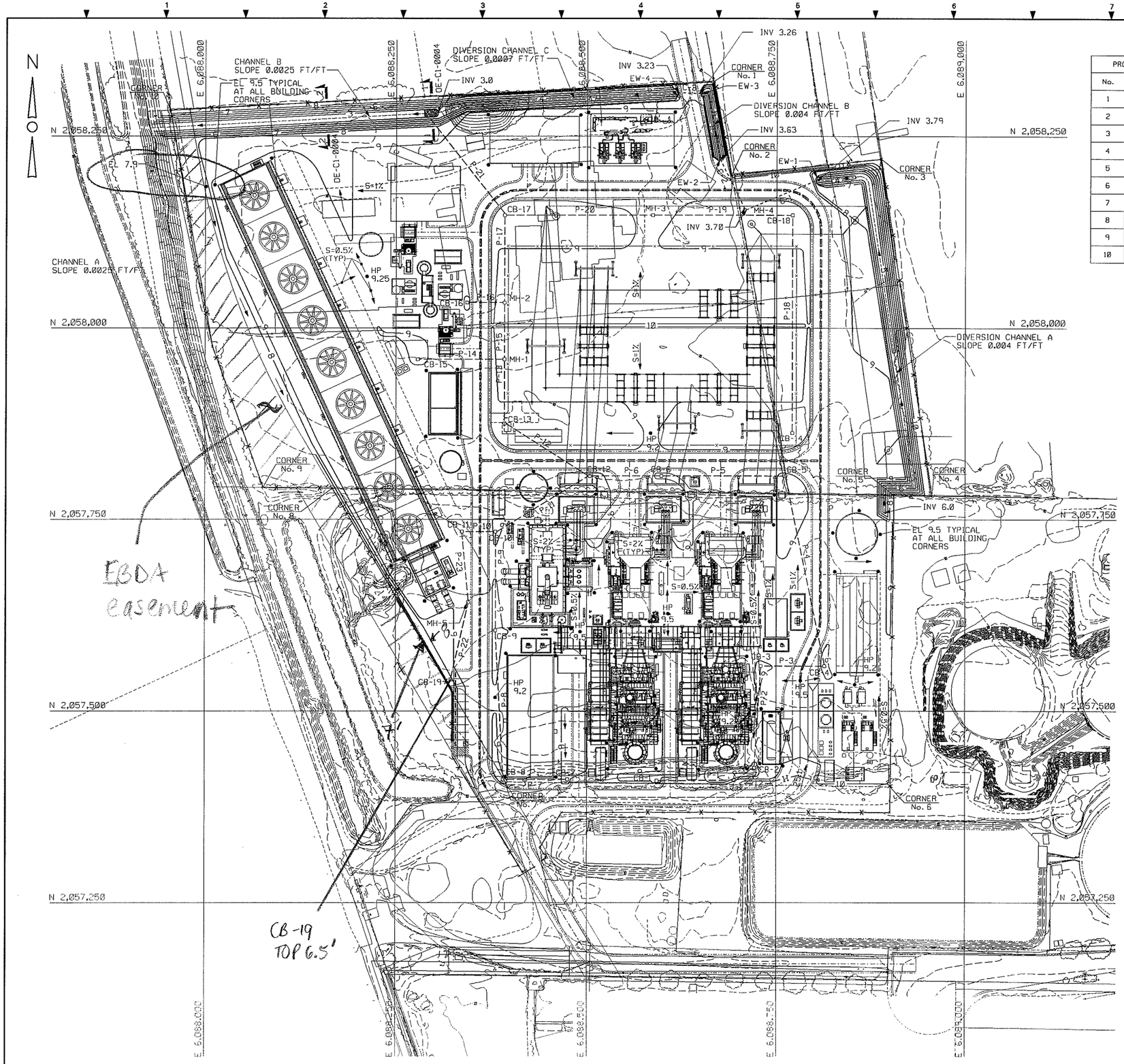
APPENDIX 2C

Stormwater Drawings



PROPERTY CORNER COORDINATE SCHEDULE		
No.	NORTH	EAST
1	2058321.5	6088667.5
2	2058199.4	6088690.1
3	2058220.4	6088888.1
4	2057781.1	6088956.2
5	2057781.8	6088905.8
6	2057401.0	6088901.2
7	2057407.2	6088394.3
8	2057790.8	6088166.8
9	2057791.9	6088076.5
10	2058283.4	6087954.3

LEGEND

- EXISTING GRADE CONTOUR
- FINAL GRADE CONTOUR
- 9.5 — FINAL GRADE SPOT ELEVATION
- PROPOSED FENCE
- PROPOSED STORM DRAIN
- PROPOSED CULVERT
- PROPOSED STORM CATCH BASIN
- PROPOSED ENDWALL
- PROPOSED DRAINAGE CHANNEL
- DIRECTION OF FLOW

NOTES:

1. COORDINATES LISTED ARE STATE PLANE NAD83, CALIFORNIA ZONE 3.

REFERENCES:

DC-G1-0001	GENERAL ARRANGEMENT SITE PLAN
DE-C1-0002	SITE SURFACING PLAN
DE-C1-0004	GRADING DETAILS
DE-C2-0002	DRAINAGE STRUCTURES
DE-C2-0001	CATCH BASIN AND PIPE SCHEDULE

60 0 60 120 180
SCALE IN FEET

PRELIMINARY

REV	DATE	DESCRIPTION	DRAWN	CHECKED	ENGINEER	PROJECT ENGINEER	PROJECT MANAGER
- -							
- -							
- -							
- -							
- -							
- -							

DRAWN BY GJU DATE - -06
CHECKED BY DATE - -
ENGINEER JA WINTERHALTER DATE - -06
PROJECT ENGINEER N/A DATE - -
PROJECT MANAGER DR ERALI DATE - -06

PROFESSIONAL ENGINEER STAMP

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CALIFORNIA.

PRINT NAME
SIGNATURE
DATE LICENSE #
ORIGINALLY PREPARED UNDER THE RESPONSIBLE SUPERVISION OF
FOR
LIC. NO.
STATE
DATE

WorleyParsons

CALPINE

RUSSELL CITY ENERGY CENTER
HAYWARD, CALIFORNIA

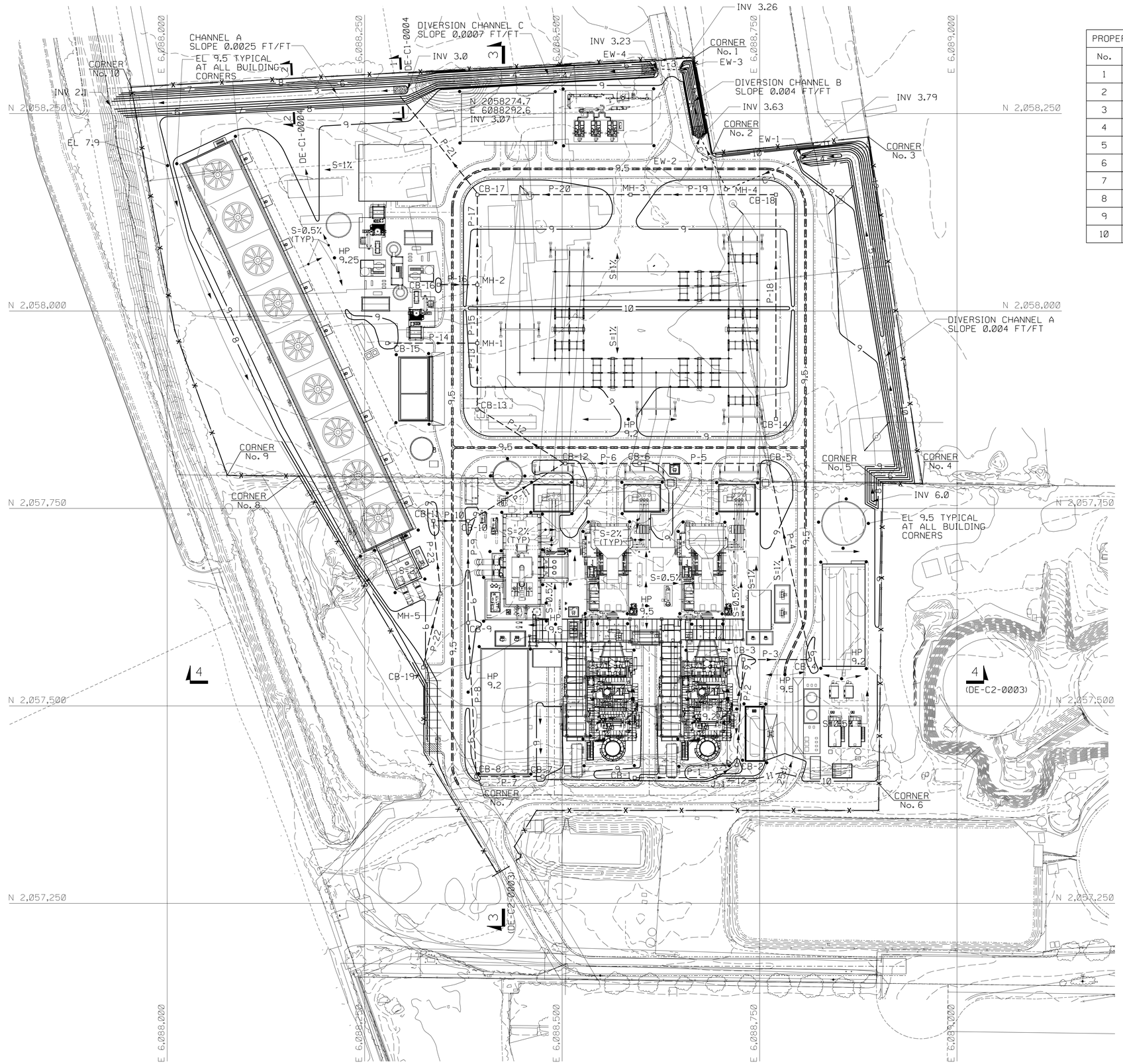
CIVIL
GEN-GENERAL
FINAL SITE GRADING
AND DRAINAGE PLAN

SCALE 1"=60'

DWG. NO. RC-GEN-DE-C1-0001
SHEET NO. 01
REVISION

FILE NAME:
PATH:
SERVER:
DWG-FILE: rc-gen-de-c1-0001.dgn
DWG-DATE: 21-Nov-06 12:30

VHL: Thu Jun 09 14:23:05 2005



PROPERTY CORNER COORDINATE SCHEDULE		
No.	NORTH	EAST
1	2058321.5	6088667.5
2	2058199.4	6088690.1
3	2058220.4	6088888.1
4	2057781.1	6088956.2
5	2057781.8	6088905.8
6	2057401.0	6088901.2
7	2057407.2	6088394.3
8	2057790.8	6088166.8
9	2057791.9	6088076.5
10	2058283.4	6087954.3

LEGEND

- EXISTING GRADE CONTOUR
- FINAL GRADE CONTOUR
- FINAL GRADE SPOT ELEVATION
- PROPOSED FENCE
- PROPOSED STORM DRAIN
- PROPOSED CULVERT
- PROPOSED STORM CATCH BASIN
- PROPOSED ENDWALL
- PROPOSED DRAINAGE CHANNEL
- DIRECTION OF FLOW

NOTES:

1. COORDINATES LISTED ARE STATE PLANE NAD83, CALIFORNIA ZONE 3.
2. DRAIN INSERTS SHALL BE USED FOR ALL CATCH BASINS AND SHALL BE ACCORDING TO ULTRA DRAIN GUARD, OIL AND SEDIMENT MODEL, PART #9225, OR EQUAL.

