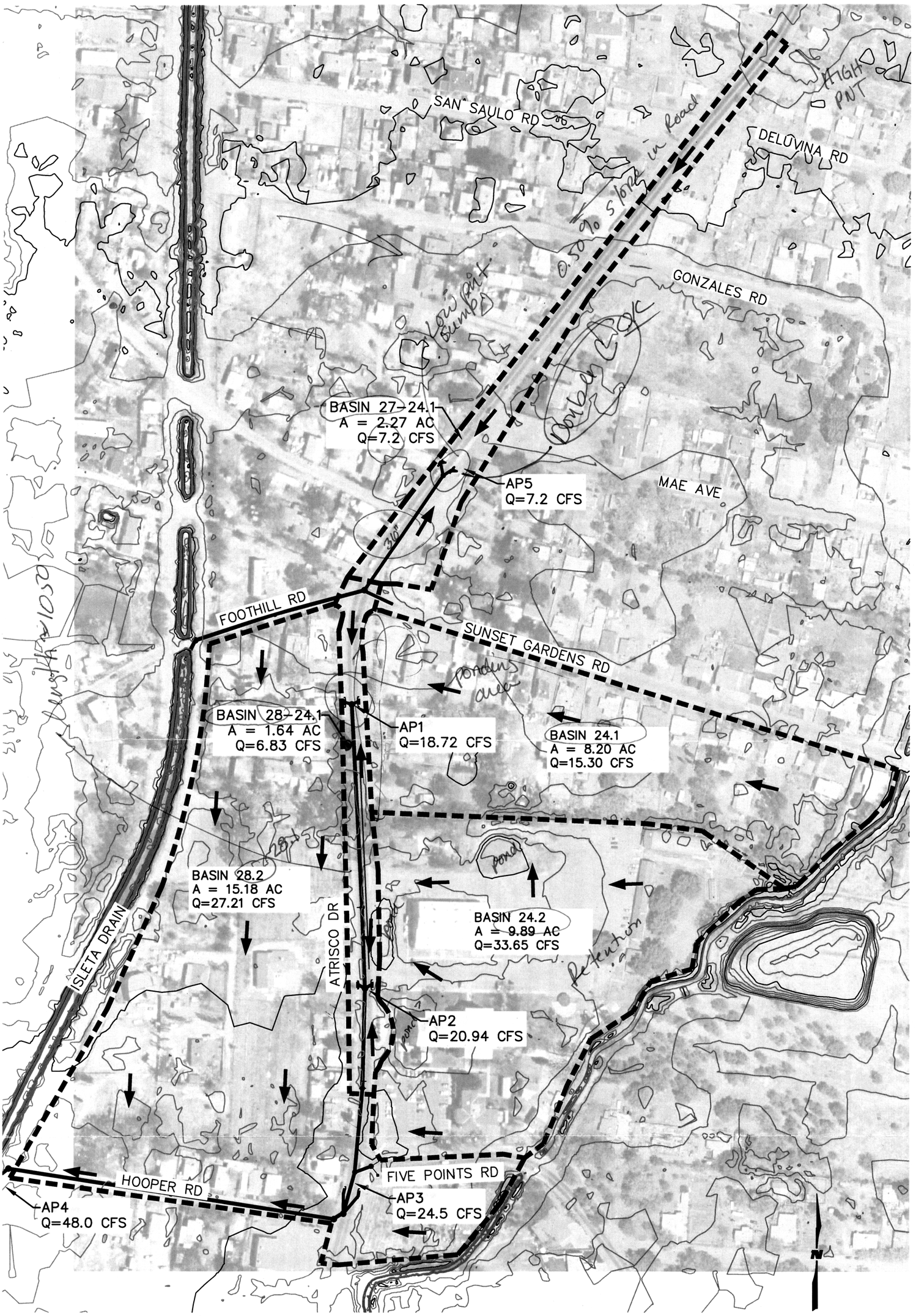

0 50 100 200 400

SCALE: 1" = 200'

LEGEND

— — — —	BASIN BOUNDARY
———	MAJOR CONTOUR
———	MINOR CONTOUR
→	FLOW DIRECTION
AP4	ANALYSIS POINT

WILSON & COMPANY
4900 LANG AVE. NE
ALBUQUERQUE, NM 87109
PHONE: 505-348-4000
FAX: 505-348-4055 FIRST FLOOR
FAX: 505-348-4155 SECOND FLOOR
www.wilsonco.com

PROJECT NAME

ATRISCO DRIVE CORRIDOR IMPROVEMENTS PH III

ALBUQUERQUE, NM

SHEET TITLE

EXHIBIT 1
DRAINAGE EXHIBIT

PROJECT NO:	
DESIGNED BY:	XXX
DRAWN BY:	XXX
CHECKED BY:	XXX
DATE:	

SHEET NO: 01

11/26/2014 M:\TRN\12-100-216-1\12_Disciplines\Drainage\Exhibits\21611 EXHIBIT-01.dwg

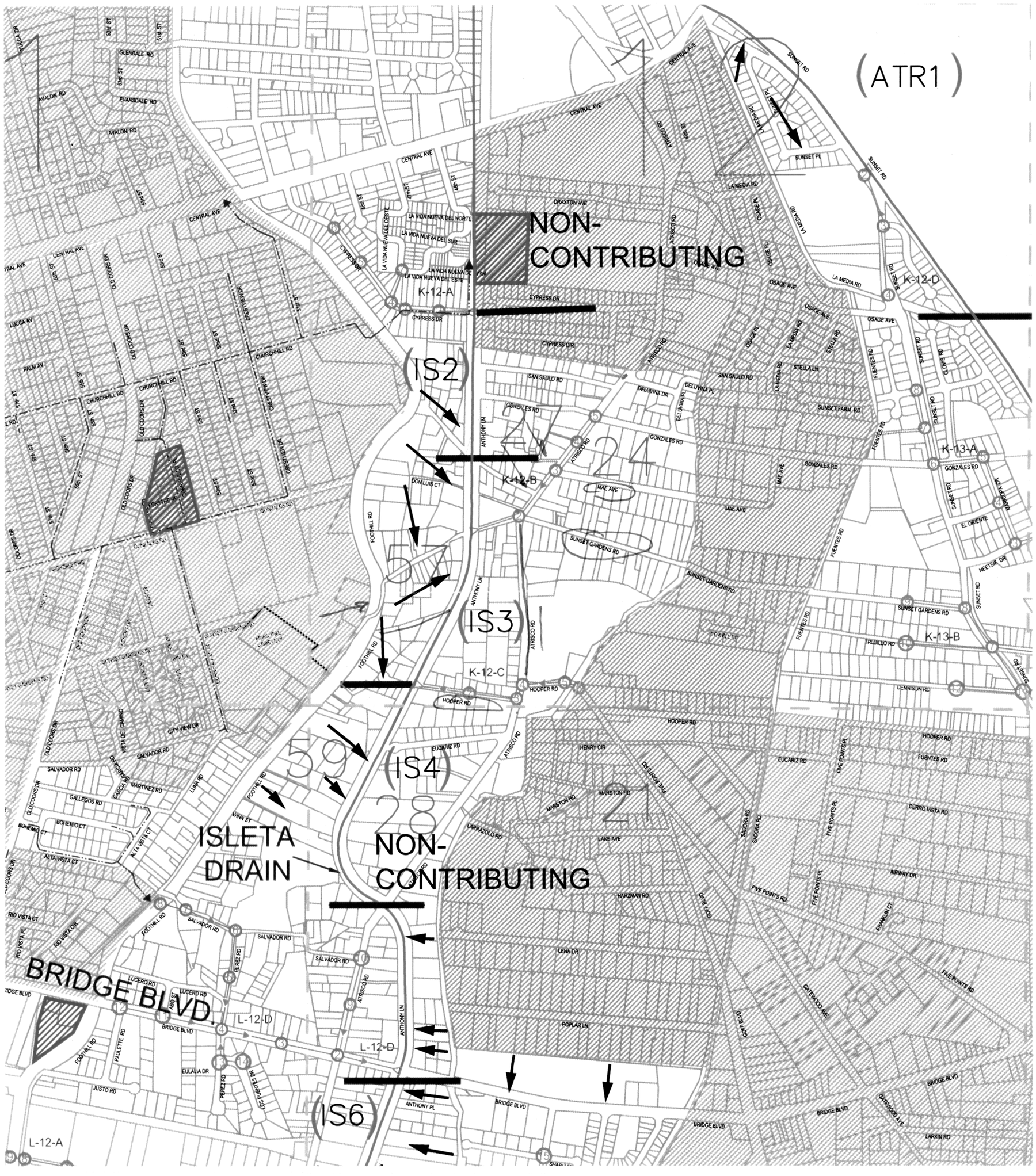

Figure 19.A-1

From SWVFDRS Figure 19.A by RTI

WILSON & COMPANY

ATRISCO DRIVE CORRIDOR IMPROVEMENTS PH III

LOCATION MAP

FIGURE 1

SCALE: NTS

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NOAA Atlas 14, Volume 1, Version 5
Location name: Albuquerque, New Mexico, US*
Latitude: 35.0733°, Longitude: -106.6860°
Elevation: 4945ft*
* source Google Maps

