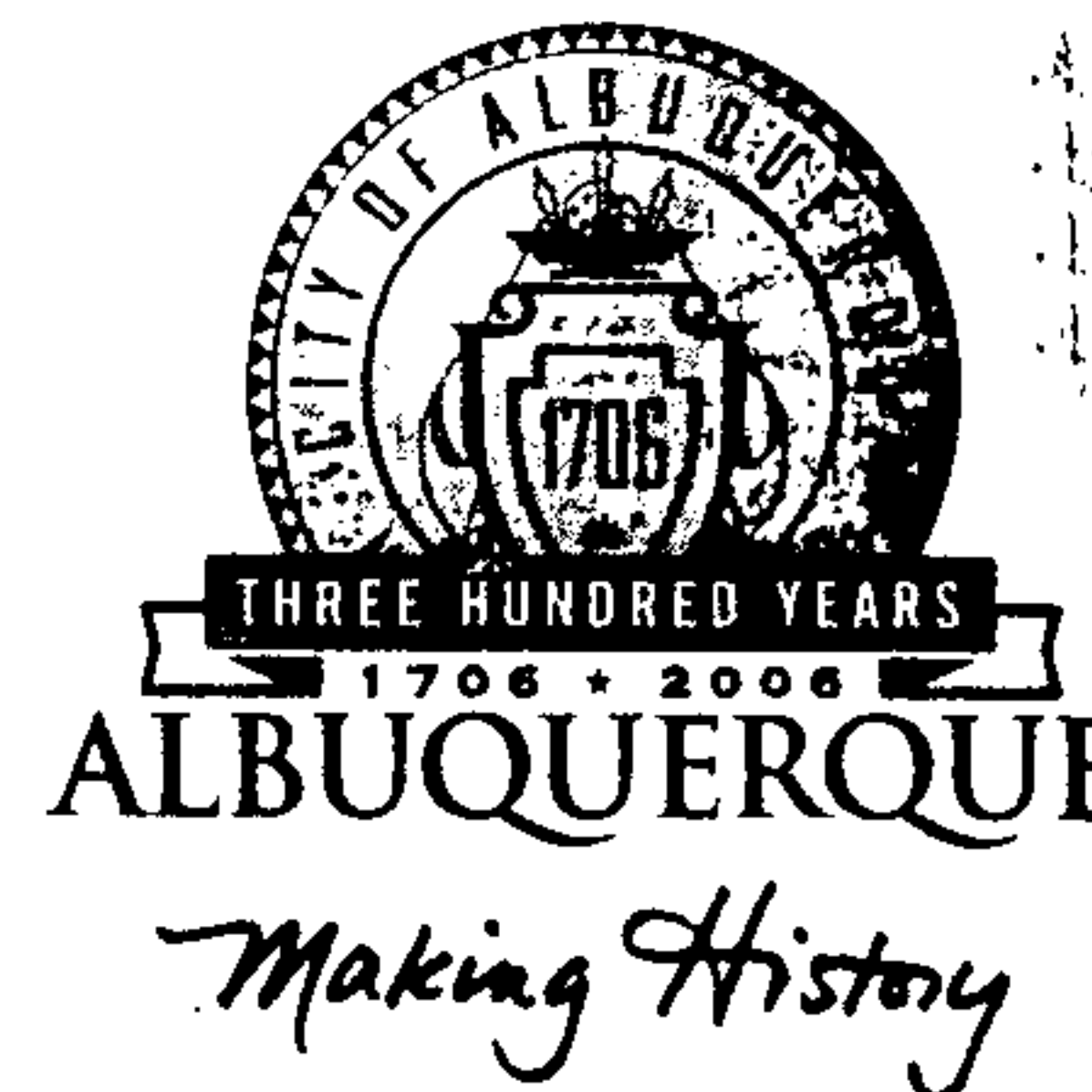


CITY OF ALBUQUERQUE



**Planning Department
Transportation Development Services Section**

August 10, 2004

Ronald A. Witherspoon, Registered Architect
6801 Jefferson NE, Ste 100
Albuquerque, NM 87109

Re: Certification Submittal for Final Building Certificate of Occupancy for
Huning Castle Apartments, [J-13 / D62]
1500 Central Ave. SW
Architect's Stamp Dated 08/09/04

Dear Mr. Witherspoon:

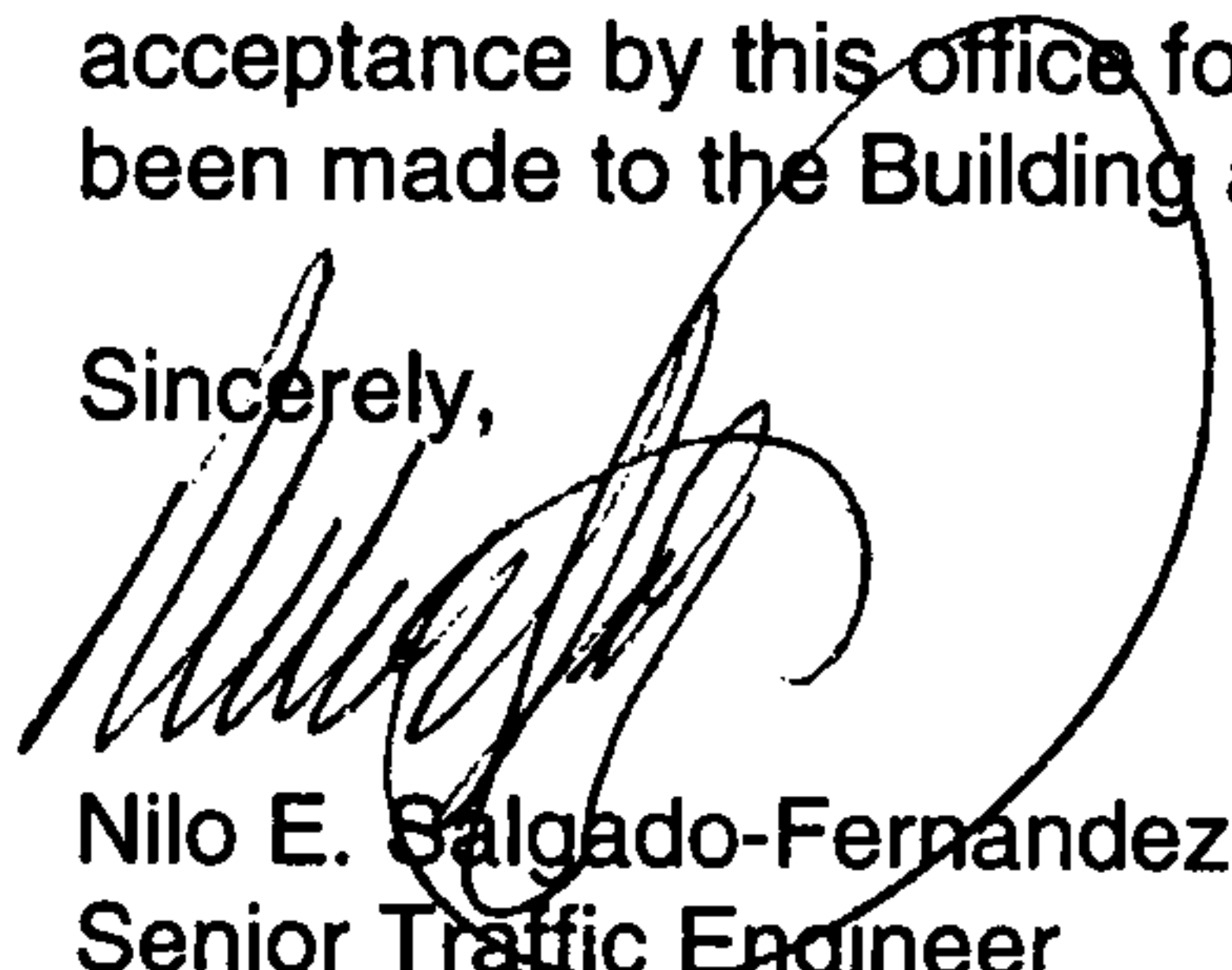
P.O. Box 1293

The TCL / Letter of Certification submitted on August 10, 2004 is sufficient for acceptance by this office for final Certificate of Occupancy (C.O.). Notification has been made to the Building and Safety Section.

Albuquerque

Sincerely,

New Mexico 87103


Nilo E. Salgado-Fernandez, P.E.
Senior Traffic Engineer
Development and Building Services
Planning Department

www.cabq.gov

c: Engineer
Hydrology file
CO Clerk

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

J-13/D062

PROJECT TITLE: HUNTING CASTLE APARTMENTS ZONE MAP/DRG. FILE #: J-13-2
 DRB #: 1000434 EPC#: 03EPC 00496 WORK ORDER#: _____

LEGAL DESCRIPTION: LOT 17, BLOCK ONE, HUNTING CASTLE APT. BOOK 20006 PG 151
 CITY ADDRESS: 1500 CENTRAL SW LOT # 2000055792.

ENGINEERING FIRM: _____
 ADDRESS: _____
 CITY, STATE: _____

CONTACT: _____
 PHONE: _____
 ZIP CODE: _____

OWNER: HUNTING CASTLE APTS.
 ADDRESS: P.O. BOX 22
 CITY, STATE: ALBUQUERQUE, NM

CONTACT: TONY KELLEHER
 PHONE: 546-4646
 ZIP CODE: 87103

ARCHITECT: DEKKER/PERICH/SARATINI
 ADDRESS: 6501 SEEFERSON NE
 CITY, STATE: ALBUQUERQUE, NM

CONTACT: DALE RUSH
 PHONE: 761-9700
 ZIP CODE: 87109

SURVEYOR: _____
 ADDRESS: _____
 CITY, STATE: _____

CONTACT: _____
 PHONE: _____
 ZIP CODE: _____

CONTRACTOR: BRADBURY-STAR
 ADDRESS: 3701 PASO DEL NORTE NE
 CITY, STATE: ALBUQUERQUE, NM 87115

CONTACT: RICK TAVELLI
 PHONE: 765-1200
 ZIP CODE: 87113

CHECK TYPE OF SUBMITTAL:

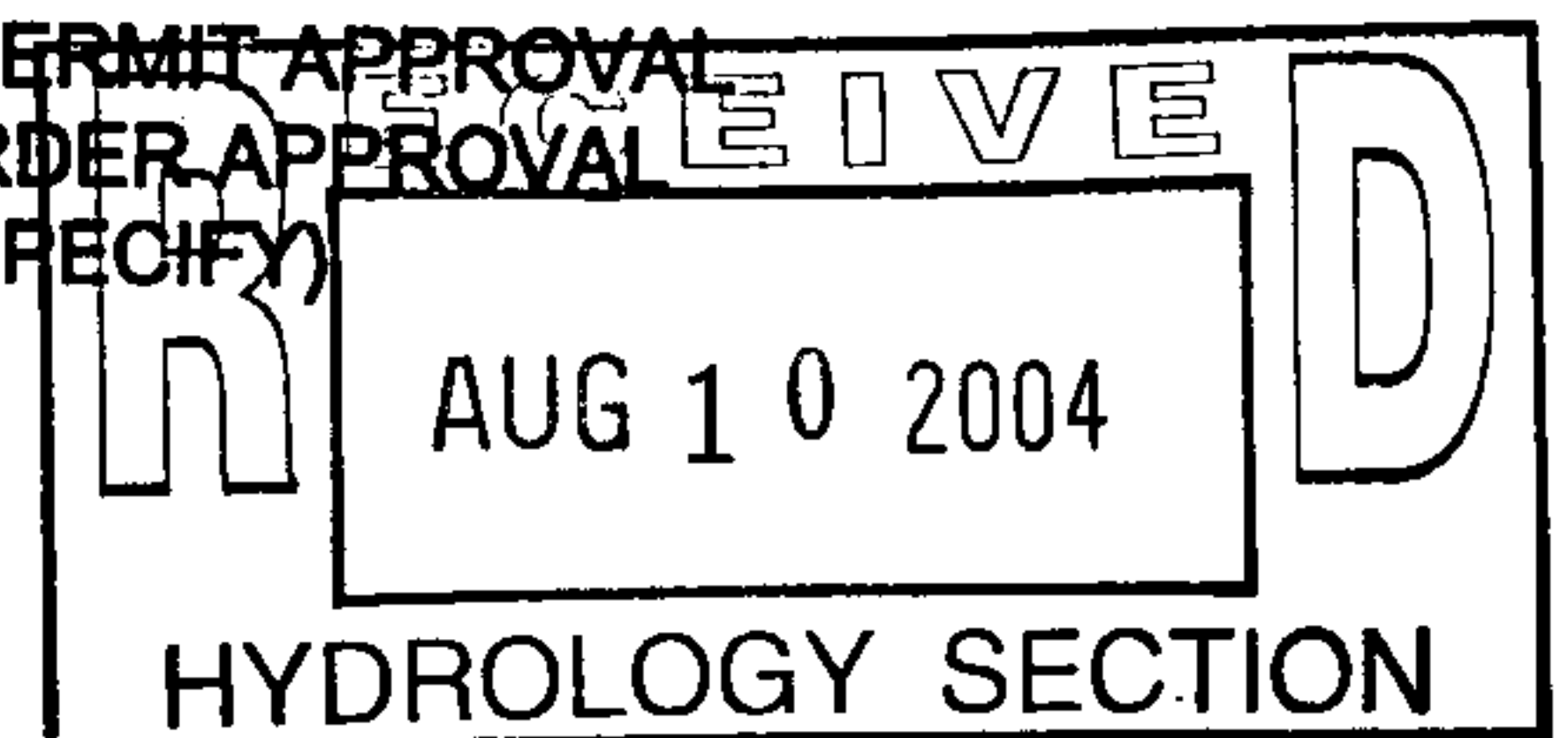
- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL, *REQUIRES TCL or equal*
- ☐ DRAINAGE PLAN RESUBMITTAL
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☒ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ENGINEERS CERTIFICATION (TCL)
- ☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ☒ OTHER
TRANSPORTATION CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA / FINANCIAL GUARANTEE RELEASE
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☒ CERTIFICATE OF OCCUPANCY (PERM.)
- ☐ CERTIFICATE OF OCCUPANCY (TEMP.)
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ OTHER (SPECIFY) _____

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
- ☒ NO
- ☐ COPY PROVIDED



DATE SUBMITTED: 8/1/04 BY: DALE RUSH

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

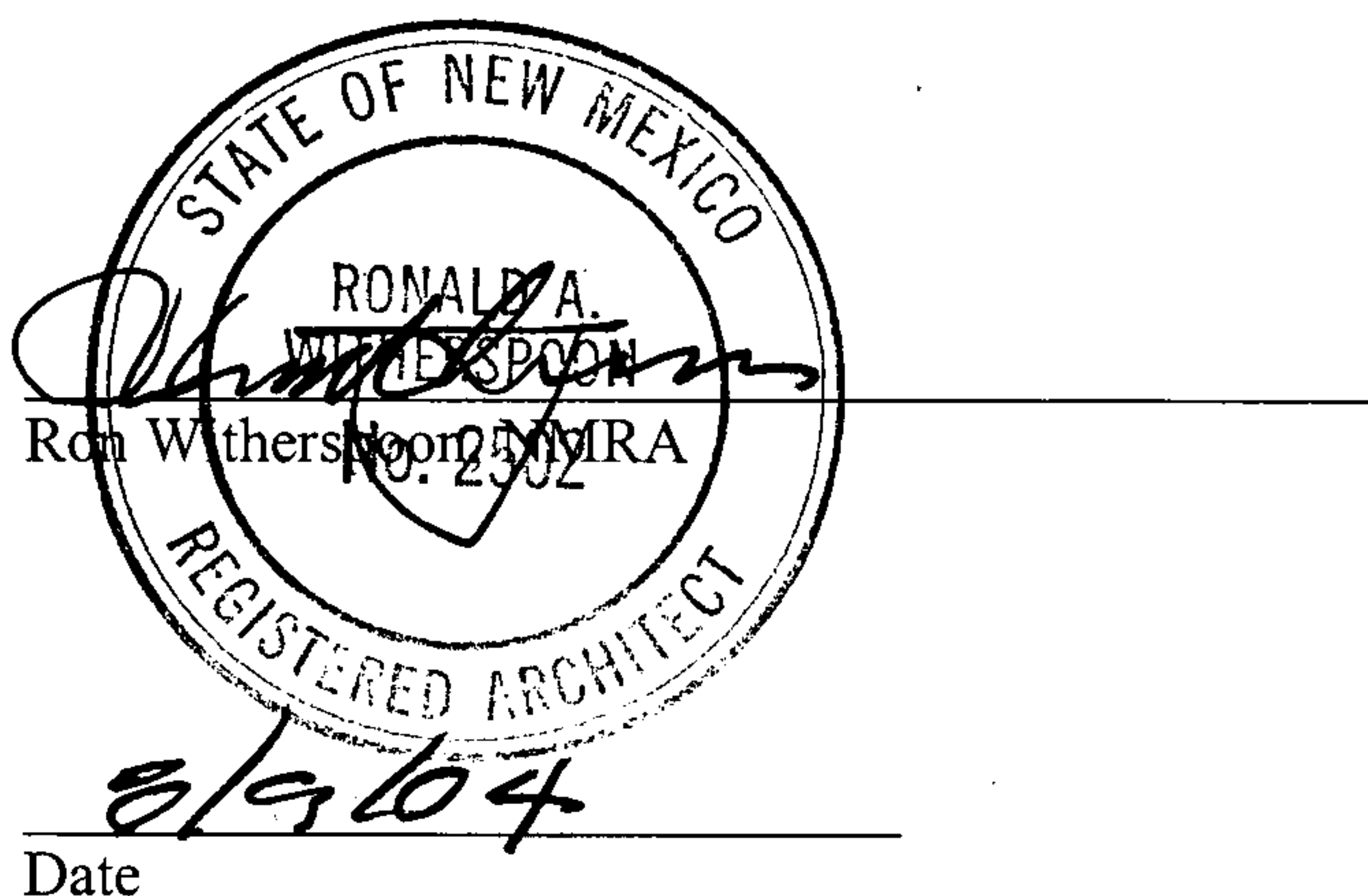
Huning Castle Apartments
1500 Central Ave. SW



TRANSPORTATION CERTIFICATION* WITH VERIFICATION BY ARCHITECT OF RECORD

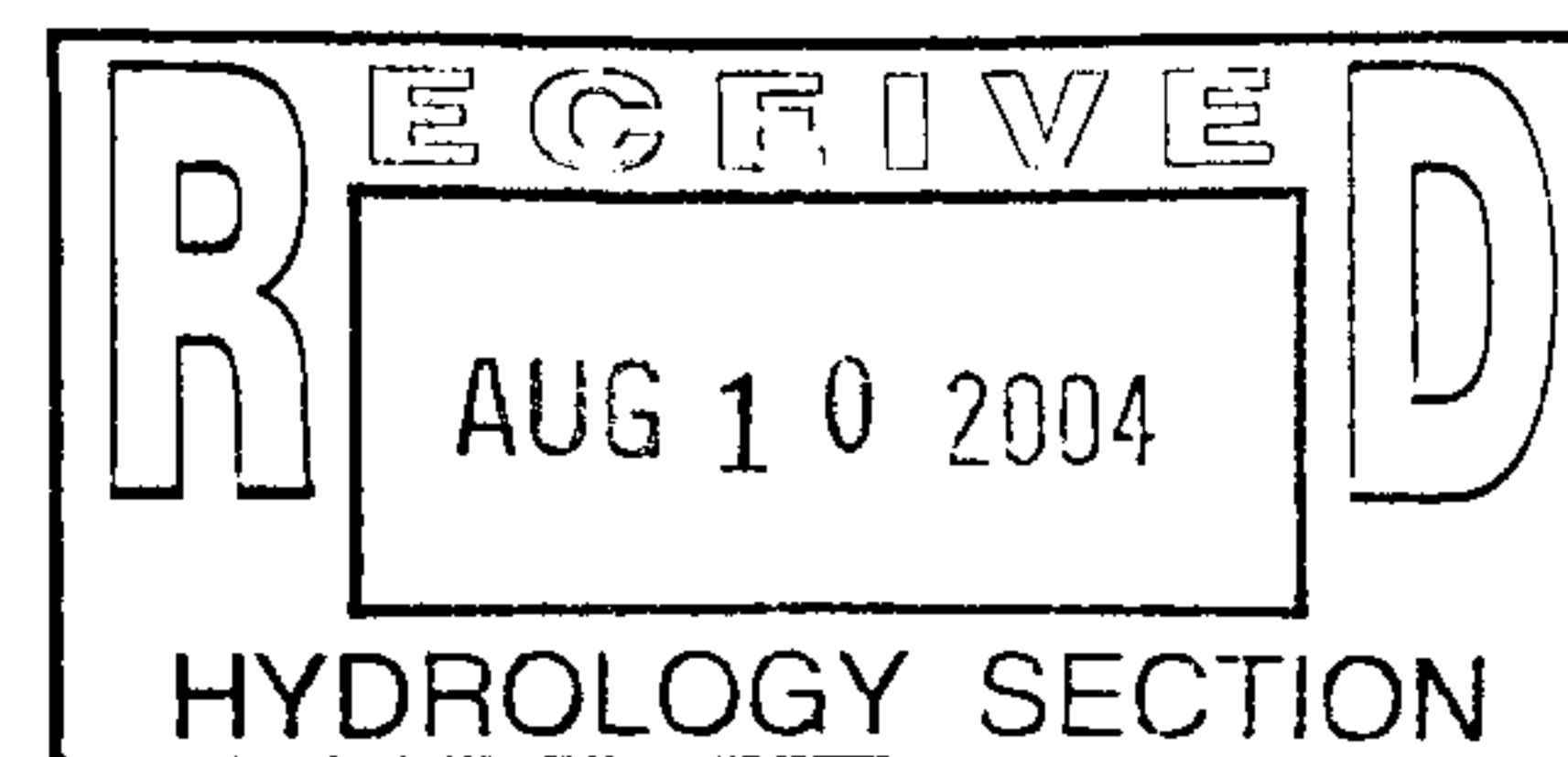
I, Ron Witherspoon, RA, of the firm Dekker/Perich/Sabatini, hereby certify* that this project is in substantial compliance with and in accordance with the design intent of the approved plan dated 4/13/03. The record information edited into the original design document has been obtained by me or under my direct supervision and is true and correct to the best of my knowledge and belief. This certification* is submitted in support of a request for Certificate of Occupancy.

The record information presented hereon is not necessarily complete and intended only to verify substantial compliance of the transportation aspects of the projects. Those relying on this record document are advised to obtain independent verification of its accuracy before using it for any other purpose.



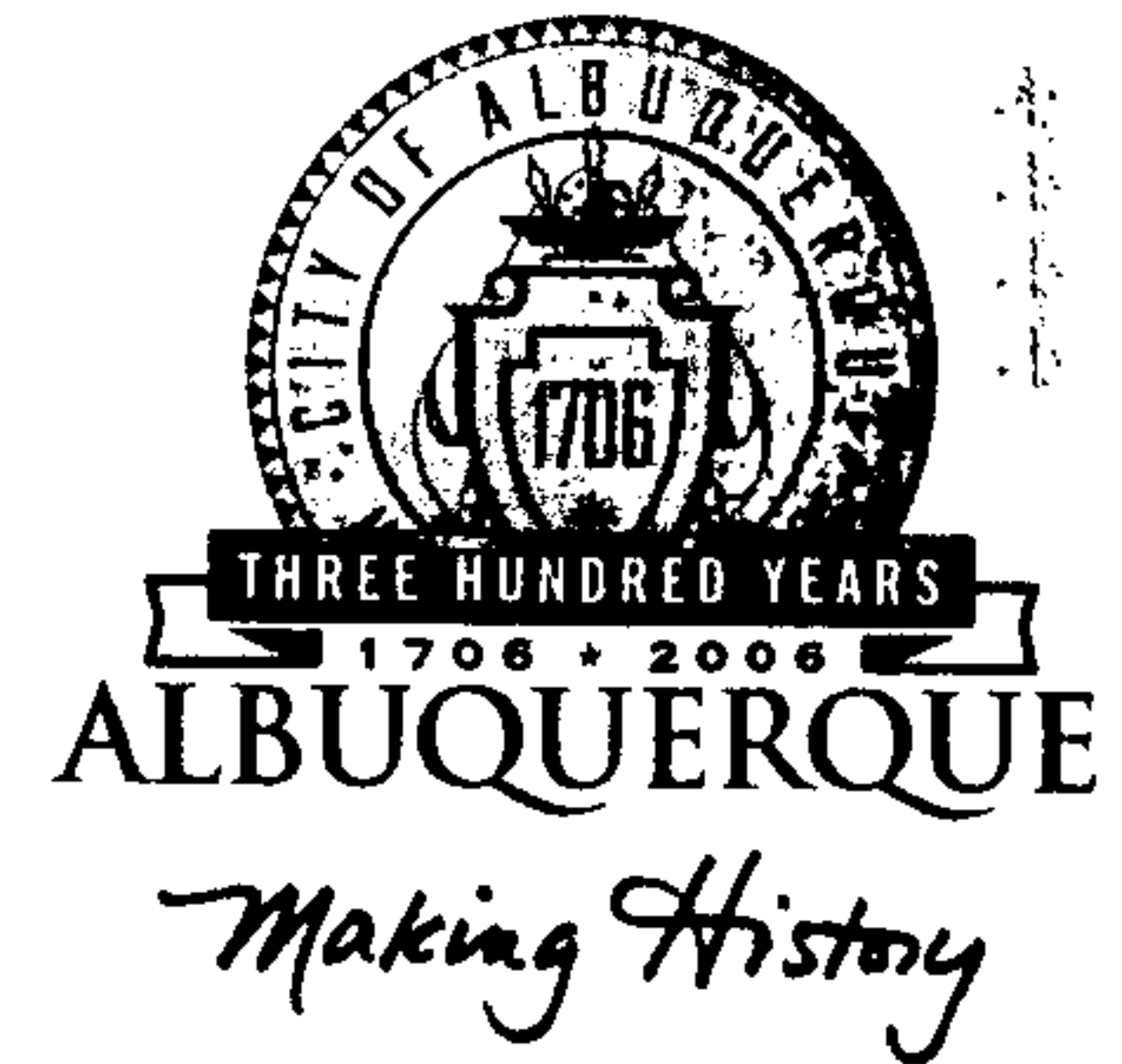
Date

*AS USED HEREIN, THE WORD CERTIFICATION SHALL MEAN AN EXPRESSION OF THE CONSULTANT'S PROFESSIONAL OPINION TO THE BEST OF ITS INFORMATION, KNOWLEDGE AND BELIEF, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE BY THE CONSULTANT.



6801 Jefferson NE
Suite 100
Albuquerque NM
87109
505 761.9700
fax 761.4222
dps@dpsabq.com

CITY OF ALBUQUERQUE



August 4, 2004

Mr. Ron Bohannon, P.E.
TIERRA WEST, LLC
8509 Jefferson St. NE
Albuquerque, NM 87113

Re: HUNING CASTLE APARTMENTS
1500 Central Ave. SW
Approval of Permanent Certificate of Occupancy (C.O.)
Engineer's Stamp dated 06/10/2003 (J-13/D62)
Certification dated 08/02/2004

P.O. Box 1293

Dear Ron,

Albuquerque

Based upon the information provided in your submittal received 08/03/2004, the above referenced certification is approved for release of Permanent Certificate of Occupancy by Hydrology.

New Mexico 87103

If you have any questions, you can contact me at 924-3982.

www.cabq.gov

Sincerely,

Arlene V. Portillo

Arlene V. Portillo
Plan Checker, Planning Dept. - Hydrology
Development and Building Services

Pub

C: Phyllis Villanueva
'File'

DRAINAGE AND TRANSPORTATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: Huning Castle Apartments ZONE MAP/DRG. FILE #: J-13-7D
DRB 1000434 EPC #: WORK ORDER #: 558182

LEGAL DESCRIPTION: Lots 1, 8, and 9 and a portion of 10 Block 1 Huning Castle Addition
CITY ADDRESS: 1500 Central Avenue SW 87102

ENGINEERING FIRM: Tierra West, LLC CONTACT: RONALD R. BOHANNAN
ADDRESS: 8509 Jefferson NE PHONE: (505) 858-3100
CITY, STATE: Albuquerque, NM ZIP CODE: 87113

OWNER: Huning Castle Apartments, LLC CONTACT: Tom Keleher
ADDRESS: 201 3rd NW, 12th Floor PHONE: 346-4646
CITY, STATE: Albuquerque, NM ZIP CODE: 87102

ARCHITECT: Dekker, Perich, Sabatini CONTACT: Tim Whitherspoon
ADDRESS: 6801 Jefferson NE PHONE: 761-9700
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

SURVEYOR: Southwest Surveying CONTACT: Gary Gritsko
ADDRESS: 333 Lomas Blvd. NE PHONE: 247-4444
CITY, STATE: Albuquerque, NM ZIP CODE: 87102

CONTRACTOR: Bradbury Stamm Construction CONTACT: Greg Ellison
ADDRESS: 3701 Paseo Del Norte PHONE: 681-4308
CITY, STATE: Albuquerque, NM ZIP CODE: 87113

CHECK TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
☐ DRAINAGE PLAN 1st SUBMITTAL, **REQUIRES TCL or equal**
☐ DRAINAGE PLAN RESUBMITTAL
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☒ ENGINEER'S CERTIFICATION (HYDROLOGY)
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ ENGINEERS CERTIFICATION (TCL)
☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
☐ OTHER

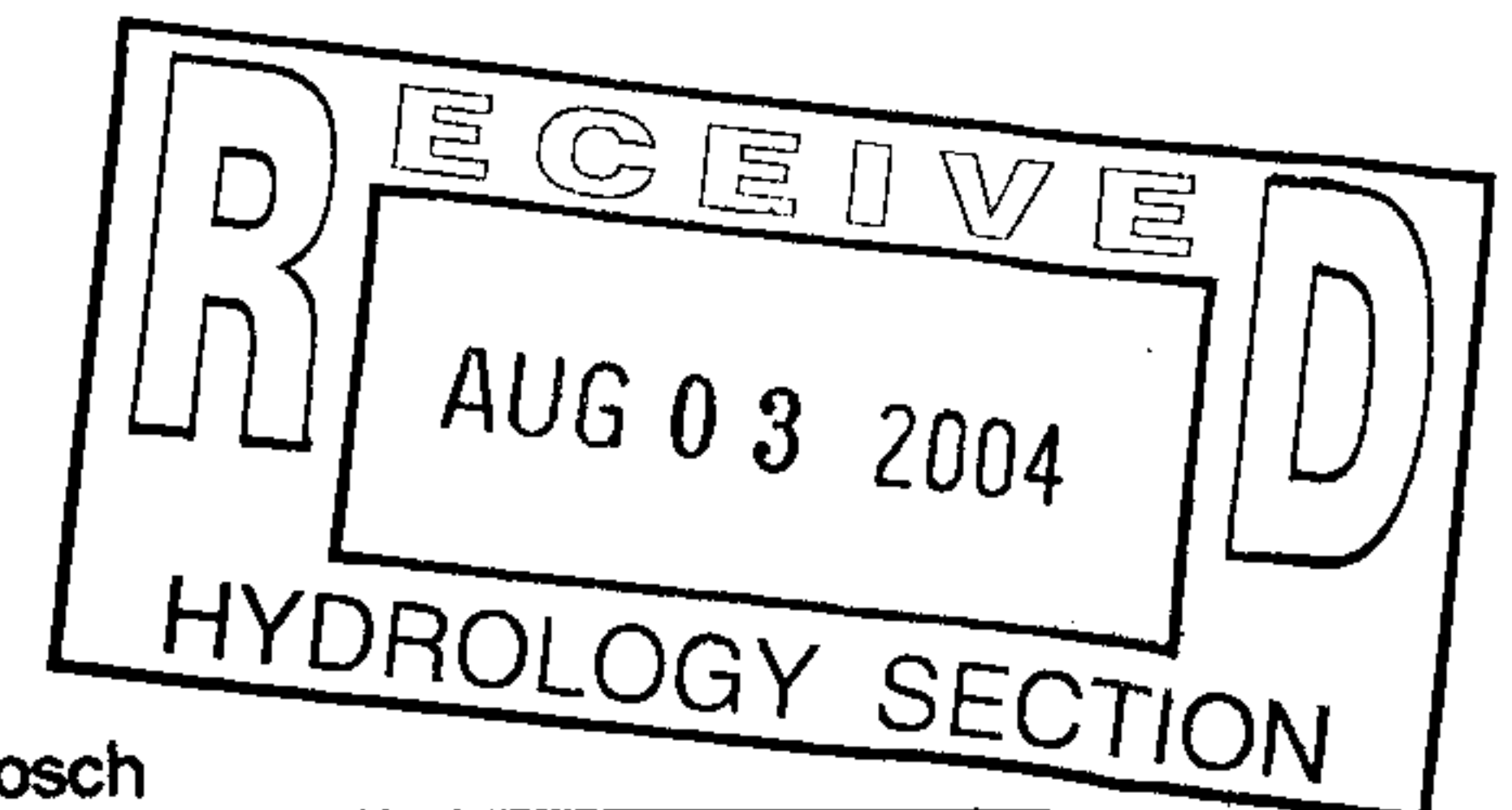
CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA / FINANACIAL GUARANTEE RELEASE
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D. APPROVAL
☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ BUILDING PERMIT APPROVAL
☒ CERTIFICATE OF OCCUPANCY (PERM.)
☐ CERTIFICATE OF OCCUPANCY (TEMP.)
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ WORK ORDER APPROVAL
☐ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
☒ NO
☐ COPY PROVIDED

DATE SUBMITTED: 8/1/2004 BY: Brad Frosch



Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plans:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 30, 2004

Mr. Ron Bohannon, P.E.
TIERRA WEST, LLC
8509 Jefferson St. NE
Albuquerque, NM 87113

Re: HUNING CASTLE APARTMENTS
1500 Central Ave. SW
Approval of Temporary Certificate of Occupancy (C.O.)
Engineer's Stamp dated 06/10/2003 (J-13/D62)
Certification dated 06/25/2004

Dear Ron,

Based upon the information provided in your submittal received 06/29/2004, the above referenced certification is approved for release of 30-day Temporary Certificate of Occupancy by Hydrology.

Upon completion of the punch list items in your correspondence, please resubmit an updated certification.

If you have any questions, you can contact me at 924-3982.

Sincerely,

Arlene V. Portillo

Arlene V. Portillo
Plan Checker, Planning Dept. - Hydrology
Development and Building Services

BP

C: Phyllis Villanueva
File

DRAINAGE AND TRANSPORTATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: Huning Castle Apartments
DRB 1000434 EPC #:

ZONE MAP/DRG. FILE # J-13-Z
WORK ORDER #: 558182

LEGAL DESCRIPTION Lots 1, 8, and 9 and a portion of 10 Block 1 Huning Castle Addition
CITY ADDRESS: 1500 Central Avenue SW 87102

ENGINEERING FIRM: Tierra West, LLC
ADDRESS: 8509 Jefferson NE
CITY, STATE: Albuquerque, NM

CONTACT: RONALD R. BOHANNAN
PHONE: (505) 858-3100
ZIP CODE: 87113

OWNER: Huning Castle Apartments, LLC
ADDRESS: 201 3rd NW, 12th Floor
CITY, STATE: Albuquerque, NM

CONTACT: Tom Keleher
PHONE: 346-4646
ZIP CODE: 87102

ARCHITECT: Dekker, Perich, Sabatini
ADDRESS: 6801 Jefferson NE
CITY, STATE: Albuquerque, NM

CONTACT: Tim Whitherspoon
PHONE: 761-9700
ZIP CODE: 87109

SURVEYOR: Southwest Surveying
ADDRESS: 333 Lomas Blvd. NE
CITY, STATE: Albuquerque, NM

CONTACT: Gary Gritsko
PHONE: 247-4444
ZIP CODE: 87102

CONTRACTOR: Bradbury Stamm Construction
ADDRESS: 3701 Paseo Del Norte
CITY, STATE: Albuquerque, NM

CONTACT: Greg Ellison
PHONE: 681_4308
ZIP CODE: 87113

CHECK TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
☐ DRAINAGE PLAN 1st SUBMITTAL, **REQUIRES TCL or equal**
☐ DRAINAGE PLAN RESUBMITTAL
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☒ ENGINEER'S CERTIFICATION (HYDROLOGY)
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ ENGINEERS CERTIFICATION (TCL)
☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
☐ OTHER

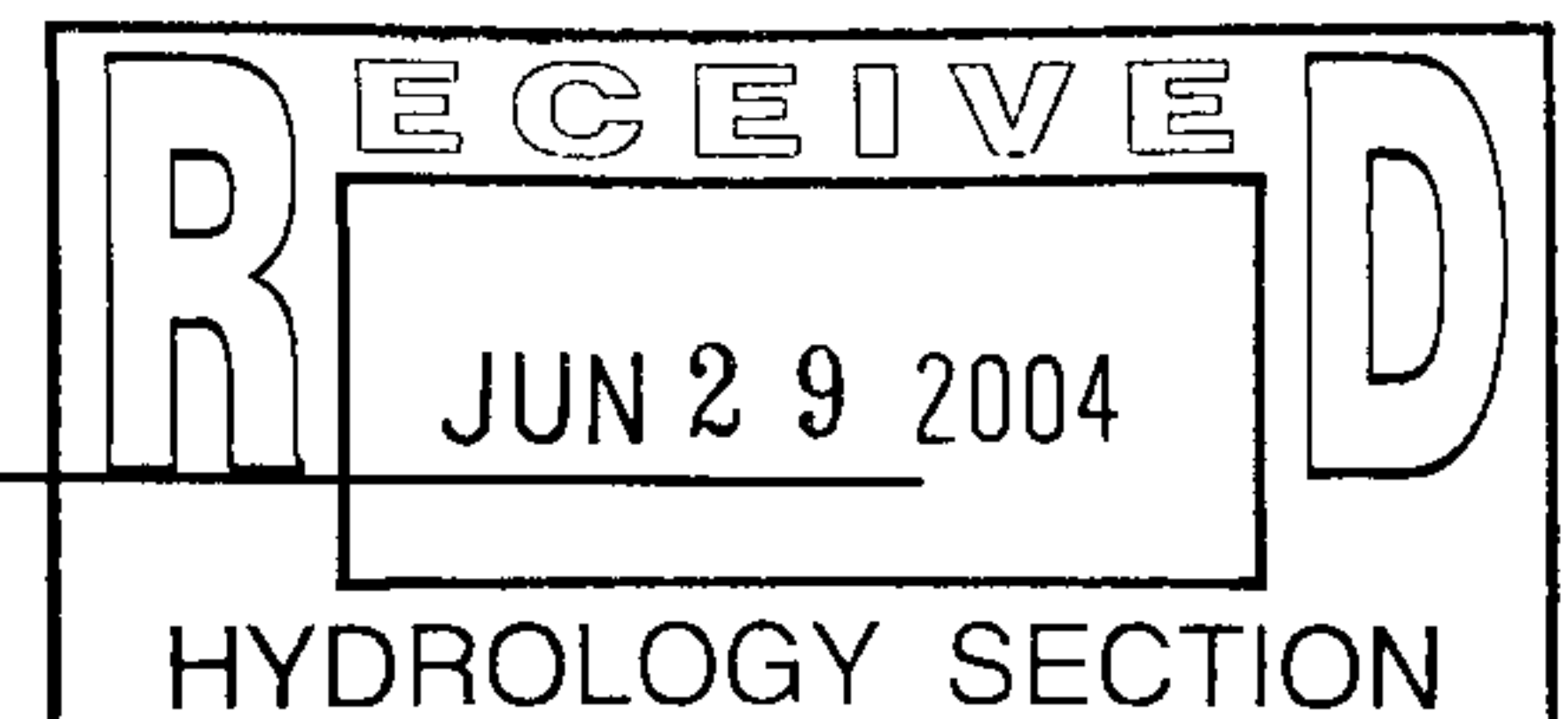
CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA / FINANACIAL GUARANTEE RELEASE
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D. APPROVAL
☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY (PERM.)
☒ CERTIFICATE OF OCCUPANCY (TEMP.)
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ WORK ORDER APPROVAL
☐ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
☒ NO
☐ COPY PROVIDED

DATE SUBMITTED: 6/25/2004 BY: Brad Frosch



Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plans:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
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3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

TIERRA WEST, LLC

8509 Jefferson NE
Albuquerque, NM 87113

Phone: 505-858-3100
Fax: 505-858-1118

MEMO

TO: Distribution

FROM: Brad Frosch (263-5808)

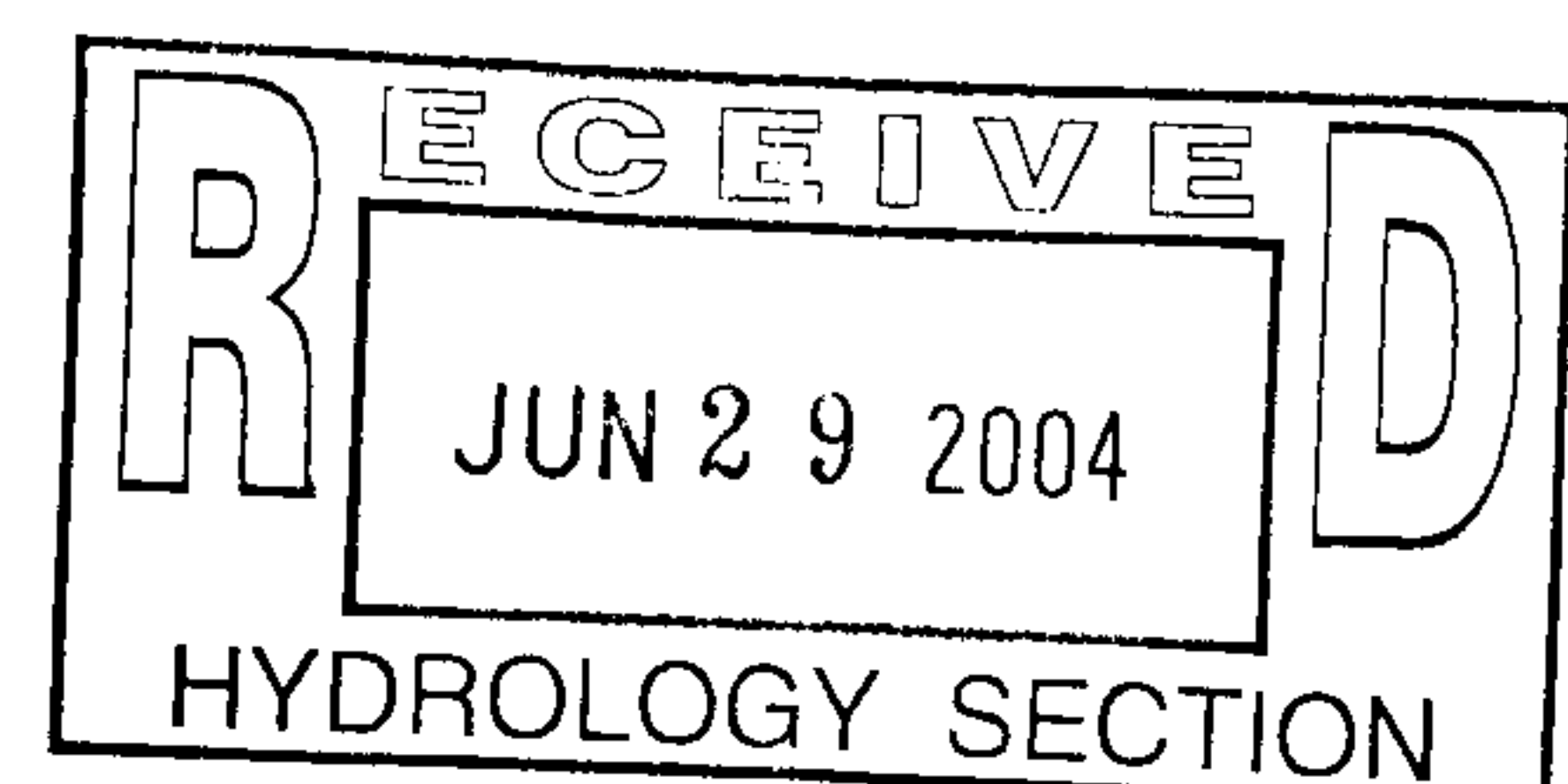
SUBJECT: Punch list items for Huning Castle

JN: 960031

DATE: 6-28-04

Punch list items for Huning Castle:

1. Provide weep holes for drainage of the site thru CMU block and wrought iron combination wall along perimeter.
2. Provide cobble swale to insure positive drainage away from building.
3. Provide outlet for drainage from both sidewalk cuverts adjacent to garages structures.
4. Complete landscaping as per plan.
5. Complete forming of pond along back of parcel.





