A14/D10A

0000 0000 1676

A14/D10A

25×10

0000 0000 1677

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Seven Bar Ranch Tract G-1A -2A thru G-1A-2E ZONE ATLAS/DRNG. FILE#: A-14

DRB#: 96-353 EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: Tract G-1A,-2A thru G-1A-2E, Seven Bar Ranch

CITY ADDRESS: Southeast Corner Ellison Drive and Cottonwood Drive, NW

ENGINEERING FIRM: Easterling & Associates, Inc. CONTACT: R. P. Bohannan

ADDRESS: 10131 Coors Road, NW, Suite H-7 PHONE: 898-8021

Albuquerque, NM 87114-4048

OWNER: Wrangler Properties Limited Liability Co. CONTACT: Don Chalmers

ADDRESS: 2500 Rio Rancho Drive PHONE: 897-2500

Rio Rancho, NM 87124

ARCHITECT: George Rainhart Architect & Associates CONTACT: George Rainhart

ADDRESS: 2325 San Pedro NE, Suite 2-B PHONE: 884-9110

Albuquerque, NM 87110

SURVEYOR: Surv-Tek, Inc. CONTACT: Rusty Hugg

ADDRESS: 5643 Paradise Boulevard NW PHONE: 897-3366

Albuquerque, NM 87114

CONTRACTOR: Not Yet Determined CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ___ DRAINAGE REPORT
- ___ DRAINAGE PLAN
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- ___ GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION
- X OTHER Grading and Drainage Plan

PRE-DESIGN MEETING:

- X YES
- ___ NO
- ___ COPY PROVIDED

DATE SUBMITTED: 5/4/98

BY: RP Bohannan

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SKETCH PLAT APPROVAL
- ___ PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUBD. APPROVAL
- ___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- ___ BUILDING PERMIT APPROVAL
- X CERTIFICATE OF OCCUPANCY APPROVAL
- ___ GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ S.A.D. DRAINAGE REPORT
- ___ DRAINAGE REQUIREMENTS
- ___ OTHER _____ (SPECIFY)

17-8

Rev 1/90

25 X

0000 0000 1678

CITY OF
Albuquerque

May 7, 1998

R.P. Bohannan
Easterling & Associates
10131 Coors rd.. NW
Albuquerque, New Mexico 87114-4048

RE: ENGINEER'S CERTIFICATION FOR SANDIA LABS FEDERAL CREDIT UNION (A-14/D10) ENGINEER CERTIFICATION STATEMENT DATED 5/4/98.

Dear Mr. Bohannan:

Based on the information provided on your May 4, 1998 resubmittal, Engineer Certification for the above referenced site is acceptable.

If I can be of further assistance, please feel free to contact me at 924-3330.

C: File

Sincerely,

Andrew Garcia
Drainage inspector

25×10

0000 0000 1679

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Sandia Labs Federal Credit Union ZONE ATLAS / DRNG. FILE #: A-14 D10

DRB #: 96-353 EPC #: WORK ORDER #:

LEGAL DESCRIPTION: Tract G1A-2E

CITY ADDRESS: Ellison Drive and Cottonwood Drive, NW - Seven Bar Ranch

ENGINEERING FIRM: Easterling & Associates, Inc. CONTACT: C. M. Easterling

ADDRESS: 10131 Coors Road, NW, Suite H-7 PHONE: 898-8021

Albuquerque, NM 87114-4048

OWNER: Sandia Labs Federal Credit Union CONTACT:

ADDRESS: 3740 Ellison Drive NW PHONE:

Albuquerque NM 87114

ARCHITECT: TGS Architects CONTACT: Dallas Taylor

ADDRESS: 5323 Spring Wells Rd., Suite 200 PHONE: 214-788-1945

Dallas, TX 75240

SURVEYOR: Surv-Tek, Inc. CONTACT: Rusty Hugg

ADDRESS: 5643 Paradise Boulevard NW PHONE: 897-3366

Albuquerque, NM 87114

CONTRACTOR: KDA, Inc. CONTACT: Forest Ferqueron

ADDRESS: 350 Franklin Road PHONE: (770) 421-1532

Marietta, GA 30067-7734

TYPE OF SUBMITTAL:

- ___ DRAINAGE REPORT
- ___ DRAINAGE PLAN
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- ___ GRADING PLAN
- ___ EROSION CONTROL PLAN
- ✓ ENGINEER'S CERTIFICATION
- ___ OTHER ___

PRE-DESIGN MEETING:

- X YES
- ___ NO
- ___ COPY PROVIDED

DATE SUBMITTED: 4/13/98

BY: RPBohannon

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SKETCH PLAT APPROVAL
- ___ PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D. APPROVAL
- ___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- ___ BUILDING PERMIT APPROVAL
- ✓ CERTIFICATE OF OCCUPANCY APPROVAL
- ___ GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ S.A.D. DRAINAGE REPORT
- ___ DRAINAGE REQUIREMENTS
- ___ OTHER ___ (SPECIFY)

RECEIVED APR 13 1998 HYDROLOGY SECTION

17-3

Rev 1/90

25 x

0000 0000 1680

CITY OF
Albuquerque

FEB 2 6 1998

February 18, 1998

R.P. Bohannan
Easterling and Associates
10131 Coors Road NW
Suite H-7
Albuquerque, NM 87114-4048

RE: SANDIA LABS FEDERAL CREDIT UNION (A14-D10) ENGINEER'S CERTIFICATION FOR TEMPORARY CERTIFICATE OF OCCUPANCY. ENGINEER'S CERTIFICATION DATED FEBRUARY 17, 1998.

Dear Mr. Bohannan:

Based on the information provided on your February 18, 1998 submittal, the above referenced project is approved for a 30-day Temporary Certificate of Occupancy.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

Lisa Ann Manwill, P.E.
Hydrology

c: Andrew Garcia
File

RECEIVED
APR 1 3 1998
HYDROLOGY SECTION

25 x

0000 0000 1681

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Sandia Labs Federal Credit Union ZONE ATLAS / DRNG. FILE #: A-14 D 016

DRB #: 96-353 EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: Tract G1A-2E

CITY ADDRESS: Ellison Drive and Cottonwood Drive, NW - Seven Bar Ranch

ENGINEERING FIRM: Easterling & Associates, Inc. CONTACT: C. M. Easterling

ADDRESS: 10131 Coors Road, NW, Suite H-7 PHONE: 898-8021

Albuquerque, NM 87114-4046

OWNER: Sandia Labs Federal Credit Union CONTACT: _____

ADDRESS: 3740 Ellison Drive NW PHONE: _____

Albuquerque NM 87114

ARCHITECT: TGS Architects CONTACT: Dallas Taylor

ADDRESS: 5323 Spring Wells Rd., Suite 200 PHONE: 214-788-1945

Dallas, TX 75240

SURVEYOR: Surv-Tek, Inc. CONTACT: Rusty Hugg

ADDRESS: 5643 Paradise Boulevard NW PHONE: 897-3366

Albuquerque, NM 87114

CONTRACTOR: KDA, Inc. CONTACT: Forest Ferqueron

ADDRESS: 350 Franklin Road PHONE: (770) 421-1532

Marietta, GA 30067-7234

TYPE OF SUBMITTAL:

- ___ DRAINAGE REPORT
- ___ DRAINAGE PLAN
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- ___ GRADING PLAN
- ___ EROSION CONTROL PLAN
- ✓ ENGINEER'S CERTIFICATION
- ___ OTHER _____

PRE-DESIGN MEETING:

- X YES
- ___ NO
- ___ COPY PROVIDED

DATE SUBMITTED: ~~4/13/98~~ 5/4/98 RAB

BY: R P Bohannon

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SKETCH PLAT APPROVAL
- ___ PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D. APPROVAL
- ___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- ___ BUILDING PERMIT APPROVAL
- ✓ CERTIFICATE OF OCCUPANCY APPROVAL
- ___ GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ S.A.D. DRAINAGE REPORT
- ___ DRAINAGE REQUIREMENTS
- ___ OTHER _____ (SPECIFY)

17-3

Rev 1/90

25 x

0000 0000 1682

CITY OF
Albuquerque

FEB 2 6 1998

February 18, 1998

R.P. Bohannan
Easterling and Associates
10131 Coors Road NW
Suite H-7
Albuquerque, NM 87114-4048

RE: SANDIA LABS FEDERAL CREDIT UNION (A14-D10) ENGINEER'S CERTIFICATION FOR TEMPORARY CERTIFICATE OF OCCUPANCY. ENGINEER'S CERTIFICATION DATED FEBRUARY 17, 1998.

Dear Mr. Bohannan:

Based on the information provided on your February 18, 1998 submittal, the above referenced project is approved for a 30-day Temporary Certificate of Occupancy.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

Lisa Ann Manwill, P.E.
Hydrology

c: Andrew Garcia
File

25 ×

0000 0000 1683

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Sandia Labs Federal Credit Union ZONE ATLAS / DRNG. FILE #: A-14

DRB #: 96-353 EPC #: _____ WORK ORDER #: issued by CSA at Bldg. Per

LEGAL DESCRIPTION: Tract G1A-2E

CITY ADDRESS: Ellison Drive and Cottonwood Drive, NW - Seven Bar Ranch 10341 Cottonwood NW 3740 Ellison NW issued by CSA as permanent address

ENGINEERING FIRM: Easterling & Associates, Inc. CONTACT: C. M. Easterling

ADDRESS: 10131 Coors Road, NW, Suite H-7 PHONE: 898-8021

Albuquerque, NM 87114-4048

OWNER: Sandia Labs Federal Credit Union CONTACT: _____

ADDRESS: _____ PHONE: _____

ARCHITECT: TGS Architects CONTACT: Dallas Taylor

ADDRESS: 5323 Spring Wells Rd., Suite 200 PHONE: 214-788-1945

Dallas, TX 75240

SURVEYOR: Surv-Tek, Inc. CONTACT: Rusty Hugg

ADDRESS: 5643 Paradise Boulevard NW PHONE: 897-3366

Albuquerque, NM 87114

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

RECEIVED FEB 18 1998 HYDROLOGY SECTION

TYPE OF SUBMITTAL:

- ___ DRAINAGE REPORT
- ___ DRAINAGE PLAN
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- ___ GRADING PLAN
- ___ EROSION CONTROL PLAN
- ✓ ENGINEER'S CERTIFICATION
- ___ OTHER _____

PRE-DESIGN MEETING:

- X YES
- ___ NO
- ___ COPY PROVIDED

Called in 30 day on 2/18

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SKETCH PLAT APPROVAL
- ___ PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUBD. APPROVAL
- ___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- ___ BUILDING PERMIT APPROVAL
- ✓ CERTIFICATE OF OCCUPANCY APPROVAL (Temp 30 Day)
- ___ GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ S.A.D. DRAINAGE REPORT
- ___ DRAINAGE REQUIREMENTS
- ___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 2/17/98

BY: R Bohannon

17-8

Rev 1/90

25 x

0000 0000 1684

EASTERLING & ASSOCIATES, INC.
10131 Coors Road, NW, Suite H-7
ALBUQUERQUE, NEW MEXICO 87114-4048
(505) 898-8021
FAX (505) 898-8501

LETTER OF TRANSMITTAL

Date:	February 17, 1998	Job No.	4550
Attention:	Lisa Manwill		
Re:	Sandia Labs Federal Credit Union		
	Grading & Drainage Plan (A14-D10)		

TO: City of Albuquerque
Development Services / Hydrology Division
Plaza del Sol, 600 Second Street NW, 2nd Floor
Albuquerque, NM 87103

WE HEREBY TRANSMIT ☒ Enclosed ☐ Under separate cover via courier THE FOLLOWING ITEMS:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐

COPIES	DATE	NO.	DESCRIPTION
1	02/17/98		Drainage Information Sheet
1	02/17/98		Sandia Labs Federal Credit Union Tract G-1A-2E, Seven Bar Ranch
			Grading & Drainage Plan Revised 2/17/98
			Engineer's Certification for Temporary Certificate of Occupancy
1	02/13/98		Drainage Calculations

THESE ITEMS ARE TRANSMITTED AS INDICATED BELOW:

☐ As requested ☐ Approved as submitted ☐ Resubmit ____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit ____ copies for distribution
☒ For review and comment ☐ Returned for corrections ☐ Return ____ corrected prints
☒ For approval ☐

RECEIVED FEB 18 1998 HYDROLOGY SECTION

REMARKS: Lisa:

As discussed, we have revised the Grading & Drainage plan to accommodate the revisions in the roof drain lines. We propose to enlarge the detention pond at the southwest end of the building and to install a 6" diameter drain line from the pond to the storm drain inlet on the west side of the abutting street. Both the street and the storm drain system are private. The pond should drain in less than 6 hours, and the storm drain line has sufficient capacity to accept the additional flow. Please refer to the attached calculations.

The new Sandia Labs Federal Credit Union is scheduled to open on Monday, 2/23/98. We are requesting a Temporary 30 Day Certificate of Occupancy until site drainage improvements can be completed.

Thanks,

Signed: R P Bohannan
R. P. Bohannan

COPIES TO:
Fred Coates, KDA, Inc. Field Office
Forest Ferqueron, KDA, Inc.
Dallas Taylor, TGS Architects
Vaden Bales, Wrangler Properties, Inc.

Received by: _____ Date: _____

If enclosures are not as noted, please notify us at once.

25 ×

0000 0000 1685

Easterling & Associates, Inc.
• CONSULTING ENGINEERS •

Project Name Sandia Lab Federal Credit Union
Project No. 4550 Date 2-13-98
Subject Drainage Certification Calcs.
By (CN) Sheet 1 of 3

PROBLEM: DESIGN STORMWATER SYSTEM TO ACCOMODATE ADDITIONAL ROOF DRAIN DISCHARGE TO THE SOUTHWEST SIDE OF THE SITE.