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.169 (0 145-0 196)	0.218 (0 187-0.254)	0.292 (0 250-0 341)	0.351 (0 300-0 407)	0.431 (0 365-0 500)	0.493 (0 417-0 572)	0.559 (0 469-0 648)	0.629 (0.523-0 728)	0.723 (0 596-0 839)	0.798 (0 653-0 925)
10-min	0.257 (0 221-0 299)	0.332 (0 285-0 387)	0.445 (0 381-0 519)	0.534 (0 456-0 620)	0.656 (0.556-0 760)	0.751 (0 634-0 871)	0.851 (0 713-0 986)	0.957 (0 797-1 11)	1.10 (0 907-1 28)	1.22 (0 994-1 41)
15-min	0.318 (0 274-0 370)	0.412 (0 353-0 479)	0.552 (0 472-0 644)	0.662 (0 565-0 769)	0.813 (0 689-0 943)	0.931 (0 786-1 08)	1.06 (0 884-1 22)	1.19 (0 987-1 37)	1.37 (1.12-1 58)	1.51 (1 23-1 75)
30-min	0.428 (0 368-0 498)	0.554 (0 475-0 646)	0.743 (0 636-0 867)	0.892 (0 761-1 04)	1.10 (0 928-1 27)	1.25 (1 06-1 45)	1.42 (1 19-1.65)	1.60 (1 33-1 85)	1.84 (1 51-2.13)	2.03 (1 66-2 35)
60-min	0.530 (0 456-0 617)	0.686 (0 588-0.799)	0.920 (0 787-1 07)	1.10 (0 941-1 28)	1.36 (1 15-1 57)	1.55 (1 31-1 80)	1.76 (1 47-2 04)	1.98 (1 65-2 29)	2.28 (1 87-2 64)	2.51 (2 05-2 91)
2-hr	0.601 (0 514-0 711)	0.768 (0 656-0 912)	1.02 (0 868-1 21)	1.22 (1 04-1 43)	1.50 (1 26-1 76)	1.73 (1.44-2 02)	1.97 (1 63-2 30)	2.22 (1 83-2 59)	2.57 (2 09-3 01)	2.86 (2 30-3 35)
3-hr	0.645 (0 558-0 761)	0.820 (0 707-0 968)	1.08 (0 929-1 27)	1.28 (1 10-1.50)	1.57 (1 33-1 83)	1.79 (1.52-2 09)	2.04 (1 71-2 38)	2.30 (1.91-2.68)	2.66 (2 19-3 10)	2.95 (2 41-3 45)
6-hr	0.749 (0 651-0 875)	0.944 (0 822-1 11)	1.22 (1 06-1 42)	1.44 (1 25-1 67)	1.73 (1 49-2 01)	1.96 (1 68-2 28)	2.21 (1.88-2 56)	2.46 (2 08-2 85)	2.82 (2 36-3 27)	3.11 (2 58-3 61)
12-hr	0.835 (0 733-0 954)	1.05 (0 926-1 20)	1.34 (1 17-1 52)	1.56 (1 36-1 78)	1.86 (1 62-2 11)	2.09 (1.81-2 37)	2.33 (2 01-2.65)	2.58 (2 20-2 93)	2.92 (2 47-3 32)	3.19 (2 68-3 64)
24-hr	0.937 (0.830-1 07)	1.17 (1 04-1 33)	1.47 (1 30-1 66)	1.70 (1.50-1.92)	2.01 (1 77-2 28)	2.25 (1 98-2 54)	2.50 (2 19-2.82)	2.76 (2 40-3 10)	3.10 (2 68-3 49)	3.36 (2 89-3 79)
2-day	0.983 (0 875-1 10)	1.23 (1.10-1 38)	1.53 (1 37-1 71)	1.77 (1 57-1 97)	2.08 (1.85-2.32)	2.32 (2 06-2 59)	2.57 (2 27-2 87)	2.82 (2 48-3 15)	3.15 (2 76-3 52)	3.41 (2 96-3 81)
3-day	1.08 (0 974-1 19)	1.34 (1 21-1 48)	1.65 (1.49-1 82)	1.90 (1.71-2.09)	2.23 (2.00-2 45)	2.47 (2 22-2 72)	2.72 (2 44-3 00)	2.98 (2 65-3 28)	3.31 (2 94-3 64)	3.56 (3 15-3 92)
4-day	1.17 (1.07-1 28)	1.45 (1 33-1 59)	1.77 (1 62-1 93)	2.03 (1 85-2 21)	2.37 (2 16-2 57)	2.62 (2 39-2 85)	2.87 (2 61-3 13)	3.13 (2 83-3 40)	3.46 (3.12-3 77)	3.70 (3 34-4 04)
7-day	1.34 (1 22-1 45)	1.65 (1 51-1 79)	2.00 (1 84-2 17)	2.27 (2 08-2 46)	2.62 (2 41-2 83)	2.88 (2 64-3 11)	3.14 (2 87-3 39)	3.38 (3 09-3 65)	3.69 (3 37-3 99)	3.91 (3 56-4 23)
10-day	1.47 (1.35-1 60)	1.82 (1 67-1 97)	2.22 (2 04-2 40)	2.53 (2 33-2 73)	2.93 (2 70-3 16)	3.23 (2 97-3 48)	3.53 (3 24-3 80)	3.82 (3 50-4 12)	4.20 (3 83-4 52)	4.46 (4 06-4 82)
20-day	1.82 (1 67-1.98)	2.25 (2 07-2 45)	2.73 (2 51-2 96)	3.08 (2 84-3 34)	3.53 (3 25-3 82)	3.85 (3 54-4 17)	4.16 (3 81-4 49)	4.44 (4 07-4 79)	4.79 (4 39-5 17)	5.03 (4 61-5.44)
30-day	2.17 (2 00-2 35)	2.69 (2 47-2 91)	3.22 (2 97-3 48)	3.62 (3 33-3.89)	4.10 (3 77-4 40)	4.44 (4 08-4 76)	4.76 (4 38-5 10)	5.05 (4 64-5 42)	5.39 (4 95-5 78)	5.62 (5 16-6 03)
45-day	2.66 (2 45-2 86)	3.28 (3 03-3 54)	3.89 (3 60-4 19)	4.32 (4 00-4 65)	4.84 (4 48-5 20)	5.18 (4 80-5 56)	5.48 (5 09-5 87)	5.73 (5 33-6 14)	5.99 (5 59-6 41)	6.13 (5 74-6 54)
60-day	3.05 (2 82-3 30)	3.76 (3 48-4 07)	4.47 (4 15-4 82)	4.97 (4 61-5 35)	5.56 (5 17-5 98)	5.96 (5 54-6 41)	6.32 (5 88-6 79)	6.62 (6 17-7 12)	6.95 (6 49-7 47)	7.13 (6 70-7 66)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS)

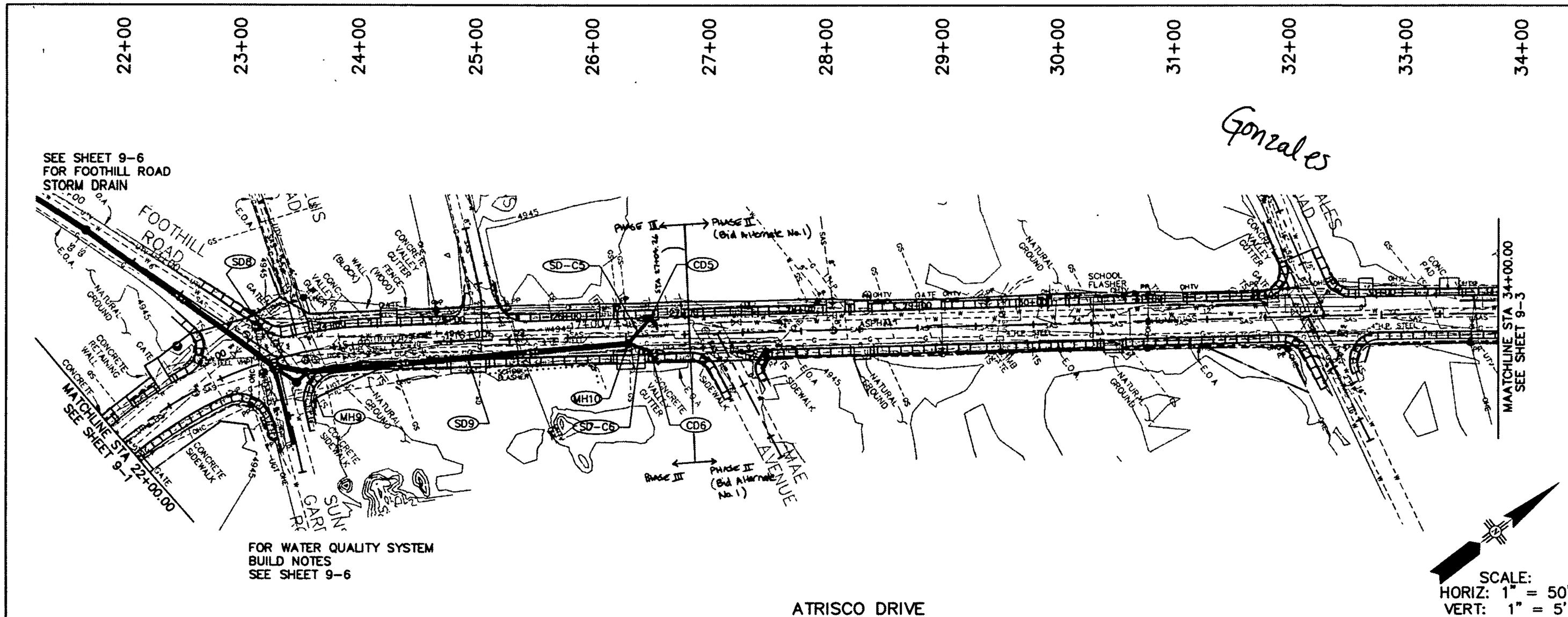
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5% Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values

Please refer to NOAA Atlas 14 document for more information

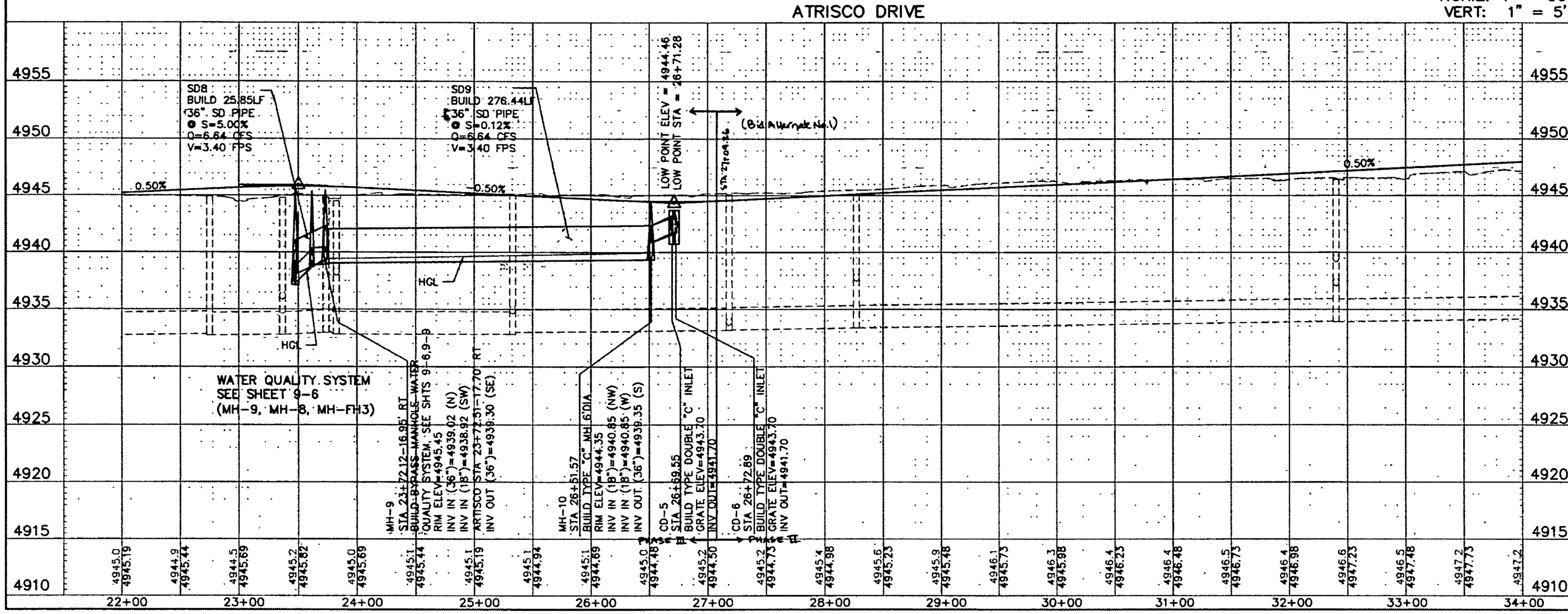
Back to Top

PF graphical

5



ATRISCO DRIVE



CONSTRUCTION BUILD NOTES
CONCRETE DROP INLET

(CD5) STA 26+69.55-15.50' LT
BUILD TYPE DOUBLE "C" INLET
GRATE ELEV=4943.70
INV OUT=4941.70

(CD6) STA 26+72.89-15.50' RT
BUILD TYPE DOUBLE "C" INLET
GRATE ELEV=4943.70
INV OUT=4941.70

CONSTRUCTION BUILD NOTES
STORM DRAIN MANHOLE

(MH10) STA 26+51.57-6.57' RT
BUILD TYPE "C" MANHOLE 6' DIA
SEE COA STD DWG 2101
RIM ELEV=4944.35
INV IN (18")=4940.85 (NW)
INV IN (18")=4940.85 (W)
INV OUT (36")=4939.35 (S)

(MH-FH3) ARTISCO STA 23+61.87-29.54'RT
FOOTHILL STA 14+53.10-15.21'RT
BUILD TYPE "C" MANHOLE 4' DIA
SEE COA STD DWG 2101
RIM ELEV=4945.22
INV IN (18")=4938.13 (E)
INV OUT (18")=4938.03 (SW)

(MH-9) ARTISCO STA 23+72.12-16.95' RT
BUILD BYPASS MANHOLE WATER QUALITY
SEE SHEET 9-9
RIM ELEV=4945.45
INV IN (36")=4939.02 (N)
INV OUT (18")=4938.92 (SW)
ARTISCO STA 23+72.51-17.70' RT
INV OUT (36")=4939.30 (SE)

CONSTRUCTION BUILD NOTES
STORM DRAIN PIPE

(SD8) BUILD 25.85LF OF 36" SD PIPE
S=5.00%

(SD9) BUILD 276.44LF OF 36" SD PIPE
S=0.12%

(SD-C5) BUILD 26.93LF OF 18" SD PIPE
S=3.16%

(SD-C6) BUILD 21.07LF OF 18" SD PIPE
S=4.03%

Notice Of Extended Payment Provision

This Contract allows the Owner to make payment within 45 days after submission of an undisputed request for payment.

AS-BUILT INFORMATION
CONTRACTOR
WORK STARTED BY
WORK COMPLETED BY
ACCEPTANCE BY
FINAL ACCEPTANCE BY
DATE
DRAWINGS CORRECTED BY
DATE
MICRO-FILM INFORMATION
RECORDED BY
DATE
NO.

