PLANS/PLATS ON FILE

FILE DESC: K-22/D022 A

PLANS/PLATS 5

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

February 7, 1983

Mr. David Millikan
Bohannan, Huston Inc.
4125 Carlisle Blvd. NE
Albuquerque, New Mexico 87107

Ref: Lots 5, 6, 19, 20, Block A
La Cuesta Subdivision
(K22-D22A)

Dear Mr. Millikan:

The Engineering Department's review of your proposed drainage and grading plan has the following comments:

1. The City does not allow detention ponds without an outfall (Drainage Ordinance Section 6, Clause F.).

2. Zia Road will be required to be paved with the necessary drainage facility along Juan Tabo to be built. The City will consider temporary drainage facilities with a maintenance agreement and a financial committment for the permanent drainage channel and a completed Zia Road street section.

Please contact me to further discuss these requirements or anything else regarding this site.

Very truly,

Andre Houle, PE
Civil Engineer/Hydrology

AH/el

cc: Drainage File
Reading File

BOHANNAN-HUSTON INC.

4129 CARLISLE BLVD., N.E. ALBUQUERQUE, NEW MEXICO 87107 (505) 881-2000
6713 VISCOUNT BLVD., EL PASO, TEXAS 79925 (915) 778-4491
330 GARFIELD SANTA FE, NEW MEXICO 87501 (505) 988-7971

November 29, 1982

Mr. Harley V. Parr
Drainage Bureau Chief
NMSHD
P. O. Box 1149
Santa Fe, NM 87501-1149

RECEIVED
DEC 8 1982
CITY ENGINEER

Re: Juan Tabo – Interstate 40 Interchange K22-D22

Dear Mr. Parr:

We have recently submitted a conceptual drainage plan to the City of Albuquerque for the La Cuesta Sector Plan area. This area is located in the northeast quadrant of the Juan Tabo-Interstate 40 Interchange. This area is bounded by Copper Avenue on the north and Zena Lona Street on the east.

On November 22, 1982, Dave Millikan, of our office, met with Ron Gaines, of your staff, to discuss your drainage concerns in this area. Upon reviewing your files, it appears that the 8'x4' concrete box culvert, which has been constructed beneath Ramp "C," is designed to accept flows from this area. Computations in your file indicate that the box culvert is designed to accept a peak flow due to a 100-year storm of 192 cfs. Its contributing area is 37.65 acres.

Our calculations indicate a peak 100-year flow rate of 90.4 cfs entering the box culvert from the La Cuesta Sector Plan area. A copy of our report is enclosed for your review. This flow rate is the total runoff from Basins B-1 through B-5, C-1 through C-7, and D-1.

The apparent reasons for the lesser flow rate are:

1. The area between the main roadway and Ramp "C" is no longer a part of the contributory area.

2. Our computations are based upon City of Albuquerque Development Process Manual procedures, not NMSHD procedures. The different procedures result in a lower runoff coefficient and intensity for our calculations than for yours.

3. Your computations were done at a time when less was known about the future development of this area.

PRINCIPALS
JERRY R. BOHANNAN, P.E. & L.S.
LARRY W. HUSTON
DONALD T. CREMANS, P.E.
C. J. (SKIP) MEAD, P.E.
MICHIAL M. EMERY, P.E.

ASSOCIATES
ANDRES ARAGON VIAMONTE, P.E.
JACK EICKORN
ROBERT H. GREENLEE, P.E.
G. LEE TRUSSELL
ISAAC J. PINO, P.E.
RAMON LARA, P.E.
DARRELL L. WADE P.E.
PATRICK L. STIEHR, P.E.
DAVID M.Y. MILLIKAN, P.E.

We are enclosing a copy of the response received from Mr. Andre Houle, at the City, concerning our conceptual drainage plan. Mr. Houle expresses concern that some of the flows on Juan Tabo Boulevard will leave the Juan Tabo right-of-way and flow to the 8'x4' concrete box culvert beneath Ramp "C." Your analysis, and ours, assume that no flows from Juan Tabo Boulevard must be conveyed through the 8'x4' box culvert. It is our understanding that if any flows leave the Juan Tabo right-of-way they will enter the northwest quadrant, not the northeast. Your input on this matter will be appreciated.

The other item of concern Mr. Houle has is our proposal to discharge developed flows into the Interstate 40 concrete ditch. Since the developed drainage patterns are not significantly altered from the existing drainage patterns, we assumed this would not be a problem.

A proposed cross-section for the channel along Juan Tabo Boulevard is enclosed. Runoff from Basins C-1 through C-7 will be conveyed to the entrance of the box culvert in an adequately designed swale. Runoff from Basin D-1 will be conveyed to the invert of the roadside ditch along Ramp "C" in an adequately designed swale. Detailed design of these swales will be prepared at the time improvement drawings are prepared for development of these basins. Upon completion, the drawings will be submitted for your review along with a request for a permit to discharge into the highway right-of-way. Please notify us if this is an acceptable procedure with your staff.

If the proposals contained in our conceptual drainage plan and this letter are acceptable to you, please confirm this so we may forward a copy to Mr. Houle, at the City. If you have any questions, please call Dave Millikan or me.

