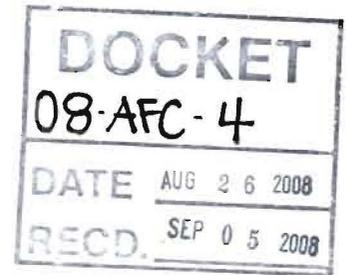




2666 Rodman Drive  
Los Osos, CA 93402

805.528.6868 Phone  
805.528.4141 Fax

www.TRCSolutions.com



August 26, 2008

Ms. Felicia Miller  
Project Manager  
California Energy Commission  
1516 Ninth Street MS-15  
Sacramento, CA 95814-5512

Ref: Grading Permit Application for the Orange Grove Project (08-AFC-4)

Dear Ms. Miller:

Pursuant to your request, enclosed are two paper copies and one compact disc of the Grading Permit application for the Orange Grove Project (08-AFC-4). This application was submitted to San Diego County Department of Public Works (DPW) on August 25, 2008. The DPW's initial comments have been addressed and we understand that this application is complete and adequate for detailed review by DPW.

If you have any questions, please call me at the phone number in the letterhead.

Sincerely,

Joseph L. Stenger, PG, REA  
Project Director

Enclosure:

Grading Permit Application (2 paper copies, 1 CD copy)

cc. Steve Thome, J-Power USA (w/o enclosure)  
Mike Jones, J-Power USA (w/o enclosure)  
Jane Luckhardt, Downey Brand (w/o enclosure)

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# DPW

COUNTY OF SAN DIEGO  
DEPARTMENT OF PUBLIC WORKS

## REQUIRED SUBMISSION ITEMS FOR GRADING PERMIT APPLICATIONS UNDER SECTIONS 87.205, 87.206, 87.207, 87.208, 87.218, 87.603, 87.606

ALL PERMIT APPLICATIONS REQUIRE THE FOLLOWING:

- SIGNED GRADING PERMIT APPLICATION
- SIGNED RIGHT OF ENTRY FORM
- SIGNED ENDANGERED SPECIES FORM
- SIGNED FINANCIAL RESPONSIBILITY FORM
- DPW IMPROVEMENT PLAN PRE-SCREENING CHECKLIST
- 1 COPY OF GRADING PLAN
- PLAN CHECK INITIAL DEPOSIT
  - \$1330 MINOR GRADING UNDER SECTION 87.206
  - \$2085 LESS THAN 10000 CUBIC YARDS
  - \$2950 EQUAL OR GREATER THAN 10000 CUBIC YARDS
- \$353 HEALTH DEPARTMENT FEE
- GRADING VIOLATION REQUIRES A STAMP FROM DPLU CODE ENFORCEMENT AND \$500 FEE

PLEASE CHECK ONE OF THE FOLLOWING GRADING PERMIT APPLICATION TYPES:

- AGRICULTURAL GRADING PERMIT - SECTION 87.205  
AGRICULTURAL ENVIRONMENTAL REVIEW QUESTIONNAIRE  
AGRICULTURAL GRADING STATEMENT
- MINOR GRADING PERMIT - SECTION 87.206  
SFD ENVIRONMENTAL REVIEW QUESTIONNAIRE
- GRADING PERMIT - SECTION 87.207  
COPY OF APPROVED DISCRETIONARY PLAN AND ENVIRONMENTAL DOCUMENTS
- MAJOR GRADING PERMIT - SECTION 87.208  
NOTIFICATION PACKAGE - SECTION 87.208(11)
- TEMPORARY STOCKPILE GRADING PERMIT - SECTION 87.218  
PROOF OF LEGALLY DISTURBED AREA - SECTION 87.218(a)(9)  
STOCKPILE CERTIFICATION - SECTION 87.219(b)(1)
- WATERCOURSE GRADING PERMIT - SECTION 87.603  
NOTIFICATION PACKAGE - SECTION 87.208(11)
- EMERGENCY WATERCOURSE GRADING PERMIT - SECTION 87.606  
NOTIFICATION PACKAGE - SECTION 87.208(11)

GRADING PERMIT EXTENSION UNDER SECTION 87.203(d) REQUIRES THE FOLLOWING:

- SIGNED GRADING PERMIT APPLICATION
- SIGNED RIGHT OF ENTRY FORM
- SIGNED ENDANGERED SPECIES FORM
- SIGNED FINANCIAL RESPONSIBILITY FORM
- 2 COPIES OF GRADING PLANS WITH ALL CHANGES IN RED
- COPY OF SECURITY - SECTION 87.304

I hereby agree to provide the indemnification as required by Chapter 2 of Division 6 of Title 8 of the San Diego County Code. I hereby acknowledge that I have read the application and state the information I have provided is correct regarding excavating and grading and the provisions and conditions of any permit issued to this application. "I declare under penalty of perjury under the laws of the State of California that the statements made herein are true and correct."

Signature of Owner/Agent \_\_\_\_\_ Date \_\_\_\_\_

This form must be completed at the time of submittal.

APPLICATION FOR GRADING PERMIT

L \_\_\_\_\_  
COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS  
5201 RUFFIN ROAD, SUITE D MS-0336  
SAN DIEGO, CA 92123-1666  
PHONE: (858) 694-2055 FAX: (858) 279-7020

DATE August 5, 2008

Permitted Name Orange Grove Energy, L.P. Phone (847) 908-2800  
Last Name First

Mailing Address 1900 East Golf Road, Suite 1030, Schaumburg, IL 60173; Attn: Steve Thome  
Street City State Zip

hereby makes application for permit to grade, subject to provisions of Title 8, Division 7, of the San Diego County Regulatory Code of Ordinances. Permit revocable at option of Director, Department of Public Works when necessary.

Owner Orange Grove Energy, L.P. Phone (847) 908-2800  
Last Name First

Mailing Address 1900 East Golf Road, Suite 1030, Schaumburg, IL 60173; Attn: Steve Thome  
Street City State Zip

Engineer Heausler, Thomas Phone (816) 822-1180  
Last Name First

Mailing Address 9233 Ward Parkway, Suite 145, Kansas City, MO 64114  
Street City State Zip

Email Address tfhse@aol.com

Soils Engineer Russell, Robert Phone (858) 455-0544  
Last Name First

Supervising Engineer Bondank, Joseph Phone (913) 681-2881  
Last Name First

Mailing Address 16041 Foster, P.O. Box 1000, Stilwell, KS 66085-1000

Legal Description SW 1/4, SE 1/4, SE 1/4, Section 29, T 9 S, R 2 W, San Bernardino Base & Meridian, in the County of San Diego, CA  
(Portion of: Lot. No.: Map No.: ETC)

Thomas Bros.: Page 409 Coordinates D6, E6 Grading Violation on the site: Yes  No

APN # See attached Orange Grove Project APN List Grading Transfer from DPLU: Yes  No

Proposed Use of Graded Site: Quick-Start Power Plant - Electrical Generation

Other permits associated with this permit: See attached Associated Permits List

Special Condition(s) which are made part of this permit: \_\_\_\_\_

I hereby agree to provide the indemnification as required by Chapter 2 of Division 6 of Title 8 of the San Diego County Code. I hereby acknowledge that I have read the application and state the information I have provided is correct and agree to comply with all County Ordinances and State Regulations regarding excavating and grading and the provisions and conditions of any permit issued pursuant to this application. "I declare under penalty of perjury under the laws of the State of California that the statements made herein are true and correct."

Signature of Owner/Agent \_\_\_\_\_ Date \_\_\_\_\_

A W-9 WILL BE REQUIRED PRIOR TO ISSUANCE OF A GRADING PERMIT ISSUED  
PURSUANT TO SECTIONS 87.207, 87.208, 87.218, 87.603, 87.606

This form must be completed at the time of submittal.

PLEASE NOTE: To avoid delay in processing your application, the information you supply below must be COMPLETE, ACCURATE AND CONSISTENT with the information on the map and other documents on your application.

APPLICANT -- Please complete the following

DATE August 5, 2008

APPLICANT NAME Orange Grove Energy, L.P. PHONE ( 847 ) 908 - 2800

APPLICANT ADDRESS 1900 East Golf Road, Suite 1030; Attn: Steve Thome

CITY Schaumburg STATE IL ZIP 60173

ENGINEER NAME Heausler, Thomas PHONE ( 816 ) 822 - 1180

ENGINEER ADDRESS 9233 Ward Parkway, Suite 145

CITY Kansas City STATE MO ZIP 64114

OWNER NAME Orange Grove Energy, L.P. PHONE ( 847 ) 908 - 2800

OWNER ADDRESS 1900 East Golf Road, Suite 1030; Attn: Steve Thome

CITY Schaumburg STATE IL ZIP 60173

PROJECT NAME Orange Grove Project

PROJECT PARCEL NO 110 - 072 - 26 , 110 - 370 - 01 TAX RATE AREA Bonsall Union 57140

PROJECT ADDRESS West of Pala, CA, 0.1 mile north of SR-76 at Pala Del Norte Road

BETWEEN Interstate 15 AND the City of Pala

CASE _____	
JURISDICTION <u>C N</u>	REVIEWED BY _____
PROJECT DESCRIPTION _____	USE CLASS _____
COMMUNITY PLAN _____	
SUPERVISOR DISTRICT _____	STATE COASTAL (Y/N) _____
	LOTS _____ LEGAL LOT(Y/N) _____
PROPOSED RESIDENTIAL UNITS: COASTAL SAGE(Y/N) _____	INFO NOT AVAIL _____
HABITAT LOSS PERMIT REQUIRED (Y/N) _____	M.S.C.P. REQUIRED (Y/N) _____
ATTACHED _____	DETACHED _____
	MULTI _____
ZONING EXISTING _____	
PROPOSED _____	

This form must be completed by Zoning at the time of submittal.

DEPARTMENT OF PUBLIC WORKS  
LAND DEVELOPMENT  
FINANCIAL RESPONSIBILITY FORM

(All lines in red must be completed by LD Counter Staff)

Date: August 5, 2008 PROJECT #: \_\_\_\_\_

PERMIT # \_\_\_\_\_ PERMIT TYPE: \_\_\_\_\_

OWNER:

Name: Orange Grove Energy, L.P.

Mailing Address: 1900 East Golf Road, Suite 1030

Schaumburg, IL 60173; Attn: Steve Thome

Phone Number: (847) 908-2800

FINANCIAL RESPONSIBLE:

Name: Orange Grove Energy, L.P.

Mailing Address: 1900 East Golf Road, Suite 1030

Schaumburg, IL 60173; Attn: Steve Thome

Phone Number: (847) 908-2800

Signature \_\_\_\_\_ Date \_\_\_\_\_

Steve Thome

Print Name

(Entered into KIVA: Date: \_\_\_\_\_ By: \_\_\_\_\_)

New \_\_\_ Change \_\_\_

This form must be completed at the time of submittal.

## GRADING PERMIT \_\_\_\_\_

Right-of-Entry - Permission is hereby granted to the County of San Diego, or its authorized representatives, agents, employees, contractors or volunteers (all of whom shall be considered included in references to "County"), to enter upon the undersigned Permittee's property for the purpose of inspecting the site, performing corrective action or taking such steps as the County deems necessary to ensure that the permitted activity is undertaken in accordance with any applicable Federal, State or local laws.

Hold Harmless - The undersigned Permittee understands and agrees to defend, indemnify and hold harmless the County and its directors, officers, employees, contractors and volunteers against any and all claims, demands, liability, judgments, awards, fines, losses, damages, expenses, charges, liens or costs of any kind or character, including attorneys fees, expert witness fees and court costs (collectively Claim or Claims), which arise out of or are in any way connected to the County's entry onto, inspection of or performance of corrective action on the Permittees property, any work undertaken by Permittee in accordance with this permit, or the use of any patent or patented article in connection with any permitted construction or repair work, arising either directly or indirectly from any act, error, omission or negligence of the Permittee or Permittees officers, employees, agents, contractors, licensees or servants, including without limitation, Claims caused by the concurrent negligent act, error or omission, whether active or passive of County. Permittee shall have no obligation, however, to defend or indemnify County from a Claim if it is determined by a court of competent jurisdiction that such Claim was caused by the sole negligence or willful misconduct of County. Permittee further agrees to provide any defense and indemnification required by the County Board of Supervisors pursuant to Chapter 2 of Division 6 of Title 8 of the San Diego County Code of Regulatory Ordinances.

Participation In Defense - At its sole discretion, County shall have the right but not the obligation to participate at its own expense in the defense or settlement of any Claim, but such participation shall not relieve the Permittee of its obligation to defend and indemnify the County. Should the Permittee fail to defend and indemnify County and/or to perform any other obligation imposed under this permit, the County may discontinue the defense of any such Claim. In the event that the County becomes aware that a Claim is brought, the County agrees to notify the Permittee in writing and cooperate fully in the defense. Upon receipt of such notification, the Permittee shall assume the defense of the Claim, including the employment of counsel reasonably satisfactory to County, and the prompt payment of the fees and disbursements of such counsel. If the County reasonably determines that having common counsel would present such counsel with a conflict of interest, or if the Permittee fails to promptly assume the defense of the Claim or to promptly employ counsel reasonably satisfactory to County, then the County may employ separate counsel to represent or defend the County against such Claim, and the Permittee shall pay the reasonable fees and disbursements of such counsel within 30 days of receiving an itemized billing therefore.

Release - Permittee forever waives, releases and relinquishes all rights and Claims of whatever kind, character or origin, known or unknown, suspected or unsuspected, which it may have against the County with respect to any injury, death, loss or damage to real or personal property, arising out of the performance of the permitted activity or the County's exercise of its right-of-entry, including all rights and Claims with respect to any actual or alleged negligent act or omission to act of the County. Permittee hereby expressly agrees that the foregoing waiver, release and relinquishment of rights and Claims is given with full knowledge of the provisions of California Civil Code Section 1542 and with the intention that such waiver, release and relinquishment is intended to and shall extend to waive the benefits of the provisions of Section 1542, which reads as follows:

A general release does not extend to claims which the creditor does not know or suspect to exist in his favor at the time of executing the release, which if known by him must have materially affected his settlement with the debtor.

Multiple Permittees - Any and all references to the Permittee in this document shall be deemed to mean and include each and every undersigned Permittee or Owner. All such undersigned Permittees and Owners shall be jointly and severally liable to County for each and every obligation imposed by this document on the Permittee.

\_\_\_\_\_  
Permittee/Owner

\_\_\_\_\_  
Date

\_\_\_\_\_  
Permittee/Owner

\_\_\_\_\_  
Date

\_\_\_\_\_  
Permittee/Owner

\_\_\_\_\_  
Date

\_\_\_\_\_  
Permittee/Owner

\_\_\_\_\_  
Date

This form must be completed at the time of submittal.

NOTIFICATION OF THREATENED SPECIES LISTING OF THE  
CALIFORNIA GNATCATCHER  
UNDER THE FEDERAL ENDANGERED SPECIES ACT OF 1973

On March 25, 1993, the United States Department of the Interior listed the California gnatcatcher as a "threatened species", requiring Federal protection of the songbird under the provisions of the Endangered Species Act of 1973 and all amendments thereto. Please be informed that the coastal sage scrub and other habitats upon which this species depends is located throughout many areas of San Diego County. It is the responsibility of all persons anticipating development activities in these areas that may adversely affect this species to comply with the provisions of the Endangered Species Act.

The Act prohibits anyone from "taking" a gnatcatcher, which includes killing, harming, or harassing the species, or destruction of its habitat. By proposing a Section 4(d) rule under the Act, Secretary Babbitt has indicated his intention to allow the U.S. Fish and Wildlife Service to define conditions associated with certain land use activities under which take of a gnatcatcher would not be a violation of the Act. If there is a possibility of the presence of gnatcatchers or gnatcatcher habitat on your property, you are advised to contact the local office of the U.S. Fish and Wildlife Service for specific advice and information.

NOTICE

It is the applicant's responsibility to determine whether the subject property contains a coastal sage scrub plant community. Such a plant community is habitat for the Coastal California gnatcatcher. The Federal Government recently listed the gnatcatcher as a threatened species under the Federal Endangered Species Act of 1973 (16 U.S.C. Section 1531 et seq.). THE LISTING MAY RESULT IN AN APPLICANT'S INABILITY TO PROCEED WITH HIS/HER PROJECT WITHOUT A PERMIT FROM THE FEDERAL GOVERNMENT IF THE SPECIES OR ITS HABITAT ARE PRESENT ON THE PROJECT SITE. It is advisable to contact the United States Fish and Wildlife Service to determine the applicability of the prohibitions under the Act to each applicant's property. THE ISSUANCE OF THIS PERMIT BY THE COUNTY OF SAN DIEGO DOES NOT AUTHORIZE THE APPLICANT FOR SAID PERMIT TO VIOLATE ANY FEDERAL, STATE OR COUNTY LAWS, ORDINANCES, REGULATIONS OR POLICIES INCLUDING BUT NOT LIMITED TO THE FEDERAL ENDANGERED SPECIES ACT AND ANY AMENDMENTS THERETO.

I hereby acknowledge by my signature that I have read and understand this notice.

\_\_\_\_\_  
Applicant/Owner

\_\_\_\_\_  
Date

\_\_\_\_\_  
West of Pala, CA, 0.1 mile north of SR-76 at Pala Del Norte Road

\_\_\_\_\_  
See attached Orange Grove Project APN List

\_\_\_\_\_  
Property Address

\_\_\_\_\_  
Assessor Parcel Number(s)

This form must be completed at the time of submittal.

**ASSOCIATED PERMITS LIST  
TO THE ORANGE GROVE PROJECT  
SAN DIEGO COUNTY GRADING PERMIT**

**California Energy Commission - Power Plant Site Certification**

An Application for Certification (AFC) has been submitted to the CEC for the Orange Grove Project. The AFC process is functionally equivalent to an Environmental Impact Report (EIR) under CEQA with the CEC acting as lead agency.

**San Diego County - Hazardous Materials Permit**

A hazardous materials permit will be required from San Diego County in order to store hazardous materials on the project site. The hazardous materials permit application has not yet been submitted.

**San Diego Air Pollution Control District - Authority To Construct And Operate**

An authority to construct and operate permit will be required from the San Diego Air Pollution Control District (SDAPCD). The authority to construct and operate permit application is currently under consideration by the SDAPCD.

**San Diego Air Pollution Control District - Acid Rain Permit**

An acid rain permit will be required from the SDAPCD. The acid rain permit application has not yet been submitted.

**San Diego Air Pollution Control District - Title V Operating Permit**

Within one year of facility startup, a Title V operating permit will be required from the SDAPCD. The Title V operating permit application will be submitted following project startup.

**CalTrans - Encroachment Permits**

CalTrans will require encroachment permits in order to construct the natural gas pipeline within the CalTrans right-of-way and to connect the project access driveway to SR 76. The CalTrans encroachment permit applications have not yet been submitted.

**San Diego Regional Water Quality Control Board - NPDES Stormwater Permit**

Project construction will occur under the State general NPDES permit for construction sites. A notice of intent (NOI) shall be submitted to the San Diego Regional Water Quality Control Board prior to the start of construction.

**ORANGE GROVE PROJECT  
ASSESSOR PARCEL NUMBER (APN) LIST**

**Project Site and Access Road Parcels**

1. 110-072-26
2. 110-072-06
3. 110-370-01
4. 110-150-02\*\*

**Additional Parcels for the Gas Pipeline**

1. 110-150-25\*/\*\*
2. 128-470-09\*
3. 128-470-08\*
4. 110-362-08\*/\*\*
5. 128-420-01\*
6. 110-362-10\*\*

\*Work will occur on an easement within these parcels, which are owned by others.

\*\*Work adjacent to these parcels will be in the State Road 76 (Pala Road) right-of-way, which will be subject to an encroachment permit by CalTrans.

**IMPROVEMENT PLAN PRE-SCREENING CHECKLIST**

Improvement plans are subject to pre-screening by Department of Public Works prior to initial submittal. Plans must meet the following format requirements at a minimum. If plans do not meet any of the following, the submittal is subject to rejection. The pre-screened submittal will be returned within five (5) working days upon receipt.

Application and plans shall be submitted to the DPW Customer Services Counter, 5201 Ruffin Road, Suite D, San Diego, CA 92123.

Private:		County:
<input checked="" type="checkbox"/>	Grading plans placed on 24" x 36" sheets with 1" border on all edges	<input type="checkbox"/>
<input checked="" type="checkbox"/>	North arrow and scale on all sheets	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Vicinity map (distance shown to nearest street intersection, page, and section of Thomas Guide)	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Permittee's name, address and telephone number	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Owner's name, address and telephone number (if same as permittee, indicate on plan)	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Civil Engineer's name, address, telephone number, signature in title block, and stamp	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Short legal description	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Assessor's Parcel Number	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Site address	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Bench mark: show location on plan and describe in space provided (if datum is assumed, so note)	<input type="checkbox"/>
* <input type="checkbox"/>	L, CG, TM, or TPM-Number in the block	<input type="checkbox"/>
<input checked="" type="checkbox"/>	California Coordinate in title block	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Purpose of grading shown in the title block	<input type="checkbox"/>
* <input type="checkbox"/>	Show special use permit, rezone, TM, or TPM number, and dates of their approval next to title block where applicable	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Required General Notes	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Key map for projects covering several sheets	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Show existing contours (max. 5') to cover at least 50' beyond the property line or sufficient for showing drainage basin	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Best Management Practices Items proposed during construction and Post construction	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Drainage study	<input type="checkbox"/>
* <input type="checkbox"/>	Plans are related to a project with a previously approved discretionary permit (include a copy of the conditionally approved plot plan with the adopted Resolutions or Final Notice of Approval)	<input type="checkbox"/>
* <input type="checkbox"/>	Structural calculation for proposed designed retaining	<input type="checkbox"/>

	wall, if required
--	-------------------

If any of the following boxes are checked, an extra set of the project plan set with supporting documentation, studies, and/or other information will be sent to the respective specialist.

**Flood Control:**

- Project is subject with National Flood Insurance Program (NFIP)
- Project is subject with County Flood Protection Ordinance, Resource Protection ordinance
- Project subject to County Flood Plain mapping
- Project impacts or required to construct master planned drainage facility
- Project is subject with County Hydrology Manual, Drainage Design Manual for major drainage course or master facility
- Easement dedication to San Diego County Flood Control District (SDCFCD)

**Traffic Engineering:**

- Striping and pavement markings
- Traffic signs
- Traffic signals and flashers
- Guardrail installations
- Traffic Control Plans
- Traffic calming

**Wastewater Engineering:**

- Project is located in a County Sanitation District

**DPW Environmental Services Unit:**

**ALL DISCRETIONARY PROJECTS/APPLICATIONS REQUIRE DPW ESU REVIEW. (EXCEPT FOR AGRICULTURAL GRADING PLANS AND GRADING PLANS FOR RESTORATION WHICH WILL BE REVIEWED BY THE DPLU RESOURCE PLANNING)**

- Project has previous environmental approval
  - Yes (Environmental documents required with initial submittal)
  - No (ESU will determine environmental status upon initial review)

**Department of Planning and Land Use:**

- Project is for agricultural grading
- Grading Plans required as restoration for grading violation as determined by the DPLU Code Enforcement Division or the DPW Watercourse Enforcement Division.
- Project proposes grading into an open space easement

**DPW Capitol Improvement Program:**

- Project is located within, along, or adjacent to a listed Public Road on the current County five (5) year CIP Plan
- Sidewalk and pedestrian ramp improvements deviate from ADA requirements
- Project proposes public pathways

**DPW Materials Lab:**

- Project proposes paving under the Private or Public Road Standards, conditions of approval, or permit requirements
- Project has Geotechnical/Geology issues (seismic, slope stability, potential rock fall, etc.) including specialized retaining or slope stability structures
- Project requires "Geologic Hazard" memo
- Project proposes designs employing non-standard methods and materials

Note: If a geotechnical report is available, for the project, a copy of the report should be routed with the plans. A copy of conditions of approval or permit requirements must be provided with plans.

**DPW Special Districts:**

- Project is in a Permanent Road Division  
PRD Number \_\_\_\_\_
- Project proposes improvements that will connect or intersect a PRD road.  
PRD Number \_\_\_\_\_

**DPW Private Development Construction Inspection:**

- Project proposes grading under an L-Grading Permit Application
- Project is the result of a Watercourse Violation under the County Grading Ordinance

**DPW Field Operations:**

- Project will violate the County 3-year Pavement Cut Policy
- Project will make improvements to existing or future publicly maintained road for the purpose of acceptance into the County Maintained road system
- Project connects or intersects a private road to a County publicly maintained road
- Project proposes modifications or eliminates pedestrian access to curb ramps or sidewalks
- Project proposes raised medians (landscaped and/or hardscaped) within a County maintained road
- Project proposes landscaping within or along a County maintained road
- Project proposes connection to an existing or proposed County drainage system
- Project proposes improvement or installation of drainage facilities to be County maintained
- Project proposes improvements that do not meet minimum County Drainage Standards within the County maintained road system
- Project proposes permanent stormwater BMPs to be publicly maintained by the County of San Diego
- Project proposes a publicly maintained detention or retention basin and/or those which will drain directly into a County maintained drainage system or roadway
- Project proposes a Regional Standard Drawing D-25, Curb Outlet, or RSD D-27, Sidewalk Underdrain within the County maintained road system (note: copy of the drainage study required to verify runoff will be contained within the gutter).

**Department of Environmental Health (DEH):**

- Project site has existing water wells on the property
- Water wells are shown on the grading plan
- Water wells located within the area of proposed grading
- Water wells located on adjacent property near proposed grading
- Project site has existing monitoring wells on the property
- Properties adjacent to the project are currently using, or will use on-site sewage disposal systems
- 5:1 grading setbacks are shown from the top of cut to primary and/or reserve area disposal fields to adjacent properties that have or are approved for onsite sewage disposal systems
- Grading plan shows existing or proposed on-site sewage disposal system for project site
- Proposed earthen fill located over or near components of on-site sewage disposal systems

**Department of Parks and Recreation:**

- Project is located adjacent to existing or proposed County park or preserve
- Project is conditioned to construct a public or private park
- Project is conditioned to construct public or private trails and/or pathways
- Project proposes an LLD/CFD which requires operations and/or management by DPR

Note: A copy of conditions of approval or permit requirements must be provided with plans under Park and Recreation review.

Signature *Thomas F. Heausler*  
(Engineer-of-Work) THOMAS F. HEAUSLER, PE

RCE No. C040363

Date 8/12/08

**FOR STAFF USE ONLY**

**Number of extra plan sets and documents required:**

- Land Development In-house
- Flood Control
- Traffic Engineering
- Wastewater Engineering
- DPW Environmental Services Unit  
(CEQA review required for all discretionary projects)
- Department of Planning and Land Use
- DPW Capitol Improvement Program
- DPW Material Lab
- DPW Special Districts
- DPW Private Development Construction Inspection
- DPW Field Operations
- Department of Environmental Health
- Department of Parks and Recreation

Total number of plan sets required from boxes checked above \_\_\_\_\_

Reviewed by \_\_\_\_\_ Date \_\_\_\_\_  
(DPW Staff)

**ESTIMATE FOR GRADING PERMIT**

**FOR**

**ORANGE GROVE ENERGY, L.P.**

**ORANGE GROVE PROJECT**

**MUP 07 - 009**

**AUGUST 25, 2008**

**PREPARED BY:**



**16041 Foster P.O. BOX 1000  
Stilwell, Kansas 66085-1000  
(913) 681-2881**

**Sega Project No. 07-0201**



## ESTIMATE FOR GRADING PERMIT Orange Grove Project

Grading Permit No.: L15454  
 Engineer: Thomas F. Heausler

TM/TPM No.: N/A

CG No.:N/A

ITEM	QUANTITY	UNIT	COUNTY OF SAN DIEGO UNIT PRICE FOR BONDING	COST
<b>1. Earthwork</b>				
Cut/Fill				
(0-1,000)	0	CY	\$20.00	\$0
(1,000-20,000)	0	CY	\$11.00	\$0
(20,000+)	62,000	CY	\$6.50	\$403,000
Export/Import				
(0-1,000)	0	CY	\$28.00	\$0
(1,000-20,000) (Imported sand and gravel)	5000	CY	\$22.00	\$110,000
(20,000+)	0	CY	\$12.00	\$0
Clearing and Grubbing	1,000,000	SF	\$0.45	\$450,000
Erosion Control				
Sand/Gravel Bag	5500	EA	\$3.00	\$16,500
Jute Mat (not as independent BMP)	0	SF	\$0.40	\$0
Straw Mat	0	SF	\$0.28	\$0
Straw Bales	0	EA	\$5.00	\$0
Silt Fence	16,500	LF	\$1.60	\$26,400
Fiber Rolls	2,000	LF	\$3.00	\$6,000
Wood Fiber Mat	0	SF	\$0.25	\$0
Coconut Fiber Mat	0	SF	\$0.40	\$0
Hydro-Seed	0	SF	\$0.33	\$0
Bonded Fiber Matrix	0	SF	\$0.09	\$0
Guar Binder	0	SF	\$0.03	\$0
Stabilized Construction Entrance	2,000	SF	\$1.25	\$2,500
Sub drain				
4" - 6"	0	LF	\$30.00	\$0
8"	0	LF	\$35.00	\$0
Subdrain Headwall	0	EA	\$2,500.00	\$0
<b>Subtotal</b>				<b>\$1,014,400</b>
<b>Plus 10% Contingency</b>				<b>\$1,115,840</b>
<b>30% Grading Subtotal for Cash/Bond</b>				<b>\$334,752</b>

Sega, Inc.  
 Customer: Orange Grove Energy, L.P.

8/21/2008  
 Job No. 07-0201

Type I (D-29)	1	EA	\$4,300.00	\$4,300
Cleanouts (Storm Drain)				
Type A (D-9)	0	EA	\$4,200.00	\$0
Type B (D-10)	0	EA	\$4,500.00	\$0
Concrete	3,800	CY	\$550.00	\$2,090,000
Concrete Energy Dissipater	0	EA	\$8,200.00	\$0
Concrete Lug	0	EA	\$1,100.00	\$0
Concrete Pipe Collar	5	EA	\$2,500.00	\$12,500
Culvert, Pipe Reinforced Concrete (RCP)				
12 " or less	55	LF	\$55.00	\$3,025
18"	1050	LF	\$95.00	\$99,750
24"	85	LF	\$110.00	\$9,350
30"	50	LF	\$120.00	\$6,000
36"	65	LF	\$145.00	\$9,425
42"	0	LF	\$165.00	\$0
48"	0	LF	\$175.00	\$0
54"	0	LF	\$200.00	\$0
60"	0	LF	\$255.00	\$0
72"	0	LF	\$290.00	\$0
Culvert, (PVC Pipe)				
4" - 6"	0	LF	\$12.00	\$0
8" - 12"	0	LF	\$25.00	\$0
18"	0	LF	\$60.00	\$0
24"	0	LF	\$75.00	\$0
30"	0	LF	\$85.00	\$0
36"	0	LF	\$95.00	\$0
42"	0	LF	\$100.00	\$0
Curb Inlet				
Type A (D-1)	0	EA	\$5,000.00	\$0
Type B (D-2)	0	EA	\$5,000.00	\$0
Type C (D-3)	0	EA	\$5,500.00	\$0
Curb Outlet, Type A (D-25)	0	EA	\$2,500.00	\$0
Curb Outlet, Sidewalk Underdrain Pipe, D-27	0	EA	\$500.00	\$0
Curtain Wall				
D-38	0	EA	\$600.00	\$0
D-72	0	EA	\$650.00	\$0
Drainage Channel, P.C.C (D-70 & D-71)	0	LF	\$1,025.00	\$0
Drainage Ditch	2,000	LF	\$25.00	\$50,000
HEC-2 Study and FEMA Revision	0	LS	\$30,000.00	\$0
Headwalls				

(2.0 Ton)	75	CY	\$180.00	\$13,500
(4.0 Ton)	0	CY	\$200.00	\$0

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**MISCELLANEOUS**

Bridge (Vehicular)	2,400	SF	\$275.00	\$660,000
Bridge (Pedestrian)	0	SF	\$250.00	\$0
Crash Cushion (G.R.E.A.T.)	0	EA	\$36,800.00	\$0
Excavation For Structures	13,000	CY	\$31.00	\$403,000
Fence (M-6), Chain Link,				
4'	0	LF	\$12.50	\$0
5'	0	LF	\$14.00	\$0
6'	2,500	LF	\$16.00	\$40,000
Guard Rail, Metal Beam (M-30-38)	0	LF	\$30.00	\$0
Guard Post	0	EA	\$240.00	\$0
Guard Barricade	0	EA	\$450.00	\$0
Median Barrier	0	EA	\$55.00	\$0
Saw Cut	0	LF	\$4.00	\$0
Shoring				
5' - 10' Deep	0	LF	\$11.20	\$0
11' - 15' Deep	0	LF	\$17.40	\$0
16' - 20' Deep	0	LF	\$25.00	\$0
Survey Monument, M-10	0	EA	\$800.00	\$0
Retaining Walls				
Masonry	0	SF	\$29.65	\$0
Cast-In-Place	0	CY	\$675.00	\$0
Gravity	0	SF	\$22.00	\$0
Crib	0	SF	\$25.00	\$0

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**LANDSCAPING & IRRIGATION**

**Planting**

Shrubs				
1 Gallon	103	EA	\$6.00	\$618
5 Gallon	246	EA	\$20.00	\$4,920
Slope Planting (Ground Cover)	0	SF	\$0.48	\$0
Slope Planting (Ground Cover + Trees and Shrubs)	236,400	SF	\$0.79	\$186,756
Slope Planting (Hydro-Seeding)	0	SF	\$0.13	\$0

**Irrigation**

Backflow Prevention Assembly W/ Enclosure	1	EA	\$1,650.00	\$1,650
Slope Irrigation	236,400	SF	\$0.59	\$139,476

**Subtotal** \$3,847,595  
**Plus 10% Contingency** \$4,232,355

**FOR CASH/BOND**

<b>TOTAL AMOUNT OF SECURITY</b>	\$4,567,107	Say	\$4,567,100.00
<b>CASH DEPOSIT</b> (\$1,000 MINIMUM, \$10,000 MAXIMUM)	232105.325	use	\$10,000.00
<b>GRADING BOND</b>	4557100	Say	\$4,557,100.00
<b>(Grading + Structural) Inspection Deposit</b>	162445.835		\$162,400.00
Collect (grading + Structural) inspection deposit <b>ONLY</b> if Minor grading plan			

**FOR CASH ONLY**

<b>TOTAL AMOUNT OF SECURITY</b>	\$4,288,147	Say	\$4,288,100.00
<b>CASH DEPOSIT</b> (\$5,000 MINIMUM, \$30,000 MAXIMUM)	\$4,288,100.00	use	\$30,000.00
<b>(Grading + Structural) Inspection Deposit</b>	162445.835		\$162,400.00
Collect (grading + Structural) inspection deposit <b>ONLY</b> if Minor grading plan			

PREPARED BY : James P. Langel

DATE: August 2008

# Draft Storm Water Management Plan For Priority Projects (SWMP)

## ORANGE GROVE PROJECT



*Submitted by*

### **ORANGE GROVE ENERGY, L.P.**

1900 East Golf Road, Suite 1030  
Schaumburg, IL 60173

August 2008



*Thomas F. Heausler*  
8-25-08

**Storm Water Management Plan  
For Priority Projects  
(Major SWMP)**

Project Name:	Orange Grove Project
Permit Number (Land Development Projects):	
Work Authorization Number (CIP):	
Applicant:	Orange Grove Energy, LP.
Applicant's Address:	1900 East Golf Road, Suite 1030, Schaumburg, IL 60173
Plan Prepare By (Leave blank if same as applicant):	Sega, 16041 Foster, P.O. Box 1000, Stilwell, KS, 65085
Date:	August 25, 2008
Revision Date (If applicable):	August 2008

The County of San Diego Watershed Protection, Storm Water Management, and Discharge Control Ordinance (WPO) (Ordinance No. 9424) requires all applications for a permit or approval associated with a Land Disturbance Activity must be accompanied by a Storm Water Management Plan (SWMP) (section 67.804.f). The purpose of the SWMP is to describe how the project will minimize the short and long-term impacts on receiving water quality. Projects that meet the criteria for a priority project are required to prepare a Major SWMP.

Since the SWMP is a living document, revisions may be necessary during various stages of approval by the County. Please provide the approval information requested below.

Project Review Stage	Does the SWMP need revisions?		If YES, Provide Revision Date
	YES	NO	
DRAFT		X	

Instructions for a Major SWMP can be downloaded at <http://www.co.san-diego.ca.us/dpw/stormwater/susmp.html>.

Completion of the following checklist and attachments will fulfill the requirements of a Major SWMP for the project listed above.

**PROJECT DESCRIPTION**

Please provide a brief description of the project in the following box. For example:  
The 50-acre RC Ranch project is located on the south side of San Miguel Road in the County of San Diego (See Attachment 1). The project is approximately 1.0 mile east of the intersection of San Miguel Avenue and San Miguel Road and 1 mile south of the Sweetwater Reservoir. This project will consist of a planned residential community comprising of 45 single-family homes 72 and multi-unit dwellings.

The power plant site is located in north San Diego County, approximately 3.5 (air) miles
--

of I-15 on SR-76, approximately two miles west of the community of Pala. The approximately 8.5 acre site is situated within an approximately 202-acre property owned by SDG&E. The site is located on disturbed lands formerly used as a citrus grove, but the grove has not been maintained in at least five years. The existing SDG&E Pala substation is located on a contiguous SDG&E parcel south of the site. The transmission line interconnection will be installed in a trench that will primarily be located within the roadbed or shoulder of Pala Del Norte Road and the paved driveway of the substation. The gas pipeline has been designed to minimize new ground disturbance to the extent practical. The pipeline will be approximately 2.5 miles long. The Orange Grove project objective is to respond to the SDG&E request for offers for new local electric capacity in an environmentally responsible and economically feasible manner. The purpose of this project is to assure reliable electric power for the public.

**PRIORITY PROJECT DETERMINATION**

Please check the box that best describes the project. Does the project meet one of the following criteria?

<b>PRIORITY PROJECT</b>	<b>YES</b>	<b>NO</b>
Redevelopment within the County Urban Area that creates or adds at least 5,000 net square feet of additional impervious surface area		X
Residential development of more than 10 units		X
Commercial developments with a land area for development of greater than 100,000 square feet		X
Automotive repair shops		X
Restaurants, where the land area for development is greater than 5,000 square feet		X
Hillside development, in an area with known erosive soil conditions, where there will be grading on any natural slope that is twenty-five percent or greater, if the development creates 5,000 square feet or more of impervious surface		X (1)
Environmentally Sensitive Areas: All development and redevelopment located within or directly adjacent to or discharging directly to an environmentally sensitive area (where discharges from the development or redevelopment will enter receiving waters within the environmentally sensitive area), which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10% or more of its naturally occurring condition.		X
Parking Lots 5,000 square feet or more or with 15 parking spaces or more and potentially exposed to urban runoff		X
Streets, roads, highways, and freeways which would create a new paved surface that is 5,000 square feet or greater		X

**Limited Exclusion:** Trenching and resurfacing work associated with utility projects are not considered priority projects. Parking lots, buildings and other structures associated with utility projects are subject to SUSMP requirements if one or more of the criteria above are met.

If you answered **NO** to all the questions, then **STOP**. Please complete a Minor SWMP for your project.

(1) The site slopes are 10% and the potential pollutants are similar to the selected hillside category.

If you answered **YES** to any of the questions, please continue.

The following questions provide a guide to collecting information relevant to project stormwater quality issues. Please provide a description of the findings in text box below.

	QUESTIONS	COMPLETED	NA
1.	Describe the topography of the project area.	X	
2.	Describe the local land use within the project area and adjacent areas.	X	
3.	Evaluate the presence of dry weather flow.	X	
4.	Determine the receiving waters that may be affected by the project throughout the project life cycle (i.e., construction, maintenance and operation).	X	
5.	For the project limits, list the 303(d) impaired receiving water bodies and their constituents of concern.	X	
6.	Determine if there are any High Risk Areas (municipal or domestic water supply reservoirs or groundwater percolation facilities) within the project limits.	X	
7.	Determine the Regional Board special requirements, including TMDLs, effluent limits, etc.	X	
8.	Determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves.	X	
9.	If considering Treatment BMPs, determine the soil classification, permeability, erodibility, and depth to groundwater.	X	
10.	Determine contaminated or hazardous soils within the project area.	X	

Please provide a description of the findings in the following box. For example:

The project is located in the San Diego Hydrologic unit. The area is characterized by rolling grassy hills and shrubs. Runoff from the project drains into a MS4 that eventually drains to Los Coches Creek. Within the project limit there are no 303(d) impaired receiving water and no Regional Board special requirements.

The site occurs on an alluvial fan surface that slopes southward at an average grade of approximately 10 percent. The project site will be constructed on lands that have already been disturbed by agriculture. The transmission line interconnection facilities for the project will also be located in areas that are already disturbed, so the result is no new ground disturbance. The gas pipeline will be installed in previously disturbed areas and undisturbed areas. The maximum (construction) project disturbance is approximately 37 acres.  
(CONTINUED ON PAGE 3A)

Complete the checklist below to determine if Treatment Best Management Practices (BMPs) are required for the project.

No.	CRITERIA	YES	NO	INFORMATION
1.	Is this an emergency project		X	If YES, go to 6. If NO, continue to 2.
2.	Have TMDLs been established		X	If YES, go to 5.

(CONTINUED FROM PAGE 3)

The Site area is relatively dry with precipitation mostly occurring between December and March. There are no dry weather flows on the property. Average annual rainfall within the Hydrologic Unit ranges from approximately 11 inches at low elevations near the coast, to more than 45 inches in the highest elevations of the headwaters. The Site is situated on a gentle, relatively featureless slope that has a small up-gradient watershed and dispersing sheet flow. Surface drainage from the power plant will flow to an onsite detention basin designed to contain storm water from storms with a recurrence interval of up to 100 years, and will thereby reduce erosion and sediment transport from the site compared to existing conditions. The discharge from the detention basin will be directed to sheet flow south off of the property. Surface drainage north of the site will be diverted around the site by a conveyance channel and discharge into the west drainage.

The San Luis Rey River runs south of SR 76. Near the Site, the San Luis Rey River was diverted southward by mining operations and is now confined to a diked channel located approximately 0.5 mile south of SR 76. In the project vicinity, flow in the San Luis Rey River is intermittent, responding to seasonal precipitation. The closest perennial surface waters to the Site are ponds that occur in the riverbed where past mining has exposed the water table in the alluvial aquifer.

There are no high risk areas, or known contaminated soil areas, or special Regional Board requirements within the project limits. The San Luis Rey River is down gradient of the site and is a 303(d) listed water body for Total Dissolved Solids and Chloride.

No.	CRITERIA	YES	NO	INFORMATION
	for surface waters within the project limit?			If NO, continue to 3.
3.	Will the project directly discharge to a 303(d) impaired receiving water body?		x	If YES, go to 5. If NO, continue to 4.
4.	Is this project within the urban and environmentally sensitive areas as defined on the maps in Appendix B of the <i>County of San Diego Standard Urban Storm Water Mitigation Plan for Land Development and Public Improvement Projects</i> ?		x	If YES, continue to 5. If NO, go to 6.
5.	Consider approved Treatment BMPs for the project.	x		If YES, go to 7.
6.	Project is not required to consider Treatment BMPs			Document for Project Files by referencing this checklist.
7.	End	x		

Now that the need for a treatment BMPs has been determined, other information is needed to complete the SWMP.

### WATERSHED

Please check the watershed(s) for the project.

- |                                       |  |  |   |
|---------------------------------------|--|--|---|
| <input type="checkbox"/> San Juan     | <input type="checkbox"/> Santa Margarita | <input checked="" type="checkbox"/> San Luis Rey | <input type="checkbox"/> Carlsbad         |
| <input type="checkbox"/> San Dieguito | <input type="checkbox"/> Penasquitos     | <input type="checkbox"/> San Diego               | <input type="checkbox"/> Pueblo San Diego |
| <input type="checkbox"/> Sweetwater   | <input type="checkbox"/> Otay            | <input type="checkbox"/> Tijuana                 |   |

Please provide the hydrologic sub-area and number(s)

Number	Name
903.20	Monserate Hydrologic Area
3.21	Pala Hydrologic Sub Area

Please provide the beneficial uses for Inland Surface Waters and Ground Waters. Beneficial Uses can be obtained from the Water Quality Control Plan For The San Diego Basin, which is available at the Regional Board office or at <http://www.swrcb.ca.gov/rwqcb9/programs/basinplan.html>.

SURFACE WATERS	Hydrologic Unit Basin Number	MUN	AGR	IND	PROC	GWR	FRESH	POW	REC1	REC2	BIOL	WARM	COLD	WILD	RARE	SPWN
<b>Inland Surface Waters</b>	3.21	x	x	x					x	x		x	x	x		x
<b>Ground Waters</b>	3.21	x	x	x												

X Existing Beneficial Use  
 0 Potential Beneficial Use  
 \* Excepted from Municipal

### POLLUTANTS OF CONCERN

Using Table 1, identify pollutants that are anticipated to be generated from the proposed priority project categories. Pollutants associated with any hazardous material sites that have been remediated or are not threatened by the proposed project are not considered a pollutant of concern.

**Table 1. Anticipated and Potential Pollutants Generated by Land Use Type**

Priority Project Categories	General Pollutant Categories								
	Sediments	Nutrients	Heavy Metals	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Oil & Grease	Bacteria & Viruses	Pesticides
Detached Residential Development	X	X			X	X	X	X	X
Attached Residential Development	X	X			X	p <sup>(1)</sup>	p <sup>(2)</sup>	P	X
Commercial Development >100,000 ft <sup>2</sup>	p <sup>(1)</sup>	p <sup>(1)</sup>		p <sup>(2)</sup>	X	p <sup>(5)</sup>	X	p <sup>(3)</sup>	p <sup>(5)</sup>
Automotive Repair Shops			X	X <sup>(4)(5)</sup>	X		X		
Restaurants					X	X	X	X	
(1) Hillside Development >5,000 ft <sup>2</sup>	X	X			X	X	X		X

(1) The site slopes are 10% and the potential pollutants are similar to the selected hillside category.

Priority Project Categories	General Pollutant Categories								
	Sediments	Nutrients	Heavy Metals	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Oil & Grease	Bacteria & Viruses	Pesticides
Parking Lots	p <sup>(1)</sup>	p <sup>(1)</sup>	X		X	p <sup>(1)</sup>	X		p <sup>(1)</sup>
Streets, Highways & Freeways	X	p <sup>(1)</sup>	X	X <sup>(4)</sup>	X	p <sup>(5)</sup>	X		

X = anticipated  
P = potential  
(1) A potential pollutant if landscaping exists on-site.  
(2) A potential pollutant if the project includes uncovered parking areas.  
(3) A potential pollutant if land use involves food or animal waste products.  
(4) Including petroleum hydrocarbons.  
(5) Including solvents.

**Note:** If other monitoring data that is relevant to the project is available. Please include as Attachment C.

### CONSTRUCTION BMPs

Please check the construction BMPs that may be used. The BMPs selected are those that will be implemented during construction of the project. The applicant is responsible for the placement and maintenance of the BMPs selected.

- Silt Fence
- Fiber Rolls
- Street Sweeping and Vacuuming
- Storm Drain Inlet Protection
- Stockpile Management
- Solid Waste Management
- Stabilized Construction Entrance/Exit
- Dewatering Operations
- Vehicle and Equipment Maintenance
- Any minor slopes created incidental to construction and not subject to a major or minor grading permit shall be protected by covering with plastic or tarp prior to a rain event, and shall have vegetative cover reestablished within 180 days of completion of the slope and prior to final building approval.
- Desilting Basin
- Gravel Bag Berm
- Sandbag Barrier
- Material Delivery and Storage
- Spill Prevention and Control
- Concrete Waste Management
- Water Conservation Practices
- Paving and Grinding Operations

### SITE DESIGN

To minimize stormwater impacts, site design measures must be addressed. The following checklist provides options for avoiding or reducing potential impacts during project planning. If

YES is checked, it is assumed that the measure was used for this project. If NO is checked, please provide a brief explanation why the option was not selected in the text box below.

	OPTIONS	YES	NO	N/A
1.	Can the project be relocated or realigned to avoid/reduce impacts to receiving waters or to increase the preservation of critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions?		X	
2.	Can the project be designed to minimize impervious footprint?	X		
3.	Conserve natural areas where feasible?	X		
4.	Where landscape is proposed, can rooftops, impervious sidewalks, walkways, trails and patios be drained into adjacent landscaping?			X
5.	For roadway projects, can structures and bridges be designed or located to reduce work in live streams and minimize construction impacts?	X		
6.	Can any of the following methods be utilized to minimize erosion from slopes:	X		
	6.a. Disturbing existing slopes only when necessary?	X		
	6.b. Minimize cut and fill areas to reduce slope lengths?	X		
	6.c. Incorporating retaining walls to reduce steepness of slopes or to shorten slopes?	X		
	6.d. Providing benches or terraces on high cut and fill slopes to reduce concentration of flows?	X		
	6.e. Rounding and shaping slopes to reduce concentrated flow?	X		
	6.f. Collecting concentrated flows in stabilized drains and channels?	X		

Please provide a brief explanation for each option that was checked N/A or NO in the following box.

1.	NO - The project is sited to produce and supply power to a surrounding area during periods of high demand. The project site cannot be moved.
4.	N/A - This is an industrial facility and there is no proposed landscaping near the structures.

If the project includes work in channels, then complete the following checklist. Information shall be obtained from the project drainage report. N/A This project does not include work in channels.

No.	CRITERIA	YES	NO	N/A	COMMENTS
1.	Will the project increase velocity or volume of downstream flow?		X		If YES go to 5.
2.	Will the project discharge to unlined channels?		X		If YES go to 5.
3.	Will the project increase potential sediment load		X		If YES go to 5.

No.	CRITERIA	YES	NO	N/A	COMMENTS
	of downstream flow?				
4.	Will the project encroach, cross, realign, or cause other hydraulic changes to a stream that may affect upstream and/or downstream channel stability?		x		If YES go to 7.
5.	Review channel lining materials and design for stream bank erosion.	x			Continue to 6.
6.	Consider channel erosion control measures within the project limits as well as downstream. Consider scour velocity.	x			Continue to 7.
7.	Include, where appropriate, energy dissipation devices at culverts.	x			Continue to 8.
8.	Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour.	x			Continue to 9.
9.	Include, if appropriate, detention facilities to reduce peak discharges.	x			
10.	“Hardening“ natural downstream areas to prevent erosion is not an acceptable technique for protecting channel slopes, unless pre-development conditions are determined to be so erosive that hardening would be required even in the absence of the proposed development.	x			Continue to 11.
11.	Provide other design principles that are comparable and equally effective.	x			Continue to 12.
12.	End	x			

## SOURCE CONTROL

Please complete the following checklist for Source Control BMPs. If the BMP is not applicable for this project, then check N/A only at the main category.

BMP		YES	NO	N/A
1.	<b>Provide Storm Drain System Stenciling and Signage</b>			
1.a.	All storm drain inlets and catch basins within the project area shall have a stencil or tile placed with prohibitive language (such as: “NO DUMPING – DRAINS TO _____”) and/or graphical icons to discourage illegal dumping.	x		
1.b.	Signs and prohibitive language and/or graphical icons, which prohibit illegal dumping, must be posted at public access points along channels and creeks within the project area.	x		
2.	<b>Design Outdoors Material Storage Areas to Reduce Pollution Introduction</b>			
2.a.	This is a detached single-family residential project. Therefore, personal storage areas are exempt from this requirement.			x

BMP			YES	NO	N/A
2.b.	Hazardous materials with the potential to contaminate urban runoff shall either be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the storm water conveyance system; or (2) protected by secondary containment structures such as berms, dikes, or curbs.	x			
2.c.	The storage area shall be paved and sufficiently impervious to contain leaks and spills.	x			
2.d.	The storage area shall have a roof or awning to minimize direct precipitation within the secondary containment area.	x			
3.	<b>Design Trash Storage Areas to Reduce Pollution Introduction</b>				
3.a.	Paved with an impervious surface, designed not to allow run-on from adjoining areas, screened or walled to prevent off-site transport of trash; or,	x			
3.b.	Provide attached lids on all trash containers that exclude rain, or roof or awning to minimize direct precipitation.	x			
4.	<b>Use Efficient Irrigation Systems &amp; Landscape Design</b>				
	The following methods to reduce excessive irrigation runoff shall be considered, and incorporated and implemented where determined applicable and feasible.				
4.a.	Employing rain shutoff devices to prevent irrigation after precipitation.	x			
4.b.	Designing irrigation systems to each landscape area's specific water requirements.	x			
4.c.	Using flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.	x			
4.d.	Employing other comparable, equally effective, methods to reduce irrigation water runoff.	x			
5.	<b>Private Roads</b>				
	The design of private roadway drainage shall use at least one of the following				
5.a.	Rural swale system: street sheet flows to vegetated swale or gravel shoulder, curbs at street corners, culverts under driveways and street crossings.	x			
5.b.	Urban curb/swale system: street slopes to curb, periodic swale inlets drain to vegetated swale/biofilter.				x
5.c.	Dual drainage system: First flush captured in street catch basins and discharged to adjacent vegetated swale or gravel shoulder, high flows connect directly to storm water conveyance system.				x
5.d.	Other methods that are comparable and equally effective within the project.	x			
6.	<b>Residential Driveways &amp; Guest Parking</b>				x
	The design of driveways and private residential parking areas shall use one at least of the following features.				
6.a.	Design driveways with shared access, flared (single lane at street) or wheelstrips (paving only under tires); or, drain into landscaping prior to discharging to the storm water conveyance system.				
6.b.	Uncovered temporary or guest parking on private residential lots may be: paved with a permeable surface; or, designed to drain into landscaping prior to discharging to the storm water conveyance system.				
6.c.	Other features which are comparable and equally effective.				
7.	<b>Dock Areas</b>				x

BMP		YES	NO	N/A
	Loading/unloading dock areas shall include the following.			
7.a.	Cover loading dock areas, or design drainage to preclude urban run-on and runoff.			
7.b.	Direct connections to storm drains from depressed loading docks (truck wells) are prohibited.			
7.c.	Other features which are comparable and equally effective.			
<b>8.</b>	<b>Maintenance Bays</b>			x
	Maintenance bays shall include the following.			
8.a.	Repair/maintenance bays shall be indoors; or, designed to preclude urban run-on and runoff.			
8.b.	Design a repair/maintenance bay drainage system to capture all wash water, leaks and spills. Connect drains to a sump for collection and disposal. Direct connection of the repair/maintenance bays to the storm drain system is prohibited. If required by local jurisdiction, obtain an Industrial Waste Discharge Permit.			
8.c.	Other features which are comparable and equally effective.			
<b>9.</b>	<b>Vehicle Wash Areas</b>			x
	Priority projects that include areas for washing/steam cleaning of vehicles shall use the following.			
9.a.	Self-contained; or covered with a roof or overhang.			
9.b.	Equipped with a clarifier or other pretreatment facility.			
9.c.	Properly connected to a sanitary sewer.			
9.d.	Other features which are comparable and equally effective.			
<b>10.</b>	<b>Outdoor Processing Areas</b>			x
	Outdoor process equipment operations, such as rock grinding or crushing, painting or coating, grinding or sanding, degreasing or parts cleaning, waste piles, and wastewater and solid waste treatment and disposal, and other operations determined to be a potential threat to water quality by the County shall adhere to the following requirements.			
10.a.	Cover or enclose areas that would be the most significant source of pollutants; or, slope the area toward a dead-end sump; or, discharge to the sanitary sewer system following appropriate treatment in accordance with conditions established by the applicable sewer agency.			
10.b.	Grade or berm area to prevent run-on from surrounding areas.			
10.c.	Installation of storm drains in areas of equipment repair is prohibited.			
10.d.	Other features which are comparable or equally effective.			
<b>11.</b>	<b>Equipment Wash Areas</b>			x
	Outdoor equipment/accessory washing and steam cleaning activities shall be.			
11.a.	Be self-contained; or covered with a roof or overhang.			
11.b.	Be equipped with a clarifier, grease trap or other pretreatment facility, as appropriate			
11.c.	Be properly connected to a sanitary sewer.			
11.d.	Other features which are comparable or equally effective.			
<b>12.</b>	<b>Parking Areas</b>			
	The following design concepts shall be considered, and incorporated and implemented where determined applicable and feasible by the County.			
12.a.	Where landscaping is proposed in parking areas, incorporate landscape areas into the drainage design.	x		

BMP		YES	NO	N/A
12.b.	Overflow parking (parking stalls provided in excess of the County's minimum parking requirements) may be constructed with permeable paving.	x		
12.c.	Other design concepts that are comparable and equally effective.	x		
13.	<b>Fueling Area</b>			x
	Non-retail fuel dispensing areas shall contain the following.			
13.a.	Overhanging roof structure or canopy. The cover's minimum dimensions must be equal to or greater than the area within the grade break. The cover must not drain onto the fuel dispensing area and the downspouts must be routed to prevent drainage across the fueling area. The fueling area shall drain to the project's treatment control BMP(s) prior to discharging to the storm water conveyance system.			
13.b.	Paved with Portland cement concrete (or equivalent smooth impervious surface). The use of asphalt concrete shall be prohibited.			
13.c.	Have an appropriate slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of urban runoff.			
13.d.	At a minimum, the concrete fuel dispensing area must extend 6.5 feet (2.0 meters) from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 foot (0.3 meter), whichever is less.			

Please list other project specific Source Control BMPs in the following box. Write N/A if there are none and briefly explain.

<p>Diversion Trench - Trench install to divert run-on storm water around the plant site and away from industrial use areas.</p>
---

### TREATMENT CONTROL

To select a structural treatment BMP using Treatment Control BMP Selection Matrix (Table 2), each priority project shall compare the list of pollutants for which the downstream receiving waters are impaired (if any), with the pollutants anticipated to be generated by the project (as identified in Table 1). Any pollutants identified by Table 1, which are also causing a Clean Water Act section 303(d) impairment of the receiving waters of the project, shall be considered primary pollutants of concern. Priority projects that are anticipated to generate a primary pollutant of concern shall select a single or combination of stormwater BMPs from Table 2, which **maximizes pollutant removal** for the particular primary pollutant(s) of concern.

Priority projects that are **not** anticipated to generate a pollutant for which the receiving water is Clean Water Act Section 303(d) impaired shall select a single or combination of stormwater BMPs from Table 2, which are effective for pollutant removal of the identified secondary pollutants of concern, consistent with the "maximum extent practicable" standard.

**Table 2. Treatment Control BMP Selection Matrix**

Pollutant of Concern	Treatment Control BMP Categories						
	Biofilters	Detention Basins	Infiltration Basins <sup>(2)</sup>	Wet Ponds or Wetlands	Drainage Inserts	Filtration	Hydrodynamic Separator Systems <sup>(3)</sup>
Sediment	M	H	H	H	L	H	M
Nutrients	L	M	M	M	L	M	L
Heavy Metals	M	M	M	H	L	H	L
Organic Compounds	U	U	U	M	L	M	L
Trash & Debris	L	H	U	H	M	H	M
Oxygen Demanding Substances	L	M	M	M	L	M	L
Bacteria	U	U	H	H	L	M	L
Oil & Grease	M	M	U	U	L	H	L
Pesticides	U	U	U	L	L	U	L

(1) Copermitees are encouraged to periodically assess the performance characteristics of many of these BMPs to update this table.  
(2) Including trenches and porous pavement.  
(3) Also known as hydrodynamic devices and baffle boxes.

L: Low removal efficiency:  
M: Medium removal efficiency:  
H: High removal efficiency:  
U: Unknown removal efficiency

Sources: *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* (1993), *National Stormwater Best Management Practices Database* (2001), *Guide for BMP Selection in Urban Developed Areas* (2001), and *Caltrans New Technology Report* (2001).

A Treatment BMP must address runoff from developed areas. Please provide the post-construction water quality values for the project. Label outfalls on the BMP map.  $Q_{WQ}$  is dependent on the type of treatment BMP selected for the project.

Outfall	Tributary Area (acres)	$Q_{100}$ (cfs)	$Q_{WQ}$ (cfs)
1	5.2	11.28	27.86
2	3.0	12.75	N/A

Detention basin

North drainage channel

Please check the box(s) that best describes the Treatment BMP(s) selected for this project.

**Biofilters**

- Grass swale
- Grass strip
- Wetland vegetation swale
- Bioretention

**Detention Basins**

- Extended/dry detention basin with grass lining
- Extended/dry detention basin with impervious lining

**Infiltration Basins**

- Infiltration basin
- Infiltration trench
- Porous asphalt
- Porous concrete
- Porous modular concrete block

**Wet Ponds or Wetlands**

- Wet pond/basin (permanent pool)
- Constructed wetland

**Drainage Inserts** (See note below)

- Oil/Water separator
- Catch basin insert
- Storm drain inserts
- Catch basin screens

**Filtration**

- Media filtration
- Sand filtration

**Hydrodynamic Separator Systems**

- Swirl Concentrator
- Cyclone Separator
- Baffle Separator
- Gross Solids Removal Device
- Linear Radial Device

**Note:** Catch basin inserts and storm drain inserts are excluded from use on County maintained right-of-way and easements.

Include Treatment Datasheet as Attachment E. The datasheet should include the following:	<b>COMPLETED</b>	<b>NO</b>
1. Description of how treatment BMP was designed. Provide a description for each type of treatment BMP.	x	
2. Engineering calculations for the BMP(s)	x	

Please describe why the selected treatment BMP(s) was selected for this project. For projects utilizing a low performing BMP, please provide a detailed explanation and justification.

The treatment BMP selected for this site is detention basin. The BMP was selected because it will provide high removal efficiency for sediment, which is the main pollutant of concern for the site, and will control downstream flow intensity. In addition, the BMP has been sized so that the structure will control the water discharge to below pre-development flow up to a 100 year storm event. Surface drainage from north of the site will be directed to sheet flow in the west drainage. Discharge from the detention basin will be discharged as sheet flow near the secondary access road. The detention basin will provide area for sedimentation and residual water.

**MAINTENANCE**

Please check the box that best describes the maintenance mechanism(s) for this project.

CATEGORY	SELECTED	
	YES	NO
First		X
Second	X	
Third		X
Fourth		X

Please briefly describe the long-term fiscal resources for the selected maintenance mechanism(s).

The owner of the power plan facility will be responsible for maintenance of the treatment BMP. The estimated cost for maintenance of the BMP is included in attachment F. Attachment E contains the specification information for the treatment BMP and the maintenance requirements.  
(CONTINUED ON PAGE 14A and 14B)

**ATTACHMENTS**

Please include the following attachments.

ATTACHMENT		COMPLETED	N/A
A	Project Location Map	X	
B	Site Map	X	
C	Relevant Monitoring Data	X	
D	Treatment BMP Location Map	X	
E	Treatment BMP Datasheets	X	
F	Operation and Maintenance Program for Treatment BMPs	X	
G	Engineer's Certification Sheet	X	

**Note:** Attachments A and B may be combined.

(CONTINUED FROM PAGE 14)

#### LONG-TERM FISCAL RESOURCES FOR MAINTENANCE

The following information is excerpted from the SUSMP manual to describe how the treatment BMP (detention basin) will be maintained through a financial mechanism that provides long term funding for the activities.

#### **SECOND CATEGORY:**

The County needs to assure ongoing maintenance. The nature of the proposed BMPs indicates that it is appropriate for property owners to be given primary responsibility for maintenance, on a perpetual basis (unless a stormwater utility is eventually formed). However, the County (in a “backup” role) needs to be able to step in and perform the maintenance if property owner fails, and needs to have security to provide funding for such backup maintenance. Security for “backup” maintenance after the interim period (5 years) would not be provided, however primary owner maintenance responsibility would remain. IF a stormwater utility or other permanent mechanism is put into place, it could assume either a primary or backup maintenance role.

#### Project BMP

- Detention Basin

#### **Mechanisms to Assure Maintenance:**

1. Stormwater Ordinance Requirement: The WPO requires this ongoing maintenance. In the event that the mechanisms below prove ineffective, or in addition to enforcing those mechanisms, civil action, criminal action or administrative citation could also be pursued for violations of the ordinance.
2. Public Nuisance Abatement: Under the WPO failure to maintain a BMP would constitute a public nuisance, which may be abated under the enforcement mechanism additional to the above, and would allow costs of maintenance to be billed to the owner, a lien placed on the property, and the tax collection process to be used.
3. Notice to Purchasers: Section 67.819(e) of the WPO requires developers to provide clear written notification to persons acquiring land upon which a BMP is located, or others assuming a BMP maintenance obligation, of the maintenance duty.
4. Conditions in Ongoing Land Use Permits: For those applications (listed in WPO Section 67.804) upon whose approval ongoing conditions may be imposed, a condition will be added which requires the owner of the land upon which the stormwater facility is located to maintain that facility in accordance with the requirements specified in the SMP. Failure to perform maintenance may then be addressed as a violation of the permit, under the ordinance governing that permit process.
5. Subdivision Public Report: Tentative Map and Tentative Parcel Map approvals will be conditioned to require that, prior to approval of a Final or Parcel Map, the subdivider shall provide evidence to the Director of Public Works, that the

subdivider has requested the California Department of Real Estate to include in the public report to be issued for the sales of lots within the subdivision, a notification regarding the maintenance requirement. (The requirement for this condition would not be applicable to subdivisions which are exempt from regulation under the Subdivided Lands Act, or for which no public report will be issued.)

6. BMP Maintenance Agreement with Easement and Covenant: An agreement will be entered into with the County, which will function three ways:
  - a. It will commit the land to being used only for purposed of the BMP;
  - b. It will include an agreement by the landowner, to maintain the facilities in accordance with the SMP(this obligation would be passed on to future purchasers or successors of the landowner, as a covenant); and
  - c. It will include an easement giving the County the right to enter onto the land (and any necessary adjacent land needed for access) to maintain the BMPs.

This would be required o all applications listed in WPO Section 67.804. In the case of subdivisions, this easement and covenant would be recorded on or prior to the Final or Parcel Map.

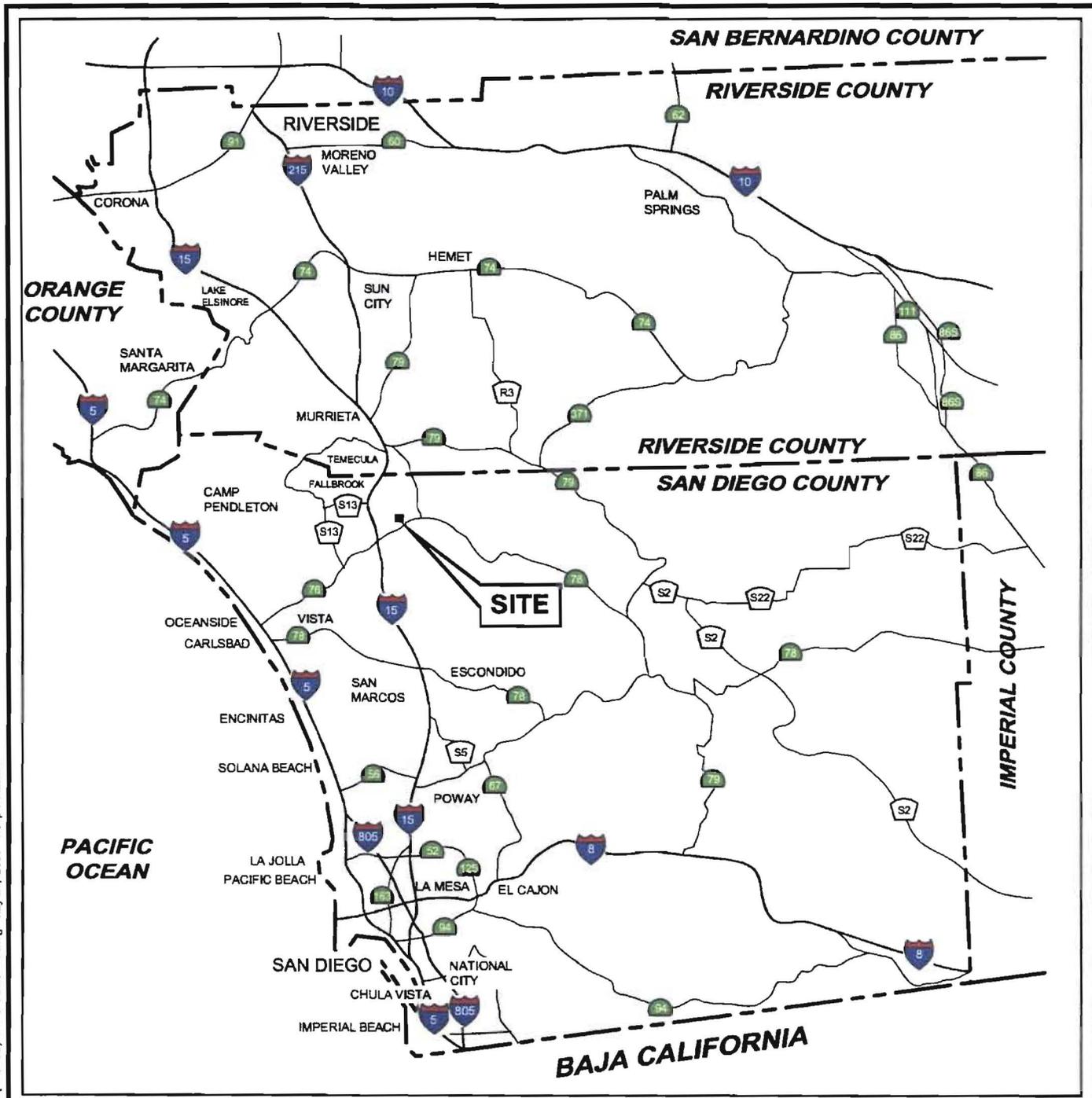
**Funding:**

Developer would provide the County with security to substantiate the maintenance agreement, which would remain in place for an interim period of 5 years. The amount of the security would equal the estimated cost of 2 years of maintenance activities. The security can be a Cash Deposit, Letter of Credit or other form acceptable to the County.

# **ATTACHMENT A**

## **LOCATION MAP**

MS=1:1 L:\graphics\Projects\Number\28-xxxx\28-0319\AFC (125158)\AFC-Location.dwg May 01, 2008 - 1:09pm Rodolls



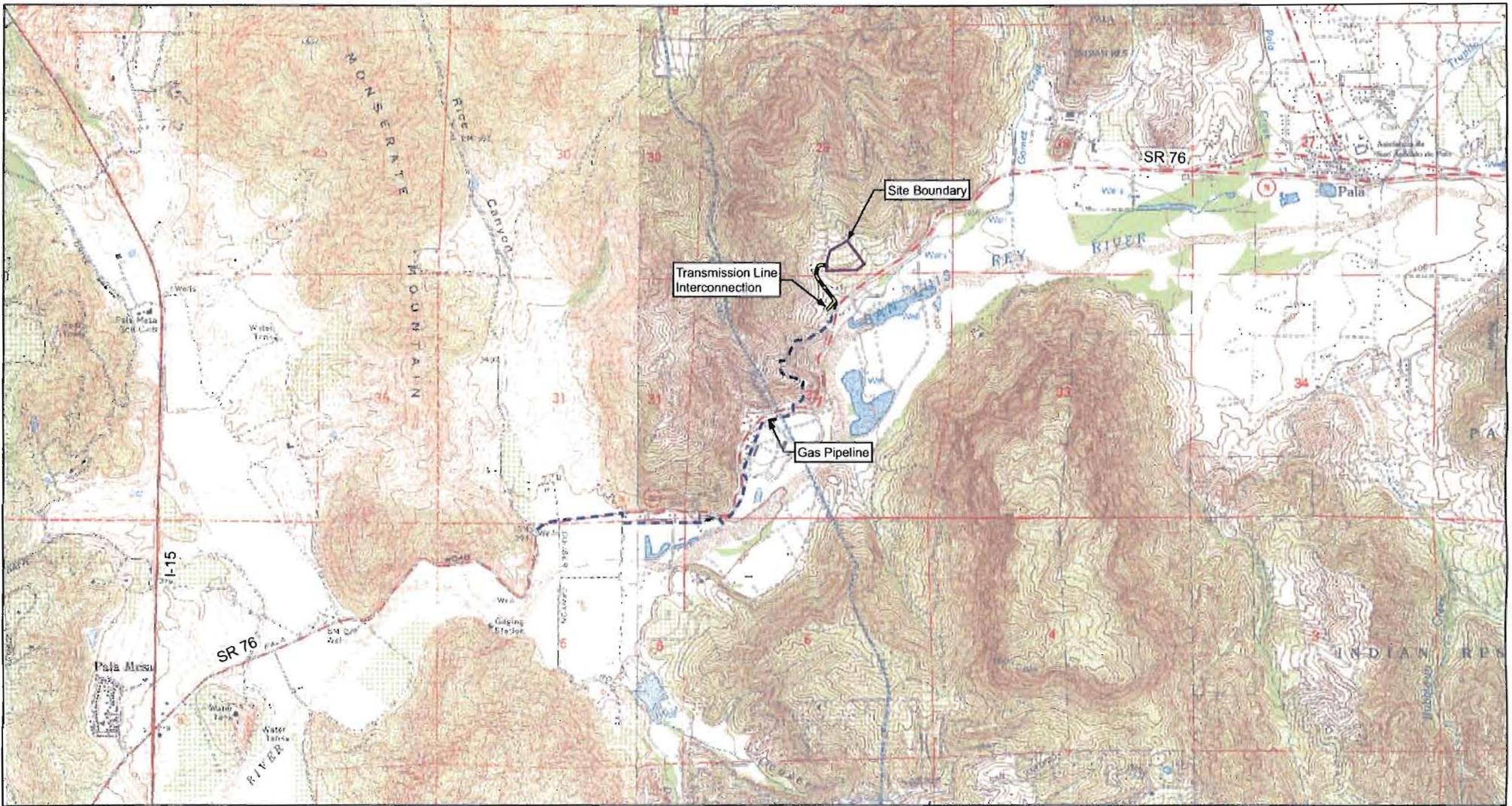
SCALE IN MILES



PROJECT: 125158  
 FACILITY:  
 ORANGE GROVE PROJECT  
 SAN DIEGO COUNTY, CALIFORNIA

SITE LOCATION MAP

FIGURE 2.2-1



Orange Grove 125156.MXD 11/25/15 for CEC.mxd



**Figure 2.2-2**  
Vicinity Map  
Orange Grove Project  
San Diego County, CA

1" = 2,000'



Source:  
USGS Topographical Quadrangles  
Pala, 80001



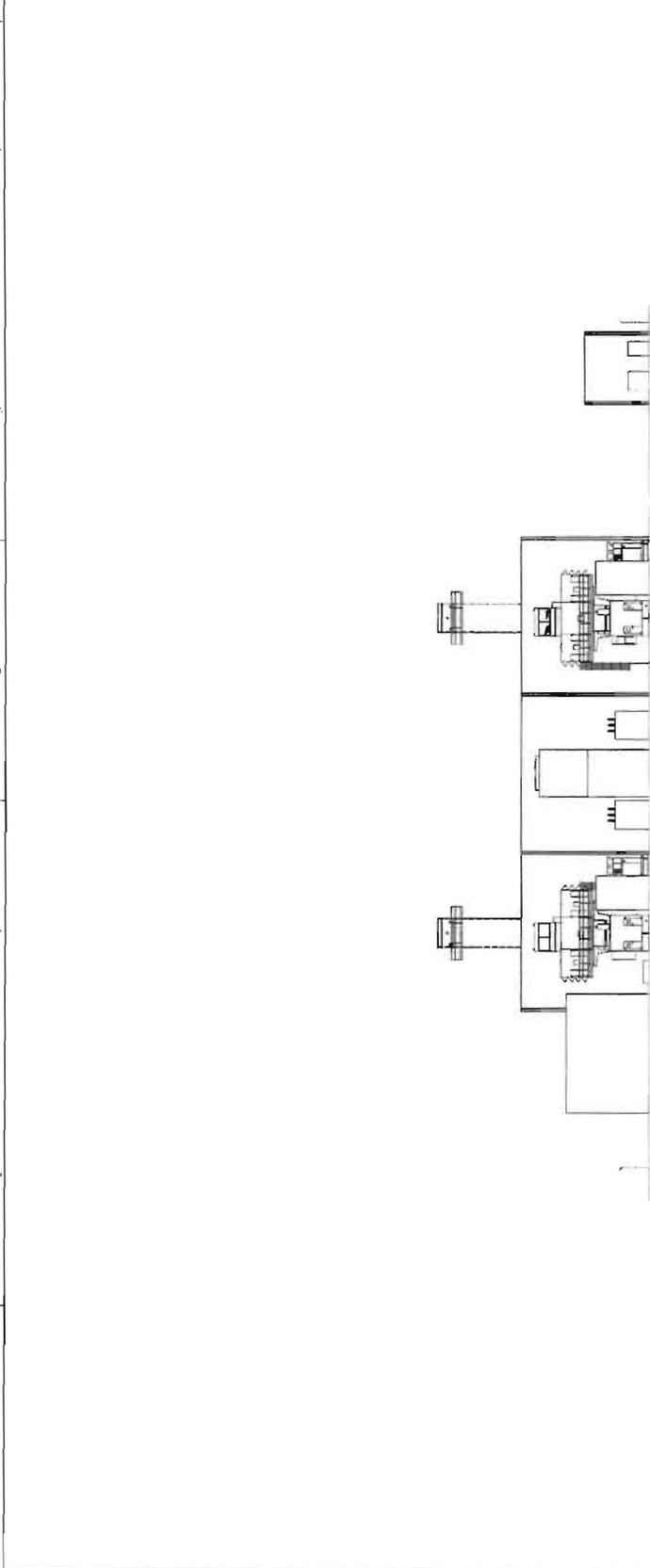
**ATTACHMENT B**

**PROJECT SITE MAP**





REV	DATE	DESCRIPTION	BY
1	11-13-07	ISSUED FOR PERMITS	WJ
2	11-13-07	ISSUED FOR PERMITS	WJ
3	11-13-07	ISSUED FOR PERMITS	WJ
4	11-13-07	ISSUED FOR PERMITS	WJ
5	11-13-07	ISSUED FOR PERMITS	WJ
6	11-13-07	ISSUED FOR PERMITS	WJ
7	11-13-07	ISSUED FOR PERMITS	WJ
8	11-13-07	ISSUED FOR PERMITS	WJ
9	11-13-07	ISSUED FOR PERMITS	WJ
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98	11-13-07	ISSUED FOR PERMITS	WJ
99	11-13-07	ISSUED FOR PERMITS	WJ
100	11-13-07	ISSUED FOR PERMITS	WJ



SITE ELEVATION  
LOOKING EAST



Notes Only When Spec'd In Blue Ink



Engineers - Architects - Technicians  
 Heavy - Construction - Field Service  
 16044 Payne  
 Chicago, Illinois 60655-1000  
 312.461.4000

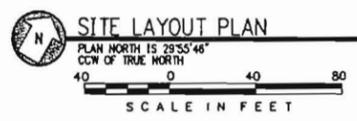
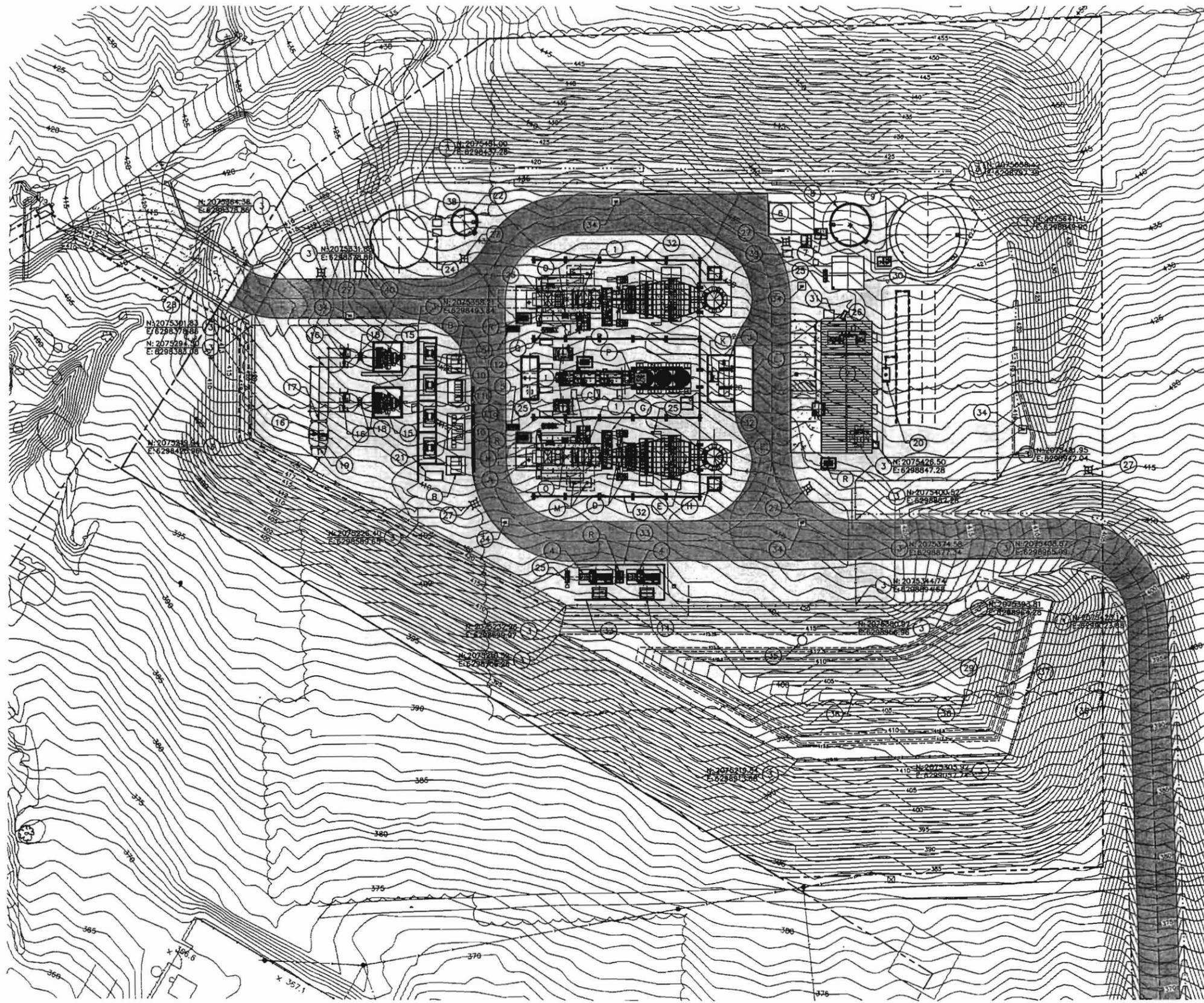
ORANGE GROVE ENERGY L.P.  
 Schaumburg, IL

ORANGE GROVE POWER PLANT

DESIGNED BY	J. BURDICK
CHECKED BY	J. BURDICK
DATE	6-18-07
SCALE	AS SHOWN
PROJECT NO.	07-201
DATE PLOTTED	07-201
FILE NAME	07201-GA101.dwg

GA101

E



EMISSION COORDINATES SYMBOL		
DESCRIPTION	NORTHING	EASTING
COMBUSTION TURBINE #1 (NORTH)	2075491	6298683
COMBUSTION TURBINE #2 (SOUTH)	2075387	6298743
DIESEL FIRE PUMP (±2')	2075517	6298766
BLACK START GENERATOR (±2')	2075379	6298582

**KEYNOTES CONT.:**

- 38) TANK TRANSFER PUMP SKID.
- 39) FRESH WATER UNLOADING PUMP SKID.
- 40) RECLAIM WATER UNLOADING PUMP SKID.

**KEYNOTES:**

- 1) COMBUSTION TURBINE (CT), GENERATOR, AND AUXILIARY EQUIPMENT. (FOR EACH UNIT): (HEIGHT = 43' AT THE TOP OF VBV DUCT).
- A) MAIN TURBINE GENERATOR SKID ENCLOSURE.
- B) 13.8KV ELECTRICAL SWITCHGEAR.
- C) CT AUXILIARY EQUIPMENT SKID.
- D) TEMPERING AIR FANS (2).
- E) EMISSION CONTROL SYSTEM-SCR (HEIGHT = ±33').
- F) STACK (HEIGHT = 80').
- G) AMMONIA VAPORIZATION SKID.
- H) CEWS ENCLOSURE WITH TRANSFORMER AND CALIBRATION GAS STORAGE.
- I) CT LUBE OIL COOLER.
- J) AMMONIA STORAGE TANK (COMMON TO BOTH CT UNITS).
- K) AMMONIA FORWARDING PUMP SKID (COMMON TO BOTH CT UNITS).
- L) AMMONIA UNLOADING PAD, SPILL CONTAINMENT (COMMON TO BOTH CT UNITS).
- M) TURBINE REMOVAL SUPPORTS.
- N) AIR INLET FILTER (HEIGHT = 34').
- O) SPRINT SKID.
- P) INLET AIR CHILLER AND COOLING TOWER (COMMON TO BOTH CT UNITS) (HEIGHT = 30').
- Q) WATER INJECTION SKID.
- R) OILY DRAIN TANK.
- 2) SERVICE BUILDING FOR CONTROL ROOM, ELECTRICAL EQUIPMENT, FIRE PUMPS, COMPRESSED AIR. (HEIGHT = 18').
- 3) SITE SECURITY CHAINLINK FENCE AND GATES.
- 4) FUEL GAS COMPRESSORS.
- 5) GAS COALESCING FILTER SKID.
- 6) CONCRETE PAD FOR TEMPORARY WATER TREATMENT TRAILER.
- 7) DEMIN. WATER PUMP SKID AND RELATED EQUIPMENT.
- 8) DEMIN. WATER STORAGE TANK (HEIGHT = 24').
- 9) RAW WATER/FIREWATER STORAGE TANK & PUMP SKID (HEIGHT = 44').
- 10) AUXILIARY TRANSFORMERS.
- 11a) 4160V ELECTRICAL SWITCHGEAR.
- 11b) 480V ELECTRICAL SWITCHGEAR.
- 12) BLACKSTART GENERATOR.
- 13) NOT USED.
- 14) FUEL GAS COMPRESSOR RECYCLE FIN-FAN COOLER.
- 15) 13.8KV-69KV GENERATOR STEP-UP TRANSFORMER (GSU).
- 16) 69KV DISCONNECT SWITCH AND SUPPORTS.
- 17) 69KV CT/VT METERING UNIT.
- 18) 69KV CIRCUIT BREAKER.
- 19) 69KV TRANSITION STRUCTURE & POthead.
- 20) UNDERGROUND SANITARY SYSTEM.
- 21) TRANSFORMER DELUGE VALVE ENCLOSURE.
- 22) WASTEWATER STORAGE TANK (HEIGHT = 24').
- 23) NOT USED.
- 24) COOLING TOWER MAKEUP TANK AND PUMP SKID (HEIGHT = 36').
- 25) 480V MCC.
- 26) FIRE PUMP ROOM.
- 27) YARD FIRE HYDRANTS WITH HYDRANT MOUNT FIRE MONITORS.
- 28) BRIDGE.
- 29) STORMWATER DETENTION BASIN.
- 30) RO WATER TREATMENT AREA.
- 31) DIESEL STORAGE TANK - DIESEL FIRE PUMP.
- 32) GAS TURBINE SOUND WALL (HEIGHT = 48').
- 33) GAS COMPRESSOR SOUND WALL (HEIGHT = 24').
- 34) AREA INLET.
- 35) STORM MANHOLE.
- 36) STORM END SECTION.
- 37) STORMWATER OUTLET CONTROL STRUCTURE.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR

**PRIVATE CONTRACT**

3 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
---------	---	----------

GRADING PLAN FOR:  
THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY, ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR MONTHLY FINANCING: \_\_\_\_\_  
DIRECTOR OF PUBLIC WORKS: \_\_\_\_\_  
DATE: 3-31-08

L-15454  
GRADING POINT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
SPECIAL USE PERMIT NO. NOT APPLICABLE  
TENTATIVE MAP NO. NOT APPLICABLE  
NOI/WDD NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
LOCATION: S.E. CORNER OF MANHOLE  
RECORD FROM: FIELD BOOK 4047-04-079  
NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

**Sega**

Engineers - Architects - Technicians  
Design - Construction - Field Service

16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE POWER PLANT**  
SITE LAYOUT PLAN

DESIGN BY: B. ROMINES	CHECKED BY: J. BONDANK
DRAWN BY: B. GASPERS	DATE: 9-12-07
CLIENT I.D. ICCO0101	SEGA PROJECT NO. 07-201

CADD FILE NAME: 07201-C100.dwg  
DRAWING NO. **C100** REV. **0**



**SITE LANDSCAPING PLAN**  
 PLAN NORTH IS 28°55'46"  
 CCW OF TRUE NORTH  
 SCALE IN FEET  
 0 60 120

**KEYNOTES:**

- ① FUEL MODIFICATION ZONE A (DEFENSIBLE SPACE): 50' AROUND ALL SIDES OF ALL EQUIPMENT OR STRUCTURES. PLEASE REFERENCE THE FIRE PROTECTION PLAN FOR DETAILS.
- ② FUEL MODIFICATION ZONE B: 50' TO 125' AROUND ALL SIDES OF EQUIPMENT OR STRUCTURES EXCEPT FOR SPECIAL PROVISIONS AT WEST SIDE OF FACILITY AS NEEDED TO MINIMIZE DISTURBANCE TO SENSITIVE HABITAT. PLEASE REFERENCE THE FIRE PROTECTION PLAN FOR DETAILS.
- ③ ROADWAY FUEL MODIFICATION ZONE: FROM EDGE OF ROADWAY TO 50' OUTSIDE EDGE OF ROADWAYS. PLEASE REFERENCE THE FIRE PROTECTION PLAN FOR DETAILS.
- ④ ROADWAY FUEL MODIFICATION ZONE: FROM EDGE OF ROADWAY TO 30' OUTSIDE EDGE OF ROADWAYS. PLEASE REFERENCE THE FIRE PROTECTION PLAN FOR DETAILS.

**SITE SCREENING LEGEND:**

- COAST LIVE OAK  
POTENTIAL MATURE SIZE
- ENGELMANN OAK  
POTENTIAL MATURE SIZE
- TOYON  
POTENTIAL MATURE SIZE
- SHRUBS OF AT LEAST 1 GALLON MIN. SIZE OR TREES OF A 5 GALLON MIN. SIZE PER SECTION 87.417(B) OF THE COUNTY OF SAN DIEGO GRADING ORDINANCES.

**NOTES:**

1. THIS DRAWING IS A CONCEPTUAL LANDSCAPING PLAN. A CALIFORNIA REGISTERED LANDSCAPING ARCHITECT WILL PROVIDE A FINAL LANDSCAPING PLAN, BASED ON THE CONCEPTUAL LAYOUT. THE FINAL LANDSCAPING PLAN MAY INCLUDE ADDITIONAL USE OF CEC AND FIRE MARSHALL APPROVED NATIVE SPECIES FOR IMPROVED VISUAL SCREENING.

**LEGEND**

- FOUND MONUMENT AS NOTED
- SET 1" IRON PIPE WITH "PSOMAS" PLUG UNLESS NOTED OTHERWISE
- PROPERTY LINE
- EXISTING CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- GAS
- PROPOSED GAS LINE
- USE
- PROPOSED UNDERGROUND ELECTRICAL
- EXISTING ELECTRICAL LINE
- EXISTING TELEPHONE (COMMUNICATIONS) LINE
- PROPOSED RCP STORMWATER PIPE
- EXISTING T&D LINE
- EXISTING FENCE
- EXISTING ROAD
- PROPOSED FENCE
- PARCEL LINE
- DRAINAGE PATH (FLOWLINE)
- EXISTING ORCHARD LINE
- PROPOSED RIPRAP
- PROPOSED CRUSHED ROCK SURFACE
- PROPOSED CRUSHED ROCK PAVEMENT
- PROPOSED CONCRETE
- PROPOSED NATIVE GROUND COVER
- FUEL MODIFICATION ZONE A
- FUEL MODIFICATION ZONE B
- ROADWAY FUEL MODIFICATION ZONE
- LIMIT OF DISTURBED AREA

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

17 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY, ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1736/434-1737		
APPROVED FOR RECORD PROFESSIONAL ENGINEER OF PUBLIC WORKS		ENGINEER OF RECORD THOMAS F. HEASLER REG. 3-31-08
		L-15454 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
 SPECIAL USE PERMIT NO. NOT APPLICABLE  
 TENTATIVE MAP NO. NOT APPLICABLE  
 NOI/WO/D NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
 "M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
 LOCATION: S.E. CORNER OF MANHOLE  
 RECORD FROM: FIELD BOOK 4047-04-079  
 ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Signed Only When Signed in Blue Ink

**Sega**  
 Engineers - Architects - Technicians  
 Design - Construction - Field Service  
 16041 Foster  
 P.O. Box 1000  
 Stillwell, Kansas 66085-1000

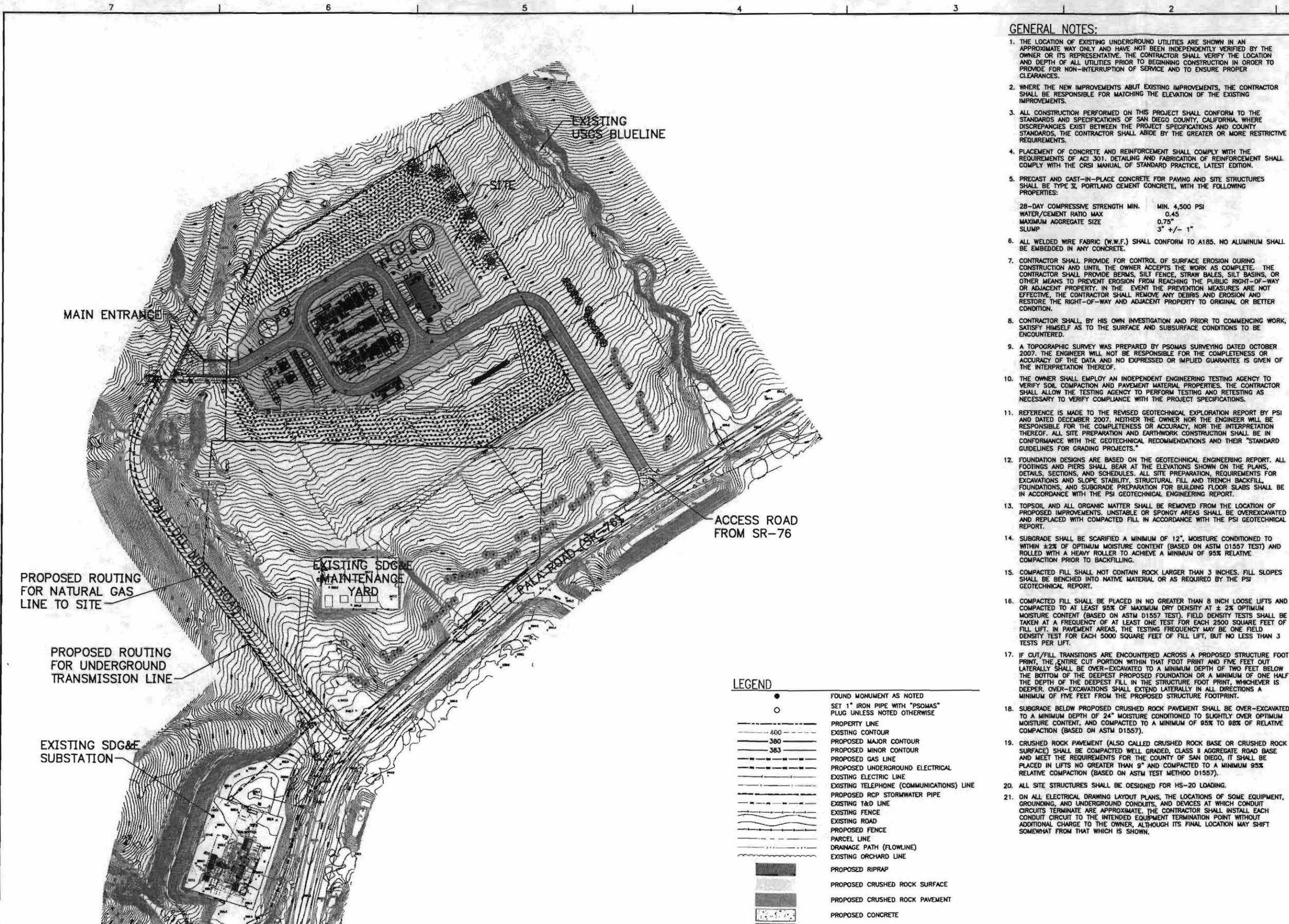
**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE POWER PLANT**  
 LANDSCAPING PLAN

DESIGN BY: M. BLAKE	CHECKED BY: B. ROMINES
DRAWN BY: B. GASPERS	DATE: 9-12-07
CLIENT I.D. IC000101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-L100.dwg	

DRAWING NO. <b>L100</b>	REV. <b>1</b>
----------------------------	------------------

SEGA, INC. PHONE NUMBER: (913) 681-2881



**GENERAL NOTES:**

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION IN ORDER TO PROVIDE FOR NON-INTERRUPTION OF SERVICE AND TO ENSURE PROPER CLEARANCES.
2. WHERE THE NEW IMPROVEMENTS ADJUT EXISTING IMPROVEMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MATCHING THE ELEVATION OF THE EXISTING IMPROVEMENTS.
3. ALL CONSTRUCTION PERFORMED ON THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF SAN DIEGO COUNTY, CALIFORNIA, WHERE DISCREPANCIES EXIST BETWEEN THE PROJECT SPECIFICATIONS AND COUNTY STANDARDS, THE CONTRACTOR SHALL ABIDE BY THE GREATER OR MORE RESTRICTIVE REQUIREMENTS.
4. PLACEMENT OF CONCRETE AND REINFORCEMENT SHALL COMPLY WITH THE REQUIREMENTS OF ACI 301. DETAILING AND FABRICATION OF REINFORCEMENT SHALL COMPLY WITH THE CRSI MANUAL OF STANDARD PRACTICE, LATEST EDITION.
5. PRECAST AND CAST-IN-PLACE CONCRETE FOR PAVING AND SITE STRUCTURES SHALL BE TYPE 3 PORTLAND CEMENT CONCRETE, WITH THE FOLLOWING PROPERTIES:  

28-DAY COMPRESSIVE STRENGTH MIN.	MIN. 4,500 PSI
WATER/CEMENT RATIO MAX	0.45
MAXIMUM AGGREGATE SIZE	0.75"
SLUMP	3" +/- 1"
6. ALL WELDED WIRE FABRIC (W.W.F.) SHALL CONFORM TO A185. NO ALUMINUM SHALL BE EMBEDDED IN ANY CONCRETE.
7. CONTRACTOR SHALL PROVIDE FOR CONTROL OF SURFACE EROSION DURING CONSTRUCTION AND UNTIL THE OWNER ACCEPTS THE WORK AS COMPLETE. THE CONTRACTOR SHALL PROVIDE BERMES, SILT FENCE, STRAW BALES, SILT BASINS, OR OTHER MEANS TO PREVENT EROSION FROM REACHING THE PUBLIC RIGHT-OF-WAY OR ADJACENT PROPERTY. IN THE EVENT THE PREVENTION MEASURES ARE NOT EFFECTIVE, THE CONTRACTOR SHALL REMOVE ANY DEBRIS AND EROSION AND RESTORE THE RIGHT-OF-WAY AND ADJACENT PROPERTY TO ORIGINAL OR BETTER CONDITION.
8. CONTRACTOR SHALL, BY HIS OWN INVESTIGATION AND PRIOR TO COMMENCING WORK, SATISFY HIMSELF AS TO THE SURFACE AND SUBSURFACE CONDITIONS TO BE ENCOUNTERED.
9. A TOPOGRAPHIC SURVEY WAS PREPARED BY PSOMAS SURVEYING DATED OCTOBER 2007. THE ENGINEER WILL NOT BE RESPONSIBLE FOR THE COMPLETENESS OR ACCURACY OF THE DATA AND NO EXPRESSED OR IMPLIED GUARANTEE IS GIVEN OF THE INTERPRETATION THEREOF.
10. THE OWNER SHALL EMPLOY AN INDEPENDENT ENGINEERING TESTING AGENCY TO VERIFY SOIL COMPACTION AND PAVEMENT MATERIAL PROPERTIES. THE CONTRACTOR SHALL ALLOW THE TESTING AGENCY TO PERFORM TESTING AND RETESTING AS NECESSARY TO VERIFY COMPLIANCE WITH THE PROJECT SPECIFICATIONS.
11. REFERENCE IS MADE TO THE REVISED GEOTECHNICAL EXPLORATION REPORT BY PSI AND DATED DECEMBER 2007. NEITHER THE OWNER NOR THE ENGINEER WILL BE RESPONSIBLE FOR THE COMPLETENESS OR ACCURACY, NOR THE INTERPRETATION THEREOF. ALL SITE PREPARATION AND EARTHWORK CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE GEOTECHNICAL RECOMMENDATIONS AND THEIR "STANDARD GUIDELINES FOR GRADING PROJECTS."
12. FOUNDATION DESIGNS ARE BASED ON THE GEOTECHNICAL ENGINEERING REPORT. ALL FOOTINGS AND PIERS SHALL BEAR AT THE ELEVATIONS SHOWN ON THE PLANS, DETAILS, SECTIONS, AND SCHEDULES. ALL SITE PREPARATION, REQUIREMENTS FOR EXCAVATIONS AND SLOPE STABILITY, STRUCTURAL FILL AND TRENCH BACKFILL, FOUNDATIONS, AND SUBGRADE PREPARATION FOR BUILDING FLOOR SLABS SHALL BE IN ACCORDANCE WITH THE PSI GEOTECHNICAL ENGINEERING REPORT.
13. TOPSOIL AND ALL ORGANIC MATTER SHALL BE REMOVED FROM THE LOCATION OF PROPOSED IMPROVEMENTS. UNSTABLE OR SPONGY AREAS SHALL BE OVEREXCAVATED AND REPLACED WITH COMPACTED FILL IN ACCORDANCE WITH THE PSI GEOTECHNICAL REPORT.
14. SUBGRADE SHALL BE SCARIFIED A MINIMUM OF 12", MOISTURE CONDITIONED TO WITHIN ±2% OF OPTIMUM MOISTURE CONTENT (BASED ON ASTM D1557 TEST) AND ROLLED WITH A HEAVY ROLLER TO ACHIEVE A MINIMUM OF 95% RELATIVE COMPACTION PRIOR TO BACKFILLING.
15. COMPACTED FILL SHALL NOT CONTAIN ROCK LARGER THAN 3 INCHES. FILL SLOPES SHALL BE BENCHED TO NATIVE MATERIAL OR AS REQUIRED BY THE PSI GEOTECHNICAL REPORT.
16. COMPACTED FILL SHALL BE PLACED IN NO GREATER THAN 8 INCH LOOSE LIFTS AND COMPACTED TO AT LEAST 95% OF MAXIMUM DRY DENSITY AT ± 2% OPTIMUM MOISTURE CONTENT (BASED ON ASTM D1557 TEST). FIELD DENSITY TESTS SHALL BE TAKEN AT A FREQUENCY OF AT LEAST ONE TEST FOR EACH 2500 SQUARE FEET OF FILL LIFT. IN PAVEMENT AREAS, THE TESTING FREQUENCY MAY BE ONE FIELD DENSITY TEST FOR EACH 5000 SQUARE FEET OF FILL LIFT, BUT NO LESS THAN 3 TESTS PER LIFT.
17. IF CUT/FILL TRANSITIONS ARE ENCOUNTERED ACROSS A PROPOSED STRUCTURE FOOT PRINT, THE ENTIRE CUT PORTION WITHIN THAT FOOT PRINT AND FIVE FEET OUT LATERALLY SHALL BE OVER-EXCAVATED TO A MINIMUM DEPTH OF TWO FEET BELOW THE BOTTOM OF THE DEEPEST PROPOSED FOUNDATION OR A MINIMUM OF ONE HALF THE DEPTH OF THE DEEPEST FILL IN THE STRUCTURE FOOT PRINT, WHICHEVER IS DEEPER. OVER-EXCAVATIONS SHALL EXTEND LATERALLY IN ALL DIRECTIONS A MINIMUM OF FIVE FEET FROM THE PROPOSED STRUCTURE FOOTPRINT.
18. SUBGRADE BELOW PROPOSED CRUSHED ROCK PAVEMENT SHALL BE OVER-EXCAVATED TO A MINIMUM DEPTH OF 24" MOISTURE CONDITIONED TO SLIGHTLY OVER OPTIMUM MOISTURE CONTENT, AND COMPACTED TO A MINIMUM OF 95% TO 98% OF RELATIVE COMPACTION (BASED ON ASTM D1557).
19. CRUSHED ROCK PAVEMENT (ALSO CALLED CRUSHED ROCK BASE OR CRUSHED ROCK SURFACE) SHALL BE COMPACTED WELL GRADED, CLASS II AGGREGATE ROAD BASE AND MEET THE REQUIREMENTS FOR THE COUNTY OF SAN DIEGO. IT SHALL BE PLACED IN LIFTS NO GREATER THAN 9" AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION (BASED ON ASTM TEST METHOD D1557).
20. ALL SITE STRUCTURES SHALL BE DESIGNED FOR HS-20 LOADING.
21. ON ALL ELECTRICAL DRAWING LAYOUT PLANS, THE LOCATIONS OF SOME EQUIPMENT, CONDUITING, AND UNDERGROUND CONDUITS, AND DEVICES AT WHICH CONDUIT CIRCUITS TERMINATE ARE APPROXIMATE. THE CONTRACTOR SHALL INSTALL EACH CONDUIT CIRCUIT TO THE INTENDED EQUIPMENT TERMINATION POINT WITHOUT ADDITIONAL CHARGE TO THE OWNER, ALTHOUGH ITS FINAL LOCATION MAY SHIFT SOMEWHAT FROM THAT WHICH IS SHOWN.

