



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 10, 2000

Paul Brasher, P.E.
Brasher & Lorenz
2201 San Pedro NE
Bldg 1 - Suite 210
Albuquerque, NM 87110

RE: RIVERGLEN APARTMENTS, Hanover/Glenrio @ 68th St NW (J10-D31). GRADING AND DRAINAGE PLAN FOR BUILDING PERMIT APPROVAL. ENGINEER'S STAMP (Plan) DATED MAY 31, 2000.

Dear Mr. Brasher:

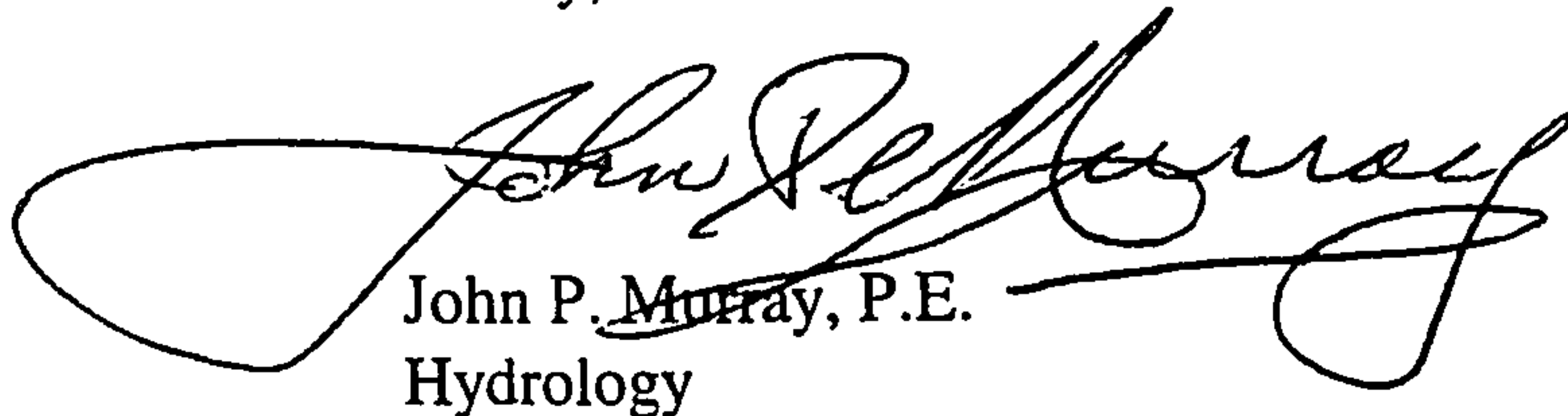
Based on the information provided on your June 1, 2000 submittal, the above referenced project was approved for Building Permit..

The stamped and DATED G&D Plan from your July 31, 2000 resubmittal was added to the construction sets this date.

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: Whitney Reiersen
✓ File



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 9, 2000

Paul Brasher, P.E.
Brasher & Lorenz
2201 San Pedro NE
Bldg 1 - Suite 210
Albuquerque, NM 87110

RE: RIVERGLEN APARTMENTS, Hanover/Glenrio @ 68th St NW (J10-D31). GRADING AND DRAINAGE PLAN FOR BUILDING PERMIT APPROVAL. ENGINEER'S STAMP (Report) DATED MAY 26, 2000 AND (Plan) DATED MAY 31, 2000.

Dear Mr. Brasher:

Based on the information provided on your June 1, 2000 submittal, the above referenced project is approved for Building Permit.

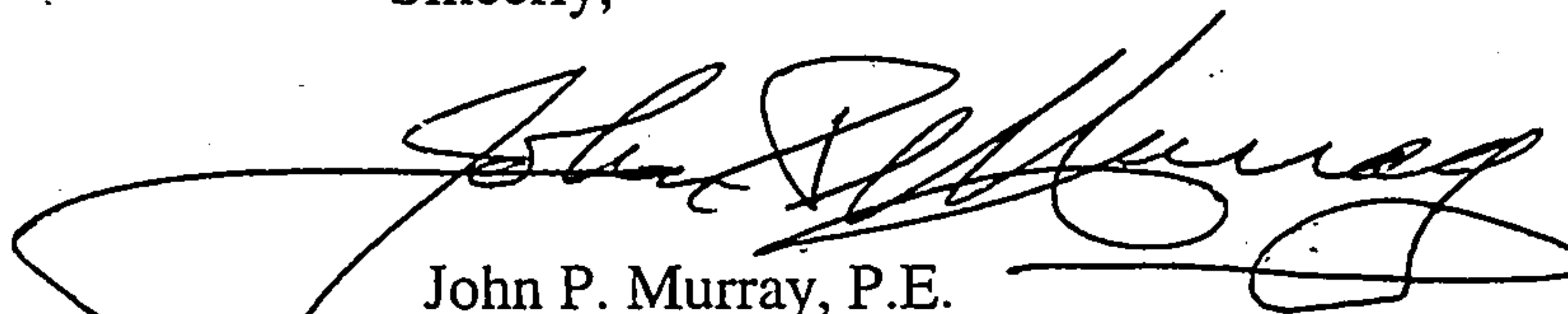
The DRC for the Preliminary Plan Review was held on June 7, 2000.

