HYDROLOGY G22/D11 3 PLANS

G22/D11

3 PLANS

# BOHANNAN-HUSTON INC.

4125 Carlisle Blvd. NE Albuquerque, New Mexico 87107

(505) 881-2000

To: City of Albuquerque
Hydrology

Attention: Fred Augirre

- [ ] Parcel Post
- [x] Messenger
- [ ] First Class
- [ ] UPS
- [ ] Air Mail
- [ ] RR Express
- [ ] Special Delivery
- [ ] Air Freight
- [ ] Bus

## Transmittal

Date: 3/31/80 Our job number: 00480

Your job number:

Job: Villa La Charles Drainage Addendum

| We are enclosing: | For: |
|---|---|
| ___ Prints | ___ Your Use |
| ___ Sepias | ___ Your Approval |
| ___ Tracings | ✓ Your Records |
| ___ Specs | ___ Review & Comments |
| ___ Studies Report | ___ Revisions |
| ✓ Xerox | ___ Response to Your Request |
| ___ Plan Sets | |

Comments: This is the drainage addendum plans for Villa La Charles Subdivision. With the construction of the type inlets should route the flow to the pond.

By: Ronald R Dale thank you

Rec'd by: Lillian Caron Date:

THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT

FILE 00480

Requested

Estimated Date 3/17/80
**Requestor:**
Bohannan–Huston, Inc.
4125 Carlisle Blvd., N.E.
Albuquerque, NM 87107

**Job No.** C-29-149
**Work Order Date**
**Map No.** G–22

**Date of Request** 3-18-80

Project for Paving and Storm Drainage

**VILLA LA CHARLES SUBDIVISION**

| **Specific Location:** | **SD** | **P** |
|---|---|---|
| a) Shenandoah Place | X | X |

| **Item No.** | **Short Description** | **Contract Unit Price** | **Est. Quantity** | **Est. Amount** | **As–Built Quantity** | **As–Built Amount** |
|---|---|---|---|---|---|---|
| K–3 | 18" RCP | 14.70 | 4 LF | 58.80 | | |
| K–4 | 24" RCP | 23.63 | 6 LF | 141.78 | | |
| K–12 | CB–B–D | 2,415.00 | 2 EA | 4,830.00 | | |
| M–34 | REM & REPL RES PVMT–W/O M-PROC | 16.80 | 23 SY | 386.40 | | |
| P–13 | PCC C&G REM | 2.63 | 20 LF | 52.60 | | |
| P–46 | PCC STD C&G | 6.30 | 11 LF | 69.30 | | |
| | Break into existing Double "C" Inlet | 200.00 | 1 EA | 200.00 | | |
| | **Subtotal** | | | 5,738.88 | | |
| | **Contingencies 10%** | | | 573.89 | | |
| | **Engineering 6%** | | | 344.33 | | |
| | **Testing Fee 2%** | | | 114.78 | | |
| | **Sidewalk Staking Fee** | | | | | |
| | **C&G Staking Fee** | | | | | |
| | **Total Construction Cost** | | | $ 6,771.88 | | |
| | **Developer to Pay =** | | | $ 6,771.88 | | |

**SUBMITTED BY:**

Michael M. Emery 3-18-80

**Design Engineer** **Date**

THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT

Date_____

Sheet 2 of 2
Job No. C-29-149

FOR ESTIMATE

RECOMMENDED:

Assistant City Engineer-/Date
Design

CONCURRENCE:

Requesting Office /Date

APPROVED:

City Engineer /Date 3/18/80

OFFICE OF THE CITY TREASURER
RECEIPT OF ESCROW FUNDS

Receipt from the above applicant of the sum of $_____ is hereby acknowledged to be held in escrow until the completion of work described above.

Debit City Account_____ Credit 233200-7000820 $_____

Journal Voucher No._____ _____ Date_____ _____
Accountant Treasurer

Outside funds have been received by Contract Manager.

Contract Manager /Date

FOR CONSTRUCTION

CONTRACT DOCUMENTATION COMPLETED:

Contract Manager /Date

APPROVED:

City Engineer /Date

WORK ORDER RECEIVED:

Contractor /Date

PROPOSED STARTING DATE:

FOR ACCEPTANCE

RECOMMENDED:

Assistant City Engineer-/Date
Field

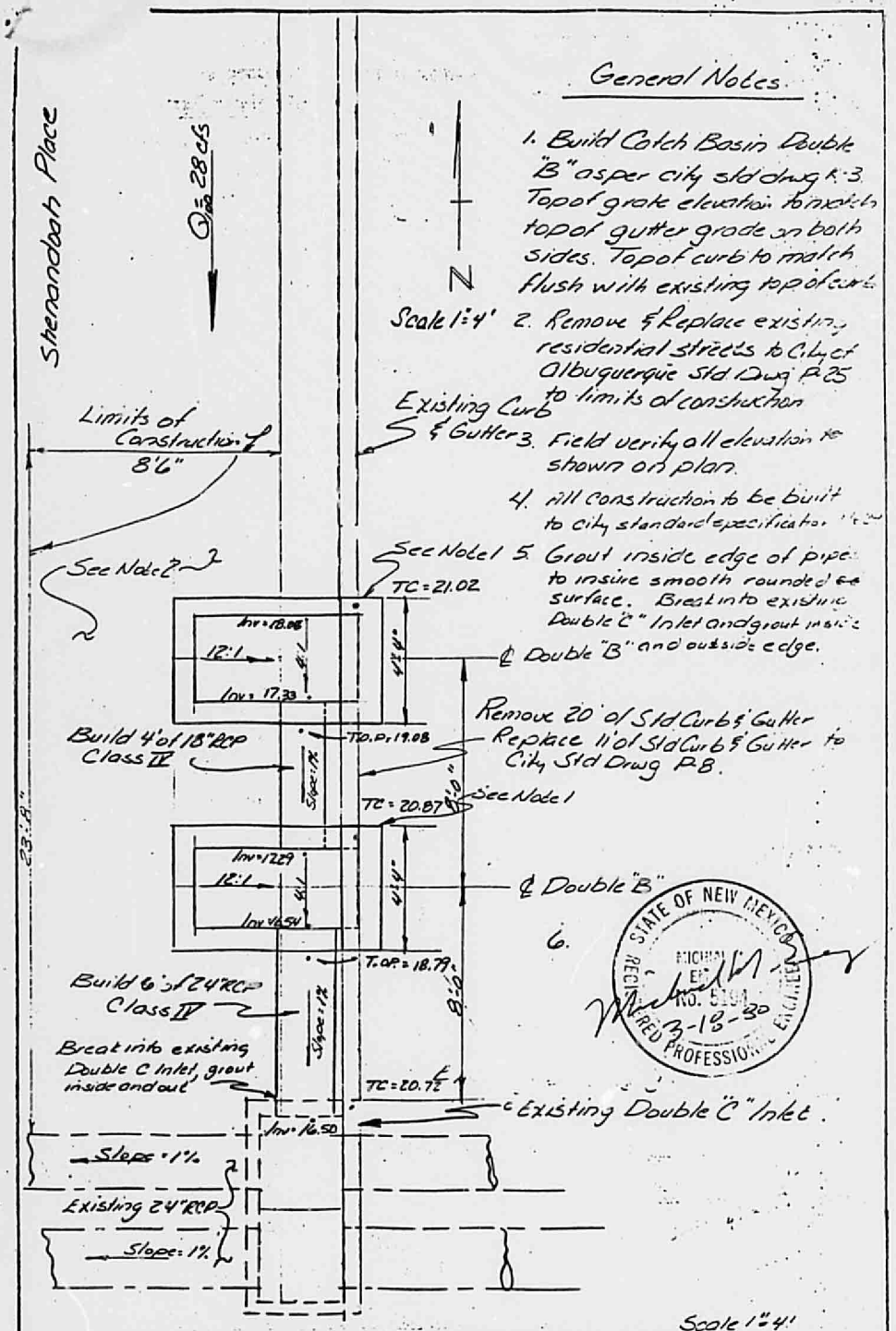
APPROVED:

City Engineer /Date

ACCEPTANCE COMPLETED:

Contract Manager /Date

THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT




## General Notes

1. Build Catch Basin Double "B" as per city std drwg P.3. Top of grate elevation to match top of gutter grade on both sides. Top of curb to match flush with existing top of curb.
2. Remove & Replace existing residential streets to City of Albuquerque Std Drwg P.25 to limits of construction
3. Field verify all elevation to shown on plan.
4. All construction to be built to city standard specification.
5. Grout inside edge of pipe to insure smooth rounded surface. Break into existing Double "C" Inlet and grout inside and outside edge.
6.

STATE OF NEW MEXICO
MICHAEL E. [illegible]
NO. [illegible]
REGISTERED PROFESSIONAL ENGINEER
3-18-80

# CITY OF ALBUQUERQUE

| APPROVALS | ENGINEER | DATE | TITLE: Drainage Inlet Addition Villa La Charles Subdivision |
|---|---|---|---|
| A.C.E. DESIGN | [illegible] | 18 Mar 80 | |
| ~~WATER RESOURCES~~ Hydrology | DGA | | |
| CITY ENGINEER | [illegible] | MAR 18, 80 | PROJECT NO.. / MAP NO. G-22 |

FILE 00480
Requestor

Estimated Date 3/17/80
Requestor:
Bohannan–Huston, Inc.
4125 Carlisle Blvd., N.E.
Albuquerque, NM 87107

Job No. C-29-149
Work Order Date
Map No. G–22

Date of Request 3-18-80

Project for Paving and Storm Drainage
12300 [illegible]
**VILLA LA CHARLES SUBDIVISION**

| Specific Location: | SD | P |
|---|---|---|
| a) Shenandoah Place | X | X |

| Item No. | Short Description | Contract Unit Price | Est. Quantity | Est. Amount | As–Built Quantity | As–Built Amount |
|---|---|---|---|---|---|---|
| K–3 | 18" RCP | 14.70 | 4 LF | 58.80 | | |
| K–4 | 24" RCP | 23.63 | 6 LF | 141.78 | | |
| K–12 | CB–B–D | 2,415.00 | 2 EA | 4,830.00 | | |
| M–34 | REM & REPL RES PVMT–W/O M-PROC | 16.80 | 23 SY | 386.40 | | |
| P–13 | PCC C&G REM | 2.63 | 20 LF | 52.60 | | |
| P–46 | PCC STD C&G | 6.30 | 11 LF | 69.30 | | |
| | Break into existing Double "C" Inlet | 200.00 | 1 EA | 200.00 | | |
| | **Subtotal** | | | 5,738.88 | | |
| | **Contingencies 10%** | | | 573.89 | | |
| | **Engineering 6%** | | | 344.33 | | |
| | **Testing Fee 2%** | | | 114.78 | | |
| | **Sidewalk Staking Fee** | | | | | |
| | **C&G Staking Fee** | | | | | |
| | **Total Construction Cost** | | | $ 6,771.88 | | |
| | **Developer to Pay =** | | | $ 6,771.88 | | |

SUBMITTED BY:

Michael M. Emery 3-18-80

Design Engineer Date

Date_____ Sheet 2 of 2
Job No. C-29-149

FOR ESTIMATE

RECOMMENDED: CONCURRENCE:

Quentin R Kelich 10 Mar 80
Assistant City Engineer-/Date Requesting Office /Date
Design

APPROVED:

Richard S Hill 3/18/80
City Engineer /Date

OFFICE OF THE CITY TREASURER
RECEIPT OF ESCROW FUNDS

Receipt from the above applicant of the sum of $_____ is hereby acknowledged to be held in escrow until the completion of work described above.

