HYDROLOGY F21/D47A ONE PLAN

F 21-D 47A

1 PLAN

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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

September 17, 1986

Dave Thompson
Bohannan-Huston, Inc.
7500 Jefferson Street, NE
Albuquerque, New Mexico 87109

RE: REVISED DRAINAGE PLAN FOR THE SUNWEST BRANCH BANK AT THE PROMENADE (F-21/D47A) ENGINEER'S STAMP DATED SEPTEMBER 15, 1986

Dear Dave:

Based on the information provided on your resubmittal of September 16, 1986, the referenced drainage plan is approved for Building Permit.

Please attach a copy of this approved plan along with the appropriately approved "Drainage Facilities Within City Right-of-Way" document to the construction plans prior to sign-off by the Hydrology Section.

If I can be of further assistance, please feel free to call me at 766-7644.

Cordially,

Bernie J. Montoya

Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj

BOHANNAN-HUSTON INC.
ENGINEERS ARCHITECTS PHOTOGRAMMETRI
COURTYARD I, 7500 JEFFERSON STREET, N.E. ALBUQUERQUE, NEW MEXICO 87109 (505) 823-1000
UNIVERSITY PLAZA, SUITE 104, 330 GARFIELD SANTA FE, NEW MEXICO 87501 (505) 988-7671
6713 VISCOUNT BLVD EL PASO, TEXAS 79925 (915) 778-4491

September 15, 1986

Mr. Bernie Montoya
City of Albuquerque
Hydrology Section
P.O. Box 1293
Albuquerque, NM 87103

Re: Addendum to Sunwest Bank (F21-D47) Located at the Southwest Corner of the Promenade Shopping Center

Dear Bernie:

Enclosed is an addendum to the final grading plan for the Sunwest Bank building for your review and approval.

In order to reduce site fill requirements, the finished floor elevation has been lowered by 2 feet from 72.5 to 70.5. As a result, the elevation of the storm inlet located at the southwest corner of the bank's drive lanes has also been lowered from 67.8 to 66.7. The flow through the 2 -4" discharge pipes has decreased from 1.1 cfs to .88 cfs. The reduced discharge increases the required pond volume from 300 cf to 575 cf. The 100-year water surface elevation is now at 67.60. Due to the increase in pond size, the curb adjacent to the pond will be transitioned from a 6 inch depth to a maximum 11 inch depth at the storm inlet.

If any questions arise concerning this revised grading plan, please feel free to call me.

Sincerely,

David B. Thompson

David B. Thompson, P.E.
Project Manager

RECEIVED
SEP 16 1986
HYDROLOGY SECTION

Enclosure

cc: Mr. Gerry Brown

DBT/mls
Job No. 6 328 0

PRINCIPALS
LARRY W. HUSTON
MICHAL M. EMERY, P.E.
DANA C. WOOD, P.E.
ANDRES ARAGON-VIAMONTE
DARRELL L. WADE, P.E.
JAMES V. DOMENICK, P.E.
BRIAN G. BURNETT, P.E.

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Sunwest Bank at The Promenade at the SE corner of Spain and Eubank ZONE ATLAS/DRNG. FILE #: F-21/D47 A

LEGAL DESCRIPTION: Tract 2 Promenade Subdivision

CITY ADDRESS:

ENGINEERING FIRM: Bohannan-Huston, Inc. CONTACT: Dave Thompson

ADDRESS: 7500 Jefferson N.E. Albuquerque, NM 87109 PHONE: 823-1000

OWNER: Sunwest Bank CONTACT: Vernon Doak

ADDRESS: Box 1344 Albuquerque, NM 87103 PHONE: 765-2035

ARCHITECT: Vogt and Byrnes, P.A. CONTACT: Gerry Brown

ADDRESS: 1617 University N.E. Albuquerque, NM 87102 PHONE: 242-1526

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

RECEIVED SEP 16 1986 HYDROLOGY SECTION

PRE-DESIGN MEETING:

x YES (phone conversation w/Fred Aguirre)

___ NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. ___

EPC NO. ___

PROJ. NO. ___

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

___ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

x GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

x BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER ___ (SPECIFY)

DATE SUBMITTED: 9-15-86

BY: David B. Thompson

BOHANNAN-HUSTON INC.

