HYDROLOGY

H14/D31

3013 THIRD ST.
N.W.

H14-D31

1 PLAN

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

HYDROLOGY SECTION PROJ. NO. H-14 DATE: 4/2/84

PLANNING DIVISION NO. _____

CONFERENCE RECAP

SUBJECT: Barnes Co. @ 3003 Third St. NW

WHO	REPRESENTING
ATTENDANCE: Rick Williams	
Billy Goolsby	

FINDINGS: ① Drainage Plan & Grading plan required prior to building permit release.
② Free discharge if demonstrated that downstream capacity exists. 12" storm sewer located in 3rd St.
③ Direct roof drains to asphalt parking lot. Recommend that runoff be routed through landscaping to reduce peak.

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APR 19 1984
HYDROLOGY SECTION

Please provide a copy of reception w/submittal

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED: Billy J. Goolsby SIGNED: RW Williams

TITLE: CE/Hydrology TITLE: _____

DATE: 4/2/84 DATE: Apr 2, 1984

INFORMATION SHEET

PROJECT TITLE Cooper-Griffin Water Service TYPE OF SUBMITTAL Drainage Plan

ZONE ATLAS PAGE NO. H-14 CITY ADDRESS 3013 3rd Street, N.W.

LEGAL DESCRIPTION Lot 94 (Formerly known as Lots 9, 10, and 11), Block 1, City Realty Addition #2.

ENGINEERING FIRM DENNEY-GROSS & ASSOC. CONTACT Richard T. Williams

ADDRESS 2400 Comanche Road N.E. PHONE 884-0696

OWNER Cooper-Griffin Water Service,Inc CONTACT C. Joseph Cooper

ADDRESS 3013 3rd Street, N.W. PHONE 345-5319

ARCHITECT _____ CONTACT _____

ADDRESS _____ PHONE _____

SURVEYOR DENNEY-GROSS & ASSOCIATES CONTACT Steven L. Youtsey

ADDRESS 2400 Comanche Road N.E. PHONE 884-0696

CONTRACTOR The Banes Company CONTACT Doyle Seymour

ADDRESS P.O. Box 6437 PHONE 344-3461

PRE-DESIGN MEETING:

X YES
___ NO
X COPY OF CONFERENCE RECAP SHEET PROVIDED

PLEASE CHECK TYPE OF APPROVAL EXPECTED WITH THIS SUBMITTAL:

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X OTHER Drainage (SPECIFY)

DATE SUBMITTED: _____

BY: _____
Richard T. Williams, P.E.

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DENNEY-GROSS & ASSOCIATES, INC.
CONSULTING ENGINEERS
2400 COMANCHE ROAD, N.E.
ALBUQUERQUE, NEW MEXICO 87107
(505) 884-0696

April 18, 1984

Mr. Billy J. Goolsby, P.E.
Design Hydrology Section
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Cooper-Griffin Water Service-3013
3rd Street, N.W. (H14-D31)
DGA Job No. 733.11

Dear Mr. Goolsby:

This is to submit a revised Drainage Plan for subject project. The drivepad has been lengthened, thus shortening the ponding area. The ponding area has been widened to develop the necessary storage volume. The spillway detail has been modified slightly.

We have enclosed revised pond volume calculations. All other calculations remain as originally submitted.

Please contact me if you require additional information.

Very truly yours,

RTWilliams

Richard T. Williams, P.E.

RTW/cbk

Enclosures

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ALBUQUERQUE, NEW MEXICO 87107
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LOCATION COOPER-GRIFFIN WATER SERVICE 3013 3rd ST NW (REVISED)

PROJ. NO. 733.11

DATE APR 18, 1984

DESIGNER RTW

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RECEIVED
MAY 21 1984
HYDROLOGY SECTION

DATE SUBMITTED: May 21, 1984

BY: RTWilliams

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RECEIVED JUN 05 1984 HYDROLOGY SECTION

DATE SUBMITTED: JUNE 5, 1984

BY: RTWilliams
RICHARD T. WILLIAMS, P.E.

