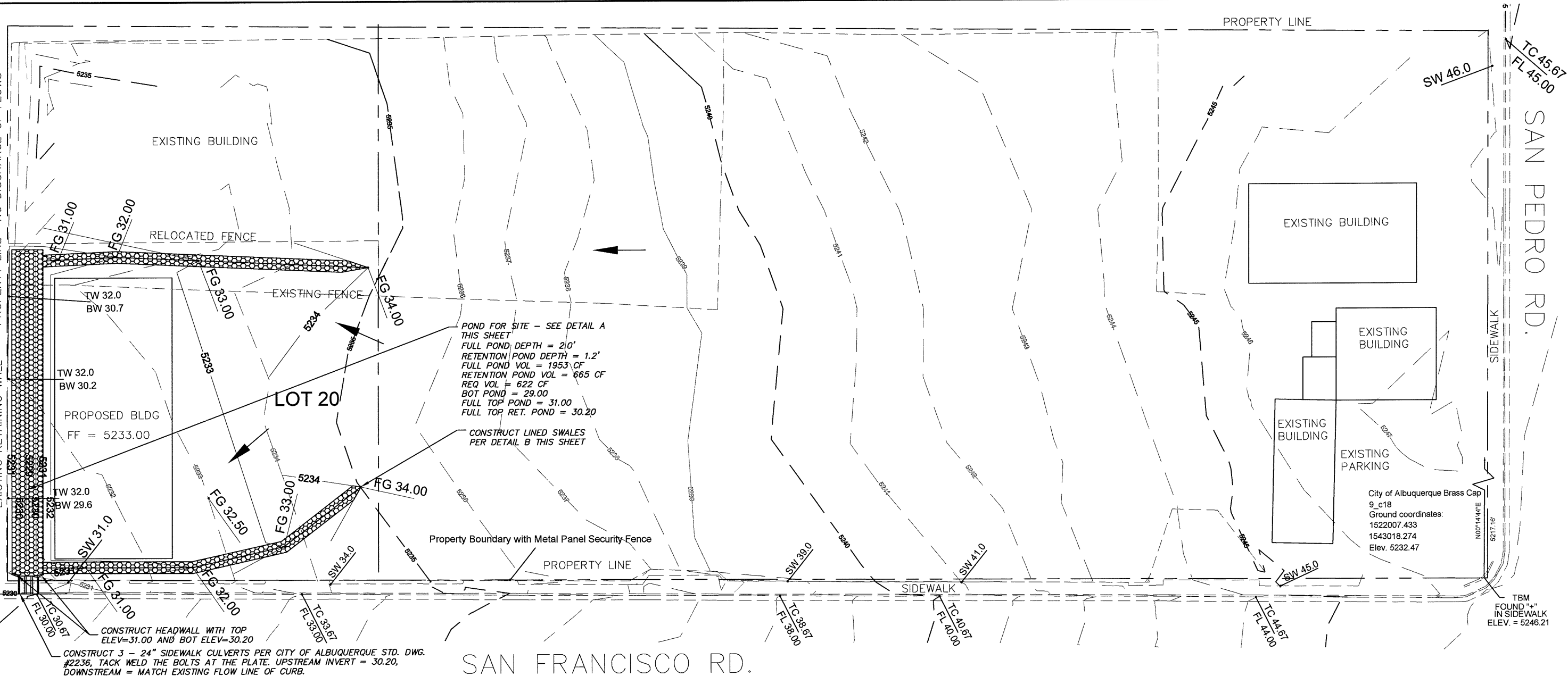


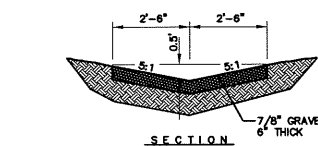
MODIFIED

PROPERTY LINE- NO DISCHARGE OF FLOWS
EXISTING RETAINING WALL

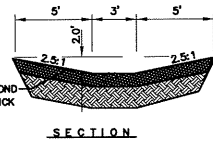


GENERAL NOTES

- PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AS SOON AS POSSIBLE TO RESOLVE THE CONFLICT WITH A MINIMUM AMOUNT OF DELAY.
- ALL WORK ON THIS PLAN SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
- IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE LOCATION ONLY, AND LINES MAY EXIST WHERE NONE ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE UTILITY OWNER OR FROM EXISTING PLANS, AND THIS INFORMATION MAY BE INCOMPLETE, OR OBSOLETE AT THE TIME OF CONSTRUCTION. THE ENGINEER HAS NOT UNDERTAKEN ANY FIELD VERIFICATION OF THESE LOCATIONS, LINE SIZES OR MATERIAL TYPE, MAKES NO REPRESENTATION THEREOF, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE OR UNDERGROUND INSTALLATION IN OR NEAR THE AREA IN ADVANCE OF AND DURING ANY EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES AND UNDERGROUND FACILITIES. IN PLANNING AND CONDUCTING EXCAVATIONS, THE CONTRACTOR SHALL COMPLY WITH ALL STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.
- THE CONTRACTOR SHALL INSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHTS-OF-WAY OR ONTO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AND BY WETTING THE SOIL TO KEEP IT FROM BLOWING.
- THE CONTRACTOR SHALL OBTAIN ANY AND ALL PERMITS REQUIRED BY CITY OF ALBUQUERQUE FOR THE COMPLETION OF THE WORK PRIOR TO BEGINNING CONSTRUCTION.
- DISTURBED GROUND NOT INCLUDED IN THE PROPOSED DRIVEWAY OR SHOWN AS LANDSCAPING SHALL BE RESEDED IN ACCORDANCE WITH THE APWA STANDARD SPECIFICATIONS (1101 & 1102). THE REQ'D "LOOSENING" OF THE SEEDBED AND RESEEDING SHALL BE COMPLETED AS SOON AS PRACTICAL FOLLOWING GRADING OPERATIONS.