Sincerely yours,

Michial M. Emery

Michial M. Emery, P.E.
Vice President

cc: Mr. Ron McConnell
~~Mr. Andre Houle~~

Enclosures

DMYM/dlh
Job No. 2 096 1

INFORMATION SHEET

PROJECT TITLE Townhouse Development in Las Cuesta Subdivision TYPE OF SUBMITTAL Drainage Report

ZONE ATLAS PAGE NO. K-22 - 022a CITY ADDRESS

LEGAL DESCRIPTION Lots 5, 6, 19, 20, Block A – La Cuesta Subdivision

ENGINEERING FIRM Bohannan–Huston, Inc. CONTACT Dave Woods

ADDRESS 4125 Carlisle Blvd., NE PHONE 881-2000

OWNER R.D. McConnell CONTACT R.D. McConnell

ADDRESS 1255 Church Street PHONE (415) 676-8969

ARCHITECT CONTACT

ADDRESS PHONE

SURVEYOR CONTACT

ADDRESS PHONE

CONTRACTOR CONTACT

ADDRESS PHONE

DATE SUBMITTED December 3, 1982

BY David M. G. Miller

RECEIVED

DEC 06 1982

ENGINEERING

ENGINEERS PLANNERS PHOTOGRAMMETRISTS

BOHANNAN-HUSTON INC.

4125 CARLISLE BLVD., N. E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000
673 VISCOUNT BLVD., EL PASO, TEXAS 79925 915 778-4491
330 GARFIELD, SANTA FE, NEW MEXICO 87501 505 988-7871

February 10, 1983

Mr. Andre Houle
Civil Engineer/Hydrology
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

Re: Townhouse Parcel on Copper Avenue in La Cuesta Subdivision

Dear Andre:

In response to your comments on the above-referenced project, we offer the following information:

1. Section 6, Clause F of the Drainage Ordinance refers to detention ponds. The ponds in the backyards of the townhouses on this project are designed to retain the volume of runoff generated within the backyards only. No runoff from the roofs of the buildings is to drain to these areas. Each pond is designed to retain the amount of runoff generated by the 100-year six-hour storm.

   The Development Process Manual, Section 22.2 C3, states that "It is understood that the grading of certain parcels may require the use of backyard ponds . . . however, no credit will be given in the overall determinations of peak rates of runoff and runoff volumes from the subdivision." Credit for the amount of runoff retained in these ponds is not necessary in this case.

2. It is recognized that the improvements to Zia Road and the associated drainage facilities will be required prior to issuance for a certificate of occupancy for the units on this parcel.

This information should satisfactorily address the concerns expressed in your letter, dated February 7, 1983, to Dave Millikan. Your prompt approval of this drainage plan will be appreciated.

PRINCIPALS
JERRY R. BOHANNAN, P. E. & L.S.
LARRY W. HUSTON
DONALD T. CREMANS, P. E.
C. J. (SKIP) MEAD, P. E.
MICHIAL M. EMERY, P. E.

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G. LEE TRUSSELL
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RAMON LARA, P. E.
DARRELL L. WADE, P. E.
PATRICK L. STIEHR, P. E.
DAVID M. Y. MILLIKAN, P. E.

If you have anv additional questions, please contact Dave Millikan or me at this office.

Sincerely yours,

Michial M. Emery

Michial M. Emery, P.E.
Vice President

cc: Mr. Ron McConnell

DMYM/dlh
Job No. 2 097 3

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

February 16, 1983

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

Ref: Townhouse Parcel on Copper Avenue, La Cuesta Subdivision
(K11-D22A)

Dear Mr. Emery:

I have checked and verified with my supervisor that residential development can indeed have retention ponds. Therefore the drainage and grading proposal is hereby accepted by the City for development.

However in order to obtain a building permit or obtain a filed plat the following concerns must be addressed:

1. All drainage facilities such as streets, curb and gutters, channels along Juan Tabo and NMSHD department approval of outfall in NMSHD right-of-way must be finalized or an acceptable guarantee of these improvements be provided. The City will consider temporary facilities and a maintenance agreement in lieu of the final solution at this time. These measures are required because no Certificate of Occupancy is required for Townhouse developments and the leverage for development of drainage facilities must be attached on the platting request and/or the building permit.

Contact me if you need any additional information on these requirements.

Very truly,

Andre Houle, PE
Civil Engineer/Hydrology

AH/el

cc: Drainage File
Reading File

INFORMATION SHEET

PROJECT TITLE K22-D22B ~~[illegible]~~ Corte de Oro TYPE OF SUBMITTAL Amendment ~~[illegible]~~

ZONE ATLAS PAGE NO. _____ CITY ADDRESS _____

LEGAL DESCRIPTION _____

ENGINEERING FIRM CTS, INC CONTACT ANDRE HOOLE

ADDRESS 1100 ALVARADO PHONE 266-3444

OWNER RON McCONNELL CONTACT _____

ADDRESS _____ PHONE _____

ARCHITECT _____ CONTACT _____

ADDRESS _____ PHONE _____

SURVEYOR _____ CONTACT _____

ADDRESS _____ PHONE _____

CONTRACTOR _____ CONTACT _____

ADDRESS _____ PHONE _____

DATE SUBMITTED 11-17-83

By [signature]

Amended to include paving section for letter of credit & Agreement processing

RECEIVED
NOV 17 1983
ENGINEERING

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

READING FILE

November 23, 1983

Mr. Andre Houle
CTS, Inc.
1100 Alvarado
Albuquerque, NM 87110

REF: SECURITY VILLAGE (K22-D22) and CORTE DE PAZ (K22-D23) DATED 11/17/83

Dear Mr. Houle:

The referenced revised drainage plan is in accordance with our previous discussion; therefore, these plans are approved.

If you have any questions, please feel free to contact me at 766-7644.

Sincerely,

Fred J. Aguirre
Design Hydrologist

FJA:mrk

DMJM

RECEIVED
FEB 11 1986
HYDROLOGY SECTION

RECEIVED
FEB 11 1986
CITY ENGINEER

February 10, 1986

MDD/Engineering
Design Hydrology
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

ATTN: Mr. Fred Aguirre, P. E.

RE: Corte de Paz - AC 84594

Dear Fred:

I have, as a result of your telephone call, reviewed our files and find no correspondence at all. As I remember the original problem, it had to do with the construction of masonry rear yard walls instead of cedar fences and the method of handling roof drainage.

