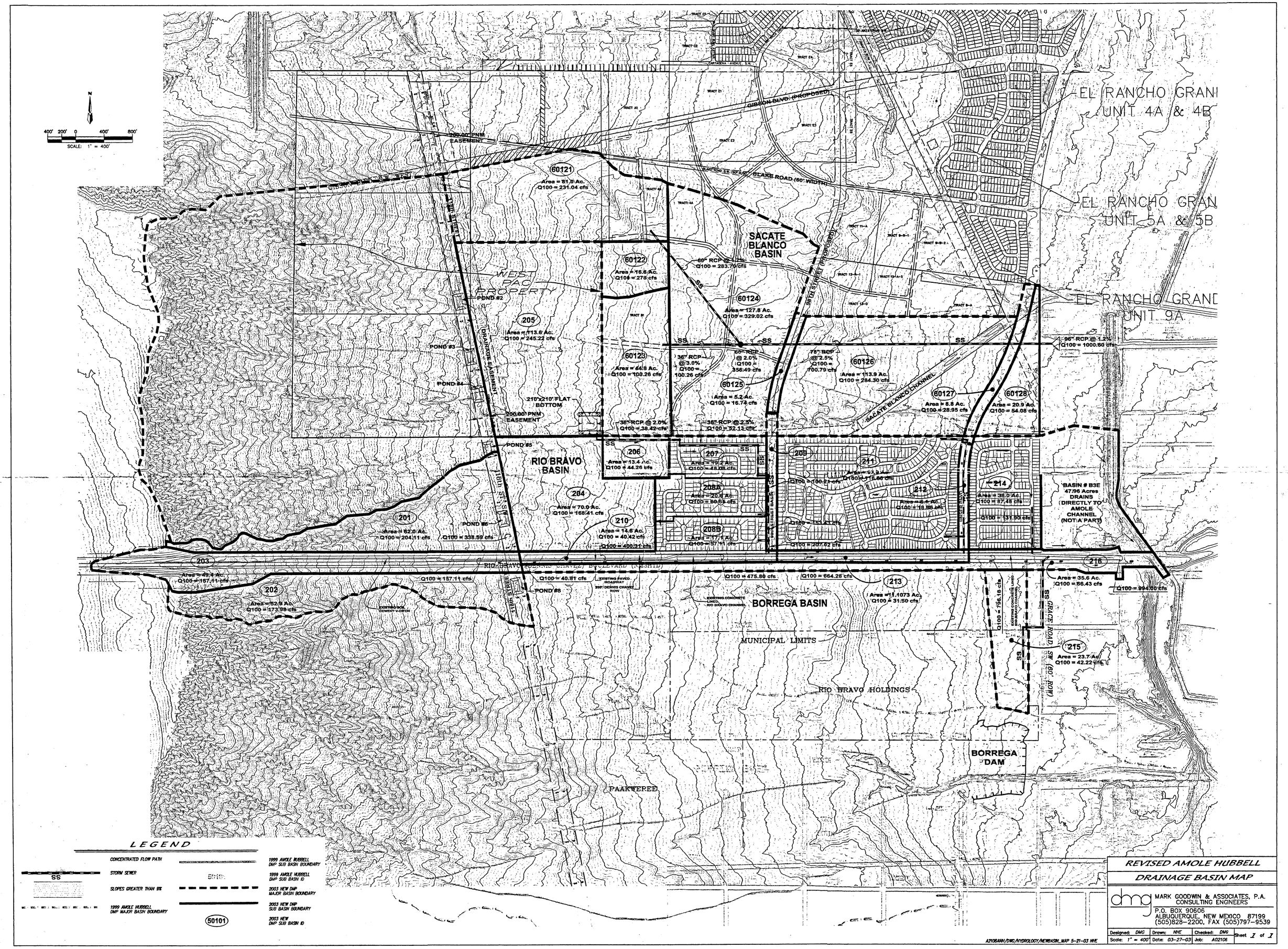
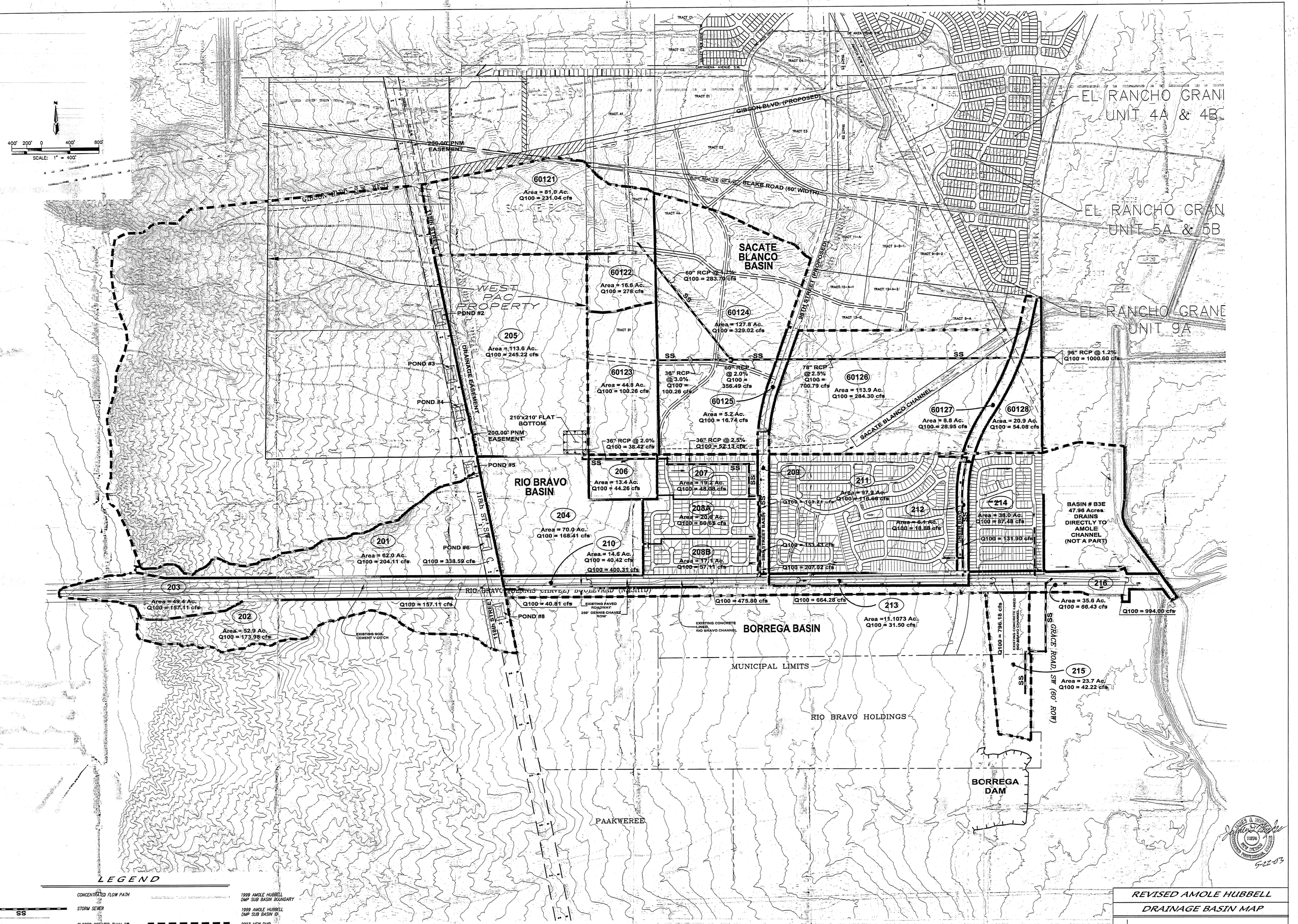


