CITY OF ALBUQUERQUE

March 27, 2006

Mr. John MacKenzie, PE
MARK GOODWIN & ASSOCIATES
P.O. Box 90606
Albuquerque, NM 87199

RE: TORRETTA ESTE SUBDIVISION (L-9/D37)
Engineers Certification for Release of Financial Guaranty
Engineers Stamp dated 12/16/2004
Engineers Certification dated 03/27/2006

Dear John:

Based upon the information provided in your Engineer's Certification Submittal dated 03/28/2006, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty.

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

Sincerely,

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

C: Marilyn Maldonado, COA #754081
File

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: Torretta Este Subdivision
DRB #: ___ EPC#: _____

ZONE MAP/DRG. FILE #: L-9 / D37
WORK ORDER#: 754081

LEGAL DESCRIPTION: _____
CITY ADDRESS: _____

ENGINEERING FIRM: Mark Goodwin & Associates, PA
ADDRESS: PO Box 90606
CITY, STATE: Albuquerque, NM

CONTACT: Scott Davis
PHONE: 828-2200
ZIP CODE: 87199

OWNER: STV Investments VIII, LLC
ADDRESS: 1015 Tijeras NW, Suite 210
CITY, STATE: Alb, NM

CONTACT: Karl Smith
PHONE: 338-2286
ZIP CODE: 87102

ARCHITECT: N/A
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE:
ZIP CODE: _____

SURVEYOR: Aldrich Land Survey
ADDRESS: _____
CITY, STATE: _____

CONTACT: Tim Aldrich
PHONE: _____
ZIP CODE: _____

CONTRACTOR: N/A
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 / 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

RECEIVED
MAR 28 2006
HYDROLOGY SECTION

DATE SUBMITTED: 3/28/06 BY: Scott Davis

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature , location and scope ot 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.

MARK GOODWIN & ASSOCIATES, PA

LETTER OF TRANSMITTAL

TO: One Stop
Plaza del Sol

DATE: 3/28/06

RE: Torretta Este

ITEMS BEING TRANSMITTED

1	Engineer's Grading Certification

☒ FOR YOUR REVIEW

☐ AS YOU REQUESTED

☐ FOR YOUR RECORDS

☐ FOR YOUR COMMENTS

RECEIVED
MAR 28 2006
HYDROLOGY SECTION

PROJECT ENGINEER: Scott Davis

Scott Davis

P.O. Box 90606 ♦ Albuquerque, NM 87199 ♦ (505) 828-2200 ♦ (505) 797-9539 fax

CITY OF ALBUQUERQUE

February 2, 2005

John MacKenzie, P.E.
Mark Goodwin & Associates, PA
P.O. Box 90606
Albuquerque, NM 87199

Re: Torretta Este Subdivision, Preliminary Plat
Engineer's Stamp dated 12-16-04 (L9-D37)

Dear Mr. MacKenzie,

Based upon the information provided in your submittal received 12-17-04, the above referenced plan is approved for Preliminary Plat action by the DRB. Once the DRB has approved the plan, please submit a mylar copy to me in order to obtain rough grading approval.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. If you have any questions regarding this permit please feel free to call the DMD Storm Drainage Design section at 768-3654 (Charles Caruso).

If you have any questions, you can contact me at 924-3981.

Sincerely,

Kristal D. Metro
Engineering Associate, Planning Dept.
Development and Building Services

C: Charles Caruso, DMD Storm Drainage Design
Bradley Bingham, DRB
file

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

DRAINAGE INFORMATION SHEET
(REV. 1/28/2003rd)

PROJECT TITLE: Torretta Este ZONE MAP/DRG #: 29/037

DRB#: _____ EPC #: _____ W.O.#: _____

LEGAL DESCRIPTION: _____

CITY ADDRESS: _____

ENGINEERING FIRM:	Mark Goodwin & Associates, PA	CONTACT:	Scott Davis
ADDRESS:	PO Box 90606	PHONE:	828-2200
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87199
OWNER:	STV Investments	CONTACT:	Tim McNancy
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
ARCHITECT:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:	Aldrich Land Surveying	CONTACT:	Tim Aldirch
ADDRESS:	P.O. Box 30701	PHONE:	884-1990
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87190-0701
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

CHECK TYPE OF SUBMITTAL:

- ___ DRAINAGE REPORT
- ___ DRAINAGE PLAN 1ST SUBMITTAL, req. TCL or equal
- ___ DRAINAGE PLAN RESUBMITTAL
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN (Revised)
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ___ CLOMR/LOMR
- ___ TRAFFIC CIRCULATION LAYOUT (TCL)
- ___ ENGINEER'S CERTIFICATION (TCL)
- ___ ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN)
- ___ OTHER

Resub

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SIA / FINANCIAL GUARANTEE RELEASE
- X 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)
- X GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ WORK ORDER APPROVAL
- ___ OTHER (specify) _____

RECEIVED
DEC 17 2004
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED?