Debit City Account_____ Credit 233200-7000820 $_____

Journal Voucher No._____ _____ Date_____ _____
Accountant Treasurer

Outside funds have been received by Contract Manager.

Contract Manager /Date

FOR CONSTRUCTION

CONTRACT DOCUMENTATION COMPLETED: APPROVED:

Contract Manager /Date City Engineer /Date

WORK ORDER RECEIVED: PROPOSED STARTING DATE:

Contractor /Date

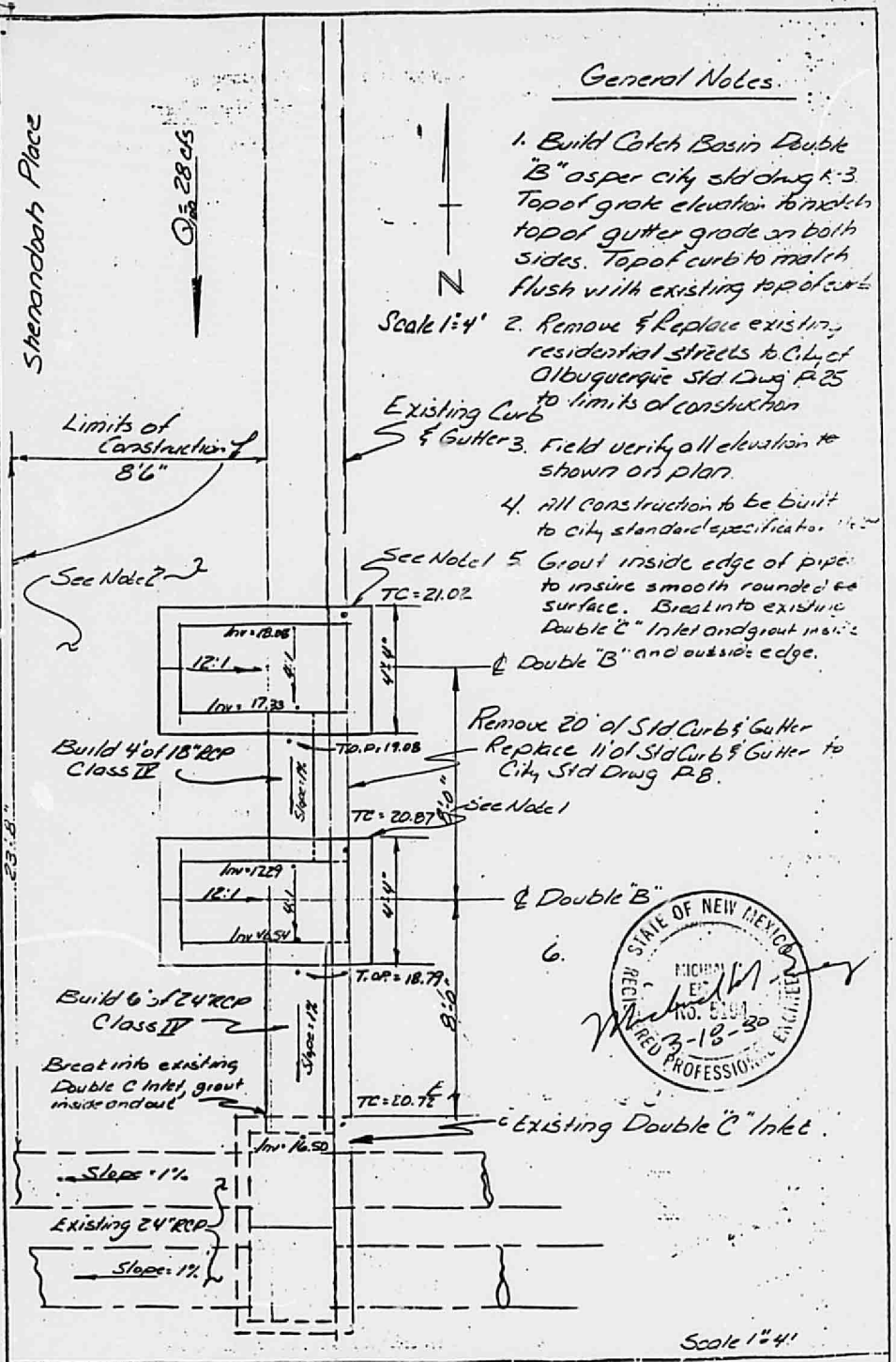
FOR ACCEPTANCE

RECOMMENDED:

Assistant City Engineer-/Date
Field

APPROVED: ACCEPTANCE COMPLETED:

City Engineer /Date Contract Manager /Date




## General Notes.

1. Build Catch Basin Double "B" as per city std drwg P-3. Top of grate elevation to match top of gutter grade on both sides. Top of curb to match flush with existing top of curb.
2. Remove & Replace existing residential streets to City of Albuquerque Std Drwg P.25 to limits of construction.
3. Field verify all elevation to shown on plan.
4. All construction to be built to city standard specification.
5. Grout inside edge of pipe to insure smooth rounded surface. Break into existing Double "C" Inlet and grout inside and outside edge.
6.

STATE OF NEW MEXICO
MICHAEL E. [illegible]
NO. [illegible]
REGISTERED PROFESSIONAL ENGINEER
3-18-80

# CITY OF ALBUQUERQUE

| APPROVALS | ENGINEER | DATE | TITLE: Drainage Inlet Addition Villa La Charles Subdivison |
|---|---|---|---|
| A.C.E. DESIGN | [illegible] | 18 Mar 80 | |
| Hydrology ~~WATER RESOURCES~~ | RGA | | PROJECT NO.. |
| CITY ENGINEER | Richard S. Hill | MAR 18, 80 | MAP NO. G-22 |

FILE 00480
Requested

**Estimated Date** 3/17/80
**Requestor:**
Bohannan–Huston, Inc.
4125 Carlisle Blvd., N.E.
Albuquerque, NM 87107

**Job No.** C-29-149
**Work Order Date**
**Map No.** G–22

**Date of Request** 3-18-80

Project for Paving and Storm Drainage
13100 [illegible]
**VILLA LA CHARLES SUBDIVISION**

| **Specific Location:** | **SD** | **P** |
|---|---|---|
| a) Shenandoah Place | X | X |

| **Item No.** | **Short Description** | **Contract Unit Price** | **Est. Quantity** | **Est. Amount** | **As–Built Quantity** | **As–Built Amount** |
|---|---|---|---|---|---|---|
| K–3 | 18" RCP | 14.70 | 4 LF | 58.80 | | |
| K–4 | 24" RCP | 23.63 | 6 LF | 141.78 | | |
| K–12 | CB–B–D | 2,415.00 | 2 EA | 4,830.00 | | |
| M–34 | REM & REPL RES PVMT–W/O M-PROC | 16.80 | 23 SY | 386.40 | | |
| P–13 | PCC C&G REM | 2.63 | 20 LF | 52.60 | | |
| P–46 | PCC STD C&G | 6.30 | 11 LF | 69.30 | | |
| | Break into existing Double "C" Inlet | 200.00 | 1 EA | 200.00 | | |
| | **Subtotal** | | | 5,738.88 | | |
| | **Contingencies 10%** | | | 573.89 | | |
| | **Engineering 6%** | | | 344.33 | | |
| | **Testing Fee 2%** | | | 114.78 | | |
| | **Sidewalk Staking Fee** | | | | | |
| | **C&G Staking Fee** | | | | | |
| | **Total Construction Cost** | | | $ 6,771.88 | | |
| | **Developer to Pay =** | | | $ 6,771.88 | | |

**SUBMITTED BY:**
Michael M. Emery 3-18-80
**Design Engineer** **Date**

Date_____ Sheet 2 of 2
Job No. C-29-149

FOR ESTIMATE

RECOMMENDED: CONCURRENCE:

Quentin R. Kelich 18 Mar 80
Assistant City Engineer-/Date Requesting Office /Date
Design

APPROVED:

Richard S. Hill 3/18/80
City Engineer /Date

OFFICE OF THE CITY TREASURER
RECEIPT OF ESCROW FUNDS

Receipt from the above applicant of the sum of $_____ is hereby acknowledged to be held in escrow until the completion of work described above.

Debit City Account_____ Credit 233200-7000820 $_____

Journal Voucher No._____ _____ Date_____ _____
Accountant Treasurer

Outside funds have been received by Contract Manager

Contract Manager /Date

FOR CONSTRUCTION

CONTRACT DOCUMENTATION COMPLETED: APPROVED:

Contract Manager /Date City Engineer /Date

WORK ORDER RECEIVED: PROPOSED STARTING DATE:

Contractor /Date

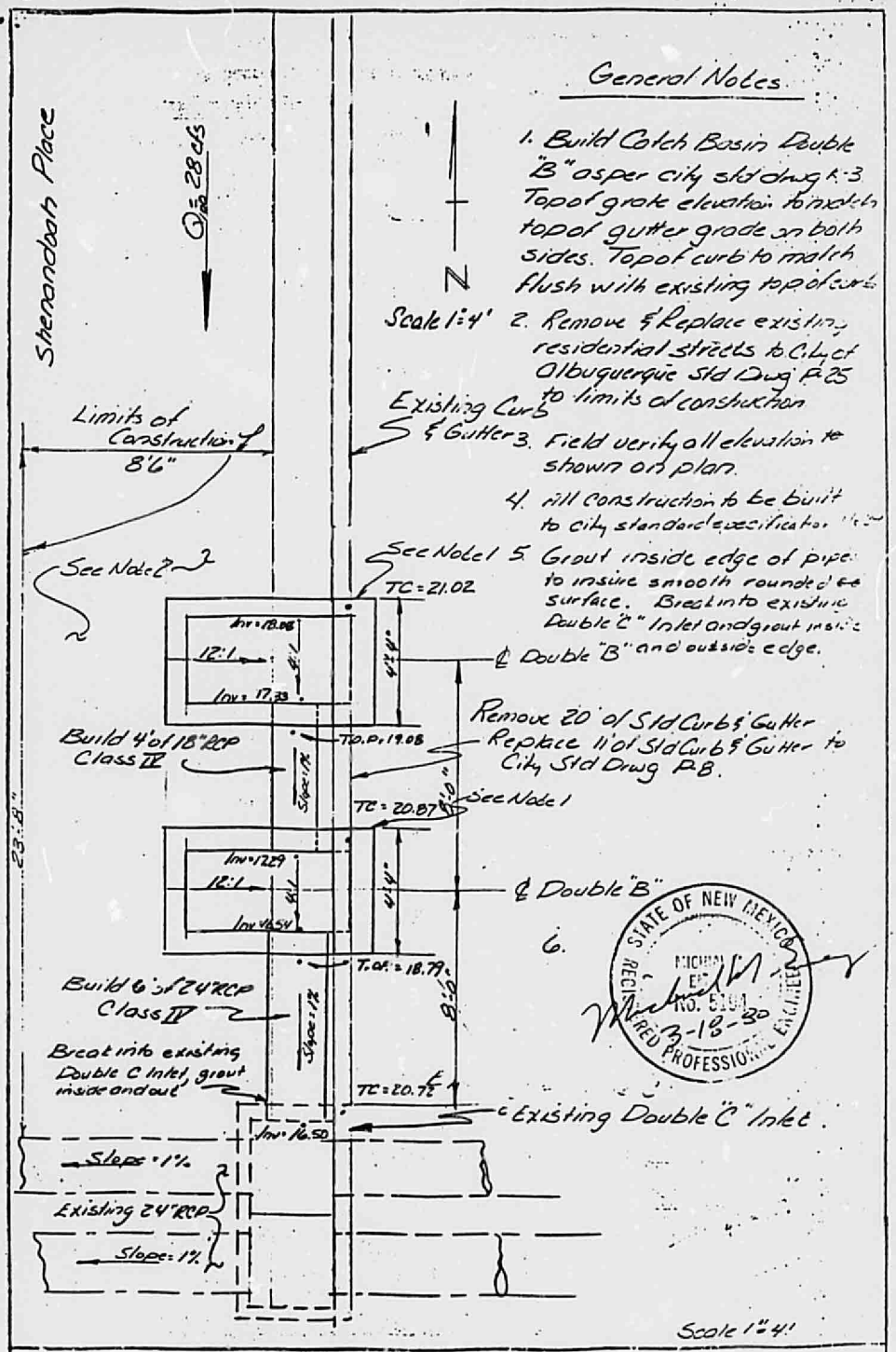
FOR ACCEPTANCE

RECOMMENDED:

Assistant City Engineer-/Date
Field

APPROVED: ACCEPTANCE COMPLETED:

City Engineer /Date Contract Manager /Date




# CITY OF ALBUQUERQUE

| APPROVALS | ENGINEER | DATE | TITLE: Drainage Inlet Addition Villa La Charles Subdivision |
|---|---|---|---|
| A.C.E. DESIGN | [illegible] | 18 Mar 80 | |
| Hydrology ~~WATER RESOURCES~~ | RGA | | PROJECT NO. |
| CITY ENGINEER | Richard S. Hill | MAR 18, 80 | MAP NO. G-22 |

FILE 0480
Requisition

Estimated Date 3/17/80
Requestor:
Bohannan–Huston, Inc.
4125 Carlisle Blvd., N.E.
Albuquerque, NM 87107

Job No. C-29-149
Work Order Date
Map No. G–22

Date of Request 3-18-80

Project for Paving and Storm Drainage

VILLA LA CHARLES SUBDIVISION

| Specific Location: | SD | P |
|---|---|---|
| a) Shenandoah Place | X | X |

| Item No. | Short Description | Contract Unit Price | Est. Quantity | Est. Amount | As–Built Quantity | As–Built Amount |
|---|---|---|---|---|---|---|
| K–3 | 18" RCP | 14.70 | 4 LF | 58.80 | | |
| K–4 | 24" RCP | 23.63 | 6 LF | 141.78 | | |
| K–12 | CB–B–D | 2,415.00 | 2 EA | 4,830.00 | | |
| M–34 | REM & REPL RES PVMT–W/O M-PROC | 16.80 | 23 SY | 386.40 | | |
| P–13 | PCC C&G REM | 2.63 | 20 LF | 52.60 | | |
| P–46 | PCC STD C&G | 6.30 | 11 LF | 69.30 | | |
| | Break into existing Double "C" Inlet | 200.00 | 1 EA | 200.00 | | |
| | **Subtotal** | | | 5,738.88 | | |
| | **Contingencies 10%** | | | 573.89 | | |
| | **Engineering 6%** | | | 344.33 | | |
| | **Testing Fee 2%** | | | 114.78 | | |
| | **Sidewalk Staking Fee** | | | | | |
| | **C&G Staking Fee** | | | | | |
| | **Total Construction Cost** | | | $ 6,771.88 | | |
| | **Developer to Pay =** | | | $ 6,771.88 | | |

SUBMITTED BY:

Michael M. Emery 3-18-80

Design Engineer Date

Date_____

Sheet 2 of 2
Job No. C-29-149

FOR ESTIMATE

RECOMMENDED:

Assistant City Engineer-/Date
Design

CONCURRENCE:

Requesting Office /Date

APPROVED:

City Engineer /Date 3/18/80

OFFICE OF THE CITY TREASURER
RECEIPT OF ESCROW FUNDS

Receipt from the above applicant of the sum of $_____ is hereby acknowledged to be held in escrow until the completion of work described above.

Debit City Account_____ Credit 233200-7000820 $_____

Journal Voucher No._____ _____ Date_____ _____
Accountant Treasurer

Outside funds have been received by Contract Manager.

Contract Manager /Date

FOR CONSTRUCTION

CONTRACT DOCUMENTATION COMPLETED:

Contract Manager /Date

APPROVED:

City Engineer /Date

WORK ORDER RECEIVED:

Contractor /Date

PROPOSED STARTING DATE:

FOR ACCEPTANCE

RECOMMENDED:

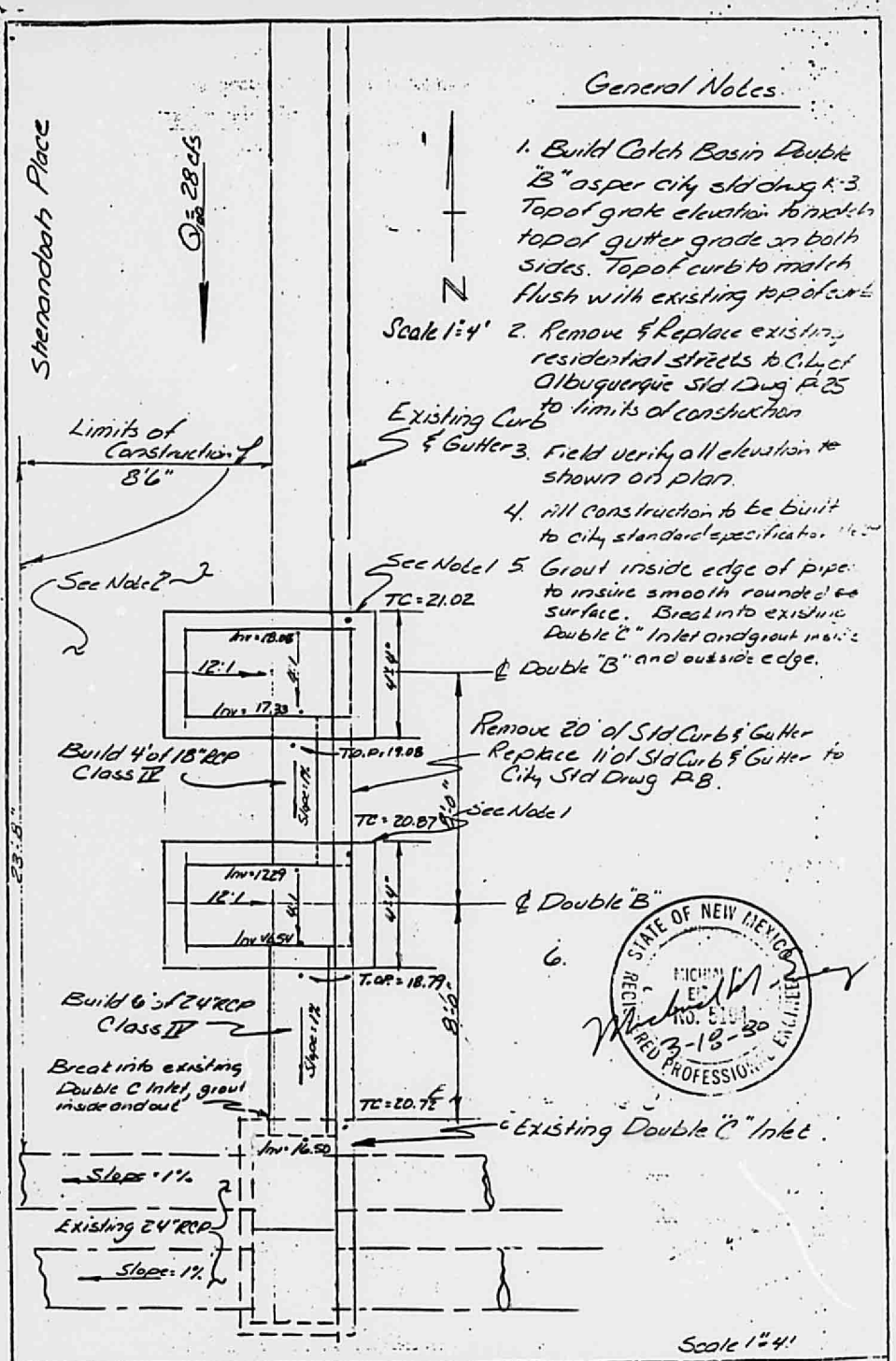
Assistant City Engineer-/Date
Field

APPROVED:

City Engineer /Date

ACCEPTANCE COMPLETED:

Contract Manager /Date




## General Notes

1. Build Catch Basin Double "B" as per city std drwg P-3. Top of grate elevation to match top of gutter grade on both sides. Top of curb to match flush with existing top of curb.
2. Remove & Replace existing residential streets to City of Albuquerque Std Drwg P.25 to limits of construction.
3. Field verify all elevation as shown on plan.
4. All construction to be built to city standard specifications.
5. Grout inside edge of pipe to insure smooth rounded surface. Break into existing Double "C" Inlet and grout inside and outside edge.
6.