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

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

June 26, 1984

Mr. Richard T. Williams
Denney-Gross & Associates, Inc.
2400 Comanche Road NE
Albuquerque, NM 87107

REF: REVISED GRADING AND DRAINAGE PLAN FOR COOPER GRIFFIN WATER SERVICE (H14-D31) RECEIVED JUNE 5, 1984 - 3013 3rd STREET NW

Dear Rick:

The above referenced plan, dated June 5, 1984, is approved.

Please attach a copy of this approved plan along with the appropriately approved "Drainage Facilities within Public Right-Of-Way" document to the construction set prior to issuance of the building permit.

Also, please be advised that an Erosion Control Plan per the DPM is required for the period of construction.

If I can be of further assistance, please contact me.

Yours truly,

Billy J. Goolsby

Billy J. Goolsby, PE
City/County Flood Plain Admin.

xc: Greg Olson

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DATE SUBMITTED: APR 5, 1984

BY: RTWilliams

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

HYDROLOGY SECTION PROJ. NO. H-14 DATE: 4/2/84

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Please provide a copy of recap w/submittal

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED: Billy J. Goolsby SIGNED: Rick Williams

TITLE: CE/Hydrology TITLE: _____

DATE: 4/2/84 DATE: APR 2, 1984

I, Richard T. Williams, hereby certify that the enclosed documents and drawings were prepared under my supervision and are true and correct to the best of my knowledge and belief.

RTWilliams

New Mexico Professional Engineer No. 7309

RICHARD T. WILLIAMS
NEW MEXICO
7309
REGISTERED PROFESSIONAL ENGINEER

I N D E X

	Page No.
PURPOSE	i
EXISTING CONDITIONS	1
PROPOSED SOLUTION	1
CONCLUSION.	2
APPENDIX A - Calculations	
SOIL MAPS	
PLATE 1 - EXISTING CONDITIONS	
PLATE 2 - PROPOSED CONDITIONS	

DRAINAGE PLAN

COOPER-GRIFFIN WATER SERVICE

3013 Third Street N.W.

I. PURPOSE:

The purpose of this Drainage Plan is to analyze and manage the developed runoff flows resulting from the 6 hour - 100 year runoff event according to methodology presented in the City of Albuquerque Development Process Manual.

II. EXISTING CONDITIONS:

Cooper-Griffin Water Service is located on the west side of 3rd Street south of Claremont Avenue as shown on the vicinity map on Plate 1. The site has an area of 0.33 acres and slopes west to east at about 0.4 percent. There are two existing buildings and various concrete walkways and slabs on the site.

Flow enters the site from the roof of the building immediately north of the site. This flow amounts to 0.79 cfs under peak conditions. It will be routed through the site and into 3rd Street. No other off-site flows impact the site.

The site is not located within a 100-year flood hazard area according to the National Flood Insurance Program Flood Boundary and Floodway Map, panel 22.

III. PROPOSED SOLUTION:

One building will be removed completely; about 2/3 of the remaining building will be removed and then a new building of approximately 2500 square feet will be constructed. Various concrete walks will be constructed, and all except approximately 3350 square feet of the site will be paved.

There is an existing twelve-inch storm sewer in 3rd Street; however, City maps indicate that the slope on this sewer is only 0.0012. Because this slope is so slight, we can not demonstrate that downstream capacity exists in the storm drainage system to accept flows from subject property. Thus, these flows will be ponded on-site and discharged into 3rd Street by means of a four-inch PVC drain line through the curb. The pond will be protected by means of an overflow weir 16 feet in length.

IV. CONCLUSION:

The material contained herein demonstrates a storm water management scheme which will provide the subject property with a practical and effective plan for handling storm water runoff during times of precipitation.