Courtyard I 7500 Jefferson Street, N.E. Albuquerque, NM 87109
(505) 823-1000

Transmittal

To: City of Albuq
(Hydrology)

☐ Parcel post ☒ Messenger
☐ First Class ☐ UPS
☐ Express Mail ☐ Air Freight
☐ Bus ☐ _____

Attention: Mr Bernie Montoya

Date: 9-15-86 Our job number: 63280

Your job number:

Job: Sunwest Bank @ Promenade

We are enclosing:	For:
1 Grading Plan	Your review
1 Submittal letter	and approval
1 Info. Sheet	

Comments:

RECEIVED
SEP 16 1986
HYDROLOGY SECTION

By: Dave Thompson thank you

Rec'd by: B. Goolsby Date: 9/15/86

☐ Please Return Signed Yellow Copy

3/86

FREE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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

August 10, 1986

Dave Thompson
Bohannan-Huston, Inc.
7500 Jefferson Street, NE
Albuquerque, New Mexico 87109

RE: REVISED DRAINAGE PLAN FOR THE SUNNEST BRANCH BANK AT THE PROMENADE (F-21/D47A) ENGINEER'S STAMP DATED AUGUST 7, 1986

Dear Dave:

Based on the information provided on your August 8, 1986 resubmittal, the above referenced drainage plan is approved for Building Permit.

Please attach a copy of this approved drainage plan to the construction plans prior to sign-off by hydrology.

If I can be of further assistance, please feel free to call me at 766-7644.

Cordially,

Bernie J. Montoya

Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj

ENGINEERS ARCHITECTS PHOTOGRAMMETRI

BOHANNAN-HUSTON INC.

COURTYARD I, 7500 JEFFERSON STREET, N.E. ALBUQUERQUE, NEW MEXICO 87109 (505) 823-1000
UNIVERSITY PLAZA, SUITE 104, 330 GARFIELD SANTA FE, NEW MEXICO 87501 (505) 988-7671
6713 VISCOUNT BLVD. EL PASO, TEXAS 79925 (915) 778-4491

August 7, 1986

Mr. Bernie Montoya
Hydrology Section
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RECEIVED
AUG 08 1986
HYDROLOGY SECTION

Re: Resubmittal of the Drainage Plan for the Sunwest Branch Bank at the Promenade Shopping Center (F-21/D47A) Submitted July 16, 1986

Dear Bernie:

Enclosed is a copy of the final grading plan for your review and approval. Please note the changes in the grade from the proposed bank drive-up window to the Van Christopher Road exit. These changes in slope were made to obtain Traffic Engineering approval.

Please review these changes and comment on this plan. If you have any questions, please call me.

Sincerely,

David B. Thompson

David B. Thompson, P.E.
Project Manager

Enclosure

cc: Mr. Gerry Brown

DBT/mls
Job No. 6 226 0

PRINCIPALS
LARRY W. HUSTON
MICHAL M. EMERY, P.E.
DANA C. WOOD, P.E.
ANDRES ARAGON VIAMONTE
DARRELL L. WADE, P.E.
JAMES V. DOMENICK, P.E.
BRIAN G. BURNETT, P.E.

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Sunwest Bank at The Promenade at the SE corner of Spain and Eubank ZONE ATLAS/DRNG. FILE #: F-21/D47

LEGAL DESCRIPTION: Tract 2 Promenade Subdivision

CITY ADDRESS:

ENGINEERING FIRM: Bohannan-Huston, Inc. CONTACT: Dave Thompson

ADDRESS: 7500 Jefferson N.E. Albuquerque, NM 87109 PHONE: 823-1000

OWNER: Sunwest Bank CONTACT: Vernon Doak

ADDRESS: Box 1344 Albuquerque, NM 87103 PHONE: 765-2035

ARCHITECT: Vogt and Byrnes, P.A. CONTACT: Gerry Brown

ADDRESS: 1617 University N.E. Albuquerque, NM 87102 PHONE: 242-1526

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

RECEIVED AUG 08 1986 HYDROLOGY SECTION

PRE-DESIGN MEETING:

x YES (phone conversation w/Fred Aguirre)

___ NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. ___

EPC NO. ___

PROJ. NO. ___

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

___ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

x GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

x BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER ___ (SPECIFY)

DATE SUBMITTED: Dave Thompson

BY: 8-7-86

BOHANNAN-HUSTON INC.
Courtyard I 7500 Jefferson Street, N.E. Albuquerque, NM 87109
(505) 823-1000