City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

***Planning Department
Transportation Development Services Section***

June 30, 2004

Ronald A Witherspoon, Registered Architect
Dekker/Perich/Sabatini
6801 Jefferson NE, Ste. 100
Albuquerque, NM 87109

Re: Approval of Temporary Certificate of Occupancy (C.O.) for
Huning Castle Apartments, [J-13 / D62]
1500 Central SW
Architect's Stamp Dated 06/29/04

Dear Mr. Witherspoon:

Based on the information provided on your submittal dated June 29, 2004, the above referenced project is approved for a 30-day Temporary C.O.

A Temporary C.O. has been issued allowing the outstanding construction issues to be completed within this time period. When these remaining issues have been fully completed, are in substantial compliance, and a final Certification for Transportation has been resubmitted to the City's Hydrology office for approval, a Permanent C.O. will be issued.

The Certification package for Final C.O. must include an exact copy of the approved TCL, or signed off D.R.B. Site Plan, which is in each of the two City Permit Plan Sets—the contractor's City field set and the City's plan set in the basement of the Plaza Del Sol building. Package also must include a letter of certification on designer's letterhead- stamped with his seal, signed, and dated. Submit package along with fully completed Drainage Information Sheet to front counter personnel for log in and evaluation by Transportation.

If you have any questions, please call me at 924-3630.

Sincerely,

Nilo E. Salgado-Fernandez, P.E.
Senior Traffic Engineer
Development and Building Services
Planning Department

c: Engineer
Hydrology file
CO Clerk

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

J13 / D62

PROJECT TITLE: HUNTING CASTLE APARTMENTS ZONE MAP/DRG. FILE #: S-13-2
 DRB #: 1000 434 EPC#: 03EPC 00495 WORK ORDER#: _____
 LEGAL DESCRIPTION: LOT 1-A, BLOCK ONE, HUNTING CASTLE ADDITION, CITY OF ALBUQUERQUE, BERNALILLO
COUNTY, NM, PLAT PREPARED BY SW SURVEY, RECORD 5416 2, 2000
 CITY ADDRESS: 1500 CENTRAL SW BOOK 20006, PG 151, DOC # 2000055792

ENGINEERING FIRM: TIERRA-WEST
 ADDRESS: 8504 JEFFERSON NE
 CITY, STATE: ALBUQUERQUE, NM

CONTACT: JOHN HISHI
 PHONE: 856-3100
 ZIP CODE: 87113

OWNER: HUNTING CASTLE ARTS, LLC, P.O. BOX AA
 ADDRESS: ~~8504 JEFFERSON NE~~
 CITY, STATE: ALBUQUERQUE, NM

CONTACT: TOM KELEHER
 PHONE: 506-4646
 ZIP CODE: 87103

ARCHITECT: DEKKER / PERKH / SARATINI
 ADDRESS: 6801 JEFFERSON NE
 CITY, STATE: ALBUQUERQUE, NM

CONTACT: DALE RUSH
 PHONE: 761-9700
 ZIP CODE: 87109

SURVEYOR: _____
 ADDRESS: _____
 CITY, STATE: _____

CONTACT: _____
 PHONE: _____
 ZIP CODE: _____

CONTRACTOR: BRAD SHRY. STAMM
 ADDRESS: 3701 PASEO DEL NORTE NE
 CITY, STATE: ALBUQUERQUE, NM

CONTACT: GREG ELISON
 PHONE: 765-1200 OR 601-4308
 ZIP CODE: 87113

CHECK TYPE OF SUBMITTAL:

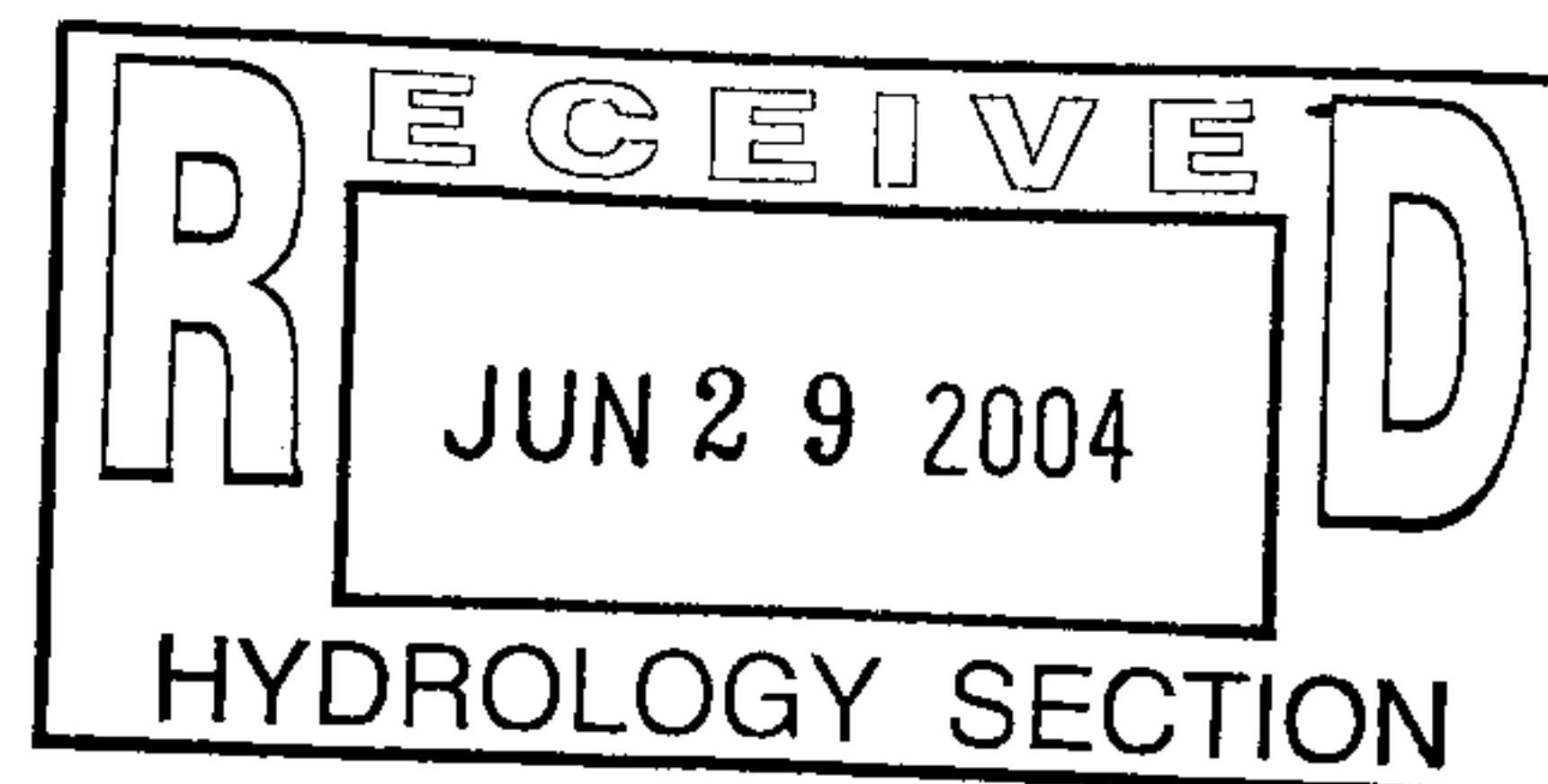
- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL, *REQUIRES TCL or equal*
- ☐ DRAINAGE PLAN RESUBMITTAL
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☒ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☒ ENGINEERS CERTIFICATION (TCL)
- ☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ☐ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA / FINANCIAL GUARANTEE RELEASE
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
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- ☐ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☒ CERTIFICATE OF OCCUPANCY (PERM.)
- ☒ CERTIFICATE OF OCCUPANCY (TEMP.)
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
- ☐ NO
- ☐ COPY PROVIDED



DATE SUBMITTED: 6/29/04 BY: DALE RUSH

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

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3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

Huning Castle Apartments
1500 Central Ave. SW



Dekker/Perich/Sabatini

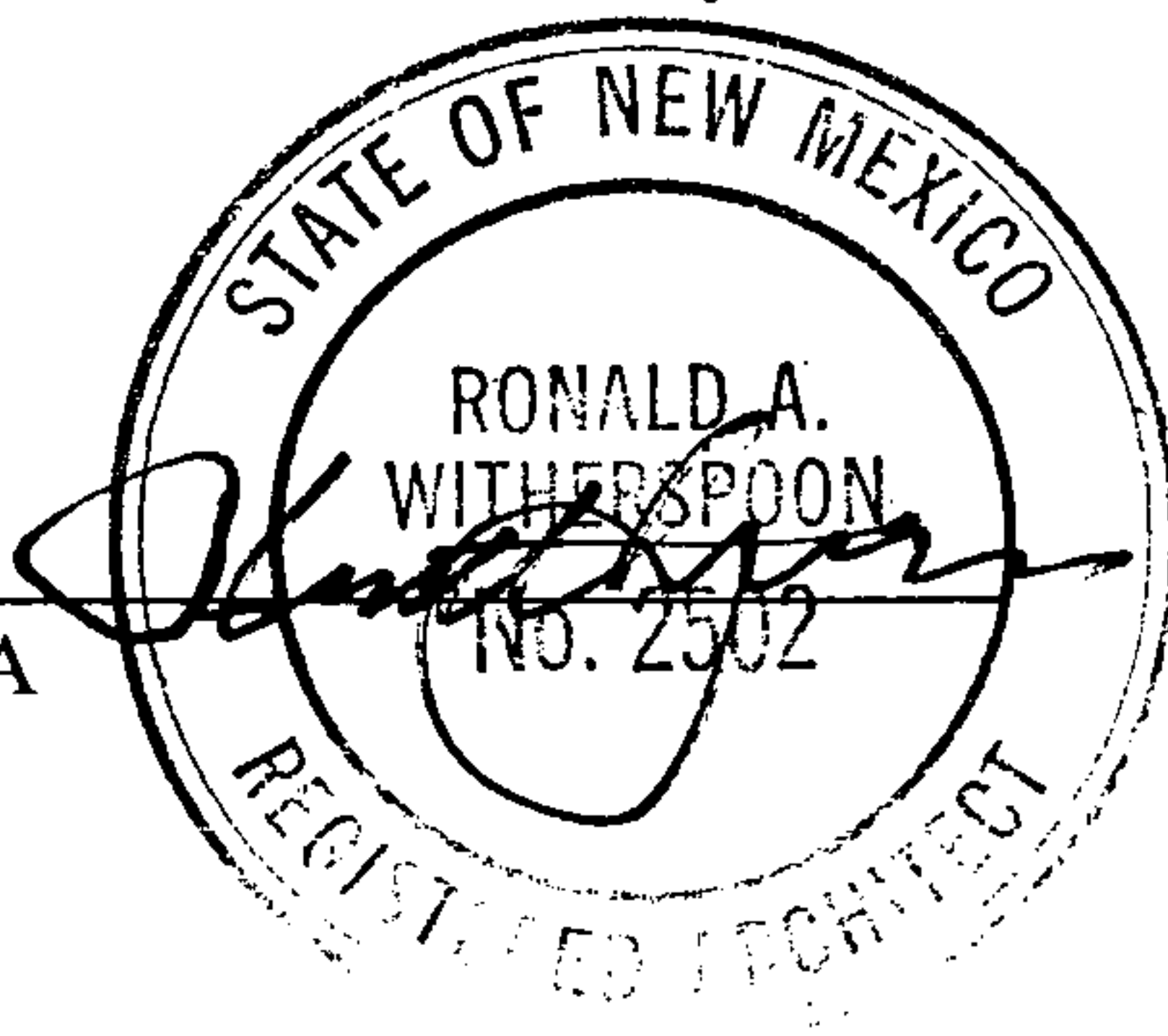
architecture
interiors
planning
engineering

TRANSPORTATION CERTIFICATION* WITH VERIFICATION BY ARCHITECT OF RECORD

I, Ron Witherspoon, RA, of the firm Dekker/Perich/Sabatini, hereby certify* that this project is in substantial compliance with and in accordance with the design intent of the approved plan dated 11/13/03. The record information edited into the original design document has been obtained by me or under my direct supervision and is true and correct to the best of my knowledge and belief. This certification* is submitted in support of a request for Certificate of Occupancy.

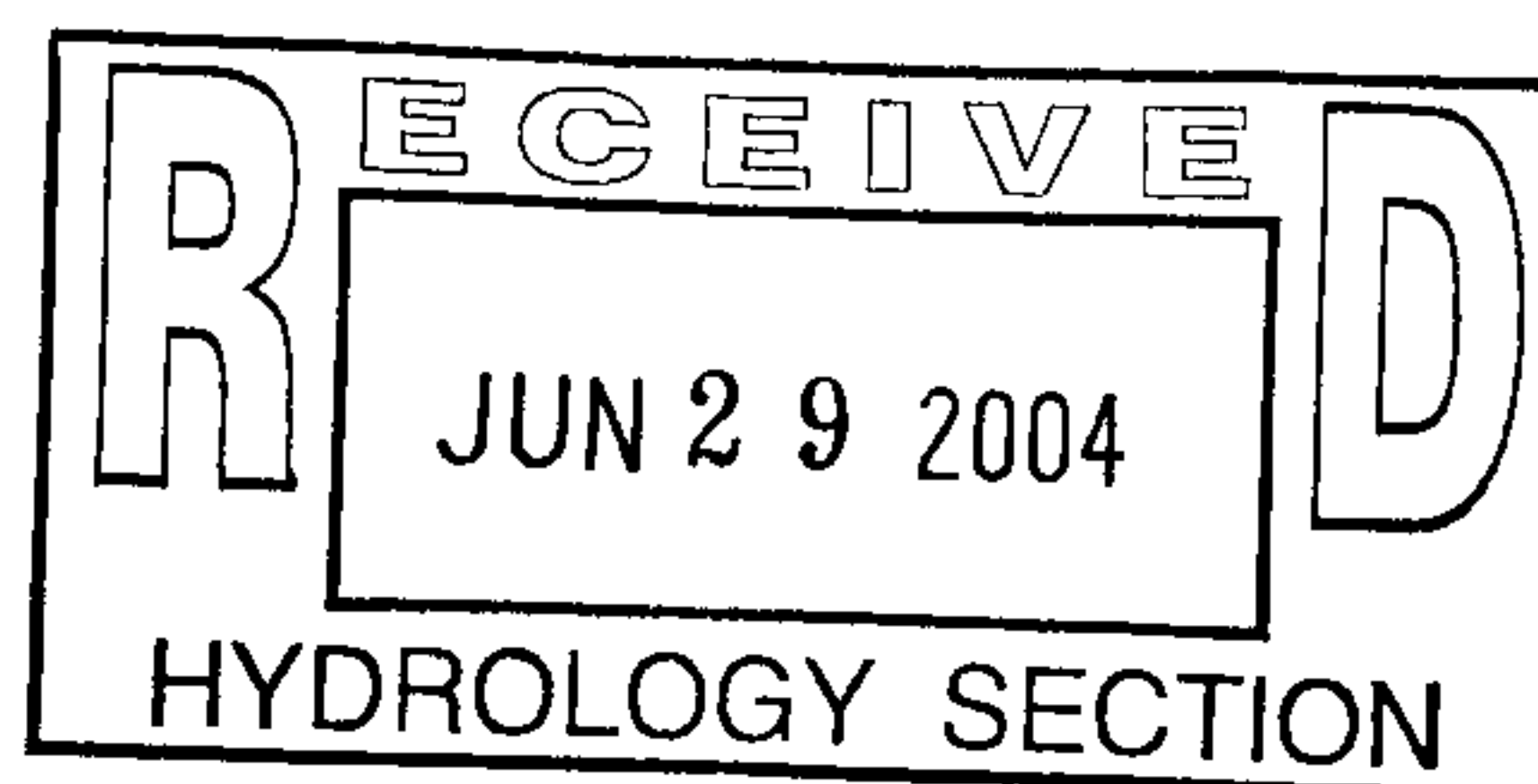
The record information presented hereon is not necessarily complete and intended only to verify substantial compliance of the transportation aspects of the projects. Those relying on this record document are advised to obtain independent verification of its accuracy before using it for any other purpose.

Ron Witherspoon, NMRA



6/29/04
Date

*AS USED HEREIN, THE WORD CERTIFICATION SHALL MEAN AN EXPRESSION OF THE CONSULTANT'S PROFESSIONAL OPINION TO THE BEST OF ITS INFORMATION, KNOWLEDGE AND BELIEF, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE BY THE CONSULTANT.





City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 17, 2003

Ron Bohannon, PE
Tierra West LLC
8509 Jefferson NE
Albuquerque, NM 87113

Re: Huning Castle Apartments Drainage Report
Engineer's Stamp dated 6-10-03 (J13/D62)

Dear Mr. Bohannon,

Based upon the information provided in your submittal dated 6-10-03, the above referenced plan is approved for Site Development Plan Building Permit and Building Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, Planning Dept.
Development and Building Services

C: file

DRAINAGE AND TRANSPORTATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: Huning Castle Apartments
DRB #: _____ EPC #: _____

ZONE MAP/DRG. FILE #: J-13/D62
WORK ORDER #: _____

LEGAL DESCRIPTION: Lot 1-A in Block 1 in Huning Castle Addition
CITY ADDRESS: Central Ave. between Laguna Blvd and 15th Street

ENGINEERING FIRM: Tierra West, LLC
ADDRESS: 8509 Jefferson NE
CITY, STATE: Albuquerque, NM

CONTACT: RONALD R. BOHANNAN OR JON NISKI
PHONE: (505) 858-3100
ZIP CODE: 87113

OWNER: Keleher & McLeod
ADDRESS: 201 Third Street
CITY, STATE: Albuquerque, NM

CONTACT: TOM KELEHER
PHONE: (505) 346-4646
ZIP CODE: _____

ARCHITECT: Dekker/Perich/Sabatini
ADDRESS: 6801 Jefferson, Suite 100
CITY, STATE: Albuquerque, NM

CONTACT: RON WITHERSPOON
PHONE: (505) 761-9700
ZIP CODE: _____

SURVEYOR: Southwest Surveying Co. Inc.,
ADDRESS: 333 Lomas Blvd
CITY, STATE: Albuquerque, NM

CONTACT: FRANK WILSON
PHONE: (505) 247-4444
ZIP CODE: _____

CONTRACTOR: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:

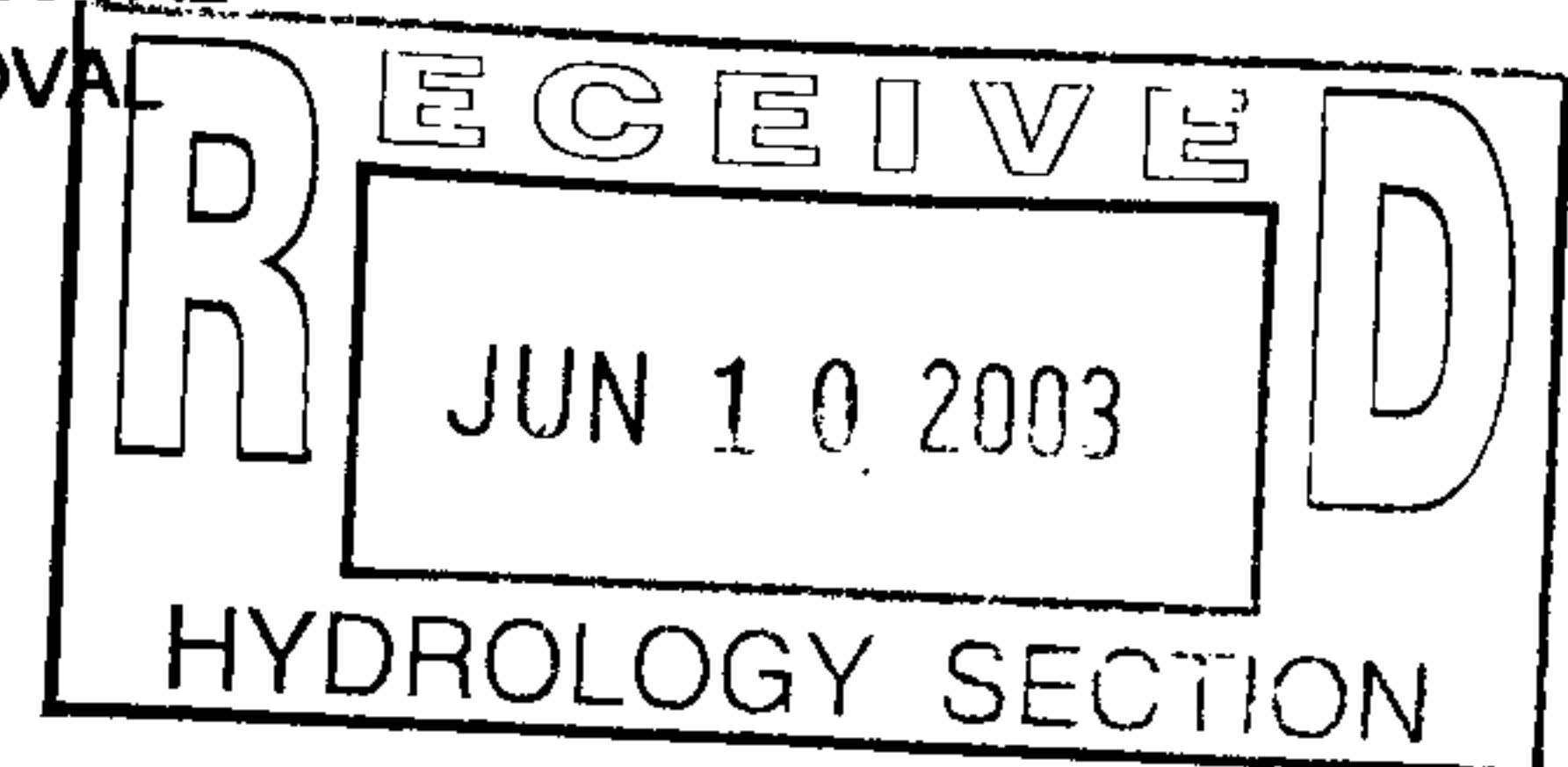
- ☒ DRAINAGE REPORT
☒ DRAINAGE PLAN 1st SUBMITTAL, **REQUIRES TCL or equal**
☐ DRAINAGE PLAN RESUBMITTAL
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☒ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION (HYDROLOGY)
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ ENGINEERS CERTIFICATION (TCL)
☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
☐ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA / FINANACIAL GUARANTEE RELEASE
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D. APPROVAL
☒ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☒ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY (PERM.)
☐ CERTIFICATE OF OCCUPANCY (TEMP.)
☒ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ WORK ORDER APPROVAL
☒ OTHER (SO-19)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
☒ NO
☐ COPY PROVIDED



DATE SUBMITTED: 6/10/2003 BY: Jon Niski

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plans:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

**DRAINAGE REPORT
FOR**

HUNING CASTLE APARTMENTS

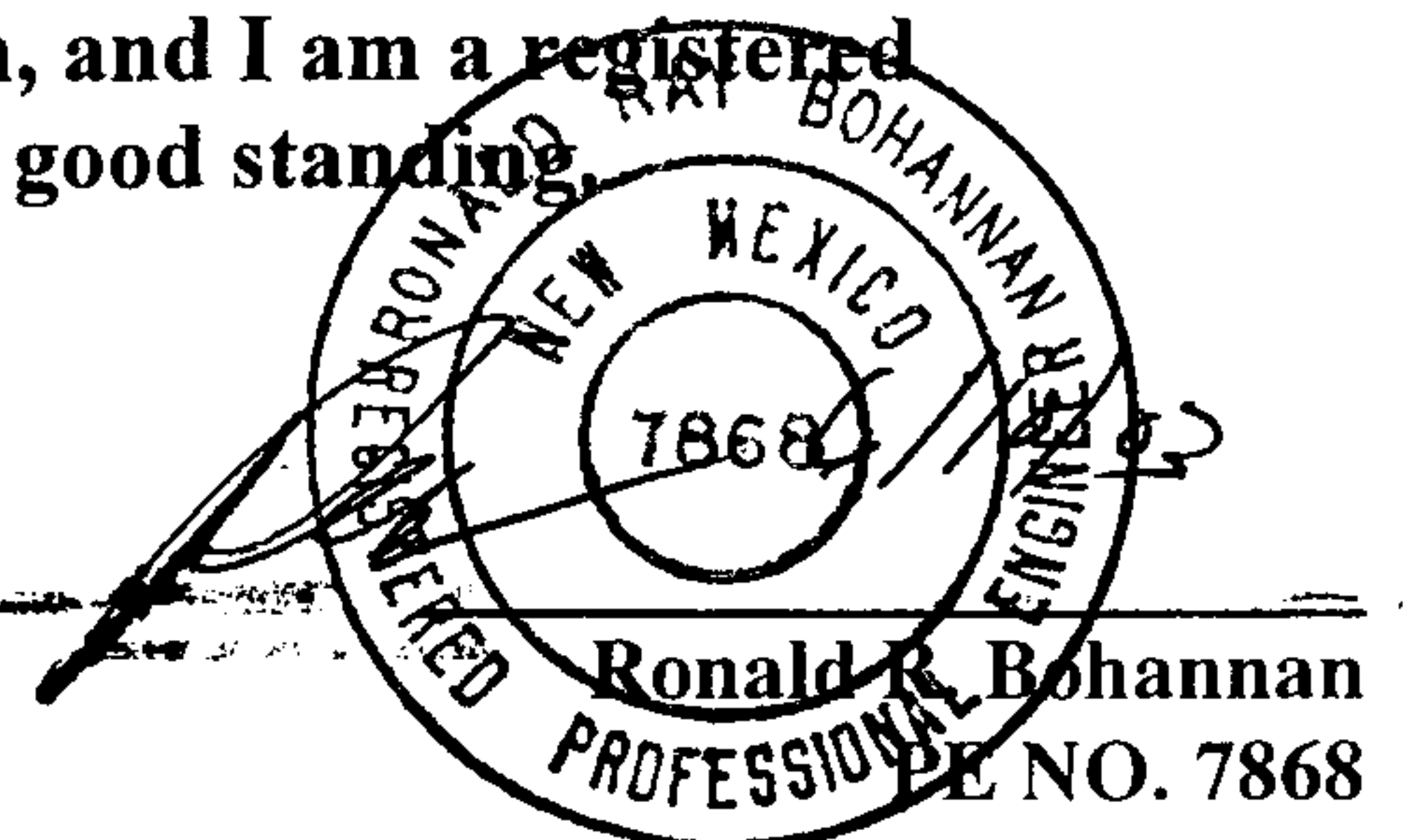
Prepared by:

**Tierra West, LLC
8509 Jefferson NE
Albuquerque, New Mexico 87113**

**Prepared for:
Keleher & McLeod**

June, 2003

**I certify that this report was prepared under my supervision, and I am a registered
professional engineer in the State of New Mexico in good standing.**



Job No 960031

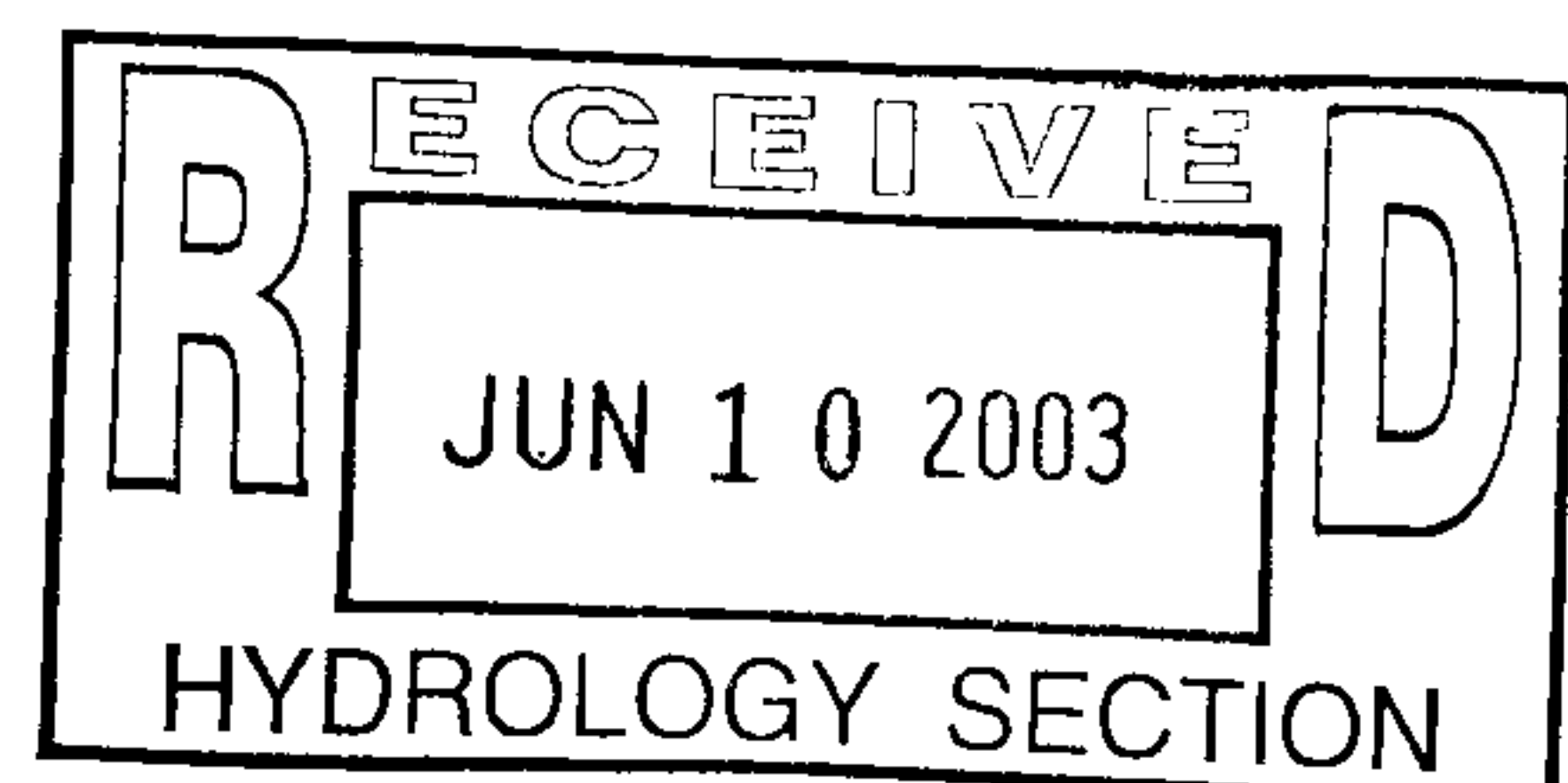


TABLE OF CONTENTS

SECTION I - REPORT

Location	4
Purpose.....	4
Existing Drainage Conditions	4
Vicinity Map	5
Flood Insurance Rate Map	6
Flood Plain and Soil Conditions	7
Proposed Conditions and On-Site Drainage Management	7
Proposed Basins Map.....	8
Sidewalk Culvert Basin Map	9
Summary	10
Calculations.....	10

SECTION II - RUNOFF CALCULATIONS

Runoff Calculations	12
Sidewalk Culvert and Pipe Analysis.....	14
Retention Pond Calculations.....	18

MAP POCKET

Grading and Drainage Plan

Section I

Report

Prelude

This report is being prepared at the request of the current owner, who proposes to develop 63 unit two and three story apartment complex.

Location

The subject site is located just west of the downtown area of Albuquerque. Specifically, the site is located on Central Avenue between Laguna Boulevard and 15th Street. The exact location of the site is shown highlighted on the enclosed Zone Atlas page number J-13. The site will be built in one phase and contains 2.64 acres more or less.

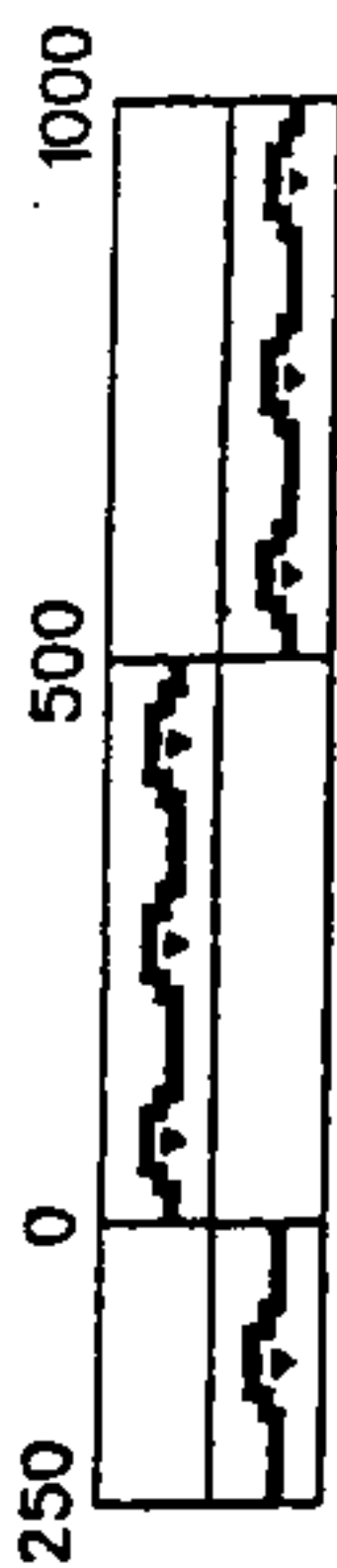
Purpose

The purpose of this drainage report is to present a grading and drainage solution for the proposed apartment complex. The site was previously approved on April 7, 2000 under report number J13-D62. The layout of the site was revised at the owner's request. The site was re-graded for the new layout, although the drainage solution is the same. We are requesting final grading permit approval at this time.

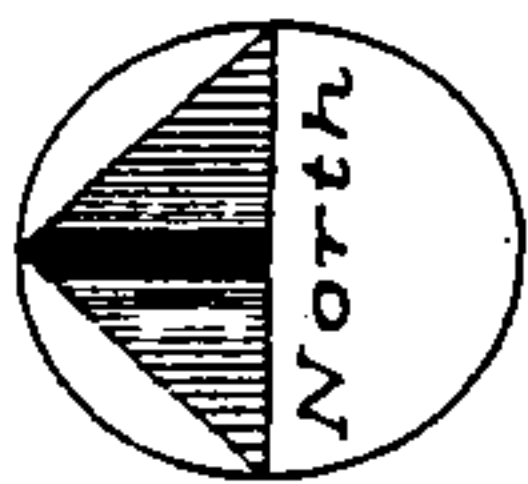
Existing Drainage Conditions

The site has been developed in the past and was the site of the Huning Castle. The site was occupied continuously throughout the early turn of the century but was demolished in the 1950's. The site has been generating runoff throughout its history and we propose to continue to free discharge from the site. There are no off-site flows entering the site. There is one existing

SCALE IN FEET

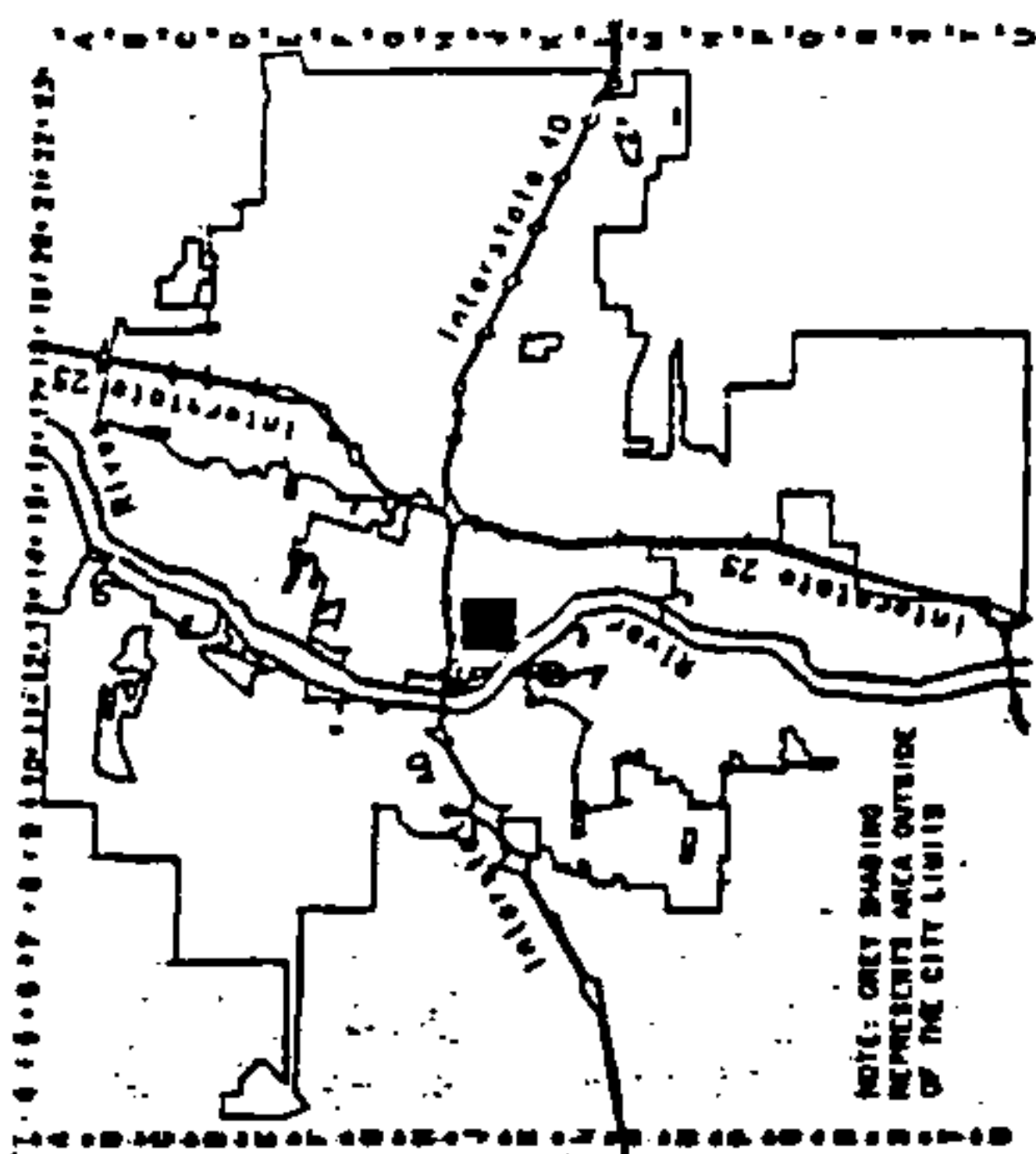


PHOTOCOPY--NOT TO SCALE



Albuquerque
City of Albuquerque

© Planning Department
Map Amended through August 17, 1994



LEGAL DESCRIPTION

TION
RSE
SEC 18

UNIFORM PROPERTY CODE
1-012-068

J-13-Z



D

E

NS PANEL 0331

QUE

THIS PANEL IS LOCATED
NGE 3 EAST AND
ST.

ZONE AO
(DEPTH 4)

ZONE X
ALAMOS

ZONE X

ZONE AO
(DEPTH 1)

ZONE X

ZONE X

ZONE

FIRM MAP 35001C0333 D

basin on the site. The basin has an undeveloped runoff of 6.15 cfs and sheet flows off the site to the three adjacent streets (Laguna Blvd, Central Blvd, and 15th Street

Flood Plain and Soil Condition

The site is located on FIRM Map 35001C0333 D as shown on the attached excerpt. The map shows that the site does not lie within any 100 year flood plains.

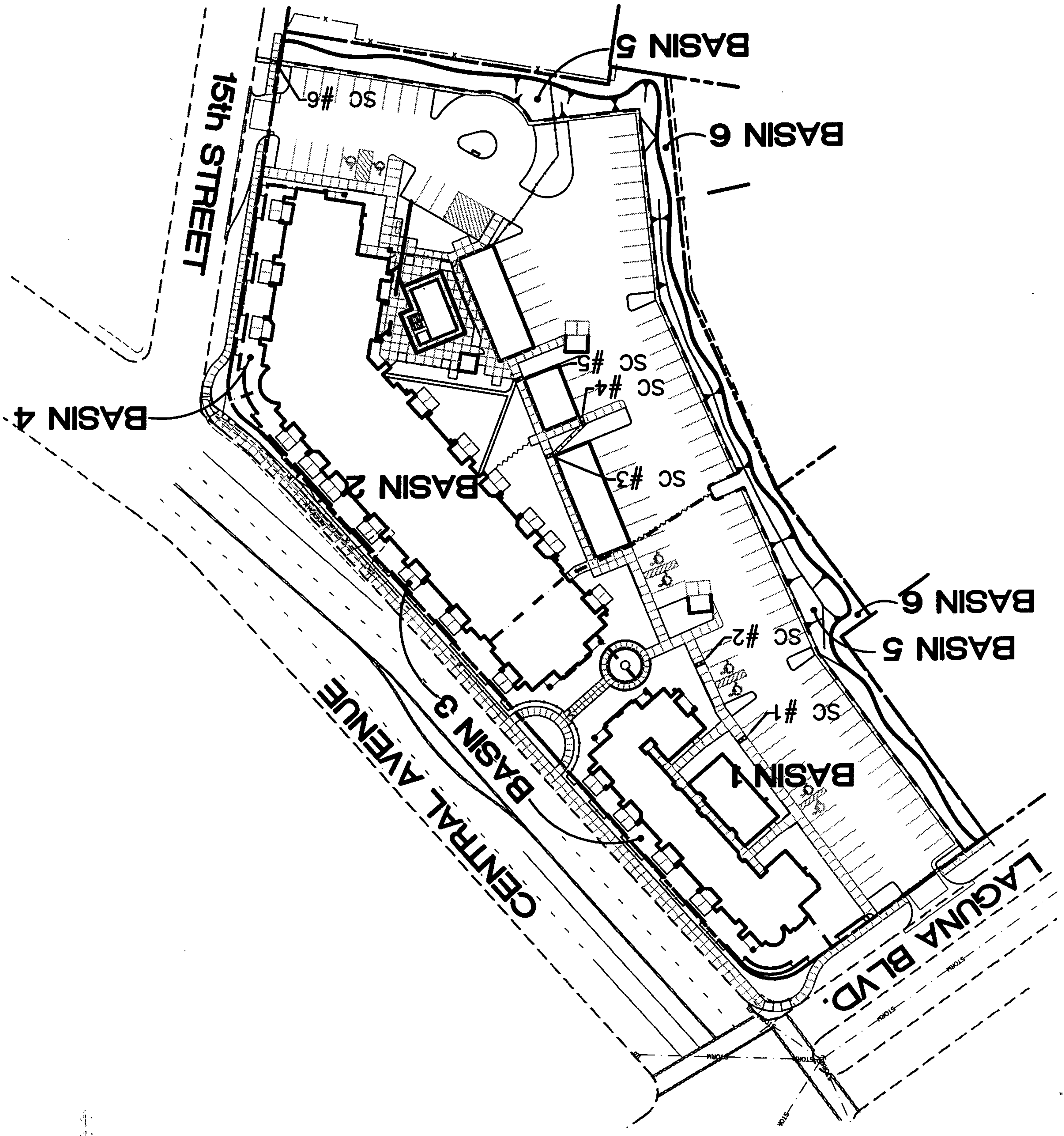
The Brazito complex is the only soil type found on the site. This soil complex is a mixture of the Brazito silty clay loam and various other soils. The hazard of water erosion is slight, runoff is very slow, and the hazard of soil blowing is moderate.

