAND (SC-SM)</td>
<td></td>
<td></td>
<td>LL(27), PI(6), WA(33)</td>
</tr>
<tr>
<td>52.5</td>
<td>3300</td>
<td></td>
<td>1-10</td>
<td>50/2&quot;</td>
<td></td>
<td>Bottom of boring at 51.5 feet</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Log of Boring B-2**

**Sheet 1 of 2**

**Date(s) Drilled:** 03/27/08  
**Logged By:** A. Podwiltz  
**Checked By:** P. Balasubramanyam

**Drilling Method:** Hollow Stem Auger  
**Size/Type:** 6 inch finger bit

**Total Depth of Borehole:** 31.5 feet  
**Approximate Surface Elevation:** 3,292 Feet

**Water Level Depth (Feet):** Not encountered  
**Sampling Method(s):** ModCal/SPT  
**Hammer Data:** 140 lbs/30" drop

**Borehole Backfill:** Soil cuttings/bentonite chips  
**Location:** N 1807782 E 6602682

---

**Elevation, feet** | **Depth, feet** | **Samples** | **Material Description** | **Remarks and Other Tests**
--- | --- | --- | --- | ---
3290 | 0 | 2-1 | 20 | ALLUVIUM
Medium dense, moist, brown, clayey fine to coarse SAND (SC), trace gravel, roots

3285 | 5 | 2-2 | 50/5 | Becomes clayey medium to coarse sand

3280 | 10 | 2-3 | 29 | Very dense, moist, brown, well graded SAND with silt (SW-SM)

3275 | 15 | 2-3 | 29 | OLDER ALLUVIUM
Very stiff, moist, brown, lean CLAY (CL), with trace sand

3270 | 20 | 2-4 | 41 | Dense, moist, brown, silty SAND (SM), trace clay

3265 | 25 | 2-5 | 38 | Dense, moist, brown, clayey medium to coarse SAND (SC), trace silt

---

**Notes:**

- **Figure A-3**

---

**Report:** GEO_10_SNA  
**File:** 27667021.GPJ  
**Date:** 6/5/2008
### Log of Boring B-2

**Project:** East County Substation  
**Project Location:** Jacumba, California  
**Project Number:** 27667021.00030

<table>
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<th>Depth, feet</th>
<th>Blows per foot</th>
<th>Water Content, %</th>
<th>Dry Density,pcf</th>
<th>REMARKS AND OTHER TESTS</th>
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<tbody>
<tr>
<td>2-6</td>
<td>37</td>
<td>-</td>
<td>-</td>
<td>WA(28)</td>
</tr>
</tbody>
</table>

Bottom of boring at 31.5 feet
### Log of Boring B-3

**Project:** East County Substation  
**Project Location:** Jacumba, California  
**Project Number:** 27667021.00030

<table>
<thead>
<tr>
<th>Date(s) Drilled</th>
<th>Logged By</th>
<th>Checked By</th>
<th>Depth (Feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>03/28/08</td>
<td>A. Podwiltz</td>
<td>P. Balasubramanyam</td>
<td>36.5 feet</td>
</tr>
</tbody>
</table>

**Drilling Method**  
- Hollow Stem Auger

**Drill Rig Type**  
- Unimog Marl M5 All Terrain

**Water Level**  
- Not encountered

**Borehole Backfill**  
- Soil cuttings/bentonite chips

**Elevation, feet**  

<table>
<thead>
<tr>
<th>Depth, feet</th>
<th>Type</th>
<th>Number</th>
<th>Blows per foot</th>
<th>Graphic Log</th>
<th>MATERIAL DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>3265</td>
<td></td>
<td></td>
<td></td>
<td>ALLUVIUM</td>
<td>Dense, moist, light reddish brown, clayey fine SAND (SC), trace gravel</td>
</tr>
<tr>
<td>3260</td>
<td>3-1</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3255</td>
<td>3-2</td>
<td>50/50</td>
<td></td>
<td>OLDER ALLUVIUM</td>
<td>Very dense, moist, light reddish brown, clayey coarse SAND (SC)</td>
</tr>
<tr>
<td>3250</td>
<td>3-3</td>
<td>46</td>
<td></td>
<td>Becomes dense</td>
<td></td>
</tr>
<tr>
<td>3245</td>
<td>3-4</td>
<td>83</td>
<td></td>
<td>Becomes very dense</td>
<td></td>
</tr>
</tbody>
</table>
| 3240        | 3-5  | 50/50  |                | Hard, moist, light reddish brown, lean CLAY (CL), with fine sand |}

