

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Eastside Animal Services Center ZONE ATLAS / DRNG. FILE #: K20/D15
LEGAL DESCRIPTION: East Side Animal Control Center, Albuquerque, NM
CITY ADDRESS: 8920 Lomas Blvd. NE, Albuquerque, NM 87121

ENGINEERING FIRM: C.L. Weiss Engineering CONTACT: Chris Weiss

ADDRESS: P.O. Box 97, Sandia Park NM, 87047 PHONE: 281-1800

OWNER: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

ARCHITECT: Gregory T. Hicks & Assoc. CONTACT: Jay Davis

ADDRESS: 112 Second St. S.W. Albuq., NM 87102 PHONE: 243-7492

SURVEYOR: Forstbauer Surveying Co. CONTACT: Ron Forstbauer

ADDRESS: 1100 Alvarado Dr. NE - 87110 PHONE: 268-2112

CONTRACTOR FIRM: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

☐ YES

☐ NO

☐ COPY OF CONFERENCE RECAP
SHEET PROVIDED

DRB NO. _____
EPC NO. _____
PROJ. NO. _____
RECEIVED
DEC 03 1999
HYDROLOGY SECTION

TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT

☐ DRAINAGE PLAN

☐ CONCEPTUAL GRADING & DRAINAGE PLAN

☐ GRADING PLAN

☐ EROSION CONTROL PLAN

☒ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT

☐ PRELIMINARY PLAT

☐ SITE DEVELOPMENT PLAN

☐ FINAL PLAT

☐ BUILDING PERMIT

☐ FOUNDATION PERMIT

☒ CERT. OF OCCUPANCY

☐ ROUGH GRADING PERMIT

☐ GRADING / PAVING PERMIT

☐ OTHER _____

DATE SUBMITTED: December 2, 1999

BY: C.L. Weiss Engineering, Inc.



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

December 21, 1999

Chris Weiss, PE
C.L. Weiss Engineering, Inc.
PO Box 97
Sandia Park, NM 87047

**Re: Eastside Animal Services Center – Cattery & Facility Support Grading and
Drainage Plan Engineer's Stamp dated 6-18-97, (K20/D15) Engineer
Certification Dated 12-2-99**

Dear Mr. Weiss,

Based on your resubmittal dated 12-2-99, the above referenced Certification is acceptable and is approved for Certificate of Occupancy.

If I can of further assistance, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham

Bradley L. Bingham, PE
Hydrology Review Engineer

C: file

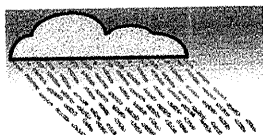


COA

Eastside Kennels

8 9 2 0 L O M A S N E

- Background
- Basin Analysis
- Summary of Results
- Drainage / Grading Plan



Drainage Report

June 1997
C. L. Weiss Engineering, Inc.



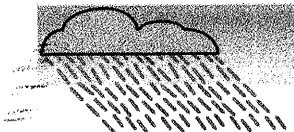
COA

Eastside Kennels



Project Manager
Miles Myers

768-2629...
Assoc. w/ Hicks + Assoc.
243-7492



Drainage Report

Background

- Existing Site



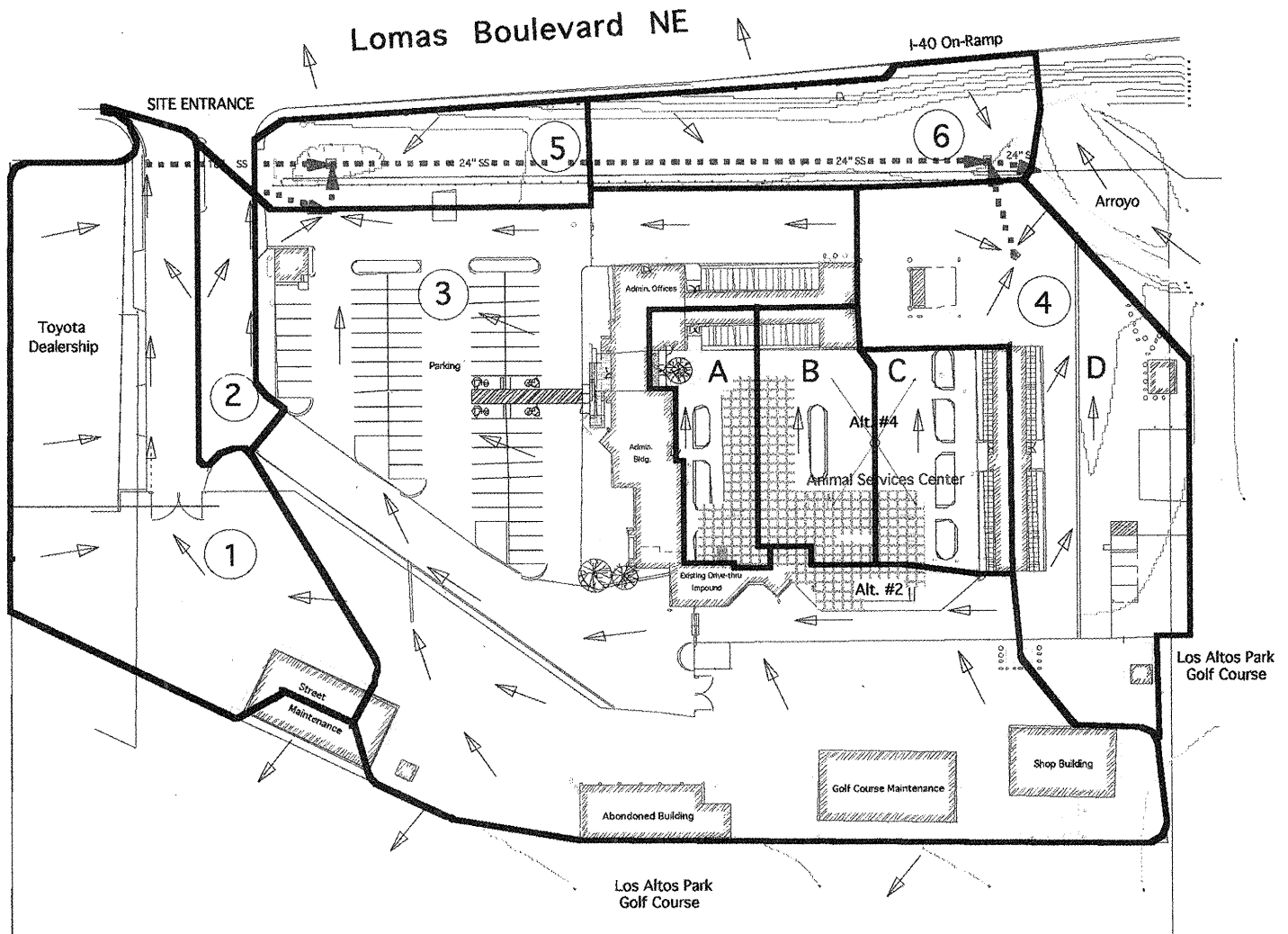
The purpose of this report is to analyze the drainage patterns for the planned facility improvements of the COA Eastside kennels. The existing site was analyzed for Gregory T Hicks and Associates by Thomas Mann in February, 1985. Flow patterns to the storm sewer system remain essentially the same as outlined in the original study. An as-built survey has established slight variations to drainage patterns and problem areas which will be addressed in more detail.

Initial improvements will include the removal of a portion of the existing Animal Services Center, construction of new support facilities and a new kennel building. Alternates include administration remodel north of the lobby, construction of a bulk storage room, parking lot overlay, and a second kennel building.

The drainage characteristics of the overall facility, which includes use by other COA departments such as street maintenance and golf course maintenance, can be defined by six internal basins. A small area of the adjacent Toyota dealership drains to the access road and is included as part of the on-site basin analysis. Other than that, the site is isolated from offsite drainage by Lomas on the north, an arroyo on the east and the Los Altos Park Golf Course on the south.

Overall drainage peak flow rates do not change with regard to the existing site and future improvements because the ratio of impervious area will remain the same for both conditions.

The following plan represents the as-built condition of the facility. Refer to the grading plan in back of this report for information regarding the extent of proposed improvements.



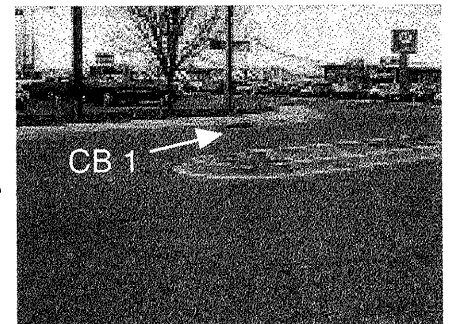
COA Eastside Kennels Basin map

Basin Analysis

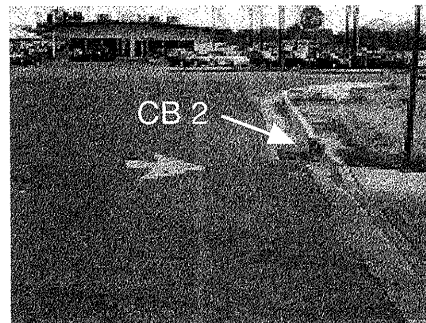
Basin 1 encompasses a portion of the street maintenance yard, the Toyota area and the west half of the access street. The main flow path is obstructed by a low area which ponds in the area of the street maintenance yard gate and extends onto the Toyota parking area.



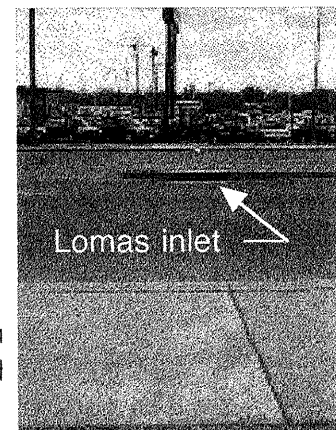
Flows eventually drain north following the flat grades of the access street to CB 1.



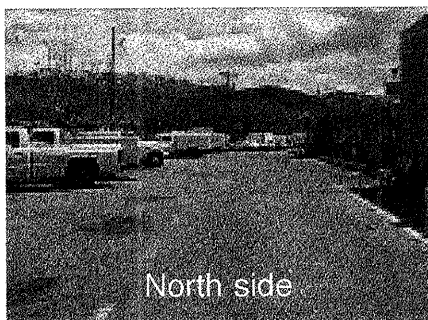
Basin 2 is essentially the east half of the access street. Its flows are picked up by CB 2.



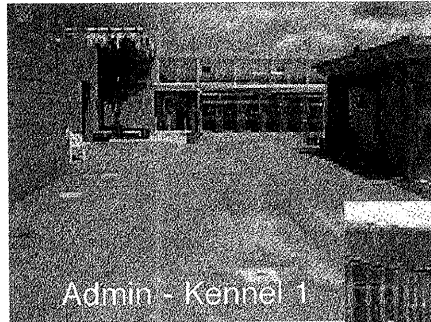
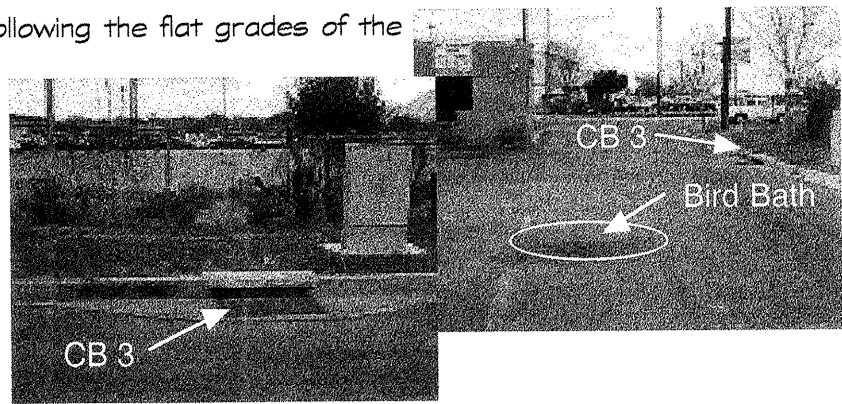
No flows from Lomas Blvd. enter the access street due to a reverse slope of Lomas which directs flows to inlets located along the median.