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

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: Whitney Reiersen
File

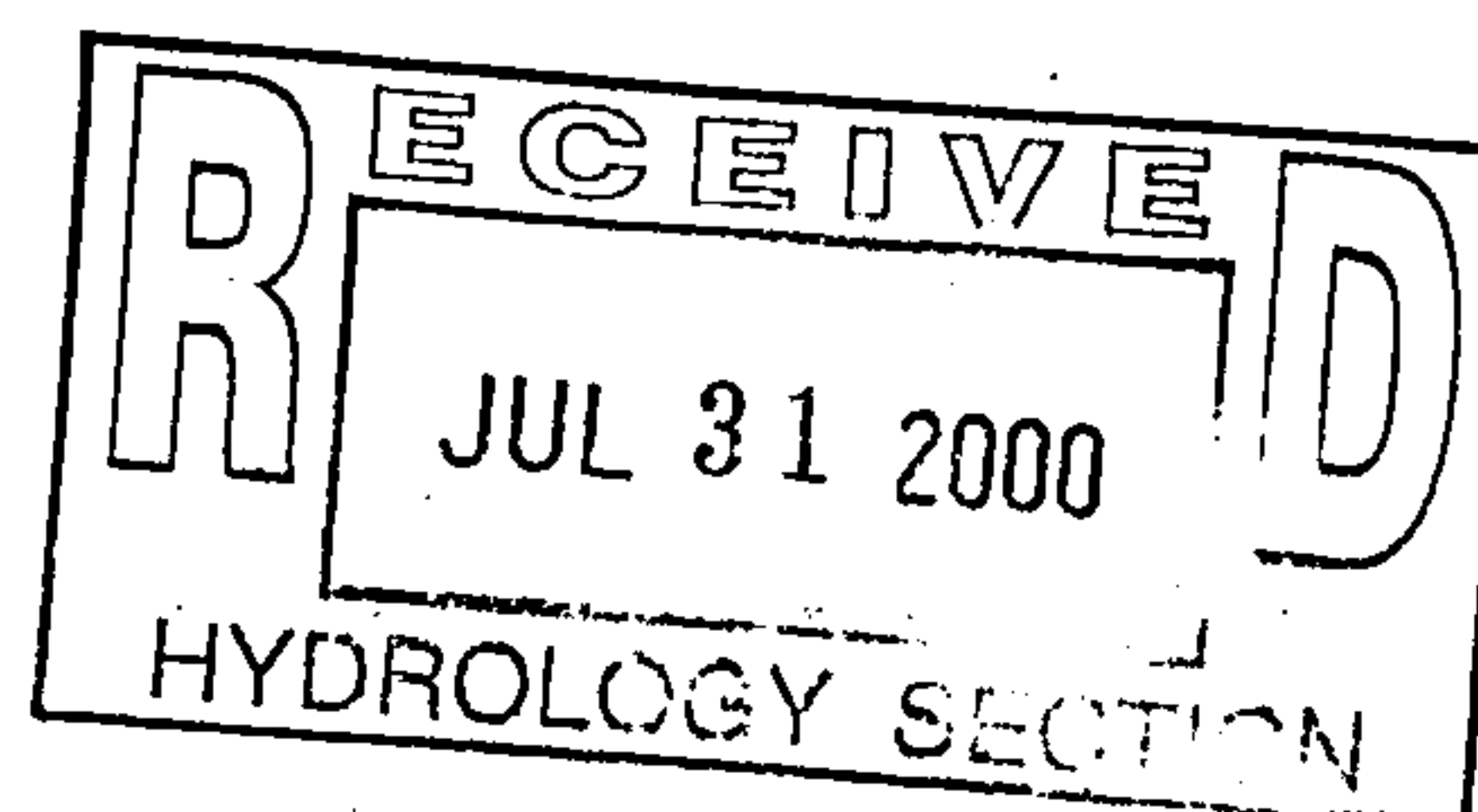


FIGURE 6
CITY OF ALBUQUERQUE
NOTICE OF D.R.C. MEETING
5/28/00
(DATE) 5/30

DRB NO: _____
PROJECT NO: 64238.1
ZONE ATLAS: J-10 D3/

PROJECT NAME: Hanover/Glenrio W.L., SAS, Paving
LOCATION: Hanover Rd @ 68th St. N.W. and Glenrio Rd @ 68th St. N.W.

TYPE OF PROJECT: AHBA ☒ CIP _____ PWC _____ SAD _____ ALL PRIVATE _____

Contact Person: Paul Brasher* Phone: 888-6088
Firm: Brasher & Lorenz, Inc

☒ Scheduled with the D.R.C. on 6/7/00 at 1:30 PM Plaza Del Sol/2nd Fl.
_____ No DRC Meeting Scheduled. Please return any comments by _____

The Project Is Scheduled For:

/ / Design Report Review	/ / Final Plan Review
/ / Pre-Design Meeting	/ / Signoff of Plans
☒ Preliminary Plan Review	/ / _____

Riverview Apts

The Project Relates To:

☒ Water ☒ San. Sewer ☒ Paving / / Storm Drainage / / _____

The Attached Package Includes:

/D/ Drawings /S/ Spec's /E/ Estimate /R/ Report /M/ Memo Only

Indicated below are the Departments/Divisions that have received project documents and/or are invited to attend. It will be the Project Managers responsibility to notify consulting engineering firms of date and time of scheduled meetings.