GIVEN: DESIGN STORM = 100 YR. - 6 HR EVENT

LAND TREATMENTS
A = 0 SF
B = 3730 SF ≈ 0.0856 AC (LANDSCAPING)
C = 0 SF
D = 10,035 SF ≈ 0.2304 AC (ROOFTOP & SIDEWALK)

SOLUTION: RUNOFF VOLUME, $\forall = \left(\frac{0.67''}{12''/ft}\right)(0.0856\ AC) + \left(\frac{1.97''}{12''/ft}\right)(0.2304\ AC)$

$\forall = 0.0426\ AC\cdot ft \approx \underline{1856\ CF}$

PEAK RUNOFF RATE, $Q_p = (2.03\ cfs/AC)(0.0856\ AC) + (4.37\ cfs/AC)(0.2304\ AC)$

$Q_p = 1.18\ cfs$

DETERMINING APPROXIMATE HYDROGRAPH - PER DPM

ASSUME $t_c = 12\ min = \underline{0.2\ HR}$

EXCESS PRECIP., $E = \frac{\forall_{TOT}}{A_T} = \frac{0.0426\ AC\cdot ft}{0.3160\ AC} = 0.1348\ ft \approx 1.62\ in.$

DPM EQ a-13, $t_B = \left[(2.107)(1.62'')\left(\frac{0.3160\ AC}{1.18\ cfs}\right)\right] - \left[(0.25)\left(\frac{0.2304\ AC}{0.3160\ AC}\right)\right]$

$t_B = \underline{0.73\ HRS.}$

DPM EQ. a-14, $t_p = (0.7)(0.2\ HRS) + \left[(1.6 - \left(\frac{0.2304\ AC}{0.3160\ AC}\right)\right]\left(\frac{1}{12}\right)$

$t_p = \underline{0.21\ HRS}$

DURATION OF PEAK $= 0.25\frac{A_D}{A_T} = 0.25\left(\frac{0.2304\ AC}{0.3160\ AC}\right) = 0.18\ HRS$

THE APPROXIMATE HYDROGRAPH IS SHOWN ON THE FOLLOWING SHEET. THE COMPUTATIONS IN THE SPREADSHEET ON SHEET 3 of 3 ARE BASED ON THE NUMBERS IN PARANTHESES ON THE HYDROGRAPH.

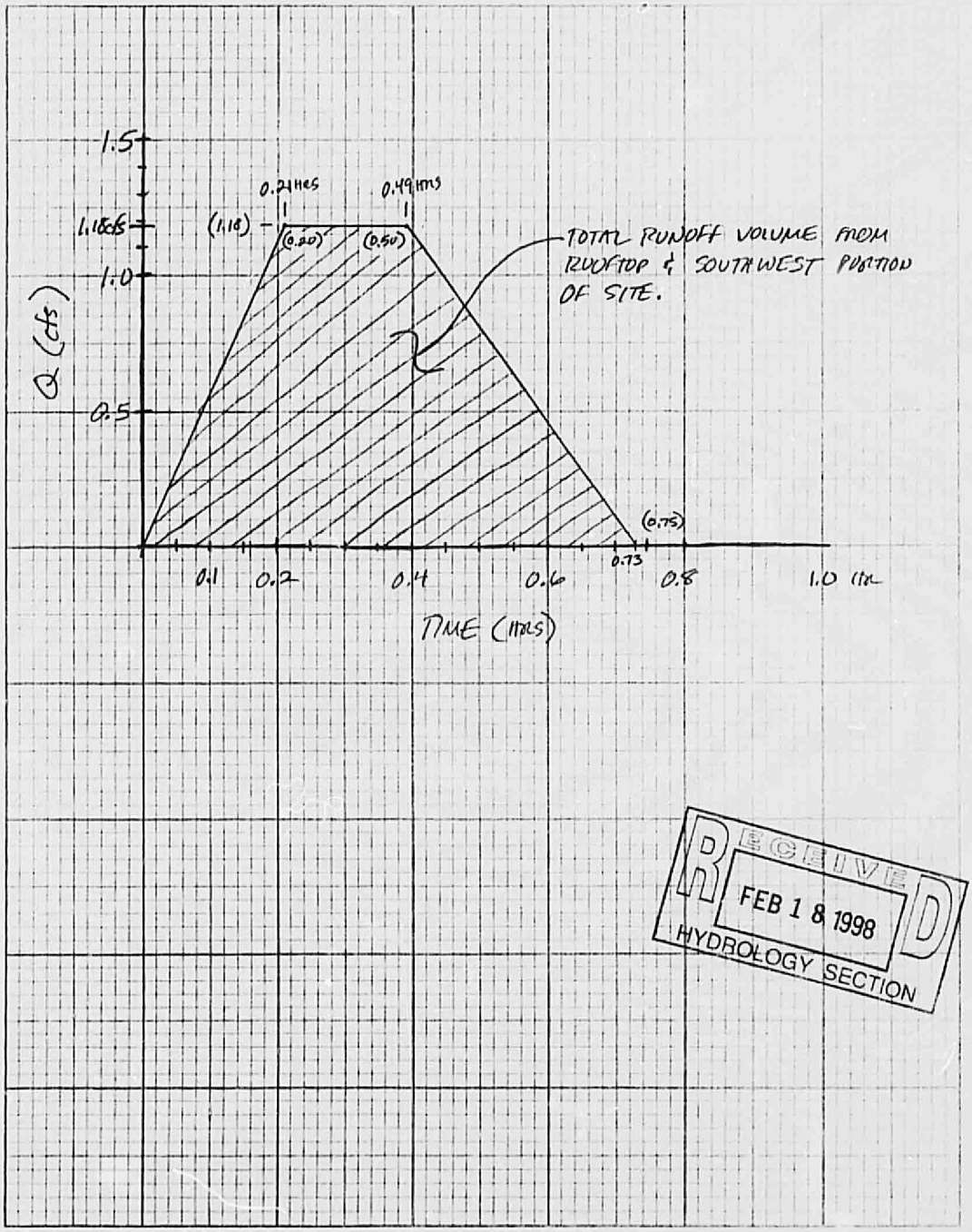
RECEIVED FEB 18 1998 HYDROLOGY SECTION

25 x 10

0000 0000 1686

Easterling & Associates, Inc.
• CONSULTING ENGINEERS •

Project Name Sandia Lab Federal Credit Union
Project No. 4550 Date 2-13-98
Subject Drainage Certification Calcs.
By BD Sheet 2 of 3



RECEIVED
FEB 18 1998
HYDROLOGY SECTION

25x

filename: t:\projects\4550\eng\pond vol.xls

TIME (HRS)	AVG. INCREMENTAL RUNOFF RATE (CFS)	INCREMENTAL RUNOFF VOLUME (CF)	DISCHARGE RATE (CFS)	DISCHARGE VOLUME (CF)	INCREMENTAL STORAGE VOLUME (CF)	CUMULATIVE STORAGE VOLUME (CF)
0.05	0.148	26.550	0.148	26.550	0.000	0.00
0.10	0.443	79.650	0.443	79.650	0.000	0.00
0.15	0.738	132.750	0.500	90.000	42.750	42.75
0.20	1.033	185.850	0.500	90.000	95.850	138.60
0.25	1.180	212.400	0.500	90.000	122.400	261.00
0.30	1.180	212.400	0.500	90.000	122.400	383.40
0.35	1.180	212.400	0.500	90.000	122.400	505.80
0.40	1.180	212.400	0.500	90.000	122.400	628.20
0.45	1.096	197.229	0.500	90.000	107.229	735.43
0.50	0.927	166.886	0.500	90.000	76.886	812.31
0.55	0.759	136.543	0.500	90.000	46.543	858.86
0.60	0.590	106.200	0.500	90.000	16.200	875.06
0.65	0.421	75.857	0.500	90.000	0.000	860.91
0.70	0.253	45.514	0.500	90.000	0.000	816.43
0.75	0.084	15.171	0.500	90.000	0.000	741.60

2017.800

RECEIVED
FEB 1 8 1998
HYDROLOGY SECTION

25 x 10

RECEIVED
FEB 1 8 1998
HYDRO

This spreadsheet computes the **volume of a reservoir**, or retention pond, using the **Conic Method** as described in the HEC-1 Users Manual. Simply enter the area, A, contained within a contour for each contour interval and then the verticle distance, H, between each area entered. **The user need only enter data in the blue cells.** The total volume is given in the last rows of the cumulative volume columns in both cubic feet and acre-feet

Data entry	Column for contour	ELEV (FT)	Column 1 AREA, A (SF)	Column 2 HEIGHT, H (FEET)	INCREMENTAL VOLUME (CUBIC FEET)	CUMULATIVE VOLUME (CUBIC FEET)	CUMULATIVE VOLUME (ACRE-FEET)
AREA 1		34.5	0.00				
	H 1-2			0.50	63.33	63.33	0.00145
AREA 2		35	380.00				
	H 2-3			0.50	259.10	322.43	0.00740
AREA 3		35.5	670.00				
	H 3-4			0.50	422.49	744.92	0.01710
AREA 4		36	1033.00				
	H 4-5			0.50	611.40	1,356.32	0.03114
AREA 5		36.5	1423.00				
	H 5-6			0.00	0.00	0.00	0.00000
AREA 6		0	0.00				
	H 6-7			0.00	0.00	0.00	0.00000
AREA 7		0	0.00				
	H 7-8			0.00	0.00	0.00	0.00000
AREA 8		0	0.00				
	H 8-9			0.00	0.00	0.00	0.00000
AREA 9		0	0.00				
	H 9-10			0.00	0.00	0.00	0.00000
AREA 10		0	0.00				
	H 10-11			0.00	0.00	0.00	0.00000
AREA 11		0	0.00				
	H 11-12			0.00	0.00	0.00	0.00000
AREA 12		0	0.00				
	H 12-13			0.00	0.00	0.00	0.00000
AREA 13		0	0.00				

25X
0000 0000 0000 1688

0000 0000 1689

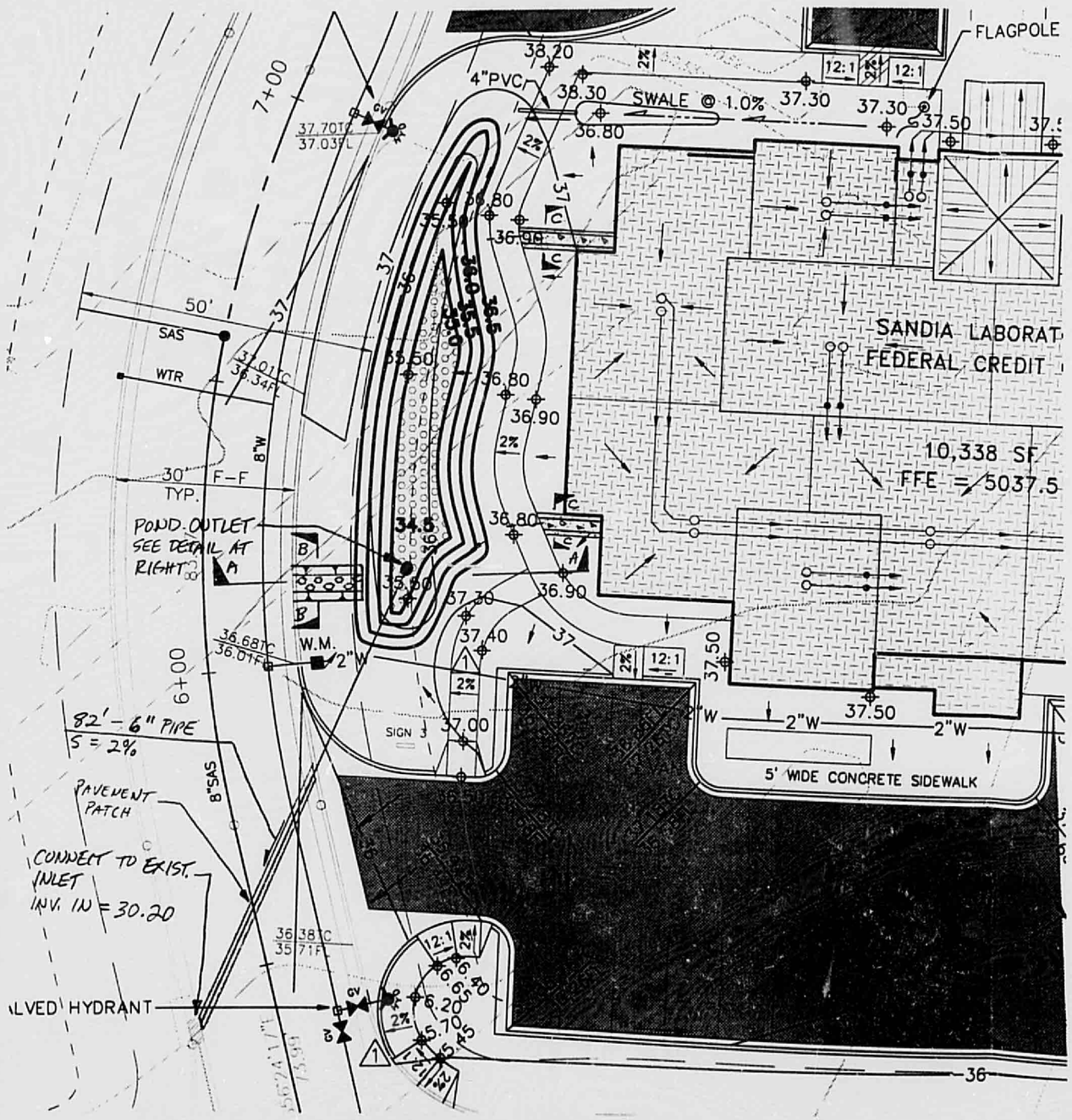
SANDIA LAB FEDERAL CREDIT UNION

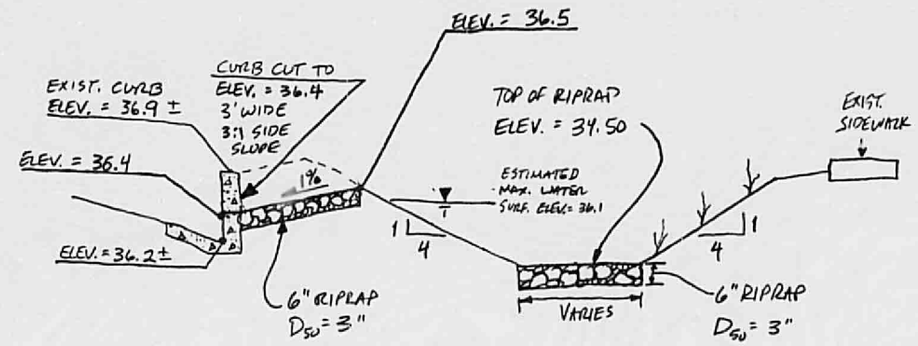
EASTERLING & ASSOC., INC.

2-16-98 (GN)

PLAN

1" = 20'

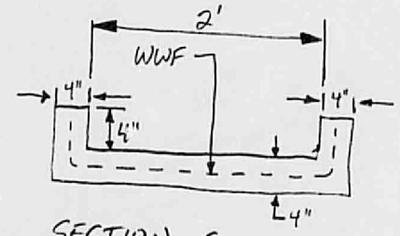




SECTION A-A

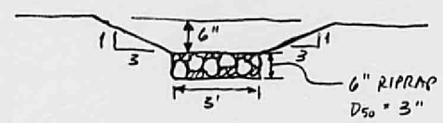
N.T.S.