Attached is a print of a drawing prepared by our firm as a result of a conversation you and I had, discussing the existing report and the construction methods and materials desired by Roberson Construction Company.

If additional information is needed, please notify me.

Sincerely,

Jean J. Bordenave, P. E.

Attachment

JJB/dt

Daniel, Mann, Johnson, & Mendenhall
Suite 280, 5700 Harper Drive, N.E.
Albuquerque, New Mexico 87109
Telephone: 505/822-7955

Planning
Engineering
Systems
Economics

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Corte de Paz ZONE ATLAS/DRNG. FILE #: K22/D22A

LEGAL DESCRIPTION: Corte de Paz

CITY ADDRESS:

ENGINEERING FIRM: DMJM CONTACT: J.J. Bordenave

ADDRESS: 5700 Harper NE PHONE: 822-7955

OWNER: various CONTACT:

ADDRESS: PHONE:

ARCHITECT: unknown CONTACT:

ADDRESS: PHONE:

SURVEYOR: DMJM CONTACT: J.J. Bordenave

ADDRESS: PHONE: 822-7955

CONTRACTOR: Robertson Const. Co. CONTACT: Coda Robertson

ADDRESS: 6001 Atrisco NW PHONE: 897-4996

RECEIVED APR 16 1986 HYDROLOGY SECTION

PRE-DESIGN MEETING:

___YES DRB NO. –

_X_NO EPC NO. –

_X_COPY OF CONFERENCE RECAP SHEET PROVIDED PROJ. NO. –

TYPE OF SUBMITTAL:

___DRAINAGE REPORT

___DRAINAGE PLAN

___CONCEPTUAL GRADING & DRAINAGE PLAN

___GRADING PLAN

___EROSION CONTROL PLAN

_X_ENGINEER'S CERTIFICATION

~~_X_ RECORD DRAWING~~

CHECK TYPE OF APPROVAL SOUGHT:

___SKETCH PLAT APPROVAL

___PRELIMINARY PLAT APPROVAL

___SITE DEVELOPMENT PLAN APPROVAL

___FINAL PLAT APPROVAL

___BUILDING PERMIT APPROVAL

___FOUNDATION PERMIT APPROVAL

___CERTIFICATE OF OCCUPANCY APPROVAL

___ROUGH GRADING PERMIT APPROVAL

___GRADING/PAVING PERMIT APPROVAL

_X_OTHER ~~Hydrology~~ For compliance with Corte De Paz's Subdivision Improvements Agreement. ~~Satisfaction~~ (SPECIFY)

DATE SUBMITTED: 4-16-86

BY: J J Bordenave

FILE COPY

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

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

April 22, 1986

Jake Bordenave
DMJM
5700 Harper Drive, NE Suite 280
Albuquerque, New Mexico 87109

RE: CERTIFICATION FOR CORTE DE PAZ (K-22/D22A)
RECEIVED APRIL 16, 1986

Dear Mr. Bordenave:

A field inspection was conducted on April 18, 1986. Our inspection revealed that the items listed below are contrary to the approved drainage plan.

1. Water crossing West property line thru wall into adjacent property.

2. Roof drainage not as shown on plan. Downspouts on sides and rear of buildings.

3. Turned blocks only at two walls (others may be covered by landscaping).

4. Your grades on your certification plan indicates that the flows in the rear yards will never reach the two streets (Zia & Copper).

Before final approval may be granted, the above concerns will need to be addressed.

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

Fred Aguirre

RECEIVED
SEP 09 1986
HYDROLOGY SECTION

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

K221 D22A

September 9, 1986

Mr. Ron McConnell
600 Paisano NE
Albuquerque, NM 87123

SUBJECT: RELEASE OF AGREEMENTS

Dear Mr. McConnell:

In accordance with your request on Wednesday, August 20th I have investigated the following six agreements.

Paisano Street - La Questa Subdivision

Zia Road - La Questa Subdivision

All World Travel - Zia Road - La Questa Subdivision

Security Village - La Questa Subdivision

Corte de Paz Subdivision

Domingo Road

Release of agreements for Paisano Street, Zia Road, All World Travel - Zia Road, and Domingo Road have all been signed and forwarded to Legal for final processing. Of course, Domingo Road continues to carry the covenant requiring maintenance since it is a private street. Two releases have not been signed. These are Security Village - La Questa Subdivision and Corte de Paz Subdivision.

Upon investigation of the drainage requirements and subsequent construction of a wall necessary for drainage it appears that dirt fill which provides support for the wall may lie on property adjacent to Security Village. It is further my understanding that permission for this fill has not been given by the adjacent property owner and he contests placement of the fill. Without the fill, the integrity of the wall is damaged, and it is believed the retaining wall may not stand. As a consequence, since it is possible the retaining wall may fall if dirt is ordered removed by

the adjacent property owner, we can not release the agreement. We would be pleased to release the agreement as soon as either the wall is constructed in such a manner as to not depend upon soil support on the adjacent property or the adjacent property owner agrees in writing to allow the support soil to remain. In order to release covenants for Security Village it is necessary that one of the above two conditions be met.

With respect to the Corte de Paz Subdivision, a meeting between Jake Bordenave, Fred Aguirre, and myself occurred on Wednesday, August 27, 1986. The original requirements set forth in the K22D22B drainage improvements have not been met. More specifically, rainfall from the roofs of apartment drain to the back yard of the apartments and insufficient provisions to channel rainfall from the back yards have been provided. In order to obtain release of the agreement successful completion of any one of the following three alternatives will suffice.

1. Block drainage pipes which drain to the back yards of properties.

2. Insure that wall openings are available for draining water across the properties to the street, in accordance with the engineering design.

