CITY OF
Albuquerque

February 3, 1998

Tucker Green, P.E.
Per Se Engineering
9109 La Barranca NE
Albuquerque, NM 87111

RE: PARSIFAL TOWN HOMES (G20-D39). ENGINEER'S CERTIFICATION FOR SUBDIVISION CERTIFICATION AND RELEASE OF FINANCIAL GUARANTY. ENGINEER'S CERTIFICATION DATED JANUARY 15, 1998.

Dear Mr. Green:

Based on the information provided on your January 15, 1998 submittal, City Hydrology accepts the Engineer's Certification of grading and drainage. Contact Terri Martin to obtain the Financial Guaranty Release.

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

Sincerely,

Lisa Ann Manwill, P.E.
Hydrology

c: Terri Martin
Andrew Garcia
File

ON SITE HYDROLOGY

≠

STREET FLOW

(INCLUDING INLETS ON HILTON R WEST OF SITE)

3-13-96

PARSIFAL TOWN HOMES

OLD DRAINAGE – AS WHEN HICTON IR STORM DRAINER WAS DESIGNED

HPSD = HILTON PLACE STORM DRAIN

HPSD – IF PROP NOT DEVELOPED, ANALYZED AS IF BUILT OUT ACCORDING TO ITS ZONING

SIZE – ZONE P FOR PARKING AT THAT TIME

METHODOLOGY IN HPSD

RATIONAL METHOD $Q_p = CIA$ WITH INTENSITY I INCREASING WITH LARGER UPSTREAM BASINS IE. INCREASES IN DOWNSTREAM DIRECTION & INCREASING TIME of CONCENTRATION TC

T_{MIN} = 10 MINUTES

PARKING AREAS

ASSUME 85% PAVING 15% IRRIGATED LANDSCAPING IF BUILT OUT AT TIME OF HPSD DESIGN (1980-90) (AS ZONING CODE NOW)

AT MONTGOMERY & ELBANK, "OLD" 6HR-VOLUME 2.45"

PL 22.2 D-1

T_C = 10 MIN = $T_{C\,MIN}$

PEAK INTENSITY $I = (6\text{HR RAIN})(6.84)(T_C^{-0.51})$ PL 22.2 D-2

= 6HR RAIN * 2.11

= 5.17 IN HR

COMPOSITE C – FROM 1980 EMERGENCY RULE

STREETS DRIVES – IMPERV $C = 0.95$

LAWNS & LANDSCAPING $C = 0.25$

COMPOSITE $(0.85)(0.95) + (0.15)(0.25) = 0.85$

PER ACRE, ZONED PARKING $Q_p = (0.85)(5.17)(1)$

= 4.37 CFS/AC

(FOR ALL PAVING & C=0.95 $Q_p = (0.95)(5.17)(1)$

= 4.91 CFS/AC).

FILE=PARHYD1.WQ1
ALBUQUERQUE, NM (1/93 DPM CHAP 22.2) CRITERIA - SIMPLE PROCEDURE FOR <= 40 ACRES
PX100-6 = PRECIPITATION EXCESS FROM 100-YEAR 6-HOUR STORM
VOL10D = VOLUME OF RUNOFF FROM 100-YEAR 10-DAY STORM
TRTMT CLASS A=UNDISTURBED, B=LAWNS, C=UNPAVED ROADS, D=ROOFS,PAVEMENT: SEE DPM 22.2 P A-5

****** PROJECT INFO ******
PARSIFAL TOWNHOMES, LANDSCAPE AREA PER ACAD POLYLINES PA2DRN 7-21-96
ASSUME 30SF/LOT AS WALL NOT COUNTED W/ HOUSES: LS 31,203-720=30,483 ONSITE
SE CORNER AREA: 41974 SF TOT, 12061-(9*30)=11791 SF LANDSCAPE

RAIN ZONE 3 SEE DPM P 22.2-2
100-YEAR PRECIPTATION (P) DEPTHS, INCHES

1 HR	6 HR	24 HR	4 DAY	10 DAY
2.14	2.60	3.10	3.95	4.90

08/27/96 08:20 PM ENTIRE SITE, DEVELOPED CONDITIONS AC TOT

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.66	1.87	0.000	0.000	0.000	0.000	0.000	0.00
B	30483.00	0.6998	0.92	2.60	1.819	0.054	0.054	0.054	0.054	28.21
C	0.00	0.0000	1.29	3.45	0.000	0.000	0.000	0.000	0.000	0.00
D	77575.00	1.7809	2.36	5.02	8.940	0.350	0.424	0.551	0.692	71.79
TOTAL	108058.00	2.4807	AVG Q/AC=	4.337	10.759 CFS	0.404	0.478	0.604	0.745	100.00
					CU FT →	17593	20826	26321	32462	

EX. COND $Q_p = 2.48 \times 0.66 = 1.64$ CFS

10.756 ~ 10.76 ~ 10.8 CFS

08/27/96 08:20 PM AS ABOVE, BUT MINUS NON-CONTRIB (BACKYARD, TYP) OF 11,965 SF AC TOT

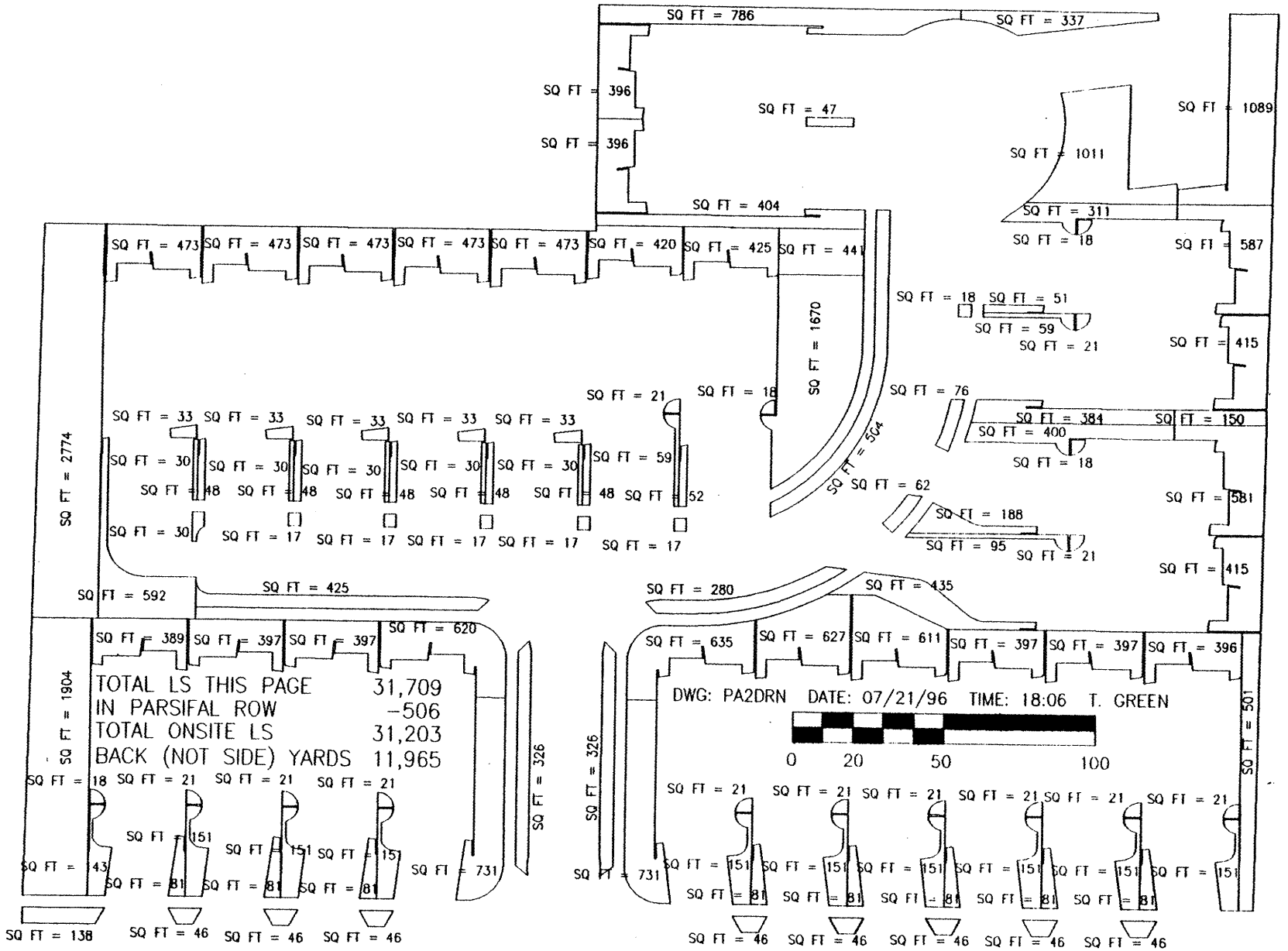
TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.66	1.87	0.000	0.000	0.000	0.000	0.000	0.00
B	19238.00	0.4416	0.92	2.60	1.148	0.034	0.034	0.034	0.034	20.02
C	0.00	0.0000	1.29	3.45	0.000	0.000	0.000	0.000	0.000	0.00
D	76855.00	1.7643	2.36	5.02	8.857	0.347	0.421	0.545	0.685	79.98
TOTAL	96093.00	2.2060	AVG Q/AC=	4.536	10.005	0.381	0.454	0.579	0.719	100.00
					CU FT →	16590	19792	25236	31320	

Q_p PER GROSS ACRE
$= 10.005 / 2.48 = 4.03$ CFS/AC

08/27/96 08:20 PM S.E. CORNER AREA: GET Qpeak FOR CRITICAL STREETFLOW TOT %LS

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.66	1.87	0.000	0.000	0.000	0.000	0.000	0.00
B	11791.00	0.2707	0.92	2.60	0.704	0.021	0.021	0.021	0.021	28.11
C	0.00	0.0000	1.29	3.45	0.000	0.000	0.000	0.000	0.000	0.00
D	30156.00	0.6923	2.36	5.02	3.475	0.136	0.165	0.214	0.269	71.89
TOTAL	41947.00	0.9630	AVG Q/AC=	4.340	4.179	0.157	0.186	0.235	0.290	100.00
					CU FT →	6835	8091	10227	12615	

4.179 CFS ~ 4.18 ~ 4.2 CFS


SQ FT = 786
SQ FT = 337
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SQ FT = 2774
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SQ FT = 389 SQ FT = 397 SQ FT = 397 SQ FT = 620
SQ FT = 635 SQ FT = 627 SQ FT = 611 SQ FT = 397 SQ FT = 397 SQ FT = 396
SQ FT = 1904
TOTAL LS THIS PAGE 31,709
IN PARSIFAL ROW -506
TOTAL ONSITE LS 31,203
BACK (NOT SIDE) YARDS 11,965
DWG: PA2DRN DATE: 07/21/96 TIME: 18:06 T. GREEN
0 20 50 100
SQ FT = 326
SQ FT = 501
SQ FT = 18 SQ FT = 21 SQ FT = 21 SQ FT = 21
SQ FT = 151 SQ FT = 151 SQ FT = 151
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PARSIFAL 7-21-96

"SE CORNER" - AREA POSS CONTRIBUTING TO STREET FLOW NE SW CORNER BAY & HILTON

LOTS 11 - 18 ESSENTIALL

WHOLE AREA, BY POLYLINE 41974.(3) SF
0.9636 ~ .964 AC

LANDSCAPE AREAS

504	337	76
1670	1089	384
441	1011	150
425	311	400
396	18	18
396	587	581
404	415	62
786	18	188
47	51	95
	59	21
	21	415
5069	3917	435
LOTS 16,17,18	14,15,16	250
		3075 ← LOTS 11,12,13

Σ = 12,061 SF LS

ASSUME ~ 30 SF/LOT WHICH COUNTED AS LS
9 x 30 = 270 ; 12,061 - 270 = 11,791

Σ

08-27-1996 14:45:19 Manning n = .017 STSEQ.BAS or STFLOWn.EXE output file PARBAY.STF

PARSIFAL TOWNHOMES, Qmax 4.2 cfs SW COR BAT CT & HILTO PL W/ 4" ROLL CURB
LONGIT SLOPE 3.14% ACTUAL ON CURVE (3.36% NOM PER CL).
MAX CROSS-SLOPE 4.8% AT HILTON PLACE AFTER TRANSITION ; CHECK OTHER CROSS-SLOPES FOR COMPARISON ONLY

MAIN MENU

(1) FOR ENTER Yn, S GET Q, V, T, Fr, Es, Ms
(2) FOR ENTER Q, S GET Yn, V, T, Fr, Es, Ms
(3) FOR ENTER Q, Yn GET S, etc
(4) FOR PREV. Q, Ms GET Ysequent, etc
(5) FOR ENTER Q, Fr GET S, Yn, etc
(6) NEW CL OR GUTTER WIDTH
(7) WRITE TO ASCII OUTPUT FILE
(8) QUIT PROGRAM

{ SEE SPREADSHEET PARHY01.WQ1 7/21/96 9:09 PM FOR Q REQ'D = 4.20 CFS

Mnu #	#	Y ft	S ft/ft	WCL ft	Q cfs	V fps	Hv ft	Spread ft	Area sf	Pw ft	Frd #	Es ft	Ms cf	WPav ft	SxPav ft/ft	WGut ft	SxGut ft/ft
1	2	0.284	.03140	19.00	4.20	3.86	0.23	8.46	1.09	8.75	1.90	0.52	0.60	18.00	.03000	1.00	.06000
2	2	0.294	.03140	19.00	4.20	4.00	0.25	7.70	1.05	8.00	1.91	0.54	0.62	18.00	.03500	1.00	.06000
3	2	0.304	.03140	19.00	4.20	4.12	0.26	7.10	1.02	7.41	1.92	0.57	0.64	18.00	.04000	1.00	.06000
4	2	0.313	.03140	19.00	4.20	4.24	0.28	6.61	0.99	6.93	1.93	0.59	0.65	18.00	.04500	1.00	.06000
5	2	0.317	.03140	19.00	4.20	4.30	0.29	6.36	0.98	6.69	1.93	0.60	0.66	18.00	.04800	1.00	.06000
6	2	0.320	.03140	19.00	4.20	4.34	0.29	6.21	0.97	6.54	1.94	0.61	0.67	18.00	.05000	1.00	.06000

CRITERION IS FLOW DEPTH y < HEIGHT AT R
HEIGHT @ R = 0.33+(.02X9) = 0.51'
∴ y MUST BE < 0.51'
ALL FLOWS HERE < 0.33' = TOP OF ROLL CURB OK

FOR N W CORNER RAY & HILTON, WEST SIDE
NOTE: LONGIT SLOPE GREATER
CONTRIBUTING AREA LESS
∴ BY COMPARISON TO SOUTHEAST CORNER
FLOW WILL BE BELOW TOP OF CURB OK

08-28-1996 11:51:33 Manning n = .017 STSEQ.BAS or STFLOWn.EXE output file PARHLTN.STF

FLOW CAPACITY IN HILTON PL E. OF BAY CT: 4" ROLL CURB: DESIGN CROSS-SLOPE=0
APPROX BY CROSS-SLOPE=0.001, SHOW .005 & .02 FOR COMPARISON. DESIGN LONGIT SLOPE
4.8% NEAR BAY, 4.0% NEAR PARSIFAL. Q IS Q FOR HALF WIDTH: Qtotal=Qhalfwidth*2

MAIN MENU

(1) FOR ENTER Yn, S GET Q, V, T, Fr, Es, Ms
(2) FOR ENTER Q, S GET Yn, V, T, Fr, Es, Ms
(3) FOR ENTER Q, Yn GET S, etc
(4) FOR PREV. Q, Ms GET Ysequent, etc
(5) FOR ENTER Q, Fr GET S, Yn, etc
(6) NEW CL OR GUTTER WIDTH
(7) WRITE TO ASCII OUTPUT FILE
(8) QUIT PROGRAM

GET Q CAPACITY FOR DEPTH TO TOP OF 4" CURB

Q HALF WIDTH

Mnu #	#	Y ft	S ft/ft	WCL ft	Q cfs	V fps	Hv ft	Spread ft	Area sf	Pw ft	Frd #	Es ft	Ms cf	WPav ft	SxPav ft/ft	WGut ft	SxGut ft/ft
1	1	0.330	.04000	10.00	10.93	5.69	0.50	10.00	1.92	10.33	2.29	0.83	2.14	9.00	.02000	1.00	.06000
2	1	0.330	.04800	10.00	11.97	6.24	0.60	10.00	1.92	10.33	2.51	0.93	2.52	9.00	.02000	1.00	.06000
3	1	0.330	.04000	10.00	17.28	6.84	0.73	10.00	2.53	10.33	2.40	1.06	3.99	9.00	.00500	1.00	.06000
4	1	0.330	.04800	10.00	18.93	7.49	0.87	10.00	2.53	10.33	2.63	1.20	4.73	9.00	.00500	1.00	.06000
5	1	0.330	.04000	10.00	19.17	7.13	0.79	10.00	2.69	10.33	2.42	1.12	4.61	9.00	.00100	1.00	.06000
6	1	0.330	.04800	10.00	21.00	7.81	0.95	10.00	2.69	10.33	2.65	1.28	5.45	9.00	.00100	1.00	.06000

@ 4% LONGT Q CAP = 2x 19.17 = 38.34
4.8% 2x 21.00 = 42.00

Q TOTAL ENTIRE SITE (INCLUDING 10/24 LOTS ALONG PARSIFAL NOT CONTRIBUTING TO THIS LOCATION) ≈ 10.8 CFS

Q TOTAL SITE << Q CAPACITY HILTON R OK ?

PARSIFAL TOWNHOMES - RAIN ZONE 3

INLET CAPACITY ON HILTON R WEST OF PARSIFAL

PAVEMENT WIDTH 32' F-F, STD 6" C&G

SLOPE - ~4% G-20 PLATE TYPE @ 1"=200'

(PER HILTON R STORM DRAIN P&P (SHT 4 OF 6)

HGL ~5.5' BLOW G PAVEMENT - PLENTY

$Q_{TOTAL} = Q_{SITE} + Q_{MISC}$

$Q_{SITE} = 10.76$ CFS - SPREADSHEET IN CALCS

Q_{MISC}: AREA ~ 660 X 100 = 66000 SF ~ 1.515 ~ 1.52 AC

EST 75% D IMPERVIOUS 5.02 CFS/AC

25% B LAWN/LANDSCAPE 2.60

$1.52(.25 \times 2.6 + .75 \times 5.02) = 6.71$ CFS

$Q_{TOTAL} = 10.76 + 6.71 = 17.47 \sim 17.5$ CFS

Q PER INLET $= Q_{TOT}/2 = 8.75$ CFS

PER PROGRAM STFLOW3 OUTPUT

$y = 0.349 \sim 0.351$ 16' 1/2 WIDTH, 4%, 8.75 CFS

$Q = 65.4$ CFS FOR $y = 0.66'$, ELSE SAME = MAX ...

