

FROM GIBSON BLVD. TO AMOLE BEND

ALBUQUERQUE, NEW MEXICO

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- o CLOMR REQUEST FOR AMOLE CHANNEL PHASES I, II & III FROM CONFLUENCE OF SNOW VISTA DOWN TO AMOLE DETENTION BASIN
DEC. 2004 BY MARK GOODWIN & ASSOC.
- o TRACTS 29, 30 & 31 AT ARROWOOD DMP
OCT. 11, 2004 BY WILSON & CO.
- o GIBSON BLVD. DRAINAGE PLAN
NOV. 21, 2003 BY BOHANNAN-HOUSTON INC.
- o CLOMR REQUEST FOR AMOLE ARROYO NOV. 2003 BY NOV. 2003 BY ISAACSON & ARFMAN
- o AMOLE-HUBBEL DMP
JULY 22, 1999 BY LEEDSHILL-HERKENHOFF, INC.

"I, Timothy Aldrich, a duly qualified Registered Professional Land Surveyor under the laws of the State of New Mexico, do hereby certify that the 'as-built' information shown on these drawings was obtained from field construction and 'as-built' information furnished by me or my surveyors under my supervision, and that this 'as-built' information is true and correct to the best of my knowledge and belief." Aldrich Land Surveying is not responsible for the accuracy of the design concepts, calculations, engineering or contract documents.

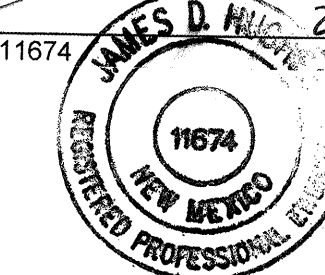
Timothy Aldrich, P.L.S.
Surveyor

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Date: 5-5-06

I, James D. Hughes, NMPE 11674, of the firm Mark Goodwin & Associates, PA, a Registered Professional Engineer in the State of New Mexico, do hereby certify, to the best of my knowledge and belief, that the infrastructure installed as part of this project has been inspected by me or by a qualified person under my direct supervision, and has been constructed in accordance with the plans and specifications approved by the City Engineer and that the original design intent of the approved plans has been met, except as noted by me on the as-built construction drawings. This Certification is based on site inspections by me or personnel under my direction, and survey information provided by ALS, Inc., NMPS number 7719.

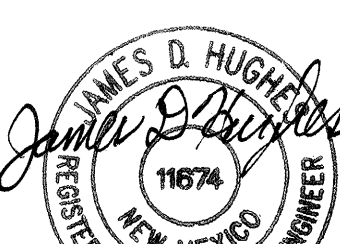
James D. Hughes NMPE 11674 2-12-07

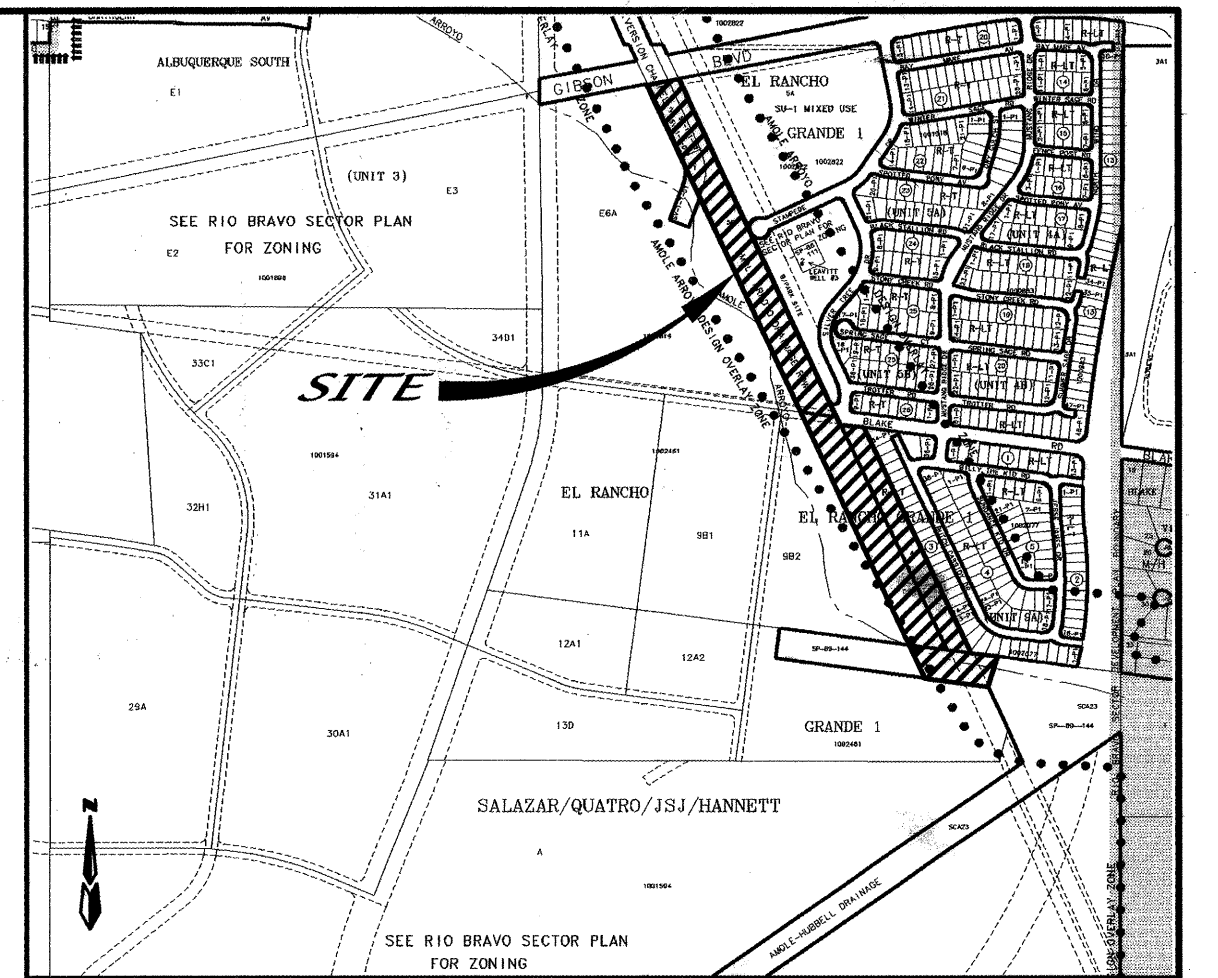


dmg D. MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P. O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

APPROVED AS RECORD DRAWINGS
DESIGN REVIEW SECTION
CITY CONSTRUCTION ENGINEER
[Signature]
DATE: 6-5-2007

☒ ALL STORM DRAINAGE FACILITIES SHALL BE COMPLETED PRIOR TO FINAL ACCEPTANCE.

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1	56,87								
REV.	SHEETS	CITY ENGINEER	DATE	USER	DEPARTMENT	DATE	USER	DEPARTMENT	DATE
ENGINEERS STAMP & SIGNATURE		APPROVALS	ENGINEER	DATE	*****				
		DRC CHAIRMAN	<i>[Signature]</i>	06-29-05	APPROVED FOR CONSTRUCTION				
		TRANSPORTATION	<i>[Signature]</i>	3/19/05					
		WATER/WASTEWATER	<i>[Signature]</i>	3/17/05					
		HYDROLOGY	<i>[Signature]</i>	3/17/05					
		CIP							
3-7-05		CONSTR. MNGMT.			<i>[Signature]</i> 7-22-05 CITY ENGINEER DATE				
		CONSTR. COORD.	<i>[Signature]</i>	06-29-05					
		CITY PROJECT NO.	679482		SHEET OF 1 20				



VICINITY MAP

ZONE ATLAS N-9-Z

SCALE: NONE

GENERAL NOTES

NOTICE TO CONTRACTORS

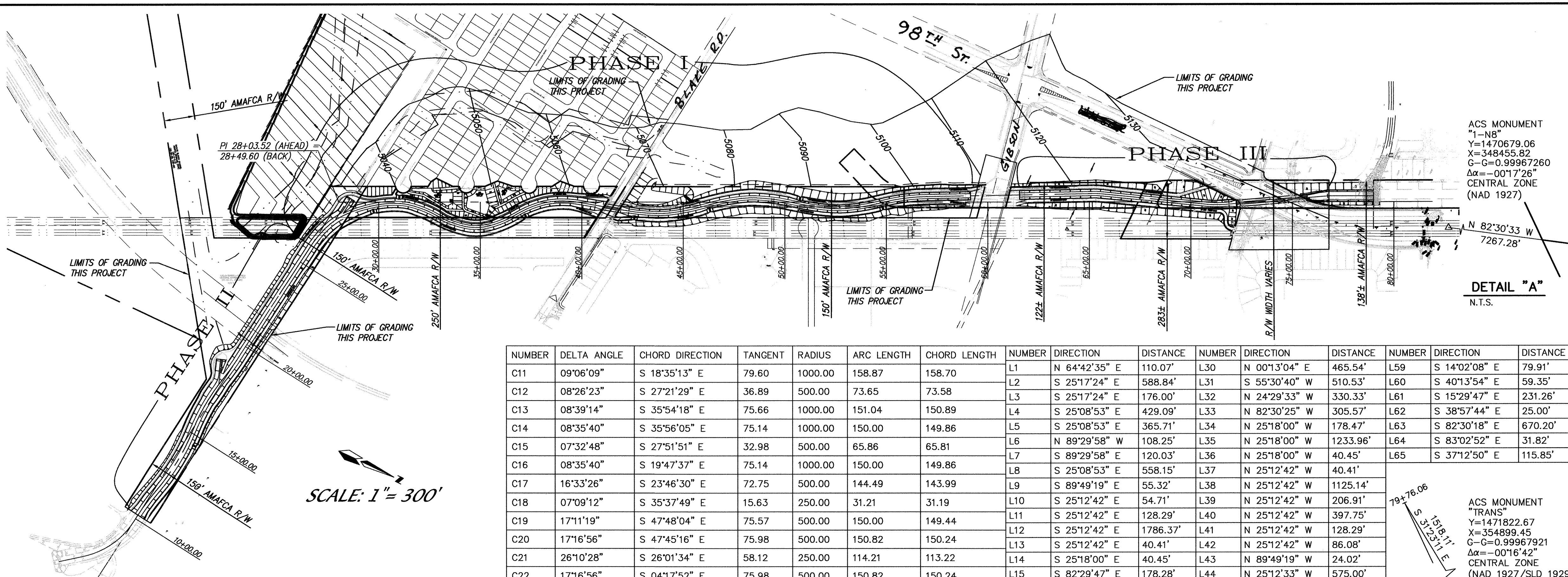
1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN THE CITY RIGHT-OF-WAY.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED UNDER CONTRACT SHALL, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH THE NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION 1994 EDITION AND ALL WORK WITHIN CITY OF ALBUQUERQUE PUBLIC RIGHT OF WAY, EASEMENT AND PROPERTY SHALL BE PERFORMED IN ACCORDANCE WITH CITY OF ALBUQUERQUE STANDARDS AND SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION 1996 UPDATE.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM (281-1990) FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL CONSTRUCTION SHOULD CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. FIVE (5) WORKING DAYS PRIOR TO BEGINNING OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO CONSTRUCTION COORDINATION DIVISION A DETAILED CONSTRUCTION SCHEDULE. TWO (2) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN A BARRICADING PERMIT FROM THE CONSTRUCTION COORDINATION DIVISION. CONTRACTOR SHALL NOTIFY THE CONSTRUCTION COORDINATION ENGINEER (924-3400) PRIOR TO OCCUPYING AN INTERSECTION. REFER TO SECTION 19 OF THE GENERAL CONDITIONS OF THE STANDARD SPECIFICATIONS.
6. ALL WORK AFFECTING ARTERIAL ROADWAYS REQUIRES TWENTY-FOUR HOUR CONSTRUCTION.
7. ALL STREET STRIPING ALTERED OR DESTROYED SHALL BE REPLACED WITH PLASTIC REFLECTORIZED PAVEMENT MARKING BY CONTRACTOR TO THE SAME LOCATION AS WAS EXISTING, OR AS INDICATED BY THIS PLAN SET.
8. CONTRACTOR SHALL NOTIFY THE ENGINEER NOT LESS THAN SEVEN (7) DAYS PRIOR TO STARTING WORK. ORDER THAT THE CITY SURVEYOR MAY TAKE NECESSARY MEASURES TO INSURE THE PRESERVATION OF SURVEY MONUMENTS. CONTRACTOR SHALL NOT DISTURB PERMANENT SURVEY MONUMENTS WITHOUT THE CONSENT OF THE CITY SURVEYOR AND SHALL NOTIFY THE CITY SURVEYOR AND BEAR THE EXPENSE OF REPLACING ANY THAT MAY BE DISTURBED WITHOUT PERMISSION. REPLACEMENT SHALL BE DONE ONLY BY THE CITY SURVEYOR. WHEN A CHANGE IS MADE IN THE FINISHED ELEVATIONS OF THE PAVEMENT OF ANY ROADWAY IN WHICH A PERMANENT SURVEY MONUMENT IS LOCATED, CONTRACTOR SHALL, AT HIS OWN EXPENSE, ADJUST THE MONUMENT TO COVER THE NEW GRADE UNLESS OTHERWISE SPECIFIED. REFER TO SECTION 4.4 OF THE GENERAL CONDITIONS OF THE STANDARD SPECIFICATIONS.
9. CONTRACTOR SHALL RECORD DATA ON ALL UTILITY LINES AND ACCESSORIES AS REQUIRED BY THE CITY OF ALBUQUERQUE FOR THE PREPARATION OF "AS CONSTRUCTED" DRAWINGS. CONTRACTOR SHALL NOT COVER UTILITY LINES AND ACCESSORIES UNTIL ALL DATA HAVE BEEN RECORDED.
10. CONTRACTOR SHALL MAINTAIN A GRAFFITI-FREE WORK SITE. CONTRACTOR SHALL PROMPTLY REMOVE ANY GRAFFITI FROM ALL EQUIPMENT, WHETHER PERMANENT OR TEMPORARY.
11. CONTRACTOR SHALL COORDINATE WITH THE CITY OF ALBUQUERQUE WATER SYSTEMS DIVISION (857-8200) SEVEN (7) WORKING DAYS IN ADVANCE OF ANY WORK THAT MAY AFFECT EXISTING PUBLIC WATER OR SEWER UTILITIES. EXISTING VALVES TO BE OPERATED BY CITY PERSONNEL. ORDER OF CONTRACT SHALL BE OBTAINED FROM THE WATER SYSTEMS DIVISION SEVEN (7) WORKING DAYS PRIOR TO NEEDING VALVES TURNED ON OR OFF.
12. FOR STORM DRAIN CONSTRUCTION, RCP JOINTS SHALL NOT BE GROUDED PRIOR TO FINAL INSPECTION. FINAL INSPECTION WILL DETERMINE JOINTS TO BE GROUDED FOR FINAL ACCEPTANCE OF THE CONSTRUCTION.

NOTES

1. AMAFCA FIELD ENGINEER SHALL BE NOTIFIED 48-HOURS PRIOR TO ANY WORK WITHIN THE AMAFCA R/W. TEL 884-2215 JERRY LOVATO
2. NO WORK WILL BE PERFORMED IN THE AMAFCA R/W BETWEEN MAY 15 AND OCTOBER 15 WITHOUT WRITTEN PERMISSION FROM AMAFCA.
3. ALL SUBGRADE, BACKFILL AND EMBANKMENT SHALL BE COMPACTED TO 95% (MODIFIED PROCTOR) WITHIN AMAFCA R/W. TESTING REPORTS SHALL BE PROVIDED TO AMAFCA FIELD ENGINEER.
4. AMAFCA FIELD ENGINEER WILL BE NOTIFIED 48-HOURS PRIOR TO FINAL INSPECTION OF ANY FACILITIES WITHIN THE AMAFCA R/W.
5. ALL DISTURBED GROUND AREAS SHALL BE REVEGETATED IN ACCORDANCE WITH CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SECTION 1012 NATIVE GRASS SEEDING, AS CURRENTLY UPDATED.

APPROVED FOR CONSTRUCTION WITHIN AMAFCA RIGHT-OF-WAY

John P Kelly 3-24-05
FOR AMAFCA DATE



NUMBER	DELTA ANGLE	CHORD DIRECTION	TANGENT	RADIUS	ARC LENGTH	CHORD LENGTH	NUMBER	DIRECTION	DISTANCE	NUMBER	DIRECTION	DISTANCE	NUMBER	DIRECTION	DISTANCE
C11	09°06'09"	S 18°35'13" E	79.60	1000.00	158.87	158.70	L1	N 64°42'35" E	110.07'	L30	N 00°13'04" E	465.54'	L59	S 14°02'08" E	79.91'
C12	08°26'23"	S 27°21'29" E	36.89	500.00	73.65	73.58	L2	S 25°17'24" E	588.84'	L31	S 55°30'40" W	510.53'	L60	S 40°13'54" E	59.35'
C13	08°39'14"	S 35°54'18" E	75.66	1000.00	151.04	150.89	L3	S 25°17'24" E	176.00'	L32	N 24°29'33" W	330.33'	L61	S 15°29'47" E	231.26'
C14	08°35'40"	S 35°56'05" E	75.14	1000.00	150.00	149.86	L4	S 25°08'53" E	429.09'	L33	N 82°30'25" W	305.57'	L62	S 38°57'44" E	25.00'
C15	07°32'48"	S 27°51'51" E	32.98	500.00	65.86	65.81	L5	S 25°08'53" E	365.71'	L34	N 25°18'00" W	178.47'	L63	S 82°30'18" E	670.20'
C16	08°35'40"	S 19°47'37" E	75.14	1000.00	150.00	149.86	L6	N 89°29'58" W	108.25'	L35	N 25°18'00" W	1233.96'	L64	S 83°02'52" E	31.82'
C17	16°33'26"	S 23°46'30" E	72.75	500.00	144.49	143.99	L7	S 89°29'58" E	120.03'	L36	N 25°18'00" W	40.45'	L65	S 37°12'50" E	115.85'
C18	07°09'12"	S 35°37'49" E	15.63	250.00	31.21	31.19	L8	S 25°08'53" E	558.15'	L37	N 25°12'42" W	40.41'			
C19	17°11'19"	S 47°48'04" E	75.57	500.00	150.00	149.44	L9	S 89°49'19" E	55.32'	L38	N 25°12'42" W	1125.14'			
C20	17°16'56"	S 47°45'16" E	75.98	500.00	150.82	150.24	L10	S 25°12'42" E	54.71'	L39	N 25°12'42" W	206.91'			
C21	26°10'28"	S 26°01'34" E	58.12	250.00	114.21	113.22	L11	S 25°12'42" E	128.29'	L40	N 25°12'42" W	397.75'			
C22	17°16'56"	S 04°17'52" E	75.98	500.00	150.82	150.24	L12	S 25°12'42" E	1786.37'	L41	N 25°12'42" W	128.29'			
C23	17°11'19"	S 04°15'04" E	75.57	500.00	150.00	149.44	L13	S 25°12'42" E	40.41'	L42	N 25°12'42" W	86.08'			
C24	09°10'02"	S 17°25'45" E	20.04	250.00	40.00	39.96	L14	S 25°18'00" E	40.45'	L43	N 89°49'19" W	24.02'			
C25	17°11'19"	S 30°36'26" E	75.57	500.00	150.00	149.44	L15	S 82°29'47" E	178.28'	L44	N 25°12'33" W	575.00'			
C26	17°11'19"	S 47°33'23" E	75.57	500.00	150.00	149.44	L16	S 82°29'47" E	178.28'	L45	N 79°39'10" E	155.17'			
C27	09°10'02"	S 60°44'04" E	20.04	250.00	40.00	39.96	L17	S 82°29'47" E	178.46'	L46	N 79°39'10" E	155.17'			
C28	17°29'37"	S 74°03'54" E	76.93	500.00	152.66	152.07	L18	S 82°29'47" E	118.97'	L47	N 31°24'01" W	101.28'			
C29	06°20'36"	S 79°20'00" E	55.41	1000.00	110.71	110.65	L19	S 25°18'00" E	1233.91'	L48	N 25°16'00" W	130.18'			
C30	17°08'20"	S 84°43'52" E	150.69	1000.00	299.13	298.01	L20	S 82°30'18" E	496.28'	L49	N 00°47'58" W	228.19'			
C31	19°31'19"	S 83°32'22" E	172.03	1000.00	340.72	339.07	L21	S 82°28'03" E	248.65'	L50	N 60°03'28" E	39.74'			
C32	08°32'26"	S 78°02'56" E	74.67	1000.00	149.06	148.92	L22	S 82°29'02" E	825.90'	L51	S 00°43'46" W	137.49'			
C33	46°40'31"	S 59°42'36" E	170.80	395.89	322.50	313.66	L23	S 81°47'06" E	247.35'	L52	N 25°16'00" W	368.67'			
							L24	S 82°29'16" E	374.79'	L53	N 25°16'00" W	1061.14'			
							L25	S 89°23'07" W	250.88'	L54	S 25°18'00" E	226.29'			
							L26	S 00°26'42" W	199.75'	L55	S 29°56'32" E	428.58'			
							L27	S 00°24'08" W	376.01'	L56	S 19°45'19" E	279.60'			
							L28	N 88°39'11" W	200.26'	L57	S 26°17'47" E	810.89'			
							L29	S 89°58'59" W	705.91'	L58	S 38°16'54" E	40.40'			

EASEMENTS

- EXISTING 10' PNM & MST&T EASEMENT (DOCUMENT NO. 80-23229) (4-18-80, Bk. Misc. 766, Pg. 745)
- EXISTING C.O.A. BLANKET DRAINAGE EASEMENT ACROSS TRACT E (11-28-94, 94C-393)
- EXISTING 124' PUBLIC ROADWAY, WATERLINE AND SANITARY SEWER EASEMENT (06-05-02, 02C-197)
- EXISTING 156' PUBLIC ROADWAY, WATERLINE AND SANITARY SEWER EASEMENT (06-05-02, 02C-197)
- EXISTING 34' PUBLIC ROADWAY, UTILITY & DRAINAGE EASEMENT (05-21-02, 02C-184)
- EXISTING 34' PUBLIC ROADWAY, UTILITY & DRAINAGE EASEMENT (01-16-01, 2001C-20)
- EXISTING 60' PUBLIC ROADWAY, UTILITY & DRAINAGE EASEMENT (05-21-02, 02C-184) (TO BE VACATED BY EL RANCHO GRANDE, UNIT 9B PLAT)
- 60' BLAKE ROAD S.W., NO DEDICATION DOCUMENT AVAILABLE
- 124' PUBLIC ROADWAY, WATERLINE AND SANITARY SEWER EASEMENT (08-15-03, 03C-248)
- 60' PUBLIC ROADWAY, UTILITY & DRAINAGE EASEMENT (03-21-03, 03C-73)
- EXISTING EASEMENTS TO ACCOMMODATE THE EXISTING 100 YEAR STORM FLOWS FOR AMAFCA DRAINAGE CONTROL. SUCH EASEMENTS ARE TO RUN WITH THE LAND BUT MAY BE MODIFIED, REMOVED, OR REPLACED AS NECESSARY AND MUTUALLY AGREED TO BY AMAFCA AND OWNER(S) PENDING FUTURE PLATTING SUBMITTALS WHICH CONFORM TO A MORE COMPLETE OR IMPROVED ROUTING OF THE DRAINAGE FACILITIES. (05-06-86, C30-91) (TO BE VACATED BY EL RANCHO GRANDE, UNIT 9B PLAT)
- EXISTING 100' PNM EASEMENT (04-12-56, BK. D348, PG. 43)
- EXISTING 150' AMAFCA AMOLE ARROYO DRAINAGE EASEMENT (05-21-02, 02C-184) (TO BE VACATED BY EL RANCHO GRANDE, UNIT 9B PLAT)
- EXISTING 156' PUBLIC INGRESS/EGRESS, WATER AND SANITARY SEWER EASEMENT (04-04-02, BK. A34, PG. 4273)
- EXISTING 10' PNM & MST&T EASEMENT (01-17-86, BK.MISC. 312A, PGS. 840 & 850)
- EXISTING 100' ACCESS & UNDERGROUND WATERLINE EASEMENT (10-25-85, BK.MISC. 284A, PG. 668)
- EXISTING 10' PNM & MST&T EASEMENT (01-17-86, BK.MISC. 81A, PGS. 881 & 882)
- EXISTING 10' PNM OVERHEAD LINE EASEMENT (05-06-86, C30-91)
- EASEMENT FROM CITY OF ALBUQUERQUE PARKS AND RECREATION TO AMAFCA ()
- TEMPORARY AMAFCA SLOPE EASEMENT FUTURE CONSTRUCTION OF SLOPES PER PHASE 3 PLANS
- TEMPORARY AMAFCA SLOPE EASEMENT FUTURE CONSTRUCTION OF SLOPES PER PHASE 3 PLANS
- EXISTING AMAFCA ACCESS EASEMENT (04-12-04, A75-7181)

TRACT LEGEND

- TRACT 9-B-2-A TO BE DEDICATED TO AMAFCA ON EL RANCHO GRANDE I, UNIT 9B PLAT
- TRACT A-1 TO BE DEDICATED TO AMAFCA ON EL RANCHO GRANDE I, UNIT 9B PLAT
- PORTION OF R/W 1, TO BE QUITCLAIMED FROM AMAFCA TO CURB INC. AND RE-PLATED BY SEPARATE PLAT. (#1)
- PORTION OF R/W 1, TO REMAIN AMAFCA
- BLAKE ROAD SW RIGHT-OF-WAY, TO BE DEDICATED TO THE CITY OF ALBUQUERQUE BY EL RANCHO GRANDE I, UNIT 9B PLAT, (NOTE) PORTION OF EASEMENT NO. 13 REMAINS

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**ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTROL AUTHORITY**

**AMOLE CHANNEL
(PHASE I)
AMOLE CHANNEL MASTER PLAN**

DESIGNED BY
APPROVE
JUN 29 2005
DESIGN REVIEW COMMITTEE

CITY ENGINEER APPROVAL
APPROVE
JUL 22 2005
CITY ENGINEER

LAST DESIGN UPDATE

CITY PROJECT NO. **679482** ZONE MAP NO. **N-9** SHEET **2** OF **20**

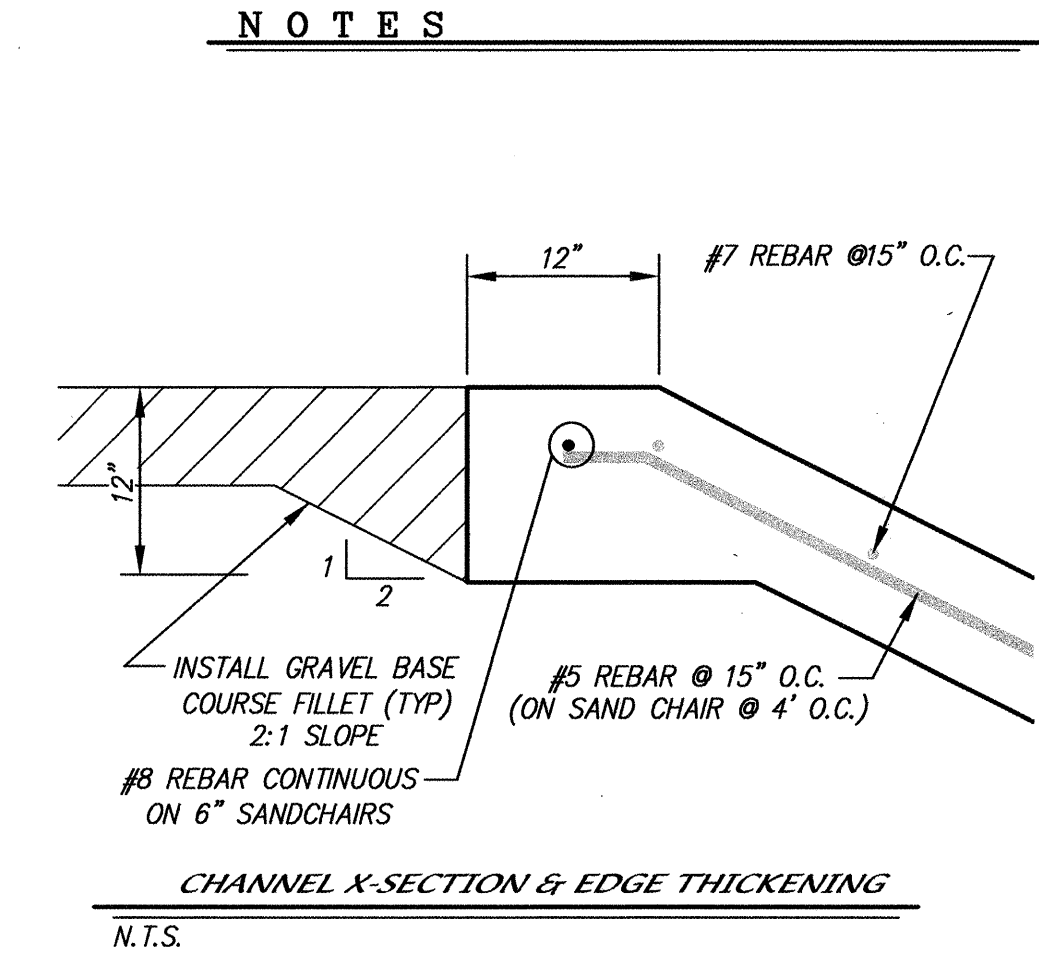
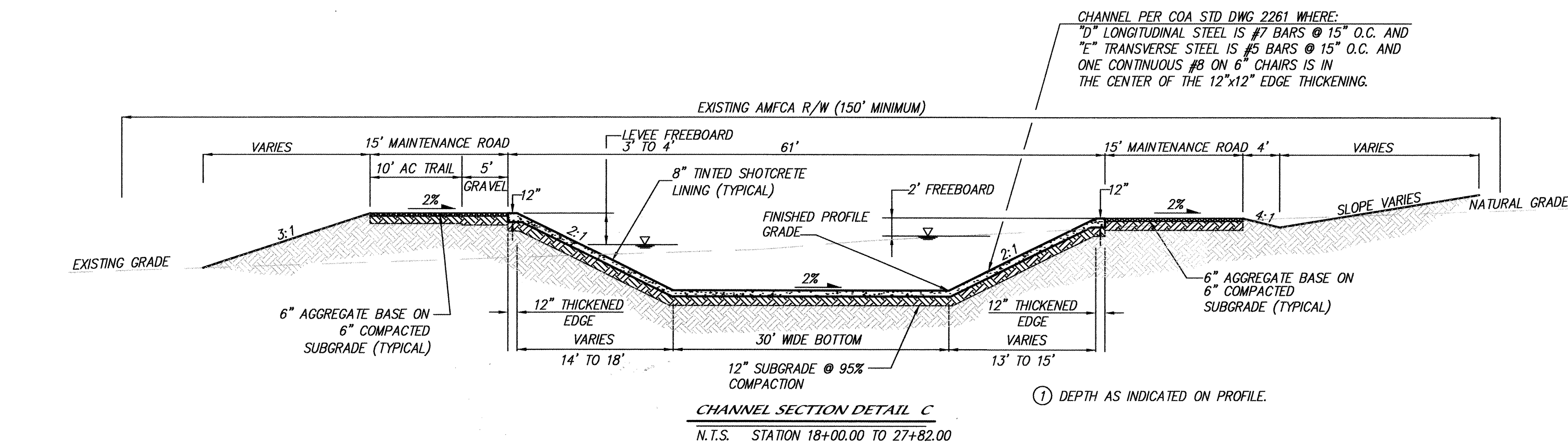
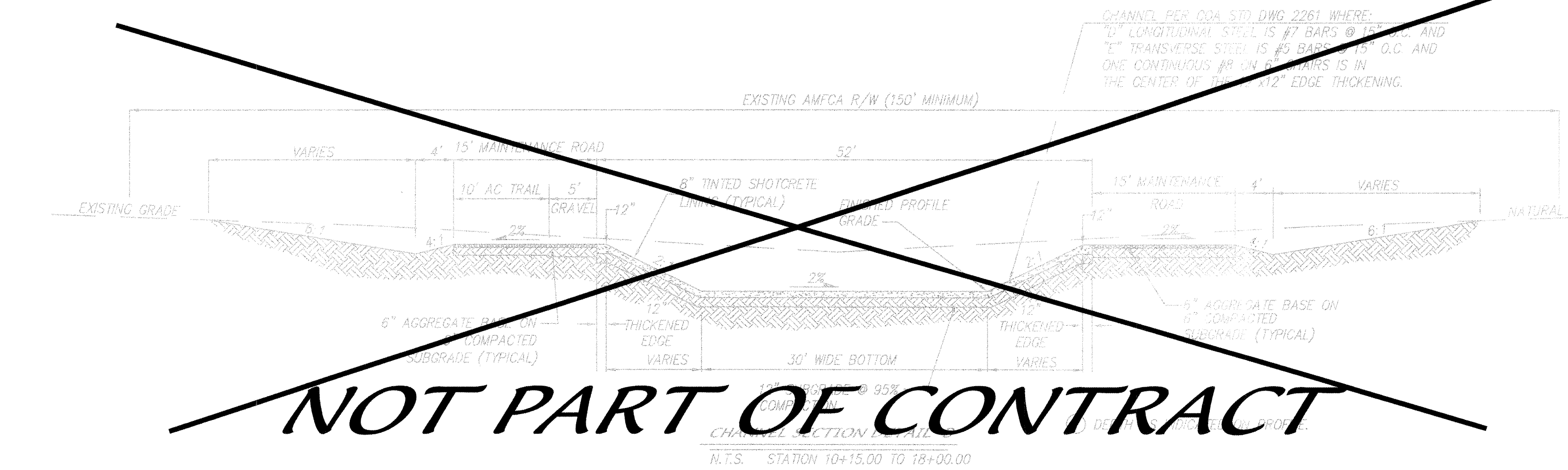
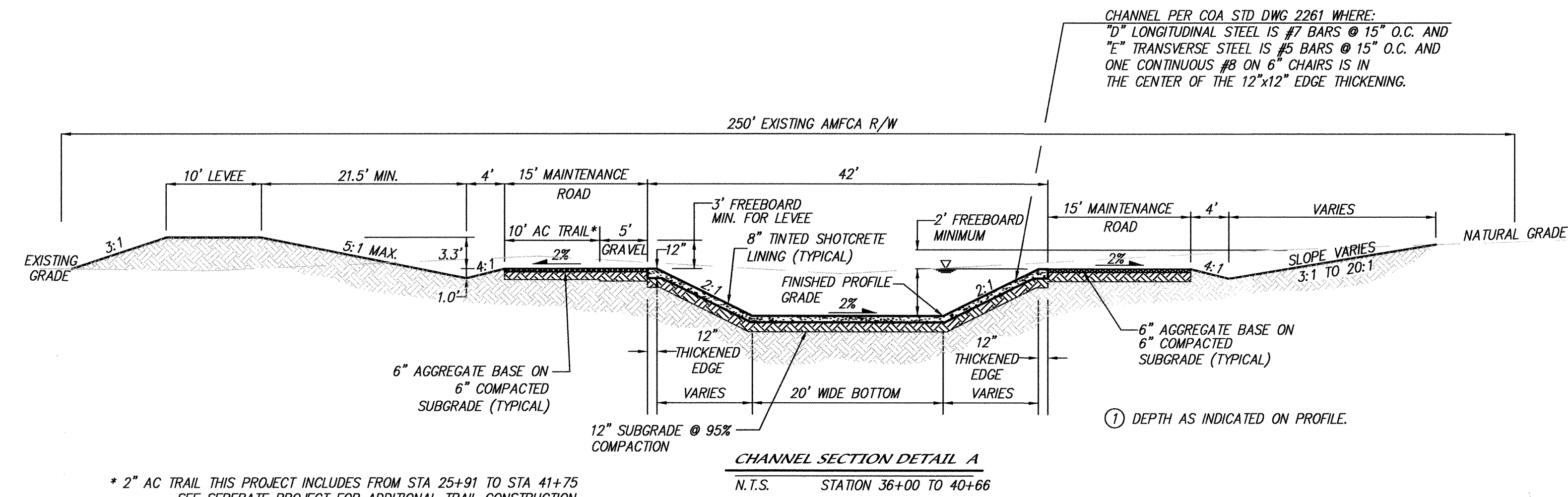
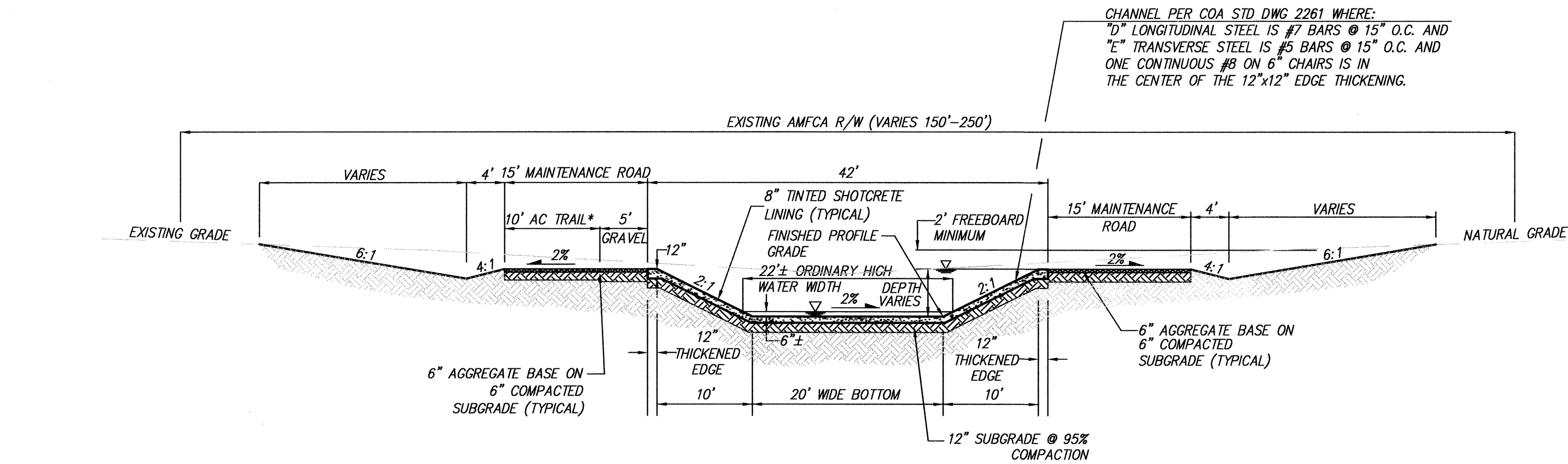
CERTIFICATE OF SUBSTANTIAL COMPLIANCE ON PLANS

I, James D. Hughes, N.M.P.E. 11674, of the firm, Mark Goodwin & Associates, P.A., a Registered Professional Engineer in the State of New Mexico, do hereby certify, to the best of my knowledge and belief, that the infrastructure installed as part of this project has been inspected by me or by a qualified person under my direct supervision, and has been found to conform to the plans and specifications approved by the City Engineer and that the original design intent of the approved plans is being followed.

James D. Hughes
N.M.P.E. 11674
2-12-07

TRACT LEGEND

- BLAKE ROAD SW RIGHT-OF-WAY, TO BE QUITCLAIMED TO THE CITY OF ALBUQUERQUE FROM AMAFCA WITH RESERVED DRAINAGE EASEMENT
- PORTION OF R/W 1, TO BE QUITCLAIMED FROM AMAFCA TO CURB INC. AND RE-PLATED AS PART OF TRACT E-6-A-1 EL RANCHO GRANDE BY SEPARATE PLAT (#2)
- PORTION TRACT 5-B, EL RANCHO GRANDE I TO REMAIN AMAFCA
- PORTION OF R/W 1, TO REMAIN AMAFCA

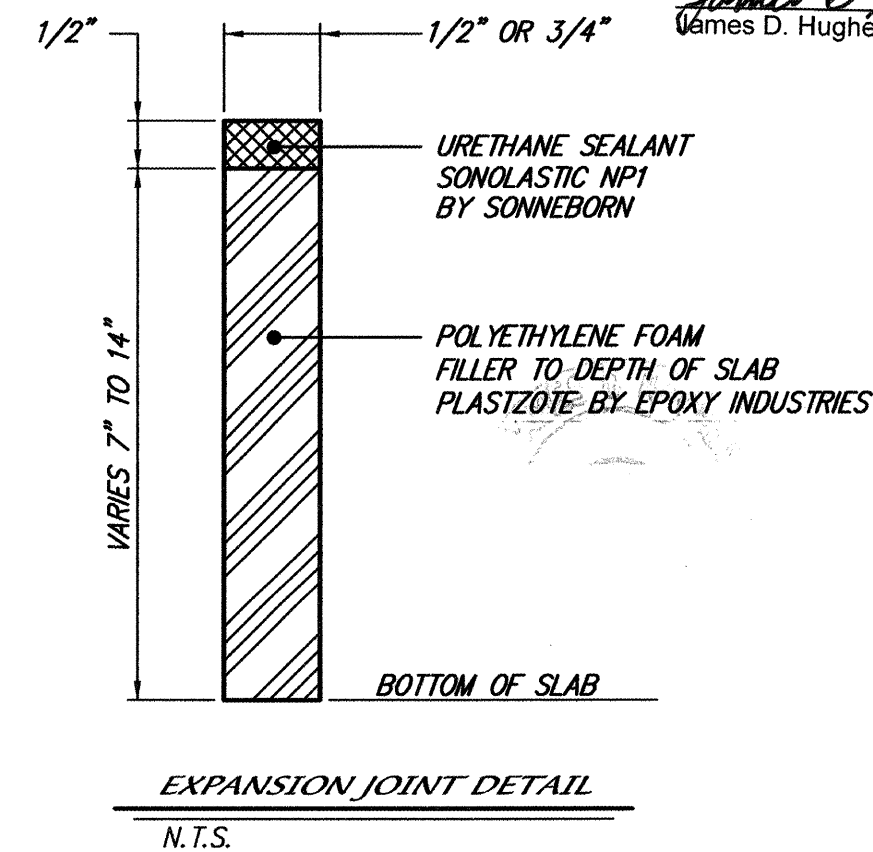


CERTIFICATE OF SUBSTANTIAL COMPLIANCE ON PLANS

I, James D. Hughes, NMPE 11674, of the firm Mark Goodwin & Associates, P.A., a Registered Professional Engineer in the State of New Mexico, do hereby certify, to the best of my knowledge and belief, that the infrastructure installed as part of this project has been inspected by me or by a qualified person under my direct supervision, and has been constructed in accordance with the plans and specifications approved by the City Engineer and that the original design intent of the approved plans has been met, except as noted by me on the as-built construction drawings. This Certification is based on site inspections by me or personnel under my direction, and survey information provided by ALS, Inc., NMPS number 7719.

