DRAINAGE STUDY FOR THE TIMARRON WEST SUBDIVISION UNITS 3 & 4

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APRIL 6, 2000

PREPARED FOR:

CENTEX HOMES
BUILDING B
6700 JEFFERSON NE
ALBUQUERQUE, NEW MEXICO 87109

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HYDROLOGY SECTION

Scan pages
that are bound
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6700 JEFFERSON NE
ALBUQUERQUE, NM 87109

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NEW MEXICO
10596
REGISTERED PROFESSIONAL ENGINEER

PREPARED BY:

4/6/00

Rick Beltramo, P.E. Date

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I. INTRODUCTION

This Drainage Study will address the developed storm runoff and the necessary facilities to adequately convey the flow from the properties legally described as Tracts 1& 2, Lands of Grevey/Liberman. Combined, these tracts contain approximately 36.6 acres are planned to have 179 single-family dwellings.

Timarron West is located west of the Snow Vista Channel and north of DeVargas Road. Units 3 & 4 are bounded to the north by Sunrise Terrace and to the east by Timarron West Unit 2. See vicinity map on the preliminary plat for location.

This study is necessary in order to obtain preliminary plat approval for the Timarron West Subdivision Units 3 & 4. Prior to final plat and building permit approvals of this project, final grading plans and work order construction plans must be approved by the City of Albuquerque (CoA).

II. METHODOLOGY

Existing and proposed site hydrological conditions were analyzed for the 100-year, 6-hour storm in accordance with the revised Section 22.2, Hydrology, of the Development Process Manual (DPM) for the City of Albuquerque, dated January 1993. Street capacities were analyzed using Manning's equation, consistent with the revised DPM Section 22.2. All data and calculations supporting this study are located in **Appendix B.** The new rational method hydrologic procedures identified within the revised DPM Section 22.2 are utilized to determine peak flow rates for design of the storm drainage improvements within the projects. The 100-year, 6-hour storm is used as the design event. The results are included in **Appendix A.**

The storm sewer system internal to the subdivision is analyzed using current DPM methods for gravity flow conditions. Inlet capacity computations, along with all hydraulic computations, are included in **Appendix B**.

III. EXISTING CONDITIONS

A. Topography and Existing Drainage Patterns

Timarron West will be sited on undeveloped land that slopes west to east at approximately 3.5 percent. The site drains to the Snow Vista Channel through an existing detention pond located in Timarron West Unit 1. The detention pond restricts the flow that enters the channel to 1.3 cfs per acre. A storm drain system has been built through Timarron West Units 1 and 2 to convey flow to the pond and channel. This storm drain has been sized and stubbed to serve Units 3 and 4.

B. Offsite Drainage

The existing basin to the west of Unit 4 is called Basin N on the historic basin map exhibit. This basin currently produces 29 cfs. The flow from this basin currently combines with undeveloped flow in Units 3 and 4. There is an existing berm and swale that collects this flow at the western boundary of Timarron West Unit 2 and conveys it to a temporary detention basin. This drainage then passes through Units 4, 3, 2, and 1, through a permanent detention pond, and is released into the Snow Vista Channel. The temporary detention basin will be filled in with the development of Unit 3.

IV. LAND TREATMENTS

The minimum lot dimensions are 45' x 105'. The percent impervious was determined using the following formula from Table A-5 of the DPM, Section 22.2.

$$\text{percent "D"} = 7 * \sqrt{((N*N) + (5*N))}$$

where N = units/acre.

V. PROPOSED DEVELOPED CONDITIONS

The proposed development is a single-family, detached-unit residential subdivision with 179 lots on 36.6 acres, producing a density of 4.9 D.U. per acre. Proposed street configurations are shown on the Grading Plans See **Plates 1 & 2**. An AHYMO analysis, shown in **Appendix A,** was performed to determine the flows created by this subdivision and to model the ponds.

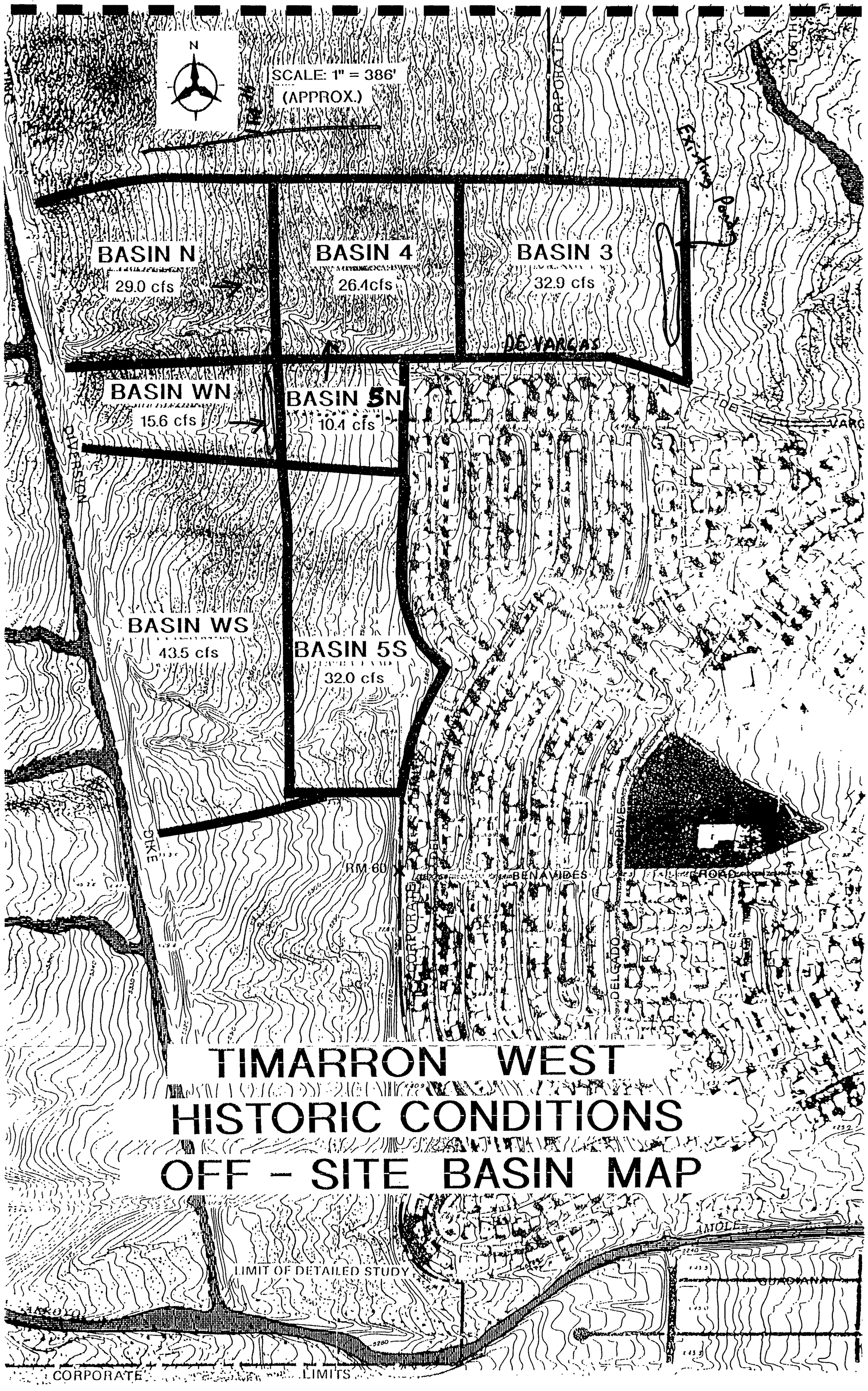
Timarron West Unit 4 intercepts offsite drainage from the west. A temporary berm will be constructed on the west boundary of Unit 4 to divert the flow to a detention and desiltation pond. The existing basin to the west of Unit 4 is called Basin N on the historic basin map exhibit. This basin currently produces 29 cfs. A second detention pond is located to the west of the future Timarron West Unit 5. This pond intercepts 15.6 cfs of offsite flow from the undeveloped Basin WN. This pond drains north to the pond west of Unit 4 through a storm drain. This pond is connected to the storm drain system in Unit 4. These ponds are 2' deep and release 3.4 cfs to Timarron West Unit 4.

The flow from the northern third of Unit 5 will be accommodated in Units 3 and 4. This 23.3 cfs will be conveyed through a storm drain across De Vargas Road. It will pick up the flow from the western portion of De Vargas Road and continue north into Unit 4. This flow will combine with the offsite flow of Unit 4 and Basins A, B1, B2, and C in Unit 4. This flow will be routed through a detention pond within Unit 4. The flow entering this pond is 63.5 cfs and the flow exiting the pond is 2.3 cfs. During the 100-year event, the pond is 3.0 feet deep and holds 2.3 Acre-ft. The flow from the pond is conveyed through a storm drain system to the eastern boundary of Unit 3. This storm drain system also collects the flow from the remaining basins of Unit 3 and 4 resulting in a flow of 91.95 cfs. The storm drain system in Units 1 and 2 was designed to accept 1.3 cfs per acre from Units 3 and 4. Therefore, 92 cfs can be conveyed through the existing storm drain system. The calculations for the storm drain, hydraulic grade line, street capacity, and pond design are in **Appendix B**. Street capacity calculations include offsite drainage.

The offsite detention ponds can be removed when the land to the west of Timarron West is developed. These future developments would be required to divert the water south through storm drains or swales to the Amole Arroyo. The capacity of the storm drain system through Timarron West will be depleted with the development of Timarron West Units 3, 4, and 5.

VI. CONCLUSION

The development of Timarron West Units 3, 4, and 5 will result in an improvement in the drainage conditions for this area. This report includes a detailed study of the existing and proposed runoff, street capacities, and pond volumes. Attached are the preliminary plat, existing conditions basin map, proposed conditions basin map, and grading plans. This drainage plan maintains the overall drainage pattern and allows for safe management of storm runoff in the proposed development.


N
SCALE: 1" = 386'
(APPROX.)
BASIN N
29.0 cfs
BASIN 4
26.4cfs
BASIN 3
32.9 cfs
Existing Pond
DE VARGAS
BASIN WN
15.6 cfs
BASIN 5N
10.4 cfs
DIVERSION
BASIN WS
43.5 cfs
BASIN 5S
32.0 cfs
DIKE
RM 60
CORPORATE
BENAVIDES
ROAD
DELGADO
DRIVE
TIMARRON WEST
HISTORIC CONDITIONS
OFF - SITE BASIN MAP
LIMIT OF DETAILED STUDY
ARROYO
ANOLE
CORPORATE
LIMITS

APPENDICES

APPENDIX A - AHYMO INPUT, OUTPUT AND SUMMARY FILES CONDITIONS

APPENDIX B - STREET FLOW, INLET, STORM DRAIN AND SWALE CAPACITY CALCULATIONS

APPENDIX A

AHYMO INPUT, OUTPUT AND SUMMARY FILES CONDITIONS

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =04/04/2000
INPUT FILE = u4.txt USER NO.= BOHN_HNM.STE

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	
										PAGE =	1
*S TIMARRON WEST UNIT 4 SITE FLOW											
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.200
*S GOES INTO SURGE POND IN UNIT 4 FROM UNIT 5											
COMPUTE NM HYD	U5	-	1	.01150	23.27	.808	1.31698	1.500	3.161	PER IMP=	50.00
COMPUTE NM HYD	A	-	2	.00273	5.53	.192	1.31698	1.500	3.167	PER IMP=	50.00
COMPUTE NM HYD	B1	-	3	.00498	10.07	.349	1.31698	1.500	3.163	PER IMP=	50.00
COMPUTE NM HYD	C	-	4	.00198	4.02	.139	1.31698	1.500	3.170	PER IMP=	50.00
COMPUTE NM HYD	D1	-	5	.00160	3.25	.112	1.31698	1.500	3.173	PER IMP=	50.00
COMPUTE NM HYD	E	-	6	.00320	6.48	.225	1.31698	1.500	3.166	PER IMP=	50.00
COMPUTE NM HYD	F1	-	7	.00136	2.76	.096	1.31698	1.500	3.175	PER IMP=	50.00
COMPUTE NM HYD	G1	-	8	.00160	3.25	.112	1.31698	1.500	3.173	PER IMP=	50.00
COMPUTE NM HYD	H	-	9	.00440	8.91	.309	1.31698	1.500	3.164	PER IMP=	50.00
COMPUTE NM HYD	I1	-	10	.00170	3.45	.119	1.31698	1.500	3.173	PER IMP=	50.00
COMPUTE NM HYD	J	-	11	.00320	6.48	.225	1.31698	1.500	3.166	PER IMP=	50.00
COMPUTE NM HYD	K	-	12	.00130	2.64	.091	1.31698	1.500	3.176	PER IMP=	50.00
COMPUTE NM HYD	L	-	13	.00160	3.25	.112	1.31698	1.500	3.173	PER IMP=	50.00
COMPUTE NM HYD	OFFN	-	14	.02800	29.03	.809	.54156	1.500	1.620	PER IMP=	.00
COMPUTE NM HYD	OFFS	-	15	.01500	15.56	.433	.54156	1.500	1.620	PER IMP=	.00
COMPUTE NM HYD	B2	-	16	.00150	3.05	.105	1.31698	1.500	3.175	PER IMP=	50.00
COMPUTE NM HYD	D2	-	17	.00310	6.28	.218	1.31698	1.500	3.166	PER IMP=	50.00
COMPUTE NM HYD	G2	-	18	.00310	6.28	.218	1.31698	1.500	3.166	PER IMP=	50.00
COMPUTE NM HYD	I2	-	19	.00340	6.89	.239	1.31698	1.500	3.165	PER IMP=	50.00
COMPUTE NM HYD	F2	-	50	.00168	3.41	.118	1.31698	1.500	3.173	PER IMP=	50.00
COMPUTE NM HYD	F3	-	51	.00200	4.06	.140	1.31698	1.500	3.170	PER IMP=	50.00
COMPUTE NM HYD	F4	-	52	.00190	3.86	.133	1.31698	1.500	3.170	PER IMP=	50.00
COMPUTE NM HYD	I14.00	-	53	.00210	5.79	.220	1.96760	1.500	4.305	PER IMP=	100.00
COMPUTE NM HYD	DV1	-	54	.00190	5.24	.199	1.96760	1.500	4.305	PER IMP=	100.00
COMPUTE NM HYD	DV2	-	55	.00480	13.22	.504	1.96760	1.500	4.302	PER IMP=	100.00
COMPUTE NM HYD	PND	-	56	.00202	1.67	.047	.43936	1.500	1.293	PER IMP=	.00
COMPUTE NM HYD	L2	-	57	.00433	8.77	.304	1.31698	1.500	3.164	PER IMP=	50.00
COMPUTE NM HYD	OPEN	-	58	.00125	1.04	.029	.43936	1.500	1.296	PER IMP=	.00
*ADD HYD	114O	14&53	25	.03010	34.82	1.029	.64104	1.500	1.807		
*ADD HYD	OFF	25&15	26	.04510	50.37	1.462	.60795	1.500	1.745		
*S******ROUTE THROUGH OFFSITE POND WEST OF UNIT 4											
* ROUTE RESERVOIR	POND4	26	22	.04510	3.34	1.462	.60792	2.150	.116	AC-FT=	1.163
ADD HYD	OFFA	22& 2	24	.04783	7.37	1.654	.64832	1.550	.241		
ADD HYD	OAC	24& 4	21	.04981	11.15	1.793	.67490	1.500	.350		
ADD HYD	B12	3&16	22	.00648	13.12	.455	1.31689	1.500	3.166		
ADD HYD	BOAC	22&21	23	.05629	24.27	2.248	.74875	1.500	.674		
ADD HYD	5DEV	1&54	24	.01340	28.50	1.007	1.40919	1.500	3.323		
ADD HYD	5BOAC	24&23	25	.06969	52.77	3.255	.87575	1.500	1.183		
ADD HYD	POND	25&56	26	.07171	54.44	3.302	.86346	1.500	1.186		
*S DETERMINATION OF SURGE POND:											
ROUTE RESERVOIR	POND	26	27	.07171	2.32	3.227	.84389	5.600	.051	AC-FT=	2.050

route to 15
add to 14
Need to route 14
add to 114

A-1

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
ADD HYD	PE	27& 6	30	.07491	7.63	3.452	.86409	1.500	.159	
ADD HYD	PED2	30&17	31	.07801	13.91	3.670	.88209	1.500	.279	
ADD HYD	GH	18& 9	33	.00750	15.19	.527	1.31690	1.500	3.165	
ADD HYD	PEDGH	33&31	34	.08551	29.10	4.196	.92023	1.500	.532	
ADD HYD	IJ	19&11	35	.00660	13.37	.464	1.31689	1.500	3.166	
ADD HYD	IJL2	35&57	37	.01093	22.14	.768	1.31690	1.500	3.165	
ADD HYD	EDGHIJL	37&34	39	.09644	51.24	4.964	.96519	1.500	.830	
ADD HYD	FD1	7& 5	42	.00296	6.01	.208	1.31678	1.500	3.174	
ADD HYD	BFDF2	42&50	44	.00464	9.42	.326	1.31680	1.500	3.173	
ADD HYD	BF2DG	44& 8	45	.00624	12.67	.438	1.31679	1.500	3.173	
ADD HYD	BF3DG	45&51	47	.00824	16.73	.579	1.31680	1.500	3.172	
ADD HYD	BFDGI	47&10	49	.00994	20.18	.698	1.31680	1.500	3.172	
ADD HYD	BFDGIK	49&52	60	.01184	24.04	.832	1.31680	1.500	3.172	
ADD HYD	NORTH	60&12	62	.01314	26.68	.923	1.31680	1.500	3.172	
ADD HYD	NL1	62&13	63	.01474	29.93	1.035	1.31680	1.500	3.172	
ADD HYD	34.00	63&39	64	.11118	81.17	5.999	1.01180	1.500	1.141	
ADD HYD	ALL	64&55	65	.11598	94.39	6.503	1.05136	1.500	1.272	
FINISH										

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    AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
         RUN DATE (MON/DAY/YR) = 04/05/2000
         START TIME (HR:MIN:SEC) = 13:49:58     USER NO.= BOHN_HNM.STE
         INPUT FILE =

*
*S TIMARRON WEST UNIT 4 SITE FLOW
START                RAINFALL BEGINS AT 0.00 HOURS
*                      100 YEAR RETURN PERIOD
*************************************************************************
*
*      ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
*      ::                          MISC. DATA                        ::
*      ::        RAINFALL RETURN PERIOD_____________  100-YEAR       ::
*      ::        RAINFALL DURATION__________________  6-HOUR       ::
*      ::            ZONE 1                                          ::
*      ::        RAINFALL DEPTHS: 1 HOUR (P60)___  1.87 INCHES       ::
*      ::        (UNADJUSTED)     6 HOUR (P360)__  2.20 INCHES       ::
*      ::                         24 HOUR (P1440)_  2.68 INCHES       ::
*      ::                                                             ::
*      ::        RAINFALL DATA TAKEN FROM NOAA.                       ::
*      ::                                                             ::
*      ::                 HYDROGRAPH METHODOLOGY                      ::
*      ::                                                             ::
*      ::        CITY OF ALBQ. DPM VOL. 2, SECTION 22.2 July, 1997    ::
*      ::        INITIAL ABSTRACTION - INFILTRATION METHOD            ::
*      ::        Tc CALCULATIONS PER C.O.A. DPM 22.2-B.4              ::
*      ::        AMAFCA AHYMO VERSION MARCH 20,1992                   ::
*      ::                                                             ::
*      ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
*                            BEGIN  ANALYSIS
*************************************************************************
*
RAINFALL             TYPE=1 RAIN QUARTER=0.0 RAIN ONE=1.87
                     RAIN SIX=2.20 RAIN DAY=2.68 DT=0.05

                 COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                 DT =     .050000 HOURS       END TIME =     6.000000 HOURS
                    .0000   .0025   .0050   .0076   .0103   .0131   .0160
                    .0190   .0222   .0254   .0289   .0324   .0362   .0401
                    .0443   .0487   .0534   .0584   .0637   .0695   .0758
                    .0837   .0924   .1176   .1773   .2798   .4384   .6668
                    .9790  1.2253  1.3366  1.4295  1.5109  1.5836  1.6495
                   1.7096  1.7648  1.8156  1.8624  1.9057  1.9458  1.9548
                   1.9631  1.9708  1.9780  1.9848  1.9912  1.9973  2.0031
                   2.0087  2.0140  2.0191  2.0240  2.0287  2.0333  2.0377
                   2.0420  2.0462  2.0502  2.0542  2.0580  2.0617  2.0653
                   2.0689  2.0724  2.0757  2.0791  2.0823  2.0855  2.0886
                   2.0916  2.0946  2.0976  2.1005  2.1033  2.1061  2.1088
                   2.1115  2.1142  2.1168  2.1193  2.1219  2.1244  2.1268
                   2.1293  2.1316  2.1340  2.1363  2.1386  2.1409  2.1431
                   2.1453  2.1475  2.1497  2.1518  2.1539  2.1560  2.1580
                   2.1601  2.1621  2.1641  2.1660  2.1680  2.1699  2.1718
                   2.1737  2.1756  2.1774  2.1793  2.1811  2.1829  2.1847
                   2.1864  2.1882  2.1899  2.1916  2.1933  2.1950  2.1967
                   2.1984  2.2000

*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN 1  *********
*S GOES INTO SURGE POND IN UNIT 4 FROM UNIT 5
COMPUTE NM HYD       ID=1 HYD=U5  AREA=0.0115 PER A=0.0 PER B=50
                                  PER C=0 PER D=50  TP=.133  RAINFALL=-1

        K =    .072485HR    TP =    .133000HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =
7.106420
        UNIT PEAK =   22.753    CFS   UNIT VOLUME =    .9986       B =   526.28      P60 = 1.8700
        AREA =       .005750 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000
```

```
K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
UNIT PEAK =   14.141    CFS   UNIT VOLUME =    1.000       B =   327.09      P60 = 1.8700
AREA =      .005750 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD                ID=1   CODE=1

                                        HYDROGRAPH FROM AREA U5

RUNOFF VOLUME =     1.31698 INCHES     =        .8077 ACRE-FEET
PEAK DISCHARGE RATE =      23.27 CFS  AT   1.500 HOURS   BASIN AREA =   .0115 SQ. MI.

*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN A *********
COMPUTE NM HYD       ID=2 HYD=A  AREA=0.00273 PER A=0 PER B=50
                              PER C=0 PER D=50  TP=.133  RAINFALL=-1

K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
UNIT PEAK =   5.4012    CFS   UNIT VOLUME =    .9971       B =   526.28      P60 = 1.8700
AREA =      .001365 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
UNIT PEAK =   3.3570    CFS   UNIT VOLUME =    .9972       B =   327.09      P60 = 1.8700
AREA =      .001365 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD                ID=2   CODE=1

                                        HYDROGRAPH FROM AREA A

RUNOFF VOLUME =     1.31698 INCHES     =        .1918 ACRE-FEET
PEAK DISCHARGE RATE =       5.53 CFS  AT   1.500 HOURS   BASIN AREA =   .0027 SQ. MI.

*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN B1 *********
COMPUTE NM HYD       ID=3 HYD=B1  AREA=0.004975 PER A=0.0 PER B=50
                              PER C=0 PER D=50  TP=.133  RAINFALL=-1

K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
UNIT PEAK =   9.8429    CFS   UNIT VOLUME =    .9981       B =   526.28      P60 = 1.8700
AREA =      .002488 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
UNIT PEAK =   6.1175    CFS   UNIT VOLUME =    .9991       B =   327.09      P60 = 1.8700
AREA =      .002488 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD                ID=3   CODE=1

                                        HYDROGRAPH FROM AREA B1

RUNOFF VOLUME =     1.31698 INCHES     =        .3494 ACRE-FEET
PEAK DISCHARGE RATE =      10.07 CFS  AT   1.500 HOURS   BASIN AREA =   .0050 SQ. MI.
```

```
*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN C *********
COMPUTE NM HYD       ID=4 HYD=C  AREA=0.00198 PER A=0 PER B=50
                              PER C=0 PER D=50  TP=.133  RAINFALL=-1

     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
     UNIT PEAK =   3.9174    CFS   UNIT VOLUME =    .9966       B =   526.28      P60 = 1.8700
     AREA =      .000990 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


     K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
     UNIT PEAK =   2.4347    CFS   UNIT VOLUME =    .9960       B =   327.09      P60 = 1.8700
     AREA =      .000990 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD                ID=4   CODE=1

                                        HYDROGRAPH FROM AREA C

     RUNOFF VOLUME =     1.31698 INCHES     =        .1391 ACRE-FEET
     PEAK DISCHARGE RATE =       4.02 CFS  AT   1.500 HOURS   BASIN AREA =   .0020 SQ. MI.


*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN D1 *********
COMPUTE NM HYD       ID=5 HYD=D1  AREA=0.0016 PER A=0 PER B=50
                              PER C=0 PER D=50  TP=.133  RAINFALL=-1

     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
     UNIT PEAK =   3.1656    CFS   UNIT VOLUME =    .9960       B =   526.28      P60 = 1.8700
     AREA =      .000800 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


     K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
     UNIT PEAK =   1.9674    CFS   UNIT VOLUME =    .9945       B =   327.09      P60 = 1.8700
     AREA =      .000800 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD                ID=5   CODE=1

                                        HYDROGRAPH FROM AREA D1

     RUNOFF VOLUME =     1.31698 INCHES     =        .1124 ACRE-FEET
     PEAK DISCHARGE RATE =       3.25 CFS  AT   1.500 HOURS   BASIN AREA =   .0016 SQ. MI.


*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN E *********
COMPUTE NM HYD       ID=6 HYD=E  AREA=0.0032 PER A=0 PER B=50
                              PER C=0 PER D=50  TP=.133  RAINFALL=-1

     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
     UNIT PEAK =   6.3311    CFS   UNIT VOLUME =    .9976       B =   526.28      P60 = 1.8700
     AREA =      .001600 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


     K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
```

```
        UNIT PEAK =   3.9349    CFS   UNIT VOLUME =    .9977       B =   327.09      P60 = 1.8700
        AREA =      .001600 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    PRINT HYD                ID=6   CODE=1

                                          HYDROGRAPH FROM AREA E


        RUNOFF VOLUME =     1.31698 INCHES     =        .2248 ACRE-FEET
        PEAK DISCHARGE RATE =       6.48 CFS  AT   1.500 HOURS   BASIN AREA =   .0032 SQ. MI.


    *
    **** COMPUTE AND PRINT NM HYD DATA FOR BASIN F1 *********
    COMPUTE NM HYD       ID=7 HYD=F1  AREA=0.00136 PER A=0 PER B=50
                                 PER C=0 PER D=50  TP=.133  RAINFALL=-1

        K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
        UNIT PEAK =   2.6907    CFS   UNIT VOLUME =    .9952       B =   526.28      P60 = 1.8700
        AREA =      .000680 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


        K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
        UNIT PEAK =   1.6723    CFS   UNIT VOLUME =    .9936       B =   327.09      P60 = 1.8700
        AREA =      .000680 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    PRINT HYD                ID=5   CODE=1

                                          HYDROGRAPH FROM AREA D1


        RUNOFF VOLUME =     1.31698 INCHES     =        .1124 ACRE-FEET
        PEAK DISCHARGE RATE =       3.25 CFS  AT   1.500 HOURS   BASIN AREA =   .0016 SQ. MI.


    *
    **** COMPUTE AND PRINT NM HYD DATA FOR BASIN G1 *********
    COMPUTE NM HYD       ID=8 HYD=G1  AREA=0.0016 PER A=0 PER B=50
                                 PER C=0 PER D=50  TP=.133  RAINFALL=-1

        K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
        UNIT PEAK =   3.1656    CFS   UNIT VOLUME =    .9960       B =   526.28      P60 = 1.8700
        AREA =      .000800 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


        K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
        UNIT PEAK =   1.9674    CFS   UNIT VOLUME =    .9945       B =   327.09      P60 = 1.8700
        AREA =      .000800 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    PRINT HYD                ID=8   CODE=1

                                          HYDROGRAPH FROM AREA G1


        RUNOFF VOLUME =     1.31698 INCHES     =        .1124 ACRE-FEET
        PEAK DISCHARGE RATE =       3.25 CFS  AT   1.500 HOURS   BASIN AREA =   .0016 SQ. MI.


    *
```

```
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN H *********
COMPUTE NM HYD       ID=9 HYD=H  AREA=0.0044 PER A=0 PER B=50
                              PER C=0 PER D=50  TP=.133  RAINFALL=-1

        K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
        UNIT PEAK =   8.7053    CFS   UNIT VOLUME =    .9979       B =   526.28      P60 = 1.8700
        AREA =      .002200 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


        K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
        UNIT PEAK =   5.4105    CFS   UNIT VOLUME =    .9988       B =   327.09      P60 = 1.8700
        AREA =      .002200 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD                ID=9   CODE=1

                                        HYDROGRAPH FROM AREA H

        RUNOFF VOLUME =     1.31698 INCHES     =        .3090 ACRE-FEET
        PEAK DISCHARGE RATE =       8.91 CFS  AT   1.500 HOURS   BASIN AREA =   .0044 SQ. MI.


*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN I1 *********
COMPUTE NM HYD       ID=10 HYD=I1  AREA=0.0017 PER A=0 PER B=50
                              PER C=0 PER D=50  TP=.133  RAINFALL=-1

        K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
        UNIT PEAK =   3.3634    CFS   UNIT VOLUME =    .9960       B =   526.28      P60 = 1.8700
        AREA =      .000850 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


        K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
        UNIT PEAK =   2.0904    CFS   UNIT VOLUME =    .9945       B =   327.09      P60 = 1.8700
        AREA =      .000850 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD                ID=10   CODE=1

                                        HYDROGRAPH FROM AREA I1


        RUNOFF VOLUME =     1.31698 INCHES     =        .1194 ACRE-FEET
        PEAK DISCHARGE RATE =       3.45 CFS  AT   1.500 HOURS   BASIN AREA =   .0017 SQ. MI.


*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN J *********
COMPUTE NM HYD       ID=11 HYD=J  AREA=0.0032 PER A=0 PER B=50
                              PER C=0 PER D=50  TP=.133  RAINFALL=-1

        K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
        UNIT PEAK =   6.3311    CFS   UNIT VOLUME =    .9976       B =   526.28      P60 = 1.8700
        AREA =      .001600 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


        K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
        UNIT PEAK =   3.9349    CFS   UNIT VOLUME =    .9977       B =   327.09      P60 = 1.8700
        AREA =      .001600 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
```

```
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD                ID=11   CODE=1

                                        HYDROGRAPH FROM AREA J


    RUNOFF VOLUME =     1.31698 INCHES     =        .2248 ACRE-FEET
    PEAK DISCHARGE RATE =       6.48 CFS  AT   1.500 HOURS   BASIN AREA =   .0032 SQ. MI.


*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN K *********
COMPUTE NM HYD       ID=12 HYD=K  AREA=0.0013 PER A=0 PER B=50
                              PER C=0 PER D=50  TP=.133  RAINFALL=-1

    K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
    UNIT PEAK =   2.5720    CFS   UNIT VOLUME =    .9952       B =   526.28      P60 = 1.8700
    AREA =      .000650 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
    UNIT PEAK =   1.5985    CFS   UNIT VOLUME =    .9926       B =   327.09      P60 = 1.8700
    AREA =      .000650 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD                ID=12   CODE=1

                                        HYDROGRAPH FROM AREA K


    RUNOFF VOLUME =     1.31698 INCHES     =        .0913 ACRE-FEET
    PEAK DISCHARGE RATE =       2.64 CFS  AT   1.500 HOURS   BASIN AREA =   .0013 SQ. MI.


*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN L1 *********
COMPUTE NM HYD       ID=13 HYD=L  AREA=0.0016 PER A=0 PER B=50
                              PER C=0 PER D=50  TP=.133  RAINFALL=-1

    K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
    UNIT PEAK =   3.1656    CFS   UNIT VOLUME =    .9960       B =   526.28      P60 = 1.8700
    AREA =      .000800 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
    UNIT PEAK =   1.9674    CFS   UNIT VOLUME =    .9945       B =   327.09      P60 = 1.8700
    AREA =      .000800 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD                ID=13   CODE=1

                                        HYDROGRAPH FROM AREA L


    RUNOFF VOLUME =     1.31698 INCHES     =        .1124 ACRE-FEET
    PEAK DISCHARGE RATE =       3.25 CFS  AT   1.500 HOURS   BASIN AREA =   .0016 SQ. MI.


*
**** COMPUTE AND PRINT NM HYD DATA FOR BASIN NORTH-OFFSITE TO UNIT 4  *********
COMPUTE NM HYD       ID=14 HYD=OFFN  AREA=0.028 PER A=50 PER B=50
```

```
                                PER C=0 PER D=0  TP=.133  RAINFALL=-1

        K =   .147006HR    TP =   .133000HR    K/TP RATIO =  1.105310     SHAPE CONSTANT, N =
3.198663
        UNIT PEAK =   62.661    CFS   UNIT VOLUME =    .9997       B =   297.64      P60 = 1.8700
        AREA =      .028000 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    PRINT HYD                ID=14   CODE=1

                                          HYDROGRAPH FROM AREA OFFN


        RUNOFF VOLUME =      .54156 INCHES     =        .8087 ACRE-FEET
        PEAK DISCHARGE RATE =      29.03 CFS  AT   1.500 HOURS   BASIN AREA =   .0280 SQ. MI.


    *
    **** COMPUTE AND PRINT NM HYD DATA FOR BASIN OFFSITE TO UNIT 5N  *********
    COMPUTE NM HYD       ID=15 HYD=OFF5  AREA=0.015 PER A=50 PER B=50
                                PER C=0 PER D=0  TP=.133  RAINFALL=-1

        K =   .147006HR    TP =   .133000HR    K/TP RATIO =  1.105310     SHAPE CONSTANT, N =
3.198663
        UNIT PEAK =   33.568    CFS   UNIT VOLUME =    .9995       B =   297.64      P60 = 1.8700
        AREA =      .015000 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    PRINT HYD                ID=15   CODE=1

                                          HYDROGRAPH FROM AREA OFF5


        RUNOFF VOLUME =      .54156 INCHES     =        .4332 ACRE-FEET
        PEAK DISCHARGE RATE =      15.56 CFS  AT   1.500 HOURS   BASIN AREA =   .0150 SQ. MI.


    *
    **** COMPUTE AND PRINT NM HYD DATA FOR BASIN B2  *********
    COMPUTE NM HYD       ID=16 HYD=B2  AREA=0.0015 PER A=0.0 PER B=50
                                PER C=0 PER D=50  TP=.133  RAINFALL=-1

        K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
        UNIT PEAK =   2.9677    CFS   UNIT VOLUME =    .9952       B =   526.28      P60 = 1.8700
        AREA =      .000750 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

        K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
        UNIT PEAK =   1.8445    CFS   UNIT VOLUME =    .9936       B =   327.09      P60 = 1.8700
        AREA =      .000750 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    PRINT HYD                ID=16   CODE=1

                                          HYDROGRAPH FROM AREA B2


        RUNOFF VOLUME =     1.31698 INCHES     =        .1054 ACRE-FEET
        PEAK DISCHARGE RATE =       3.05 CFS  AT   1.500 HOURS   BASIN AREA =   .0015 SQ. MI.


    *
    **** COMPUTE AND PRINT NM HYD DATA FOR BASIN D2 *********
    COMPUTE NM HYD       ID=17 HYD=D2  AREA=0.0031 PER A=0 PER B=50
                                PER C=0 PER D=50  TP=.133  RAINFALL=-1
```

```
        K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
        UNIT PEAK =   6.1333    CFS   UNIT VOLUME =    .9976       B =   526.28      P60 = 1.8700
        AREA =      .001550 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

        K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
        UNIT PEAK =   3.8119    CFS   UNIT VOLUME =    .9977       B =   327.09      P60 = 1.8700
        AREA =      .001550 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    PRINT HYD                ID=17   CODE=1

                                        HYDROGRAPH FROM AREA D2

        RUNOFF VOLUME =     1.31698 INCHES     =        .2177 ACRE-FEET
        PEAK DISCHARGE RATE =       6.28 CFS  AT   1.500 HOURS   BASIN AREA =   .0031 SQ. MI.

    *
    **** COMPUTE AND PRINT NM HYD DATA FOR BASIN G2 *********
    COMPUTE NM HYD       ID=18 HYD=G2  AREA=0.0031 PER A=0.0 PER B=50
                                 PER C=0 PER D=50  TP=.133  RAINFALL=-1

        K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
        UNIT PEAK =   6.1333    CFS   UNIT VOLUME =    .9976       B =   526.28      P60 = 1.8700
        AREA =      .001550 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

        K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
        UNIT PEAK =   3.8119    CFS   UNIT VOLUME =    .9977       B =   327.09      P60 = 1.8700
        AREA =      .001550 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    PRINT HYD                ID=18   CODE=1

                                        HYDROGRAPH FROM AREA G2

        RUNOFF VOLUME =     1.31698 INCHES     =        .2177 ACRE-FEET
        PEAK DISCHARGE RATE =       6.28 CFS  AT   1.500 HOURS   BASIN AREA =   .0031 SQ. MI.

    *
    **** COMPUTE AND PRINT NM HYD DATA FOR BASIN I2 *********
    COMPUTE NM HYD       ID=19 HYD=I2  AREA=0.0034 PER A=0 PER B=50
                                 PER C=0 PER D=50  TP=.133  RAINFALL=-1

        K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
        UNIT PEAK =   6.7268    CFS   UNIT VOLUME =    .9976       B =   526.28      P60 = 1.8700
        AREA =      .001700 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

        K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
        UNIT PEAK =   4.1808    CFS   UNIT VOLUME =    .9981       B =   327.09      P60 = 1.8700
        AREA =      .001700 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    PRINT HYD                ID=19   CODE=1
```

```
                                        HYDROGRAPH FROM AREA I2

        RUNOFF VOLUME =     1.31698 INCHES     =        .2388 ACRE-FEET
        PEAK DISCHARGE RATE =       6.89 CFS  AT   1.500 HOURS   BASIN AREA =   .0034 SQ. MI.


    *
    **** COMPUTE AND PRINT NM HYD DATA FOR BASIN F2 *********
    COMPUTE NM HYD       ID=50 HYD=F2  AREA=0.00168 PER A=0 PER B=50
                                 PER C=0 PER D=50  TP=.133  RAINFALL=-1

        K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
        UNIT PEAK =   3.3238    CFS   UNIT VOLUME =    .9960       B =   526.28      P60 = 1.8700
        AREA =      .000840 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

        K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
        UNIT PEAK =   2.0658    CFS   UNIT VOLUME =    .9945       B =   327.09      P60 = 1.8700
        AREA =      .000840 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    PRINT HYD                ID=50   CODE=1

                                        HYDROGRAPH FROM AREA F2

        RUNOFF VOLUME =     1.31698 INCHES     =        .1180 ACRE-FEET
        PEAK DISCHARGE RATE =       3.41 CFS  AT   1.500 HOURS   BASIN AREA =   .0017 SQ. MI.


    *
    **** COMPUTE AND PRINT NM HYD DATA FOR BASIN F3 *********
    COMPUTE NM HYD       ID=51 HYD=F3  AREA=0.002 PER A=0.0 PER B=50
                                 PER C=0 PER D=50  TP=.133  RAINFALL=-1

        K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
        UNIT PEAK =   3.9570    CFS   UNIT VOLUME =    .9966       B =   526.28      P60 = 1.8700
        AREA =      .001000 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

        K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
        UNIT PEAK =   2.4593    CFS   UNIT VOLUME =    .9960       B =   327.09      P60 = 1.8700
        AREA =      .001000 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    PRINT HYD                ID=51   CODE=1

                                        HYDROGRAPH FROM AREA F3

        RUNOFF VOLUME =     1.31698 INCHES     =        .1405 ACRE-FEET
        PEAK DISCHARGE RATE =       4.06 CFS  AT   1.500 HOURS   BASIN AREA =   .0020 SQ. MI.


    *
    **** COMPUTE AND PRINT NM HYD DATA FOR BASIN F4 *********
    COMPUTE NM HYD       ID=52 HYD=F4  AREA=0.0019 PER A=0 PER B=50
                                 PER C=0 PER D=50  TP=.133  RAINFALL=-1
```

```
        K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
        UNIT PEAK =   3.7591    CFS   UNIT VOLUME =    .9966       B =   526.28      P60 = 1.8700
        AREA =      .000950 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


        K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =
3.593454
        UNIT PEAK =   2.3363    CFS   UNIT VOLUME =    .9953       B =   327.09      P60 = 1.8700
        AREA =      .000950 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    PRINT HYD                ID=52   CODE=1

                                          HYDROGRAPH FROM AREA F4


        RUNOFF VOLUME =     1.31698 INCHES     =        .1335 ACRE-FEET
        PEAK DISCHARGE RATE =       3.86 CFS  AT   1.500 HOURS   BASIN AREA =   .0019 SQ. MI.


    *
    **** COMPUTE AND PRINT NM HYD DATA FOR 114TH STREET *********
    COMPUTE NM HYD       ID=53 HYD=114  AREA=0.0021 PER A=0 PER B=0
                                PER C=0 PER D=100  TP=.133  RAINFALL=-1

        K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
        UNIT PEAK =   8.3096    CFS   UNIT VOLUME =    .9979       B =   526.28      P60 = 1.8700
        AREA =      .002100 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    PRINT HYD                ID=53   CODE=1

                                          PARTIAL HYDROGRAPH   114.00


        RUNOFF VOLUME =     1.96760 INCHES     =        .2204 ACRE-FEET
        PEAK DISCHARGE RATE =       5.79 CFS  AT   1.500 HOURS   BASIN AREA =   .0021 SQ. MI.


    *
    **** COMPUTE AND PRINT NM HYD DATA FOR DEVARGAS 1 *********
    COMPUTE NM HYD       ID=54 HYD=DV1  AREA=0.0019 PER A=0.0 PER B=0
                                PER C=0 PER D=100  TP=.133  RAINFALL=-1

        K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
        UNIT PEAK =   7.5182    CFS   UNIT VOLUME =    .9979       B =   526.28      P60 = 1.8700
        AREA =      .001900 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    PRINT HYD                ID=54   CODE=1

                                          HYDROGRAPH FROM AREA DV1


        RUNOFF VOLUME =     1.96760 INCHES     =        .1994 ACRE-FEET
        PEAK DISCHARGE RATE =       5.24 CFS  AT   1.500 HOURS   BASIN AREA =   .0019 SQ. MI.


    *
    **** COMPUTE AND PRINT NM HYD DATA FOR DEVARGAS 2 *********
    COMPUTE NM HYD       ID=55 HYD=DV2  AREA=0.0048 PER A=0 PER B=0
                                PER C=0 PER D=100  TP=.133  RAINFALL=-1
```

```
        K =    .072485HR     TP =    .133000HR     K/TP RATIO =    .545000      SHAPE CONSTANT, N =
7.106420
        UNIT PEAK =    18.993     CFS    UNIT VOLUME =     .9986        B =    526.28       P60 = 1.8700
        AREA =       .004800 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .050000

    PRINT HYD                  ID=55   CODE=1

                                          HYDROGRAPH FROM AREA DV2

        RUNOFF VOLUME =      1.96760 INCHES      =         .5037 ACRE-FEET
        PEAK DISCHARGE RATE =       13.22 CFS  AT   1.500 HOURS   BASIN AREA =    .0048 SQ. MI.


    *
    **** COMPUTE AND PRINT NM HYD DATA FOR SURGE POND *********
    COMPUTE NM HYD        ID=56 HYD=PND  AREA=0.00202 PER A=100 PER B=0
                                  PER C=0 PER D=0  TP=.133  RAINFALL=-1

        K =    .163315HR     TP =    .133000HR     K/TP RATIO =  1.227936      SHAPE CONSTANT, N =
2.899764
        UNIT PEAK =    4.1546     CFS    UNIT VOLUME =     .9950        B =    273.54       P60 = 1.8700
        AREA =       .002020 SQ MI     IA =     .65000 INCHES     INF =    1.67000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .050000

    PRINT HYD                  ID=56   CODE=1

                                          HYDROGRAPH FROM AREA PND


        RUNOFF VOLUME =       .43936 INCHES      =         .0473 ACRE-FEET
        PEAK DISCHARGE RATE =        1.67 CFS  AT   1.500 HOURS   BASIN AREA =    .0020 SQ. MI.


    *
    **** COMPUTE AND PRINT NM HYD DATA FOR L2 *********
    COMPUTE NM HYD        ID=57 HYD=L2  AREA=0.00433 PER A=0 PER B=50
                                  PER C=0 PER D=50  TP=.133  RAINFALL=-1

        K =    .072485HR     TP =    .133000HR     K/TP RATIO =    .545000      SHAPE CONSTANT, N =
7.106420
        UNIT PEAK =    8.5668     CFS    UNIT VOLUME =     .9979        B =    526.28       P60 = 1.8700
        AREA =       .002165 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .050000


        K =    .130697HR     TP =    .133000HR     K/TP RATIO =    .982685      SHAPE CONSTANT, N =
3.593454
        UNIT PEAK =    5.3244     CFS    UNIT VOLUME =     .9988        B =    327.09       P60 = 1.8700
        AREA =       .002165 SQ MI     IA =     .50000 INCHES     INF =    1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .050000

    PRINT HYD                  ID=57   CODE=1

                                          HYDROGRAPH FROM AREA L2


        RUNOFF VOLUME =      1.31698 INCHES      =         .3041 ACRE-FEET
        PEAK DISCHARGE RATE =        8.77 CFS  AT   1.500 HOURS   BASIN AREA =    .0043 SQ. MI.


    *
    **** COMPUTE AND PRINT NM HYD DATA FOR OPEN SPACE *********
    COMPUTE NM HYD        ID=58 HYD=OPEN  AREA=0.00125 PER A=100 PER B=0
                                  PER C=0 PER D=0  TP=.133  RAINFALL=-1
```

```
K =   .163315HR    TP =   .133000HR    K/TP RATIO =  1.227936    SHAPE CONSTANT, N =
2.899764
UNIT PEAK =   2.5709    CFS   UNIT VOLUME =    .9928       B =   273.54      P60 = 1.8700
AREA =      .001250 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD                ID=58   CODE=1

                                    HYDROGRAPH FROM AREA OPEN


RUNOFF VOLUME =      .43936 INCHES     =        .0293 ACRE-FEET
PEAK DISCHARGE RATE =       1.04 CFS  AT   1.500 HOURS   BASIN AREA =   .0013 SQ. MI.


*
*****************************************************************
ADD HYD                          ID=25  HYD=1140       IDI=14  IDII=53
PRINT HYD                ID=25    CODE=1

                                    HYDROGRAPH FROM AREA 1140


RUNOFF VOLUME =      .64104 INCHES     =       1.0291 ACRE-FEET
PEAK DISCHARGE RATE =      34.82 CFS  AT   1.500 HOURS   BASIN AREA =   .0301 SQ. MI.


*
ADD HYD                          ID=26  HYD=OFF IDI=25  IDII=15
PRINT HYD                ID=26    CODE=1

                                    HYDROGRAPH FROM AREA OFF


RUNOFF VOLUME =      .60795 INCHES     =       1.4623 ACRE-FEET
PEAK DISCHARGE RATE =      50.37 CFS  AT   1.500 HOURS   BASIN AREA =   .0451 SQ. MI.