STATE OF NEW MEXICO REGISTERED PROFESSIONAL ENGINEER MICHAEL E. ... NO. 5104 3-18-80

# CITY OF ALBUQUERQUE

| APPROVALS | ENGINEER | DATE | TITLE: Drainage Inlet Addition Villa La Charles Subdivison |
|---|---|---|---|
| A.C.E. DESIGN | [illegible] | 18 Mar 80 | |
| ~~WATER RESOURCES~~ Hydrology | [illegible] | | PROJECT NO. |
| CITY ENGINEER | Richard S. Hill | MAR 18, 80 | MAP NO. G-22 |

LOFTIN'S—ALBUQUERQUE 265-2822

7778

# CITY OF ALBUQUERQUE – SUPPLIES REQUISITION

| | | |
|---|---|---|
| TO: ☐ CITY YARDS GENERAL WAREHOUSE (101) | | TO: ☐ OFFICE SERVICES SUPPLY (102) |
| Date Requested | Requested by (Name) | Department/Division/Activity Requisitioning |
| Delivery Address | | Approved by (Signature) / Dept. Control No. |

| Activity/Project to be charged | INSTRUCTIONS: Use Supplies Catalog for correct item description, stock number and SKU (Stock-Keeping-Unit of Issue) | Date Issued mo | day | yr | Requisition No. |
|---|---|---|---|---|---|
| | | | | | 04574 |

| Line No. | Quantity Requested | ITEM DESCRIPTION | Warehouse Stock No. | SKU | Quantity Issued |
|---|---|---|---|---|---|
| 01 | | | | | |
| 02 | | | | | |
| 03 | | | | | |
| 04 | | | | | |
| 05 | | | | | |
| 06 | | | | | |
| 07 | | | | | |
| 08 | | | | | |
| 09 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| | TOTAL Quantity Requested | INDICATE LAST ITEM WITH ••••••• | TOTAL Quantity Issued | | |

| ISSUED BY (Signature of Issuing Stock Clerk) | RECEIVED BY (Signature & Employee Number) |
|---|---|
| | |

DFM COA/SICP Form 127901

1 - INVENTORY CONTROL

Drainage File

# City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

September 7, 1979

Manufacturers Hanover Mortgage Corporation
c/o Sutin, Thayer & Browne
600 First Plaza
Albuquerque, New Mexico 87103

ATTENTION: Charles P. Price III

SUBJECT: Tract Numbered One (1) and One-A (1-A) of VILLA DE CHARLES, a replat of LA CHARLES TOWNHOUSES, filed in the office of the County Clerk of Bernalillo County, New Mexico, on January 20, 1978, amended September 6, 1978 (the "Property")

Ladies and Gentlemen:

The Flood Hazard Boundary Maps published by the Flood Insurance Administration on February 18, 1978, shows the referenced property as being located inside the flood hazard area. The City has received preliminary maps, prepared by Michael Baker, Jr. and Associates for the Flood Insurance Administration, which indicate that following the construction of the Embudo Dam, the flood hazards in the area north of Interstate Highway 40 and west of Tramway have been greatly reduced. In particular, the parcel in question is shown on these preliminary maps as not being subject to flood hazards.

It is, therefore, my opinion that flood insurance should not be required even though officially the flood hazard designation is still standing.

Very truly yours,

RICHARD S. HELLER
CITY ENGINEER

By Bruno Conegliano
Bruno Conegliano
Assistant City Engineer - Hydrology

BC:bm
CC:Files

LAW OFFICES OF
SUTIN, THAYER & BROWNE
A PROFESSIONAL CORPORATION

PAUL G. BARDACKE
GRAHAM BROWNE
STEPHEN CHARNAS
JAMES C. COMPTON, JR.
RICHARD M. DALY
GERALD T. E. GONZALEZ
W. PATRICK HARMAN
JAY D. HERTZ
ROBERT G. HEYMAN
ALLAN J. HISEY
DONALD L. JONES
FRANKLIN JONES
MARY E. McDONALD
IRWIN S. MOISE
STEVEN K. MOISE
KESTER L. OMAN
LaFEL E. OMAN
ROBERT PAMPELL
CHARLES P. PRICE III
KEVIN V. REILLY
HENRY M. RIVERA
DONALD M. SALAZAR
RAYMOND W. SCHOWERS
ALISON K. SCHULER
RONALD SEGEL
JONATHAN B. SUTIN
MICHAEL G. SUTIN
NORMAN S. THAYER
RICHARD L.C. VIRTUE
ROBERT J. WERNER
MARIANNE WOODARD
JOHN W. ZAVITZ

ALBUQUERQUE OFFICE
FIRST PLAZA
POST OFFICE BOX 1945
ALBUQUERQUE, NEW MEXICO 87103
505-842-8200

SANTA FE OFFICE
215 WASHINGTON AVENUE
POST OFFICE BOX 2187
SANTA FE, NEW MEXICO 87504
505-988-5521

RECEIVED
AUG 31 1979
CITY ENGINEER

August 29, 1979

622-011

Mr. Bruno Conegliano
Assistant City Engineer
City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87103

Tract Numbered One (1) and One-A (1-A) of VILLA DE CHARLES, a Replat of LA CHARLES TOWNHOUSES, filed in the Office of the County Clerk of Bernalillo County, New Mexico, on January 20, 1978, amended September 6, 1978 (the "Property")

Dear Mr. Conegliano:

This office represents Manufacturers Hanover Mortgage Corporation, holders of a first mortgage upon the above-described Property. May we request that you determine whether the Property lies within a designated Flood Hazard Area, and address a letter certifying your determination to this office. We enclose a form of a letter that you may wish to use. Thank you for your assistance.

Very truly yours,

SUTIN, THAYER & BROWNE
A Professional Corporation

By Charles P. Price III
Charles P. Price III

CPP:pc
Enclosure

cc: Mr. Stephen G. Palms
Mr. Charles R. Thompson

DRAFT

Manufacturers Hanover Mortgage
Corporation
c/o Sutin, Thayer & Browne
A Professional Corporation
600 First Plaza
Albuquerque, New Mexico 87103

Attention: Charles P. Price III

Tract Numbered One (1) and One-A (1-A) of VILLA DE CHARLES, a replat of LA CHARLES TOWNHOUSES, filed in the office of the County Clerk of Bernalillo County, New Mexico, on January 20, 1978, amended September 6, 1978 (the "Property")

Ladies and Gentlemen:

This is to certify that as of the date of this letter, the above-described Property does not lie within the boundaries of a designated Flood Hazard Area on the Flood Hazard Boundary Maps published by the Flood Insurance Administration.

Sincerely,

CITY OF ALBUQUERQUE
CITY ENGINEER

By_____
Bruno Conegliano
Assistant City Engineer

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

June 5, 1978

628-011

Mr. Gary L. Watson, President
Gary L. Watson Co.
4015 Carlisle Blvd. N.E., Suite C
Albuquerque, N.M. 87107

SUBJECT: VILLA LA CHARLES SUBDIVISION
TEST TURNKEY PROJECT WORK AUTHORIZATION #T-2

Dear Mr. Watson:

Under the provisions of the Test Turnkey Project procedures, this letter is the Work Authorization to begin field work on the project.

Sincerely,

V. M. Kimmick
City Engineer

VMK/fs

cc - H. R. Orr
Contractor
Ray Dawson
Water Resources
Dwayne Sheppard
Bob Kielich
LaMonte Urban
Bruno Conegliano
Bill Mueller

# City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Date: May 1, 1978

Mr. Gary L. Watson
President
Gary L. Watson Co.
4015 Carlisle Blvd. N.E., Suite C
Albuquerque, N.M. 87107

6-22-011

SUBJECT: SUBDIVISION REQUEST FOR USE OF TEST TURNKEY PROCEDURE

Dear Mr. Watson:

We are in receipt of your letter of April 18, 1978 requesting the use of the Test Turnkey Procedures. Enclosed is a copy of the "Test Turnkey Project Flow Chart and Test Turnkey Operational Instructions" which will be followed in using this test procedure.

A very important element in this procedure and one which must be rigidly observed is the "Start of Construction Work" stage following Steps 18,19,20 and 21. No field work may commence under this test procedure until this point.

Therefore, your request to design and construct this subdivision is approved, subject to following the procedures enclosed.

Sincerely,

V. M. Kimmick, P.E.
City Engineer

Copy to: H. R. Orr
Q. R. Kielich
Dwayne Sheppard
LaMonte Urban
Bruno Conegliano

Enclosures

Since your request contained the agreement properly executed, it will be processed for signature by the City. Note the deposit must still be forwarded.

GARY L. WATSON COMPANY

April 18, 1978

RECEIVED
APR 27 1978
CITY ENGINEER

Mr. V. M. Kimmick
City Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

Re: Turnkey Procedures for Villa La Charles Subdivision

Dear Mr. Kimmick:

This letter will serve as a formal request that turnkey procedures be used in the construction of the above referenced subdivision and that Bohannan-Huston Inc. be the "Engineer" for the project.

If the above request meets with your approval, please sign below and return the original to this office.

Sincerely yours,

Gary L. Watson
President

APPROVED

BY _____
V. M. Kimmick

DATE _____

4015 Carlisle Blvd., N.E. Suite C • Albuquerque, New Mexico 87107
(505) 881 2123 • (505) 881 2122

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

MAYOR
Harry E. Kinney

CHIEF
ADMINISTRATIVE OFFICER
Frank A. Kleinhenz

December 7, 1977

Michial Emery
Bohannan-Huston Inc.
4125 Carlisle Blvd.,NE
Albuquerque, New Mexico 87107

Dear Michial:

This letter follows our conversation of today in the offices of AMAFCA regarding some of the drainage reports that have been reviewed in my office. I want to confirm acceptance of the drainage reports for the following subdivisions.

1. La Charles Villa for the Gary L. Watson Company

2. Crestview V. and Casa Grande Park for H.G. Pickard and Associates

3. Panorama Heights Parcel 3 for Jack M. Clifford & Company

4. Leesure Acres for Sproul Investment Corporation

Very truly yours,

Bruno Conegliano
Asst. City Engineer-Hydrology

BC/gm

cc; Jim Smith
V.M. Kimmick
Drainage file

November 17, 1977

Mr. Bruno Conegliano
Assistant City Engineer,
Hydrology
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

Re: Drainage Report for La Charles Villa

Dear Mr. Conegliano:

In response to your comments dated October 10, 1977, the following modifications have been proposed to the La Charles drainage report:

1. The "C" type inlets and related 24" RCP at the west end of the apartment complex will be removed. The water block at this entrance to the apartment will be removed. The 13.0 CFS from the apartments will be allowed to flow into the east gutter of the street, where it will then be carried south to the rundown and eventually into the detention pond. This will eliminate the problem with the sidewalk crossing and generally make grading of the site less difficult. Runoff leaving the apartments will have a velocity of approximately 6.0 FPS and a depth of .10 feet. This converts to a total head of 0.55 feet if the water made a complete stop at the street. This does not seem to be a problem.

2. By using more sloping ground, it appears that the 7' headwall can be reduced to approximately 4'.

3. All culverts will be reinforced concrete pipes. CMP's will not be used.

4. The flow of 29 CFS entering La Charles from Cibola Village is in error. Amendment No. 1 of the Cibola Village drainage report reduced this flow to 14.3 CFS. Therefore, the total flow now expected on La Charles Avenue at the southwest corner of La Charles Villa is approximately 37 CFS. This flow is no greater than would be expected under existing conditions and should, therefore, be acceptable.

