



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

November 14, 2003

Bruce Stidworthy, P.E.
Bohannon Huston, Inc.
7500 Jefferson NE – Courtyard 1
Albuquerque, NM 87109

Re: Journal Center Phase 2 Unit 2, SIA/Financial Guarantee Release
Engineer's Stamp dated 11-20-02 (D17/D3AA)
Certification dated 11-10-03

Dear Mr. Stidworthy,

Based upon the information provided in your submittal received 11-12-03, the above referenced certification is approved for release of SIA and Financial Guarantee.

If you have any questions, you can contact me at 924-3981.

Sincerely,

Kristal D. Metro
Engineering Associate, Planning Dept.
Development and Building Services

C: ~~Arlene~~ Arlene Portillo, COA# 651783
file

SWALE CALCULATIONS:

ADJACENT TO NORTH PINO ARROYO
TRANSPORTS LOT DRAINAGE TO EXISTING CHANNEL RUNDOWNS.

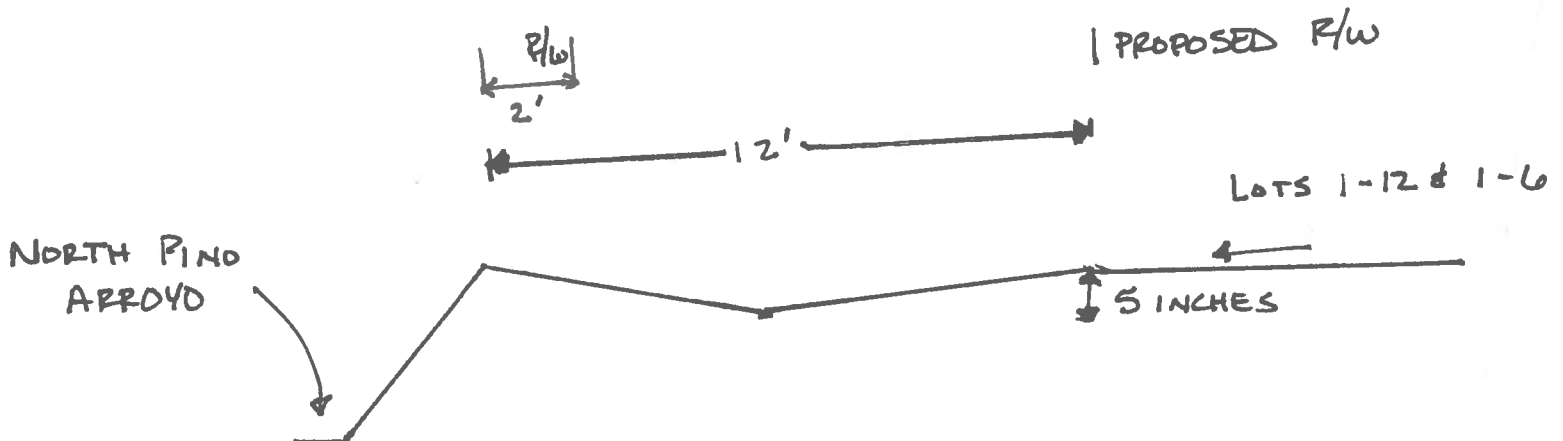
12' WIDE
5" DEEP

MAX AREA = 3.3 ACRES
PEAK DISCHARGE = 4.40 CFS/ ACRE
100 YR. FLOW = 14.35 CFS

MANNING'S N= .013 SLOPE= .025

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.42	3	12.00	0.42			
2	6.00	0.00						

WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	VEL	ENERGY
(FT)	INC	AREA	RATE	PER	VEL	(FT)	HEAD	HEAD
	(FT)	SQ.FT.	(CFS)	(FT)	(FPS)		(FT)	(FT)
0.02	0.02	0.01	0.0	0.58	0.84	0.58	0.01	0.03
0.04	0.04	0.02	0.0	1.15	1.33	1.15	0.03	0.07
0.06	0.06	0.05	0.1	1.73	1.74	1.73	0.05	0.11
0.08	0.08	0.09	0.2	2.31	2.11	2.30	0.07	0.15
0.10	0.10	0.14	0.4	2.89	2.45	2.88	0.09	0.19
0.12	0.12	0.21	0.6	3.46	2.77	3.46	0.12	0.24
0.14	0.14	0.28	0.9	4.04	3.06	4.03	0.15	0.29
0.16	0.16	0.37	1.2	4.62	3.35	4.61	0.17	0.33
0.18	0.18	0.47	1.7	5.20	3.62	5.18	0.20	0.38
0.20	0.20	0.58	2.2	5.77	3.89	5.76	0.23	0.43
0.22	0.22	0.70	2.9	6.35	4.14	6.34	0.27	0.49
0.24	0.24	0.83	3.6	6.93	4.39	6.91	0.30	0.54
0.26	0.26	0.97	4.5	7.51	4.63	7.49	0.33	0.59
0.28	0.28	1.13	5.5	8.08	4.87	8.06	0.37	0.65
0.30	0.30	1.30	6.6	8.66	5.09	8.64	0.40	0.70
0.32	0.32	1.47	7.8	9.24	5.32	9.22	0.44	0.76
0.34	0.34	1.66	9.2	9.81	5.54	9.79	0.48	0.82
0.36	0.36	1.87	10.7	10.39	5.75	10.37	0.51	0.87
0.38	0.38	2.08	12.4	10.97	5.96	10.94	0.55	0.93
0.40	0.40	2.30	14.2	11.55	6.17	11.52	0.59	0.99
0.42	0.42	2.50	15.9	12.03	6.34	12.00	0.62	1.04