RECEIVED
AUG 08 1986
HYDROLOGY SECTION

Transmittal

To: City of Albuquerque, Hydrology Section

☐ Parcel post ☑ Messenger
☐ First Class ☐ UPS
☐ Express Mail ☐ Air Freight
☐ Bus ☐ _____

Attention: Mr. Bernie Montoya

Date: 8/7/86 Our job number: 62260

Your job number: _____

Job: Sunwest Bank @ Promenade

We are enclosing:	For:
1 Info. Sheet & Drainage Plan	Your review & approval

Comments: _____

By: Dave Thompson thank you

Rec'd by: M. R. King Date: 8-8-86

☐ Please Return Signed Yellow Copy

3/86

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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

July 24, 1986

Dave Thompson
Bohannan-Huston, Inc.
7500 Jefferson Street, NE
Albuquerque, New Mexico 87109

RE: DRAINAGE PLAN FOR THE SUNWEST BRANCH BANK AT THE PROMENADE
(F-21/D47A) RECEIVED JULY 16, 1986

Dear Dave:

Based on the information provided on your July 16, 1986 submittal, the above referenced drainage plan is approved for Building Permit.

Please attach a copy of this approved drainage plan along with the appropriately approved copy of the "Drainage Facilities Within City Right-of-Way" document to the construction plans before Hydrology sign-off.

If I can be of further assistance, please call me at 766-7644.

Cordially,

Bernie J. Montoya

Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Sunwest Bank at The Promenade at the SE corner of Spain and Eubank ZONE ATLAS/DRNG. FILE #: F-21/D47

LEGAL DESCRIPTION: Tract 2 Promenade Subdivision

CITY ADDRESS:

ENGINEERING FIRM: Bohannan-Huston, Inc. CONTACT: Dave Thompson

ADDRESS: 7500 Jefferson N.E. Albuquerque, NM 87109 PHONE: 823-1000

OWNER: Sunwest Bank CONTACT: Vernon Doak

ADDRESS: Box 1344 Albuquerque, NM 87103 PHONE: 765-2035

ARCHITECT: Vogt and Byrnes, P.A. CONTACT: Gerry Brown

ADDRESS: 1617 University N.E. Albuquerque, NM 87102 PHONE: 242-1526

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

RECEIVED JUL 16 1986 HYDROLOGY SECTION

PRE-DESIGN MEETING:

X YES (phone conversation w/Fred Aguirre)

___ NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. ___

EPC NO. ___

PROJ. NO. ___

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

___ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

X GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

X BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER ___ (SPECIFY)

DATE SUBMITTED: 7-24-86

BY: David B. Thorpe

ENGINEERS ARCHITECTS PHOTOGRAMMETRI

BOHANNAN-HUSTON INC.

COURTYARD I, 7500 JEFFERSON STREET, N.E. ALBUQUERQUE, NEW MEXICO 87109 (505) 823-1000
UNIVERSITY PLAZA, SUITE 104, 330 GARFIELD SANTA FE, NEW MEXICO 87501 (505) 988-7671
6713 VISCOUNT BLVD. EL PASO, TEXAS 79925 (915) 778-4491

July 23, 1986

RECEIVED
JUL 16 1986
HYDROLOGY SECTION

Mr. Fred Aguirre
Hydrology Section
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Resubmittal of addendum to the Promenade Shopping Center Drainage Report (F21-D47) to Include a Commercial Bank Area Located at the Southwest Corner of the Site.

Dear Fred:

Enclosed is the resubmittal of the final grading plan for the Sunwest Bank building for your review and approval. As discussed, the grading plan now includes the existing 24 inch sidewalk culvert located near the southwestern entrance of the shopping center on Van Christopher Drive.

If you have any questions, please call me.

Sincerely,

David B. Thompson

David B. Thompson, P.E.
Project Manager

Enclosure

cc: Mr. Gerry Brown

DBT/jaf
Job No. 6 226 0

PRINCIPALS
LARRY W. HUSTON
MICHAL M. EMERY, P.E.
DANA C. WOOD, P.E.
ANDRES ARAGON VIAMONTE
DARRELL I. WADE, P.E.
JAMES J. DOMENICK, P.E.
BRIAN G. BURNETT, P.E.