5. It is desired to leave the storm sewer at the eastern boundary of El Dorado Heights as shown in the report. It would be more expensive to put in a small paved channel and there would be problems with grading the backyards and providing unobstructed flow from one lot to another.

6. It is generally not feasible to provide a grading plan to accompany a drainage report of this complexity. If the drainage report were to be altered significantly, it means doing another grading plan. However, if the significant features of a drainage report are approved without benefit of a grading plan and it is later discovered that these features cannot be incorporated into a grading plan, we feel that this would be an appropriate time to consider modifying the drainage solution with the city's consent.

We would greatly appreciate your response to these items at your earliest convenience. If you should have any questions regarding this matter, please feel free to contact me or Mr. Ray Macy of this office.

Sincerely,

C. J. Mead, P.E.
Engineering Manager

cc: Mr. Gary Watson

RWM/dlh
Job No. 77-146

BOHANNAN-HUSTON INC.
4125 CARLISLE BLVD., N.E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000

November 17, 1977

Mr. Bruno Conegliano
Assistant City Engineer,
Hydrology
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

Re: Drainage Report for La Charles Villa

Dear Mr. Conegliano:

In response to your comments dated October 10, 1977, the following modifications have been proposed to the La Charles drainage report:

1. The "C" type inlets and related 24" RCP at the west end of the apartment complex will be removed. The water block at this entrance to the apartment will be removed. The 13.0 CFS from the apartments will be allowed to flow into the east gutter of the street, where it will then be carried south to the rundown and eventually into the detention pond. This will eliminate the problem with the sidewalk crossing and generally make grading of the site less difficult. Runoff leaving the apartments will have a velocity of approximately 6.0 FPS and a depth of .10 feet. This converts to a total head of 0.55 feet if the water made a complete stop at the street. This does not seem to be a problem.

2. By using more sloping ground, it appears that the 7' headwall can be reduced to approximately 4'.

3. All culverts will be reinforced concrete pipes. CMP's will not be used.

4. The flow of 29 CFS entering La Charles from Cibola Village is in error. Amendment No. 1 of the Cibola Village drainage report reduced this flow to 14.3 CFS. Therefore, the total flow now expected on La Charles Avenue at the southwest corner of La Charles Villa is approximately 37 CFS. This flow is no greater than would be expected under existing conditions and should, therefore, be acceptable.

5. It is desired to leave the storm sewer at the eastern boundary of El Dorado Heights as shown in the report. It would be more expensive to put in a small paved channel and there would be problems with grading the backyards and providing unobstructed flow from one lot to another.

Gremons Inc

6. It is generally not feasible to provide a grading plan to accompany a drainage report of this complexity. If the drainage report were to be altered significantly, it means doing another grading plan. However, if the significant features of a drainage report are approved without benefit of a grading plan and it is later discovered that these features cannot be incorporated into a grading plan, we feel that this would be an appropriate time to consider modifying the drainage solution with the city's consent.

We would greatly appreciate your response to these items at your earliest convenience. If you should have any questions regarding this matter, please feel free to contact me or Mr. Ray Macy of this office.

Sincerely,

C. J. Mead, P.E.
Engineering Manager

cc: Mr. Gary Watson

RWM/dlh
Job No. 77-146

FILE: 77-146

RECEIVED BWH OCT 12 1977

# City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
Harry E. Kinney

CHIEF
ADMINISTRATIVE OFFICER
Frank A. Kleinhenz

October 10, 1977

Mr. Ray Macy
Bohannan-Huston Inc.
4125 Carlisle Blvd. N.E.
Albuquerque, N.M. 87107

SUBJECT: VILLA LA CHARLES DRAINAGE REPORT

Dear Ray:

I have no qualms about the drainage scheme proposed for Villa la Charles but there is no information about elevations to verify the feasibility of the scheme. In particular I feel it would be desirable to have a paved swale in place of the storm sewer line at the eastern boundary of El Dorado Heights.

I also find that the 24" RCP from Area H to Area I will require a swale depth of approximately four feet. The sidewalk crossing must therefore dip considerably or the opening must be greater than the indicated 1.0 ft. The swale from Area I to Area C and B is deep compared to the location next to the building and 7.0 ft. headwall could be dangerous, close as it appears to be to the walk. Sufficiently detailed drawings will be necessary to show that there are no problems. Incidentally, it is preferable to have all the pipes as reinforced conrete pipes instead of the corrugated metal pipes where indicated.

You also indicate that a flow of 52cfs will be discharged into La Charles St. The adequacy of this street needs to be investigated in particular the adequacy of the cattle guard at the bottom of the slope needs to be reviewed so it can take all the flows coming from the east and north. If you want to discuss these matters further, feel free to contact me.

Yours very truly,

Bruno Conegliano

Bruno Conegliano
Asst. City Engineer-Hydrology

BC/fs

BOHANNAN-HUSTON INC.
4125 CARLISLE BLVD., N.E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000

Bruce
In this mail for Bridges - MAW.
Please log.

August 31, 1977

Mr. V. M. Kimmick
City Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Drainage Report for La Charles Villa

Dear Mr. Kimmick:

Enclosed for your review and approval are three (3) copies of the above-referenced drainage report.

Please feel free to call our office if you have any questions.

Sincerely,

Raymond W. Macy

Raymond W. Macy, P.E.
Design Engineer

cc: Mr. Gary Watson

Enclosures

RWM/mna
Job No. 77-146

Bob,
MS

Drainage Study
La Charles Townhouses.

Offsite drainage intercepted @ 3 points on E. bdry;
area = 23.69 Acres

Developed Tract = 19.65

Total Area = 43.34 acres

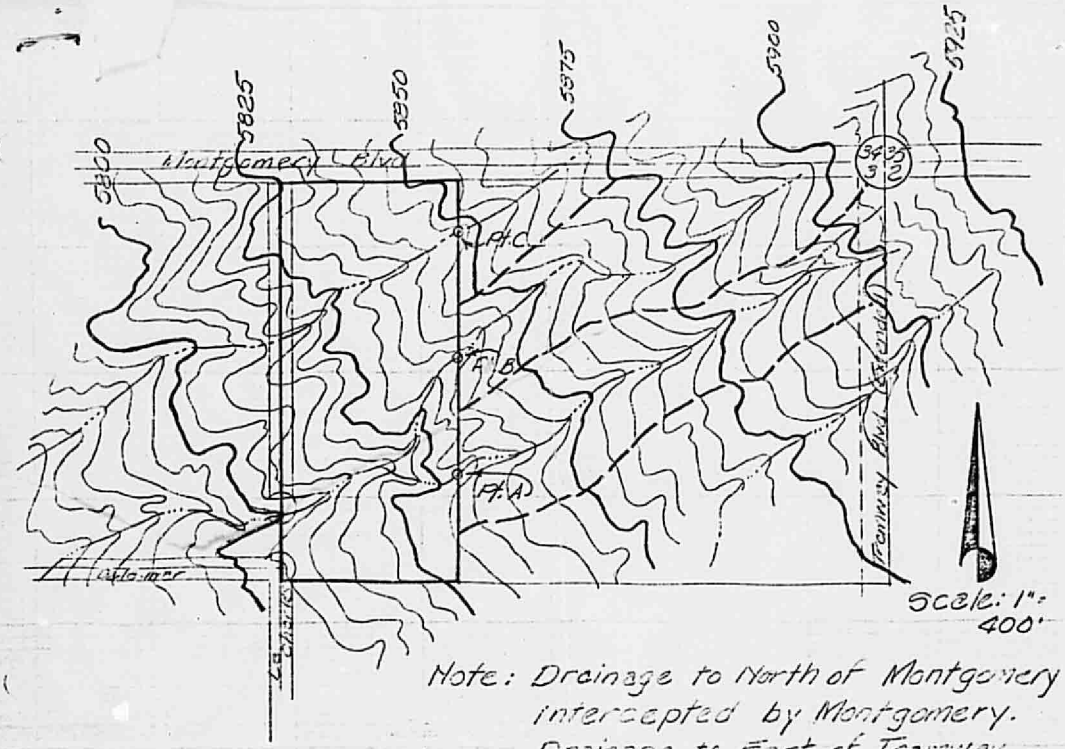
Major E-W Street grade = 0.0425; at 32' Curb to curb w/
6" crown capacity = 159 C.F.S.

Q = 67 CFS from chart (Attach. A); 64.22 computed
(using R = 0.45, 25 yr. frequency)

Excess capacity = N. and Delmar = 87 C.F.S.

All streets 32' curb to curb.

THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT




Note: Drainage to North of Montgomery intercepted by Montgomery. Drainage to East of Tramway intercepted by Tramway.

## DRAINAGE AREAS

| | |
|---|---|
| Pt. A | 12.01 acres |
| Pt. B | 9.40 acres |
| Pt. C | 2.28 acres |

**CHAMBERS, CAMPBELL, ISAACSON & CHAPLIN**
ENGINEER-ARCHITECT-PLANNERS
ALBUQUERQUE, NEW MEXICO

SUBJECT Drainage Study - Offsite
CLIENT Whittaker Corp. JOB NO.
BY G.L.D. DATE 4-72 SHEET NO. 2 OF 3

THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT

Rational Formula : $Q = AIR$

$A = 43.34$ Acres

$R =$ Runoff Coeff. $= 0.45$ (as per Chart XI-A of drainage master plan (Herkenhoff). (Also from table XII

$I =$ Rainfall intensity-

time of concentration

$T_c = \left(\frac{11.9\,L^3}{H}\right)^{0.385}$ (Design of small dams, p.47)

$L =$ length of longest watercourse in miles

$\left(\frac{2300}{5280} = 0.436\right)$

$H =$ elev. diff. in feet $=$ $(5915 - 5805) = 110$

$T_c = \left[\frac{(11.9 \cdot .436^3)}{110}\right]^{0.385} = (.008966)^{.385}$

(Direct from nomograph (SCS) $= 0.16$ hrs.)

$\log .008966 = 7.95260 - 10$

$= 2594.95260 - 2597$

$T_c = .385(2594.95260 - 2597) =$

$999.05675 - 1000$

$= 0.11396$ hrs.