REFERENCES:

DC-G1-0001	GENERAL ARRANGEMENT SITE PLAN
DE-C1-0002	SITE SURFACING PLAN
DE-C1-0004	GRADING DETAILS
DE-C2-0002	DRAINAGE STRUCTURES
DE-C2-0001	CATCH BASIN AND PIPE SCHEDULE
DE-C2-0003	SECTIONS

60 0 60 120 180

SCALE IN FEET

REV	DATE	DESCRIPTION	DRAWN	CHECKED	ENGINEER	PROJECT ENGINEER	PROJECT MANAGER
A	11-13-06	ISSUED FOR CLIENT REVIEW	GU	AM	DS	PK	DE

	DATE
DRAWN BY: GJU	11-13-06
CHECKED BY: ALM	11-13-06
ENGINEER: D SHETH	11-13-06
PROJECT ENGINEER: P KHAN	11-13-06
PROJECT MANAGER: DR ERALI	11-13-06

PROFESSIONAL ENGINEER STAMP

REGISTERED PROFESSIONAL ENGINEER PRADIP KUMAR KHAN No. 54262 Exp. 12-31-07 CIVIL STATE OF CALIFORNIA

See electronic signature for date and time

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CALIFORNIA.

PRINT NAME: PRADIP KHAN

SIGNATURE

DATE: 11-13-06 LICENSE #: 54262

ORIGINALLY PREPARED UNDER THE RESPONSIBLE SUPERVISION OF

PE: STATE:

LIC. NO.: DATE:

WorleyParsons

CALPINE

RUSSELL CITY ENERGY CENTER
HAYWARD, CALIFORNIA

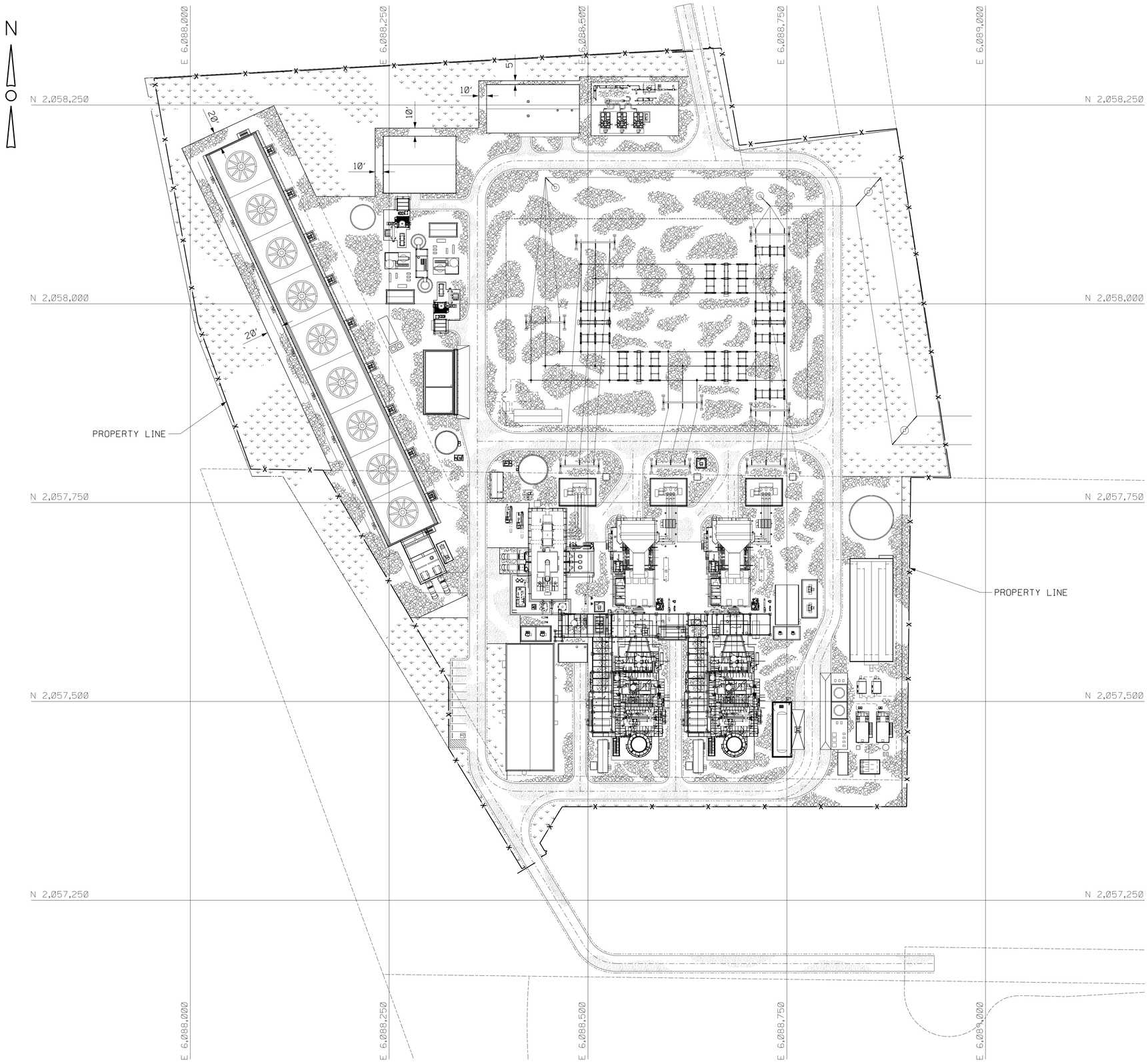
CIVIL
GEN-GENERAL
FINAL SITE GRADING
AND DRAINAGE PLAN

SCALE 1"=60'

DWG. NO.	SHEET NO.	REVISION
RC-GEN-DE-C1-0001	01	A

FILE NAME:
PATH:
SERVER:

DWG-FILE: rc-gen-de-c1-0001.dgn
DWG-DATE: 01-Nov-06 10:38



LEGEND

- AGGREGATE SURFACING
- CONCRETE SLAB
- BITUMINOUS PAVING
- GRASS

NOTES:

1. SURFACING IS BASED ON REVISION E OF THE GENERAL ARRANGEMENT DRAWING RC-GEN-DC-G1-0001.

REFERENCES:

DC-G1-0001	GENERAL ARRANGEMENT - SITE PLAN
DE-C1-0005	ROADWAY AND FENCE LOCATION - PLAN

60 0 60 120 180

SCALE IN FEET

REV	DATE	DESCRIPTION	DRAWN	CHECKED	ENGINEER	PROJECT ENGINEER	PROJECT MANAGER
	- -						
	- -						
	- -						
	- -						
	- -						
A	11-13-06	ISSUED FOR CLIENT REVIEW	GU	AM	DS	PK	DE

DRAWN BY GJU	DATE 11-13-06
CHECKED BY ALM	DATE 11-13-06
ENGINEER D SHETH	DATE 11-13-06
PROJECT ENGINEER P KHAN	DATE 11-13-06
PROJECT MANAGER DR ERALI	DATE 11-13-06

PROFESSIONAL ENGINEER STAMP

REGISTERED PROFESSIONAL ENGINEER PRADIP KUMAR KHAN No. 54262 Exp. 12-31-07 CIVIL STATE OF CALIFORNIA

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PRINT NAME PRADIP KHAN

SIGNATURE

DATE 11-13-06 LICENSE # 54262

ORIGINALLY PREPARED UNDER THE RESPONSIBLE SUPERVISION OF

PE: STATE:

LIC. NO.: DATE:

WorleyParsons

CALPINE

RUSSELL CITY ENERGY CENTER
HAYWARD, CALIFORNIA

CIVIL
GEN-GENERAL
SITE SURFACING PLAN

SCALE 1"=60'

DWG. NO.	SHEET NO.	REVISION
RC-GEN-DE-C1-0002	01	A

FILE NAME:
PATH:
SERVER:

DWG-FILE: rc-gen-de-c1-0002.dgn
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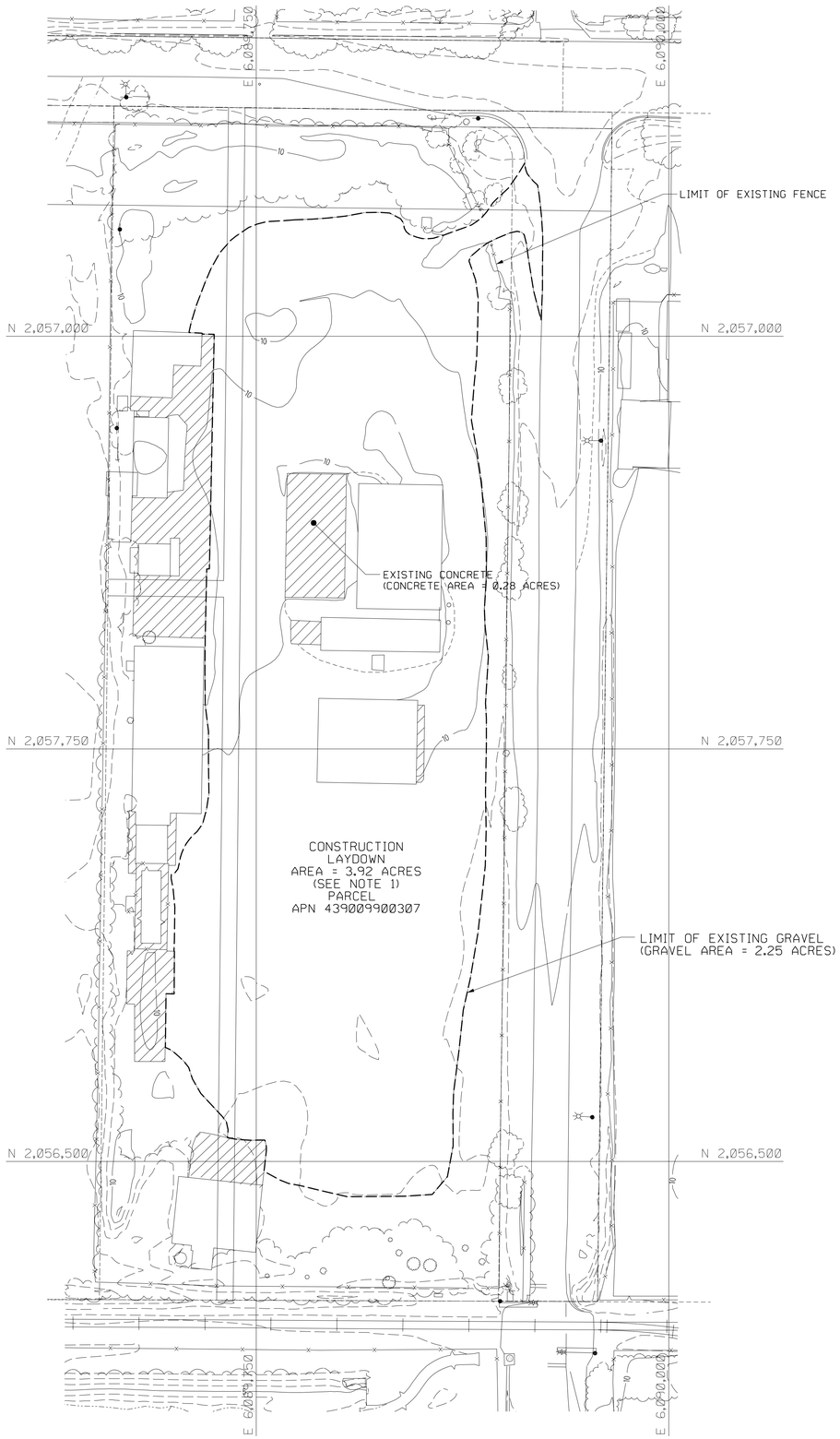
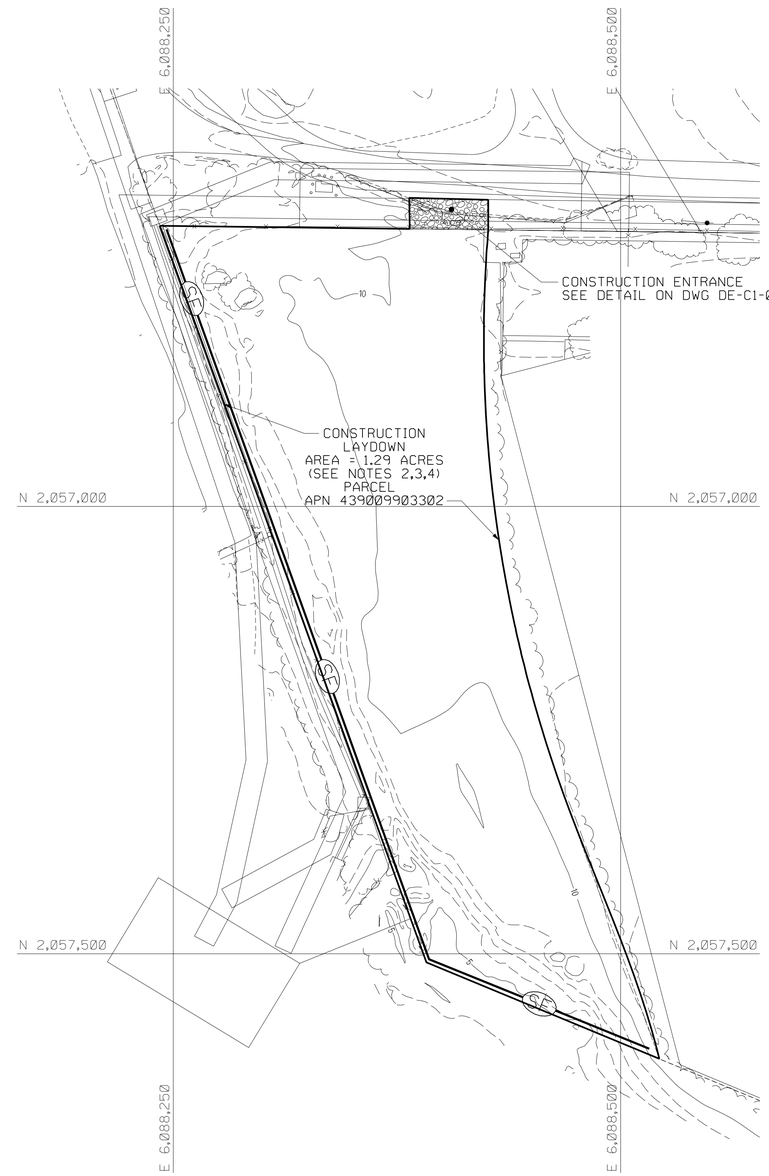
VHL: Thu Jun 09 14:23:05 2005



PLAN



PLAN

NOTES:

1. THE EXISTING GRADES, FEATURES AND SURFACING WILL REMAIN. NO CHANGES ARE REQUIRED FOR THIS CONSTRUCTION LAYDOWN AREA.
2. THE EXISTING GRADES AND FEATURES WILL REMAIN. HOWEVER, MINIMUM 6" OF GRAVEL SHALL BE PLACED (2" TO 3" AGGREGATE). AS PER CALTRAN STANDARD SPECIFICATIONS, SECTION 25.
3. CLEAR AND GRUB EXISTING AREA OF BRUSH WEEDS, ETC.
4. INSTALL SILT FENCE AS SHOWN ON DRAWING AND ACCORDING TO DE-C1-0008.

LEGEND

EXISTING GRADE CONTOUR

SF — SILT FENCE

REFERENCES:

FIGURE 1	SURVEY AREA (RECEIVED FROM CALPINE)
DE-C1-0008	EROSION AND SEDIMENT CONTROL DETAILS

40 0 40 80 120

SCALE IN FEET

REV	DATE	DESCRIPTION	DRAWN	CHECKED	ENGINEER	PROJECT ENGINEER	PROJECT MANAGER
A	11-13-06	ISSUED FOR CLIENT REVIEW	GJU	ALM	DS	PK	DE

	DATE
DRAWN BY: GJU	11-13-06
CHECKED BY: ALM	11-13-06
ENGINEER: D SHETH	11-13-06
PROJECT ENGINEER: P KHAN	11-13-06
PROJECT MANAGER: DR ERALI	11-13-06

PROFESSIONAL ENGINEER STAMP

REGISTERED PROFESSIONAL ENGINEER PRADIP KUMAR KHAN No. 54262 Exp. 12-31-07 CIVIL STATE OF CALIFORNIA

See electronic signature for date and time

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PRINT NAME: PRADIP KHAN

SIGNATURE

DATE: 11-13-06 LICENSE #: 54262

ORIGINALLY PREPARED UNDER THE RESPONSIBLE SUPERVISION OF

PE: STATE:
LIC. NO.: DATE:

WorleyParsons

CALPINE

RUSSELL CITY ENERGY CENTER
HAYWARD, CALIFORNIA

CIVIL
GEN-GENERAL
CONSTRUCTION LAYDOWN AREA

SCALE: 1"=40'

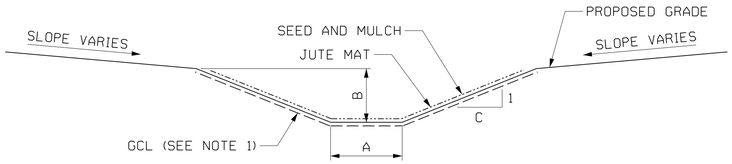
DWG. NO.	SHEET NO.	REVISION
RC-GEN-DE-C1-0003	01	A

FILE NAME:
PATH:
SERVER:

DWG-FILE: rc-gen-de-c1-0003.dgn
DWG-DATE: 13-Nov-06 15:28

VHL: Thu Jun 09 14:23:05 2005

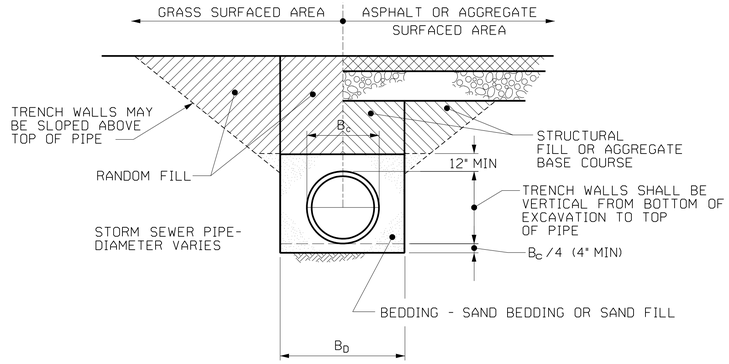
CHANNEL SCHEDULE						
CHANNEL	WIDTH (A)	DEPTH (B)	SIDE SLOPE (C)	SLOPE	LINING	TYPE
DIVERSION CHANNEL (A)	4′	3′	2.5:1	0.004 FT\FT	JUTE NET	PERMANENT
DIVERSION CHANNEL (B)	2′	3.5′	2.0:1	0.004 FT\FT	JUTE NET	PERMANENT
DIVERSION CHANNEL (C)	4′	3.7′	2.5:1	0.0007 FT\FT	JUTE NET	PERMANENT
CHANNEL (A)	10′	3′	3.0:1	0.0025 FT\FT	JUTE NET	PERMANENT



NOTE:

1. A GEOSYNTHETIC CLAY LINER (GCL) MAY BE REQUIRED IF THE WATER TABLE IS FOUND WITHIN 10 FEET OF THE BOTTOM OF THE CHANNEL. THE GCL IS TO BE DETERMINED BY THE CONTRACTOR.