BENCH MARKS
THE STA. IS A ACS 3-1/4" ALUMINUM TABLET STAMPED "ACS, 2-K12B, 1983" SET FLUSH WITH THE TOP OF CURB. THE STA. IS LOCATED 1.8 mi. WEST OF DOWNTOWN ALBQ. TO REACH THE STA. FROM THE WEST END OF OLD TOWN BRIDGE. TRAVEL WEST ON CENTRAL AVE. 0.2 mi. TO THE INTX. OF CENTRAL AVE. & ATRISCO DR. THE STA. IS AT THE SE CORNER OF THE INTERSECTION. ELEV.= 4954.92 FT. (3rd ORDER) (NGVD 29)

SURVEY INFORMATION
FIELD NOTES
NO. BY DATE

ENGINEER'S SEAL
NEW MEXICO REGISTERED PROFESSIONAL ENGINEER 15781

DMA
BY
REMARKS
REVISIONS
NO. DATE
WILSON & COMPANY, ENGINEERS & ARCHITECTS
DESIGNED BY EEA DATE 2004
DRAWN BY STAFF DATE 2004
CHECKED BY EEA DATE 2004

PROJECT LIMITS OF PHASES
PHASE I
PHASE II
PHASE III

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

ATRISCO DRIVE CORRIDOR IMPROVEMENTS
STORM DRAIN PLAN & PROFILE

Design Review Committee | City Engineer Approval | Last Design Update | Mo./Day/Yr. | Mo./Day/Yr.

City Project No. COA 5337-02 | Zone Map No. K-12 | Sheet 9-2 Of

WILSON & COMPANY

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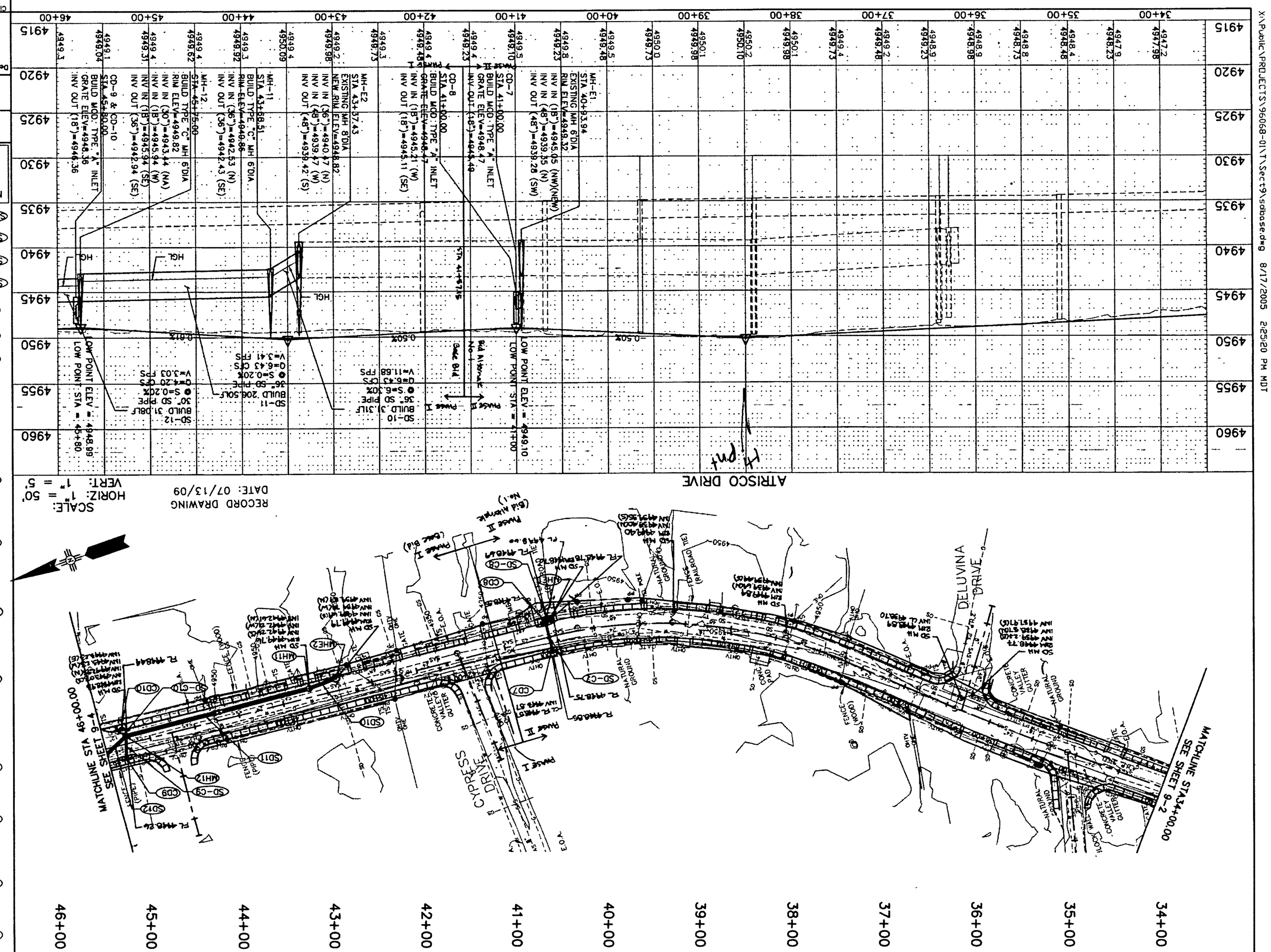

CONSTRUCTION BUILD NOTES
CONCRETE DROP INLET

CD7 STA 41+00.00-15.50', LT
BUILD MODIFIED TYPE "A" INLET
GRATE ELEV=4948.47
INV OUT(18")=4945.49

CD8 STA 41+00.00-15.50', RT
BUILD MODIFIED TYPE "A" INLET
GRATE ELEV=4948.47
INV IN (18")=4945.21 (W)
INV OUT(18")=4945.11 (SE)

CD9 STA 45+80.00-15.50', LT
BUILD MODIFIED TYPE "A" INLET
GRATE ELEV=4948.36
INV OUT (18")=4946.36

CD10 STA 45+80.00-15.50', RT
BUILD MODIFIED TYPE "A" INLET
GRATE ELEV=4948.36
INV OUT(18")=4946.36

CONSTRUCTION BUILD NOTES
STORM DRAIN MANHOLE

MH1 STA 40+93.94-19.19', RT
EXISTING MANHOLE 6' DIA
RIM ELEV=4949.32
INV IN (18")=4945.05 (NW)(NEW)
INV IN (48")=4939.35 (N)
INV OUT (48")=4939.28 (S)

MH2 STA 43+37.43-13.75', RT
EXISTING MANHOLE 6' DIA
NEW RIM ELEV=4948.82
INV IN (36")=4940.47 (N)
INV IN (48")=4939.47 (W)
INV OUT (48")= 4939.42 (S)

MH11 STA 43+68.51-9.97', RT
BUILD TYPE "C" MANHOLE 6' DIA
SEE COA STD DWG 2101
RIM ELEV=4949.86
INV IN (36")=4942.53 (N)
INV OUT (36")= 4942.53 (SE)

MH12 STA 45+75.00-8.54', RT
BUILD TYPE "C" MANHOLE 6' DIA
SEE COA STD DWG 2101
RIM ELEV=4948.82
INV IN (30")=4943.44 (NA)
INV IN (18")=4945.94 (W)
INV IN (18")=4945.94 (SE)
INV OUT (36")= 4942.94 (S)

CONSTRUCTION BUILD NOTES
STORM DRAIN PIPE

SD10 BUILD 31.3LF OF 36" SD PIPE
● S=6.30%

SD11 BUILD 206.50LF OF 36" SD PIPE
● S=0.20%

SD12 BUILD 31.08LF OF 30" SD PIPE
● S=0.20%

SD-C7 BUILD 28.00LF OF 18" SD PIPE
● S=1.00%

SD-C8 BUILD 5.18LF OF 18" SD PIPE
● S=1.16%

SD-C9 BUILD 22.61LF OF 18" SD PIPE
● S=1.86%

SD-C10 BUILD 5.93LF OF 18" SD PIPE
● S=7.08%

Notice Of Extended Payment Provision
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CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

ATRISCO DRIVE CORRIDOR IMPROVEMENTS
STORM DRAIN PLAN & PROFILE

Design Review Committee | City Engineer Approval | Last Design Update: Mo./Day/Yr. | Mo./Day/Yr.

City Project No.	Zone Map No.	Sheet	Of
COA 5337-02	K-12	9-3	

WILSON & COMPANY

Sheet 57 of 67

44/53

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ENGINEER'S SEAL

REGISTERED PROFESSIONAL ENGINEER — STATE OF NEW MEXICO — DIRK D. MEIER — 15781

NO.	DATE	BY	REMARKS
1	3/24/04		ADJUST LIMITS OF PHASES
2	7/13/04		AS BUILTS (ELEVATION INFO)

REVISIONS

WILSON & COMPANY, ENGINEERS & ARCHITECTS		
DESIGNED BY	EEA	DATE 2004
DRAWN BY	STAFF	DATE 2004
CHECKED BY	EEA	DATE 2004

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

BENCH MARKS

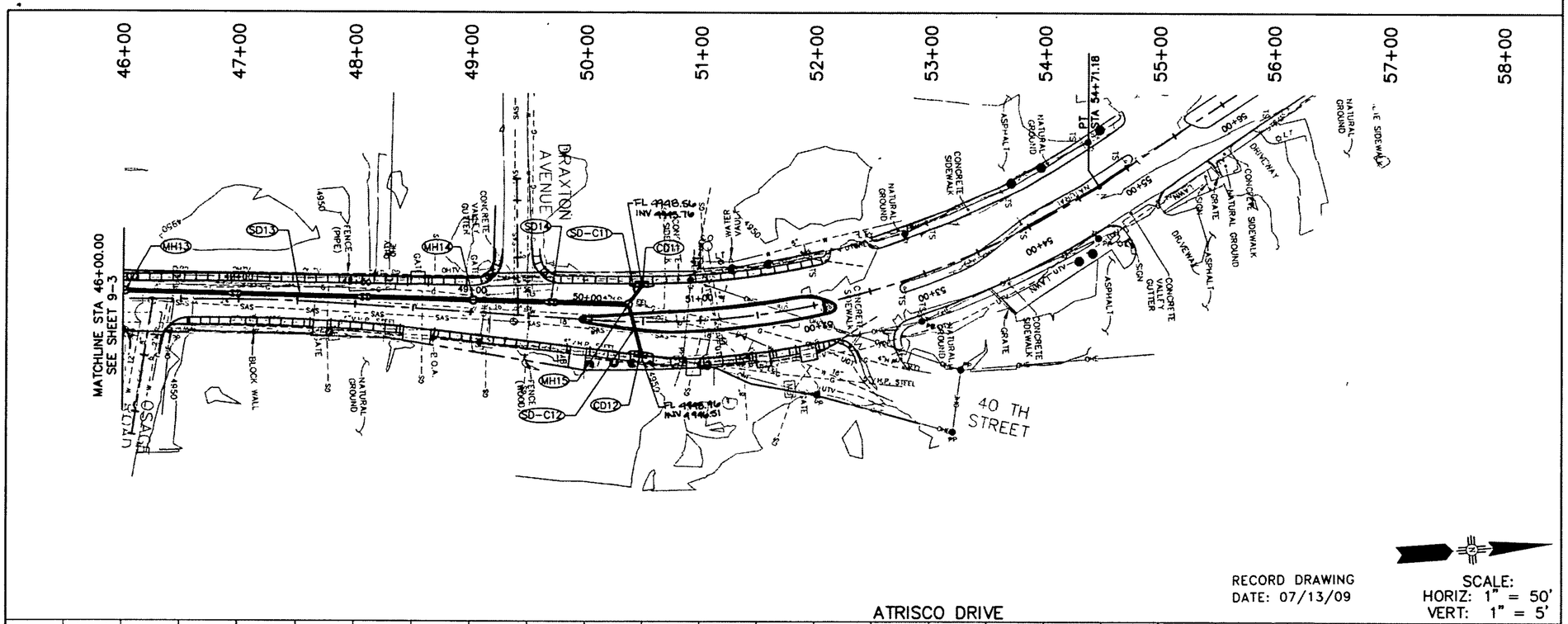
THE STA. IS A ACS 3-1/4" ALUMINUM TABLET, STAMPED "ACS, 2-K12B, 1983" SET FLUSH WITH THE TOP OF CURB. THE STA. IS LOCATED 1.8 mi. WEST OF DOWNTOWN ALBQ. TO REACH THE STA. FROM THE WEST END OF OLD TOWN BRIDGE, TRAVEL WEST ON CENTRAL AVE. 0.2 mi. TO THE INTX. OF CENTRAL AVE. & ATRISCO DR. THE STA. IS AT THE SE CORNER OF THE INTERSECTION. ELEV.= 4954.92 FT. (3rd ORDER) (NGVD 29)