3. Survey back yards in order to ascertain rather sufficient ponding capacity is available within each yard for drainage from its respective roof, and certification that such ponding will not cause damage to adjacent walls or buildings.

All three of these alternatives have been discussed with your Engineer, Jake Bordenave. Implementation of any one requirement will satisfy the City's requirements. In order to release the agreement the City must have the developer's Engineer Certify that the drainage improvements per City drainage file K22D22B have been constructed or, alternatively, one of the above three alternatives have been implemented.

I trust this addresses these issues sufficiently so as to clearly state the City's position. If there are any questions on any of the above or if further information or elaboration is needed, please let me know.

George E. Selvia, Assistant Director
Public Works/Engineering

GES/njb
Ref: 5707E

xc: Bill Mueller, Adelia Kearny, Fred Aguirre, Jake Bordenave, Andre Houle, Della Gallegos, and Pending

RECEIVED

DEC 06 1982

ENGINEERING

DRAINAGE REPORT
FOR
A TOWNHOUSE DEVELOPMENT
IN
LA CUESTA SUBDIVISION

December, 1982

DRAINAGE REPORT
FOR
A TOWNHOUSE DEVELOPMENT
IN
LA CUESTA SUBDIVISION

DECEMBER, 1982

PREPARED FOR:

R.D. McCONNELL
1255 CHURCH STREET
BENICIA, CA 94510

PREPARED BY:

BOHANNAN–HUSTON, INC.
4125 CARLISLE BOULEVARD, N.E.
ALBUQUERQUE, NM 87107

DAVID M. Y. MILLIKAN
NEW MEXICO
7547
12-3-82
REGISTERED PROFESSIONAL ENGINEER

David M Y Millikan

DAVID M.Y. MILLIKAN
N.M.P.E. NO. 7547

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PURPOSE AND SCOPE	1
SITE LOCATION AND DESCRIPTION	1
METHOD OF ANALYSIS	2
UNDEVELOPED DRAINAGE	2
DEVELOPED DRAINAGE	2
EROSION CONTROL PLAN	3
SUMMARY	3

FIGURES

1 – Site Location Map
2 – Soils Map
3 – DPM Plate 22.2 D-1
4 – DPM Plate 22.2 D-2
5 – DPM Plate 22.2 C-1
6 – AMDS – Flood Hazard Boundary Map

APPENDIXES

1 – Undeveloped Drainage Calculations
2 – Developed Drainage Calcuations

PLATES

1 – Undeveloped Drainage
2 – Developed Drainage

DRAINAGE REPORT
FOR
A TOWNHOUSE DEVELOPMENT
IN
LA CUESTA SUBDIVISION

PURPOSE AND SCOPE

This drainage report has been prepared to outline the treatment of storm water generated within a townhouse development in La Cuesta Subdivision. It has been prepared in conformance with the guidelines of the City of Albuquerque's Development Process Manual (DPM), Chapter 22, entitled "Drainage and Flood Control."

A conceptual drainage report has been prepared for the entire La Cuesta Sector Plan area. It was prepared by Bohannan–Huston, Inc. in October, 1982. An analysis of upland flows and recommendations for development of the area within La Cuesta Sector Plan area are outlined in that plan. Development of this parcel, as outlined in this report is in conformance with the recommendations of the conceptual drainage plan for La Cuesta Sector Plan area. Therefore, the upland flows impacting this site are not reanalyzed in this report.

SITE LOCATION AND DESCRIPTION

The site is located in the northeast heights of Albuquerque, New Mexico. It is bounded on the north by Copper Avenue and on the south by Zia Road. It is located just east of Paisano Avenue (see Figure 1). The site contains approximately 0.95 acres. It slopes from east to west at approximately 4%. The soils on the site consist primarily of Tijeras gravelly fine sandy loam (TgB) and Embudo-Tijeras complex (EtC). The locations of each soil type are indicated on the enclosed copy of the Soil Survey of Bernalillo County prepared by the Soil Conservation Service (see Figure 2). Both soil types are classified as hydrologic soil group "B."

METHOD OF ANALYSIS

The peak flow rates for the developed and undeveloped drainage basins were determined by application of the Rational Method. The total runoff volumes were calculated using the Modified Rational Method. Both these methods are outlined in the DPM. The time of concentration was found to be less than ten minutes for all basins. Therefore, ten minutes was used in all computations.

Rainfall intensities were determined by applying Plates 22.2 D-1 (Figure 3) and 22.2 D-2 (Figure 4) of the DPM. The 100-year intensity was determined to be 5.19 in./hr. The 10-year intensity is 3.41 in./hr.

The runoff coefficient for Basins A and B was estimated as 0.76. This is based on calculations showing these Basins to be approximately 80% impervious (Figure 5).

UNDEVELOPED CONDITIONS

The undeveloped site has a total runoff of 1.64 cfs. The overland flow from Basin 1 (0.71 cfs) ultimately discharges to Copper Avenue. The overland flow from Basin 2 (0.93 cfs) discharges to Zia Road (see Plate 1). The site is located outside of any Flood Hazard Area (see Figure 6).

DEVELOPED CONDITIONS

According to the drainage master plan for La Cuesta Subdivision, the allowable discharge to Copper Avenue and Zia Road from this site is 2.2 cfs and 1.8 cfs, respectively.

The developed site is divided into three basins (see Plate 2). Basins A and B include the building runoff and discharge to Copper Avenue and Zia Road. The developed runoff for Basins A and B is 1.49 cfs and 1.00 cfs respectively. Both of these are significantly below the allowable discharge.

Basin C contains the interior of the site. The only areas included within Basin C are the fenced back yards. Each yard will be required to pond the runoff it generates due to the 100-year storm.