- ___ YES
- X NO
- ___ COPY PROVIDED

DATE SUBMITTED: 12-16-04 BY: _____

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.

16 December, 2004

Brad Bingham
P.O. Box 1293
Albuquerque, NM 87103

Re: (L9/D37) Torretta Este

Dear Mr. Bingham:

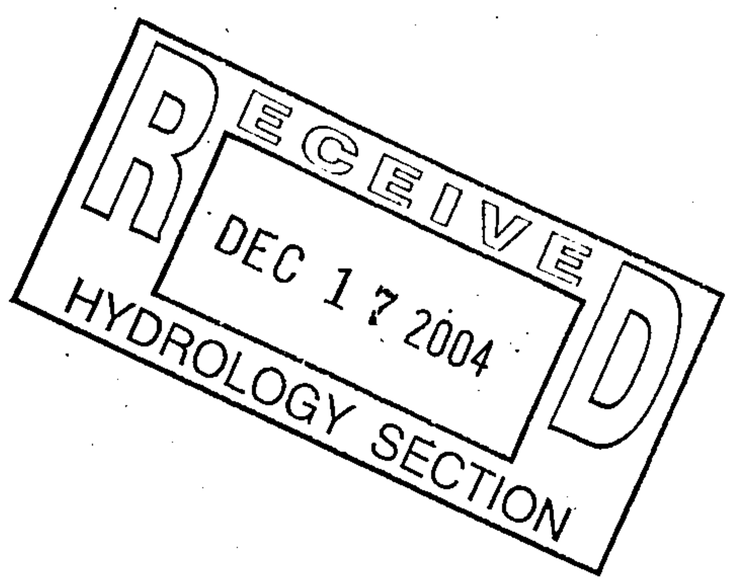
The above referenced project was originally approved by your office (letter dated September 13, 2004). Please find attached a revised grade & drain plan for your review and approval. The only change in the plan from what was already approved is that Tunnabora Ave. now extends into the site from the west, and the stub street shown along the east side has been removed. These changes were requested by Wilfred Gallegos, and do not impact the drainage management plan as previously presented.

If you have any questions, feel free to call.

Sincerely,

D. MARK GOODWING & ASSOC., PA

Scott Davis
Project Engineer



CITY OF ALBUQUERQUE

September 13, 2004

John MacKenzie PE
Mark Goodwin & Associates
P.O. Box 90606
Albuquerque, NM 87199

Re: Torretta Este Subdivision Drainage Report
Engineer stamp dated 8-23-04 (L9/D37)

Dear Mr. MacKenzie,

Based on information contained in your submittal dated 8-25-04, the above referenced report is approved for Preliminary Plat action by the DRB. Once that board approves the plan, please submit a mylar copy for my signature in order to obtain a Rough Grading Permit.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. Refer to the attachment that is provided with this letter for details. If you have any questions please feel free to call the Municipal Development Department, Hydrology section at 768-3654 (Charles Caruso).

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

Sincerely,

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

C: file

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

L-9/D37

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: Torretta Este ZONE MAP/DRG. FILE #: L9-D37
DRB #: _____ EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: _____
CITY ADDRESS: _____

ENGINEERING FIRM: Mark Goodwin & Assoc. CONTACT: Scott Davis
ADDRESS: _____ PHONE: 828-2200
CITY, STATE: _____ ZIP CODE: _____

OWNER: STV Investments, LLC CONTACT: Tim McNaney
ADDRESS: _____ PHONE: 338-2286
CITY, STATE: _____ ZIP CODE: _____

ARCHITECT: N/A CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: N/A CONTACT: _____
ADDRESS _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: N/A CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:

____ DRAINAGE REPORT
____ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
__X__ 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)
__X__ ~~OTHER~~ Revised Grading Plan

CHECK TYPE OF APPROVAL SOUGHT:

____ SIA / FINANCIAL GUARANTEE RELEASE
__X__ 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)

RECEIVED
AUG 25 2004
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:

