CITY OF ALBUQUERQUE

ALBUQUERQUE
Making History

April 5, 2005

Mr. Fred C. Arfman, PE
ISAACSON & ARFMAN, PA
128 Monroe St. NE
Albuquerque, NM 87108

RE: SUNDANCE SUBDIVISION, UNIT 2 (K-9/D25)
Engineers Certification for Release of Financial Guaranty
Engineers Stamp dated 01/31/2005
Engineers Certification dated 04/04/2005

Dear Fred:

Based upon the information provided in your Engineer's Certification Submittal dated 04/05/2005, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty.

If you have any questions, you can contact me at 924-3982

Sincerely,

Arlene V. Portillo
Plan Checker, Planning Dept.- Hydrology
Development and Building Services

C: Marilyn Maldonado, COA# 717282
File

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: SUNDANCE SUBD., UNIT TWO ZONE MAP/DRG. FILE #: K9/D25
DRB #: 1002511 EPC#: WORK ORDER#: 717282

LEGAL DESCRIPTION: SUNDANCE SUBDIVISION, UNIT TWO
CITY ADDRESS:

ENGINEERING FIRM: Isaacson & Arfman, P.A. CONTACT: FRED C. ARFMAN
ADDRESS: 128 Monroe Street NE PHONE: (505) 268-8828
CITY, STATE: Albuquerque, NM ZIP CODE: 87108

OWNER: KB HOME OF NEW MEXICO CONTACT: BOB COLEMAN
ADDRESS: 6330 RIVERSIDE PLAZA LANE NW, STE 200 PHONE: 353-5258
CITY, STATE: ABQ. NM ZIP CODE: 87120

ARCHITECT: N/A CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

SURVEYOR: ALDRICH LAND SURVEYING CONTACT: TIM ALDRICH
ADDRESS 4109 MONTGOMERY BLVD. NE PHONE: 884-1990
CITY, STATE: ABQ. NM ZIP CODE: 87109

CONTRACTOR: SUNDANCE MECHANICAL CONTACT: CARLOS SPIESS
ADDRESS: 4400 ALAMEDA BLVD. NE, STE. E PHONE:
CITY, STATE: ABQ. NM ZIP CODE: 87113

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
__X__ 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:

__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
__X__ OTHER (SPECIFY) WORK ORDER CLOSE-OUT

WAS A PRE-DESIGN CONFERENCE ATTENDED:

____ YES
____ NO
____ COPY PROVIDED

RECEIVED
APR 05 2005
HYDROLOGY SECTION

DATE SUBMITTED: 04-04-05 BY: FRED C. ARFMAN

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 (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.

CITY OF ALBUQUERQUE

April 1, 2005

Fred Arfman, PE
Isaacson & Arfman
128 Monroe NE
Albuquerque, NM 87108

Re: Sundance Subdivision Unit 2 Revised Grading Plan
Engineer's Stamp dated 1-31-05, (K9/D25)

Dear Mr. Arfman,

Based upon the information provided in your submittal dated 2-2-05, the above referenced plan is approved as amended since the Homeowners Association are maintaining that Tract. It would probably be prudent **not** to have any turned block in the revised area if they want the City to eventually maintain the pedestrian corridor in the future. The backyards would then just pond what rain falls on them (which is acceptable under present policy). This will now be the plan that must be certified for release of Financial Guarantees and the SIA.

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

Sincerely,

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

C: file

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: SUNDANCE SUBD. ZONE MAP/DRG. FILE #: K-9/D25
DRB #: 1002511 EPC#: WORK ORDER#: 717282
LEGAL DESCRIPTION: ~~TRACT~~ SUNDANCE SUBDIVISION, UNIT TWO
CITY ADDRESS:

ENGINEERING FIRM: Isaacson & Arfman, P.A. CONTACT: FRED C. ARFMAN
ADDRESS: 128 Monroe Street NE PHONE: (505) 268-8828
CITY, STATE: Albuquerque, NM ZIP CODE: 87108

OWNER: KB HOME OF NM, INC. CONTACT: BOB COLEMAN
ADDRESS: 6330 RIVERSIDE PLAZA LN. NW PHONE: 353-5258
CITY, STATE: ABQ. NM ZIP CODE: 87120

ARCHITECT: N/A CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

SURVEYOR: ALDRICA LAND SURVEYING CONTACT: TIM ALDRICA
ADDRESS 4109 MONTGOMERY BLVD. NE PHONE: 884-1990
CITY, STATE: ABQ. NM ZIP CODE: 87109

CONTRACTOR: SUNDANCE MECH. CONTACT: CARLOS SPIESS
ADDRESS: 4400 ALAMEDA BLVD. NE, STE. E PHONE: 345-2694
CITY, STATE: ABQ. NM ZIP CODE: 87113

CHECK TYPE OF SUBMITTAL:

____ DRAINAGE REPORT
____ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
X DRAINAGE PLAN ~~RESUBMITTAL~~
____ CONCEPTUAL GRADING & DRAINAGE PLAN
X GRADING PLAN ~~RESUBMITTAL~~
____ 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.)
X GRADING PERMIT APPROVAL
____ PAVING PERMIT APPROVAL
____ WORK ORDER APPROVAL
____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

____ YES
____ NO
____ COPY PROVIDED

RECEIVED
FEB 02 2005
HYDROLOGY SECTION

DATE SUBMITTED: 02 FEB, 2005 BY: FRED C. ARFMAN

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

CITY OF ALBUQUERQUE

October 24, 2005

Mr. Fred Arfman, PE
ISAACSON & ARFMAN, PA
120 Monroe St. NE
Albuquerque, NM 87108

RE: SUNDANCE SUBDIVISION, UNIT 1 (K-9/D25)
Engineers Certification for Release of Financial Guaranty
Engineers Stamp dated 06/24/2003
Engineers Certification dated 10/24/2005

Dear Fred:

Based upon the information provided in your Engineer's Certification Submittal dated 10/24/2005, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty.

If you have any questions, you can contact me at 924-3982.

Sincerely,

Arlene V. Portillo

Arlene V. Portillo
Plan Checker, Planning Dept.- Hydrology
Development and Building Services

C: Marilyn Maldonado, COA# 717281
File

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: SUNDANCE SUBD, UNIT ONE ZONE MAP/DRG. FILE #: K9/D25
DRB #: 1002511 EPC#: WORK ORDER#: 717281

LEGAL DESCRIPTION: SUNDANCE SUBD, UNIT ONE
CITY ADDRESS:

ENGINEERING FIRM: Isaacson & Arfman, P.A. CONTACT: FRED C. ARFMAN
ADDRESS: 128 Monroe Street NE PHONE: (505) 268-8828
CITY, STATE: Albuquerque, NM ZIP CODE: 87108

OWNER: KB HOME OF NEW MEXICO CONTACT: BOB COLEMAN
ADDRESS: 6330 RIVERSIDE PLAZA LANE, STE. 200 PHONE: 353-5258
CITY, STATE: ABQ., NM ZIP CODE: 87120

ARCHITECT: N/A CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

SURVEYOR: ALDRICH LAND SURVEYING CONTACT: TIM ALDRICH
ADDRESS 4109 MONTGOMERY BLVD. PHONE: 884-1990
CITY, STATE: ABQ. NM ZIP CODE: 87113

CONTRACTOR: SUNDANCE MECHANICAL CONTACT: CARLOS SPIESS
ADDRESS: 4900 ALVARADO BLVD. NE PHONE: 345-2694
CITY, STATE: ABQ. NM ZIP CODE: 87113

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
__X__ 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
__X__ OTHER (SPECIFY) CLOSE-OUT PACKAGE RELEASE OF F.G.

WAS A PRE-DESIGN CONFERENCE ATTENDED:

____ YES
____ NO
____ COPY PROVIDED

RECEIVED
OCT 24 2005
HYDROLOGY SECTION

DATE SUBMITTED: 10.24.05 BY: FRED C. ARFMAN
FOR: ISAACSON & ARFMAN, P.A.

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:

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City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

July 16, 2003

Fred Arfman, PE
Isaacson & Arfman
128 Monroe NE
Albuquerque, NM 87108

Re: Sundance Subdivision Grading Plan and Additional Information
Engineer's Stamp dated 6-24-03, (K9/D25)

Dear Mr. Arfman,

Based upon the information provided in your submittal dated 6-24-03, the above referenced plan is approved for Preliminary Plat action by the DRB.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. Refer to the attachment that is provided with this letter for details. If you have any questions please feel free to call the Public Works Hydrology section at 768-3654 (Charles Caruso) or 768-3645 (Brian Wolfe).

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
Chuck Caruso, CoA

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

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

K-9/D25

PROJECT TITLE: SUNDANCE SUBDIVISION ZONE MAP/DRG. FILE #: K-9
DRB #: EPC#: 03 EPC - 00316 WORK ORDER#:

LEGAL DESCRIPTION: LOT 2-A, UNSER DIVERSION CHANNEL CORRIDOR
CITY ADDRESS: N/A

ENGINEERING FIRM: Isaacson & Arfman, P.A. CONTACT: FRED C. ARFMAN
ADDRESS: 128 Monroe Street NE PHONE: (505) 268-8828
CITY, STATE: Albuquerque, NM ZIP CODE: 87108

OWNER: GARRETT GROUP INC CONTACT: TED GARRETT
ADDRESS: 1130 LANDS END NW PHONE: 897-8599
CITY, STATE: ABQ. NM ZIP CODE: 87114

ARCHITECT: N/A CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

SURVEYOR: ALDRICH LAND SURVEYING CONTACT: TIM ALDRICH
ADDRESS PHONE: 884-1990
CITY, STATE: ZIP CODE:

CONTRACTOR: N/A. CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

CHECK TYPE OF SUBMITTAL:

- X 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)
- OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ____ SIA / FINANCIAL GUARANTEE RELEASE
- X 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)

RECEIVED
JUN 24 2003
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ____ YES
- X NO
- ____ COPY PROVIDED

DATE SUBMITTED: ~~05-23-03~~ 06.24.03 BY: FRED C. ARFMAN

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:

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

ISAACSON & ARFMAN, P.A.

Consulting Engineering Associates

Thomas O. Isaacson, PE & LS • Fred C. Arfman, PE
Scott M. McGee, PE

June 24, 2003

Mr. Bradley Bingham, PE
Senior Engineer
Hydrology Development Section
Development & Building Services Division
Planning Department
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RECEIVED
JUN 24 2003
HYDROLOGY SECTION

RE: Sundance Subdivision (K-9/D-35)

Dear Mr. Bingham:

This correspondence is presented as a supplement to our previously submitted drainage report dated May 23, 2003. We offer the following responses to your review comments found in your June 16, 2003 letter:

1. The two cul-de-sacs within the northwest corner have been redesigned to raise the westerly grades to approximately 5150 elevation. The existing spillway situated at the northeast corner of Pond No. 5 shall be respected to ensure that there will be no impedence of potential spillway overflow waters.

2. City of Albuquerque Parks and Recreation has refused to accept the 35-foot drainage easement as a public trail corridor. In order to provide paved access to the existing storm drain manholes without redesigning the southerly row of lots, the developer intends to create a tract (Tract A) over the entire length of easement and covering that tract with a private pedestrian access easement. Additional utility easements for water and sanitary sewer are shown to be granted at each end of the proposed tract. The tract shall be for the benefit of the Sundance Subdivision Homeowners Association. A private trail/maintenance road will be provided at the time of Unit Two development. This facility will provide the required paved access to the storm drain manholes. Two waterlines are programmed to be extended within this tract at the west end and a waterline and sanitary sewer are planned for the east end. Utility cross-sections of each have been previously provided and are found attached.

128 Monroe St. NE • Albuquerque, NM 87108 • (505) 268-8828 • FAX (505) 268-2632

3. Basin boundaries have been eliminated from the grading plan. There are no walls (retaining) required along the east property line.

4. A 10-foot wide asphaltic trail/maintenance road has been added to the plans and infrastructure list. The Land Treatment for Basin 600 has been modified and the flow rate adjusted (see attachment).

5. There are no plans to have a drainage swale down to Unser Blvd.; therefore a provision shall be made to accept twice the 100-year storm event.

Please accept these comments and attachments as a full response to your June 16th letter. Contact our office if additional information is required.

Sincerely,

ISAACSON & ARFMAN, P.A.



Fred C. Arfman, PE

FCA/rtl

Attachments

UNSER DIVERSION CHANNEL
POND # 6

37

8" WL

10" WL

EXST 42" STORM DRAIN

PP

E

PP

E

1

1

PLAN
SCALE: 1"=40'

PP

35' C.O.A. EASEMENT

LOT 37

11

9

10

5

NATURAL GROUND

10" W

8" W

4' BURY

EXST. 42" S.D.

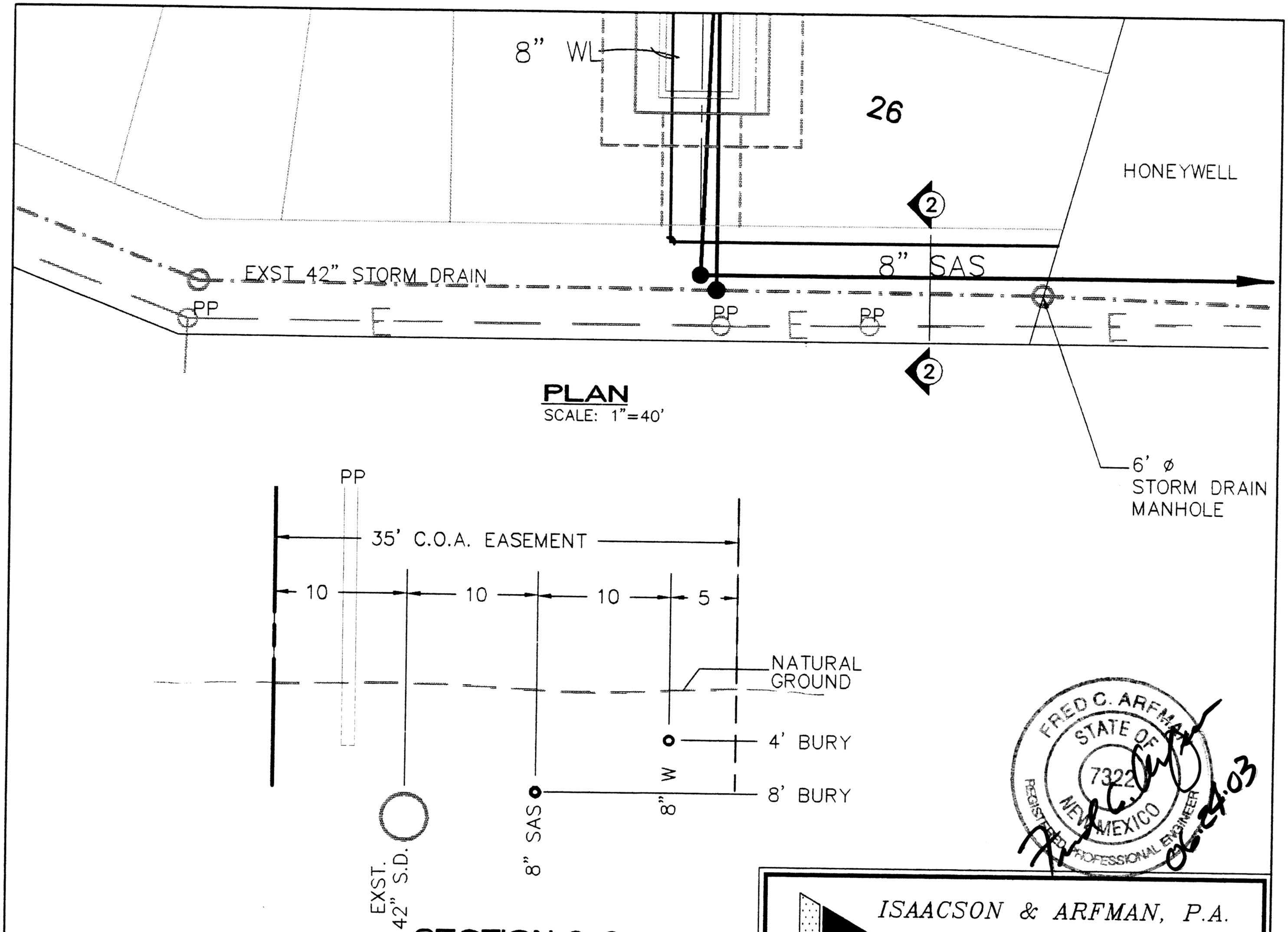
SECTION 1-1
SCALE: 1"=10'

FRED C. ARFMAN
STATE OF NEW MEXICO
7321
REGISTERED PROFESSIONAL ENGINEER

06-24-03

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque *New Mexico*

1277EXH-1.DWG VIEW 1 06/17/03



PLAN
SCALE: 1"=40'

SECTION 2-2
SCALE: 1"=10'

FRED C. ARFMAN
STATE OF
7322
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER
06.24.03

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque *New Mexico*
1277EXH-1.DWG VIEW 2 06/17/03

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02d RUN DATE (MON/DAY/YR) =06/24/2003
INPUT FILE = m:/ACTIVE/AHYMO/1277/1277DEV.DAT USER NO.= AHYMO-I-9702dIsa-Arfman1

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*S**************************************************************************
*S                                                                        **
*S                          SUNDANCE SUBDIVISION                          **
*S                          DEVELOPED CONDITIONS                          **
*S                                                                        **
*S**************************************************************************
```


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
RAINFALL TYPE= 1										RAIN6= 2.200
COMPUTE NM HYD	100.00	-	10	.01081	23.94	.812	1.40991	1.500	3.463	PER IMP= 51.20
COMPUTE NM HYD	200.00	-	20	.00989	21.92	.744	1.40991	1.500	3.463	PER IMP= 51.20
COMPUTE NM HYD	300.00	-	30	.00949	21.02	.713	1.40991	1.500	3.463	PER IMP= 51.20
COMPUTE NM HYD	400.00	-	40	.01041	23.07	.783	1.40991	1.500	3.463	PER IMP= 51.20
COMPUTE NM HYD	501.00	-	51	.00139	3.08	.104	1.40991	1.500	3.478	PER IMP= 51.20
COMPUTE NM HYD	502.00	-	52	.00151	3.36	.114	1.40991	1.500	3.477	PER IMP= 51.20
COMPUTE NM HYD	503.00	-	53	.00015	.34	.011	1.40991	1.500	3.642	PER IMP= 51.20
COMPUTE NM HYD	504.00	-	54	.00091	2.04	.069	1.40991	1.500	3.487	PER IMP= 51.20
COMPUTE NM HYD	600.00	-	60	.00157	2.75	.088	1.05038	1.500	2.744	PER IMP= 29.00
ROUTE MCUNGE	100.10	10	11	.01081	23.83	.813	1.41035	1.533	3.446	CCODE = .2
ADD HYD	501.10	11&51	12	.01219	26.81	.917	1.41024	1.533	3.436	
*S ******AP1******										
ADD HYD	501.20	20&12	21	.02208	48.28	1.661	1.41008	1.500	3.416	
ROUTE MCUNGE	501.30	21	22	.02208	48.19	1.658	1.40779	1.533	3.410	CCODE = .1
ADD HYD	502.10	22&52	23	.02360	51.44	1.772	1.40789	1.533	3.406	
*S ******AP2******										
ADD HYD	502.20	30&23	31	.03308	71.72	2.485	1.40846	1.533	3.388	
ROUTE MCUNGE	502.30	31	32	.03308	70.38	2.487	1.40983	1.567	3.324	CCODE = .2
ADD HYD	503.10	32&53	33	.03323	70.67	2.498	1.40981	1.567	3.323	
*S ******AP3******										
ADD HYD	503.20	40&33	41	.04364	91.72	3.281	1.40983	1.533	3.284	
ROUTE MCUNGE	503.30	41	42	.04364	91.72	3.281	1.40983	1.533	3.284	CCODE = .0
ADD HYD	504.10	42&54	43	.04455	93.69	3.350	1.40982	1.533	3.286	
*S ******AP4******										
ADD HYD	600.10	43&60	61	.04612	96.38	3.438	1.39760	1.533	3.265	
FINISH										

```
(s16.67h8.5v0T &l8D

      AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02d
           RUN DATE (MON/DAY/YR) = 06/24/2003
           START TIME (HR:MIN:SEC) = 15:03:36     USER NO.= AHYMO-I-9702dIsa-Arfman1
           INPUT FILE = m:/ACTIVE/AHYMO/1277/1277DEV.DAT

  *S**************************************************************************
  *S                                                                        **
  *S                          SUNDANCE SUBDIVISION                          **
  *S                          DEVELOPED CONDITIONS                          **
  *S                                                                        **
  *S**************************************************************************
  ***                                                                      ***
  ***                    1266DEV.DAT                                       ***
  ***                    MAY 21, 2003    GLD                               ***
  ***                    100YEAR-6HOUR STORM                               ***
  ***                                                                      ***
  **************************************************************************

  START                 RAINFALL BEGINS AT 0.0 HRS  PUNCH CODE=0 PRINT LINES=-6
  RAINFALL              TYPE=1 RAIN QUARTER=0 RAIN ONE=1.89
                        RAIN SIX=2.20 RAIN DAY=2.66 DT=0.03333HR


                  COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                  DT =     .033330 HOURS       END TIME =     5.999400 HOURS
                     .0000   .0014   .0029   .0044   .0059   .0074   .0090
                     .0107   .0123   .0140   .0158   .0176   .0194   .0213
                     .0233   .0253   .0274   .0295   .0317   .0340   .0364
                     .0389   .0414   .0441   .0468   .0497   .0528   .0560
                     .0593   .0628   .0666   .0718   .0774   .0834   .0962
                     .1248   .1690   .2323   .3189   .4326   .5776   .7581
                     .9785  1.1830  1.2684  1.3406  1.4047  1.4630  1.5168
                    1.5666  1.6132  1.6569  1.6981  1.7368  1.7735  1.8082
                    1.8410  1.8722  1.9017  1.9298  1.9564  1.9625  1.9681
                    1.9735  1.9785  1.9834  1.9880  1.9925  1.9968  2.0009
                    2.0049  2.0087  2.0124  2.0160  2.0195  2.0229  2.0262
                    2.0295  2.0326  2.0357  2.0387  2.0416  2.0444  2.0472
                    2.0500  2.0526  2.0553  2.0578  2.0604  2.0628  2.0653
                    2.0677  2.0700  2.0723  2.0746  2.0768  2.0790  2.0812
                    2.0833  2.0854  2.0875  2.0896  2.0916  2.0936  2.0955
                    2.0975  2.0994  2.1013  2.1031  2.1049  2.1068  2.1086
                    2.1103  2.1121  2.1138  2.1155  2.1172  2.1189  2.1206
                    2.1222  2.1238  2.1254  2.1270  2.1286  2.1301  2.1317
                    2.1332  2.1347  2.1362  2.1377  2.1392  2.1406  2.1421
                    2.1435  2.1449  2.1463  2.1477  2.1491  2.1505  2.1519
                    2.1532  2.1546  2.1559  2.1572  2.1585  2.1598  2.1611
                    2.1624  2.1636  2.1649  2.1661  2.1674  2.1686  2.1698
                    2.1711  2.1723  2.1735  2.1746  2.1758  2.1770  2.1782
                    2.1793  2.1805  2.1816  2.1827  2.1839  2.1850  2.1861
                    2.1872  2.1883  2.1894  2.1905  2.1916  2.1926  2.1937
                    2.1948  2.1958  2.1969  2.1979  2.1990  2.2000

  *      BASIN 100
  *      FERNSPRING PL

  COMPUTE NM HYD        ID=10 HYD NO=100.0 AREA=0.010805 SQ MI
                        PER A=0 PER B=24.4 PER C=24.4 PER D=51.2
                        TP=0.13333 HR   MASS RAIN=-1

        K =   .072665HR    TP =   .133330HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
        UNIT PEAK =   21.836    CFS   UNIT VOLUME =    .9988       B =   526.28      P60 = 1.8900
        AREA =      .005532 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


        K =   .118393HR    TP =   .133330HR    K/TP RATIO =   .887968     SHAPE CONSTANT, N =  3.994764
        UNIT PEAK =   14.032    CFS   UNIT VOLUME =    .9995       B =   354.82      P60 = 1.8900
        AREA =      .005273 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


  PRINT HYD             ID=10   CODE=1

                                  PARTIAL HYDROGRAPH   100.00


      RUNOFF VOLUME =     1.40991 INCHES      =        .8125 ACRE-FEET
      PEAK DISCHARGE RATE =      23.94 CFS  AT   1.500 HOURS   BASIN AREA =   .0108 SQ. MI.


  *      BASIN 200
  *      SAWGRASS PL

  COMPUTE NM HYD        ID=20 HYD NO=200.0 AREA=0.009893 SQ MI
                        PER A=0 PER B=24.4 PER C=24.4 PER D=51.2
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```
                    TP=0.13333 HR   MASS RAIN=-1

      K =   .072665HR    TP =   .133330HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
      UNIT PEAK =   19.993    CFS   UNIT VOLUME =    .9988       B =   526.28      P60 = 1.8900
      AREA =       .005065 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


      K =   .118393HR    TP =   .133330HR    K/TP RATIO =   .887968     SHAPE CONSTANT, N =  3.994764
      UNIT PEAK =   12.848    CFS   UNIT VOLUME =    .9994       B =   354.82      P60 = 1.8900
      AREA =       .004828 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=20   CODE=1

                                    PARTIAL HYDROGRAPH   200.00


    RUNOFF VOLUME =     1.40991 INCHES     =        .7439 ACRE-FEET
    PEAK DISCHARGE RATE =      21.92 CFS  AT   1.500 HOURS   BASIN AREA =   .0099 SQ. MI.



*     BASIN 300
*     SONOMA AVE

COMPUTE NM HYD      ID=30 HYD NO=300.0 AREA=0.009486 SQ MI
                    PER A=0 PER B=24.4 PER C=24.4 PER D=51.2
                    TP=0.13333 HR   MASS RAIN=-1

      K =   .072665HR    TP =   .133330HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
      UNIT PEAK =   19.171    CFS   UNIT VOLUME =    .9988       B =   526.28      P60 = 1.8900
      AREA =       .004857 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


      K =   .118393HR    TP =   .133330HR    K/TP RATIO =   .887968     SHAPE CONSTANT, N =  3.994764
      UNIT PEAK =   12.319    CFS   UNIT VOLUME =    .9994       B =   354.82      P60 = 1.8900
      AREA =       .004629 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=30   CODE=1

                                  HYDROGRAPH FROM AREA   300.00


    RUNOFF VOLUME =     1.40991 INCHES     =        .7133 ACRE-FEET
    PEAK DISCHARGE RATE =      21.02 CFS  AT   1.500 HOURS   BASIN AREA =   .0095 SQ. MI.