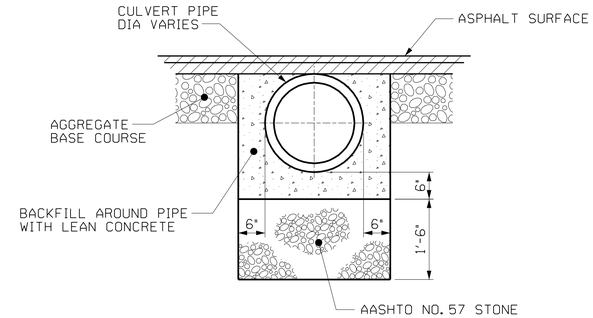
TYPICAL CHANNEL DETAIL



MINIMUM TRENCH WIDTH B_D
B_c + 18" FOR PIPE DIA UP TO 30"
B_c + 24" FOR PIPE DIA 33" TO 48"

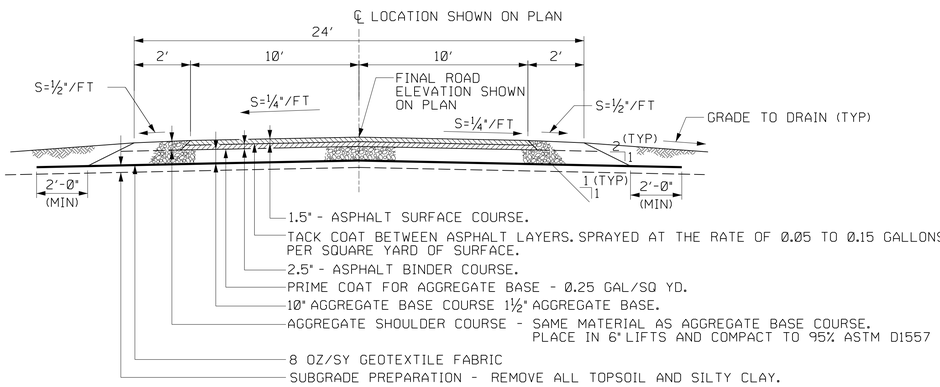
BEDDING AND BACKFILL REQUIREMENTS FOR STORM SEWER PIPE

NOT TO SCALE



BEDDING AND BACKFILL REQUIREMENTS FOR CULVERT PIPE

NOT TO SCALE

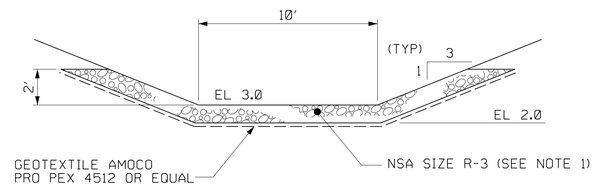


NOTE:

1. SOME ROADS TO BE ASPHALT PAVED WILL BE INSTALLED EARLY IN THE CONSTRUCTION PERIOD (IN THE INITIAL SITE WORK PHASE), AS AGGREGATE BASE ONLY AND USED AS CONSTRUCTION ROADS. PRIOR TO ASPHALT PAVING, REGRADE, REPAIR, AND ADD NEW BASE MATERIAL AS REQUIRED TO BRING THE ROAD TO REQUIRED FINAL ELEVATIONS AND PRIME AS REQUIRED BEFORE LAYING THE BITUMINOUS BINDER AND SURFACE COURSES.
2. ALL MATERIAL FOR ROAD CONSTRUCTION SHALL BE PER 2006 CALTRAN STANDARD SPECIFICATIONS, SECTION 37 THROUGH 42.

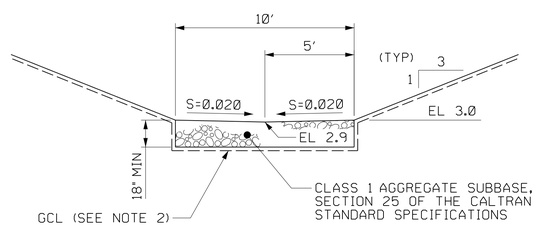
TYPICAL SECTION ASPHALT SURFACED ROADS

NOT TO SCALE



SECTION 1-1

(DE-CL-0001)



SECTION 2-2

(DE-CL-0001)

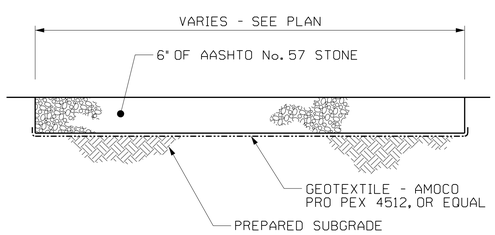
RIPRAP OUTLET PROTECTION				
CULVERT/ PIPE	WIDTH (FT)	LENGTH (FT)	RIPRAP STONE (SEE NOTE 1)	THICKNESS (IN)
P-21	14.2	13	R-3	9.0
C-2	14.2	13	R-3	9.0
C-3	14.2	13	R-3	9.0

NOTES:

1. RIPRAP SIZE IS ACCORDING TO NATIONAL STONE ASSOCIATION (NSA).
2. A GEOSYNTHETIC CLAY LINER (GCL) MAY BE REQUIRED IF THE GROUND WATER TABLE IS FOUND WITHIN 10 FEET OF THE BOTTOM OF THE CHANNEL. THE GCL IS TO BE DETERMINED BY THE CONTRACTOR.

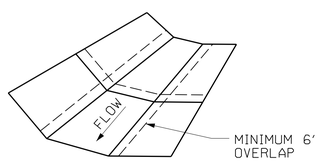
REFERENCES:

DE-C1-0001	FINAL SITE GRADING AND DRAINAGE PLAN
DE-C1-0002	SITE SURFACING PLAN
DE-C1-0005	ROADWAY AND FENCE LOCATION PLAN



TYPICAL SECTION - AGGREGATE SURFACING

NOT TO SCALE



JUTE MATTING INSTALLATION

NOT TO SCALE

REV	DATE	DESCRIPTION	DRAWN	CHECKED	ENGINEER	PROJECT ENGINEER	PROJECT MANAGER
- -							
- -							
- -							
- -							
- -							
A	11-13-06	ISSUED FOR CLIENT REVIEW	GU	AM	DS	PK	DE

DRAWN BY GJU	DATE 11-13-06
CHECKED BY ALM	DATE 11-13-06
ENGINEER D SHETH	DATE 11-13-06
PROJECT ENGINEER P KHAN	DATE 11-13-06
PROJECT MANAGER DR ERALI	DATE 11-13-06

PROFESSIONAL ENGINEER STAMP

REGISTERED PROFESSIONAL ENGINEER PRADIP KUMAR KHAN No. 54262 Exp. 12-31-07 CIVIL STATE OF CALIFORNIA

See electronic signature for date and time

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CALIFORNIA.

PRINT NAME PRADIP KHAN
SIGNATURE
DATE 11-13-06 LICENSE # 54262

ORIGINALLY PREPARED UNDER THE RESPONSIBLE SUPERVISION OF
PE: STATE:
LIC. NO.: DATE:

WorleyParsons

CALPINE

RUSSELL CITY ENERGY CENTER
HAYWARD, CALIFORNIA

CIVIL
GEN-GENERAL
GRADING DETAILS

SCALE NONE

DWG. NO.	SHEET NO.	REVISION
RC-GEN-DE-C1-0004	01	A

FILE NAME:
PATH:
SERVER:
DWG-FILE: rc-gen-de-c1-0004.dgn
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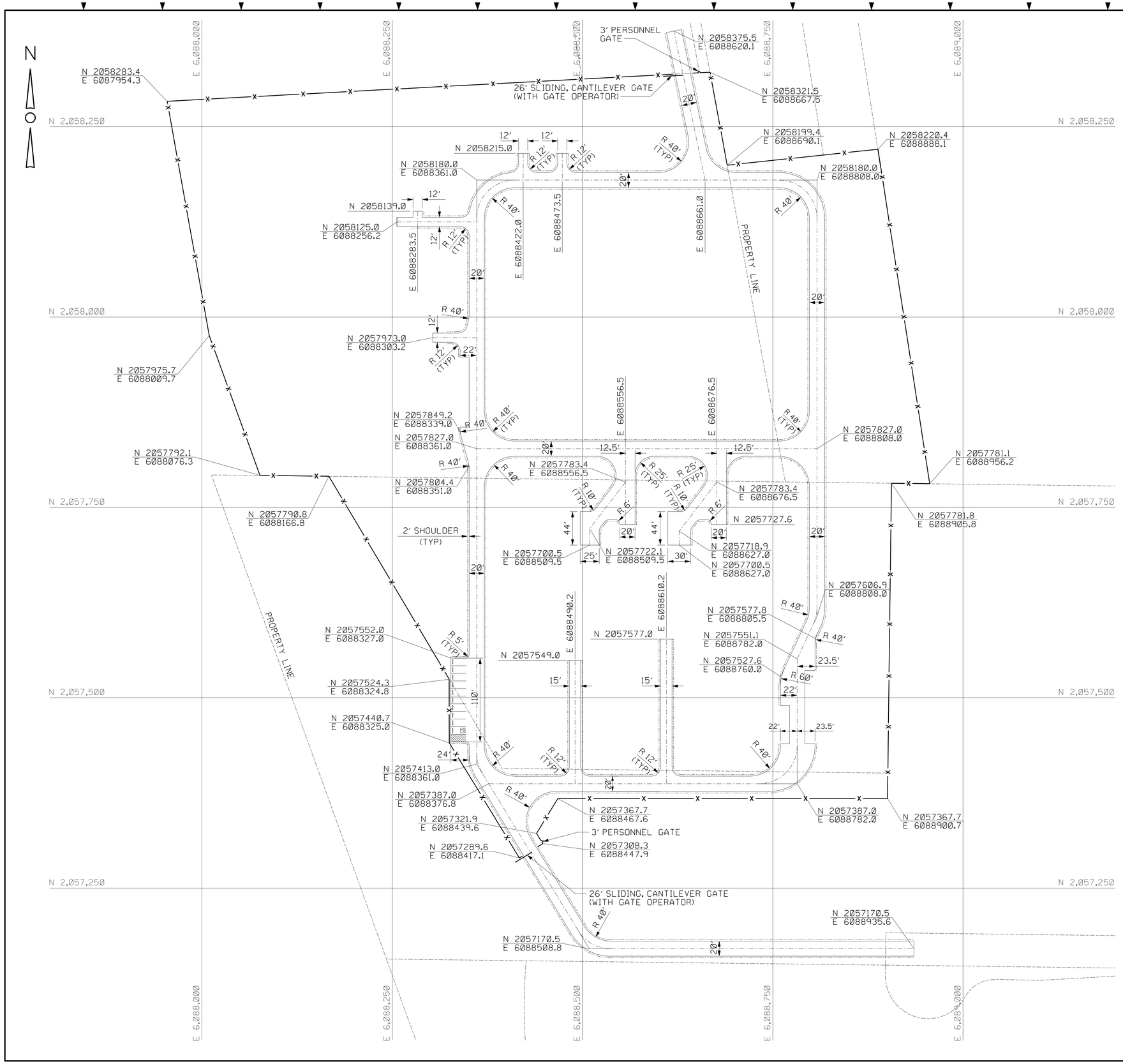
VHL: Thu Jun 09 14:23:05 2005



NOTE:

1. THE ROADWAY AND FENCE PLAN IS BASED ON REVISION E OF THE GENERAL ARRANGEMENT DRAWING.

REFERENCES:

DE-G1-0001	GENERAL ARRANGEMENT SITE PLAN
DE-C1-0001	FINAL SITE GRADING AND DRAINAGE PLAN
DE-C1-0004	GRADING DETAILS
DE-C1-0006	FENCE DETAILS

60 0 60 120 180

SCALE IN FEET

REV	DATE	DESCRIPTION	DRAWN	CHECKED	ENGINEER	PROJECT ENGINEER	PROJECT MANAGER
- -							
- -							
- -							
- -							
- -							
A	11-14-06	ISSUED FOR CLIENT REVIEW	GU	AM	DS	PK	DE

DRAWN BY GJU	DATE 11-14-06	PROFESSIONAL ENGINEER STAMP
CHECKED BY ALM	DATE 11-14-06	REGISTERED PROFESSIONAL ENGINEER PRADIP KUMAR KHAN No. 54262 Exp. 12-31-07 CIVIL STATE OF CALIFORNIA
ENGINEER D SHETH	DATE 11-14-06	
PROJECT ENGINEER P KHAN	DATE 11-14-06	See electronic signature for date and time
PROJECT MANAGER DR ERALI	DATE 11-14-06	

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CALIFORNIA.