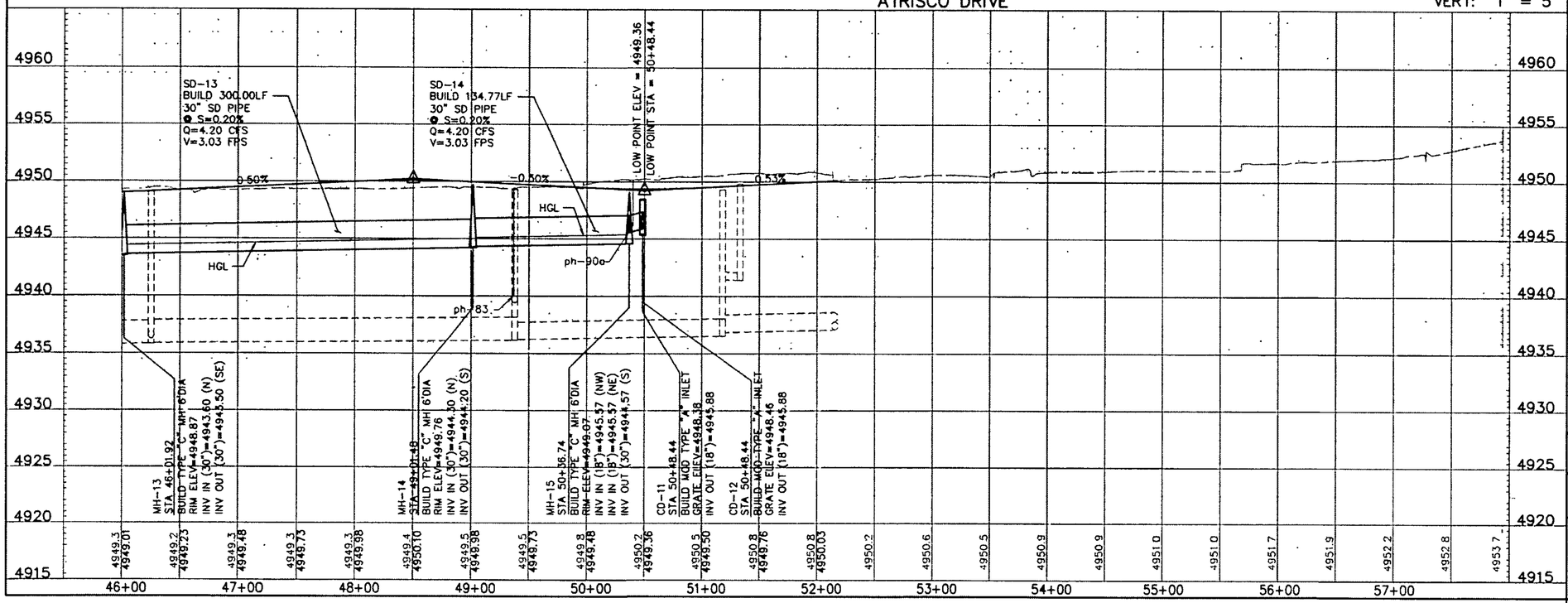
AS-BUILT INFORMATION

CONTRACTOR — DATE
WORK STAKED BY — DATE
ACCEPTANCE BY — DATE
VERIFICATION BY — DATE
CORRECTIONS BY — DATE

MICRO-FILM INFORMATION

RECORDED BY — DATE





CONSTRUCTION BUILD NOTES
CONCRETE DROP INLET

CD11 STA 50+48.44-32.98' LT
BUILD MODIFIED TYPE "A" INLET
GRATE ELEV=4948.38
INV OUT (18")=4945.88

CD12 STA 50+48.44-28.86' RT
BUILD MODIFIED TYPE "A" INLET
GRATE ELEV=4948.46
INV OUT (18")=4945.88

CONSTRUCTION BUILD NOTES
STORM DRAIN MANHOLE

MH13 STA 46+01.92-7.00' LT
BUILD TYPE "C" MANHOLE 6' DIA
SEE COA STD DWG 2101
RIM ELEV=4948.87
INV IN (30")=4943.60 (N)
INV OUT (30")= 4943.50 (SE)

MH14 STA 49+01.48-10.34' LT
BUILD TYPE "C" MANHOLE 6' DIA
SEE COA STD DWG 2101
RIM ELEV=4949.76
INV IN (30")=4944.30 (N)
INV OUT (30")= 4944.20 (S)

MH15 STA 50+36.74-15.23' LT
BUILD TYPE "C" MANHOLE 6' DIA
SEE COA STD DWG 2101
RIM ELEV=4949.07
INV IN (18")=4945.57 (NW)
INV IN (18")=4945.57 (NE)
INV OUT (30")= 4944.57 (S)

CONSTRUCTION BUILD NOTES
STORM DRAIN PIPE

SD13 BUILD 300.00LF OF 30" SD PIPE
S=0.20%

SD14 BUILD 134.77LF OF 30" SD PIPE
S=0.20%

SD-C11 BUILD 19.39LF OF 18" SD PIPE
S=1.60%

SD-C12 BUILD 43.74LF OF 18" SD PIPE
S=0.71%

Notice Of Extended Payment Provision

This Contract allows the Owner to make payment within 45 days after submission of an undisputed request for payment.

AS-BUILT INFORMATION
CONTRACTOR — DATE
WORK STAKED BY — DATE
ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS
THE STA. IS A ACS 3-1/4" ALUMINUM TABLET STAMPED "ACS, 2-K12B, 1983" SET FLUSH WITH THE TOP OF CURB. THE STA. IS LOCATED 1.8 mi. WEST OF DOWNTOWN ALBQ. TO REACH THE STA. FROM THE WEST END OF OLD TOWN BRIDGE, TRAVEL WEST ON CENTRAL AVE. 0.2 mi. TO THE INTX. OF CENTRAL AVE. & ATRISCO DR. THE STA. IS AT THE SE CORNER OF THE INTERSECTION. ELEV = 4954.92 FT. (3rd ORDER) (NGVD 29)

SURVEY INFORMATION
FIELD NOTES
NO. | BY | DATE

ENGINEER'S SEAL
REGISTERED PROFESSIONAL ENGINEER (5781) STATE OF NEW MEXICO

7/13/09 AS-BUILTS (ELEVATION INFO.)

NO.	DATE	REMARKS	BY

REVISIONS

WILSON & COMPANY, ENGINEERS & ARCHITECTS
DESIGNED BY EEA DATE 2004
DRAWN BY STAFF DATE 2004
CHECKED BY EEA DATE 2004

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

ATRISCO DRIVE CORRIDOR IMPROVEMENTS
STORM DRAIN PLAN & PROFILE

Design Review Committee | City Engineer Approval | Last Design Update | Mo./Day/Yr | Mo./Day/Yr

City Project No. COA 5337-02 | Zone Map No. K-12 | Sheet 9-4 Of

WILSON & COMPANY

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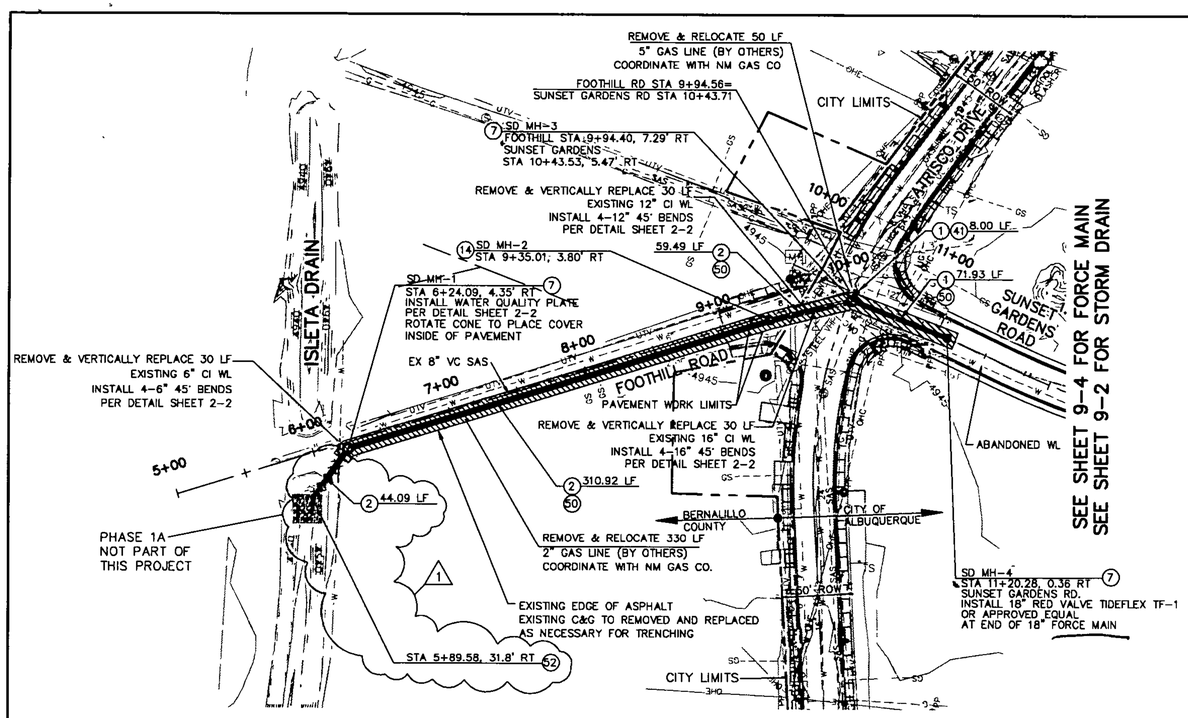
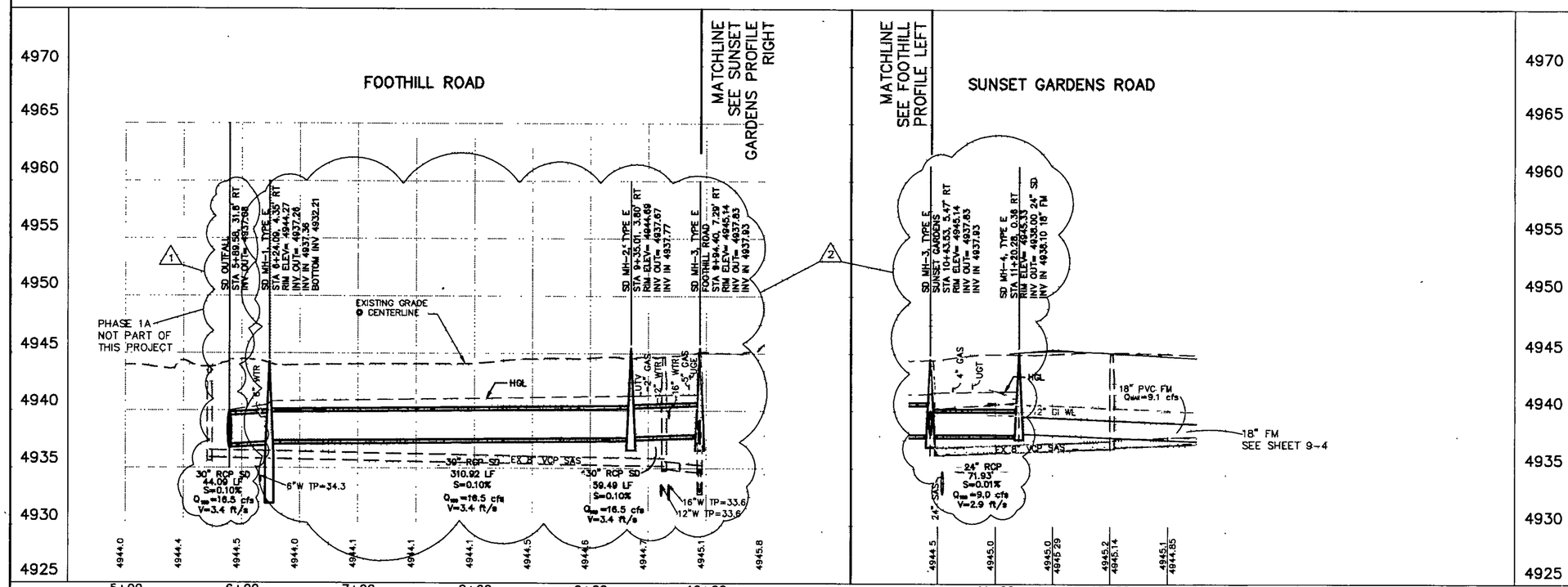