*****************************************************************
*DETERMINATION OF WESTERN POND OFFSITE OF UNIT 4 AND UNIT 5 COMBO:
*S******ROUTE THROUGH OFFSITE POND WEST OF UNIT 4
ROUTE RESERVOIR     ID=22 HYD=POND4 INFLOW ID=26  CODE=1
                    OUTFLOW (CFS) STORAGE (AC FT) ELEV (FT)
                         0       0       18
                         2.420269192    0.562440413    19
                         3.422777516    1.216707832    20

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	18.00	.000	.00
.05	.00	18.00	.000	.00
.10	.00	18.00	.000	.00
.15	.00	18.00	.000	.00
.20	.00	18.00	.000	.00
.25	.00	18.00	.000	.00
.30	.00	18.00	.000	.00
.35	.00	18.00	.000	.00
.40	.00	18.00	.000	.00
.45	.00	18.00	.000	.00
.50	.00	18.00	.000	.00
.55	.00	18.00	.000	.00
.60	.00	18.00	.000	.00
.65	.00	18.00	.000	.00
.70	.00	18.00	.000	.00
.75	.00	18.00	.000	.00

.80	.00	18.00	.000	.00
.85	.00	18.00	.000	.00
.90	.00	18.00	.000	.00
.95	.00	18.00	.000	.00
1.00	.00	18.00	.000	.00
1.05	.00	18.00	.000	.00
1.10	.00	18.00	.000	.00
1.15	.02	18.00	.000	.00
1.20	.16	18.00	.000	.00
1.25	.61	18.00	.002	.01
1.30	1.35	18.01	.006	.03
1.35	5.12	18.03	.019	.08
1.40	19.78	18.12	.070	.30
1.45	39.93	18.34	.191	.82
1.50	50.37	18.66	.372	1.60
1.55	47.89	19.01	.567	2.43
1.60	39.15	19.27	.736	2.69
1.65	29.84	19.47	.867	2.89
1.70	22.15	19.61	.963	3.03
1.75	16.32	19.71	1.029	3.14
1.80	12.06	19.78	1.075	3.21
1.85	9.07	19.83	1.105	3.25
1.90	7.21	19.86	1.125	3.28
1.95	6.14	19.88	1.139	3.30
2.00	5.41	19.90	1.149	3.32
2.05	4.81	19.91	1.157	3.33
2.10	4.13	19.92	1.162	3.34
2.15	3.49	19.92	1.163	3.34
2.20	3.00	19.92	1.163	3.34
2.25	2.62	19.91	1.161	3.34
2.30	2.32	19.91	1.157	3.33
2.35	2.06	19.90	1.153	3.32
2.40	1.83	19.89	1.147	3.32
2.45	1.63	19.88	1.140	3.31
2.50	1.45	19.87	1.133	3.29
2.55	1.29	19.86	1.125	3.28
2.60	1.15	19.85	1.117	3.27
2.65	1.02	19.83	1.108	3.26
2.70	.91	19.82	1.098	3.24
2.75	.82	19.80	1.089	3.23

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
2.80	.73	19.79	1.078	3.21
2.85	.65	19.77	1.068	3.19
2.90	.59	19.76	1.057	3.18
2.95	.53	19.74	1.047	3.16
3.00	.47	19.72	1.036	3.15
3.05	.42	19.71	1.025	3.13
3.10	.38	19.69	1.013	3.11
3.15	.34	19.67	1.002	3.09
3.20	.31	19.65	.991	3.08
3.25	.28	19.64	.979	3.06
3.30	.25	19.62	.968	3.04
3.35	.23	19.60	.956	3.02
3.40	.21	19.58	.945	3.01
3.45	.19	19.57	.933	2.99
3.50	.17	19.55	.921	2.97
3.55	.16	19.53	.910	2.95
3.60	.14	19.51	.898	2.93
3.65	.13	19.50	.887	2.92
3.70	.12	19.48	.875	2.90
3.75	.11	19.46	.864	2.88
3.80	.10	19.44	.852	2.86
3.85	.10	19.43	.841	2.85
3.90	.09	19.41	.830	2.83
3.95	.08	19.39	.818	2.81
4.00	.08	19.37	.807	2.80
4.05	.07	19.36	.796	2.78
4.10	.07	19.34	.785	2.76

4.15	.06	19.32	.774	2.74
4.20	.06	19.31	.763	2.73
4.25	.06	19.29	.752	2.71
4.30	.06	19.27	.741	2.69
4.35	.05	19.26	.730	2.68
4.40	.05	19.24	.719	2.66
4.45	.05	19.22	.708	2.64
4.50	.05	19.21	.698	2.63
4.55	.04	19.19	.687	2.61
4.60	.04	19.17	.676	2.59
4.65	.04	19.16	.666	2.58
4.70	.04	19.14	.655	2.56
4.75	.04	19.13	.645	2.55
4.80	.03	19.11	.635	2.53
4.85	.04	19.09	.624	2.52
4.90	.04	19.08	.614	2.50
4.95	.04	19.06	.604	2.48
5.00	.04	19.05	.594	2.47
5.05	.04	19.03	.584	2.45
5.10	.04	19.02	.574	2.44
5.15	.04	19.00	.564	2.42
5.20	.04	18.99	.554	2.38
5.25	.04	18.97	.545	2.34
5.30	.04	18.95	.535	2.30
5.35	.04	18.94	.526	2.26
5.40	.04	18.92	.517	2.22
5.45	.04	18.90	.508	2.19
5.50	.04	18.89	.499	2.15
5.55	.04	18.87	.490	2.11

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
5.60	.04	18.86	.482	2.07
5.65	.04	18.84	.474	2.04
5.70	.04	18.83	.465	2.00
5.75	.04	18.81	.457	1.97
5.80	.04	18.80	.450	1.93
5.85	.04	18.79	.442	1.90
5.90	.04	18.77	.434	1.87
5.95	.04	18.76	.427	1.84
6.00	.04	18.75	.419	1.80
6.05	.04	18.73	.412	1.77
6.10	.03	18.72	.405	1.74
6.15	.02	18.71	.398	1.71
6.20	.01	18.70	.391	1.68
6.25	.01	18.68	.384	1.65
6.30	.01	18.67	.377	1.62
6.35	.00	18.66	.371	1.60
6.40	.00	18.65	.364	1.57
6.45	.00	18.64	.358	1.54
6.50	.00	18.63	.352	1.51
6.55	.00	18.61	.345	1.49
6.60	.00	18.60	.339	1.46
6.65	.00	18.59	.333	1.43
6.70	.00	18.58	.327	1.41
6.75	.00	18.57	.322	1.38
6.80	.00	18.56	.316	1.36
6.85	.00	18.55	.310	1.34
6.90	.00	18.54	.305	1.31
6.95	.00	18.53	.300	1.29
7.00	.00	18.52	.294	1.27
7.05	.00	18.51	.289	1.24
7.10	.00	18.50	.284	1.22
7.15	.00	18.50	.279	1.20
7.20	.00	18.49	.274	1.18
7.25	.00	18.48	.269	1.16
7.30	.00	18.47	.265	1.14
7.35	.00	18.46	.260	1.12
7.40	.00	18.45	.255	1.10
7.45	.00	18.45	.251	1.08

7.50	.00	18.44	.246	1.06
7.55	.00	18.43	.242	1.04
7.60	.00	18.42	.238	1.02
7.65	.00	18.42	.234	1.01
7.70	.00	18.41	.229	.99
7.75	.00	18.40	.225	.97
7.80	.00	18.39	.221	.95
7.85	.00	18.39	.218	.94
7.90	.00	18.38	.214	.92
7.95	.00	18.37	.210	.90
8.00	.00	18.37	.206	.89
8.05	.00	18.36	.203	.87
8.10	.00	18.35	.199	.86
8.15	.00	18.35	.196	.84
8.20	.00	18.34	.192	.83
8.25	.00	18.34	.189	.81
8.30	.00	18.33	.185	.80
8.35	.00	18.32	.182	.78

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
8.40	.00	18.32	.179	.77
8.45	.00	18.31	.176	.76
8.50	.00	18.31	.173	.74
8.55	.00	18.30	.170	.73
8.60	.00	18.30	.167	.72
8.65	.00	18.29	.164	.70
8.70	.00	18.29	.161	.69
8.75	.00	18.28	.158	.68
8.80	.00	18.28	.155	.67
8.85	.00	18.27	.152	.66
8.90	.00	18.27	.150	.64
8.95	.00	18.26	.147	.63
9.00	.00	18.26	.145	.62
9.05	.00	18.25	.142	.61
9.10	.00	18.25	.139	.60
9.15	.00	18.24	.137	.59
9.20	.00	18.24	.135	.58
9.25	.00	18.24	.132	.57
9.30	.00	18.23	.130	.56
9.35	.00	18.23	.128	.55
9.40	.00	18.22	.125	.54
9.45	.00	18.22	.123	.53
9.50	.00	18.22	.121	.52
9.55	.00	18.21	.119	.51
9.60	.00	18.21	.117	.50
9.65	.00	18.20	.115	.49
9.70	.00	18.20	.113	.48
9.75	.00	18.20	.111	.48
9.80	.00	18.19	.109	.47
9.85	.00	18.19	.107	.46
9.90	.00	18.19	.105	.45
9.95	.00	18.18	.103	.44
10.00	.00	18.18	.101	.44
10.05	.00	18.18	.099	.43
10.10	.00	18.17	.098	.42
10.15	.00	18.17	.096	.41
10.20	.00	18.17	.094	.41
10.25	.00	18.16	.093	.40
10.30	.00	18.16	.091	.39
10.35	.00	18.16	.089	.38
10.40	.00	18.16	.088	.38
10.45	.00	18.15	.086	.37
10.50	.00	18.15	.085	.36
10.55	.00	18.15	.083	.36
10.60	.00	18.15	.082	.35
10.65	.00	18.14	.080	.35
10.70	.00	18.14	.079	.34
10.75	.00	18.14	.078	.33
10.80	.00	18.14	.076	.33

10.85	.00	18.13	.075	.32
10.90	.00	18.13	.074	.32
10.95	.00	18.13	.072	.31
11.00	.00	18.13	.071	.31
11.05	.00	18.12	.070	.30
11.10	.00	18.12	.068	.29
11.15	.00	18.12	.067	.29

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
11.20	.00	18.12	.066	.28
11.25	.00	18.12	.065	.28
11.30	.00	18.11	.064	.27
11.35	.00	18.11	.063	.27
11.40	.00	18.11	.062	.26
11.45	.00	18.11	.060	.26
11.50	.00	18.11	.059	.26
11.55	.00	18.10	.058	.25
11.60	.00	18.10	.057	.25
11.65	.00	18.10	.056	.24
11.70	.00	18.10	.055	.24
11.75	.00	18.10	.054	.23
11.80	.00	18.09	.053	.23
11.85	.00	18.09	.052	.23
11.90	.00	18.09	.052	.22
11.95	.00	18.09	.051	.22
12.00	.00	18.09	.050	.21
12.05	.00	18.09	.049	.21
12.10	.00	18.09	.048	.21
12.15	.00	18.08	.047	.20
12.20	.00	18.08	.046	.20
12.25	.00	18.08	.045	.20
12.30	.00	18.08	.045	.19
12.35	.00	18.08	.044	.19
12.40	.00	18.08	.043	.19
12.45	.00	18.08	.042	.18
12.50	.00	18.07	.042	.18
12.55	.00	18.07	.041	.18
12.60	.00	18.07	.040	.17
12.65	.00	18.07	.039	.17
12.70	.00	18.07	.039	.17
12.75	.00	18.07	.038	.16
12.80	.00	18.07	.037	.16
12.85	.00	18.07	.037	.16
12.90	.00	18.06	.036	.16
12.95	.00	18.06	.035	.15
13.00	.00	18.06	.035	.15
13.05	.00	18.06	.034	.15
13.10	.00	18.06	.034	.14
13.15	.00	18.06	.033	.14
13.20	.00	18.06	.032	.14
13.25	.00	18.06	.032	.14
13.30	.00	18.06	.031	.13
13.35	.00	18.05	.031	.13
13.40	.00	18.05	.030	.13
13.45	.00	18.05	.030	.13
13.50	.00	18.05	.029	.13
13.55	.00	18.05	.029	.12
13.60	.00	18.05	.028	.12
13.65	.00	18.05	.028	.12
13.70	.00	18.05	.027	.12
13.75	.00	18.05	.027	.11
13.80	.00	18.05	.026	.11
13.85	.00	18.05	.026	.11
13.90	.00	18.04	.025	.11
13.95	.00	18.04	.025	.11

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

14.00	.00	18.04	.024	.11
14.05	.00	18.04	.024	.10
14.10	.00	18.04	.024	.10
14.15	.00	18.04	.023	.10
14.20	.00	18.04	.023	.10
14.25	.00	18.04	.022	.10
14.30	.00	18.04	.022	.09
14.35	.00	18.04	.022	.09
14.40	.00	18.04	.021	.09
14.45	.00	18.04	.021	.09
14.50	.00	18.04	.020	.09
14.55	.00	18.04	.020	.09
14.60	.00	18.04	.020	.08
14.65	.00	18.03	.019	.08
14.70	.00	18.03	.019	.08
14.75	.00	18.03	.019	.08
14.80	.00	18.03	.018	.08
14.85	.00	18.03	.018	.08
14.90	.00	18.03	.018	.08
14.95	.00	18.03	.017	.07
15.00	.00	18.03	.017	.07
15.05	.00	18.03	.017	.07
15.10	.00	18.03	.017	.07
15.15	.00	18.03	.016	.07
15.20	.00	18.03	.016	.07
15.25	.00	18.03	.016	.07
15.30	.00	18.03	.015	.07
15.35	.00	18.03	.015	.06
15.40	.00	18.03	.015	.06
15.45	.00	18.03	.015	.06
15.50	.00	18.03	.014	.06
15.55	.00	18.03	.014	.06
15.60	.00	18.02	.014	.06
15.65	.00	18.02	.014	.06
15.70	.00	18.02	.013	.06
15.75	.00	18.02	.013	.06
15.80	.00	18.02	.013	.06
15.85	.00	18.02	.013	.05
15.90	.00	18.02	.012	.05
15.95	.00	18.02	.012	.05
16.00	.00	18.02	.012	.05
16.05	.00	18.02	.012	.05
16.10	.00	18.02	.012	.05
16.15	.00	18.02	.011	.05
16.20	.00	18.02	.011	.05
16.25	.00	18.02	.011	.05
16.30	.00	18.02	.011	.05
16.35	.00	18.02	.011	.05
16.40	.00	18.02	.010	.04
16.45	.00	18.02	.010	.04
16.50	.00	18.02	.010	.04
16.55	.00	18.02	.010	.04
16.60	.00	18.02	.010	.04
16.65	.00	18.02	.010	.04
16.70	.00	18.02	.009	.04
16.75	.00	18.02	.009	.04

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
16.80	.00	18.02	.009	.04
16.85	.00	18.02	.009	.04
16.90	.00	18.02	.009	.04
16.95	.00	18.02	.009	.04
17.00	.00	18.01	.008	.04
17.05	.00	18.01	.008	.04
17.10	.00	18.01	.008	.03
17.15	.00	18.01	.008	.03
17.20	.00	18.01	.008	.03
17.25	.00	18.01	.008	.03
17.30	.00	18.01	.008	.03

17.35	.00	18.01	.007	.03
17.40	.00	18.01	.007	.03
17.45	.00	18.01	.007	.03
17.50	.00	18.01	.007	.03
17.55	.00	18.01	.007	.03
17.60	.00	18.01	.007	.03
17.65	.00	18.01	.007	.03
17.70	.00	18.01	.007	.03
17.75	.00	18.01	.006	.03
17.80	.00	18.01	.006	.03
17.85	.00	18.01	.006	.03
17.90	.00	18.01	.006	.03
17.95	.00	18.01	.006	.03
18.00	.00	18.01	.006	.03
18.05	.00	18.01	.006	.02
18.10	.00	18.01	.006	.02
18.15	.00	18.01	.006	.02
18.20	.00	18.01	.005	.02
18.25	.00	18.01	.005	.02
18.30	.00	18.01	.005	.02
18.35	.00	18.01	.005	.02
18.40	.00	18.01	.005	.02
18.45	.00	18.01	.005	.02
18.50	.00	18.01	.005	.02
18.55	.00	18.01	.005	.02
18.60	.00	18.01	.005	.02
18.65	.00	18.01	.005	.02
18.70	.00	18.01	.005	.02
18.75	.00	18.01	.005	.02
18.80	.00	18.01	.004	.02
18.85	.00	18.01	.004	.02
18.90	.00	18.01	.004	.02
18.95	.00	18.01	.004	.02
19.00	.00	18.01	.004	.02
19.05	.00	18.01	.004	.02
19.10	.00	18.01	.004	.02
19.15	.00	18.01	.004	.02
19.20	.00	18.01	.004	.02
19.25	.00	18.01	.004	.02
19.30	.00	18.01	.004	.02
19.35	.00	18.01	.004	.02
19.40	.00	18.01	.004	.02
19.45	.00	18.01	.004	.02
19.50	.00	18.01	.003	.01
19.55	.00	18.01	.003	.01

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
19.60	.00	18.01	.003	.01
19.65	.00	18.01	.003	.01
19.70	.00	18.01	.003	.01
19.75	.00	18.01	.003	.01
19.80	.00	18.01	.003	.01
19.85	.00	18.01	.003	.01
19.90	.00	18.01	.003	.01
19.95	.00	18.01	.003	.01
20.00	.00	18.01	.003	.01
20.05	.00	18.01	.003	.01
20.10	.00	18.00	.003	.01
20.15	.00	18.00	.003	.01
20.20	.00	18.00	.003	.01
20.25	.00	18.00	.003	.01
20.30	.00	18.00	.003	.01
20.35	.00	18.00	.003	.01
20.40	.00	18.00	.003	.01
20.45	.00	18.00	.002	.01
20.50	.00	18.00	.002	.01
20.55	.00	18.00	.002	.01
20.60	.00	18.00	.002	.01
20.65	.00	18.00	.002	.01

20.70	.00	18.00	.002	.01
20.75	.00	18.00	.002	.01
20.80	.00	18.00	.002	.01
20.85	.00	18.00	.002	.01
20.90	.00	18.00	.002	.01
20.95	.00	18.00	.002	.01
21.00	.00	18.00	.002	.01
21.05	.00	18.00	.002	.01
21.10	.00	18.00	.002	.01
21.15	.00	18.00	.002	.01
21.20	.00	18.00	.002	.01
21.25	.00	18.00	.002	.01
21.30	.00	18.00	.002	.01
21.35	.00	18.00	.002	.01
21.40	.00	18.00	.002	.01
21.45	.00	18.00	.002	.01
21.50	.00	18.00	.002	.01
21.55	.00	18.00	.002	.01
21.60	.00	18.00	.002	.01
21.65	.00	18.00	.002	.01
21.70	.00	18.00	.002	.01
21.75	.00	18.00	.002	.01
21.80	.00	18.00	.002	.01
21.85	.00	18.00	.001	.01
21.90	.00	18.00	.001	.01
21.95	.00	18.00	.001	.01
22.00	.00	18.00	.001	.01
22.05	.00	18.00	.001	.01
22.10	.00	18.00	.001	.01
22.15	.00	18.00	.001	.01
22.20	.00	18.00	.001	.01
22.25	.00	18.00	.001	.01
22.30	.00	18.00	.001	.01
22.35	.00	18.00	.001	.01

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
22.40	.00	18.00	.001	.01
22.45	.00	18.00	.001	.01
22.50	.00	18.00	.001	.01
22.55	.00	18.00	.001	.01
22.60	.00	18.00	.001	.00

PEAK DISCHARGE = 3.341 CFS - PEAK OCCURS AT HOUR 2.15
MAXIMUM WATER SURFACE ELEVATION = 19.919
MAXIMUM STORAGE = 1.1635 AC-FT INCREMENTAL TIME= .050000HRS

*
PRINT HYD ID=22 CODE=20

HYDROGRAPH FROM AREA POND4

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	6.000	1.8	12.000	.2	18.000	.0
1.000	.0	7.000	1.3	13.000	.1	19.000	.0
2.000	3.3	8.000	.9	14.000	.1	20.000	.0
3.000	3.1	9.000	.6	15.000	.1	21.000	.0
4.000	2.8	10.000	.4	16.000	.1	22.000	.0
5.000	2.5	11.000	.3	17.000	.0	23.000	.0

RUNOFF VOLUME = .60792 INCHES = 1.4622 ACRE-FEET
PEAK DISCHARGE RATE = 3.34 CFS AT 2.150 HOURS BASIN AREA = .0451 SQ. MI.

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*
ADD HYD                          ID=24  HYD=OFFA                IDI=22  IDII=2
PRINT HYD                 ID=24    CODE=1

                                       HYDROGRAPH FROM AREA OFFA

    RUNOFF VOLUME =       .64832 INCHES     =       1.6538 ACRE-FEET
    PEAK DISCHARGE RATE =       7.37 CFS  AT   1.550 HOURS   BASIN AREA =   .0478 SQ. MI.

*
ADD HYD                          ID=21  HYD=OAC         IDI=24  IDII=4
PRINT HYD                 ID=21    CODE=1

                                       HYDROGRAPH FROM AREA OAC

    RUNOFF VOLUME =       .67490 INCHES     =       1.7929 ACRE-FEET
    PEAK DISCHARGE RATE =      11.15 CFS  AT   1.500 HOURS   BASIN AREA =   .0498 SQ. MI.

*
ADD HYD                          ID=22  HYD=B12         IDI=3  IDII=16
PRINT HYD                 ID=22    CODE=1

                                       HYDROGRAPH FROM AREA B12

    RUNOFF VOLUME =     1.31689 INCHES     =        .4548 ACRE-FEET
    PEAK DISCHARGE RATE =      13.12 CFS  AT   1.500 HOURS   BASIN AREA =   .0065 SQ. MI.

*
ADD HYD                          ID=23  HYD=BOAC                IDI=22  IDII=21
PRINT HYD                 ID=23    CODE=1

                                       HYDROGRAPH FROM AREA BOAC

    RUNOFF VOLUME =       .74875 INCHES     =       2.2476 ACRE-FEET
    PEAK DISCHARGE RATE =      24.27 CFS  AT   1.500 HOURS   BASIN AREA =   .0563 SQ. MI.

*
ADD HYD                          ID=24  HYD=5DEV                IDI=1  IDII=54
PRINT HYD                 ID=24    CODE=1

                                       HYDROGRAPH FROM AREA 5DEV

    RUNOFF VOLUME =     1.40919 INCHES     =       1.0071 ACRE-FEET
    PEAK DISCHARGE RATE =      28.50 CFS  AT   1.500 HOURS   BASIN AREA =   .0134 SQ. MI.

*
ADD HYD                          ID=25  HYD=5BOAC       IDI=24  IDII=23
PRINT HYD                 ID=25    CODE=1

                                       HYDROGRAPH FROM AREA 5BOAC

    RUNOFF VOLUME =       .87575 INCHES     =       3.2547 ACRE-FEET
    PEAK DISCHARGE RATE =      52.77 CFS  AT   1.500 HOURS   BASIN AREA =   .0697 SQ. MI.
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*
ADD HYD                          ID=26  HYD=POND              IDI=25  IDII=56
PRINT HYD                ID=26    CODE=1

                                        HYDROGRAPH FROM AREA POND


    RUNOFF VOLUME =       .86346 INCHES     =       3.3021 ACRE-FEET
    PEAK DISCHARGE RATE =      54.44 CFS  AT   1.500 HOURS   BASIN AREA =   .0717 SQ. MI.


*
*****************************************************************
*S DETERMINATION OF SURGE POND:
*******ROUTE THROUGH SURGE DETENTION POND
ROUTE RESERVOIR     ID=27 HYD=POND INFLOW ID=26  CODE=1
                    OUTFLOW (CFS) STORAGE (AC FT) ELEV (FT)
                         0       0       85
                         1.36140142     0.64280936     86
                         1.925312352    1.34829949     87
                         2.35801643     2.119447651    88

*  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *
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TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	85.00	.000	.00
.05	.00	85.00	.000	.00
.10	.00	85.00	.000	.00
.15	.00	85.00	.000	.00
.20	.00	85.00	.000	.00
.25	.00	85.00	.000	.00
.30	.00	85.00	.000	.00
.35	.00	85.00	.000	.00
.40	.00	85.00	.000	.00
.45	.00	85.00	.000	.00
.50	.00	85.00	.000	.00
.55	.00	85.00	.000	.00
.60	.00	85.00	.000	.00
.65	.00	85.00	.000	.00
.70	.00	85.00	.000	.00
.75	.00	85.00	.000	.00
.80	.00	85.00	.000	.00
.85	.00	85.00	.000	.00
.90	.00	85.00	.000	.00
.95	.00	85.00	.000	.00
1.00	.00	85.00	.000	.00
1.05	.00	85.00	.000	.00
1.10	.00	85.00	.000	.00
1.15	.10	85.00	.000	.00
1.20	1.03	85.00	.003	.01
1.25	3.84	85.02	.013	.03
1.30	8.55	85.06	.038	.08
1.35	16.36	85.14	.089	.19
1.40	29.82	85.28	.183	.39
1.45	46.22	85.53	.338	.72
1.50	54.44	85.84	.542	1.15
1.55	49.63	86.15	.752	1.45
1.60	39.80	86.41	.930	1.59
1.65	31.97	86.61	1.072	1.70
1.70	26.57	86.77	1.185	1.80
1.75	22.76	86.90	1.280	1.87
1.80	19.93	87.02	1.360	1.93
1.85	17.79	87.11	1.430	1.97
1.90	16.18	87.19	1.492	2.01
1.95	14.90	87.26	1.548	2.04
2.00	13.83	87.32	1.599	2.07

2.05	12.74	87.38	1.645	2.09
2.10	10.75	87.44	1.685	2.11
2.15	8.69	87.48	1.716	2.13
2.20	7.38	87.51	1.741	2.15
2.25	6.59	87.53	1.761	2.16
2.30	6.07	87.56	1.778	2.17
2.35	5.69	87.58	1.793	2.17
2.40	5.36	87.59	1.807	2.18
2.45	5.09	87.61	1.819	2.19
2.50	4.85	87.63	1.831	2.20
2.55	4.65	87.64	1.841	2.20
2.60	4.48	87.65	1.851	2.21
2.65	4.33	87.66	1.860	2.21
2.70	4.19	87.67	1.869	2.22
2.75	4.08	87.69	1.877	2.22

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
2.80	3.98	87.69	1.884	2.23
2.85	3.89	87.70	1.891	2.23
2.90	3.81	87.71	1.898	2.23
2.95	3.73	87.72	1.904	2.24
3.00	3.67	87.73	1.910	2.24
3.05	3.61	87.74	1.916	2.24
3.10	3.55	87.74	1.921	2.25
3.15	3.51	87.75	1.927	2.25
3.20	3.46	87.76	1.932	2.25
3.25	3.42	87.76	1.937	2.26
3.30	3.38	87.77	1.942	2.26
3.35	3.35	87.78	1.946	2.26
3.40	3.32	87.78	1.951	2.26
3.45	3.29	87.79	1.955	2.27
3.50	3.26	87.79	1.959	2.27
3.55	3.23	87.80	1.963	2.27
3.60	3.20	87.80	1.967	2.27
3.65	3.18	87.81	1.971	2.27
3.70	3.16	87.81	1.974	2.28
3.75	3.13	87.82	1.978	2.28
3.80	3.10	87.82	1.981	2.28
3.85	3.08	87.83	1.985	2.28
3.90	3.06	87.83	1.988	2.28
3.95	3.04	87.83	1.991	2.29
4.00	3.02	87.84	1.994	2.29
4.05	3.00	87.84	1.997	2.29
4.10	2.98	87.85	2.000	2.29
4.15	2.96	87.85	2.003	2.29
4.20	2.94	87.85	2.006	2.29
4.25	2.93	87.86	2.008	2.30
4.30	2.91	87.86	2.011	2.30
4.35	2.89	87.86	2.013	2.30
4.40	2.88	87.87	2.016	2.30
4.45	2.86	87.87	2.018	2.30
4.50	2.84	87.87	2.020	2.30
4.55	2.83	87.87	2.023	2.30
4.60	2.81	87.88	2.025	2.30
4.65	2.80	87.88	2.027	2.31
4.70	2.78	87.88	2.029	2.31
4.75	2.77	87.88	2.031	2.31
4.80	2.75	87.89	2.033	2.31
4.85	2.74	87.89	2.034	2.31
4.90	2.72	87.89	2.036	2.31
4.95	2.71	87.89	2.038	2.31
5.00	2.70	87.90	2.039	2.31
5.05	2.68	87.90	2.041	2.31
5.10	2.67	87.90	2.042	2.31
5.15	2.65	87.90	2.044	2.32
5.20	2.62	87.90	2.045	2.32
5.25	2.58	87.91	2.046	2.32
5.30	2.54	87.91	2.047	2.32
5.35	2.50	87.91	2.048	2.32

BOHANNAN-HUSTON, INC

Courtyard One

7500 JEFFERSON NE

Albuquerque

NM 87109-4335

voice 505 823.1000

fax 505 821 0892

5.40	2.47	87.91	2.049	2.32
5.45	2.43	87.91	2.049	2.32
5.50	2.40	87.91	2.050	2.32
5.55	2.36	87.91	2.050	2.32

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
5.60	2.33	87.91	2.050	2.32
5.65	2.29	87.91	2.050	2.32
5.70	2.26	87.91	2.050	2.32
5.75	2.23	87.91	2.050	2.32
5.80	2.20	87.91	2.049	2.32
5.85	2.17	87.91	2.049	2.32
5.90	2.14	87.91	2.048	2.32
5.95	2.11	87.91	2.047	2.32
6.00	2.08	87.91	2.046	2.32
6.05	2.04	87.90	2.045	2.32
6.10	1.94	87.90	2.044	2.32
6.15	1.83	87.90	2.042	2.31
6.20	1.75	87.90	2.040	2.31
6.25	1.70	87.89	2.038	2.31
6.30	1.66	87.89	2.035	2.31
6.35	1.62	87.89	2.032	2.31
6.40	1.59	87.88	2.029	2.31
6.45	1.56	87.88	2.026	2.31
6.50	1.52	87.87	2.023	2.30
6.55	1.50	87.87	2.020	2.30
6.60	1.47	87.87	2.016	2.30
6.65	1.44	87.86	2.013	2.30
6.70	1.41	87.86	2.009	2.30
6.75	1.39	87.85	2.006	2.29
6.80	1.36	87.85	2.002	2.29
6.85	1.34	87.84	1.998	2.29
6.90	1.31	87.84	1.994	2.29
6.95	1.29	87.83	1.990	2.29
7.00	1.27	87.83	1.986	2.28
7.05	1.24	87.82	1.981	2.28
7.10	1.22	87.82	1.977	2.28
7.15	1.20	87.81	1.973	2.28
7.20	1.18	87.80	1.968	2.27
7.25	1.16	87.80	1.964	2.27
7.30	1.14	87.79	1.959	2.27
7.35	1.12	87.79	1.954	2.27
7.40	1.10	87.78	1.950	2.26
7.45	1.08	87.77	1.945	2.26
7.50	1.06	87.77	1.940	2.26
7.55	1.04	87.76	1.935	2.25
7.60	1.02	87.75	1.930	2.25
7.65	1.01	87.75	1.925	2.25
7.70	.99	87.74	1.919	2.25
7.75	.97	87.73	1.914	2.24
7.80	.95	87.73	1.909	2.24
7.85	.94	87.72	1.904	2.24
7.90	.92	87.71	1.898	2.23
7.95	.90	87.71	1.893	2.23
8.00	.89	87.70	1.887	2.23
8.05	.87	87.69	1.882	2.22
8.10	.86	87.68	1.876	2.22
8.15	.84	87.68	1.870	2.22
8.20	.83	87.67	1.865	2.22
8.25	.81	87.66	1.859	2.21
8.30	.80	87.65	1.853	2.21
8.35	.78	87.65	1.847	2.21

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
8.40	.77	87.64	1.841	2.20
8.45	.76	87.63	1.835	2.20
8.50	.74	87.62	1.829	2.20

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8.55	.73	87.62	1.823	2.19
8.60	.72	87.61	1.817	2.19
8.65	.70	87.60	1.811	2.19
8.70	.69	87.59	1.805	2.18
8.75	.68	87.58	1.799	2.18
8.80	.67	87.58	1.793	2.17
8.85	.66	87.57	1.787	2.17
8.90	.64	87.56	1.780	2.17
8.95	.63	87.55	1.774	2.16
9.00	.62	87.54	1.768	2.16
9.05	.61	87.54	1.761	2.16
9.10	.60	87.53	1.755	2.15
9.15	.59	87.52	1.748	2.15
9.20	.58	87.51	1.742	2.15
9.25	.57	87.50	1.735	2.14
9.30	.56	87.49	1.729	2.14
9.35	.55	87.49	1.722	2.14
9.40	.54	87.48	1.716	2.13
9.45	.53	87.47	1.709	2.13
9.50	.52	87.46	1.703	2.12
9.55	.51	87.45	1.696	2.12
9.60	.50	87.44	1.689	2.12
9.65	.49	87.43	1.683	2.11
9.70	.48	87.42	1.676	2.11
9.75	.48	87.42	1.669	2.11
9.80	.47	87.41	1.662	2.10
9.85	.46	87.40	1.656	2.10
9.90	.45	87.39	1.649	2.09
9.95	.44	87.38	1.642	2.09
10.00	.44	87.37	1.635	2.09
10.05	.43	87.36	1.628	2.08
10.10	.42	87.35	1.622	2.08
10.15	.41	87.35	1.615	2.07
10.20	.41	87.34	1.608	2.07
10.25	.40	87.33	1.601	2.07
10.30	.39	87.32	1.594	2.06
10.35	.38	87.31	1.587	2.06
10.40	.38	87.30	1.580	2.06
10.45	.37	87.29	1.573	2.05
10.50	.36	87.28	1.566	2.05
10.55	.36	87.27	1.559	2.04
10.60	.35	87.26	1.552	2.04
10.65	.35	87.26	1.545	2.04
10.70	.34	87.25	1.538	2.03
10.75	.33	87.24	1.531	2.03
10.80	.33	87.23	1.524	2.02
10.85	.32	87.22	1.517	2.02
10.90	.32	87.21	1.510	2.02
10.95	.31	87.20	1.503	2.01
11.00	.31	87.19	1.496	2.01
11.05	.30	87.18	1.489	2.00
11.10	.29	87.17	1.482	2.00
11.15	.29	87.16	1.475	2.00

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
11.20	.28	87.16	1.468	1.99
11.25	.28	87.15	1.461	1.99
11.30	.27	87.14	1.454	1.98
11.35	.27	87.13	1.447	1.98
11.40	.26	87.12	1.440	1.98
11.45	.26	87.11	1.433	1.97
11.50	.26	87.10	1.426	1.97
11.55	.25	87.09	1.419	1.96
11.60	.25	87.08	1.412	1.96
11.65	.24	87.07	1.405	1.96
11.70	.24	87.06	1.397	1.95
11.75	.23	87.05	1.390	1.95
11.80	.23	87.05	1.383	1.94
11.85	.23	87.04	1.376	1.94

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11.90	.22	87.03	1.369	1.94
11.95	.22	87.02	1.362	1.93
12.00	.21	87.01	1.355	1.93
12.05	.21	87.00	1.348	1.92
12.10	.21	86.99	1.341	1.92
12.15	.20	86.98	1.334	1.91
12.20	.20	86.97	1.327	1.91
12.25	.20	86.96	1.320	1.90
12.30	.19	86.95	1.312	1.90
12.35	.19	86.94	1.305	1.89
12.40	.19	86.93	1.298	1.89
12.45	.18	86.92	1.291	1.88
12.50	.18	86.91	1.284	1.87
12.55	.18	86.90	1.277	1.87
12.60	.17	86.89	1.270	1.86
12.65	.17	86.88	1.263	1.86
12.70	.17	86.87	1.256	1.85
12.75	.16	86.86	1.250	1.85
12.80	.16	86.85	1.243	1.84
12.85	.16	86.84	1.236	1.84
12.90	.16	86.83	1.229	1.83
12.95	.15	86.82	1.222	1.82
13.00	.15	86.81	1.215	1.82
13.05	.15	86.80	1.208	1.81
13.10	.14	86.79	1.201	1.81
13.15	.14	86.78	1.194	1.80
13.20	.14	86.77	1.187	1.80
13.25	.14	86.76	1.181	1.79
13.30	.13	86.75	1.174	1.79
13.35	.13	86.74	1.167	1.78
13.40	.13	86.73	1.160	1.77
13.45	.13	86.72	1.153	1.77
13.50	.13	86.71	1.147	1.76
13.55	.12	86.70	1.140	1.76
13.60	.12	86.69	1.133	1.75
13.65	.12	86.69	1.126	1.75
13.70	.12	86.68	1.120	1.74
13.75	.11	86.67	1.113	1.74
13.80	.11	86.66	1.106	1.73
13.85	.11	86.65	1.099	1.73
13.90	.11	86.64	1.093	1.72
13.95	.11	86.63	1.086	1.72

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
14.00	.11	86.62	1.080	1.71
14.05	.10	86.61	1.073	1.71
14.10	.10	86.60	1.066	1.70
14.15	.10	86.59	1.060	1.69
14.20	.10	86.58	1.053	1.69
14.25	.10	86.57	1.047	1.68
14.30	.09	86.56	1.040	1.68
14.35	.09	86.55	1.033	1.67
14.40	.09	86.54	1.027	1.67
14.45	.09	86.54	1.020	1.66
14.50	.09	86.53	1.014	1.66
14.55	.09	86.52	1.007	1.65
14.60	.08	86.51	1.001	1.65
14.65	.08	86.50	.994	1.64
14.70	.08	86.49	.988	1.64
14.75	.08	86.48	.982	1.63
14.80	.08	86.47	.975	1.63
14.85	.08	86.46	.969	1.62
14.90	.08	86.45	.962	1.62
14.95	.07	86.44	.956	1.61
15.00	.07	86.44	.950	1.61
15.05	.07	86.43	.943	1.60
15.10	.07	86.42	.937	1.60
15.15	.07	86.41	.931	1.59
15.20	.07	86.40	.925	1.59

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15.25	.07	86.39	.918	1.58
15.30	.07	86.38	.912	1.58
15.35	.06	86.37	.906	1.57
15.40	.06	86.36	.900	1.57
15.45	.06	86.36	.893	1.56
15.50	.06	86.35	.887	1.56
15.55	.06	86.34	.881	1.55
15.60	.06	86.33	.875	1.55
15.65	.06	86.32	.869	1.54
15.70	.06	86.31	.863	1.54
15.75	.06	86.30	.857	1.53
15.80	.06	86.29	.850	1.53
15.85	.05	86.29	.844	1.52
15.90	.05	86.28	.838	1.52
15.95	.05	86.27	.832	1.51
16.00	.05	86.26	.826	1.51
16.05	.05	86.25	.820	1.50
16.10	.05	86.24	.814	1.50
16.15	.05	86.23	.808	1.49
16.20	.05	86.23	.802	1.49
16.25	.05	86.22	.796	1.48
16.30	.05	86.21	.790	1.48
16.35	.05	86.20	.784	1.47
16.40	.04	86.19	.779	1.47
16.45	.04	86.18	.773	1.47
16.50	.04	86.18	.767	1.46
16.55	.04	86.17	.761	1.46
16.60	.04	86.16	.755	1.45
16.65	.04	86.15	.749	1.45
16.70	.04	86.14	.744	1.44
16.75	.04	86.13	.738	1.44

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
16.80	.04	86.13	.732	1.43
16.85	.04	86.12	.726	1.43
16.90	.04	86.11	.720	1.42
16.95	.04	86.10	.715	1.42
17.00	.04	86.09	.709	1.41
17.05	.04	86.09	.703	1.41
17.10	.03	86.08	.698	1.41
17.15	.03	86.07	.692	1.40
17.20	.03	86.06	.686	1.40
17.25	.03	86.05	.681	1.39
17.30	.03	86.05	.675	1.39
17.35	.03	86.04	.670	1.38
17.40	.03	86.03	.664	1.38
17.45	.03	86.02	.658	1.37
17.50	.03	86.01	.653	1.37
17.55	.03	86.01	.647	1.37
17.60	.03	86.00	.642	1.36
17.65	.03	85.99	.636	1.35
17.70	.03	85.98	.631	1.34
17.75	.03	85.97	.626	1.32
17.80	.03	85.96	.620	1.31
17.85	.03	85.96	.615	1.30
17.90	.03	85.95	.610	1.29
17.95	.03	85.94	.605	1.28
18.00	.03	85.93	.599	1.27
18.05	.02	85.92	.594	1.26
18.10	.02	85.92	.589	1.25
18.15	.02	85.91	.584	1.24
18.20	.02	85.90	.579	1.23
18.25	.02	85.89	.574	1.22
18.30	.02	85.89	.569	1.21
18.35	.02	85.88	.564	1.20
18.40	.02	85.87	.560	1.19
18.45	.02	85.86	.555	1.18
18.50	.02	85.86	.550	1.16
18.55	.02	85.85	.545	1.15

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18.60	.02	85.84	.541	1.15
18.65	.02	85.83	.536	1.14
18.70	.02	85.83	.531	1.13
18.75	.02	85.82	.527	1.12
18.80	.02	85.81	.522	1.11
18.85	.02	85.81	.518	1.10
18.90	.02	85.80	.513	1.09
18.95	.02	85.79	.509	1.08
19.00	.02	85.79	.505	1.07
19.05	.02	85.78	.500	1.06
19.10	.02	85.77	.496	1.05
19.15	.02	85.77	.492	1.04
19.20	.02	85.76	.488	1.03
19.25	.02	85.75	.483	1.02
19.30	.02	85.75	.479	1.02
19.35	.02	85.74	.475	1.01
19.40	.02	85.73	.471	1.00
19.45	.02	85.73	.467	.99
19.50	.01	85.72	.463	.98
19.55	.01	85.71	.459	.97

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
19.60	.01	85.71	.455	.96
19.65	.01	85.70	.451	.96
19.70	.01	85.70	.447	.95
19.75	.01	85.69	.444	.94
19.80	.01	85.68	.440	.93
19.85	.01	85.68	.436	.92
19.90	.01	85.67	.432	.92
19.95	.01	85.67	.428	.91
20.00	.01	85.66	.425	.90
20.05	.01	85.66	.421	.89
20.10	.01	85.65	.418	.88
20.15	.01	85.64	.414	.88
20.20	.01	85.64	.410	.87
20.25	.01	85.63	.407	.86
20.30	.01	85.63	.403	.85
20.35	.01	85.62	.400	.85
20.40	.01	85.62	.396	.84
20.45	.01	85.61	.393	.83
20.50	.01	85.61	.390	.83
20.55	.01	85.60	.386	.82
20.60	.01	85.60	.383	.81
20.65	.01	85.59	.380	.80
20.70	.01	85.59	.376	.80
20.75	.01	85.58	.373	.79
20.80	.01	85.58	.370	.78
20.85	.01	85.57	.367	.78
20.90	.01	85.57	.364	.77
20.95	.01	85.56	.360	.76
21.00	.01	85.56	.357	.76
21.05	.01	85.55	.354	.75
21.10	.01	85.55	.351	.74
21.15	.01	85.54	.348	.74
21.20	.01	85.54	.345	.73
21.25	.01	85.53	.342	.72
21.30	.01	85.53	.339	.72
21.35	.01	85.52	.336	.71
21.40	.01	85.52	.333	.71
21.45	.01	85.51	.331	.70
21.50	.01	85.51	.328	.69
21.55	.01	85.51	.325	.69
21.60	.01	85.50	.322	.68
21.65	.01	85.50	.319	.68
21.70	.01	85.49	.317	.67
21.75	.01	85.49	.314	.66
21.80	.01	85.48	.311	.66
21.85	.01	85.48	.308	.65
21.90	.01	85.48	.306	.65

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21.95	.01	85.47	.303	.64
22.00	.01	85.47	.301	.64
22.05	.01	85.46	.298	.63
22.10	.01	85.46	.295	.63
22.15	.01	85.46	.293	.62
22.20	.01	85.45	.290	.61
22.25	.01	85.45	.288	.61
22.30	.01	85.44	.285	.60
22.35	.01	85.44	.283	.60

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
22.40	.01	85.44	.280	.59
22.45	.01	85.43	.278	.59
22.50	.01	85.43	.276	.58
22.55	.01	85.43	.273	.58
22.60	.00	85.42	.271	.57
22.65	.00	85.42	.269	.57
22.70	.00	85.41	.266	.56
22.75	.00	85.41	.264	.56
22.80	.00	85.41	.262	.55
22.85	.00	85.40	.259	.55
22.90	.00	85.40	.257	.54
22.95	.00	85.40	.255	.54
23.00	.00	85.39	.253	.54
23.05	.00	85.39	.250	.53
23.10	.00	85.39	.248	.53
23.15	.00	85.38	.246	.52
23.20	.00	85.38	.244	.52
23.25	.00	85.38	.242	.51
23.30	.00	85.37	.240	.51
23.35	.00	85.37	.238	.50
23.40	.00	85.37	.236	.50
23.45	.00	85.36	.234	.49
23.50	.00	85.36	.232	.49
23.55	.00	85.36	.230	.49
23.60	.00	85.35	.228	.48
23.65	.00	85.35	.226	.48
23.70	.00	85.35	.224	.47
23.75	.00	85.35	.222	.47
23.80	.00	85.34	.220	.47
23.85	.00	85.34	.218	.46
23.90	.00	85.34	.216	.46
23.95	.00	85.33	.214	.45
24.00	.00	85.33	.212	.45
24.05	.00	85.33	.211	.45
24.10	.00	85.32	.209	.44
24.15	.00	85.32	.207	.44
24.20	.00	85.32	.205	.43
24.25	.00	85.32	.203	.43
24.30	.00	85.31	.202	.43
24.35	.00	85.31	.200	.42
24.40	.00	85.31	.198	.42
24.45	.00	85.31	.196	.42
24.50	.00	85.30	.195	.41
24.55	.00	85.30	.193	.41
24.60	.00	85.30	.191	.41
24.65	.00	85.30	.190	.40
24.70	.00	85.29	.188	.40
24.75	.00	85.29	.186	.39
24.80	.00	85.29	.185	.39
24.85	.00	85.28	.183	.39
24.90	.00	85.28	.182	.38
24.95	.00	85.28	.180	.38
25.00	.00	85.28	.178	.38
25.05	.00	85.28	.177	.37
25.10	.00	85.27	.175	.37
25.15	.00	85.27	.174	.37

TIME	INFLOW	ELEV	VOLUME	OUTFLOW

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(HRS)	(CFS)	(FEET)	(AC-FT)	(CFS)
25.20	.00	85.27	.172	.37
25.25	.00	85.27	.171	.36
25.30	.00	85.26	.169	.36
25.35	.00	85.26	.168	.36
25.40	.00	85.26	.166	.35
25.45	.00	85.26	.165	.35
25.50	.00	85.25	.164	.35
25.55	.00	85.25	.162	.34
25.60	.00	85.25	.161	.34
25.65	.00	85.25	.159	.34
25.70	.00	85.25	.158	.33
25.75	.00	85.24	.157	.33
25.80	.00	85.24	.155	.33
25.85	.00	85.24	.154	.33
25.90	.00	85.24	.153	.32
25.95	.00	85.24	.151	.32
26.00	.00	85.23	.150	.32
26.05	.00	85.23	.149	.31
26.10	.00	85.23	.147	.31
26.15	.00	85.23	.146	.31
26.20	.00	85.23	.145	.31
26.25	.00	85.22	.144	.30
26.30	.00	85.22	.142	.30
26.35	.00	85.22	.141	.30
26.40	.00	85.22	.140	.30
26.45	.00	85.22	.139	.29
26.50	.00	85.21	.137	.29
26.55	.00	85.21	.136	.29
26.60	.00	85.21	.135	.29
26.65	.00	85.21	.134	.28
26.70	.00	85.21	.133	.28
26.75	.00	85.20	.132	.28
26.80	.00	85.20	.130	.28
26.85	.00	85.20	.129	.27
26.90	.00	85.20	.128	.27
26.95	.00	85.20	.127	.27
27.00	.00	85.20	.126	.27
27.05	.00	85.19	.125	.26
27.10	.00	85.19	.124	.26
27.15	.00	85.19	.123	.26
27.20	.00	85.19	.122	.26
27.25	.00	85.19	.121	.26
27.30	.00	85.19	.120	.25
27.35	.00	85.18	.118	.25
27.40	.00	85.18	.117	.25
27.45	.00	85.18	.116	.25
27.50	.00	85.18	.115	.24
27.55	.00	85.18	.114	.24
27.60	.00	85.18	.113	.24
27.65	.00	85.17	.112	.24
27.70	.00	85.17	.111	.24
27.75	.00	85.17	.110	.23
27.80	.00	85.17	.110	.23
27.85	.00	85.17	.109	.23
27.90	.00	85.17	.108	.23
27.95	.00	85.17	.107	.23

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
28.00	.00	85.16	.106	.22
28.05	.00	85.16	.105	.22
28.10	.00	85.16	.104	.22
28.15	.00	85.16	.103	.22
28.20	.00	85.16	.102	.22
28.25	.00	85.16	.101	.21
28.30	.00	85.16	.100	.21
28.35	.00	85.15	.099	.21
28.40	.00	85.15	.099	.21

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28.45	.00	85.15	.098	.21
28.50	.00	85.15	.097	.21
28.55	.00	85.15	.096	.20
28.60	.00	85.15	.095	.20
28.65	.00	85.15	.094	.20
28.70	.00	85.15	.094	.20
28.75	.00	85.14	.093	.20
28.80	.00	85.14	.092	.19
28.85	.00	85.14	.091	.19
28.90	.00	85.14	.090	.19
28.95	.00	85.14	.090	.19
29.00	.00	85.14	.089	.19
29.05	.00	85.14	.088	.19
29.10	.00	85.14	.087	.18
29.15	.00	85.13	.086	.18
29.20	.00	85.13	.086	.18
29.25	.00	85.13	.085	.18
29.30	.00	85.13	.084	.18
29.35	.00	85.13	.083	.18
29.40	.00	85.13	.083	.18
29.45	.00	85.13	.082	.17
29.50	.00	85.13	.081	.17
29.55	.00	85.13	.081	.17
29.60	.00	85.12	.080	.17
29.65	.00	85.12	.079	.17
29.70	.00	85.12	.079	.17
29.75	.00	85.12	.078	.16
29.80	.00	85.12	.077	.16
29.85	.00	85.12	.076	.16
29.90	.00	85.12	.076	.16
29.95	.00	85.12	.075	.16

```
PEAK DISCHARGE =          2.319 CFS - PEAK OCCURS AT HOUR    5.60
MAXIMUM WATER SURFACE ELEVATION =       87.910
MAXIMUM STORAGE =         2.0502 AC-FT      INCREMENTAL TIME=     .050000HRS

*
ADD HYD                          ID=30  HYD=PE  IDI=27  IDII=6
PRINT HYD                 ID=30    CODE=1

                                        HYDROGRAPH FROM AREA PE


    RUNOFF VOLUME =       .86409 INCHES     =       3.4520 ACRE-FEET
    PEAK DISCHARGE RATE =       7.63 CFS  AT   1.500 HOURS   BASIN AREA =   .0749 SQ. MI.


*
ADD HYD                          ID=31  HYD=PED2        IDI=30  IDII=17
PRINT HYD                 ID=31    CODE=1

                                        HYDROGRAPH FROM AREA PED2

    RUNOFF VOLUME =       .88209 INCHES     =       3.6697 ACRE-FEET
    PEAK DISCHARGE RATE =      13.91 CFS  AT   1.500 HOURS   BASIN AREA =   .0780 SQ. MI.


*
ADD HYD                          ID=33  HYD=GH          IDI=18  IDII=9
PRINT HYD                 ID=33    CODE=1

                                        HYDROGRAPH FROM AREA GH

    RUNOFF VOLUME =      1.31690 INCHES     =        .5268 ACRE-FEET
    PEAK DISCHARGE RATE =      15.19 CFS  AT   1.500 HOURS   BASIN AREA =   .0075 SQ. MI.