**Remarks and Other Tests**
- WA(29)
- 5 Water Content, %
- 3 Dry Density, pcf
- 6
Project: East County Substation  
Project Location: Jacumba, California  
Project Number: 27667021.00030

Log of Boring B-3  
Sheet 2 of 2

MATERIAL DESCRIPTION

<table>
<thead>
<tr>
<th>Elevation, feet</th>
<th>Depth, feet</th>
<th>Type</th>
<th>Number</th>
<th>Blows per foot</th>
<th>Graphic Log</th>
<th>Water Content, %</th>
<th>Dry Density,pcf</th>
<th>REMARKS AND OTHER TESTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>3235</td>
<td>30</td>
<td></td>
<td>3-6</td>
<td>50/5&quot;</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>3230</td>
<td>35</td>
<td></td>
<td>3-7</td>
<td>50/5&quot;</td>
<td></td>
<td></td>
<td></td>
<td>WA(33)</td>
</tr>
</tbody>
</table>

Very dense, moist, light grayish red, clayey SAND (SC)

Bottom of boring at 36.5 feet
### Log of Boring B-4

#### Project: East County Substation
Project Location: Jacumba, California  
Project Number: 27667021.00030

<table>
<thead>
<tr>
<th>Date(s) Drilled</th>
<th>Logged By</th>
<th>Checked By</th>
</tr>
</thead>
<tbody>
<tr>
<td>03/28/08</td>
<td>A. Podwiltz</td>
<td>P. Balasubramanyam</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drilling Method</th>
<th>Drill Bit Size/Type</th>
<th>Total Depth of Borehole</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hollow Stem Auger</td>
<td>6 inch finger bit</td>
<td>26.5 feet</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drill Rig Type</th>
<th>Drilling Contractor</th>
<th>Approximate Surface Elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unimog Marl M5 All Terrain</td>
<td>Pacific Drilling</td>
<td>3,230 Feet</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Water Level Depth (Feet)</th>
<th>Not encountered</th>
<th>Sampling Method(s)</th>
<th>Hammer Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ModCal/SPT</td>
<td>140 lbs/30&quot; drop</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Borehole Backfill</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil cuttings/bentonite chips</td>
<td>N 1808221 E 6601799</td>
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</table>

#### Project Location: Jacumba, California


#### Log of Boring B-4

#### Sheet 1 of 1

### Sampling

<table>
<thead>
<tr>
<th>Elevation, feet</th>
<th>Depth, feet</th>
<th>Type</th>
<th>Number</th>
<th>Blows per foot</th>
<th>Graphic Log</th>
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<tr>
<td>3225</td>
<td>5</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3220</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
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<tr>
<td>3200</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Material Description

- **ALLUVIUM**
  - Hard, moist, brown, sandy lean CLAY (CL) with gravels
  - Water Content, %: 8
  - Dry Density, pcf: 3
  - Remarks: WA(55)

- **OLDER ALLUVIUM**
  - Very dense, moist, brown, silty fine to coarse SAND (SM), trace gravel and clay
  - Water Content, %: 6
  - Dry Density, pcf: 3
  - Remarks: LL(31), PI(10), SA(43), CORR

- **Bottom of boring at 26.5 feet**
<table>
<thead>
<tr>
<th>Elevation, feet</th>
<th>Depth, feet</th>
<th>SAMPLES</th>
<th>MATERIAL DESCRIPTION</th>
<th>Water Content, %</th>
<th>Dry Density, pcf</th>
<th>REMARKS AND OTHER TESTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>3250</td>
<td></td>
<td></td>
<td>ALLUVIUM</td>
<td></td>
<td></td>
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<tr>
<td>3245</td>
<td></td>
<td></td>
<td>Hard, moist, light brown, lean CLAY (CL), with trace fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3240</td>
<td></td>
<td></td>
<td>OLDER ALLUVIUM</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3235</td>
<td>5-3</td>
<td>74</td>
<td>Very dense, moist, light brown, clayey fine to medium SAND (SC), with trace gravel</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3230</td>
<td>5-4</td>
<td>50/3”</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3225</td>
<td>5-5</td>
<td>50/6”</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Elevation, feet</td>
<td>Depth, feet</td>
<td>Type</td>
<td>Number</td>
<td>Blows per foot</td>
<td>Graphic Log</td>
<td>MATERIAL DESCRIPTION</td>
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<tr>
<td>3220</td>
<td>5-6</td>
<td>50/6&quot;</td>
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<td>Very dense, light brown, silty fine to medium SAND (SM), with trace clay</td>
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<tr>
<td>3215</td>
<td>5-7</td>
<td>50/6&quot;</td>
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<td>Hard, moist, light brown, lean CLAY (CL), with trace fine sand</td>
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<tr>
<td>3210</td>
<td>5-8</td>
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<td>Bottom of boring at 48.5 feet</td>
</tr>
<tr>
<td>Elevation, feet</td>
<td>Depth, feet</td>
<td>SAMPLES</td>
<td>MATERIAL DESCRIPTION</td>
<td>Water Content, %</td>
<td>Dry Density,pcf</td>
<td>REMARKS AND OTHER TESTS</td>
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<td>-----------------</td>
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<tr>
<td>-3245</td>
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<td>6-1</td>
<td>25</td>
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<td></td>
<td>6-2</td>
<td>50/6&quot;</td>
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<td>6-3</td>
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<td></td>
<td></td>
<td>6-4</td>
<td>50/6&quot;</td>
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<td>6-5</td>
<td>50/6&quot;</td>
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</tr>
</tbody>
</table>