PER DPM PL 22.3 D6

GRATING CAPACITY FOR SINGLE A, C, D

→ $Q_{INLET} = 5.5$ CFS $y = 3.49 \sim 3.5$ @ S = .04 1/1

NOTE: 1/2 PARCIFAL SITE $Q_p = 10.76/2 = 5.38$

5.38 PARCIFAL < 5.5 CAPACITY @ 8.75 CFS

OK

CAPACITY @ $y = 0.66' = 11.0$ CFS > 8.75 OK

08-25-1996 21:31:21 Manning n = .017 STSEQ.BAS or STFLOWn.EXE output file STF.OUT

HILTON PL WEST OF PARSIFAL, Qpeak EACH INLET=8.75 CFS, 8.75*2=17.5 CFS
Qpeak PARSIFAL TOWNHOMES=10.76 CFS, 10.76/2=5.38 CFS EACH INLET
COMMENT:

MAIN MENU

(1) FOR ENTER Yn, S GET Q, V, T, Fr, Rs, Ms
(2) FOR ENTER Q, S GET Yn, V, T, Fr, Rs, Ms
(3) FOR ENTER Q, Yn GET S, etc
(4) FOR PREV. Q, Ms GET Ysequent, etc
(5) FOR ENTER Q, Fr GET S, Yn, etc
(6) NEW CL OR GUTTER WIDTH
(7) WRITE TO ASCII OUTPUT FILE
(8) QUIT PROGRAM

Mnu #	#	Y ft	S ft/ft	WCL ft	Q cfs	V fps	Hv ft	Spread ft	Area sf	Pw ft	Frd #	Rs ft	Ms cf	WPav ft	SxPav ft/ft	WGut ft	SxGut ft/ft
1	2	0.349	.04000	16.00	8.75	4.64	0.33	13.44	1.89	13.79	2.18	0.68	1.45	14.00	.02000	2.00	.06000
2	1	0.660	.04000	16.00	65.40	9.62	1.44	16.00	6.80	16.67	2.60	2.10	21.06	14.00	.02000	2.00	.06000

SIERRA VISTA CHANNEL

PARSIFAL TOWNHOMES OFFSITE

5-1-96

PARCIFAL

SIERRA VISTA CHANNEL REANALYSIS

RAINFALL FOR ATHYMO – FROM DPM FIG C-1 → C_3

1 HR RAIN ~ 2.15 INCH

6 HR ~ 2.59

24 HR ~ 3.11

4-30-96

PARSIFAL

SIERRA VISTA (SV) CHANNEL REANALYSIS

BASIN 1-C

245,300 SF ~ 5.6313 ~ 5.63 Ac COMMERCIAL
REST OF 9.7 Ac (I&A SHT 6/32) ARTERIAL ST

$9.7 - 5.63 = 4.07$ Ac ARTERIAL

PER I&A SHTS 1-4

ARTERIAL ST 101/106 = 95.3% IMPERVIOUS = D
⇒ 4.7% LANDSCAPE = B

COMERCIAL DEVELOPMENT 93% IMPERVIOUS = TRT MT D
7% LANDSCAPE = " B

PER 1-C IN SUM

TRTMT B = $(.07)(5.63) + (.047)(4.07)$
$= 0.5840$ Ac

TRTMT D = REST = $9.7 - 0.584$
$= 9.1160$ Ac $= 93.98\%$

I&A ANALYSED INLET BYPASS FLOW AT MONTGOMERY & ELBANK & FOUND @ PEAK 19 CFS BYPASS (SHT 27) OF 35 CFS (1-C) SHT 6
$19/35 = 0.5429$ SAY 55% BYPASS

BY ANALOGY, FOR ALVINO
ASSUME 55% BYPASSES INLETS WHICH SEND FLOW ALONG MONTGOMERY

55% OF 1-C FLOW TO SIERRA VISTA CHANNEL

NOTE I&A = ISAACSON & ARFMAN, HILTON PLACE STORM DRAIN DESIGN REPORT

PARSIFAL 5-1-96

SIERRA VISTA CHAN — REANALYSIS

BASIN 1-C CONT

TIME OF CONCENTRATION ETC. $T_c \& T_p$

$L \sim 2700'$ MOSTLY ALONG MONTGOMERY

$\Delta ELEV \sim 5637 - 5572 = 65'$

$SLOPE = 65/2700 = 2.41\% \pm = 0.0241$ ft/ft

DPM 22.2 (JAN '93) §B.2

FOR $L < 4000' = 2700'$

$K = 3$ STREET FLOW & STORM SEWERS

$V = 10 \cdot K\sqrt{S}$, S in ft/ft

$V = 10 \cdot 3\sqrt{.0241} \sim 4.6573 \sim 4.66$ ft/sec

$T_c = \frac{L}{V} = \frac{2700}{3\sqrt{.0241}} = 579.7 \sim 580$ sec

$= 9.66$ min

$= 0.161$ hrs

IF CONSIDER 1-C FLOW PATH TO CATTLE GUARD IN CUT IN EUREKA (NO EXTRA ADDED THEN)

$L = 2700 + 550 +/- = 3250'$

$\Delta elev = 5637 - 5559 \pm = 78'$

$S = 78/3250 = 2.40\%$

$V = 10 \cdot 3\sqrt{.024} = 4.6476$

$T_c = \frac{L}{V} = \frac{3250}{V} = 699.3$ sec

$= 11.65$ min

$= 0.1942$ hr

USE $T_c = 12$ minutes — min $\rightarrow$ use $t_c = t_{cm} = 12$ min @ end of 1-C

$t_p = T_c \times 2/3 = 8$ minute delay

4-30-96

PARSIFAL

SIERRA VISTA CHANNEL REANALYSIS

I & A = ISAACSON & ARFMAN
HILTON PLACE STORM DRAIN DESIGN REPORT

BASIN 2-1 — EUREKA & EAST

FROM I&A SHTS 1—5 16.7 AC TOTAL
≈ .02609 mi²

APT & SU	7.7 AC	25% B	75% D
COMMERC- 1 AC	6.2 AC	7	93
ARTERIAL STREET	2.3 AC	4.7%	95.3

B: (.25)(7.7) + (.07)(6.2) + (.047) 2.3 ≈ 15%
= 2.5021 ≈ 2.502 AC
D = REST = 14.198 AC = .08918 ≈ 85.0%

BASIN 2-2 — SIERRA VISTA TOWN HOMES & PART OF SIERRA VISTA SHOPPING CENTER

TOTAL AREA = 10.4 AC + 17150 SF D REASSIGNED FROM 2-3 TO 2-2
= 10.7937 ≈ 10.794 AC = .01687 mi²

APT & SU	1.3 AC	25% B	75% D
RESIDENTIAL	2.4	48% B	52 D
COMMERCIAL (CURLG I&A)	5.6	7	93
REASSIGNED IMPERV	0.3937	0	100

B = (.25)(1.3) + (.48)(2.4) + (.07)(5.6)
= 1.869 AC

D = REST = 10.794 - 1.869 17.3%
= 8.925 AC 82.7%

4-30-96

PARSIFAL

SIERRA VISTA CHANNEL REANALYSIS

REFERENCE: ISAACSON & HOFFMAN HILTON PLACE STORM DRAIN DESIGN REPORT

BASIN 2-3 — MUCH OF SIERRA VISTA SHOPPING CTR FLOW ENTERS DOWN STREAM OF BAFFLE-WEIR @ NEC OF TRACT C

TOTAL AREA = 11.5 Ac - .3937 ≈ .394 Ac IMPERV REASSIGNED TO 2-2

= 11.106 Ac =

OFFICE	1.8 Ac	22% B	78% D
COMMERCIAL (CORIG IEA)	9.7	7	93

D = (.93)(9.7) - (1.00)(.394) = 9.021 - 0.394

= 8.627 Ac = 77.7%

B = REST = 11.106 - 8.627

= 2.479 Ac 22.3%

PARSIFAL SIERRA VISTA CHAN REPRISE 5/19/96

CHANNEL STORAGE VOLUMES REVISION

- ORIGINAL VOLUMES WERE BASED ON 19 FT WIDTH PER HILTON PLACE STORM DRAIN DESIGN REPORT
- SUBSEQUENT FIELD MEASUREMENT SHOWS THAT ACTUAL WIDTH IS ± 18.5' — 3 UPSTREAM WEIRS *
- FIELD MEASUREMENT ALSO SHOWS THAT THE EXTRA WIDTH @ THE "L" IN THE NE CORNER IS 43" INSTEAD OF 48" (4') PREVIOUSLY ASSUMED. THIS AREA IS SMALL COMPARED TO THE OVERALL AREA OF THIS RESERVOIR SECTION.

∴ REVISE AHYMO FILES FOR LESS "RESERVOIR" STORAGE : FACTOR = 18.5/19

AHYMO FILES ~~SUCX1, SUCXT1, & SUC P102~~
SUCX2, SVCXT2, & SVC P202
REFLECT THESE CHANGES.

THE FOLLOWING CALCULATIONS HAVE NOT BEEN REVISED UNLESS SPECIFICALLY SO NOTED.

* ONLY THE 3 UPSTREAM WEIRS. LOWER WIDTH CORRECT ALREADY

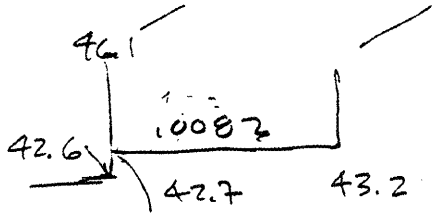
PARSIFAL 4-30-96

SIERRA VISTA CHANNEL REANALYSIS

CHANNEL STORAGE

UPSTREAM - NEAR GUTBANK

FEA STA 10+92 TO 11+53 A=61 FT, @19' WIDE ⇒ 1159 SF



@ Q=150 cfs w=19', c=3
H=1.91 ft, yc=1.27'
Q=800 H=3.02' yc=2.02

42.2 V=0

43.2 V = (43.2-42.7)×1159×½ = 289.75 ≈ 290 CF

43.1 V = (43.1-42.7)×1159 + Vprev
≈ 464 + 290 ~754 CF

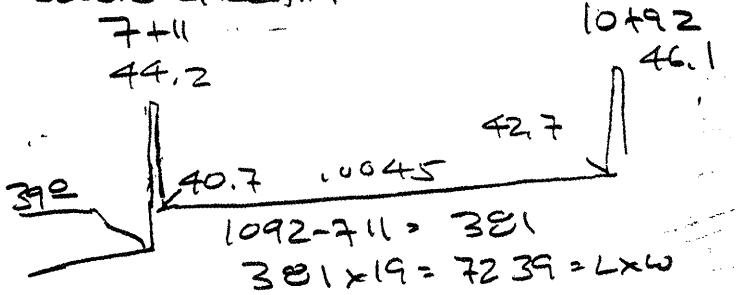
46.1 V = (46.1-43.1)1159 + Vprev
= 3477 + 754 ~4231

48.1 V = 2×1159 + Vprev = 6549

50.1 V = 2×1159 + Vprev = 8867

46.5 V = 4231 + (0.4)(1159) = 4695

NEXT DOWNSTREAM - E OF INLET FROM TOWN HOMES



1092-711 = 381

381×19 = 7239 = L×W

40.7 - V=0

42.7 V = (42.7-40.7)(7239)(½) = 7239

43.2 V = Vprev + (43.2-42.7)7239 ≈ 10,859

44.2 V = Vprev + 7239 18096

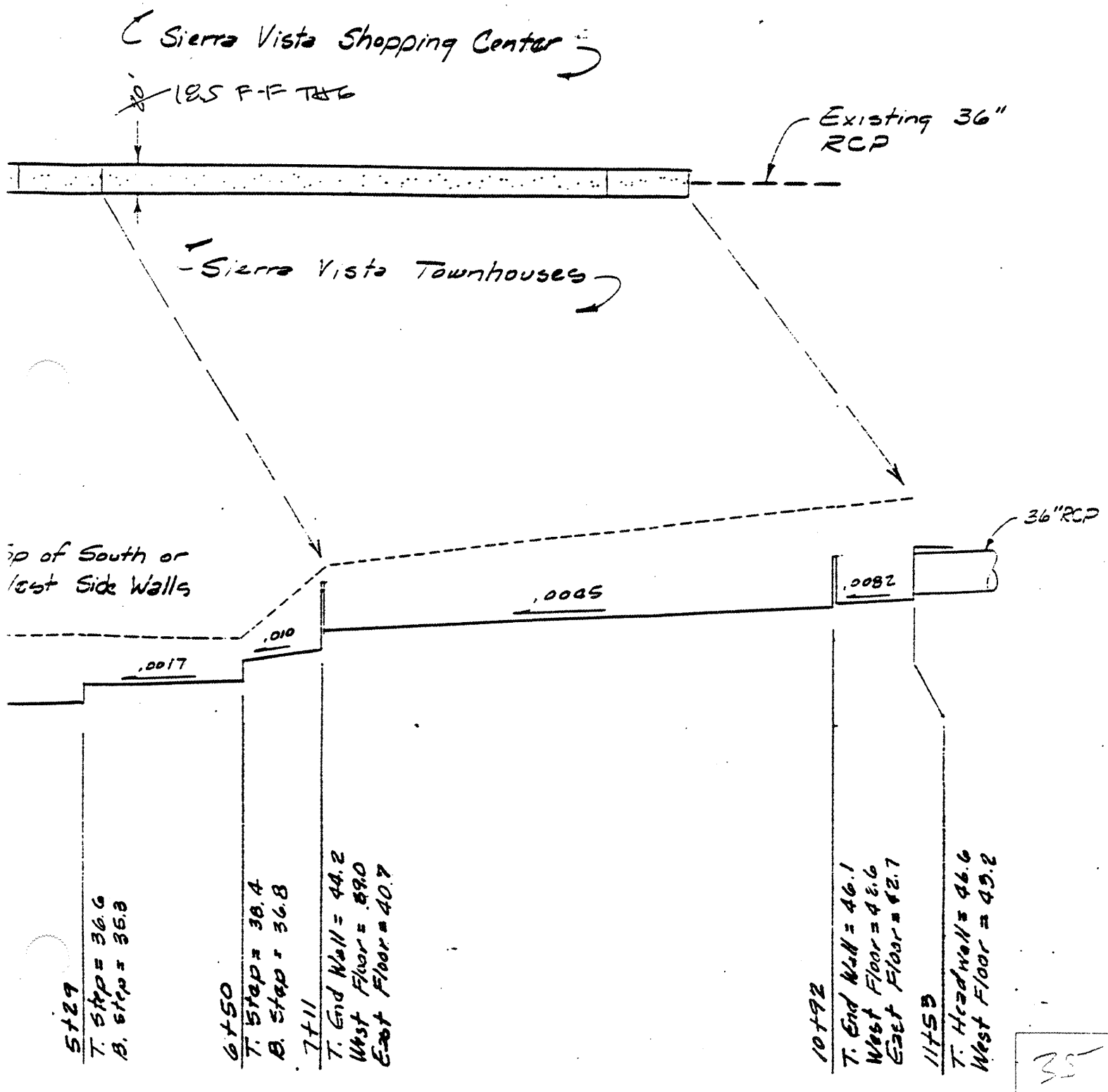
46.2 V = Vprev + 2(7239) 32,576

48.2 V = Vprev + 2(7239) 47 054

44.6 V = 18096 + 0.4(7239) ≈ 20,992

PLAN & PROFILE
SIERRA VISTA CHANNEL

1"=100' Horizontal
1"=10' Vertical



PARSIFAL –
SIERRA VISTA CHANNEL REPRISE

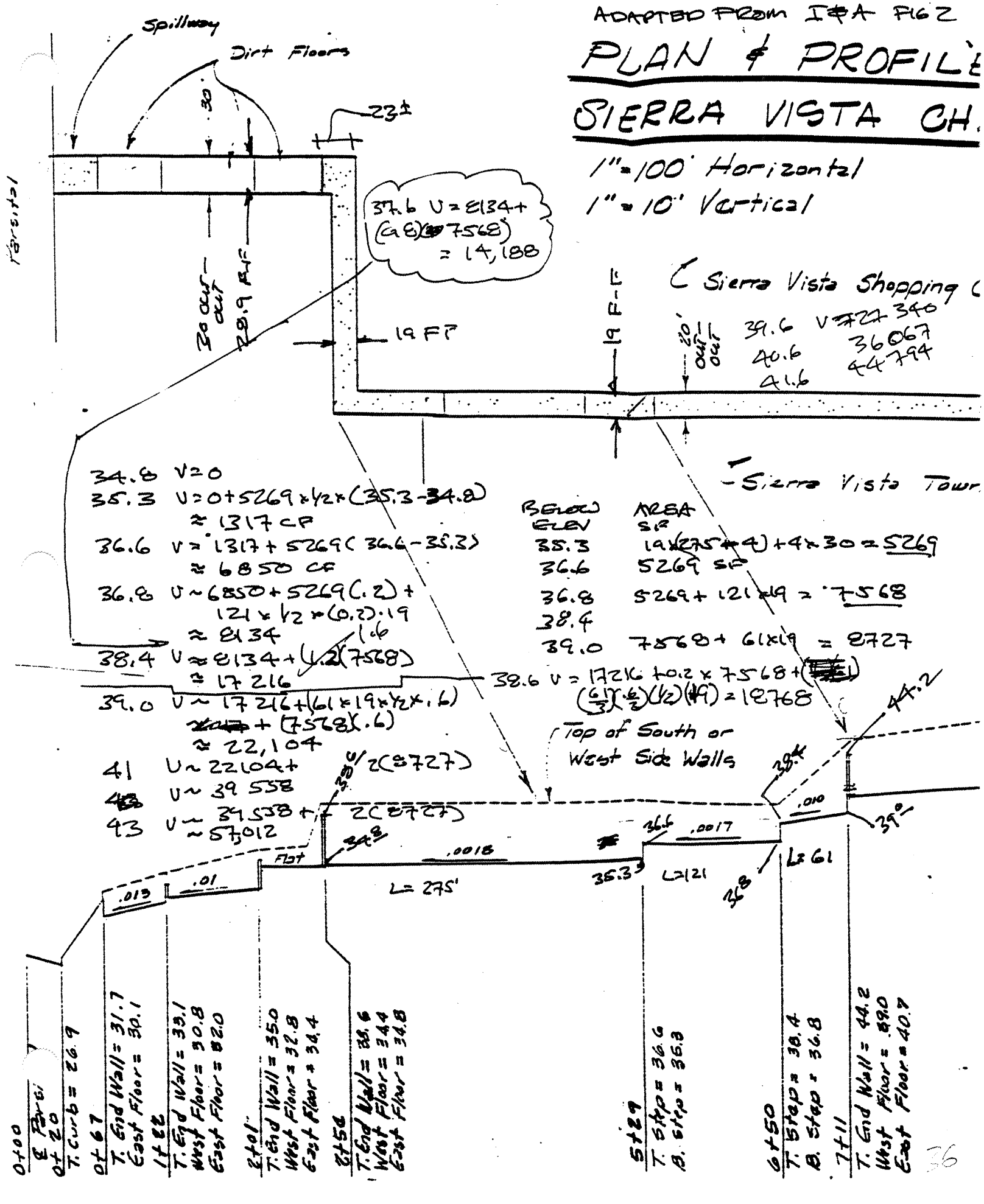
5-1-96

ADAPTED FROM I&A FIG 2

PLAN & PROFILE

SIERRA VISTA CH.