*
```

```
ADD HYD                          ID=34  HYD=PEDGH      IDI=33  IDII=31
PRINT HYD                ID=34    CODE=1

                                        HYDROGRAPH FROM AREA PEDGH

    RUNOFF VOLUME =      .92023 INCHES     =       4.1964 ACRE-FEET
    PEAK DISCHARGE RATE =      29.10 CFS  AT   1.500 HOURS   BASIN AREA =   .0855 SQ. MI.

*
ADD HYD                          ID=35  HYD=IJ   IDI=19  IDII=11
PRINT HYD                ID=35    CODE=1

                                        HYDROGRAPH FROM AREA IJ

    RUNOFF VOLUME =     1.31689 INCHES     =        .4635 ACRE-FEET
    PEAK DISCHARGE RATE =      13.37 CFS  AT   1.500 HOURS   BASIN AREA =   .0066 SQ. MI.

*
ADD HYD                          ID=37  HYD=IJL2               IDI=35  IDII=57
PRINT HYD                ID=37    CODE=1

                                        HYDROGRAPH FROM AREA IJL2

    RUNOFF VOLUME =     1.31690 INCHES     =        .7677 ACRE-FEET
    PEAK DISCHARGE RATE =      22.14 CFS  AT   1.500 HOURS   BASIN AREA =   .0109 SQ. MI.

*
ADD HYD                          ID=39  HYD=EDGHIJL    IDI=37  IDII=34
PRINT HYD                ID=39    CODE=1

                                        HYDROGRAPH FROM AREA EDGHIJL

    RUNOFF VOLUME =      .96519 INCHES     =       4.9641 ACRE-FEET
    PEAK DISCHARGE RATE =      51.24 CFS  AT   1.500 HOURS   BASIN AREA =   .0964 SQ. MI.

*
ADD HYD                          ID=42  HYD=FD1        IDI=7   IDII=5
PRINT HYD                ID=42    CODE=1

                                        HYDROGRAPH FROM AREA FD1

    RUNOFF VOLUME =     1.31678 INCHES     =        .2079 ACRE-FEET
    PEAK DISCHARGE RATE =       6.01 CFS  AT   1.500 HOURS   BASIN AREA =   .0030 SQ. MI.

*
ADD HYD                          ID=44  HYD=BFDF2      IDI=42  IDII=50
PRINT HYD                ID=44    CODE=1

                                        HYDROGRAPH FROM AREA BFDF2

    RUNOFF VOLUME =     1.31680 INCHES     =        .3259 ACRE-FEET
    PEAK DISCHARGE RATE =       9.42 CFS  AT   1.500 HOURS   BASIN AREA =   .0046 SQ. MI.

*
ADD HYD                          ID=45  HYD=BF2DG      IDI=44  IDII=8
PRINT HYD                ID=45    CODE=1
```

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```
                                        HYDROGRAPH FROM AREA BF2DG

    RUNOFF VOLUME =      1.31679 INCHES     =         .4382 ACRE-FEET
    PEAK DISCHARGE RATE =      12.67 CFS  AT   1.500 HOURS   BASIN AREA =   .0062 SQ. MI.

*
ADD HYD                          ID=47  HYD=BF3DG      IDI=45  IDII=51
PRINT HYD                 ID=47    CODE=1

                                        HYDROGRAPH FROM AREA BF3DG

    RUNOFF VOLUME =      1.31680 INCHES     =         .5787 ACRE-FEET
    PEAK DISCHARGE RATE =      16.73 CFS  AT   1.500 HOURS   BASIN AREA =   .0082 SQ. MI.

*
ADD HYD                          ID=49  HYD=BFDGI      IDI=47  IDII=10
PRINT HYD                 ID=49    CODE=1

                                        HYDROGRAPH FROM AREA BFDGI

    RUNOFF VOLUME =      1.31680 INCHES     =         .6981 ACRE-FEET
    PEAK DISCHARGE RATE =      20.18 CFS  AT   1.500 HOURS   BASIN AREA =   .0099 SQ. MI.

*
ADD HYD                          ID=60  HYD=BFDGIK     IDI=49  IDII=52
PRINT HYD                 ID=60    CODE=1

                                        HYDROGRAPH FROM AREA BFDGIK

    RUNOFF VOLUME =      1.31680 INCHES     =         .8315 ACRE-FEET
    PEAK DISCHARGE RATE =      24.04 CFS  AT   1.500 HOURS   BASIN AREA =   .0118 SQ. MI.

*
ADD HYD                          ID=62  HYD=NORTH      IDI=60  IDII=12
PRINT HYD                 ID=62    CODE=1

                                        HYDROGRAPH FROM AREA NORTH

    RUNOFF VOLUME =      1.31680 INCHES     =         .9228 ACRE-FEET
    PEAK DISCHARGE RATE =      26.68 CFS  AT   1.500 HOURS   BASIN AREA =   .0131 SQ. MI

*
ADD HYD                          ID=63  HYD=NL1        IDI=62  IDII=13
PRINT HYD                 ID=63    CODE=1

                                        HYDROGRAPH FROM AREA NL1

    RUNOFF VOLUME =      1.31680 INCHES     =        1.0352 ACRE-FEET
    PEAK DISCHARGE RATE =      29.93 CFS  AT   1.500 HOURS   BASIN AREA =   .0147 SQ. MI.

*
ADD HYD                          ID=64  HYD=34         IDI=63  IDII=39
PRINT HYD                 ID=64    CODE=1

                                   OUTFLOW HYDROGRAPH REACH    34.00
```

```
    RUNOFF VOLUME =      1.01180 INCHES      =        5.9993 ACRE-FEET
    PEAK DISCHARGE RATE =       81.17 CFS  AT   1.500 HOURS   BASIN AREA =   .1112 SQ. MI.

*
ADD HYD                          ID=65  HYD=ALL        IDI=64  IDII=55
PRINT HYD                 ID=65    CODE=1
                                        HYDROGRAPH FROM AREA ALL

    RUNOFF VOLUME =      1.05136 INCHES      =        6.5030 ACRE-FEET
    PEAK DISCHARGE RATE =       94.39 CFS  AT   1.500 HOURS   BASIN AREA =   .1160 SQ. MI.

FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 13:49:59
```

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APPENDIX B

STREET FLOW, INLET, STORM DRAIN AND SWALE CAPACITY CALCULATIONS

STREET CAPACITY +
INLET Calculations
Turrarion West 3-4
April 3, 2000

South HALF

Basin A
Q=5.53cfs See Attached summary File
S=0.5%
A road at 0.5% can handle 12.7cfs.
See attached TC Stream Spreadsheet
No inlets needed - run curb

Basin C
4.02 cfs S= 4.34%
5.53 cfs Basin A
9.55 cfs
STD. curb
A road at 4.34% can hold 24.3 cfs.
Inlets are included to divert flow into surge pond. Two type 'A' inlets pick up 8.2 cfs. 1.35 cfs continues.

Exhibit A

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

MANNING'S N= .017 SLOPE= .005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)	
0.01	0.01	0.00	0.0	0.33	0.17	0.31	0.00	0.01	
0.02	0.02	0.01	0.0	0.66	0.28	0.63	0.00	0.02	
0.03	0.03	0.01	0.0	0.99	0.36	0.94	0.00	0.03	
0.04	0.04	0.03	0.0	1.32	0.44	1.25	0.00	0.04	
0.05	0.05	0.04	0.0	1.64	0.51	1.56	0.00	0.05	
0.06	0.06	0.06	0.0	1.97	0.58	1.88	0.01	0.07	
0.07	0.07	0.08	0.0	2.30	0.64	2.19	0.01	0.08	
0.08	0.08	0.10	0.1	2.63	0.70	2.50	0.01	0.09	
0.09	0.09	0.13	0.1	2.96	0.76	2.81	0.01	0.10	
0.10	0.10	0.16	0.1	3.29	0.81	3.13	0.01	0.11	
0.11	0.11	0.19	0.2	3.62	0.86	3.44	0.01	0.12	
0.12	0.12	0.23	0.2	3.95	0.92	3.75	0.01	0.13	
0.13	0.13	0.26	0.3	4.28	0.97	4.07	0.01	0.14	
0.14	0.14	0.31	0.3	5.15	0.95	4.93	0.01	0.15	
0.15	0.15	0.36	0.3	6.03	0.95	5.79	0.01	0.16	
0.16	0.16	0.43	0.4	6.91	0.96	6.65	0.01	0.17	
0.17	0.17	0.50	0.5	7.79	0.99	7.51	0.02	0.19	
0.18	0.18	0.58	0.6	8.67	1.01	8.38	0.02	0.20	
0.19	0.19	0.66	0.7	9.54	1.04	9.24	0.02	0.21	
0.20	0.20	0.76	0.8	10.42	1.08	10.10	0.02	0.22	
0.21	0.21	0.87	1.0	11.30	1.11	10.96	0.02	0.23	
0.22	0.22	0.98	1.1	12.18	1.15	11.83	0.02	0.24	
0.23	0.23	1.10	1.3	13.06	1.19	12.69	0.02	0.25	
0.24	0.24	1.23	1.5	13.93	1.23	13.55	0.02	0.26	
0.25	0.25	1.37	1.7	14.81	1.27	14.41	0.02	0.27	
0.26	0.26	1.52	2.0	15.69	1.30	15.27	0.03	0.29	
0.27	0.27	1.68	2.3	16.57	1.34	16.14	0.03	0.30	
0.28	0.28	1.84	2.5	17.45	1.38	17.00	0.03	0.31	
0.29	0.29	2.02	2.9	18.32	1.42	17.86	0.03	0.32	
0.30	0.30	2.20	3.2	19.20	1.46	18.72	0.03	0.33	
0.31	0.31	2.39	3.6	20.08	1.50	19.59	0.03	0.34	
0.32	0.32	2.59	4.0	20.96	1.53	20.45	0.04	0.36	
0.33	0.33	2.80	4.4	21.84	1.57	21.31	0.04	0.37	
0.34	0.34	3.02	4.9	22.71	1.61	22.17	0.04	0.38	
0.35	0.35	3.25	5.3	23.59	1.65	23.03	0.04	0.39	← actual flow
0.36	0.36	3.48	5.9	24.47	1.68	23.90	0.04	0.40	
0.37	0.37	3.72	6.4	25.35	1.72	24.76	0.05	0.42	
0.38	0.38	3.98	7.0	26.23	1.76	25.62	0.05	0.43	
0.39	0.39	4.24	7.6	27.10	1.79	26.48	0.05	0.44	
0.40	0.40	4.50	8.2	27.98	1.83	27.35	0.05	0.45	
0.41	0.41	4.78	8.9	28.86	1.86	28.21	0.05	0.46	
0.42	0.42	5.06	9.8	28.88	1.94	28.21	0.06	0.48	
0.43	0.43	5.35	10.7	28.90	2.01	28.22	0.06	0.49	
0.45	0.45	5.91	12.7	28.94	2.14	28.23	0.07	0.52	← max flow with 10ft curb.
0.46	0.46	6.19	13.7	28.96	2.21	28.23	0.08	0.54	
0.47	0.47	6.48	14.7	28.98	2.28	28.24	0.08	0.55	
0.48	0.48	6.76	15.8	29.01	2.34	28.24	0.09	0.57	
0.49	0.49	7.04	16.9	29.03	2.40	28.25	0.09	0.58	
0.50	0.50	7.32	18.1	29.05	2.47	28.25	0.09	0.59	
0.51	0.51	7.61	19.2	29.07	2.53	28.26	0.10	0.61	
0.52	0.52	7.89	20.4	29.09	2.59	28.26	0.10	0.62	
0.53	0.53	8.17	21.7	29.11	2.65	28.27	0.11	0.64	
0.54	0.54	8.45	22.9	29.13	2.71	28.27	0.11	0.65	
0.55	0.55	8.74	24.2	29.15	2.77	28.28	0.12	0.67	
0.56	0.56	9.02	25.5	29.17	2.83	28.28	0.12	0.68	
0.57	0.57	9.30	26.8	29.19	2.88	28.29	0.13	0.70	
0.58	0.58	9.59	28.2	29.21	2.94	28.29	0.13	0.71	

Flow

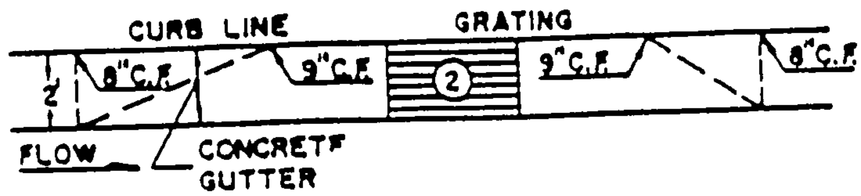
***** PC PROGRAM STREAM SEPTEMBER 1994 *****

MANNING'S N= .017 SLOPE= .0434

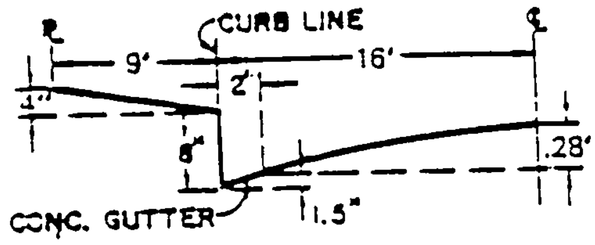
POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.51	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.82	0.63	0.01	0.03
0.03	0.03	0.01	0.0	0.99	1.07	0.94	0.02	0.05
0.04	0.04	0.03	0.0	1.32	1.30	1.25	0.03	0.07
0.05	0.05	0.04	0.1	1.64	1.51	1.56	0.04	0.09
0.06	0.06	0.06	0.1	1.97	1.70	1.88	0.04	0.10
0.07	0.07	0.08	0.1	2.30	1.88	2.19	0.06	0.13
0.08	0.08	0.10	0.2	2.63	2.06	2.50	0.07	0.15
0.09	0.09	0.13	0.3	2.96	2.23	2.81	0.08	0.17
0.10	0.10	0.16	0.4	3.29	2.39	3.13	0.09	0.19
0.11	0.11	0.19	0.5	3.62	2.55	3.44	0.10	0.21
0.12	0.12	0.23	0.6	3.95	2.70	3.75	0.11	0.23
0.13	0.13	0.26	0.8	4.28	2.85	4.07	0.13	0.26
0.14	0.14	0.31	0.9	5.15	2.79	4.93	0.12	0.26
0.15	0.15	0.36	1.0	6.03	2.80	5.79	0.12	0.27
0.16	0.16	0.43	1.2	6.91	2.84	6.65	0.13	0.29
0.17	0.17	0.50	1.4	7.79	2.90	7.51	0.13	0.30
0.18	0.18	0.58	1.7	8.67	2.99	8.38	0.14	0.32
0.19	0.19	0.66	2.0	9.54	3.08	9.24	0.15	0.34
0.20	0.20	0.76	2.4	10.42	3.18	10.10	0.16	0.36
0.21	0.21	0.87	2.8	11.30	3.28	10.96	0.17	0.38
0.22	0.22	0.98	3.3	12.18	3.39	11.83	0.18	0.40
0.23	0.23	1.10	3.9	13.06	3.50	12.69	0.19	0.42
0.24	0.24	1.23	4.5	13.93	3.62	13.55	0.20	0.44
0.25	0.25	1.37	5.1	14.81	3.73	14.41	0.22	0.47
0.26	0.26	1.52	5.8	15.69	3.84	15.27	0.23	0.49
0.27	0.27	1.68	6.6	16.57	3.96	16.14	0.24	0.51
0.28	0.28	1.84	7.5	17.45	4.07	17.00	0.26	0.54
0.29	0.29	2.02	8.4	18.32	4.18	17.86	0.27	0.56
0.30	0.30	2.20	9.5	19.20	4.30	18.72	0.29	0.59 ← actual flow
0.31	0.31	2.39	10.6	20.08	4.41	19.59	0.30	0.61
0.32	0.32	2.59	11.7	20.96	4.52	20.45	0.32	0.64
0.33	0.33	2.80	13.0	21.84	4.63	21.31	0.33	0.66
0.34	0.34	3.02	14.3	22.71	4.74	22.17	0.35	0.69
0.35	0.35	3.25	15.7	23.59	4.85	23.03	0.37	0.72
0.36	0.36	3.48	17.3	24.47	4.96	23.90	0.38	0.74
0.37	0.37	3.72	18.9	25.35	5.07	24.76	0.40	0.77
0.38	0.38	3.98	20.6	26.23	5.18	25.62	0.42	0.80
0.39	0.39	4.24	22.4	27.10	5.28	26.48	0.43	0.82
0.40	0.40	4.50	24.3	27.98	5.39	27.35	0.45	0.85 ← max flow in right-of-way.
0.41	0.41	4.78	26.3	28.86	5.49	28.21	0.47	0.88
0.42	0.42	5.06	28.9	28.88	5.71	28.21	0.51	0.93
0.43	0.43	5.35	31.6	28.90	5.91	28.22	0.54	0.97
0.45	0.45	5.91	37.3	28.94	6.32	28.23	0.62	1.07
0.46	0.46	6.19	40.3	28.96	6.51	28.23	0.66	1.12
0.47	0.47	6.48	43.4	28.98	6.71	28.24	0.70	1.17
0.48	0.48	6.76	46.6	29.01	6.90	28.24	0.74	1.22
0.49	0.49	7.04	49.9	29.03	7.08	28.25	0.78	1.27
0.50	0.50	7.32	53.2	29.05	7.27	28.25	0.82	1.32
0.51	0.51	7.61	56.7	29.07	7.45	28.26	0.86	1.37
0.52	0.52	7.89	60.2	29.09	7.63	28.26	0.90	1.42
0.53	0.53	8.17	63.8	29.11	7.81	28.27	0.95	1.48
0.54	0.54	8.45	67.5	29.13	7.98	28.27	0.99	1.53
0.55	0.55	8.74	71.3	29.15	8.16	28.28	1.03	1.58
0.56	0.56	9.02	75.1	29.17	8.33	28.28	1.08	1.64
0.57	0.57	9.30	79.0	29.19	8.50	28.29	1.12	1.69
0.58	0.58	9.59	83.0	29.21	8.66	28.29	1.17	1.75

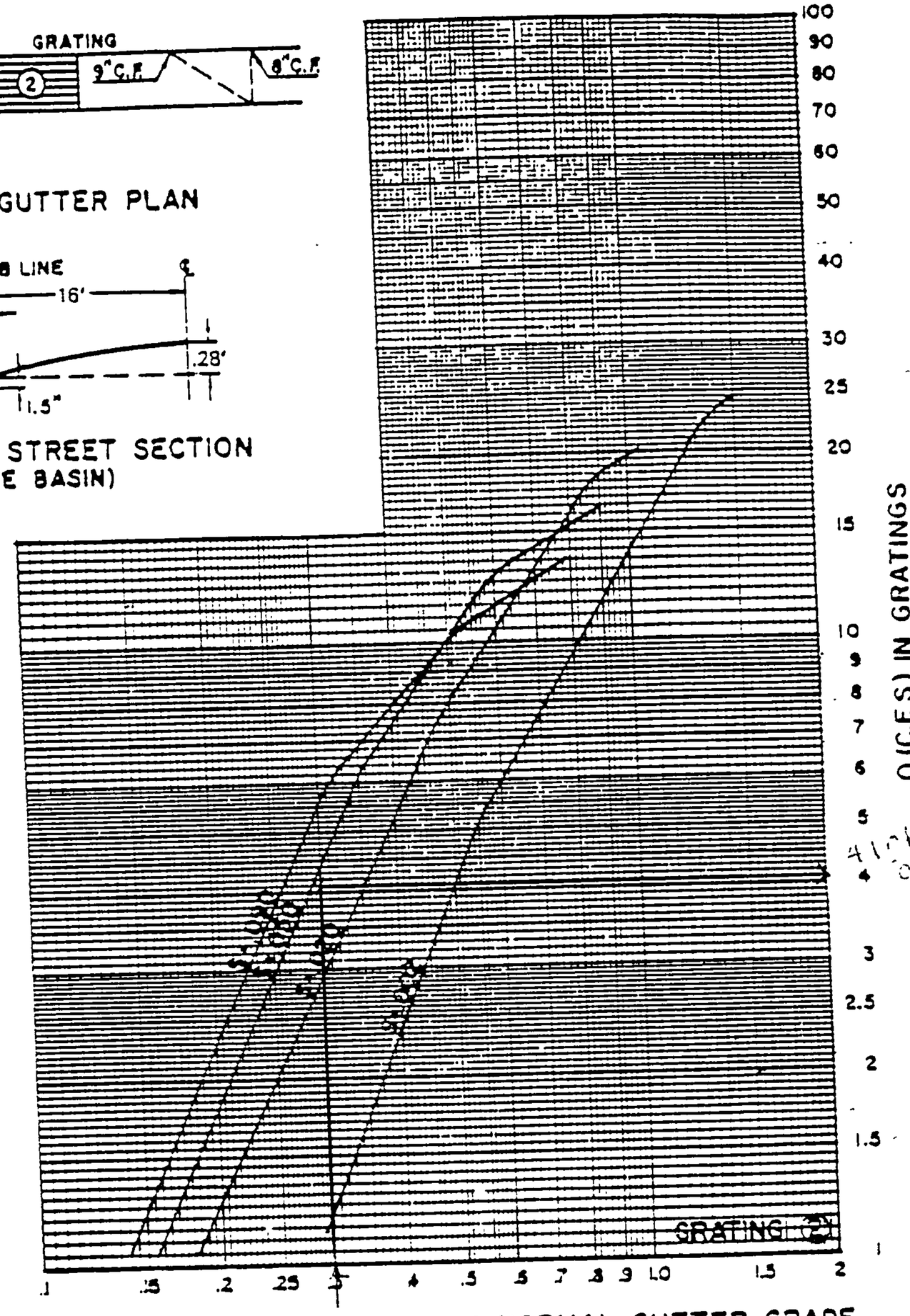
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



depth = 0.31' (SEE PC STREAM)
S = 4.34%

BASIN E

S= 4.54%

Q= 6.48 cfs
+
1.35 cfs from Basin C
7.83 cfs.

The road can handle 24.3 cfs. (SEE BASIN E)
No inlet required.

Basin D2

Q= 6.23 cfs.
S= 0.5%
The road can handle 12.7 cfs. (See basin A)

Basin D2 + Basin E

7.93 cfs
+
6.23 cfs
14.11 cfs. < 24.3 cfs. OK
Put in one inlet d= 0.34' Takes 5 cfs.
9.11 continues in street

Basin G2

same as Basin D2, A
Q= 6.23 cfs < 12.7 cfs OK.

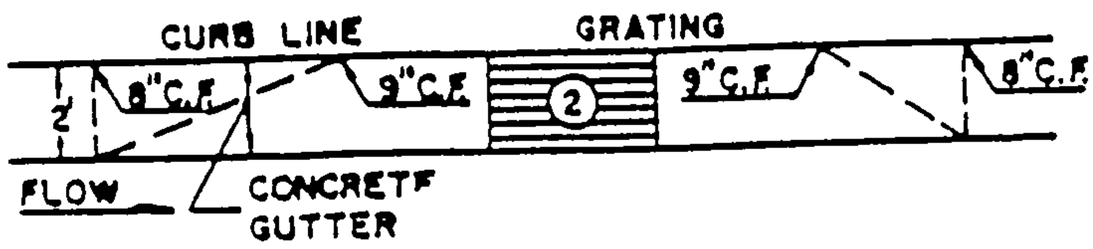
Basin H

S= 4.0 %

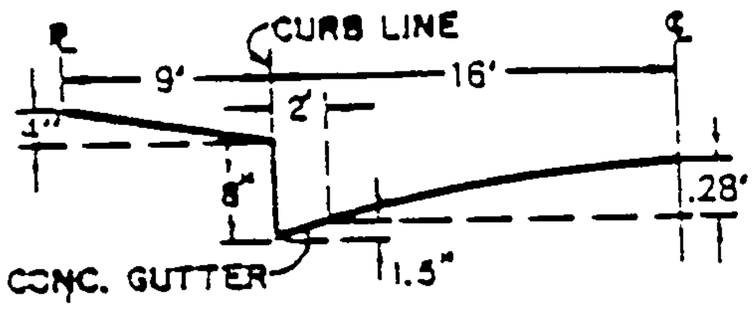
Q= 8.91 cfs
+
6.23 cfs Basin G2
+
9.11 Basins D2+E
24.3 cfs.

Road can only handle 25.2 cfs. Need inlets
depth = 0.41'
3 inlets removes 21 cfs
3.3 cfs remains in road.

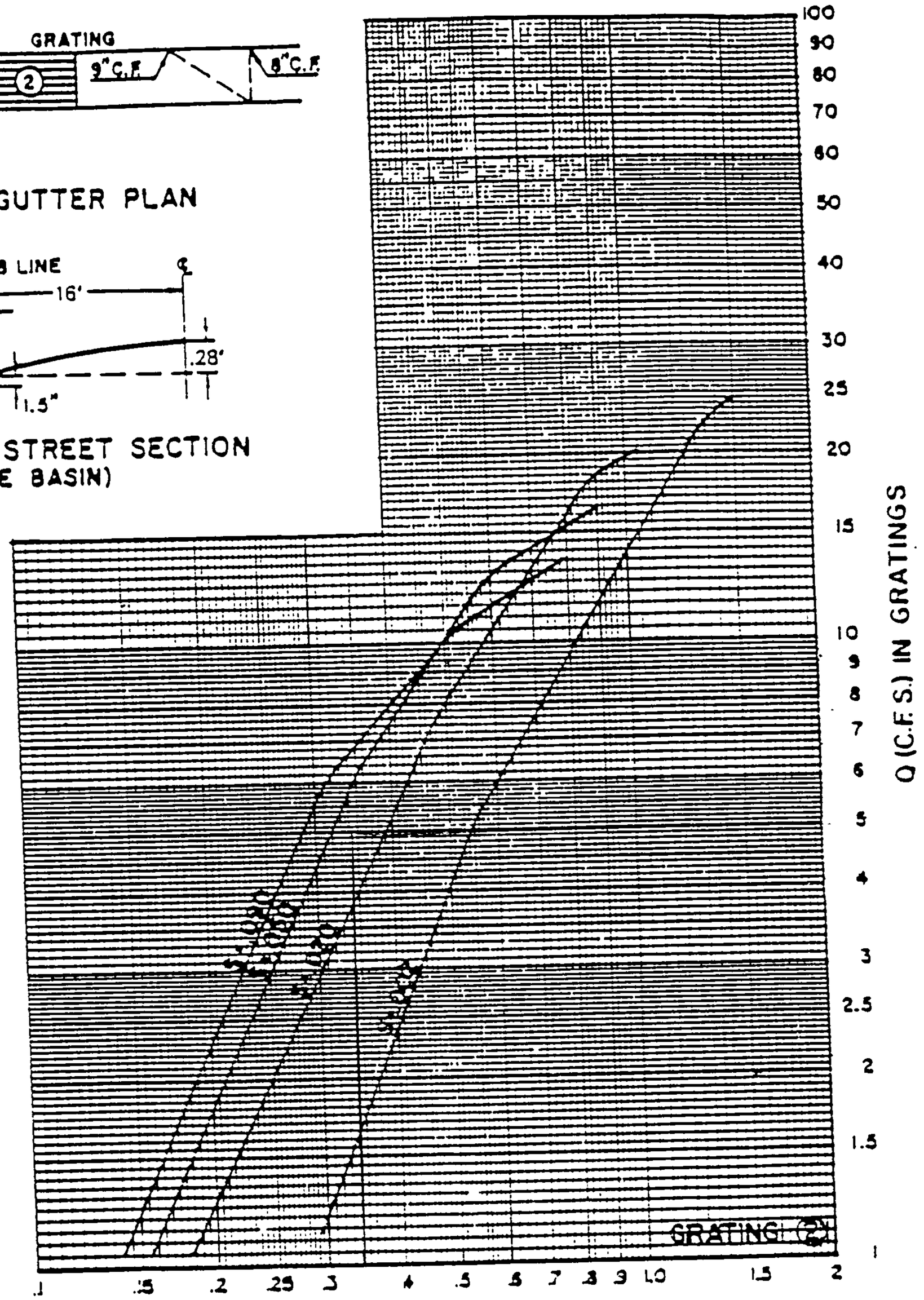
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



D = DEPTH OF FLOW (FT.) ABOVE NORMAL GUTTER GRADE

S = 4.34%
D = 0.34'
Q = 5 CFS.

Reach H

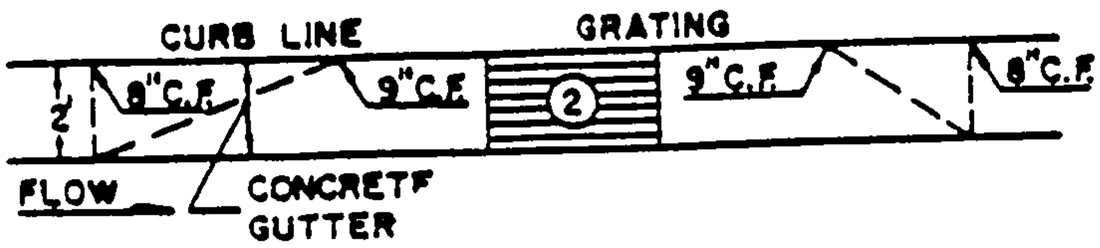
***** PC PROGRAM STREAM SEPTEMBER 1994 *****

MANNING'S N= .017 SLOPE= .0434

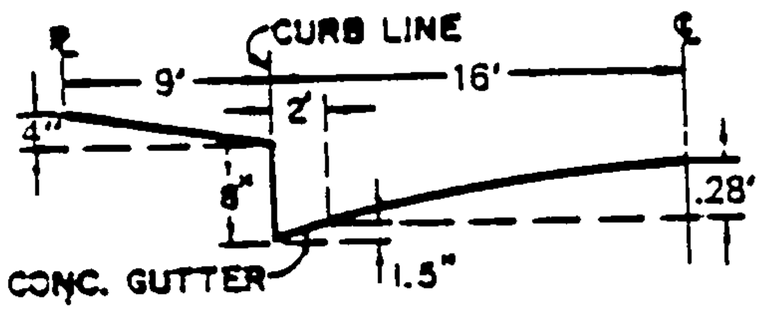
POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.51	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.82	0.63	0.01	0.03
0.03	0.03	0.01	0.0	0.99	1.07	0.94	0.02	0.05
0.04	0.04	0.03	0.0	1.32	1.30	1.25	0.03	0.07
0.05	0.05	0.04	0.1	1.64	1.51	1.56	0.04	0.09
0.06	0.06	0.06	0.1	1.97	1.70	1.88	0.04	0.10
0.07	0.07	0.08	0.1	2.30	1.88	2.19	0.06	0.13
0.08	0.08	0.10	0.2	2.63	2.06	2.50	0.07	0.15
0.09	0.09	0.13	0.3	2.96	2.23	2.81	0.08	0.17
0.10	0.10	0.16	0.4	3.29	2.39	3.13	0.09	0.19
0.11	0.11	0.19	0.5	3.62	2.55	3.44	0.10	0.21
0.12	0.12	0.23	0.6	3.95	2.70	3.75	0.11	0.23
0.13	0.13	0.26	0.8	4.28	2.85	4.07	0.13	0.26
0.14	0.14	0.31	0.9	5.15	2.79	4.93	0.12	0.26
0.15	0.15	0.36	1.0	6.03	2.80	5.79	0.12	0.27
0.16	0.16	0.43	1.2	6.91	2.84	6.65	0.13	0.29
0.17	0.17	0.50	1.4	7.79	2.90	7.51	0.13	0.30
0.18	0.18	0.58	1.7	8.67	2.99	8.38	0.14	0.32
0.19	0.19	0.66	2.0	9.54	3.08	9.24	0.15	0.34
0.20	0.20	0.76	2.4	10.42	3.18	10.10	0.16	0.36
0.21	0.21	0.87	2.8	11.30	3.28	10.96	0.17	0.38
0.22	0.22	0.98	3.3	12.18	3.39	11.83	0.18	0.40
0.23	0.23	1.10	3.9	13.06	3.50	12.69	0.19	0.42
0.24	0.24	1.23	4.5	13.93	3.62	13.55	0.20	0.44
0.25	0.25	1.37	5.1	14.81	3.73	14.41	0.22	0.47
0.26	0.26	1.52	5.8	15.69	3.84	15.27	0.23	0.49
0.27	0.27	1.68	6.6	16.57	3.96	16.14	0.24	0.51
0.28	0.28	1.84	7.5	17.45	4.07	17.00	0.26	0.54
0.29	0.29	2.02	8.4	18.32	4.18	17.86	0.27	0.56
0.30	0.30	2.20	9.5	19.20	4.30	18.72	0.29	0.59
0.31	0.31	2.39	10.6	20.08	4.41	19.59	0.30	0.61
0.32	0.32	2.59	11.7	20.96	4.52	20.45	0.32	0.64
0.33	0.33	2.80	13.0	21.84	4.63	21.31	0.33	0.66
0.34	0.34	3.02	14.3	22.71	4.74	22.17	0.35	0.69
0.35	0.35	3.25	15.7	23.59	4.85	23.03	0.37	0.72
0.36	0.36	3.48	17.3	24.47	4.96	23.90	0.38	0.74
0.37	0.37	3.72	18.9	25.35	5.07	24.76	0.40	0.77
0.38	0.38	3.98	20.6	26.23	5.18	25.62	0.42	0.80
0.39	0.39	4.24	22.4	27.10	5.28	26.48	0.43	0.82
0.40	0.40	4.50	24.3	27.98	5.39	27.35	0.45	0.85
0.41	0.41	4.78	26.3	28.86	5.49	28.21	0.47	0.88
0.42	0.42	5.06	28.9	28.88	5.71	28.21	0.51	0.93
0.43	0.43	5.35	31.6	28.90	5.91	28.22	0.54	0.97
0.45	0.45	5.91	37.3	28.94	6.32	28.23	0.62	1.07
0.46	0.46	6.19	40.3	28.96	6.51	28.23	0.66	1.12
0.47	0.47	6.48	43.4	28.98	6.71	28.24	0.70	1.17
0.48	0.48	6.76	46.6	29.01	6.90	28.24	0.74	1.22
0.49	0.49	7.04	49.9	29.03	7.08	28.25	0.78	1.27
0.50	0.50	7.32	53.2	29.05	7.27	28.25	0.82	1.32
0.51	0.51	7.61	56.7	29.07	7.45	28.26	0.86	1.37
0.52	0.52	7.89	60.2	29.09	7.63	28.26	0.90	1.42
0.53	0.53	8.17	63.8	29.11	7.81	28.27	0.95	1.48
0.54	0.54	8.45	67.5	29.13	7.98	28.27	0.99	1.53
0.55	0.55	8.74	71.3	29.15	8.16	28.28	1.03	1.58
0.56	0.56	9.02	75.1	29.17	8.33	28.28	1.08	1.64

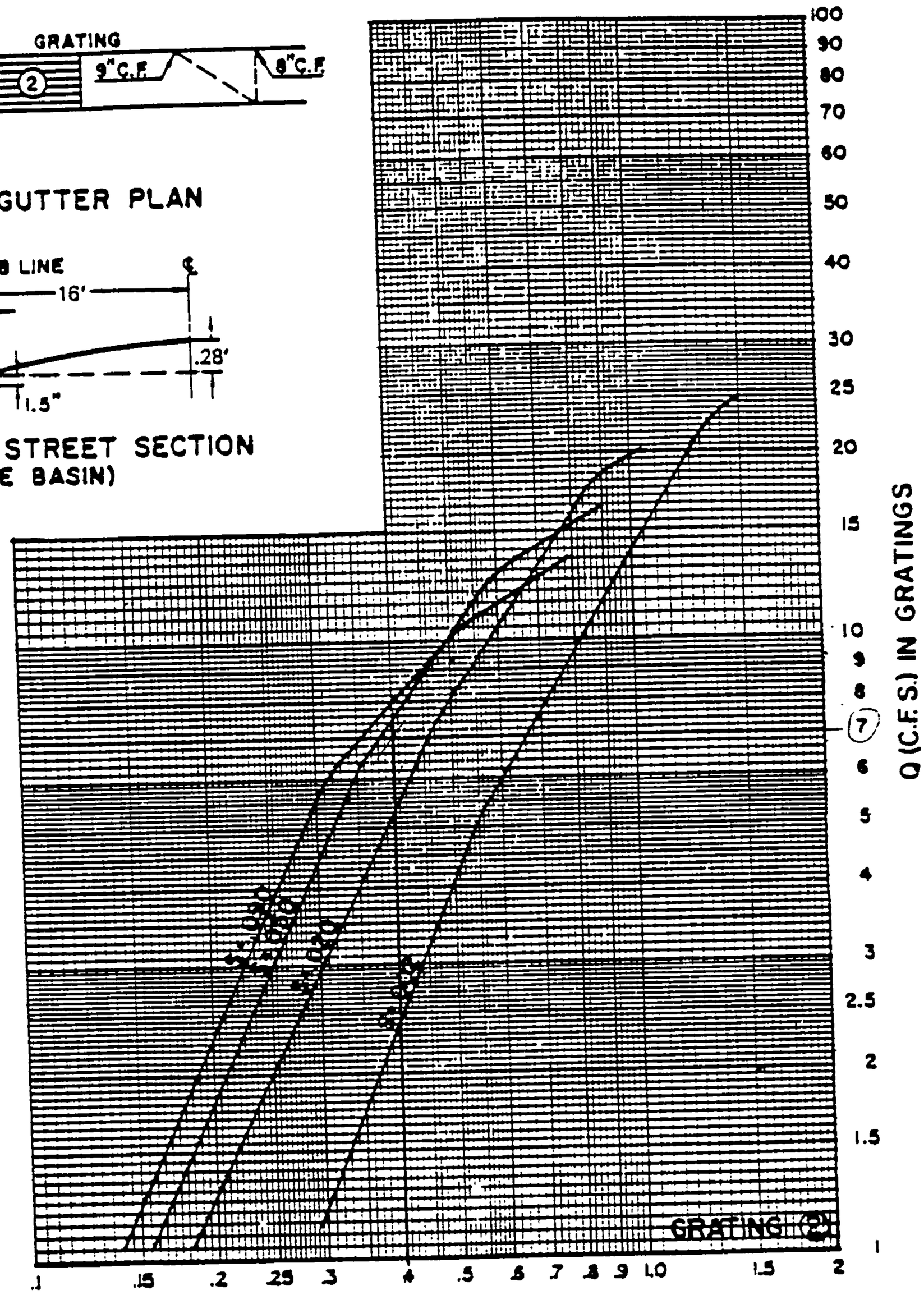
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



D = DEPTH OF FLOW (FT.) ABOVE NORMAL GUTTER GRADE

D = 0.41'
S = 4.0%
Q = 7 cfs/grate

B-8

Basin I2

Q = 6.69 cfs Same as Basin A, D2, G2
S = 0.5% road can handle 16.72 cfs.

Basin J S = 4.25%

Q = 6.43 cfs
+
6.67 cfs. Basin I2
+
3.30 cfs. Basin H
16.67 cfs.

The road can handle 26.0 cfs.
Inlets not needed.

Basin L2

Q = 8.77 cfs.
S = 1.52%.

8.77 Basin L2
+
16.67 Basin J
25.44 cfs.

The road can hold 37.8 cfs.
Inlet required at low point.
A triple grate type 'C' inlet will carry 30.5 cfs and will carry 19.9% more flow than the 100-year without overtopping the curb. If a larger storm occurs, the flow will enter the swale along until and enter the inlet there
This swale was designed to carry the 25.44 cfs.

Basin J

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

MANNING'S N= .017 SLOPE= .0425

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.51	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.81	0.63	0.01	0.03
0.03	0.03	0.01	0.0	0.99	1.06	0.94	0.02	0.05
0.04	0.04	0.03	0.0	1.32	1.28	1.25	0.03	0.07
0.05	0.05	0.04	0.1	1.64	1.49	1.56	0.03	0.08
0.06	0.06	0.06	0.1	1.97	1.68	1.88	0.04	0.10
0.07	0.07	0.08	0.1	2.30	1.86	2.19	0.05	0.12
0.08	0.08	0.10	0.2	2.63	2.04	2.50	0.06	0.14
0.09	0.09	0.13	0.3	2.96	2.20	2.81	0.08	0.17
0.10	0.10	0.16	0.4	3.29	2.36	3.13	0.09	0.19
0.11	0.11	0.19	0.5	3.62	2.52	3.44	0.10	0.21
0.12	0.12	0.23	0.6	3.95	2.67	3.75	0.11	0.23
0.13	0.13	0.26	0.7	4.28	2.82	4.07	0.12	0.25
0.14	0.14	0.31	0.9	5.15	2.76	4.93	0.12	0.26
0.15	0.15	0.36	1.0	6.03	2.77	5.79	0.12	0.27
0.16	0.16	0.43	1.2	6.91	2.81	6.65	0.12	0.28
0.17	0.17	0.50	1.4	7.79	2.87	7.51	0.13	0.30
0.18	0.18	0.58	1.7	8.67	2.95	8.38	0.14	0.32
0.19	0.19	0.66	2.0	9.54	3.05	9.24	0.14	0.33
0.20	0.20	0.76	2.4	10.42	3.15	10.10	0.15	0.35
0.21	0.21	0.87	2.8	11.30	3.25	10.96	0.16	0.37
0.22	0.22	0.98	3.3	12.18	3.36	11.83	0.18	0.40
0.23	0.23	1.10	3.8	13.06	3.47	12.69	0.19	0.42
0.24	0.24	1.23	4.4	13.93	3.58	13.55	0.20	0.44
0.25	0.25	1.37	5.1	14.81	3.69	14.41	0.21	0.46
0.26	0.26	1.52	5.8	15.69	3.80	15.27	0.22	0.48
0.27	0.27	1.68	6.6	16.57	3.92	16.14	0.24	0.51
0.28	0.28	1.84	7.4	17.45	4.03	17.00	0.25	0.53
0.29	0.29	2.02	8.4	18.32	4.14	17.86	0.27	0.56
0.30	0.30	2.20	9.4	19.20	4.25	18.72	0.28	0.58
0.31	0.31	2.39	10.4	20.08	4.36	19.59	0.30	0.61
0.32	0.32	2.59	11.6	20.96	4.47	20.45	0.31	0.63
0.33	0.33	2.80	12.8	21.84	4.58	21.31	0.33	0.66
0.34	0.34	3.02	14.2	22.71	4.69	22.17	0.34	0.68
0.35	0.35	3.25	15.6	23.59	4.80	23.03	0.36	0.71
0.36	0.36	3.48	17.1	24.47	4.91	23.90	0.37	0.73
0.37	0.37	3.72	18.7	25.35	5.02	24.76	0.39	0.76
0.38	0.38	3.98	20.4	26.23	5.12	25.62	0.41	0.79
0.39	0.39	4.24	22.1	27.10	5.23	26.48	0.42	0.81
0.40	0.40	4.50	24.0	27.98	5.33	27.35	0.44	0.84
0.41	0.41	4.78	26.0	28.86	5.44	28.21	0.46	0.87
0.42	0.42	5.06	28.6	28.88	5.65	28.21	0.49	0.91
0.43	0.43	5.35	31.3	28.90	5.85	28.22	0.53	0.96
0.45	0.45	5.91	36.9	28.94	6.25	28.23	0.61	1.06
0.46	0.46	6.19	39.9	28.96	6.44	28.23	0.64	1.10
0.47	0.47	6.48	43.0	28.98	6.64	28.24	0.68	1.15
0.48	0.48	6.76	46.1	29.01	6.82	28.24	0.72	1.20
0.49	0.49	7.04	49.4	29.03	7.01	28.25	0.76	1.25
0.50	0.50	7.32	52.7	29.05	7.19	28.25	0.80	1.30
0.51	0.51	7.61	56.1	29.07	7.37	28.26	0.84	1.35
0.52	0.52	7.89	59.6	29.09	7.55	28.26	0.89	1.41
0.53	0.53	8.17	63.1	29.11	7.73	28.27	0.93	1.46
0.54	0.54	8.45	66.8	29.13	7.90	28.27	0.97	1.51
0.55	0.55	8.74	70.5	29.15	8.07	28.28	1.01	1.56
0.56	0.56	9.02	74.3	29.17	8.24	28.28	1.05	1.61
0.57	0.57	9.30	78.2	29.19	8.41	28.29	1.10	1.67
0.58	0.58	9.59	82.2	29.21	8.57	28.29	1.14	1.72

Bullin L2

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

MANNING'S N= .017 SLOPE= .0152

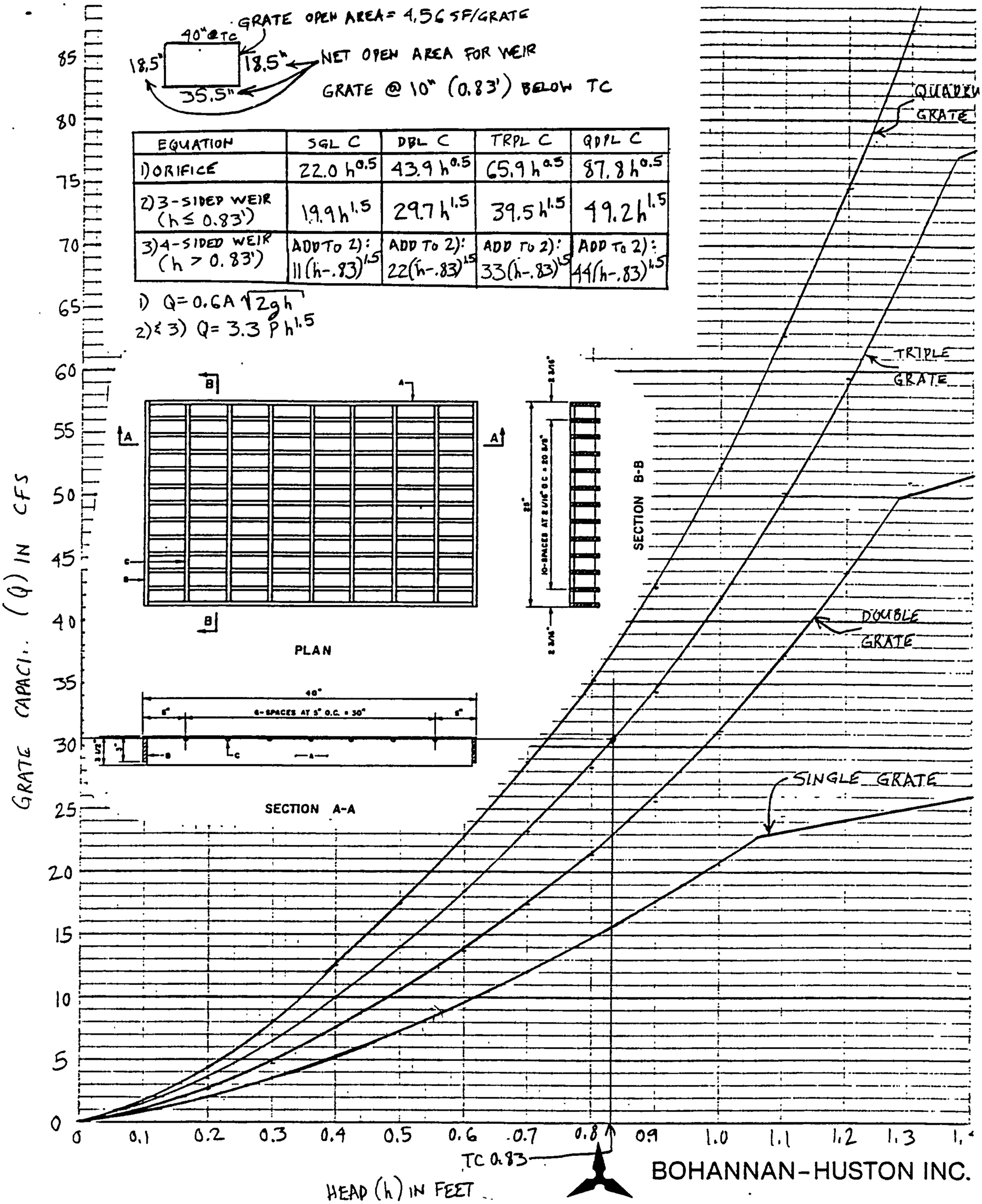
POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.30	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.48	0.63	0.00	0.02
0.03	0.03	0.01	0.0	0.99	0.63	0.94	0.01	0.04
0.04	0.04	0.03	0.0	1.32	0.77	1.25	0.01	0.05
0.05	0.05	0.04	0.0	1.64	0.89	1.56	0.01	0.06
0.06	0.06	0.06	0.1	1.97	1.01	1.88	0.02	0.08
0.07	0.07	0.08	0.1	2.30	1.11	2.19	0.02	0.09
0.08	0.08	0.10	0.1	2.63	1.22	2.50	0.02	0.10
0.09	0.09	0.13	0.2	2.96	1.32	2.81	0.03	0.12
0.10	0.10	0.16	0.2	3.29	1.41	3.13	0.03	0.13
0.11	0.11	0.19	0.3	3.62	1.51	3.44	0.04	0.15
0.12	0.12	0.23	0.4	3.95	1.60	3.75	0.04	0.16
0.13	0.13	0.26	0.4	4.28	1.68	4.07	0.04	0.17
0.14	0.14	0.31	0.5	5.15	1.65	4.93	0.04	0.18
0.15	0.15	0.36	0.6	6.03	1.65	5.79	0.04	0.19
0.16	0.16	0.43	0.7	6.91	1.68	6.65	0.04	0.20
0.17	0.17	0.50	0.9	7.79	1.72	7.51	0.05	0.22
0.18	0.18	0.58	1.0	8.67	1.77	8.38	0.05	0.23
0.19	0.19	0.66	1.2	9.54	1.82	9.24	0.05	0.24
0.20	0.20	0.76	1.4	10.42	1.88	10.10	0.05	0.25
0.21	0.21	0.87	1.7	11.30	1.94	10.96	0.06	0.27
0.22	0.22	0.98	2.0	12.18	2.01	11.83	0.06	0.28
0.23	0.23	1.10	2.3	13.06	2.07	12.69	0.07	0.30
0.24	0.24	1.23	2.6	13.93	2.14	13.55	0.07	0.31
0.25	0.25	1.37	3.0	14.81	2.21	14.41	0.08	0.33
0.26	0.26	1.52	3.5	15.69	2.27	15.27	0.08	0.34
0.27	0.27	1.68	3.9	16.57	2.34	16.14	0.09	0.36
0.28	0.28	1.84	4.4	17.45	2.41	17.00	0.09	0.37
0.29	0.29	2.02	5.0	18.32	2.48	17.86	0.10	0.39
0.30	0.30	2.20	5.6	19.20	2.54	18.72	0.10	0.40
0.31	0.31	2.39	6.2	20.08	2.61	19.59	0.11	0.42
0.32	0.32	2.59	6.9	20.96	2.68	20.45	0.11	0.43
0.33	0.33	2.80	7.7	21.84	2.74	21.31	0.12	0.45
0.34	0.34	3.02	8.5	22.71	2.81	22.17	0.12	0.46
0.35	0.35	3.25	9.3	23.59	2.87	23.03	0.13	0.48
0.36	0.36	3.48	10.2	24.47	2.94	23.90	0.13	0.49
0.37	0.37	3.72	11.2	25.35	3.00	24.76	0.14	0.51
0.38	0.38	3.98	12.2	26.23	3.06	25.62	0.15	0.53
0.39	0.39	4.24	13.2	27.10	3.13	26.48	0.15	0.54
0.40	0.40	4.50	14.4	27.98	3.19	27.35	0.16	0.56
0.41	0.41	4.78	15.6	28.86	3.25	28.21	0.16	0.57
0.42	0.42	5.06	17.1	28.88	3.38	28.21	0.18	0.60
0.43	0.43	5.35	18.7	28.90	3.50	28.22	0.19	0.62
0.45	0.45	5.91	22.1	28.94	3.74	28.23	0.22	0.67
0.46	0.46	6.19	23.9	28.96	3.85	28.23	0.23	0.69
0.47	0.47	6.48	25.7	28.98	3.97	28.24	0.24	0.71
0.48	0.48	6.76	27.6	29.01	4.08	28.24	0.26	0.74
0.49	0.49	7.04	29.5	29.03	4.19	28.25	0.27	0.76
0.50	0.50	7.32	31.5	29.05	4.30	28.25	0.29	0.79
0.51	0.51	7.61	33.5	29.07	4.41	28.26	0.30	0.81
0.52	0.52	7.89	35.6	29.09	4.52	28.26	0.32	0.84
0.53	0.53	8.17	37.8	29.11	4.62	28.27	0.33	0.86
0.54	0.54	8.45	39.9	29.13	4.72	28.27	0.35	0.89
0.55	0.55	8.74	42.2	29.15	4.83	28.28	0.36	0.91
0.56	0.56	9.02	44.4	29.17	4.93	28.28	0.38	0.94
0.57	0.57	9.30	46.8	29.19	5.03	28.29	0.39	0.96

EQUATION	SGL C	DBL C	TRPL C	QDPL C
1) ORIFICE	$22.0\,h^{0.5}$	$43.9\,h^{0.5}$	$65.9\,h^{0.5}$	$87.8\,h^{0.5}$
2) 3-SIDED WEIR ($h \le 0.83'$)	$19.9\,h^{1.5}$	$29.7\,h^{1.5}$	$39.5\,h^{1.5}$	$49.2\,h^{1.5}$
3) 4-SIDED WEIR ($h > 0.83'$)	ADD TO 2): $11(h-.83)^{1.5}$	ADD TO 2): $22(h-.83)^{1.5}$	ADD TO 2): $33(h-.83)^{1.5}$	ADD TO 2): $44(h-.83)^{1.5}$

1) $Q = 0.6A\sqrt{2gh}$

2) & 3) $Q = 3.3\,P\,h^{1.5}$



BOHANNAN-HUSTON INC.

PROJECT NAME Basin L2 SHEET ____ OF ____

PROJECT NO. ____ BY JPK DATE 4/9/92

SUBJECT RATING CURVE FOR TYPE C INLETS IN SUMP. NO CLOGGING FACTOR CH'D ____ DATE 13-12

Northern Basins

Basin B

Q = 10.07 cfs.
S = 4.21%

The road can handle 25.9 cfs.

Basin B2

Q = 3.05 cfs
+
10.07 cfs Basin B
13.12 cfs.

Inlets divert flow to surge pond
d = 0.33'
3 grates × 5 cfs/grate = 15 cfs.

Basin F1

Q = 2.76 cfs
S = 4.55%

Basin D1

Q = 3.25 cfs
S = 1.27%
Street can hold 40.3 cfs.

Basin F2

S = 4.55%

3.41 cfs
+
2.76 cfs (F1)
+
3.25 cfs (D1)
9.42 cfs

The street can hold 24.9 cfs.
No inlets required

Basin B

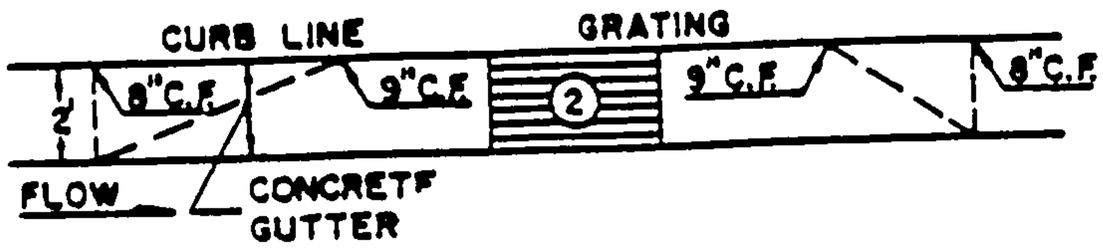
***** PC PROGRAM STREAM SEPTEMBER 1994 *****

MANNING'S N= .017 SLOPE= .0421

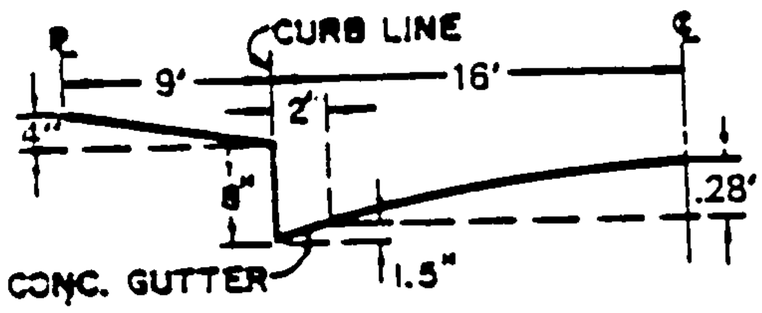
POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)	
0.01	0.01	0.00	0.0	0.33	0.51	0.31	0.00	0.01	
0.02	0.02	0.01	0.0	0.66	0.80	0.63	0.01	0.03	
0.03	0.03	0.01	0.0	0.99	1.05	0.94	0.02	0.05	
0.04	0.04	0.03	0.0	1.32	1.28	1.25	0.03	0.07	
0.05	0.05	0.04	0.1	1.64	1.48	1.56	0.03	0.08	
0.06	0.06	0.06	0.1	1.97	1.67	1.88	0.04	0.10	
0.07	0.07	0.08	0.1	2.30	1.86	2.19	0.05	0.12	
0.08	0.08	0.10	0.2	2.63	2.03	2.50	0.06	0.14	
0.09	0.09	0.13	0.3	2.96	2.19	2.81	0.07	0.16	
0.10	0.10	0.16	0.4	3.29	2.35	3.13	0.09	0.19	
0.11	0.11	0.19	0.5	3.62	2.51	3.44	0.10	0.21	
0.12	0.12	0.23	0.6	3.95	2.66	3.75	0.11	0.23	
0.13	0.13	0.26	0.7	4.28	2.80	4.07	0.12	0.25	
0.14	0.14	0.31	0.9	5.15	2.75	4.93	0.12	0.26	
0.15	0.15	0.36	1.0	6.03	2.75	5.79	0.12	0.27	
0.16	0.16	0.43	1.2	6.91	2.79	6.65	0.12	0.28	
0.17	0.17	0.50	1.4	7.79	2.86	7.51	0.13	0.30	
0.18	0.18	0.58	1.7	8.67	2.94	8.38	0.13	0.31	
0.19	0.19	0.66	2.0	9.54	3.03	9.24	0.14	0.33	
0.20	0.20	0.76	2.4	10.42	3.13	10.10	0.15	0.35	
0.21	0.21	0.87	2.8	11.30	3.23	10.96	0.16	0.37	
0.22	0.22	0.98	3.3	12.18	3.34	11.83	0.17	0.39	
0.23	0.23	1.10	3.8	13.06	3.45	12.69	0.18	0.41	
0.24	0.24	1.23	4.4	13.93	3.56	13.55	0.20	0.44	
0.25	0.25	1.37	5.0	14.81	3.67	14.41	0.21	0.46	
0.26	0.26	1.52	5.8	15.69	3.79	15.27	0.22	0.48	
0.27	0.27	1.68	6.5	16.57	3.90	16.14	0.24	0.51	
0.28	0.28	1.84	7.4	17.45	4.01	17.00	0.25	0.53	
0.29	0.29	2.02	8.3	18.32	4.12	17.86	0.26	0.55	
0.30	0.30	2.20	9.3	19.20	4.23	18.72	0.28	0.58	
0.31	0.31	2.39	10.4	20.08	4.34	19.59	0.29	0.60	
0.32	0.32	2.59	11.5	20.96	4.45	20.45	0.31	0.63	
depth 0.33	0.33	2.80	12.8	21.84	4.56	21.31	0.32	0.65	← existing flow
0.34	0.34	3.02	14.1	22.71	4.67	22.17	0.34	0.68	
0.35	0.35	3.25	15.5	23.59	4.78	23.03	0.35	0.70	
0.36	0.36	3.48	17.0	24.47	4.89	23.90	0.37	0.73	
0.37	0.37	3.72	18.6	25.35	4.99	24.76	0.39	0.76	
0.38	0.38	3.98	20.3	26.23	5.10	25.62	0.40	0.78	
0.39	0.39	4.24	22.0	27.10	5.20	26.48	0.42	0.81	
0.40	0.40	4.50	23.9	27.98	5.31	27.35	0.44	0.84	
0.41	0.41	4.78	25.9	28.86	5.41	28.21	0.45	0.86	– max flow in road
0.42	0.42	5.06	28.5	28.88	5.62	28.21	0.49	0.91	
0.43	0.43	5.35	31.1	28.90	5.82	28.22	0.53	0.96	
0.45	0.45	5.91	36.8	28.94	6.22	28.23	0.60	1.05	
0.46	0.46	6.19	39.7	28.96	6.41	28.23	0.64	1.10	
0.47	0.47	6.48	42.8	28.98	6.60	28.24	0.68	1.15	
0.48	0.48	6.76	45.9	29.01	6.79	28.24	0.72	1.20	
0.49	0.49	7.04	49.1	29.03	6.98	28.25	0.76	1.25	
0.50	0.50	7.32	52.4	29.05	7.16	28.25	0.80	1.30	
0.51	0.51	7.61	55.8	29.07	7.34	28.26	0.84	1.35	
0.52	0.52	7.89	59.3	29.09	7.51	28.26	0.88	1.40	
0.53	0.53	8.17	62.8	29.11	7.69	28.27	0.92	1.45	
0.54	0.54	8.45	66.5	29.13	7.86	28.27	0.96	1.50	
0.55	0.55	8.74	70.2	29.15	8.03	28.28	1.00	1.55	
0.56	0.56	9.02	74.0	29.17	8.20	28.28	1.04	1.60	
0.57	0.57	9.30	77.8	29.19	8.37	28.29	1.09	1.66	

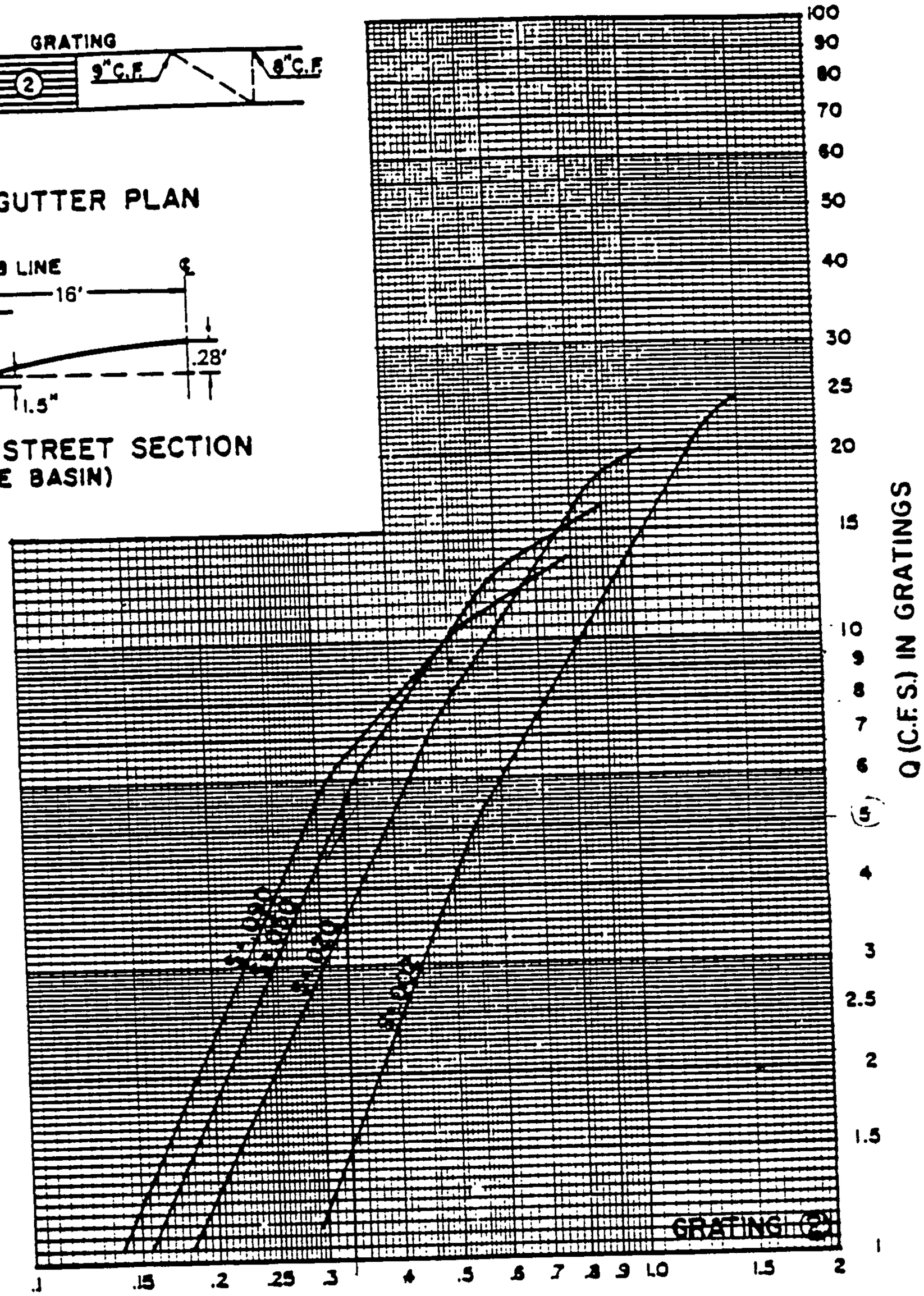
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



d = 0.33'
Q = 5 cfs/grate

B-15

Book 1D1

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

MANNING'S N= .017 SLOPE= .0127

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.28	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.44	0.63	0.00	0.02
0.03	0.03	0.01	0.0	0.99	0.57	0.94	0.01	0.04
0.04	0.04	0.03	0.0	1.32	0.70	1.25	0.01	0.05
0.05	0.05	0.04	0.0	1.64	0.81	1.56	0.01	0.06
0.06	0.06	0.06	0.1	1.97	0.91	1.88	0.01	0.07
0.07	0.07	0.08	0.1	2.30	1.01	2.19	0.02	0.09
0.08	0.08	0.10	0.1	2.63	1.11	2.50	0.02	0.10
0.09	0.09	0.13	0.2	2.96	1.20	2.81	0.02	0.11
0.10	0.10	0.16	0.2	3.29	1.28	3.13	0.03	0.13
0.11	0.11	0.19	0.3	3.62	1.37	3.44	0.03	0.14
0.12	0.12	0.23	0.3	3.95	1.45	3.75	0.03	0.15
0.13	0.13	0.26	0.4	4.28	1.53	4.07	0.04	0.17
0.14	0.14	0.31	0.5	5.15	1.50	4.93	0.03	0.17
0.15	0.15	0.36	0.5	6.03	1.50	5.79	0.03	0.18
0.16	0.16	0.43	0.6	6.91	1.52	6.65	0.04	0.20
0.17	0.17	0.50	0.8	7.79	1.56	7.51	0.04	0.21
0.18	0.18	0.58	0.9	8.67	1.60	8.38	0.04	0.22
0.19	0.19	0.66	1.1	9.54	1.65	9.24	0.04	0.23
0.20	0.20	0.76	1.3	10.42	1.71	10.10	0.05	0.25
0.21	0.21	0.87	1.5	11.30	1.76	10.96	0.05	0.26
0.22	0.22	0.98	1.8	12.18	1.82	11.83	0.05	0.27
0.23	0.23	1.10	2.1	13.06	1.88	12.69	0.05	0.28
0.24	0.24	1.23	2.4	13.93	1.94	13.55	0.06	0.30
0.25	0.25	1.37	2.7	14.81	2.00	14.41	0.06	0.31
0.26	0.26	1.52	3.1	15.69	2.06	15.27	0.07	0.33
0.27	0.27	1.68	3.6	16.57	2.12	16.14	0.07	0.34
0.28	0.28	1.84	4.0	17.45	2.18	17.00	0.07	0.35
0.29	0.29	2.02	4.5	18.32	2.25	17.86	0.08	0.37
0.30	0.30	2.20	5.1	19.20	2.31	18.72	0.08	0.38
0.31	0.31	2.39	5.7	20.08	2.37	19.59	0.09	0.40
0.32	0.32	2.59	6.3	20.96	2.43	20.45	0.09	0.41
0.33	0.33	2.80	7.0	21.84	2.49	21.31	0.10	0.43
0.34	0.34	3.02	7.7	22.71	2.55	22.17	0.10	0.44
0.35	0.35	3.25	8.5	23.59	2.60	23.03	0.11	0.46
0.36	0.36	3.48	9.3	24.47	2.66	23.90	0.11	0.47
0.37	0.37	3.72	10.1	25.35	2.72	24.76	0.11	0.48
0.38	0.38	3.98	11.0	26.23	2.78	25.62	0.12	0.50
0.39	0.39	4.24	12.0	27.10	2.84	26.48	0.12	0.51
0.40	0.40	4.50	13.0	27.98	2.89	27.35	0.13	0.53
0.41	0.41	4.78	14.1	28.86	2.95	28.21	0.13	0.54
0.42	0.42	5.06	15.5	28.88	3.06	28.21	0.15	0.57
0.43	0.43	5.35	17.0	28.90	3.17	28.22	0.16	0.59
0.45	0.45	5.91	20.0	28.94	3.39	28.23	0.18	0.63
0.46	0.46	6.19	21.6	28.96	3.49	28.23	0.19	0.65
0.47	0.47	6.48	23.3	28.98	3.60	28.24	0.20	0.67
0.48	0.48	6.76	25.0	29.01	3.70	28.24	0.21	0.69
0.49	0.49	7.04	26.8	29.03	3.80	28.25	0.22	0.71
0.50	0.50	7.32	28.6	29.05	3.90	28.25	0.24	0.74
0.51	0.51	7.61	30.4	29.07	4.00	28.26	0.25	0.76
0.52	0.52	7.89	32.3	29.09	4.09	28.26	0.26	0.78
0.53	0.53	8.17	34.2	29.11	4.19	28.27	0.27	0.80
0.54	0.54	8.45	36.2	29.13	4.28	28.27	0.28	0.82
0.55	0.55	8.74	38.2	29.15	4.38	28.28	0.30	0.85
0.56	0.56	9.02	40.3	29.17	4.47	28.28	0.31	0.87
0.57	0.57	9.30	42.4	29.19	4.56	28.29	0.32	0.89
0.58	0.58	9.59	44.6	29.21	4.65	28.29	0.34	0.92

Run F2

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

MANNING'S N= .017 SLOPE= .0455

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.53	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.84	0.63	0.01	0.03
0.03	0.03	0.01	0.0	0.99	1.10	0.94	0.02	0.05
0.04	0.04	0.03	0.0	1.32	1.33	1.25	0.03	0.07
0.05	0.05	0.04	0.1	1.64	1.54	1.56	0.04	0.09
0.06	0.06	0.06	0.1	1.97	1.74	1.88	0.05	0.11
0.07	0.07	0.08	0.1	2.30	1.93	2.19	0.06	0.13
0.08	0.08	0.10	0.2	2.63	2.11	2.50	0.07	0.15
0.09	0.09	0.13	0.3	2.96	2.28	2.81	0.08	0.17
0.10	0.10	0.16	0.4	3.29	2.45	3.13	0.09	0.19
0.11	0.11	0.19	0.5	3.62	2.61	3.44	0.11	0.22
0.12	0.12	0.23	0.6	3.95	2.76	3.75	0.12	0.24
0.13	0.13	0.26	0.8	4.28	2.91	4.07	0.13	0.26
0.14	0.14	0.31	0.9	5.15	2.86	4.93	0.13	0.27
0.15	0.15	0.36	1.0	6.03	2.86	5.79	0.13	0.28
0.16	0.16	0.43	1.2	6.91	2.91	6.65	0.13	0.29
0.17	0.17	0.50	1.5	7.79	2.97	7.51	0.14	0.31
0.18	0.18	0.58	1.8	8.67	3.06	8.38	0.15	0.33
0.19	0.19	0.66	2.1	9.54	3.15	9.24	0.15	0.34
0.20	0.20	0.76	2.5	10.42	3.25	10.10	0.16	0.36
0.21	0.21	0.87	2.9	11.30	3.36	10.96	0.18	0.39
0.22	0.22	0.98	3.4	12.18	3.47	11.83	0.19	0.41
0.23	0.23	1.10	4.0	13.06	3.59	12.69	0.20	0.43
0.24	0.24	1.23	4.6	13.93	3.70	13.55	0.21	0.45
0.25	0.25	1.37	5.2	14.81	3.82	14.41	0.23	0.48
0.26	0.26	1.52	6.0	15.69	3.94	15.27	0.24	0.50
0.27	0.27	1.68	6.8	16.57	4.05	16.14	0.25	0.52
0.28	0.28	1.84	7.7	17.45	4.17	17.00	0.27	0.55
0.29	0.29	2.02	8.6	18.32	4.28	17.86	0.29	0.58
0.30	0.30	2.20	9.7	19.20	4.40	18.72	0.30	0.60
0.31	0.31	2.39	10.8	20.08	4.52	19.59	0.32	0.63
0.32	0.32	2.59	12.0	20.96	4.63	20.45	0.33	0.65
0.33	0.33	2.80	13.3	21.84	4.74	21.31	0.35	0.68
0.34	0.34	3.02	14.7	22.71	4.86	22.17	0.37	0.71
0.35	0.35	3.25	16.1	23.59	4.97	23.03	0.38	0.73
0.36	0.36	3.48	17.7	24.47	5.08	23.90	0.40	0.76
0.37	0.37	3.72	19.3	25.35	5.19	24.76	0.42	0.79
0.38	0.38	3.98	21.1	26.23	5.30	25.62	0.44	0.82
0.39	0.39	4.24	22.9	27.10	5.41	26.48	0.45	0.84
0.40	0.40	4.50	24.9	27.98	5.52	27.35	0.47	0.87
0.41	0.41	4.78	26.9	28.86	5.63	28.21	0.49	0.90
0.42	0.42	5.06	29.6	28.88	5.84	28.21	0.53	0.95
0.43	0.43	5.35	32.4	28.90	6.05	28.22	0.57	1.00
0.45	0.45	5.91	38.2	28.94	6.47	28.23	0.65	1.10
0.46	0.46	6.19	41.3	28.96	6.67	28.23	0.69	1.15
0.47	0.47	6.48	44.5	28.98	6.87	28.24	0.73	1.20
0.48	0.48	6.76	47.7	29.01	7.06	28.24	0.77	1.25
0.49	0.49	7.04	51.1	29.03	7.25	28.25	0.82	1.31
0.50	0.50	7.32	54.5	29.05	7.44	28.25	0.86	1.36
0.51	0.51	7.61	58.0	29.07	7.63	28.26	0.90	1.41
0.52	0.52	7.89	61.6	29.09	7.81	28.26	0.95	1.47
0.53	0.53	8.17	65.3	29.11	7.99	28.27	0.99	1.52
0.54	0.54	8.45	69.1	29.13	8.17	28.27	1.04	1.58
0.55	0.55	8.74	73.0	29.15	8.35	28.28	1.08	1.63

Basin G1

Q= 3.2[illegible]

S= 1.3%

same as Basin D1

Basin F3

4.06 cfs

−

9.42 cfs (F2)

+

3.25 (G1)

16.73 cfs

S= 3.35%

The road can carry 57.2 cfs.

No inlets required

Basin I1

Q= 3.45 cfs

S= 1.5%

Same as G1 + D1

Basin F4

Q= 3.36 cfs

−

16.73 cfs (F3)

+

3.45 (I1)

24.04 cfs

S= 4%

the road can handle 25.2 cfs

Inlets required at end of basin.

D= 0.40'

2 grates @ 6.8 cfs/grate removes 13.6 cfs.

10.44 cfs remains in the road.

Basin F3

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

MANNING'S N= .017 SLOPE= .0385

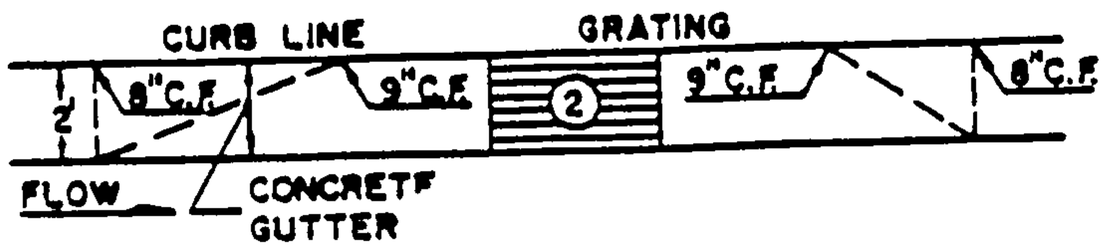
POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.48	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.77	0.63	0.01	0.03
0.03	0.03	0.01	0.0	0.99	1.01	0.94	0.02	0.05
0.04	0.04	0.03	0.0	1.32	1.22	1.25	0.02	0.06
0.05	0.05	0.04	0.1	1.64	1.42	1.56	0.03	0.08
0.06	0.06	0.06	0.1	1.97	1.60	1.88	0.04	0.10
0.07	0.07	0.08	0.1	2.30	1.77	2.19	0.05	0.12
0.08	0.08	0.10	0.2	2.63	1.94	2.50	0.06	0.14
0.09	0.09	0.13	0.3	2.96	2.10	2.81	0.07	0.16
0.10	0.10	0.16	0.4	3.29	2.25	3.13	0.08	0.18
0.11	0.11	0.19	0.5	3.62	2.40	3.44	0.09	0.20
0.12	0.12	0.23	0.6	3.95	2.54	3.75	0.10	0.22
0.13	0.13	0.26	0.7	4.28	2.68	4.07	0.11	0.24
0.14	0.14	0.31	0.8	5.15	2.63	4.93	0.11	0.25
0.15	0.15	0.36	1.0	6.03	2.63	5.79	0.11	0.26
0.16	0.16	0.43	1.1	6.91	2.67	6.65	0.11	0.27
0.17	0.17	0.50	1.4	7.79	2.73	7.51	0.12	0.29
0.18	0.18	0.58	1.6	8.67	2.81	8.38	0.12	0.30
0.19	0.19	0.66	1.9	9.54	2.90	9.24	0.13	0.32
0.20	0.20	0.76	2.3	10.42	2.99	10.10	0.14	0.34
0.21	0.21	0.87	2.7	11.30	3.09	10.96	0.15	0.36
0.22	0.22	0.98	3.1	12.18	3.20	11.83	0.16	0.38
0.23	0.23	1.10	3.6	13.06	3.30	12.69	0.17	0.40
0.24	0.24	1.23	4.2	13.93	3.41	13.55	0.18	0.42
0.25	0.25	1.37	4.8	14.81	3.51	14.41	0.19	0.44
0.26	0.26	1.52	5.5	15.69	3.62	15.27	0.20	0.46
0.27	0.27	1.68	6.3	16.57	3.73	16.14	0.22	0.49
0.28	0.28	1.84	7.1	17.45	3.83	17.00	0.23	0.51
0.29	0.29	2.02	8.0	18.32	3.94	17.86	0.24	0.53
0.30	0.30	2.20	8.9	19.20	4.05	18.72	0.25	0.55
0.31	0.31	2.39	9.9	20.08	4.15	19.59	0.27	0.58
0.32	0.32	2.59	11.0	20.96	4.26	20.45	0.28	0.60
0.33	0.33	2.80	12.2	21.84	4.36	21.31	0.30	0.63
0.34	0.34	3.02	13.5	22.71	4.47	22.17	0.31	0.65
0.35	0.35	3.25	14.8	23.59	4.57	23.03	0.32	0.67
0.36	0.36	3.48	16.3	24.47	4.67	23.90	0.34	0.70
0.37	0.37	3.72	17.8	25.35	4.77	24.76	0.35	0.72
0.38	0.38	3.98	19.4	26.23	4.88	25.62	0.37	0.75
0.39	0.39	4.24	21.1	27.10	4.98	26.48	0.38	0.77
0.40	0.40	4.50	22.9	27.98	5.08	27.35	0.40	0.80
0.41	0.41	4.78	24.7	28.86	5.17	28.21	0.42	0.83
0.42	0.42	5.06	27.2	28.88	5.37	28.21	0.45	0.87
0.43	0.43	5.35	29.8	28.90	5.57	28.22	0.48	0.91
0.45	0.45	5.91	35.2	28.94	5.95	28.23	0.55	1.00
0.46	0.46	6.19	38.0	28.96	6.13	28.23	0.58	1.04
0.47	0.47	6.48	40.9	28.98	6.32	28.24	0.62	1.09
0.48	0.48	6.76	43.9	29.01	6.49	28.24	0.65	1.13
0.49	0.49	7.04	47.0	29.03	6.67	28.25	0.69	1.18
0.50	0.50	7.32	50.1	29.05	6.85	28.25	0.73	1.23
0.51	0.51	7.61	53.4	29.07	7.02	28.26	0.76	1.27
0.52	0.52	7.89	56.7	29.09	7.19	28.26	0.80	1.32
0.53	0.53	8.17	60.1	29.11	7.35	28.27	0.84	1.37
0.54	0.54	8.45	63.6	29.13	7.52	28.27	0.88	1.42
0.55	0.55	8.74	67.1	29.15	7.68	28.28	0.92	1.47
0.56	0.56	9.02	70.7	29.17	7.84	28.28	0.96	1.52

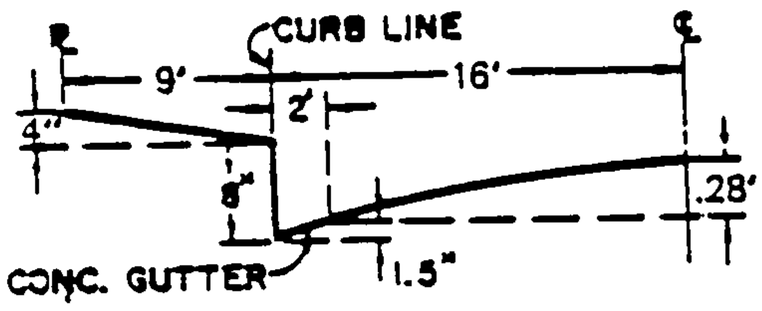
← max flow in street

Basin 4

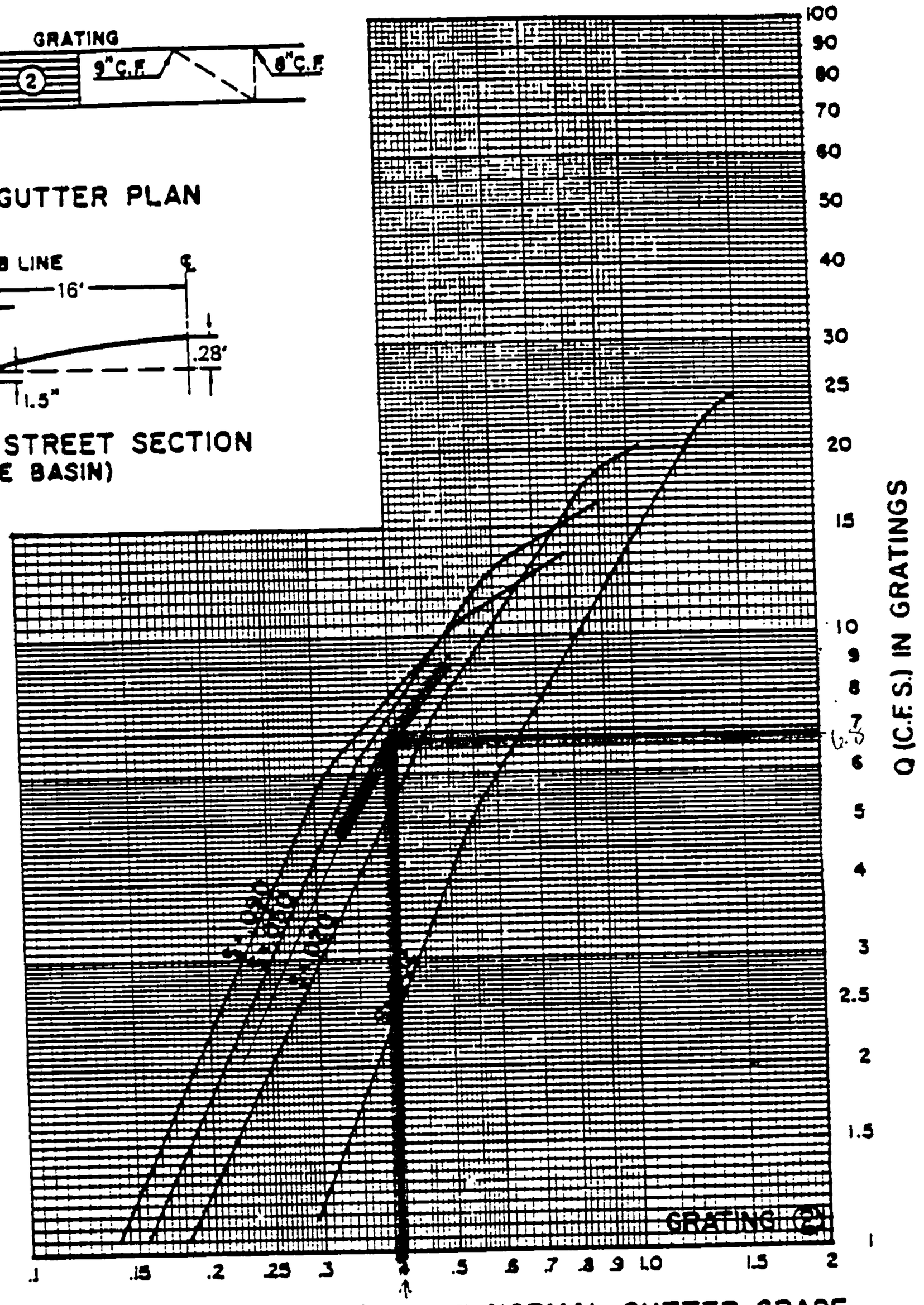
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



d = 0.4
S = 4%
Q = 6.8 cfs/grate

B-20

Bush F4

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

MANNING'S N= .017 SLOPE= .04

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.49	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.78	0.63	0.01	0.03
0.03	0.03	0.01	0.0	0.99	1.03	0.94	0.02	0.05
0.04	0.04	0.03	0.0	1.32	1.25	1.25	0.02	0.06
0.05	0.05	0.04	0.1	1.64	1.45	1.56	0.03	0.08
0.06	0.06	0.06	0.1	1.97	1.63	1.88	0.04	0.10
0.07	0.07	0.08	0.1	2.30	1.81	2.19	0.05	0.12
0.08	0.08	0.10	0.2	2.63	1.98	2.50	0.06	0.14
0.09	0.09	0.13	0.3	2.96	2.14	2.81	0.07	0.16
0.10	0.10	0.16	0.4	3.29	2.29	3.13	0.08	0.18
0.11	0.11	0.19	0.5	3.62	2.44	3.44	0.09	0.20
0.12	0.12	0.23	0.6	3.95	2.59	3.75	0.10	0.22
0.13	0.13	0.26	0.7	4.28	2.73	4.07	0.12	0.25
0.14	0.14	0.31	0.8	5.15	2.68	4.93	0.11	0.25
0.15	0.15	0.36	1.0	6.03	2.68	5.79	0.11	0.26
0.16	0.16	0.43	1.2	6.91	2.72	6.65	0.12	0.28
0.17	0.17	0.50	1.4	7.79	2.79	7.51	0.12	0.29
0.18	0.18	0.58	1.6	8.67	2.87	8.38	0.13	0.31
0.19	0.19	0.66	2.0	9.54	2.96	9.24	0.14	0.33
0.20	0.20	0.76	2.3	10.42	3.05	10.10	0.14	0.34
0.21	0.21	0.87	2.7	11.30	3.15	10.96	0.15	0.36
0.22	0.22	0.98	3.2	12.18	3.26	11.83	0.16	0.38
0.23	0.23	1.10	3.7	13.06	3.36	12.69	0.18	0.41
0.24	0.24	1.23	4.3	13.93	3.47	13.55	0.19	0.43
0.25	0.25	1.37	4.9	14.81	3.58	14.41	0.20	0.45
0.26	0.26	1.52	5.6	15.69	3.69	15.27	0.21	0.47
0.27	0.27	1.68	6.4	16.57	3.80	16.14	0.22	0.49
0.28	0.28	1.84	7.2	17.45	3.91	17.00	0.24	0.52
0.29	0.29	2.02	8.1	18.32	4.02	17.86	0.25	0.54
0.30	0.30	2.20	9.1	19.20	4.13	18.72	0.26	0.56
0.31	0.31	2.39	10.1	20.08	4.23	19.59	0.28	0.59
0.32	0.32	2.59	11.3	20.96	4.34	20.45	0.29	0.61
0.33	0.33	2.80	12.5	21.84	4.45	21.31	0.31	0.64
0.34	0.34	3.02	13.7	22.71	4.55	22.17	0.32	0.66
0.35	0.35	3.25	15.1	23.59	4.66	23.03	0.34	0.69
0.36	0.36	3.48	16.6	24.47	4.76	23.90	0.35	0.71
0.37	0.37	3.72	18.1	25.35	4.87	24.76	0.37	0.74
0.38	0.38	3.98	19.8	26.23	4.97	25.62	0.38	0.76
0.39	0.39	4.24	21.5	27.10	5.07	26.48	0.40	0.79
depth → 0.40	0.40	4.50	23.3	27.98	5.17	27.35	0.42	0.82
0.41	0.41	4.78	25.2	28.86	5.27	28.21	0.43	0.84 ← max in reach
0.42	0.42	5.06	27.7	28.88	5.48	28.21	0.47	0.89
0.43	0.43	5.35	30.3	28.90	5.68	28.22	0.50	0.93
0.45	0.45	5.91	35.8	28.94	6.06	28.23	0.57	1.02
0.46	0.46	6.19	38.7	28.96	6.25	28.23	0.61	1.07
0.47	0.47	6.48	41.7	28.98	6.44	28.24	0.64	1.11
0.48	0.48	6.76	44.7	29.01	6.62	28.24	0.68	1.16
0.49	0.49	7.04	47.9	29.03	6.80	28.25	0.72	1.21
0.50	0.50	7.32	51.1	29.05	6.98	28.25	0.76	1.26
0.51	0.51	7.61	54.4	29.07	7.15	28.26	0.79	1.30
0.52	0.52	7.89	57.8	29.09	7.32	28.26	0.83	1.35
0.53	0.53	8.17	61.2	29.11	7.50	28.27	0.87	1.40
0.54	0.54	8.45	64.8	29.13	7.66	28.27	0.91	1.45
0.55	0.55	8.74	68.4	29.15	7.83	28.28	0.95	1.50
0.56	0.56	9.02	72.1	29.17	7.99	28.28	0.99	1.55

Basin L1

Q = 3.25 cfs.

See Basins I1, G1 & D1

Basin K

S = 4.45%.

Q = 2.64 cfs

+

3.25 cfs (L1)

+

10.44 cfs (F4)

16.33 cfs.

Inlets at end of unit 3

d = 0.35'

Inlet take 5.7 cfs/grate

Install 3 grates.

Burbank

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

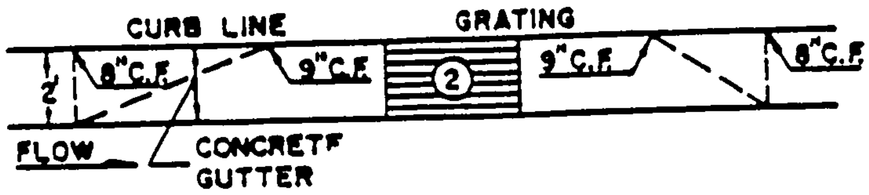
MANNING'S N= .017 SLOPE= .0445

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

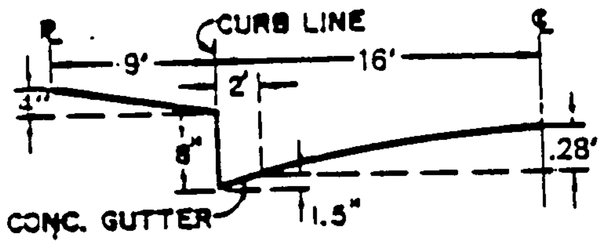
WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.52	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.83	0.63	0.01	0.03
0.03	0.03	0.01	0.0	0.99	1.08	0.94	0.02	0.05
0.04	0.04	0.03	0.0	1.32	1.31	1.25	0.03	0.07
0.05	0.05	0.04	0.1	1.64	1.52	1.56	0.04	0.09
0.06	0.06	0.06	0.1	1.97	1.72	1.88	0.05	0.11
0.07	0.07	0.08	0.1	2.30	1.91	2.19	0.06	0.13
0.08	0.08	0.10	0.2	2.63	2.09	2.50	0.07	0.15
0.09	0.09	0.13	0.3	2.96	2.26	2.81	0.08	0.17
0.10	0.10	0.16	0.4	3.29	2.42	3.13	0.09	0.19
0.11	0.11	0.19	0.5	3.62	2.58	3.44	0.10	0.21
0.12	0.12	0.23	0.6	3.95	2.73	3.75	0.12	0.24
0.13	0.13	0.26	0.8	4.28	2.88	4.07	0.13	0.26
0.14	0.14	0.31	0.9	5.15	2.83	4.93	0.12	0.26
0.15	0.15	0.36	1.0	6.03	2.83	5.79	0.12	0.27
0.16	0.16	0.43	1.2	6.91	2.87	6.65	0.13	0.29
0.17	0.17	0.50	1.5	7.79	2.94	7.51	0.13	0.30
0.18	0.18	0.58	1.7	8.67	3.02	8.38	0.14	0.32
0.19	0.19	0.66	2.1	9.54	3.12	9.24	0.15	0.34
0.20	0.20	0.76	2.4	10.42	3.22	10.10	0.16	0.36
0.21	0.21	0.87	2.9	11.30	3.33	10.96	0.17	0.38
0.22	0.22	0.98	3.4	12.18	3.44	11.83	0.18	0.40
0.23	0.23	1.10	3.9	13.06	3.55	12.69	0.20	0.43
0.24	0.24	1.23	4.5	13.93	3.66	13.55	0.21	0.45
0.25	0.25	1.37	5.2	14.81	3.78	14.41	0.22	0.47
0.26	0.26	1.52	5.9	15.69	3.89	15.27	0.24	0.50
0.27	0.27	1.68	6.7	16.57	4.01	16.14	0.25	0.52
0.28	0.28	1.84	7.6	17.45	4.12	17.00	0.26	0.54
0.29	0.29	2.02	8.6	18.32	4.24	17.86	0.28	0.57
0.30	0.30	2.20	9.6	19.20	4.35	18.72	0.29	0.59
0.31	0.31	2.39	10.7	20.08	4.47	19.59	0.31	0.62
0.32	0.32	2.59	11.9	20.96	4.58	20.45	0.33	0.65
0.33	0.33	2.80	13.1	21.84	4.69	21.31	0.34	0.67
0.34	0.34	3.02	14.5	22.71	4.80	22.17	0.36	0.70
0.35	0.35	3.25	15.9	23.59	4.91	23.03	0.37	0.72
0.36	0.36	3.48	17.5	24.47	5.02	23.90	0.39	0.75
0.37	0.37	3.72	19.1	25.35	5.13	24.76	0.41	0.78
0.38	0.38	3.98	20.8	26.23	5.24	25.62	0.43	0.81
0.39	0.39	4.24	22.7	27.10	5.35	26.48	0.44	0.83
0.40	0.40	4.50	24.6	27.98	5.46	27.35	0.46	0.86
0.41	0.41	4.78	26.6	28.86	5.56	28.21	0.48	0.89
0.42	0.42	5.06	29.3	28.88	5.78	28.21	0.52	0.94
0.43	0.43	5.35	32.0	28.90	5.99	28.22	0.56	0.99
0.45	0.45	5.91	37.8	28.94	6.40	28.23	0.64	1.09
0.46	0.46	6.19	40.8	28.96	6.59	28.23	0.68	1.14
0.47	0.47	6.48	44.0	28.98	6.79	28.24	0.72	1.19
0.48	0.48	6.76	47.2	29.01	6.98	28.24	0.76	1.24
0.49	0.49	7.04	50.5	29.03	7.17	28.25	0.80	1.29
0.50	0.50	7.32	53.9	29.05	7.36	28.25	0.84	1.34
0.51	0.51	7.61	57.4	29.07	7.54	28.26	0.88	1.39
0.52	0.52	7.89	60.9	29.09	7.73	28.26	0.93	1.45
0.53	0.53	8.17	64.6	29.11	7.91	28.27	0.97	1.50
0.54	0.54	8.45	68.3	29.13	8.08	28.27	1.01	1.55
0.55	0.55	8.74	72.2	29.15	8.26	28.28	1.06	1.61
0.56	0.56	9.02	76.0	29.17	8.43	28.28	1.10	1.66
0.57	0.57	9.30	80.0	29.19	8.60	28.29	1.15	1.72

← max flow in street

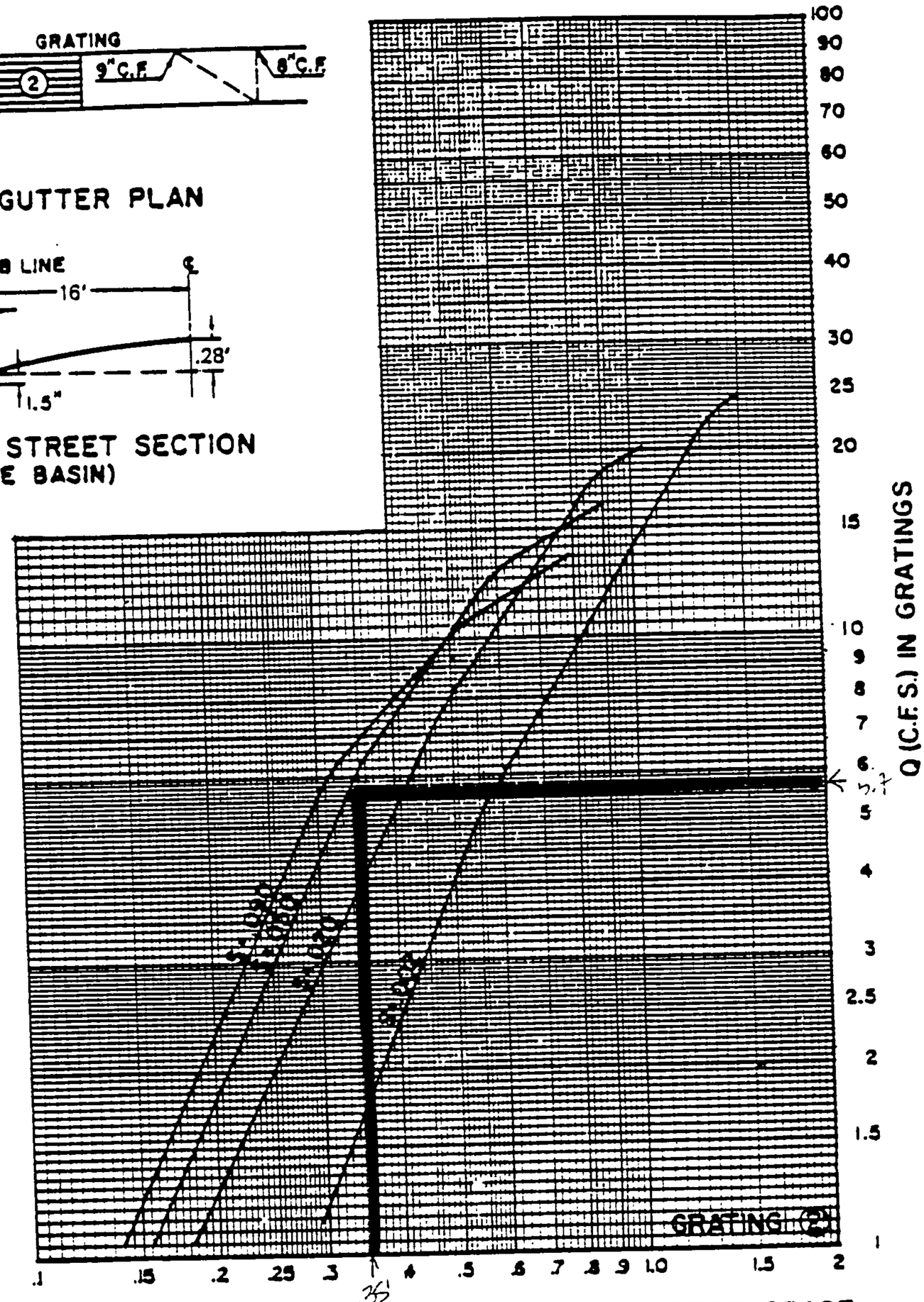
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



S= 4.45%.
d= 0.35'
Q= 5.7 cfs / grate

B-24

114th Street

Q= 5.79 cfs

S= 0.5%

A road at 0.5% can handle 12.7 cfs with
full curb: [Like basin A]
0.36' deep
Two inlets divert 5.3 cfs to offsite pond.

DeVargas Road 1

Q= 5.24 cfs

S= 3.31%

At 3.31%, the road can handle this flow
at a depth of 0.26'
Inlets will take 3.4 cfs each
USE 2 inlets - 4.8 cfs ~~total~~
0.44 continues

DeVargas Road 2

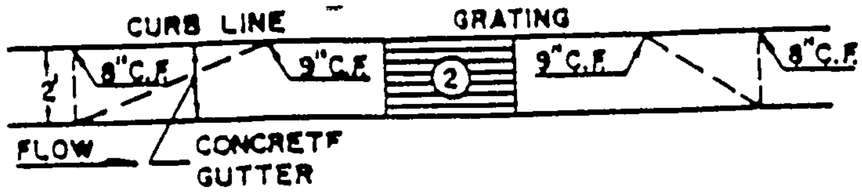
Q= 13.22 cfs + .44 cfs (DV1) = 13.66

S= 4.77%

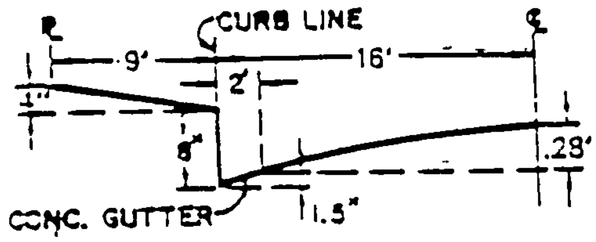
D= 0.31'

Inlets take 4.8 cfs/grate.
USE 2 inlets take 9.6 cfs.
3.62 cfs continues.

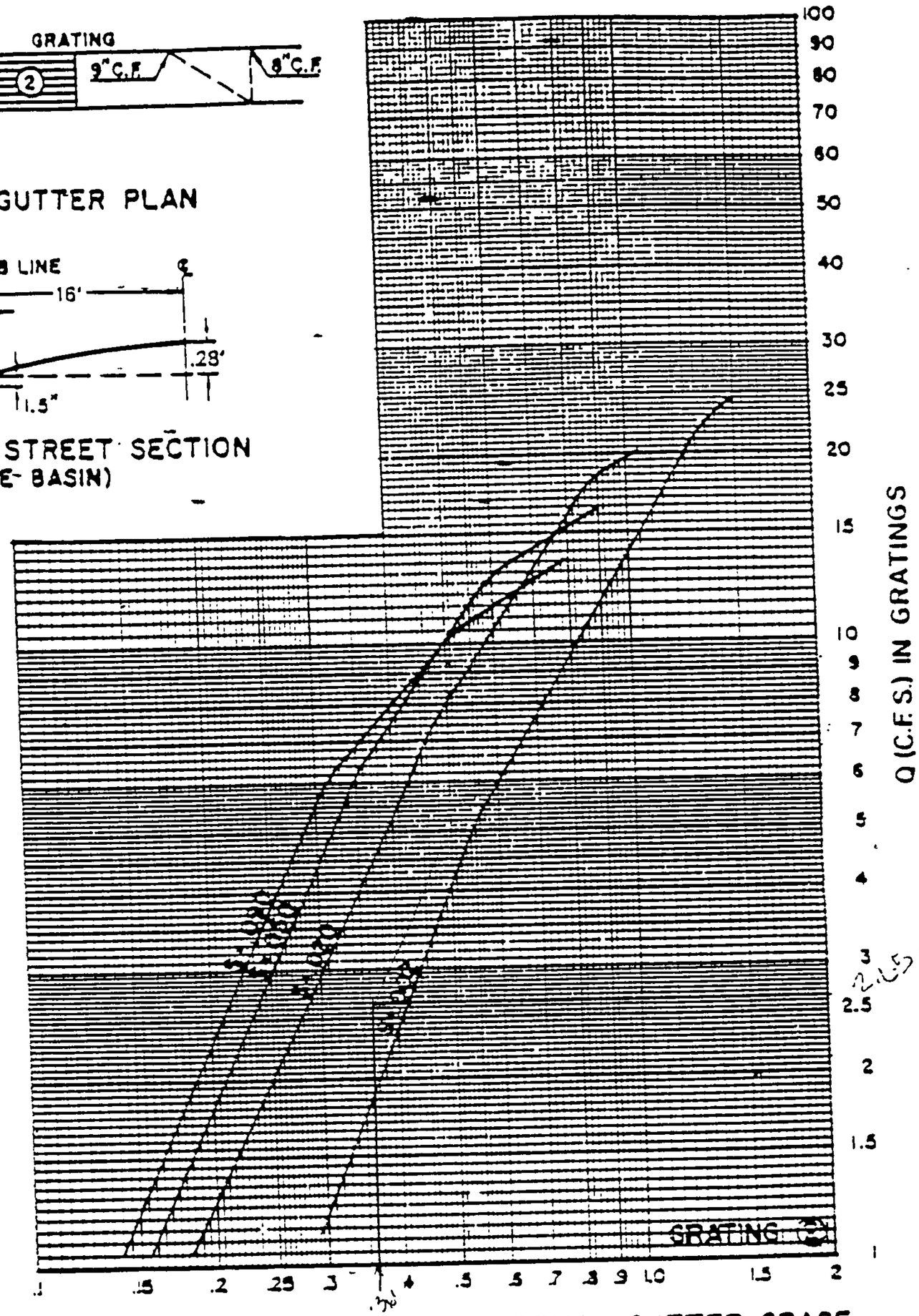
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



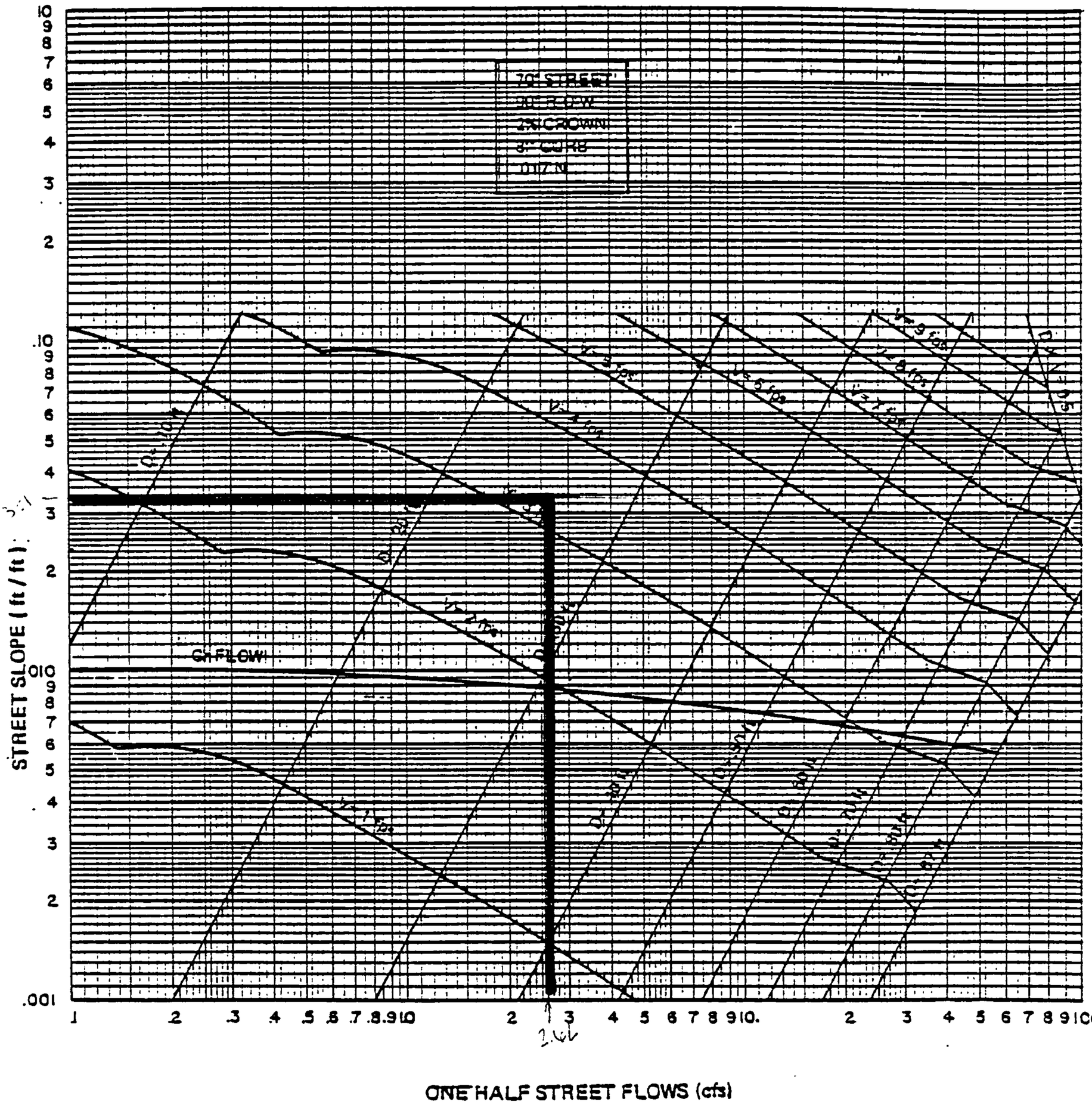
TYPICAL HALF STREET SECTION
(ABOVE BASIN)



D = 0.36'
S = 0.5%

De Vargas Road

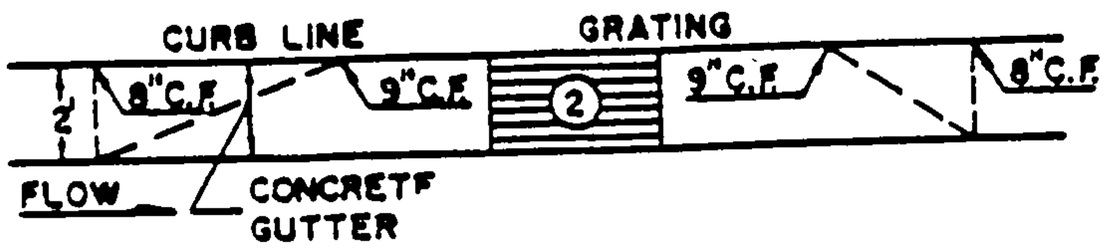
STREET CAPACITY



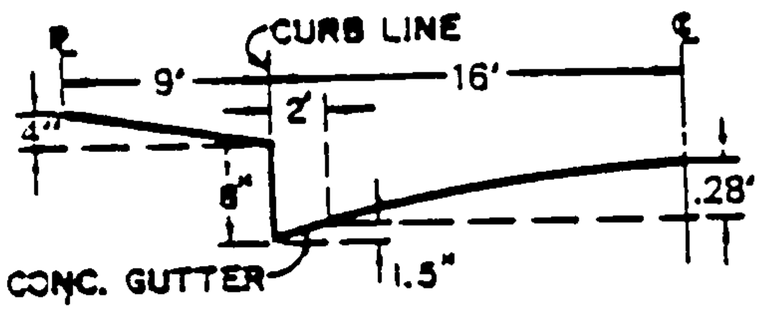
D = 0.26

73

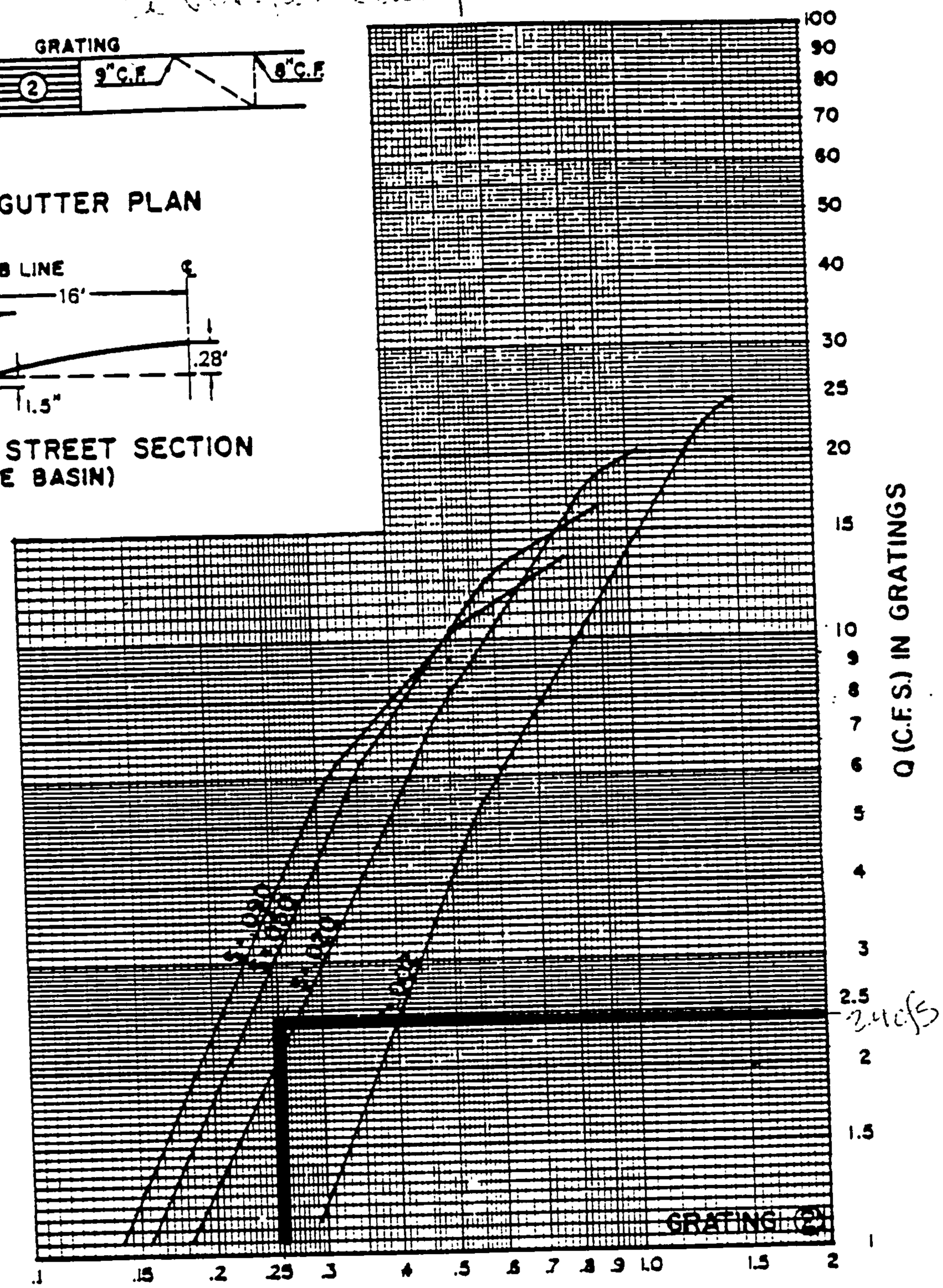
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



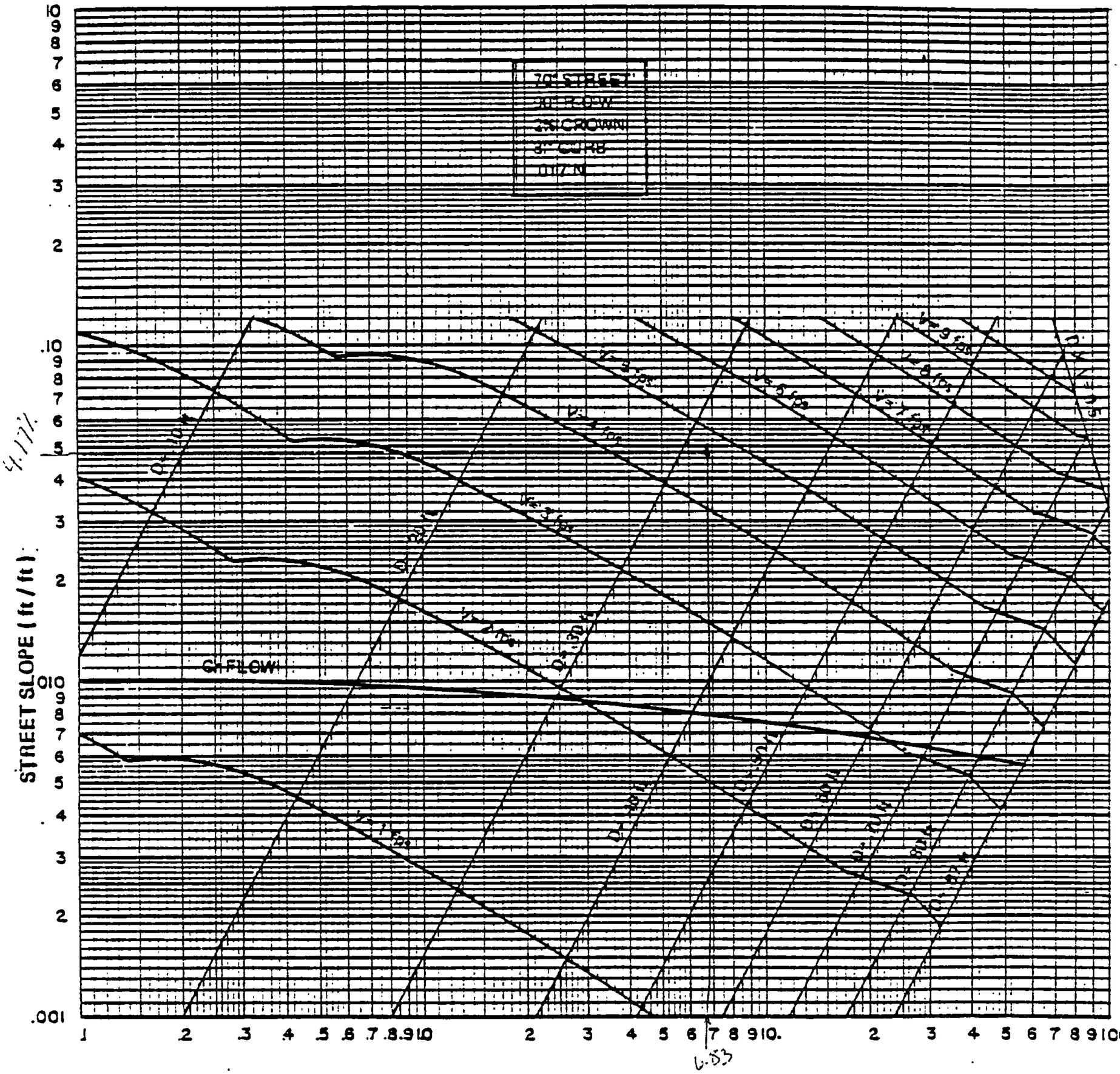
TYPICAL HALF STREET SECTION
(ABOVE BASIN)



D = 0.26'
S = 3.31%
Q - 2.4cfs

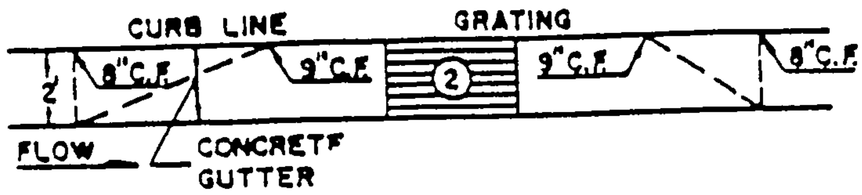
Dr Vaughn 2

STREET CAPACITY

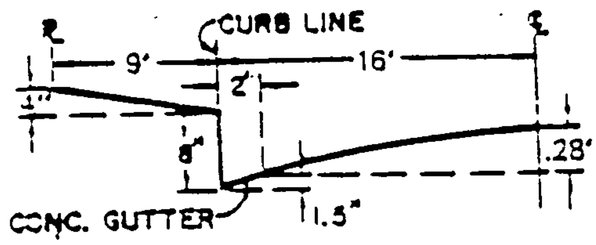


S = 4.77%
Q = 13.66 cfs
D = 0.31'

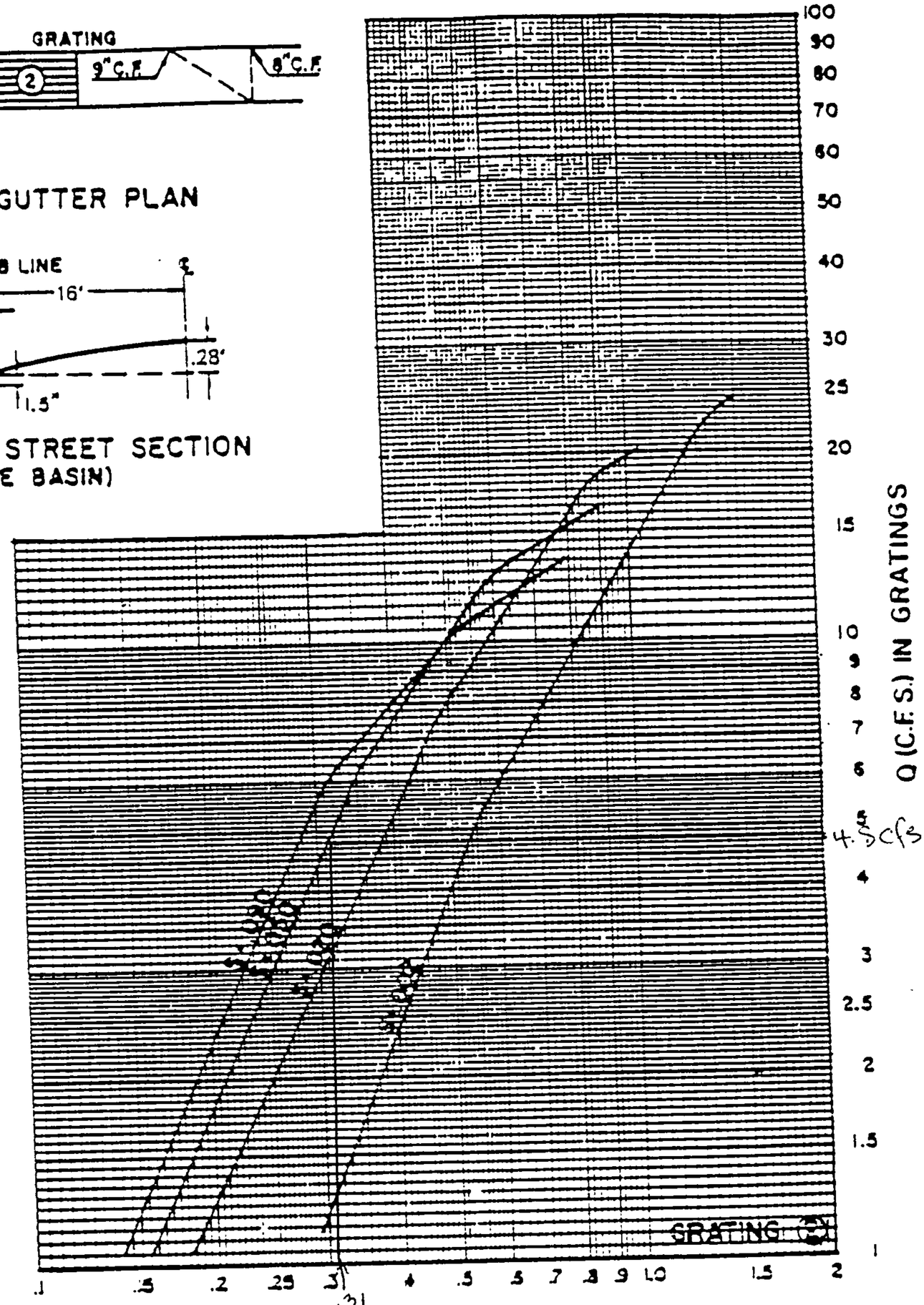
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



D=0.31'
S=4.77%

B-30/30

PLATES

PLATE 1 - GRADING PLAN – UNIT 3

PLATE 2 - GRADING PLAN – UNIT 4

PLATE 3 - PROPOSED CONDITIONS BASIN MAP

PLATE 1

GRADING PLAN – UNIT 3

PLATE 2

GRADING PLAN – UNIT 4

PLATE 3

PROPOSED CONDITIONS BASIN MAP

Scan large sheet

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 21, 2003

Rick Beltramo, PE
Bohannan Huston, Inc
7500 Jefferson NE
Albuquerque, NM 87109

Re: Timarron West Unit 4 Pond Regrade Exhibit (M8/D5A)

Dear Mr. Beltramo,

Based upon the information provided in your submittal dated 7-18-03, I offer the following comment.

The above referenced exhibit should suffice as long as the required volume is adhered to. I will leave it up to you as to the final configuration of this pond; just reflect the as-built contours in your certification for Unit 5.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, Planning Dept.
Development and Building Services

C: file

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER

Scan
large Sheet
bound in this
clip

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

DSA

M-8/

PROJECT TITLE: Timarron West Unit 4 – POND REGRADE ZONE MAP/DRG. FILE #: M-8/
DRB #: 1000475 EPC#: WORK ORDER#:

LEGAL DESCRIPTION: Tracts 1&2, Lands of Grevey/Liberman
CITY ADDRESS: DeVargas Road

ENGINEERING FIRM: Bohannan Huston, Inc. CONTACT: Rick Beltramo
ADDRESS: 7500 Jefferson NE – Courtyard I PHONE: (505) 823-1000
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

OWNER: Centex Homes CONTACT: Norm Gregory
ADDRESS: 5120 Masthead NE PHONE: (505) 341-8505
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

ARCHITECT: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

SURVEYOR: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

CONTRACTOR: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

CHECK TYPE OF SUBMITTAL:

____ DRAINAGE REPORT
____ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
____ DRAINAGE PLAN RESUBMITTAL
____ CONCEPTUAL GRADING & DRAINAGE PLAN
____ GRADING PLAN
____ EROSION CONTROL PLAN
____ ENGINEER'S CERTIFICATION (HYDROLOGY)
____ CLOMR/LOMR
____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ ENGINEERS CERTIFICATION (TCL)
____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
_X_ OTHER: *REGRADING OF DETENTION SURGE POND*

CHECK TYPE OF APPROVAL 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
____ FOUNDATION PERMIT APPROVAL
____ BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY (PERM.)
____ CERTIFICATE OF OCCUPANCY (TEMP.)
____ GRADING PERMIT APPROVAL
____ PAVING PERMIT APPROVAL
____ WORK ORDER APPROVAL
_X_ OTHER: *APPROVAL FOR POND REGRADING*

WAS A PRE-DESIGN CONFERENCE ATTENDED:

____ YES
____ NO
____ COPY PROVIDED

RECEIVED
JUL 18 2003
HYDROLOGY SECTION

DATE SUBMITTED: July 18, 2003 BY: Rick Beltramo

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 subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

CLIENT/COURIER TRANSMITTAL

BOHANNAN HUSTON
Courtyard One
7500 JEFFERSON NE
Albuquerque
NEW MEXICO 87109
voice 505.823.1000
fax 505.798.7988

To: Brad Bingham
City of Albuquerque
One Stop Shop
600 2nd Street, 2nd Floor
924-3986

Requested By: Rick Beltramo

Date: May 21, 2002

Time Due: ☒ This A.M. ☒ This P.M.
☒ Rush ___ ☐ By Tomorrow

Job No.: 99470 correspondence file

Job Name: Timarron West Unit 3

DELIVERY VIA

☒ Courier ☐ Federal Express
☐ Mail ☐ UPS
☐ Other _____

PICK UP

Item: _____

_____

ITEM NO.	QUANTITY	DESCRIPTION
1	1	Grading and Drainage certification letter
2	1	Drainage Information sheet
3	1	As-built grading plan, sheets 1 and 2
4	1	DRB Approved Grading Plan, 10–25-00, sheets 1 and 2

COMMENTS / INSTRUCTIONS

RECEIVED
MAY 22 2002
HYDROLOGY SECTION

RECEIVED
MAY 23 2002
HYDROLOGY SECTION

*REC'D BY:*_____ *DATE:*_____ *TIME:*_____

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV. 1/11/2002)

M-8 / D005A

PROJECT TITLE: TIMARRON WEST UNITS 3 ~~[illegible]~~ ZONE MAP/DRG. FILE #: ~~L8/M8~~
DRB #: _____ EPC#: _____ WORK ORDER#: 651681

LEGAL DESCRIPTION: TRACTS 1 & 2, LANDS OF GREVEY/LIBERMAN
CITY ADDRESS: DE VARGAS ROAD

ENGINEERING FIRM: BOHANNAN - HUSTON INC.
ADDRESS: 7500 JEFFERSON NE
CITY, STATE: ALBUQUERQUE, NM 87109
CONTACT: RICK BELTRAMO
PHONE: 505-823-1000
ZIP CODE: 87109

OWNER: CENTEX REAL ESTATE CORP.
ADDRESS: 6700 JEFFERSON NE BLDG B
CITY, STATE: ALBUQUERQUE, NM
CONTACT: NORM GREGORY
PHONE: 505-761-9606
ZIP CODE: 87109

ARCHITECT: _____
ADDRESS: _____
CITY, STATE: _____
CONTACT: _____
PHONE: _____
ZIP CODE: _____

SURVEYOR: _____
ADDRESS _____
CITY, STATE: _____
CONTACT: _____
PHONE: _____
ZIP CODE: _____

CONTRACTOR: _____
ADDRESS: _____
CITY, STATE: _____
CONTACT: _____
PHONE: _____
ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:
- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- XX ENGINEERS CERTIFICATION (TCL)
- ____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ____ OTHER

CHECK TYPE OF APPROVAL 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
- ____ FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY (PERM.)
- ____ CERTIFICATE OF OCCUPANCY (TEMP.)
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- XX OTHER (SPECIFY)
  SIA RELEASE

WAS A PRE-DESIGN CONFERENCE ATTENDED:
- ____ YES
- X NO
- ____ COPY PROVIDED

RECEIVED
MAY 23 2002
HYDROLOGY SECTION

DATE SUBMITTED: _____ BY: 5/23/02

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature , location and scope ot 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
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5)
3. **Drainage Report**: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

BOHANNAN-HUSTON, INC.
Courtyard One
7500 JEFFERSON NE
Albuquerque
NM 87109-4335
voice 505.823.1000
fax 505.798.7988

May 20, 2002

Mr. Brad Bingham, P.E.
Hydrology Section
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87103

Re: Revised Timarron Subdivision Unit 3 Grading and drainage certification
City W.O. # 651681, Report M8 / D5A

Dear Brad:

Resubmitted is the revised grading and drainage certification for Timarron Unit 3. The re-submittal is required due to the fact that the certification is based on the 10/16/00 DRB approved plan. However, there was a subsequent approval dated 10/25/00. We have compared the elevations for both plans and have determined that all of the approved elevations are identical. The only changes made were for lot numbers.

This is a partial certification and does not include Timarron Unit 4. It was originally intended that grading certification for both phases would occur simultaneously. However, due to the construction schedule I am requesting review and approval of Timarron unit 3 only.

The site grading and improvements constructed to date adequately serve Unit 3 and therefore grading and drainage certification should be granted. Off-site ponds have been graded and are functional. However, not all Unit 4 infrastructure is in place to the extent that Unit 4 can be certified.

Transmitted with this letter is one copy of the certified grading plan and a drainage information sheet. Should you have any questions please call me at 823-1000, anytime.

Sincerely,
Bohannan Huston, Inc.

Rick Beltramo, P.E.
Community Development
and Planning Group

Attachments

RECEIVED
MAY 23 2002
HYDROLOGY SECTION

P:\99470\cdp\Corres\unit 3 g&d cert rev.doc.doc

Bohannan ▲ Huston INC.

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335
www.bhinc.com
voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

CLIENT/COURIER TRANSMITTAL

To: Terri Martin, Project Admin.
Design Review Division
City of Albuquerque
600 2nd Street NW - 2nd Floor

phone: 924-3997

Requested By: Rick Beltramo / am

Date: June 6, 2002

Time Due: ☐ This A.M. ☒ This P.M.
☐ Rush ____ ☐ By Tomorrow

Job No.: 99 470 corr file

Job Name: Timarron West Unit 3

DELIVERY VIA

☒ Courier ☐ Federal Express
☐ Mail ☐ UPS
☐ Other _____

PICK UP

Item: _____

_____

ITEM NO.	QUANTITY	DESCRIPTION
1	1	Copy of Timarron West Unit 3 Grading & Erosion Control Plan (2/28/90)

RECEIVED
JUN 04 2002
HYDROLOGY SECTION

COMMENTS / INSTRUCTIONS

RECEIVED
JUN 06 2002
PWD/DESIGN REVIEW

REC'D BY: Bud Bi[illegible] DATE: 6/6/02 TIME: 4:34

ENGINEERING ▫
SPATIAL DATA ▫
ADVANCED TECHNOLOGIES ▫

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV. 1/11/2002)

PROJECT TITLE: Timarron West Unit 3 ZONE MAP/DRG. FILE #: L-8/M-8
DRB #: _____ EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: _____
CITY ADDRESS: _____

ENGINEERING FIRM: Bohannan Huston CONTACT: Rick Beltramo
ADDRESS: 7500 Jefferson NE PHONE: 823-1000
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

OWNER: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____
ADDRESS _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:
- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEERS CERTIFICATION (TCL)
- ____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ✓ OTHER

CHECK TYPE OF APPROVAL 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
- ____ FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY (PERM.)
- ____ CERTIFICATE OF OCCUPANCY (TEMP.)
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:
- ____ YES
- ____ NO
- ____ COPY PROVIDED

RECEIVED
JUN 07 2002
HYDROLOGY SECTION

DATE SUBMITTED: 6-7-02 BY: Dominic Huerta

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature , location and scope ot 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
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5)
3. **Drainage Report**: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 6, 2002

Rick Beltramo, P.E.
Bohannan Huston, Inc.
7500 Jefferson NE
Albuquerque, New Mexico 87109

RE: TIMARRON WEST SUBD UNIT 3 (M-8/D5A)
Engineers Certification For Release of Financial Guaranty
Engineers Stamp dated 10/16/2000
Engineers Certification dated 5/16/2002

Dear Mr. Beltramo:

Based upon the information provided in your Engineers Certification dated 5/23/2002, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty for Timarron West Unit 3 .

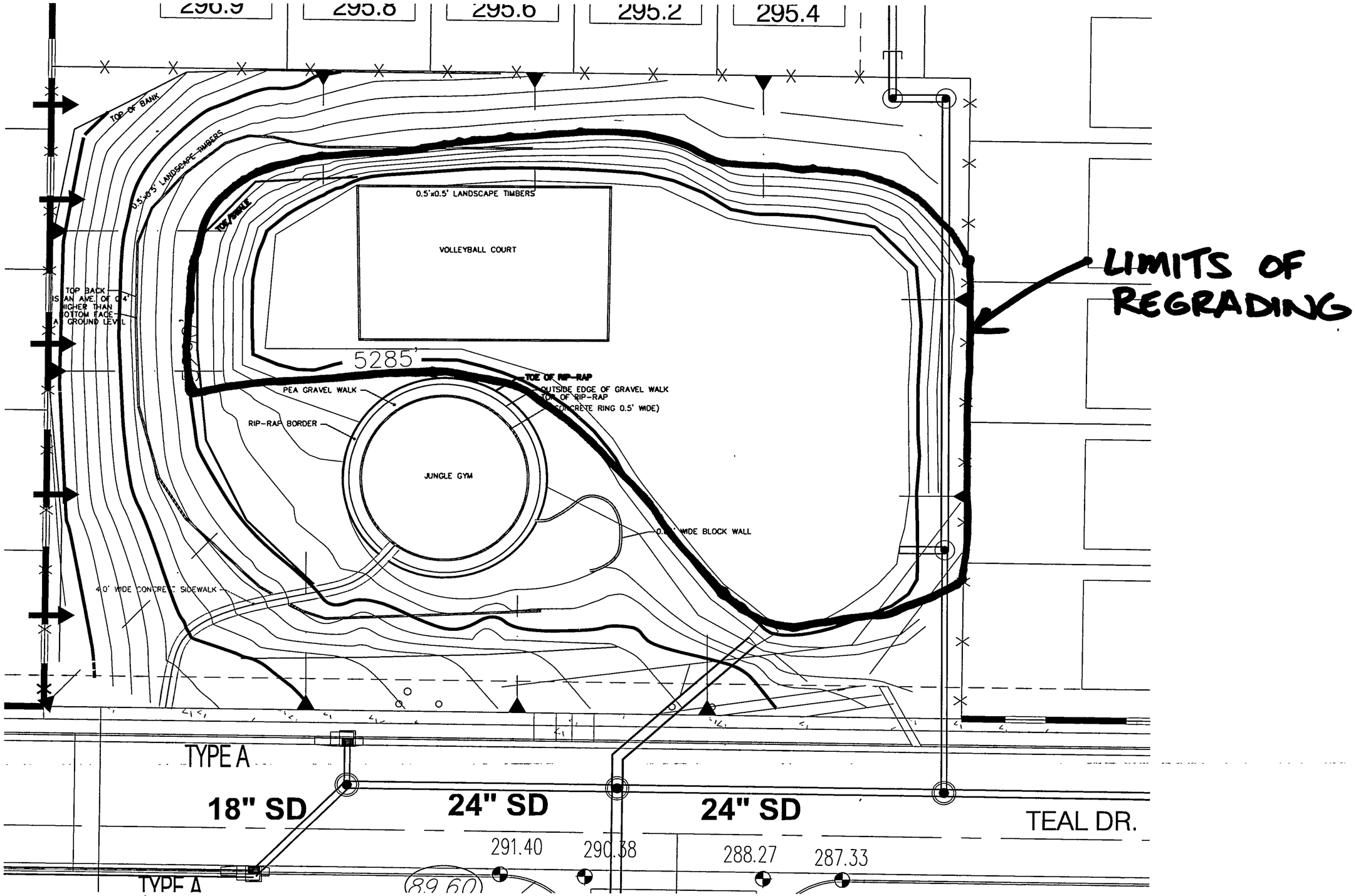
If you have any questions, please call me at 924-3981.

Sincerely,

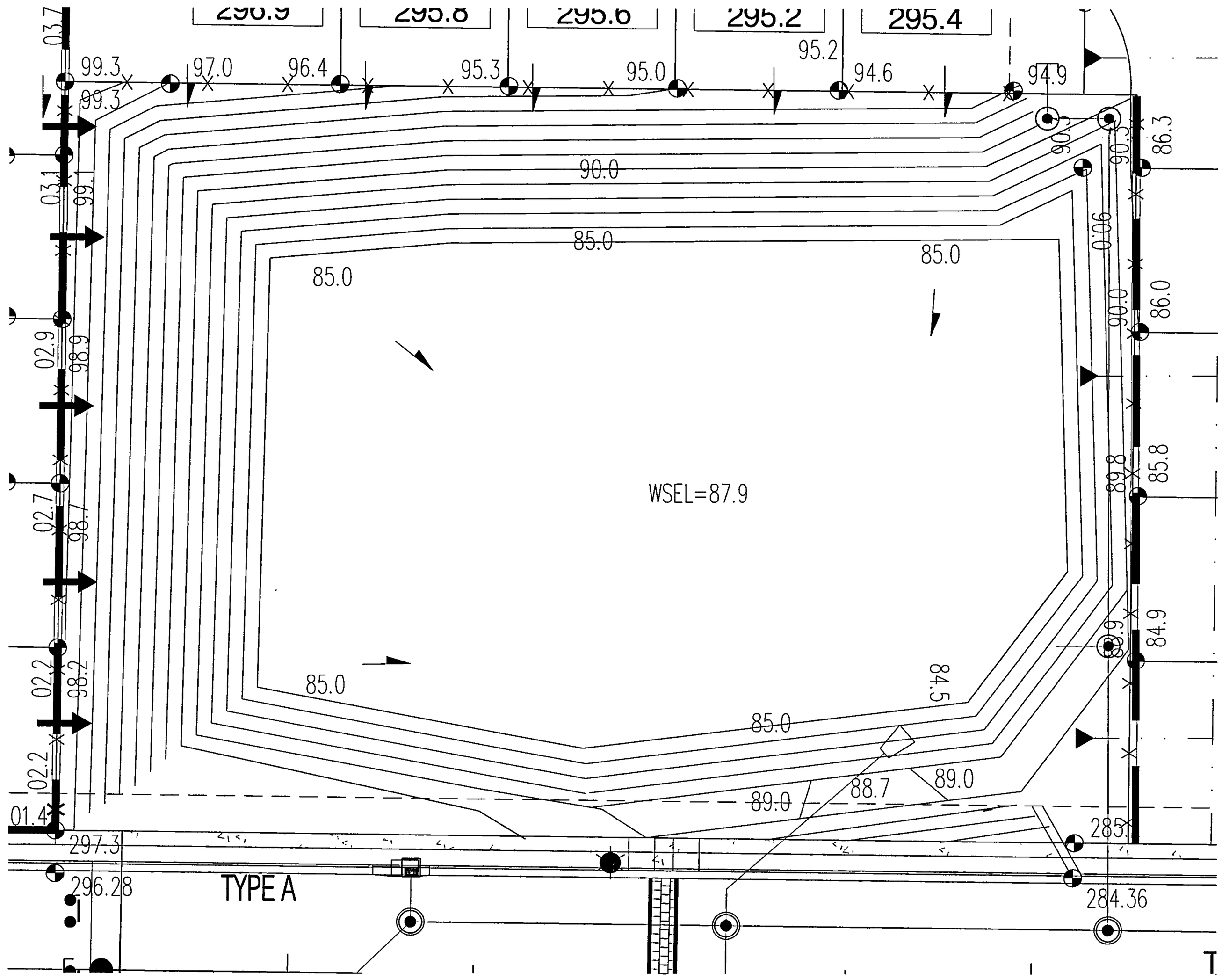
Teresa A. Martin
Hydrology Plan Checker
Public Works Department

C: Arlene Portillo, PWD – #651681
File

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER


296.9
295.8
295.6
295.2
295.4
TOP OF BANK
0.5'x0.5' LANDSCAPE TIMBERS
TOE OF BANK
0.5'x0.5' LANDSCAPE TIMBERS
VOLLEYBALL COURT
TOP BACK IS AN AVE. OF 0.4' HIGHER THAN BOTTOM FACE AT GROUND LEVEL
5285'
TOE OF RIP-RAP
(OUTSIDE EDGE OF GRAVEL WALK TOP OF RIP-RAP CONCRETE RING 0.5' WIDE)
PEA GRAVEL WALK
RIP-RAP BORDER
JUNGLE GYM
WIDE BLOCK WALL
4.0' WIDE CONCRETE SIDEWALK
LIMITS OF REGRADING
TYPE A
18" SD
24" SD
24" SD
TEAL DR.
291.40
290.38
288.27
287.33
TYPE A
Proposed Pond
Volume = 2.06 AC-FT
MAX. WSEL = 88.05'

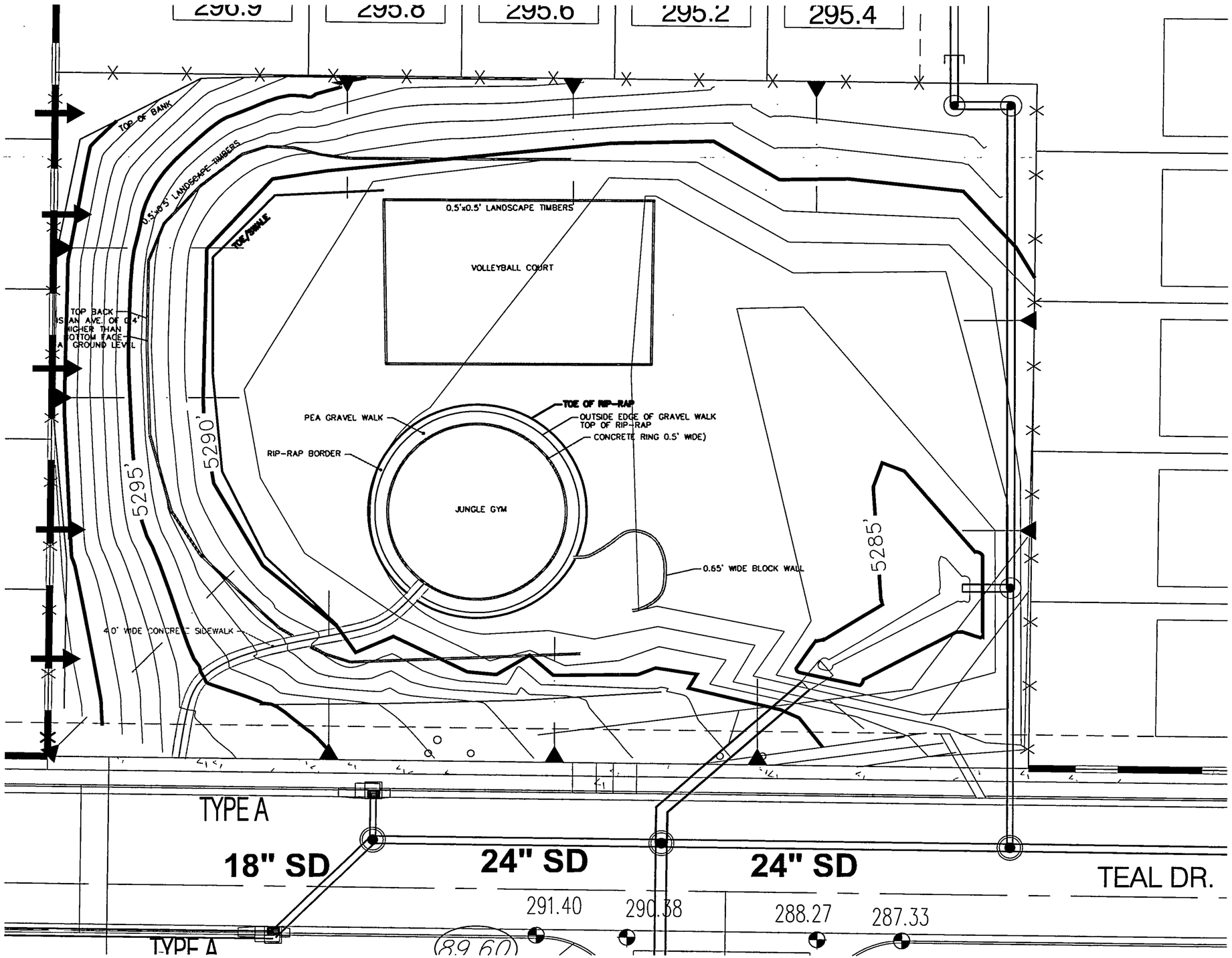
Timarron West Unit 4 - Detention Surge Pond



RECEIVED
JUL 18 2003
HYDROLOGY SECTION

Approved Pond Design/Grades
Volume= 2.05 AC-FT
MAX. WSEL= 88.03'

(1"=30')



As-Built Pond Volume = 0.72 AC-FT

21/00

651681

AGREEMENT AND COVENANT

4/12/01

M-08/D005A

This Agreement and Covenant, between the City of Albuquerque, New Mexico ("City") and Timarron Homeowners Association Inc ("User") is made in Albuquerque, New Mexico and is entered into as of the date of recording this Agreement with the Bernalillo County Clerk.

1. Recital. The User is the owner of certain real property ("User's Property") located at Osprey Dr. & Teal Rd. SW, in Albuquerque, New Mexico, and more particularly described as: (give legal description and filing information)

Tract "D"
Timarron West Subdivision Unit 3
Recorded February 07, 2001
BK 2001C Page 45
In the records of Bernalillo County, New Mexico

The City is the owner of certain real property, easement or public right-of-way ("City's Property") in the vicinity of, contiguous to, abutting or within User's Property, and more particularly described as:

Teal Road SW
Public Drainage Easement on Tract "D" ~~xxxxxxxxx~~
filed with Plat of Timarron Unit 3
Recorded on February 07, 2001
BK 2001 C Page 45 in the records of Bernalillo County, New Mexico

The User wishes to construct upon, improve or repair and to maintain the following "Improvement" on the City's Property (or already has done so):

Drainage Pond

A sketch of the proposed or existing Improvement is attached as Exhibit A and made a part of this Agreement.

The City agrees to permit the Improvement to exist on the City's Property provided the User complies with the terms of this Agreement.

2. City Use of City's Property and City Liability. The City has the right to enter upon the City's Property at any time and perform whatever inspection, installation, maintenance, repair, modification or removal ("Work") it deems appropriate without liability to the User. If the Work affects the Improvement the City will not be financially or otherwise responsible for rebuilding or repairing the Improvement. The User promptly will repair the Improvement to the City's satisfaction. The cost of repairing the Improvement will be paid by User.

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5492867
Page: 1 of 8
04/17/2001 11:23A

3. User's Responsibility for Improvement. The User will be solely responsible for constructing, maintaining, repairing and, if required, removing the Improvement, all in accordance with standards required by the City as per the approved Grading and Drainage Plan L8+M8 / DSA on file at the City Engineer's office. The User will be solely responsible for paying all related costs. The User will be solely responsible for paying all related costs. The User will not permit the Improvement to constitute a hazard to the health or safety of the general public or to interfere with the City's use of the City's Property. The User will conform with all applicable laws, ordinances and regulations.

4. Use of the Improvement. If the City's Property is a public right-of-way, it shall be open to the use of the general public at all times, subject to reasonable curtailment during periods of construction, maintenance or repair.

5. Demand for Repair, Modification or Removal. The City may send written notice ("Notice") to the User requiring the User to repair, modify or remove the Improvement within 30 days ("Deadline") and the User will comply promptly with the requirements of the Notice. If removal is demanded, the City also may require the User to return the City's Property to its original condition by the Deadline. The User will perform all required work by the Deadline, at User's sole expense.

6. Failure to Perform by User and Emergency Work by City. If the User fails to comply with the terms of the Notice by the Deadline stated, or, if the City determines that an emergency condition exists, the City may perform the work itself. The City then may assess the User for the cost of the work and for any other expenses or damages which result from User's failure to perform. The User agrees promptly to pay the City the amount assessed. If the User fails to pay the City within thirty (30) days after the City gives the User written notice of the amount due, the City may impose a lien against User's Property for the total resulting amount.

7. Cancellation of Agreement and Release of Covenant. This Agreement may be canceled and User's covenants released by the City at will by the City's mailing to the User notice of the City's intention to record a Cancellation and Release with the Bernalillo County Clerk. The Cancellation and Release will be effective thirty (30) days after the date of mailing the notice to the User unless a later date is stated in the notice or the Cancellation and Release. After the effective date, the City will record the Cancellation and Release with the Bernalillo County Clerk.

8. Condemnation. If any part of the User's Property is ever condemned by the City, the User will forego all claims to compensation for any portion of User's structure which encroaches on City Property and for severance damage to the remaining portion of User's structure on User's Property.

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5492867
Page: 2 of 8
04/17/2001 11:23A

9. Assessment. Nothing in this Agreement shall be construed to relieve the User, his heirs, assigns and successors from an assessment against User's Property for improvements to the City Property under a duly authorized and approved Special Assessment District. The parties specifically agree that the value of the Improvement will not reduce the amount assessed by the City.