REVISED AMOLE HUBBELL DRAINAGE BASIN MAP

MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505)828-2200, FAX (505)797-9539

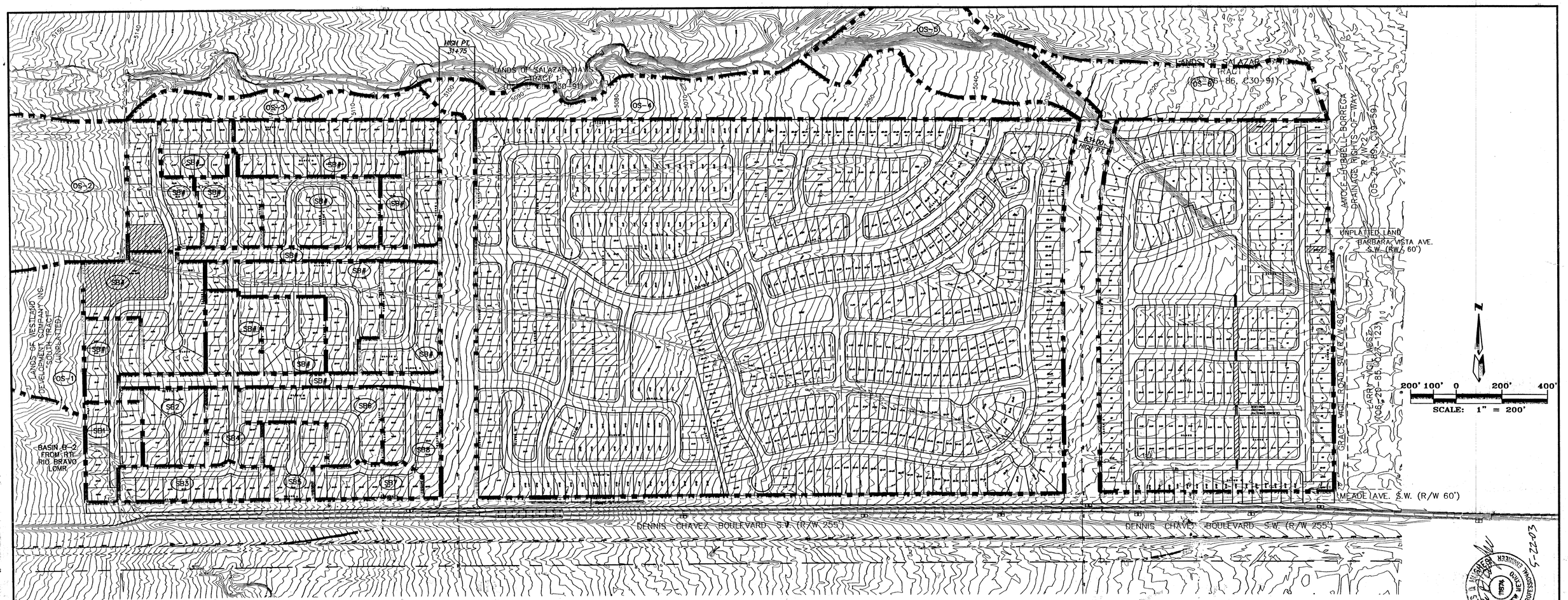
Designed: DMC	Drawn: NHE	Checked: DMC	
Scale: 1" = 400'	Date: 03-27-03	Job: A02106	Sheet 1 of 1



REVISED AMOLE HUBBELL DRAINAGE BASIN MAP

MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505)828-2200, FAX (505)797-9539

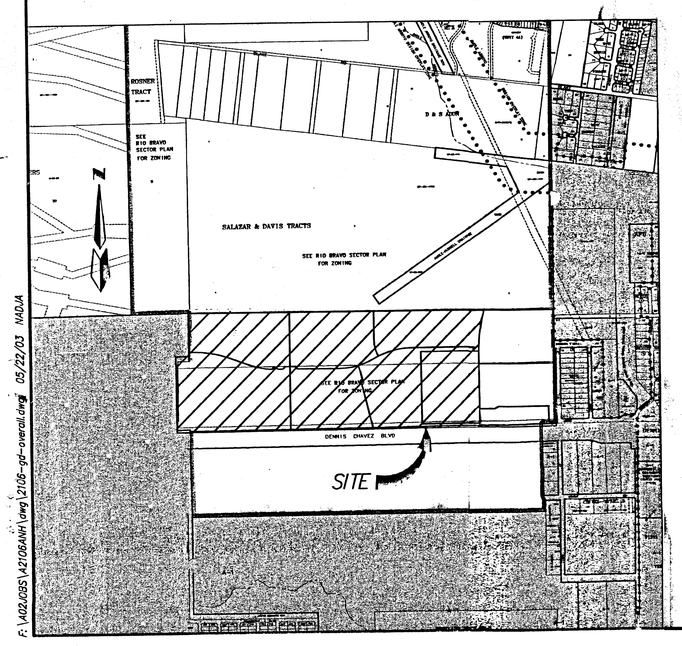
Designed: DMG	Drawn: NHE	Checked: DMG	Sheet 1 of 1
Scale: 1" = 400'	Date: 03-27-03	Job: A02106	

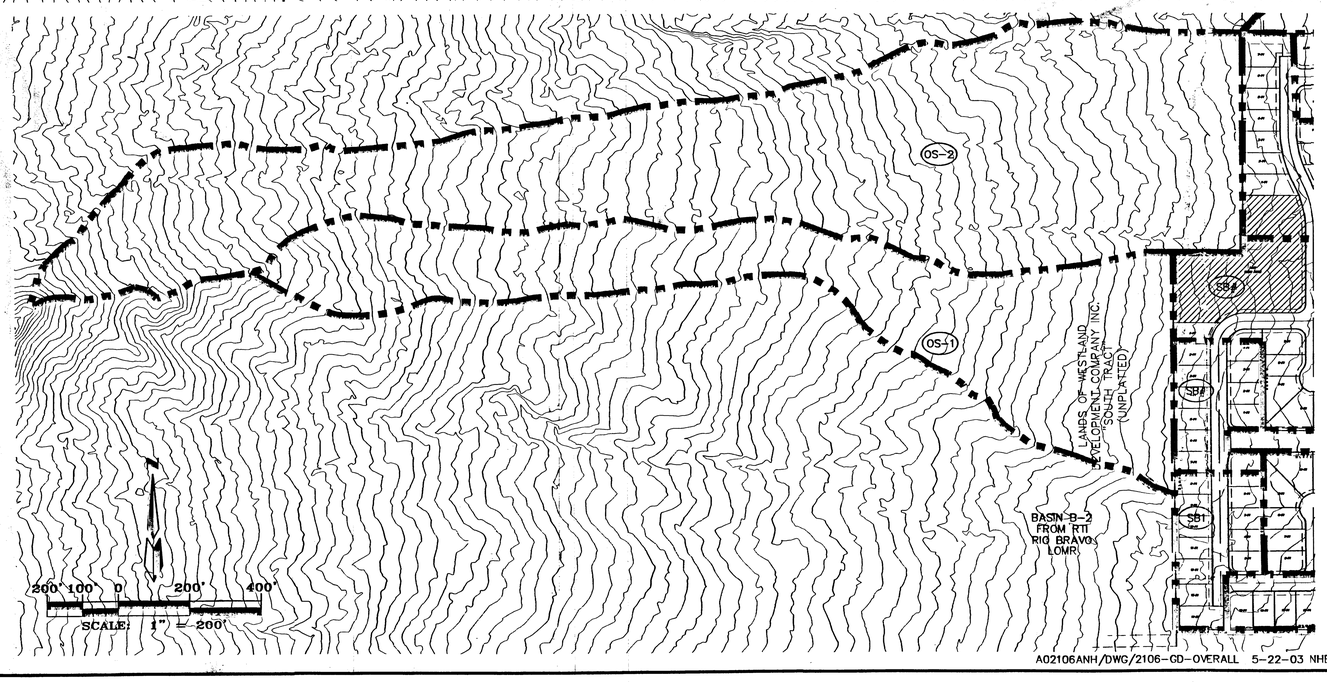


LOCATION MAP

ZONE ATLAS P-9

SCALE: NONE





A02106ANH/DWG/2106-GD-OVERALL 5-22-03 NHE

F:\A02\035\A2106ANH\dwg\2106-gd-overall.dwg 05/22/03 NADJA

ONSITE AND TEMPROARY OFFSITE DRAINAGE BASIN MAP

dmg
MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505)828-2200, FAX (505)797-9539