The runoff coefficient for Basin C has been calculated to be 0.38. There are two different sizes of back yards. The back yards on the end units are larger than the back yards of the interior units. The end unit lots will each require 105 cubic feet of ponding. The interior lots will each require 86 cubic feet of ponding. The grading shown on Plate 2 provides the required pond volumes in each rear yard.

EROSION CONTROL PLAN

The grading of the site will be done along with construction of the units. Due to the small size of the site (0.95 acres) and the short period of time required for construction of the units, significant erosion is not anticipated.

Upon final development, the areas of the site which are unpaved shall be covered with irrigated-maintained grass or another form of permanent landscaping. This will prevent erosion after completion of the project.

SUMMARY

- The runoff from Basins A and B shall be allowed to discharge at an uncontrolled rate to Copper Avenue and Zia Road.

- The back yards shall be graded, as shown on Plate 2, with ponds to retain their runoff from the 100-year storm.

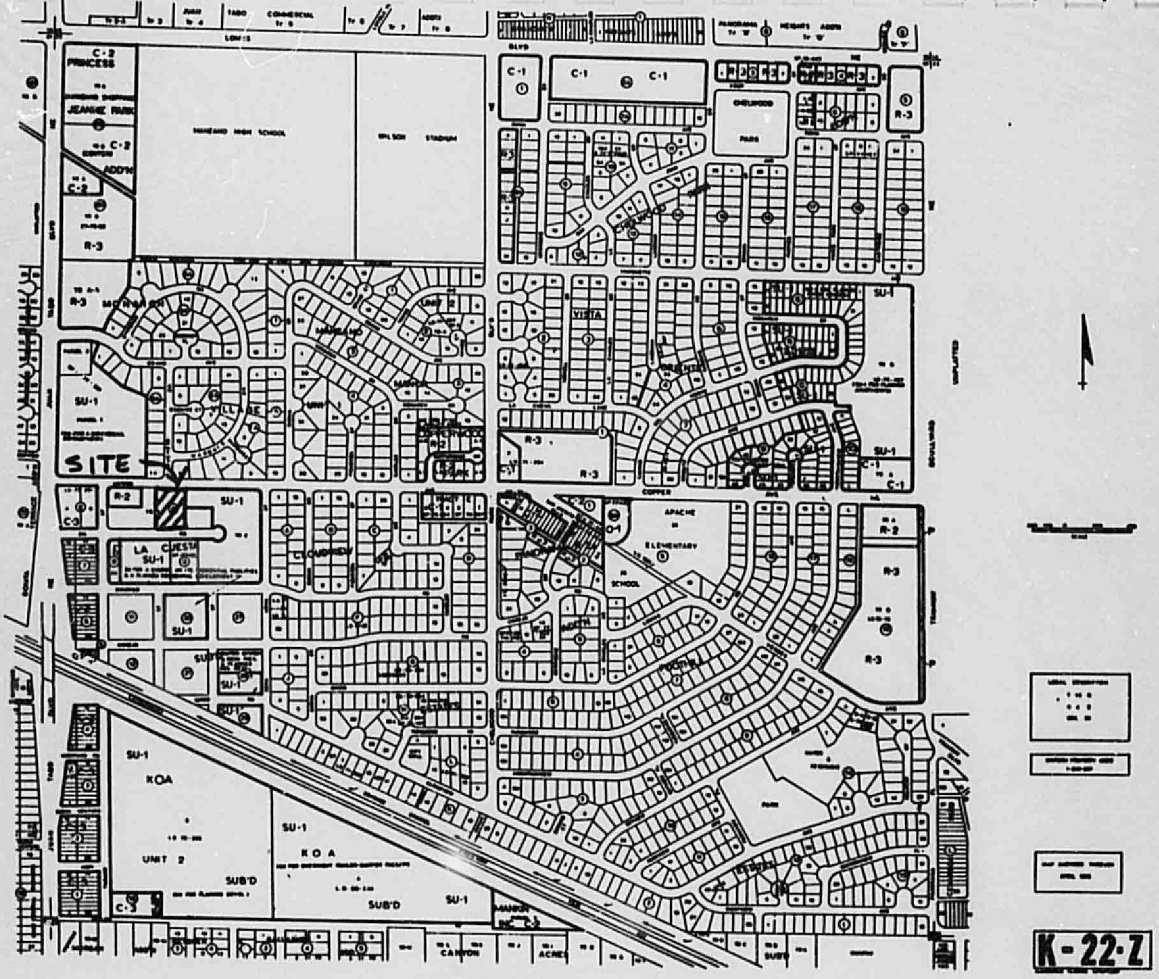

SITE
C-2
PRINCESS
JEANNE PARK
C-2
ADDN
R-3
SU-1
LA CUESTA
SU-1
KOA
UNIT 2
SUB'D
SU-1
KOA
SUB'D
SU-1
C-1
C-1
C-1
R-3
VISTA
R-3
R-3
SU-1
C-1
R-2
R-3
R-3
K-22-Z