10. Notice. For purposes of giving formal written notice to the User, User's address is:

Timarron Homeowners Assn. Inc.
C/O Centex Homes
6700 Jefferson NE
Albuquerque, New Mexico 87109

Notice may be given to the User either in person or by mailing the notice by regular U.S. mail, postage paid. Notice will be considered to have been received by the User within 3 days after the notice is mailed if there is no actual evidence of receipt. The User may change User's address by giving written notice of the change by certified mail, return receipt requested, to the City Engineer at P.O. Box 1293, Albuquerque, New Mexico 87103.

11. Indemnification. The User agrees to defend, indemnify and hold harmless the City, its officials, agents and employees from and against any and all claims, actions, suits or proceedings of any kind brought against said parties as a result of User's use of the City's Property. To the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this Agreement to indemnify will not extend to liability, claims, damages, losses or expenses, including attorney's fees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by the indemnitee, or the agents or employees of the indemnitee; or (2) the giving of or the failure to give direction or instructions by the indemnitee, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

12. Term. This Agreement shall continue until revoked by the City pursuant to Section 7 above.

13. Binding on User's Property. The covenants and obligations of the User set forth herein shall be binding on User, his heirs assigns and successors and on User's Property and constitute covenants running with User's Property until released by the City.

14. Entire Agreement. This Agreement contains the entire agreement of the parties and supersedes any and all other agreements or understandings, oral or written, whether previous to the execution hereof or contemporaneous herewith.

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5492867
Page: 3 of 8
04/17/2001 11:23A

USER'S ACKNOWLEDGMENT

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on FEBRUARY 13, 2001, by TOM HOUSEN, PRESIDENT, on behalf of TIMARRON HOMEOWNERS ASSN. INC

Notary Public

My Commission Expires:

11/10/2001

OFFICIAL SEAL
NORMAN A. GREGORY
NOTARY PUBLIC - STATE OF NEW MEXICO
My commission expires: 11/10/2001

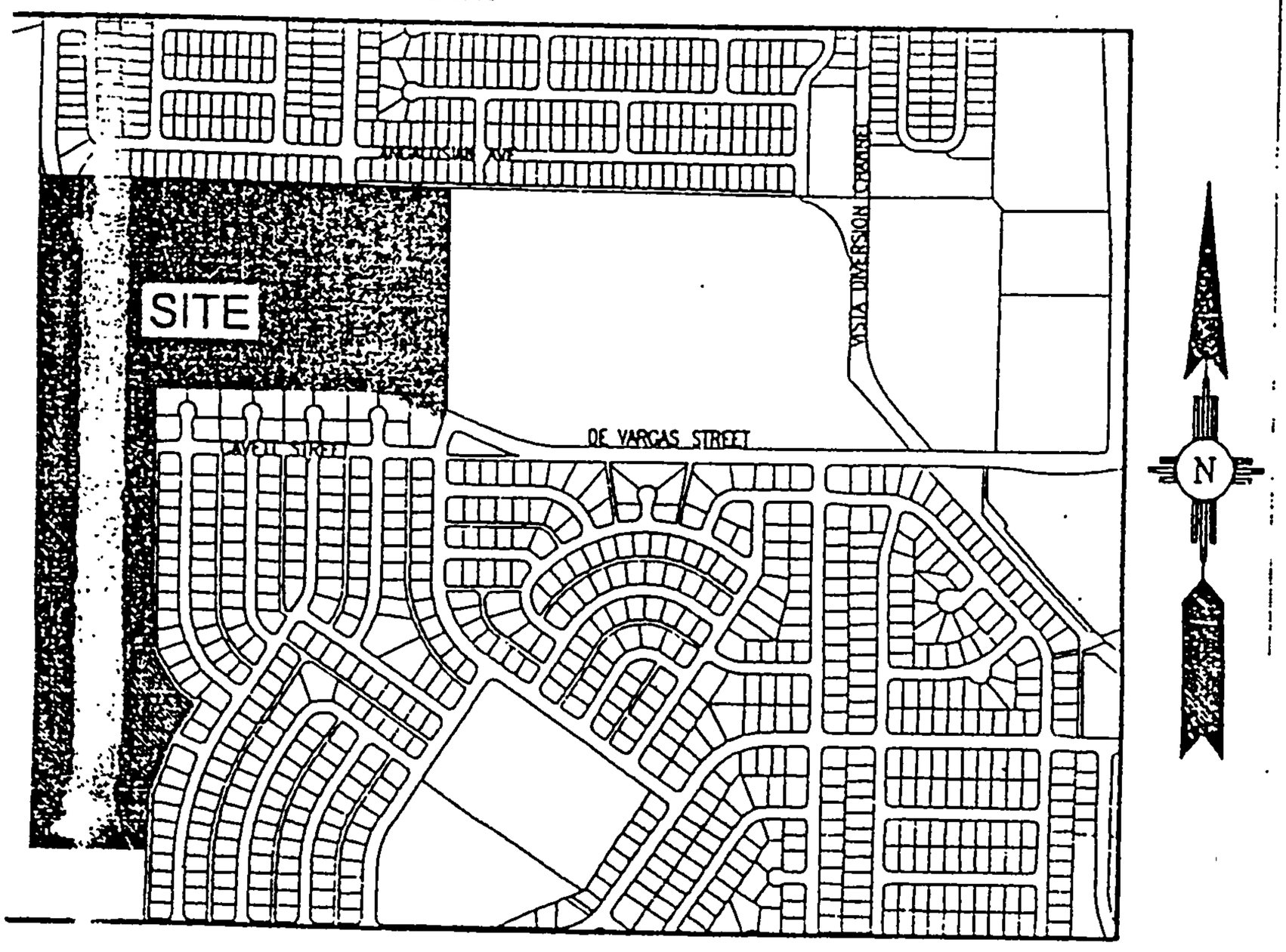
Mary Herrera Bern. Co. AGRE R 21.00

2001042013
5492867
Page: 5 of 8
04/17/2001 11:23A
Bk-A18 Pg-467

PLAT OF
TIMARRON WEST SUBDIVISION UNIT 3

ALBUQUERQUE, NEW MEXICO
OCTOBER, 2000

P 00110913300411



LOCATION MAP

ZONE ATLAS MAP NO. L-8 & M-8
NOT TO SCALE

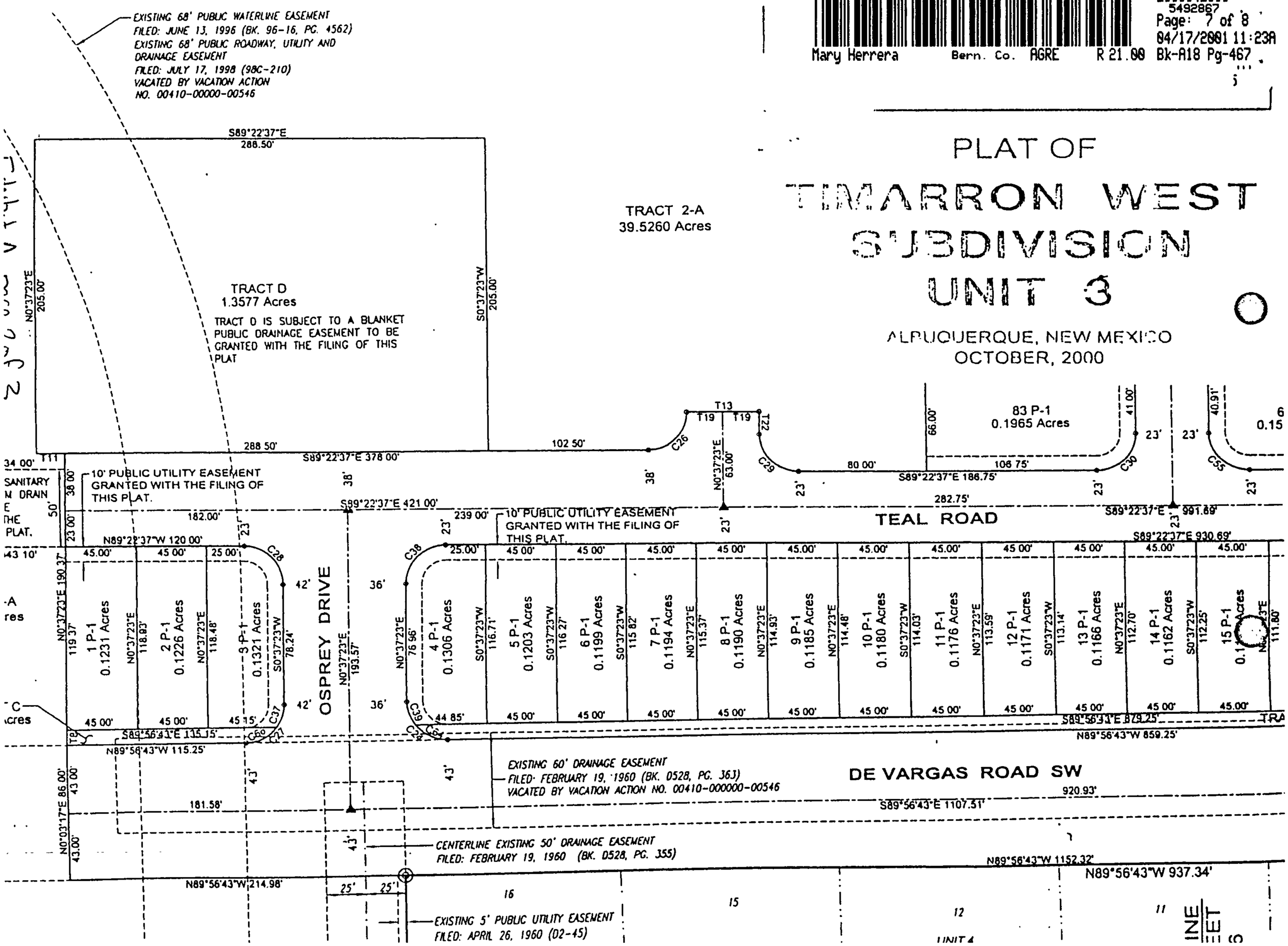
SUBDIVISION DATA

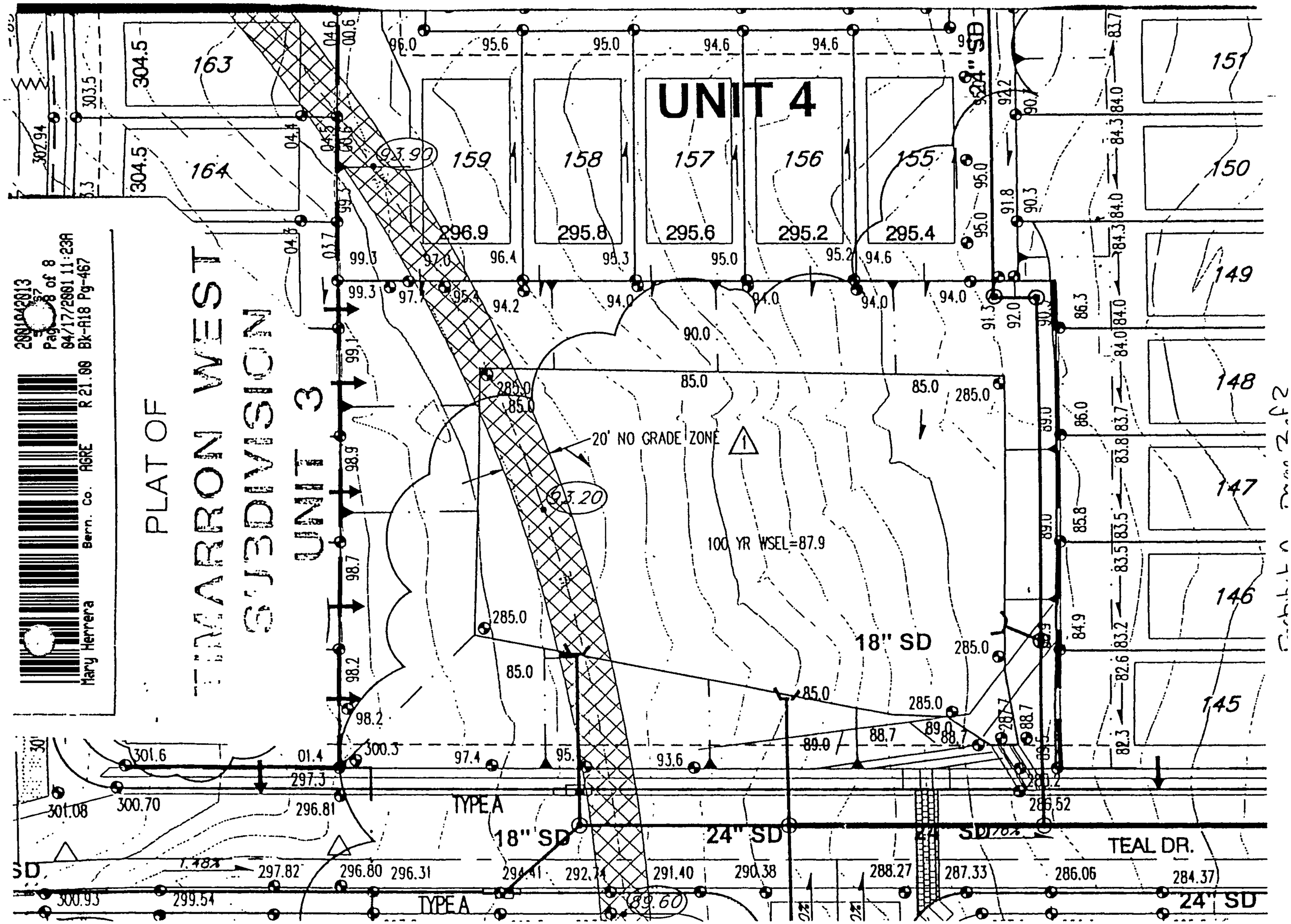
Mary Herrera Bern. Co. AGRE R 21.00
2001042013
5492867
Page: 6 of 8
04/17/2001 11:23A
Bk-A18 Pg-467

Mary Herrera Bern. Co. AGRE R 21.00
2001042013
5492867
Page: 7 of 8
04/17/2001 11:23A
Bk-A18 Pg-467

PLAT OF TIMARRON WEST SUBDIVISION UNIT 3

ALBUQUERQUE, NEW MEXICO
OCTOBER, 2000




PLAT OF
TIMARRON WEST
SUBDIVISION
UNIT 3
UNIT 4
163
164
159
158
157
156
155
151
150
149
148
147
146
145
296.9
295.8
295.6
295.2
295.4
20' NO GRADE ZONE
100 YR WSEL=87.9
18" SD
24" SD
TYPE A
TEAL DR.
2001042013
Page 8 of 8
04/17/2001 11:23A
Bk-A18 Pg-467
R 21.00
Bern. Co. AGRE
Mary Herrera

CONTRACT CONTROL FORM

PRELIMINARY REVIEW

Contact Person Kathy Jaramillo
Phone No. 924-3996

Project # 651681
CCN# 200100790
~~New or~~ Ext. #

Type of Agreement: agreement & covenant

Description/Project Name: Timarron West Unit 3
Public Works Dept./Div.: Design Review
Developer: Centex Homes / Timarron Homeowners Assoc
Contract Amount $ -0- ~~SIA~~ Contract Period: 4/12/01 - 2021
Contract Amount $ SIA Contract Period: -
Contract Amount $ S/W Contract Period: -

DRAFT CONTRACT:
Rec'd by Legal: Rejected/Returned to Dept.: 2/21/01 / KJC
Returned to Legal: / Appproved: cf Initials: 4-11-01

FINANCIAL GUARANTY:
Letter of Credit No.: Date: Attached: Yes___ No.___ Initial
Other: Type Date: Attached: Yes___ No.___ Initial

FINAL CONTRACT REVIEW

APPROVALS REQUIRED:

	Date Delivered	Returned to Dept.	Approved By	Approval Date
Utilitiy Div				
Hydrology Div	2/14/01 KJ	2/15/01	BLB	2/15/01
Transportation Div				
DRC Chairman	2/15/01 KJ	2/15/01	CD	2/15/01
Legal Dept	2/16/01 KJ	4/11/01	cf	4/11/01 cf 2/21
City Engineer	4/12/01	4/12/01	RG	4/12/01
PWD Director				
Finance				
City Clerk				
CAO				

DISTRIBUTION:

	Date:	By:
User Department.	4/18/01	KJ
Vendor		
City Clerk	4-19-01	GS
Treasury		
Other:		

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

File

July 11, 2003,

Rick Beltramo, PE
Bohannan Huston, Inc
7500 Jefferson NE
Albuquerque, NM 87109

Re: Timarron West Unit 4 Engineer's Certification
Engineer's Stamp dated 6-8-00, (M8/D5A)
Certification Stamp dated 7-10-03

Dear Mr. Beltramo,

Based upon the information provided in your submittal dated 7-11-03, the above referenced Certification is approved for Release of SIA and Financial Guarantee. Certification of the pond on Tract D will be accomplished with Unit 5.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, Planning Dept.
Development and Building Services

C: Arlene Portillo, CPN 671683
file

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV. 1/28/2003rd)

PROJECT TITLE: Timarron West Unit 4 ZONE MAP/DRG. FILE # L8/M8
DRB #: 1000475 EPC#: WORK ORDER#:

LEGAL DESCRIPTION: Tracts 1&2, Lands of Grevey/Liberman
CITY ADDRESS: DeVargas Road

ENGINEERING FIRM: Bohannan Huston, Inc. CONTACT: Rick Beltramo
ADDRESS: 7500 Jefferson NE – Courtyard I PHONE: (505) 823-1000
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

OWNER: Centex Homes CONTACT: Norm Gregory
ADDRESS: 5120 Masthead NE PHONE: (505) 341-8505
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

ARCHITECT: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

SURVEYOR: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

CONTRACTOR: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

CHECK TYPE OF SUBMITTAL:

____ DRAINAGE REPORT
____ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
____ DRAINAGE PLAN RESUBMITTAL
____ CONCEPTUAL GRADING & DRAINAGE PLAN
____ GRADING PLAN
____ EROSION CONTROL PLAN
____ ENGINEER'S CERTIFICATION (HYDROLOGY)
____ CLOMR/LOMR
____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ ENGINEERS CERTIFICATION (TCL)
____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
__X__ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

__x__ 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
____ FOUNDATION PERMIT APPROVAL
____ BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY (PERM.)
____ CERTIFICATE OF OCCUPANCY (TEMP.)
____ GRADING PERMIT APPROVAL
____ PAVING PERMIT APPROVAL
____ WORK ORDER APPROVAL
____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

____ YES
____ NO
____ COPY PROVIDED

DATE SUBMITTED: July 9, 2003 BY: Rick Beltramo

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 subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

M-8/D5A

PROJECT TITLE: Timarron West Unit 4 ZONE MAP/DRG. FILE # M8
DRB #: 1000475 EPC#: WORK ORDER#:

LEGAL DESCRIPTION: Tracts 1&2, Lands of Grevey/Liberman
CITY ADDRESS: DeVargas Road

ENGINEERING FIRM: Bohannan Huston, Inc. CONTACT: Rick Beltramo
ADDRESS: 7500 Jefferson NE – Courtyard I PHONE: (505) 823-1000
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

OWNER: Centex Homes CONTACT: Norm Gregory
ADDRESS: 5120 Masthead NE PHONE: (505) 341-8505
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

ARCHITECT: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

SURVEYOR: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

CONTRACTOR: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

CHECK TYPE OF SUBMITTAL:

____ DRAINAGE REPORT
____ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
____ DRAINAGE PLAN RESUBMITTAL
____ CONCEPTUAL GRADING & DRAINAGE PLAN
____ GRADING PLAN
____ EROSION CONTROL PLAN
____ ENGINEER'S CERTIFICATION (HYDROLOGY)
____ CLOMR/LOMR
____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ ENGINEERS CERTIFICATION (TCL)
____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
X OTHER

CHECK TYPE OF APPROVAL SOUGHT:

x 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
____ FOUNDATION PERMIT APPROVAL
____ BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY (PERM.)
____ CERTIFICATE OF OCCUPANCY (TEMP.)
____ GRADING PERMIT APPROVAL
____ PAVING PERMIT APPROVAL
____ WORK ORDER APPROVAL
____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

____ YES
____ NO
____ COPY PROVIDED

RECEIVED
JUL 10 2003
HYDROLOGY SECTION

DATE SUBMITTED: July 9, 2003 BY: Rick Beltramo

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:

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2. Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.

3. Drainage Report: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

Bohannan ▲ Huston INC.

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

July 9, 2003

Mr. Brad Bingham
Development Review Board
City of Albuquerque
P O Box 1293
Albuquerque, NM 87103

Re: Timarron West Subdivision, Unit 4
Grading and Drainage Certification

Dear Mr. Bingham:

As previously discussed, we are requesting partial grading and drainage certification for Timarron West Unit 4. This is due to inadequate construction of the retention pond. We propose to move the pond from the Unit 4 infrastructure list to the Unit 5 infrastructure list. A partial certification is requested to allow time for the pond to be reconstructed to retain flows as designed and established by the approved drainage report. An interim analysis of drainage conditions for Units 3 and 4 has been completed as directed by Richard Dourte to ensure that flows can be safely accommodated during this brief period of reconstruction.

In summary, your timely review and approval for partial certification and release of infrastructure is requested since the financial guaranty is due to expire in the next week. If you have any questions or need additional information, please do not hesitate to call.

Sincerely,

Rick Beltramo, P.E.
Vice President, Community Development
and Planning Group

Enclosures

cc: Richard Dourte, Norm Gregory

RECEIVED
JUL 0 9 2003
HYDROLOGY SECTION

Bohannan ▲ Huston INC.

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335
www.bhinc.com
voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

CLIENT/COURIER TRANSMITTAL

To: Brad Bingham
City of Albuquerque
Plaza Del Sol

Requested By: Rick Beltramo/Nina Leung

Date: **July 9, 2003**

Time Due: ❑ **This A.M.** ❑ **This P.M.**
❑ **Rush ____** ❑ **By Tomorrow**

Job No.:

Job Name: Timarron West Unit 4

DELIVERY VIA

❑ **Courier** ❑ **Federal Express**
❑ **Mail** ❑ **UPS**
❑ **Other** _____

PICK UP

Item: _____
_____

ITEM NO.	QUANTITY	DESCRIPTION
1	1	Request for Grading and Drainage Certification
2	1	Drainage Information Sheet

COMMENTS / INSTRUCTIONS

RECEIVED
JUL 1 0 2003
HYDROLOGY SECTION

ENGINEERING ▲
SPATIAL DATA ▲
ADVANCED TECHNOLOGIES ▲

REC'D BY: _____ ***DATE:*** _____ ***TIME:*** _____

Bohannan Huston INC.

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

July 9, 2003

Mr. Richard Dourte
Development Review Board
City of Albuquerque
P O Box 1293
Albuquerque, NM 87103

Re: Timarron West Subdivision, Unit 4
Grading and Drainage Certification

Dear Mr. Dourte:

A partial grading and drainage certification for Timarron West Unit 4 is requested. This is due to inadequate construction of the retention pond. A partial certification is requested to allow time for the pond to be reconstructed to retain flows as designed and established by the approved drainage report.

To satisfy interim conditions, an analysis has been completed of the internal streets and existing storm drain system. This analysis was done assuming a 10-year design storm and incorporating information from the approved construction plans and as-built grading plan. The enclosed analysis demonstrates that the internal street system can accommodate flows from the 10-year design storm. In a few instances the energy head exceeds the right-of-way, however, the normal depth of flow is contained with the curb. Therefore, the building pads will not be in danger of flooding. In conclusion, Units 3 and 4 can safely accommodate flows during this brief period of reconstruction.

Please review the enclosed analysis at your earliest convenience. If you have any questions or need additional information, please do not hesitate to call.

Sincerely,

Rick Beltramo, P.E.
Vice President, Community Development
and Planning Group

Enclosures

cc: Brad Bingham

RECEIVED
JUL 10 2003
HYDROLOGY SECTION

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02c RUN DATE (MON/DAY/YR) =07/08/2003
INPUT FILE = asblt 10.txt USER NO.= AHYMO-S-9702c1BohanHu-AH

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
*S TIMARRON WEST UNIT 4 SITE FLOW (10-year Storm)										
START										TIME= .00
*S INPUT FILE = asbuilt.TXT										
RAINFALL TYPE= 1										RAIN6= 1.470
*S GOES INTO SURGE POND IN UNIT 4 FROM UNIT 5										
COMPUTE NM HYD	U5	-	1	.01150	13.21	.448	.73106	1.500	1.794	PER IMP= 50.00
COMPUTE NM HYD	A	-	2	.00273	3.14	.106	.73106	1.500	1.798	PER IMP= 50.00
COMPUTE NM HYD	B1	-	3	.00498	5.72	.194	.73106	1.500	1.795	PER IMP= 50.00
COMPUTE NM HYD	C	-	4	.00198	2.28	.077	.73106	1.500	1.799	PER IMP= 50.00
COMPUTE NM HYD	D1	-	5	.00160	1.84	.062	.73106	1.500	1.800	PER IMP= 50.00
COMPUTE NM HYD	E	-	6	.00320	3.68	.125	.73106	1.500	1.797	PER IMP= 50.00
COMPUTE NM HYD	F1	-	7	.00136	1.57	.053	.73106	1.500	1.802	PER IMP= 50.00
COMPUTE NM HYD	G1	-	8	.00160	1.84	.062	.73106	1.500	1.800	PER IMP= 50.00
COMPUTE NM HYD	H	-	9	.00200	2.30	.078	.73106	1.500	1.799	PER IMP= 50.00
COMPUTE NM HYD	I1	-	10	.00170	1.96	.066	.73106	1.500	1.800	PER IMP= 50.00
COMPUTE NM HYD	J	-	11	.00150	1.73	.058	.73106	1.500	1.802	PER IMP= 50.00
COMPUTE NM HYD	K	-	12	.00130	1.50	.051	.73106	1.500	1.802	PER IMP= 50.00
COMPUTE NM HYD	L	-	13	.00160	1.84	.062	.73106	1.500	1.800	PER IMP= 50.00
COMPUTE NM HYD	OFFN	-	14	.02800	8.01	.216	.14451	1.500	.447	PER IMP= .00
COMPUTE NM HYD	OFF5	-	15	.01500	4.29	.116	.14451	1.500	.447	PER IMP= .00
COMPUTE NM HYD	B2	-	16	.00150	1.73	.058	.73106	1.500	1.802	PER IMP= 50.00
COMPUTE NM HYD	D2	-	17	.00310	3.56	.121	.73106	1.500	1.797	PER IMP= 50.00
COMPUTE NM HYD	G2	-	18	.00310	3.56	.121	.73106	1.500	1.797	PER IMP= 50.00
COMPUTE NM HYD	I2	-	19	.00340	3.91	.133	.73106	1.500	1.797	PER IMP= 50.00
COMPUTE NM HYD	F2	-	50	.00168	1.94	.066	.73106	1.500	1.800	PER IMP= 50.00
COMPUTE NM HYD	F3	-	51	.00200	2.30	.078	.73106	1.500	1.799	PER IMP= 50.00
COMPUTE NM HYD	F4	-	52	.00190	2.19	.074	.73106	1.500	1.799	PER IMP= 50.00
COMPUTE NM HYD	114.00	-	53	.00210	3.83	.139	1.24008	1.500	2.851	PER IMP= 100.00
COMPUTE NM HYD	DV1	-	54	.00190	3.47	.126	1.24008	1.500	2.851	PER IMP= 100.00
COMPUTE NM HYD	DV2	-	55	.00480	8.75	.317	1.24008	1.500	2.849	PER IMP= 100.00
COMPUTE NM HYD	PND	-	56	.00202	.32	.009	.08362	1.550	.247	PER IMP= .00
COMPUTE NM HYD	L2	-	57	.00433	4.98	.169	.73106	1.500	1.796	PER IMP= 50.00
COMPUTE NM HYD	OPEN	-	58	.00125	.20	.006	.08362	1.550	.248	PER IMP= .00
*S AREA DRAINING INTO SWALE/POND BEFORE INTO NORTH POND OF UNIT 5										
COMPUTE NM HYD	WSN	-	59	.01160	3.32	.089	.14451	1.500	.447	PER IMP= .00
*S******ROUTE THROUGH NORTH-WESTERN DETENTION/CHANNEL POND										
ROUTE RESERVOIR	NWCHAN	59	20	.01160	1.50	.089	.14450	1.700	.203	AC-FT= .039
ADD HYD	WPOND	20&15	21	.02660	5.25	.205	.14449	1.550	.308	
*S******ROUTE THROUGH OFFSITE POND WEST OF UNIT 5										
ROUTE RESERVOIR	POND5	21	22	.02660	.89	.205	.14449	2.200	.052	AC-FT= .130
ADD HYD	COMBO	22&14	26	.05460	8.19	.421	.14445	1.500	.234	
*S******ROUTE THROUGH OFFSITE POND WEST OF UNIT 4										
ROUTE RESERVOIR	POND4	26	23	.05460	.66	.420	.14410	3.300	.019	AC-FT= .242
ADD HYD	OFF114	23&53	14	.05670	3.96	.559	.18469	1.500	.109	
ADD HYD	OFFA114	14& 2	24	.05943	7.10	.665	.20978	1.500	.187	
ADD HYD	OAC	24& 4	21	.06141	9.38	.742	.22659	1.500	.239	
ADD HYD	B12	3&16	22	.00648	7.45	.252	.73097	1.500	1.797	
ADD HYD	BOAC	22&21	23	.06788	16.82	.995	.27470	1.500	.387	
ADD HYD	5DEV	1&54	24	.01340	16.67	.574	.80319	1.500	1.944	

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
ADD HYD	5BOAC	24&23	25	.08128	33.49	1.569	.36182	1.500	.644	
ADD HYD	POND	25&56	26	.08331	33.80	1.578	.35507	1.500	.634	
*S DETERMINATION OF SURGE POND:										
ROUTE RESERVOIR	SPOND	26	27	.08331	6.43	1.577	.35505	2.050	.121	AC-FT= 1.658
ADD HYD	PE	27& 6	30	.08651	7.18	1.702	.36896	1.950	.130	
ADD HYD	PED2	30&17	31	.08961	10.09	1.823	.38148	1.550	.176	
ADD HYD	GH	18& 9	33	.00510	5.87	.199	.73096	1.500	1.798	
ADD HYD	PEDGH	33&31	34	.09471	15.76	2.022	.40030	1.500	.260	
ADD HYD	IJ	19&11	35	.00490	5.64	.191	.73094	1.500	1.798	
ADD HYD	IJL2	35&57	37	.00923	10.62	.360	.73096	1.500	1.797	
ADD HYD	EDGHIJL	37&34	39	.10394	26.38	2.382	.42967	1.500	.397	
ADD HYD	FD1	7& 5	42	.00296	3.41	.115	.73087	1.500	1.801	
ADD HYD	BFDF2	42&50	44	.00464	5.35	.181	.73088	1.500	1.801	
ADD HYD	BF2DG	44& 8	45	.00624	7.19	.243	.73088	1.500	1.801	
ADD HYD	BF3DG	45&51	47	.00824	9.49	.321	.73089	1.500	1.800	
ADD HYD	BFDGI	47&10	49	.00994	11.45	.387	.73089	1.500	1.800	
ADD HYD	BFDGIK	49&52	60	.01184	13.64	.462	.73089	1.500	1.800	
ADD HYD	NORTH	60&12	62	.01314	15.14	.512	.73089	1.500	1.800	
ADD HYD	NL1	62&13	63	.01474	16.98	.575	.73089	1.500	1.800	
ADD HYD	34.00	63&39	64	.11868	43.36	2.956	.46708	1.500	.571	
ADD HYD	ALL	64&55	65	.12348	52.11	3.274	.49713	1.500	.659	
FINISH										

TIMARRON WEST UNITS 3 AND 4
Internal Street and Inlet Capacity Calculations
July 9, 2003

During interim conditions, the internal street hydraulics will be analyzed with flows produced from a 10-year design storm. Please refer to the modified AHYMO summary and basin map for adjusted flows.

1. **Teal Road**
   Basin D2 and E (See Basin Map)
   S = 4.36%
   Q = 41.24 cfs

   The total flow in Teal Road just west of inlets 6 and 7 is 41.24 cfs. This amount includes overflow from the pond and runoff from basins D2 and E. The total energy at this flowrate exceeds the right-of-way, however, it does not exceed the as-built pad elevations. At this point, there is approximately 2 cfs in the storm drain pipe. Inlets 6 and 7 will intercept 17 cfs of the street flow. Therefore, 24.24 cfs continues east in the street and 19 cfs is contained in the storm drain pipe.

2. **Teal Road**
   Basin G2 and H (See Basin Map)
   S = 4.02%
   Q = 30.1 cfs

   The total flow in Teal Road just west of inlets 8 and 9 is 30.1 cfs. The total energy at this flowrate exceeds the right-of-way, however, it does not exceed the as-built pad elevations. Inlets 8 and 9 will intercept approximately 15 cfs of the street flow. Therefore, 15 cfs continues east in the street and 34 cfs is contained in the storm drain pipe.

3. **Teal Road**
   Basin I2 and J (See Basin Map)
   S = 4.02%
   Q = 20.7 cfs

   At 4.02%, a road with standard curb can handle 26 cfs. Therefore, the street capacity of Teal Road at the intersection of Cockatiel Drive is not exceeded. Inlets 10 and 11 will intercept approximately 13 cfs of the street flow. 7.7 cfs continues east into the stub and 47 cfs is contained in the storm drain pipe.

4. **Teal Road - Stub**
   Basin L2 (See Basin Map)
   S = 2.6%
   Q = 12.7 cfs

   At 2.6%, a road with standard curb can handle 29 cfs. Therefore, the street capacity of Teal Road at the stub terminus is not exceeded. An existing triple 'C' inlet will capture the remaining street runoff and convey it to a 36" storm drain pipe. At this point, there is approximately 60 cfs in the pipe.

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

TEAL ROAD (WEST END)

MANNING'S N= .017 SLOPE= .0376

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

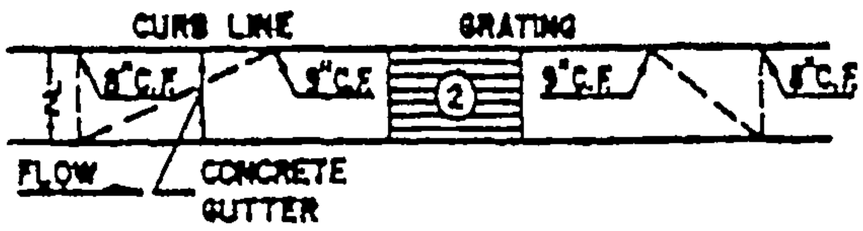
□ WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.48	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.76	0.63	0.01	0.03
0.03	0.03	0.01	0.0	0.99	1.00	0.94	0.02	0.05
0.04	0.04	0.03	0.0	1.32	1.21	1.25	0.02	0.06
0.05	0.05	0.04	0.1	1.64	1.40	1.56	0.03	0.08
0.06	0.06	0.06	0.1	1.97	1.58	1.88	0.04	0.10
0.07	0.07	0.08	0.1	2.30	1.75	2.19	0.05	0.12
0.08	0.08	0.10	0.2	2.63	1.92	2.50	0.06	0.14
0.09	0.09	0.13	0.3	2.96	2.07	2.81	0.07	0.16
0.10	0.10	0.16	0.3	3.29	2.22	3.13	0.08	0.18
0.11	0.11	0.19	0.4	3.62	2.37	3.44	0.09	0.20
0.12	0.12	0.23	0.6	3.95	2.51	3.75	0.10	0.22
0.13	0.13	0.26	0.7	4.28	2.65	4.07	0.11	0.24
0.14	0.14	0.31	0.8	5.15	2.60	4.93	0.10	0.24
0.15	0.15	0.36	0.9	6.03	2.60	5.79	0.11	0.26
0.16	0.16	0.43	1.1	6.91	2.64	6.65	0.11	0.27
0.17	0.17	0.50	1.3	7.79	2.70	7.51	0.11	0.28
0.18	0.18	0.58	1.6	8.67	2.78	8.38	0.12	0.30
0.19	0.19	0.66	1.9	9.54	2.87	9.24	0.13	0.32
0.20	0.20	0.76	2.2	10.42	2.96	10.10	0.14	0.34
0.21	0.21	0.87	2.6	11.30	3.06	10.96	0.15	0.36
0.22	0.22	0.98	3.1	12.18	3.16	11.83	0.15	0.37
0.23	0.23	1.10	3.6	13.06	3.26	12.69	0.17	0.40
0.24	0.24	1.23	4.2	13.93	3.37	13.55	0.18	0.42
0.25	0.25	1.37	4.8	14.81	3.47	14.41	0.19	0.44
0.26	0.26	1.52	5.4	15.69	3.58	15.27	0.20	0.46
0.27	0.27	1.68	6.2	16.57	3.68	16.14	0.21	0.48
0.28	0.28	1.84	7.0	17.45	3.79	17.00	0.22	0.50
0.29	0.29	2.02	7.9	18.32	3.89	17.86	0.24	0.53
0.30	0.30	2.20	8.8	19.20	4.00	18.72	0.25	0.55
0.31	0.31	2.39	9.8	20.08	4.10	19.59	0.26	0.57
0.32	0.32	2.59	10.9	20.96	4.21	20.45	0.28	0.60
0.33	0.33	2.80	12.1	21.84	4.31	21.31	0.29	0.62
0.34	0.34	3.02	13.3	22.71	4.41	22.17	0.30	0.64
0.35	0.35	3.25	14.7	23.59	4.52	23.03	0.32	0.67
0.36	0.36	3.48	16.1	24.47	4.62	23.90	0.33	0.69
0.37	0.37	3.72	17.6	25.35	4.72	24.76	0.35	0.72
0.38	0.38	3.98	19.2	26.23	4.82	25.62	0.36	0.74
0.39	0.39	4.24	20.8	27.10	4.92	26.48	0.38	0.77
0.40	0.40	4.50	22.6	27.98	5.02	27.35	0.39	0.79
0.41	0.41	4.78	24.5	28.86	5.11	28.21	0.41	0.82
0.42	0.42	5.06	26.9	28.88	5.31	28.21	0.44	0.86
0.43	0.43	5.35	29.4	28.90	5.50	28.22	0.47	0.90

STREET CAPACITY

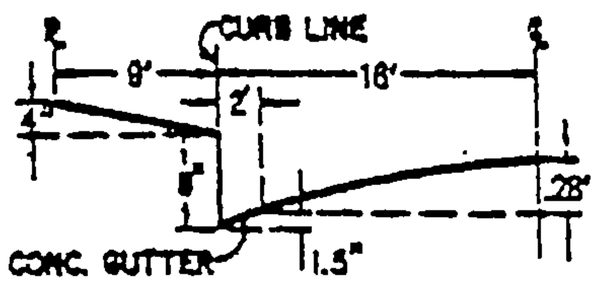
□ WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.45	0.45	5.91	34.7	28.94	5.88	28.23	0.54	0.99
0.46	0.46	6.19	37.5	28.96	6.06	28.23	0.57	1.03
0.47	0.47	6.48	40.4	28.98	6.24	28.24	0.60	1.07
0.48	0.48	6.76	43.4	29.01	6.42	28.24	0.64	1.12
0.49	0.49	7.04	46.4	29.03	6.59	28.25	0.67	1.16
0.50	0.50	7.32	49.5	29.05	6.76	28.25	0.71	1.21
0.51	0.51	7.61	52.7	29.07	6.93	28.26	0.75	1.26
0.52	0.52	7.89	56.0	29.09	7.10	28.26	0.78	1.30
0.53	0.53	8.17	59.4	29.11	7.27	28.27	0.82	1.35
0.54	0.54	8.45	62.8	29.13	7.43	28.27	0.86	1.40

INLETS 4/5

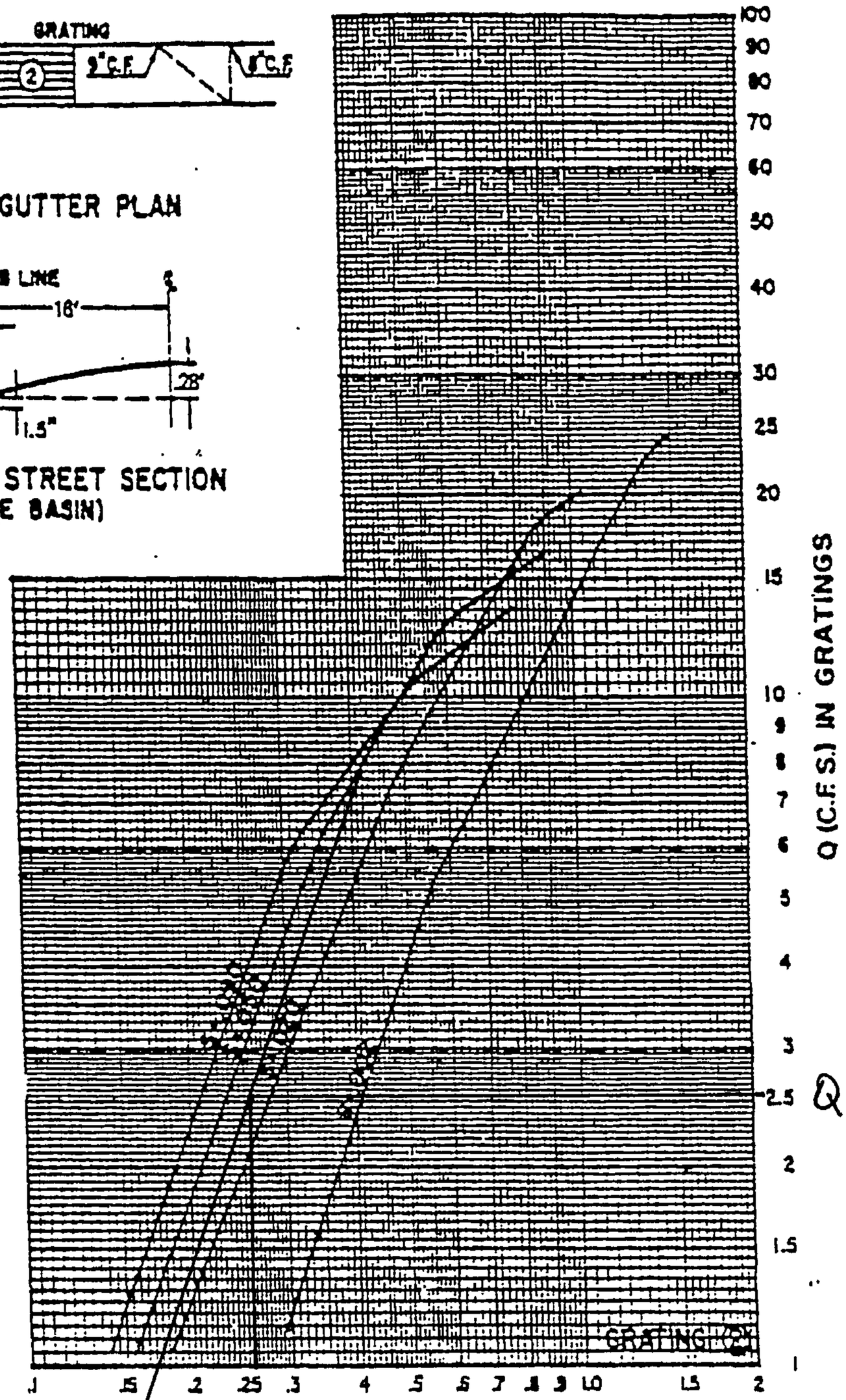
GRATING CAPACITIES FOR TYPE 'A', 'C' and 'D'



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



Q = 2.6 cfs

D = 0.26

PLATE 22.3 D-5

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

TEAL ROAD (AT HAWK DRIVE)

MANNING'S N= .017 SLOPE= .0436

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.52	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.82	0.63	0.01	0.03
0.03	0.03	0.01	0.0	0.99	1.07	0.94	0.02	0.05
0.04	0.04	0.03	0.0	1.32	1.30	1.25	0.03	0.07
0.05	0.05	0.04	0.1	1.64	1.51	1.56	0.04	0.09
0.06	0.06	0.06	0.1	1.97	1.70	1.88	0.05	0.11
0.07	0.07	0.08	0.1	2.30	1.89	2.19	0.06	0.13
0.08	0.08	0.10	0.2	2.63	2.06	2.50	0.07	0.15
0.09	0.09	0.13	0.3	2.96	2.23	2.81	0.08	0.17
0.10	0.10	0.16	0.4	3.29	2.40	3.13	0.09	0.19
0.11	0.11	0.19	0.5	3.62	2.55	3.44	0.10	0.21
0.12	0.12	0.23	0.6	3.95	2.70	3.75	0.11	0.23
0.13	0.13	0.26	0.8	4.28	2.85	4.07	0.13	0.26
0.14	0.14	0.31	0.9	5.15	2.80	4.93	0.12	0.26
0.15	0.15	0.36	1.0	6.03	2.80	5.79	0.12	0.27
0.16	0.16	0.43	1.2	6.91	2.84	6.65	0.13	0.29
0.17	0.17	0.50	1.4	7.79	2.91	7.51	0.13	0.30
0.18	0.18	0.58	1.7	8.67	2.99	8.38	0.14	0.32
0.19	0.19	0.66	2.0	9.54	3.09	9.24	0.15	0.34
0.20	0.20	0.76	2.4	10.42	3.19	10.10	0.16	0.36
0.21	0.21	0.87	2.8	11.30	3.29	10.96	0.17	0.38
0.22	0.22	0.98	3.3	12.18	3.40	11.83	0.18	0.40
0.23	0.23	1.10	3.9	13.06	3.51	12.69	0.19	0.42
0.24	0.24	1.23	4.5	13.93	3.62	13.55	0.20	0.44
0.25	0.25	1.37	5.1	14.81	3.74	14.41	0.22	0.47
0.26	0.26	1.52	5.9	15.69	3.85	15.27	0.23	0.49
0.27	0.27	1.68	6.7	16.57	3.97	16.14	0.24	0.51
0.28	0.28	1.84	7.5	17.45	4.08	17.00	0.26	0.54
0.29	0.29	2.02	8.5	18.32	4.19	17.86	0.27	0.56
0.30	0.30	2.20	9.5	19.20	4.31	18.72	0.29	0.59
0.31	0.31	2.39	10.6	20.08	4.42	19.59	0.30	0.61
0.32	0.32	2.59	11.8	20.96	4.53	20.45	0.32	0.64
0.33	0.33	2.80	13.0	21.84	4.64	21.31	0.33	0.66
0.34	0.34	3.02	14.4	22.71	4.75	22.17	0.35	0.69
0.35	0.35	3.25	15.8	23.59	4.86	23.03	0.37	0.72
0.36	0.36	3.48	17.3	24.47	4.97	23.90	0.38	0.74
0.37	0.37	3.72	18.9	25.35	5.08	24.76	0.40	0.77
0.38	0.38	3.98	20.6	26.23	5.19	25.62	0.42	0.80
0.39	0.39	4.24	22.4	27.10	5.30	26.48	0.44	0.83
0.40	0.40	4.50	24.3	27.98	5.40	27.35	0.45	0.85
0.41	0.41	4.78	26.3	28.86	5.51	28.21	0.47	0.88
0.42	0.42	5.06	29.0	28.88	5.72	28.21	0.51	~~0.93~~
0.43	0.43	5.35	31.7	28.90	5.93	28.22	0.55	0.98

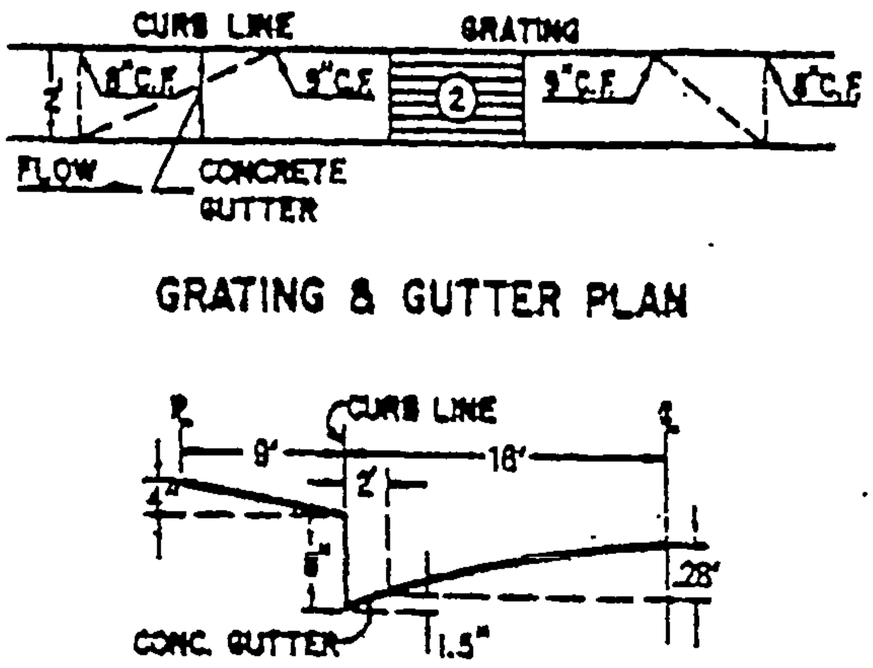
STREET CAPACITY

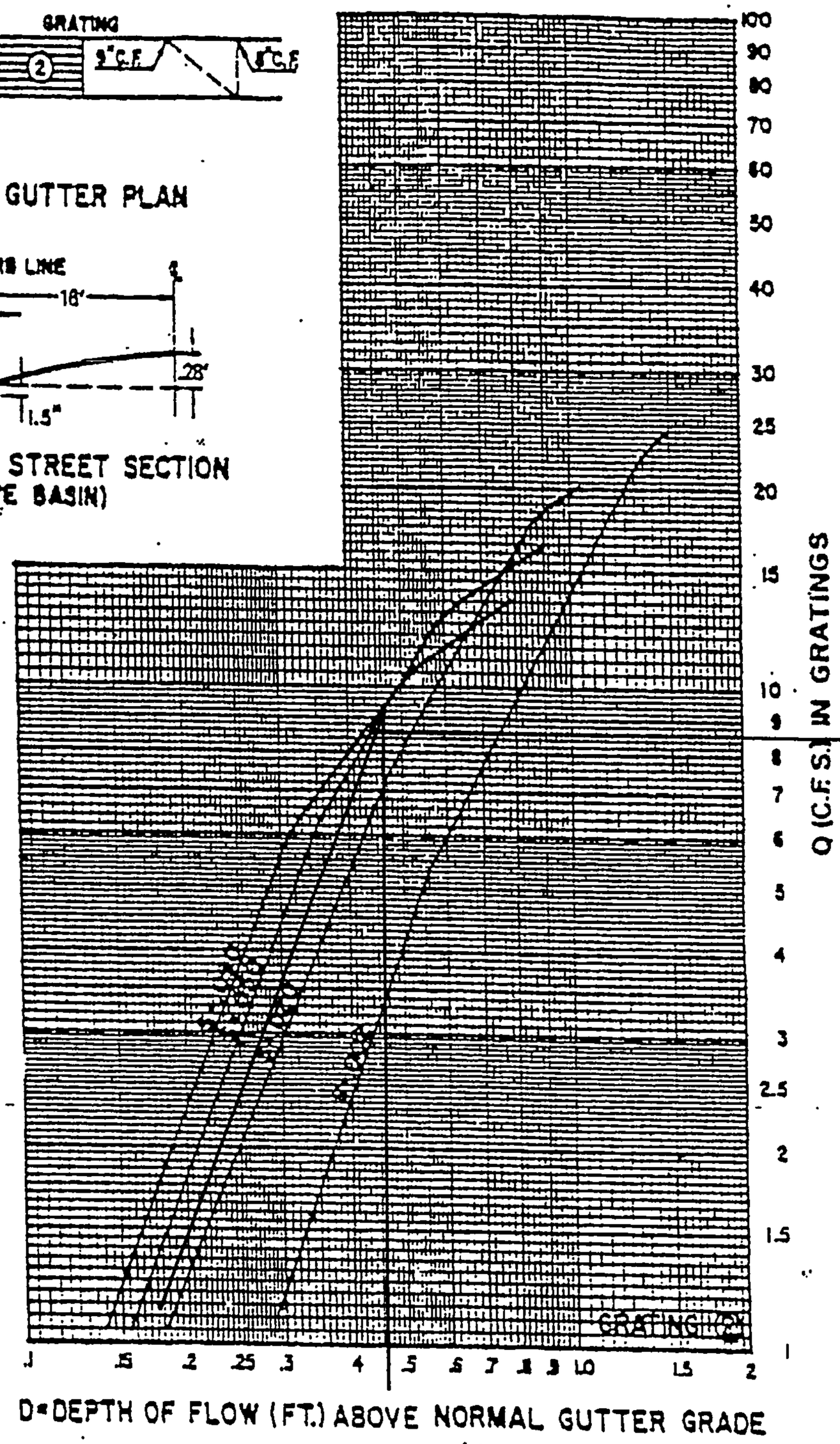
WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.45	0.45	5.91	37.4	28.94	6.33	28.23	0.62	1.07
0.46	0.46	6.19	40.4	28.96	6.53	28.23	0.66	1.12
0.47	0.47	6.48	43.5	28.98	6.72	28.24	0.70	1.17
0.48	0.48	6.76	46.7	29.01	6.91	28.24	0.74	1.22
0.49	0.49	7.04	50.0	29.03	7.10	28.25	0.78	1.27
0.50	0.50	7.32	53.3	29.05	7.28	28.25	0.82	1.32
0.51	0.51	7.61	56.8	29.07	7.47	28.26	0.87	1.38
0.52	0.52	7.89	60.3	29.09	7.65	28.26	0.91	1.43
0.53	0.53	8.17	63.9	29.11	7.83	28.27	0.95	1.48
0.54	0.54	8.45	67.6	29.13	8.00	28.27	0.99	1.53

ACTUAL FLOW = 41.24 cfs

INLETS 6/7

GRATING CAPACITIES FOR TYPE 'A', 'C' and 'D'





Q = 8.5 cf.

D = 0.46

PLATE 22.3 D-5

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

TEAL ROAD (AT TANAGER)

MANNING'S N= .017 SLOPE= .0402

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	37.17	0.67
2	8.38	0.67	6	23.00	0.41	10	37.63	0.67
3	8.83	0.67	7	35.00	0.13	11	46.00	0.83
4	9.00	0.00	8	37.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.50	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.79	0.63	0.01	0.03
0.03	0.03	0.01	0.0	0.99	1.03	0.94	0.02	0.05
0.04	0.04	0.03	0.0	1.32	1.25	1.25	0.02	0.06
0.05	0.05	0.04	0.1	1.64	1.45	1.56	0.03	0.08
0.06	0.06	0.06	0.1	1.97	1.64	1.88	0.04	0.10
0.07	0.07	0.08	0.1	2.30	1.81	2.19	0.05	0.12
0.08	0.08	0.10	0.2	2.63	1.98	2.50	0.06	0.14
0.09	0.09	0.13	0.3	2.96	2.14	2.81	0.07	0.16
0.10	0.10	0.16	0.4	3.29	2.30	3.13	0.08	0.18
0.11	0.11	0.19	0.5	3.62	2.45	3.44	0.09	0.20
0.12	0.12	0.23	0.6	3.95	2.60	3.75	0.10	0.22