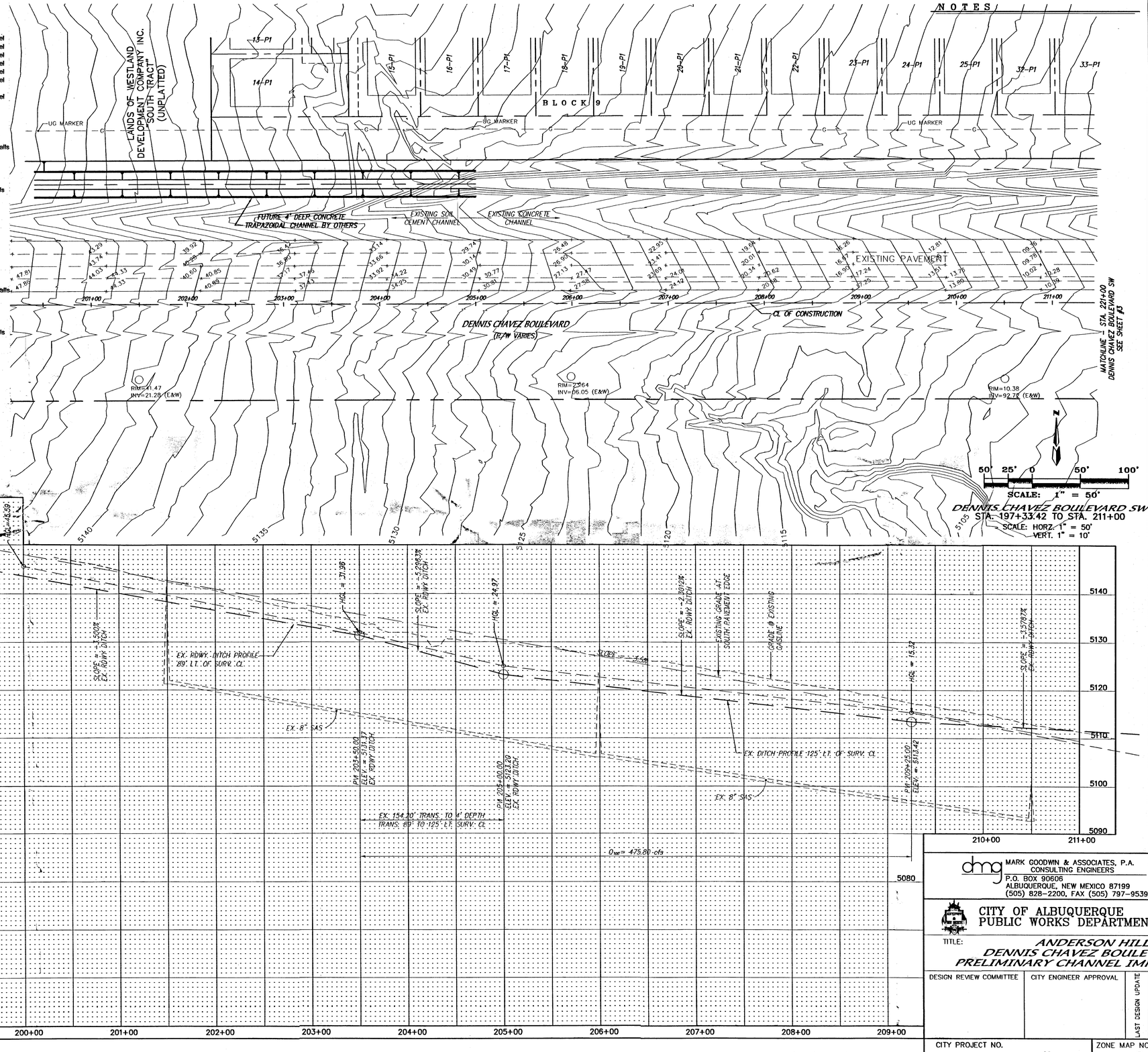
Designed: DMG	Drawn: SPS	Checked: DMG	Sheet 1 of 7
Scale: 1" = 200'	Date: 02-06-03	Job: A02106	

STEVEN P. SANDOVAL
NEW MEXICO
9234
REGISTERED PROFESSIONAL ENGINEER

05-22-03

Summary of Hydraulic Calculations (HEC-RAS, & Freeboard)