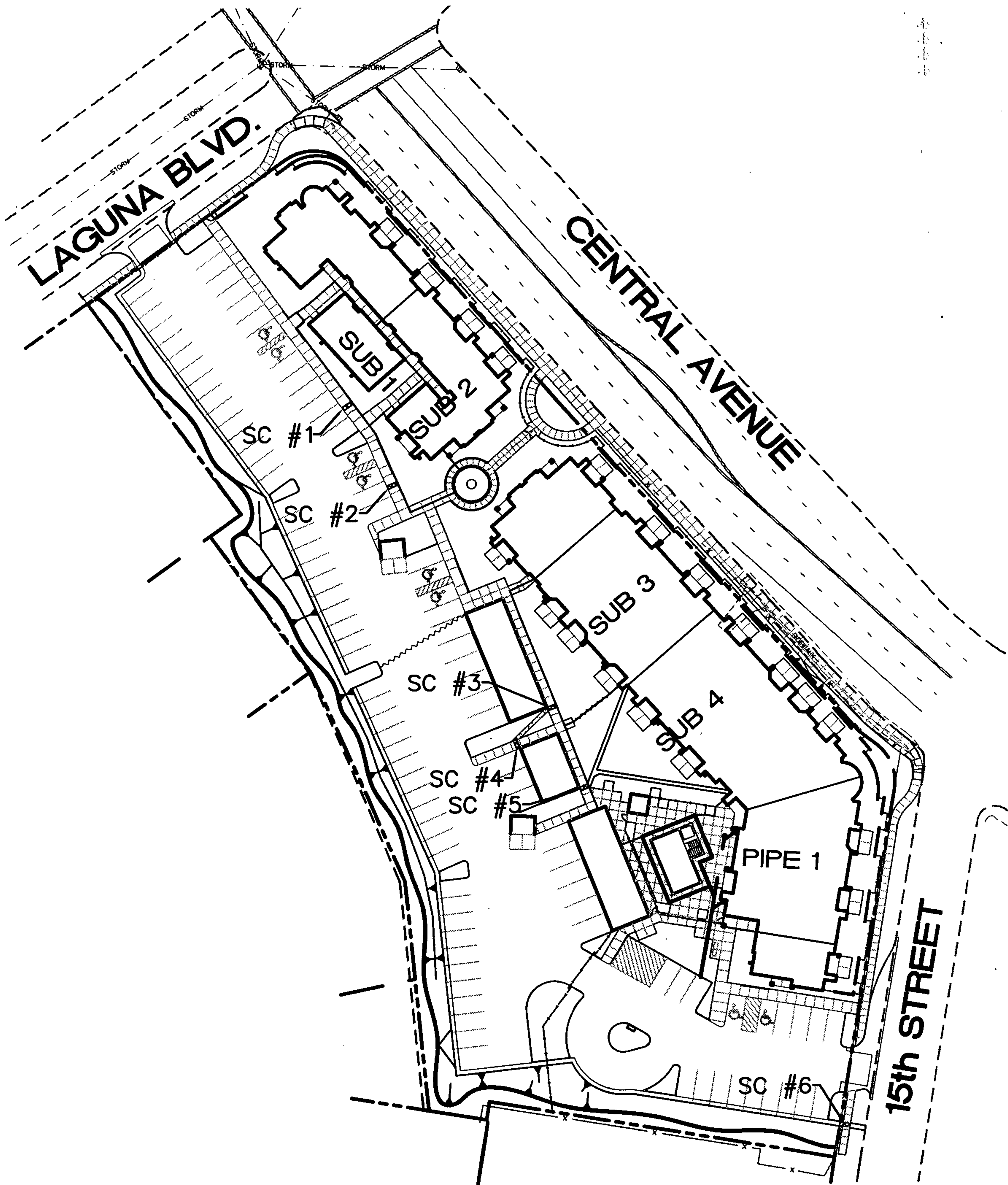
Proposed Conditions and On-Site Drainage Management Plan

The site is divided into six proposed drainage basins as shown on the "Proposed Basin Layout". Basin 1 has a runoff flow of 3.25 cfs; it will drain to the parking lot and then north into Laguna Boulevard. Basin 2 has a runoff flow of 5.84 cfs. It will drain to the parking lot and then east to sidewalk culverts that will discharge to 15th Street. Basin 3 consist of landscape areas and will sheet flow a total of 0.49 cfs into Central Avenue. Basin 4 also consist of landscape areas and will sheet flow a total of 0.12 cfs into 15th Street. Basins 5 and 6 are water harvesting areas. Each area is sized for a 10 day, 100 year storm at 523 ft³ and 305 ft³ respectively. No flows will enter these basins nor will there be any discharge to the properties south of the project.

There is an existing lift station located at Alcalde Street north of the Rio Grande Zoo as referenced from the City of Albuquerque As-Built information entitled Alcalde Storm Water Pumping Station and Collection System. The storm drain systems in Central, Laguna, and 15th Street will route the proposed runoff to this pump station.

PROPOSED BASIN LAYOUT





SIDEWALK CULVERT BASIN LAYOUT

These facilities were identified in the Albuquerque Master Drainage Study to remove the flooding in the area. The study used full build out conditions for the area and specifically this site. Under that study and with the improvements in place the site should be allowed to free discharge.

Summary

There are six proposed drainage basins on the site. Basin 1, with a developed discharge rate of 3.25 cfs will drain to Laguna Boulevard. Basins 2, and 4 will discharge a total developed flow of 3.19 cfs to 15th Street. Basin 3 will discharge a total of 0.49 cfs to Central Ave. Basins 5 and 6 will retain all water that falls in these areas. Free discharge is permitted as the site was developed in the past and the drainage patterns are the same.

Calculations

The weighted E method from the "City of Albuquerque Development Process Manual Volume 11 – Design Criteria, 1997 Revision" was used to calculate the runoff and volume for the site.

Section II

Runoff Calculations

Weighted E Method

Existing Basins

											100-Year			10-Year		
Basin	Area (sf)	Area (âres)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
			%	(acres)	%	(acres)	%	(acres)	%	(acres)						
1	32613.00	0.749	0%	0	100%	0.749	0%	0	0%	0.000	0.780	0.049	1.71	0.280	0.017	0.71
2	58678.00	1.347	0%	0	100%	1.347	0%	0	0%	0.000	0.780	0.088	3.07	0.280	0.031	1.28
3	8945.00	0.205	0%	0	100%	0.205	0%	0	0%	0.000	0.780	0.013	0.47	0.280	0.005	0.20
4	2210.00	0.051	0%	0	100%	0.051	0%	0	0%	0.000	0.780	0.003	0.12	0.280	0.001	0.05
5	7884.00	0.181	0%	0	100%	0.181	0%	0	0%	0.000	0.780	0.012	0.41	0.280	0.004	0.17
6	4676.00	0.107	0%	0	100%	0.107	0%	0	0%	0.000	0.780	0.007	0.24	0.280	0.003	0.10
Total	115006.00	2.640		0		2.640		0		0.000		0.172	6.02		0.062	2.51

Developed Basins

											100-Year			10-Year		
Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
			%	(acres)	%	(acres)	%	(acres)	%	(acres)						
1	32613.00	0.749	0%	0	15%	0.112	0%	0	85%	0.636	1.919	0.120	3.25	1.181	0.074	2.10
2	58678.00	1.347	0%	0	15%	0.202	0%	0	85%	1.145	1.919	0.215	5.84	1.181	0.133	3.79
3	8945.00	0.205	0%	0	95%	0.195	0%	0	5%	0.010	0.847	0.014	0.49	0.333	0.006	0.22
4	2210.00	0.051	0%	0	95%	0.048	0%	0	5%	0.003	0.847	0.004	0.12	0.333	0.001	0.05
5	7884.00	0.181	0%	0	100%	0.181	0%	0	0%	0.000	0.780	0.012	0.41	0.280	0.004	0.17
6	4676.00	0.107	0%	0	100%	0.107	0%	0	0%	0.000	0.780	0.007	0.24	0.280	0.003	0.10
Total	115006.00	2.640		0		0.846		0		1.794		0.372	10.36		0.220	6.44

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted D * Total Area

Flow = Qa * Aa + Qb * Ab + Qc * Ac + Qd * Ad

4
3
2
1

RUNOFF CALCULATIONS

The site is @ Zone 2

LAND TREATMENT

Proposed
Varies

Existing
B = 100 %

EXCESS PRECIPITATION, E (INCHES)

<u>100-Year</u>	<u>10-Year</u>
E _a = 0.53	E _a = 0.13
E _b = 0.78	E _b = 0.28
E _c = 1.13	E _c = 0.52
E _d = 2.12	E _d = 1.34

PEAK DISCHARGE (CFS/ACRE)

<u>100-Year</u>	<u>10-Year</u>
Q _a = 1.56	Q _a = 0.38
Q _b = 2.28	Q _b = 0.95
Q _c = 3.14	Q _c = 1.71
Q _d = 4.70	Q _d = 3.14

SIDEWALK CULVERTS

Orifice Equation:

$$Q = CA\sqrt{2gH}$$

Where:

$$C = 0.6$$

$$A = 0.50 \times 2 = 1.00 \text{ ft}^2$$

$$g = 32.2$$

H = Height of water measured from center of orifice

$$Q = 0.6 \times 1.00 \sqrt{2 \times 32.2 \times 0.25}$$

$$Q = 2.407 \text{ cfs}$$

SUB 1

$$2.407 \text{ cfs} > 0.24 \text{ cfs}$$

Use one 24" sidewalk culvert

SUB 2

$$2.407 \text{ cfs} > 0.43 \text{ cfs}$$

Use one 24" sidewalk culvert

SUB 3

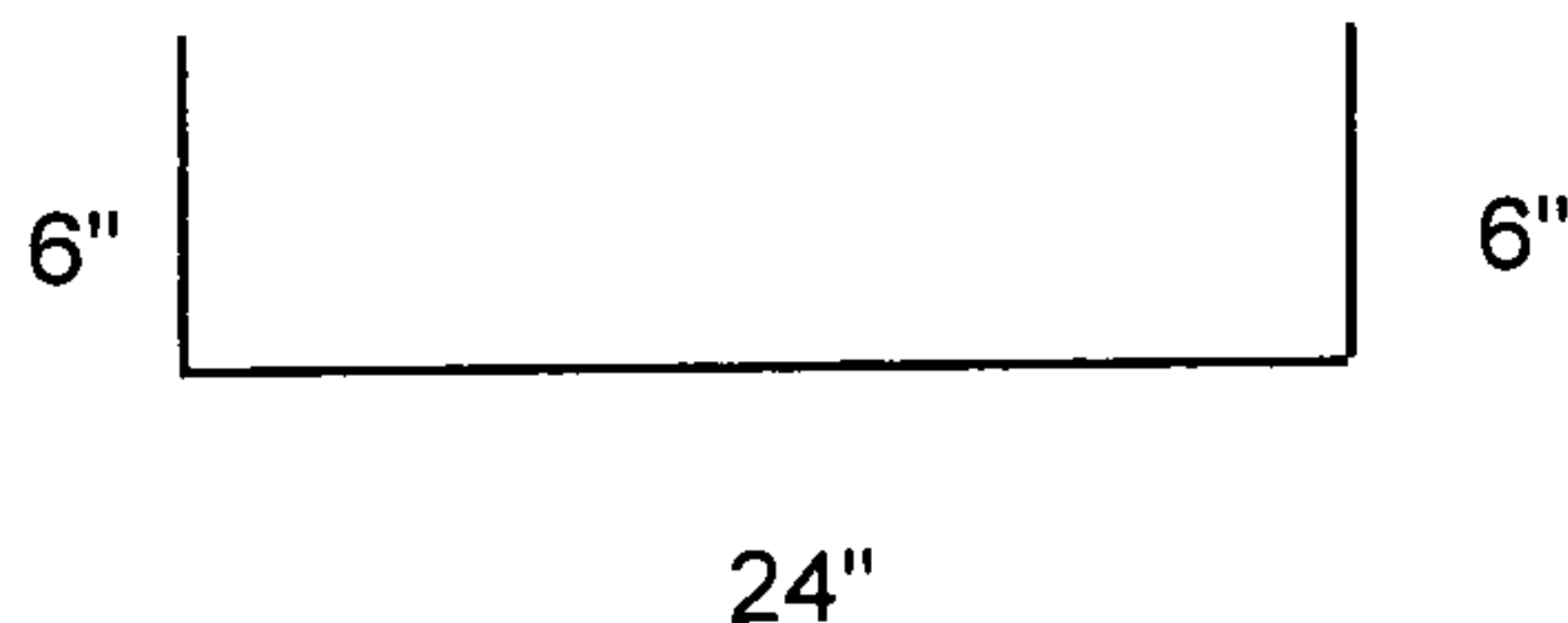
$$2.407 \text{ cfs} > 0.61 \text{ cfs}$$

Use one 24" sidewalk culvert

SUB 4

$$2.407 \text{ cfs} > 0.99 \text{ cfs}$$

Use one 24" sidewalk culvert



SIDEWALK CULVERTS

Orifice Equation:

$$Q = CA\sqrt{2gH}$$

Where:

$$C = 0.6$$

$$A = 0.5833 \times 2 = 1.167 \text{ ft}^2$$

$$g = 32.2$$

H = Height of water measured from center of orifice

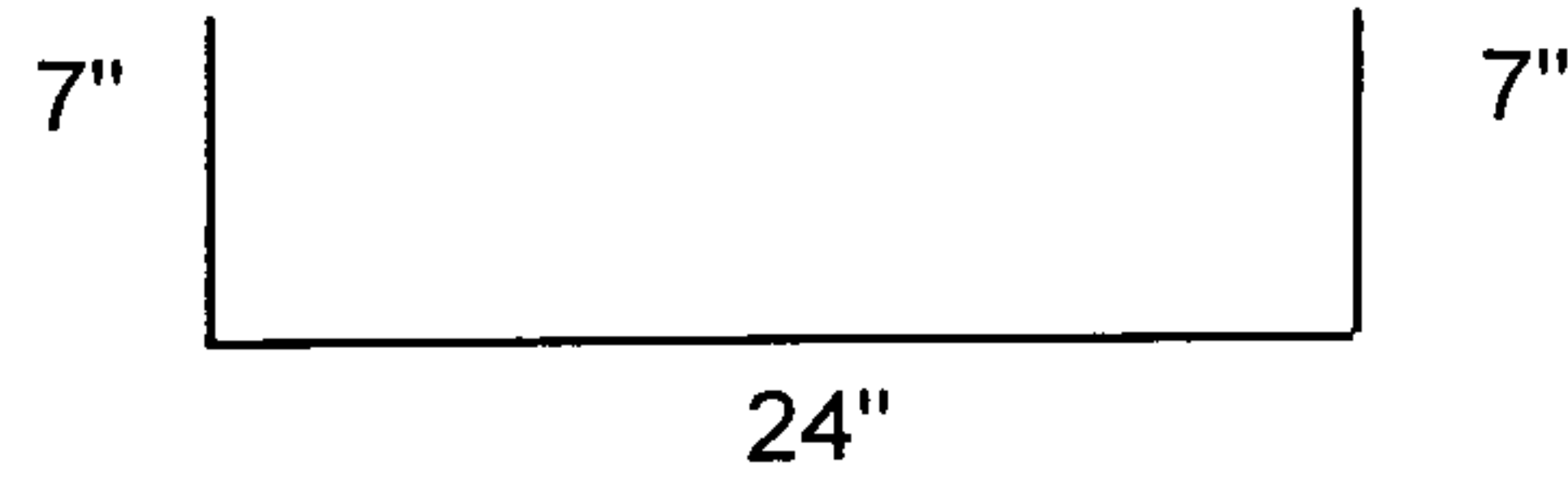
$$Q = 0.6 \times 1.1667 \sqrt{2 \times 32.2 \times 0.2917}$$

$$Q = 3.035 \text{ cfs}$$

BASIN 2

$$6.073 \text{ cfs} > 5.84 \text{ cfs}$$

Use two 24" sidewalk culverts



Pipe Capacity

Pipe	D	Slope	Area	R	Q Provided	Q Required	Velocity
	(in)	(%)	(ft^2)		(cfs)	(cfs)	(ft/s)
1	8	0.5	0.35	0.167	0.86	0.70	2.01

Manning's Equation:

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

A = Area

R = D/4

S = Slope

n = 0.013

Weighted E Method

Sidewalk Culvert Basins

											100-Year			10-Year		
Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
			%	(acres)	%	(acres)	%	(acres)	%	(acres)						
SUB 1	2433.00	0.056	0%	0	20%	0.011	0%	0	80%	0.045	1.852	0.009	0.24	1.128	0.005	0.15
SUB 2	4467.00	0.103	0%	0	20%	0.021	0%	0	80%	0.082	1.852	0.016	0.43	1.128	0.010	0.28
SUB 3	6517.00	0.150	0%	0	25%	0.037	0%	0	75%	0.112	1.785	0.022	0.61	1.075	0.013	0.39
SUB 4	10208.00	0.234	0%	0	20%	0.047	0%	0	80%	0.187	1.852	0.036	0.99	1.128	0.022	0.63
BASIN 2	58678.00	1.347	0%	0	15%	0.202	0%	0	85%	1.145	1.919	0.215	5.84	1.181	0.133	3.79
PIPE 1	6515.00	0.150	0%	0	0%	0.000	0%	0	100%	0.150	2.120	0.026	0.70	1.340	0.017	0.47
Total	82303.00	1.889		0		0.318		0		1.571		0.298	8.11		0.183	5.24

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted D * Total Area

Flow = Qa * Aa + Qb * Ab + Qc * Ac + Qd * Ad

Weighted E Method For Retention Ponds

Developed On-Site Basins

											100-Year, 6-Hr			10-Year, 6-Hr			100-Year, 10-Day		
Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E	Volume (ac-ft)	Flow cfs	Weighted E	Volume (ac-ft)	Flow cfs	Weighted E	Volume (ac-ft)	Flow cfs
			%	(acres)	%	(acres)	%	(acres)	%	(acres)									
5	7,884	0.18	0%	0	100%	0.18	0%	0	0%	0.00	0.780	0.012	0.41	0.280	0.004	0.17	0.780	0.012	0.41
6	4,676	0.11	0%	0	100%	0.11	0%	0	0%	0.00	0.780	0.007	0.24	0.280	0.003	0.10	0.780	0.007	0.24

Map Pocket

Grading and Drainage Plan



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 7, 2000

Ron Bohannon, PE
Tierra West LLC
8509 Jefferson NE
Albuquerque, NM 87113

Re: Huning Castle Apartments Drainage Report
Engineer's Stamp dated 3-17-00 (J13/D62)

Dear Mr. Bohannon,

Based upon the information provided in your resubmittal dated 3-28-00, the above referenced plan is approved for Site Development Plan Building Permit and Building Permit.

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Also, prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

If you have any questions, you can contact me at 924-3986

Sincerely,

Bradley L. Bingham, PE
Hydrology Review Engineer

C: file

DRAINAGE INFORMATION SHEET

PROJECT TITLE: HUNING CASTLE APARTMENTS ZONE ATLAS/DRNG. FILE #: J13-D62

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: LOTS 1,8, AND 9 IN BLOCK 1 IN HUNING CASTLE ADDITION

CITY ADDRESS: CENTRAL AVE BETWEEN LAGUNA AND 15TH STREET

ENGINEERING FIRM: TIERRA WEST, LLC CONTACT: RONALD R. BOHANNAN OR SARA LAVY

ADDRESS: 8509 Jefferson NE, 87113 PHONE: (505) 858-3100

OWNER: Cauwels Constr and Development Inc. CONTACT: PAUL S. CAUWELS

ADDRESS: 1116 PENNSYLVANIA NE PHONE: (505) 266-5711

ARCHITECT: Paul T. Bergner, AIA, Architect, PC CONTACT: PAUL T. BERGNER

ADDRESS: 3201 S. TAMARAC DRIVE, STE 101, DENVER, CO 80231 PHONE: (303) 750-4211

SURVEYOR: Southwest Surveying Co., Inc. CONTACT: FRANK WILSON

ADDRESS: 333 LOMAS BLVD, ALB. 87102 PHONE: (505) 247-4444

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

_____ DRAINAGE REPORT
☒ DRAINAGE PLAN
 _____ CONCEPTUAL GRADING & DRAINAGE PLAN
☒ GRADING PLAN
 _____ EROSION CONTROL PLAN
 _____ ENGINEER'S CERTIFICATION
 _____ OTHER

PRE-DESIGN MEETING:

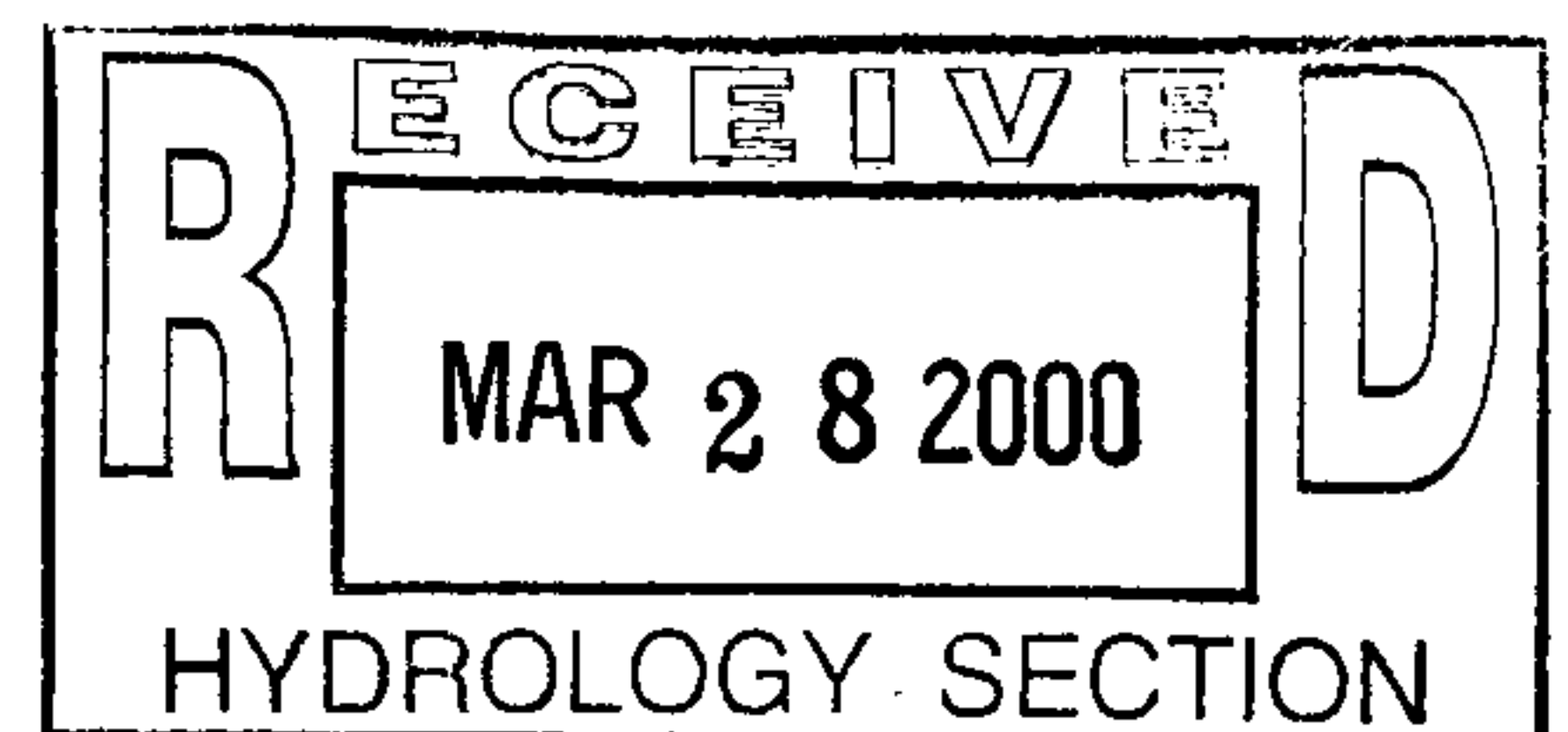
_____ YES
☒ NO
 _____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

_____ SKETCH PLAN APPROVAL
 _____ PRELIMINARY PLAT APPROVAL
 _____ S. DEV. PLAN FOR SUB'D. APPROVAL
☒ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
 _____ SECTOR PLAN APPROVAL
 _____ FINAL PLAT APPROVAL
 _____ FOUNDATION PERMIT APPROVAL
☒ BUILDING PERMIT APPROVAL
 _____ CERTIFICATE OF OCCUPANCY APPROVAL
☒ GRADING PERMIT APPROVAL
 _____ PAVING PERMIT APPROVAL
 _____ S. A. D. DRAINAGE REPORT
 _____ DRAINAGE REQUIREMENTS
☒ OTHER - 5019

DATE SUBMITTED: 3-27-00

BY: Sara Lavy



DRAINAGE REPORT

for

Huning Castle Apartments

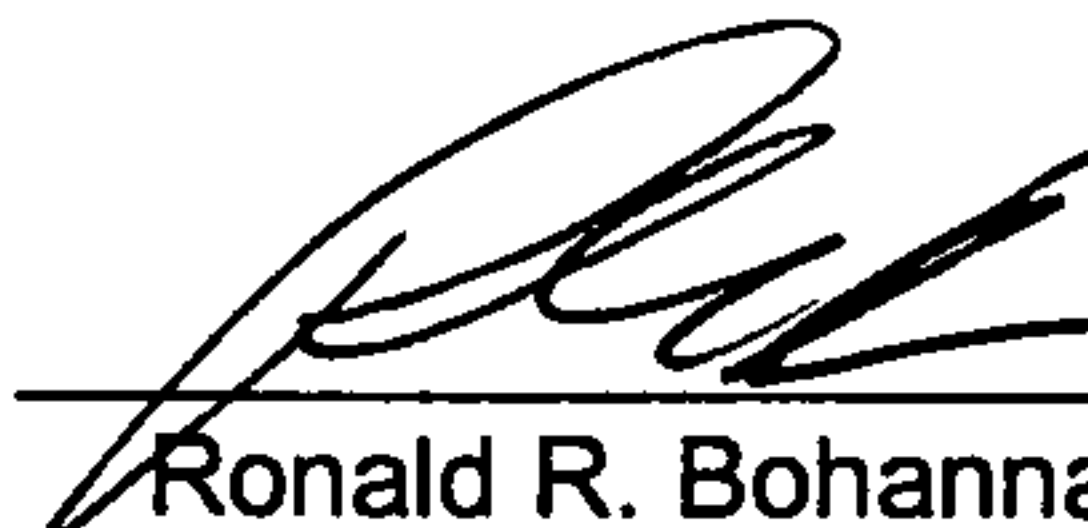
Prepared by

Tierra West, LLC
8509 Jefferson NE
Albuquerque, New Mexico 87113

Prepared for

Paul Cauwels
Cauwels Construction and Development, Inc.
1116 Pennsylvania, NE
Albuquerque, New Mexico 87110

March 2000


Ronald R. Bohannon P.E. No. 7868

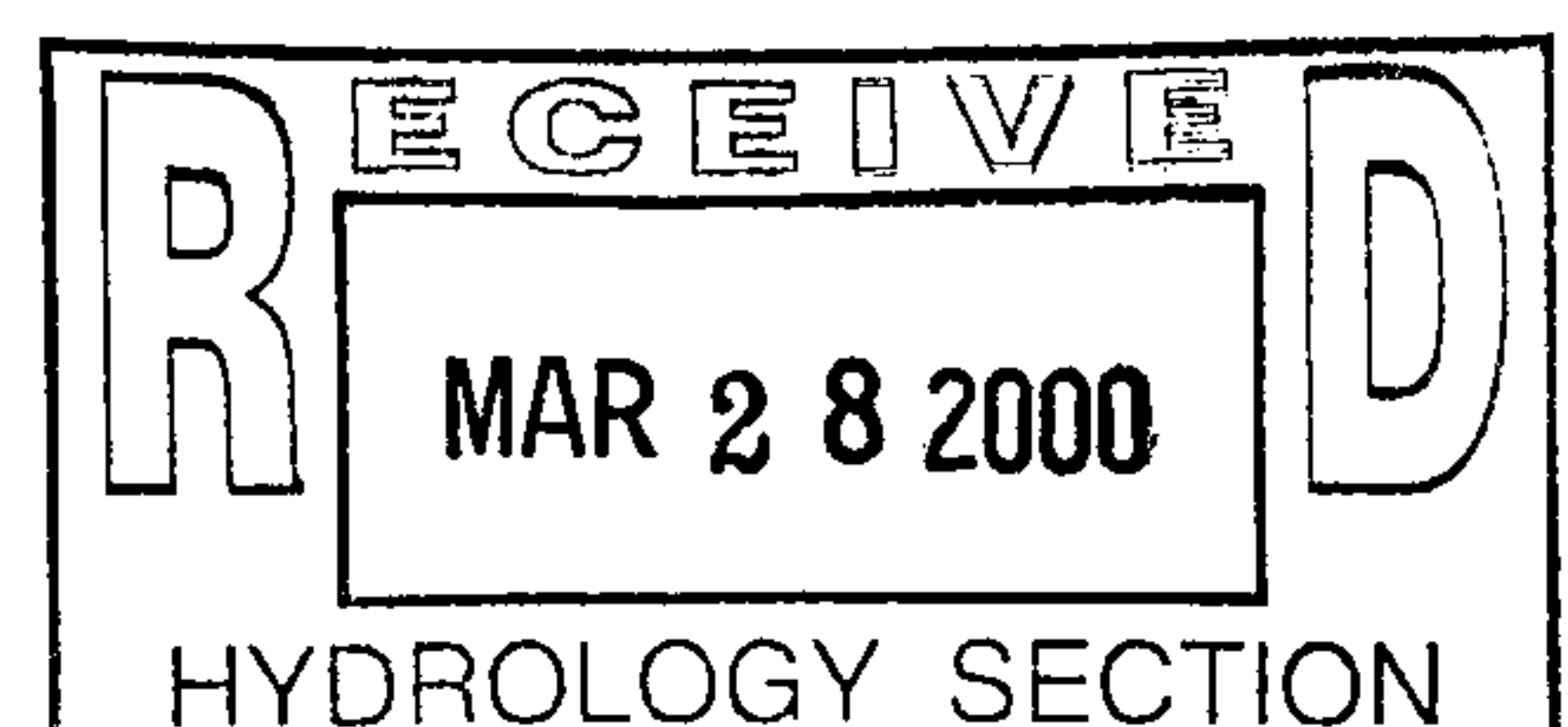
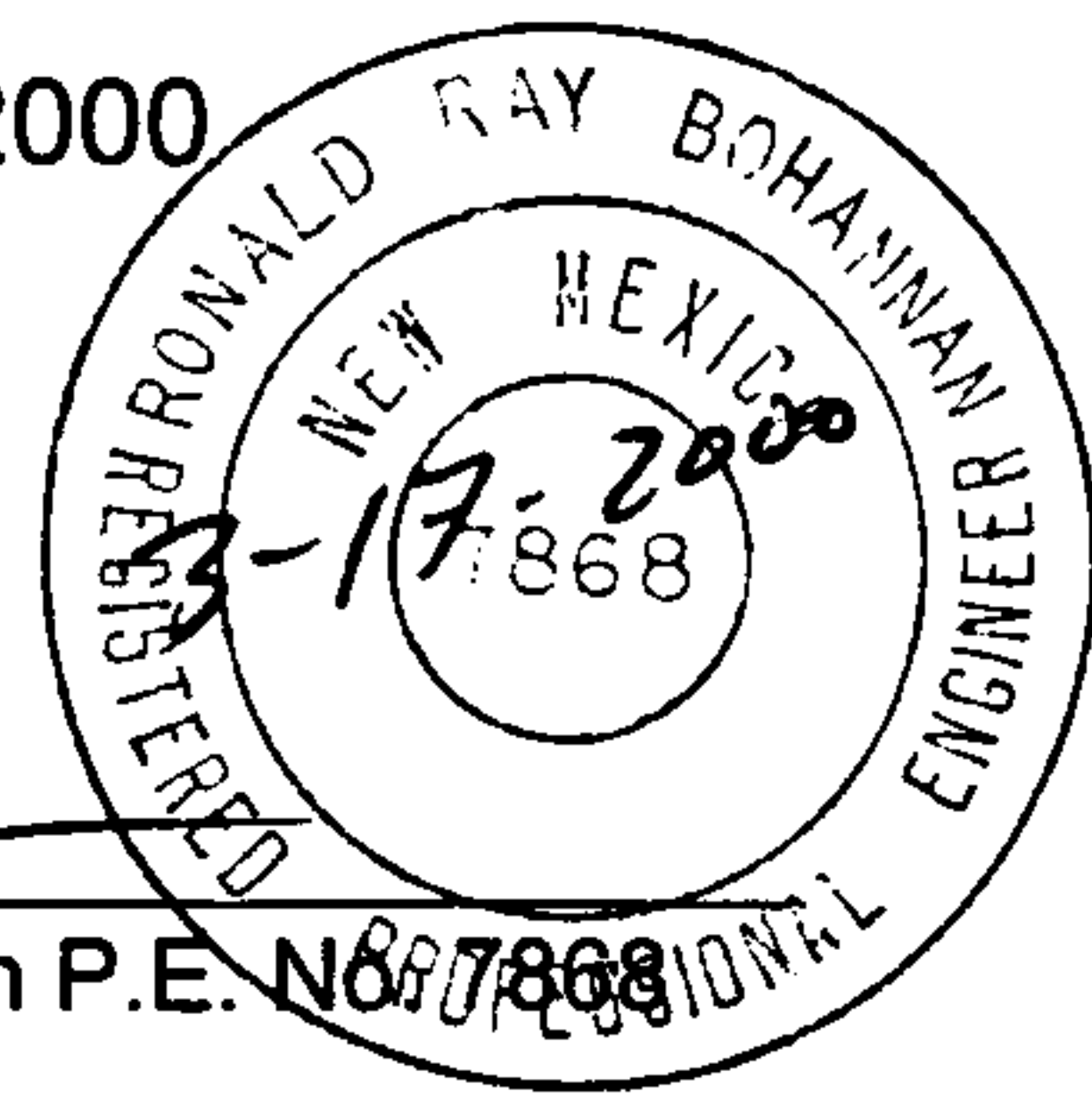
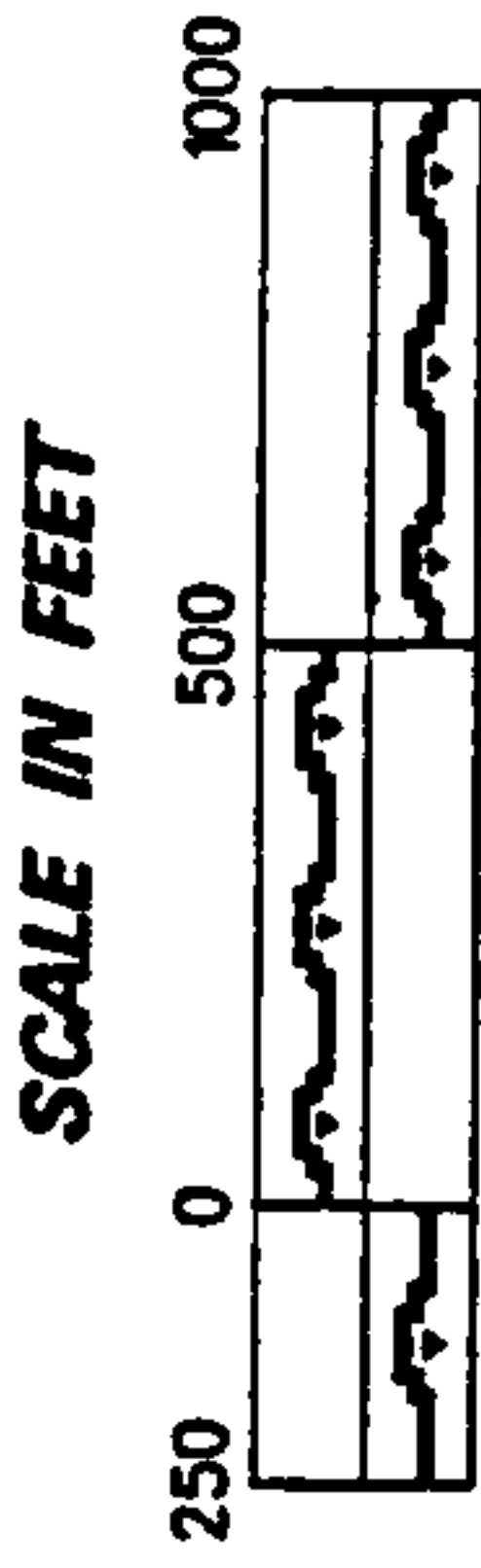
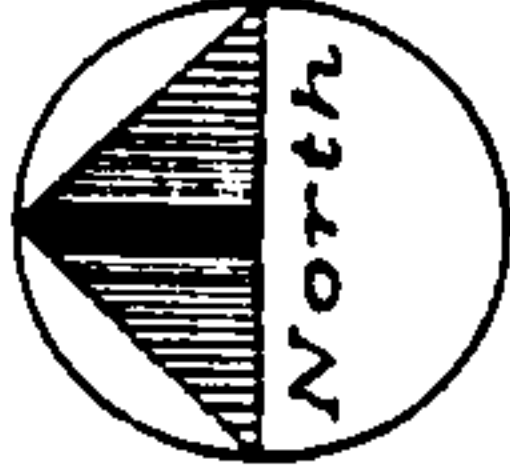


TABLE OF CONTENTS

Zone Atlas Map J-13	1
Location and Location Map	2
Existing Drainage Conditions	2
FEMA and Soil Conditions	2
FEMA Map 350002-0028	3
On-Site Drainage Management Plan	4
Summary	4
Runoff Calculations	5
Runoff Summary Tables for Existing and Proposed Drainage Basins	7
Sidewalk Culvert Analysis	9
AHYMO Input and Summary Output	11

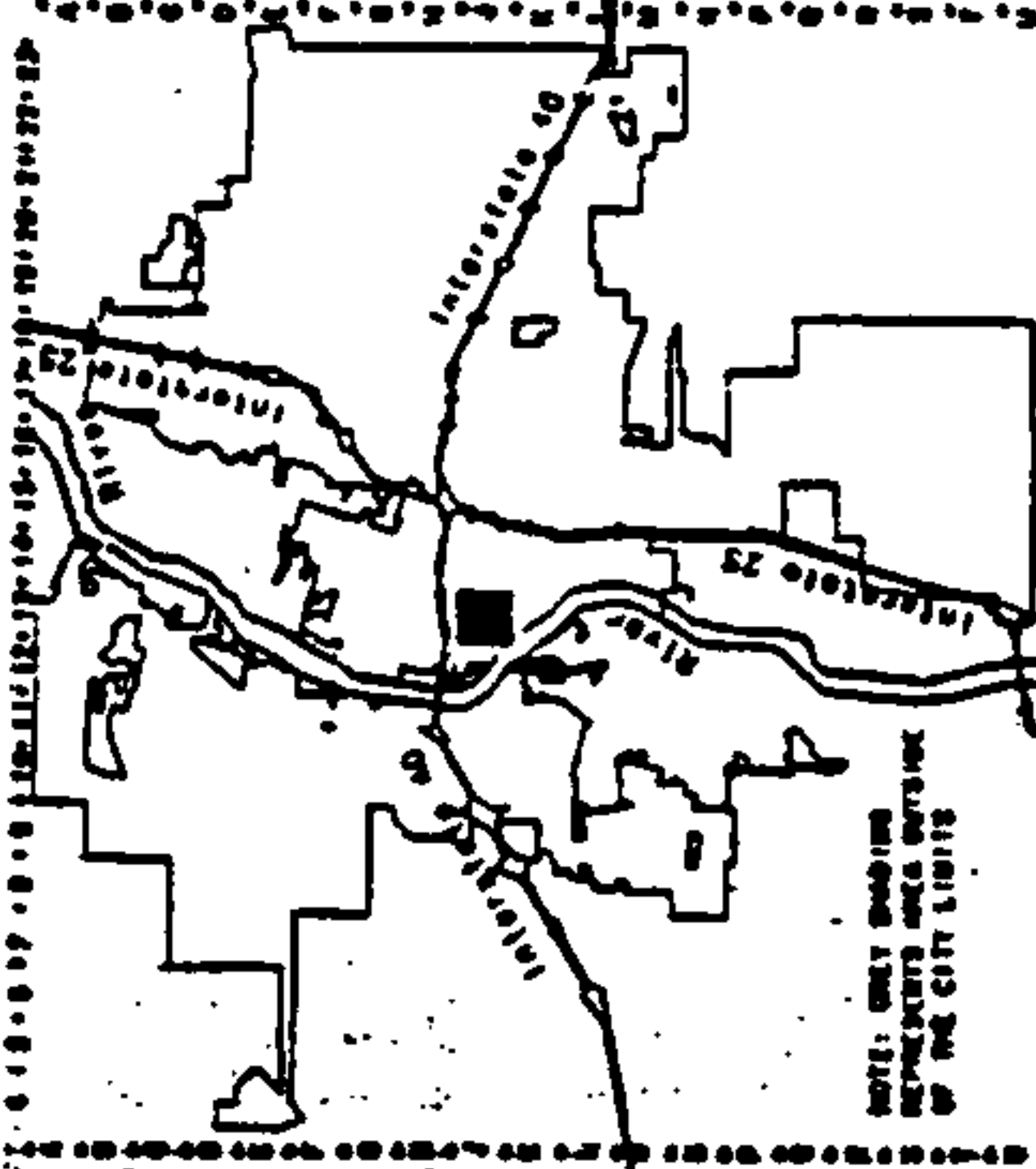


PHOTOCOPY-NOT TO SCALE



A-G
Planning Department

© Planning Department
Map Amended through August 17, 1994



LEGAL DESCRIPTION

T10N
R8E
SEC 18

UNIFORM PROPERTY CODE
1-019-068

J-13-Z



Location

Huning Castle Apartments is a proposed 75 unit three story apartment complex. The site is identified as Lots 1,8, and 9 in Block 1 in the Huning Castle Addition. It is located south of Central Ave between Laguna Blvd and 15th Street. The site is shown on the highlighted attached Zone Atlas Map J-13 and contains approximately 2.9 acres.

This site was previously approved on June 27, 1996 under report number J13-D62. The layout of the site was revised at the owner's request. The site was regarded for the new layout, although the drainage solution is the same. The purpose of this report is to provide the drainage analysis and management plan for the new site layout and grades.

Existing Drainage Conditions

The site has been developed in the past and was the site of the Huning Castle. The site was occupied continuously throughout the early turn of the century but was demolished in the 1950's. The site has been generating runoff throughout its history and we propose to continue to free discharge from the site. There are no off-site flows entering the site. There is one existing basin on the site. The basin has an undeveloped runoff of 6.15 cfs and sheet flows off the site to the three adjacent streets (Laguna Blvd, Central Blvd, and 15th Street

FEMA and Soil Conditions

The site is located on FIRM Map 35001C0333 D as shown on the attached excerpt. The map shows that the site does not lie within any 100 year flood plains.

The Brazito complex is the only soil type found on the site. This soil complex is a mixture of the Brazito silty clay loam and various other soils. The hazard of water erosion is slight, runoff is very slow, and the hazard of soil blowing is moderate.