0.13	0.13	0.26	0.7	4.28	2.74	4.07	0.12	0.25
0.14	0.14	0.31	0.8	5.15	2.69	4.93	0.11	0.25
0.15	0.15	0.36	1.0	6.03	2.69	5.79	0.11	0.26
0.16	0.16	0.43	1.2	6.91	2.73	6.65	0.12	0.28
0.17	0.17	0.50	1.4	7.79	2.79	7.51	0.12	0.29
0.18	0.18	0.58	1.7	8.67	2.87	8.38	0.13	0.31
0.19	0.19	0.66	2.0	9.54	2.96	9.24	0.14	0.33
0.20	0.20	0.76	2.3	10.42	3.06	10.10	0.15	0.35
0.21	0.21	0.87	2.7	11.30	3.16	10.96	0.16	0.37
0.22	0.22	0.98	3.2	12.18	3.27	11.83	0.17	0.39
0.23	0.23	1.10	3.7	13.06	3.37	12.69	0.18	0.41
0.24	0.24	1.23	4.3	13.93	3.48	13.55	0.19	0.43
0.25	0.25	1.37	4.9	14.81	3.59	14.41	0.20	0.45
0.26	0.26	1.52	5.6	15.69	3.70	15.27	0.21	0.47
0.27	0.27	1.68	6.4	16.57	3.81	16.14	0.23	0.50
0.28	0.28	1.84	7.2	17.45	3.92	17.00	0.24	0.52
0.29	0.29	2.02	8.1	18.32	4.03	17.86	0.25	0.54
0.30	0.30	2.20	9.1	19.20	4.14	18.72	0.27	0.57
0.31	0.31	2.39	10.2	20.08	4.24	19.59	0.28	0.59
0.32	0.32	2.59	11.3	20.96	4.35	20.45	0.29	0.61
0.33	0.33	2.80	12.5	21.84	4.46	21.31	0.31	0.64
0.34	0.34	3.02	13.8	22.71	4.56	22.17	0.32	0.66
0.35	0.35	3.25	15.2	23.59	4.67	23.03	0.34	0.69
0.36	0.36	3.48	16.6	24.47	4.77	23.90	0.35	0.71
0.37	0.37	3.72	18.2	25.35	4.88	24.76	0.37	0.74
0.38	0.38	3.98	19.8	26.23	4.98	25.62	0.39	0.77
0.39	0.39	4.24	21.5	27.10	5.08	26.48	0.40	0.79
0.40	0.40	4.50	23.4	27.98	5.19	27.35	0.42	0.82
0.41	0.41	4.78	25.3	28.86	5.29	28.21	0.43	0.84
0.42	0.42	5.06	27.8	28.88	5.49	28.21	0.47	0.89
0.43	0.43	5.35	30.4	28.90	5.69	28.22	0.50	0.93

ACTUAL FLOW AT INLETS 10/11

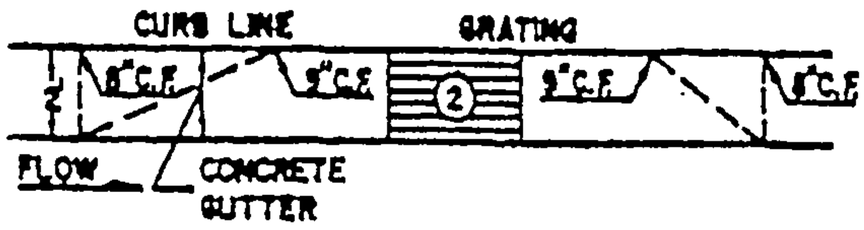
STREET CAPACITY

ACTUAL FLOW AT INLETS 8/9

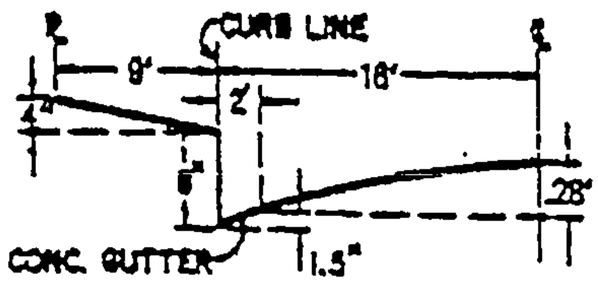
WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.45	0.45	5.91	35.9	28.94	6.08	28.23	0.57	1.02
0.46	0.46	6.19	38.8	28.96	6.27	28.23	0.61	1.07
0.47	0.47	6.48	41.8	28.98	6.45	28.24	0.65	1.12
0.48	0.48	6.76	44.9	29.01	6.64	28.24	0.68	1.16
0.49	0.49	7.04	48.0	29.03	6.82	28.25	0.72	1.21
0.50	0.50	7.32	51.2	29.05	6.99	28.25	0.76	1.26
0.51	0.51	7.61	54.5	29.07	7.17	28.26	0.80	1.31
0.52	0.52	7.89	57.9	29.09	7.34	28.26	0.84	1.36
0.53	0.53	8.17	61.4	29.11	7.51	28.27	0.88	1.41
0.54	0.54	8.45	64.9	29.13	7.68	28.27	0.92	1.46

INLETS 8/9

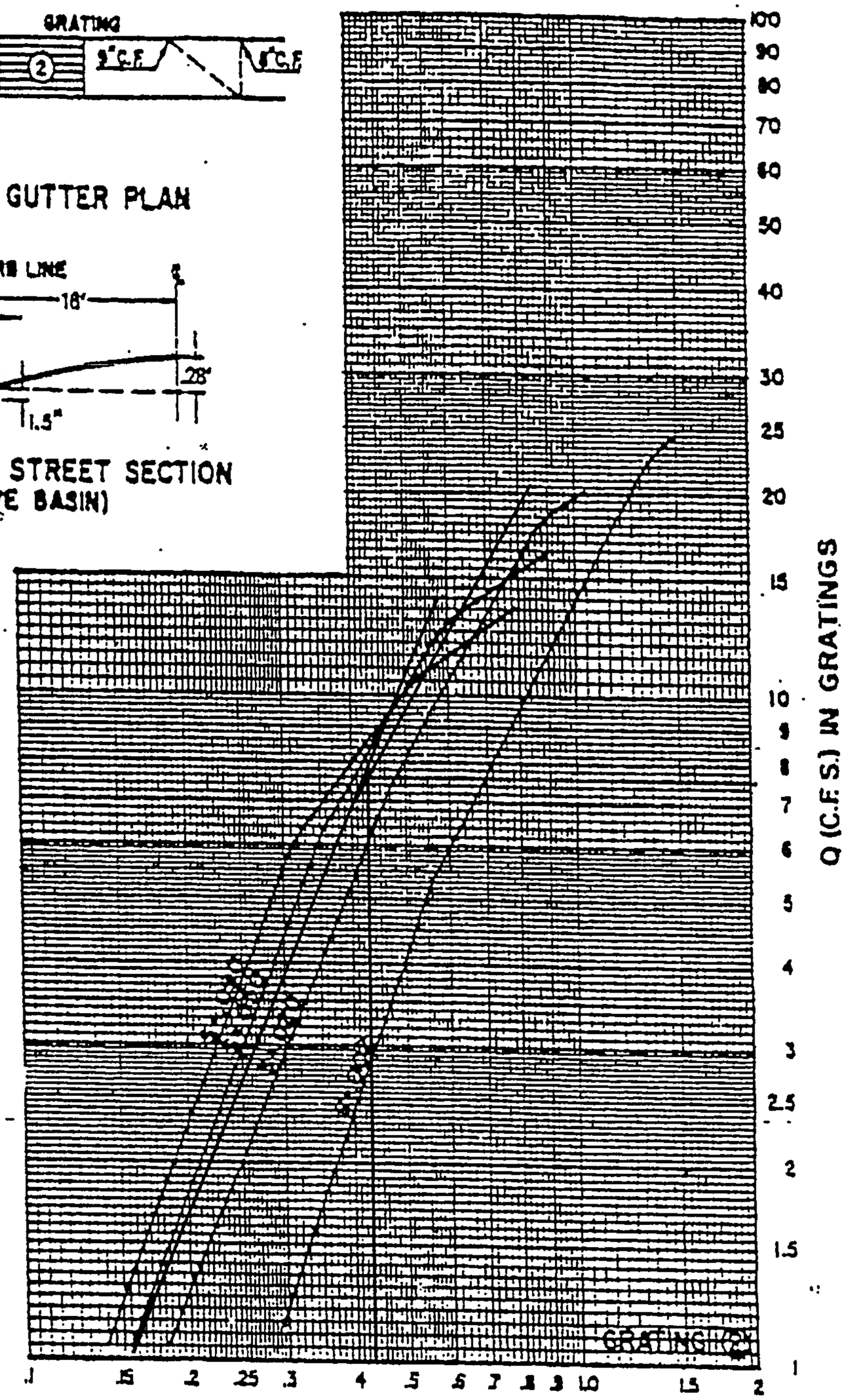
GRATING CAPACITIES FOR TYPE 'A', 'C' and 'D'



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



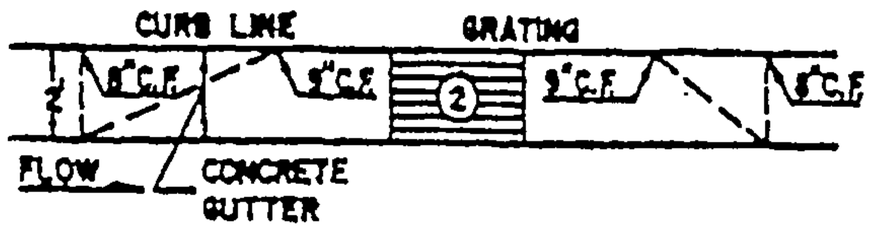
Q=7.5 cfs

PLATE 22.3 D-5

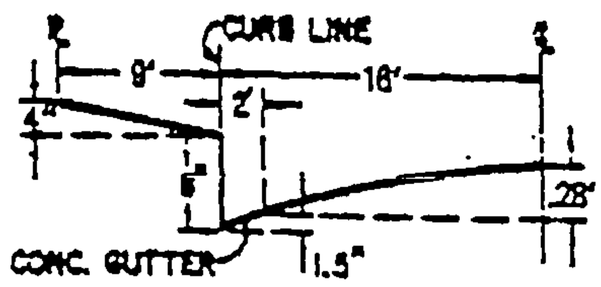
D = 0.43

INLETS 10/11

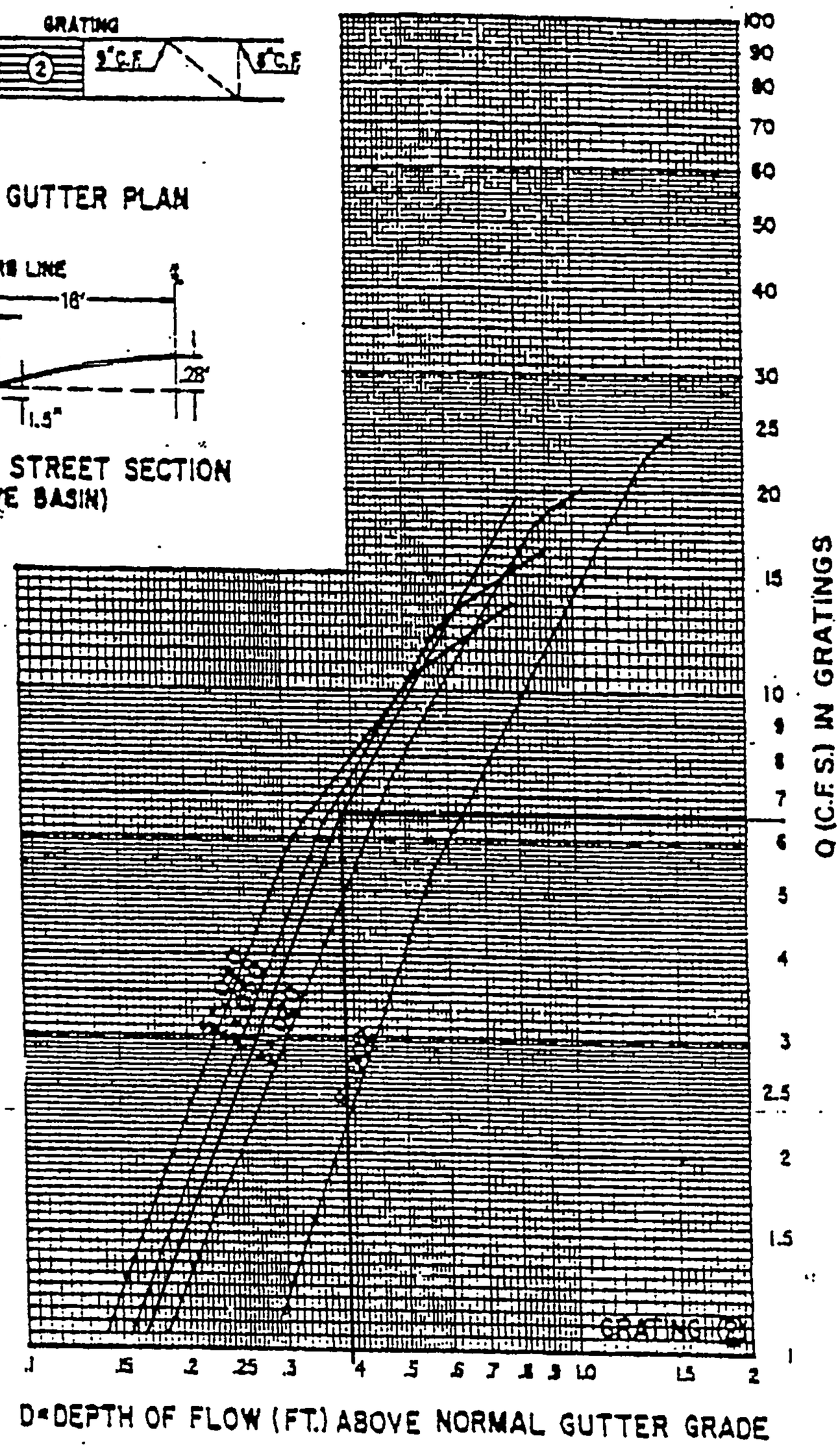
GRATING CAPACITIES FOR TYPE 'A', 'C' and 'D'



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



Q = 6.5 cfs

PLATE 22.3 D-5

D = 0.39

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

TEAL ROAD (EAST STUB)

MANNING'S N= .017 SLOPE= .026

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.83	5	11.00	0.13	9	34.17	0.67
2	8.38	0.67	6	23.00	0.41	10	34.63	0.67
3	8.83	0.67	7	32.00	0.13	11	43.00	0.83
4	9.00	0.00	8	34.00	0.00	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.33	0.40	0.31	0.00	0.01
0.02	0.02	0.01	0.0	0.66	0.63	0.63	0.01	0.03
0.03	0.03	0.01	0.0	0.99	0.83	0.94	0.01	0.04
0.04	0.04	0.03	0.0	1.32	1.00	1.25	0.02	0.06
0.05	0.05	0.04	0.0	1.64	1.17	1.56	0.02	0.07
0.06	0.06	0.06	0.1	1.97	1.32	1.88	0.03	0.09
0.07	0.07	0.08	0.1	2.30	1.46	2.19	0.03	0.10
0.08	0.08	0.10	0.2	2.63	1.59	2.50	0.04	0.12
0.09	0.09	0.13	0.2	2.96	1.72	2.81	0.05	0.14
0.10	0.10	0.16	0.3	3.29	1.85	3.13	0.05	0.15
0.11	0.11	0.19	0.4	3.62	1.97	3.44	0.06	0.17
0.12	0.12	0.23	0.5	3.95	2.09	3.75	0.07	0.19
0.13	0.13	0.26	0.6	4.28	2.20	4.07	0.08	0.21
0.14	0.14	0.31	0.7	5.05	2.19	4.82	0.07	0.21
0.15	0.15	0.36	0.8	5.82	2.21	5.58	0.08	0.23
0.16	0.16	0.42	0.9	6.59	2.25	6.33	0.08	0.24
0.17	0.17	0.49	1.1	7.36	2.31	7.09	0.08	0.25
0.18	0.18	0.56	1.3	8.13	2.37	7.84	0.09	0.27
0.19	0.19	0.64	1.6	8.90	2.45	8.60	0.09	0.28
0.20	0.20	0.73	1.9	9.67	2.53	9.35	0.10	0.30
0.21	0.21	0.83	2.2	10.44	2.61	10.11	0.11	0.32
0.22	0.22	0.94	2.5	11.21	2.69	10.86	0.11	0.33
0.23	0.23	1.05	2.9	11.99	2.78	11.62	0.12	0.35
0.24	0.24	1.17	3.3	12.76	2.86	12.37	0.13	0.37
0.25	0.25	1.30	3.8	13.53	2.95	13.13	0.14	0.39
0.26	0.26	1.43	4.3	14.30	3.04	13.88	0.14	0.40
0.27	0.27	1.57	4.9	15.07	3.13	14.64	0.15	0.42
0.28	0.28	1.72	5.5	15.84	3.21	15.39	0.16	0.44
0.29	0.29	1.88	6.2	16.61	3.30	16.15	0.17	0.46
0.30	0.30	2.05	6.9	17.38	3.39	16.90	0.18	0.48
0.31	0.31	2.22	7.7	18.15	3.47	17.66	0.19	0.50
0.32	0.32	2.40	8.5	18.92	3.56	18.41	0.20	0.52
0.33	0.33	2.59	9.4	19.69	3.64	19.17	0.21	0.54
0.34	0.34	2.78	10.4	20.47	3.73	19.92	0.22	0.56
0.35	0.35	2.99	11.4	21.24	3.81	20.68	0.23	0.58
0.36	0.36	3.20	12.4	22.01	3.89	21.43	0.24	0.60
0.37	0.37	3.41	13.6	22.78	3.98	22.19	0.25	0.62
0.38	0.38	3.64	14.8	23.55	4.06	22.94	0.26	0.64
0.39	0.39	3.87	16.0	24.32	4.14	23.70	0.27	0.66
0.40	0.40	4.11	17.4	25.09	4.22	24.45	0.28	0.68
0.41	0.41	4.36	18.8	25.86	4.30	25.21	0.29	0.70
0.42	0.42	4.61	20.6	25.88	4.46	25.21	0.31	0.73
0.43	0.43	4.87	22.5	25.90	4.62	25.22	0.33	0.76

ACTUAL FLOW

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.45	0.45	5.37	26.5	25.94	4.93	25.23	0.38	0.83
0.46	0.46	5.62	28.6	25.97	5.08	25.23	0.40	0.86
0.47	0.47	5.88	30.7	25.99	5.23	25.24	0.42	0.89
0.48	0.48	6.13	33.0	26.01	5.38	25.24	0.45	0.93
0.49	0.49	6.38	35.2	26.03	5.52	25.25	0.47	0.96
0.50	0.50	6.63	37.6	26.05	5.66	25.25	0.50	1.00
0.51	0.51	6.89	40.0	26.07	5.80	25.26	0.52	1.03
0.52	0.52	7.14	42.4	26.09	5.94	25.26	0.55	1.07
0.53	0.53	7.39	44.9	26.11	6.08	25.27	0.57	1.10
0.54	0.54	7.64	47.5	26.13	6.21	25.27	0.60	1.14

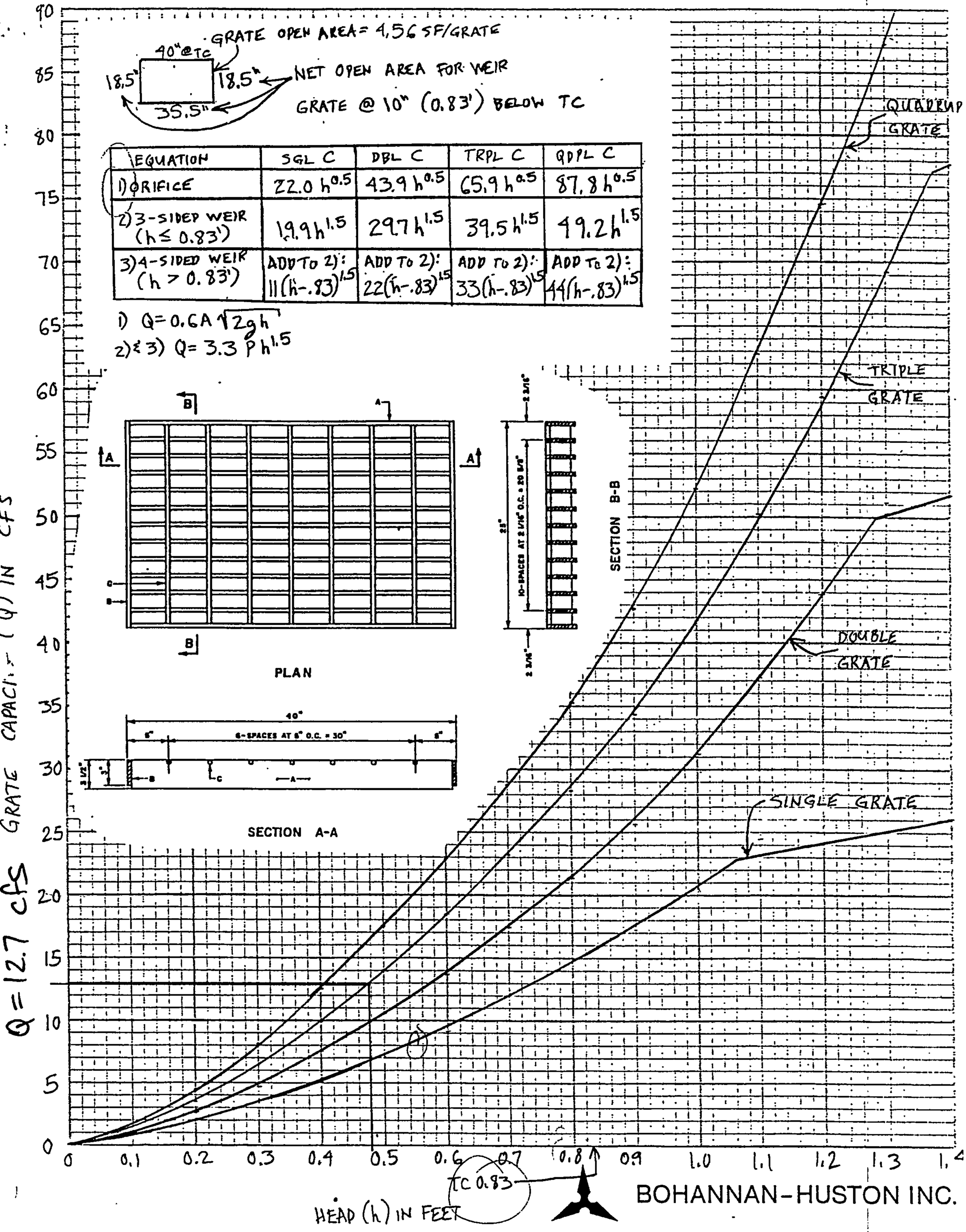
STREET CAPACITY

EQUATION	SGL C	DBL C	TRPL C	QDPL C
1) ORIFICE	$22.0\,h^{0.5}$	$43.9\,h^{0.5}$	$65.9\,h^{0.5}$	$87.8\,h^{0.5}$
2) 3-SIDED WEIR ($h \le 0.83'$)	$19.9\,h^{1.5}$	$29.7\,h^{1.5}$	$39.5\,h^{1.5}$	$49.2\,h^{1.5}$
3) 4-SIDED WEIR ($h > 0.83'$)	ADD TO 2): $11(h-.83)^{1.5}$	ADD TO 2): $22(h-.83)^{1.5}$	ADD TO 2): $33(h-.83)^{1.5}$	ADD TO 2): $44(h-.83)^{1.5}$

1) $Q = 0.6A\sqrt{2gh}$

2) & 3) $Q = 3.3\,P\,h^{1.5}$

SECTION A-A



BOHANNAN-HUSTON INC.

PROJECT NAME TIMARRON WEST SHEET ____ OF ____

PROJECT NO. TEAL RD. (EAST STUB) BY JPK DATE 4/9/92

SUBJECT RATING CURVE FOR TYPE C INLETS CH'D ____ DATE ____

Analyzer Report

TEAL ROAD + COCKATIEL

==========

Drainage Structure Analyzer

Pipe Hydraulic Analysis

Date: Wednesday, July 09, 2003 10:59:36 AM

==========

Input Data

Shape	Circular
Material	RC C76-A
Roughness	0.013000
Method	Manning
Flow Rate	47.0000 cfs
Slope	3.9300%
Size (W x T):	24.00 x 2.5000

Output Results

Flow Rate	47.0000 cfs
Slope	3.9300%
d/D	0.8710
Capacity	44.8472 cfs
Velocity	16.1830 ft/s
Depth	1.7420 ft
Critical Depth	1.9700 ft
Size (W x T):	24.00 x 2.5000

Analyzer Report

TEAL ROAD - STUB

==========

Drainage Structure Analyzer

Pipe Hydraulic Analysis

Date: Wednesday, July 09, 2003 10:58:18 AM

==========

Input Data

Shape	Circular
Material	RC C76-A
Roughness	0.013000
Method	Manning
Flow Rate	60.0000 cfs
Slope	0.7500%
Size (W x T):	36.00 x 3.0000

Output Results

Flow Rate	60.0000 cfs
Slope	0.7500%
d/D	0.8593
Capacity	57.7625 cfs
Velocity	9.2837 ft/s
Depth	2.5780 ft
Critical Depth	2.5000 ft
Size (W x T):	36.00 x 3.0000

21.00

H 651681

AGREEMENT AND COVENANT

4/12/01

This Agreement and Covenant, between the City of Albuquerque, New Mexico ("City") and Timarron Homeowners Association Inc ("User") is made in Albuquerque, New Mexico and is entered into as of the date of recording this Agreement with the Bernalillo County Clerk.

1. Recital. The User is the owner of certain real property ("User's Property") located at Osprey Dr. & Teal Rd. SW, in Albuquerque, New Mexico, and more particularly described as: (give legal description and filing information)

Tract "D"
Timarron West Subdivision Unit 3
Recorded February 07, 2001
BK 2001C Page 45
In the records of Bernalillo County, New Mexico

The City is the owner of certain real property, easement or public right-of-way ("City's Property") in the vicinity of, contiguous to, abutting or within User's Property, and more particularly described as:

Teal Road SW
Public Drainage Easement on Tract "D" ~~filedxwith~~
filed with Plat of Timarron Unit 3
Recorded on February 07, 2001
BK 2001 C Page 45 in the records of Bernalillo County, New Mexico

The User wishes to construct upon, improve or repair and to maintain the following "Improvement" on the City's Property (or already has done so):

Drainage Pond

A sketch of the proposed or existing Improvement is attached as Exhibit A and made a part of this Agreement.

The City agrees to permit the Improvement to exist on the City's Property provided the User complies with the terms of this Agreement.

2. City Use of City's Property and City Liability. The City has the right to enter upon the City's Property at any time and perform whatever inspection, installation, maintenance, repair, modification or removal ("Work") it deems appropriate without liability to the User. If the Work affects the Improvement the City will not be financially or otherwise responsible for rebuilding or repairing the Improvement. The User promptly will repair the Improvement to the City's satisfaction. The cost of repairing the Improvement will be paid by User.

Mary Herrera Bern Co AGRE R 21 00
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Page 1 of 8
04/17/2001 11 23A
Bk-A18 Pg-467

3. User's Responsibility for Improvement. The User will be solely responsible for constructing, maintaining, repairing and, if required, removing the Improvement, all in accordance with standards required by the City as per the approved Grading and Drainage Plan L8+M8 / D5A on file at the City Engineer's office. The User will be solely responsible for paying all related costs. The User will be solely responsible for paying all related costs. The User will not permit the Improvement to constitute a hazard to the health or safety of the general public or to interfere with the City's use of the City's Property. The User will conform with all applicable laws, ordinances and regulations.

4. Use of the Improvement. If the City's Property is a public right-of-way, it shall be open to the use of the general public at all times, subject to reasonable curtailment during periods of construction, maintenance or repair.

5. Demand for Repair, Modification or Removal. The City may send written notice ("Notice") to the User requiring the User to repair, modify or remove the Improvement within 30 days ("Deadline") and the User will comply promptly with the requirements of the Notice. If removal is demanded, the City also may require the User to return the City's Property to its original condition by the Deadline. The User will perform all required work by the Deadline, at User's sole expense.

6. Failure to Perform by User and Emergency Work by City. If the User fails to comply with the terms of the Notice by the Deadline stated, or, if the City determines that an emergency condition exists, the City may perform the work itself. The City then may assess the User for the cost of the work and for any other expenses or damages which result from User's failure to perform. The User agrees promptly to pay the City the amount assessed. If the User fails to pay the City within thirty (30) days after the City gives the User written notice of the amount due, the City may impose a lien against User's Property for the total resulting amount.

7. Cancellation of Agreement and Release of Covenant. This Agreement may be canceled and User's covenants released by the City at will by the City's mailing to the User notice of the City's intention to record a Cancellation and Release with the Bernalillo County Clerk. The Cancellation and Release will be effective thirty (30) days after the date of mailing the notice to the User unless a later date is stated in the notice or the Cancellation and Release. After the effective date, the City will record the Cancellation and Release with the Bernalillo County Clerk.

8. Condemnation. If any part of the User's Property is ever condemned by the City, the User will forego all claims to compensation for any portion of User's structure which encroaches on City Property and for severance damage to the remaining portion of User's structure on User's Property.

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5492067
Page: 2 of 8
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Bk-A18 Pg-467
Mary Herrera Bern Co AGRE R 21.00

9. Assessment. Nothing in this Agreement shall be construed to relieve the User, his heirs, assigns and successors from an assessment against User's Property for improvements to the City Property under a duly authorized and approved Special Assessment District. The parties specifically agree that the value of the Improvement will not reduce the amount assessed by the City.

10. Notice. For purposes of giving formal written notice to the User, User's address is:

Timarron Homeowners Assn. Inc.
C/O Centex Homes
6700 Jefferson NE
Albuquerque, New Mexico 87109

Notice may be given to the User either in person or by mailing the notice by regular U.S. mail, postage paid. Notice will be considered to have been received by the User within 3 days after the notice is mailed if there is no actual evidence of receipt. The User may change User's address by giving written notice of the change by certified mail, return receipt requested, to the City Engineer at P.O. Box 1293, Albuquerque, New Mexico 87103.

11. Indemnification. The User agrees to defend, indemnify and hold harmless the City, its officials, agents and employees from and against any and all claims, actions, suits or proceedings of any kind brought against said parties as a result of User's use of the City's Property. To the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this Agreement to indemnify will not extend to liability, claims, damages, losses or expenses, including attorney's fees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by the indemnitee, or the agents or employees of the indemnitee; or (2) the giving of or the failure to give direction or instructions by the indemnitee, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

12. Term. This Agreement shall continue until revoked by the City pursuant to Section 7 above.

13. Binding on User's Property. The covenants and obligations of the User set forth herein shall be binding on User, his heirs assigns and successors and on User's Property and constitute covenants running with User's Property until released by the City.

14. Entire Agreement. This Agreement contains the entire agreement of the parties and supersedes any and all other agreements or understandings, oral or written, whether previous to the execution hereof or contemporaneous herewith.

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5492867
Page 3 of 8
04/17/2001 11 23A
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Mary Herrera Bern. Co AGRE R 21 00

USER'S ACKNOWLEDGMENT

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on FEBRUARY 13, 2001, by TOM HOUSEN, PRESIDENT, on behalf of TIMBERON HOMEOWNERS ASSN. INC

Notary Public

My Commission Expires:

11/10/2001

OFFICIAL SEAL
NORMA A. GREGORY
NOTARY PUBLIC STATE OF NEW MEXICO
My commission expires 11/10/2001

Mary Herrera Bern. Co AGRE R 21 00

2001042813
5492867
Page: 5 of 8
04/17/2001 11 23A
Bk-A18 Pg-467

Bohannan ▲ Huston INC.

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335
www.bhinc.com
voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

CLIENT/COURIER TRANSMITTAL

To: Brad Bingham
City of Albuquerque
Plaza Del Sol

Requested By: Nina Leung

Date: **July 18, 2003**

Time Due: ❑ **This A.M.** ❑ **This P.M.**
❑ **Rush ___** ❑ **By Tomorrow**

Job No.: 99470

Job Name: Timarron West Unit 4

DELIVERY VIA

❑ **Courier** ❑ **Federal Express**
❑ **Mail** ❑ **UPS**
❑ **Other** _____

PICK UP

Item: _____
_____

ITEM NO.	QUANTITY	DESCRIPTION
1	1	Drainage Information Sheet
2	1	Letter of Description
3	1	Exhibits/Analysis

COMMENTS / INSTRUCTIONS

RECEIVED
JUL 18 2003
HYDROLOGY SECTION

ENGINEERING ▲
SPATIAL DATA ▲
ADVANCED TECHNOLOGIES ▲

REC'D BY: _____ ***DATE:*** _____ ***TIME:*** _____

Bohannan ▲ Huston INC.

Courtyard I
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toll free: 800.877.5332

July 18, 2003

Mr. Brad Bingham
Development Review Board
City of Albuquerque
P O Box 1293
Albuquerque, NM 87103

Re: Timarron West Subdivision, Unit 4
Regrading of Detention Pond

Dear Mr. Bingham:

As previously discussed, the detention surge pond for Timarron West Unit 4 has been inadequately constructed. The pond bottom is very shallow and was not constructed according to the approved grading plan. Therefore, its capacity is less than half of the volume as designated by the approved drainage report. As a solution to this, we proposed to regrade the pond so that the volume is approximately equal to the volume that is necessary for adequate drainage control.

Attached are plan views and analysis of the pond with approved grades, as-built grades, and proposed grades. Your review and approval is requested so that we may proceed with reconstruction and finalizing of the grading and drainage certification of the pond. If you have any questions or comments, please do not hesitate to call.

Sincerely,

Nina Leung
Community Development
and Planning Group

Enclosures

RECEIVED
JUL 18 2003
HYDROLOGY SECTION

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02c RUN DATE (MON/DAY/YR) =07/17/2003
INPUT FILE = PROPOSED.TXT USER NO.= AHYMO-S-9702c1BohanHu-AH

ANALYSIS OF PROPOSED POND

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	PAGE = 1
*S TIMARRON WEST UNIT 4 SITE FLOW											
START										TIME=	.00
*S INPUT FILE = PROPOSED.TXT											
RAINFALL TYPE= 1										RAIN6=	2.200
*S GOES INTO SURGE POND IN UNIT 4 FROM UNIT 5											
COMPUTE NM HYD	U5	-	1	.01150	23.27	.808	1.31698	1.500	3.161	PER IMP=	50.00
COMPUTE NM HYD	A	-	2	.00273	5.53	.192	1.31698	1.500	3.167	PER IMP=	50.00
COMPUTE NM HYD	B1	-	3	.00498	10.07	.349	1.31698	1.500	3.163	PER IMP=	50.00
COMPUTE NM HYD	C	-	4	.00198	4.02	.139	1.31698	1.500	3.170	PER IMP=	50.00
COMPUTE NM HYD	D1	-	5	.00160	3.25	.112	1.31698	1.500	3.173	PER IMP=	50.00
COMPUTE NM HYD	E	-	6	.00320	6.48	.225	1.31698	1.500	3.166	PER IMP=	50.00
COMPUTE NM HYD	F1	-	7	.00136	2.76	.096	1.31698	1.500	3.175	PER IMP=	50.00
COMPUTE NM HYD	G1	-	8	.00160	3.25	.112	1.31698	1.500	3.173	PER IMP=	50.00
COMPUTE NM HYD	H	-	9	.00440	8.91	.309	1.31698	1.500	3.164	PER IMP=	50.00
COMPUTE NM HYD	I1	-	10	.00170	3.45	.119	1.31698	1.500	3.173	PER IMP=	50.00
COMPUTE NM HYD	J	-	11	.00320	6.48	.225	1.31698	1.500	3.166	PER IMP=	50.00
COMPUTE NM HYD	K	-	12	.00130	2.64	.091	1.31698	1.500	3.176	PER IMP=	50.00
COMPUTE NM HYD	L	-	13	.00160	3.25	.112	1.31698	1.500	3.173	PER IMP=	50.00
COMPUTE NM HYD	OFFN	-	14	.02800	29.03	.809	.54156	1.500	1.620	PER IMP=	.00
COMPUTE NM HYD	OFF5	-	15	.01500	15.56	.433	.54156	1.500	1.620	PER IMP=	.00
COMPUTE NM HYD	B2	-	16	.00150	3.05	.105	1.31698	1.500	3.175	PER IMP=	50.00
COMPUTE NM HYD	D2	-	17	.00310	6.28	.218	1.31698	1.500	3.166	PER IMP=	50.00
COMPUTE NM HYD	G2	-	18	.00310	6.28	.218	1.31698	1.500	3.166	PER IMP=	50.00
COMPUTE NM HYD	I2	-	19	.00340	6.89	.239	1.31698	1.500	3.165	PER IMP=	50.00
COMPUTE NM HYD	F2	-	50	.00168	3.41	.118	1.31698	1.500	3.173	PER IMP=	50.00
COMPUTE NM HYD	F3	-	51	.00200	4.06	.140	1.31698	1.500	3.170	PER IMP=	50.00
COMPUTE NM HYD	F4	-	52	.00190	3.86	.133	1.31698	1.500	3.170	PER IMP=	50.00
COMPUTE NM HYD	114.00	-	53	.00210	5.79	.220	1.96760	1.500	4.305	PER IMP=	100.00
COMPUTE NM HYD	DV1	-	54	.00190	5.24	.199	1.96760	1.500	4.305	PER IMP=	100.00
COMPUTE NM HYD	DV2	-	55	.00480	13.22	.504	1.96760	1.500	4.302	PER IMP=	100.00
COMPUTE NM HYD	PND	-	56	.00202	1.67	.047	.43936	1.500	1.293	PER IMP=	.00
COMPUTE NM HYD	L2	-	57	.00433	8.77	.304	1.31698	1.500	3.164	PER IMP=	50.00
COMPUTE NM HYD	OPEN	-	58	.00125	1.04	.029	.43936	1.500	1.296	PER IMP=	.00
*S AREA DRAINING INTO SWALE/POND BEFORE INTO NORTH POND OF UNIT 5											
COMPUTE NM HYD	WSN	-	59	.01160	12.03	.335	.54156	1.500	1.621	PER IMP=	.00
*S******ROUTE THROUGH NORTH-WESTERN DETENTION/CHANNEL POND											
ROUTE RESERVOIR	NWCHAN	59	20	.01160	5.68	.335	.54155	1.700	.765	AC-FT=	.145
ADD HYD	WPOND	20&15	21	.02660	19.08	.768	.54154	1.550	1.121		
*S******ROUTE THROUGH OFFSITE POND WEST OF UNIT 5											
ROUTE RESERVOIR	POND5	21	22	.02660	2.48	.768	.54153	2.300	.146	AC-FT=	.530
ADD HYD	COMBO	22&14	26	.05460	29.85	1.577	.54150	1.500	.854		
*S******ROUTE THROUGH OFFSITE POND WEST OF UNIT 4											
ROUTE RESERVOIR	POND4	26	23	.05460	2.02	1.573	.54003	3.850	.058	AC-FT=	.876
ADD HYD	OFF114	23&53	14	.05670	6.34	1.793	.59290	1.500	.175		
ADD HYD	OFFA114	14& 2	24	.05943	11.88	1.985	.62616	1.500	.312		
ADD HYD	OAC	24& 4	21	.06141	15.89	2.124	.64843	1.500	.404		
ADD HYD	B12	3&16	22	.00648	13.12	.455	1.31689	1.500	3.166		
ADD HYD	BOAC	22&21	23	.06788	29.01	2.578	.71219	1.500	.668		
ADD HYD	5DEV	1&54	24	.01340	28.50	1.007	1.40919	1.500	3.323		

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
ADD HYD	5BOAC	24&23	25	.08128	57.51	3.586	.82709	1.500	1.106	
ADD HYD	POND	25&56	26	.08331	59.19	3.633	.81769	1.500	1.110	
*S DETERMINATION OF SURGE POND:										
ROUTE RESERVOIR	POND	26	27	.08331	1.97	3.553	.79961	6.200	.037	AC-FT= 2.057
ADD HYD	PE	27& 6	30	.08651	7.67	3.777	.81874	1.500	.139	
ADD HYD	PED2	30&17	31	.08961	13.95	3.995	.83598	1.500	.243	
ADD HYD	GH	18& 9	33	.00750	15.19	.527	1.31690	1.500	3.165	
ADD HYD	PEDGH	33&31	34	.09711	29.14	4.522	.87312	1.500	.469	
ADD HYD	IJ	19&11	35	.00660	13.37	.464	1.31689	1.500	3.166	
ADD HYD	IJL2	35&57	37	.01093	22.14	.768	1.31690	1.500	3.165	
ADD HYD	EDGHIJL	37&34	39	.10804	51.28	5.289	.91802	1.500	.742	
ADD HYD	FD1	7& 5	42	.00296	6.01	.208	1.31678	1.500	3.174	
ADD HYD	BFDF2	42&50	44	.00464	9.42	.326	1.31680	1.500	3.173	
ADD HYD	BF2DG	44& 8	45	.00624	12.67	.438	1.31679	1.500	3.173	
ADD HYD	BF3DG	45&51	47	.00824	16.73	.579	1.31680	1.500	3.172	
ADD HYD	BFDGI	47&10	49	.00994	20.18	.698	1.31680	1.500	3.172	
ADD HYD	BFDGIK	49&52	60	.01184	24.04	.832	1.31680	1.500	3.172	
ADD HYD	NORTH	60&12	62	.01314	26.68	.923	1.31680	1.500	3.172	
ADD HYD	NL1	62&13	63	.01474	29.93	1.035	1.31680	1.500	3.172	
ADD HYD	34.00	63&39	64	.12278	81.21	6.325	.96589	1.500	1.034	
ADD HYD	ALL	64&55	65	.12758	94.43	6.828	1.00358	1.500	1.157	
FINISH										

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02c RUN DATE (MON/DAY/YR) =07/17/2003
INPUT FILE = ASBUILT.TXT USER NO.= AHYMO-S-9702c1BohanHu-AH

ANALYSIS OF POND (AS-BUILT)

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	PAGE = 1 NOTATION
*S TIMARRON WEST UNIT 4 SITE FLOW										
START										TIME= .00
*S INPUT FILE = U4B.TXT										
RAINFALL TYPE= 1										RAIN6= 2.200
*S GOES INTO SURGE POND IN UNIT 4 FROM UNIT 5										
COMPUTE NM HYD	U5	-	1	.01150	23.27	.808	1.31698	1.500	3.161	PER IMP= 50.00
COMPUTE NM HYD	A	-	2	.00273	5.53	.192	1.31698	1.500	3.167	PER IMP= 50.00
COMPUTE NM HYD	B1	-	3	.00498	10.07	.349	1.31698	1.500	3.163	PER IMP= 50.00
COMPUTE NM HYD	C	-	4	.00198	4.02	.139	1.31698	1.500	3.170	PER IMP= 50.00
COMPUTE NM HYD	D1	-	5	.00160	3.25	.112	1.31698	1.500	3.173	PER IMP= 50.00
COMPUTE NM HYD	E	-	6	.00320	6.48	.225	1.31698	1.500	3.166	PER IMP= 50.00
COMPUTE NM HYD	F1	-	7	.00136	2.76	.096	1.31698	1.500	3.175	PER IMP= 50.00
COMPUTE NM HYD	G1	-	8	.00160	3.25	.112	1.31698	1.500	3.173	PER IMP= 50.00
COMPUTE NM HYD	H	-	9	.00440	8.91	.309	1.31698	1.500	3.164	PER IMP= 50.00
COMPUTE NM HYD	I1	-	10	.00170	3.45	.119	1.31698	1.500	3.173	PER IMP= 50.00
COMPUTE NM HYD	J	-	11	.00320	6.48	.225	1.31698	1.500	3.166	PER IMP= 50.00
COMPUTE NM HYD	K	-	12	.00130	2.64	.091	1.31698	1.500	3.176	PER IMP= 50.00
COMPUTE NM HYD	L	-	13	.00160	3.25	.112	1.31698	1.500	3.173	PER IMP= 50.00
COMPUTE NM HYD	OFFN	-	14	.02800	29.03	.809	.54156	1.500	1.620	PER IMP= .00
COMPUTE NM HYD	OFF5	-	15	.01500	15.56	.433	.54156	1.500	1.620	PER IMP= .00
COMPUTE NM HYD	B2	-	16	.00150	3.05	.105	1.31698	1.500	3.175	PER IMP= 50.00
COMPUTE NM HYD	D2	-	17	.00310	6.28	.218	1.31698	1.500	3.166	PER IMP= 50.00
COMPUTE NM HYD	G2	-	18	.00310	6.28	.218	1.31698	1.500	3.166	PER IMP= 50.00
COMPUTE NM HYD	I2	-	19	.00340	6.89	.239	1.31698	1.500	3.165	PER IMP= 50.00
COMPUTE NM HYD	F2	-	50	.00168	3.41	.118	1.31698	1.500	3.173	PER IMP= 50.00
COMPUTE NM HYD	F3	-	51	.00200	4.06	.140	1.31698	1.500	3.170	PER IMP= 50.00
COMPUTE NM HYD	F4	-	52	.00190	3.86	.133	1.31698	1.500	3.170	PER IMP= 50.00
COMPUTE NM HYD	114.00	-	53	.00210	5.79	.220	1.96760	1.500	4.305	PER IMP= 100.00
COMPUTE NM HYD	DV1	-	54	.00190	5.24	.199	1.96760	1.500	4.305	PER IMP= 100.00
COMPUTE NM HYD	DV2	-	55	.00480	13.22	.504	1.96760	1.500	4.302	PER IMP= 100.00
COMPUTE NM HYD	PND	-	56	.00202	1.67	.047	.43936	1.500	1.293	PER IMP= .00
COMPUTE NM HYD	L2	-	57	.00433	8.77	.304	1.31698	1.500	3.164	PER IMP= 50.00
COMPUTE NM HYD	OPEN	-	58	.00125	1.04	.029	.43936	1.500	1.296	PER IMP= .00
*S AREA DRAINING INTO SWALE/POND BEFORE INTO NORTH POND OF UNIT 5										
COMPUTE NM HYD	WSN	-	59	.01160	12.03	.335	.54156	1.500	1.621	PER IMP= .00
*S******ROUTE THROUGH NORTH-WESTERN DETENTION/CHANNEL POND										
ROUTE RESERVOIR	NWCHAN	59	20	.01160	5.68	.335	.54155	1.700	.765	AC-FT= .145
ADD HYD	WPOND	20&15	21	.02660	19.08	.768	.54154	1.550	1.121	
*S******ROUTE THROUGH OFFSITE POND WEST OF UNIT 5										
ROUTE RESERVOIR	POND5	21	22	.02660	2.48	.768	.54153	2.300	.146	AC-FT= .530
ADD HYD	COMBO	22&14	26	.05460	29.85	1.577	.54150	1.500	.854	
*S******ROUTE THROUGH OFFSITE POND WEST OF UNIT 4										
ROUTE RESERVOIR	POND4	26	23	.05460	2.02	1.573	.54003	3.850	.058	AC-FT= .876
ADD HYD	OFF114	23&53	14	.05670	6.34	1.793	.59290	1.500	.175	
ADD HYD	OFFA114	14& 2	24	.05943	11.88	1.985	.62616	1.500	.312	
ADD HYD	OAC	24& 4	21	.06141	15.89	2.124	.64843	1.500	.404	
ADD HYD	B12	3&16	22	.00648	13.12	.455	1.31689	1.500	3.166	
ADD HYD	BOAC	22&21	23	.06788	29.01	2.578	.71219	1.500	.668	
ADD HYD	5DEV	1&54	24	.01340	28.50	1.007	1.40919	1.500	3.323	

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
ADD HYD	5BOAC	24&23	25	.08128	57.51	3.586	.82709	1.500	1.106	
ADD HYD	POND	25&56	26	.08331	59.19	3.633	.81769	1.500	1.110	
*S DETERMINATION OF SURGE POND:										
ROUTE RESERVOIR	POND	26	27	.08331	2.99	3.633	.81768	2.750	.056	AC-FT= 3.626
ADD HYD	PE	27& 6	30	.08651	8.36	3.858	.83615	1.500	.151	
ADD HYD	PED2	30&17	31	.08961	14.64	4.075	.85278	1.500	.255	
ADD HYD	GH	18& 9	33	.00750	15.19	.527	1.31690	1.500	3.165	
ADD HYD	PEDGH	33&31	34	.09711	29.83	4.602	.88863	1.500	.480	
ADD HYD	IJ	19&11	35	.00660	13.37	.464	1.31689	1.500	3.166	