**LEGEND**

- FOUND MONUMENT AS NOTED
- SET 1" IRON PIPE WITH "PSOMAS" PLUG UNLESS NOTED OTHERWISE
- PROPERTY LINE
- EXISTING CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED GAS LINE
- PROPOSED UNDERGROUND ELECTRICAL
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE (COMMUNICATIONS) LINE
- PROPOSED RCP STORMWATER PIPE
- EXISTING T&D LINE
- EXISTING FENCE
- EXISTING ROAD
- PROPOSED FENCE
- PARCEL LINE
- DRAINAGE PATH (FLOWLINE)
- EXISTING ORCHARD LINE
- PROPOSED RIPRAP
- PROPOSED CRUSHED ROCK SURFACE
- PROPOSED CRUSHED ROCK PAVEMENT
- PROPOSED CONCRETE
- PROPOSED NATIVE GROUND COVER
- PROPOSED LANDSCAPING
- EXISTING USGS BLUELINE



REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

2	COUNTY OF SAN DIEGO	45
SHEET	DEPARTMENT OF PUBLIC WORKS	SHEET

GRADING PLAN FOR:  
 THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY, ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
 CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR MEASUREMENT AND RECORDING:  
 DIRECTOR OF PUBLIC WORKS  
 THOMAS F. HEASLER  
 S.E.A. 3-31-08

L-15454  
 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO.	NOT APPLICABLE
SPECIAL USE PERMIT NO.	NOT APPLICABLE
TENTATIVE MAP NO.	NOT APPLICABLE
NOI/WDID NO.	NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION:	3 1/2" brass disk
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"	
LOCATION:	S.E. CORNER OF MANHOLE
RECORD FROM:	FIELD BOOK 4047-04-079
ELEVATION:	318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink



Engineers - Architects - Technicians  
 Design - Construction - Field Service

16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE POWER PLANT**

**YARD LAYOUT PLAN**

DESIGN BY:	B. ROMINES	CHECKED BY:	J. BONDANK
DRAWN BY:	B. GASPERS	DATE:	9-12-07
CLIENT I.D.	ICC00101	SEGA PROJECT NO.	07-201
CADD FILE NAME:	07201-Y100.dwg		
DRAWING NO.	Y100		REV. 1

SEGA, INC. PHONE NUMBER: (913) 681-2881

# ATTACHMENT C

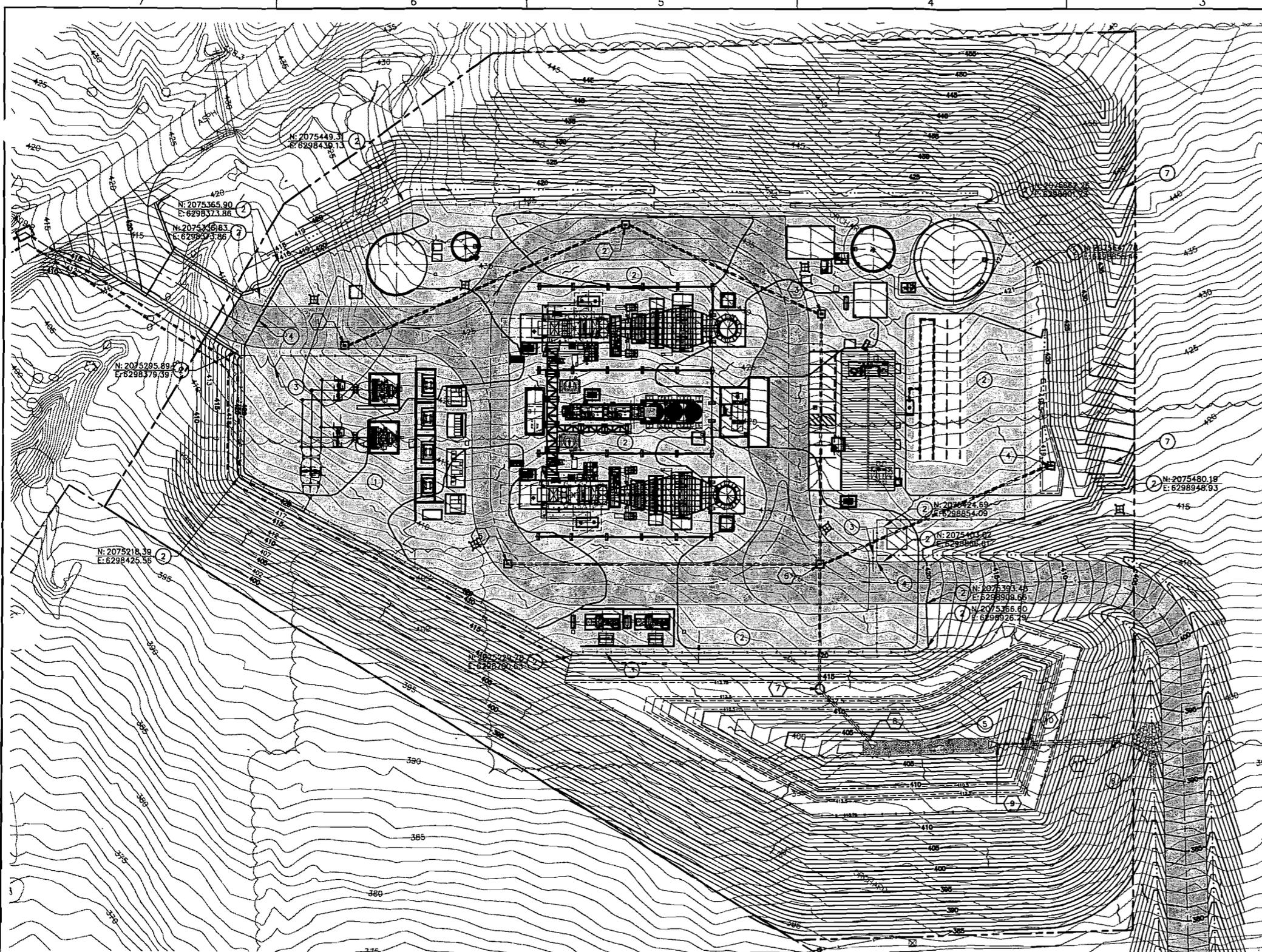
## RELEVANT MONITORING DATA

*(NOTE: PROVIDE RELEVANT WATER QUALITY MONITORING DATA IF AVAILABLE.)*

NO MONITORING DATA AVAILABLE

# **ATTACHMENT D**

## **TREATMENT BMP LOCATION MAP**



**STORM DRAINAGE NOTES:**

- 1 N:2075338.34  
E:6298444.48  
INSTALL 4X4 AREA INLET  
TOP EL. = 418.4  
FLOWLINE OUT (N) = 412.4  
INSTALL 220 L.F. 15" DIA.  
CLASS III RCP @ 0.5% SL.  
TO STRUCTURE 2
- 2 N:2075516.99  
E:6298579.87  
INSTALL 4X4 AREA INLET  
TOP EL. = 419.0  
FLOWLINE IN (S) = 411.3  
FLOWLINE OUT (E) = 410.8  
INSTALL 154 L.F. 18" DIA.  
CLASS III RCP @ 0.5% SL.  
TO STRUCTURE 3
- 3 N:2075533.88  
E:6298737.01  
INSTALL 4X4 AREA INLET  
TOP EL. = 419.25  
FLOWLINE IN (W) = 410.0  
FLOWLINE OUT (SE) = 409.5  
INSTALL 175 L.F. 18" DIA.  
CLASS III RCP @ 1.5% SL.  
TO STRUCTURE 6
- 4 N:2075524.83  
E:6298939.55  
INSTALL 4X4 AREA INLET  
TOP EL. = 418.75  
FLOWLINE OUT (SW) = 412.25  
INSTALL 181 L.F. 15" DIA.  
CLASS III RCP @ 0.5% SL.  
TO STRUCTURE 6
- 5 N:2075262.68  
E:6298627.25  
INSTALL 4X4 AREA INLET  
TOP EL. = 419.0  
FLOWLINE OUT (NE) = 412.5  
INSTALL 225 L.F. 15" DIA.  
CLASS III RCP @ 0.5% SL.  
TO STRUCTURE 6
- 6 N:2075377.85  
E:6298826.72  
INSTALL 4X4 AREA INLET  
TOP EL. = 418.25  
FLOWLINE IN (W) = 411.35  
FLOWLINE IN (NE) = 411.35  
FLOWLINE IN (NW) = 406.85  
FLOWLINE OUT (SE) = 406.35  
INSTALL 84 L.F. 24" DIA.  
CLASS III RCP @ 2.0% SL.  
TO STRUCTURE 7
- 7 N:2075300.64  
E:6298871.50  
INSTALL STD. 6" DIA. MANHOLE TOP  
EL. 413.75  
FLOWLINE IN (NW) = 404.6  
FLOWLINE OUT (SE) = 404.0  
INSTALL 49 L.F. 30" DIA.  
CLASS III RCP @ 2.5% SL.  
TO STRUCTURE 8
- 8 N:2075287.29  
E:6298921.76  
INSTALL TO DETENTION BASIN  
CLASS III RCP FLARED END SECTION  
FLOWLINE OUT (SE) = 403.0
- 9 N:2075332.50  
E:6299005.70  
INSTALL DETENTION BASIN OUTLET FLARED  
END SECTION  
FLOWLINE IN (E) = 403.0  
INSTALL 20 L.F. 12" DIA.  
CLASS III RCP @ 1.0% SL.  
TO STRUCTURE 10
- 10 N:2075344.26  
E:6299024.69  
INSTALL STORMWATER OUTLET  
CONTROL STRUCTURE TOP EL. 414.0  
100 YR INLET EL. 412.5  
FLOWLINE IN (E) = 402.80  
FLOWLINE OUT (W) = 400.00  
INSTALL 64 L.F. 36" DIA.  
CLASS III RCP @ 1.0% SL.  
TO STRUCTURE 11
- 11 N:2075379.51  
E:6299081.66  
INSTALL CLASS III RCP FLARED END  
SECTION  
FLOWLINE OUT (W) = 398.35

**LEGEND**

- FOUND MONUMENT AS NOTED
- SET 1" IRON PIPE WITH "PSOMAS" PLUG UNLESS NOTED OTHERWISE
- PROPERTY LINE
- - - - - EXISTING CONTOUR
- - - - - PROPOSED MAJOR CONTOUR
- - - - - PROPOSED MINOR CONTOUR
- - - - - PROPOSED GAS LINE
- - - - - PROPOSED UNDERGROUND ELECTRICAL
- - - - - EXISTING ELECTRIC LINE
- - - - - EXISTING TELEPHONE (COMMUNICATIONS) LINE
- - - - - PROPOSED RCP STORMWATER PIPE
- - - - - EXISTING T&D LINE
- - - - - EXISTING FENCE
- - - - - EXISTING ROAD
- - - - - PROPOSED FENCE
- - - - - PARCEL LINE
- - - - - DRAINAGE PATH (FLOWLINE)
- - - - - EXISTING ORCHARD LINE
- [Pattern] PROPOSED RIPRAP
- [Pattern] PROPOSED CRUSHED ROCK SURFACE
- [Pattern] PROPOSED CRUSHED ROCK PAVEMENT
- [Pattern] PROPOSED CONCRETE
- [Pattern] PROPOSED NATIVE GROUND COVER

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR

**PRIVATE CONTRACT**

7	COUNTY OF SAN DIEGO	45
SHEET	DEPARTMENT OF PUBLIC WORKS	SHEET

GRADING PLAN FOR:  
THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR MECHANICAL ENGINEERING  
DIRECTOR OF PUBLIC WORKS

THOMAS F. HEAUSLER  
REGISTERED PROFESSIONAL ENGINEER  
C.E.C. 3-31-08

L-15454  
GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
SPECIAL USE PERMIT NO. NOT APPLICABLE  
TENTATIVE MAP NO. NOT APPLICABLE  
NOI/WDD NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
LOCATION: S.E. CORNER OF MANHOLE  
RECORD FROM: FIELD BOOK 4047-04-079  
NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

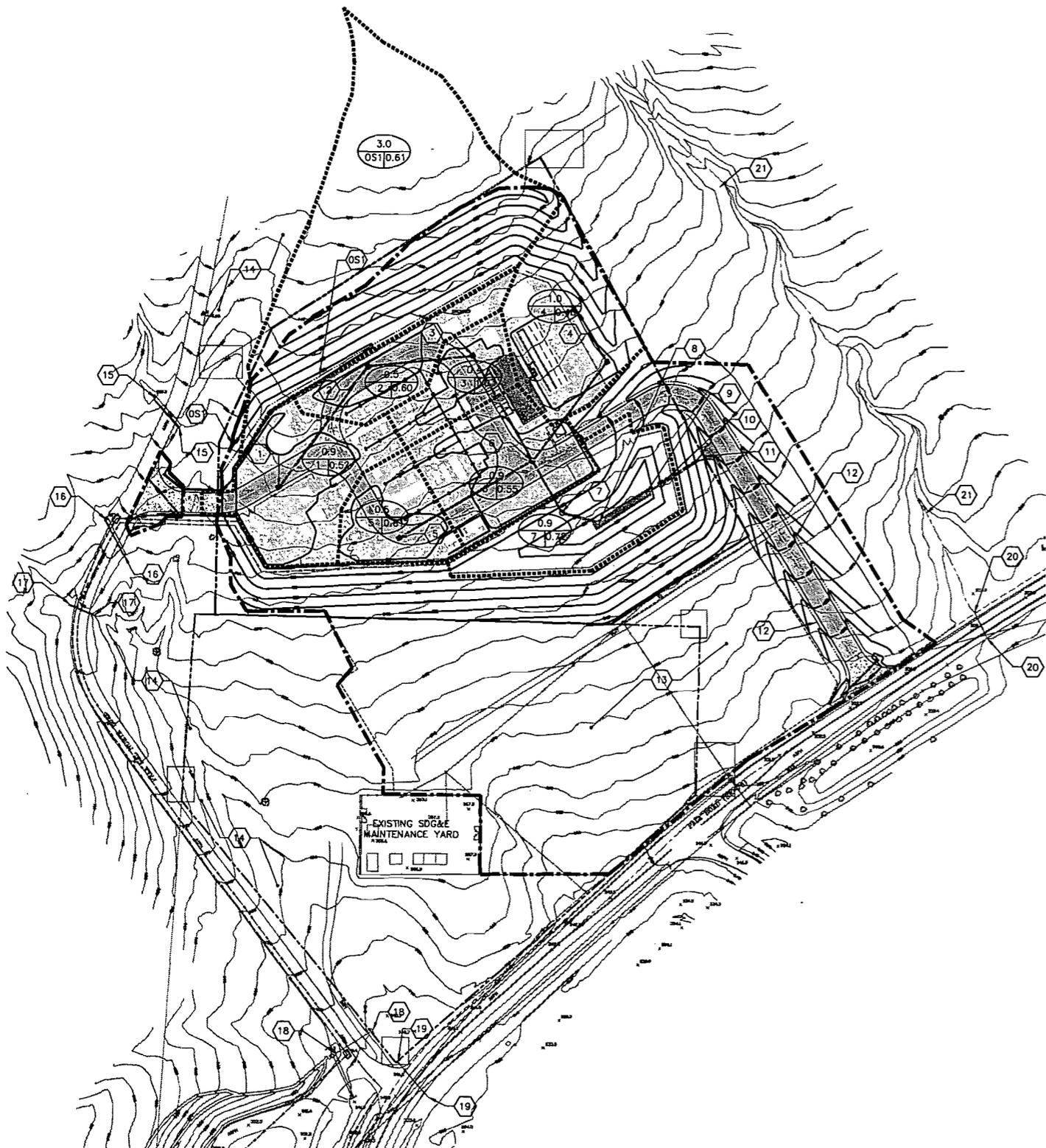
Engineers - Architects - Technicians  
Design - Construction - Field Service

16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

# ATTACHMENT E

## TREATMENT BMP DATASHEET

*(NOTE: POSSIBLE SOURCE FOR DATASHEETS CAN BE FOUND AT [WWW.CABMPHANDBOOKS.COM](http://WWW.CABMPHANDBOOKS.COM). INCLUDE ENGINEERING CALCULATIONS FOR SIZING THE TREATMENT BMP.)*



KEY:

- (EX) - EXISTING STRUCTURES
- CI - CURB INLET
- SI - CURB INLET IN SUMP
- OI - SINGLE DROP INLET
- DI-2 - DOUBLE DROP INLET
- ES - PREFABRICATED END SECTION
- JB - JUNCTION BOX
- YI - YARD INLET
- AI - AREA INLET
- MH - MANHOLE
- R - REDUCER
- FI - FIELD INLET
- BEND - PREFABRICATED VERTICAL BEND
- T.O. - TRENCH DRAIN
- G.I. - GRATE INLET
- O.C. - DETENTION OUTLET CONTROL STRUCTURE
- RCP - REINFORCED CONCRETE PIPE
- CMP - CORRUGATED METAL PIPE (STEEL)
- CP - CULVERT PIPE

DESIGN NOTES:

- (a) TIME OF CONCENTRATION 15 MINUTES MAX. 5 MINUTES MIN.
- (b) PIPE LENGTHS EXCLUDE END SECTIONS AND ARE MEASURED ALONG CENTERLINE OF PIPE FROM CENTER OF INSIDE FACE TO CENTER OF INSIDE FACE OF STRUCTURES.
- (c) MANNING'S ROUGHNESS COEFFICIENT = 0.013 (CONCRETE)

LEGEND

- FOUND MONUMENT AS NOTED
- SET 1" IRON PIPE WITH "PSOMAS" PLUG UNLESS NOTED OTHERWISE
- 400 PROPERTY LINE
- 380 EXISTING CONTOUR
- 383 PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED GAS LINE
- PROPOSED UNDERGROUND ELECTRICAL
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE (COMMUNICATIONS) LINE
- PROPOSED RCP STORMWATER PIPE
- EXISTING T&D LINE
- EXISTING FENCE
- EXISTING ROAD
- PROPOSED FENCE
- PARCEL LINE
- DRAINAGE PATH (FLOWLINE)
- EXISTING ORCHARD LINE
- PROPOSED RIPRAP
- PROPOSED CRUSHED ROCK SURFACE
- PROPOSED CRUSHED ROCK PAVEMENT
- PROPOSED CONCRETE
- PROPOSED NATIVE GROUND COVER
- PROPOSED LANDSCAPING
- A = AREA IN ACRES
- B = BASIN DESIGNATION
- C = COMPOSITE RUNOFF COEFFICIENT
- D = DESIGN POINT DESIGNATION
- DRAINAGE AREA LIMITS
- PROPOSED DISTURBED AREA
- EXISTING USGS BLUELINE

DRAINAGE AREA NOTES:

(OS) DRAINAGE WILL BE ROUTED AROUND SITE BY NORTH DITCH DRAINAGE CHANNEL.

OFF-SITE DRAINAGE-NORTH CHANNEL

DEVELOPMENT STAGE	50 YEAR DESIGN STORM				
	STORM DRAINAGE AREA (ACRES)	PEAK RUNOFF RATE Q (CFS)	RUNOFF COEF. C.	AVERAGE CHANNEL VELOCITY V (FT/S)	AVERAGE DEPTH ELEVATION (FT.)
PRE-DEV.	3.0	6.75	0.3	2.75	420.77
PRE-DEV.	3.0	11.25	0.5	3.10	420.95±
100 YEAR DESIGN STORM					
PRE-DEV.	3.0	7.65	0.3	2.87	420.16±
POST-DEV.	3.0	12.75	0.5	3.20	421.00±

- 1 INLET FOR DRAINAGE AREA.
- 2 INLET FOR DRAINAGE AREA.
- 3 INLET FOR DRAINAGE AREA.
- 4 INLET FOR DRAINAGE AREA.
- 5 INLET FOR DRAINAGE AREA.
- 6 INLET FOR DRAINAGE AREA. DRAINAGE FROM AREAS 1, 2, 3, 4, AND 5 WILL BE ROUTED VIA STORM DRAIN.
- 7 STORMWATER MANHOLE.
- 8 STORM DRAIN OUTLET AND DETENTION BASIN INLET STRUCTURE.
- 9 DETENTION BASIN OUTLET CONTROL STRUCTURE.
- 10 DETENTION BASIN EMERGENCY OUTLET STRUCTURE.
- 11 STORMWATER OUTLET.
- 12 SECONDARY ACCESS ROAD DITCHES.
- 13 AREAS SOUTH OF PARCEL LINE AND WITHIN "PROPOSED DISTURBED AREA" LINE ARE AREAS FOR "TEMPORARY CONSTRUCTION PARKING AND LAYDOWN."
- 14 EXISTING NATURAL WEST DRAINAGE CHANNEL.
- 15 EXISTING OFF-SITE CULVERT PIPES.
- 16 EXISTING OFF-SITE CULVERT PIPES.
- 17 EXISTING OFF-SITE CULVERT PIPES.
- 18 EXISTING OFF-SITE CULVERT PIPE.
- 19 EXISTING OFF-SITE CULVERT PIPE.
- 20 EXISTING OFF-SITE CULVERT PIPE.
- 21 EXISTING USGS BLUELINE OR NATURAL EAST DRAINAGE CHANNEL.

DEVELOPMENT STAGE	ON-SITE STORMWATER DETENTION BASIN					
	STORM DRAINAGE AREA (ACRES)	PEAK RUNOFF RATE Q (CFS)	RUNOFF CURVE. C.	DETENTION VOLUME (FT <sup>3</sup> )	DESIGNED WATER SURFACE VOLUME (FT <sup>3</sup> )	WATER SURFACE ELEVATION (FT.)
PRE-DEV.	5.2	11.00	N/A	N/A	N/A	N/A
POST-DEV.	5.2	24.58	N/A	85,700	76,300	410.5(±)
100 YEAR DESIGN STORM						
PRE-DEV.	5.2	12.68	N/A	N/A	N/A	N/A
POST-DEV.	5.2	27.86	N/A	85,700	85,000	412.4(±)

NOTE: WATER SURFACE VOLUME DOES NOT INCLUDE ONE FOOT OF FREEBOARD.

SUMMARY OF AREAS (ACRES):

- 1. IMPERVIOUS AREA (INCLUDES CONCRETE ENTRANCE SECTION) - 1.00
- 2. CRUSHED ROCK SURFACE AREA (INCLUDES VEHICULAR AREA) - 3.22
- 3. DETENTION BASIN DRAINAGE AREA - 5.20
- 4. VEHICULAR AREA - 1.47
- 5. TEMPORARY CONSTRUCTION PARKING AREA AND LAYDOWN - 5.73
- 6. DISTURBED AREA - 14.83

50 YEAR DESIGN (PROPOSED CONSTRUCTION)														
STRUCT NO. (Area No.)	TYPE	AREA (acres) A	DIRECT RUNOFF			TOTAL RUNOFF			PIPE					
			RUNOFF COEF. C	C x A	K	TOTAL Q (CFS)	PIPE NO.	PIPE SIZE DIA. (inches)	PIPE SLOPE %	PIPE LENGTH (LF)	PIPE CAP. (CFS)	VELOCITY (ft/sec)	DEPTH OF FLOW (inches)	
1	AI	0.90	0.52	0.47	11	75	3.66							

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR

PRIVATE CONTRACT

9 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1736/434-1737		
APPROVED FOR MICHIGAN PROFESSIONAL ENGINEER		DESIGNER OF WORK
DIRECTOR OF PUBLIC WORKS		THOMAS F. HEUSLER
BY:		CO40383 REG. 3-31-08
		L-15454 GRADING PERMIT NO.

PERMITS

- REZONE PERMIT NO. NOT APPLICABLE
- SPECIAL USE PERMIT NO. NOT APPLICABLE
- TENTATIVE MAP NO. NOT APPLICABLE
- NOI/WDID NO. NOT YET ASSIGNED

BENCH MARK

DESCRIPTION: 3 1/2" brass disk  
 "M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
 LOCATION: S.E. CORNER OF MANHOLE  
 RECORD FROM: FIELD BOOK 4047-04-079  
 NAVD88 AND NAD83

COUNTY APPROVED CHANGES

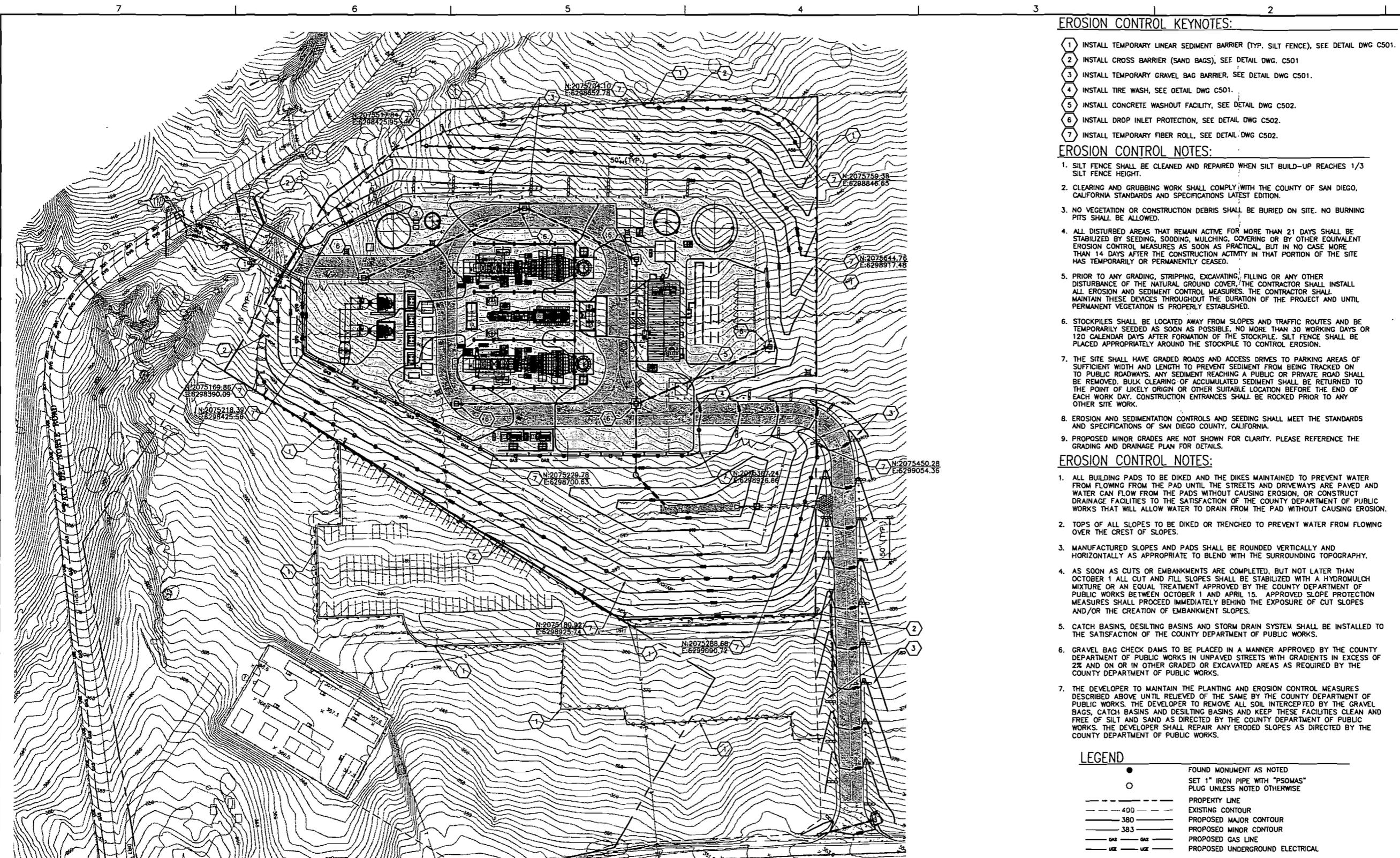
NO.	DESCRIPTION:	APPROVED BY:	DATE:

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Engineers - Architects - Technicians  
Design - Construction - Field Service

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P.O. Box 1000  
Stilwell, Kansas 66085-1000



**EROSION CONTROL KEYNOTES:**

- 1 INSTALL TEMPORARY LINEAR SEDIMENT BARRIER (TYP. SILT FENCE), SEE DETAIL DWG C501.
- 2 INSTALL CROSS BARRIER (SAND BAGS), SEE DETAIL DWG. C501
- 3 INSTALL TEMPORARY GRAVEL BAG BARRIER, SEE DETAIL DWG C501.
- 4 INSTALL TIRE WASH, SEE DETAIL DWG C501.
- 5 INSTALL CONCRETE WASHOUT FACILITY, SEE DETAIL DWG C502.
- 6 INSTALL DROP INLET PROTECTION, SEE DETAIL DWG C502.
- 7 INSTALL TEMPORARY FIBER ROLL, SEE DETAIL DWG C502.

**EROSION CONTROL NOTES:**

- 1. SILT FENCE SHALL BE CLEANED AND REPAIRED WHEN SILT BUILD-UP REACHES 1/3 SILT FENCE HEIGHT.
- 2. CLEARING AND GRUBBING WORK SHALL COMPLY WITH THE COUNTY OF SAN DIEGO, CALIFORNIA STANDARDS AND SPECIFICATIONS LATEST EDITION.
- 3. NO VEGETATION OR CONSTRUCTION DEBRIS SHALL BE BURIED ON SITE. NO BURNING PITS SHALL BE ALLOWED.
- 4. ALL DISTURBED AREAS THAT REMAIN ACTIVE FOR MORE THAN 21 DAYS SHALL BE STABILIZED BY SEEDING, SODDING, MULCHING, COVERING OR BY OTHER EQUIVALENT EROSION CONTROL MEASURES AS SOON AS PRACTICAL, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
- 5. PRIOR TO ANY GRADING, STRIPPING, EXCAVATING, FILLING OR ANY OTHER DISTURBANCE OF THE NATURAL GROUND COVER, THE CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES. THE CONTRACTOR SHALL MAINTAIN THESE DEVICES THROUGHOUT THE DURATION OF THE PROJECT AND UNTIL PERMANENT VEGETATION IS PROPERLY ESTABLISHED.
- 6. STOCKPILES SHALL BE LOCATED AWAY FROM SLOPES AND TRAFFIC ROUTES AND BE TEMPORARILY SEEDED AS SOON AS POSSIBLE, NO MORE THAN 30 WORKING DAYS OR 120 CALENDAR DAYS AFTER FORMATION OF THE STOCKPILE. SILT FENCE SHALL BE PLACED APPROPRIATELY AROUND THE STOCKPILE TO CONTROL EROSION.
- 7. THE SITE SHALL HAVE GRADED ROADS AND ACCESS DRIVES TO PARKING AREAS OF SUFFICIENT WIDTH AND LENGTH TO PREVENT SEDIMENT FROM BEING TRACKED ON TO PUBLIC ROADWAYS. ANY SEDIMENT REACHING A PUBLIC OR PRIVATE ROAD SHALL BE REMOVED. BULK CLEARING OF ACCUMULATED SEDIMENT SHALL BE RETURNED TO THE POINT OF LIKELY ORIGIN OR OTHER SUITABLE LOCATION BEFORE THE END OF EACH WORK DAY. CONSTRUCTION ENTRANCES SHALL BE ROCKED PRIOR TO ANY OTHER SITE WORK.
- 8. EROSION AND SEDIMENTATION CONTROLS AND SEEDING SHALL MEET THE STANDARDS AND SPECIFICATIONS OF SAN DIEGO COUNTY, CALIFORNIA.
- 9. PROPOSED MINOR GRADES ARE NOT SHOWN FOR CLARITY. PLEASE REFERENCE THE GRADING AND DRAINAGE PLAN FOR DETAILS.

**EROSION CONTROL NOTES:**

- 1. ALL BUILDING PADS TO BE DIKED AND THE DIKES MAINTAINED TO PREVENT WATER FROM FLOWING FROM THE PAD UNTIL THE STREETS AND DRIVEWAYS ARE PAVED AND WATER CAN FLOW FROM THE PADS WITHOUT CAUSING EROSION, OR CONSTRUCT DRAINAGE FACILITIES TO THE SATISFACTION OF THE COUNTY DEPARTMENT OF PUBLIC WORKS THAT WILL ALLOW WATER TO DRAIN FROM THE PAD WITHOUT CAUSING EROSION.
- 2. TOPS OF ALL SLOPES TO BE DIKED OR TRENCHED TO PREVENT WATER FROM FLOWING OVER THE CREST OF SLOPES.
- 3. MANUFACTURED SLOPES AND PADS SHALL BE ROUNDED VERTICALLY AND HORIZONTALLY AS APPROPRIATE TO BLEND WITH THE SURROUNDING TOPOGRAPHY.
- 4. AS SOON AS CUTS OR EMBANKMENTS ARE COMPLETED, BUT NOT LATER THAN OCTOBER 1 ALL CUT AND FILL SLOPES SHALL BE STABILIZED WITH A HYDROMULCH MIXTURE OR AN EQUAL TREATMENT APPROVED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS BETWEEN OCTOBER 1 AND APRIL 15. APPROVED SLOPE PROTECTION MEASURES SHALL PROCEED IMMEDIATELY BEHIND THE EXPOSURE OF CUT SLOPES AND/OR THE CREATION OF EMBANKMENT SLOPES.
- 5. CATCH BASINS, DESILTING BASINS AND STORM DRAIN SYSTEM SHALL BE INSTALLED TO THE SATISFACTION OF THE COUNTY DEPARTMENT OF PUBLIC WORKS.
- 6. GRAVEL BAG CHECK DAMS TO BE PLACED IN A MANNER APPROVED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS IN UNPAVED STREETS WITH GRADIENTS IN EXCESS OF 2% AND ON OR IN OTHER GRADED OR EXCAVATED AREAS AS REQUIRED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.
- 7. THE DEVELOPER TO MAINTAIN THE PLANTING AND EROSION CONTROL MEASURES DESCRIBED ABOVE UNTIL RELIEVED OF THE SAME BY THE COUNTY DEPARTMENT OF PUBLIC WORKS. THE DEVELOPER TO REMOVE ALL SOIL INTERCEPTED BY THE GRAVEL BAGS, CATCH BASINS AND DESILTING BASINS AND KEEP THESE FACILITIES CLEAN AND FREE OF SILT AND SAND AS DIRECTED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS. THE DEVELOPER SHALL REPAIR ANY ERODED SLOPES AS DIRECTED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.

**LEGEND**

- FOUND MONUMENT AS NOTED
- SET 1" IRON PIPE WITH "PSOMAS" PLUG UNLESS NOTED OTHERWISE
- PROPERTY LINE
- 400 --- EXISTING CONTOUR
- 380 --- PROPOSED MAJOR CONTOUR
- 383 --- PROPOSED MINOR CONTOUR
- GAS --- PROPOSED GAS LINE
- USE --- PROPOSED UNDERGROUND ELECTRICAL

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

10 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
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APPROVED FOR: <b>LEONARD FADDEBEE</b> DIRECTOR OF PUBLIC WORKS	ENGINEER OF WORK: <b>THOMAS F. HEUSLER</b> CO40363 R.G.E. 3-31-08	
L-15454 GRADING PERMIT NO.		

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
 SPECIAL USE PERMIT NO. NOT APPLICABLE  
 TENTATIVE MAP NO. NOT APPLICABLE  
 NOI/WDID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
 "M.W.D. OF SOUTHERN CA S.D.6-89 1993"  
 LOCATION: S.E. CORNER OF MANHOLE  
 RECORD FROM: FIELD BOOK 4047-04-079  
 ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

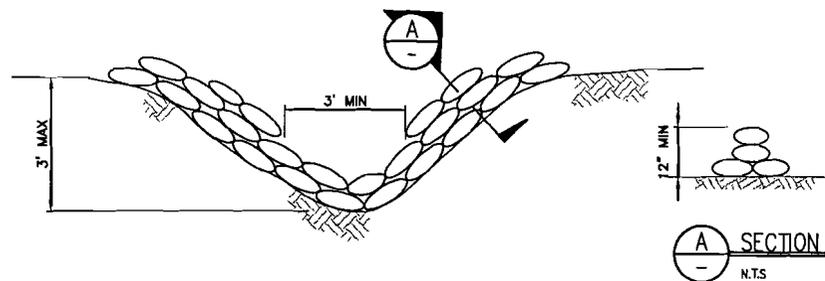
NO.	DESCRIPTION:	APPROVED BY:	DATE:

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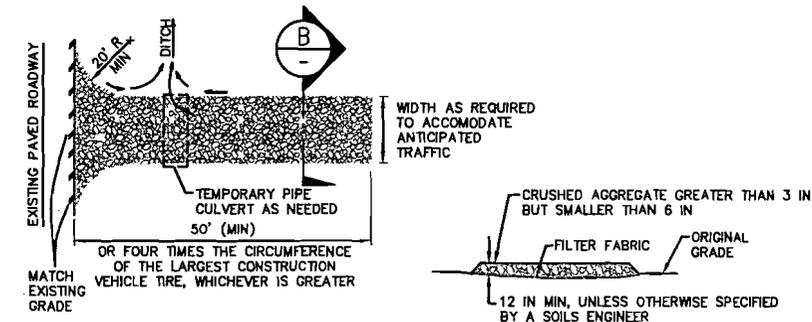
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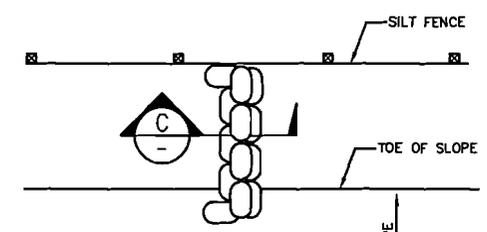
1 TYPICAL TEMPORARY GRAVEL BAG BARRIER (BMP SE-6)  
N.T.S.

NOTE:  
CONSTRUCT SEDIMENT BARRIER  
AND CHANNELIZE RUNOFF TO  
SEDIMENT TRAPPING DEVICE

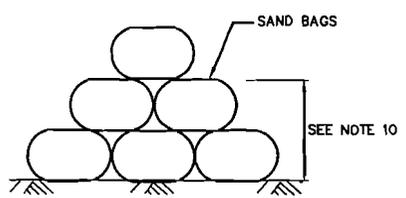


2 TYPICAL TIRE WASH (BMP TC-1)  
N.T.S.

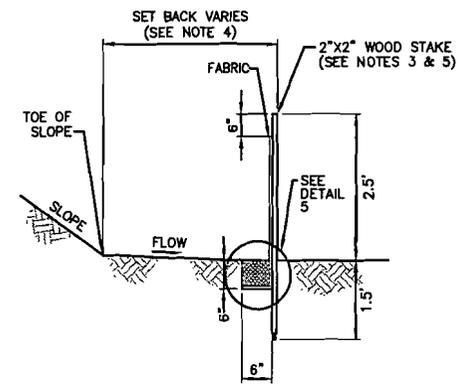
B SECTION  
N.T.S.



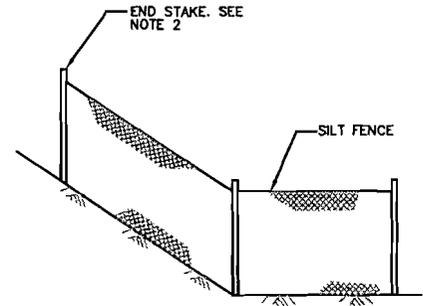
3 TYPICAL CROSS BARRIER DETAIL  
N.T.S.



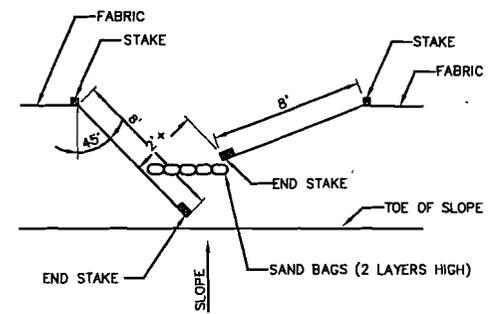
C SECTION  
N.T.S.



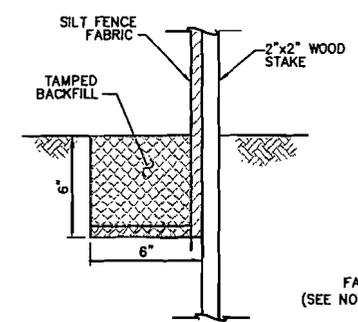
D SECTION  
N.T.S.



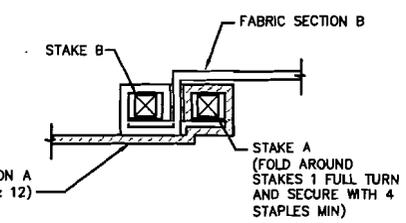
E END DETAIL  
N.T.S.



F OPTIONAL MAINTENANCE OPENING DETAIL  
N.T.S. (SEE NOTE 11)



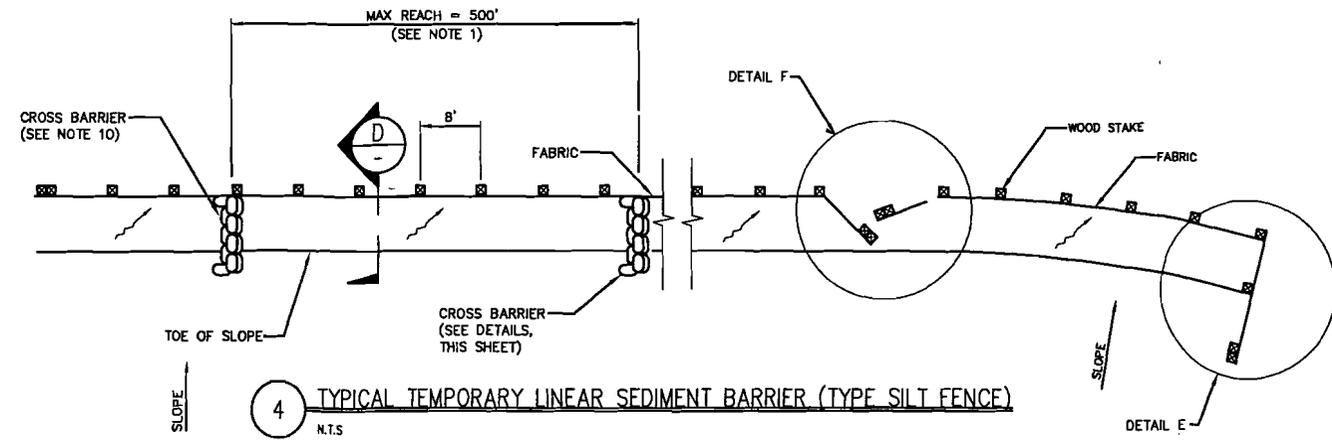
5 DETAIL  
N.T.S.



6 JOINING SECTION DETAIL (TOP VIEW)  
N.T.S.

NOTES

1. CONSTRUCT THE LENGTH OF EACH REACH SO THAT THE CHANGE IN BASE ELEVATION ALONG THE REACH DOES NOT EXCEED 1/3 THE HEIGHT OF THE LINEAR BARRIER, IN NO CASE SHALL THE REACH LENGTH EXCEED 500 FEET.
2. THE LAST 8 FEET OF FENCE SHALL BE TURNED UP SLOPE.
3. STAKE DIMENSIONS ARE NOMINAL.
4. DIMENSIONS MAY VARY TO FIT FIELD CONDITION.
5. STAKES SHALL BE SPACED AT 8 FOOT MAXIMUM, AND SHALL BE POSITIONED ON DOWNSTREAM SIDE OF FENCE.
6. STAKES TO OVERLAP AND FENCE FABRIC TO FOLD AROUND EACH STAKE ONE FULL TURN. SECURE TO STAKE WITH 4 STAPLES.
7. STAKES SHALL BE DRIVEN TIGHTLY TOGETHER TO PREVENT POTENTIAL FLOW-THROUGH OF SEDIMENT AT JOINTS. THE TOP OF STAKES SHALL BE DRIVEN TOGETHER TO PREVENT POTENTIAL FLOW-THROUGH OF SEDIMENT AT JOINTS.



4 TYPICAL TEMPORARY LINEAR SEDIMENT BARRIER (TYPE SILT FENCE)  
N.T.S.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

PRIVATE CONTRACT

11 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
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APPROVED FOR MORGAN FARRERDOME DIRECTOR OF PUBLIC WORKS	ENGINEER OF WORK THOMAS F. HEUSLER C040383 R.C.E. 3-31-08	L-15454 GRADING PERMIT NO.

PERMITS

REZONE PERMIT NO. NOT APPLICABLE
SPECIAL USE PERMIT NO. NOT APPLICABLE
TENTATIVE MAP NO. NOT APPLICABLE
NOI/WDID NO. NOT YET ASSIGNED

BENCH MARK

DESCRIPTION: 3-1/2" brass disk
"M.W.D. OF SOUTHERN CA S.D.6-89 1993"
LOCATION: S.E. CORNER OF MANHOLE
RECORD FROM: FIELD BOOK 4047-04-079
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

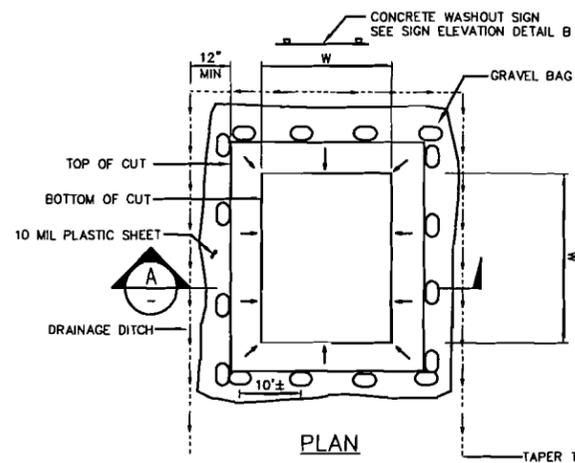
COUNTY APPROVED CHANGES

NO.	DESCRIPTION:	APPROVED BY:	DATE:

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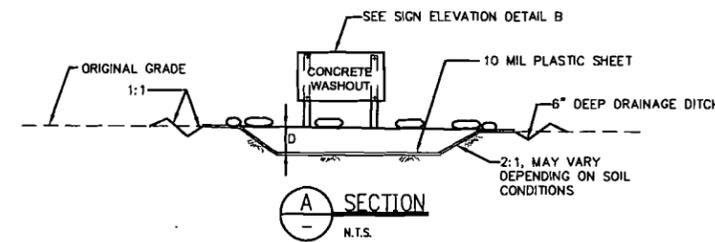


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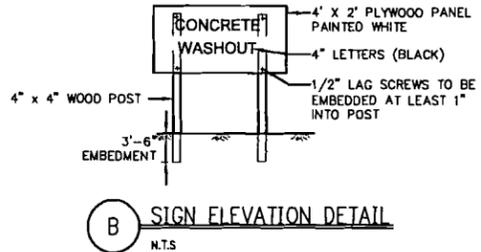


PIT SIZING CHART		
APPROX. VOLUME OF SPOILS	MIN. WIDTH (W)	DEPTH (D)
5 CY OR LESS	3'	1.0'
5 TO 20 CY	10'	1.0'
20 CY OR MORE	15'	1.5'

NOTES:  
 1. ULTIMATE WASHOUT SIZE DETERMINED BY AMOUNT OF CONCRETE REQUIRED FOR PROJECT AREA AND/OR POUR LOCATION.  
 2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 20 FEET OF THE TEMPORARY CONCRETE WASHOUT

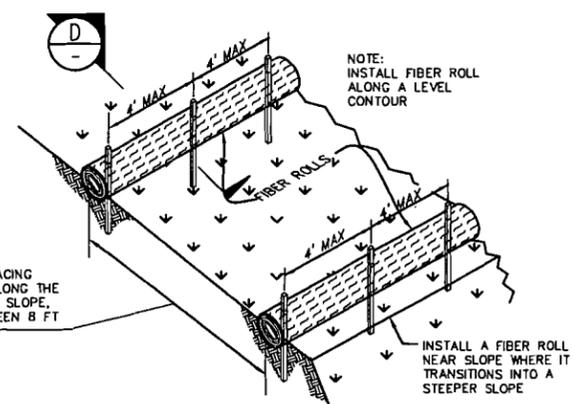


**A SECTION**  
N.T.S.

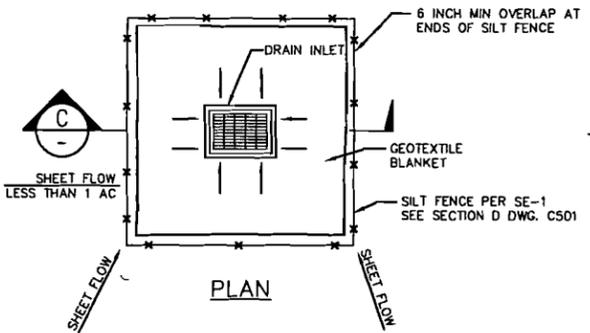


**B SIGN ELEVATION DETAIL**  
N.T.S.

**1 TEMPORARY CONCRETE WASHOUT FACILITY (BMP WM-8)**  
N.T.S.

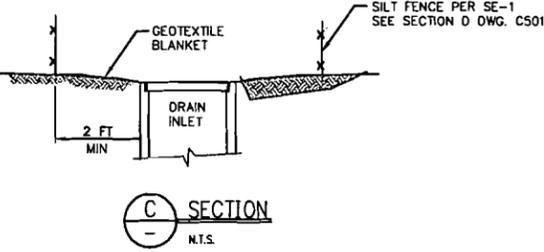


**3 TYPICAL FIBER ROLL INSTALLATION (BMP SF-5)**  
N.T.S.

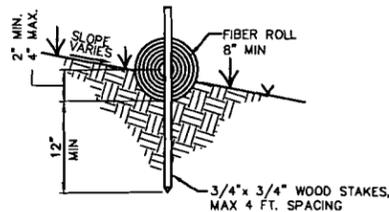


**2 TYPICAL DROP INLET PROTECTION DETAIL (BMP SF-10)**  
N.T.S.

NOTES:  
 1. FOR USE IN AREAS WHERE GRADING HAS BEEN COMPLETED AND FINAL SOIL STABILIZATION AND SEEDING ARE PENDING.  
 2. NOT APPLICABLE IN PAVED AREAS.  
 3. NOT APPLICABLE WITH CONCENTRATED FLOWS.



**C SECTION**  
N.T.S.



**D ENTRENCHMENT DETAIL**  
N.T.S.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

12 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
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CALIFORNIA COORDINATE INDEX 434-1738/434-1737		
APPROVED FOR SUBMITTAL PROCEEDURE DIRECTOR OF PUBLIC WORKS	DIRECTOR OF WORKS THOMAS F. HEALDNER	DATE 3-21-09
L-15454 GRADING PERMIT NO.		

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
 SPECIAL USE PERMIT NO. NOT APPLICABLE  
 TENTATIVE MAP NO. NOT APPLICABLE  
 NOI/WQID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2\"/>

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

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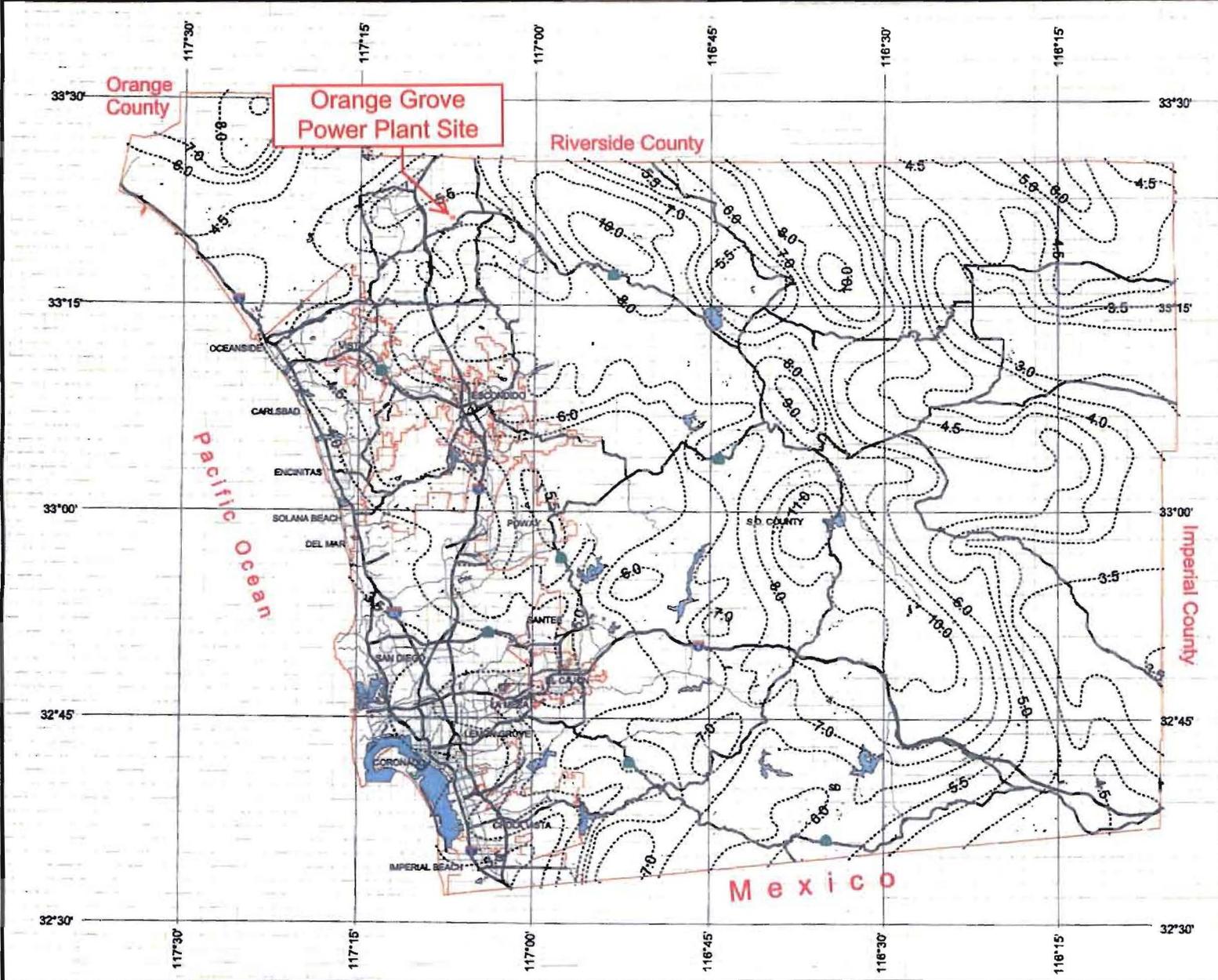
Engineers - Architects - Technicians  
 Design - Construction - Field Service  
 16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE POWER PLANT**  
EROSION CONTROL PLAN  
DETAILS

DESIGN BY: M. BLAKE	CHECKED BY: B. ROMINES
DRAWN BY: B. GASPERS	DATE: 9-12-07
CLIENT I.D. ICCO0101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-C502.dwg	
DRAWING NO. C502	REV. 1

SEGA INC. PHONE NUMBER: (913) 681-2881

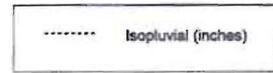


# County of San Diego Hydrology Manual



*Rainfall Isophyets*

## 50 Year Rainfall Event - 24 Hours



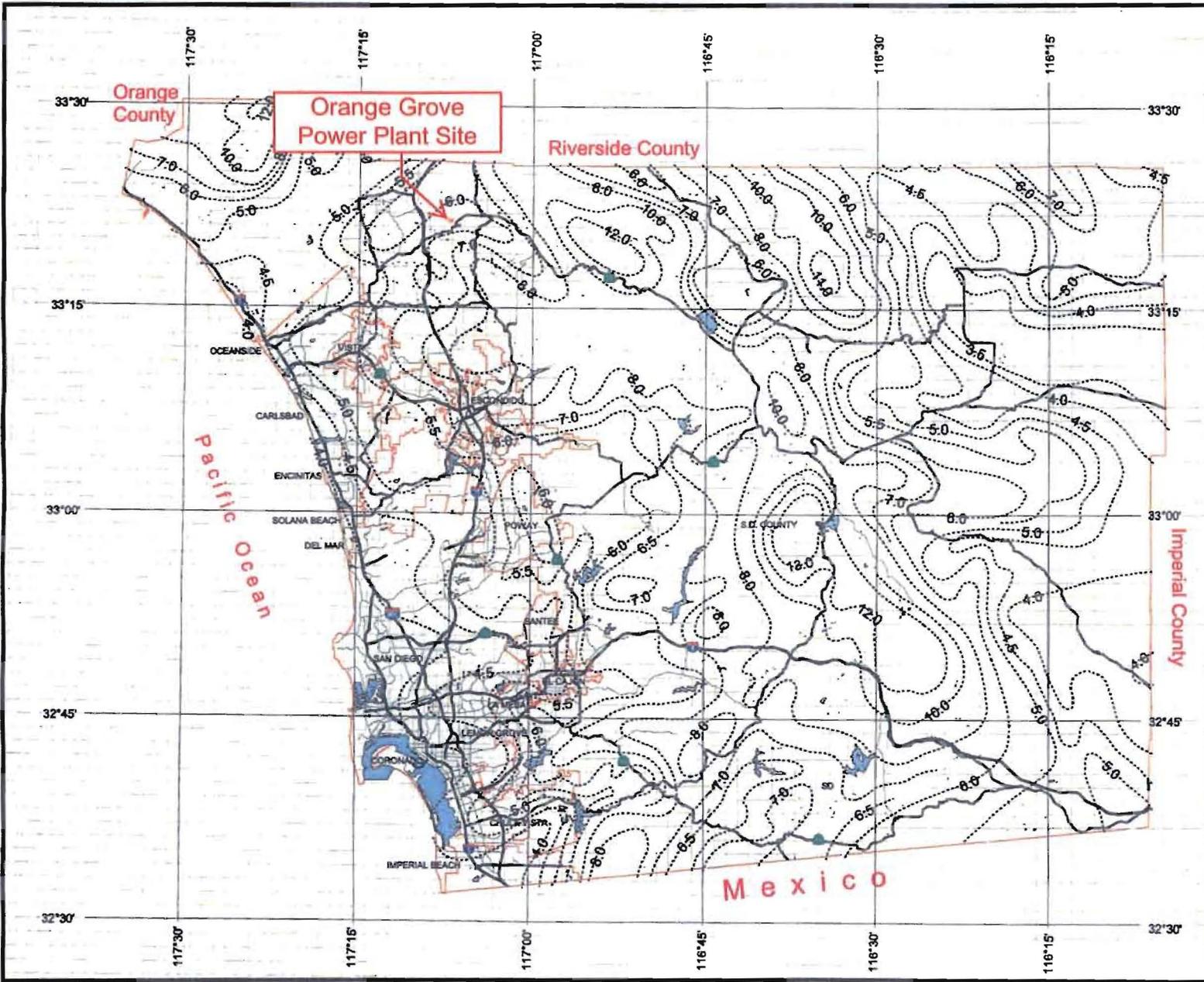
ORANGE GROVE ENERGY L.P.  
Schaumburg, IL

MUP 07-009

## ORANGE GROVE POWER PLANT PROJECT



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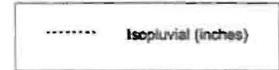


# County of San Diego Hydrology Manual



## Rainfall Isophyets

### 100 Year Rainfall Event - 24 Hours



## ORANGE GROVE ENERGY L.P.

Schaumburg, IL

MUP 07-009

## ORANGE GROVE POWER PLANT PROJECT



3 0 3 Miles

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## **APPENDIX F                      TREATMENT BMP DESIGN GUIDELINES**

### **F.2 Detention Basins**

Detention devices are impoundments where the water quality volume is temporarily detained under quiescent conditions, allowing sediment and particulates to settle out. A conceptual schematic of a detention basin is shown in Figure 5.3.1.

Detention devices remove litter, settleable solids (debris), and total suspended solids (TSS). Pollutants, such as heavy metals, that are attached (adsorbed) to the settled particulate matter will also be removed.

#### **Appropriate Applications and Siting Constraints**

Detention devices should be considered for implementation wherever site conditions allow.

One important siting requirement is that sufficient head is available so that water stored in the device does not cause a backwater condition in the storm drain system, which would limit its capacity. A second siting requirement is that seasonally high groundwater is no higher than the bottom elevation of the device for reasons described below.

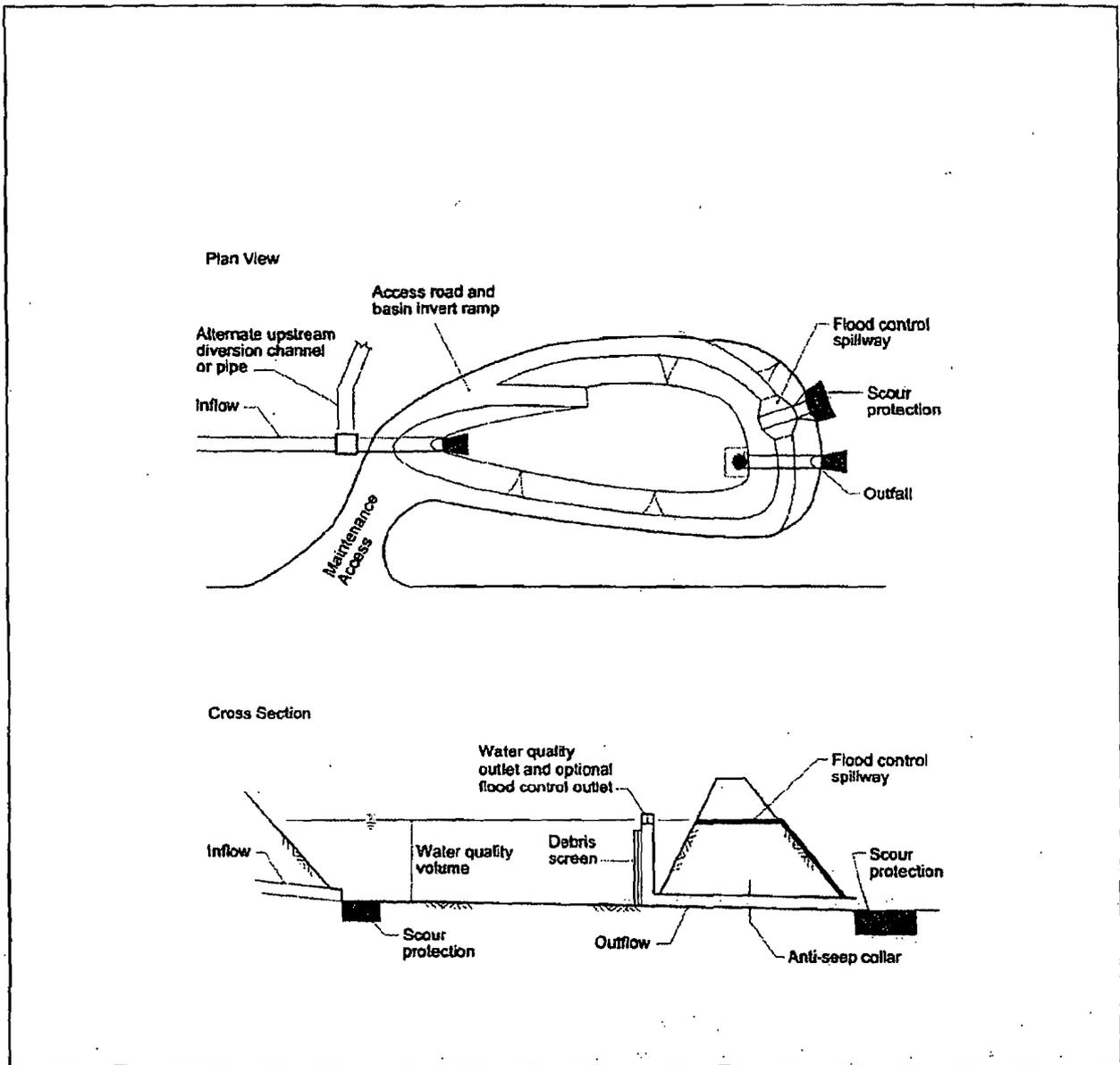


Figure F.2.1  
Example of Extended Detention Basin Schematic  
(Not a Standard Plan)

**FACTORS AFFECTING PRELIMINARY DESIGN:**

Detention devices should be designed to hold at least the 24-hour water quality volume. The maximum water level in the detention device should not cause groundwater to occur under the roadway within 0.2 m (8 inches) of the roadway subgrade. A flow-path-to-width ratio of at least 2:1 is recommended. Baffles or interior berms to accommodate the geometry of the site can accomplish this ratio.

Liners are not generally required for detention basins. Infiltration is permissible if the infiltrated water does not surface in an undesirable place off-site or threaten the stability of a slope or embankment down gradient of the basin. To protect groundwater quality and to ensure dry conditions for maintenance of unlined basins, the distance between the basin invert and seasonally high groundwater should be at least 2 m (6 ft). Where the groundwater is higher than this, the basin should be provided with an impermeable liner. In no case should the seasonally high groundwater be higher than the bottom elevation of the detention device to prevent uplift of tanks or liners.

Discharge should be accomplished through a water quality outlet. An example is shown in Figure 3.2.2. A rock pile or rock-filled gabions can serve as alternatives to the debris screen. The water quality outlet should be designed to empty the device within 24 to 72 hours. (The 24-hour limit is chosen to provide adequate settling time; the 72-hour limit is chosen to minimize the potential for mosquito breeding.) Because detention basins are not maintained for infiltration, water loss by infiltration should be disregarded when designing the hydraulic capacity of the outlet structure.

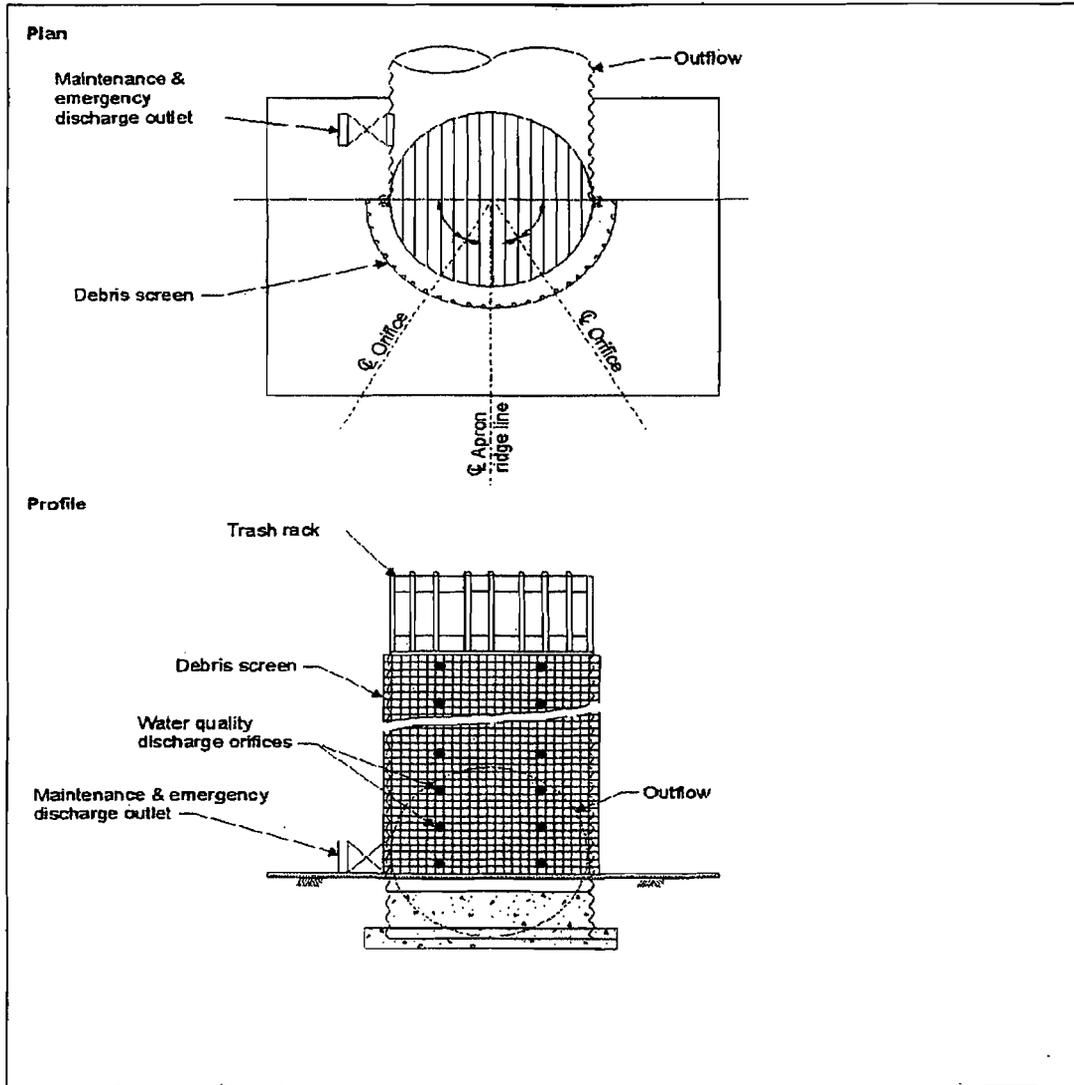
Public health and vector control authorities should be consulted to verify the acceptability of detention basins and the maximum drawdown time allowed to avoid mosquito problems.

The inlet structure of the basin should be designed to divert the peak hydraulic flow (calculated according to County procedures for flood routing and scour) when the basin is full. Alternatively, an overflow structure sized according to these criteria can be provided in one of the downstream walls or berms. A third alternative is to include a flood control outlet in the top of the water quality outlet. In this case, an additional outlet (riser or spillway) should be supplied to prevent overtopping of the walls or berms. Entering flows should be distributed uniformly at low velocity to prevent re-suspension of settled materials and to encourage quiescent conditions.

The site must have sufficient area for a perimeter maintenance road and safe access to and from the site from local roads. Basin side slopes must be shallow enough to permit tracked vehicles to access the basin bottom for maintenance. Alternatively, an access ramp should be provided. Preliminary design factors for detention basins are summarized in Table 3.2.1.

**Table F.2 Summary Of Extended Detention Basin Design Factors**

Description	Applications/Siting	Preliminary Design Factors
<p>Impoundments where the water quality volume is temporarily detained</p> <p>Treatment Mechanisms:</p> <ul style="list-style-type: none"> <li>• Sedimentation</li> <li>• Infiltration (if basin unlined)</li> </ul> <p>Pollutants removed:</p> <ul style="list-style-type: none"> <li>• Sediment and particulates</li> <li>• Litter</li> <li>• Sorbed pollutants (heavy metals, O&amp;G)</li> </ul>	<ul style="list-style-type: none"> <li>• Sufficient head to prevent backwater condition in the storm drain system</li> <li>• Seasonally high groundwater below basin invert</li> <li>• Consult public health and vector control authorities</li> </ul>	<ul style="list-style-type: none"> <li>• Size to capture the 24-hr water quality volume</li> <li>• Flow-path-to-width ratio of at least 2:1 recommended</li> <li>• Maximum water level should not cause groundwater to occur under the roadway within 0.2 m of the roadway subgrade</li> <li>• Basin invert <math>\geq 2</math> m above seasonally high groundwater or else a impermeable liner is required</li> <li>• Scour protection on inflow, outfall and spillway</li> <li>• Maintenance access (road around basin and ramp to basin invert)</li> <li>• Upstream diversion channel or pipe, downstream overflow structure or flood control outlet</li> <li>• Discharge through a water quality outlet with debris screen (or equivalent)</li> <li>• Outlet design to empty basin within 24 to 72 hrs</li> <li>• Flows should enter at low velocity</li> </ul>



**Figure F.2.2**  
**Detention Basin Outlet Structure Schematic**  
**(Not a Standard Plan)**



## Maintenance Concerns, Objectives, and Goals

- Vector/Pest Control
- Sediment and Trash Removal
- Vegetation/Landscape Maintenance
- Re-suspension of settled material
- Clogging of the Outlet

## General Description

Dry extended detention ponds (a.k.a. dry ponds, extended detention basins, detention ponds, extended detention ponds) are basins whose outlets have been designed to detain the stormwater runoff from a water quality design storm for some minimum time (e.g., 72 hours) to allow particles and associated pollutants to settle. Unlike wet ponds, these facilities do not have a large permanent pool. They can also be used to provide flood control by including additional flood detention storage.

## Inspection/Maintenance Considerations

Inspections should be conducted semi-annually and after significant storm events to identify potential problems early. Most maintenance efforts will need to be directed toward vegetation management and vector control, which may focus on basic housekeeping practices such as removal of debris accumulations and vegetation management to ensure that the basin dewateres completely (recommended 72 hour residence time or less) to prevent creating mosquito and other vector habitats.

## Targeted Constituents

<input checked="" type="checkbox"/>	Sediment	▲
<input checked="" type="checkbox"/>	Nutrients	●
<input checked="" type="checkbox"/>	Trash	■
<input checked="" type="checkbox"/>	Metals	▲
<input checked="" type="checkbox"/>	Bacteria	▲
<input checked="" type="checkbox"/>	Oil and Grease	▲
<input checked="" type="checkbox"/>	Organics	▲
<input checked="" type="checkbox"/>	Oxygen Demanding	▲

### Legend (Removal Effectiveness)

- Low
- High
- ▲ Medium



# TC-22

# Extended Detention Basin

Inspection Activities	Suggested Frequency
<ul style="list-style-type: none"> <li>■ Inspect after several storm events for bank stability, vegetation growth, and to determine if the desired residence time has been achieved.</li> <li>■ Inspect outlet structure for evidence of clogging or outflow release velocities that are greater than design flow.</li> </ul>	Post construction
<ul style="list-style-type: none"> <li>■ Inspect for the following issues: differential settlement, cracking; erosion of pond banks or bottom, leakage, or tree growth on the embankment; the condition of the riprap in the inlet, clogging of outlet and pilot channels; standing water, slope stability, presence of burrows; sediment accumulation in the basin, forebay, and outlet structures; trash and debris, and the vigor and density of the grass turf on the basin side slopes and floor.</li> </ul>	Semi-annual, after significant storms, or more frequent
<ul style="list-style-type: none"> <li>■ Inspect for the following issues: subsidence, damage to the emergency spillway; inadequacy of the inlet/outlet channel erosion control measures; changes in the condition of the pilot channel, accumulated sediment volume, and semi-annual inspection items.</li> </ul>	Annual
<ul style="list-style-type: none"> <li>■ During inspections, changes to the extended storage pond or the contributing watershed should be noted, as these may affect basin performance.</li> </ul>	Annual inspection
Maintenance Activities	Suggested Frequency
<ul style="list-style-type: none"> <li>■ If necessary, modify the outlet orifice to achieve design values if inspection indicates modifications are necessary.</li> <li>■ Repair undercut or eroded areas.</li> <li>■ Mow side slopes.</li> <li>■ Manage pesticide and nutrients.</li> <li>■ Remove litter and debris.</li> <li>■ Control vectors as necessary.</li> </ul>	As needed
<ul style="list-style-type: none"> <li>■ Remove accumulated trash and debris from the basin, around the riser pipe, side slopes, embankment, emergency spillway, and outflow trash racks. The frequency of this activity may be altered to meet specific site conditions.</li> <li>■ Trim vegetation at the beginning and end of the wet season to prevent establishment of woody vegetation and for aesthetic and vector reasons.</li> </ul>	Semi-annual, or more frequent, as needed
<ul style="list-style-type: none"> <li>■ Seed or sod to restore dead or damaged ground cover.</li> <li>■ Repair erosion to banks and bottom as required.</li> </ul>	Annual maintenance (as needed)
<ul style="list-style-type: none"> <li>■ Supplement wetland plants if a significant portion have not been established (at least 50% of the surface area).</li> <li>■ Remove nuisance plant species.</li> </ul>	Annual maintenance (if needed)
<ul style="list-style-type: none"> <li>■ Remove sediment from the forebay to reduce frequency of main basin cleaning.</li> </ul>	3- to 5-year maintenance
<ul style="list-style-type: none"> <li>■ Monitor sediment accumulation and remove accumulated sediment and regrade about every 10 years or when the accumulated sediment volume exceeds 10-20% of the basin volume, or when accumulation reaches 6 inches or if resuspension is observed. Clean in early spring so vegetation damaged during cleaning has time to re-establish.</li> </ul>	Every 10-25 years

## **Additional Information**

In most cases, sediment from extended detention basin does not contain toxins at levels posing a hazardous concern. Studies to date indicate that pond sediments are likely to meet toxicity limits and can be safely landfilled or disposed of onsite. Onsite sediment disposal is always preferable (if local authorities permit it) as long as the sediments are deposited away from the shoreline to prevent their re-entry into the pond.

Sediments should be tested for toxin in compliance with current disposal requirements if land uses in the catchment include commercial or industrial zones, or if visual or olfactory indications of pollution are noticed.

## **References**

Metropolitan Council, Urban Small Sites Best Management Practices Manual. Available at: <http://www.metrocouncil.org/environment/Watershed/BMP/manual.htm>

U.S. Environmental Protection Agency, Post-Construction Stormwater Management in New Development & Redevelopment BMP Factsheets. Available at: [cfpub.epa.gov/npdes/stormwater/menuofbmps/bmp\\_files.cfm](http://cfpub.epa.gov/npdes/stormwater/menuofbmps/bmp_files.cfm)

Ventura Countywide Stormwater Quality Management Program, Technical Guidance Manual for Stormwater Quality Control Measures. July, 2002.

# **ATTACHMENT F**

## **OPERATION AND MAINTENANCE PROGRAM FOR TREATMENT BMP**

*(NOTE: INFORMATION REGARDING OPERATION AND MAINTENANCE CAN BE OBTAINED*

*FROM THE FOLLOWING WEB SITE:*

*[HTTP://WWW.SDCOUNTY.CA.GOV/DPW/WATERSHEDS/LAND\\_DEV/SUSMP.HTML.](http://www.sdcounty.ca.gov/dpw/watersheds/land_dev/susmp.html))*

## APPENDIX H Estimated O & M Costs for BMP Project

Estimated values derived from Caltrans Pilot BMP Study. This spreadsheet will change as additional data becomes available.

						Labor			Equipment			Materials		Total Cost	Comments	
						Per. Hrs	Rate	Cost	Type	Days	rate	Cost	Item			Cost
Annual renewal of medium	End of wet season, April 30	None	Annually, in May	Remove characterize, and properly dispose of media. Replace media before Oct 1	None	2	43.63	87.26	sedan	1	21.28	21.28	new adsorbent and testing & disposal costs	195	303.54	
<b>TOTAL GRAIN INLET INSERTS-STREAM GUARDS</b>						6		261.78				21.28		195	478.06	
<b>EXTENDED DETENTION BASINS</b>																
Preventive Maintenance and Routine Inspections																
<b>DESIGN CRITERIA,</b>																
<b>ROUTINE ACTIONS</b>	<b>MAINTENANCE INDICATOR</b>	<b>FIELD MEASUREMENT</b>	<b>MEASUREMENT FREQUENCY</b>	<b>MAINTENANCE ACTIVITY</b>	<b>SITE-SPECIFIC REQUIREMENTS</b>											
Basin side slope planted for erosion protection and planted Invert	Average vegetation height greater than 12-inches, emergence of trees or woody vegetation,	Visual observation and random measurements through out the side slope area	Once during wet season, once during dry season.	Cut vegetation to an average height of 6-inches and remove trimmings. Remove any trees, or woody vegetation.		46	43.63	2094.24	one-ton truck	2	26.84	53.68	spring trimmer, rake, fork, bags, safety equipment	50	2197.92	
Slope stability	Evidence of erosion	Visual observation	October each year	Reseed/revegetate barren spots prior to wet season.		0	43.63	0	one-ton truck & hydroseeder	0	48.15	0	seed	150	150	
				Contact environmental or landscape architect for appropriate seed mix.												
				Scarfy surface # needed.												
				If after two applications (2 seasons) of reseeding/revegetating and growth is unsuccessful both times, an erosion blanket or equivalent protection will be installed over eroding areas. No erosion blanket will be installed in the basin Invert.	NOT AN ANNUAL COST	0	43.63	0	one-ton truck	0	26.84	0	blanket	0	0	
Inspect for standing water.	Standing water for more than 72 hours	Visual observation	Annually, 72 hours after a target 2 storm (0.75 in) event	<input type="checkbox"/> Drain facility	None											
				<input type="checkbox"/> Check and unclog clogged orifice.	Should be Annual Mtce.											
				Notify engineer, if immediate solution is not evident.												
Inspection for trash and debris	Debris/trash present	Visual observation	During routine trashing, per Districts schedule.	Remove and dispose of trash and debris	None											
Inspection for sediment management and characterization of sediment for removal	<input type="checkbox"/> Sediment depth exceeds marker on staff gage	<input type="checkbox"/> Measure depth at apparent maximum and minimum accumulation of sediment. Calculate average depth	Annually	Remove and properly dispose of sediment. Regrade if necessary.		16	43.63	698.08	4-yd dump truck, backhoe & trailer, one-ton truck & hydroseeder	0.4	176.5	70.6	testing and disposal	460	1228.68	once every 5 years

## APPENDIX H Estimated O & M Costs for BMP Project

Estimated values derived from Caltrans Pilot BMP Study. This spreadsheet will change as additional data becomes available.

						Labor			Equipment			Materials		Total	Comments	
						Per. Hrs	Rate	Cost	Type	Days	rate	Cost	Item			Cost
Inspect for burrows	Burrows, holes, mounds	Visual observation	Annually and after vegetation trimming.	<input type="checkbox"/> Where burrows cause seepage, erosion and leakage. backfill firmly.												
General Maintenance Inspection	Inlet structures, outlet structures, side slopes or other features damaged, significant erosion, emergence of trees or woody vegetation, graffiti or vandalism, fence damage, etc.	Visual observation	Semi-Annually, late wet season and late dry season Monthly	Corrective action prior to wet season. Consult engineers if immediate solution is not evident.	None	16	43.63	698.08	one-ton truck	2	26.84	53.68			751.76	
<b>TOTAL EXTENDED BASIN</b>						80		3490.4				177.88		660	4328.36	
<b>INFILTRATION BASINS</b>																
Preventive Maintenance and Routine Inspections																
<b>DESIGN CRITERIA</b>																
<b>ROUTINE ACTIONS</b>	<b>MAINTENANCE INDICATOR</b>	<b>FIELD MEASUREMENT</b>	<b>MEASUREMENT FREQUENCY</b>	<b>MAINTENANCE ACTIVITY</b>	<b>SITE-SPECIFIC REQUIREMENTS</b>											
Vegetation of basin invert and side slopes	Vegetation height exceeds 12 inches, emergence of trees or woody vegetation.	Visual observation and random measurements through out the side slope and invert area	Once during wet season, once during dry season.	Cut vegetation to an average height of 6-inches. Remove any trees, or woody vegetation.	None	48	43.63	2094.24	two-ton truck	2	50	100	string trimmer, rake, fork, bags, safety equipment	50	2244.24	
Inspect for standing water.	Standing water for more than 72 hours	Visual observation	Annually, 72 hours after a target storm (0.75 in) event.	<input type="checkbox"/> Drain facility, if possible. <input type="checkbox"/> Notify engineer to consider. <input type="checkbox"/> Remove sediment, scanty invert, and regrade if necessary.		16	43.63	698.08	one-ton truck	4	26.84	107.36			805.44	
				<input type="checkbox"/> If unable to achieve acceptable infiltration rate or implement alternative solution then move to decommission				0							0	covered under sediment removal
				<input type="checkbox"/> If standing water can not be removed then notify VCD.	None			0							0	
Inspection for trash and debris at inlet structures	Debris/trash present	Visual observation	During routine trashing, per Districts schedule.	Remove and dispose of trash and debris	None											
Inspection for sediment accumulation	Sediment depth exceeds marker on staff gage.	Measure depth at apparent maximum and minimum accumulation of sediment. Calculate average depth	Annually	Remove, characterize and properly dispose of sediment. Regrade and revegetate bare areas.	None	4	43.63	174.52	4-yd dump truck, loader & trailer, grader, sedan, one-ton truck & hydrosseder	0.5	256.94	128.47	seed, testing & disposal	150	452.99	once every 10 years
Slope stability	Evidence of erosion.	Visual observation	October each year.	Reseed/revegetate barren spots by Nov. Scarify surface if needed.		20	43.63	872.6	one-ton truck & hydrosseder	1	48.15	48.15	seed	275	1195.75	

**HYDROLOGY & HYDRAULIC  
CALCULATIONS**

**FOR**

**ORANGE GROVE ENERGY, L.P.**

**ORANGE GROVE POWER PLANT**

**MUP 07-009**

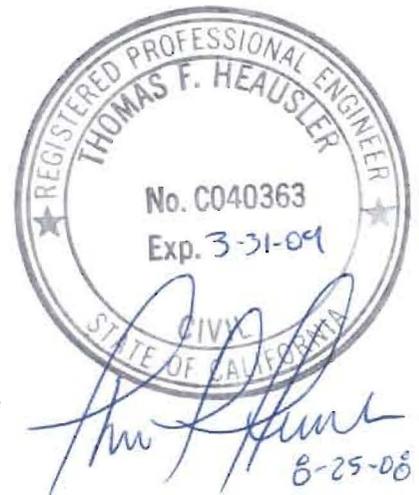
**AUGUST 25, 2008**

**PREPARED BY:**



**16041 Foster P.O. BOX 1000  
Stilwell, Kansas 66085-1000  
(913) 681-2881**

**Sega Project No. 07-0098**



**Orange Grove Energy, L.P.**  
**Hydrology & Hydraulic Calculations for the**  
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**August 25, 2008**

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**Introduction and Pre-Development Condition**

Orange Grove Energy, L.P.'s proposed Orange Grove Power Plant (OGPP) is located in Unincorporated San Diego County (SDC) west of Pala, California 92059 about 0.1 miles north of the intersection of State Road 76 (Pala Road or SR-76) and a private road called Pala Del Norte Road. The 8.5 acre proposed project site is located on approximately 202 acres of property owned by San Diego Gas & Electric (SDG&E) in San Diego County, California in Section 29, Township 9 South, Range 2 West (Please refer to the Site Location and Site and Property Boundary Maps in the Reference section for details). The site will utilize two leased areas during the construction of the project. The 8.5 acre northern leased area (APN 110-072-26) will be the location of the proposed site. The southern leased area (APN 110-370-01) is 8.0 acres, and will be the staging, pre-assembly, construction parking, and storage area during construction and after construction will be returned to its existing condition. An existing storage yard is included on the southern leased area and will be utilized for construction trailers.

The online USDA, NRCS, National Cooperative Soil Survey for this area of San Diego County, CA reports that this site has Las Posas stony fine sandy loam, 9 to 30 percent slopes (See Reference Soil Survey Map symbol LrE). The seasonal high groundwater table was not encountered during the geotechnical investigation. The maximum explored depth for the fourteen site borings was approximately 40.0 feet below grade (see the signed and sealed PSI Geotechnical Exploration Report for details). The parcel is designated as zone "X", which are areas determined to be outside the 500-year floodplain (and outside the 100-year floodplain), as shown on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) dated June 19, 1997, for community panel number 501 of 2375 and map number 06073C0501 F (See the FEMA FIRM Map). There are no geological hazards such as landslides or rockslides identified according to the geotechnical exploration report (See signed and sealed PSI Geotechnical Exploration Report). The San Luis Rey River is located on the opposite side of SR-76, directly south of the proposed site. The river is the receiving watershed of the stormwater runoff from both the pre-development and post-development site.

**Existing Development**

This area of existing SDG&E property was previously developed into a citrus orchard that is no longer in use. A majority of the proposed site and staging areas are still covered with abandoned orchard trees. The rest of the site is covered with a mixture of grass and vegetation. The 8.5 acre leased area has few existing impervious areas located on-site.

The pre-development area drains from the north to the south at approximately a ten percent (10%) slope (See the USGS Topographic Quadrangle). The existing site drains to a portion of SR-76 that does not have a ditch or culvert to channelize or route the stormwater under the road. Two existing drainage channels located on the east and west sides of the site route neighboring stormwater runoff under SR-76. Except for negligible temporary disturbance for trenching and backfilling associated with the transmission and gas pipeline installation, both drainage channels will remain undisturbed throughout construction.

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The first of the two channels; the West Channel is located between the proposed development and Pala Del Norte Road. The West Channel is fed by existing culvert pipes of various sizes (14"- 24") which route drainage from the northern mountains across Pala Del Norte Road. Once the drainage reaches SR-76 the runoff is routed underneath by an 18" corrugated metal culvert pipe. No existing stormwater calculations were available for review.

The second channel; the East Channel, is located on the east side of the proposed development approximately 250 linear feet east of the proposed east property line. The East Channel also routes stormwater runoff under SR-76 through a 24" corrugated plastic culvert pipe. The pipes outlet into an existing former sand and gravel quarry located on the Pala Band of Mission Indians property on the south side of SR-76.

The quarry is located within Flood Zones A and X which are "special flood hazard areas inundated by the 100-year flood" and "Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood" (See References for FEMA FIRM Map). Ultimately, the quarry outlets into the San Luis Rey River (See References for the Drainage Area Map). Two existing earth ridges, one located on the south side of the existing SDG&E maintenance/storage yard and the other located 300 feet west of the existing East Drainage Channel route the proposed existing site drainage between the earth ridges. These earth ridges collect pre-development stormwater runoff between them and route over SR-76. The stormwater then travels through the former quarry to the San Luis Rey River.

**Proposed Development**

The proposed Orange Grove Power Plant will be located on an 8.5 acre leased area. The plant area (the area located inside the fence) will include a switchyard area and the power plant turbine area including service building and various structures. Inside the proposed turbine plant area six (6) inches of crushed rock surface will be utilized instead of topsoil. The plant area loose rock is installed for reasons concerning electrical safety but it also improves the drainage characteristics of the property by slowing the runoff flow velocity. The surrounding site will be landscaped and constructed at 3:1 maximum slope. The proposed Stormwater Detention Basin is located on the south and down stream side of the proposed development. The basin will be utilized as an extended dry detention basin. The basin will be grass lined and discharge at less than the pre-development discharge rate. These hydrology and hydraulic calculations are to show that the proposed Stormwater Management System will be adequate for the proposed site.

The site has two proposed access drives, one from Pala Del Norte Road and the other from State Road 76 (Pala Road or SR-76). The Pala Del Norte Road access drive will be the main entrance and includes a bridge spanning the existing West Drainage Channel. Existing stormwater culvert pipes located under Pala Del Norte Road will remain undisturbed. These pipes route runoff from the northern mountains into the West Channel. The bridge will allow for the 100-year storm event to flow under the deck with a minimum of one foot of freeboard (see the FlowMaster 2005 Worksheets for the Proposed Concrete Bridge). A concrete approach apron will be constructed

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between the bridge and the existing asphalted Pala Del Norte Road. Similarly, the SR-76 access drive will be located approximately 930 feet east of the existing intersection of Pala Del Norte Road and SR-76. This access drive entrance will be constructed of concrete pavement approximately 50 feet in length. All additional roads will be constructed of 18 inches of crushed rock surface including inside and out of the plant area. The two access drives will connect inside the plant area. All road widths, radii, and other requirements will be in accordance with California Fire Code, the San Diego - North County Fire Protection District, and the Orange Grove Power Plant Fire Protection Plan.

To adequately control water quality on-site, a combination of Site Design, Source Control, and Treatment Control Best Management Practices (BMPs) will be utilized for the Orange Grove Power Plant project based on the Caltran's BMP Handbook and SDG&E's BMP Handbook. The Orange Grove Power Plant project will implement stormwater treatment BMPs that will remove anticipated pollutants of concern from off-site discharge by routing the 50-year stormwater through the proposed storm drains and into the Stormwater Detention Basin located in the southeast side on the northern leased area (Please refer to the Grading and Drainage Plan Drawing).

The proposed drainage area for the detention basin is 5.2 acres, which includes the switchyard area, the power plant turbine block and supporting equipment, service building, and the detention basin area. When the planned construction is complete, the plant area will have approximately 43,500 SF of impervious foundation additions for various structures. In addition, there will be 7,500 SF of impervious area for access drive entrances which will not be located inside of the detention basin drainage area. Thus, the proposed drainage area of 5.2 acres will have a total impervious area of 43,500 SF (1.0 acres, 11.76 % of the parcel) (See the References for the Impervious Area Map and Calculations).

**Stormwater Detention Basin Requirements**

The proposed Stormwater Detention Basin will detain the stormwater runoff for a 5.2 acre drainage area. This area includes all areas inside the plant area fence yard, the detention basin area, and the north berm area (See the Drainage Area Map in the References). Stormwater runoff will be captured in the plant area by six stormwater grate area inlets. Both the grate inlets and storm drains are designed for 100-year storm event. The stormwater runoff will be routed into the detention basin for treatment. The inlets will be double San Diego Regional Standard No. D-15 grate inlets. The detention basin will detain the 100-year stormwater runoff and outlet at less than the pre-development discharge rate. The pre-development discharge rate will be controlled with a 12" diameter outlet pipe.

The San Diego Regional Water Quality Control Board (RWQCB) has jurisdiction within San Diego County. The Regional Boards issue the municipal Stormwater permits in California. These boards have water and stormwater jurisdiction on construction and development sites in California. The Orange Grove Power Plant is located in region 9, the San Diego RWQCB (See References for San Diego RWQCB Map). The site stormwater indirectly discharges into the San Luis Rey River located south of the proposed site (See the San Luis Rey River Watershed Map). The County of

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San Diego – Stormwater Standards Manual requires that Priority Projects meet stormwater management system design criteria. The stormwater management system will meet both the quality and quantity requirements defined in the County of San Diego Stormwater Standards Manual, the 2003 San Diego County Hydrology Manual, and the 2005 San Diego County Drainage Design Manual. Accordingly, the proposed Detention Basin will detain both the quality and quantity volumes for the 100-year design storm event.

**Required Quality Volume**

The Design Treatment Control BMP standards for stormwater runoff is the primary control variable for designing Treatment Control BMPs. This design volume is for small, more frequent storm events. The runoff volume quality requirement ( $V_{\text{quality}}$ ) is produced from the 24-hour 85<sup>th</sup> percentile storm event, as determined from the local historical rainfall (See County of San Diego Stormwater Standards Manual - *Appendix A to the Watershed Protection, Stormwater Management and Discharge Control Ordinance*, Amended August 2003). The Runoff Coefficient “C” was determined from the various proposed land modifications including impervious area, vegetation, and rock surface additions (See Table 3-1 Runoff Coefficients for Urban Areas from the County of San Diego Hydrology Manual Dated June 2003 page 3-6). The depth of rainfall “I” was determined to be 0.83 inches (San Diego County Hydrology Manual *Department of Public Works Flood Control Section - Appendix E 85<sup>th</sup> Percentile Precipitation Isopluvial Map*, Revised June, 2003). The Treatment Control BMP design volume is:

- $V_{\text{quality}} = C \cdot I \cdot A$
- Runoff Coefficient Impervious Areas = 0.85 acres, C = .95  
Crushed Rock Surface Areas = 2.55 acres, C = 0.35  
Grassy Areas = 1.8 acres, C = 0.51

$$C = \frac{(0.80 \text{ acres})(0.95) + (1.8 \text{ acres})(0.51) + (2.60 \text{ acres})(0.35)}{5.2 \text{ acres}} = 0.50$$

- $V_{\text{quality}} = (0.50) \cdot (0.83 \text{ inches}) \cdot (5.2 \text{ acres}) \cdot (1 \text{ ft}/12 \text{ in}) \cdot (43,560 \text{ ft}^2 / 1 \text{ acre})$ 
  - $V_{\text{quality}} = 7,833 \text{ cubic feet}$

The required stormwater quality volume will be retained in the proposed detention basin. Below the inlet and outlet stormwater pipes will be a one foot sediment storage depth for anticipated erosion and sediment control. The depth will be maintained by riprap lining the bottom on the detention basin according to the San Diego County Drainage Design Manual and the Water Quality Management Plan (WQMP) Requirements.

**Required Quantity Volume**

The required quantity for the Orange Grove Power Plant Stormwater Detention Basin will be the stormwater runoff from the 24-hour, 100-year storm event with an outlet control structure

**Orange Grove Energy, L.P.**  
**Hydrology & Hydraulic Calculations for the**  
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**August 25, 2008**

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which will release stormwater at the pre-development discharge rate. The discharge values were calculated using the computer program Technical Release 55 (TR-55) and the Rational Method. TR-55 utilizes the U.S. Soil Conservation Service (SCS) runoff equation method to calculate the peak rate of discharge. The input requirements for calculating the peak discharge is the time of concentration, the drainage area, the rainfall distribution, the runoff curve number, and the 24-hour rainfall. The storm rainfall data was determined from the San Diego County Hydrology Manual. Runoff curve numbers characterize the properties for a particular soil and ground cover. A calculated runoff curve number of 76 was utilized for the pre-development areas and a curve number of 83 for post-development areas. All impervious area additions to the post-development site were given a 98 runoff curve number. The time of concentration was determined using TR-55 by defining the length and type of flow, the slope, and Manning's number for the pre- and post-development areas. The 24-hour, 100-year storm pre-development discharge is 12.68 cubic feet per second (cfs) and the post-development discharge to the detention basin is 14.66 cfs.

The volume required for detention was calculated by utilizing TR-55. In addition to the discharge output the program also calculates the stormwater runoff volume. The pre and post-development peak inflow for the 24-hour, 50 and 100-year design storm occurs at the 10<sup>th</sup> hour. The post-development runoff quantity volumes for the 50-year and 100-year storms are 68,445 and 77,165 cubic feet, respectively (See WinTR-20 Pre-and Post Development Stormwater Runoff Amounts). The total required 100-year storage volume for the Stormwater Detention Basin is:

- $V_{\text{quality}} + V_{\text{quantity}} = 7,833 \text{ cubic feet} + 77,165 \text{ cubic feet} = 85,000 \text{ cubic feet}$ 
  - **Thus,  $V_{\text{req'd}} = 85,000 \text{ cubic feet}$**

**Proposed Stormwater Detention Basin**

The detention basin volume will be detained in the proposed Stormwater Detention Basin before discharging at the pre-development discharge. The Stormwater Detention Basin will be a 0.5 acre 11.0 foot deep basin. The bottom elevation of the detention basin is 402.0'. The side slopes of the basin will be 3:1 and the basin will be surrounded with a security fence and a 10' maintenance road. Access to the bottom of the detention basin for maintenance will be on the northwest corner of the basin (See the detailed Grading and Drainage Drawings). The 10' maintenance road will allow for access to the storm drain outlet structure or detention basin inlet structure, detention basin outlet structure, and the stormwater emergency outlet overflow structure. Because the proposed detention basin will be utilized for both water quality and flood control, it would be classified as a "conjunctive use basin" according to the Drainage Design Manual. The total storage volume available for the Stormwater Detention Basin is (not including one foot of freeboard):

- $V_{\text{Available}} = 85,650 \text{ cubic feet} > V_{\text{req'd}} \text{ so OK!}$

**Orange Grove Energy, L.P.**  
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The basin inlet structure or storm drain outlet pipe will be a 24" RCP with a flared end section. The pipe will discharge stormwater runoff from six grate area inlets located throughout the plant area. The proposed storm drains will have the capacity to drain the 50-year and 100-year storm event. The detention basin outlet control structure will release discharge at less than the pre-development rate of 11.28 cfs. Prior to inletting into the grate structures, stormwater will be treated over 6" of loose crushed rock (Class II Aggregate). The rock will act as the initial treatment BMP before being discharged into the detention basin. During the 100-year storm event, stormwater runoff will pond inside the development fenced area.

**Proposed Outlet Control**

The detention basin outlet pipe (12") is sized for less than the pre-development discharge rate at 11.28 cfs (See Outlet Circular Orifice Worksheet). The Stormwater Detention Basin 100-year storm water surface elevation is 412.4'. If water rises above the 412.4' elevation, the stormwater is directed outside of the detention basin through the emergency overflow structure. The structure will discharge at the post-development 100-year discharge rate (27.86 cfs) for the 5.2 acre drainage area. The emergency outlet control structure maximum discharge is 32.63 cfs. The outlet control pipe will channel the stormwater runoff through the emergency overflow structure. Downstream of the emergency overflow structure, the pipe size will increase to 36" to handle storm events larger than the 100-year storm event if needed. All runoff exiting the detention basin will be routed to the proposed west secondary entrance road drainage ditch. The outlet pipe will discharge at 11.28 cfs for a 100-year storm and 39.51 cfs for storm events greater the 100-year storm. The velocities for the outlet pipe are 7.09 ft/s and 9.83 ft/s, respectively. All inlet and outlet pipes on-site are equipped with riprap as energy dissipaters. Table 7-1 of the 2005 San Diego County Drainage Design Manual was utilized for the riprap design parameters.

The stormwater outlet pipe is located outside the top of bank of the Secondary Access Road drainage ditches. The outlet pipe will discharge into a proposed riprap energy dissipater on the west side of the access road.

**Proposed On-site North Drainage Channel**

The proposed Orange Grove Power Plant North Drainage Channel will be constructed to direct stormwater drainage, from the north side and upstream areas, around the developed area of the site and into the West Drainage Channel. The North Drainage Channel will add no additional stormwater runoff area to the West Drainage Channel. The West Drainage Channel drainage area will be modified in shape but will have no change to the channel. Post-development will have approximately 1.5 acres from the North Drainage Channel routed into the West Drainage Channel; having no net area increase to the existing ditch. The North Channel drainage from the existing 10% slope and the proposed 3:1 slope will be channeled into a two foot deep, five foot wide drainage channel. The channel will be grass lined with 3:1 side slopes and be located outside of the fence line of the development area. The channel will route stormwater runoff into the existing West Drainage Channel, underneath the proposed bridge, and ultimately beneath SR-76. Pre-

**Orange Grove Energy, L.P.**  
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development stormwater runoff is routed into the West Drainage Channel or directly across SR-76. The North Drainage Channel is designed to handle the 100-year storm event, a stormwater discharge of 12.75 cfs allowing one foot of freeboard.

**Existing West Drainage Channel**

The existing West Drainage Channel collects stormwater runoff from areas upstream (north and northwest) of the proposed site location. Multiple existing stormwater culvert pipes are routed into the existing channel underneath Pala Del Norte Road and range from 14 to 24 inches in diameter. There are no proposed modifications to the existing culvert pipes. A proposed concrete bridge approximately 40 feet wide and 60 feet long will span the West Drainage Channel and will be utilized as the main entrance to the proposed site. The bridge will be constructed outside of the top of bank and intersect with Pala Del Norte Road between two sets of existing culvert pipes. The 100-storm event will pass below the bridge (see the FlowMaster 2005 Worksheets for the Proposed Concrete Bridge).

The proposed development will route the area north of the site into that drainage ditch; having no net area increase to the existing West Drainage Channel (See the USGS Topographic Quadrangle – Pre and Post-Development Maps). An outlet culvert pipe for the West Drainage Channel, located at the intersection of Pala Del Norte Road and SR-76, drains stormwater from north to south underneath SR-76. The outlet culvert pipe is an 18” Corrugated Metal Pipe. It drains into the existing former quarry and ultimately into the San Luis Rey River.

**Secondary Access Road Drainage Ditches**

The Orange Grove Power Plant access drive located off SR-76 will have drainage ditches located on either side. This secondary/emergency road will be utilized during construction as an alternate entrance until the bridge construction is complete for the Pala Del Norte Road access drive. This road will be 30 feet wide and will be constructed of 18 inches of crushed loose rock (Class II Aggregate). The entrance of the secondary road will be constructed of concrete. The secondary road will have ditch channels on both sides. The ditches are designed for the 100-year storm event with a 3 foot bottom and 3:1 side slopes. The west and east ditches discharge at 6.72 cfs and 12.56 cfs, respectively. During the 100-year storm event the water elevation in the channels are 0.31 feet and 0.45 feet in depth (See the FlowMaster Worksheets for the Secondary Access West/East Trapezoidal Channels). The west channel will be two foot deep and at a channel slope of ten percent. Likewise, the east ditch will have similar parameters as the west ditch but will only be one foot in depth. A larger depth was required for the west ditch to provide one foot of freeboard to channel the detention basin stormwater runoff. The detention basin outlet pipe will be 36 inches in diameter and outlet above the top of bank. Riprap will be lined from the outlet location to the secondary road and utilized as the energy dissipation. The two ditches will be connected by an 18” reinforced concrete culvert pipe under the road entrance near State Road 76. All other ditch segments will be grassed lined and maintained with silt fencing and cross barriers located every 50 feet during construction.

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**August 25, 2008**

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The Secondary Access Road Drainage Ditches will route no additional stormwater runoff south toward SR-76. The detention basin will control the stormwater runoff added from the proposed equipment and other impervious area additions. The detention basin will outlet into the west secondary access road ditch at approximately the pre-development discharge rate (11.28 cfs). The velocity for the 100-year storm event will be 14.36 ft/s and will be controlled with 3.0 foot, one ton stone riprap (See Table 7-1 of the County of San Diego Drainage Design Manual).

**Maintenance Plan, Erosion, and Siltation BMPs**

The Orange Grove Power Plant will meet the minimum requirements for construction and permanent BMPs. Construction BMPs will be utilized throughout the scheduled timeframe of the construction project to the maximum extent practicable. Erosion and sediment control will be implemented during construction by silt fences and fiber rolls accompanied with cross barriers (check dams) made from sand bags which will border all sides of the project site. Silt fences will also be implemented around any stockpiling of soil during grading and excavation. Permanent erosion and sediment controls will also be implemented by utilizing drainage channels, soil berms, landscaping, crushed rock surfaces, and ditches. Riprap will be utilized at all inlet and outlet structures for erosion control. These BMP measures were taken to route stormwater runoff around the proposed development and to minimize surrounding site impacts. The Stormwater Detention Basin's outlet control structure and overflow structure will act as the structural BMP's for stormwater drainage and release runoff to the proposed drainage channel on the east side of the site.

The Orange Grove Power Plant will have routine equipment maintenance required to maintain a sufficient operating facility. The Orange Grove Energy, L.P. Design Department will be notified if any problems arise, such as standing water in the power plant area. A Design Department representative will make a field check and then determine the best course of action to correct the problem. The site non-structural and structural BMPs will be routinely inspected, cleaned, and maintained on an annual basis according to San Diego County, the Stormwater Management Plan (SWMP), and the San Diego RWQCB.

**Conclusion**

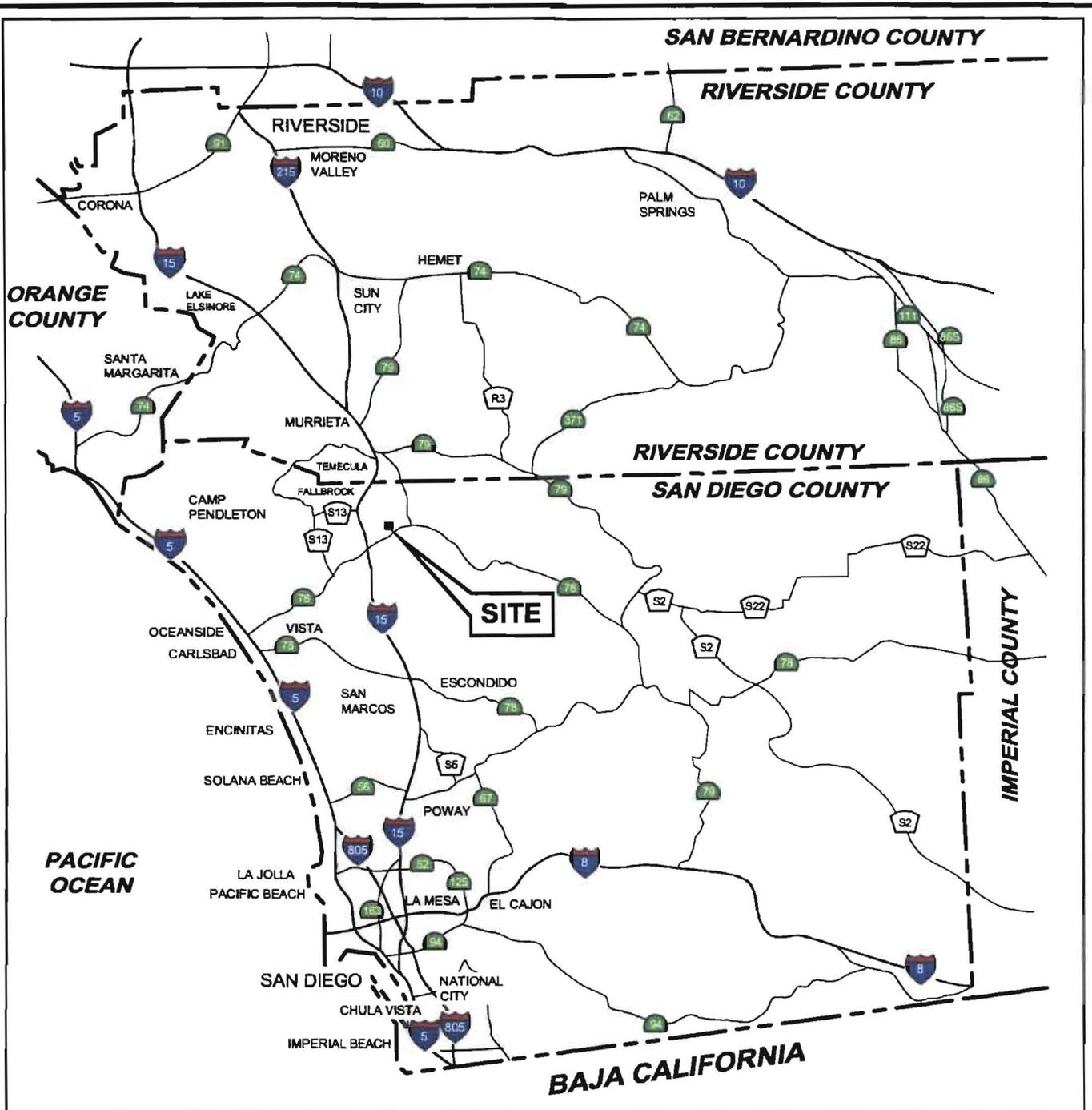
The area inlets, pipes, and Stormwater Detention Basin will be adequate as the Orange Grove Power Plant surface water management system. Storm drains will route the 50-year and 100-year storm event to the detention basin. The stormwater will be discharged off-site at the 100-year pre-development discharge rate and will detain the 100-year storm event. Permanent BMPs will be utilized during the life of the project. Thus, the surface water management system meets all requirements for the San Diego RWQCB and the County of San Diego.

**Orange Grove Energy, L.P.  
Hydrology & Hydraulic Calculations for the  
Orange Grove Power Plant  
August 25, 2008**

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**REFERENCES**

MS=1:1 L:\graphics\Projects\Number\28-xxxx\28-0319\AFC (126158)\AFC-Location.dwg Jun 16, 2008 - 9:28am askers



0 10 20 30 40 MILES



SCALE IN MILES



*Sega Project No. 07-0098*

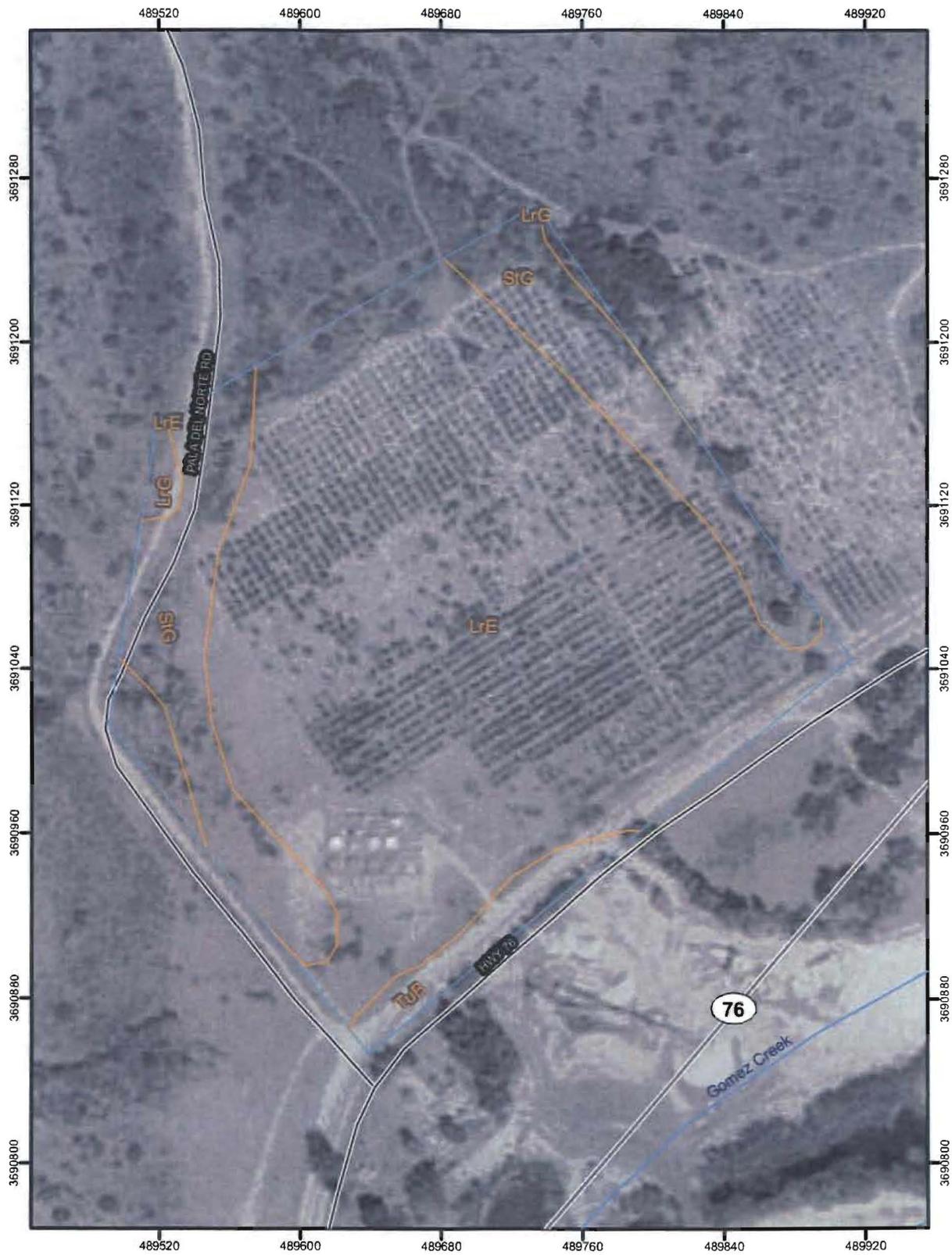
FACILITY:  
ORANGE GROVE PROJECT  
SAN DIEGO COUNTY, CALIFORNIA

**SITE LOCATION MAP**

*MUP 07-009*



Soil Map—San Diego County Area, California  
(Orange Grove Power Plant)



Soil Map—San Diego County Area, California  
(Orange Grove Power Plant)

**MAP LEGEND**

**Area of Interest (AOI)**

 Area of Interest (AOI)

**Soils**

 Soil Map Units

**Special Point Features**

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot

-  Very Stony Spot
-  Wet Spot
-  Other

**Special Line Features**

-  Gully
-  Short Steep Slope
-  Other

**Political Features**

- Municipalities**
-  Cities
  -  Urban Areas

**Water Features**

-  Oceans
-  Streams and Canals

**Transportation**

-  Rails

**Roads**

-  Interstate Highways
-  US Routes
-  State Highways
-  Local Roads
-  Other Roads

**MAP INFORMATION**

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
Coordinate System: UTM Zone 11N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California  
Survey Area Data: Version 5, Jan 4, 2007

Date(s) aerial images were photographed: 10/2/1995

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

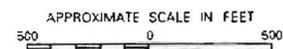
## Map Unit Legend

San Diego County Area, California (CA638)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
LrE	Las Posas stony fine sandy loam, 9 to 30 percent slopes	22.1	76.1%
LrG	Las Posas stony fine sandy loam, 30 to 65 percent slopes	0.2	0.8%
StG	Steep gullied land	5.7	19.7%
TuB	Tujunga sand, 0 to 5 percent slopes	1.0	3.5%
Totals for Area of Interest (AOI)		29.0	100.0%

**NATIONAL FLOOD INSURANCE PROGRAM  
FLOOD EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP  
SAN DIEGO COUNTY CALIFORNIA AND INCORPORATED AREAS**



MUP 07-009



**SITE BOUNDARY**

**LEGEND**

- SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD**
  - ZONE A** No base flood elevation determined.
  - ZONE AE** Base flood elevation determined.
  - ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
  - ZONE AD** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
  - ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
  - ZONE V** Coastal flood with velocity hazard wave action; no base flood elevations determined.
  - ZONE VE** Coastal flood with velocity hazard wave action; base flood elevations determined.
- FLOODWAY AREAS IN ZONE AE**
- OTHER FLOOD AREAS**
  - ZONE X** Area of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from 100-year flood.
- OTHER AREAS**
  - ZONE X** Area determined to be outside 500-year floodplain.
  - ZONE D** Areas in which flood hazards are undetermined.
- UNDEVELOPED COASTAL BARRIERS**
  - Identified 1983
  - Identified 1990
  - Otherwise Protected Areas
- Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas
- Flood boundary
- Floodway boundary
- Zone D boundary
- Boundary Distinguishing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones
- Base Flood Elevation (the Elevation in Feet. See Map Index for Elevation Datum)
- Cross Section Line

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 9 SOUTH, RANGE 2 WEST AND TOWNSHIP 10 SOUTH, RANGE 2 WEST.

