CITY OF ALBUQUERQUE

June 2, 2005

Shahab Biazar, P.E.
Advanced Engineering & Consulting, LLC
4416 Anaheim Ave. NE
Albuquerque, NM 87113

Re: Oak Street Condominiums, Lot 10, Block 22, Brownewell & Lail's Addition
Drainage Report - Engineer's Stamp dated 3-31-05 (K15–D82)

Based upon the information provided in your submittal dated 5-16-05, the above referenced plan is approved for Building Permit and SO19 Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

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

If you have any questions, you can contact me at 924-3990.

Sincerely,

Phillip J. Lovato, E.I., C.F.M.
Engineering Associate, Planning Dept.
Development and Building Services

C: Liz Sanchez, Excavation & Barricading
Matt Cline, Storm Drain Maintenance
file

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

DRAINAGE INFORMATION SHEET

(REV. 1/28/2003rd)

K-15/D82

PROJECT TITLE: OAK STREET CONDOMINIUMS ZONE ATLAS/DRG. FILE #: K15 / D82

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

LEGAL DESCRIPTION: LOT 10, BLOCK 22, BROWNEWELL AND LAIL'S ADDITION

CITY ADDRESS: _____

ENGINEERING FIRM: *Advanced Engineering and Consulting, LLC* CONTACT: Shahab Biazar
ADDRESS: 4416 Anaheim Ave., NE PHONE: (505) 899-5570
CITY, STATE: Albuquerque, New Mexico ZIP CODE: 87113

OWNER:
ADDRESS: _____ CONTACT: _____
CITY, STATE: _____ PHONE: _____
ZIP CODE: _____

ARCHITECT:
ADDRESS: _____ CONTACT: _____
CITY, STATE: _____ PHONE: _____
ZIP CODE: _____

SURVEYOR:
ADDRESS: _____ CONTACT: _____
CITY, STATE: _____ PHONE: _____
ZIP CODE: _____

CONTRACTOR:
ADDRESS: _____ CONTACT: _____
CITY, STATE: _____ PHONE: _____
ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN 1ST SUBMITTAL, REQUIRES TCL OR EQUAL
- ____ 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
- ____ 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
- X 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
- X NO
- ____ COPY PROVIDED

RECEIVED
MAY 16 2005
HYDROLOGY SECTION

DATE SUBMITTED: 05 / 16 / 2005 **BY:** Shahab Biazar, P.E.

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 submittals may be required based on the following:

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

ADVANCED ENGINEERING and CONSULTING, LLC

Consulting
Design
Development
Management
Inspection
Surveying

May 16, 2005

Mr. Phillip J. Lovato, E.I.
Engineering Associate, Planing Dept.
Development and Building Services
600 Second Street NW
Albuquerque, New Mexico 87102

RE: OAK STREET CONDOMINIUMS (K15 / D82)

Dear Mr. Bingham:

This letter is in reference to your comments received dated April 20, 2005. The following are responses to your comments:

City Standard Drawing numbers are called out on the plan for the storm sewer inlets, and the sidewalk culvert. A trench detail is added to the plans (trench system TF-14).

We have added a note that 3 CMU blocks to be turned at the wall for drainage. Location of all the wall openings are added to the revised grading plan.

A note is added to the grading plan that the Alley construction work has to be done through C.O.A. Work Order process.

The easement has been changed to a 4' easement. We are in the process of preparing the easement. As soon as the easement is finalized and recorded we will forward you a copy.

Please contact me if there are any questions or concerns regarding this submittal.

Sincerely ~~yours~~,

Shahab Biazar, P.E.

RECEIVED
MAY 16 2005
HYDROLOGY SECTION

4416 Anaheim Ave., N.E., Albuquerque, NM 87113 PH (505) 899-5570 FAX (505) 897-4996 EMAIL AECLLC@aol.com

CITY OF ALBUQUERQUE

April 20, 2005

Shahab Biazar, P.E.
Advanced Engineering & Consulting, LLC
4416 Anaheim Ave. NE
Albuquerque, NM 87113

Re: Oak Street Condominiums, Lot 10, Block 22, Brownewell & Lail's Addition
Drainage Report - Engineer's Stamp dated 3-31-05 (K15–D82)

Dear Mr. Biazar,

Based upon the information provided in your submittal dated 3-31-05, the above referenced plan is approved for Site Development Plan for Building Permit action by the DRB. Prior to Building Permit approval, please address the following comments:

- Provide details or reference COA Standard drawings for storm inlets, sidewalk culvert and trench drain.
- Provide a detail for the backyard wall openings and designate each location where required on plan.
- Add note stating that the alley improvements are to be done through C.O.A Work Order process.
- Proposed 2' Roadway Easement needs to be recorded.