James D. Hughes
James D. Hughes NMPE 11674

2-12-07



dmg MARK GOODWIN & ASSOCIATES, P.A.
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CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: AMOLE CHANNEL (PHASE I)
TYPICAL SECTIONS & DETAILS

DESIGN REVIEW COMMITTEE APPROVED JUN 29 2005
CITY ENGINEER APPROVED JUL 2 2005

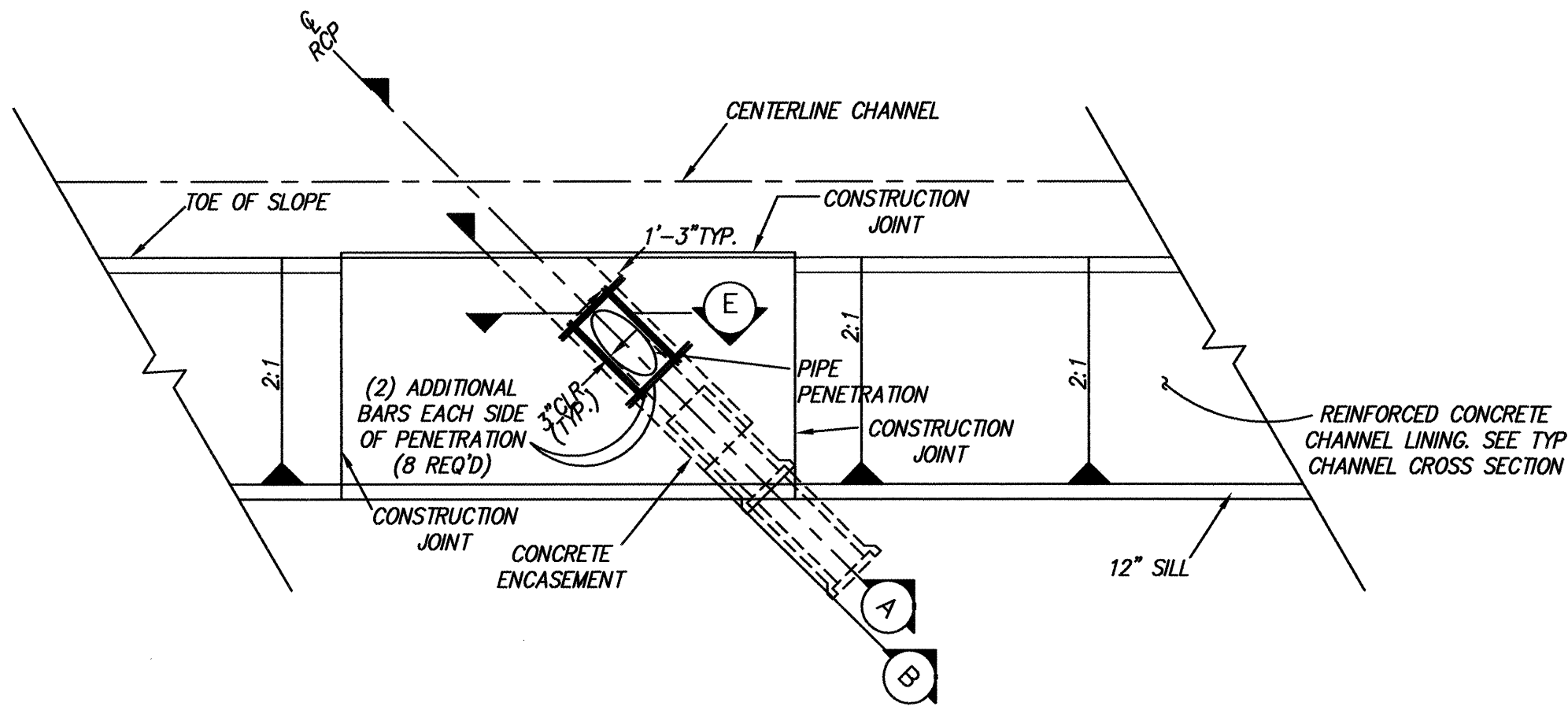
DESIGN REVIEW COMMITTEE CITY ENGINEER

LAST DESIGN UPDATE

MO./DAY/YR. MO./DAY/YR.

CITY PROJECT NO. ZONE MAP NO. SHEET OF

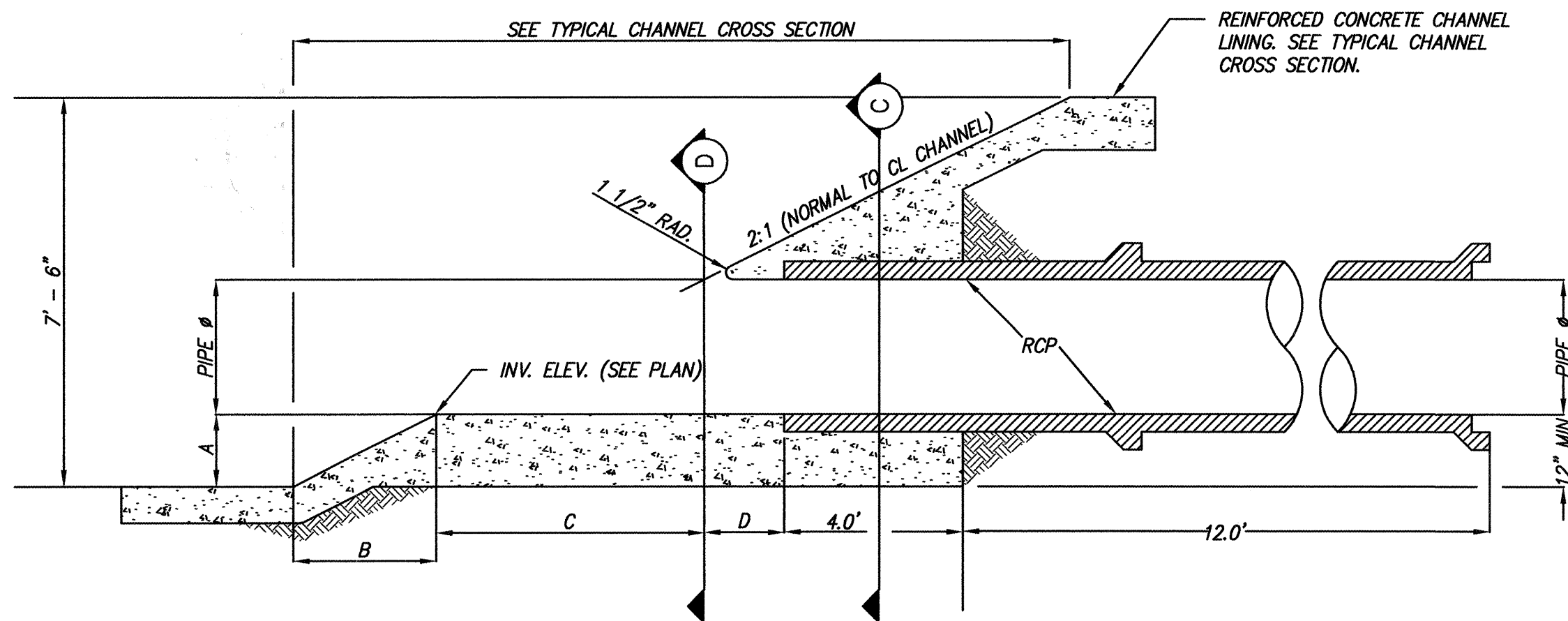
DETAILS				ENGINEER'S SEAL				SURVEY INFORMATION				BENCH MARKS				AS BUILT INFORMATION					
MO./DAY/YR.		MO./DAY/YR.		NO. DATE		REMARKS		BY		NO.		DATE		STATION		CONTRACTOR		WORK		DATE	



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

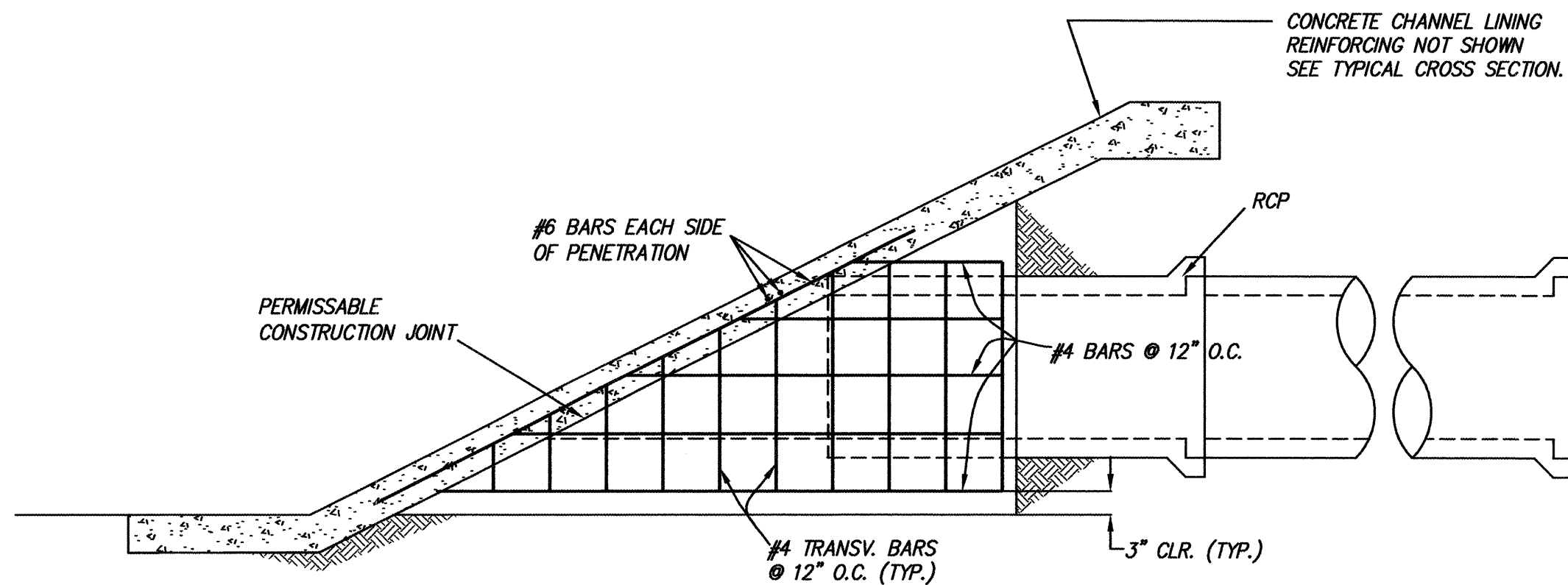
TYPICAL PIPE PENETRATION (PLAN VIEW)

N.T.S.



SECTION A - A

N.T.S.



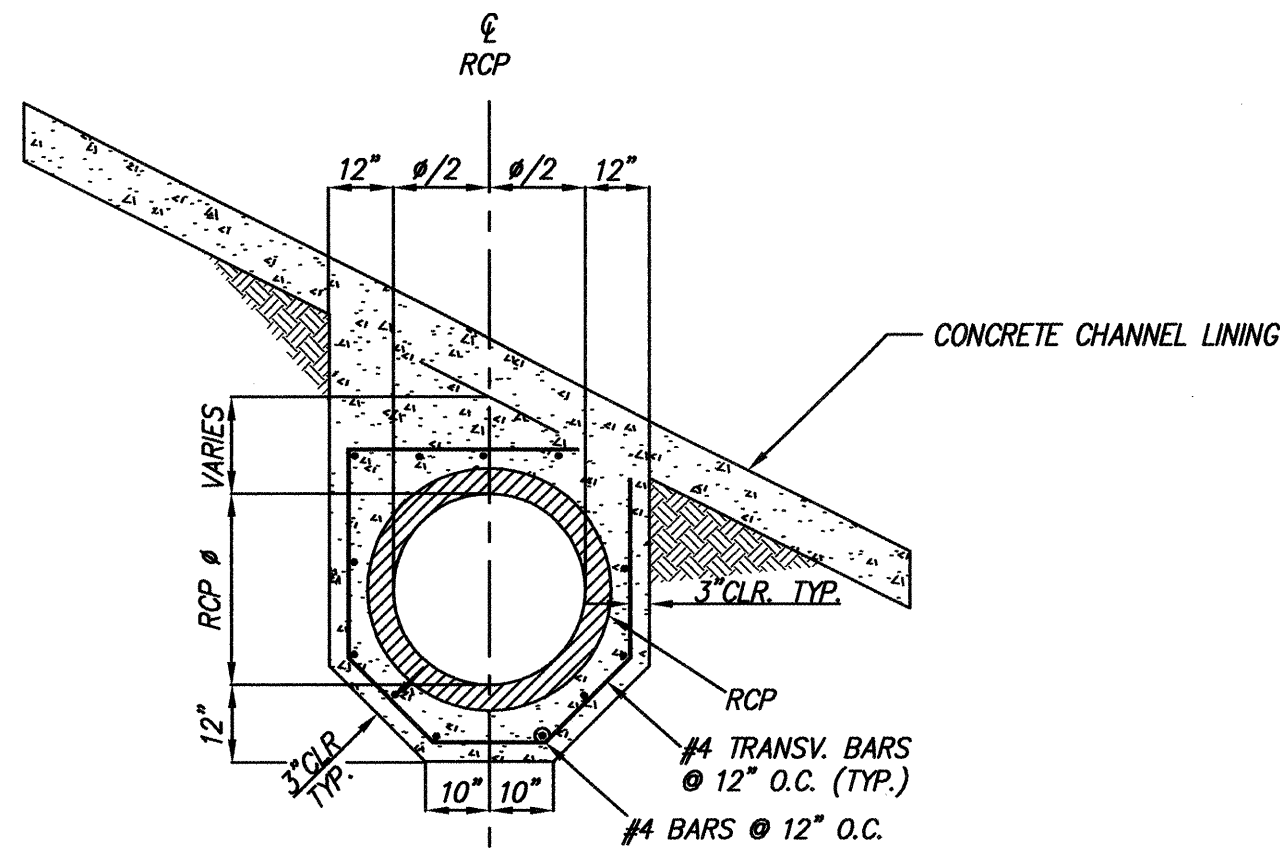
SECTION B - B

N.T.S.

TABLE OF DIMENSIONS							
CHANNEL STATION	PIPE DIAMETER	SLOPE	SKREW	CHANNEL DEPTH	INVERT TO INVERT	B	D
20+50	4.5	2.50	45°	6.5	1.0	2.80	12.6
32+25	3.5		45°	6.2	1.0	2.80	9.8
39+88	2.0		45°	7.0	1.0	2.80	5.6
42+45	4.0	2.67	45°	4.4	0.2	0.56	11.2
	FEET	PERCENT	DEGREES	FEET	FEET	FEET	FEET

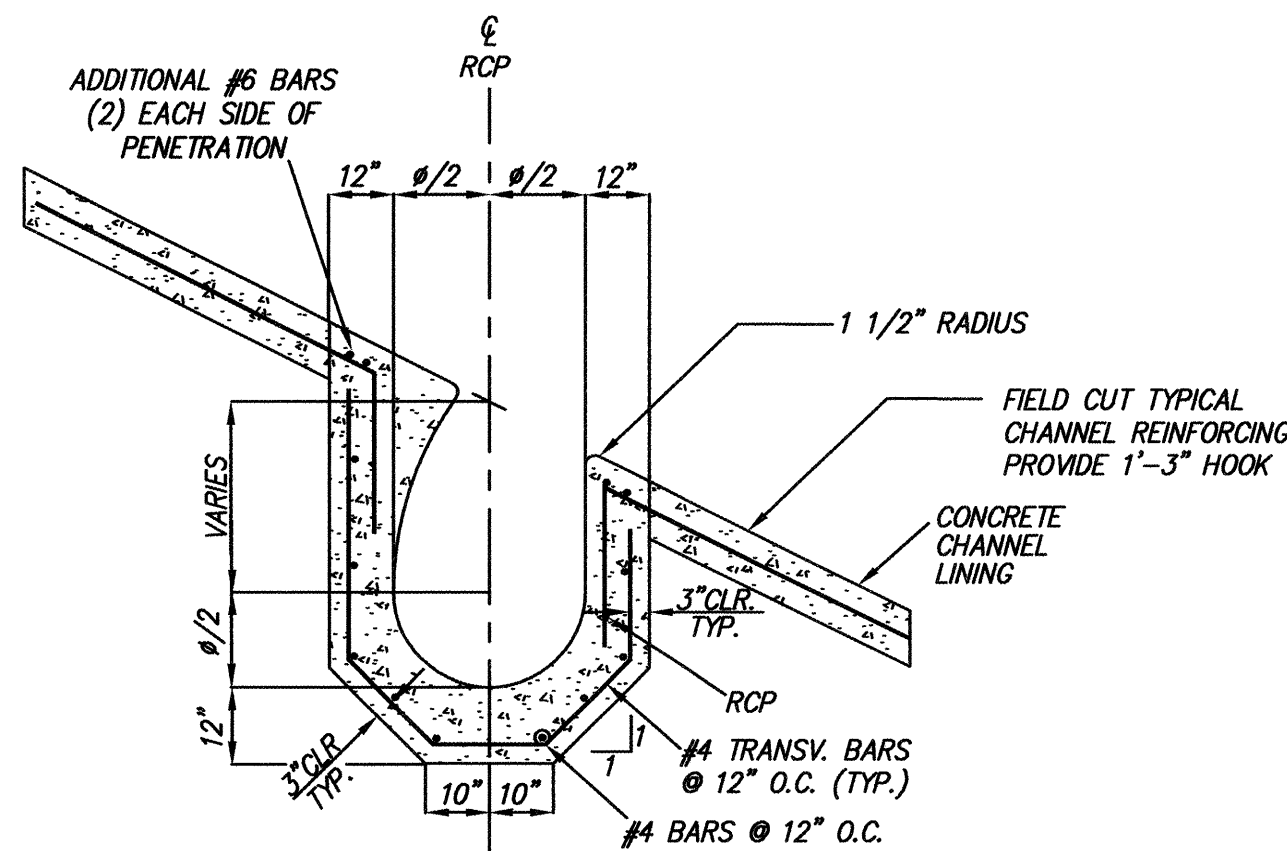
NOTES

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"



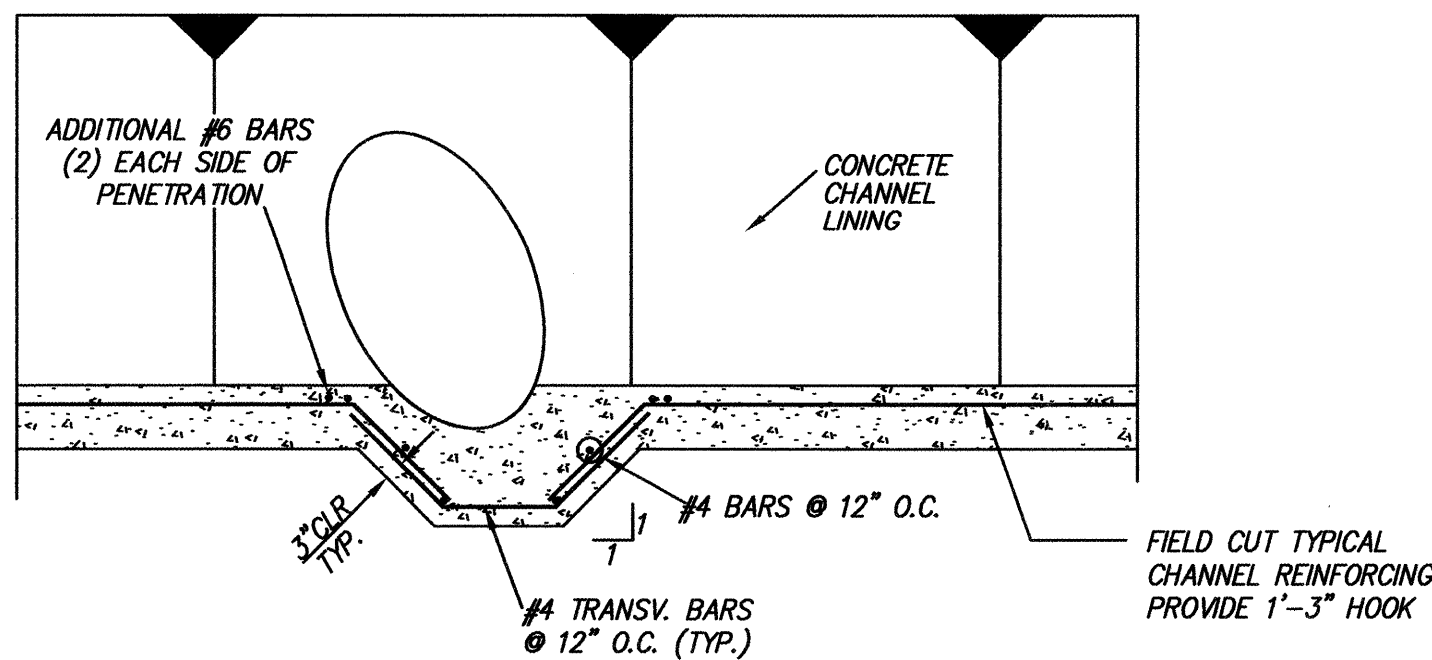
SECTION C - C

N.T.S.



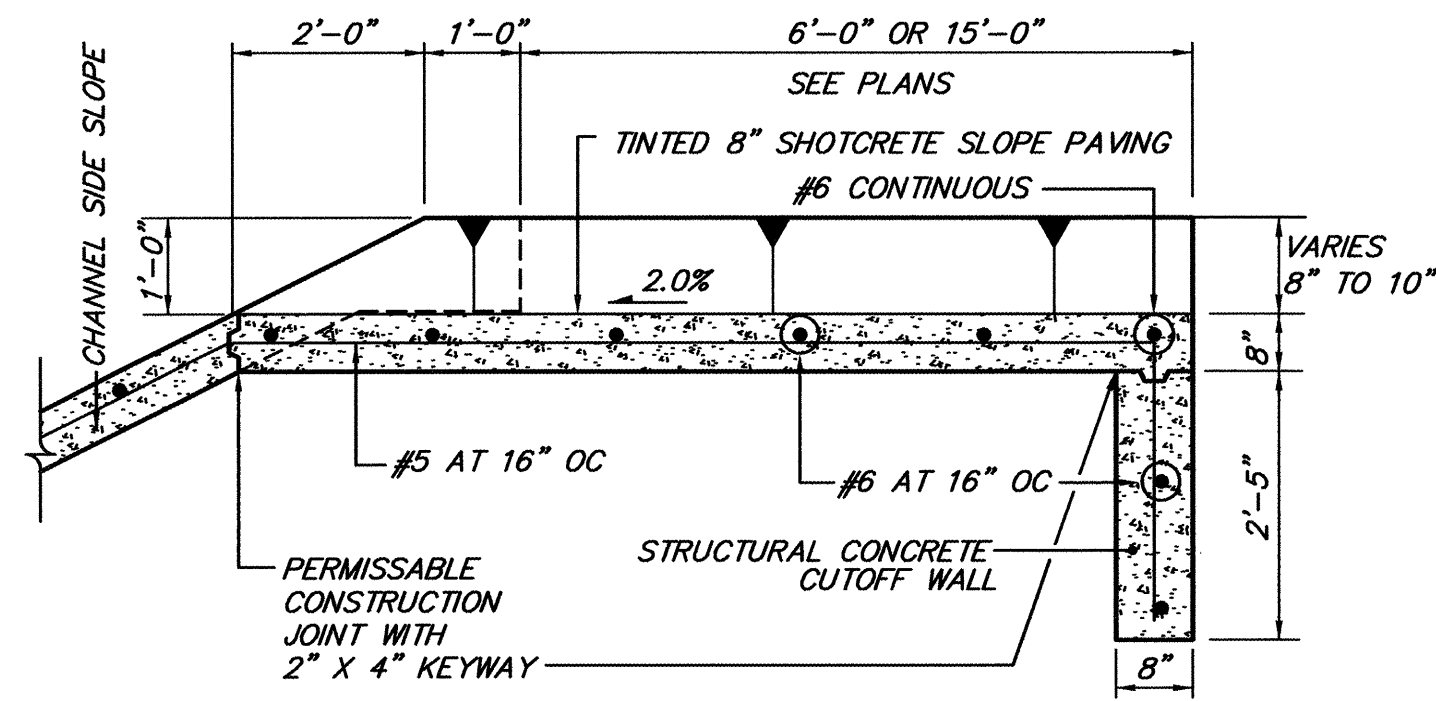
SECTION D - D

N.T.S.



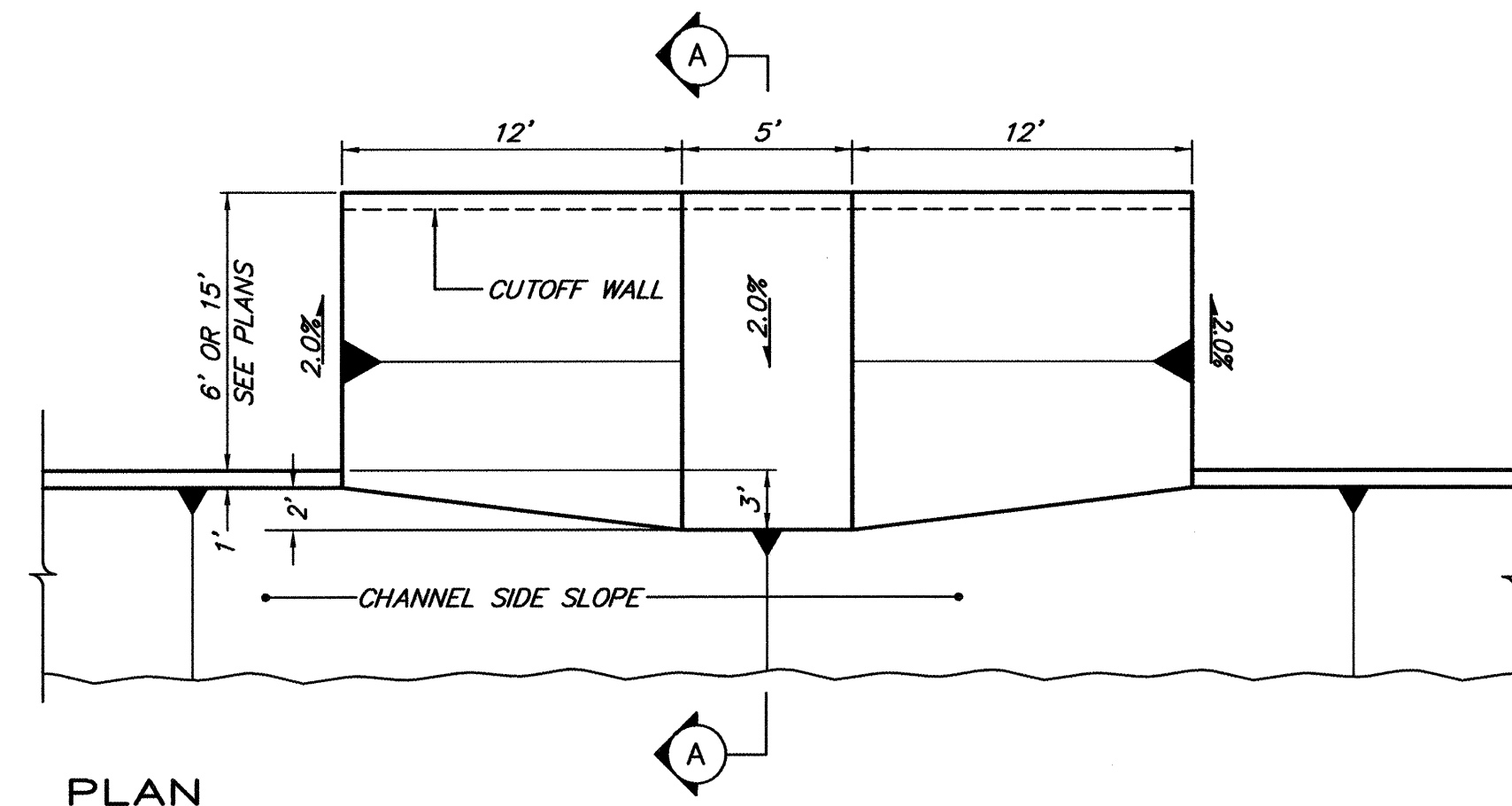
SECTION E - E

N.T.S.



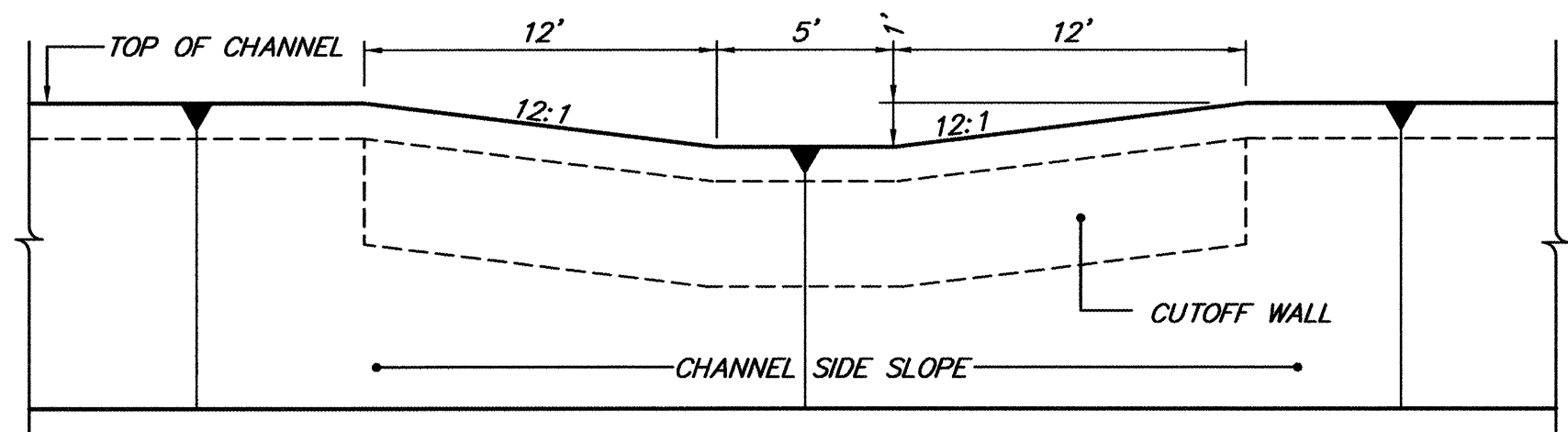
SECTION A - A

SCALE: NONE



PLAN

SCALE: NONE



PROFILE

SCALE: NONE

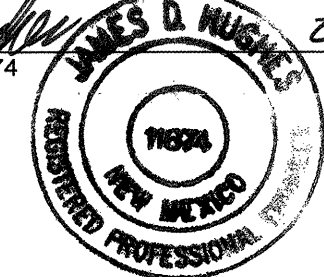
CHANNEL RUNDOWN DETAILS- CHANNEL SIDE SLOPE

NOTE: SEE PLAN & PROFILE SHEETS FOR APPROPRIATE SPOT ELEVATIONS.

CERTIFICATE OF SUBSTANTIAL COMPLIANCE ON PLANS

I, James D. Hughes, NMPE 11874, of the firm Mark Goodwin & Associates, P.A., a Registered Professional Engineer in the State of New Mexico, do hereby certify, to the best of my knowledge and belief, that the infrastructure installed as part of this project has been inspected by me or by a qualified person under my direct supervision, and has been constructed in accordance with the plans and specifications approved by the City Engineer and that the original design intent of the approved plans has been met, except as noted by me on the as-built construction drawings. This Certification is based on site inspections by me or personnel under my direction, and survey information provided by ALS, Inc., NMPS number 77134.

James D. Hughes NMPE 11874 2-12-07



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

ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTROL AUTHORITY

AMOLE CHANNEL

TITLE:

GENERAL DETAILS

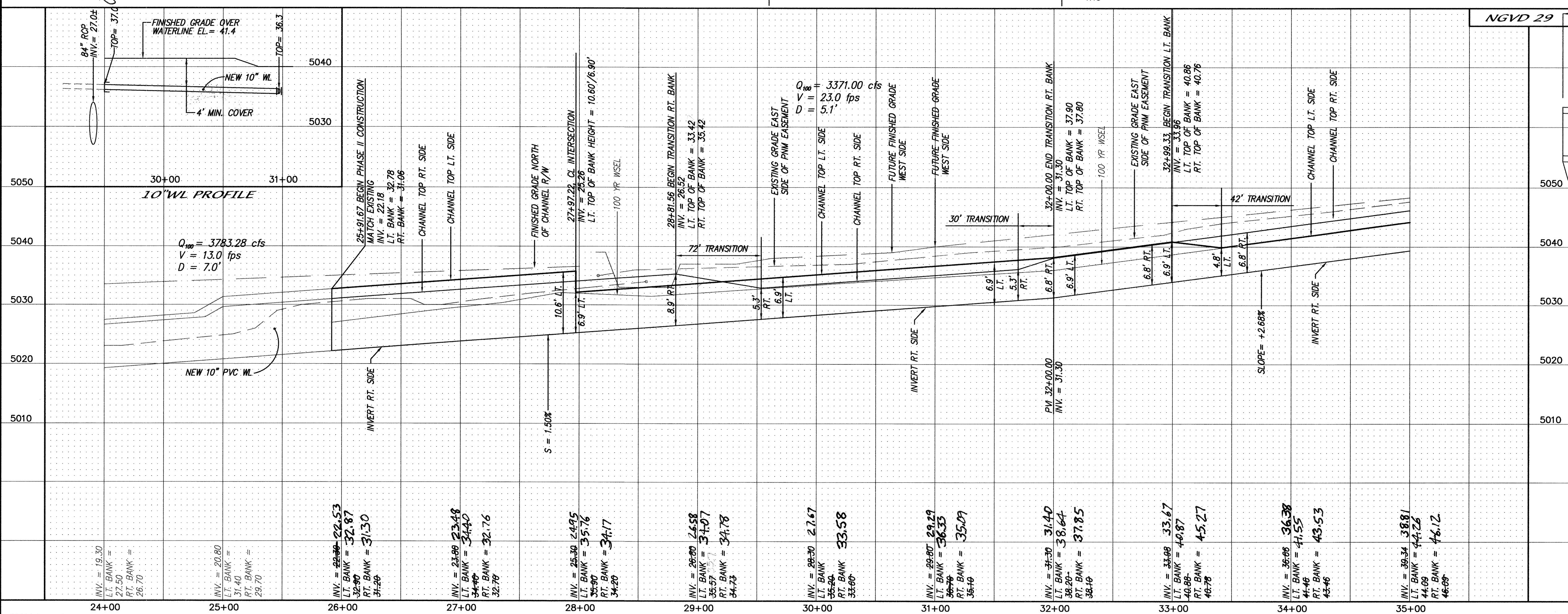
DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	DATE	MO./DAY/YR.	MO./DAY/YR.
APPROVED JUN 29 2005 DESIGN REVIEW COMMITTEE	APPROVED JUL 22 2005 CITY ENGINEER			

CITY PROJECT NO. 679482 ZONE MAP NO. N-9 SHEET 4 OF 20

SURVEY INFORMATION		BENCH MARKS		AS BUILT INFORMATION	
NO.	BY	DATE	STATION "TRANS" IS LOCATED 6 MI. SOUTHWEST OF DOWNTOWN ALBUQUERQUE, IN THE R.O.W. OF A PLAINS ELECTRIC CO-OP TRANSMISSION LINE. TO REACH STATION FROM INTERSECTION OF CENTRAL AVE. & 98TH ST. SW. GO SOUTH ON 98TH ST. 1.2 MI. TO JUNCTION WITH GIBSON BLVD. & SNOW VISTA BLVD., THEN SOUTHEAST ALONG SNOW VISTA AND CO-OP ELECTRIC TRANSMISSION LINE 0.85 MI. TO PYLON NUMBERED "52". STATION IS JUST EAST OF THIS POINT.	CONTRACTOR	DATE
				SALES	9/6/13
				INSPECTOR'S NAME	ALCS
				FIELD CHANGE BY	MMGA
				DESCRIPTION BY	ALCS
				CORRECTED BY	MMGA
				MICRO-FILM INFORMATION	
				RECORDED BY	DATE
				NO.	
				X = 354,899.45, Y = 1,471,822.87, ELEV. = 5118.37	

CERTIFICATE OF SUBSTANTIAL COMPLIANCE ON PLANS
I, James D. Hughes, NMPE 11674, of the firm, Mark Goodwin & Associates, P.A., a Registered Professional Engineer, have examined the plans and specifications for the proposed project, and have found that the same conform to the requirements of the City of Albuquerque, New Mexico, and have been constructed in accordance with the plans and specifications approved by the City Engineer and that the original design intent of the approved plans has been met, except as noted by me on the as-built construction drawings. This certificate is given in accordance with the provisions of the City of Albuquerque, New Mexico, and the information provided by the project engineer, James D. Hughes, NMPE 11674, dated 12-12-07.