**PALA ROAD  
(STATE ROAD 76)**

**SAN DIEGO COUNTY  
UNINCORPORATED AREAS  
060284**

**8.5 ACRE  
ORANGE GROVE  
POWER PLANT**

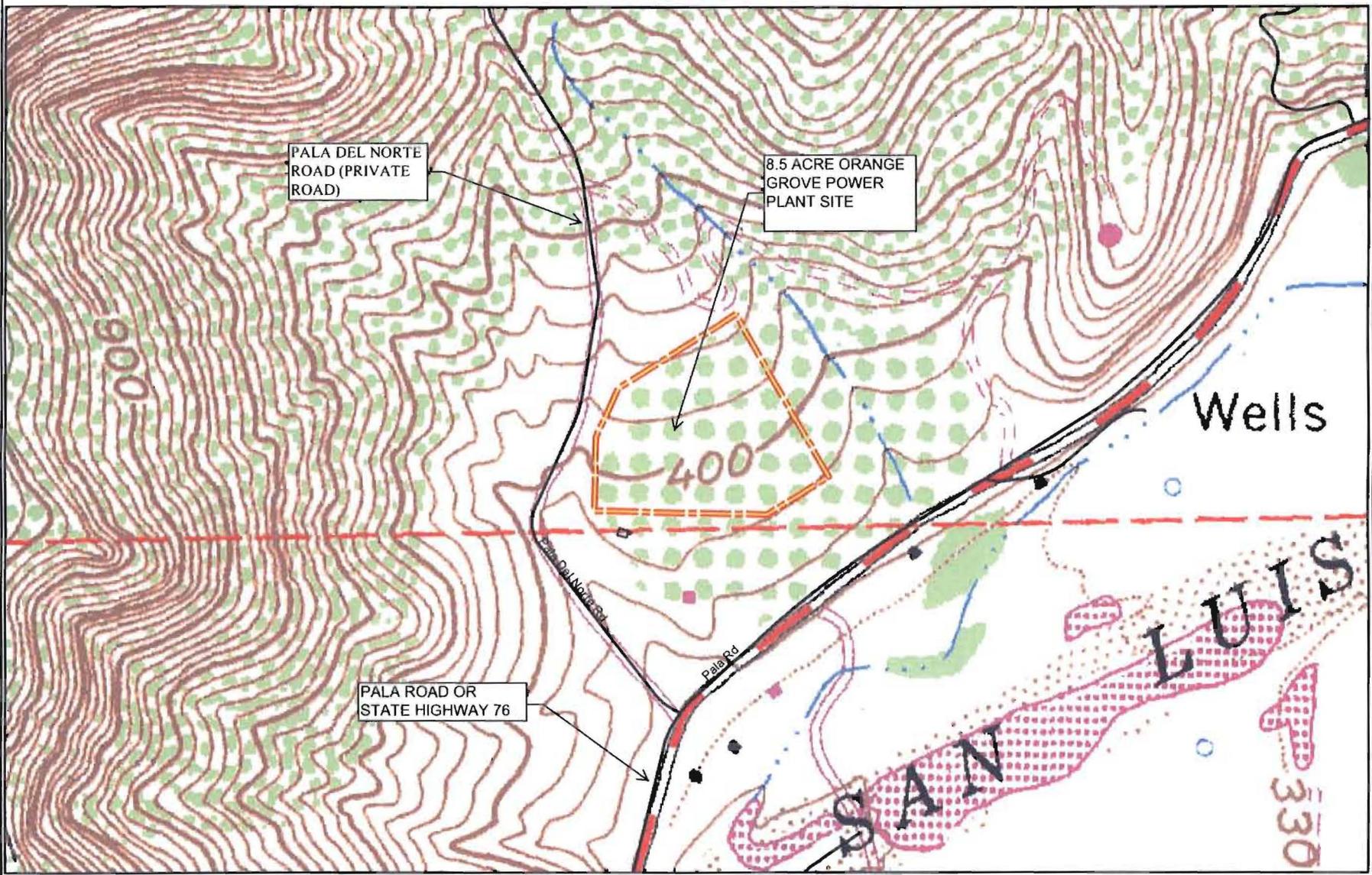
**AREA SUBJECT TO POSSIBLE  
EROSION / SEDIMENTATION HAZARDS**

**PALA DEL NORTE ROAD  
(PRIVATE ROAD)**

**SPRILLEY RAY RIVER**

**PANEL 501 OF 2375  
MAP NUMBER: 06073C0501 F  
EFFECTIVE DATE: JUNE 19, 1997**

This is an official copy of a portion of the above referenced flood map. It was extracted using F-soft On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



PALA DEL NORTE  
ROAD (PRIVATE  
ROAD)

8.5 ACRE ORANGE  
GROVE POWER  
PLANT SITE

PALA ROAD OR  
STATE HIGHWAY 76

**Legend**

- Site Boundary
- Roads

0 50 100 150 200 400  
Feet

**Sego**  
Engineers - Architects - Technicians  
Design - Construction - Field Service  
1008 E. Fwyder  
PO Box 1000  
Stewart, KS 66081-1000

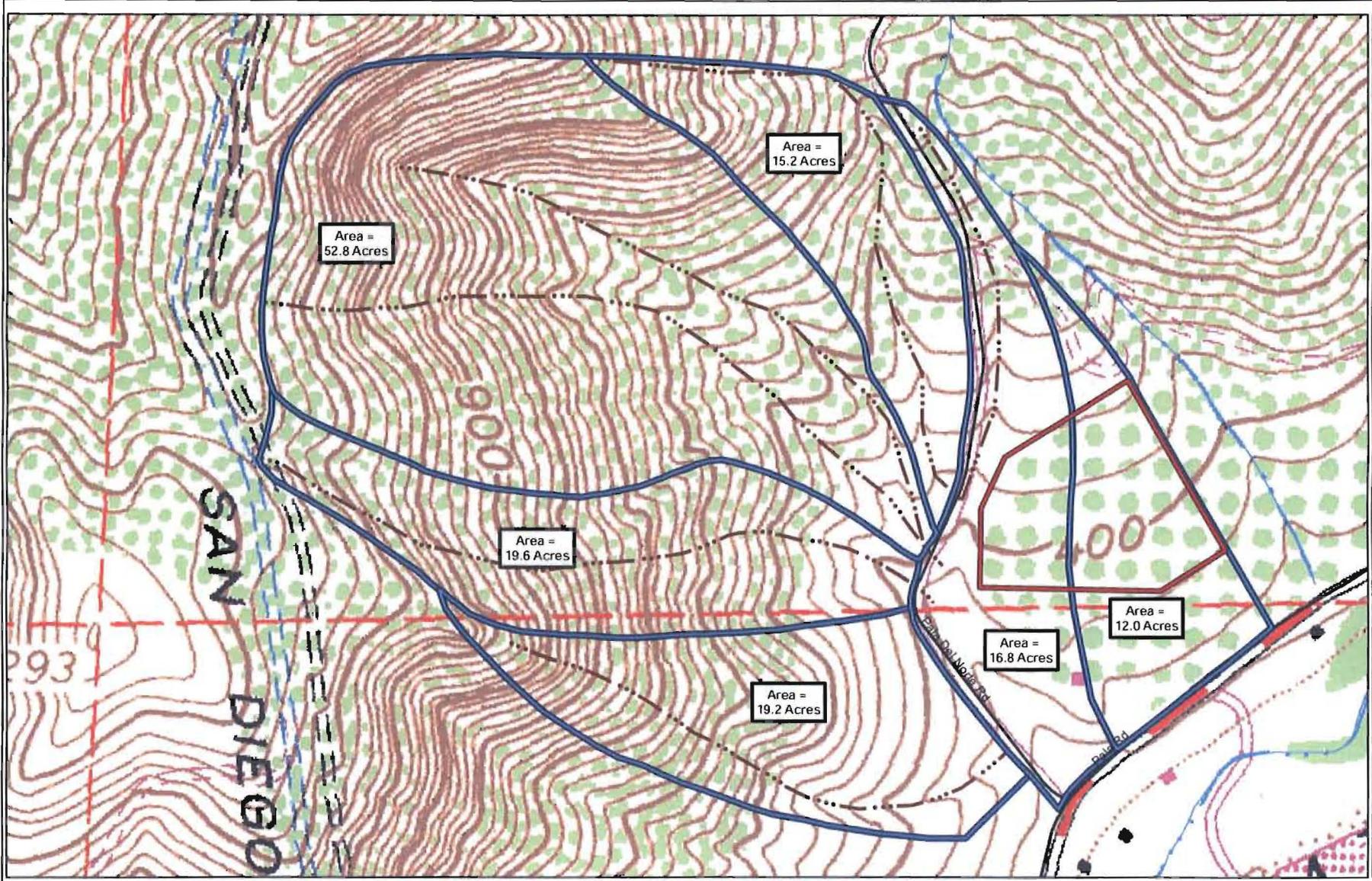
ORANGE GROVE ENERGY L.P.  
Schwanenburg, IL

MUP 07-009

**FIGURE 3  
ORANGE GROVE  
POWER PLANT**

USGS TOPOGRAPHIC  
QUADRANGLE

DESIGN BY J. LANDEL	CHECKED BY
DRAWN BY J. CLAUSSEN	DATE 11-29-07
CLIENT'S PROJECT NO. 07-201	
FILE NAME: 00_000.mxd	
DATE: 11/29/07	



REV	DATE	DESCRIPTION	DRW	CHK
1	6/11/07	LOANED FOR REVIEW	JAC	JKH
2	6/12/07	ISSUED FOR REVIEW	JAC	JKH

**Legend**

- Drainage Areas
- Drainage Path
- Site Boundary
- USGS Drainage (Blue Line)

1" = 100 Feet

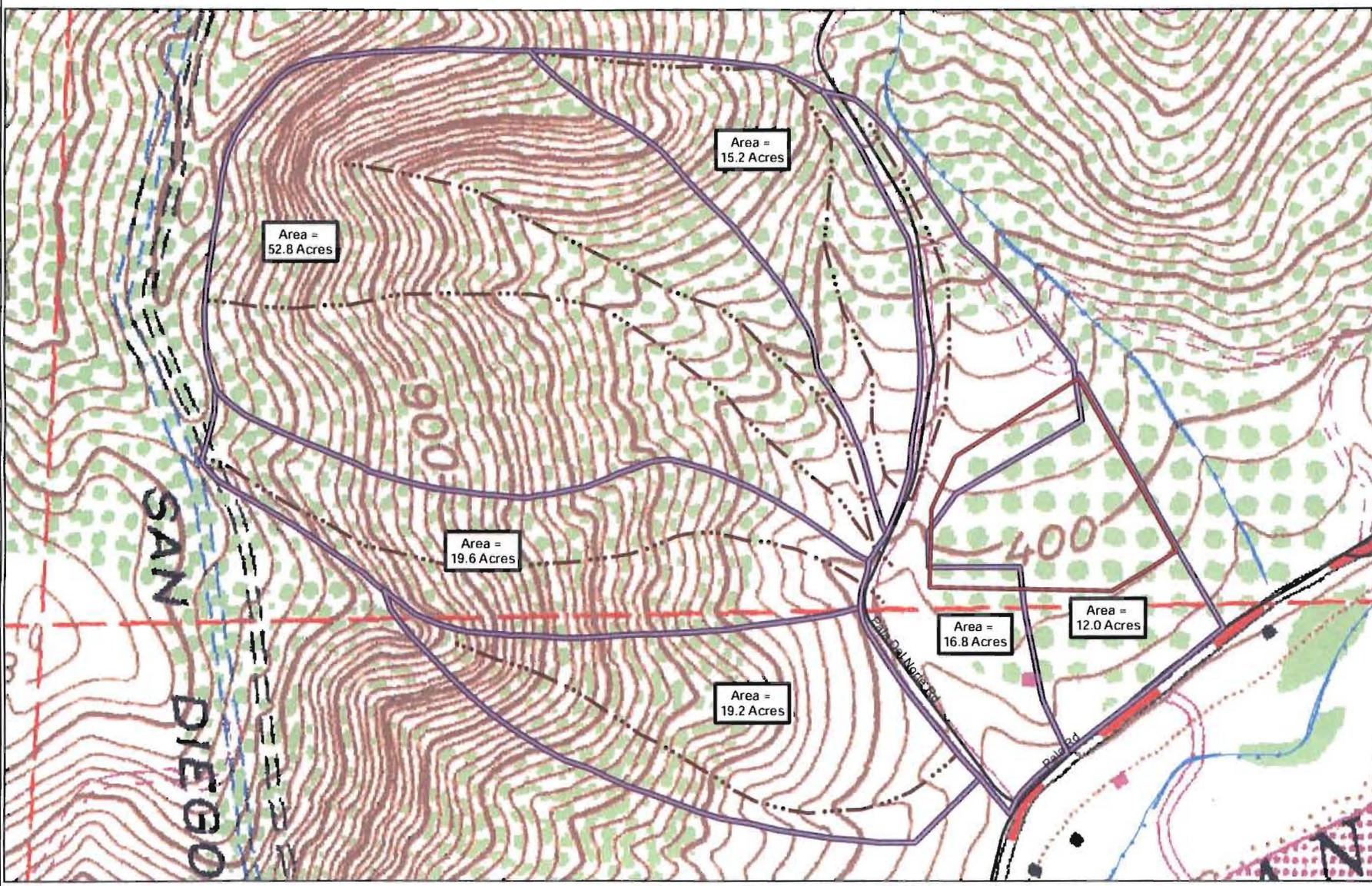
**Sega**  
 Engineers - Architects - Technicians  
 Design - Construction - Field Service  
 10041 Foster  
 P.O. Box 9000  
 Overland, KS 66069-1000

**ORANGE GROVE ENERGY L.P.**  
 Schenckmurg II

**MUP 07-009**

**FIGURE 4**  
**ORANGE GROVE**  
**PROJECT**  
**PRE-DEVELOPMENT**  
**DRAINAGE AREA**  
**MAP**

DESIGN BY J. LANGOLF	CHECKED BY
DRAWN BY J. CLAIBORN	DATE 3-05-2008
SCALE 1:1	DESIGN PROJECT NO. 07-009
FILE NAME: ora_drainage.mxd	REV D



REV	DATE	DESCRIPTION	DRW	CHK
1	8-11-09	ISSUED FOR REVIEW	AC	TME
2	8-24-09	ISSUED FOR REVIEW	A13	MAP

**Legend**

- Site Boundary
- Drainage Areas
- Drainage Path
- USGS Drainage (Blue Line)



**Sega**  
 Engineers - Architects - Technicians  
 Design - Construction - Field Service  
 9501 Foothill  
 P.O. Box 1000  
 Newark, KS 66105-1000

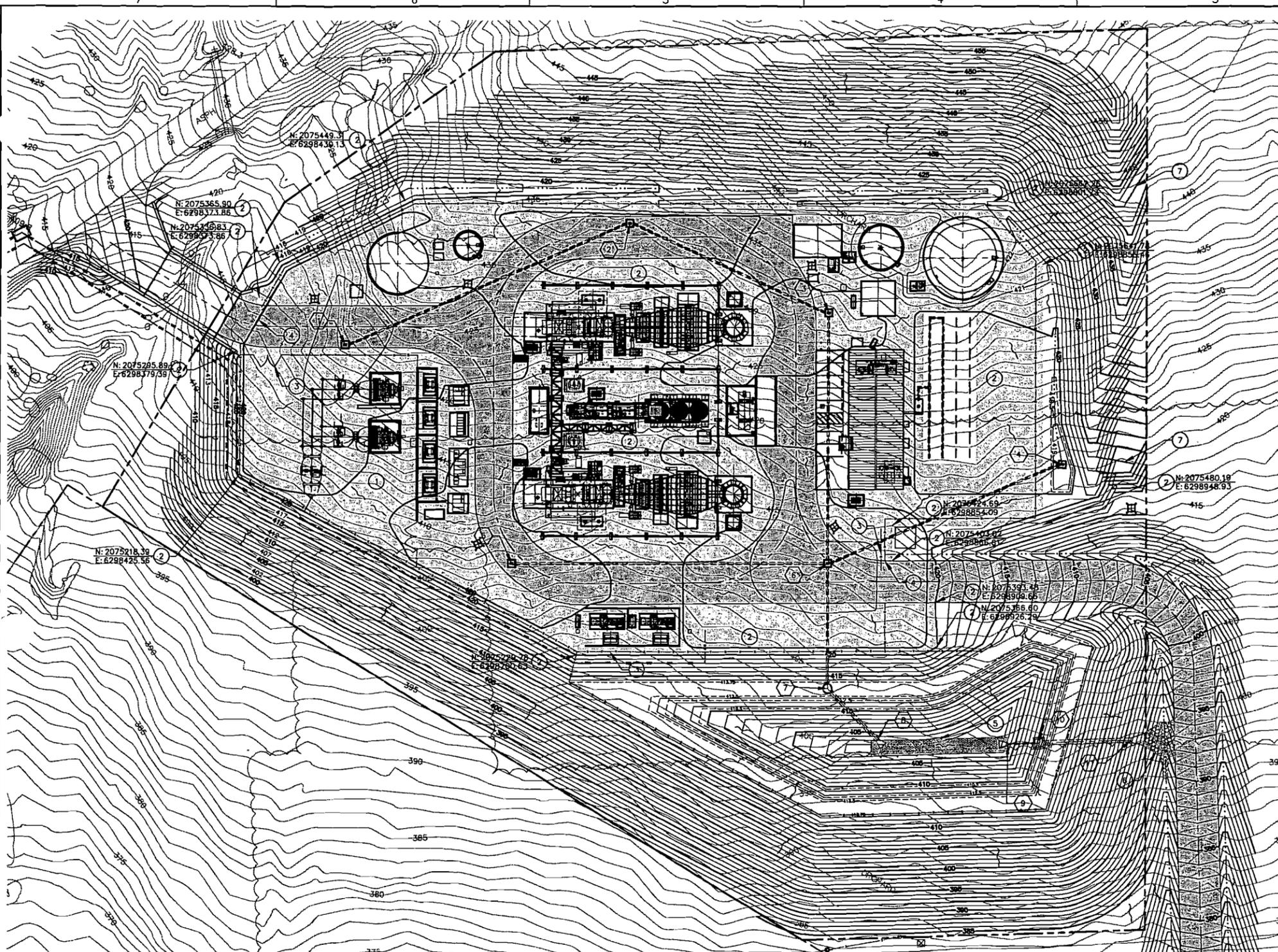
**ORANGE GROVE ENERGY L.P.**  
 Steamboiling #1

**MUP 07-009**

**FIGURE 5  
 ORANGE GROVE  
 PROJECT  
 POST-DEVELOPMENT  
 DRAINAGE AREA  
 MAP**

DESIGN BY J. LANGEL	CHECKED BY
REVISION J. CLAUDSEN	DATE 3-05-2008
LEVY D	ORANGE GROVE PROJECT NO. 07-009

\\C:\ORV\post\_development.mxd  
 421  
 D

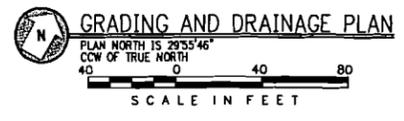


**STORM DRAINAGE NOTES:**

- ① N:2075338.34  
E:6298444.48  
INSTALL 4X4 AREA INLET  
TOP EL. = 418.4'  
FLOWLINE OUT (N) = 412.4'  
INSTALL 220 L.F. 15" DIA.  
CLASS III RCP @ 0.5% SL.  
TO STRUCTURE 2
- ② N:2075516.99  
E:6298579.87  
INSTALL 4X4 AREA INLET  
TOP EL. = 419.0'  
FLOWLINE IN (S) = 411.3'  
FLOWLINE OUT (E) = 410.8'  
INSTALL 154 L.F. 18" DIA.  
CLASS III RCP @ 0.5% SL.  
TO STRUCTURE 3
- ③ N:2075533.88  
E:6298737.01  
INSTALL 4X4 AREA INLET  
TOP EL. = 419.25'  
FLOWLINE IN (W) = 410.0'  
FLOWLINE OUT (SE) = 409.5'  
INSTALL 175 L.F. 18" DIA.  
CLASS III RCP @ 1.5% SL.  
TO STRUCTURE 6
- ④ N:2075524.83  
E:6298939.55  
INSTALL 4X4 AREA INLET  
TOP EL. = 418.75'  
FLOWLINE OUT (SW) = 412.25'  
INSTALL 181 L.F. 15" DIA.  
CLASS III RCP @ 0.5% SL.  
TO STRUCTURE 6
- ⑤ N:2075262.68  
E:6298627.25  
INSTALL 4X4 AREA INLET  
TOP EL. = 419.0'  
FLOWLINE OUT (NE) = 412.5'  
INSTALL 225 L.F. 15" DIA.  
CLASS III RCP @ 0.5% SL.  
TO STRUCTURE 6
- ⑥ N:2075377.85  
E:6298826.72  
INSTALL 4X4 AREA INLET  
TOP EL. = 418.25'  
FLOWLINE IN (W) = 411.35'  
FLOWLINE IN (NE) = 411.35'  
FLOWLINE IN (NW) = 406.85'  
FLOWLINE OUT (SE) = 406.85'  
INSTALL 84 L.F. 24" DIA.  
CLASS III RCP @ 2.0% SL.  
TO STRUCTURE 7
- ⑦ N:2075300.64  
E:6298871.50  
INSTALL STD. 6" DIA. MANHOLE TOP  
EL. 413.75'  
FLOWLINE IN (NW) = 404.6'  
FLOWLINE OUT (SE) = 404.0'  
INSTALL 49 L.F. 30" DIA.  
CLASS III RCP @ 2.5% SL.  
TO STRUCTURE 8
- ⑧ N:2075287.29  
E:6298921.76  
INSTALL TO DETENTION BASIN  
CLASS III RCP FLARED END SECTION  
FLOWLINE OUT (SE) = 403.0'
- ⑨ N:2075332.50  
E:6299005.70  
INSTALL DETENTION BASIN OUTLET FLARED  
END SECTION  
FLOWLINE IN (E) = 403.0'  
INSTALL 20 L.F. 12" DIA.  
CLASS III RCP @ 1.0% SL.  
TO STRUCTURE 10
- ⑩ N:2075344.26  
E:6299024.69  
INSTALL STORMWATER OUTLET  
CONTROL STRUCTURE TOP EL. 414.0'  
100 YR INLET EL. 412.5'  
FLOWLINE IN (E) = 402.80'  
FLOWLINE OUT (W) = 400.00'  
INSTALL 64 L.F. 36" DIA.  
CLASS III RCP @ 1.0% SL.  
TO STRUCTURE 11
- ⑪ N:2075379.51  
E:6299081.66  
INSTALL CLASS III RCP FLARED END  
SECTION  
FLOWLINE OUT (W) = 398.35'

**LEGEND**

- FOUND MONUMENT AS NOTED
- SET 1" IRON PIPE WITH "PSOMAS" PLUG UNLESS NOTED OTHERWISE
- PROPERTY LINE
- EXISTING CONTOUR
- 400 PROPOSED MAJOR CONTOUR
- 380 PROPOSED MINOR CONTOUR
- 383
- PROPOSED GAS LINE
- PROPOSED UNDERGROUND ELECTRICAL
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE (COMMUNICATIONS) LINE
- PROPOSED RCP STORMWATER PIPE
- EXISTING T&D LINE
- EXISTING FENCE
- EXISTING ROAD
- PROPOSED FENCE
- PARCEL LINE
- DRAINAGE PATH (FLOWLINE)
- EXISTING ORCHARD LINE
- PROPOSED RIPRAP
- PROPOSED CRUSHED ROCK SURFACE
- PROPOSED CRUSHED ROCK PAVEMENT
- PROPOSED CONCRETE
- PROPOSED NATIVE GROUND COVER
- PROPOSED LANDSCAPING
- DIRECTION OF FLOW
- EXISTING WINDMILL
- EXISTING OVERHEAD ELECTRICAL LINES



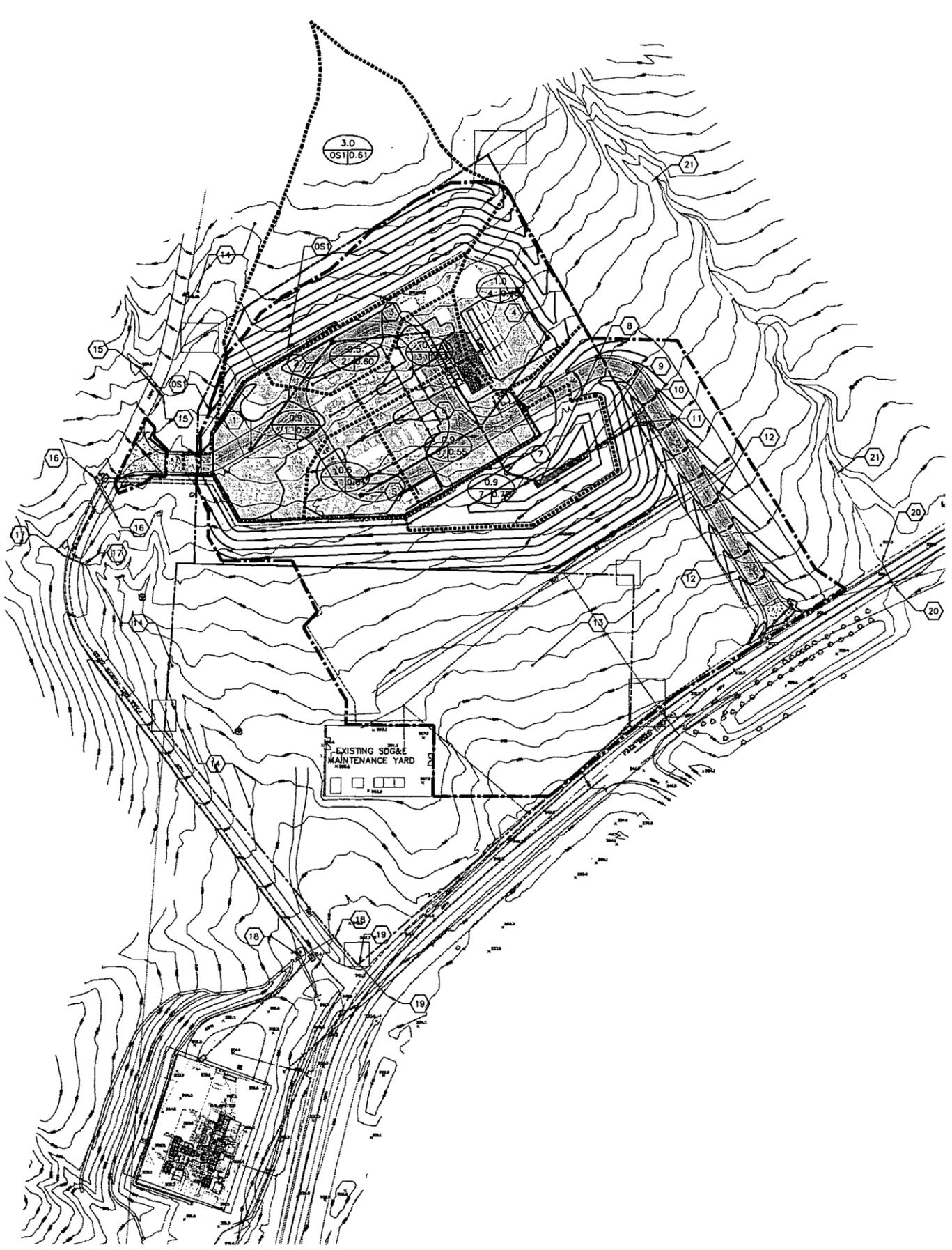
**CIVIL KEYNOTES:**

- ① INSTALL 6" CRUSHED ROCK SURFACE INSIDE SUBSTATION FENCE.
- ② INSTALL 6" CRUSHED ROCK SURFACE INSIDE COMBUSTION TURBINE AREA FENCE.
- ③ INSTALL SITE SECURITY CHAINLINK FENCE WITH 30' MANUAL SLIDE GATES, SEE SITE DETAILS DWG. C801.
- ④ INSTALL 30' SLIDE GATE WITH GATE OPERATOR AND LOOP DETECTOR. COORDINATE WITH OWNER'S SECURITY CONSULTANT.
- ⑤ INSTALL MIN. 2.3' 1/2 TON STONE RIPRAP.
- ⑥ INSTALL MIN. 3.0' 1 TON STONE RIPRAP.
- ⑦ FILL AREA EAST OF LANDSCAPING BERM FOR EXCESS CUT, MIN. 3' FROM PROPERTY LINE.

**GRADING NOTES:**

- 1. ALL CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE COUNTY OF SAN DIEGO, CALIFORNIA, LATEST EDITION.
- 2. ALL STORM SEWER LINES SHALL BE CLASS III RCP.
- 3. PIPE LENGTHS EXCLUDE END SECTIONS AND ARE MEASURED ALONG CENTERLINE OF PIPE FROM CENTER OF INSIDE FACE TO CENTER OF INSIDE FACE OF STRUCTURES.
- 4. MATCH GRADES AT EXISTING IMPROVEMENTS.
- 5. SLOPES SHALL BE MADE AT 3:1 MAXIMUM GRADE (H:V).
- 6. EROSION CONTROL STRUCTURES (SEE EROSION CONTROL PLAN DWGS. C500 & C502) SHALL BE CONSTRUCTED PRIOR TO GRADING ACTIVITIES.
- 7. DRAINAGE CHANNELS SHALL BE MINIMUM 3' FLAT BOTTOM AND SHALL HAVE 3:1 SIDE SLOPES.
- 8. NORTHING AND EASTING COORDINATES FOR MANHOLES, AREA INLETS, FIELD INLETS, AND JUNCTION BOXES ARE MEASURED TO CENTER OF STRUCTURE.
- 9. NORTHING AND EASTING COORDINATES FOR END SECTIONS ARE MEASURED TO FARTHEST EDGE OF THE END SECTION AT PIPE CENTERLINE.

REV.	DATE	DESCRIPTION	OWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
<b>PRIVATE CONTRACT</b>				
7	COUNTY OF SAN DIEGO	45		
SHEET	DEPARTMENT OF PUBLIC WORKS	SHEET		
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1736/434-1737				
APPROVED FOR NEVADIAN FIDELITY		DIRECTOR OF WORK		
DIRECTOR OF PUBLIC WORKS		THOMAS F. HEAUSER		
BY:		CAGSAS A.S.C. 3-31-08		
		L-15454		
		GRADING PERMIT NO.		
<b>PERMITS</b>				
REZONE PERMIT NO. NOT APPLICABLE				
SPECIAL USE PERMIT NO. NOT APPLICABLE				
TENTATIVE MAP NO. NOT APPLICABLE				
NOI/WDID NO. NOT YET ASSIGNED				
<b>BENCH MARK</b>				
DESCRIPTION: 3 1/2" brass disk				
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"				
LOCATION: S.E. CORNER OF MANHOLE				
RECORD FROM: FIELD BOOK 4047-04-079				
NAVD88 AND NAD83				
<b>COUNTY APPROVED CHANGES</b>				
NO.	DESCRIPTION:	APPROVED BY:	DATE:	
Sealed Only When Signed in Blue Ink				
Engineers - Architects - Technicians Design - Construction - Field Service 16041 Foster P.O. Box 1000 Stilwell, Kansas 66085-1000				
<b>ORANGE GROVE ENERGY L.P.</b>				
Schaumburg, IL				
<b>ORANGE GROVE POWER PLANT</b>				
GRADING AND DRAINAGE PLAN				
DESIGN BY:		CHECKED BY:		
J. LANGE		B. ROMINES		
DRAWN BY:		DATE:		
B. GASPERS		9-12-07		
CLIENT I.D.		SEGA PROJECT NO.		
IC000101		07-201		
CADD FILE NAME: 07201-C300.dwg				
DRAWING NO.				REV.
C300				0



**DRAINAGE AREA MAP**  
SCALE IN FEET

**KEY:**

- (EX) - EXISTING STRUCTURES
- CI - CURB INLET
- SI - CURB INLET IN SUMP
- DI - SINGLE DROP INLET
- DI-2 - DOUBLE DROP INLET
- ES - PREFABRICATED END SECTION
- JB - JUNCTION BOX
- YI - YARD INLET
- AI - AREA INLET
- MH - MANHOLE
- R - REDUCER
- FI - FIELD INLET
- BEND - PREFABRICATED VERTICAL BEND
- T.D. - TRENCH DRAIN
- G.I. - GRATE INLET
- O.C. - OVERTENSION OUTLET CONTROL STRUCTURE
- RCP - REINFORCED CONCRETE PIPE
- CMP - CORRUGATED METAL PIPE (STEEL)
- CP - CULVERT PIPE

**DESIGN NOTES:**

- (a) TIME OF CONCENTRATION  
15 MINUTES MAX.  
5 MINUTES MIN.
- (b) PIPE LENGTHS EXCLUDE END SECTIONS AND ARE MEASURED ALONG CENTERLINE OF PIPE FROM CENTER OF INSIDE FACE TO CENTER OF INSIDE FACE OF STRUCTURES.
- (c) MANNING'S ROUGHNESS COEFFICIENT = 0.013 (CONCRETE)

**LEGEND**

- FOUND MONUMENT AS NOTED
- SET 1" IRON PIPE WITH "PSOMAS" PLUG UNLESS NOTED OTHERWISE
- PROPERTY LINE
- 400 EXISTING CONTOUR
- 380 PROPOSED MAJOR CONTOUR
- 383 PROPOSED MINOR CONTOUR
- PROPOSED GAS LINE
- PROPOSED UNDERGROUND ELECTRICAL
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE (COMMUNICATIONS) LINE
- PROPOSED RCP STORMWATER PIPE
- EXISTING T&D LINE
- EXISTING FENCE
- EXISTING ROAD
- PROPOSED FENCE
- PARCEL LINE
- DRAINAGE PATH (FLOWLINE)
- EXISTING ORCHARD LINE
- PROPOSED RIPRAP
- PROPOSED CRUSHED ROCK SURFACE
- PROPOSED CRUSHED ROCK PAVEMENT
- PROPOSED CONCRETE
- PROPOSED NATIVE GROUND COVER
- PROPOSED LANDSCAPING
- A = AREA IN ACRES
- B = BASIN DESIGNATION
- C = COMPOSITE RUNOFF COEFFICIENT
- O = DESIGN POINT DESIGNATION
- DRAINAGE AREA LIMITS
- PROPOSED DISTURBED AREA
- EXISTING USGS BLUELINE

**DRAINAGE AREA NOTES:**

(OS) DRAINAGE WILL BE ROUTED AROUND SITE BY NORTH DITCH DRAINAGE CHANNEL

OFF-SITE DRAINAGE-NORTH CHANNEL

DEVELOPMENT STAGE	50 YEAR DESIGN STORM				
	STORM DRAINAGE AREA (ACRES)	PEAK RUNOFF RATE Q (CFS)	RUNOFF COEF. C	AVERAGE CHANNEL VELOCITY V (FT/S)	AVERAGE DEPTH ELEVATION (FT.)
PRE-DEV.	3.0	6.75	0.3	2.75	420.77
PRE-DEV.	3.0	11.25	0.5	3.10	420.95±
100 YEAR DESIGN STORM					
PRE-DEV.	3.0	7.65	0.3	2.87	420.16±
POST-DEV.	3.0	12.75	0.5	3.20	421.00±

- 1 INLET FOR DRAINAGE AREA.
- 2 INLET FOR DRAINAGE AREA.
- 3 INLET FOR DRAINAGE AREA.
- 4 INLET FOR DRAINAGE AREA.
- 5 INLET FOR DRAINAGE AREA.
- 6 INLET FOR DRAINAGE AREA. DRAINAGE FROM AREAS 1, 2, 3, 4, AND 5 WILL BE ROUTED VIA STORM DRAIN.
- 7 STORMWATER MANHOLE.
- 8 STORM DRAIN OUTLET AND DETENTION BASIN INLET STRUCTURE.
- 9 DETENTION BASIN OUTLET CONTROL STRUCTURE.
- 10 DETENTION BASIN EMERGENCY OUTLET STRUCTURE.
- 11 STORMWATER OUTLET.
- 12 SECONDARY ACCESS ROAD DITCHES.
- 13 AREAS SOUTH OF PARCEL LINE AND WITHIN "PROPOSED DISTURBED AREA" LINE ARE AREAS FOR "TEMPORARY CONSTRUCTION PARKING AND LAYDOWN."
- 14 EXISTING NATURAL WEST DRAINAGE CHANNEL.
- 15 EXISTING OFF-SITE CULVERT PIPES.
- 16 EXISTING OFF-SITE CULVERT PIPES.
- 17 EXISTING OFF-SITE CULVERT PIPES.
- 18 EXISTING OFF-SITE CULVERT PIPE.
- 19 EXISTING OFF-SITE CULVERT PIPE.
- 20 EXISTING OFF-SITE CULVERT PIPE.
- 21 EXISTING USGS BLUELINE OR NATURAL EAST DRAINAGE CHANNEL.

ON-SITE STORMWATER DETENTION BASIN

DEVELOPMENT STAGE	50 YEAR DESIGN STORM					
	STORM DRAINAGE AREA (ACRES)	PEAK RUNOFF RATE Q (CFS)	RUNOFF CURVE. C	DETENTION VOLUME V(FT³)	DESIGNED WATER SURFACE VOLUME (FT³)	WATER SURFACE ELEVATION (FT.)
PRE-DEV.	5.2	11.00	N/A	N/A	N/A	N/A
POST-DEV.	5.2	24.58	N/A	85,700	76,300	410.5(±)
100 YEAR DESIGN STORM						
PRE-DEV.	5.2	12.68	N/A	N/A	N/A	N/A
POST-DEV.	5.2	27.86	N/A	85,700	85,000	412.4(±)

NOTE: WATER SURFACE VOLUME DOES NOT INCLUDE ONE FOOT OF FREEBOARD.

**SUMMARY OF AREAS (ACRES):**

- 1. IMPERVIOUS AREA (INCLUDES CONCRETE ENTRANCE SECTION) - 1.00
- 2. CRUSHED ROCK SURFACE AREA (INCLUDES VEHICULAR AREA) - 3.22
- 3. DETENTION BASIN DRAINAGE AREA - 5.20
- 4. VEHICULAR AREA - 1.47
- 5. TEMPORARY CONSTRUCTION PARKING AREA AND LAYDOWN - 5.73
- 6. DISTURBED AREA - 14.83

STRUCTURE NO. (Area No.)	TYPE	50 YEAR DESIGN (PROPOSED CONSTRUCTION)					PIPE									
		AREA (acres)	RUNOFF COEF. C	C x A	K	i (in/hr)	Q (cfs)	TOTAL Q (CFS)	PIPE NO.	PIPE SIZE DIA. (Inches)	PIPE SLOPE %	PIPE LENGTH (LF)	PIPE CAP. (CFS)	VELOCITY (ft/sec)	DEPTH OF FLOW (Inches)	
1	AI	0.90	0.52	0.47	1.1	7.5	3.86	3.86	1	15	0.5	220	4.91	4.17	10.58	
2	AI	0.50	0.60	0.30	1.1	7.5	2.48	6.34	2	18	0.5	154	7.99	4.72	12.79	
3	AI	0.46	0.59	0.27	1.1	7.5	2.24	8.58	3	18	1.5	175	13.84	7.79	10.75	
4	AI	1.00	0.48	0.48	1.1	7.5	3.96	3.96	4	15	0.5	160	4.91	4.19	10.79	
5	AI	0.52	0.61	0.32	1.1	7.5	2.62	2.62	5	15	0.5	225	4.91	3.85	8.14	
6	AI	0.90	0.55	0.50	1.1	7.5	4.08	19.24	6	24	2	84	34.41	10.65	13.42	
7	MH	NA	NA	NA	NA	NA	NA	19.24	7	30	2.5	49	69.76	11.52	11.20	
8	OC	0.90	0.72	0.65	1.1	7.5	5.35	24.59								
9	OC	NA	NA	NA	NA	NA	NA									
10	MH	NA	NA	NA	NA	NA	NA	12.68 MAX	9	12	1.0	20	11.28	14.36	FULL	
11	MH	NA	NA	NA	NA	NA	NA	SEE D.C.	10	36	1.0	64	71.74	7.02	10.02	

REV.	DATE	DESCRIPTION	OWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR

**PRIVATE CONTRACT**

9 SHEET COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS 45 SHEET

GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.

CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR MONUMENT FUNDING: DIRECTOR OF PUBLIC WORKS

ENGINEER OF WORK: THOMAS F. HEANSLER, CONSULTING ENGINEER, S.E., 3-31-08

L-15454 GRADING PERMIT NO.

- PERMITS**
- REZONE PERMIT NO. NOT APPLICABLE
  - SPECIAL USE PERMIT NO. NOT APPLICABLE
  - TENTATIVE MAP NO. NOT APPLICABLE
  - NOI/WDID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
LOCATION: S.E. CORNER OF MANHOLE

RECORD FROM: FIELD BOOK 4047-04-079  
NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

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**Sega®**

Engineers - Architects - Technicians  
Design - Construction - Field Service

16041 Foster  
P.O. Box 1000  
Stillwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE POWER PLANT**

DRAINAGE AREA MAP

DESIGN BY: J. LANGEL  
CHECKED BY: B. ROMINES

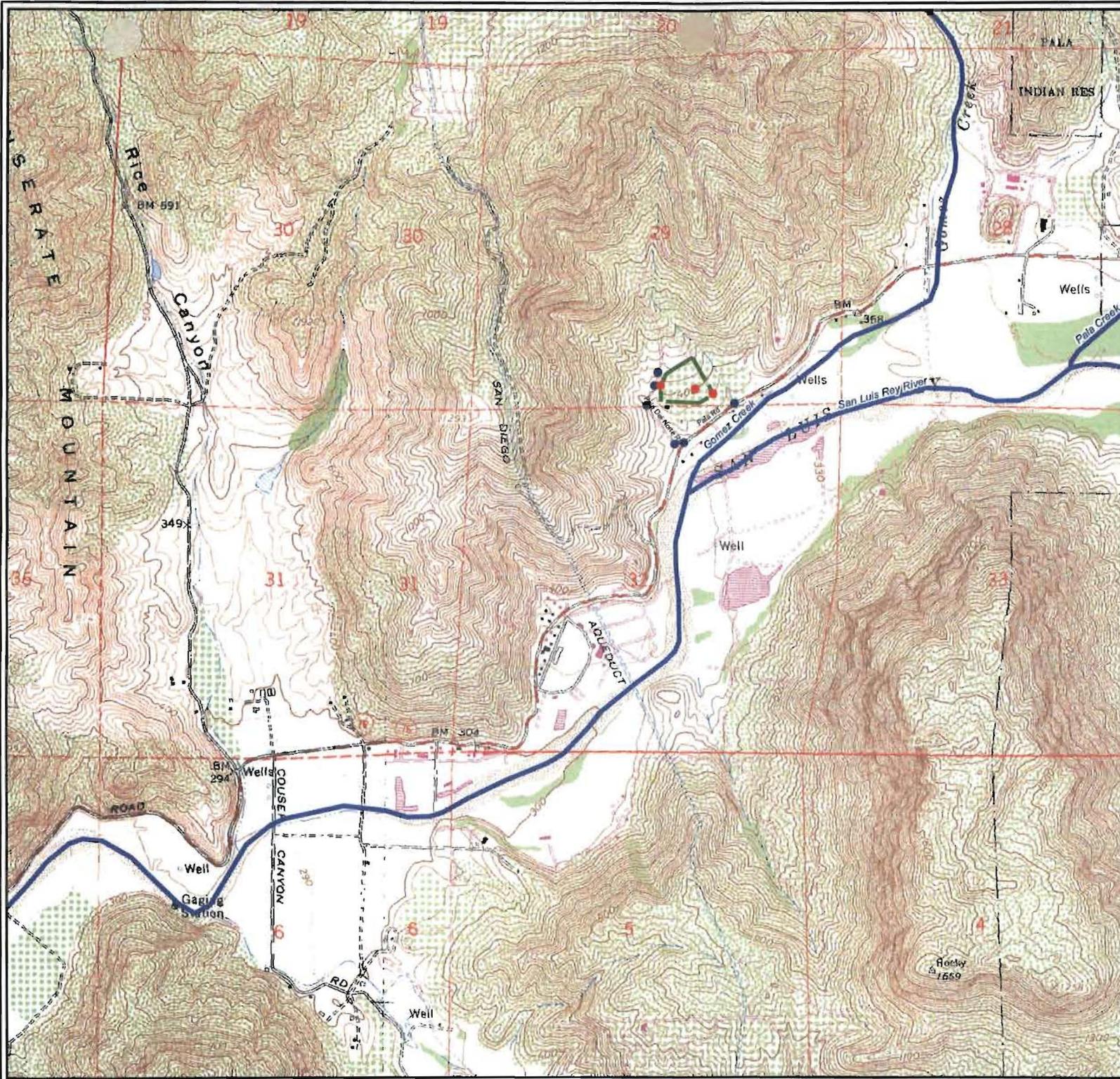
DRAWN BY: B. GASPERS  
DATE: 9-12-07

CLIENT I.D. ICC00101  
SEGA PROJECT NO. 07-201

CADD FILE NAME: 07201-C400.dwg

DRAWING NO. **C400**

REV. **0**



0 0.125 0.25 0.5



Miles  
(1:24,000)

**Legend**

- Site Boundary
- Rivers
- Pro. Flood Control Fac.
- Exist. Flood Control Fac.

\* See Sega drawing C300 for additional site flood facilities.

**ORANGE GROVE  
POWER PLANT  
FLOOD CONTROL FACILITIES**

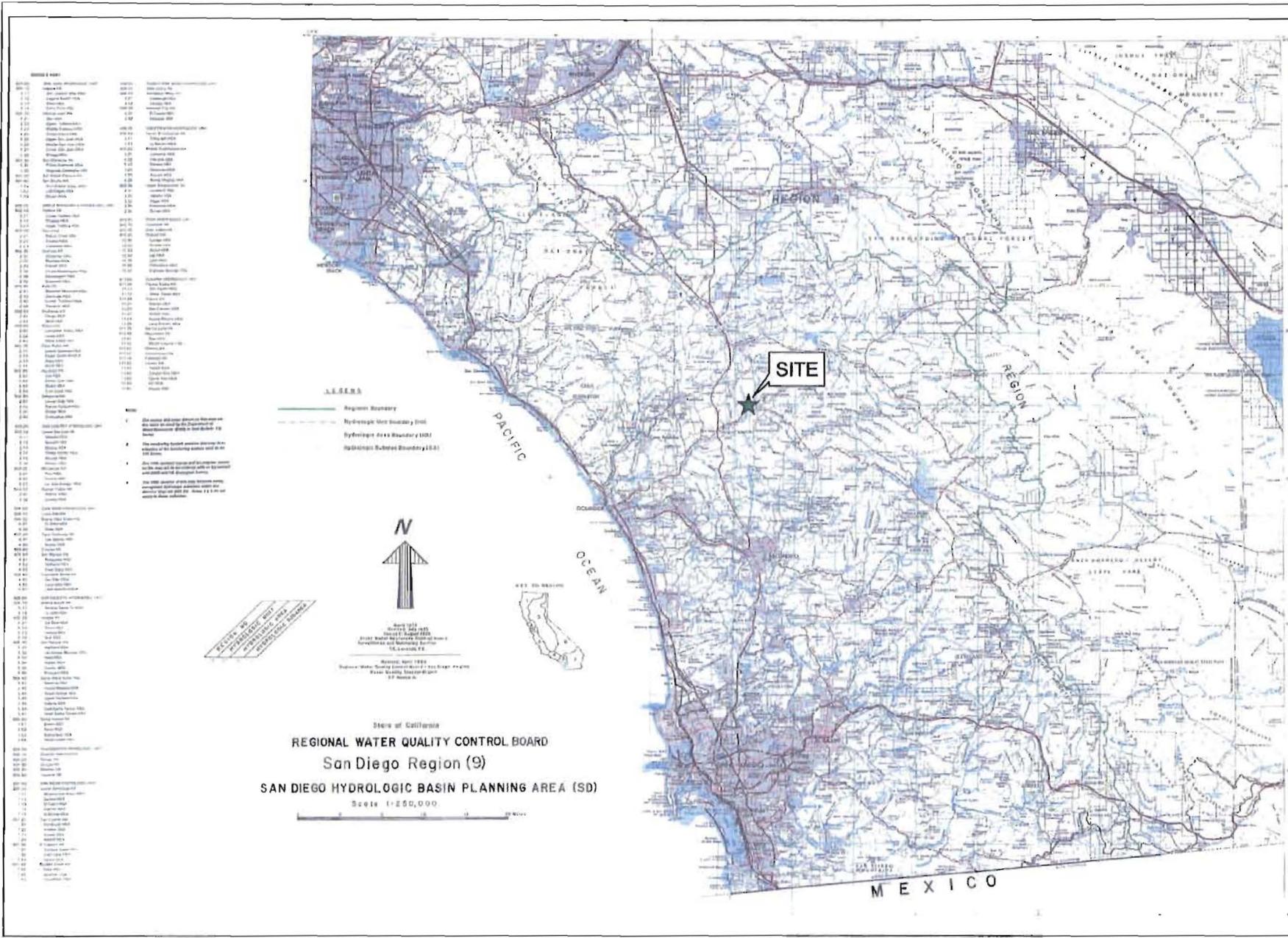
ORANGE GROVE ENERGY L.P.  
Schaumburg, IL



Engineers - Architects - Technicians  
Design - Construction - Field Service

16041 Foster  
P.O. Box 1000  
Striwell, KS 66085-1000

DESIGN BY J. LANGEL	CHECKED BY: W. ROMINES
DRAWN BY J. CLAUSSEN	DATE: 5-27-08
CLIENT I.D.	SEGA PROJECT NO 07-098
FILE NAME flood_control.mxd	
DRAWING NO	REV



**Legend**

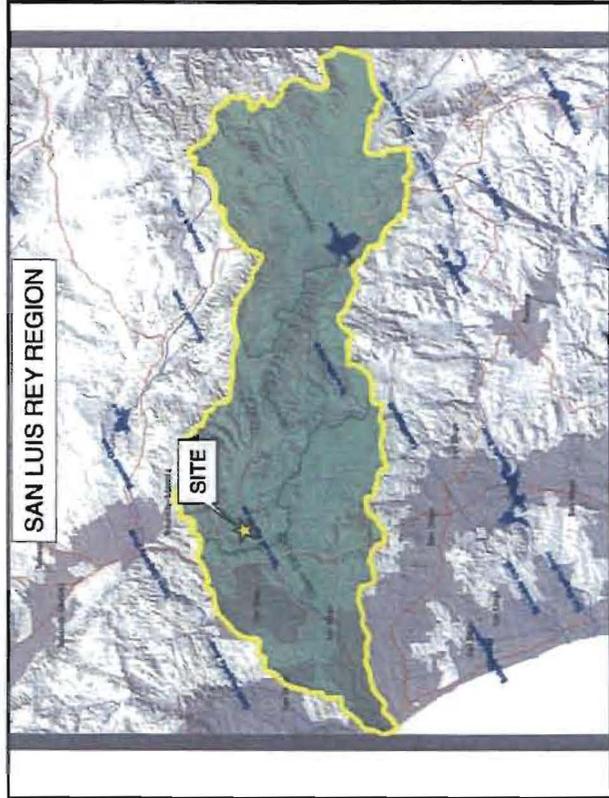
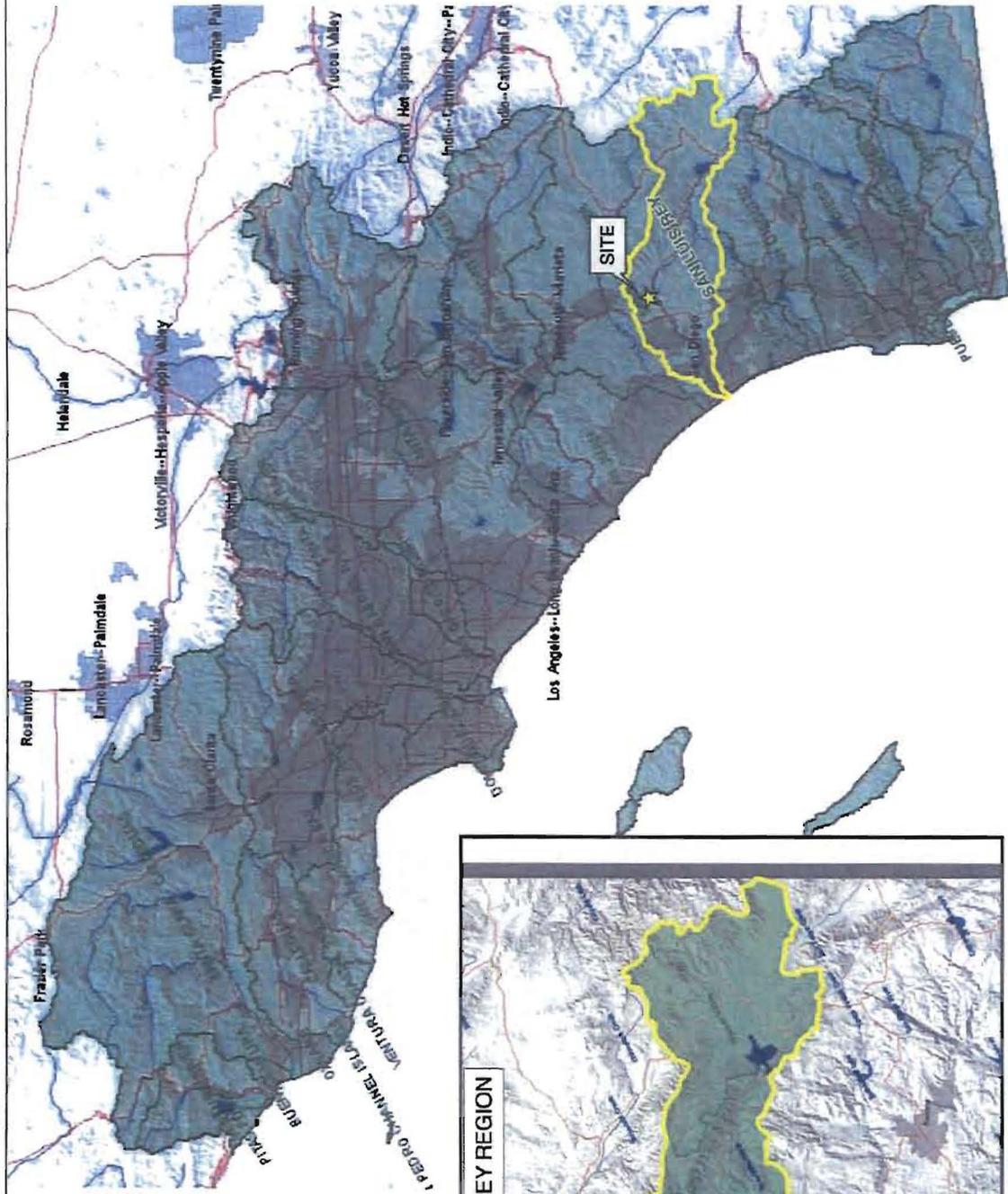
**Sega**  
 Engineers - Architects - Technicians  
 Design - Construction - Field Service  
 10041 Foster  
 P.O. Box 1000  
 Glenside, PA 19038-1000

**ORANGE GROVE ENERGY L.P.**  
 Birmingham, AL  
**MUP 07-009**

**FIGURE 6  
 ORANGE GROVE  
 POWER PLANT  
 RWQCB MAP**

DESIGN BY J. LANDEL	CHECKED BY
DRAWN BY J. CLAUSSEN	DATE 11-28-07
FILE# 10	REGISTRATION# 07-081
FILE NAME: OG_RWQCB.mxd	
PROJECT# 10	REV

Legend



Engineers - Architects - Environmental Designers - Construction - Public Services  
SAGA  
1701 E. Main Street  
Suite 100  
San Marcos, CA 92069-1000

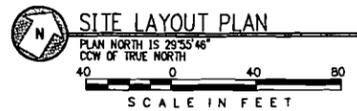
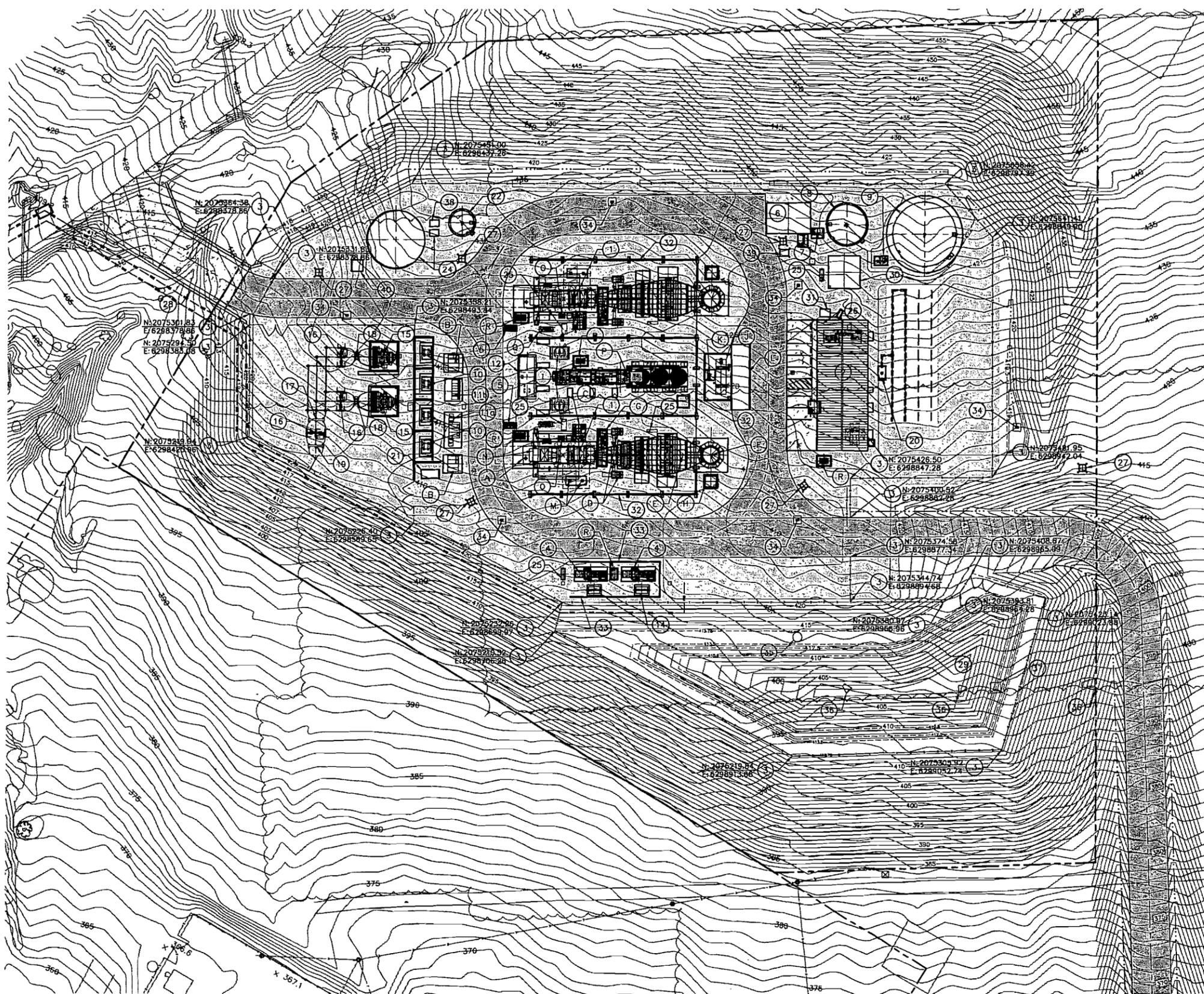
ORANGE GROVE ENERGY L.P.  
Schenectady, N.Y.

MUP 07-009

FIGURE 7  
ORANGE GROVE  
POWER PLANT  
WATERSHED MAP

Prepared by	A.L. JENSEN	Checked by	MAI
Drawn by	J.C. ALLEN	Date	11/30/07
Scale	1:50,000	Project No.	1101000001
Sheet No.	07-009	Revision	01-001

File Name: 07\_009 Watershed Map  
Drawing No.



EMISSION COORDINATES SYMBOL		
DESCRIPTION	NORTHING	EASTING
COMBUSTION TURBINE #1 (NORTH)	2075491	6298683
COMBUSTION TURBINE #2 (SOUTH)	2075387	6298743
DIESEL FIRE PUMP (±2)	2075517	6298766
BLACK START GENERATOR (±2)	2075379	6298582

KEYNOTES CONT.:

- (38) TANK TRANSFER PUMP SKID.
- (39) FRESH WATER UNLOADING PUMP SKID.
- (40) RECLAIM WATER UNLOADING PUMP SKID.

KEYNOTES:

- (1) COMBUSTION TURBINE (CT), GENERATOR, AND AUXILIARY EQUIPMENT. (FOR EACH UNIT): (HEIGHT = 43' AT THE TOP OF V&V DUCT).
- (A) MAIN TURBINE GENERATOR SKID ENCLOSURE.
- (B) 13.8KV ELECTRICAL SWITCHGEAR.
- (C) CT AUXILIARY EQUIPMENT SKID.
- (D) TEMPERING AIR FANS (2).
- (E) EMISSION CONTROL SYSTEM-SCR (HEIGHT = ±33').
- (F) STACK (HEIGHT = 80').
- (G) AMMONIA VAPORIZATION SKID.
- (H) GEMS ENCLOSURE WITH TRANSFORMER AND CALIBRATION GAS STORAGE.
- (I) CT LUBE OIL COOLER.
- (J) AMMONIA STORAGE TANK (COMMON TO BOTH CT UNITS).
- (K) AMMONIA FORWARDING PUMP SKID (COMMON TO BOTH CT UNITS).
- (L) AMMONIA UNLOADING PAD, SPILL CONTAINMENT (COMMON TO BOTH CT UNITS).
- (M) TURBINE REMOVAL SUPPORTS.
- (N) AIR INLET FILTER (HEIGHT = 34').
- (O) SPRINT SKID.
- (P) INLET AIR CHILLER AND COOLING TOWER (COMMON TO BOTH CT UNITS) (HEIGHT = 30').
- (Q) WATER INJECTION SKID.
- (R) OILY DRAIN TANK.
- (2) SERVICE BUILDING FOR CONTROL ROOM, ELECTRICAL EQUIPMENT, FIRE PUMPS, COMPRESSED AIR. (HEIGHT = 18').
- (3) SITE SECURITY CHAINLINK FENCE AND GATES.
- (4) FUEL GAS COMPRESSORS.
- (5) GAS COALESCING FILTER SKID.
- (6) CONCRETE PAD FOR TEMPORARY WATER TREATMENT TRAILER.
- (7) DEMIN. WATER PUMP SKID AND RELATED EQUIPMENT.
- (8) DEMIN. WATER STORAGE TANK (HEIGHT = 24').
- (9) RAW WATER/FIREWATER STORAGE TANK & PUMP SKID (HEIGHT = 44').
- (10) AUXILIARY TRANSFORMERS.
- (11a) 4160V ELECTRICAL SWITCHGEAR.
- (11b) 480V ELECTRICAL SWITCHGEAR.
- (12) BLACKSTART GENERATOR.
- (13) NOT USED.
- (14) FUEL GAS COMPRESSOR RECYCLE FIN-FAN COOLER.
- (15) 13.8KV-69KV GENERATOR STEP-UP TRANSFORMER (GSU).
- (16) 69KV DISCONNECT SWITCH AND SUPPORTS.
- (17) 69KV CT/VT METERING UNIT.
- (18) 69KV CIRCUIT BREAKER.
- (19) 69KV TRANSITION STRUCTURE & POTHEAD.
- (20) UNDERGROUND SANITARY SYSTEM.
- (21) TRANSFORMER DELUGE VALVE ENCLOSURE.
- (22) WASTEWATER STORAGE TANK (HEIGHT = 24').
- (23) NOT USED.
- (24) COOLING TOWER MAKEUP TANK AND PUMP SKID (HEIGHT = 36').
- (25) 480V MCC.
- (26) FIRE PUMP ROOM.
- (27) YARD FIRE HYDRANTS WITH HYDRANT MOUNT FIRE MONITORS.
- (28) BRIDGE.
- (29) STORMWATER DETENTION BASIN.
- (30) RO WATER TREATMENT AREA.
- (31) DIESEL STORAGE TANK - DIESEL FIRE PUMP.
- (32) GAS TURBINE SOUND WALL (HEIGHT = 48').
- (33) GAS COMPRESSOR SOUND WALL (HEIGHT = 24').
- (34) AREA INLET.
- (35) STORM MANHOLE.
- (36) STORM END SECTION.
- (37) STORMWATER OUTLET CONTROL STRUCTURE.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR

**PRIVATE CONTRACT**

3 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
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GRADING PLAN FOR:  
THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROMOTE THE PLANT WITH FUEL ENERGY.  
CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR WORKING DRAWINGS DIRECTOR OF PUBLIC WORKS	DESIGNER OF WORK THOMAS F. HEASLER CNSA3633 REG. 3-31-08
---	--

L-15454  
CONTRACT PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
SPECIAL USE PERMIT NO. NOT APPLICABLE  
TENTATIVE MAP NO. NOT APPLICABLE  
NOI/WQID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
"M.W.D. OF SOUTHERN CA S.D. 6-69 1993"  
LOCATION: S.E. CORNER OF MANHOLE  
RECORD FROM: FIELD BOOK 4047-04-079  
NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

Engineers - Architects - Technicians  
Design - Construction - Field Service

16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE POWER PLANT**

SITE LAYOUT PLAN

DESIGN BY: B. ROMINES	CHECKED BY: J. BONDANK
DRAWN BY: B. GASPERS	DATE: 9-12-07
CLIENT I.D. 1CC00101	SEGA PROJECT NO. 07-201

CADD FILE NAME: 07201-C100.dwg

DRAWING NO. <b>C100</b>	REV. <b>0</b>
----------------------------	------------------

**PROPOSED FOUNDATIONS 2008**

Foundation ID Number	Foundation Descriptions	Quantity	Length (feet)	Width (feet)	Total Surface Area (SF)
1	Turbine Generator (TG)	2	66	20.5	2706
A	Man TG Skid Enclosure	2	On same foundation as 1		0
B	13.8KV Switchgear	2	14	14.5	406
C	Auxiliary Skid	2	42	14.5	1218
D	Tempering Air Skid	4	9	5	180
E	Emissions Control System - SCR SIZE 1	2	15	33	990
	SIZE 2	2	10.5	28	588
	SIZE 3	2	9.5	21	399
F	Stack	2	27	27	1458
G	Ammonia Evaporation Skid	2	9	25	450
H	Control Emissions Monitoring System (CEMS)	2	10.5	10.5	221
I	Fin Fan Cooler Slab	2	16	10.5	336
J	Ammonia Storage Tank	1	35	20	700
K	Ammonia Forwarding Pump Skid	1	On same foundation as J		0
L	Ammonia Unloading Pad, Spill Containment	2	50	15	1500
M	Turbine Removal Supports	2	16	7	224
N	Air Inlet Filter	2	On same foundation as C		0
O	Sprint Skid	2	6	4.5	54
P	Inlet Air Chiller and Cooling Towers (Fnd. Part 1)	1	37.5	16.5	619
	Continued (Fnd. Part 2)	1	52.5	11	578
Q	Water Injection Skid	2	12	5	120
R	Oily Drain Tank	5	12	8.5	510
2	Service Building, Electrical Equipment, and Parking	1	102	65	6630
3	Site Security Fence and Gates	230	3		723
4	Fuel Gas Compressor	2	26	11	572
5	Coalescing Filter Skid	2	11	5.5	121
6	Concrete Pad for Trailor	1	35	24	840
7	Demin. Water Pump Skid	3	9	9	243
8	Demin. Water Storage Tank	1	855		855
9	Demin. Water Firewater Storage Tank	1	2815		2815
10	Auxiliary Transformer & 480V Switchgear	4	15	10	600
11a	15KV Switchgear	1	18	28	504
11b	480KV Switchgear	1	18	17	306
12	Blackstart Generator	1	33.67	14	471
13	SDG&E Gas Metering Station	1	63	12	756
14	Fuel Gas Compressor/Recycle Fin-Fan Cooler	1	11	8	88
15	13.8KV-69KV Step-up Transformer	2	23.63	22.67	1071
16	69KV Disconnect Switch and Supports	3	4	4	48
17	69KV Circuit Breaker	1	7	7	49
18	69KV Circuit Switcher	2	4	4	32
19	69KV Pothead	1	13	6	78
20	Underground Sanitary System (Septic)	1	11	6	66
21	Transformer Deluge Valve Enclosure	2	15	8	240
22	Wastewater Storage Tank	1	352		352

**PROPOSED FOUNDATIONS 2008 - Continuec**

Foundation ID Number	Foundation Descriptions	Quantity	Length (feet)	Width (feet)	Total Surface Area (SF)
23	Not Used	1	0	0	0
24	Cooling Tower Makeup Tank and Pump Skid	1	1590		1590
	Add on to Tank	1	5	8	40
25	480KV MCC	4	9	3	108
26	Fire Pump Room (In Service BLDG)	0	On same foundation as 2		0
27	Yard Fire Hydrant	6	6	6	216
28	Bridge	1	60	40	2400
29	Stormwater Detention Basin	1	Not Impervious		0
30	RO Water Treatment Area	1	25	25	625
31	Diesel Tank	1	8	6	48
32	Gas Turbine Sound Wall	1	600		600
33	Gas Compressor Sound Wall	1	170		170
34	Area Inlet	6	6	6	216
35	Storm Manhole	1	7	7	49
36	Storm End Section	2	7	7	98
37	Stomrwater Outlet Control Structure	1	8	8	64
38	Tank Transfer Pump Skid	1	5	8	40
39	Fresh Water Uloading Pump Skid	1	5	7	35
40	Reclaim Water Unloading Pump Skid	1	9	9	81
	Piperack	3	7	4	84
	Piperack	6	10	4	240
	Fire Wall	1	1000	1	1000
<b>SUM =</b>					<b>38421</b>
<b>Approx. =</b>					<b>43,500</b>

Note: For Foundation Locations see Project No. 07-201 Plan Drawing C100 - Site Layout Plan.

**Total Impervious Area for the Detention Basin Drainage Area = 43,500 square feet (1.0 Acres)**

## Cross Section for North Trapezoidal Channel

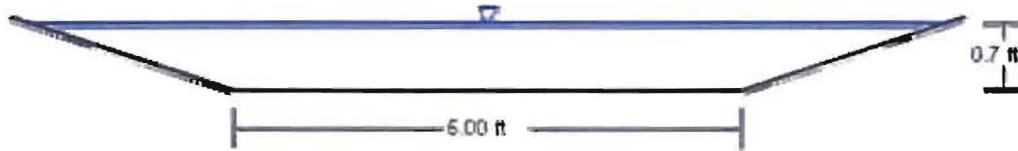
### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient	0.035
Channel Slope	0.01000 ft/ft
Normal Depth	0.7 ft
Left Side Slope	3.00 ft/ft (H:V)
Right Side Slope	3.00 ft/ft (H:V)
Bottom Width	5.00 ft
Discharge	12.75 ft <sup>3</sup> /s

### Cross Section Image



V:1  
H:1

## Worksheet for North Trapezoidal Channel

### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient	0.035	
Channel Slope	0.01000	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	5.00	ft
Discharge	12.75	ft <sup>3</sup> /s

### Results

Normal Depth	0.7	ft
Flow Area	4.71	ft <sup>2</sup>
Wetted Perimeter	9.25	ft
Top Width	9.03	ft
Critical Depth	0.53	ft
Critical Slope	0.02443	ft/ft
Velocity	2.71	ft/s
Velocity Head	0.11	ft
Specific Energy	0.79	ft
Froude Number	0.66	
Flow Type	Subcritical	

### GVF Input Data

Downstream Depth	0.0	ft
Length	0.00	ft
Number Of Steps	0	

### GVF Output Data

Upstream Depth	0.0	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.7	ft
Critical Depth	0.53	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.02443	ft/ft

## Cross Section for Secondary Access East Trapezoidal Channel

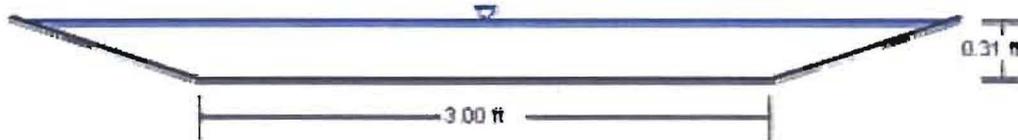
### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient	0.035
Channel Slope	0.10000 ft/ft
Normal Depth	0.31 ft
Left Side Slope	3.00 ft/ft (H:V)
Right Side Slope	3.00 ft/ft (H:V)
Bottom Width	3.00 ft
Discharge	6.36 ft <sup>3</sup> /s

### Cross Section Image



V: 1  
H: 1

## Worksheet for Secondary Access East Trapezoidal Channel

### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient	0.035	
Channel Slope	0.10000	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	3.00	ft
Discharge	6.36	ft <sup>3</sup> /s

### Results

Normal Depth	0.31	ft
Flow Area	1.21	ft <sup>2</sup>
Wetted Perimeter	4.95	ft
Top Width	4.85	ft
Critical Depth	0.44	ft
Critical Slope	0.02646	ft/ft
Velocity	5.25	ft/s
Velocity Head	0.43	ft
Specific Energy	0.74	ft
Froude Number	1.85	
Flow Type	Supercritical	

### GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

### GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.31	ft
Critical Depth	0.44	ft
Channel Slope	0.10000	ft/ft
Critical Slope	0.02646	ft/ft

## Cross Section for Secondary Access West Trapezoidal Channel

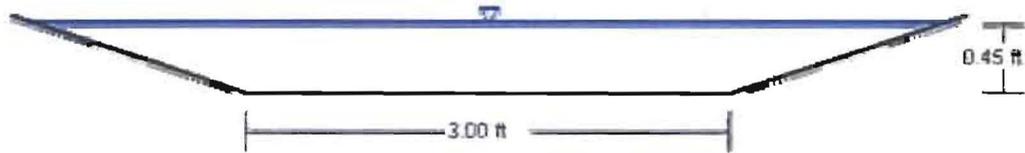
### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient	0.035
Channel Slope	0.10000 ft/ft
Normal Depth	0.45 ft
Left Side Slope	3.00 ft/ft (H:V)
Right Side Slope	3.00 ft/ft (H:V)
Bottom Width	3.00 ft
Discharge	12.56 ft <sup>3</sup> /s

### Cross Section Image



V.1  
H.1

## Worksheet for Secondary Access West Trapezoidal Channel

### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient	0.035	
Channel Slope	0.10000	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	3.00	ft
Discharge	12.56	ft <sup>3</sup> /s

### Results

Normal Depth	0.45	ft
Flow Area	1.94	ft <sup>2</sup>
Wetted Perimeter	5.83	ft
Top Width	5.69	ft
Critical Depth	0.65	ft
Critical Slope	0.02394	ft/ft
Velocity	6.46	ft/s
Velocity Head	0.65	ft
Specific Energy	1.10	ft
Froude Number	1.95	
Flow Type	Supercritical	

### GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

### GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.45	ft
Critical Depth	0.65	ft
Channel Slope	0.10000	ft/ft
Critical Slope	0.02394	ft/ft

## Worksheet for 24" CMP under Pala Del Norte then under Bridge

### Project Description

Friction Method                      Manning Formula  
Solve For                                Full Flow Capacity

### Input Data

Roughness Coefficient	0.024	
Channel Slope	0.08217	ft/ft
Normal Depth	2.00	ft
Diameter	2.00	ft
Discharge	35.12	ft <sup>3</sup> /s

### Results

Discharge	35.12	ft <sup>3</sup> /s
Normal Depth	2.00	ft
Flow Area	3.14	ft <sup>2</sup>
Wetted Perimeter	6.28	ft
Top Width	0.00	ft
Critical Depth	1.92	ft
Percent Full	100.0	%
Critical Slope	0.07162	ft/ft
Velocity	11.18	ft/s
Velocity Head	1.94	ft
Specific Energy	3.94	ft
Froude Number	0.00	
Maximum Discharge	37.78	ft <sup>3</sup> /s
Discharge Full	35.12	ft <sup>3</sup> /s
Slope Full	0.08217	ft/ft
Flow Type	SubCritical	

### GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

### GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%

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## Worksheet for 24" CMP under Pala Del Norte then under Bridge

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### GVF Output Data

Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.00	ft
Critical Depth	1.92	ft
Channel Slope	0.08217	ft/ft
Critical Slope	0.07162	ft/ft

## Worksheet for 14" (2) Steel under PDN Road then under Bridge

### Project Description

Friction Method                      Manning Formula  
Solve For                                Full Flow Capacity

### Input Data

Roughness Coefficient	0.013	
Channel Slope	0.06033	ft/ft
Normal Depth	1.17	ft
Diameter	1.17	ft
Discharge	13.20	ft <sup>3</sup> /s

### Results

Discharge	13.20	ft <sup>3</sup> /s
Normal Depth	1.17	ft
Flow Area	1.07	ft <sup>2</sup>
Wetted Perimeter	3.67	ft
Top Width	0.00	ft
Critical Depth	1.16	ft
Percent Full	100.0	%
Critical Slope	0.05570	ft/ft
Velocity	12.35	ft/s
Velocity Head	2.37	ft
Specific Energy	3.54	ft
Froude Number	0.00	
Maximum Discharge	14.20	ft <sup>3</sup> /s
Discharge Full	13.20	ft <sup>3</sup> /s
Slope Full	0.06033	ft/ft
Flow Type	SubCritical	

### GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

### GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%

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## Worksheet for 14" (2) Steel under PDN Road then under Bridge

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### GVF Output Data

Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.17	ft
Critical Depth	1.16	ft
Channel Slope	0.06033	ft/ft
Critical Slope	0.05570	ft/ft





## Worksheet for Proposed North side of Bridge Irregular Section

### Results

Elevation Range	411.00 to 416.30 ft	
Flow Area	9.87	ft <sup>2</sup>
Wetted Perimeter	12.09	ft
Top Width	11.60	ft
Normal Depth	1.67	ft
Critical Depth	2.05	ft
Critical Slope	0.03807	ft/ft
Velocity	8.61	ft/s
Velocity Head	1.15	ft
Specific Energy	2.82	ft
Froude Number	1.65	
Flow Type	Supercritical	

### GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

### GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.67	ft
Critical Depth	2.05	ft
Channel Slope	0.11000	ft/ft
Critical Slope	0.03807	ft/ft

### Messages

Notes

The discharge of 85 cfs is the post-development discharge. Assumptions: Top Bridge El. = 420.00', Bottom Bridge El. = 416.5, 1 foot of freeboard is required. Thus, the max water elevation of 415.5'. If the bridge top elevation is 420 then there is 6.44' available for the bridge deck and beams. The channel roughness coefficient of 0.5 was for a Natural stream, stony notes or Very rough channel, with grass.





## Worksheet for Proposed Centerline of Bridge Irregular Section

### Results

Elevation Range	409.20 to 415.10 ft	
Flow Area	9.93	ft <sup>2</sup>
Wetted Perimeter	12.27	ft
Top Width	11.87	ft
Normal Depth	1.32	ft
Critical Depth	1.69	ft
Critical Slope	0.03768	ft/ft
Velocity	8.56	ft/s
Velocity Head	1.14	ft
Specific Energy	2.46	ft
Froude Number	1.65	
Flow Type	Supercritical	

### GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

### GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.32	ft
Critical Depth	1.69	ft
Channel Slope	0.11000	ft/ft
Critical Slope	0.03768	ft/ft





## Worksheet for Proposed Southside of Bridge Irregular Section

### Results

Elevation Range	407.40 to 412.90 ft	
Flow Area	10.68	ft <sup>2</sup>
Wetted Perimeter	14.71	ft
Top Width	14.45	ft
Normal Depth	1.22	ft
Critical Depth	1.53	ft
Critical Slope	0.03842	ft/ft
Velocity	7.96	ft/s
Velocity Head	0.99	ft
Specific Energy	2.20	ft
Froude Number	1.63	
Flow Type	Supercritical	

### GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

### GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.22	ft
Critical Depth	1.53	ft
Channel Slope	0.11000	ft/ft
Critical Slope	0.03842	ft/ft

## Worksheet for Circular 15" Pipe - 1

### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient                      0.013  
Channel Slope                                0.00500    ft/ft  
Diameter                                        15.00    in  
Discharge                                        3.86    ft<sup>3</sup>/s

### Results

Normal Depth                                10.577    in  
Flow Area                                        0.92    ft<sup>2</sup>  
Wetted Perimeter                            2.49    ft  
Top Width                                        1.14    ft  
Critical Depth                                0.79    ft  
Percent Full                                    70.5    %  
Critical Slope                                0.00666    ft/ft  
Velocity                                        4.17    ft/s  
Velocity Head                                0.27    ft  
Specific Energy                                1.15    ft  
Froude Number                                0.82  
Maximum Discharge                        4.91    ft<sup>3</sup>/s  
Discharge Full                                4.57    ft<sup>3</sup>/s  
Slope Full                                        0.00357    ft/ft  
Flow Type                                        SubCritical

### GVF Input Data

Downstream Depth                        0.000    in  
Length                                        0.00    ft  
Number Of Steps                            0

### GVF Output Data

Upstream Depth                            0.000    in  
Profile Description  
Profile Headloss                            0.00    ft  
Average End Depth Over Rise            0.00    %  
Normal Depth Over Rise                70.51    %  
Downstream Velocity                        Infinity    ft/s  
Upstream Velocity                            Infinity    ft/s

---

## Worksheet for Circular 15" Pipe - 1

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### GVF Output Data

Normal Depth	10.577	in
Critical Depth	0.79	ft
Channel Slope	0.00500	ft/ft
Critical Slope	0.00666	ft/ft

## Cross Section for Circular 15" Pipe - 1

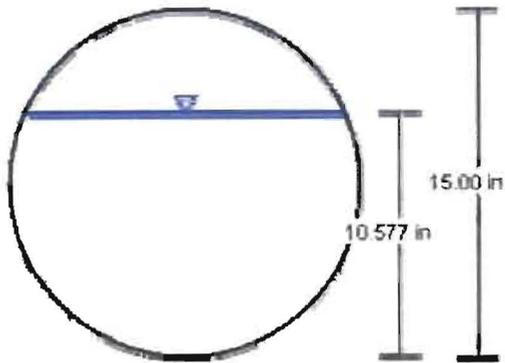
### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient	0.013
Channel Slope	0.00500 ft/ft
Normal Depth	10.577 in
Diameter	15.00 in
Discharge	3.86 ft <sup>3</sup> /s

### Cross Section Image



v 1   
H 1

## Worksheet for Circular 18" Pipe - 2

### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient                      0.013  
Channel Slope                                0.00500    ft/ft  
Diameter                                        18.00    in  
Discharge                                      6.34    ft<sup>3</sup>/s

### Results

Normal Depth                                12.789    in  
Flow Area                                      1.34    ft<sup>2</sup>  
Wetted Perimeter                            3.01    ft  
Top Width                                      1.36    ft  
Critical Depth                                0.97    ft  
Percent Full                                  71.1    %  
Critical Slope                                0.00639    ft/ft  
Velocity                                        4.72    ft/s  
Velocity Head                                0.35    ft  
Specific Energy                              1.41    ft  
Froude Number                                0.84  
Maximum Discharge                        7.99    ft<sup>3</sup>/s  
Discharge Full                                7.43    ft<sup>3</sup>/s  
Slope Full                                      0.00364    ft/ft  
Flow Type                                      SubCritical

### GVF Input Data

Downstream Depth                        0.000    in  
Length                                        0.00    ft  
Number Of Steps                            0

### GVF Output Data

Upstream Depth                            0.000    in  
Profile Description  
Profile Headloss                            0.00    ft  
Average End Depth Over Rise            0.00    %  
Normal Depth Over Rise                71.05    %  
Downstream Velocity                      Infinity    ft/s  
Upstream Velocity                        Infinity    ft/s

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## Worksheet for Circular 18" Pipe - 2

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### GVF Output Data

Normal Depth	12.789	in
Critical Depth	0.97	ft
Channel Slope	0.00500	ft/ft
Critical Slope	0.00639	ft/ft

## Cross Section for Circular 18" Pipe - 2

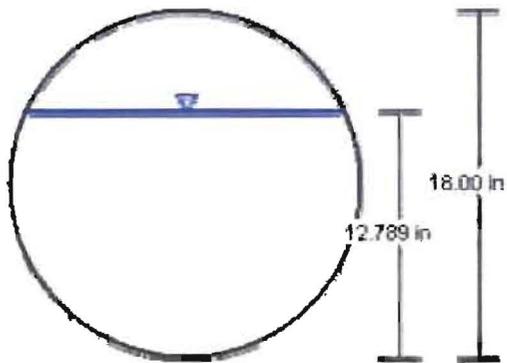
### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient	0.013
Channel Slope	0.00500 ft/ft
Normal Depth	12.789 in
Diameter	18.00 in
Discharge	6.34 ft <sup>3</sup> /s

### Cross Section Image



V 1  
H 1

## Worksheet for Circular 18" Pipe - 3

### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient                      0.013  
Channel Slope                                0.01500    ft/ft  
Diameter                                        18.00    in  
Discharge                                        8.58    ft<sup>3</sup>/s

### Results

Normal Depth                                10.750    in  
Flow Area                                        1.10    ft<sup>2</sup>  
Wetted Perimeter                                2.65    ft  
Top Width                                        1.47    ft  
Critical Depth                                1.13    ft  
Percent Full                                        59.7    %  
Critical Slope                                0.00787    ft/ft  
Velocity                                        7.79    ft/s  
Velocity Head                                0.94    ft  
Specific Energy                                1.84    ft  
Froude Number                                1.59  
Maximum Discharge                                13.84    ft<sup>3</sup>/s  
Discharge Full                                12.86    ft<sup>3</sup>/s  
Slope Full                                        0.00667    ft/ft  
Flow Type                                        SuperCritical

### GVF Input Data

Downstream Depth                                0.000    in  
Length                                        0.00    ft  
Number Of Steps                                0

### GVF Output Data

Upstream Depth                                0.000    in  
Profile Description  
Profile Headloss                                0.00    ft  
Average End Depth Over Rise                                0.00    %  
Normal Depth Over Rise                                59.72    %  
Downstream Velocity                                Infinity    ft/s  
Upstream Velocity                                Infinity    ft/s

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## Worksheet for Circular 18" Pipe - 3

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### GVF Output Data

Normal Depth	10.750	in
Critical Depth	1.13	ft
Channel Slope	0.01500	ft/ft
Critical Slope	0.00787	ft/ft

## Cross Section for Circular 18" Pipe - 3

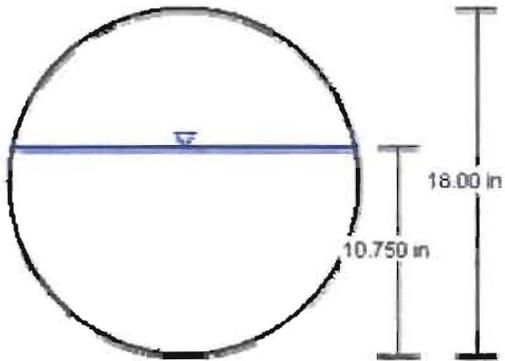
### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient	0.013
Channel Slope	0.01500 ft/ft
Normal Depth	10.750 in
Diameter	18.00 in
Discharge	8.58 ft <sup>3</sup> /s

### Cross Section Image



V 1   
H 1

## Worksheet for Circular 15" Pipe - 4

### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient                      0.013  
Channel Slope                                0.00500    ft/ft  
Diameter                                        15.00    in  
Discharge                                        3.96    ft<sup>3</sup>/s

### Results

Normal Depth                                10.790    in  
Flow Area                                        0.94    ft<sup>2</sup>  
Wetted Perimeter                                2.53    ft  
Top Width                                        1.12    ft  
Critical Depth                                0.81    ft  
Percent Full                                        71.9    %  
Critical Slope                                0.00674    ft/ft  
Velocity                                        4.19    ft/s  
Velocity Head                                0.27    ft  
Specific Energy                                1.17    ft  
Froude Number                                0.81  
Maximum Discharge                                4.91    ft<sup>3</sup>/s  
Discharge Full                                4.57    ft<sup>3</sup>/s  
Slope Full                                        0.00376    ft/ft  
Flow Type                                        SubCritical

### GVF Input Data

Downstream Depth                                0.000    in  
Length                                        0.00    ft  
Number Of Steps                                0

### GVF Output Data

Upstream Depth                                0.000    in  
Profile Description  
Profile Headloss                                0.00    ft  
Average End Depth Over Rise                                0.00    %  
Normal Depth Over Rise                                71.93    %  
Downstream Velocity                                Infinity    ft/s  
Upstream Velocity                                Infinity    ft/s

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## Worksheet for Circular 15" Pipe - 4

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### GVF Output Data

Normal Depth	10.790	in
Critical Depth	0.81	ft
Channel Slope	0.00500	ft/ft
Critical Slope	0.00674	ft/ft

## Cross Section for Circular 15" Pipe - 4

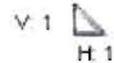
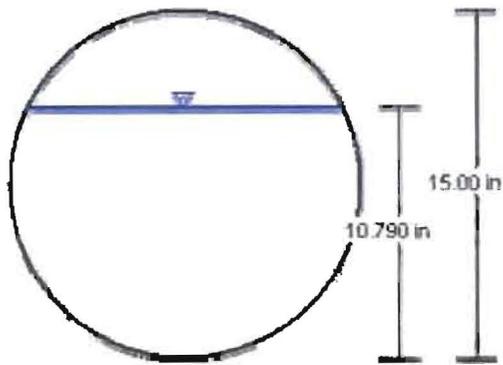
### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient	0.013
Channel Slope	0.00500 ft/ft
Normal Depth	10.790 in
Diameter	15.00 in
Discharge	3.96 ft <sup>3</sup> /s

### Cross Section Image



## Worksheet for Circular 15" Pipe - 5

### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient                      0.013  
Channel Slope                                0.00500    ft/ft  
Diameter                                        15.00    in  
Discharge                                        2.62    ft<sup>3</sup>/s

### Results

Normal Depth                                8.144    in  
Flow Area                                        0.68    ft<sup>2</sup>  
Wetted Perimeter                            2.07    ft  
Top Width                                        1.25    ft  
Critical Depth                                0.65    ft  
Percent Full                                    54.3    %  
Critical Slope                                0.00580    ft/ft  
Velocity                                        3.85    ft/s  
Velocity Head                                0.23    ft  
Specific Energy                                0.91    ft  
Froude Number                                0.92  
Maximum Discharge                        4.91    ft<sup>3</sup>/s  
Discharge Full                                4.57    ft<sup>3</sup>/s  
Slope Full                                        0.00165    ft/ft  
Flow Type                                        SubCritical

### GVF Input Data

Downstream Depth                        0.000    in  
Length                                        0.00    ft  
Number Of Steps                            0

### GVF Output Data

Upstream Depth                            0.000    in  
Profile Description  
Profile Headloss                            0.00    ft  
Average End Depth Over Rise            0.00    %  
Normal Depth Over Rise                54.29    %  
Downstream Velocity                        Infinity    ft/s  
Upstream Velocity                        Infinity    ft/s

---

## Worksheet for Circular 15" Pipe - 5

---

### GVF Output Data

Normal Depth	8.144	in
Critical Depth	0.65	ft
Channel Slope	0.00500	ft/ft
Critical Slope	0.00580	ft/ft

## Cross Section for Circular 15" Pipe - 5

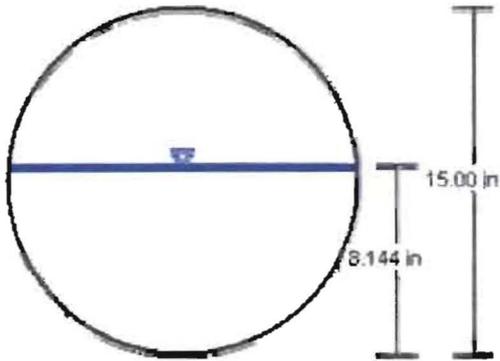
### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient	0.013
Channel Slope	0.00500 ft/ft
Normal Depth	8.144 in
Diameter	15.00 in
Discharge	2.62 ft <sup>3</sup> /s

### Cross Section Image



v 1   
H 1

## Worksheet for Circular 24" Pipe - 6

### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient                      0.013  
Channel Slope                                0.02000    ft/ft  
Diameter                                        24.00    in  
Discharge                                      19.24    ft<sup>3</sup>/s

### Results

Normal Depth                                13.418    in  
Flow Area                                      1.81    ft<sup>2</sup>  
Wetted Perimeter                            3.38    ft  
Top Width                                      1.99    ft  
Critical Depth                                1.58    ft  
Percent Full                                  55.9    %  
Critical Slope                                0.00779    ft/ft  
Velocity                                        10.65    ft/s  
Velocity Head                                1.76    ft  
Specific Energy                              2.88    ft  
Froude Number                                1.97  
Maximum Discharge                        34.41    ft<sup>3</sup>/s  
Discharge Full                                31.99    ft<sup>3</sup>/s  
Slope Full                                      0.00723    ft/ft  
Flow Type                                      SuperCritical

### GVF Input Data

Downstream Depth                        0.000    in  
Length                                        0.00    ft  
Number Of Steps                            0

### GVF Output Data

Upstream Depth                            0.000    in  
Profile Description  
Profile Headloss                            0.00    ft  
Average End Depth Over Rise            0.00    %  
Normal Depth Over Rise                55.91    %  
Downstream Velocity                      Infinity    ft/s  
Upstream Velocity                        Infinity    ft/s

---

## Worksheet for Circular 24" Pipe - 6

---

### GVF Output Data

Normal Depth	13.418	in
Critical Depth	1.58	ft
Channel Slope	0.02000	ft/ft
Critical Slope	0.00779	ft/ft

## Cross Section for Circular 24" Pipe - 6

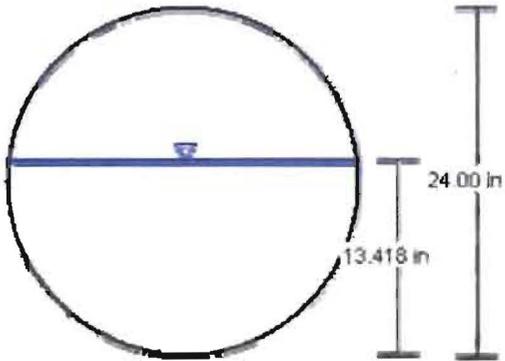
### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient	0.013
Channel Slope	0.02000 ft/ft
Normal Depth	13.418 in
Diameter	24.00 in
Discharge	19.24 ft <sup>3</sup> /s

### Cross Section Image



V:1   
H:1

## Worksheet for Circular 30" Pipe - 7

### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient                      0.013  
Channel Slope                                0.02500    ft/ft  
Diameter                                      30.00    in  
Discharge                                    19.24    ft<sup>3</sup>/s

### Results

Normal Depth                                11.197    in  
Flow Area                                    1.67    ft<sup>2</sup>  
Wetted Perimeter                            3.29    ft  
Top Width                                    2.42    ft  
Critical Depth                               1.49    ft  
Percent Full                                37.3    %  
Critical Slope                               0.00500    ft/ft  
Velocity                                      11.52    ft/s  
Velocity Head                                2.06    ft  
Specific Energy                              2.99    ft  
Froude Number                               2.44  
Maximum Discharge                        69.76    ft<sup>3</sup>/s  
Discharge Full                               64.85    ft<sup>3</sup>/s  
Slope Full                                    0.00220    ft/ft  
Flow Type                                    SuperCritical

### GVF Input Data

Downstream Depth                        0.000    in  
Length                                        0.00    ft  
Number Of Steps                            0

### GVF Output Data

Upstream Depth                            0.000    in  
Profile Description  
Profile Headloss                            0.00    ft  
Average End Depth Over Rise            0.00    %  
Normal Depth Over Rise                37.32    %  
Downstream Velocity                      Infinity    ft/s  
Upstream Velocity                        Infinity    ft/s

---

## Worksheet for Circular 30" Pipe - 7

---

### GVF Output Data

Normal Depth	11.197	in
Critical Depth	1.49	ft
Channel Slope	0.02500	ft/ft
Critical Slope	0.00500	ft/ft

## Cross Section for Circular 30" Pipe - 7

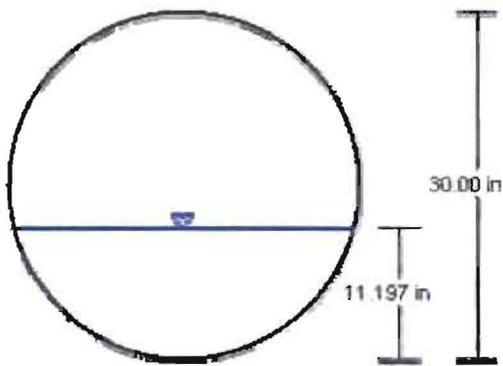
### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient	0.013
Channel Slope	0.02500 ft/ft
Normal Depth	11.197 in
Diameter	30.00 in
Discharge	19.24 ft <sup>3</sup> /s

### Cross Section Image



v 1   
H 1



## Worksheet for Outlet Control Struc. Rectangular Weir

### Project Description

Solve For Headwater Elevation

### Input Data

Discharge		27.86	ft <sup>3</sup> /s
Crest Elevation		412.40	ft
Tailwater Elevation		398.35	ft
Weir Coefficient		3.33	US
Crest Length		18.00	ft
Number Of Contractions	2		

### Results

Headwater Elevation		413.00	ft
Headwater Height Above Crest		0.60	ft
Tailwater Height Above Crest		-14.05	ft
Flow Area		10.85	ft <sup>2</sup>
Velocity		2.57	ft/s
Wetted Perimeter		19.21	ft
Top Width		18.00	ft

### Messages

Notes The discharge 27.86 is the 100 year storm for the 5.2 acre site entering the Detention Basin

## Worksheet for 100-year 36" Pipe - 10

### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	36.00	in
Discharge	39.51	ft <sup>3</sup> /s

### Results

Normal Depth	19.939	in
Flow Area	4.02	ft <sup>2</sup>
Wetted Perimeter	5.04	ft
Top Width	2.98	ft
Critical Depth	2.05	ft
Percent Full	55.4	%
Critical Slope	0.00536	ft/ft
Velocity	9.83	ft/s
Velocity Head	1.50	ft
Specific Energy	3.16	ft
Froude Number	1.49	
Maximum Discharge	71.74	ft <sup>3</sup> /s
Discharge Full	66.69	ft <sup>3</sup> /s
Slope Full	0.00351	ft/ft
Flow Type	SuperCritical	

### GVF Input Data

Downstream Depth	0.000	in
Length	0.00	ft
Number Of Steps	0	

### GVF Output Data

Upstream Depth	0.000	in
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	55.39	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s

---

## Worksheet for 100-year 36" Pipe - 10

---

### GVF Output Data

Normal Depth	19.939	in
Critical Depth	2.05	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00536	ft/ft

## Cross Section for 100-year 36" Pipe - 10

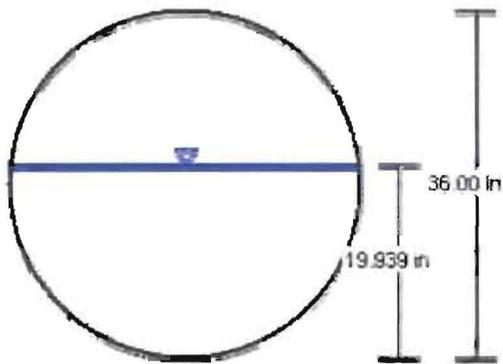
### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Roughness Coefficient	0.013
Channel Slope	0.01000 ft/ft
Normal Depth	19.939 in
Diameter	36.00 in
Discharge	39.51 ft <sup>3</sup> /s

### Cross Section Image



v 1   
H 1

WinTR-55 Current Data Description

--- Identification Data ---

User: Langel Date: 12/21/2007  
Project: 07-0201 Units: English  
SubTitle: Orange Grove Power Plant - Detention Basin  
Areal Units: Acres  
State: California  
County: San Diego  
Filename: N:\2007\07201\enr\ce\Stormwater Design\OG - Pre-Dev. Detention Basin Design.w55

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
Pre-Dev	Pre-Development	Outlet	5.2	76	0.140

Total area: 5.20 (ac)

--- Storm Data ---

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.5	3.5	4.0	5.0	5.5	6.0	.0

Storm Data Source: User-provided custom storm data  
Rainfall Distribution Type: Type I  
Dimensionless Unit Hydrograph: <standard>

Langel

07-0201  
Orange Grove Power Plant - Detention Basin  
San Diego County, California

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.5	3.5	4.0	5.0	5.5	6.0	.0

Storm Data Source: User-provided custom storm data  
Rainfall Distribution Type: Type I  
Dimensionless Unit Hydrograph: <standard>

Langel

07-0201  
Orange Grove Power Plant - Detention Basin  
San Diego County, California

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period	
	50-Yr (cfs)	100-Yr (cfs)
-----		
SUBAREAS		
Pre-Dev	10.97	12.68
REACHES		
OUTLET	10.97	12.68

Langel

07-0201  
Orange Grove Power Plant - Detention Basin  
San Diego County, California

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period	
	50-Yr (cfs) (hr)	100-Yr (cfs) (hr)

---

SUBAREAS		
Pre-Dev	10.97 9.96	12.68 9.96

REACHES

OUTLET	10.97	12.68
--------	-------	-------

Langel

07-0201  
Orange Grove Power Plant - Detention Basin  
San Diego County, California

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
Pre-Dev	5.20	0.140	76	Outlet	Pre-Development
Total Area: 5.20 (ac)					

Langel

07-0201  
Orange Grove Power Plant - Detention Basin  
San Diego County, California

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
-----							
Pre-Dev							
SHEET	100	0.1000	0.170				0.107
SHALLOW	600	0.1000	0.050				0.033
						Time of Concentration	0.140
							=====

Langel

07-0201

Orange Grove Power Plant - Detention Basin  
San Diego County, California

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Pre-Dev	Woods - grass combination	(poor) C	3.5	82
	Sagebrush (w/ grass understory)	(fair) C	1.7	63
	Total Area / Weighted Curve Number		5.2	76
			==	==

WinTR-55 Current Data Description

--- Identification Data ---

User: Langel Date: 12/21/2007  
Project: 07-0201 Units: English  
SubTitle: Orange Grove Power Plant - Detention Basin Areal Units: Acres  
State: California  
County: San Diego  
Filename: N:\2007\07201\enr\ce\Stormwater Design\OG - Post-Dev. Detention Basin Design.w55

--- Sub-Area Data ---

Name	Description	Reach	Area (ac)	RCN	Tc
Post-Dev	Post-Development	Outlet	5.2	83	0.189

Total area: 5.20 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.5	3.5	4.0	5.0	5.5	6.0	.0

Storm Data Source: User-provided custom storm data  
Rainfall Distribution Type: Type I  
Dimensionless Unit Hydrograph: <standard>

Langel

07-0201  
Orange Grove Power Plant - Detention Basin  
San Diego County, California

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.5	3.5	4.0	5.0	5.5	6.0	.0

Storm Data Source: User-provided custom storm data  
Rainfall Distribution Type: Type I  
Dimensionless Unit Hydrograph: <standard>

Langel

07-0201  
Orange Grove Power Plant - Detention Basin  
San Diego County, California

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period	
	50-Yr (cfs)	100-Yr (cfs)
-----		
SUBAREAS		
Post-Dev	12.98	14.66
REACHES		
OUTLET	12.98	14.66

Langel

07-0201

Orange Grove Power Plant - Detention Basin  
San Diego County, California

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period	
	50-Yr (cfs) (hr)	100-Yr (cfs) (hr)

---

SUBAREAS		
Post-Dev	12.98	14.66
	10.00	9.99

REACHES

OUTLET	12.98	14.66
--------	-------	-------

Langel

07-0201  
Orange Grove Power Plant - Detention Basin  
San Diego County, California

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
Post-Dev	5.20	0.189	83	Outlet	Post-Development
-----					
Total Area:	5.20 (ac)				

Langel

07-0201  
Orange Grove Power Plant - Detention Basin  
San Diego County, California

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
Post-Dev							
SHEET	100	0.0050	0.050				0.134
SHALLOW	100	0.0050	0.050				0.024
CHANNEL	500	0.0100	0.013	1.77	4.71	6.039	0.023
CHANNEL	200	0.0100	0.013	3.14	6.28	6.944	0.008
						Time of Concentration	0.189
							=====

Langel

07-0201

Orange Grove Power Plant - Detention Basin  
San Diego County, California

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Post-Dev	Paved parking lots, roofs, driveways	C	.8	98
	Gravel (w/ right-of-way)	C	2.7	89
	Brush - brush, weed, grass mix (good)	C	1.7	65
	Total Area / Weighted Curve Number		5.2 ===	83 ==

**Orange Grove Power Plant  
 Sega Project No. 07-0098  
 MUP 07-009  
 Orange Grove Energy, L.P.  
 Pre- and Post-Development Drainage Calculations**

**Name of printed page file:  
 TR20.out**

**STORM 50-Year**

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Elevation (ft)	Peak Flow Time (hr)	Rate (cfs)	Rate (csm)
Pre-Dev	0.008		2.949		9.96	10.97	1349.93

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Elevation (ft)	Peak Flow Time (hr)	Rate (cfs)	Rate (csm)
Post-Dev	0.008		3.626		10.00	12.98	1596.74

**STORM 100-Year**

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Elevation (ft)	Peak Flow Time (hr)	Rate (cfs)	Rate (csm)
Pre-Dev	0.008		3.376		9.96	12.68	1559.32

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Elevation (ft)	Peak Flow Time (hr)	Rate (cfs)	Rate (csm)
Post-Dev	0.008		4.088		9.99	14.66	1803.03

Quantity Volume Calculations for the Dry-Detention Basin utilizing TR-20

Drainage Area      5.2      acres

Output	24-Hour, 50-Year Storm		Pre vs. Post Differential
	Pre-Development	Post-Development	
Discharge (cfs)	10.97	12.98	2.01
Runoff Volume (inches)	2.95	3.63	0.677
Runoff Volume (acre - feet)	1.28	1.57	0.29
Runoff Volume (ft <sup>3</sup> )	55665	68444	12779
Estimated TOTALS (ft <sup>3</sup> )	55,700	68,500	12,800

Output	24-Hour, 100-Year Storm		Pre vs. Post Differential
	Pre-Development	Post-Development	
Discharge (cfs)	12.68	14.66	1.98
Runoff Volume (inches)	3.38	4.09	0.712
Runoff Volume (acre - feet)	1.46	1.77	0.31
Runoff Volume (ft <sup>3</sup> )	63725	77165	13440
Estimated TOTALS (ft <sup>3</sup> )	63,700	77,200	13,500

Max Discharge	77,200
Change Pre vs. Post	13,500

**Energy Dissipator Calculations - 100-year Storm Event**

Table from the San Diego County Drainage Design Manual - July 2005  
 Page 7-1 and 7-2

Outlet Velocity (ft/s)	Rock Classification	Size of Stone, $d_{50}$ (ft) <sup>(a)</sup>
6-10	No. 2 Backing	0.7
10-12	¼ Ton	1.8
12-14	½ Ton	2.3
14-16	1 Ton	2.9
16-18	2 Ton	3.6

**7.3.1.1 San Diego Regional Standard Drawing**

*Apron Length and Width.* Riprap apron length and width are a function of the diameter or vertical dimension of the outlet pipe or culvert. The apron length shall be determined using the following equation, with a minimum length of 10 feet:

$$L_a = 4D_o \tag{7-1}$$

where ...  
 $L_a$  = minimum riprap apron length (ft); and  
 $D_o$  = diameter or width of culvert or storm drain (ft).

**1 Proposed Detention Basin Inlet (Storm Drain Pipes Outlet)**

Description	Units	Value
Pipe Diameter (D)	Inches (")	30
Velocity (V)	Feet per Second (ft/s)	11.91
Discharge (Q)	Cubic Feet per Second (ft <sup>3</sup> /s)	21.8

**Rock Classification    Size of Stone  $d_{50}$  (ft)    Length (ft)**

Riprap Size:                    1/2 Ton \*                    2.3                    10 Min.

**2 Proposed Detention Basin Outlet**

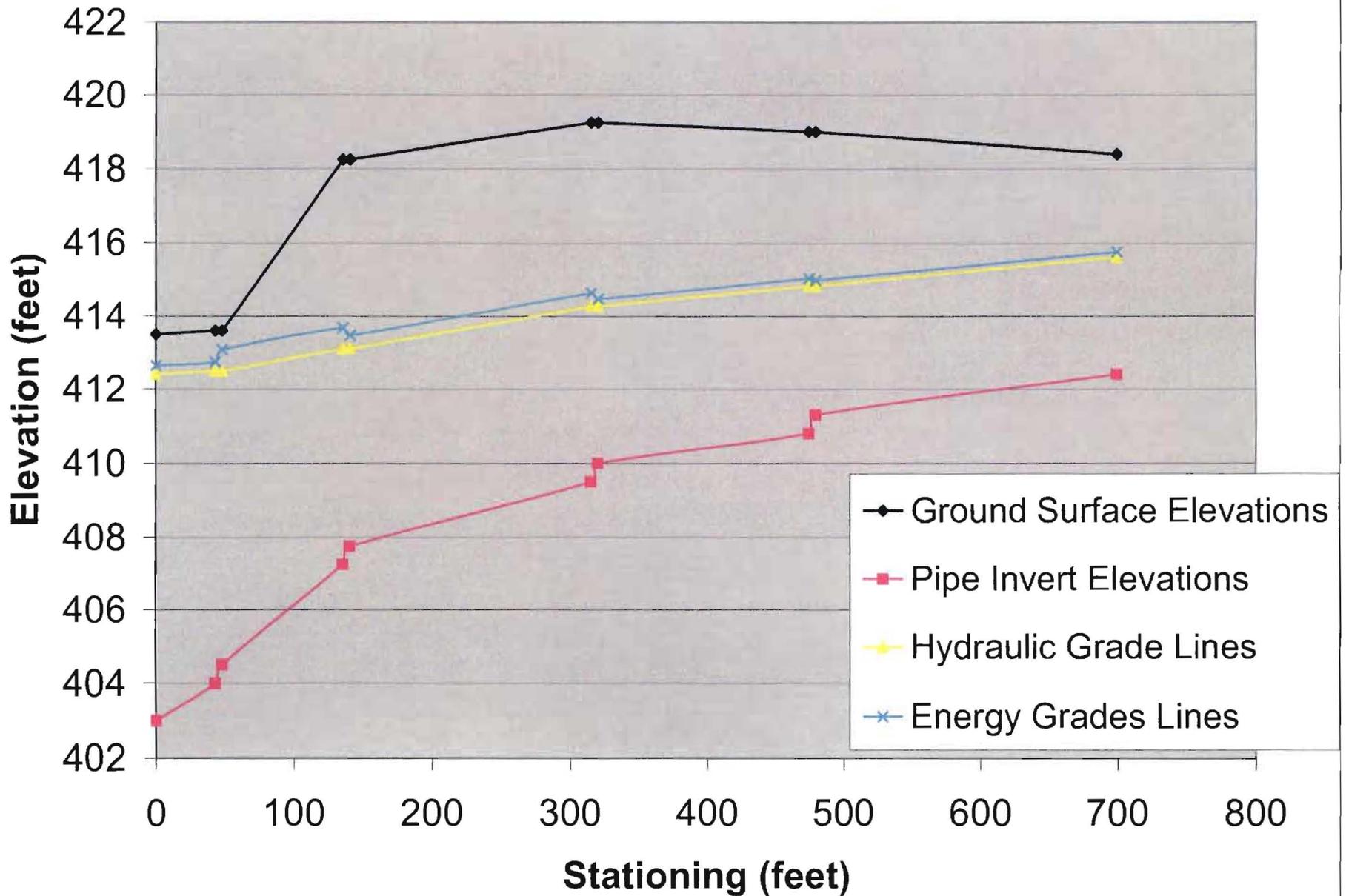
Description	Units	Value
Pipe Diameter (D)	Inches (")	36
Velocity (V)	Feet per Second (ft/s)	14.36
Discharge (Q)	Cubic Feet per Second (ft <sup>3</sup> /s)	11.28

**Rock Classification    Size of Stone  $d_{50}$  (ft)    Length (ft)**

Riprap Size:                    1 Ton                    2.9                    12 Min.