PRINT NAME PRADIP KHAN

SIGNATURE

DATE 11-14-06 LICENSE # 54262

ORIGINALLY PREPARED UNDER THE RESPONSIBLE SUPERVISION OF

PE: STATE:

LIC. NO.: DATE:

WorleyParsons

CALPINE

RUSSELL CITY ENERGY CENTER
HAYWARD, CALIFORNIA

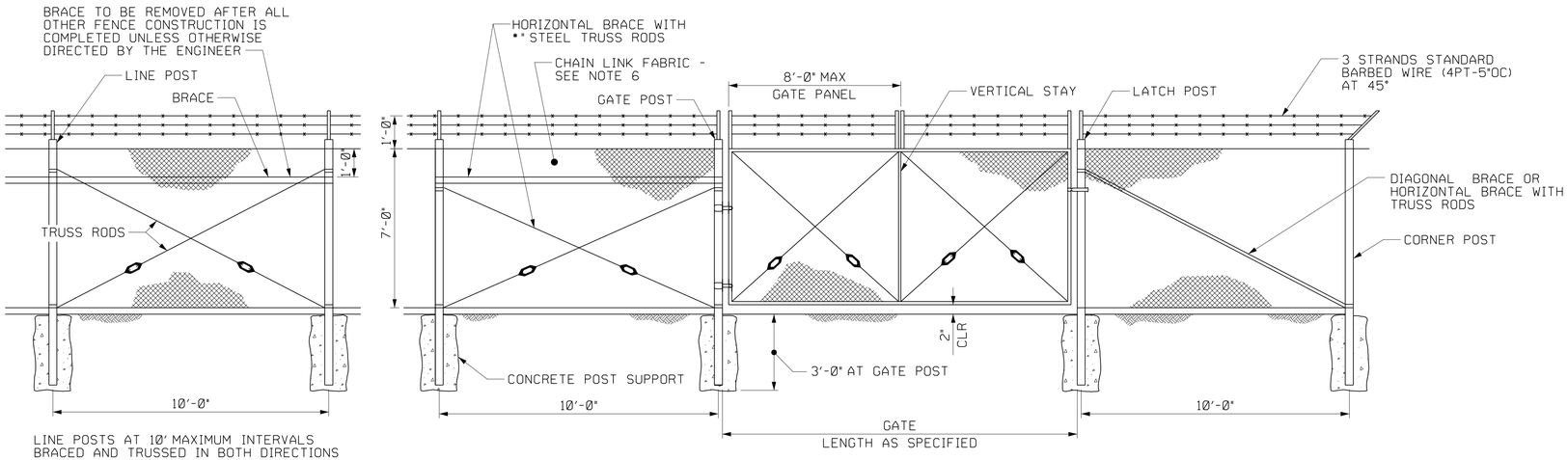
CIVIL
GEN-GENERAL
ROADWAY AND FENCE LOCATION PLAN

SCALE 1"=60'

DWG. NO.	SHEET NO.	REVISION
RC-GEN-DE-C1-0005	01	A

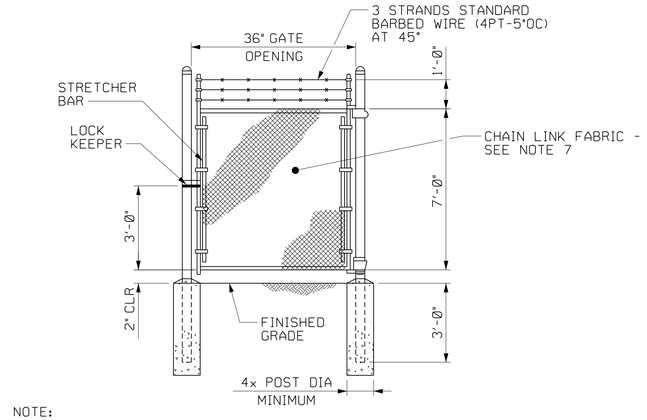
FILE NAME:
PATH:
SERVER:

DWG-FILE: rc-gen-de-c1-0005.dgn
DWG-DATE: 14-Nov-06 08:39



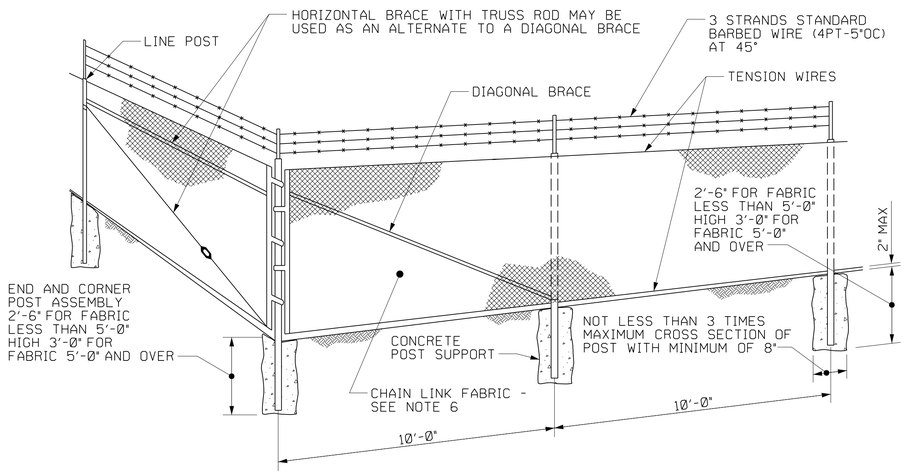
LINE POSTS AT 10' MAXIMUM INTERVALS BRACED AND TRUSSED IN BOTH DIRECTIONS EXCEPT THAT THIS BRACING AND TRUSSING MAY BE OMITTED WHEN THE FABRIC IS STRETCHED BY THE EQUIPMENT

TYPICAL FENCE ELEVATIONS
NOT TO SCALE

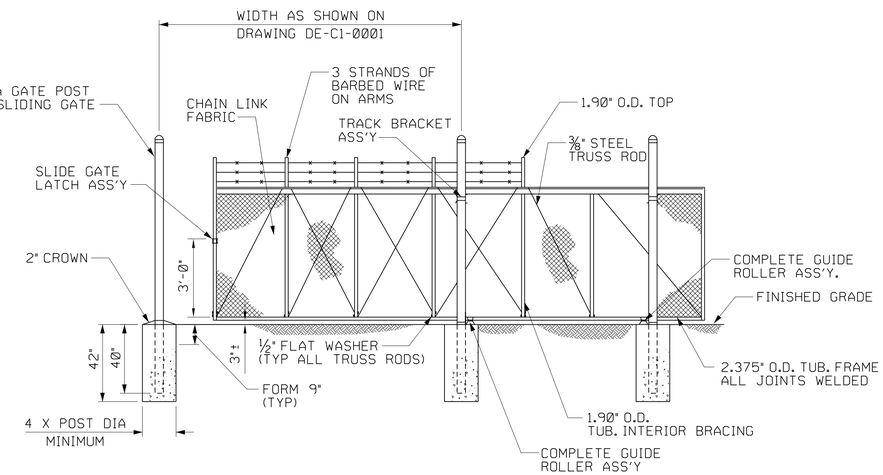


NOTE:
1. ALL NUTS ON HINGES AND LATCH MADE TO PREVENT REMOVAL FROM OUTSIDE.

TYPICAL SINGLE SWING GATE
NOT TO SCALE



TYPICAL FENCE ELEVATION
NOT TO SCALE



STANDARD CANTILEVER SLIDING GATE
NOT TO SCALE

REFERENCES:

DE-C1-0005 ROADWAY AND FENCE LOCATION PLAN

TYPICAL MEMBER DIMENSIONS (SEE NOTES)										
FENCE HEIGHT	LINE POSTS			END, LATCH & CORNER POSTS			BRACES			
	ROUND ID	H	ROLL FORMED	ROUND ID	ROLL FORMED		ROUND ID	H	ROLL FORMED	
6' & LESS	1""	1""X1""	1""X1""	2"	3""X3""	2"X1""	1""	1""X1""	1""X1""	1""X1""
OVER 6'	2"	2""X2"	2"X1""	2""	3""X3""	2""X2""	1""	1""X1""	1""X1""	1""X1""

NOTES:

1. THE ABOVE TABLE SHOWS EXAMPLES OF POST AND BRACE SECTIONS WHICH MAY COMPLY WITH THE SPECIFICATIONS.
2. SECTIONS SHOWN IN THE TABLES MUST ALSO COMPLY WITH THE STRENGTH REQUIREMENTS AND OTHER PROVISIONS OF THE SPECIFICATIONS.
3. OTHER SECTIONS WHICH COMPLY WITH THE STRENGTH REQUIREMENTS AND OTHER PROVISIONS OF THE SPECIFICATIONS MAY BE USED ON APPROVAL OF THE ENGINEER.
4. OPTIONS EXERCISED SHALL BE UNIFORM ON ANY ONE PROJECT.
5. DIMENSIONS SHOWN ARE NOMINAL.
6. CHAIN LINK FABRIC SHALL BE 9GA (BASE WIRE), 2" MESH, TOP SELVAGE TWISTED, BOT SELVAGE KNUCKLE END CLOSED.

GATE POST			
FENCE HEIGHT	GATE WIDTHS	NOMINAL ID	WEIGHT PER FOOT
6'-0" AND LESS	UP THRU 6'-0"	2""	4.95 LB
	OVER 6'-0" THRU 12'-0"	4"	10.79 LB
	OVER 12'-0" THRU 18'-0"	5"	14.62 LB
	OVER 18'-0" TO 24'-0" MAX	6"	18.97 LB
OVER 6'-0"	UP THRU 6'-0"	3"	7.58 LB
	OVER 6'-0" THRU 12'-0"	3"	14.62 LB
	OVER 12'-0" THRU 18'-0"	6"	18.97 LB
	OVER 18'-0" TO 24'-0" MAX	8"	28.55 LB

ABOVE POST DIMENSIONS AND WEIGHTS ARE MINIMUMS. LARGER SIZES MAY BE USED ON APPROVAL OF THE ENGINEER.

REV	DATE	DESCRIPTION	DRAWN	CHECKED	ENGINEER	PROJECT ENGINEER	PROJECT MANAGER
- -							
- -							
- -							
- -							
- -							
A	11-14-06	ISSUED FOR CLIENT REVIEW	GU	AM	DS	PK	DE

	DATE
DRAWN BY: GJU	11-14-06
CHECKED BY: ALM	11-14-06
ENGINEER: D SHETH	11-14-06
PROJECT ENGINEER: P KHAN	11-14-06
PROJECT MANAGER: DR ERALI	11-14-06

PROFESSIONAL ENGINEER STAMP

REGISTERED PROFESSIONAL ENGINEER PRADIP KUMAR KHAN No. 54262 12-31-07 EXP. CIVIL STATE OF CALIFORNIA

See electronic signature for date and time

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CALIFORNIA.