____ YES
__X__ NO
____ COPY PROVIDED

DATE SUBMITTED: 8-25-04 BY: Scott Davis

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature , location and scope ot 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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D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE,NM 87199
(505) 828-2200 FAX 797-9539

25 August, 2004

Mr. Bradley Bingham
Principal Engineer, Planning Dept.
P.O. Box 1293
Albuquerque, NM 87103

Re: Torretta Este Subdivision (L9-D37)

Dear Mr. Bingham:

Please find enclosed a revised grading & drainage plan for the referenced project. The plan has been revised per your comments provided in a 8-13-04 letter to this office (copy of letter enclosed). I hope that your office finds the updated plan acceptable and approval can be obtained.

If you have any further questions, feel free to call.

Sincerely,

D. MARK GOODWIN & ASSOCIATES, P.A.

Scott Davis
Project Engineer

CITY OF ALBUQUERQUE

THREE HUNDRED YEARS 1706 • 2006 ALBUQUERQUE Making History

August 13, 2004

John MacKenzie, P.E.
Mark Goodwin & Associates, PA
P.O. Box 90606
Albuquerque, NM 87199

Re: Torretta Este Subdivision, Preliminary Plat
Engineer's Stamp dated 7-20-04 (L9-D37)

Dear Mr. MacKenzie,

Based upon the information provided in your submittal received 7-20-04, the above referenced plan cannot be approved for Preliminary Plat until the following comments are addressed:

1. Show all proposed retaining walls, including top of wall and bottom of wall elevations.
2. The City GIS software shows a 72" storm drain located along Tower Road, and a 48" storm drain along San Ygnacio Road. Please check the as-builts to verify this data, and show the storm drain in these areas.
3. Some of the spot elevations are left blank; please provide these elevations.

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

Sincerely,

Bradley L. Bingham

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

C: file

RECEIVED
AUG 25 2004
HYDROLOGY SECTION

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

CITY OF ALBUQUERQUE

August 13, 2004

John MacKenzie, P.E.
Mark Goodwin & Associates, PA
P.O. Box 90606
Albuquerque, NM 87199

Re: Torretta Este Subdivision, Preliminary Plat
Engineer's Stamp dated 7-20-04 (L9-D37)

Dear Mr. MacKenzie,

Based upon the information provided in your submittal received 7-20-04, the above referenced plan cannot be approved for Preliminary Plat until the following comments are addressed:

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3. Some of the spot elevations are left blank; please provide these elevations.

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

Sincerely,

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

C: file

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

DRAINAGE INFORMATION SHEET
(REV. 1/28/2003rd)

PROJECT TITLE: Torretta Este — ZONE MAP/DRG #: L-9 / D037

DRB#: — EPC #: — W.O.#: —

LEGAL DESCRIPTION: TRACT 431, TOWN OF ATRISCO GRANT, UNIT 3, SECT 28 TOWNSHIP 10 NORTH RANGE 2 EAST

CITY ADDRESS:

ENGINEERING FIRM:	Mark Goodwin & Associates, PA	CONTACT:	Scott Davis
ADDRESS:	PO Box 90606	PHONE:	828-2200
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87199
OWNER:	T.S. McNaney	CONTACT:	Tim McNaney
ADDRESS:	6400 Uptown, Ste 510	PHONE:	975-1154
CITY, STATE:	Albuq., NM 87110	ZIP CODE:	87110
ARCHITECT:	—	CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:	Aldrich Land Surveying	CONTACT:	Tim Aldirch
ADDRESS:	P.O. Box 30701	PHONE:	884-1990
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87190-0701
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

CHECK TYPE OF SUBMITTAL:

- X DRAINAGE REPORT
- ___ DRAINAGE PLAN 1ST SUBMITTAL, req. TCL or equal
- ___ DRAINAGE PLAN RESUBMITTAL
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ___ CLOMR/LOMR
- ___ TRAFFIC CIRCULATION LAYOUT (TCL)
- ___ ENGINEER'S CERTIFICATION (TCL)
- ___ ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN)
- ___ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SIA / FINANCIAL GUARANTEE RELEASE
- X 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)
- X GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ WORK ORDER APPROVAL
- ___ OTHER (specify)

WAS A PRE-DESIGN CONFERENCE ATTENDED?