DENNEY - GROSS & ASSOCIATES, INC.
ENGINEERS SURVEYORS PLANNERS
2400 COMANCHE ROAD N.E.
ALBUQUERQUE, NEW MEXICO 87107
(505) 884-0695

LOCATION: COOPER-GRIFFIN WATER SERVICE 3013 3rd ST NW

PROJ. NO. 733.11

DATE APR 2, 1984

DESIGNER RTW

PAGE 1

A = 158 x 91 = 14,378 SF = 0.33 AC

PERVIOUS AREA = 8.5 (81) + 9(31) + 1(57) + 43(5) + 31(10) + 31(46) + 20(11) + $\pi(11)^2/4$ = 3356 SF

IMPERVIOUS AREA = 14,378 - 3356 = 11,022 SF

% IMPERVIOUS = $\frac{11,022}{14,378}$ = 77%

SOIL SERIES - GB (GILA LOAM. THIS LEVEL SOIL IS IN THE IRRIGATED RIO GRANDE VALLEY. SLOPES ARE ZERO TO ONE PERCENT. RUNOFF IS SLOW, AND THE HAZARD of WATER EROSION IS SLIGHT. THIS SOIL IS USED for IRRIGATED ALFALFA, ROW CROPS, AND PASTURE. IT IS ALSO USED for WILDLIFE HABITAT AND COMMUNITY DEVELOPMENT). (SCS - SOIL SURVEY of BERNALILLO COUNTY, NM, MAP 20 & p.15).

HYDROLOGIC SOIL GROUP - B (op. cit., pp. 76-77)

"C" FACTOR = 0.74 (DPM VOL. 2, ft 22.2 C-1)

P (100 YR - 6 HR) = 2.2" (DPM VOL 2, ft 22.2 D-1)

ASSUME t_c = 10 MIN

I = 2.2(6.84)(10)$^{-0.51}$ = 4.66

Q_{100} = CIA = 0.74(4.65)(0.33) = 1.14 CFS

EXISTING 12" S.S. IN 3RD STREET - S = 0.0012 (from CITY MAP)

A = πr^2 = $\pi(.5)^2$ = 0.79 SF

WP = πd = $\pi(1)$ = 3.14 FT

r = $\frac{A}{WP}$ = $\frac{0.79}{3.14}$ = 0.25

Q_{CAP} = $\frac{1.486}{0.013}(0.79)(0.25)^{2/3}(0.0012)^{1/2}$ = 1.24 CFS ≯ 1.14 CFS

CAN NOT DEMONSTRATE THAT DOWNSTREAM CAPACITY EXISTS. USE POND IN LANDSCAPING AREA WITH 4" PVC DRAIN THROUGH SIDEWALK.

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4" PVC - $n = 0.009$, $S = 0.02$

$A = \pi r^2 = \pi\left(\frac{2}{12}\right)^2 = 0.087\ FT^2$

$WP = \pi d = \pi\left(\frac{4}{12}\right) = 1.05\ FT$

$r = \frac{0.087}{1.05} = 0.083$

$Q_0 = \frac{1.486}{0.009}(0.087)(0.083)^{\frac{2}{3}}(0.02)^{\frac{1}{2}} = 0.59\ CFS$

OVERFLOW WEIR

$Q = CLH^{\frac{3}{2}}$, $C = 2.6$, $L = 16$

$H = \left[\frac{Q}{CL}\right]^{\frac{2}{3}} = \left[\frac{1.4}{2.6(16)}\right]^{\frac{2}{3}} = 0.05\ FT$

VOLUME of POND

$A = 31(46) + 20(1) + \pi(11)^2 / A = 1741\ SF$

$64.00 - 63.55 = 0.45$

$64.00 - 63.40 = 0.60$

$V = 1741\left(\frac{0.45 + 0.60}{2}\right) = 914\ CF > 846\ OK$

OFF-SITE FLOWS

$A = 158 \times 48 = 7584\ SF = 0.17\ AC$

$C = 1$ (IMPERVIOUS)

$I = 4.65$ (from p. 1)