Use 10 min.

from Chart 1-25 yr. (Herkenhoff)

$I = 3.3$ inches

$Q = AIR = 43.34 \times 3.3 \times 0.45 = 64.36$

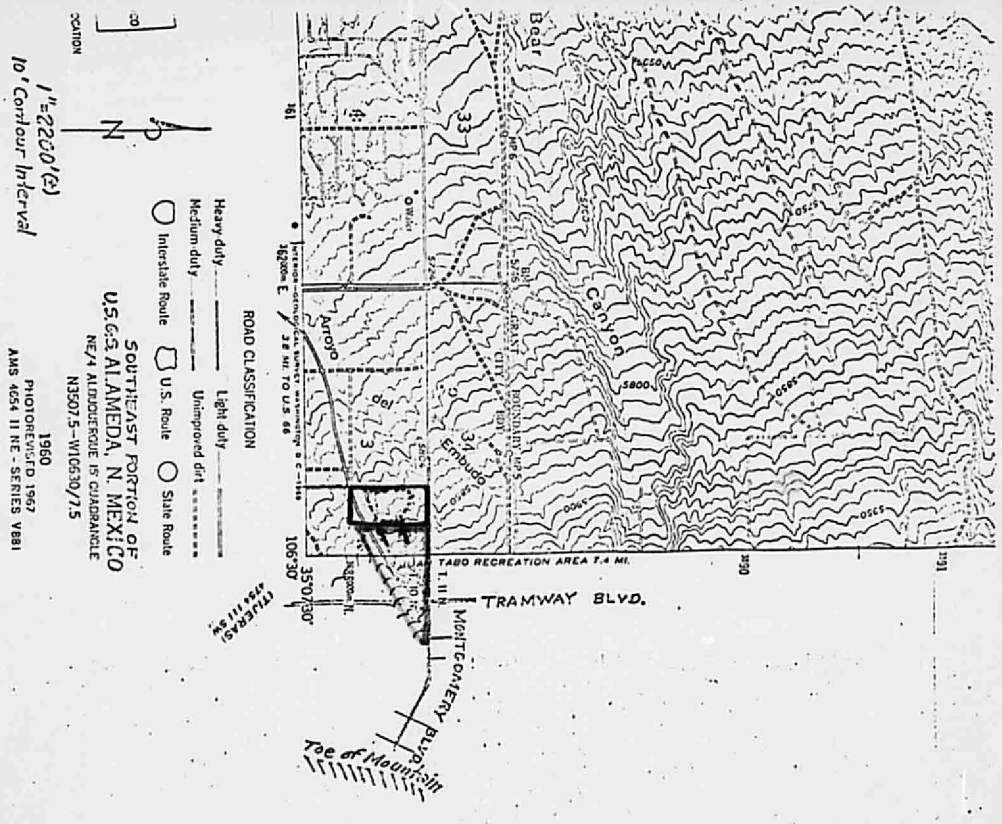
$= 67$ (Chart 2, Herkenhoff)

St. carrying capacity (32' Sq. 6" crown); $S = \frac{30}{637.37} = 0.0485$

$= 154$ CFS (Table IV)

**CHAMBERS, CAMPBELL, ISAACSON & CHAPLIN**
ENGINEER-ARCHITECT-PLANNERS
ALBUQUERQUE, NEW MEXICO

SUBJECT Drainage Study
CLIENT Whittaker Corp. JOB NO.
BY GD DATE 4-78 SHEET NO. 3 OF 3




DRAINAGE ANALYSIS and PRELIMINARY REPORT
for LA CHARLES TOWNHOUSE DEVELOPMENT Project

Area of site: 20 acres
Area of off-site watershed: 25 acres

Average slope: 5 %

Offsite runoff enters site at two points on east boundary.
Maximum anticipated runoff ( 3" rain/ 100 yr. storm) at each entry point: 60 cfs.

Recommended method of handling runoff:
Paved street along existing arroyo in southerly end of site with 32' width and 8" curbs will accommodate total runoff from both off-site and on-site to outfall near southwest corner of site (carrying capacity: 160 cfs @ slope of 5%); runoff entering site at north-center of east boundary can either be diverted to above street or across site in another paved street; local on-site runoff can be handled in asphalted or sodded swales.

Respectfully submitted,

2 February 1972

Edmund Pitt Ross EDMUND PITT ROSS
New Mexico Registered
Professional Engineer
and Land Surveyor No.1274

BOHANNAN WESTMAN HUSTON

# DRAINAGE REPORT
# FOR
# VILLA LA CHARLES

AUGUST 1977

BOHANNAN WESTMAN HUSTON & ASSOCIATES INC.
4125 Carlisle Boulevard N.E. Albuquerque, New Mexico 87107 Phone 881-2000

# DRAINAGE REPORT
# FOR
# VILLA LA CHARLES

ZONE ATLAS SHEET G-22

AUGUST, 1977

PREPARED FOR

GARY L. WATSON COMPANY
4015 CARLISLE BOULEVARD, N.E.
ALBUQUERQUE, NEW MEXICO 87107

PREPARED BY

BOHANNAN-HUSTON INC.
4125 CARLISLE BOULEVARD, N.E.
ALBUQUERQUE, NEW MEXICO 87107

RAYMOND W. MACY
NEW MEXICO
6414
REGISTERED PROFESSIONAL ENGINEER

Raymond W. Macy

RAYMOND W. MACY, P.E.
N.M.P.E. No. 6414

## TABLE OF CONTENTS


| | PAGE |
|---|---|
| PURPOSE | 1 |
| PROJECT LOCATION AND DESCRIPTION | 1 |
| HYDROLOGY | 1 |
| EXISTING DRAINAGE | 2 |
| BASIN I DRAINAGE AFTER DEVELOPMENT | 2 |
| BASIN II DRAINAGE AFTER DEVELOPMENT | 3 |
| SUMMARY | 3 |
| RECOMMENDATIONS | 3 |


## APPENDIX

CALCULATIONS

## PLATES


PLATE I.....PROJECT LOCATION

PLATE II.....DRAINAGE PLAN

DRAINAGE REPORT
FOR
VILLA LA CHARLES

## PURPOSE

The purpose of this report is to determine the runoff generated by a 100-year frequency storm falling within and upland from Villa La Charles under existing and developed conditions, and to provide guidelines for development so that drainage requirements established by AMAFCA and the City of Albuquerque can be met.

## PROJECT LOCATION AND DESCRIPTION

Villa La Charles lies at the south edge of Montgomery Boulevard and is bordered on the east by the Cibola Village Apartments and the Cibola Village Subdivision and on the west and south by El Dorado Heights and Holiday Park respectively, as shown in Plate I.

The property consists of approximately 18.7 acres and is covered with sparse amounts of native vegetation. The natural terrain slopes from east to west on an average slope of 5%.

The subdivision will be developed into two types of residential areas. The south 11.8 acres will be single family residences with a density of approximately three dwelling units per acre. The remaining 6.9 acres at the north end of the property will be multi-family apartment units.

## HYDROLOGY

Peak runoff rates were determined using the rational formula for a 100-year frequency storm. Rainfall intensities were selected from curves presented in the Master Plan of Drainage, 1963, for the Albuquerque area.

Detention basin volume requirements were based on the modified rational method analysis as presented in Practices in Detention of Urban Storm Water Runoff, produced by the American Public Works Association. Calculations are provided in the Appendix at the back of this report.

EXISTING DRAINAGE

The upland flow affecting Villa La Charles originates from the east. The majority of the runoff (29 CFS) enters Villa La Charles from the Cibola Village Subdivision through a drainage easement at the southeast corner. Approximately 4 CFS enters about midway through the eastern border from the Cibola Village Apartments. The values for the upland runoff were obtained from the Cibola Village drainage report performed by Bohannan Westman Huston and Associates in April, 1975.

The runofff originating within the parcel, combined with the upland runoff, flows out of the parcel at the western border. In determining the undeveloped runoff, the tract was divided into two basins to coincide with the different types of proposed residential developments. Drainage areas and flow rates are shown on Plate II.

BASIN I DRAINAGE AFTER DEVELOPMENT

The upland runoff, 29 CFS, from the Cibola Village Subdivision near the southeast corner of Basin I, and the 4 CFS from the Cibola Village Apartments will be directed onto the interior streets of Villa La Charles through drainage easements and carried to La Charles Drive. Rear yard ponding will be used on all lots in Basin I to contain runoff from behind the front yard setback line. The remaining runoff of 14.0 CFS in Basin I will be collected in the streets and discharged at the southwest corner onto La Charles Drive.

BASIN II DRAINAGE AFTER DEVELOPMENT

All internal runoff from the apartment complex site will be directed toward the southwest corner of Basin II, and be transported to a detention pond through two 24-inch diameter corrugated metal pipes (CMP) placed beneath the roadway. The detention pond will have a potential water storage of more than 24,500 cubic feet at a depth of three feet. Runoff water will be carried through a 15-inch diameter reinforced concrete pipe (RCP) from the detention pond to La Charles Drive, where it will be discharged into the gutter of La Charles Drive at maximum rate of 5 CFS. A fifteen foot drainage easement will be required along the west edge of Basin I for the 15-inch RCP storm line. See Plate II for details.

SUMMARY

Upland runoff will be emptied into the street system of Villa La Charles. Internal runoff from Basin I will be controlled by rear yard ponding. Basin II runoff will be collected into a detention pond and discharged through a storm sewer onto La Charles Drive at a maximum rate of 5 CFS.

RECOMMENDATIONS

1. Provide drainage easement channels to direct upland flow from Cibola Village to the interior streets of Villa La Charles.

2. Construct the detention pond and related culverts and storm sewer regardless of whether the R-1 area or apartment area is developed first.

3. Provide rear yard ponding on all R-1 lots.

4. Construct a low masonry wall at the southeast corner of Lot 8 in Block 2.

5. Provide an over-flow weir for the detention pond which drains into the adjacent street.

6. Divert street flow from Basin II into the detention pond with rundown sections.

7. Provide grass-lined channels in the apartment area as shown on Plate II.

# APPENDIX

## CALCULATIONS

UNDEVELOPED RUNOFF - Basin I

Upland runoff from eastern subdivision = 29 + 4 = 33 cfs
(from Cibola Village drainage report)