GRAVEL LINED CHANNEL DETAIL
N.T.S. [B]



POND DETAIL
N.T.S. [A]

Private Drainage Facilities within City Right-of-Way Notice to Contractor (Special Order 19 ~ "SO-19")

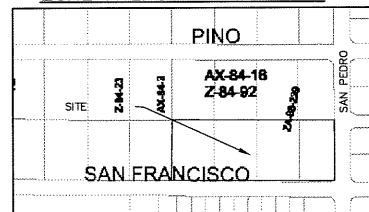
- AN EXCAVATION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
- ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
- TWO WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL, DAL 811 [OR (505) 260-1990] FOR THE LOCATION OF EXISTING UTILITIES.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
- BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
- MAINTENANCE OF THE FACILITY SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY BEING SERVED.
- WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.

NOTE: SEE SHEET G2 FOR DRAINAGE CALCULATIONS

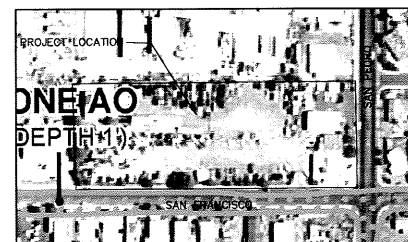
LEGEND

- | | | |
|---------------------------------|----|----------------------------------|
| EXISTING (INDEX) CONTOUR | TC | TOP OF CURB ELEVATION |
| EXISTING (INTERMEDIATE) CONTOUR | FL | CURB FLOWLINE ELEVATION |
| FINISHED (INDEX) CONTOUR | SW | BACK OF SIDEWALK ELEVATION |
| FINISHED (INTERMEDIATE) CONTOUR | TW | TOP OF WALL ELEVATION |
| FLOW DIRECTION ARROW | BW | BOTTOM OF WALL ELEVATION (GRADE) |

ZONE ATLAS PAGE D-18-Z



FEMA FIRM 35001C0137H



LEGAL DESCRIPTION

LOTS 17, 18, 19 AND 20 IN BLOCK 5 OF TRACT A, UNIT A, NORTH ALBUQUERQUE ACRES.



GRADING & DRAINAGE PLAN

DUGGER'S
NORTHWEST CORNER OF
SAN PEDRO & SAN FRANCISCO

PROJECT NO. XXXX
DESIGNED BY: DPLW
DRAWN BY: RA
CHECKED BY: RA
DATE: May 29, 2013
DEMEULE CONSULTING
SHEET:
G1

DRAINAGE CALCULATIONS

AREA = 3.38 ac. PROJECT: NW CORNER SAN PEDRO/SAN FRANCISCO

100 year PRECIPITATION: 10 days = 3.95 in.