FIGURE 1

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

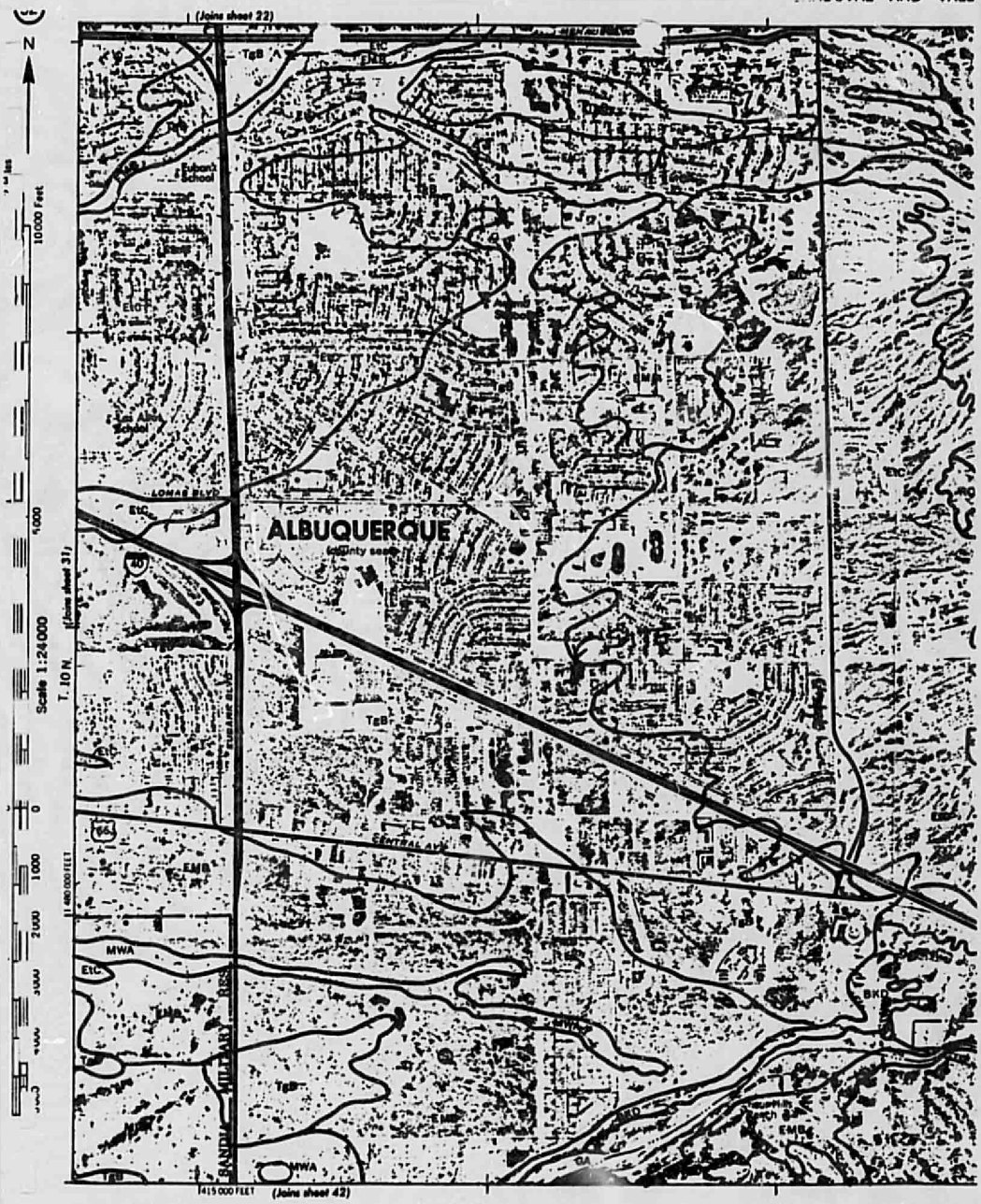
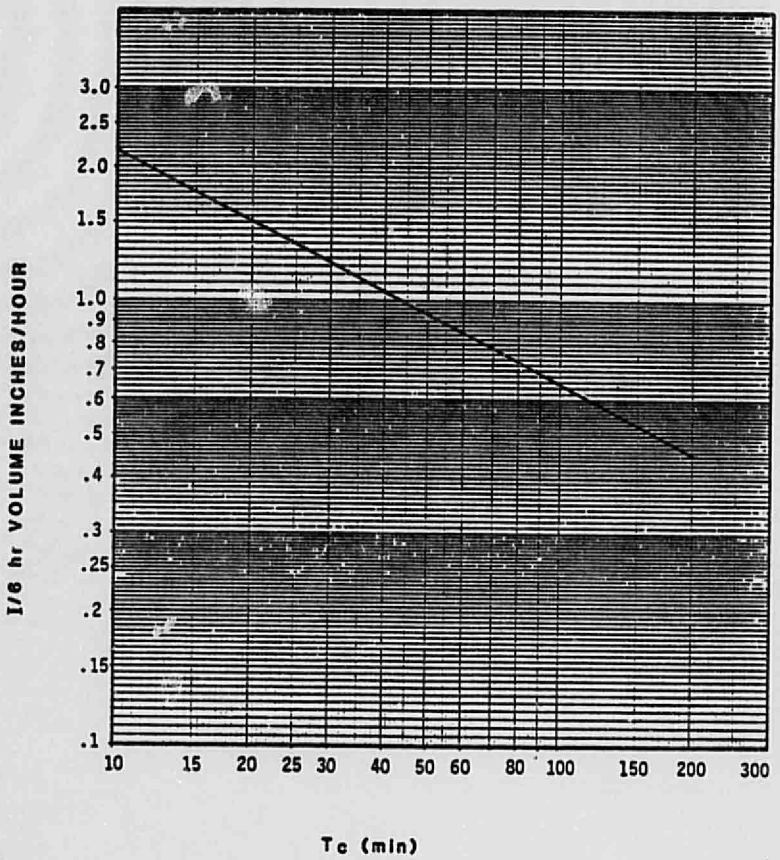


FIGURE 2

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

DIMENSIONLESS RAINFALL INTENSITIES

$I = (6\text{-hr. rain})6.84\ t_c^{-0.51}$



note: To get actual intensities, multiply rainfall volume from plate D-1 by value from curve. Use reduction factors on Plate D-1 for other than 100-yr.