☒ DRC Chairman	Project Review Section	All Drawings
☒ Traffic Repres.	Transportation Development	All Drawings
☒ Utility Dev.	Utility Design	All AHBA Drawings
/ / Utility Dev. (Billy G.)	Utility Design	All CIP Drawings
☒ Hydro Repres. <u>MURPHY</u>	Hydrology	All Drawings
☒ Const. Repres.	Construction	All Drawings
☒ Dave Harmon	Traffic Operations	All Drawings
/ / Sergio Miranda	Water (Shutoff Plan)	All Water Shutoff
☒ Parks Repres.	Parks & Recreation	ALL Landscaping
/ / Andre Houle	Street Maintenance	All Paving
/ / Kevin Broderick	Utility Coordinator	ALL PWC & CIP
☒ Tom Murphy	Transit Department	All Drawings
☒ Joe Luehring	Construction Coordinator	CIP/Memo
/ / Jim Fink	Line Maintenance	CIP & SAS/Memo
/ / George Gee	City Architect	Arch. Drawings
/ /	SAD Engineer	SAD/Memo
/ / Tom Ellis	Park Management	Parks/Community Ctrs/APS
/ / Gene Bustamante	General Services Dept.	Arch. Drawings
/ / Greg Smith	PWD/Legal	Specs Only
/ / Richard Sertich	Planning Department	CIP/Memos
/ / CIP Project Manager	CIP	CIP/Memos
/ / Donald Bartlett	Risk Management	Arch. Drawings
/ / _____	_____	_____
/ / _____	_____	_____

DRCNOTIC. UPD 5/03/00

* GEDP logged in 6/1/00 5-48

DRAINAGE INFORMATION SHEET

PROJECT TITLE: RIVERGLEN APARTMENTS ZONE ATLAS/DRNG. FILE #: J-10/D031
 DRB #: _____ EPC #: _____ WORK ORDER #: _____
 LEGAL DESCRIPTION: TRACT 222, AIRPORT UNIT TOWN OF ATRISCO GRANT
 CITY ADDRESS: 6801 GLENRIO NW

ENGINEERING FIRM: Brasher & Lorenz, Inc. CONTACT: Paul Brasher
 ADDRESS: 2201 San Pedro NE Bldg. 1 Suite 210
Albuquerque, New Mexico 87110 PHONE: 888-6088

OWNER: GSL PROPERTIES, INC. CONTACT: DEREK MANNELIN
 ADDRESS: 2164 SW PARK PL, PORTLAND, OR PHONE: (503) 224-2554

ARCHITECT: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

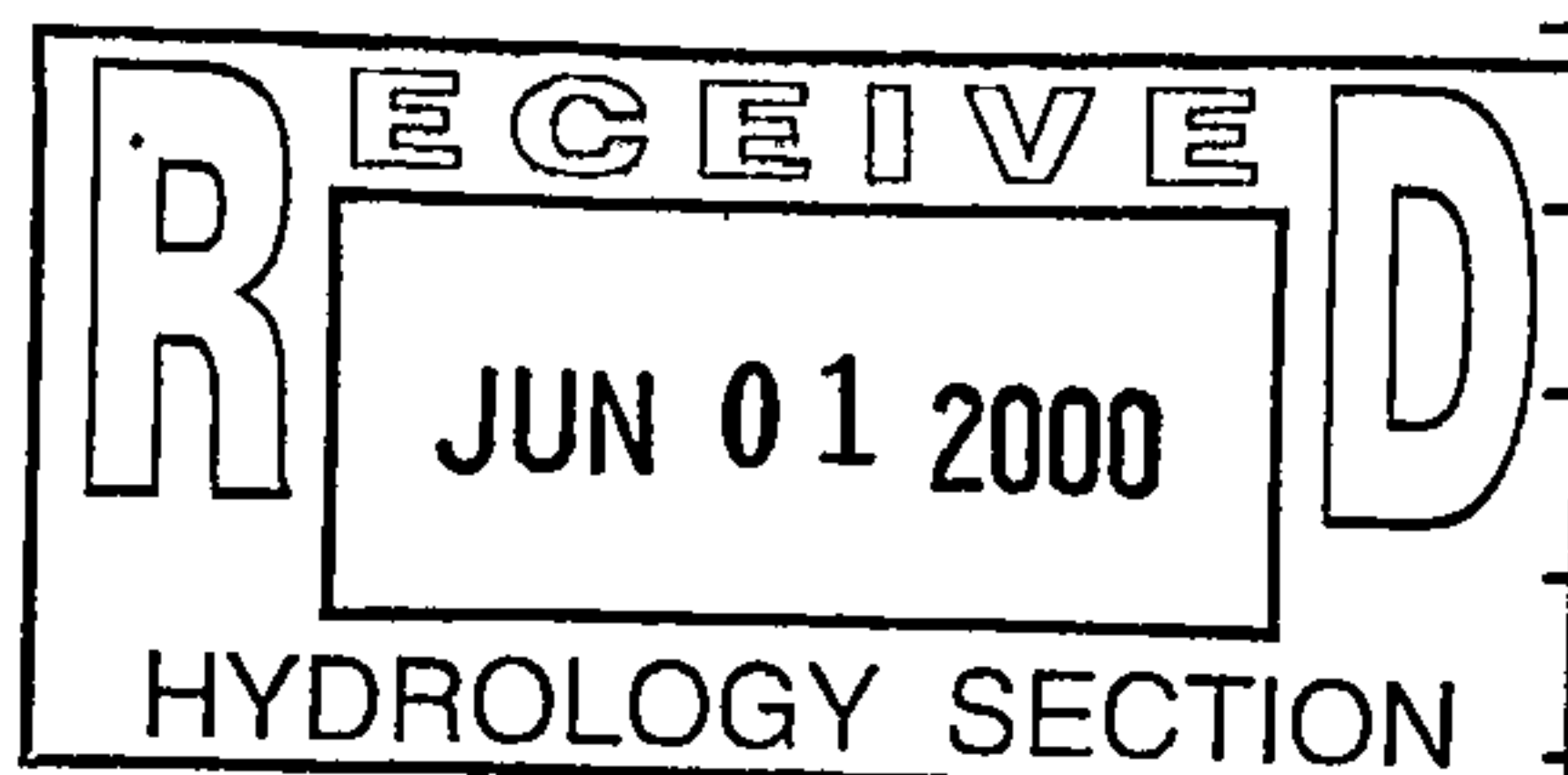
CONTRACTOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