*     BASIN 400
*     TRADEWIND RD

COMPUTE NM HYD      ID=40 HYD NO=400.0 AREA=0.010411 SQ MI
                    PER A=0 PER B=24.4 PER C=24.4 PER D=51.2
                    TP=0.13333 HR   MASS RAIN=-1

      K =   .072665HR    TP =   .133330HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
      UNIT PEAK =   21.040    CFS   UNIT VOLUME =    .9988       B =   526.28      P60 = 1.8900
      AREA =       .005330 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


      K =   .118393HR    TP =   .133330HR    K/TP RATIO =   .887968     SHAPE CONSTANT, N =  3.994764
      UNIT PEAK =   13.520    CFS   UNIT VOLUME =    .9995       B =   354.82      P60 = 1.8900
      AREA =       .005081 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=40   CODE=1

                                  HYDROGRAPH FROM AREA   400.00


    RUNOFF VOLUME =     1.40991 INCHES     =        .7829 ACRE-FEET
    PEAK DISCHARGE RATE =      23.07 CFS  AT   1.500 HOURS   BASIN AREA =   .0104 SQ. MI.



*     BASIN 501
*     SHOREWOOD DR

COMPUTE NM HYD      ID=51 HYD NO=501.0 AREA=0.001385 SQ MI
                    PER A=0 PER B=24.4 PER C=24.4 PER D=51.2
                    TP=0.13333 HR   MASS RAIN=-1

      K =   .072665HR    TP =   .133330HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
      UNIT PEAK =   2.7990    CFS   UNIT VOLUME =    .9955       B =   526.28      P60 = 1.8900
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      AREA =       .000709 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330


      K =    .118393HR     TP =    .133330HR     K/TP RATIO =    .887968      SHAPE CONSTANT, N =  3.994764
      UNIT PEAK =    1.7987     CFS    UNIT VOLUME =     .9930        B =    354.82       P60 = 1.8900
      AREA =       .000676 SQ MI     IA =     .42500 INCHES     INF =    1.04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330

PRINT HYD            ID=51    CODE=1

                                  OUTFLOW HYDROGRAPH RESERVOIR    501.00


     RUNOFF VOLUME =      1.40991 INCHES      =         .1041 ACRE-FEET
     PEAK DISCHARGE RATE =        3.08 CFS  AT    1.500 HOURS    BASIN AREA =    .0014 SQ. MI.



*      BASIN 502
*      SHOREWOOD DR

COMPUTE NM HYD       ID=52 HYD NO=502.0 AREA=0.001512 SQ MI
                     PER A=0 PER B=24.4 PER C=24.4 PER D=51.2
                     TP=0.13333 HR    MASS RAIN=-1

      K =    .072665HR     TP =    .133330HR     K/TP RATIO =    .545000      SHAPE CONSTANT, N =  7.106420
      UNIT PEAK =    3.0557     CFS    UNIT VOLUME =     .9955        B =    526.28       P60 = 1.8900
      AREA =       .000774 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330


      K =    .118393HR     TP =    .133330HR     K/TP RATIO =    .887968      SHAPE CONSTANT, N =  3.994764
      UNIT PEAK =    1.9636     CFS    UNIT VOLUME =     .9937        B =    354.82       P60 = 1.8900
      AREA =       .000738 SQ MI     IA =     .42500 INCHES     INF =    1.04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330

PRINT HYD            ID=52    CODE=1

                                  OUTFLOW HYDROGRAPH RESERVOIR    502.00


     RUNOFF VOLUME =      1.40991 INCHES      =         .1137 ACRE-FEET
     PEAK DISCHARGE RATE =        3.36 CFS  AT    1.500 HOURS    BASIN AREA =    .0015 SQ. MI.



*      BASIN 503
*      SHOREWOOD DR

COMPUTE NM HYD       ID=53 HYD NO=503.0 AREA=0.00.01475 SQ MI
                     PER A=0 PER B=24.4 PER C=24.4 PER D=51.2
                     TP=0.13333 HR    MASS RAIN=-1

      K =    .072665HR     TP =    .133330HR     K/TP RATIO =    .545000      SHAPE CONSTANT, N =  7.106420
      UNIT PEAK =    .29809     CFS    UNIT VOLUME =     .9610        B =    526.28       P60 = 1.8900
      AREA =       .000076 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330


      K =    .118393HR     TP =    .133330HR     K/TP RATIO =    .887968      SHAPE CONSTANT, N =  3.994764
      UNIT PEAK =    .19155     CFS    UNIT VOLUME =     .9297        B =    354.82       P60 = 1.8900
      AREA =       .000072 SQ MI     IA =     .42500 INCHES     INF =    1.04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330

PRINT HYD            ID=53    CODE=1

                                  OUTFLOW HYDROGRAPH RESERVOIR    503.00


     RUNOFF VOLUME =      1.40991 INCHES      =         .0111 ACRE-FEET
     PEAK DISCHARGE RATE =         .34 CFS  AT    1.500 HOURS    BASIN AREA =    .0001 SQ. MI.



*      BASIN 504
*      SHOREWOOD DR

COMPUTE NM HYD       ID=54 HYD NO=504.0 AREA=0.000912 SQ MI
                     PER A=0 PER B=24.4 PER C=24.4 PER D=51.2
                     TP=0.13333 HR    MASS RAIN=-1

      K =    .072665HR     TP =    .133330HR     K/TP RATIO =    .545000      SHAPE CONSTANT, N =  7.106420
      UNIT PEAK =    1.8431     CFS    UNIT VOLUME =     .9932        B =    526.28       P60 = 1.8900
      AREA =       .000467 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330
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     K =   .118393HR    TP =   .133330HR    K/TP RATIO =   .887968     SHAPE CONSTANT, N =  3.994764
     UNIT PEAK =   1.1844    CFS   UNIT VOLUME =    .9896       B =   354.82       P60 = 1.8900
     AREA =      .000445 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=54   CODE=1

                                OUTFLOW HYDROGRAPH RESERVOIR   504.00


    RUNOFF VOLUME =     1.40991 INCHES     =         .0686 ACRE-FEET
    PEAK DISCHARGE RATE =       2.04 CFS  AT   1.500 HOURS   BASIN AREA =    .0009 SQ. MI.



*     BASIN 600
*     STORM DRAIN EASEMENT

COMPUTE NM HYD      ID=60 HYD NO=600.0 AREA=0.001568 SQ MI
                    PER A=0 PER B=71 PER C=0 PER D=29
                    TP=0.13333 HR   MASS RAIN=-1

     K =   .072665HR    TP =   .133330HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   1.7949    CFS   UNIT VOLUME =    .9932       B =   526.28       P60 = 1.8900
     AREA =      .000455 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

     K =   .130669HR    TP =   .133330HR    K/TP RATIO =   .980045     SHAPE CONSTANT, N =  3.603328
     UNIT PEAK =   2.7370    CFS   UNIT VOLUME =    .9953       B =   327.79       P60 = 1.8900
     AREA =      .001113 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=60   CODE=1

                                HYDROGRAPH FROM AREA   600.00


    RUNOFF VOLUME =     1.05038 INCHES     =         .0878 ACRE-FEET
    PEAK DISCHARGE RATE =       2.75 CFS  AT   1.500 HOURS   BASIN AREA =    .0016 SQ. MI.



COMPUTE RATING CURVE CID=1  VS NO=1  NO SEGS=1
                    MIN ELEV=0.0 FT  MAX ELEV=0.85 FT
                    CH SLP=0.006 FP SLP=0.006 N=0.017 DIST=46 FT
                    DIST  ELEV   DIST  ELEV   DIST   ELEV
                    0.00  0.85   8.99  0.67   9.00   0.0
                    23.0  0.28   37.0  0.0    37.01  0.67
                    46.0  0.85

                              RATING CURVE VALLEY SECTION  1.0
                                WATER       FLOW        FLOW        TOP
                               SURFACE      AREA        RATE        WIDTH
                                ELEV        SQ FT       CFS         FT
                                  .00         .00         .00         .00
                                  .04         .10         .05        4.48
                                  .09         .40         .34        8.95
                                  .13         .90         .99       13.43
                                  .18        1.60        2.14       17.90
                                  .22        2.50        3.88       22.38
                                  .27        3.60        6.31       26.85
                                  .31        4.85       10.05       28.01
                                  .36        6.10       14.71       28.01
                                  .40        7.36       20.05       28.01
                                  .45        8.61       26.00       28.01
                                  .49        9.86       32.54       28.01
                                  .54       11.12       39.64       28.02
                                  .58       12.37       47.27       28.02
                                  .63       13.62       55.41       28.02
                                  .67       14.88       63.89       28.13
                                  .72       16.23       67.26       32.59
                                  .76       17.79       72.15       37.06
                                  .81       19.55       78.44       41.53
                                  .85       21.51       86.08       46.00
*     ROUTE BASIN 100 THROUGH BASIN 501
ROUTE MCUNGE        ID=11   HYD NO=100.1   INFLOW ID=10
                    DT=0.0   LENGTH=260 FT
                    NS=0  SLP=0.006

     INFLOW END= 206            TABLE PTS= 20
     DT=  .033330               QMED=       11.97  CKMED=      3.7199
     WIDTH MED=       28.01     NREACH=  2         DX=      130.00


  DEPTH   AREA      Q     TRAVEL  WIDTH     ck      VEL      C       D      C1     C2     C3     Q-M      C1-M   C2-M   C3-M
   (FT)  (SQ FT)  (CFS)  TIME(HR) (FT)     (FPS)   (FPS)                                        (CFS)
```

.00	.0	.0	.186	.0	1.08	.24	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.04	.1	.1	.136	4.5	1.07	.53	.986	.014	.986	.000	.014	.0	.998	.000	.002
.09	.4	.3	.086	9.0	1.17	.84	1.081	.041	.961	.058	-.019	.2	.977	.021	.002
.13	.9	1.0	.065	13.4	1.50	1.10	1.388	.063	.948	.184	-.132	.6	.951	.112	-.064
.18	1.6	2.1	.054	17.9	1.81	1.34	1.667	.085	.938	.273	-.211	1.5	.941	.224	-.165
.22	2.5	3.9	.047	22.4	2.09	1.55	1.926	.107	.930	.340	-.270	3.0	.932	.304	-.236
.27	3.6	6.3	.041	26.9	2.53	1.75	2.338	.119	.931	.421	-.353	5.0	.924	.365	-.290
.31	4.8	10.1	.035	28.0	3.35	2.07	3.091	.137	.935	.527	-.462	8.1	.937	.492	-.429
.36	6.1	14.7	.030	28.0	3.99	2.41	3.686	.169	.931	.588	-.519	12.3	.934	.564	-.498
.40	7.4	20.0	.027	28.0	4.51	2.73	4.161	.203	.924	.627	-.551	17.3	.927	.609	-.536
.45	8.6	26.0	.024	28.0	4.99	3.02	4.606	.238	.918	.658	-.576	22.9	.921	.643	-.565
.49	9.9	32.5	.022	28.0	5.45	3.30	5.027	.273	.913	.683	-.596	29.2	.916	.671	-.587
.54	11.1	39.6	.020	28.0	5.88	3.57	5.426	.309	.908	.703	-.611	36.0	.911	.693	-.604
.58	12.4	47.3	.019	28.0	6.29	3.82	5.808	.344	.904	.720	-.624	43.4	.906	.712	-.618
.63	13.6	55.4	.018	28.0	6.63	4.07	6.123	.382	.898	.734	-.632	51.3	.902	.728	-.630
.67	14.9	63.9	.017	28.1	4.79	4.29	4.422	.608	.798	.668	-.467	59.6	.894	.738	-.632
.72	16.2	67.3	.017	32.6	2.84	4.14	2.623	.931	.591	.561	-.152	65.6	.492	.546	-.038
.76	17.8	72.1	.018	37.1	3.38	4.05	3.117	.739	.696	.588	-.284	69.7	.652	.575	-.228
.81	19.6	78.4	.018	41.5	3.75	4.01	3.463	.645	.747	.608	-.356	75.3	.724	.599	-.323
.85	21.5	86.1	.018	46.0	3.77	4.00	3.477	.637	.751	.609	-.360	82.2	.763	.617	-.379

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 12 TIMES. AVERAGE NUMBER ITERATIONS = 1.0805
Equations solved using the Ponce correction to C2
PRINT HYD ID=11 CODE=1

PARTIAL HYDROGRAPH 100.10

RUNOFF VOLUME = 1.41035 INCHES = .8127 ACRE-FEET
PEAK DISCHARGE RATE = 23.83 CFS AT 1.533 HOURS BASIN AREA = .0108 SQ. MI.

* ADD OFFSITE BASIN 100 TO BASIN 501
ADD HYD ID=12 HYD NO=501.1 ID=11 ID=51
PRINT HYD ID=12 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 501.10

RUNOFF VOLUME = 1.41024 INCHES = .9168 ACRE-FEET
PEAK DISCHARGE RATE = 26.81 CFS AT 1.533 HOURS BASIN AREA = .0122 SQ. MI.

*S ******AP1******
* ADD OFFSITE BASIN 200 TO BASIN 501.1
ADD HYD ID=21 HYD NO=501.2 ID=20 ID=12
PRINT HYD ID=21 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 501.20

RUNOFF VOLUME = 1.41008 INCHES = 1.6607 ACRE-FEET
PEAK DISCHARGE RATE = 48.28 CFS AT 1.500 HOURS BASIN AREA = .0221 SQ. MI.

* ROUTE BASIN 501.2 THROUGH BASIN 502
ROUTE MCUNGE ID=22 HYD NO=501.3 INFLOW ID=21
DT=0.0 LENGTH=260 FT
NS=0 SLP=0.006

INFLOW END= 209 TABLE PTS= 20
DT= .033330 QMED= 24.14 CKMED= 4.7521
WIDTH MED= 28.01 NREACH= 1 DX= 260.00

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.186	.0	2.17	.24	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.04	.1	.1	.136	4.5	2.16	.53	.996	.004	.996	.000	.004	.0	.999	.000	.001
.09	.4	.3	.086	9.0	2.14	.84	.989	.011	.989	.000	.011	.2	.994	.000	.006
.13	.9	1.0	.065	13.4	2.12	1.10	.978	.022	.978	.000	.022	.6	.984	.000	.016
.18	1.6	2.1	.054	17.9	2.09	1.34	.963	.037	.963	.000	.037	1.5	.971	.000	.029
.22	2.5	3.9	.047	22.4	2.09	1.55	.963	.053	.947	.008	.045	3.0	.956	.004	.040
.27	3.6	6.3	.041	26.9	2.53	1.75	1.169	.059	.947	.102	-.049	5.0	.943	.036	.021
.31	4.8	10.1	.035	28.0	3.35	2.07	1.546	.069	.947	.235	-.182	8.1	.950	.190	-.140
.36	6.1	14.7	.030	28.0	3.99	2.41	1.843	.084	.942	.317	-.259	12.3	.946	.284	-.230
.40	7.4	20.0	.027	28.0	4.51	2.73	2.081	.102	.936	.372	-.308	17.3	.939	.346	-.285
.45	8.6	26.0	.024	28.0	4.99	3.02	2.303	.119	.930	.416	-.346	22.9	.933	.395	-.328
.49	9.9	32.5	.022	28.0	5.45	3.30	2.513	.137	.925	.452	-.377	29.2	.928	.435	-.362
.54	11.1	39.6	.020	28.0	5.88	3.57	2.713	.154	.920	.483	-.403	36.0	.923	.468	-.391
.58	12.4	47.3	.019	28.0	6.29	3.82	2.904	.172	.916	.509	-.425	43.4	.918	.497	-.414
.63	13.6	55.4	.018	28.0	6.63	4.07	3.062	.191	.910	.530	-.440	51.3	.913	.521	-.435
.67	14.9	63.9	.017	28.1	4.79	4.29	2.211	.304	.827	.431	-.258	59.6	.907	.537	-.443
.72	16.2	67.3	.017	32.6	2.84	4.14	1.311	.465	.665	.280	.055	65.6	.586	.260	.154
.76	17.8	72.1	.018	37.1	3.38	4.05	1.558	.370	.748	.317	-.065	69.7	.713	.300	-.013
.81	19.6	78.4	.018	41.5	3.75	4.01	1.731	.323	.789	.345	-.134	75.3	.770	.332	-.102
.85	21.5	86.1	.018	46.0	3.77	4.00	1.738	.318	.792	.346	-.137	82.2	.801	.356	-.158

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 10 TIMES. AVERAGE NUMBER ITERATIONS = 1.0796

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.186	.0	2.17	.24	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.04	.1	.1	.136	4.5	2.16	.53	.996	.004	.996	.000	.004	.0	.999	.000	.001
.09	.4	.3	.086	9.0	2.14	.84	.989	.011	.989	.000	.011	.2	.994	.000	.006
.13	.9	1.0	.065	13.4	2.12	1.10	.978	.022	.978	.000	.022	.6	.984	.000	.016
.18	1.6	2.1	.054	17.9	2.09	1.34	.963	.037	.963	.000	.037	1.5	.971	.000	.029
.22	2.5	3.9	.047	22.4	2.09	1.55	.963	.053	.947	.008	.045	3.0	.956	.004	.040
.27	3.6	6.3	.041	26.9	2.31	1.75	1.065	.065	.939	.061	.000	5.0	.943	.036	.021
.31	4.8	10.1	.035	28.0	2.38	2.07	1.097	.097	.912	.088	.000	8.1	.925	.075	.000
.36	6.1	14.7	.030	28.0	2.46	2.41	1.137	.137	.880	.120	.000	12.3	.896	.104	.000
.40	7.4	20.0	.027	28.0	2.56	2.73	1.179	.179	.848	.152	.000	17.3	.864	.136	.000
.45	8.6	26.0	.024	28.0	2.65	3.02	1.224	.224	.817	.183	.000	22.9	.832	.168	.000
.49	9.9	32.5	.022	28.0	2.75	3.30	1.270	.270	.787	.213	.000	29.2	.802	.198	.000
.54	11.1	39.6	.020	28.0	2.86	3.57	1.318	.318	.759	.241	.000	36.0	.773	.227	.000
.58	12.4	47.3	.019	28.0	2.96	3.82	1.366	.366	.732	.268	.000	43.4	.745	.255	.000
.63	13.6	55.4	.018	28.0	3.06	4.07	1.414	.414	.707	.293	.000	51.3	.720	.280	.000
.67	14.9	63.9	.017	28.1	3.16	4.29	1.460	.460	.685	.315	.000	59.6	.696	.304	.000
.72	16.2	67.3	.017	32.6	2.84	4.14	1.311	.465	.665	.280	.055	65.6	.586	.260	.154
.76	17.8	72.1	.018	37.1	3.05	4.05	1.409	.409	.710	.290	.000	69.7	.705	.295	.000
.81	19.6	78.4	.018	41.5	3.03	4.01	1.399	.399	.715	.285	.000	75.3	.712	.288	.000
.85	21.5	86.1	.018	46.0	3.03	4.00	1.396	.396	.716	.284	.000	82.2	.715	.285	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 3 TIMES. AVERAGE NUMBER ITERATIONS = 1.0655
Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3

```
PRINT HYD           ID=22   CODE=1
```

OUTFLOW HYDROGRAPH RESERVOIR 501.30

RUNOFF VOLUME = 1.40779 INCHES = 1.6580 ACRE-FEET
PEAK DISCHARGE RATE = 48.19 CFS AT 1.533 HOURS BASIN AREA = .0221 SQ. MI.

```
*  ADD OFFSITE BASIN 501.3 TO BASIN 502
ADD HYD             ID=23 HYD NO=502.1 ID=22 ID=52
PRINT HYD           ID=23 CODE=1
```

OUTFLOW HYDROGRAPH RESERVOIR 502.10

RUNOFF VOLUME = 1.40789 INCHES = 1.7717 ACRE-FEET
PEAK DISCHARGE RATE = 51.44 CFS AT 1.533 HOURS BASIN AREA = .0236 SQ. MI.

```
*S   ******AP2******
*  ADD OFFSITE BASIN 300 TO BASIN 502.1
ADD HYD             ID=31 HYD NO=502.2 ID=30 ID=23
PRINT HYD           ID=31 CODE=1
```

OUTFLOW HYDROGRAPH RESERVOIR 502.20

RUNOFF VOLUME = 1.40846 INCHES = 2.4850 ACRE-FEET
PEAK DISCHARGE RATE = 71.72 CFS AT 1.533 HOURS BASIN AREA = .0331 SQ. MI.

```
*     ROUTE BASIN 502.2 THROUGH BASIN 503
ROUTE MCUNGE        ID=32   HYD NO=502.3   INFLOW ID=31
                    DT=0.0   LENGTH=245 FT
                    NS=0  SLP=0.006
```

INFLOW END= 210 TABLE PTS= 20
DT= .033330 QMED= 35.86 CKMED= 5.6642
WIDTH MED= 28.02 NREACH= 1 DX= 245.00

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.176	.0	2.04	.24	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.04	.1	.1	.128	4.5	2.03	.53	.996	.004	.996	.000	.004	.0	.999	.000	.001
.09	.4	.3	.081	9.0	2.02	.84	.987	.013	.987	.000	.013	.2	.993	.000	.007
.13	.9	1.0	.062	13.4	1.99	1.10	.975	.025	.975	.000	.025	.6	.982	.000	.018
.18	1.6	2.1	.051	17.9	1.96	1.34	.958	.042	.958	.000	.042	1.5	.967	.000	.033
.22	2.5	3.9	.044	22.4	2.09	1.55	1.022	.057	.946	.038	.017	3.0	.952	.018	.030
.27	3.6	6.3	.039	26.9	2.53	1.75	1.240	.063	.945	.132	-.077	5.0	.941	.066	-.007
.31	4.8	10.1	.033	28.0	3.35	2.07	1.640	.073	.946	.263	-.209	8.1	.949	.218	-.167
.36	6.1	14.7	.028	28.0	3.99	2.41	1.956	.089	.941	.343	-.285	12.3	.945	.311	-.256
.40	7.4	20.0	.025	28.0	4.51	2.73	2.208	.108	.935	.397	-.332	17.3	.938	.372	-.310
.45	8.6	26.0	.023	28.0	4.99	3.02	2.444	.127	.929	.440	-.369	22.9	.932	.419	-.351
.49	9.9	32.5	.021	28.0	5.45	3.30	2.667	.145	.924	.475	-.399	29.2	.926	.458	-.385
.54	11.1	39.6	.019	28.0	5.88	3.57	2.879	.164	.919	.505	-.424	36.0	.921	.491	-.412
.58	12.4	47.3	.018	28.0	6.29	3.82	3.082	.182	.914	.531	-.445	43.4	.917	.519	-.435
.63	13.6	55.4	.017	28.0	6.63	4.07	3.249	.203	.909	.551	-.460	51.3	.912	.542	-.455
.67	14.9	63.9	.016	28.1	4.79	4.29	2.347	.322	.824	.455	-.279	59.6	.905	.557	-.463

```
     .72   16.2     67.3     .016    32.6     2.84    4.14    1.392    .494    .658    .307    .035     65.6     .577    .287    .136
     .76   17.8     72.1     .017    37.1     3.38    4.05    1.654    .392    .743    .343   -.086     69.7     .707    .326   -.034
     .81   19.6     78.4     .017    41.5     3.75    4.01    1.837    .342    .785    .371   -.156     75.3     .766    .358   -.124
     .85   21.5     86.1     .017    46.0     3.77    4.00    1.845    .338    .788    .372   -.159     82.2     .797    .382   -.179
MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) =   4 OCCURRED        1 TIMES.  AVERAGE NUMBER ITERATIONS =  1.0903
Equations solved using the Ponce correction to C2
PRINT HYD           ID=32   CODE=1

                                OUTFLOW HYDROGRAPH RESERVOIR   502.30


    RUNOFF VOLUME =     1.40983 INCHES     =       2.4874 ACRE-FEET
    PEAK DISCHARGE RATE =      70.38 CFS  AT   1.567 HOURS   BASIN AREA =    .0331 SQ. MI.


*  ADD OFFSITE BASIN 502.3 TO BASIN 503

ADD HYD             ID=33 HYD NO=503.1 ID=32 ID=53
PRINT HYD           ID=33 CODE=1

                                OUTFLOW HYDROGRAPH RESERVOIR   503.10


    RUNOFF VOLUME =     1.40981 INCHES     =       2.4984 ACRE-FEET
    PEAK DISCHARGE RATE =      70.67 CFS  AT   1.567 HOURS   BASIN AREA =    .0332 SQ. MI.


*S   ******AP3******
*  ADD OFFSITE BASIN 400 TO BASIN 503.1
ADD HYD             ID=41 HYD NO=503.2 ID=40 ID=33
PRINT HYD           ID=41 CODE=1

                                OUTFLOW HYDROGRAPH RESERVOIR   503.20


    RUNOFF VOLUME =     1.40983 INCHES     =       3.2813 ACRE-FEET
    PEAK DISCHARGE RATE =      91.72 CFS  AT   1.533 HOURS   BASIN AREA =    .0436 SQ. MI.


*     ROUTE BASIN 503.2 THROUGH BASIN 504
ROUTE MCUNGE        ID=42   HYD NO=503.3   INFLOW ID=41
                    DT=0.0   LENGTH=110 FT
                    NS=0  SLP=0.006
     ZERO VALUE HYDROGRAPH OR SHORT ROUTE - ROUTING BYPASSED
PRINT HYD           ID=42   CODE=1

                                OUTFLOW HYDROGRAPH RESERVOIR   503.30


    RUNOFF VOLUME =     1.40983 INCHES     =       3.2813 ACRE-FEET
    PEAK DISCHARGE RATE =      91.72 CFS  AT   1.533 HOURS   BASIN AREA =    .0436 SQ. MI.


*  ADD OFFSITE BASIN 503.3 TO BASIN 504
ADD HYD             ID=43 HYD NO=504.1 ID=42 ID=54
PRINT HYD           ID=43 CODE=1

                                OUTFLOW HYDROGRAPH RESERVOIR   504.10


    RUNOFF VOLUME =     1.40982 INCHES     =       3.3498 ACRE-FEET
    PEAK DISCHARGE RATE =      93.69 CFS  AT   1.533 HOURS   BASIN AREA =    .0446 SQ. MI.


*S   ******AP4******
*  ADD OFFSITE BASIN 504.1 TO BASIN 600
ADD HYD             ID=61 HYD NO=600.1 ID=43 ID=60
PRINT HYD           ID=61 CODE=1

                                HYDROGRAPH FROM AREA   600.10


    RUNOFF VOLUME =     1.39760 INCHES     =       3.4377 ACRE-FEET
    PEAK DISCHARGE RATE =      96.38 CFS  AT   1.533 HOURS   BASIN AREA =    .0461 SQ. MI.


FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 15:03:36
```

1300

K-9/D25

PERMANENT EASEMENT

1/2/04

Grant of Permanent Easement, between the City of Albuquerque ("Grantor'), whose address is P.O. Box 1293, Albuquerque, NM 87103 and the City of Albuquerque, a New Mexico municipal corporation ("City"), whose address is P.O. Box 1293, Albuquerque, New Mexico, 87103.

Grantor grants to the City an exclusive, permanent easement ("Easement") in, over, upon and across the real property described on Exhibit "A" attached hereto ("Property") for the construction, installation, maintenance, repair, modification, replacement and operation of a public waterline, together with the right to remove trees, bushes, undergrowth and any other obstacles upon the Property if the City determines they interfere with the appropriate use of this Easement.

The grant and other provisions of this Easement constitute covenants running with the land for the benefit of the City and its successors and assigns until terminated.

This Easement shall not be effective unless approved by the City Engineer as shown in the signature block below.

WITNESS my hand and seal this 2nd day of January, 20 04.

APPROVED:

City Engineer

12-29-03
Dated

12/24/03
KK 12/24/03

GRANTOR:

(Individual)

GRANTOR: City of Albuquerque

By:

Its:
(Corporation or Partnership)

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6018229
Page: 1 of 3
01/13/2004 03:31P
Bk-A71 Pg-4738
Mary Herrera Bern. Co. EASE R 13.00

INDIVIDUAL

STATE OF _____)
)ss
COUNTY OF _____)

This instrument was acknowledged before me on _____ day of _____, 20___ , by _____.

_____
Notary Public

My Commission Expires:

_____

CORPORATION

STATE OF New Mexico)
)ss
COUNTY OF Bernalillo)

This instrument was acknowledged before me on 3rd day of January, 2004 , by Jay J. Czar, CHIEF ADMINISTRATIVE OFFICER of City of Albuquerque, a Municipal corporation, on behalf of the corporation.

Felicia Lucero
Notary Public

My Commission Expires: 1-27-06

_____

PARTNERSHIP

STATE OF _____)
)ss
COUNTY OF _____)

This instrument was acknowledged before me on _____ day of _____, 20___ , by _____, partners(s), on behalf of _____, a partnership.

_____
Notary Public

My Commission Expires:

_____

(EXHIBIT 'A' ATTACHED)

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Page: 2 of 3
01/13/2004 03:31P
Bk-A71 Pg-4730
Mary Herrera Bern. Co. EASE R 13.00

LEGAL DESCRIPTION

THAT CERTAIN PARCEL of land situate within the Town of Atrisco Grant, projected Section 21, Township 10 North, Range 2 East, New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico being a portion of Unser Division Channel Corridor LOT 2–a1 as the same is shown and designated on said plat filed for record in the office of the County Clerk of Bernalillo County, New Mexico on 02/21/96 in Volume 96C, Folio 77 and being more particularly described as a Twenty foot (20') wide Public Waterline easement being ten (10') foot on both sides of the following described centerline as follows:

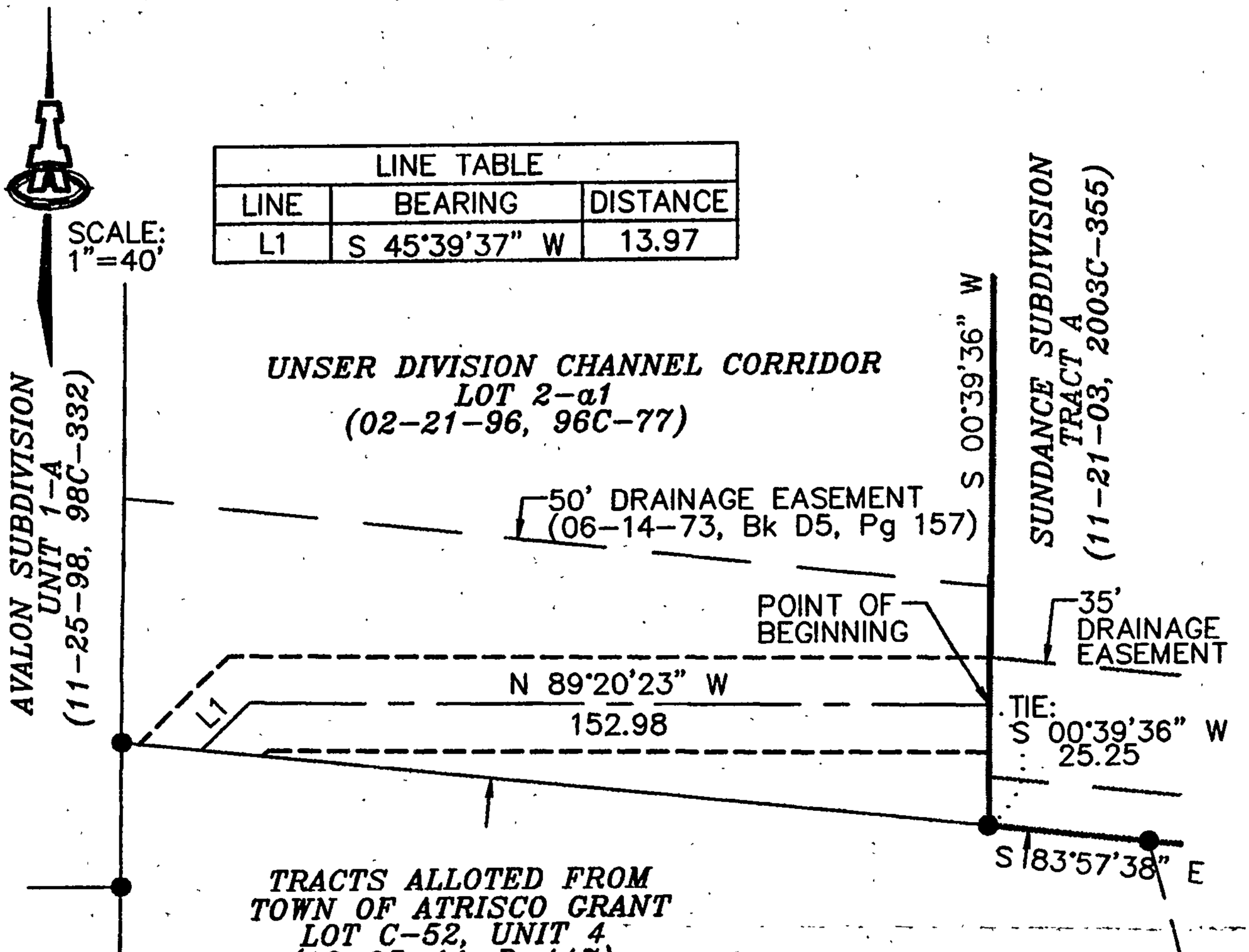
BEGINNING at a point on the easterly property line of said TRACT 2–a1 from whence the southeast property line corner of said TRACT 2–a1 bears S 00°39'36" W, 25.25 feet;

THENCE from the true point of beginning N 89°20'23" W 152.98 feet to an angle point;

THENCE S 45°39'37" W 13.97 feet a point on the southerly property line of said TRACT 2–a1 and being the terminus of the herein described easement, the side of the herein described easement being lengthened and shorten to terminate at the said easterly and southerly property line of said TRACT 2–a1.

BASIS OF BEARING: Southerly boundary of SUNDANCE SUBDIVISION TRACT A (11–21–03, Bk 2003C–355), being S 83°57'38" E.

LINE TABLE		
LINE	BEARING	DISTANCE
L1	S 45°39'37" W	13.97



REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR NO. 3895 12/11/03 NEW MEXICO THOMAS O. ISAACSON

EXHIBIT 'A'

1277ESMT1.DWGthor 12/11/03

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Page: 3 of 3
01/13/2004 03:31P
Bk-A71 Pg-4738
Mary Herrera Bern. Co. EASE R 13.00

717281

EASEMENT

Grant of Easement between Honeywell International Inc., a Delaware corporation ("Grantor") whose address is 101 Columbia Road, Morristown, NJ 07962 and the City of Albuquerque, a New Mexico municipal corporation ("Grantee").

Grantor, for and in consideration of the sum of Ten Dollars ($10.00) in hand paid and other valuable consideration, the receipt of which is acknowledged, does hereby grant, bargain, quit claim and convey unto Grantee an Exclusive (as hereinafter defined) easement ("Easement") in, over, upon and across the real property described on Exhibit "A" attached hereto ("Easement Area") for the construction, installation, maintenance, repair, modification, replacement and operation of a sanitary sewer line. Grantee may remove trees, bushes, undergrowth and any other obstacles upon the Easement Area if the Grantee reasonably determines they interfere with the appropriate use of this Easement.

Grantor shall have the right to use the Easement Area for purposes not inconsistent with the rights hereby granted. By using the term "exclusive" to describe the Easement, the parties intend that the Grantor have no right to grant any easement within the Easement Area to any other person without Grantee's prior written consent, which consent will not be unreasonably withheld if the use of such easement does not interfere with Grantee's use of the Easement Area. Grantee shall: (i) be responsible for taking all necessary actions to restore the surface of the Easement Area and adjoining lands of Grantor to the condition the surface was in prior to any such use; (ii) install, operate and maintain the sanitary sewer line and the Easement Area in a safe and orderly and good and workmanlike manner; and (iii) comply with all federal, state and local laws and regulations in the construction, installation, maintenance, repair, modification, replacement and operation of the sanitary sewer line and Grantee's use of the Easement Area.

The grant and other provisions of this Easement constitute covenants running with the land for the benefit of the Grantee and its successors and assigns until terminated provided, however, that Grantee shall not sell, transfer, assign, pledge, mortgage lease, grant licenses or other use or occupancy rights with respect thereto, or otherwise dispose of, in whole or in part, any interest in this Easement without the prior written consent of Grantor. Grantee agrees that at such time and in the event that the Easement Area is abandoned that this Easement shall terminate upon the vacation approval of the of the Easement by Grantee's Development Review Board (or successor body) and the real property interest represented by the Easement shall revert to Grantor, or Grantor's successors and assigns. In the event of such termination, Grantee shall execute, upon the request of Grantor, documentation in recordable form and reasonably acceptable to Grantor evidencing such termination. Grantor covenants that it is the owner in fee simple of the Easement Area.

Maru Herrera Bern. Co. EASE R 19.00
2003118364
5901387
Page: 1 of 6
07/09/2003 10:18A
Bk-A59 Pg-8109

This Easement shall not be effective unless approved by the City Engineer as shown in the signature block below.

WITNESS my hand and seal this 25TH day of JUNE, 2003.

APPROVED:

City Engineer

7-9-03

GRANTEE: City of Albuquerque

7/9/03

K.C. 7/1/03

7/7/03

GRANTOR: Honeywell International Inc.

By: _____

Phil Hammel, Director - Global Real Estate Services

Mary Herrera Bern. Co. EASE R 19.00

20031183641
5901387
Page: 2 of 6
07/09/2003 10:18A
Bk-A59 Pg-8109

(EXHIBIT "A" ATTACHED)

Mary Herrera Bern. Co. EASE R 19.00
2003118364
5901387
Page: 3 of 6
07/09/2003 10:18A
Bk-A59 Pg-8109

CORPORATION

STATE OF CALIFORNIA)
)ss
COUNTY OF SAN FRANCISCO)

This instrument was acknowledged before me on 25TH day of JUNE 2003, 2003, by Philip Hammel, Director - Global Real Estate Services, of Honeywell International Inc., a Delaware corporation, on behalf of the corporation.

LISA L. KAHAPEA
Commission # 1411923
Notary Public - California
San Francisco County
My Comm. Expires Apr 18, 2007

Lisa L. Kahapea, NOTARY PUBLIC
Notary Public

My Commission Expires

APRIL 18, 2007

CITY OF ALBUQUERQUE

STATE OF New Mexico)
)ss
COUNTY OF Bernalillo)

This instrument was acknowledged before me on 9th day of July, 2003, by Fred J. Aguirre, City Engineer, of the City of Alburquerque, a a municipal corporation, on behalf of the City.

Katherine Jaramillo
Notary Public

My Commission Expires

January 27, 2005

OFFICIAL SEAL
Katherine Jaramillo
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: January 27, 2005

Mary Herrera Bern. Co. EASE R 19.00

2003118364
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Page: 4 of 6
07/09/2003 10:18A
Bk-A59 Pg-8109

LEGAL DESCRIPTION

THAT CERTAIN PARCEL of land situate within the Atrisco Grant, Section 21, Township 10 North, Range 2 East, New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico being a portion of "LOT 1, UNIT 2, ATRISCO BUSINESS PARK" as the same is shown and designated on said plat filed for record in the office of the County Clerk of Bernalillo County, New Mexico on 8/30/79 in Volume C15, Folio 100 and "TRACTS G-1 & H-2-a, UNIT 2, ATRISCO BUSINESS PARK" as the same is shown and designated on said plat filed for record in the office of the County Clerk of Bernalillo County, New Mexico on 8/3/82 in Volume C20, Folio 9 and being more particularly described as a twenty foot (20') wide City of Albuquerque sanitary sewer easement as follows:

BEGINNING at the southeast corner of said Tract H-2-a, said point being on the westerly right-of-way line of Unser Blvd., from whence the Albuquerque Control Survey Monument "K10" bears N 09°30'19" W, 872.20 feet;

THENCE, along said right-of-way, N 14°48'38" W, 99.78 feet to a point of curvature;

THENCE, along said right-of-way 46.76 feet along a curve to the left, whose radius is 5651.58 feet through a central angle of 00°28'27" and whose chord bears N 15°04'41" W, 46.76 feet to a point, said point being the true POINT OF BEGINNING of a twenty foot (20') wide City of Albuquerque sanitary sewer easement;

THENCE, leaving said right-of-way and proceeding S 43°59'32" W, 188.62 feet to an angle point;

THENCE, leaving said right-of-way and proceeding S 69°52'03" W, 257.01 feet to an angle point;

THENCE, S 75°11'22" W, 793.86 feet to a point, said point being on the common lot line between Lots 1 & 2, Unit 2, Atrisco Business Park;

THENCE, along said common lot line N 00°22'19" E, 20.72 feet to a point;

THENCE, leaving said common lot line and proceeding N 75°11'22" E, 787.50 feet to an angle point;

THENCE, N 69°52'03" E, 251.49 feet to a point;

THENCE, N 43°59'32"" E, 195.84 feet to a point on said Unser Blvd. right-of-way;

THENCE, along said right-of-way 23.23 feet along a curve to the right, whose radius is 5651.58 feet through a central angle of 00°14'08" and whose chord bears S 15°25'58" E, 23.23 feet to the POINT OF BEGINNING and containing 0.5680 acres more or less.

BASIS OF BEARING: the southerly property line of Lot 1, Unit 2, Atrisco Business Park, filed 8-30-79, C15-100.

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR NO. 3895 NEW MEXICO THOMAS O. ISAACSON

EXHIBIT 'A'

1277ESMT.DWGnav 05/29/03

Mary Herrera Bern. Co. EASE R 19.00
2003118364
5981387
Page: 5 of 6
07/09/2003 10:18A
Bk-A59 Pg-8109

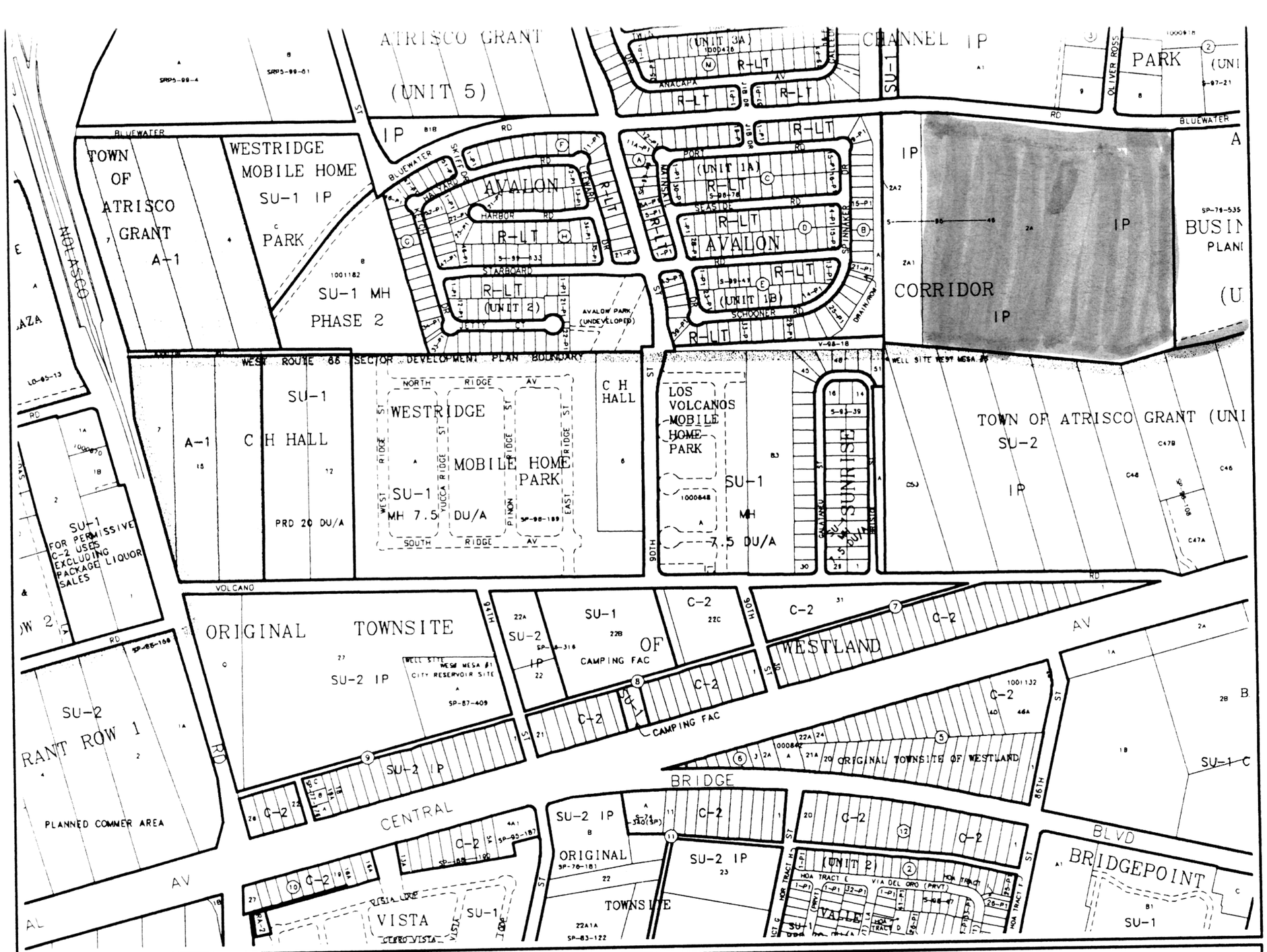
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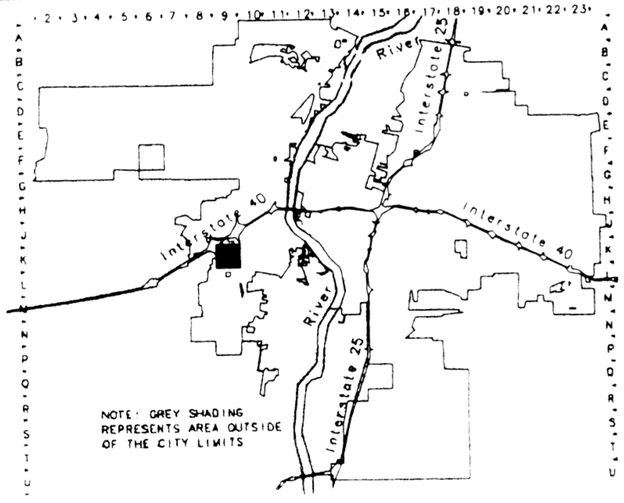
EXHIBIT 'A'

.DWGnav 05/29/03

Mary Herrera Bern. Co. EASE R 19.00
2003118364
5901387
Page: 6 of 6
07/09/2003 10:18A
Bk-A59 Pg-8109

Trish Garnett
453-4301 - Cell
897-8599 - Phone





CITY OF Albuquerque

Albuquerque Geographic Information System

PLANNING DEPARTMENT

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GRAPHIC SCALE IN FEET

250 0 750 1000

Zone Atlas Page

K-9-Z

Map Amended through April 03, 2002

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 16, 2003

Fred Arfman, PE
Isaacson & Arfman
128 Monroe NE
Albuquerque, NM 87108

Re: Sundance Subdivision Drainage Report
Engineer's Stamp dated 5-23-03, (K9/D25)

Dear Mr. Arfman,

Based upon the information provided in your submittal dated 5-23-03, the above referenced report cannot be approved for Preliminary Plat until the following comments are addressed.

- The cul-de-sacs on the north side (Fernspring and Sawgrass) are too low. The furthest west lots should be at least to the 5150 elevation in order to eliminate retaining wall. I want to preclude any seepage through your proposed wall when the pond is full.

- Please provide written concurrence from the Parks Department that they will maintain the 35' drainage easement. Otherwise you will have to redesign your subdivision to incorporate this easement into a public road. Storm drain maintenance must have paved access to the existing manholes. Are any other utilities planned to use this corridor. Please provide a trench prism exhibit.

- Since you have a basin map with basin boundaries delineated, please remove the reference from the grading plans so that I can see if you have any retaining wall planned. There should be some on the east side and it should be denoted in your legend.

- Why is there no impervious land treatment for basin 600? If there were Parks maintenance, there would most certainly be a 10' asphalt trail.

- At the sump condition on Shorewood, you must design for twice the 100-year condition unless you grade and pave the trail up to Unser so that any overflow would indeed stay in the easement.

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

Sincerely,

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

C: file

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

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

K-9/D25

PROJECT TITLE: SUNDANCE SUBDIVISION ZONE MAP/DRG. FILE #: K-9
DRB #: _____ EPC#: 03 EPC- -00316 WORK ORDER#: _____

LEGAL DESCRIPTION: LOT 2-A, UNSER DIVERSION CHANNEL CORRIDOR
CITY ADDRESS: N/A

ENGINEERING FIRM: Isaacson & Arfman, P.A. CONTACT: FRED C. ARFMAN
ADDRESS: 128 Monroe Street NE PHONE: (505) 268-8828
CITY, STATE: Albuquerque, NM ZIP CODE: 87108

OWNER: GARRETT GROUP INC CONTACT: TED GARRETT
ADDRESS: 1130 LANES END NW PHONE: 897-0599
CITY, STATE: ABQ. NM ZIP CODE: 87114

ARCHITECT: N/A CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: ALDRICH LAND SURVEYING CONTACT: TIM ALDRICH
ADDRESS _____ PHONE: 884-1990
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: N/A. CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:

- X 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)
- ____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ____ SIA / FINANCIAL GUARANTEE RELEASE
- X 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
- X NO
- ____ COPY PROVIDED

RECEIVED
MAY 23 2003
HYDROLOGY SECTION

DATE SUBMITTED: 05-23-03 BY: _____

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 (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.

DESIGN REPORT

FOR

SUNDANCE SUBDIVISION

A 203-LOT SINGLE-FAMILY RESIDENTIAL SUBDIVISION

ALBUQUERQUE, NEW MEXICO

MAY 2003

Prepared by:
ISAACSON & ARFMAN, P.A.
128 Monroe Street, NE
Albuquerque, NM 87108
(505) 268-8828

RECEIVED
MAY 23 2003
HYDROLOGY SECTION

FRED C. ARFMAN
STATE OF NEW MEXICO
7322
REGISTERED PROFESSIONAL ENGINEER

05.23.03

Fred C. Arfman, PE **Date**

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IV. Site Characteristics

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- ❖ Land Treatment
  -- Calculation
  -- Typical Lot Detail
- ❖ Street Flow Capacities
- ❖ Storm Inlet Nomographs

B. AHMO Summary (100-Year Event)

C. Hydro Flow Calculations for Storm Drains

D. Select Portions of the Atrisco Business Park, D.M.P., Full & Interim Conditions

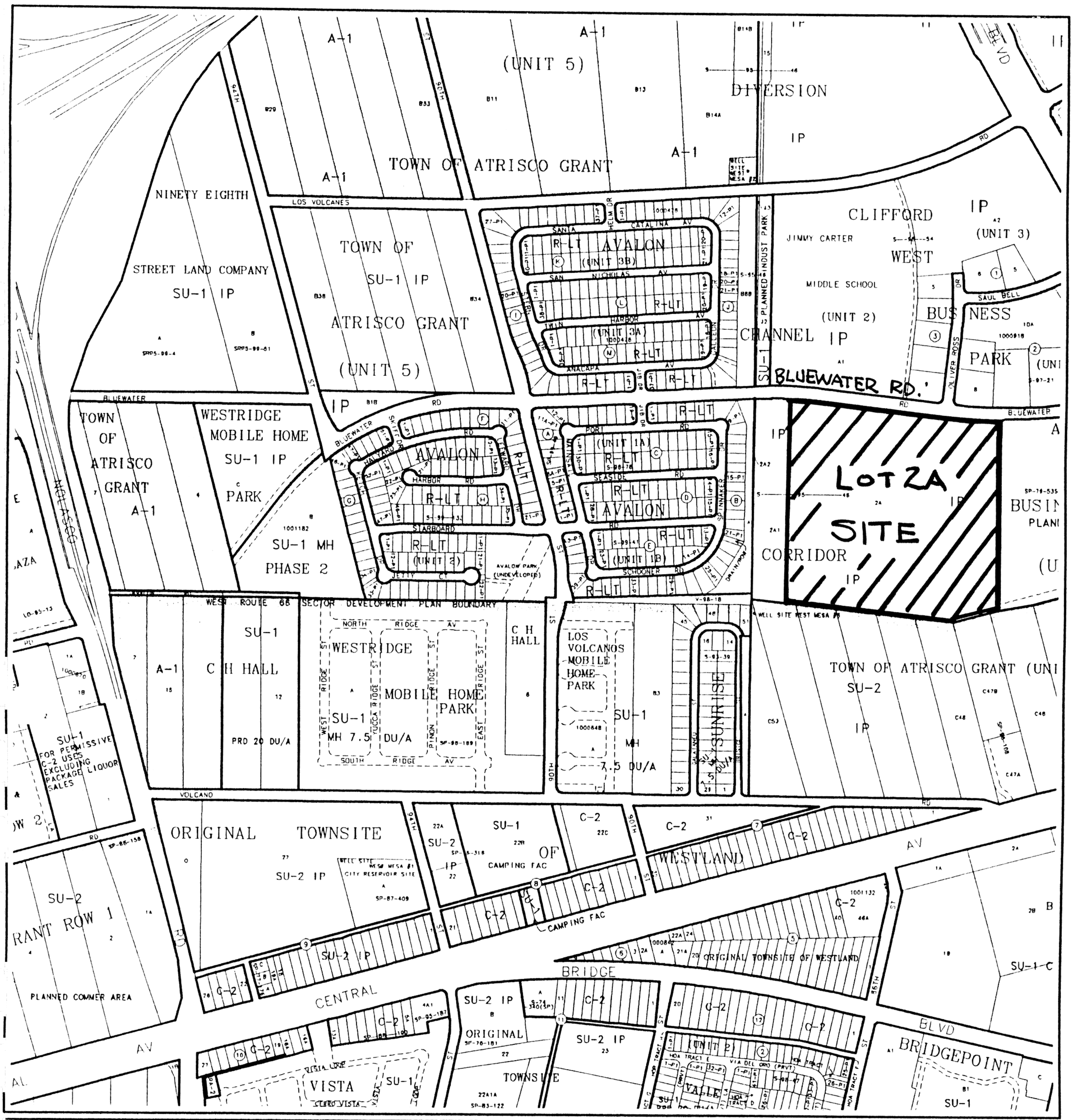
POCKETS

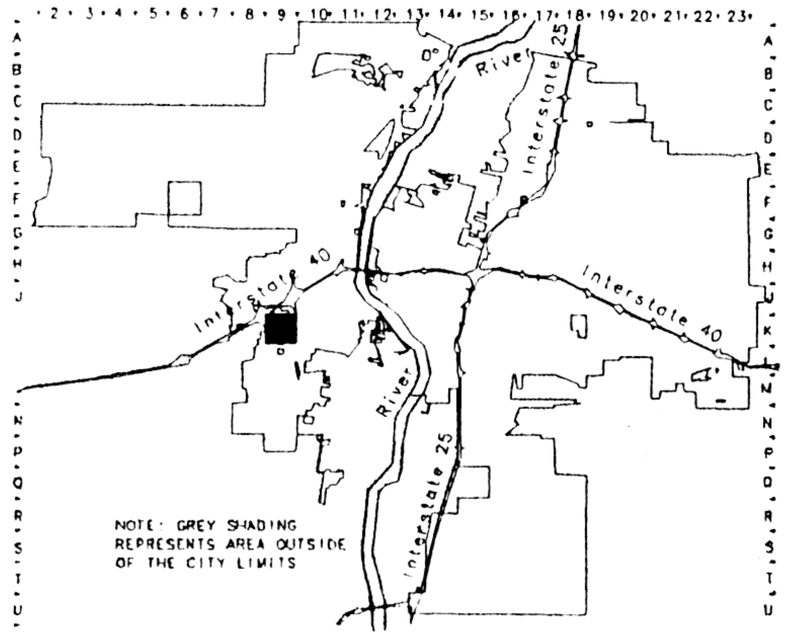
Figure 1: Drainage Basins (1" = 60')
Figures 2 & 3: Grading & Drainage Plan (1" = 50')

INTRODUCTION

The subject Sundance Subdivision is comprised of a single 28.72-acre parcel designated as Lot 2A, Unser Diversion Channel Corridor. The parcel is bordered on the north by Bluewater Road (68' R.O.W.), Ponds 5 and 6 of the Unser Diversion Channel are adjacent to the west property line, Honeywell Industrial Plant (developed and undeveloped) exist to the east and developed and undeveloped industrial tract line the southerly boundary. This report shall serve as the support document for determining the storm drainage public infrastructure requirements imposed by the City of Albuquerque as a condition of development.

The parcel is subject to drainage criteria established by the Atrisco Business Park Master Drainage Plan. The existing detention pond outfall pipe shall play an integral part of the subdivision drainage solution.





CITY OF
Albuquerque

Albuquerque Geographic Information System
PLANNING DEPARTMENT

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GRAPHIC SCALE IN FEET

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Zone Atlas Page

K-9-Z

Map Amended through April 03, 2002

I. PROJECT INFORMATION

Legal Description: Lot 2A, Unser Diversion Channel Corridor
Filed on February 21, 1996 in Vol. 96C, Folio 77

Area: 28.7207 Ac. (1,251,074 SF)

Engineer: Isaacson & Arfman, P.A.
128 Monroe Street NE
Albuquerque, NM 87108
(505) 268-8828
Attn: Fred C. Arfman, PE

Surveyor: Aldrich Land Surveying, Inc.
Attn: Tim Aldrich, NMPLS No. 7719
(505) 884-1990

Benchmark: ACS Monument "9-K10" located at the intersection of Unser Blvd. and Bluewater Road NW.
Elevation: 5114.99 (SLD 1929)

Zoning: City of Albuquerque: IP

Existing Number of Tracts: 1

Proposed Number of Lots:

Unit One:	98
Unit Two:	105
Total	203

II. SITE CHARACTERISTICS

FLOOD HAZARD: No portion of the site falls within a flood hazard as designated on Panel No. of 825 of the F.E.M.A. Flood Insurance Rate Map dated September 20, 1996 and revised on April 15, 1999.

EXISTING CONDITIONS: The parcel is presently undeveloped with native vegetation typical of the City's west side. The natural slope is approximately 2% across the site and runs from the northwest to the southeast. Runoff is allowed to sheet flow onto the Honeywell Industrial Facility property to the east. Storm waters exiting along the northerly half of the east property line are collected by a diversion swale and routed to the undeveloped portion of the property. Storm waters eventually overland flow to the Unser Blvd. right-of-way approximately 1000 feet to the east. No storm waters enter onto the site from the properties to the south nor from the detention ponds to the west. Bluewater Road is semi-developed and very minor storm water flows make their way onto the subject parcel.

PROPOSED CONDITIONS: The residential development is programmed for two units. The initial unit, being the northerly portion of the site, will also include the north/south storm drain in Shorewood Drive and the extension through Unit Two connecting to the existing 48" diameter storm drain. The acceptance of storm waters into the said

N

ENSER BLVD.

HONEYWELL

LOT 2-A

BLUEWATER RD

POND No. 6

POND No. 5

storm drain is allowable per the Atrisco Business Park D.M.P.

Each unit shall have the required storm drain inlets constructed to accept 100% of the onsite generated storm water flows. The said D.M.P. was developed with the subject parcel designated as an industrial use and generating approximately 126 cfs; all of which was to be accepted by the 48" diameter storm drain. The land use changed to residential single-family detached (7.1 D.U./Ac) will only generate a maximum of 94 cfs at the same connection point.

The Shorewood Drive storm drain and all required inlets shall be contained within the roadway limits. The contributing drainage sub-basins (100-400) running east/west do not generate more storm water flow than what the streets can carry (see street for calculations). Inlet shall be positioned within Shorewood Drive to capture the street flows at the upstream side of the intersections. All storm water surface flows are thereby contained within the face-to-face limits of Shorewood Drive. A multiple sump inlet is scheduled at the southerly end of Shorewood Drive to accept the remaining storm waters not previously captured by the storm drain inlets. An emergency overflow shall be designed into the south end of the Shorewood Drive stub-street which will direct any fugitive storm waters to the public 35-foot wide storm drain easements which will convey overland storm water flows to Unser Blvd.

Each residential lot shall be constructed to allow 100% of the generated precipitation to discharge to the front or side public roadways.

Minor onsite street flows at each of the two site entrances off of Bluewater Road shall discharge storm waters onto Bluewater from the street high-point to the Bluewater southerly gutter flowline.

The southerly 35-foot drainage easement will be dedicated to the City of Albuquerque (Parks & Recreation) for a trail corridor linking the Unser Diversion Channel pond with Unser Blvd. Storm waters generated within the subject Basin 600 will overland/channel flow to the east and then accepted into the existing storm drain at the new manhole location. Manhole shall be modified to accommodate a beehive grate capable of accepting the storm waters.

APPENDIX A

Tables & Calculations

- **Land Treatment**
  - **-- Calculation**
  - **-- Typical Lot Detail**
- **Street Flow Capacities**
- **Storm Inlet Nomographs**

TYPICAL LOT LAND TREATMENTS

TOTAL LOT AREA w/ ADJACENT R.O.W.:

40' x (100' + 28') = 5120 SF

PAD AREA:

30' x ~~70'~~ 70' = 2100 SF

DRIVEPAD AREA:

12' x (15'-4-5') = 360 SF

SIDEWALK AREA:

4' x 40' = 160 SF

TOTAL IMPERVIOUS AREA:

2100 + 360 + 160 = 2620 SF

% IMPERVIOUS (TYPE D):

$\frac{2620}{5120}$ = 51.17%

SPLIT REMAINING PERVIOUS BETWEEN A/B/C:

100 - 51.17% = 48.82% ÷ 2 = 24.41%

24.41%	B
24.42%	C
51.17%	D

TABLE 2

STREET FLOW DEPTH SUMMARY

STREET	LOCATION	STREET WIDTH	CURB TYPE	SLOPE (ft/ft)	Q_{100} (cfs)	DEPTH (ft)
Fernspring Pl	cul-de-sac (approx 1/4 of basi	28' F-F	mtbl	0.0200	6	0.21
Fernspring Pl	Luminoso to Shorewood	28' F-F	std	0.0200	23.94	0.42
Sawgrass Pl	cul-de-sac (approx 1/4 of basi	28' F-F	mtbl	0.0200	5.5	0.21
Sawgrass Pl	Luminoso to Lot 10, blk E	28' F-F	mtbl	0.0220	15.91	0.30
Sawgrass Pl	Lot 10, blk E to Shorewood	28' F-F	std	0.0220	21.92	0.41
Sonoma Ave	Hatteras to Lot 24, Blk E	28' F-F	mtbl	0.0230	15.74	0.29
Sonoma Ave	Lot 24, Blk E to Shorewood	28' F-F	std	0.0230	21.02	0.40
Tradewind Rd	Hatteras to Lot 31, Blk F	28' F-F	mtbl	0.0232	15.64	0.29
Tradewind Rd	Lot 31, Blk F to Shorewood	28' F-F	std	0.0232	23.07	0.41
Hatteras St	(approx 18% of Basin 400)	28' F-F	mtbl	0.0060	4.1	0.23
Shorewood Dr	N. of Sawgrass	28' F-F	std	0.0060	26.81	0.53
Shorewood Dr	N. of Sonoma	28' F-F	std	0.0060	24.63	0.52
Shorewood Dr	N. of Tradewind	28' F-F	std	0.0060	19.23	0.48
Shorewood Dr	stub on south end	24' F-F	std	0.0060	23.02	0.51

STREET FLOW CAPACITY CALCULATIONS

STREET NAME:	**Fernspring Pl**	1
LOCATION:	**cul-de-sac (approx 1/4 of basin 100)**	

STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.02	Road Width/2	14
Q_{100}	6	Curb Height	0.33
Right-of-way Width	46	1/2 Wetted Perimeter (P)	10.761
Road Width	28	1/2 Area(STD)	----
Curb Type	mtbl	1/2 Area(MDN)	----
Road Cross Slope	0.02	1/2 Area(MTBL)	1.113
Manning's N	0.017	Discharge (1/2 Q)	3.009

Depth: 0.211

RESULTS

HGL

Q_{100} FLOW CAPACITY = 6.02 cfs OK
at an HGL Depth= 0.21 ft < Curb height = 0.33
OK

EGL

Velocity 2.70 fps
$V^2/2g$ 0.11 ft
EGL Depth = 0.32 ft < Right-of-way height = 0.50
OK

STREET NAME:	**Fernspring Pl**	2
LOCATION:	**Luminoso to Shorewood**	

STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.02	Road Width/2	14
Q_{100}	23.94	Curb Height	0.67
Right-of-way Width	46	1/2 Wetted Perimeter (P)	14.424
Road Width	28	1/2 Area(STD)	2.871
Curb Type	std	1/2 Area(MDN)	----
Road Cross Slope	0.02	1/2 Area(MTBL)	----
Manning's N	0.017	Discharge (1/2 Q)	12.034

Depth: 0.424

RESULTS

HGL

Q_{100} FLOW CAPACITY = 24.07 cfs OK
at an HGL Depth= 0.42 ft < Curb height = 0.67
OK

EGL

Velocity 4.19 fps
$V^2/2g$ 0.27 ft
EGL Depth = 0.70 ft < Right-of-way height = 0.84
OK

STREET NAME:	**Sawgrass Pl**	3
LOCATION:	**cul-de-sac (approx 1/4 of basin 200)**	

STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.02	Road Width/2	14
Q_{100}	5.5	Curb Height	0.33
Right-of-way Width	46	1/2 Wetted Perimeter (P)	10.455
Road Width	28	1/2 Area(STD)	----
Curb Type	mtbl	1/2 Area(MDN)	----
Road Cross Slope	0.02	1/2 Area(MTBL)	1.051
Manning's N	0.017	Discharge (1/2 Q)	2.786

Depth: 0.205

RESULTS

HGL

Q_{100} FLOW CAPACITY = 5.57 cfs OK
at an HGL Depth= 0.21 ft < Curb height = 0.33
OK

EGL

Velocity 2.65 fps
$V^2/2g$ 0.11 ft
EGL Depth = 0.31 ft < Right-of-way height = 0.50
OK

STREET FLOW CAPACITY CALCULATIONS

STREET NAME:	**Sawgrass Pl**	4
LOCATION:	**Luminoso to Lot 10, blk E**	

STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.022	Road Width/2	14
Q_{100}	15.91	Curb Height	0.33
Right-of-way Width	46	1/2 Wetted Perimeter (P)	14.295
Road Width	28	1/2 Area(STD)	----
Curb Type	mtbl	1/2 Area(MDN)	----
Road Cross Slope	0.02	1/2 Area(MTBL)	2.170
Manning's N	0.017	Discharge (1/2 Q)	7.956

Depth: 0.295

RESULTS

HGL

Q_{100} FLOW CAPACITY =	**15.91 cfs**	**OK**		
at an HGL Depth=	**0.30 ft**	<	Curb height =	0.33
		OK		

EGL

Velocity	3.67 fps			
$V^2/2g$	0.21 ft			
EGL Depth =	**0.50 ft**	<	Right-of-way height =	0.50
		OK		

STREET NAME:	**Sawgrass Pl**	5
LOCATION:	**Lot 10, blk E to Shorewood**	

STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.022	Road Width/2	14
Q_{100}	21.92	Curb Height	0.67
Right-of-way Width	46	1/2 Wetted Perimeter (P)	14.408
Road Width	28	1/2 Area(STD)	2.647
Curb Type	std	1/2 Area(MDN)	----
Road Cross Slope	0.02	1/2 Area(MTBL)	----
Manning's N	0.017	Discharge (1/2 Q)	11.028

Depth: 0.408

RESULTS

HGL

Q_{100} FLOW CAPACITY =	**22.06 cfs**	**OK**		
at an HGL Depth=	**0.41 ft**	<	Curb height =	0.67
		OK		

EGL

Velocity	4.17 fps			
$V^2/2g$	0.27 ft			
EGL Depth =	**0.68 ft**	<	Right-of-way height =	0.84
		OK		

STREET NAME:	**Sonoma Ave**	6
LOCATION:	**Hatteras to Lot 24, Blk E**	

STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.023	Road Width/2	14
Q_{100}	15.74	Curb Height	0.33
Right-of-way Width	46	1/2 Wetted Perimeter (P)	14.292
Road Width	28	1/2 Area(STD)	----
Curb Type	mtbl	1/2 Area(MDN)	----
Road Cross Slope	0.02	1/2 Area(MTBL)	2.128
Manning's N	0.017	Discharge (1/2 Q)	7.875

Depth: 0.292

RESULTS

HGL

Q_{100} FLOW CAPACITY =	**15.75 cfs**	**OK**		
at an HGL Depth=	**0.29 ft**	<	Curb height =	0.33
		OK		

EGL

Velocity	3.70 fps			
$V^2/2g$	0.21 ft			
EGL Depth =	**0.50 ft**	<	Right-of-way height =	0.50
		OK		

STREET FLOW CAPACITY CALCULATIONS

STREET NAME:	**Sonoma Ave**	7
LOCATION:	**Lot 24, Blk E to Shorewood**	

STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.023	Road Width/2	14
Q_{100}	21.02	Curb Height	0.67
Right-of-way Width	46	1/2 Wetted Perimeter (P)	14.401
Road Width	28	1/2 Area(STD)	2.549
Curb Type	std	1/2 Area(MDN)	----
Road Cross Slope	0.02	1/2 Area(MTBL)	----
Manning's N	0.017	Discharge (1/2 Q)	10.591
Depth	0.401		

RESULTS

HGL

Q_{100} FLOW CAPACITY =	**21.18 cfs**	**OK**		
at an HGL Depth=	**0.40 ft**	<	Curb height =	0.67
		OK		

EGL

Velocity	4.16 fps			
$V^2/2g$	0.27 ft			
EGL Depth =	**0.67 ft**	<	Right-of-way height =	0.84
		OK		

STREET NAME:	**Tradewind Rd**	8
LOCATION:	**Hatteras to Lot 31, Blk F**	

STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.0232	Road Width/2	14
Q_{100}	15.64	Curb Height	0.33
Right-of-way Width	46	1/2 Wetted Perimeter (P)	14.291
Road Width	28	1/2 Area(STD)	----
Curb Type	mtbl	1/2 Area(MDN)	----
Road Cross Slope	0.02	1/2 Area(MTBL)	2.114
Manning's N	0.017	Discharge (1/2 Q)	7.823
Depth	0.291		

RESULTS

HGL

Q_{100} FLOW CAPACITY =	**15.65 cfs**	**OK**		
at an HGL Depth=	**0.29 ft**	<	Curb height =	0.33
		OK		

EGL

Velocity	3.70 fps			
$V^2/2g$	0.21 ft			
EGL Depth =	**0.50 ft**	<	Right-of-way height =	0.50
		OK		

STREET NAME:	**Tradewind Rd**	9
LOCATION:	**Lot 31, Blk F to Shorewood**	

STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.0232	Road Width/2	14
Q_{100}	23.07	Curb Height	0.67
Right-of-way Width	46	1/2 Wetted Perimeter (P)	14.411
Road Width	28	1/2 Area(STD)	2.689
Curb Type	std	1/2 Area(MDN)	----
Road Cross Slope	0.02	1/2 Area(MTBL)	----
Manning's N	0.017	Discharge (1/2 Q)	11.625
Depth	0.411		

RESULTS

HGL

Q_{100} FLOW CAPACITY =	**23.25 cfs**	**OK**		
at an HGL Depth=	**0.41 ft**	<	Curb height =	0.67
		OK		

EGL

Velocity	4.32 fps			
$V^2/2g$	0.29 ft			
EGL Depth =	**0.70 ft**	<	Right-of-way height =	0.84
		OK		

STREET FLOW CAPACITY CALCULATIONS

STREET NAME:	**Hatteras St**	10
LOCATION:	**(approx 18% of Basin 400)**	

STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.006	Road Width/2	14
Q_{100}	4.1	Curb Height	0.33
Right-of-way Width	46	1/2 Wetted Perimeter (P)	11.679
Road Width	28	1/2 Area(STD)	----
Curb Type	mtbl	1/2 Area(MDN)	----
Road Cross Slope	0.02	1/2 Area(MTBL)	1.311
Manning's N	0.017	Discharge (1/2 Q)	2.051

Depth 0.229

RESULTS

HGL

Q_{100} FLOW CAPACITY = 4.10 cfs OK
at an HGL Depth= 0.23 ft < Curb height = 0.33
OK

EGL

Velocity 1.56 fps
$V^2/2g$ 0.04 ft
EGL Depth = 0.27 ft < Right-of-way height = 0.50
OK

STREET NAME:	**Shorewood Dr**	11
LOCATION:	**N. of Sawgrass**	

STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.006	Road Width/2	14
Q_{100}	26.81	Curb Height	0.67
Right-of-way Width	46	1/2 Wetted Perimeter (P)	14.534
Road Width	28	1/2 Area(STD)	4.411
Curb Type	std	1/2 Area(MDN)	----
Road Cross Slope	0.02	1/2 Area(MTBL)	----
Manning's N	0.017	Discharge (1/2 Q)	13.435

Depth 0.534

RESULTS

HGL

Q_{100} FLOW CAPACITY = 26.87 cfs OK
at an HGL Depth= 0.53 ft < Curb height = 0.67
OK

EGL

Velocity 3.05 fps
$V^2/2g$ 0.14 ft
EGL Depth = 0.68 ft < Right-of-way height = 0.84
OK

STREET NAME:	**Shorewood Dr**	12
LOCATION:	**N. of Sonoma**	

STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.006	Road Width/2	14
Q_{100}	24.63	Curb Height	0.67
Right-of-way Width	46	1/2 Wetted Perimeter (P)	14.518
Road Width	28	1/2 Area(STD)	4.187
Curb Type	std	1/2 Area(MDN)	----
Road Cross Slope	0.02	1/2 Area(MTBL)	----
Manning's N	0.017	Discharge (1/2 Q)	12.324

Depth 0.518

RESULTS

HGL

Q_{100} FLOW CAPACITY = 24.65 cfs OK
at an HGL Depth= 0.52 ft < Curb height = 0.67
OK

EGL

Velocity 2.94 fps
$V^2/2g$ 0.13 ft
EGL Depth = 0.65 ft < Right-of-way height = 0.84
OK

STREET FLOW CAPACITY CALCULATIONS

STREET NAME:	**Shorewood Dr**	13
LOCATION:	**N. of Tradewind**	

STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.006	Road Width/2	14
Q_{100}	19.23	Curb Height	0.67
Right-of-way Width	46	1/2 Wetted Perimeter (P)	14.477
Road Width	28	1/2 Area(STD)	3.613
Curb Type	std	1/2 Area(MDN)	----
Road Cross Slope	0.02	1/2 Area(MTBL)	----
Manning's N	0.017	Discharge (1/2 Q)	9.652

Depth 0.477

RESULTS

HGL

Q_{100} FLOW CAPACITY =	**19.30 cfs**	**OK**		
at an HGL Depth=	**0.48 ft**	<	Curb height =	0.67
		OK		

EGL

Velocity	2.67 fps			
$V^2/2g$	0.11 ft			
EGL Depth =	**0.59 ft**	<	Right-of-way height =	0.84
		OK		

STREET NAME:	**Shorewood Dr**	14
LOCATION:	**stub on south end**	

STREET INFORMATION		HALF STREET CALCULATIONS	
Slope	0.006	Road Width/2	12
Q_{100}	23.02	Curb Height	0.67
Right-of-way Width	40	1/2 Wetted Perimeter (P)	12.514
Road Width	24	1/2 Area(STD)	3.793
Curb Type	std	1/2 Area(MDN)	----
Road Cross Slope	0.02	1/2 Area(MTBL)	----
Manning's N	0.017	Discharge (1/2 Q)	11.542

Depth 0.514

RESULTS

HGL

Q_{100} FLOW CAPACITY =	**23.08 cfs**	**OK**		
at an HGL Depth=	**0.51 ft**	<	Curb height =	0.67
		OK		

EGL

Velocity	3.04 fps			
$V^2/2g$	0.14 ft			
EGL Depth =	**0.66 ft**	<	Right-of-way height =	0.82
		OK		

INLET REQUIREMENTS AT ANALYSIS POINTS

from Nomographs:

$Q_{SGL\ 'A'} = 8.5$ cfs

$Q_{DBL\ 'A'} = 11.6$ cfs
$DBL\ 'C'$

AP1:

$Q_{100} = 26.81$ cfs

2 SGL 'A' + 1 DBL 'C'

$2(8.5) + 11.6 = \underline{28.6\ cfs} > 26.81$ cfs
$\therefore$ OK

AP2:

$Q_{100} = 24.63$ cfs

2 SGL 'A' + 1 DBL 'C'

$2(8.5) + 11.6 = \underline{28.6\ cfs} > 24.63$ cfs $\therefore$ OK

AP3:

$Q_{100} = 19.23$ cfs

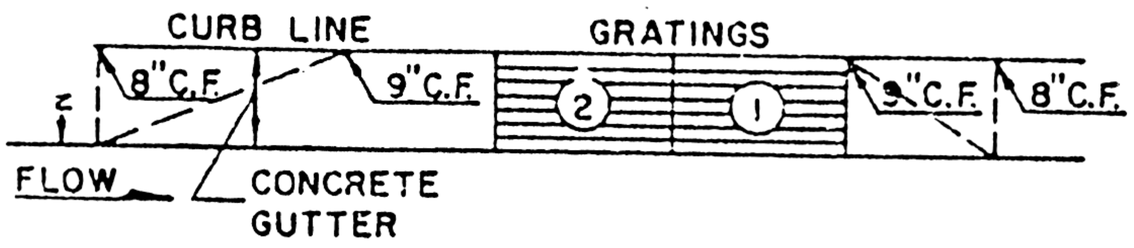
2 DBL 'A'

$2(11.6) = \underline{23.2\ cfs} > 19.23$ cfs $\therefore$ OK

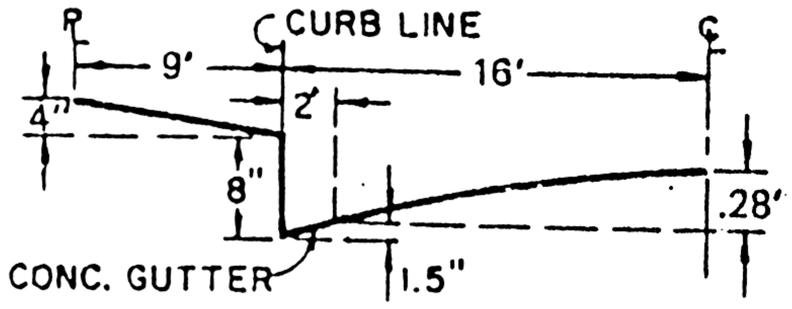
AP4:

PER SUMP CALC

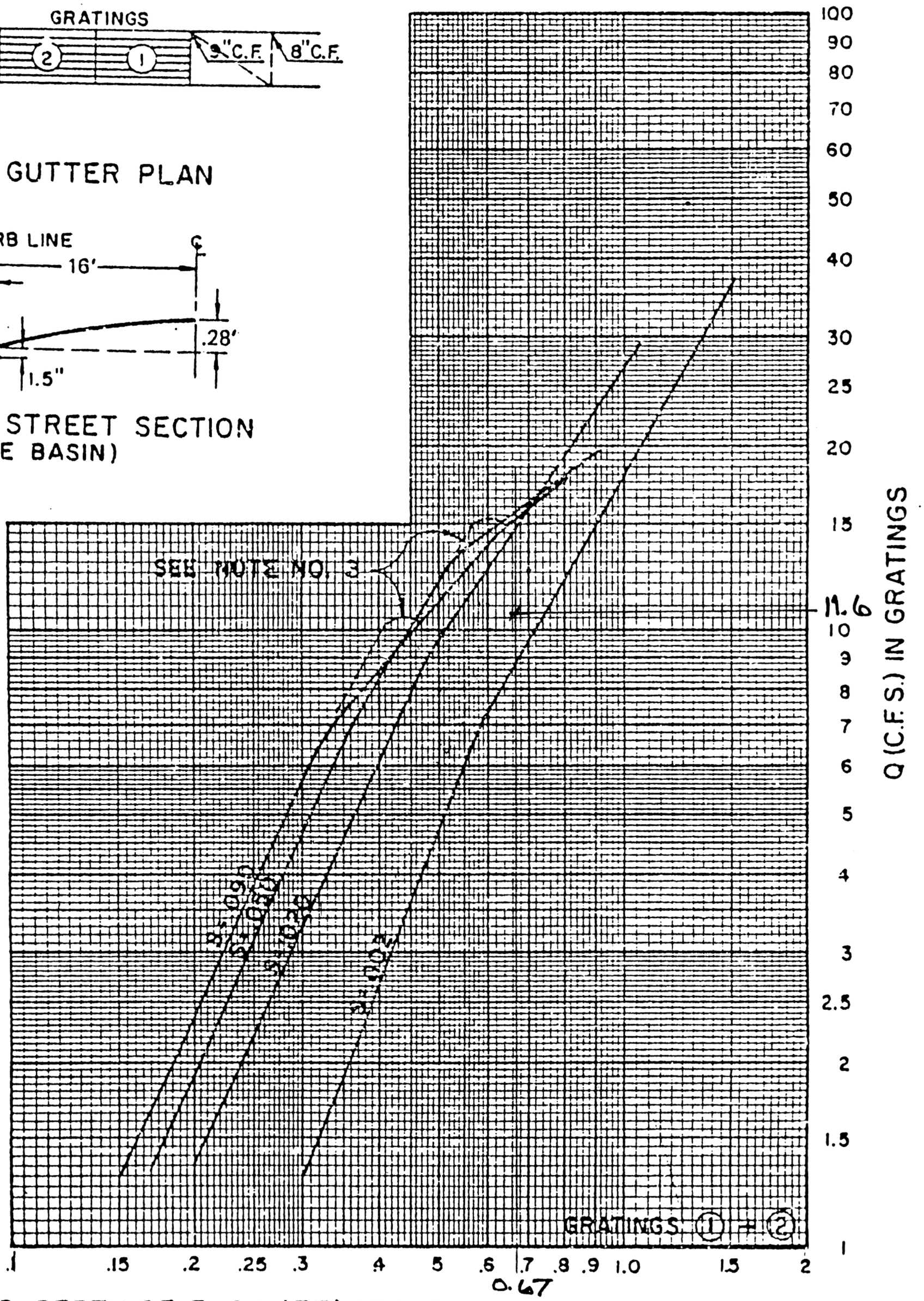
GRATING CAPACITIES FOR TYPE DOUBLE "C," AND "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

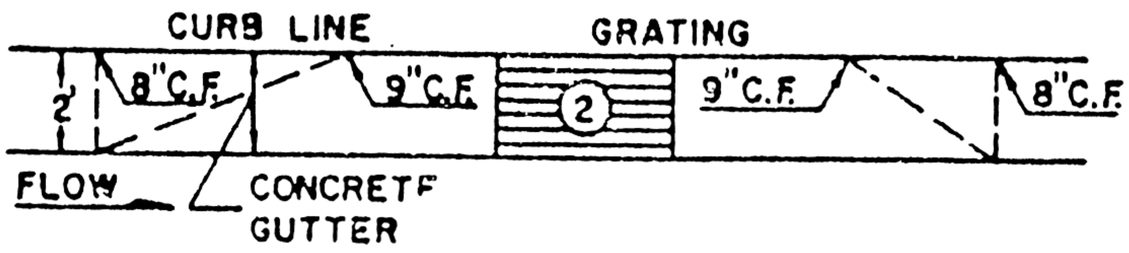


D = DEPTH OF FLOW (FT.) ABOVE NORMAL GUTTER GRADE

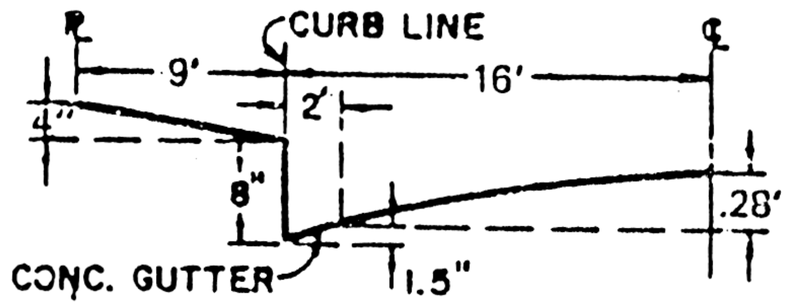
$S = 0.6\%$

$Q_{DBL'C'} = 11.6$ cfs

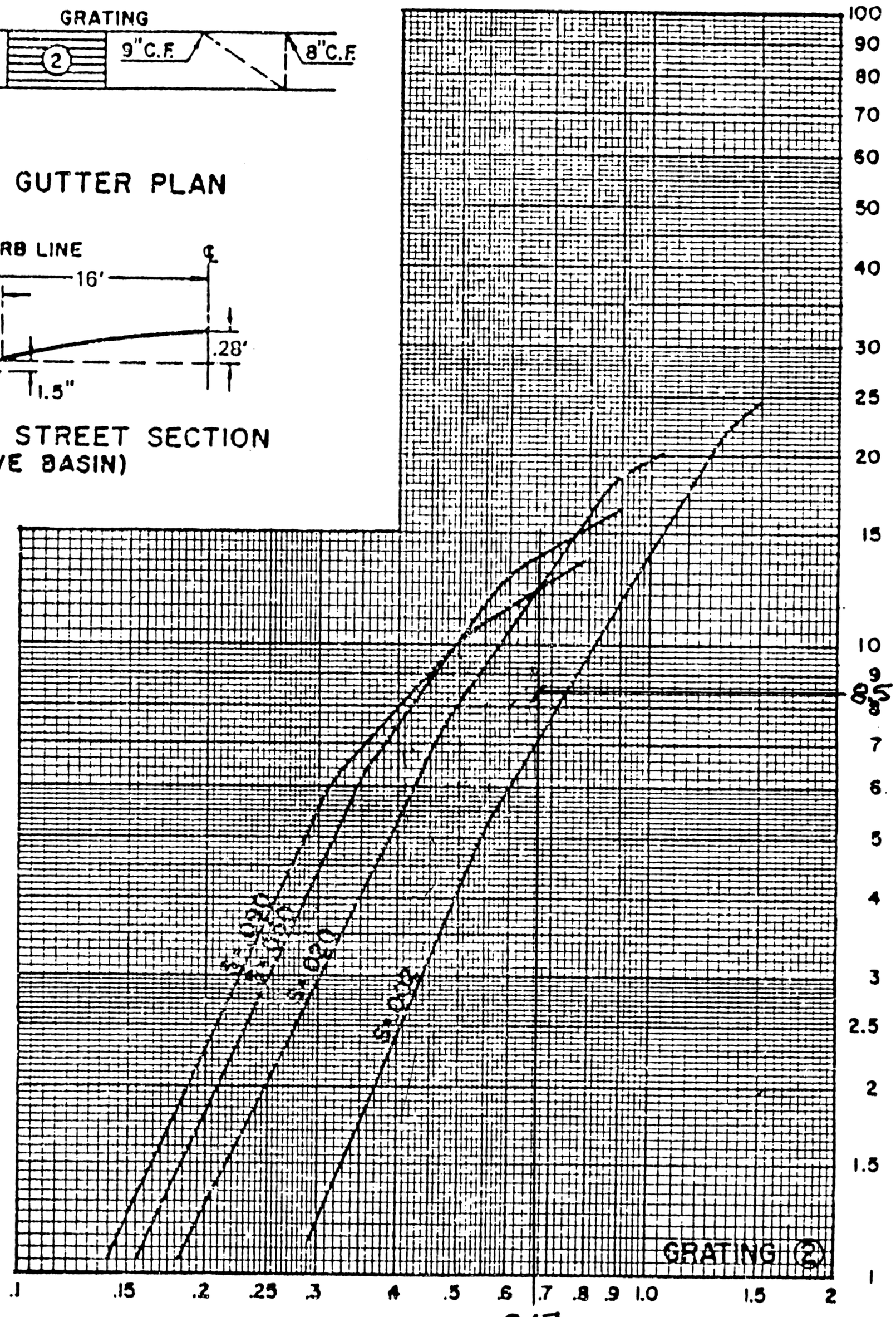
GRATING CAPACITIES FOR TYPE "A" , "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



$S = 0.6\%$

$Q_{SGL\ 'A'} = 8.5$ cfs

ANALYZE SUMP INLETS

GRATE OPEN AREA:
(per COA std dwg #2220, single grate)

GROSS AREA FOR ONE GRATE =	(25 in/12)(40 in/12) =	6.94 SF
LESS BEARING BARS =	(0.5 in/12)(3.33 ft)(13) =	1.80 SF
LESS CROSS BARS =	(0.5 in/12)(7)[(25 in/12)-(13)(0.5 in/12)] =	0.45 SF
	NET GRATE OPEN AREA =	**4.69 SF**
	GRATE OPEN AREA (assuming 50% clogging factor) =	***2.35 SF***

ORIFICE EQUATION:

$$Q = CA(2gh)^{1/2}$$

Where:

C = 0.67
A = 2.35 ft^2
g = 32.2 ft/sec^2
h = height of the water surface above the grate

CAPACITY CALCULATIONS:

INLET # / LOCATION: AP4

h = 0.67 ft
$Q_{(capacity)}$ = 10.32273 cfs
REQUIRED Q = 23.02 cfs

NUMBER OF GRATES REQUIRED = **3**

No overflow grates allowed

APPENDIX B

AHMO Summary (100-Year Event)

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02d RUN DATE (MON/DAY/YR) =05/21/2003
INPUT FILE = M:\ACTIVE\AHYMO\1277\1277DEV.DAT USER NO.= AHYMO-I-9702dIsa-Arfman1