RECEIVED
FEB 1 8 1998
HYDROLOGY SECTION



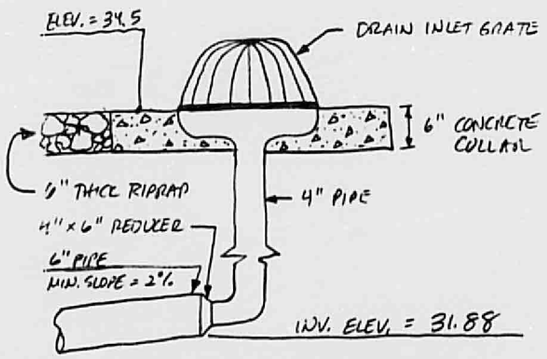
SECTION C

NTS



SECTION B-B

N.T.S.



POND OUTLET DETAIL

N.T.S.

25× 32× 25×

0000 0000 1690

STORM DRAIN HYDRUALIC GRADE LINE ANALYSIS																																									
PROJECT:	TRACTS G-1A-2A THRU G-1A-2E, SEVEN BAR RANCH																																								
JOB NO.:	4350																																								
SUBJECT:	ONSITE STORM DRAIN LINE "A"																																								

STARTING CONDITIONS:	
OUTFALL STATION=	0.00
PIPE INVERT ELEV=	24.02
TAILWATER ELEVATION =	27.12
STARTING HGL ELEV=	27.12
STARTING GROUND ELEV=	32.19

PIPE DATA								STRUCTURE(S) @ UPSTREAM END PIPE SEGMENT					PIPE ELEVATION DATA				GROUND ELEV		PRESSURE FLOW HYDRAULICS					HEAD LOSS CALCULATIONS							EGL & HGL @ UPSTREAM END OF PIPE SEGMENT							HGL BELOW GROUND?	
PIPE SEGMENT		STA. OFFSET	MAIN	PIPE	MANNING	LAY	PIPE	MANHOLE	BEND	JUNCTION	LATERAL	TRANSITION	PIPE INVERT		PIPE SOFFIT		DOWN	UP	FLOW	FLOW	FLOW	FRICTION	VELOCITY	FRICTION	MANHOLE	BEND	JUNCTION	TRANS LOSS	TRANS LOSS	SUM	STORM	EGL	EGL	HGL	HGL	DEFAULT	PIPE	FINISHED	CHECK
FROM	TO		FLOW	DIA.	COEFF.	LENGTH	SLOPE	LOSS	ANGLE	ANGLE	DIAMETE	LOSS	DOWN	UP	DOWN	UP	STREAM	STREAM	AREA	VELOCITY	DEPTH	SLOPE	HEAD	LOSS	LOSS	LOSS	LOSS	EXPANSION	CONTRACTION	CF	DRAIN	ELEV.	ELEV.	ELEV.	ELEV.	HGL ELEV	FULL?	GROUND	
DOWN	UP		(cfs)	(inches)	("n")	(feet)	(fpf)	(1=yes)	(degees)	(degees)	(inches)	(1=yes)	STREAM	STREAM	STREAM	STREAM	(elev.)	(elev.)	(sq.ft.)	(fps)	(feet)	(fpf)	(feet)	Hf	Hm	Hb	Hj	Hx	Htc	LOSSES	STA.	BACK	AHEAD	BACK	AHEAD	AHEAD		ELEV	
STREAM	STREAM												(elev.)	(elev.)	(elev.)	(elev.)																									
OUTFALL	MH1	STA 1+00.00	6.24	18	0.013	77.17	0.0200	1	55.00	1.00	18	1	24.02	25.58	25.52	27.06	32.19	32.40	1.767	3.53	1.500	0.0035	0.194	0.272	0.010	0.030	0.039	0.000	0.000	0.352	77.17	27.59	27.67	27.39	27.47	27.47	FULL	32.40	OK
MH1	B1	STA 1+58.64	5.37	18	0.013	58.64	0.0050		45.00				25.81	26.11	27.06	27.36	32.40	33.10	1.227	4.38	1.250	0.0069	0.297	0.405	0.000	0.042	0.000	0.000	0.000	0.447	135.81	28.17	28.22	27.88	27.92	27.92	FULL	33.10	OK
B1	MH2	STA 2+25.73	5.37	18	0.013	67.09	0.0050	1		60.00	10		26.11	26.44	27.36	27.69	33.10	32.60	1.227	4.38	1.250	0.0069	0.297	0.484	0.015	0.000	0.172	0.000	0.000	0.651	202.90	28.68	28.87	28.38	28.57	28.57	FULL	32.60	OK
MH2	B2	STA 3+60.96	4.41	15	0.013	155.23	0.0050		37.00				26.44	27.22	27.69	28.47	32.60	33.50	1.227	3.59	1.250	0.0047	0.201	0.723	0.000	0.026	0.000	0.000	0.000	0.749	358.13	29.49	29.52	29.29	29.32	29.32	FULL	33.50	OK
B2	MH3	STA 4+59.69	4.41	15	0.013	78.73	0.0050	1	40.00	1.00	10	1	27.22	27.61	28.47	28.86	33.50	31.50	1.227	3.59	1.250	0.0047	0.201	0.367	0.010	0.027	0.021	0.000	0.000	0.425	436.86	29.89	29.94	29.69	29.74	29.74	FULL	31.50	OK
MH3	MH4	STA 7+55.03	3.39	12	0.013	295.34	0.0050	1	18.00				27.86	29.34	28.86	30.34	31.50	35.80	0.785	4.32	1.000	0.0091	0.289	2.674	0.014	0.026	0.000	0.000	0.000	2.714	732.20	32.71	32.75	32.42	32.46	32.46	FULL	35.80	OK
MH4	J1	STA 7+70.12	3.39	12	0.013	15.09	0.0050		90.00	1.00	12		29.34	29.41	30.34	30.41	35.80	35.90	0.785	4.32	1.000	0.0091	0.289	0.137	0.000	0.047	0.287	0.000	0.000	0.471	747.29	32.88	33.32	32.50	32.93	32.93	FULL	35.90	OK
J1	CB1	STA 8+12.00	1.83	12	0.013	41.88	0.0050						29.41	29.62	30.41	30.62	35.90	35.90	0.785	2.33	1.000	0.0026	0.084	0.110	0.000	0.000	0.000	0.000	0.000	0.110	789.17	33.12	33.12	33.04	33.04	33.04	FULL	35.90	OK
CB1	DUMMY																																								

OK ✓

With Additional 1/2 cfs

RECEIVED
FEB 1 8 1998
HYDROLOGY SECTION

25×10 32×10 25×10

0000 0000 1691

CITY OF
Albuquerque

February 18, 1998

R.P. Bohannan
Easterling and Associates
10131 Coors Road NW
Suite H-7
Albuquerque, NM 87114-4048

RE: SANDIA LABS FEDERAL CREDIT UNION (A14-D10) ENGINEER'S CERTIFICATION FOR TEMPORARY CERTIFICATE OF OCCUPANCY. ENGINEER'S CERTIFICATION DATED FEBRUARY 17, 1998.

Dear Mr. Bohannan:

Based on the information provided on your February 18, 1998 submittal, the above referenced project is approved for a 30-day Temporary Certificate of Occupancy.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

Lisa Ann Manwill, P.E.
Hydrology

c: Andrew Garcia
File

25×10

0000 0000 1692

CITY OF
Albuquerque

Public Works Department

February 24, 1997

Martin J. Chávez, Mayor

Robert E. Gurulé, Director

Chuck Easterling, P.E.
Easterling & Associates
10131 Coors Road NW
Suite H-7
Albuquerque, NM 87114

RE: SANDIA LABS FEDERAL CREDIT UNION (A14-D10). DRAINAGE AND GRADING PLAN FOR SITE DEVELOPMENT PLAN (FOR BUILDING PERMIT) AND BUILDING PERMIT. ENGINEER'S STAMP DATED 2-18-97.

Dear Mr. Easterling:

Based on the information provided on your February 18, 1997 submittal, the above referenced project is approved for Site Development Plan (for Building Permit) and Building Permit.

Prior to Certificate of Occupancy, an Engineer's Certification will be required.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

Lisa Ann Manwill, P.E.
Engineering Assoc./Hyd.

c: Andrew Garcia
File

25×10

0000 0000 1693

EASTERLING & ASSOCIATES, INC.
10131 Coors Road, NW, Suite H-7
ALBUQUERQUE, NEW MEXICO 87114-4048
(505) 898-8021
FAX (505) 898-8501

LETTER OF TRANSMITTAL

Date:	January 23, 1997	Job No.	4350
Attention:	Fred Aguirre		
Re:	Tracts G-1A-2A thru G-1A-2E		
	Seven Bar Ranch		
	Grading & Drainage Plan		
	DRB 96-353		

TO: City of Albuquerque
PWD / Engineering Group / Hydrology Division
Plaza del Sol, 600 Second Street NW
Albuquerque, NM 87103

WE HEREBY TRANSMIT ■ Enclosed ☐ Under separate cover via courier THE FOLLOWING ITEMS:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐

COPIES	DATE	NO.	DESCRIPTION
1	01/23/97		Drainage Information Sheet
1	01/23/97		Tracts G-1A-2A thru G-1A-2E
			Seven Bar Ranch
			Grading & Drainage Plan

THESE ITEMS ARE TRANSMITTED AS INDICATED BELOW:

☐ As requested ☐ Approved as submitted ☐ Resubmit ____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit ____ copies for distribution
☐ For review and comment ☐ Returned for corrections ☐ Return ____ corrected prints
■ For approval ☐

REMARKS: Fred:

This project will be heard (again) at DRB on February 11, 1997.
Please call me if you have any questions or need any additional information.

Thanks,

Rec'd 1/24/97

COPIES TO:
John Black, West Wood Realty
Garry Hugg, Surv-Tek, Inc.
George Rainhart, George R. Rainhart, AIA
Matt Spangler, Lastrapes & Spangler

Signed: R P Bohannan
R. P. Bohannan

Received by: Date:

If enclosures are not as noted, please notify us at once.

25 × 10

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DRAINAGE INFORMATION SHEET

PROJECT TITLE: Seven Bar Ranch Tract G–1A -2A thru G-1A-2E ZONE ATLAS / DRNG. FILE #: A–14 / D10

DRB #: 96-353 EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: Tract G–1A,-2A thru G-1A-2E, Seven Bar Ranch

CITY ADDRESS: Southeast Corner Ellison Drive and Cottonwood Drive, NW

ENGINEERING FIRM: Easterling & Associates, Inc. CONTACT: R. P. Bohannan

ADDRESS: 10131 Coors Road, NW, Suite H-7 PHONE: 898-8021

Albuquerque, NM 87114-4048

OWNER: Wrangler Properties Limited Liability Co. CONTACT: Don Chalmers

ADDRESS: 2500 Rio Rancho Drive PHONE: 897-2500

Rio Rancho, NM 87124

ARCHITECT: George Rainhart Architect & Associates CONTACT: George Rainhart

ADDRESS: 2325 San Pedro NE, Suite 2-B PHONE: 884-9110

Albuquerque, NM 87110

SURVEYOR: Surv–Tek, Inc. CONTACT: Rusty Hugg

ADDRESS: 5643 Paradise Boulevard NW PHONE: 897-3366

Albuquerque, NM 87114

CONTRACTOR: Not Yet Determined CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ___ DRAINAGE REPORT
- ___ DRAINAGE PLAN
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- ___ GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION
- X OTHER Grading and Drainage Plan

PRE-DESIGN MEETING:

- X YES
- ___ NO
- ___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SKETCH PLAT APPROVAL
- X PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUBD. APPROVAL
- ___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- X FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- ___ BUILDING PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY APPROVAL
- ___ GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ S.A.D. DRAINAGE REPORT
- ___ DRAINAGE REQUIREMENTS
- ___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 1/23/97

BY: RP Bohannan

17-8

Rev 1/90

25 x 10

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DRAINAGE INFORMATION SHEET

PROJECT TITLE: Seven Bar Ranch Tract G–1A -2A thru G-1A-2E ZONE ATLAS / DRNG. FILE#: A–14 / D10

DRB#: 96-353 EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: Tract G–1A,-2A thru G-1A-2E, Seven Bar Ranch

CITY ADDRESS: Southeast Corner Ellison Drive and Cottonwood Drive, NW

ENGINEERING FIRM: Easterling & Associates, Inc. CONTACT: R. P. Bohannan

ADDRESS: 10131 Coors Road, NW, Suite H-7 PHONE: 898-8021

Albuquerque, NM 87114-4048

OWNER: Wrangler Properties Limited Liability Co. CONTACT: Don Chalmers

ADDRESS: 2500 Rio Rancho Drive PHONE: 897-2500

Rio Rancho, NM 87124

ARCHITECT: George Rainhart Architect & Associates CONTACT: George Rainhart

ADDRESS: 2325 San Pedro NE, Suite 2-B PHONE: 884-9110

Albuquerque, NM 87110

SURVEYOR: Surv–Tek, Inc. CONTACT: Rusty Hugg

ADDRESS: 5643 Paradise Boulevard NW PHONE: 897-3366

Albuquerque, NM 87114

CONTRACTOR: Not Yet Determined CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT
___ DRAINAGE PLAN
___ CONCEPTUAL GRADING & DRAINAGE PLAN
___ GRADING PLAN
___ EROSION CONTROL PLAN
___ ENGINEER'S CERTIFICATION
X OTHER Grading and Drainage Plan

PRE-DESIGN MEETING:

X YES
___ NO
___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL
X PRELIMINARY PLAT APPROVAL
___ S. DEV. PLAN FOR SUBD. APPROVAL
___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
___ SECTOR PLAN APPROVAL
X FINAL PLAT APPROVAL
___ FOUNDATION PERMIT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
___ GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ S.A.D. DRAINAGE REPORT
___ DRAINAGE REQUIREMENTS
___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 1/23/97

BY: RP Bohannan

17-8

Rev 1/90

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EXHIBIT A
TO SUBDIVISION IMPROVEMENT AGREEMENT
DEVELOPMENT REVIEW BOARD
REQUIRED INFRASTRUCTURE LISTING
Tracts G-1A-2A through G-1A-2E
Seven Bar Ranch

DRB Case No.:	96-353
DRC Project No.:	
Prelim. Plat Approved:	/ /
Prelim. Plat Expires:	/ /
Site Plan Approved:	/ /
Date Submitted:	/ /

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This summary is not necessarily a complete listing. During CPC, BCC, the design process and/or in the preparation of the construction drawings, if the City, County, and/or AMAFCA determines that appurtenant items have not been included in the summary, those items will be included in the listing and related financial guarantee, if the items normally are the Subdivider's responsibility. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility are the responsibility of the Subdivider and will be included in the financial guarantee provided to the City, County, and/or AMAFCA.