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 PLAT 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 _____ (SPECIFY)

DATE SUBMITTED: _____

BY: Paul Brasher

J10-31

DRAINAGE REPORT
FOR
RIVERGLEN APARTMENTS

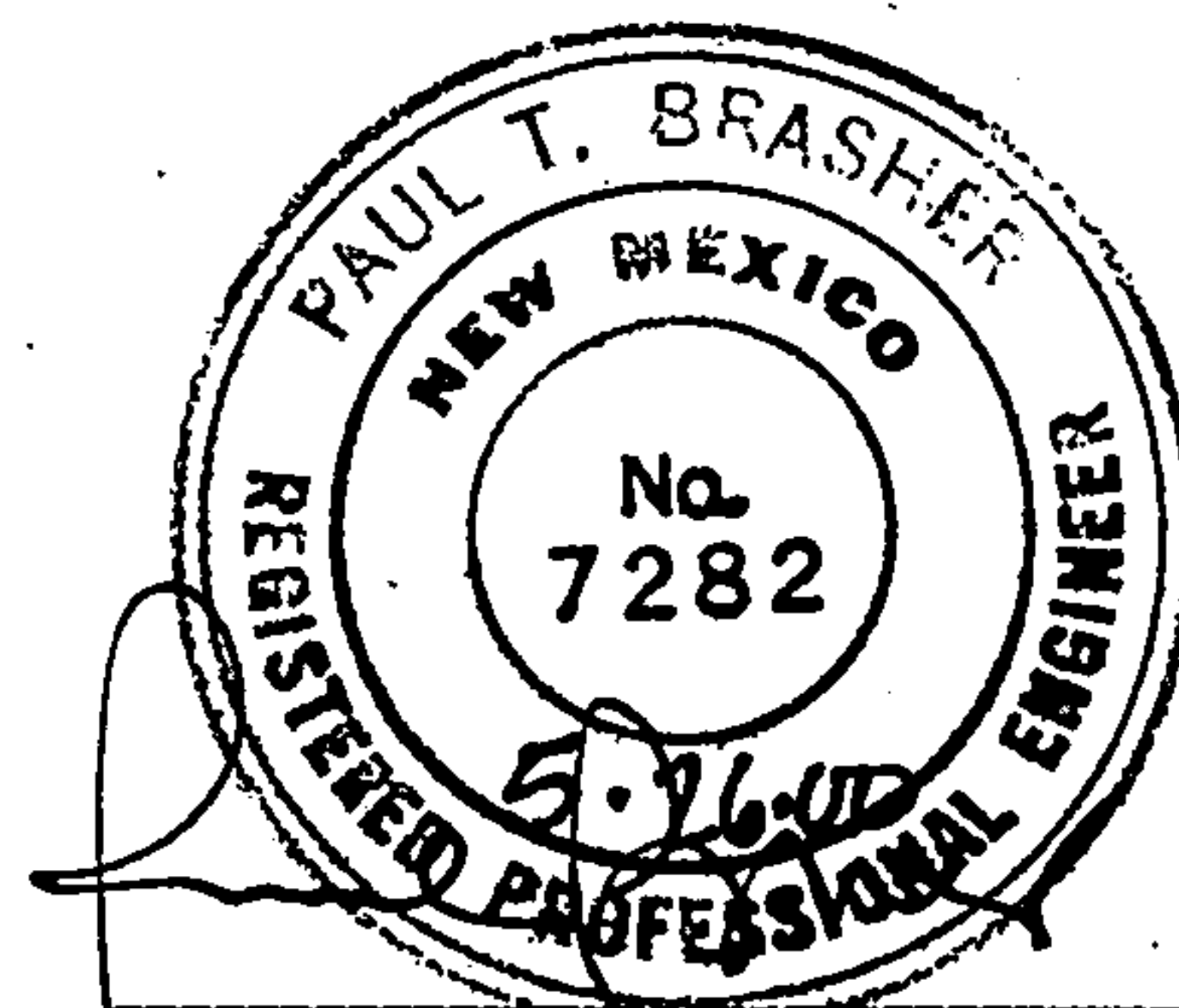
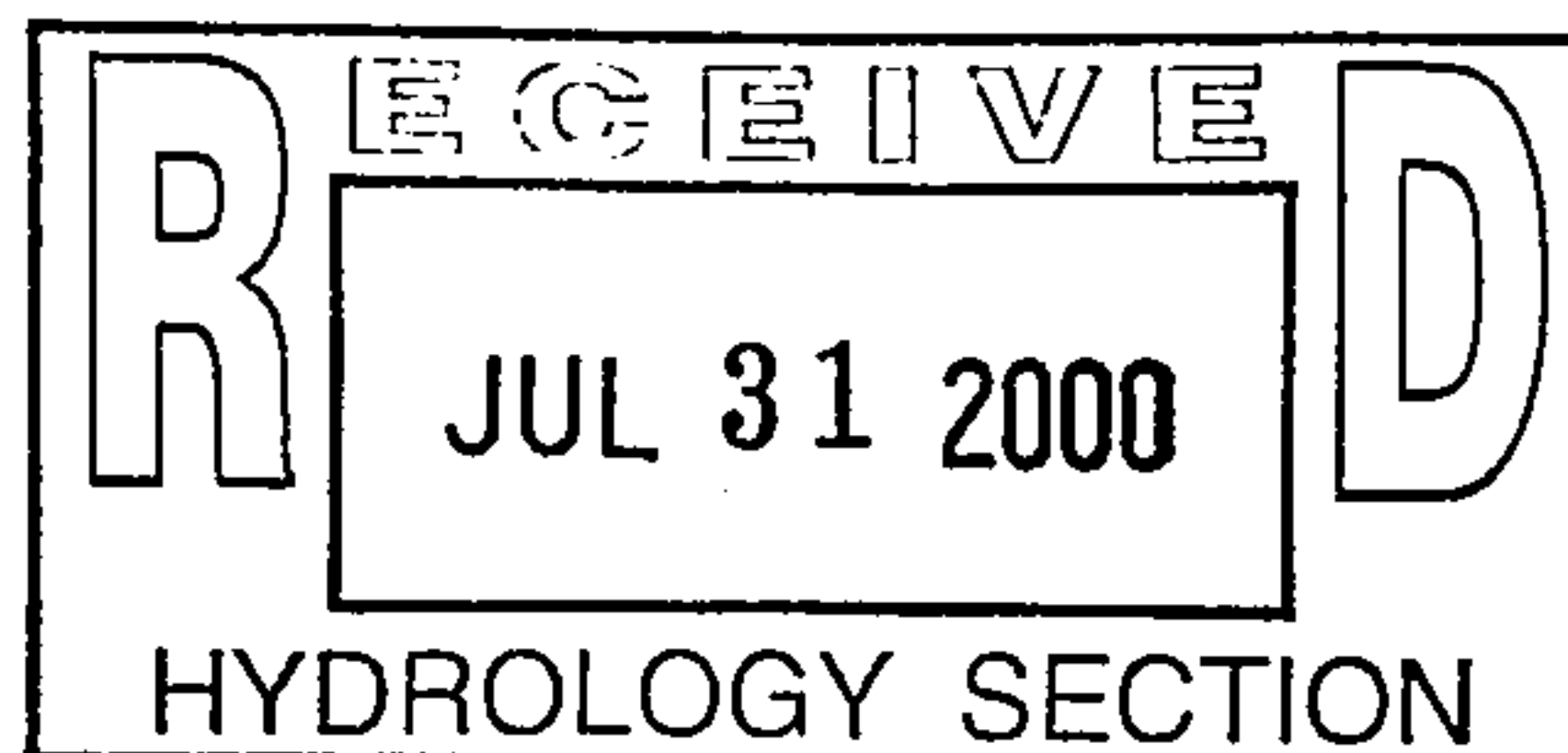
Albuquerque, New Mexico