```
*S**************************************************************************
*S                                                                        **
*S                          SUNDANCE SUBDIVISION                          **
*S                          DEVELOPED CONDITIONS                          **
*S                                                                        **
*S**************************************************************************
```

START TIME= .00
RAINFALL TYPE= 1 RAIN6= 2.200

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	
COMPUTE NM HYD	100.00	-	10	.01081	23.94	.812	1.40991	1.500	3.463	PER IMP=	51.20
COMPUTE NM HYD	200.00	-	20	.00989	21.92	.744	1.40991	1.500	3.463	PER IMP=	51.20
COMPUTE NM HYD	300.00	-	30	.00949	21.02	.713	1.40991	1.500	3.463	PER IMP=	51.20
COMPUTE NM HYD	400.00	-	40	.01041	23.07	.783	1.40991	1.500	3.463	PER IMP=	51.20
COMPUTE NM HYD	501.00	-	51	.00139	3.08	.104	1.40991	1.500	3.478	PER IMP=	51.20
COMPUTE NM HYD	502.00	-	52	.00151	3.36	.114	1.40991	1.500	3.477	PER IMP=	51.20
COMPUTE NM HYD	503.00	-	53	.00015	.34	.011	1.40991	1.500	3.642	PER IMP=	51.20
COMPUTE NM HYD	504.00	-	54	.00091	2.04	.069	1.40991	1.500	3.487	PER IMP=	51.20
COMPUTE NM HYD	600.00	-	60	.00157	2.07	.057	.67632	1.533	2.059	PER IMP=	.00
ROUTE MCUNGE	100.10	10	11	.01081	23.83	.813	1.41035	1.533	3.446	CCODE =	.2
ADD HYD	501.10	11&51	12	.01219	26.81	.917	1.41024	1.533	3.436		
*S ******AP1******											
ADD HYD	501.20	20&12	21	.02208	48.28	1.661	1.41008	1.500	3.416		
ROUTE MCUNGE	501.30	21	22	.02208	48.19	1.658	1.40779	1.533	3.410	CCODE =	.1
ADD HYD	502.10	22&52	23	.02360	51.44	1.772	1.40789	1.533	3.406		
*S ******AP2******											
ADD HYD	502.20	30&23	31	.03308	71.72	2.485	1.40846	1.533	3.388		
ROUTE MCUNGE	502.30	31	32	.03308	70.38	2.487	1.40983	1.567	3.324	CCODE =	.2
ADD HYD	503.10	32&53	33	.03323	70.67	2.498	1.40981	1.567	3.323		
*S ******AP3******											
ADD HYD	503.20	40&33	41	.04364	91.72	3.281	1.40983	1.533	3.284		
ROUTE MCUNGE	503.30	41	42	.04364	91.72	3.281	1.40983	1.533	3.284	CCODE =	.0
ADD HYD	504.10	42&54	43	.04455	93.69	3.350	1.40982	1.533	3.286		
*S ******AP4******											
ADD HYD	600.10	43&60	61	.04612	95.75	3.406	1.38488	1.533	3.244		

FINISH