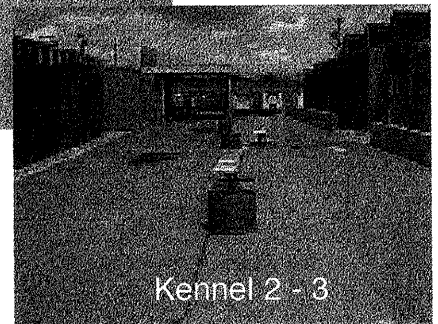
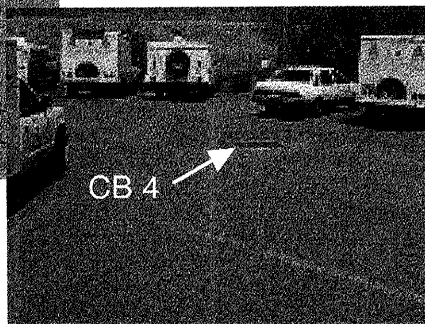
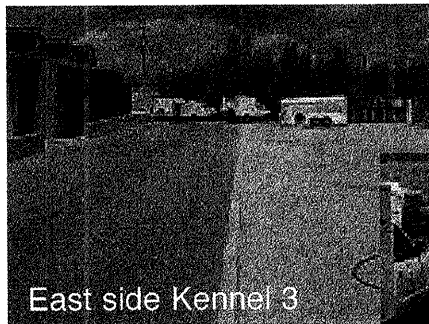
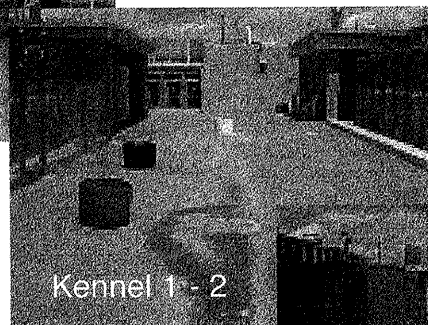
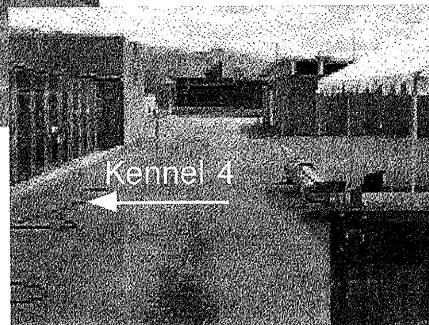
Basin 3 is made up of the front parking lot on the west side of the Animal Service Center, and the areas south and north of the building.



Flows eventually drain north following the flat grades of the parking area to CB 3.



Basin 4 completes the balance of the site improvements, in particular, the building areas and associated paving. The interior court yard areas , roofs and adjoining vehicle access drain to CB 4 located in the NE corner of the basin. Grades vary from very flat between the kennels to more moderate slopes approaching the CB 4. The proposed improvements will locate landscaping islands in the center isles. Drainage will be handled by a combination of surface swales and an extension of the SS system.



Basins 5 - 6 are comprised of the open space between the Lomas curb and the site curb. Basin 5 drains to a sump at MH 1, while Basin 6 surface drains into the arroyo to the east.

The following pages contain the basin calculations and hydrographs to determine the peak flows draining to the existing storm sewer system.



Basin 1**AREA OF SITE:**

42,991

SF

=

0.99

Ac.

Calculations are based on the Drainage Design Criteria for Bernalillo County, Section 22.2, DPM, Vol 2, dated Jan., 1993

Existing Flows:

On-Site Historic Land Condition

Area a	=	0	SF
Area b	=	2,210	SF
Area c	=	0	SF
Area d	=	40,781	SF
Total Area	=	42,991	SF

DEVELOPED FLOWS:

On-Site Developed Land Condition

Area a	=	0	SF
Area b	=	2,210	SF
Area c	=	0	SF
Area d	=	40,781	SF
Total Area	=	42,991	SF

EXCESS PRECIPITATION:

Precip. Zone

3

Ea	=	0.66
Eb	=	0.92
Ec	=	1.29
Ed	=	2.36

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

$$\text{Weighted E} = \frac{EaAa + EbAb + EcAc + EdAd}{Aa + Ab + Ac + Ad}$$

Historic E	=	2.29 in.	Developed E	=	2.29 in.
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$$\text{On-Site Volume of Runoff: } V_{360} = \frac{E \cdot A}{12}$$

Historic V360	=	8190 CF	Developed V360	=	8190 CF
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On-Site Peak Discharge Rate: $Q_p = Q_{pa}A_a + Q_{pb}A_b + Q_{pc}A_c + Q_{pd}A_d / 43,560$

For Precipitation Zone 3

Q_{pa}	=	1.87	Q_{pc}	=	3.45
Q_{pb}	=	2.60	Q_{pd}	=	5.02

Historic Q_p	=	4.8 CFS	Developed Q_p	=	4.8 CFS
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Basin 1 is comprised of the west side of the site and encompasses one half of the access drive, a portion of the adjacent Toyota site and a part of the street maintenance yard. Approximately one-half of the sub-basin drains to a low area in the pavement at the entrance to the street maintenance yard, which acts as an "unofficial" pond, intercepting some of the drainage of the area. When the depression is filled to capacity, the flows from the sub-basin eventually drain to a Type "C" inlet, CB 1, near Lomas Blvd., less the volume retained by the depression. Referring to Plate 22.3, D-5, Grate capacities of the Type 'C' inlet, for a street slope of 0.009'/', the grate capacity of 4.8 cfs is reached when the depth of flow at the curb is 0.4' deep. The sub-basin flow rates were not adjusted for the "pond" area, under the assumption that this problem will eventually be corrected.

Basin #2

AREA OF SITE:

5,632

SF

=

0.13

Ac.

Existing Flows:

On-Site Historic Land Condition

Area a	=	0	SF
Area b	=	0	SF
Area c	=	0	SF
Area d	=	5,632	SF
Total Area	=	5,632	SF

DEVELOPED FLOWS:

On-Site Developed Land Condition

Area a	=	0	SF
Area b	=	0	SF
Area c	=	0	SF
Area d	=	5,632	SF
Total Area	=	5,632	SF

EXCESS PRECIPITATION:

Precip. Zone

3

Ea	=	0.66
Eb	=	0.92
Ec	=	1.29
Ed	=	2.36

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

Weighted E =

$$\frac{EaAa + EbAb + EcAc + EdAd}{Aa + Ab + Ac + Ad}$$

Historic E = 2.36 in.

Developed E = 2.36 in.

On-Site Volume of Runoff: V360 =

$$\frac{E \cdot A}{12}$$

Historic V360 = 1108 CF

Developed V360 = 1108 CF

On-Site Peak Discharge Rate: $Q_p = \frac{Q_{pa}A_a + Q_{pb}A_b + Q_{pc}A_c + Q_{pd}A_d}{43,560}$

For Precipitation Zone 3

Q_{pa}	=	1.87
Q_{pb}	=	2.60

Q_{pc}	=	3.45
Q_{pd}	=	5.02

Historic Q_p = 0.6 CFS

Developed Q_p = 0.6 CFS

Basin 2 is comprised of the remainder of the access street serving the facilities. Flows discharge into an inlet, CB 2, located near Lomas Blvd. Capacity of the Type 'C' inlet is more than adequate, based on the conditions referenced for Basin 1 above.

Basin #3

AREA OF SITE:

122,368

SF

=

2.81

Ac.

Existing Flows:

On-Site Historic Land Condition

Area a	=	0	SF
Area b	=	6,576	SF
Area c	=	0	SF
Area d	=	115,792	SF
Total Area	=	122,368	SF

DEVELOPED FLOWS:

On-Site Developed Land Condition

Area a	=	0	SF
Area b	=	6,576	SF
Area c	=	0	SF
Area d	=	115,792	SF
Total Area	=	122,368	SF

EXCESS PRECIPITATION:

Precip. Zone

3

Ea	=	0.66
Eb	=	0.92
Ec	=	1.29
Ed	=	2.36

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

$$\text{Weighted E} = \frac{EaAa + EbAb + EcAc + EdAd}{Aa + Ab + Ac + Ad}$$

Historic E = 2.28 in.

Developed E = 2.28 in.

On-Site Volume of Runoff: V360 = $\frac{E \cdot A}{12}$

Historic V360 = 23277 CF

Developed V360 = 23277 CF

On-Site Peak Discharge Rate: $Qp = QpaAa + QpbAb + QpcAc + QpdAd / 43,560$

For Precipitation Zone 3

Qpa = 1.87
Qpb = 2.60

Qpc = 3.45
Qpd = 5.02

Historic Qp = 13.7 CFS

Developed Qp = 13.7 CFS

Basin 3 is comprised of the south side of the joint-use property, the front parking area for the Animal Services Center and a portion of the vehicle storage area located on the north side of the building. General flow patterns find a path to a single Type 'C' inlet, CB 3, located at the NW corner of the parking area. Capacity of the inlet can be determined as a sump condition, with a ponding depth of 0.6' over the grate and a clear opening of an equivalent grate ((Neenah # 3403F) = 3.2 SF, for a capacity of 12 cfs (Orifice Eq). Adding the curb inlet capacity, 3' length x 0.6 cfs/ft = 1.8cfs, for a total capacity of 13.8 cfs. This value assumes no reduction due to plugging. The inlet has capacity, but realistically, back up of flows will occur within the parking area to reach the ponding depth of 0.6' over the grate.

Basin #4

AREA OF SITE:

61,917 SF = 1.42 Ac.

Existing Flows:

On-Site Historic Land Condition

Area a	=	0	SF
Area b	=	0	SF
Area c	=	11,750	SF
Area d	=	50,167	SF
Total Area	=	61,917	SF

DEVELOPED FLOWS:

On-Site Developed Land Condition

Area a	=	0	SF
Area b	=	0	SF
Area c	=	11,750	SF
Area d	=	50,167	SF
Total Area	=	61,917	SF

EXCESS PRECIPITATION:

Precip. Zone	3
Ea	= 0.66
Eb	= 0.92
Ec	= 1.29
Ed	= 2.36

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

$$\text{Weighted E} = \frac{EaAa + EbAb + EcAc + EdAd}{Aa + Ab + Ac + Ad}$$

Historic E	=	2.16 in.	Developed E	=	2.16 in.
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On-Site Volume of Runoff: $V_{360} = \frac{E \cdot A}{12}$

Historic V360	=	11129 CF	Developed V360	=	11129 CF
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On-Site Peak Discharge Rate: $Q_p = Q_{pa}Aa + Q_{pb}Ab + Q_{pc}Ac + Q_{pd}Ad / 43,560$

For Precipitation Zone 3

Q_{pa}	=	1.87	Q_{pc}	=	3.45
Q_{pb}	=	2.60	Q_{pd}	=	5.02

Historic Q_p	=	6.7 CFS	Developed Q_p	=	6.7 CFS
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Basin 4 is comprised of the east side of the facility and the majority of the Animal Service Center building area. Flows from this basin are presently collected by a single Type 'D' inlet, CB 4, operating in a sump condition. Using the same design criteria as the inlet for basin #3 shows an available capacity of 12 cfs. Even if the inlet were to be completely clogged, an overland spillway path exists to drain the flows directly into the arroyo, resulting in only a minor pond confined to the inlet area.

As part of the building phase, planters will be located between the buildings. To provide accessible grades between the buildings and drainage away from these structures, an additional SS will have to be constructed along the north side of Kennels 1, 2 and 3. This will result in dividing Basin 4 into four sub-basins, A, B, C, and D. Each sub-basin will drain to an inlet for collection into CB 4.

Sub-Basin #4 A

AREA OF SITE: 7,456 SF = 0.17 Ac.

Existing Flows:

On-Site Historic Land Condition

Area a	=	0	SF
Area b	=	0	SF
Area c	=	800	SF
Area d	=	6,656	SF
Total Area	=	7,456	SF

DEVELOPED FLOWS:

On-Site Developed Land Condition

Area a	=	0	SF
Area b	=	0	SF
Area c	=	800	SF
Area d	=	6,656	SF
Total Area	=	7,456	SF

EXCESS PRECIPITATION:

Precip. Zone	3
Ea	= 0.66
Eb	= 0.92
Ec	= 1.29
Ed	= 2.36

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

$$\text{Weighted E} = \frac{EaAa + EbAb + EcAc + EdAd}{Aa + Ab + Ac + Ad}$$

Historic E	=	2.25 in.	Developed E	=	2.25 in.
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On-Site Volume of Runoff: V360 = $\frac{E \cdot A}{12}$

Historic V360	=	1395 CF	Developed V360	=	1395 CF
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On-Site Peak Discharge Rate: $Qp = QpaAa + QpbAb + QpcAc + QpdAd / 43,560$

For Precipitation Zone 3

Qpa	=	1.87	Qpc	=	3.45
Qpb	=	2.60	Qpd	=	5.02

Historic Qp	=	0.8 CFS	Developed Qp	=	0.8 CFS
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Sub-Basin 4 A is comprised of the west side of the Administration building area and one half of Kennel building #1. Flows from this sub-basin will be collected by CB 4A, a single Type 'D' inlet, operating in a sump condition, with an available capacity of 12 cfs.

Sub-Basin #4 B

AREA OF SITE:

9,762 SF = 0.22 Ac.