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Sunwest Bank at The Promenade at the SE corner of Spain and Eubank ZONE ATLAS/DRNG. FILE #: F-21/D47A

LEGAL DESCRIPTION: Tract 2 Promenade Subdivision

CITY ADDRESS:

ENGINEERING FIRM: Bohannan-Huston, Inc. CONTACT: Dave Thompson

ADDRESS: 7500 Jefferson N.E. Albuquerque, NM 87109 PHONE: 823-1000

OWNER: Sunwest Bank CONTACT: Vernon Doak

ADDRESS: Box 1344 Albuquerque, NM 87103 PHONE: 765-2035

ARCHITECT: Vogt and Byrnes, P.A. CONTACT: Gerry Brown

ADDRESS: 1617 University N.E. Albuquerque, NM 87102 PHONE: 242-1526

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

RECEIVED JUL 16 1986 HYDROLOGY SECTION

PRE-DESIGN MEETING:

X YES (phone conversation w/Fred Aguirre)

___ NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. ___

EPC NO. ___

PROJ. NO. ___

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

___ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

X GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

X BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER ___ (SPECIFY)

DATE SUBMITTED: 7-15-86

BY:

ENGINEERS ARCHITECTS PHOTOGRAMMETRI

BOHANNAN-HUSTON INC.

COURTYARD I, 7500 JEFFERSON STREET, N.E. ALBUQUERQUE, NEW MEXICO 87109 (505) 823-1000
UNIVERSITY PLAZA, SUITE 104, 330 GARFIELD SANTA FE, NEW MEXICO 87501 (505) 988-7671
6713 VISCOUNT BLVD. EL PASO, TEXAS 79925 (915) 778-4491

July 15, 1986

RECEIVED
JUL 16 1986
HYDROLOGY SECTION

Mr. Fred Aguirre
Hydrology Section
City of Albuquerque
P.O. Box 1293
Albuquerque,NM 87103

Re: Addendum to The Promenade Shopping Center Drainage Report (F21-D47) to Include a Commercial Bank Area Located at the Southwest Corner of the Site

Dear Fred:

Enclosed is a copy of the final grading plan for the Sunwest Bank building for your review and approval. This area was originally addressed as a Future Building Site in the Master Drainage Plan for The Promenade Shopping Center (F21-D47) dated January 23, 1986. This grading plan follows the concepts in the original master drainage plan.

Please review and comment on this plan. If you have any questions, please call me.

Sincerely,

David B. Thompson, P.E.
Project Manager

Enclosure

cc: Mr. Gerry Brown

DBT/mls
Job No. 6 226 0

PRINCIPALS
LARRY W. HUSTON
MICHIAL M. EMERY, P.E.
DANA C. WOOD, P.E.
ANDRES ARAGON VIAMONTE
DARRELL L. WADE, P.E.
JAMES V. DOMENICK, P.E.
BRIAN G. BURNETT, P.E.

BOHANNAN-HUSTON INC.

Courtyard I 7500 Jefferson Street, N.E. Albuquerque, NM 87109
(505) 823-1000

RECEIVED
JUL 16 1986
HYDROLOGY SECTION

Transmittal

To: City Hydrology

☐ Parcel post ☑ Messenger
☐ First Class ☐ UPS
☐ Express Mail ☐ Air Freight
☐ Bus ☐ _____

Attention: Mr. Fred Aguirre

Date: 7/16/86 Our job number: 62260

Your job number: _____

Job: SunWest Bank

We are enclosing:	For:
1 Drainage/Grading plan for SunWest Bank	Your Review

Comments: _____

By: David Thompson thank you

Rec'd by: Roger Green Date: 7/16/86

☑ Please Return Signed Yellow Copy

3/86

RECEIVED
JUL 16 1986
HYDROLOGY SECTION

PURPOSE

The purpose of this report is to outline the drainage management for a commercial bank building which will be part of The Promenade Shopping Center (F21-D47). Chapter 22 of the Development Process Manual (DPM) has been used to develop this plan.

SITE LOCATION AND DESCRIPTION

The shopping center is located at the southeast corner of Spain Road and Eubank Boulevard. The proposed bank will be located on the southwest corner of the center and will be bordered by Eubank Boulevard on the west and Van Christopher Drive on the south.