Prepared for

GSL Properties, Inc.
2164 SW Park Place
Portland, Oregon 97205-1125

Prepared by

BRASHER & LORENZ, INC.
Consulting Engineers
2201 San Pedro Blvd. NE
Albuquerque, New Mexico



Paul Brasher, PE

May, 2000

PURPOSE AND SCOPE

Pursuant to the established Drainage Ordinance for the City of Albuquerque and the Development Process Manual, this Drainage Report outlines the drainage management criteria for controlling developed runoff from the project site. The property is to be developed as Riverglen Apartments, a 96-unit apartment complex, with office and ancillary facilities. Paving, landscaping, utility, grading and drainage improvements will be provided to support the project. The scope of this plan is to provide drainage criteria for the safe management of excess runoff, and illustrate the grading, paving and drainage improvements required to support the project.

SITE DESCRIPTION

Riverglen Apartments will be located on Tract 222, Airport Unit, Town of Atrisco Grant. The project site is a 5.0-acre tract, undeveloped, lying within the City Limits, and zoned R-2 (See Figure 1). It is bounded on the north by Hanover right-of-way; on the south by Glenrio; on the east by an existing 5-acre apartment complex; and on the west by vacant 5-acre tracts. The site slopes generally down from north to south, and slightly from west down to east. The land is vegetated with a moderate density of native grasses and shrubs.

According to the Bernalillo County Soils Survey, on site soils consist of MWA, the Madurez-Wink association. This unit is about 55 percent a Madurez fine sandy loam that has one to five percent slopes and about 25 percent a Wink fine sandy loam that has one to seven percent slopes. Runoff is slow, and a hazard of soil blowing is moderate to severe. MWA is used for range, wildlife habitat, watershed, and community development. (See Figure 2).

As shown on the attached FIRM Panel, No. 327 of 825, the site does not lie within a designated flood hazard zone. (See Figures 3 and 4)

EXISTING DRAINAGE CONDITIONS

The undeveloped site receives sheet flow from the undeveloped lands to its west, a basin of approximately 20 acres (See Figure 5). These flows travel generally from northwest down toward the southeast, eventually discharging into Glenrio, a paved street. Glenrio does not have curb and gutter and storm water directs itself east along the edges of the paved right-of-way. Within this basin, a crossing structure beneath I-040 conveys runoff from the north side of the interstate and a portion of the median of the interstate to the south side of the interstate. According to the City (Mr. Dan Hogan, 5/21/99), this conveyance beneath the interstate is to be intercepted on the north side of the interstate by AMAFCA under the West Mesa Diversion Project (City Project No. 5381), and will not contribute to runoff upstream from Riverglen. The apartment complex to the east of Riverglen has paved and curbed frontage on its north, east, and south sides. On site runoff which cannot, by grade, reach paved

right-of-way, is directed toward a retention pond in the southwest corner of the site. There is no existing closed-conduit storm sewer system in the vicinity of this project.

PROPOSED CONDITIONS

The project hydrology assumes that the West Mesa Diversion Project will intercept flows from the opposite side of the interstate. Under Phase 1 of the West Mesa Diversion Project, a 96" storm sewer will be constructed in 64th St., from I-040 to Hanover. In Phase 2, the 96" line will be extended in 64th St., south to Fortuna. A 48" line will be built in Hanover from 64th to the west, approximately 650 feet. A 54" line will be constructed in Glenrio, from 64th St. to the west property line of Riverglen (See Figure 6). Completion of Phase 2, originally scheduled for June, 2000, has been delayed by approximately one year.