1" = 100' Horizontal
1" = 10' Vertical



36

FILE=PARDVOL1.WQ1 PARSIFAL TOWNHOMES, SIERRA VIST CHAN WEIR, NE CORNER, DELTA VOLUME
05/19/96 Revised 5-19-96 for width 18.5' instead of 19'
09:53 AM Revised 5-19-96 to add weir flow for L=28.9 & weir elev=38.1, 37.1

ELEV FT	ORIG AREA	REV'D AREA	PYRAMID DVOL CONE	VOL FT^3	VOL AC-FT	DVOL AV AREA	AV END AREA VOL FT^3	VOL AC-FT
40.6	8723	8493	4247	38889	0.8928	4247	39324	0.9028
40.1	8723	8493	4247	34642	0.7953	4247	35077	0.8053
39.6	8723	8493	4247	30396	0.6978	4247	30831	0.7078
39.1	8723	8493	849	26149	0.6003	849	26584	0.6103
39	8723	8493	3246	25300	0.5808	3247	25735	0.5908
38.6	7950	7741	1510	22054	0.5063	1511	22488	0.5163
38.4	7564	7365	2209	20544	0.4716	2209	20978	0.4816
38.1	7564	7365	3682	18334	0.4209	3682	18768	0.4309
37.6	7564	7365	3682	14652	0.3364	3682	15086	0.3463
37.1	7564	7365	2209	10970	0.2518	2209	11404	0.2618
36.8	7564	7365	1242	8761	0.2011	1249	9194	0.2111
36.6	5265	5126	6664	7518	0.1726	6664	7945	0.1824
35.3	5265	5126	854	854	0.0196	1282	1282	0.0294
34.8	0	0	0	0	0.0000	0	0	0.0000

USE FOR ATHYMO SVCPRO2

*C = 3.5	L=28.9 DEPTH	L=28.9 Q	L=28.9 DEPTH	L=28.9 Q	L=28.9 DEPTH	L=28.9 Q	L=25.9 DEPTH	L=25.9 Q
40.6	2.00	286.1	3.50	662.3	4.00	809.2	3.50	593.6
40.1	1.50	185.8	3.00	525.6	3.50	662.3	3.00	471.0
39.6	1.00	101.2	2.50	399.8	3.00	525.6	2.50	358.3
39.1	0.50	35.8	2.00	286.1	2.50	399.8	2.00	256.4
39	0.40	25.6	1.90	264.9	2.40	376.1	1.90	237.4
38.6	0.00	0.0	1.50	185.8	2.00	286.1	1.50	166.5
38.4			1.30	149.9	1.80	244.3	1.30	134.4
38.1			1.00	101.2	1.50	185.8	1.00	90.7
37.6			0.50	35.8	1.00	101.2	0.50	32.0
37.1			0.00	0.0	0.50	35.8	0.00	0.0
36.8					0.20	9.0		
36.6					0.00	0.0		
35.3								
34.8								

* EXIST COND- HPSD ELEVS- SVCX2

Q=0 @ 36.6
36.6 - 34.8 = 1.8 = WEIR HT

USE IN ATHYMO SVCPRO2

NOTE: ELEVS BASED ON HILTON PLACE STORM DRAIN REPORT, NOT ON FIELD MEASUREMENTS FOR PARSIFAL TOWNHOMES

ELEV 34.8 HPSD CORRESPONDS TO 34.28 PARSIFAL FIELD MEASUREMENTS.

* C = 3.5 CF FIG 5.2 (BRATER & KING 6TH ED CF ALSO HPSD REPORT - ALSO USED 3.5 HORIZONTAL SHARP-CRESTED WEIR

5-1-96

PARSIFAL

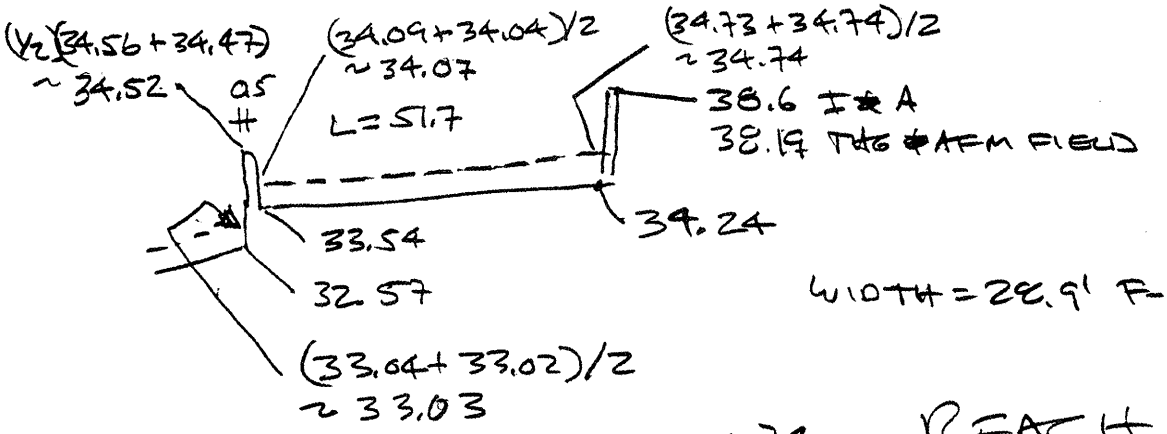
SIERRA VISTA CHAN REPRISE

STORAGE W. SIDE PARSIFAL TOWN HOUSE

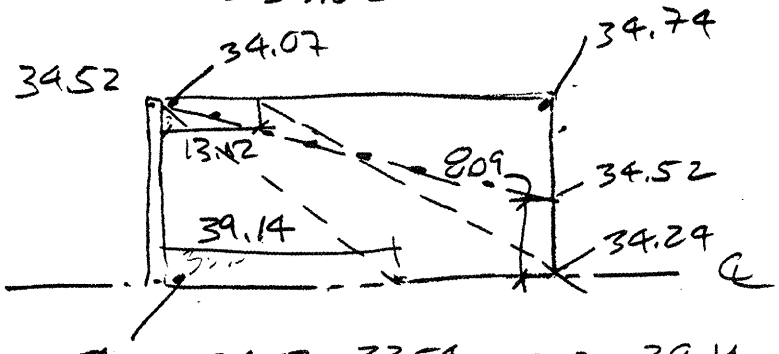
- USE FIELD DATA BY TAG & AFM
- APPROXIMATE V SHAPE BY USING ℄ ELEV & AVERAGE OF ELEVS @ END
  - → NEVER A BIG DIFFERENCE
  - → TOTAL STORAGE INVOLVED VERY SMALL
- IGNORE ANY DIFF OF ELEV BASE *

EAST OF 2 LOW BAFFLES TO EAST HEADWALL I&A STA 2+54

EAST HEADWALL I&A STA 2+54



REACH "A"



$\frac{34.07-33.54}{34.24-33.54} \times 51.7 = 39.14$

$\frac{34.24-34.07}{34.74-34.07} \times 51.7 = 13.12$

$\frac{34.52-34.24}{34.74-34.24} \times (28.9/2) = 8.09$

@ 34.07 $A = 2(\frac{1}{2})(28.9)(39.14)(\frac{1}{2}) = 565.6$

34.24 $A = 13.12 \times 28.9 + (51.7-13.12)(28.9)/2 = 936.7$

34.52 $A = (51.7)(\frac{1}{2})(28.9 + 2(8.09)) = 1165.3$

→ 34.74 $A = (51.7)(28.9) = 1494.1$

* EFFECT IS NIL BECAUSE OF "WATERFALL OVER "HIGH" WEIR @ I&A STA 2+54

5-1-96

PARSIFAL

SIERRA VISTA CHANNEL REPRISE

REACH "A" STORAGE CONTINUED

ELEV	V, CF
33.54	0

34.07: USE FRUSTRUM OF PYRAMID FORMULA FOR THIS

$$V = \frac{h}{3}\left(A_{TOP} + A_{BOT} + \sqrt{A_{TOP} \cdot A_{BOT}}\right)$$

Note $A_{BOT} = 0 \Rightarrow V = \frac{h}{3} A_{TOP}$

$$= \left(\frac{34.07 - 33.54}{3}\right) 565.6 = 99.92 \text{ CF} \approx \underline{100 \text{ CF}}$$

ABOVE BOTTOM USE AVG END AREAS FOR Δ VOL

34.24 $V = 100 + (34.24 - 34.07)(\frac{1}{2})(565.6 + 936.7)$

$= 100 + 127.7$

$\approx \underline{228 \text{ CF}}$

34.52 $V = 228 + (34.52 - 34.24)(\frac{1}{2})(936.7 + 1165.3)$

$= 228 + 294.28$

≈ 522

34.74 $V = 522 + (34.74 - 34.52)(\frac{1}{2})(1165.3 + 1494.1)$

$= 522 + 292.53$

$\simeq 815$ CF

35.74 $V = 95 + 1494$

$= 2309$

37.74 $V = 2309 + 2(1494)$

$= 5297$

34.92 $V = 915 + (.92 - .74)\,1494 \approx 1084$

35.52 $V = 915 + (5.52 - 4.74)\,1494 \approx 1980$ CF

36.52 $V = 1980 + 1494 = 3478$

37.52 $V = 3474 + 1494 = 4968$

S-1-96

PARSIFAL

SIERRA VISTA CHAN REPRISE

STORAGE N SIDE PARSIFAL TOWNHOUSE

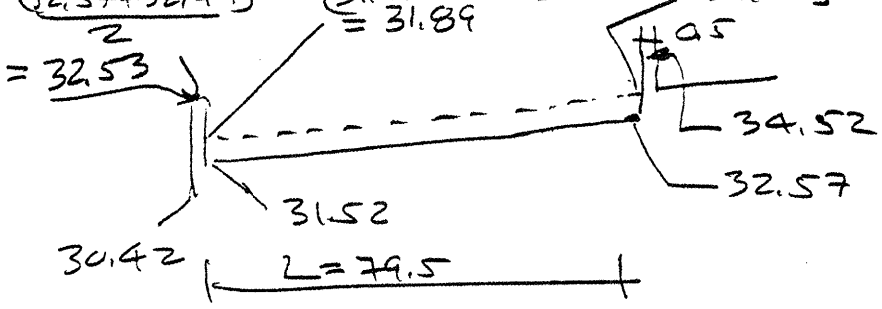
REACH "B" – WEST/DOWN STREAM SMALL RAFFLE

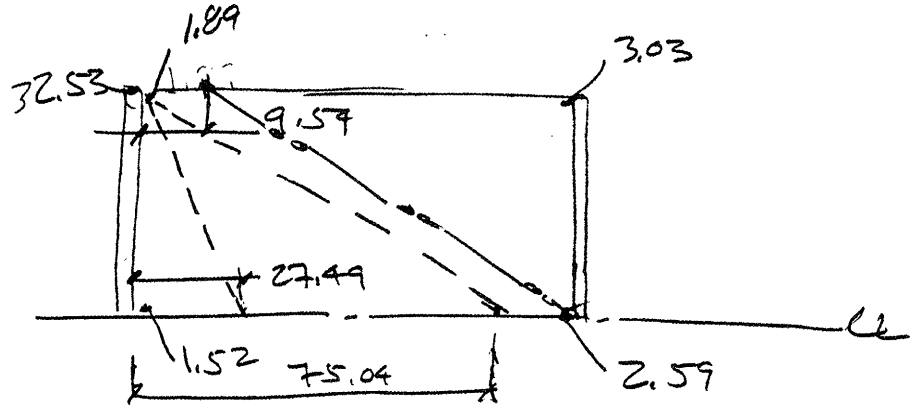
USE AVERAGE VALUES AS FOR REACH "A"

$\frac{(32.57+32.49)}{2} = 32.53$

$(31.91+31.86)/2 = 31.89$

33.03 – REACH "A" CALCS





$\left(\frac{2.53-1.52}{2.59-1.52}\right) \times 79.5 = 75.04$

$\left(\frac{1.89-1.52}{2.59-1.52}\right)(79.5) = 27.49$

$\left(\frac{2.59-2.53}{3.03-2.53}\right)(79.5) = 9.54$

ELEV	AREA SF	
1.89	$(28.9)(\frac{1}{2})(27.49) = 397.23 \sim 397.2$	SK?
2.59	$(28.9)(9.54) + (79.5-9.54)(28.9)(\frac{1}{2}) = 1286.6$	
2.53	$(28.9)(75.04)(\frac{1}{2}) = 1084.3$	
3.03	$(28.9)(79.5) = 2297.6$	

PARSIFAL 5-196

SIERRA VISTA CHAN REPRISE

REACH "B" STORAGE CONT

GEOMETRY SLIGHTLY DIFFER THAN IN REACH "A"

⇒ USE FRUSTRUM OF CONE UP THROUGH ELEV 33.03

ELEV	U
(3)1.52	0
1.89	$\left(\frac{1.89-1.52}{3}\right)(397.2) \sim 49.$
2.53	$49 + \left(\frac{2.53-1.89}{3}\right)(1084.3 + 397.2 + \sqrt{1084.3 * 397.2})$
	$= 49 + 456.06$
	~ 505
2.59	$505 + \left(\frac{2.59-2.55}{3}\right)(1084.3 + 1286.6 + \sqrt{1084.3 * 1286.6})$
	$= 505 + 71.04$
	~ 576
3.03	$576 + \left(\frac{3.03-2.59}{3}\right)(2292.6 + 1286.6 + \sqrt{2292.6 * 1286.6})$
	$= 576 + 777.95$
	$= 1354.$
4.03	$1354 + 2298$
	$= \underline{3652}$
6.03	$3652 + 2(2298)$
	$= \underline{8248}$

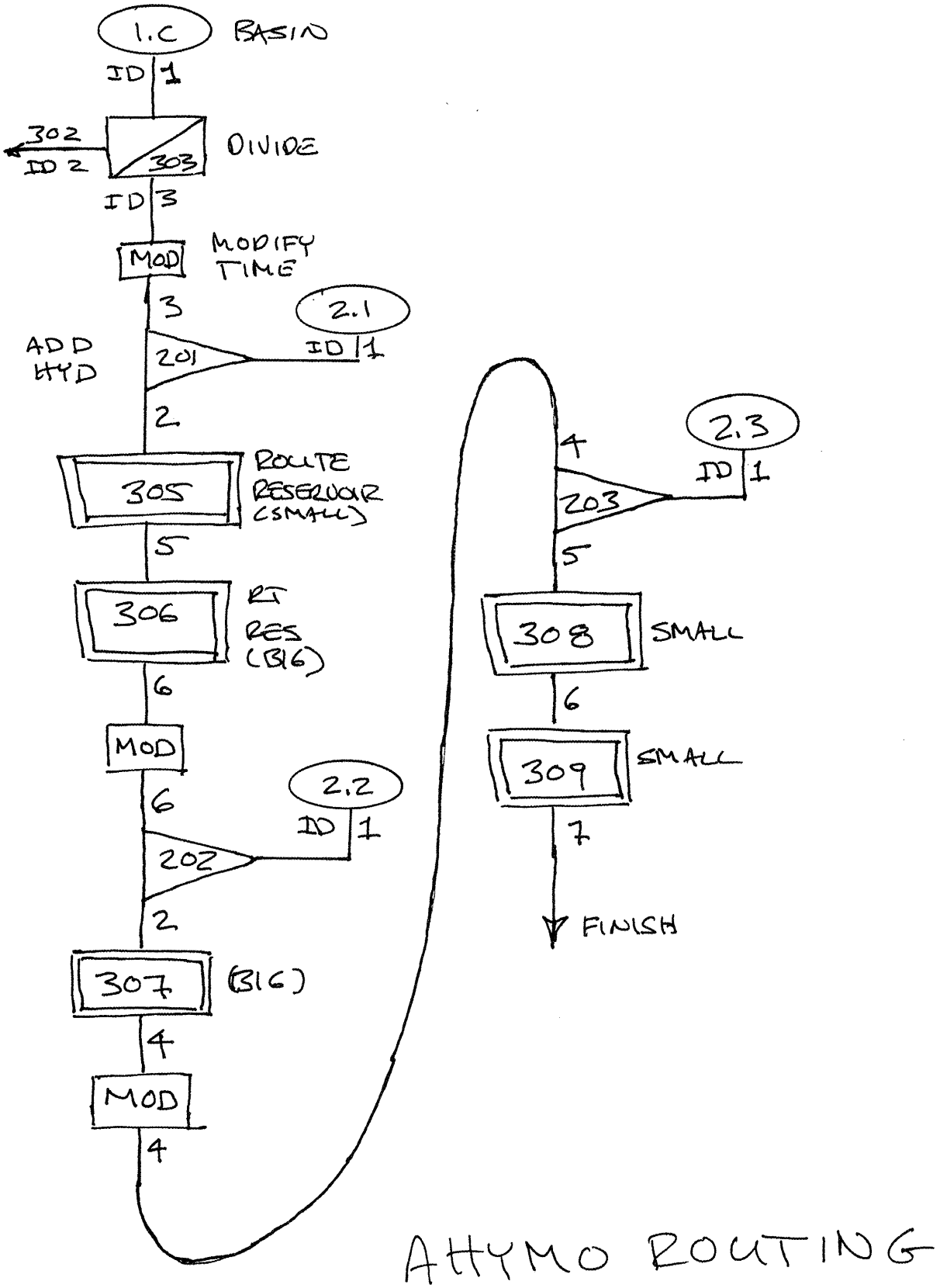
$3.53 = \text{avg}(3.03 \text{ \& } 4.03)$

$= 2503$

$4.53 = {}^{e}3.53 + 2298 =$

$= 4801$

$5.53 = 7099$



ATHYMO ROUTING

ALTM0

SUC X 2

SIERRA VISTA CHANNEL

EXISTING CHANNEL CONDITIONS

VERSION 2 (18.5' WIDE @ UPSTREAM)

FULLY DEVELOPED CONDITIONS

Q100

AHYMO SUMMARY TABLE (AHYM0194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =05/19/1996
INPUT FILE = SVCX2 USER NO.= PERSEENG.194

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
START										TIME= .00
*S Sierra Vista Channel, future development, eXisting channel conditions, v2										
*S Original file created 5-6-96 by Tucker Green PE										
*S Revised 5-19-96: adjust routing volumes by 18.5/19: actual width = 18.5 ft										
*S										
*S 2 MAIN CHANNEL RESERVOIRS LAGGED BY (PEAK VOL) / (PEAK CFS)										
*S UPPER (ABOVE BASIN 2-2) LAGGED 0.074 HR										
*S LOWER (ABOVE 2-3) 0.066 HR										
*S										
RAINFALL TYPE= 1										RAIN6= 2.590
*S BASIN 1-C										
COMPUTE NM HYD	1.C	-	1	.01516	47.49	1.829	2.26177	1.500	4.894	PER IMP= 94.00
*S NEXT SPLIT 1-C SO 55% BYPASSES INLETS TO MONTGOMERY SD & ENTERS SVC @ ID=3										
DIVIDE HYD	302.00	1	2	.00682	21.37	.823	2.26176	1.500	4.894	
	303.00	AND	3	.00834	26.12	1.006	2.26176	1.500	4.894	
*S NEXT DELAY HYD TO SIMULATE ROUTING IN STREET										
MODIFY TIME	303.00	3	3	.00834	26.12	1.006	2.26175	1.533	4.894	
*S BASIN 2-1										
COMPUTE NM HYD	2.10	-	1	.02609	78.04	2.969	2.13351	1.500	4.674	PER IMP= 85.00
*S NEXT = COMBINED INFLOW TO SVC AT UPPER END										
ADD HYD	201.00	1& 3	2	.03443	102.00	3.974	2.16456	1.500	4.629	
*S RES ROUTE SHORT (42.7') UPPER SVC										
ROUTE RESERVOIR	305.00	2	5	.03443	101.31	3.974	2.16456	1.533	4.598	AC-FT= .131
*S RES ROUTE LONG (381') UPPER SVC										
ROUTE RESERVOIR	306.00	5	6	.03443	101.27	3.974	2.16455	1.533	4.596	AC-FT= .616
*S NEXT DELAY HYD TO SIMULATE ROUTING IN CHANNEL										
*S TIME LAG SHOULD BE APX = VOLpeak/Qpeak										
MODIFY TIME	306.00	6	6	.03443	101.27	3.974	2.16455	1.600	4.596	
*S BASIN 2-2										
COMPUTE NM HYD	2.20	-	1	.01687	49.86	1.890	2.10073	1.500	4.618	PER IMP= 82.70
*S NEXT = COMBINED INFLOW TO SVC ABOVE NEC TR-C W/O ROUTING										
ADD HYD	202.00	1& 6	2	.05130	137.18	5.865	2.14356	1.567	4.178	
*S RES ROUTE LONG (+/- 457') LOWER SVC: WEIR @ NEC PARSIFAL TH (TR-C)										
ROUTE RESERVOIR	307.00	2	4	.05130	136.85	5.865	2.14356	1.600	4.168	AC-FT= .749
*S NEXT DELAY HYD TO SIMULATE ROUTING IN CHANNEL										
*S TIME LAG SHOULD BE APX = VOLpeak/Qpeak										
MODIFY TIME	307.00	4	4	.05130	136.85	5.865	2.14356	1.667	4.168	
*S BASIN 2-3										
COMPUTE NM HYD	2.30	-	1	.01735	49.92	1.878	2.02947	1.500	4.496	PER IMP= 77.70
*S COMBINED FLOW IN SVC JUST DOWN FROM WEIR IN NEC PARSIFAL TH (TR-C)										
ADD HYD	203.00	1& 4	5	.06865	162.95	7.742	2.11472	1.633	3.709	
*S RES ROUTE 1ST LOW WEIR W OF NEC PARSIFAL TownHomes (TR-C)										
ROUTE RESERVOIR	308.00	5	6	.06865	163.01	7.742	2.11472	1.667	3.710	AC-FT= .057
*S RES ROUTE 2nd (ALSO=LAST) LOW WEIR W OF NEC PARSIFAL TownHomes (TR-C)										
ROUTE RESERVOIR	309.00	6	7	.06865	163.10	7.742	2.11472	1.667	3.712	AC-FT= .075
FINISH										