FIGURE 3

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

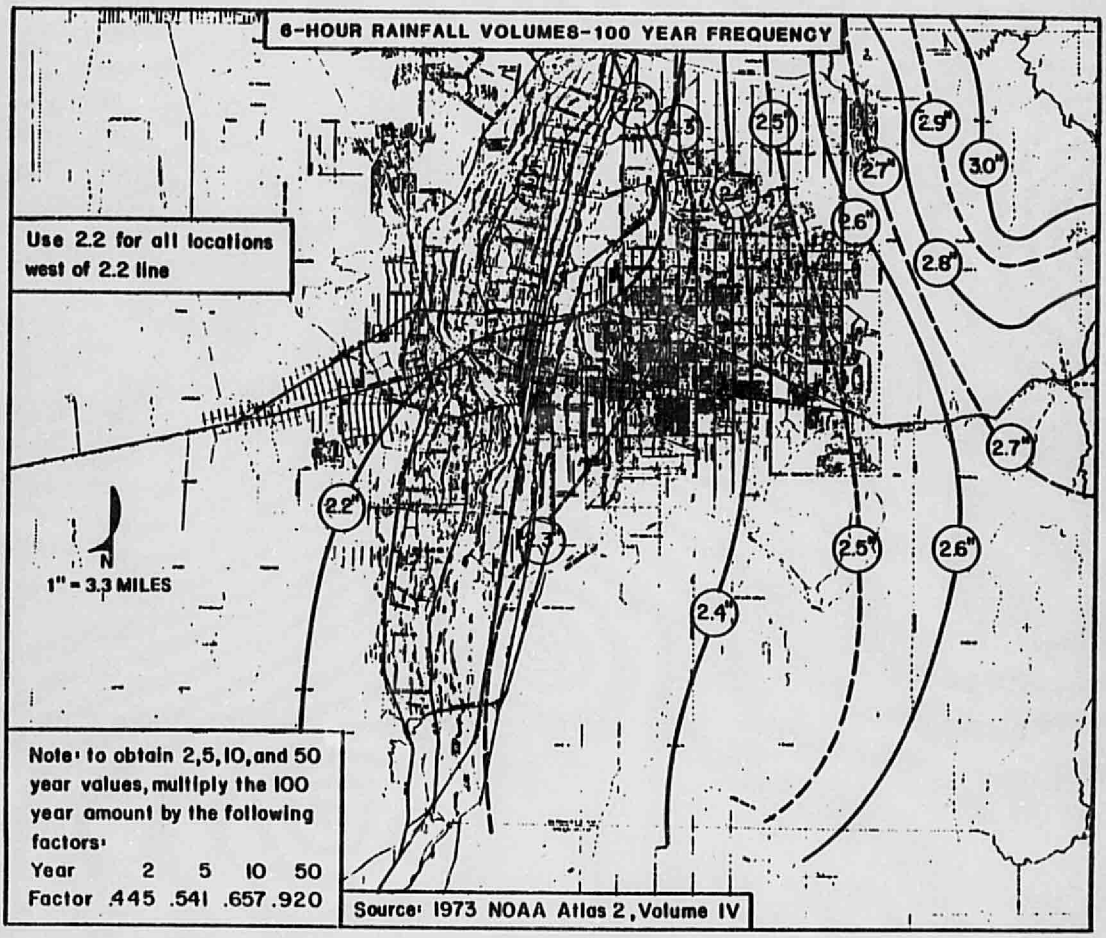


FIGURE 4

DRAINAGE CRITERIA

DETERMINATION OF RATIONAL FORMULA 'C' FACTOR

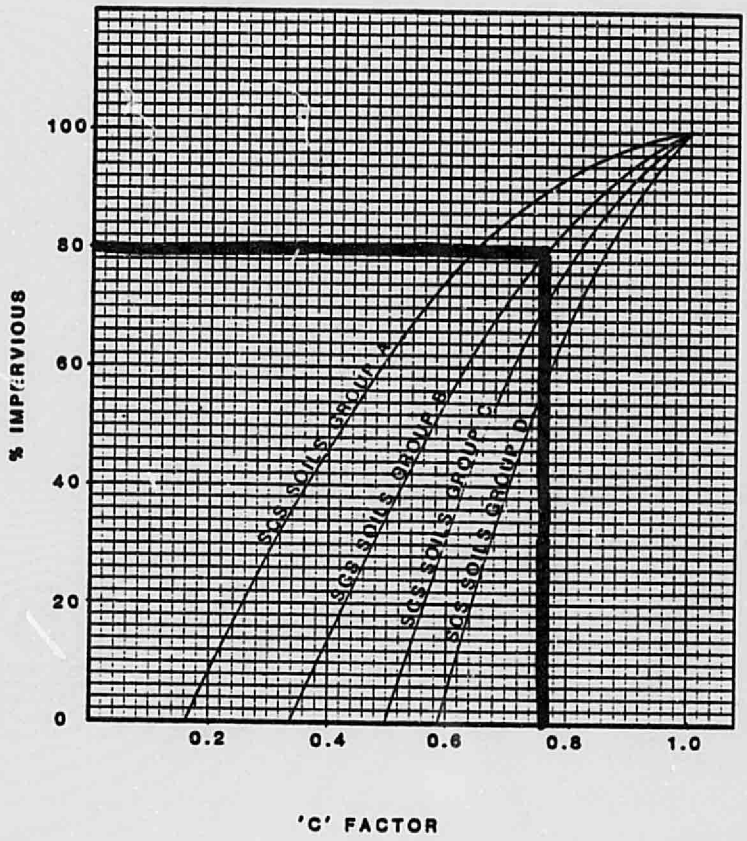


FIGURE 5

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

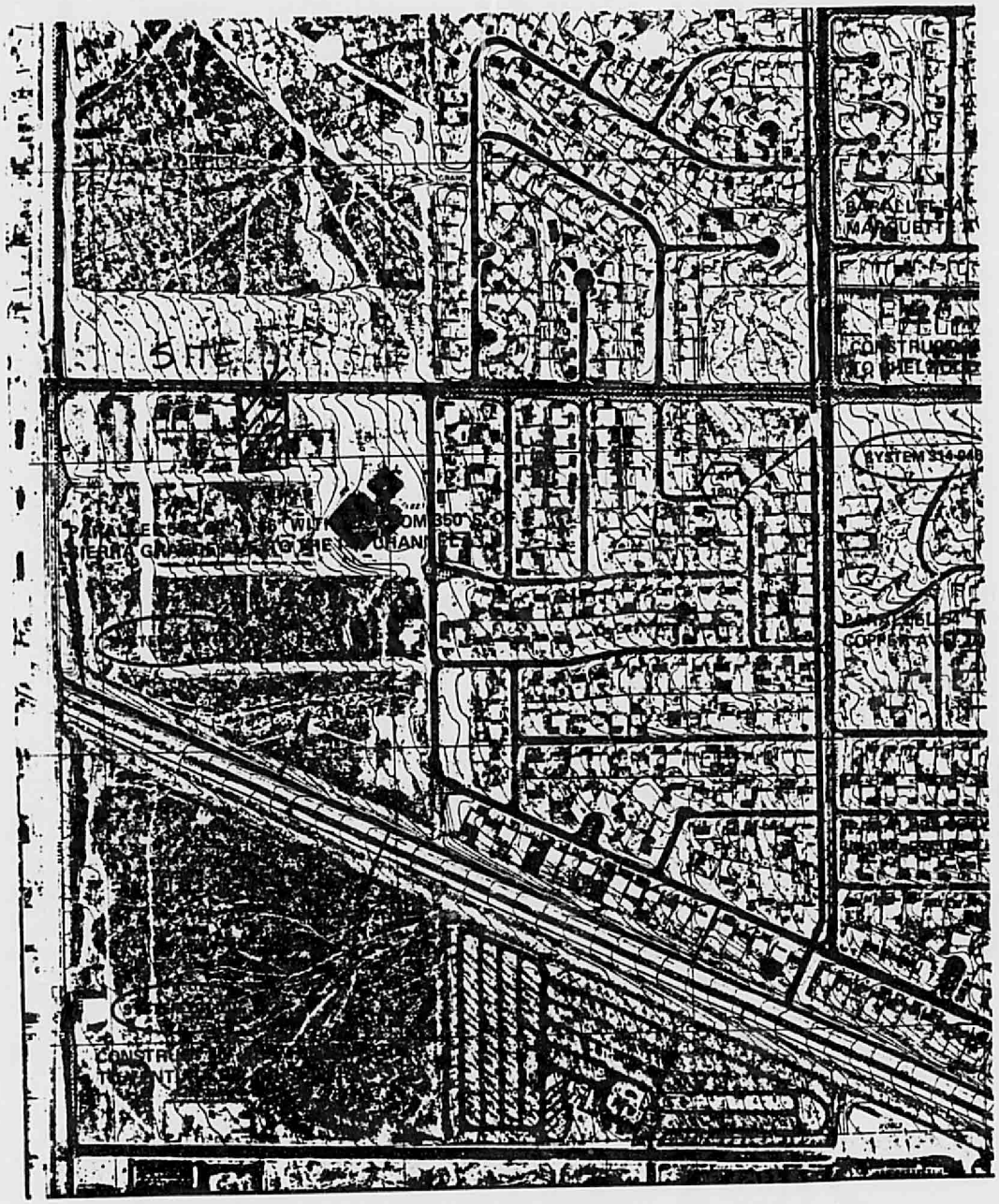


FIGURE 6

APPENDIX

UNDEVELOPED

BASIN 1

AREA = .41 ac.

T_c = 10 min

I_{100} = 5.19

I_{10} = 3.41

c = .34

Q_{100} = 0.71 cfs

Q_{10} = 0.48 cfs

BASIN 2

AREA = 0.54 ac.

T_c = 10 min

I_{100} = 5.19

I_{10} = 3.41

c = .34

Q_{100} = 0.93 cfs

Q_{10} = 0.63 cfs

PROJECT NAME		SHEET 1	OF 2
PROJECT NO. 20973		BY Dmyn	DATE 12/3/82
SUBJECT UNDEVELOPED DRAINAGE		CH'D	DATE

DEVELOPED DRAINAGE

BASIN A

AREA = .38 ac.

$c = 0.76$

$T_c = 10$ min

$I_{100} = 5.19$