```
    AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02d
         RUN DATE (MON/DAY/YR) = 05/21/2003
         START TIME (HR:MIN:SEC) = 17:56:01     USER NO.= AHYMO-I-9702dIsa-Arfman1
         INPUT FILE = M:\ACTIVE\AHYMO\1277\1277DEV.DAT

*S**************************************************************************
*S                                                                        **
*S                         SUNDANCE SUBDIVISION                           **
*S                         DEVELOPED CONDITIONS                           **
*S                                                                        **
*S**************************************************************************
***                                                                      ***
***                    1266DEV.DAT                                       ***
***                    MAY 21, 2003    GLD                               ***
***                    100YEAR-6HOUR STORM                               ***
***                                                                      ***
**************************************************************************

START                 RAINFALL BEGINS AT 0.0 HRS  PUNCH CODE=0 PRINT LINES=-6
RAINFALL              TYPE=1 RAIN QUARTER=0 RAIN ONE=1.89
                      RAIN SIX=2.20 RAIN DAY=2.66 DT=0.03333HR


                  COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                  DT =     .033330 HOURS       END TIME =     5.999400 HOURS
                     .0000   .0014   .0029   .0044   .0059   .0074   .0090
                     .0107   .0123   .0140   .0158   .0176   .0194   .0213
                     .0233   .0253   .0274   .0295   .0317   .0340   .0364
                     .0389   .0414   .0441   .0468   .0497   .0528   .0560
                     .0593   .0628   .0666   .0718   .0774   .0834   .0962
                     .1248   .1690   .2323   .3189   .4326   .5776   .7581
                     .9785  1.1830  1.2684  1.3406  1.4047  1.4630  1.5168
                    1.5666  1.6132  1.6569  1.6981  1.7368  1.7735  1.8082
                    1.8410  1.8722  1.9017  1.9298  1.9564  1.9625  1.9681
                    1.9735  1.9785  1.9834  1.9880  1.9925  1.9968  2.0009
                    2.0049  2.0087  2.0124  2.0160  2.0195  2.0229  2.0262
                    2.0295  2.0326  2.0357  2.0387  2.0416  2.0444  2.0472
                    2.0500  2.0526  2.0553  2.0578  2.0604  2.0628  2.0653
                    2.0677  2.0700  2.0723  2.0746  2.0768  2.0790  2.0812
                    2.0833  2.0854  2.0875  2.0896  2.0916  2.0936  2.0955
                    2.0975  2.0994  2.1013  2.1031  2.1049  2.1068  2.1086
                    2.1103  2.1121  2.1138  2.1155  2.1172  2.1189  2.1206
                    2.1222  2.1238  2.1254  2.1270  2.1286  2.1301  2.1317
                    2.1332  2.1347  2.1362  2.1377  2.1392  2.1406  2.1421
                    2.1435  2.1449  2.1463  2.1477  2.1491  2.1505  2.1519
                    2.1532  2.1546  2.1559  2.1572  2.1585  2.1598  2.1611
                    2.1624  2.1636  2.1649  2.1661  2.1674  2.1686  2.1698
                    2.1711  2.1723  2.1735  2.1746  2.1758  2.1770  2.1782
                    2.1793  2.1805  2.1816  2.1827  2.1839  2.1850  2.1861
                    2.1872  2.1883  2.1894  2.1905  2.1916  2.1926  2.1937
                    2.1948  2.1958  2.1969  2.1979  2.1990  2.2000

*      BASIN 100
*      FERNSPRING PL

COMPUTE NM HYD        ID=10 HYD NO=100.0 AREA=0.010805 SQ MI
                      PER A=0 PER B=24.4 PER C=24.4 PER D=51.2
                      TP=0.13333 HR   MASS RAIN=-1

      K =    .072665HR    TP =    .133330HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
      UNIT PEAK =   21.836    CFS   UNIT VOLUME =     .9988       B =   526.28      P60 = 1.8900
      AREA =       .005532 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330


      K =    .118393HR    TP =    .133330HR    K/TP RATIO =    .887968     SHAPE CONSTANT, N =  3.994764
      UNIT PEAK =   14.032    CFS   UNIT VOLUME =     .9995       B =   354.82      P60 = 1.8900
      AREA =       .005273 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330


PRINT HYD             ID=10   CODE=1

                                   PARTIAL HYDROGRAPH   100.00


    RUNOFF VOLUME =     1.40991 INCHES      =        .8125 ACRE-FEET
    PEAK DISCHARGE RATE =      23.94 CFS  AT   1.500 HOURS   BASIN AREA =    .0108 SQ. MI.



*      BASIN 200
*      SAWGRASS PL

COMPUTE NM HYD        ID=20 HYD NO=200.0 AREA=0.009893 SQ MI
                      PER A=0 PER B=24.4 PER C=24.4 PER D=51.2
                      TP=0.13333 HR   MASS RAIN=-1
```

```
      K =   .072665HR    TP =   .133330HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
      UNIT PEAK =   19.993    CFS   UNIT VOLUME =    .9988       B =   526.28      P60 = 1.8900
      AREA =       .005065 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


      K =   .118393HR    TP =   .133330HR    K/TP RATIO =   .887968     SHAPE CONSTANT, N =  3.994764
      UNIT PEAK =   12.848    CFS   UNIT VOLUME =    .9994       B =   354.82      P60 = 1.8900
      AREA =       .004828 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=20   CODE=1

                                  PARTIAL HYDROGRAPH   200.00


    RUNOFF VOLUME =     1.40991 INCHES      =        .7439 ACRE-FEET
    PEAK DISCHARGE RATE =      21.92 CFS  AT   1.500 HOURS   BASIN AREA =   .0099 SQ. MI.



*     BASIN 300
*     SONOMA AVE

COMPUTE NM HYD      ID=30 HYD NO=300.0 AREA=0.009486 SQ MI
                    PER A=0 PER B=24.4 PER C=24.4 PER D=51.2
                    TP=0.13333 HR   MASS RAIN=-1

      K =   .072665HR    TP =   .133330HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
      UNIT PEAK =   19.171    CFS   UNIT VOLUME =    .9988       B =   526.28      P60 = 1.8900
      AREA =       .004857 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


      K =   .118393HR    TP =   .133330HR    K/TP RATIO =   .887968     SHAPE CONSTANT, N =  3.994764
      UNIT PEAK =   12.319    CFS   UNIT VOLUME =    .9994       B =   354.82      P60 = 1.8900
      AREA =       .004629 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=30   CODE=1

                                  HYDROGRAPH FROM AREA   300.00


    RUNOFF VOLUME =     1.40991 INCHES      =        .7133 ACRE-FEET
    PEAK DISCHARGE RATE =      21.02 CFS  AT   1.500 HOURS   BASIN AREA =   .0095 SQ. MI.



*     BASIN 400
*     TRADEWIND RD

COMPUTE NM HYD      ID=40 HYD NO=400.0 AREA=0.010411 SQ MI
                    PER A=0 PER B=24.4 PER C=24.4 PER D=51.2
                    TP=0.13333 HR   MASS RAIN=-1

      K =   .072665HR    TP =   .133330HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
      UNIT PEAK =   21.040    CFS   UNIT VOLUME =    .9988       B =   526.28      P60 = 1.8900
      AREA =       .005330 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


      K =   .118393HR    TP =   .133330HR    K/TP RATIO =   .887968     SHAPE CONSTANT, N =  3.994764
      UNIT PEAK =   13.520    CFS   UNIT VOLUME =    .9995       B =   354.82      P60 = 1.8900
      AREA =       .005081 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=40   CODE=1

                                  HYDROGRAPH FROM AREA   400.00


    RUNOFF VOLUME =     1.40991 INCHES      =        .7829 ACRE-FEET
    PEAK DISCHARGE RATE =      23.07 CFS  AT   1.500 HOURS   BASIN AREA =   .0104 SQ. MI.



*     BASIN 501
*     SHOREWOOD DR

COMPUTE NM HYD      ID=51 HYD NO=501.0 AREA=0.001385 SQ MI
                    PER A=0 PER B=24.4 PER C=24.4 PER D=51.2
                    TP=0.13333 HR   MASS RAIN=-1

      K =   .072665HR    TP =   .133330HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
      UNIT PEAK =   2.7990    CFS   UNIT VOLUME =    .9955       B =   526.28      P60 = 1.8900
```

```
     AREA =       .000709 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330


     K =    .118393HR     TP =    .133330HR     K/TP RATIO =    .887968      SHAPE CONSTANT, N =  3.994764
     UNIT PEAK =    1.7987     CFS    UNIT VOLUME =     .9930        B =    354.82       P60 = 1.8900
     AREA =       .000676 SQ MI     IA =     .42500 INCHES     INF =    1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330

PRINT HYD           ID=51   CODE=1

                                OUTFLOW HYDROGRAPH RESERVOIR   501.00


    RUNOFF VOLUME =      1.40991 INCHES      =         .1041 ACRE-FEET
    PEAK DISCHARGE RATE =        3.08 CFS  AT    1.500 HOURS    BASIN AREA =    .0014 SQ. MI.



*      BASIN 502
*      SHOREWOOD DR

COMPUTE NM HYD      ID=52 HYD NO=502.0 AREA=0.001512 SQ MI
                    PER A=0 PER B=24.4 PER C=24.4 PER D=51.2
                    TP=0.13333 HR   MASS RAIN=-1

     K =    .072665HR     TP =    .133330HR     K/TP RATIO =    .545000      SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =    3.0557     CFS    UNIT VOLUME =     .9955        B =    526.28       P60 = 1.8900
     AREA =       .000774 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330


     K =    .118393HR     TP =    .133330HR     K/TP RATIO =    .887968      SHAPE CONSTANT, N =  3.994764
     UNIT PEAK =    1.9636     CFS    UNIT VOLUME =     .9937        B =    354.82       P60 = 1.8900
     AREA =       .000738 SQ MI     IA =     .42500 INCHES     INF =    1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330

PRINT HYD           ID=52   CODE=1

                                OUTFLOW HYDROGRAPH RESERVOIR   502.00


    RUNOFF VOLUME =      1.40991 INCHES      =         .1137 ACRE-FEET
    PEAK DISCHARGE RATE =        3.36 CFS  AT    1.500 HOURS    BASIN AREA =    .0015 SQ. MI.



*      BASIN 503
*      SHOREWOOD DR

COMPUTE NM HYD      ID=53 HYD NO=503.0 AREA=0.00.01475 SQ MI
                    PER A=0 PER B=24.4 PER C=24.4 PER D=51.2
                    TP=0.13333 HR   MASS RAIN=-1

     K =    .072665HR     TP =    .133330HR     K/TP RATIO =    .545000      SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =    .29809     CFS    UNIT VOLUME =     .9610        B =    526.28       P60 = 1.8900
     AREA =       .000076 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330


     K =    .118393HR     TP =    .133330HR     K/TP RATIO =    .887968      SHAPE CONSTANT, N =  3.994764
     UNIT PEAK =    .19155     CFS    UNIT VOLUME =     .9297        B =    354.82       P60 = 1.8900
     AREA =       .000072 SQ MI     IA =     .42500 INCHES     INF =    1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330

PRINT HYD           ID=53   CODE=1

                                OUTFLOW HYDROGRAPH RESERVOIR   503.00


    RUNOFF VOLUME =      1.40991 INCHES      =         .0111 ACRE-FEET
    PEAK DISCHARGE RATE =         .34 CFS  AT    1.500 HOURS    BASIN AREA =    .0001 SQ. MI.