Length of watercourse = 920 ft = L

Slope of basin in percent = $\frac{5842-5805}{920} \times 100 = 4.02\% = S$

ground factor = 1.8 (poor vegetation) = K

Time of concentration = Tc

$T_c = \log^{-1}[.3641(K) + .3854(\log L) - .197(\log S) - .3613]$

$T_c = \log^{-1}[.3641(1.8) + .3854(\log 920) - .197(\log 4) - .3613]$

Tc = 20.78 minutes

Intensity = $I = \frac{189}{25+T_c} = \frac{189}{25+20.8} = 4.13$ inches/hour

Q = CIA

where Q = flow in cfs
C = runoff factor
I = rainfall intensity
A = area in acres

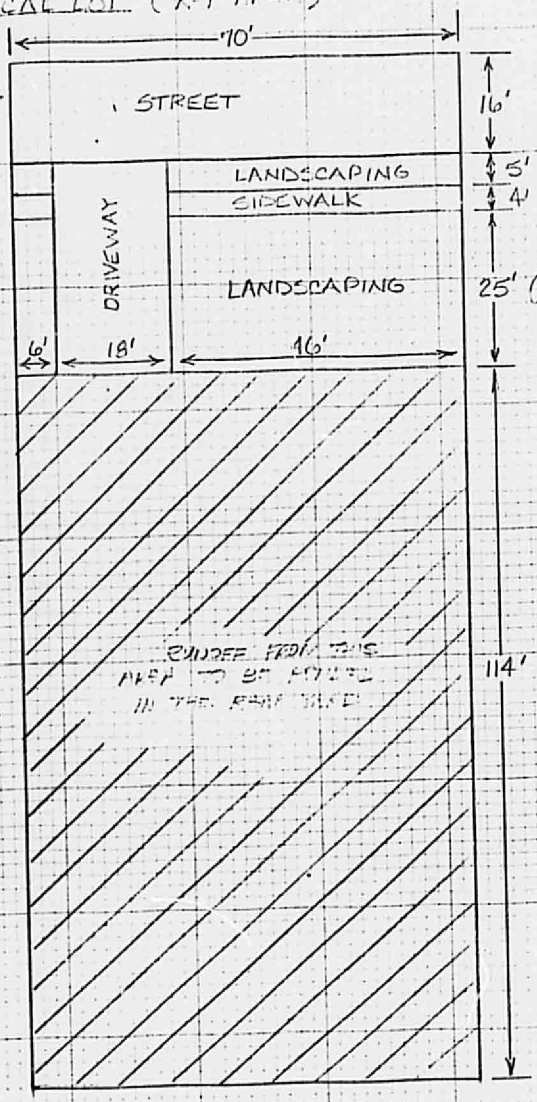
C = 0.35, I = 4.13, A = 11.8

Q = (0.35)(4.13)(11.8) = 17.1 cfs

Total undeveloped runoff
Q = 17.1 + 33 = 50.1 cfs

| | | | |
|---|---|---|---|
| PROJECT NAME | LA CHARLES | SHEET 1 | OF 13 |
| PROJECT NO. | 77-146 | BY LH | DATE 6-27-77 |
| SUBJECT | DRAINAGE REPORT | CH'D | DATE |

TYPICAL LOT (R-1 AREA)




PROJECT NAME VILLA LA CHAPELLE SHEET 2 OF 13

PROJECT NO. 77-146 BY LH DATE 6-27-77

SUBJECT DRAINAGE REPORT CH'D _____ DATE _____

DEVELOPED RUNOFF

For each lot

pavement area:

Street 70 X 16 = 1120

Sidewalk 52 X 4 = 208

driveway 18 X 34 = 612

Total = 1940 ft² = 16.9%

Landscaping Area:

52 X 25 = 1300

52 X 5 = 260

Total = 1560 ft² = 13.6%

Ponding area:

114 X 70 = 7950 = 69.5

Total area of basin = 512,800 ft²

− 5510 ft² area of drainage easement

507,290 ft²

pavement area: (507290)(.169) = 85722 + 5510 = 91242

landscaping: (507290)(.136) = 68991

ponding: (507290)(.695) = 352567

Percentages:

pavement = 17.8% c = 0.95

landscaping = 13.4% c = 0.35

ponding = 68.8% c = 0

Runoff Factor:

c = (0.95)(.178) + (0.35)(.134) + (0)(.688)

c = 0.22

L = 1090 ft

$S = \frac{5842 - 5805}{1090} \times 100 = 3.4\%$

$\beta = 0.77$

$T_c = \log^{-1}[.3641(.77) + .3854(\log 1090) - .197(\log 3.4) - .2612]$

$T_c$ = 9.66 minutes ⟶ use 10 minutes

$I = \frac{189}{10 + 25} = 5.4$ inches/hour

Q = CIA

C = 0.22, I = 5.4, A = 11.8

Q = (0.22)(5.4)(11.8) = 14.0 cfs

+ 33 cfs upland runoff

Total Developed Runoff = 47 cfs

Total undeveloped Runoff = 50.1 cfs

UNDEVELOPED RUNOFF BASIN II.

L = 800

S = 5%

$\beta$ = 1.8 (poor vegetation)

$T_c = \log^{-1}[.3641(1.8) + .3854(\log 800) - .197(\log 5) - .2612]$

$T_c$ = 18.8 minutes

$I = \frac{189}{25 + 18.8} = 4.32$ inches/hour

Q = CIA

C = 0.25, I = 4.32, A = 6.9 acres

Q = 10.43 cfs

PROJECT NAME LA CHARLES SHEET 4 OF 13

PROJECT NO. 77-146 BY LH DATE 6-27-77

SUBJECT DRAINAGE REPORT CH'D DATE

DEVELOPED RUNOFF - BASIN II

TOTAL AREA OF SITE = 308,000 SQ.FT

AREA TO BE DRAINED INTO DETENTION POND IS 303,000 SQ.FT.

AREA OF UNDEVELOPED IS 106,000 SQ.FT.

AREA PAVED OR ROOFED (INCLUDING SIDEWALKS) IS 189,000

AREA OF POND IS 7000 SQ.FT.

AREA OF POOL IS 1000 SQ.FT

USE RATIONAL FORMULA : Q = CIA

"C" FOR GRASS OR VEGETATED AREAS IS 0.35

"C" FOR PAVED AREAS IS 0.95

"C" FOR PONDED AREA IS 1.00

"C" FOR POOL IS 0.00

ADJUSTED "C" FACTOR IS

$$C = 0.35\left(\frac{106}{303}\right) + 0.95\left(\frac{189}{303}\right) + 1.0\left(\frac{7}{303}\right) \quad 0.0\left(\frac{1}{303}\right)$$

.12 0.59 0.02

C = 0.74

A = 303,000 SQ.FT = 6.96 ACRE = 7.0 ACRE

$$I = \frac{189}{T_c + 25} = \text{RAINFALL INTENSITY}$$

$$T_c = 10^{6} \left(0.3641 B + 0.3854 \log(L) - 0.197 \log(S) - 0.3613\right)$$

$T_c$ = TIME OF CONCENTRATION (MINUTES)

B = GROUND FACTOR = 0.77

L = LENGTH OF WATER COURSE = 650 FEET

S = SLOPE OF DEVELOPED SITE = 0.0554 = 5.5%

$T_c$ = 7.20 minutes ⇒ USE 10 MINUTES

PROJECT NAME Villa La Charles SHEET 5 OF 13

PROJECT NO. 77-146 BY Jopy DATE 8/16/77

SUBJECT Drainage Report CH'D DATE

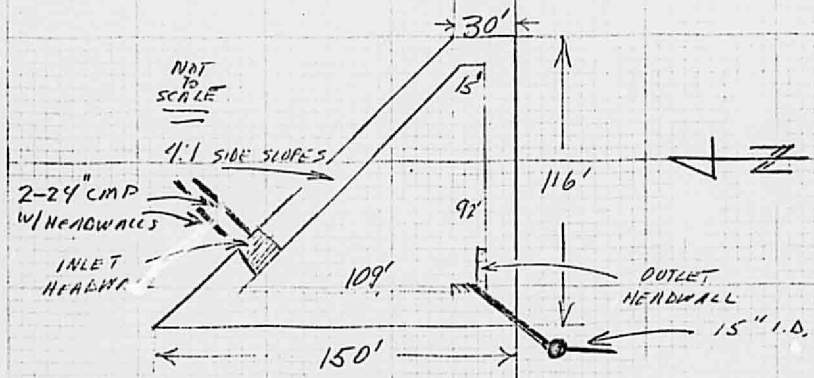
| STORM DURATION (MINUTE) | INTENSITY (IN²/HR.) | RUNOFF RATE CFS | VOLUME OF RUNOFF FT³ | DISCHARGE RATE CFS | DISCHARGE VOLUME CU. FT. | STORAGE VOLUME CU. FT. |
|---|---|---|---|---|---|---|
| 7.2 | 5.87 | 30.2 | 13060 | 5.0 | 2160 | 10900 |
| 10.0 | 5.40 | 27.8 | 16687 | 5.0 | 3000 | 13687 |
| 20.0 | 4.20 | 21.6 | 25958 | 5.0 | 6000 | 19958 |
| 30.0 | 3.44 | 17.7 | 31858 | 5.0 | 9000 | 22858 |
| 40.0 | 2.91 | 15.0 | 35942 | 5.0 | 12000 | 23942 |
| 50.0 | 2.52 | 13.0 | 38937 | 5.0 | 15000 | 23937 |
| 115.0 | 2.70 | 13.9 | 37546 | 5.0 | 13500 | 24046 * |

DETENTION POND NEEDED MUST BE ABLE TO MAINTAIN 24046 cubic feet OF WATER.

FROM NOMOGRAPHS IN "SELECTED DESIGN DATA", FIG. 1 VOL. I, 3" ED. PIPE CARRYING 5 CFS FROM DETENTION POND TO LA CHARLES DRIVE IS RECOMMENDED TO BE AT LEAST 15 INCH I.D. R.C.P. PLACED AT A MINIMUM SLOPE OF 1.5%, THUS PRODUCING A FLOW VELOCITY OF 4 FPS.

PROJECT NAME VILLA LA CHARLES SHEET 6 OF 13
PROJECT NO. 77-146 BY J. Py DATE 8/16/77
SUBJECT DRAINAGE REPORT CH'D DATE

AVE. AREA OF POND ≈ 8320 SQ FT.




PLAN VIEW OF DETENTION POND

DEPTH OF POND IS 3 FEET

WATER STORAGE CAPACITY IS GREATER THAN 24900 CUBIC FEET

FROM NOMOGRAPHS IN "SEELYE DESIGN DATA", VOL I, 3rd EDITION, 1960

PIPE CROSSING ROADWAY NEAR DETENTION POND MUST BE AT LEAST 24" DIAMETER W/SLOPE = 2.3% AND 2 FT. HEAD WATER

CHECKED WITH $Q = CA\sqrt{2gh}$ : $h = 1.5'$ OK $V > 8$ fps N.G.

2-24" CMP WILL REQUIRE NO HEAD, AND FLOW AT 4½ fps

∴ 2-24" CMP WILL BE UTILIZED

| | | | |
|---|---|---|---|
| PROJECT NAME | Villa La Charles | SHEET 7 | OF 13 |
| PROJECT NO. | 77-146 | BY Zoy | DATE 8-16-77 |
| SUBJECT | Drainage Report | CH'D | DATE |

TO DETERMINE THE RUNOFF FLOWS FROM THE SECONDARY BASINS (BASINS A, B, C, D, E, F, G, H AND I) A NEW "C" FACTOR IS DETERMINED THAT APPLIES TO THE APARTMENT COMPLEXES, PARKING LOTS AND GRASS AREAS ONLY.