If you have any questions, you can contact me at 924-3990.

Sincerely,

Phillip J. Lovato, E.I.
Engineering Associate, Planning Dept.
Development and Building Services

C: file

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

K-15/D82

DRAINAGE INFORMATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: OAK STREET CONDOMINIUMS ZONE ATLAS/DRG. FILE #: K-15

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

LEGAL DESCRIPTION: LOT 10, BLOCK 22, BROWNEWELL AND LAIL'S ADDITION

CITY ADDRESS: _____

ENGINEERING FIRM: *Advanced Engineering and Consulting, LLC* CONTACT: Shahab Biazar

ADDRESS: 4416 Anaheim Ave., NE PHONE: (505) 899-5570

CITY, STATE: Albuquerque, New Mexico ZIP CODE: 87113

OWNER: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

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- ____ DRAINAGE PLAN 1ST SUBMITTAL, REQUIRES TCL OR EQUAL
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- ____ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ____ CLOMR / LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEER'S CERTIFICATION (TCL)
- ____ ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN)
- ____ OTHER

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

RECEIVED
APR 01 2005
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ____ YES
- X NO
- ____ COPY PROVIDED

DATE SUBMITTED: 03 / 31 / 2005 BY: Shahab Biazar, P.E.

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 submittals may be required based on the following:

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

ONE STOP SHOP
CITY OF ALBUQUERQUE PLANNING DEPARTMENT
Development & Building Services

PAID RECEIPT

APPLICANT NAME _____

AGENT ADVANCED ENG.

ADDRESS _____

PROJECT & APP # BROWNEWELL & LAIL'S

PROJECT NAME OAK ST. CONDOS

$ _____ 441032/3424000 **Conflict Management Fee**

$ _____ 441006/4983000 **DRB Actions**

$ _____ 441006/4971000 **EPC/AA/LUCC Actions & All Appeals**

$ _____ 441018/4971000 **Public Notification**

$ 50.00 441006/4983000 **DRAINAGE PLAN REVIEW OR TRAFFIC IMPACT STUDY*****
( )Major/Minor Subdivision ( )Site Development Plan (X)Bldg Permit
( ) Letter of Map Revision ( )Conditional Letter of Map Revision
( ) Traffic Impact Study

$ 50.00 **TOTAL AMOUNT DUE**

****NOTE:** *If a subsequent submittal is required, bring a copy of this paid receipt with you to avoid an* **additional charge.**

Counterreceipt.doc 6/21/04

City Of Albuquerque
Treasury Division

4/1/2005 11:25AM LOC: ANNX
RECEIPT# 00038264 WS# 006 TRANS# 0018
Account 441006 Fund 0110
Activity 4983000 TRSEJA
Trans Amt $50.00
J24 Misc $50.00
VI $50.00
CHANGE $0.00

Thank You

DRAINAGE REPORT
FOR

OAK STREET CONDOMINIUMS

(LOT 10, BLOCK 22, BROWNEWELL AND LAIL'S ADDITION)

Prepared by:

ADVANCED ENGINEERING and CONSULTING, LLC

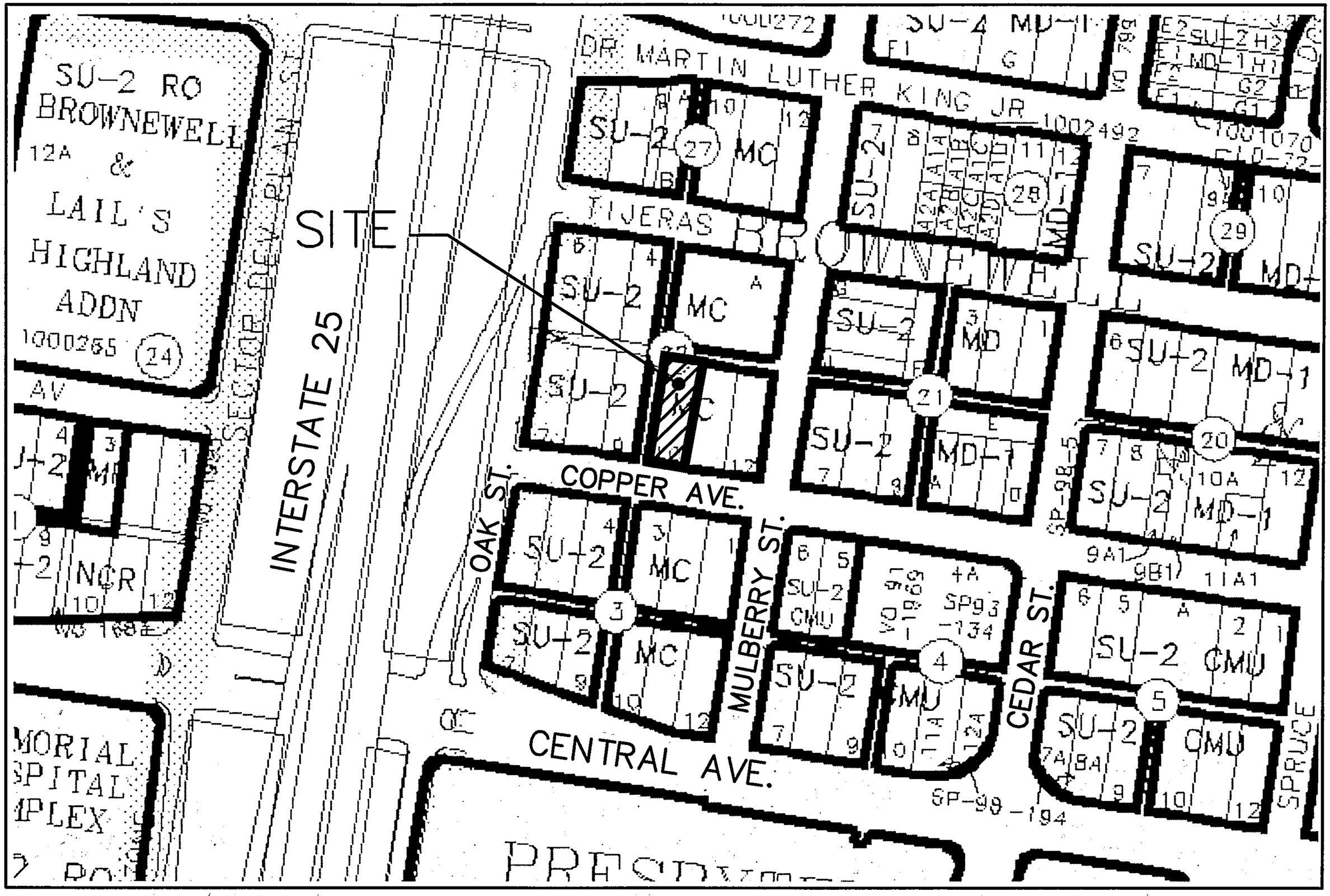
4416 Anaheim Ave., NE
Albuquerque, New Mexico 87113

March, 2005

SHAHAB BIAZAR
NEW MEXICO
13479
REGISTERED PROFESSIONAL ENGINEER
3/31/05

Shahab Biazar
PE NO. 13479

RECEIVED
APR 01 2005
HYDROLOGY SECTION



VICINITY MAP: K-15-Z

Location

Oak Street Condominiums is on Lot 10, Block 22, Brownewell and Lail's Additions located on the north side of Copper between Oak Street and Mulberry Street. See attached portion of Zone Atlas page number K-15 for exact location.

Purpose

The purpose of this drainage report is to present a grading and drainage solution for the proposed site. The owner is proposing to build Condominiums on this site. We are requesting rough grading, building permit, and site plan for building permit approval.