River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Lev Chl (ft)	Dpt Vel Chnl (ft/s)	Req'd Freeboard	Req'd Depth	Actual Depth	Comments
88.18200	400.31	5209.80	5211.66	1.86	18.80	1.80	3.66	2.00	Future new channel
86.18400	400.31	5200.60	5202.46	1.86	18.83	1.81	3.67	2.00	Future new channel
84.18600	400.31	5193.40	5195.43	2.03	16.86	1.77	3.80	2.00	Future new channel
82.19100	400.31	5176.30	5178.27	1.97	17.04	1.77	3.74	2.00	Future new channel
80.19200	400.31	5169.20	5171.33	2.13	21.45	1.88	4.01	2.50	Future new channel
78.20000	400.31	5143.50	5145.59	2.09	15.44	1.75	3.84	2.50	Future new channel
202+25 BEGIN ANDERSON HILLS									
76.20350	475.80	5129.90	5131.96	2.06	18.82	1.82	3.88	2.50	Future new channel
205+00 BEGIN CONCRETE									
74.20500	475.80	5123.21	5124.97	1.76	20.91	1.84	3.60	4.00	
72.20925	475.80	5113.43	5115.32	1.89	18.85	1.81	3.70	4.00	
70.21300	475.80	5100.01	5101.64	1.63	23.18	1.88	3.51	4.00	
68.21500	475.80	5091.71	5093.37	1.66	22.53	1.87	3.53	4.00	
67.21705	475.80	5084.12	5085.84	1.72	21.54	1.85	3.57	4.00	Begin new wing walls
64.21780	475.80	5076.94	5078.44	1.50	26.43	1.93	3.43	6.00	Begin new CBC
218+64 CENTERLINE 98TH STREET									
63.21868	664.28	5074.12	5076.42	2.30	24.08	1.96	4.26	6.00	New CBC
62.21955	664.28	5071.34	5073.62	2.28	24.26	1.96	4.24	6.00	End new CBC
61.22030	664.28	5070.96	5073.20	2.24	20.82	1.88	4.12	5.00	End new wing walls
60.22200	664.28	5070.11	5072.93	2.82	14.96	1.77	4.59	5.00	New channel
59.22305	664.28	5069.66	5072.83	3.17	12.56	1.72	4.89	4.00	End new channel
58.22500	664.28	5063.80	5066.06	2.26	20.63	1.87	4.13	4.00	Add 1' berm
56.22650	664.28	5055.55	5057.51	1.96	25.24	1.95	3.91	4.00	
54.22800	664.28	5050.51	5052.57	2.06	23.44	1.92	3.98	4.00	
52.23000	664.28	5044.61	5046.76	2.15	22.05	1.90	4.05	4.00	
50.23300	664.28	5037.29	5039.60	2.31	20.65	1.88	4.19	4.00	
48.23500	664.28	5032.41	5034.70	2.29	20.95	1.88	4.17	5.00	
46.23800	664.28	5024.10	5026.31	2.21	21.99	1.90	4.11	5.00	
44.24100	664.28	5016.81	5019.14	2.33	20.91	1.89	4.22	5.00	
42.24200	664.28	5014.54	5016.89	2.35	20.68	1.88	4.23	5.00	
40.24442	664.28	5009.05	5011.40	2.35	20.65	1.88	4.23	5.00	Begin new wing walls
39.24527	664.28	5007.18	5009.86	2.68	20.67	1.90	4.58	6.00	Begin new CBC
246+06 UNSER BLVD.									
38.24606	796.18	5005.38	5008.70	3.32	20.00	1.92	5.24	6.00	New CBC
37.24693	796.18	5003.57	5006.76	3.19	20.82	1.94	5.13	6.00	End new CBC
36.24768	796.18	5002.07	5004.67	2.60	21.72	1.92	4.52	5.00	End new wing walls
34.24800	796.18	5001.54	5004.18	2.64	21.28	1.91	4.55	5.00	
32.25000	796.18	4998.24	5001.02	2.78	19.73	1.89	4.67	5.00	
30.25200	796.18	4996.18	4999.25	3.07	17.16	1.84	4.91	5.00	
28.25400	796.18	4994.12	4997.28	3.16	16.48	1.82	4.98	5.00	
26.25600	796.18	4992.06	4995.28	3.22	16.31	1.82	5.04	5.00	Add 1' berm
24.25691	994.00	4991.38	4995.26	3.88	15.20	1.82	5.70	5.00	Add 1' berm
257+20 END ANDERSON HILLS									
22.25900	994.00	4987.98	4991.44	3.46	18.00	1.88	5.34	5.00	Add 1' berm
20.26000	994.00	4986.84	4990.28	3.44	18.02	1.88	5.32	5.00	Add 1' berm
18.26200	994.00	4984.58	4988.03	3.45	17.97	1.88	5.33	5.00	Add 1' berm
16.26300	994.00	4981.39	4984.46	3.07	21.22	1.94	5.01	5.00	Add 1' berm
14.26500	994.00	4975.02	4977.83	2.81	24.16	2.00	4.81	6.00	
12.26700	994.00	4970.99	4973.93	2.94	22.59	1.97	4.91	6.00	
10.26776	994.00	4969.47	4972.44	2.97	22.36	1.96	4.93	6.00	
BEGIN BOX CULVERT									
8.26925	994.00	4966.52	4970.73	4.21	19.70	1.96	6.17	6.00	
7.27150	994.00	4948.13	4950.60	2.47	33.50	2.19	4.66	6.00	
6.27219	994.00	4946.75	4949.64	2.89	28.67	2.11	5.00	6.00	
5.27249	994.00	4945.90	4948.14	2.24	28.75	2.06	4.30	6.00	



MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE:
ANDERSON HILLS
DENNIS CHAVEZ BOULEVARD SW
PRELIMINARY CHANNEL IMPROVEMENTS

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
#	P-9	2	7

AS BUILT INFORMATION: CONTRACTOR, STAKED BY, INSPECTOR'S ACCEPTANCE BY, FIELD VERIFICATION BY, DRAWINGS CORRECTED BY — DATE

MICRO-FILM INFORMATION: RECORDED BY, NO. — DATE

BENCH MARKS: STATION "2-P10" IS LOCATED 4.9 MI. SW OF DOWNTOWN ALBUQUERQUE TO REACH STATION FROM INT. OF COORS AND DENIS CHAVEZ BLVD. (FORMERLY RIO BRAVO), GO N. ON COORS 0.1 MI. TO FLORA VISTA AND GO WEST ON FLORA VISTA 0.5 MI. TO CONDERSHIRE, THEN GO S. ON CONDERSHIRE 0.4 MI. TO A POINT APPROX. 50 FT. W. OF THE STATION. STATION MARK IS AN ACS 3 1/4" ALUM. CAP STAMPED "2-P10, 1987" RIVETTED TO A PIPE PROJECTING 0.25 FT ABOVE THE GROUND. X=-35841.13, Y=1464349.24 (NAD 27) Z=4991 (NGVD 29).

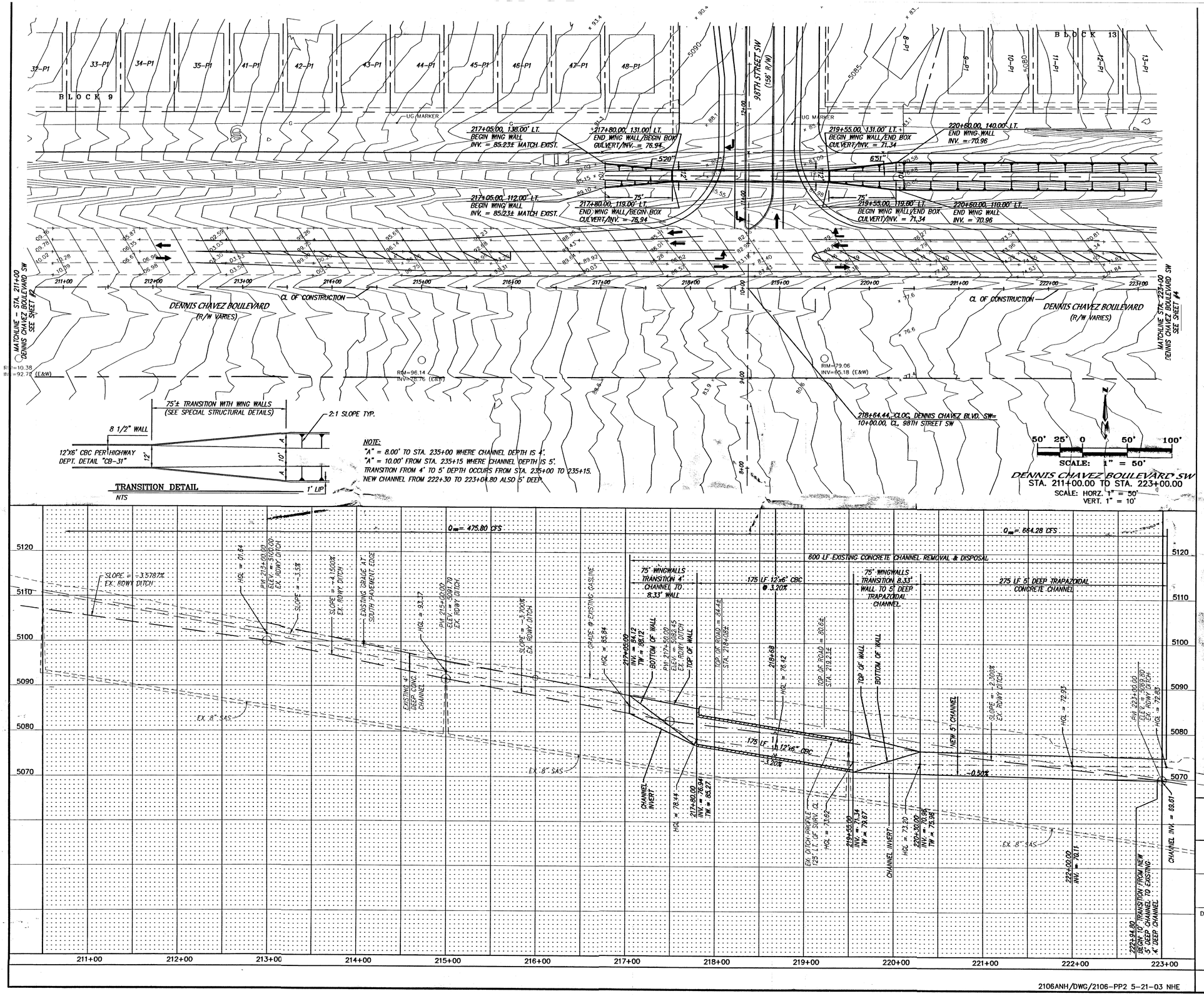
SURVEY INFORMATION: FIELD NOTES — NO., BY, DATE