\* A conservative rock classification and size was chosen based on the Table 7-1

## Storm Drain Analysis - HGL & EGL Chart



**BACKWATER ANALYSIS STRUCTURE 1 TO DETENTION BASIN: 50-Year Storm**

STA.	Ground Surface EL	INV.	D	W.S.	SECTION	A (SF)	$K = (2g)h^2 / 2.21$	V (FPS)	Q (CFS)	$V^2/2g$ (FT)	$R^{4/3}$	$S_1$	AVG. $S_f$	L	$H_i$	$H_b$	$H_j$	$H_m$	$H_t$	H.G.	E.G.	"n"	TOTAL LOSS	K	
0+00	405	403.00	30	412.40	RCP	4.91	0.00492	3.92	19.24	0.24	0.53436748	0.002198									412.40	412.64	0.013		
LINE 7													0.00471291	43	0.20266									0.20265525	
0+43	412.5	404.00	24	412.60	RCP	3.14	0.00492	6.12	19.24	0.58	0.39685026	0.007227									412.60	413.19	0.013		
MH 7													0.00722733	5	0.03614	0.2912								0.32733879	0.5
0+48	418.25	404.50	24	412.93	RCP	3.14	0.00492	6.12	19.24	0.58	0.39685026	0.007227									412.93	413.51	0.013		
LINE 8													0.00722733	87	0.62878									0.62877809	
1+35	418.25	406.35	24	413.56	RCP	3.14	0.00492	6.12	19.24	0.58	0.39685026	0.007227									413.56	414.14	0.013		
BOX 6													0.0069468	5	0.03473	0.2912								0.32593611	0.5
1+40	419.25	406.85	18	413.88	RCP	1.77	0.00492	4.86	8.58	0.37	0.27042179	0.006666									413.88	414.25	0.013		
LINE 3													0.00666626	175	1.1666									1.16659622	
3+15	419.25	409.50	18	415.05	RCP	1.77	0.00492	4.86	8.58	0.37	0.27042179	0.006666									415.05	415.42	0.013		
BOX 3													0.00515307	5	0.02577	0.18303								0.20879182	0.5
3+20	419	410.00	18	415.26	RCP	1.77	0.00492	3.59	6.34	0.20	0.27042179	0.003640									415.26	415.46	0.013		
LINE 2													0.00363987	154	0.56054									0.56054073	
4+74	419	416.80	18	415.82	RCP	1.77	0.00492	3.59	6.34	0.20	0.27042179	0.003640									415.82	416.02	0.013		
BOX 2													0.00360376	5	0.01802	0.09994								0.11795387	0.5
4+78	418.4	411.30	15	415.94	RCP	1.23	0.00492	3.15	3.86	0.15	0.21206388	0.003568									415.94	416.09	0.013		
LINE 1													0.00356765	220	0.78488	0.01536								0.80024627	0.1
6+99	418.4	412.40	15	416.74	RCP	1.23	0.00492	3.15	3.86	0.15	0.21206388	0.003568									416.74	416.89	0.013		
BOX 1																									

---

## Worksheet for Backwater 100YR MH-Detention Basin Inlet

---

### Project Description

Friction Method                      Manning Formula  
Solve For                                Pressure at 1

### Input Data

Pressure 2	9.40	feet H2O
Elevation 1	404.00	ft
Elevation 2	403.00	ft
Length	43.00	ft
Roughness Coefficient	0.013	
Diameter	30.00	in
Discharge	19.24	ft <sup>3</sup> /s

### Results

Pressure 1	8.49	feet H2O
Headloss	0.09	ft
Energy Grade 1	412.73	ft
Energy Grade 2	412.64	ft
Hydraulic Grade 1	412.49	ft
Hydraulic Grade 2	412.40	ft
Flow Area	4.91	ft <sup>2</sup>
Wetted Perimeter	7.85	ft
Velocity	3.92	ft/s
Velocity Head	0.24	ft
Friction Slope	0.00220	ft/ft

## Worksheet for Baskwater 100YR S.6.-MH

### Project Description

Friction Method                      Manning Formula  
Solve For                                Pressure at 1

### Input Data

Pressure 2	7.99	feet H2O
Elevation 1	406.35	ft
Elevation 2	404.50	ft
Length	84.00	ft
Roughness Coefficient	0.013	
Diameter	24.00	in
Discharge	19.24	ft <sup>3</sup> /s

### Results

Pressure 1	6.75	feet H2O
Headloss	0.61	ft
Energy Grade 1	413.68	ft
Energy Grade 2	413.07	ft
Hydraulic Grade 1	413.10	ft
Hydraulic Grade 2	412.49	ft
Flow Area	3.14	ft <sup>2</sup>
Wetted Perimeter	6.28	ft
Velocity	6.12	ft/s
Velocity Head	0.58	ft
Friction Slope	0.00723	ft/ft

---

## Worksheet for Backwater 100YR S.3.-S.6.

---

### Project Description

Friction Method                      Manning Formula  
Solve For                                Pressure at 1

### Input Data

Pressure 2	6.25	feet H2O
Elevation 1	409.50	ft
Elevation 2	406.85	ft
Length	175.00	ft
Roughness Coefficient	0.013	
Diameter	18.00	in
Discharge	8.58	ft <sup>3</sup> /s

### Results

Pressure 1	4.77	feet H2O
Headloss	1.17	ft
Energy Grade 1	414.63	ft
Energy Grade 2	413.47	ft
Hydraulic Grade 1	414.27	ft
Hydraulic Grade 2	413.10	ft
Flow Area	1.77	ft <sup>2</sup>
Wetted Perimeter	4.71	ft
Velocity	4.86	ft/s
Velocity Head	0.37	ft
Friction Slope	0.00667	ft/ft

---

## Worksheet for Backwater 100YR S.2.-S.3.

---

### Project Description

Friction Method                      Manning Formula  
Solve For                                Pressure at 1

### Input Data

Pressure 2	4.27	feet H2O
Elevation 1	410.80	ft
Elevation 2	410.00	ft
Length	154.00	ft
Roughness Coefficient	0.013	
Diameter	18.00	in
Discharge	6.34	ft <sup>3</sup> /s

### Results

Pressure 1	4.03	feet H2O
Headloss	0.56	ft
Energy Grade 1	415.03	ft
Energy Grade 2	414.47	ft
Hydraulic Grade 1	414.83	ft
Hydraulic Grade 2	414.27	ft
Flow Area	1.77	ft <sup>2</sup>
Wetted Perimeter	4.71	ft
Velocity	3.59	ft/s
Velocity Head	0.20	ft
Friction Slope	0.00364	ft/ft

---

## Worksheet for Backwater 100YR S.1.-S.2.

---

### Project Description

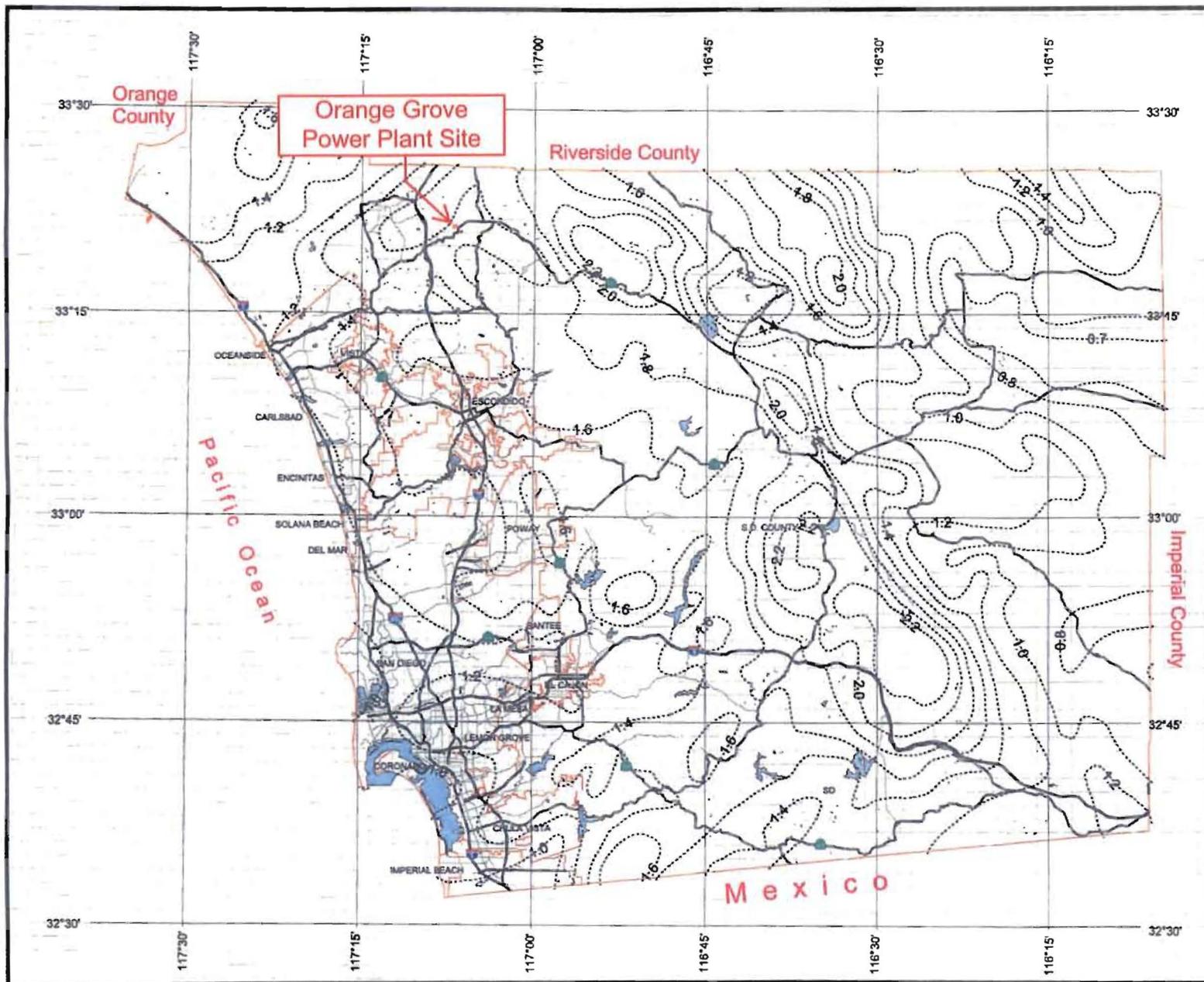
Friction Method                      Manning Formula  
Solve For                                Pressure at 1

### Input Data

Pressure 2	3.53	feet H2O
Elevation 1	412.40	ft
Elevation 2	411.30	ft
Length	220.00	ft
Roughness Coefficient	0.013	
Diameter	15.00	in
Discharge	3.86	ft <sup>3</sup> /s

### Results

Pressure 1	3.22	feet H2O
Headloss	0.79	ft
Energy Grade 1	415.77	ft
Energy Grade 2	414.98	ft
Hydraulic Grade 1	415.62	ft
Hydraulic Grade 2	414.83	ft
Flow Area	1.23	ft <sup>2</sup>
Wetted Perimeter	3.93	ft
Velocity	3.15	ft/s
Velocity Head	0.15	ft
Friction Slope	0.00357	ft/ft

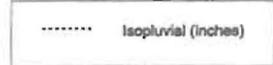


# County of San Diego Hydrology Manual



## Rainfall Isopluvials

### 2 Year Rainfall Event - 6 Hours



ORANGE GROVE ENERGY L.P.  
Schaumburg, IL

MUP 07-009

### ORANGE GROVE POWER PLANT PROJECT



3 0 3 Miles

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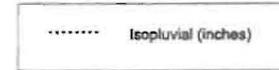
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# County of San Diego Hydrology Manual



## Rainfall Isopluvials

### 2 Year Rainfall Event - 24 Hours



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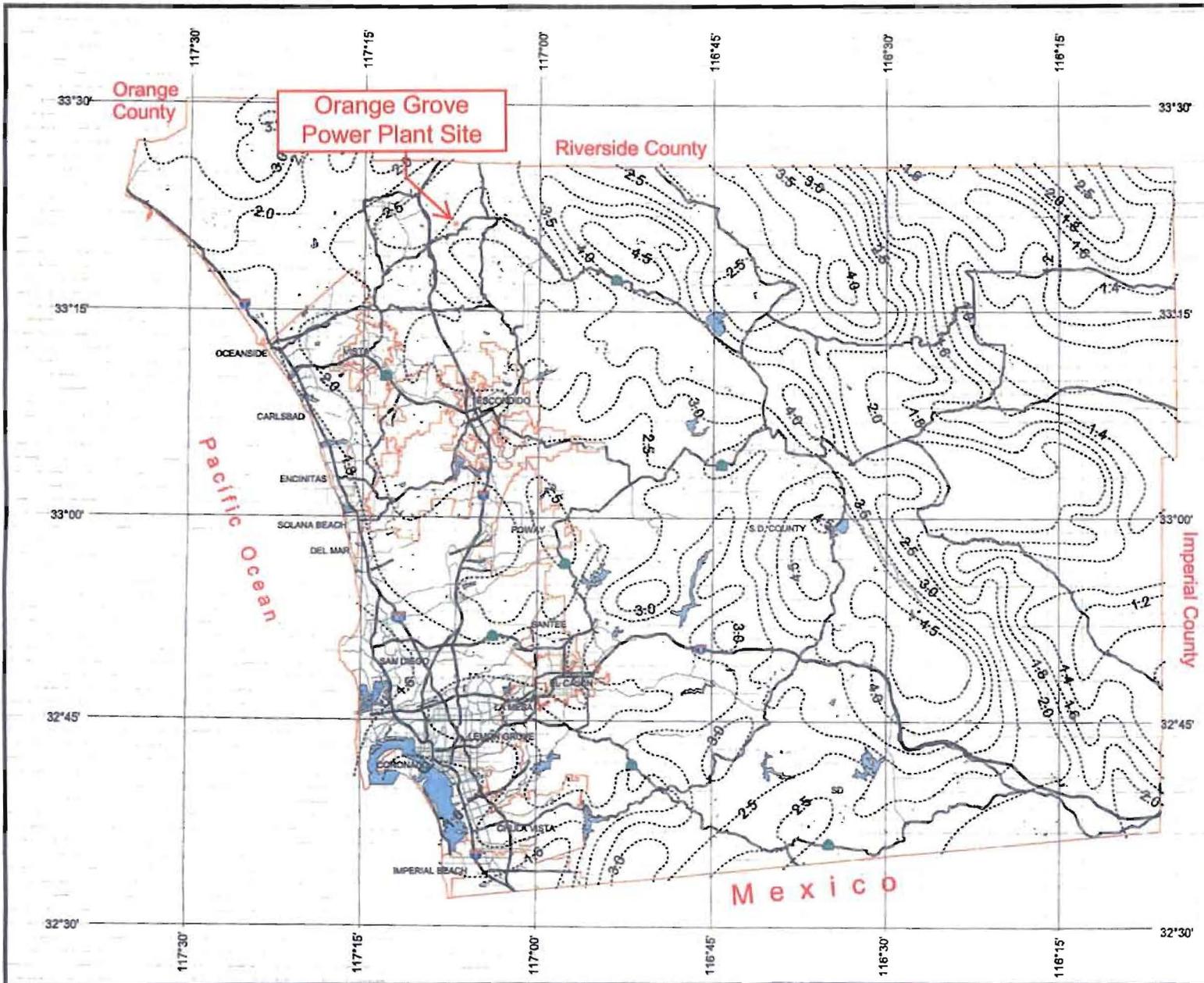
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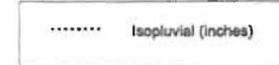


# County of San Diego Hydrology Manual



## Rainfall Isopluvials

### 5 Year Rainfall Event - 6 Hours



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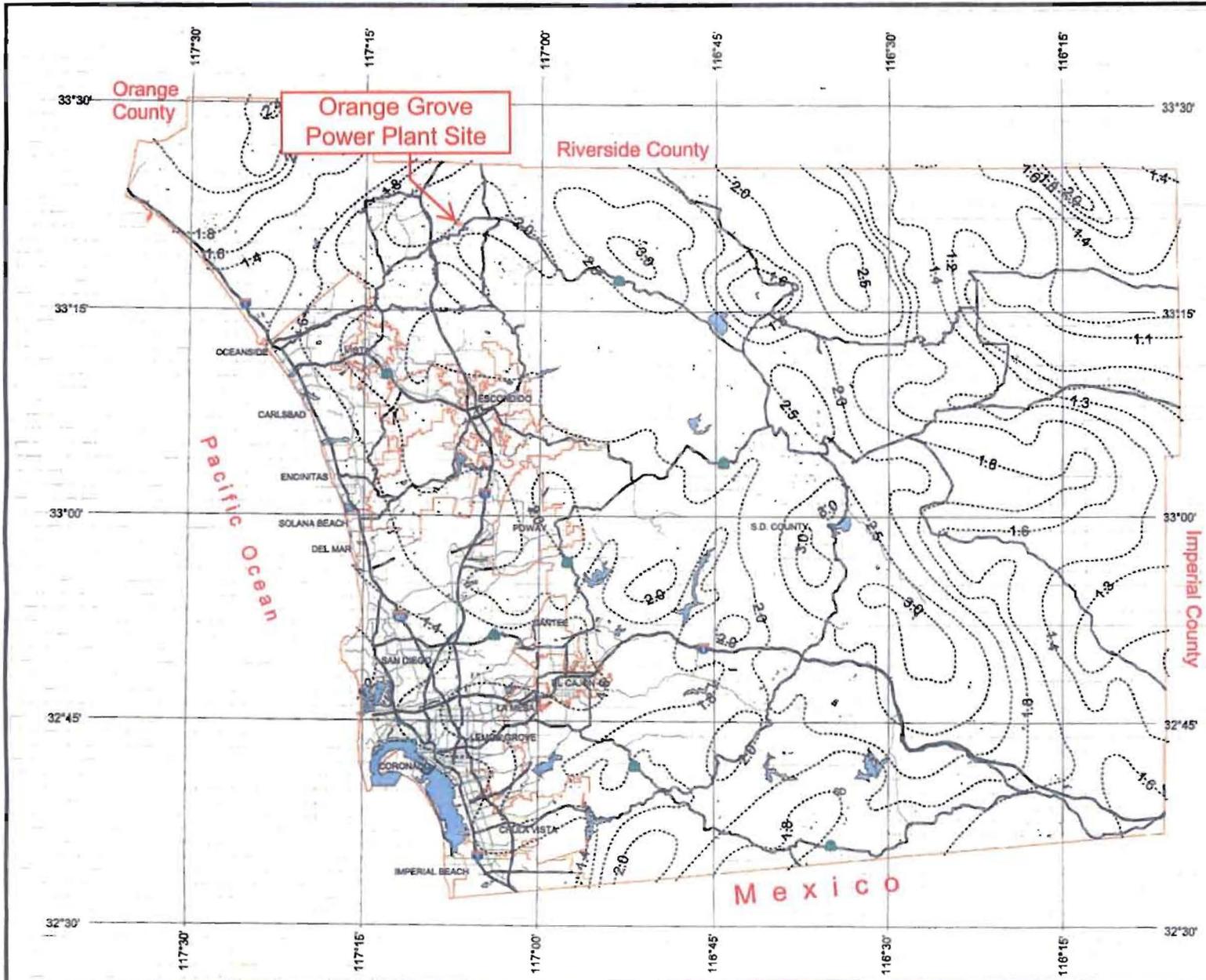


3 0 3 Miles

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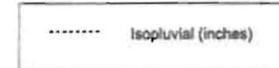


# County of San Diego Hydrology Manual



## Rainfall Isopluvials

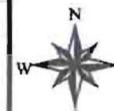
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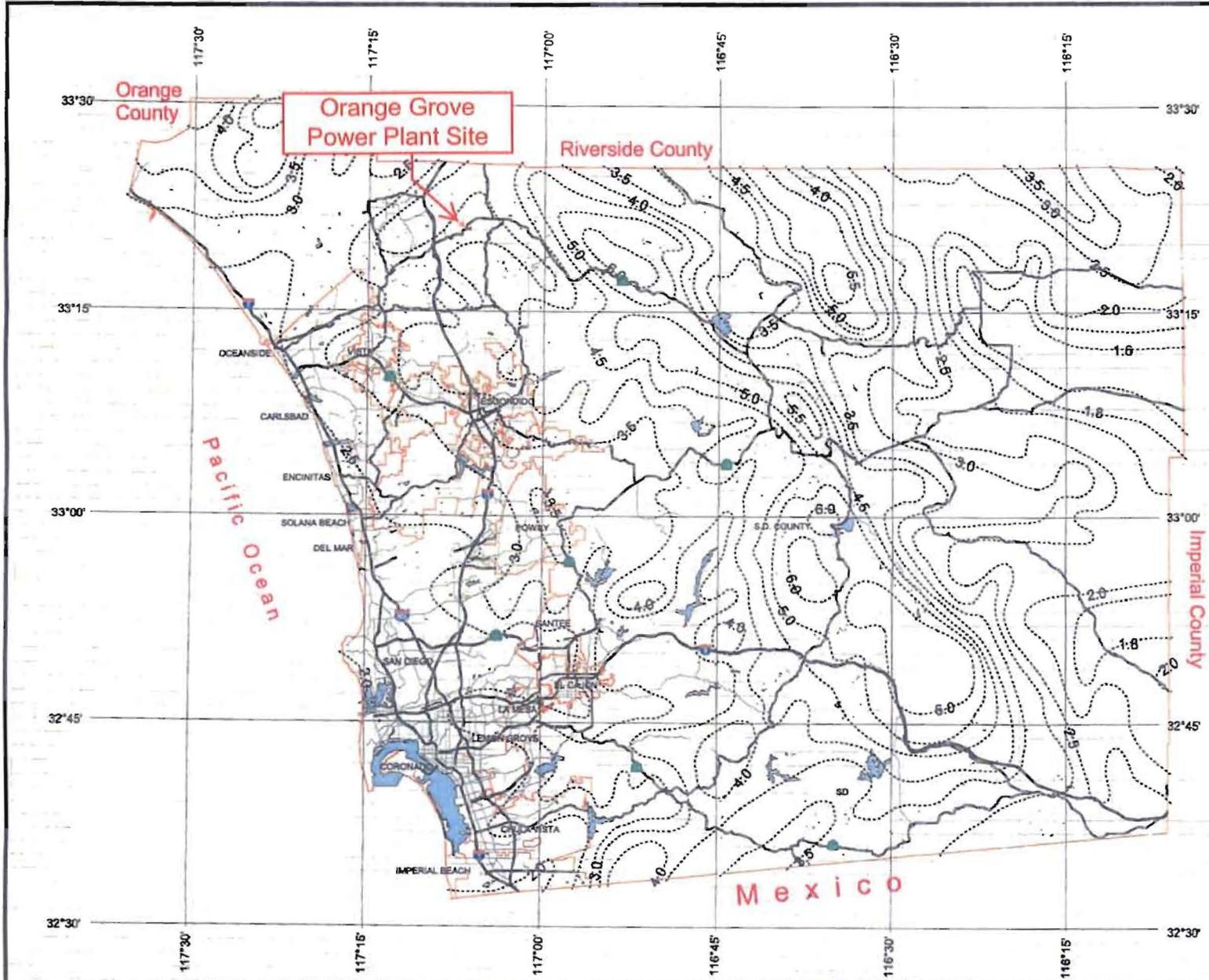


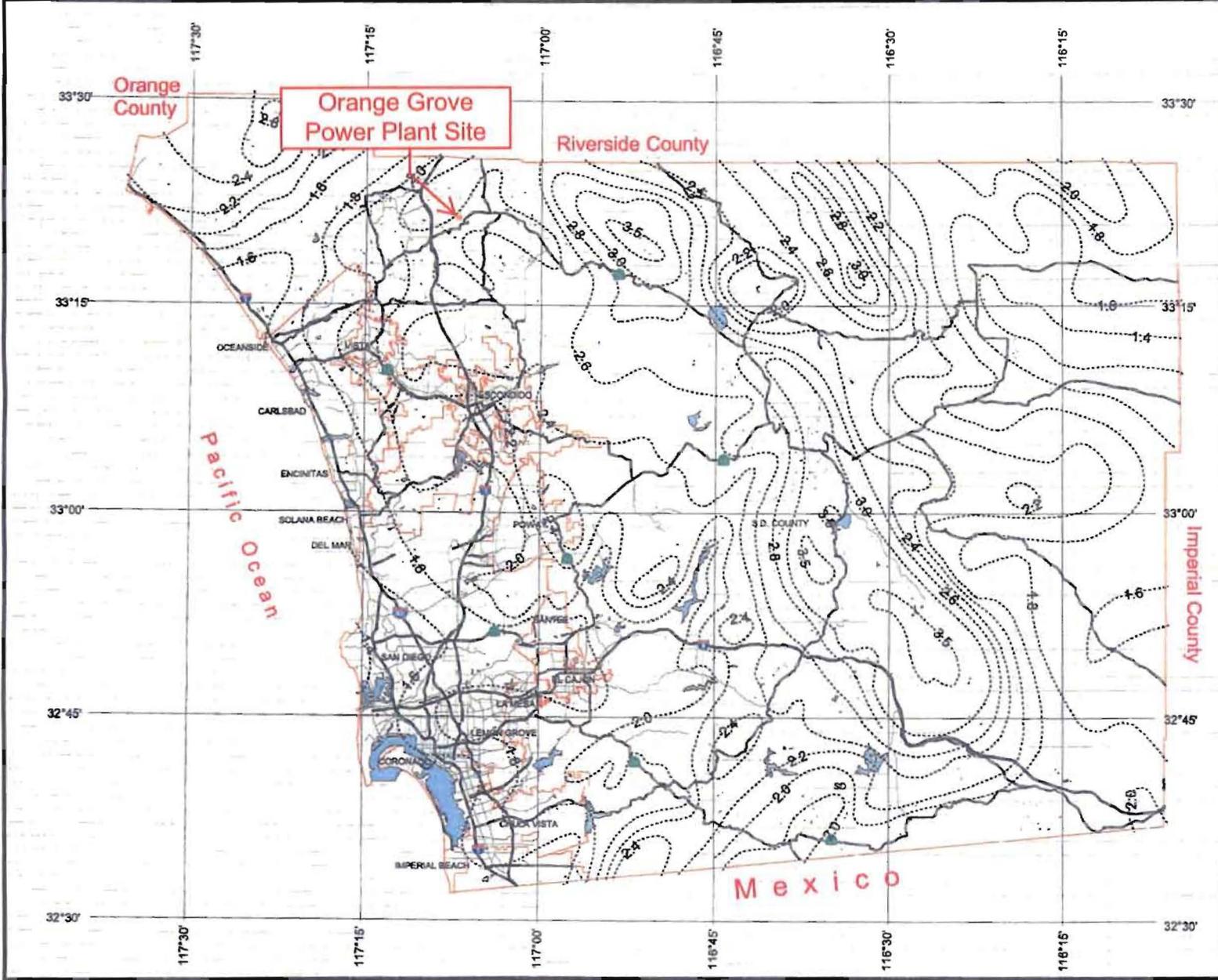
3 0 3 Miles

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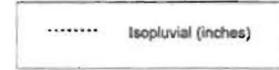


# County of San Diego Hydrology Manual



## Rainfall Isopluvials

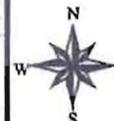
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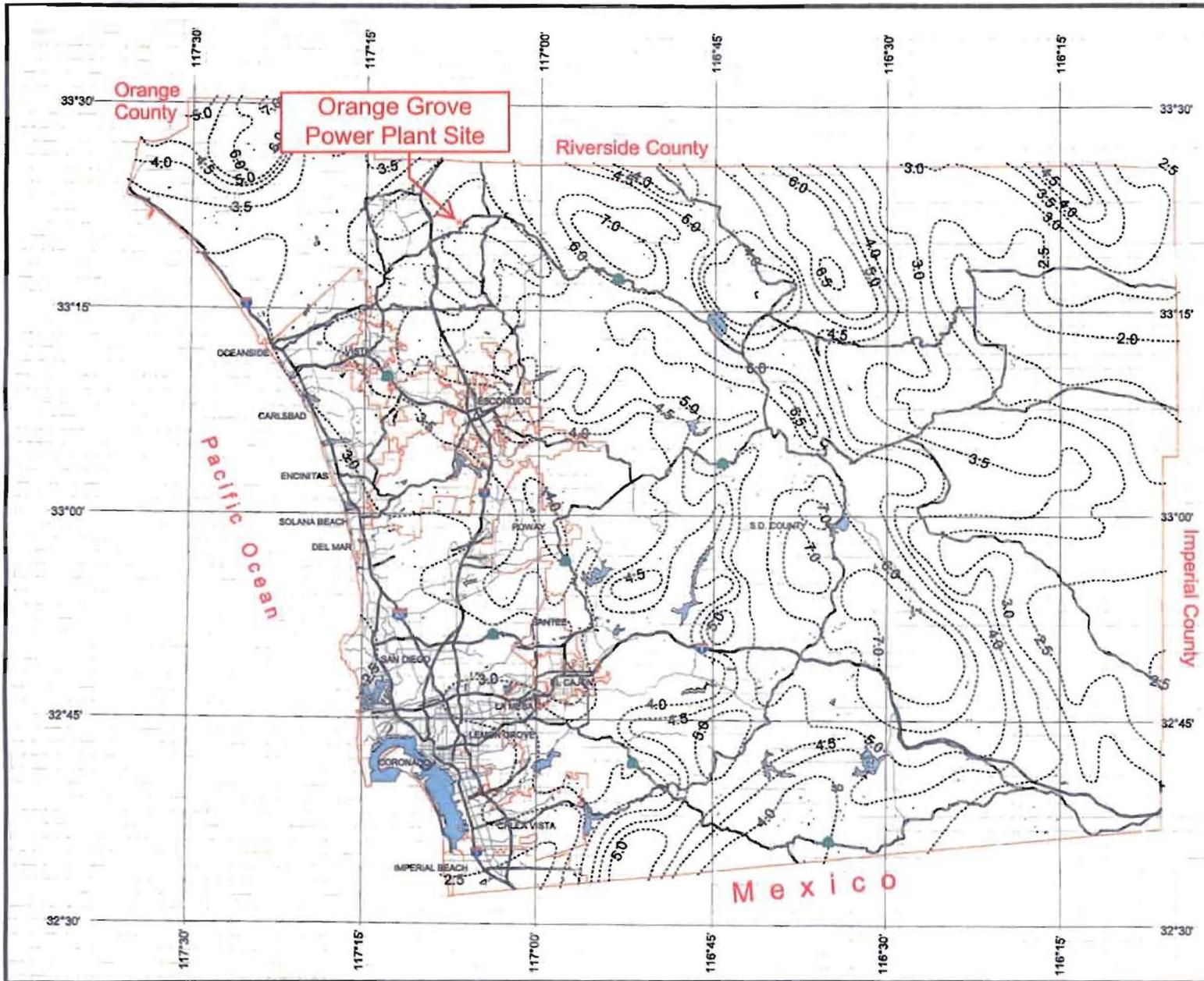
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## Rainfall Isopluvials

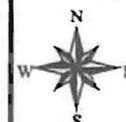
### 25 Year Rainfall Event - 6 Hours



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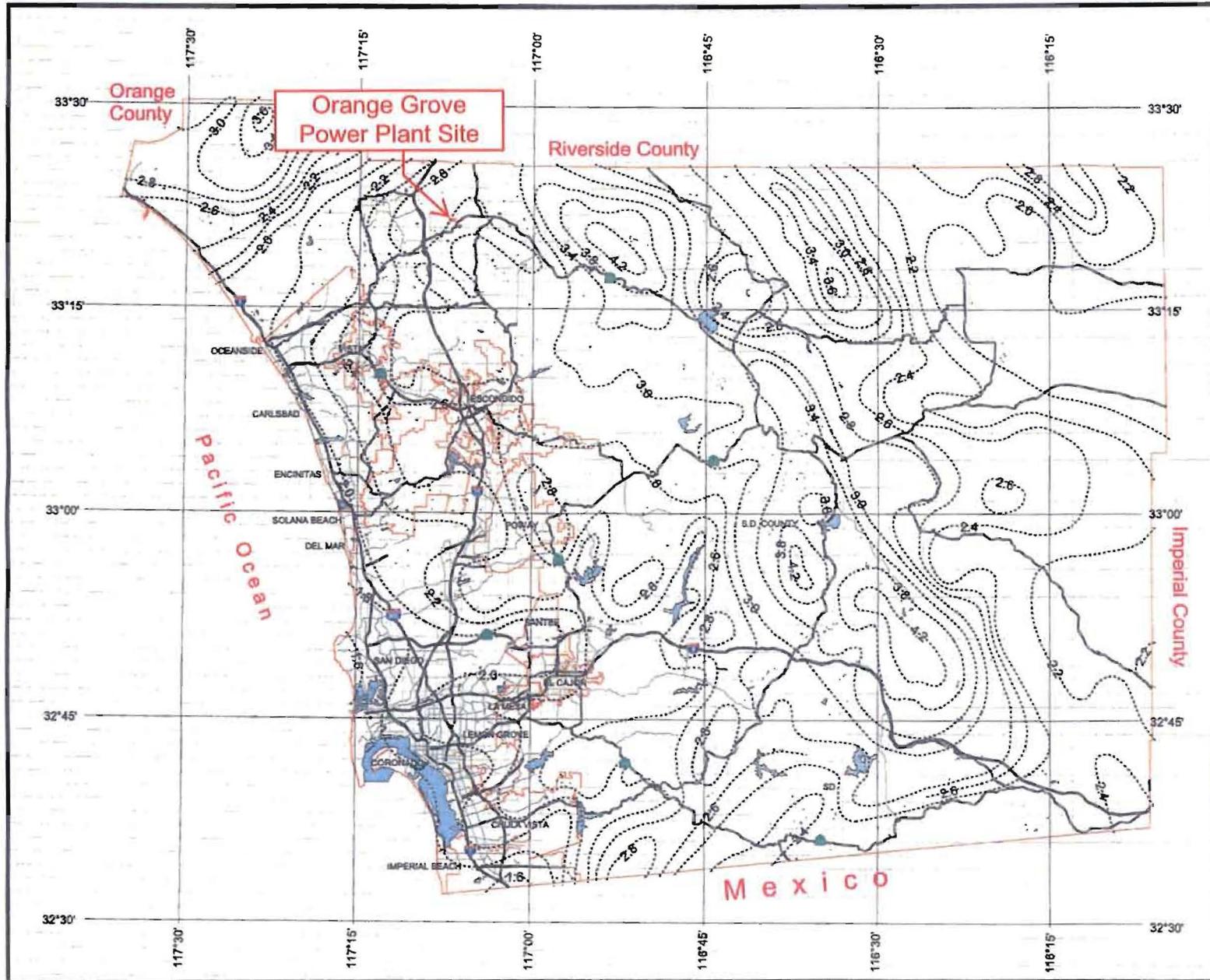
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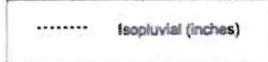


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## Rainfall Isopluvials

### 25 Year Rainfall Event - 24 Hours



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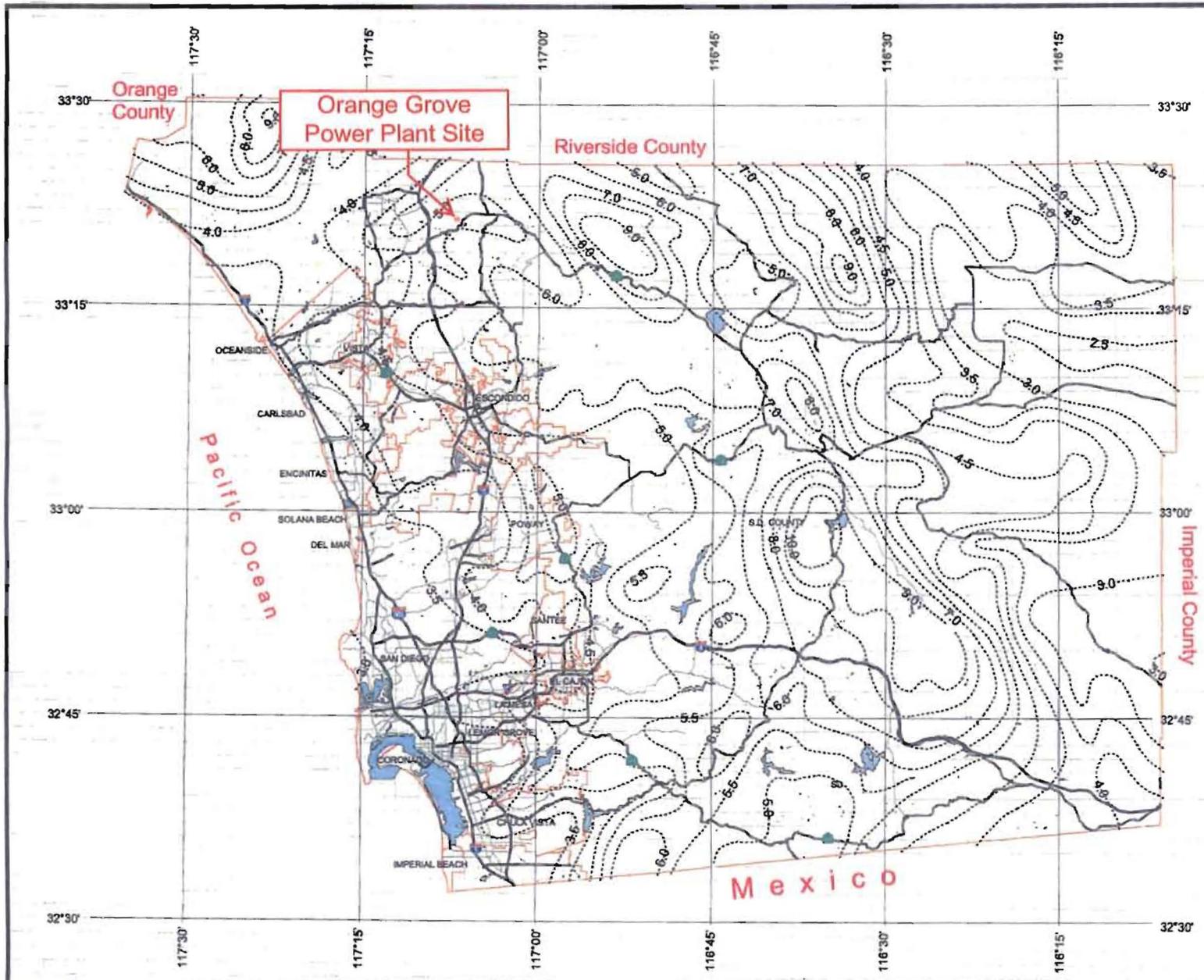
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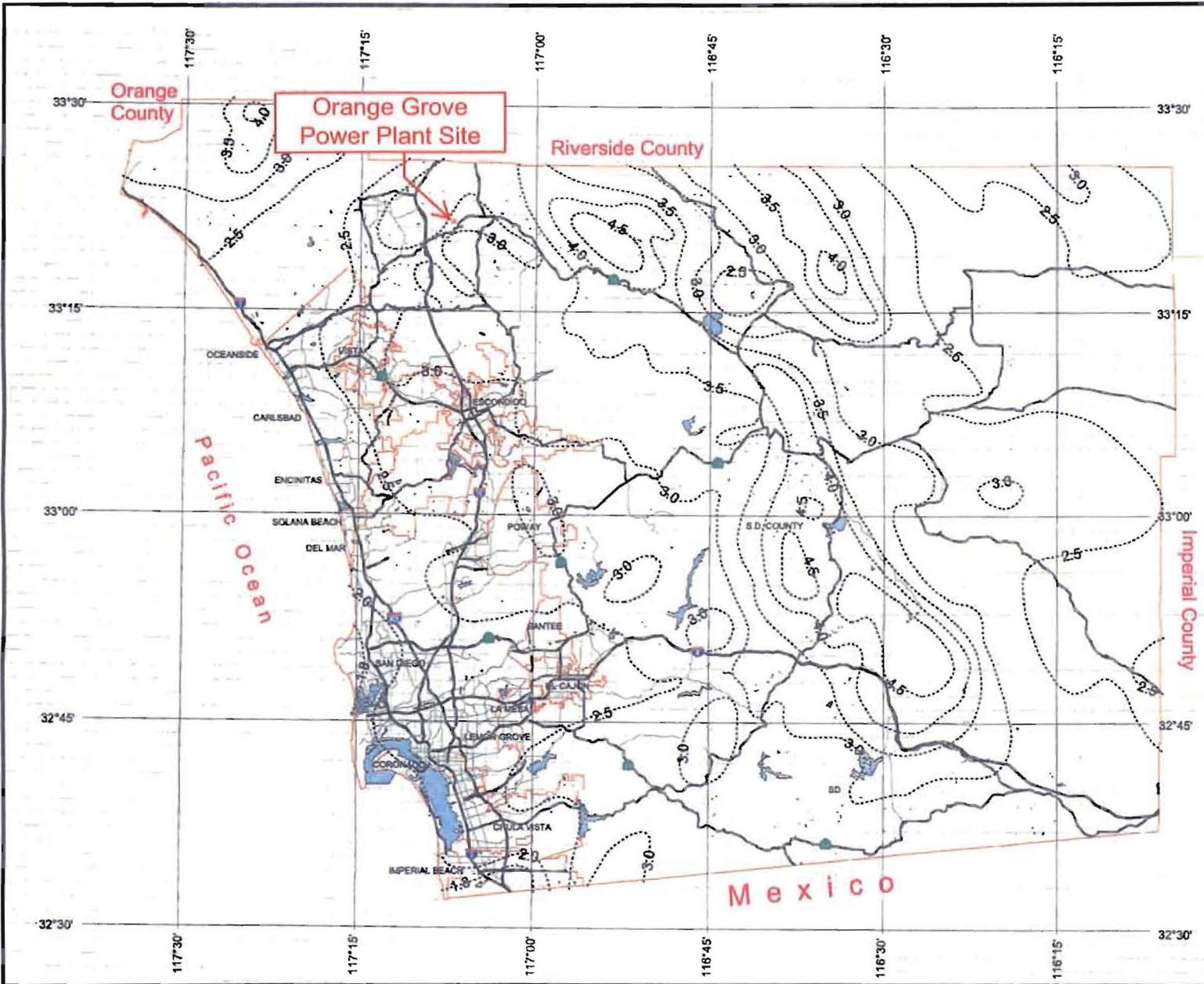
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3 0 3 Miles

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# County of San Diego Hydrology Manual



## Rainfall Isoplethials

### 50 Year Rainfall Event - 6 Hours



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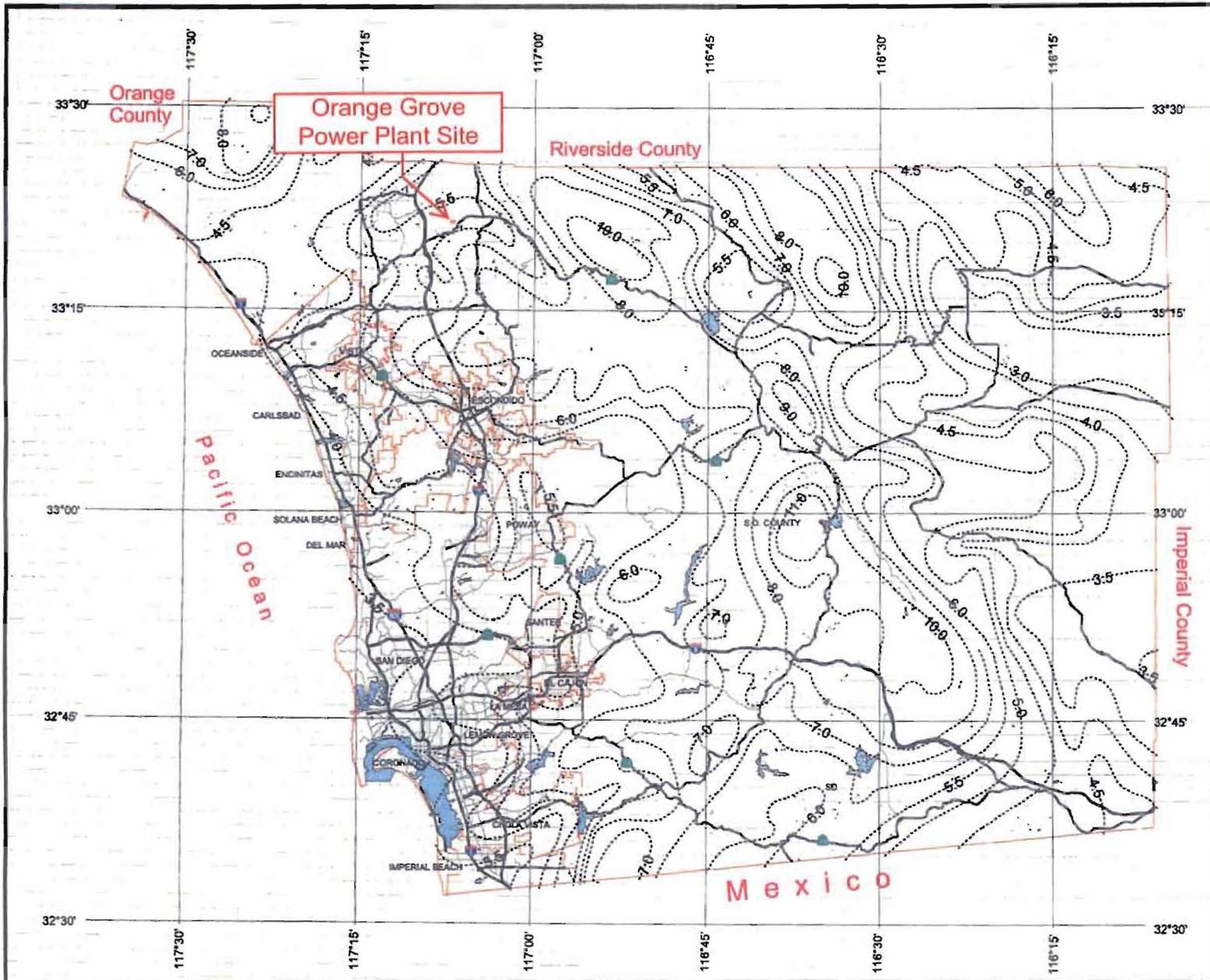
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### ORANGE GROVE POWER PLANT PROJECT



3 0 3 Miles

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# County of San Diego Hydrology Manual



## Rainfall Isopluvials

### 50 Year Rainfall Event - 24 Hours



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# County of San Diego Hydrology Manual



## Rainfall Isopluvials

### 100 Year Rainfall Event - 6 Hours

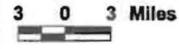
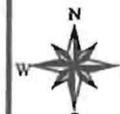


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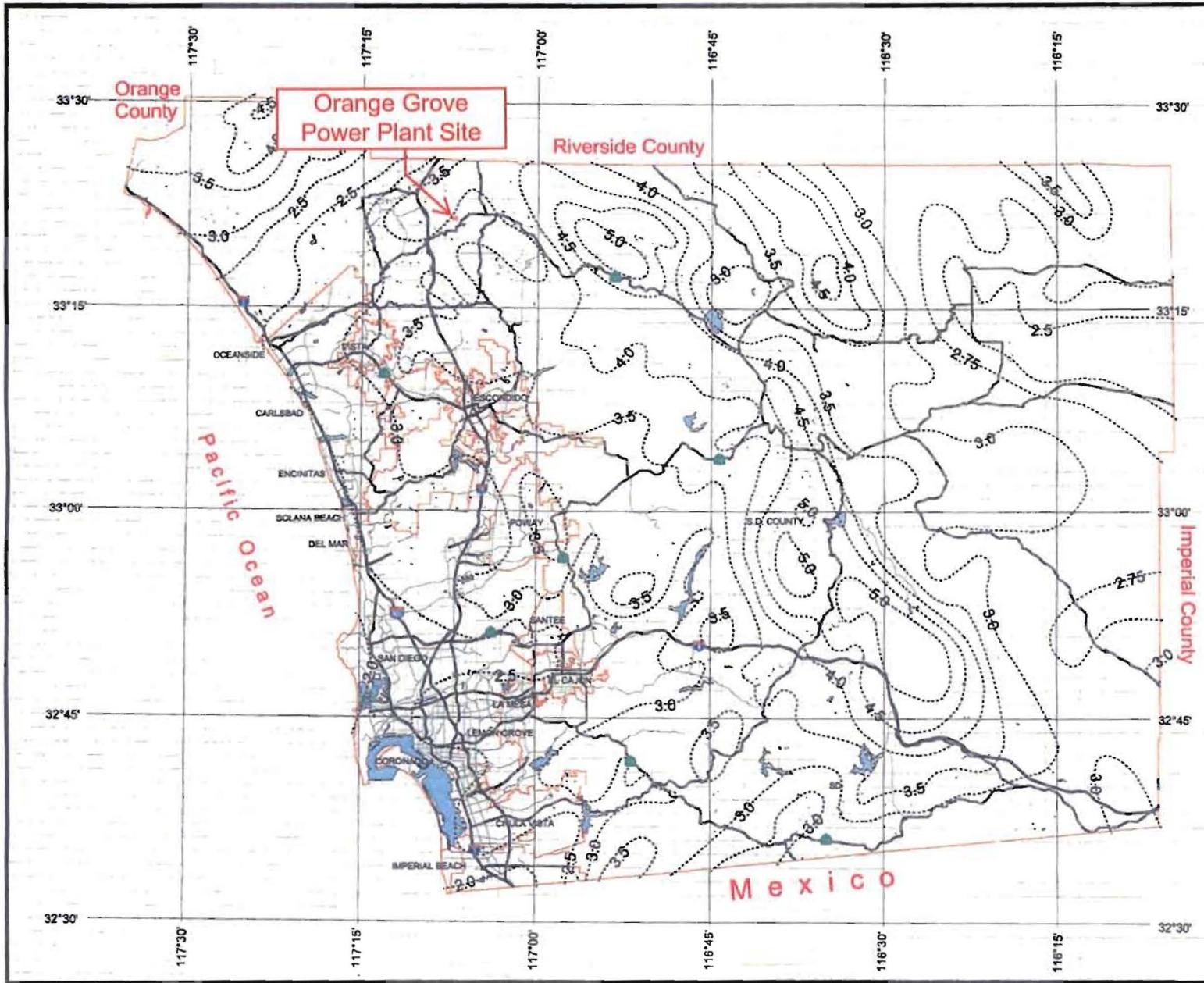
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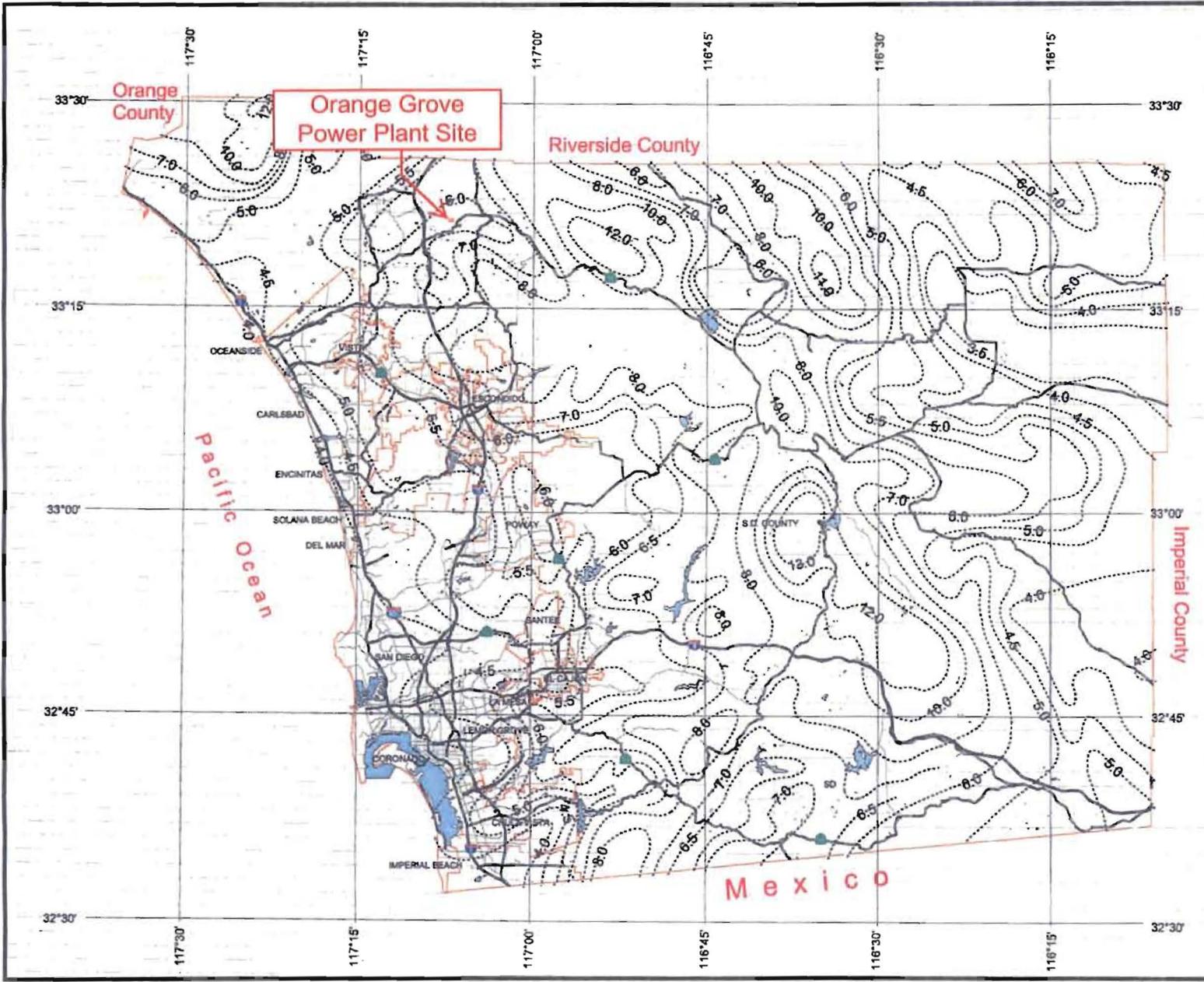


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## Rainfall Isophyets

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**ON-SITE WASTEWATER TREATMENT SYSTEM  
DESIGN**

**FOR**

**ORANGE GROVE ENERGY, L.P.**

**ORANGE GROVE POWER PLANT**

**AUGUST 25, 2008**

**PREPARED BY:**



**16041 Foster P.O. BOX 1000  
Stilwell, Kansas 66085-1000  
(913) 681-2881**

**Sega Project No. 07-0098**

**Orange Grove Energy, L.P.**  
**On-site Wastewater Treatment System Calculations for the**  
**Orange Grove Power Plant**  
**August 25, 2008**

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• DEH Septic System Design Requirements, February 1999	
• Drawing C200 – On-site Wastewater Treatment System	
• DEH OWTS Permitting Process and Design Criteria Setbacks Excerpt	
• Chapter 3 – Septic Tanks and Seepage Pits, Section 68.343 & 68.344	

**Orange Grove Energy, L.P.**  
**On-site Wastewater Treatment System Calculations for the**  
**Orange Grove Power Plant**  
**August 25, 2008**

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**Introduction**

Orange Grove Energy, L.P.'s proposed Orange Grove Power Plant (OGPP) is located in Unincorporated San Diego County (SDC) west of Pala, California 92059 about 0.1 mile north of the intersection of State Road 76 (Pala Road or SR-76) and a private road called Pala Del Norte Road. The 8.5 acre proposed project site is located on approximately 202 acres of property owned by San Diego Gas & Electric (SDG&E) in San Diego County, California in Section 29, Township 9 South, Range 2 West (Please refer to the Site Location and Site and Property Boundary Map in the References section).

A geotechnical investigation of fourteen site borings was performed on site with a maximum explored depth of 30.5 feet below grade. No seasonal high groundwater table was encountered with any of the borings.

The purpose of the Service Building sanitary system will be to receive the domestic drain and waste and to route to an approved system in accordance with the County of San Diego standards and specifications. Public sewer is not available at this time. As a result, this system will be located on site, east of the Service Building (Please refer to Drawing C100 – Site Layout Plan in the References section). Should public sewer become available in the future, this system could be converted with the approval of the County.

The Service Building sanitary system, which will support two restroom facilities, was designed conservatively for six full-time employees using an average rate of 15 gal/person/day. The drains and waste will be directed to a septic tank with an effluent filter and outlet to an infiltration field.

On-site wastewater treatment systems (OWTS), which have a subsurface discharge into the ground, are required to abide by the California Water Code, Section 13282. This section allows the Regional Water Quality Control Board (RWQCB) to give permission to issue permits for conventional OWTS to the local public agencies. As a result, the County of San Diego - Department of Environmental Health (DEH) OWTS Permitting Process and Design Criteria was used for the OGPP's sanitary system. Accordingly, the purpose of these OWTS calculations is to show that the proposed septic tank and infiltration system are adequate.

**Infiltration Rate**

A Percolation Test was performed by Vinje & Middleton Engineering, Inc. in the approximate area of the proposed leach field (Please refer to the Vinje & Middleton Engineering, Inc. Design Packet in the References Section). The Percolation Test had an average infiltration rate of 43 MPI (Please refer to the Vinje & Middleton Engineering, Inc. Design Packet in the References Section).

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**On-site Wastewater Treatment System Calculations for the**  
**Orange Grove Power Plant**  
**August 25, 2008**

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**Leach Line**

The proposed leach lines are 4 inch diameter Schedule 40 PVC pipes with 5/8 inch holes spaced at 60 degree offsets with a trench depth of 3 feet (Please refer to the DEH Septic System Design Requirements in the References section). The leach lines must be approved by both the DEH director and an International Association of Plumbing and Mechanical Officials (IAPMO) representative prior to backfilling.

**Layout**

The layout design was based on the required setback minimum distance listed in Table 1 below. The infiltration field, designed to meet the requirements for an industrial/commercial facility with an average infiltration rate of 43 MPI, requires a minimum linear length of leach line of 157 feet. The infiltration field was designed for 200 feet with 100% reserve, per the county's minimum requirements if less than 200 linear feet (Please refer to the Vinje & Middleton Engineering, Inc. Design Packet and Drawing C200 – On-site Wastewater Treatment System in the References section).

**TABLE 1 – Setback Summary\***

<b>System Component</b>	<b>Setback To:</b>	<b>Minimum Distance</b>
Septic Tank	Structure	5 feet
Leach Lines	Structure	8 feet
Leach Lines	Drainage Course	50 feet from top of bank
Leach Lines	Pond	100 feet from spillway elev.
Leach Lines	Septic Tank	5 feet
Leach Lines	Leach Lines	10 feet

\* Complete table of setback to minimum distance can be found in the DEH OWTS Permitting Process and Design Criteria Setbacks Excerpt in the References section.

**Septic Tank**

The septic tank will be a minimum 1,000 gallon watertight concrete tank with an effluent discharge to a leach field disposal system (Please refer to the DEH Septic System Design Requirements in the References section). The septic tank, which will be in accordance with the San Diego County Code of Regulatory Ordinances, must be approved by both the DEH director and an IAPMO representative prior to backfilling (Please refer to Chapter 3 – Septic Tanks and Seepage Pits, Section 68.343 – Minimum Requirements for Septic Tanks in the References section).

**Orange Grove Energy, L.P.**  
**On-site Wastewater Treatment System Calculations for the**  
**Orange Grove Power Plant**  
**August 25, 2008**

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**Distribution Box**

The distribution box, which is based on the San Diego County Code of Regulatory Ordinances, will have a single inlet from the septic tank and will outlet on two sides to the leach field. The distribution box will be constructed of a watertight concrete box with a plastic baffle located on the inlet side of the box (Please refer to Chapter 3 – Septic Tanks and Seepage Pits, Section 68.344 – Minimum Requirements for Distribution Boxes in the References section).

**Water Supply**

Water for the OWTS will be supplied from an onsite 535,000 gallon water storage tank.

**Primary and Reserve Areas**

In addition to the primary area for the leach field, the county requires that new construction of OWTS with an average infiltration rate of 43 MPI, to have a minimum 100% reserve area. The reserve area would be used for the new OWTS if the primary system were to fail. Therefore, in the event that the OGPP OWTS were to fail, a new system would be installed in the reserve area as indicated on Drawing C200. The primary system, per the direction of the county, would either be removed and disposed of properly or abandoned in place.

**Maintenance Plan**

Environmental Protection Agency's ten steps to keep a septic system working properly:

1. Keep a drawing of the OWTS in the maintenance building's records.
2. Have the septic system inspected at least every three years.
3. Pump the septic tank and clean or replace the effluent filter as needed (generally every three to five years).
4. Don't dispose of household hazardous wastes in sinks or toilets.
5. Keep other household items, such as dental floss, feminine hygiene products, condoms, diapers, and cat litter out of the system.
6. Use water efficiently.
7. Plant only grass over and near your septic system. Do not apply manure or fertilizers over the drainfield.
8. Keep vehicles and equipment off the OWTS. The weight can damage the pipes and tank, and the system may not drain properly under compacted soil.
9. Keep gutters from draining into or near the septic system.
10. Check with the local health department before using additives. Commercial septic tank additives do not eliminate the need for periodic pumping and can be harmful to the system.

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**On-site Wastewater Treatment System Calculations for the**  
**Orange Grove Power Plant**  
**August 25, 2008**

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**Conclusion**

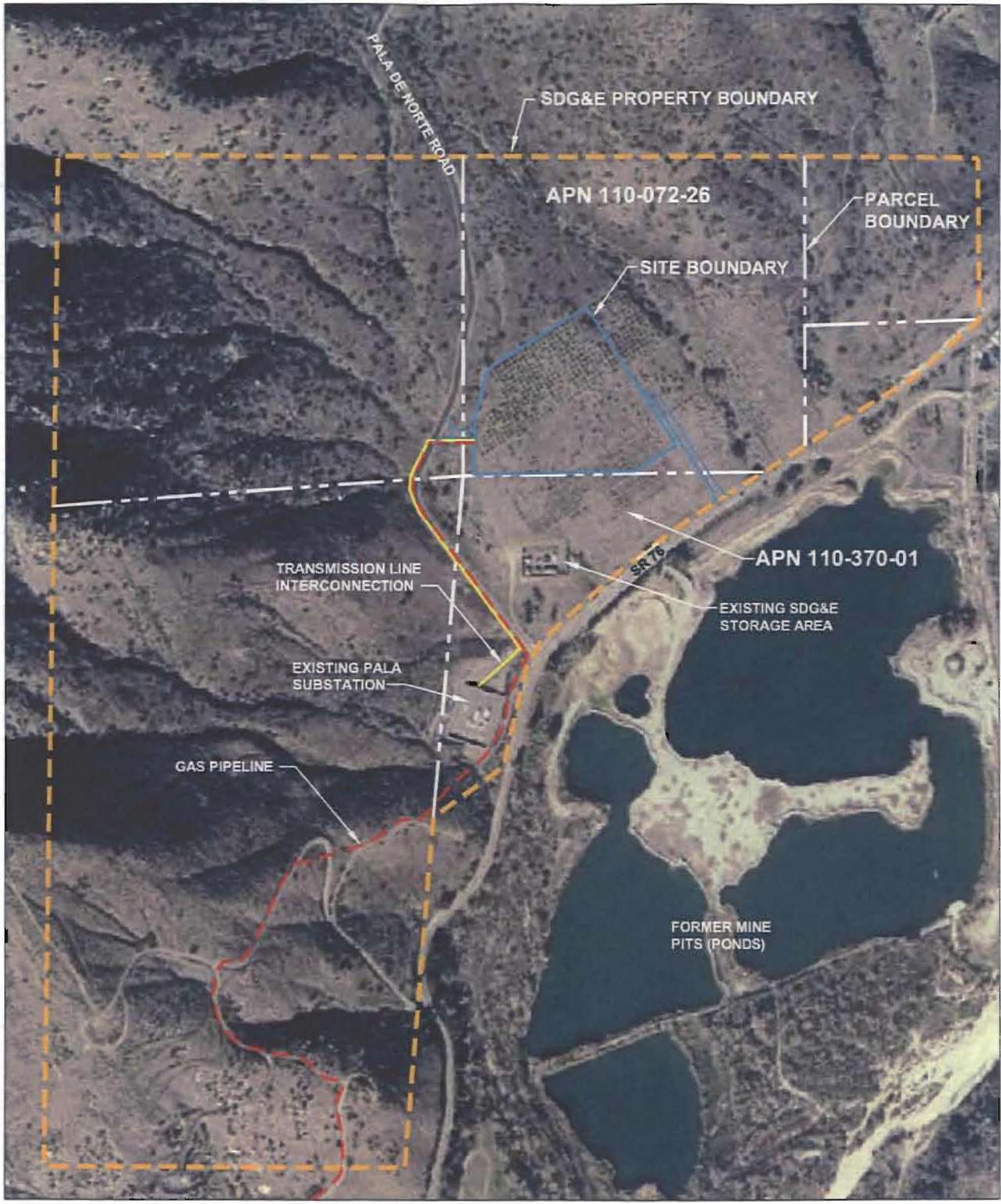
The proposed septic tank and leach field will be adequate as the Orange Grove Power Plant On-site Wastewater Treatment System. The OGPP is designed to serve local loads during peak demand and therefore may not be occupied full time, year round. During the peak demand operation hours, the OGPP will typically be manned with four full time employees, but may have at max, six employees. Thus, the OTWS, designed by San Diego County Department of Environmental Health Certified Geotechnical Engineer Ralph Malcolm Vinje, meets all requirements for the San Diego RWQCB and the County of San Diego Department of Environmental Health.

**Orange Grove Energy, L.P.  
On-site Wastewater Treatment System Calculations for the  
Orange Grove Power Plant  
August 25, 2008**

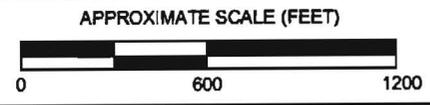
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**REFERENCES**





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PS=1:1 L:\G:\p\cs\Projects\ByNumber\20-xxxx\20-0319\AFC (125158)\AFC-SITE AERIAL.dwg Jun 16, 2008 - 9:30am aakora

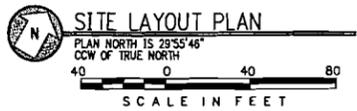
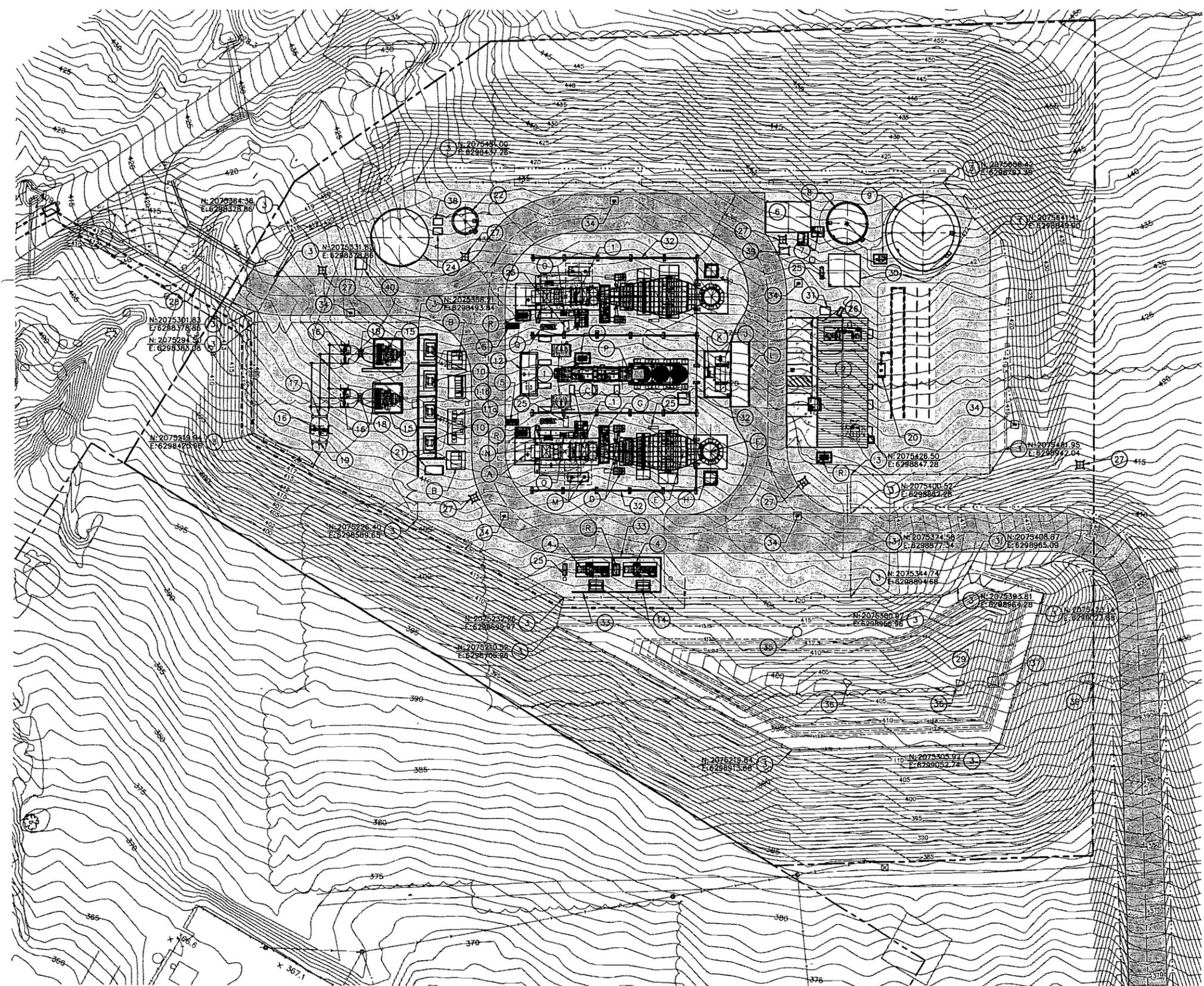


**Sega Project No. 07-0098**

FACILITY:  
ORANGE GROVE PROJECT  
SAN DIEGO COUNTY, CALIFORNIA

**SITE AND PROPERTY BOUNDARY**

**MUP 07-009**



EMISSION COORDINATES SYMBOL		
DESCRIPTION	NORTHING	EASTING
COMBUSTION TURBINE #1 (NORTH)	2075491	6298683
COMBUSTION TURBINE #2 (SOUTH)	2075387	6298743
DIESEL FIRE PUMP (±2')	2075517	6298766
BLACK START GENERATOR (±2')	2075379	6298582

- KEYNOTES CONT.:**
- (38) TANK TRANSFER PUMP SKID.
  - (39) FRESH WATER UNLOADING PUMP SKID.
  - (40) RECLAIM WATER UNLOADING PUMP SKID.

**KEYNOTES:**

- (1) COMBUSTION TURBINE (CT), GENERATOR, AND AUXILIARY EQUIPMENT. (FOR EACH UNIT): (HEIGHT = 43' AT THE TOP OF VBV DUCT).
- (A) MAIN TURBINE GENERATOR SKID ENCLOSURE.
- (B) 13.8KV ELECTRICAL SWITCHGEAR.
- (C) CT AUXILIARY EQUIPMENT SKID.
- (D) TEMPERING AIR FANS (2).
- (E) EMISSION CONTROL SYSTEM-SCR (HEIGHT = ±33').
- (F) STACK (HEIGHT = 80').
- (G) AMMONIA VAPORIZATION SKID.
- (H) CEWS ENCLOSURE WITH TRANSFORMER AND CALIBRATION GAS STORAGE.
- (I) CT LUBE OIL COOLER.
- (J) AMMONIA STORAGE TANK (COMMON TO BOTH CT UNITS).
- (K) AMMONIA FORWARDING PUMP SKID (COMMON TO BOTH CT UNITS).
- (L) AMMONIA UNLOADING PAD, SPILL CONTAINMENT (COMMON TO BOTH CT UNITS).
- (M) TURBINE REMOVAL SUPPORTS.
- (N) AIR INLET FILTER (HEIGHT = 34').
- (O) SPRINT SKID.
- (P) INLET AIR CHILLER AND COOLING TOWER (COMMON TO BOTH CT UNITS) (HEIGHT = 30').
- (Q) WATER INJECTION SKID.
- (R) OILY DRAIN TANK.
- (2) SERVICE BUILDING FOR CONTROL ROOM, ELECTRICAL EQUIPMENT, FIRE PUMPS, COMPRESSED AIR. (HEIGHT = 18').
- (3) SITE SECURITY CHAINLINK FENCE AND GATES.
- (4) FUEL GAS COMPRESSORS.
- (5) GAS COALESCING FILTER SKID.
- (6) CONCRETE PAD FOR TEMPORARY WATER TREATMENT TRAILER.
- (7) DEMIN. WATER PUMP SKID AND RELATED EQUIPMENT.
- (8) DEMIN. WATER STORAGE TANK (HEIGHT = 24').
- (9) RAW WATER/FIREWATER STORAGE TANK & PUMP SKID (HEIGHT = 44').
- (10) AUXILIARY TRANSFORMERS.
- (11a) 4160V ELECTRICAL SWITCHGEAR.
- (11b) 480V ELECTRICAL SWITCHGEAR.
- (12) BLACKSTART GENERATOR.
- (13) NOT USED.
- (14) FUEL GAS COMPRESSOR RECYCLE FIN-FAN COOLER.
- (15) 13.8KV-69KV GENERATOR STEP-UP TRANSFORMER (GSU).
- (16) 69KV DISCONNECT SWITCH AND SUPPORTS.
- (17) 69KV CT/VT METERING UNIT.
- (18) 69KV CIRCUIT BREAKER.
- (19) 69KV TRANSITION STRUCTURE & POHEAD.
- (20) UNDERGROUND SANITARY SYSTEM.
- (21) TRANSFORMER DELUGE VALVE ENCLOSURE.
- (22) WASTEWATER STORAGE TANK (HEIGHT = 24').
- (23) NOT USED.
- (24) COOLING TOWER MAKEUP TANK AND PUMP SKID (HEIGHT = 36').
- (25) 480V MCC.
- (26) FIRE PUMP ROOM.
- (27) YARD FIRE HYDRANTS WITH HYDRANT MOUNT FIRE MONITORS.
- (28) BRIDGE.
- (29) STORMWATER DETENTION BASIN.
- (30) RO WATER TREATMENT AREA.
- (31) DIESEL STORAGE TANK - DIESEL FIRE PUMP.
- (32) GAS TURBINE SOUND WALL (HEIGHT = 48').
- (33) GAS COMPRESSOR SOUND WALL (HEIGHT = 24').
- (34) AREA INLET.
- (35) STORM MANHOLE.
- (36) STORM END SECTION.
- (37) STORMWATER OUTLET CONTROL STRUCTURE.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAJ	WHR
<b>PRIVATE CONTRACT</b>				
3	COUNTY OF SAN DIEGO	45		
SHEET	DEPARTMENT OF PUBLIC WORKS	SHEET		
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1736/434-1737				
APPROVED FOR MICHIGNO PROFESSIONAL ENGINEER OF PUBLIC WORKS <small>BY:</small>		ENGINEER OF WORK THOMAS F. HEASLER <small>CHECKED: DATE: 3-31-08</small> L-15454 <small>GRADING PERMIT NO.:</small>		
<b>PERMITS</b>				
REZONE PERMIT NO. NOT APPLICABLE				
SPECIAL USE PERMIT NO. NOT APPLICABLE				
TENTATIVE MAP NO. NOT APPLICABLE				
NOI/WDID NO. NOT YET ASSIGNED				
<b>BENCH MARK</b>				
DESCRIPTION: 3 1/2" brass disk				
"M.W.D. OF SOUTHERN CA S.D.6-89 1993"				
LOCATION: S.E. CORNER OF MANHOLE				
RECORD FROM: FIELD BOOK 4047-04-079				
NAVD88 AND NAD83				
<b>COUNTY APPROVED CHANGES</b>				
NO.	DESCRIPTION:	APPROVED BY:	DATE:	
Sealed Only When Signed in Blue Ink				
Engineers - Architects - Technicians Design - Construction - Field Service 16041 Foster P.O. Box 1000 Stilwell, Kansas 66085-1000				
<b>ORANGE GROVE ENERGY L.P.</b>				
Schaumburg, IL				
<b>ORANGE GROVE POWER PLANT</b>				
SITE LAYOUT PLAN				
DESIGN BY:		CHECKED BY:		
B. ROMINES		J. BONDANK		
DRAWN BY:		DATE:		
B. GASPERS		9-12-07		
CLIENT I.D.		SEGAs PROJECT NO.		
IC000101		07-201		
CADD FILE NAME: 07201-C100.dwg				
DRAWING NO.				REV.
C100				0



COUNTY OF SAN DIEGO  
DEPARTMENT OF ENVIRONMENTAL HEALTH  
PERCOLATION TEST REPORT

DEH #: LOWS

Job #: 08-122-S

Date: 1/14/2008

Assessor's Parcel #: 110-072-26 Map #: \_\_\_\_\_ Lot #: \_\_\_\_\_

Site Location: Corner of Highway 76 and Pala Del Norte Road, Pala

Owner's Name: San Diego Gas & Electric Phone: (760) 743-1214 Vinje & Middleton Engineering, Inc.

Mailing Address: 2450 Auto Park Way, Escondido, CA 92029-1229

Test Hole	Test Depth	Time/Inch	Test Hole	Test Depth	Time/Inch	Average Rate (Time/Inch)
1	5'	40				43 mpi
2	8'	34				
3	10'	53				
4	14'	34				

Vertical seepage pits: Provide soils log, uniformity/capacity test results, and calculations on separate 8-1/2" x 11" sheets of paper.

TYPE OF SOIL: (clay, silt, sand, decomposed granite, etc.)

Surface \_\_\_\_\_ Topsoil \_\_\_\_\_

0 - 4.5' ft. below surface Reddish Brown Sandy Clay with ~ 20-30% Cobbels

4.5 - 10' ft. below surface Tan Clayey Sand with Cobbels

\_\_\_\_\_ ft. below surface Deep A = Refusal @ 10'

\_\_\_\_\_ ft. below surface Perc Hole #4 = End @ 14'

Depth to refusal: Refusal @ 10 - 14' Depth to groundwater: Not encountered.

Source of potable water: Rainbow M.W.D. (Per Proposed New Water Line To Site)

Proposed structure: One Peaker Power Plant With Men's & Woman's Bathroom (Calc. @ 6 People Per Day @ 15 gal/pers./day)

RECOMMENDATIONS: Use Standard Gravity COMMERCIAL System Use Safety Factor of 2

Septic tank size 1000 gal. Pit length n/a ft.

Leach line length 200' Primary ft. Pit width n/a ft.

Trench depth 3' ft. \*Pit depth n/a ft.

Rock under pipe 12" in. \*\*Cap depth n/a ft.

\*BELOW CAP DEPTH

\*\*BELOW GROUND SURFACE

I have reviewed this percolation data and design of the subsurface sewage disposal system for this parcel and find the data and design to be accurate and in compliance with state and local regulations and good engineering practice.

*Ralph M. Vinje*  
Ralph M. Vinje OE #863  
2450 Auto Park Way  
Escondido, CA 92029-1229 (760) 743-1214 1/14/2008  
Address Phone Date

FOR DEPARTMENTAL USE ONLY

APPROVED: YES \_\_\_\_\_ NO \_\_\_\_\_ DATE \_\_\_\_\_ FINAL MAP REQUIRED: YES \_\_\_\_\_ NO \_\_\_\_\_

Specialist: \_\_\_\_\_

Bldg. Plan Review: \_\_\_\_\_ DATE: \_\_\_\_\_

Engineering Review: \_\_\_\_\_ DATE: \_\_\_\_\_

Water Analysis Results: \_\_\_\_\_ DATE: \_\_\_\_\_

## Leach Field - Commercial

Drill Date 1/11/2008

Test Date 1/12/2008

### Lot Information

Percolation Rate ( <i>mpi</i> )	43
Flow ( <i>gal/person/day</i> )	15
Number of People	6

### Design Specifications

Active Leach Line ( <i>ft</i> )	157
Reserve Leach Line ( <i>ft</i> )	157
Trench Depth ( <i>ft</i> )	3
Rock Below Pipe ( <i>in</i> )	12
Septic Tank Capacity ( <i>gal</i> )	1000

USE 200' Minimum  
 + 100% Reserve

### Calculations

$$\left( \frac{6 \text{ people} \times 15 \frac{\text{gal}}{\text{person/day}}}{\sqrt[5]{43 \text{ mpi}}} \right) = 118 \text{ ft}^2 \text{ of required absorption area}$$

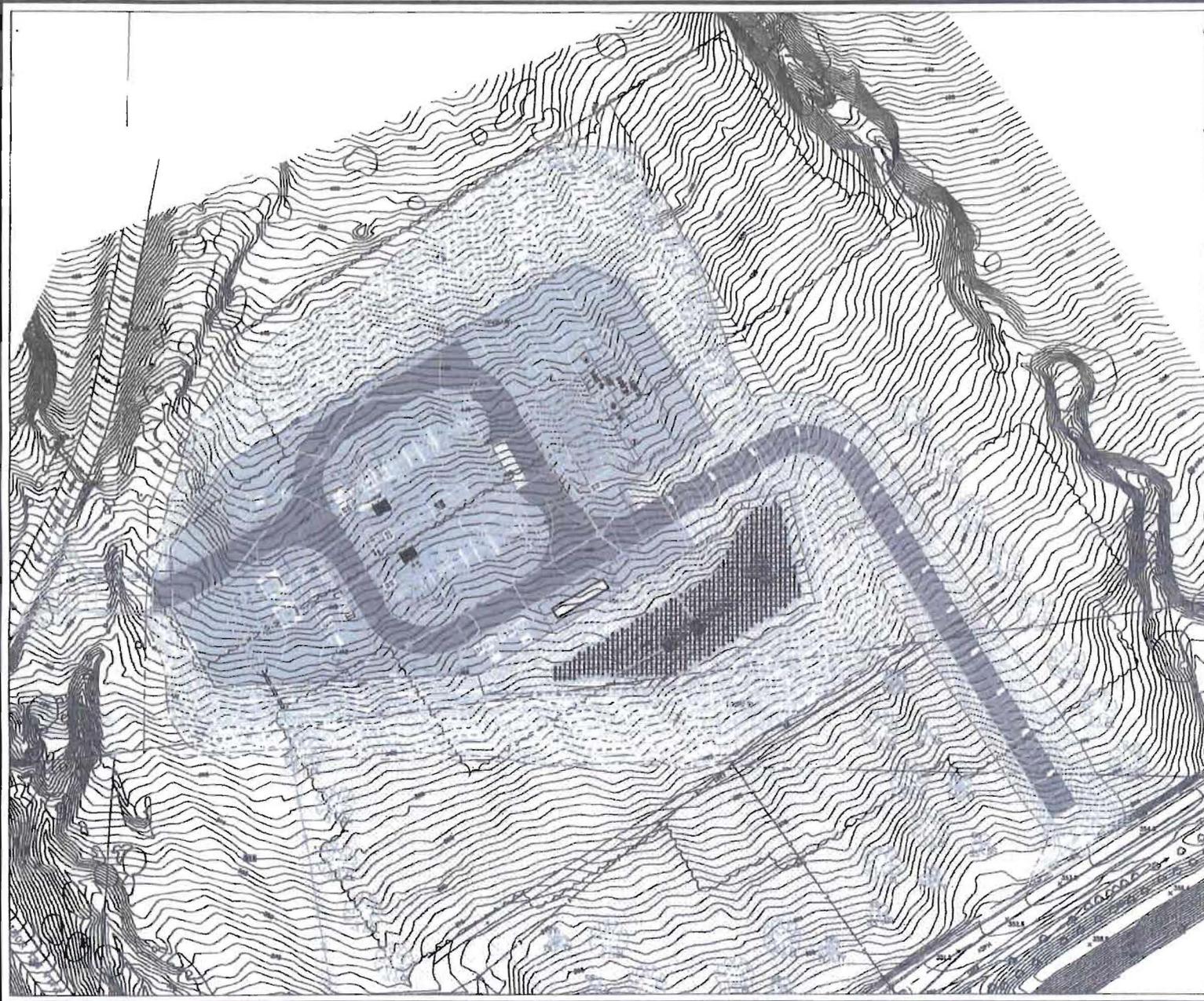
$$\left( \frac{118 \text{ ft}^2}{1.5} \right) \times 2 = 157 \text{ ft of active leach line}$$



Ralph M. Vinje GE #863

Vinje & Middleton  
 Engineering, Inc.

2450 Auto Park Way  
 Escondido, CA 92029-1229  
 (760) 743-1214



VINJE & MIDDLETON ENGINEERING, INC.  
 2450 Auto Park Way  
 Escondido, CA 92029-1929  
 760-743-1214



"I CERTIFY THAT THE LAYOUT DRAWING SHOWS THE LOCATION OF ALL KNOWN EASEMENTS AND PUBLIC WATER LINES AND ALL PUBLIC WATER LINES THAT ARE WITHIN 60 FEET OF THE LOT BOUNDARY."

Design: MR. 1/14/08  
 BY: \_\_\_\_\_  
 CHECKED: \_\_\_\_\_  
 DATE: \_\_\_\_\_

**LOT INFORMATION**

DATE: 1/14/2008  
 DEH No.         
 JOB No. 08-122-S  
 APN 110-072-28  
 ACRES 41.15 (Site=6.66)

Site Location	Owner's Address
Corner of Highway 76 and Palo Del Norte Road, Palo	SDG&E c/o: Sage Inc. P.O. Box 1000 Stilwell, KS 66085 913-681-2881
Legal	
(1/4) PAR 1 PER D98-109127 IN SW 1/4 OF SE 1/4 OF SEC 29-9-2W	

**LEGEND**

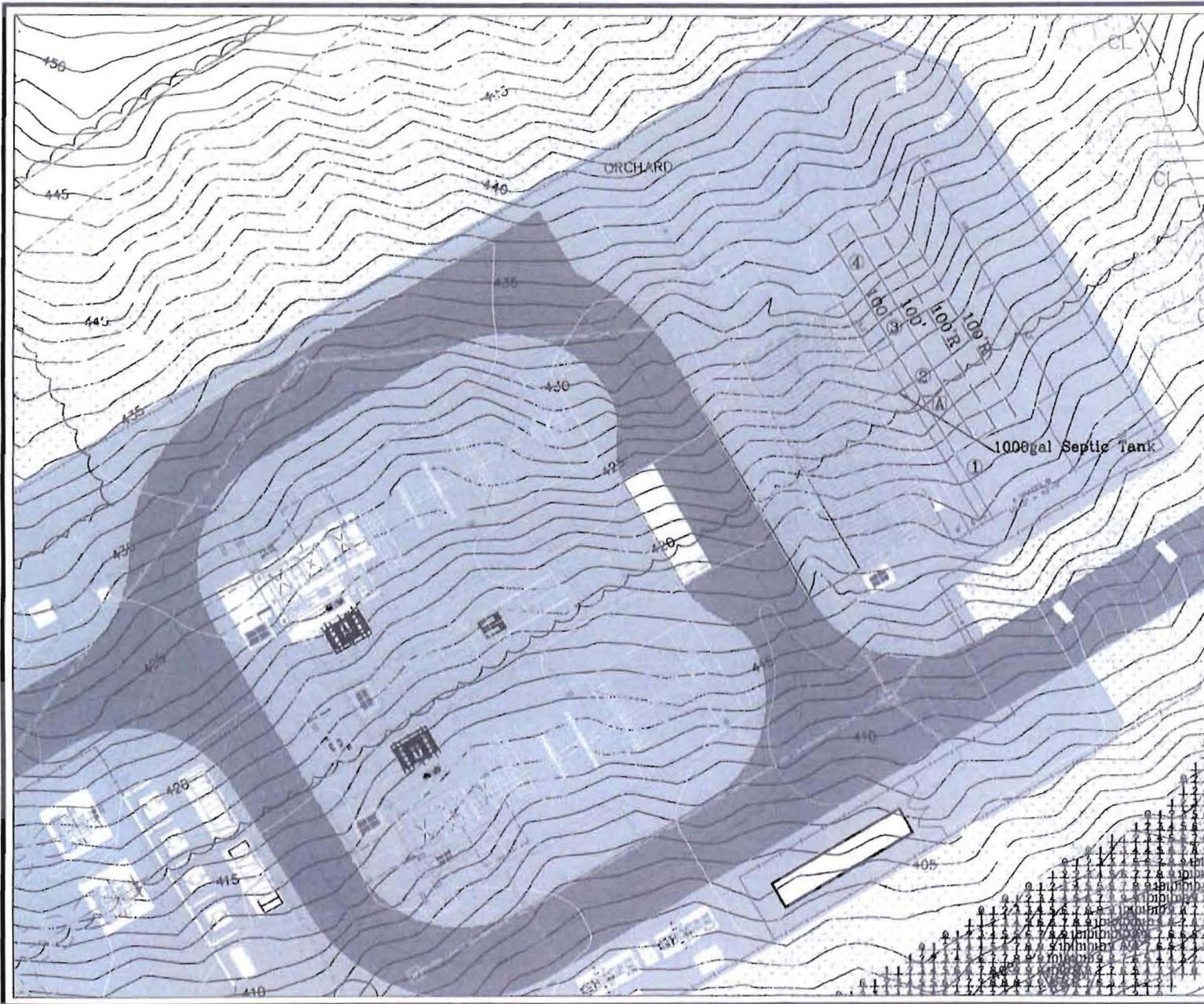
- ⊙ Perc Test Location
- Ⓜ Groundwater Boring
- 420 Contour Line w/ 1' Interval
- 200' Leach Line
- 200R Reserve Leach Line
- Easement
- - - Setback
- Water/Utilities
- Roads
- - - Cut/Fill
- ==== Property Line
- ⋯⋯⋯ Tight Line

**\*INSTALLATION NOTES\***

- Proposed Peaker Power Plant
- Proposed Men and Woman Bathroom
- Use 43 mpi @ 3' Trench Depth
- Use Usage 6 People Per Day Max.
- Use 10 gal/person/day
- Use Commercial Design with Safety Factor 2
- Use 1000 Gallon Septic Tank

SCALE: 1" = 100'

DEH Approval Stamp and Notes



VINJE & MIDDLETON ENGINEERING, INC.  
 2450 Auto Park Way  
 Escondido, CA 92029-1229  
 760-743-1214



I CERTIFY THAT THE ABOVE DRAWING SHOWS THE LOCATION OF ALL  
 EXISTING EASEMENTS AND PUBLIC WATER LINES ON THE LOT AND ALL  
 PUBLIC WATER LINES THAT ARE WITHIN 50 FEET OF THE LOT  
 BOUNDARY.

Design: MA 1/14/08  
 BY: \_\_\_\_\_  
 EC: \_\_\_\_\_  
 CR: \_\_\_\_\_

**LOT INFORMATION**

DATE: 1/14/2008  
 DEH No. LOWS  
 JOB No. 08-122-S  
 APN 110-072-28  
 ACRES 41.15 (Site=8.66)

<u>Site Location</u>	<u>Owners Address:</u>
Corner of Highway 76 and Palo Del Norte Road, Pala	SDK&F c/o: Saga Inc. P.O. Box 1000 Stillwell, KS 66085 913-681-2881

Legal  
 (EX PAR 17ER  
 DGR-109127) IN SW¼  
 OF SE¼ OF SEC  
 29-9-2W

**LEGEND**

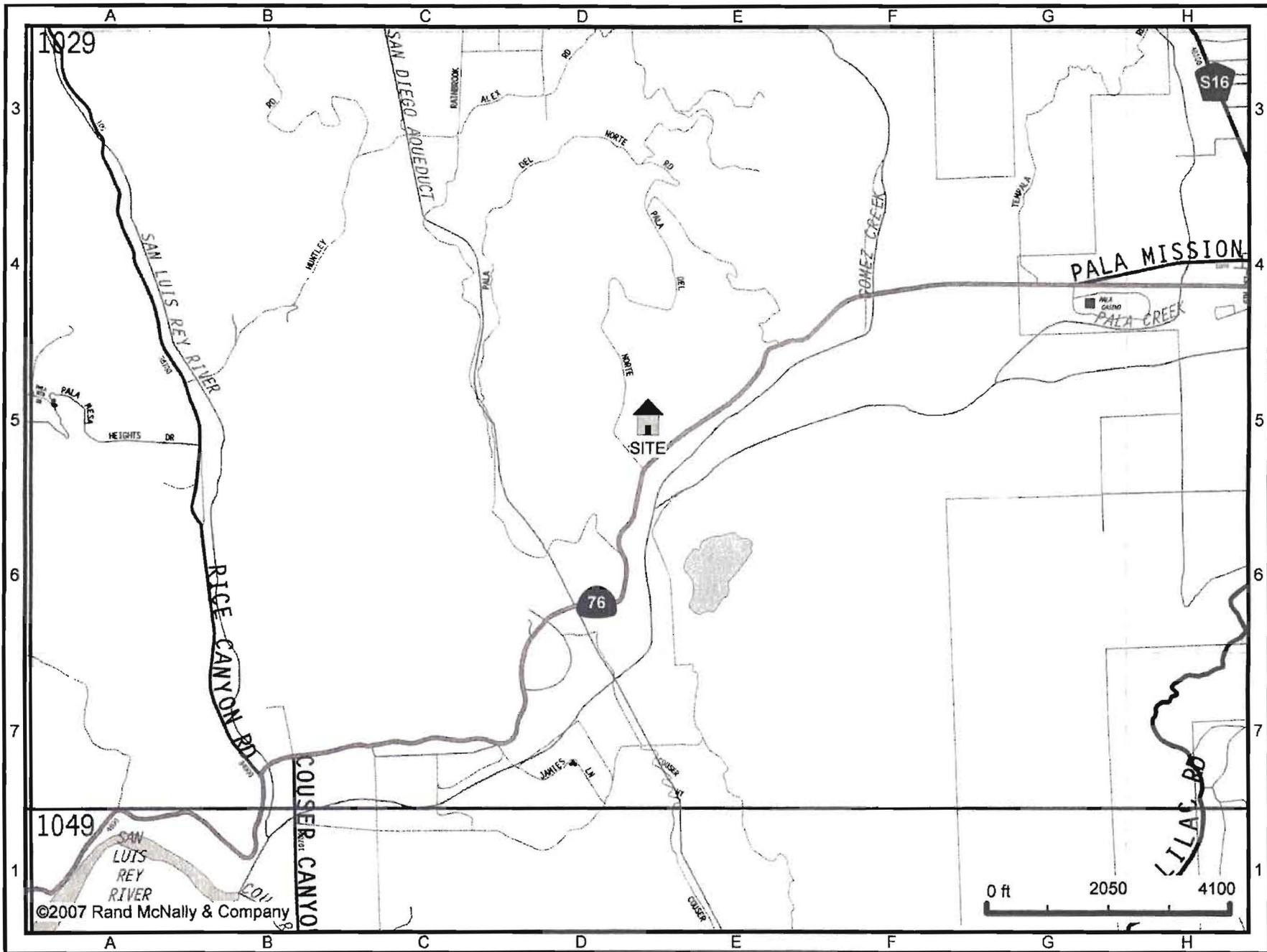
- ⊙ Perc Test Location
- Ⓜ Groundwater Boring
- 420 Contour Line w/ 1' Interval
- 200' Leach Line
- 200R Reserve Leach Line
- - - Easement
- - - Setback
- - - Water/Utilities
- - - Roads
- - - Cut/Fill
- - - Property Line
- ⋯⋯⋯ Tight Line

**\*INSTALLATION NOTES\***

- Proposed Peaker Power Plant
- Proposed Men and Women Bathroom
- Use 43 mpi @ 8' Trench Depth
- Use Usage 8 People Per Day Max.
- Use 15 gal/person/day
- Use Commercial Design with Safety Factor 2
- Use 1000 Gallon Septic Tank



DEH Approval Stamp and Notes



SITE: 1029 - D5

072

6°55'52"E

2.26 AC

OPEN  
SPACF.

ESMT

21280  
95.40  
N33°48'31"E  
179.21  
R 140  
134.32

109.66 AC  
PAR 4  
N27°08'26"W  
167.71  
N42°55'51"E  
58.64  
E-178  
74.90  
E-300  
81.44

PALM  
57°52'54"E  
524.72

12.91 AC  
PAR 2  
15.91 AC  
PAR 1  
N77°13'42"W  
N89°03'06"W  
525 106  
N2°09'32"W  
1374.18

11.10 AC  
PAR 3  
N57°11'43"W  
440  
N11°02'01"W  
750  
N11°02'01"W  
100  
N11°02'01"W  
100

PM14684  
1600

N89°07'55"E

PM14684  
1374.18

41'23"E  
2858.64  
1472.49

POR PAR 8 SBE 141-37-91

43.49 AC

26 AG PR  
41.15 AC

30 AG PR  
3.67 AC

707.97  
PAR 5 SBE  
MAP 141-37-91  
28 AG PR  
10.74 AC  
589°43'40"E  
695.22

22 AG PR  
21.64 AC

31 AG PR  
7.00 AC

APPROX  
N0°35'56"E  
1268.03

APPROX  
LOC.  
N7E.57°05'  
W.7E.57°05'

696.56

N2°07'25"E  
1302.96

1510.54

N88°40'46"W 2786.86

N88°37'20"W

PAR 6 SBE MAP 141-37-91

AG PR. = AGRICULTURAL PRESERVE

37

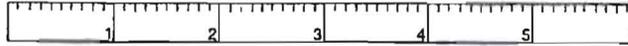
SEC 29 - T9S - R 2W

9

N0°51'

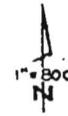
N0°33'54"E

1-800-345-7334

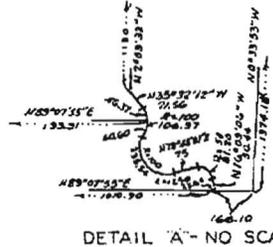
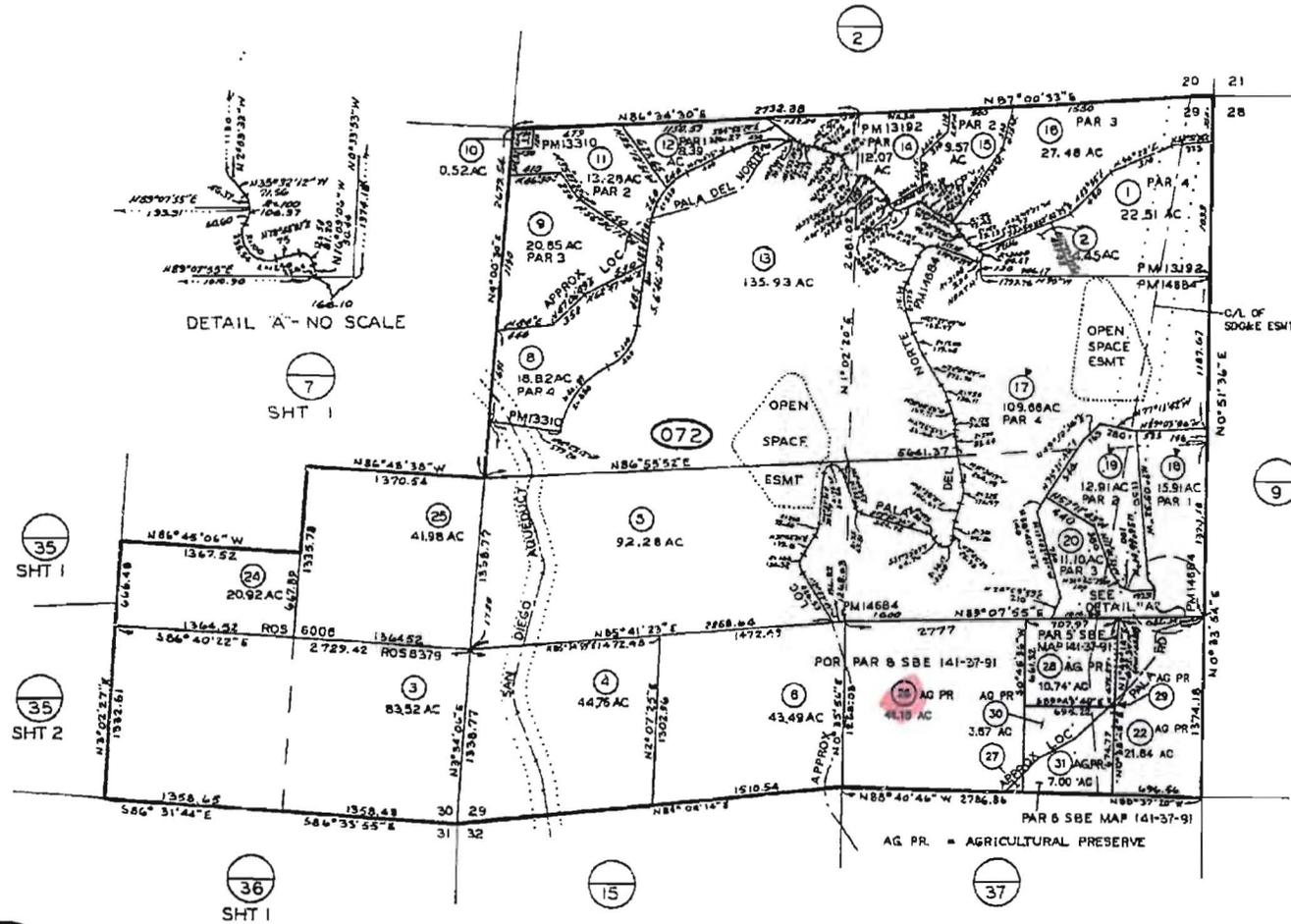


SCALE IN 1/10 OF AN INCH

110-07  
SHT 2 OF 2



110-070



2/10/08 SW

CHANGES				
BLK	OLD	NEW	YR	CUT
070	878	118-01	81	10006
070	879	118-01	81	5507
070	880	118-01	81	5333
070	881	118-01	81	2257
070	882	118-01	81	2121
070	883	118-01	81	1801
070	884	118-01	81	1851
070	885	118-01	81	1801
070	886	118-01	81	1801
070	887	118-01	81	1801
070	888	118-01	81	1801
070	889	118-01	81	1801
070	890	118-01	81	1801
070	891	118-01	81	1801
070	892	118-01	81	1801
070	893	118-01	81	1801
070	894	118-01	81	1801
070	895	118-01	81	1801
070	896	118-01	81	1801
070	897	118-01	81	1801
070	898	118-01	81	1801
070	899	118-01	81	1801
070	900	118-01	81	1801

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN. ASSESSOR'S PARCELS MAY NOT COMPLY WITH LOCAL SUBDIVISION OR BUILDING ORDINANCES.

SEC 29 - T9S-R2W  
SEC 30 - T9S-R2W - SE 1/4 POR  
ROS 8351,8379,14889,15058,15610

MAR 07 1989

SAN DIEGO COUNTY  
ASSESSOR'S MAP  
BOOK 110, PAGE 07 SHT 2 OF 2

# SEPTIC SYSTEM DESIGN REQUIREMENTS

County of San Diego

Department of Environmental Health

February 1999

## What is a septic system?

A septic system is an on-site subsurface sewage disposal system that is designed to have the sewage treated through the soil. The key components are a septic tank, leach lines or seepage pit, and permeable, unsaturated soil. The design life expectancy is 20 to 30 years for a properly designed and maintained septic system. A septic system is not an option if public sewer is readily available to the site.

## Design Requirements

### Septic Tank

The septic tank size is a function of the typical peak daily flow of sewage generated by the building served by the septic system. The leach field or seepage pit size is a function of the peak daily sewage flow and soil characteristics for the disposal system.

All septic tanks must have IAPMO approval and be approved by this Department. It is recommended that second dwellings have their own septic tank.

A 1,000 gallon tank is required for up to a 3-bedroom house.

A 1,200 gallon tank is required for a 4-bedroom house.

A 1,500 gallon tank is required for a 5-6-bedroom house.

### Sewer Pipe

Tight sewer pipe must have IAPMO approval. SDR-35 rated pipe is recommended for all plumbing from the septic tank to leach lines and crossover connections.

### Leach Line Pipe

Leach line pipe shall have IAPMO approval, be 4" diameter, have 5/8" holes offset 60 degrees, and be constructed of PVC or carlon plastic.

### Trench Dimensions

The standard leach line trench dimension is 18" wide by 36", 48", or 60" deep. The total length and depth will be a function of the percolation test, or subdivision map design requirements for the parcel.

The bottom of the leach line trench shall be level, and the trench shall be level on contour in order to maintain a uniform trench depth.

The trench unit may need to be modified in conditions where shallow clay lenses are encountered or the leach lines are to be installed on a slope greater than 25%.

### Separation to Groundwater

The disposal system must have at least 5 feet of unsaturated soil below the bottom of the leach line trench or seepage pit in order to function properly and not pollute the groundwater. This separation is based on historical high groundwater levels for the site. If the groundwater table rises within 8 feet

### Dams and Siphons

Leach line installations on a hillside or slight grade will require a serial system design. A dam and siphon will connect each pair of leach lines so that one trench at a time will take sewage effluent.

### Rock Requirements

Leach line rock shall be washed and 1.0" to 1.5" in graded size. Rock fines or dust will seal off the infiltrative sidewall and bottom surfaces of a disposal trench, and clog the void space in between the rock. This can result in premature failure of the disposal system.

### Plastic Chambers

Plastic chambers shall have IAPMO approval and approval from this Department. Chamber widths less than 18" will require a correction factor to increase the total linear footage sizing. Chamber interior widths of 18" or greater will have a 1:1 ratio to a standard leach line of rock and pipe.

### Sizing Requirements

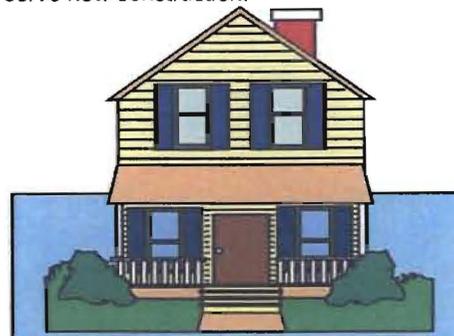
The minimum size leach field per County Code is 200 linear feet. The size of the leach field or seepage pit will be based on the number of bedrooms of the house and the percolation rate of the soil. A second dwelling will be sized as a separate house and not as a bedroom addition. Commercial buildings will be sized on usage and peak daily flows. Septic systems in the desert communities have a reduced sizing requirement based on a horizontal seepage pit design.

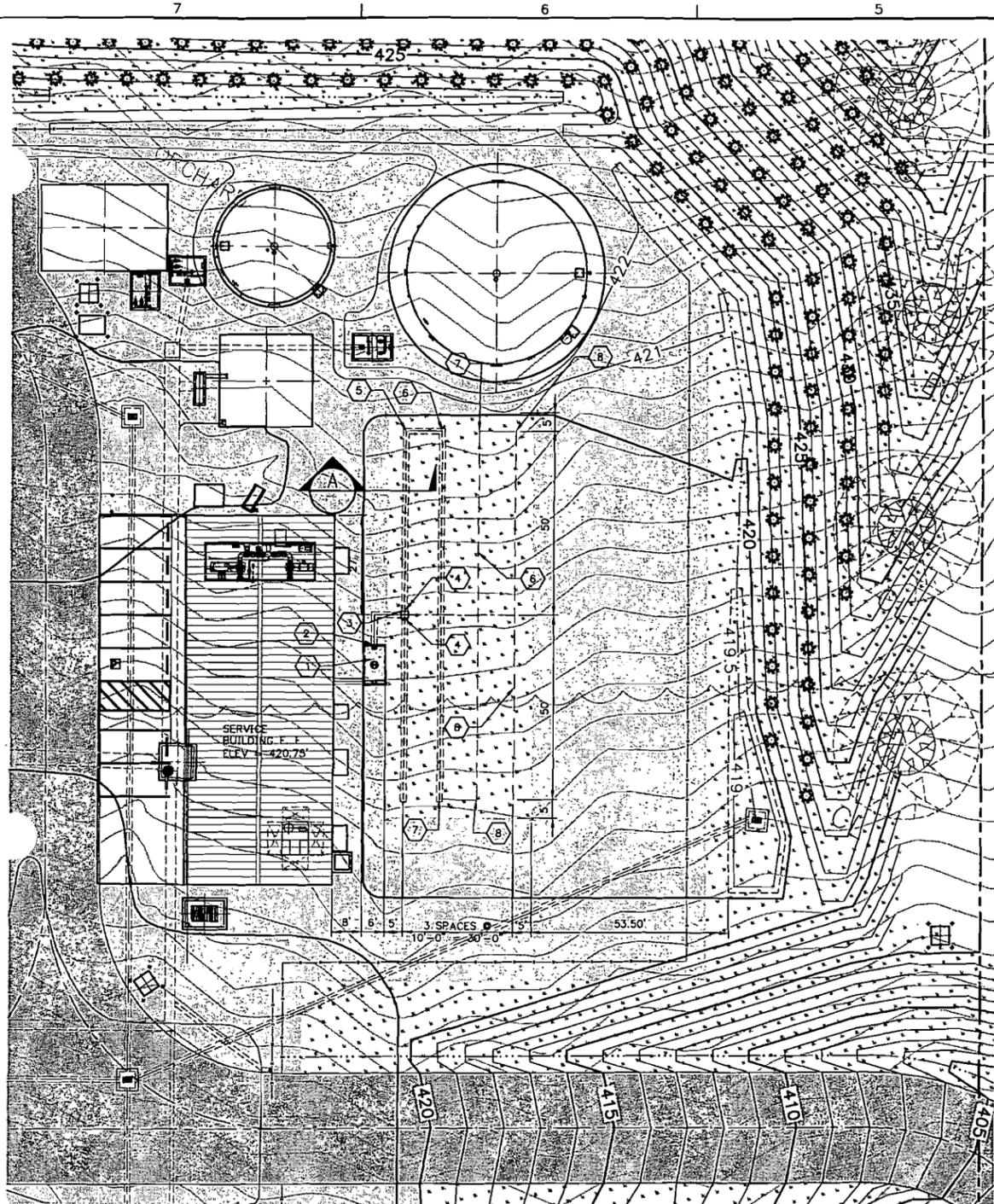
### Horizontal Seepage Pits

Horizontal seepage pits are restricted to sites where the soil is uniform, the average percolation rate is no greater than 30 minutes per inch (mpi), and the depth of unsaturated soil is at least 13 feet. Full percolation testing is required for a horizontal seepage pit.

### Vertical Seepage Pits

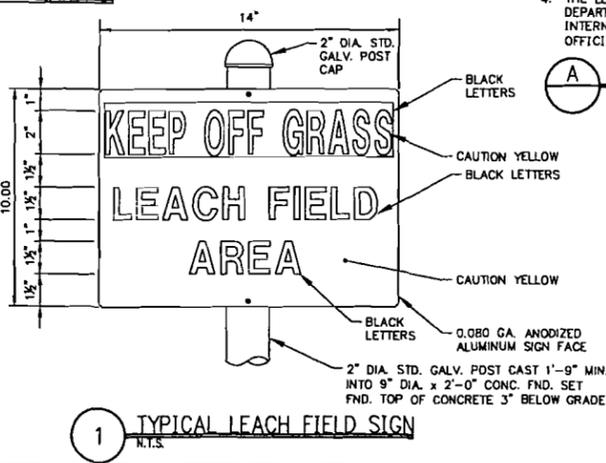
Vertical seepage pits are essentially large diameter shallow wells that sewage is discharged into. This type of disposal system is restricted to coastal sedimentary soil basins, where the groundwater is also contaminated by salt-water intrusion. Full percolation testing is required for a vertical seepage pit to serve new construction.





**ON-SITE WASTEWATER TREATMENT SYSTEM (OWTS)**  
 PLAN NORTH IS 29°55'46"  
 CCW OF TRUE NORTH  
 SCALE IN FEET

- LENGEND:**
- ▲ LEACH FIELD SIGN (7 PLACES)
  - DISTRIBUTION BOX
  - SEPTIC TANK
  - ==== LEACH LINE (PERFORATED)
  - ==== TIGHTLINE (NON-PERFORATED)
  - LEACH LINE RESERVE
  - TIGHTLINE RESERVE



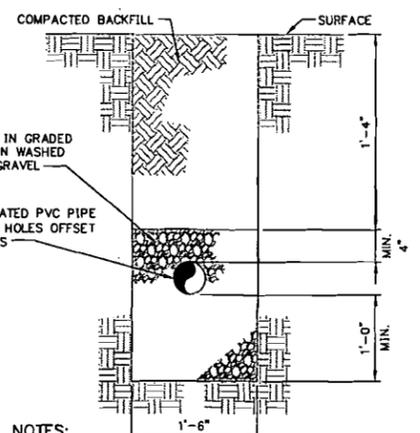
**1 TYPICAL LEACH FIELD SIGN**  
 N.T.S.