*      BASIN 504
*      SHOREWOOD DR

COMPUTE NM HYD      ID=54 HYD NO=504.0 AREA=0.000912 SQ MI
                    PER A=0 PER B=24.4 PER C=24.4 PER D=51.2
                    TP=0.13333 HR   MASS RAIN=-1

     K =    .072665HR     TP =    .133330HR     K/TP RATIO =    .545000      SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =    1.8431     CFS    UNIT VOLUME =     .9932        B =    526.28       P60 = 1.8900
     AREA =       .000467 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330
```

K = .118393HR TP = .133330HR K/TP RATIO = .887968 SHAPE CONSTANT, N = 3.994764
UNIT PEAK = 1.1844 CFS UNIT VOLUME = .9896 B = 354.82 P60 = 1.8900
AREA = .000445 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=54 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 504.00

RUNOFF VOLUME = 1.40991 INCHES = .0686 ACRE-FEET
PEAK DISCHARGE RATE = 2.04 CFS AT 1.500 HOURS BASIN AREA = .0009 SQ. MI.

* BASIN 600
* STORM DRAIN EASEMENT

COMPUTE NM HYD ID=60 HYD NO=600.0 AREA=0.001568 SQ MI
PER A=0 PER B=100 PER C=0 PER D=0
TP=0.13333 HR MASS RAIN=-1

K = .130669HR TP = .133330HR K/TP RATIO = .980045 SHAPE CONSTANT, N = 3.603328
UNIT PEAK = 3.8550 CFS UNIT VOLUME = .9967 B = 327.79 P60 = 1.8900
AREA = .001568 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=60 CODE=1

HYDROGRAPH FROM AREA 600.00

RUNOFF VOLUME = .67632 INCHES = .0566 ACRE-FEET
PEAK DISCHARGE RATE = 2.07 CFS AT 1.533 HOURS BASIN AREA = .0016 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0.0 FT MAX ELEV=0.85 FT
CH SLP=0.006 FP SLP=0.006 N=0.017 DIST=46 FT

DIST	ELEV	DIST	ELEV	DIST	ELEV
0.00	0.85	8.99	0.67	9.00	0.0
23.0	0.28	37.0	0.0	37.01	0.67
46.0	0.85				

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.04	.10	.05	4.48
.09	.40	.34	8.95
.13	.90	.99	13.43
.18	1.60	2.14	17.90
.22	2.50	3.88	22.38
.27	3.60	6.31	26.85
.31	4.85	10.05	28.01
.36	6.10	14.71	28.01
.40	7.36	20.05	28.01
.45	8.61	26.00	28.01
.49	9.86	32.54	28.01
.54	11.12	39.64	28.02
.58	12.37	47.27	28.02
.63	13.62	55.41	28.02
.67	14.88	63.89	28.13
.72	16.23	67.26	32.59
.76	17.79	72.15	37.06
.81	19.55	78.44	41.53
.85	21.51	86.08	46.00

* ROUTE BASIN 100 THROUGH BASIN 501
ROUTE MCUNGE ID=11 HYD NO=100.1 INFLOW ID=10
DT=0.0 LENGTH=260 FT
NS=0 SLP=0.006

INFLOW END= 206 TABLE PTS= 20
DT= .033330 QMED= 11.97 CKMED= 3.7199
WIDTH MED= 28.01 NREACH= 2 DX= 130.00

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.186	.0	1.08	.24	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.04	.1	.1	.136	4.5	1.07	.53	.986	.014	.986	.000	.014	.0	.998	.000	.002
.09	.4	.3	.086	9.0	1.17	.84	1.081	.041	.961	.058	-.019	.2	.977	.021	.002

.13	.9	1.0	.065	13.4	1.50	1.10	1.388	.063	.948	.184	-.132	.6	.951	.112	-.064
.18	1.6	2.1	.054	17.9	1.81	1.34	1.667	.085	.938	.273	-.211	1.5	.941	.224	-.165
.22	2.5	3.9	.047	22.4	2.09	1.55	1.926	.107	.930	.340	-.270	3.0	.932	.304	-.236
.27	3.6	6.3	.041	26.9	2.53	1.75	2.338	.119	.931	.421	-.353	5.0	.924	.365	-.290
.31	4.8	10.1	.035	28.0	3.35	2.07	3.091	.137	.935	.527	-.462	8.1	.937	.492	-.429
.36	6.1	14.7	.030	28.0	3.99	2.41	3.686	.169	.931	.588	-.519	12.3	.934	.564	-.498
.40	7.4	20.0	.027	28.0	4.51	2.73	4.161	.203	.924	.627	-.551	17.3	.927	.609	-.536
.45	8.6	26.0	.024	28.0	4.99	3.02	4.606	.238	.918	.658	-.576	22.9	.921	.643	-.565
.49	9.9	32.5	.022	28.0	5.45	3.30	5.027	.273	.913	.683	-.596	29.2	.916	.671	-.587
.54	11.1	39.6	.020	28.0	5.88	3.57	5.426	.309	.908	.703	-.611	36.0	.911	.693	-.604
.58	12.4	47.3	.019	28.0	6.29	3.82	5.808	.344	.904	.720	-.624	43.4	.906	.712	-.618
.63	13.6	55.4	.018	28.0	6.63	4.07	6.123	.382	.898	.734	-.632	51.3	.902	.728	-.630
.67	14.9	63.9	.017	28.1	4.79	4.29	4.422	.608	.798	.668	-.467	59.6	.894	.738	-.632
.72	16.2	67.3	.017	32.6	2.84	4.14	2.623	.931	.591	.561	-.152	65.6	.492	.546	-.038
.76	17.8	72.1	.018	37.1	3.38	4.05	3.117	.739	.696	.588	-.284	69.7	.652	.575	-.228
.81	19.6	78.4	.018	41.5	3.75	4.01	3.463	.645	.747	.608	-.356	75.3	.724	.599	-.323
.85	21.5	86.1	.018	46.0	3.77	4.00	3.477	.637	.751	.609	-.360	82.2	.763	.617	-.379

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 12 TIMES. AVERAGE NUMBER ITERATIONS = 1.0805
Equations solved using the Ponce correction to C2
PRINT HYD ID=11 CODE=1

PARTIAL HYDROGRAPH 100.10

RUNOFF VOLUME = 1.41035 INCHES = .8127 ACRE-FEET
PEAK DISCHARGE RATE = 23.83 CFS AT 1.533 HOURS BASIN AREA = .0108 SQ. MI.

```
*  ADD OFFSITE BASIN 100 TO BASIN 501
ADD HYD             ID=12 HYD NO=501.1 ID=11 ID=51
PRINT HYD           ID=12 CODE=1
```

OUTFLOW HYDROGRAPH RESERVOIR 501.10

RUNOFF VOLUME = 1.41024 INCHES = .9168 ACRE-FEET
PEAK DISCHARGE RATE = 26.81 CFS AT 1.533 HOURS BASIN AREA = .0122 SQ. MI.

```
*S   ******AP1******
*  ADD OFFSITE BASIN 200 TO BASIN 501.1
ADD HYD             ID=21 HYD NO=501.2 ID=20 ID=12
PRINT HYD           ID=21 CODE=1
```

OUTFLOW HYDROGRAPH RESERVOIR 501.20

RUNOFF VOLUME = 1.41008 INCHES = 1.6607 ACRE-FEET
PEAK DISCHARGE RATE = 48.28 CFS AT 1.500 HOURS BASIN AREA = .0221 SQ. MI.

```
*     ROUTE BASIN 501.2 THROUGH BASIN 502
ROUTE MCUNGE        ID=22   HYD NO=501.3   INFLOW ID=21
                    DT=0.0   LENGTH=260 FT
                    NS=0  SLP=0.006
```

INFLOW END= 209 TABLE PTS= 20
DT= .033330 QMED= 24.14 CKMED= 4.7521
WIDTH MED= 28.01 NREACH= 1 DX= 260.00

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.186	.0	2.17	.24	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.04	.1	.1	.136	4.5	2.16	.53	.996	.004	.996	.000	.004	.0	.999	.000	.001
.09	.4	.3	.086	9.0	2.14	.84	.989	.011	.989	.000	.011	.2	.994	.000	.006
.13	.9	1.0	.065	13.4	2.12	1.10	.978	.022	.978	.000	.022	.6	.984	.000	.016
.18	1.6	2.1	.054	17.9	2.09	1.34	.963	.037	.963	.000	.037	1.5	.971	.000	.029
.22	2.5	3.9	.047	22.4	2.09	1.55	.963	.053	.947	.008	.045	3.0	.956	.004	.040
.27	3.6	6.3	.041	26.9	2.53	1.75	1.169	.059	.947	.102	-.049	5.0	.943	.036	.021
.31	4.8	10.1	.035	28.0	3.35	2.07	1.546	.069	.947	.235	-.182	8.1	.950	.190	-.140
.36	6.1	14.7	.030	28.0	3.99	2.41	1.843	.084	.942	.317	-.259	12.3	.946	.284	-.230
.40	7.4	20.0	.027	28.0	4.51	2.73	2.081	.102	.936	.372	-.308	17.3	.939	.346	-.285
.45	8.6	26.0	.024	28.0	4.99	3.02	2.303	.119	.930	.416	-.346	22.9	.933	.395	-.328
.49	9.9	32.5	.022	28.0	5.45	3.30	2.513	.137	.925	.452	-.377	29.2	.928	.435	-.362
.54	11.1	39.6	.020	28.0	5.88	3.57	2.713	.154	.920	.483	-.403	36.0	.923	.468	-.391
.58	12.4	47.3	.019	28.0	6.29	3.82	2.904	.172	.916	.509	-.425	43.4	.918	.497	-.414
.63	13.6	55.4	.018	28.0	6.63	4.07	3.062	.191	.910	.530	-.440	51.3	.913	.521	-.435
.67	14.9	63.9	.017	28.1	4.79	4.29	2.211	.304	.827	.431	-.258	59.6	.907	.537	-.443
.72	16.2	67.3	.017	32.6	2.84	4.14	1.311	.465	.665	.280	.055	65.6	.586	.260	.154
.76	17.8	72.1	.018	37.1	3.38	4.05	1.558	.370	.748	.317	-.065	69.7	.713	.300	-.013
.81	19.6	78.4	.018	41.5	3.75	4.01	1.731	.323	.789	.345	-.134	75.3	.770	.332	-.102
.85	21.5	86.1	.018	46.0	3.77	4.00	1.738	.318	.792	.346	-.137	82.2	.801	.356	-.158

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 10 TIMES. AVERAGE NUMBER ITERATIONS = 1.0796

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.186	.0	2.17	.24	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.04	.1	.1	.136	4.5	2.16	.53	.996	.004	.996	.000	.004	.0	.999	.000	.001
.09	.4	.3	.086	9.0	2.14	.84	.989	.011	.989	.000	.011	.2	.994	.000	.006
.13	.9	1.0	.065	13.4	2.12	1.10	.978	.022	.978	.000	.022	.6	.984	.000	.016
.18	1.6	2.1	.054	17.9	2.09	1.34	.963	.037	.963	.000	.037	1.5	.971	.000	.029
.22	2.5	3.9	.047	22.4	2.09	1.55	.963	.053	.947	.008	.045	3.0	.956	.004	.040
.27	3.6	6.3	.041	26.9	2.31	1.75	1.065	.065	.939	.061	.000	5.0	.943	.036	.021
.31	4.8	10.1	.035	28.0	2.38	2.07	1.097	.097	.912	.088	.000	8.1	.925	.075	.000
.36	6.1	14.7	.030	28.0	2.46	2.41	1.137	.137	.880	.120	.000	12.3	.896	.104	.000
.40	7.4	20.0	.027	28.0	2.56	2.73	1.179	.179	.848	.152	.000	17.3	.864	.136	.000
.45	8.6	26.0	.024	28.0	2.65	3.02	1.224	.224	.817	.183	.000	22.9	.832	.168	.000
.49	9.9	32.5	.022	28.0	2.75	3.30	1.270	.270	.787	.213	.000	29.2	.802	.198	.000
.54	11.1	39.6	.020	28.0	2.86	3.57	1.318	.318	.759	.241	.000	36.0	.773	.227	.000
.58	12.4	47.3	.019	28.0	2.96	3.82	1.366	.366	.732	.268	.000	43.4	.745	.255	.000
.63	13.6	55.4	.018	28.0	3.06	4.07	1.414	.414	.707	.293	.000	51.3	.720	.280	.000
.67	14.9	63.9	.017	28.1	3.16	4.29	1.460	.460	.685	.315	.000	59.6	.696	.304	.000
.72	16.2	67.3	.017	32.6	2.84	4.14	1.311	.465	.665	.280	.055	65.6	.586	.260	.154
.76	17.8	72.1	.018	37.1	3.05	4.05	1.409	.409	.710	.290	.000	69.7	.705	.295	.000
.81	19.6	78.4	.018	41.5	3.03	4.01	1.399	.399	.715	.285	.000	75.3	.712	.288	.000
.85	21.5	86.1	.018	46.0	3.03	4.00	1.396	.396	.716	.284	.000	82.2	.715	.285	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 3 TIMES. AVERAGE NUMBER ITERATIONS = 1.0655
Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3

```
PRINT HYD           ID=22   CODE=1
```

OUTFLOW HYDROGRAPH RESERVOIR 501.30

RUNOFF VOLUME = 1.40779 INCHES = 1.6580 ACRE-FEET
PEAK DISCHARGE RATE = 48.19 CFS AT 1.533 HOURS BASIN AREA = .0221 SQ. MI.

```
*  ADD OFFSITE BASIN 501.3 TO BASIN 502
ADD HYD             ID=23 HYD NO=502.1 ID=22 ID=52
PRINT HYD           ID=23 CODE=1
```

OUTFLOW HYDROGRAPH RESERVOIR 502.10

RUNOFF VOLUME = 1.40789 INCHES = 1.7717 ACRE-FEET
PEAK DISCHARGE RATE = 51.44 CFS AT 1.533 HOURS BASIN AREA = .0236 SQ. MI.

```
*S   ******AP2******
*  ADD OFFSITE BASIN 300 TO BASIN 502.1
ADD HYD             ID=31 HYD NO=502.2 ID=30 ID=23
PRINT HYD           ID=31 CODE=1
```

OUTFLOW HYDROGRAPH RESERVOIR 502.20

RUNOFF VOLUME = 1.40846 INCHES = 2.4850 ACRE-FEET
PEAK DISCHARGE RATE = 71.72 CFS AT 1.533 HOURS BASIN AREA = .0331 SQ. MI.

```
*     ROUTE BASIN 502.2 THROUGH BASIN 503
ROUTE MCUNGE        ID=32   HYD NO=502.3   INFLOW ID=31
                    DT=0.0   LENGTH=245 FT
                    NS=0  SLP=0.006
```

INFLOW END= 210 TABLE PTS= 20
DT= .033330 QMED= 35.86 CKMED= 5.6642
WIDTH MED= 28.02 NREACH= 1 DX= 245.00

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.176	.0	2.04	.24	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.04	.1	.1	.128	4.5	2.03	.53	.996	.004	.996	.000	.004	.0	.999	.000	.001
.09	.4	.3	.081	9.0	2.02	.84	.987	.013	.987	.000	.013	.2	.993	.000	.007
.13	.9	1.0	.062	13.4	1.99	1.10	.975	.025	.975	.000	.025	.6	.982	.000	.018
.18	1.6	2.1	.051	17.9	1.96	1.34	.958	.042	.958	.000	.042	1.5	.967	.000	.033
.22	2.5	3.9	.044	22.4	2.09	1.55	1.022	.057	.946	.038	.017	3.0	.952	.018	.030
.27	3.6	6.3	.039	26.9	2.53	1.75	1.240	.063	.945	.132	-.077	5.0	.941	.066	-.007
.31	4.8	10.1	.033	28.0	3.35	2.07	1.640	.073	.946	.263	-.209	8.1	.949	.218	-.167
.36	6.1	14.7	.028	28.0	3.99	2.41	1.956	.089	.941	.343	-.285	12.3	.945	.311	-.256
.40	7.4	20.0	.025	28.0	4.51	2.73	2.208	.108	.935	.397	-.332	17.3	.938	.372	-.310
.45	8.6	26.0	.023	28.0	4.99	3.02	2.444	.127	.929	.440	-.369	22.9	.932	.419	-.351
.49	9.9	32.5	.021	28.0	5.45	3.30	2.667	.145	.924	.475	-.399	29.2	.926	.458	-.385
.54	11.1	39.6	.019	28.0	5.88	3.57	2.879	.164	.919	.505	-.424	36.0	.921	.491	-.412
.58	12.4	47.3	.018	28.0	6.29	3.82	3.082	.182	.914	.531	-.445	43.4	.917	.519	-.435
.63	13.6	55.4	.017	28.0	6.63	4.07	3.249	.203	.909	.551	-.460	51.3	.912	.542	-.455

```
     .67   14.9     63.9    .016   28.1     4.79   4.29    2.347   .322   .824   .455  -.279     59.6    .905   .557  -.463
     .72   16.2     67.3    .016   32.6     2.84   4.14    1.392   .494   .658   .307   .035     65.6    .577   .287   .136
     .76   17.8     72.1    .017   37.1     3.38   4.05    1.654   .392   .743   .343  -.086     69.7    .707   .326  -.034
     .81   19.6     78.4    .017   41.5     3.75   4.01    1.837   .342   .785   .371  -.156     75.3    .766   .358  -.124
     .85   21.5     86.1    .017   46.0     3.77   4.00    1.845   .338   .788   .372  -.159     82.2    .797   .382  -.179
MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) =   4 OCCURRED       1 TIMES.  AVERAGE NUMBER ITERATIONS =  1.0903
Equations solved using the Ponce correction to C2
PRINT HYD           ID=32   CODE=1

                                OUTFLOW HYDROGRAPH RESERVOIR   502.30


    RUNOFF VOLUME =      1.40983 INCHES      =        2.4874 ACRE-FEET
    PEAK DISCHARGE RATE =       70.38 CFS  AT   1.567 HOURS   BASIN AREA =    .0331 SQ. MI.



*  ADD OFFSITE BASIN 502.3 TO BASIN 503
ADD HYD             ID=33 HYD NO=503.1 ID=32 ID=53
PRINT HYD           ID=33 CODE=1

                                OUTFLOW HYDROGRAPH RESERVOIR   503.10


    RUNOFF VOLUME =      1.40981 INCHES      =        2.4984 ACRE-FEET
    PEAK DISCHARGE RATE =       70.67 CFS  AT   1.567 HOURS   BASIN AREA =    .0332 SQ. MI.


*S   ******AP3******
*  ADD OFFSITE BASIN 400 TO BASIN 503.1
ADD HYD             ID=41 HYD NO=503.2 ID=40 ID=33
PRINT HYD           ID=41 CODE=1

                                OUTFLOW HYDROGRAPH RESERVOIR   503.20


    RUNOFF VOLUME =      1.40983 INCHES      =        3.2813 ACRE-FEET
    PEAK DISCHARGE RATE =       91.72 CFS  AT   1.533 HOURS   BASIN AREA =    .0436 SQ. MI.



*     ROUTE BASIN 503.2 THROUGH BASIN 504
ROUTE MCUNGE        ID=42   HYD NO=503.3   INFLOW ID=41
                    DT=0.0   LENGTH=110 FT
                    NS=0  SLP=0.006
     ZERO VALUE HYDROGRAPH OR SHORT ROUTE - ROUTING BYPASSED
PRINT HYD           ID=42   CODE=1

                                OUTFLOW HYDROGRAPH RESERVOIR   503.30


    RUNOFF VOLUME =      1.40983 INCHES      =        3.2813 ACRE-FEET
    PEAK DISCHARGE RATE =       91.72 CFS  AT   1.533 HOURS   BASIN AREA =    .0436 SQ. MI.


*  ADD OFFSITE BASIN 503.3 TO BASIN 504
ADD HYD             ID=43 HYD NO=504.1 ID=42 ID=54
PRINT HYD           ID=43 CODE=1

                                OUTFLOW HYDROGRAPH RESERVOIR   504.10


    RUNOFF VOLUME =      1.40982 INCHES      =        3.3498 ACRE-FEET
    PEAK DISCHARGE RATE =       93.69 CFS  AT   1.533 HOURS   BASIN AREA =    .0446 SQ. MI.



*S   ******AP4******
*  ADD OFFSITE BASIN 504.1 TO BASIN 600
ADD HYD             ID=61 HYD NO=600.1 ID=43 ID=60
PRINT HYD           ID=61 CODE=1

                                HYDROGRAPH FROM AREA   600.10


    RUNOFF VOLUME =      1.38488 INCHES      =        3.4064 ACRE-FEET
    PEAK DISCHARGE RATE =       95.75 CFS  AT   1.533 HOURS   BASIN AREA =    .0461 SQ. MI.



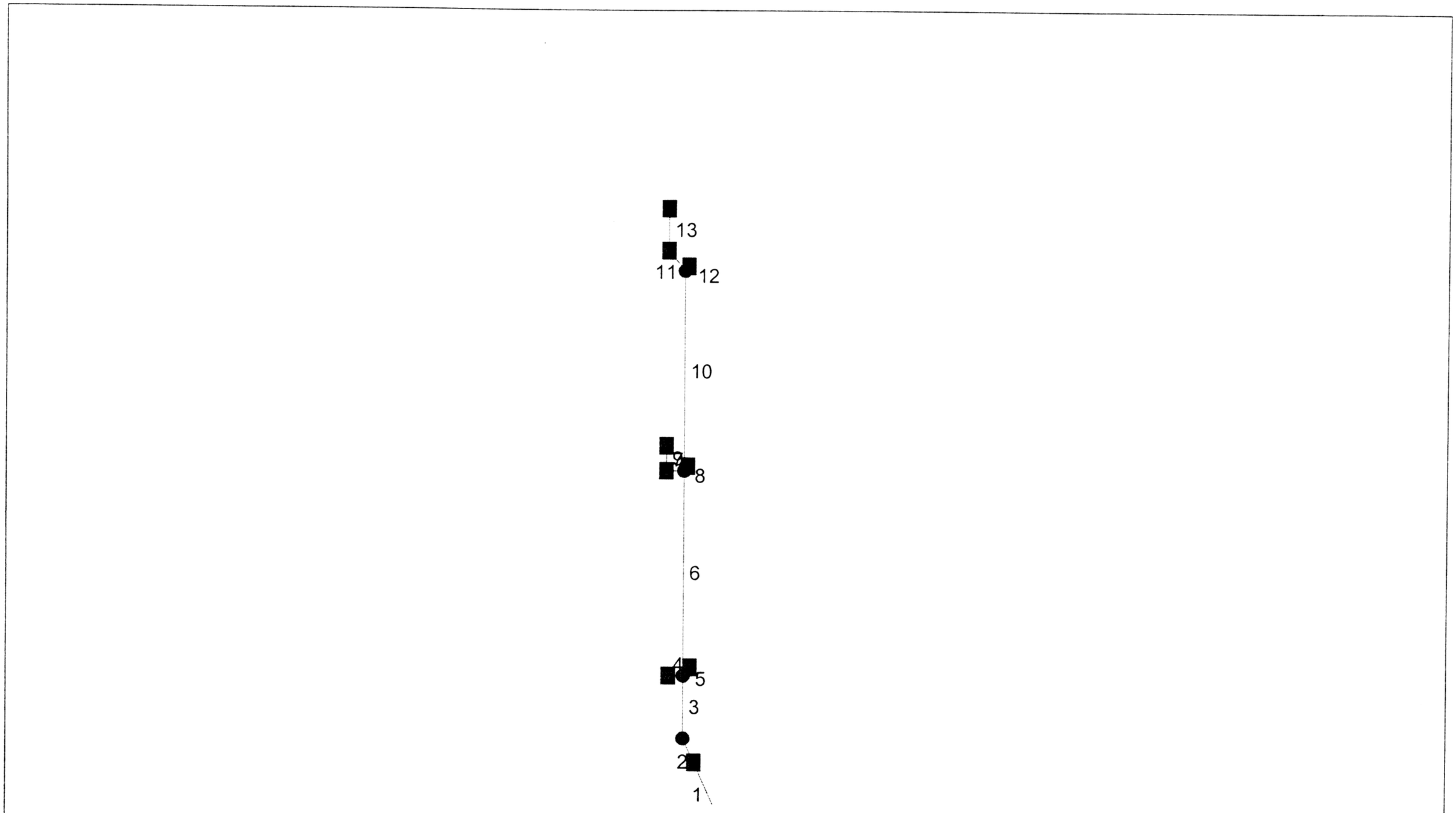
FINISH
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        NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 17:56:01
□(s0p10h4099T□&l6D□□
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APPENDIX C

Hydro Flow Calculations for Storm Drains

Hydraflow Plan View



Project file: 1277.stm	IDF file: sampleFHA.IDF	No. Lines: 13	05-22-2003

Hydraflow Storm Sewer Tabulation

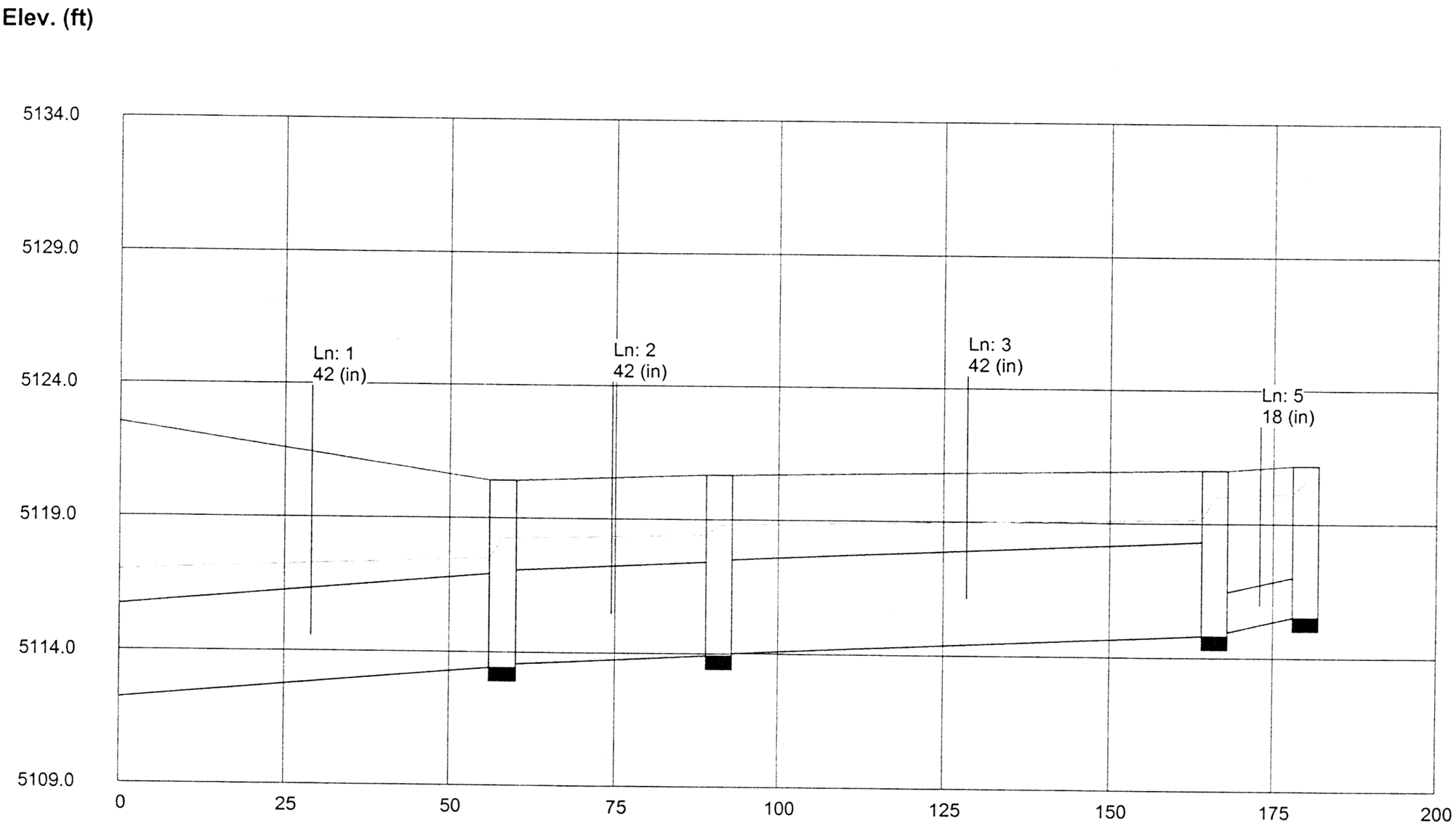
Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	58.0	0.00	0.00	0.00	0.00	0.00	0.0	2.3	0.0	93.71	144.1	9.74	42	2.05	5113.40	5112.21	5117.50	5117.00	5120.40	5122.50	connect to exist
2	1	33.0	0.00	0.00	0.00	0.00	0.00	0.0	2.2	0.0	70.69	103.6	7.35	42	1.06	5113.90	5113.55	5118.40	5118.24	5120.65	5120.40	Shorewood stub
3	2	75.0	0.00	0.00	0.00	0.00	0.00	0.0	2.0	0.0	70.69	103.9	7.35	42	1.07	5114.80	5114.00	5119.15	5118.78	5120.98	5120.65	main
4	3	22.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	9.62	16.60	5.44	18	2.50	5115.50	5114.95	5120.18	5119.99	5120.98	5120.98	connector
5	3	14.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	9.62	20.81	5.44	18	3.93	5115.50	5114.95	5120.11	5119.99	5121.16	5120.98	connector
6	3	247.0	0.00	0.00	0.00	0.00	0.00	0.0	1.4	0.0	51.45	53.68	7.28	36	0.65	5116.50	5114.90	5121.46	5119.99	5122.58	5120.98	main
7	6	26.0	0.00	0.00	0.00	0.00	0.00	0.0	0.2	0.0	16.42	41.03	3.35	30	1.00	5116.91	5116.65	5122.33	5122.29	5122.58	5122.58	connector
8	6	8.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	8.21	10.51	4.65	18	1.00	5116.73	5116.65	5122.34	5122.29	5122.60	5122.58	connector
9	7	30.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	8.21	29.20	2.61	24	1.67	5117.30	5116.80	5122.63	5122.59	5122.80	5122.58	Inserted Line
10	6	240.0	0.00	0.00	0.00	0.00	0.00	0.0	0.4	0.0	26.82	49.08	3.79	36	0.54	5117.90	5116.60	5122.67	5122.29	5123.98	5122.58	main
11	10	34.0	0.00	0.00	0.00	0.00	0.00	0.0	0.3	0.0	17.88	31.28	5.69	24	1.91	5118.70	5118.05	5123.06	5122.84	5124.12	5123.98	connector
12	10	8.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	8.94	64.49	2.85	24	8.13	5118.70	5118.05	5122.86	5122.84	5124.04	5123.98	connector
13	11	50.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	8.94	26.77	2.85	24	1.40	5119.50	5118.80	5123.69	5123.61	5124.20	5124.12	connector