James D. Hughes
NMPE 11674
REGISTERED PROFESSIONAL ENGINEER
NEW MEXICO



NOTES

CURVE DATA - CENTERLINE OF CHANNEL

⑤ $\Delta = 1729'37"$
 $R = 500.00'$
 $T = 76.93'$
 $L = 152.66'$

⑥ $\Delta = 970'02"$
 $R = 250.00'$
 $T = 20.04'$
 $L = 40.00'$

⑦ $\Delta = 1711'19"$
 $R = 500.00'$
 $T = 75.57'$
 $L = 150.00'$

⑧ $\Delta = 1711'19"$
 $R = 500.00'$
 $T = 75.57'$
 $L = 150.00'$

⑨ $\Delta = 970'02"$
 $R = 250.00'$
 $T = 20.04'$
 $L = 40.00'$

⑩ $\Delta = 1711'19"$
 $R = 500.00'$
 $T = 75.57'$
 $L = 150.00'$

⑪ $\Delta = 1716'56"$
 $R = 500.00'$
 $T = 75.98'$
 $L = 150.82'$

⑫ $\Delta = 2670'28"$
 $R = 250.00'$
 $T = 58.12'$
 $L = 114.21'$

⑬ $\Delta = 1716'56"$
 $R = 500.00'$
 $T = 75.98'$
 $L = 150.82'$

CURVE DATA - TOP OF CHANNEL

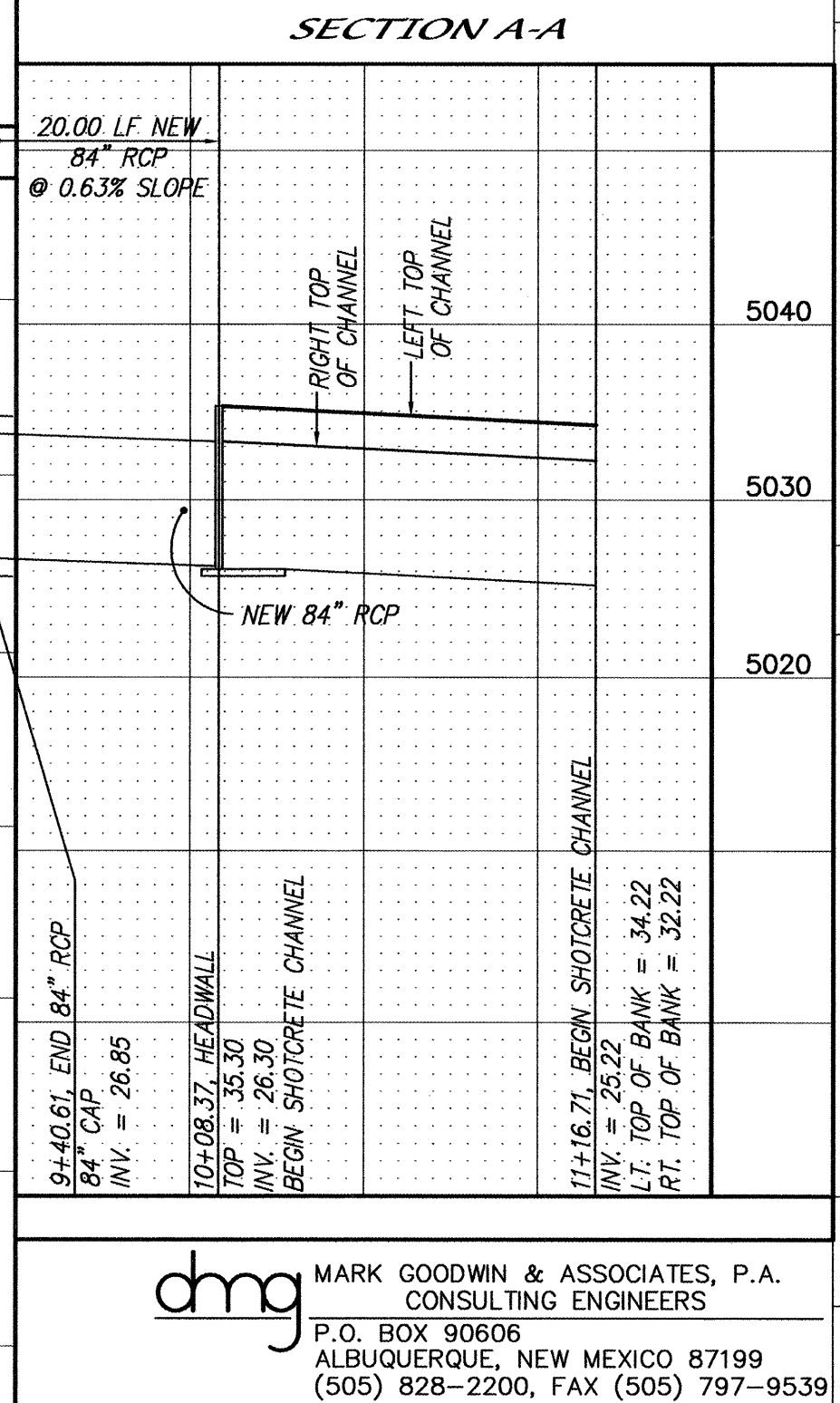
A $\Delta = 292'54"$
 $R = 38.00'$
 $T = 10.23'$
 $L = 20.01'$

B $\Delta = 1212'42"$
 $R = 286.00'$
 $T = 30.59'$
 $L = 60.96'$

C $\Delta = 1729'37"$
 $R = 536.00'$
 $T = 52.47'$
 $L = 163.65'$

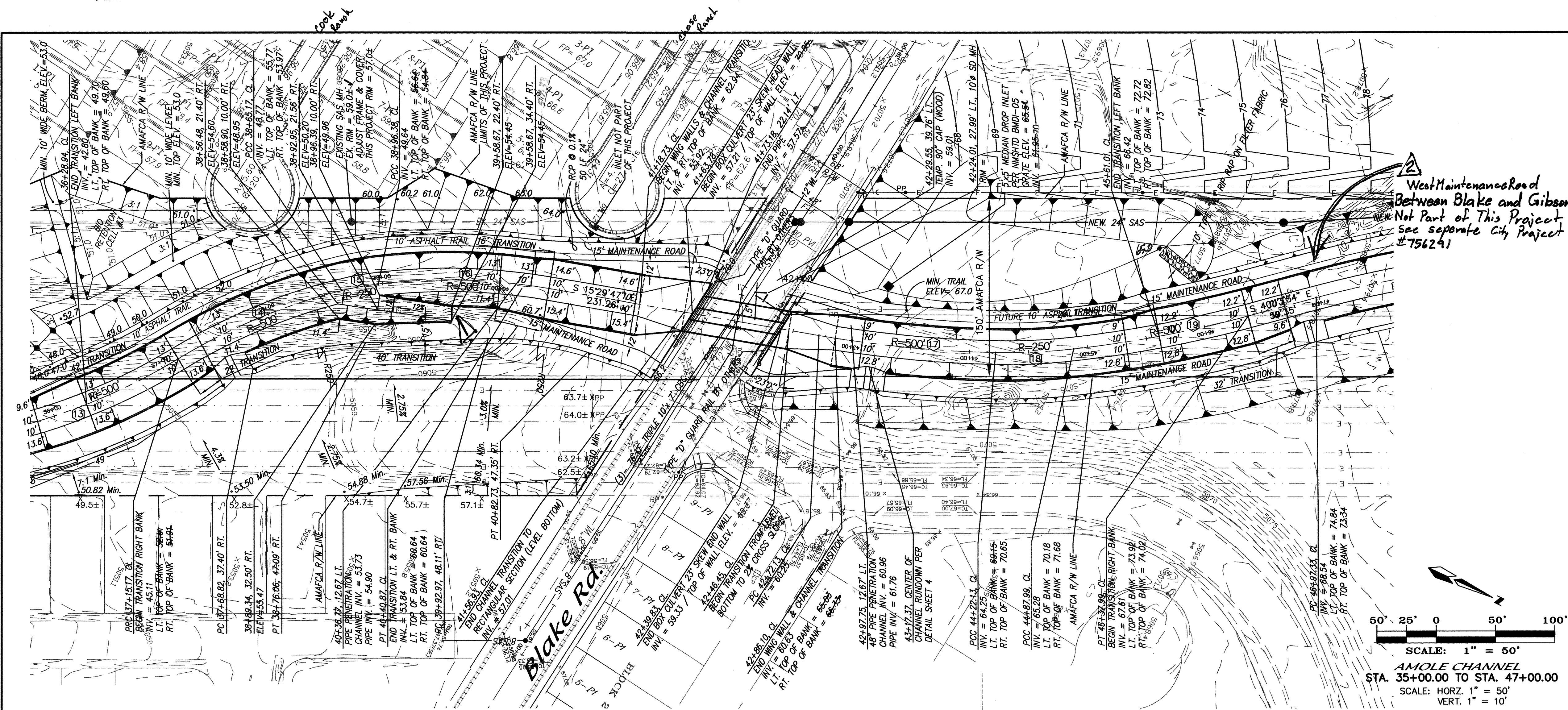
CHANNEL DEPTH TABLE		
LEFT		
STA. FROM	STA. TO	LINED DEPTH
25+00	28+82.31	10.6'
28+82.31	32+99.43	6.9'
32+99.43	36+28.94	4.8'
RIGHT		
STA. FROM	STA. TO	LINED DEPTH
25+00	28+82.31	8.9'
28+82.31	32+00	5.3'
32+00	37+15.17	6.8'

CELL #	Q 100	h	W
1	105.58 cfs	1.5'	6.55'
2	64.47 cfs	1.5'	14.00'
3	32.50 cfs	1.5'	21.28'
4	96 cfs	1.5'	19.35'



ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY	
TITLE: AMOLE CHANNEL (PHASE I) PLAN AND PROFILE	
DESIGN REVIEW COMMITTEE APPROVE NOV 16 2005 DESIGN CITY PROJECT NO.	CITY ENGINEER APPROVAL APPROVE NOV 16 2005 CITY ENGINEER
LAST DESIGN UPDATE	MO./DAY/YR.
NO. DATE	REVISIONS
DESIGNED BY JDH	DATE 05/04
DRAWN BY DER	DATE 05/04
CHECKED BY DMG	DATE 05/04

AS BUILT INFORMATION		BENCH MARKS		STATION "TRANS" IS LOCATED 6 MI. SOUTHWEST OF DOWNTOWN		CONTRACTOR		DATE	
WORK	DATE	STATION	TRANS	STATION	TRANS	CONTRACTOR	DATE	STATION	TRANS
AS BUILT	12/12/07	24+00.00	35+00.00	24+00.00	35+00.00	MARK GOODWIN & ASSOCIATES, P.A.	12/12/07	24+00.00	35+00.00
DESIGNED BY JDH	DATE 05/04	DRAWN BY DER	DATE 05/04	CHECKED BY DMG	DATE 05/04	DESIGNED BY JDH	DATE 05/04	DRAWN BY DER	DATE 05/04
CHECKED BY DMG	DATE 05/04	CHECKED BY DMG	DATE 05/04	CHECKED BY DMG	DATE 05/04	CHECKED BY DMG	DATE 05/04	CHECKED BY DMG	DATE 05/04



NOTES

CURVE DATA - CENTERLINE OF CHANNEL

13	$\Delta = 1716'56"$ $R = 500.00'$ $T = 75.98'$ $L = 150.82'$	14	$\Delta = 1711'19"$ $R = 500.00'$ $T = 75.57'$ $L = 150.00'$	15	$\Delta = 709'12"$ $R = 250.00'$ $T = 15.63'$ $L = 31.21'$
16	$\Delta = 16'33'26"$ $R = 500.00'$ $T = 72.75'$ $L = 144.49'$	17	$\Delta = 8'35'40"$ $R = 1000.00'$ $T = 15.14'$ $L = 150.00'$	18	$\Delta = 7'32'48"$ $R = 500.00'$ $T = 32.98'$ $L = 65.86'$
19	$\Delta = 8'35'40"$ $R = 1000.00'$ $T = 75.14'$ $L = 150.00'$				

CHANNEL DEPTH TABLE

LEFT		
STA. FROM	STA. TO	LINED DEPTH
36+28.94	40+40.87	6.9'
40+40.87	41+18.73	7.7'

BLAKE ROAD BOX - LEFT

STA. FROM	STA. TO	LINED DEPTH
42+86.10	45+61.01	4.9'
45+61.01	50+80.89	6.3'

RIGHT

STA. FROM	STA. TO	LINED DEPTH
32+00	37+15.17	6.8'
37+15.17	40+40.87	5.7'
40+40.87	41+18.73	7.7'

BLAKE ROAD BOX - RIGHT

STA. FROM	STA. TO	LINED DEPTH
42+86.10	46+37.99	6.4'
46+37.99	50+80.89	4.8'

From sta. 39+58 to 38+62 a Retaining wall was built. 0' to 3' High, on Right side of Channel. A new Ramp was added.

CERTIFICATE OF SUBSTANTIAL COMPLIANCE ON PLANS

I, James D. Hughes, NMPE 11674, of the firm Mark Goodwin & Associates, P.A., a Registered Professional Engineer in the State of New Mexico, do hereby certify, to the best of my knowledge and belief, that the infrastructure installed as part of this project has been inspected by me or by a qualified person under my direct supervision, and has been constructed in accordance with the plans and specifications approved by the City Engineer, and that the original design intent of the approved plans has been met, except as noted by me on the as-built construction drawings. This Certification is based on site inspections by me or personnel under my direction, and survey information provided by ALS, Inc., NMFS number 719.

James D. Hughes
James D. Hughes NMPE 11674

ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY

AMOLE CHANNEL (PHASE I) PLAN AND PROFILE

DESIGN REVIEW COMMITTEE: **APPROVE** NOV 1 2005
CITY ENGINEER: **APPROVE** NOV 1 2005

DESIGNED BY: **JDH** DATE: 05/04
DRAWN BY: **DER** DATE: 05/04
CHECKED BY: **DMG** DATE: 05/04

REVISIONS: 2 12-5-05 Deleted West Maintenance Road 11-14-05 Ramp Added

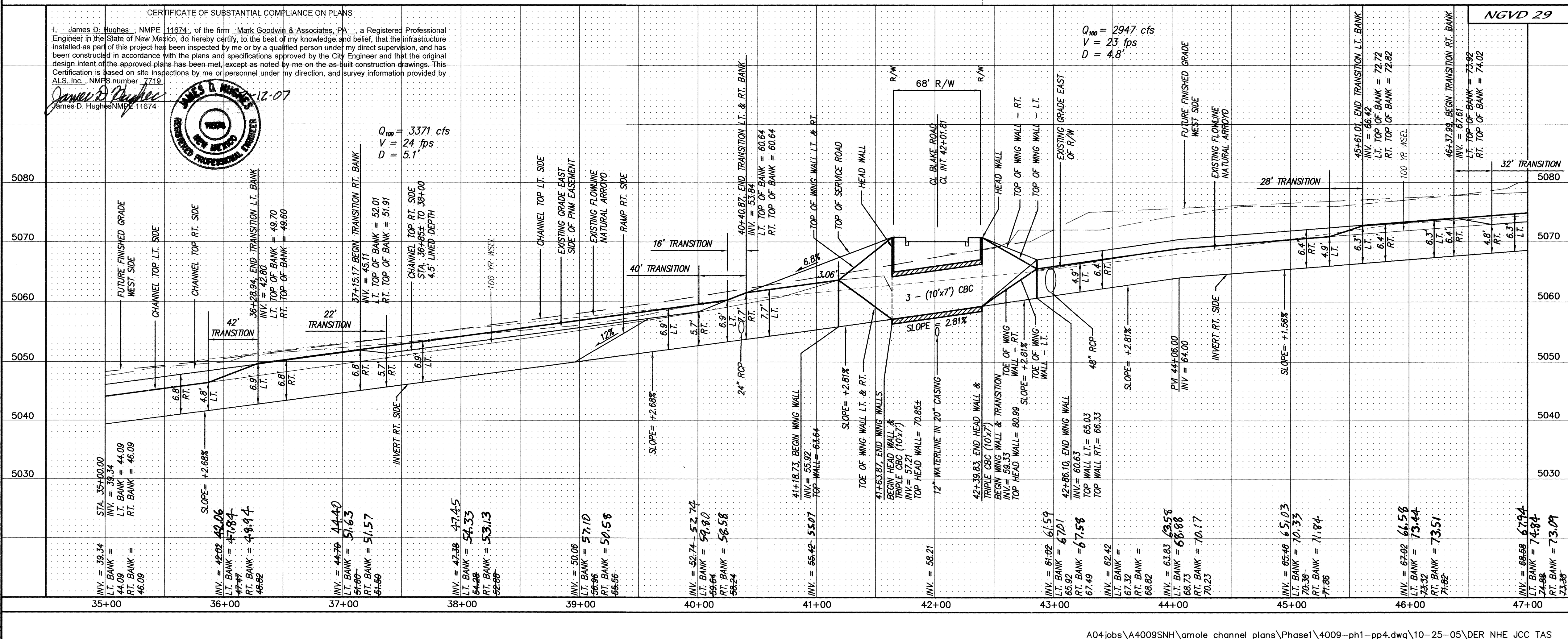
NO. DATE BY

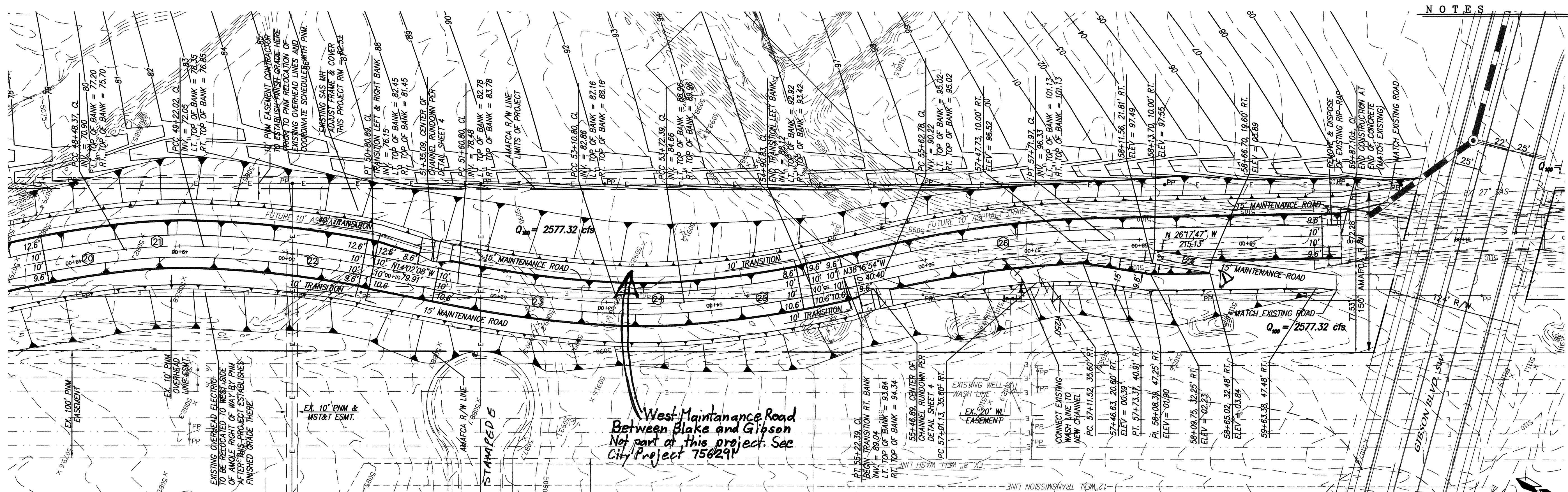
MO./DAY/YR. MO./DAY/YR.

LAST DESIGN UPDATE

ZONE MAP NO. 679482

SHEET 6 OF 20



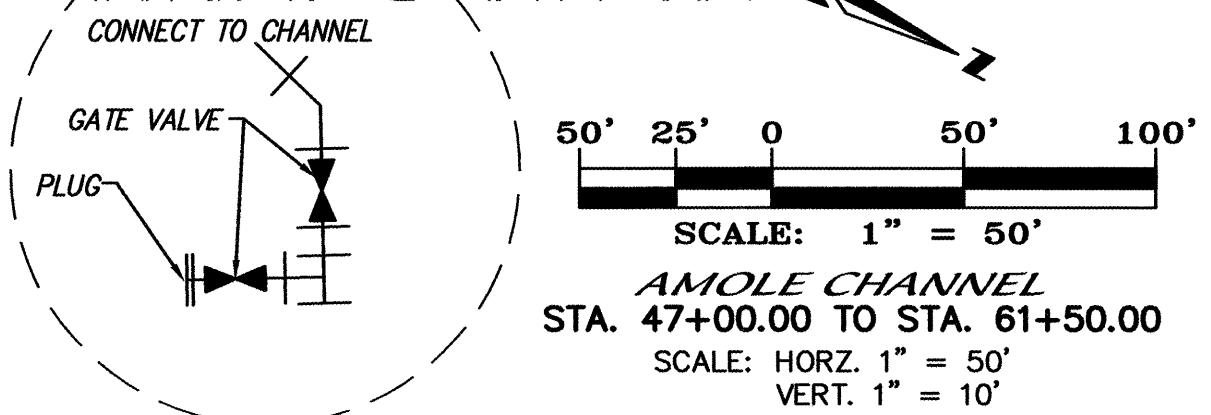


CURVE DATA - CENTERLINE OF CHANNEL

20	$\Delta = 8'39''14''$ R = 1000.00' T = 75.66' L = 151.04'	21	$\Delta = 8'26''23''$ R = 500.00' T = 36.89' L = 73.65'	22	$\Delta = 9'06''09''$ R = 1000.00' T = 79.60' L = 158.87'	23	$\Delta = 8'35''40''$ R = 1000.00' T = 75.14' L = 150.00'	24	$\Delta = 7'03''26''$ R = 500.00' T = 30.83' L = 61.59'	25	$\Delta = 8'35''40''$ R = 1000.00' T = 75.14' L = 150.00'	26	$\Delta = 11'59''07''$ R = 1000.00' T = 104.97' L = 209.18'
----	--	----	--	----	--	----	--	----	--	----	--	----	--

CHANNEL DEPTH TABLE		
LEFT		
STA. FROM	STA. TO	LINED DEPTH
45+61.01	50+80.89	6.3'
50+80.89	54+90.83	4.3'
54+90.83	59+87.10	4.8'

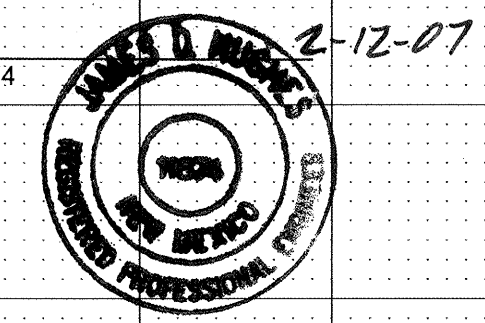
CHANNEL DEPTH TABLE		
RIGHT		
STA. FROM	STA. TO	LINED DEPTH
46+37.99	50+80.89	4.8'
50+80.89	55+22.39	5.3'
55+22.39	59+87.10	4.8'



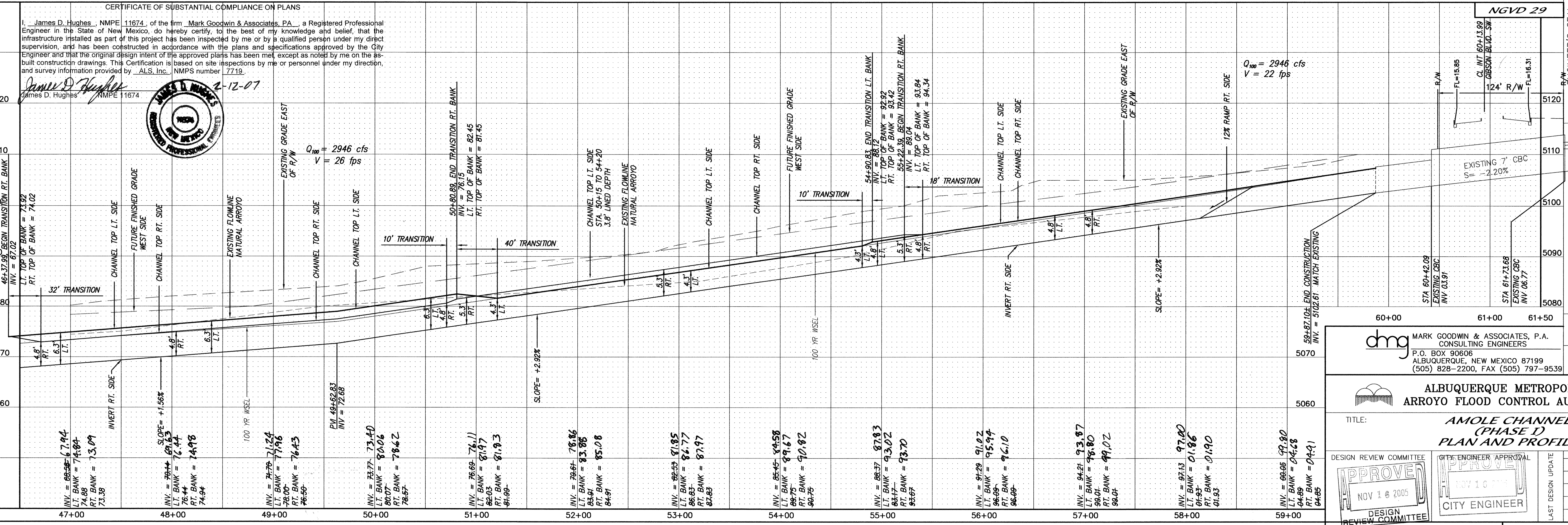
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James D. Hughes
James D. Hughes, NMPE 11674



12-12-07



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

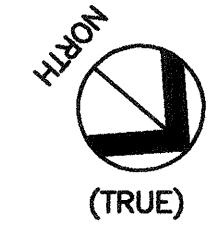
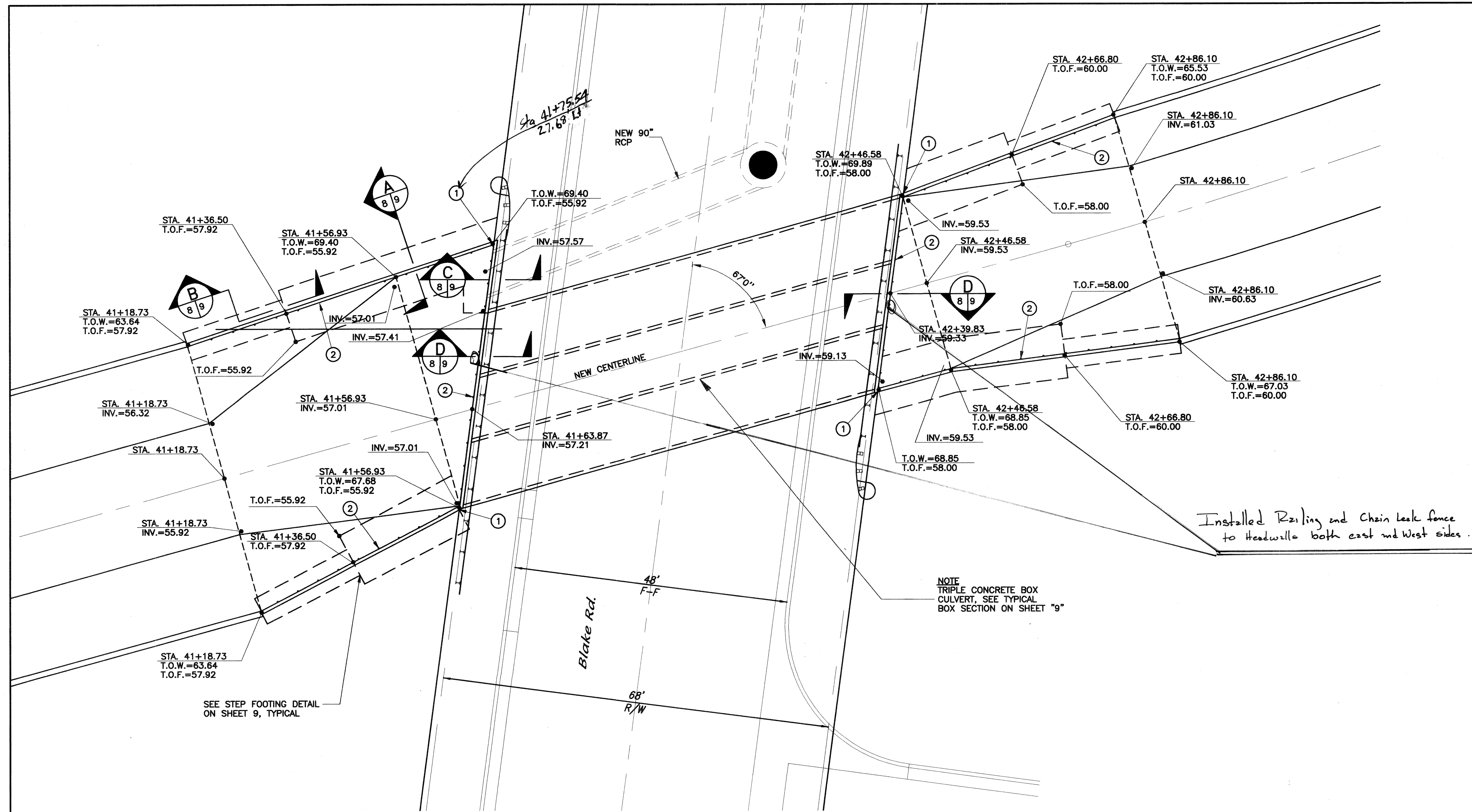
ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTROL AUTHORITY

TITLE: AMOLE CHANNEL (PHASE I) PLAN AND PROFILE
DESIGN REVIEW COMMITTEE: APPROVE NOV 10 2005
CITY ENGINEER: APPROVE NOV 10 2005

ENGINEER'S SEAL
JAMES D. HUGHES
11674
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER
10-26-05

DESIGNED BY: JDH
DRAWN BY: DER
CHECKED BY: DMG
DATE: 05/04
DATE: 05/04
DATE: 05/04

NO. DATE REVISIONS
1 11-14-05 Rmp Added
2 12-1-05 Update West Maintenance Rd



PLAN VIEW AMOLE CHANNEL TRANSITION AT BLAKE ROAD
SCALE: 1"=10'-0"

- KEYED NOTES:**
- #5 x 4'-0" DOWEL FROM CBC TO TRANSITION WALL AT 12" O.C., SEE DETAIL ON SHEET 9
 - PIPE RAILING AS PER DETAILS ON SHEET 9, TYPICAL



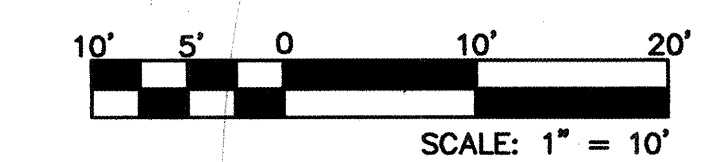
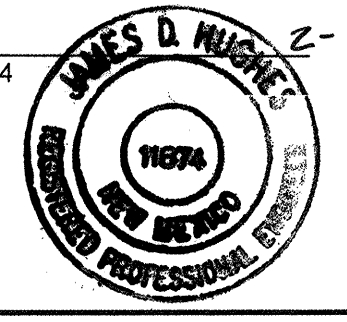
GENERAL NOTES

- ALL CONCRETE BOX AND TRANSITION WORK SHALL CONFORM TO NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT SPECIFICATIONS, 2000.
- REINFORCING BARS SHALL BE GRADE 60 UNLESS NOTED OTHERWISE.
- ALL CONCRETE SHALL HAVE A MINIMUM 28 - DAY COMPRESSIVE STRENGTH OF 4000 PSI (CLASS AA) WITH 6% ENTRAINED AIR. CHAMFER ALL EXPOSED EDGES OF CONCRETE 3/4 INCH UNLESS OTHERWISE NOTED.
- PROVIDE 12" SUBGRADE PREP AS PER COA SPECIFICATIONS UNDERNEATH CBC'S AND TRANSITION STRUCTURES, EXTEND 12" BEYOND THE EDGES OF FOOTINGS

CERTIFICATE OF SUBSTANTIAL COMPLIANCE ON PLANS

I, James D. Hughes, NMPE 11674, of the firm Mark Goodwin & Associates, P.A., a Registered Professional Engineer in the State of New Mexico, do hereby certify, to the best of my knowledge and belief, that the infrastructure installed as part of this project has been inspected by me or by a qualified person under my direct supervision, and has been constructed in accordance with the plans and specifications approved by the City Engineer and that the original design intent of the approved plans has been met, except as noted by me on the as-built construction drawings. This Certification is based on site inspections by me or personnel under my direction, and survey information provided by ALS, Inc., NMPS number 7719.

James D. Hughes
James D. Hughes NMPE 11674
2-12-07



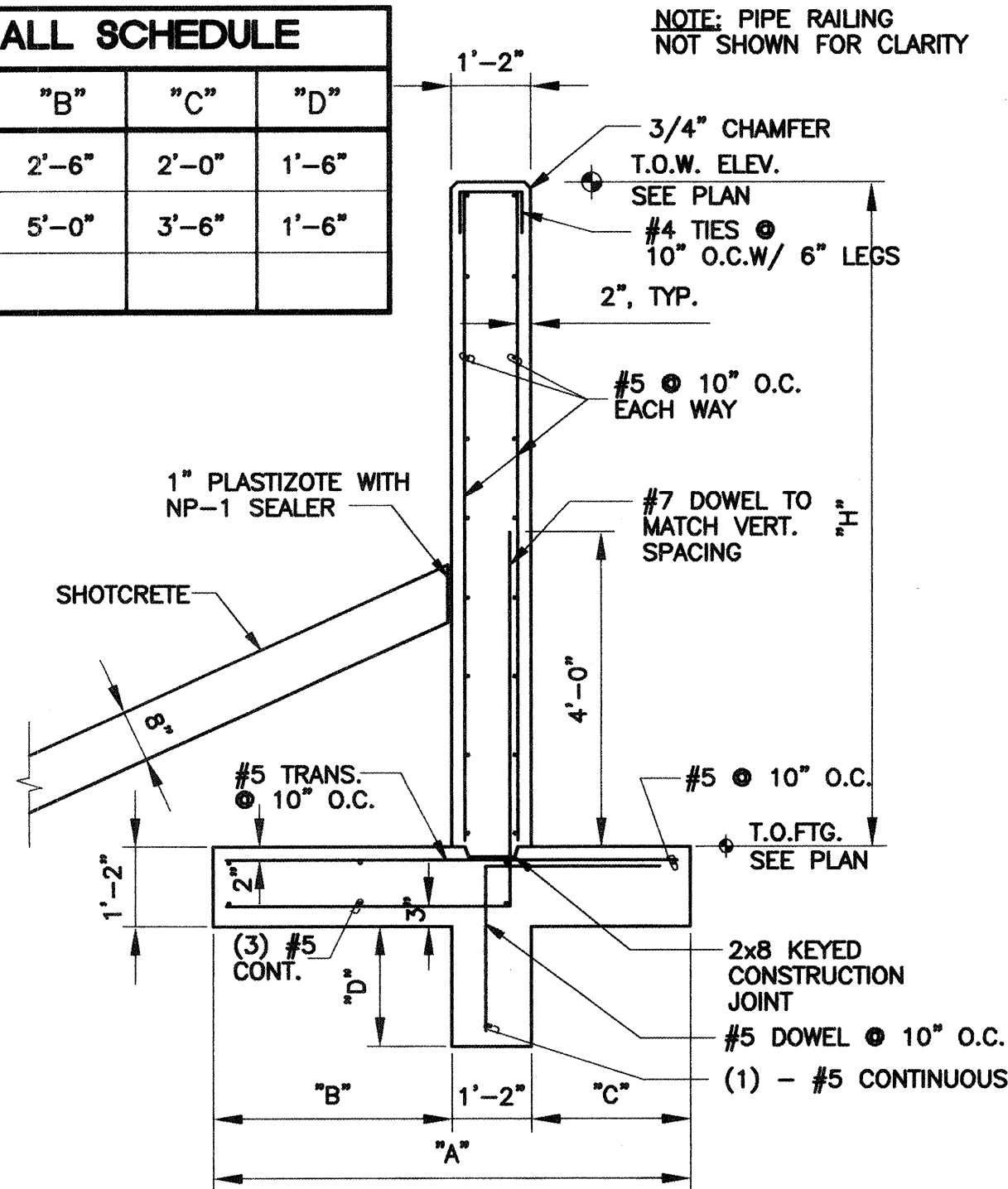
CM 104144
CME, Inc.
Mechanical / Electrical / Structural Consulting Engineers
6400 Uptown Boulevard, N.E. Suite 505E (505) 864-8868
Albuquerque, New Mexico 87110 FAX 864-7048



**CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT**

TITLE: AMOLE CHANNEL IMPROVEMENTS CONCRETE TRANSITIONS		MO./DAY/YR.	MO./DAY/YR.
DESIGN REVIEW COMMITTEE APPROVED JUN 29 2005 DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL APPROVED JUL 22 2005 CITY ENGINEER	DESIGNED BY JFG	DATE 2/1/05
CITY PROJECT NO. 679482		DRAWN BY TEP	DATE 2/1/05
ZONE MAP NO. N-9		CHECKED BY RJJ	DATE 2/1/05
SHEET 8 OF 20			

RETAINING WALL SCHEDULE				
"H"	"A"	"B"	"C"	"D"
0'-0" TO 9'-0"	5'-8"	2'-6"	2'-0"	1'-6"
9'-1" TO 14'-0"	9'-8"	5'-0"	3'-6"	1'-6"



RETAINING WALL

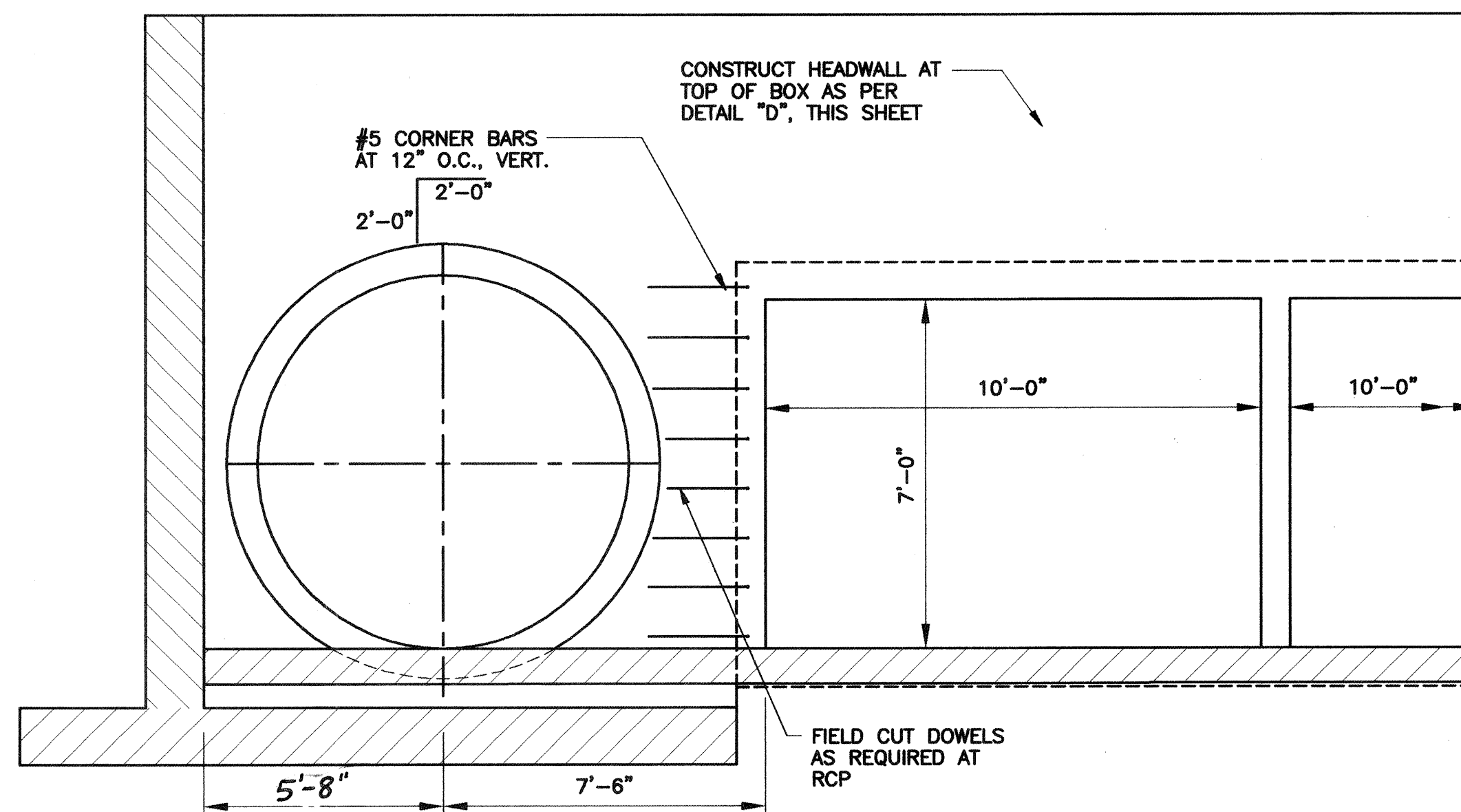
1/2" = 1'-0"

A
9/10

STEP FOOTING DETAIL

1/2" = 1'-0"

B
9/10



STA. 41+63.87

ELEVATION TRANSITION SECTION

3/8" = 1'-0"

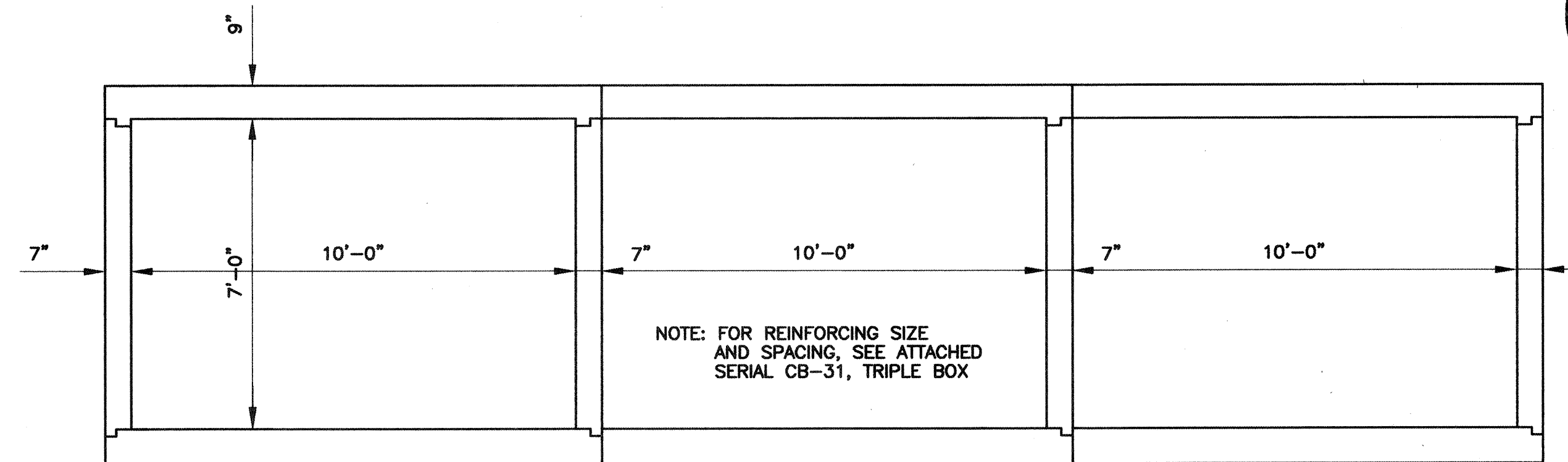
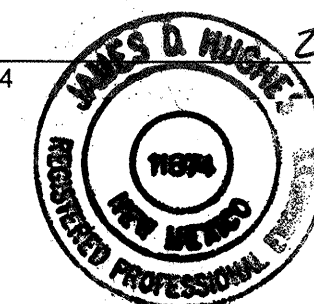
1
9/10

CERTIFICATE OF SUBSTANTIAL COMPLIANCE ON PLANS

I, James D. Hughes, NMPE 11674, of the firm Mark Goodwin & Associates, P.A., a Registered Professional Engineer in the State of New Mexico, do hereby certify, to the best of my knowledge and belief, that the infrastructure installed as part of this project has been inspected by me or by a qualified person under my direct supervision, and has been constructed in accordance with the plans and specifications approved by the City Engineer and that the original design intent of the approved plans has been met, except as noted by me on the as-built construction drawings. This Certification is based on site inspections by me or personnel under my direction, and survey information provided by ALS, Inc., NMPS number 7719.