PRINT NAME: PRADIP KHAN
SIGNATURE:
DATE: 11-14-06 LICENSE #: 54262

ORIGINALLY PREPARED UNDER THE RESPONSIBLE SUPERVISION OF
PE: STATE:
LIC. NO.: DATE:

WorleyParsons

CALPINE

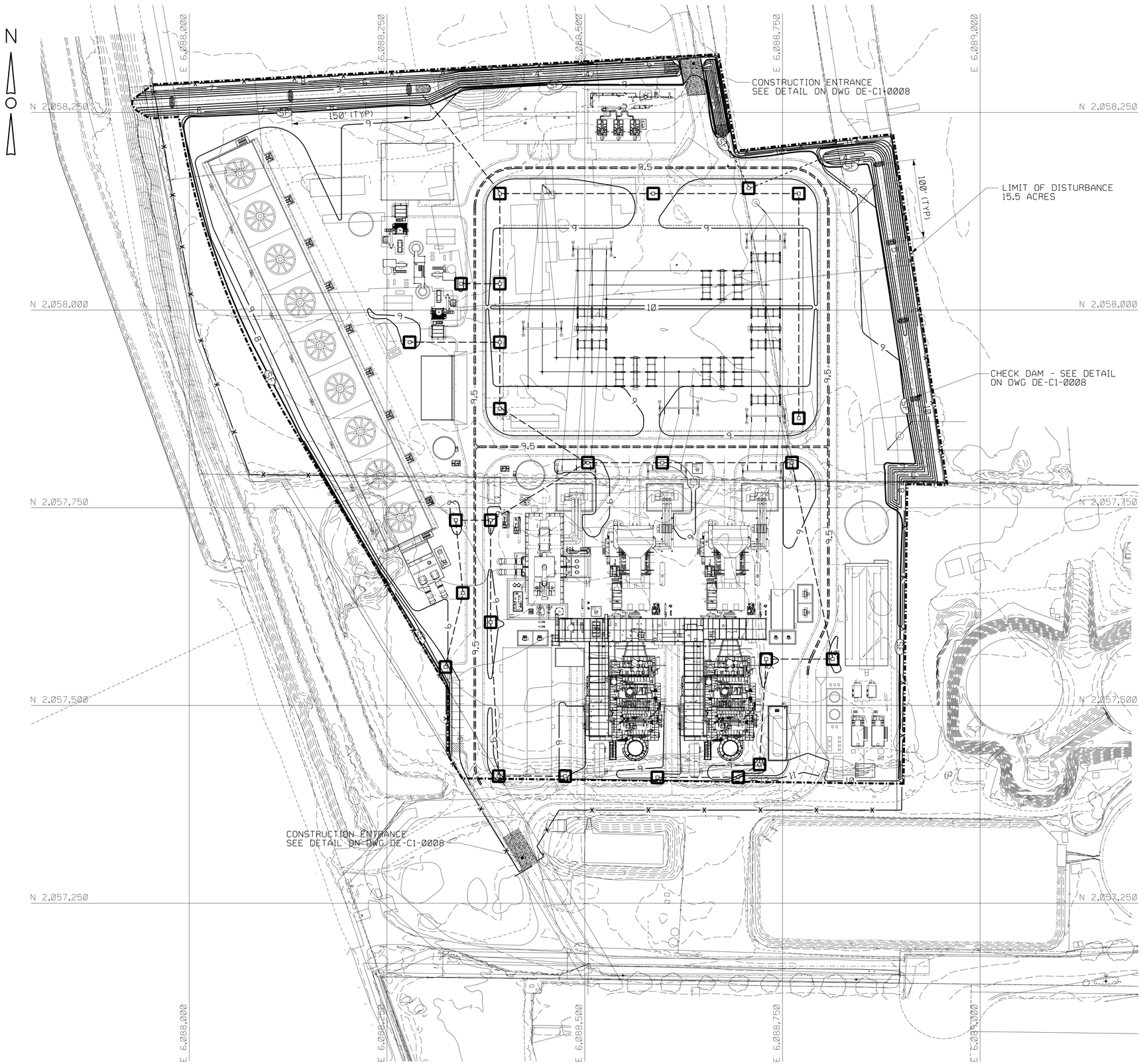
RUSSELL CITY ENERGY CENTER
HAYWARD, CALIFORNIA

CIVIL
GEN-GENERAL
FENCE DETAILS

SCALE: NONE

DWG. NO.	SHEET NO.	REVISION
RC-GEN-DE-C1-0006	01	A

FILE NAME:
PATH:
SERVER:
DWG-FILE: rc-gen-de-c1-0006.dgn
DWG-DATE: 14-Nov-06 08:40



LEGEND

- LIMIT OF DISTURBANCE
- SILT FENCE
- INLET SEDIMENT TRAP
- ROCK CHECK DAM

REFERENCES:

DE-C1-0001	FINAL SITE GRADING AND DRAINAGE PLAN
DE-C1-0008	EROSION AND SEDIMENT CONTROL DETAILS

60 0 60 120 180

SCALE IN FEET

REV	DATE	DESCRIPTION	DRAWN	CHECKED	ENGINEER	PROJECT ENGINEER	PROJECT MANAGER
	- -						
	- -						
	- -						
	- -						
	- -						
A	11-13-06	ISSUED FOR CLIENT REVIEW	GU	AM	DS	PK	DE

DRAWN BY GJU	DATE 11-13-06
CHECKED BY ALM	DATE 11-13-06
ENGINEER D SETH	DATE 11-13-06
PROJECT ENGINEER P KHAN	DATE 11-13-06
PROJECT MANAGER DR ERALI	DATE 11-13-06

PROFESSIONAL ENGINEER STAMP

REGISTERED PROFESSIONAL ENGINEER PRADIP KUMAR KHAN No. 54262 Exp. 12-31-07 CIVIL STATE OF CALIFORNIA

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PRINT NAME PRADIP KHAN

SIGNATURE

DATE 11-13-06 | LICENSE # 54262

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PE: STATE:
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WorleyParsons

CALPINE

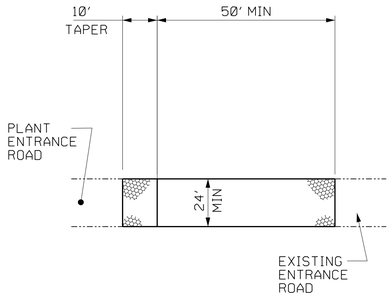
RUSSELL CITY ENERGY CENTER
HAYWARD, CALIFORNIA

CIVIL
GEN-GENERAL
EROSION AND SEDIMENT CONTROL
PLAN

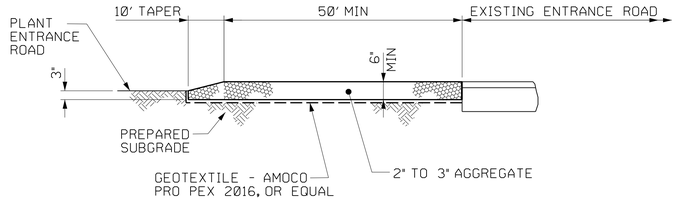
SCALE 1"=60'

DWG. NO.	SHEET NO.	REVISION
RC-GEN-DE-C1-0007	01	A

FILE NAME: DWG-FILE: rc-gen-de-c1-0007.dgn
PATH:
SERVER: DWG-DATE: 13-Nov-06 15:31



PLAN



NOTE:
PROVIDE APPROPRIATE TRANSITION BETWEEN GRAVELED ACCESS ROAD AND ROADWAY.

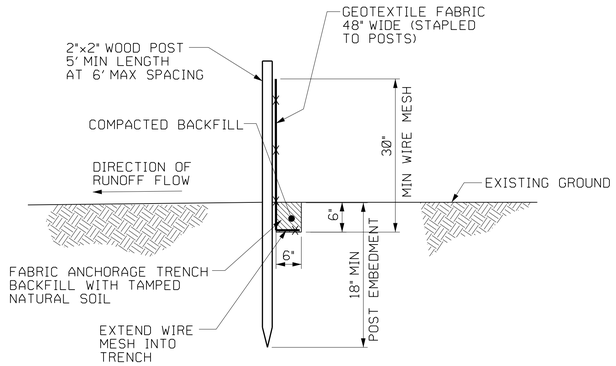
PROFILE

MAINTENANCE:

TEMPORARY GRAVELED ACCESS ROAD THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING AGGREGATE. A STOCKPILE OF AGGREGATE SHALL BE MAINTAINED ON THE SITE FOR THIS PURPOSE. AT THE END OF EACH CONSTRUCTION DAY, ALL SEDIMENT DEPOSITED ON PUBLIC ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE.

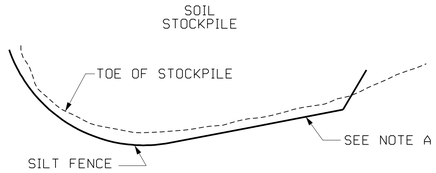
GRAVELED CONSTRUCTION ENTRANCE

NOT TO SCALE

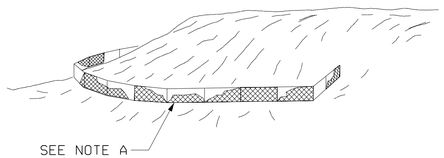


SILT FENCE - PRE ASSEMBLED

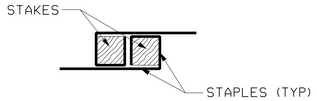
NOT TO SCALE



PLAN VIEW



ILLUSTRATION



JOINING FENCE SECTIONS

NOTES:

A) SILT FENCE MUST BE INSTALLED AT LEVEL GRADE. BOTH ENDS OF EACH FENCE SECTION MUST EXTEND AT LEAST 8 FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.

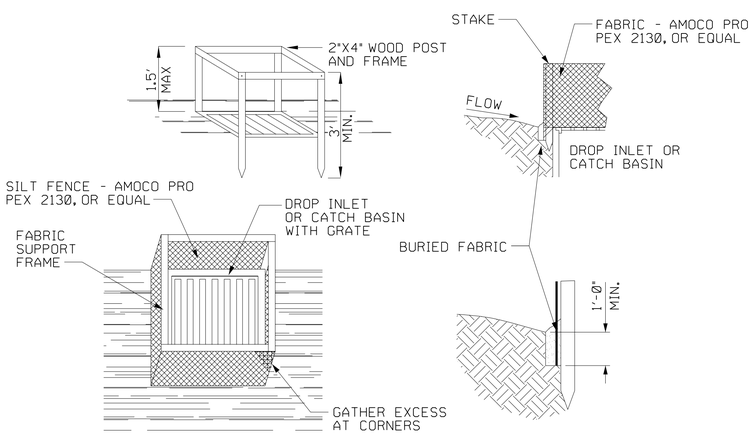
B) SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH ½ THE ABOVE GROUND HEIGHT OF THE FENCE.