SVC X2

```
START              0.0   PUNCH CODE=0   PRINT LINES=58
                   CONTROL CODES AT START = 027 038 107 050 083
                   0 0 0 0 0   0 0 0 0 0   0 0 0 0 0
                   CONTROL CODES AT END = 0 0 0 0 0
                   0 0 0 0 0   0 0 0 0 0   0 0 0 0 0
* CONTROL CODES ABOVE FOR HP DESKJET 540 INKJET PRINTER
*
*C PRINT CODES: 0=ALL; 1=TOTALS ONLY; 2=EVERY 2ND + TOTALS; 3,5,10,20 SIMILAR
*C RATING CURVE ID NEGATIVE => COMPUTE BUT NOT PRINT RATING CURVE
*C RATING CURVE n NEGATIVE => FLOODPLAIN SLOPE, n POSITIVE => CHANNEL SLOPE
*
*S Sierra Vista Channel, future development, eXisting channel conditions, v2
*S Original file created 5-6-96 by Tucker Green PE
*S Revised 5-19-96: adjust routing volumes by 18.5/19: actual width = 18.5 ft
*S
*S 2 MAIN CHANNEL RESERVOIRS LAGGED BY (PEAK VOL) / (PEAK CFS)
*S   UPPER (ABOVE BASIN 2-2) LAGGED 0.074 HR
*S   LOWER (ABOVE      2-3)        0.066 HR
*S
*C The major features of SVC (Sierra Vista Channel) are vertical concrete
*C walls, several raised concrete weirs 6" thick, and several vertical
*C drops without raised weirs. Raised weir sections ARE routed as reservoirs
*C with C=3.5 for sharp crested weirs (Brater & King, 6th ed, fig 5-2). Small
*C outlet pipes at base of weirs would probably be plugged with trash and
*C are neglected.
*C
*C Per Discussion with the City of ALbuquerque, this "New Hydrology Reprise"
*C of the Sierra Vista Channel along the back side of the Sierra Vista
*C Shopping Center (SEC Montgomery & Eubank NE) is based on drainage area and
*C future development identified in the "Hilton Place Storm Drain Design
*C Report", by Isaacson & Arfman for City of Albuquerque NM, April 1990
*C
*C Actual drainage area may extend farther upstream along Montgomery Blvd,
*C especially if the existing storm drain inlets at Morris do not "dry up"
*C the intersection and direct flow south along Morris. However, runoff
*C rates from some areas may be *less* than assumed in the I & A report
*C because of controls (ponds) installed with development. This is most likely
*C for development on the NORTH side of Montgomery not directly included
*C in this AHYMO study.
*C
*C The DIVIDE HYD command here apportions flow from Basin 1-C, 45% into the
*C Montgomery storm drain and out of this study, the rest to the SVC.
*C The MODIFY TIME command here *simulates* routing delays: from 1-C to SVC,
*C and in the 2 large "linear pond" reaches of channel with raised vertical
*C weirs.
*C
*C The upper end of the SVC system - cattle guard inlet & 36" pipe - is *NOT*
*C modeled, because travel time in the pipe would be very short at peak flow.
*C
*C FLOW IS **NOT** BULKED FOR SEDIMENT IN THIS URBAN AREA
*******************************************************************************
* RAINFALLS PER ALBUQUERQUE NM DPM - COMMENT OUT THOSE THAT DON'T APPLY
* TYPE 1 IS 6-HR STORM PER NOAA ATLAS 2 W PEAK INTENSITY @ 1.4 HRS (EQ C1-C5)
*    FOR 6-HR USE DT = 0.033333 HR = 2 MINUTES
* TYPE 2 IS 24-HR STORM PER NOAA ATLAS 2 W PEAK INTENSITY @ 1.4 HRS (EQ C1-C6)
*    FOR 24-HR USE DT = 0.0500 HR = 5 MINUTES
* RAIN QUARTER = 0.0 EXCEPT FOR TYPE 3 (6-HR PMP: SEE AHYMO MANUAL)
*
*******************************************************************************
* RAINFALL AMOUNTS, INCHES
```

SVC X2

```
* RAINFALL            TWO YR   TYPE= 1  RAIN QUARTER= 0     RAIN ONE= 0.xx
*                     RAIN SIX= 1.xx    RAIN DAY= 1.xx      DT= .033333 HR
* RAINFALL            TEN YR   TYPE= 1  RAIN QUARTER= 0.0   RAIN ONE= 1.xx
*                     RAIN SIX= 1.xx    RAIN DAY= 2.xx      DT= .033333 HR
RAINFALL             HUNDRED  TYPE= 1  RAIN QUARTER= 0.0   RAIN ONE= 2.15
                     RAIN SIX= 2.59    RAIN DAY= 3.11      DT= .033333 HR
*
*******************************************************************************
*S BASIN 1-C
COMPUTE NM HYD       ID= 1    HYD NO= 1.C      DA=0.01516 SQ MI
                     PER A= 0.00    B= 6       C= 0       D= 94
                     TP= -0.13333 HRS   RAIN= -1
PRINT HYD            ID= 1   CODE= 1
* PLOT HYD            ID= 1
*
*S NEXT SPLIT 1-C SO 55% BYPASSES INLETS TO MONTGOMERY SD & ENTERS SVC @ ID=3
DIVIDE HYD           ID_IN= 1  PER= -45   ID_OUT_A= 2   HYD_OUT_A= 302
                                          ID_OUT_B= 3   HYD_OUT_B= 303
*
*S NEXT DELAY HYD TO SIMULATE ROUTING IN STREET
MODIFY TIME          ID= 3    TIME= 0.033333 HR   CODE= -1
*
*******************************************************************************
*S BASIN 2-1
COMPUTE NM HYD       ID= 1    HYD NO= 2.1      DA= 0.02609 SQ MI
                     PER A= 0.00    B= 15      C= 0       D= 85
                     TP= -0.13333 HRS   RAIN= -1
PRINT HYD            ID= 1   CODE= 1
* PLOT HYD            ID= 1
*
*S NEXT = COMBINED INFLOW TO SVC AT UPPER END
ADD HYD              ID_OUT= 2   HYD_OUT= 201     ID_IN_I= 1    ID_IN_II= 3
PRINT HYD            ID= 2   CODE= 1
* PLOT HYD            ID= 2
*
*******************************************************************************
*S RES ROUTE SHORT (42.7') UPPER SVC
ROUTE RESERVOIR      ID= 5  HYD= 305  INFLOW ID= 2     CODE= 5.
                     OUTFLOW CFS    STORAGE AC-FT   ELEVATION FT
                      0.00000       0.0945           46.1
                      16.38         0.1051           46.5
                      64.75         0.1240           47.1
                      183.14        0.1463           48.1
                      336.45        0.1723           49.1
*S RES ROUTE LONG (381') UPPER SVC
ROUTE RESERVOIR      ID= 6  HYD= 306  INFLOW ID= 5     CODE= 5.
                     OUTFLOW CFS    STORAGE AC-FT   ELEVATION FT
                      0.00000       0.4053           44.2
                      16.38         0.4692           44.6
                      64.75         0.5663           45.2
                      183.14        0.7281           46.2
                      336.45        0.8899           47.2
*
*S NEXT DELAY HYD TO SIMULATE ROUTING IN CHANNEL
*S TIME LAG SHOULD BE APX = VOLpeak/Qpeak
 MODIFY TIME          ID= 6    TIME= 0.HR   CODE= -1
MODIFY TIME          ID= 6    TIME= 0.074 HR   CODE= -1
*
*******************************************************************************
*S BASIN 2-2
```

```
 COMPUTE NM HYD       ID= 1    HYD NO= 2.2      DA= 0.01687 SQ MI
                      PER A= 0.00    B= 17.3     C= 0       D= 82.7
                      TP= -0.13333 HRS   RAIN= -1
 PRINT HYD            ID= 1   CODE= 1
 * PLOT HYD            ID= 1
 *
 *S NEXT = COMBINED INFLOW TO SVC ABOVE NEC TR-C W/O ROUTING
 ADD HYD              ID_OUT= 2   HYD_OUT= 202     ID_IN_I= 1    ID_IN_II= 6
 PRINT HYD            ID= 2   CODE= 1
 * PLOT HYD            ID= 2
 *
 ********************************************************************************
 *S RES ROUTE LONG (+/- 457') LOWER SVC: WEIR @ NEC PARSIFAL TH (TR-C)
 ROUTE RESERVOIR      ID= 4  HYD= 307  INFLOW ID= 2     CODE= 5.
                      OUTFLOW CFS    STORAGE AC-FT   ELEVATION FT
                       0.00000       0.5163          38.6
                       25.6          0.5908          39.0
                       35.8          0.6103          39.1
                       101.2         0.7078          39.6
                       185.8         0.8053          40.1
                       286.1         0.9028          40.6
 *
 *S NEXT DELAY HYD TO SIMULATE ROUTING IN CHANNEL
 *S TIME LAG SHOULD BE APX = VOLpeak/Qpeak
 * MODIFY TIME          ID= 4    TIME= 0.HR   CODE= -1
 MODIFY TIME          ID= 4    TIME= 0.066  HR   CODE= -1
 ********************************************************************************
 *S BASIN 2-3
 COMPUTE NM HYD       ID= 1    HYD NO= 2.3      DA= 0.01735 SQ MI
                      PER A= 0.00    B= 22.3     C= 0       D= 77.7
                      TP= -0.13333 HRS   RAIN= -1
 PRINT HYD            ID= 1   CODE= 1
 * PLOT HYD            ID= 1
 *
 *S COMBINED FLOW IN SVC JUST DOWN FROM WEIR IN NEC PARSIFAL TH (TR-C)
 ADD HYD              ID_OUT= 5   HYD_OUT= 203     ID_IN_I= 1    ID_IN_II= 4
 PRINT HYD            ID= 5   CODE= 1
 * PLOT HYD            ID= 5
 *
 ********************************************************************************
 *S RES ROUTE 1ST LOW WEIR W OF NEC PARSIFAL TownHomes (TR-C)
 ROUTE RESERVOIR      ID= 6  HYD= 308  INFLOW ID= 5     CODE= 5.
                      OUTFLOW CFS    STORAGE AC-FT   ELEVATION FT
                       0.00000       0.0120          34.52
                       10.44         0.0187          34.74
                       25.59         0.0249          34.92
                       101.15        0.0455          35.52
                       286.10        0.0798          36.52
                       525.29        0.1140          37.52
 *
 *S RES ROUTE 2nd (ALSO=LAST) LOW WEIR W OF NEC PARSIFAL TownHomes (TR-C)
 ROUTE RESERVOIR      ID= 7  HYD= 309  INFLOW ID= 6     CODE= 5.
                      OUTFLOW CFS    STORAGE AC-FT   ELEVATION FT
                       0.00000       0.0116          32.53
                       35.76         0.0311          33.03
                       101.15        0.0575          33.53
                       286.10        0.1102          34.53
                       525.29        0.1630          35.53
 *
 FINISH
```

```
    AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
         RUN DATE (MON/DAY/YR) = 05/19/1996
         START TIME (HR:MIN:SEC) = 13:04:17     USER NO.= PERSEENG.194
         INPUT FILE = SVCX2

START              0.0   PUNCH CODE=0   PRINT LINES=58
                   CONTROL CODES AT START = 027 038 107 050 083
                   0 0 0 0 0   0 0 0 0 0   0 0 0 0 0
                   CONTROL CODES AT END = 0 0 0 0 0
                   0 0 0 0 0   0 0 0 0 0   0 0 0 0 0
* CONTROL CODES ABOVE FOR HP DESKJET 540 INKJET PRINTER
*
*C PRINT CODES: 0=ALL; 1=TOTALS ONLY; 2=EVERY 2ND + TOTALS; 3,5,10,20 SIMILAR
*C RATING CURVE ID NEGATIVE => COMPUTE BUT NOT PRINT RATING CURVE
*C RATING CURVE n NEGATIVE => FLOODPLAIN SLOPE, n POSITIVE => CHANNEL SLOPE
*
*S Sierra Vista Channel, future development, eXisting channel conditions, v2
*S Original file created 5-6-96 by Tucker Green PE
*S Revised 5-19-96: adjust routing volumes by 18.5/19: actual width = 18.5 ft
*S
*S 2 MAIN CHANNEL RESERVOIRS LAGGED BY (PEAK VOL) / (PEAK CFS)
*S   UPPER (ABOVE BASIN 2-2) LAGGED 0.074 HR
*S   LOWER (ABOVE       2-3)       0.066 HR
*S
*C The major features of SVC (Sierra Vista Channel) are vertical concrete
*C walls, several raised concrete weirs 6" thick, and several vertical
*C drops without raised weirs. Raised weir sections ARE routed as reservoirs
*C with C=3.5 for sharp crested weirs (Brater & King, 6th ed, fig 5-2). Small
*C outlet pipes at base of weirs would probably be plugged with trash and
*C are neglected.
*C
*C Per Discussion with the City of ALbuquerque, this "New Hydrology Reprise"
*C of the Sierra Vista Channel along the back side of the Sierra Vista
*C Shopping Center (SEC Montgomery & Eubank NE) is based on drainage area and
*C future development identified in the "Hilton Place Storm Drain Design
*C Report", by Isaacson & Arfman for City of Albuquerque NM, April 1990
*C
*C Actual drainage area may extend farther upstream along Montgomery Blvd,
*C especially if the existing storm drain inlets at Morris do not "dry up"
*C the intersection and direct flow south along Morris. However, runoff
*C rates from some areas may be *less* than assumed in the I & A report
*C because of controls (ponds) installed with development. This is most likely
*C for development on the NORTH side of Montgomery not directly included
*C in this AHYMO study.
*C
*C The DIVIDE HYD command here apportions flow from Basin 1-C, 45% into the
*C Montgomery storm drain and out of this study, the rest to the SVC.
*C The MODIFY TIME command here *simulates* routing delays: from 1-C to SVC,
*C and in the 2 large "linear pond" reaches of channel with raised vertical
*C weirs.
*C
*C The upper end of the SVC system - cattle guard inlet & 36" pipe - is *NOT*
*C modeled, because travel time in the pipe would be very short at peak flow.
*C
*C FLOW IS **NOT** BULKED FOR SEDIMENT IN THIS URBAN AREA
**********************************************************************
* RAINFALLS PER ALBUQUERQUE NM DPM - COMMENT OUT THOSE THAT DON'T APPLY
* TYPE 1 IS 6-HR STORM PER NOAA ATLAS 2 W PEAK INTENSITY @ 1.4 HRS (EQ C1-C5)
```