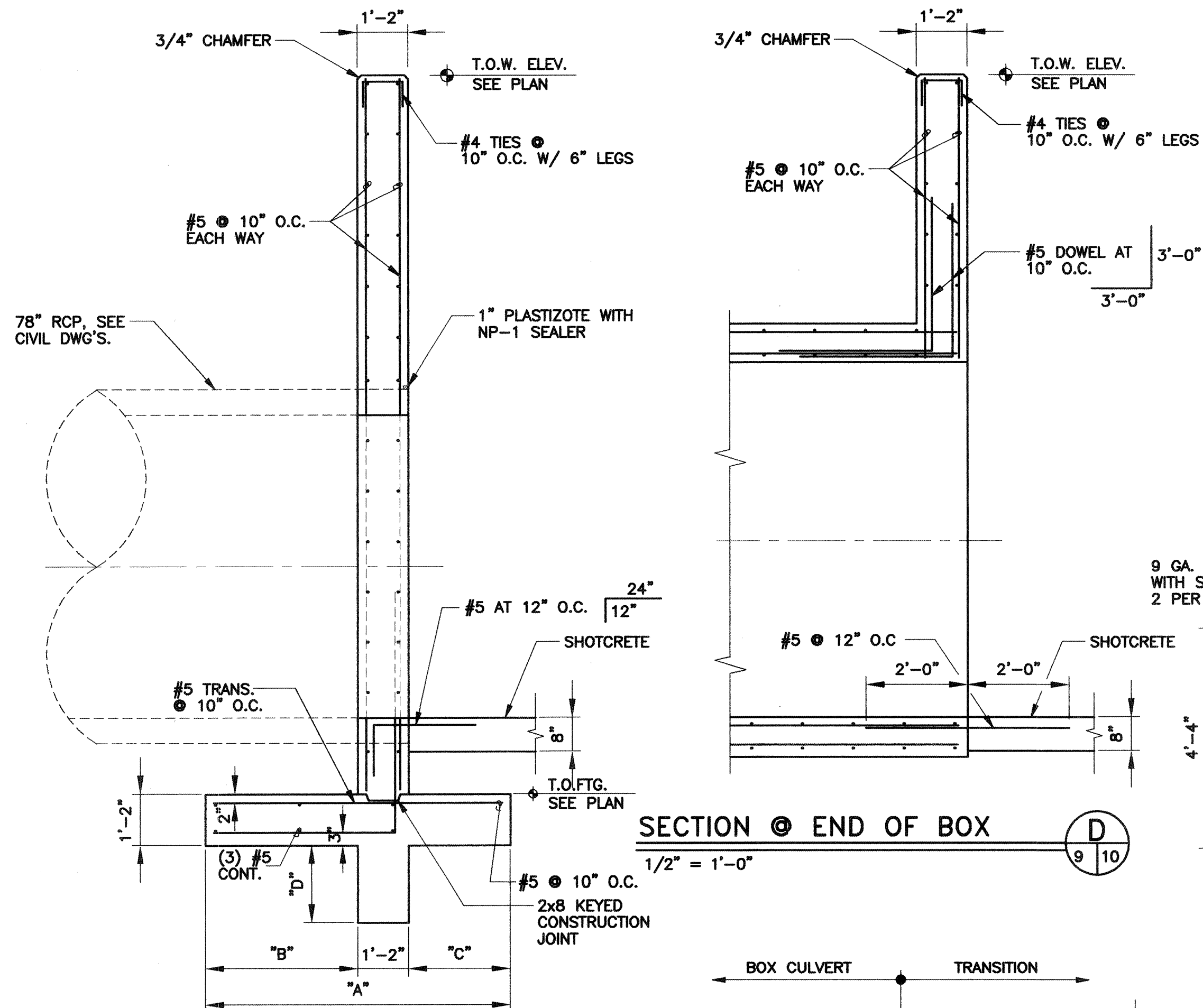
James D. Hughes
James D. Hughes NMPE 11674

2-12-07



TRIPLE BOX SECTION

3/8" = 1'-0"



SECTION @ END OF BOX

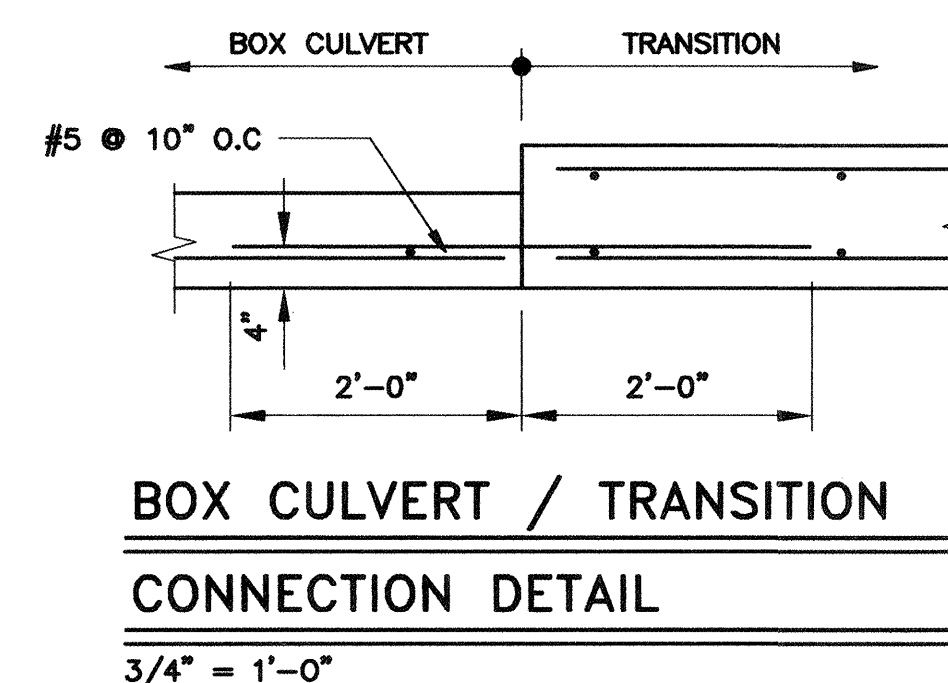
1/2" = 1'-0"

D
9/10

WALL SECTION @ RCP

1/2" = 1'-0"

C
9/10



BOX CULVERT / TRANSITION

CONNECTION DETAIL

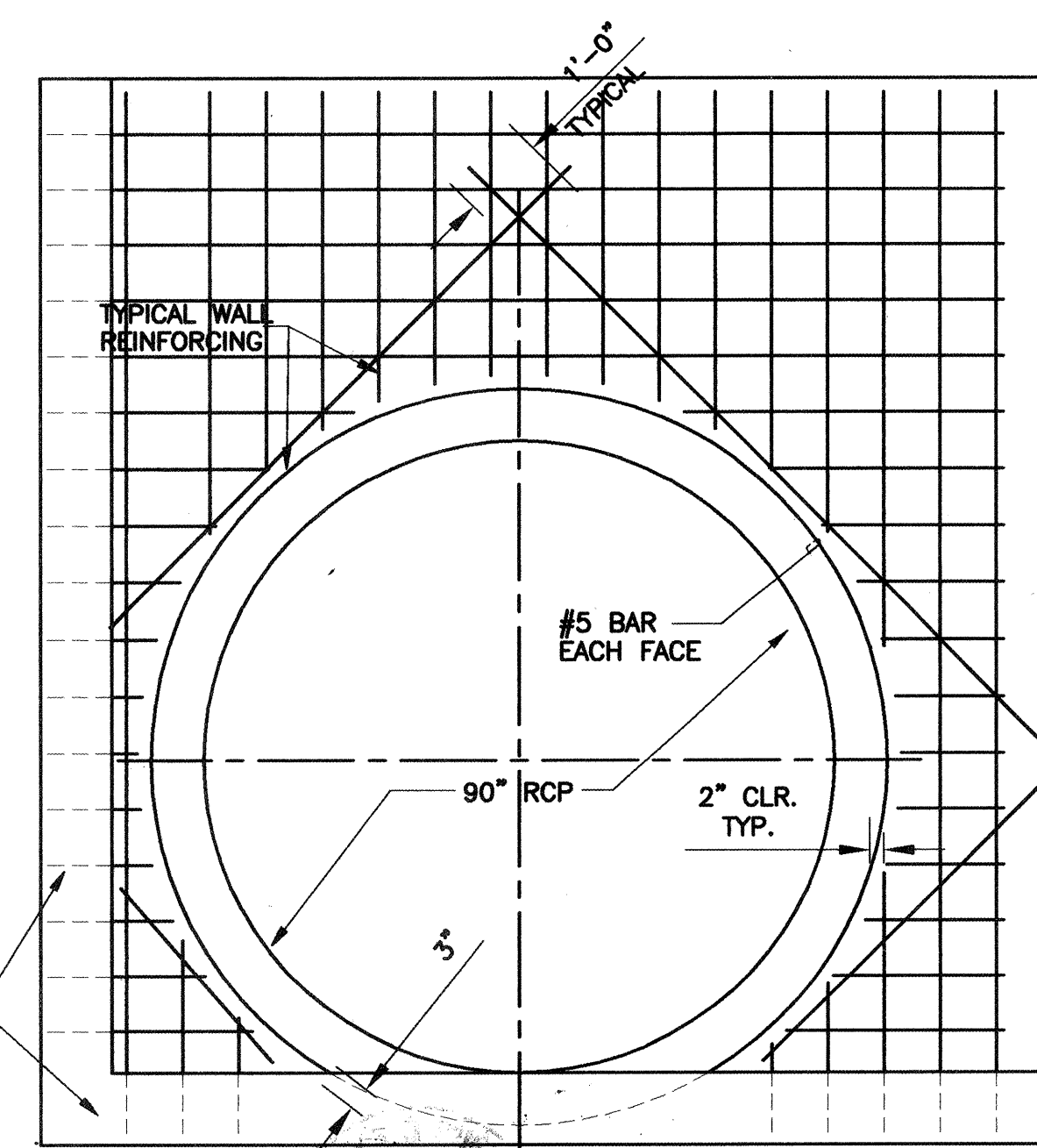
3/4" = 1'-0"

RAILING DETAIL

1/2" = 1'-0"

BASE DETAIL

1" = 1'-0"



90" RCP WALL PENETRATION DETAIL

NO SCALE

104144
CME, Inc.
Mechanical / Electrical / Structural Consulting Engineers
6400 Uptown Boulevard, N.E. Suite 505E
Albuquerque, New Mexico 87110
(505) 884-8868
FAX 884-7048

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: AMOLE CHANNEL IMPROVEMENTS SECTIONS AND DETAILS

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	MO./DAY/YR.	MO./DAY/YR.
APPROVED JUN 29 2005 DESIGN REVIEW COMMITTEE	APPROVED JUL 22 2005 CITY ENGINEER		
CITY PROJECT NO. 679482	ZONE MAP NO. N-9	SHEET 9	OF 20

AS BUILT INFORMATION

BENCH MARKS

SURVEY INFORMATION

ENGINEER'S SEAL

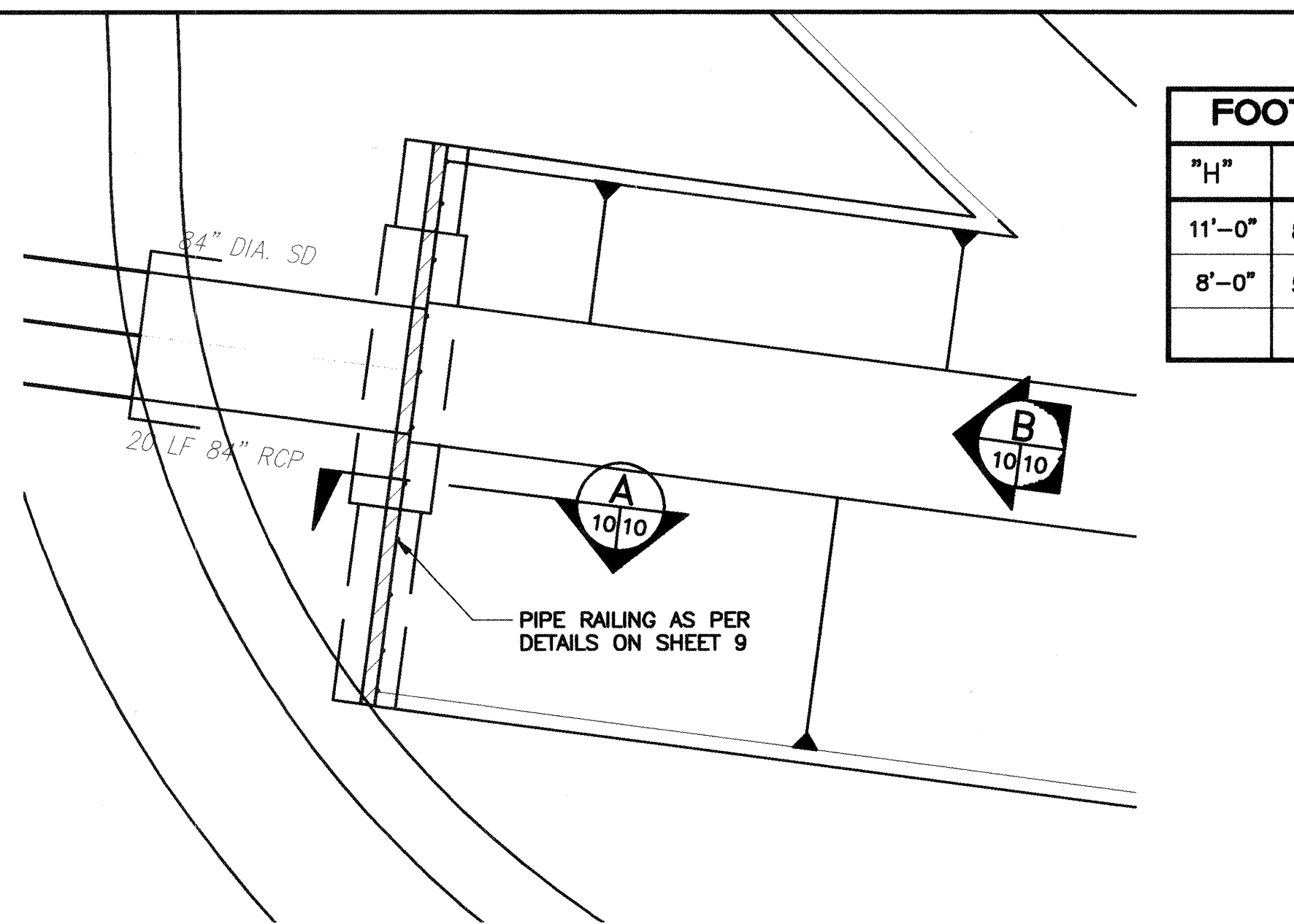
REVISIONS

DESIGN

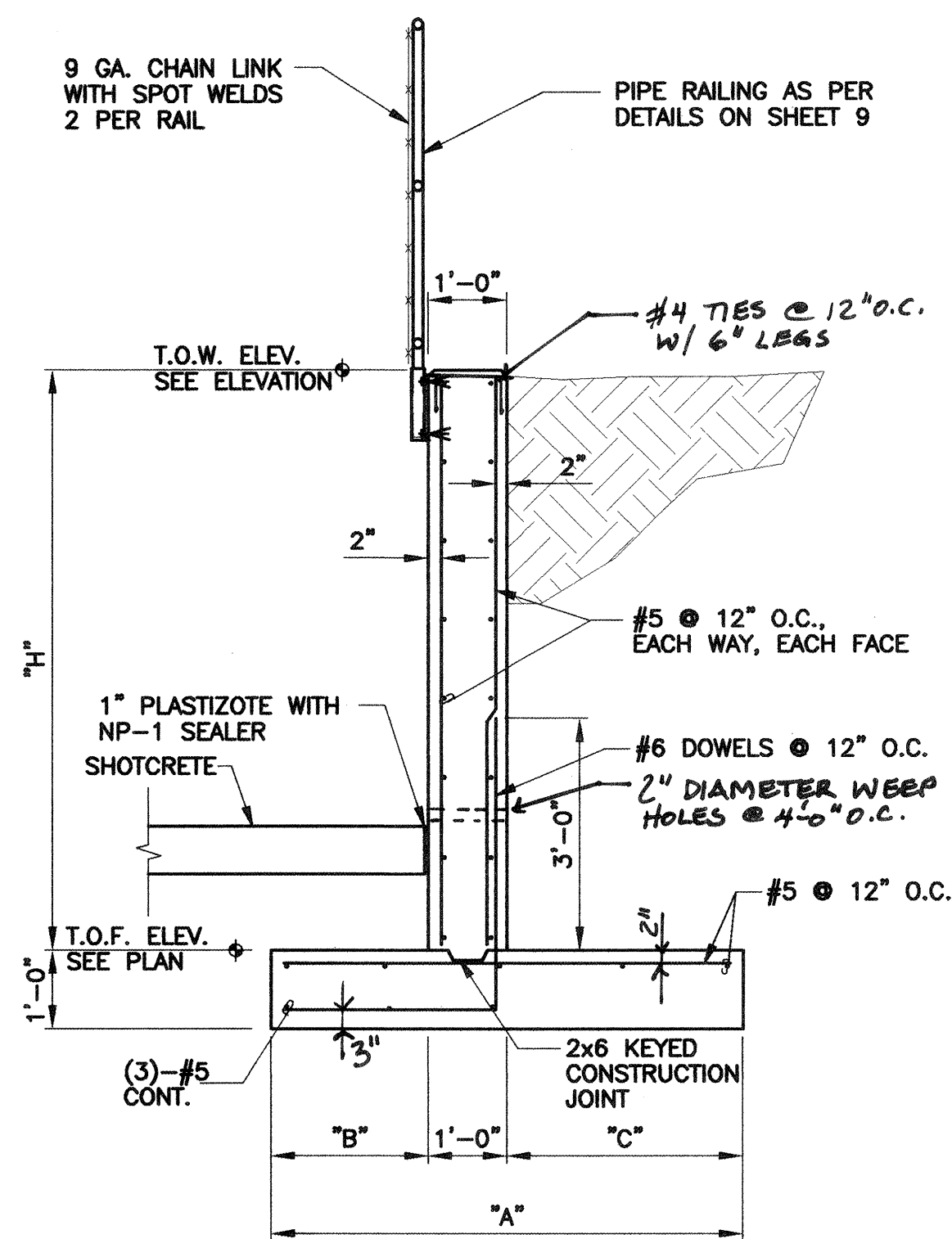
DATE

DATE

DATE



"H"	"A"	"B"	"C"
11'-0"	8'-0"	3'-0"	4'-0"
8'-0"	5'-3"	2'-0"	2'-3"



HEADWALL SECTION

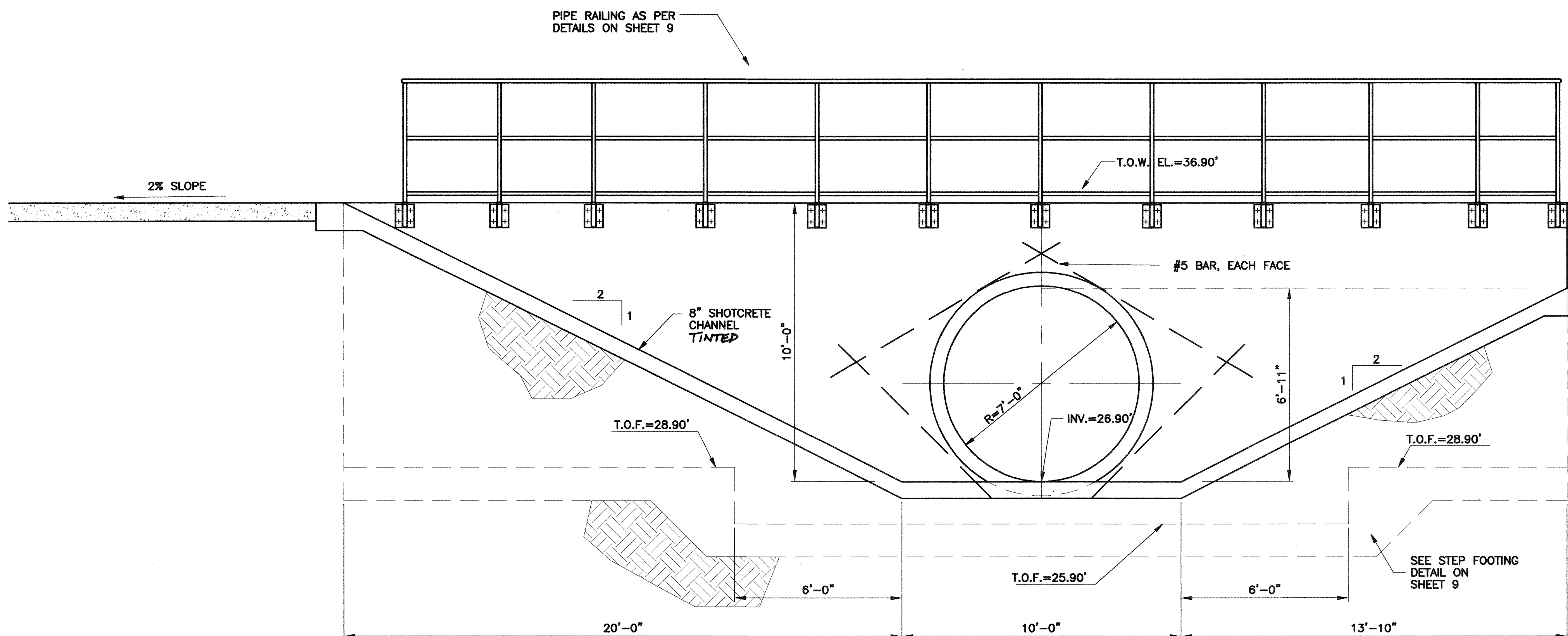
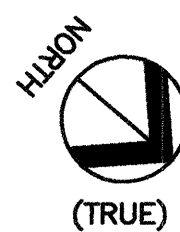
1/2" = 1'-0"

A
10/10

STA. 29+00

PLAN VIEW AMOLE CHANNEL PARTIAL HEADWALL PLAN

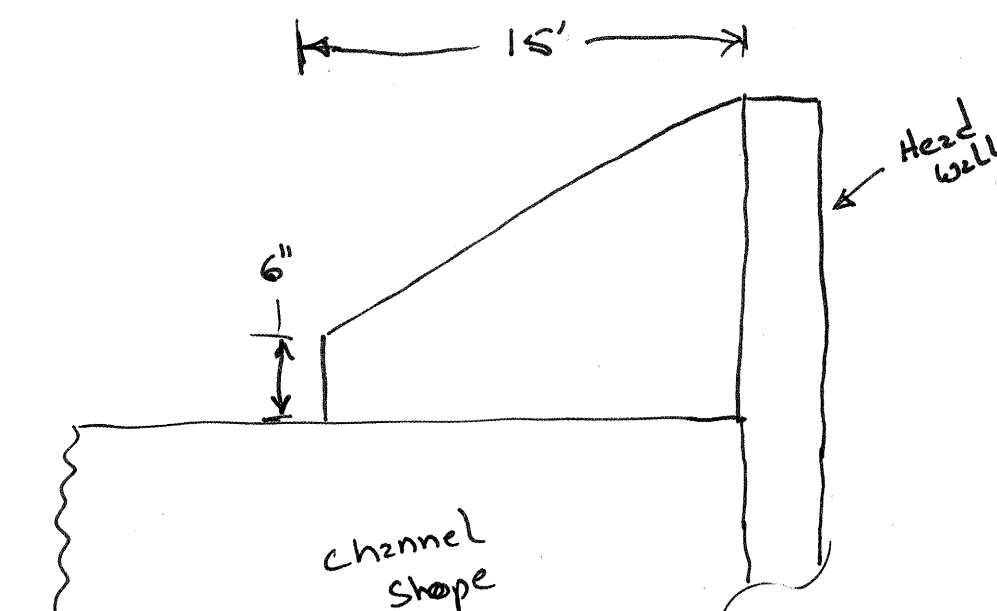
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HEADWALL ELEVATION

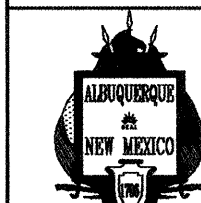
SCALE: 3/8"=1'-0"

B
10/10



10' 5' 0' 10' 20'
SCALE: 1" = 10'

CMR, Inc.
Mechanical / Electrical / Structural Consulting Engineers
6400 Uptown Boulevard, N.E. Suite 505E
Albuquerque, New Mexico 87110
(505) 884-8868
FAX 864-7048



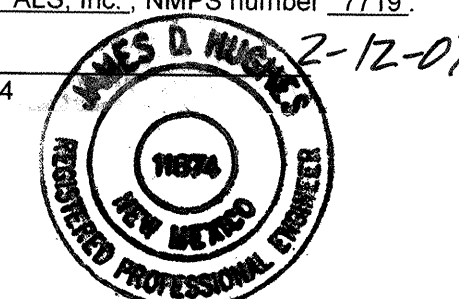
**CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT**

TITLE: **AMOLE CHANNEL
IMPROVEMENTS
HEADWALL PARTIAL PLAN, SECTION & DETAILS**

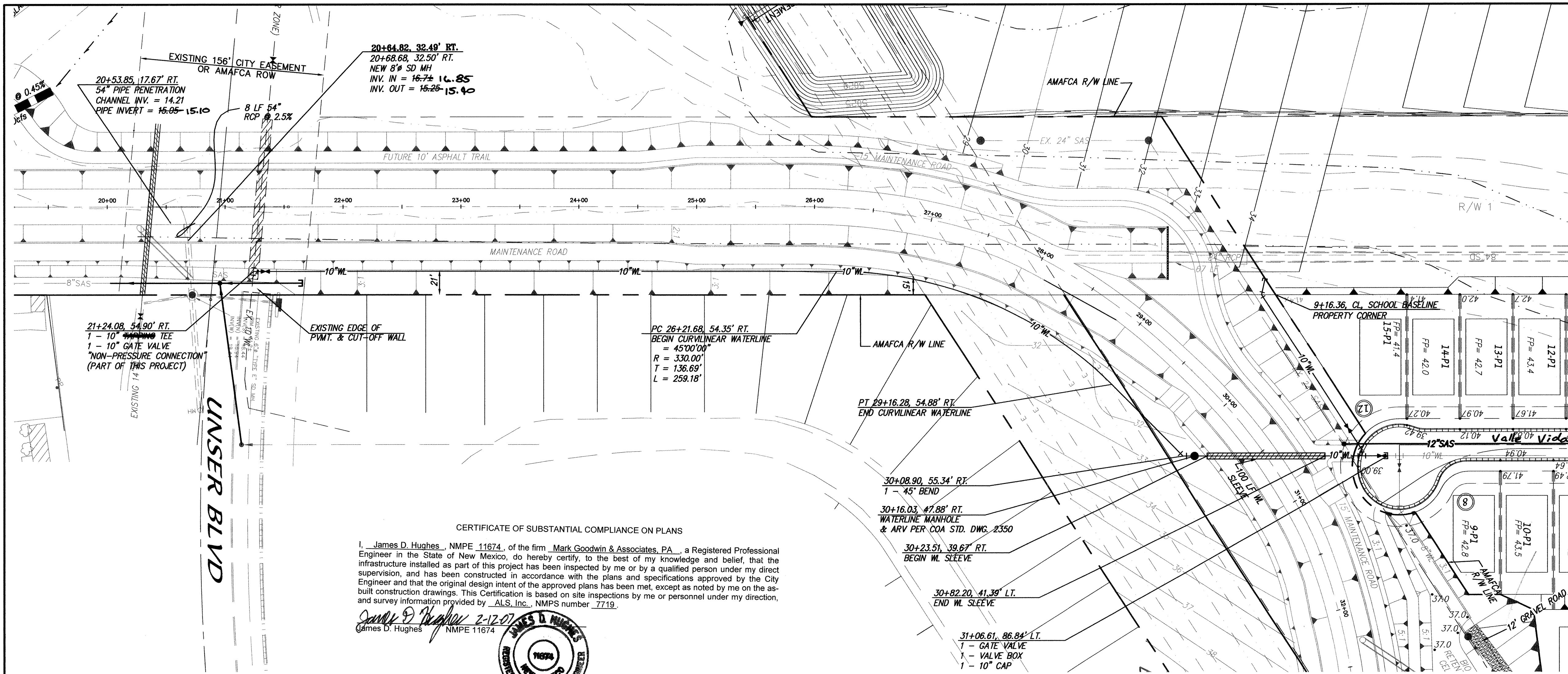
DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.
APPROVE JUN 29 2005 DESIGN REVIEW COMMITTEE	APPROVE JUL 22 2005 CITY ENGINEER			
CITY PROJECT NO. 679482	ZONE MAP NO. N-9	SHEET 10 OF 20		

CERTIFICATE OF SUBSTANTIAL COMPLIANCE ON PLANS
I, James D. Hughes, NMPE 11674, of the firm Mark Goodwin & Associates, P.A., a Registered Professional Engineer in the State of New Mexico, do hereby certify, to the best of my knowledge and belief, that the infrastructure installed as part of this project has been inspected by me or by a qualified person under my direct supervision, and has been constructed in accordance with the plans and specifications approved by the City Engineer and that the original design intent of the approved plans has been met, except as noted by me on the as-built construction drawings. This Certification is based on site inspections by me or personnel under my direction, and survey information provided by ALS, Inc., NMPS number 7719.

James D. Hughes
James D. Hughes NMPE 11674



NO.	DATE	REVISIONS	DESIGN	DATE	DATE	DATE
				2/1/05	2/1/05	2/1/05
DESIGNED BY	JPG					
DRAWN BY	TEP					
CHECKED BY	RJ					



NOTES

1. SEE SHEET _ OF _ FOR BORING SECTION DETAIL.

RESTRAINED JOINT LENGTH FOR BENDS, VALVES, DEAD ENDS (FT.)

PIPE SIZE	90°	45°	22.5°	11.25°	VALVE
10"	-	11'	5'	3'	72'

LENGTH OF RESTRAINED PIPE ON EACH SIDE OF THE BEND. RESTRAIN BRANCH AT FITTING ONLY MINIMUM ATTACHED PIPE LENGTH, RUN SIDE OF TEE: 10.00 FEET.

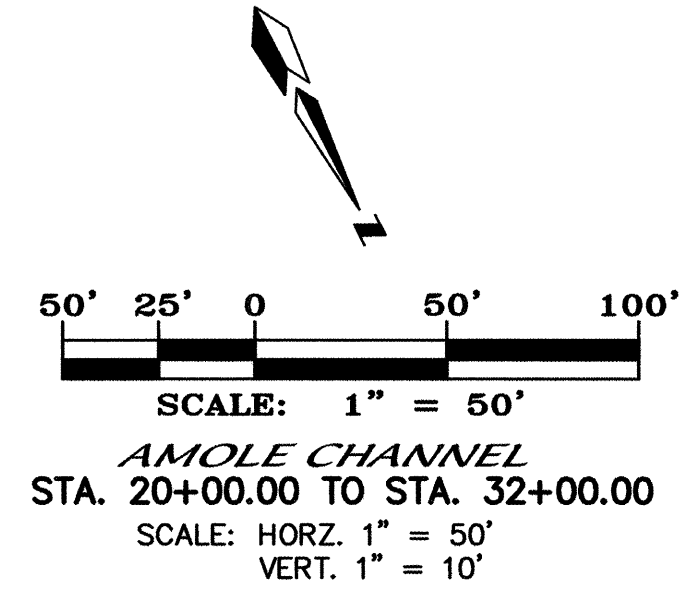
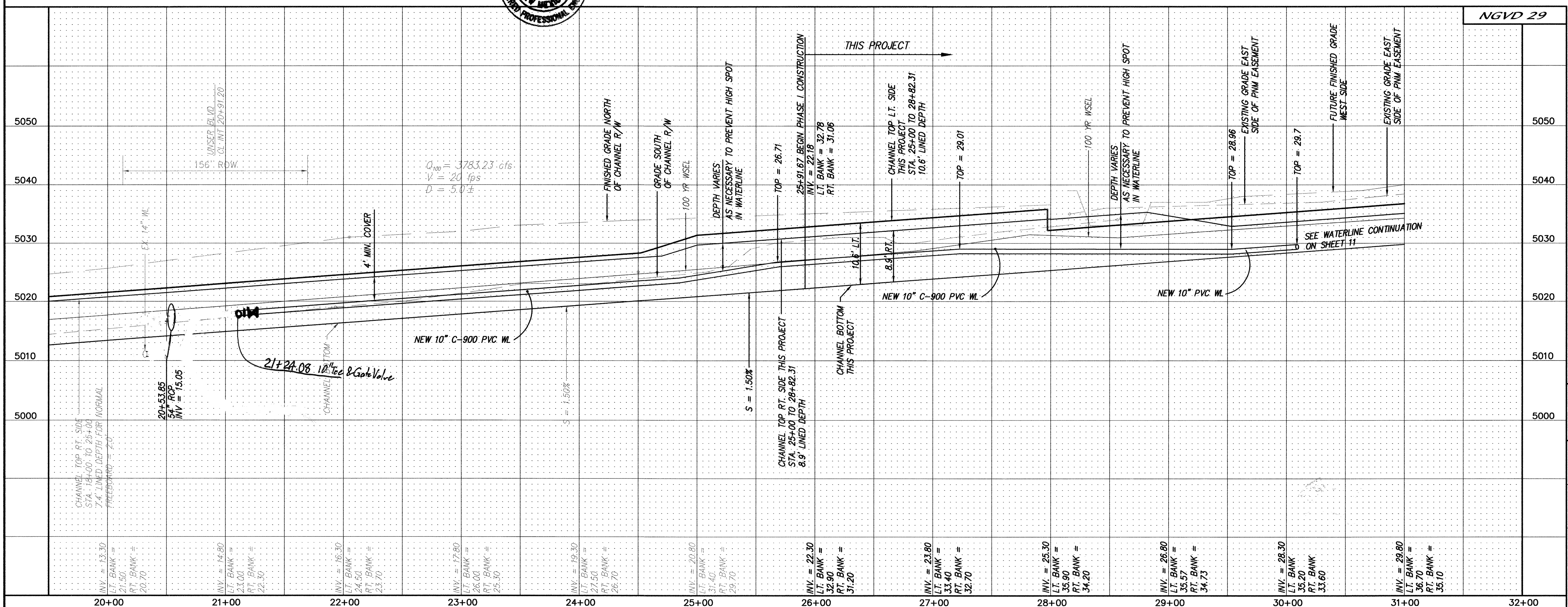
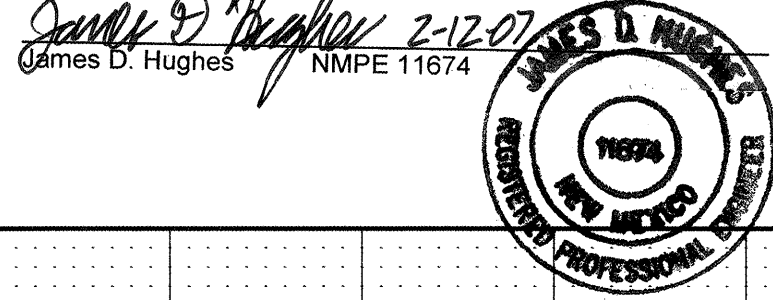
RESTRAINED JOINT LENGTHS FOR REDUCERS (FT.)

PIPE SIZE	LARGE SIDE	SMALL SIDE
10" X 6"	44'	-

RESTRAINED JOINT LENGTH FOR TEES (FT.)

PIPE SIZE	RUN	BRANCH
10"x10"x10"	15'	5'
10"x10"x6"	6'	1'

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ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTROL AUTHORITY

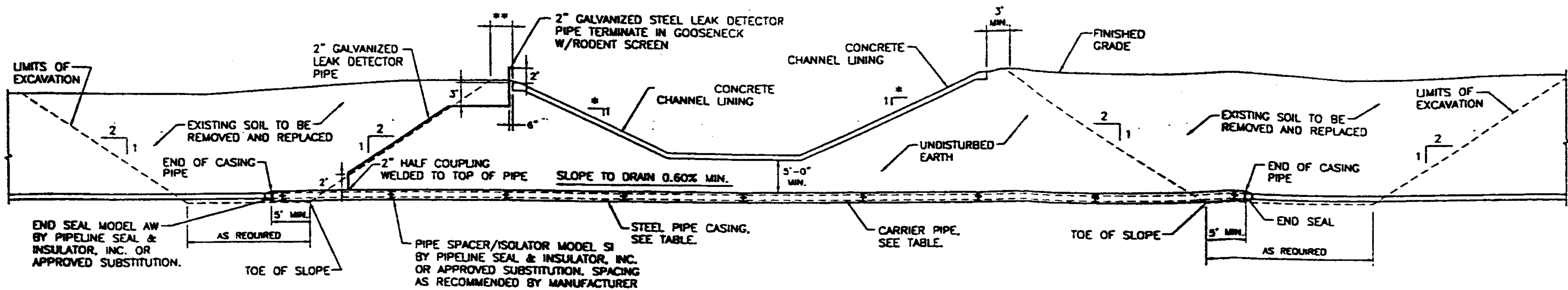
TITLE: AMOLE CHANNEL
(PHASE 1)
WATERLINE IMPROVEMENTS

DESIGN REVIEW COMMITTEE
JUL 1 2 2005

CITY ENGINEER APPROVAL
JUL 2 2 2005
CITY ENGINEER

MO./DAY/YR.
MO./DAY/YR.

CITY PROJECT NO. 679482
ZONE MAP NO. N-9
SHEET 12 OF 20



BORING SECTION AT NEW CHANNEL SECTION
N.T.S.

* SIDE SLOPE VARIES
** SEE NOTE 3.C

TABLE 1
CASING SIZE VERSUS CARRIER SIZE

STEEL CASING DIAMETER AND WALL THICKNESS	CARRIER PIPE (INSIDE PIPE DIAMETER)
14" SCHEDULE 30	6"
16" SCHEDULE 30	8"
18" STANDARD CLASS	10"
22" STANDARD CLASS	12"
24" SCHEDULE 20	14"
26" SCHEDULE 20	16"
30" 0.375" WALL	18"
36" 0.375" WALL	24"

TABLE 2
SIZE AND WALL THICKNESS OF SMOOTH WALL OR SPIRAL WELDED ENCASEMENT PIPE FOR BORING AND JACKING

NOMINAL DIAMETER (IN.)	NOMINAL WALL THICKNESS (IN.)
14 THROUGH 22	0.375
24 THROUGH 36	0.500
38 THROUGH 48	0.562

GENERAL NOTES

1. SPECIFICATION

SECTION 710, BORING DRILLING AND JACKING OF THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS SHALL APPLY.

2. LOCATION AND ALIGNMENT

A. LOCATE UTILITY CROSSINGS AT RIGHT ANGLES TO THE FLOOD CONTROL CHANNEL ALIGNMENT WHERE POSSIBLE.

3. CLEARANCE

- A. A MINIMUM 5 FOOT CLEARANCE IS REQUIRED BETWEEN THE UNDERSIDE OF A LINED CHANNEL OR BOTTOM OF AN UNLINED CHANNEL AND THE TOP OF CASING OR RUNNEL LINING CROSSING.
- B. INVERT GRADES SHALL BE SURVEY CHECKED EVERY 20 FEET OF WELDED STEEL CASING INSTALLED BY THE BORING AND JACKING METHOD.
- C. CLEARANCE FOR PIPELINES CARRYING TRANSMITTANTS WHICH ARE FLAMMABLE, CORROSIVE, EXPANSIVE, ENERGIZED, OR UNSTABLE, PARTICULARLY IF CARRIED AT HIGH PRESSURE POTENTIAL, MUST COMPLY WITH STATE, FEDERAL AND UTILITY CODES, BUT IN NO CASE SHALL THE CLEARANCE BE LESS THAN AS SHOWN IN 3.A ABOVE.

4. BORING PITS AND OTHER OPEN CUT EXCAVATIONS

- A. NO EXCAVATION SHALL BE PERFORMED ON FLOOD CONTROL CHANNEL DIKE EMBANKMENTS.
- B. EXCAVATION SIDE SLOPES ADJACENT TO THE FLOOD CONTROL CHANNEL MUST NOT BE STEEPER THAN 2 HORIZONTAL: 1 VERTICAL.
- C. IF THE FLOOD CONTROL CHANNEL IS IN A CUT SECTION, THE TOP SLOPE LIMIT OF EXCAVATION MUST BE A MINIMUM 12 FEET HORIZONTAL FROM THE TOP EDGE OF THE CHANNEL. IF THE CHANNEL IS IN A FILL SECTION, THE TOP SLOPE LIMIT OF EXCAVATION SHALL BE CLOSER THAN THE OUTSIDE TOE OF THE FILL.
- D. IMPACT DRIVEN PILING IS PROHIBITED FROM BEING INSTALLED ADJACENT TO ANY FLOOD CONTROL CHANNEL. AUGER-CAST DRILLED PILING MAY BE CONSIDERED ON A CASE-BY-CASE BASIS.
- E. SURFACE DRAINAGE SHALL BE DIRECTED AWAY FROM OPEN CUT EXCAVATIONS.
- F. SURROUNDING TERRAIN SHALL BE RESTORED TO ITS ORIGINAL CONDITION UPON COMPLETION OF THE WORK.