Existing Drainage Conditions

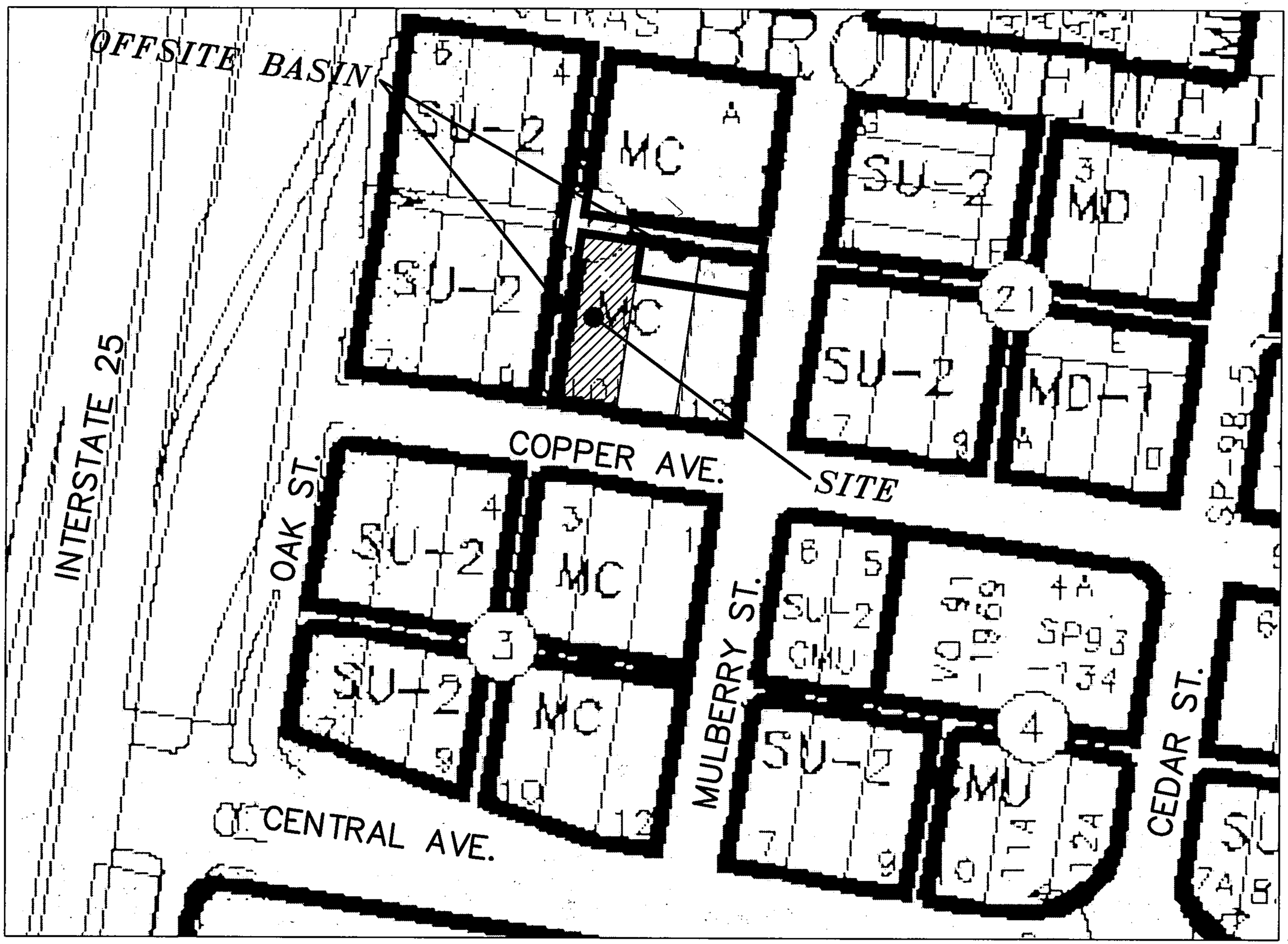
The site is undeveloped and drains east to west to the existing Alley and then south to Copper Avenue. Minor runoff might enter this project from the east. The runoff to the north (existing Alley) drains west to another Alley (located to the west) and then south to Copper Avenue. The site does not fall within a 100-year floodplain.

Proposed Conditions and On-Site Drainage Management Plan

The site will continue to drain to Copper Avenue. The Alley located to the west of the Condominium will be paved with an inverted crown and a 2' alley gutter in the center. Since the garages are lower than the Alley, drop inlets or trench drain will be build to intercept the runoff. The trench drain will drain south via 12" storm drain pipe, and then the runoff will daylight at the south end of the condominium were it will surface flow to the proposed 1' sd/wk culvert. The runoff from the backyard of the condominium will drain south and then west to the proposed 1' sd/wk culvert as well. The maximum runoff under the developed conditions in the Alley will be 1.69 cfs (this is with assumption that all the developed runoff from the condominium will drain to the Alley).