C) WHERE ENDS OF FABRIC COME TOGETHER, THEY MUST BE OVERLAPPED, FOLDED AND STAPLED TO PREVENT SEDIMENT BYPASS. THE TOE ANCHOR MUST BE BACKFILLED AND COMPACTED TO A DENSITY EQUAL TO THE SURROUNDING SOILS.

D) INSTALL FENCE AT LOCATIONS SHOWN ON DE-C1-0007 & SOIL STOCKPILE AS SHOWN

SILT FENCE INSTALLATION DETAILS

NOT TO SCALE



NOTES:

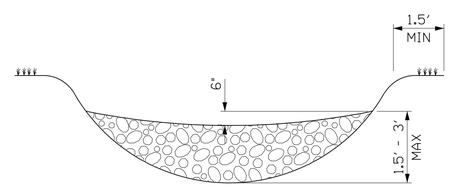
1. THE STAKES SHALL BE SPACED EVENLY AROUND THE PERIMETER OF THE INLET A MAXIMUM OF 3 FEET APART, AND SECURELY DRIVEN INTO THE GROUND, APPROXIMATELY 18 INCHES DEEP. THE FABRIC SHALL BE ENTRENCHED 12 INCHES AND BACKFILLED WITH CRUSHED STONE OR COMPACTED SOIL. FABRIC AND WIRE SHALL BE SECURELY FASTENED TO THE POSTS, AND FABRIC ENDS MUST BE OVERLAPPED A MINIMUM OF 18 INCHES OR WRAPPED TOGETHER AROUND A POST TO PROVIDE A CONTINUOUS BARRIER AROUND THE INLET.

2. THE TRAP SHALL BE INSPECTED DAILY AND REPAIRS MADE AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN SEDIMENT HAS ACCUMULATED TO ONE-HALF THE HEIGHT OF THE TRAP.

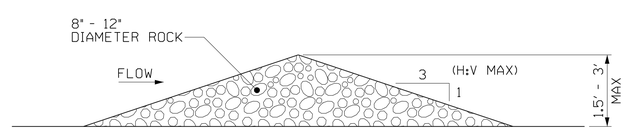
3. SEDIMENT SHALL NOT BE WASHED INTO THE INLET. IT SHALL BE REMOVED FROM THE SEDIMENT TRAP AND DISPOSED OF AND STABILIZED SO THAT IT WILL NOT AGAIN ENTER THE INLET. WHEN THE CONTRIBUTING AREA HAS BEEN PERMANENTLY STABILIZED, ALL MATERIALS AND ANY SEDIMENT SHALL BE REMOVED AND EITHER SALVAGED OR DISPOSED OF PROPERLY. THE DISTURBED AREA SHALL BE BROUGHT TO PROPER GRADE, THEN SMOOTHED AND COMPACTED. APPROPRIATELY STABILIZE ALL DISTURBED AREAS AROUND THE INLET.

INLET SEDIMENT TRAP (ISP)
FILTER FABRIC WITH SUPPORTING FRAME

NOT TO SCALE



ELEVATION



SECTION

ROCK CHECK DAM

NOT TO SCALE

REFERENCES:

DE-C1-0007 EROSION AND SEDIMENT CONTROL PLAN

REV	DATE	DESCRIPTION	DRAWN	CHECKED	ENGINEER	PROJECT ENGINEER	PROJECT MANAGER
- -							
- -							
- -							
- -							
- -							
A	11-14-06	ISSUED FOR CLIENT REVIEW	GU	AM	DS	PK	DE

DRAWN BY GJU	DATE 11-14-06	PROFESSIONAL ENGINEER STAMP	
CHECKED BY ALM	DATE 11-14-06	REGISTERED PROFESSIONAL ENGINEER PRADIP KUMAR KHAN No. 54262 Exp. 12-31-07 CIVIL STATE OF CALIFORNIA	
ENGINEER D SHETH	DATE 11-14-06		
PROJECT ENGINEER P KHAN	DATE 11-14-06	See electronic signature for date and time	
PROJECT MANAGER DR ERALI	DATE 11-14-06		

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PRINT NAME PRADIP KHAN
SIGNATURE
DATE 11-14-06 LICENSE # 54262

ORIGINALLY PREPARED UNDER THE RESPONSIBLE SUPERVISION OF
PE: STATE:
LIC. NO.: DATE:

WorleyParsons

CALPINE

RUSSELL CITY ENERGY CENTER
HAYWARD, CALIFORNIA

CIVIL
GEN-GENERAL
EROSION AND SEDIMENT CONTROL
DETAILS

SCALE NONE

DWG. NO.	SHEET NO.	REVISION
RC-GEN-DE-C1-0008	01	A

FILE NAME:
PATH:
SERVER:
DWG-FILE: rc-gen-de-c1-0008.dgn
DWG-DATE: 14-Nov-06 08:42

LEGEND

EXISTING GRADE CONTOUR

EXISTING GRADE SPOT ELEVATION

NOTES:

1. COORDINATES LISTED ARE STATE PLANE NAD83, CALIFORNIA ZONE 3.

60 0 60 120 180

SCALE IN FEET

REV	DATE	DESCRIPTION	DRAWN	CHECKED	ENGINEER	PROJECT ENGINEER	PROJECT MANAGER
A	11-13-06	ISSUED FOR CLIENT REVIEW	GU	AM	DS	PK	DE

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WorleyParsons

CALPINE

RUSSELL CITY ENERGY CENTER
HAYWARD, CALIFORNIA

CIVIL
GEN-GENERAL
EXISTING TOPOGRAPHY

SCALE 1"=60'

DWG. NO.	SHEET NO.	REVISION
RC-GEN-DE-C1-0009	01	A

FILE NAME:
PATH:
SERVER:

DWG-FILE: rc-gen-de-c1-0009.dgn
DWG-DATE: 13-Nov-06 12:34

CATCH BASIN SCHEDULE							
No.	COORDINATE		TYPE	STATE PLANE NGVD 29 DATUM			
	NORTH	EAST		TOP	INV IN	INV IN	INV OUT
CB-1	2057409.04	6088591.83	-	8.5	-	-	6.0
CB-2	2057425.37	6088721.00	-	8.5	-	5.73	5.73
CB-3	2057558.58	6088729.47	-	8.5	-	5.47	5.47
CB-4	2057558.65	6088813.46	-	8.5	-	5.30	5.30
CB-5	2057807.09	6088762.10	-	8.5	-	4.79	4.79
CB-6	2057807.09	6088598.10	-	8.5	-	4.46	4.37
CB-7	2057410.55	6088475.23	-	8.6	-	-	6.50
CB-8	2057410.55	6088391.23	-	8.5	-	6.16	6.16
CB-9	2057605.27	6088381.00	-	8.5	-	5.38	5.38
CB-10	2057734.27	6088381.00	-	8.5	4.87 (P-9)	4.70 (P-10)	4.70
CB-11	2057734.27	6088337.00	-	8.5	-	4.80	4.80
CB-12	2057807.09	6088504.10	-	8.5	4.18 (P-6)	4.10 (P-11)	4.10
CB-13	2057875.31	6088392.60	-	8.5	-	3.92	3.92
CB-14	2057863.31	6088770.60	-	8.5	-	-	6.00
CB-15	2057959.31	6088278.60	-	8.5	-	-	6.00
CB-16	2058033.31	6088343.60	-	8.5	-	-	6.00
CB-17	2058147.31	6088392.60	-	8.5	3.37 (P-17)	4.68 (P-20)	3.37
CB-18	2058147.31	6088770.60	-	8.5	-	5.43	5.43
CB-19	2057548.74	6088324.05	-	7.0	-	-	5.00
MH-1	2057959.31	6088392.60	-	9.6	3.75 (P-13)	5.77 (P-14)	3.75
MH-2	2058033.31	6088392.60	-	9.7	3.60 (P-15)	5.90 (P-16)	3.60
MH-3	2058147.31	6088586.60	-	9.0	-	5.06	5.06
MH-4	2058154.22	6088707.20	-	9.0	-	3.70	3.70
MH-5	2057642.17	6088345.84	-	9.0	-	4.90	4.90
J-1	2057409.23	6088694.05	-	8.9	-	5.79	5.79
O-1	2058274.67	6088292.63	-	-	-	-	3.07

CB = CATCH BASIN
MH = MANHOLE
J = JUNCTION BOX
O = OUTFALL

NOTES:

1. PIPE LENGTHS BETWEEN CATCH BASINS ARE FROM CENTER TO CENTER OF CATCH BASINS.
2. PIPE LENGTHS ARE TO THE OUTSIDE FACE OF THE ENDWALLS.
3. MAINTAIN MINIMUM 15" COVER OVER STORM PIPES DURING CONSTRUCTION.
4. SEE DWG DE-C1-0001 FOR PIPE ORIENTATION AT MANHOLES.

PIPE SCHEDULE				
No.	SIZE	LENGTH	SLOPE	MATERIAL
P-1	12"	103'	0.0020	SLPE
P-1A	15"	31'	0.0020	SLPE
P-2	18"	133'	0.0020	SLPE
P-3	18"	84'	0.0020	SLPE
P-4	18"	254'	0.0020	SLPE
P-5	24"	164'	0.0020	SLPE
P-6	24"	94'	0.0020	SLPE
P-7	12"	84'	0.0040	SLPE
P-8	15"	195'	0.0040	SLPE
P-9	15"	129'	0.0040	SLPE
P-10	18"	44'	0.0023	SLPE
P-11	18"	143'	0.0042	SLPE
P-12	30"	131'	0.0014	SLPE
P-13	30"	84'	0.0020	SLPE
P-14	15"	114'	0.0020	SLPE
P-15	30"	74'	0.0020	SLPE
P-16	12"	49'	0.0020	SLPE
P-17	36"	114'	0.0020	SLPE
P-18	15"	284'	0.0020	SLPE
P-19	24"	184'	0.0020	SLPE
P-20	24"	194'	0.0020	SLPE
P-21	36"	162'	0.0019	SLPE
P-22	18"	96'	0.0010	SLPE
P-23	18"	93'	0.0011	SLPE

SLPE = SMOOTH LINED POLYETHYLENE

CULVERT SCHEDULE					
No.	SIZE	LENGTH*	INV IN	INV OUT	MATERIAL
C-1	36"	100'	3.79	3.70	SLPE
C-2	36"	70'	3.70	3.63	SLPE
C-3	36"	30'	3.26	3.23	SLPE

*NOTE: CULVERT LENGTH INCLUDES FLARED END SECTIONS

REFERENCES:

DE-C1-0001 FINAL SITE GRADING AND DRAINAGE PLAN
DE-C2-0002 DRAINAGE STRUCTURES

REV	DATE	DESCRIPTION	DRAWN	CHECKED	ENGINEER	PROJECT ENGINEER	PROJECT MANAGER
A	11-13-06	ISSUED FOR CLIENT REVIEW	GU	AM	DS	PK	DE