Project File: 1277.stm | IDF File: sampleFHA.IDF | Total number of lines: 13 | Run Date: 05-22-2003

NOTES: Intensity = 127.16 / (Inlet time + 17.80) ^ 0.82; Return period = 100 Yrs. ; Initial tailwater elevation = 5117.00 (ft)

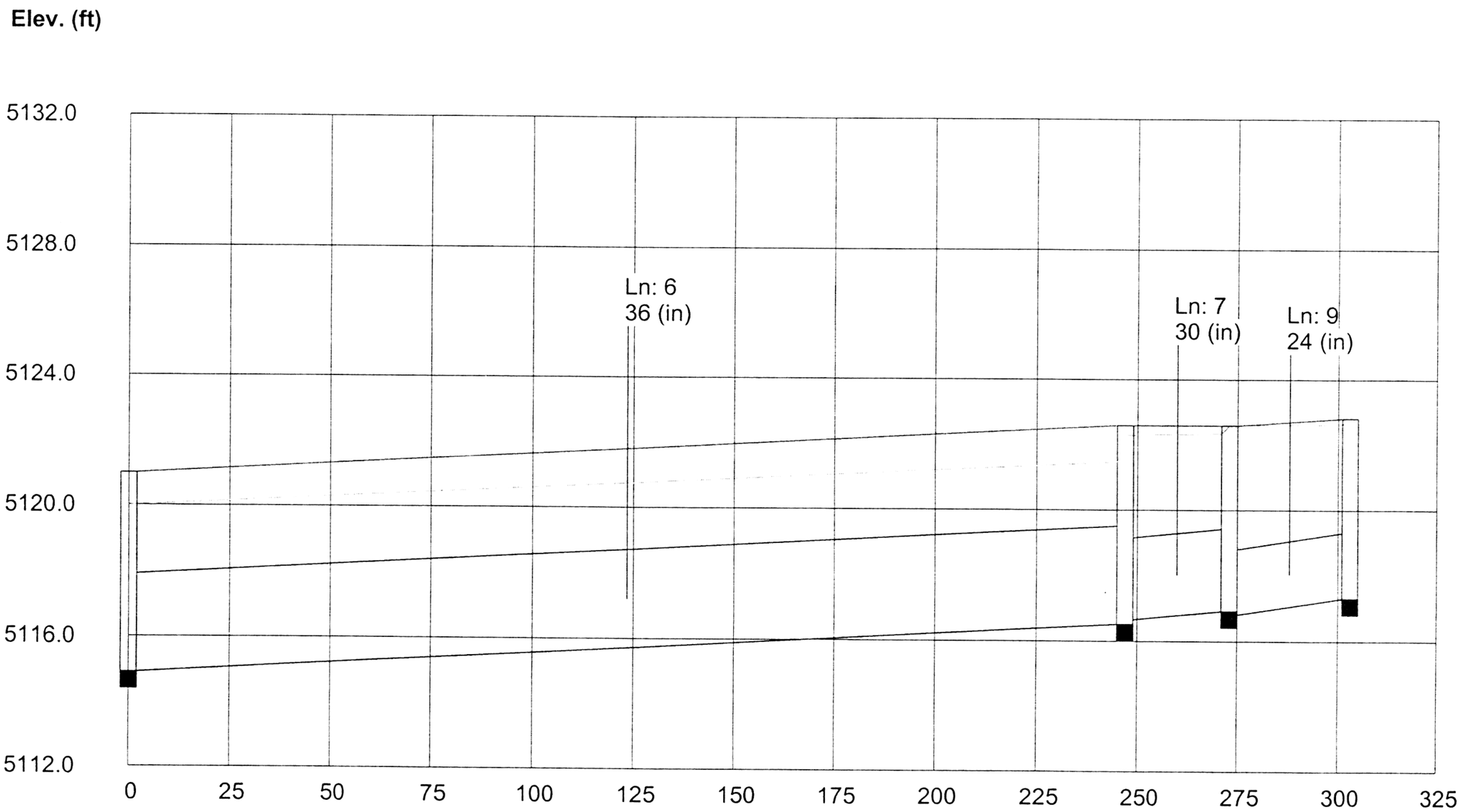
Storm Sewer Profile

Proj. file: 1277.stm



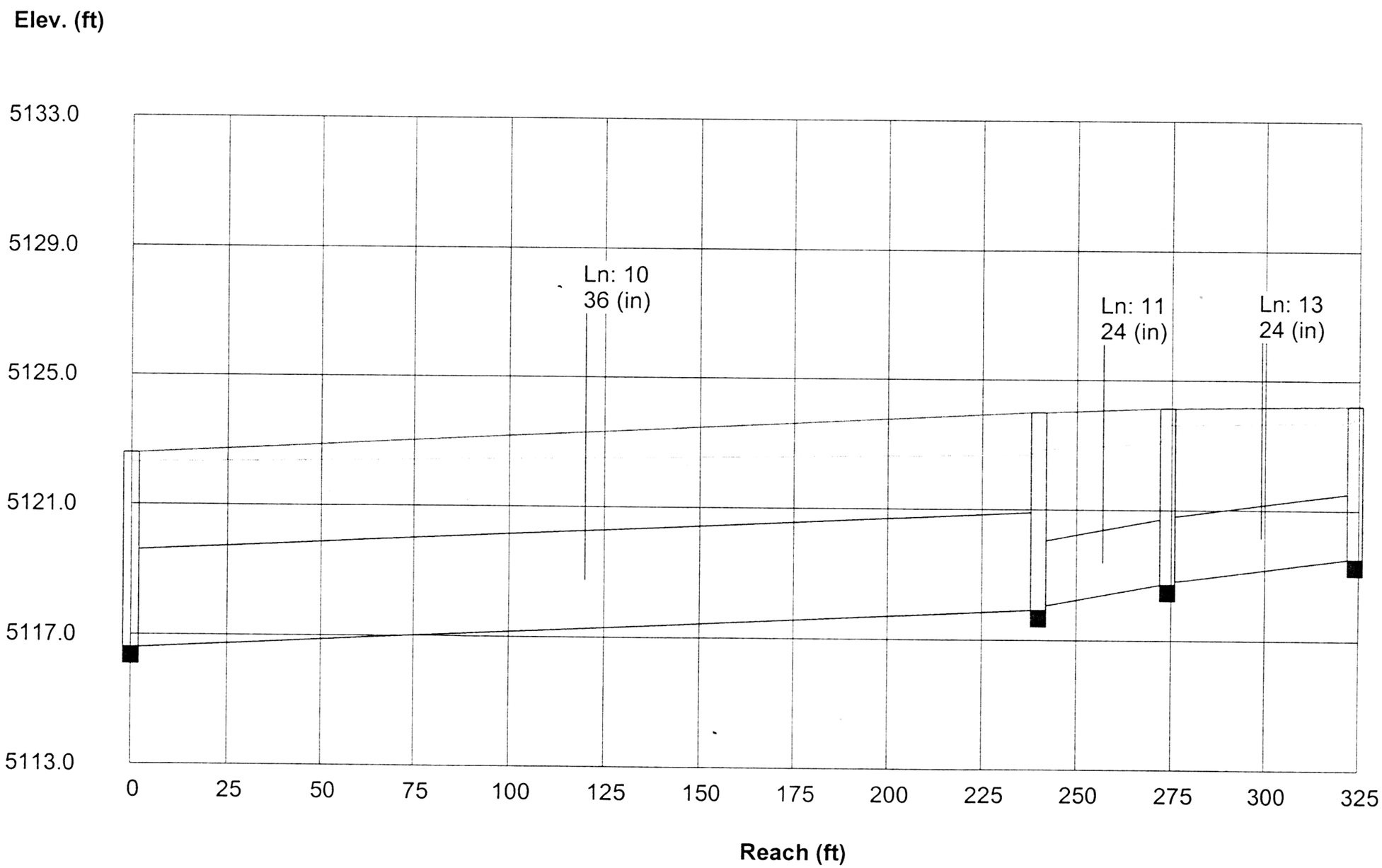
Storm Sewer Profile

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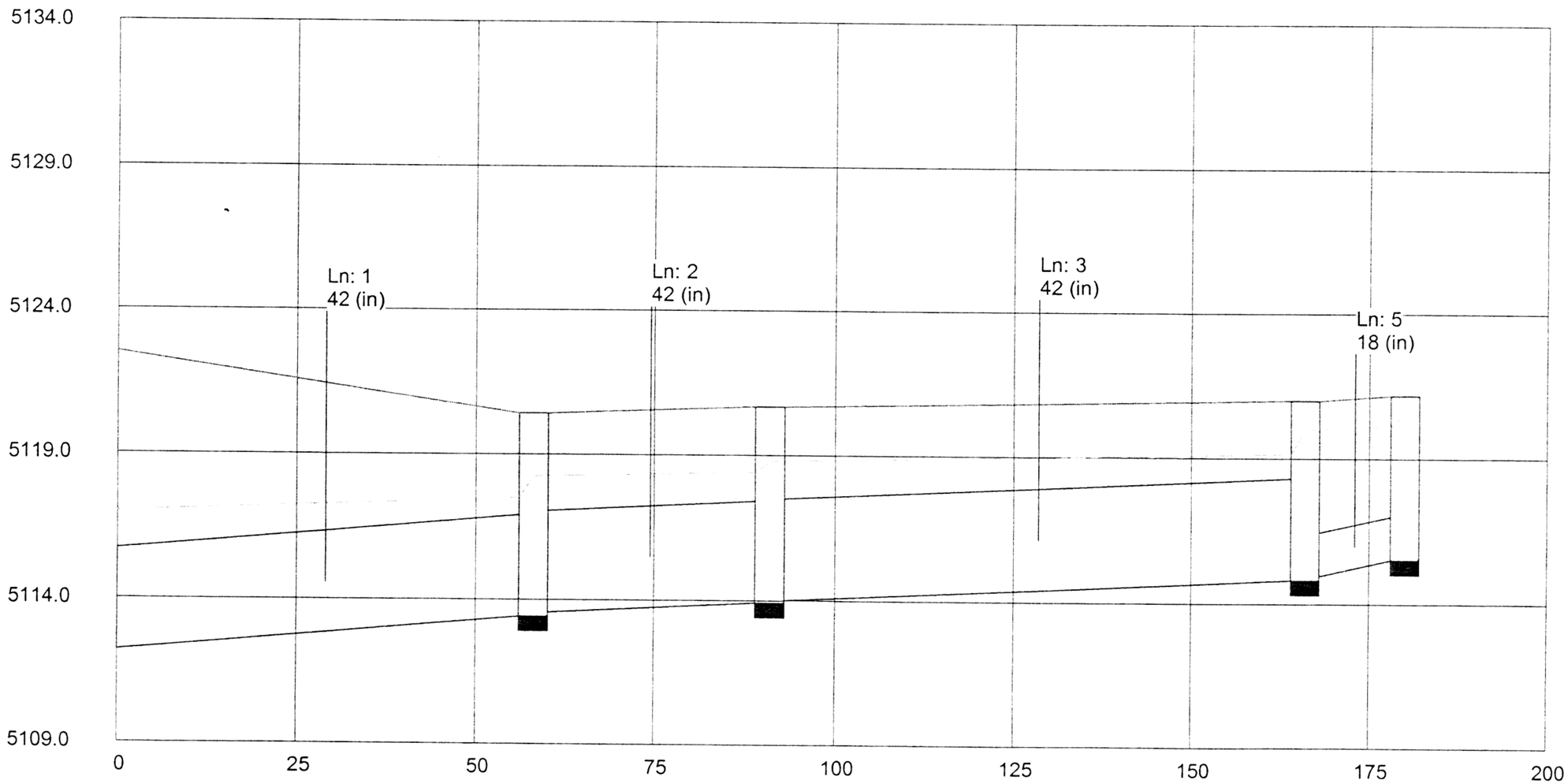
Storm Sewer Profile

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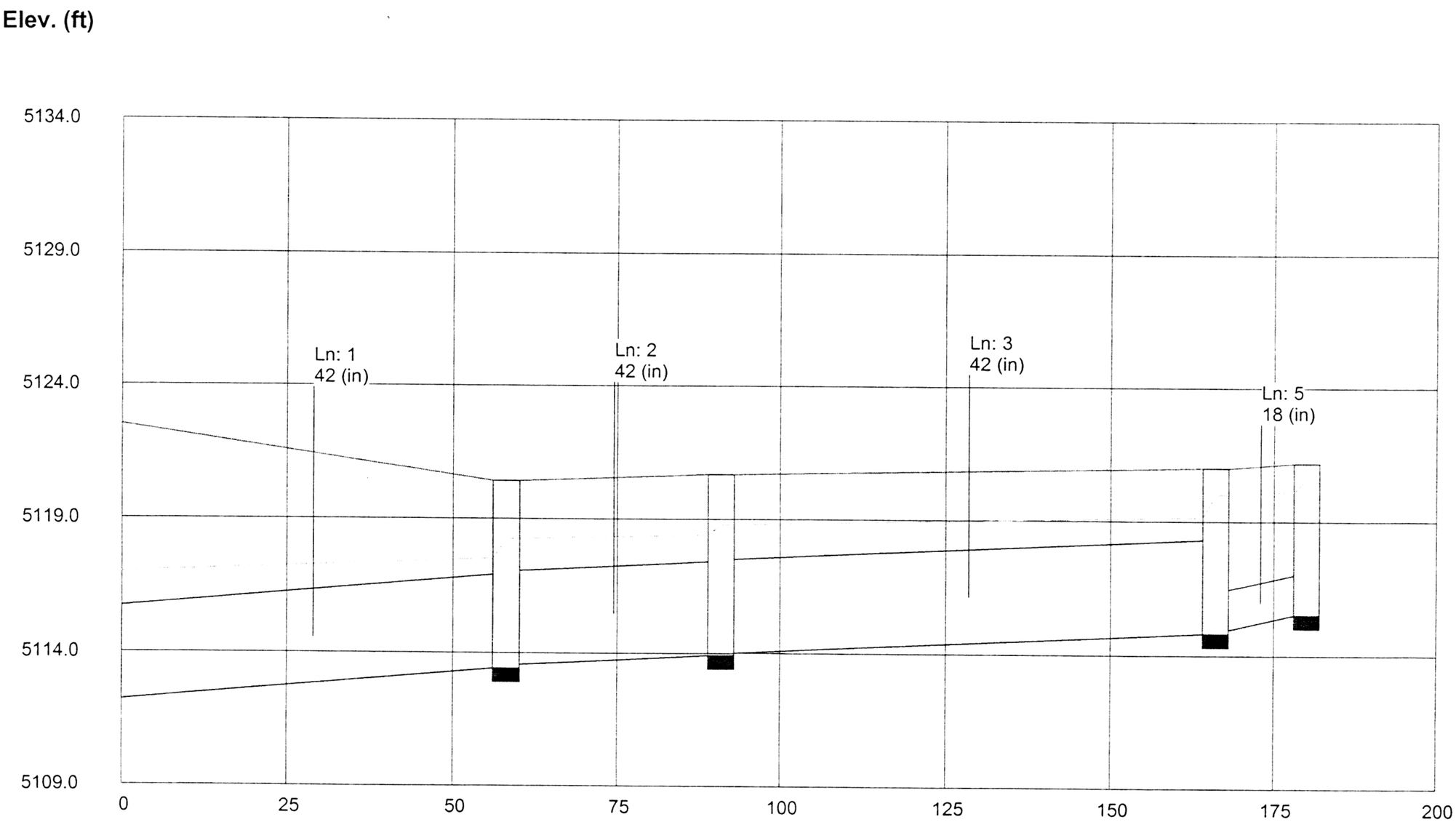
Storm Sewer Profile

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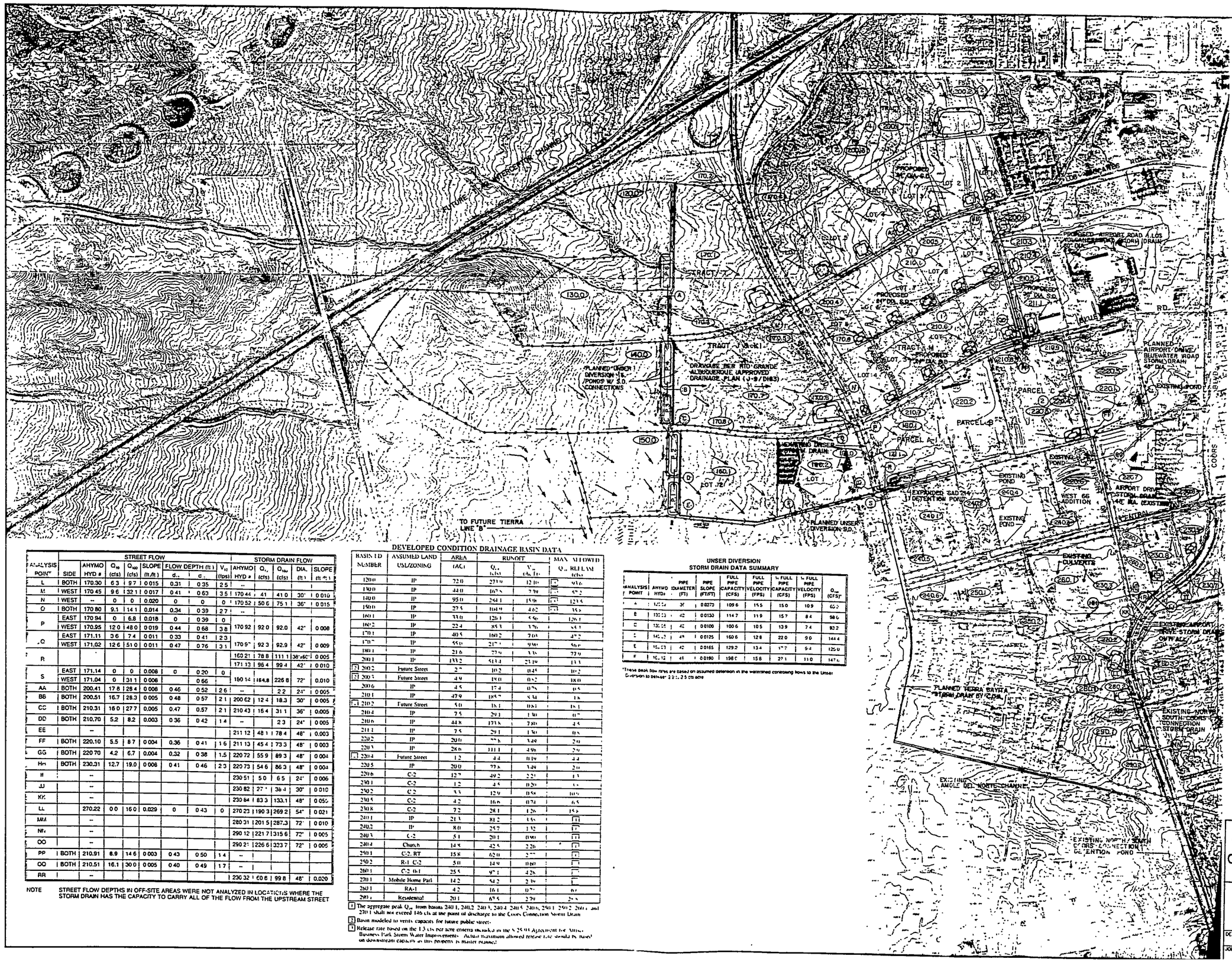
Storm Sewer Profile

Proj. file: 1277.stm



APPENDIX D

Select Portions of the Atrisco Business Park, D.M.P., Full & Interim Conditions



LEGEND

- DRAINAGE BASIN BOUNDARY
- DRAINAGE BASIN I.D. NUMBER (XXX)
- ANALYSIS POINT (XX)
- PROPOSED CHANNEL
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- FUTURE DETENTION POND (POND #)
- FUTURE STREET BASIN (FE / Xa X)

THIS BASE MAP WAS PRODUCED BY COMPOSITING THE CONTOURS GENERATED BY BOHANNAN HUSTON, INC. ALBUQUERQUE NEW MEXICO FOR THE 1983 FEMA FLOODWAY MAPS AND 1992 RECTIFIED AERIAL PHOTOGRAPHY

500 250 0 500 1000
Scale 1" = 500' Feet

GENERAL NOTES

1. FUTURE PONDS ARE SHOWN SCHEMATICALLY ON THIS PLAN ONLY TO REPRESENT THAT CONTROL OF THE FLOW FROM THE UPSTREAM WATERSHED IS REQUIRED. LOCATION AND CONFIGURATION OF ACTUAL DETENTION PONDS SHALL BE APPROPRIATE FOR THE TYPE OF DEVELOPMENT WHICH OCCURS IN THE WATERSHED TO BE CONTROLLED
2. REFER TO THE REPORT FOR THE MASTER DRAINAGE PLAN FOR THE ATRISCO BUSINESS PARK FOR COMPLETE AHYMO ANALYSIS SUMMARY TABLES AND INPUT DATA

KEYED NOTES

(1) FOR THE PURPOSE OF ANALYSIS TRACT "G" AND TRACT "M" WERE MODELED AS SINGLE BASINS WITH SINGLE DETENTION PONDS. IF PROPERTY DEVELOPS PER CURRENT SUBDIVISION EACH LOT WILL REQUIRE A DETENTION POND AS ILLUSTRATED. ALL LOTS WITHIN THESE LARGE TRACTS ARE SUBJECT TO A MAXIMUM ALLOWABLE 100 YEAR PEAK DISCHARGE OF 3.0 CFS/ACRE

(2) TO FACILITATE POSSIBLE FUTURE SUBDIVISION, SOME ESTIMATED FUTURE STREET AREAS WERE INCLUDED IN THE AHYMO MODELING OF THE SYSTEM.