STORM DRAIN CONSTRUCTION NOTES

I.D.#	DESCRIPTION
1	INSTALL 24" RCP TYPE III STORM DRAIN PIPE
2	INSTALL 30" RCP TYPE III STORM DRAIN PIPE
7	INSTALL 6' DIA. TYPE 'E' MANHOLE PER COA STD. DTL. 2101
14	INSTALL 4' DIA. TYPE 'E' MANHOLE PER COA STD. DTL. 2101
41	INSTALL 24" STORM DRAIN PLUG
50	PAVEMENT CUT PER STD DWG 2465
52	INSTALL 30" STORM DRAIN END SECTION WITH RIPRAP PER DETAIL SHEET 2-2

NOTE: MECHANICAL JOINT RESTRAINED SHALL BE INSTALLED ON ALL FITTINGS

	JOINT RESTRAINT		
	HORIZONTAL BENDS	VERTICAL DOWNBEND 45°	
PIPE SIZE	45° BEND	UPPER BEND RESTRAINT	LOWER BEND RESTRAINT
16"	19'	42'	12'
12"	12'	27'	8'
6"	7'	14'	4'

NOTES:

1. TRENCH BOXES TO BE USED AS NECESSARY TO MAINTAIN ACCESS TO DRIVEWAYS, MINIMIZE TRENCH LIMITS AND MINIMIZE UNDERGROUND UTILITY DISTURBANCE. (INCIDENTAL TO CONTRACT)
2. TRENCH DEWATERING TO BE PERFORMED AS NECESSARY (ANTICIPATED WATER TABLE DEPTH=10.5' ±)
3. ALL EXISTING UTILITY SERVICES DISTURBED FOR INSTALLATION OF STORM DRAIN SHALL BE REMOVED AND REPLACED PER CURRENT COA SPECIFICATIONS AS NECESSARY.

AS-BUILT INFORMATION

CONTRACTOR / DATE
WORK STAKED BY / DATE
INSPECTOR'S ACCEPTANCE BY / DATE
FIELD VERIFICATION BY / DATE
DRAWINGS CORRECTED BY
MICRO-FILM INFORMATION
RECORDED BY / DATE
NO.

BENCH MARKS

THE STA. MARK IS AN ACS 3 1/4" ALUMINUM CAP STAMPED "17-L12, 1987".
GEOGRAPHIC POSITION (NAD 1927)
N.M. STATE PLANE COORDINATES (CENTRAL ZONE)
X = 371,056.24 Y = 1,479,124.60
GROUND-TO-GRID FACTOR = 0.9996826812
NAVD 1929 ELEVATION = 4942.697

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

DONALD M. DUNCAN NEW MEXICO 17818 LICENSED PROFESSIONAL ENGINEER

NO.	DATE	REMARKS	BY
1	7/21/10	REVISED SD GRADES	DMD
2	6/9/10	DELETE OUTFALL PIPE	DMD

REVISIONS

WILSON & COMPANY, ENGINEERS & ARCHITECTS

DESIGNED BY	DMD	DATE DEC 2009
DRAWN BY	KSH	DATE DEC 2009
CHECKED BY	DMD	DATE DEC 2009

RECEIVED
NOV 26 2014
LAND DEVELOPMENT SECTION

BERNALILLO COUNTY
PUBLIC WORKS DIVISION

SUNSET GARDENS ROAD PHASE I
STORM DRAIN PLAN & PROFILE
FOOTHILL RD STA 5+00 TO STA 10+00

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr	Mo./Day/Yr

City Project No.	County Project No.	Zone Map No.	DWG NO.
COA #4938.61	BCC #TS06-07	K-12-Z	9-1

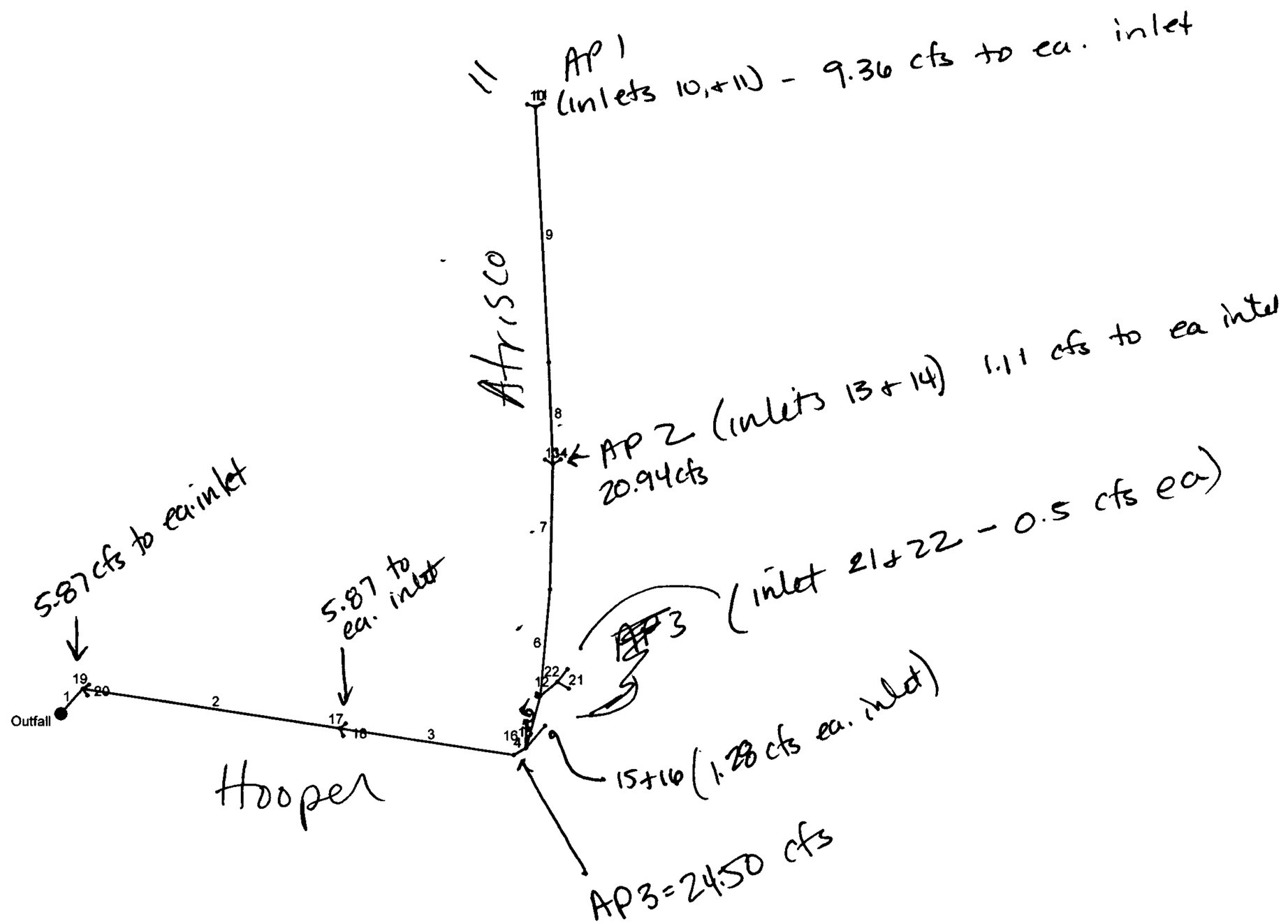
WILSON & COMPANY

SHEET 21 OF 36

M:\IDS\07-600-033-00\CADD\SHEETS\09-SD\09-01-SD-PNP.dwg 12/17/2009 9:59:49 AM MST

10

Atrisco DR



Project File: Atrisco DR.stm	Number of lines: 22	Date: 11/21/2014

Storm Sewers v10 30

MyReport

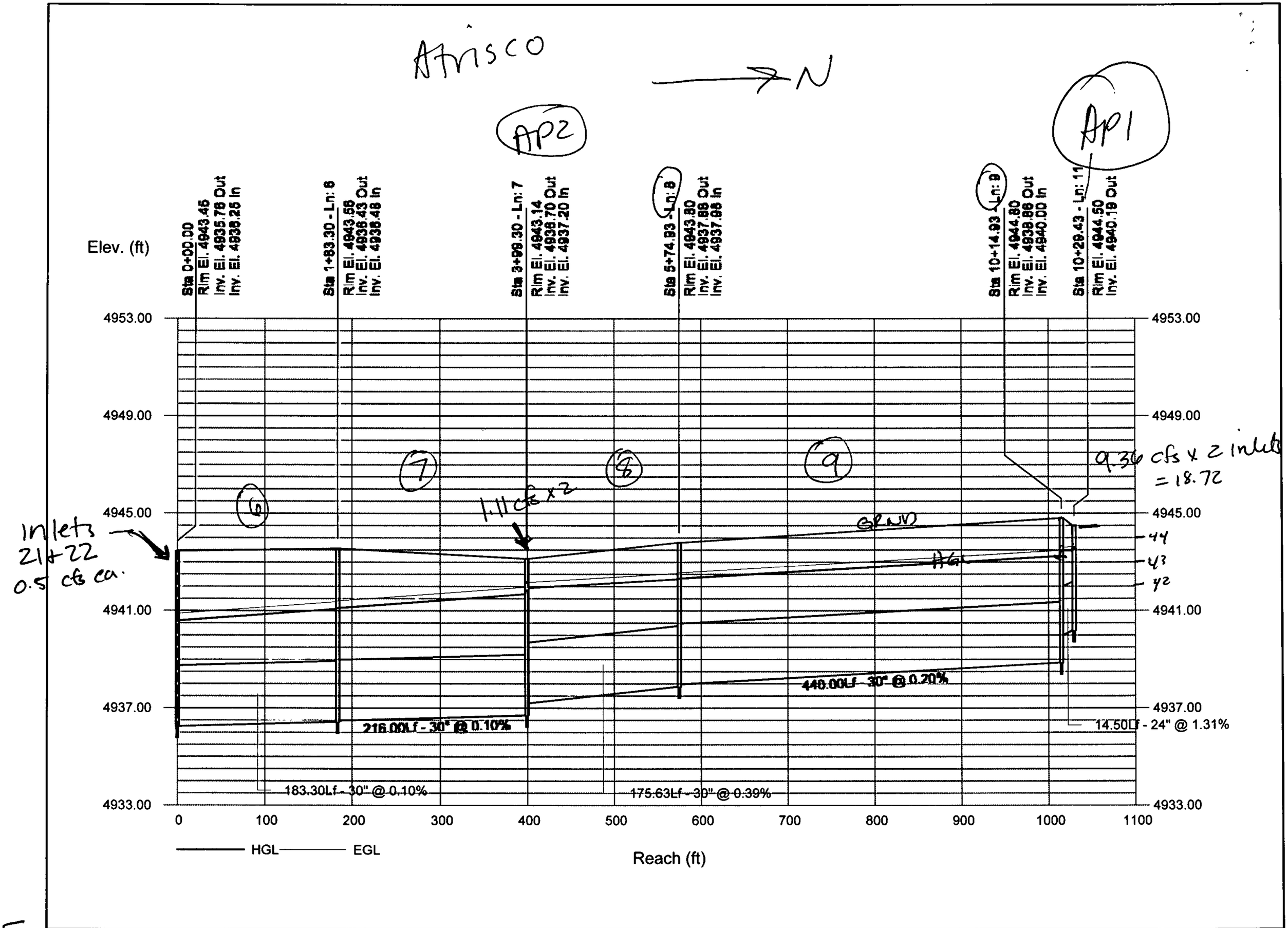
Line No.	Line ID	Line Size (in)	Line Length (ft)	Line Slope (%)	Flow Rate (cfs)	Invert Dn (ft)	Invert Up (ft)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	HGL Dn (ft)	HGL Up (ft)	Cover Dn (ft)	Cover Up (ft)	J-Loss Coeff	Vel Ave (ft/s)	Capac Full (cfs)
1		36	56.50	0.11	47.98	4934.00	4934.06	0.00	4940.50	4937.00	4937.29	n/a	3.44	1.00	6.79	21.74
2		36	442.00	0.10	36.24	4934.06	4934.50	4940.50	4942.02	4938.01	4939.31	3.44	4.52	0.87	5.13	21.04
3		36	300.00	0.10	24.50	4934.50	4934.80	4942.02	4942.82	4939.67	4940.08	4.52	5.02	0.67	3.47	21.08
4		50% 36	24.00	4.08	24.50	4934.96	4935.94	4942.82	4942.90	4940.20	4940.23	4.86	3.96	0.89	3.47	134.77
5		50 1' 36	93.30	0.77	21.94	4935.04	4935.76	4942.90	4943.45	4940.40	4940.50	4.86	4.69	0.63	3.10	58.58
6		50 -15 30	183.30	0.10	20.94	4936.25	4936.43	4943.45	4943.56	4940.59	4941.07	4.70	4.63	0.15	4.27	12.86
7		40 - 14 30	216.00	0.10	20.94	4936.48	4936.70	4943.56	4943.14	4941.11	4941.68	4.58	3.94	0.89	4.27	13.09
8		- 18 30	175.63	0.39	18.72	4937.20	4937.88	4943.14	4943.80	4941.93	4942.30	3.44	3.42	0.15	3.81	25.51
9		- 19 30	440.00	0.20	18.72	4937.98	4938.86	4943.80	4944.80	4942.33	4943.25	3.32	3.44	0.94	3.81	18.34
10		24	14.50	1.31	9.36	4940.00	4940.19	4944.80	4944.50	4943.46	4943.48	2.80	2.31	1.00	2.98	25.89
11		24	14.50	1.31	9.36	4940.00	4940.19	4944.80	4944.50	4943.46	4943.48	2.80	2.31	1.00	2.98	25.89
12		24	37.60	0.13	1.00	4936.75	4936.80	4943.45	4943.29	4940.59	4940.59	4.70	4.49	0.95	0.32	8.23
13		24	15.70	3.76	1.11	4937.92	4938.51	4943.14	4942.83	4941.93	4941.93	3.22	2.32	1.00	0.35	43.84
14		24	15.70	3.76	1.11	4937.92	4938.51	4943.14	4942.83	4941.93	4941.93	3.22	2.32	1.00	0.35	43.84
15		24	50.50	1.37	1.28	4938.00	4938.69	4942.90	4943.90	4940.40	4940.40	2.90	3.21	1.00	0.43	26.44
16		24	43.00	1.60	1.28	4938.00	4938.69	4942.90	4943.90	4940.40	4940.40	2.90	3.21	1.00	0.43	28.65
17		24	13.00	3.85	5.87	4937.50	4938.00	4942.02	4942.66	4939.67	4939.66	2.52	2.66	1.00	1.99	44.36
18		24	14.00	3.57	5.87	4937.50	4938.00	4942.02	4942.66	4939.67	4939.66	2.52	2.66	1.00	1.99	42.74
19		24	13.00	3.38	5.87	4935.06	4935.50	4940.50	4940.30	4938.01	4938.02	3.44	2.80	1.00	1.87	41.61
20		24	14.00	3.14	5.87	4935.06	4935.50	4940.50	4940.30	4938.01	4938.02	3.44	2.80	1.00	1.87	40.09
21		24	23.00	3.04	0.50	4936.80	4937.50	4943.29	4943.30	4940.60	4940.60	4.49	3.80	1.00	0.16	39.46
22		24	28.00	2.50	0.50	4936.80	4937.50	4943.29	4943.30	4940.60	4940.60	4.49	3.80	1.00	0.16	35.77