SIZE	IMPROVEMENT	LOCATION	FROM	TO
1. Street Improvements				
100'–long	Left Turn Lane A.C. Pavement Median Curb, Median Pavement	Cottonwood Dr. Median	500' South of Ellison Drive	
36'–wide F/F	Drive #1 A.C. Pavement Valley Gutter & Curb WC Ramps	Cottonwood Dr. East Side	630' South of Ellison Drive	
30'–wide F/F	Drive #2 A.C. Pavement Valley Gutter & Curb WC Ramps	Cottonwood Dr. East Side	330' South of Ellison Drive	
30'–wide F/F	Drive #3 A.C. Pavement Valley Gutter & Curb WC Ramps	Ellison Drive South Side	240' East of Cottonwood Drive	
150'–long	Right Turn Lane A.C. Pavement Valley Gutter & Curb WC Ramps	Ellison Drive South Side	450' East of Cottonwood Drive	
40'–wide F/F	Drive #4 A.C. Pavement Valley Gutter & Curb WC Ramps	Ellison Drive South Side	615' East of Cottonwood Drive	
100'–long	Left Turn Lane & Median Opening A.C. Pavement Median Curb Median Pavement	Ellison Drive Median	615' East of Cottonwood Drive	
36'–wide F/F	Street A A.C. Pavement, Standard Curb & Gutter	Street A	Drive #1 (Cottonwood Dr.)	Drive #4 (Ellison Dr.)

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30'–wide F/F	Street B A.C. Pavement, Standard Curb & Gutter	Street B	Street A	Drive #3 (Ellison Dr.)
6'–wide	Sidewalk	Cottonwood Drive East Side*	Drive #1	Drive #2
6'–wide	Sidewalk	Ellison Drive South Side*	Cottonwood Drive	Drive #3
6'–wide	Sidewalk	Ellison Drive South Side*	Drive #3	Drive #4
6'–wide	Sidewalk	Street A South/East Side*	Drive #1 (Cottonwood Drive)	Drive #4 (Ellison Drive)
6'–wide	Sidewalk	Street B West Side*	Street A	Drive #3 (Ellison Drive)
*Sidewalk Construction to be deferred until individual tract development.				
2. Water Improvements				
8" Dia	Water Line Fire Hydrants Water Services	Street A	Connection @ 220' North of Drive #1	Drive #4
8" Dia	Water Line Water Services	Street B	Street A	Connection @ 110' East of Drive #3
3. Sewer Improvements				
8" Dia	Sewer Line Sewer Services	Street A	Connection @ Drive #4	160' East of Drive #1
8" Dia	Sewer Line Sewer Services	Street B	Street A	160' North of Street B
4. Drainage Improvements				
15"/12"/10" Dia	Storm Drain Storm Inlets	Street A	Drive #4	Street B
10"/8" Dia	Storm Dtrain	East Side Tract G-1A-2D	Street A	Tract G-1A-2C 10' South of North Property Line
Volumes Vary, See Con-ceptual G & D	Interim Retention Ponds	Each Tract G-1A-2A through G-1A-2E		

25×

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Signed By:_____
Print Name: R. P. Bohannan
Firm: Easterling & Associates, Inc.

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

Traffic	Date	Utility Dev.	Date	Parks & G.S.	Date
City Engineer	Date	AMAFCA	Date	NM Utilities, Inc.	Date
BCPWD DRE	Date	BCPWD DRAN	Date	DRB Chairman	Date

DRB Infrastructure Listing - (Seven Bar Ranch, Tracts G-1A-2A through G-1A-2E)

25×10

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DRAINAGE INFORMATION SHEET

PROJECT TITLE: Sandia Labs Federal Credit Union ZONE ATLAS / DRNG. FILE #: A-14 D10

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: Tract G1A-2E

CITY ADDRESS: Ellison Drive and Cottonwood Drive, NW - Seven Bar Ranch

ENGINEERING FIRM: Easterling & Associates, Inc. CONTACT: C. M. Easterling

ADDRESS: 10131 Coors Road, NW, Suite H-7 PHONE: 898-8021

Albuquerque, NM 87114-4048

OWNER: Sandia Labs Federal Credit Union CONTACT: _____

ADDRESS: _____ PHONE: _____

ARCHITECT: TGS Architects CONTACT: Dallas Taylor

ADDRESS: 5323 Spring Wells Rd., Suite 200 PHONE: 214-788-1945

Dallas, TX 75240

SURVEYOR: Surv-Tek, Inc. CONTACT: Rusty Hugg

ADDRESS: 5643 Paradise Boulevard NW PHONE: 897-3366

Albuquerque, NM 87114

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ___ DRAINAGE REPORT
- X DRAINAGE PLAN
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- ___ GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION
- ___ OTHER _____

PRE-DESIGN MEETING:

- X YES
- ___ NO
- ___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SKETCH PLAT APPROVAL
- ___ PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D. APPROVAL
- X S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- X BUILDING PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY APPROVAL
- X GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ S.A.D. DRAINAGE REPORT
- ___ DRAINAGE REQUIREMENTS
- ___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 2-13-97

BY: C. M. Easterling

17-8

Rev 1/90

25 x 10

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CITY OF
Albuquerque
Public Works Department

January 31, 1997

Martin J. Chávez, Mayor

Robert E. Gurulé, Director

R.P. Bohannan
Easterling & Assoc
10131 Coors Road NW
Suite H-7
Albuquerque, NM 87114-4048

RE: SEVEN BAR RANCH TRACT G-1A-2A THRU G-1A-2E (A14-D10). GRADING AND DRAINAGE PLAN FOR PRELIMINARY AND FINAL PLAT APPROVALS. ENGINEER'S STAMP DATED JANUARY 31, 1997.

Dear Mr. Bohannan:

Based on the information provided on your January 23, 1997 submittal, the above referenced project is approved for Preliminary and Final Plat.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Andrew Garcia
File

25x10

0000 0000 1701

Easterling & Associates, Inc.

10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021
FAX (505) 898-8501

February 18, 1997

Fred J. Aguirre, P.E.
City Hydrologist
Public Works Department
Plaza Del Sol
600 2nd Street
Albuquerque, NM 87102

RECEIVED
FEB 18 1997
HYDROLOGY SECTION

RE: Sandia Labs Federal Credit Union
Seven Bar Ranch (SAD223)

Dear Fred:

Please find enclosed hydrology and hydraulic calculations for the above referenced project.

Based upon our Pre-Design Meeting of February 6, 1997, and using the official, final version of the SAD223 AHYMO94 Model, I have demonstrated that downstream capacity is improved by free discharging this 2.3 acre site directly to the Ellison Drive storm drain (48" RCP). Also, the flow rates in the Cabezon Channel are similarly reduced by free discharging this site.

The existing 36" CMP riser, which is located at the northeast corner of this site, was part of an SAD223 interim pond which was intended to be modified or removed by development of this site. We have proposed a simple modification which will allow the structure to continue to serve.

Please contact me if you have any question or I can be of further assistance.

Sincerely,

Charles M. Easterling, P.E.
President

CME/nad
Job No. 4550/001
Enclosures

25×10

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FORM DRWS: DRAINAGE REPORT / WATER & SEWER AVAILABILITY

THIS FORM IS REQUIRED WITH THE DEVELOPMENT REVIEW BOARD APPLICATION FOR MAJOR SUBDIVISIONS AND SITE DEVELOPMENT PLANS.

PROJECT NAME SANDIA LABS FEDERAL CREDIT UNION

AGIS MAP # A-14

LEGAL DESCRIPTION TRACT G-1A-2E SEVEN BAR RANCH

✓ **DRAINAGE REPORT**

A drainage report, as per the Drainage Ordinance, was submitted to the City of Albuquerque Public Works Department, Hydrology Division (2nd floor Plaza del Sol) on 2-18-97 [date].

Applicant / Agent — Date: 2-18-97

Hydrology Division Representative — Date

___ **WATER AND SEWER AVAILABILITY STATEMENT**

A Water and Sewer Availability Statement for this project was requested from the City of Albuquerque Utilities Development Division (2nd floor Plaza del Sol) on _____ [date].

Applicant / Agent — Date

Utilities Division Representative — Date

DRB#____-_____

25 x 10

0000 0000 1703

Easterling & Associates, Inc.
10131 Coors Rd. NW, Suite H-7
Albuquerque, New Mexico 87114-4048
(505) 898-8021
FAX (505) 898-8501

Project Name SANDIA LABS FCU
Project No. 4550 Date 2-17-97
Subject OUTLET HYDRAULICS
By CME Sheet 1 of 1

FIND h FOR Q = 12.3 cfs THRU 18" RCP OUTFALL PIPE

$Q = CA\sqrt{2gh}$ $\quad \frac{12.3}{(.6)(1.76)\sqrt{2g}} = \sqrt{h} = 1.45$

$h = 2.1$

ELEV = 5026.4 + (.5)(1.5) + 2.1 = 5029.25

FIND # 6" DIA HOLES REQ TO PASS 12.3 cfs @ h = 3.0'

$Q = CA\sqrt{2gh} \Rightarrow \frac{12.3}{(\sqrt{2g3})(.6)} = A = 1.475\ ft^2$

1@6" DIA HOLE = .196 ft^2 = 7.5 HOLES

CIRCUMFERENCE OF 36" DIA CMP = 9.43 ft

PLACE 8 @ 6" DIA HOLES 14 1/8" O.C.

EXISTING PIPE HAS 7 @ 2" HOLES

TO USE 7 HOLES A = 0.21 ft^2

D = 6.2" USE 7"

CHECK WEIR FLOW OVER TOP OF PIPE

$Q = CLH^{3/2}$ $\quad C = 3.5$

$L = 9.73\ ft$ $\quad H = 0.5'$

$Q = 12.3$ $\quad$ ELEV = 32.00 + .5

32.5 OK

25×10

0000 0000 1704

w/ POND
@ SANDIA LABS
FCU

** ADD THE FLOW FROM THE HIGH DITCH TO THE FLOW IN THE CABEZON CHANNEL
ADD HYD ID=3 HYDROGRAPH NO=340 ID I=5 ID II=2
PRINT HYD ID=3 CODE=5

HYDROGRAPH FROM AREA 340.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	41.1	8.000	261.1	12.000	155.1	16.000	135.2
.167	.0	4.167	42.2	8.167	251.2	12.167	153.8	16.167	134.6
.333	.0	4.333	43.1	8.333	239.5	12.333	152.6	16.333	134.1
.500	.0	4.500	43.9	8.500	228.6	12.500	151.5	16.500	133.5
.667	.0	4.667	44.6	8.667	220.2	12.667	150.4	16.667	132.9
.833	.0	4.833	45.3	8.833	213.1	12.833	149.4	16.833	132.3
1.000	.2	5.000	45.9	9.000	207.0	13.000	148.4	17.000	131.8
1.167	.6	5.167	46.4	9.167	201.5	13.167	147.5	17.166	131.2
1.333	1.7	5.333	46.8	9.333	196.9	13.333	146.6	17.333	130.7
1.500	4.0	5.500	47.2	9.500	192.7	13.500	145.7	17.500	130.2
1.667	6.9	5.667	47.5	9.667	188.7	13.667	144.9	17.666	129.6
1.833	10.3	5.833	47.8	9.833	184.8	13.833	144.1	17.833	129.1
2.000	13.8	6.000	48.1	10.000	181.2	14.000	143.3	18.000	128.6
2.167	17.2	6.167	48.3	10.167	177.9	14.167	142.5	18.166	128.1
2.333	20.6	6.333	48.6	10.333	174.8	14.333	141.8	18.333	127.6
2.500	23.6	6.500	48.7	10.500	172.1	14.500	141.1	18.500	127.1
2.667	26.5	6.667	49.7	10.667	169.5	14.667	140.4	18.666	126.5
2.833	29.1	6.833	105.4	10.833	167.2	14.833	139.7	18.833	126.0
3.000	31.5	7.000	470.6	11.000	164.9	15.000	139.0	19.000	125.5
3.167	33.6	7.167	442.3	11.167	162.9	15.167	138.3	19.166	125.0
3.333	35.4	7.333	363.1	11.333	161.0	15.333	137.7	19.333	124.6
3.500	37.1	7.500	328.6	11.500	159.2	15.500	137.1	19.500	124.1
3.667	38.6	7.667	297.0	11.667	157.7	15.667	136.5	19.666	123.6
3.833	39.9	7.833	273.8	11.833	156.4	15.833	135.8	19.833	123.1

RUNOFF VOLUME = .89354 INCHES = 201.5423 ACRE-FEET
PEAK DISCHARGE RATE = 496.11 CFS AT 7.067 HOURS BASIN AREA = 4.2292 SQ. MI.

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NO POND
@ SANDIA LABS
RCU

** ADD THE FLOW FROM THE HIGH DITCH TO THE FLOW IN THE CABEZON CHANNEL
ADD HYD ID=3 HYDROGRAPH NO=340 ID I=5 ID II=2
PRINT HYD ID=3 CODE=5

HYDROGRAPH FROM AREA 340.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	41.1	8.000	259.5	12.000	154.9	16.000	135.2
.167	.0	4.167	42.2	8.167	249.7	12.167	153.6	16.167	134.6
.333	.0	4.333	43.1	8.333	238.1	12.333	152.5	16.333	134.0
.500	.0	4.500	43.9	8.500	227.7	12.500	151.3	16.500	133.4
.667	.0	4.667	44.6	8.667	219.1	12.667	150.3	16.667	132.8
.833	.0	4.833	45.3	8.833	212.1	12.833	149.3	16.833	132.3
1.000	.2	5.000	45.9	9.000	206.0	13.000	148.3	17.000	131.7
1.167	.6	5.167	46.4	9.167	200.7	13.167	147.4	17.166	131.2
1.333	1.7	5.333	46.8	9.333	196.1	13.333	146.5	17.333	130.6
1.500	4.0	5.500	47.2	9.500	192.0	13.500	145.6	17.500	130.1
1.667	6.9	5.667	47.5	9.667	188.1	13.667	144.8	17.666	129.6
1.833	10.3	5.833	47.8	9.833	184.2	13.833	144.0	17.833	129.1
2.000	13.8	6.000	48.1	10.000	180.7	14.000	143.2	18.000	128.5
2.167	17.2	6.167	48.3	10.167	177.4	14.167	142.4	18.166	128.0
2.333	20.6	6.333	48.6	10.333	174.4	14.333	141.7	18.333	127.5
2.500	23.6	6.500	48.7	10.500	171.7	14.500	141.0	18.500	127.0
2.667	26.5	6.667	49.7	10.667	169.2	14.667	140.3	18.666	126.5
2.833	29.1	6.833	105.3	10.833	166.8	14.833	139.6	18.833	126.0
3.000	31.5	7.000	469.9	11.000	164.6	15.000	138.9	19.000	125.5
3.167	33.6	7.167	441.0	11.167	162.6	15.167	138.3	19.166	125.0
3.333	35.4	7.333	361.7	11.333	160.7	15.333	137.6	19.333	124.5
3.500	37.1	7.500	327.2	11.500	159.0	15.500	137.0	19.500	124.0
3.667	38.6	7.667	295.5	11.667	157.5	15.667	136.4	19.666	123.5
3.833	39.9	7.833	272.3	11.833	156.2	15.833	135.8	19.833	123.1

RUNOFF VOLUME = .89261 INCHES = 201.1595 ACRE-FEET
PEAK DISCHARGE RATE = 495.66 CFS AT 7.067 HOURS BASIN AREA = 4.2256 SQ. MI.