ENGINEER'S SEAL: JAMES D. HUGHES, NEW MEXICO, 11674, REGISTERED PROFESSIONAL ENGINEER — 6-22-03

REVISIONS: NO., DATE, REMARKS, BY

DESIGN: DESIGNED BY JDH DATE 2/03; DRAWN BY NHE DATE 2/03; CHECKED BY DMG DATE 2/03

2106ANH/DWG/2106-PP1 5-21-03 NHE



NOTES

AS BUILT INFORMATION

CONTRACTOR		
WORKED BY		DATE
INSPECTOR'S ACCEPTANCE BY		DATE
FIELD VERIFICATION BY		DATE
DRAWINGS CORRECTED BY		DATE

MICRO-FILM INFORMATION

RECORDED BY		DATE
NO.		

BENCH MARKS

STATION "2-P10" IS LOCATED 4.9 MI. SW OF DOWNTOWN ALBUQUERQUE TO REACH STATION FROM INT. OF COORS AND DENIS CHAVEZ BLVD. (FORMERLY RIO BRAVO), GO N. ON COORS 0.1 MI. TO FLORA VISTA AND GO WEST ON FLORA VISTA 0.5 MI. TO CONDERSHIRE, THEN GO S. ON CONDERSHIRE 0.4 MI. TO A POINT APPROX. 50 FT. W. OF THE STATION. STATION MARK IS AN ACS 3 1/4" ALUM. CAP STAMPED "2-P10, 1987" RIVETTED TO A PIPE PROJECTING 0.25 FT. ABOVE THE GROUND. X=25841.13, Y=1464349.24 (NAD 27) Z=4991 (NGVD 29).

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

JAMES D. HUGHES NEW MEXICO 11527 REGISTERED PROFESSIONAL ENGINEER 5-22-03

NO.	DATE	REMARKS	BY	DATE
		REVISIONS		

DESIGN

DESIGNED BY	JDH	DATE 2/03
DRAWN BY	NHE	DATE 2/03
CHECKED BY	DMG	DATE 2/03

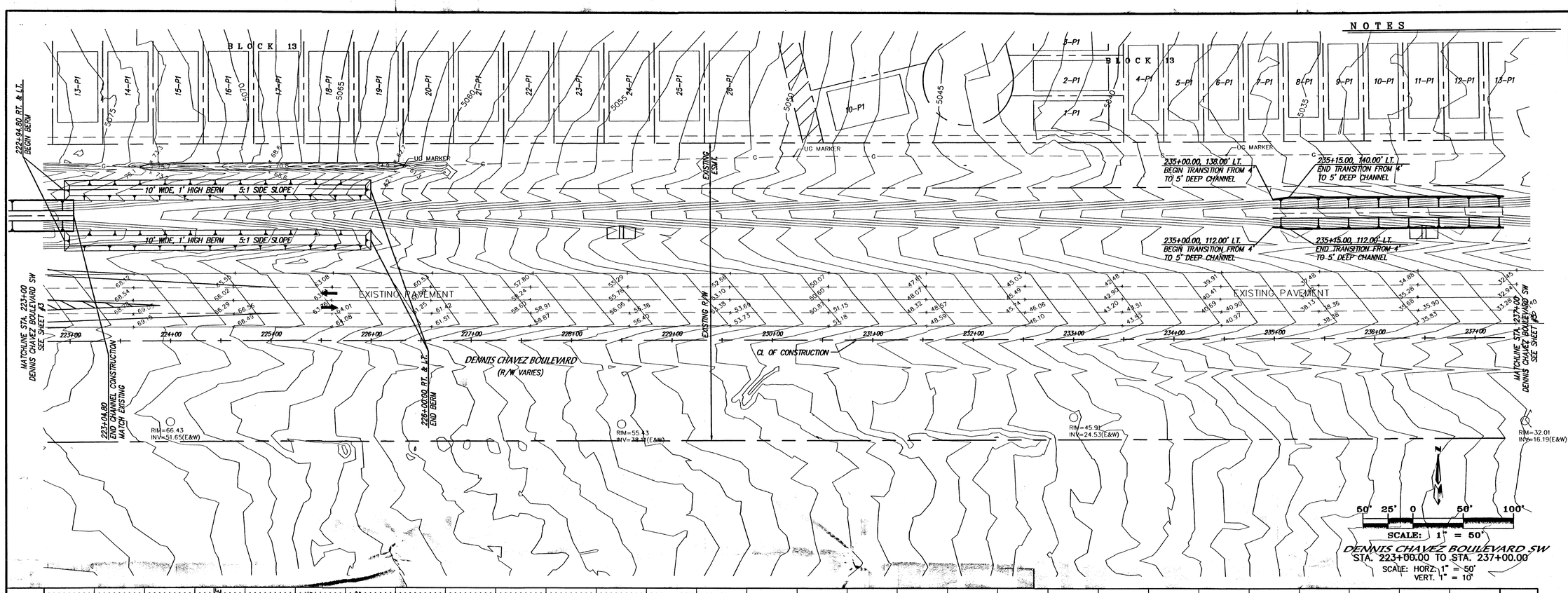
dmg MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: ANDERSON HILLS
DENNIS CHAVEZ BOULEVARD SW
PRELIMINARY CHANNEL IMPROVEMENTS

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
#	P-9	3	7



2106ANH/DWG/2106-PP3/5-21-03 NHE

AS BUILT INFORMATION

CONTRACTOR		
WORK STAKED BY		DATE
WORK INSPECTED BY		DATE
ACCEPTANCE BY		DATE
FIELD VERIFICATION BY		DATE
DRAWINGS CORRECTED BY		DATE

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

BENCH MARKS

STATION "2-P10" IS LOCATED 4.9 MI. SW OF DOWNTOWN ALBUQUERQUE TO REACH STATION FROM INT. OF COORS AND DENIS CHAVEZ BLVD. (FORMERLY RIO BRAVO), GO N. ON COORS 0.1 MI. TO FLORA VISTA AND GO WEST ON FLORA VISTA 0.5 MI. TO CONDERSHIRE, THEN GO S. ON CONDERSHIRE 0.4 MI. TO A POINT APPROX. 50 FT. W. OF THE STATION. STATION MARK IS AN ACS 3 1/4" ALUM CAP STAMPED "2-P10, 1987" RIVETED TO A PIPE PROJECTING 0.25 FT. ABOVE THE GROUND. X=35841.13, Y=1464349.24 (NAD 27) Z=4991 (NGVD 29).