G. THOROUGHLY COMPACT BACKFILL AT THE PROPER MOISTURE CONTENT.

- 1) PERFORM COMPACTION BY USE OF MECHANICAL TAMPERS WITH THE ASSISTANCE OF HAND TAMPERS WHEN NECESSARY BEFORE PLACING NEXT LAYER.
- 2) PLACE BACKFILL IN 6 INCH LOOSE LIFTS.
- 3) COMPACT BACKFILL TO THE FOLLOWING DENSITY REQUIREMENTS:
- a) 90% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557 (MODIFIED PROCTOR) OR
- b) 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D-698 (STANDARD PROCTOR)

4. G. (CONT.)

- 4) AFTER COMPACTION, THE MOISTURE CONTENT SHALL BE WITHIN THE LIMITS OF 3 PERCENTAGE POINTS ABOVE OPTIMUM TO 2 PERCENTAGE POINTS BELOW OPTIMUM MOISTURE CONTENT.
- 5) DETERMINE THE IN-PLACE MOISTURE CONTENT AND DENSITY OF THE BACKFILL AT A FREQUENCY OF NOT LESS THAN ONE SAMPLE FOR EACH 500 CUBIC YARDS OF BACKFILL PLACED. TESTING AT MORE FREQUENT INTERVALS MAY BE APPROPRIATE DEPENDENT ON JOB CONDITIONS ENCOUNTERED.
- H. DISPOSE OF ALL SURPLUS EARTH OR EXCAVATED MATERIAL OUTSIDE THE LIMITS OF THE RIGHT-OF-WAY.
- I. ANY ADJACENT ROAD OR STREET DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED TO A CONDITION EQUAL TO OR BETTER THAN ITS CONDITION BEFORE CONSTRUCTION.

5. ENCASEMENTS

- A. ENCASEMENTS SHALL EXTEND 5' BEYOND THE PROJECTED TOE OF ANY EXCAVATED SLOPE.
- B. ONLY CERTIFIED WELDERS ARE TO BE USED FOR JOINING OF THE WELDED CASING SECTIONS.
- C. VENTS FOR ENCASED PIPELINES CARRYING GAS OR LIQUID FUEL SHOULD BE EXTENDED TO THE RIGHT-OF-WAY LINE, OR AS OTHERWISE APPROVED BY THE ENGINEER. A VENT SHALL BE PLACED AT THE HIGH END OF SHORT ENCASEMENTS AND AT BOTH ENDS FOR ENCASEMENTS GREATER THAN 150 FEET IN LENGTH.
- D. CASING PIPE SHALL BE SO CONSTRUCTED AS TO PREVENT LEAKAGE OF ANY SUBSTANCE FROM THE CASING THROUGHOUT ITS LENGTH. PROVIDE LEAK DETECTOR SYSTEM AT THE LOW END OF THE PIPE CASING.
- E. ENCASEMENTS SHALL BE SO INSTALLED AS TO SLOPE TO ONE END.
- F. THE ANNULAR SPACE BETWEEN THE ENCASEMENT AND THE CARRIER SHALL BE SEALED AT EACH END.

6. APPURTENANCES

DRAINS, MARKERS, SHUT-OFFS, AND MANHOLES ARE APPURTENANCES TO UTILITY INSTALLATIONS. CONTROLS FOR SUCH APPURTENANCES INCLUDE:

- A. DRAINS ARE APPURTENANCES BY WHICH LIQUIDS OR HEAVY GASES MAY BE EVACUATED OR EXHAUSTED. DRAIN OUTFALL LOCATIONS ARE TO BE APPROVED BY THE ENGINEER.
- B. PLACE READILY IDENTIFIABLE AND SUITABLE MARKERS AT THE RIGHT-OF-WAY LINE WHERE IT IS CROSSED BY PIPELINES CARRYING TRANSMITTANTS WHICH ARE FLAMMABLE, CORROSIVE, EXPANSIVE, ENERGIZED, OR UNSTABLE, PARTICULARLY IF CARRIED AT HIGH PRESSURE OR POTENTIAL, EXCEPT WHERE A VENT WILL SERVE AS A MARKER. MARKERS ARE ALSO DESIRABLE FOR OTHER PIPELINES.

6. (CONT.)

- C. ACCESSIBLE EMERGENCY SHUT-OFF VALVES SHALL BE INSTALLED WITHIN EFFECTIVE DISTANCES EACH SIDE OF THE FLOOD CONTROL CHANNEL AS MUTUALLY AGREED TO BY THE ENGINEER AND THE UTILITY. WHERE PIPELINES ARE PROVIDED WITH AUTOMATIC CONTROL STATIONS AT LOCATIONS AND WITHIN DISTANCES APPROVED BY THE ENGINEER, NO ADDITIONAL VALVES SHALL BE REQUIRED. ALL VALVES LOCATED WITHIN CHANNEL RIGHTS-OF-WAY SHALL BE IN A PRECAST CONCRETE MANHOLE SECTION WITH A MANHOLE TYPE COVER.
- D. PROVIDE MANHOLES AT OPPOSITE ENDS OF ENCASEMENT AS DIRECTED BY THE PROJECT ENGINEER.
- 1) TO PERMIT VISUAL INSPECTION FOR LEAKAGE;
- 2) TO PERMIT PUMP OUT, OR BYPASS PUMPING IF REQUIRED FOR A SEWER LINE;
- 3) TO PERMIT PULLING OF TELEPHONE OR ELECTRICAL CONDUIT FOR REPAIR OR REPLACEMENT;
- 4) TO PERMIT REMOVAL AND REPLACEMENT OF PIPE SECTIONS.
- E. MANHOLES SHOULD BE DESIGNED AND LOCATED IN SUCH A MANNER THAT WILL CAUSE THE LEAST INTERFERENCE WITH CHANNEL MAINTENANCE OR OPERATION AND OTHER UTILITIES.
- F. PEDESTALS OR OTHER ABOVE GROUND UTILITY APPURTENANCES INSTALLED AS PART OF AN UNDERGROUND CABLE SYSTEM SHALL BE LOCATED AT OR NEAR THE RIGHT-OF-WAY LINE.

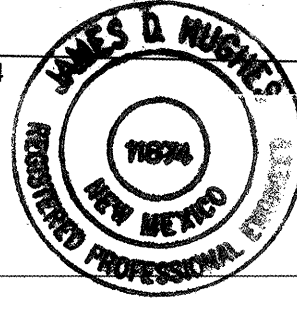
7. INSTALLATION STANDARDS

- A. IN ADDITION TO THE REQUIREMENTS OF SECTION 710 OF THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS, FOR CONCRETE LINED CHANNELS, DEPENDING ON THE STABILITY OF THE SOIL ZONE BETWEEN THE SOIL ZONE BETWEEN THE CASING AND THE BOTTOM OF THE CHANNEL LINING, CORE DRILLING ALONG THE BOTTOM OF THE CHANNEL AND ADJACENT TO UNDERDRAINS MAY BE REQUIRED. THESE CORED HOLES SHOULD BE POSITIONED TO PROVIDE PRESSURE RELIEF FOR PREVENTION OF HYDRAULIC JACKING AND BUCKLING OF THE CONCRETE CHANNEL LINER.

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James D. Hughes NMPE 11674



dmg MARK GOODWIN & ASSOCIATES, P.A.
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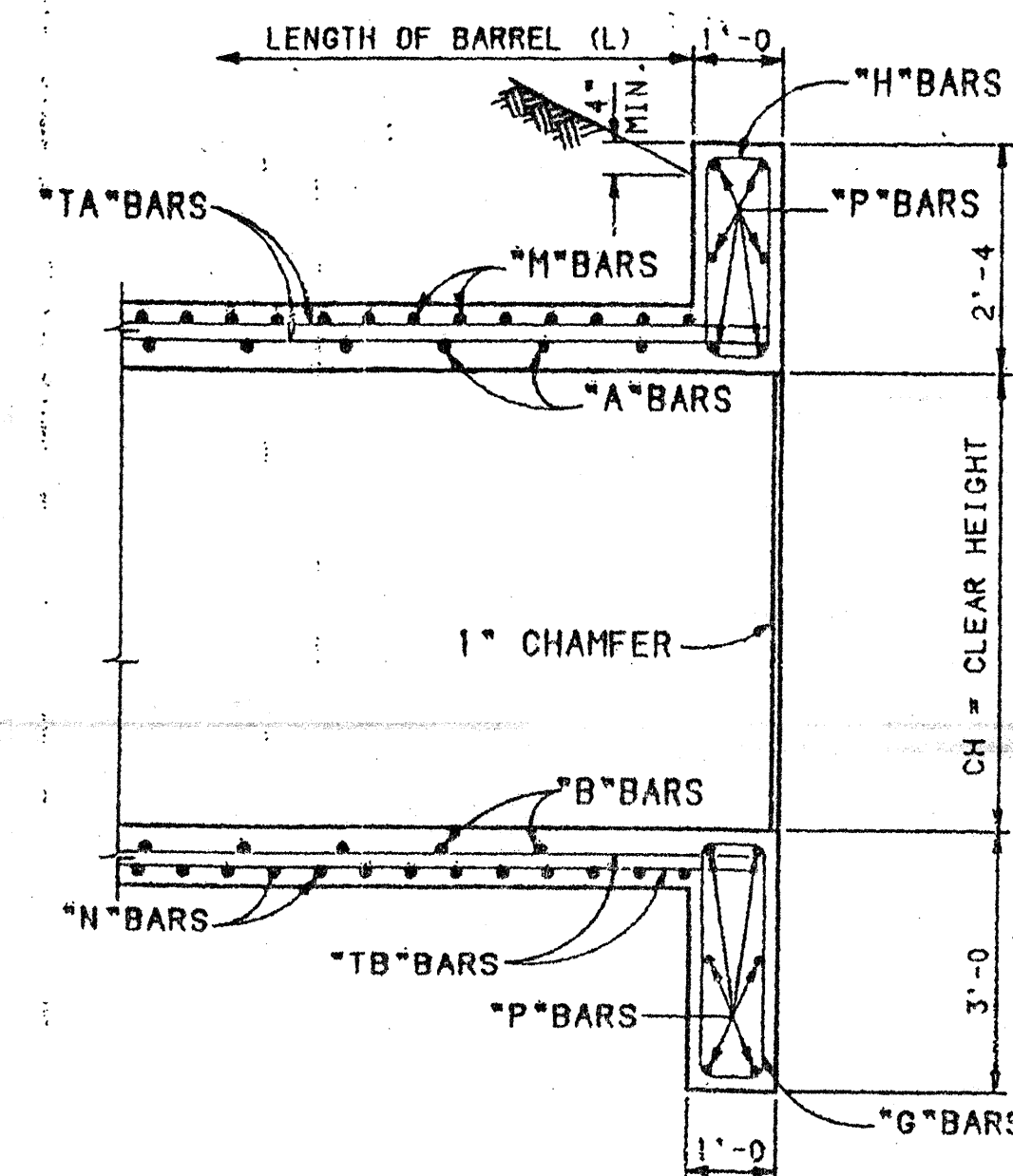
**ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTROL AUTHORITY**

AMOLE CHANNEL

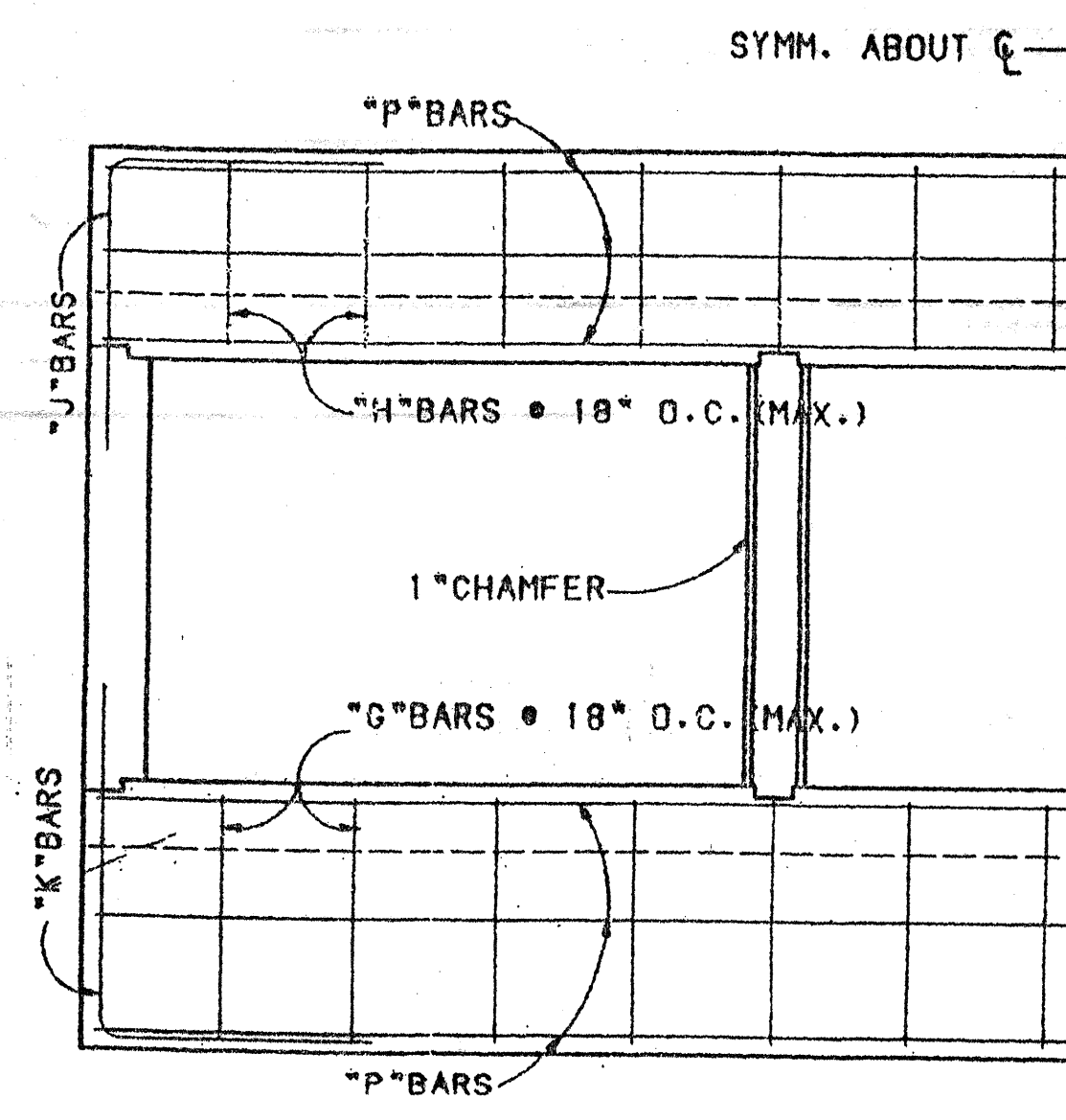
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WATER LINE DETAILS

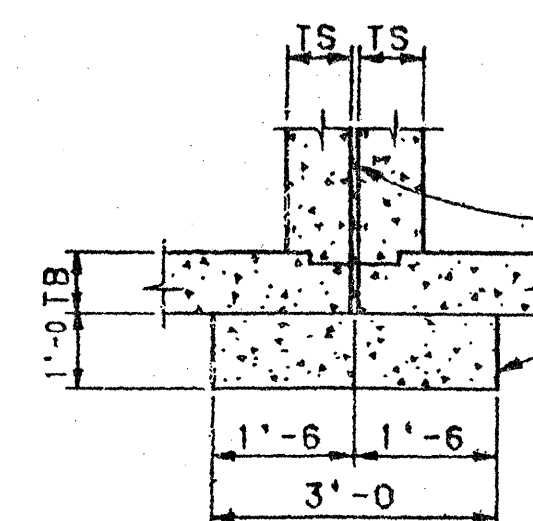
DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	MO./DAY/YR.	MO./DAY/YR.
APPROVED JUN 29 2005 DESIGN REVIEW COMMITTEE	APPROVED JUL 22 2005 CITY ENGINEER		
CITY PROJECT NO. 679482		SHEET 13 OF 20	



PART SECTION B-B



PART END ELEVATION



JOINT DETAIL FOR MULTIPLE UNIT BOXES

- THE FOUNDATION BLOCK SHALL BE PLACED IN NEAR EXCAVATION AND EXTENDED FOR THE ENTIRE LENGTH OF BARREL UNDER JOINT BETWEEN UNITS. PLACE ONE LAYER OF TAR PAPER OVER THE ENTIRE TOP SURFACE OF THE FOUNDATION BLOCK. CONCRETE QUANTITY = 0.111 CU. YDS. PER LIN. FT. OF BLOCK.

- # DESIGN DATA
- DESIGN ACCORDING TO A.A.S.H.O. SPECIFICATIONS, 1957.
LIVE LOAD: H20-S16-44 & INTERSTATE ALTERNATE LOADING
WEIGHT OF FILL ON TOP OF BOX: 84#/CU.FT.
HORIZONTAL EARTH PRESSURE: 30#/CU.FT.², 2' SURCHARGE
DESIGN STRESSES: $f_o = 3000 \text{ psi}$, $f_c = 1200 \text{ psi}$.
 $f_s = 20,000 \text{ psi}$, $n = 10$.

DESIGN DATA

DESIGN ACCORDING TO A.A.S.H.O. SPECIFICATIONS, 1957.
LIVE LOAD: H20-S16-44 & INTERSTATE ALTERNATE LOADING
WEIGHTS OF FILL ON TOP OF BOX: 84#/CU.FT.
HORIZONTAL EARTH PRESSURE: 30#/CU.FT.², 2' SURCHARGE
DESIGN STRESSES: $f_o = 3000 \text{ psi}$, $f_c = 1200 \text{ psi}$.
 $f_s = 20,000 \text{ psi}$, $n = 10$.

6			
5			
4			
3			
2			
1	REVISED NOTE #2	6-8-94	PI
NO.	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES) NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT CONCRETE BOX CULVERT BARRELS TRIPLE OPENING - NORMAL ALL DESIGNS GENERAL DATA			
LAYOUT BY	APPROVAL	<i>Walter A. [Signature]</i>	<i>Walter A. [Signature]</i>
DRAWN BY	RECOMMENDED	NOTED DIVISION	DATE
ENGINEER BY	APPROVED	<i>Joseph L. Fisher</i>	<i>2-27-94</i>

SERIAL CB-33

SHEET 1 OF 6

TITLE: *AMOLE CHANNEL (PHASE I)
NEW MEXICO STATE HIGHWAY &
TRANSPORTATION DEPT. DETAILS*

DESIGN REVIEW COMMITTEE

APPROVED

JUN 23-2003

DESIGN REVIEW COMMITTEE



CITY ENGINEER APPROVAL
APPROVED
JUL 22 2005
CITY ENGINEER

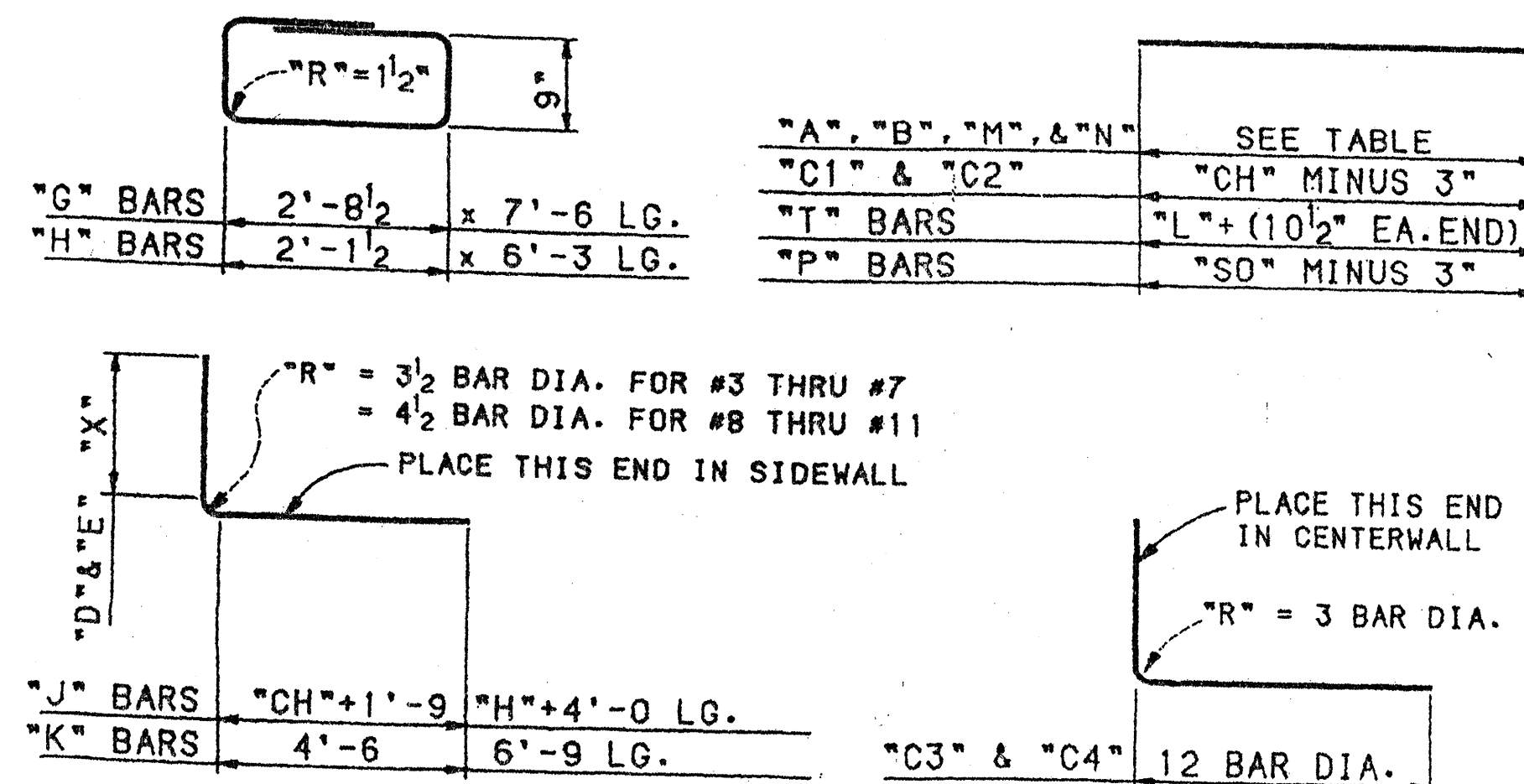
CITY PROJECT NO. 679482

ZONE MAP NO. **118**

SHEET 14 OF 30

[illegible]

* NOTE: QUANTITIES "AT ONE END" INCLUDE PARAPET, CUT-OFF WALL, AND BARREL BEYOND LENGTH "L". WINGWALL QUANTITIES ARE NOT INCLUDED.



NOTE: "J" BARS ARE THE SAME SIZE AS "D" BARS.
"K" BARS ARE THE SAME SIZE AS "E" BARS.

REINFORCING STEEL DIAGRAM

BRIDGE#1/STANDARDS/BRIDGE/STANDARDS\$16A

NUMBER OF BARS REQUIRED

"A1", "A3", "B1", "B3", "M1", & "N1" BARS: 12L ÷ SPACING
 "A2", "B2", "C2", "D", "E", "M2", & "N2" BARS: 24L ÷ SPACING
 "P" BARS: 12 FOR CUT-OFF & PARAPET AT EACH END
 "C1" BARS: (24L ÷ SPACING) PLUS
 2 AT EACH END
 "C3" & "C4" BARS: (48L ÷ SPACING) PLUS
 4 AT EACH END
 "J" & "K" BARS: 4 OF EACH AT EACH END
 (FOR PARAPET AND CUT-OFF WALL)
 OTHER BARS: SEE TABLE
 "L" = LENGTH OF BARREL IN FEET
 "CH" = CLEAR HEIGHT

NOTE: REFER TO SERIAL CB-33 SHEET 1 OF 5
FOR CONCRETE BOX CULVERT DETAILS,
DESIGN DATA, AND GENERAL NOTES.

"P" BARS						
CLEAR SPAN	4'	6'	8'	10'	12'	14'
SIZE	#5	#5	#6	#7	#8	#9

6			
5			
4			
3			
2			
1			
NO.	DESCRIPTION	DATE	BY

NEW MEXICO STATE
HIGHWAY AND TRANSPORTATION
DEPARTMENT

CONCRETE BOX CULVERT BARRELS
TRIPLE OPENING - NORMAL
DESIGN No. 1
0' TO 5' COVER

LAYOUT BY	APPROVAL	<i>[Signature]</i>	<i>1/18/84</i>	CIATES, P.A. NEERS
WRAN BY	RECOMMENDED	REGINA BROOKS	DATE	
CHECKED BY	APPROVED	<i>[Signature]</i>	<i>1-22-84</i>	
		ORDERS BUREAU UNIT	DATE	
SERIAL CB-33		SHEET 2 OF 5		ICO 87199 605) 797-9533

 CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: *AMOLE CHANNEL (PHASE I)
NEW MEXICO STATE HIGHWAY &
TRANSPORTATION DEPT. DETAILS*

DESIGN REVIEW COMMITTEE APPROVE JUN 29 2003 DESIGN REVIEW COMMITTEE

CITY ENGINEER APPROVE APPROVE JUL 22 2005 CITY ENGINEER

CITY PROJECT NO.	679482	ZONE MAP NO.	N-9	SHEET	15	OF	20
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CLEAR SPAN	CLEAR HEIGHT	REINFORCING BARS ~ ONE SKEW END												DESIGN No 1 ~ 0' TO 5' COVER												DESIGN No 2 ~ 5' TO 10' COVER																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
		"aa" & "bb"						"mm" & "nn"						"p"		"q","h"		TRIPLE		FOR MULTIPLE UNIT BOXES						TRIPLE		FOR MULTIPLE UNIT BOXES																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		"aa"		"bb"		SPACING	"mm"		"nn"		SPACING	SIZE	NO. OF EA.	OPENING BOXES		UNIT A3		UNIT 13		UNIT B3		OPENING BOXES		UNIT A3		UNIT 13		UNIT B3																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		A	Q	SIZE	SIZE		x	B	C	x				B	C	P	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁	REINF. STEEL (lbs)	CONC. (cu yds)	P ₀	REINF. STEEL (lbs)	CONC. (cu yds)	P ₁

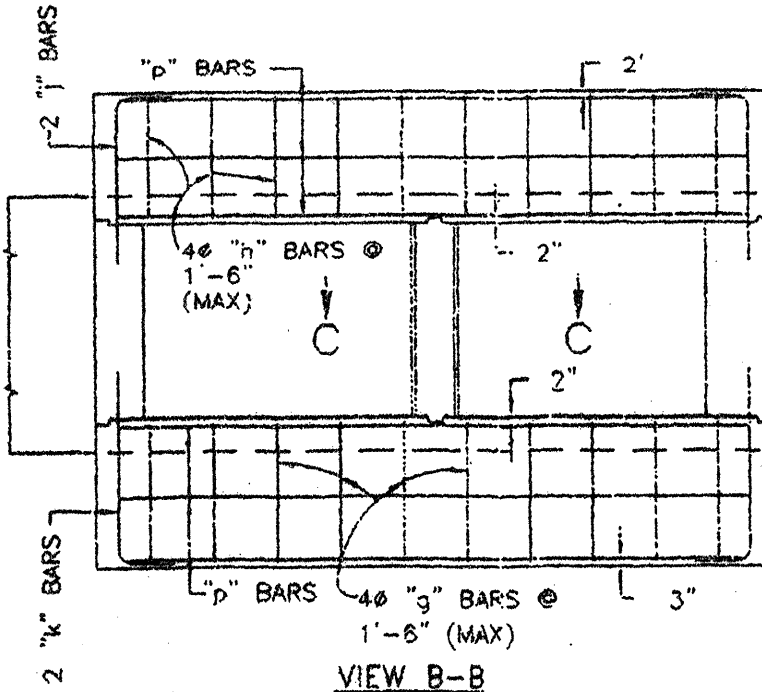
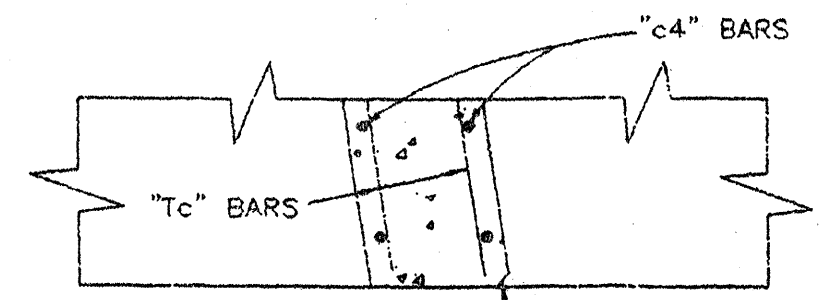
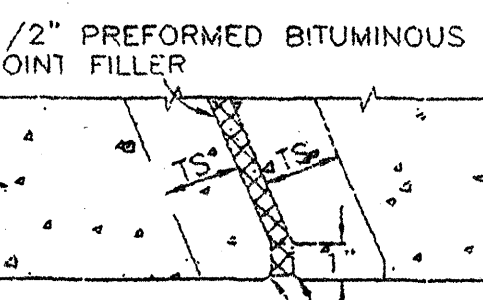
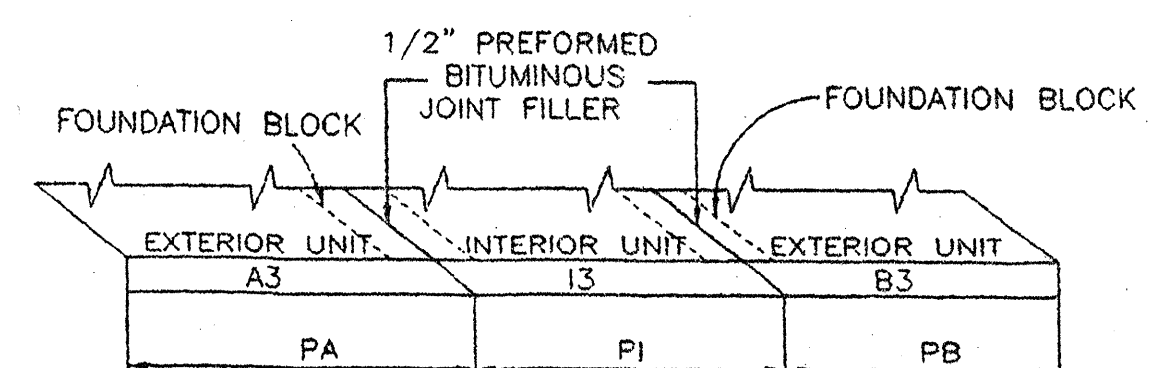
NUMBER OF BARS REQUIRED FOR ENTIRE CULVERT

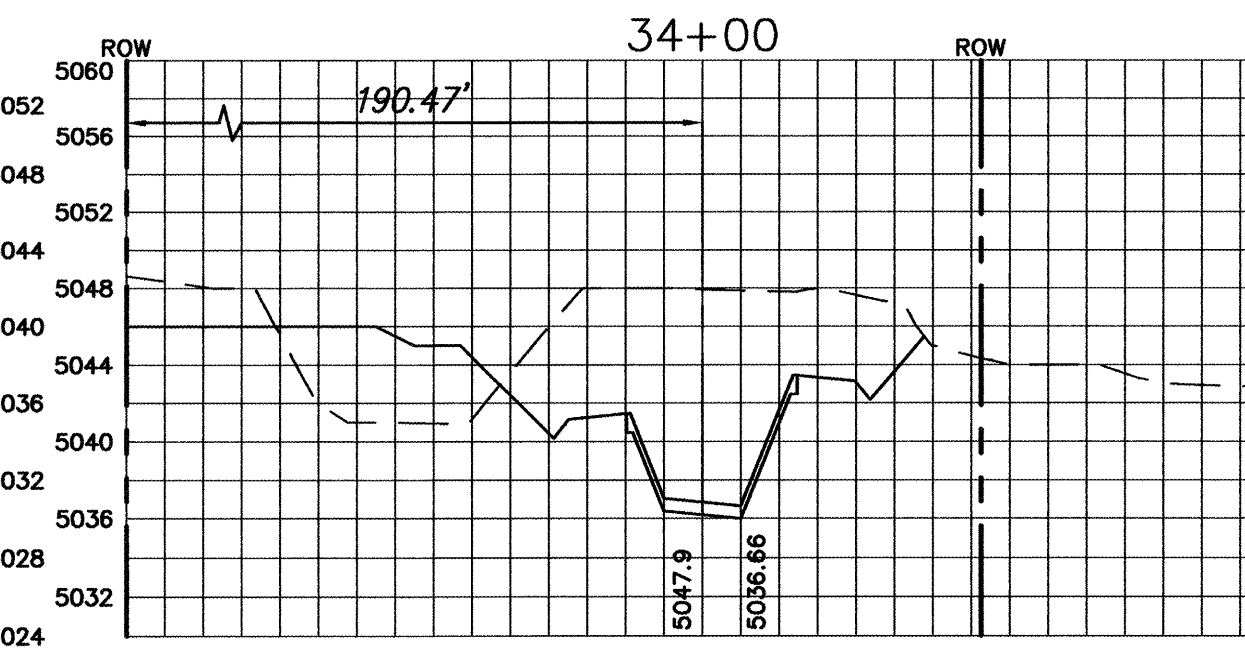
a1, a3, b1, b3, m1, & n1:
12 (L-R) + SPACING
a2, b2, m2, & n2: 24
(L-R) + SPACING
aa, bb, mm, nn: one of
ea @ ea skew end
MARK aol to aax & bbl to
bbx, etc
c1 BARS: 1(24L +
SPACING)
PLUS 2 @ EACH SKEW END

REBAR DETAILS
aol, bbl
mm1, nn1
TO
"C" INCHES TO
B-(x-1)C
p1 & p2
MINUS 3"
FOR TRIPLE
p1
MINUS 3"
FOR UNIT A3
p1 & p2
MINUS 3"
FOR UNIT 13
p1
MINUS 3"
FOR UNIT B3
p2
PLUS 1"
FOR SIZE & SPACING
SEE SERIAL CB-33

GENERAL NOTES

1. FOR DETAILS OF BARS NOT SHOWN ON THIS SHEET SEE SERIAL CB-33. CUT REINFORCING BARS TO THE NEAREST 1" IN LENGTH. USE THE SHORTER LENGTH WHEN THE DETAILED LENGTH FALLS ON 1/2".
2. CALCULATE QUANTITIES FROM NOTES 4 & 5 ON SERIAL CB-33 TAKING QUANTITIES PER LIN. FOOT FROM CB-33 AND QUANTITIES FOR THE SKEW ENDS FROM THIS SHEET.
3. PLAN VIEWS ON THIS SHEET SHOW THE ENDS FOR LEFT FORWARD SKEW FOR THE PROPER DIRECTION OF SKEW. SEE ROAD PLANS.
4. ONE SKEW END INCLUDES PARAPET, CUT-OFF AND BARREL BEYOND LENGTH L. ALL QUANTITIES LISTED IN TABLE ARE FOR ONE SKEW END. REINFORCING STEEL QUANTITIES ALSO CONTAIN MODIFICATION ACCOUNTING FOR aa, bb, mm, & nn BARS NEAR END OF BARREL.
5. p BARS WHICH ARE DETAILED OVER 40' LONG MAY BE SPLICED AT OR NEAR THE CENTER OF THE OVERALL LENGTH BY LAPPING AT LEAST 20 BAR DIA. PAY WEIGHT FOR REINFORCING STEEL DOES NOT INCLUDE THESE SPLICES. COST OF SPLICE MATERIAL TO BE INCLUDED IN UNIT PRICE BID FOR REINFORCING STEEL.





LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

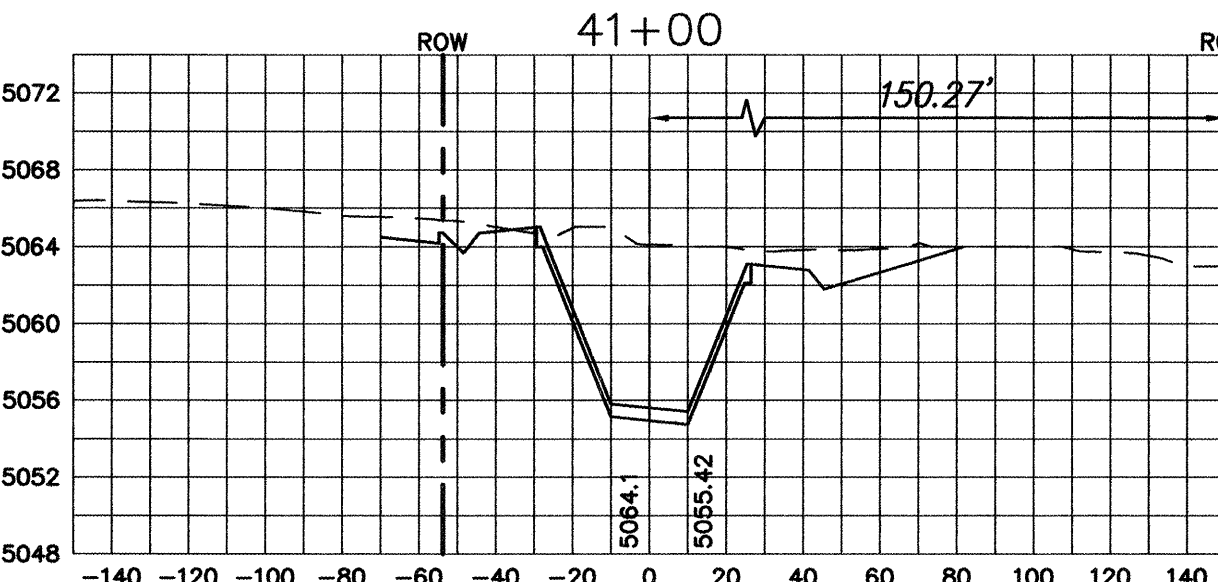
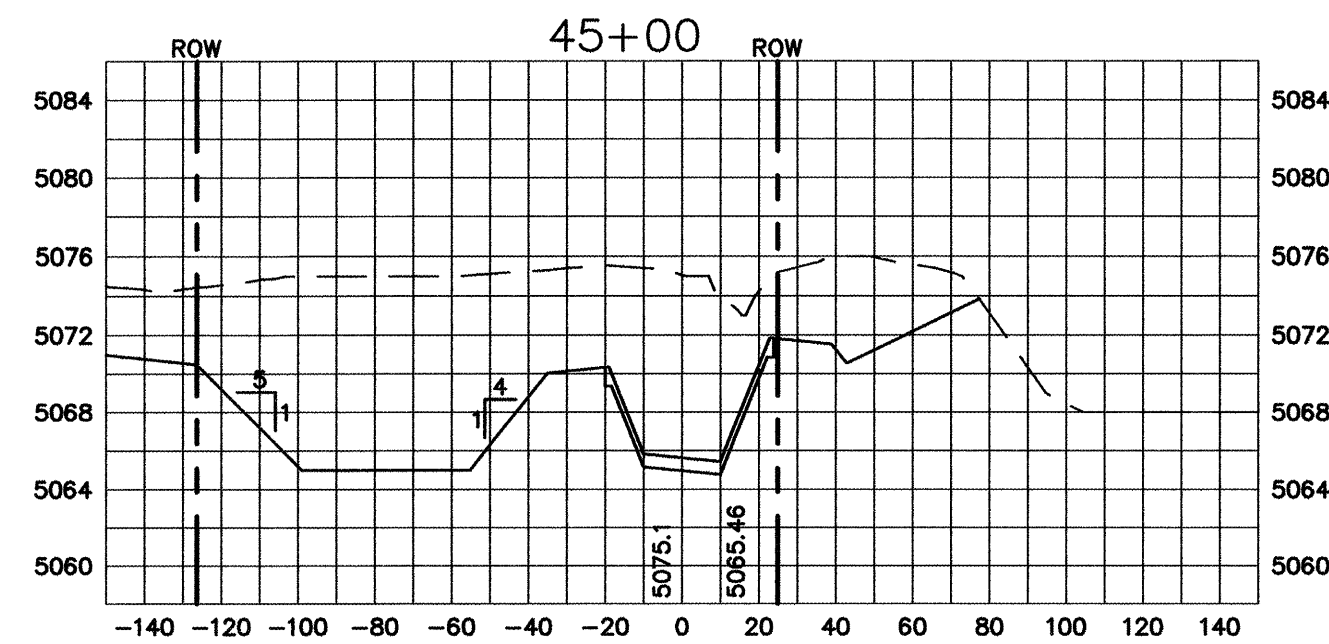
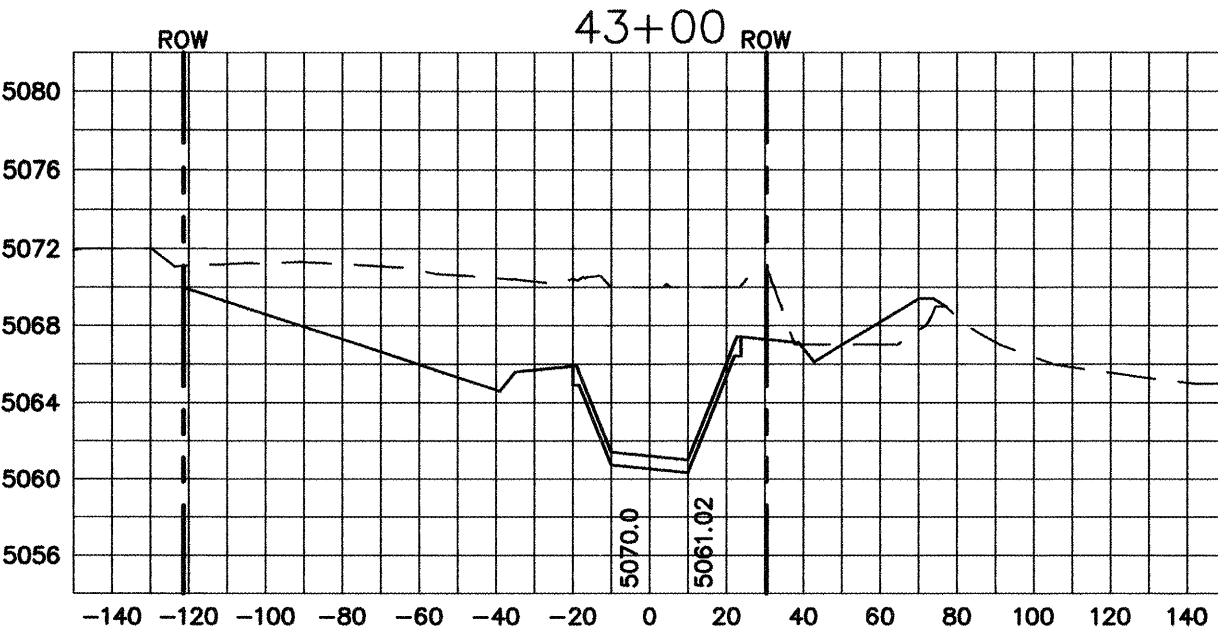
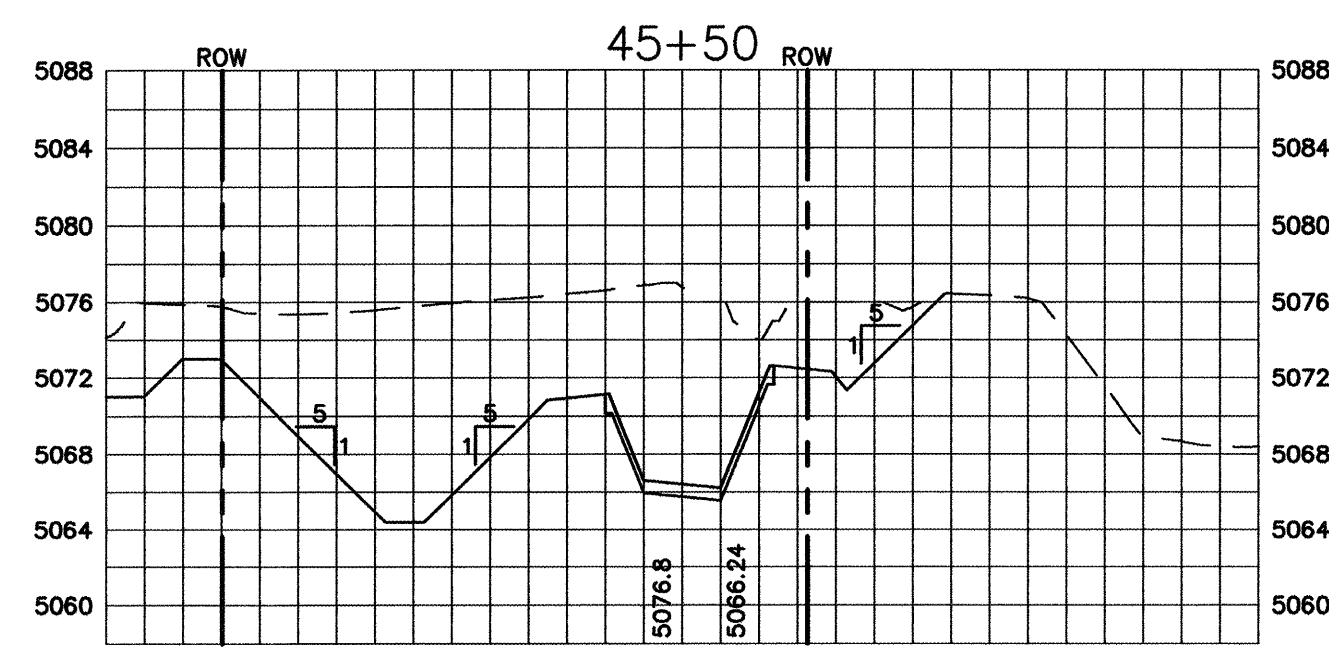
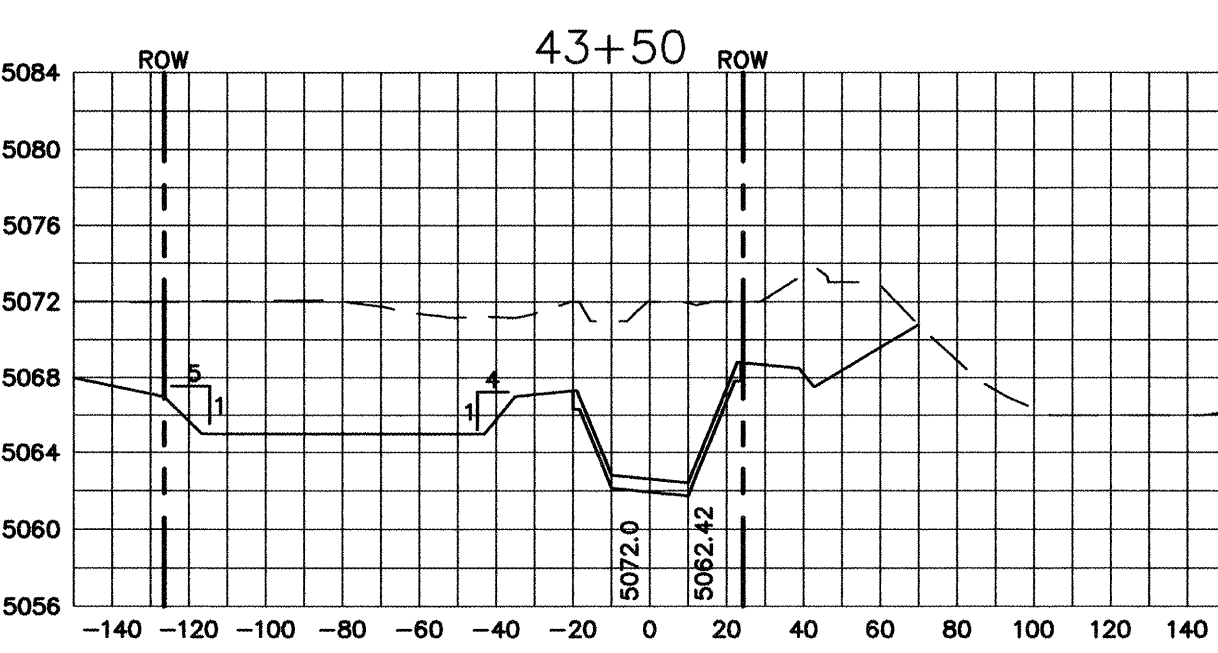
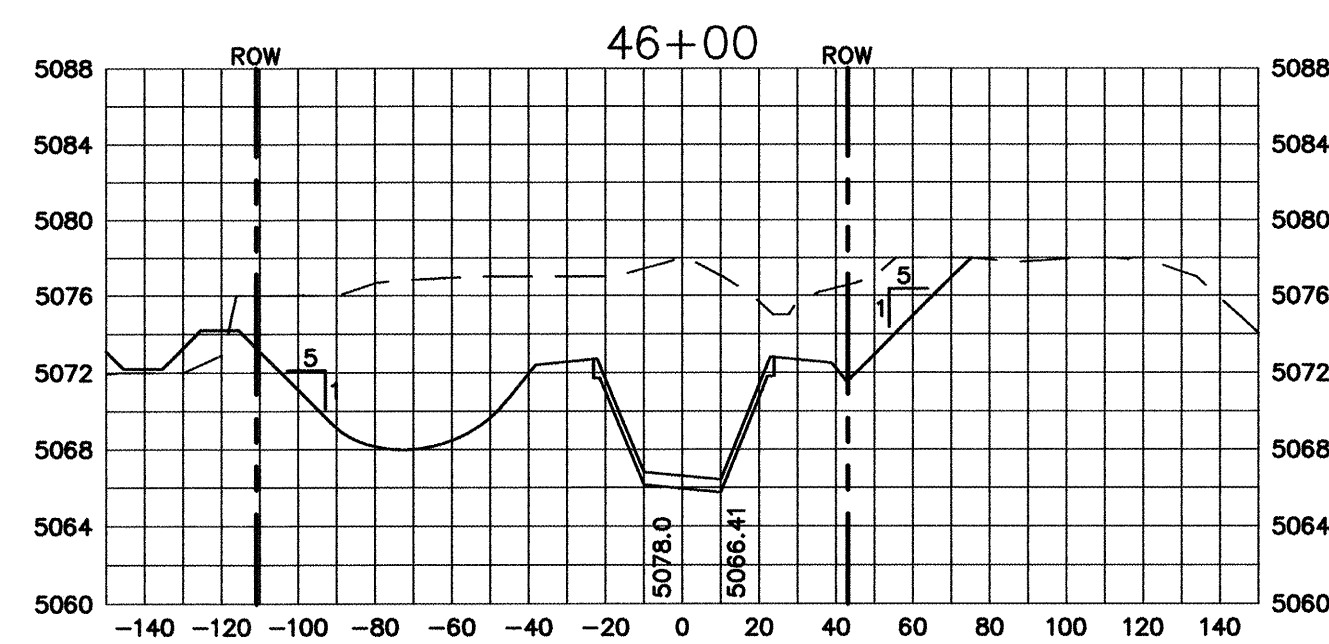
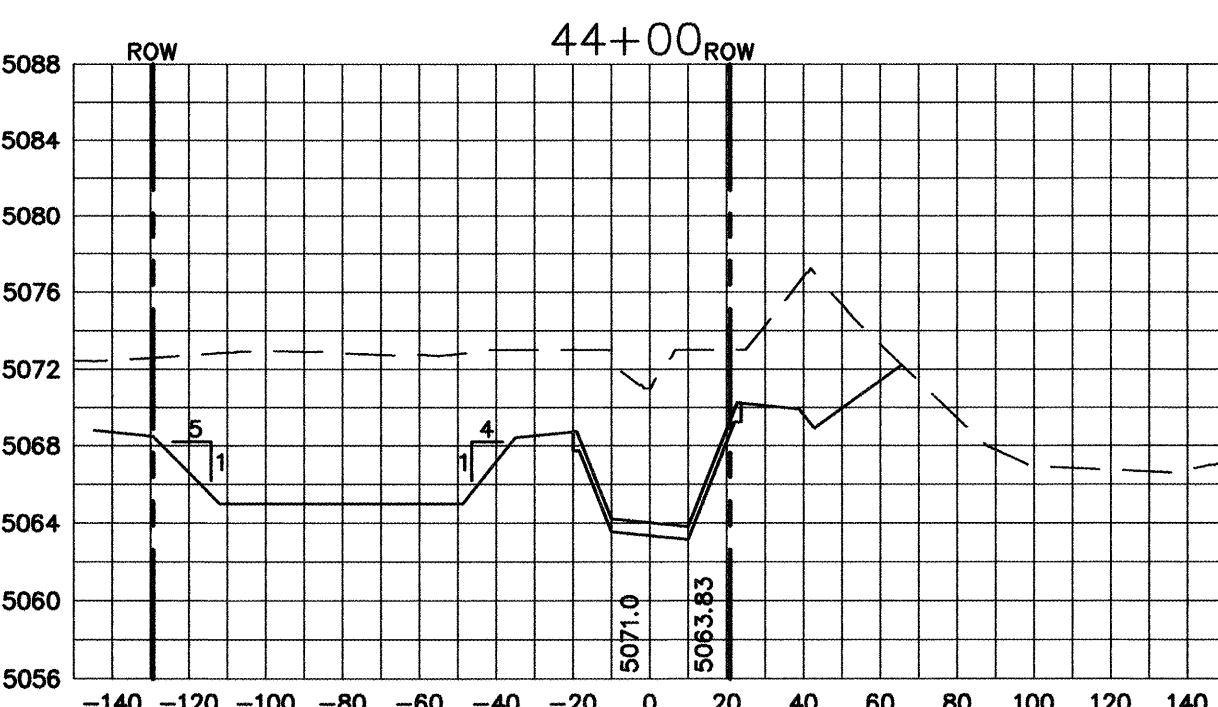
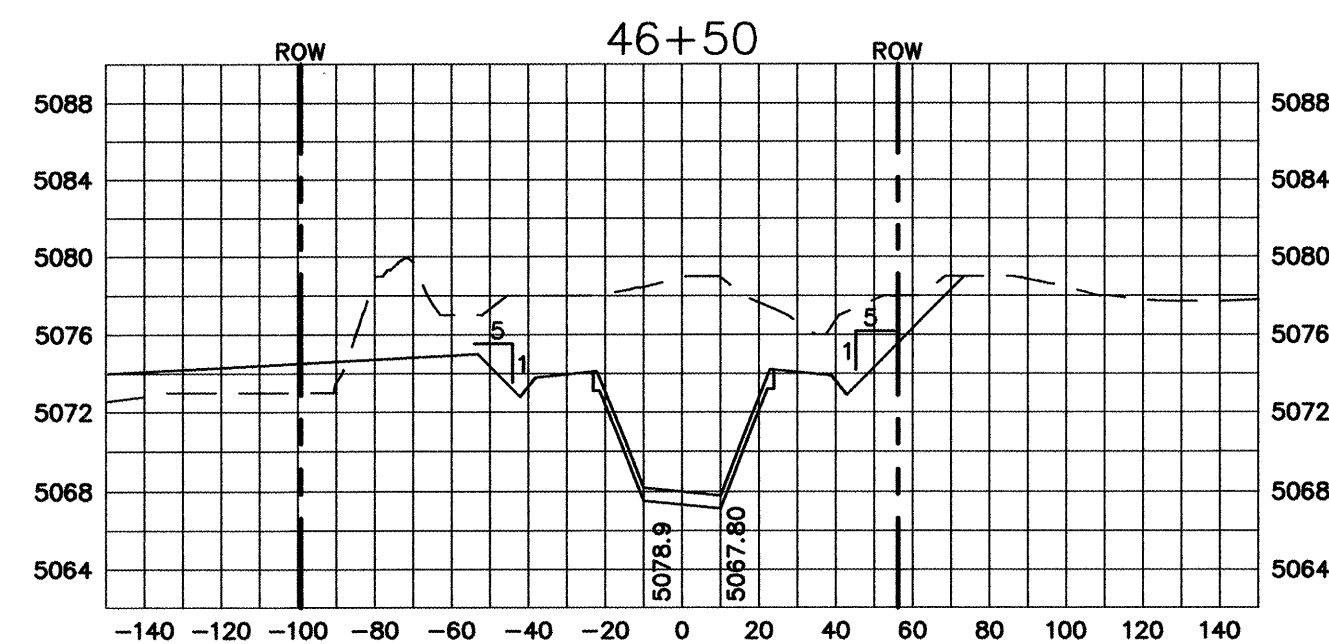
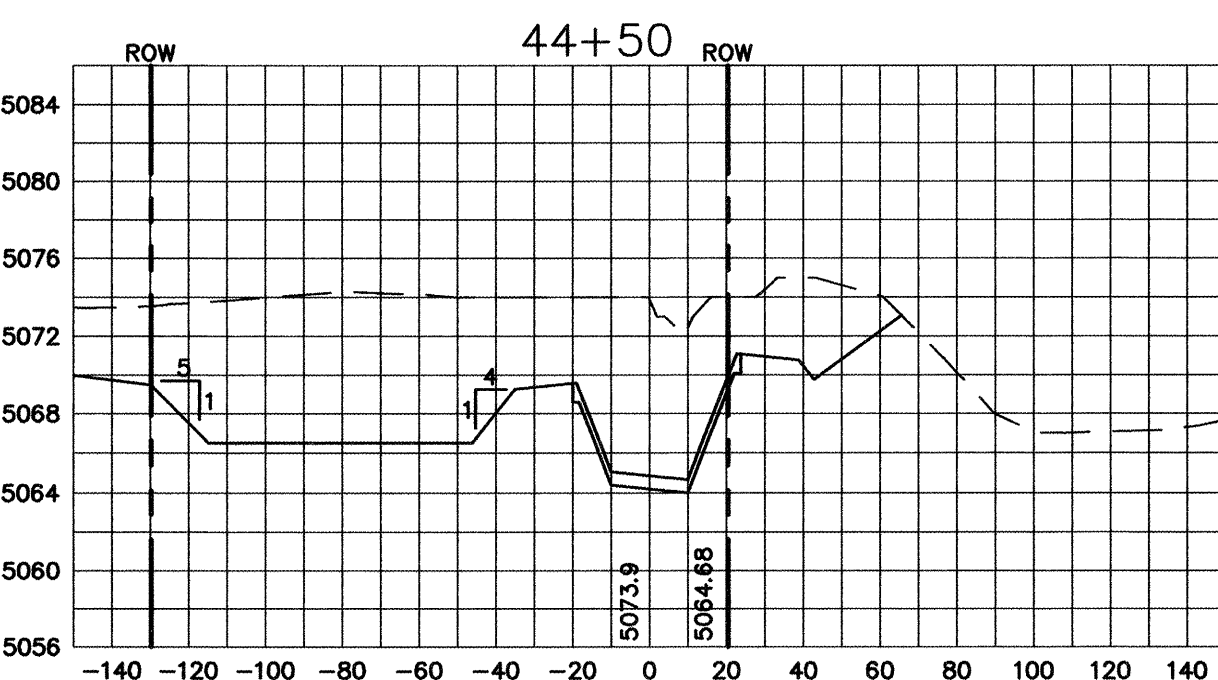
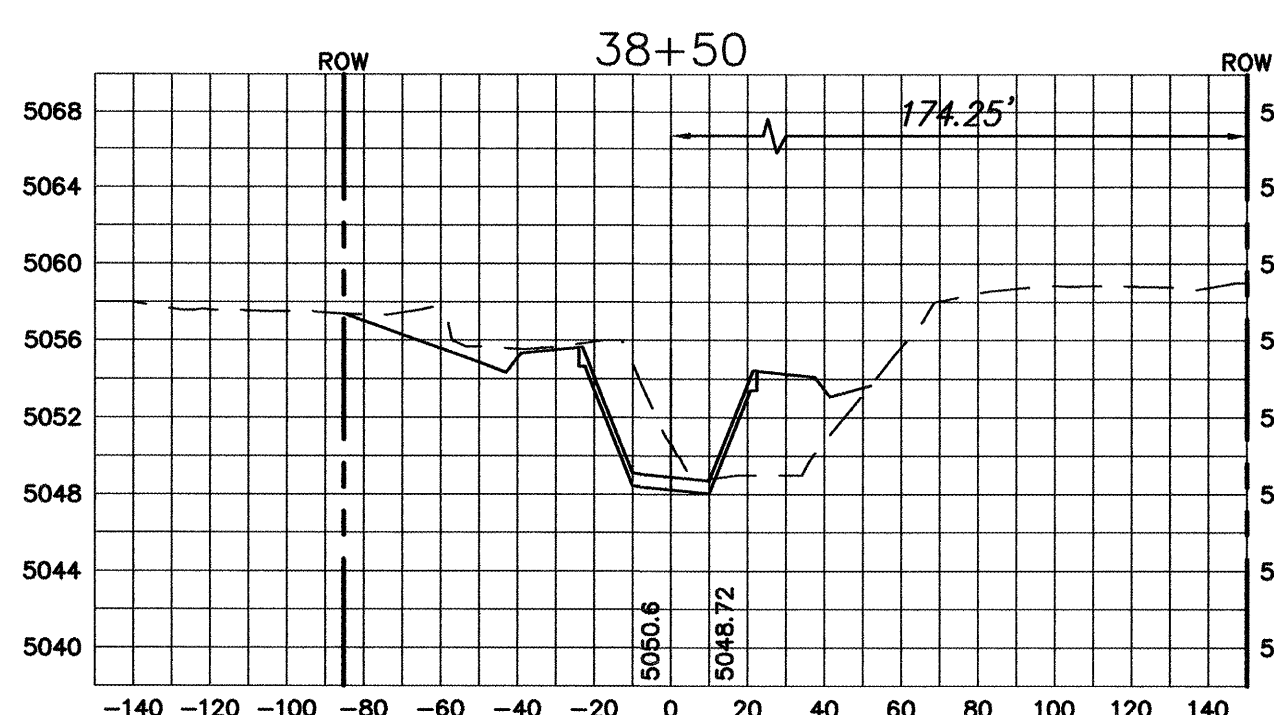
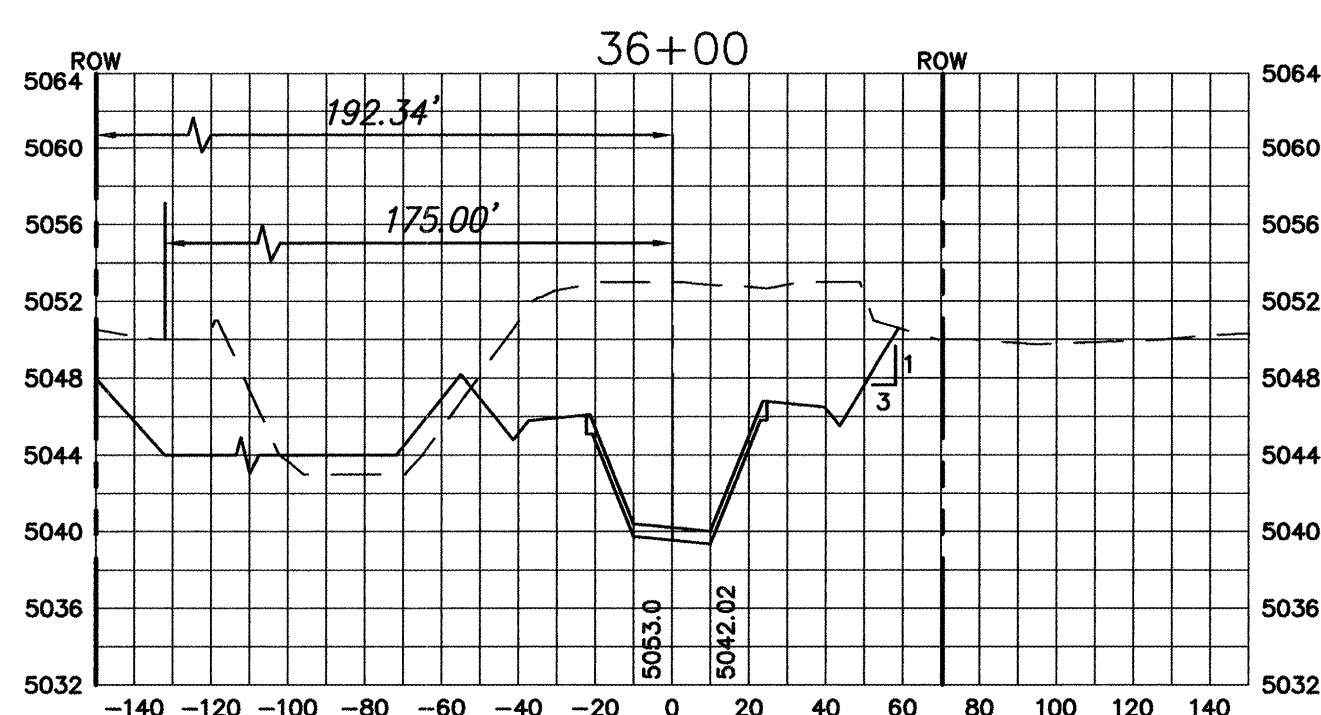
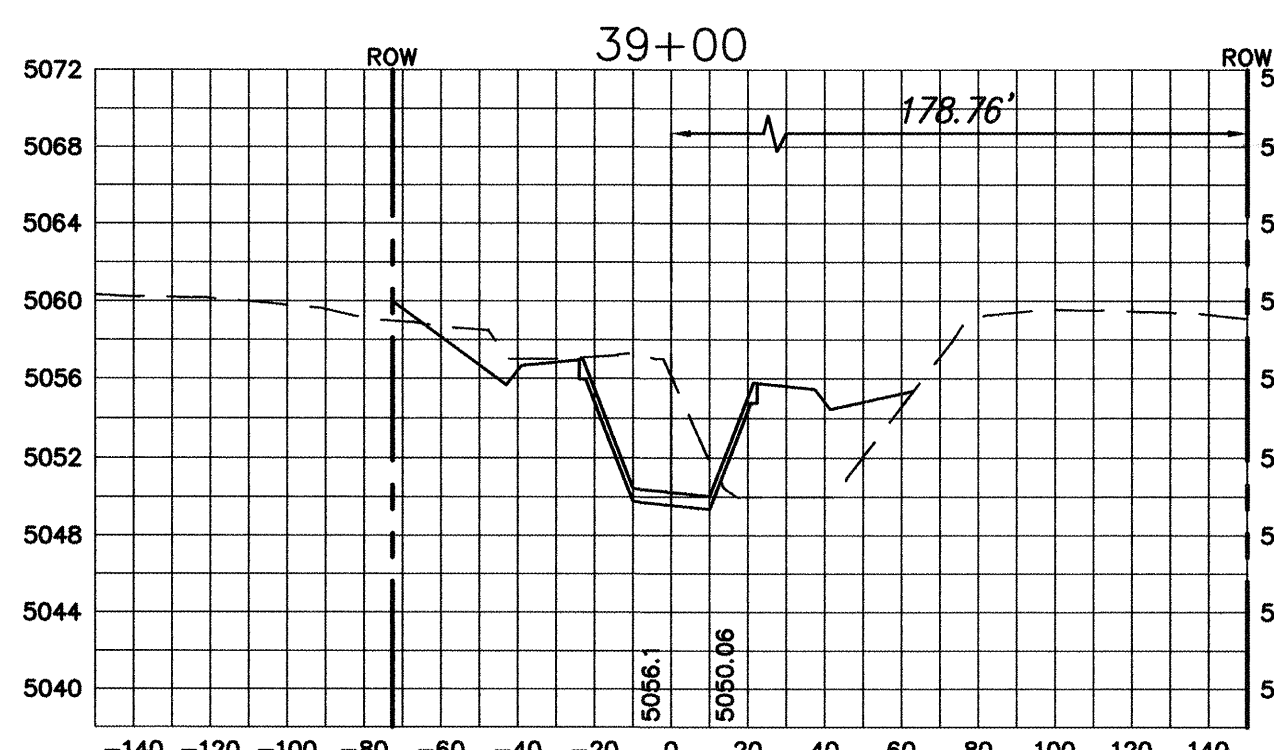
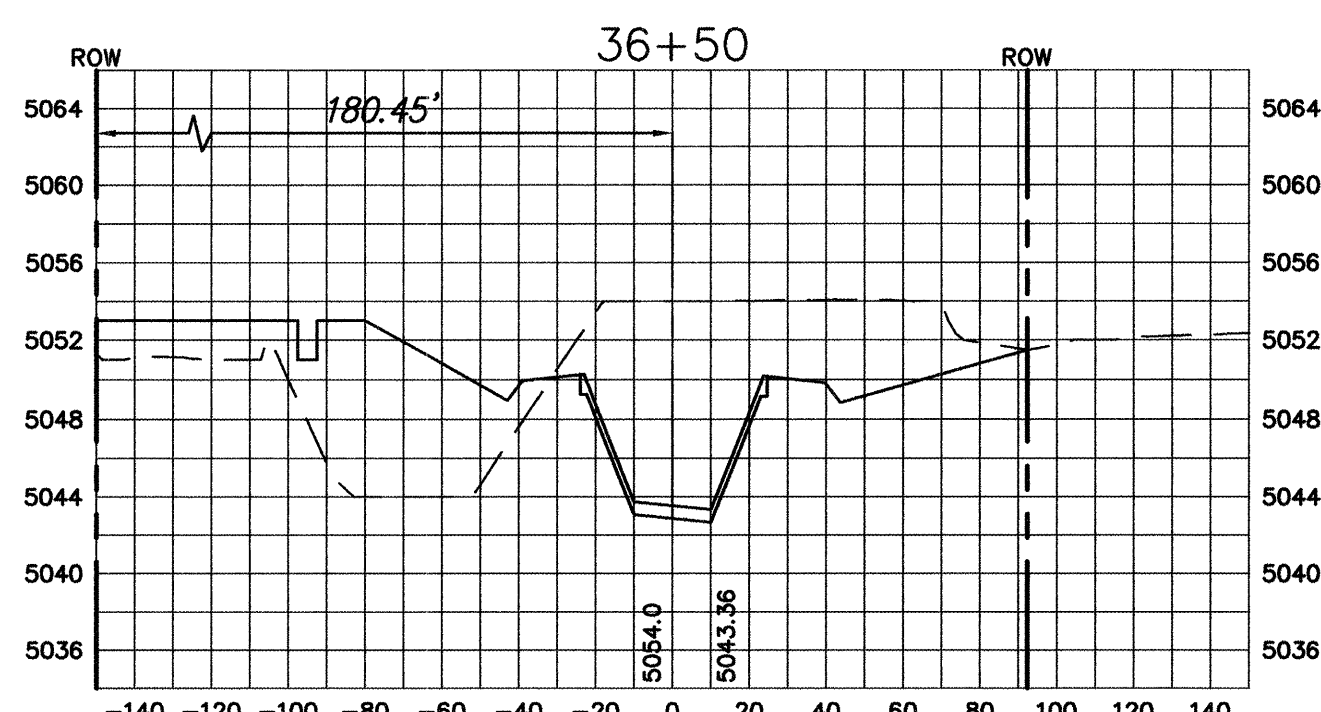
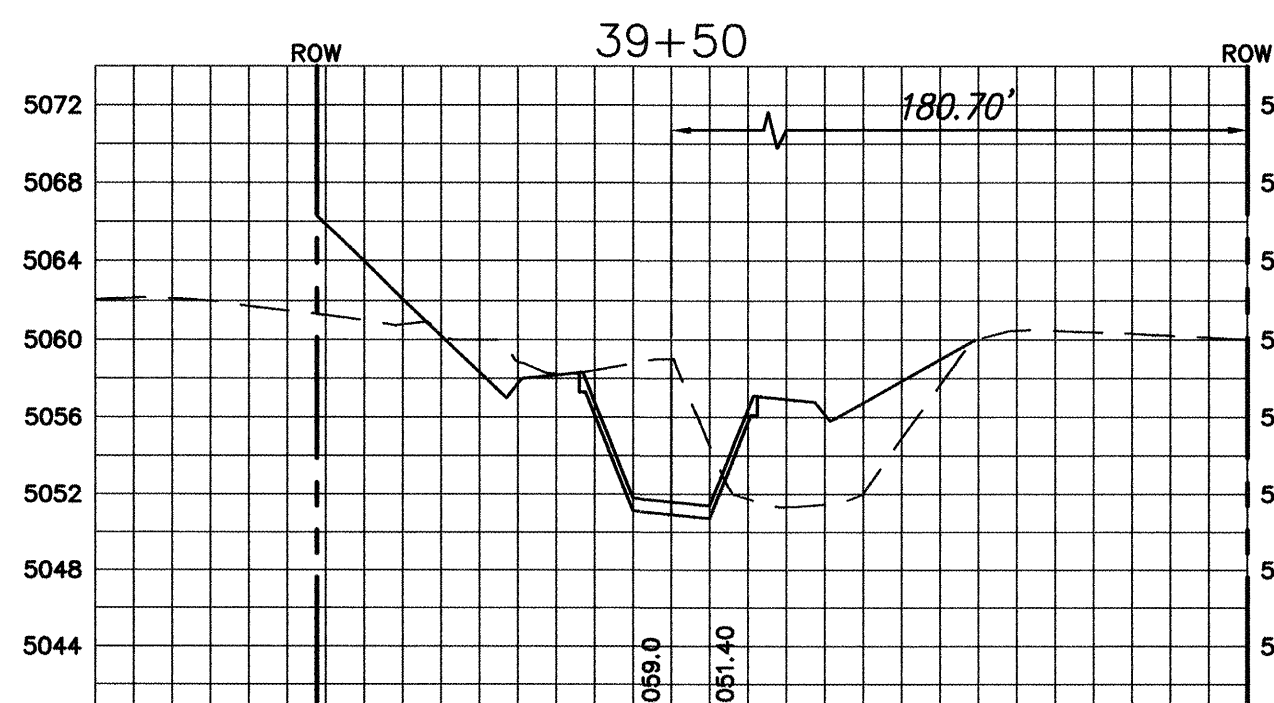
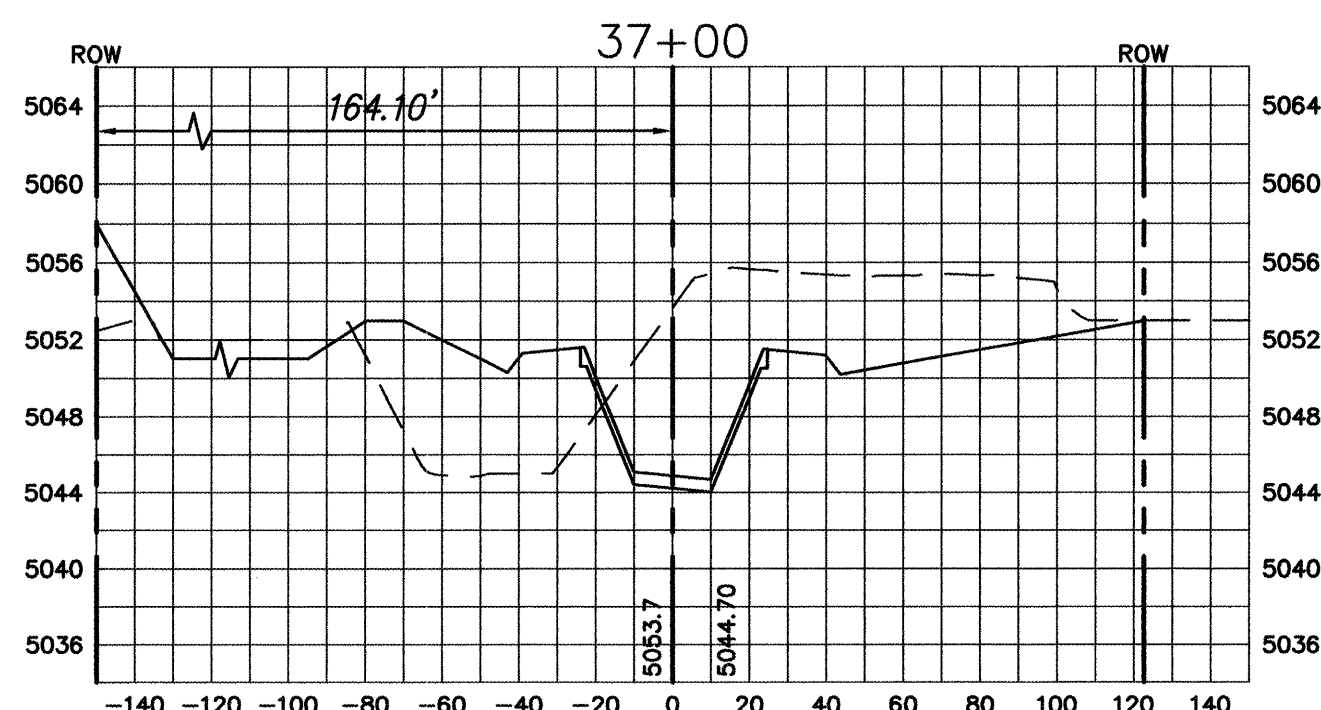
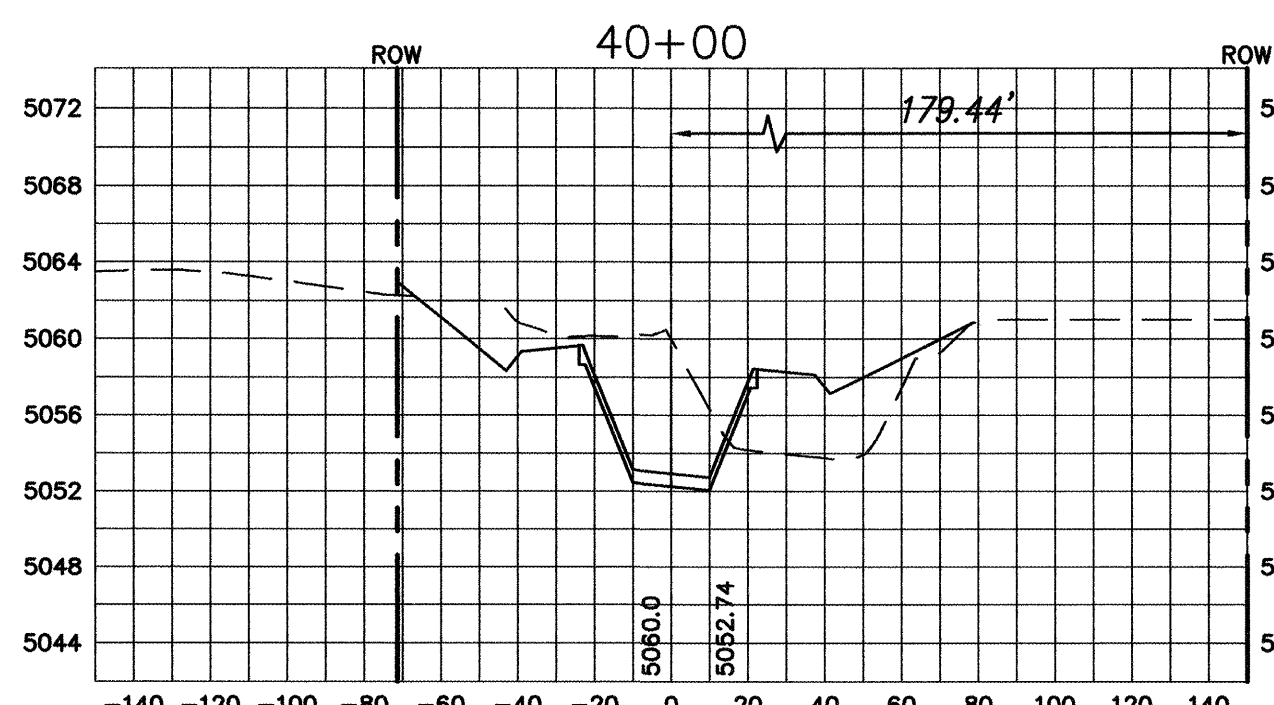
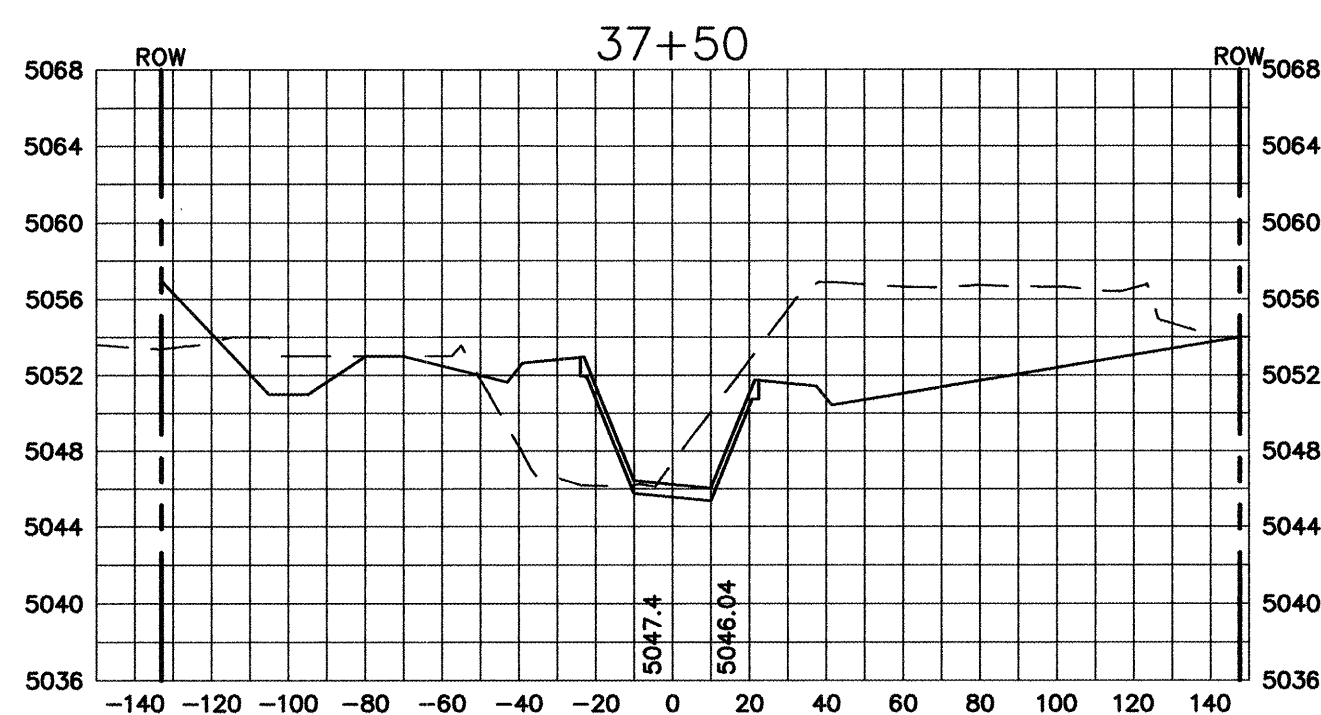
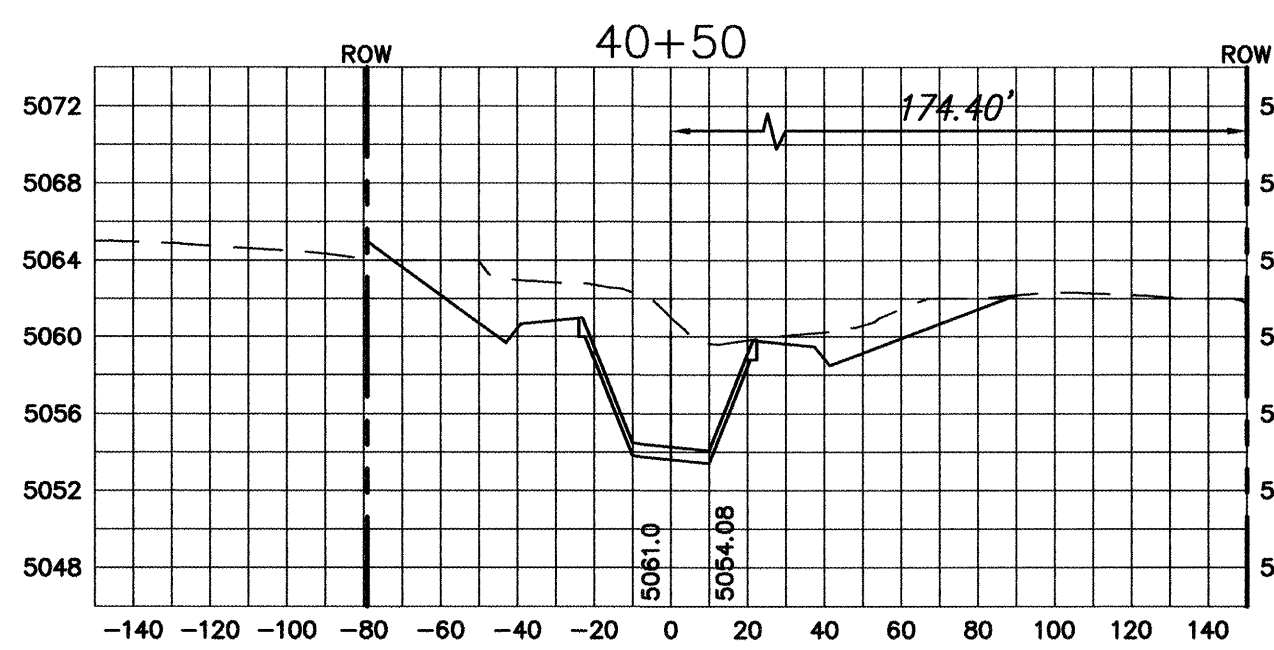
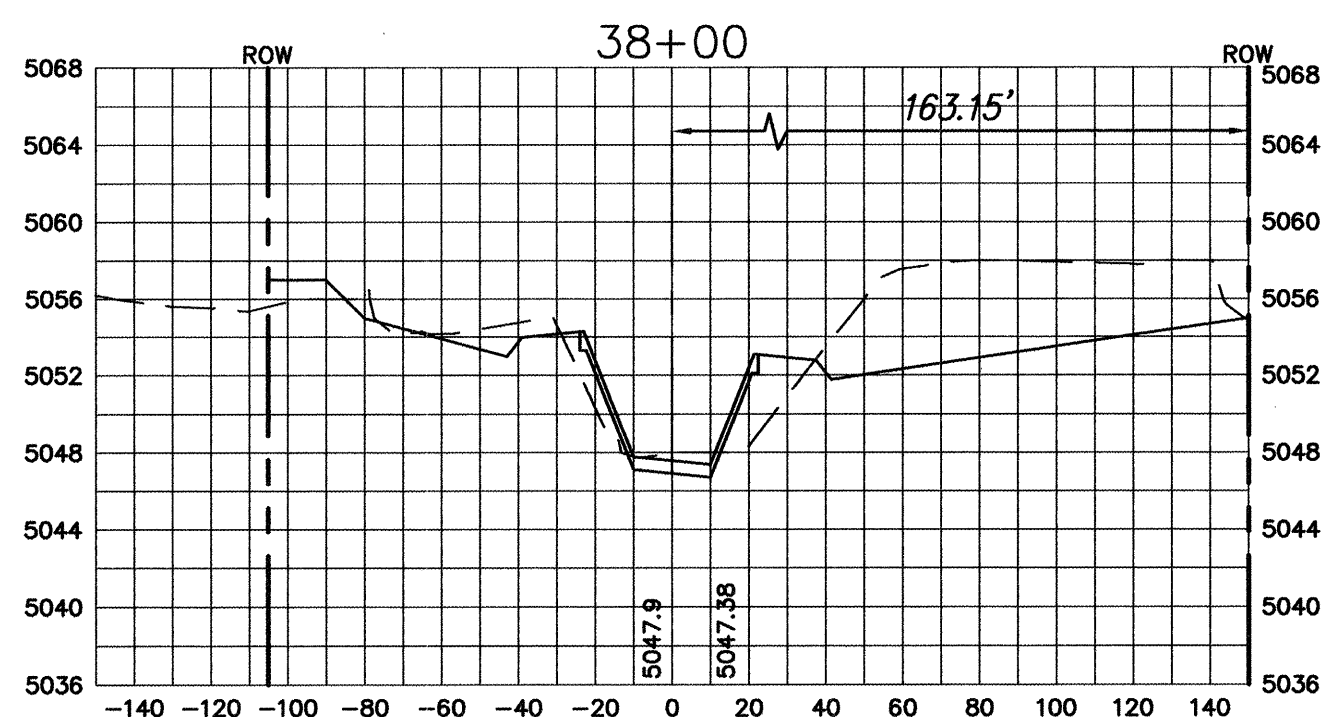
SHEET	OF
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ENGINEER'S SEAL

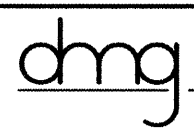
50-705

 Springer

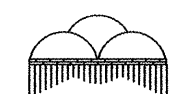
NOTES



SCALE: HORIZ. 1" = 50'
VERT. 1" = 10'

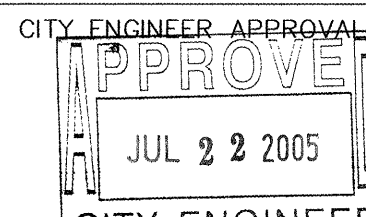
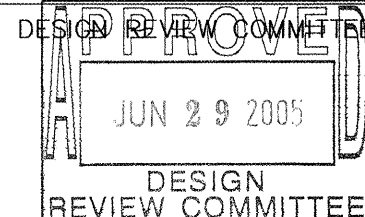


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ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTROL AUTHORITY

TITLE: **AMOLE CHANNEL
(PHASE D)
CROSS SECTIONS**



MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO.