- OWTS KEYNOTES:**
1. INSTALL MINIMUM 1,000 GALLON WATERTIGHT CONCRETE SEPTIC TANK WITH AN EFFLUENT FILTER LOCATED ON TANK OUTLET THAT MEETS OR EXCEEDS THE MINIMUM REQUIREMENTS OF THE INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS (IAPMO), THE COUNTY OF SAN DIEGO DEPARTMENT OF ENVIRONMENTAL HEALTH-LAND AND WATER QUALITY DIVISION AND THE MANUFACTURER'S RECOMMENDATIONS. TOP ELEVATION PER MANUFACTURER'S RECOMMENDATIONS. FLOWLINE IN (SW) = 417.23' FLOWLINE OUT (NE) = 416.98'
  2. INSTALL 15 L.F. 4" DIAMETER SCH 40 PVC PIPE TO DISTRIBUTION BOX @ 1.0% SL.
  3. INSTALL A 2 OUTLET WATERTIGHT CONCRETE DISTRIBUTION BOX THAT MEETS OR EXCEEDS THE MINIMUM REQUIREMENTS OF THE IAPMO, THE COUNTY OF SAN DIEGO DEPARTMENT OF ENVIRONMENTAL HEALTH-LAND AND WATER QUALITY DIVISION AND THE MANUFACTURER'S RECOMMENDATIONS. TOP ELEVATION PER MANUFACTURER'S RECOMMENDATIONS. FLOWLINE IN (SW) = 418.83' FLOWLINE OUT (N&S) = 418.75'
  4. INSTALL 50 L.F. 4" DIAMETER SCH 40 PVC PIPE WITH 5/8" HOLES OFFSET 60 DEGREES AS SHOWN ON PLAN.
  5. INSTALL 10 L.F. 4" DIA. SCH. 40 PVC TIGHTLINE PIPE, NON-PERFORATED PIPE @ 0.0% SL.
  6. INSTALL 100 L.F. 4" DIAMETER SCH 40 PVC PIPE WITH 5/8" HOLES OFFSET 60 DEGREES AS SHOWN ON PLAN.
  7. RESERVED FOR 10 L.F. 4" DIA. SCH. 40 PVC RESERVE TIGHTLINE PIPE, NON-PERFORATED PIPE @ 0.0% SL.
  8. RESERVED FOR 100' L.F. 4" DIA. SCH. 40 PVC RESERVE PIPE WITH 5/8" HOLES OFFSET 60 DEGREES AS SHOWN ON PLAN. LAND SET ASIDE FOR EMERGENCY RESERVE, INSTALLED IF PRIMARY SYSTEM FAILS.

**OWTS DESIGN SETBACK REQUIREMENTS:**

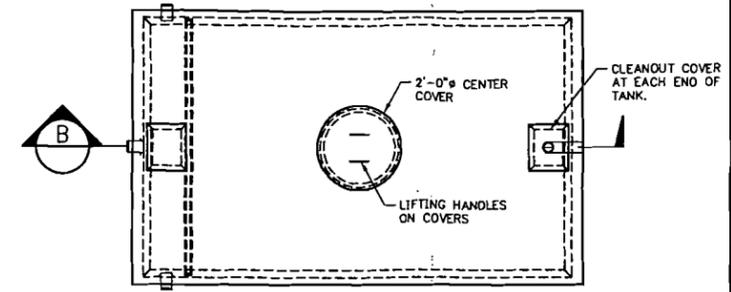
SYSTEM COMPONENT	SETBACK TO:	MINIMUM DISTANCE
SEPTIC TANK	STRUCTURE	5 FEET
LEACH LINES	STRUCTURE	8 FEET
LEACH LINES	DRAINAGE COURSE	50 FEET FROM TOP OF BANK
LEACH LINES	POND	100 FEET FROM SPILLWAY ELEV.
LEACH LINES	SEPTIC TANK	5 FEET
LEACH LINES	LEACH LINES	10 FEET

- NOTES:**
1. DESIGN CRITERIA PER THE COUNTY OF SAN DIEGO DEPARTMENT OF ENVIRONMENTAL HEALTH-LAND AND WATER QUALITY DIVISION.

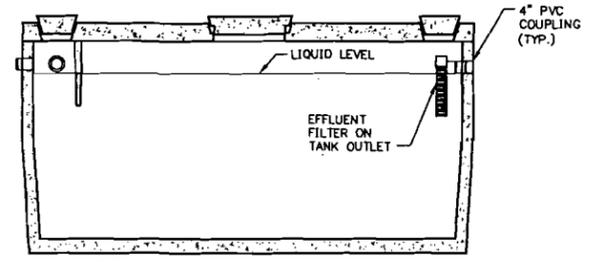


- NOTES:**
1. LEACH LINE PIPE SHALL BE IAPMO APPROVED.
  2. LEACH LINE TRENCHES AND PIPES SHALL BE LEVEL WITH NOT MORE THAN 2" PER 100 LINEAR FEET OF VARIATION IN GRADE.
  3. LEACH LINES SHALL BE LOCATED NO CLOSER THAN 10 FEET ON CENTER FROM ANY ADJACENT LEACH LINE.
  4. THE LEACH LINES MUST BE APPROVED BY BOTH THE DEPARTMENT OF ENVIRONMENTAL HEALTH DIRECTOR AND AN INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS (IAPMO) REPRESENTATIVE PRIOR TO BACKFILLING.

**A TYPICAL LEACH LINE SECTION**  
 N.T.S.

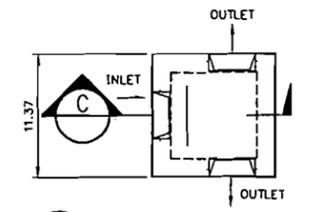


**1000 GALLON SEPTIC TANK**  
 N.T.S.

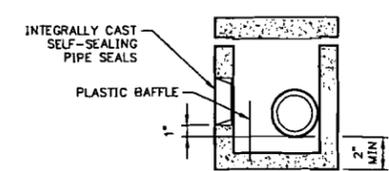


**B SEPTIC TANK SECTION**  
 N.T.S.

- GENERAL NOTES:**
- CONCRETE SPECIFICATIONS:**
1. 4500 PSI AFTER 28 DAYS.
  2. REINFORCING IS GRADE 60.
  3. ALL JOINTS SEALED WITH BUTYL RUBBER JOINT SEALANT (OR APPROVED EQUAL).
  4. CENTER ACCESS COVERS SHOULD HAVE RISERS TO BRING COVER ACCESS TO GRADE (SEE PLAN).
  5. COVER NOT DESIGNED FOR VEHICLE LOADS.
  6. SEPTIC TANK SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
  7. THE SEPTIC TANK MUST BE APPROVED BY BOTH THE DEPARTMENT OF ENVIRONMENTAL HEALTH DIRECTOR AND AN INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS (IAPMO) REPRESENTATIVE PRIOR TO BACKFILLING.



**2 OUTLET DISTRIBUTION BOX**  
 N.T.S.



**C DISTRIBUTION BOX SECTION**  
 N.T.S.

- GENERAL NOTES:**
- CONCRETE SPECIFICATIONS:**
1. 4500 PSI AFTER 28 DAYS.
  2. REINFORCING IS GRADE 60.
  3. COVER NOT DESIGNED FOR VEHICLE LOADS.
  4. ALL PENETRATIONS TO DISTRIBUTION BOXES ARE INTEGRALLY CAST.
  5. DISTRIBUTION BOX SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR

**PRIVATE CONTRACT**

6 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
---------	--	----------

GRADING PLAN FOR:  
 THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
 CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR MICHAEL FARRBERG  
 DIRECTOR OF PUBLIC WORKS

DESIGNED BY  
 THOMAS F. HEATLER  
 R.E.C. 3-31-08

L-15454  
 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
 SPECIAL USE PERMIT NO. NOT APPLICABLE  
 TENTATIVE MAP NO. NOT APPLICABLE  
 NOI/WOID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
 "M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
 LOCATION: S.E. CORNER OF MANHOLE  
 RECORD FROM: FIELD BOOK 4047-04-079  
 NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

**Sega**  
 Engineers - Architects - Technicians  
 Design - Construction - Field Service

16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE POWER PLANT**  
 ON-SITE WASTEWATER TREATMENT SYSTEM

DESIGN BY: M. BLAKE	CHECKED BY: B. ROMINES
DRAWN BY: R. KUHN	DATE: 9-12-07
CLIENT I.D. ICCO0101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-C200.dwg	
DRAWING NO.	REV.

C200 0

*Dwellings that have more bedrooms than the above will require a design with oversized or a battery-type tank, if a common system is being proposed. Separate tanks for each dwelling could be used even if connected to a common disposal field.*

## Setbacks

Setbacks in layout designs refer to the required spacing in distance from components of the sewage disposal system and to structures, property lines, easements, watercourses, wells, or grading. Specific setback requirements will vary based on the type of system design and site conditions. These are:

System Component	Setback To:	Minimum Distance
Septic Tank	Structure	5 feet
Septic Tank	Property Line	5 feet
Septic Tank	Water Well	100 feet
Leach Lines	Structure	8 feet
Leach Lines	Property Line	5 feet
Leach Lines	Water Lines (Public)	25 feet from edge of easement (a)
Leach Lines	Water Well	100 feet (d)
Leach Lines	Drainage Course	50 feet from top of bank
Leach Lines	Flowing Stream	100 feet from top of bank
Leach Lines	Pond	100 feet from spillway elev.
Leach Lines	Reservoir	500 feet to 1000 feet based on average slope
Leach Lines	Aqueduct	100 feet from edge of easement (c)
Leach Lines	Road Easements	8 feet from edge of ultimate easement width (b)
Leach Lines	Cut Slopes	5:1 Setback from top of cut slope (e)
Leach Lines	Septic Tank	5 feet
Leach Lines	Leach Lines	10 feet
Leach Lines	Seepage Pits	15 feet
Seepage Pits	Structure	10 feet
Seepage Pits	Property Line	10 feet
Seepage Pits	Water Lines (Public)	25 feet from edge of easement (a)
Seepage Pits	Water Well	150 feet (d)
Seepage Pits	Drainage Course	50 feet from top of bank
Seepage Pits	Flowing Stream	100 feet from top of bank
Seepage Pits	Pond	100 feet from spillway elev.
Seepage Pits	Reservoir	500 feet to 1000 feet based on average slope measurements
Seepage Pits	Aqueduct	100 feet from edge of easement (c)
Seepage Pits	Road Easements	10 feet from edge of ultimate easement width (b)
Seepage Pits	Cut Slopes	5:1 Setback from top of cut slope (e)
Seepage Pits	Septic Tank	5 feet
Seepage Pits	Seepage Pits	20 feet

- The setback to a domestic water line may increase if the 5:1 setback of the utility trench depth exceeds the 25-ft setback.
- The setback may increase if the 5:1 setbacks to road cuts are greater than the minimum setback of 8 feet.

- Any reduction in the Aqueduct setback requires approval from the San Diego County Water Authority or other purveyor, if another district.
- The minimum setback may be increased if site conditions show the minimum setback is insufficient to protect groundwater supplies.
- No part of an on-site wastewater system, with the exception of a septic tank, pump chamber, enclosed filter, or tight sewer pipe, shall be located closer than a 5:1 setback distance to the top of a cut bank, or the edge of an excavation. The horizontal distance would be five times the height of the cut or depth of the excavation. This setback would also be applied to the top of an eroded bank or natural slope in excess of 60%.

## Leach Line Linear Footage Requirements

The charts located at the end of this policy show the corresponding length of leach line as a function of percolation rate and the number of bedrooms for a single-family dwelling. \*The one-bedroom design lengths correspond to 2<sup>nd</sup> dwelling systems on a shared system with the main house or its own system.

## Seepage Pits

Seepage Pits will require full percolation testing by a licensed civil engineer, registered geologist, or registered environmental health specialist.

- Horizontal seepage pits cannot be used if percolation rates exceed 30 minutes per inch.
- Vertical seepage pits are restricted to coastal sedimentary basins that have saltwater intrusion into the groundwater with TDS levels in excess of 1500 ppm.
- Desert seepage pits are used alluvial areas of the San Diego County desert areas, and percolation testing may be waived.

## Grading Plan Review

Upon approval of a layout by DEH, the Specialist will write in the grading line on the approval form indicating whether a field check of completed grading is required prior to issuance of a septic tank permit. Keep in mind that DEH grading approval is not the same as local land use agency grading approval. For the unincorporated parts of the County, some small projects may not require grading permits. For other projects, County land use agencies issue the following kinds of grading permits:

- **Minor Grading:** Processed through the Department of Planning and Land Use (DPLU), Building Division. Please see the Grading Plan Checklist (DPLU: BLDG-009, Rev. 1-99). Phone: (858) 565-5920.
- **Major Grading:** Processed through the Department of Public Works, Land Development Division, Grading Improvements. Please see the Major Grading Plan Checklist. Phone: (858) 694-3281.

Minor and/or major grading plans will be reviewed by DEH prior to grading to determine impacts to the approved on-site wastewater system and adjacent properties. After completion of the grading, the appropriate DEH field office must be contacted to arrange for a field check, unless the field check is waived on the layout approval.

**Cross reference(s)**—Excavations, fills and obstructions, § 71.301 et seq.

#### **SEC. 68.341. RESERVE AREA REQUIREMENTS.**

An area shall be set aside for each on-site wastewater system design to allow for the replacement of the entire drainage/dispersal system design. This 100% reserve area is required for all on-site wastewater system designs that are a part of new construction, remodeling, a change in usage that increases potential occupancy or daily sewage flow, subdivisions, boundary adjustments, or grading plan projects.

For percolation rates greater than 60 minutes per inch and less than or equal to 90 minutes per inch, the reserve area requirement shall be 200%. For percolation rates greater than 90 minutes per inch and less than or equal to 120 minutes per inch, the reserve area requirement shall be 300%. For percolation rates greater than 120 minutes per inch, the reserve area requirement shall be 400%.

If an existing property does not have 100% reserve area, no construction shall take place that would remove any usable reserve area, unless the property can be connected to public sewer.

(Repealed by Ord. No. 6049 (N.S.), effective 6-11-81; new section 68.341 added by Ord. No. 9273 (N.S.), effective 12-15-00)

#### **SEC. 68.342. TYPE OF ON-SITE WASTEWATER SYSTEM REQUIRED.**

Any on-site wastewater system hereafter constructed or installed in the County shall consist of a septic tank with effluent discharging into either (1) a leach field disposal system, (2) a seepage pit disposal system, or (3) an alternative on-site wastewater system designed and installed to specifications as set forth by the Director.

(Amended by Ord. No. 6049 (N.S.), effective 6-11-81; amended by Ord. No. 7428 (N.S.), effective 2-4-88; amended by Ord. No. 9273 (N.S.), effective 12-15-00)

#### **SEC. 68.343. MINIMUM REQUIREMENTS FOR SEPTIC TANKS.**

Any septic tank hereafter installed in the County shall meet the following minimum specifications:

(a) All Septic Tanks shall be IAPMO approved and approved by the Department of Environmental Health.

(b) Such tank shall be watertight and shall be constructed of concrete or other approved material. The Director may approve alternative materials and construction specifications to meet health requirements.

(Amended by Ord. No. 3061 (N.S.), effective 5-11-67; amended by Ord. No. 6049 (N.S.), effective 6-11-81; amended by Ord. No. 7428 (N.S.), effective 2-4-88; amended by Ord. No. 9273 (N.S.), effective 12-15-00)

#### **SEC. 68.344. MINIMUM REQUIREMENTS FOR DISTRIBUTION BOX.**

Any distribution box hereafter constructed or installed in the County shall meet the following minimum specifications:

(a) Such distribution box shall be watertight and shall be constructed of the same materials authorized for construction of a septic tank. The inner surface of the distribution box shall be resistant to sewer gas corrosion.

(b) The outlets from such distribution box shall have exactly the same elevation and shall be located at least two inches above the bottom of the box. The inlet to such distribution box shall be one inch above the elevation of the outlets.

(c) Such distribution box shall be connected to a subsurface disposal system.

(Amended by Ord. No. 3061 (N.S.), effective 5-11-67; amended by Ord. No. 6049 (N.S.), effective 6-11-81; amended by Ord. No. 9273 (N.S.), effective 12-15-00)

### **SEC. 68.345. LEACH LINE DISPOSAL SYSTEMS.**

Any leach field system hereafter constructed or installed in the County for the purpose of disposing of effluent from a **septic tank** shall meet the following minimum requirements:

(a) Perforated leach line pipe shall have IAPMO approval, and its installation must be approved by the Director.

(b) Each leach line shall consist of a trench 18 inches wide, 36 inches deep and be located no closer than 10 feet on center from any adjacent line. Clean washed rock or gravel grading 1 to 1-1/2 inches shall be placed around the leach line pipe. At least 12 inches of rock shall be placed under the leach line pipe and 4 inches above the leach line pipe.

(c) Leach line trenches and pipes shall be level with not more than 2 inches per 100 linear feet of variation in grade.

(d) Leach line trench depth may exceed 36 inches below the surface when percolation testing substantiates adequate soil conditions exist. Additional rock shall be added to the trench so the leach line pipe depth does not increase. The maximum trench depth shall not exceed 60 inches without special approval of the Director.

(Amended by Ord. No. 3061 (N.S.), effective 5-11-67; amended by Ord. No. 6049 (N.S.), effective 6-11-81; amended by Ord. No. 7428 (N.S.), effective 2-4-88; amended by Ord. No. 9273 (N.S.), effective 12-15-00)

### **SEC. 68.345.1. CHAMBER SYSTEMS.**

Any chamber disposal system hereafter constructed or installed in the County for the purpose of disposing of wastewater from a **septic tank** shall meet the following minimum requirements:

(a) The minimum length of any chamber system shall be at least 200 linear feet.

(b) The chambers shall have IAPMO approval for use in an on-site wastewater system and its installation must be approved by the Director.

(c) Each chamber shall have a minimum width of 18 inches to provide the equivalent trench bottom absorption area of an 18-inch wide leach line trench. Chambers less than 18 inches wide may be used at the discretion of the Director but will require a correction factor to provide the equivalent trench bottom absorption area of an 18 inch wide leach line trench. The chambers shall be installed in a trench 24 to 36 inches deep and be located no closer than 10 feet on center from any adjacent line.

(d) Chamber trenches and chambers shall be level with not more than 2 inches per 100 linear feet of variation in grade.

(e) Chamber trench depth may exceed 36 inches below the ground surface when percolation testing substantiates adequate soil conditions exist. Clean washed rock or gravel grading 1 to 1-1/2 inches shall be added to the trench below the chamber so the chamber depth does not increase. The

# ORANGE GROVE PROJECT COUNTY OF SAN DIEGO, CALIFORNIA

## PROPOSED WORK:

**PROJECT SCOPE OF WORK:** THE PLANT WILL CONSIST OF TWO GENERAL ELECTRIC LM6000 CLASSIC SIMPLE CYCLE (46MW EACH) GAS-FIRED TURBINES, WITH ADVANCE EMISSION CONTROL (SCR) AND BOFT STACKS. MAJOR BOP EQUIPMENT INCLUDES A GAS COMPRESSOR, AUTOMATION CONTROL SYSTEM, AND A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS). IN ADDITION THERE WILL BE: ONE 69 KV SWITCH YARD.

THE NATURAL GAS PIPELINE WILL CONSIST OF AN UNDERGROUND 10 INCH CARBON STEEL PIPE ROUTED FROM APPROXIMATELY THE INTERSECTION OF RICE CANYON ROAD AND STATE ROAD 76 TO PALA DEL NORTE ROAD. A TOTAL OF APPROXIMATELY 2.5 MILES. THE GAS PIPELINE WILL CONNECT INTO AN EXISTING SAN DIEGO GAS & ELECTRIC (SDG&E) 16 INCH NATURAL GAS PIPELINE AND PROVIDE FUEL ENERGY TO THE PROPOSED ORANGE GROVE POWER PLANT SITE.

THERE WILL BE 92 CONCRETE PADS/SUPPORT FOUNDATIONS OF VARIOUS SIZES.

**EXISTING AND PROPOSED USES:** THE EXISTING USE OF THE SITE IS A FALLOW ORCHARD. THE PROPOSED USE OF THE SITE IS NEW, POWER GENERATION EQUIPMENT AND ASSOCIATED AUXILIARY EQUIPMENT WITH INTERCONNECTION TO EXISTING SUBSTATION.

THE GAS PIPELINE IS ROUTED THROUGH EXISTING CALTRANS RIGHT-OF-WAY, DAIRY FARMS, AND OTHER PRIVATE PROPERTY. THE PROPOSED PIPELINE ROUTE WILL HAVE MINIMAL OR NO IMPACT TO THE EXISTING AREA. AFTER THE PIPELINE CONSTRUCTION AND INSTALLATION THE PIPELINE ROUTE WILL BE RETURNED TO THE EXISTING CONDITION.

**TYPE OF EXISTING AND PROPOSED CONSTRUCTION:** PROPOSED STRUCTURES: THE PLANT WILL CONSIST OF TWO GENERAL ELECTRIC LM6000 CLASSIC SIMPLE CYCLE (46MW) GAS-FIRED TURBINES, WITH ADVANCE EMISSION CONTROL (SCR) AND BOFT STACKS. MAJOR BOP EQUIPMENT INCLUDES A GAS COMPRESSOR, AUTOMATION CONTROL SYSTEM, AND A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS). IN ADDITION THERE WILL BE: ONE 69 KV SWITCH YARD.

PROPOSED PIPELINE STRUCTURES: A 10 INCH UNDERGROUND PIPELINE AND A METERING STATION APPROX. 60 FEET BY 45 FEET.

**OCCUPANCY CLASSIFICATION(S):** EXISTING: THERE ARE NO PERSONNEL USING THE SITE AT THIS TIME. PROPOSED: THE SITE WILL BE MANNED BY FOUR FULL-TIME EMPLOYEES PER SHIFT. THE GAS PIPELINE WILL REQUIRE NO PERSONNEL.

**NUMBER OF STORIES:** THE GENERATOR, TURBINE AND ACCESSORY COMPARTMENT WILL ALL BE ONE STORY.

**HEIGHT OF THE BUILDINGS:** MECHANICAL EQUIPMENT VARIES WITH THE TALLEST BEING THE EXHAUST STACKS AT 80FT. THE TURBINE, GENERATOR AND ACCESSORY COMPARTMENT ARE 43 FEET. SEE C100 FOR DETAILS.

**CONDITION OF SOIL:** COMPACT FILL.

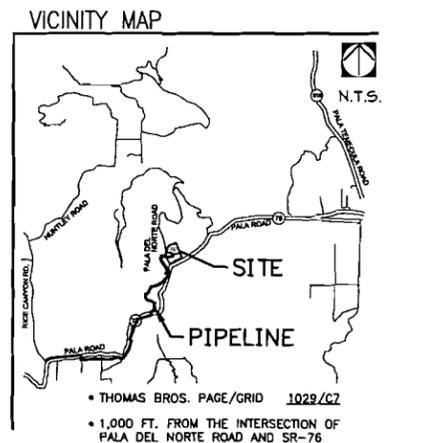
**BUILDING CODE USED FOR DESIGN:** CBC 2007

**ZONING DESIGNATION AND/OR OVERLAY ZONE DESIGNATIONS:** "GENERAL AGRICULTURE" AND AGRICULTURE PRESERVE AGRICULTURE ZONE: PORTIONS OF THE PROJECT SITE FALL WITHIN AGRICULTURAL PRESERVE AREA "A-4(B)", PER THE WILLIAMSON ACT, AS ADOPTED BY THE BOARD OF SUPERVISORS OF THE COUNTY OF SAN DIEGO ON DECEMBER 31, 1971.

## PROJECT TEAM:

<b>PROJECT TEAM:</b>	<b>SOIL ENGINEER &amp; GEOLOGIST:</b>	<b>SURVEYOR:</b>
INDUSTRIAL CONSTRUCTION CO., INC. 10060 BRECKSVILLE ROAD BRECKSVILLE, OH 44141 PETE KERR PHONE: 440-746-9200 FAX: 440-717-9568	PSI 6867 NANCY RIDGE DRIVE, SUITE E SAN DIEGO, CA 92121 ROBERT RUSSELL PHONE: 858-455-0544 FAX: 858-455-1170	PSOMAS 3187 RED HILL AVENUE, SUITE 250 COSTA MESA, CA 92626 KARI LAUNEN PHONE: 714-751-7353
<b>ENGINEERING:</b>	<b>ARCHITECT:</b>	
SEGA INC. 16041 FOSTER, P.O. BOX 1000 STILWELL, KS 66085-1000 JOE BONDANK PHONE: 913-681-2881	HEAUSLER STRUCTURAL ENGINEERS 9233 WARD PARKWAY, SUITE 145 KANSAS CITY, MO. 64114 TOM HEAUSLER PHONE: 816-822-1180	DAWSON ASSOCIATES INC. 10955 LOWELL AVE, SUITE 1025 OVERLAND PARK, KS 66210-2326 PAUL BIERSMITH PHONE: 913-271-6859

DISTURBED AREA CALCS.	
CONSTRUCTION LAYDOWN: 330,000	SQ FT:
GAS PIPELINE: 330,000	SQ FT:
PAD & SLOPES: 100,000	SQ FT:
DRIVEWAY: 69,000	SQ FT:
SEPTIC: 5,000	SQ FT:
FIRE CLEARING: 340,000	SQ FT:
TOTAL: 1,174,000	SQ FT:
IF > 1AC, PROVIDE WDI#: NOT YET ASSIGNED	



RECORD PLAN	
BY: _____	DATE: _____
R.C.E. _____	
EXPIRES: _____	

**OWNER'S / PERMITTEE'S**

NAME: ORANGE GROVE ENERGY, L.P.

ADDRESS: 1900 EAST GOLF RD. SUITE 1030  
SCHAUMBURG, IL 60173. ATTN: STEVE THOME

TELEPHONE NO.: (847)908-2800

SHORT LEGAL DESCRIPTION: SW 1/4, SE 1/4, SE 1/4, SECTION 29, T 9 S, R 2 W, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF SAN DIEGO, CA

A.P.N. NO.: 110-072-26 AND 110-370-01 (SITE ONLY)

SITE ADDRESS: WEST OF PALA, CA 0.1 MILE NORTH OF SR-76 AT PALA DEL NORTE ROAD

## EROSION CONTROL NOTES:

- ALL BUILDING PADS TO BE DIKED AND THE DIKES MAINTAINED TO PREVENT WATER FROM FLOWING FROM THE PAD UNTIL THE STREETS AND DRIVEWAYS ARE PAVED AND WATER CAN FLOW FROM THE PADS WITHOUT CAUSING EROSION, OR CONSTRUCT DRAINAGE FACILITIES TO THE SATISFACTION OF THE COUNTY DEPARTMENT OF PUBLIC WORKS THAT WILL ALLOW WATER TO DRAIN FROM THE PAD WITHOUT CAUSING EROSION.
- TOPS OF ALL SLOPES TO BE DIKED OR TRENCHED TO PREVENT WATER FROM FLOWING OVER THE CREST OF SLOPES.
- MANUFACTURED SLOPES AND PADS SHALL BE ROUNDED VERTICALLY AND HORIZONTALLY AS APPROPRIATE TO BLEND WITH THE SURROUNDING TOPOGRAPHY.
- AS SOON AS CUTS OR EMBANKMENTS ARE COMPLETED, BUT NOT LATER THAN OCTOBER 1 ALL CUT AND FILL SLOPES SHALL BE STABILIZED WITH A HYDROMULCH MIXTURE OR AN EQUAL TREATMENT APPROVED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS BETWEEN OCTOBER 1 AND APRIL 15. APPROVED SLOPE PROTECTION MEASURES SHALL PROCEED IMMEDIATELY BEHIND THE EXPOSURE OF CUT SLOPES AND/OR THE CREATION OF EMBANKMENT SLOPES.
- CATCH BASINS, DESILTING BASINS AND STORM DRAIN SYSTEM SHALL BE INSTALLED TO THE SATISFACTION OF THE COUNTY DEPARTMENT OF PUBLIC WORKS.
- GRAVEL BAG CHECK DAMS TO BE PLACED IN A MANNER APPROVED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS IN UNPAVED STREETS WITH GRADIENTS IN EXCESS OF 2% AND ON OR IN OTHER GRADED OR EXCAVATED AREAS AS REQUIRED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.
- THE DEVELOPER TO MAINTAIN THE PLANTING AND EROSION CONTROL MEASURES DESCRIBED ABOVE UNTIL RELIEVED OF THE SAME BY THE COUNTY DEPARTMENT OF PUBLIC WORKS. THE DEVELOPER TO REMOVE ALL SOIL INTERCEPTED BY THE GRAVEL BAGS, CATCH BASINS AND DESILTING BASINS AND KEEP THESE FACILITIES CLEAN AND FREE OF SILT AND SAND AS DIRECTED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS. THE DEVELOPER SHALL REPAIR ANY ERODED SLOPES AS DIRECTED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.

## SILTATION AND SEDIMENT CONTROL MEASURES NOTES:

- THE SEDIMENT BASINS SHALL BE PROVIDED AT THE LOWER END OF EVERY DRAINAGE AREA PRODUCING SEDIMENT RUNOFF. THE BASINS SHALL BE MAINTAINED AND CLEANED TO DESIGN CONDITIONS AFTER EVERY RUNOFF PRODUCING STORM. THE BASINS SHOULD BE SEMI-PERMANENT STRUCTURES THAT WOULD REMAIN UNTIL SOIL STABILIZING VEGETATION HAS BECOME WELL ESTABLISHED ON ALL ERODIBLE SLOPES.
- SEDIMENTATION BASINS MAY NOT BE REMOVED OR MADE INOPERATIVE WITHOUT PRIOR APPROVAL OF THE COUNTY ENGINEER.
- SEWER OR STORM DRAIN TRENCHES THAT ARE CUT THROUGH BASIN DIKES OR BASIN INLET DIKES SHALL BE PLUGGED WITH SANDBAGS FROM TOP OF PIPE TO TOP OF DIKE.
- ALL UTILITY TRENCHES SHALL BE BLOCKED AT THE PRESCRIBED INTERVALS WITH A DOUBLE ROW OF GRAVEL BAGS WITH A TOP ELEVATION TWO GRAVEL BAGS BELOW THE GRADED SURFACE OF THE STREET. GRAVEL BAGS ARE TO BE PLACED WITH LAPPED COURSES. THE INTERVALS PRESCRIBED BETWEEN SANDBAG BLOCKING SHALL DEPEND ON THE SLOPE OF THE GROUND SURFACE BUT NOT TO EXCEED THE FOLLOWING:

GRADE OF THE STREET	INTERVAL
LESS THAN 2%	AS REQUIRED, 200 FT MAX.
2% TO 4%	100 FEET
4% TO 10%	50 FEET
OVER 10%	25 FEET

- AFTER SEWER UTILITY TRENCHES ARE BACKFILLED AND COMPACTED, THE SURFACES OVER SUCH TRENCHES SHALL BE MOUNDING SLIGHTLY TO PREVENT CHANNELING OF WATER IN THE TRENCH AREA. CARE SHOULD BE EXERCISED TO PROVIDE FOR CROSS FLOW AT FREQUENT INTERVALS WHERE TRENCHES ARE NOT ON THE CENTERLINE OF A CROWNED STREET.
- ALL BUILDING PADS SHOULD BE SLOPED TOWARDS THE DRIVEWAYS AND VELOCITY CHECK DAMS PROVIDED AT THE BASE OF ALL DRIVEWAYS DRAINING INTO THE STREET.
- PROVIDE VELOCITY CHECK DAMS IN ALL UNPAVED GRADED CHANNELS AT THE INTERVALS INDICATED BELOW:

GRADE OF CHANNEL	INTERVALS BETWEEN CHECK DAMS
LESS THAN 3%	100 FEET
3% TO 6%	50 FEET
OVER 6%	25 FEET

- PROVIDE VELOCITY CHECK DAMS IN ALL PAVED STREET AREAS ACCORDING TO RECOMMENDED CRITERIA INDICATED ON THE ENCLOSED GRAPH ENTITLED "GRAVEL BAG BARRIER SPACING FOR EROSION CONTROL IN GRADED STREETS". VELOCITY CHECK DAMS MAY BE CONSTRUCTED OF GRAVEL BAGS, TIMBER, OR OTHER EROSION RESISTANT MATERIALS APPROVED BY THE COUNTY ENGINEER, AND SHALL EXTEND COMPLETELY ACROSS THE STREET OR CHANNEL AT RIGHT ANGLES TO THE CENTERLINE. VELOCITY CHECK DAMS MAY ALSO SERVE AS SEDIMENT TRAPS.

GRADE OF THE STREET	INTERVAL	NUMBER OF BAGS HIGH
LESS THAN 2%	AS REQUIRED, 200 FT MAX.	1
2% TO 4%	100 FEET	1
4% TO 6%	50 FEET	1
6% TO 10%	50 FEET	2
OVER 10%	25 FEET	2

- PROVIDE A GRAVEL BAG SILT BASIN OR TRAP BY EVERY STORM DRAIN INLET TO PREVENT SEDIMENT FROM ENTERING DRAIN SYSTEM.
- GRAVEL BAGS AND FILL MATERIAL SHALL BE STOCKPILED AT INTERVALS, READY FOR USE WHEN REQUIRED.
- ALL EROSION CONTROL DEVICES WITHIN THE DEVELOPMENT SHOULD BE MAINTAINED DURING AND AFTER EVERY RUNOFF PRODUCING STORM, IF POSSIBLE, MAINTENANCE CREWS WOULD BE REQUIRED TO HAVE ACCESS TO ALL AREAS.
- PROVIDE ROCK RIPRAP ON CURVES AND STEEP DROPS IN ALL EROSION PRONE DRAINAGE CHANNELS DOWNSTREAM FROM THE DEVELOPMENT. THIS PROTECTION WOULD REDUCE EROSION CAUSED BY THE INCREASED FLOWS THAT MAY BE ANTICIPATED FROM DENUDED SLOPES, OR FROM IMPERVIOUS SURFACES.

**DECLARATION OF RESPONSIBLE CHARGE**

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 8703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE COUNTY OF SAN DIEGO IS CONFINED TO REVIEW ONLY AND DOES NOT RELIEVE AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

RCE NO: \_\_\_\_\_ EXPIRES: \_\_\_\_\_

**DEPT. OF PLANNING AND LAND USE**

APPROVED FOR COMPLIANCE WITH THE ENVIRONMENTAL REVIEW.

APPROVED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

- ANY PROPOSED ALTERNATE CONTROL MEASURES MUST BE APPROVED IN ADVANCE BY ALL RESPONSIBLE AGENCIES: I.E., COUNTY ENGINEER, DEPARTMENT OF ENVIRONMENTAL HEALTH, FLOOD CONTROL AND OFFICE OF ENVIRONMENTAL MANAGEMENT, ETC.

## STORMWATER PROTECTION NOTES:

- DURING THE RAINY SEASON THE AMOUNT OF EXPOSED SOIL ALLOWED AT ONE TIME SHALL NOT EXCEED THAT WHICH CAN BE ADEQUATELY PROTECTED BY THE PROPERTY OWNER IN THE EVENT OF A RAINSTORM. 125% OF ALL SUPPLIES NEEDED FOR BMP MEASURES SHALL BE RETAINED ON THE JOB SITE IN A MANNER THAT ALLOWS FULL DEPLOYMENT AND COMPLETE INSTALLATION IN 48 HOURS OR LESS OF A FORECAST RAIN.
- NO AREA BEING DISTURBED SHALL EXCEED 50 ACRES AT ANY GIVEN TIME WITHOUT DEMONSTRATING TO THE SAN DIEGO COUNTY DPW DIRECTOR'S SATISFACTION THAT ADEQUATE EROSION AND SEDIMENT CONTROL CAN BE MAINTAINED. ANY DISTURBED AREA THAT IS NOT ACTIVELY GRADED MUST BE FULLY PROTECTED FROM EROSION. UNTIL ADEQUATE LONG-TERM PROTECTIONS ARE INSTALLED, THE DISTURBED AREA SHALL BE INCLUDED WHEN CALCULATING THE ACTIVE DISTURBANCE AREA. ALL EROSION CONTROL MEASURES SHALL REMAIN INSTALLED AND MAINTAINED DURING ANY INACTIVE PERIOD.
- THE PROPERTY OWNER IS OBLIGATED TO INSURE COMPLIANCE WITH ALL APPLICABLE STORMWATER REGULATIONS AT ALL TIMES. THE BMP'S (BEST MANAGEMENT PRACTICES) THAT HAVE BEEN INCORPORATED INTO THIS PLAN SHALL BE IMPLEMENTED AND MAINTAINED TO EFFECTIVELY PREVENT THE POTENTIALLY NEGATIVE IMPACTS OF THIS PROJECT'S CONSTRUCTION ACTIVITIES ON STORMWATER QUALITY. THE MAINTENANCE OF THE BMP'S IS THE PERMITTEE'S RESPONSIBILITY, AND FAILURE TO PROPERLY INSTALL OR MAINTAIN THE BMP'S MAY RESULT IN ENFORCEMENT ACTION BY THE COUNTY OF SAN DIEGO OR OTHERS. IF INSTALLED BMP'S FAIL, THEY MUST BE REPAIRED OR REPLACED WITH AN ACCEPTABLE ALTERNATE WITHIN 24 HOURS, OR AS SOON AS SAFE TO DO SO.
- ON PROJECTS OF GREATER THAN 1 ACRE ADD THE FOLLOWING NOTE: A NOTICE OF INTENT (NOI) HAS BEEN, OR WILL BE FILED WITH THE STATE WATER RESOURCES CONTROL BOARD (SWRCB) AND THAT A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN OR WILL BE PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF CALIFORNIA GENERAL PERMIT FOR CONSTRUCTION OR DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY (PERMIT NO. CAS00002) FOR ALL OPERATIONS ASSOCIATED WITH THESE PLANS. THE NOI NUMBER ASSIGNED BY SWRCB FOR THIS PROJECT IS NOT YET ASSIGNED, BUT WILL BE PROVIDED BEFORE A PERMIT IS ISSUED. THE PERMITTEE SHALL KEEP A COPY OF THE SWPPP ON SITE AND AVAILABLE FOR REVIEW BY COUNTY.

## GENERAL NOTES:

- APPROVAL OF THIS GRADING PLAN DOES NOT CONSTITUTE APPROVAL OF VERTICAL OR HORIZONTAL ALIGNMENT OF ANY PRIVATE ROAD SHOWN HEREON FOR COUNTY ROAD PURPOSES.
- FINAL APPROVAL OF THESE GRADING PLANS SUBJECT TO FINAL APPROVAL OF THE ASSOCIATED IMPROVEMENT PLANS WHERE APPLICABLE. FINAL CURB ELEVATIONS MAY REQUIRE CHANGES IN THESE PLANS.
- IMPORT MATERIAL SHALL BE OBTAINED FROM A LEGAL SITE.
- A CONSTRUCTION, EXCAVATION OR ENCROACHMENT PERMIT FROM THE DEPARTMENT OF PUBLIC WORKS WILL BE REQUIRED FOR ANY WORK IN THE COUNTY RIGHT-OF-WAY.
- ALL SLOPES OVER THREE FEET IN HEIGHT WILL BE PLANTED IN ACCORDANCE WITH SAN DIEGO COUNTY SPECIFICATIONS.
- THE CONTRACTOR SHALL VERIFY THE EXISTENCE AND LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK. NOTICE OF PROPOSED WORK SHALL BE GIVEN TO THE FOLLOWING AGENCIES:

SAN DIEGO GAS & ELECTRIC:	TELEPHONE NO. 1-800-411-7343
PACIFIC TELEPHONE: (AT&T CALIFORNIA)	TELEPHONE NO: 1-800-286-2020
CATV: (TIME WARNER CABLE)	TELEPHONE NO: 858-695-3220
SEWER: (S.D. COUNTY D.E.H.)	TELEPHONE NO: 619-338-2222
RAINBOW MUNICIPAL WATER DIST:	TELEPHONE NO: 760-728-1178

- A SOILS REPORT MAY BE REQUIRED PRIOR TO THE ISSUANCE OF A BUILDING PERMIT.
- APPROVAL OF THESE PLANS BY THE DIRECTOR OF PUBLIC WORKS DOES NOT AUTHORIZE ANY WORK OR GRADING TO BE PERFORMED UNTIL THE PROPERTY OWNER'S PERMISSION HAS BEEN OBTAINED AND VALID GRADING PERMIT HAS BEEN ISSUED.
- THE DIRECTOR OF PUBLIC WORKS' APPROVAL OF THESE PLANS DOES NOT CONSTITUTE COUNTY BUILDING OFFICIAL APPROVAL OF ANY FOUNDATION FOR STRUCTURES TO BE PLACED ON THE ITEMS COVERED BY THESE PLANS. NO WAIVER OF THE GRADING ORDINANCE REQUIREMENTS CONCERNING MINIMUM COVER EXPANSIVE SOIL IS MADE OR IMPLIED (SECTIONS 87.403 & 87.410). ANY SUCH WAIVER MUST BE OBTAINED FROM THE DIRECTOR OF PLANNING AND LAND USE.
- ALL OPERATIONS CONDUCTED ON THE PREMISES, INCLUDING THE WARMING UP, REPAIR, ARRIVAL, DEPARTURE OR RUNNING OF TRUCKS, EARTHMOVING EQUIPMENT AND ANY OTHER ASSOCIATED GRADING EQUIPMENT SHALL BE LIMITED TO THE PERIOD BETWEEN 7:00 AM AND 6:00 PM EACH DAY, MONDAY THRU SATURDAY, AND NO EARTHMOVING OR GRADING OPERATIONS SHALL BE CONDUCTED ON THE PREMISES ON SUNDAYS OR HOLIDAYS.
- ALL MAJOR SLOPES SHALL BE ROUNDED INTO EXISTING TERRAIN TO PRODUCE A CONTOURED TRANSITION FROM CUT OR FILL FACES TO NATURAL GROUND AND ABUTTING CUT OR FILL SURFACES.
- NOTWITHSTANDING THE MINIMUM STANDARDS SET FORTH IN THE GRADING ORDINANCE AND NOTWITHSTANDING THE APPROVAL OF THESE GRADING PLANS, THE PERMITTEE IS RESPONSIBLE FOR THE PREVENTION OF DAMAGE TO ADJACENT PROPERTY. NO PERSON SHALL EXCAVATE ON LAND SO CLOSE TO THE PROPERTY LINE AS TO ENDANGER ANY ADJOINING PUBLIC STREET, SIDEWALK ALLEY, FUNCTION OF ANY SEWAGE DISPOSAL SYSTEM, OR ANY OTHER PUBLIC OR PRIVATE PROPERTY WITHOUT SUPPORTING AND PROTECTING SUCH PROPERTY FROM SETTLING, CRACKING, EROSION, SILTING, SCOUR OR OTHER DAMAGE WHICH MIGHT RESULT FROM THE GRADING DESCRIBED ON THIS PLAN. THE COUNTY WILL HOLD THE PERMITTEE RESPONSIBLE FOR CORRECTION OF NON-DEDICATED IMPROVEMENTS WHICH DAMAGE ADJACENT PROPERTY.

## 13. SLOPE RATIOS:

CUT-1.5:1 FOR MINOR SLOPES UNDER 15' HIGH OR IN ROCK 2:1 FOR MAJOR SLOPES FILL-2:1

## GAS PIPELINE:

EXCAVATION:	6,000 CUBIC YARDS
FILL:	4,050 CUBIC YARDS
WASTE/IMPORT:	1,500 CUBIC YARDS IMPORTED SAND, 150 CUBIC YARDS REMOVED CONCRETE WASTE, 1,500 CUBIC YARDS OF SOIL FOR METERING STATION AND DIVERSION BERMS, 300 CUBIC YARDS DISPLACED BY 10" DIA. GAS PIPE, 150 CUBIC YARDS OF WASTE SOIL.
EXCAVATION:	56,000 CUBIC YARDS (PLUS 13,000 CY OVEREXCAVATION).
FILL:	56,000 CUBIC YARDS (PLUS 13,000 CY RECOMPACTION).
WASTE/IMPDR:	3,500 CUBIC YARDS IMPORTED CRUSHED ROCK SURFACE, 0 CUBIC YARDS OF ANTICIPATED WASTE SOIL MATERIAL.

(NOTE: A SEPARATE VALID PERMIT MUST EXIST FOR EITHER WASTE OR IMPORT AREAS).

- SPECIAL CONDITION: IF ANY ARCHEOLOGICAL RESOURCES ARE DISCOVERED ON THE SITE OF THIS GRADING DURING GRADING OPERATIONS, SUCH OPERATIONS WILL CEASE IMMEDIATELY, AND THE PERMITTEE WILL NOTIFY THE DIRECTOR OF PUBLIC WORKS OF THE DISCOVERY. GRADING OPERATIONS WILL NOT RECOMMENCE UNTIL THE PERMITTEE HAS RECEIVED WRITTEN AUTHORITY FROM THE DIRECTOR OF PUBLIC WORKS.
- ALL GRADING DETAILS WILL BE IN ACCORDANCE WITH SAN DIEGO COUNTY STANOARD DRAWNGS DS-8, DS-10, DS-11, AND D-75.
- THE CONSTRUCTION OF ONE PCC STANDARD RESIDENTIAL DRIVEWAY PER LOT, LOCATION TO BE DETERMINED IN THE FIELD BY ENGINEER OF WORK. PCC SURFACING OF DRIVEWAY TO EXTEND FROM CURB TO PROPERTY LINE. USE STANOARD DRAWNGS G-14A G-14B, G-14C, G-15 AND G-16.
- FINISHED GRADING SHALL BE CERTIFIED BY A REGISTERED CIVIL ENGINEER AND INSPECTED BY THE COUNTY ENGINEER FOR DRAINAGE CLEARANCE. (APPROVAL OF ROUGH GRADING DOES NOT CERTIFY FINISH BECAUSE OF POTENTIAL SURFACE DRAINAGE PROBLEMS THAT MAY BE CREATED BY LANDSCAPING ACCOMPLISHED AFTER ROUGH GRADING CERTIFICATION.

## SHEET INDEX

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C100	SITE LAYOUT PLAN	3
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C150	CONSTRUCTION LAYOUT PLAN	5
C200	ON-SITE WASTEWATER TREATMENT SYSTEM	6
C300	GRADING AND DRAINAGE	7
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C400	ORAINAGE AREA MAP	9
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C803	SITE DETAILS	16
L100	LANDSCAPING PLAN	17
L101	LANDSCAPING NOTES	18
GP-Y100	GENERAL LAYOUT PLAN	19
GP-C101	PLAN AND PROFILE	20
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GP-C804	METERING STATION GRADING PLAN	36
GP-C850	GAS PIPELINE DETAILS	37
GP-C851	GAS PIPELINE DETAILS	38
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## REFERENCE DRAWINGS

DRAWING	DRAWING TITLE	SHEET NO.
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PSOMAS SURVEY	SITE	2
PSOMAS SURVEY	INDEX	3
PSOMAS SURVEY	SHEET 1	4
PSOMAS SURVEY	SHEET 2	5
PSOMAS SURVEY	SHEET 3	6

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE

SPECIAL USE PERMIT NO. NOT APPLICABLE

TENTATIVE MAP NO. NOT APPLICABLE

NOI/NOID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk

"M.W.D. OF SOUTHERN CA S.D.6-69 1993"

LOCATION: SE CORNER OF MANHOLE

RECORD FROM: FIELD BOOK 4047-04-079

ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**PRIVATE CONTRACT**

SHEET 1 COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS SHEETS 45

GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY, ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.

CALIFORNIA COORDINATE INDEX 434-1738/434-1737

APPROVED FOR PUBLIC WORKS DEPARTMENT BY: \_\_\_\_\_

ENGINEER OF WORK: THOMAS F. HEAUSLER CD40363 REG. 3-31-09

L-15454 GRADING PERMIT NO.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

Sited Only When Signed in Blue Ink

**Sega**

Engineers - Architects - Technicians  
Design - Construction - Field Service

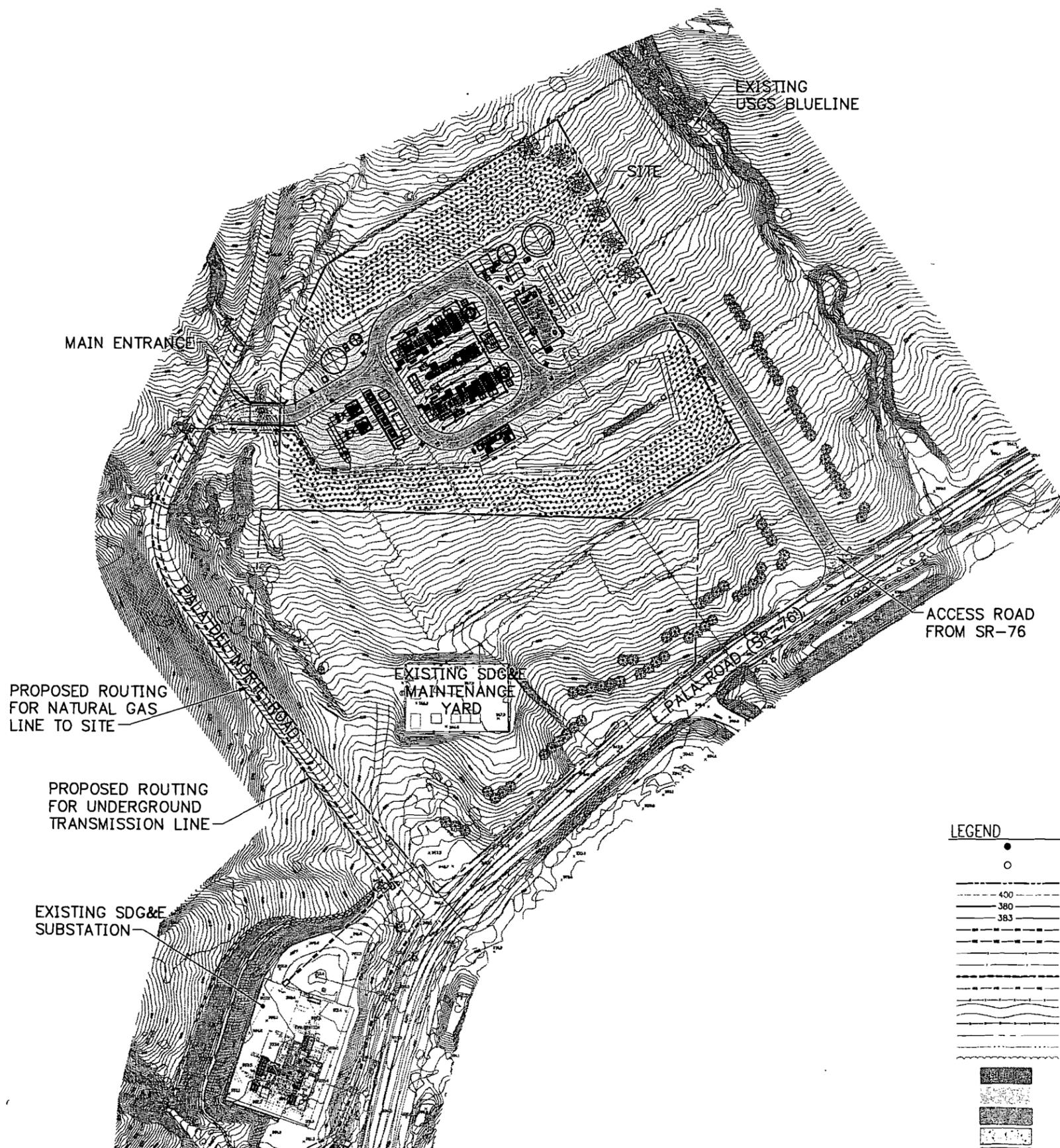
16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE GAS PIPELINE**  
COVER SHEET

DESIGN BY: J. LANGEL	CHECKED BY: T. HEAUSLER
DRAWN BY: R. DAVILA	DATE: 6-5-08
CLIENT I.D. IC000101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-COVER.dwg	REV. 1

**COVER**



**LEGEND**

●	FOUND MONUMENT AS NOTED
○	SET 1" IRON PIPE WITH "PSOMAS" PLUG UNLESS NOTED OTHERWISE
---	PROPERTY LINE
---	EXISTING CONTOUR
---	PROPOSED MAJOR CONTOUR
---	PROPOSED MINOR CONTOUR
---	PROPOSED GAS LINE
---	PROPOSED UNDERGROUND ELECTRICAL
---	EXISTING ELECTRIC LINE
---	EXISTING TELEPHONE (COMMUNICATIONS) LINE
---	PROPOSED RCP STORMWATER PIPE
---	EXISTING T&D LINE
---	EXISTING FENCE
---	EXISTING ROAD
---	PROPOSED FENCE
---	PARCEL LINE
---	DRAINAGE PATH (FLOWLINE)
---	EXISTING ORCHARD LINE
---	PROPOSED RIPRAP
---	PROPOSED CRUSHED ROCK SURFACE
---	PROPOSED CRUSHED ROCK PAVEMENT
---	PROPOSED CONCRETE
---	PROPOSED NATIVE GROUND COVER
---	PROPOSED LANDSCAPING
---	EXISTING USGS BLUELINE

**GENERAL NOTES:**

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION IN ORDER TO PROVIDE FOR NON-INTERRUPTION OF SERVICE AND TO ENSURE PROPER CLEARANCES.
2. WHERE THE NEW IMPROVEMENTS ABUT EXISTING IMPROVEMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MATCHING THE ELEVATION OF THE EXISTING IMPROVEMENTS.
3. ALL CONSTRUCTION PERFORMED ON THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF SAN DIEGO COUNTY, CALIFORNIA. WHERE DISCREPANCIES EXIST BETWEEN THE PROJECT SPECIFICATIONS AND COUNTY STANDARDS, THE CONTRACTOR SHALL ABIDE BY THE GREATER OR MORE RESTRICTIVE REQUIREMENTS.
4. PLACEMENT OF CONCRETE AND REINFORCEMENT SHALL COMPLY WITH THE REQUIREMENTS OF ACI 301. DETAILING AND FABRICATION OF REINFORCEMENT SHALL COMPLY WITH THE CRSI MANUAL OF STANDARD PRACTICE, LATEST EDITION.
5. PRECAST AND CAST-IN-PLACE CONCRETE FOR PAVING AND SITE STRUCTURES SHALL BE TYPE I, PORTLAND CEMENT CONCRETE, WITH THE FOLLOWING PROPERTIES:  
 28-DAY COMPRESSIVE STRENGTH MIN. 4,500 PSI  
 WATER/CEMENT RATIO MAX 0.45  
 MAXIMUM AGGREGATE SIZE 0.75"  
 SLUMP 3" +/- 1"
6. ALL WELDED WIRE FABRIC (W.W.F.) SHALL CONFORM TO A185. NO ALUMINUM SHALL BE EMBEDDED IN ANY CONCRETE.
7. CONTRACTOR SHALL PROVIDE FOR CONTROL OF SURFACE EROSION DURING CONSTRUCTION AND UNTIL THE OWNER ACCEPTS THE WORK AS COMPLETE. THE CONTRACTOR SHALL PROVIDE BERMS, SILT FENCE, STRAW BALES, SILT BASINS, OR OTHER MEANS TO PREVENT EROSION FROM REACHING THE PUBLIC RIGHT-OF-WAY OR ADJACENT PROPERTY. IN THE EVENT THE PREVENTION MEASURES ARE NOT EFFECTIVE, THE CONTRACTOR SHALL REMOVE ANY DEBRIS AND EROSION AND RESTORE THE RIGHT-OF-WAY AND ADJACENT PROPERTY TO ORIGINAL OR BETTER CONDITION.
8. CONTRACTOR SHALL, BY HIS OWN INVESTIGATION AND PRIOR TO COMMENCING WORK, SATISFY HIMSELF AS TO THE SURFACE AND SUBSURFACE CONDITIONS TO BE ENCOUNTERED.
9. A TOPOGRAPHIC SURVEY WAS PREPARED BY PSOMAS SURVEYING DATED OCTOBER 2007. THE ENGINEER WILL NOT BE RESPONSIBLE FOR THE COMPLETENESS OR ACCURACY OF THE DATA AND NO EXPRESSED OR IMPLIED GUARANTEE IS GIVEN OF THE INTERPRETATION THEREOF.
10. THE OWNER SHALL EMPLOY AN INDEPENDENT ENGINEERING TESTING AGENCY TO VERIFY SOIL COMPACTION AND PAVEMENT MATERIAL PROPERTIES. THE CONTRACTOR SHALL ALLOW THE TESTING AGENCY TO PERFORM TESTING AND RETESTING AS NECESSARY TO VERIFY COMPLIANCE WITH THE PROJECT SPECIFICATIONS.
11. REFERENCE IS MADE TO THE REVISED GEOTECHNICAL EXPLORATION REPORT BY PSI AND DATED DECEMBER 2007. NEITHER THE OWNER NOR THE ENGINEER WILL BE RESPONSIBLE FOR THE COMPLETENESS OR ACCURACY, NOR THE INTERPRETATION THEREOF. ALL SITE PREPARATION AND EARTHWORK CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE GEOTECHNICAL RECOMMENDATIONS AND THEIR "STANDARD GUIDELINES FOR GRADING PROJECTS."
12. FOUNDATION DESIGNS ARE BASED ON THE GEOTECHNICAL ENGINEERING REPORT. ALL FOOTINGS AND PIERS SHALL BEAR AT THE ELEVATIONS SHOWN ON THE PLANS, DETAILS, SECTIONS, AND SCHEDULES. ALL SITE PREPARATION, REQUIREMENTS FOR EXCAVATIONS AND SLOPE STABILITY, STRUCTURAL FILL AND TRENCH BACKFILL, FOUNDATIONS, AND SUBGRADE PREPARATION FOR BUILDING FLOOR SLABS SHALL BE IN ACCORDANCE WITH THE PSI GEOTECHNICAL ENGINEERING REPORT.
13. TOPSOIL AND ALL ORGANIC MATTER SHALL BE REMOVED FROM THE LOCATION OF PROPOSED IMPROVEMENTS. UNSTABLE OR SPONGY AREAS SHALL BE OVEREXCAVATED AND REPLACED WITH COMPACTED FILL IN ACCORDANCE WITH THE PSI GEOTECHNICAL REPORT.
14. SUBGRADE SHALL BE SCARIFIED A MINIMUM OF 12", MOISTURE CONDITIONED TO WITHIN ±2% OF OPTIMUM MOISTURE CONTENT (BASED ON ASTM D1557 TEST) AND ROLLED WITH A HEAVY ROLLER TO ACHIEVE A MINIMUM OF 95% RELATIVE COMPACTION PRIOR TO BACKFILLING.
15. COMPACTED FILL SHALL NOT CONTAIN ROCK LARGER THAN 3 INCHES. FILL SLOPES SHALL BE BENCHED INTO NATIVE MATERIAL OR AS REQUIRED BY THE PSI GEOTECHNICAL REPORT.
16. COMPACTED FILL SHALL BE PLACED IN NO GREATER THAN 8 INCH LOOSE LIFTS AND COMPACTED TO AT LEAST 95% OF MAXIMUM DRY DENSITY AT ± 2% OPTIMUM MOISTURE CONTENT (BASED ON ASTM D1557 TEST). FIELD DENSITY TESTS SHALL BE TAKEN AT A FREQUENCY OF AT LEAST ONE TEST FOR EACH 2500 SQUARE FEET OF FILL LIFT. IN PAVEMENT AREAS, THE TESTING FREQUENCY MAY BE ONE FIELD DENSITY TEST FOR EACH 5000 SQUARE FEET OF FILL LIFT, BUT NO LESS THAN 3 TESTS PER LIFT.
17. IF CUT/FILL TRANSITIONS ARE ENCOUNTERED ACROSS A PROPOSED STRUCTURE FOOT PRINT, THE ENTIRE CUT PORTION WITHIN THAT FOOT PRINT AND FIVE FEET OUT LATERALLY SHALL BE OVER-EXCAVATED TO A MINIMUM DEPTH OF TWO FEET BELOW THE BOTTOM OF THE DEEPEST PROPOSED FOUNDATION OR A MINIMUM OF ONE HALF THE DEPTH OF THE DEEPEST FILL IN THE STRUCTURE FOOT PRINT, WHICHEVER IS DEEPER. OVER-EXCAVATIONS SHALL EXTEND LATERALLY IN ALL DIRECTIONS A MINIMUM OF FIVE FEET FROM THE PROPOSED STRUCTURE FOOTPRINT.
18. SUBGRADE BELOW PROPOSED CRUSHED ROCK PAVEMENT SHALL BE OVER-EXCAVATED TO A MINIMUM DEPTH OF 24" MOISTURE CONDITIONED TO SLIGHTLY OVER OPTIMUM MOISTURE CONTENT, AND COMPACTED TO A MINIMUM OF 95% TO 98% OF RELATIVE COMPACTION (BASED ON ASTM D1557).
19. CRUSHED ROCK PAVEMENT (ALSO CALLED CRUSHED ROCK BASE OR CRUSHED ROCK SURFACE) SHALL BE COMPACTED WELL GRADED, CLASS II AGGREGATE ROAD BASE AND MEET THE REQUIREMENTS FOR THE COUNTY OF SAN DIEGO, IT SHALL BE PLACED IN LIFTS NO GREATER THAN 9" AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION (BASED ON ASTM TEST METHOD D1557).
20. ALL SITE STRUCTURES SHALL BE DESIGNED FOR HS-20 LOADING.
21. ON ALL ELECTRICAL DRAWING LAYOUT PLANS, THE LOCATIONS OF SOME EQUIPMENT, GROUNDING, AND UNDERGROUND CONDUITS, AND DEVICES AT WHICH CONDUIT CIRCUITS TERMINATE ARE APPROXIMATE. THE CONTRACTOR SHALL INSTALL EACH CONDUIT CIRCUIT TO THE INTENDED EQUIPMENT TERMINATION POINT WITHOUT ADDITIONAL CHARGE TO THE OWNER, ALTHOUGH ITS FINAL LOCATION MAY SHIFT SOMEWHAT FROM THAT WHICH IS SHOWN.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

2	COUNTY OF SAN DIEGO	45
SHEET	DEPARTMENT OF PUBLIC WORKS	SHEET

GRADING PLAN FOR:  
 THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
 CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR MICHAEL FROSTBERG  
 DIRECTOR OF PUBLIC WORKS

DESIGNED BY: THOMAS F. HEASLER  
 C040363 A.E.C. 3-31-08

L-15454  
 GRADING PERMIT NO.

**PERMITS**

REZDNE PERMIT NO.	NOT APPLICABLE
SPECIAL USE PERMIT NO.	NOT APPLICABLE
TENTATIVE MAP NO.	NOT APPLICABLE
NOI/WDID NO.	NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION:	3 1/2" brass disk
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"	
LOCATION:	S.E. CORNER OF MANHOLE
RECORD FROM:	FIELD BOOK 4047-04-079
ELEVATION:	318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink



Engineers - Architects - Technicians  
 Design - Construction - Field Service

16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

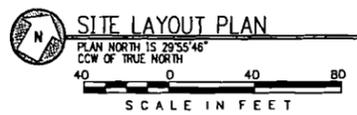
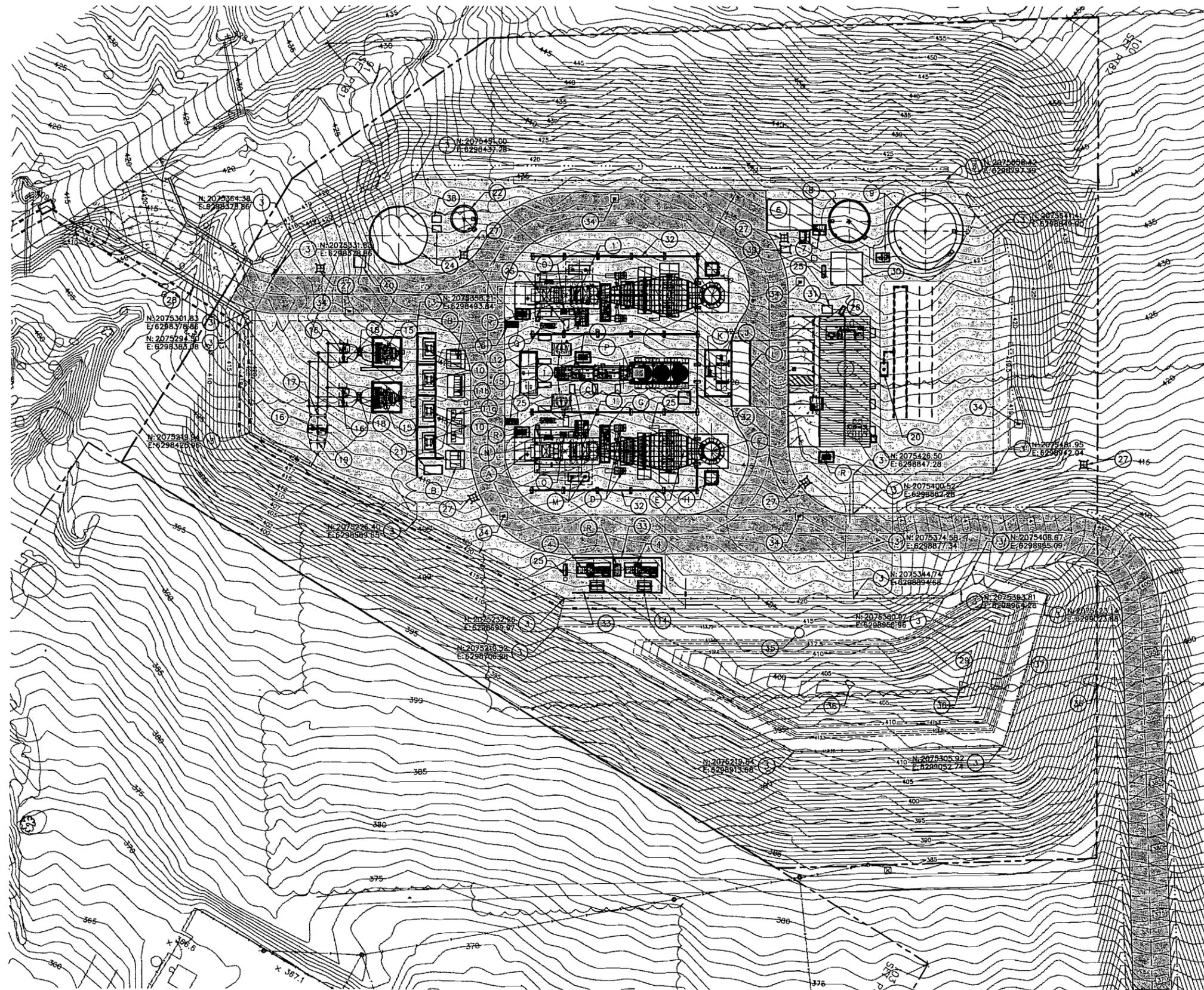
**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE POWER PLANT**

**YARD LAYOUT PLAN**

DESIGN BY:	B. ROMINES	CHECKED BY:	J. BONDANK
DRAWN BY:	B. GASPERS	DATE:	9-12-07
CLIENT I.D.	IC00101	SEGA PROJECT NO.	07-201
CADD FILE NAME:	07201-Y100.dwg		

DRAWING NO.	Y100	REV.	1
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EMISSION COORDINATES SYMBOL		
DESCRIPTION	NORTHING	EASTING
COMBUSTION TURBINE #1 (NORTH)	2075491	6298683
COMBUSTION TURBINE #2 (SOUTH)	2075387	6298743
DIESEL FIRE PUMP (±2')	2075517	6298766
BLACK START GENERATOR (±2')	2075379	6298582

**KEYNOTES CONT.:**

- (38) TANK TRANSFER PUMP SKID.
- (39) FRESH WATER UNLOADING PUMP SKID.
- (40) RECLAIM WATER UNLOADING PUMP SKID.

**KEYNOTES:**

- (1) COMBUSTION TURBINE (CT), GENERATOR, AND AUXILIARY EQUIPMENT. (FOR EACH UNIT): (HEIGHT = 43' AT THE TOP OF VBV DUCT).
- (A) MAIN TURBINE GENERATOR SKID ENCLOSURE.
- (B) 13.8KV ELECTRICAL SWITCHGEAR.
- (C) CT AUXILIARY EQUIPMENT SKID.
- (D) TEMPERING AIR FANS (2).
- (E) EMISSION CONTROL SYSTEM-SCR (HEIGHT = ±33').
- (F) STACK (HEIGHT = 80').
- (G) AMMONIA VAPORIZATION SKID.
- (H) CEMS ENCLOSURE WITH TRANSFORMER AND CALIBRATION GAS STORAGE.
- (I) CT LUBE OIL COOLER.
- (J) AMMONIA STORAGE TANK (COMMON TO BOTH CT UNITS).
- (K) AMMONIA FORWARDING PUMP SKID (COMMON TO BOTH CT UNITS).
- (L) AMMONIA UNLOADING PAD, SPILL CONTAINMENT (COMMON TO BOTH CT UNITS).
- (M) TURBINE REMOVAL SUPPORTS.
- (N) AIR INLET FILTER (HEIGHT = 34').
- (O) SPRINT SKID.
- (P) INLET AIR CHILLER AND COOLING TOWER (COMMON TO BOTH CT UNITS) (HEIGHT = 30').
- (Q) WATER INJECTION SKID.
- (R) DILY DRAIN TANK.
- (2) SERVICE BUILDING FOR CONTROL ROOM, ELECTRICAL EQUIPMENT, FIRE PUMPS, COMPRESSED AIR. (HEIGHT = 18').
- (3) SITE SECURITY CHAINLINK FENCE AND GATES.
- (4) FUEL GAS COMPRESSORS.
- (5) GAS COALESCING FILTER SKID.
- (6) CONCRETE PAD FOR TEMPORARY WATER TREATMENT TRAILER.
- (7) DEMIN. WATER PUMP SKID AND RELATED EQUIPMENT.
- (8) DEMIN. WATER STORAGE TANK (HEIGHT = 24').
- (9) RAW WATER/FIREWATER STORAGE TANK & PUMP SKID (HEIGHT = 44').
- (10) AUXILIARY TRANSFORMERS.
- (11a) 4160V ELECTRICAL SWITCHGEAR.
- (11b) 480V ELECTRICAL SWITCHGEAR.
- (12) BLACKSTART GENERATOR.
- (13) NOT USED.
- (14) FUEL GAS COMPRESSOR RECYCLE FIN-FAN COOLER.
- (15) 13.8KV-69KV GENERATOR STEP-UP TRANSFORMER (GSU).
- (16) 69KV DISCONNECT SWITCH AND SUPPORTS.
- (17) 69KV CT/VT METERING UNIT.
- (18) 69KV CIRCUIT BREAKER.
- (19) 69KV TRANSITION STRUCTURE & POTHEAD.
- (20) UNDERGROUND SANITARY SYSTEM.
- (21) TRANSFORMER DELUGE VALVE ENCLOSURE.
- (22) WASTEWATER STORAGE TANK (HEIGHT = 24').
- (23) NOT USED.
- (24) COOLING TOWER MAKEUP TANK AND PUMP SKID (HEIGHT = 38').
- (25) 480V MCC.
- (26) FIRE PUMP ROOM.
- (27) YARD FIRE HYDRANTS WITH HYDRANT MOUNT FIRE MONITORS.
- (28) BRIDGE.
- (29) STORMWATER DETENTION BASIN.
- (30) RO WATER TREATMENT AREA.
- (31) DIESEL STORAGE TANK - DIESEL FIRE PUMP.
- (32) GAS TURBINE SOUND WALL (HEIGHT = 48').
- (33) GAS COMPRESSOR SOUND WALL (HEIGHT = 24').
- (34) AREA INLET.
- (35) STORM MANHOLE.
- (36) STORM END SECTION.
- (37) STORMWATER OUTLET CONTROL STRUCTURE.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

3 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1738/434-1737		
APPROVED FOR MICHAEL FADDEBECHE DIRECTOR OF PUBLIC WORKS	DESIGNED BY: THOMAS F. HEUSLER CONSULTANT REG. NO. 3-31-08	L-15454 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
 SPECIAL USE PERMIT NO. NOT APPLICABLE  
 TENTATIVE MAP NO. NOT APPLICABLE  
 NOI/WQID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
 "M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
 LOCATION: S.E. CORNER OF MANHOLE  
 RECORD FROM: FIELD BOOK 4047-04-079  
 ELEVATION: 318.86' DATUM: NAVD83 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink



Engineers - Architects - Technicians  
 Design - Construction - Field Service  
 16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

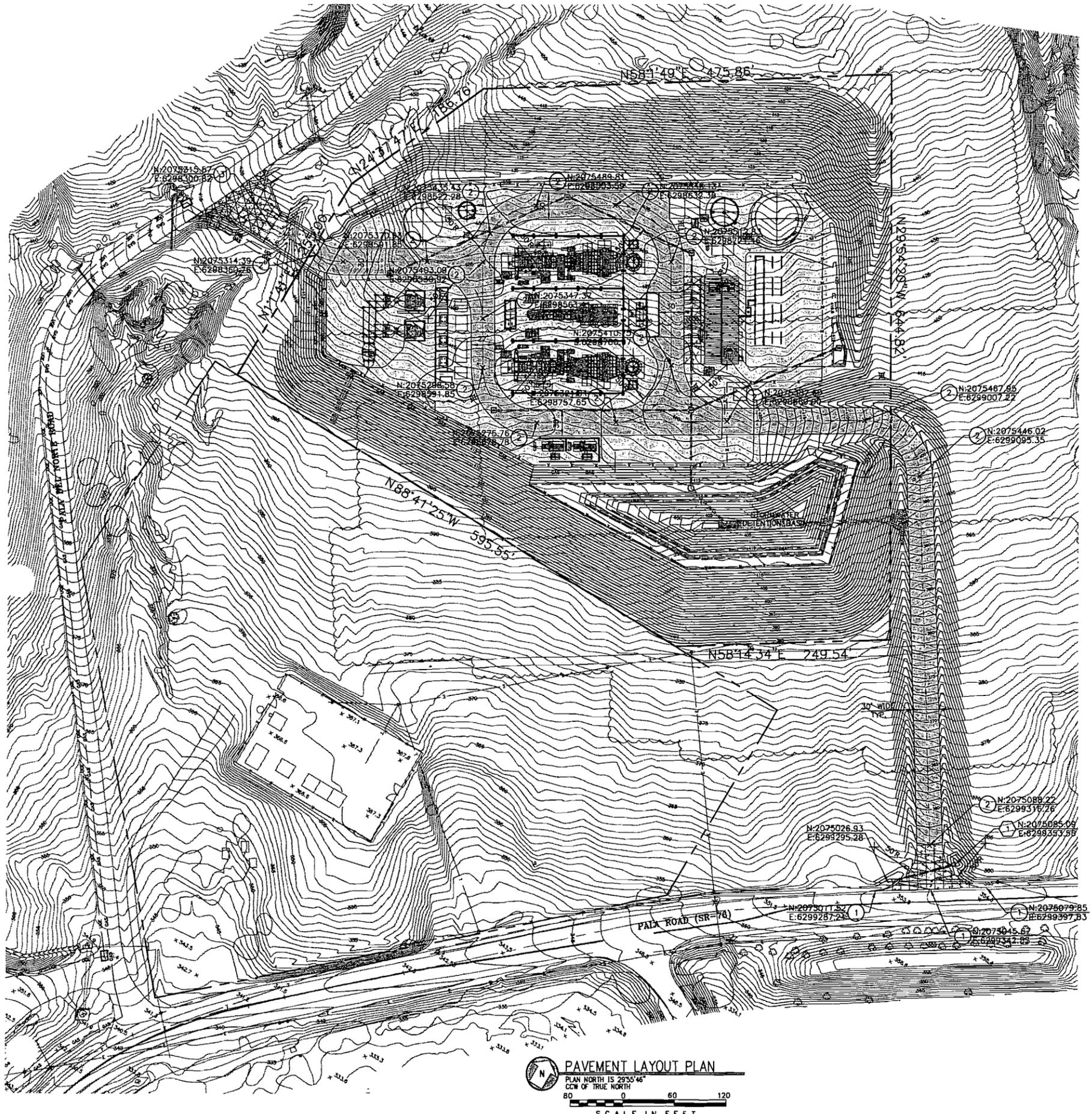
**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE POWER PLANT**

SITE LAYOUT PLAN

DESIGN BY: B. ROMINES	CHECKED BY: J. BONDANK
DRAWN BY: B. GASPERS	DATE: 9-12-07
CLIENT I.D. IC000101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-C100.dwg	

DRAWING NO. <b>C100</b>	REV. <b>1</b>
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**KEYNOTES:**

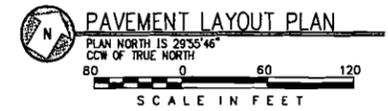
- 1 INSTALL ACCESS DRIVE CONCRETE ENTRANCE APRON AT PALA ROAD. SEE DETAILS CB02.
- 2 INSTALL 18" THICK CRUSHED ROCK PAVEMENT. SEE DETAILS CB03.
- 3 INSTALL ACCESS DRIVE CONCRETE ENTRANCE APRON AT PALA DEL NORTE ROAD. SEE DETAILS CB02.

**STORM DRAINAGE NOTES:**

- 1 INSTALL 18" DIA. CLASS III RCP FLARED END SECTION FLOWLINE IN (NE) = 353.85' INSTALL 70 L.F. CLASS III RCP @ 1.0% MIN. SL. INSTALL 18" DIA. CLASS III RCP FLARED END SECTION

**LEGEND**

- FOUND MONUMENT AS NOTED
- SET 1" IRON PIPE WITH "PSOMAS" PLUG UNLESS NOTED OTHERWISE
- PROPERTY LINE
- 400 EXISTING CONTOUR
- 380 PROPOSED MAJOR CONTOUR
- 383 PROPOSED MINOR CONTOUR
- GAS GAS PROPOSED GAS LINE
- UGE UGE PROPOSED UNDERGROUND ELECTRICAL
- T EXISTING TELEPHONE (COMMUNICATIONS) LINE
- T PROPOSED RCP STORMWATER PIPE
- T&O EXISTING T&O LINE
- X X EXISTING FENCE
- X X EXISTING ROAD
- X X PROPOSED FENCE
- X X PARCEL LINE
- DRAINAGE PATH (FLOWLINE)
- EXISTING ORCHARD LINE
- PROPOSED RIPRAP
- PROPOSED CRUSHED ROCK SURFACE
- PROPOSED CRUSHED ROCK PAVEMENT
- PROPOSED CONCRETE
- PROPOSED NATIVE GROUND COVER
- PROPOSED LANDSCAPING
- TEMPORARY CONSTRUCTION ROAD/PARKING CRUSHED ROCK SURFACE



REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

4 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1736/434-1737		
APPROVED FOR: MICHAEL THOMPSON, DIRECTOR OF PUBLIC WORKS	DESIGNED BY: THOMAS F. HEASLER, CADD/063	DATE: 3-31-09
L-15454 GRADING PERMIT NO.		

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
 SPECIAL USE PERMIT NO. NOT APPLICABLE  
 TENTATIVE MAP NO. NOT APPLICABLE  
 NOI/WDIO NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
 "M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
 LOCATION: S.E. CORNER OF MANHOLE  
 RECORD FROM: FIELD BOOK 4047-04-079  
 ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink



Engineers - Architects - Technicians  
 Design - Construction - Field Service  
 16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

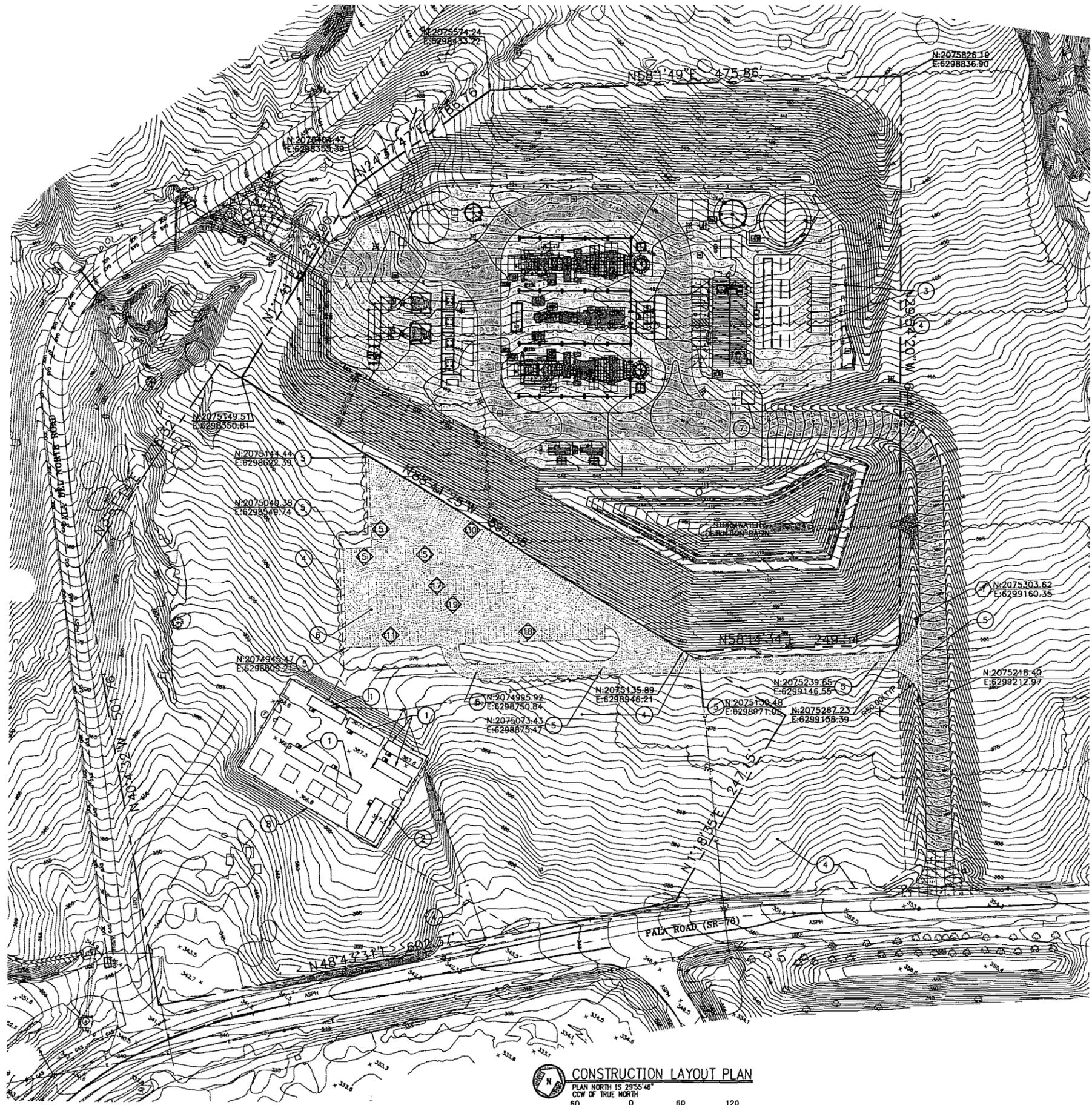
**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE POWER PLANT**

PAVEMENT LAYOUT PLAN

DESIGN BY: J. LANGEL	CHECKED BY: B. ROMINES
DRAWN BY: B. GASPERS	DATE: 11-12-07
CLIENT I.D. ICC00101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-C120.dwg	

DRAWING NO. <b>C120</b>	REV. <b>1</b>
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**CONSTRUCTION LAYOUT PLAN**  
 PLAN NORTH IS 29°55'48"  
 CCW OF TRUE NORTH  
 SCALE IN FEET

**KEYNOTES:**

- ① TEMPORARY CONSTRUCTION TRAILERS.
- ② TEMPORARY DOUBLE WIDE CONSTRUCTION TRAILERS.
- ③ TEMPORARY CONNEXES/LOCK BOXES.
- ④ INSTALL TEMPORARY CONSTRUCTION STAGING AND PRE-ASSEMBLY.
- ⑤ INSTALL 16' WIDE TEMPORARY CONSTRUCTION CRUSHED ROCK ROAD, ENTRANCE AND CULVERT (SEE TIRE WASH DETAIL DWG. C501.)
- ⑥ TEMPORARY CONSTRUCTION CRUSHED ROCK PARKING.
- ⑦ INSTALL CONCRETE WASHOUT FACILITY, SEE DETAIL DWG C502.
- ⑧ EXISTING SDG&E MAINTENANCE YARD.

**TEMPORARY STORM DRAINAGE NOTES:**

- ① INSTALL 18" DIA. CLASS III RCP FLARED END SECTION FLOWLINE IN (N) = 381.00' INSTALL 83 L.F. CLASS III RCP @ 1.0% MIN. SL. INSTALL 18" DIA. CLASS III RCP FLARED END SECTION

**PARKING CALCULATIONS:**

1. 110 TEMPORARY CONSTRUCTION PARKING STALLS 9'X18'.
2. 5 PERMANENT SERVICE BUILDING PARKING STALLS 9'X20'. 1 HANDICAP ACCESSIBLE STALL.

**TEMPORARY CONSTRUCTION CRUSHED ROCK SURFACE AREA INSTALLATION:**

1. STRIP TOPSOIL.
2. RECOMPACT TOP 12"-18" OF SUBGRADE.
3. INSTALL GEOGRID OR FILTER FABRIC (OPTIONAL).
4. INSTALL 6" MINIMUM CRUSHED ROCK SURFACE.
5. REMOVE TEMPORARY CONSTRUCTION CRUSHED ROCK AREAS AT THE CONCLUSION OF CONTRACTOR DEMOBILIZATION.

**LEGEND**

- FOUND MONUMENT AS NOTED
- SET 1" IRON PIPE WITH "PSOMAS" PLUG UNLESS NOTED OTHERWISE
- PROPERTY LINE
- 400 EXISTING CONTOUR
- 380 PROPOSED MAJOR CONTOUR
- 383 PROPOSED MINOR CONTOUR
- GAS PROPOSED GAS LINE
- UOE PROPOSED UNDERGROUND ELECTRICAL
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE (COMMUNICATIONS) LINE
- PROPOSED RCP STORMWATER PIPE
- EXISTING T&D LINE
- EXISTING FENCE
- EXISTING ROAD
- PROPOSED FENCE
- PARCEL LINE
- DRAINAGE PATH (FLOWLINE)
- EXISTING ORCHARD LINE
- PROPOSED RIPRAP
- PROPOSED CRUSHED ROCK SURFACE
- PROPOSED CRUSHED ROCK PAVEMENT
- PROPOSED CONCRETE
- PROPOSED NATIVE GROUND COVER
- PROPOSED LANDSCAPING
- TEMPORARY CONSTRUCTION ROAD/PARKING CRUSHED ROCK SURFACE
- TEMPORARY CONSTRUCTION STAGING AREA
- ⑤ NUMBER OF PARKING STALLS

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

5 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
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GRADING PLAN FOR:  
 THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
 CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR ISSUANCE FOR GRADING PERMIT BY: [Signature]

DESIGNER OF WORK: THOMAS F. HEAUSLER, CEM 40383, REG. 3-31-09

L-15454  
 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO.	NOT APPLICABLE
SPECIAL USE PERMIT NO.	NOT APPLICABLE
TENTATIVE MAP NO.	NOT APPLICABLE
NOI/WDID NO.	NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION:	3 1/2" brass disk
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"	
LOCATION:	S.E. CORNER OF MANHOLE
RECORD FROM:	FIELD BOOK 4047-04-079
ELEVATION:	318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

**Sega**

Engineers - Architects - Technicians  
 Design - Construction - Field Service

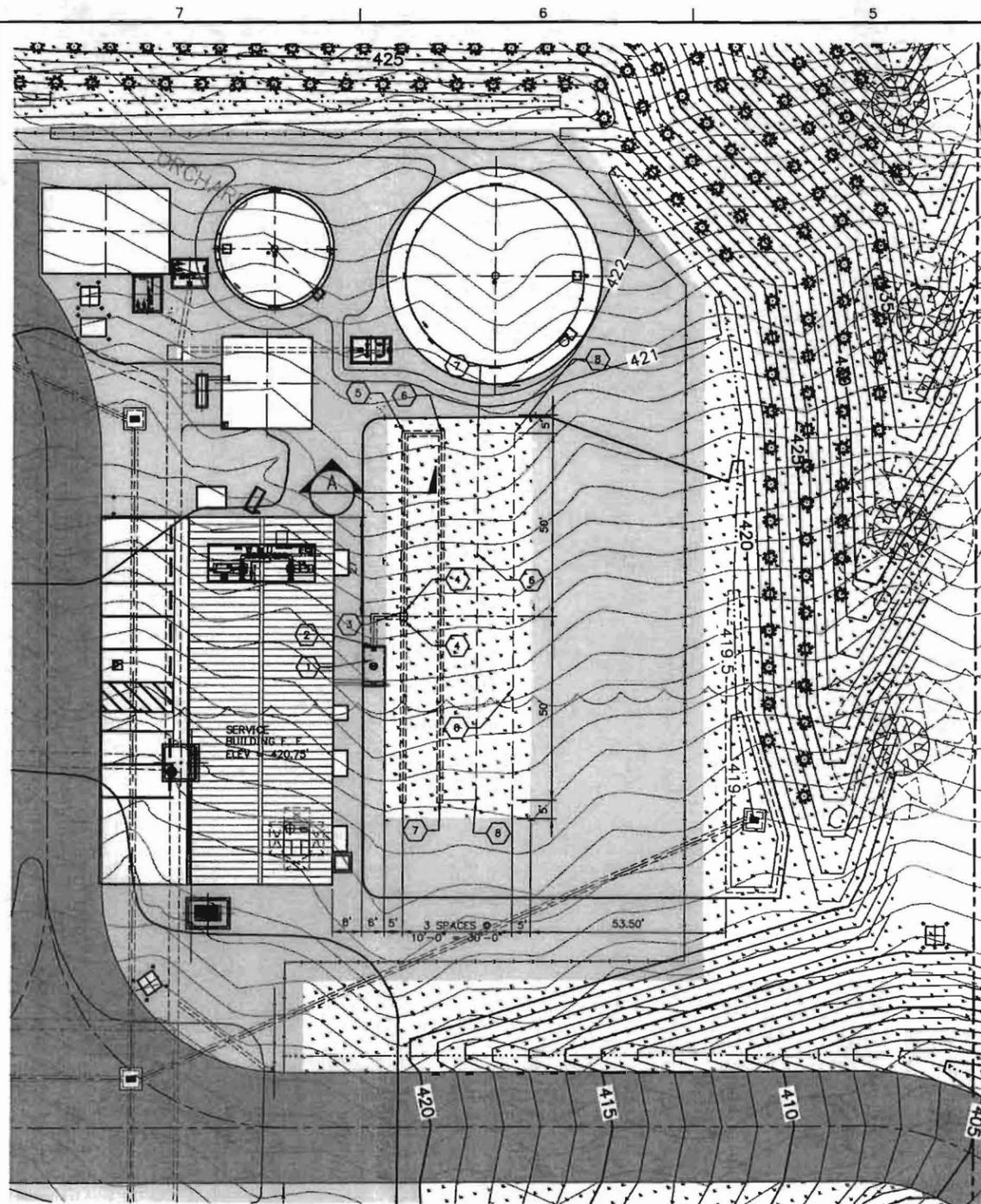
16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE POWER PLANT**

CONSTRUCTION LAYOUT PLAN

DESIGN BY: J. LANGEL	CHECKED BY: B. ROMINES
DRAWN BY: B. GASPERS	DATE: 11-12-07
CLIENT I.D. 1CC00101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-C150.dwg	
DRAWING NO. <b>C150</b>	REV. <b>1</b>



**OWTS KEYNOTES:**

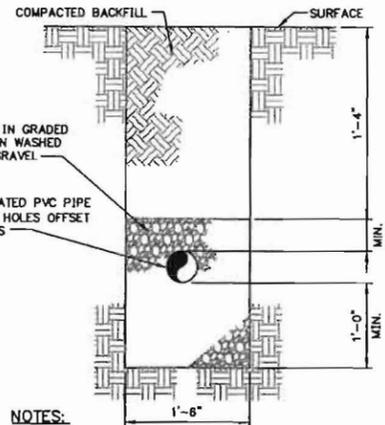
1. INSTALL MINIMUM 1,000 GALLON WATERTIGHT CONCRETE SEPTIC TANK WITH AN EFFLUENT FILTER LOCATED ON TANK OUTLET THAT MEETS OR EXCEEDS THE MINIMUM REQUIREMENTS OF THE INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS (IAPMO), THE COUNTY OF SAN DIEGO DEPARTMENT OF ENVIRONMENTAL HEALTH-LAND AND WATER QUALITY DIVISION AND THE MANUFACTURER'S RECOMMENDATIONS. TOP ELEVATION PER MANUFACTURER'S RECOMMENDATIONS. FLOWLINE IN (SW) = 417.23' FLOWLINE OUT (NE) = 418.98'
2. INSTALL 15 L.F. 4" DIAMETER SCH 40 PVC PIPE TO DISTRIBUTION BOX @ 1.0% SL.
3. INSTALL A 2 OUTLET WATERTIGHT CONCRETE DISTRIBUTION BOX THAT MEETS OR EXCEEDS THE MINIMUM REQUIREMENTS OF THE IAPMO, THE COUNTY OF SAN DIEGO DEPARTMENT OF ENVIRONMENTAL HEALTH-LAND AND WATER QUALITY DIVISION AND THE MANUFACTURER'S RECOMMENDATIONS. TOP ELEVATION PER MANUFACTURER'S RECOMMENDATIONS. FLOWLINE IN (SW) = 418.83' FLOWLINE OUT (N&S) = 418.75'
4. INSTALL 50 L.F. 4" DIAMETER SCH 40 PVC PIPE WITH 5/8" HOLES OFFSET 60 DEGREES AS SHOWN ON PLAN.
5. INSTALL 10 L.F. 4" DIA. SCH. 40 PVC TIGHTLINE PIPE, NON-PERFORATED PIPE @ 0.0% SL.
6. INSTALL 100 L.F. 4" DIAMETER SCH 40 PVC PIPE WITH 5/8" HOLES OFFSET 60 DEGREES AS SHOWN ON PLAN.
7. RESERVED FOR 10 L.F. 4" DIA. SCH. 40 PVC RESERVE TIGHTLINE PIPE, NON-PERFORATED PIPE @ 0.0% SL.
8. RESERVED FOR 100 L.F. 4" DIA. SCH. 40 PVC RESERVE PIPE WITH 5/8" HOLES OFFSET 60 DEGREES AS SHOWN ON PLAN. LAND SET ASIDE FOR EMERGENCY RESERVE, INSTALLED IF PRIMARY SYSTEM FAILS.

**OWTS DESIGN SETBACK REQUIREMENTS:**

SYSTEM COMPONENT	SETBACK TO:	MINIMUM DISTANCE
SEPTIC TANK	STRUCTURE	5 FEET
LEACH LINES	STRUCTURE	8 FEET
LEACH LINES	DRAINAGE COURSE	50 FEET FROM TOP OF BANK
LEACH LINES	POND	100 FEET FROM SPILLWAY ELEV.
LEACH LINES	SEPTIC TANK	5 FEET
LEACH LINES	LEACH LINES	10 FEET

**NOTES:**

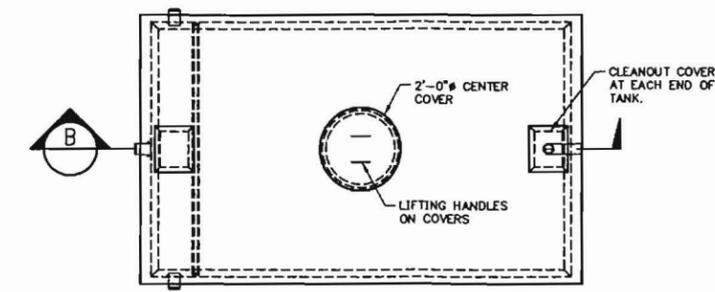
1. DESIGN CRITERIA PER THE COUNTY OF SAN DIEGO DEPARTMENT OF ENVIRONMENTAL HEALTH-LAND AND WATER QUALITY DIVISION.



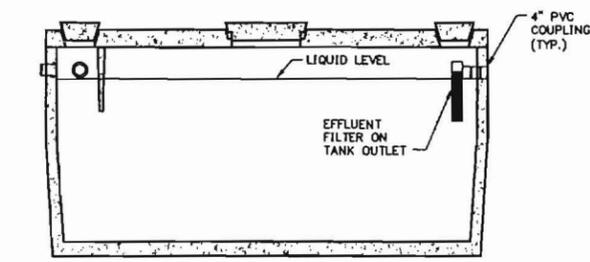
**NOTES:**

1. LEACH LINE PIPE SHALL BE IAPMO APPROVED.
2. LEACH LINE TRENCHES AND PIPES SHALL BE LEVEL WITH NOT MORE THAN 2" PER 100 LINEAR FEET OF VARIATION IN GRADE.
3. LEACH LINES SHALL BE LOCATED NO CLOSER THAN 10 FEET ON CENTER FROM ANY ADJACENT LEACH LINE.
4. THE LEACH LINES MUST BE APPROVED BY BOTH THE DEPARTMENT OF ENVIRONMENTAL HEALTH DIRECTOR AND AN INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS (IAPMO) REPRESENTATIVE PRIOR TO BACKFILLING.

**A TYPICAL LEACH LINE SECTION**



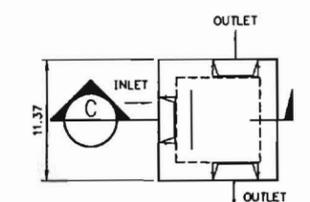
**1000 GALLON SEPTIC TANK**  
N.T.S.



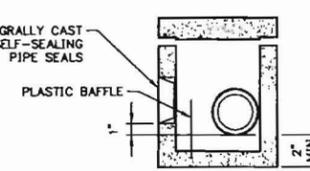
**B SEPTIC TANK SECTION**  
N.T.S.

**GENERAL NOTES:**

- CONCRETE SPECIFICATIONS:**
1. 4500 PSI AFTER 28 DAYS.
  2. REINFORCING IS GRADE 60.
  3. ALL JOINTS SEALED WITH BUTYL RUBBER JOINT SEALANT (OR APPROVED EQUAL).
  4. CENTER ACCESS COVERS SHOULD HAVE RISERS TO BRING COVER ACCESS TO GRADE (SEE PLAN).
  5. COVER NOT DESIGNED FOR VEHICLE LOADS.
  6. SEPTIC TANK SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
  7. THE SEPTIC TANK MUST BE APPROVED BY BOTH THE DEPARTMENT OF ENVIRONMENTAL HEALTH DIRECTOR AND AN INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS (IAPMO) REPRESENTATIVE PRIOR TO BACKFILLING.



**2 OUTLET DISTRIBUTION BOX**  
N.T.S.



**C DISTRIBUTION BOX SECTION**  
N.T.S.

**GENERAL NOTES:**

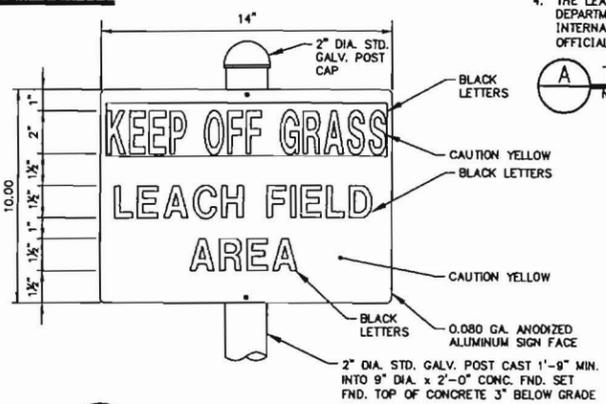
- CONCRETE SPECIFICATIONS:**
1. 4500 PSI AFTER 28 DAYS.
  2. REINFORCING IS GRADE 60.
  3. COVER NOT DESIGNED FOR VEHICLE LOADS.
  4. ALL PENETRATIONS TO DISTRIBUTION BOXES ARE INTEGRALLY CAST.
  5. DISTRIBUTION BOX SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

**ON-SITE WASTEWATER TREATMENT SYSTEM (OWTS)**



**LEGEND:**

- + LEACH FIELD SIGN (7 PLACES)
- DISTRIBUTION BOX
- SEPTIC TANK
- ==== LEACH LINE (PERFORATED)
- ==== TIGHTLINE (NON-PERFORATED)
- LEACH LINE RESERVE
- TIGHTLINE RESERVE



**1 TYPICAL LEACH FIELD SIGN**  
N.T.S.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

6 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1738/434-1737		
APPROVED FOR ISSUANCE FOR GRADING PERMIT	CHIEF OF WORK	DATE
BY	THOMAS F. HEASLER	3-31-08
L-15454 (ISSUING PERMIT NO.)		

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
SPECIAL USE PERMIT NO. NOT APPLICABLE  
TENTATIVE MAP NO. NOT APPLICABLE  
NOI/WDID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
LOCATION: S.E. CORNER OF MANHOLE  
RECORD FROM: FIELD BOOK 4047-04-079  
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink



16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

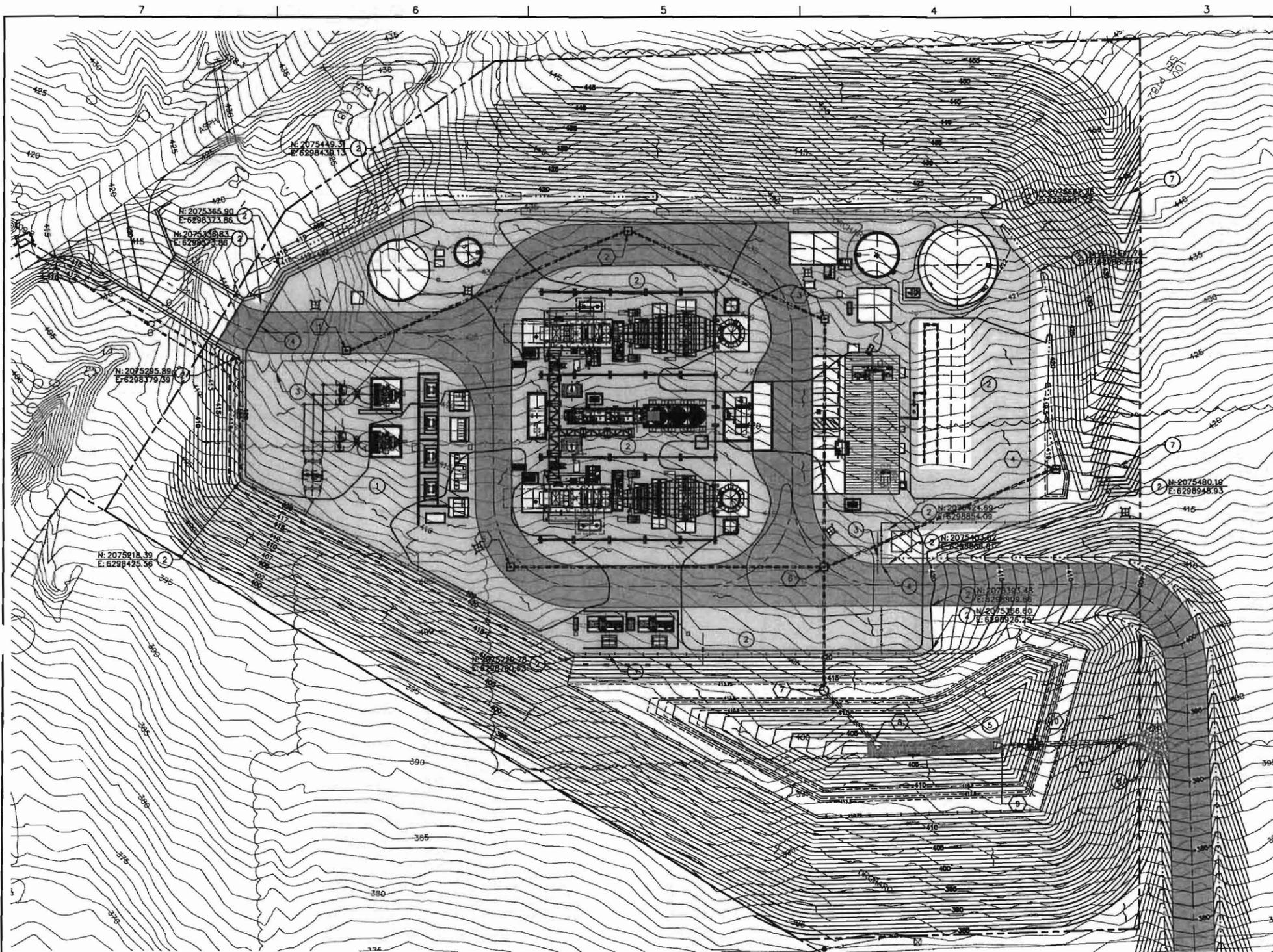
**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE POWER PLANT**

**ON-SITE WASTEWATER TREATMENT SYSTEM**

DESIGN BY: M. BLAKE	CHECKED BY: B. ROMINES
DRAWN BY: R. KUHN	DATE: 9-12-07
CLIENT I.D. ICC00101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-C200.dwg	

DRAWING NO. C200	REV. 1
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**GRADING AND DRAINAGE PLAN**  
 PLAN NORTH IS 29°55'46"  
 CCW OF TRUE NORTH  
 SCALE IN FEET

- CIVIL KEYNOTES:**
- INSTALL 8" CRUSHED ROCK SURFACE INSIDE SUBSTATION FENCE.
  - INSTALL 6" CRUSHED ROCK SURFACE INSIDE COMBUSTION TURBINE AREA FENCE.
  - INSTALL SITE SECURITY CHAINLINK FENCE WITH 30' MANUAL SLIDE GATES, SEE SITE DETAILS DWG. C801.
  - INSTALL 30' SLIDE GATE WITH GATE OPERATOR AND LOOP DETECTOR. COORDINATE WITH OWNER'S SECURITY CONSULTANT.
  - INSTALL MIN. 2.3' 1/2 TON STONE RIPRAP.
  - INSTALL MIN. 3.0' 1 TON STONE RIPRAP.
  - FILL AREA EAST OF LANDSCAPING BERM FOR EXCESS CUT, MIN. 3' FROM PROPERTY LINE.

- GRADING NOTES:**
- ALL CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE COUNTY OF SAN DIEGO, CALIFORNIA, LATEST EDITION.
  - ALL STORM SEWER LINES SHALL BE CLASS III RCP.
  - PIPE LENGTHS EXCLUDE END SECTIONS AND ARE MEASURED ALONG CENTERLINE OF PIPE FROM CENTER OF INSIDE FACE TO CENTER OF INSIDE FACE OF STRUCTURES.
  - MATCH GRADES AT EXISTING IMPROVEMENTS.
  - SLOPES SHALL BE MADE AT 3:1 MAXIMUM GRADE (H:V).
  - EROSION CONTROL STRUCTURES (SEE EROSION CONTROL PLAN DWGS. C500 & C502) SHALL BE CONSTRUCTED PRIOR TO GRADING ACTIVITIES.
  - DRAINAGE CHANNELS SHALL BE MINIMUM 3' FLAT BOTTOM AND SHALL HAVE 3:1 SIDE SLOPES.
  - NORTHING AND EASTING COORDINATES FOR MANHOLES, AREA INLETS, FIELD INLETS, AND JUNCTION BOXES ARE MEASURED TO CENTER OF STRUCTURE.
  - NORTHING AND EASTING COORDINATES FOR END SECTIONS ARE MEASURED TO FARTHEST EDGE OF THE END SECTION AT PIPE CENTERLINE.