SVC X2

```
*    FOR 6-HR USE DT = 0.033333 HR = 2 MINUTES
* TYPE 2 IS 24-HR STORM PER NOAA ATLAS 2 W PEAK INTENSITY @ 1.4 HRS (EQ C1-C6)
*    FOR 24-HR USE DT = 0.0500 HR = 5 MINUTES
* RAIN QUARTER = 0.0 EXCEPT FOR TYPE 3 (6-HR PMP: SEE AHYMO MANUAL)
*
*******************************************************************************
* RAINFALL AMOUNTS, INCHES
* RAINFALL            TWO YR   TYPE= 1  RAIN QUARTER= 0     RAIN ONE= 0.xx
*                     RAIN SIX= 1.xx    RAIN DAY= 1.xx      DT= .033333 HR
* RAINFALL            TEN YR   TYPE= 1  RAIN QUARTER= 0.0   RAIN ONE= 1.xx
*                     RAIN SIX= 1.xx    RAIN DAY= 2.xx      DT= .033333 HR
RAINFALL             HUNDRED  TYPE= 1  RAIN QUARTER= 0.0   RAIN ONE= 2.15
                     RAIN SIX= 2.59    RAIN DAY= 3.11      DT= .033333 HR

               COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
               DT =    .033333 HOURS       END TIME =     5.999940 HOURS
                  .0000   .0025   .0050   .0077   .0103   .0130   .0158
                  .0187   .0216   .0246   .0276   .0307   .0340   .0373
                  .0407   .0442   .0478   .0515   .0554   .0594   .0635
                  .0677   .0722   .0768   .0816   .0866   .0918   .0973
                  .1031   .1091   .1156   .1215   .1278   .1347   .1493
                  .1819   .2322   .3044   .4029   .5324   .6975   .9031
                 1.1540  1.3860  1.4831  1.5651  1.6380  1.7044  1.7655
                 1.8222  1.8752  1.9249  1.9717  2.0158  2.0575  2.0969
                 2.1343  2.1697  2.2033  2.2352  2.2655  2.2729  2.2799
                 2.2866  2.2929  2.2990  2.3049  2.3105  2.3159  2.3212
                 2.3263  2.3312  2.3359  2.3406  2.3451  2.3495  2.3538
                 2.3580  2.3620  2.3660  2.3699  2.3738  2.3775  2.3812
                 2.3848  2.3883  2.3917  2.3951  2.3985  2.4018  2.4050
                 2.4082  2.4113  2.4144  2.4174  2.4204  2.4233  2.4262
                 2.4291  2.4319  2.4347  2.4374  2.4401  2.4428  2.4454
                 2.4481  2.4506  2.4532  2.4557  2.4582  2.4607  2.4631
                 2.4655  2.4679  2.4702  2.4726  2.4749  2.4772  2.4794
                 2.4817  2.4839  2.4861  2.4883  2.4904  2.4926  2.4947
                 2.4968  2.4989  2.5009  2.5030  2.5050  2.5070  2.5090
                 2.5110  2.5129  2.5149  2.5168  2.5187  2.5206  2.5225
                 2.5244  2.5263  2.5281  2.5299  2.5318  2.5336  2.5354
                 2.5371  2.5389  2.5407  2.5424  2.5441  2.5459  2.5476
                 2.5493  2.5510  2.5526  2.5543  2.5559  2.5576  2.5592
                 2.5609  2.5625  2.5641  2.5657  2.5673  2.5688  2.5704
                 2.5720  2.5735  2.5750  2.5766  2.5781  2.5796  2.5811
                 2.5826  2.5841  2.5856  2.5871  2.5885  2.5900

*
*******************************************************************************
*S BASIN 1-C
COMPUTE NM HYD       ID= 1    HYD NO= 1.C      DA=0.01516 SQ MI
                     PER A= 0.00    B= 6       C= 0       D= 94
                     TP= -0.13333 HRS   RAIN= -1

   K =   .072665HR    TP =   .133330HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
   UNIT PEAK =   56.249    CFS   UNIT VOLUME =    .9992       B =   526.28      P60 = 2.1500
   AREA =      .014250 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


   K =   .133807HR    TP =   .133330HR    K/TP RATIO =  1.003575     SHAPE CONSTANT, N =  3.517606
   UNIT PEAK =   2.1941    CFS   UNIT VOLUME =    .9942       B =   321.61      P60 = 2.1500
   AREA =      .000910 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333
```

```
 PRINT HYD           ID= 1   CODE= 1

                                    HYDROGRAPH FROM AREA 1.C


     RUNOFF VOLUME =     2.26177 INCHES     =       1.8287 ACRE-FEET
     PEAK DISCHARGE RATE =      47.49 CFS  AT   1.500 HOURS   BASIN AREA =   .0152 SQ. MI.



 * PLOT HYD            ID= 1
 *
 *S NEXT SPLIT 1-C SO 55% BYPASSES INLETS TO MONTGOMERY SD & ENTERS SVC @ ID=3
 DIVIDE HYD          ID_IN= 1  PER= -45   ID_OUT_A= 2   HYD_OUT_A= 302
                                          ID_OUT_B= 3   HYD_OUT_B= 303
 *
 *S NEXT DELAY HYD TO SIMULATE ROUTING IN STREET
 MODIFY TIME         ID= 3    TIME= 0.033333 HR   CODE= -1
 *
 ********************************************************************************
 *S BASIN 2-1
 COMPUTE NM HYD      ID= 1    HYD NO= 2.1      DA= 0.02609 SQ MI
                     PER A= 0.00    B= 15      C= 0       D= 85
                     TP= -0.13333 HRS   RAIN= -1

    K =   .072665HR    TP =   .133330HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   87.534    CFS   UNIT VOLUME =    .9992       B =   526.28      P60 = 2.1500
    AREA =      .022177 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


    K =   .133807HR    TP =   .133330HR    K/TP RATIO =  1.003575     SHAPE CONSTANT, N =  3.517606
    UNIT PEAK =   9.4399    CFS   UNIT VOLUME =    .9988       B =   321.61      P60 = 2.1500
    AREA =      .003914 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

 PRINT HYD           ID= 1   CODE= 1

                                    OUTFLOW HYDROGRAPH REACH     2.10


    RUNOFF VOLUME =     2.13351 INCHES     =       2.9687 ACRE-FEET
    PEAK DISCHARGE RATE =      78.04 CFS  AT   1.500 HOURS   BASIN AREA =   .0261 SQ. MI.



 * PLOT HYD            ID= 1
 *
 *S NEXT = COMBINED INFLOW TO SVC AT UPPER END
 ADD HYD             ID_OUT= 2   HYD_OUT= 201     ID_IN_I= 1    ID_IN_II= 3
 PRINT HYD           ID= 2   CODE= 1

                                    PARTIAL HYDROGRAPH   201.00


    RUNOFF VOLUME =     2.16456 INCHES     =       3.9744 ACRE-FEET
    PEAK DISCHARGE RATE =     102.00 CFS  AT   1.500 HOURS   BASIN AREA =   .0344 SQ. MI.
```

```
* PLOT HYD            ID= 2
*
*******************************************************************************
*S RES ROUTE SHORT (42.7') UPPER SVC
ROUTE RESERVOIR      ID= 5  HYD= 305  INFLOW ID= 2     CODE= 5.
                     OUTFLOW CFS     STORAGE AC-FT   ELEVATION FT
                      0.00000        0.0945           46.1
                      16.38          0.1051           46.5
                      64.75          0.1240           47.1
                      183.14         0.1463           48.1
                      336.45         0.1723           49.1

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

   TIME      INFLOW    ELEV      VOLUME    OUTFLOW
   (HRS)     (CFS)     (FEET)    (AC-FT)   (CFS)

     .00        .00     46.10       .095       .00
     .17        .00     46.10       .095       .00
     .33        .00     46.10       .095       .00
     .50        .00     46.10       .095       .00
     .67        .00     46.10       .095       .00
     .83        .00     46.10       .095       .00
    1.00        .33     46.11       .095       .25
    1.17       2.59     46.16       .096      2.46
    1.33      28.44     46.64       .109     27.29
    1.50     102.00     47.41       .131    101.20
    1.67      55.11     47.00       .121     56.71
    1.83      34.86     46.73       .112     35.19
    2.00      25.27     46.61       .109     25.49
    2.17      12.32     46.42       .103     13.12
    2.33       5.78     46.24       .098      5.92
    2.50       3.70     46.19       .097      3.78
    2.67       2.57     46.16       .096      2.61
    2.83       1.92     46.15       .096      1.95
    3.00       1.50     46.14       .095      1.52
    3.17       1.24     46.13       .095      1.25
    3.33       1.07     46.13       .095      1.08
    3.50        .97     46.12       .095       .97
    3.67        .90     46.12       .095       .90
    3.83        .84     46.12       .095       .84
    4.00        .80     46.12       .095       .81
    4.17        .78     46.12       .095       .78
    4.33        .76     46.12       .095       .76
    4.50        .75     46.12       .095       .75
    4.67        .74     46.12       .095       .74
    4.83        .75     46.12       .095       .75
    5.00        .75     46.12       .095       .75
    5.17        .76     46.12       .095       .76
    5.33        .76     46.12       .095       .76
    5.50        .78     46.12       .095       .78
    5.67        .79     46.12       .095       .79
    5.83        .81     46.12       .095       .81
    6.00        .83     46.12       .095       .83
    6.17        .37     46.11       .095       .40
    6.33        .10     46.10       .095       .10
    6.50        .04     46.10       .095       .05
    6.67        .02     46.10       .095       .02
    6.83        .01     46.10       .095       .01
```

```
    7.00        .00     46.10       .095       .00
 PEAK DISCHARGE =      101.310 CFS - PEAK OCCURS AT HOUR    1.53
 MAXIMUM WATER SURFACE ELEVATION =       47.409
 MAXIMUM STORAGE =         .1309 AC-FT      INCREMENTAL TIME=     .033333HRS

*S RES ROUTE LONG (381') UPPER SVC
ROUTE RESERVOIR      ID= 6  HYD= 306  INFLOW ID= 5     CODE= 5.
                     OUTFLOW CFS    STORAGE AC-FT   ELEVATION FT
                      0.00000       0.4053          44.2
                      16.38         0.4692          44.6
                      64.75         0.5663          45.2
                      183.14        0.7281          46.2
                      336.45        0.8899          47.2

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

   TIME      INFLOW    ELEV      VOLUME    OUTFLOW
   (HRS)     (CFS)     (FEET)    (AC-FT)   (CFS)

    .00        .00     44.20       .405       .00
    .17        .00     44.20       .405       .00
    .33        .00     44.20       .405       .00
    .50        .00     44.20       .405       .00
    .67        .00     44.20       .405       .00
    .83        .00     44.20       .405       .00
   1.00        .25     44.20       .406       .09
   1.17       2.46     44.25       .413      1.87
   1.33      27.29     44.60       .470     16.60
   1.50     101.20     45.46       .609     95.87
   1.67      56.71     45.16       .560     61.36
   1.83      35.19     44.86       .511     37.23
   2.00      25.49     44.73       .490     26.68
   2.17      13.12     44.58       .466     15.67
   2.33       5.92     44.38       .434      7.24
   2.50       3.78     44.31       .422      4.32
   2.67       2.61     44.27       .417      2.91
   2.83       1.95     44.25       .414      2.11
   3.00       1.52     44.24       .412      1.63
   3.17       1.25     44.23       .410      1.32
   3.33       1.08     44.23       .410      1.12
   3.50        .97     44.22       .409      1.00
   3.67        .90     44.22       .409       .92
   3.83        .84     44.22       .409       .86
   4.00        .81     44.22       .408       .82
   4.17        .78     44.22       .408       .79
   4.33        .76     44.22       .408       .77
   4.50        .75     44.22       .408       .75
   4.67        .74     44.22       .408       .75
   4.83        .75     44.22       .408       .75
   5.00        .75     44.22       .408       .75
   5.17        .76     44.22       .408       .75
   5.33        .76     44.22       .408       .76
   5.50        .78     44.22       .408       .78
   5.67        .79     44.22       .408       .79
   5.83        .81     44.22       .408       .80
   6.00        .83     44.22       .409       .82
   6.17        .40     44.21       .408       .59
   6.33        .10     44.20       .406       .15
   6.50        .05     44.20       .406       .06
   6.67        .02     44.20       .405       .03
```

```
      6.83        .01     44.20        .405        .01
      7.00        .00     44.20        .405        .01
      7.17        .00     44.20        .405        .00
   PEAK DISCHARGE =      101.275 CFS - PEAK OCCURS AT HOUR    1.53
   MAXIMUM WATER SURFACE ELEVATION =       45.509
   MAXIMUM STORAGE =         .6162 AC-FT      INCREMENTAL TIME=     .033333HRS

  *
  *S NEXT DELAY HYD TO SIMULATE ROUTING IN CHANNEL
  *S TIME LAG SHOULD BE APX = VOLpeak/Qpeak
  * MODIFY TIME          ID= 6    TIME= 0.HR   CODE= -1
  MODIFY TIME          ID= 6    TIME= 0.074 HR   CODE= -1
  *
  ********************************************************************************
  *S BASIN 2-2
  COMPUTE NM HYD       ID= 1    HYD NO= 2.2      DA= 0.01687 SQ MI
                       PER A= 0.00    B= 17.3     C= 0       D= 82.7
                       TP= -0.13333 HRS   RAIN= -1

     K =   .072665HR    TP =   .133330HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   55.069    CFS   UNIT VOLUME =    .9992       B =   526.28      P60 = 2.1500
     AREA =      .013951 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .133807HR    TP =   .133330HR    K/TP RATIO =  1.003575     SHAPE CONSTANT, N =  3.517606
     UNIT PEAK =   7.0399    CFS   UNIT VOLUME =    .9984       B =   321.61      P60 = 2.1500
     AREA =      .002919 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

  PRINT HYD            ID= 1   CODE= 1

                                   OUTFLOW HYDROGRAPH REACH     2.20


     RUNOFF VOLUME =     2.10073 INCHES     =       1.8901 ACRE-FEET
     PEAK DISCHARGE RATE =      49.86 CFS  AT   1.500 HOURS   BASIN AREA =   .0169 SQ. MI.



  * PLOT HYD             ID= 1
  *
  *S NEXT = COMBINED INFLOW TO SVC ABOVE NEC TR-C W/O ROUTING
  ADD HYD              ID_OUT= 2   HYD_OUT= 202     ID_IN_I= 1    ID_IN_II= 6
  PRINT HYD            ID= 2   CODE= 1

                                  PARTIAL HYDROGRAPH   202.00


     RUNOFF VOLUME =     2.14356 INCHES     =       5.8645 ACRE-FEET
     PEAK DISCHARGE RATE =     137.18 CFS  AT   1.567 HOURS   BASIN AREA =   .0513 SQ. MI.



  * PLOT HYD             ID= 2
  *
  ********************************************************************************
  *S RES ROUTE LONG (+/- 457') LOWER SVC: WEIR @ NEC PARSIFAL TH (TR-C)
  ROUTE RESERVOIR      ID= 4  HYD= 307  INFLOW ID= 2     CODE= 5.
                       OUTFLOW CFS    STORAGE AC-FT   ELEVATION FT
```

0.00000	0.5163	38.6
25.6	0.5908	39.0
35.8	0.6103	39.1
101.2	0.7078	39.6
185.8	0.8053	40.1
286.1	0.9028	40.6

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	38.60	.516	.00
.17	.00	38.60	.516	.00
.33	.00	38.60	.516	.00
.50	.00	38.60	.516	.00
.67	.00	38.60	.516	.00
.83	.00	38.60	.516	.00
1.00	.19	38.60	.517	.08
1.17	2.32	38.63	.521	1.69
1.33	20.61	38.82	.558	14.24
1.50	108.66	39.57	.703	97.80
1.67	108.91	39.69	.725	115.87
1.83	60.04	39.31	.651	63.22
2.00	41.97	39.16	.622	43.50
2.17	26.73	39.03	.598	29.16
2.33	12.42	38.83	.559	14.79
2.50	6.92	38.72	.539	7.76
2.67	4.57	38.68	.531	4.98
2.83	3.28	38.65	.527	3.51
3.00	2.50	38.64	.524	2.64
3.17	2.00	38.63	.522	2.10
3.33	1.69	38.63	.521	1.75
3.50	1.49	38.62	.521	1.53
3.67	1.36	38.62	.520	1.39
3.83	1.27	38.62	.520	1.29
4.00	1.20	38.62	.520	1.21
4.17	1.16	38.62	.520	1.17
4.33	1.13	38.62	.520	1.13
4.50	1.11	38.62	.520	1.11
4.67	1.09	38.62	.519	1.10
4.83	1.09	38.62	.519	1.09
5.00	1.10	38.62	.519	1.10
5.17	1.10	38.62	.520	1.10
5.33	1.11	38.62	.520	1.11
5.50	1.13	38.62	.520	1.13
5.67	1.15	38.62	.520	1.15
5.83	1.17	38.62	.520	1.17
6.00	1.20	38.62	.520	1.19
6.17	.94	38.62	.519	1.03
6.33	.30	38.61	.518	.41
6.50	.10	38.60	.517	.13
6.67	.05	38.60	.516	.06
6.83	.02	38.60	.516	.03
7.00	.01	38.60	.516	.01
7.17	.00	38.60	.516	.00

PEAK DISCHARGE = 136.852 CFS - PEAK OCCURS AT HOUR 1.60
MAXIMUM WATER SURFACE ELEVATION = 39.811
MAXIMUM STORAGE = .7489 AC-FT INCREMENTAL TIME= .033333HRS

39.81 - 38.6 = 1.21
1.2 ⇒ AVAIL OVER
WEIR ⇒ NO GOOD

```
*
*S NEXT DELAY HYD TO SIMULATE ROUTING IN CHANNEL
*S TIME LAG SHOULD BE APX = VOLpeak/Qpeak
* MODIFY TIME          ID= 4    TIME= 0.HR   CODE= -1
MODIFY TIME          ID= 4    TIME= 0.066  HR   CODE= -1
*******************************************************************************
*S BASIN 2-3
COMPUTE NM HYD       ID= 1    HYD NO= 2.3      DA= 0.01735 SQ MI
                     PER A= 0.00    B= 22.3     C= 0       D= 77.7
                     TP= -0.13333 HRS   RAIN= -1

    K =   .072665HR    TP =   .133330HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   53.212    CFS   UNIT VOLUME =    .9992       B =   526.28      P60 = 2.1500
    AREA =      .013481 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


    K =   .133807HR    TP =   .133330HR    K/TP RATIO =  1.003575     SHAPE CONSTANT, N =  3.517606
    UNIT PEAK =   9.3327    CFS   UNIT VOLUME =    .9988       B =   321.61      P60 = 2.1500
    AREA =      .003869 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD            ID= 1   CODE= 1

                                  OUTFLOW HYDROGRAPH REACH     2.30


    RUNOFF VOLUME =     2.02947 INCHES     =       1.8779 ACRE-FEET
    PEAK DISCHARGE RATE =      49.92 CFS  AT   1.500 HOURS   BASIN AREA =   .0174 SQ. MI.



* PLOT HYD             ID= 1
*
*S COMBINED FLOW IN SVC JUST DOWN FROM WEIR IN NEC PARSIFAL TH (TR-C)
ADD HYD              ID_OUT= 5   HYD_OUT= 203     ID_IN_I= 1    ID_IN_II= 4
PRINT HYD            ID= 5   CODE= 1

                                PARTIAL HYDROGRAPH   203.00


    RUNOFF VOLUME =     2.11472 INCHES     =       7.7424 ACRE-FEET
    PEAK DISCHARGE RATE =     162.95 CFS  AT   1.633 HOURS   BASIN AREA =   .0686 SQ. MI.



* PLOT HYD             ID= 5
*
*******************************************************************************
*S RES ROUTE 1ST LOW WEIR W OF NEC PARSIFAL TownHomes (TR-C)
ROUTE RESERVOIR      ID= 6  HYD= 308  INFLOW ID= 5     CODE= 5.
                     OUTFLOW CFS    STORAGE AC-FT   ELEVATION FT
                      0.00000       0.0120          34.52
                      10.44         0.0187          34.74
                      25.59         0.0249          34.92
                      101.15        0.0455          35.52
                      286.10        0.0798          36.52
                      525.29        0.1140          37.52

 * * * * * * * * * * * * * * * * * *
```

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	34.52	.012	.00
.17	.00	34.52	.012	.00
.33	.00	34.52	.012	.00
.50	.00	34.52	.012	.00
.67	.00	34.52	.012	.00
.83	.00	34.52	.012	.00
1.00	.18	34.52	.012	.14
1.17	2.01	34.56	.013	1.87
1.33	20.00	34.84	.022	18.98
1.50	104.71	35.53	.046	102.08
1.67	162.54	35.85	.057	163.01
1.83	94.18	35.47	.044	95.27
2.00	61.30	35.21	.035	61.70
2.17	40.73	35.04	.029	41.14
2.33	22.48	34.89	.024	23.04
2.50	11.42	34.75	.019	11.62
2.67	7.06	34.67	.017	7.20
2.83	4.89	34.62	.015	4.97
3.00	3.63	34.60	.014	3.68
3.17	2.85	34.58	.014	2.88
3.33	2.36	34.57	.014	2.38
3.50	2.04	34.56	.013	2.06
3.67	1.84	34.56	.013	1.85
3.83	1.70	34.56	.013	1.71
4.00	1.60	34.55	.013	1.60
4.17	1.53	34.55	.013	1.54
4.33	1.49	34.55	.013	1.49
4.50	1.46	34.55	.013	1.46
4.67	1.43	34.55	.013	1.43
4.83	1.43	34.55	.013	1.43
5.00	1.43	34.55	.013	1.43
5.17	1.44	34.55	.013	1.44
5.33	1.45	34.55	.013	1.45
5.50	1.47	34.55	.013	1.47
5.67	1.50	34.55	.013	1.49
5.83	1.52	34.55	.013	1.52
6.00	1.55	34.55	.013	1.55
6.17	1.32	34.55	.013	1.34
6.33	.71	34.54	.012	.75
6.50	.21	34.52	.012	.22
6.67	.09	34.52	.012	.09
6.83	.04	34.52	.012	.04
7.00	.02	34.52	.012	.02
7.17	.01	34.52	.012	.01
7.33	.00	34.52	.012	.00

PEAK DISCHARGE = 163.012 CFS - PEAK OCCURS AT HOUR 1.67
MAXIMUM WATER SURFACE ELEVATION = 35.854
MAXIMUM STORAGE = .0570 AC-FT INCREMENTAL TIME= .033333HRS

*

*S RES ROUTE 2nd (ALSO=LAST) LOW WEIR W OF NEC PARSIFAL TownHomes (TR-C)
ROUTE RESERVOIR ID= 7 HYD= 309 INFLOW ID= 6 CODE= 5.