$Q = 1(4.65)(0.17) = 0.79\ CFS$

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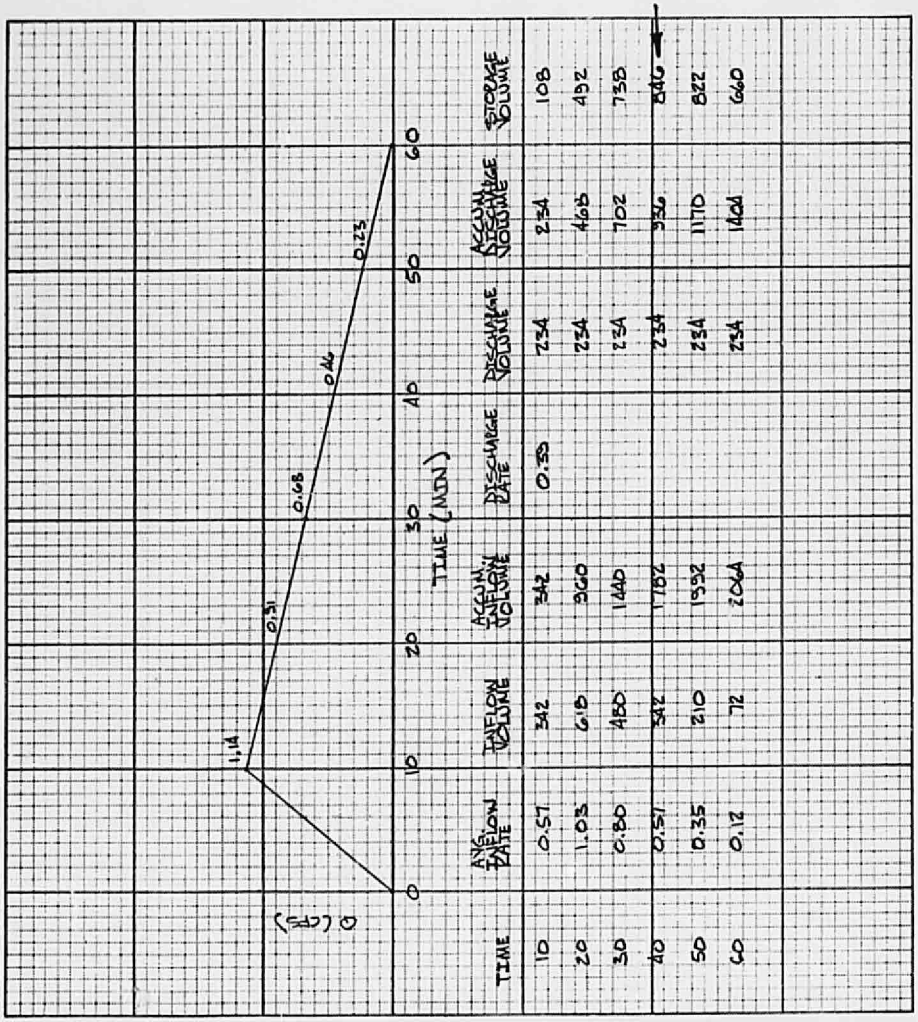

TIME	AVG. INFLOW RATE	INFLOW VOLUME	ACCUM. INFLOW VOLUME	DISCHARGE RATE	DISCHARGE VOLUME	ACCUM. DISCHARGE VOLUME	STORAGE VOLUME
10	0.57	342	342	0.38	234	234	108
20	1.03	618	960		234	468	492
30	0.80	480	1440		234	702	738
40	0.57	342	1782		234	936	846
50	0.35	210	1992		234	1170	822
60	0.12	72	2064		234	1404	660

SOIL MAPS

HYDROLOGY

H14/D31

3013 THIRD ST.
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H 14 — D 31

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DATE SUBMITTED: May 21, 1984

BY: RTWilliams

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2400 Comanche Road NE
Albuquerque, NM 87107

REF: REVISED GRADING AND DRAINAGE PLAN FOR COOPER GRIFFIN WATER SERVICE (H14-D31) RECEIVED JUNE 5, 1984 - 3013 3rd STREET NW

Dear Rick:

The above referenced plan, dated June 5, 1984, is approved.

Please attach a copy of this approved plan along with the appropriately approved "Drainage Facilities within Public Right-Of-Way" document to the construction set prior to issuance of the building permit.

Also, please be advised that an Erosion Control Plan per the DPM is required for the period of construction.

If I can be of further assistance, please contact me.

Yours truly,

Billy J. Goolsby

Billy J. Goolsby, PE
City/County Flood Plain Admin.

xc: Greg Olson

INFORMATION SHEET

PROJECT TITLE Cooper-Griffin Water Service TYPE OF SUBMITTAL Drainage Plan

ZONE ATLAS PAGE NO. H-14 CITY ADDRESS 3013 Third Street, N.W.