Existing Flows:

On-Site Historic Land Condition

Area a	=	0	SF
Area b	=	0	SF
Area c	=	400	SF
Area d	=	9,362	SF
Total Area	=	9,762	SF

DEVELOPED FLOWS:

On-Site Developed Land Condition

Area a	=	0	SF
Area b	=	0	SF
Area c	=	400	SF
Area d	=	9,362	SF
Total Area	=	9,762	SF

EXCESS PRECIPITATION:

Precip. Zone	3
Ea	= 0.66
Eb	= 0.92
Ec	= 1.29
Ed	= 2.36

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

$$\text{Weighted E} = \frac{EaAa + EbAb + EcAc + EdAd}{Aa + Ab + Ac + Ad}$$

Historic E	=	2.32 in.	Developed E	=	2.32 in.
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On-Site Volume of Runoff: V360 = $\frac{E \cdot A}{12}$

Historic V360	=	1884 CF	Developed V360	=	1884 CF
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On-Site Peak Discharge Rate: $Qp = QpaAa + QpbAb + QpcAc + QpdAd / 43,560$

For Precipitation Zone 3

Qpa	=	1.87	Qpc	=	3.45
Qpb	=	2.60	Qpd	=	5.02

Historic Qp	=	1.1 CFS	Developed Qp	=	1.1 CFS
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Sub-Basin 4 B is comprised of one half of the Kennel Building #1 and the future Building #2 expansion. Flows from this sub-basin will be collected by CB 4B, a single Type 'D' inlet, operating in a sump condition, with an available capacity of 12 cfs.

Sub-Basin #4 C

AREA OF SITE:

10,091

SF

=

0.23

Ac.

Existing Flows:

On-Site Historic Land Condition

Area a	=	0	SF
Area b	=	0	SF
Area c	=	1,300	SF
Area d	=	8,791	SF
Total Area	=	10,091	SF

DEVELOPED FLOWS:

On-Site Developed Land Condition

Area a	=	0	SF
Area b	=	0	SF
Area c	=	1,300	SF
Area d	=	8,791	SF
Total Area	=	10,091	SF

EXCESS PRECIPITATION:

Precip. Zone

3

Ea	=	0.66
Eb	=	0.92
Ec	=	1.29
Ed	=	2.36

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

$$\text{Weighted E} = \frac{EaAa + EbAb + EcAc + EdAd}{Aa + Ab + Ac + Ad}$$

Historic E = 2.22 in.

Developed E = 2.22 in.

On-Site Volume of Runoff: V360 = $\frac{E \cdot A}{12}$

Historic V360 = 1869 CF

Developed V360 = 1869 CF

On-Site Peak Discharge Rate: $Qp = \frac{QpaAa + QpbAb + QpcAc + QpdAd}{43,560}$

For Precipitation Zone 3

Qpa = 1.87

Qpc = 3.45

Qpb = 2.60

Qpd = 5.02

Historic Qp = 1.1 CFS

Developed Qp = 1.1 CFS

Sub-Basin 4 C is comprised of one half of the future Kennel Building #2 and Building #3. Flows from this sub-basin will be collected by CB 4C, a single Type 'D' inlet, operating in a sump condition, with an available capacity of 12 cfs.

Sub-Basin #4 D

AREA OF SITE:

34,608

SF

=

0.79

Ac.

Existing Flows:

On-Site Historic Land Condition

Area a	=	0	SF
Area b	=	0	SF
Area c	=	9,250	SF
Area d	=	25,358	SF
Total Area	=	34,608	SF

DEVELOPED FLOWS:

On-Site Developed Land Condition

Area a	=	0	SF
Area b	=	0	SF
Area c	=	9,250	SF
Area d	=	25,358	SF
Total Area	=	34,608	SF

EXCESS PRECIPITATION:

Precip. Zone

3

Ea = 0.66

Eb = 0.92

Ec = 1.29

Ed = 2.36

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

Weighted E =

$$\frac{EaAa + EbAb + EcAc + EdAd}{Aa + Ab + Ac + Ad}$$

Historic E = 2.07 in.

Developed E = 2.07 in.

On-Site Volume of Runoff: V360 =

$$\frac{E \cdot A}{12}$$

Historic V360 = 5981 CF

Developed V360 = 5981 CF

On-Site Peak Discharge Rate: $Q_p = Q_{pa}A_a + Q_{pb}A_b + Q_{pc}A_c + Q_{pd}A_d / 43,560$

For Precipitation Zone 3

$Q_{pa} = 1.87$

$Q_{pc} = 3.45$

$Q_{pb} = 2.60$

$Q_{pd} = 5.02$

Historic $Q_p = 3.7$ CFS

Developed $Q_p = 3.7$ CFS

Basin 4 D is comprised of the remaining portion of Basin #4, the east side of the facility. Flows from this basin are presently collected by a single Type 'D' inlet, CB 4, operating in a sump condition, with an available capacity of 12 cfs.

Basin #5**AREA OF SITE:**

10,569

SF

=

0.24

Ac.

Existing Flows:

On-Site Historic Land Condition

Area a	=	0	SF
Area b	=	10,569	SF
Area c	=	0	SF
Area d	=	0	SF
Total Area	=	10,569	SF

DEVELOPED FLOWS:

On-Site Developed Land Condition

Area a	=	0	SF
Area b	=	10,569	SF
Area c	=	0	SF
Area d	=	0	SF
Total Area	=	10,569	SF

EXCESS PRECIPITATION:

Precip. Zone

3

Ea = 0.66

Eb = 0.92

Ec = 1.29

Ed = 2.36

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

Weighted E =

$$\frac{EaAa + EbAb + EcAc + EdAd}{Aa + Ab + Ac + Ad}$$

$$Aa + Ab + Ac + Ad$$

Historic E = 0.92 in.

Developed E = 0.92 in.

On-Site Volume of Runoff: V360 = $\frac{E \cdot A}{12}$

Historic V360 = 810 CF

Developed V360 = 810 CF

On-Site Peak Discharge Rate: $Qp = QpaAa + QpbAb + QpcAc + QpdAd / 43,560$

For Precipitation Zone 3

Qpa = 1.87

Qpc = 3.45

Qpb = 2.60

Qpd = 5.02

Historic Qp = 0.6 CFS

Developed Qp = 0.6 CFS

Basin 5 is comprised of the west open space between the Lomas Blvd. curb and the Animal Services Center parking area. Grades direct flows to the junction SS MH 1, which was designed with a grated inlet to pick up the Basin #5 surface flows. However, no evidence of the inlet could be found within the depressed area.

Basin #6**AREA OF SITE:**

15,690

SF

=

0.36

Ac.

Existing Flows:

On-Site Historic Land Condition

Area a	=	0	SF
Area b	=	15,690	SF
Area c	=	0	SF
Area d	=	0	SF
Total Area	=	15,690	SF

DEVELOPED FLOWS:

On-Site Developed Land Condition

Area a	=	0	SF
Area b	=	15,690	SF
Area c	=	0	SF
Area d	=	0	SF
Total Area	=	15,690	SF

EXCESS PRECIPITATION:

Precip. Zone

3

Ea	=	0.66
Eb	=	0.92
Ec	=	1.29
Ed	=	2.36

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

Weighted E =

$$\frac{EaAa + EbAb + EcAc + EdAd}{Aa + Ab + Ac + Ad}$$

Aa + Ab + Ac + Ad

Historic E = 0.92 in.

Developed E = 0.92 in.

On-Site Volume of Runoff: V360 =

$$\frac{E \cdot A}{12}$$

Historic V360 = 1203 CF

Developed V360 = 1203 CF

On-Site Peak Discharge Rate: $Q_p = Q_{pa}A_a + Q_{pb}A_b + Q_{pc}A_c + Q_{pd}A_d / 43,560$

For Precipitation Zone 3

Qpa = 1.87

Qpc = 3.45

Qpb = 2.60

Qpd = 5.02

Historic Qp = 0.9 CFS

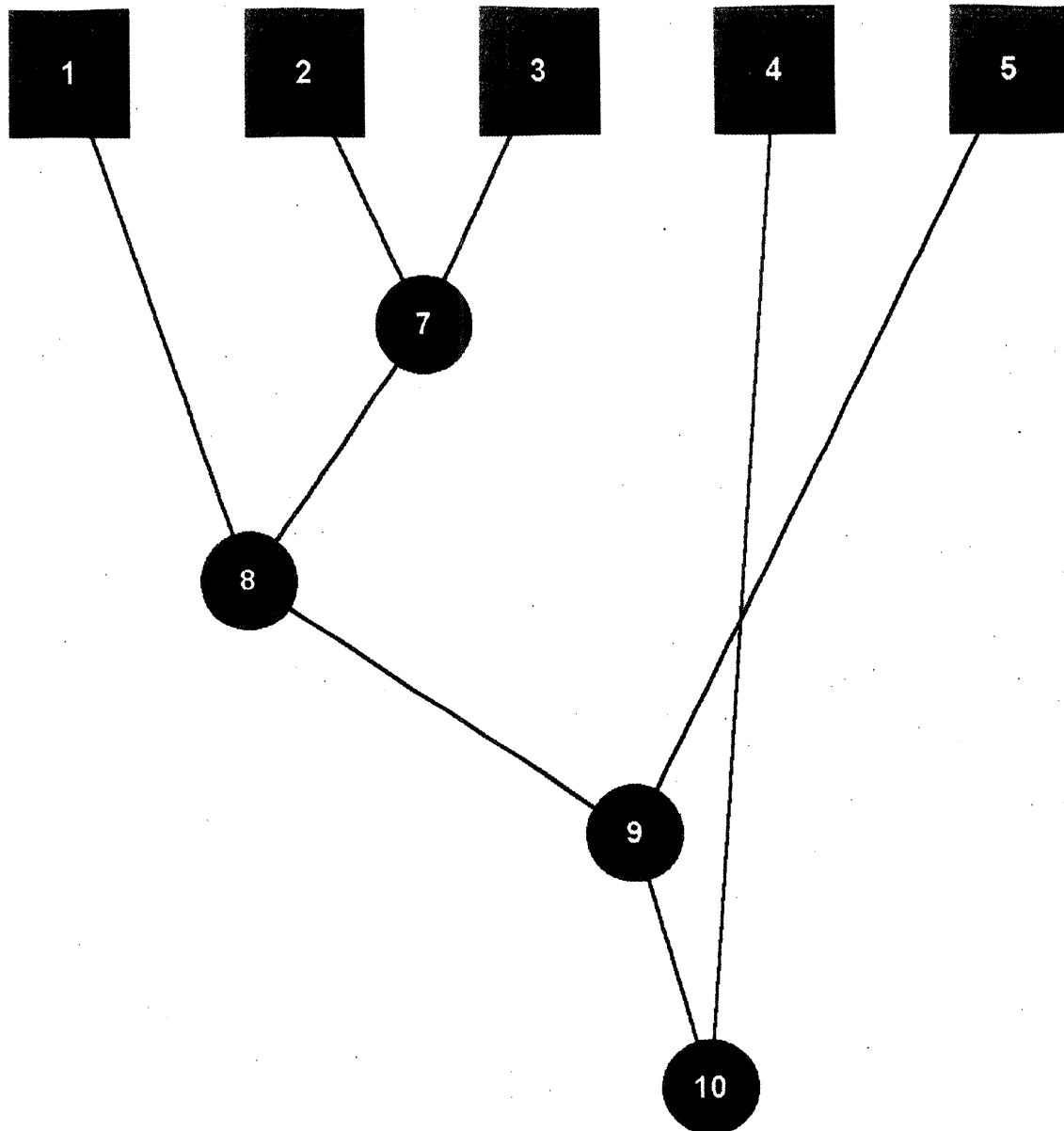
Developed Qp = 0.9 CFS

Basin 6 is comprised of the remainder of the open space between the Lomas Blvd. curb and the Animal Services Center parking area. This area drains to the east via surface paths to the arroyo.