PINO ARROYO

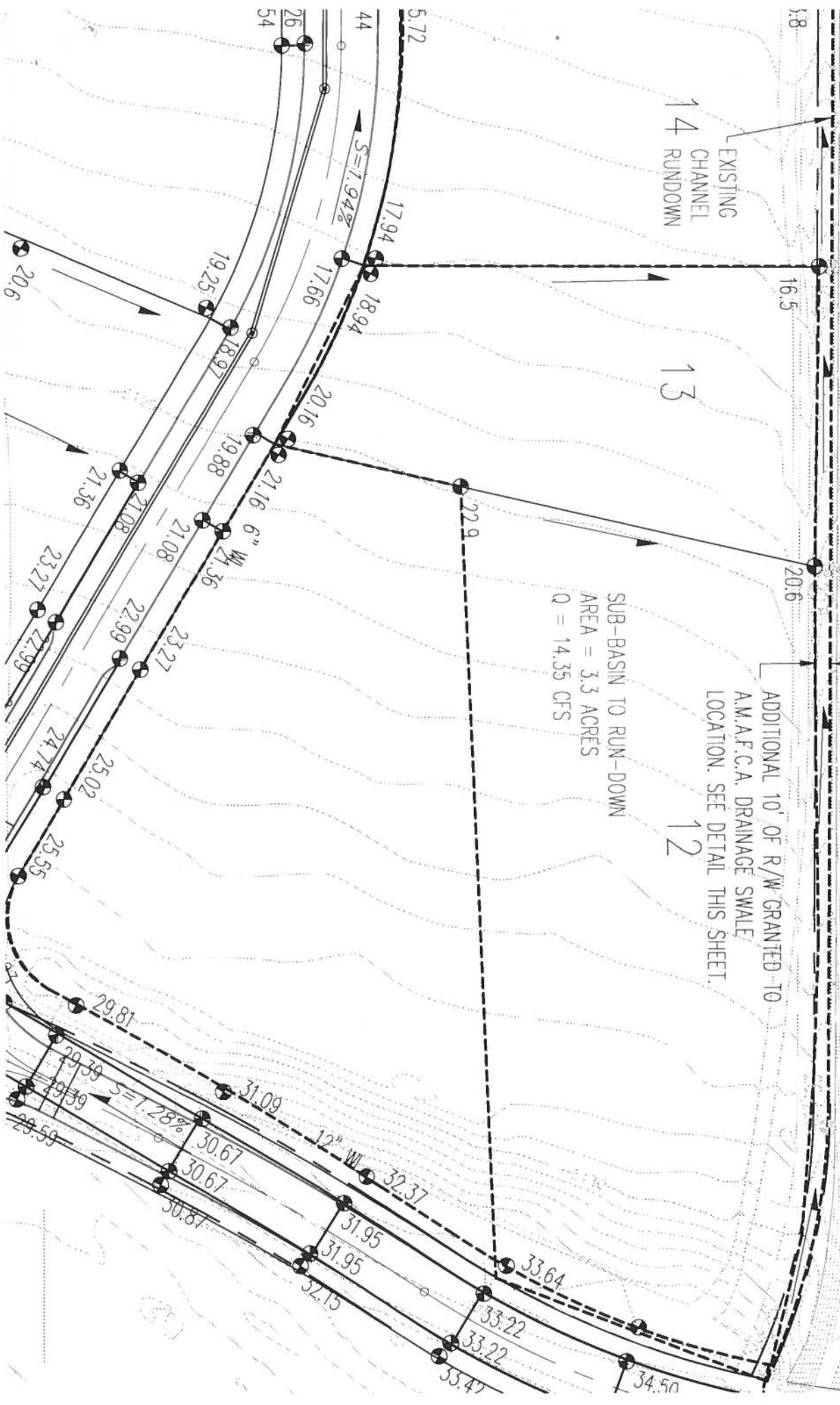
EXISTING
CHANNEL
14
RUNDOWN

13

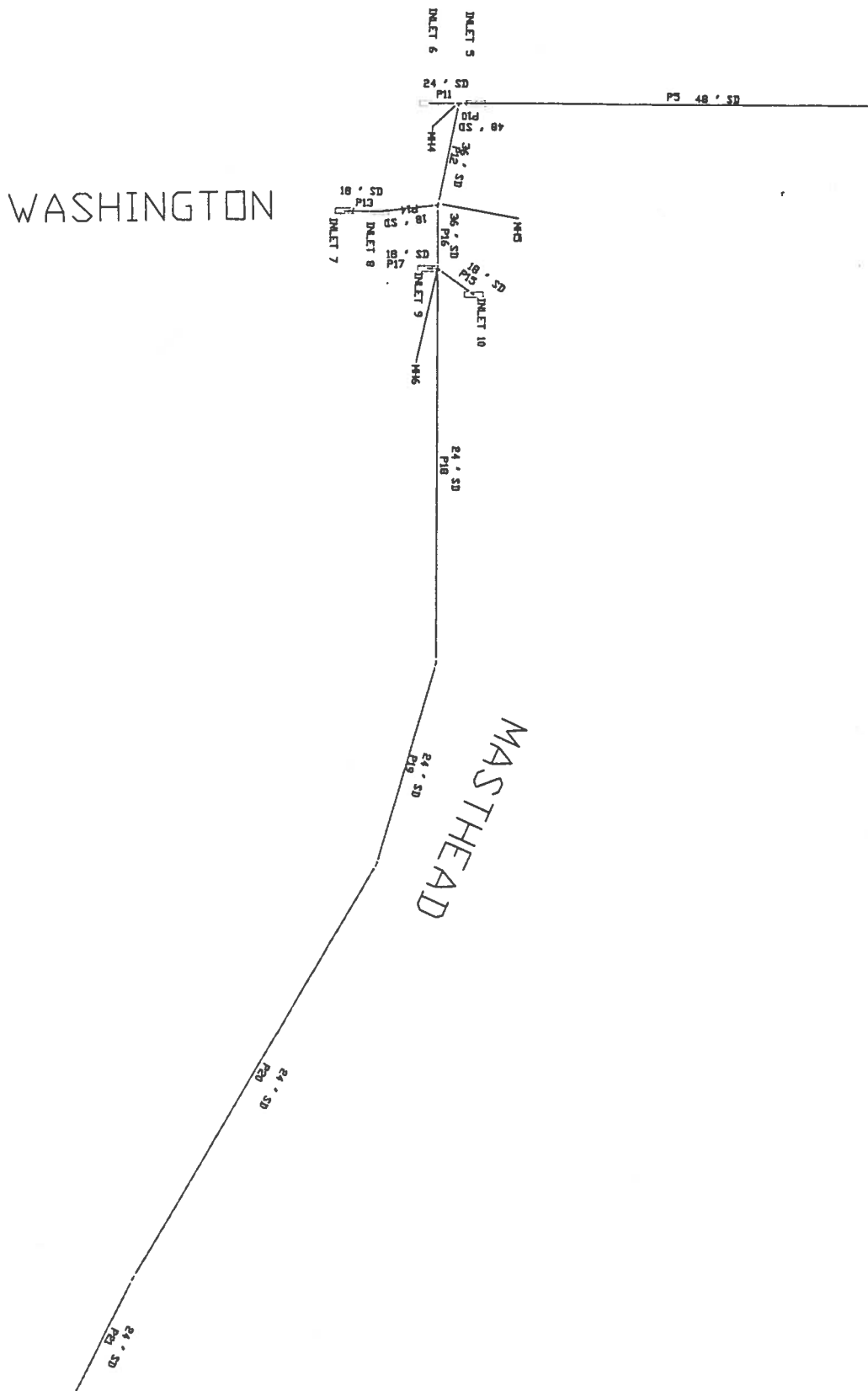
SUB-BASIN TO RUN-DOWN
AREA = 3.3 ACRES
Q = 14.35 CFS