**STORM DRAINAGE NOTES:**

- N:2075338.34  
E:6298444.48  
INSTALL 4X4 AREA INLET  
TOP EL. = 418.4'  
FLOWLINE OUT (N) = 412.4'  
INSTALL 220 L.F. 15" DIA.  
CLASS III RCP @ 0.5% SL.  
TO STRUCTURE 2
- N:2075516.99  
E:6298579.87  
INSTALL 4X4 AREA INLET  
TOP EL. = 419.0'  
FLOWLINE IN (S) = 411.3'  
FLOWLINE OUT (E) = 410.8'  
INSTALL 154 L.F. 18" DIA.  
CLASS III RCP @ 0.5% SL.  
TO STRUCTURE 3
- N:2075533.88  
E:6298737.01  
INSTALL 4X4 AREA INLET  
TOP EL. = 419.25'  
FLOWLINE IN (W) = 410.0'  
FLOWLINE OUT (SE) = 409.5'  
INSTALL 175 L.F. 18" DIA.  
CLASS III RCP @ 1.5% SL.  
TO STRUCTURE 6
- N:2075524.83  
E:6298939.55  
INSTALL 4X4 AREA INLET  
TOP EL. = 418.75'  
FLOWLINE OUT (SW) = 412.25'  
INSTALL 181 L.F. 15" DIA.  
CLASS III RCP @ 0.5% SL.  
TO STRUCTURE 6
- N:2075262.68  
E:6298627.25  
INSTALL 4X4 AREA INLET  
TOP EL. = 419.0'  
FLOWLINE OUT (NE) = 412.5'  
INSTALL 225 L.F. 15" DIA.  
CLASS III RCP @ 0.5% SL.  
TO STRUCTURE 6
- N:2075377.85  
E:6298826.72  
INSTALL 4X4 AREA INLET  
TOP EL. = 418.25'  
FLOWLINE IN (W) = 411.35'  
FLOWLINE IN (NE) = 411.35'  
FLOWLINE IN (NW) = 406.85'  
FLOWLINE OUT (SE) = 406.35'  
INSTALL 84 L.F. 24" DIA.  
CLASS III RCP @ 2.0% SL.  
TO STRUCTURE 7
- N:2075300.64  
E:6298871.50  
INSTALL STD. 6" DIA. MANHOLE TOP  
EL. 413.75'  
FLOWLINE IN (NW) = 404.6'  
FLOWLINE OUT (SE) = 404.0'  
INSTALL 49 L.F. 30" DIA.  
CLASS III RCP @ 2.5% SL.  
TO STRUCTURE 8
- N:2075287.29  
E:6298921.76  
INSTALL TO DETENTION BASIN  
CLASS III RCP FLARED END SECTION  
FLOWLINE OUT (SE) = 403.0'
- N:2075332.50  
E:6299005.70  
INSTALL DETENTION BASIN OUTLET FLARED  
END SECTION  
FLOWLINE IN (E) = 403.0'  
INSTALL 20 L.F. 12" DIA.  
CLASS III RCP @ 1.0% SL.  
TO STRUCTURE 10
- N:2075344.26  
E:6299024.69  
INSTALL STORMWATER OUTLET  
CONTROL STRUCTURE TOP EL. 414.0'  
100 YR INLET EL. 412.5'  
FLOWLINE IN (E) = 402.80'  
FLOWLINE OUT (W) = 400.00'  
INSTALL 64 L.F. 36" DIA.  
CLASS III RCP @ 1.0% SL.  
TO STRUCTURE 11
- N:2075379.51  
E:6298081.66  
INSTALL CLASS III RCP FLARED END  
SECTION  
FLOWLINE OUT (W) = 398.35'

**LEGEND**

- FOUND MONUMENT AS NOTED
- SET 1" IRON PIPE WITH "PSOMAS" PLUG UNLESS NOTED OTHERWISE
- PROPERTY LINE
- EXISTING CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED GAS LINE
- PROPOSED UNDERGROUND ELECTRICAL
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE (COMMUNICATIONS) LINE
- PROPOSED RCP STORMWATER PIPE
- EXISTING T&D LINE
- EXISTING FENCE
- EXISTING ROAD
- PROPOSED FENCE
- PARCEL LINE
- DRAINAGE PATH (FLOWLINE)
- EXISTING ORCHARD LINE
- PROPOSED RIPRAP
- PROPOSED CRUSHED ROCK SURFACE
- PROPOSED CRUSHED ROCK PAVEMENT
- PROPOSED CONCRETE
- PROPOSED NATIVE GROUND COVER
- PROPOSED LANDSCAPING
- DIRECTION OF FLOW
- EXISTING WINDMILL
- EXISTING OVERHEAD ELECTRICAL LINES

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

7	COUNTY OF SAN DIEGO	45
SHEET	DEPARTMENT OF PUBLIC WORKS	SHEET

GRADING PLAN FOR:  
 THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
 CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR MONUMENT ENGINEERING  
 DIRECTOR OF PUBLIC WORKS

ENGINEER OF WORK  
 THOMAS F. HEASLER  
 CSD00863 S.C.E. 3-31-09

L-15454  
 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
 SPECIAL USE PERMIT NO. NOT APPLICABLE  
 TENTATIVE MAP NO. NOT APPLICABLE  
 NOI/WDID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3/2" brass disk  
 "M.W.D. OF SOUTHERN CA S.D. 6-69 1993"  
 LOCATION: S.E. CORNER OF MANHOLE

RECORD FROM: FIELD BOOK 4047-04-079  
 ELEVATION: 318.88' DATUM: NAVD83 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

**Sega**  
 Engineers - Architects - Technicians  
 Design - Construction - Field Service

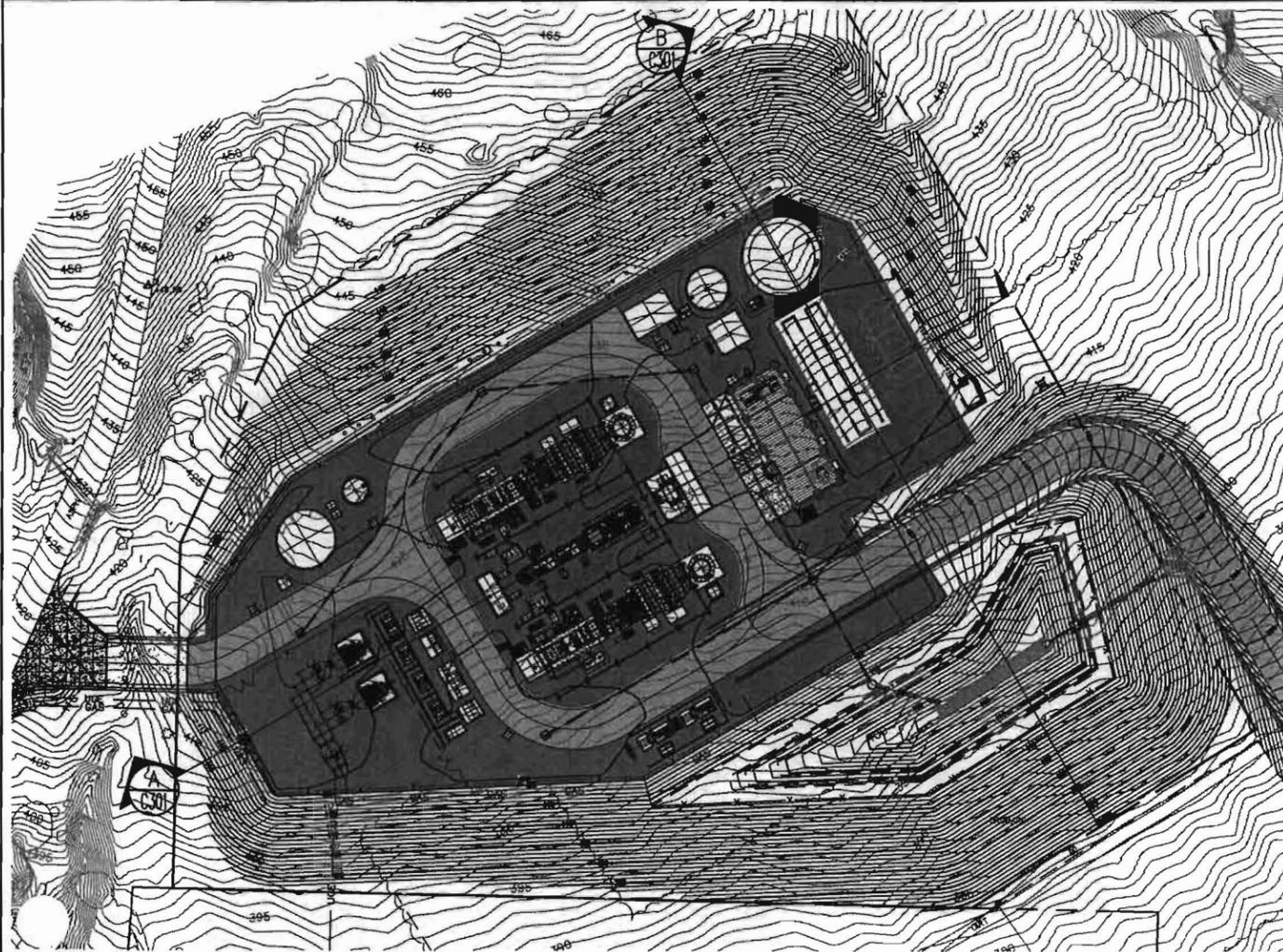
16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE POWER PLANT**

GRADING AND DRAINAGE PLAN

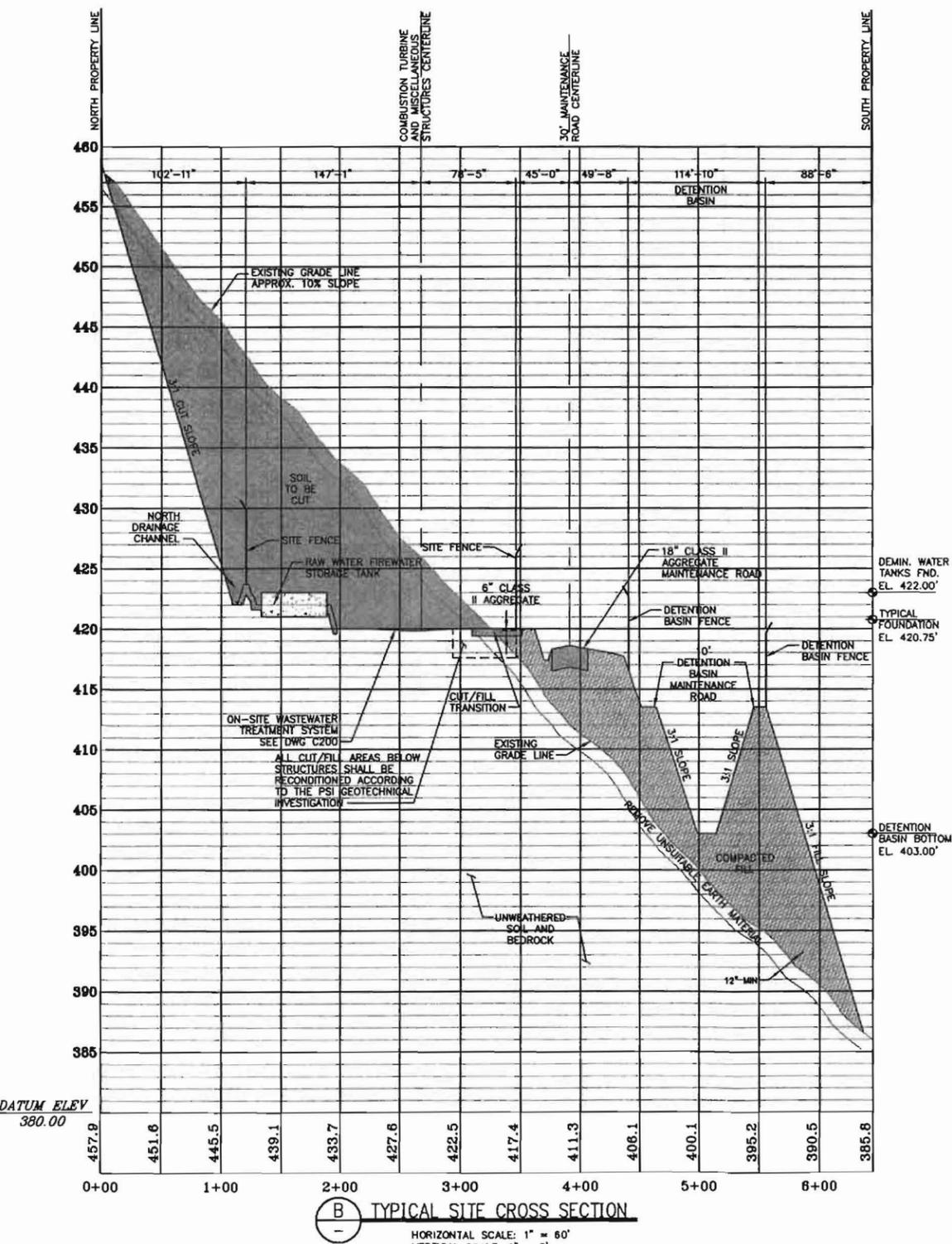
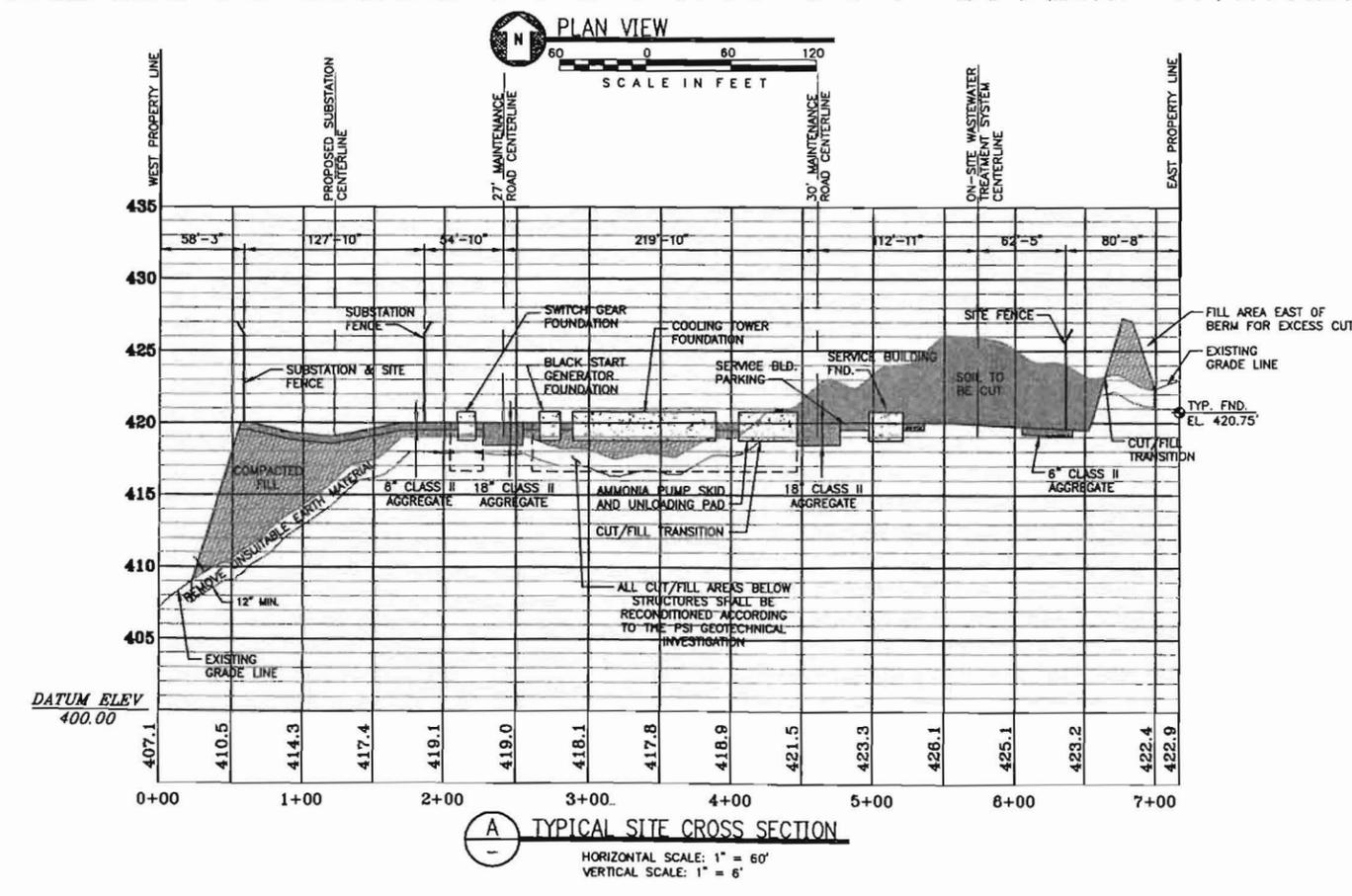
DESIGN BY: J. LANGEL	CHECKED BY: B. ROMINES
DRAWN BY: B. CASPERS	DATE: 9-12-07
CLIENT I.D. IC000101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-C300.dwg	
DRAWING NO. C300	REV. 1



**LEGEND**

- FOUND MONUMENT AS NOTED
- SET 1" IRON PIPE WITH "PSOMAS" PLUG UNLESS NOTED OTHERWISE
- 4.00 --- PROPERTY LINE
- 380 --- EXISTING CONTOUR
- 383 --- PROPOSED MAJOR CONTOUR
- 383 --- PROPOSED MINOR CONTOUR
- GAS --- PROPOSED GAS LINE
- U&E --- PROPOSED UNDERGROUND ELECTRICAL
- E --- EXISTING ELECTRIC LINE
- T --- EXISTING TELEPHONE (COMMUNICATIONS) LINE
- RCP --- PROPOSED RCP STORMWATER PIPE
- T&D --- EXISTING T&D LINE
- X --- EXISTING FENCE
- X --- EXISTING ROAD
- X --- PROPOSED FENCE
- P --- PARCEL LINE
- D --- DRAINAGE PATH (FLOWLINE)
- O --- EXISTING ORCHARD LINE

- [Pattern] PROPOSED RIPRAP
- [Pattern] PROPOSED CRUSHED ROCK SURFACE
- [Pattern] PROPOSED CRUSHED ROCK PAVEMENT
- [Pattern] PROPOSED CONCRETE
- [Pattern] PROPOSED NATIVE GROUND COVER
- [Pattern] PROPOSED LANDSCAPING
- [Pattern] SOIL TO BE CUT
- [Pattern] COMPACTED FILL



REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

8 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
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GRADING PLAN FOR:  
 THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
 CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR MICHAEL FROBERG, DIRECTOR OF PUBLIC WORKS

DESIGNER OF WORK: THOMAS F. HANSLER, 3-31-09

L-15454 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
 SPECIAL USE PERMIT NO. NOT APPLICABLE  
 TENTATIVE MAP NO. NOT APPLICABLE  
 NOI/WQID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
 "M.W.D. OF SOUTHERN CA S.D. 6-69 1993"  
 LOCATION: S.E. CORNER OF MANHOLE  
 RECORD FROM: FIELD BOOK 4047-04-079  
 ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

Engineers - Architects - Technicians  
 Design - Construction - Field Service

16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE POWER PLANT**

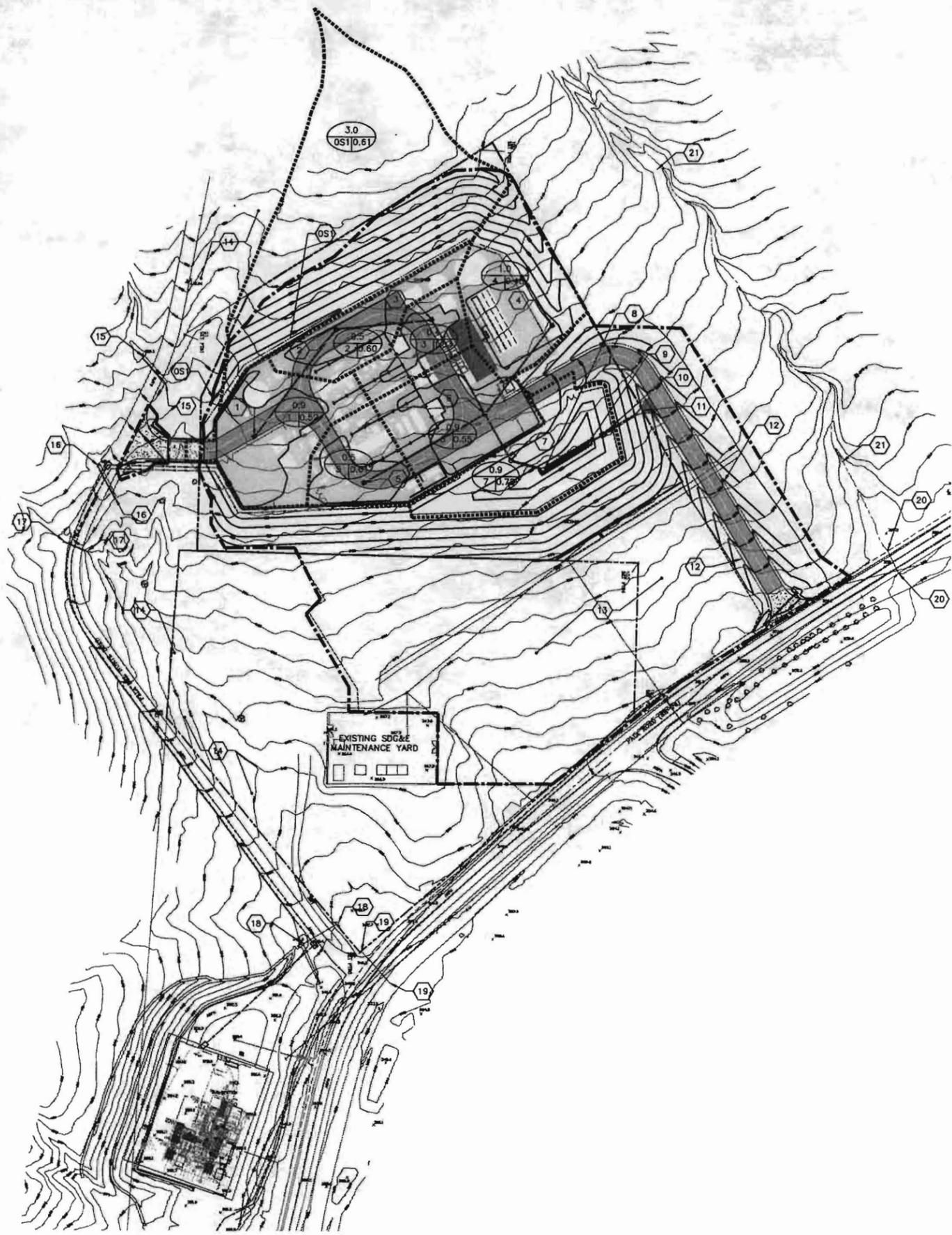
SITE CROSS SECTIONS

DESIGN BY: J. LANGEL	CHECKED BY: B. ROMINES
DRAWN BY: R. DAVILA	DATE: 11-29-07
CLIENT I.D. ICC00101	SEGA PROJECT NO. 07-201

CADD FILE NAME: 07201-C301.dwg

DRAWING NO. **C301**

REV. **1**



**DRAINAGE AREA MAP**  
SCALE IN FEET

**KEY:**

- (EX) - EXISTING STRUCTURES
- CI - CURB INLET
- SI - CURB INLET IN SUMP
- DI - SINGLE DROP INLET
- DI-2 - DOUBLE DROP INLET
- ES - PREFABRICATED END SECTION
- JB - JUNCTION BOX
- YI - YARD INLET
- AI - AREA INLET
- MH - MANHOLE
- R - REDUCER
- FI - FIELD INLET
- BEND - PREFABRICATED VERTICAL BEND
- T.D. - TRENCH DRAIN
- G.I. - GRATE INLET
- O.C. - DETENTION OUTLET CONTROL STRUCTURE
- RCP - REINFORCED CONCRETE PIPE
- CMP - CORRUGATED METAL PIPE (STEEL)
- CP - CULVERT PIPE

**DESIGN NOTES:**

- (a) TIME OF CONCENTRATION  
15 MINUTES MAX.  
5 MINUTES MIN.
- (b) PIPE LENGTHS EXCLUDE END SECTIONS AND ARE MEASURED ALONG CENTERLINE OF PIPE FROM CENTER OF INSIDE FACE TO CENTER OF INSIDE FACE OF STRUCTURES.
- (c) MANNING'S ROUGHNESS COEFFICIENT = 0.013 (CONCRETE)

**LEGEND**

- FOUND MONUMENT AS NOTED
- SET 1" IRON PIPE WITH "PSOMAS" PLUG UNLESS NOTED OTHERWISE
- PROPERTY LINE
- 400 EXISTING CONTOUR
- 380 PROPOSED MAJOR CONTOUR
- 383 PROPOSED MINOR CONTOUR
- PROPOSED GAS LINE
- PROPOSED UNDERGROUND ELECTRICAL
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE (COMMUNICATIONS) LINE
- PROPOSED RCP STORMWATER PIPE
- EXISTING T&D LINE
- EXISTING FENCE
- EXISTING ROAD
- PROPOSED FENCE
- PARCEL LINE
- DRAINAGE PATH (FLOWLINE)
- EXISTING ORCHARD LINE
- PROPOSED RIPRAP
- PROPOSED CRUSHED ROCK SURFACE
- PROPOSED CRUSHED ROCK PAVEMENT
- PROPOSED CONCRETE
- PROPOSED NATIVE GROUND COVER
- PROPOSED LANDSCAPING
- A = AREA IN ACRES
- B = BASIN DESIGNATION
- C = COMPOSITE RUNOFF COEFFICIENT
- D = DESIGN POINT DESIGNATION
- DRAINAGE AREA LIMITS
- PROPOSED DISTURBED AREA
- EXISTING USGS BLUELINE

**DRAINAGE AREA NOTES:**

(OS) DRAINAGE WILL BE ROUTED AROUND SITE BY NORTH DITCH DRAINAGE CHANNEL.

OFF-SITE DRAINAGE-NORTH CHANNEL

50 YEAR DESIGN STORM					
DEVELOPMENT STAGE	STORM DRAINAGE AREA (ACRES)	PEAK RUNOFF RATE Q (CFS)	RUNOFF COEF. C.	AVERAGE CHANNEL VELOCITY V (FT/S)	AVERAGE DEPTH ELEVATION (FT.)
PRE-DEV.	3.0	6.75	0.3	2.75	420.77
PRE-DEV.	3.0	11.25	0.5	3.10	420.95±
100 YEAR DESIGN STORM					
PRE-DEV.	3.0	7.65	0.3	2.87	420.16±
POST-DEV.	3.0	12.75	0.5	3.20	421.00±

- 1 INLET FOR DRAINAGE AREA.
- 2 INLET FOR DRAINAGE AREA.
- 3 INLET FOR DRAINAGE AREA.
- 4 INLET FOR DRAINAGE AREA.
- 5 INLET FOR DRAINAGE AREA.
- 6 INLET FOR DRAINAGE AREA. DRAINAGE FROM AREAS 1, 2, 3, 4, AND 5 WILL BE ROUTED VIA STORM DRAIN.
- 7 STORMWATER MANHOLE.
- 8 STORM DRAIN OUTLET AND DETENTION BASIN INLET STRUCTURE.
- 9 DETENTION BASIN OUTLET CONTROL STRUCTURE.
- 10 DETENTION BASIN EMERGENCY OUTLET STRUCTURE.
- 11 STORMWATER OUTLET.
- 12 SECONDARY ACCESS ROAD DITCHES.
- 13 AREAS SOUTH OF PARCEL LINE AND WITHIN "PROPOSED DISTURBED AREA" LINE ARE AREAS FOR "TEMPORARY CONSTRUCTION PARKING AND LAYDOWN."
- 14 EXISTING NATURAL WEST DRAINAGE CHANNEL.
- 15 EXISTING OFF-SITE CULVERT PIPES.
- 16 EXISTING OFF-SITE CULVERT PIPES.
- 17 EXISTING OFF-SITE CULVERT PIPES.
- 18 EXISTING OFF-SITE CULVERT PIPE.
- 19 EXISTING OFF-SITE CULVERT PIPE.
- 20 EXISTING OFF-SITE CULVERT PIPE.
- 21 EXISTING USGS BLUELINE OR NATURAL EAST DRAINAGE CHANNEL.

ON-SITE STORMWATER DETENTION BASIN

50 YEAR DESIGN STORM						
DEVELOPMENT STAGE	STORM DRAINAGE AREA (ACRES)	PEAK RUNOFF RATE Q (CFS)	RUNOFF CURVE. C.	DESIGNATED VOLUME V (FT³)	DESIGNED WATER SURFACE VOLUME (FT³)	WATER SURFACE ELEVATION (FT.)
PRE-DEV.	5.2	11.00	N/A	N/A	N/A	N/A
POST-DEV.	5.2	24.58	N/A	85,700	76,300	410.5(±)
100 YEAR DESIGN STORM						
PRE-DEV.	5.2	12.68	N/A	N/A	N/A	N/A
POST-DEV.	5.2	27.88	N/A	85,700	85,000	412.4(±)

NOTE: WATER SURFACE VOLUME DOES NOT INCLUDE ONE FOOT OF FREEBOARD.

**SUMMARY OF AREAS (ACRES):**

- 1. IMPERVIOUS AREA (INCLUDES CONCRETE ENTRANCE SECTION) - 1.00
- 2. CRUSHED ROCK SURFACE AREA (INCLUDES VEHICULAR AREA) - 3.22
- 3. DETENTION BASIN DRAINAGE AREA - 5.20
- 4. VEHICULAR AREA - 1.47
- 5. TEMPORARY CONSTRUCTION PARKING AREA AND LAYDOWN - 5.73
- 6. DISTURBED AREA - 14.83

50 YEAR DESIGN (PROPOSED CONSTRUCTION)																
STRUCT. NO. (Area No.)	TYPE	AREA (acres) A	RUNOFF COEF. C	DIRECT RUNOFF			TOTAL Q (CFS)	PIPE								
				C x A	K	i (in/hr)		Q (cfs)	PIPE NO.	PIPE SIZE DIA. (inches)	PIPE SLOPE %	PIPE LENGTH (LF)	PIPE CAP. (CFS)	VELOCITY (ft/sec)	DEPTH OF FLOW (inches)	
1	AI	0.90	0.52	0.47	1.1	7.5	3.86									
2	AI	0.50	0.60	0.30	1.1	7.5	2.48									
3	AI	0.46	0.59	0.27	1.1	7.5	2.24									
4	AI	1.00	0.48	0.48	1.1	7.5	3.96									
5	AI	0.52	0.61	0.32	1.1	7.5	2.62									
6	AI	0.90	0.55	0.50	1.1	7.5	4.08									
7	MH	NA	NA	NA	NA	NA	NA	19.24	7	30	2.5	49	69.76	11.52	11.20	
8	OC	0.90	0.72	0.65	1.1	7.5	5.35	24.58								
9	OC	NA	NA	NA	NA	NA	NA									
10	MH	NA	NA	NA	NA	NA	NA	12.68 MAX	9	12	1.0	20	11.28	14.36	FULL	
11	MH	NA	NA	NA	NA	NA	NA	SEE D.C.	10	36	1.0	64	71.74	7.02	10.02	

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

9 COUNTY OF SAN DIEGO 45  
SHEET DEPARTMENT OF PUBLIC WORKS SHEET

GRADING PLAN FOR:  
THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR MOHAMED FADHREDEK DIRECTOR OF PUBLIC WORKS  
ENGINEER OF WORK THOMAS F. HEUSLER  
3-31-08

L-15454  
GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
SPECIAL USE PERMIT NO. NOT APPLICABLE  
TENTATIVE MAP NO. NOT APPLICABLE  
NOI/WDID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3.1/2" brass disk  
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
LOCATION: S.E. CORNER OF MANHOLE

RECORD FROM: FIELD BOOK 4047-04-079  
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

**Sega**

Engineers - Architects - Technicians  
Design - Construction - Field Service

16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

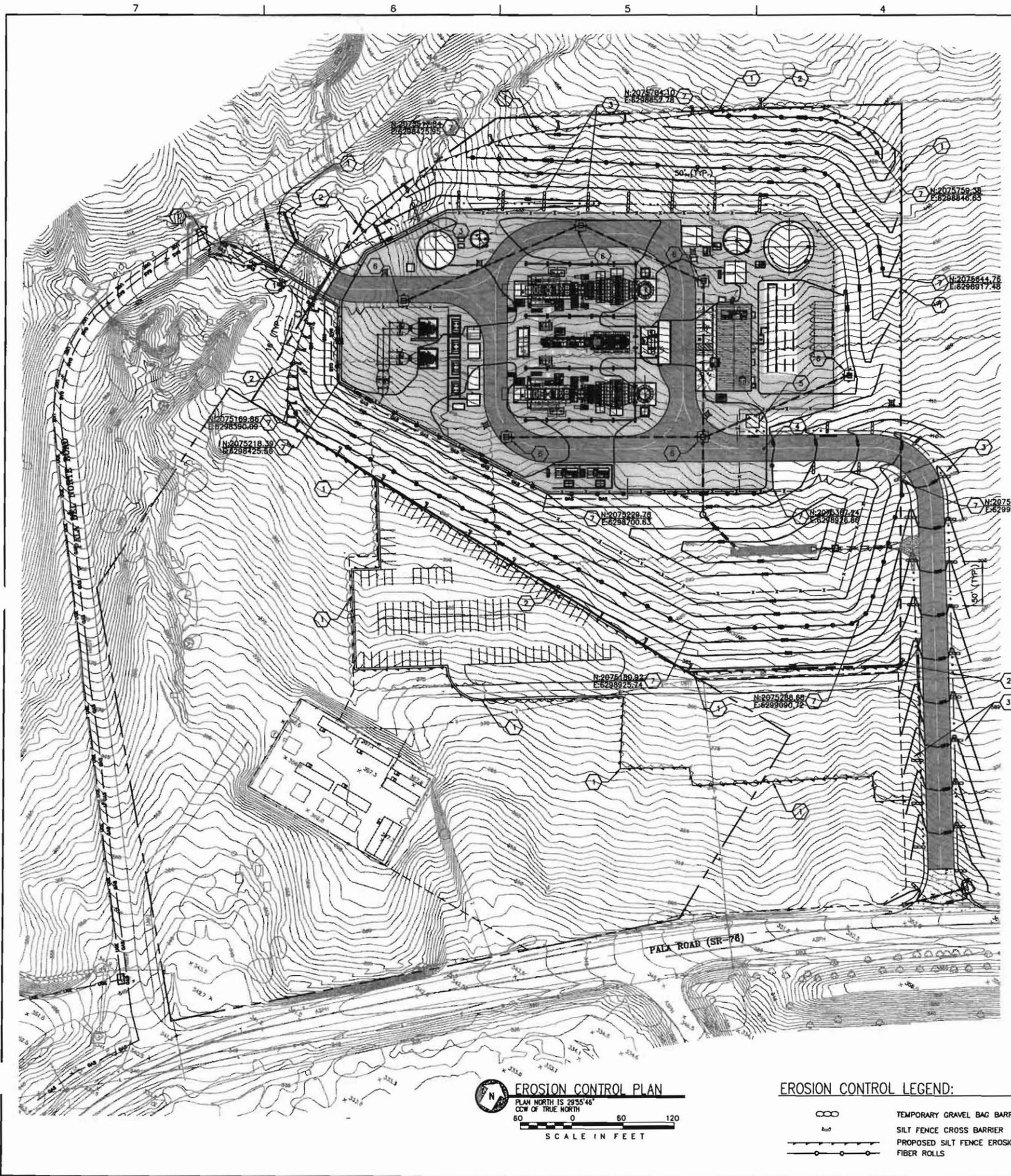
**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE POWER PLANT**

DRAINAGE AREA MAP

DESIGN BY: J. LANGELE  
CHECKED BY: B. ROMINES  
DRAWN BY: B. GASPERS  
DATE: 9-12-07  
CLIENT I.D.: ICC00101  
SEGA PROJECT NO.: 07-201

CADD FILE NAME: 07201-C400.dwg  
DRAWING NO. C400  
REV. 1



**EROSION CONTROL KEYNOTES:**

- 1 INSTALL TEMPORARY LINEAR SEDIMENT BARRIER (TYP. SILT FENCE), SEE DETAIL DWG C501.
- 2 INSTALL CROSS BARRIER (SAND BAGS), SEE DETAIL DWG. C501
- 3 INSTALL TEMPORARY GRAVEL BAG BARRIER, SEE DETAIL DWG C501.
- 4 INSTALL TIRE WASH, SEE DETAIL DWG C501.
- 5 INSTALL CONCRETE WASHOUT FACILITY, SEE DETAIL DWG C502.
- 6 INSTALL DROP INLET PROTECTION, SEE DETAIL DWG C502.
- 7 INSTALL TEMPORARY FIBER ROLL, SEE DETAIL DWG C502.

**EROSION CONTROL NOTES:**

1. SILT FENCE SHALL BE CLEANED AND REPAIRED WHEN SILT BUILD-UP REACHES 1/3 SILT FENCE HEIGHT.
2. CLEARING AND GRUBBING WORK SHALL COMPLY WITH THE COUNTY OF SAN DIEGO, CALIFORNIA STANDARDS AND SPECIFICATIONS LATEST EDITION.
3. NO VEGETATION OR CONSTRUCTION DEBRIS SHALL BE BURIED ON SITE. NO BURNING PITS SHALL BE ALLOWED.
4. ALL DISTURBED AREAS THAT REMAIN ACTIVE FOR MORE THAN 21 DAYS SHALL BE STABILIZED BY SEEDING, SODDING, MULCHING, COVERING OR BY OTHER EQUIVALENT EROSION CONTROL MEASURES AS SOON AS PRACTICAL, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
5. PRIOR TO ANY GRADING, STRIPPING, EXCAVATING, FILLING OR ANY OTHER DISTURBANCE OF THE NATURAL GROUND COVER, THE CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES. THE CONTRACTOR SHALL MAINTAIN THESE DEVICES THROUGHOUT THE DURATION OF THE PROJECT AND UNTIL PERMANENT VEGETATION IS PROPERLY ESTABLISHED.
6. STOCKPILES SHALL BE LOCATED AWAY FROM SLOPES AND TRAFFIC ROUTES AND BE TEMPORARILY SEEDED AS SOON AS POSSIBLE, NO MORE THAN 30 WORKING DAYS OR 120 CALENDAR DAYS AFTER FORMATION OF THE STOCKPILE. SILT FENCE SHALL BE PLACED APPROPRIATELY AROUND THE STOCKPILE TO CONTROL EROSION.
7. THE SITE SHALL HAVE GRADED ROADS AND ACCESS DRIVES TO PARKING AREAS OF SUFFICIENT WIDTH AND LENGTH TO PREVENT SEDIMENT FROM BEING TRACKED ON TO PUBLIC ROADWAYS. ANY SEDIMENT REACHING A PUBLIC OR PRIVATE ROAD SHALL BE REMOVED. BULK CLEARING OF ACCUMULATED SEDIMENT SHALL BE RETURNED TO THE POINT OF LIKELY ORIGIN OR OTHER SUITABLE LOCATION BEFORE THE END OF EACH WORK DAY. CONSTRUCTION ENTRANCES SHALL BE ROCKED PRIOR TO ANY OTHER SITE WORK.
8. EROSION AND SEDIMENTATION CONTROLS AND SEEDING SHALL MEET THE STANDARDS AND SPECIFICATIONS OF SAN DIEGO COUNTY, CALIFORNIA.
9. PROPOSED MINOR GRADES ARE NOT SHOWN FOR CLARITY. PLEASE REFERENCE THE GRADING AND DRAINAGE PLAN FOR DETAILS.

**EROSION CONTROL NOTES:**

1. ALL BUILDING PADS TO BE DIKED AND THE DIKES MAINTAINED TO PREVENT WATER FROM FLOWING FROM THE PAD UNTIL THE STREETS AND DRIVEWAYS ARE PAVED AND WATER CAN FLOW FROM THE PADS WITHOUT CAUSING EROSION, OR CONSTRUCT DRAINAGE FACILITIES TO THE SATISFACTION OF THE COUNTY DEPARTMENT OF PUBLIC WORKS THAT WILL ALLOW WATER TO DRAIN FROM THE PAD WITHOUT CAUSING EROSION.
2. TOPS OF ALL SLOPES TO BE DIKED OR TRENCHED TO PREVENT WATER FROM FLOWING OVER THE CREST OF SLOPES.
3. MANUFACTURED SLOPES AND PADS SHALL BE ROUNDED VERTICALLY AND HORIZONTALLY AS APPROPRIATE TO BLEND WITH THE SURROUNDING TOPOGRAPHY.
4. AS SOON AS CUTS OR EMBANKMENTS ARE COMPLETED, BUT NOT LATER THAN OCTOBER 1 ALL CUT AND FILL SLOPES SHALL BE STABILIZED WITH A HYDROMULCH MIXTURE OR AN EQUAL TREATMENT APPROVED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS BETWEEN OCTOBER 1 AND APRIL 15. APPROVED SLOPE PROTECTION MEASURES SHALL PROCEED IMMEDIATELY BEHIND THE EXPOSURE OF CUT SLOPES AND/OR THE CREATION OF EMBANKMENT SLOPES.
5. CATCH BASINS, DESILTING BASINS AND STORM DRAIN SYSTEM SHALL BE INSTALLED TO THE SATISFACTION OF THE COUNTY DEPARTMENT OF PUBLIC WORKS.
6. GRAVEL BAG CHECK DAMS TO BE PLACED IN A MANNER APPROVED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS IN UNPAVED STREETS WITH GRADIENTS IN EXCESS OF 2% AND ON OR IN OTHER GRADED OR EXCAVATED AREAS AS REQUIRED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.
7. THE DEVELOPER TO MAINTAIN THE PLANTING AND EROSION CONTROL MEASURES DESCRIBED ABOVE UNTIL RELIEVED OF THE SAME BY THE COUNTY DEPARTMENT OF PUBLIC WORKS. THE DEVELOPER TO REMOVE ALL SOIL INTERCEPTED BY THE GRAVEL BAGS, CATCH BASINS AND DESILTING BASINS AND KEEP THESE FACILITIES CLEAN AND FREE OF SILT AND SAND AS DIRECTED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS. THE DEVELOPER SHALL REPAIR ANY ERODED SLOPES AS DIRECTED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.

**LEGEND**

●	FOUND MONUMENT AS NOTED
○	SET 1" IRON PIPE WITH "PSOMAS" PLUG UNLESS NOTED OTHERWISE
---	PROPERTY LINE
---	EXISTING CDNTOUR
---	PROPOSED MAJOR CONTOUR
---	PROPOSED MINOR CONTOUR
---	PROPOSED GAS LINE
---	PROPOSED UNDERGROUND ELECTRICAL
---	EXISTING ELECTRIC LINE
---	EXISTING TELEPHONE (COMMUNICATIONS) LINE
---	PROPOSED RCP STORMWATER PIPE
---	EXISTING T&D LINE
---	EXISTING FENCE
---	EXISTING ROAD
---	PROPOSED FENCE
---	PARCEL LINE
---	DRAINAGE PATH (FLOWLINE)
---	EXISTING ORCHARD LINE
---	PROPOSED RIPRAP
---	PROPOSED CRUSHED ROCK SURFACE
---	PROPOSED CRUSHED ROCK PAVEMENT
---	PROPOSED CONCRETE
---	PROPOSED NATIVE GROUND COVER
---	PROPOSED LANDSCAPING
---	TEMPORARY CONSTRUCTION STAGING AREA

**EROSION CONTROL LEGEND:**

○	TEMPORARY GRAVEL BAG BARRIER
—	SILT FENCE CROSS BARRIER
—	PROPOSED SILT FENCE EROSION CONTROL FIBER ROLLS

**EROSION CONTROL PLAN**  
 PLAN NORTH IS 29°55'46"  
 CCW OF TRUE NORTH  
 SCALE IN FEET  
 0 60 120

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

10 COUNTY OF SAN DIEGO 45  
 SHEET DEPARTMENT OF PUBLIC WORKS SHEET

GRADING PLAN FOR:  
 THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
 CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR GRADING ENGINEERING DIRECTOR OF PUBLIC WORKS  
 ENGINEER OF WORK THOMAS F. HEUSLER (C40363) REG. 3-31-08  
 L-15454 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
 SPECIAL USE PERMIT NO. NOT APPLICABLE  
 TENTATIVE MAP NO. NOT APPLICABLE  
 NOI/WQID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
 "M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
 LOCATION: S.E. CORNER OF MANHOLE  
 RECORD FROM: FIELD BOOK 4047-04-079  
 ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

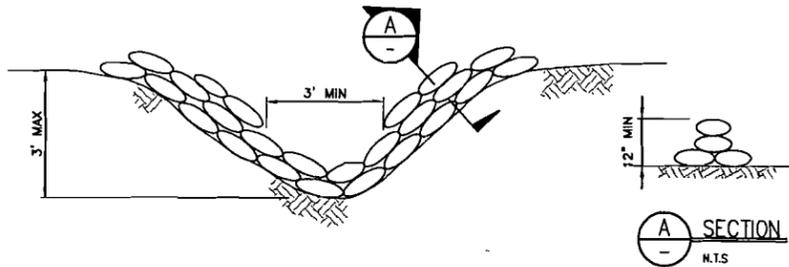
**Sega**  
 Engineers - Architects - Technicians  
 Design - Construction - Field Service

16041 FASTER  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

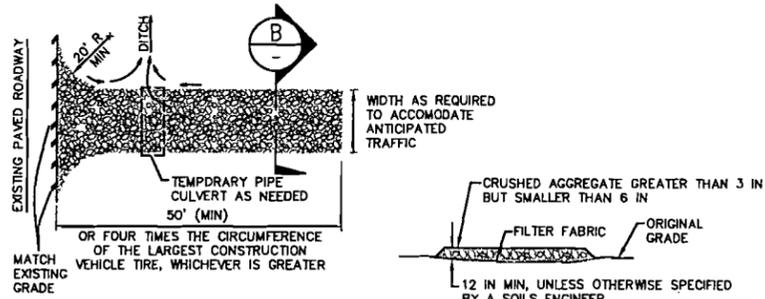
**ORANGE GROVE POWER PLANT**  
 EROSION CONTROL PLAN

DESIGN BY: M. BLAKE	CHECKED BY: B. ROMINES
DRAWN BY: B. GASPERS	DATE: 9-12-07
CLIENT I.D. IC00101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-C500.dwg	
DRAWING NO. C500	REV. 1

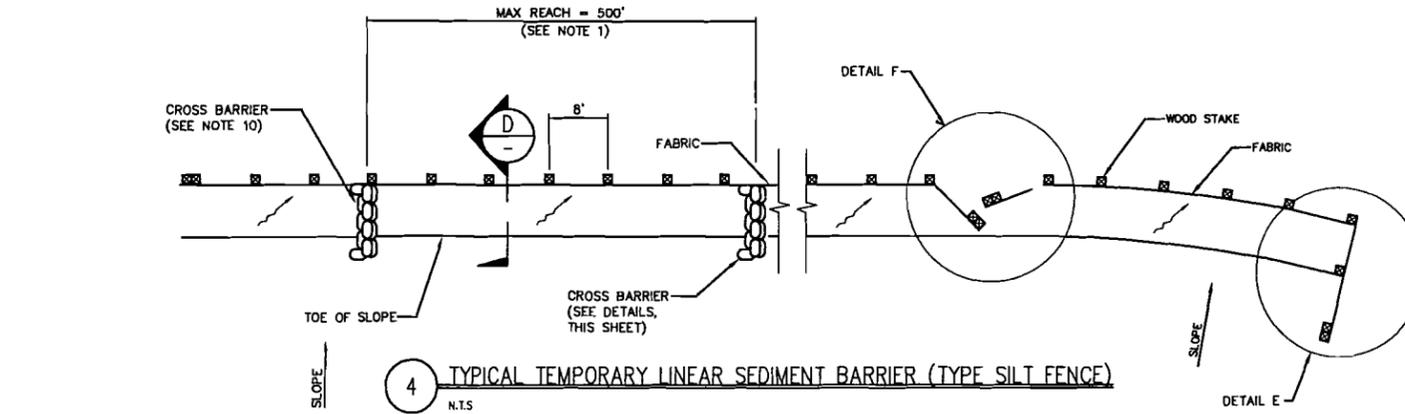


1 TYPICAL TEMPORARY GRAVEL BAG BARRIER (BMP SE-6)  
N.T.S.

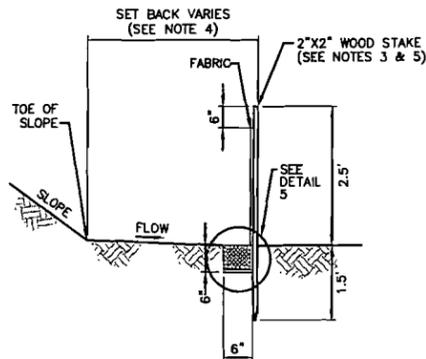
NOTE:  
CONSTRUCT SEDIMENT BARRIER  
AND CHANNELIZE RUNOFF TO  
SEDIMENT TRAPPING DEVICE



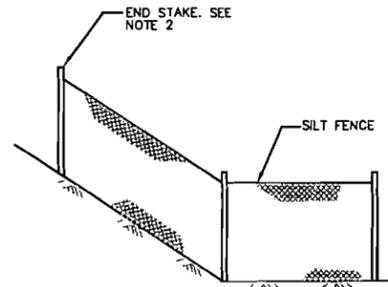
2 TYPICAL TIRE WASH (BMP TC-1)  
N.T.S.



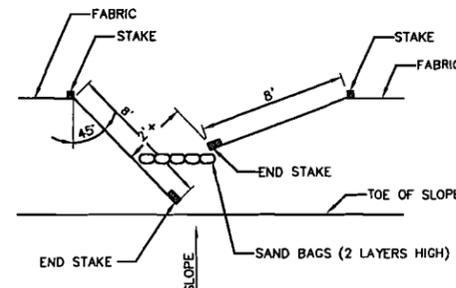
4 TYPICAL TEMPORARY LINEAR SEDIMENT BARRIER (TYPE SILT FENCE)  
N.T.S.



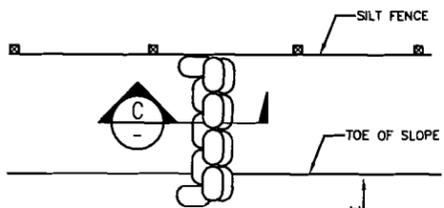
D SECTION  
N.T.S.



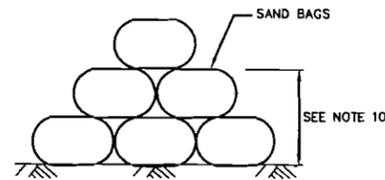
E END DETAIL  
N.T.S.



F OPTIONAL MAINTENANCE OPENING DETAIL  
N.T.S. (SEE NOTE 11)



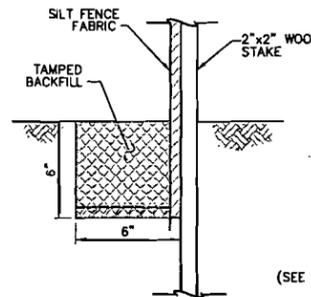
3 TYPICAL CROSS BARRIER DETAIL  
N.T.S.



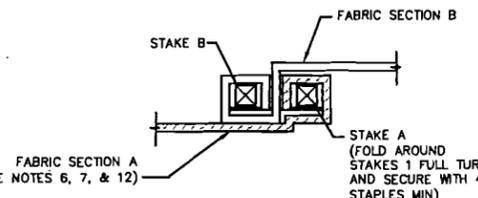
C SECTION  
N.T.S.

NOTES

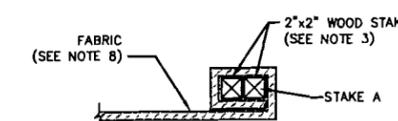
- CONSTRUCT THE LENGTH OF EACH REACH SO THAT THE CHANGE IN BASE ELEVATION ALONG THE REACH DOES NOT EXCEED 1/3 THE HEIGHT OF THE LINEAR BARRIER, IN NO CASE SHALL THE REACH LENGTH EXCEED 500 FEET.
- THE LAST 8 FEET OF FENCE SHALL BE TURNED UP SLOPE.
- STAKE DIMENSIONS ARE NOMINAL.
- DIMENSIONS MAY VARY TO FIT FIELD CONDITION.
- STAKES SHALL BE SPACED AT 8 FOOT MAXIMUM, AND SHALL BE POSITIONED ON DOWNSTREAM SIDE OF FENCE.
- STAKES TO OVERLAP AND FENCE FABRIC TO FOLD AROUND EACH STAKE ONE FULL TURN. SECURE TO STAKE WITH 4 STAPLES.
- STAKES SHALL BE DRIVEN TIGHTLY TOGETHER TO PREVENT POTENTIAL FLOW-THROUGH OF SEDIMENT AT JOINT. THE TOPS OF THE STAKES SHALL BE SECURED WITH WIRE.
- FOR END STAKES, FENCE FABRIC SHALL BE FOLDED AROUND TWO STAKES ONE FULL TURN AND SECURED WITH 4 STAPLES.
- MINIMUM 4 STAPLES PER STAKE. DIMENSIONS SHOWN ARE TYPICAL.
- CROSS BARRIERS SHALL BE A MINIMUM OF 1/3, AND A MAXIMUM OF 1/2 THE HEIGHT OF THE LINEAR BARRIER.
- MAINTENANCE OPENINGS SHALL BE CONSTRUCTED IN A MANNER TO ENSURE SEDIMENT REMAINS BEHIND SILT FENCE.
- JOINING SECTIONS SHALL NOT BE PLACED AT SUMP LOCATIONS.
- SANDBAG ROWS AND LAYERS SHALL BE OFFSET TO ELIMINATE GAPS.



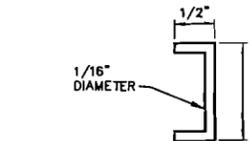
5 DETAIL  
N.T.S.



6 JOINING SECTION DETAIL (TOP VIEW)  
N.T.S.



7 END STAKE DETAIL (TOP VIEW)  
N.T.S.



8 STAPLE DETAIL (SEE NOTE 9)  
N.T.S.

LEGEND

- TAMPED BACKFILL
- SLOPE DIRECTION
- DIRECTION OF FLOW

TYPICAL TEMPORARY SILT FENCE (BMP SE-1)  
N.T.S.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

PRIVATE CONTRACT

11 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1738/434-1737		
APPROVED FOR MONAHMO FARFARROUNE DIRECTOR OF PUBLIC WORKS	DESIGNED BY THOMAS F. HEUSLER 0040363	DATE 3-31-09
L-15454 GRADING PERMIT NO.		

PERMITS

REZONE PERMIT NO. NOT APPLICABLE  
SPECIAL USE PERMIT NO. NOT APPLICABLE  
TENTATIVE MAP NO. NOT APPLICABLE  
NOI/WDIO NO. NOT YET ASSIGNED

BENCH MARK

DESCRIPTION: 3 1/2" brass disk  
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
LOCATION: S.E. CORNER OF MANHOLE  
RECORD FROM: FIELD BOOK 4047-04-079  
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

COUNTY APPROVED CHANGES

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink



Engineers - Architects - Technicians  
Design - Construction - Field Service  
16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

ORANGE GROVE ENERGY L.P.  
Schaumburg, IL

ORANGE GROVE POWER PLANT  
EROSION CONTROL PLAN  
DETAILS

DESIGN BY: M. BLAKE	CHECKED BY: B. ROMINES
DRAWN BY: B. GASPERS	DATE: 9-12-07
CLIENT I.D. IC000101	SEGA PROJECT NO. 07-201

CADD FILE NAME: 07201-C501.dwg

DRAWING NO. REV.

C501

1



REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

13 COUNTY OF SAN DIEGO 45  
SHEET DEPARTMENT OF PUBLIC WORKS SHEET

GRADING PLAN FOR:  
THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR RECORDING ENGINEER/REG. DIRECTOR OF PUBLIC WORKS  
ENGINEER OF WORK THOMAS F. HEUSLER  
CDD40363 REG. 2-31-09  
L-15454  
GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
SPECIAL USE PERMIT NO. NOT APPLICABLE  
TENTATIVE MAP NO. NOT APPLICABLE  
NOI/WDID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
\*M.W.D. OF SOUTHERN CA S.D. 6-69 1993\*  
LOCATION: S.E. CORNER OF MANHOLE  
RECORD FROM: FIELD BOOK 4047-04-079  
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

**Sega**  
Engineers - Architects - Technicians  
Design - Construction - Field Service

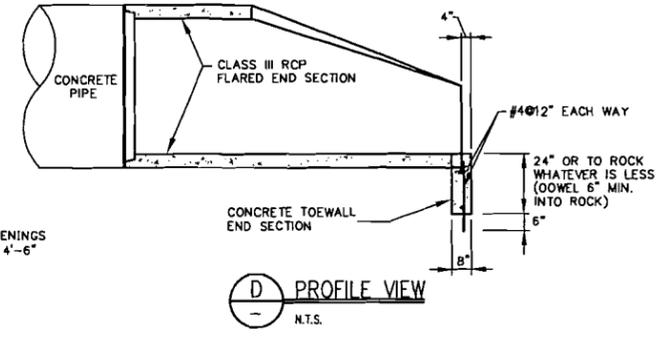
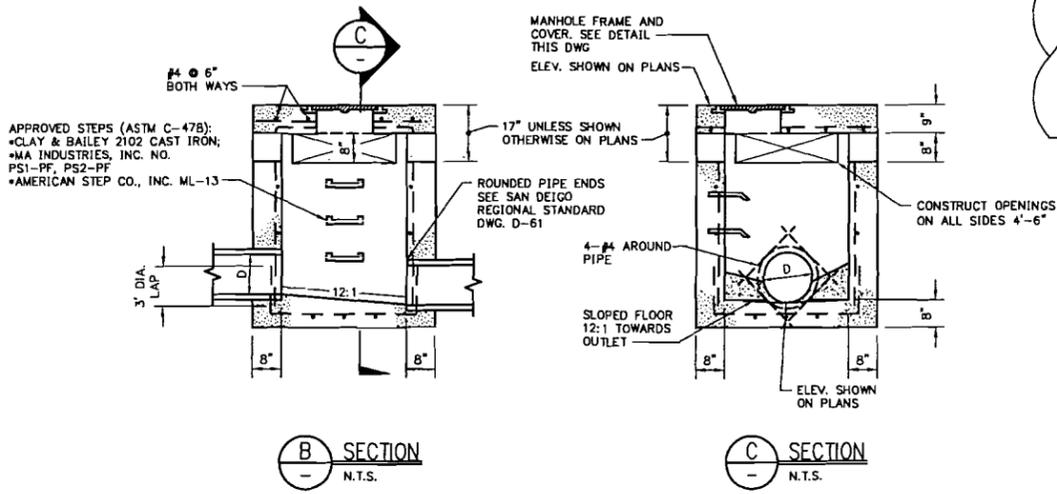
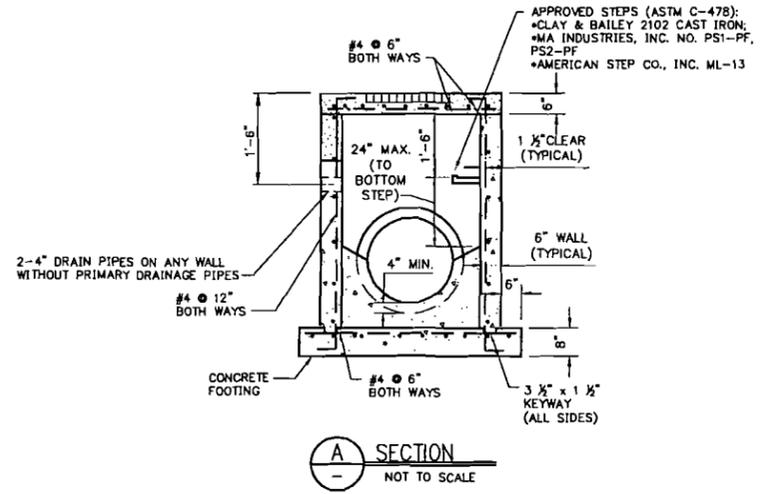
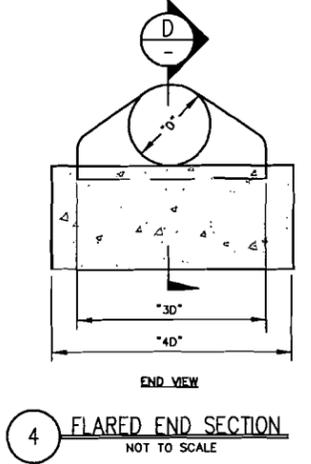
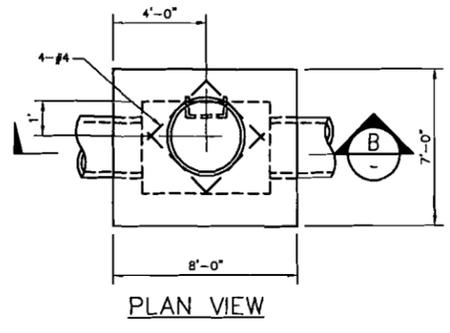
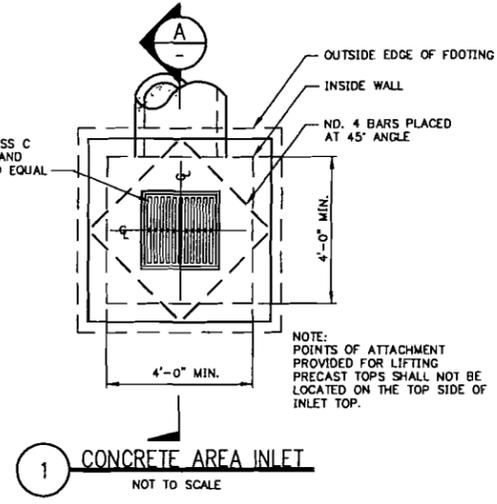
16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE POWER PLANT**  
SITE DETAILS

DESIGN BY: J. LANGEL	CHECKED BY: J. BONDANK
DRAWN BY: B. GASPERS	DATE: 9-12-07
CLIENT I.D. IC000101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-C800.dwg	
DRAWING NO. C800	REV. 1

SEGA, INC. PHONE NUMBER: (913) 881-2881



**STORM STRUCTURE NOTES:**

**GENERAL**

- ALL STORM SEWER STRUCTURES SHALL BE PRE-CAST OR POURED IN PLACE. IF PRE-CAST STRUCTURES ARE NOT USED THE TOPS SHALL BE POURED IN PLACE AND THE WALL STEEL SHALL BE LEFT EXPOSED TO A HEIGHT 2" BELOW THE FINISH TOP ELEVATION.
- PRE-CAST SHOP DRAWINGS ARE TO BE APPROVED BY THE ENGINEER.
- DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONSTRUCTION.

**CONCRETE**

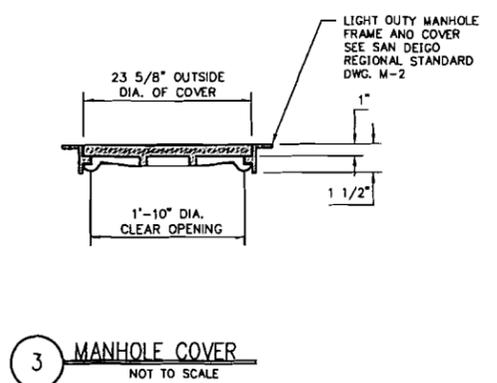
- INLET FLOORS SHALL BE SHAPED WITH NON-REINFORCED CONCRETE INVERTS TO PROVIDE SMOOTH FLOW.
- BEVEL ALL EXPOSED EDGES WITH 3/4" TRIANGULAR MOLDING.

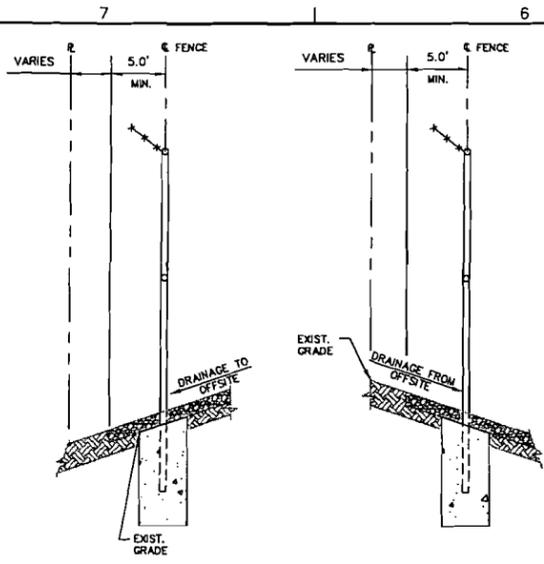
**REINFORCING STEEL**

- ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 1 1/2" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OR +/- 1/8" SHALL BE PERMITTED.
- ALL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
- ALL REINFORCING STEEL SHALL BE SUPPORTED ON FABRICATED STEEL BAR SUPPORTS @ 3'-0" MAXIMUM SPACING.
- ALL DOWELS SHALL BE ACCURATELY PLACED AND SECURELY TIED IN PLACE PRIOR TO PLACEMENT OF BOTTOM SLAB CONCRETE. STICKING OF DOWELS INTO FRESH OR PARTIALLY HARDENED CONCRETE IS NOT ACCEPTABLE.

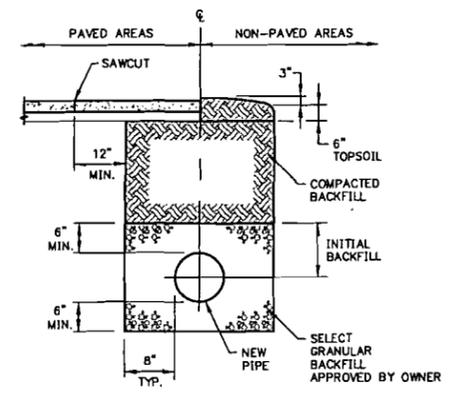
**CONSTRUCTION**

- THE BOTTOM SLAB SHALL BE AT LEAST 24 HOURS OLD BEFORE PLACING SIDEWALL CONCRETE. ALL SIDEWALL FORMS SHALL REMAIN IN PLACE A MINIMUM OF 24 HOURS AFTER SIDEWALLS ARE POURED BEFORE REMOVAL, AND AFTER REMOVAL SHALL BE IMMEDIATELY TREATED WITH MEMBRANE CURING COMPOUND.
- PIPE CONNECTIONS TO PRE-CAST STRUCTURES SHALL HAVE A MINIMUM OF 6" OF CONCRETE AROUND THE ENTIRE PIPE WITHIN 2' OF THE STRUCTURE.
- THE FOLLOWING SHALL BE STENCILLED USING 2 INCH HIGH LETTERS AND BLACK PAINT ON THE FACE OF THE CURB ADJACENT TO THE INLET (EITHER SIDE) AND ON THE TOP OF THE INLET: (EITHER SIDE) NO DUMPING DRAIN TO STREAM

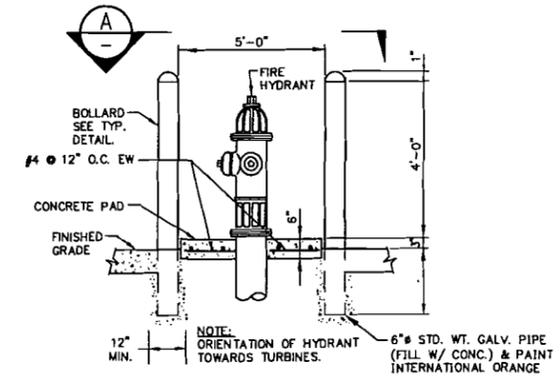




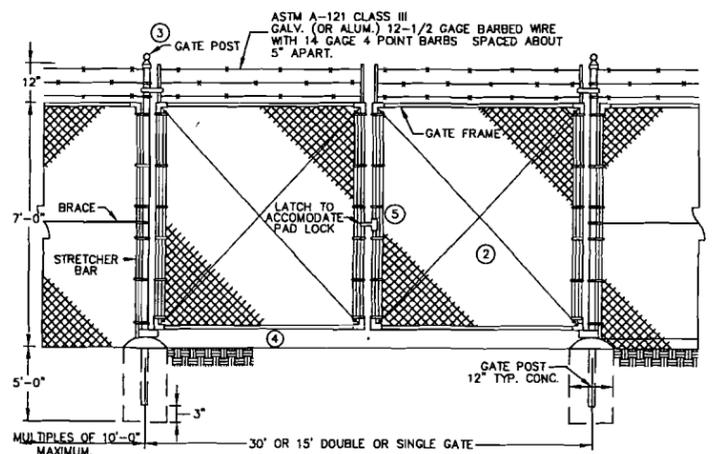
1 TYPICAL CRUSHED ROCK SURFACE FENCE DETAIL  
N.T.S.



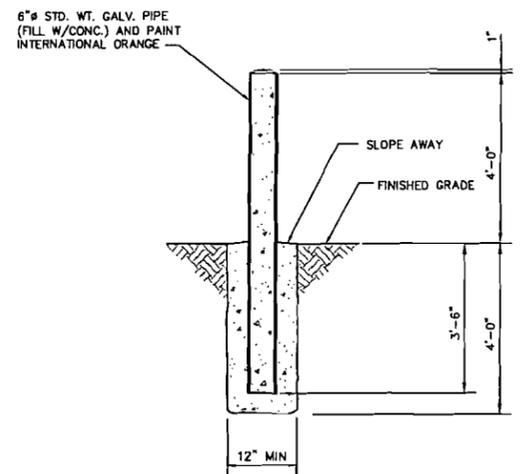
4 TYPICAL TRENCH DETAIL  
N.T.S.



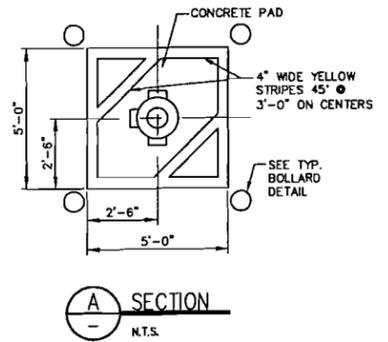
6 FIRE HYDRANT BARRIER DETAIL  
N.T.S.



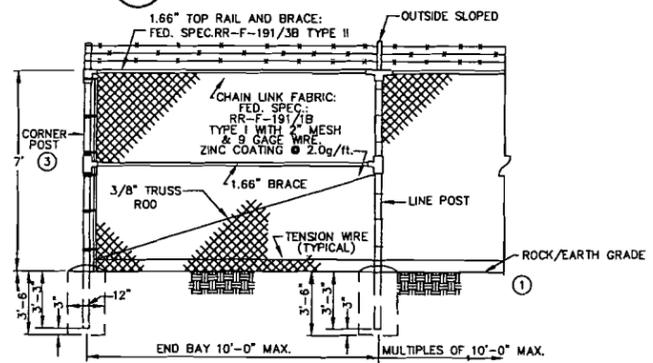
2 DOUBLE OR SINGLE GATE DETAIL  
N.T.S.



5 TYPICAL BOLLARD DETAIL  
N.T.S.



A SECTION  
N.T.S.



3 SECURITY OR SUBSTATION CHAIN LINK FENCE INSTALLATION  
N.T.S.

- GENERAL NOTES:**
- GROUNDING IS NOT SHOWN ON THIS DETAIL, SEE ELECTRICAL DRAWINGS.
  - DRIVEWAY GATE TO MEET FEDERAL SPEC. RR-F-191/2B TYPE IV WITH ROUND ZINC COATED STEEL FRAME, CORNER FITTINGS HINGES, WITH PADLOCK HASP, AND MECHANICAL KEEPER FOR EACH GATE LEAF.
  - POSTS TO MEET FEDERAL SPEC. RR-F-191/3B TYPE I CLASS I STEEL GRADE A END, CORNER, & PULL POSTS 2.875" O.D., GATE POSTS 4.0" O.D., INTERMEDIATE POSTS 2.375" O.D., MINIMUM POST LENGTH SHALL BE 10'-6" PROVIDE POSTS WITH BRACE RAILS ADJUSTABLE 3/8" DIAMETER TRUSS RODS. PROVIDE ACCESSORIES PER FEDERAL SPEC. RR-F-191/4B TYPE I THRU XII.
  - BOTTOM HEIGHT OF GATE FROM GRADE SHALL PREVENT UNAUTHORIZED ENTRY WHILE ALLOWING ADEQUATE CLEARANCE FOR OPENING OF THE GATE. ADD ADDITIONAL LOOSE(HINGED) FABRIC AND FRAME ROD AT BOTTOM, IF NECESSARY.
  - CARGO PROTECTORS, INC. MODEL NO. FL-100

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

14 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY, ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1736/434-1737		
APPROVED FOR MONITORING PROGRESS DIRECTOR OF PUBLIC WORKS	ENGINEER OF WORK THOMAS F. HEALD C040363 ACC. 3-31-09	L-15454 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE
SPECIAL USE PERMIT NO. NOT APPLICABLE
TENTATIVE MAP NO. NOT APPLICABLE
NOI/WOID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"
LOCATION: S.E. CORNER OF MANHOLE
RECORD FROM: FIELD BOOK 4047-04-079
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink



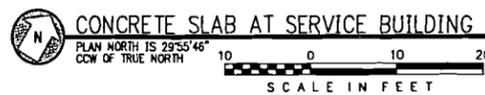
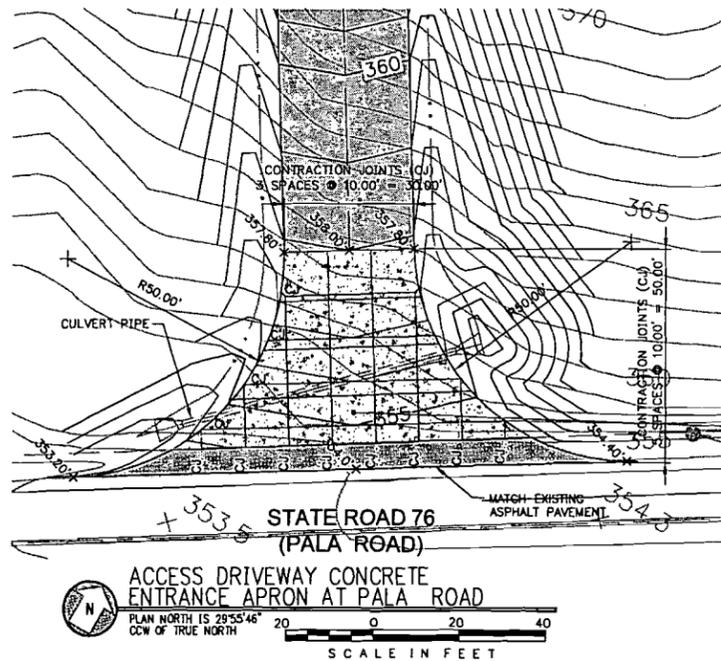
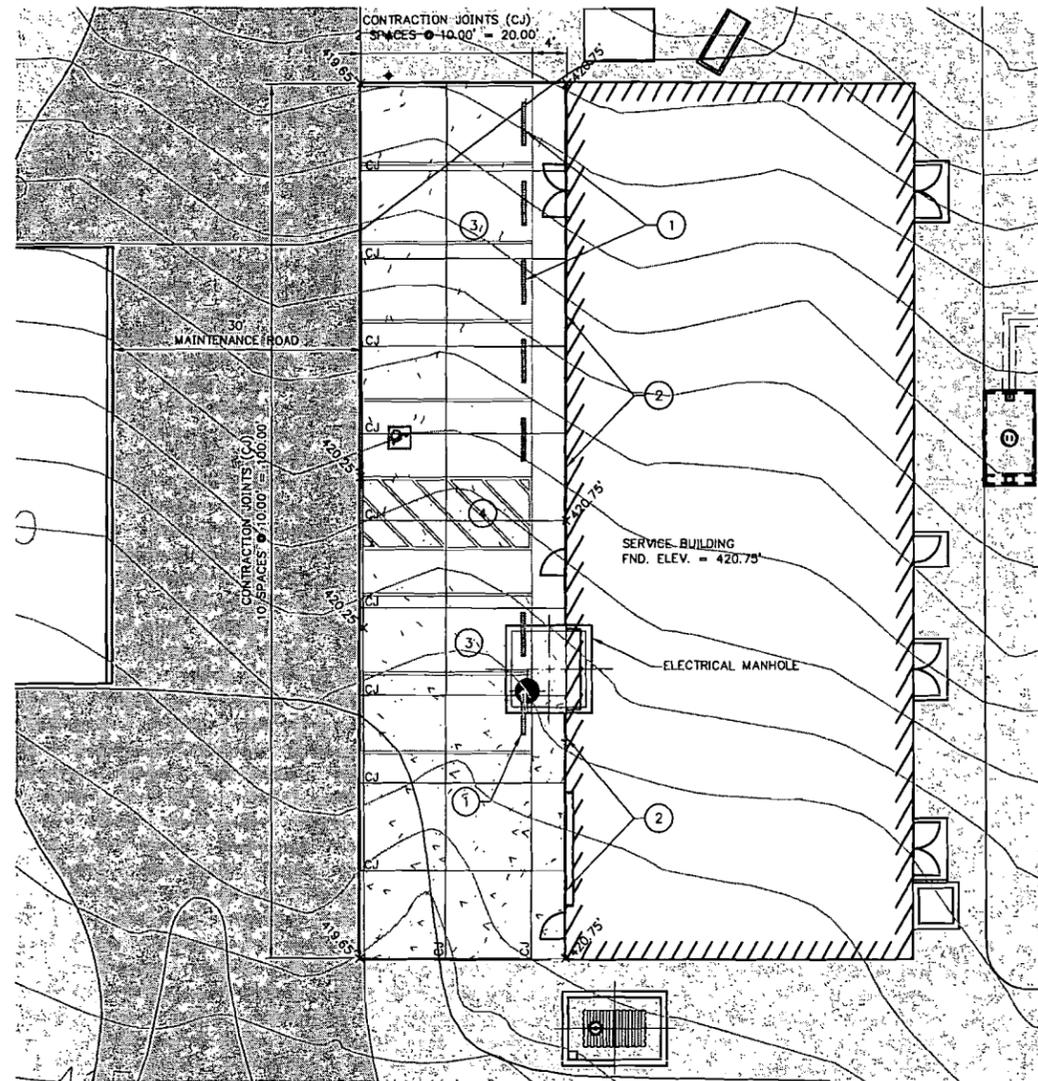
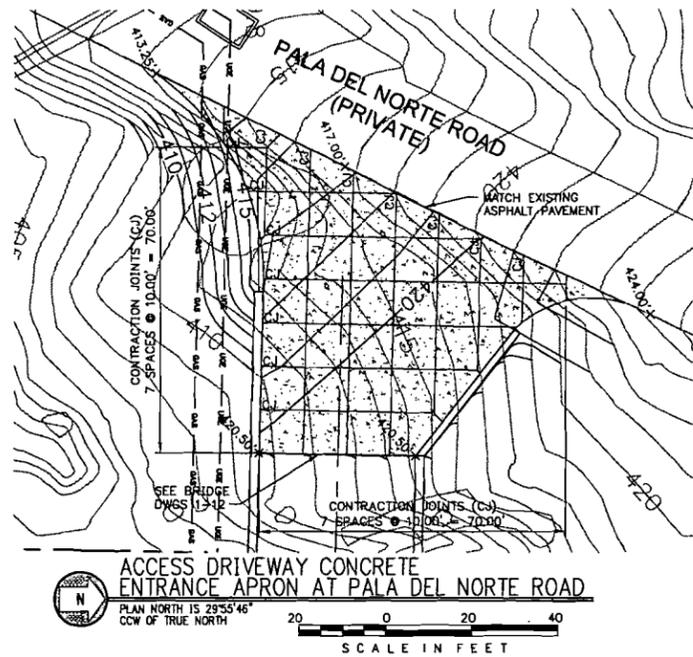
16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE POWER PLANT**

**SITE DETAILS**

DESIGN BY: J. LANGEL	CHECKED BY: J. BONDANK
DRAWN BY: B. GASPERS	DATE: 9-12-07
CLIENT I.D. ICCO0101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-C801.dwg	
DRAWING NO. C801	REV. 1



**KEYNOTES:**

- ① INSTALL 6" STANDARD PRECAST CONCRETE PARKING BUMPERS WITH 2 #6 x 18" L STEEL RODS DOWELED INTO CONCRETE (7 PLACES.)
- ② INSTALL JOINTS AT STRUCTURE.
- ③ TYPICAL 9' WIDE PARKING STALL (6 PLACES.)
- ④ ADA HANDICAP PARKING STALL, SEE DETAIL DWG. C803.

**LEGEND**

●	FOUND MONUMENT AS NOTED
○	SET 1" IRON PIPE WITH "PSOMAS" PLUG UNLESS NOTED OTHERWISE
---	PROPERTY LINE
---	EXISTING CONTOUR
---	PROPOSED MAJOR CONTOUR
---	PROPOSED MINOR CONTOUR
---	PROPOSED GAS LINE
---	PROPOSED UNDERGROUND ELECTRICAL
---	EXISTING ELECTRIC LINE
---	EXISTING TELEPHONE (COMMUNICATIONS) LINE
---	PROPOSED RCP STORMWATER PIPE
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---	PROPOSED FENCE
---	PARCEL LINE
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---	EXISTING ORCHARD LINE
---	PROPOSED RIPRAP
---	PROPOSED CRUSHED ROCK SURFACE
---	PROPOSED CRUSHED ROCK PAVEMENT
---	PROPOSED CONCRETE
---	PROPOSED NATIVE GROUND COVER
---	PROPOSED LANDSCAPING

REV.	DATE	DESCRIPTION	OWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAO	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

15 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1736/434-1737		
APPROVED FOR MECHANICAL ENGINEERING DIRECTOR OF PUBLIC WORKS	DRAWN BY THOMAS F. HEALSLER C840383 R.C.E.	DATE 3-31-08
L-15454 GRADING PERMIT NO.		

**PERMITS**

REZONE PERMIT NO.	NOT APPLICABLE
SPECIAL USE PERMIT NO.	NOT APPLICABLE
TENTATIVE MAP NO.	NOT APPLICABLE
NOI/WOID NO.	NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION:	3 1/2" brass disk
"M.W.D. OF SOUTHERN CA S.D. 6-69 1993"	
LOCATION:	S.E. CORNER OF MANHOLE
RECORD FROM:	FIELD BOOK 4047-04-079
ELEVATION:	318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink



Engineers - Architects - Technicians  
Design - Construction - Field Service

16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

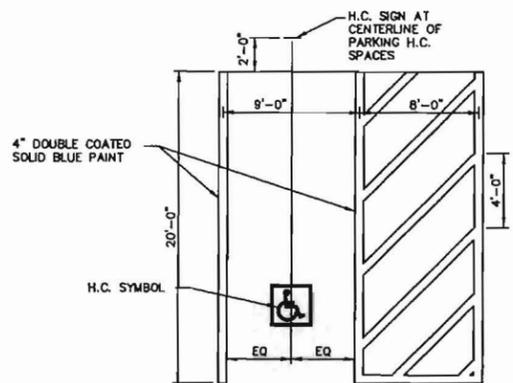
**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE POWER PLANT**

**SITE DETAILS**

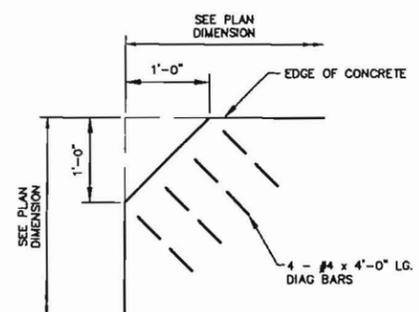
DESIGN BY: J. LANGEL	CHECKED BY: B. ROMINES
DRAWN BY: B. GASPERS	DATE: 11-20-07
CLIENT I.D. ICCO0101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-C802.dwg	
DRAWING NO. <b>C802</b>	REV. <b>1</b>

SEGA INC.  
PHONE NUMBER: (913) 681-2881

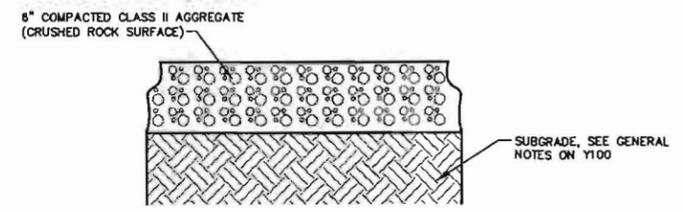


INTERNATIONAL ACCESSIBILITY SYMBOL

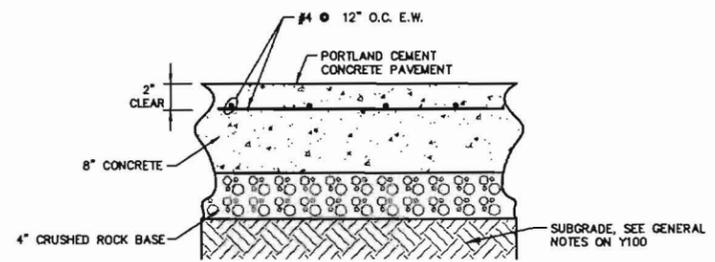
1 TYPICAL H.C. PARKING STALL DETAIL  
NOT TO SCALE



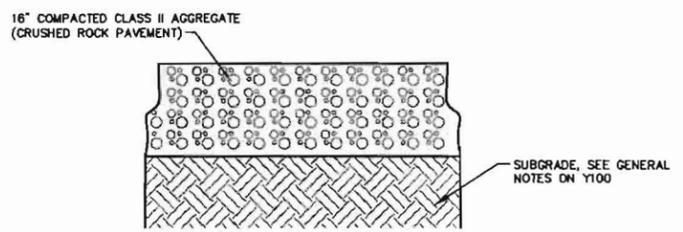
2 CORNER PLAN OF PAVEMENT  
NOT TO SCALE



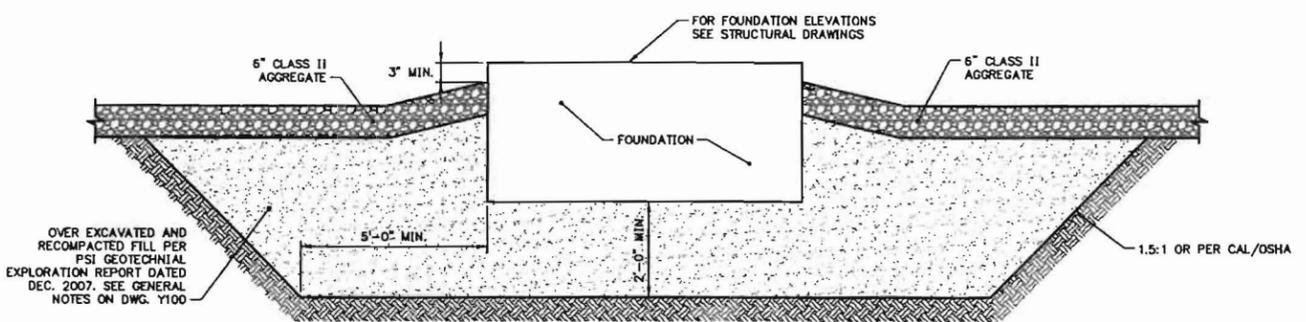
3 CRUSHED ROCK SURFACE  
NOT TO SCALE



4 CONCRETE PAVEMENT DETAIL  
NOT TO SCALE



5 CRUSHED ROCK PAVEMENT  
NOT TO SCALE



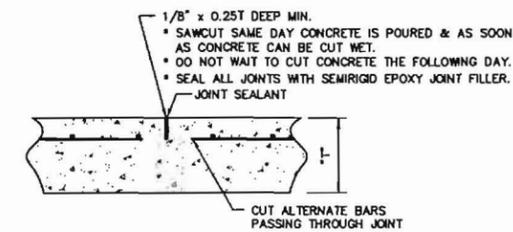
6 TYPICAL FOUNDATION OVER EXCAVATION  
NOT TO SCALE

NOTE:

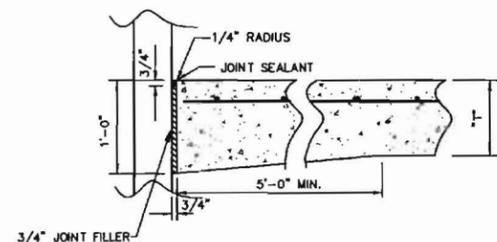
1. THIS DETAIL APPLIES AT ALL FILL AREAS AND THIS DETAIL APPLIES WHERE CUT/FILL TRANSITIONS OCCUR BELOW A STRUCTURE AND/OR FOUNDATION FOOTPRINT.
2. SUCH THAT ALL FOUNDATIONS SHALL BEAR ENTIRELY INTO ENGINEERED FILL MATERIAL OR ENTIRELY ON NATIVE FORMATIONAL SOILS.
3. OTHER THAN SCARIFYING THE TOP 12" OF SUBGRADE SOIL AND CONDITIONING AS OUTLINED IN THE FILL PLACEMENT AND COMPACTION SECTION NO OTHER OVER EXCAVATION IS NECESSARY FOR STRUCTURES WITH FOOTPRINTS THAT LIE ENTIRELY IN CUT AREAS.

JOINT NOTES

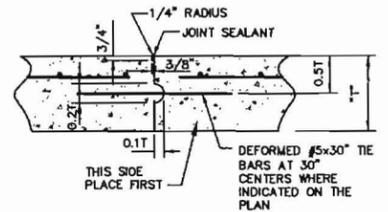
1. CONCRETE PAVEMENT JOINTS SHALL BE CONSTRUCTED AS SHOWN ON THE PLANS OR WHERE NOT SHOWN AT MINIMUM AS FOLLOWS:
2. LONGITUDINAL CONSTRUCTION JOINTS SPACED AT INTERVALS NOT GREATER THAN 15 FEET AND OF THE KEYED (TONGUE AND GROOVE) TYPE.
3. LONGITUDINAL CONTRACTION JOINTS SPACED AT INTERVALS NOT GREATER THAN 15 FEET AND SAWED TO 1/4 OF THE SLAB THICKNESS.
4. TRANSVERSE CONSTRUCTION JOINTS AT THE END OF EACH POUR AND WHEN PAVING OPERATIONS ARE SUSPENDED FOR 30 MINUTES OR MORE AND OF THE KEYED TYPE.
5. JOINTS SPACED AT INTERVALS NOT GREATER THAN 15 FEET AND SAWED TO 1/4 OF THE SLAB THICKNESS.
6. JOINTS AT STRUCTURE PLACED WHERE THE PAVEMENT ABUTS THE BUILDING, DRAINAGE STRUCTURES AND OTHER FIXED STRUCTURES, CONSTRUCTED WITH A 3/4" NONEXTRUDING FILLER, CLOSED-CELL FOAM RUBBER OR A BITUMEN-TREATED FIBER BOARD, AND WITH A THICKENED EDGE, INCREASED BY 33 PERCENT, TAPERED TO THE REGULAR THICKNESS IN 5 FEET, MINIMUM.
7. ALL JOINTS SHALL BE FILLED AND SEALED WITH SEMI-RIGID JOINT SEALER MATERIAL.



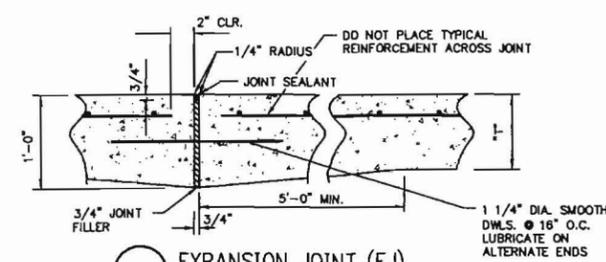
7 CONTRACTION JOINT (C.J.)  
NOT TO SCALE



8 JOINT AT STRUCTURE  
NOT TO SCALE



9 CONSTRUCTION JOINT  
NOT TO SCALE



10 EXPANSION JOINT (E.J.)  
NOT TO SCALE

PAVEMENT AND CONCRETE NOTES:

1. PROVIDE POSITIVE DRAINAGE WAYS AT SUBGRADE ELEVATION TO PREVENT PONDING OF WATER ON SUBGRADE.
2. IF METAL FORMS ARE USED REMOVE THEM BEFORE POURING ADJACENT SLAB.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

16 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
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GRADING PLAN FOR:  
THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR MERRIAM-PALMBOURNE DIRECTOR OF PUBLIC WORKS: [Signature]

ENGINEER OF WORK: THOMAS F. TREASLER, REG. 3-31-09  
L-15454  
GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
SPECIAL USE PERMIT NO. NOT APPLICABLE  
TENTATIVE MAP NO. NOT APPLICABLE  
NOI/WDIO NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
LOCATION: S.E. CORNER OF MANHOLE  
RECORD FROM: FIELD BOOK 4047-04-079  
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

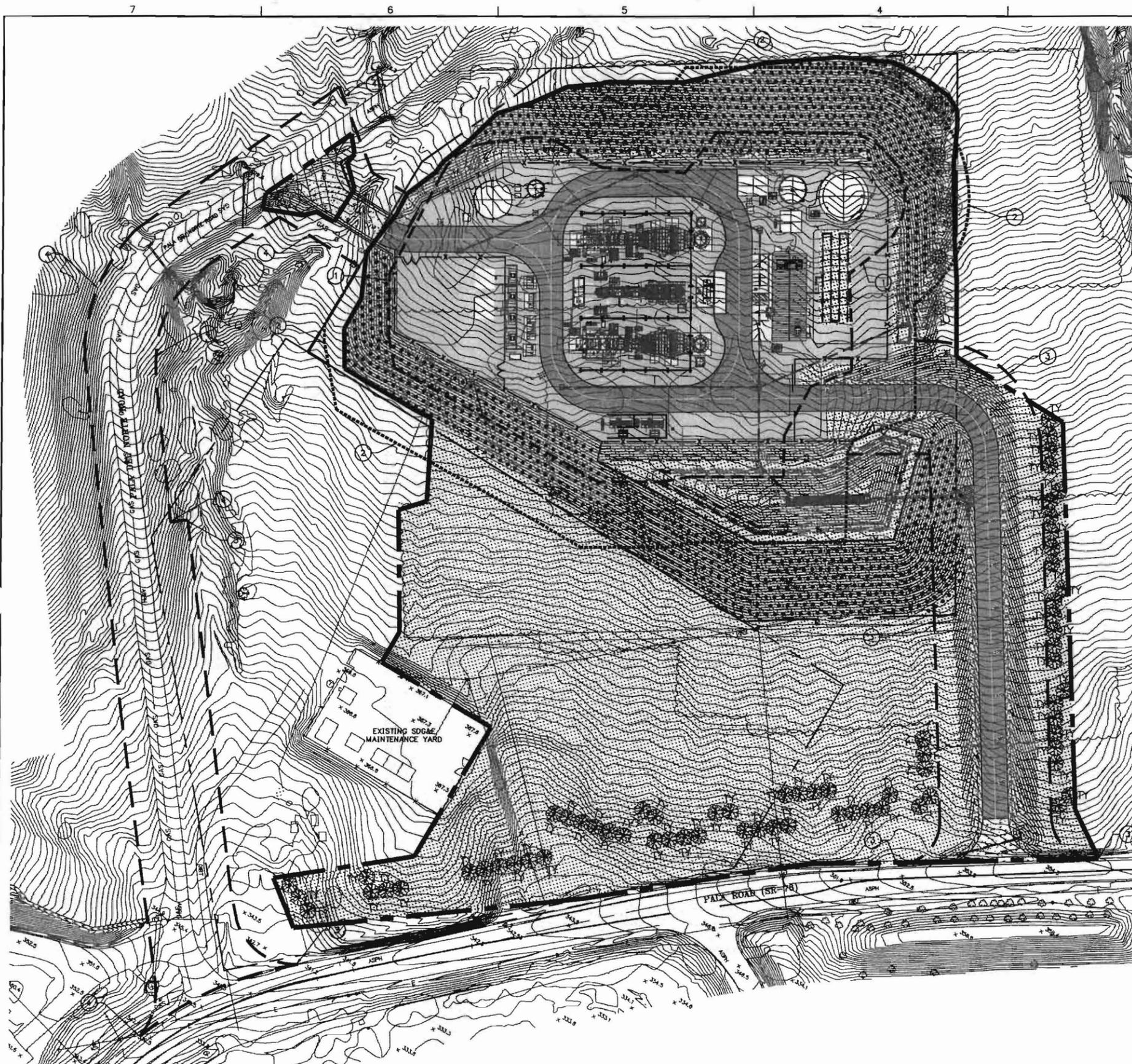
Sealed Only When Signed in Blue Ink

**Sega**  
Engineers - Architects - Technicians  
Design - Construction - Field Service  
16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE POWER PLANT**  
SITE DETAILS

DESIGN BY: J. LANGEL	CHECKED BY: B. ROMINES
DRAWN BY: B. GASPERS	DATE: 11-20-07
CLIENT I.D. ICCD0101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-C803.dwg	
DRAWING NO. C803	REV. 1



**SITE LANDSCAPING PLAN**  
 PLAN NORTH IS 28°55'46"  
 CCW OF TRUE NORTH  
 SCALE IN FEET  
 0 60 120

**KEYNOTES:**

- 1 FUEL MODIFICATION ZONE A (DEFENSIBLE SPACE): 50' AROUND ALL SIDES OF ALL EQUIPMENT OR STRUCTURES. PLEASE REFERENCE THE FIRE PROTECTION PLAN FOR DETAILS.
- 2 FUEL MODIFICATION ZONE B: 50' TO 125' AROUND ALL SIDES OF EQUIPMENT OR STRUCTURES EXCEPT FOR SPECIAL PROVISIONS AT WEST SIDE OF FACILITY AS NEEDED TO MINIMIZE DISTURBANCE TO SENSITIVE HABITAT. PLEASE REFERENCE THE FIRE PROTECTION PLAN FOR DETAILS.
- 3 ROADWAY FUEL MODIFICATION ZONE: FROM EDGE OF ROADWAY TO 50' OUTSIDE EDGE OF ROADWAYS. PLEASE REFERENCE THE FIRE PROTECTION PLAN FOR DETAILS.
- 4 ROADWAY FUEL MODIFICATION ZONE: FROM EDGE OF ROADWAY TO 30' OUTSIDE EDGE OF ROADWAYS. PLEASE REFERENCE THE FIRE PROTECTION PLAN FOR DETAILS.

**SITE SCREENING LEGEND:**

- COAST LIVE OAK POTENTIAL MATURE SIZE
- ENGELMANN OAK POTENTIAL MATURE SIZE
- TOYON POTENTIAL MATURE SIZE
- SHRUBS OF AT LEAST 1 GALLON MIN. SIZE OR TREES OF A 5 GALLON MIN. SIZE PER SECTION 87.417(B) OF THE COUNTY OF SAN DIEGO GRADING ORDINANCES.

**NOTES:**

1. THIS DRAWING IS A CONCEPTUAL LANDSCAPING PLAN. A CALIFORNIA REGISTERED LANDSCAPING ARCHITECT WILL PROVIDE A FINAL LANDSCAPING PLAN, BASED ON THE CONCEPTUAL LAYOUT. THE FINAL LANDSCAPING PLAN MAY INCLUDE ADDITIONAL USE OF GEC AND FIRE MARSHALL APPROVED NATIVE SPECIES FOR IMPROVED VISUAL SCREENING.

**LEGEND**

- FOUND MONUMENT AS NOTED
- SET 1" IRON PIPE WITH "PSOMAS" PLUG UNLESS NOTED OTHERWISE
- PROPERTY LINE
- 400 EXISTING CONTOUR
- 380 PROPOSED MAJOR CONTOUR
- 383 PROPOSED MINOR CONTOUR
- GAS PROPOSED GAS LINE
- UGE PROPOSED UNDERGROUND ELECTRICAL
- E EXISTING ELECTRIC LINE
- T EXISTING TELEPHONE (COMMUNICATIONS) LINE
- PROPOSED RCP STORMWATER PIPE
- GHE EXISTING T&D LINE
- X—X EXISTING FENCE
- X—X EXISTING ROAD
- X—X PROPOSED FENCE
- PARCEL LINE
- DRAINAGE PATH (FLOWLINE)
- EXISTING ORCHARD LINE
- PROPOSED RIPRAP
- PROPOSED CRUSHED ROCK SURFACE
- PROPOSED CRUSHED ROCK PAVEMENT
- PROPOSED CONCRETE
- PROPOSED NATIVE GROUND COVER
- FUEL MODIFICATION ZONE A
- ..... FUEL MODIFICATION ZONE B
- ROADWAY FUEL MODIFICATION ZONE
- LIMIT OF DISTURBED AREA

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1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

17 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY, ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1736/434-1737		
APPROVED FOR GRADING ENGINEERING DIRECTOR OF PUBLIC WORKS	ENGINEER OF WORK THOMAS F. HENSLER C040383 REG. 3-31-08	L-15454 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
 SPECIAL USE PERMIT NO. NOT APPLICABLE  
 TENTATIVE MAP NO. NOT APPLICABLE  
 NOI/WOIID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
 "M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
 LOCATION: S.E. CORNER OF MANHOLE  
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 ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink



Engineers - Architects - Technicians  
 Design - Construction - Field Service  
 16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE POWER PLANT**

LANDSCAPING PLAN

DESIGN BY: M. BLAKE	CHECKED BY: B. ROMINES
DRAWN BY: B. GASPERS	DATE: 9-12-07
CLIENT I.D. ICC00101	SEGA PROJECT NO. 07-201

CADD FILE NAME: 07201-L100.dwg

DRAWING NO. <b>L100</b>	REV. <b>1</b>
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NATIVE TREE AND SHRUB SPECIES LIST				
QTY.	SYM.	SIZE	COMMON NAME BOTANICAL NAME	REMARKS
<b>TREES</b>				
4	CL	LATER	COAST LIVE OAK QUERCUS AGRIFOLIA	GROWS TO 30'-100' TALL
2	EO	LATER	ENGELMANN OAK QUERCUS ENGELMANNII	GROWS TO 20'-50' TALL
NOTES: 1. ALL LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN ACCORDANCE WITH THE FIRE PROTECTION PLAN, TREES TO BE LIMBED UP TO 1/2 HEIGHT OR 6', WHICHEVER IS GREATER, EXCEPT TOYON AND BLUE ELDERBERRY PLANTED FOR VISUAL SCREENING SHALL INSTEAD BE PROVIDED WITH CRUSHED ROCK AT LESS THAN 4" DEPTH TO 2' OUTSIDE THE DRIP LINE. 2. NO SHRUBS, PLANTS, OR BUSHES UNDER THE DRIP LINE. 3. CALTRANS #2 CHIPPED BIOMASS TO BE USED (LESS THAN: 1/2" DIAMETER X 4" TO 6" LONG) UNDER ENTIRE DRIP LINE AT LESS THAN 4" DEPTH. CHIPPED BIOMASS TO BE AT LEAST 30' FROM FENCELINE, BUILDINGS AND EQUIPMENT. CRUSHED ROCK MAY BE SUBSTITUTED FOR CHIPPED BIOMASS. 4. MATURE CANOPY NO CLOSER THAN 30' TO WEST AND SOUTH SECURITY FENCE AND NO CLOSER THAN 40' TO EAST SECURITY FENCE.				
<b>SHRUBS</b>				
69	TY	LATER	TOYON HETEROMELES ARBUTIFOLIA (LIND.) M. ROEMER	GROWS 15'-25' TALL
-	SS	LATER	SUGAR SUMAC RHUS OVATA S. WATS.	GROWS TO 12' TALL AREAS OUTSIDE OF FUEL MODIFICATION ZONES
SEE PLAN	N/A	LATER	SHRUBS OF AT LEAST 1 GALLON MIN. SIZE OR TREES OF 5 GALLON MIN. SIZE	SIZE AND LOCATION PER SECTION 87.417(B) OF THE COUNTY OF SAN DIEGO GRADING ORDINANCES.
NOTES: 1. ALL LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN ACCORDANCE WITH THE FIRE PROTECTION PLAN.				
<b>GRASSES</b>				
-	N/A	N/A	PURPLE NEEDLEGRASS NASSELLA PULCHRA	AREAS OUTSIDE OF FUEL MODIFICATION ZONES
-	N/A	N/A	FOOTHILL NEEDLEGRASS NASSELLA LEPIDA	AREAS OUTSIDE OF FUEL MODIFICATION ZONES
NOTES: 1. ALL LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN ACCORDANCE WITH THE FIRE PROTECTION PLAN.				
<b>COASTAL SAGE SCRUB SEED MIX</b>				
-	N/A	N/A	BLACK SAGE SALVIA MELLIFERA  CALIFORNIA BROOM LOTUS SCOPARIUS  CHAPARRAL MALLOW MALACOTHAMNUS FASCICULATUS  COAST MONKEYFLOWER MIMULUS AURANTIACUS  GOLDEN-YARROW ERIOPHYLLUM CONFERTIFLORUM  LAUREL SUMAC MALOSMA LAURINA	AREAS OUTSIDE OF FUEL MODIFICATION ZONES
NOTES: 1. ALL LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN ACCORDANCE WITH THE FIRE PROTECTION PLAN.				
<b>WILDFLOWER SEED MIX</b>				
-	N/A	N/A	ARROYO LUPINE LUPINUS SUCCULENTUS  BLUE-EYED GRASS SISYRINCHIUM BELLUM  CALIFORNIA POPPY ESCHSCHOLZIA CALIFORNICA  HOARY CALIFORNIA FUSCHIA EPILOBIUM (ZAUSCHNERIA) CANUM SSP. CANUM	AREAS WITHIN FUEL MODIFICATION ZONES
NOTES: 1. ALL LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN ACCORDANCE WITH THE FIRE PROTECTION PLAN.				

**NOTES:**

- SLOPES GREATER THAN 3 FEET IN VERTICAL HEIGHT ARE REQUIRED TO BE PLANTED AND MAINTAINED WITH GROUND COVER OR OTHER PLANTING TO PROTECT THE SLOPES FROM EROSION AND INSTABILITY.
- SLOPES GREATER THAN 15 FEET IN VERTICAL HEIGHT ARE REQUIRED TO BE PLANTED WITH SHRUBS OF AT LEAST 1-GALLON MINIMUM SIZE OR TREES OF A 5-GALLON MINIMUM SIZE.
- LANDSCAPING LOCATED IN FUEL MODIFICATION ZONE A OR ON MANUFACTURED SLOPES WILL BE IRRIGATED. IRRIGATION SYSTEM SHALL BE FULLY AUTOMATIC WITH A RAIN-SENSING OVERRIDE DEVICE.
- ALL PLANTING BEDS SHALL HAVE A MINIMUM 2 INCHES OF ORGANIC MULCH.
- MINIMUM OF 50 PERCENT OF THE TOTAL SLOPE AREA OF MANUFACTURED SLOPES SHALL BE PLANTED WITH DEEP-ROOTING SPECIES.
- ALL MANUFACTURED SLOPES SHALL BE COVERED WITHIN 30 DAYS OF COMPLETION OF GRADING WITH ANY OF THE BMP'S PER THE EROSION CONTROL PLAN.
- FIRE-RESISTIVE SHRUBS, BEDDING PLANTS, AND FLOWERS MAY BE PLANTED TO A HEIGHT OF 18 INCHES. SPACING BETWEEN MATURE SHRUBS AND BETWEEN MATURE PLANTS SHOULD BE:
  - \*2 TIMES HEIGHT ON SLOPES <20%
  - \*4 TIMES HEIGHT ON SLOPES BETWEEN 20% AND 40%
  - \*6 TIMES HEIGHT ON SLOPES >40%
- ALL SHRUBS AND PLANTS SHALL BE LOCATED AWAY FROM ADJACENT TREE DRILINES.
- IRRIGATION SYSTEM SHALL HAVE FLOW REDUCERS OR SHUTOFF VALVES TRIGGERED BY PRESSURE DROP TO CONTROL WATER LOSS IN THE EVENT THE OF BROKEN OR DAMAGED SPRINKLER HEADS OR LINES.

**VEGETATION MANAGEMENT REQUIREMENTS:**

- OWNER SHALL MAINTAIN IRRIGATION AND REGULAR, ON-GOING REMOVAL OF WEEDS, DEAD MATERIALS, AND OTHER UNDESIRABLE FLAMMABLE VEGETATION REQUIRED TO KEEP AREA FIRE SAFE.
- OWNER SHALL MAINTAIN VEGETATION RECOMMENDED SPACING AND HEIGHTS PER THE FIRE PROTECTION PLAN, LOCAL FIRE AGENCY HAVING JURISDICTION AND THE COUNTY OF SAN DIEGO.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

18 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY, ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1738/434-1737		
APPROVED FOR MORNING TRANSMISSION DIRECTOR OF PUBLIC WORKS [Signature]	ENGINEER OF SOILS THOMAS F. HEULEKER CONSULTING 3-31-08 L-15454 GRADING PERMIT NO.	

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
 SPECIAL USE PERMIT NO. NOT APPLICABLE  
 TENTATIVE MAP NO. NOT APPLICABLE  
 NOI/WDID NO. NOT YET ASSIGNED

**BENCH MARK**

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 RECORD FROM: FIELD BOOK 4047-04-079  
 ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink



Engineers - Architects - Technicians  
 Design - Construction - Field Service  
 16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE POWER PLANT**

**LANDSCAPING NOTES**

DESIGN BY: M. BLAKE	CHECKED BY: B. ROMINES
DRAWN BY: B. GASPERS	DATE: 9-12-07
CLIENT I.D. IC000101	SEGA PROJECT NO. 07-201

CADD FILE NAME: 07201-L101.dwg	DRAWING NO. L101	REV. 1
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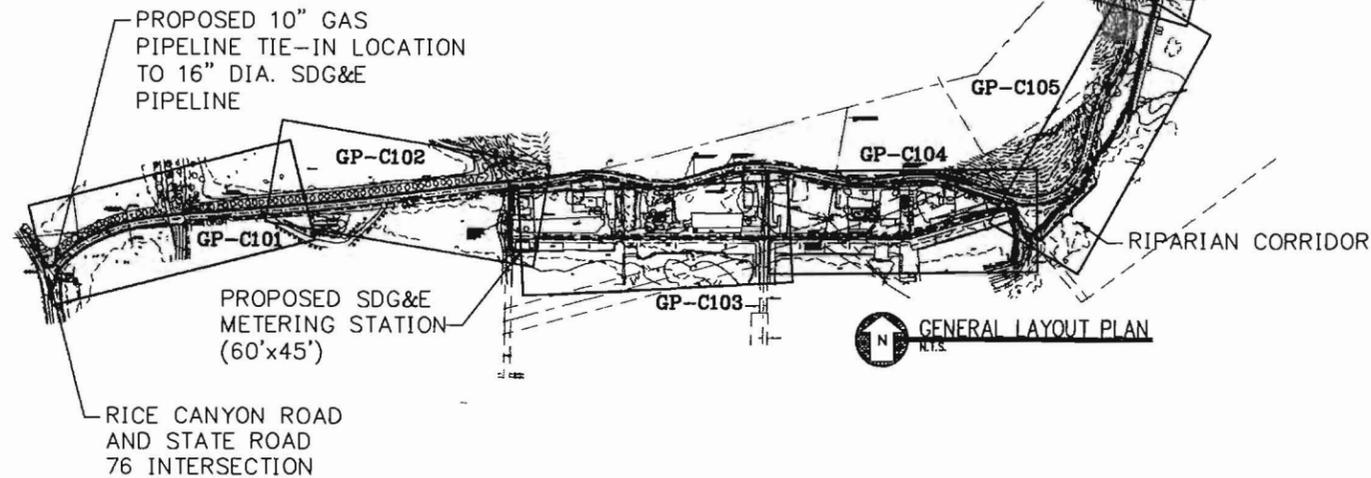
**LEGEND**

	PROPOSED GAS PIPELINE EASEMENT
	PROPOSED GAS PIPELINE IN PROFILE
	EXISTING GRADE IN PROFILE
	PROPOSED GAS PIPELINE CENTERLINE
	EXISTING CONTOURS
	EXISTING FENCE
	MATCHLINE
	CONSTRUCTION STAGING AREA
	OVERHEAD ELECTRICAL LINE
	EXISTING ROAD CENTERLINE
	EXISTING EASEMENTS
	SAN DIEGO AQUEDUCT CENTERLINE
	EXISTING ROAD
	GAS PIPE IN ENCASEMENT
	EXISTING CONCRETE
	EXISTING ASPHALT
	EXISTING UNSURFACED ROAD
	COMPACTED FILL
	PROPOSED BORE PIT
	PROPOSED BORE RECEIVING PIT
	PROPOSED PIPE ENCASEMENT
	EXISTING TREES
	EXISTING CONCRETE
	GROUND NATURAL VEGETATION
	EXISTING ASPHALT
	STATIONING
	POWER (UTILITY) POLE

**MECHANICAL GENERAL NOTES:**

- PIPING SHALL BE FURNISHED, FABRICATED, AND ERECTED IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF ASME B31.8, LATEST EDITION.
- PIPING MATERIALS SHALL BE AS FOLLOWS:
  - PIPE SPEC-17

MATERIAL	SIZE	SPECIFICATION
PIPE	10"	STD WT, API 5L GR. X-60, SMLS, ANSI B36.8
FITTINGS	10"	STD WT, BW, ASTM A-234 GR WPB, ANSI B16.9 STD WT, WELDOLET, ASTM A-105, ANSI B16.5
PIPE JOINTS	10"	BUTT WELD EXCEPT WHERE FLANGED JOINTS ARE SHOWN
FLANGES	10"	600 LB, RFWN, ASTM A-105, ANSI B16.5
FLANGE BOLTING	BOLTS NUTS	STUDS, ASTM-193 GR B7 HEAVY HEX, ASTM A-194 GR 2H
GASKETS		SPIRAL WOUND, FLEXITALLIC OR EQUAL
- CATHODIC PROTECTION (LATER).
- PIPE WELDING:
  - ALL WELDING SHALL BE PERFORMED TO WRITTEN PROCEDURES CONFORMING TO THE APPLICABLE PORTIONS OF ASME B31.8, LATEST EDITION.
  - WELDER PERSONNEL QUALIFICATIONS:
    - WELDING SHALL BE PERFORMED BY A WELDER QUALIFIED TO THE REQUIREMENTS OF SDG&E WELDING PROCEDURES WPS-API-SMAW-6A AND WPS-API-SMAW-9A, LATEST REVISIONS.