Hydrograph Summary Report

Page 1

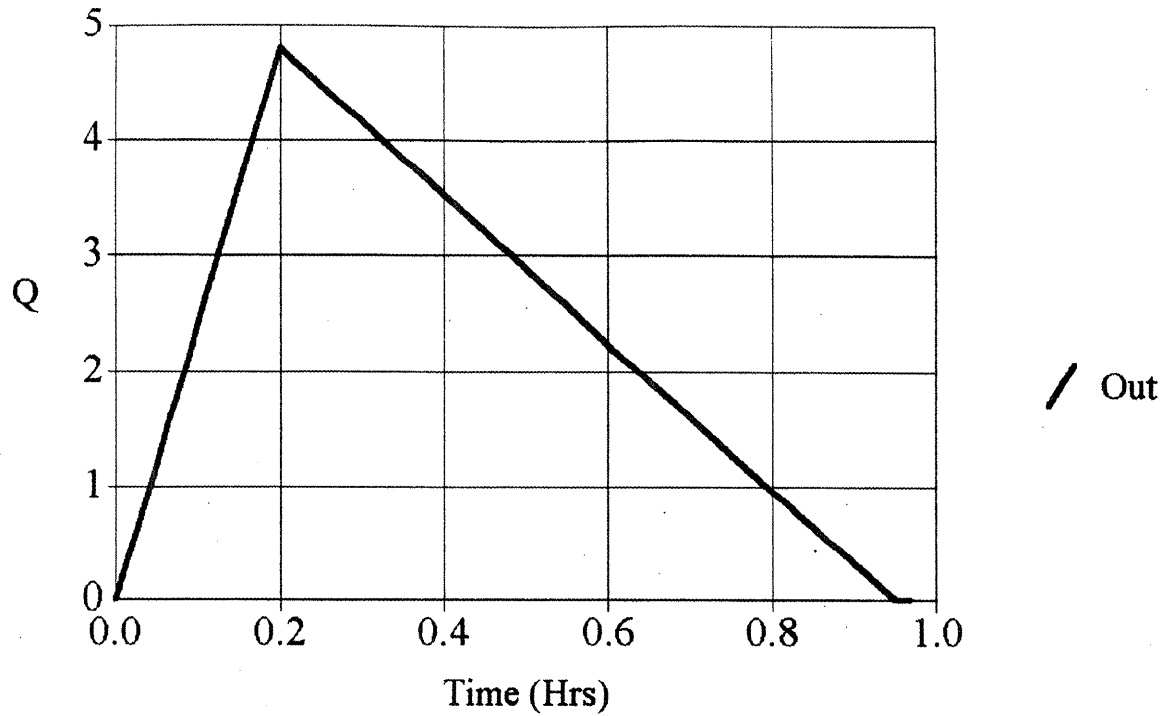
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Return period (yrs)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Rational	4.8	1	12	0.19	100	---	---	---	Basin 1
2	Rational	0.6	1	12	0.03	100	---	---	---	Basin 2
3	Rational	13.7	1	12	0.53	100	---	---	---	Basin 3
4	Rational	6.7	1	12	0.27	100	---	---	---	Basin 4
5	Rational	0.6	1	12	0.02	100	---	---	---	Basin 5
6	Rational	0.9	1	12	0.04	100	---	---	---	Basin 6
7	Combine	14.3	1	12	0.56	100	2 + 3	---	---	Inlet #1
8	Combine	19.1	1	12	0.75	100	1 + 7	---	---	Inlet 2
9	Combine	19.7	1	12	0.77	100	5 + 8	---	---	Inlet 3
10	Combine	26.4	1	12	1.04	100	4 + 9	---	---	Junction 1
Proj. file: EANIMAL.GPW			IDF file: GRACELC.IDF					Run date: 05-28-1997		



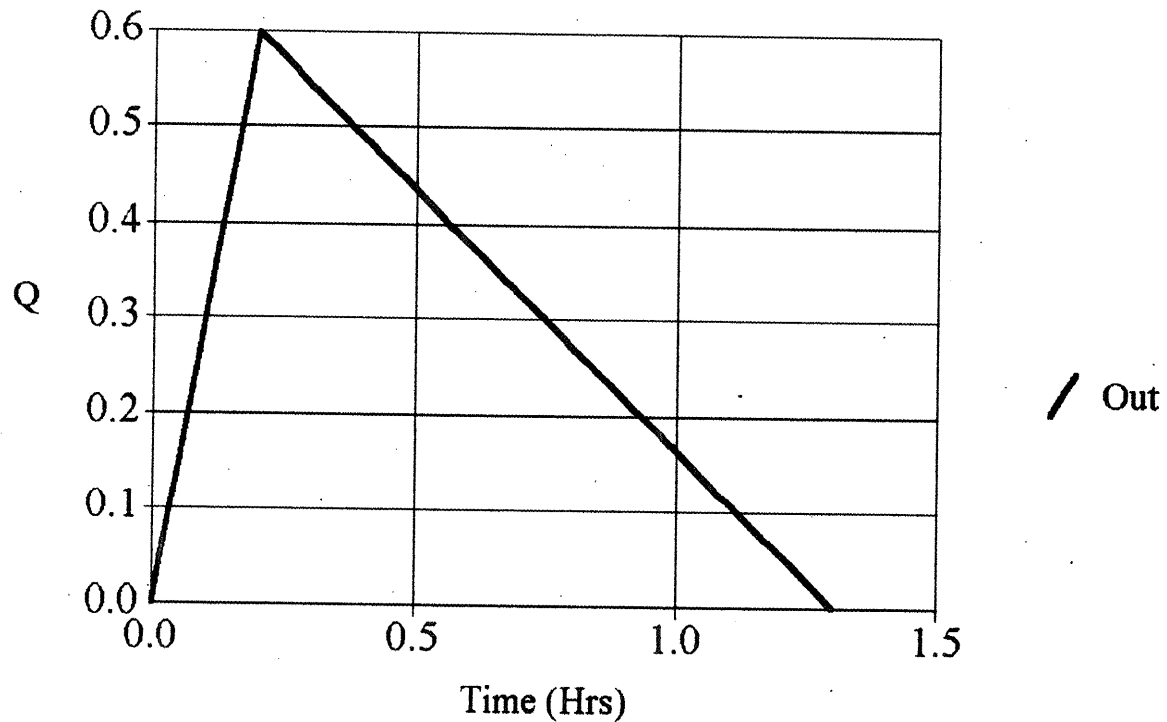
Legend

- Runoff
- Combined
- Channel Reach
- Pond Route

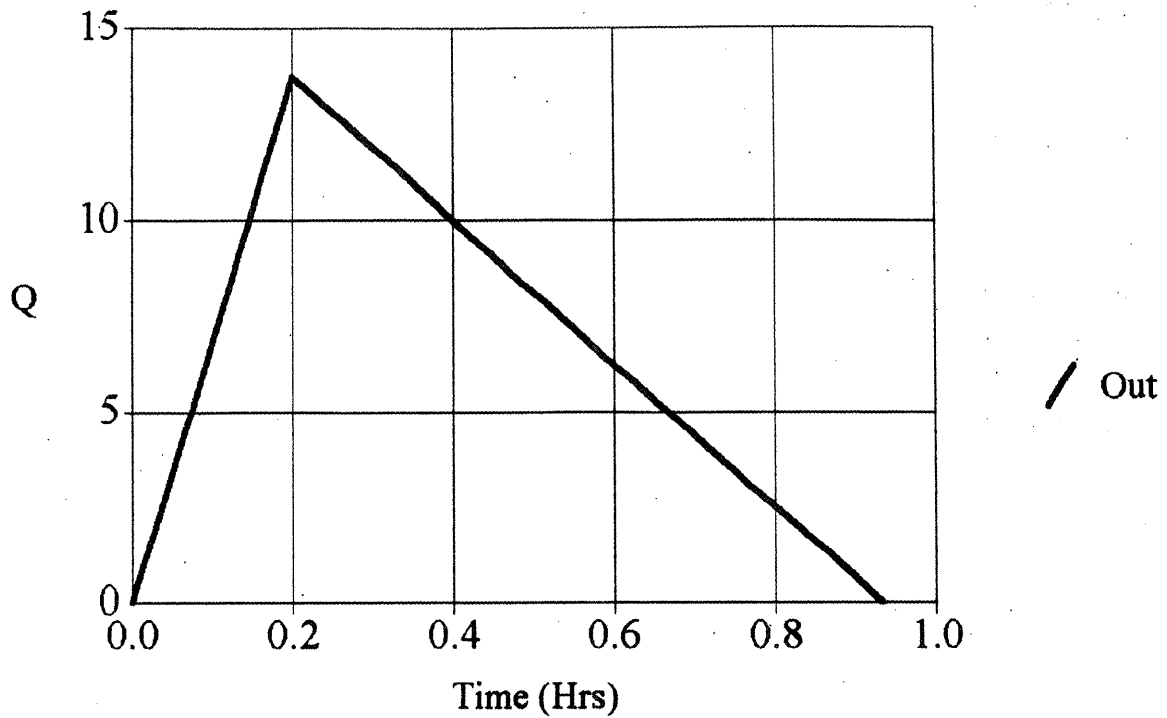
1 - Rational - 100 Yr - $Q_p = 4.79$ cfs



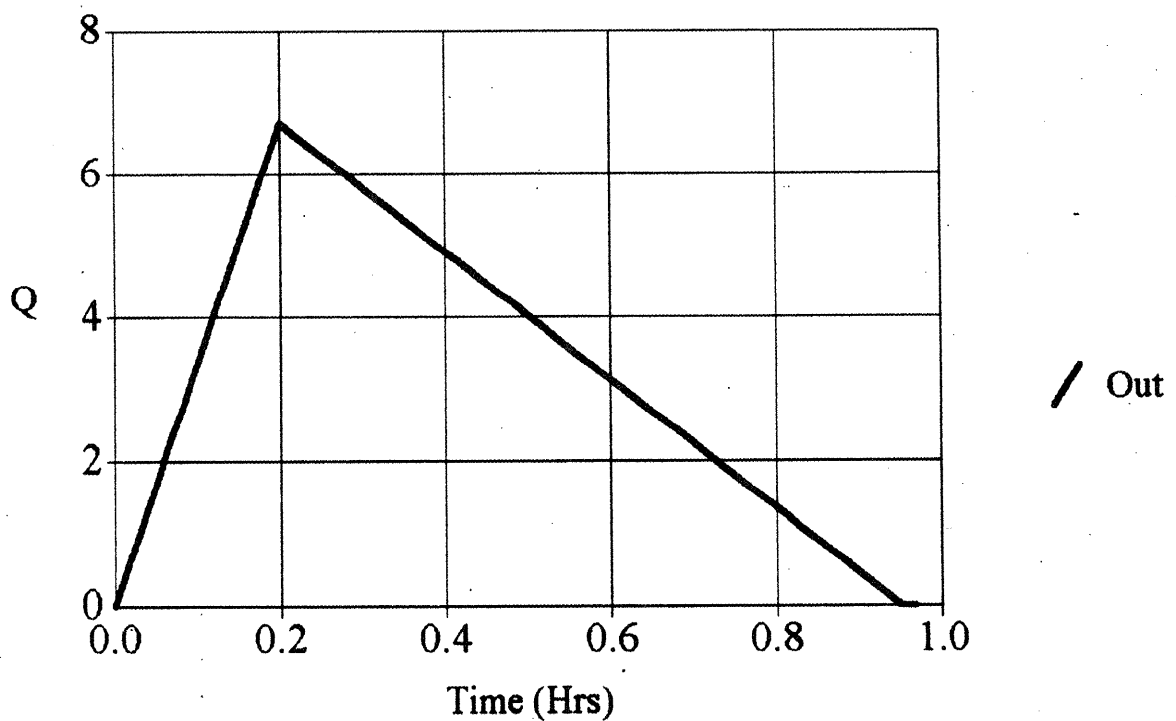
2 - Rational - 100 Yr - $Q_p = .59$ cfs



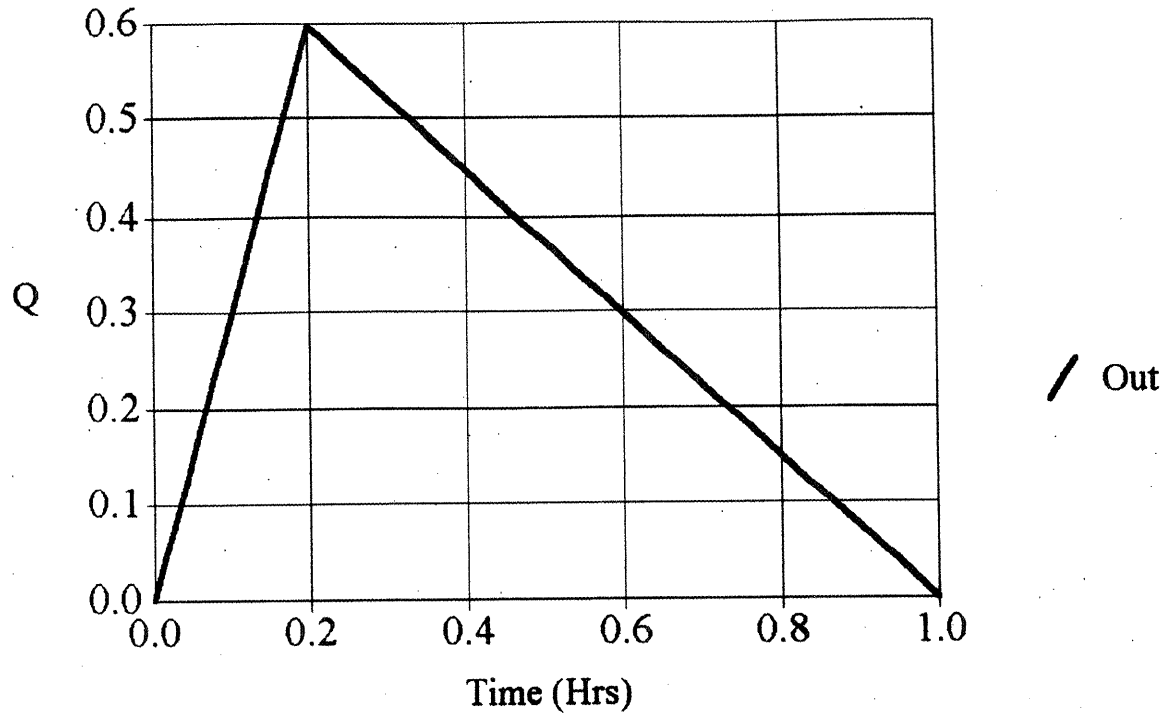
3 - Rational - 100 Yr - $Q_p = 13.7$ cfs