OUTFLOW CFS	STORAGE AC-FT	ELEVATION FT
0.00000	0.0116	32.53
35.76	0.0311	33.03
101.15	0.0575	33.53

286.10	0.1102	34.53
525.29	0.1630	35.53

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	32.53	.012	.00
.17	.00	32.53	.012	.00
.33	.00	32.53	.012	.00
.50	.00	32.53	.012	.00
.67	.00	32.53	.012	.00
.83	.00	32.53	.012	.00
1.00	.14	32.53	.012	.12
1.17	1.87	32.55	.013	1.76
1.33	18.98	32.77	.021	17.50
1.50	102.08	33.51	.056	98.46
1.67	163.01	33.86	.075	163.10
1.83	95.27	33.50	.056	96.76
2.00	61.70	33.23	.042	62.36
2.17	41.14	33.08	.034	41.74
2.33	23.04	32.86	.024	23.61
2.50	11.62	32.70	.018	11.92
2.67	7.20	32.63	.016	7.33
2.83	4.97	32.60	.014	5.03
3.00	3.68	32.58	.014	3.72
3.17	2.88	32.57	.013	2.90
3.33	2.38	32.56	.013	2.39
3.50	2.06	32.56	.013	2.07
3.67	1.85	32.56	.013	1.86
3.83	1.71	32.55	.013	1.71
4.00	1.60	32.55	.012	1.61
4.17	1.54	32.55	.012	1.54
4.33	1.49	32.55	.012	1.49
4.50	1.46	32.55	.012	1.46
4.67	1.43	32.55	.012	1.44
4.83	1.43	32.55	.012	1.43
5.00	1.43	32.55	.012	1.43
5.17	1.44	32.55	.012	1.44
5.33	1.45	32.55	.012	1.45
5.50	1.47	32.55	.012	1.47
5.67	1.49	32.55	.012	1.49
5.83	1.52	32.55	.012	1.52
6.00	1.55	32.55	.012	1.55
6.17	1.34	32.55	.012	1.36
6.33	.75	32.54	.012	.78
6.50	.22	32.53	.012	.24
6.67	.09	32.53	.012	.09
6.83	.04	32.53	.012	.04
7.00	.02	32.53	.012	.02
7.17	.01	32.53	.012	.01
7.33	.00	32.53	.012	.00

PEAK DISCHARGE = 163.103 CFS - PEAK OCCURS AT HOUR 1.67
MAXIMUM WATER SURFACE ELEVATION = 33.865
MAXIMUM STORAGE = .0752 AC-FT INCREMENTAL TIME= .033333HRS

*
FINISH

PARSIFAL TOWNHOMES 9/27/96

SIERRA ULSTA CHANNEL HYDROLOGY

INDIVIDUAL BASINS — FROM SVCX2 AHYMO

BASIN	Q_p	
1-C CONTRIBUTING	26.12	
2.1	79.04	$\Sigma = 104.16$

1-C CONTRIB, LAGGED & ADDED TO 2.1	102.06
2.2	49.86
2.3	49.92
	201.78 ~ 202 CFS

Σ - ROUTED OUT = 201.78 - 163.10 = 38.68 = Δ

$\frac{38.68}{201.78}$ 0.192 ~ 19% $\frac{38.68}{163.10} = .237$ ~ 24%

SIERRA VISTA

CHANNEL

HYDRAULICS

PARSIFAL 8-26-96

SIERRA VISTA CHANNEL
HYDRAULICS UPSTREAM OF 4+(±) WEIR NE CORNER

FROM ATHYMO SVCX2.OUT
$Q_{peak} = 137.18 \sim 137$ CFS,

FROM WEIR EQN $C = 3.5$ $L = 28.9$

$Q = C L y^{3/2}$

$y = \left(\frac{Q}{CL}\right)^{2/3} = \left(\frac{137.2}{(3.5)(28.9)}\right)^{2/3} = 1.225 \sim 1.23'$

FROM ATHYMO SVCX2.OUT
MAX STORAGE = .7489 AC FT
= 32,622 CF

AREA AVG = A_{AVG} = VOL / LENGTH
$L = (6+50) - (2+54) = 396'$
$A_{AVG} = 32622/396 = 82.38$ SF

$y_{avg} = A_{avg}/W = 82.38/18.5 = 4.453 \sim 4.45'$

$P_{avg} = 2 y_{avg} + W = 8.9 + 18.5 = 27.4$
$R = A/P = 82.38/27.4 = 3.006 \sim 3.01$

$V_{avg} = Q/A_{avg} = 132.2/82.38 = 1.6047 \sim 1.60$ FPS

$V_{also} = \frac{1.49}{n}(R^{2/3})\sqrt{S_f}$ S_f = friction (water surface) slope
n = friction factor = 0.013

$S_f = \left[\frac{n \cdot V}{1.49 R^{2/3}}\right]^2 = \left[\frac{(.013)(1.60)}{(1.49)(3.01)^{2/3}}\right]^2 = 0.00000448$
$\approx .00459$

L of S_f to SE corner $\approx 0.000045 \times 199.75 = 0.0059 \sim 0.01'$
to E R $\approx$ " $\times 263.16 = 0.0119 \sim 0.01'$

$HV = V^2/2g = (1.6)^2/(2.322) = 0.040$

Super elev — subcrit, rectangular channel
assume b/r = 1 at corner DPM 22.3 p 58
$S = \frac{V^2}{2g} \cdot \frac{b}{r} = 0.04'$

L of S_f + Super = .01 + .04 = .05'

PARSIFAL 8/26/96

TOP OF NEW WALL JUST WEST OF SIERRA USTA CHANNEL

TWER + DEPTH + L+Sf + Super + Freeboard

38.19 + 1.23 + .01 + .04 + 2 = 41.47

WEIRS IN SUC ALONG N R

$Q_p = 163$ CFS SUC X2, AFTER ADD'L IN FLOW FROM SIERRA USTA STOPPING CENTER

$L = 28.9$ FT $C = 3.5$

$Q = C L H^{3/2}$ or $H = \left(\frac{Q}{CL}\right)^{2/3}$

$$H = \left[\frac{1.63}{(3.5)(28.9)}\right]^{2/3} = 1.374 \sim 1.37 \sim 1.4 \text{ FT}$$

PARSIFAL - SIERRA VISTA CHAN REVISITED 5/20/96

OUTFLOW VIA PIPE & WEIR @ TRASHRACK *

$Q_p = 169$ cfs

30.96 − 24.79 = 6.17 — WEIR ELEV

31.52 − 24.79 = 6.73 — T WALL SOUTH SIDE

ASSUME WEIR = 28.9 − 6/2 = 25.9' WIDE

WEIR COEFF. C ≈ 2.86, KING, 6TH, TABLE 5-6 $\frac{Q}{3}$

OUTLET PIPE 53" x 34" ⬭, SQUARED EDGE ENT

HEC 10 CHART 15 — EXTEND

@ $y = 6.73'$ $Q \approx 110$ CFS

$Q_{WEIR} = 169 - 110 = 59$ CFS

$Q = CLH^{3/2} = 2.86 \times 25.9\, H^{3/2} = 74.074\, H^{3/2}$

$H = (Q/74.074)^{2/3}$

$= (59/74.074)^{2/3}$

$= 0.86 \quad > 6.73 - 6.17 = 0.56$

TRY $y = 7.0 \Rightarrow h = .56 + .27 = .83$

$Q_{PIPE} \approx 112$ $\qquad 169 - 112 = 57$

$H \approx (57/74.074)^{2/3} = 0.84$

$\Rightarrow y \approx 7.01$ above invert $= 24.79 + 7.01 = 31.80$

$Q_{PIPE} \approx 112$

$Q_{WEIR} \approx 57$

169

* ASSUMES ENOUGH DROP IN PIPE, & LOW ENOUGH HGL IN MANHOLE - SO THAT GET INLET CONTROL, BACK WATER IN MANHOLE WOULD REDUCE Q_{PIPE} & INCREASE Q_{WEIR}

NOTE: CALCS THIS PAGE BASED ON Q=169 CFS FROM AHYMO RUN SUCPR02. SUCPR02 NOT USED IN AUG 96 SUBMITTAL. "ACTUAL" Q IS 163 CFS FROM SUCX2. RESULTS WOULD BE SIMILAR.

Capacity Charts for the Hydraulic Design of Highway Culverts

Hydraulic Engineering Circular No. 10

March 1978*

Prepared by the Hydraulics Branch, Bridge Division, Office of Engineering, Federal Highway Administration, Washington, D.C. 20590

CONTENTS

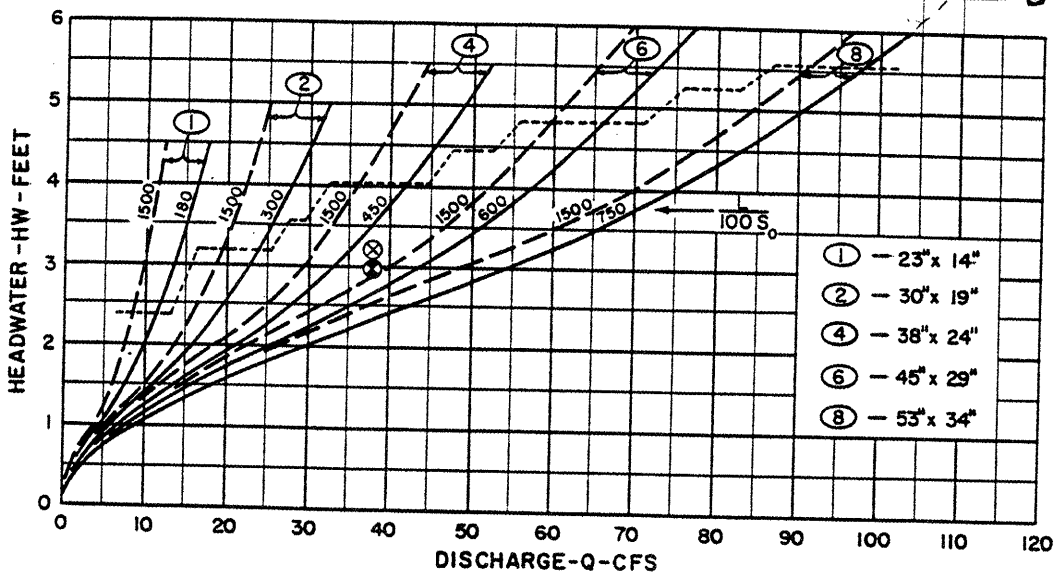
*Reprint of March 1965 publication

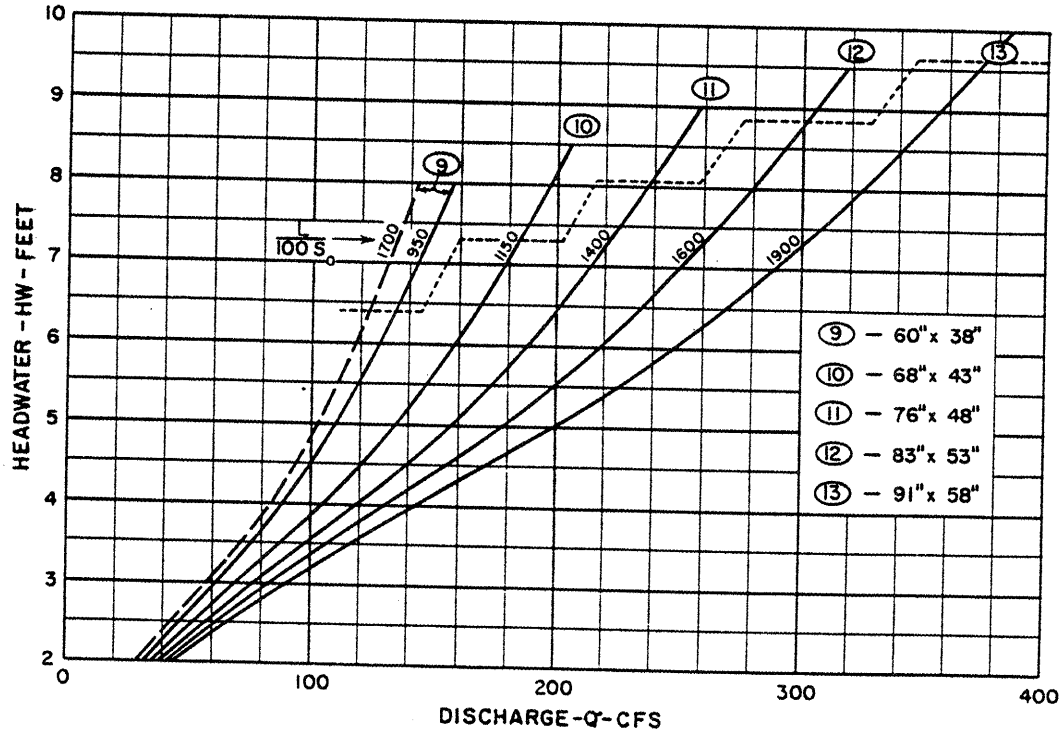
U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

CHART 15

#8 Q ~ 95 cfs @ Hw = 5.4' ←
~105 @ 6.15'

7.0
6.5





EXAMPLE

⊗ GIVEN:
38 CFS; AHW = 3.2 FT.
L = 66 FT.; S_o = 0.0015

⊗ SELECT NO. 5, 42"X 27"
HW = 3.0 FT.

CULVERT CAPACITY
OVAL CONCRETE PIPE - HORIZONTAL
SQUARE-EDGED ENTRANCE
23" X 14" TO 91" X 58" ⬭

BUREAU OF PUBLIC ROADS JAN. 1963

HEC #10
FHWA 1978

6C

SVC SPILLWAY TO PARSIFAL ST:57 CFS @ BS
Worksheet for Irregular Channel

Project Description	
Project File	c:\haestad\fmw\par1.fm2
Worksheet	warped spillway, svc to parsifal st.
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

MAX SLOPE THIS PROGRAM = 0.1 FT/FT

Input Data		
Channel Slope	0.100000	ft/ft

ACTUAL SLOPE ~ 0.123 FT/FT

Elevation range: 26.43 ft to 28.39 ft.

Station (ft)	Elevation (ft)
0.00	28.00
0.01	26.43
18.90	26.72
28.90	28.39

Start Station	End Station	Roughness
0.00	28.90	0.025

BRICK PATTERN "ROMANITE" CONCRETE

Discharge	57.00	cfs

Results		
Wtd. Mannings Coefficient	0.025	
Water Surface Elevation	26.91	ft
Flow Area	6.52	ft²
Wetted Perimeter	20.56	ft
Top Width	20.06	ft
Height	0.48	ft
Critical Depth	27.22	ft
Critical Slope	0.011383	ft/ft
Velocity	8.74	ft/s
Velocity Head	1.19	ft
Specific Energy	28.10	ft
Froude Number	2.70	
Flow is supercritical.		

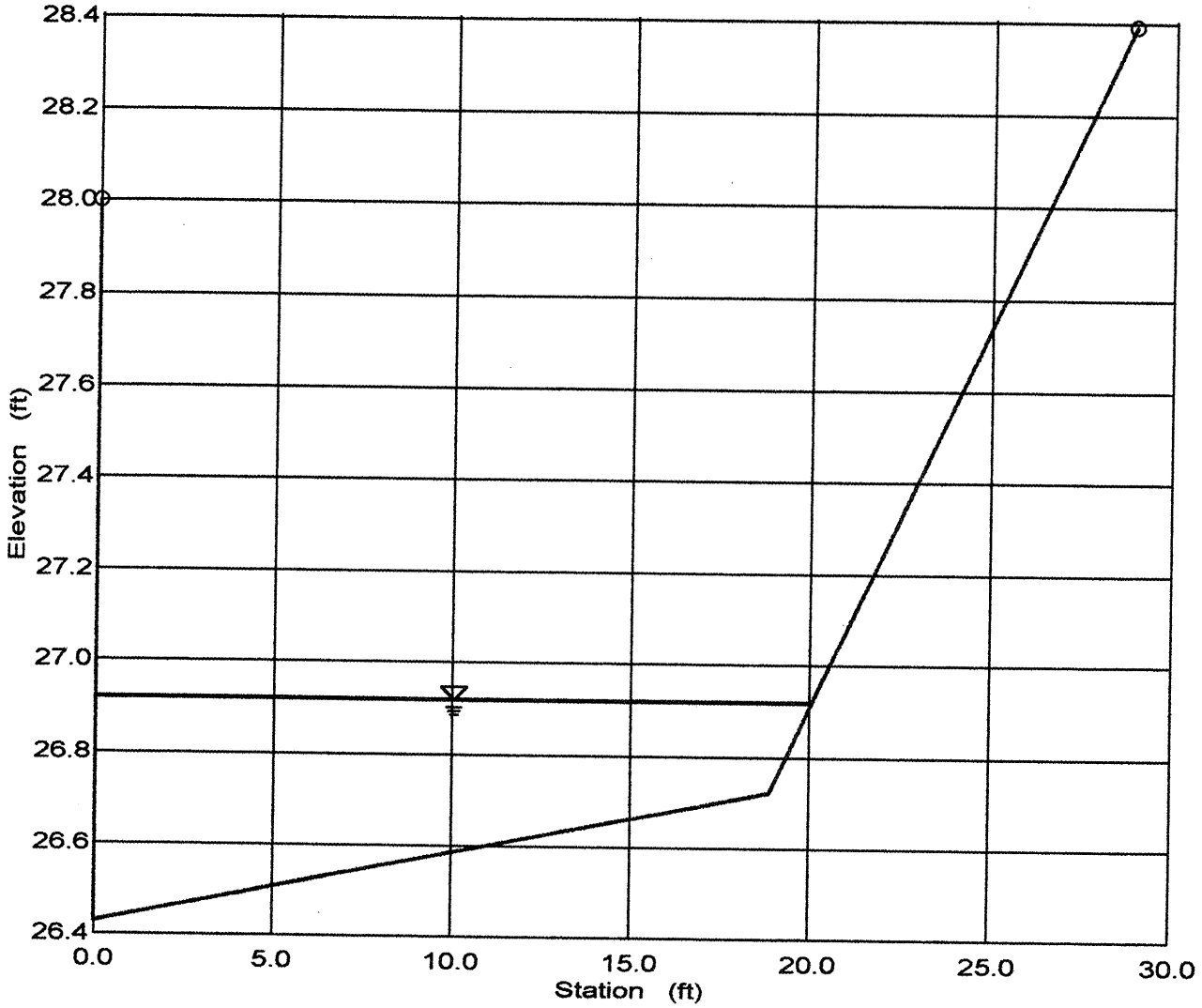
SVC SPILLWAY TO PARSIFAL ST: 57 CFS @ B.S.W.
Cross Section for Irregular Channel