1. PANEL IS LOCATED
2. JOE 3 EAST AND
3. 1ST.

ZONE AO
(DEPTH 1)

ZONE X
ALAMOS

ZONE X

ZONE AO
(DEPTH 1)

ZONE X

ZONE X

ZONE X

FIRM MAP 3500 C0339 D

On-Site Drainage Management Plan

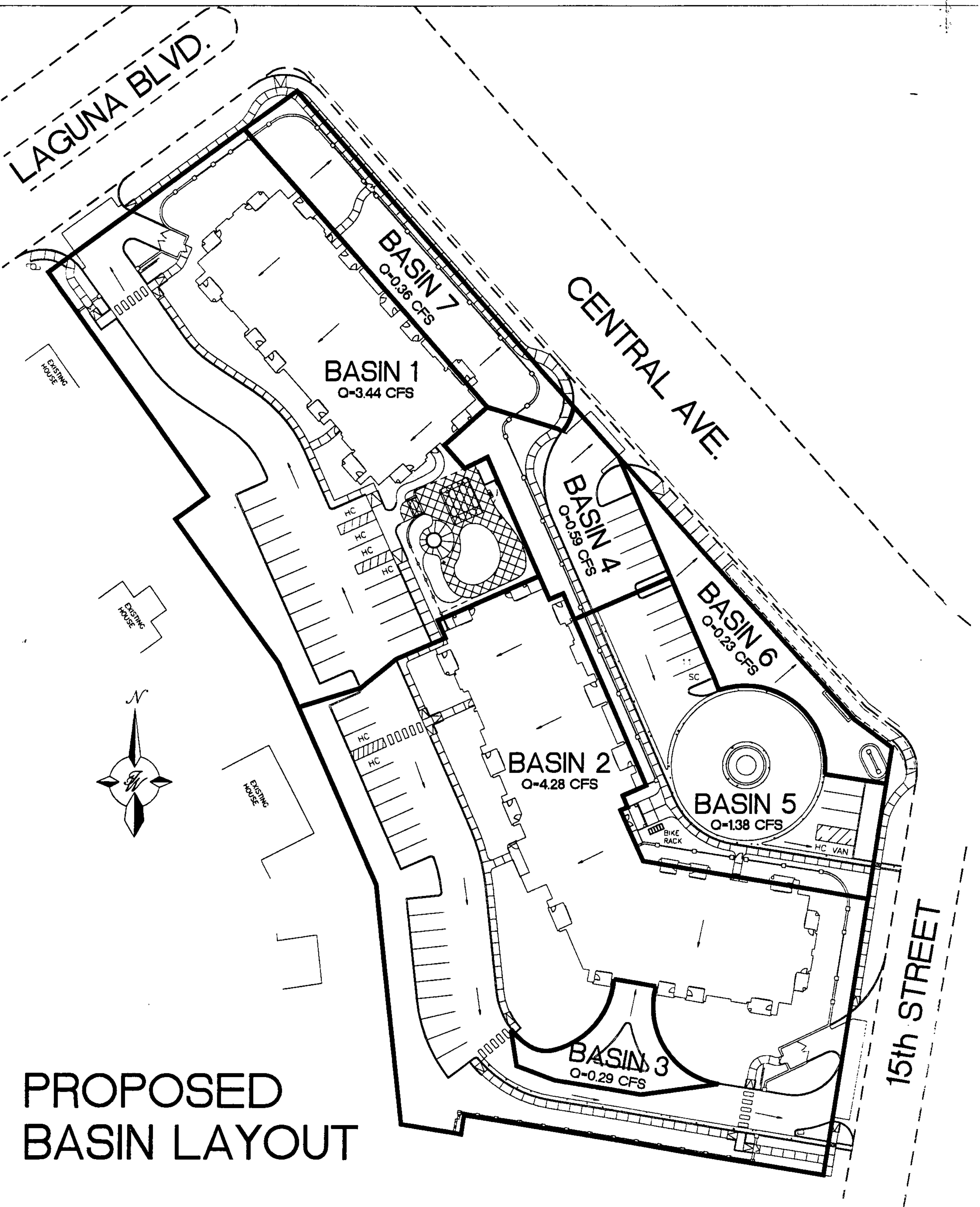
The site has been divided into seven proposed drainage basins as shown on the "Proposed Basin Layout". Basin 1 has a runoff flow of 3.44 cfs; it will drain to the parking lot and then north into Laguna Boulevard. Basin 2 has a runoff flow of 4.28 cfs. It will drain to the parking lot and then east to sidewalk culverts that will discharge to 15th Street. Basins 6 and 7 consist of landscape areas and will sheet flow a total of 0.59 cfs into Central Avenue. Basin 4 will drain 0.59 cfs northeast through the driveway to Central Avenue. Basin 5, with a developed flow of 1.38 cfs, will drain east to a sidewalk culvert and then into 15th Street. Basin 3, with a developed flow of 0.29 cfs, will drain to the underground parking structure under the apartment complex. The flow will then be pumped back to the Basin 2 parking lot via a small sump pump. This will be shown in the architectural drawings for the underground parking structure. The flow will then discharge through the sidewalk culvert in Basin 2 to 15th Street.

There is an existing lift station located at Alcalde Street north of the Rio Grande Zoo as referenced from the City of Albuquerque As-Built information entitled Alcalde Storm Water Pumping Station and Collection System. The storm drain systems in Central, Laguna, and 15th Street will route the proposed runoff to this pump station.

These facilities were identified in the Albuquerque Master Drainage Study to remove the flooding in the area. The study used full build out conditions for the area and specifically this site. Under that study and with the improvements in place the site should be allowed to free discharge.

Summary

There are seven proposed drainage basins on the site. Basin 1, with a developed discharge rate of 3.44 cfs will drain to Laguna Boulevard. Basins 4, 6, and 7 will discharge a total developed flow of 1.18 cfs to Central Avenue. Basins 2, 3, and 5 will discharge a total of



PROPOSED BASIN LAYOUT

5.95 cfs through sidewalk culverts to 15th Street. Free discharge is permitted as the site was developed in the past and the drainage patterns are the same.

Runoff Calculations

Weighted E Method

Existing Basins

Basin	Area (sf)	Area (acres)									100-Year			10-Year		
			Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
			%	(acres)	%	(acres)	%	(acres)	%	(acres)						
1	36630.00	0.841	0%	0	100%	0.841	0%	0	0%	0.000	0.780	0.055	1.92	0.280	0.020	0.80
2	47196.00	1.083	0%	0	100%	1.083	0%	0	0%	0.000	0.780	0.070	2.47	0.280	0.025	1.03
3	2664.00	0.061	0%	0	100%	0.061	0%	0	0%	0.000	0.780	0.004	0.14	0.280	0.001	0.06
4	6264.00	0.144	0%	0	100%	0.144	0%	0	0%	0.000	0.780	0.009	0.33	0.280	0.003	0.14
5	13465.00	0.309	0%	0	100%	0.309	0%	0	0%	0.000	0.780	0.020	0.70	0.280	0.007	0.29
6	4473.00	0.103	0%	0	100%	0.103	0%	0	0%	0.000	0.780	0.007	0.23	0.280	0.002	0.10
7	6812.00	0.156	0%	0	100%	0.156	0%	0	0%	0.000	0.780	0.010	0.36	0.280	0.004	0.15
Total	117504.00	2.698		0		2.698		0		0.000		0.175	6.15		0.063	2.56

Developed Basins

Basin	Area (sf)	Area (acres)									100-Year			10-Year		
			Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
			%	(acres)	%	(acres)	%	(acres)	%	(acres)						
1	36630.00	0.841	0%	0	25%	0.210	0%	0	75%	0.631	1.785	0.125	3.44	1.075	0.075	2.18
2	47196.00	1.083	0%	0	31%	0.336	0%	0	69%	0.748	1.705	0.154	4.28	1.011	0.091	2.67
3	2664.00	0.061	0%	0	0%	0.000	0%	0	100%	0.061	2.120	0.011	0.29	1.340	0.007	0.19
4	6264.00	0.144	0%	0	25%	0.036	0%	0	75%	0.108	1.785	0.021	0.59	1.075	0.013	0.37
5	13465.00	0.309	0%	0	10%	0.031	0%	0	90%	0.278	1.986	0.051	1.38	1.234	0.032	0.90
6	4473.00	0.103	0%	0	100%	0.103	0%	0	0%	0.000	0.780	0.007	0.23	0.280	0.002	0.10
7	6812.00	0.156	0%	0	100%	0.156	0%	0	0%	0.000	0.780	0.010	0.36	0.280	0.004	0.15
Total	117504.00	2.698		0		0.872		0		1.825		0.379	10.57		0.224	6.56

Equations:

Weighted E = $E_a \cdot A_a + E_b \cdot A_b + E_c \cdot A_c + E_d \cdot A_d$ / (Total Area)

Volume = Weighted D * Total Area

Flow = $Q_a \cdot A_a + Q_b \cdot A_b + Q_c \cdot A_c + Q_d \cdot A_d$

RUNOFF CALCULATIONS

The site is @ Zone 2

LAND TREATMENT

Proposed
Varies

Existing
B = 100 %

EXCESS PRECIPITATION, E (INCHES)

<u>100-Year</u>	<u>10-Year</u>
E _a = 0.53	E _a = 0.13
E _b = 0.78	E _b = 0.28
E _c = 1.13	E _c = 0.52
E _d = 2.12	E _d = 1.34

PEAK DISCHARGE (CFS/ACRE)

<u>100-Year</u>	<u>10-Year</u>
Q _a = 1.56	Q _a = 0.38
Q _b = 2.28	Q _b = 0.95
Q _c = 3.14	Q _c = 1.71
Q _d = 4.70	Q _d = 3.14

Sidewalk Culvert Analysis

SIDEWALK CULVERTS

Orifice Equation:

$$Q = CA\sqrt{2gH}$$

Where:

$$C = 0.6$$

$$A = 0.5833 \times 2 = 1.167 \text{ ft}^2$$

$$g = 32.2$$

H = Height of water measured from center of orifice

$$Q = 0.6 \times 1.1678 \sqrt{2 \times 32.2 \times 0.2917}$$

$$Q = 3.035 \text{ cfs}$$

Basin 2

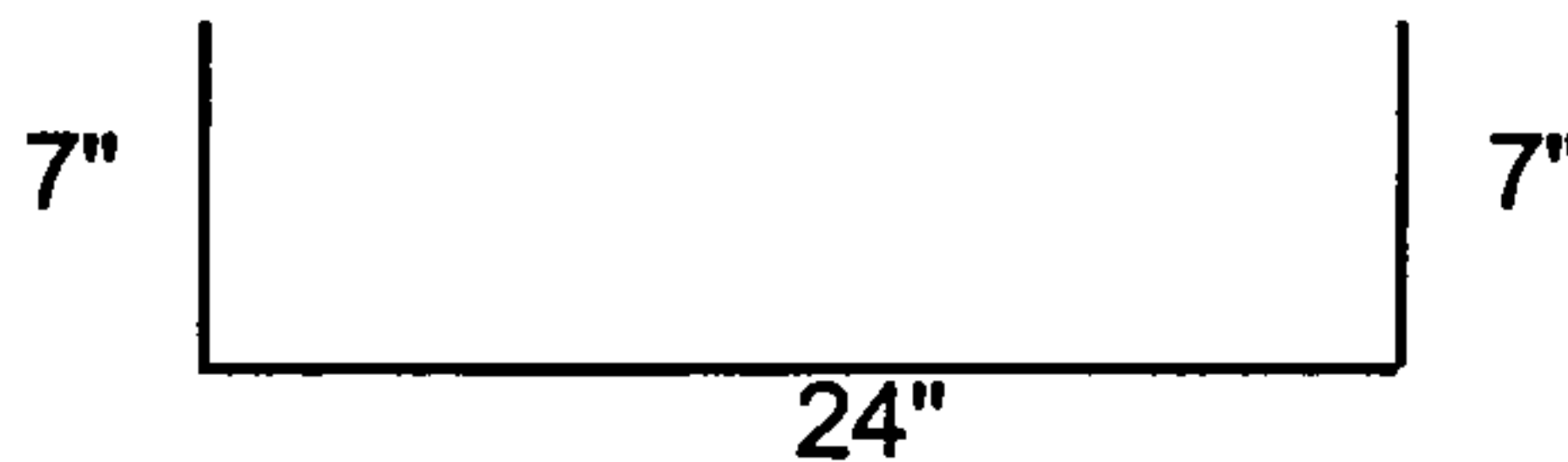
$$6.07 \text{ cfs} > 4.57 \text{ cfs}$$

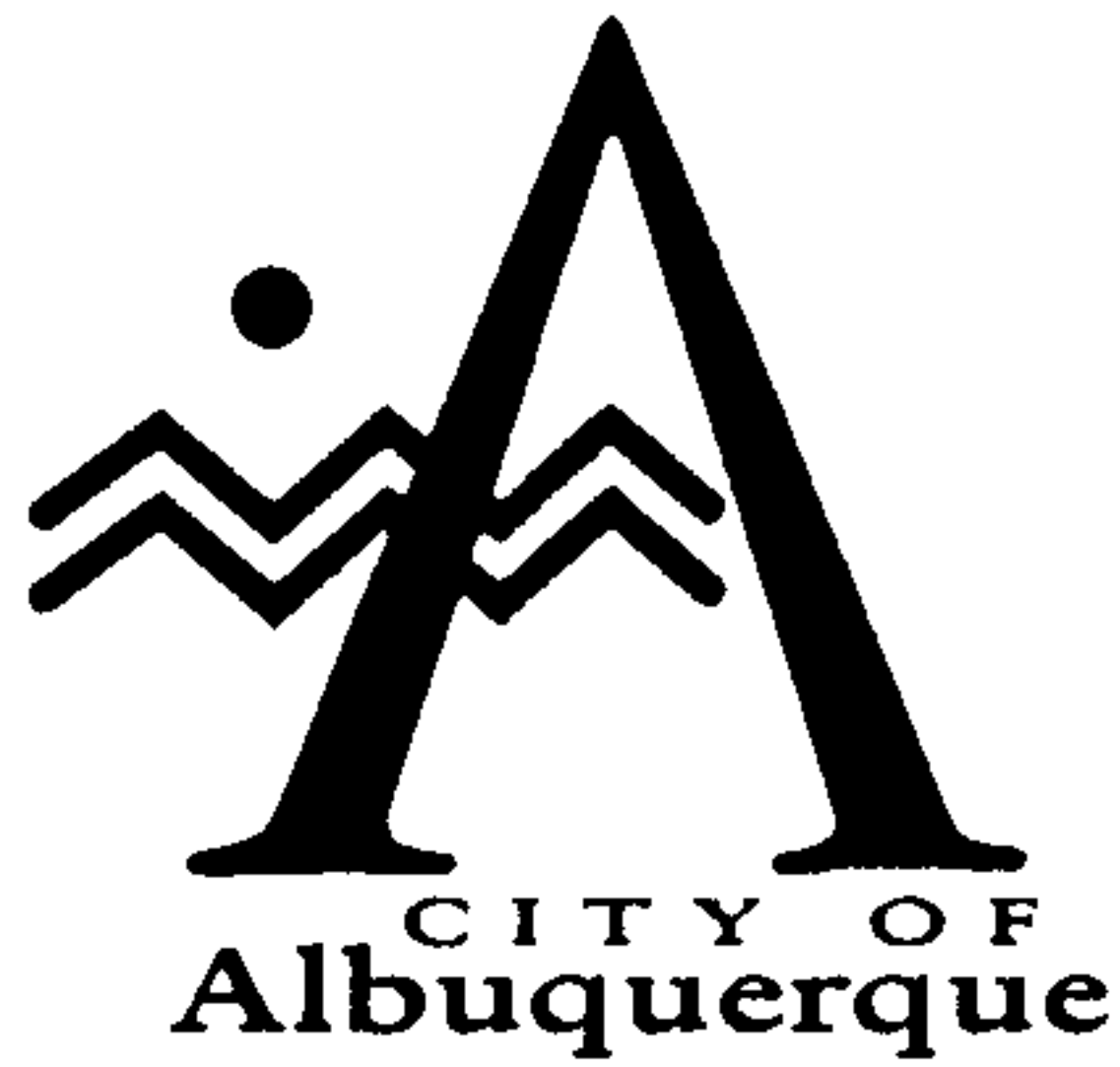
Use two 24" sidewalk culverts

Basin 5

$$3.04 \text{ cfs} > 1.38 \text{ cfs}$$

Use one 24" sidewalk culvert





November 16, 1998

Ronald R. Bohannon, P.E.
Tierra West, LLC
4421 McLeod Road NE
Suite D
Albuquerque, NM 87109

**RE: HUNING CASTLE APARTMENTS (J13-D62). GRADING AND DRAINAGE PLAN
FOR SITE DEVELOPMENT PLAN FOR BUILDING PERMIT APPROVAL, AND
FOR BUILDING PERMIT AND GRADING PERMIT APPROVALS. ENGINEER'S
STAMP DATED OCTOBER 8, 1998.**

Dear Mr. Bohannon:

Based on the information provided on your October 21, 1998 submittal, the above referenced project is approved for Site Development Plan for Building Permit Approval, Building Permit Approval, and Grading Permit Approval.

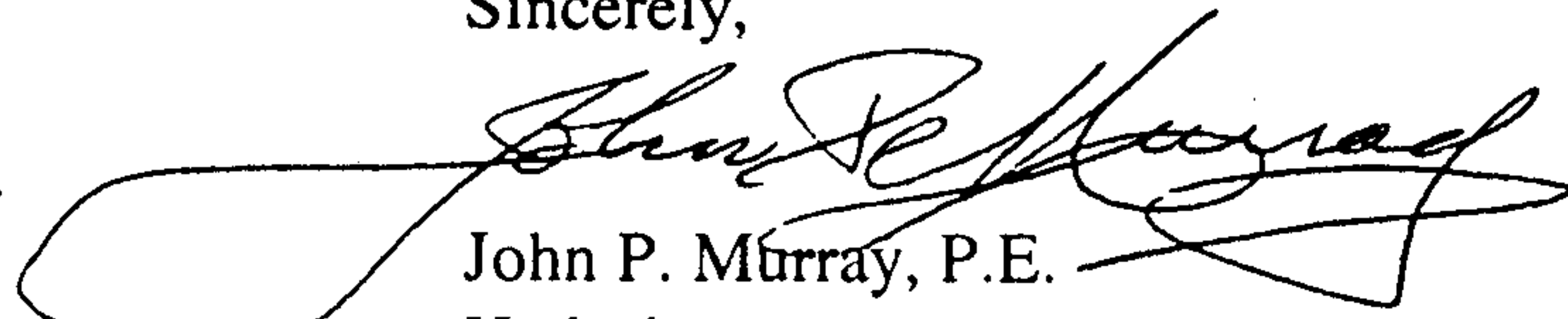
Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

A separate permit is required for construction within City right-of-way. A copy of this approval letter must be on hand when applying for the excavation permit.

Prior to Certificate of Occupancy approval, an Engineer's Certification per the DPM will be required.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,


John P. Murray, P.E.
Hydrology

c: Arlene Portillo
D. Salas, St. Maint.
Andrew Garcia
✓ File

Good for You, Albuquerque!



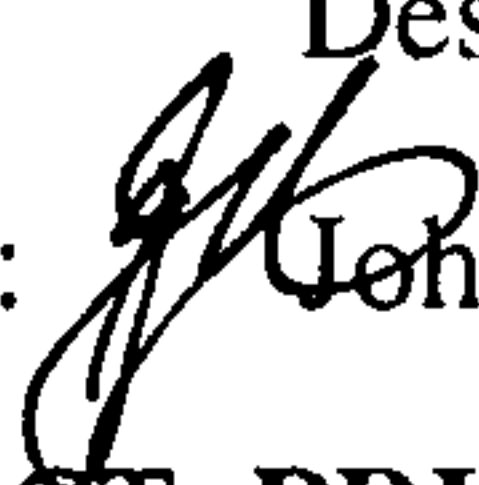
J17-D22CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

NOVEMBER 16, 1998

INTEROFFICE CORRESPONDENCE

HYDROLOGY DIVISION

TO: Desiderio Salas, Street Maintenance Division

FROM:  John P. Murray, P.E., Hydrology, PWD

SUBJECT: **PRIVATE DRAINAGE FACILITIES WITHIN PUBLIC RIGHT-OF-WAY
DRAINAGE FILE NUMBER (J13-D62).**

Transmitted herewith is a copy of the approved drainage plan for the referenced project incorporating the SO #19 design.

This plan is being submitted to you for permitting and inspection. Please provide this section with a signed-off copy per the signature block upon construction and acceptance by your office.

As you are aware, the signed off SO #19 is required by this office for Certificate of Occupancy release; therefore your expeditious processing of this plan would be greatly appreciated and would avoid any unnecessary delay in the release of the Certificate of Occupancy.

Thank you for your cooperation and if you should have any questions and/or comments, please feel free to call me at 924-3984.

Attachment

DRAINAGE INFORMATION SHEET

PROJECT TITLE: HUNING CASTLE APARTMENTS ZONE ATLAS/DRNG. FILE #: J-13 ⁶²
DRB #: _____ EPC #: _____ WORK ORDER #: D62
LEGAL DESCRIPTION: LOTS 1,8, AND 9 IN BLOCK 1 IN HUNING CASTLE ADDITION
CITY ADDRESS: CENTRAL AVE BETWEEN LAGUNA AND 15TH STREET
ENGINEERING FIRM: TIERRA WEST, LLC CONTACT: RONALD R. BOHANNAN OR SHAHAB BIAZAR
ADDRESS: 4421 McCleod Rd. NE Suite D, 87109 PHONE: (505) 883-7592
OWNER: Cauwels Construction and Development Inc. CONTACT: PAUL S. CAUWELS
ADDRESS: 1116 PENNSYLVANIA NE PHONE: (505) 266-5711
ARCHITECT: Paul T. Bergner, AIA, Architect, PC CONTACT: PAUL T. BERGNER
ADDRESS: 3201 S. TAMARAC DRIVE, STE 101, DENVER, CO 80231 PHONE: (303) 750-4211
SURVEYOR: Southwest Surveying Co., Inc. CONTACT: FRANK WILSON
ADDRESS: 333 LOMAS BLVD, ALB. 87102 PHONE: (505) 247-4444
CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

____ DRAINAGE REPORT
☒ DRAINAGE PLAN
____ CONCEPTUAL GRADING & DRAINAGE PLAN
☒ GRADING PLAN
☒ EROSION CONTROL PLAN
____ ENGINEER'S CERTIFICATION
____ OTHER

PRE-DESIGN MEETING:

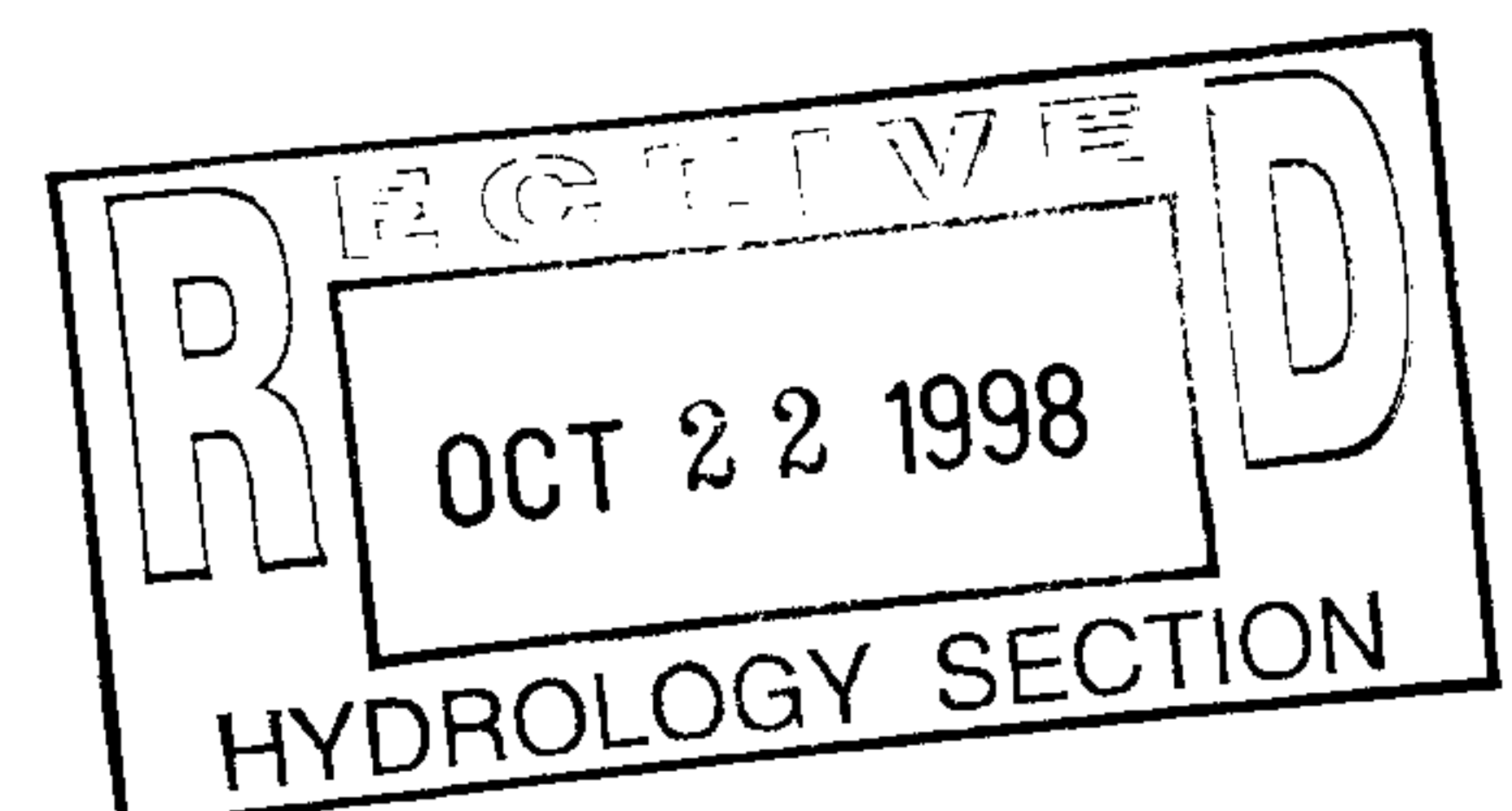
____ YES
☒ NO
____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

____ SKETCH PLAN APPROVAL
____ PRELIMINARY PLAT APPROVAL
____ S. DEV. PLAN FOR SUB'D. APPROVAL
☒ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
____ SECTOR PLAN APPROVAL
____ FINAL PLAT APPROVAL
____ FOUNDATION PERMIT APPROVAL
☒ BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY APPROVAL
☒ GRADING PERMIT APPROVAL
____ PAVING PERMIT APPROVAL
____ S. A. D. DRAINAGE REPORT
____ DRAINAGE REQUIREMENTS
____ OTHER

DATE SUBMITTED: 10/21/98

BY: RONALD R. BOHANNAN



FW

LETTER OF TRANSMITTAL

Tierra West, LLC

(505) 883-7592

4421 McLeod Road NE, Suite D, Albuquerque, NM 87109

TO PDS

DATE: <u>10/22/98</u>	JOB NO: <u>960031</u>
ATTENTION: <u>Hydrology</u>	
RE: <u>Drainage Report Update</u> <u>Huening Castle</u>	

WE ARE SENDING YOU ☒ Attached ☐ Under Separate cover via _____ the following items

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATED	NO.	DESCRIPTION
<u>2</u>			<u>Drainage Report Update -</u> <u>Huening Castle</u>

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ FOR SIGNATURE(S)

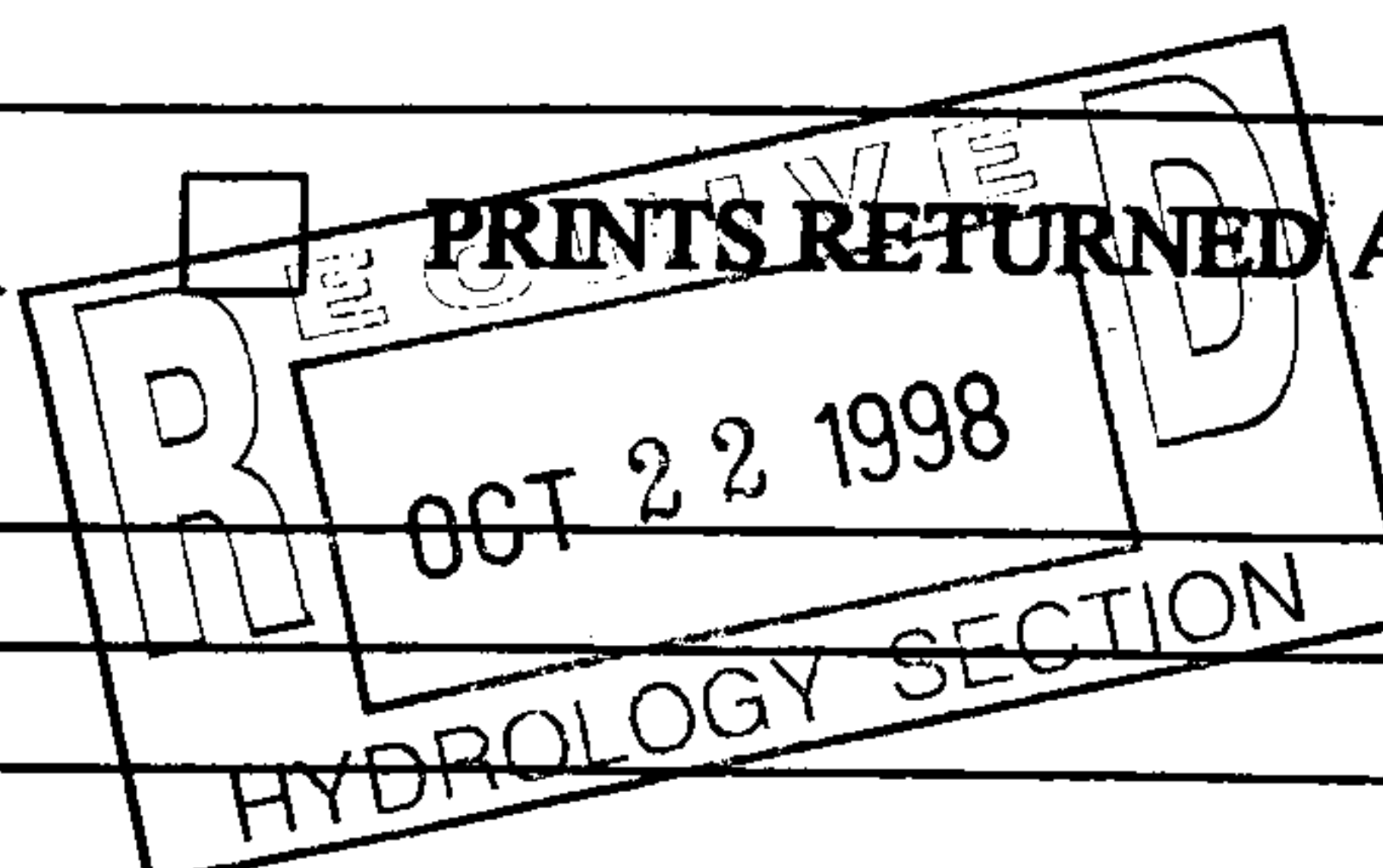
☒ For your use ☐ Approved as noted ☐ _____

☐ As requested ☐ Returned for corrections

☐ For review and comments ☐ _____

☐ FOR BIDS DUE _____

REMARKS _____



COPY TO _____

RECEIVED BY _____

SIGNED

Judy Smouter

EXIST
4.86
4.44

9.30

PROP
5.15
4.76
3.23

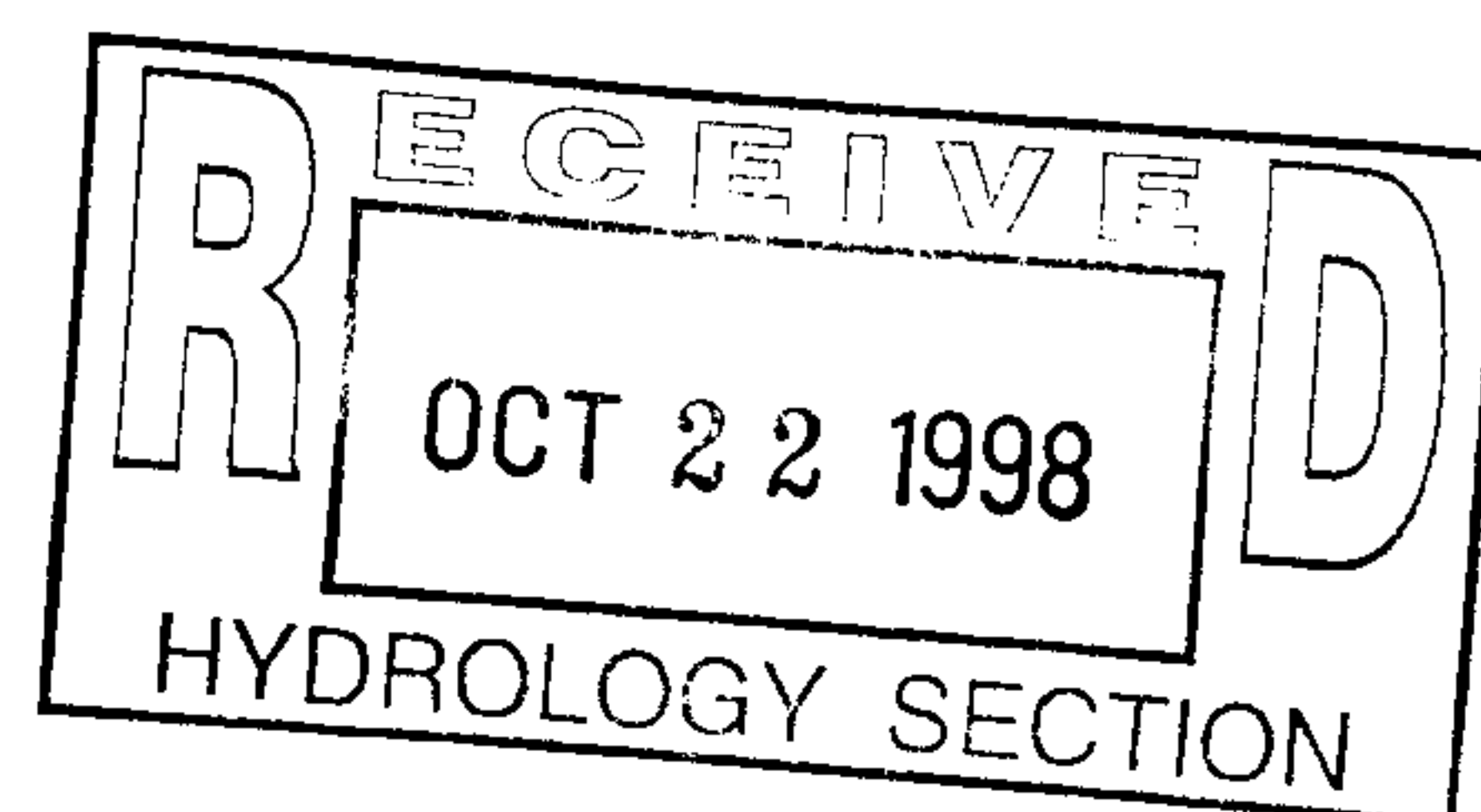
13.14
- 9.30

+ 3.84

free
disch

DRAINAGE REPORT

for

**Huning Castle Apartments**

Prepared by

Tierra West Development Management Sevices
4421 McLeod Road NE, Suite D
Albuquerque, New Mexico 87109

Prepared for

Paul Cauwels
Cauwels Construction and Development, Inc.
1116 Pennsylvania, NE
Albuquerque, New Mexico 87110

March 1996


Ronald R. Bohannon P.E.

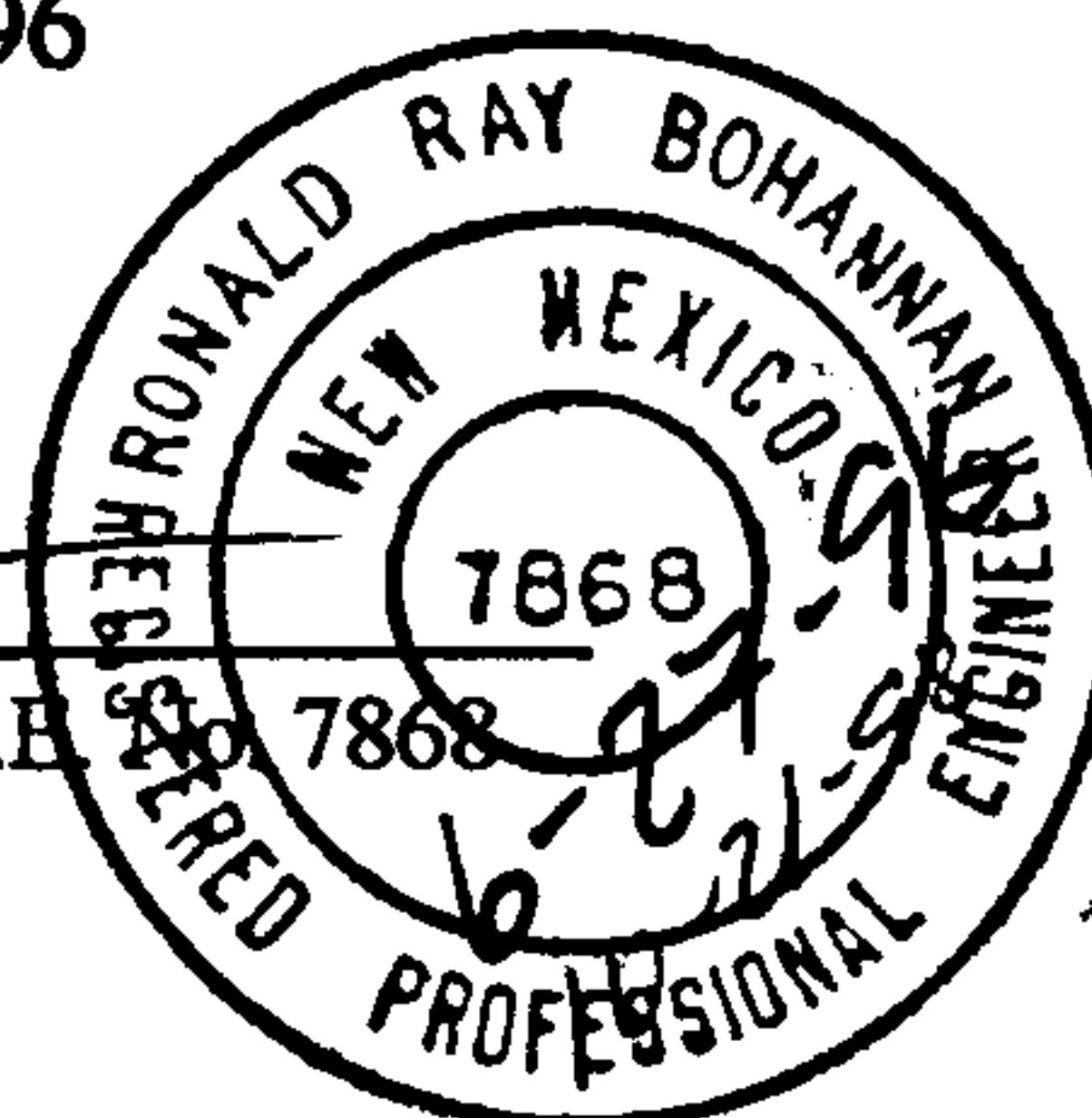


TABLE OF CONTENTS

Zone Atlas Map J-13 1

Location and Location Map 2

Existing Drainage Conditions 2

FEMA and Soil Conditions 2

FEMA Map 350002-0028 3

On-Site Drainage Management Plan 4

Summary 4

Runoff Calculations 5

Runoff Summary Tables for Existing and Proposed Drainage Basins 7

Sidewalk Culvert Analysis 9

AHYMO Input and Summary Output 11

This report is being resubmitted showing minor changes to the grades. The changes have been created by refinement to the actual building design. Two sump areas have been created but have not changed the actual basin hydraulics.

Location and Location Map

Huning Castle Apartments is a proposed 75 unit three story apartment complex. The site is identified as lots 1,8, and 9 in block 1 in the Huning Castle Addition. It is located south of Central Ave between Laguna Blvd and 15th Street. The site is shown on the highlighted attached Zone Atlas Map J-13 and contains approximately 2.9 acres. The purpose of this report is to provide the drainage analysis and management plan for the site.

Existing Drainage Conditions

The site has been developed in the past and was the site of the Huning Castle. The site was occupied continuously throughout the early turn of the century but was demolished in the 1950's. The site has been generating runoff throughout its history and we propose to continue to free discharge from the site. There are no off-site flows entering the site. There are two existing basins on the site. Basin 1 has a runoff of 4.86 cfs and sheet flows north toward Laguna Blvd. Basin 2 has a runoff of 4.44 cfs and sheet flows east into 15th Street.

FEMA and Soil Conditions

The site is located on FEMA Map section 350002 panel 28 as shown on the attached excerpt. The map shows that the site does not lie within any 100 year flood plains.

The Brazito complex is the only soil type found on the site. This soil complex is a mixture of the Brazito silty clay loam and various other soils. The hazard of water erosion is slight, runoff is very slow, and the hazard of soil blowing is moderate.

On-Site Drainage Management Plan

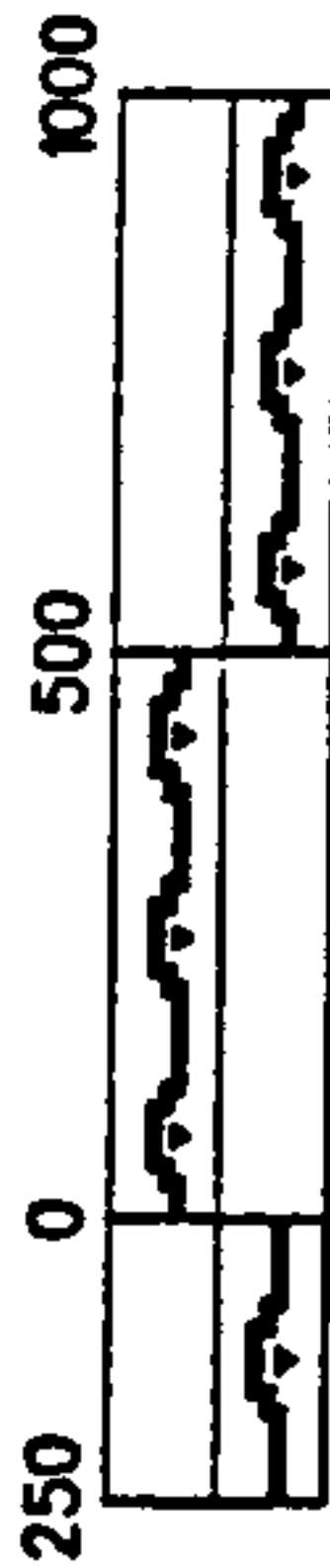
The site has been divided into three proposed drainage basins as shown on the Grading and Drainage Plan. Basin 1 has a runoff flow of 5.15 cfs; it will drain to the parking lot and then east through a 2 foot sidewalk culvert into 15th Street. Basin 2 has a runoff flow of 4.76 cfs. It will drain to the parking lot and then north into Laguna Blvd. Basin 3 will also drain to the parking lot with a runoff of 3.23 cfs and then northeast into Central Ave. There is an existing lift station located at Alcalde Street north of the Rio Grande Zoo as referenced from the City of Albuquerque As-Built information entitled Alcalde Storm Water Pumping Station and Collection System. The storm drain systems in Central, Laguna, and 15th Street will route the proposed runoff to this pump station.

These facilities were identified in the Albuquerque Master Drainage Study to remove the flooding in the area. The study used full build out conditions for the area and specifically this site. Under that study and with the improvements in place the site should be allowed to free discharge.

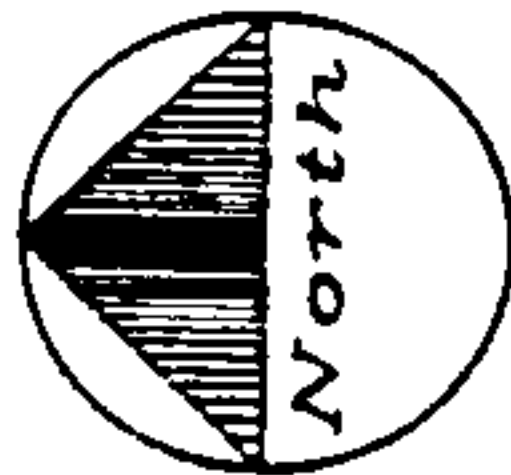
Summary

There are three proposed drainage basins on the site. Basin 1 has a proposed runoff of 5.15 cfs, Basin 2 has a proposed runoff of 4.76 cfs, and Basin 3 has a proposed runoff of 3.23 cfs. All the basins will free discharge the water into the nearby streets.