RAINFALL INTENSITY = 5.05

RUNOFF COEFFICIENTS:

TREATMENT A 0.31
TREATMENT B 0.45
TREATMENT C 0.62
TREATMENT D 0.93

EXISTING CONDITIONS:	PROPOSED CONDITIONS:
AREA	AREA
TREATMENT A 0.00 ac.	0.00 ac.
TREATMENT B 0.00 ac.	0.00 ac.
TREATMENT C 2.79 ac.	2.65 ac.
TREATMENT D 0.59 ac.	0.73 ac.
3.38	3.38

EXISTING RUNOFF VOLUME:

Weighted C = (0.31)x(0.00)+(0.45)x(0.00)+(0.62)x(2.79)+(0.93)x(0.59)/ 3.38 ac. = 0.67

V100-360 = (0.67)x(3.95)x(3.38)/ 12 = 0.7500 ac-ft = 32670 cf

EXISTING PEAK DISCHARGE:

Q100 = (0.67)x(5.05)x(3.38)= 11.51 cfs

PROPOSED EXCESS PRECIPITATION:

Weighted C = (0.31)x(0.00)+(0.45)x(0.00)+(0.62)x(2.65)+(0.93)x(0.73)/ 3.38 ac. = 0.69

V100-360 = (0.69)x(3.95)x(3.38)/ 12 = 0.7643 ac-ft = 33293 cf

PROPOSED PEAK DISCHARGE:

Q100 = (0.69)x(5.05)x(3.38)= 11.73 cfs

RESULTS:

33293 - 32670 = 622 cf Increase in runoff volume

11.73 - 11.51 = 0.22 cfs Increase in peak discharge

SIDEWALK CULVERT CALCULATION:

Q = CA √2gh C= 0.50
A= 1.34 FOR A SINGLE 24" SW CULVERT
h= 0.80
g= 32.20

Q for single 24" SW Culvert= 4.809 cfs

Required # of SW culverts based on Exist Peak Discharge= 2.39 Round to 3-24" SW Culverts

DRAINAGE NOTES

THE EXISTING SITE GENERALLY DRAINS FROM EAST TO WEST AND CURRENTLY HAS A FEW STRUCTURES ONSITE.

THE PROPOSED IMPROVEMENTS FOR THE SITE INCLUDE AN ADDITIONAL BUILDING FOR MAINTENANCE PURPOSES.

THE HYDROLOGY CALCULATION USED WERE TAKEN FROM THE CITY OF ALBUQUERQUE DESIGN PROCESS MANUAL. THE PRECIPITATION ZONE IS ZONE 2. SEE THE DRAINAGE CALCULATIONS (THIS SHEET) FOR MORE INFORMATION.

THE PROPOSED ON-SITE RETENTION/DETENTION POND IS REQUIRED TO CAPTURE THE 100-YR 10 DAY FLOOD EVENT (622 CF) AND THE POND DESIGN IS 826 CF. THE DETENTION PORTION OF THE POND DRAINS WITHIN 24 HOURS.

AS SHOWN ON THE FEMA FLOODPLAIN MAP (THIS SHEET) THERE IS NO FLOODPLAIN IMPACTING THE SITE. THERE IS A FLOODPLAIN, ZONE AO, ADJACENT TO THE SITE WITHIN SAN FRANCISCO RD.

THE 3-24" SIDEWALK CULVERTS WERE SIZED USING A FLOW OF 11.51 CFS (EXISTING FLOWRATE SINCE THERE IS A PROPOSED POND). CHAPTER 22 SECTION 3.A.2 (ORIFICES) WAS USED TO CALCULATE THE SIDEWALK CULVERT CAPACITY. THE C VALUE ASSUMED WAS 0.5.