679482

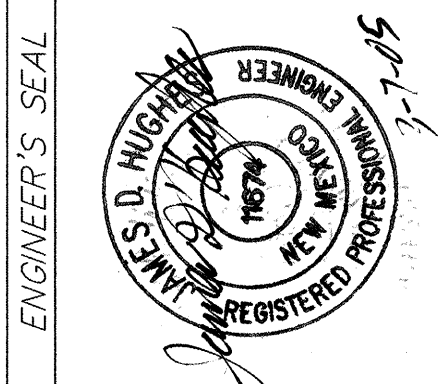
ZONE MAP NO.

N-9

SHEET

OF

18 20



ENGINEER'S SEAL

BENCH MARKS

AS BUILT INFORMATION

CONTRACTOR	DATE
SAHS	9/03
INSPECTOR'S NAME	DATE
ALC	5/07
FIELD ENGINEER'S NAME	DATE
ALC	7/02
RECORDING BY	DATE
MICRO-FILM INFORMATION	
RECORDED BY	DATE
NO.	DATE

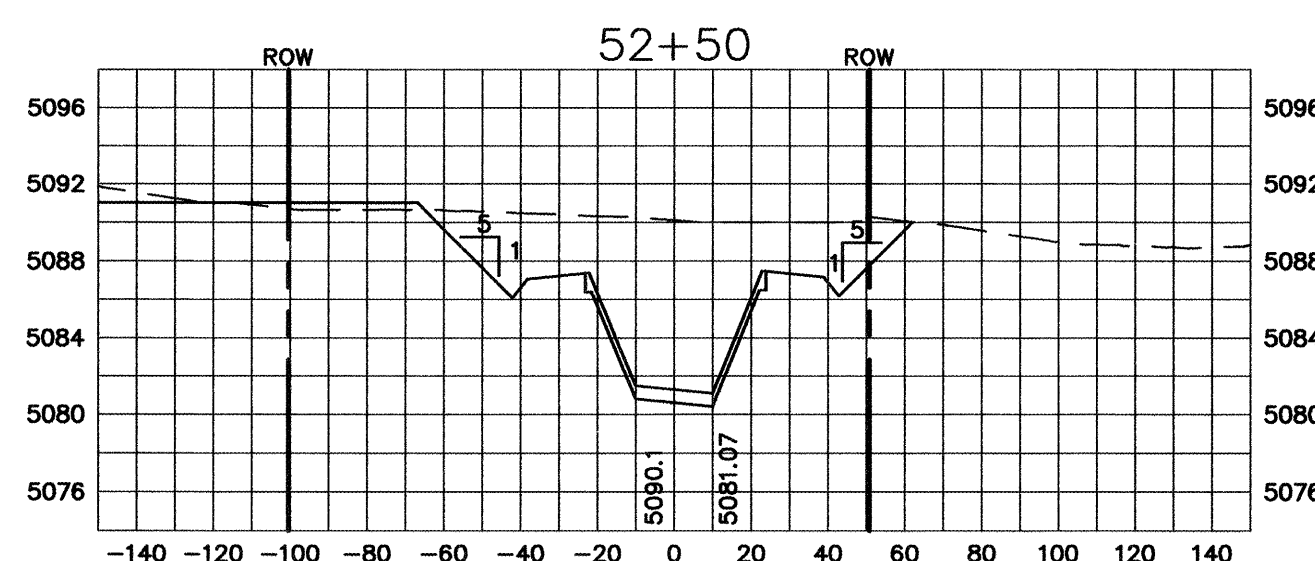
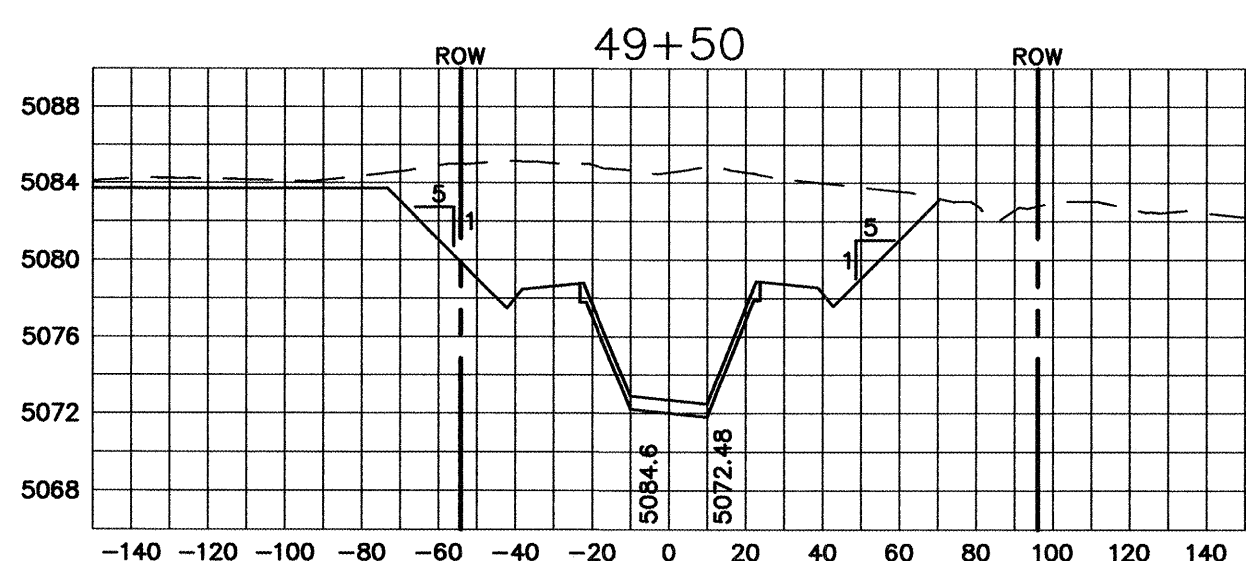
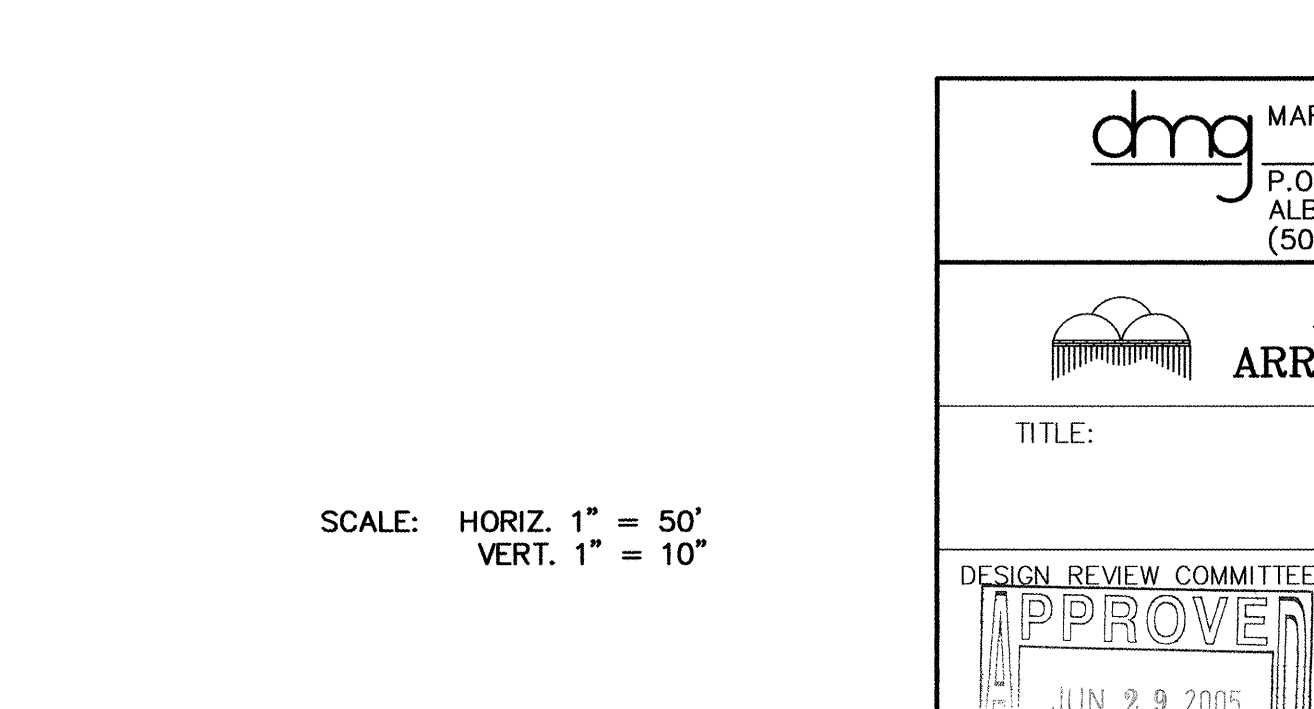
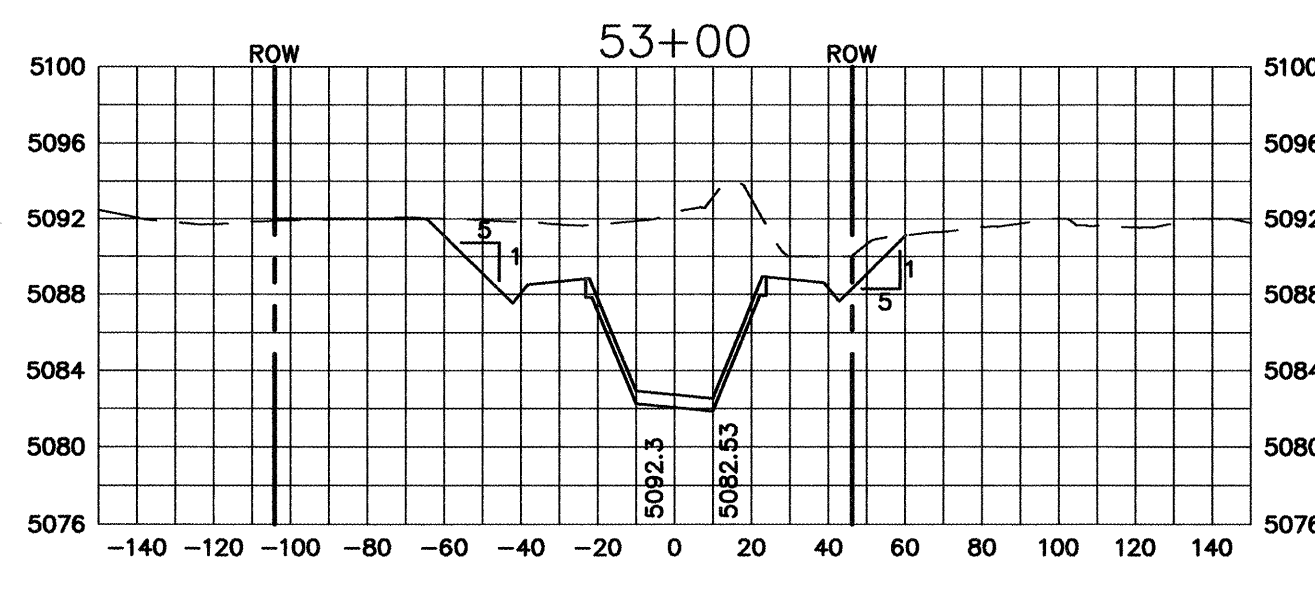
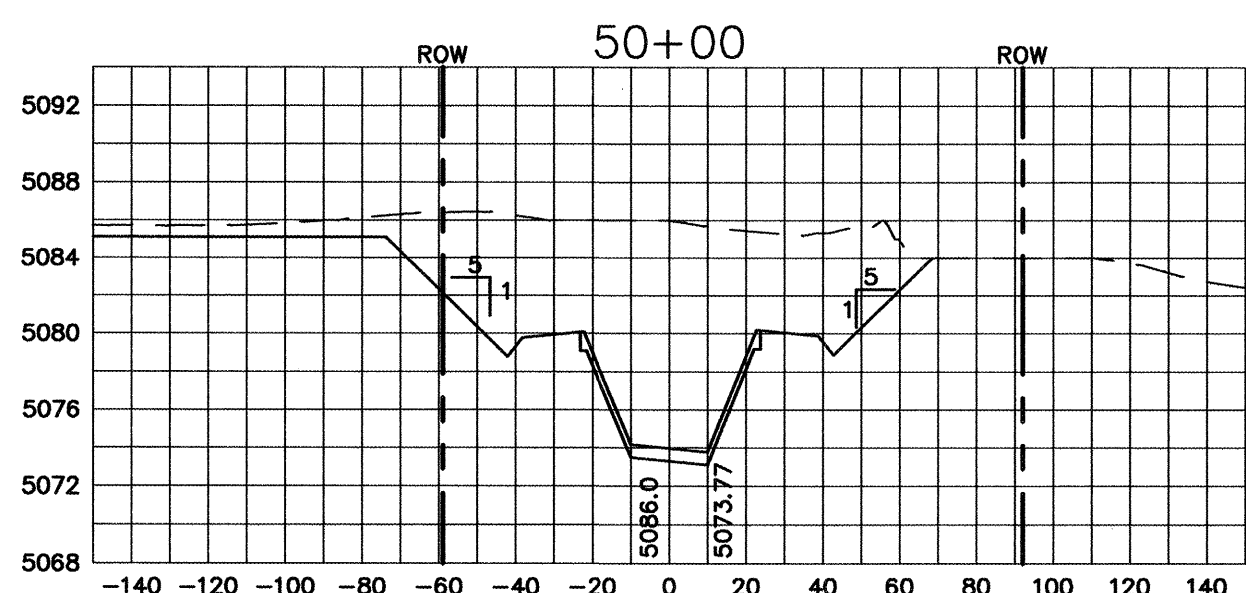
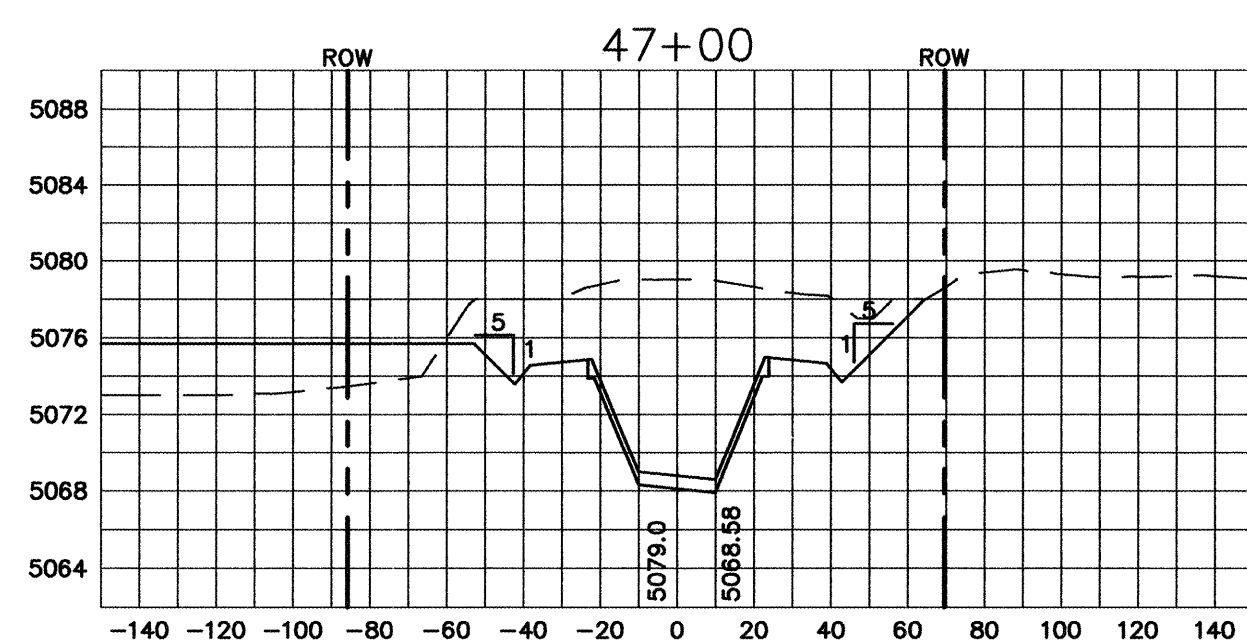
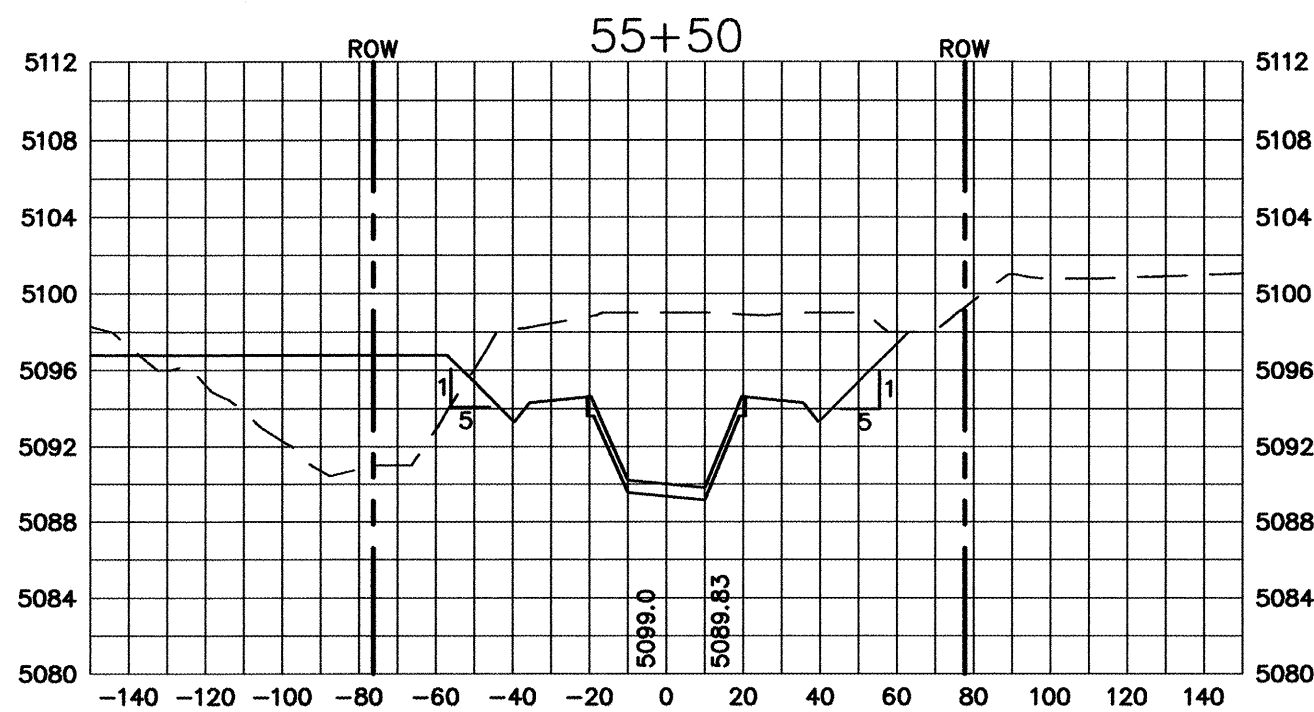
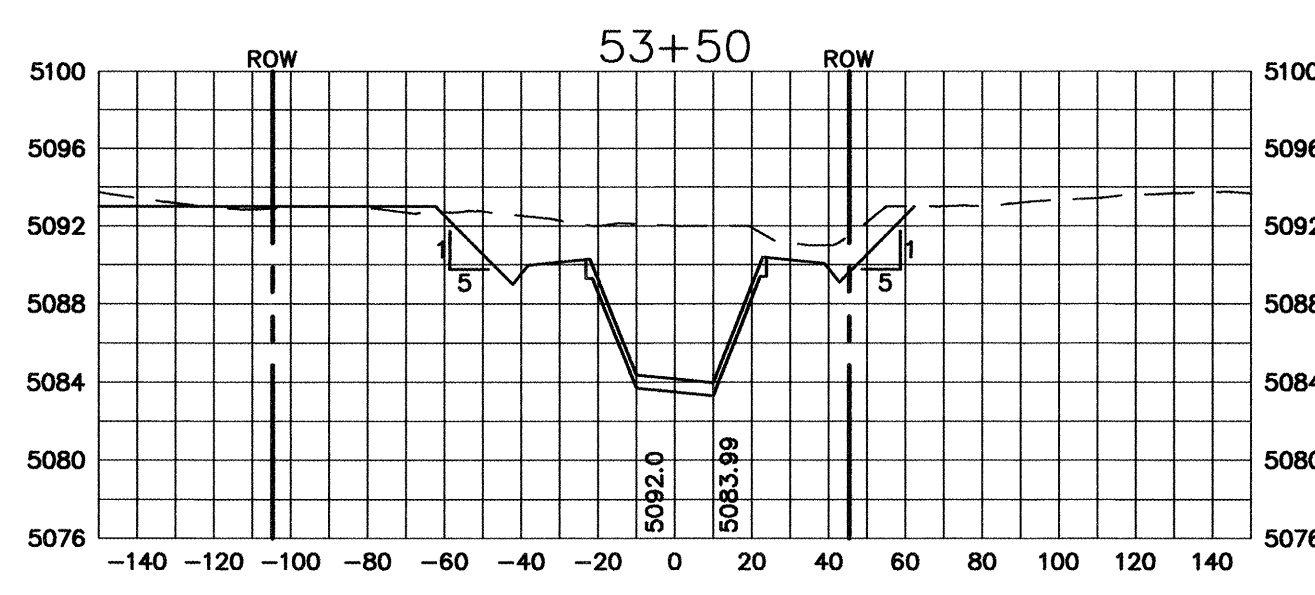
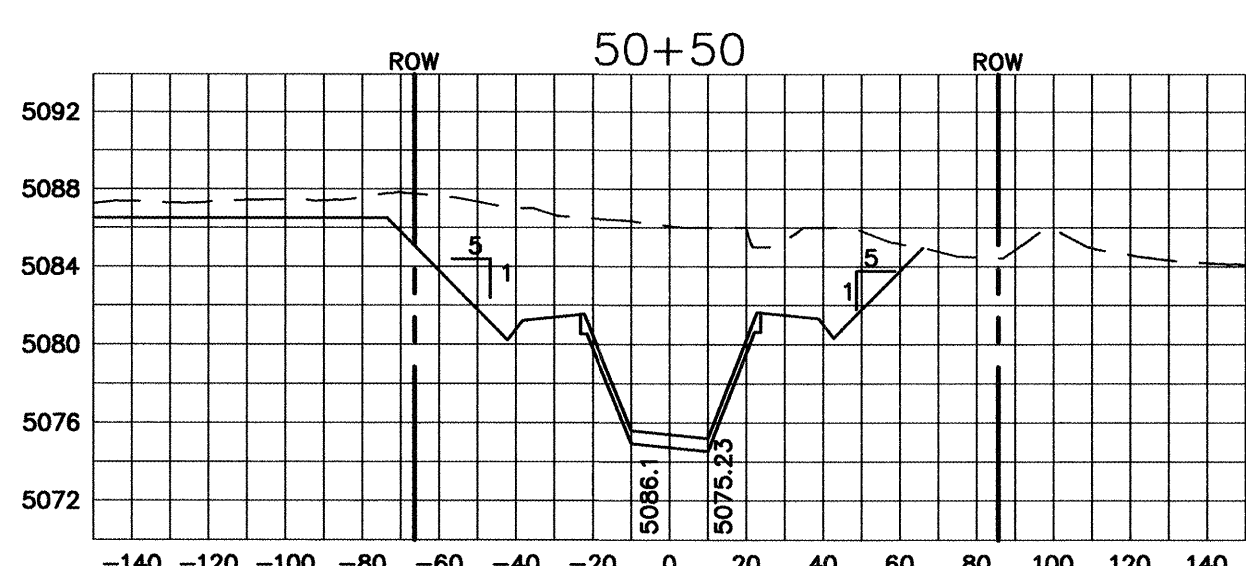
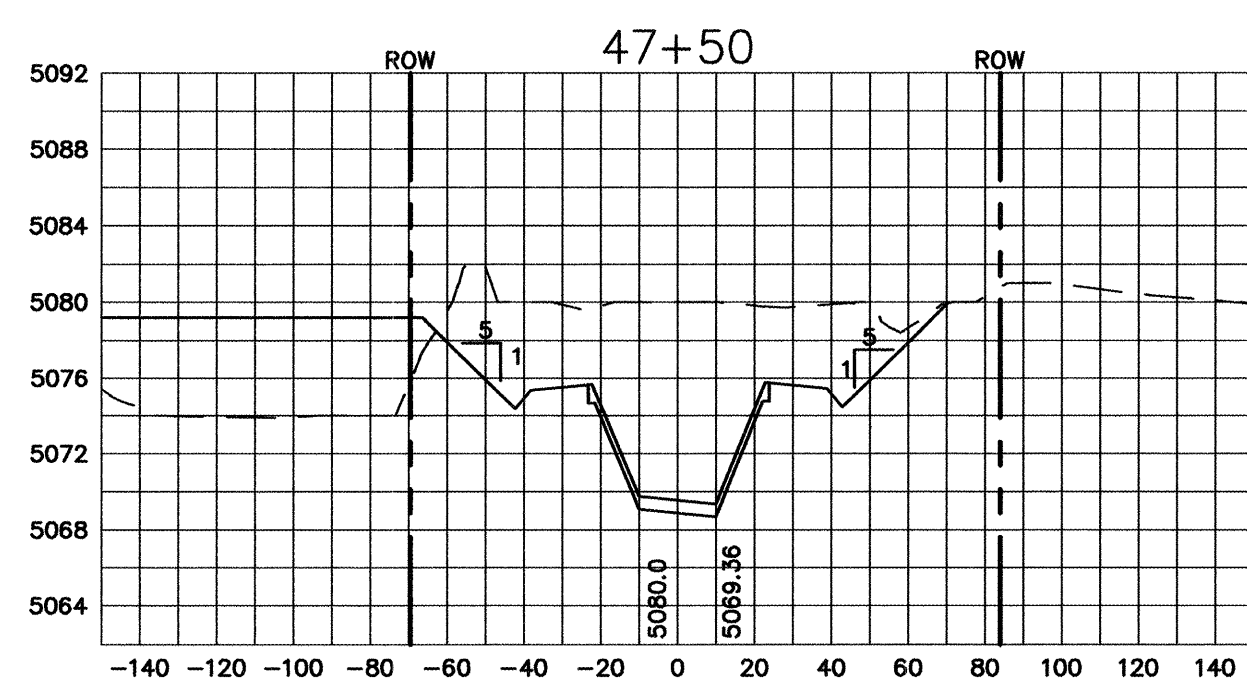
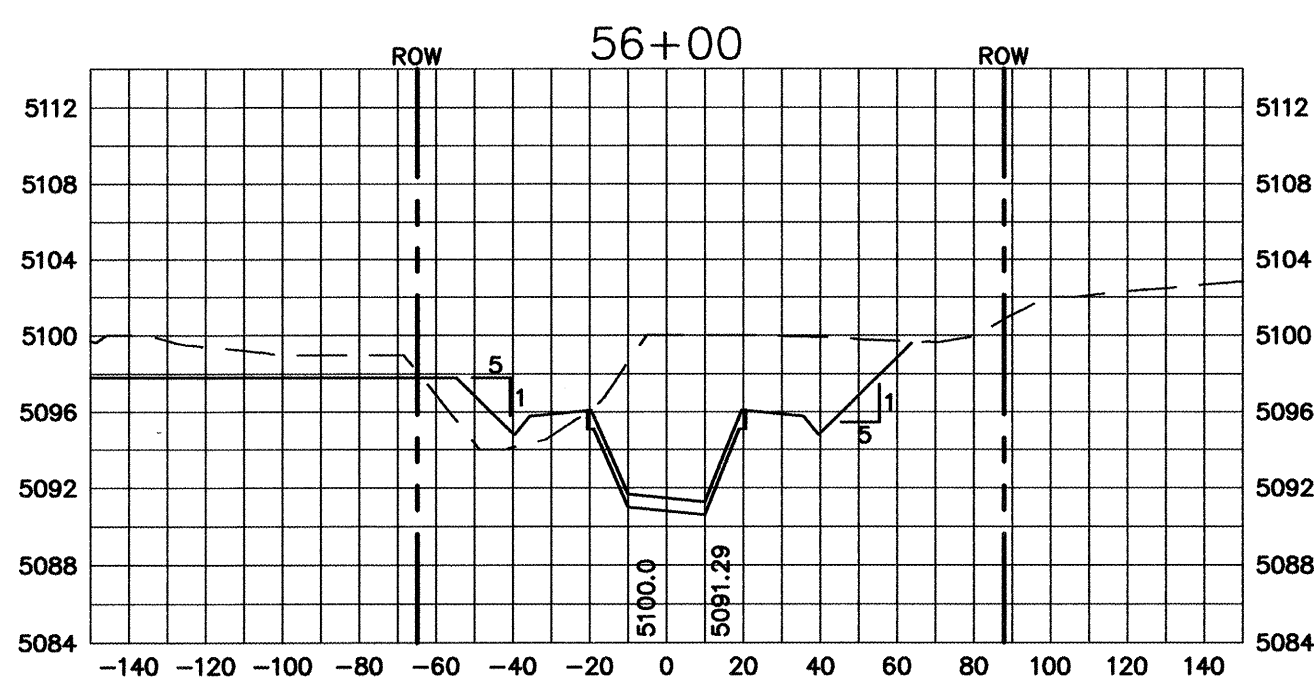
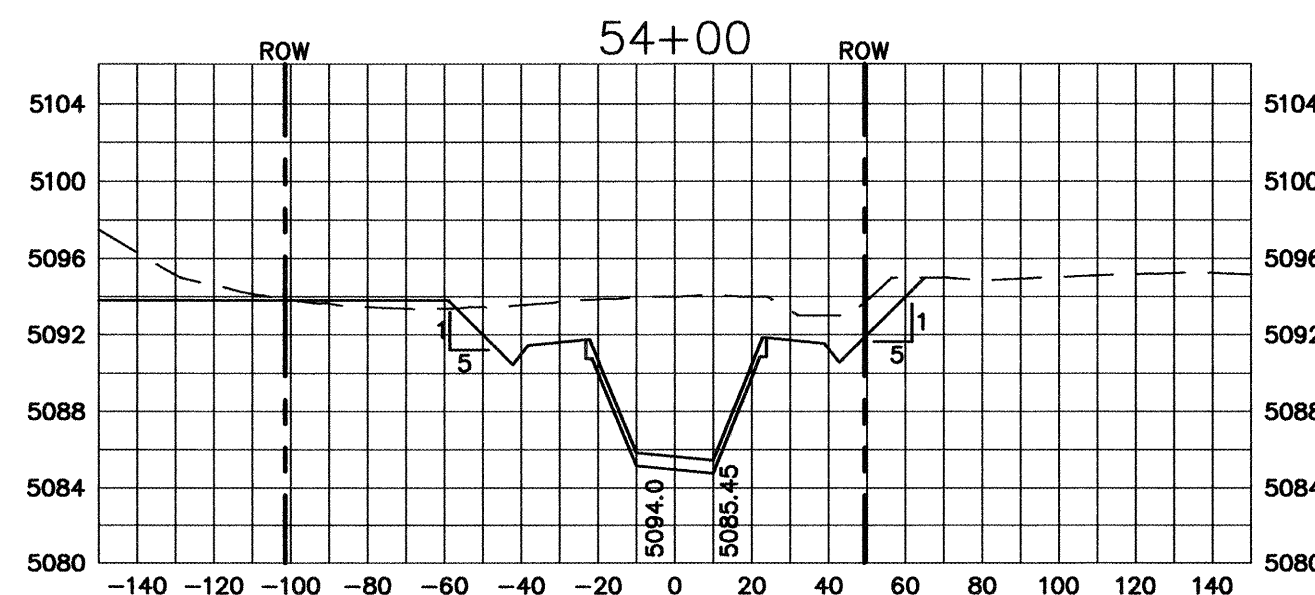
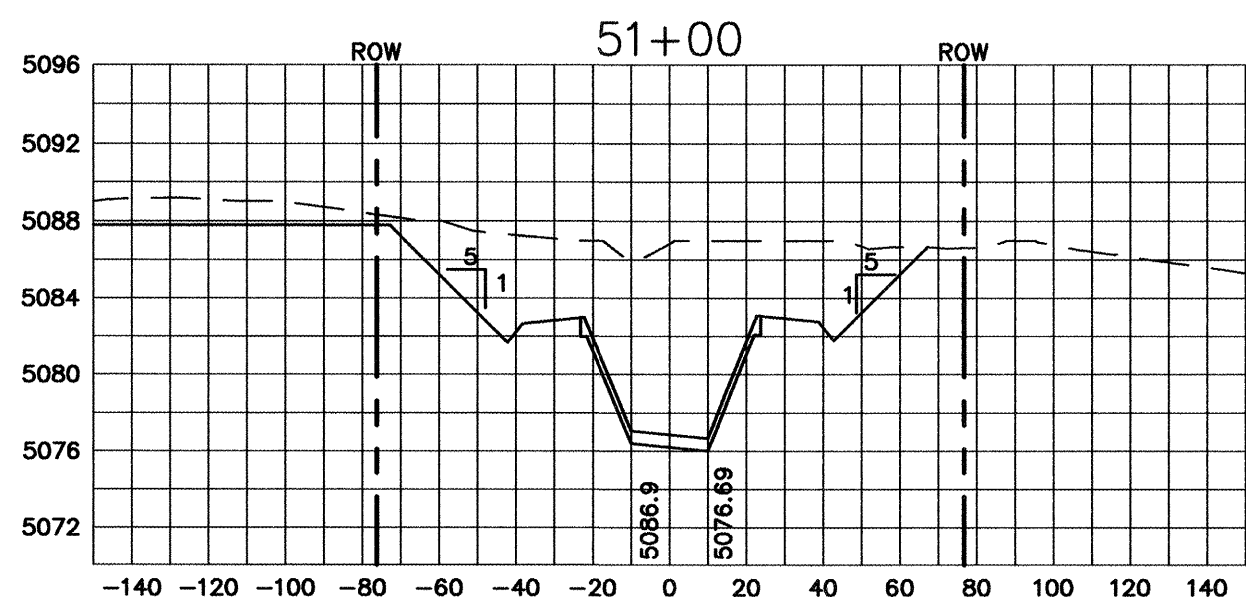
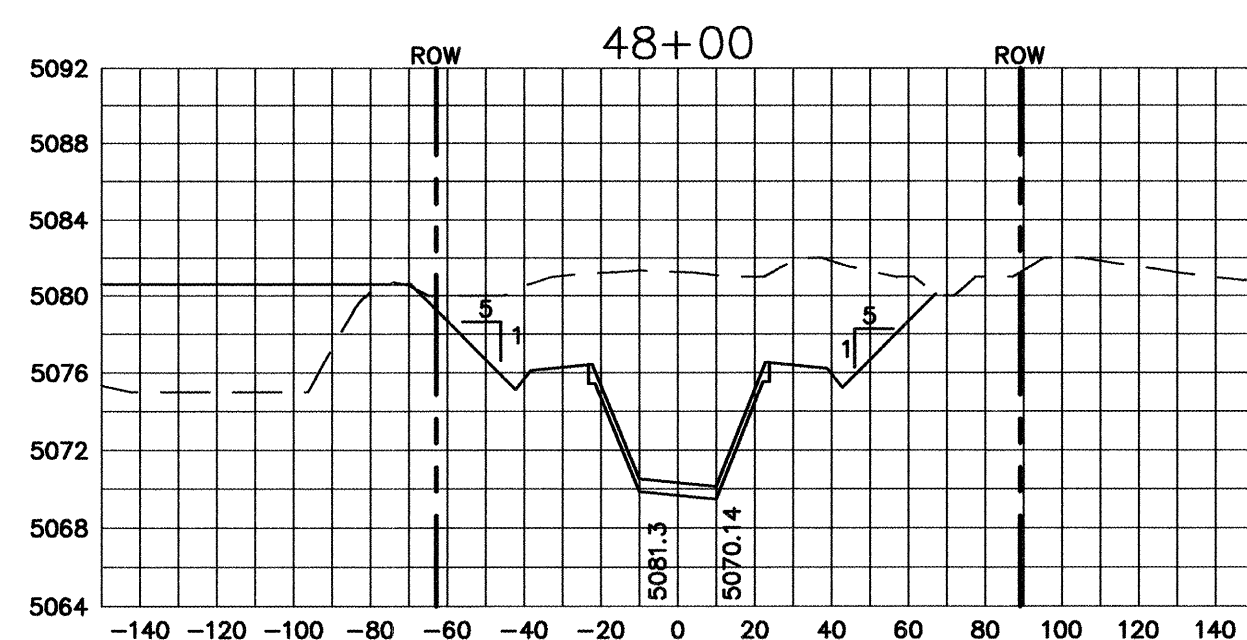
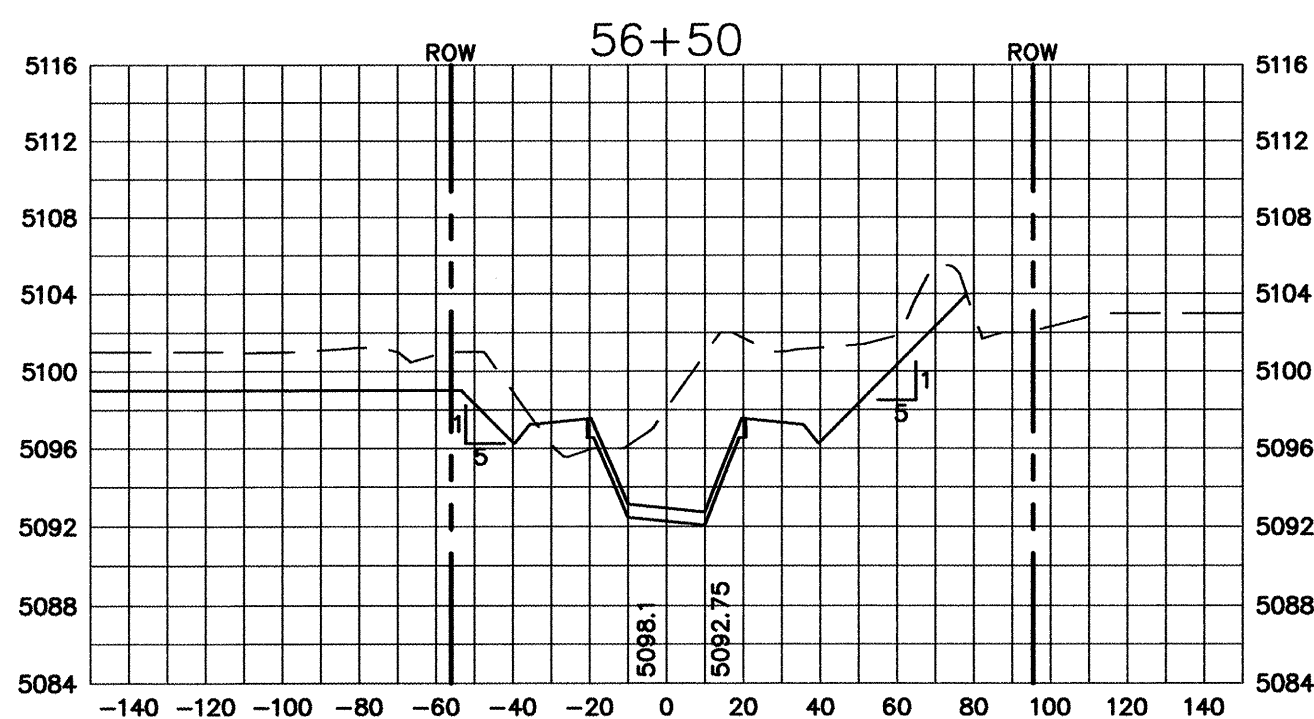
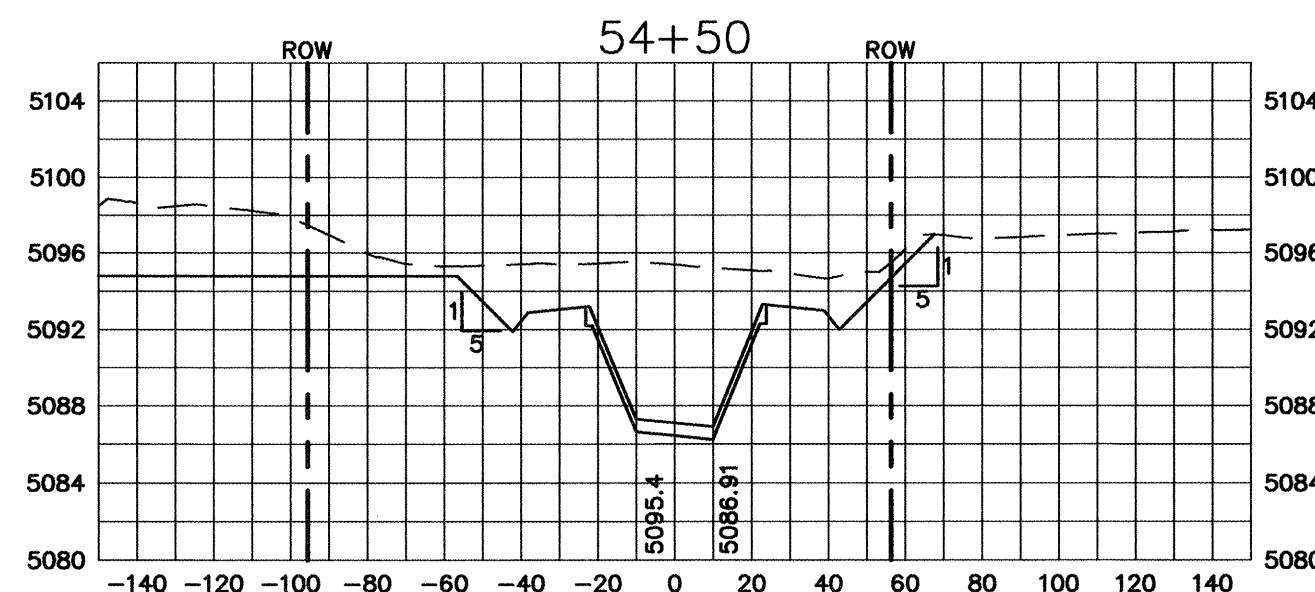
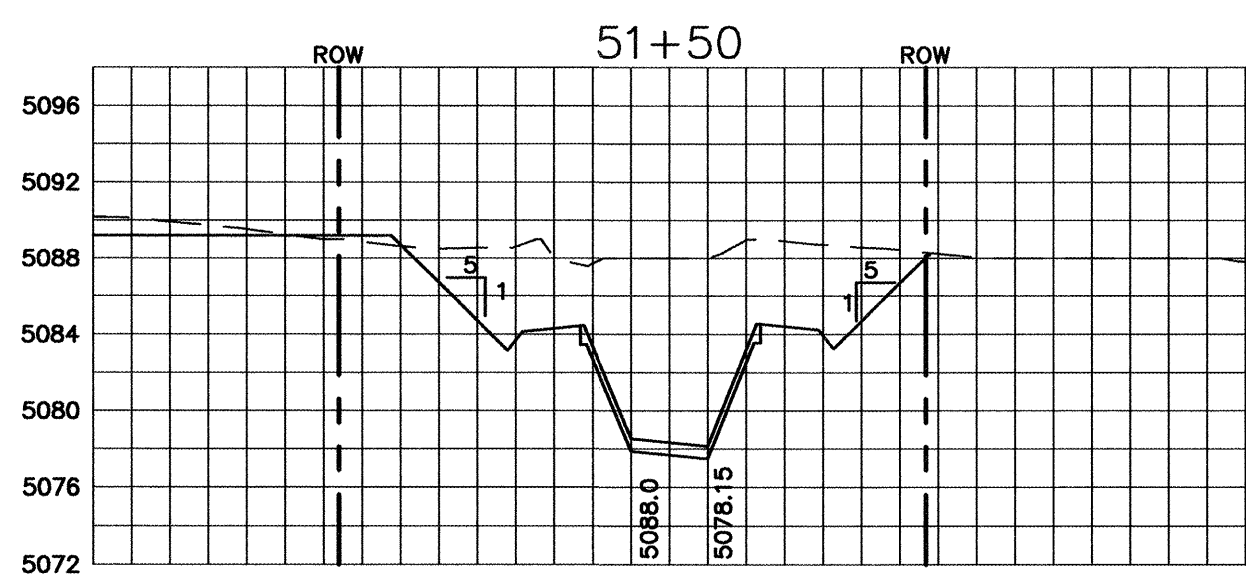
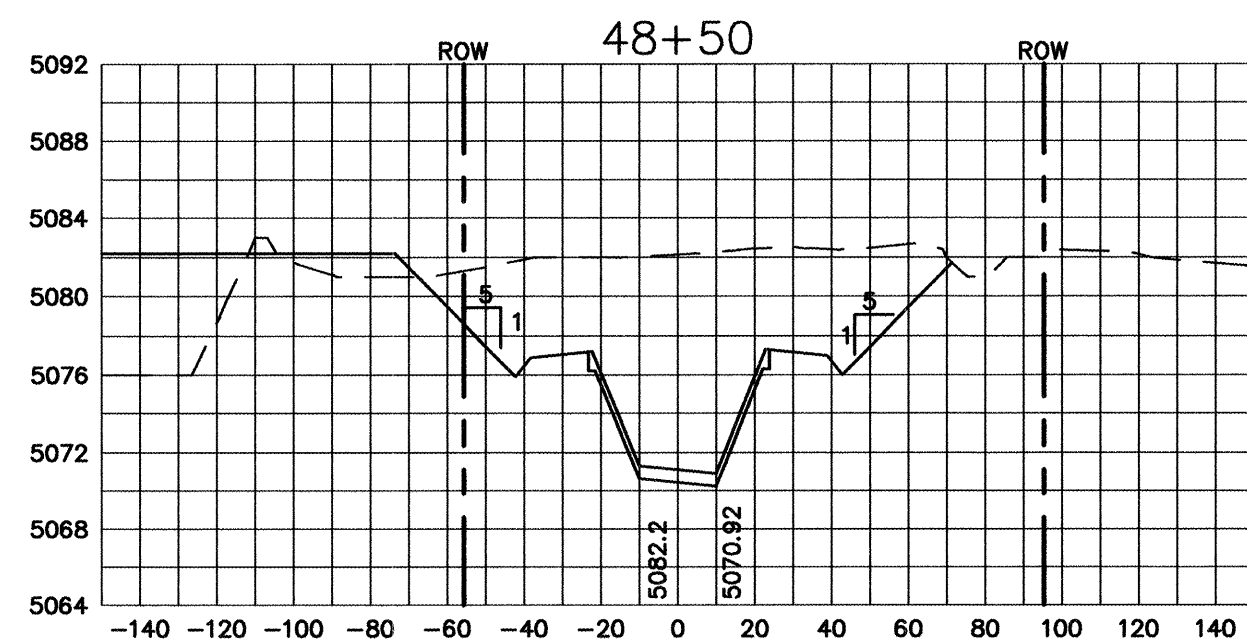
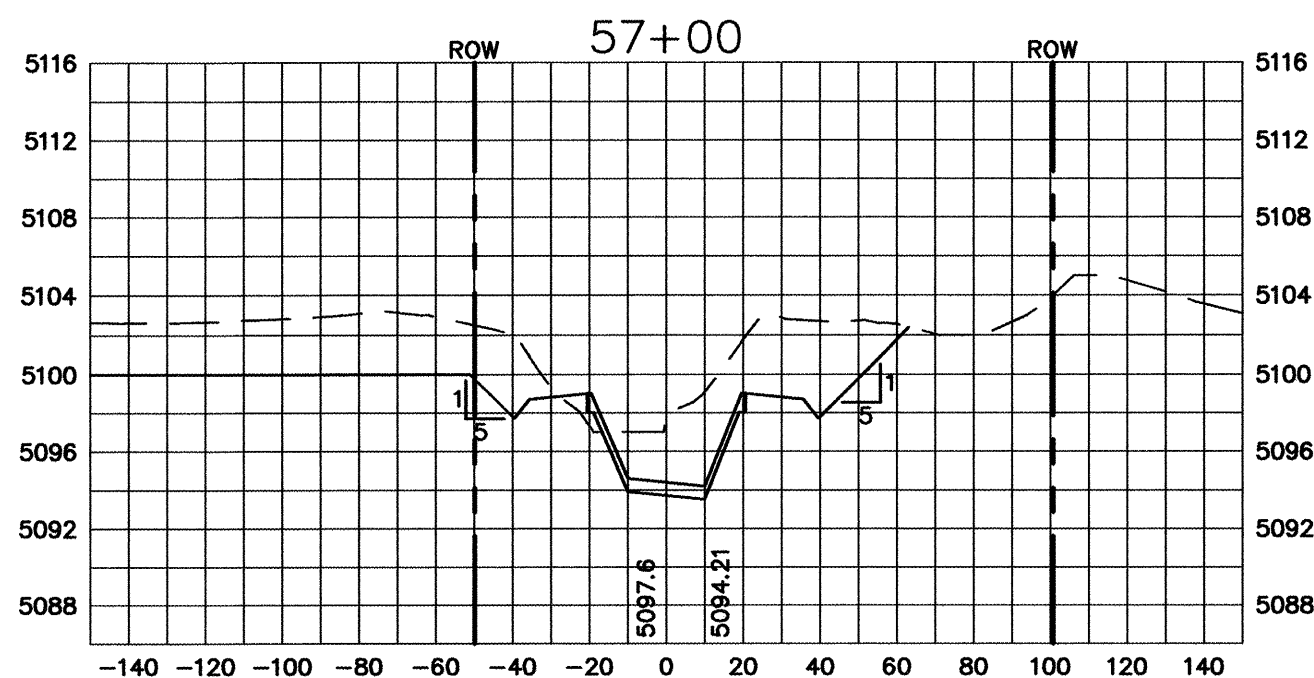
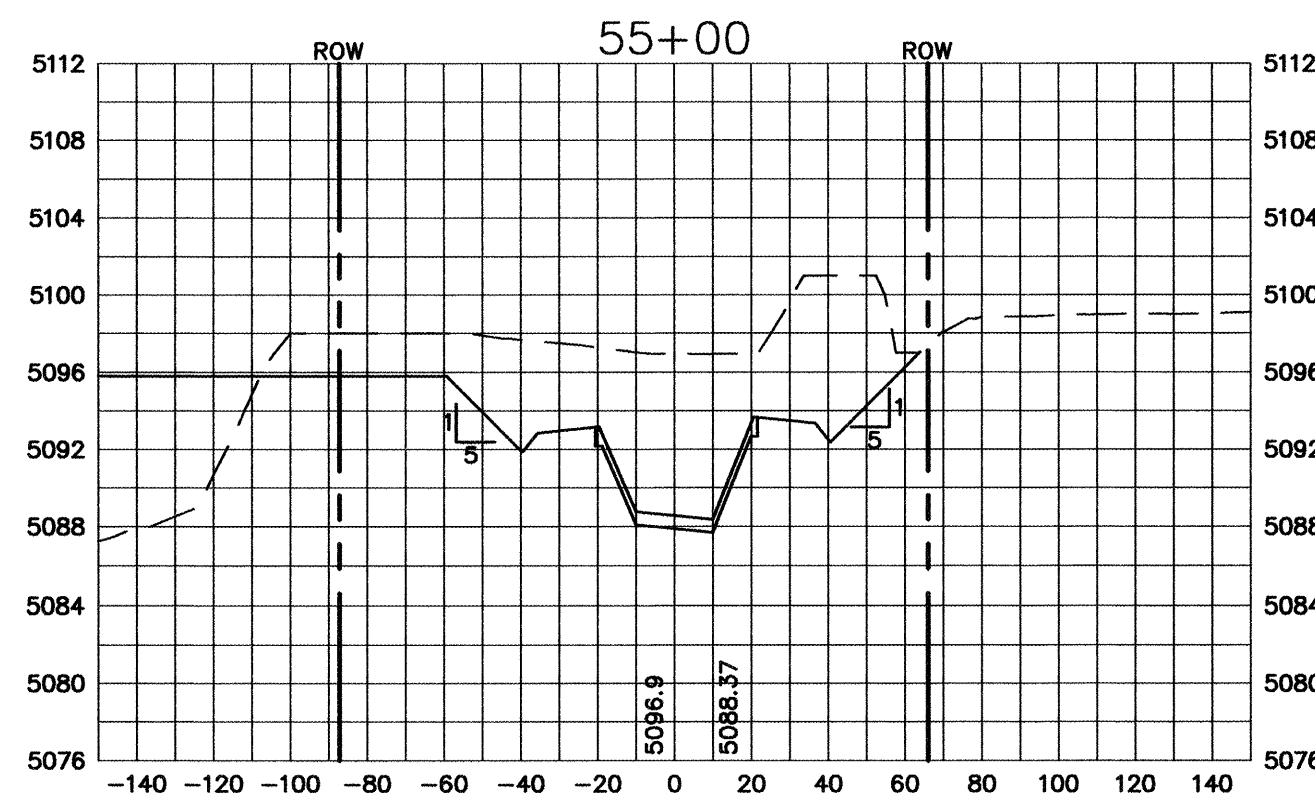
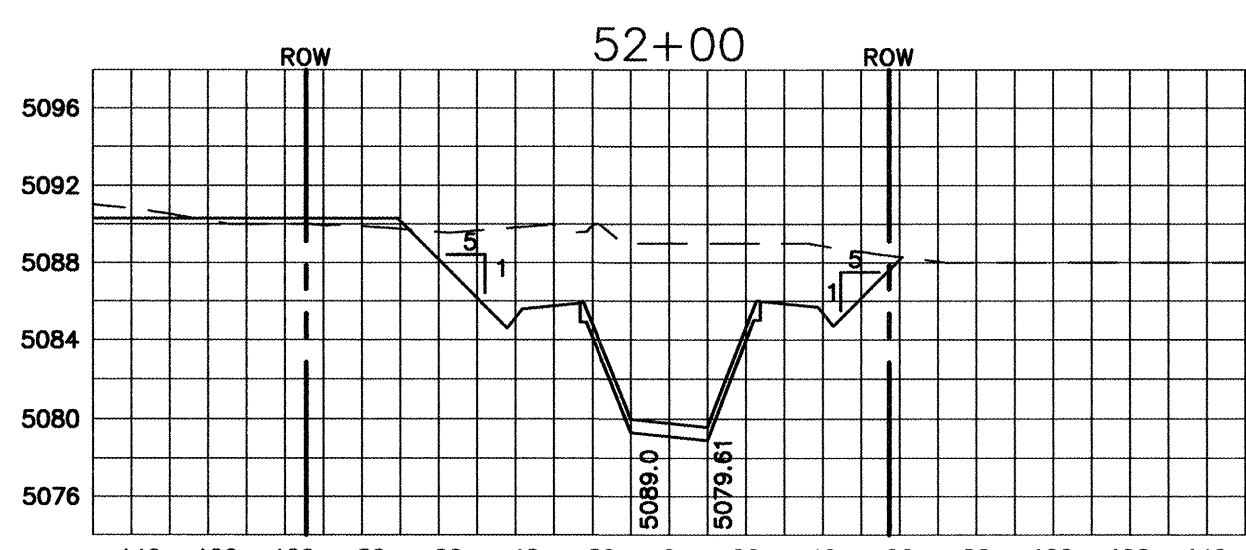
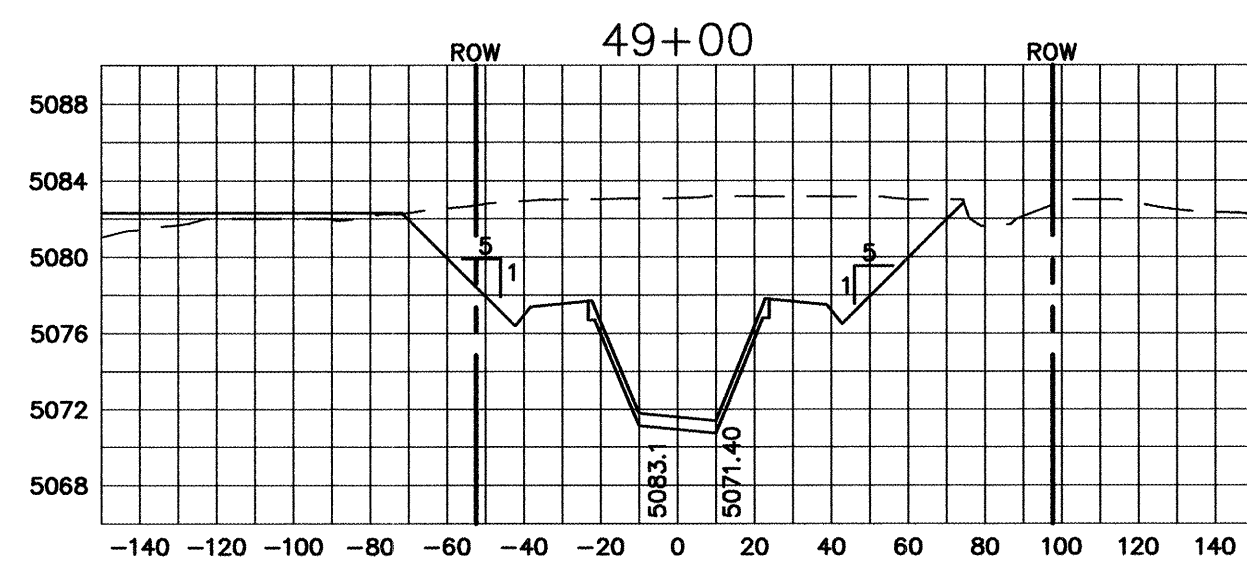
STATION "TRANS" IS LOCATED 6 MI. SOUTHWEST OF DOWNTOWN ALBUQUERQUE, IN THE R.O.W. OF A PLAINS ELECTRIC CO-OP TRANSMISSION LINE. TO REACH STATION FROM INTERSECTION OF CENTRAL AVE. & 98TH ST. SW. GO SOUTH ON 98TH ST. 1.2 MI. TO JUNCTION WITH GREGG BLVD. & SNOW VISTA BLVD. THEN SOUTHEAST ALONG SNOW VISTA AND CO-OP ELECTRIC TRANSMISSION LINE 0.85 MI. TO Pylon NUMBERED "32". STATION IS JUST EAST OF THIS POINT. X = 354,899.45, Y = 1,471,822.67, ELEV. = 5118.37 (NAD 1927/SD 1922)