SCALE IN FEET

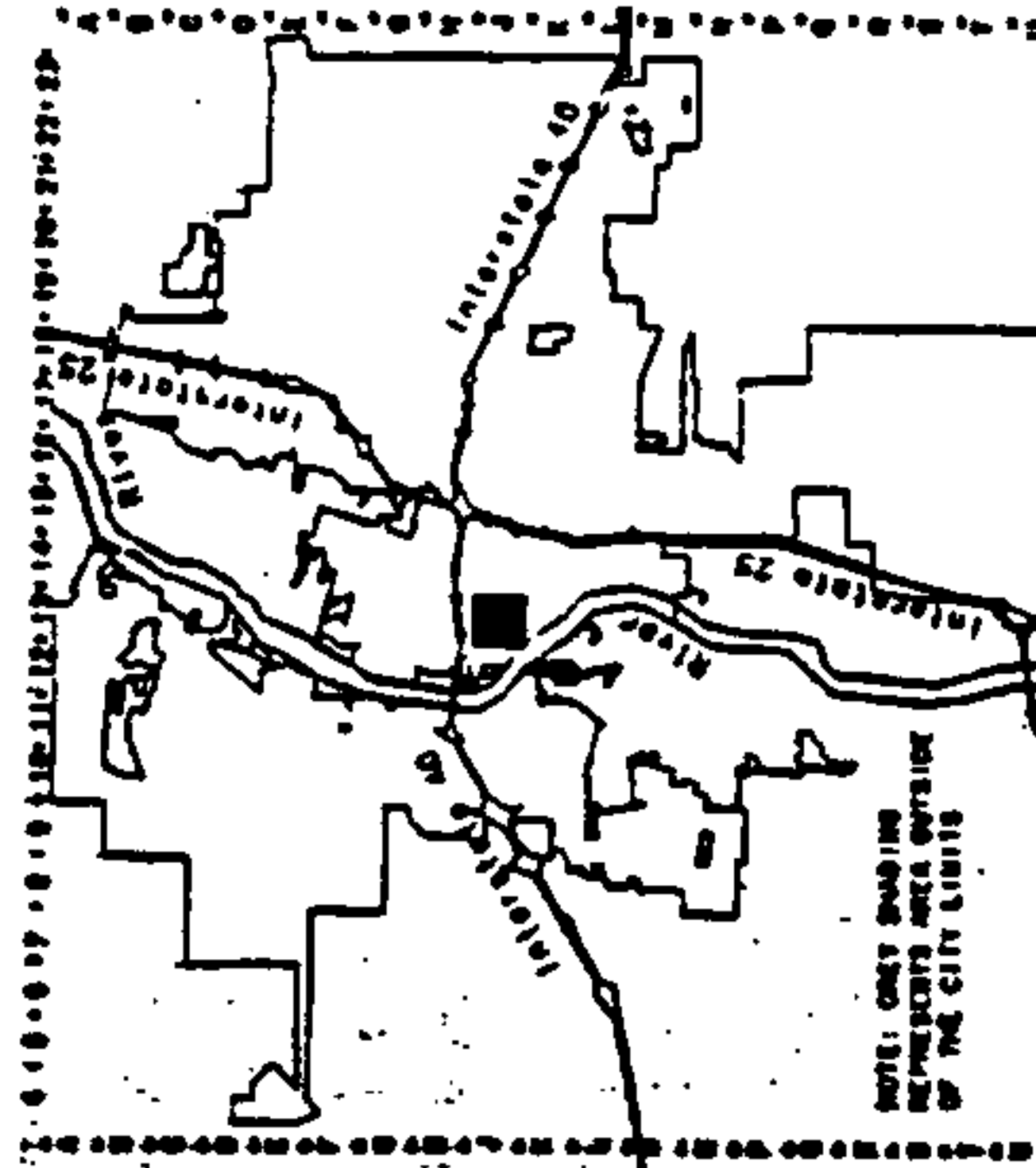


PHOTOCOPY-NOT TO SCALE



A-G Engineering & Surveying

© Planning Department
Map Amended through August 17, 1994



LEGAL DESCRIPTION

T10N
R8E
SEC 18

UNIFORM PROPERTY CODE
1-013-088

J-13-Z





FEMA Map 350002-0028

On-Site Drainage Management Plan

The site has been divided into three proposed drainage basins as shown on the Grading and Drainage Plan. Basin 1 has a runoff flow of 5.15 cfs; it will drain to the parking lot and then east through a 2 foot sidewalk culvert into 15th Street. Basin 2 has a runoff flow of 4.76 cfs. It will drain to the parking lot and then north into Laguna Blvd. Basin 3 will also drain to the parking lot with a runoff of 3.23 cfs and then northeast into Central Ave. There is an existing lift station located at Alcalde Street north of the Rio Grande Zoo as referenced from the City of Albuquerque As-Built information entitled Alcalde Storm Water Pumping Station and Collection System. The storm drain systems in Central, Laguna, and 15th Street will route the proposed runoff to this pump station.

These facilities were identified in the Albuquerque Master Drainage Study to remove the flooding in the area. The study used full build out conditions for the area and specifically this site. Under that study and with the improvements in place the site should be allowed to free discharge.

Summary

There are three proposed drainage basins on the site. Basin 1 has a proposed runoff of 5.15 cfs, Basin 2 has a proposed runoff of 4.76 cfs, and Basin 3 has a proposed runoff of 3.23 cfs. All the basins will free discharge the water into the nearby streets.

Runoff Calculations

RUNOFF CALCULATIONS

The site is @ Zone 2

LAND TREATMENT

D = 90 %

B = 10 %

DEPTH (INCHES) @ 100-YEAR STORM

$P_{60} = 2.01$ inches

$P_{360} = 2.35$ inches

$P_{1440} = 2.75$ inches

DEPTH (INCHES) @ 10-YEAR STORM

$P_{60} = 2.01 \times 0.667$
 $= 1.34$ inches

$P_{360} = 1.57$

$P_{1440} = 1.83$

See the summary output from AHYMO calculations.

Also see the following summary tables.

**Runoff
Summary Tables
for
Existing and Proposed
Drainage Basins**

DRAINAGE BASINS - EXISTING

SUB-BASIN	AREA (SF)	AREA (AC)	AREA (MI ²)
1	66782.4906	1.5331	0.002395
2	60962.76	1.3995	0.002187

DRAINAGE BASINS - PROPOSED

SUB-BASIN	AREA (SF)	AREA (AC)	AREA (MI ²)
1	47197.43	1.0835	0.001693
2	43485.47	0.9983	0.001560
3	26821.37	0.6157	0.000962

BASINS RUNOFF CALCULATION RESULTS - EXISTING

BASIN	Q-100 CFS	Q-10 CFS
1	4.86	2.64
2	4.44	2.41

BASINS RUNOFF CALCULATION RESULTS - PROPOSED

BASIN	Q-100 CFS	Q-10 CFS
A	5.15	3.33
B	4.76	3.08
C	3.23	2.09

SEE THE FOLLOWING SHEET FOR SAMPLE CALCULATION ON THE BASINS RUNOFF

Sidewalk Culvert Analysis

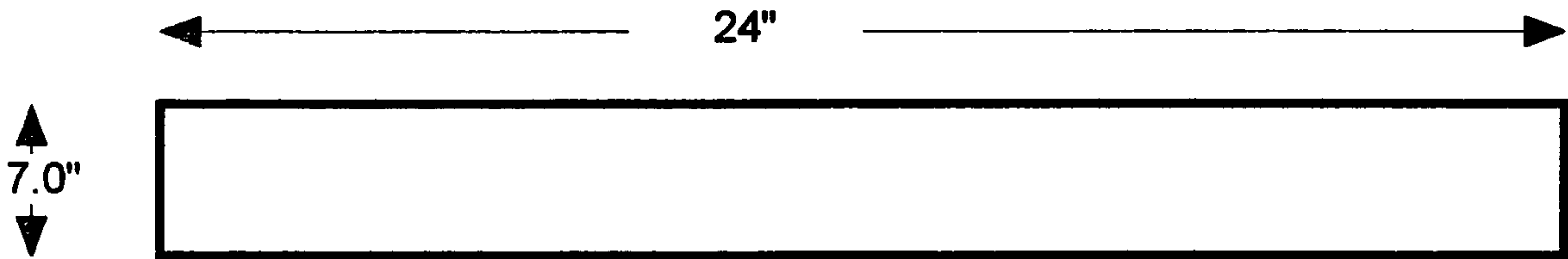
Sidewalk Culvert

Orifice Equation	
$Q = CA \sqrt{2gH}$	
C=	0.6
g=	32.2
H (ft)=	?
Q (cfs)=	5.15
Area (sf)=	1.166667

H = 0.840 Feet
= 10.086 Inches

= 10.086+3.5
= 13.58588

Use 14" header curb around sidewalk culvert



AHYMO
Runoff Input
and
Summary Output

THE CASTLE

100-YEAR, 24-HR STORM (UNDER PROPOSED CONDITIONS)

START TIME=0.0

* BASIN 1

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=2.01 IN RAIN SIX=2.35 IN
RAIN DAY=2.75 IN DT=0.02253 HR
COMPUTE NM HYD ID=1 HYD NO=100.1 AREA=0.001786 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD ID=1 CODE=1

* BASIN 2

COMPUTE NM HYD ID=1 HYD NO=100.2 AREA=0.001650 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD ID=1 CODE=1

* BASIN 3

COMPUTE NM HYD ID=1 HYD NO=100.3 AREA=0.001119 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD ID=1 CODE=1

10-YEAR, 24-HR STORM (UNDER PROPOSED CONDITIONS)

START TIME=0.0

* BASIN A

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.34 IN RAIN SIX=1.57 IN
RAIN DAY=1.83 IN DT=0.02253 HR
COMPUTE NM HYD ID=1 HYD NO=110.1 AREA=0.001786 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD ID=1 CODE=1

* BASIN B

COMPUTE NM HYD ID=1 HYD NO=110.2 AREA=0.001650 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD ID=1 CODE=1

* BASIN C

COMPUTE NM HYD ID=1 HYD NO=110.3 AREA=0.001119 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00

TP=-0.1333 HR MASS RAINFALL=-1
ID=1 CODE=1

PRINT HYD

FINISH

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA hydrologic Model - January, 1994
 INPUT FILE = C:\9631\PRAIN.DAT

RUN DATE (MON/DAY/YR) =03/27/1996
 USER NO.= R_BOHANN.101

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
START											TIME= .00
RAINFALL TYPE= 1											RAIN6= 2.350
COMPUTE NM HYD	100.10	-	1	.00179	5.15	.189	1.98166	1.510	4.501		PER IMP= 90.00
COMPUTE NM HYD	100.20	-	1	.00165	4.76	.174	1.98166	1.510	4.503		PER IMP= 90.00
COMPUTE NM HYD	100.30	-	1	.00112	3.23	.118	1.98166	1.510	4.511		PER IMP= 90.00
START											TIME= .00
RAINFALL TYPE= 1											RAIN6= 1.570
COMPUTE NM HYD	110.10	-	1	.00179	3.33	.117	1.23163	1.510	2.914		PER IMP= 90.00
COMPUTE NM HYD	110.20	-	1	.00165	3.08	.108	1.23164	1.510	2.915		PER IMP= 90.00
COMPUTE NM HYD	110.30	-	1	.00112	2.09	.074	1.23164	1.510	2.920		PER IMP= 90.00
FINISH											

THE CASTLE

100-YEAR, 24-HR STORM (UNDER EXISTING CONDITIONS)

TART TIME=0.0

* BASIN 1

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
 RAIN ONE=2.01 IN RAIN SIX=2.35 IN
 RAIN DAY=2.75 IN DT=0.02253 HR
 COMPUTE NM HYD ID=1 HYD NO=100.1 AREA=0.002395 SQ MI
 PER A=0.00 PER B=0.00 PER C=100.00 PER D=0.00
 TP=-0.1333 HR MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1

* BASIN 2

COMPUTE NM HYD ID=1 HYD NO=100.2 AREA=0.002187 SQ MI
 PER A=0.00 PER B=0.00 PER C=100.00 PER D=0.00
 TP=-0.1333 HR MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1

10-YEAR, 24-HR STORM (UNDER EXISTING CONDITIONS)

TART TIME=0.0

* BASIN 1

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
 RAIN ONE=1.34 IN RAIN SIX=1.57 IN
 RAIN DAY=1.83 IN DT=0.02253 HR
 COMPUTE NM HYD ID=1 HYD NO=110.1 AREA=0.002395 SQ MI
 PER A=0.00 PER B=0.00 PER C=100.00 PER D=0.00
 TP=-0.1333 HR MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1

* BASIN 2

COMPUTE NM HYD ID=1 HYD NO=110.2 AREA=0.002187 SQ MI
 PER A=0.00 PER B=0.00 PER C=100.00 PER D=0.00
 TP=-0.1333 HR MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1

* FINISH

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA hydrologic Model - January, 1994
INPUT FILE = C:\9631\ERAIN.DAT

RUN DATE (MON/DAY/YR) =03/27/1996
USER NO.= R_BOHANN.101

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.350
COMPUTE NM HYD	100.10	-	1	.00240	4.86	.144	1.12758	1.510	3.170	PER IMP= .00
COMPUTE NM HYD	100.20	-	1	.00219	4.44	.132	1.12758	1.510	3.171	PER IMP= .00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.570
COMPUTE NM HYD	110.10	-	1	.00240	2.64	.065	.50956	1.510	1.723	PER IMP= .00
COMPUTE NM HYD	110.20	-	1	.00219	2.41	.059	.50956	1.510	1.724	PER IMP= .00
FINISH										

960031

DRAINAGE INFORMATION SHEET

PROJECT TITLE: HUNING CASTLE APARTMENTS ZONE ATLAS/DRNG. FILE #: J-13 / D062.

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: LOTS 1,8, AND 9 IN BLOCK 1 IN HUNING CASTLE ADDITION

CITY ADDRESS: CENTRAL AVE BETWEEN LAGUNA AND 15TH STREET

ENGINEERING FIRM: TIERRA WEST, LLC CONTACT: RONALD R. BOHANNAN OR SHAHAB BLAZAR

ADDRESS: 4421 McCleod Rd. NE Suite D, 87109 PHONE: (505) 883-7592

OWNER: Cauwels Construction and Development Inc. CONTACT: PAUL S. CAUWELS

ADDRESS: 1116 PENNSYLVANIA NE PHONE: (505) 266-5711

ARCHITECT: Paul T. Bergner, AIA, Architect, PC CONTACT: PAUL T. BERGNER

ADDRESS: 3301 S. TAMARAC DRIVE, STE 101, DENVER, CO 80231 PHONE: (303) 750-4211

SURVEYOR: Southwest Surveying Co., Inc. CONTACT: FRANK WILSON

ADDRESS: 333 LOMAS BLVD, ALB. 87102 PHONE: (505) 247-4444

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT

☒ DRAINAGE PLAN

☐ CONCEPTUAL GRADING & DRAINAGE PLAN

☒ GRADING PLAN

☒ EROSION CONTROL PLAN

☐ ENGINEER'S CERTIFICATION

☐ OTHER

PRE-DESIGN MEETING:

☐ YES

☒ NO

☐ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAN APPROVAL

☐ PRELIMINARY PLAT APPROVAL

☐ S. DEV. PLAN FOR SUB'D. APPROVAL

☒ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL

☐ SECTOR PLAN APPROVAL

☐ FINAL PLAT APPROVAL

☐ FOUNDATION PERMIT APPROVAL

☒ BUILDING PERMIT APPROVAL

☐ CERTIFICATE OF OCCUPANCY APPROVAL

☒ GRADING PERMIT APPROVAL

☐ PAVING PERMIT APPROVAL

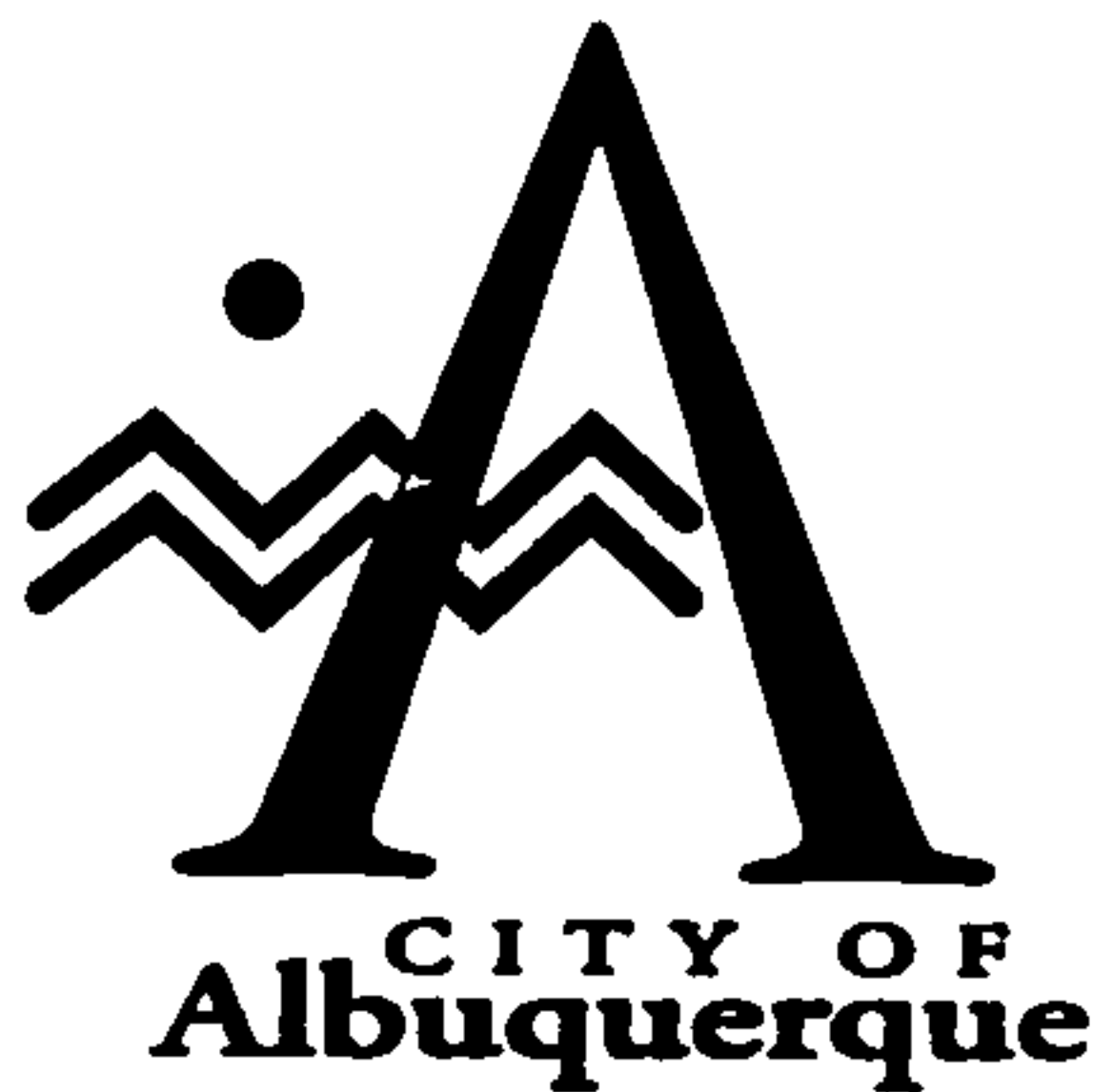
☐ S. A. D. DRAINAGE REPORT

☐ DRAINAGE REQUIREMENTS

☐ OTHER

DATE SUBMITTED: 10/21/98

BY: RONALD R. BOHANNAN



JN 960031

cc: Pam / Camp MC

July 22, 1996

Martin J. Chávez, Mayor

Ron Bohannan
Tierra West Dev.
4421 McCleod Rd. NE
Suite D
Albuquerque, NM 87109

**RE: HUNING CASTLE (J13-D62) CONCEPTUAL GRADING AND DRAINAGE PLAN
FOR SITE DEVELOPMENT FOR BUILDING PERMIT APPROVAL.
ENGINEER'S STAMP DATED 6-27-96.**

Dear Mr. Bohannan:

Based on the information provided on your June 1, 1996 submittal, the above referenced project is approved for Site Development Plan for Building Permit.

Please be certain to provide the required notes and sign off block when requesting SO #19 permit approval. Also, submit two copies of the plan sheet.

If I can be of further assistance, please feel free to contact me at 768-3622.

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Andrew Garcia
File

Good for You, Albuquerque!



FIRE HYDRANT AND INSTANTANEOUS
FIRE FLOW REQUIREMENTS

AFD Fire Marshal's Office
Plans Exam Section
764-1687

Zoning Map Number J-13

Site Address Central + 15th

Legal Description: Subject Tract LOT 1, 8, 9, Portion of 10
HUNING CASTLE DIV.

Number Hydrants Required for Largest Building 3

Instantaneous Flow Required 2850

Square Footage - Largest Building 44,572

Type Construction V-1 HR SPRINK.

Other Pertinent Data regarding Determination of Instantaneous Flow Required

Hydrants to be within 300' of Furthest Point
of Building as Truck Rolls.

Total Number Hydrants Required for this phase of construction or site

Date: 10/27/98

Fire Department Inspector: Mark J. Montoya

Received by: 66 TIERA WESTER Telephone 883-7592

name

PLEASE ATTACH SITE PLAN IF AVAILABLE
SHOWING REQUIRED FIRE HYDRANTS

NOTES:

1. All hydrants needed to protect an individual building must be able to provide a minimum residual of 20 psi, under required fire flow conditions.
2. Determination of the Water System capacity to provide required flows will be made by the Engineering Division, Water Resources Department (766-7354), based on peak day criteria.
3. Design of private fire protection systems is the responsibility of the developer's consultant. Approval of design must be made by the Engineering Division, Water Resources Department.

Copy one to individual. Copy two to file.

DRAINAGE INFORMATION SHEET

PROJECT TITLE: HUNING CASTLE APARTMENTS ZONE ATLAS/DRNG. FILE #: J-13 -D62

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: LOTS 1,8, AND 9 IN BLOCK 1 IN HUNING CASTLE ADDITION

CITY ADDRESS: CENTRAL AVE BETWEEN LAGUNA AND 15TH STREET

ENGINEERING FIRM: TIERRA WEST, LLC CONTACT: RONALD R. BOHANNAN OR SHAHAB BLAZAR

ADDRESS: 4421 McCleod Rd. NE Suite D, 87109 PHONE: (505) 883-7592

OWNER: Cauwels Construction and Development Inc. CONTACT: PAUL S. CAUWELS

ADDRESS: 1116 PENNSYLVANIA NE PHONE: (505) 266-5711

ARCHITECT: Paul T. Bergner, AIA, Architect, PC CONTACT: PAUL T. BERGNER

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SURVEYOR: Southwest Surveying Co., Inc. CONTACT: FRANK WILSON

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CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

_____ DRAINAGE REPORT

X DRAINAGE PLAN

_____ CONCEPTUAL GRADING & DRAINAGE PLAN

X GRADING PLAN

X EROSION CONTROL PLAN

_____ ENGINEER'S CERTIFICATION

_____ OTHER

PRE-DESIGN MEETING:

_____ YES

X NO

_____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

_____ SKETCH PLAN APPROVAL

_____ PRELIMINARY PLAT APPROVAL

_____ S. DEV. PLAN FOR SUB'D. APPROVAL

X S. DEV. PLAN FOR BLDG. PERMIT APPROVAL

_____ SECTOR PLAN APPROVAL

_____ FINAL PLAT APPROVAL

_____ FOUNDATION PERMIT APPROVAL

X BUILDING PERMIT APPROVAL

_____ CERTIFICATE OF OCCUPANCY APPROVAL

X GRADING PERMIT APPROVAL

_____ PAVING PERMIT APPROVAL

_____ S. A. D. DRAINAGE REPORT

_____ DRAINAGE REQUIREMENTS

_____ OTHER

DATE SUBMITTED: 10/21/98

BY: RONALD R. BOHANNAN

DRAINAGE REPORT

for

Huning Castle Apartments

Prepared by

Tierra West Development Management Sevices
4421 McLeod Road NE, Suite D
Albuquerque, New Mexico 87109

Prepared for

Paul Cauwels
Cauwels Construction and Development, Inc.
1116 Pennsylvania, NE
Albuquerque, New Mexico 87110

March 1996


Ronald R. Bohannon P.E. No. 7868

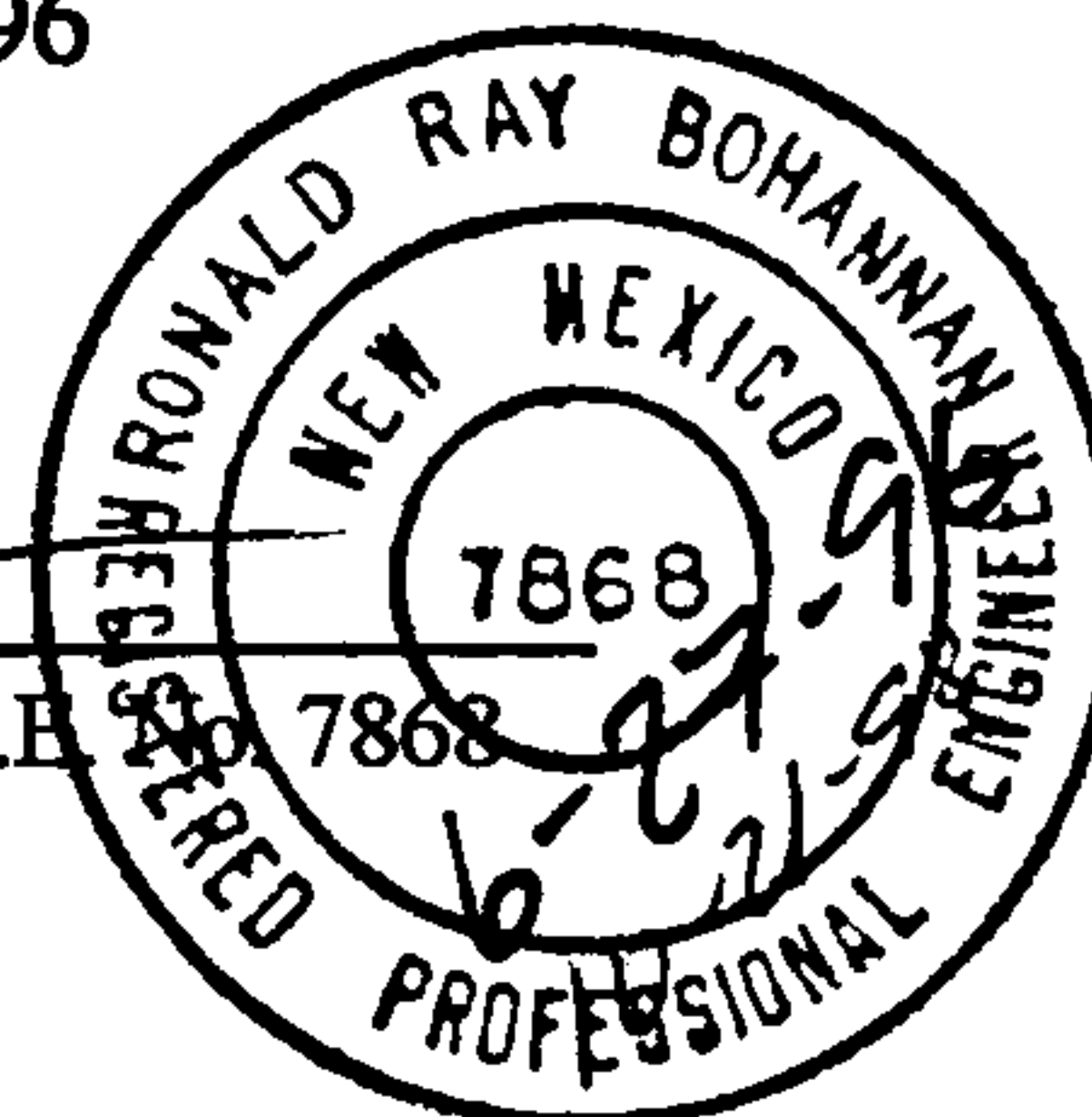


TABLE OF CONTENTS

Zone Atlas Map J-13	1
Location and Location Map	2
Existing Drainage Conditions	2
FEMA and Soil Conditions	2
FEMA Map 350002-0028	3
On-Site Drainage Management Plan	4
Summary	4
Runoff Calculations	5
Runoff Summary Tables for Existing and Proposed Drainage Basins	7
Sidewalk Culvert Analysis	9
AHYMO Input and Summary Output	11

This report is being resubmitted showing minor changes to the grades. The changes have been created by refinement to the actual building design. Two sump areas have been created but have not changed the actual basin hydraulics.

Location and Location Map

Huning Castle Apartments is a proposed 75 unit three story apartment complex. The site is identified as lots 1,8, and 9 in block 1 in the Huning Castle Addition. It is located south of Central Ave between Laguna Blvd and 15th Street. The site is shown on the highlighted attached Zone Atlas Map J-13 and contains approximately 2.9 acres. The purpose of this report is to provide the drainage analysis and management plan for the site.

Existing Drainage Conditions

The site has been developed in the past and was the site of the Huning Castle. The site was occupied continuously throughout the early turn of the century but was demolished in the 1950's. The site has been generating runoff throughout its history and we propose to continue to free discharge from the site. There are no off-site flows entering the site. There are two existing basins on the site. Basin 1 has a runoff of 4.86 cfs and sheet flows north toward Laguna Blvd. Basin 2 has a runoff of 4.44 cfs and sheet flows east into 15th Street.

FEMA and Soil Conditions

The site is located on FEMA Map section 350002 panel 28 as shown on the attached excerpt. The map shows that the site does not lie within any 100 year flood plains.

The Brazito complex is the only soil type found on the site. This soil complex is a mixture of the Brazito silty clay loam and various other soils. The hazard of water erosion is slight, runoff is very slow, and the hazard of soil blowing is moderate.

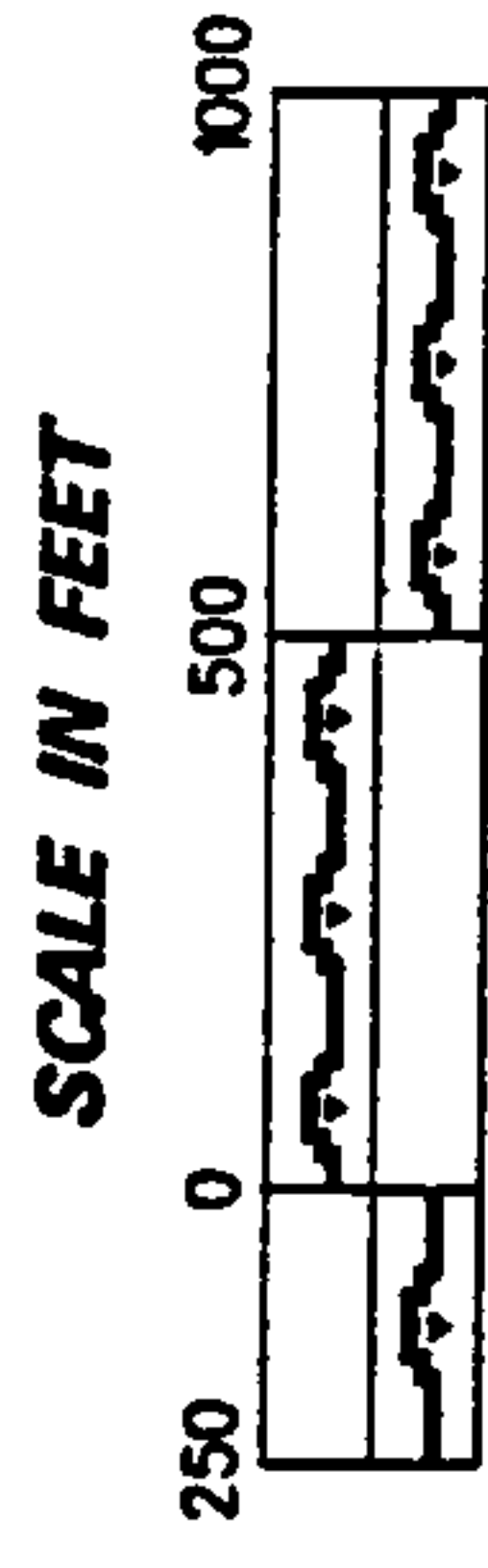
On-Site Drainage Management Plan

The site has been divided into three proposed drainage basins as shown on the Grading and Drainage Plan. Basin 1 has a runoff flow of 5.15 cfs; it will drain to the parking lot and then east through a 2 foot sidewalk culvert into 15th Street. Basin 2 has a runoff flow of 4.76 cfs. It will drain to the parking lot and then north into Laguna Blvd. Basin 3 will also drain to the parking lot with a runoff of 3.23 cfs and then northeast into Central Ave. There is an existing lift station located at Alcalde Street north of the Rio Grande Zoo as referenced from the City of Albuquerque As-Built information entitled Alcalde Storm Water Pumping Station and Collection System. The storm drain systems in Central, Laguna, and 15th Street will route the proposed runoff to this pump station.

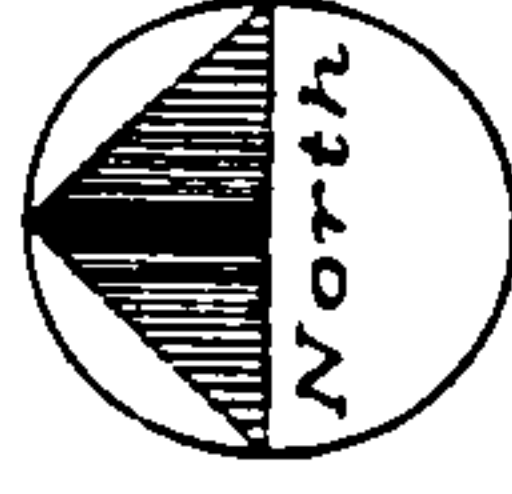
These facilities were identified in the Albuquerque Master Drainage Study to remove the flooding in the area. The study used full build out conditions for the area and specifically this site. Under that study and with the improvements in place the site should be allowed to free discharge.

Summary

There are three proposed drainage basins on the site. Basin 1 has a proposed runoff of 5.15 cfs, Basin 2 has a proposed runoff of 4.76 cfs, and Basin 3 has a proposed runoff of 3.23 cfs. All the basins will free discharge the water into the nearby streets.

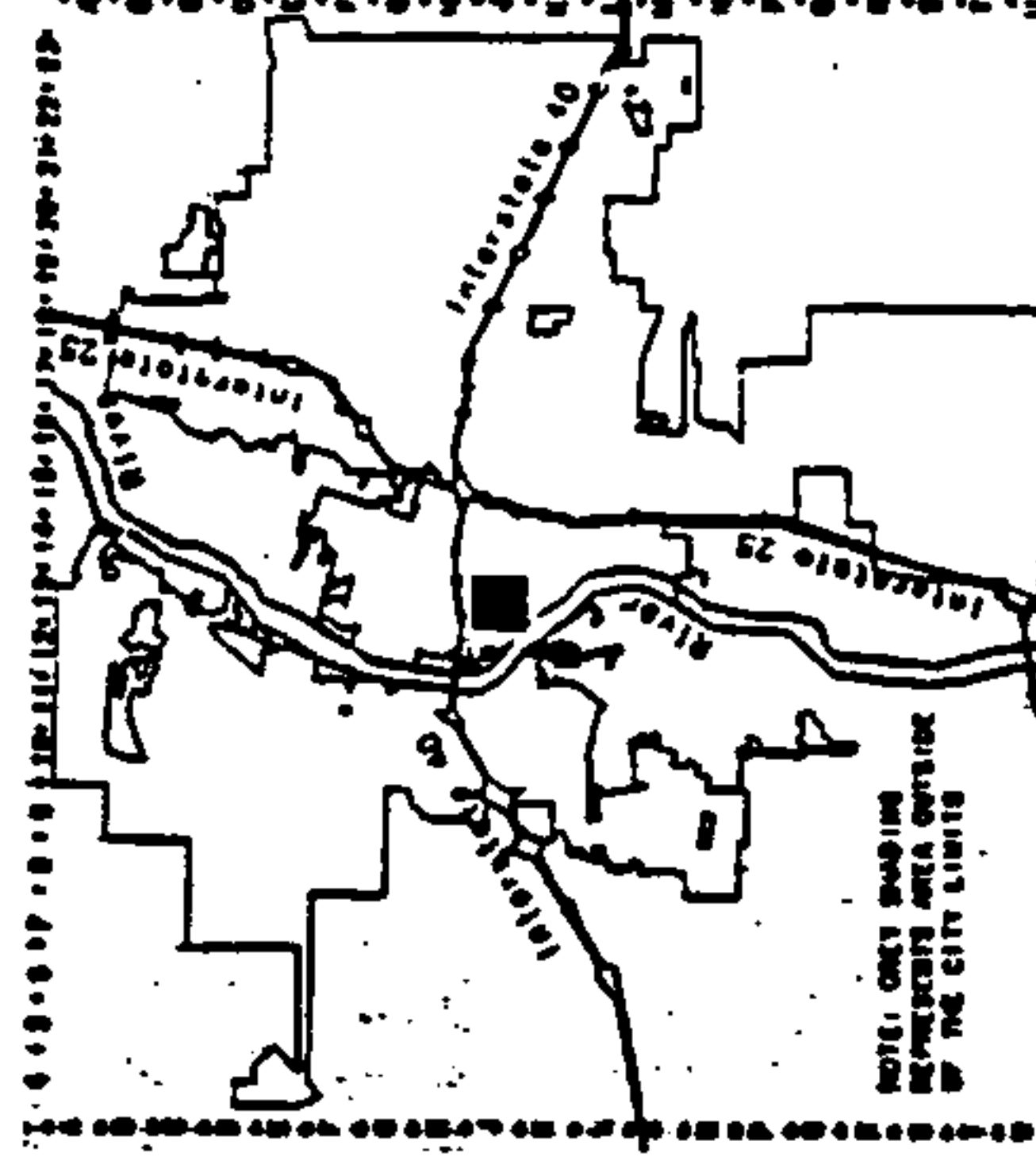


PHOTOCOPY--NOT TO SCALE



AGIS

© Planning Department
Map Amended through August 17, 1994

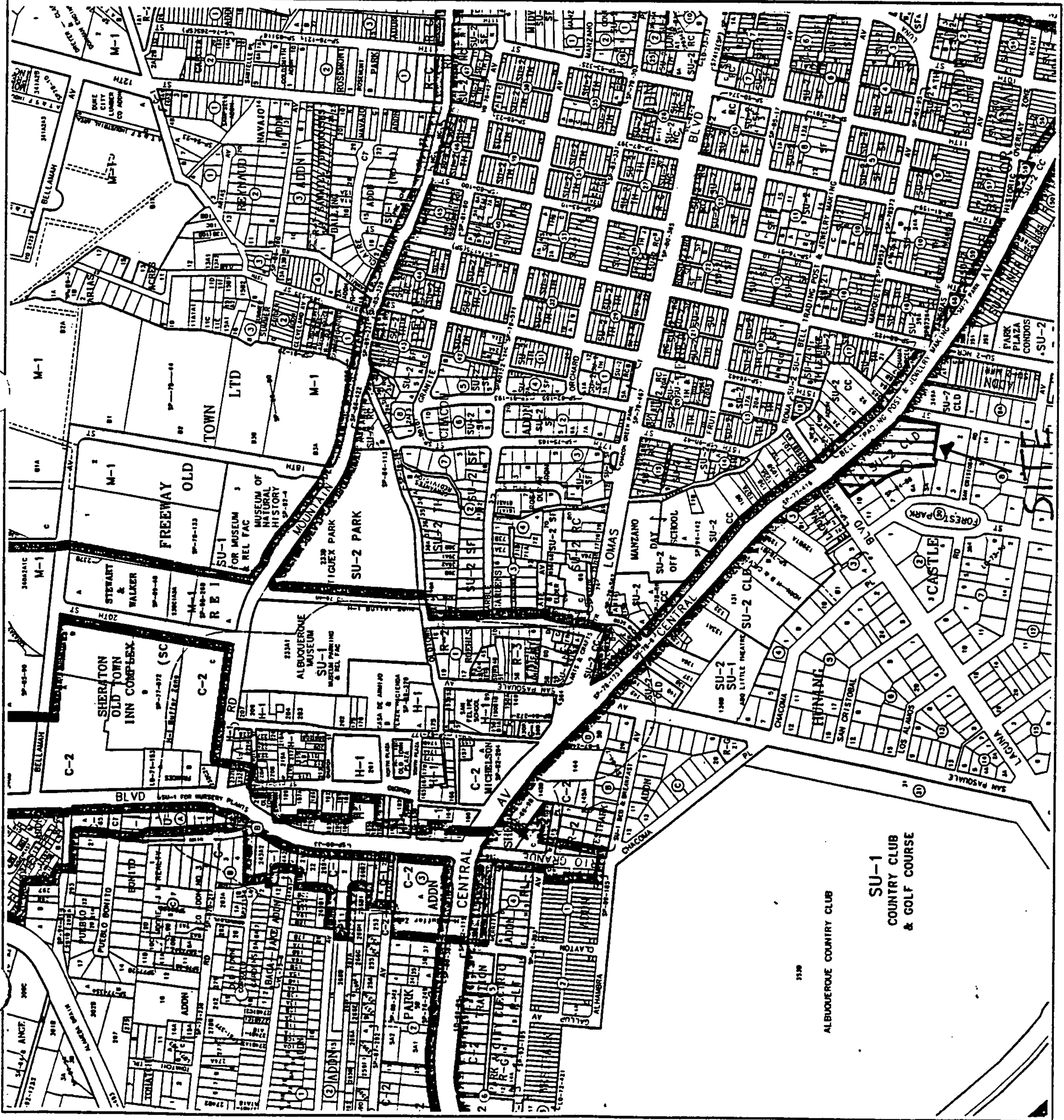


LEGAL DESCRIPTION

DEC 10 1961

UNIFORM PROPERTY CODE
1-013-069

J-13-Z





FEMA Map 350002-0028

On-Site Drainage Management Plan

The site has been divided into three proposed drainage basins as shown on the Grading and Drainage Plan. Basin 1 has a runoff flow of 5.15 cfs; it will drain to the parking lot and then east through a 2 foot sidewalk culvert into 15th Street. Basin 2 has a runoff flow of 4.76 cfs. It will drain to the parking lot and then north into Laguna Blvd. Basin 3 will also drain to the parking lot with a runoff of 3.23 cfs and then northeast into Central Ave. There is an existing lift station located at Alcalde Street north of the Rio Grande Zoo as referenced from the City of Albuquerque As-Built information entitled Alcalde Storm Water Pumping Station and Collection System. The storm drain systems in Central, Laguna, and 15th Street will route the proposed runoff to this pump station.

These facilities were identified in the Albuquerque Master Drainage Study to remove the flooding in the area. The study used full build out conditions for the area and specifically this site. Under that study and with the improvements in place the site should be allowed to free discharge.

Summary

There are three proposed drainage basins on the site. Basin 1 has a proposed runoff of 5.15 cfs, Basin 2 has a proposed runoff of 4.76 cfs, and Basin 3 has a proposed runoff of 3.23 cfs. All the basins will free discharge the water into the nearby streets.

Runoff Calculations

RUNOFF CALCULATIONS

The site is @ Zone 2

LAND TREATMENT

D = 90 %

B = 10 %

DEPTH (INCHES) @ 100-YEAR STORM

$P_{60} = 2.01$ inches

$P_{360} = 2.35$ inches

$P_{1440} = 2.75$ inches

DEPTH (INCHES) @ 10-YEAR STORM

$P_{60} = 2.01 \times 0.667$
 $= 1.34$ inches

$P_{360} = 1.57$

$P_{1440} = 1.83$

See the summary output from AHYMO calculations.

Also see the following summary tables.