- ___ YES
- X NO
- ___ COPY PROVIDED

RECEIVED
JUL 20 2004
HYDROLOGY SECTION

DATE SUBMITTED: 7-20-04 BY:

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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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
TORRETTA ESTE

Prepared for

STV Investments, LLC
1015 Tijeras NW, Suite 210
Albuquerque, NM 87102
(505) 338-2286

Prepared by

Mark Goodwin & Associates, PA
PO Box 90606
Albuquerque, NM 87199
(505) 828-2200

July 2004

TABLE OF CONTENTS

PROJECT DESCRIPTION

As seen on the Vicinity Map provided in Figure 1, the proposed Torretta Este subdivision is located on Albuquerque's west side. The site encompasses 5.10 acres between San Ygnacio Road and Tower Road, west of 86th Street. A 45 lot single-family residential development is planned at a density of approximately 9DU per acre.

DRAINAGE DESIGN CRITERIA

Existing and proposed site hydrological conditions were analyzed for the 100-year, 6-hour storm event. Design criteria used was in accordance with Section 22.2, Hydrology, of the Development Process Manual (DPM), Volume 2, Design Criteria, January 1993 Edition. Manning's Equation was used in determining street capacities. AHYMO printouts are provided in Appendix D.

The Tower/Sage Drainage Master Plan by Andrews, Asbury & Roberts (AAR) was referenced to help determine downstream street and storm drain capacities.

EXISTING DRAINAGE CONDITIONS

As a part of the SAD 222 project, full section street improvements were completed downstream of this site on San Ygnacio Road, Tower Road, and 86th Street. Accompanying those improvements, adjacent and downstream of this site there now exists a ~~42"~~ 48" storm drain in San Ygnacio Road, a ~~60"~~ 72" storm drain in Tower Road, and a 36" storm drain in 86th Street. All three systems either combine flows or outfall directly into a detention facility located east of 86th Street between Tower Road and San Ygnacio Road.

The Torretta Este site is currently undeveloped in it's natural state except for several dilapidated buildings located at the north end adjacent to Tower Road. The site slopes from west to east at grades averaging 1-2%.

With an existing subdivision immediately west of this site, and with curb and gutter existing on San Ygnacio Road and Tower Road, no off-site floodwaters currently impact this site. This site is not located within a FEMA designated 100-year floodplain.

DEVELOPED DRAINAGE CONDITIONS

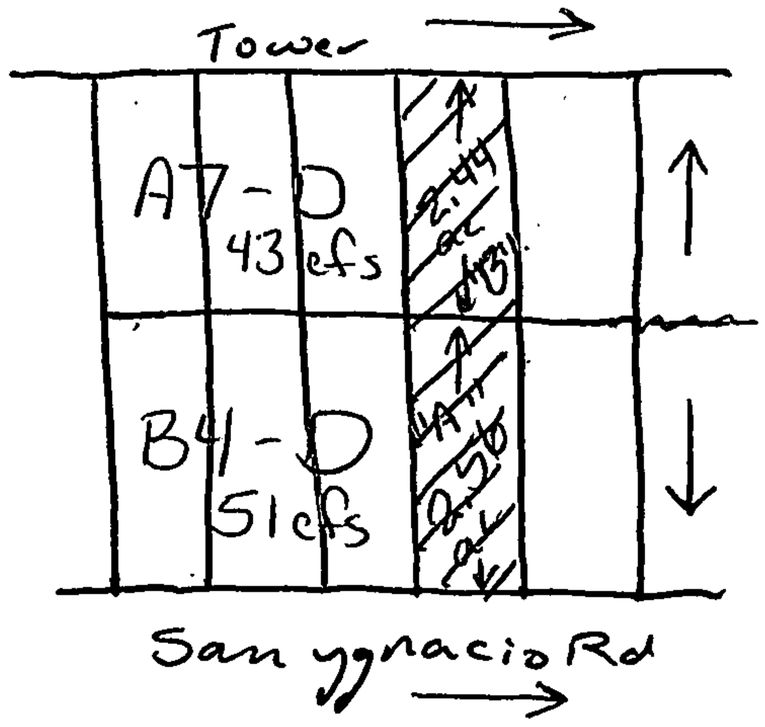
As indicated on the Grading and Drainage Plan located at the back of this report, the proposed drainage management plan calls for two distinct developed drainage basins. Basin A, containing 2.56 acres, will surface discharge 9.11 cfs, 100-year, 6-hour event, north to Tower Road. A Double 'C' drop inlet is located along the south curb of Tower Road just downstream of the site at the southwest quadrant of Tower Road

& 86th Street Any flood waters bypassing this inlet will continue east in Tower to be intercepted by additional Double 'C' inlets located east of the 86th Street intersection.