LEGAL DESCRIPTION Lot 9A (Formerly known as Lots 9, 10, and 11), Block 1, City Realty Addition #2.

ENGINEERING FIRM Denney-Gross & Associates CONTACT Richard T. Williams, P.E.

ADDRESS 2400 Comanche Road N.E. PHONE 884-0696

OWNER Cooper-Griffin Water Services, Inc. CONTACT C. Joseph Cooper

ADDRESS 3013 Third Street N.W. PHONE 345-5319

ARCHITECT _____ CONTACT _____

ADDRESS _____ PHONE _____

SURVEYOR Denney-Gross & Associates CONTACT Steven L. Youtsey, L.S.

ADDRESS 2400 Comanche Road N.E. PHONE 884-0696

CONTRACTOR The Banes Comapny CONTACT Doyle Seymoure

ADDRESS P.O. Box 6437 PHONE 344-3461

PRE-DESIGN MEETING:

X YES
___ NO
X COPY OF CONFERENCE RECAP SHEET PROVIDED

PLEASE CHECK TYPE OF APPROVAL EXPECTED WITH THIS SUBMITTAL:

___ SKETCH PLAT APPROVAL
___ PRELIMINARY PLAT APPROVAL
___ SITE DEVELOPMENT PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
___ ROUGH GRADING PERMIT APPROVAL
___ GRADING/PAVING PERMIT APPROVAL
X OTHER Drainage (SPECIFY)

DATE SUBMITTED: APR 5, 1984

BY: RTWilliams

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

HYDROLOGY SECTION PROJ. NO. H-14 DATE: 4/2/84

PLANNING DIVISION NO. _____

CONFERENCE RECAP

SUBJECT: Barnes Co. @ 3003 Third St. NW

WHO	REPRESENTING
ATTENDANCE: Rick Williams	
Billy Goolsby	

FINDINGS: ① Drainage Plan & Grading plan required prior to building permit release.
② Free discharge if demonstrated that downstream capacity exists. 12" storm sewer located in 3rd St.
③ Direct roof drains to asphalt parking lot. Recommend that runoff be routed through landscaping to reduce peak.

Please provide a copy of recap w/submittal

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED: Billy J. Goolsby SIGNED: Rick Williams

TITLE: CE/Hydrology TITLE: _____

DATE: 4/2/84 DATE: APR 2, 1984

I, Richard T. Williams, hereby certify that the enclosed documents and drawings were prepared under my supervision and are true and correct to the best of my knowledge and belief.

RTWilliams

New Mexico Professional Engineer No. 7309

RICHARD T. WILLIAMS
NEW MEXICO
7309
REGISTERED PROFESSIONAL ENGINEER

I N D E X

	Page No.
PURPOSE	1
EXISTING CONDITIONS	1
PROPOSED SOLUTION	1
CONCLUSION.	2
APPENDIX A - Calculations	
SOIL MAPS	
PLATE 1 - EXISTING CONDITIONS	
PLATE 2 - PROPOSED CONDITIONS	

DRAINAGE PLAN

COOPER-GRIFFIN WATER SERVICE

3013 Third Street N.W.

I. PURPOSE:

The purpose of this Drainage Plan is to analyze and manage the developed runoff flows resulting from the 6 hour - 100 year runoff event according to methodology presented in the City of Albuquerque Development Process Manual.

II. EXISTING CONDITIONS:

Cooper-Griffin Water Service is located on the west side of 3rd Street south of Claremont Avenue as shown on the vicinity map on Plate 1. The site has an area of 0.33 acres and slopes west to east at about 0.4 percent. There are two existing buildings and various concrete walkways and slabs on the site.

Flow enters the site from the roof of the building immediately north of the site. This flow amounts to 0.79 cfs under peak conditions. It will be routed through the site and into 3rd Street. No other off-site flows impact the site.

The site is not located within a 100-year flood hazard area according to the National Flood Insurance Program Flood Boundary and Floodway Map, panel 22.

III. PROPOSED SOLUTION:

One building will be removed completely; about 2/3 of the remaining building will be removed and then a new building of approximately 2500 square feet will be constructed. Various concrete walks will be constructed, and all except approximately 3350 square feet of the site will be paved.