$I_{10} = 3.41$

$I/6hr = 2.5$ in.

$Q_{100} = 1.49$ cfs

$Q_{10} = 0.98$ cfs

$Vol_{100} = .38(.76)(2.5)\frac{43560}{12}$

$Vol_{100} = 2620$ cf

BASIN B

AREA = 0.25

$c = 0.76$

$T_c = 10$ min

$I_{100} = 5.19$

$I_{10} = 3.41$

$I/6hr = 2.5$ in

$Q_{100} = 1.00$ cfs

$Q_{10} = 0.65$ cfs

$Vol_{100} = 1724$ cf

BASIN C

AREA = .32 ac

$c = 0.38$

$I/6hr = 2.5$ in

$V = (C)(P)(A)(43560) = (.4)\frac{(2.5)}{12}(.32)$

End Unit Yards Area = 0.0305 ac/ea

Interior Unit Yards Area = 0.0248 ac/ea

$Vol_{100} = Area \times I/6 \times c \times \frac{43560}{12} = 2904$ c.f.

End Units - Vol_{100} = 105 cf

Interior Units - Vol_{100} = 86 cf

242 c.f.

PROJECT NAME		SHEET 2 OF 2	
PROJECT NO. 20973		BY Dmym	DATE 12/3/82
SUBJECT Developed Drainage		CH'D	DATE

PLAN/PLATS

ON

FILE

0 8 2 4