PROPOSED ORANGE GROVE POWER PLANT SITE

PROPOSED 10" GAS PIPELINE TIE-IN LOCATION TO THE ORANGE GROVE POWER PLANT

PALA DEL NORTE ROAD (PRIVATE ROAD)

EXISTING SDG&E (PALA) SUBSTATION

MOUNTAINOUS TERRAIN

STATE ROAD 76 (PALA ROAD)

RIPARIAN CORRIDOR

GENERAL LAYOUT PLAN

**GENERAL NOTES:**

- FIELD TO MAINTAIN A GAS PIPE MINIMUM DEPTH OF 3'-0" (TOP OF PIPE) BELOW GRADE UNLESS OTHERWISE NOTED.
- THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION IN ORDER TO PROVIDE FOR NON-INTERRUPTION OF SERVICE AND TO ENSURE PROPER CLEARANCES.
- WHERE THE NEW IMPROVEMENTS ABUT EXISTING IMPROVEMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MATCHING THE ELEVATION OF THE EXISTING IMPROVEMENTS.
- ALL CONSTRUCTION PERFORMED ON THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF SAN DIEGO COUNTY, CALTRANS, AND SAN DIEGO GAS AND ELECTRIC (SDG&E). WHERE DISCREPANCIES EXIST BETWEEN THE PROJECT SPECIFICATIONS AND COUNTY STANDARDS, THE CONTRACTOR SHALL ABIDE BY THE GREATER OR MORE RESTRICTIVE REQUIREMENTS.
- PLACEMENT OF CONCRETE AND REINFORCEMENT SHALL COMPLY WITH THE REQUIREMENTS OF ACI 301. DETAILING AND FABRICATION OF REINFORCEMENT SHALL COMPLY WITH THE CRSI MANUAL OF STANDARD PRACTICE, LATEST EDITION.
- PRECAST AND CAST-IN-PLACE CONCRETE FOR PAVING AND SITE STRUCTURES SHALL BE CLASS II PORTLAND CEMENT CONCRETE, WITH THE FOLLOWING PROPERTIES:
 

28-DAY COMPRESSIVE STRENGTH MIN.	MIN. 4,500 PSI
WATER/CEMENT RATIO	0.45
MAXIMUM AGGREGATE SIZE	0.75"
SLUMP	3" +/- 1"
- ALL WELDED WIRE FABRIC (W.W.F.) SHALL CONFORM TO A185. NO ALUMINUM SHALL BE EMBEDDED IN ANY CONCRETE.
- CONTRACTOR SHALL PROVIDE FOR CONTROL OF SURFACE EROSION DURING CONSTRUCTION AND UNTIL THE OWNER ACCEPTS THE WORK AS COMPLETE. THE CONTRACTOR SHALL PROVIDE BERMS, SILT FENCE, STRAW BALES, SILT BASINS, OR OTHER MEANS TO PREVENT EROSION FROM REACHING THE PUBLIC RIGHT-OF-WAY OR ADJACENT PROPERTY. IN THE EVENT THE PREVENTION MEASURES ARE NOT EFFECTIVE, THE CONTRACTOR SHALL REMOVE ANY DEBRIS AND EROSION AND RESTORE THE RIGHT-OF-WAY AND ADJACENT PROPERTY TO ORIGINAL OR BETTER CONDITION.
- CONTRACTOR SHALL, BY HIS OWN INVESTIGATION AND PRIOR TO COMMENCING WORK, SATISFY HIMSELF AS TO THE SURFACE AND SUBSURFACE CONDITIONS TO BE ENCOUNTERED.
- A TOPOGRAPHIC SURVEY WAS PREPARED BY PSDMAS SURVEYING DATED APRIL 2008. THE ENGINEER WILL NOT BE RESPONSIBLE FOR THE COMPLETENESS OR ACCURACY OF THE DATA AND NO EXPRESSED OR IMPLIED GUARANTEE IS GIVEN OF THE INTERPRETATION THEREOF.
- THE OWNER SHALL EMPLOY AN INDEPENDENT ENGINEERING TESTING AGENCY TO VERIFY SOIL COMPACTION AND PAVEMENT MATERIAL PROPERTIES. THE CONTRACTOR SHALL ALLOW THE TESTING AGENCY TO PERFORM TESTING AND RETESTING AS NECESSARY TO VERIFY COMPLIANCE WITH THE PROJECT SPECIFICATIONS.
- REFERENCE IS MADE TO THE REVISED GEOTECHNICAL EXPLORATION REPORT BY PSI AND DATED 2008, NEITHER THE OWNER NOR THE ENGINEER WILL BE RESPONSIBLE FOR THE COMPLETENESS OR ACCURACY, NOR THE INTERPRETATION THEREOF. ALL SITE PREPARATION AND EARTHWORK CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE GEOTECHNICAL RECOMMENDATIONS AND THEIR "STANDARD GUIDELINES FOR GRADING PROJECTS."
- FOUNDATION DESIGNS ARE BASED ON THE GEOTECHNICAL ENGINEERING REPORT. ALL FOOTINGS AND PIERS SHALL BEAR AT THE ELEVATIONS SHOWN ON THE PLANS, DETAILS, SECTIONS, AND SCHEDULES. ALL SITE PREPARATION, REQUIREMENTS FOR EXCAVATIONS AND SLOPE STABILITY, STRUCTURAL FILL AND TRENCH BACKFILL, FOUNDATIONS, AND SUBGRADE PREPARATION FOR BUILDING FLOOR SLABS SHALL BE IN ACCORDANCE WITH THE PSI GEOTECHNICAL ENGINEERING REPORT.
- TOPSOIL AND ALL ORGANIC MATTER SHALL BE REMOVED FROM THE LOCATION OF PROPOSED IMPROVEMENTS. UNSTABLE OR SPONGY AREAS SHALL BE OVEREXCAVATED AND REPLACED WITH COMPACTED FILL IN ACCORDANCE WITH THE PSI GEOTECHNICAL REPORT.
- COMPACTED FILL SHALL NOT CONTAIN ROCK LARGER THAN 3 INCHES. FILL SLOPES SHALL BE BENCHED INTO NATIVE MATERIAL OR AS REQUIRED BY THE PSI GEOTECHNICAL REPORT.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

19 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
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GRADING PLAN FOR:  
THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR MONITORING PROGRESS: DIRECTOR OF PUBLIC WORKS  
ENGINEER OF WORK: THOMAS F. HEAUSLER, C.S.C.E. 2-31-08  
L-15454 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
SPECIAL USE PERMIT NO. NOT APPLICABLE  
TENTATIVE MAP NO. NOT APPLICABLE  
NOI/WDO NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
LOCATION: S.E. CORNER OF MANHOLE  
RECORD FROM: FIELD BOOK 4047-04-079  
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Signed Only When Signed in Blue Ink

Engineers - Architects - Technicians  
Design - Construction - Field Service

16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

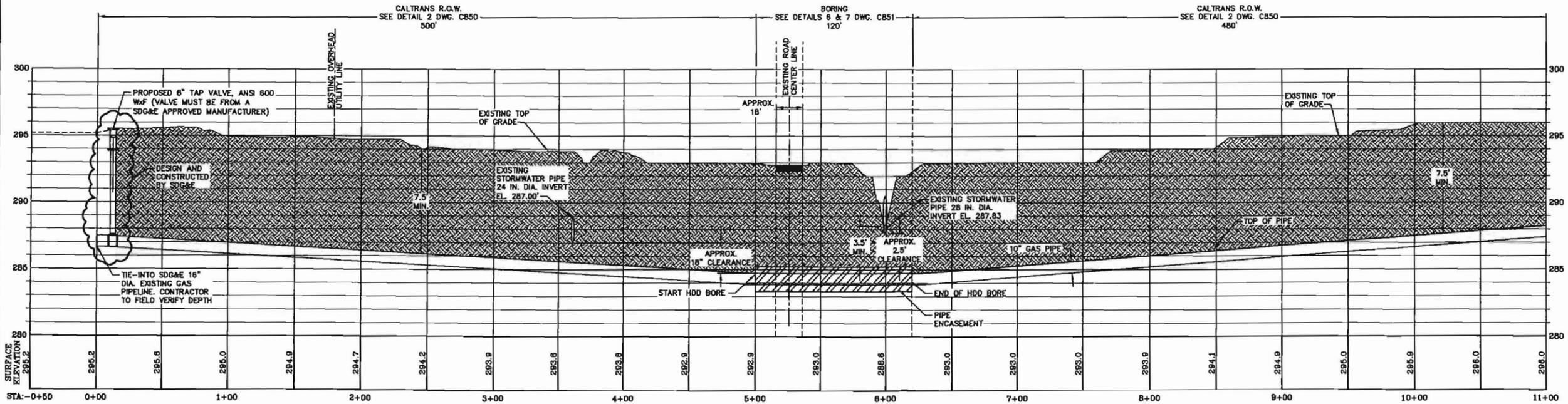
**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE GAS PIPELINE**  
GENERAL LAYOUT PLAN

DESIGN BY: J. LANGEL	CHECKED BY: T. HEAUSLER
DRAWN BY: R. DAVILA	DATE: 6-19-08
CLIENT I.D. IC000101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-GP-Y100.dwg	
DRAWING NO. GP-Y100	REV. 1



N  
**SITE PLAN STATION 0+00 - 11+00**  
 0 40 80  
 SCALE IN FEET



**LEGEND**

<p>--- PROPOSED GAS PIPELINE EASEMENT</p> <p>--- PROPOSED GAS PIPELINE IN PROFILE</p> <p>--- EXISTING GRADE IN PROFILE</p> <p>--- PROPOSED GAS PIPELINE CENTERLINE</p> <p>--- EXISTING CONTOURS</p> <p>--- EXISTING FENCE</p> <p>--- MATCHLINE</p> <p>--- CONSTRUCTION STAGING AREA</p> <p>--- CALTRANS R.O.W.</p>	<p>--- OVERHEAD ELECTRICAL LINE</p> <p>--- EXISTING ROAD CENTERLINE</p> <p>--- EXISTING EASEMENTS</p> <p>--- SAN DIEGO AQUEDUCT CENTERLINE</p> <p>--- EXISTING ROAD</p> <p>--- GAS PIPE IN ENCASUREMENT</p> <p>--- EXISTING CONCRETE</p>	<p>--- EXISTING ASPHALT</p> <p>--- EXISTING UNSURFACED ROAD</p> <p>--- COMPACTED FILL</p> <p>--- PROPOSED BORE PIT</p> <p>--- PROPOSED BORE RECEMING PIT</p> <p>--- PROPOSED PIPE ENCASUREMENT</p>	<p>--- EXISTING TREES</p> <p>--- CONC. GNV. ASPH. STA.</p> <p>--- EXISTING CONCRETE</p> <p>--- GROUND NATURAL VEGETATION</p> <p>--- EXISTING ASPHALT</p> <p>--- STATIONING</p> <p>--- POWER (UTILITY) POLE</p>
--	--	--	--

HORIZONTAL SCALE: 1" = 40'  
 VERTICAL SCALE: 1" = 4'

**GENERAL NOTES:**

- UTILITY INFORMATION IS FOR REFERENCE ONLY CONTRACTOR(S) TO FIELD VERIFY.
- FOR PIPE SPECIFICATIONS SUCH AS PIPE MATERIAL SIZE, PRESSURE, ETC. SEE DRAWING GP-1100.
- ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE REPLACED TO EXISTING CONDITION OR APPROVED BY OWNER.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

20 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
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GRADING PLAN FOR:  
 THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
 CALIFORNIA COORDINATE INDEX 434-1738/434-1737

APPROVED FOR ISSUANCE BY:  
 DIRECTOR OF PUBLIC WORKS

ENGINEER OF WORK:  
 THOMAS F. HEAUSLER  
 (C44030) REG. 3-31-08

L-15454  
 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
 SPECIAL USE PERMIT NO. NOT APPLICABLE  
 TENTATIVE MAP NO. NOT APPLICABLE  
 NOI/WOIO NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
 "M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
 LOCATION: S.E. CORNER OF MANHOLE  
 RECORD FROM: FIELD BOOK 4047-04-079  
 ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

  
 Engineers - Architects - Technicians  
 Design - Construction - Field Service  
 16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

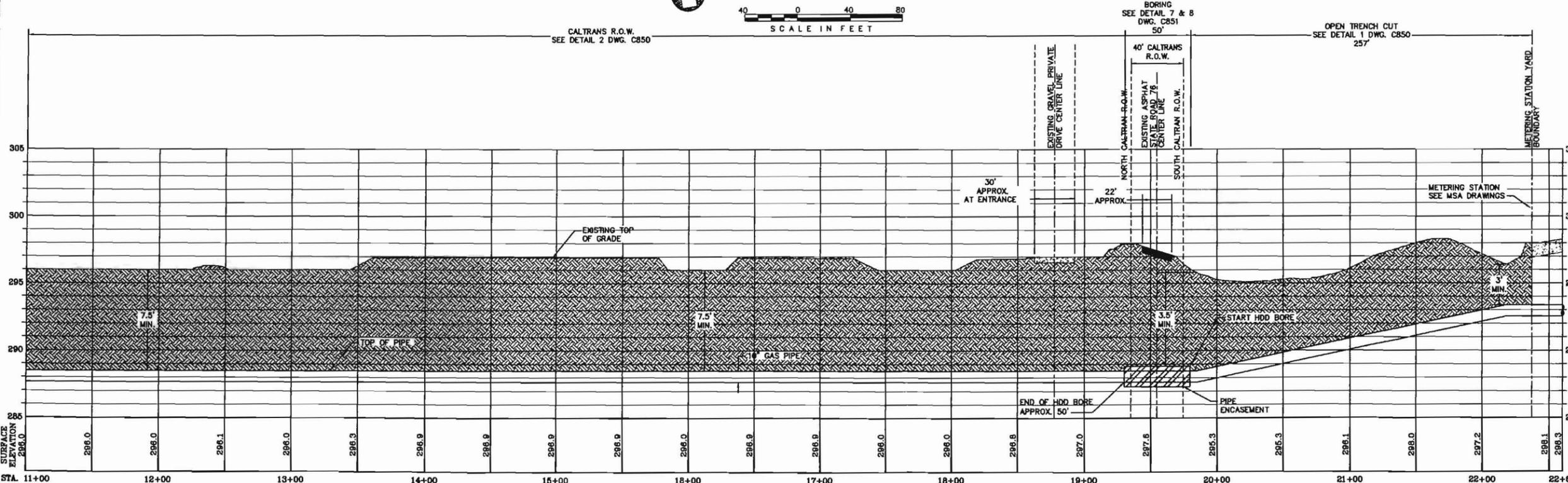
**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE GAS PIPELINE**  
 SDG&E  
 SITE PLAN STATION 0+00 - 11+00

DESIGN BY: J. LANGEL	CHECKED BY: T. HEAUSLER
DRAWN BY: R. DAVILA	DATE: 5/23/08
CLIENT I.D. IC000101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-GP-C101.dwg	
DRAWING NO. <b>GP-C101</b>	REV. <b>1</b>



**SITE PLAN STATION 11+00 - 22+60**



**LEGEND**

	PROPOSED GAS PIPELINE EASEMENT		OVERHEAD ELECTRICAL LINE
	PROPOSED GAS PIPELINE IN PROFILE		EXISTING ROAD CENTERLINE
	EXISTING GRADE IN PROFILE		EXISTING EASEMENTS
	PROPOSED GAS PIPELINE CENTERLINE		SAN DIEGO AQUEDUCT CENTERLINE
	EXISTING CONTOURS		EXISTING ROAD
	EXISTING FENCE		GAS PIPE IN ENCASMENT
	MATCHLINE		EXISTING CONCRETE
	CONSTRUCTION STAGING AREA		
	CALTRANS R.O.W.		

	EXISTING ASPHALT
	EXISTING UNSURFACED ROAD
	COMPACTED FILL
	PROPOSED BORE PIT
	PROPOSED BORE RECEIVING PIT
	PROPOSED PIPE ENCASMENT

	EXISTING TREES
	EXISTING CONCRETE
	GROUND NATURAL VEGETATION
	EXISTING ASPHALT
	STATIONING
	POWER (UTILITY) POLE

HORIZONTAL SCALE: 1" = 40'  
VERTICAL SCALE: 1" = 4'

- GENERAL NOTES:**
- UTILITY INFORMATION IS FOR REFERENCE ONLY CONTRACTOR(S) TO FIELD VERIFY.
  - FOR PIPE SPECIFICATIONS SUCH AS PIPE MATERIAL, SIZE, PRESSURE, ETC. SEE DRAWING GP-Y100.
  - ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE REPLACED TO EXISTING CONDITION OR APPROVED BY OWNER.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	BGG	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

21 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
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GRADING PLAN FOR:  
THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR MICHAEL FARRINGTON  
DIRECTOR OF PUBLIC WORKS

DRAWN BY: TOMAS F. HEAUSLER  
DATE: 3-31-08  
L-15454  
GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
SPECIAL USE PERMIT NO. NOT APPLICABLE  
TENTATIVE MAP NO. NOT APPLICABLE  
NOI/WQID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
LOCATION: S.E. CORNER OF MANHOLE  
RECORD FROM: FIELD BOOK 4047-04-079  
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

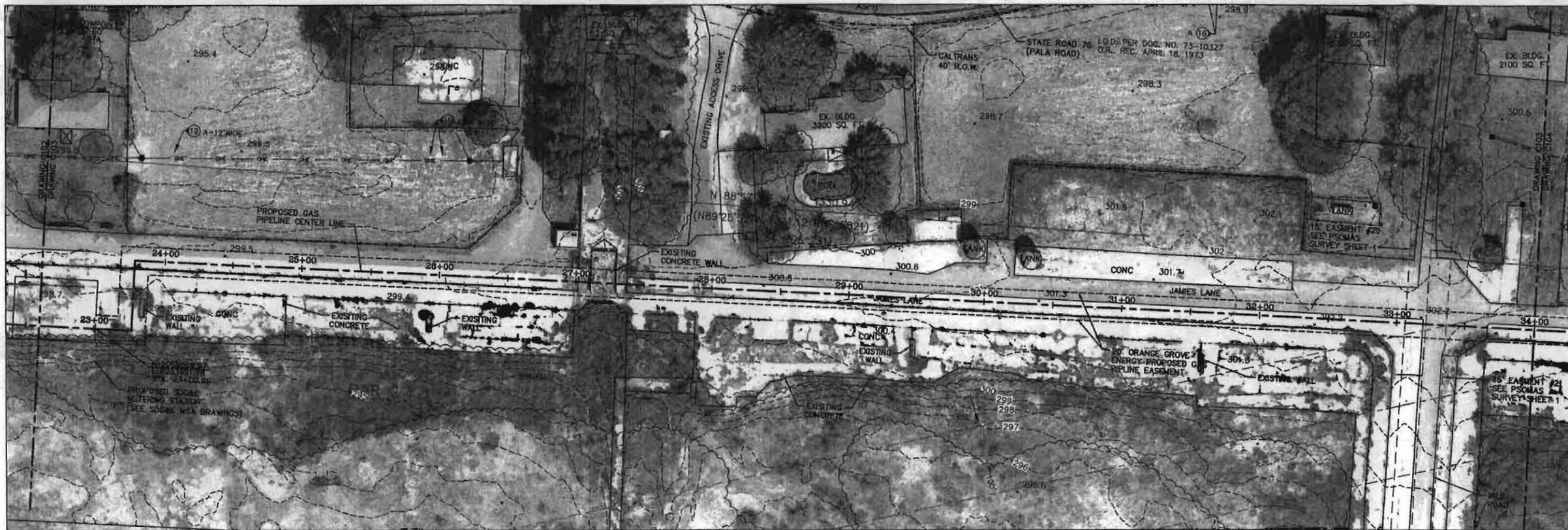
Engineers - Architects - Technicians  
Design - Construction - Field Service

16041 FASTER  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

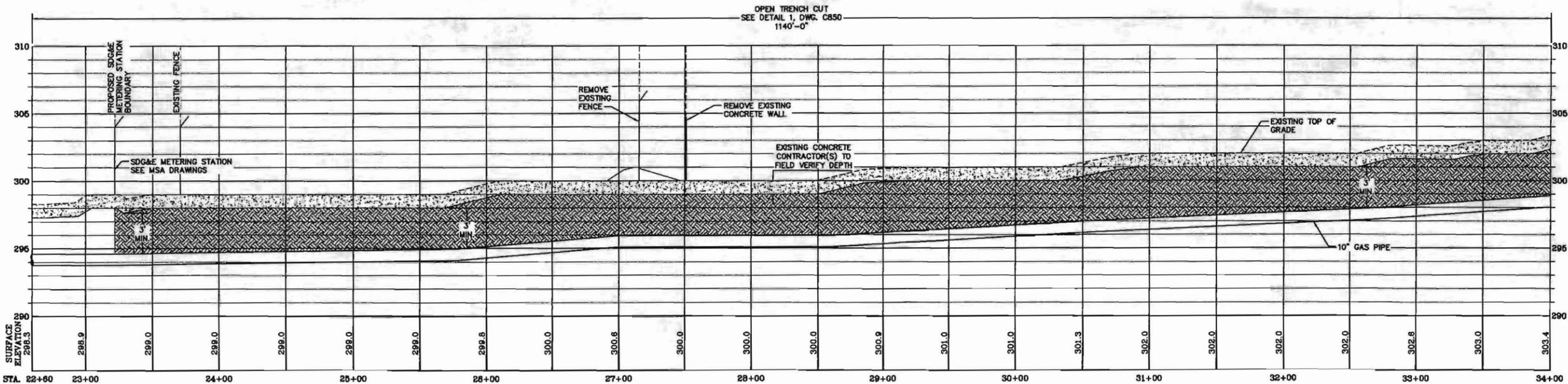
**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE GAS PIPELINE**  
SDG&E  
SITE PLAN STATION 11+00 - 22+60

DESIGN BY: J. LANGEL	CHECKED BY: T. HEAUSLER
DRAWN BY: R. DAVILA	DATE: 5/23/08
CLIENT I.D. IC000101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-GP-C102.dwg	
DRAWING NO. GP-C102	REV. 1



**SITE PLAN STATION 22+60- 34+00**  
 SCALE IN FEET  
 0 40 80



**LEGEND**

---	PROPOSED GAS PIPELINE EASEMENT
---	PROPOSED GAS PIPELINE IN PROFILE
---	EXISTING GRADE IN PROFILE
---	PROPOSED GAS PIPELINE CENTERLINE
---	EXISTING CONTOURS
---	EXISTING FENCE
---	MATCHLINE
---	CONSTRUCTION STAGING AREA
---	CALTRANS R.O.W.

---	OVERHEAD ELECTRICAL LINE
---	EXISTING ROAD CENTERLINE
---	EXISTING EASEMENTS
---	SAN DIEGO AQUEDUCT CENTERLINE
---	EXISTING ROAD
---	GAS PIPE IN EASEMENT
---	EXISTING CONCRETE

---	EXISTING ASPHALT
---	EXISTING UNSURFACED ROAD
---	COMPACTED FILL
---	PROPOSED BORE PIT
---	PROPOSED BORE RECEIVING PIT
---	PROPOSED PIPE ENCASEMENT
---	EXISTING TREES
---	EXISTING CONCRETE
---	GNV. ASPH. STA.
---	GROUND NATURAL VEGETATION
---	EXISTING ASPHALT
---	STATIONING
---	POWER (UTILITY) POLE

- GENERAL NOTES:**
- UTILITY INFORMATION IS FOR REFERENCE ONLY CONTRACTOR(S) TO FIELD VERIFY.
  - FOR PIPE SPECIFICATIONS SUCH AS PIPE MATERIAL, SIZE, PRESSURE, ETC. SEE DRAWING GP-Y100.
  - ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE REPLACED TO EXISTING CONDITION OR APPROVED BY OWNER.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

22 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
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GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
 CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR MARIANO ENRIQUETA, DIRECTOR OF PUBLIC WORKS BY: THOMAS F. HEAUSLER, ENGINEER OF SURVEY, REG. NO. 3-31-08  
 L-15454, GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
 SPECIAL USE PERMIT NO. NOT APPLICABLE  
 TENTATIVE MAP NO. NOT APPLICABLE  
 NOI/WQID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
 "M.W.D. OF SOUTHERN CA S.D.6-89 1993"  
 LOCATION: S.E. CORNER OF MANHOLE  
 RECORD FROM: FIELD BOOK 4047-04-079  
 ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Seted Only When Signed in Blue Ink

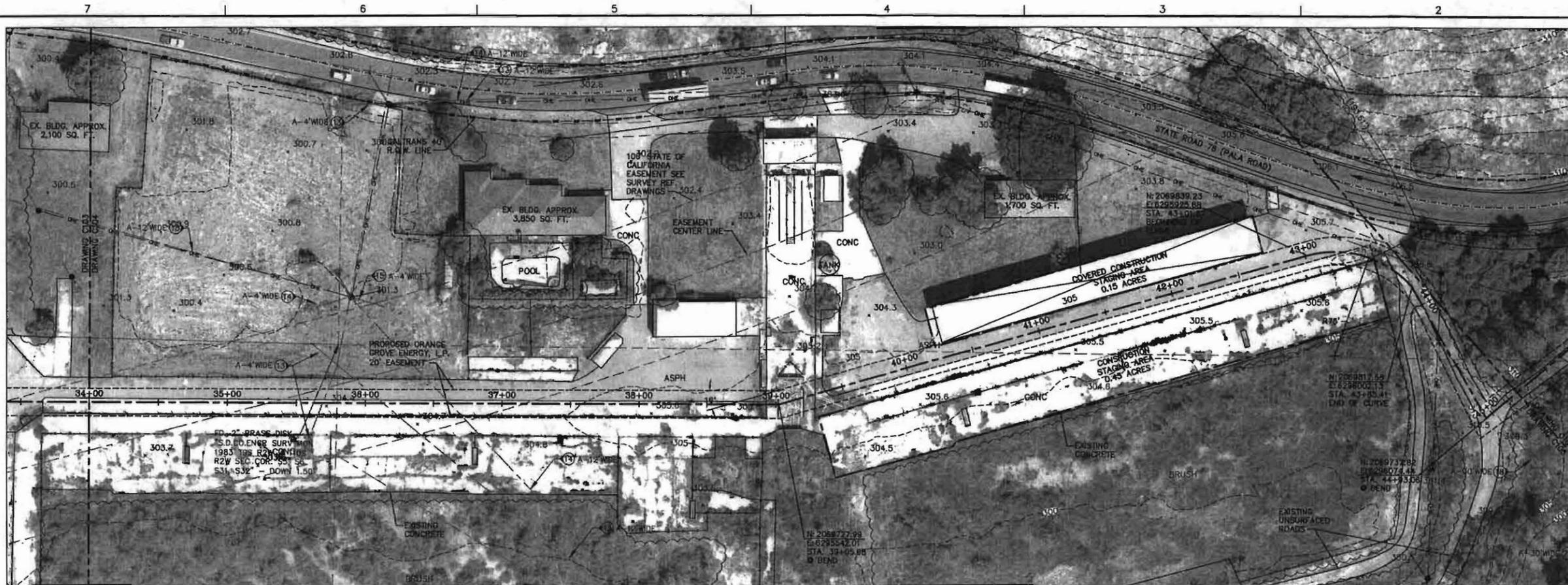
Engineers - Architects - Technicians  
 Design - Construction - Field Service

16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE GAS PIPELINE**  
 SITE PLAN STATION 22+60 - 34+00

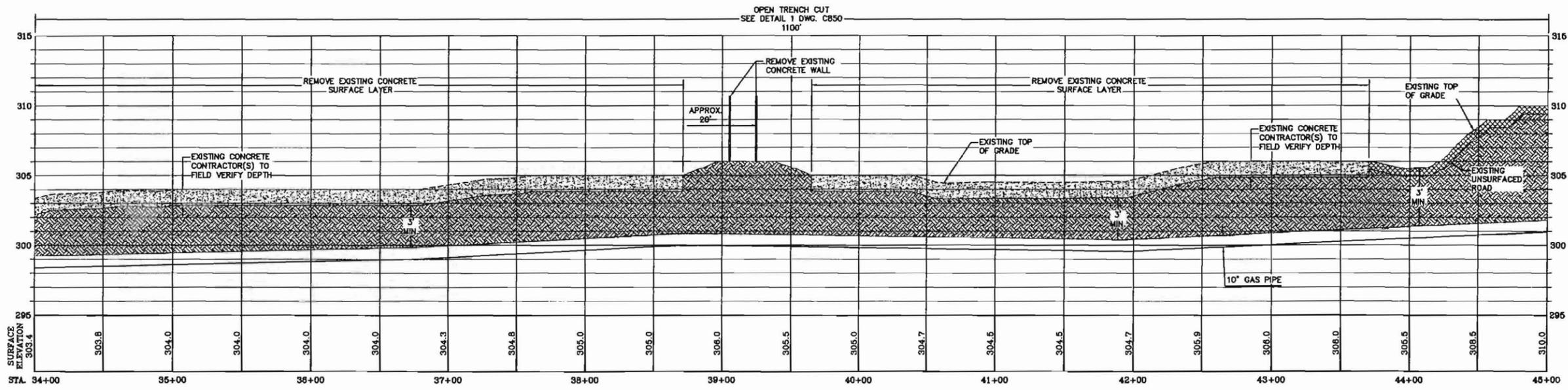
DESIGN BY: J. LANGEL	CHECKED BY: T. HEAUSLER
DRAWN BY: R. DAVILA	DATE: 5-23-08
CLIENT I.D. 1CC00101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-GP-C103.dwg	
DRAWING NO. GP-C103	REV. 1



**SITE PLAN STATION 34+00 - 45+00**

SCALE IN FEET

0 40 80



HORIZONTAL SCALE: 1" = 40'  
VERTICAL SCALE: 1" = 4'

**LEGEND**

- PROPOSED GAS PIPELINE EASEMENT
- - - - PROPOSED GAS PIPELINE IN PROFILE
- - - - EXISTING GRADE IN PROFILE
- - - - PROPOSED GAS PIPELINE CENTERLINE
- - - - EXISTING CONTOURS
- - - - EXISTING FENCE
- - - - MATCHLINE
- - - - CONSTRUCTION STAGING AREA
- - - - CALTRANS R.O.W.
- OVERHEAD ELECTRICAL LINE
- EXISTING ROAD CENTERLINE
- EXISTING EASEMENTS
- SAN DIEGO AQUEDUCT CENTERLINE
- EXISTING ROAD
- GAS PIPE IN ENCASEMENT
- EXISTING CONCRETE
- EXISTING ASPHALT
- EXISTING UNSURFACED ROAD
- COMPACTED FILL
- PROPOSED BORE PIT
- PROPOSED BORE RECEIVING PIT
- PROPOSED PIPE ENCASEMENT
- EXISTING TREES
- EXISTING CONCRETE
- G.M.V.
- ASPH.
- STA.
- EXISTING ASPHALT
- EXISTING CONCRETE
- STATIONING
- POWER (UTILITY) POLE

**GENERAL NOTES:**

1. UTILITY INFORMATION IS FOR REFERENCE ONLY CONTRACTOR(S) TO FIELD VERIFY.
2. FOR PIPE SPECIFICATIONS SUCH AS PIPE MATERIAL, SIZE, PRESSURE, ETC. SEE DRAWING GP-Y100.
3. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE REPLACED TO EXISTING CONDITION OR APPROVED BY OWNER.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

23 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1736/434-1737		
APPROVED FOR MICHAEL ENGINEERING DIRECTOR OF PUBLIC WORKS	ENGINEER OF WORK THOMAS F. HEAUSLER	DATE: 3-31-08
L-15454 GRADING PERMIT NO.		

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
SPECIAL USE PERMIT NO. NOT APPLICABLE  
TENTATIVE MAP NO. NOT APPLICABLE  
NOI/WDID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
LOCATION: S.E. CORNER OF MANHOLE  
RECORD FROM: FIELD BOOK 4047-04-079  
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

**Sega**  
Engineers - Architects - Technicians  
Design - Construction - Field Service

16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE GAS PIPELINE**

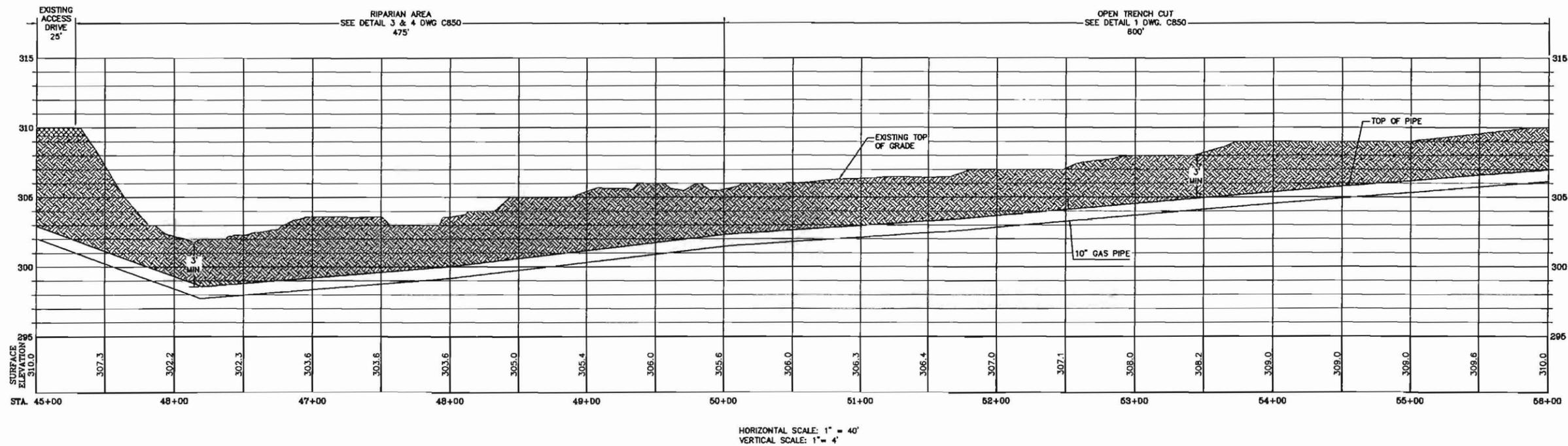
SITE PLAN STATION 34+00 - 45+00

DESIGN BY: J. LANGEL	CHECKED BY: T. HEAUSLER
DRAWN BY: R. DAVILA	DATE: 5/20/08
CLIENT I.D. ICC00101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-GP-C104.dwg	
DRAWING NO. GP-C104	REV. 1



**SITE PLAN STATION 45+00 - 56+00**  

 SCALE IN FEET



HORIZONTAL SCALE: 1" = 40'  
 VERTICAL SCALE: 1" = 4'

**LEGEND**

- |  |  |  |
|--|--|--|
| <ul style="list-style-type: none"> <li> PROPOSED GAS PIPELINE EASEMENT</li> <li> PROPOSED GAS PIPELINE IN PROFILE</li> <li> EXISTING GRADE IN PROFILE</li> <li> PROPOSED GAS PIPELINE CENTERLINE</li> <li> EXISTING CONTOURS</li> <li> EXISTING FENCE</li> <li> MATCHLINE</li> <li> CONSTRUCTION STAGING AREA</li> <li> CALTRANS R.O.W.</li> </ul> | <ul style="list-style-type: none"> <li> OVERHEAD ELECTRICAL LINE</li> <li> EXISTING ROAD CENTERLINE</li> <li> EXISTING EASEMENTS</li> <li> SAN DIEGO AQUEDUCT CENTERLINE</li> <li> EXISTING ROAD</li> <li> GAS PIPE IN ENCASEMENT</li> <li> EXISTING CONCRETE</li> </ul> | <ul style="list-style-type: none"> <li> EXISTING ASPHALT</li> <li> EXISTING UNSURFACED ROAD</li> <li> COMPACTED FILL</li> <li> PROPOSED BORE PIT</li> <li> PROPOSED BORE RECEIVING PIT</li> <li> PROPOSED PIPE ENCASEMENT</li> </ul> |
| <ul style="list-style-type: none"> <li> EXISTING TREES</li> <li> EXISTING CONCRETE</li> <li> GROUND NATURAL VEGETATION</li> <li> EXISTING ASPHALT STATIONING</li> <li> POWER (UTILITY) POLE</li> </ul>   |  |  |

**GENERAL NOTES:**

1. UTILITY INFORMATION IS FOR REFERENCE ONLY CONTRACTOR(S) TO FIELD VERIFY.
2. FOR PIPE SPECIFICATIONS SUCH AS PIPE MATERIAL, SIZE, PRESSURE, ETC. SEE DRAWING GP-1100.
3. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE REPLACED TO EXISTING CONDITION OR APPROVED BY OWNER.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGC	WHR

**PRIVATE CONTRACT**

24 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
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GRADING PLAN FOR:  
 THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
 CALIFORNIA COORDINATE INDEX 434-1735/434-1737

APPROVED FOR RECORD FOR THE CHIEF ENGINEER OF PUBLIC WORKS	ENGINEER OF RECORD THOMAS F. HEAUSLER CSC 40293 A.E.C. 3-31-08
--	---

L-15454  
GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
 SPECIAL USE PERMIT NO. NOT APPLICABLE  
 TENTATIVE MAP NO. NOT APPLICABLE  
 NOI/WDID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
 "M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
 LOCATION: S.E. CORNER OF MANHOLE  
 RECORD FROM: FIELD BOOK 4047-04-079  
 ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

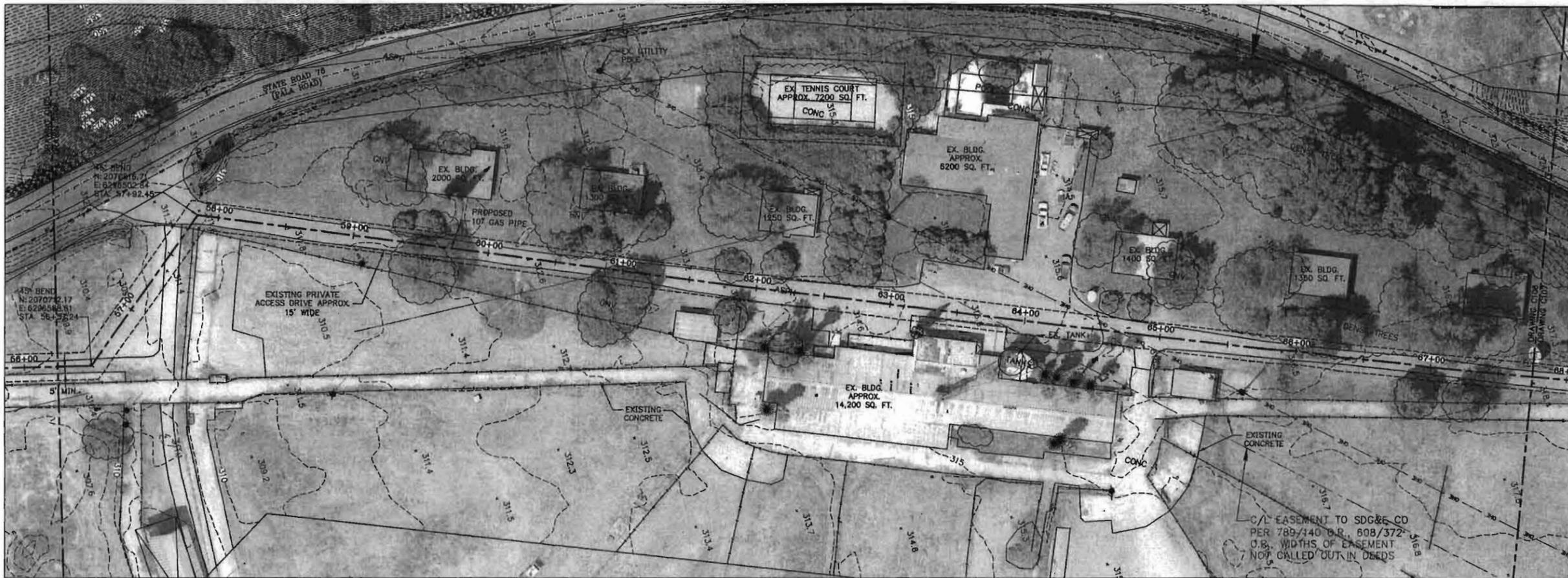
Engineers - Architects - Technicians  
 Design - Construction - Field Service

16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

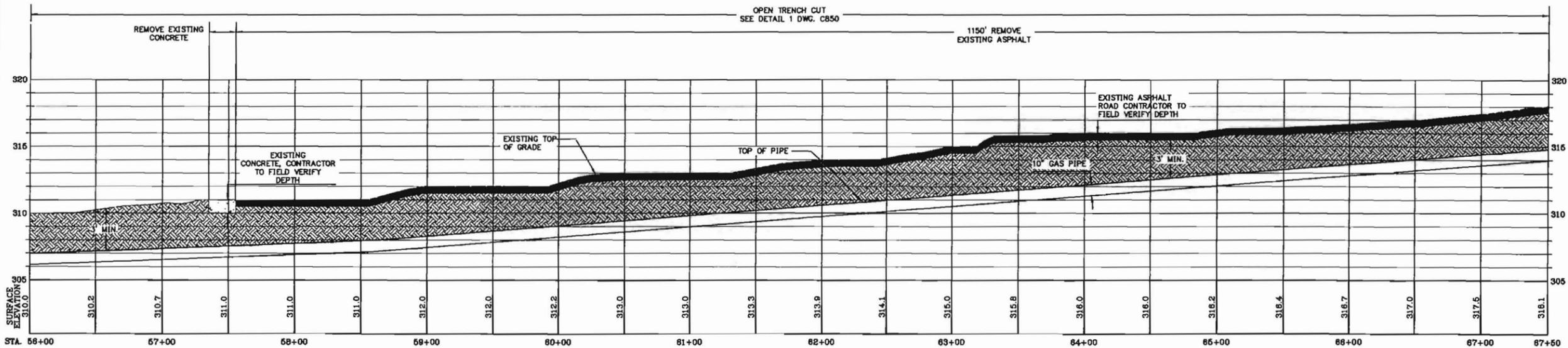
**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE GAS PIPELINE**  
 SITE PLAN STATION 45+00 - 56+00

DESIGN BY: J. LANGEL	CHECKED BY: T. HEAUSLER
DRAWN BY: R. DAVILA	DATE: 5-23-08
CLIENT I.D. ICCO0101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-GP-C105.dwg	
DRAWING NO. <b>GP-C105</b>	REV. <b>1</b>



SITE PLAN STATION 56+00 - 67+50  
SCALE IN FEET



HORIZONTAL SCALE: 1" = 40'  
VERTICAL SCALE: 1" = 4'

LEGEND

- PROPOSED GAS PIPELINE EASEMENT
- PROPOSED GAS PIPELINE IN PROFILE
- EXISTING GRADE IN PROFILE
- PROPOSED GAS PIPELINE CENTERLINE
- 380 --- EXISTING CONTOURS
- EXISTING FENCE
- MATCHLINE
- CONSTRUCTION STAGING AREA
- CALTRANS R.O.W.
- OVERHEAD ELECTRICAL LINE
- EXISTING ROAD CENTERLINE
- EXISTING EASEMENTS
- SAN DIEGO AQUEDUCT CENTERLINE
- EXISTING ROAD
- GAS PIPE IN ENCASMENT
- EXISTING CONCRETE
- EXISTING ASPHALT
- EXISTING UNSURFACED ROAD
- COMPACTED FILL
- PROPOSED BORE PIT
- PROPOSED BORE RECEIVING PIT
- PROPOSED PIPE ENCASMENT
- EXISTING TREES
- CONC. GNV. ASPH. STA. --- EXISTING CONCRETE
- --- GROUND NATURAL VEGETATION
- --- EXISTING ASPHALT
- --- STATIONING
- --- POWER (UTILITY) POLE

GENERAL NOTES:

1. UTILITY INFORMATION IS FOR REFERENCE ONLY CONTRACTOR(S) TO FIELD VERIFY.
2. FOR PIPE SPECIFICATIONS SUCH AS PIPE MATERIAL, SIZE, PRESSURE, ETC. SEE DRAWING GP-1100.
3. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE REPLACED TO EXISTING CONDITION OR APPROVED BY OWNER.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

PRIVATE CONTRACT

25 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY, ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1736/434-1737		
APPROVED FOR SCHEDULE ENGINEERING OFFICE OF PUBLIC WORKS	CHIEF OF BUREAU THOMAS F. HEAUSLER 0403383 REG. 2-31-99	L-15454 CROSS STREET NO.

PERMITS

REZONE PERMIT NO. NOT APPLICABLE  
SPECIAL USE PERMIT NO. NOT APPLICABLE  
TENTATIVE MAP NO. NOT APPLICABLE  
NOI/WDID NO. NOT YET ASSIGNED

BENCH MARK

DESCRIPTION: 3/1/2" brass disk  
"M.W.D. OF SOUTHERN CA S.D.8-89 1993"  
LOCATION: S.E. CORNER OF MANHOLE  
RECORD FROM: FIELD BOOK 4047-04-079  
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

COUNTY APPROVED CHANGES

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink



Engineers - Architects - Technicians  
Design - Construction - Field Service  
16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

ORANGE GROVE ENERGY L.P.  
Schaumburg, IL

ORANGE GROVE GAS PIPELINE

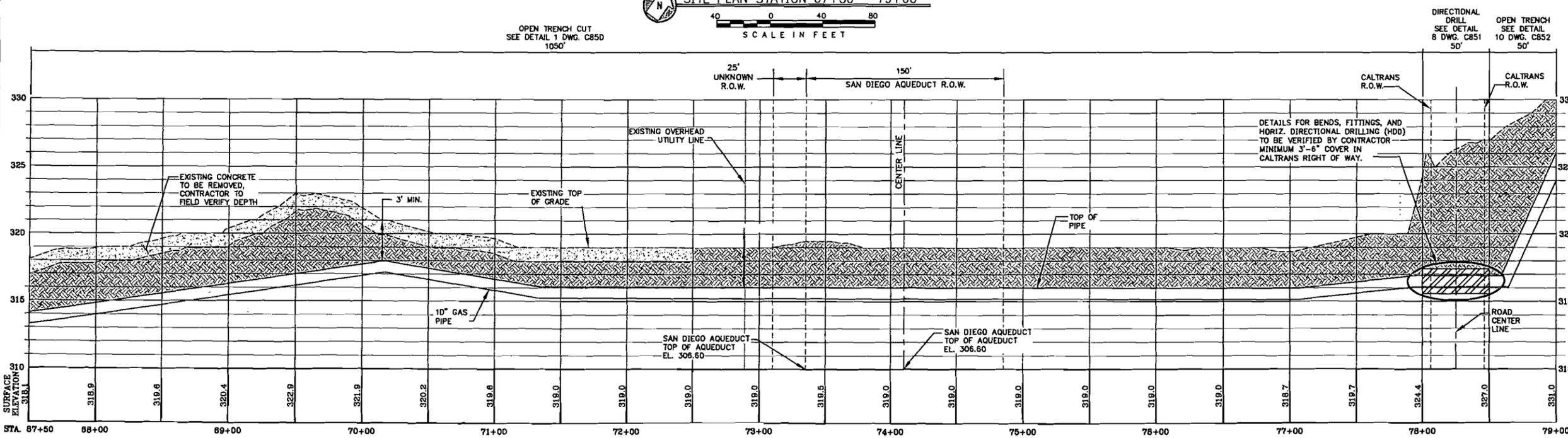
SITE PLAN STATION 56+00 - 67+50

DESIGN BY: J. LANCEL	CHECKED BY: T. HEAUSLER
DRAWN BY: R. DAVILA	DATE: 5-23-08
CLIENT I.D. IC000101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-GP-C106.dwg	

DRAWING NO. GP-C106	REV. 1
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SITE PLAN STATION 67+50 - 79+00



**LEGEND**

<ul style="list-style-type: none"> <li>--- PROPOSED GAS PIPELINE EASEMENT</li> <li>--- PROPOSED GAS PIPELINE IN PROFILE</li> <li>--- EXISTING GRADE IN PROFILE</li> <li>--- PROPOSED GAS PIPELINE CENTERLINE</li> <li>--- EXISTING CONTOURS</li> <li>--- EXISTING FENCE</li> <li>--- MATCHLINE</li> <li>--- CONSTRUCTION STAGING AREA</li> <li>--- CALTRANS R.O.W.</li> </ul>	<ul style="list-style-type: none"> <li>--- OHE --- OHE</li> <li>--- EXISTING EASEMENTS</li> <li>--- SAN DIEGO AQUEDUCT CENTERLINE</li> <li>--- EXISTING ROAD</li> <li>--- GAS PIPE IN ENCASEMENT</li> <li>--- EXISTING CONCRETE</li> </ul>	<ul style="list-style-type: none"> <li>EXISTING ASPHALT</li> <li>EXISTING UNSURFACED ROAD</li> <li>COMPACTED FILL</li> <li>PROPOSED BORE PIT</li> <li>PROPOSED BORE RECEIVING PIT</li> <li>PROPOSED PIPE ENCASEMENT</li> </ul>	<ul style="list-style-type: none"> <li>EXISTING TREES</li> <li>CONC. GNV. ASPH. STA.</li> <li>EXISTING CONCRETE</li> <li>GROUND NATURAL VEGETATION</li> <li>EXISTING ASPHALT</li> <li>STATIONING</li> <li>POWER (UTILITY) POLE</li> </ul>
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**GENERAL NOTES:**

- UTILITY INFORMATION IS FOR REFERENCE ONLY CONTRACTOR(S) TO FIELD VERIFY.
- FOR PIPE SPECIFICATIONS SUCH AS PIPE MATERIAL, SIZE, PRESSURE, ETC. SEE DRAWING GP-Y100.
- ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE REPLACED TO EXISTING CONDITION OR APPROVED BY OWNER.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

26 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
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GRADING PLAN FOR:  
 THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
 CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR NICHOLAS FARRINGTON, DIRECTOR OF PUBLIC WORKS BY: THOMAS F. HEAUSLER, S.E., 3-31-08  
 L-15454 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
 SPECIAL USE PERMIT NO. NOT APPLICABLE  
 TENTATIVE MAP NO. NOT APPLICABLE  
 NOI/WOID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
 "M.W.D. OF SOUTHERN CA S.O.6-69 1993"  
 LOCATION: S.E. CORNER OF MANHOLE  
 RECORD FROM: FIELD BOOK 4047-04-079  
 ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

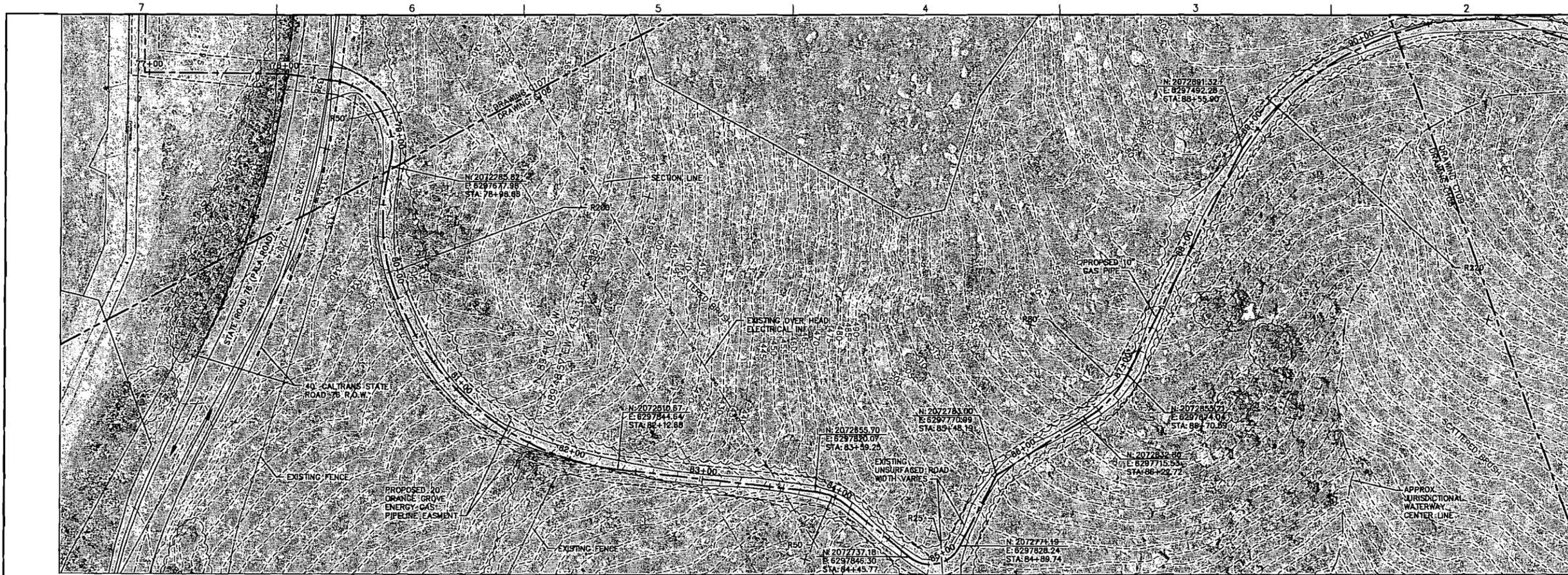
**Sega**  
 Engineers - Architects - Technicians  
 Design - Construction - Field Service

16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE GAS PIPELINE**  
 SITE PLAN STATION 67+50 - 79+00

DESIGN BY: J. LANGEL	CHECKED BY: t.heausler
DRAWN BY: R. DAVILA	DATE: 5-23-08
CLIENT I.D. 1CC00101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-GP-C107.dwg	
DRAWING NO. GP-C107	REV. 1



REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

27 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
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GRADING PLAN FOR:  
THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR MONITORING PROFESSIONAL ENGINEER OF PUBLIC WORKS: [Signature]

DESIGNER OF WORK: THOMAS F. HEAUSLER, CIVIL ENGINEER, S.E.E., 3-31-08  
L-15454  
GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
SPECIAL USE PERMIT NO. NOT APPLICABLE  
TENTATIVE MAP NO. NOT APPLICABLE  
NOI/WDIO NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
LOCATION: S.E. CORNER OF MANHOLE  
RECORD FROM: FIELD BOOK 4047-04-079  
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

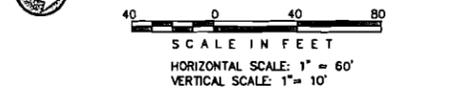
  
 Engineers - Architects - Technicians  
 Design - Construction - Field Service  
 16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE GAS PIPELINE**  
SITE PLAN STATION 79+00 - 90+00

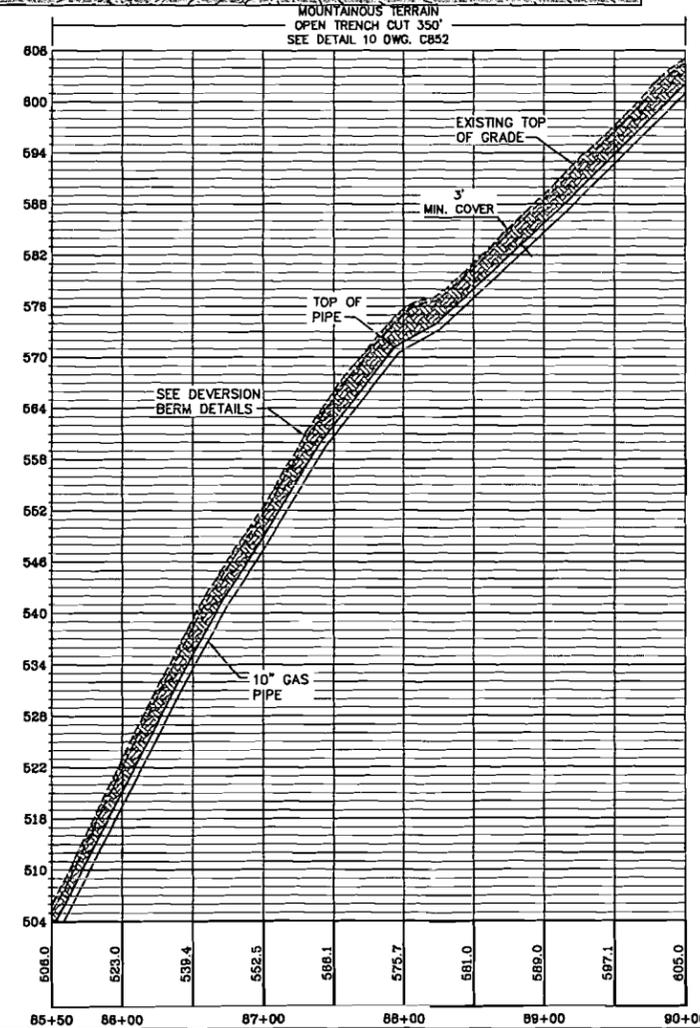
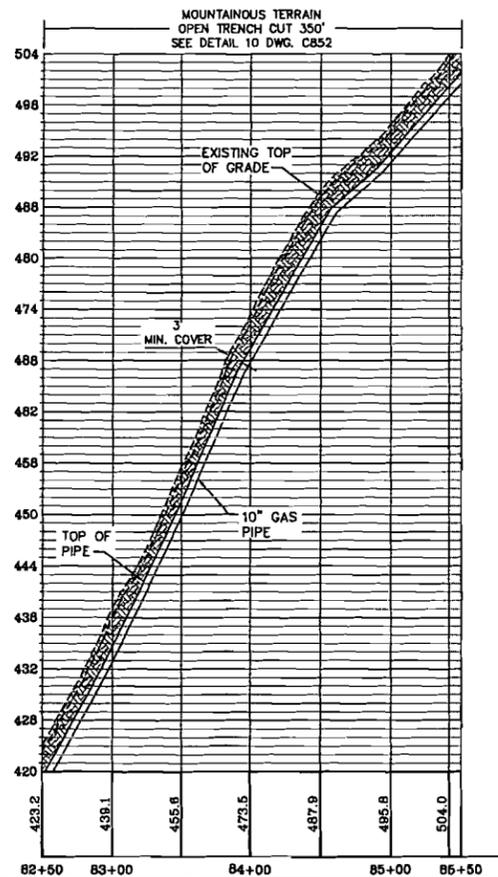
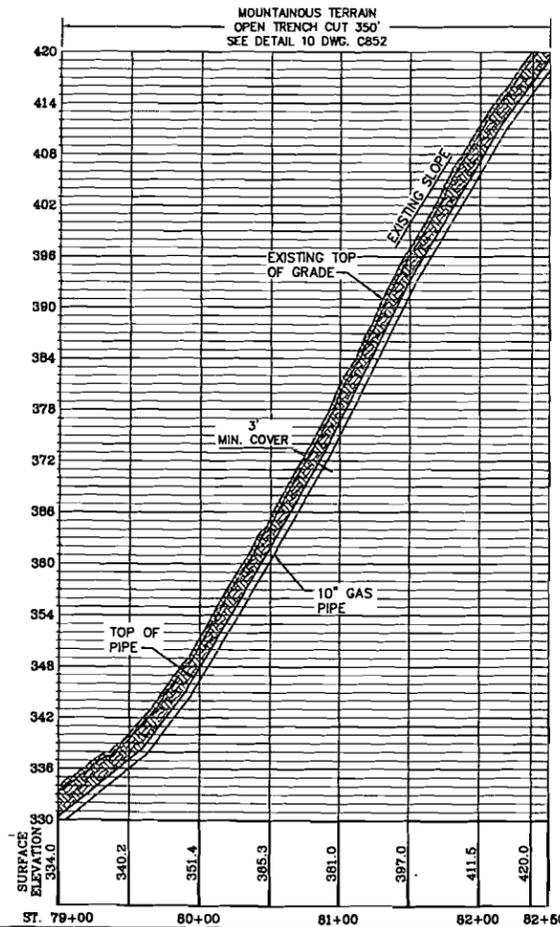
DESIGN BY: J. LANGEL	CHECKED BY: T. HEAUSLER
DRAWN BY: R. DAVILA	DATE: 5-20-08
CLIENT I.D. IC000101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-GP-C108.dwg	
DRAWING NO. <b>GP-C108</b>	REV. <b>1</b>

N  
**SITE PLAN STATION 79+00 - 90+00**

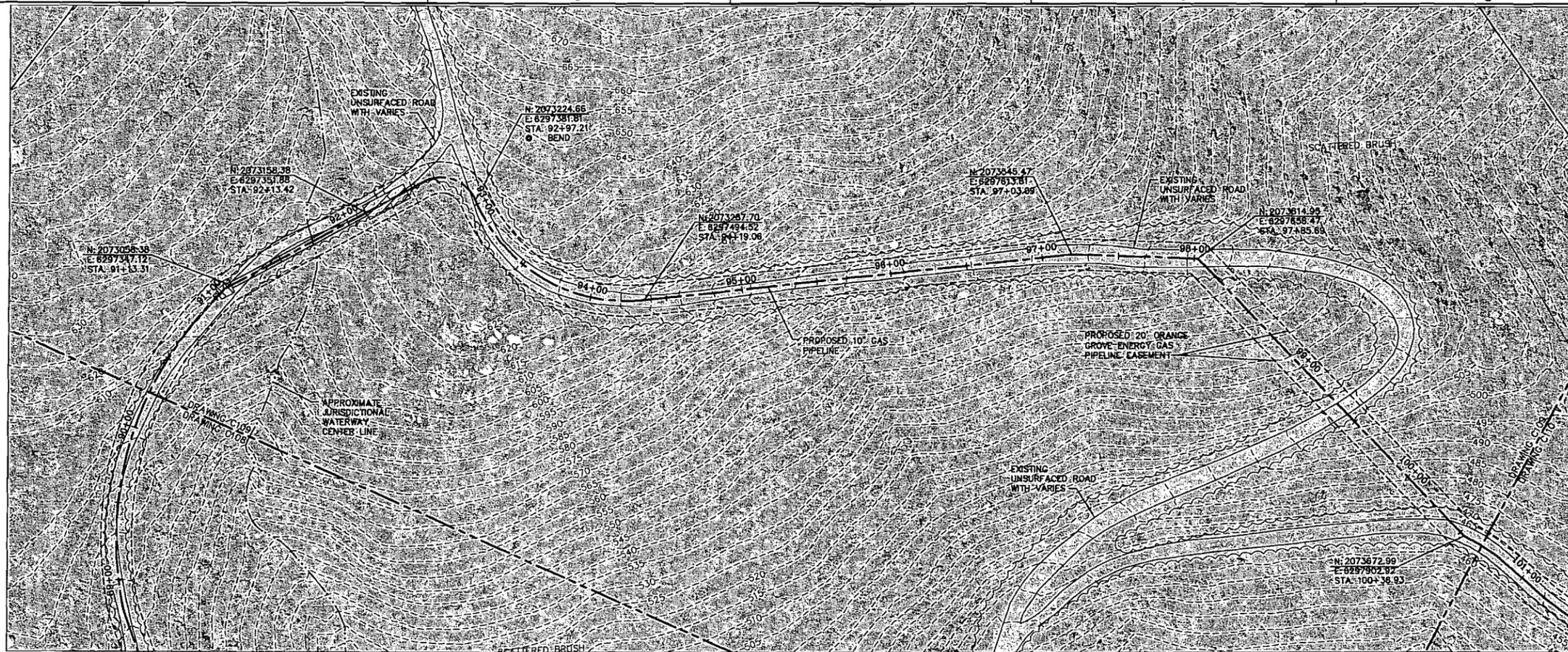


**LEGEND**

	PROPOSED GAS PIPELINE EASEMENT
	PROPOSED GAS PIPELINE IN PROFILE
	EXISTING GRADE IN PROFILE
	PROPOSED GAS PIPELINE CENTERLINE
	EXISTING CONTOURS
	EXISTING FENCE
	MATCHLINE
	CONSTRUCTION STAGING AREA
	OVERHEAD ELECTRICAL LINE
	EXISTING ROAD CENTERLINE
	EXISTING EASEMENTS
	SAN DIEGO AQUEDUCT CENTERLINE
	EXISTING ROAD
	GAS PIPE IN ENCASEMENT
	EXISTING CONCRETE
	EXISTING ASPHALT
	EXISTING UNSURFACED ROAD
	COMPACTED FILL
	PROPOSED BORE PIT
	PROPOSED BORE RECEIVING PIT
	PROPOSED PIPE ENCASEMENT
	EXISTING TREES
	EXISTING CONCRETE
	GROUND NATURAL VEGETATION
	EXISTING ASPHALT
	STATIONING
	POWER (UTILITY) POLE
	CONC.
	GNV.
	ASPH.
	STA.



- GENERAL NOTES:**
- UTILITY INFORMATION IS FOR REFERENCE ONLY CONTRACTOR(S) TO FIELD VERIFY.
  - FOR PIPE SPECIFICATIONS SUCH AS PIPE MATERIAL, SIZE, PRESSURE, ETC. SEE DRAWING GP-Y100.
  - ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE REPLACED TO EXISTING CONDITION OR APPROVED BY OWNER.
  - INSTALL TYPICAL TRENCH BREAKER IN MOUNTAINOUS TERRAIN SEE DETAIL 11, DWG. GP-C852



REV.	DATE	DESCRIPTION	DWN	CHK
0	7-30-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

28 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1736/434-1737		
APPROVED FOR MICHIGAN PROFESSIONAL ENGINEER OF PUBLIC WORKS DR.		ENGINEER OF RECORD THOMAS F. HEAUSLER CD40363 REG. 3-31-08 L-15454 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
SPECIAL USE PERMIT NO. NOT APPLICABLE  
TENTATIVE MAP NO. NOT APPLICABLE  
NOI/WDD NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
LOCATION: S.E. CORNER OF MANHOLE  
RECORD FROM: FIELD BOOK 4047-04-079  
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Signed Only When Signed in Blue Ink

**Sega**  
Engineers - Architects - Technicians  
Design - Construction - Field Service  
16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE GAS PIPELINE**

SITE PLAN STATION 90+00 - 100+50

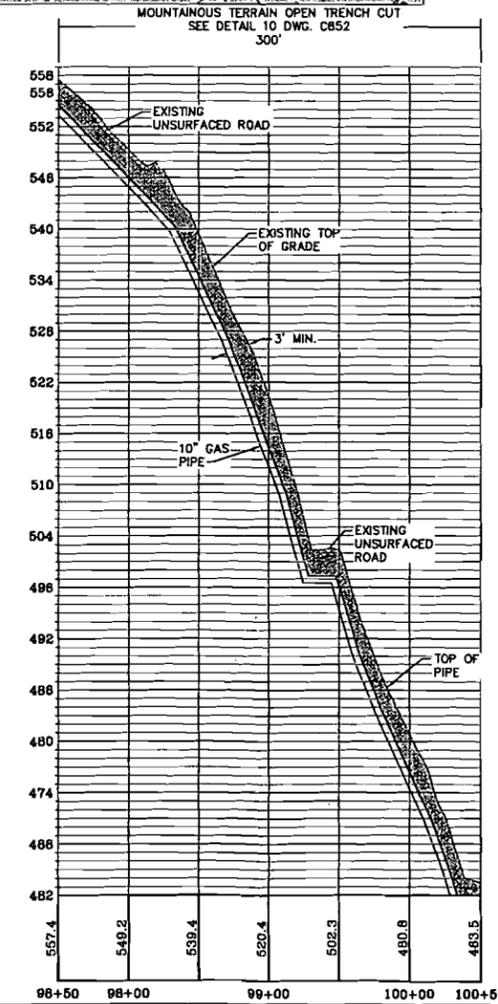
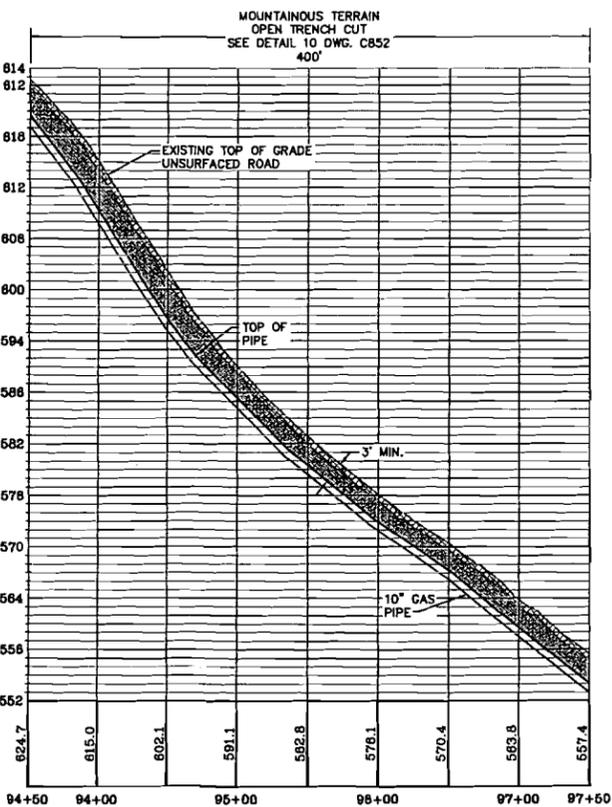
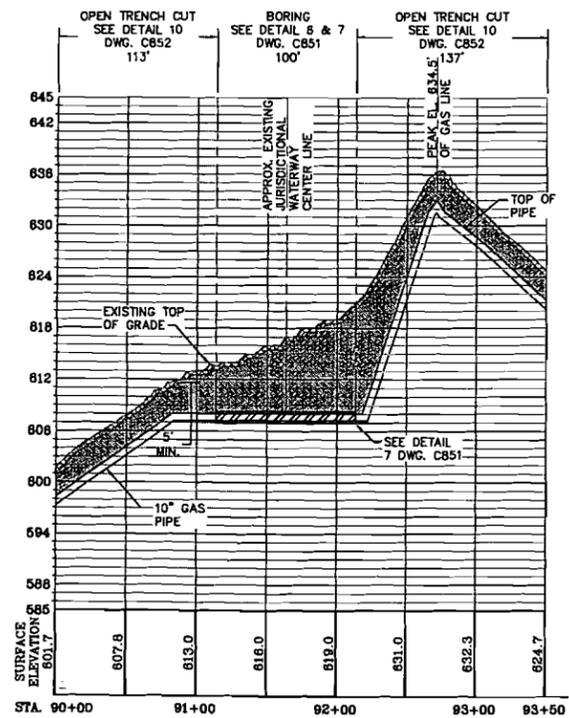
DESIGN BY: J. LANGEL	CHECKED BY: T. HEAUSLER
DRAWN BY: R. DAVILA	DATE: 5/20/08
CLIENT I.D. ICCO0101	SEGA PROJECT NO. 07-201

CADD FILE NAME: 07201-GP-C109.dwg	REV.
DRAWING NO.	1

**LEGEND**

- PROPOSED GAS PIPELINE EASEMENT
- - - PROPOSED GAS PIPELINE IN PROFILE
- - - EXISTING GRADE IN PROFILE
- - - PROPOSED GAS PIPELINE CENTERLINE
- - - EXISTING CONTOURS
- - - EXISTING FENCE
- - - MATCHLINE
- - - CONSTRUCTION STAGING AREA
- - - OVERHEAD ELECTRICAL LINE
- - - EXISTING ROAD CENTERLINE
- - - EXISTING EASEMENTS
- - - SAN DIEGO AQUEDUCT CENTERLINE
- - - EXISTING ROAD
- - - GAS PIPE IN ENCASEMENT
- - - EXISTING CONCRETE
- - - EXISTING ASPHALT
- - - EXISTING UNSURFACED ROAD
- - - COMPACTED FILL
- - - PROPOSED BORE PIT
- - - PROPOSED BORE RECEIVING PIT
- - - PROPOSED PIPE ENCASEMENT
- EXISTING TREES
- CONC.
- GNV.
- ASPH.
- STA.
- EXISTING CONCRETE
- GROUND NATURAL VEGETATION
- EXISTING ASPHALT
- STATIONING
- POWER (UTILITY) POLE

**SITE PLAN STATION 90+00 - 100+50**



**GENERAL NOTES:**

- UTILITY INFORMATION IS FOR REFERENCE ONLY CONTRACTOR(S) TO FIELD VERIFY.
- FOR PIPE SPECIFICATIONS SUCH AS PIPE MATERIAL, SIZE, PRESSURE, ETC. SEE DRAWING GP-Y100.
- ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE REPLACED TO EXISTING CONDITION OR APPROVED BY OWNER.
- INSTALL TYPICAL TRENCH BREAKER SEE DETAIL 11, DWG. GP-C852



REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAO	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

29 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY, ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1736/434-1737		
APPROVED FOR: MICHAEL FROEDERME DIRECTOR OF PUBLIC WORKS	ENGINEER OF RECORD: THOMAS F. HEAUSLER DD00083 REG. 2-31-08	L-15454 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE
SPECIAL USE PERMIT NO. NOT APPLICABLE
TENTATIVE MAP NO. NOT APPLICABLE
NOI/WQID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
 "M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
 LOCATION: S.E. CORNER OF MANHOLE  
 RECORD FROM: FIELD BOOK 4047-04-079  
 ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

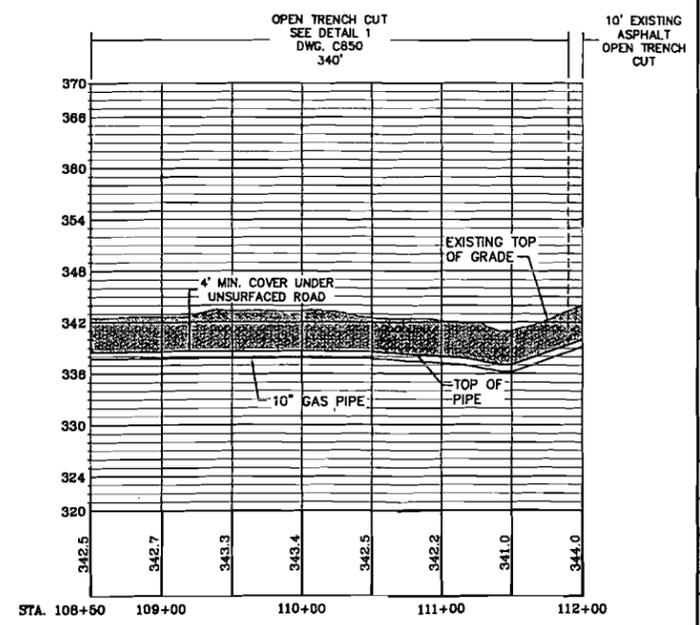
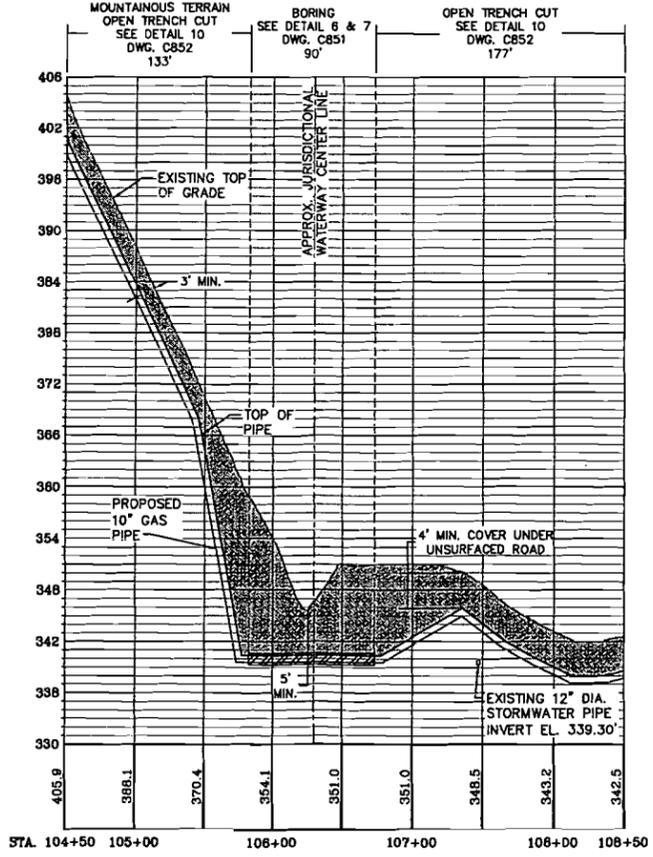
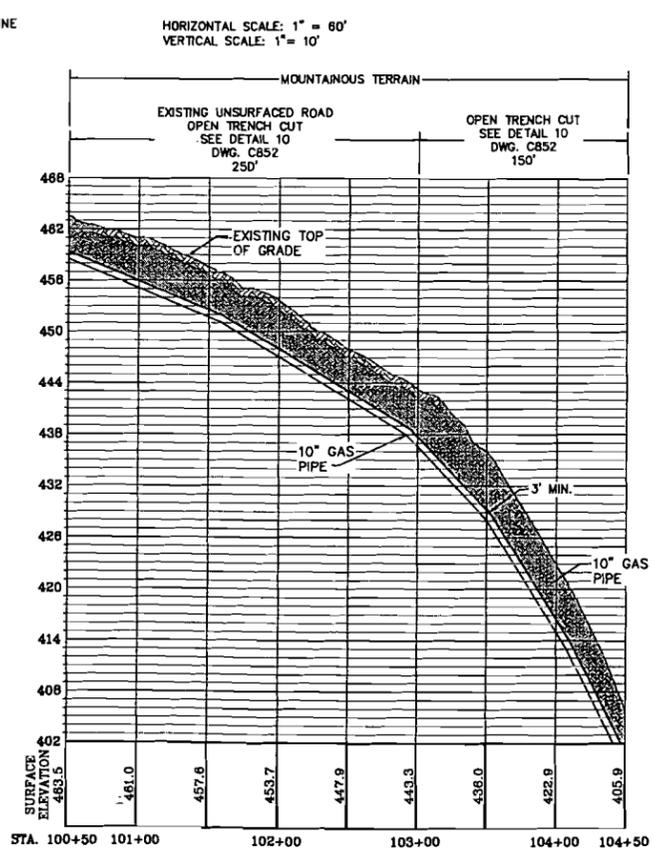
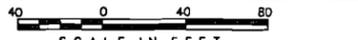
**LEGEND**

- PROPOSED GAS PIPELINE EASEMENT
- PROPOSED GAS PIPELINE IN PROFILE
- EXISTING GRADE IN PROFILE
- PROPOSED GAS PIPELINE CENTERLINE
- EXISTING CONTOURS
- EXISTING FENCE
- MATCHLINE
- CONSTRUCTION STAGING AREA
- OVERHEAD ELECTRICAL LINE
- EXISTING ROAD CENTERLINE
- EXISTING EASEMENTS
- SAN DIEGO AQUEDUCT CENTERLINE
- EXISTING ROAD
- GAS PIPE IN ENCASUREMENT
- EXISTING CONCRETE
- EXISTING ASPHALT
- EXISTING UNSURFACED ROAD
- COMPACTED FILL
- PROPOSED BORE PIT
- PROPOSED BORE RECEIVING PIT
- PROPOSED PIPE ENCASUREMENT
- EXISTING TREES
- CONC.
- GNV.
- ASPH.
- STA.
- POWER (UTILITY) POLE

**GENERAL NOTES:**

- UTILITY INFORMATION IS FOR REFERENCE ONLY CONTRACTOR(S) TO FIELD VERIFY.
- FOR PIPE SPECIFICATIONS SUCH AS PIPE MATERIAL, SIZE, PRESSURE, ETC. SEE DRAWING GP-Y100.
- ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE REPLACED TO EXISTING CONDITION OR APPROVED BY OWNER.
- INSTALL TYPICAL TRENCH BREAKER SEE DETAIL 11, DWG. GP-C852

**SITE PLAN STATION 100+50 - 112+00**



Sealed Only When Signed in Blue Ink



Engineers - Architects - Technicians  
 Design - Construction - Field Service  
 16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

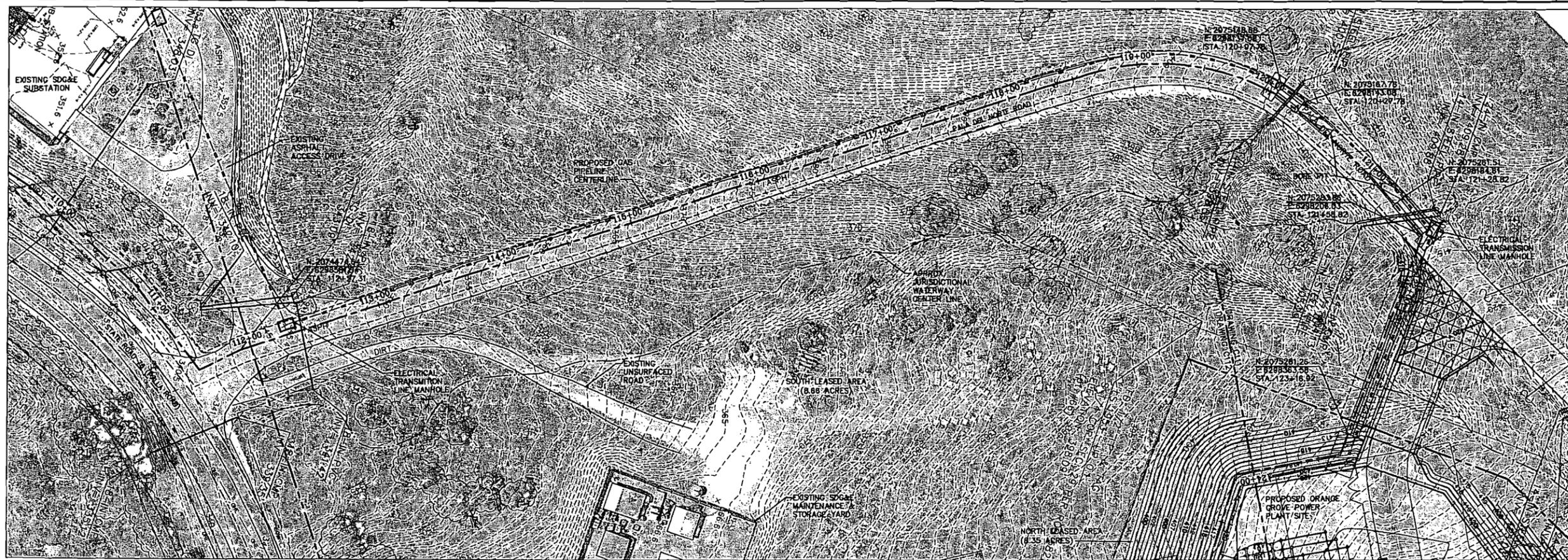
**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE GAS PIPELINE**

SITE PLAN STATION 100+50 - 112+00

DESIGN BY: J. LANGEL	CHECKED BY: T. HEAUSLER
DRAWN BY: R. DAVILA	DATE: 5/23/08
CLIENT I.D. IC000101	SEGA PROJECT NO. 07-201

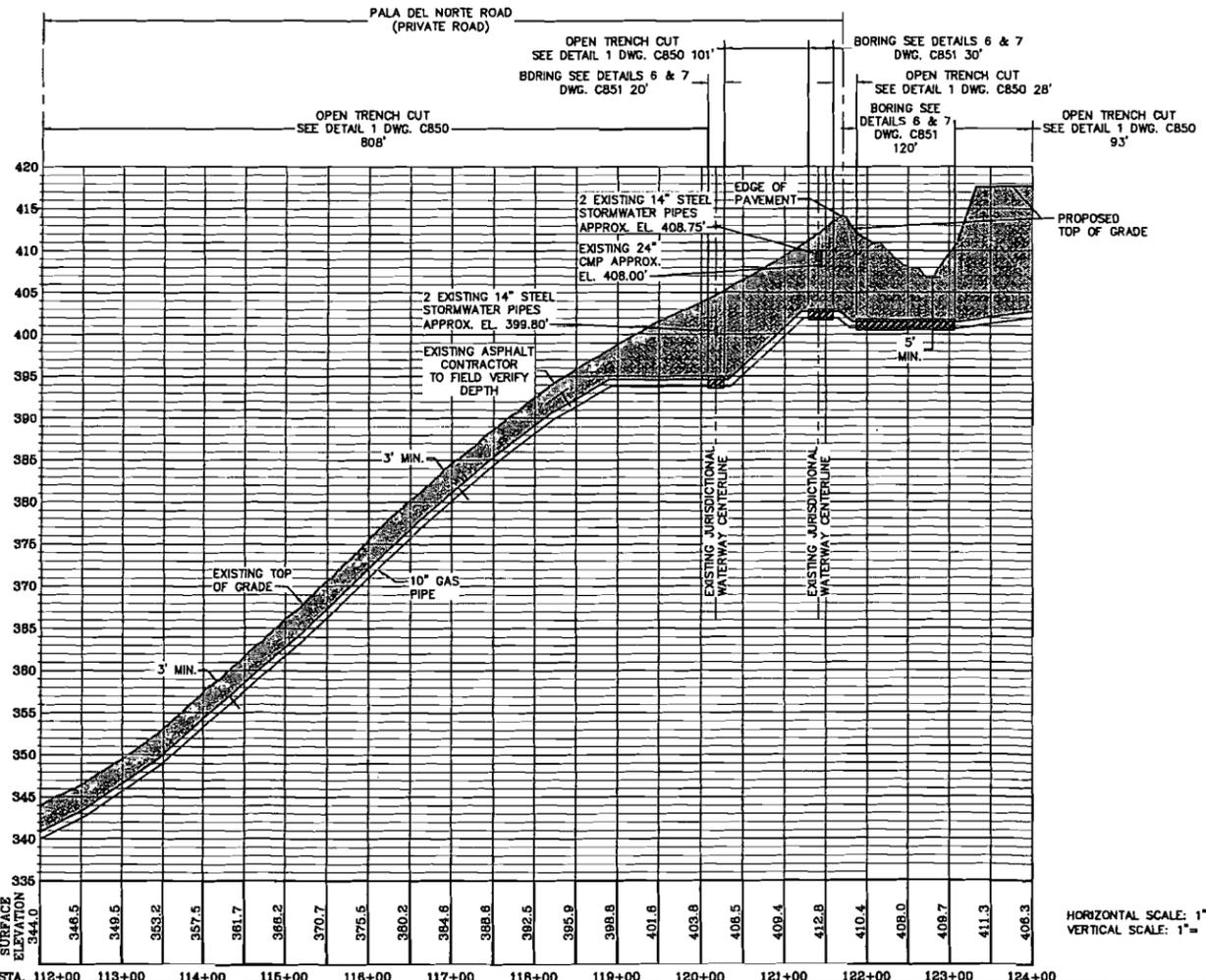
CADD FILE NAME: 0	DRAWING NO. GP-C110	REV. 1
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**LEGEND**

	PROPOSED GAS PIPELINE EASEMENT
	PROPOSED GAS PIPELINE IN PROFILE
	EXISTING GRADE IN PROFILE
	PROPOSED GAS PIPELINE CENTERLINE
	EXISTING CONTOURS
	EXISTING FENCE
	MATCHLINE
	CONSTRUCTION STAGING AREA
	CALTRANS R.O.W.
	UNDERGROUND ELECTRICAL LINE
	OVERHEAD ELECTRICAL LINE
	EXISTING ROAD CENTERLINE
	EXISTING EASEMENTS
	SAN DIEGO AQUEDUCT CENTERLINE
	EXISTING ROAD
	GAS PIPE IN ENCASEMENT
	ELECTRICAL TRANSMISSION MANHOLE
	EXISTING CONCRETE
	EXISTING ASPHALT
	EXISTING UNSURFACED ROAD
	PROPOSED BORE PIT
	PROPOSED BORE RECEIVING PIT
	PROPOSED PIPE ENCASEMENT
	EXISTING TREES
	CONC. EXISTING CONCRETE
	GNV. GROUND NATURAL VEGETATION
	ASPH. EXISTING ASPHALT
	STA. STATIONING
	HDD. HORIZONTAL DIRECTIONAL DRILL
	Q. POWER (UTILITY) POLE

- GENERAL NOTES:**
- UTILITY INFORMATION IS FOR REFERENCE ONLY CONTRACTOR(S) TO FIELD VERIFY.
  - FOR PIPE SPECIFICATIONS SUCH AS PIPE MATERIAL, SIZE, PRESSURE, ETC. SEE DRAWING GP-1100.
  - ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE REPLACED TO EXISTING CONDITION OR APPROVED BY OWNER.



HORIZONTAL SCALE: 1" = 100'  
VERTICAL SCALE: 1" = 10'

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

30 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1736/434-1737		
APPROVED FOR ARCHITECT/ENGINEER DIRECTOR OF PUBLIC WORKS	ENGINEER OF WORK THOMAS F. HEAUSLER CONSULTING ENGINEER 3-31-08	L-15454 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO.	NOT APPLICABLE
SPECIAL USE PERMIT NO.	NOT APPLICABLE
TENTATIVE MAP NO.	NOT APPLICABLE
NOI/WDID NO.	NOT YET ASSIGNED

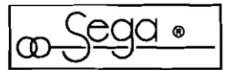
**BENCH MARK**

DESCRIPTION:	3 1/2" brass disk
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"	
LOCATION:	S.E. CORNER OF MANHOLE
RECORD FROM:	FIELD BOOK 4047-04-079
ELEVATION:	318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink



Engineers - Architects - Technicians  
Design - Construction - Field Service  
16041 Foster  
P.O. Box 1000  
Stillwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE GAS PIPELINE**

SITE PLAN STATION 112+00 - 124+00

DESIGN BY: J. LANGEL	CHECKED BY: T. HEAUSLER
DRAWN BY: R. DAVILA	DATE: 5/20/08
CLIENT I.D. 1CC00101	SEGA PROJECT NO. 07-201

CADD FILE NAME: 07201-GP-C111.dwg	DRAWING NO.	REV.
	GP-C111	1



REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

31 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.		
CALIFORNIA COORDINATE INDEX 434-1736/434-1737		
APPROVED FOR RECORDING PROCEEDINGS DIRECTOR OF PUBLIC WORKS	DESIGNER OF WORK THOMAS F. HEAUSLER CONSULTING ENGINEER 3-31-08	L-15454 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE  
SPECIAL USE PERMIT NO. NOT APPLICABLE  
TENTATIVE MAP NO. NOT APPLICABLE  
NOI/WDIO NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
LOCATION: S.E. CORNER OF MANHOLE  
RECORD FROM: FIELD BOOK 4047-04-079  
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink



16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE GAS PIPELINE**

SITE PLAN STATION 124+00- 128+15.37

DESIGN BY: J. LANGEL	CHECKED BY: T. HEAUSLER
DRAWN BY: R. DAVILA	DATE: 5/20/08
CLIENT I.D. 1CC00101	SEGA PROJECT NO. 07-201

CADD FILE NAME: 07201-GP-C112.dwg

DRAWING NO. <b>GP-C112</b>	REV. <b>1</b>
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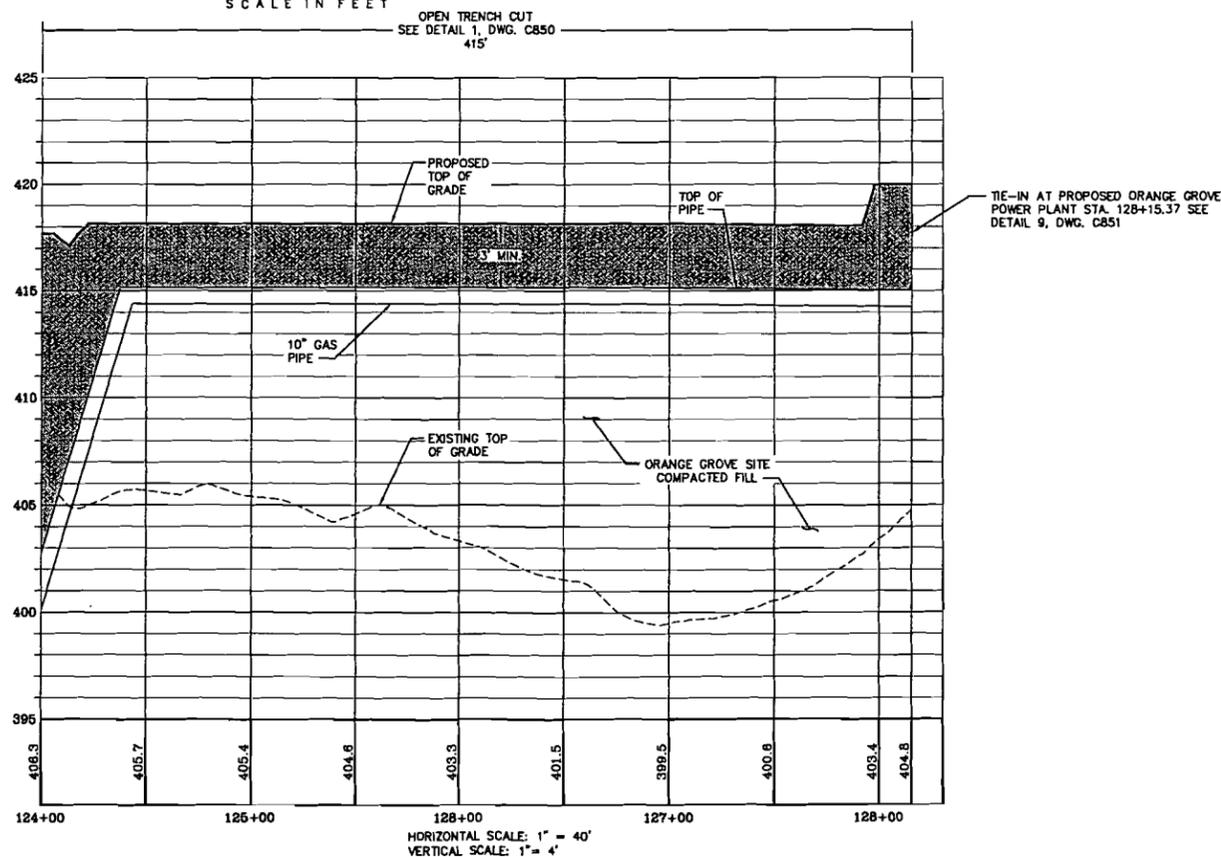
**LEGEND**

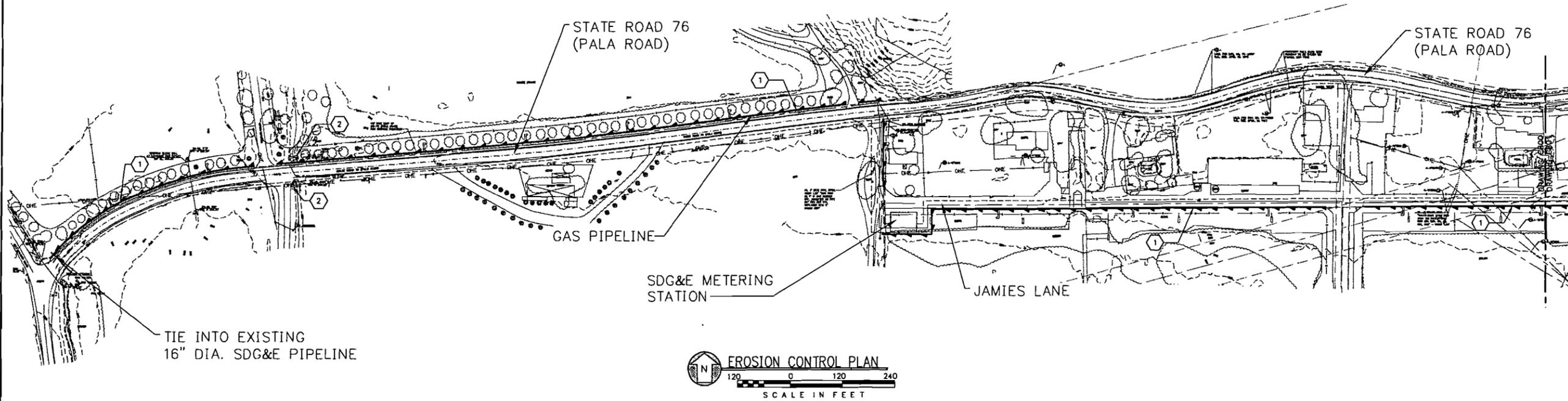
- PROPOSED GAS PIPELINE EASEMENT
- PROPOSED GAS PIPELINE IN PROFILE
- EXISTING GRADE IN PROFILE
- PROPOSED GAS PIPELINE CENTERLINE
- EXISTING CONTOURS
- EXISTING FENCE
- MATCHLINE
- CONSTRUCTION STAGING AREA
- CALTRANS R.O.W.
- UNDERGROUND ELECTRICAL LINE
- OVERHEAD ELECTRICAL LINE
- EXISTING ROAD CENTERLINE
- EXISTING EASEMENTS
- SAN DIEGO AQUEDUCT CENTERLINE
- EXISTING ROAD
- GAS PIPE IN ENCASEMENT
- ELECTRICAL TRANSMISSION MANHOLE
- EXISTING CONCRETE
- EXISTING ASPHALT
- COMPACTED FILL
- PROPOSED BORE PIT
- PROPOSED BORE RECEIVING PIT
- PROPOSED PIPE ENCASEMENT
- EXISTING TREES
- EXISTING CONCRETE
- GROUND NATURAL VEGETATION
- EXISTING ASPHALT
- STATIONING
- POWER (UTILITY) POLE

**GENERAL NOTES:**

- UTILITY INFORMATION IS FOR REFERENCE ONLY CONTRACTOR(S) TO FIELD VERIFY.
- FOR PIPE SPECIFICATIONS SUCH AS PIPE MATERIAL, SIZE, PRESSURE, ETC. SEE DRAWING GP-1100.
- ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE REPLACED TO EXISTING CONDITION OR APPROVED BY OWNER.

**SITE PLAN STATION 124+00 - 128+15.37**





REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

32 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1736/434-1737		
APPROVED FOR MECHANICAL ENGINEER DIRECTOR OF PUBLIC WORKS	ENGINEER OF WORK THOMAS F. HEALSLER C040363 REG. 3-31-09	L-15454 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE
SPECIAL USE PERMIT NO. NOT APPLICABLE
TENTATIVE MAP NO. NOT APPLICABLE
NOI/NOID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"
LOCATION: S.E. CORNER OF MANHOLE
RECORD FROM: FIELD BOOK 4047-04-079
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink



Engineers - Architects - Technicians  
 Design - Construction - Field Service  
 16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE GAS PIPELINE**

**EROSION CONTROL PLAN**

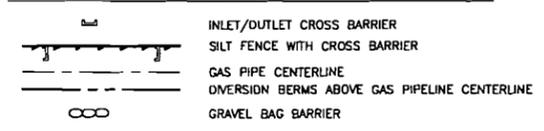
DESIGN BY: J. LANGEL	CHECKED BY: B. ROMINES
DRAWN BY: B. GASPERS	DATE: 5-29-08
CLIENT I.D. ICCD0101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-GP-C800.dwg	

DRAWING NO. <b>GP-C800</b>	REV. <b>1</b>
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**EROSION CONTROL KEYNOTES:**

1. INSTALL TEMPORARY LINEAR SEDIMENT BARRIER (TYP. SILT FENCE), SEE DETAIL DWG C803.
2. INSTALL TEMPORARY CROSS BARRIER (SAND BAGS), SEE DETAIL DWG. C803.
3. INSTALL TEMPORARY GRAVEL BAG BARRIER, SEE DETAIL DWG C803.
4. INSTALL PERMANENT DIVERSION BERM.

**EROSION CONTROL LEGEND:**



**NPDES NOTES:**

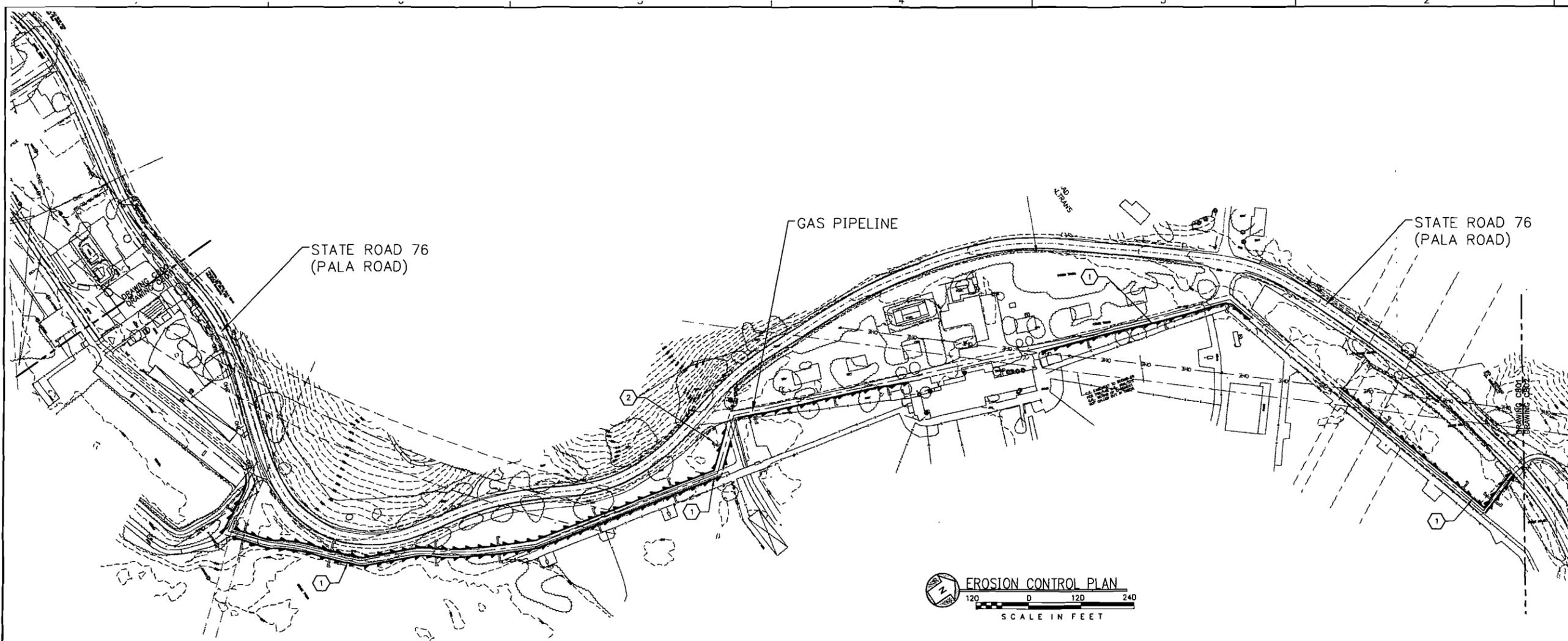
1. IN CASE OF EMERGENCY, CALL MIKE JONES AT ORANGE GROVE ENERGY, L.P. WORK PHONE NUMBER: 847-908-2800 OR CELL PHONE NUMBER: 847-226-9134
2. SEDIMENT FROM AREAS DISTURBED BY CONSTRUCTION SHALL BE RETAINED ON SITE USING STRUCTURAL CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE.
3. STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO MINIMIZE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING, OR WIND.
4. APPROPRIATE BEST MANAGEMENT PRACTICES (BMP'S) FOR CONSTRUCTION-RELATED MATERIALS, WASTES, SPILLS OR RESIDUES SHALL BE IMPLEMENTED TO MINIMIZE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTIES BY WIND OR RUNOFF.
5. RUNOFF FROM EQUIPMENT AND VEHICLE WASHING SHALL BE CONTAINED AT CONSTRUCTION SITES UNLESS TREATED TO REDUCE OR REMOVE SEDIMENT AND OTHER POLLUTANTS.
6. ALL CONSTRUCTION CONTRACTOR AND SUBCONTRACTOR PERSONNEL ARE TO BE MADE AWARE OF THE REQUIRED BEST MANAGEMENT PRACTICES AND GOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE AND ANY ASSOCIATED CONSTRUCTION STAGING AREAS.
7. AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND PROPERLY DISPOSED IN TRASH OR RECYCLE BINS.
8. CONSTRUCTION SITE SHALL BE MAINTAINED IN SUCH A CONDITION THAT AN ANTICIPATED STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. DISCHARGES OF MATERIAL OTHER THAN STORMWATER MAY BE MADE ONLY WHEN NECESSARY FOR PERFORMANCE AND COMPLETION OF CONSTRUCTION PRACTICES AND WHERE THEY DO NOT: CAUSE OR CONTRIBUTE TO A VIOLATION OF ANY WATER QUALITY STANDARD; CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR NUISANCE; OR CONTAIN A HAZARDOUS SUBSTANCE IN A QUANTITY REPORTABLE UNDER FEDERAL REGULATIONS 40 CFR PARTS 117 AND 302.
9. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SOLID OR LIQUID CHEMICAL SPILL; WASTES FROM PAINTS, STAINS, SEALANTS, GLUES, LIMES, PESTICIDES, HERBICIDES, WOOD PRESERVATIVES AND SOLVENTS; ASBESTOS FIBERS, PAINT FLAKES OR STUCCO FRAGMENTS; FUELS, OILS, LUBRICANTS, AND HYDRAULIC RADIATOR OR BATTERY FLUIDS; FERTILIZERS, VEHICLE/EQUIPMENT WASH WATER AND CONCRETE WASH WATER; CONCRETE, DETERGENT OR FLOATABLE WASTES; WASTES FROM ANY ENGINE/EQUIPMENT STEAM CLEANING OR CHEMICAL DEGREASING AND SUPERCHLORINATED POTABLE WATER LINE FLUSHING. DURING CONSTRUCTION, PERMITTEE SHALL DISPOSE OF SUCH MATERIALS IN A SPECIFIED AND CONTROLLED TEMPORARY AREA ON-SITE, PHYSICALLY SEPARATED FROM POTENTIAL STORMWATER RUNOFF, WITH ULTIMATE DISPOSAL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS.
10. DEWATERING OF CONTAMINATED GROUNDWATER, OR DISCHARGING CONTAMINATED SOILS VIA SURFACE EROSION IS PROHIBITED. DEWATERING OF NON-CONTAMINATED GROUNDWATER REQUIRES A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FROM THE RESPECTIVE STATE REGIONAL WATER QUALITY CONTROL BOARD.
11. GRADED AREAS ON THE PERMITTING AREAS PERIMETER MUST DRAIN AWAY FROM THE FACE OF SLOPES AT THE CONCLUSION OF EACH WORKING DAY. DRAINAGE IS TO BE DIRECTED TOWARD DESILTING FACILITIES.
12. THE PERMITTEE AND CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATER CREATES A HAZARDOUS CONDITION.
13. THE PERMITTEE AND CONTRACTOR SHALL INSPECT THE EROSION CONTROL WORK AND INSURE THAT THE WORK IS IN ACCORDANCE WITH THE APPROVED PLANS.
14. THE PERMITTEE SHALL NOTIFY ALL GENERAL CONTRACTORS, SUBCONTRACTORS, MATERIAL SUPPLIERS, LESSEES, AND PROPERTY OWNERS, THAT DUMPING OF CHEMICALS INTO THE STORM DRAIN SYSTEM OR THE WATERSHED IS PROHIBITED.
15. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. NECESSARY MATERIALS SHALL BE AVAILABLE ON SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT.
16. ALL REMOVABLE EROSION PROTECTIVE DEVICES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE 5-DAY RAIN PROBABILITY FORECAST EXCEEDS 40%.
17. SEDIMENTS FROM AREAS DISTURBED BY CONSTRUCTION SHALL BE RETAINED ON SITE USING AN EFFECTIVE COMBINATION OF EROSION AND SEDIMENT CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE, AND STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO MINIMIZE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING, OR WIND.
18. APPROPRIATE BMP'S FOR CONSTRUCTION RELATED MATERIALS, WASTES, SPILLS OR RESIDUES SHALL BE IMPLEMENTED AND RETAINED ON SITE TO MINIMIZE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTY BY WIND OR RUNOFF.

**SAN DIEGO COUNTY EROSION CONTROL NOTES:**

1. ALL BUILDING PADS TO BE DIKED AND THE DIKES MAINTAINED TO PREVENT WATER FROM FLOWING FROM THE PAD UNTIL THE STREETS AND DRIVEWAYS ARE PAVED AND WATER CAN FLOW FROM THE PADS WITHOUT CAUSING EROSION, OR CONSTRUCT DRAINAGE FACILITIES TO THE SATISFACTION OF THE COUNTY DEPARTMENT OF PUBLIC WORKS THAT WILL ALLOW WATER TO DRAIN FROM THE PAD WITHOUT CAUSING EROSION.
2. TOPS OF ALL SLOPES TO BE DIKED OR TRENCHED TO PREVENT WATER FROM FLOWING OVER THE CREST OF SLOPES.
3. MANUFACTURED SLOPES AND PADS SHALL BE ROUNDED VERTICALLY AND HORIZONTALLY AS APPROPRIATE TO BLEND WITH THE SURROUNDING TOPOGRAPHY.
4. AS SOON AS CUTS OR EMBANKMENTS ARE COMPLETED, BUT NOT LATER THAN OCTOBER 1 ALL CUT AND FILL SLOPES SHALL BE STABILIZED WITH A HYDROMULCH MIXTURE OR AN EQUAL TREATMENT APPROVED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS BETWEEN OCTOBER 1 AND APRIL 15. APPROVED SLOPE PROTECTION MEASURES SHALL PROCEED IMMEDIATELY BEHIND THE EXPOSURE OF CUT SLOPES AND/OR THE CREATION OF EMBANKMENT SLOPES.
5. CATCH BASINS, DESILTING BASINS AND STORM DRAIN SYSTEM SHALL BE INSTALLED TO THE SATISFACTION OF SAN DIEGO COUNTY DEPARTMENT OF PUBLIC WORKS.
6. SAND BAG CHECK DAMS TO BE PLACED IN A MANNER APPROVED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS IN UNPAVED STREETS WITH GRADIENTS IN EXCESS OF 2% AND ON OR IN OTHER GRADED OR EXCAVATED AREAS AS REQUIRED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.
7. THE DEVELOPER TO MAINTAIN THE PLANTING AND EROSION CONTROL MEASURES DESCRIBED ABOVE UNTIL RELIEVED OF THE SAME BY THE COUNTY DEPARTMENT OF PUBLIC WORKS. THE DEVELOPER TO REMOVE ALL SOIL INTERCEPTED BY THE SAND BAGS, CATCH BASINS AND DESILTING BASINS AND KEEP THESE FACILITIES CLEAN AND FREE OF SILT AND SAND AS DIRECTED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS. THE DEVELOPER SHALL REPAIR ANY ERODED SLOPES AS DIRECTED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.

**EROSION CONTROL NOTES:**

1. SILT FENCE SHALL BE CLEANED AND REPAIRED WHEN SILT BUILD-UP REACHES 1/3 SILT FENCE HEIGHT.
2. CLEARING AND GRUBBING WORK SHALL COMPLY WITH THE COUNTY OF SAN DIEGO, CALIFORNIA STANDARDS AND SPECIFICATIONS LATEST EDITION.
3. NO VEGETATION OR CONSTRUCTION DEBRIS SHALL BE BURIED ON SITE. NO BURNING PITS SHALL BE ALLOWED.
4. ALL DISTURBED AREAS THAT REMAIN ACTIVE FOR MORE THAN 21 DAYS SHALL BE STABILIZED BY SEEDING, SODDING, MULCHING, COVERING OR BY OTHER EQUIVALENT EROSION CONTROL MEASURES AS SOON AS PRACTICAL, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
5. PRIOR TO ANY GRADING, STRIPPING, EXCAVATING, FILLING OR ANY OTHER DISTURBANCE OF THE NATURAL GROUND COVER, THE CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES. THE CONTRACTOR SHALL MAINTAIN THESE DEVICES THROUGHOUT THE DURATION OF THE PROJECT AND UNTIL PERMANENT VEGETATION IS PROPERLY ESTABLISHED.
6. STOCKPILES SHALL BE LOCATED AWAY FROM SLOPES AND TRAFFIC ROUTES AND BE TEMPORARILY SEEDED AS SOON AS POSSIBLE, NO MORE THAN 30 WORKING DAYS OR 120 CALENDAR DAYS AFTER FORMATION OF THE STOCKPILE. SILT FENCE SHALL BE PLACED APPROPRIATELY AROUND THE STOCKPILE TO CONTROL EROSION.
7. THE SITE SHALL HAVE GRADED ROADS AND ACCESS DRIVES TO PARKING AREAS OF SUFFICIENT WIDTH AND LENGTH TO PREVENT SEDIMENT FROM BEING TRACKED ON PUBLIC ROADWAYS. ANY SEDIMENT REACHING A PUBLIC OR PRIVATE ROAD SHALL BE REMOVED. BULK CLEARING OF ACCUMULATED SEDIMENT SHALL BE RETURNED TO THE POINT OF LIKELY ORIGIN OR OTHER SUITABLE LOCATION BEFORE THE END OF EACH WORK DAY. CONSTRUCTION ENTRANCES SHALL BE ROCKED PRIOR TO ANY OTHER SITE WORK.
8. EROSION AND SEDIMENTATION CONTROLS AND SEEDING SHALL MEET THE STANDARDS AND SPECIFICATIONS OF SAN DIEGO COUNTY, CALIFORNIA.
9. PROPOSED MINOR GRADES ARE NOT SHOWN FOR CLARITY. PLEASE REFERENCE THE GRADING AND DRAINAGE PLAN FOR DETAILS.



REV.	DATE	DESCRIPTION	OWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

33 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INOX 434-1736/434-1737		
APPROVED FOR MONITORING PROGRAMS DIRECTOR OF PUBLIC WORKS BY:	ENGINEER OF WORK THOMAS F. HEUSLER CD40363 R.E. 3-31-09	L-15454 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE
SPECIAL USE PERMIT NO. NOT APPLICABLE
TENTATIVE MAP NO. NOT APPLICABLE
NOI/WQID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"
LOCATION: S.E. CORNER OF MANHOLE
RECORD FROM: FIELD BOOK 4047-04-079
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

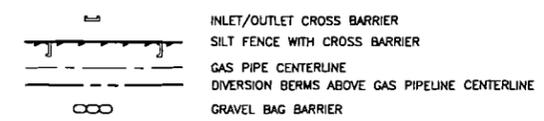
NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

**EROSION CONTROL KEYNOTES:**

- 1 INSTALL TEMPORARY LINEAR SEDIMENT BARRIER (TYP. SILT FENCE), SEE DETAIL DWG C8D3.
- 2 INSTALL TEMPORARY CROSS BARRIER (SAND BAGS), SEE DETAIL DWG. C8D3.
- 3 INSTALL TEMPORARY GRAVEL BAG BARRIER, SEE DETAIL DWG C8D3.
- 4 INSTALL PERMANENT DIVERSION BERM.