ADDITIONAL 10' OF R/W GRANTED TO
A.M.A.F.C.A. DRAINAGE SWALE
LOCATION. SEE DETAIL THIS SHEET.

12



NORTH DIVERSION CHANNEL



MASTHEAD

HGL/EGL Computations:

Table A:

Struct ID	D (in)	Q (cfs)	L (ft)	V (ft/s)	d (ft)	dc (ft)	² V/2g (ft)	Sf (ft/ft)	Dnstrm Soffit (ft)	EGLdn (ft)	HGLdn (ft)	Tot Loss (ft)	EGLup (ft)	HGLup (ft)	Rim Elev. (ft)
(Alternate HGL and EGL Used)															
Outfall	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P5	48	149.20	293.29	8.10	-	-	1.02	0.0089	5105.84	5107.39	5105.57	1.83	5109.22	5107.40	-
IN5	-	-	-	-	-	-	-	-	-	5109.22	5107.40	0.38	5109.60	5107.80	5109.98
P10	48	111.60	12.07	8.06	-	-	1.01	0.0050	5107.42	5109.60	5107.78	0.06	5109.66	5107.84	-
MH4	-	-	-	-	-	-	-	-	-	5109.66	5107.84	0.54	5110.20	5108.38	5110.29
P12	36	76.13	76.13	6.69	-	-	0.69	0.0099	5106.54	5110.20	5108.38	0.69	5110.89	5109.07	-
MH5	-	-	-	-	-	-	-	-	-	5110.89	5109.07	0.64	5111.53	5109.71	5110.01
P16	36	52.80	46.82	6.49	-	-	0.66	0.0047	5106.99	5111.53	5109.71	0.22	5111.75	5109.93	-
MH6	-	-	-	-	-	-	-	-	-	5111.75	5109.93	0.16	5111.91	5110.09	5111.54
P18	24	31.60	289.77	7.99	-	-	0.99	0.0123	5107.50	5111.91	5110.09	3.45	5115.36	5113.54	-
MH7	-	-	-	-	-	-	-	-	-	5115.36	5113.54	0.67	5116.03	5114.21	5116.02
P19	24	31.60	154.34	7.99	-	-	0.99	0.0123	5110.44	5116.03	5114.21	1.90	5117.93	5116.11	-
MH8	-	-	-	-	-	-	-	-	-	5117.93	5116.11	0.62	5118.55	5116.73	5118.54
P20	24	31.60	355.18	7.99	-	-	0.99	0.0123	5113.95	5118.55	5116.73	4.23	5122.78	5120.96	-
Junction	-	-	-	-	-	-	-	-	-	5122.78	5120.96	0.01	5122.79	5120.97	-
P21	24	31.60	95.81	7.99	-	-	0.99	0.0123	5120.96	5122.79	5120.97	1.18	5123.96	5122.15	-
New Branch															
MH4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P11	24	31.60	22.33	11.05	-	-	-	-	-	5109.66	5107.84	-	5110.19	5107.84	5110.29
IN6	-	-	-	-	-	-	-	-	-	5110.19	5108.37	0.53	5110.19	5108.37	-
New Branch															
MH5	-	-	-	-	-	-	-	-	-	5110.89	5109.07	-	5110.89	5109.07	-
P14	18	21.20	43.56	11.67	-	-	-	-	-	5110.89	5109.07	1.68	5112.57	5110.75	-
IN7	-	-	-	-	-	-	-	-	-	5112.57	5110.75	-	5112.57	5110.75	5111.12
P13	18	10.60	25.68	5.84	-	-	0.53	0.0096	5107.02	5112.57	5110.75	0.25	5112.82	5111.00	-
IN8	-	-	-	-	-	-	-	-	-	5112.82	5111.00	-	5112.82	5111.00	5111.79
New Branch															
MH6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P15	18	10.60	32.61	5.91	-	-	-	-	-	5111.75	5109.93	-	5111.75	5109.93	5111.95
IN10	-	-	-	-	-	-	0.54	0.0099	5107.00	5111.75	5109.93	0.32	5112.07	5110.25	-
New Branch															
MH6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P17	18	10.60	7.65	5.86	-	-	-	-	-	5111.75	5109.93	-	5111.75	5109.93	5111.95
IN9	-	-	-	-	-	-	0.53	0.0097	5107.00	5111.75	5109.93	0.07	5111.82	5110.00	-
New Branch															
MH6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P17	18	10.60	7.65	5.86	-	-	-	-	-	5111.82	5110.00	-	5111.82	5110.00	5111.33
IN9	-	-	-	-	-	-	-	-	-	5111.82	5110.00	-	5111.82	5110.00	5111.33