FIELD NOTES	DATE

REMARKS	DATE

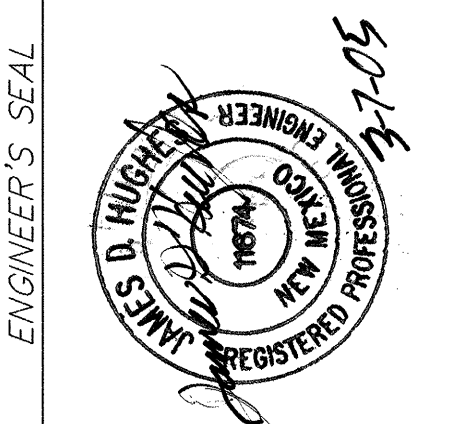
DESIGNED BY	DATE
JDH	12/04
DRAWN BY	DATE
NHE	12/04
CHECKED BY	DATE
DWG	12/04

NOTES



SCALE: HORIZ. 1" = 50'
VERT. 1" = 10'

dmg MARK GOODWIN & ASSOCIATES, P.A. CONSULTING ENGINEERS P.O. BOX 90606 ALBUQUERQUE, NEW MEXICO 87199 (505) 828-2200, FAX (505) 797-9539	
ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY	
TITLE: AMOLE CHANNEL (PHASE 1) CROSS SECTIONS	
DESIGN REVIEW COMMITTEE APPROVED JUN 29 2005	CITY ENGINEER APPROVAL APPROVED JUL 22 2005 CITY ENGINEER
CITY PROJECT NO. 678492	ZONE MAP NO. N-9
SHEET 19 OF 20	



ENGINEER'S SEAL

SURVEY INFORMATION

FIELD NOTES

NO. BY DATE

CONTRACTOR

WORK STARTED BY

DATE

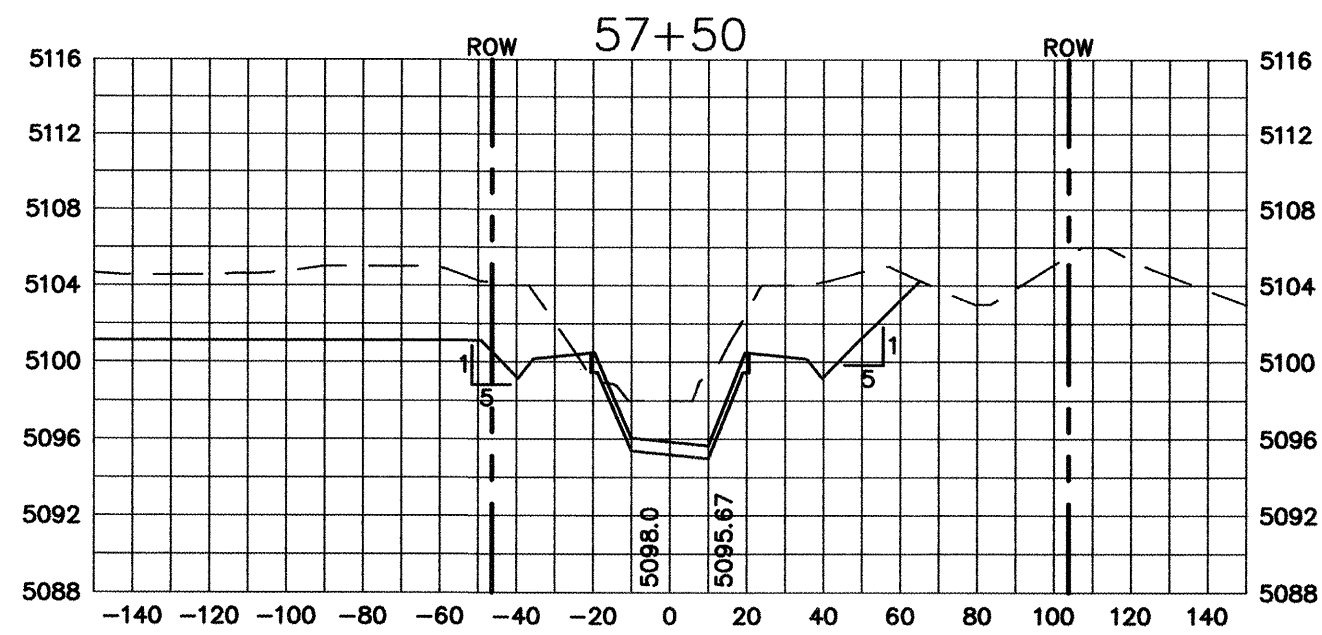
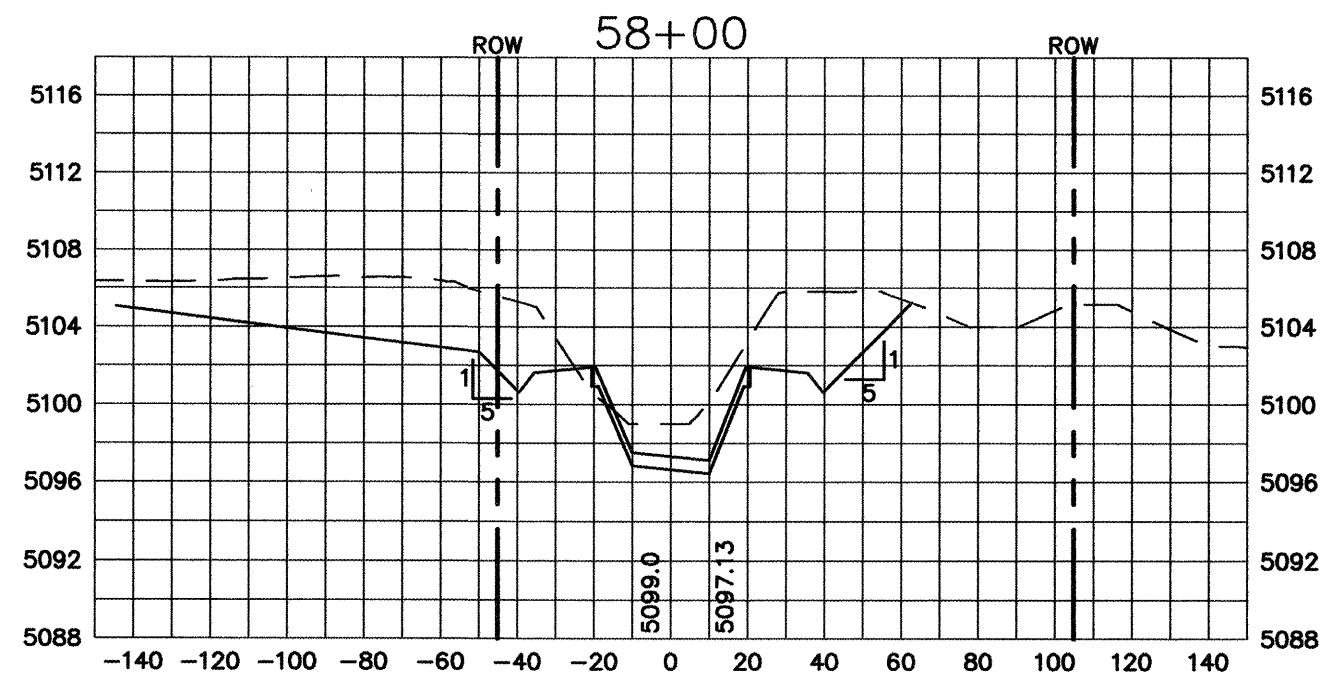
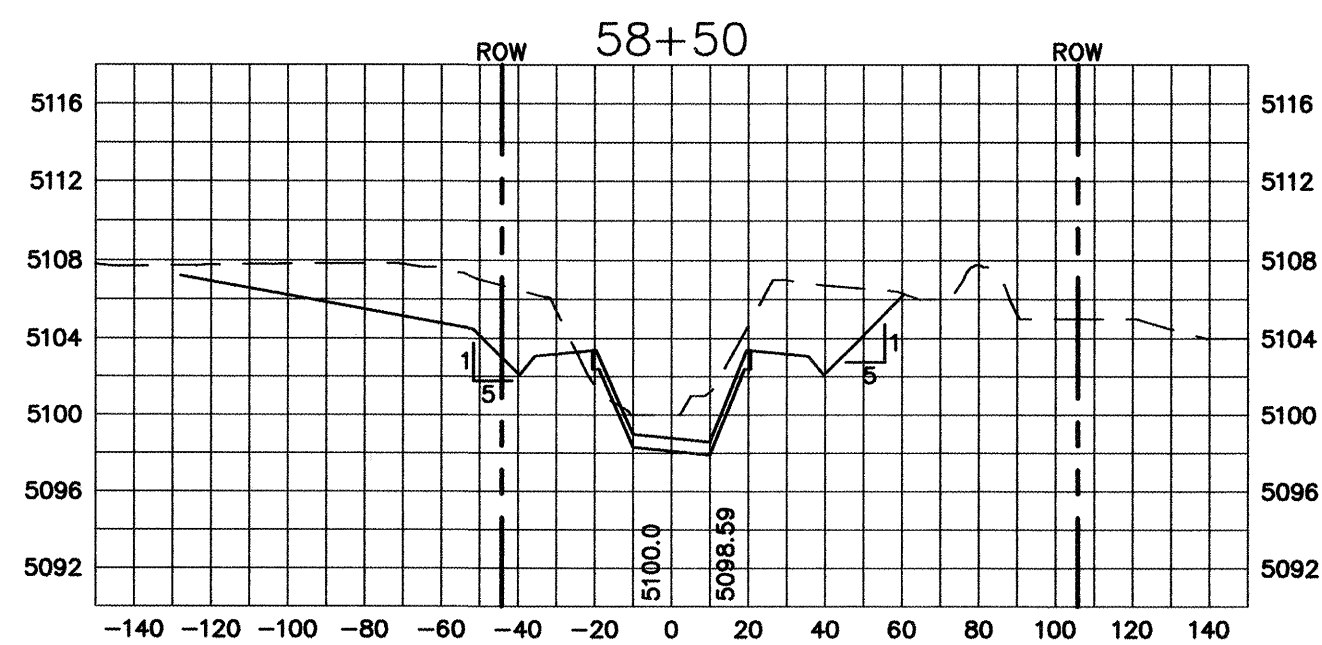
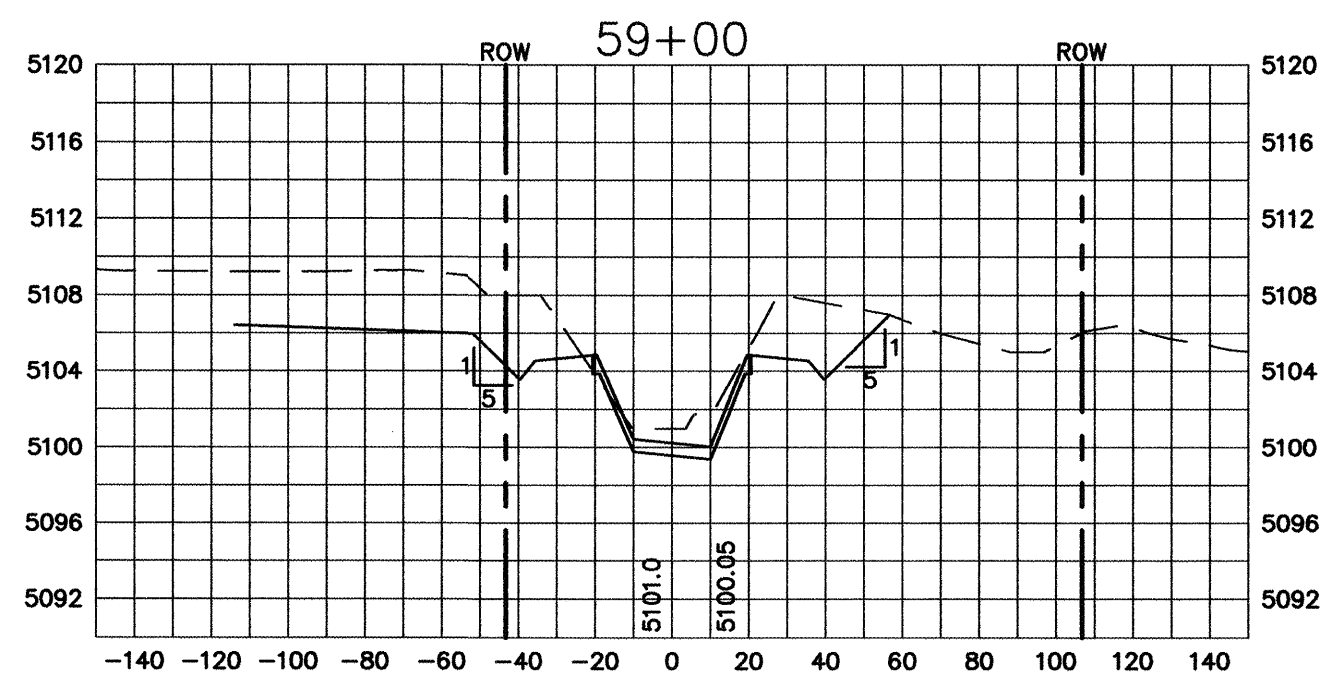
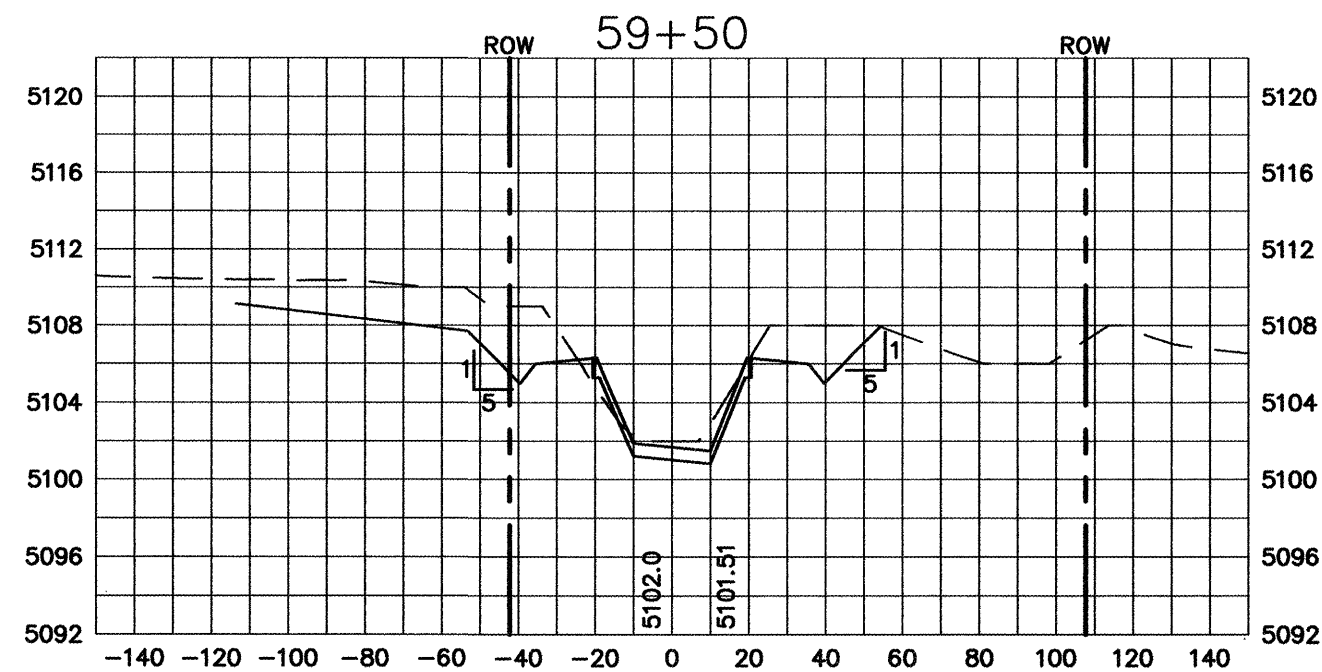
AS BUILT INFORMATION

STATION "TRANS" IS LOCATED 6 MI. SOUTHWEST OF DOWNTOWN ALBUQUERQUE, IN THE R.O.W. OF A PLAINS ELECTRIC CO-OP TRANSMISSION LINE. TO REACH STATION FROM INTERSECTION OF CENTRAL AVE. & 98TH ST. SW, GO SOUTH ON 98TH ST. 1.2 MI. TO JUNCTION WITH GIBSON BLVD. & SNOW VISTA BLVD., THEN SOUTHEAST ALONG SNOW VISTA AND CO-OP ELECTRIC TRANSMISSION LINE 0.85 MI. TO Pylon NUMBERED "52". STATION IS JUST EAST OF THIS POINT. X = 354,899.45, Y = 1,471,922.67, ELEV. = 5118.37 (NAD 1987/SD 1993)

F:\A4009SNH\AMOLE CHANNEL PLANS\PHASE1\PH1-XSEC-BASE1.dwg, 3/3/2005 5:31:37 PM, JCC, JCC

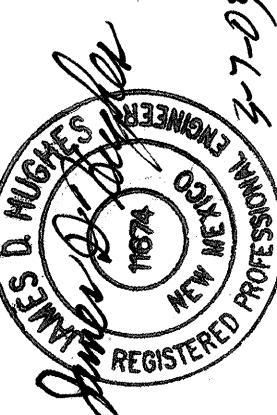
ANNED BY
ANNING

ANNED BY
ANNING



SCALE: HORIZ. 1" = 50'
VERT. 1" = 10'

NOTES

 MARK GOODWIN & ASSOCIATES, P.A. CONSULTING ENGINEERS P.O. BOX 30606 ALBUQUERQUE, NEW MEXICO 87199 (505) 828-2200, FAX (505) 797-9539			
ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY			
TITLE: AMOLE CHANNEL (PHASE 1) CROSS SECTIONS			
DESIGN REVIEW COMMITTEE APPROVED JUN 29 2005	CITY ENGINEER APPROVAL APPROVED JUL 22 2005 CITY ENGINEER	LAST DESIGN UPDATE	MO./DAY/YR. MO./DAY/YR.
CITY PROJECT NO. 678492	ZONE MAP NO. N-9	SHEET 20	OF 20

SURVEY INFORMATION		BENCH MARKS		AS BUILT INFORMATION	
NO.	BY	DATE	NO.	CONTRACTOR	DATE
				5016	9/05
				WORK STAKED BY	DATE
				ACCEPTANCE BY	DATE
				FIELD LOCATION BY	DATE
				DRAWINGS	DATE
				CORRECTED BY	DATE
				MICRO-FILM INFORMATION	DATE
				RECORDED BY	DATE
				NO.	DATE

(NAD 1927/SD 1993)