**Runoff
Summary Tables
for
Existing and Proposed
Drainage Basins**

DRAINAGE BASINS - EXISTING

SUB-BASIN	AREA (SF)	AREA (AC)	AREA (MI ²)
1	66782.4906	1.5331	0.002395
2	60962.76	1.3995	0.002187

DRAINAGE BASINS - PROPOSED

SUB-BASIN	AREA (SF)	AREA (AC)	AREA (MI ²)
1	47197.43	1.0835	0.001693
2	43485.47	0.9983	0.001560
3	26821.37	0.6157	0.000962

BASINS RUNOFF CALCULATION RESULTS - EXISTING

BASIN	Q-100 CFS	Q-10 CFS
1	4.86	2.64
2	4.44	2.41

BASINS RUNOFF CALCULATION RESULTS - PROPOSED

BASIN	Q-100 CFS	Q-10 CFS
A	5.15	3.33
B	4.76	3.08
C	3.23	2.09

SEE THE FOLLOWING SHEET FOR SAMPLE CALCULATION ON THE BASINS RUNOFF

Sidewalk Culvert Analysis

8

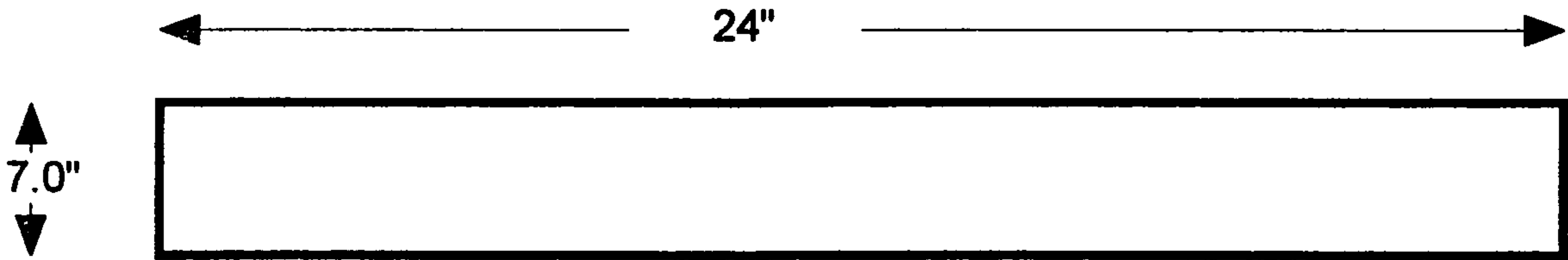
Sidewalk Culvert

Orifice Equation	
Q = CA sqrt(2gH)	
C=	0.6
g=	32.2
H (ft)=	?
Q (cfs)=	5.15
Area (sf)=	1.166667

H = 0.840 Feet
= 10.086 Inches

= 10.086+3.5
= 13.58588

Use 14" header curb around sidewalk culvert



AHYMO
Runoff Input
and
Summary Output

THE CASTLE

100-YEAR, 24-HR STORM (UNDER PROPOSED CONDITIONS)

START TIME=0.0

* BASIN 1

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=2.01 IN RAIN SIX=2.35 IN
RAIN DAY=2.75 IN DT=0.02253 HR
COMPUTE NM HYD ID=1 HYD NO=100.1 AREA=0.001786 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD ID=1 CODE=1

* BASIN 2

COMPUTE NM HYD ID=1 HYD NO=100.2 AREA=0.001650 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD ID=1 CODE=1

* BASIN 3

COMPUTE NM HYD ID=1 HYD NO=100.3 AREA=0.001119 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD ID=1 CODE=1

10-YEAR, 24-HR STORM (UNDER PROPOSED CONDITIONS)

START TIME=0.0

* BASIN A

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.34 IN RAIN SIX=1.57 IN
RAIN DAY=1.83 IN DT=0.02253 HR
COMPUTE NM HYD ID=1 HYD NO=110.1 AREA=0.001786 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD ID=1 CODE=1

* BASIN B

COMPUTE NM HYD ID=1 HYD NO=110.2 AREA=0.001650 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD ID=1 CODE=1

* BASIN C

COMPUTE NM HYD ID=1 HYD NO=110.3 AREA=0.001119 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00

TP=-0.1333 HR MASS RAINFALL=-1
ID=1 CODE=1

PRINT HYD

FINISH

		FROM	TO	AREA	PEAK	RUNOFF	RUNOFF	TIME TO	CFS	PAGE = 1
COMMAND	HYDROGRAPH IDENTIFICATION	ID NO.	ID NO.		DISCHARGE (CFS)	VOLUME (AC-FT)		PEAK (HOURS)	PER ACRE	NOTATION
START										TIME= .00
RAINFALL	TYPE= 1									RAIN6= 2.350
COMPUTE NM HYD	100.10	-	1	.00179	5.15	.189	1.98166	1.510	4.501	PER IMP= 90.00
COMPUTE NM HYD	100.20	-	1	.00165	4.76	.174	1.98166	1.510	4.503	PER IMP= 90.00
COMPUTE NM HYD	100.30	-	1	.00112	3.23	.118	1.98166	1.510	4.511	PER IMP= 90.00
START										TIME= .00
RAINFALL	TYPE= 1									RAIN6= 1.570
COMPUTE NM HYD	110.10	-	1	.00179	3.33	.117	1.23163	1.510	2.914	PER IMP= 90.00
COMPUTE NM HYD	110.20	-	1	.00165	3.08	.108	1.23164	1.510	2.915	PER IMP= 90.00
COMPUTE NM HYD	110.30	-	1	.00112	2.09	.074	1.23164	1.510	2.920	PER IMP= 90.00
FINISH										

 * THE CASTLE *

 * 100-YEAR, 24-HR STORM (UNDER EXISTING CONDITIONS) *

START TIME=0.0

* BASIN 1

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
 RAIN ONE=2.01 IN RAIN SIX=2.35 IN
 RAIN DAY=2.75 IN DT=0.02253 HR
 COMPUTE NM HYD ID=1 HYD NO=100.1 AREA=0.002395 SQ MI
 PER A=0.00 PER B=0.00 PER C=100.00 PER D=0.00
 TP=-0.1333 HR MASS RAINFALL=-1
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* BASIN 2

COMPUTE NM HYD ID=1 HYD NO=100.2 AREA=0.002187 SQ MI
 PER A=0.00 PER B=0.00 PER C=100.00 PER D=0.00
 TP=-0.1333 HR MASS RAINFALL=-1
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RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
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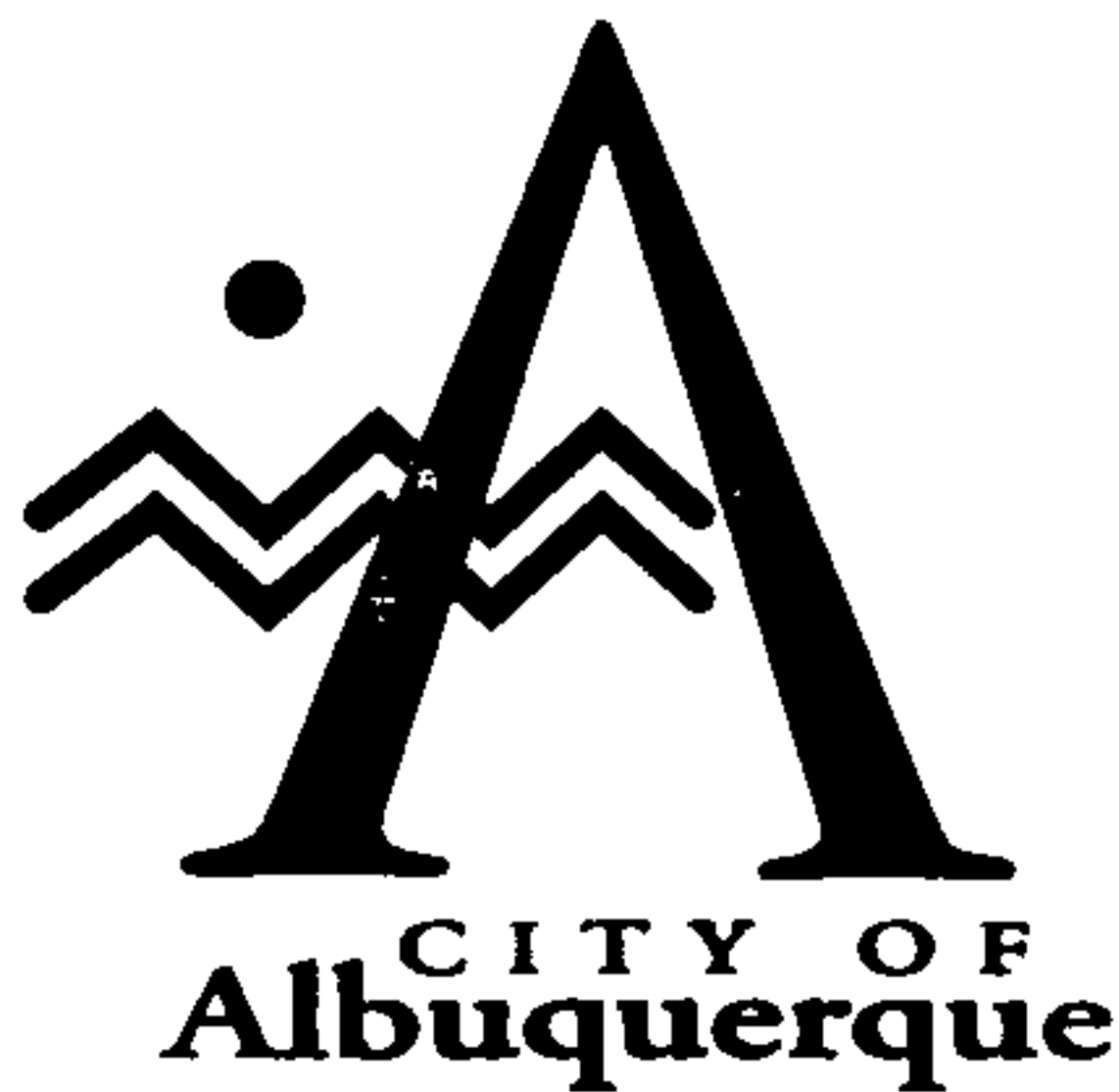
* BASIN 2

COMPUTE NM HYD ID=1 HYD NO=110.2 AREA=0.002187 SQ MI
 PER A=0.00 PER B=0.00 PER C=100.00 PER D=0.00
 TP=-0.1333 HR MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1

*
 FINISH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
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COMPUTE NM HYD	100.20	-	1	.00219	4.44	.132	1.12758	1.510	3.171	PER IMP= .00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.570
COMPUTE NM HYD	110.10	-	1	.00240	2.64	.065	.50956	1.510	1.723	PER IMP= .00
COMPUTE NM HYD	110.20	-	1	.00219	2.41	.059	.50956	1.510	1.724	PER IMP= .00
FINISH										

Q#D Plan
to St. Maint.
for SO#19



July 22, 1996

Martin J. Chávez, Mayor

Ron Bohannon
Tierra West Dev.
4421 McCleod Rd. NE
Suite D
Albuquerque, NM 87109

**RE: HUNING CASTLE (J13-D62) CONCEPTUAL GRADING AND DRAINAGE PLAN
FOR SITE DEVELOPMENT FOR BUILDING PERMIT APPROVAL.
ENGINEER'S STAMP DATED 6-27-96.**

Dear Mr. Bohannon:

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Please be certain to provide the required notes and sign off block when requesting SO #19 permit approval. Also, submit two copies of the plan sheet.

If I can be of further assistance, please feel free to contact me at 768-3622.

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Andrew Garcia
File

Good for You, Albuquerque!



DRAINAGE INFORMATION SHEET

PROJECT TITLE: HUNING CASTLE APARTMENTS ZONE ATLAS/DRNG. FILE #: J-13 / 462

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: LOTS 1,8, AND 9 IN BLOCK 1 IN HUNING CASTLE ADDITION

CITY ADDRESS: CENTRAL AVE BETWEEN LAGUNA AND 15TH STREET

ENGINEERING FIRM: TIERRA WEST DEV. MAGT. SER. CONTACT: RONALD R. BOHANNAN OR SHAHAB BLAZAR

ADDRESS: 4421 McCleod Rd. NE Suite D, 87109 PHONE: (505) 883-7592

OWNER: Cauwels Construction and Development Inc. CONTACT: PAUL S. CAUWELS

ADDRESS: 1116 PENNSYLVANIA NE PHONE: (505) 266-5711

ARCHITECT: Paul T. Bergner, AIA, Architect, PC CONTACT: PAUL T. BERGNER

ADDRESS: 3201 S. TAMARAC DRIVE, STE 101, DENVER, CO 80231 PHONE: (303) 750-4211

SURVEYOR: Southwest Surveying Co., Inc. CONTACT: FRANK WILSON

ADDRESS: 333 LOMAS BLVD, ALB. 87102 PHONE: (505) 247-4444

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT

☒ DRAINAGE PLAN

☒ CONCEPTUAL GRADING & DRAINAGE PLAN

☐ GRADING PLAN

☐ EROSION CONTROL PLAN

☐ ENGINEER'S CERTIFICATION

☐ OTHER

PRE-DESIGN MEETING:

☐ YES

☒ NO

☐ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAN APPROVAL

☐ PRELIMINARY PLAT APPROVAL

☐ S. DEV. PLAN FOR SUB'D. APPROVAL

☒ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL

☐ SECTOR PLAN APPROVAL

☐ FINAL PLAT APPROVAL

☐ FOUNDATION PERMIT APPROVAL

☐ BUILDING PERMIT APPROVAL

☐ CERTIFICATE OF OCCUPANCY APPROVAL

☐ GRADING PERMIT APPROVAL

☐ PAVING PERMIT APPROVAL

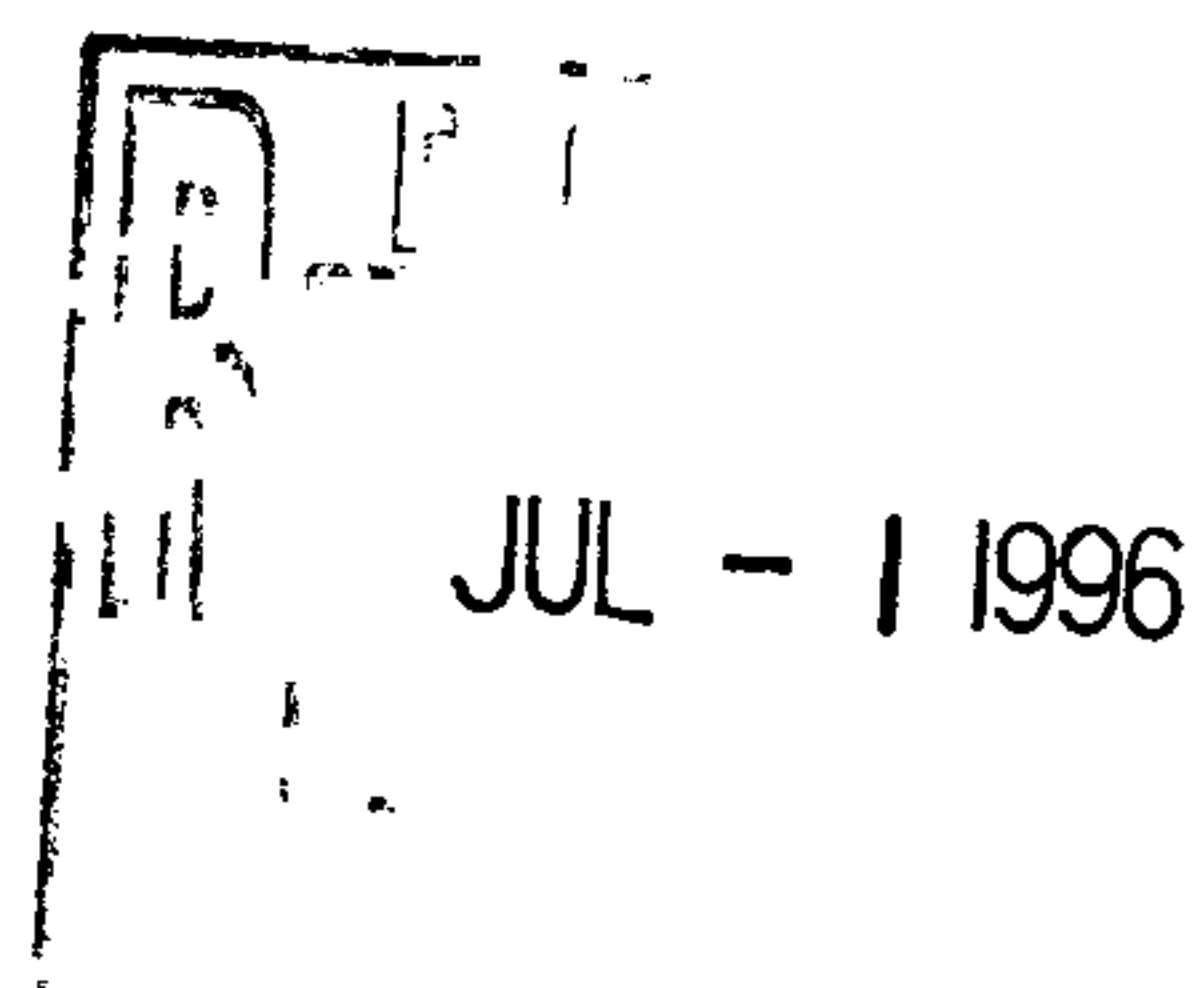
☐ S. A. D. DRAINAGE REPORT

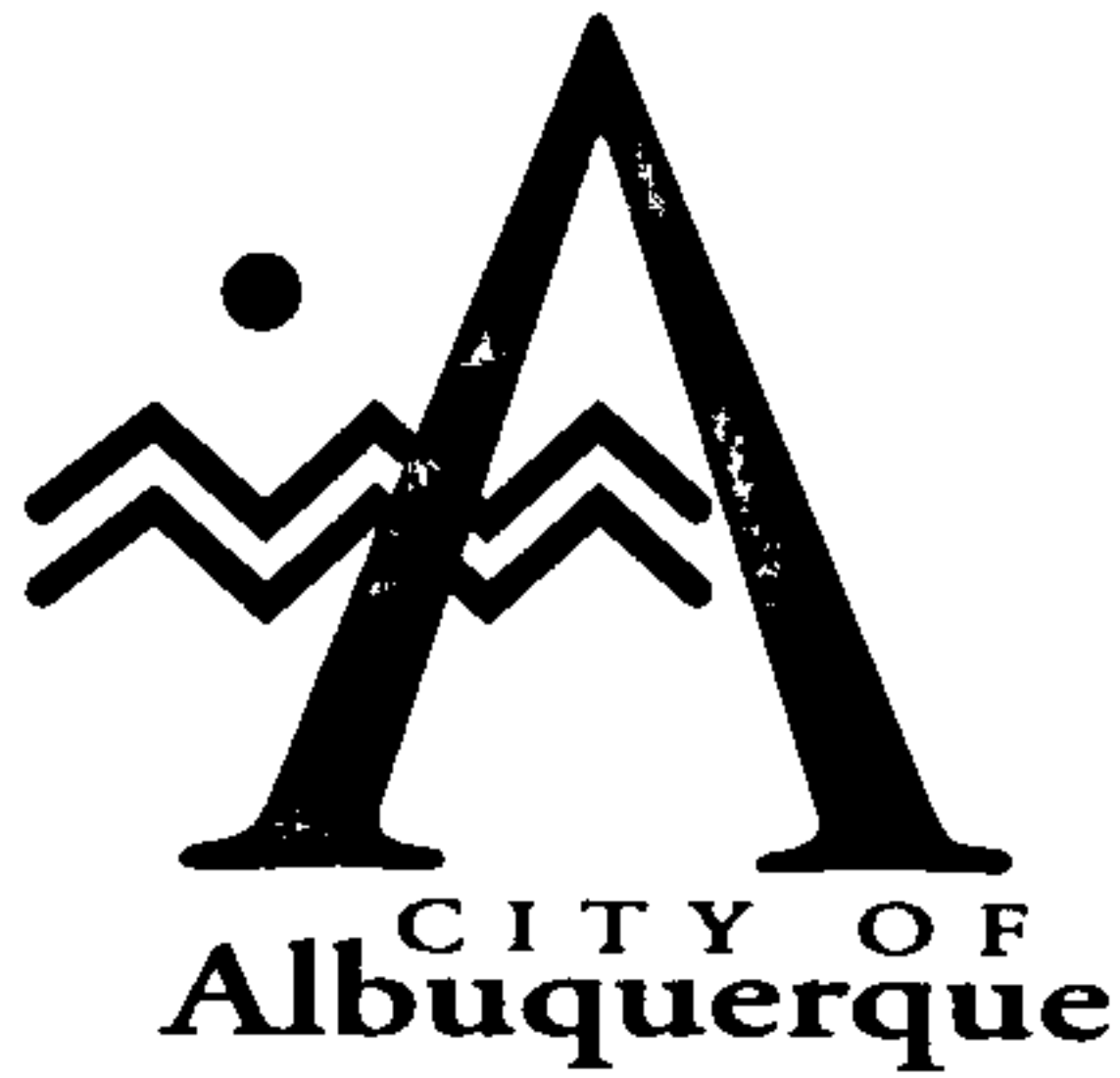
☐ DRAINAGE REQUIREMENTS

☐ OTHER

DATE SUBMITTED: 06/28/96

BY: SARA McCOLLAM





June 5, 1996

Martin J. Chávez, Mayor

Ron Bohannon
Tierra West Dev.
4421 McCleod Rd. NE
Suite D
Albuquerque, NM 87109

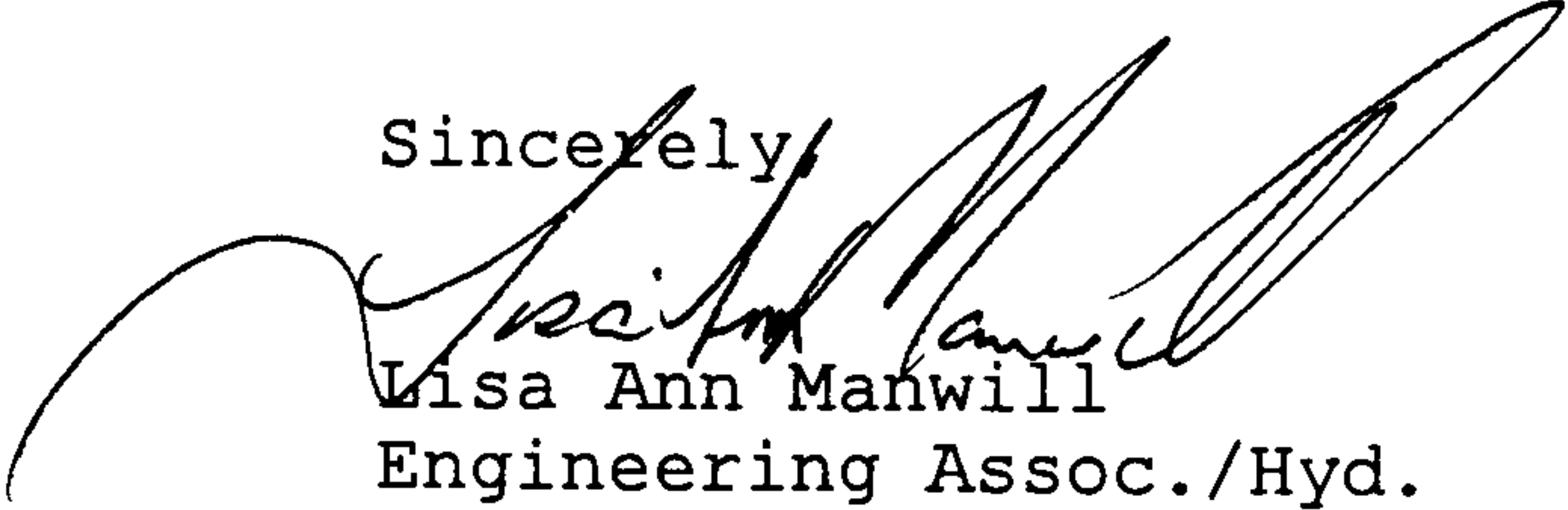
**RE: HUNING CASTLE (J13-D62) CONCEPTUAL GRADING AND DRAINAGE PLAN
FOR SITE DEVELOPMENT FOR SUBDIVISION APPROVAL. ENGINEER'S
STAMP DATED 5-9-96.**

Dear Mr. Bohannon:

Based on the information provided on your May 13, 1996 submittal,
the above referenced project is approved for Site Development
Plan for Building Permit.

If I can be of further assistance, please feel free to contact me
at 768-3622.

Sincerely,


Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Andrew Garcia
File

Good for You, Albuquerque!



DRAINAGE INFORMATION SHEET

PROJECT TITLE: HUNING CASTLE APARTMENTS ZONE ATLAS/DRNG. FILE #: J-13/1462

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: LOTS 1,8, AND 9 IN BLOCK 1 IN HUNING CASTLE ADDITION

CITY ADDRESS: CENTRAL AVE BETWEEN LAGUNA AND 15TH STREET

ENGINEERING FIRM: TIERRA WEST DEV. MAGT. SER. CONTACT: RONALD R. BOHANNAN OR SHAHAB BIAZAR

ADDRESS: 4421 McCleod Rd. NE Suite D, 87109 PHONE: (505) 883-7592

OWNER: Cauwels Construction and Development Inc. CONTACT: PAUL S. CAUWELS

ADDRESS: 1116 PENNSYLVANIA NE PHONE: (505) 266-5711

ARCHITECT: Paul T. Bergner, AIA, Architect, PC CONTACT: PAUL T. BERGNER

ADDRESS: 3201 S. TAMARAC DRIVE, STE 101, DENVER, CO 80231 PHONE: (303) 750-4211

SURVEYOR: Southwest Surveying Co., Inc. CONTACT: FRANK WILSON

ADDRESS: 333 LOMAS BLVD, ALB. 87102 PHONE: (505) 247-4444

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

_____ DRAINAGE REPORT

☒ DRAINAGE PLAN

☒ CONCEPTUAL GRADING & DRAINAGE PLAN

_____ GRADING PLAN

_____ EROSION CONTROL PLAN

_____ ENGINEER'S CERTIFICATION

_____ OTHER

PRE-DESIGN MEETING:

_____ YES

☒ NO

_____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

_____ SKETCH PLAN APPROVAL

_____ PRELIMINARY PLAT APPROVAL

_____ S. DEV. PLAN FOR SUB'D. APPROVAL

☒ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL

_____ SECTOR PLAN APPROVAL

_____ FINAL PLAT APPROVAL

_____ FOUNDATION PERMIT APPROVAL

_____ BUILDING PERMIT APPROVAL

_____ CERTIFICATE OF OCCUPANCY APPROVAL

_____ GRADING PERMIT APPROVAL

_____ PAVING PERMIT APPROVAL

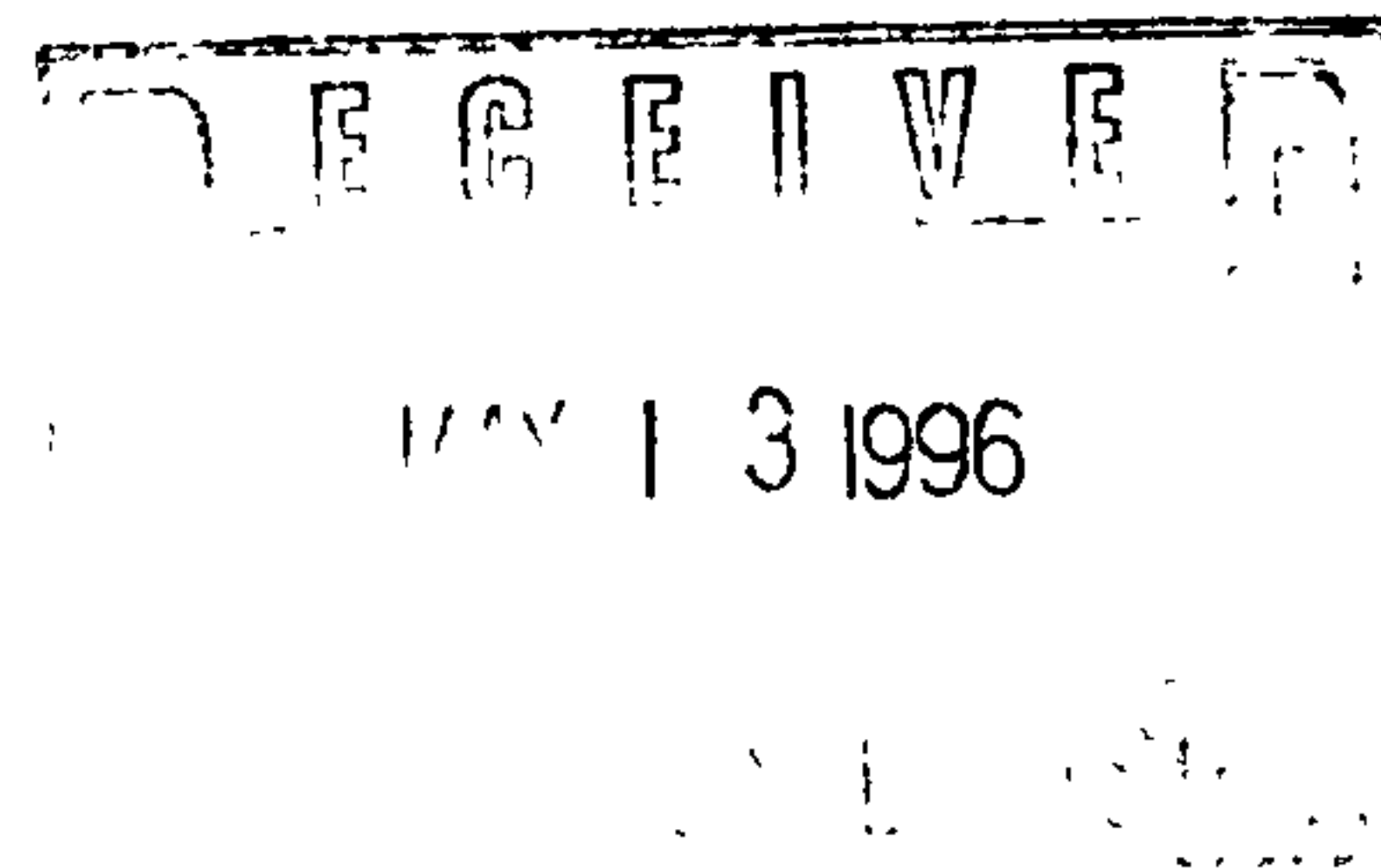
_____ S. A. D. DRAINAGE REPORT

_____ DRAINAGE REQUIREMENTS

_____ OTHER

DATE SUBMITTED: 5/9/96

BY: SARA McCOLLAM





May 9, 1996

Mrs. Lisa Ann Manwill
Engineering Assoc.
Hydrology Department
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Huning Castle Apartments (J13-D62) Conceptual Grading and Drainage Plan

Dear Mrs. Manwill:

The purpose of this letter is to address the comments received from you regarding the grading and drainage plan for the Huning Castle Apartment site.

1. There is an existing lift station located at Alcalde Street north of the Rio Grande Zoo as referenced from the City of Albuquerque As-Built Information entitled Alcalde Storm Water Pumping Station and Collection System. The flows from Laguna, Central, and 15th Street, which we are discharging into, will eventually drain to this point. There are storm drain systems in Central, Laguna, and 15th Street as shown by the as-built information which will route the runoff to the pump station.

These facilities were identified in the Albuquerque Master Drainage Study to remove the flooding in the area. The study used full build out conditions for the area and specifically this site. Under that study and with the improvements in place the site should be allowed to free discharge. This information has also been added to the drainage report.

2. Existing contours have been added to the Grading and Drainage Plan.

Should you have any questions regarding this matter, please do not hesitate to contact me at 883-7592.

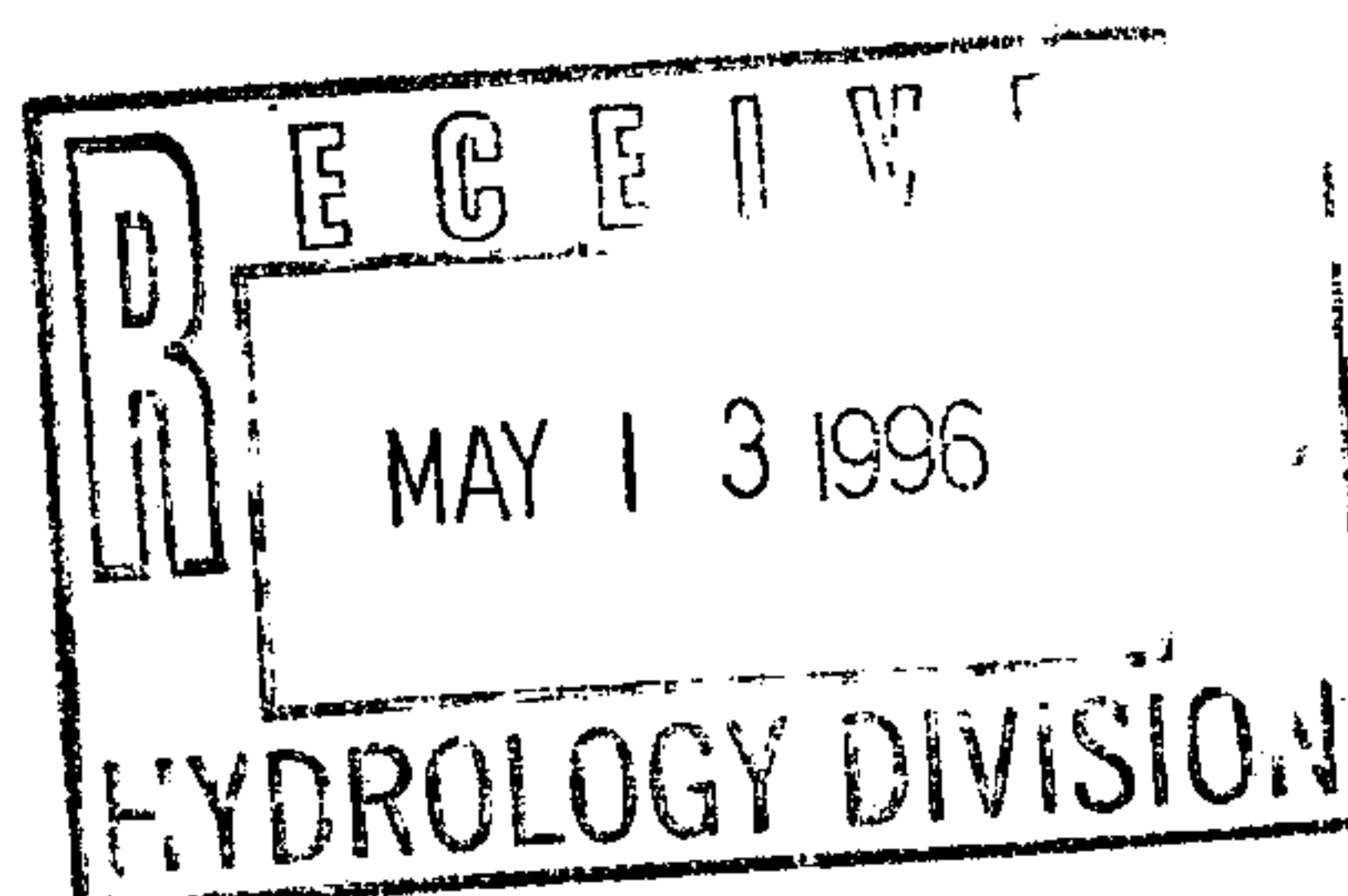
Sincerely,


Sara McCollam

Enclosures

cc: Paul Cauwels
Bill Card

JN: 960031
scm



960031: comment.ltr

DRAINAGE REPORT

for

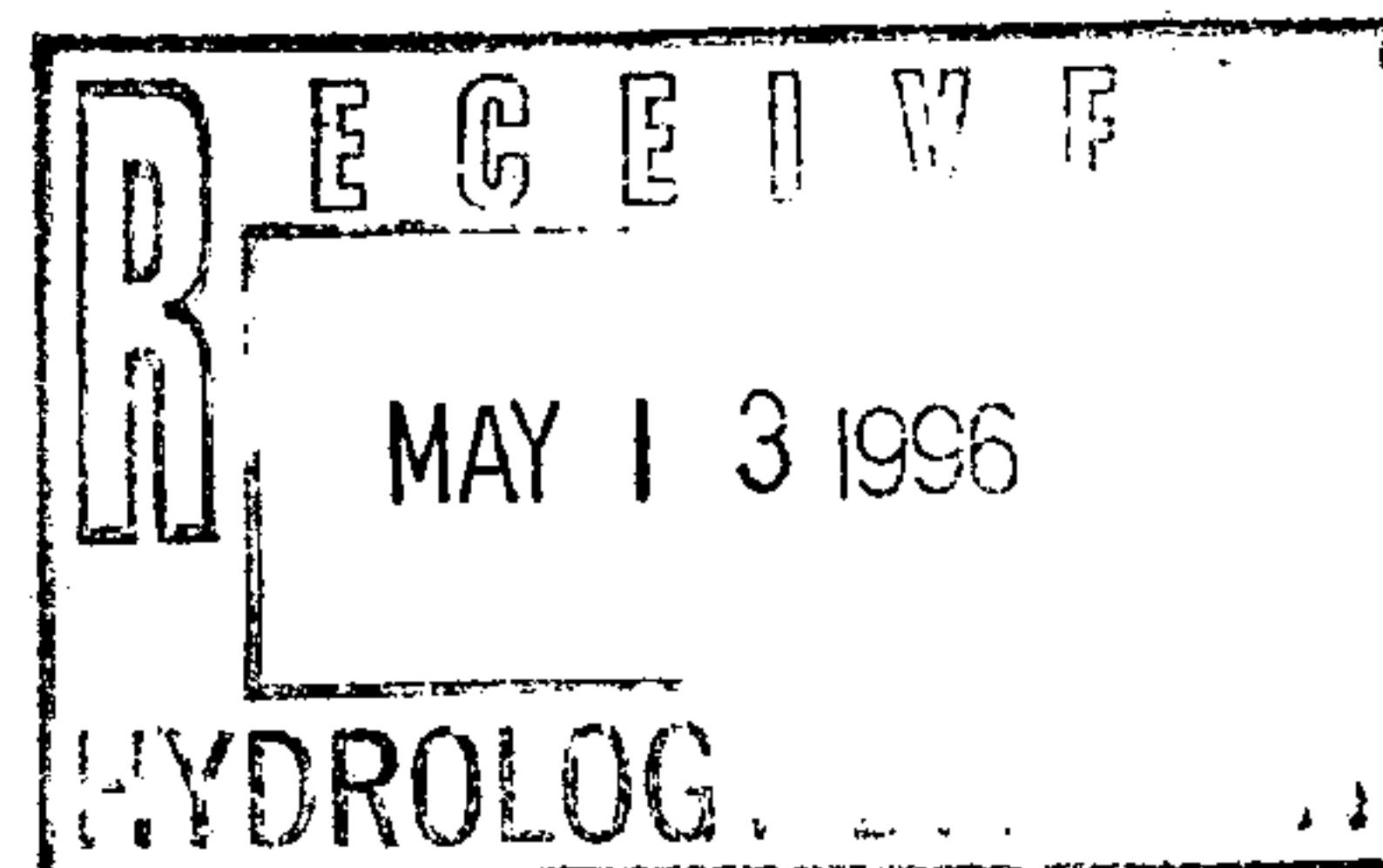
Huning Castle Apartments

Prepared by

Tierra West Development Management Sevices
4421 McLeod Road NE, Suite D
Albuquerque, New Mexico 87109

Prepared for

Paul Cauwels
Cauwels Construction and Development, Inc.
1116 Pennsylvania, NE
Albuquerque, New Mexico 87110



March 1996


Ronald R. Bohannon P.E.