ADD HYD	IJL2	35&57	37	.01093	22.14	.768	1.31690	1.500	3.165	
ADD HYD	EDGHIJL	37&34	39	.10804	51.97	5.370	.93196	1.500	.752	
ADD HYD	FD1	7& 5	42	.00296	6.01	.208	1.31678	1.500	3.174	
ADD HYD	BFDF2	42&50	44	.00464	9.42	.326	1.31680	1.500	3.173	
ADD HYD	BF2DG	44& 8	45	.00624	12.67	.438	1.31679	1.500	3.173	
ADD HYD	BF3DG	45&51	47	.00824	16.73	.579	1.31680	1.500	3.172	
ADD HYD	BFDGI	47&10	49	.00994	20.18	.698	1.31680	1.500	3.172	
ADD HYD	BFDGIK	49&52	60	.01184	24.04	.832	1.31680	1.500	3.172	
ADD HYD	NORTH	60&12	62	.01314	26.68	.923	1.31680	1.500	3.172	
ADD HYD	NL1	62&13	63	.01474	29.93	1.035	1.31680	1.500	3.172	
ADD HYD	34.00	63&39	64	.12278	81.90	6.405	.97816	1.500	1.042	
ADD HYD	ALL	64&55	65	.12758	95.11	6.909	1.01538	1.500	1.165	
FINISH										

ANALYSIS AS APPROVED IN DRAINAGE REPORT (DATED APRIL 6, 2000)

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =04/04/2000 USER NO.= BOHN_HNM.STE

INPUT FILE = u4.txt PAGE = 1

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
										TIME= .00
*S TIMARRON WEST UNIT 4 SITE FLOW										RAIN6= 2.200
START										
RAINFALL TYPE= 1										
*S GOES INTO SURGE POND IN UNIT 4 FROM UNIT 5										
COMPUTE NM HYD	U5	-	1	.01150	23.27	.808	1.31698	1.500	3.161	PER IMP= 50.00
COMPUTE NM HYD	A	-	2	.00273	5.53	.192	1.31698	1.500	3.167	PER IMP= 50.00
COMPUTE NM HYD	B1	-	3	.00498	10.07	.349	1.31698	1.500	3.163	PER IMP= 50.00
COMPUTE NM HYD	C	-	4	.00198	4.02	.139	1.31698	1.500	3.170	PER IMP= 50.00
COMPUTE NM HYD	D1	-	5	.00160	3.25	.112	1.31698	1.500	3.173	PER IMP= 50.00
COMPUTE NM HYD	E	-	6	.00320	6.48	.225	1.31698	1.500	3.166	PER IMP= 50.00
COMPUTE NM HYD	F1	-	7	.00136	2.76	.096	1.31698	1.500	3.175	PER IMP= 50.00
COMPUTE NM HYD	G1	-	8	.00160	3.25	.112	1.31698	1.500	3.173	PER IMP= 50.00
COMPUTE NM HYD	H	-	9	.00440	8.91	.309	1.31698	1.500	3.164	PER IMP= 50.00
COMPUTE NM HYD	I1	-	10	.00170	3.45	.119	1.31698	1.500	3.173	PER IMP= 50.00
COMPUTE NM HYD	J	-	11	.00320	6.48	.225	1.31698	1.500	3.166	PER IMP= 50.00
COMPUTE NM HYD	K	-	12	.00130	2.64	.091	1.31698	1.500	3.176	PER IMP= 50.00
COMPUTE NM HYD	L	-	13	.00160	3.25	.112	1.31698	1.500	3.173	PER IMP= 50.00
COMPUTE NM HYD	OFFN	-	14	.02800	29.03	.809	.54156	1.500	1.620	PER IMP= .00
COMPUTE NM HYD	OFF5	-	15	.01500	15.56	.433	.54156	1.500	1.620	PER IMP= .00
COMPUTE NM HYD	B2	-	16	.00150	3.05	.105	1.31698	1.500	3.175	PER IMP= 50.00
COMPUTE NM HYD	D2	-	17	.00310	6.28	.218	1.31698	1.500	3.166	PER IMP= 50.00
COMPUTE NM HYD	G2	-	18	.00310	6.28	.218	1.31698	1.500	3.166	PER IMP= 50.00
COMPUTE NM HYD	I2	-	19	.00340	6.89	.239	1.31698	1.500	3.165	PER IMP= 50.00
COMPUTE NM HYD	F2	-	50	.00168	3.41	.118	1.31698	1.500	3.173	PER IMP= 50.00
COMPUTE NM HYD	F3	-	51	.00200	4.06	.140	1.31698	1.500	3.170	PER IMP= 50.00
COMPUTE NM HYD	F4	-	52	.00190	3.86	.133	1.31698	1.500	3.170	PER IMP= 50.00
COMPUTE NM HYD	114.00	-	53	.00210	5.79	.220	1.96760	1.500	4.305	PER IMP= 100.00
COMPUTE NM HYD	DV1	-	54	.00190	5.24	.199	1.96760	1.500	4.305	PER IMP= 100.00
COMPUTE NM HYD	DV2	-	55	.00480	13.22	.504	1.96760	1.500	4.302	PER IMP= 100.00
COMPUTE NM HYD	PND	-	56	.00202	1.67	.047	.43936	1.500	1.293	PER IMP= .00
COMPUTE NM HYD	L2	-	57	.00433	8.77	.304	1.31698	1.500	3.164	PER IMP= 50.00
COMPUTE NM HYD	OPEN	-	58	.00125	1.04	.029	.43936	1.500	1.296	PER IMP= .00
ADD HYD	1140	14&53	25	.03010	34.82	1.029	.64104	1.500	1.807	
ADD HYD	OFF	25&15	26	.04510	50.37	1.462	.60795	1.500	1.745	
*S******ROUTE THROUGH OFFSITE POND WEST OF UNIT 4										
ROUTE RESERVOIR	POND4	26	22	.04510	3.34	1.462	.60792	2.150	.116	AC-FT= 1.163
ADD HYD	OFFA	22& 2	24	.04783	7.37	1.654	.64832	1.550	.241	
ADD HYD	OAC	24& 4	21	.04981	11.15	1.793	.67490	1.500	.350	
ADD HYD	B12	3&16	22	.00648	13.12	.455	1.31689	1.500	3.166	
ADD HYD	BOAC	22&21	23	.05629	24.27	2.248	.74875	1.500	.674	
ADD HYD	5DEV	1&54	24	.01340	28.50	1.007	1.40919	1.500	3.323	
ADD HYD	5BOAC	24&23	25	.06969	52.77	3.255	.87575	1.500	1.183	
ADD HYD	POND	25&56	26	.07171	54.44	3.302	.86346	1.500	1.186	
*S DETERMINATION OF SURGE POND:										
ROUTE RESERVOIR	POND	26	27	.07171	2.32	3.227	.84389	5.600	.051	AC-FT= 2.050

RECEIVED
JUL 18 2003
HYDROLOGY SECTION

A-1

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
ADD HYD	PE	27& 6	30	.07491	7.63	3.452	.86409	1.500	.159	
ADD HYD	PED2	30&17	31	.07801	13.91	3.670	.88209	1.500	.279	
ADD HYD	GH	18& 9	33	.00750	15.19	.527	1.31690	1.500	3.165	
ADD HYD	PEDGH	33&31	34	.08551	29.10	4.196	.92023	1.500	.532	
ADD HYD	IJ	19&11	35	.00660	13.37	.464	1.31689	1.500	3.166	
ADD HYD	IJL2	35&57	37	.01093	22.14	.768	1.31690	1.500	3.165	
ADD HYD	EDGHIJL	37&34	39	.09644	51.24	4.964	.96519	1.500	.830	
ADD HYD	FD1	7& 5	42	.00296	6.01	.208	1.31678	1.500	3.174	
ADD HYD	BFDF2	42&50	44	.00464	9.42	.326	1.31680	1.500	3.173	
ADD HYD	BF2DG	44& 8	45	.00624	12.67	.438	1.31679	1.500	3.173	
ADD HYD	BF3DG	45&51	47	.00824	16.73	.579	1.31680	1.500	3.172	
ADD HYD	BFDGI	47&10	49	.00994	20.18	.698	1.31680	1.500	3.172	
ADD HYD	BFDGIK	49&52	60	.01184	24.04	.832	1.31680	1.500	3.172	
ADD HYD	NORTH	60&12	62	.01314	26.68	.923	1.31680	1.500	3.172	
ADD HYD	NL1	62&13	63	.01474	29.93	1.035	1.31680	1.500	3.172	
ADD HYD	34.00	63&39	64	.11118	81.17	5.999	1.01180	1.500	1.141	
ADD HYD	ALL	64&55	65	.11598	94.39	6.503	1.05136	1.500	1.272	
FINISH										

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 8, 2000, 1999

Rick Beltramo, PE
Bohannan Huston, Inc
7500 Jefferson NE
Albuquerque, NM 87109

Re: Timarron West Unit 3&4 Drainage Study
Engineer's Stamp dated 4-6-00, (M8/D05A)

Dear Mr. Beltramo,

Based upon the information provided in your submittal dated 4-6-00, the above referenced Drainage Study cannot be approved until the following comments are addressed:

- Please add dimensions to the sideyard retaining wall detail.

- Please provide a copy of the profile for 114th St. upstream of your development, or at the least show ~~where~~ the limits of the basin(s) that contribute to that street/pond basin.

- A minimum of one foot of freeboard is requested for all ponds. It appears that the detention pond in unit 4 will behave like a surge pond; how are you restricting the flows out of the pond – orifice plate, small pipe…? Please elaborate a bit more. It also appears that a berm will be needed at the SE corner. Please make this berm a minimum 10' wide. Final details can be worked out at DRC.

- Please add additional spot elevations to Starling Rd. in order to determine if nuisance flows (minor that they be) are not sheet flowing across the road. Add a valley gutter if needed.

- Please add a drop inlet across from lot 18 and on the pipe that enters the pond.

- As you know, all grading plans should include a benchmark and zone atlas number.

- The report should reference the FEMA flood plain map and include an exhibit showing your project superimposed on the map. Also, please include excerpts from the Unit 1&2 report that determines what capacity in the storm drain is available for Units 3-5.

- At the east end of Teal Rd., the slope changes from 4.2% to 1.5%. Please provide calculations that a hydraulic jump does not occur, or if it does, please adjust your grading plan to accommodate the increased depth.

If you have any questions about my comments, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham

Bradley L. Bingham, PE
Hydrology Review Engineer

C: file

DRAINAGE INFORMATION SHEET

PROJECT TITLE: TIMARRON WEST UNITS 3&4 ZONE ATLAS/DRNG. FILE # M8/D005

DRB #: _____ EPC #: _____ WORK ORDER #: D5A

LEGAL DESCRIPTION: TRACTS 1&2, LANDS OF GREVEY/LIBERMAN

CITY ADDRESS: DE VARGAS ROAD

ENGINEERING FIRM: BOHANNAN HUSTON, INC. CONTACT: RICK BELTRAMO

ADDRESS: 7500 JEFFERSON NE, ALB. NM 87109 PHONE: (505) 823-1000

OWNER: CENTEX REAL ESTATE CORP. CONTACT: NORM GREGORY

ADDRESS: 6700 JEFFERSON NE-BLDG B, ABQ 87109 PHONE: (505) 761-9606

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

X DRAINAGE REPORT
_____ DRAINAGE PLAN
X FINAL GRADING & DRAINAGE PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
_____ ENGINEERS CERTIFICATION
_____ OTHER

PRE-DESIGN MEETING:

_____ YES
X NO
_____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

_____ SKETCH PLAT APPROVAL
X PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUBD. APPROVAL
X S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
_____ BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY APPROVAL
X GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ S.A.D. DRAINAGE REPORT
_____ DRAINAGE REQUIREMENTS
_____ OTHER (SPECIFY)

DATE SUBMITTED: 4-6-00

BY: ELIZABETH SMITH, E.I.

RECEIVED
APR 06 2000
HYDROLOGY SECTION

P:\99470\cdp\reports\DRAINAGE INFO doc

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 13, 2000,

Rick Beltramo, PE
Bohannan Huston, Inc
7500 Jefferson NE
Albuquerque, NM 87109

Re: Timarron West Unit 3&4 Drainage Study
Engineer's Stamp dated 6-8-00, (M8/D5A)

Dear Mr. Beltramo,

Based upon the information provided in your submittal dated 6-9-00, the above referenced Drainage Study is approved for Site Plan for Subdivision, Site Plan for Building Permit and Preliminary Plat action by the DRB.

This plan is also approved for Grading Permit release. As you are aware, a topsoil disturbance permit must be obtained prior to any grading on this site.

Prior to Final Plat sign-off, the Subdivision Improvements Agreement must be recorded. Please be advised that the Grading and Drainage Certification is required prior to release of the SIA for this project.

If you have any questions about my comments, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham

Bradley L. Bingham, PE
Hydrology Review Engineer

C: file

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER

CLIENT/COURIER TRANSMITTAL

BOHANNAN HUSTON
Courtyard One
7500 JEFFERSON NE
Albuquerque
NEW MEXICO 87109
voice 505.823.1000
fax 505.821.0892

To: Bradley Bingham
City of Albuquerque
600 2nd Street, 2nd Floor
ABQ, NM 87109
505-924-3986

Requested By: Elizabeth Smith

Date: June 14, 2000

Time Due: ☐ This A.M. ☒ This P.M.
☐ Rush ___ ☐ By Tomorrow

Job No.: 99470 B 01

Job Name: Timarron West Units 3-4

DELIVERY VIA

☒ Courier ☐ Federal Express
☐ Mail ☐ UPS
☐ Other _____

PICK UP

Item: _____
_____
_____

ITEM NO.	QUANTITY	DESCRIPTION
1	1	Revised Grading Plan
2	1	Excerpts from Unit 1 & 2 Drainage Report
3	1	Drainage Information Sheet
4	1	Letter Addressing Comments

COMMENTS / INSTRUCTIONS

REC'D BY: _____ ***DATE:*** _____ ***TIME:*** _____

June 14, 2001

M8-D005A

INAN-HUSTON, INC.
/ard One
JEFFERSON NE
ıerque
109-4335
505.823.1000
5 821 0892

Mr. Brad Bingham, P.E.
Hydrology/Utility Development
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87103

FILE

Re: Timarron West Unit 3 Subdivision – Park Storm Drain Minor Field Revisions
City W.O. #651681

Dear Brad:

Submitted for your review is a minor design revision to the storm drain inlet/outlet pipes for the pond at Timarron West Unit 3. The location of the inlet/outlet structures need to be relocated based on the park layout. The 36-inch storm drain from Teal Rd. has a 48-degree bend 10 feet from the manhole, then 56 feet to the inlet/outlet. The 24-inch storm drain on the east side of the park needs to be extended in order for the inlet/outlet structure to match the toe of slope location.

Three copies of the revised plan and profile drawing are included per your request. Because the changes are minor, these revisions will be processed as a field revision as opposed to a change order. If you have questions or require additional information, please call me anytime.

Sincerely,
Bohannan Huston, Inc.

6/14/01

Rick Beltramo, P.E.
Community Development
and Planning Group

Concurrence:

Bradley L. Bryhan 6/25/01
City Hydrology Date

Attachments

cc: Garrett Price, Centex Homes

RICHARD LYNN BELTRAMO
NEW MEXICO
10596
REGISTERED PROFESSIONAL ENGINEER

RECEIVED
JUN 14 2001
HYDROLOGY SECTION

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CLIENT/COURIER TRANSMITTAL

BOHANNAN HUSTON
Courtyard One
7500 JEFFERSON NE
Albuquerque
NEW MEXICO 87109
voice 505.823.1000
fax 505.821.0892

To: Brad Bingham
City Of Albuquerque
600 2nd Street 2nd Floor
ABQ, NM 87109
505-924-3986

Requested By: Elizabeth Smith

Date: October 26, 2000

Time Due: ☐ This A.M. ☒ This P.M.
☐ Rush ___ ☐ By Tomorrow

Job No.: 99470

Job Name: Timarron West Units 3-4

DELIVERY VIA

☒ Courier ☐ Federal Express
☐ Mail ☐ UPS
☐ Other _____

PICK UP

Item: _____
_____
_____

ITEM NO.	QUANTITY	DESCRIPTION
1	1	Amended Grading Plan dated 10/25/00
2	1	Drainage Information Sheet
3	1	Letter of Explanation

COMMENTS / INSTRUCTIONS

REC'D BY: _____ ***DATE:*** _____ ***TIME:*** _____

RECEIVED
OCT 26 2000
HYDROLOGY SECTION

October 26, 2000

Bradley Bingham, P.E.
City of Albuquerque
Hydrology
600 2nd Street
Albuquerque, NM 87109

BOHANNAN-HUSTON, INC.

Courtyard One

7500 JEFFERSON NE

Albuquerque

NM 87109-4335

voice 505.823.1000

fax 505.821.0892

Re: Timarron West Units 3 and 4 Amended Grading Plan (M8 / D5A)

Dear Bradley:

The approved grading plan for Timarron West Units 3 and 4, dated 6-8-00, has been amended. The new plan raises the grades of the interior of the subdivision by a maximum of 3 feet. The boundary grades remain unchanged to tie to the existing subdivisions on three sides. The grades were changed in order to accommodate the excess material that will be generated in Timarron West Unit 5. There will be excess material in Unit 5 because the maximum pad elevation allowed on the site is as much as 15' lower than the existing ground. The maximum pad elevation was set by the constraints of serving water to the subdivision by the Franciscan Reservoir. Even though the grades for Units 3 and 4 have changed significantly, the drainage concepts have not changed at all. The cross streets have always had a high point at the center of the site. These high points were raised and the street slopes were increased. Since the grades were changed by more than 1.5', we are submitting the amended grading plan for your review.

If you have questions or require additional information, please call me at 823-1000.

Sincerely,
Bohannan Huston, Inc.

Elizabeth Smith
Community Development
and Planning Group

RECEIVED
OCT 26 2000
HYDROLOGY SECTION

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DRAINAGE INFORMATION SHEET

PROJECT TITLE: TIMARRON WEST UNITS 3&4 ZONE ATLAS/DRNG. FILE # L8/M8

DRB #: 98-90 EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: TRACT 2, LANDS OF GREVEY/LIBERMAN AND PARCEL 1, TIMARRON WEST UNIT 2

CITY ADDRESS: DE VARGAS ROAD

ENGINEERING FIRM: BOHANNAN HUSTON, INC. CONTACT: RICK BELTRAMO

ADDRESS: 7500 JEFFERSON NE, ALB. NM 87109 PHONE: (505) 823-1000

OWNER: CENTEX REAL ESTATE CORP. CONTACT: NORM GREGORY

ADDRESS: 6700 JEFFERSON NE-BLDG B, ABQ 87109 PHONE: (505) 761-9606

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN
- X FINAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEERS CERTIFICATION
- ____ OTHER

PRE-DESIGN MEETING:

- ____ YES
- X NO
- ____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ____ SKETCH PLAT APPROVAL
- X PRELIMINARY PLAT APPROVAL
- X S. DEV. PLAN FOR SUBD. APPROVAL
- X S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY APPROVAL
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ S.A.D. DRAINAGE REPORT
- ____ DRAINAGE REQUIREMENTS
- ____ OTHER (SPECIFY)

DATE SUBMITTED: 6-8-00

BY: ELIZABETH SMITH, E.I.

June 5, 2000

Bradley Bingham, P. E.
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

BOHANNAN HUSTON

Courtyard One

7500 JEFFERSON NE

Albuquerque

NEW MEXICO 87109

voice 505.823.1000

fax 505.821.0892

Re: **Timarron West Subdivision, Units 3 & 4: Drainage Comment Responses**
M-8/D05A

Dear Mr. Bingham:

This letter specifically addresses your comments to the submitted Drainage Plan for Timarron West Subdivision, Units 3 and 4. Your comments dated May 8, 2000 were incorporated into a revised grading plan that is included with this letter.

To incorporate your comments, we made formatting changes, added inlets, and provided additional information where requested. In terms of formatting, we added dimensions on the sideyard detail and revised the grading plan to include the benchmark and zone atlas number.

Your concerns regarding directing the flow to the surge pond were addressed with the following modifications. Drop inlets were added across from lot 18 and at the pond entrance that is 120' west of Osprey Drive. An inlet was not included at Osprey Drive due to hydraulic constraints. The flow into the pond is restricted using a 6 inch orifice plate on the pipe to the east of lot 1. This orifice restricts the flow from the pond during a large storm while allowing nuisance flows to bypass the pond. In addition, we added a valley gutter to Starling Road to prevent the flow from flowing across the asphalt.

There are a number of items you requested to supplement the information in the report. First, a copy of the 114th Street paving plan and profile is included to show the connection to 114th Street. As you can see, there is an existing high point in the road that directs the flow northward away from Timarron West. The second item you requested is a FEMA flood plain map. This exhibit was included in the original report as the Historic Conditions Basin Map, however, it was not explicitly referenced. The FEMA map shows no flood zones existing on this property. The third item included is an excerpt from the Timarron West Unit 1 & 2 Drainage Report that identifies the capacity of the storm drain in that phase. It indicates that the storm drain was designed to accommodate 92 cfs. Units 3-5 have been designed to convey 92 cfs to the existing storm drain. The final item you requested was a hydraulic jump calculation for Teal Road. This calculation is not included because the original analysis accounts for the possibility of a hydraulic jump. The total energy for this area of the road is shallower than the depth of the right-of-way. Therefore, even if a jump did occur during the 100-year storm, the water would be contained in the right-of-way.

If you have any questions or require further information, please contact me anytime.

Sincerely,
Bohannan Huston, Inc.

Elizabeth Smith

Elizabeth Smith
Community Development
and Planning Group

P:\99470\cdp\corres\Bingham_resp_ltr doc

community sciences corporation

DRAINAGE REPORT
FOR
TIMARRON WEST
UNITS 1 AND 2
(MAP L-8/M-3)

PREPARED FOR
CENTEX HOMES

PREPARED BY

COMMUNITY SCIENCES CORPORATION
P.O. BOX 1328
CORRALES, NM 87048

JULY 1998
Revised August 1998

BILLY O. McCARTY, P.E.

Billy O McCarty
8-14-98

BILLY O. McCARTY
STATE OF NEW MEXICO
13872
REGISTERED PROFESSIONAL ENGINEER

CSC#399-06-049/399-06DO.REP

P.O. Box 1328
Corrales, New Mexico 87048
(505) 897-0000 Fax (505) 898-5195

SURVEYING
LAND PLANNING
CIVIL ENGINEERING
DEVELOPMENT CONSULTANTS

from lip of gutter to crown and a curb and gutter per City of Albuquerque Standard details. Finished grade at the right-of-way is 0.33' above top of curb.

V. OFF-SITE DRAINAGE

20' Open Space Right-of-Way:

Sunrise Terrace, to the north has been graded to drain away from Timarron West. This is accomplished by filling the lots along the Sunrise Terrace south boundary and grading within the 20 foot Open Space right-of-way (between Tanager Street and 102nd Street) to match the existing grade. This limits off-site drainage from the north to the 20 foot right-of-way (Basin 208.0 on the "On-Site Drainage Basin Map" in a pocket at the end of this report). This minor amount of runoff will be collected at two locations and enter Timarron West. Sixty percent (60%) of the drainage from this open space will enter the site through the HOA tract between Unit 1 and Unit 2. The other forty percent (40%) will enter through 102nd Street. 102nd Street slopes toward Timarron West; however, inlets at the end of the existing pavement intercept the small amount of flow in this street and a storm drain conveys the runoff to the Snow Vista Channel. Therefore, no runoff from Sunrise Terrace will enter Timarron West.

Undeveloped Area to the West:

The second source of off-site drainage is from the west (Basin 100.0 on the "Off-Site Drainage Basin Map" at the end of "Tables and Maps" in this report). A temporary diversion berm will be constructed on the west boundary of Unit 2. This berm will convey the drainage to a temporary desiltation basin. A storm drain will be constructed from this desiltation basin to the pond adjacent to the Snow Vista Channel. The storm drain will be sized to convey the allowable discharge of 1.3 cfs per acre (92.0 cfs) through Units 1 and 2. This berm and desiltation pond will protect Units 1 and 2 from flow to the west until future development constructs a permanent detention pond in place of the desiltation basin. **Future development which extends De Vargas Road west of Unit 2 shall construct a storm drain and inlets to intercept all of the flow from De Vargas Road and convey the flow to the desiltation basin. Some of this off-site area may drain to Cavett Street; however, existing street capacity in Cavett Street must be evaluated at that time to determine if this is an option. This report assumes all of the undeveloped area will be directed to the desiltation basin.**

De Vargas Road / Atrisco Village:

The final off-site area is the 21 acres of Atrisco Village which drains to De Vargas Road. This area is divided into Basins 101.0 and 102.0 on the "Off-site Drainage Basin Map". Basin 101.0 establishes the area which enters De Vargas at Cerrillos Road. This flow will be picked up and conveyed through Timarron West Units 1 and 2 at Timarron Pond. An additional storm drain will pick-up the flow from Basins 102.0 and 211.0 (Atrisco Village east of Del Mastro Drive and the north half of De Vargas Road. This storm drain will pick up 18.8 cfs at the east boundary of Unit 1. The additional 17.4 cfs will be intercepted by the existing rundown and sidewalk culverts at the Snow Vista Channel.

Analysis of De Vargas Road hydraulics indicate that the existing roadway crown is at a grade that remains higher than the existing south curb for the full length of the Timarron West Units 1 and 2 project. A profile of the existing conditions along De Vargas Road is shown on drawing Existing De Vargas Road Profile. Typical cross-

AHYMO SUMMARY OUTPUT

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =08/09/1998
INPUT FILE = TIM100.DAT - USER NO.= DAGGETTK.S94

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 100 YR. CONDITIONS FOR TIMARRON ESTATES										
RAINFALL TYPE= 1										RAIN6= 2.200
*S **********										
*S *****EXISTING CONDITIONS*****										
*S **********										
*S BASIN DESIGNATION = 100.0 UNDEVELOPED LAND WEST OF TIMARRON WEST UNIT 2										
COMPUTE NM HYD	100.00	-	1	.11070	69.22	2.593	.43919	1.565	.977	PER IMP= .00
*S BASIN DESIGNATION = 101.0 EAST PORTION OF ATRISCO VILLAGE										
*S DISCHARGE TO DE VARGAS ROAD										
COMPUTE NM HYD	101.00	-	2	.02124	42.58	1.393	1.22966	1.499	3.133	PER IMP= 36.00
*S BASIN DESIGNATION = 102.0 WEST PORTION OF ATRISCO VILLAGE										
*S DISCHARGE TO DE VARGAS ROAD										
COMPUTE NM HYD	102.00	-	3	.01157	23.20	.759	1.22966	1.499	3.134	PER IMP= 36.00
ADD HYD	102.10	2& 3	4	.03281	65.79	2.152	1.22964	1.499	3.133	
*S BASIN DESIGNATION = 211.0 EXISTING DE VARGAS RD										
COMPUTE NM HYD	211.00	-	5	.00247	6.62	.244	1.85049	1.499	4.187	PER IMP= 90.00
*S TOTAL EXISTING FLOW TO SNOW VISTA CHANNEL VIA DE VARGAS ROAD										
ADD HYD	102.20	4& 5	6	.03528	72.41	2.395	1.27310	1.499	3.207	
*S **********										
*S *****DEVELOPED CONDITIONS*****										
*S **********										
*S BASIN DESIGNATION = 100.0 DEVELOPED CONDITIONS ALLOWABEL DISCHARGE										
COMPUTE NM HYD	100.00	-	1	.10812	92.01	2.533	.43919	1.532	1.330	PER IMP= .00
ADD HYD	100.10	1& 2	2	.12936	133.50	3.925	.56897	1.532	1.613	
*S BASIN DESIGNATION = 201.0										
COMPUTE NM HYD	201.00	-	4	.00707	15.88	.548	1.45270	1.499	3.510	PER IMP= 55.40
ADD HYD	201.10	2& 4	4	.13643	148.86	4.473	.61477	1.532	1.705	
*S BASIN DESIGNATION = 202.0										
COMPUTE NM HYD	202.00	-	5	.00778	17.48	.603	1.45270	1.499	3.510	PER IMP= 55.40
ADD HYD	202.10	4& 5	6	.14421	165.76	5.076	.65997	1.532	1.796	
*S BASIN DESIGNATION = 203.0										
COMPUTE NM HYD	203.00	-	7	.00520	11.69	.403	1.45270	1.499	3.512	PER IMP= 55.40
*S BASIN DESIGNATION = 204.0										
COMPUTE NM HYD	204.00	-	8	.00678	15.23	.525	1.45270	1.499	3.510	PER IMP= 55.40
ADD HYD	204.10	7& 8	9	.01198	26.92	.928	1.45265	1.499	3.511	
ADD HYD	204.20	6& 9	10	.15619	192.51	6.004	.72077	1.499	1.926	
*S BASIN DESIGNATION = 205.0										
COMPUTE NM HYD	205.00	-	11	.00278	4.54	.131	.88528	1.499	2.551	PER IMP= 7.00
ADD HYD	205.10	10&11	12	.15897	197.05	6.135	.72365	1.499	1.937	
*S BASIN DESIGNATION = 206.0										
COMPUTE NM HYD	206.00	-	13	.00516	11.60	.400	1.45270	1.499	3.512	PER IMP= 55.40
ADD HYD	206.10	12&13	14	.16413	208.64	6.535	.74656	1.499	1.986	
*S BASIN DESIGNATION = 207.0										
COMPUTE NM HYD	207.00	-	15	.00618	13.89	.479	1.45270	1.499	3.511	PER IMP= 55.40
ADD HYD	207.10	14&15	16	.17031	222.53	7.014	.77219	1.499	2.042	
*S BASIN DESIGNATION = 208.0										
COMPUTE NM HYD	208.00	-	17	.00106	.89	.025	.43919	1.532	1.307	PER IMP= .00
*S BASIN DESIGNATION = 209.0										

DRAINAGE INFORMATION SHEET

PROJECT TITLE: TIMARRON WEST UNITS 3&4 ZONE ATLAS/DRNG. FILE # M8/D005A

DRB #: 98-90 EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: TRACT 2, LANDS OF GREVEY/LIBERMAN AND PARCEL 1, TIMARRON WEST UNIT 2

CITY ADDRESS: DE VARGAS ROAD

ENGINEERING FIRM: BOHANNAN HUSTON, INC. CONTACT: RICK BELTRAMO
ADDRESS: 7500 JEFFERSON NE, ALB. NM 87109 PHONE: (505) 823-1000
OWNER: CENTEX REAL ESTATE CORP. CONTACT: NORM GREGORY
ADDRESS: 6700 JEFFERSON NE-BLDG B, ABQ 87109 PHONE: (505) 761-9606
ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN
- ____ FINAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEERS CERTIFICATION
- ____ OTHER

PRE-DESIGN MEETING:

- ____ YES
- ____ NO
- ____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ____ SKETCH PLAT APPROVAL
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUBD. APPROVAL
- ____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY APPROVAL
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ S.A.D. DRAINAGE REPORT
- ____ DRAINAGE REQUIREMENTS
- X OTHER (SPECIFY) AMENDED GRADING PLAN

RECEIVED
OCT 26 2000
HYDROLOGY SECTION

DATE SUBMITTED: 10-26-00

BY: ELIZABETH SMITH, E.I.

P \99470\cdp\reports\DRAINAGE INFO doc