**EROSION CONTROL LEGEND:**



**NPDES NOTES:**

1. IN CASE OF EMERGENCY, CALL MIKE JONES AT ORANGE GROVE ENERGY, L.P. WORK PHONE NUMBER: 847-908-2800 OR CELL PHONE NUMBER: 847-226-9134
2. SEDIMENT FROM AREAS DISTURBED BY CONSTRUCTION SHALL BE RETAINED ON SITE USING STRUCTURAL CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE.
3. STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO MINIMIZE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TACKING, OR WIND.
4. APPROPRIATE BEST MANAGEMENT PRACTICES (BMP'S) FOR CONSTRUCTION-RELATED MATERIALS, WASTES, SPILLS OR RESIDUES SHALL BE IMPLEMENTED TO MINIMIZE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTIES BY WIND OR RUNOFF.
5. RUNOFF FROM EQUIPMENT AND VEHICLE WASHING SHALL BE CONTAINED AT CONSTRUCTION SITES UNLESS TREATED TO REDUCE OR REMOVE SEDIMENT AND OTHER POLLUTANTS.
6. ALL CONSTRUCTION CONTRACTOR AND SUBCONTRACTOR PERSONNEL ARE TO BE MADE AWARE OF THE REQUIRED BEST MANAGEMENT PRACTICES AND GOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE AND ANY ASSOCIATED CONSTRUCTION STAGING AREAS.
7. AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND PROPERLY DISPOSED IN TRASH OR RECYCLE BINS.
8. CONSTRUCTION SITE SHALL BE MAINTAINED IN SUCH A CONDITION THAT AN ANTICIPATED STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. DISCHARGES OF MATERIAL OTHER THAN STORMWATER MAY BE MADE ONLY WHEN NECESSARY FOR PERFORMANCE AND COMPLETION OF CONSTRUCTION PRACTICES AND WHERE THEY DO NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF ANY WATER QUALITY STANDARD, CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR NUISANCE; OR CONTAIN A HAZARDOUS SUBSTANCE IN A QUANTITY REPORTABLE UNDER FEDERAL REGULATIONS 40 CFR PARTS 117 AND 302.
9. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SOLID OR LIQUID CHEMICAL SPILL; WASTES FROM PAINTS, STAINS, SEALANTS, GLUES, LIMES, PESTICIDES, HERBICIDES, WOOD PRESERVATIVES AND SOLVENTS; ASBESTOS FIBERS, PAINT FLAKES OR STUCCO FRAGMENTS; FUELS, OILS, LUBRICANTS, AND HYDRAULIC, RADIATOR OR BATTERY FLUIDS; FERTILIZERS, VEHICLE/EQUIPMENT WASH WATER AND CONCRETE WASH WATER; CONCRETE, DETERGENT OR FLOATABLE WASTES; WASTES FROM ANY ENGINE/EQUIPMENT STEAM CLEANING OR CHEMICAL DEGREASING AND SUPERCHLORINATED POTABLE WATER LINE FLUSHING. DURING CONSTRUCTION, PERMITTEE SHALL DISPOSE OF SUCH MATERIALS IN A SPECIFIED AND CONTROLLED TEMPORARY AREA ON-SITE. PHYSICALLY SEPARATED FROM POTENTIAL STORMWATER RUNOFF, WITH ULTIMATE DISPOSAL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS.

10. DEWATERING OF CONTAMINATED GROUNDWATER, OR DISCHARGING CONTAMINATED SOILS VIA SURFACE EROSION IS PROHIBITED. DEWATERING OF NON-CONTAMINATED GROUNDWATER REQUIRES A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FROM THE RESPECTIVE STATE REGIONAL WATER QUALITY CONTROL BOARD.
11. GRADED AREAS ON THE PERMITTING AREAS PERIMETER MUST DRAIN AWAY FROM THE FACE OF SLOPES AT THE CONCLUSION OF EACH WORKING DAY. DRAINAGE IS TO BE DIRECTED TOWARD DESILTING FACILITIES.
12. THE PERMITTEE AND CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATER CREATES A HAZARDOUS CONDITION.
13. THE PERMITTEE AND CONTRACTOR SHALL INSPECT THE EROSION CONTROL WORK AND INSURE THAT THE WORK IS IN ACCORDANCE WITH THE APPROVED PLANS.
14. THE PERMITTEE SHALL NOTIFY ALL GENERAL CONTRACTORS, SUBCONTRACTORS, MATERIAL SUPPLIERS, LESSEES, AND PROPERTY OWNERS: THAT DUMPING OF CHEMICALS INTO THE STORM DRAIN SYSTEM OR THE WATERSHED IS PROHIBITED.
15. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. NECESSARY MATERIALS SHALL BE AVAILABLE ON SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT.
16. ALL REMOVABLE EROSION PROTECTIVE DEVICES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE 5-DAY RAIN PROBABILITY FORECAST EXCEEDS 40%.
17. SEDIMENTS FROM AREAS DISTURBED BY CONSTRUCTION SHALL BE RETAINED ON SITE USING AN EFFECTIVE COMBINATION OF EROSION AND SEDIMENT CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE, AND STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO MINIMIZE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING, OR WIND.
18. APPROPRIATE BMP'S FOR CONSTRUCTION RELATED MATERIALS, WASTES, SPILLS OR RESIDUES SHALL BE IMPLEMENTED AND RETAINED ON SITE TO MINIMIZE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTY BY WIND OR RUNOFF.

**EROSION CONTROL NOTES:**

1. SILT FENCE SHALL BE CLEANED AND REPAIRED WHEN SILT BUILD-UP REACHES 1/3 SILT FENCE HEIGHT.
2. CLEARING AND GRUBBING WORK SHALL COMPLY WITH THE COUNTY OF SAN DIEGO, CALIFORNIA STANDARDS AND SPECIFICATIONS LATEST EDITION.
3. NO VEGETATION OR CONSTRUCTION DEBRIS SHALL BE BURIED ON SITE. NO BURNING PITS SHALL BE ALLOWED.
4. ALL DISTURBED AREAS THAT REMAIN ACTIVE FOR MORE THAN 21 DAYS SHALL BE STABILIZED BY SEEDING, SODDING, MULCHING, COVERING OR BY OTHER EQUIVALENT EROSION CONTROL MEASURES AS SOON AS PRACTICAL, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
5. PRIOR TO ANY GRADING, STRIPPING, EXCAVATING, FILLING OR ANY OTHER DISTURBANCE OF THE NATURAL GROUND COVER, THE CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES. THE CONTRACTOR SHALL MAINTAIN THESE DEVICES THROUGHOUT THE DURATION OF THE PROJECT AND UNTIL PERMANENT VEGETATION IS PROPERLY ESTABLISHED.
6. STOCKPILES SHALL BE LOCATED AWAY FROM SLOPES AND TRAFFIC ROUTES AND BE TEMPORARILY SEEDED AS SOON AS POSSIBLE, NO MORE THAN 30 WORKING DAYS OR 120 CALENDAR DAYS AFTER FORMATION OF THE STOCKPILE. SILT FENCE SHALL BE PLACED APPROPRIATELY AROUND THE STOCKPILE TO CONTROL EROSION.
7. THE SITE SHALL HAVE GRADED ROADS AND ACCESS DRIVES TO PARKING AREAS OF SUFFICIENT WIDTH AND LENGTH TO PREVENT SEDIMENT FROM BEING TRACKED ON PUBLIC ROADWAYS. ANY SEDIMENT REACHING A PUBLIC OR PRIVATE ROAD SHALL BE REMOVED. BULK CLEARING OF ACCUMULATED SEDIMENT SHALL BE RETURNED TO THE POINT OF LIKELY ORIGIN OR OTHER SUITABLE LOCATION BEFORE THE END OF EACH WORK DAY. CONSTRUCTION ENTRANCES SHALL BE ROCKED PRIOR TO ANY OTHER SITE WORK.
8. EROSION AND SEDIMENTATION CONTROLS AND SEEDING SHALL MEET THE STANDARDS AND SPECIFICATIONS OF SAN DIEGO COUNTY, CALIFORNIA.
9. PROPOSED MINOR GRADES ARE NOT SHOWN FOR CLARITY. PLEASE REFERENCE THE GRADING AND DRAINAGE PLAN FOR DETAILS.

**SAN DIEGO COUNTY EROSION CONTROL NOTES:**

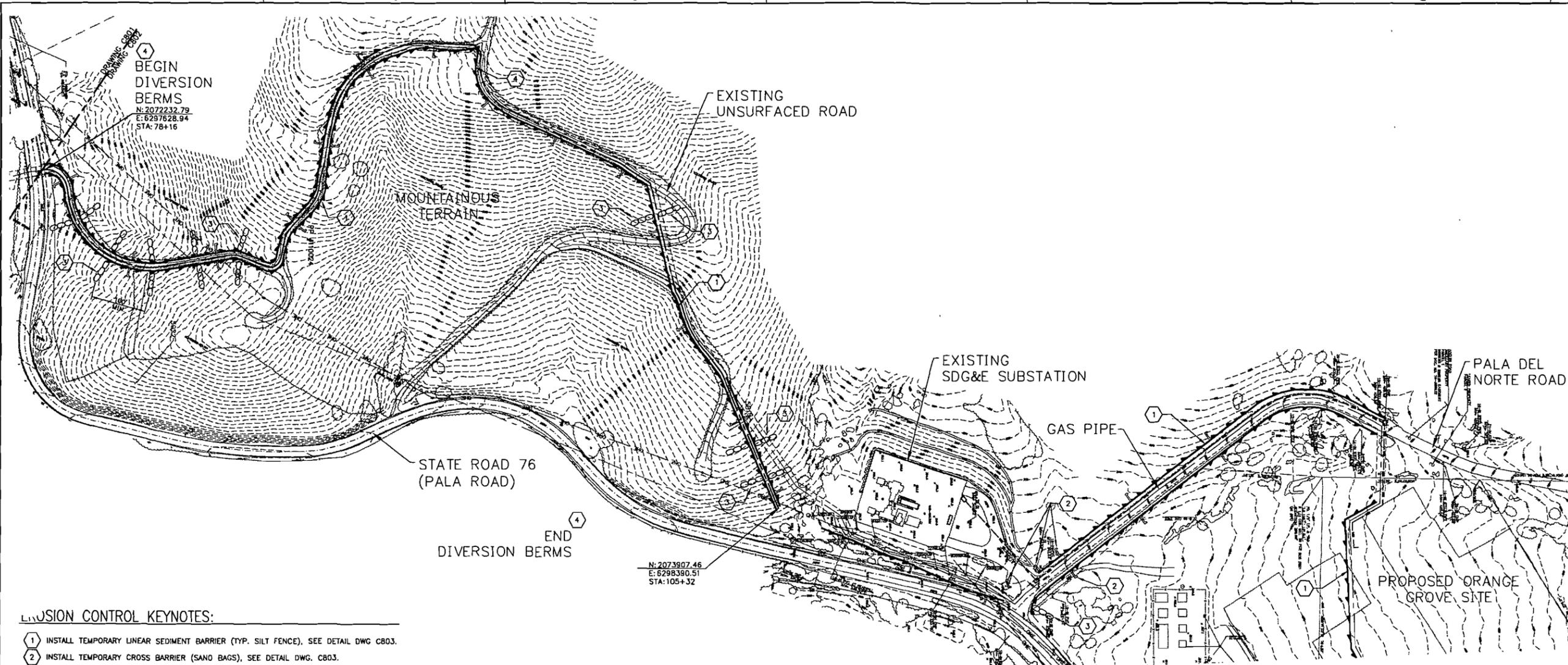
1. ALL BUILDING PADS TO BE DIKED AND THE DIKES MAINTAINED TO PREVENT WATER FROM FLOWING FROM THE PAD UNTIL THE STREETS AND DRIVEWAYS ARE PAVED AND WATER CAN FLOW FROM THE PADS WITHOUT CAUSING EROSION, OR CONSTRUCT DRAINAGE FACILITIES TO THE SATISFACTION OF THE COUNTY DEPARTMENT OF PUBLIC WORKS THAT WILL ALLOW WATER TO DRAIN FROM THE PAD WITHOUT CAUSING EROSION.
2. TOPS OF ALL SLOPES TO BE DIKED OR TRENCHED TO PREVENT WATER FROM FLOWING OVER THE CREST OF SLOPES.
3. MANUFACTURED SLOPES AND PADS SHALL BE ROUNDED VERTICALLY AND HORIZONTALLY AS APPROPRIATE TO BLEND WITH THE SURROUNDING TOPOGRAPHY.
4. AS SOON AS CUTS OR EMBANKMENTS ARE COMPLETED, BUT NOT LATER THAN OCTOBER 1 ALL CUT AND FILL SLOPES SHALL BE STABILIZED WITH A HYDROMULCH MIXTURE OR AN EQUAL TREATMENT APPROVED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS BETWEEN OCTOBER 1 AND APRIL 15. APPROVED SLOPE PROTECTION MEASURES SHALL PROCEED IMMEDIATELY BEHIND THE EXPOSURE OF CUT SLOPES AND/OR THE CREATION OF EMBANKMENT SLOPES.
5. CATCH BASINS, DESILTING BASINS AND STORM DRAIN SYSTEM SHALL BE INSTALLED TO THE SATISFACTION OF SAN DIEGO COUNTY DEPARTMENT OF PUBLIC WORKS.
6. SAND BAG CHECK DAMS TO BE PLACED IN A MANNER APPROVED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS IN UNPAVED STREETS WITH GRADIENTS IN EXCESS OF 2% AND ON OR IN OTHER GRADED OR EXCAVATED AREAS AS REQUIRED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.
7. THE DEVELOPER TO MAINTAIN THE PLANTING AND EROSION CONTROL MEASURES DESCRIBED ABOVE UNTIL RELIEVED OF THE SAME BY THE COUNTY DEPARTMENT OF PUBLIC WORKS. THE DEVELOPER TO REMOVE ALL SOIL INTERCEPTED BY THE SAND BAGS, CATCH BASINS AND DESILTING BASINS AND KEEP THESE FACILITIES CLEAN AND FREE OF SILT AND SAND AS DIRECTED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS. THE DEVELOPER SHALL REPAIR ANY ERODED SLOPES AS DIRECTED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.

**Sega**  
 Engineers - Architects - Technicians  
 Design - Construction - Field Service  
 16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE GAS PIPELINE**

EROSION CONTROL PLAN	
DESIGN BY: J. LANGEL	CHECKED BY: B. ROMINES
DRAWN BY: B. GASPERS	DATE: 5-29-08
CLIENT I.D. IC000101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-GP-C801.dwg	
DRAWING NO. GP-C801	REV. 1



**EROSION CONTROL KEYNOTES:**

- 1 INSTALL TEMPORARY LINEAR SEDIMENT BARRIER (TYP. SILT FENCE), SEE DETAIL DWG C803.
- 2 INSTALL TEMPORARY CROSS BARRIER (SAND BAGS), SEE DETAIL DWG. C803.
- 3 INSTALL TEMPORARY GRAVEL BAG BARRIER, SEE DETAIL DWG C803.
- 4 INSTALL PERMANENT DIVERSION BERM.

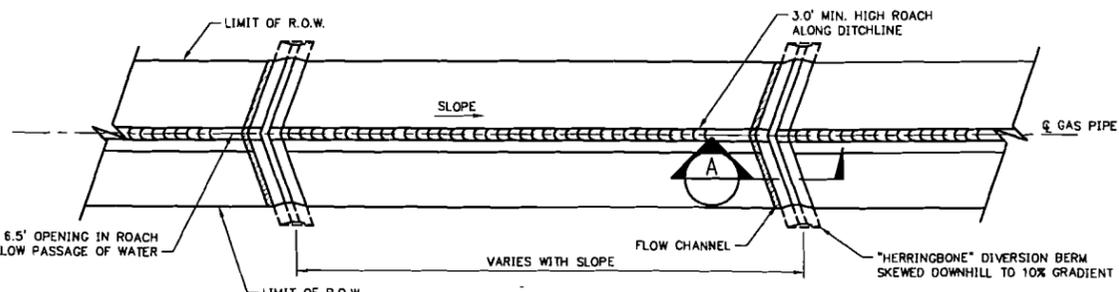
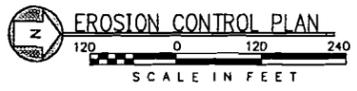
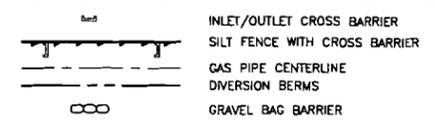
**DIVERSION BERM NOTES:**

- 1. THE DOWNSLOPE GRADIENT OF THE BERM SHOULD BE APPROXIMATELY 5% TO LIMIT EROSION FROM SURFACE RUNOFFS.
- 2. THE BERMS SHALL EXTEND ACROSS THE FULL WIDTH OF THE RIGHT-OF-WAY TO PREVENT THE FLOW OF WATER BACK ONTO THE RIGHT-OF-WAY.
- 3. THE SPACING OF THE BERMS DEPENDS ON THE LOCAL TOPOGRAPHY AND DRAINAGE. BERM SPACING SHOULD BE REDUCED AS THE SLOPE INCREASES APPROXIMATELY EVERY 30 FEET.
- 4. BERMS SHALL BE CONSTRUCTED WITH SOILS FREE OF ORGANICS AND COMPACTED IN LIFTS APPROVED BY THE GEOTECHNICAL ENGINEER.

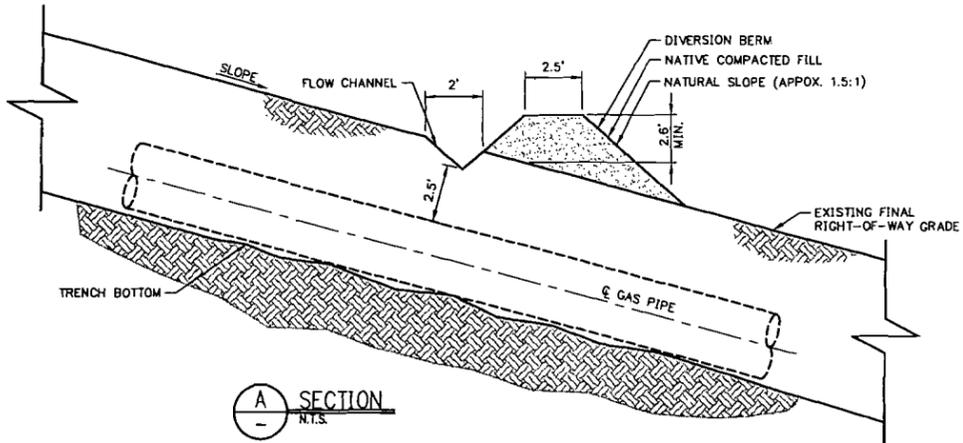
**EROSION CONTROL NOTES:**

- 1. SEE EROSION CONTROL DRAWINGS C800 AND C801

**EROSION CONTROL LEGEND:**



**1 MOUNTAINOUS TERRAIN DIVERSION BERM PLAN VIEW**  
N.T.S.



**A SECTION**  
N.T.S.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

34 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1735/434-1737		
APPROVED FOR: MICHAEL FASHINZOME, DIRECTOR OF PUBLIC WORKS	ENGINEER OF WORK: THOMAS F. HEASLER, CDD4363, REG. 3-31-08	L-15454 GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO.	NOT APPLICABLE
SPECIAL USE PERMIT NO.	NOT APPLICABLE
TENTATIVE MAP NO.	NOT APPLICABLE
NOI/WQID NO.	NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION:	3.1/2" brass disk
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"	
LOCATION:	S.E. CORNER OF MANHOLE
RECORD FROM:	FIELD BOOK 4047-04-079
ELEVATION:	318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink



16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

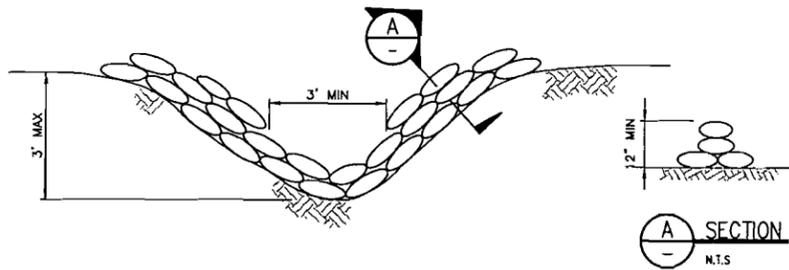
**ORANGE GROVE GAS PIPELINE**

**EROSION CONTROL PLAN**

DESIGN BY:	J. LANGEL	CHECKED BY:	B. ROMINES
DRAWN BY:	B. GASPERS	DATE:	5-29-08
CLIENT I.D.	ICCO0101	SEGA PROJECT NO.	07-201
CADD FILE NAME:	07201-GP-C802.dwg		

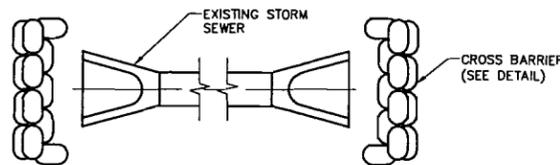
DRAWING NO.	GP-C802	REV.	1
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SEGA, INC. PHONE NUMBER: (913) 681-2881

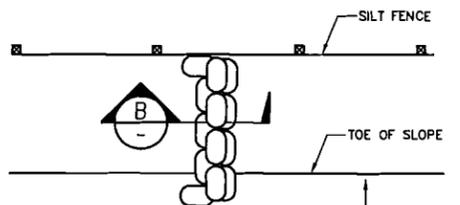


1 TYPICAL TEMPORARY GRAVEL BAG BARRIER (BMP SE-6)  
N.T.S.

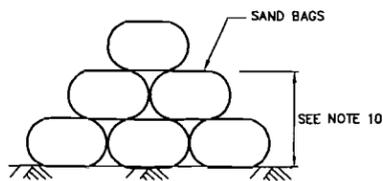
NOTE:  
CONSTRUCT SEDIMENT BARRIER  
AND CHANNELIZE RUNOFF TO  
SEDIMENT TRAPPING DEVICE



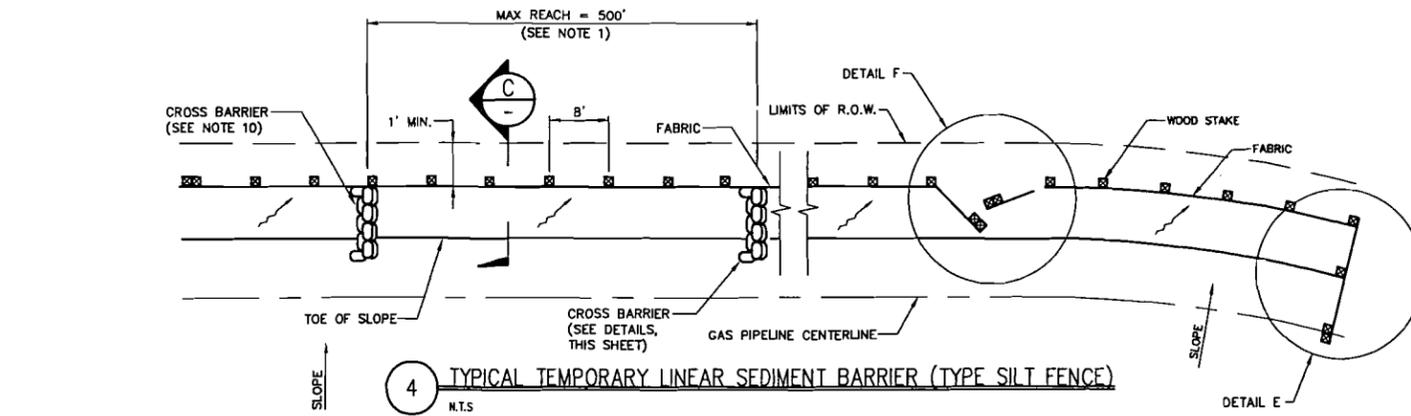
2 TYPICAL INLET/OUTLET CROSS BARRIER  
N.T.S.



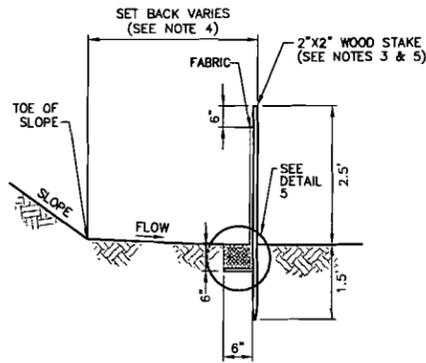
3 TYPICAL CROSS BARRIER DETAIL  
N.T.S.



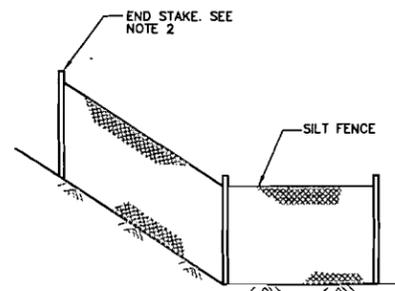
SECTION  
N.T.S.



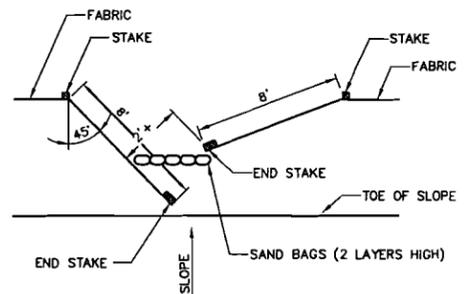
4 TYPICAL TEMPORARY LINEAR SEDIMENT BARRIER (TYPE SILT FENCE)  
N.T.S.



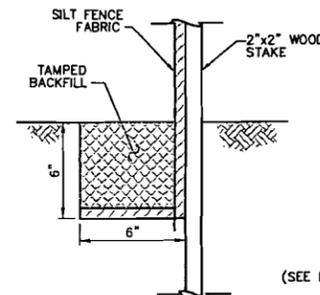
SECTION  
N.T.S.



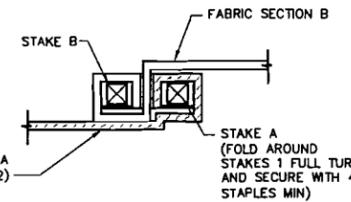
END DETAIL  
N.T.S.



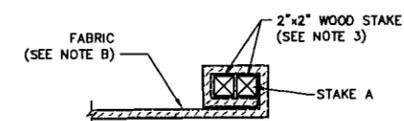
OPTIONAL MAINTENANCE OPENING DETAIL  
N.T.S. (SEE NOTE 11)



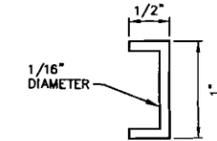
5 DETAIL  
N.T.S.



6 JOINING SECTION DETAIL (TOP VIEW)  
N.T.S.



7 END STAKE DETAIL (TOP VIEW)  
N.T.S.

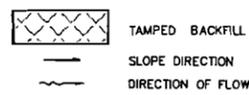


8 STAPLE DETAIL (SEE NOTE 9)  
N.T.S.

NOTES

- CONSTRUCT THE LENGTH OF EACH REACH SO THAT THE CHANGE IN BASE ELEVATION ALONG THE REACH DOES NOT EXCEED 1/3 THE HEIGHT OF THE LINEAR BARRIER, IN NO CASE SHALL THE REACH LENGTH EXCEED 500 FEET.
- THE LAST 8 FEET OF FENCE SHALL BE TURNED UP SLOPE.
- STAKE DIMENSIONS ARE NOMINAL.
- DIMENSIONS MAY VARY TO FIT FIELD CONDITION.
- STAKES SHALL BE SPACED AT 8 FOOT MAXIMUM, AND SHALL BE POSITIONED ON DOWNSTREAM SIDE OF FENCE.
- STAKES TO OVERLAP AND FENCE FABRIC TO FOLD AROUND EACH STAKE ONE FULL TURN. SECURE TO STAKE WITH 4 STAPLES.
- STAKES SHALL BE DRIVEN TIGHTLY TOGETHER TO PREVENT POTENTIAL FLOW-THROUGH OF SEDIMENT AT JOINT. THE TOPS OF THE STAKES SHALL BE SECURED WITH WIRE.
- FOR END STAKES, FENCE FABRIC SHALL BE FOLDED AROUND TWO STAKES ONE FULL TURN AND SECURED WITH 4 STAPLES.
- MINIMUM 4 STAPLES PER STAKE. DIMENSIONS SHOWN ARE TYPICAL.
- CROSS BARRIERS SHALL BE A MINIMUM OF 1/3, AND A MAXIMUM OF 1/2 THE HEIGHT OF THE LINER BARRIER.
- MAINTENANCE OPENINGS SHALL BE CONSTRUCTED IN A MANNER TO ENSURE SEDIMENT REMAINS BEHIND SILT FENCE.
- JOINING SECTIONS SHALL NOT BE PLACED AT SUMP LOCATIONS.
- SANDBAG ROWS AND LAYERS SHALL BE OFFSET TO ELIMINATE GAPS.

LEGEND



TYPICAL TEMPORARY SILT FENCE (BMP SE-1)  
N.T.S.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGC	WHR

**PRIVATE CONTRACT**

35 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
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GRADING PLAN FOR:  
THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR MICHIGAN PROFESSIONAL ENGINEER OF PUBLIC WORKS BY: [Signature]

ENGINEER OF WORK: THOMAS F. HEASLER  
CONSULTANT: [Signature] 3-31-08  
L-15454  
GRADING PERMIT NO.:

**PERMITS**

REZONE PERMIT NO.	NOT APPLICABLE
SPECIAL USE PERMIT NO.	NOT APPLICABLE
TENTATIVE MAP NO.	NOT APPLICABLE
NOI/WDD NO.	NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION:	3 1/2" brass disk
"M.W.D. OF SOUTHERN CA S.D. 6-89 1993"	
LOCATION:	S.E. CORNER OF MANHOLE
RECORD FROM:	FIELD BOOK 4047-04-079
ELEVATION:	318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

**Sega**  
Engineers - Architects - Technicians  
Design - Construction - Field Service

16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE GAS PIPELINE**  
EROSION CONTROL PLAN  
DETAILS

DESIGN BY: J. LANGEL	CHECKED BY: B. ROMINES
DRAWN BY: B. GASPERS	DATE: 6-5-08
CLIENT I.D. ICCO0101	SEGA PROJECT NO. 07-201

DRAWING NO. GP-C803	REV. 1
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REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGC	WHR

**PRIVATE CONTRACT**

36 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY; ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1736/434-1737		
APPROVED FOR MICHIGAN FADWISDOM DIRECTOR OF PUBLIC WORKS BY:	ENGINEER OF WORK THOMAS F. HEAUSLER CONTRACT NO. P.E. 3-31-08 L-15454 GRADING PERMIT NO.	

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE
SPECIAL USE PERMIT NO. NOT APPLICABLE
TENTATIVE MAP NO. NOT APPLICABLE
NOI/WDID NO. NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"
LOCATION: S.E. CORNER OF MANHOLE
RECORD FROM: FIELD BOOK 4047-04-079
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink

**Sega**  
 Engineers - Architects - Technicians  
 Design - Construction - Field Service  
 16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
 Schaumburg, IL

**ORANGE GROVE GAS PIPELINE**  
 SDG&E  
 METERING STATION GRADING PLAN

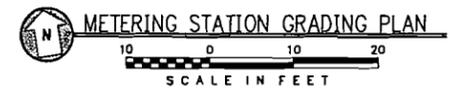
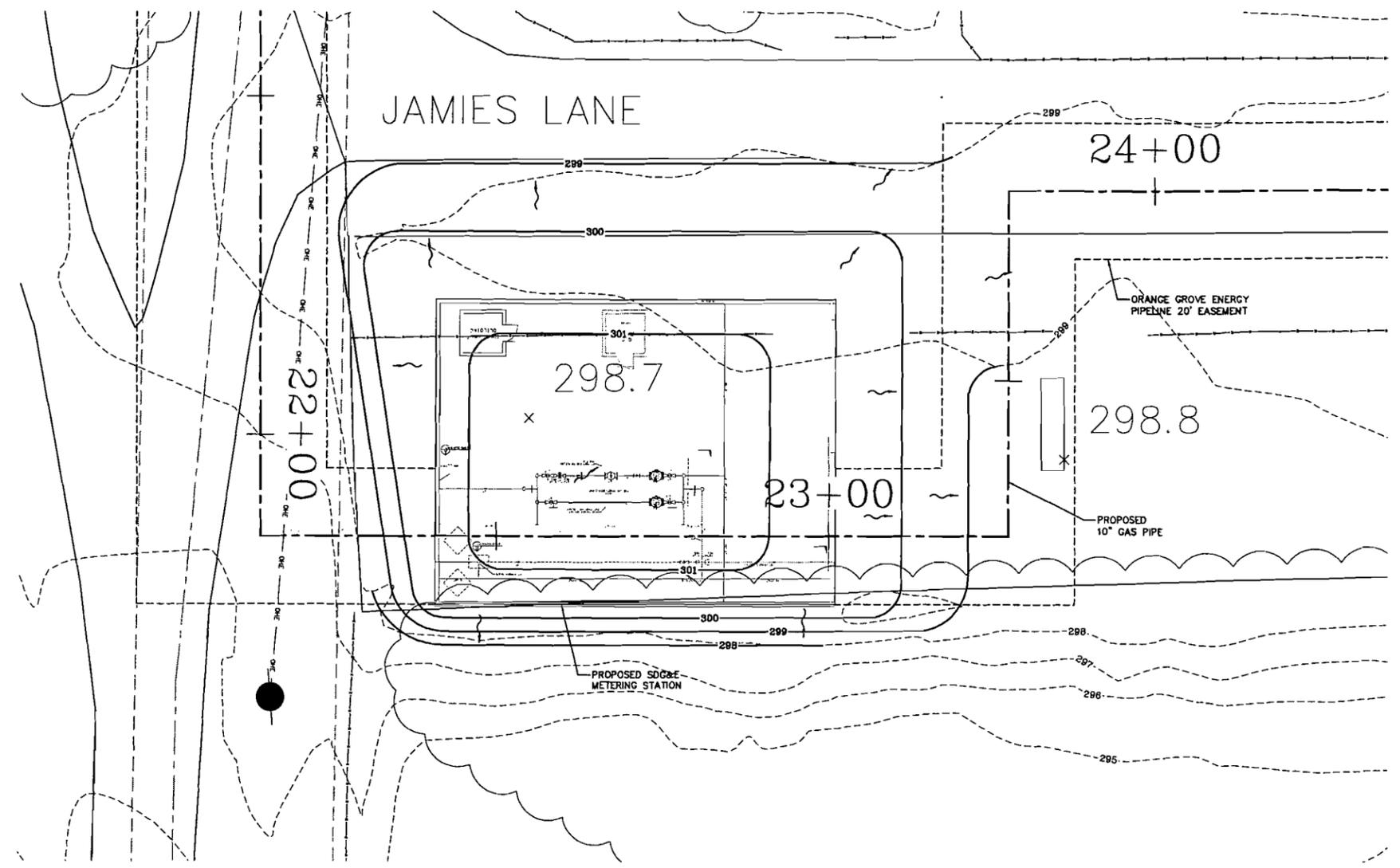
DESIGN BY: J. LANGEL	CHECKED BY: T. HEAUSLER
DRAWN BY: R. DAVILA	DATE: 7/19/08
CLIENT I.D. ICCD0101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-GP-C804.dwg	
DRAWING NO. GP-C804	REV. 1

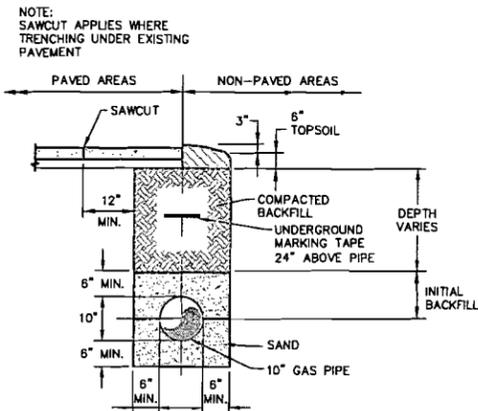
**LEGEND**

- PROPOSED CONTOURS
- DIRECTION OF FLOW
- PROPOSED GAS PIPELINE EASEMENT
- PROPOSED GAS PIPELINE IN PROFILE
- EXISTING GRADE IN PROFILE
- PROPOSED GAS PIPELINE CENTERLINE
- EXISTING CONTOURS
- EXISTING FENCE
- MATCHLINE
- CONSTRUCTION STAGING AREA
- OVERHEAD ELECTRICAL LINE
- EXISTING ROAD CENTERLINE
- EXISTING EASEMENTS
- SAN DIEGO AQUEDUCT CENTERLINE
- EXISTING ROAD
- GAS PIPE IN ENCASEMENT
- EXISTING CONCRETE
- EXISTING ASPHALT
- EXISTING UNSURFACED ROAD
- COMPACTED FILL
- PROPOSED BORE PIT
- PROPOSED BORE RECEIVING PIT
- PROPOSED PIPE ENCASEMENT
- EXISTING TREES
- EXISTING CONCRETE
- GROUND NATURAL VEGETATION
- EXISTING ASPHALT
- STATIONING
- POWER (UTILITY) POLE

**GENERAL NOTES:**

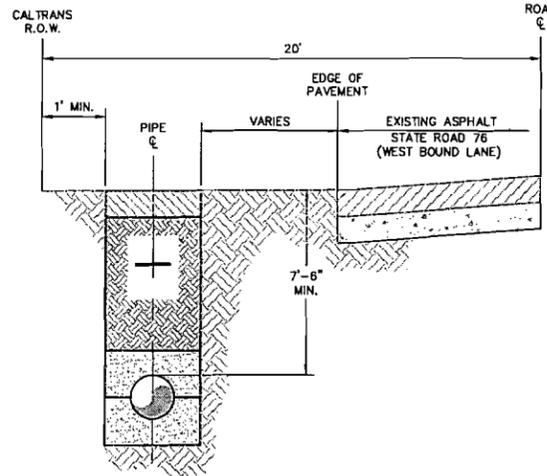
- UTILITY INFORMATION IS FOR REFERENCE ONLY CONTRACTOR(S) TO FIELD VERIFY.
- FOR PIPE SPECIFICATIONS SUCH AS PIPE MATERIAL, SIZE, PRESSURE, ETC. SEE DRAWING GP-1100.
- ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE REPLACED TO EXISTING CONDITION OR APPROVED BY OWNER.





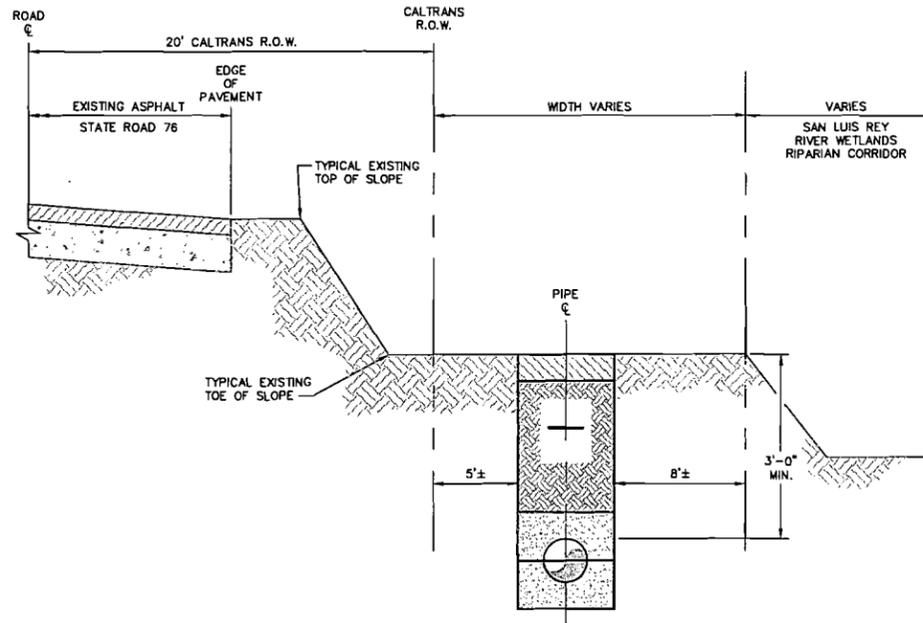
1 TYPICAL TRENCH DETAIL  
NOT TO SCALE

- NOTES:
- FOR PIPE MATERIALS, JOINTS, SPECS, ETC. REFERENCE THE MECHANICAL GENERAL NOTES ON THE GENERAL LAYOUT PLAN DRAWING GP-Y100.
  - ALL GAS PIPELINE CONSTRUCTION PERFORMED SHALL CONFORM TO THE CALIFORNIA D.O.T. 49 CFR 192 AND THE ASME B 31.8 STANDARDS AND SPECIFICATIONS. WHERE DISCREPANCIES EXIST THE CONTRACTOR SHALL ABIDE BY THE MORE RESTRICTIVE REQUIREMENTS.
  - PIPE SHALL BE CONSTRUCTED OF CARBON STEEL WITH CATHODIC PROTECTION.
  - TRENCH EXCAVATION SIDEWALLS SHALL BE VERTICAL FROM 1' ABOVE TOP OF PIPE TO TRENCH BOTTOM. TRENCH SIDEWALLS ABOVE THIS ELEVATION SHALL BE SLOPED AS REQUIRED FOR SOIL STABILITY. CONTRACTOR HAS SOLE RESPONSIBILITY FOR EXCAVATION AND TRENCH SAFETY.



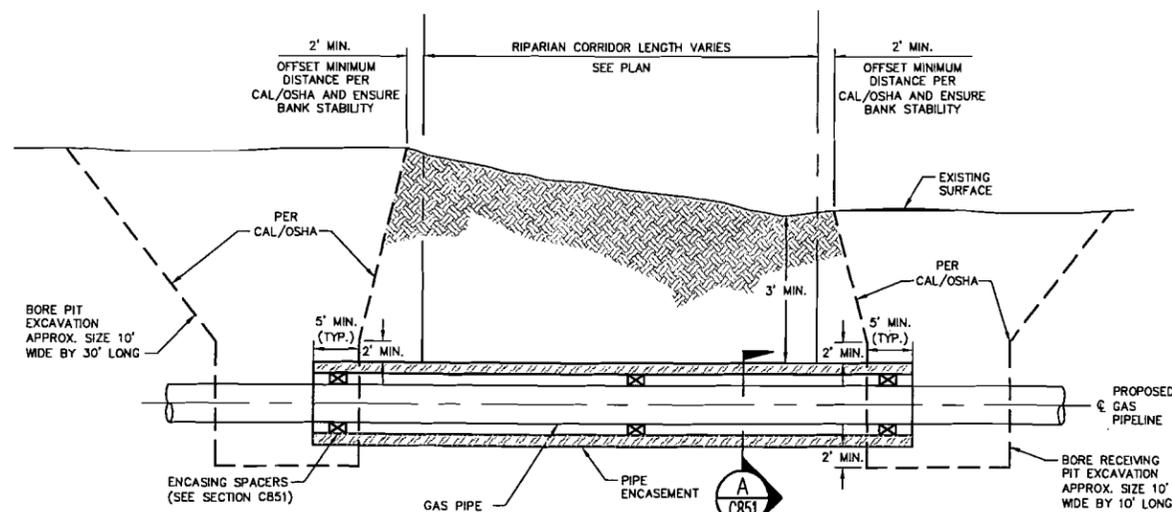
2 OPEN TRENCH SECTION NEAR SR-76 (CALTRANS R.O.W.)  
LOOKING NORTH - EAST  
NOT TO SCALE

- NOTES:
- GAS PIPELINE COVER REQUIREMENTS IN CALTRANS RIGHT OF WAY SHALL BE A MINIMUM OF 7'-6" UNLESS ENCASED THEN A MINIMUM OF 3'-6".
  - THE GAS PIPELINE SHALL MEET ALL CALTRANS & SAN DIEGO COUNTY REQUIREMENTS.

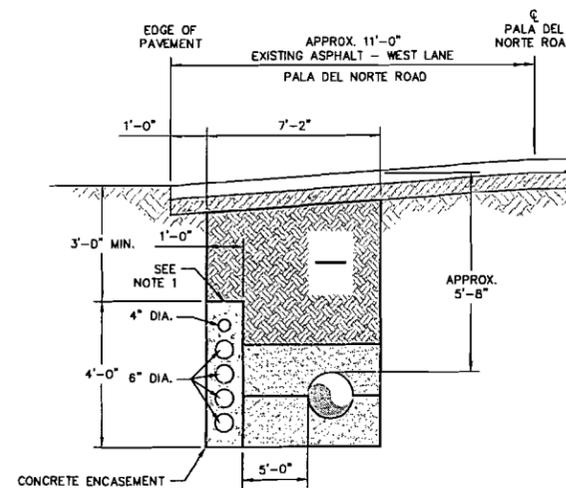


3 OPEN TRENCH THROUGH RIPARIAN CORRIDOR SECTION  
(CONSTRUCTED DURING NON-SENSITIVE SEASON-AFTER AUG. 1)  
NOT TO SCALE

- NOTE:
- GAS PIPELINE CONSTRUCTION DISTURBANCE IN THE RIPARIAN CORRIDOR MUST BE MAINTAINED WITHIN THE EXISTING UNSURFACED ROAD.
  - CONTRACTOR SHALL PROTECT THE EXISTING CONDITIONS FROM DAMAGE DURING EXCAVATION WORK TO PREVENT EROSION, TRENCH CAVE-IN, ETC.



4 BORING/ENCASEMENT THROUGH RIPARIAN CORRIDOR SECTION  
(CONSTRUCTED DURING SENSITIVE SEASON-AFTER JAN. 31)  
NOT TO SCALE



5 OPEN TRENCH THROUGH PALA DEL NORTE ROAD - HORIZONTAL SEPARATION  
WEST LANE  
NOT TO SCALE

- NOTE:
- FOR ELECTRICAL TRANSMISSION LINE DUCT BANK, ADD RED DYE TO TOP OF WET CONCRETE FOR THE ENTIRE LENGTH OF DUCT BANK OR PROCURE RED DYE IN CONCRETE FROM BATCH PLANT.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

PRIVATE CONTRACT

37 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1736/434-1737		
APPROVED FOR RECORDING DIRECTOR OF PUBLIC WORKS	DESIGNER OF WORK THOMAS F. HEAUSER C040363 REG. 3-31-09	L-15454 GRADING PERMIT NO.

PERMITS

REZONE PERMIT NO.	NOT APPLICABLE
SPECIAL USE PERMIT NO.	NOT APPLICABLE
TENTATIVE MAP NO.	NOT APPLICABLE
NOI/WOID NO.	NOT YET ASSIGNED

BENCH MARK

DESCRIPTION:	3 1/2" brass disk
*M.W.D. OF SOUTHERN CA S.D.6-69 1993*	
LOCATION:	S.E. CORNER OF MANHOLE
RECORD FROM:	FIELD BOOK 4047-04-079
ELEVATION:	318.88' DATUM: NAVD88 AND NAD83

COUNTY APPROVED CHANGES

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink



Engineers - Architects - Technicians  
Design - Construction - Field Service

16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

ORANGE GROVE ENERGY L.P.  
Schaumburg, IL

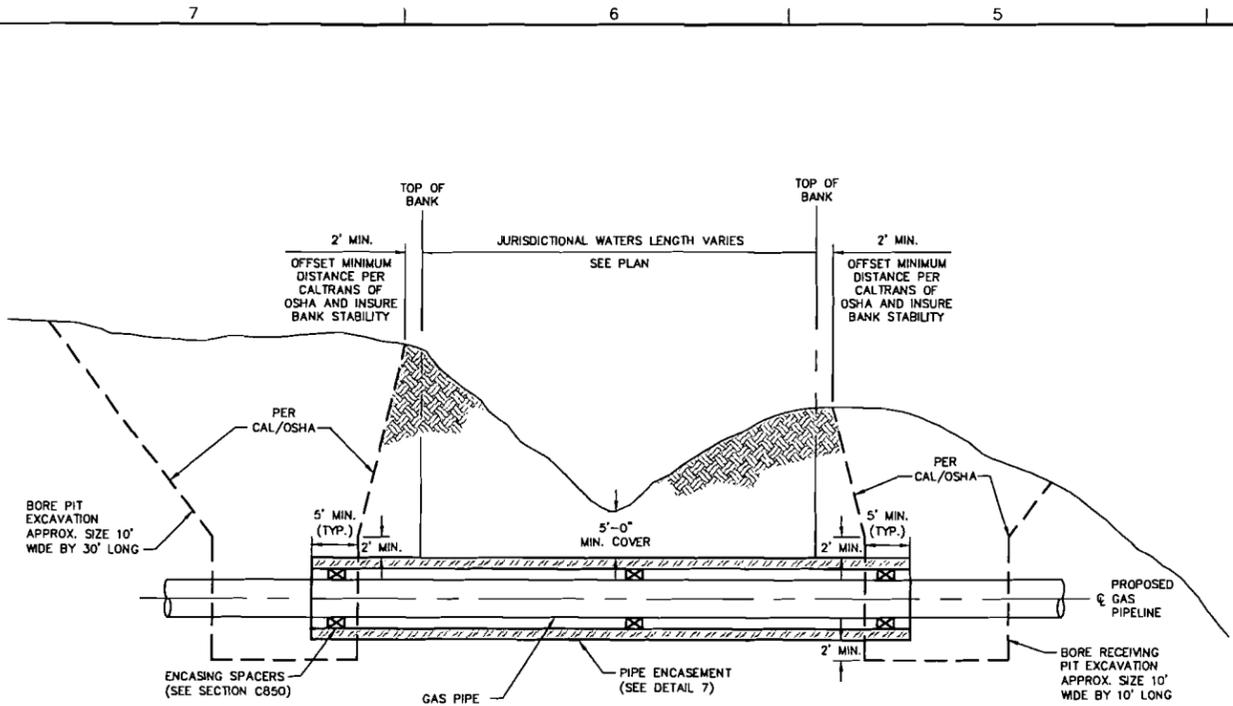
ORANGE GROVE GAS PIPELINE

GAS PIPELINE DETAILS

DESIGN BY:	J. LANGEL	CHECKED BY:	B. ROMINES
DRAWN BY:	R. DAVILA	DATE:	03-28-08
CLIENT I.D.	JPO00101	SEGA PROJECT NO.	07-098

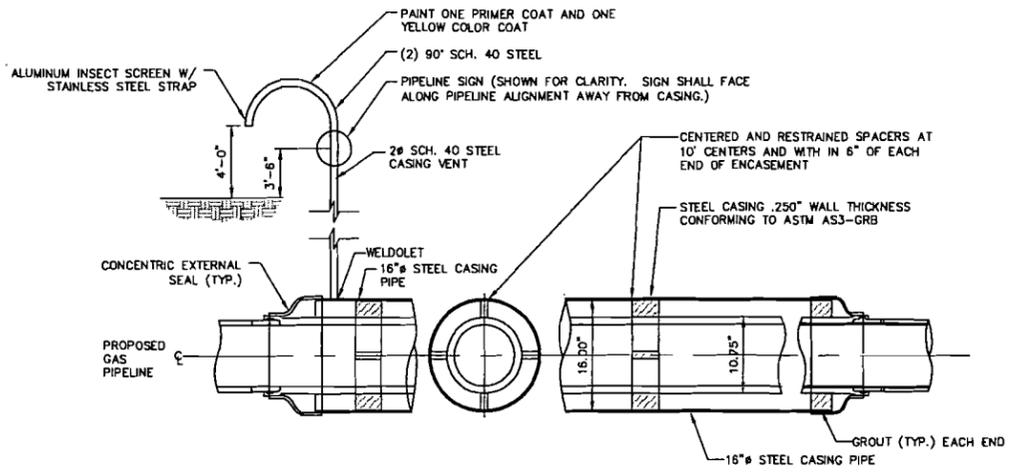
CADD FILE NAME: 07098-GP-C850.dwg

DRAWING NO.	GP-C850	REV.	1
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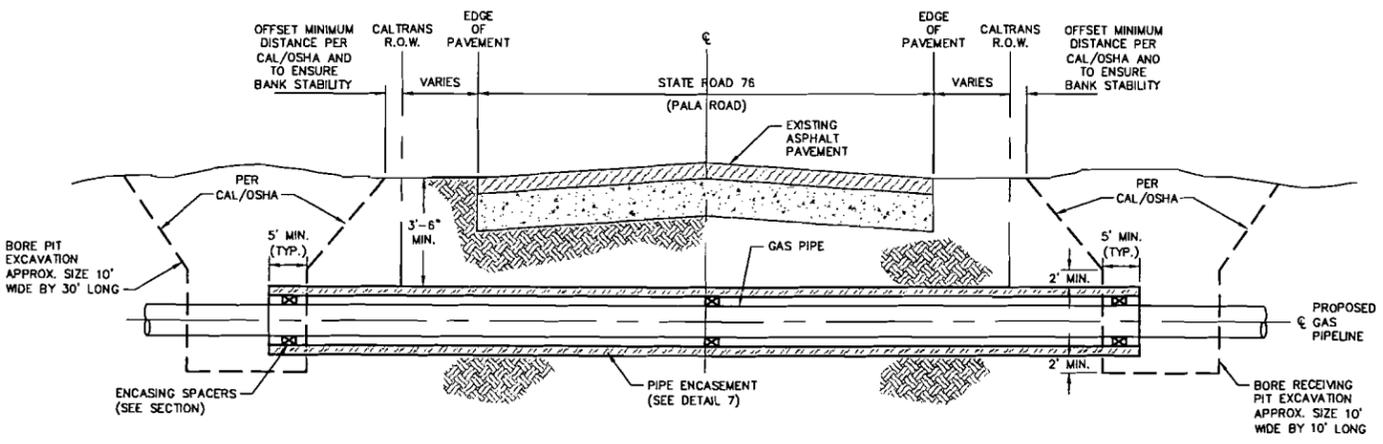


6 TYPICAL JURISDICTIONAL WATER CROSSING: BORING/ENCASEMENT  
NOT TO SCALE

- NOTES:
- JURISDICTIONAL WATERWAYS WIDTH VARIES BASED ON TOP OF BANK LOCATIONS.
  - WIDTH OF DISTURBANCE TO JURISDICTIONAL WATERWAYS SHALL BE MINIMIZED TO THE EXTENT CONSISTENT WITH SAFE AND EFFICIENT CONSTRUCTION.

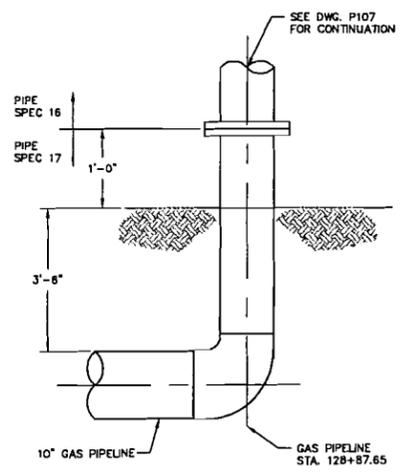


7 STEEL PIPE ENCASEMENT



8 TYPICAL STATE ROAD 76 CROSS SECTION  
NOT TO SCALE

- NOTES:
- GAS PIPELINE SHALL BE AT A MINIMUM DEPTH OF 7'-6" IN CALTRANS R.O.W. UNLESS ENCASED THEN 3'-6" MINIMUM.
  - SIGNAGE SHALL BE LOCATED AT RIGHT-OF-WAY LINE, VISIBLE FROM THE ROAD WAY IN EACH DIRECTION OF TRAVEL.



9 PIPE STUB-UP  
NOT TO SCALE

REV.	DATE	DESCRIPTION	DWN	CHK
0	9-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

38 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
----------	--	----------

GRADING PLAN FOR:  
THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
CALIFORNIA COORDINATE INDEX 434-1736/434-1737

APPROVED FOR MICHIGAN FAVORABLE: [Signature]  
DIRECTOR OF PUBLIC WORKS

ENGINEER OF WORK: THOMAS F. HEASLER  
CSD40363 REG. 3-31-08

L-15454  
GRADING PERMIT NO.

**PERMITS**

REZONE PERMIT NO.	NOT APPLICABLE
SPECIAL USE PERMIT NO.	NOT APPLICABLE
TENTATIVE MAP NO.	NOT APPLICABLE
NOI/WOIID NO.	NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION: 3 1/2" brass disk  
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"  
LOCATION: S.E. CORNER OF MANHOLE  
RECORD FROM: FIELD BOOK 4047-04-079  
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED By:	DATE:

Sealed Only When Signed in Blue Ink

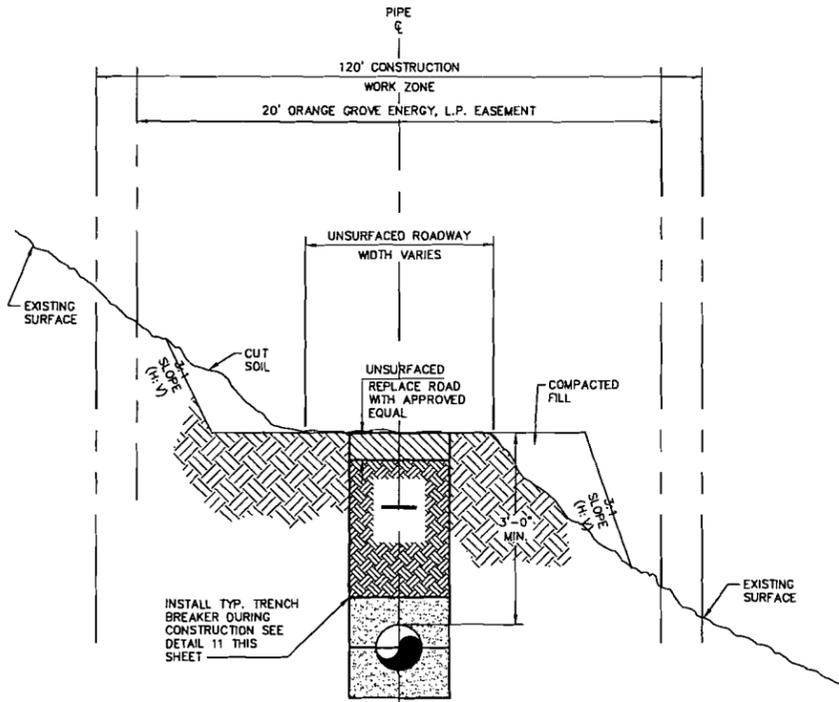
**Sega**®  
Engineers - Architects - Technicians  
Design - Construction - Field Service  
16041 Foster  
P.O. Box 1000  
Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

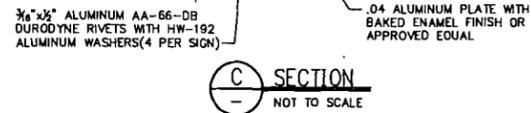
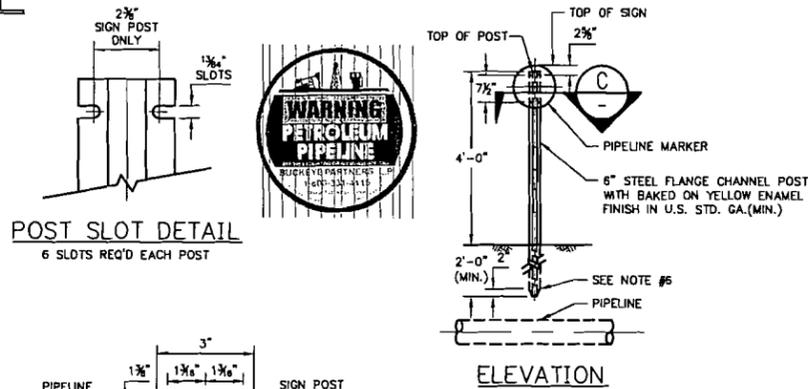
**ORANGE GROVE GAS PIPELINE**  
GAS PIPELINE DETAILS

DESIGN BY: J. LANGEL	CHECKED BY: B. ROMINES
DRAWN BY: R. DAVILA	DATE: 03-28-08
CLIENT I.D. JP000101	SEGA PROJECT NO. 07-098

CADD FILE NAME: 07098-GP-C851.dwg  
DRAWING NO. GP-C851  
REV. 1



10 OPEN TRENCH THROUGH MOUNTAINOUS TERRAIN  
NOT TO SCALE



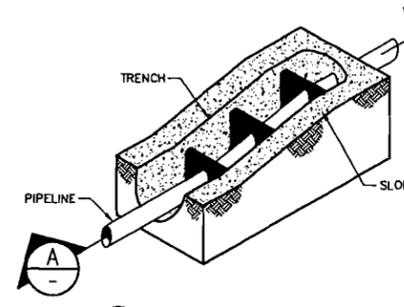
NOTES:

- SIGN SHALL BE STEEL.
- SIGN TO BE INSTALLED TO FACE ALONG PIPELINE ALIGNMENT IN CALTRANS R.O.W.
- REPLACE "PETROLEUM" WITH "GAS".
- REPLACE "BUCKEYE PARTNERS LP" WITH "SAN DIEGO GAS & ELECTRIC".
- REPLACE "1-800-331-4115" WITH "1-800-661-7343" (SDG&E).
- REPLACE www.buckeye.com WITH www.sdge.com/safety.
- PROVIDE & INSTALL PIPELINE SIGNS ALONG THE PIPELINE AT LOCATIONS DETERMINED BY CALTRANS.

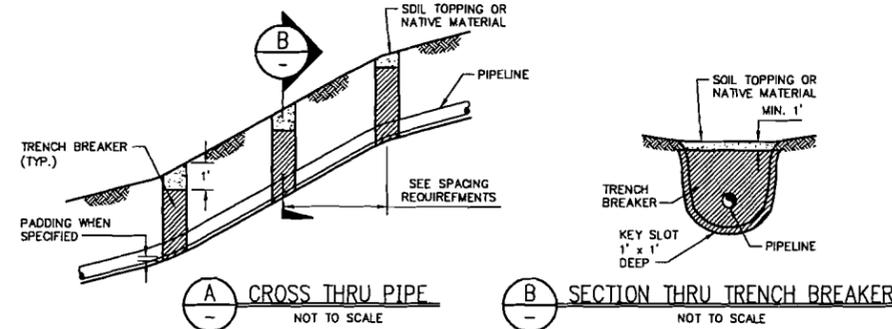
FABRICATION NOTES:

- POSTS TO BE FURNISHED WITH FOUR(4) SLOTTED HOLES AS INDICATED FOR ATTACHING PIPELINE MARKER.
- PIPELINE MARKERS TO SUPPLIED WITH OR WITHOUT BLACK ARROW, FIGURES AND NUMBERS ON A YELLOW BACKGROUND.
- PIPELINE MARKERS AND POSTS TO BE FURNISHED UNASSEMBLED. CONTRACTOR SHALL PROVIDE POP RIVETS AND GUN TO INSTALL SIGNS ON POSTS.
- SIGN TO BE FURNISHED WITH FOUR HOLES AS INDICATED.
- ARROW TO BE OMITTED ON SIGNS THAT ARE INSTALLED AT P.I.'s
- POSTS SHALL BE TAPPED ON ONE END TO FACILITATE DRIVING.

12 PIPELINE SIGN DETAIL  
NOT TO SCALE



11 TYPICAL TRENCH BREAKER  
NOT TO SCALE



SPACING REQUIREMENTS:

- 5 TO 15% SLOPES, MINIMUM 300'
- TO 30% SLOPES, MINIMUM 200'
- >30% SLOPES, MINIMUM 100'

NOTES:

- INSTALL TRENCH BREAKERS AT LOCATIONS ALONG THE TRENCH WHERE THE PROFILE IS 5% SLOPE OR GREATER. INSTALL BREAKERS ALSO AT THE BASE OF SLOPES ADJACENT TO WATERBODIES AND WETLANDS AND WHERE NEEDED TO AVOID DRAINING OF A WETLAND.
- TRENCH BREAKERS TO BE CONSTRUCTED OF SAND BAGS (MIXTURES OF SAND AND CEMENT, 6:1).
- KEY TRENCH BREAKER A MINIMUM OF 1 FT. INTO SIDES OF PIPELINE TRENCH.
- BACKFILL THE TRENCH ON THE DOWNSLOPE SIDE OF BREAKER BEFORE UPSLOPE SIDE.
- FINAL LOCATIONS AND DESIGN OF TRENCH BREAKERS WILL BE DETERMINED BY THE PROJECT ENGINEER BASED ON SITE-SPECIFIC CONDITIONS AT THE TIME OF CONSTRUCTION.

REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

PRIVATE CONTRACT

39 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1738/434-1737		
APPROVED FOR GRADING PERMITTING DIRECTOR OF PUBLIC WORKS		ENGINEER OF WORK THOMAS F. HEAUSLER (C44333) S.D.G.E. 3-31-09
L-15454 GRADING PERMIT NO.		

PERMITS

REZONE PERMIT NO. NOT APPLICABLE  
SPECIAL USE PERMIT NO. NOT APPLICABLE  
TENTATIVE MAP NO. NOT APPLICABLE  
NOI/WOID NO. NOT YET ASSIGNED

BENCH MARK

DESCRIPTION: 3 1/2" brass disk  
"M.W.D. OF SOUTHERN CA S.D.G. 6-69 1993"  
LOCATION: S.E. CORNER OF MANHOLE  
RECORD FROM: FIELD BOOK 4047-04-079  
ELEVATION: 318.88' DATUM: NAVD88 AND NAD83

COUNTY APPROVED CHANGES

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink



Engineers - Architects - Technicians  
Design - Construction - Field Service

16041 Foster  
P.O. Box 1000  
Stillwell, Kansas 66085-1000

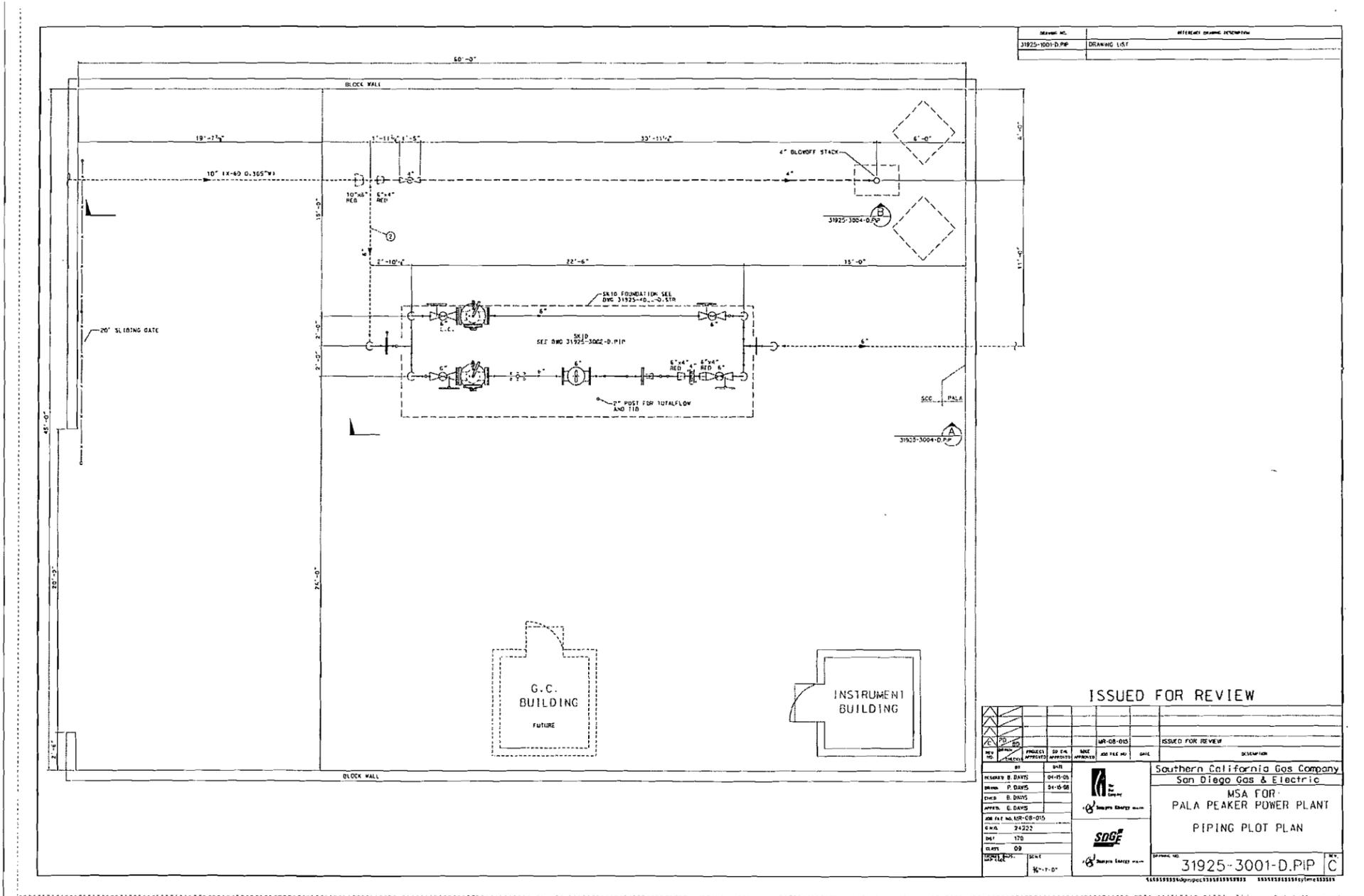
ORANGE GROVE ENERGY L.P.  
Schaumburg, IL

ORANGE GROVE PROJECT

GAS PIPELINE DETAILS

DESIGN BY: J. LANGEL	CHECKED BY: T. HEAUSLER
DRAWN BY: R. DAVILA	DATE: 07-24-08
CLIENT I.D. JP000101	SEGA PROJECT NO. 07-201
CADD FILE NAME: 07201-GP-C852.dwg	

DRAWING NO. GP-C852	REV. 1
------------------------	-----------



DRAWING NO.	ATTACHED DRAWING IDENTIFICATION
31925-3001-D.PIP	DRAWING LIST

**ISSUED FOR REVIEW**

REV.	DATE	DESCRIPTION

DESIGNED BY: J. LANGEL	DATE: 08-21-08
DRAWN BY: B. GASPERS	DATE: 08-21-08
CHECKED BY: E. DAVIS	DATE: 08-21-08
APPROVED BY: E. DAVIS	DATE: 08-21-08

Southern California Gas Company  
 San Diego Gas & Electric  
 MSA FOR  
 PALA PEAKER POWER PLANT  
 PIPING PLOT PLAN  
 31925-3001-D.PIP



REV.	DATE	DESCRIPTION	DWN	CHK
0	8-5-08	ISSUED FOR GRADING PERMIT	RAD	WHR
1	8-25-08	RE-ISSUED FOR GRADING PERMIT	BGG	WHR

**PRIVATE CONTRACT**

40 SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	45 SHEET	
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY. CALIFORNIA COORDINATE INDEX 434-1736/434-1737			
APPROVED FOR: EDUARDO FERRERIZZONE DIRECTOR OF PUBLIC WORKS	ENGINEER OF WORK: THOMAS F. HEASLER REG. 3-31-08	L-15454 GRADING PERMIT NO.	

**PERMITS**

REZONE PERMIT NO.	NOT APPLICABLE
SPECIAL USE PERMIT NO.	NOT APPLICABLE
TENTATIVE MAP NO.	NOT APPLICABLE
NOI/WOIID NO.	NOT YET ASSIGNED

**BENCH MARK**

DESCRIPTION:	3 1/2" brass disk
"M.W.D. OF SOUTHERN CA S.D.6-69 1993"	
LOCATION:	S.E. CORNER OF MANHOLE
RECORD FROM:	FIELD BOOK 4047-04-079
ELEVATION:	318.88' DATUM: NAVD88 AND NAD83

**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

Sealed Only When Signed in Blue Ink



Engineers - Architects - Technicians  
 Design - Construction - Field Service  
 16041 Foster  
 P.O. Box 1000  
 Stilwell, Kansas 66085-1000

**ORANGE GROVE ENERGY L.P.**  
Schaumburg, IL

**ORANGE GROVE POWER PLANT**

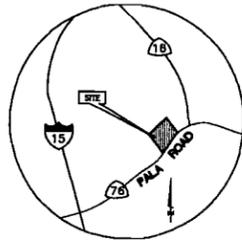
MSA PIPING PLOT PLAN

DESIGN BY:	J. LANGEL	CHECKED BY:	B. ROMINES
DRAWN BY:	B. GASPERS	DATE:	8-21-08
CLIENT I.D.	ICC00101	SEGA PROJECT NO.	07-201

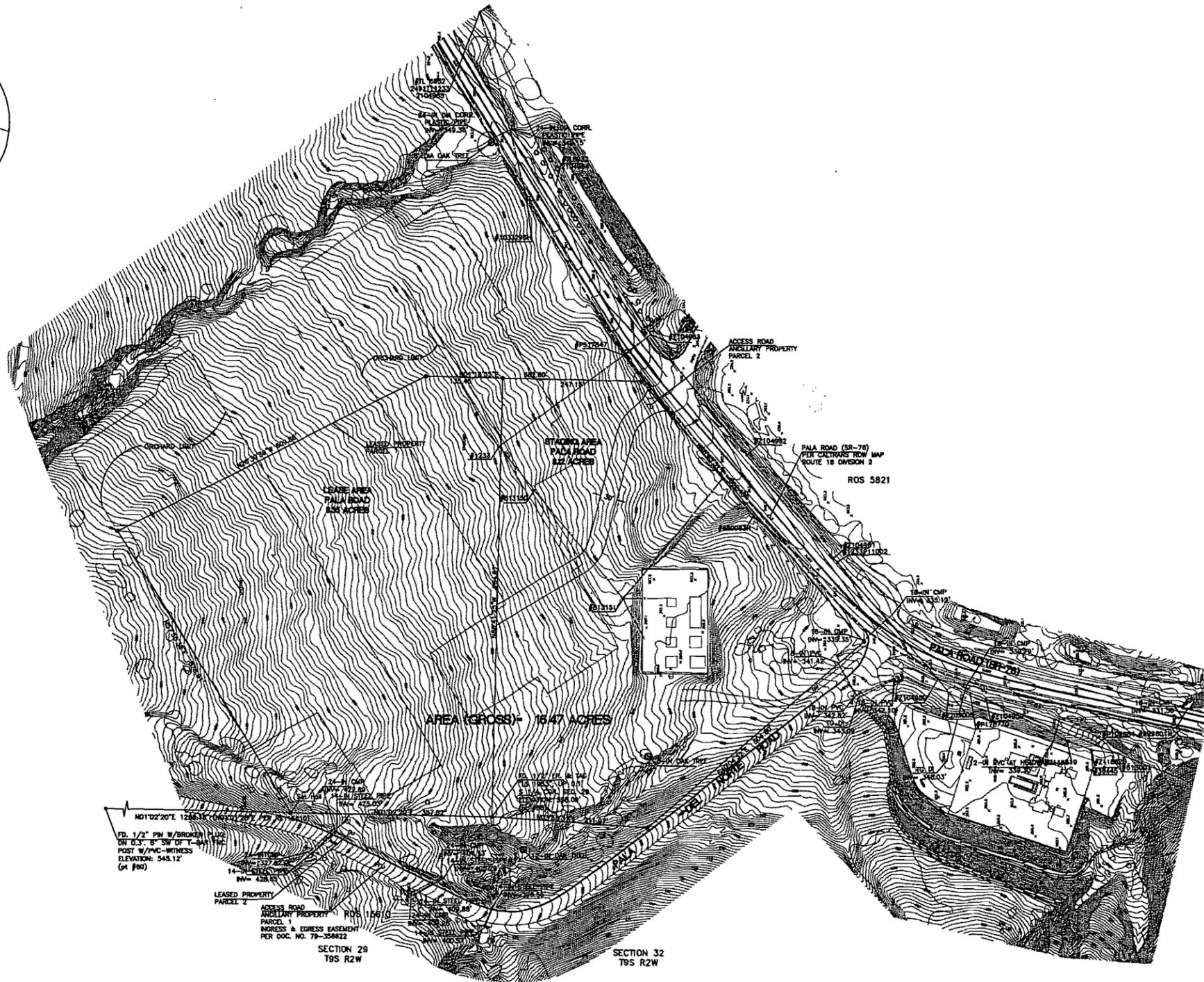
CADD FILE NAME: 31925-3001-D.PIP.dwg

DRAWING NO.	REV.
31925-3001-D.PIP	1

SEGA, INC. PHONE NUMBER: (913) 681-2881



VICINITY MAP  
NOT TO SCALE



**BASIS OF BEARINGS:**  
The basis of bearings for this survey is based on the California High Precision Geodetic Network (HPGN, GRS 80 Ellipsoid, CCS83, Epoch 1991.35) constraining stations Yung, SDGPS02 and SDGPS03 per San Diego County High Precision Geodetic Network as shown on RS 94-88.

**FLOOD ZONE:**  
The site is located in Flood Zone "X", not in a 100yr flood zone as shown of FEMA panel ID 06073C0501F effective since June 19, 1997

**AGRICULTURAL ZONE:**  
Portions of the project site fall within agricultural preserve area, A-4(B), per the Williamson Act, as adopted by the Board of Supervisors of the County of San Diego on December 31, 1971.

**NOTE:**  
The centerline of Palo Verde Road (SR-76) is based on existing pavement.  
The northwesterly limit of Palo Verde Road is set at 20-foot offset from said centerline, as shown on Caltrans Right-of-Way Map Route 18, Division 2

**LEGEND:**

- Found monument as noted
- Set 1" Iron Pipe with "Psomas" plug unless noted otherwise
- E— Electric line
- T— Telephone (communications) line

NO10220'E 1286.11' (100.00 FT) (100.00 FT)  
FD. 1/2" PIN W/BROOKS DISK  
ON U.S. B. SW OF T-444 TIC  
POST W/PVC-WITNESS  
ELEVATION: 548.12  
(at 100)

LEASED PROPERTY  
PARCEL 2  
ACCESS ROAD  
AUXILIARY PROPERTY  
PARCEL 1  
INGRESS & EGRESS EASEMENT  
PER DOC. NO. 79-35882

SECTION 29  
T9S R2W

SECTION 32  
T9S R2W

This survey has been prepared by me or under my direct supervision

*Kari J. Laanen*  
Kari J. Laanen, PLS 5679  
NOV. 5, 2007  
Date

COUNTY APPROVED CHANGES			
NO.	DESCRIPTION	APPROVED BY:	DATE:

PERMITS		PRIVATE CONTRACT	
REZONE PERMIT NO. NOT APPLICABLE	COUNTY OF SAN DIEGO	SHEET 41	SHEETS 45
SPECIAL USE PERMIT NO. NOT APPLICABLE	DEPARTMENT OF PUBLIC WORKS		
TENTATIVE MAP NO. NOT APPLICABLE	GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.		
NOI/NEID NO. NOT YET ASSIGNED	CALIFORNIA COORDINATE INDEX 434-1738/434-1747		
<b>BENCH MARK</b>			
DESCRIPTION: 3 1/2" BRASS DISK			
"M.W.D. OF SOUTHERN CA S.D.R.-89 1893"			
LOCATION: S.E. CORNER OF MANHOLE			
RECORD FROM: FIELD BOOK 4047-04-079			
ELEVATION: 318.88' DATUM: NAVD83 AND MADD3			

DESIGNED	DRAFTED	CHECKED	REV	DATE	DESCRIPTION	BY	APP'D
JSP	NPG	K.J.L.					

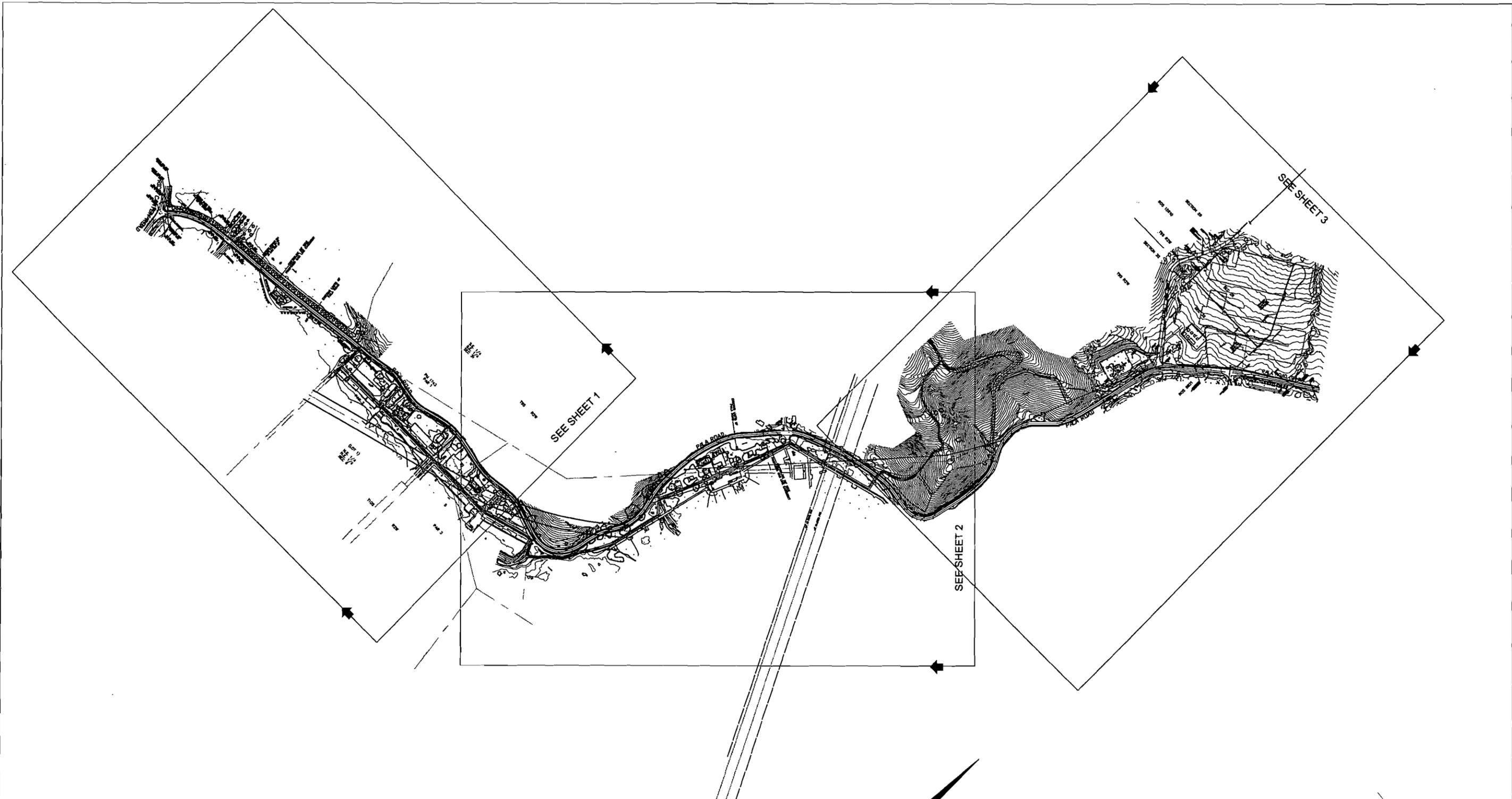
BENCHMARK:  
SD689  
Found 3-1/2" Brass disk, flush on the southeasterly corner of conc. manhole up 2.5' from natural ground, stamped "M.W.D. of Southern CA S.D.R.-89 1993" per MWD fieldbook 4047-04-079  
ELEVATION: 318.88' ADJUSTMENT: NAVD83

**PSOMAS**  
3187 Red Hill Avenue #250  
Costa Mesa, California 92626  
(714) 731-7373 www.psomas.com

SURVEY EXHIBIT FOR:	<b>PALA ROAD</b>	DATE: OCT. 3, 2007	SHEET 41
COUNTY OF SAN DIEGO	STATE OF CALIFORNIA	SCALE: N.T.S.	PROJECT NUMBER: 2SEGO30100 OF 45

DWG Name: N:\2007\07201\07201\Grading\Permit\Reference Drawings\40-45\Copy of Srv for Permitting.dwg Plotted by: bgmper on Aug 22, 2008 - 8:41:09

PSOMAS, INC. PHONE NUMBER: (913) 881-2881



COUNTY APPROVED CHANGES			
NO.	DESCRIPTION:	APPROVED BY:	DATE:

**PERMITS**  
 REZONE PERMIT NO. NOT APPLICABLE  
 SPECIAL USE PERMIT NO. NOT APPLICABLE  
 TENTATIVE MAP NO. NOT APPLICABLE  
 NOI/WOID NO. NOT YET ASSIGNED

**BENCH MARK**  
 DESCRIPTION: 3 1/2" IRON DISK  
 "M.W.D. OF SOUTHERN CA S.D.8-62 1993"  
 LOCATION: S.E. CORNER OF MANHOLE  
 RECORD FROM: FIELD BOOK 4047-04-079  
 ELEVATION: 318.88' DATUM: NNVD83 AND NAD83

**PRIVATE CONTRACT**

SHEET 42	COUNTY OF SAN DIEGO	SHEETS 45
DEPARTMENT OF PUBLIC WORKS		

GRADING PLAN FOR:  
 THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE  
 POWER PLANT, AN ELECTRIC GENERATOR FACILITY, ALSO,  
 THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO  
 PROVIDE THE PLANT WITH FUEL ENERGY.

CALIFORNIA COORDINATE INDEX 434-1738/434-1737

APPROVED FOR WORKING PROFESSIONAL ENGINEER  
 THOMAS F. HEWLETT  
 DIRECTOR OF PUBLIC WORKS  
 LICENSE NO. 3-31-09

L-15454  
 EXPIRES PERMIT NO.

DESIGNED	GTJ						
DRAFTED	GTJ						
CHECKED	KJL						
REV	DATE					BY	APP'D

PREPARED BY:  
**PSOMAS**  
 3187 Red Hill Avenue, #250  
 Costa Mesa, California 92626  
 714/751-7373  
 FAX 714/543-8883

SURVEY EXHIBIT FOR:  
**PROPOSED GAS LINE ALIGNMENT  
 ALONG PALA ROAD (SR-76)**  
 COUNTY OF SAN DIEGO

DATE OF SURVEY:  
 04/10/2008

SCALE:  
 N.T.S.

PROJECT NUMBER  
 2SEGO30100

SHEET  
 42  
 OF  
 45

STATE OF CALIFORNIA

PSOMA, INC.  
 PHONE NUMBER: (714) 681-2881

**EASEMENTS:**

TITLE REPORT ORDER 060001584-P01  
 CHICAGO TITLE - MARCH 17, 2008  
 9525 PALA ROAD  
 GREGORY CANYON, LTD., LIMITED LIABILITY COMPANY, A CALIFORNIA LIMITED LIABILITY COMPANY

PARCEL 2 ON PARCEL MAP NO. 1743, IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, JULY 19, 1973.

- ① WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT SHOWN BY THE PUBLIC RECORDS
- ② EASEMENT IN FAVOR OF SOUTH COAST LAND COMPANY FOR LAYING AND MAINTAINING PIPES, PIPELINE AND AQUEDUCTS PER DOC. REC. FEBRUARY 13, 1913 IN BOOK 597, PAGE 210 OF DEEDS. THE EXACT LOCATION AND EXTENT OF SAID EASEMENT IS NOT DISCLOSED OF RECORD.
- ③ EASEMENT IN FAVOR OF SAN DIEGO GAS & ELECTRIC COMPANY FOR PUBLIC UTILITIES, INGRESS AND EGRESS (A LINE OF PIPES, NO WIDTH OF EASEMENT) PER DOC. REC. MAY 11, 1938 IN BOOK 783, PAGE 140 O.R.
- ④ EASEMENT IN FAVOR OF THE STATE OF CALIFORNIA FOR PUBLIC ROAD PER DOC. REC. APRIL 17, 1941 IN BOOK 1189, PAGE 202 O.R. (D 185 B (PALA ROAD) AND COUNTY HIGHWAY COMMISSION ROUTE 18, DIVISION 2) - INSTRUMENT CONTAINS PRIVILEGE AND RIGHT TO EXTEND DRAINAGE STRUCTURES AND SLOPES BEYOND LIMITS OF R/W
- ⑤ 12' WIDE EASEMENT IN FAVOR OF SAN DIEGO GAS & ELECTRIC COMPANY FOR PUBLIC UTILITIES, INGRESS AND EGRESS PER DOC. REC. NOVEMBER 25, 1958 IN BOOK 7367, PAGE 249 O.R.
- ⑥ 12' WIDE EASEMENT IN FAVOR OF SAN DIEGO GAS & ELECTRIC COMPANY FOR PUBLIC UTILITIES, INGRESS AND EGRESS PER DOC. REC. OCTOBER 14, 1964 AS FILE NO. 187842 O.R.
- ⑦ 12' WIDE EASEMENT IN FAVOR OF SAN DIEGO GAS & ELECTRIC COMPANY FOR PUBLIC UTILITIES, INGRESS AND EGRESS PER DOC. REC. JULY 11, 1968 AS FILE NO. 112564 O.R.
- ⑧ 12' WIDE AND 4' WIDE EASEMENTS IN FAVOR OF SAN DIEGO GAS & ELECTRIC COMPANY FOR PUBLIC UTILITIES, INGRESS AND EGRESS PER DOC. REC. SEPTEMBER 1, 1968 AS FILE NO. 143229 O.R.
- ⑨ 12' WIDE AND 4' WIDE EASEMENTS IN FAVOR OF SAN DIEGO GAS & ELECTRIC COMPANY FOR PUBLIC UTILITIES, INGRESS AND EGRESS PER DOC. REC. SEPTEMBER 29, 1968 AS FILE NO. 157935 O.R.
- ⑩ 12' WIDE AND 4' WIDE EASEMENTS IN FAVOR OF SAN DIEGO GAS & ELECTRIC COMPANY FOR PUBLIC UTILITIES, INGRESS AND EGRESS PER DOC. REC. NOVEMBER 17, 1969 AS FILE NO. 210600 O.R.
- ⑪ 60' WIDE IRREVOCABLE OFFER TO DEDICATE FOR PUBLIC HIGHWAY PER DOC. REC. APRIL 18, 1973 AS FILE NO. 73-10327 O.R. - EXCEPTING THEREFROM A STRIP 40' IN WIDTH, THE CENTERLINE OF WHICH IS THE CENTERLINE OF THE DESCRIBED 60' WIDE STRIP
- ⑫ 30' WIDE PRIVATE EASEMENT FOR ROAD, SEWER, WATER, GAS, POWER AND TELEPHONE LINES, TELEVISION CABLES, AND APPURTENANCES THERETO PER DOC. REC. OCTOBER 1, 1973 AS FILE NO. 73-276598 O.R.
- ⑬ 30' WIDE PRIVATE EASEMENT FOR ROAD, SEWER, WATER, GAS, POWER AND TELEPHONE LINES, TELEVISION CABLES, AND APPURTENANCES THERETO AS GRANTED/RESERVED BY VARIOUS INSTRUMENTS OF RECORD, ONE OF WHICH REC. OCTOBER 1, 1973 AS FILE NO. 73-276600 O.R.
- ⑭ 12' WIDE AND 4' WIDE EASEMENTS IN FAVOR OF SAN DIEGO GAS & ELECTRIC COMPANY FOR PUBLIC UTILITIES, INGRESS AND EGRESS PER DOC. REC. MAY 29, 1979 AS FILE NO. 79-218703 O.R.

- ⑮ 20' WIDE AND 15' WIDE PRIVATE EASEMENT FOR ROAD, SEWER, WATER, GAS, POWER AND TELEPHONE LINES, TELEVISION CABLES, AND APPURTENANCES THERETO PER DOC. REC. OCTOBER 8, 1980 AS FILE NO. 80-328352 O.R.
- ⑯ 50' WIDE AND 15' WIDE PRIVATE EASEMENT FOR ROAD, SEWER, WATER, GAS, POWER AND TELEPHONE LINES, TELEVISION CABLES, AND APPURTENANCES THERETO PER DOC. REC. OCTOBER 8, 1980 AS FILE NO. 80-328353 O.R.
- ⑰ 30' WIDE PRIVATE EASEMENT FOR INGRESS AND EGRESS FOR ROAD PER DOC. REC. OCTOBER 23, 1981 AS FILE NO. 81-335685 O.R.
- ⑱ 30' WIDE PROPOSED PRIVATE ROAD AS SHOWN ON PARCEL MAP NO. 1743
- ⑲ 30' WIDE PRIVATE EASEMENT FOR ROAD, SEWER, WATER, GAS, POWER AND TELEPHONE LINES, TELEVISION CABLES, AND APPURTENANCES THERETO PER DOC. REC. DECEMBER 23, 1986 AS FILE NO. 86-803928 O.R.
- ⑳ AGREEMENT BETWEEN SAN LUIS REY MUNICIPAL WATER DISTRICT, SIGNING DISTRICT MEMBERS, CURRENT OWNER, AND DEVELOPMENT COMPANY REC. MAY 8, 1996 AS DOC. NO. 96-254450 O.R.

**LEGEND**

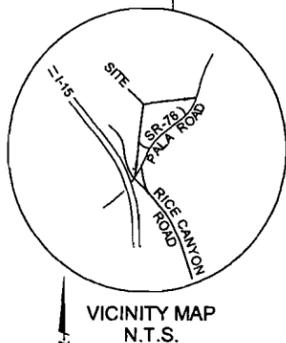
**BASIS OF BEARINGS:**  
 THE BASIS OF BEARINGS FOR THIS SURVEY ARE BASED ON NAD83, CALIFORNIA ZONE 8, GRID, CONSTRAINING STATIONS "306-89", "4047A", AND "4047B" AS SHOWN ON MWD SAN DIEGO PIPELINE NO. 8 TOPOGRAPHICAL SURVEY OF SOUTH PORTAL ON NORTH SAN DIEGO COUNTY DEV. CORP. PARCEL DRAWING NO. 982817, SHEETS 1 AND 2, BY HUNSAKER AND ASSOCIATES UNDER WORK ORDER NO. 4-7522 DATED AUGUST 21, 1995.

**FLOOD ZONE:**  
 THE SITE IS LOCATED IN FLOOD ZONE "X"; NOT IN THE 100-YEAR FLOOD ZONE AS SHOWN ON FEMA PANEL NO. 0807300501F EFFECTIVE JUNE 19, 1997.

**AGRICULTURAL ZONE:**  
 PORTIONS OF THE PROJECT SITE FALL WITHIN AGRICULTURAL PRESERVE AREA "A-4(B)", PER THE WILLIAMSON ACT, AS ADOPTED BY THE BOARD OF SUPERVISORS OF THE COUNTY OF SAN DIEGO ON DECEMBER 31, 1971.

**NOTE:**  
 THE CENTERLINE OF PALA ROAD (SR-76) IS BASED ON EXISTING PAVEMENT LOCATION. THE LIMITS OF PALA ROAD (SR-76), AS SHOWN HEREON, WERE ESTABLISHED AT A 20-FOOT PARALLEL OFFSET FROM SAID CENTERLINE EXCEPT FOR THOSE LIMITS SHOWN ON PARCEL MAP NO. 1743.

- INDICATES FOUND MONUMENT AS NOTED.
- INDICATES RECORD EASEMENT LINE AS NOTED.
- INDICATES PROPOSED GAS LINE ALIGNMENT RECEIVED FROM SEGA INC. - (NOTE: PROPOSED ALIGNMENT AS SHOWN HAS BEEN SLIGHTLY MODIFIED FOR PURPOSES OF GEOMETRIC MATHEMATICAL CONSISTENCY).
- INDICATES CENTERLINE OF PALA ROAD (SR-76) PER AERIAL SURVEY.



DESIGNED	GTJ	REV	DATE
DRAFTED	GTJ		
CHECKED	KJL		

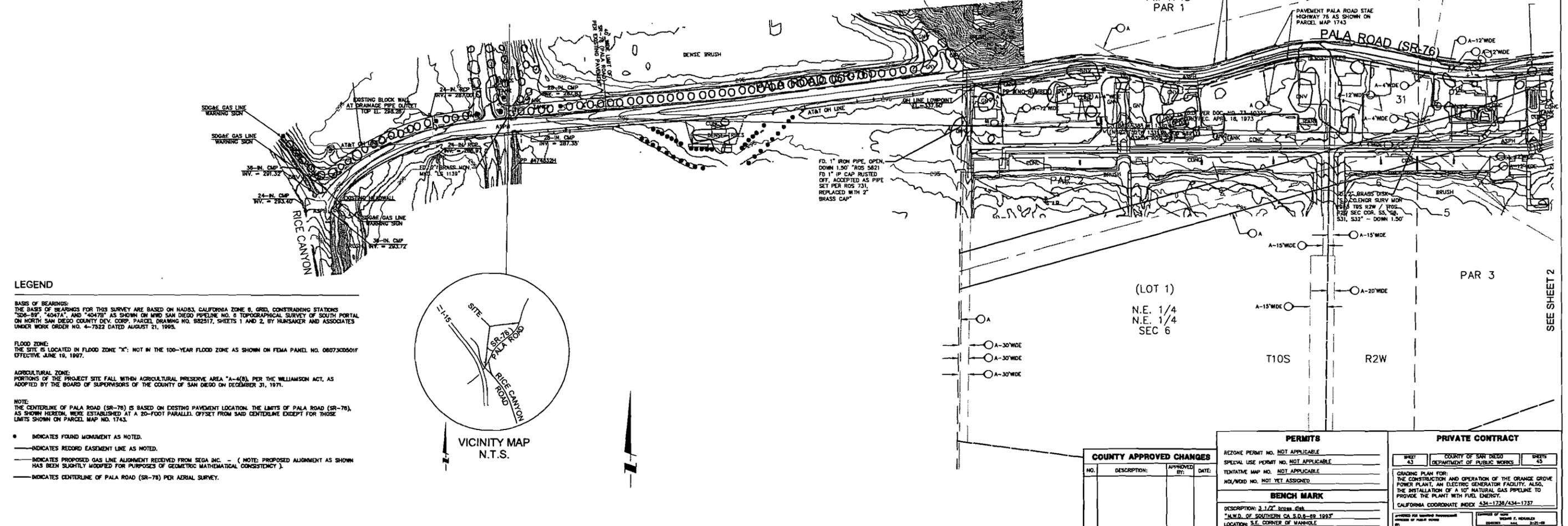
**BENCHMARK:**  
 THE BENCHMARK USED FOR THIS SURVEY IS MWD STATION "306-89", A 3" BRASS DISK, LOCATED FLUSH ON THE SOUTHEASTERLY CORNER OF A CONCRETE MANHOLE UP 2.0' FROM NATURAL GROUND, STAMPED "N.W.D. OF SOUTHERN CA. S.D. 8-89 1983" PER MWD FIELDBOOK 4047-04-079 HAVING AN NAVD83 ELEVATION OF 318.88'.

**PREPARED BY:**  
**PSOMAS**  
 3187 Red Oak Avenue, #250  
 Costa Mesa, California 92626  
 714/751-7373  
 FAX 714/545-8883

**SURVEY EXHIBIT FOR:**  
 COUNTY OF SAN DIEGO

**PROPOSED GAS LINE ALIGNMENT ALONG PALA ROAD (SR-76)**  
 STATE OF CALIFORNIA

**DATE OF SURVEY:** 04/10/2008  
**SCALE:** N.T.S.  
**PROJECT NUMBER:** ZSEG030100  
**SHEET:** 43 OF 45



**COUNTY APPROVED CHANGES**

NO.	DESCRIPTION:	APPROVED BY:	DATE:

**PERMITS**

REZONE PERMIT NO. NOT APPLICABLE
SPECIAL USE PERMIT NO. NOT APPLICABLE
TENTATIVE MAP NO. NOT APPLICABLE
HW/MDW NO. NOT YET ASSIGNED

**BENCHMARK**

DESCRIPTION: 3.12" BRASS DISK  
 "N.W.D. OF SOUTHERN CA. S.D. 8-89 1983"  
 LOCATION: S.E. CORNER OF MANHOLE  
 RECORD FROM: FIELD BOOK 4047-04-079  
 ELEVATION: 318.88' DATUM: NAVD83 AND NAD83

**PRIVATE CONTRACT**

SHEET 43	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	SHEETS 43
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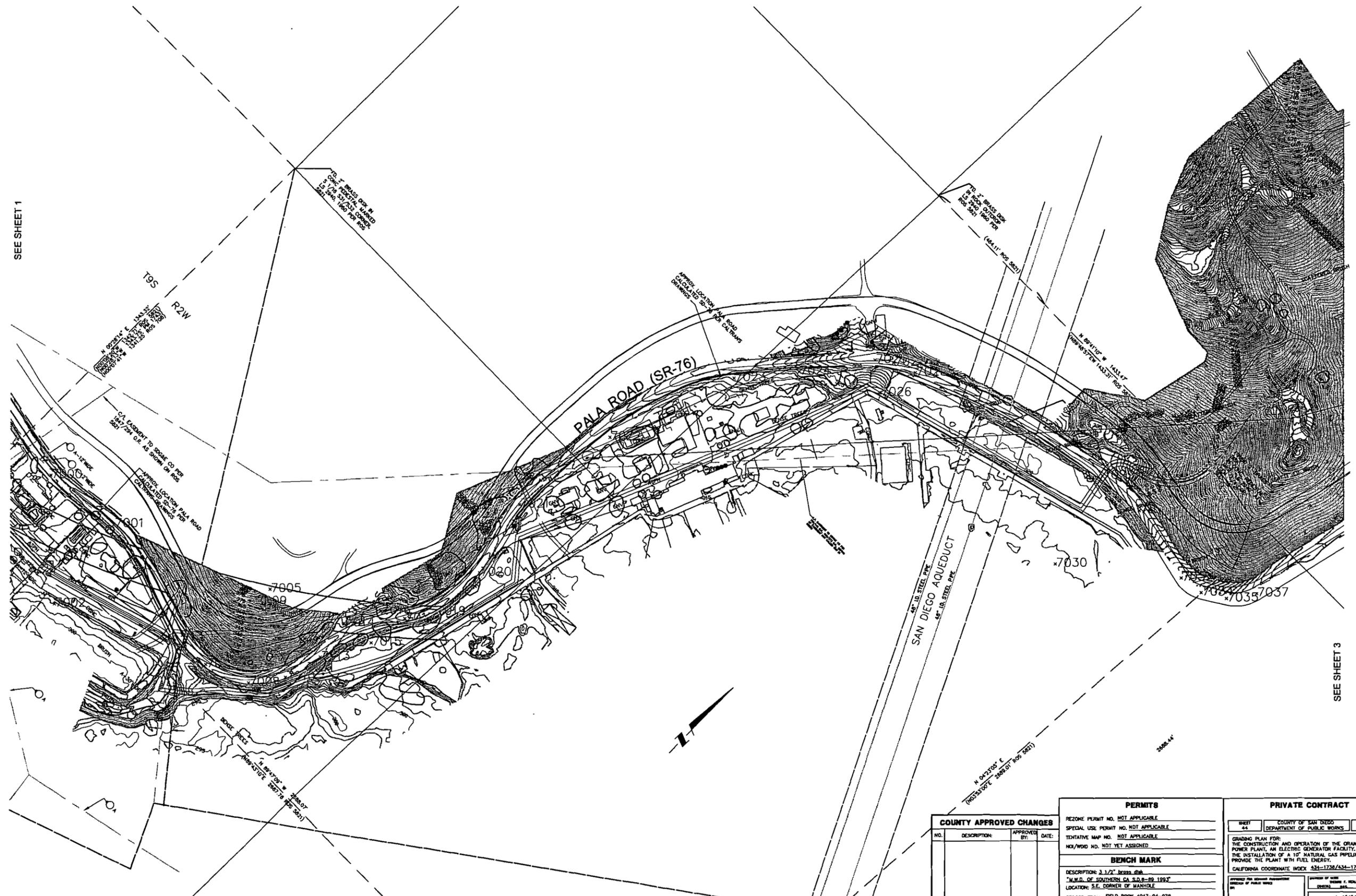
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY. ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.  
 CALIFORNIA COORDINATE INDEX 434-1738/434-1737

APPROVED FOR RECORD: [Signature]  
 DATE: [Date]

DATE OF SURVEY: 04/10/2008  
 SCALE: N.T.S.  
 PROJECT NUMBER: ZSEG030100  
 SHEET: 43 OF 45

SEE SHEET 2

SEE SHEET 1



SEE SHEET 3

DESIGNED	GTJ				
DRAFTED	GTJ				
CHECKED	K.J.L.				
	REV	DATE			

**BENCHMARK:**  
 THE BENCHMARK USED FOR THIS SURVEY IS WIND STATION "SD8-89", A 3" BRASS DISK, LOCATED FLUSH ON THE SOUTHEASTERN CORNER OF A CONCRETE MANHOLE UP 2.5' FROM NATURAL GROUND, STAMPED "M.W.D. OF SOUTHERN CA. S.D.S.-89 1993" PER MWD FIELDBOOK 4047-04-079 HAVING AN NAVD83 ELEVATION OF 318.88'.

**PREPARED BY:**  
**PSOMAS**  
 2187 Red Hill Avenue, #250  
 Carlsbad, California 92008  
 714/751-7373  
 FAX 714/543-8843

**SURVEY EXHIBIT FOR:**  
**PROPOSED GAS LINE ALIGNMENT ALONG PALA ROAD (SR-76)**  
 COUNTY OF SAN DIEGO  
 STATE OF CALIFORNIA

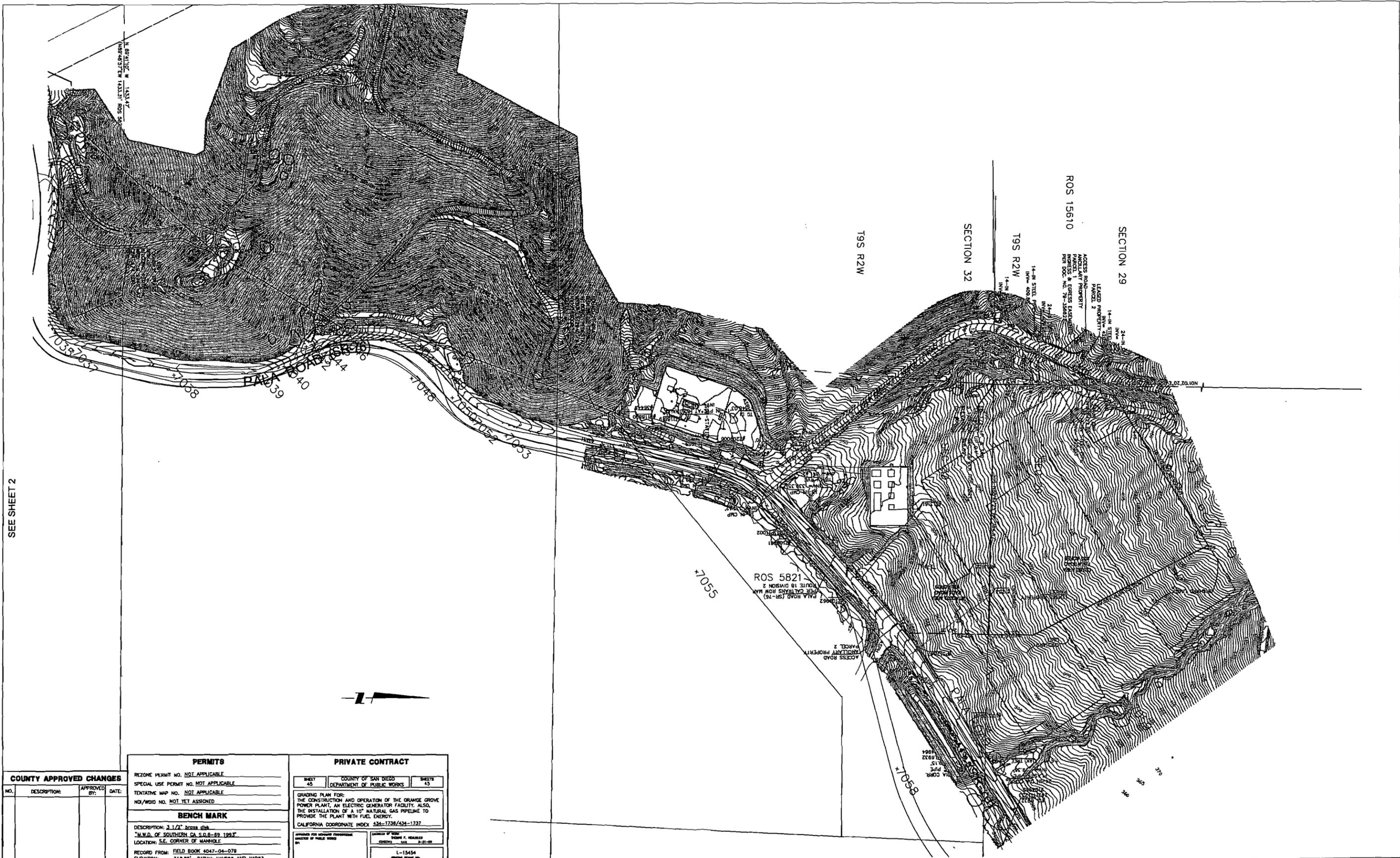
**DATE OF SURVEY:** 04/10/2008  
**SCALE:** N.T.S.  
**PROJECT NUMBER:** ZSEG030100  
**SHEET:** 44 OF 45

COUNTY APPROVED CHANGES		
NO.	DESCRIPTION	APPROVED BY: DATE:

PERMITS	
REZONE PERMIT NO. NOT APPLICABLE	
SPECIAL USE PERMIT NO. NOT APPLICABLE	
TENTATIVE MAP NO. NOT APPLICABLE	
NOI/WO# NO. NOT YET ASSIGNED	

PRIVATE CONTRACT	
SHEET 44	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS SHEETS 45
GRADING PLAN FOR: THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE POWER PLANT, AN ELECTRIC GENERATOR FACILITY, ALSO, THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO PROVIDE THE PLANT WITH FUEL ENERGY.	
CALIFORNIA COORDINATE INDEX 434-1738/434-1737	
APPROVED FOR SUBMITTAL	APPROVED BY: DATE:
L-15454	

SEGA, INC. PHONE NUMBER: (613) 881-2881



SEE SHEET 2

COUNTY APPROVED CHANGES			
NO.	DESCRIPTION	APPROVED BY	DATE

**PERMITS**  
 REZONE PERMIT NO. NOT APPLICABLE  
 SPECIAL USE PERMIT NO. NOT APPLICABLE  
 TENTATIVE MAP NO. NOT APPLICABLE  
 NOI/WQID NO. NOT YET ASSIGNED

**BENCH MARK**  
 DESCRIPTION: 3.1/2" Brass disk  
 "M.W.D. OF SOUTHERN CA S.D.B.-69 1993"  
 LOCATION: S.E. CORNER OF MANHOLE  
 RECORD FROM: FIELD BOOK 4047-04-078  
 ELEVATION: 318.85' DATUM: NAVD83 AND NAD83

**PRIVATE CONTRACT**

SHEET 45	COUNTY OF SAN DIEGO	SHEETS 45
DEPARTMENT OF PUBLIC WORKS		

GRADING PLAN FOR:  
 THE CONSTRUCTION AND OPERATION OF THE ORANGE GROVE  
 POWER PLANT, AN ELECTRIC GENERATOR FACILITY, ALSO,  
 THE INSTALLATION OF A 10" NATURAL GAS PIPELINE TO  
 PROVIDE THE PLANT WITH FUEL ENERGY.  
 CALIFORNIA COORDINATE INDEX 534-1738/434-1737

APPROVED FOR RECORD SUBMISSION  
 DIRECTOR OF PUBLIC WORKS

DESIGNED BY: [Signature]  
 CHECKED BY: [Signature]  
 DATE: 2-21-08  
 L-15434  
 CIVIL ENGINEER REG. NO.

**BENCHMARK:**  
 THE BENCHMARK USED FOR THIS SURVEY IS MWD STATION  
 "SDB-89", A 3" BRASS DISK, LOCATED FLUSH ON THE  
 SOUTHEASTERLY CORNER OF A CONCRETE MANHOLE UP  
 2.5' FROM NATURAL GROUND, STAMPED "M.W.D. OF SOUTHERN  
 CA S.D.B.-69 1993" PER MWD FIELDBOOK 4047-04-078  
 HAVING AN NAVD83 ELEVATION OF 318.85'.

PREPARED BY:  
**PSOMAS**  
 3197 Red Hill Avenue, #250  
 Costa Mesa, California 92626  
 714/751-7373  
 FAX 714/545-8863

SURVEY EXHIBIT FOR:  
**PROPOSED GAS LINE ALIGNMENT  
 ALONG PALA ROAD (SR-76)**  
 COUNTY OF SAN DIEGO  
 STATE OF CALIFORNIA

DATE OF SURVEY:	04/10/2008	SHEET	45
SCALE:	N.T.S.	OF	45
PROJECT NUMBER	2SEG030100		

SCALE NUMBER: (0.1) 60-2801