There is an existing twelve-inch storm sewer in 3rd Street; however, City maps indicate that the slope on this sewer is only 0.0012. Because this slope is so slight, we can not demonstrate that downstream capacity exists in the storm drainage system to accept flows from subject property. Thus, these flows will be ponded on-site and discharged into 3rd Street by means of a four-inch PVC drain line through the curb. The pond will be protected by means of an overflow weir 16 feet in length.

IV. CONCLUSION:

The material contained herein demonstrates a storm water management scheme which will provide the subject property with a practical and effective plan for handling storm water runoff during times of precipitation.

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ENGINEERS SURVEYORS PLANNERS
2400 COMANCHE ROAD N.E.
ALBUQUERQUE, NEW MEXICO 87107
(505) 884-0695

LOCATION COOPER-GRIFFIN WATER SERVICE 3013 3rd ST NW

PROJ. NO. 733.11

DATE APR 2, 1984

DESIGNER RTW

PAGE 1

A = 158 x 91 = 14,378 SF = 0.33 AC

PERVIOUS AREA = 8.5 (81) + 3(31) + 1(57) + 43(5) + 31(10) + 31(46) + 20(11) + π (11)²/4 = 3356 SF

IMPERVIOUS AREA = 14,378 - 3356 = 11,022 SF

% IMPERVIOUS = 11,022 / 14,378 = 77%

SOIL SERIES - GB (GILA LOAM. THIS LEVEL SOIL IS IN THE IRRIGATED RIO GRANDE VALLEY. SLOPES ARE ZERO TO ONE PERCENT. RUNOFF IS SLOW, AND THE HAZARD of WATER EROSION IS SLIGHT. THIS SOIL IS USED for IRRIGATED ALFALFA, ROW CROPS, AND PASTURE. IT IS ALSO USED for WILDLIFE HABITAT AND COMMUNITY DEVELOPMENT). (SCS - SOIL SURVEY of BERNALILLO COUNTY, NM, MAP 20 & p.13).

HYDROLOGIC SOIL GROUP - B (op. cit., pp. 76-77)

"C" FACTOR = 0.74 (DPM VOL. 2, ℞ 22.2 C-1)

P (100 YR - 6 HR) = 2.2" (DPM VOL 2, ℞ 22.2 D-1)

ASSUME t_c = 10 MIN

I = 2.2(6.84)(10)^-0.51 = 4.66

Q_{100} = CIA = 0.74(4.65)(0.33) = 1.14 CFS

EXISTING 12" S.S. IN 3RD STREET - S = 0.0012 (from CIT MAP)

A = πr² = π(.5)² = 0.79 SF

WP = πd = π(1) = 3.14 FT

r = A/WP = 0.79/3.14 = 0.25

Q_{CAP} = (1.486/0.013)(0.79)(0.25)^⅔(0.0012)^½ = 1.24 CFS ≥ 1.14 CFS

CAN NOT DEMONSTRATE THAT DOWNSTREAM CAPACITY EXISTS. USE POND IN LANDSCAPING AREA WITH 4" PVC DRAIN THROUGH SIDEWALK.

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LOCATION
PROJ. NO.
DATE
DESIGNER
PAGE 2

4" PVC - $n = 0.009$, $S = 0.02$

$A = \pi r^2 = \pi\left(\frac{2}{12}\right)^2 = 0.087\ FT^2$

$WP = \pi d = \pi\left(\frac{4}{12}\right) = 1.05\ FT$

$r = \frac{0.087}{1.05} = 0.083$

$Q_0 = \frac{1.486}{0.009}(0.087)(0.083)^{\frac{2}{3}}(0.02)^{\frac{1}{2}} = 0.59\ CFS$

OVERFLOW WEIR

$Q = CLH^{\frac{3}{2}}$, $C = 2.6$, $L = 16$

$H = \left[\frac{Q}{CL}\right]^{\frac{2}{3}} = \left[\frac{1.14}{2.6(16)}\right]^{\frac{2}{3}} = 0.05\ FT$