AHYMO OUTPUT FILE

ns16.67h8.5v0TU&l8D

AHYMO PROGRAM (AHYMO_97) - Version: 1997.02c

RUN DATE (MON/DAY/YR) = 05/24/2013

START TIME (HR:MIN:SEC) = 11:06:11 USER NO. =

AHYMO-I-9702a01000150-SH

INPUT FILE = G:\Proj\8dvlCnty\2007CO-1\temp\SANPED-1\duggers.txt

*S Data File: windev7.dat

*S Compute 100-Year Flow

*S Use 6 Hour Storm

*S

START TIME=0.0 CODE 0 LINES -6

*S*****

*S USE COA DPM ZONE 2 RAINFALL

*S*****

RAINFALL TYPE=-1 RAIN ONE=2.01

RAIN SIX=2.35 RAIN DAY=2.75 DT=0.050

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 -

PEAK AT 1.40 HR. DT = .033333 HOURS END TIME = 5.999940 HOURS

*S*****

*S*****

*S-----

*S COMPUTE BASIN

COMPUTE NM HYD ID=1 HYD NO=BAS.1 DA=0.00528 SQ MI

PER A=0.00 PER B=0.00 PER C=78 PER D=22 TP=-.133

MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE

CONSTANT, N = 7.106420

UNIT PEAK = 4.5964 CFS UNIT VOLUME = .9970 B = 526.28

P60 = 2.3500

AREA = .001162 SQ MI IA = .10000 INCHES INF = .04000

INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT

= .033333

K = .111031HR TP = .133000HR K/TP RATIO = .834817 SHAPE

CONSTANT, N = 4.271263

UNIT PEAK = 11.546 CFS UNIT VOLUME = .9992 B = 372.87

P60 = 2.3500

AREA = .004118 SQ MI IA = .35000 INCHES INF = .83000

INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT

= .033333

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA BAS.1

RUNOFF VOLUME = 1.69680 INCHES = .4778 ACRE-FEET

PEAK DISCHARGE RATE = 14.11 CFS AT 1.500 HOURS BASIN AREA = .0053 SQ. MI.

*S-----

*S ROUTE THROUGH ONSITE POND

*S NEW BATING CURVE

ROUTE RESERVOIR ID=20 HYD=POND INFLOW=1 CODE=10

OUTFLOW STORAGE ELEV

0 0 5229.0

0.010 0.004 5229.5

0.020 0.013 5230.0

8.835 0.027 5230.5

14.427 0.045 5231.0

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5229.00	.000	.00
.33	.00	5229.00	.000	.00
.67	.00	5229.00	.000	.00
1.00	.00	5229.00	.000	.00
1.33	2.62	5229.85	.010	.02
1.67	7.70	5230.54	.028	9.25
2.00	2.80	5230.17	.018	2.95
2.33	.65	5230.04	.014	.69
2.67	.24	5230.01	.013	.26
3.00	.11	5230.01	.013	.11
3.33	.06	5230.00	.013	.06
3.67	.03	5230.00	.013	.03
4.00	.03	5230.00	.013	.03
4.33	.03	5230.00	.013	.03
4.67	.03	5230.00	.013	.03
5.00	.03	5230.00	.013	.03
5.33	.03	5230.00	.013	.03
5.67	.03	5230.00	.013	.03
6.00	.03	5230.00	.013	.03
6.33	.00	5229.99	.013	.02
6.67	.00	5229.96	.012	.02
7.00	.00	5229.93	.012	.02
7.33	.00	5229.90	.011	.02
7.67	.00	5229.88	.011	.02
8.00	.00	5229.85	.010	.02
8.33	.00	5229.82	.010	.02
8.67	.00	5229.80	.009	.02
9.00	.00	5229.78	.009	.02
9.33	.00	5229.75	.009	.02
9.67	.00	5229.73	.008	.01
10.00	.00	5229.71	.008	.01
10.33	.00	5229.69	.007	.01
10.67	.00	5229.67	.007	.01
11.00	.00	5229.65	.007	.01
11.33	.00	5229.63	.006	.01
11.67	.00	5229.61	.006	.01
12.00	.00	5229.59	.006	.01
12.33	.00	5229.57	.005	.01
12.67	.00	5229.55	.005	.01
13.00	.00	5229.54	.005	.01
13.33	.00	5229.52	.004	.01
13.67	.00	5229.51	.004	.01
14.00	.00	5229.48	.004	.01
14.33	.00	5229.45	.004	.01
14.67	.00	5229.42	.003	.01
15.00	.00	5229.39	.003	.01
15.33	.00	5229.36	.003	.01
15.67	.00	5229.34	.003	.01
16.00	.00	5229.32	.003	.01
16.33	.00	5229.29	.002	.01
16.67	.00	5229.28	.002	.01
17.00	.00	5229.26	.002	.01
17.33	.00	5229.24	.002	.00
PEAK DISCHARGE =	13.248 CFS	PEAK OCCURS AT HOUR	1.53	
MAXIMUM WATER SURFACE ELEVATION =	5230.895			
MAXIMUM STORAGE =	.0412 AC-FT	INCREMENTAL TIME=	.033333HRS	



GRADING & DRAINAGE PLAN

DUGGER'S
NORTHWEST CORNER OF
SAN PEDRO & SAN FRANCISCO

PROJECT NO. XXXX

DESIGNED BY: DPLW

DRAWN BY: RA

CHECKED BY: RA

DATE: May 29, 2013

DEMEULE CONSULTING

SHEET:

G2