The apartment complex will consist of a total of 96 units in eight buildings, office, and ancillary facilities. Access will be taken from both Glenrio and Hanover by a private, on site paved road which will run continuously between both City streets. Under City work order for this project, curb and gutter will be constructed in Glenrio across the frontage of the site. Hanover paving will be extended west, from its existing end section, to the Hanover driveway entrance to the project. The City will not require the paving of the entire Hanover frontage of the project, since its right-of-way narrows as it approaches the interstate such that it cannot be used effectively as full access to lands to the west. To manage storm water flows running down from the interstate, an asphalt swale with curb will be provided along the unpaved frontage of Hanover, as shown on the Plan. This swale will convey flows shown on Figure 5 as generated in Basin C, and which will remain in Hanover.

The apartment buildings will back up to the vacant lands to the west, and will front on the on site private street. Along the entire west frontage of the site, a trainer dike approximately 3 feet high will intercept the offsite sheet flows and direct that storm water south to Glenrio. This runoff is from Basin A as shown on Figure 5. Runoff generated on site, Basin B, will be directed by site grading and by graded swales around the buildings toward the private street. The street will be graded down toward the south where water will be discharged to the on site temporary retention pond. Until the line in Glenrio is constructed, all storm water generated on site will be directed to the southwest corner of the site to a temporary retention pond. Once City storm sewer reaches the west end of the apartment complex, the pond can be reclaimed, provided all on site water can be collected and discharged directly to the storm sewer. No other on site ponding is intended.