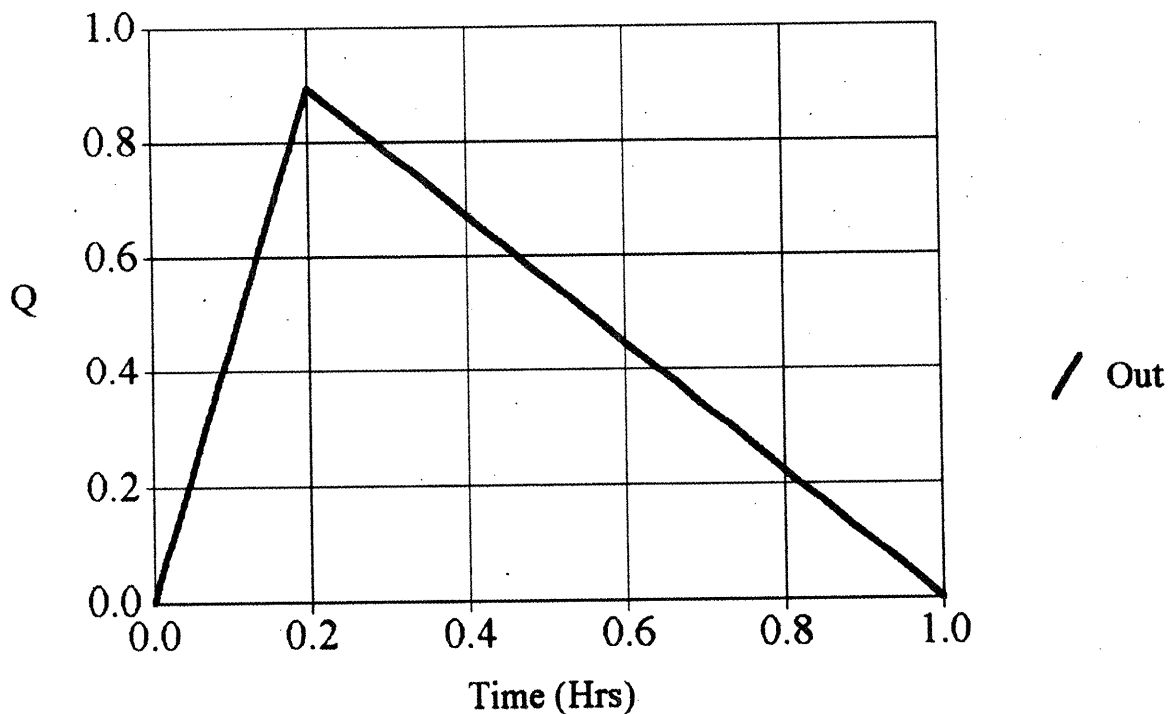
4 - Rational - 100 Yr - $Q_p = 6.71$ cfs