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SANDIA LABS FCU
FREE DISCHARGE

** TOTAL STORM DRAIN FLOW TO THIS POINT **********
PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 222.00

RUNOFF VOLUME = 1.20550 INCHES = 28.6441 ACRE-FEET
PEAK DISCHARGE RATE = 96.93 CFS AT 7.033 HOURS BASIN AREA = .4455 SQ. MI.

** ROUTE FLOW DOWN ELLISON DR. STORM DRAIN FROM M.H.(STA.22+30) TO *********
** M.H.(STA. 25+50)**********
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 CODE=-1 SLOPE=0.0050
DIAMETER=4.0 FT N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.21	.25	.53	1.78
.42	.69	2.31	2.44
.63	1.25	5.38	2.91
.83	1.90	9.67	3.25
1.04	2.60	15.10	3.51
1.25	3.36	21.54	3.71
1.46	4.15	28.86	3.85
1.67	4.96	36.90	3.94
1.88	5.79	45.49	3.99
2.08	6.62	54.44	4.00
2.29	7.45	63.56	4.00
2.50	8.27	72.62	4.00
2.71	9.06	81.40	4.00
2.92	9.82	89.61	4.00
3.13	10.54	96.97	4.00
3.34	11.20	103.08	4.00
3.54	11.77	107.46	4.00
3.75	12.24	109.26	4.00
4.00	12.57	109.26	4.00

COMPUTE TRAVEL TIME ID=5 REACH NO=1 VALLEY SECTIO NS=1
LENGTH=320 FT SLOPE=0.0050

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.208	.250	.53	.0417
.417	.695	2.31	.0267
.625	1.255	5.38	.0207
.834	1.898	9.67	.0174
1.042	2.604	15.10	.0153
1.251	3.358	21.54	.0139
1.459	4.146	28.86	.0128
1.668	4.960	36.90	.0119
1.876	5.788	45.49	.0113
2.084	6.621	54.44	.0108
2.293	7.451	63.56	.0104
2.501	8.267	72.62	.0101
2.710	9.062	81.40	.0099
2.918	9.823	89.61	.0097
3.127	10.539	96.97	.0097
3.335	11.195	103.08	.0097
3.544	11.773	107.46	.0097
3.752	12.243	109.26	.0100
4.000	12.566	109.26	.0102

ROUTE ID=5 HYDROGRAPH NO=223 INFLOW ID=2 DT=0.033333
PRINT HYD ID=5 CODE=2

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PARTIAL HYDROGRAPH 223.00

FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS
18.1	.000	.0	4.000	.0	8.000	69.6	12.000
18.0	16.000	13.9	4.067	.0	8.067	67.7	12.067
17.8	.067	.0	4.133	.0	8.133	65.5	12.133
17.7	16.066	13.8	4.200	.0	8.200	63.1	12.200
17.5	.133	.0	4.267	.0	8.267	60.9	12.267
17.4	16.133	13.8	4.333	.0	8.333	58.7	12.333
17.2	.200	.0	4.400	.0	8.400	56.6	12.400
17.1	16.200	13.8	4.467	.0	8.467	54.7	12.467
17.0	.267	.0	4.533	.0	8.533	52.9	12.533
16.9	16.266	13.7	4.600	.0	8.600	51.3	12.600
16.8	.333	.0	4.667	.0	8.667	49.8	12.667
16.6	16.333	13.7	4.733	.0	8.733	48.3	12.733
16.5	.400	.0	4.800	.0	8.800	46.9	12.800
16.4	16.400	13.7	4.867	.0	8.867	45.5	12.867
16.3	.467	.0	4.933	.0	8.933	44.2	12.933
16.2	16.466	13.6	5.000	.0	9.000	43.0	13.000
16.1	.533	.0	5.067	.0	9.067	41.9	13.067
16.0	16.533	13.6	5.133	.0	9.133	40.9	13.133
16.0	.600	.0	5.200	.0	9.200	39.8	13.200
15.9	16.600	13.6	5.267	.0	9.267	38.8	13.267
15.8	.667	.0	5.333	.0	9.333	37.9	13.333
15.7	16.666	13.5	5.400	.0	9.400	37.0	13.400
15.6	.733	.0	5.467	.0	9.467	36.1	13.467
15.6	16.733	13.5	5.533	.0	9.533	35.2	13.533
15.5	.800	.0	5.600	.0	9.600	34.3	13.600
15.4	16.800	13.5	5.667	.0	9.667	33.4	13.667
15.4	.867	.0	5.733	.0	9.733	32.6	13.733
15.3	16.866	13.5	5.800	.0	9.800	31.8	13.800
15.2	933	.0	5.867	.0	9.867	31.0	13.867
15.2	16.933	13.4	5.933	.0	9.933	30.3	13.933
15.1	1.000	.0	6.000	.0	10.000	29.5	14.000
15.1	17.000	13.4	6.067	.0	10.067	28.9	14.067
	1.067	.0					
	17.066	13.4					
	1.133	.0					
	17.133	13.4					
	1.200	.0					
	17.200	13.3					
	1.267	.0					
	17.266	13.3					
	1.333	.0					
	17.333	13.3					
	1.400	.0					
	17.400	13.2					
	1.467	.0					
	17.466	13.2					
	1.533	.0					
	17.533	13.2					
	1.600	.0					
	17.600	13.2					
	1.667	.0					
	17.666	13.1					
	1.733	.0					
	17.733	13.1					
	1.800	.0					
	17.800	13.1					
	1.867	.0					
	17.866	13.1					
	1.933	.0					
	17.933	13.0					
	2.000	.0					
	18.000	13.0					
	2.067	.0					
	18.066	13.0					

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	2.133	.0	6.133	.0	10.133	28.2	14.133
15.0	18.133	13.0	6.200	.0	10.200	27.6	14.200
	2.200	.0					
14.9	18.200	12.9	6.267	.0	10.267	27.0	14.267
	2.267	.0					
14.9	18.266	12.9	6.333	.0	10.333	26.4	14.333
	2.333	.0					
14.8	18.333	12.9	6.400	.0	10.400	25.9	14.400
	2.400	.0					
14.8	18.400	12.9	6.467	.0	10.467	25.4	14.466
	2.467	.0					
14.7	18.466	12.8	6.533	.0	10.533	24.9	14.533
	2.533	.0					
14.7	18.533	12.8	6.600	.0	10.600	24.4	14.600
	2.600	.0					
14.6	18.600	12.8	6.667	.2	10.667	23.9	14.666
	2.667	.0					
14.6	18.666	12.6	6.733	2.0	10.733	23.5	14.733
	2.733	.0					
14.6	18.733	12.7	6.800	13.0	10.800	23.1	14.800
	2.800	.0					
14.5	18.800	12.7	6.867	37.2	10.867	22.7	14.866
	2.867	.0					
14.5	18.866	12.7	6.933	71.0	10.933	22.3	14.933
	2.933	.0					
14.4	18.933	12.7	7.000	93.0	11.000	21.9	15.000
	3.000	.0					
14.4	19.000	12.7	7.067	96.6	11.067	21.6	15.066
	3.067	.0					
14.3	19.066	12.6	7.133	95.1	11.133	21.3	15.133
	3.133	.0					
14.3	19.133	12.6	7.200	95.4	11.200	20.9	15.200
	3.200	.0					
14.3	19.200	12.6	7.267	94.0	11.267	20.6	15.266
	3.267	.0					
14.2	19.266	12.6	7.333	92.8	11.333	20.3	15.333
	3.333	.0					
14.2	19.333	12.5	7.400	91.7	11.400	20.0	15.400
	3.400	.0					
14.2	19.400	12.5	7.467	90.5	11.467	19.8	15.466
	3.467	.0					
14.1	19.466	12.5	7.533	88.8	11.533	19.5	15.533
	3.533	.0					
14.1	19.533	12.5	7.600	85.4	11.600	19.3	15.600
	3.600	.0					
14.1	19.600	12.5	7.667	81.5	11.667	19.1	15.666
	3.667	.0					
14.0	19.666	12.4	7.733	78.5	11.733	18.9	15.733
	3.733	.0					
14.0	19.733	12.4	7.800	76.0	11.800	18.7	15.800
	3.800	.0					
14.0	19.800	12.4	7.867	73.7	11.867	18.5	15.866
	3.867	.0					
13.9	19.866	12.4	7.933	71.6	11.933	18.3	15.933
	3.933	.0					
13.9	19.933	12.3					

RUNOFF VOLUME = 1.20532 INCHES = 28.6398 ACRE-FEET
PEAK DISCHARGE RATE = 96.60 CFS AT 7.067 HOURS BASIN AREA = .4455 SQ. MI.

□8 P60 = 1.8624
AREA = .008728 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .131158HR TP = .133333HR K/TP RATIO = .983688 SHAPE CONSTANT, N = 3.589718

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UNIT PEAK = 5.3484 CFS UNIT VOLUME = .9987 B = 326.82 P60 = 1.8624

AREA = .002182 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 224.00

RUNOFF VOLUME = 2.18077 INCHES = 1.2689 ACRE-FEET
PEAK DISCHARGE RATE = 27.03 CFS AT 6.950 HOURS BASIN AREA = .0109 SQ. MI.

** ROUTE TRACT G-1A HYDROGRAPH THRU PONDING AREA
** ALLOWABLE RELEASE RATE=6.7cfs PIPE DIAMETER=18"
ROUTE RESERVOIR ID=2 HYDROGRAPH NO=514 INFLOW ID=3 CODE=10

OUTFLOW (cfs)	STORAGE (ac ft)	ELEV (ft)
0	0	100.0
2.48	.28	101.0
4.57	.54	102.0
5.81	.69	102.5
7.09	.91	103.5

* * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	100.00	.000	.00
.50	.00	100.00	.000	.00
1.00	.00	100.00	.000	.00
1.50	.00	100.00	.000	.00
2.00	.00	100.00	.000	.00
2.50	.00	100.00	.000	.00
3.00	.00	100.00	.000	.00
3.50	.00	100.00	.000	.00
4.00	.00	100.00	.000	.00
4.50	.00	100.00	.000	.00
5.00	.00	100.00	.000	.00
5.50	.00	100.00	.000	.00
6.00	.00	100.00	.000	.00
6.50	.00	100.00	.000	.00
7.00	23.78	101.37	.376	3.25
7.50	5.82	102.31	.634	5.35
8.00	.96	101.93	.522	4.42
8.50	.50	101.42	.390	3.36
9.00	.36	101.02	.286	2.53
9.50	.30	100.75	.210	1.86
10.00	.26	100.55	.155	1.37
10.50	.23	100.41	.116	1.03
11.00	.21	100.31	.088	.78
11.50	.19	100.24	.068	.60
12.00	.21	100.19	.054	.48
12.50	.21	100.16	.045	.40
13.00	.20	100.14	.038	.34
13.50	.19	100.12	.033	.30
14.00	.19	100.11	.030	.26
14.50	.18	100.10	.027	.24
15.00	.18	100.09	.025	.22
15.50	.17	100.08	.023	.21
16.00	.17	100.08	.022	.20
16.50	.16	100.08	.021	.19
17.00	.16	100.07	.020	.18
17.50	.16	100.07	.020	.17
18.00	.15	100.07	.019	.17
18.50	.15	100.07	.018	.16
19.00	.14	100.06	.018	.16

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19.50	.14	100.06	.017	.15
20.00	.14	100.06	.017	.15
20.50	.14	100.06	.017	.15
21.00	.13	100.06	.016	.14
21.50	.13	100.06	.016	.14
22.00	.13	100.06	.015	.14
22.50	.13	100.05	.015	.13
23.00	.12	100.05	.015	.13
23.50	.12	100.05	.015	.13
24.00	.12	100.05	.014	.13
24.50	.12	100.05	.014	.12
25.00	.11	100.05	.014	.12
25.50	.11	100.05	014	.12
26.00	.11	100.05	.013	.12
26.50	.11	100.05	.013	.12
27.00	.11	100.05	.013	.11
27.50	.11	100.05	.013	.11

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
28.00	.11	100.04	.012	.11
28.50	.10	100.04	.012	.11
29.00	.10	100.04	.012	.11
29.50	.10	100.04	.012	.10

PEAK DISCHARGE = 5.349 CFS - PEAK OCCURS AT HOUR 7.50
MAXIMUM WATER SURFACE ELEVATION = 102.314
MAXIMUM STORAGE = .6343 AC-FT INCREMENTAL TIME= .050000HRS

PRINT HYD ID=2 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 514.00

RUNOFF VOLUME = 2.16503 INCHES = 1.2597 ACRE-FEET
PEAK DISCHARGE RATE = 5.35 CFS AT 7.500 HOURS BASIN AREA = .0109 SQ. MI.