Calculations

City of Albuquerque, Development Process Manuel, Section 22.2, Hydrology Section was used for runoff calculations.



OFFSITE BASIN

NTS

RUNOFF CALCULATION RESULTS

BASIN	AREA (SF)	AREA (AC)	AREA (MI^2)
OFFSITE	8740.84	0.2007	0.000314
ON-SITE	7107.03	0.1632	0.000255

EXISTING

BASIN	Q-100 CFS	Q-10 CFS
OFFSITE	0.91	0.59
ON-SITE	0.26	0.06

PROPOSED

BASIN	Q-100 CFS	Q-10 CFS
ON-SITE	0.78	0.51

EXISTING 1.17 CFS

PROPOSED 1.69 CFS

INCREASE .52 CFS

RUNOFF CALCULATIONS

(INPUT DATA FOR AHYMO CALCULATIONS)

The site is @ Zone 2

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 x 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.

AHYMO INPUT FILE

```
* ZONE 2
**************************************************************
*         100-YEAR,  6-HR STORM (UNDER EXISITNG CONDITIONS)      *
**************************************************************
START                 TIME=0.0
RAINFALL              TYPE=1 RAIN QUARTER=0.0 IN
                      RAIN ONE=2.01 IN RAIN SIX=2.35 IN
                      RAIN DAY=2.75 IN DT=0.03333 HR
* OFFSITE
COMPUTE NM HYD        ID=1 HYD NO=101.0 AREA=0.000314 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
* ON-SITE
COMPUTE NM HYD        ID=2 HYD NO=102.0 AREA=0.000255 SQ MI
                      PER A=100.00 PER B=0.00 PER C=0.00 PER D=0.00
                      TP=0.1333 HR MASS RAINFALL=-1
**************************************************************
*          10-YEAR,  6-HR STORM (UNDER EXISTING CONDITIONS)      *
**************************************************************
START                 TIME=0.0
RAINFALL              TYPE=1 RAIN QUARTER=0.0 IN
                      RAIN ONE=1.34 IN RAIN SIX=1.57 IN
                      RAIN DAY=1.83 IN DT=0.03333 HR
* OFFSITE
COMPUTE NM HYD        ID=3 HYD NO=111.0 AREA=0.000314 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
* ON-SITE
COMPUTE NM HYD        ID=4 HYD NO=112.0 AREA=0.000255 SQ MI
                      PER A=100.00 PER B=0.00 PER C=0.00 PER D=0.00
                      TP=0.1333 HR MASS RAINFALL=-1
**************************************************************
*         100-YEAR,  6-HR STORM (UNDER PROPOSED CONDITIONS)      *
**************************************************************
START                 TIME=0.0
RAINFALL              TYPE=1 RAIN QUARTER=0.0 IN
                      RAIN ONE=2.01 IN RAIN SIX=2.35 IN
                      RAIN DAY=2.75 IN DT=0.03333 HR
* ON-SITE
COMPUTE NM HYD        ID=5 HYD NO=103.0 AREA=0.000255 SQ MI
                      PER A=0.00 PER B=0.00 PER C=0.00 PER D=90.00
                      TP=0.1333 HR MASS RAINFALL=-1
**************************************************************
*          10-YEAR,  6-HR STORM (UNDER PROPOSED CONDITIONS)      *
**************************************************************
START                 TIME=0.0
RAINFALL              TYPE=1 RAIN QUARTER=0.0 IN
                      RAIN ONE=1.34 IN RAIN SIX=1.57 IN
                      RAIN DAY=1.83 IN DT=0.03333 HR
* ON-SITE
COMPUTE NM HYD        ID=6 HYD NO=113.0 AREA=0.000255 SQ MI
                      PER A=0.00 PER B=0.00 PER C=0.00 PER D=90.00
                      TP=0.1333 HR MASS RAINFALL=-1
**************************************************************
*
* TOTAL ALLEY RUNOFF AT THE SOUTH END BY COPPER AVE.
*
ADD HYD               ID=10 HYD NO=114.0 ID=1 ID=5
*
FINISH
```

SUMMARY OUTPUT FILE

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02d RUN DATE (MON/DAY/YR) =03/31/2005
INPUT FILE = 200444 USER NO.= AHYMO-I-9702c01000R31-AH