DRAWN BY GJU	DATE 11-13-06	PROFESSIONAL ENGINEER STAMP
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ENGINEER D SHETH	DATE 11-13-06	
PROJECT ENGINEER P KHAN	DATE 11-13-06	See electronic signature for date and time
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WorleyParsons

CALPINE

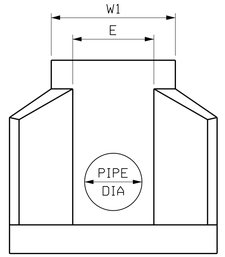
RUSSELL CITY ENERGY CENTER
HAYWARD, CALIFORNIA

CIVIL
GEN-GENERAL
CATCH BASIN AND PIPE SCHEDULE

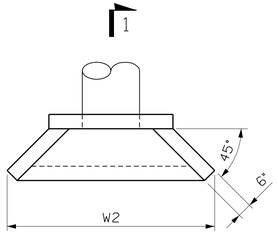
SCALE NONE

DWG. NO.	SHEET NO.	REVISION
RC-GEN-DE-C2-0001	01	A

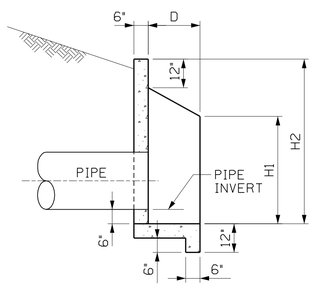
FILE NAME:
PATH:
SERVER:
DWG-FILE: rc-gen-de-c2-0001.dgn
DWG-DATE: 13-Nov-06 15:27



FRONT ELEVATION



TOP VIEW



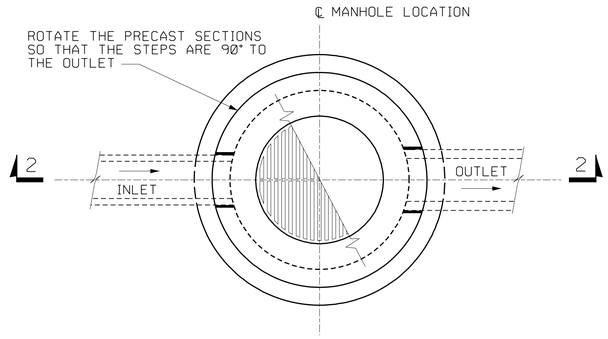
SECTION 1-1

PRECAST CONCRETE ENDWALL DIMENSIONS FOR SLPE PIPE								
EW	PIPE DIA	PIPE HOLE	W1	W2	H1	H2	D	E
EW-1	36"	48"	5'-8"	10'-10"	3'-3"	5'-9"	2'-11"	4'-3"
EW-2	36"	48"	5'-8"	10'-10"	3'-3"	5'-9"	2'-11"	4'-3"
EW-3	36"	48"	5'-8"	10'-10"	3'-3"	5'-9"	2'-11"	4'-3"
EW-4	36"	48"	5'-8"	10'-10"	3'-3"	5'-9"	2'-11"	4'-3"

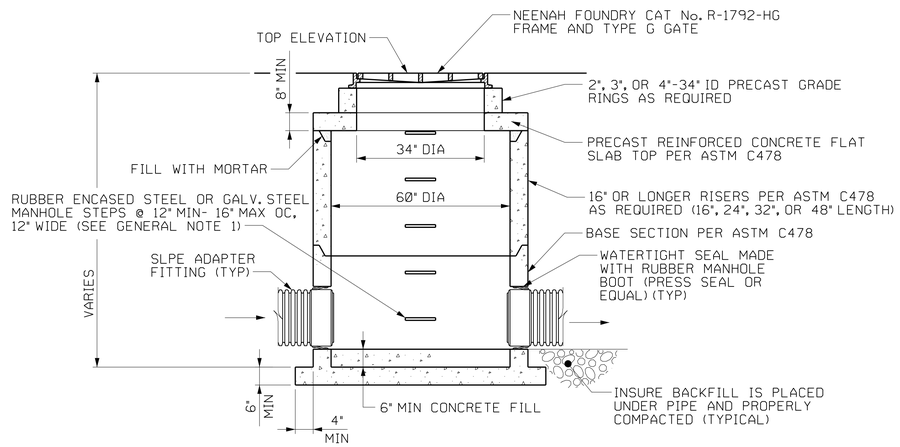
TYPICAL DETAIL
PRECAST CONCRETE ENDWALL
NOT TO SCALE

ENDWALL NOTES:

1. ALL CONCRETE TO BE 4000 PSI.
2. REINFORCEMENT STEEL MEETS ASTM A615, GRADE 60 WITH 2" MIN CLEARANCE. USE #5 REINF FOR 24" DIA PIPE AND #6 FOR 36" DIA PIPE.
3. REINFORCEMENT TO BE AT 12" C TO C, BOTH WAYS.
4. ALL EXPOSED EDGES TO HAVE A ¾" CHAMFER.
5. PLACE EXPOSED PIPE ENDS CUT-OFF FLUSH WITH FACE OF ENDWALL AND FINISH WITH NON-SHRINK CEMENTITIOUS GROUT.



PLAN



SECTION 2-2

NOTE:
PRECAST REINFORCED CONCRETE CATCH BASINS PER ASTM C913, DESIGNED ACCORDING TO ASTM C890 FOR A-16, HEAVY TRAFFIC STRUCTURAL LOADING.

DETAIL
TYPE 2 CATCH BASIN INLET
NOT TO SCALE

GENERAL NOTES:

1. PRECAST STRUCTURES OVER 5'-0" DEPTH SHALL BE PROVIDED WITH STEPS INSTALLED IN ACCORDANCE WITH OSHA STANDARD 1910.27.
2. PRECAST STRUCTURES SHALL BE PROVIDED WITH LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704 FOR HANDLING AND PLACEMENT.

REFERENCES:

DE-C1-0001	FINAL SITE GRADING AND DRAINAGE PLAN
DE-C1-0002	SURFACING PLAN
DE-C1-0005	ROADWAY AND FENCE LOCATION PLAN
DE-C2-0001	CATCH BASIN AND PIPE SCHEDULE

REV	DATE	DESCRIPTION	DRAWN	CHECKED	ENGINEER	PROJECT ENGINEER	PROJECT MANAGER
- -							
- -							
- -							
- -							
- -							
A	11-14-06	ISSUED FOR CLIENT REVIEW	GU	AM	DS	PK	DE

DRAWN BY GJU DATE 11-14-06
CHECKED BY ALM DATE 11-14-06
ENGINEER D SHETH DATE 11-14-06
PROJECT ENGINEER P KHAN DATE 11-14-06
PROJECT MANAGER DR ERALI DATE 11-14-06

PROFESSIONAL ENGINEER STAMP

REGISTERED PROFESSIONAL ENGINEER PRADIP KUMAR KHAN No. 54262 Exp. 12-31-07 CIVIL STATE OF CALIFORNIA

See electronic signature for date and time

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CALIFORNIA.

PRINT NAME PRADIP KHAN
SIGNATURE
DATE 11-14-06 LICENSE # 54262

ORIGINALLY PREPARED UNDER THE RESPONSIBLE SUPERVISION OF
PE:
LIC. NO.:
STATE:
DATE:

WorleyParsons

CALPINE

RUSSELL CITY ENERGY CENTER
HAYWARD, CALIFORNIA

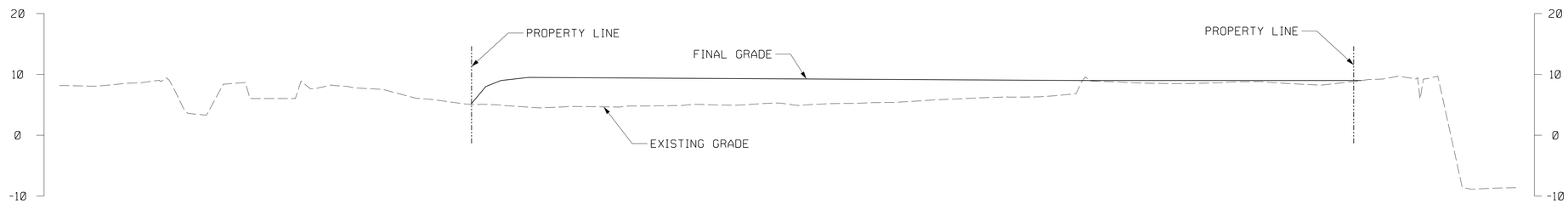
CIVIL
GEN-GENERAL
DRAINAGE STRUCTURES
DETAILS

SCALE NONE

DWG. NO. RC-GEN-DE-C2-0002 SHEET NO. 01 REVISION A

FILE NAME:
PATH:
SERVER:
DWG-FILE: rc-gen-de-c2-0002.dgn
DWG-DATE: 14-Nov-06 08:43

SECTION 3-3
SCALE: HORIZ: 1"=40'
VERT: 1"=10'
(DE-C1-0001)



SECTION 4-4
SCALE: HORIZ: 1"=40'
VERT: 1"=10'
(DE-C1-0001)

NOTE:

1. ELEVATIONS ARE BASED ON NGVD 29 DATUM.

REFERENCE:

DE-C1-0001 FINAL SITE GRADING AND DRAINAGE PLAN

REV	DATE	DESCRIPTION	DRAWN	CHECKED	ENGINEER	PROJECT ENGINEER	PROJECT MANAGER
	- -						
	- -						
	- -						
	- -						
	- -						
A	11-13-06	ISSUED FOR CLIENT REVIEW	GU	AM	DS	PK	DE

DRAWN BY GJU	DATE 11-13-06	PROFESSIONAL ENGINEER STAMP
CHECKED BY ALM	DATE 11-13-06	REGISTERED PROFESSIONAL ENGINEER PRADIP KUMAR KHAN No. 54262 Exp. 12-31-07 CIVIL STATE OF CALIFORNIA
ENGINEER D SHETH	DATE 11-13-06	
PROJECT ENGINEER P KHAN	DATE 11-13-06	See electronic signature for date and time
PROJECT MANAGER D ERALI	DATE 11-13-06	

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CALIFORNIA.

PRINT NAME PRADIP KHAN
SIGNATURE
DATE 11-13-06 LICENSE # 54262

ORIGINALLY PREPARED UNDER THE RESPONSIBLE SUPERVISION OF
PE: STATE:
LIC. NO.: DATE:

WorleyParsons

CALPINE

RUSSELL CITY ENERGY CENTER
HAYWARD, CALIFORNIA

CIVIL
GEN- GENERAL
SECTIONS

SCALE: AS NOTED

DWG. NO.	SHEET NO.	REVISION
RC-GEN-DC-C2-0003	01	A

FILE NAME:
PATH:
SERVER:
DWG-FILE: rc-gen-de-c2-0003.dgn
DWG-DATE: 13-Nov-06 08:52