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

JAMES D. HUGHES NEW MEXICO 11574 REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REMARKS	BY
		REVISIONS	

		DATE
DESIGNED BY	JDH	2/03
DRAWN BY	NHE	2/03
CHECKED BY	DMG	2/03

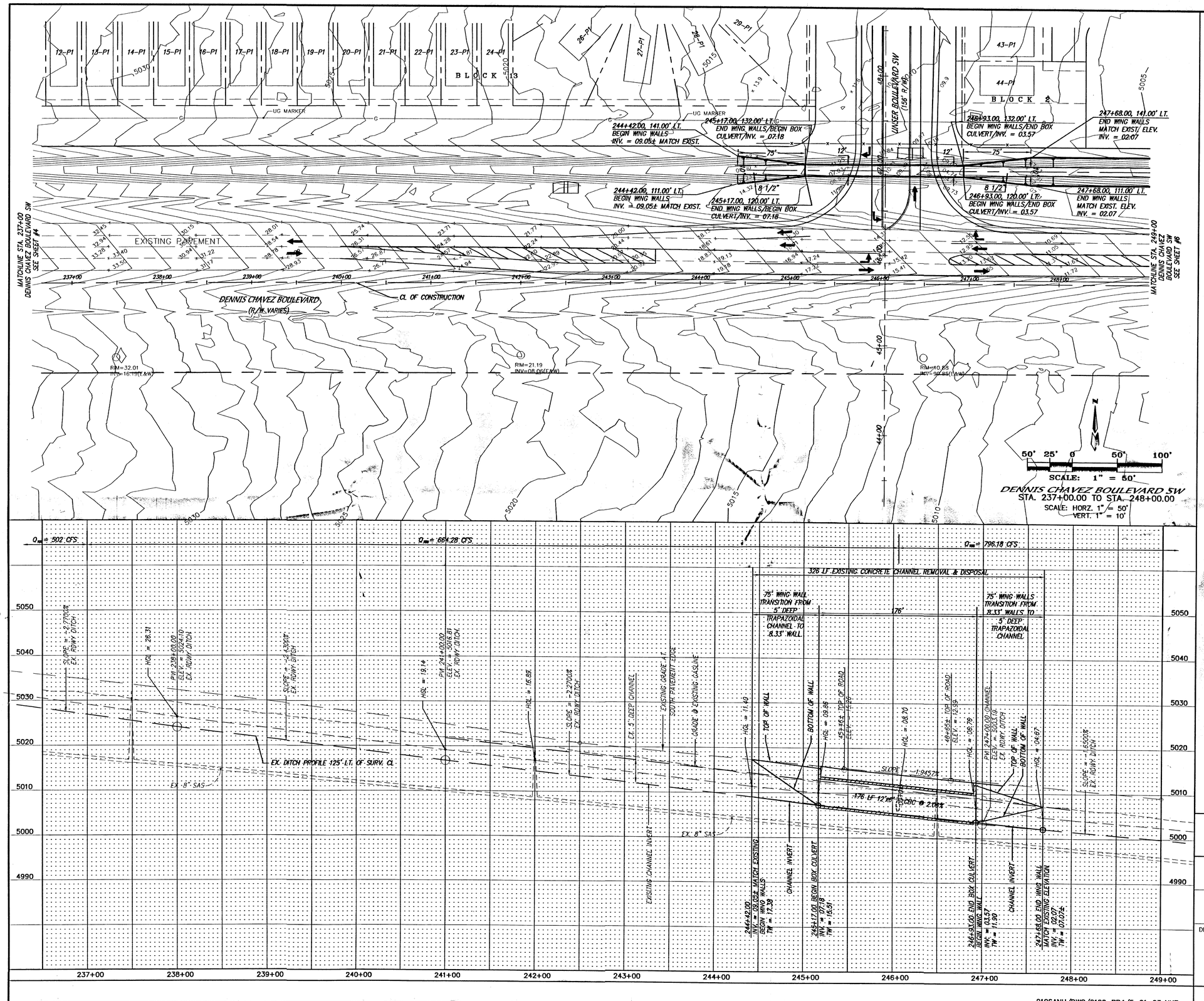
dmg MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: ANDERSON HILLS
DENNIS CHAVEZ BOULEVARD SW
PRELIMINARY CHANNEL IMPROVEMENTS

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
#	P-9	4	7



2106ANH/DWG/2106-PP4/5-21-03 NHE

NOTES

SURVEY INFORMATION			
FIELD NOTES			
NO.	BY	DATE	

BENCH MARKS	
STATION "2-P10" IS LOCATED 4.9 MI. SW OF DOWNTOWN ALBUQUERQUE. TO REACH STATION FROM INT. OF COORS AND DENS CHAVEZ BLVD. (FORMERLY RIO BRAVO), GO N. ON COORS 0.1 MI. TO FLORA VISTA AND GO WEST ON FLORA VISTA 0.5 MI. TO CONDERSHIRE, THEN GO S. ON CONDERSHIRE 0.4 MI. TO A POINT APPROX. 50 FT. W. OF THE STATION. STATION MARK IS AN ACS 3 1/4" ALUM CAP STAMPED "2-P10, 1987" RIVETED TO A PIPE PROJECTING 0.25 FT ABOVE THE GROUND. X=35941.13, Y=1484349.24 (NAD 27) Z=4991 (NGVD 29).	

AS BUILT INFORMATION		
CONTRACTOR		
WORK INSPECTOR'S ACCEPTANCE BY	DATE	
VERIFICATION BY DRAWINGS CONTRACTOR	DATE	
MICRO-FILM INFORMATION		
RECORDED BY	DATE	
NO.		

ENGINEER'S SEAL

JAMES D. HUGHES NEW MEXICO REGISTERED PROFESSIONAL ENGINEER 16874
5-22-03

NO.	DATE	REMARKS	BY
REVISIONS			

DESIGN		
DESIGNED BY	JDH	DATE 2/03
DRAWN BY	NHE	DATE 2/03
CHECKED BY	DMG	DATE 2/03

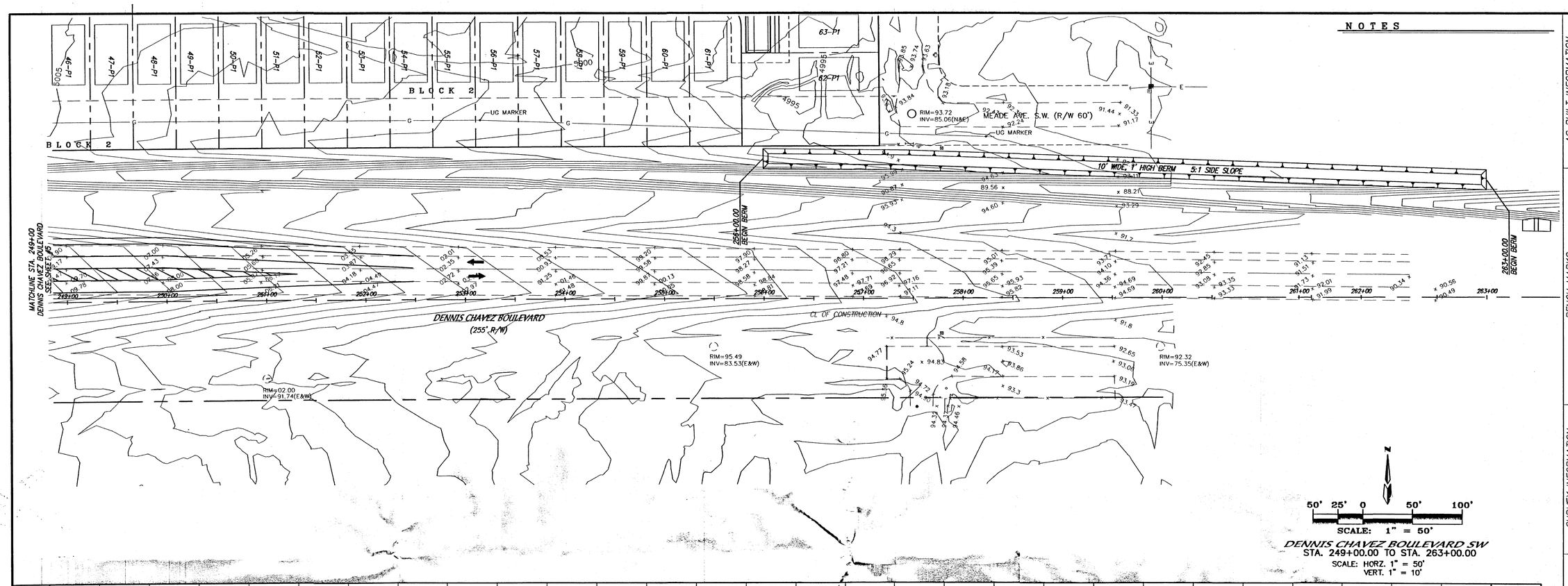
dmg MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