Atrisco DR	Number of lines: 22	Date: 11/21/2014

NOTES: ** Critical depth

Storm Sewer Profile

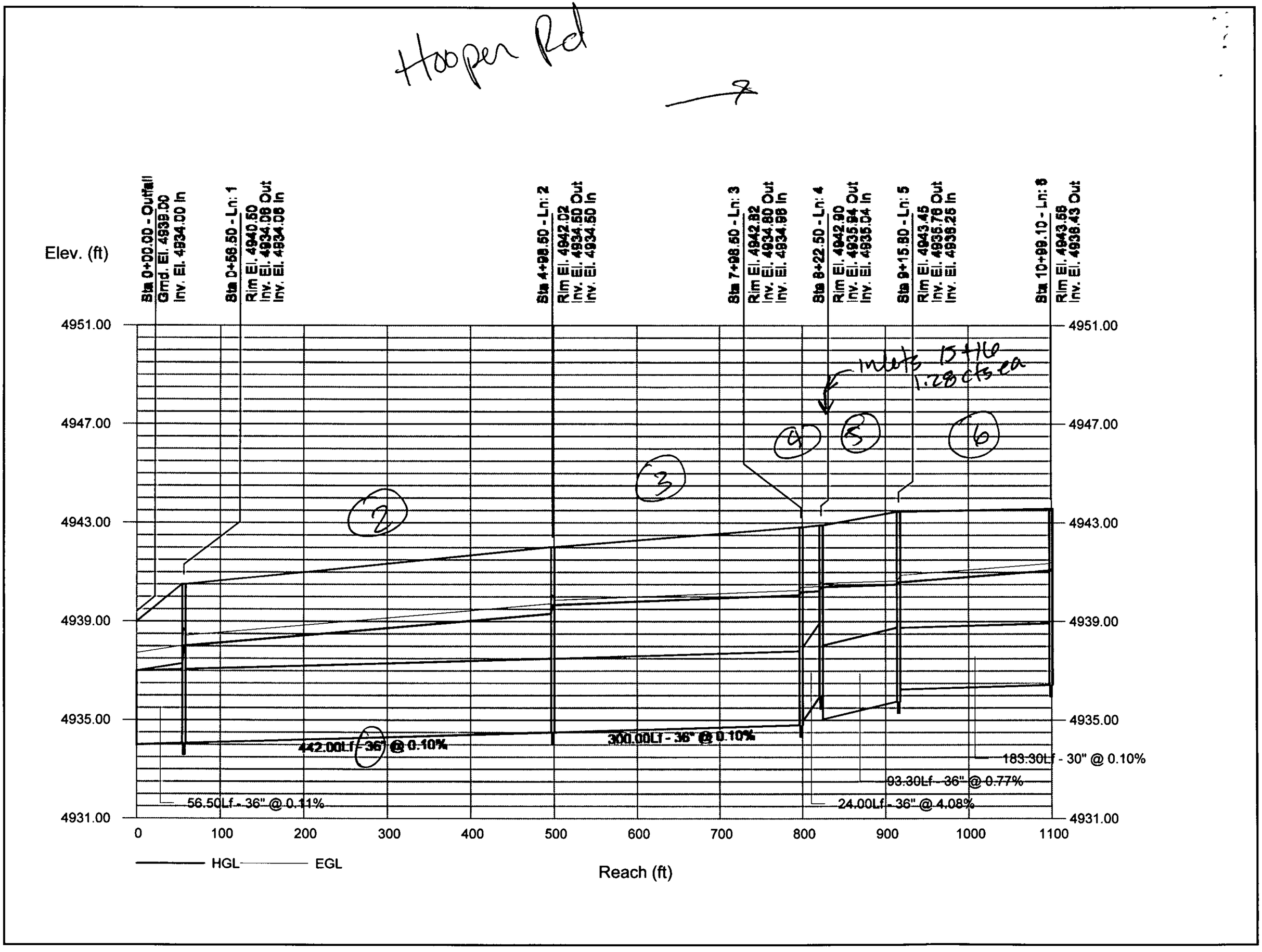
Proj. file: Atrisco DR.stm



5

Storm Sewer Profile

Proj. file: Atrisco DR.stm



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City of Albuquerque

Planning Department
Development & Building Services Division
DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV. 2/2013)

Project Title: Atrisco Drive Corridor Improvements Ph III (Proj. No. 5337-02) City Drainage #. K12D034

DRB#: _____ EPC#: _____ Work Order #: _____

Legal Description: _____

City Address: _____

Engineering Firm: Wilson & Company, Engineers and Architects Contact: DONNIE DUNEMAN

Address: 4900 Lang Avenue, NE, Albuquerque, NM 87109

Phone #: 505-348-4000 Fax #: _____ Email: Donald duneman@wilsonco.com

Owner: CITY OF ALBUQUERQUE Contact: _____

Address: DMD Engineering

Phone #: 505-768-2791 Fax #: 505-768-2733 Email: jjluehring@cabq.gov

Architect: _____ Contact: _____

Address: _____

Phone #: _____ Fax #: _____ Fax #: _____

Surveyor: _____ Contact: _____

Address: _____

Phone #: _____ Fax #: _____ Email: _____

Contractor: _____ Contact: _____

Address: _____

Phone #: _____ Fax #: _____ Email: _____

TYPE OF SUBMITTAL:

X DRAINAGE REPORT
___ DRAINAGE PLAN 1st SUBMITTAL
___ DRAINAGE PLAN RESUBMITTAL
___ CONCEPTUAL G & D PLAN
___ GRADING PLAN
___ EROSION & SEDIMENT CONTROL PLAN (ESC)
___ ENGINEER'S CERT (HYDROLOGY)
___ CLOMR\LOMR
___ TRAFFIC CIRCULATION LAYOUT (TCL)
___ ENGINEERS CERT (TCL)
___ ENGINEERS CERT (DRB SITE PLAN)
___ ENGINEERS CERT (ESC)
___ SO-19
___ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

___ SIA/FINANCIAL GUARANTEE RELEASE
___ PRELIMINARY PLAT APPROVAL
___ S. DEV. PLAN FOR SUB'D. APPROVAL
___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
___ SECTOR PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ CERTIFICATION OF OCCUPANCY (PERM)
___ CERTIFICATION OF OCCUPANCY (TCL TEMP)
___ FOUNDATION PERMIT APPROVAL
___ BUILDING PERMIT APPROVAL
___ GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
X WORK ORDER APPROVAL
___ GRADING CERTIFICATION
___ SO-19 APPROVAL
___ ESC PERMIT APPROVAL
___ ESC CERT. ACCEPTANCE
___ OTHER (SPECIFY)

Submitted Nov 26, 14

WAS A PRE-DEISGN CONFERENCE ATTENDED: ___ Yes ___ No ___ Copy Provided

DATE SUMBITTED: November 26, 2014 By: Maryam Giahi

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans**. Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land distributing area, including project less than 1-acre than part of a larger common plan of development

Worksheet for Curb Inlet In Sag

Project Description

Solve For	Spread

Input Data

Discharge	9.40	ft³/s
Gutter Width	1.33	ft
Gutter Cross Slope	0.06	ft/ft
Road Cross Slope	0.02	ft/ft
Curb Opening Length	7.00	ft
Opening Height	0.54	ft
Curb Throat Type	Horizontal	
Local Depression	2.00	in
Local Depression Width	7.00	ft
Throat Incline Angle	90.00	degrees

Results

Spread	6.98	ft
Depth	0.42	ft
Gutter Depression	0.05	ft
Total Depression	0.22	ft

@ what type of inlet? does inlet type for have capacity 2x 100 yr?