10-93 REVISION

— REVISED UNSER DIVERSION SYSTEM
— UP-DATED RUNOFF DATA TO REFLECT THIS CHANGE

DEVELOPED CONDITION DRAINAGE BASIN DATA

ANALYSIS POINT	STREET FLOW SIDE	AHYMO HYD #	Q_{in} (cfs)	Q_{out} (cfs)	SLOPE (ft./ft.)	FLOW DEPTH (ft.) d_c	d_n	V_{in} (fps)	STORM DRAIN FLOW AHYMO HYD #	Q_{in} (cfs)	Q_{out} (cfs)	DIA. (ft.)	SLOPE (ft./ft.)
L	BOTH	170.30	6.3	9.7	0.015	0.31	0.35	2.5	--				
M	WEST	170.45	9.6	32.1	0.017	0.41	0.63	3.5	170.44	41.0	41.0	30"	0.010
N	WEST	--	0	0	0.020	0	0	0	170.52	50.6	75.1	36"	0.015
O	BOTH	170.80	9.1	14.1	0.014	0.34	0.39	2.7	--				
P	EAST	170.94	0	6.8	0.018	0	0.39	0					
	WEST	170.95	12.0	48.0	0.019	0.44	0.68	3.8	170.92	92.0	92.0	42"	0.008
Q	EAST	171.11	3.6	7.4	0.011	0.33	0.41	2.3					
	WEST	171.02	12.6	51.0	0.011	0.47	0.76	3.1	170.97	92.3	92.9	42"	0.009
R									160.21	78.8	111.1	36"x60"	0.005
									171.13	96.4	99.4	42"	0.010
S	EAST	171.14	0	0	0.008	0	0.20	0					
	WEST	171.04	0	31.1	0.008		0.66		160.14	164.8	226.8	72"	0.010
AA	BOTH	200.41	17.8	28.4	0.008	0.46	0.52	2.6	--		2.2	24"	0.005
BB	BOTH	200.51	16.7	28.3	0.005	0.48	0.57	2.1	200.62	12.4	18.3	30"	0.005
CC	BOTH	210.31	16.0	27.7	0.005	0.47	0.57	2.1	210.43	15.4	31.1	36"	0.005
DD	BOTH	210.70	5.2	8.2	0.003	0.36	0.42	1.4	--		2.3	24"	0.005
EE		--							211.12	48.1	78.4	48"	0.003
FF	BOTH	220.10	5.5	8.7	0.004	0.36	0.41	1.6	211.13	45.4	73.3	48"	0.003
GG	BOTH	220.70	4.2	6.7	0.004	0.32	0.38	1.5	220.72	55.9	89.3	48"	0.004
Hh	BOTH	230.31	12.7	19.0	0.008	0.41	0.46	2.3	220.73	54.6	86.3	48"	0.004
II		--							230.51	5.0	6.5	24"	0.006
JJ		--							230.82	27.1	36.4	30"	0.010
KK		--							230.84	83.3	133.1	48"	0.050
LL		270.22	0.0	16.0	0.029	0	0.43	0	270.23	190.3	269.2	54"	0.021
MM		--							280.31	201.5	287.3	72"	0.010
Nn		--							290.12	221.7	315.6	72"	0.005
OO		--							290.21	226.6	323.7	72"	0.005
PP	BOTH	210.91	8.9	14.6	0.003	0.43	0.50	1.4	--				
QQ	BOTH	210.51	16.1	30.0	0.005	0.40	0.49	1.7	--				
RR		--							230.32	60.6	99.8	48"	0.020

NOTE STREET FLOW DEPTHS IN OFF-SITE AREAS WERE NOT ANALYZED IN LOCATIONS WHERE THE STORM DRAIN HAS THE CAPACITY TO CARRY ALL OF THE FLOW FROM THE UPSTREAM STREET

BASIN I.D. NUMBER	ASSUMED LAND USE/ZONING	AREA (AC.)	RUNOFF Q_{100} (cfs)	RUNOFF V_{100} (Ac.-Ft.)	MAX. ALLOWED Q_{100} RELEASE (cfs)
1200	IP	72.0	273.9	12.10	93.6
1300	IP	44.0	167.5	7.39	57.2
1400	IP	95.0	294.1	15.9	123.5
1500	IP	27.5	104.9	4.62	35.7
1601	IP	33.0	126.1	5.56	126.1
1602	IP	22.4	85.3	3.76	85.3
1701	IP	40.5	160.2	7.08	47.2
1702	IP	55.0	217.6	9.60	56.6
1801	IP	21.6	77.0	3.35	77.9
2001	IP	133.2	513.4	23.19	133.1
(2) 2002	Future Street	2.7	10.2	0.45	10.2
(2) 2003	Future Street	4.9	18.0	0.82	18.0
2010	IP	4.5	17.4	0.78	0.5
2101	IP	47.9	185.7	8.34	1.6
(2) 2102	Future Street	5.0	18.1	0.81	18.1
2104	IP	7.5	29.1	1.30	0.7
2106	IP	44.8	173.8	7.80	4.5
2111	IP	7.5	29.1	1.30	0.8
2202	IP	20.0	77.6	3.49	2.0
2203	IP	28.6	111.1	4.96	2.9
(2) 2204	Future Street	1.2	4.4	0.19	4.4
2205	IP	20.0	77.6	3.49	2.0
2206	C-2	12.7	49.2	2.21	1.3
2301	C-2	1.2	4.5	0.20	0.1
2302	C-2	3.3	12.9	0.58	0.3
2305	C-2	4.2	16.6	0.74	0.5
2306	C-2	7.2	28.1	1.26	0.8
2401	IP	21.3	81.2	3.5	(1)
2402	IP	8.0	25.7	1.12	(1)
2403	C-2	5.1	20.1	0.90	(1)
2404	Church	14.8	42.5	2.26	(1)
2501	C-2, RT	15.8	62.0	2.77	(1)
2502	R-1, C-2	5.0	14.9	0.60	(1)
2601	C-2, O-1	25.5	97.1	4.28	(1)
2701	Mobile Home Park	14.2	54.2	2.36	(1)
2801	RA-1	4.2	16.1	0.71	0.4
2901	Residential	20.1	67.5	2.79	2.0

(1) The aggregate peak Q_{100} from basins 2401, 2402, 2403, 2404, 2405, 2406, 2501, 2502, 2601, and 2701 shall not exceed 146 cfs at the point of discharge to the Coors Connection Storm Drain

(2) Basin modeled to verify capacity for future public street.

(3) Release rate based on the 1.3 cfs per acre criteria included in the S.2501 Agreement for Atrisco Business Park Storm Water Improvements. Actual maximum allowed release rate should be based on downstream capacity as this property is master planned.

UNSER DIVERSION STORM DRAIN DATA SUMMARY

ANALYSIS POINT	AHYMO HYD#	PIPE DIAMETER (FT)	PIPE SLOPE (FT/FT)	FULL PIPE CAPACITY (CFS)	FULL PIPE VELOCITY (FPS)	% FULL PIPE CAPACITY (CFS)	% FULL PIPE VELOCITY (FPS)	Q_{100} (CFS)*
A	120.24	36"	0.0270	109.6	15.5	15.0	10.9	65.9
B	130.05	42"	0.0130	114.7	11.9	15.7	8.4	98.6
C	130.06	42"	0.0100	100.6	10.5	13.9	7.4	93.2
D	140.03	48"	0.0125	160.6	12.8	22.0	9.0	144.4
E	150.03	42"	0.0165	129.2	13.4	17.7	9.4	125.0
F	150.12	48"	0.0180	196.0	15.8	27.1	11.0	147.6

*These peak flow rates are based on assumed detention in the watershed conforming flows to the Unser Diversion to below 2.2 cfs 2.5 cfs acre

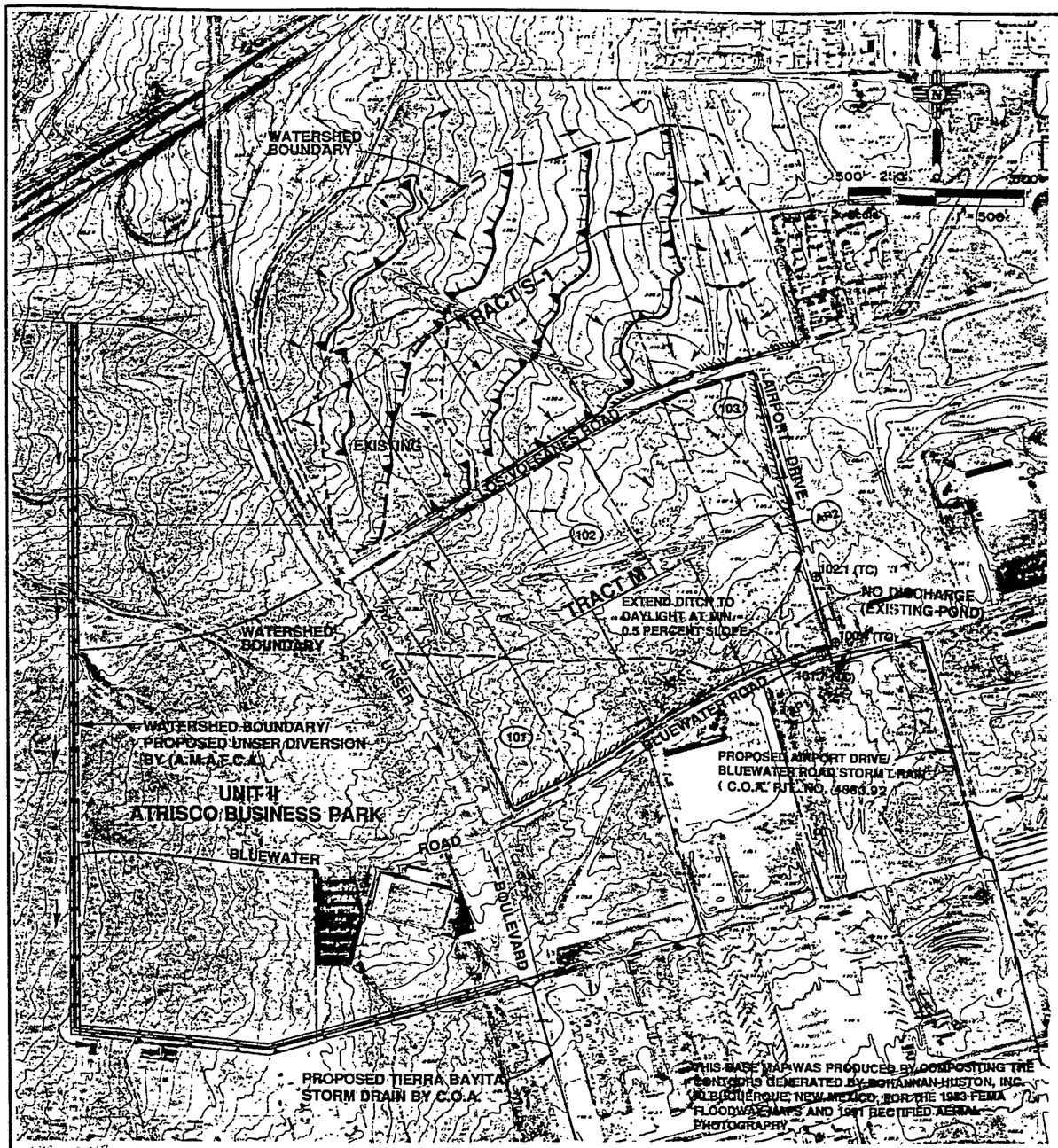
ATRISCO BUSINESS PARK
MASTER DRAINAGE PLAN
OVERALL DRAINAGE PLAN
FULLY DEVELOPED CONDITION

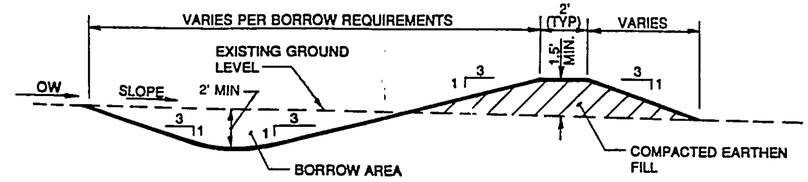
EASTERLING & ASSOCIATES, INC.
CONSULTING ENGINEERS
1031 Coors Rd., NW Suite H-7/8
ALBUQUERQUE, NEW MEXICO 87114
(505) 898-802 FAX (505) 898-8501

DESIGNED BY	DRAWN BY	CHECKED BY
V.S.F	C.L.R	C.M.E

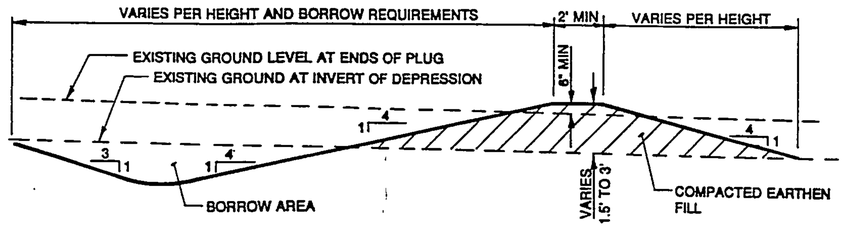
JOB NO. 332' DATE FEB., 1992

SHEET 6 OF 10

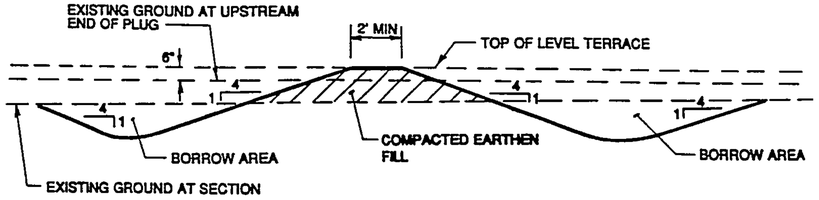




TYPE "A" LEVEL TERRACE AND DIVERSION STRUCTURE
SECTION SCALE 1" = 4'



DEPRESSION PLUG
SECTION SCALE 1" = 4'



LEVEL TERRACE PLUG
SECTION SCALE 1" = 4'

LEGEND

- TYPE "A" LEVEL TERRACE
- TYPE "A" DIVERSION
- LEVEL TERRACE PLUG
- DEPRESSION PLUG
- DRAINAGE BASIN BOUNDARY
- ⊕ 02.1 EXISTING SPOT ELEVATION
- (101) BASIN ANALYSIS NUMBER
- (AP1) ANALYSIS POINT I.D.

CONSTRUCTION NOTES

1. TERRACE AND PLUG LOCATIONS SHOWN ABOVE ARE APPROXIMATE. EXACT LOCATIONS OF TERRACES AND PLUGS SHALL BE DETERMINED IN THE FIELD AT THE TIME OF STAKING.
2. VEGETATION SHALL BE REMOVED OR SHREDDED BY MECHANICAL MEANS IN ALL FILL AND BORROW AREAS PRIOR TO CONSTRUCTION.
3. PRIOR TO PLACEMENT OF FILL, THE EXISTING GROUND SURFACE SHALL BE SCARIFIED TO A DEPTH OF 6".
4. FILL MATERIAL SHALL BE PLACED WITH A MOISTURE CONTENT AT OR NEAR OPTIMUM MOISTURE CONTENT.
5. FILL MATERIAL SHALL BE COMPACTED AT 90% ASTM D-1557.
6. LEVEL TERRACE TOPS SHALL BE CONSTRUCTED WITHIN ±0.2' OF LEVEL BETWEEN TERRACE PLUGS.
7. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE REVEGETATED IN ACCORDANCE WITH CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR NATIVE GRASS SEEDING.
8. THE CONTRACTOR SHALL OBTAIN A TOP SOIL DISTURBANCE PERMIT FROM CITY OF ALBUQUERQUE ENVIRONMENTAL HEALTH PRIOR TO PROCEEDING WITH GRADING OPERATIONS.

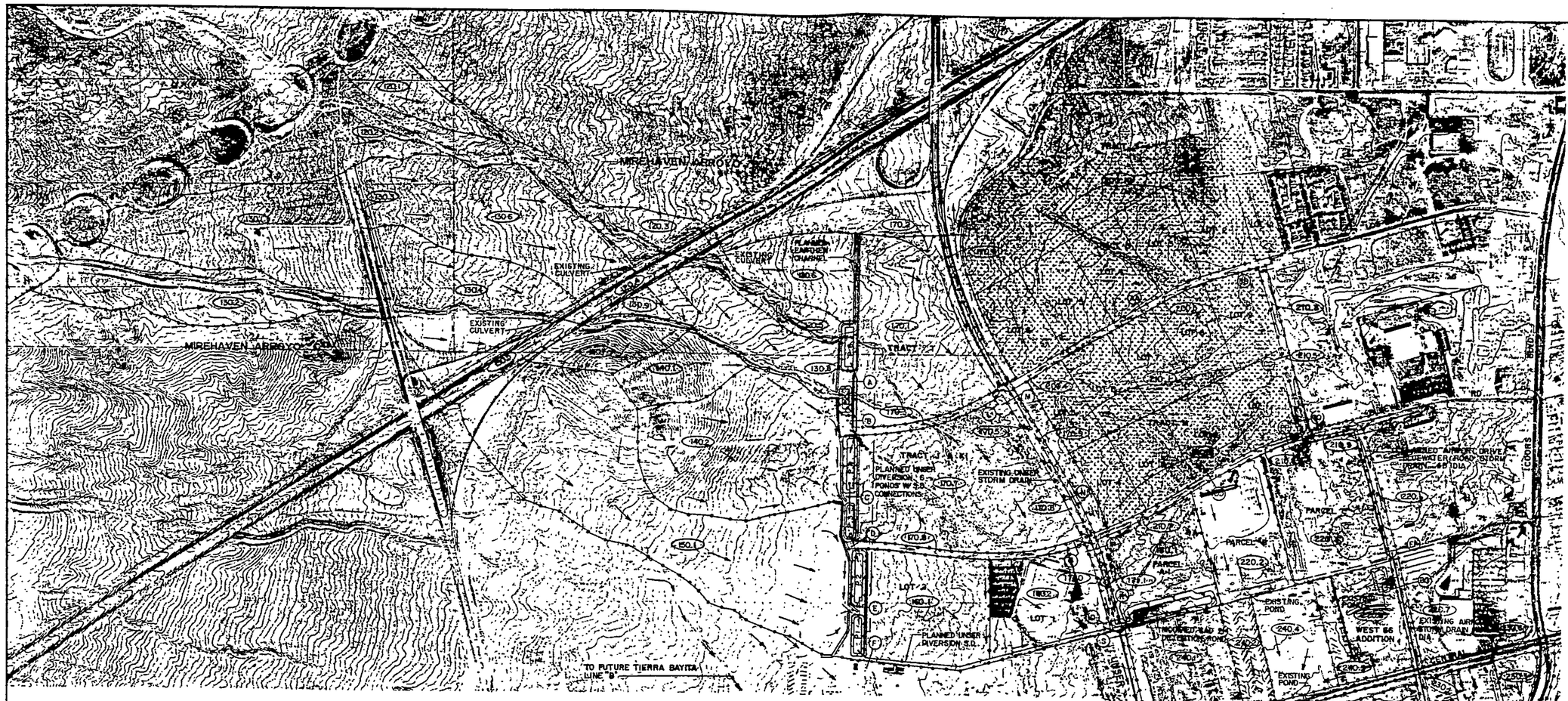
NO.	REVISIONS	BY	DATE
1.	ADDED NOTE NO. 8	VSF	8-93

ATRISCO BUSINESS PARK
TRACTS "S-1" AND "M," UNIT 2
INTERIM DRAINAGE TREATMENT PLAN

6-17-93

EASTERLING & ASSOCIATES, INC.
CONSULTING ENGINEERS
10131 Coors Rd., NW, Suite H-78
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DESIGNED BY	DRAWN BY	CHECKED BY	
VSF	DEC	CME	SHEET 10 OF 10
JOB NO. 3[illegible]5	DATE 6-93		



LEGEND

- DRAINAGE BASIN BOUNDARY
- DRAINAGE BASIN I D NUMBER (XXX X)
- ANALYSIS POINT (XX)
- PROPOSED CHANNEL
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- CONSERVATION TREATMENT
- PROPOSED POND (POND X)

THIS BASE MAP WAS PRODUCED BY COMPOSITING THE CONTOURS GENERATED BY BOHANNAN-HUSTON, INC., ALBUQUERQUE NEW MEXICO, FOR THE 1983 FEMA FLOODWAY MAPS AND 1991 RECTIFIED AERIAL PHOTOGRAPHY.

500 250 0 500 1000
Scale 1" = 500' Feet

GENERAL NOTES

1 CONSERVATION TREATMENT CONSISTING OF SMALL DITCHES AND DIKES IS PROPOSED FOR TRACT M AND THE PORTIONS OF TRACT S-1 THAT CONTRIBUTE FLOW TO THE AIRPORT DRIVE STORM DRAIN. THE PROPOSED TREATMENT SHOULD BE DESIGNED TO PREVENT RUNOFF DEVELOPED ON THESE TRACTS IN THE 100-YEAR 10-DAY EVENT FROM OVERLOADING THE AIRPORT DRIVE STORM DRAIN

AS LOTS ARE DEVELOPED WITHIN THESE TRACTS THE TREATMENT WILL BE REPLACED WITH PERMANENT ONSITE DETENTION PONDS

2 REFER TO THE REPORT FOR THE MASTER DRAINAGE PLAN FOR THE ATRISCO BUSINESS PARK FOR COMPLETE AHYMO ANALYSIS SUMMARY TABLES AND INPUT DATA

10-93 REVISION

- REDUCED CONSERVATION TREATMENT AREA
- REVISED UNSER DIVERSION SYSTEM
- UP-DATED DATA IN THE TIERRA BAYITA STORM DRAIN WATERSHED TO REFLECT THESE CHANGES

ANALYSIS POINT	STREET FLOW SIDE	AHYMO HYD #	Q_{10} (cfs)	Q_{100} (cfs)	SLOPE (ft./ft.)	FLOW DEPTH (ft.) d_{10}	d_{100}	V_{100} (fps)	STORM DRAIN FLOW AHYMO HYD #	Q_{10} (cfs)	Q_{100} (cfs)	DIA (ft.)	SLOPE (ft./ft.)
L	BOTH	170.31	14.7	52.2	0.015	0.48	0.57	2.5	--				
M	WEST	170.43	0	37.7	0.017	0	0.63	0	170.42	29.5	41.0	30"	0.010
N	WEST	--	0	0	0.020	0	0	0	170.52	34.1	80.8	36"	0.015
O	BOTH	170.81	17.7	62.9	0.014	0.50	0.62	2.7	--				
P	EAST	170.94	0	15.8	0.018	0	0.48	0	170.92	60.7	92.0	42"	0.008
	WEST	170.95	0	48.0	0.019	0	0.68	4.2					
Q	EAST	171.11	3.6	14.3	0.011	0.33	0.48	2.3	170.97	60.3	92.9	42"	0.010
	WEST	171.02	3.8	50.3	0.011	0.35	0.77	2.4					
R									160.23	44.6	135.4	38"x60"	0.005
									171.15	63.5	100.2	42"	0.010
S	EAST	171.14	0	6.3	0.008	0	0.41		180.13	63.2	90.2	72"	0.010
	WEST	171.04	0	30.3	0.008	0	0.69						
AA	BOTH	200.40	6.6	10.4	0.006	0.34	0.38	2.0	--				
BB	BOTH	200.51	8.6	14.3	0.005	0.39	0.46	1.7	--				
CC	BOTH	210.31	9.1	15.7	0.005	0.40	0.47	1.7	--				
DD	BOTH	210.70	5.2	8.2	0.003	0.36	0.41	1.3	--				
EE		--							210.92	17.1	29.4	48"	0.003
FF	BOTH	220.10	5.5	8.7	0.004	0.36	0.41	1.6	211.13	15.2	26.7	48"	0.003
GG	BOTH	220.70	4.2	6.7	0.004	0.32	0.38	1.5	220.72	22.3	38.4	48"	0.004
HH	BOTH	230.31	11.3	19.5	0.006	0.40	0.47	2.3	220.73	21.0	19.5	48"	0.004
II		--							230.51	13.1	24.9	30"	0.006
JJ		--							230.82	19.7	40.6	30"	0.010
KK		--							230.84	45.2	86.6	48"	0.050
LL		--							270.23	112.1	231.8	54"	0.021
MM		--							280.31	116.3	244.3	72"	0.010
NN		--							290.12	119.0	262.2	72"	0.005
OO		--							290.21	123.5	273.0	72"	0.006
PP	BOTH	210.91	8.9	14.6	0.003	0.43	0.50	1.4	--				
QQ	BOTH	210.51	9.4	16.7	0.005	0.40	0.49	1.7	--				
RR		--							230.32	27.5	49.3	48"	0.020

NOTE STREET FLOW DEPTHS IN OFFSITE AREAS WERE NOT ANALYZED IN AREAS WHERE THE STORM DRAIN HAS THE CAPACITY TO CARRY ALL OF THE FLOW FROM THE UPSTREAM STREET

INTERIM CONDITION DRAINAGE BASIN DATA

BASIN I D NUMBER	ASSUMED LAND USE	AREA (AC)	RUNOFF Q_{100} (cfs)	RUNOFF V_{100} (Ac-Ft)	ANALYSIS FLOW RATE Q_{100} RELEASE (cfs)
[1] 120 X	Existing - U	101.4	[2] 93.7	[2] 4.68	[3] 93.7
[1] 130 X	Existing - U	211.0	[2] 211.5	[2] 9.42	[3] 211.5
[1] 140 X	Existing - U	69.6	[2] 100.0	[2] 3.40	[3] 100.0
[1] 150 X	Existing - U	97.6	[2] 89.6	[2] 3.88	[3] 89.6
160.1	Existing - U	33.1	47.2	1.32	47.2
160.2	Existing - P.D	22.4	39.7	2.25	39.7
170.1	Existing - U	40.5	44.0	1.55	44.0
170.7	Existing - U	55.0	51.4	2.05	51.4
180.1	Existing - U	21.6	34.2	1.14	34.2
200.1	Existing - U	133.2	201.2	5.31	0
210.1	Existing - U	47.9	67.7	1.91	0
210.6	Existing - U	44.8	63.2	1.79	0
220.2	Existing - U	20.0	27.8	1.49	2.0
220.3	Existing - U	28.6	6.1	0.28	0
220.6	Developed	12.7	49.2	2.21	1.3
230.1	Existing - P.D	1.2	3.8	0.14	3.8
230.2	Existing - P.D	3.3	10.9	0.40	10.9
230.5	Existing - U	4.2	6.5	0.18	6.5
230.8	Existing - P.D	7.2	15.8	0.53	15.8
240.1	Existing - P.D	21.3	58.7	2.66	21.3
240.2	Existing - P.D	8.0	25.7	1.32	8.0
240.3	Existing - P.D.	5.1	12.9	0.58	5.1
240.4	Existing - P.D	14.8	42.5	2.26	14.8
250.1	Existing - P.D	15.6	33.2	1.65	15.5
250.2	Existing - P.D	5.0	13.9	0.60	5.0
260.1	Existing - U	25.5	33.1	1.10	25.5
270.1	Existing - P.D	14.2	21.3	0.64	14.2
280.1	Existing - P.D	4.2	6.6	0.20	4.2
290.1	Existing - P.D	20.1	28.8	0.85	20.1

[1] Aggregate Basin
[2] Clear Water Plus Sediment
[3] Flow Rate into the Unser Diversion
U = UNDEVELOPED
P.D = PARTIALLY DEVELOPED

UNSER DIVERSION STORM DRAIN DATA SUMMARY

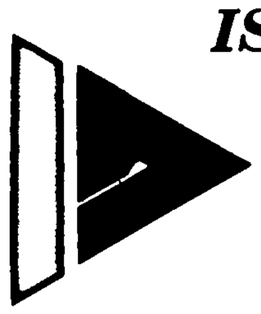
ANALYSIS POINT	AHYMO HYD#	PIPE DIAMETER (FT)	PIPE SLOPE (FT/FT)	FULL PIPE CAPACITY (CFS)	FULL PIPE VELOCITY (FPS)	% FULL PIPE CAPACITY (CFS)	% FULL PIPE VELOCITY (FPS)	Q_{100} (CFS)*
A	*30.66	36"	0.0070	109.6	15.5	15.6	10.9	0.0
B	*30.86	48"	0.0260	231.6	18.4	31.7	12.9	142.7
C	*30.88	42"	0.0130	114.7	11.9	15.7	8.4	75.0
D	140.25	42"	0.0100	100.8	10.5	13.9	7.4	68.6
E	140.27	48"	0.0125	160.6	12.8	22.0	9.0	3.2
F	*30.14	42"	0.0165	129.2	13.4	17.7	9.2	0.0

*Refer to the Design Analysis Report for the Unser Diversion for additional information

ATRISCO BUSINESS PARK
MASTER DRAINAGE PLAN
OVERALL DRAINAGE PLAN
INTERIM CONDITION

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DESIGNED BY: V.S.F | DRAWN BY: C.E. | CHECKED BY: J.C.M.E.
JOB NO.: 3321 | DATE: FEB. 1993



ISAACSON & ARFMAN, P.A.

Consulting Engineering Associates

Albuquerque, NM