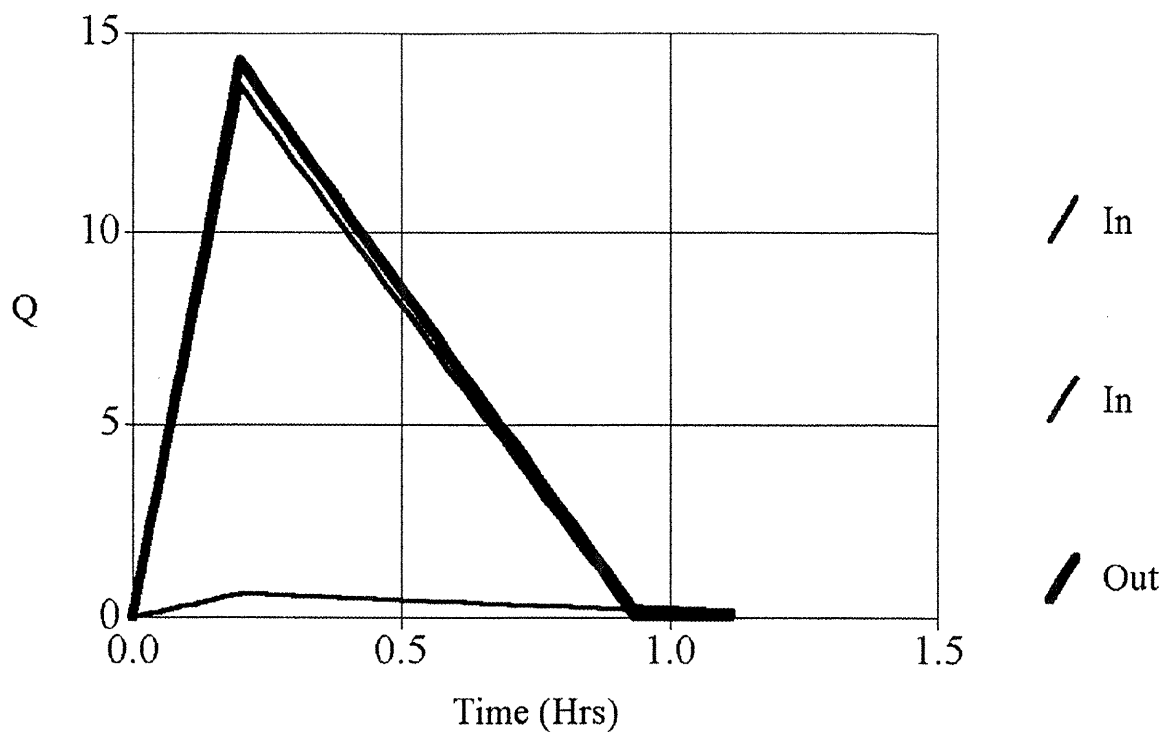
5 - Rational - 100 Yr - $Q_p = .59$ cfs



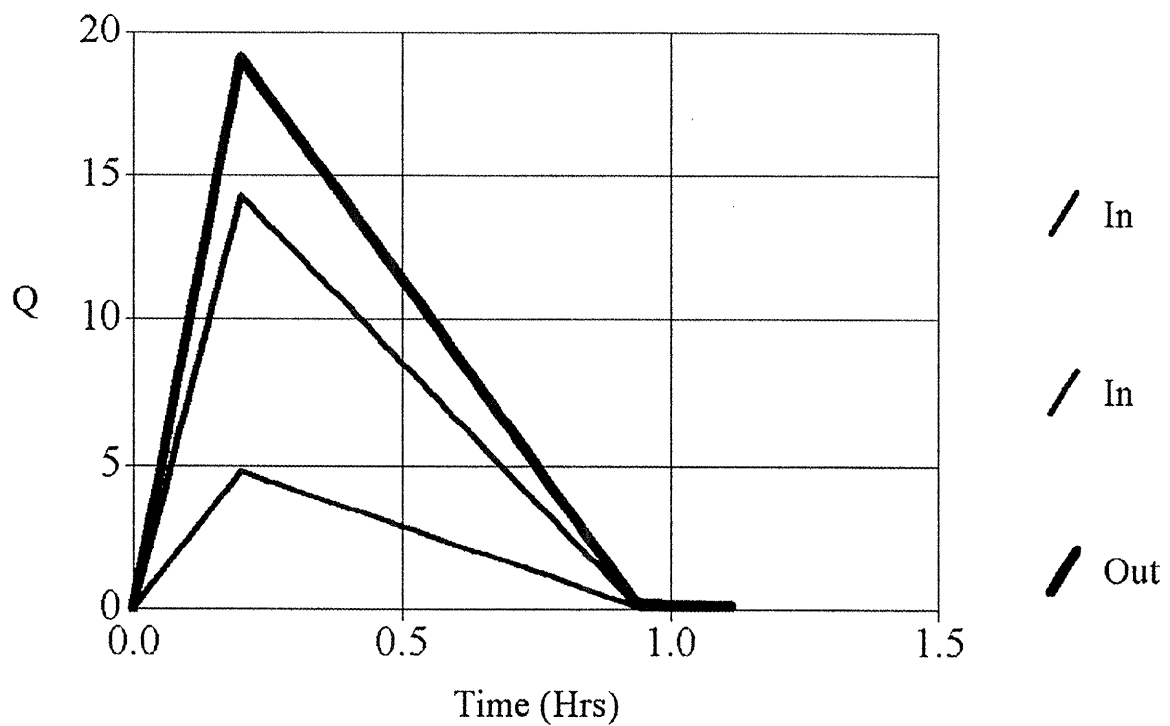
6 - Rational - 100 Yr - $Q_p = .89$ cfs



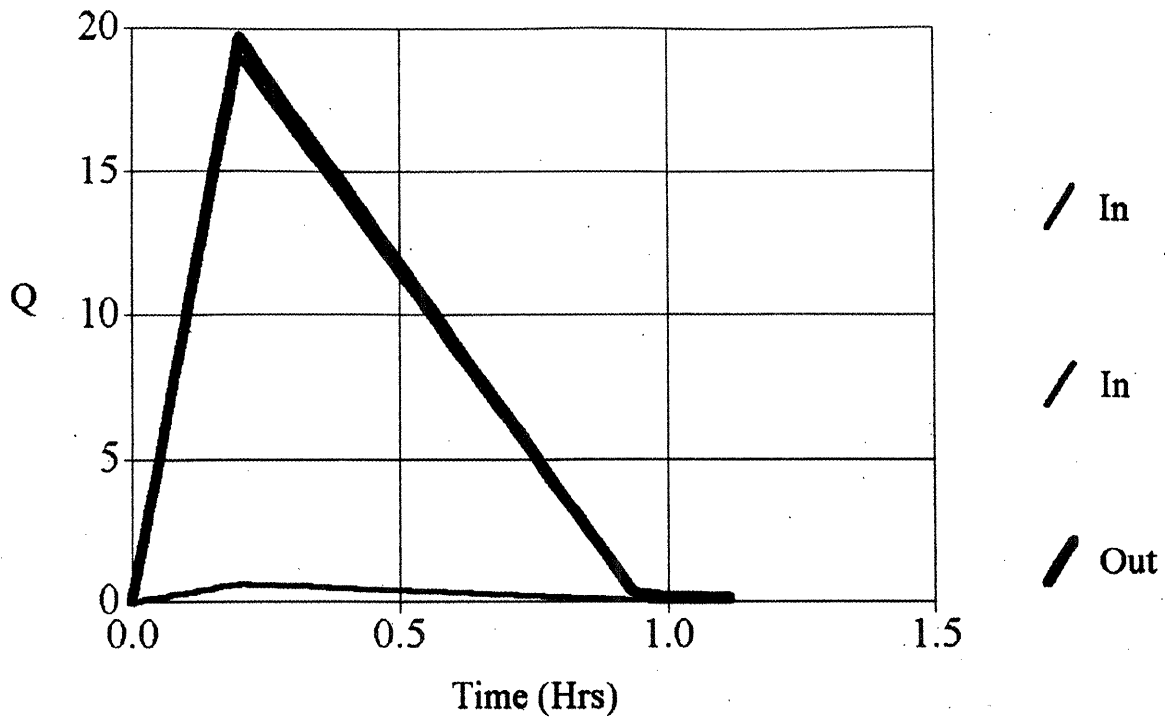
7 - Combine - 100 Yr - $Q_p = 14.3$ cfs



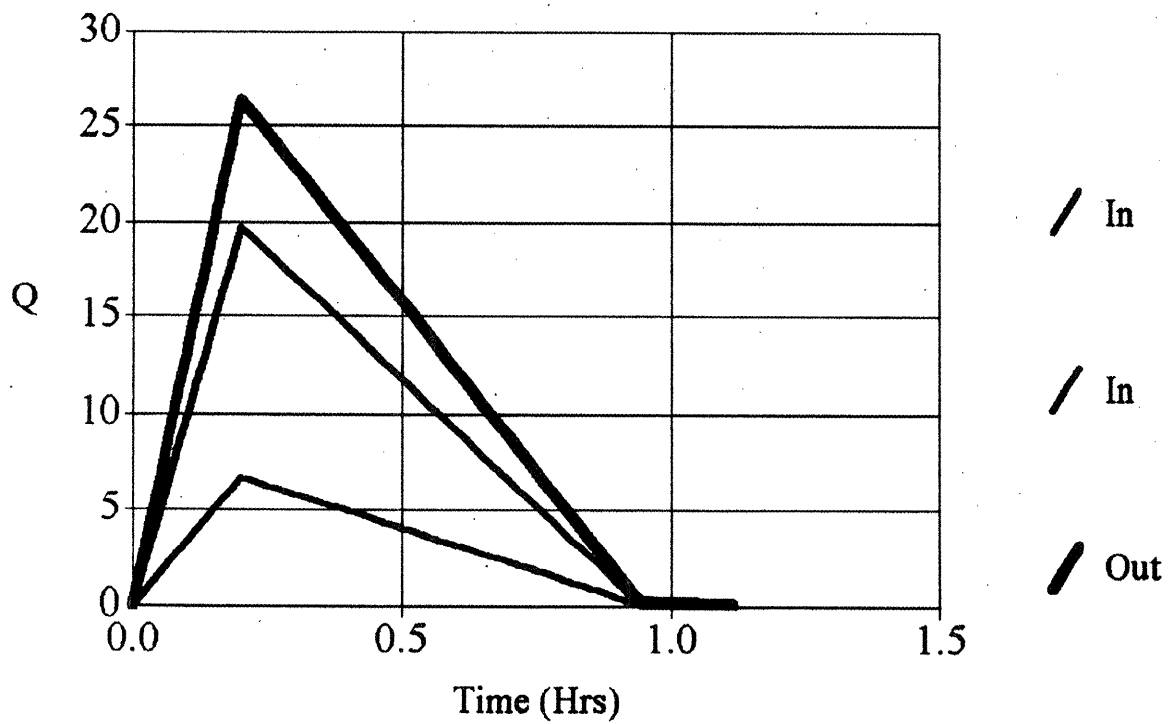
8 - Combine - 100 Yr - $Q_p = 19.1$ cfs



9 - Combine - 100 Yr - $Q_p = 19.7$ cfs

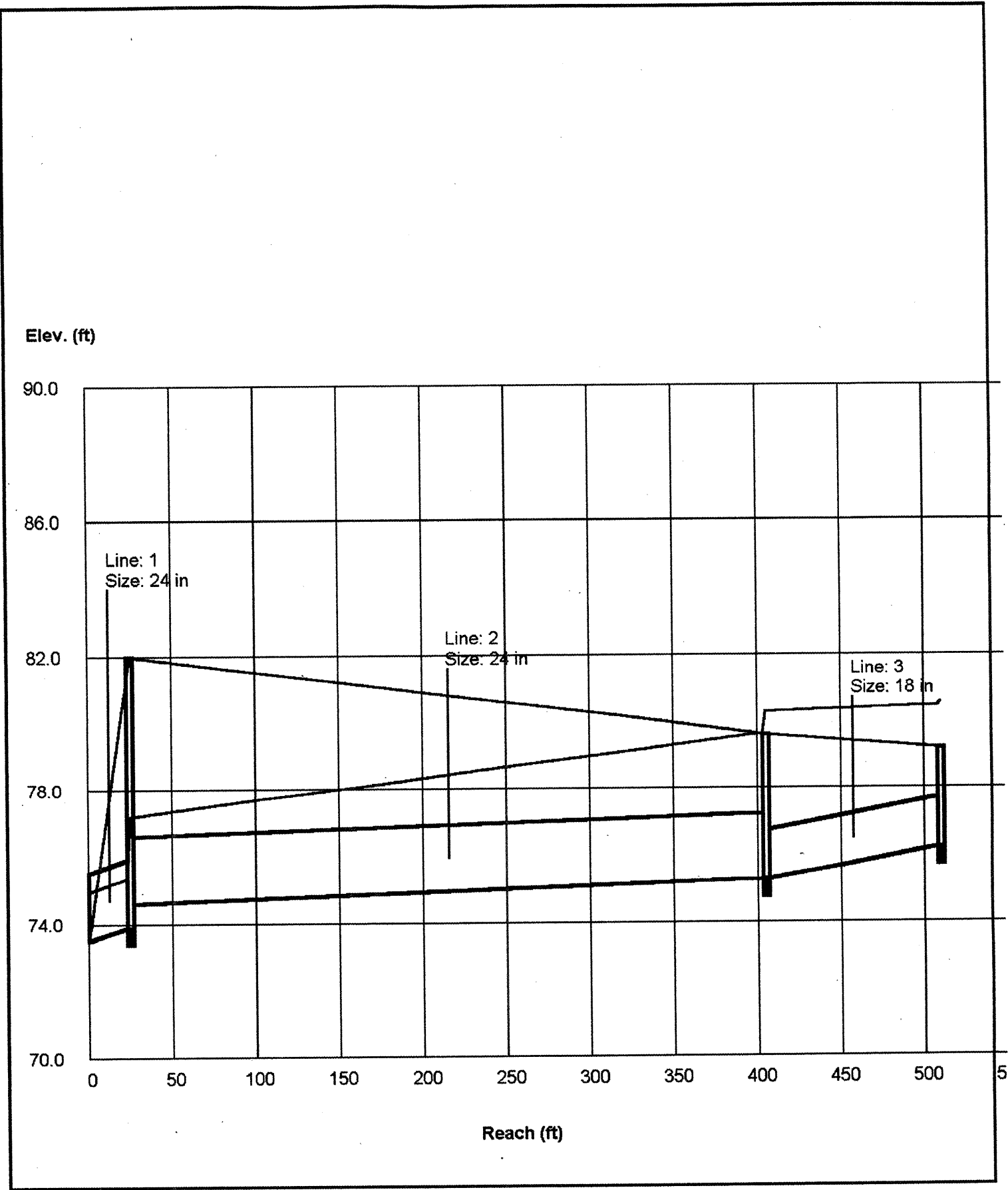


10 - Combine - 100 Yr - $Q_p = 26.41$ cfs



Storm Sewer Profile

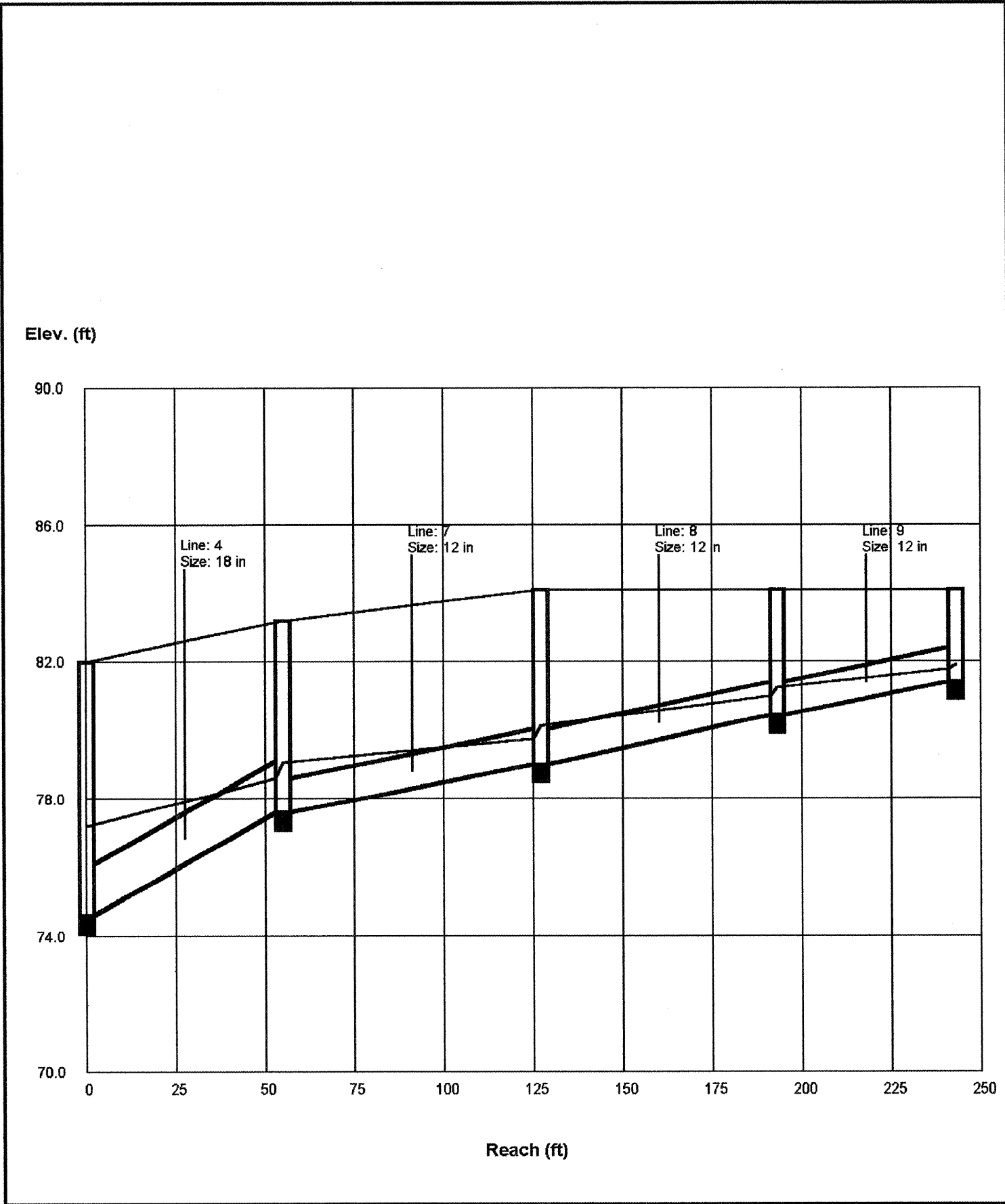
Proj. file: EANIMAL.STM



[illegible]