17

```
AHYMO PROGRAM SUMMARY TABLE (AHYMO-S4)                    - Ver. S4.01a, Rel: 01a      RUN DATE (MON/DAY/YR) =11/24/2014
INPUT FILE = RN\12-100-216-11\2_Disciplines\Drainage\Calculations\AHYMO\Atrisco RD.txt    USER NO.= AHYMO_Temp_User:20122010

                              FROM  TO                    PEAK        RUNOFF                TIME TO    CFS      PAGE =   1
                HYDROGRAPH    ID    ID        AREA     DISCHARGE     VOLUME      RUNOFF     PEAK     PER
COMMAND       IDENTIFICATION  NO.   NO.      (SQ MI)     (CFS)       (AC-FT)    (INCHES)  (HOURS)   ACRE     NOTATION

*S*****************************************************************************
*S
*S                 100 YEAR 6 HOUR STORM - PROPOSED RUNOFF ANALYSIS
*S                 RAINFALL DATA FROM NOAA ATLAS 14
*S                 RAINFALL DATA UPDATED FOR SPECIFIC AREA
*S
*S*****************************************************************************
*S NOTES:
*S*       1. DRAINAGE ANALYSIS TO ACCOUNT FOR FLAT TERRAIN USING LAND FACTORS CO
*S*                 IS METHOD IS BASED ON THE "ANALYSIS OF THE AHYMO PROGRAM FOR
*S*                      FLAT AREAS" BY BHI-1995
*S*       2. ALSO MODIFIED THE LAND TREATMENT PERCENTAGES FROM THE SUNSET
*S*                      GARDENS PHI & FIVE POINTS DRAINAGE REPORT
START                                                                                                   TIME=      0.00
*S
RAINFALL  TYPE= 1 NOAA 14                                                                               RAIN6=    2.210
LAND FACTORS                                                                                            TYPE =   1
*S
*S ---------------------------------------------------------------------------
*S COMPUTE BASINS DRAINING TO ATRISCO RD
*S ---------------------------------------------------------------------------
*S
*S*****************************************************************************
*S      BASIN 28-24.1 (ATRISCO RD, SUNSET GARDENS TO N OF 5 POINTS, 1.645 AC)
*S*****************************************************************************
COMPUTE NM HYD        100.00   -     1       0.00257        6.83       0.230      1.67894    1.500    4.153 PER IMP= 100.00
*S
*S
*S*****************************************************************************
*S      BASIN 24.1 (SOUTH OF SUNSET GARDENS TO ATRISCO, 8.204 AC)
*S*****************************************************************************
COMPUTE NM HYD        101.00   -     2       0.01280       15.30       0.605      0.88657    1.600    1.868 PER IMP=  36.00
*S*****************************************************************************
*S      BASIN 24.2 (HOLY FAMILY CHURCH PROPOERTY, RETENTION, 9.890 AC)
*S*****************************************************************************
COMPUTE NM HYD        102.00   -     3       0.01540       33.65       1.109      1.34970    1.533    3.415 PER IMP=  70.00
*S*****************************************************************************
*S
*S ADD ALL FLOWS TO ATRISCO RD (AP 2) - NO CONTRIBUTION FROM CHURCH PROPERTY
*S
ADD HYD               12.00  1& 2  12       0.01537       20.94       0.835      1.01902    1.567    2.128
*S COMPUTE BASINS DRAINING TO HOOPER RD
*S*****************************************************************************
*S      BASIN 28.2 (HOOPER RD ( 13.19 AC), 5 POINTS RD (1.985 AC) TOTAL 15.18 AC
*S*****************************************************************************
COMPUTE NM HYD        103.00   -     4       0.02370       27.21       1.121      0.88657    1.633    1.794 PER IMP=  36.00
*S*****************************************************************************
*S ADD ALL FLOWS TO ISLETA DRAIN (AP 4)
*S
```


6

```
ADD HYD                 5.00 12& 4   5       0.03907        47.98       1.956      0.93866    1.600    1.919
*S     BASIN 27-24.1 (ATRISCO RD, NORTH OF SUNSET GARDENS, 1.77 AC)
*S*************************************************************************
COMPUTE NM HYD        104.00   -     6       0.00355         7.23       0.288      1.52069    1.600    3.184 PER IMP=  85.00
*S
*S
FINISH
```

```
* ATRISCO ROAD, CITY OF ALBUQUERQUE DRAINAGE ANALYSIS
* WILSON & COMPANY PROJECT 12-100-216-11
* DEVELOPED CONDITIONS MODEL
* 100 YR 6 HR STORM EVENT
* DATE: OCTOBER 2014
* FILE: M:\TRN\12-100-216-11\2_Disciplines\Drainage\Calculations\AHYMO\Atrisco RD.txt
*
*S*****************************************************************************
*S
*S      100 YEAR 6 HOUR STORM - PROPOSED RUNOFF ANALYSIS
*S      RAINFALL DATA FROM NOAA ATLAS 14
*S      RAINFALL DATA UPDATED FOR SPECIFIC AREA
*S
*S*****************************************************************************
*S NOTES:
*S*       1. DRAINAGE ANALYSIS TO ACCOUNT FOR FLAT TERRAIN USING LAND FACTORS COMMAND.
*S*          THIS METHOD IS BASED ON THE "ANALYSIS OF THE AHYMO PROGRAM FOR
*S*          FLAT AREAS" BY BHI-1995
*S*       2. ALSO MODIFIED THE LAND TREATMENT PERCENTAGES FROM THE SUNSET
*S*          GARDENS PHI & FIVE POINTS DRAINAGE REPORT
*****************************************************************************
START           0.0 HOURS
*S
*
RAINFALL              TYPE=1     RAIN QUARTER=1.06 IN
                      RAIN ONE=1.76 IN    RAIN SIX=2.21 IN
                      RAIN DAY=2.50 IN    DT=0.03333 HRS
*
LAND FACTORS          TYPE=1
                      TREATMENT A IA=1.20  .     INF=1.67
                      TREATMENT B IA=1.05  .     INF=1.25
                      TREATMENT C IA=0.90  .     INF=0.83
                      TREATMENT D IA=0.40  .     INF=0.04
*S
*****************************************************************************
*S ---------------------------------------------------------------------------
*S COMPUTE BASINS DRAINING TO ATRISCO RD
*S ---------------------------------------------------------------------------
*S
*S*************************************************************************
*S     BASIN 28-24.1 (ATRISCO RD, SUNSET GARDENS TO N OF 5 POINTS, 1.645 AC)
*S*************************************************************************
*
COMPUTE NM HYD        ID=1 HYD=100  DA=0.00257 SQ MI
                      PER A=0 PER B=0 PER C=0 PER D=100
                      TP=0.1333  RAIN=-1
PRINT HYD             ID=1  CODE=10
*S
*S
*S*************************************************************************
*S     BASIN 24.1 (SOUTH OF SUNSET GARDENS TO ATRISCO, 8.204 AC)
*S*************************************************************************
*
COMPUTE LT TP         LCODE=1    NK=2    ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.00500   K=1.0
                      LENGTH=710 FT    SLOPE=0.00500   K=2.0

COMPUTE NM HYD        ID=2 HYD=101  DA=0.0128 SQ MI
                      PER A=10 PER B=27 PER C=27 PER D=36
                      TP=0.0  RAIN=-1
PRINT HYD             ID=2  CODE=10
*
*S*************************************************************************
*S     BASIN 24.2 (HOLY FAMILY CHURCH PROPOERTY, RETENTION, 9.890 AC)
*S*************************************************************************
*
COMPUTE LT TP         LCODE=1    NK=2    ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.00500   K=1.0
                      LENGTH=100 FT    SLOPE=0.00500   K=2.0

COMPUTE NM HYD        ID=3 HYD=102  DA=0.0154 SQ MI
                      PER A=0 PER B=5 PER C=25 PER D=70
                      TP=0.0  RAIN=-1
PRINT HYD             ID=3  CODE=10
*
*S*************************************************************************
*S
*S ADD ALL FLOWS TO ATRISCO RD (AP 2) - NO CONTRIBUTION FROM CHURCH PROPERTY
*S
```


8

```
*
ADD HYD              ID=12 HYD=12  ID I=1 II=2
PRINT HYD            ID=12 CODE=10
*
*************************************************************************
*S COMPUTE BASINS DRAINING TO HOOPER RD
*S************************************************************************
*S     BASIN 28.2 (HOOPER RD ( 13.19 AC), 5 POINTS RD (1.985 AC) TOTAL 15.18 AC )

*S************************************************************************
*
COMPUTE LT TP        LCODE=1    NK=2    ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.00500   K=1.0
                     LENGTH=800 FT    SLOPE=0.00500   K=2.0

COMPUTE NM HYD       ID=4 HYD=103  DA=0.0237 SQ MI
                     PER A=10 PER B=27 PER C=27 PER D=36
                     TP=0.0  RAIN=-1
PRINT HYD            ID=4  CODE=10
*
*S***********************************************************************
*
*S ADD ALL FLOWS TO ISLETA DRAIN (AP 4)
*S
*
ADD HYD              ID=5 HYD=5  ID I=12 II=4
PRINT HYD            ID=5 CODE=10
*
*************************************************************************
*S     BASIN 27-24.1 (ATRISCO RD, NORTH OF SUNSET GARDENS, 1.77 AC)
*S***********************************************************************
*
COMPUTE LT TP        LCODE=1    NK=2    ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.00500   K=1.0
                     LENGTH=750 FT    SLOPE=0.00500   K=2.0

COMPUTE NM HYD       ID=6 HYD=104  DA=0.00355 SQ MI
                     PER A=0 PER B=0 PER C=15 PER D=85
                     TP=0.0  RAIN=-1
PRINT HYD            ID=6  CODE=10
*


*************************************************************************
*S
*S
FINISH
```


9

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

December 11, 2014

Donnie Duneman, PE
Wilson & Company, Inc.
4900 Lang Ave. NE
Albuquerque, NM 87109

RE: **Atrisco Drive Corridor Improvements PH III**
Drainage Calculations
Engineer's Stamp Date - no stamp (File: K12D034)

Dear Mr. Duneman:

Based upon the information provided in your submittal received 11-26-14, the above referenced submittal is approved for Work Order. However the following comments must be addressed before DRC sign off.

- Modified A inlets – how are these modified? Provide a detail. - Maybe Dbl C throughout.
- Inlets in sump should be double grate. In valley conditions, double wings not necessary.
- Provide calculations to show CD-3 and CD-4 inlets on Sheet 9-1 collect 9.36cfs each.
- HGL on plan set does not match HGL in calculations.
- Explain drainage scheme at Atrisco and ~~Unser~~ Houser Intersection.
- Drive Pad at STA 20+16.99 does not seem to have a high enough water block. Calcs show a depth of 0.4', drive pad waterblock is 0.28'

If you have any questions, you can contact me at 924-3695.

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

DRC CPN 5337-02

Orig: Drainage file
c.pdf Addressee via Email , Monica Ortiz

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

WILSON & COMPANY

2600 THE AMERICAN ROAD SE, SUITE 100
RIO RANCHO, NEW MEXICO 87124
(505) 898-8021
FAX (505) 898-8501

TRANSMITTAL

Date:	Nov, 26 2014
Job No.:	12-600-216-11
Re: Atrisco DR Corridor Improvements PH III	
COA Project No. 5337-02	

To:
Plaza del Sol
600 2nd Street, NW
Albuquerque, NM 87102

Attn: **Rita Harmon**

WE ARE SENDING YOU ☑ Attached ☐ Under Separate Cover via Delivery the following items:

☐ Shop Drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☑ Reports

Copies	Date	Pages/Sheets	Description
1	11/26/14	22	Atrisco Drive Corridor Improvements PH III Drainage Memo
1	11/26/14	1	Drainage & Transportation Info Sheet

THESE ARE TRANSMITTED AS CHECKED BELOW:

☑ For approval/signature ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Return _____ copies ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____, 20___ ☐ PRINTS ON LOAN – RETURN TO WCEA AFTER BID

Remarks:

COPY TO: File

SIGNED: Maryam Giahi, PE

RECEIVED BY:

DATE:

RECEIVED
NOV 26 2014
LAND DEVELOPMENT SE

WILSON & COMPANY

Memorandum

Alaska
Arizona
California
Colorado
Kansas
Louisiana
Missouri
Nebraska
New Mexico
Oklahoma
Texas
Utah

To: Rita Harmon, P.E.

From: Donnie Duneman, P.E.

CC: File

Date: November 26, 2014 **File Number:** 12-100-216-11

Re: Atrisco Drive Corridor Improvements PH III

The Atrisco Drive Corridor Improvements PH III project consists of roadway and utility improvements in Atrisco Drive between Mae Avenue and Hooper Road. See attached Figure 1, Location Map. The project area generally slopes to the west and south. The current road is paved with multiple high and low points. There are no existing drainage structures in Atrisco Drive between Sunset Gardens Road and Hooper Road. There is an existing 30" underground storm drain in Foothill Road to convey flows from Sunset Gardens Road and Atrisco Drive north of Sunset Gardens Road. This pipe is currently plugged at Isleta Drain. The existing 30" storm pipe was designed with the Sunset Gardens Phase I drainage report. A 24" pipe with plug at the intersection of Sunset Gardens Road and Atrisco Drive was constructed for future connection See attached Sunset Gardens Phase I storm drain plan and profile sheet 9-1. The existing storm drain in Atrisco Drive between Draxton Avenue and Cypress Drive was constructed with the Atrisco Drive Phase I and II projects which drain into an existing 48" system extending from Atrisco Drive into Deluvina Drive. Inlets south of intersection with Cypress Drive collect flows in Atrisco Drive and connect to this existing 48" storm pipe. See attached record drawings of Atrisco Drive Corridor Improvements storm drain plan & profile sheets 9-2 to 9-4.