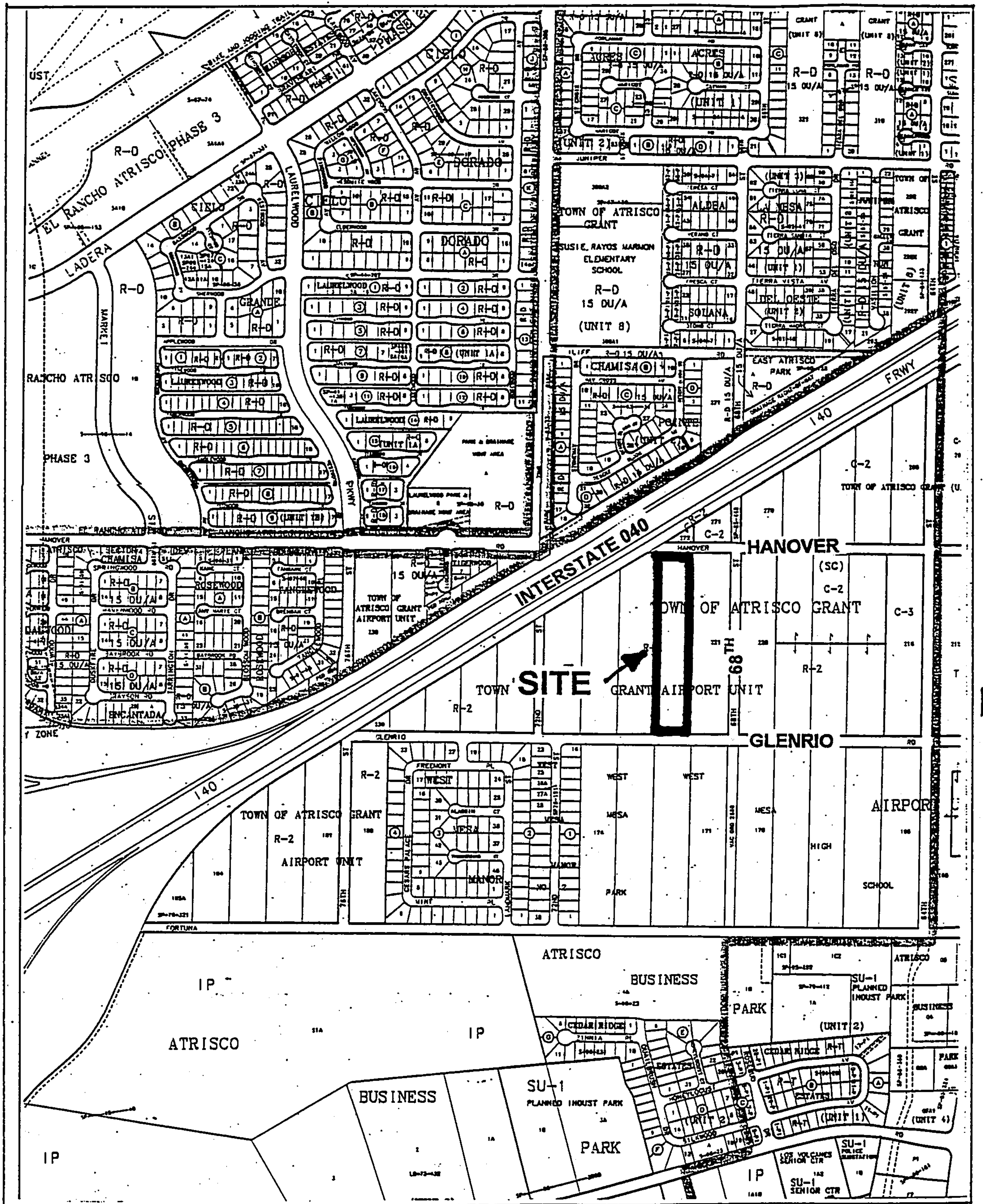


FIGURE 1 - LOCATION MAP

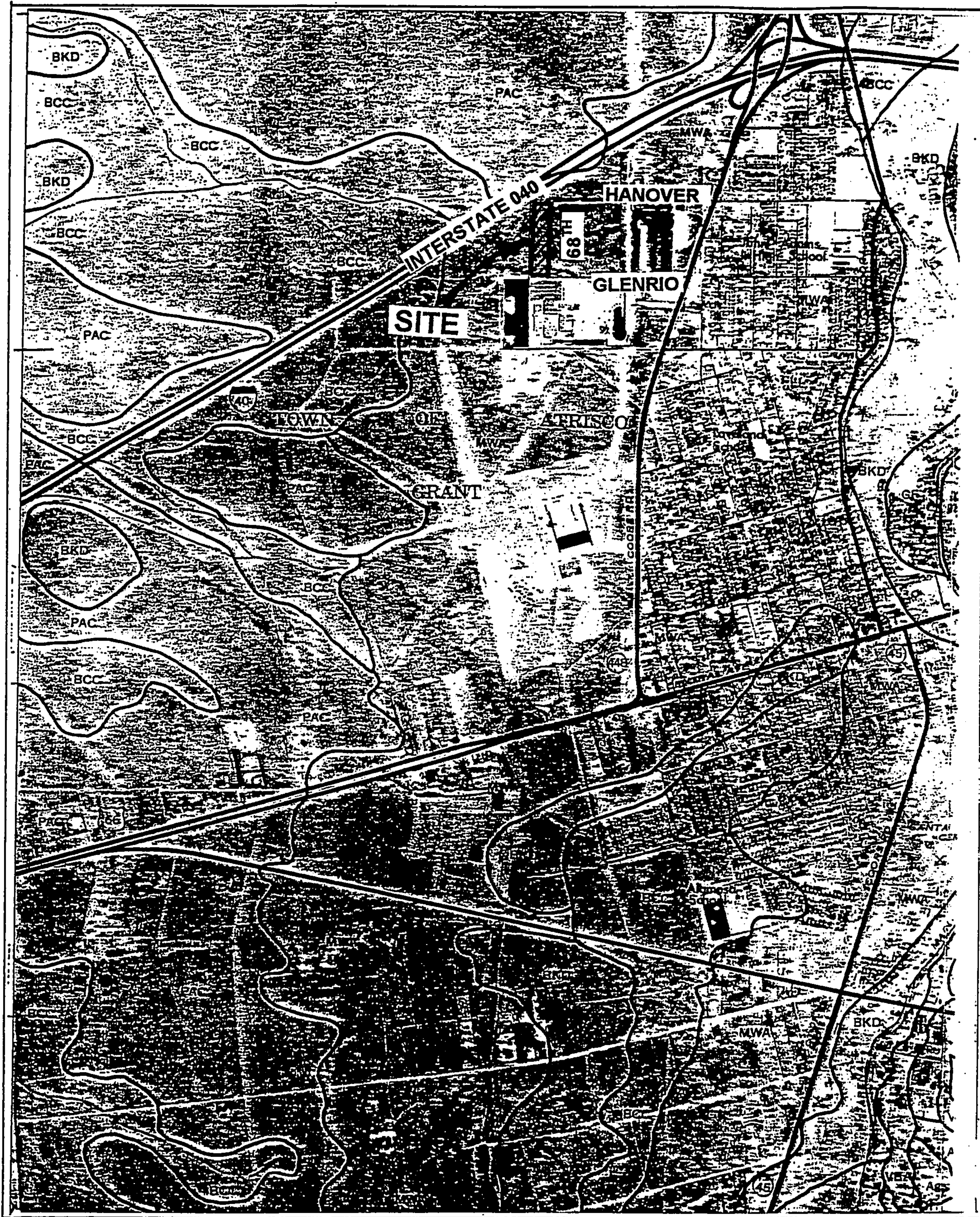


FIGURE 2 - SOILS MAP