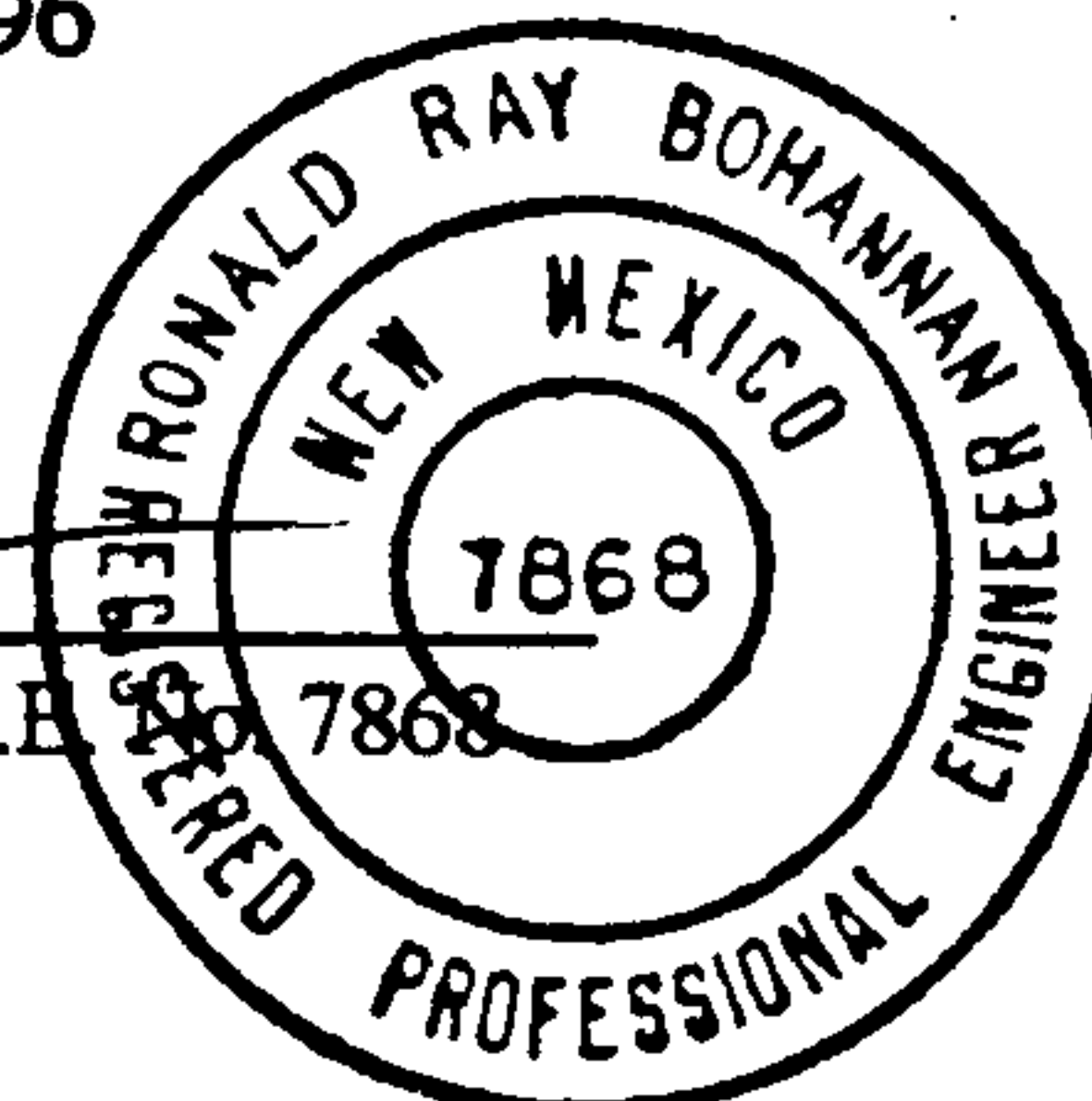
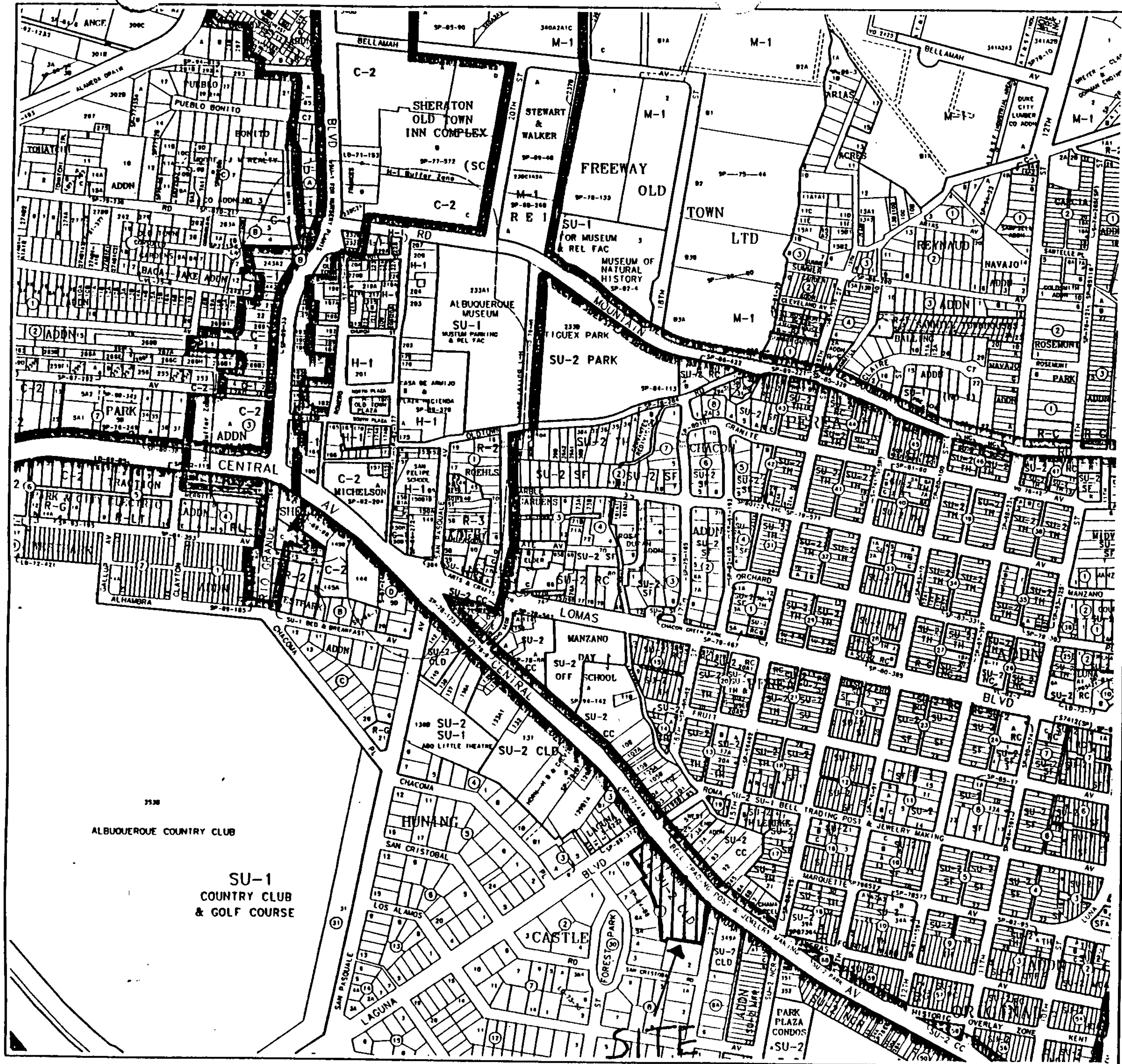
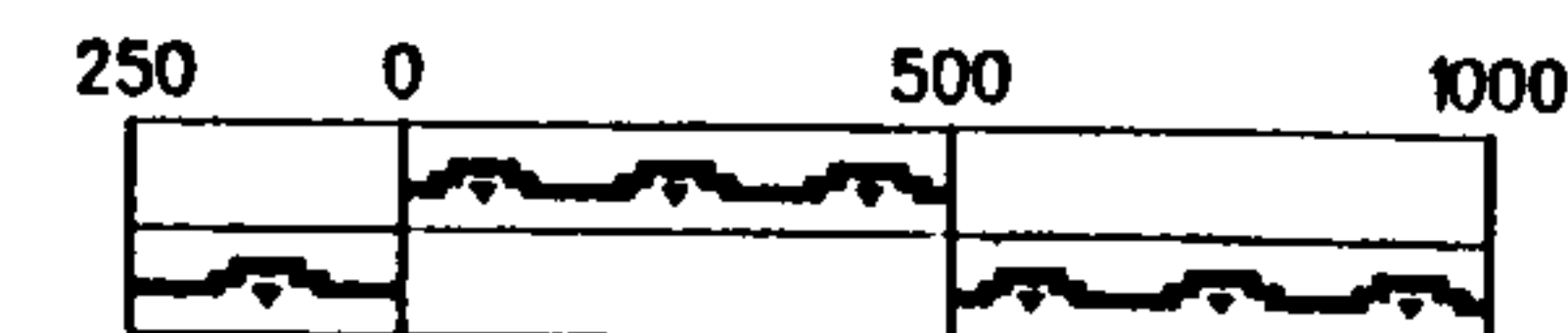


TABLE OF CONTENTS

Zone Atlas Map J-13	1
Location and Location Map	2
Existing Drainage Conditions	2
FEMA and Soil Conditions	2
FEMA Map 350002-0028	3
On-Site Drainage Management Plan	4
Summary	4
Runoff Calculations	5
Runoff Summary Tables for Existing and Proposed Drainage Basins	7
AHYMO Input and Summary Output	9



SCALE IN FEET

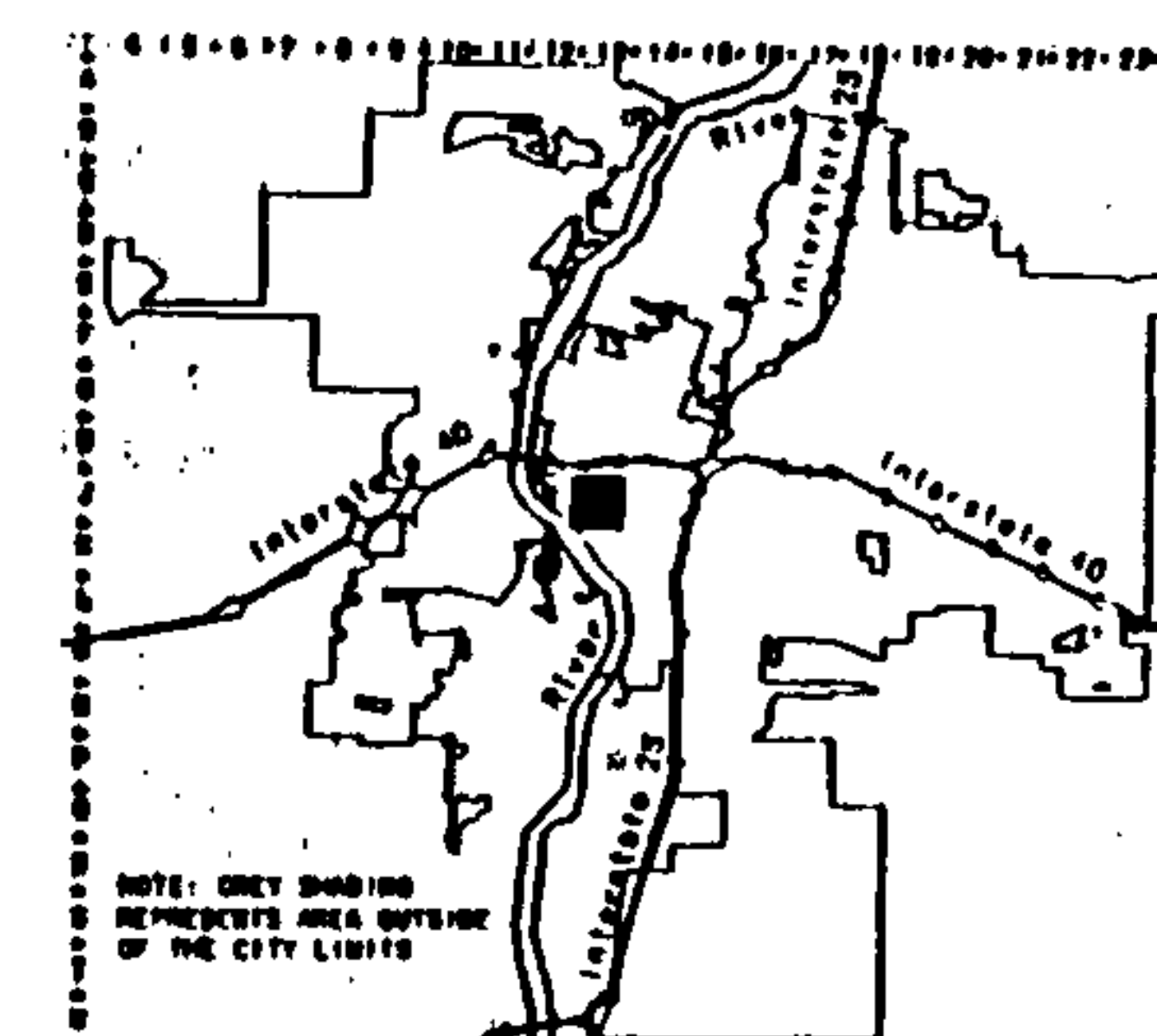


PHOTOCOPY--NOT TO SCALE



A G I S
ALBUQUERQUE GRAPHIC INFORMATION SYSTEM

© Planning Department
Map Amended through August 17, 1994



LEGAL DESCRIPTION

T10N
R3E
SEC 18

UNIFORM PROPERTY CODE

1-018-088

J-13-Z

Location and Location Map

Huning Castle Apartments is a proposed 75 unit three story apartment complex. The site is identified as lots 1,8, and 9 in block 1 in the Huning Castle Addition. It is located south of Central Ave between Laguna Blvd and 15th Street. The site is shown on the highlighted attached Zone Atlas Map J-13 and contains approximately 2.9 acres. The purpose of this report is to provide the drainage analysis and management plan for the site.

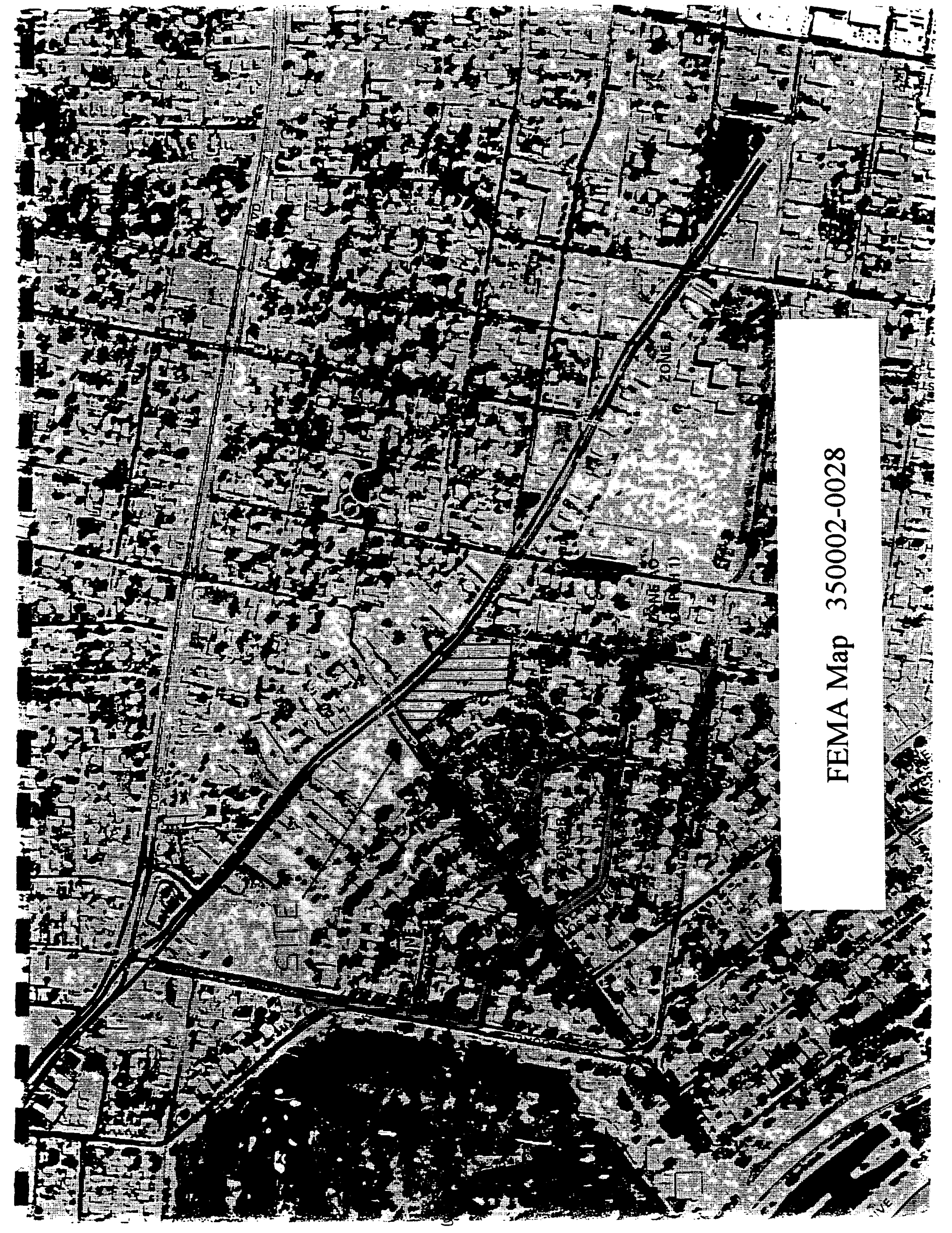
Existing Drainage Conditions

The site has been developed in the past and was the site of the Huning Castle. The site was occupied continuously throughout the early turn of the century but was demolished in the 1950's. The site has been generating runoff throughout its history and we propose to continue to free discharge from the site. There are no off-site flows entering the site. There are two existing basins on the site. Basin 1 has a runoff of 4.86 cfs and sheet flows north toward Laguna Blvd. Basin 2 has a runoff of 4.44 cfs and sheet flows east into 15th Street.

FEMA and Soil Conditions

The site is located on FEMA Map section 350002 panel 28 as shown on the attached excerpt. The map shows that the site does not lie within any 100 year flood plains.

The Brazito complex is the only soil type found on the site. This soil complex is a mixture of the Brazito silty clay loam and various other soils. The hazard of water erosion is slight, runoff is very slow, and the hazard of soil blowing is moderate.



FEMA Map 350002-0028

On-Site Drainage Management Plan

The site has been divided into three proposed drainage basins as shown on the Grading and Drainage Plan. Basin 1 has a runoff flow of 5.15 cfs; it will drain to the parking lot and then east into 15th Street. Basin 2 has a runoff flow of 4.76 cfs. It will drain to the parking lot and then north into Laguna Blvd. Basin 3 will also drain to the parking lot with a runoff of 3.23 cfs and then northeast into Central Ave. There is an existing lift station located at Alcalde Street north of the Rio Grande Zoo as referenced from the City of Albuquerque As-Built information entitled Alcalde Storm Water Pumping Station and Collection System. The storm drain systems in Central, Laguna, and 15th Street will route the proposed runoff to this pump station.

These facilities were identified in the Albuquerque Master Drainage Study to remove the flooding in the area. The study used full build out conditions for the area and specifically this site. Under that study and with the improvements in place the site should be allowed to free discharge.

Summary

There are three proposed drainage basins on the site. Basin 1 has a proposed runoff of 5.15 cfs, Basin 2 has a proposed runoff of 4.76 cfs, and Basin 3 has a proposed runoff of 3.23 cfs. All the basins will free discharge the water into the nearby streets.

Runoff Calculations

RUNOFF CALCULATIONS

The site is @ Zone 2

LAND TREATMENT

D = 90 %

B = 10 %

DEPTH (INCHES) @ 100-YEAR STORM

$P_{60} = 2.01$ inches

$P_{360} = 2.35$ inches

$P_{1440} = 2.75$ inches

DEPTH (INCHES) @ 10-YEAR STORM

$P_{60} = 2.01 \times 0.667$
 $= 1.34$ inches

$P_{360} = 1.57$

$P_{1440} = 1.83$

See the summary output from AHYMO calculations.

Also see the following summary tables.

**Runoff
Summary Tables
for
Existing and Proposed
Drainage Basins**

DRAINAGE BASINS - EXISTING

SUB-BASIN	AREA (SF)	AREA (AC)	AREA (MI ²)
1	66782.4906	1.5331	0.002395
2	60962.76	1.3995	0.002187

DRAINAGE BASINS - PROPOSED

SUB-BASIN	AREA (SF)	AREA (AC)	AREA (MI ²)
1	47197.43	1.0835	0.001693
2	43485.47	0.9983	0.001560
3	26821.37	0.6157	0.000962

BASINS RUNOFF CALCULATION RESULTS - EXISTING

BASIN	Q-100 CFS	Q-10 CFS
1	4.86	2.64
2	4.44	2.41

BASINS RUNOFF CALCULATION RESULTS - PROPOSED

BASIN	Q-100 CFS	Q-10 CFS
A	5.15	3.33
B	4.76	3.08
C	3.23	2.09

SEE THE FOLLOWING SHEET FOR SAMPLE CALCULATION ON THE BASINS RUNOFF

AHYMO
Runoff Input
and
Summary Output

 * THE CASTLE *

 100-YEAR, 24-HR STORM (UNDER PROPOSED CONDITIONS) *

*
 START TIME=0.0

* BASIN 1

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
 RAIN ONE=2.01 IN RAIN SIX=2.35 IN
 RAIN DAY=2.75 IN DT=0.02253 HR
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 PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
 TP=-0.1333 HR MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1

* BASIN 2

COMPUTE NM HYD ID=1 HYD NO=100.2 AREA=0.001650 SQ MI
 PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
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* BASIN 3

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 10-YEAR, 24-HR STORM (UNDER PROPOSED CONDITIONS) *

*
 START TIME=0.0

* BASIN A

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
 RAIN ONE=1.34 IN RAIN SIX=1.57 IN
 RAIN DAY=1.83 IN DT=0.02253 HR
 COMPUTE NM HYD ID=1 HYD NO=110.1 AREA=0.001786 SQ MI
 PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
 TP=-0.1333 HR MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1

* BASIN B

COMPUTE NM HYD ID=1 HYD NO=110.2 AREA=0.001650 SQ MI
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 PRINT HYD ID=1 CODE=1

* BASIN C

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ID=1 CODE=1

PRINT HYD

FINISH

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USER NO.= R_BOHANN.I01

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FINISH										

 * THE CASTLE *

 * 100-YEAR, 24-HR STORM (UNDER EXISTING CONDITIONS) *

*
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* BASIN 1

*
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 * 10-YEAR, 24-HR STORM (UNDER EXISTING CONDITIONS) *

*
 START TIME=0.0

* BASIN 1

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* BASIN 2

*
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RAINFALL TYPE= 1										RAIN6= 2.350
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RAINFALL TYPE= 1										RAIN6= 1.570
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FINISH										



June 28, 1996

Mrs. Lisa Ann Manwill
Engineering Assoc.
Hydrology Department
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: Huning Castle Apartments (J13-D62) Drainage and Grading Plan

Dear Mrs. Manwill:

The Drainage and Grading Plan for Huning Castle Apartments is being resubmitted to you because of minor changes to the layout of the site plan. These changes to the site plan are also reflected on the grading plan. There are no major changes to the drainage report. The basin delineations and discharges remain the same. However, the changes in the site plan necessitate a sidewalk culvert. The culvert has been added to discharge the runoff into 15th street. For this reason an S.O #19 has been added to the Drainage and Grading Plan.

If you have any questions regarding this matter, please do not hesitate to contact me at 883-7592.

Sincerely,

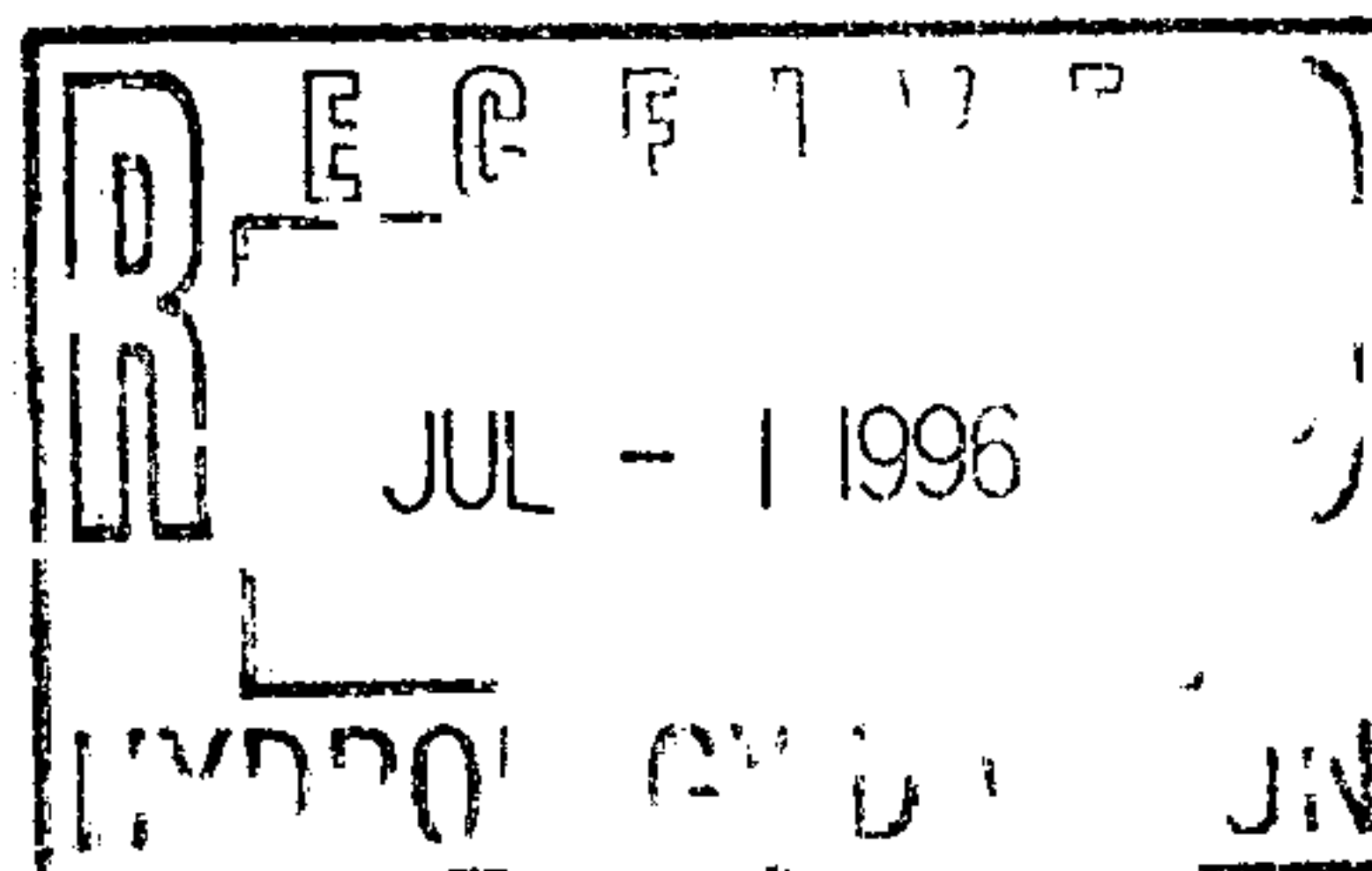
Sara McCollam

Enclosures

cc: Paul Cauwels

JN: 960031

scm



960031:9631corr.mtr

DRAINAGE REPORT

for

Huning Castle Apartments

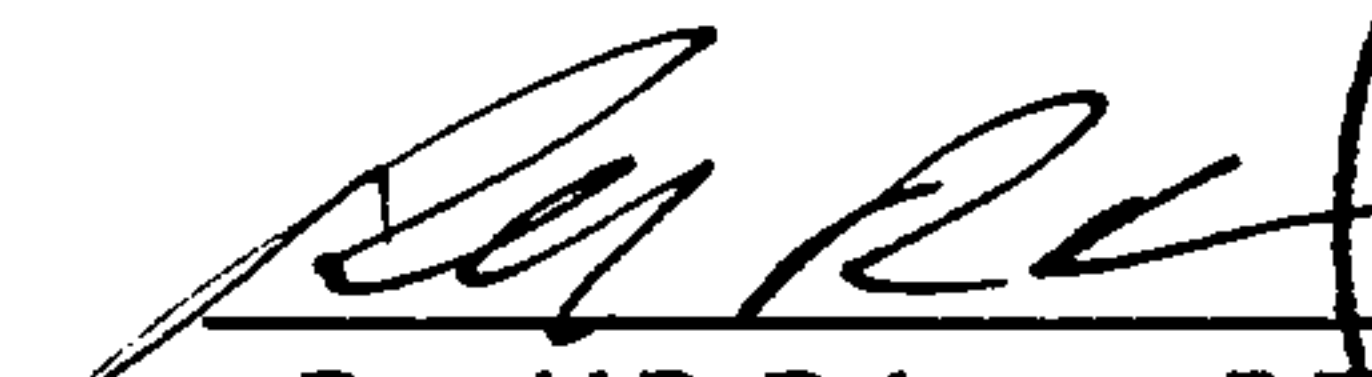
Prepared by

Tierra West Development Management Services
4421 McLeod Road NE, Suite D
Albuquerque, New Mexico 87109

Prepared for

Paul Cauwels
Cauwels Construction and Development, Inc.
1116 Pennsylvania, NE
Albuquerque, New Mexico 87110

March 1996


Ronald R. Bohannon P.E. No. 7868

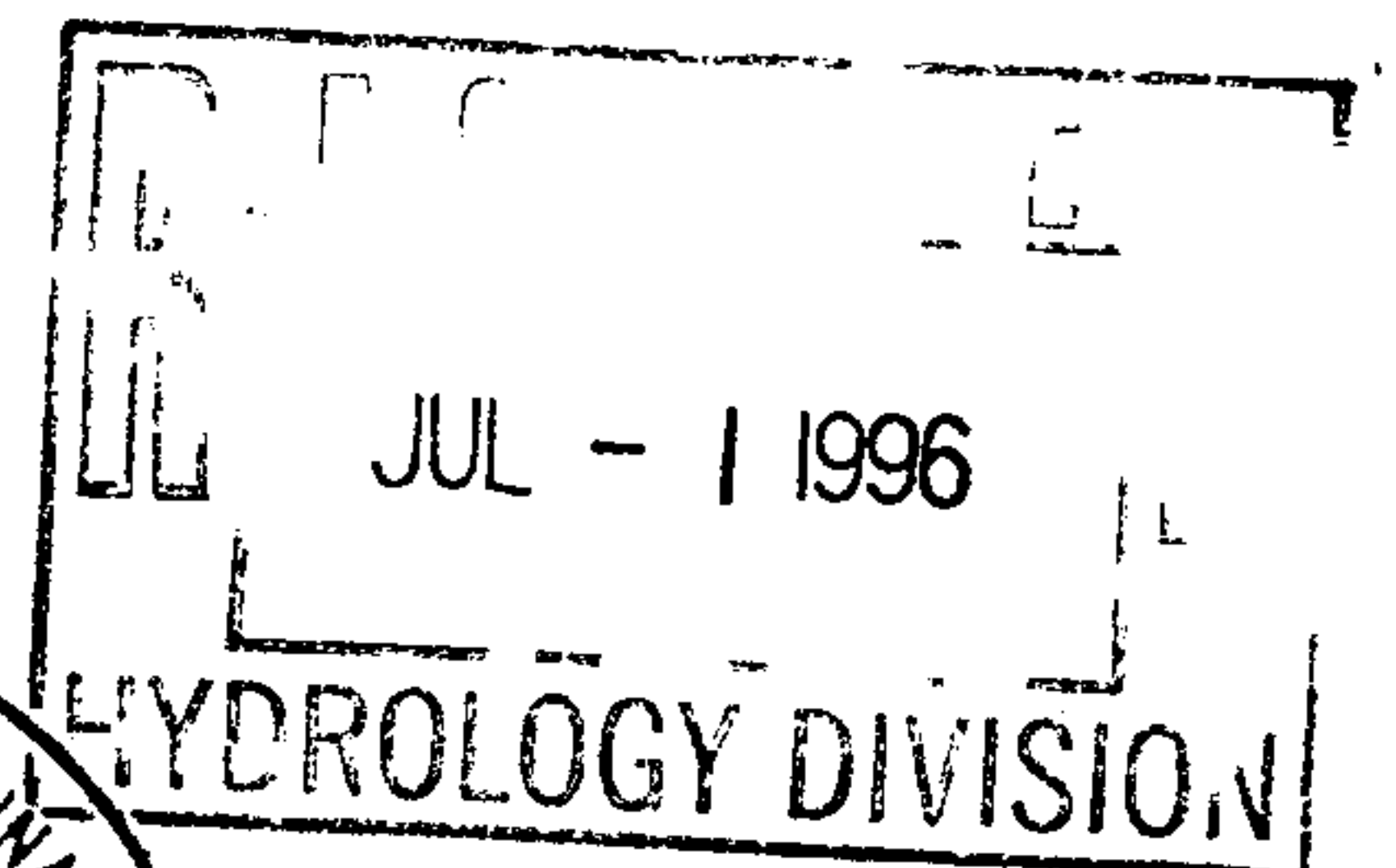
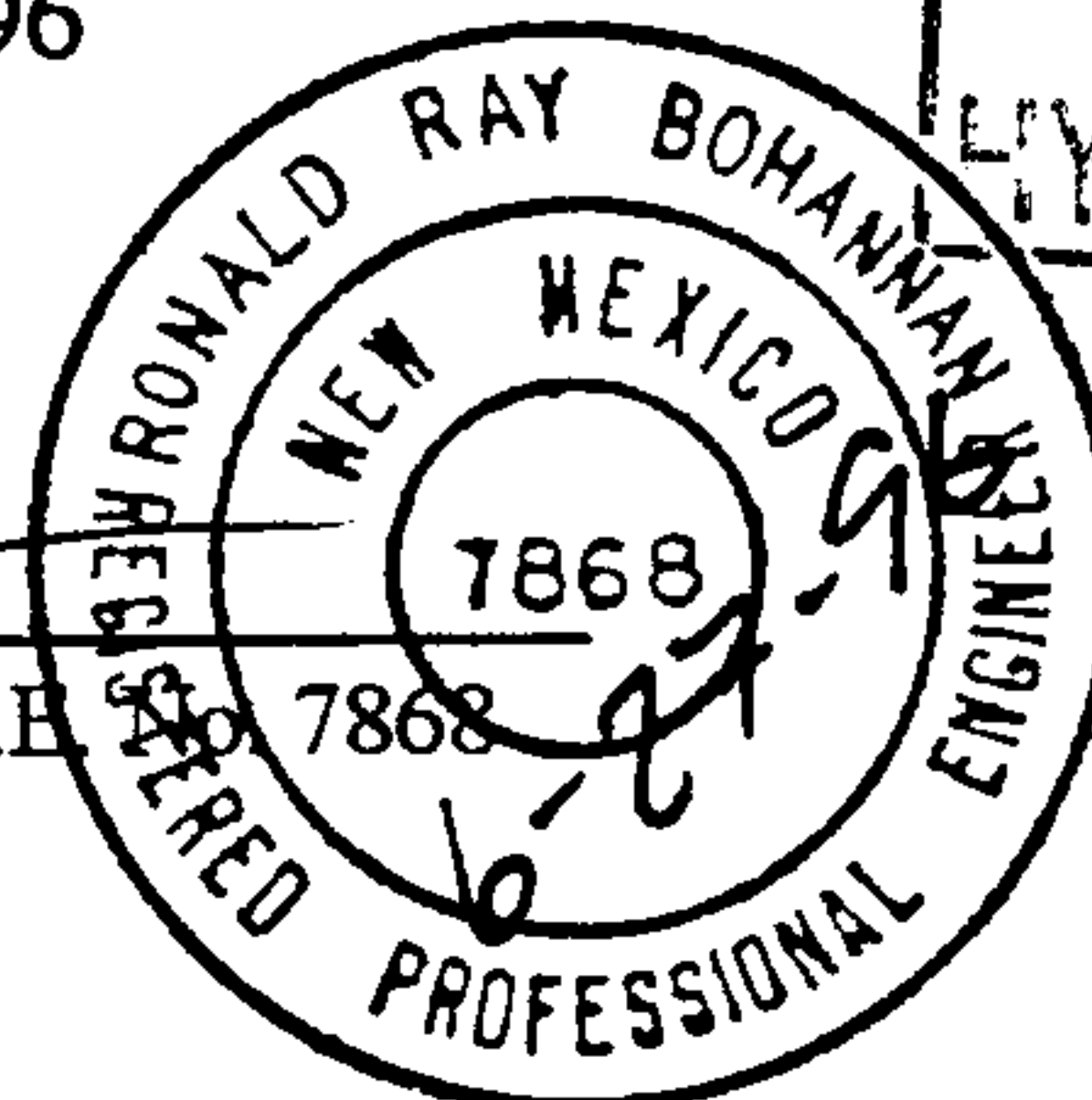
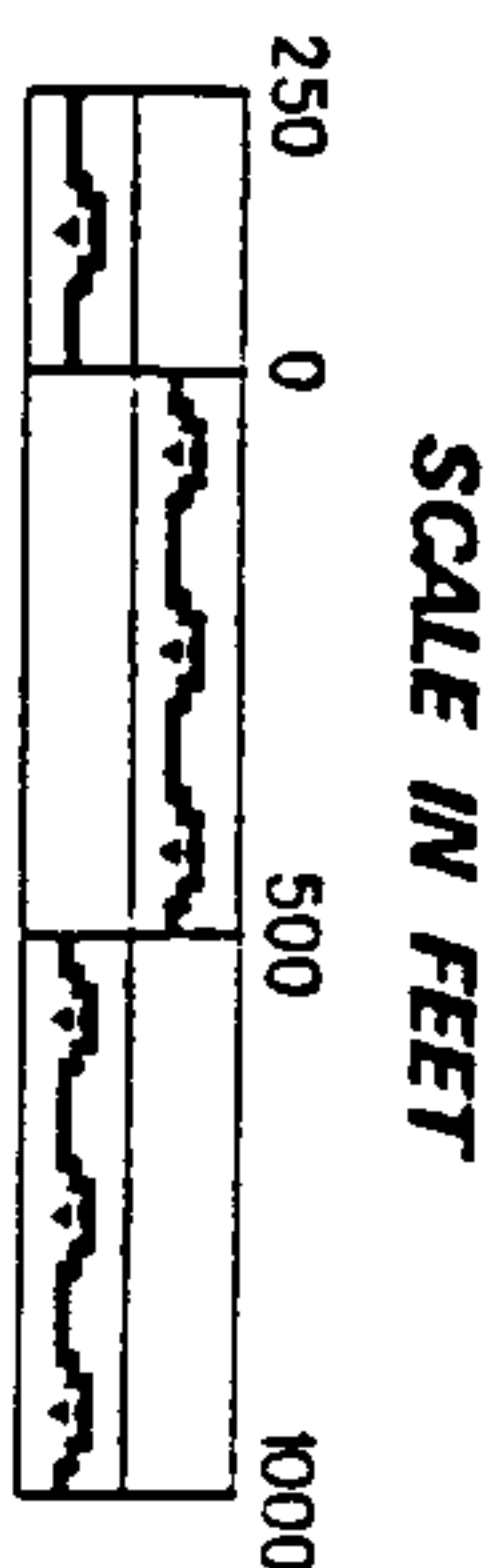
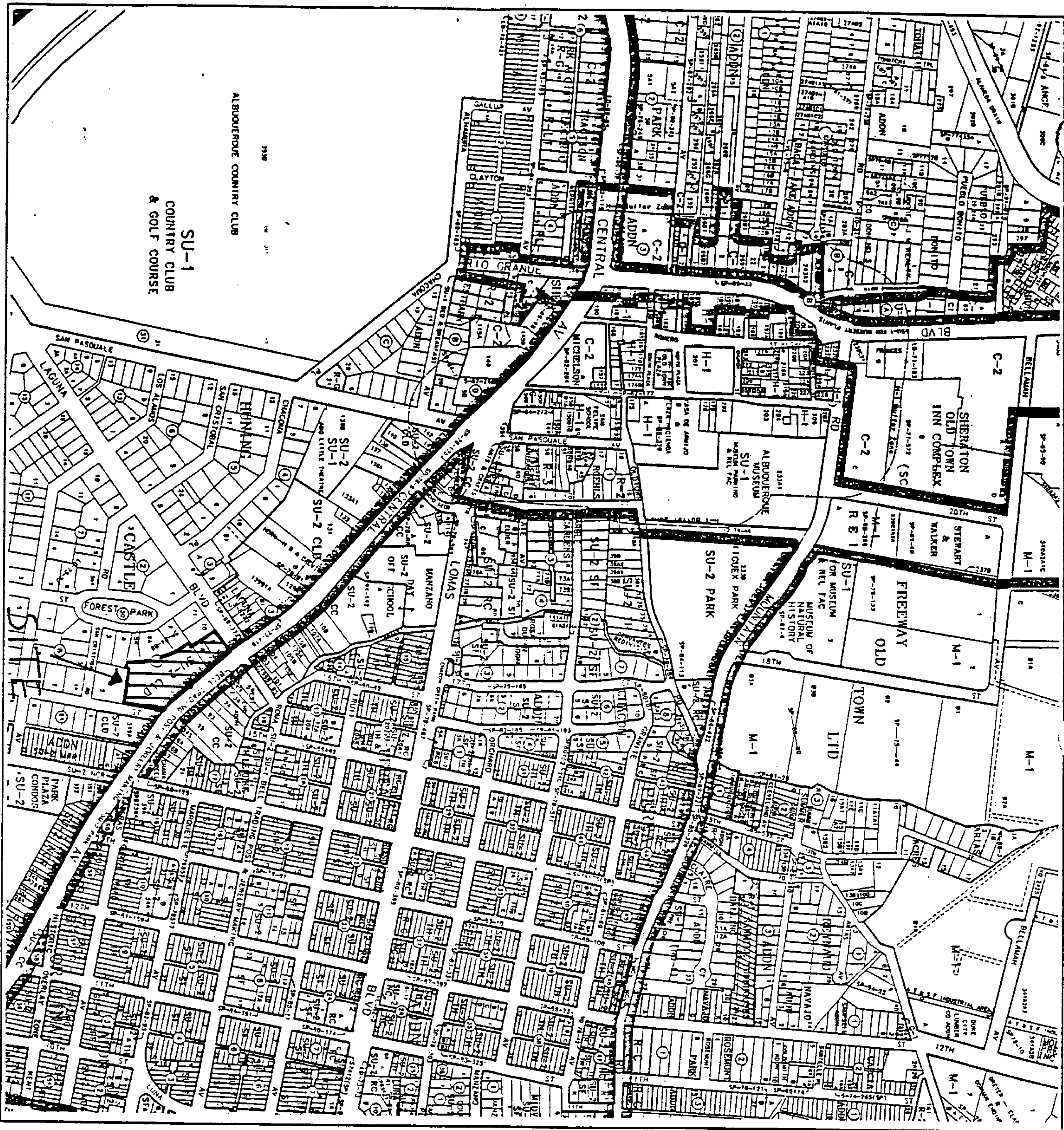


TABLE OF CONTENTS

Zone Atlas Map J-13	1
Location and Location Map	2
Existing Drainage Conditions	2
FEMA and Soil Conditions	2
FEMA Map 350002-0028	3
On-Site Drainage Management Plan	4
Summary	4
Runoff Calculations	5
Runoff Summary Tables for Existing and Proposed Drainage Basins	7
Sidewalk Culvert Analysis	9
AHYMO Input and Summary Output	11

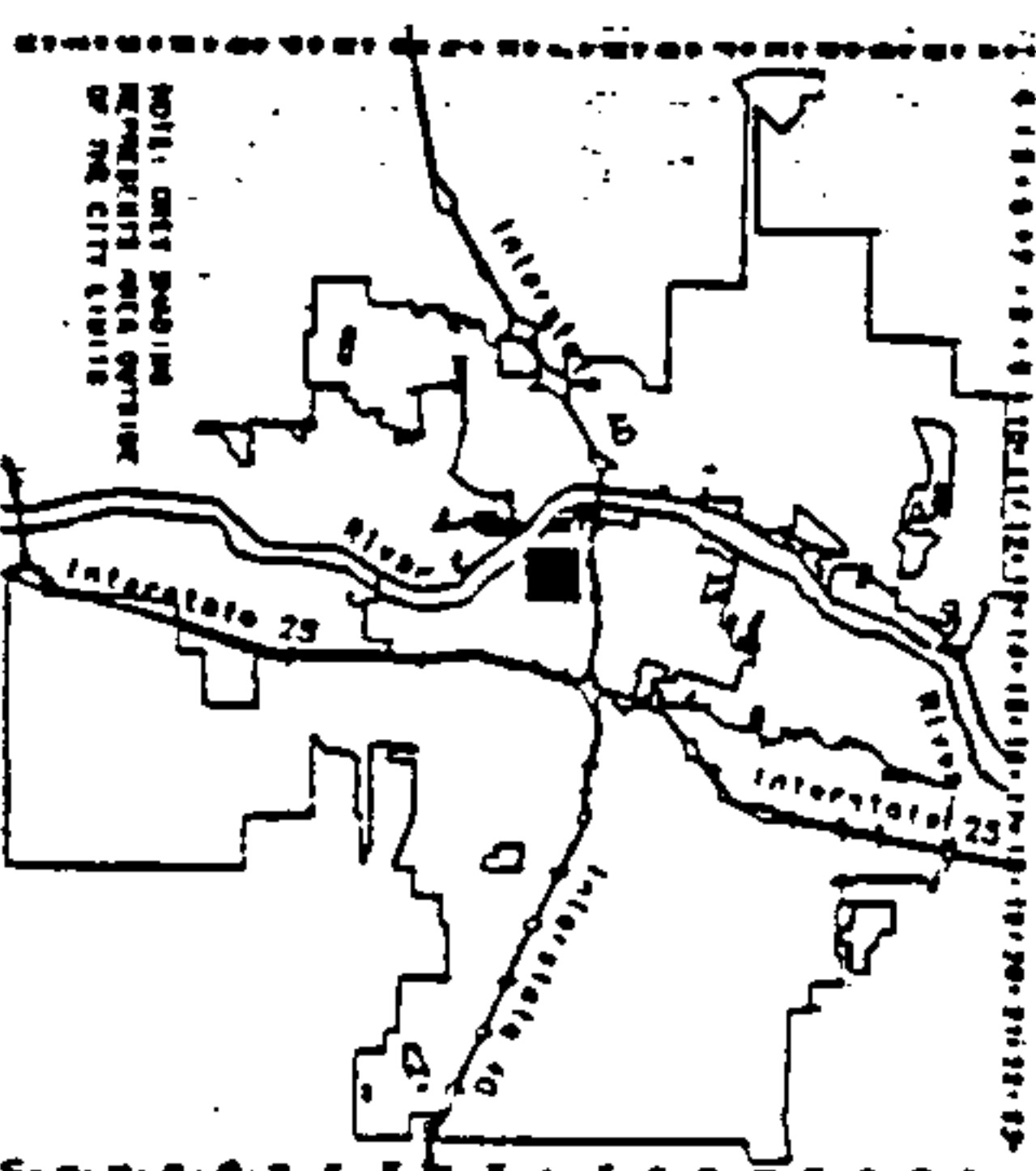


PHOTOCOPY-NOT TO SCALE



AGLIS
Albuquerque Geographic Information System

© Planning Department
Map Amended through August 17, 1994



LEGAL DESCRIPTION

TOWN
RANGE
SEC 18
UNIFORM PROPERTY CODE
1-018-008

J-13-Z

Location and Location Map

Huning Castle Apartments is a proposed 75 unit three story apartment complex. The site is identified as lots 1,8, and 9 in block 1 in the Huning Castle Addition. It is located south of Central Ave between Laguna Blvd and 15th Street. The site is shown on the highlighted attached Zone Atlas Map J-13 and contains approximately 2.9 acres. The purpose of this report is to provide the drainage analysis and management plan for the site.