Table B:

Str ID	Hf	Hb	Losses		He	Hj	Total	Loss Coefficients								
			Hstr	Hc				Dstr	Ko	CD	Cd	Cq	Cp	Cb	K	
Outfall	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P5	1.83	-	-	-	-	-	1.83	-	-	-	-	-	-	-	-	-
IN5	-	-	0.38	-	-	-	0.38	4.92	0.369	1.000	0.566	1.000	1.000	1.000	1.000	0.209
P10	0.06	-	-	-	-	-	0.06	-	-	-	-	-	-	-	-	-
MH4	-	-	0.54	-	-	-	0.54	6.00	1.456	1.000	0.638	0.573	1.000	1.000	1.000	0.532
P12	0.76	-	-	-	-	-	0.76	-	-	-	-	-	-	-	-	-
MH5	-	-	0.64	-	-	-	0.64	6.47	0.473	1.000	0.793	1.248	1.000	1.000	1.000	0.468
P16	0.22	-	-	-	-	-	0.22	-	-	-	-	-	-	-	-	-
MH6	-	-	0.16	-	-	-	0.16	6.55	0.200	1.000	0.799	1.552	1.000	1.000	1.000	0.248
P18	3.45	-	-	-	-	-	3.45	-	-	-	-	-	-	-	-	-
MH7	-	-	0.67	-	-	-	0.67	7.01	0.679	1.000	1.000	1.000	1.000	1.000	1.000	0.679
P19	1.90	-	-	-	-	-	1.90	-	-	-	-	-	-	-	-	-
MH8	-	-	0.62	-	-	-	0.62	6.51	0.627	1.000	1.000	1.000	1.000	1.000	1.000	0.627
P20	4.23	-	-	-	-	-	4.23	-	-	-	-	-	-	-	-	-
Junction	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-
P21	1.18	-	-	-	-	-	1.18	-	-	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MH4	-	-	-	-	-	-	-	6.00	0.169	1.000	0.638	1.709	1.000	1.000	1.000	0.184
P11	0.53	-	-	-	-	-	0.53	-	-	-	-	-	-	-	-	-
IN6	-	-	-	-	-	-	-	5.47	-	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MH5	-	-	-	-	-	-	-	6.47	1.482	1.000	0.793	0.323	1.000	1.000	1.000	0.379
P14	1.68	-	-	-	-	-	1.68	-	-	-	-	-	-	-	-	-
IN7	-	-	-	-	-	-	-	6.22	1.070	1.000	1.000	1.000	1.000	1.000	1.000	1.070
P13	0.25	-	-	-	-	-	0.25	-	-	-	-	-	-	-	-	-
IN8	-	-	-	-	-	-	-	9.30	-	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MH6	-	-	-	-	-	-	-	6.55	1.303	1.000	0.799	0.481	1.000	1.000	1.000	0.501
P15	0.32	-	-	-	-	-	0.32	-	-	-	-	-	-	-	-	-
IN10	-	-	-	-	-	-	-	6.36	-	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MH6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P17	0.07	-	-	-	-	-	0.07	-	-	-	-	-	-	-	-	0.500
IN9	-	-	-	-	-	-	-	6.69	-	-	-	-	-	-	-	-