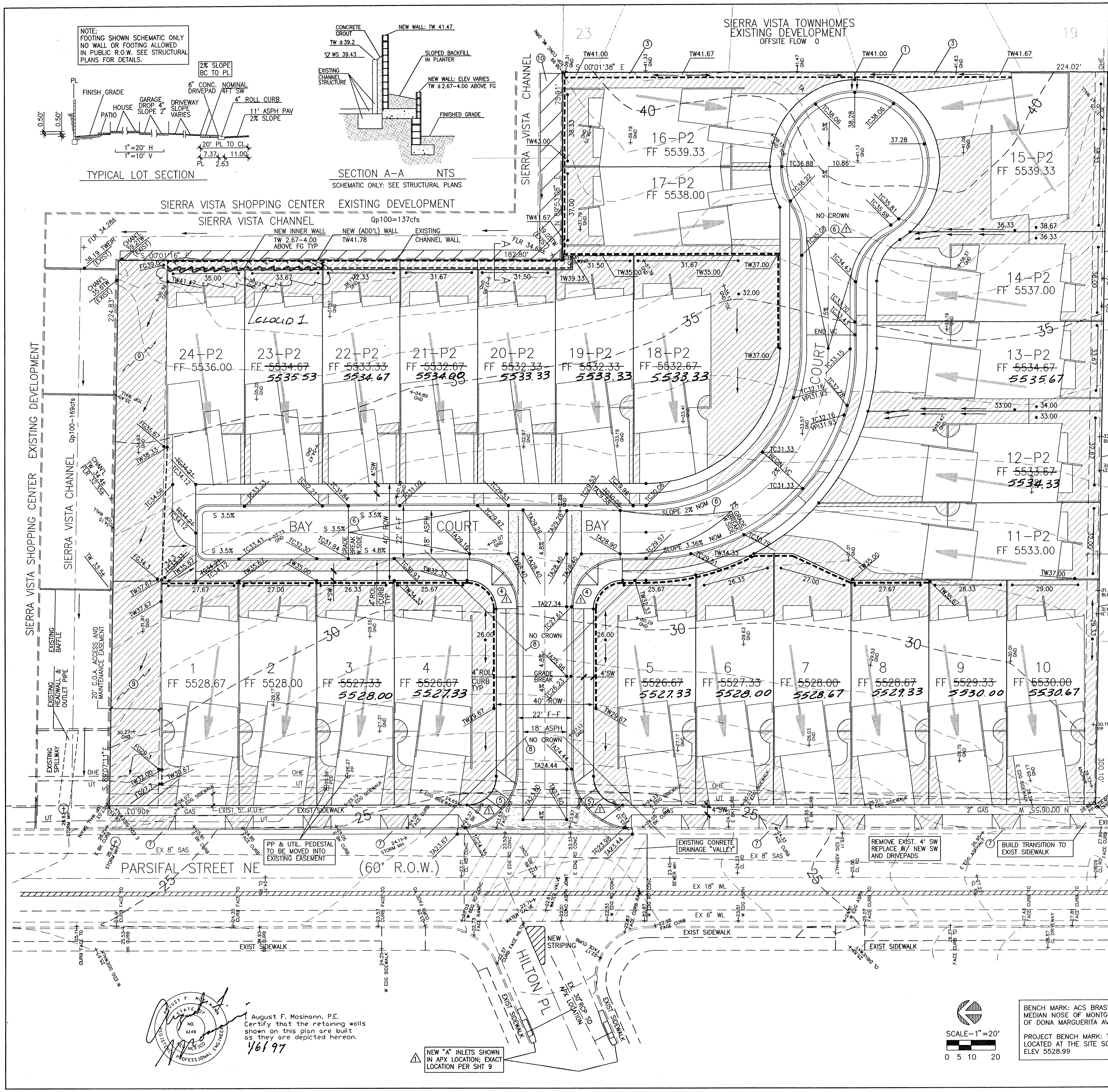
Project Description	
Project File	c:\haestad\fmw\par1.fm2
Worksheet	warped spillway, svc to parsifal st.
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Section Data		
Wtd. Mannings Coefficient	0.025	
Channel Slope	0.100000	ft/ft
Water Surface Elevation	26.91	ft
Discharge	57.00	cfs

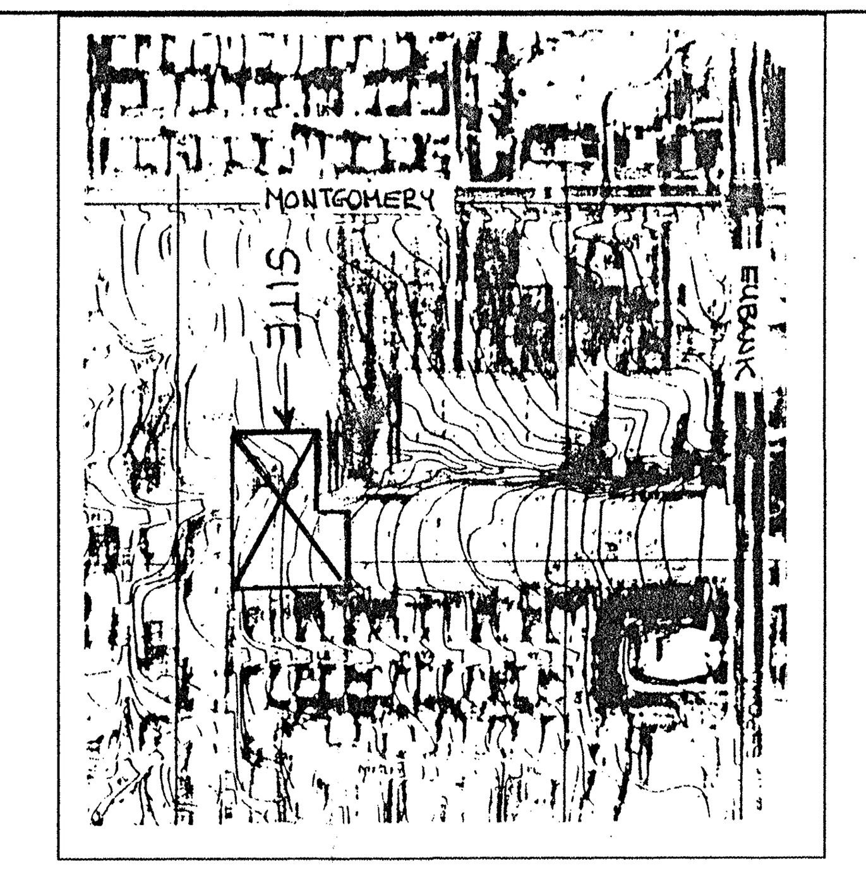
BONAKNITE BRICK PATTERN LOOK

ACTUAL SLOPE ~0.123: THIS PROGRAM WON'T TAKE STEEPER THAN 0.10 FT/FT

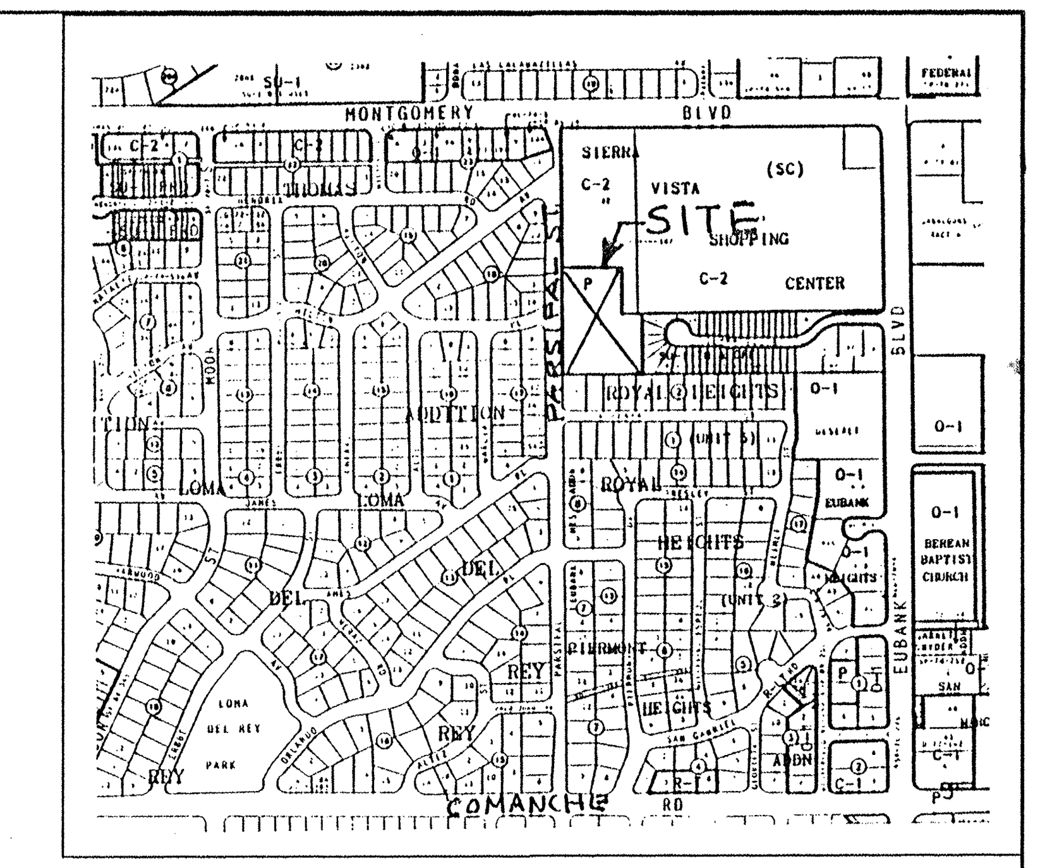




I August F. Mosimann, P.E.
Certify that the retaining walls
shown on this plan are built
as they are depicted hereon.
1/6/97



FLOODPLAIN PANEL 25 1"=500'



VICINTY MAP: G-20 1"=750'

KEYED NOTES

1. EXISTING CMU AND CONCRETE WALLS ALONG EAST & SOUTH PROPERTY LINES: OBTAIN PERMISSION TO CLOSE OPENINGS (SOUTH WALL ONLY) AND REFACE WALLS, OR CONSTRUCT NEW WALLS ENTIRELY ON SITE.
2. ENSURE NO DRAINAGE FROM PROJECT TO ADJACENT PROPERTY
3. FG BEHIND NEW WALL 3" MINIMUM BELOW TOP OF WALL. SLOPE FG BEHIND WALL TO DRAIN AS SHOWN.
4. (△1) EXPERIMENTAL COA HC ACCESS PER DTL SHT 6
5. (△1) HC ACCESS RAMP PER DWG 2440 WITH TRANSTION TO 8" STD C&G IN HC ACCESS PER DWG 2418
6. TRANSTION CROWN TO NO CROWN
7. STD 8" CURB & GUTTER. REMOVE & REPLACE AS NEEDED.
8. CLEAR SIGHT TRIANGLE
9. NO TREES, SHRUBS, OR OTHER OBSTRUCTIONS THAT WOULD INTERFERE WITH DESIGNATED USE TO BE PLANTED OR INSTALLED IN EASEMENT.
10. SEE PLAT FOR REFERENCE TO CITY-OWNED "EXCEPTION".

DRAINAGE CERTIFICATION: I, TUCKER H. GREEN, A PROFESSIONAL ENGINEER DULY LICENSED IN THE STATE OF NEW MEXICO - BASED ON MY OWN OBSERVATION OF THE SITE, ON AS-BUILT ELEVATIONS PROVIDED BY ROBERT MARTINEZ, A NEW MEXICO LICENSED SURVEYOR, AND ON WALL INSPECTION PROVIDED BY AUGUST F. MOSIMANN, A NEW MEXICO LICENSED PROFESSIONAL ENGINEER - CERTIFY THAT DRAINAGE FOR THIS SITE HAS BEEN COMPLETED IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED DESIGN. MINOR CHANGES FROM THE APPROVED DESIGN ARE NOTED BELOW:

1. SEVERAL PAD ELEVATIONS HAVE BEEN CHANGED, BUT IN NO CASE BY MORE THAN 1.5 FT. FINISHED FLOOR ELEVATIONS SHOWN INCLUDE A 4-INCH ALLOWANCE ABOVE PAD GRADE FOR FLOOR SLAB THICKNESS.
2. (CLOUD 1) THE LOW, SECONDARY RETAINING WALL WAS NOT NEEDED AT THE REAR OF LOTS 23 & 24 AND WAS NOT BUILT. ELSEWHERE THIS WALL WAS BUILT PER PLAN.
3. THE 'NOTCH' IN THE WALL AT THE END OF THE CUL DE SAC WILL BE REPLACED BY CORED HOLE. THE LOCATION HAS BEEN MARKED ON THE WALL.
4. AT THE TIME OF THIS CERTIFICATION THE FIRST 2 TOWNHOMES ARE UNDER CONSTRUCTION ON LOTS 9 & 10. THE UNDERSLAB SYSTEM FOR DRAINING THE REAR YARD OF LOT 9 HAS BEEN CONSTRUCTED ESSENTIALLY ACCORDING TO DESIGN. LOT 10 HAS A SMALL SIDE YARD; REAR YARD DRAINAGE WILL BE ROUTED TO THE STREET VIA THE SIDE YARD. ON THE REST OF THE SITE SIMILARLY SITUATED LOTS ARE TO BE SIMILARLY TREATED.

AS-BUILT GRADES FOR DRAINAGE ARE SHOWN ON ~~THIS SHEET AND ON~~ SHEET 5.

NMPE 10,731 1-16-98

GENERAL NOTES

1. An excavation/construction permit will be required before beginning any work within City of Albuquerque right-of-way. An approved copy of these plans must be submitted at the time of application for this permit.
2. The Contractor shall obtain a Topsoil Disturbance Permit prior to beginning conatruction.
3. All work detailed on these plans to be performed, except as otherwise stated or provided hereon, shall be constructed in accordance with the City of Albuquerque Standard Specifications for Public Works Construction, 1986 edition, through Update 6.
4. All construction within City Right-of-Way or Easements must be done from approved Work Order documents from the City.
5. Two working days prior to any excavation, contractor must contact Line Locating Service (260-1990) for location of existing utilities.
6. Prior to construction, the Contractor shall become familiar with the plans, shall excavate and verify the horizontal and vertical locations of all obstructions, and shall verify all slopes and flowline elevations. In the case of a conflict or apparent ommission or oddity the Contractor shall consult with the Engineer immediately, before final layout or construction.
7. Backfill compaction in the City right of way shall be according to the appropriate class of street or road. Backfill in parking lots and driveways shall be as for residential streets unless noted otherwise.
8. The Contractor shall be responsible for determining, prior to construction, whether overhead or underground utilities (and/or their support and ancillary structures) are obstructions to constructiion activities or would be harmed by such activities. If any problem is evident, the Contractor shall be responsible for coordinating with the utilities to have the utility supported, protected, or removed. The Contractor shall be responsible for any cost involved. Underground utility cables (such as for telephone, television, or power) shall be supported at intervals not to exceed 15'.
9. For work involving City Right-of-Way the Contraactor shall submit a detailed schedule to the City Coordination Division three (3) working days prior to beginning construction, and shall obtain a Barricading Permit two (2) working days prior to construction. The Contractor shall notify the Barricade Engineer (768-2551) prior to occupying an intersection. See Section 19 of the City Specifications.
10. If any utility lines, pipelines, or underground utility lines are shown on these drawings, they are shown in an approximate manner only, and such lines may exist even if they are not shown. The Engineer has undertaken no field verification of such utility lines etc. and the information on which the locations shown are based may be inaccurate, incomplete, or obsolete by the time construction occurs. The Contractor shall inform himself of the locations of such utilities etc. in or near the work before and during excavation and construction. The Contractor shall be fully responsible for any and all damage caused by his failure to locate, indentify, and preserve such utiliites.
11. In planning and conducting excavation and all other construction, the Contractor shall comply with all appropriate laws, rules, and regulations relating to these activities, particulary as regards to all utilities and to safety.
12. PROVIDE POSITIVE DRAINAGE AWAY FROM ALL BUILDINGS
13. SEE ARCHITECTURAL OR STRUCTURAL PLANS FOR WALL DETAILS
14. SEE SEPARATE REPORT FOR DISCUSSION & CALCULATIONS

LEGEND

TA	TOP OF ASPHALT		LOW RETAINING WALL
TP	TOP OF PAVEMENT		GARDEN WALL
FL	FLOW LINE		GARDEN AND/OR RETAINING WALL
TC	TOP OF CURB / CONCRETE	0.0	NEW CONTOURS
SW	SIDEWALK	0.0	EXISTING CONTOURS
FF	FINISHED FLOOR		FLOW DIRECTION
FG	FINISHED GRADE		NEW CURB AND GUTTER
EG	EXISTING GRADE		EXISTING CURB AND GUTTER
	WATER VALVE	• 89.50	NEW SPOT ELEVATIONS
	WATER METER	ELEV DESC 88.73	EXISTING SPOT ELEVATIONS
	FIRE HYDRANT	~~TC30.06~~ TA29.58	REVISED NEW SPOT ELEVATIONS △1
	LANDSCAPING		

RECEIVED
JAN 15 1998
HYDROLOGY SECTION

△1 11-18-96: MINOR REVISIONS TO ACCOMMODATE DRC REQUIREMENTS

BENCH MARK: ACS BRASS CAP112-F-20-A, LOCATED ON MEDIAN NOSE OF MONTGOMERY BLVD NE, APX 39 FT WEST OF DONA MARGUERITA AV, ELEV 5524.98

PROJECT BENCH MARK: TOP OF REBAR & CAP (NMPS #9777) LOCATED AT THE SITE SOUTHWEST PROPERTY CORNER, ELEV 5528.99

DWG: C:\ACAD\PAR\PA2DRN DATE: 11/17/96 TIME: 21:43 T. GREEN

TUCKER H. GREEN
10731
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER
8-29-96
11-18-96