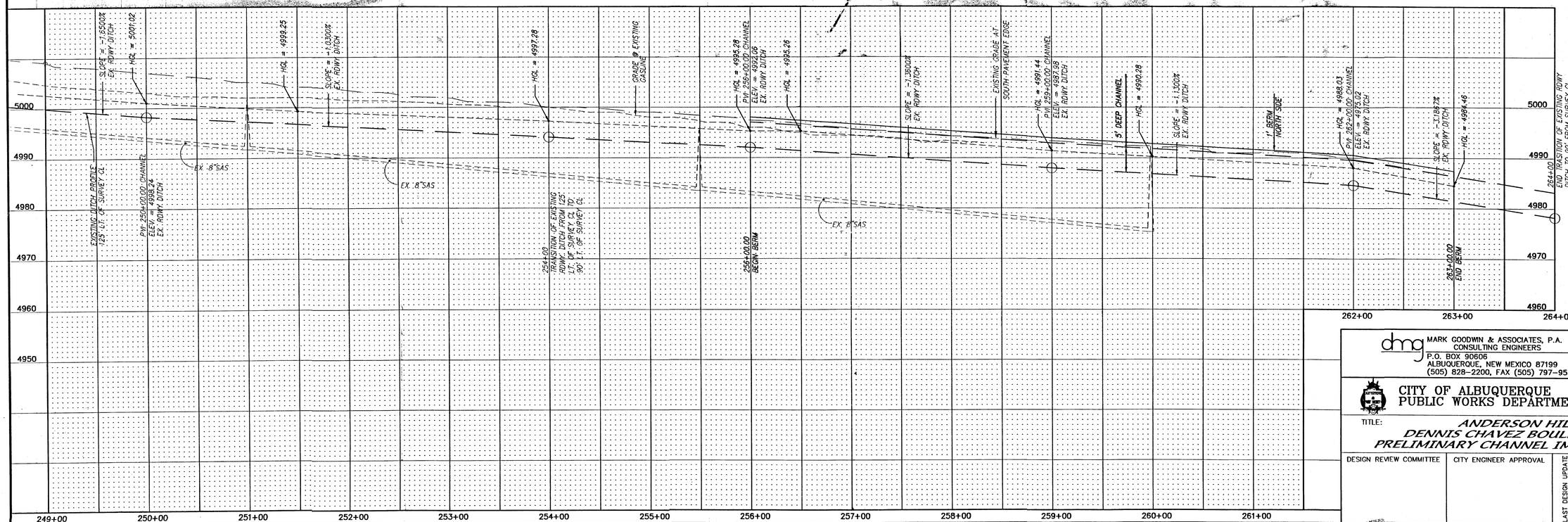
TITLE: ANDERSON HILLS
DENNIS CHAVEZ BOULEVARD SW
PRELIMINARY CHANNEL IMPROVEMENTS

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
#	P-9	5	7



DENNIS CHAVEZ BOULEVARD SW
STA. 249+00.00 TO STA. 263+00.00
SCALE: HORZ. 1" = 50'
VERT. 1" = 10'



2106ANH/DWG/2106-PP16 5-21-03 NHE

AS BUILT INFORMATION

CONTRACTOR		
WORK STAKED BY		DATE
INSPECTOR'S ACCEPTANCE BY		DATE
FIELD VERIFICATION BY		DATE
DRAWINGS CORRECTED BY		DATE

MICRO-FILM INFORMATION

RECORDED BY		DATE
NO.		

BENCH MARKS

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

JAMES D. HUGHES NEW MEXICO 10201 REGISTERED PROFESSIONAL ENGINEER
2/03

NO.	DATE	REMARKS	BY
		REVISIONS	

DESIGN		
DESIGNED BY	JDH	DATE 2/03
DRAWN BY	NHE	DATE 2/03
CHECKED BY	DMG	DATE 2/03

dmg MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
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ALBUQUERQUE, NEW MEXICO 87199
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CITY OF ALBUQUERQUE
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TITLE:
ANDERSON HILLS
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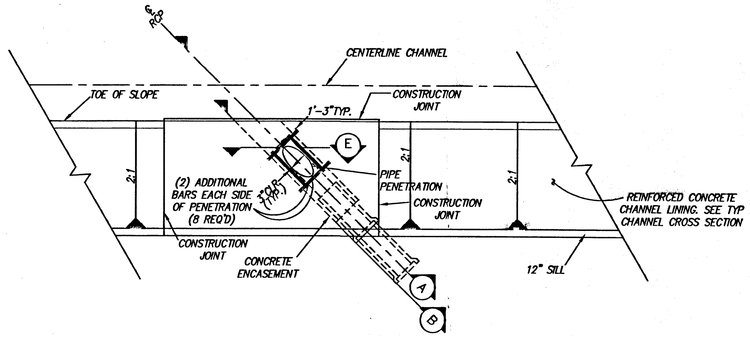
PRELIMINARY CHANNEL IMPROVEMENTS

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
#	P-9	6	7



NOTE: CUT TYPICAL CHANNEL REINFORCING @ RCP PENETRATION. FIELD BEND CUT-BARS INTO CONCRETE ENCASEMENT 1'-3" MAINTAIN 3"CLR. (MIN) ON ALL SIDES.

TYPICAL PIPE PENETRATION (PLAN VIEW)

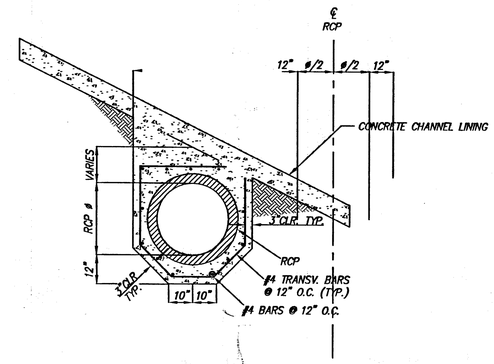
N.T.S.