VOLUME of POND

$A = 31(46) + 20(11) + \pi(11)^2 / A = 1741\ SF$

$64.00 - 63.55 = 0.45$

$64.00 - 63.40 = 0.60$

$V = 1741\left(\frac{0.45 + 0.60}{2}\right) = 914\ CF > 846\ OK$

OFF-SITE FLOWS

$A = 15B \times 48 = 7584\ SF = 0.17\ AC$

$C = 1$ (IMPERVIOUS)

$I = 4.65$ (from p. 1)

$Q = 1(4.65)(0.17) = 0.79\ CFS$

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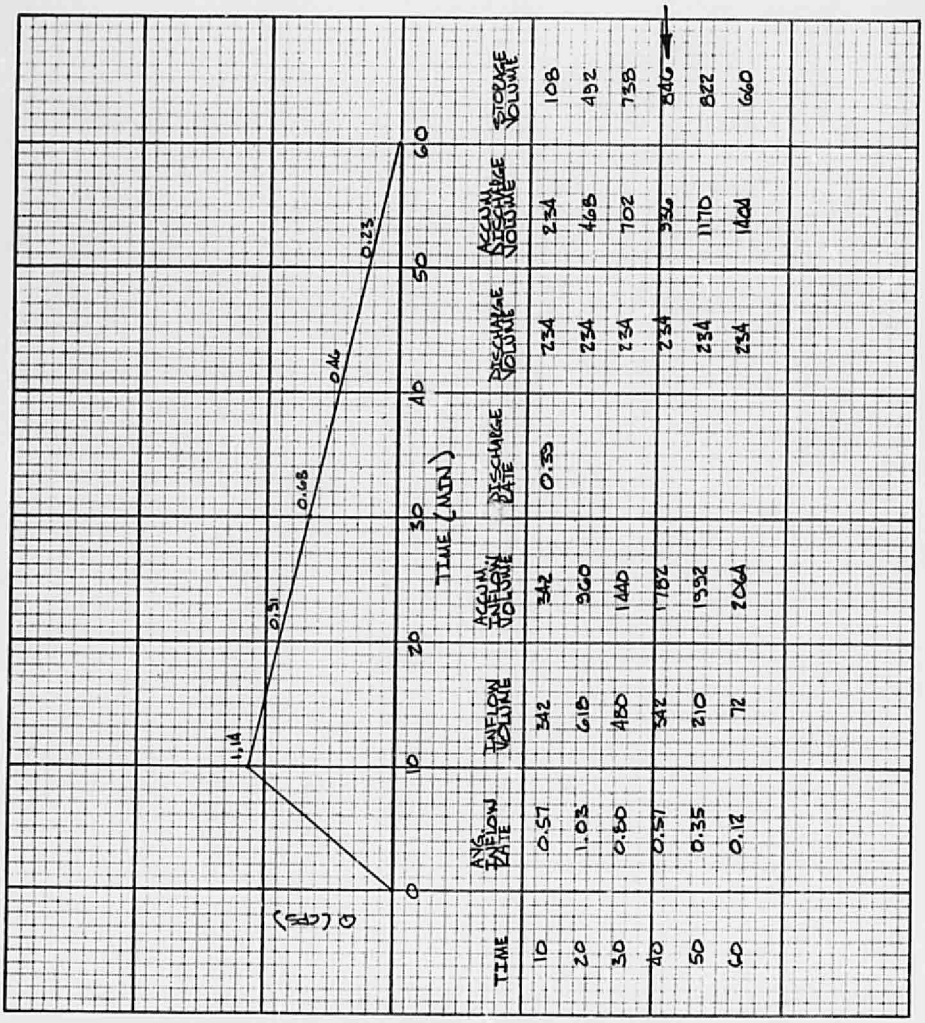
PAGE 3



TIME	AVG. INFLOW RATE	INFLOW VOLUME	ACCUM. INFLOW VOLUME	DISCHARGE RATE	DISCHARGE VOLUME	ACCUM. DISCHARGE VOLUME	STORAGE VOLUME
10	0.57	342	342	0.39	234	234	108
20	1.03	618	960		234	468	492
30	0.60	180	1140		234	702	738
40	0.57	342	1482		234	936	546
50	0.35	210	1692		234	1170	522
60	0.12	72	1764		234	1404	360

APPENDIX A

SOIL MAPS