PARSIFAL TOWNHOMES
ALBUQUERQUE, NEW MEXICO

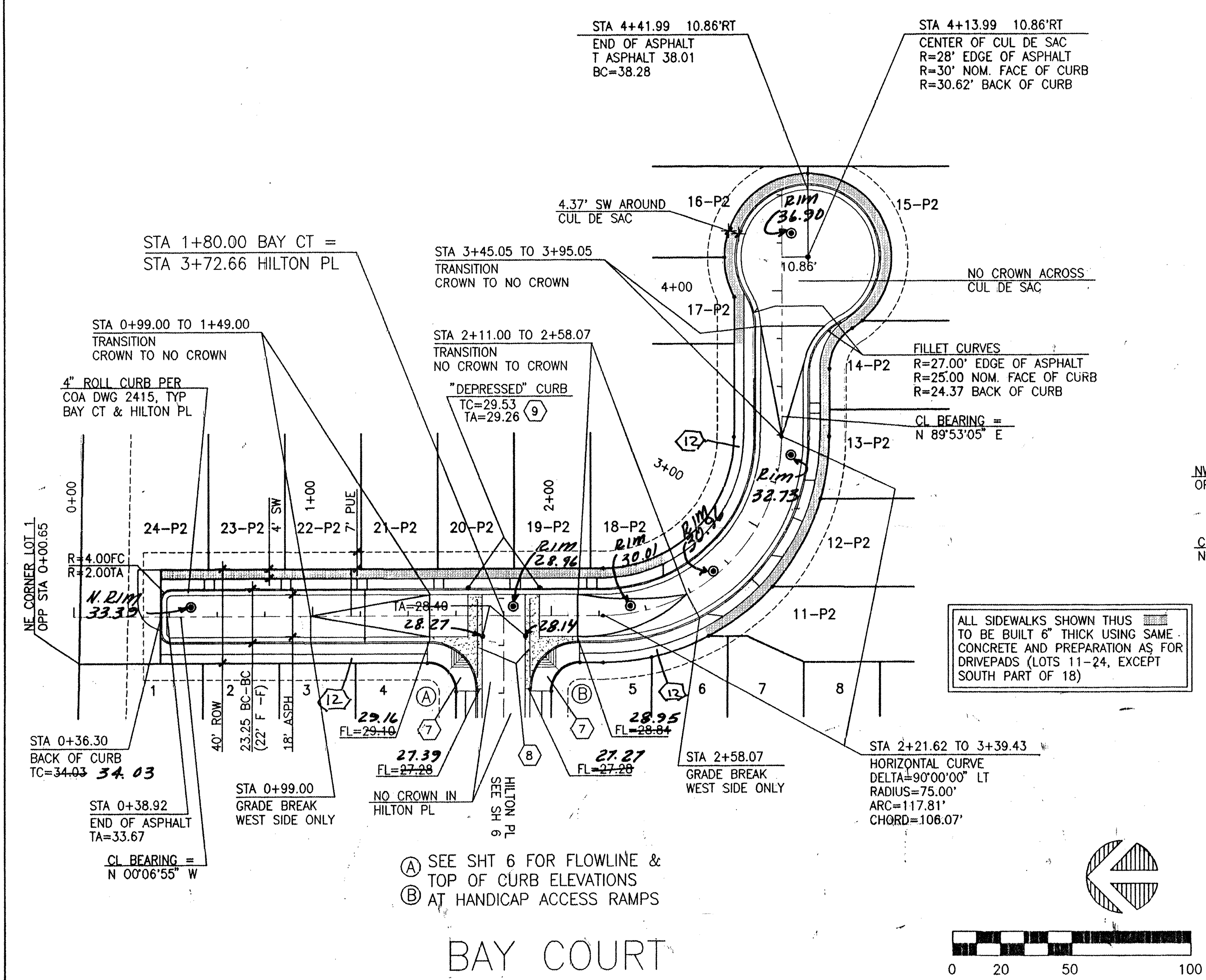
GRADING & DRAINAGE

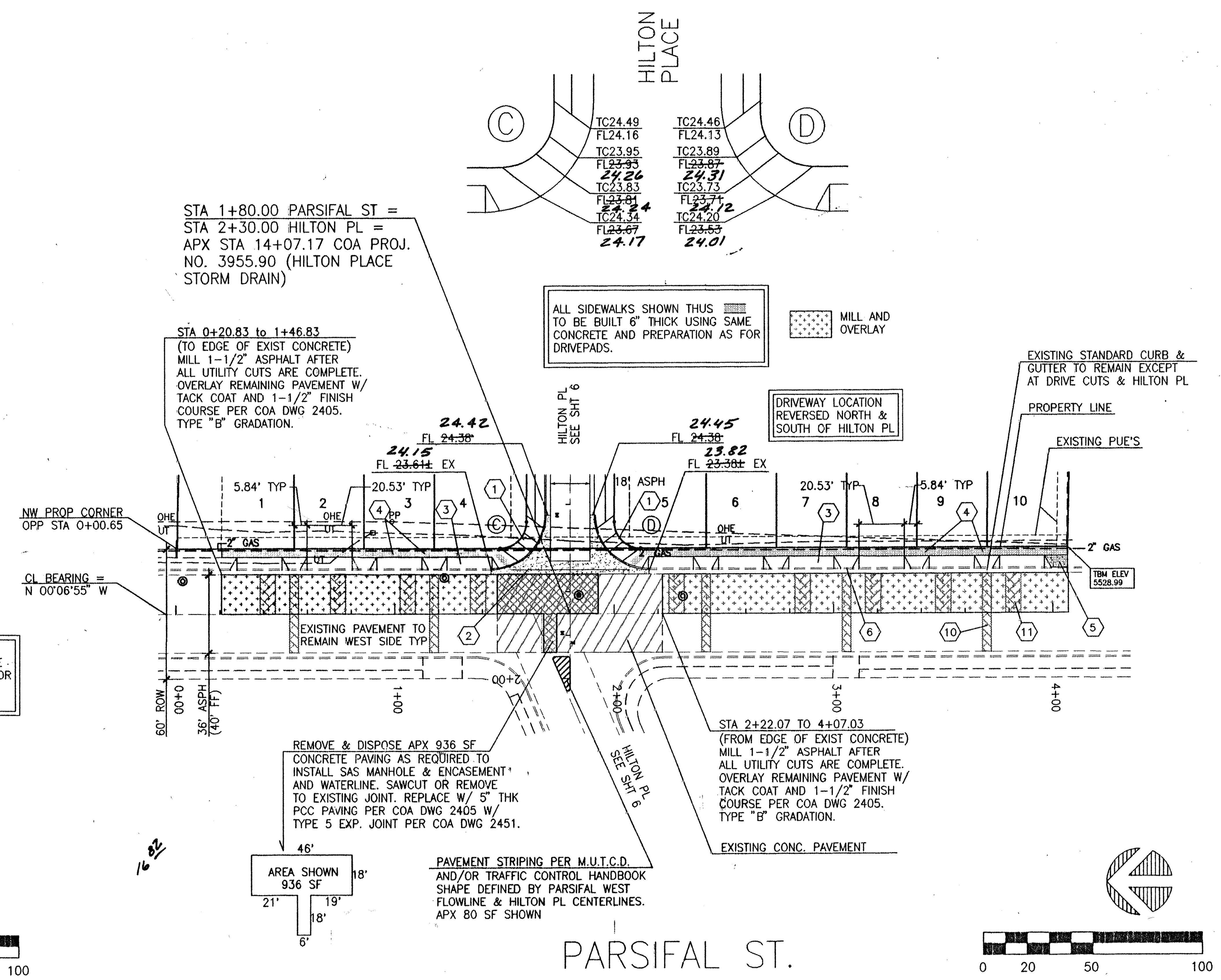
PER SE ENGINEERING
Drainage, Utilities, and Site Design
3041 Blake Rd SW Albuquerque NM 87105
(505) 877-6163 239-7855 mobile

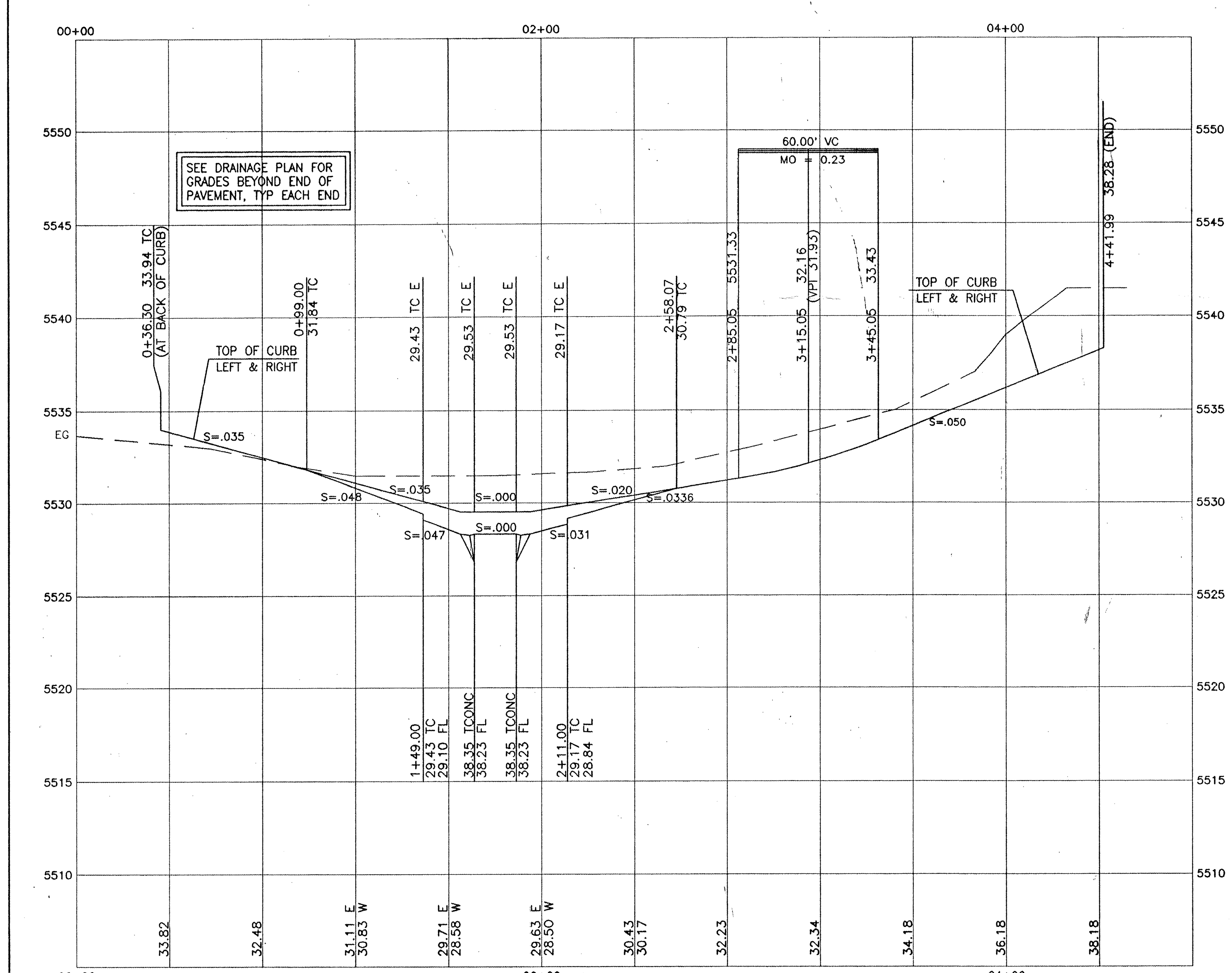
SHEET NO. C1 OF

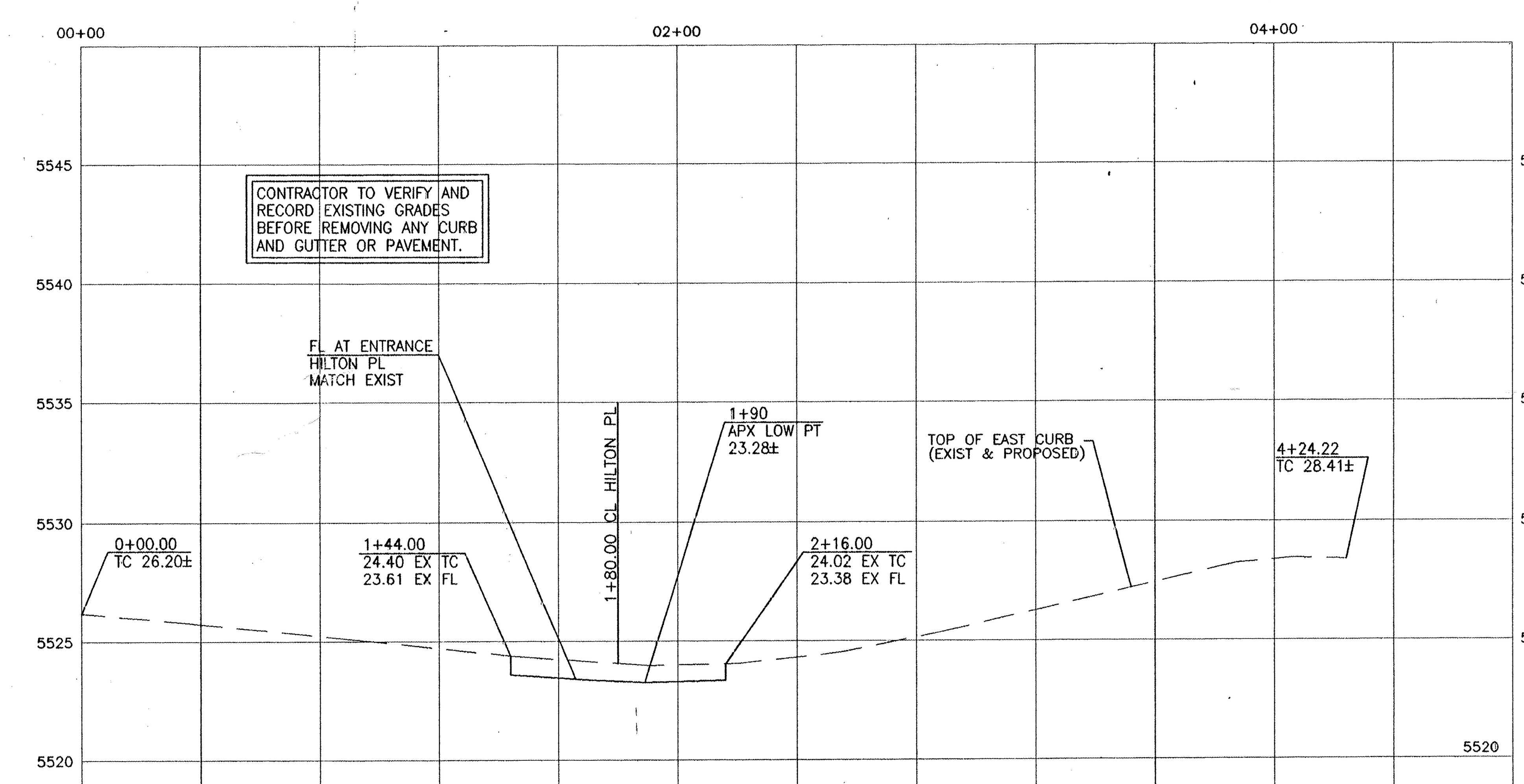
CPN 557181

3 of 9









I ROBERT B. RYALS, A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NEW MEXICO, DO HEREBY CERTIFY THAT THE PUBLIC INFRASTRUCTURE IMPROVEMENTS HAVE BEEN CONSTRUCTED IN SUBSTANTIAL COMPLIANCE WITH THIS APPROVED PLAN AND THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS AND THAT, BASED ON AS BUILT INFOMATION PROVIDED BY A FIELD SURVEY PERFORMED BY MARTINEZ SURVEYING, CERTIFY THAT THIS AS-CONSTRUCTED DRAWING IS ACCURATE .

Robert B Ryals 1-10-98

ROBERT B. RYALS, P.E. NO. 9436

ROBERT RYALS NEW MEXICO 9436 REGISTERED PROFESSIONAL ENGINEER

AS-CONSTRUCTED

GENERAL NOTES:

1. LEFT & RIGHT MEAN LEFT & RIGHT WHEN LOOKING IN THE DIRECTION OF INCREASING STATIONING.
2. ALL WATER LINE AND SEWER STATIONING REFERS TO STREET CENTERLINE STATIONING.
3. CONSTRUCT ALL UNDERGROUND UTILITIES PRIOR TO SUBGRADE PREP FOR PAVING AND CURB & GUTTER
4. ALL CURB RETURN RADII ARE 25 FT TO FACE OF CURB UNLESS OTHERWISE SPECIFIED.
5. GRADE ELEVATIONS, WHERE NOTED, ARE FOR TOP OF CURB UNLESS OTHEWISE SHOWN OR NOTED. THROUGH INTERSECTIONS TOP OF CURB = TOP OF ASPHALT (OR TOP OF CONRETE AT VALLEY GUTTERS)
6. WHEN REMOVING EXISTING CURB & GUTTER, SAWCUT OR REMOVE TO NEAREST EXPANSION JOINT.
7. WHEN CONSTRUCTING C & G NEXT TO EXISTING ASPHALT PAVEMENT, REMOVE & REPLACE PAVEMENT 1 FT WIDE. SEE COA DWG 2415.
8. SEE SHEET 7 FOR WATER SHUT-OFF PLAN.
9. CONTRACTOR SHALL SUPPORT ALL EXISTING UNDER-GROUND UNILITY LINES WHICH BECOME EXPOSED DURING CONSTRUCTION. PAYMENT FOR SUPPORTING WORK SHALL BE INCIDENTAL TO WATERLINE AND OR SEWERLINE COSTS.
10 ANY EXISTING FACILITIES (CURB & GUTTER, UTILITY LINES, LANDSCAPING, ETC.) DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED (AS DIRECTED BY THE ENGINEER) AT THE CONTRACTOR'S EXPENSE.
11 CONTRACTOR SHALL PARK EQUIPMENT & VEHICLES FOR MINIMUM INTERFERENCE WITH NORMAL ACTIVITES OF RESIDENTS AND OTHER CONTRACTORS ON SITE.
12 CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITY LOCATIONS AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY CONFLICTS OR DISCREPANCIES.

CONSTRUCTION NOTES:

⟨1⟩ HC RAMP PER DWG 2441 CASE II. R=25.00 AT NOM FACE OF CURB; R=12.00 AT PL. TRANSITION TO STD 8" CURB AT PARSIFAL PER DWG 2418.

⟨2⟩ BUILD MODIFIED VALLEY GUTTER PER COA DWG 2420
** PROVIDE STRAIGHT CROSS SLOPE TO MATCH
** EXISTING PAVEMENT AT PARSIFAL ST.
** DO NOT BUILD 1-1/2" FLOWLINE DEPRESSION

⟨3⟩ DRIVEPAD PER COA DWG 2425
MAINTAIN 2% CROSS-SLOPE FULL SIDEWALK WIDTH (4').
SAW CUT DRIVEPAD OPENINGS INTO EXISTING CURB. SLOPE SAWCUTS TOWARD STREET PER DWG 2415

⟨4⟩ REMOVE EXISTING CONC SIDEWALK. BUILD NEW 4 FT SIDEWALK TO DRIVEPAD STRENGHT AND THICKNESS

⟨5⟩ BUILD APX 48SF EXTRA CONC SIDEWALK NEXT TO CURB TO SOUTH PROPERTY LINE TO MATCH WITH ADJACENT SIDEWALK.

⟨6⟩ EXISTING 8" STD CURB & GUTTER TO REMAIN ALONG PARSIFAL, TYPICAL BETWEEN DRIVE CUTS

⟨7⟩ EXPERIMENTAL COA HC RAMP PER DETAIL SHT 6. R=20.00 AT NOM FACE CURB; R=12.00 AT PL.

⟨8⟩ BUILD VALLEY GUTTER PER COA DWG 2420

⟨9⟩ STA 1+71.00 TO 1+89.00 (BTW VALLEY GUTTERS) BUILD "DEPRESSED" GUTTER – PROVIDE SMOOTH ROLL FROM TOP OF CURB TO ASPHALT. ELEV AT 1 FT FROM EDGE OF ASPHALT 0.06' ABOVE TOP OF ASPHALT

⟨10⟩ PAVEMENT CUT FOR WATER SERVICE: ±4'x36'

⟨11⟩ PAVEMENT CUT FOR SEWER SERVICE: ±7'x18'

⟨12⟩ 4' 4" THICK SIDEWALK PER COA STD DWG

LEGEND

DESCRIPTION	PROPOSED	EXISTING
WATER VALVE		
FIRE HYDRANT		
STREET LIGHT		
STORM DRAIN MANHOLE		
SAS MANHOLE		
CURB & GUTTER		
WATER LINE	— W —	
SEWER LINE	— SAS —	
STORM DRAIN	— SD —	
SEWER SERVICE		
CATCH BASIN		
SINGLE WATER SERVICE		
DOUBLE WATER SERVICE		
CENTERLINE MONUMENT	▲	
PROJECT BOUNDARY		
ADJACENT PROP. LINE		
PROPERTY CORNER		
UTILITY POLE	•	
HYDRAULIC GRADE LINE	HGL	

DWG: C:\ACAD\PAR\PA2D2 DATE: 11/18/96 TIME: 17:00 T. GREEN

AS BUILT INFORMATION
CONTRACTOR Sundance
WORK STAKED BY Martinez DATE 8-29-97
INSPECTOR'S ACCEPTANCE BY DATE 10/97
FIELD VERIFICATION BY DATE 10/97
DRAWINGS CORRECTED BY DATE 10/97

MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

BENCH MARKS
CITY OF ALBUQUERQUE SURVEY MONUMENT BENCH MARK, ACS BRASS CAP 12-F-20-A, LOCATED ON THE MEDIAN NOSE OF MONTGOMERY BLVD NE, APX 39 FT WEST OF DONA MARGUERITA AV NE. ELEVATION 5524.98

TBM: TOP OF CAPPED REBAR (NMPS #9777), LOCATED AT THE SOUTHWEST CORNER OF THE PARSIFAL TOWNHOMES SITE. ELEVATION 5528.99

SURVEY INFORMATION
FIELD NOTES
NO. BY DATE

ENGINEER'S SEAL
TUCKER H. GREEN 10731 REGISTERED PROFESSIONAL ENGINEER 11-18-96

NO.	DATE	REVISIONS	REMARKS	BY
		DESIGN	DATE: 11/96	DESIGNED BY: THG
			DATE: 11/96	DRAWN BY: THG
			DATE: 11/96	CHECKED BY: THG

PER SE ENGINEERING
Drainage, Utilities, and Site Design
3041 Blake Rd SW Albuquerque NM 87105
(505) 877-6163 239-7855 mobile

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: PARSIFAL TOWNHOMES
PAVING PLAN & PROFILE: PARSIFAL ST & BAY CT

Design Review APPROVED MAR 27 1997 DESIGN REVIEW COMMITTEE

City Engineer Approval

Last Design Update Mo./Day/Yr. Mo./Day/Yr.

PROJECT NO. 5571.81 | MAP NO. G-20 | SHEET 5 OF 9