TOTAL AREA OF SECONDARY BASINS IS 6.04 ACRE
AREA OF GRASS AREAS = 2.35 ACRES
AREA OF PAVED AREAS INCLUDING ROOFS = 3.69 ACRES

"C" FOR GRASS AREAS = 0.35
"C" FOR PAVED AREAS = 0.95

ADJUSTED "C" FACTOR IS $0.35(0.3897) + 0.95(0.6103)$

"C" = 0.71

$Q = CIA$

$I = \frac{189}{T_c + 25}$ (IF $I < 5.4$ IN/HR WILL USE $I = 5.4$ IN/HR)

$T_c = 7.97$ min. @ $B = 0.77$, $L = 650'$, $S = 5.5\%$

$I = 5.7$ in/HR ∴ USE 5.4 IN/HR. = I

$Q = 23.16$ CFS

PROJECT NAME Villa La Charles SHEET 8 OF 13
PROJECT NO. 77-146 BY Jay DATE 8/22/77
SUBJECT Drainage Report CH'D DATE

FLOWS FROM THE INDIVIDUAL DRAINAGE AREAS

| RUNOFF AREA | ACREAGE (ACRES) | FLOW (CFS) |
|---|---|---|
| A | 0.72 | 2.76 |
| B | 0.63 | 2.42 |
| C | 1.10 | 4.22 |
| D | 0.40 | 1.53 |
| E | 0.53 | 2.03 |
| F | 1.10 | 4.22 |
| G | 0.74 | 2.84 |
| H | 0.65 | 2.49 |
| I | 0.17 | 0.65 |

$Q = CIA$

COMPUTED ON PAGES 5 & 6

$C = 0.71$

$I = 5.4$ IN/HR.

TOTAL FLOW = 23.16 cubic feet per second

PROJECT NAME Villa La Cholla SHEET 9 OF 13

PROJECT NO. 77-146 BY [illegible] DATE 8/22/77

SUBJECT Drainage Report CH'D _____ DATE _____

STREET RUNOFF IN BASIN II

FLOW TO BE DISCHARGED EAST OF STREET INTO 7' DEPRESSION IS:

AREA = 0.23 ACRE
C = 0.95
B = 0.77
S = 5'/340' = 1.5%
L = 340'
$T_c$ = 7.24 min.
I = 5.86 in²/HR. : USE 5.4 IN/HR
Q = 1.18 CFS = 1.2 CFS

FLOW TO BE DISCHARGED WEST OF STREET DIRECTLY INTO DEPRESSION

AREA = 0.28 ACRE
C = 0.95
B = 0.77
S = 6'/430' = 0.014 = 1.4%
L = 430'
$T_c$ = 8.039 min.
I = 5.72 in²/HR : USE 5.4 IN/HR.
Q = 1.44 = 1.4 CFS

PROJECT NAME KILLA LA CHARLES SHEET 10 OF 13
PROJECT NO. 77-146 BY [illegible] DATE 8/23/77
SUBJECT DRAINAGE REPORT CH'D DATE

FLOW TO BE DISCHARGED ONTO STREETS OF BASIN I (REFER TO SKETCH BELOW)

AREA = 0.105 ACRES

C = 0.95

B = 0.77

$S = \frac{1.5'}{60} = 0.025 = 2.5\%$

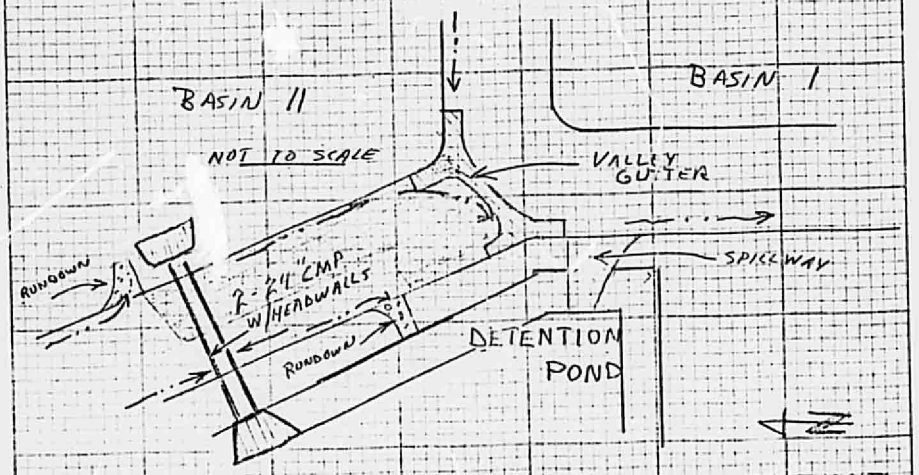
L = 60'

$T_c$ = 3.357 min. : use 10.0 min.

i = 6.665 in/HR. ; USE 5.4 in/HR.

Q = 0.54 = 0.5 CFS

THIS FLOW OF 0.5 CFS IS CONSIDERED AS BASIN I RUNOFF




SKETCH OF AREA ALLOWED TO DRAIN DIRECTLY ONTO STREETS OF BASIN I FROM STREET IN BASIN II. SHADED AREA REPRESENTS AREA OF CONCERN

PROJECT NAME Villa La Charles SHEET 11 OF 13

PROJECT NO. 77-146 BY Jeffrey DATE 8/23/77

SUBJECT Drainage Report CH'D DATE

TOTAL FLOW BEING DISCHARGED INTO DETENTION POND IS 25.8 CFS, THEREFORE SPILLWAY IS DESIGNED TO HANDLE THIS FLOW.

$$Q = C_W L H^{3/2}$$ DISCHARGE OVER A BROAD CRESTED WEIR

$C_W$ IS COEFFICIENT OF APPROACH VELOCITY

$C_W = 2.70$ (WATER RESOURCES AND ENVIRONMENTAL ENGINEERING, 1972, LINSLEY & FRANZINI, MCGRAW & HILL)

$H = 0.5$ FT. = HEAD

$L$ = LENGTH OF WEIR (FT.)

$Q$ = FLOW (CFS)

$$\therefore L = \frac{Q}{C_W H^{3/2}} = \frac{25.8 \text{ CFS}}{2.70\,(0.5)^{3/2}} = 15.17 = 16 \text{ FEET}$$

MINIMUM LENGTH OF SPILLWAY IS 16 FEET WITH DEPTH OF 0.5 FEET

PROJECT NAME Villanta Charles SHEET 12 OF 13
PROJECT NO. 77-146 BY Jey DATE 8/30/77
SUBJECT Drainage Report CH'D DATE

GRASS LINED SWALE DESIGN

MAXIMUM FLOW ANTICIPATED IS 13.7 CFS
MINIMUM DESIGN SLOPE IS 0.005 = .5%

use 4:1 SIDE SLOPES
ASSUMED BASE OF SWALE IS 4.0 FEET

UTILIZING THE PROGRAMMED H.P 9100 B CALCULATOR, THE MAXIMUM DEPTH OF FLOW THAT MAY BE EXPECTED IS 0.87 FT = 1.0 FT. WITH VELOCITY = 2.1 fps

DEPTH OF HEAD REQUIRED ON CULVERT TRANSPORTING STORM WATER FLOW ACROSS THE STREET NEAR BASINS H & I IS DESIGNED AS SUCH -

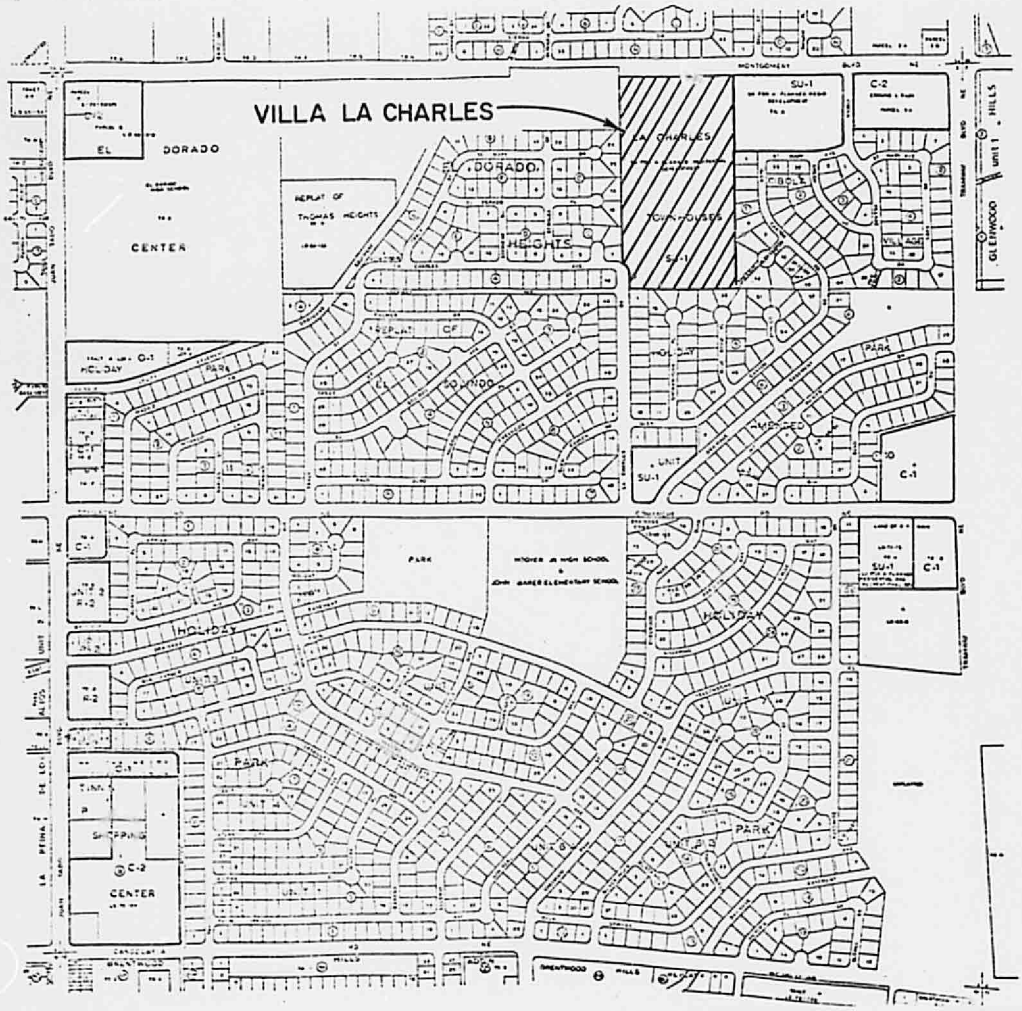
$$Q = c A \sqrt{2gh}$$

c = 0.6 (FOR EXTREME ORIFICE CONDITIONS)
Q = 9.5 CFS. ENTERING "DOUBLE C" INLET
A = 24 INCH I.D. = 3.14 $FT^2$

H = 0.39 FT. REQUIRED

A MINIMUM OF 0.5 FEET HEAD IS REQUIRED TO CARRY 9.5 CFS THROUGH A 24 INCH I.D. PIPE

PROJECT NAME VILLA LA CHARLES SHEET 13 OF 13
PROJECT NO. 77-147 BY [illegible] DATE 8/30/77
SUBJECT DRAINAGE REPORT CH'D DATE




# PLATE I
# PROJECT LOCATION

G - 22-Z

BOHANNAN WESTMAN HUSTON & ASSOCIATES, INC.