ALLUVIUM
Very stiff, moist, light brown, Silt (ML), with fine sand and trace clay

OLDER ALLUVIUM
Hard, moist, light brown, lean Clay (CL), with silt and fine sand

LL(23), PI(3)
### Log of Boring B-6

**Project:** East County Substation  
**Location:** Jacumba, California  
**Number:** 27667021.00030

#### Elevation, feet  
<table>
<thead>
<tr>
<th>Depth, feet</th>
<th>SAMPLES</th>
<th>MATERIAL DESCRIPTION</th>
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**Bottom of boring at 41.5 feet**

**Figure A-7**

---

**Report:** GEO_10_SNA, File: 27667021.GPJ, 6/5/2008, B-6
### Log of Boring B-7

**Sheet 1 of 2**

<table>
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<th>Date(s) Drilled</th>
<th>Logged By</th>
<th>Checked By</th>
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<td>04/01/08</td>
<td>A. Podwiltz</td>
<td>P. Balasubramanyam</td>
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**Drilling Method**
- Hollow Stem Auger

**Drill Rig Type**
- Unimog Marl M5 All Terrain

**Drill Bit Size/Type**
- 6 inch finger bit

**Total Depth of Borehole**
- 51.5 feet

**Approximate Surface Elevation**
- 3,370 Feet

**Water Level Depth (Feet)**
- Not encountered

**Sampling Method(s)**
- ModCal/SPT

**Hammer Data**
- 140 lbs/30" drop

**Drilling Contractor**
- Pacific Drilling

**Type/Size/Contractor**
- Pacific Drilling

**Location**
- N 1807856 E 6604182

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Dense, moist, light brown, silty fine to medium SAND (SM) with gravel

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<tr>
<td>3365</td>
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Blows per foot: 48

Very dense, moist, light brown, well graded SAND with silt (SW-SM), with trace gravel

<table>
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<tr>
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Blows per foot: 70

Becomes dense

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<td>3355</td>
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Blows per foot: 39

Becomes dense

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Blows per foot: 54

Becomes very dense

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<tr>
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Blows per foot: 32

Becomes dense

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Log of Boring B-7

Project: East County Substation
Project Location: Jacumba, California
Project Number: 27667021.00030

Sheet 2 of 2

SAMPLES

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MATERIAL DESCRIPTION

- Very dense, moist, light grayish yellow, silty medium to coarse SAND (SM), with trace gravel
- With silt
- With trace gravel
- Very dense, moist, light grayish yellow, silty medium to coarse SAND (SM), with trace gravel
- Becomes very dense
- With gravel
- Bottom of boring at 51.5 feet

REMARKS AND OTHER TESTS

<table>
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<th>Water Content, %</th>
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Figure A-8
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**ALLUVIUM**
Dense, moist, light yellowish brown, silty fine to medium SAND (SM), with trace gravel

**Medium dense, moist, light yellowish brown, poorly graded SAND (SP)**

**Medium dense, moist, light yellowish brown, silty fine to coarse SAND (SM)**

**Medium dense, moist, light yellowish gray, well graded SAND (SW), with trace silt**

**WA(3)**

**CORR**

**CORR**
<table>
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Medium dense, moist, light yellowish brown, silty fine to coarse SAND (SM) with gravel

Trace gravel

Bottom of boring at 51.5 feet
Date(s) Drilled: 04/01/08
Logged By: A. Podwiltz
Checked By: P. Balasubramanyam

Drilling Method: Hollow Stem Auger
Drill Bit Size/Type: 6 inch finger bit
Total Depth of Borehole: 46.5 feet