** ADD TRACT G-1A RELEASE RATE TO ELLISON DR. STORM DRAIN
ADD HYD ID=3 HYDROGRAPH NO=225 ID I=5 ID II=2
PRINT HYD ID=3 CODE=2

PARTIAL HYDROGRAPH 225.00

FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS
18.6	.000	.0	4.000	.0	8.000	74.1	12.000		
	16.000	14.1							
18.4	.067	.0	4.067	.0	8.067	72.0	12.067		
	16.066	14.0							
18.3	.133	.0	4.133	.0	8.133	69.6	12.133		
	16.133	14.0							
18.1	.200	.0	4.200	.0	8.200	67.1	12.200		
	16.200	14.0							
18.0	.267	.0	4.267	.0	8.267	64.7	12.267		
	16.266	13.9							
17.8	.333	.0	4.333	.0	8.333	62.4	12.333		
	16.333	13.9							
17.7	.400	.0	4.400	.0	8.400	60.2	12.400		
	16.400	13.9							
17.5	.467	.0	4.467	.0	8.467	58.1	12.467		
	16.466	13.8							
17.4	.533	.0	4.533	.0	8.533	56.2	12.533		
	16.533	13.8							
17.3	.600	.0	4.600	.0	8.600	54.5	12.600		
	16.600	13.8							
	.667	.0	4.667	.0	8.667	52.8	12.667		

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17.1	16.666	13.7					
	.733	.0	4.733	.0	8.733	51.2	12.733
17.0	16.733	13.7					
	.800	.0	4.800	.0	8.800	49.7	12.800
16.9	16.800	13.7					
	.867	.0	4.867	.0	8.867	48.3	12.867
16.8	16.866	13.6					
	.933	.0	4.933	.0	8.933	46.9	12.933
16.7	16.933	13.6					
	1.000	.0	5.000	.0	9.000	45.6	13.000
16.6	17.000	13.6					
	1.067	.0	5.067	.0	9.067	44.3	13.067
16.5	17.066	13.6					
	1.133	.0	5.133	.0	9.133	43.2	13.133
16.4	17.133	13.5					
	1.200	.0	5.200	.0	9.200	42.1	13.200
16.3	17.200	13.5					
	1.267	.0	5.267	.0	9.267	41.0	13.267
16.2	17.266	13.5					
	1.333	.0	5.333	.0	9.333	39.9	13.333
16.1	17.333	13.4					
	1.400	.0	5.400	.0	9.400	38.9	13.400
16.0	17.400	13.4					
	1.467	.0	5.467	.0	9.467	38.0	13.467
15.9	17.466	13.4					
	1.533	.0	5.533	.0	9.533	37.0	13.533
15.9	17.533	13.4					
	1.600	.0	5.600	.0	9.600	36.1	13.600
15.8	17.600	13.3					
	1.667	.0	5.667	.0	9.667	35.1	13.667
15.7	17.666	13.3					
	1.733	.0	5.733	.0	9.733	34.2	13.733
15.6	17.733	13.3					
	1.800	.0	5.800	.0	9.800	33.3	13.800
15.6	17.800	13.3					
	1.867	.0	5.867	.0	9.867	32.5	13.867
15.5	17.866	13.2					
	1.933	.0	5.933	.0	9.933	31.7	13.933
15.4	17.933	13.2					
	2.000	.0	6.000	.0	10.000	30.9	14.000
15.4	18.000	13.2					
	2.067	.0	6.067	.0	10.067	30.2	14.067
15.3	18.066	13.2					
	2.133	.0	6.133	.0	10.133	29.5	14.133
15.3	18.133	13.1					
	2.200	.0	6.200	.0	10.200	28.8	14.200
15.2	18.200	13.1					
	2.267	.0	6.267	.0	10.267	28.2	14.267
15.1	18.266	13.1					
	2.333	.0	6.333	.0	10.333	27.5	14.333
15.1	18.333	13.1					
	2.400	.0	6.400	.0	10.400	27.0	14.400
15.0	18.400	13.0					
	2.467	.0	6.467	.0	10.467	26.4	14.466
15.0	18.466	13.0					
	2.533	.0	6.533	.0	10.533	25.9	14.533
14.9	18.533	13.0					
	2.600	.0	6.600	.0	10.600	25.3	14.600
14.9	18.600	13.0					
	2.667	.0	6.667	.3	10.667	24.9	14.666
14.8	18.666	12.9					
	2.733	.0	6.733	2.2	10.733	24.4	14.733
14.8	18.733	12.9					
	2.800	.0	6.800	13.5	10.800	23.9	14.800
14.7	18.800	12.9					
	2.867	.0	6.867	38.4	10.867	23.5	14.866
14.7	18.866	12.9					
	2.933	.0	6.933	73.2	10.933	23.1	14.933
14.7	18.933	12.8					
	3.000	.0	7.000	96.3	11.000	22.7	15.000
14.6	19.000	12.8					

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          3.067        .0          7.067     100.6          11.067      22.3          15.066
14.6         19.066      12.8
          3.133        .0          7.133      99.5          11.133      22.0          15.133
14.5         19.133      12.8
          3.200        .0          7.200     100.2          11.200      21.6          15.200
14.5         19.200      12.7
          3.267        .0          7.267      99.0          11.267      21.3          15.266
14.4         19.266      12.7
          3.333        .0          7.333      98.0          11.333      21.0          15.333
14.4         19.333      12.7
          3.400        .0          7.400      97.0          11.400      20.7          15.400
14.4         19.400      12.7
          3.467        .0          7.467      95.8          11.467      20.4          15.466
14.3         19.466      12.7
          3.533        .0          7.533      94.1          11.533      20.1          15.533
14.3         19.533      12.6
          3.600        .0          7.600      90.7          11.600      19.9          15.600
14.3         19.600      12.6
          3.667        .0          7.667      86.7          11.667      19.6          15.666
14.2         19.666      12.6
          3.733        .0          7.733      83.5          11.733      19.4          15.733
14.2         19.733      12.6
          3.800        .0          7.800      80.9          11.800      19.2          15.800
14.2         19.800      12.5
          3.867        .0          7.867      78.5          11.867      19.0          15.866
14.1         19.866      12.5
          3.933        .0          7.933      76.2          11.933      18.8          15.933
14.1         19.933      12.5

        RUNOFF VOLUME =      1.22358 INCHES      =      29.7855 ACRE-FEET
        PEAK DISCHARGE RATE =      100.58 CFS  AT   7.067 HOURS   BASIN AREA =   .4564 SQ.
MI.


     **COMPUTE HYDROGRAPH FOR SANDIA LABS CREDIT UNION SITE (2.31 acres)
     COMPUTE NM HYD       ID=5 HYDROGRAPH NO=299 DA=0.00361
                          %A=0.0  %B=31.0  %C=0.0 %D=69.0  TP=.033333
                          MASS RAINFALL=-1

        K =   .018166HR    TP =   .033333HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N
=  7.106420
        UNIT PEAK =   39.327    CFS   UNIT VOLUME =    .8272       B =   526.28      P60 =
1.8624
        AREA =      .002491 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER
HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


        K =   .032789HR    TP =   .033333HR    K/TP RATIO =   .983688     SHAPE CONSTANT, N
=  3.589718
        UNIT PEAK =   10.972    CFS   UNIT VOLUME =    .8572       B =   326.82      P60 =
1.8624
        AREA =      .001119 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER
HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

     PRINT HYD            ID=5 CODE=2

                                        PARTIAL HYDROGRAPH   299.00

          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME
FLOW          TIME      FLOW
          HRS       CFS           HRS       CFS           HRS       CFS           HRS
CFS           HRS       CFS
          .000        .0          6.000       .0         12.000       .1         18.000
.0        24.000        .0
          .100        .0          6.100       .0         12.100       .1         18.100
.0        24.100        .0
          .200        .0          6.200       .0         12.200       .1         18.200
.0        24.200        .0
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	.300	.0	6.300	.0	12.300	.1	18.300
.0	24.300	.0					
	.400	.0	6.400	.0	12.400	.1	18.400
.0	24.400	.0					
	.500	.0	6.500	.0	12.500	.1	18.500
.0	24.500	.0					
	.600	.0	6.600	.5	12.600	.1	18.600
.0	24.600	.0					
	.700	.0	6.700	3.0	12.700	.1	18.700
.0	24.700	.0					
	.800	.0	6.800	8.0	12.800	.1	18.800
.0	24.800	.0					
	.900	.0	6.900	10.5	12.900	.1	18.900
.0	24.900	.0					
	1.000	.0	7.000	4.1	13.000	.1	19.000
.0	25.000	.0					
	1.100	.0	7.100	2.8	13.100	.1	19.100
.0	25.100	.0					
	1.200	.0	7.200	2.1	13.200	.1	19.200
.0	25.200	.0					
	1.300	.0	7.300	1.7	13.300	.1	19.300
.0	25.300	.0					
	1.400	.0	7.400	1.4	13.400	.1	19.400
.0	25.400	.0					
	1.500	.0	7.500	.5	13.500	.1	19.500
.0	25.500	.0					
	1.600	.0	7.600	.3	13.600	.1	19.600
.0	25.600	.0					
	1.700	.0	7.700	.2	13.700	.1	19.700
.0	25.700	.0					
	1.800	.0	7.800	.2	13.800	.1	19.800
.0	25.800	.0					
	1.900	.0	7.900	.2	13.900	.1	19.900
.0	25.900	.0					
	2.000	.0	8.000	.2	14.000	.1	20.000
.0	26.000	.0					
	2.100	.0	8.100	.2	14.100	.1	20.100
.0	26.100	.0					
	2.200	.0	8.200	.1	14.200	.1	20.200
.0	26.200	.0					
	2.300	.0	8.300	.1	14.300	.1	20.300
.0	26.300	.0					
	2.400	.0	8.400	.1	14.400	.1	20.400
.0	26.400	.0					
	2.500	.0	8.500	.1	14.500	.1	20.500
.0	26.500	.0					
	2.600	.0	8.600	.1	14.600	.1	20.600
.0	26.600	.0					
	2.700	.0	8.700	.1	14.700	.1	20.700
.0	26.700	.0					
	2.800	.0	8.800	.1	14.800	.1	20.800
.0	26.800	.0					
	2.900	.0	8.900	.1	14.900	.1	20.900
.0	26.900	.0					
	3.000	.0	9.000	.1	15.000	.1	21.000
.0	27.000	.0					
	3.100	.0	9.100	.1	15.100	.0	21.100
.0	27.100	.0					
	3.200	.0	9.200	.1	15.200	.0	21.200
.0	27.200	.0					
	3.300	.0	9.300	.1	15.300	.0	21.300
.0	27.300	.0					
	3.400	.0	9.400	.1	15.400	.0	21.400
.0	27.400	.0					
	3.500	.0	9.500	.1	15.500	.0	21.500
.0	27.500	.0					
	3.600	.0	9.600	.1	15.600	.0	21.600
.0	27.600	.0					
	3.700	.0	9.700	.1	15.700	.0	21.700
.0	27.700	.0					
	3.800	.0	9.800	.1	15.800	.0	21.800

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.0	27.800	.0					
	3.900	.0	9.900	.1	15.900	.0	21.900
.0	27.900	.0					
	4.000	.0	10.000	.1	16.000	.0	22.000
.0	28.000	.0					
	4.100	.0	10.100	.1	16.100	.0	22.100
.0	28.100	.0					
	4.200	.0	10.200	.1	16.200	.0	22.200
.0	28.200	.0					
	4.300	.0	10.300	.1	16.300	.0	22.300
.0	28.300	.0					
	4.400	.0	10.400	.1	16.400	.0	22.400
.0	28.400	.0					
	4.500	.0	10.500	.1	16.500	.0	22.500
.0	28.500	.0					
	4.600	.0	10.600	.1	16.600	.0	22.600
.0	28.600	.0					
	4.700	.0	10.700	.1	16.700	.0	22.700
.0	28.700	.0					
	4.800	.0	10.800	.1	16.800	.0	22.800
.0	28.800	.0					
	4.900	.0	10.900	.1	16.900	.0	22.900
.0	28.900	.0					
	5.000	.0	11.000	.1	17.000	.0	23.000
.0	29.000	.0					
	5.100	.0	11.100	.1	17.100	.0	23.100
.0	29.100	.0					
	5.200	.0	11.200	.1	17.200	.0	23.200
.0	29.200	.0					
	5.300	.0	11.300	.1	17.300	.0	23.300
.0	29.300	.0					
	5.400	.0	11.400	.1	17.400	.0	23.400
.0	29.400	.0					
	5.500	.0	11.500	.1	17.500	.0	23.500
.0	29.500	.0					
	5.600	.0	11.600	.1	17.600	.0	23.600
.0							
	5.700	.0	11.700	.1	17.700	.0	23.700
.0							
	5.800	.0	11.800	.1	17.800	.0	23.800
.0							
	5.900	.0	11.900	.1	17.900	.0	23.900
.0							

RUNOFF VOLUME = 1.97265 INCHES = .3798 ACRE-FEET
PEAK DISCHARGE RATE = 12.15 CFS AT 6.850 HOURS BASIN AREA = .0036 SQ.
MI.

ADD HYD ID=5 HYDROGRAPH NO=298 ID I=5 ID II=3
PRINT HYD ID=5 CODE =2

PARTIAL HYDROGRAPH 298.00

FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS
	.000	.0	4.000	.0	8.000	74.2	12.000
18.7	16.000	14.1					
	.067	.0	4.067	.0	8.067	72.1	12.067
18.5	16.066	14.1					
	.133	.0	4.133	.0	8.133	69.8	12.133
18.3	16.133	14.0					
	.200	.0	4.200	.0	8.200	67.3	12.200
18.2	16.200	14.0					
	.267	.0	4.267	.0	8.267	64.8	12.267
18.0	16.266	14.0					
	.333	.0	4.333	.0	8.333	62.5	12.333

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17.9	16.333	13.9					
	.400	.0	4.400	.0	8.400	60.3	12.400
17.7	16.400	13.9					
	.467	.0	4.467	.0	8.467	58.2	12.467
17.6	16.466	13.9					
	.533	.0	4.533	.0	8.533	56.3	12.533
17.4	16.533	13.8					
	.600	.0	4.600	.0	8.600	54.6	12.600
17.3	16.600	13.8					
	.667	.0	4.667	.0	8.667	52.9	12.667
17.2	16.666	13.8					
	.733	.0	4.733	.0	8.733	51.3	12.733
17.1	16.733	13.7					
	.800	.0	4.800	.0	8.800	49.8	12.800
16.9	16.800	13.7					
	.867	.0	4.867	.0	8.867	48.4	12.867
16.8	16.866	13.7					
	.933	.0	4.933	.0	8.933	47.0	12.933
16.7	16.933	13.7					
	1.000	.0	5.000	.0	9.000	45.7	13.000
16.6	17.000	13.6					
	1.067	.0	5.067	.0	9.067	44.4	13.067
16.5	17.066	13.6					
	1.133	.0	5.133	.0	9.133	43.3	13.133
16.4	17.133	13.6					
	1.200	.0	5.200	.0	9.200	42.2	13.200
16.3	17.200	13.5					
	1.267	.0	5.267	.0	9.267	41.1	13.267
16.2	17.266	13.5					
	1.333	.0	5.333	.0	9.333	40.0	13.333
16.2	17.333	13.5					
	1.400	.0	5.400	.0	9.400	39.0	13.400
16.1	17.400	13.5					
	1.467	.0	5.467	.0	9.467	38.1	13.467
16.0	17.466	13.4					
	1.533	.0	5.533	.0	9.533	37.1	13.533
15.9	17.533	13.4					
	1.600	.0	5.600	.0	9.600	36.2	13.600
15.8	17.600	13.4					
	1.667	.0	5.667	.0	9.667	35.2	13.667
15.8	17.666	13.4					
	1.733	.0	5.733	.0	9.733	34.3	13.733
15.7	17.733	13.3					
	1.800	.0	5.800	.0	9.800	33.4	13.800
15.6	17.800	13.3					
	1.867	.0	5.867	.0	9.867	32.6	13.867
15.6	17.866	13.3					
	1.933	.0	5.933	.0	9.933	31.8	13.933
15.5	17.933	13.3					
	2.000	.0	6.000	.0	10.000	31.0	14.000
15.4	18.000	13.2					
	2.067	.0	6.067	.0	10.067	30.3	14.067
15.4	18.066	13.2					
	2.133	.0	6.133	.0	10.133	29.5	14.133
15.3	18.133	13.2					
	2.200	.0	6.200	.0	10.200	28.9	14.200
15.3	18.200	13.1					
	2.267	.0	6.267	.0	10.267	28.2	14.267
15.2	18.266	13.1					
	2.333	.0	6.333	.0	10.333	27.6	14.333
15.1	18.333	13.1					
	2.400	.0	6.400	.0	10.400	27.0	14.400
15.1	18.400	13.1					
	2.467	.0	6.467	.0	10.467	26.5	14.466
15.0	18.466	13.1					
	2.533	.0	6.533	.0	10.533	25.9	14.533
15.0	18.533	13.0					
	2.600	.0	6.600	.5	10.600	25.4	14.600
14.9	18.600	13.0					
	2.667	.0	6.667	2.4	10.667	24.9	14.666
14.9	18.666	13.0					