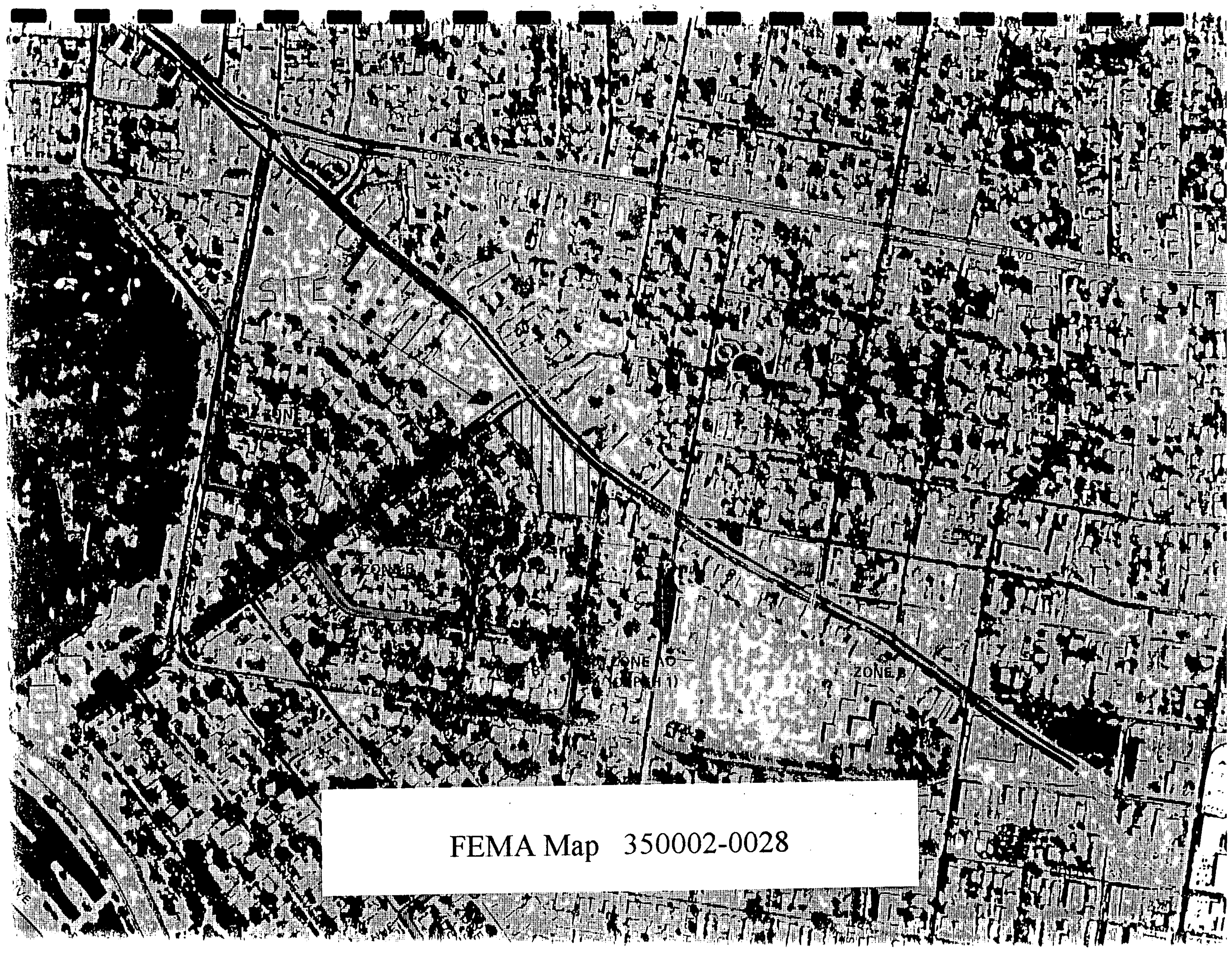
Existing Drainage Conditions

The site has been developed in the past and was the site of the Huning Castle. The site was occupied continuously throughout the early turn of the century but was demolished in the 1950's. The site has been generating runoff throughout its history and we propose to continue to free discharge from the site. There are no off-site flows entering the site. There are two existing basins on the site. Basin 1 has a runoff of 4.86 cfs and sheet flows north toward Laguna Blvd. Basin 2 has a runoff of 4.44 cfs and sheet flows east into 15th Street.

FEMA and Soil Conditions

The site is located on FEMA Map section 350002 panel 28 as shown on the attached excerpt. The map shows that the site does not lie within any 100 year flood plains.

The Brazito complex is the only soil type found on the site. This soil complex is a mixture of the Brazito silty clay loam and various other soils. The hazard of water erosion is slight, runoff is very slow, and the hazard of soil blowing is moderate.



FEMA Map 350002-0028

On-Site Drainage Management Plan

The site has been divided into three proposed drainage basins as shown on the Grading and Drainage Plan. Basin 1 has a runoff flow of 5.15 cfs; it will drain to the parking lot and then east through a 2 foot sidewalk culvert into 15th Street. Basin 2 has a runoff flow of 4.76 cfs. It will drain to the parking lot and then north into Laguna Blvd. Basin 3 will also drain to the parking lot with a runoff of 3.23 cfs and then northeast into Central Ave. There is an existing lift station located at Alcalde Street north of the Rio Grande Zoo as referenced from the City of Albuquerque As-Built information entitled Alcalde Storm Water Pumping Station and Collection System. The storm drain systems in Central, Laguna, and 15th Street will route the proposed runoff to this pump station.

These facilities were identified in the Albuquerque Master Drainage Study to remove the flooding in the area. The study used full build out conditions for the area and specifically this site. Under that study and with the improvements in place the site should be allowed to free discharge.

Summary

There are three proposed drainage basins on the site. Basin 1 has a proposed runoff of 5.15 cfs, Basin 2 has a proposed runoff of 4.76 cfs, and Basin 3 has a proposed runoff of 3.23 cfs. All the basins will free discharge the water into the nearby streets.

Runoff Calculations

RUNOFF CALCULATIONS

The site is @ Zone 2

LAND TREATMENT

D = 90 %

B = 10 %

DEPTH (INCHES) @ 100-YEAR STORM

$P_{60} = 2.01$ inches

$P_{360} = 2.35$ inches

$P_{1440} = 2.75$ inches

DEPTH (INCHES) @ 10-YEAR STORM

$P_{60} = 2.01 \times 0.667$
 $= 1.34$ inches

$P_{360} = 1.57$

$P_{1440} = 1.83$

See the summary output from AHYMO calculations.

Also see the following summary tables.

**Runoff
Summary Tables
for
Existing and Proposed
Drainage Basins**

DRAINAGE BASINS - EXISTING

SUB-BASIN	AREA (SF)	AREA (AC)	AREA (MI ²)
1	66782.4906	1.5331	0.002395
2	60962.76	1.3995	0.002187

DRAINAGE BASINS - PROPOSED

SUB-BASIN	AREA (SF)	AREA (AC)	AREA (MI ²)
1	47197.43	1.0835	0.001693
2	43485.47	0.9983	0.001560
3	26821.37	0.6157	0.000962

BASINS RUNOFF CALCULATION RESULTS - EXISTING

BASIN	Q-100 CFS	Q-10 CFS
1	4.86	2.64
2	4.44	2.41

BASINS RUNOFF CALCULATION RESULTS - PROPOSED

BASIN	Q-100 CFS	Q-10 CFS
A	5.15	3.33
B	4.76	3.08
C	3.23	2.09

SEE THE FOLLOWING SHEET FOR SAMPLE CALCULATION ON THE BASINS RUNOFF

Sidewalk Culvert Analysis

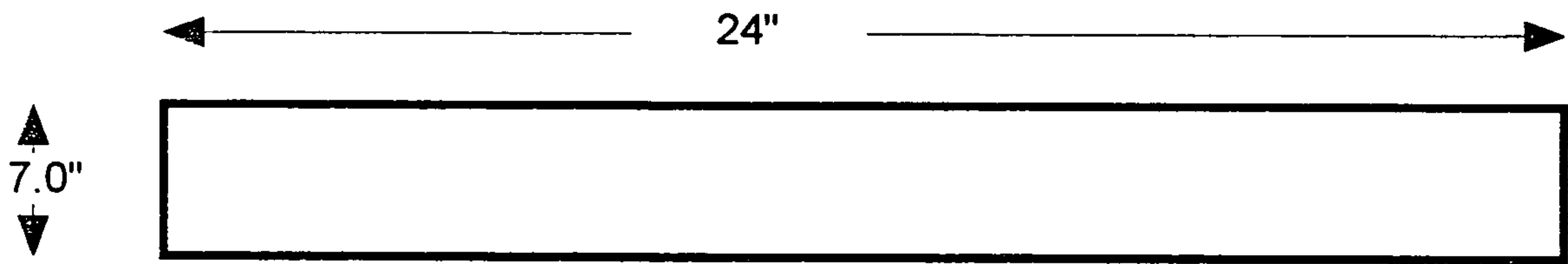
Sidewalk Culvert

Orifice Equation
$Q = CA \sqrt{2gH}$
C= 0.6
g= 32.2
H (ft)= ?
Q (cfs)= 5.15
Area (sf)= 1.166667

H= 0.840 Feet
= 10.086 Inches

= 10.086+3.5
= **13.58588**

Use 14" header curb around sidewalk culvert



AHYMO
Runoff Input
and
Summary Output

* THE CASTLE *

* 100-YEAR, 24-HR STORM (UNDER PROPOSED CONDITIONS) *

*

START TIME=0.0

*

* BASIN 1

*

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=2.01 IN RAIN SIX=2.35 IN
RAIN DAY=2.75 IN DT=0.02253 HR

COMPUTE NM HYD ID=1 HYD NO=100.1 AREA=0.001786 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

*

* BASIN 2

*

COMPUTE NM HYD ID=1 HYD NO=100.2 AREA=0.001650 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

*

* BASIN 3

*

COMPUTE NM HYD ID=1 HYD NO=100.3 AREA=0.001119 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

*

*

* 10-YEAR, 24-HR STORM (UNDER PROPOSED CONDITIONS) *

*

START TIME=0.0

*

* BASIN A

*

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.34 IN RAIN SIX=1.57 IN
RAIN DAY=1.83 IN DT=0.02253 HR

COMPUTE NM HYD ID=1 HYD NO=110.1 AREA=0.001786 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

*

* BASIN B

*

COMPUTE NM HYD ID=1 HYD NO=110.2 AREA=0.001650 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

*

* BASIN C

*

COMPUTE NM HYD ID=1 HYD NO=110.3 AREA=0.001119 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00

TP=-0.1333 HR MASS RAINFALL=-1
ID=1 CODE=1

PRINT HYD

*

*

FINISH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
START											TIME= .00
RAINFALL TYPE= 1											RAIN6= 2.350
COMPUTE NM HYD	100.10	-	1	.00179	5.15	.189	1.98166	1.510	4.501	PER IMP=	90.00
COMPUTE NM HYD	100.20	-	1	.00165	4.76	.174	1.98166	1.510	4.503	PER IMP=	90.00
COMPUTE NM HYD	100.30	-	1	.00112	3.23	.118	1.98166	1.510	4.511	PER IMP=	90.00
START											TIME= .00
RAINFALL TYPE= 1											RAIN6= 1.570
COMPUTE NM HYD	110.10	-	1	.00179	3.33	.117	1.23163	1.510	2.914	PER IMP=	90.00
COMPUTE NM HYD	110.20	-	1	.00165	3.08	.108	1.23164	1.510	2.915	PER IMP=	90.00
COMPUTE NM HYD	110.30	-	1	.00112	2.09	.074	1.23164	1.510	2.920	PER IMP=	90.00
FINISH											

 * THE CASTLE *

* 100-YEAR, 24-HR STORM (UNDER EXISTING CONDITIONS) *

START TIME=0.0

* BASIN 1

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
 RAIN ONE=2.01 IN RAIN SIX=2.35 IN
 RAIN DAY=2.75 IN DT=0.02253 HR
 COMPUTE NM HYD ID=1 HYD NO=100.1 AREA=0.002395 SQ MI
 PER A=0.00 PER B=0.00 PER C=100.00 PER D=0.00
 TP=-0.1333 HR MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1

* BASIN 2

COMPUTE NM HYD ID=1 HYD NO=100.2 AREA=0.002187 SQ MI
 PER A=0.00 PER B=0.00 PER C=100.00 PER D=0.00
 TP=-0.1333 HR MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1

 * 10-YEAR, 24-HR STORM (UNDER EXISTING CONDITIONS) *

START TIME=0.0

* BASIN 1

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
 RAIN ONE=1.34 IN RAIN SIX=1.57 IN
 RAIN DAY=1.83 IN DT=0.02253 HR
 COMPUTE NM HYD ID=1 HYD NO=110.1 AREA=0.002395 SQ MI
 PER A=0.00 PER B=0.00 PER C=100.00 PER D=0.00
 TP=-0.1333 HR MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1

* BASIN 2

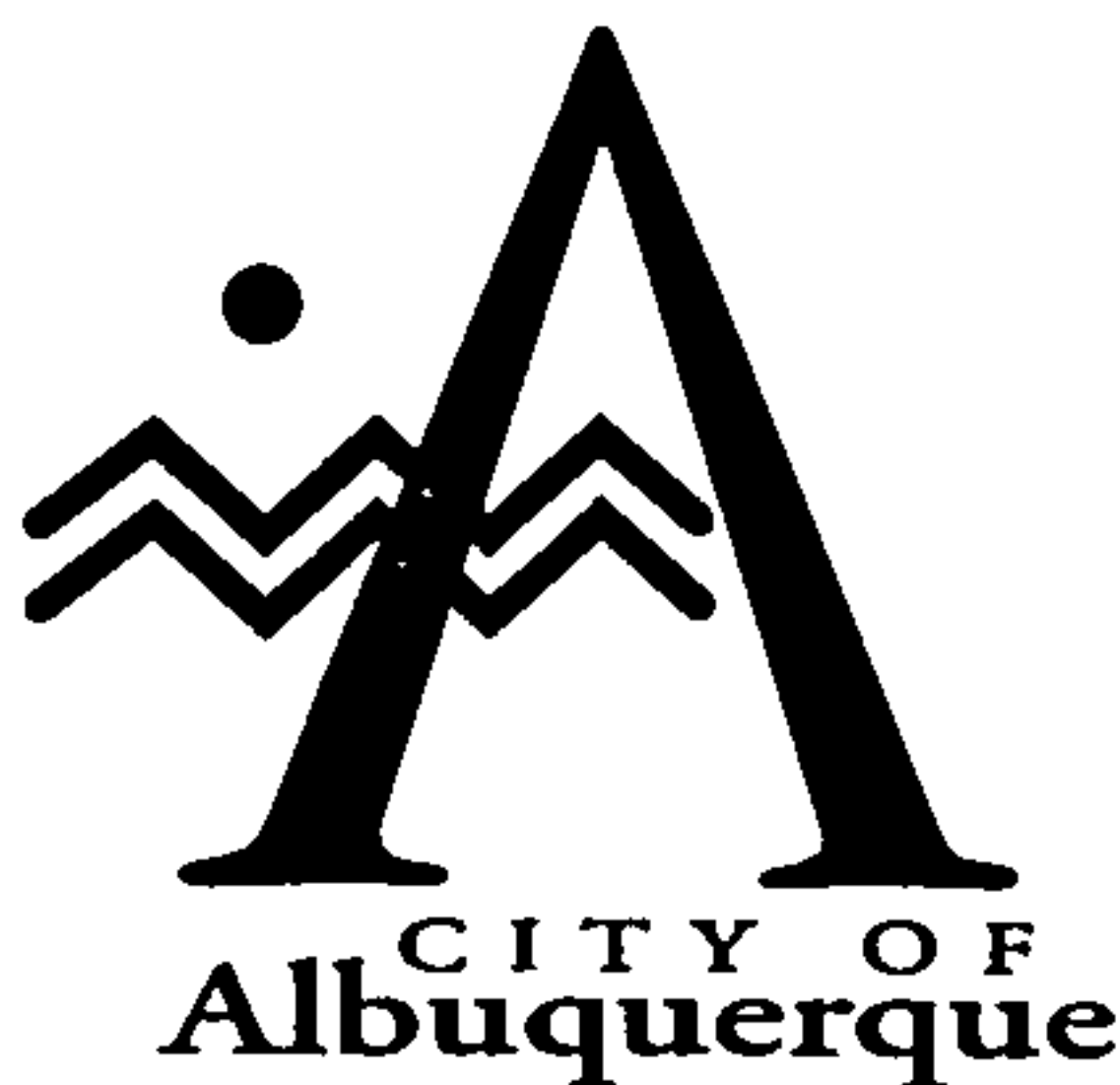
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 TP=-0.1333 HR MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1

FINISH

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 INPUT FILE = C:\9631\ERAIN.DAT

RUN DATE (MON/DAY/YR) =03/27/1996
 USER NO.= R_BOHANN.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
START											TIME= .00
RAINFALL TYPE= 1											RAIN6= 2.350
COMPUTE NM HYD	100.10	-	1	.00240	4.86	.144	1.12758	1.510	3.170		PER IMP= .00
COMPUTE NM HYD	100.20	-	1	.00219	4.44	.132	1.12758	1.510	3.171		PER IMP= .00
START											TIME= .00
RAINFALL TYPE= 1											RAIN6= 1.570
COMPUTE NM HYD	110.10	-	1	.00240	2.64	.065	.50956	1.510	1.723		PER IMP= .00
COMPUTE NM HYD	110.20	-	1	.00219	2.41	.059	.50956	1.510	1.724		PER IMP= .00
FINISH											



April 25, 1996

Martin J. Chávez, Mayor

Ron Bohannon
Tierra West Dev.
4421 McCleod Rd. NE
Suite D
Albuquerque, NM 87109

**RE: HUNING CASTLE (J13-D62) CONCEPTUAL GRADING AND DRAINAGE PLAN
FOR SITE DEVELOPMENT FOR SUBDIVISION APPROVAL. ENGINEER'S
STAMP DATED 2-29-96.**

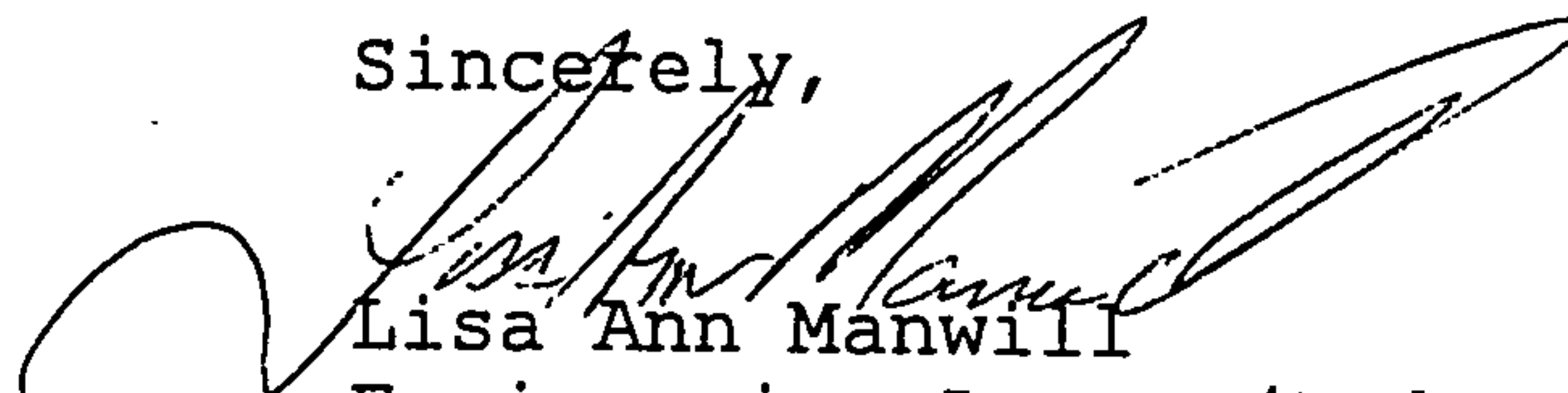
Dear Mr. Bohannon:

Based on the information provided on your April 1, 1996
submittal, City Hydrology has the following comments:

1. Is there downstream street capacity for all of your developed flow? Does any of your flow contribute to a storm drain system downstream? If so is there capacity in the system.
2. I realize the site is pretty flat, however, show existing contours.

If I can be of further assistance, please feel free to contact me at 768-3622.

Sincerely,



Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Andrew Garcia
File



DRAINAGE INFORMATION SHEET

PROJECT TITLE: HUNING CASTLE APARTMENTS ZONE ATLAS/DRNG. FILE #: J-13/462

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: LOTS 1,8, AND 9 IN BLOCK 1 IN HUNING CASTLE ADDITION

CITY ADDRESS: CENTRAL AVE BETWEEN LAGUNA AND 15TH STREET

ENGINEERING FIRM: TIERRA WEST DEV. MAGT. SER. CONTACT: RONALD R. BOHANNAN OR SHAHAB BIAZAR

ADDRESS: 4421 McCleod Rd. NE Suite D, 87109 PHONE: (505) 883-7592

OWNER: Cauwels Construction and Development Inc. CONTACT: PAUL S. CAUWELS

ADDRESS: 1116 PENNSYLVANIA NE PHONE: (505) 266-5711

ARCHITECT: Paul T. Bergner, AIA, Architect, PC CONTACT: PAUL T. BERGNER

ADDRESS: 3201 S. TAMARAC DRIVE, STE 101, DENVER, CO 80231 PHONE: (303) 750-4211

SURVEYOR: Southwest Surveying Co., Inc. CONTACT: FRANK WILSON

ADDRESS: 333 LOMAS BLVD, ALB. 87102 PHONE: (505) 247-4444

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

_____ DRAINAGE REPORT

X DRAINAGE PLAN

X CONCEPTUAL GRADING & DRAINAGE PLAN

_____ GRADING PLAN

_____ EROSION CONTROL PLAN

_____ ENGINEER'S CERTIFICATION

_____ OTHER

PRE-DESIGN MEETING:

_____ YES

X NO

_____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

_____ SKETCH PLAN APPROVAL

_____ PRELIMINARY PLAT APPROVAL

_____ S. DEV. PLAN FOR SUB'D. APPROVAL

X S. DEV. PLAN FOR BLDG. PERMIT APPROVAL

_____ SECTOR PLAN APPROVAL

_____ FINAL PLAT APPROVAL

_____ FOUNDATION PERMIT APPROVAL

_____ BUILDING PERMIT APPROVAL

_____ CERTIFICATE OF OCCUPANCY APPROVAL

_____ GRADING PERMIT APPROVAL

_____ PAVING PERMIT APPROVAL

_____ S. A. D. DRAINAGE REPORT

_____ DRAINAGE REQUIREMENTS

_____ OTHER

DATE SUBMITTED: 3/29/96

BY: SARA McCOLLAM

DRAINAGE REPORT

for

Huning Castle Apartments

Prepared by

Tierra West Development Management Sevices
4421 McLeod Road NE, Suite D
Albuquerque, New Mexico 87109

Prepared for

Paul Cauwels
Cauwels Construction and Development, Inc.
1116 Pennsylvania, NE
Albuquerque, New Mexico 87110

March 1996


Ronald R. Bohannon P.E.

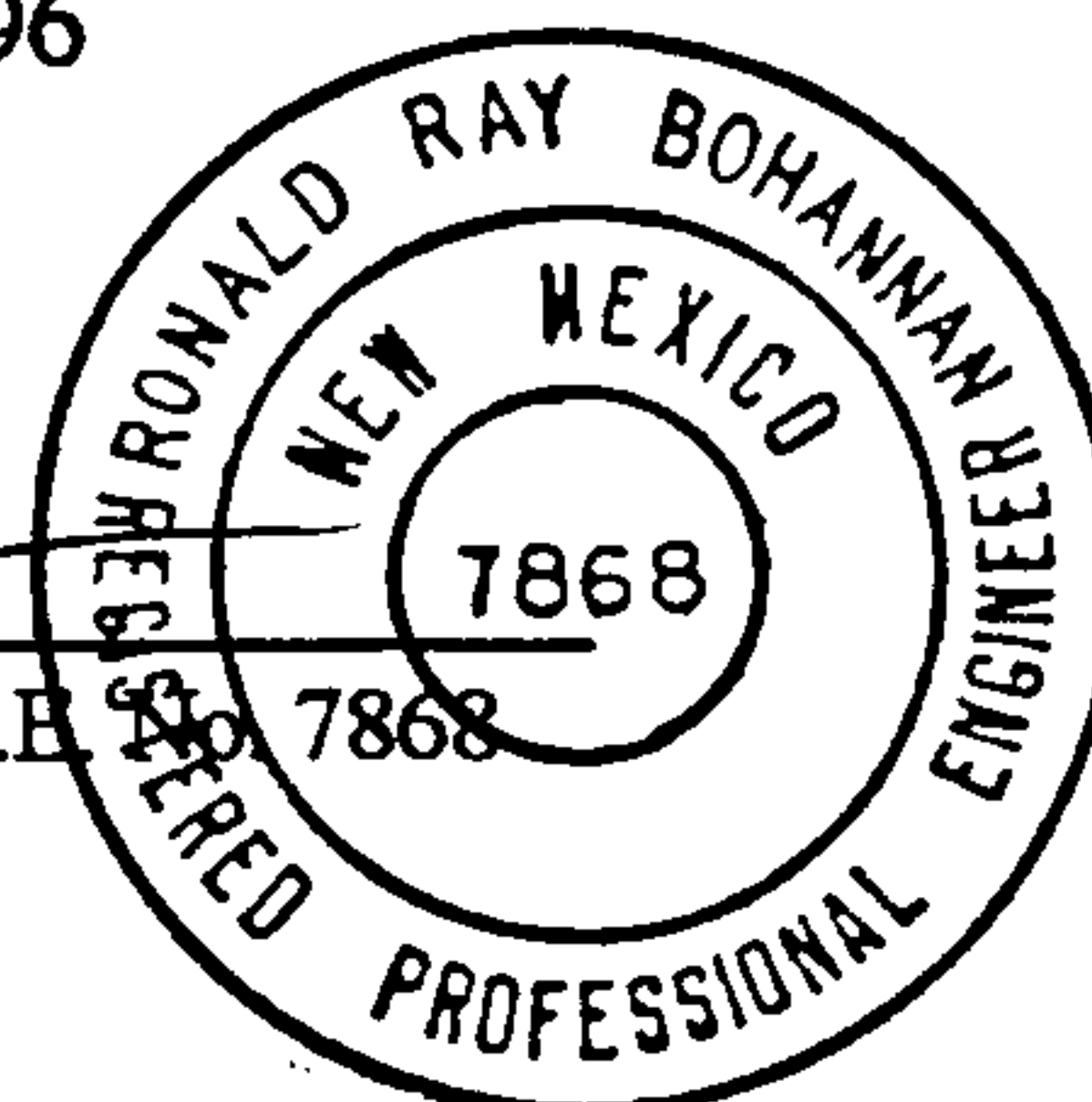
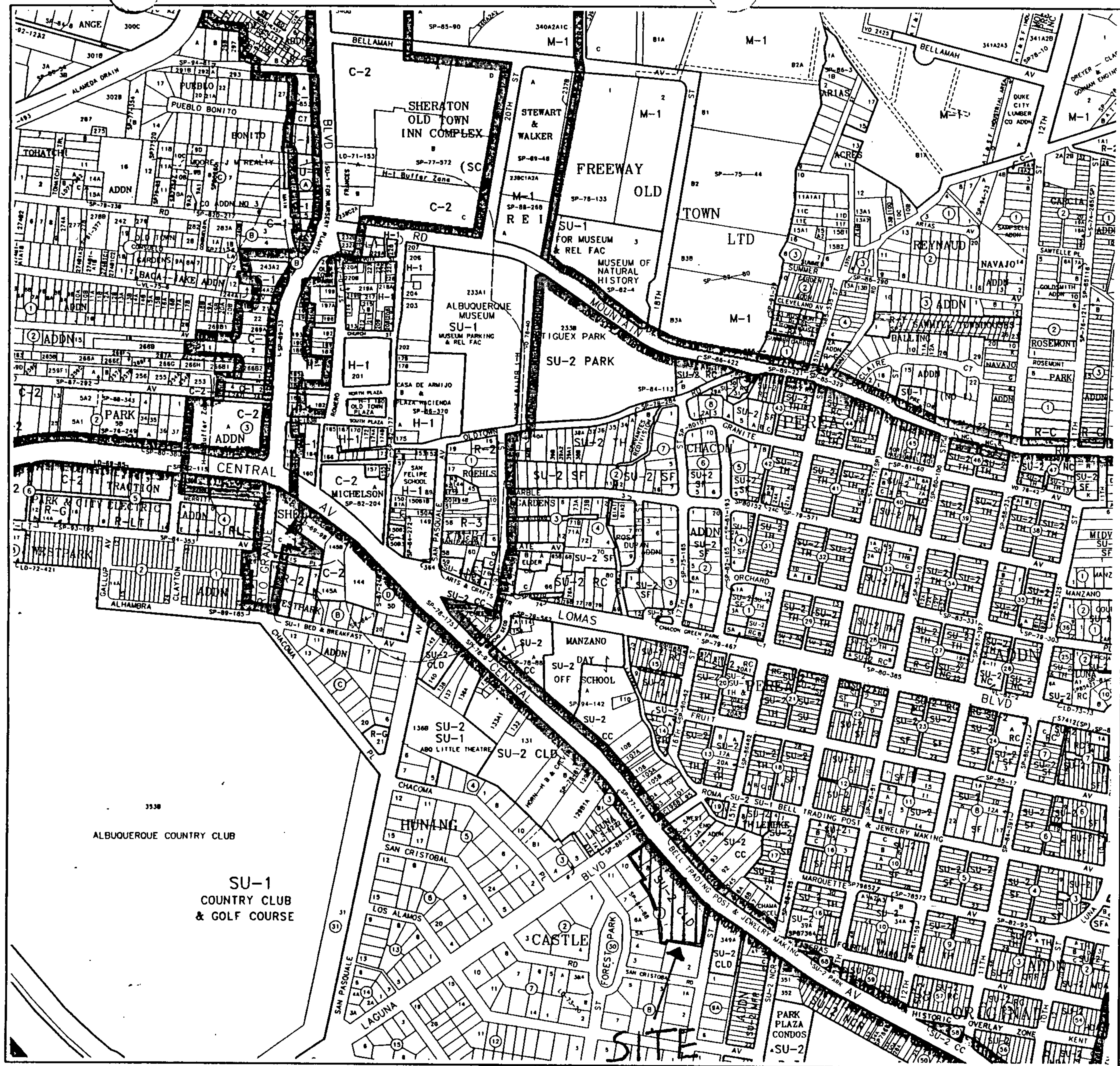


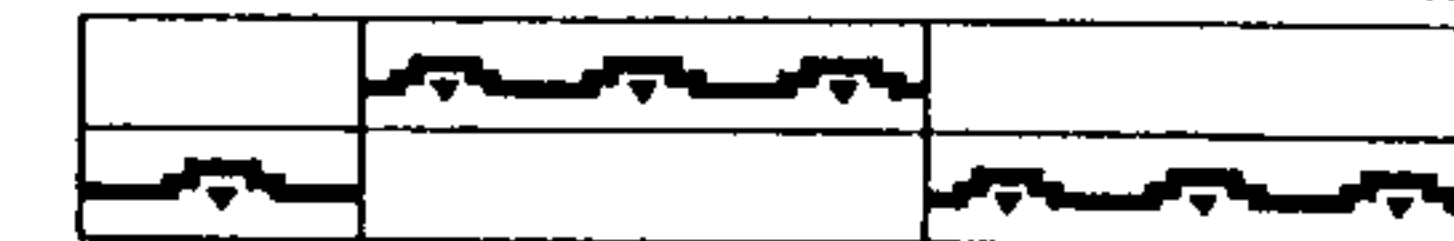
TABLE OF CONTENTS

Zone Atlas Map J-13	1
Location and Location Map	2
Existing Drainage Conditions	2
FEMA and Soil Conditions	2
FEMA Map 350002-0028	3
On-Site Drainage Management Plan	4
Summary	4
Runoff Calculations	5
Runoff Summary Tables for Existing and Proposed Drainage Basins	7
AHYMO Input and Summary Output	9



SCALE IN FEET

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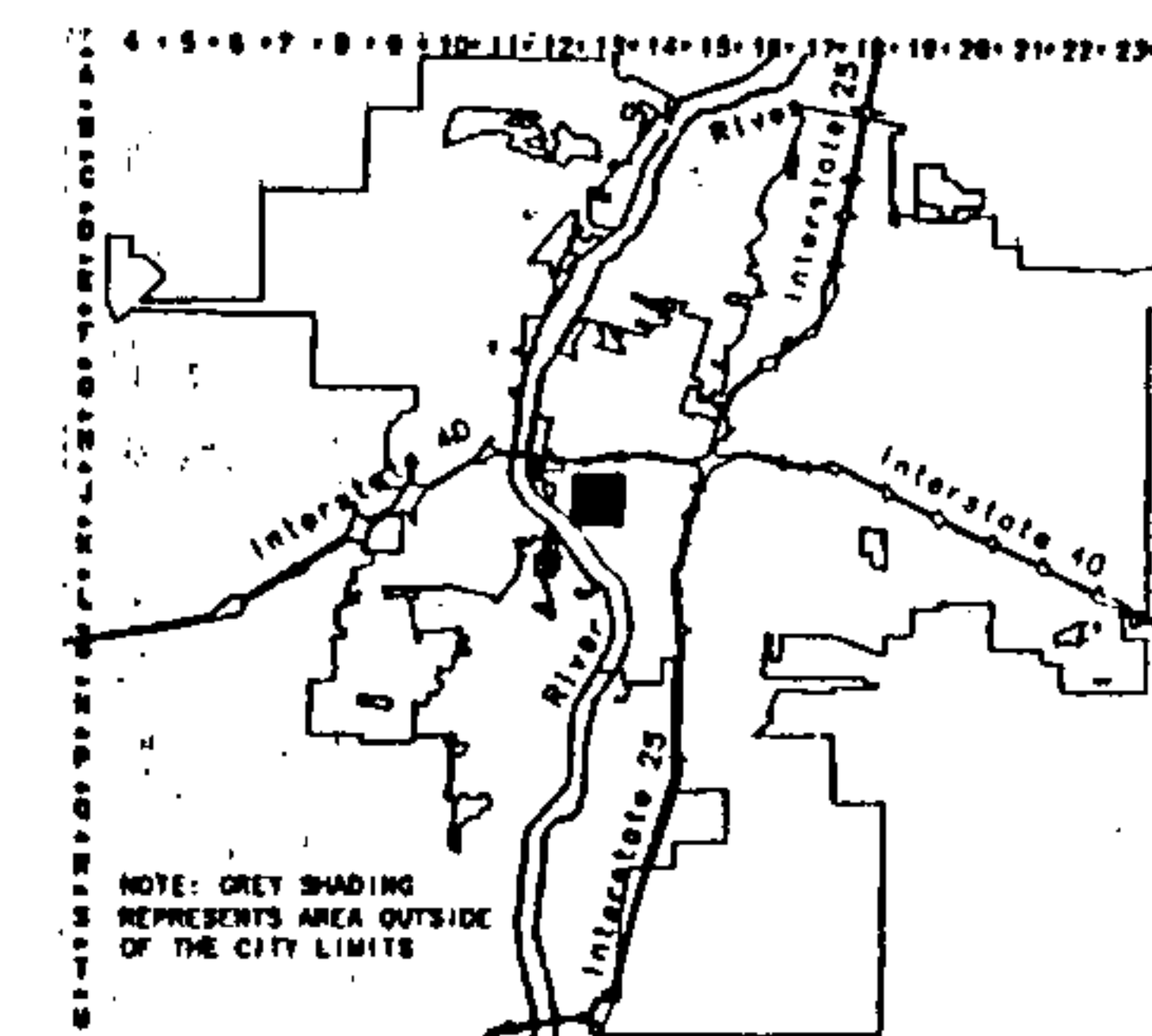


PHOTOCOPY--NOT TO SCALE



Albuquerque Geographic Information System
City of Albuquerque

© Planning Department
Map Amended through August 17, 1994



NOTE: GREY SHADING
REPRESENTS AREA OUTSIDE
OF THE CITY LIMITS

LEGAL DESCRIPTION

T10N
R3E
SEC 18

UNIFORM PROPERTY CODE
1-018-068

J-13-Z

Location and Location Map

Huning Castle Apartments is a proposed 75 unit three story apartment complex. The site is identified as lots 1,8, and 9 in block 1 in the Huning Castle Addition. It is located south of Central Ave between Laguna Blvd and 15th Street. The site is shown on the highlighted attached Zone Atlas Map J-13 and contains approximately 2.9 acres. The purpose of this report is to provide the drainage analysis and management plan for the site.

Existing Drainage Conditions

The site has been developed in the past and was the site of the Huning Castle. The site was occupied continuously throughout the early turn of the century but was demolished in the 1950's. The site has been generating runoff throughout its history and we propose to continue to free discharge from the site. There are no off-site flows entering the site. There are two existing basins on the site. Basin 1 has a runoff of 4.86 cfs and sheet flows north toward Laguna Blvd. Basin 2 has a runoff of 4.44 cfs and sheet flows east into 15th Street.

FEMA and Soil Conditions

The site is located on FEMA Map section 350002 panel 28 as shown on the attached excerpt. The map shows that the site does not lie within any 100 year flood plains.

The Brazito complex is the only soil type found on the site. This soil complex is a mixture of the Brazito silty clay loam and various other soils. The hazard of water erosion is slight, runoff is very slow, and the hazard of soil blowing is moderate.



On-Site Drainage Management Plan

The site has been divided into three proposed drainage basins as shown on the Grading and Drainage Plan. Basin 1 has a runoff flow of 5.15 cfs; it will drain to the parking lot and then east into 15th Street. Basin 2 has a runoff flow of 4.76 cfs. It will drain to the parking lot and then north into Laguna Blvd. Basin 3 will also drain to the parking lot with a runoff of 3.23 cfs and then northeast into Central Ave.

Summary

There are three proposed drainage basins on the site. Basin 1 has a proposed runoff of 5.15 cfs, Basin 2 has a proposed runoff of 4.76 cfs, and Basin 3 has a proposed runoff of 3.23 cfs. All the basins will free discharge the water into the nearby streets.

Runoff Calculations

RUNOFF CALCULATIONS

The site is @ Zone 2

LAND TREATMENT

D = 90 %

B = 10 %

DEPTH (INCHES) @ 100-YEAR STORM

$P_{60} = 2.01$ inches

$P_{360} = 2.35$ inches

$P_{1440} = 2.75$ inches

DEPTH (INCHES) @ 10-YEAR STORM

$P_{60} = 2.01 \times 0.667$
 $= 1.34$ inches

$P_{360} = 1.57$

$P_{1440} = 1.83$

See the summary output from AHYMO calculations.

Also see the following summary tables.

**Runoff
Summary Tables
for
Existing and Proposed
Drainage Basins**

DRAINAGE BASINS - EXISTING

SUB-BASIN	AREA (SF)	AREA (AC)	AREA (MI ²)
1	66782.4906	1.5331	0.002395
2	60962.76	1.3995	0.002187

DRAINAGE BASINS - PROPOSED

SUB-BASIN	AREA (SF)	AREA (AC)	AREA (MI ²)
1	47197.43	1.0835	0.001693
2	43485.47	0.9983	0.001560
3	26821.37	0.6157	0.000962

BASINS RUNOFF CALCULATION RESULTS - EXISTING

BASIN	Q-100 CFS	Q-10 CFS
1	4.86	2.64
2	4.44	2.41

BASINS RUNOFF CALCULATION RESULTS - PROPOSED

BASIN	Q-100 CFS	Q-10 CFS
A	5.15	3.33
B	4.76	3.08
C	3.23	2.09

SEE THE FOLLOWING SHEET FOR SAMPLE CALCULATION ON THE BASINS RUNOFF

AHYMO
Runoff Input
and
Summary Output

THE CASTLE

100-YEAR, 24-HR STORM (UNDER PROPOSED CONDITIONS)

START TIME=0.0

* BASIN 1

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=2.01 IN RAIN SIX=2.35 IN
RAIN DAY=2.75 IN DT=0.02253 HR
COMPUTE NM HYD ID=1 HYD NO=100.1 AREA=0.001786 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

* BASIN 2

COMPUTE NM HYD ID=1 HYD NO=100.2 AREA=0.001650 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

* BASIN 3

COMPUTE NM HYD ID=1 HYD NO=100.3 AREA=0.001119 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

10-YEAR, 24-HR STORM (UNDER PROPOSED CONDITIONS)

START TIME=0.0

* BASIN A

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.34 IN RAIN SIX=1.57 IN
RAIN DAY=1.83 IN DT=0.02253 HR
COMPUTE NM HYD ID=1 HYD NO=110.1 AREA=0.001786 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

* BASIN B

COMPUTE NM HYD ID=1 HYD NO=110.2 AREA=0.001650 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

* BASIN C

COMPUTE NM HYD ID=1 HYD NO=110.3 AREA=0.001119 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00

TP=-0.1333 HR MASS RAINFALL=-1
ID=1 CODE=1

PRINT HYD
*
*
FINISH

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
INPUT FILE = C:\9631\PRAIN.DAT

RUN DATE (MON/DAY/YR) =03/27/1996
USER NO.= R_BOHANN.101

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.350
COMPUTE NM HYD	100.10	-	1	.00179	5.15	.189	1.98166	1.510	4.501	PER IMP= 90.00
COMPUTE NM HYD	100.20	-	1	.00165	4.76	.174	1.98166	1.510	4.503	PER IMP= 90.00
COMPUTE NM HYD	100.30	-	1	.00112	3.23	.118	1.98166	1.510	4.511	PER IMP= 90.00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.570
COMPUTE NM HYD	110.10	-	1	.00179	3.33	.117	1.23163	1.510	2.914	PER IMP= 90.00
COMPUTE NM HYD	110.20	-	1	.00165	3.08	.108	1.23164	1.510	2.915	PER IMP= 90.00
COMPUTE NM HYD	110.30	-	1	.00112	2.09	.074	1.23164	1.510	2.920	PER IMP= 90.00
FINISH										

* THE CASTLE *

* 100-YEAR, 24-HR STORM (UNDER EXISTING CONDITIONS) *

*

START TIME=0.0

*

* BASIN 1

*

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=2.01 IN RAIN SIX=2.35 IN
RAIN DAY=2.75 IN DT=0.02253 HR

COMPUTE NM HYD ID=1 HYD NO=100.1 AREA=0.002395 SQ MI
PER A=0.00 PER B=0.00 PER C=100.00 PER D=0.00
TP=-0.1333 HR MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

*

* BASIN 2

*

COMPUTE NM HYD ID=1 HYD NO=100.2 AREA=0.002187 SQ MI
PER A=0.00 PER B=0.00 PER C=100.00 PER D=0.00
TP=-0.1333 HR MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

*

*

* 10-YEAR, 24-HR STORM (UNDER EXISTING CONDITIONS) *

*

START TIME=0.0

*

* BASIN 1

*

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.34 IN RAIN SIX=1.57 IN
RAIN DAY=1.83 IN DT=0.02253 HR

COMPUTE NM HYD ID=1 HYD NO=110.1 AREA=0.002395 SQ MI
PER A=0.00 PER B=0.00 PER C=100.00 PER D=0.00
TP=-0.1333 HR MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

*

* BASIN 2

*

COMPUTE NM HYD ID=1 HYD NO=110.2 AREA=0.002187 SQ MI
PER A=0.00 PER B=0.00 PER C=100.00 PER D=0.00
TP=-0.1333 HR MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

*

*

FINISH

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
INPUT FILE = C:\9631\ERAIN.DAT

RUN DATE (MON/DAY/YR) =03/27/1996
USER NO.= R_BOHANN.101

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.350
COMPUTE NM HYD	100.10	-	1	.00240	4.86	.144	1.12758	1.510	3.170	PER IMP= .00
COMPUTE NM HYD	100.20	-	1	.00219	4.44	.132	1.12758	1.510	3.171	PER IMP= .00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.570
COMPUTE NM HYD	110.10	-	1	.00240	2.64	.065	.50956	1.510	1.723	PER IMP= .00
COMPUTE NM HYD	110.20	-	1	.00219	2.41	.059	.50956	1.510	1.724	PER IMP= .00
FINISH										