The second developed drainage basin, designated as Basin B, contains 2.44 acres. Flows from Basin B, estimated at 8.71 cfs, will surface discharge to the south to San Ygnacio Road. Two existing Double 'C' drop inlets are currently located along the north side of San Ygnacio just downstream of this site at the northwest quadrant of San Ygnacio & 86th Street. Similar to Tower Road, any flows bypassing these inlets will be intercepted by additional inlets in San Ygnacio east of 86th Street.

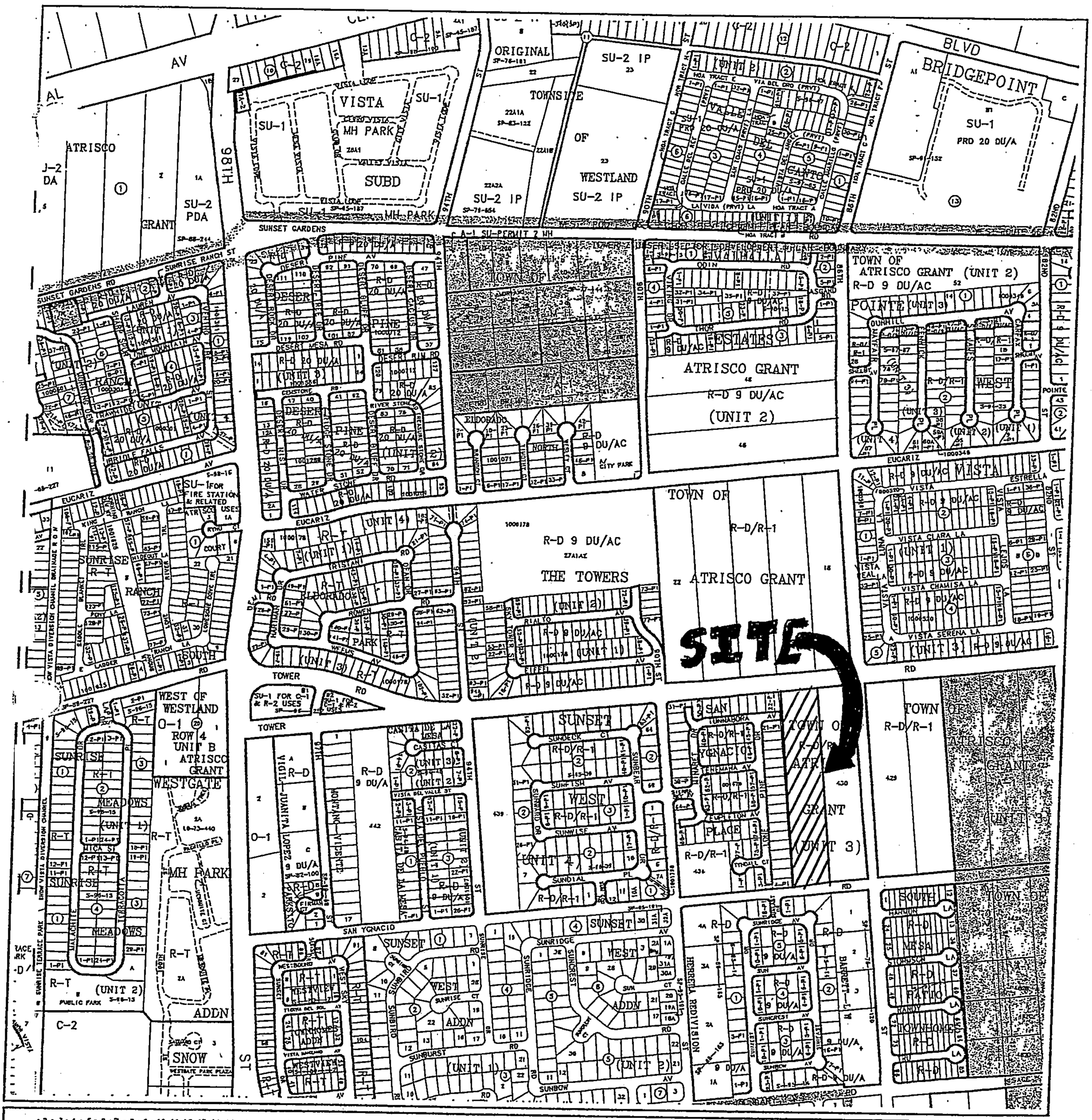
SUMMARY

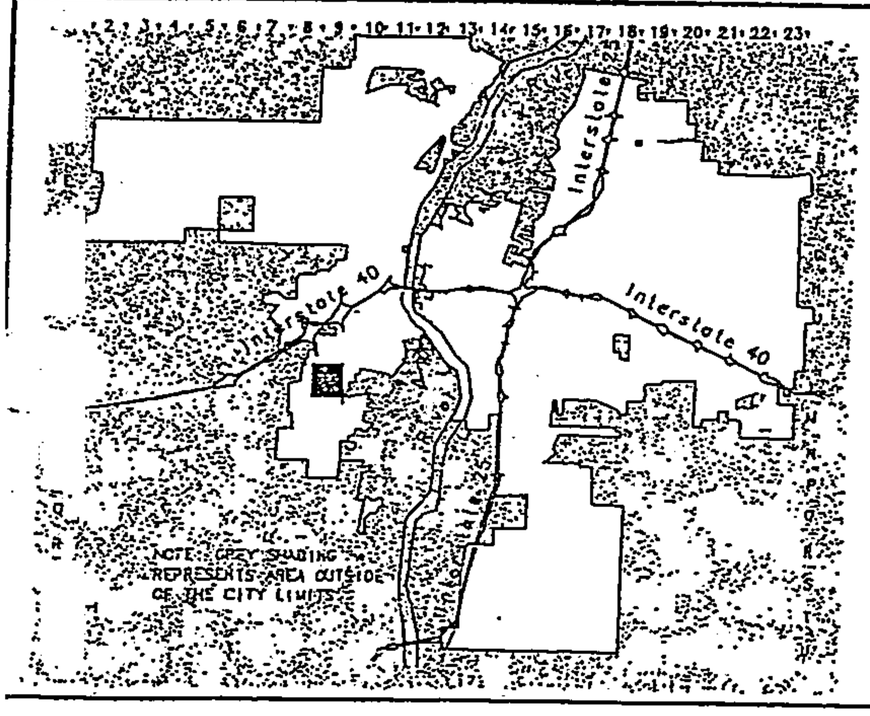
The developed drainage master plan identified above mirrors that described in the AAR Tower/Sage Drainage Master Plan with free discharge to Tower Road and San Ygnacio Road. In the AAR report, it was estimated that 8.34 cfs would discharge to Tower Road, and 8.47 cfs would discharge to San Ygnacio Road in the future developed state. The numbers presented in this report, 9.11 cfs to Tower Road and 8.71 cfs to San Ygnacio Road are slightly larger due to differences in the treatment type percentages. While the AAR report estimated 50% B and 50% D, the calculations presented in this report show 40% B and 60% D. The less than 1 cfs increase in the estimated runoff to each street will present no adverse impacts downstream given the infrastructure already in place.