EXISTING CONDITIONS

The site has been rough graded as per the grading plan (F21-D47) dated January 23, 1986. Reference to that report shows that runoff from the entire shopping center is allowed free discharge into Eubank Boulevard and Van Christopher Drive. Runoff is then collected by six type "C" inlets at the Eubank Boulevard channel crossing structure.

In the design of the bank site, an addition of a separate drainage basin was included. Existing flow rates generated from this basin are as follows:

Area Acres	% Impervious	"C" Factor	Intensity 10-yr	(in/hr) 100-yr	Flowrate (cfs) 10 yr	100 yr
.368	0	.40	3.47	5.28	.51	.78

PROPOSED CONDITIONS

Flow generated outside of the defined basin (1-A) will follow the original shopping center master drainage plan which included future building sites in the determination of the impervious area.

The peak flow rate for the proposed drainage basin, 1-A, was determined by application of the Rational Method. The time of concentration was calculated to be less than ten minutes, therefore, ten minutes was used in all calculations. Rainfall intensities were determined by applying Plats 22.2 D-1 and 22.2 D-2 of the DPM.

The following flow rates were calculated for the basin under propose conditions:

Area Acres	% Impervious	"C" Factor	Intensity 10-yr	(in/hr) 100-yr	Flowrate (cfs) 10 yr	100 yr
.368	83	.92	3.47	5.28	1.17	1.79

Flows from basin 1-A will be routed to a storm inlet at the southwest corner of the basin. Utilizing the SCS method, the runoff volumes were calculated to be 1,242 CF for the 10-year storm and 2,177 CF for the 100-year storm. A storm inlet with two 4 inch PVC pipes will drain the pond at a controlled rate (Q = 1.1 cfs) to Eubank Boulevard. Reference to the 100-year hydrograph and pond volume calculations show that a pond volume of 217 CF is required. A 300 CF pond has been designed to meet these criteria and should be sufficient in preventing pond overflow.

RATIONAL METHOD FOR EXISTING
PEAK 10 & 100 YR. RUNOFF

RECEIVED
JUL 16 1986
HYDROLOGY SECTION

Area = 0.368 acres

% Impervious = 0 ∴ C = .40

Tc = 10 min

I_{10} = 3.47 in/hr
I_{100} = 5.28 in/hr } from 22.2 D-1, 22.2 D-2

∴ Q_{10} = (.40)(3.47)(.368) = 0.51 cfs

Q_{100} = (.40)(5.28)(.368) = 0.78 cfs

SCS METHOD FOR EXISTING
10 & 100 YR RUNOFF VOLUME

Tc = 10 min

Point Rainfall

10 Yr = 1.64 in
100 Yr = 2.5 in } Plate 22.2 D-1

Area = 0.368 acre

Hydrologic Soil Group B

CN = 82 from 22.2 C-2 & 22.2 C-3

Runoff Volume: R_{10} = .40
R_{100} = .92

∴ 10 YR Runoff Vol. = (.40/12)(.368)(43,560) = 534 CF

100 YR Runoff Vol. = (.92/12)(.368)(43,560) = 1,229 CF

BOHANNAN-HUSTON INC.

PROJECT NAME SunWest Bank SHEET 1 OF 5
PROJECT NO. 62260 BY Scott DATE
SUBJECT Drainage Analysis CH'D DATE

RATIONAL METHOD FOR PROPOSED PEAK 10 & 100 YR. RUNOFF

Area = 0.368 acres
% Impervious = 83 ∴ C = 0.92
Tc = 10 min.
I10 = 3.47 in/hr
I100 = 5.28 in/hr
from 22.2 D-1, 22.2 D-2

∴ Q10 = (.92)(3.47)(.368) = 1.17 CFS

Q100 = (.92)(5.28)(.368) = 1.79 CFS

SCS METHOD FOR PROPOSED 10 & 100 YR. RUNOFF VOLUME

Tc = 10 min.
Point Rainfall
10 yr = 1.64 in
100 yr = 2.5 in
plate 22.2 D-1

Area = 0.368 ac.
Hydrologic Soil Group B
CN = 92 from 22.2 C-2 & C-3
Runoff Vol. R10 = .93 in
R100 = 1.63 in
22.2 C-4