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	100 6									RAIN6=	2.350
COMPUTE NM HYD	101.00	-	1	.00031	OFF .91 100	.033	1.98165	1.500	4.532	PER IMP=	90.00
COMPUTE NM HYD	102.00	-	2	.00026	ON .26 10	.007	.53121	1.533	1.601	PER IMP=	.00
START										TIME=	.00
RAINFALL TYPE= 1	10 6									RAIN6=	1.570
COMPUTE NM HYD	111.00	-	3	.00031	OFF .59 100	.021	1.23172	1.500	2.927	PER IMP=	90.00
COMPUTE NM HYD	112.00	-	4	.00026	ON .06 10	.002	.12517	1.533	.384	PER IMP=	.00
START										TIME=	.00
RAINFALL TYPE= 1	100 6									RAIN6=	2.350
COMPUTE NM HYD	103.00	-	5	.00026	ON .78	.029	2.11537	1.500	4.753	PER IMP=	100.00
START										TIME=	.00
RAINFALL TYPE= 1	10 6									RAIN6=	1.570
COMPUTE NM HYD	113.00	-	6	.00026	.51	.018	1.33765	1.500	3.142	PER IMP=	100.00
ADD HYD	114.00	1& 5	10	.00057	1.69	.062	2.04071	1.500	4.631		
FINISH											

EXIST.

PROPOSED

Sidewalk Culvert Flow Calculations

Orifice Equation: $Q=CA\sqrt{(2gh)}$
Q = 0.78 cfs (maximum runoff)
C = 0.6
g = 32.20
h = 0.67'
Sidewalk Culvert Width = 1.00'
A= 1.00 x 0.67 = 0.67 sf

$Q = 0.60 \times 0.67\sqrt{(2 \times 32.2 \times 0.67)}$
Q = 2.64 cfs > 0.78 cfs

Therefore, use a 1.00' sidewalk culvert by Copper.

Rear Lot Wall Opening For Drainage

Orifice Equation: $Q=CA\sqrt{(2gh)}$
Q = 0.78 cfs (maximum runoff)
C = 0.6
g = 32.20
h = 0.5'
Wall Opening = 0.50'
A= 0.50 x 0.50 = 0.25 sf

$Q = 0.60 \times 0.25\sqrt{(2 \times 32.2 \times 0.5)}$
Q = 0.85 cfs > 0.78 cfs

Therefore, use a rear lot wall opening of 6"x6" for drainage.

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: 12" FLOW CAPACITY

Solve For Full Flow Capacity

Given Input Data:

Diameter.....	1.00 ft
Slope.....	0.0060 ft/ft
Manning's n.....	0.012
Discharge.....	2.99 cfs

Computed Results:

Full Flow Capacity.....	2.99 cfs
Full Flow Depth.....	1.00 ft
Velocity.....	3.81 fps
Flow Area.....	0.79 sf
Critical Depth.....	0.74 ft
Critical Slope.....	0.0074 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	2.99 cfs
QMAX @.94D.....	3.22 cfs
Froude Number.....	FULL

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name:

Comment: ALLEY FLOW CAPACITY

Solve For Depth

Given Input Data:

Bottom Width.....	0.00 ft
Left Side Slope..	50.00:1 (H:V)
Right Side Slope.	50.00:1 (H:V)
Manning's n.....	0.017
Channel Slope....	0.1000 ft/ft
Discharge.....	1.69 cfs

Computed Results:

Depth.....	0.10 ft
Velocity.....	3.65 fps
Flow Area.....	0.46 sf
Flow Top Width...	9.62 ft
Wetted Perimeter.	9.62 ft
Critical Depth...	0.15 ft
Critical Slope...	0.0100 ft/ft
Froude Number....	2.94 (flow is Supercritical)

Open Channel Flow Module, Version 3.12 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Rectangular Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name:

Comment: TRENCH DRAIN BOX FLOW CAPACITY

Solve For Discharge

Given Input Data:

Bottom Width.....	1.00 ft
Manning's n.....	0.012
Channel Slope....	0.0040 ft/ft
Depth.....	1.00 ft

Computed Results:

Discharge.....	3.77 cfs
Velocity.....	3.77 fps
Flow Area.....	1.00 sf
Flow Top Width...	1.00 ft
Wetted Perimeter.	3.00 ft
Critical Depth...	0.76 ft
Critical Slope...	0.0079 ft/ft
Froude Number....	0.66 (flow is Subcritical)

Open Channel Flow Module, Version 3.12 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708