Basin	Approx Design (cfs)	Actual (cfs)
A	8.9	9.1
B	7.9	8.7

EXHIBIT A





CITY OF
Albuquerque

A lbuquerque G eographic I nformation S ystem

PLANNING DEPARTMENT

GRAPHIC SCALE IN FEET

250 0 750 1000

Zone Atlas Page

L-9-Z

Map Amended through January 21, 2003

EXHIBIT B

Copy of Basin Boundary Map
"Tower/Sage Drainage
Master Plan by AAR"

EXHIBIT C

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539
e-mail: dmg@swcp.com

PROJECT TOWER EAST
SUBJECT DRAINAGE CALCS
BY JSD DATE 7-13-04
CHECKED _____ DATE _____
SHEET ___ OF ___

Tower East
5.0029 Acres Total

1. Find Q per lot:

Pads 35'x45' = 1575 SF
Drives 20'x20' = 400 SF
1975SF x 45 = 88,875 SF
= 2.04AC 'D'

ROW = 1.20 AC
80% 'D', 20% 'B'
= .96AC 'D', .24AC 'B'

Total 'D' = 2.04AC + .96Ac = 3.0AC = 60%
Total 'B' = (5.0029 - 3) = 2.0029AC = 40%

P_1 = 1.94" P_6 = 2.25" P_{24} = 2.62"

From AHYMO Output:
Q100 existing = 9.07 cfs
Q100 dev. = 17.83 cfs
Q/lot = 17.83/45 = .396 cfs

2. Developed Drainage Mgt. Plan

- Per Tower/Sage Drainage Mgt. Plan by AMR, developed flows will be split as follows:

To Tower → 23 lots @ .396 cfs/lot = 9.11 cfs
To San Ygnacio → 22 lots @ .396 cfs/lot = 8.71 cfs

EXHIBIT D

```
START           TIME=0.0
*****           TORRETTA ESTE SUBDIVISION
*****           CALCULATE & ROUTE STORM FLOWS
*****           USE 100 YEAR 6 HOUR STORM EVENT
*****           FILE:  TORRETTAESTE.DAT    07/16/04  JSD
**********************************************************
RAINFALL        TYPE=1 RAIN QUARTER=0.0 IN
                RAIN ONE=1.94 IN RAIN SIX=2.25 IN RAIN DAY=2.62 IN
                DT=0.03333 HR
**********************************************************
*****
*****FIRST LOOK AT EXISTING FLOWS FROM THIS SITE
*****
COMPUTE NM HYD       ID=1 HYD NO=101.0 AREA=0.0078 SQ MI
                PER A=10 PER B=0 PER C=90 PER D=0
                TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD       ID=1 CODE=1
*****
*****DETERMINE DEVELOPED FLOW RATE FROM BASIN A TO TOWER ROAD
*****
COMPUTE NM HYD       ID=2 HYD NO=102.0 AREA=0.0040 SQ MI
                PER A=0 PER B=40 PER C=0 PER D=60
                TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD       ID=2 CODE=1
*****
*****DETERMINE DEVELOPED FLOW RATE FROM BASIN B TO SAN YGNACIO ROAD
*****
COMPUTE NM HYD       ID=3 HYD NO=103.0 AREA=0.0038 SQ MI
                PER A=0 PER B=40 PER C=0 PER D=60
                TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD       ID=3 CODE=1
FINISH
```

```
          AHYMO PROGRAM (AHYMO_97) -                                  - Version:
1997.02d
               RUN DATE (MON/DAY/YR) = 07/16/2004
               START TIME (HR:MIN:SEC) = 14:19:46     USER NO.= AHYMO-I-
9702dGoodwinM-AH
               INPUT FILE = C:\PROGRA~1\AHYMO_97\TORRET~1.DAT

     START                                TIME=0.0
     *****                                TORRETTA ESTE SUBDIVISION
     *****                                CALCULATE & ROUTE STORM FLOWS
     *****                                USE 100 YEAR 6 HOUR STORM EVENT
     *****                                FILE:  TORRETTAESTE.DAT    07/16/04
JSD
     **********************************************************
     RAINFALL                        TYPE=1 RAIN QUARTER=0.0 IN
                                          RAIN ONE=1.94 IN RAIN SIX=2.25 IN RAIN
DAY=2.62 IN
                                          DT=0.03333 HR

                         COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA
ATLAS 2 - PEAK AT 1.40 HR.
                         DT =     .033330 HOURS        END TIME =     5.999400
HOURS
                            .0000   .0014   .0028   .0043   .0057   .0073
.0088
                            .0104   .0120   .0137   .0154   .0172   .0190
.0208
                            .0227   .0247   .0267   .0288   .0310   .0332
.0355
                            .0379   .0404   .0430   .0457   .0485   .0515
.0546
                            .0579   .0613   .0650   .0704   .0761   .0822
.0954
                            .1248   .1701   .2352   .3240   .4407   .5895
.7749
                           1.0010  1.2110  1.2987  1.3727  1.4385  1.4984
1.5535
                           1.6048  1.6526  1.6974  1.7396  1.7794  1.8171
1.8526
                           1.8864  1.9184  1.9487  1.9775  2.0048  2.0110
2.0167
                           2.0221  2.0273  2.0322  2.0369  2.0414  2.0457
2.0499
                           2.0539  2.0578  2.0615  2.0652  2.0687  2.0721
2.0755
                           2.0787  2.0819  2.0850  2.0880  2.0910  2.0938
2.0967
                           2.0994  2.1021  2.1048  2.1074  2.1099  2.1124
2.1148
                           2.1173  2.1196  2.1219  2.1242  2.1265  2.1287
2.1309
                           2.1330  2.1351  2.1372  2.1393  2.1413  2.1433
2.1453
                           2.1472  2.1491  2.1510  2.1529  2.1547  2.1566
2.1584
                           2.1601  2.1619  2.1636  2.1654  2.1671  2.1688
2.1704
                           2.1721  2.1737  2.1753  2.1769  2.1785  2.1800
2.1816
```

```
                                                2.1831  2.1846  2.1861  2.1876  2.1891  2.1906
2.1920
                                                2.1935  2.1949  2.1963  2.1977  2.1991  2.2004