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	2.733	.0	6.733	6.3	10.733	24.5	14.733
14.8	18.733	13.0					
	2.800	.0	6.800	21.5	10.800	24.0	14.800
14.8	18.800	12.9					
	2.867	.0	6.867	50.0	10.867	23.6	14.866
14.7	18.866	12.9					
	2.933	.0	6.933	80.4	10.933	23.2	14.933
14.7	18.933	12.9					
	3.000	.0	7.000	100.4	11.000	22.8	15.000
14.7	19.000	12.9					
	3.067	.0	7.067	103.7	11.067	22.4	15.066
14.6	19.066	12.8					
	3.133	.0	7.133	102.0	11.133	22.0	15.133
14.6	19.133	12.8					
	3.200	.0	7.200	102.3	11.200	21.7	15.200
14.5	19.200	12.8					
	3.267	.0	7.267	100.9	11.267	21.3	15.266
14.5	19.266	12.8					
	3.333	.0	7.333	99.6	11.333	21.0	15.333
14.5	19.333	12.7					
	3.400	.0	7.400	98.4	11.400	20.7	15.400
14.4	19.400	12.7					
	3.467	.0	7.467	96.9	11.467	20.4	15.466
14.4	19.466	12.7					
	3.533	.0	7.533	94.5	11.533	20.2	15.533
14.3	19.533	12.7					
	3.600	.0	7.600	91.0	11.600	19.9	15.600
14.3	19.600	12.7					
	3.667	.0	7.667	87.0	11.667	19.7	15.666
14.3	19.666	12.6					
	3.733	.0	7.733	83.7	11.733	19.5	15.733
14.2	19.733	12.6					
	3.800	.0	7.800	81.1	11.800	19.3	15.800
14.2	19.800	12.6					
	3.867	.0	7.867	78.7	11.867	19.1	15.866
14.2	19.866	12.6					
	3.933	.0	7.933	76.4	11.933	18.9	15.933
14.1	19.933	12.5					

RUNOFF VOLUME = 1.22836 INCHES = 30.1386 ACRE-FEET
PEAK DISCHARGE RATE = 103.73 CFS AT 7.067 HOURS BASIN AREA = .4600 SQ. MI.

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** ROUTE FLOW DOWN ELLISON DR. STORM DRAIN FROM M.H.(STA.25+50) TO*******
** M.H.(STA.30+15)**********
COMPUTE RATING CURVE CID=1 VALLEY SECTIONS=1 CODE=-1 SLOPE=0.0055
DIAMETER=4.0 FT N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.21	.25	.56	1.78
.42	.69	2.43	2.44
.63	1.25	5.64	2.91
.83	1.90	10.14	3.25
1.04	2.60	15.84	3.51
1.25	3.36	22.59	3.71
1.46	4.15	30.27	3.85
1.67	4.96	38.70	3.94
1.88	5.79	47.71	3.99
2.08	6.62	57.10	4.00
2.29	7.45	66.66	4.00
2.50	8.27	76.17	4.00
2.71	9.06	85.37	4.00
2.92	9.82	93.99	4.00
3.13	10.54	101.70	4.00
3.34	11.20	108.12	4.00
3.54	11.77	112.71	4.00
3.75	12.24	114.59	4.00
4.00	12.57	114.59	4.00

COMPUTE TRAVEL TIME ID=2 REACH NO=1 VALLEY SECTIONS=1
LENGTH=465 FT SLOPE=0.0055

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.208	.250	.56	.0577
.417	.695	2.43	.0370
.625	1.255	5.64	.0287
.834	1.898	10.14	.0242
1.042	2.604	15.84	.0212
1.251	3.358	22.59	.0192
1.459	4.146	30.27	.0177
1.668	4.960	38.70	.0166
1.876	5.788	47.71	.0157
2.084	6.621	57.10	.0150
2.293	7.451	66.66	.0144
2.501	8.267	76.17	.0140
2.710	9.062	85.37	.0137
2.918	9.823	93.99	.0135
3.127	10.539	101.70	.0134
3.335	11.195	108.12	.0134
3.544	11.773	112.71	.0135
3.752	12.243	114.59	.0138
4.000	12.566	114.59	.0142

ROUTE ID=2 HYDROGRAPH NO=226 INFLOW ID=3 DT=0.033333
PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 226.00

RUNOFF VOLUME = 1.22321 INCHES = 29.7765 ACRE-FEET
PEAK DISCHARGE RATE = 100.35 CFS AT 7.067 HOURS BASIN AREA = .4564 SQ. MI.

25×10

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SANDIA LABS FCU
50% PONDING

** TOTAL STORM DRAIN FLOW TO THIS POINT **********
PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 222.00

RUNOFF VOLUME = 1.20550 INCHES = 28.6441 ACRE-FEET
PEAK DISCHARGE RATE = 96.93 CFS AT 7.033 HOURS BASIN AREA = .4455 SQ. MI.

** ROUTE FLOW DOWN ELLISON DR. STORM DRAIN FROM M.H.(STA.22+30) TO *********
** M.H.(STA. 25+50)**********
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 CODE=-1 SLOPE=0.0050
DIAMETER=4.0 FT N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.21	.25	.53	1.78
.42	.69	2.31	2.44
.63	1.25	5.38	2.91
.83	1.90	9.67	3.25
1.04	2.60	15.10	3.51
1.25	3.36	21.54	3.71
1.46	4.15	28.86	3.85
1.67	4.96	36.90	3.94
1.88	5.79	45.49	3.99
2.08	6.62	54.44	4.00
2.29	7.45	63.56	4.00
2.50	8.27	72.62	4.00
2.71	9.06	81.40	4.00
2.92	9.82	89.61	4.00
3.13	10.54	96.97	4.00
3.34	11.20	103.08	4.00
3.54	11.77	107.46	4.00
3.75	12.24	109.26	4.00
4.00	12.57	109.26	4.00

COMPUTE TRAVEL TIME ID=5 REACH NO=1 VALLEY SECTIO NS=1
LENGTH=320 FT SLOPE=0.0050

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.208	.250	.53	.0417
.417	.695	2.31	.0267
.625	1.255	5.38	.0207
.834	1.898	9.67	.0174
1.042	2.604	15.10	.0153
1.251	3.358	21.54	.0139
1.459	4.146	28.86	.0128
1.668	4.960	36.90	.0119
1.876	5.788	45.49	.0113
2.084	6.621	54.44	.0108
2.293	7.451	63.56	.0104
2.501	8.267	72.62	.0101
2.710	9.062	81.40	.0099
2.918	9.823	89.61	.0097
3.127	10.539	96.97	.0097
3.335	11.195	103.08	.0097
3.544	11.773	107.46	.0097
3.752	12.243	109.26	.0100
4.000	12.566	109.26	.0102

ROUTE ID=5 HYDROGRAPH NO=223 INFLOW ID=2 DT=0.033333
PRINT HYD ID=5 CODE=1

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PARTIAL HYDROGRAPH 223.00

RUNOFF VOLUME = 1.20532 INCHES = 28.6398 ACRE-FEET
PEAK DISCHARGE RATE = 96.60 CFS AT 7.067 HOURS BASIN AREA = .4455 SQ. MI.

□ %C=0.0 %D=80.0 TP=0.133333
MASS RAINFALL=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 45.859 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.8624
AREA = .011618 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .131158HR TP = .133333HR K/TP RATIO = .983688 SHAPE CONSTANT, N = 3.589718
UNIT PEAK = 7.1196 CFS UNIT VOLUME = .9993 B = 326.82 P60 = 1.8624
AREA = .002905 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 224.00

RUNOFF VOLUME = 2.18077 INCHES = 1.6891 ACRE-FEET
PEAK DISCHARGE RATE = 35.98 CFS AT 6.950 HOURS BASIN AREA = .0145 SQ. MI.

** ROUTE TRACT G-1A HYDROGRAPH THRU PONDING AREA
** ALLOWABLE RELEASE RATE=6.7cfs PIPE DIAMETER=18"
ROUTE RESERVOIR ID=2 HYDROGRAPH NO=514 INFLOW ID=3 CODE=10

OUTFLOW (cfs)	STORAGE (ac ft)	ELEV (ft)
0	0	100.0
2.48	.28	101.0
4.57	.54	102.0
5.81	.69	102.5
7.09	.91	103.5

* * * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	100.00	.000	.00
.50	.00	100.00	.000	.00
1.00	.00	100.00	.000	.00
1.50	.00	100.00	.000	.00
2.00	.00	100.00	.000	.00
2.50	.00	100.00	.000	.00
3.00	.00	100.00	.000	.00
3.50	.00	100.00	.000	.00
4.00	.00	100.00	.000	.00
4.50	.00	100.00	.000	.00
5.00	.00	100.00	.000	.00
5.50	.00	100.00	.000	.00
6.00	.00	100.00	.000	.00
6.50	.00	100.00	.000	.00
7.00	31.65	101.85	.501	4.26

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7.50	7.75	103.24	.854	6.76
8.00	1.28	102.60	.711	5.93
8.50	.67	101.97	.533	4.51
9.00	.48	101.44	.394	3.40
9.50	.40	101.04	.290	2.56
10.00	.35	100.76	.214	1.89
10.50	.31	100.57	.159	1.41
11.00	.28	100.43	.121	1.07
11.50	.25	100.33	.093	.82
12.00	.28	100.26	.074	.66
12.50	.28	100.22	.061	.54
13.00	.27	100.18	.052	.46
13.50	.26	100.16	.045	.40
14.00	.25	100.14	.040	.35
14.50	.25	100.13	.036	.32
15.00	.24	100.12	.034	.30
15.50	.23	100.11	.031	.28
16.00	.23	100.11	.030	.26
16.50	.22	100.10	.028	.25
17.00	.21	100.10	.027	.24
17.50	.21	100.09	.026	.23
18.00	.20	100.09	.025	.22
18.50	.20	100.09	.024	.22
19.00	.19	100.08	.024	.21
19.50	.19	100.08	.023	.20
20.00	.19	100.08	.023	.20
20.50	.18	100.08	.022	.19
21.00	.18	100.08	.022	.19
21.50	.17	100.08	.021	.19
22.00	.17	100.07	.021	.18
22.50	.17	100.07	.020	.18
23.00	.17	100.07	.020	.18
23.50	.16	100.07	.019	.17
24.00	.16	100.07	.019	.17
24.50	.16	100.07	.019	.17
25.00	.15	100.07	.018	.16
25.50	.15	100.06	.018	.16
26.00	.15	100.06	.018	.16
26.50	.15	100.06	.017	.15
27.00	.14	100.06	.017	.15
27.50	.14	100.06	.017	.15

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
28.00	.14	100.06	.017	.15
28.50	.14	100.06	.016	.14
29.00	.14	100.06	.016	.14
29.50	.13	100.06	.016	.14

PEAK DISCHARGE = 6.765 CFS - PEAK OCCURS AT HOUR 7.55
MAXIMUM WATER SURFACE ELEVATION = 103.246
MAXIMUM STORAGE = .8542 AC-FT INCREMENTAL TIME= .050000HRS

PRINT HYD ID=2 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 514.00

RUNOFF VOLUME = 2.16502 INCHES = 1.6769 ACRE-FEET
PEAK DISCHARGE RATE = 6.77 CFS AT 7.550 HOURS BASIN AREA = .0145 SQ. MI.

** ADD TRACT G-1A RELEASE RATE TO ELLISON DR. STORM DRAIN
ADD HYD ID=3 HYDROGRAPH NO=225 ID I=5 ID II=2
PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 225.00

25×10

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RUNOFF VOLUME = 1.22960 INCHES = 30.1691 ACRE-FEET
PEAK DISCHARGE RATE = 101.84 CFS AT 7.067 HOURS BASIN AREA = .4600 SQ. MI.

** ROUTE FLOW DOWN ELLISON DR. STORM DRAIN FROM M.H.(STA.25+50) TO*******
** M.H.(STA.30+15)**********
COMPUTE RATING CURVE CID=1 VALLEY SECTIONS=1 CODE=-1 SLOPE=0.0055
DIAMETER=4.0 FT N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.21	.25	.56	1.78
.42	.69	2.43	2.44
.63	1.25	5.64	2.91
.83	1.90	10.14	3.25
1.04	2.60	15.84	3.51
1.25	3.36	22.59	3.71
1.46	4.15	30.27	3.85
1.67	4.96	38.70	3.94
1.88	5.79	47.71	3.99
2.08	6.62	57.10	4.00
2.29	7.45	66.66	4.00
2.50	8.27	76.17	4.00
2.71	9.06	85.37	4.00
2.92	9.82	93.99	4.00
3.13	10.54	101.70	4.00
3.34	11.20	108.12	4.00
3.54	11.77	112.71	4.00
3.75	12.24	114.59	4.00
4.00	12.57	114.59	4.00

COMPUTE TRAVEL TIME ID=2 REACH NO=1 VALLEY SECTIONS=1
LENGTH=465 FT SLOPE=0.0055

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.208	.250	.56	.0577
.417	.695	2.43	.0370
.625	1.255	5.64	.0287
.834	1.898	10.14	.0242
1.042	2.604	15.84	.0212
1.251	3.358	22.59	.0192
1.459	4.146	30.27	.0177
1.668	4.960	38.70	.0166
1.876	5.788	47.71	.0157
2.084	6.621	57.10	.0150
2.293	7.451	66.66	.0144
2.501	8.267	76.17	.0140
2.710	9.062	85.37	.0137
2.918	9.823	93.99	.0135
3.127	10.539	101.70	.0134
3.335	11.195	108.12	.0134
3.544	11.773	112.71	.0135
3.752	12.243	114.59	.0138
4.000	12.566	114.59	.0142

ROUTE ID=2 HYDROGRAPH NO=226 INFLOW ID=3 DT=0.033333
PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 226.00

RUNOFF VOLUME = 1.22923 INCHES = 30.1600 ACRE-FEET
PEAK DISCHARGE RATE = 101.58 CFS AT 7.200 HOURS BASIN AREA = .4600 SQ.