TABLE OF DIMENSIONS								
CHANNEL STATION	PIPE DIAMETER	SLOPE	SKEW	CHANNEL DEPTH	INVERT TO INVERT A	B	C	D
	4.5	0.39	60°	8.0	0.0	0.0	9.20	3.0
	4.5	1.00	45°	8.0	1.0	2.0	9.20	3.0
	4.5	1.00	90°	7.5–8.0	0.0	0.0	9.20	3.0
	2.0	1.00	45°	7.5–8.0	1.0	2.0	7.07	3.0
	2.0	1.00	45°	7.5–8.0	1.0	2.0	7.07	3.0
	2.0	1.00	45°	7.5–8.0	1.0	2.0	7.07	3.0
	5.5	1.36	45°	7.5–8.0	0.0	0.0	9.20	3.0
	5.0	2.40	45°	7.5–8.0	0.0	0.0	9.20	3.0
	2.5	1.97	45°	7.5–7.7	0.0	0.0	7.07	3.0
	2.0	1.81	45°	7.5–7.7	1.0	2.0	7.07	3.0
	2.5	0.40	45°	7.5–7.7	0.0	0.0	7.07	3.0
	FEET	PERCENT	DEGREES	FEET	FEET	FEET	FEET	FEET

NOTES

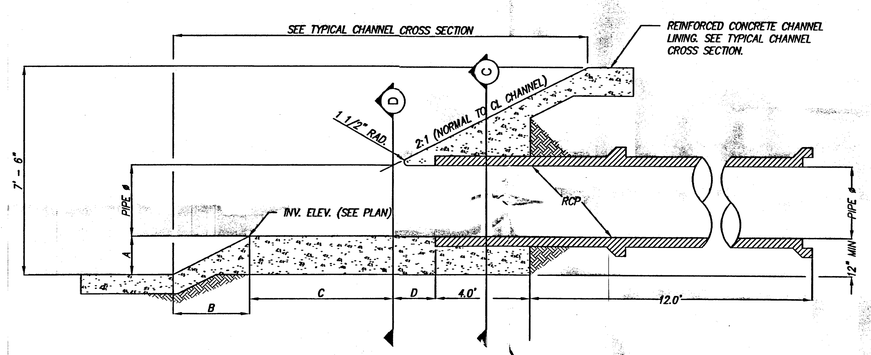
1. THE PIPE PENETRATION DETAILED HEREIN SHALL BE PAID FOR UNDER PIPE PENETRATION, (EACH) AND SHALL BE COMPENSATED FOR THE PENETRATION COMPLETE AND IN PLACE. INCLUDED IN THIS WORK (BUT NOT LIMITED TO) IS GRADING, SUBGRADE PREPARATION, REINFORCED CONCRETE, CONSTRUCTION JOINTS, CONCRETE PLACEMENT, 16' OF PROPER SIZE RCP, PRECAST PLUG IF NO CONNECTION IS MADE WITH THIS PROJECT, BACKFILL, AND FINISHING. NOTE: THE MEASUREMENT FOR CONCRETE CHANNEL LINING IS CONTINUOUS AND UNINTERRUPTED AT THE PENETRATION LOCATION.

2. THE TYPICAL TRANSVERSE AND LONGITUDINAL REINFORCEMENT SHALL BE CONTINUOUS THRU THE CONSTRUCTION JOINT LAPPED BAR SPLICES ADJACENT TO THE JOINT IS PERMITTED.
   #8 BAR LAP = 4'-2"
   #7 BAR LAP = 3'-2"
   #5 BAR LAP = 2'-2"



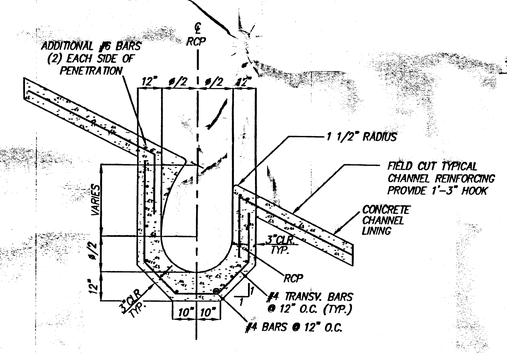
SECTION C — C

N.T.S.



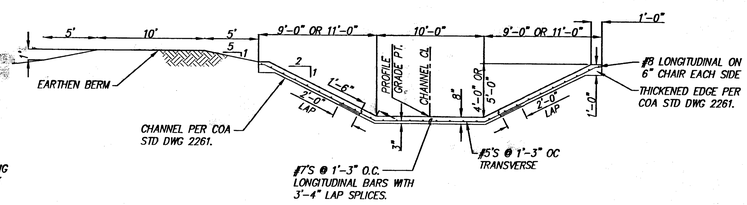
SECTION A — A

N.T.S.



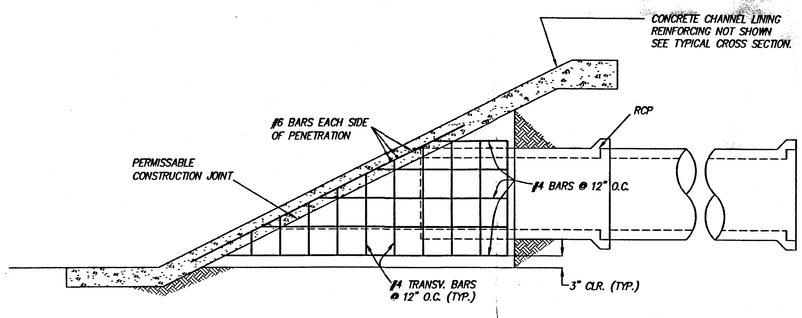
SECTION D — D

N.T.S.



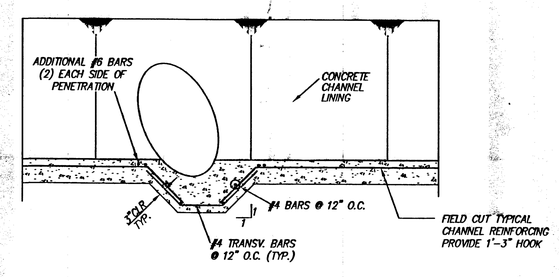
CHANNEL SECTION

N.T.S.



SECTION B — B

N.T.S.



SECTION E — E

N.T.S.

2106ANH/DWG/2106-DETAIL1 5-21-03 NHE

AS BUILT INFORMATION

CONTRACTOR — DATE
STAKED BY — DATE
INSPECTOR'S ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE

MICRO-FILM INFORMATION

RECORDED BY — DATE
NO.

BENCH MARKS

STATION "2-P10" IS LOCATED 4.9 MI. SW OF DOWNTOWN ALBUQUERQUE TO REACH STATION FROM INT. OF COORS AND DENIS CHAVEZ BLVD. (FORMERLY RIO BRAVO), GO N. ON COORS 0.1 MI. TO FLORA VISTA AND GO WEST ON FLORA VISTA 0.5 MI. TO CONDERSHIRE, THEN GO S. ON CONDERSHIRE 0.4 MI. TO A POINT APPROX. 50 FT. W. OF THE STATION. STATION MARK IS AN ACS 3 1/4" ALUM CAP STAMPED "2-P10, 1987" RIVETTED TO A PIPE PROJECTING 0.25 FT ABOVE THE GROUND. X=35841.13, Y=1464349.24 (NAD 27) Z=4991 (NGVD 29).

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

JAMES D. HUGHES, NEW MEXICO, 7974, REGISTERED PROFESSIONAL ENGINEER
5-22-03

NO.	DATE	REMARKS	BY
		REVISIONS	

DESIGN

		DATE
DESIGNED BY	JDH	5/03
DRAWN BY	NHE	5/03
CHECKED BY	DMG	5/03

dmg MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: ANDERSON HILLS DETAIL SHEET PRELIMINARY CHANNEL IMPROVEMENTS

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
#	P-9	7	7