2.2018
                                                2.2032  2.2045  2.2058  2.2072  2.2085  2.2098
2.2111
                                                2.2123  2.2136  2.2149  2.2161  2.2174  2.2186
2.2198
                                                2.2210  2.2222  2.2234  2.2246  2.2258  2.2270
2.2282
                                                2.2293  2.2305  2.2316  2.2327  2.2339  2.2350
2.2361
                                                2.2372  2.2383  2.2394  2.2405  2.2416  2.2426
2.2437
                                                2.2448  2.2458  2.2469  2.2479  2.2490  2.2500

     **************************************************
     *****
     *****FIRST LOOK AT EXISTING FLOWS FROM THIS SITE
     *****
     COMPUTE NM HYD          ID=1 HYD NO=101.0 AREA=0.0078 SQ MI
                                  PER A=10 PER B=0 PER C=90 PER D=0
                                  TP=0.1333 HR MASS RAINFALL=-1

          K =    .112183HR    TP =    .133300HR    K/TP RATIO =    .841580
SHAPE CONSTANT, N =  4.233628
          UNIT PEAK =    21.677    CFS   UNIT VOLUME =     .9996       B =
370.46      P60 = 1.9400
          AREA =       .007800 SQ MI    IA =     .38000 INCHES    INF =
.91400 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033330

     PRINT HYD               ID=1 CODE=1

                                        PARTIAL HYDROGRAPH   101.00


          RUNOFF VOLUME =       .97421 INCHES      =         .4053 ACRE-FEET
          PEAK DISCHARGE RATE =      13.98 CFS  AT    1.500 HOURS   BASIN
AREA =    .0078 SQ. MI.

     *****
     *****DETERMINE DEVELOPED FLOW RATE FROM BASIN TO TOWER ROAD
     *****
     COMPUTE NM HYD          ID=2 HYD NO=102.0 AREA=0.0040 SQ MI
                                  PER A=0 PER B=40 PER C=0 PER D=60
                                  TP=0.1333 HR MASS RAINFALL=-1

          K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =    9.4753    CFS   UNIT VOLUME =     .9982       B =
526.28      P60 = 1.9400
          AREA =       .002400 SQ MI    IA =     .10000 INCHES    INF =
.04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033330
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```
          K =    .131243HR    TP =    .133300HR    K/TP RATIO =    .984570
SHAPE CONSTANT, N =  3.586444
          UNIT PEAK =    3.9200    CFS    UNIT VOLUME =     .9970        B =
326.58       P60 = 1.9400
          AREA =     .001600 SQ MI    IA =     .50000 INCHES    INF =
1.25000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033330

     PRINT HYD                 ID=2 CODE=1

                                                PARTIAL HYDROGRAPH   102.00

          RUNOFF VOLUME =      1.49557 INCHES      =          .3191 ACRE-FEET
          PEAK DISCHARGE RATE =        9.15 CFS  AT    1.500 HOURS   BASIN
AREA =    .0040 SQ. MI.


     *****
     *****DETERMINE DEVELOPED FLOW RATE FROM BASIN BETWEEN SANDY GNAT LOOP ROAD
     *****
     COMPUTE NM HYD            ID=3 HYD NO=103.0 AREA=0.0038 SQ MI
                                    PER A=0 PER B=40 PER C=0 PER D=60
                                    TP=0.1333 HR MASS RAINFALL=-1

          K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =    9.0016    CFS    UNIT VOLUME =     .9981        B =
526.28       P60 = 1.9400
          AREA =       .002280 SQ MI    IA =     .10000 INCHES    INF =
.04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033330


          K =    .131243HR    TP =    .133300HR    K/TP RATIO =    .984570
SHAPE CONSTANT, N =  3.586444
          UNIT PEAK =    3.7240    CFS    UNIT VOLUME =     .9967        B =
326.58       P60 = 1.9400
          AREA =       .001520 SQ MI    IA =     .50000 INCHES    INF =
1.25000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033330

     PRINT HYD                 ID=3 CODE=1

                                                PARTIAL HYDROGRAPH   103.00

          RUNOFF VOLUME =      1.49557 INCHES      =          .3031 ACRE-FEET
          PEAK DISCHARGE RATE =        8.70 CFS  AT    1.500 HOURS   BASIN
AREA =    .0038 SQ. MI.


     FINISH

          NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 14:19:46
```