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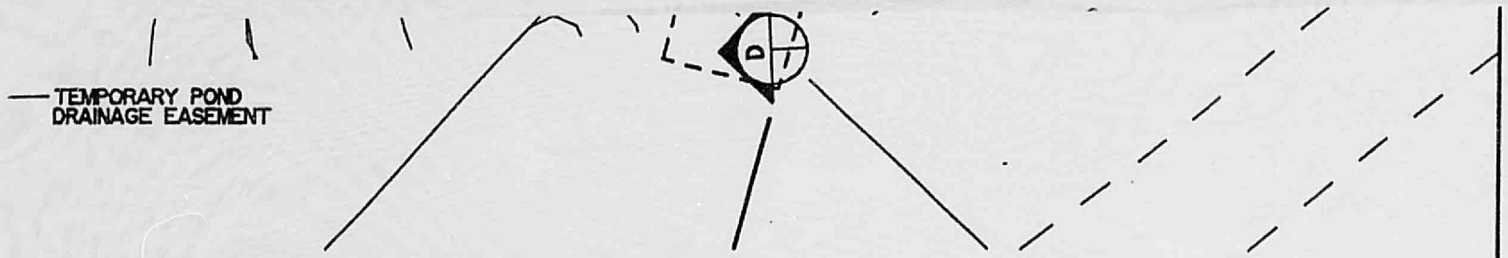
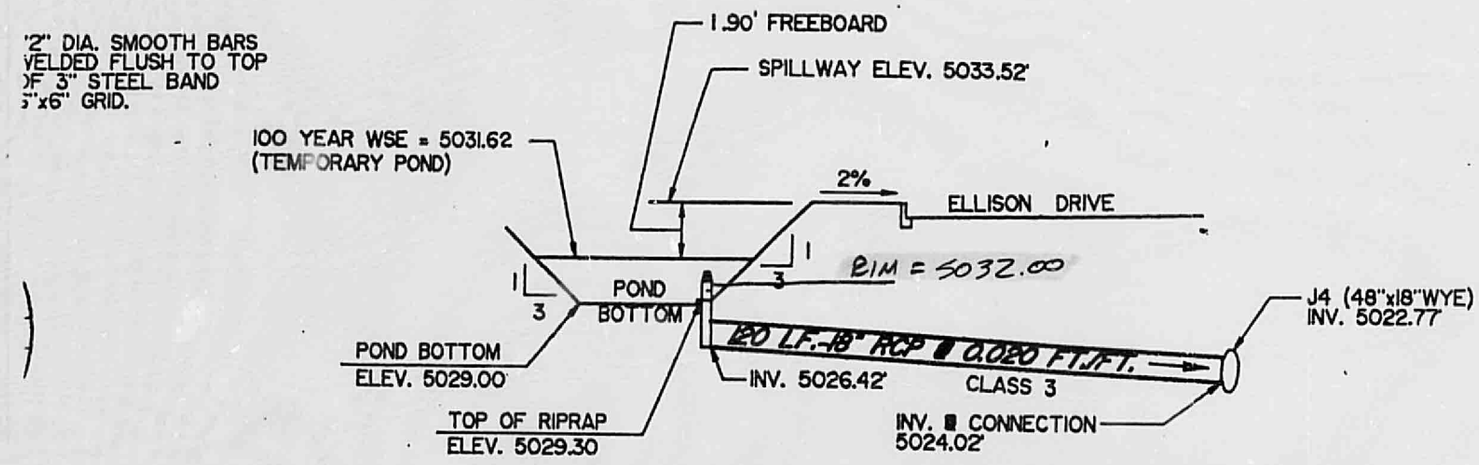


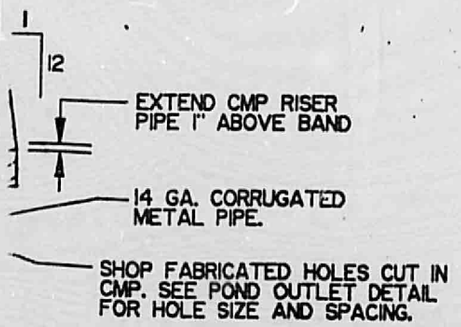
·IA TEMPORARY POND



D STORM DRAIN PROFILE

N.T.S.

'E. ALL EXPOSED METAL SHALL BE "HOT DIP" GALVANIZED



HYDROLOGY DATA - TRACT G-IA

TEMPORARY POND (EXISTING CONDITIONS)
PEAK OUTFLOW (Q100) = 0.9 CFS
MAX. STORAGE (V100) = 0.31 AF

TRACT G-IA DEVELOPED CONDITIONS
PEAK DISCHARGE (Q100 ALLOWABLE) = 6.7 CFS

NO.	DATE	REMARKS	BY
1			
2			

REVISIONS

DESIGN
DESIGNED BY DWC, BRG DATE FEB, 1992
DRAWN BY BRG, WLV DATE FEB, 1992

ENGINEER'S SEAL

EASTERLING & ASSOCIATES, INC.
CONSULTING ENGINEERS
10131 Coors Rd., NW, Suite H - 7 8 8
ALBUQUERQUE, NEW MEXICO 87114
(505) 898-8021 FAX (505) 898-8501

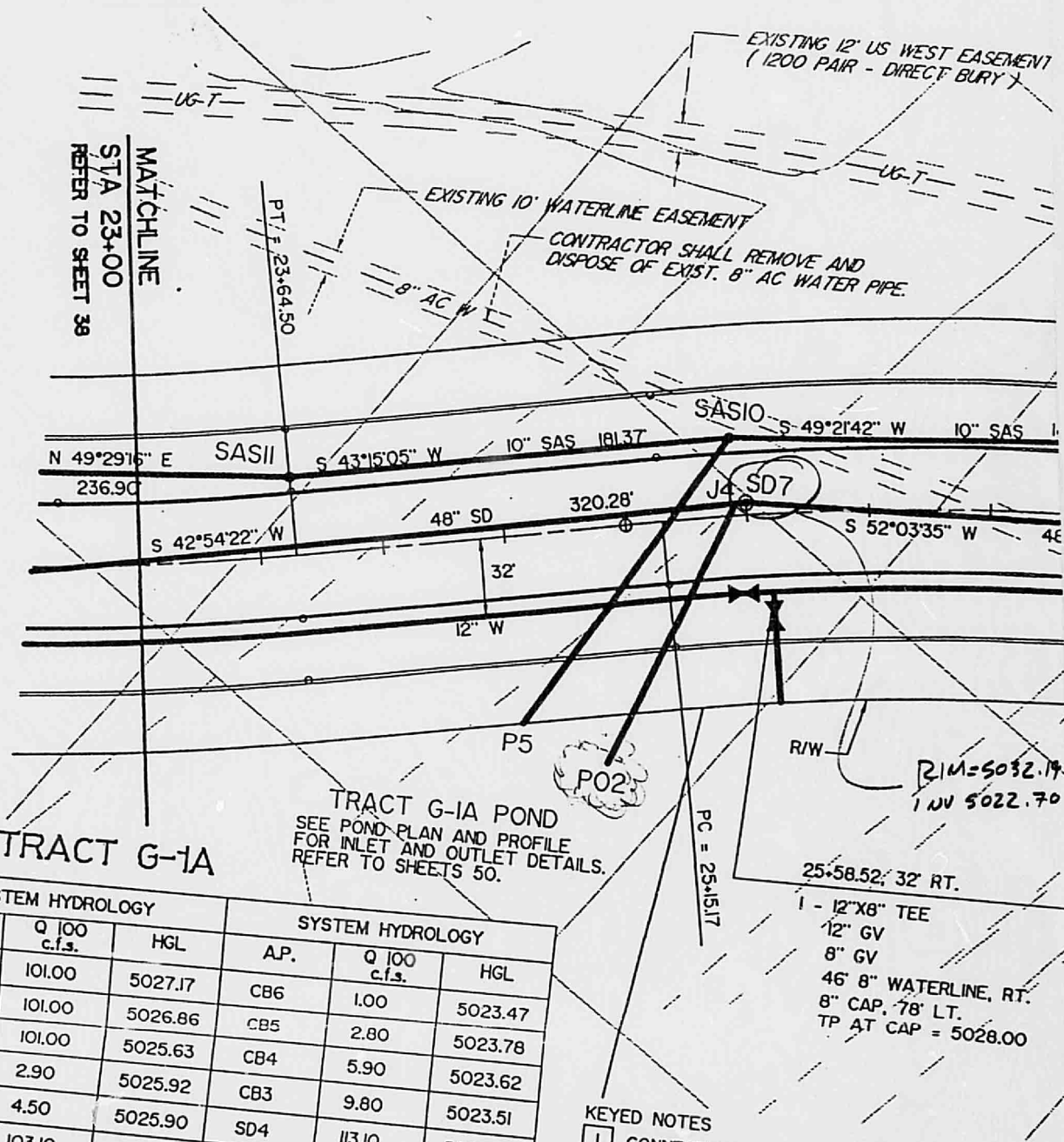
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: SAD 223 - PART 4
TRACT G-IA TEMPORARY POND
PLAN-PROFILE-DETAILS

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair	APPROVED		WATER		
TRANS. DEV.			WASTE WATER		

25×10 32×10 25×10

FROM SAD 223
PLAN SET

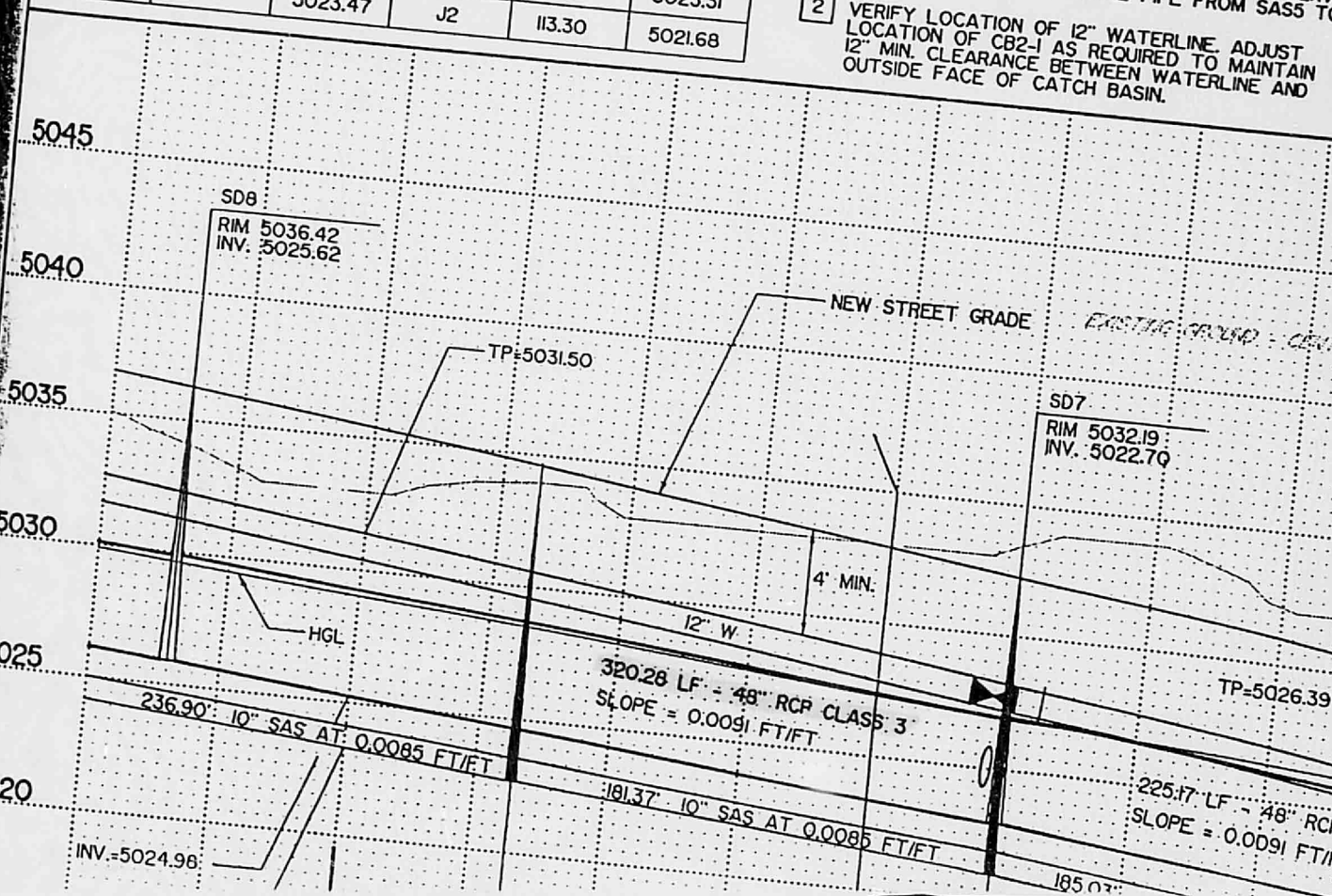


SYSTEM HYDROLOGY			SYSTEM HYDROLOGY		
A.P.	Q 100 c.f.s.	HGL	A.P.	Q 100 c.f.s.	HGL
J4	101.00	5027.17	CB6	1.00	5023.47
SD7	101.00	5026.86	CB5	2.80	5023.78
SD6	101.00	5025.63	CB4	5.90	5023.62
CB9	2.90	5025.92	CB3	9.80	5023.51
CB8	4.50	5025.90	SD4	113.10	5022.22
J3	103.10	5024.42	CB2-1	5.00	5023.18
SD5	103.90	5024.25	CB2-2	1.50	5023.31
CB7	0.40	5023.47	J2	113.30	5021.68

KEYED NOTES

1. CONNECT NEW 10" SAS TO THE EXISTING 24" SA @ EXISTING MH SAS5. MODIFY INVERT FILL AS RI THE EXISTING 24" SAS SHALL BE KEPT IN SERVI USE AWWA C900 PRESSURE PIPE FROM SAS5 TO

2. VERIFY LOCATION OF 12" WATERLINE. ADJUST LOCATION OF CB2-1 AS REQUIRED TO MAINTAIN 12" MIN. CLEARANCE BETWEEN WATERLINE AND OUTSIDE FACE OF CATCH BASIN.



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PLANS/PLATS ON FILE

FILE DESC: A14/D10A

PLANS/PLATS 13

25×10

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25×10