∴
10 YR Runoff Vol. = (.93/12)(.368)(43,560) = 1,242 CF

100 YR Runoff Vol. = (1.63/12)(.368)(43,560) = 2,177 CF

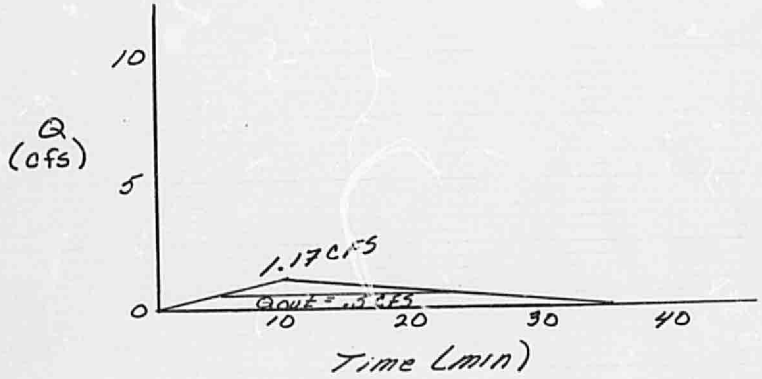
BOHANNAN-HUSTON INC.

PROJECT NAME SunWest Bank SHEET 2 OF 5
PROJECT NO. 62260 BY Scott DATE
SUBJECT Drainage Analysis CH'D DATE

TRIANGULAR HYDROGRAPH

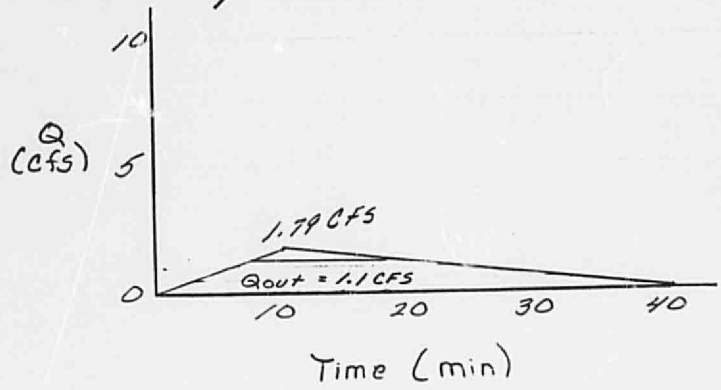
#1 $V_{10} = 1{,}242$ CF , $Q_{10} = 1.17$ CFS

$T = 2(1{,}242)/1.17(60) = 35.4$ min



#2 $V_{100} = 2{,}177$ CF , $Q_{100} = 1.79$ CFS

$T = 2(2{,}177)/1.79(60) = 40.5$ min



BOHANNAN-HUSTON INC.

PROJECT NAME SunWest Bank SHEET 3 OF 5
PROJECT NO. 62260 BY Scott DATE
SUBJECT Drainage Analysis CH'D DATE

PARKING LOT POND SIZE AND DISCHARGE PIPE DESIGN:

Maximum Pond Depth = 0.5'

Maximum Discharge Pipe = 4" diam.

From The Orifice Equation, The Maximum Discharge From Pond Is:

$$Q = .62(.0873)(2(32.2)(1.33))^{1/2}$$

$$= 0.50 \text{ CFS}$$

To Minimize Pond Size And Maintain Maximum Depth OF 0.5', Utilize Two 4" Diam. Pipes To Control Flow From Pond:

$\therefore$ Qout = 1.1 CFS

Solve Hydrograph To Find Required Pond Volume:

$\therefore$ Required Vol. = 217.4 CF

Designed Pond Volume = 300 CF

BOHANNAN-HUSTON INC.

PROJECT NAME SunWest Bank SHEET 4 OF 5

PROJECT NO. 62260 BY SCOTT DATE

SUBJECT Drainage Analysis CH'D DATE

DETERMINE DIAMETER
OF INLET USING $Q_{100} = 1.79$ CFS

From $Q = (1.49/n)(A)(R_H)^{2/3}(S)^{1/2}$

Where $n = .013$, $S = 0.2$, $Q = 1.79$

Try 4 in. pipe:

$1.79 = (1.49/.013)(\pi(2/12)^2)(4/12/4)^{2/3}(0.2)^{1/2}$

$1.79 = 0.85$

BOHANNAN-HUSTON INC.

PROJECT NAME Sun West Bank SHEET 5 OF 5
PROJECT NO. 62260 BY Scott DATE
SUBJECT Drainage Analysis CH'D DATE