Drill Rig Type: Unimog Marl M5 All Terrain
Drilling Contractor: Pacific Drilling
Approximate Surface Elevation: 3,313 Feet

Water Level Depth (Feet): Not encountered
Sampling Method(s): ModCal/SPT
Hammer Data: 140 lbs/30" drop

Backfill: Soil cuttings/bentonite chips
Location: N 1807888 E 6603017

MATERIAL DESCRIPTION

ALLUVIUM
Medium dense, moist, reddish brown, poorly graded medium to coarse SAND with silt (SP-SM), with trace gravel

Becomes dense, fine to medium sand, with trace gravel

Very dense, moist, reddish brown, clayey fine to medium SAND (SC)

Very dense, moist, reddish brown, silty medium to coarse SAND (SM), with trace gravel

Water Content, %: 55
Dry Density, pcf: 4

REMARKS AND OTHER TESTS

WA(7)
WA(22)

Figure A-10
Graphic Log

Very dense, moist, reddish brown, poorly graded fine to coarse SAND (SP), with trace gravel

Becomes dense

Bottom of boring at 46.5 feet

REMARKS AND OTHER TESTS

WA(4)
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<th>DRY Density, pcf</th>
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**REMARKS AND OTHER TESTS**

- **SA(5)**: With gravel
- **SA(5)**: With gravel
- **2**: 140 lbs/30" drop
- **2**: 56.5 feet
- **2**: 3,274 Feet
- **2**: 3,274 Feet
- **2**: 3,274 Feet
- **2**: 3,274 Feet
- **2**: 3,274 Feet
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Refusal at 56.5 feet

SA(31)
**Log of Boring B-11**

**Sheet 1 of 2**

---

**Date(s) Drilled:** 04/02/08  
**Logged By:** A. Podwiltz  
**Checked By:** P. Balasubramanyam

**Drilling Method:** Hollow Stem Auger  
**Drill Rig Type:** Unimog Marl M5 All Terrain  
**Water Level Depth (Feet):** Not encountered  
**Borehole Backfill:** Soil cuttings/bentonite chips

**Drill Bit Size/Type:** 6 inch finger bit  
**Drilling Contractor:** Pacific Drilling  
**Sampling Method(s):** ModCal/SPT  
**Hammer Data:** 140 lbs/30" drop

**Total Depth of Borehole:** 51.5 feet  
**Approximate Surface Elevation:** 3,286 Feet

---

**SAMPLES**  
**Elevation, feet**  
**Depth, feet**  
**Type**  
**Number**  
**Blows per foot**  
**Graphic Log**

**MATERIAL DESCRIPTION**

- **ALLUVIUM**
  - Loose, Moist, light yellowish gray, poorly graded SAND (SP), with trace gravel

- **Loose, moist, light yellowish gray, poorly graded SAND with silt (SP-SM)**

- **Medium dense, moist, brown, silty fine SAND (SM), trace course sand, fine gravel**

---

**REPORT AND OTHER TESTS**

- **Water Content, %:**
  - Sample: N 1807381 E 6602302
  - **Dry Density, pcf:**
  - **Remarks and other tests:**
  - **SA(3)**
  - **WA(11)**
  - **SA(12)**

---

Project: East County Substation  
Project Location: Jacumba, California  
Project Number: 27667021.00030

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Report: GEO_10_SNA; File: 27667021.GPJ; 6/5/2008; B-11

**Figure A-12**
### Material Description

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
<th>Blows per Foot</th>
<th>Remarks and Other Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-6</td>
<td></td>
<td>22</td>
<td>Becomes silty fine to medium sand</td>
</tr>
<tr>
<td>11-7</td>
<td></td>
<td>20</td>
<td>Very dense, moist, light yellowish brown, silty fine to coarse SAND (SM)</td>
</tr>
<tr>
<td>11-8</td>
<td></td>
<td>79</td>
<td>Very dense, moist, white, clayey fine SAND (SC) with gravel</td>
</tr>
<tr>
<td>11-9</td>
<td></td>
<td>42</td>
<td>Bottom of boring at 51.5 feet</td>
</tr>
<tr>
<td>11-10</td>
<td></td>
<td>63</td>
<td></td>
</tr>
</tbody>
</table>

**Remarks and Other Tests**

<table>
<thead>
<tr>
<th>Water Content, %</th>
<th>Dry Density,pcf</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>100</td>
</tr>
</tbody>
</table>

**Log of Boring B-11**

- **Project Location**: Jacumba, California
- **Project Number**: 27667021.00030
- **Report**: GEO_10_SNA; File: 27667021.GPJ; 6/5/2008
- **Sheet**: Sheet 2 of 2