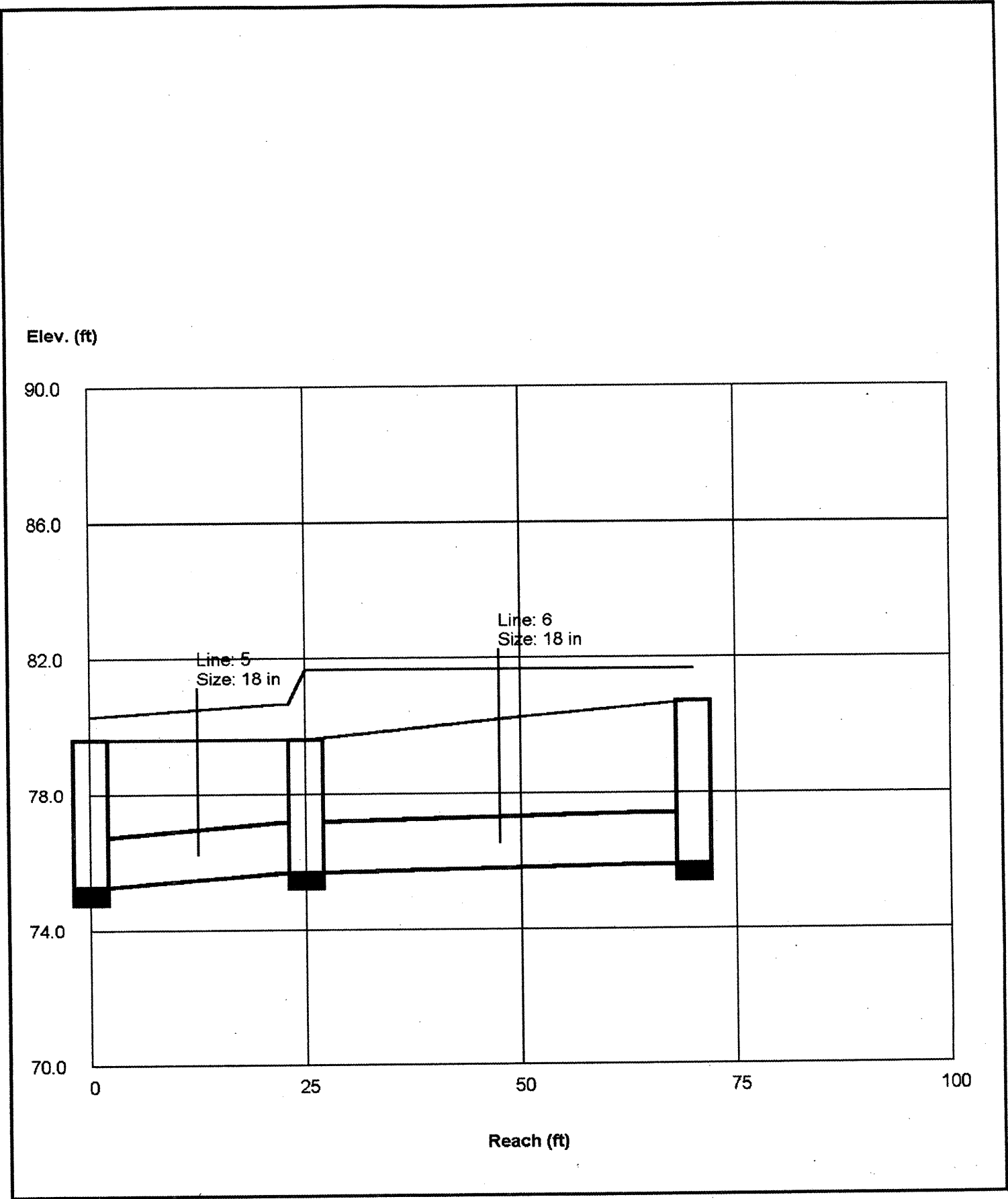
Storm Sewer Profile

Proj. file: EANIMAL.STM



Storm Sewer Profile

Proj. file: EANIMAL.STM



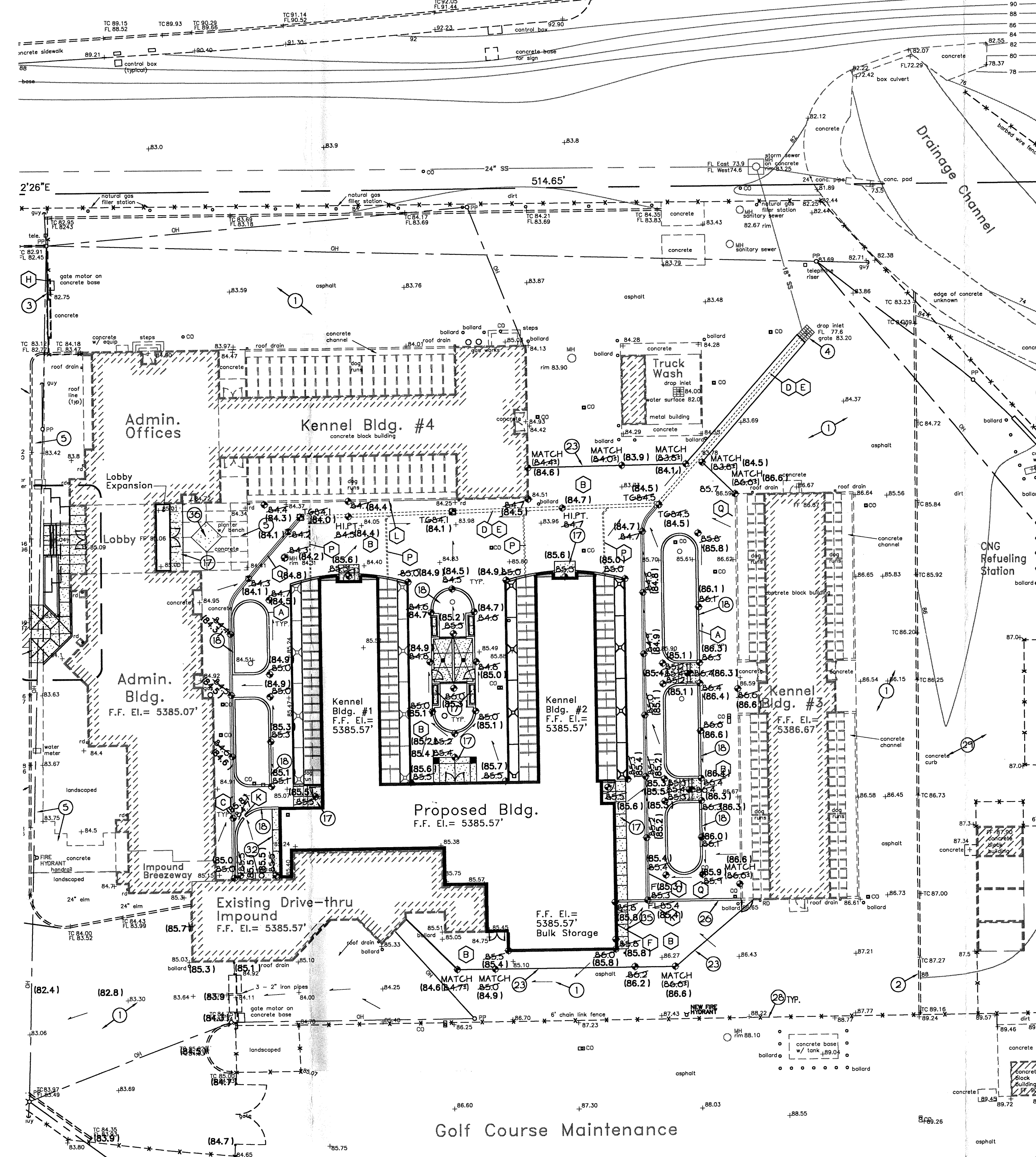
Summary of Results

Developed site conditions will continue to release storm flows to the existing storm sewer located along the north side of the site. The intended ultimate site expansion will have no change on the drainage characteristics of the area.

Summarizing the details for on-site drainage improvements:

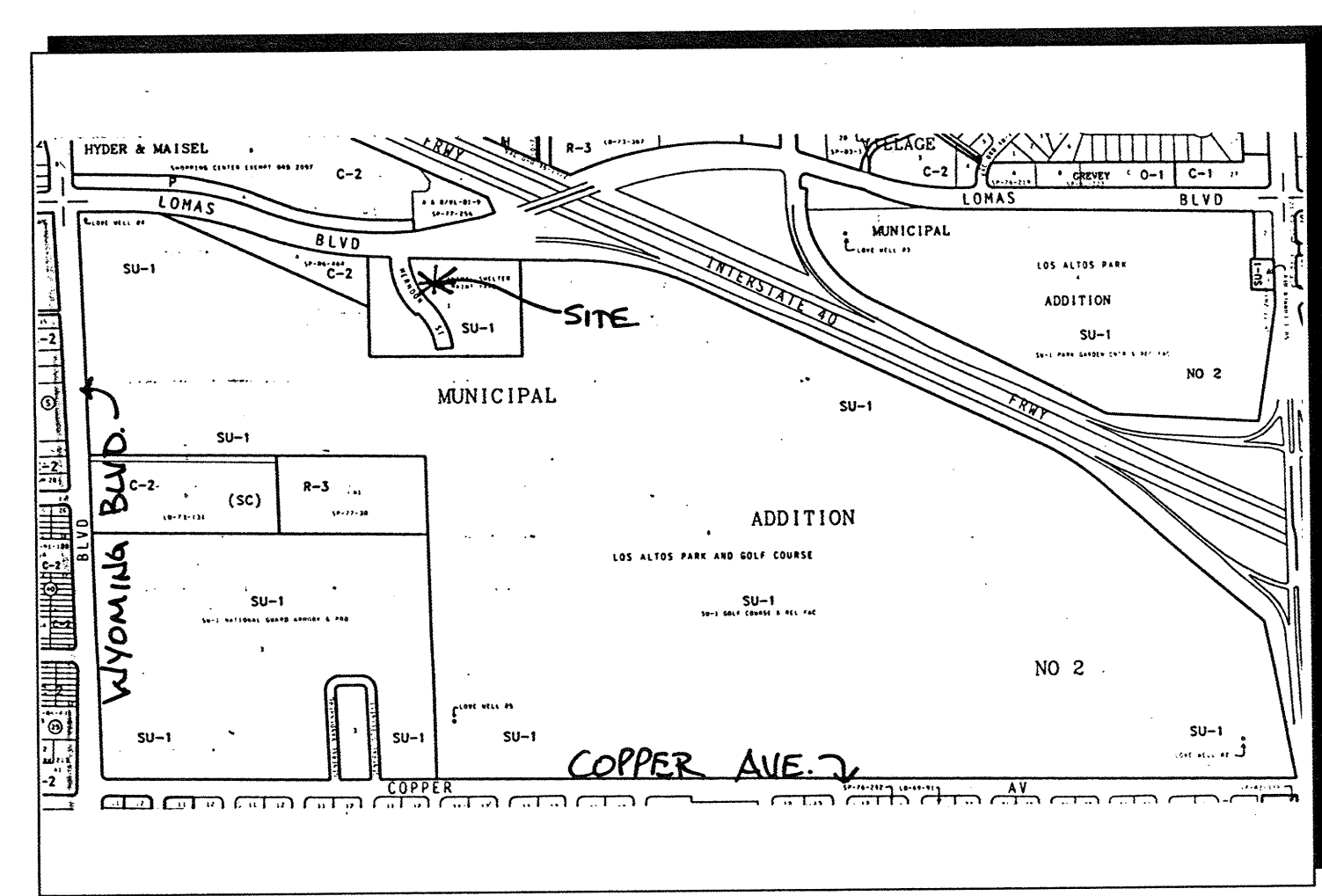
- Comparison of existing flow rates with the original drainage plan reveals the following: Flow to CB 1 is 4.8 cfs, vs 2.1 cfs in the original study. An additional area from the Toyota site now drains to the CB. Flow to CB 2 is 0.6 cfs. This CB did not exist in the original study and it is assumed that flows from this area were originally intended to be picked up by CB 1. Flows to CB 3 are 13.7 cfs vs 13.9 cfs in the original study. Flows to CB 4 are 6.7 cfs vs 5.1 cfs in the original report. Total flow to the SS is now 26.4 cfs vs 21.9 cfs. The increase is due in large part to area differences and a minor part to design methodology changes.
- The storm sewer analysis showed that the existing 24" PVC SS between MH 1 and MH 2 doesn't have capacity to pass the peak discharge without a surcharge effect. The peak flow passing through this section of pipe is 19.7 cfs, whereas the capacity of the pipe is 10.2 cfs. This section of pipe was installed at a flatter slope than called for on the original design. The net result is temporary ponding at the CB's 1, 2 and 3 until flows subside within the system. Aside from minor inconvenience to traffic, the situation does not warrant the upgrade of the SS to a larger diameter pipe.
- All drainage from the roofs within the compound will be routed around the landscaped islands between the kennels by way of concrete valley gutters, and picked up by an extension of the SS system from CB 4. Three inlets will be situated along the north side of the new kennels to pick up these flows.
- Plans call for the overlay of the parking area as an alternate. Because the drainage from the adjacent areas pass through the parking lot to CB 3, a 2" overlay could have the effect of a mini-dam along the edge of the parking area, causing flows to pond within the access street area. To offset this, a concrete valley gutter should be installed as shown on the grading plan to provide a drainage path through the parking area to the storm sewer system.



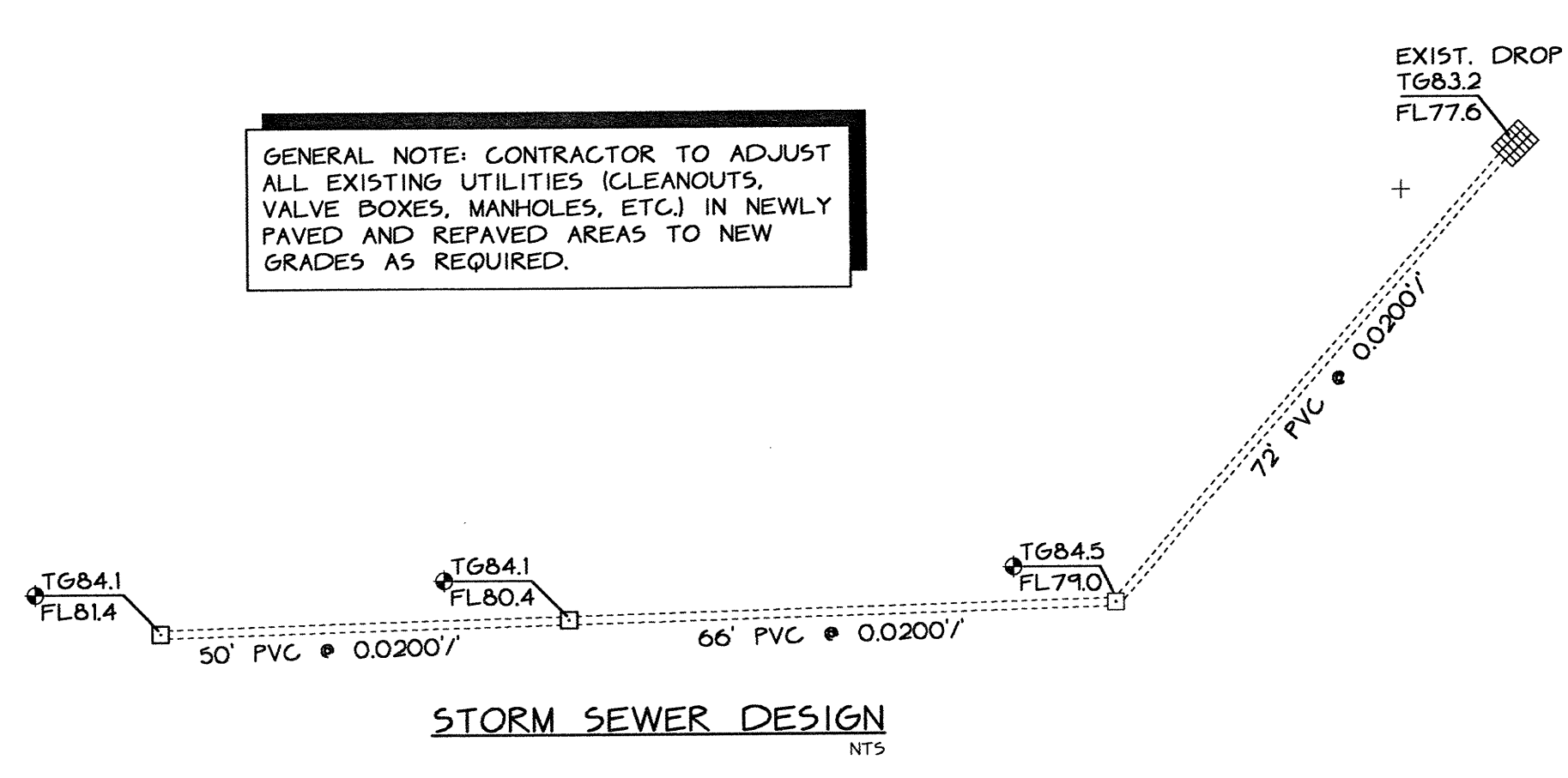


EASTSIDE ANIMAL SERVICES CENTER (COA FILE K20-D15).
ENGINEER'S CERTIFICATION FOR CERTIFICATE OF
OCCUPANCY APPROVAL FOR PARKING LOT THIS AREA
SUBMITTED SEPARATELY. ENGINEER'S STAMP DATED
SEPTEMBER 21, 1999 APPROVED PER LETTER DATED
OCTOBER 6, 1999.