AMAFCA SWALE
BORDERING PINO ARROYO

GRAVEL LINED

MANNING'S N= .03 SLOPE= .025

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.75	3	12.00	0.75			
2	6.00	0.00	4	0.00	0.00			

WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	VEL	ENERGY
(FT)	INC	AREA	RATE	PER	VEL	(FT)	HEAD	HEAD
(FT)	(FT)	SQ.FT.	(CFS)	(FT)	(FPS)	(FT)	(FT)	(FT)
0.02	0.02	0.00	0.0	0.32	0.36	0.32	0.00	0.02
0.04	0.04	0.01	0.0	0.64	0.57	0.64	0.01	0.05
0.06	0.06	0.03	0.0	0.97	0.75	0.96	0.01	0.07
0.08	0.08	0.05	0.0	1.29	0.91	1.28	0.01	0.09
0.10	0.10	0.08	0.1	1.61	1.06	1.60	0.02	0.12
0.12	0.12	0.12	0.1	1.93	1.19	1.92	0.02	0.14
0.14	0.14	0.16	0.2	2.26	1.32	2.24	0.03	0.17
0.16	0.16	0.20	0.3	2.58	1.45	2.56	0.03	0.19
0.18	0.18	0.26	0.4	2.90	1.56	2.88	0.04	0.22
0.20	0.20	0.32	0.5	3.22	1.68	3.20	0.04	0.24
0.22	0.22	0.39	0.7	3.55	1.79	3.52	0.05	0.27
0.24	0.24	0.46	0.9	3.87	1.90	3.84	0.06	0.30
0.26	0.26	0.54	1.1	4.19	2.00	4.16	0.06	0.32
0.28	0.28	0.63	1.3	4.51	2.10	4.48	0.07	0.35
0.30	0.30	0.72	1.6	4.84	2.20	4.80	0.08	0.38
0.32	0.32	0.82	1.9	5.16	2.30	5.12	0.08	0.40
0.34	0.34	0.92	2.2	5.48	2.39	5.44	0.09	0.43
0.36	0.36	1.04	2.6	5.80	2.48	5.76	0.10	0.46
0.38	0.38	1.16	3.0	6.13	2.58	6.08	0.10	0.48
0.40	0.40	1.28	3.4	6.45	2.66	6.40	0.11	0.51
0.42	0.42	1.41	3.9	6.77	2.75	6.72	0.12	0.54
0.44	0.44	1.55	4.4	7.09	2.84	7.04	0.13	0.57
0.46	0.46	1.69	5.0	7.42	2.92	7.36	0.13	0.59
0.48	0.48	1.84	5.5	7.74	3.01	7.68	0.14	0.62
0.50	0.50	2.00	6.2	8.06	3.09	8.00	0.15	0.65
0.52	0.52	2.16	6.9	8.38	3.17	8.32	0.16	0.68
0.54	0.54	2.33	7.6	8.71	3.25	8.64	0.16	0.70
0.56	0.56	2.51	8.4	9.03	3.33	8.96	0.17	0.73
0.58	0.58	2.69	9.2	9.35	3.41	9.28	0.18	0.76
0.60	0.60	2.88	10.1	9.67	3.49	9.60	0.19	0.79
0.62	0.62	3.08	11.0	10.00	3.57	9.92	0.20	0.82
0.64	0.64	3.28	11.9	10.32	3.65	10.24	0.21	0.85
0.66	0.66	3.48	13.0	10.64	3.72	10.56	0.21	0.87
0.68	0.68	3.70	14.0	10.96	3.80	10.88	0.22	0.90
0.70	0.70	3.92	15.2	11.29	3.87	11.20	0.23	0.93
0.72	0.72	4.15	16.4	11.61	3.94	11.52	0.24	0.96
0.74	0.74	4.38	17.6	11.93	4.02	11.84	0.25	0.99
0.75	0.75	4.50	18.2	12.09	4.05	12.00	0.25	1.00