Rainfall data was obtained from NOAA Atlas 14 website. See Table 1 and attached Point Precipitation Frequency Estimates.

Table 1, Rainfall depths (Inches), 100-Yr Storm Event		
1 hr	6 hr	24 hr
1.76	2.21	2.50

Basins contributing to the project area are part of basins 24, 27 and 28 of Southwest Valley Flood Damage Reduction Study (SWVFDRS) dated January 2001 prepared by Resource Technology, Inc. (RTI). Basins in this memo are labeled as such to match the RTI report. See attached section of Figure 19.A-1. The 100-yr, 6 hr storm event was used in hydrological calculations. AHYMO-s4 program by C.E Anderson was used to calculate basins runoff. See attached AHYMO summary and input files. Land factors and land treatment percentages in the AHYMO model are based on Sunset Gardens Phase I drainage report for flat terrain. This method is based on the analysis for flat areas developed by Bohanan Huston, Inc. in 1995. Generated flows from the project area drains into ~~Isleta Drain~~. See Exhibit 1, Drainage Exhibit. Basin 28-24.1 is Atrisco Drive runoff. Basin 24.1 drains in a westerly direction into Atrisco Drive. This basin includes a low area east of Atrisco Drive creating a ponding area. When accumulated runoff overtop this ponding area, it will drain into Atrisco Drive. Total basin runoff was considered in calculations as a safety factor. Basin 24.2, the Holy Family Church property, includes two retention ponds along Atrisco Drive and one retention pond on the north edge of the property to retain all generated runoff. Only minor runoff from the front entrance of the church drains into the street. Basin 28.1 includes areas north of Hooper Road and south of Five Points Road which sheet flow west into Hooper Road. Basin 27-24.1 runoff drains into the low point near Mae Avenue. This basin extends 1,150' north of Mae Avenue collecting street runoff. See table 2, Basin data.

28.2 ?

South ?

Foothill ?

HIGHER Relationships
SHARED OWNERSHIP • COLLABORATION
INTENSITY • DISCIPLINE • SOLUTIONS

Table 2 - Basin Data				
Basin ID	Location	Area	Peak Flow	Runoff Volume
		ac	cfs	ac-ft
28-24.1	Atrisco Drive - S of Sunset Gardens Road	1.6	6.8	0.23
24.1	S of Sunset Gardens Road	8.2	15.3	0.61
24.2	Holy Family Church	9.9	33.7	1.11
28.1	N of Hooper Road	15.2	27.2	1.12
27-24.1	Atrisco Drive - N of Mae Avenue	1.8	7.2	0.29

Retention

Four analysis points were determined which are shown on Exhibit 1, Drainage Exhibit. See Table 3, Analysis Points.

Table 3 - Analysis Points	
AP	Peak Flow (cfs)
1	18.71
2	20.94
3	24.50
4	47.98
5	7.23

24.1 + 3.41
15.30 cfs

6.83-3.41 = 3.42

Hydraflow Storm Sewer Extension for Autodesk V10.3 was used in sizing storm pipes. Accumulated flows between Sunset Gardens Road and Hooper Road will be conveyed in an underground storm drain from Atrisco Drive into Hooper Road where it outfalls through a 36" pipe into Isleta Drain. See attached Hydraflow calculations. A water quality manhole will be designed to capture runoff sediments before draining into Isleta Drain. Inlets at Mae Avenue intersection will be tied to the existing 24" pipe at the intersection of Sunset Gardens Road and Atrisco Drive which conveys collected runoff through Foothill Road to Isleta Drain when that connection is constructed.

Street and inlet capacity calculations were made using Bentley FlowMaster V8.i. See attached calculations. The street capacity analysis determined that the maximum flow contained in the road is 33 cfs. The maximum calculated flow in Atrisco Drive is about 19 cfs. The City of Albuquerque double throat inlets will be used in sump areas where it can safely collect accumulated runoff.

← DBL TH BOAT
& DOUBLE WINE?
TYPE A or
TYPE C
Show capacity
Calcs.

Street Capacity

Worksheet for Atrisco DR

@ AP 1

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00500	ft/ft
Discharge	18.70	ft³/s

AP 1

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.62
0+07	0.50
0+07	0.00
0+22	0.31
0+37	0.00
0+37	0.50
0+44	0.62

X-section

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.62)	(0+07, 0.00)	0.013
(0+07, 0.00)	(0+37, 0.00)	0.016
(0+37, 0.00)	(0+44, 0.62)	0.013

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	0.40	ft
Elevation Range	0.00 to 0.62 ft	
Flow Area	7.42	ft²
Wetted Perimeter	31.46	ft

L 0.67'
OK

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Worksheet for Atrisco DR

Results

Hydraulic Radius	0.24	ft
Top Width	30.70	ft
Normal Depth	0.40	ft
Critical Depth	0.38	ft
Critical Slope	0.00627	ft/ft
Velocity	2.52	ft/s
Velocity Head	0.10	ft
Specific Energy	0.50	ft
Froude Number	0.90	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.40	ft
Critical Depth	0.38	ft
Channel Slope	0.00500	ft/ft
Critical Slope	0.00627	ft/ft

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Cross Section for Atrisco DR

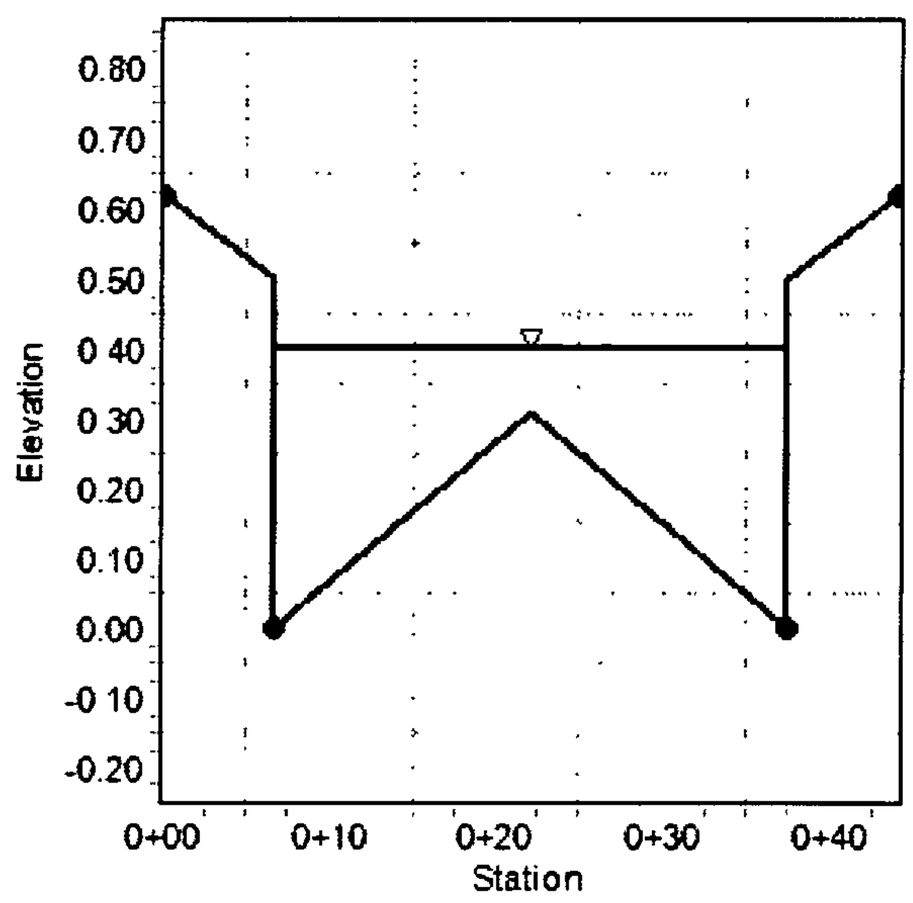
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00500	ft/ft
Normal Depth	0.40	ft
Discharge	18.70	ft³/s

Cross Section Image



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Harmon Rita T.

From: Duneman, Donald M. <Donald.Duneman@Wilsonco.com>
Sent: Thursday, December 11, 2014 5:52 PM
To: Harmon Rita T.
Subject: RE: Atrisco Drive Improvements PH III

Ok...FYI, there will be no work along foothill with this project. we are deleting this sheet from the plans. The storm drain along foothill is existing, as it was built with Sunset Gardens Phase 1 done by the County. The only missing piece is a segment of pipe to connect the storm drain to the Isleta Drain. Originally, we were going to make this connection, but now we are not.

Donnie Duneman, PE
Project Manager | Wilson & Company, Inc., Engineers & Architects | (505) 948-5125

From: Harmon Rita T. [mailto:rharmon@cabq.gov]
Sent: Thursday, December 11, 2014 5:10 PM
To: Duneman, Donald M.
Subject: FW: Atrisco Drive Improvements PH III

Also, another comment on the DRC set is in regards to FootHill Rd. The Profile looks like its part of this work order , but the plan is greyed out as if its existing. It looks like there are 3 manholes in the profile at that intersection, but only 2 shown on the plan.

Rita

From: Harmon Rita T.
Sent: Thursday, December 11, 2014 5:06 PM
To: 'Duneman, Donald M.'
Subject: RE: Atrisco Drive Improvements PH III

Oops. Atrisco and Hooper. The Plan and profile cuts off and its not clear if runoff south of Hooper drains to Hooper.

Rita

From: Duneman, Donald M. [mailto:Donald.Duneman@Wilsonco.com]
Sent: Thursday, December 11, 2014 5:04 PM
To: Harmon Rita T.
Subject: RE: Atrisco Drive Improvements PH III

Thank you Rita,
I noticed in your letter that you're requested an explanation of the drainage at Atrisco and Unser...did you mean Atrisco/Sunset Gardens or Atrisco/5points?

Donnie Duneman, PE
Project Manager | Wilson & Company, Inc., Engineers & Architects | (505) 948-5125

From: Harmon Rita T. [mailto:rharmon@cabq.gov]
Sent: Thursday, December 11, 2014 4:18 PM
To: Duneman, Donald M.
Subject: RE: Atrisco Drive Improvements PH III

Donnie,
Attached is the approval letter for the Atrisco Improvements. There are some comments that I would like to be addressed prior to DRC sign-off. I have added those same comments to the DRC set and are available if you would like to come pick them up. Since the major comments are on the letter it may not be pertinent. Please be sure to add a modified grate detail. Also, since you are using a Double C inlet upstream, why not use a Double C throughout? In Valley situations, debris in the SD is not desirable as there is not enough velocity to flush it out, so a Double C may be preferable to limit debris in the SD.

Rita Harmon, P.E.
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Development & Review Services Division
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From: Duneman, Donald M. [mailto:Donald.Duneman@Wilsonco.com]
Sent: Tuesday, December 09, 2014 3:58 PM
To: Harmon Rita T.
Subject: RE: Atrisco Drive Improvements PH III

Ok Rita,
I'll have your markup set delivered first thing tomorrow.
We're working on revising/correcting the storm drain sheets this week, addressing all your comments, including modifying the alignment of the SD to avoid utility conflicts. We should be resubmitting next Wednesday the 17th to DRC.
Thanks,

Donnie Duneman, PE
Project Manager | Wilson & Company, Inc., Engineers & Architects | (505) 948-5125

From: Harmon Rita T. [mailto:rharmon@cabq.gov]
Sent: Tuesday, December 09, 2014 1:50 PM
To: Duneman, Donald M.
Subject: RE: Atrisco Drive Improvements PH III

Hi Donnie,

I would prefer the review set in case I have further comments – otherwise I can make my comments on the next DRC set. Since we do not print submittals, scanning is not helpful, and I only review hard copies. The half size is very difficult to read, so I would like full size for the sheets showing the storm drain.