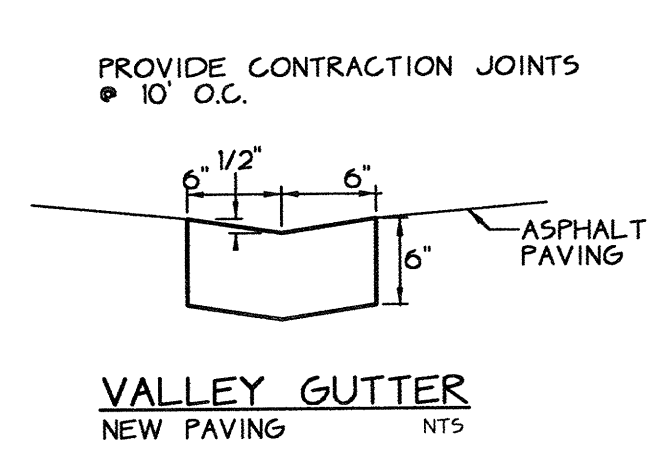
- KEYED NOTES: DRAINAGE / GRADING**
- PROVIDE ASPHALT PAVING AROUND LANDSCAPED PLANTER AREAS AT ELEVATIONS SHOWN TO DIRECT FLOWS TO PROPOSED VALLEY GUTTERS.
 - INSTALL ASPHALT PAVING AT ELEVATIONS SHOWN. PROVIDE POSITIVE DRAINAGE TO VALLEY GUTTER / STORM DRAIN INLETS. MATCH EXISTING PAVING ELEVATIONS TO PROVIDE SMOOTH RIDING TRANSITIONS.
 - CONSTRUCT 12" WIDE X 1/2" DEEP CONCRETE VALLEY GUTTERS TO DIRECT FLOWS TO PROPOSED DROP INLETS. MIN. SLOPE = 0.0050'/F.
 - CONSTRUCT 12" STORM DRAIN SYSTEM TO CARRY FLOWS FROM THREE PROPOSED TYPE 'D' CATCH BASINS TO EXISTING STORM DRAIN AS SHOWN. SEE DETAIL FOR TOP OF GRATE / FLOWLINE ELEVATIONS. INSTALL PER C.O.A. STD. DWGS. 2206 AND 2220.
 - SAWCUT EXISTING PAVING AS REQUIRED THIS AREA TO INSTALL 12" DIA. STORM DRAIN TO EXISTING CATCH BASIN. REPAVE PER ASPHALT PAVING SECTION THIS SHEET. PROVIDE SMOOTH RIDING TRANSITION.
 - PROVIDE A 0.2' HIGH CONCRETE RAMP DOWN TO F.F. THIS AREA TO PREVENT FLOWS FROM ENTERING BUILDING. SEE ARCHITECTURAL FOR ADDITIONAL INFORMATION.
 - CONTRACTOR TO SEAL CRACKS AND PROVIDE ASPHALT SURFACE COURSE FOR AREA SHOWN STIPPLED. CORRECT ANY DRAINAGE DEFICIENCIES TO ENSURE THAT ALL NEW CONSTRUCTION HAS POSITIVE DRAINAGE. SEE PAVING SECTION THIS SHEET. SEE ARCHITECTURAL FOR ADDITIONAL INFORMATION.
 - CONTRACTOR TO GRIND ASPHALT DOWN 1-1/2" WITHIN A 2' STRIP ADJACENT TO DUMPSTER PAD, EXISTING STORM DRAIN INLET, AT GATED ENTRANCE AND AT EXISTING RAMP AS SHOWN PRIOR TO REPAVING.
 - CONSTRUCT 134 LF 2' WIDE X 3/4" DEEP CONCRETE VALLEY GUTTER AT ELEVATIONS SHOWN TO DIRECT FLOWS TO EXISTING STORM DRAIN INLET. SAWCUT AND REPAVE AS REQUIRED TO PROVIDE SMOOTH RIDING TRANSITION WITH VALLEY GUTTER GRADES.
 - PROVIDE 1' WIDE OPENING IN CURB/WALL THIS AREA TO ALLOW FLOWS TO PASS TO PAVING.
 - NOTE: TOP OF PAVING ALONG EXISTING NORTH BUILDING CURB HAS BEEN RAISED TO 84.7 TO ENSURE POSITIVE DRAINAGE TO STORM DRAIN INLETS.
 - GRIND ASPHALT DOWN THIS AREA TO ENSURE POSITIVE DRAINAGE FROM REFUSE AREA. FIELD ADJUST AS REQUIRED.
 - SHADED STRIP REFERS TO MIN. 3' WIDE ACCESSIBLE ROUTE. 1:20 MAX. SLOPE WITH 1:48 MAX. CROSS SLOPE.
 - INSTALL 4" DIA. PVC STORM DRAINS TO CARRY ROOF FLOWS TO PROPOSED 12" DIA. STORM DRAIN SYSTEM. MAKE CONNECTION USING STANDARD PVC WYE AT SPRINGLINE OF 12" DIA. STORM SEWER. SEE ARCHITECTURAL FOR ADDITIONAL INFORMATION.
 - SEE PARTIAL D6 PLAN THIS SHEET AND KEYED NOTE N FOR ACCESSIBLE ROUTE REQUIREMENTS.



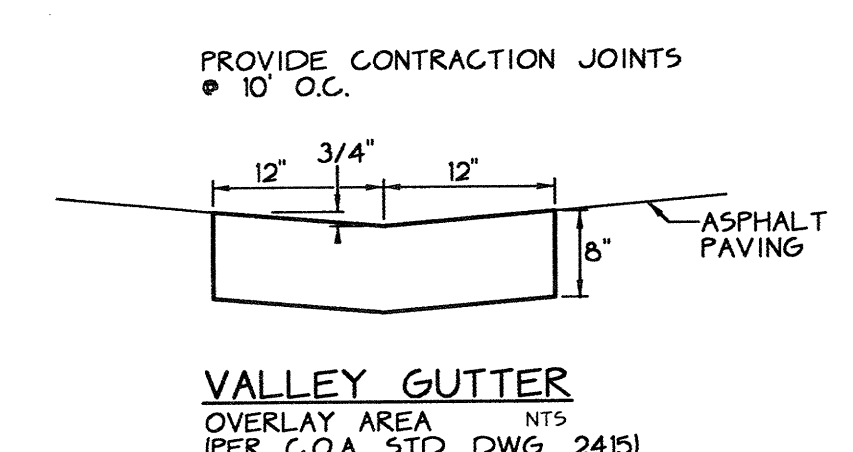
VICINITY MAP K-20



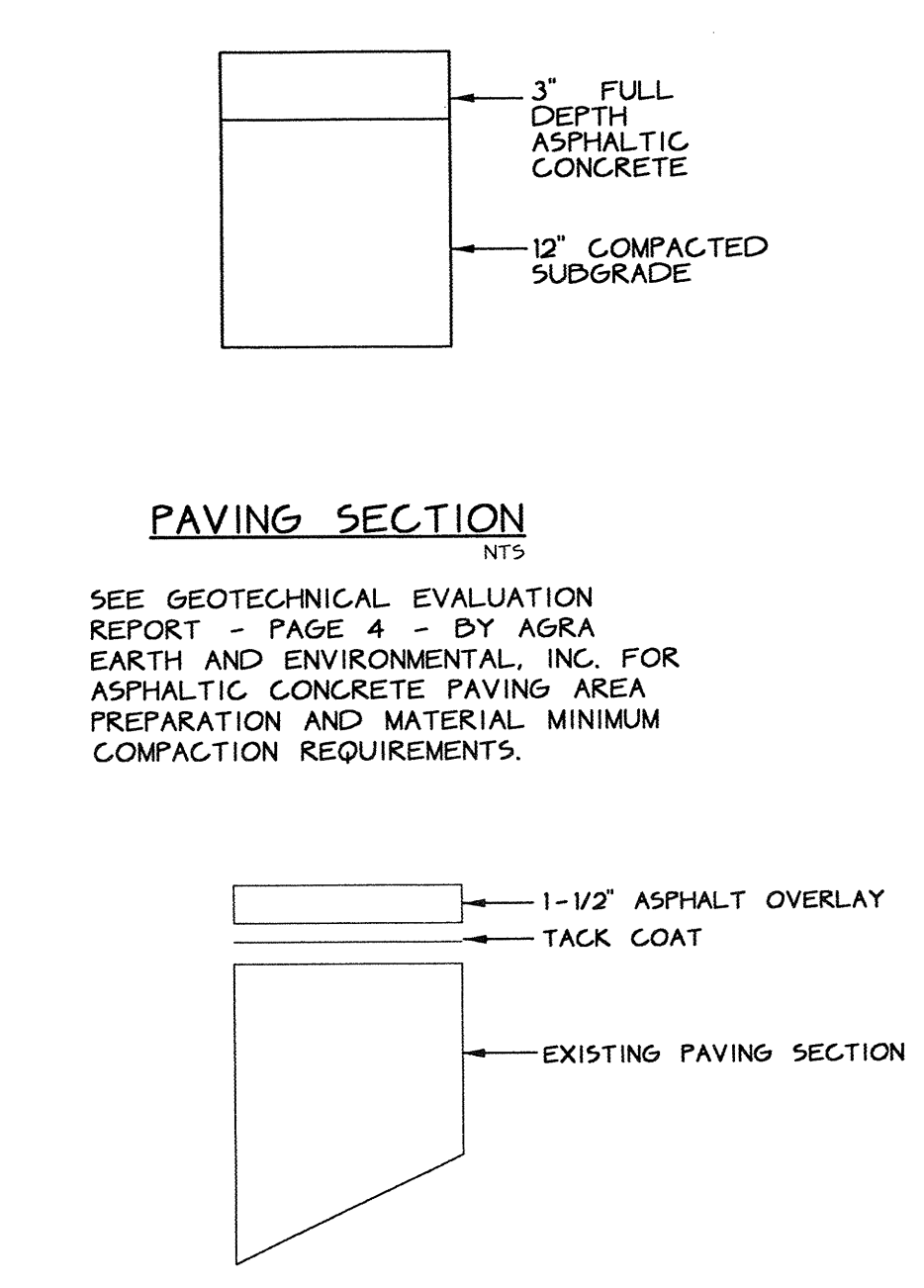
STORM SEWER DESIGN



VALLEY GUTTER
OVERLAY AREA
NEW PAVING



VALLEY GUTTER
OVERLAY AREA
PER C.O.A. STD. DWG. 2415



PAVING SECTION

OVERLAY PAVING SECTION

LEGEND

---	SIDEWALK, CURB AND GUTTER (EXISTING, PROPOSED)
---	PROPOSED PAVED DRIVE
---	BUILDING (EXISTING, PROPOSED)
---	PROPERTY LINE
+	EXISTING SPOT ELEVATION
⊕	PROPOSED SPOT ELEVATION
⊕	FUTURE SPOT ELEVATION
---	PROPOSED CONTOUR
---	SURFACE FLOW DIRECTION (EXISTING, PROPOSED, ROOF)
LA	LANDSCAPED AREA
RD	ROOF DRAIN
TA	TOP OF ASPHALT
TC	TOP OF CURB
FL	FLOW LINE
FF	FINISHED FLOOR
R/W	RIGHT OF WAY
PL	PROPERTY LINE
PP	POWER POLE
▲	ENTRY / EXIT LOCATION

ENGINEER'S CERTIFICATION

I, Christopher L. Weiss, P.E. hereby certify that the as-built information shown, is in substantial compliance with the approved drainage / grading plan.

Christopher L. Weiss 12.2.99
Date
Survey info. provided by Ron Forstbauer Forstbauer Surveying Co. August 1999

CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT ENGINEERING DEVELOPMENT GROUP				RECEIVED DEC 02 1999	
TITLE: EASTSIDE ANIMAL SERVICES CENTER Additions and Renovations					
Design Review Committee	City Engineer Approval	Mo./Day/Yr.	Mo./Day/Yr.		
City Project No.	Zone Map No.	Sheet	Of		
5219.90	K-20	2	33		

gregoryt.hicks&assoc.p.c.
architects planners
The Sunshine Building
Albuquerque, New Mexico 87102
(505) 243-7492 fax (505) 243-1106
signing today designing tomorrow

EASTSIDE ANIMAL SERVICES CENTER
Additions and Renovations
8820 Lomas Blvd. N.E.
Albuquerque, New Mexico 87111

sheet title: Drainage and Grading Plan AS-BUILT FOR C.O.

C1.1

111099 ENGR CERT-5mg 11/16/99 10:16:49