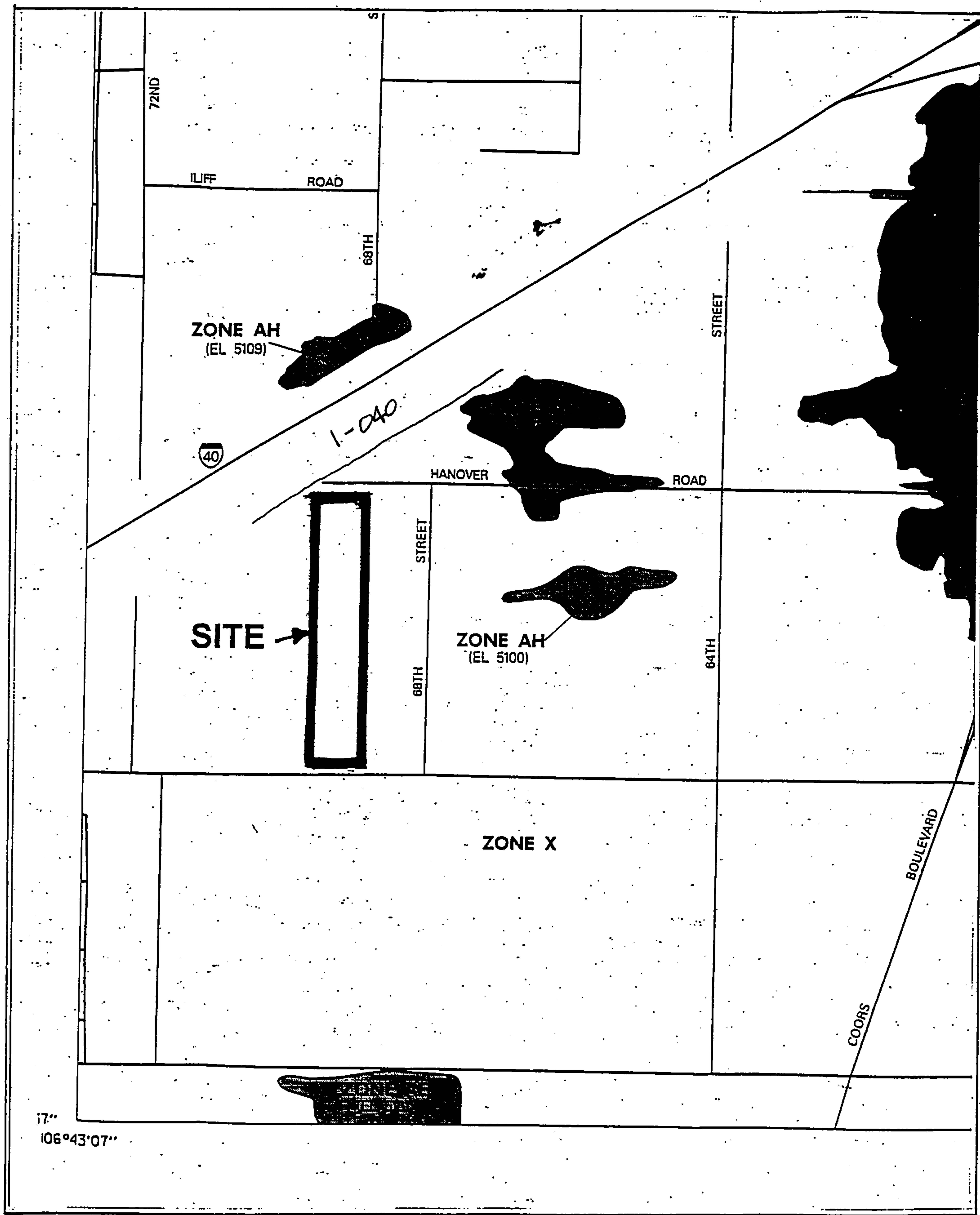


FIGURE 3 – FIRM PANEL 327 / 825

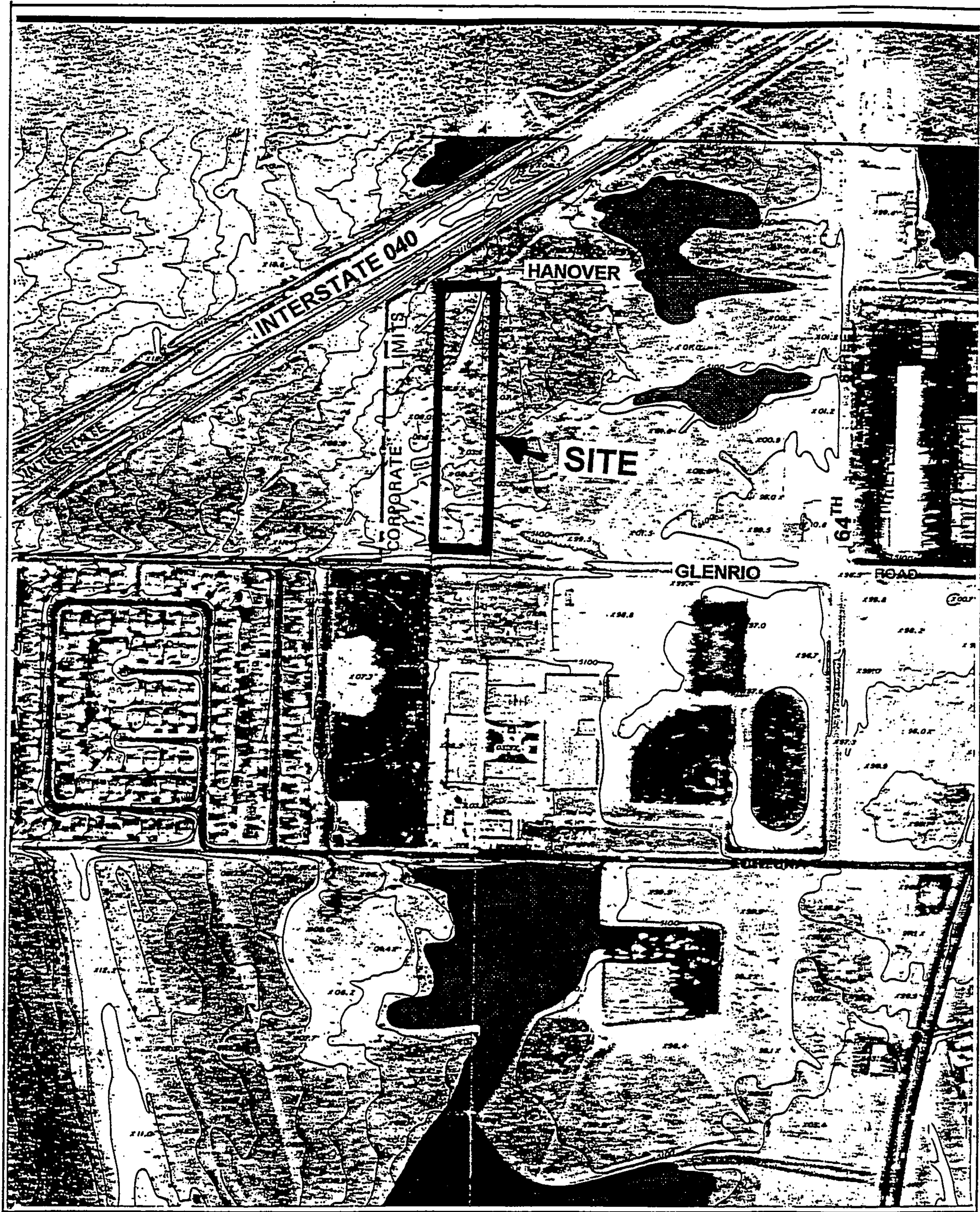


FIGURE 4 – FLOODWAY PANEL 27 / 50

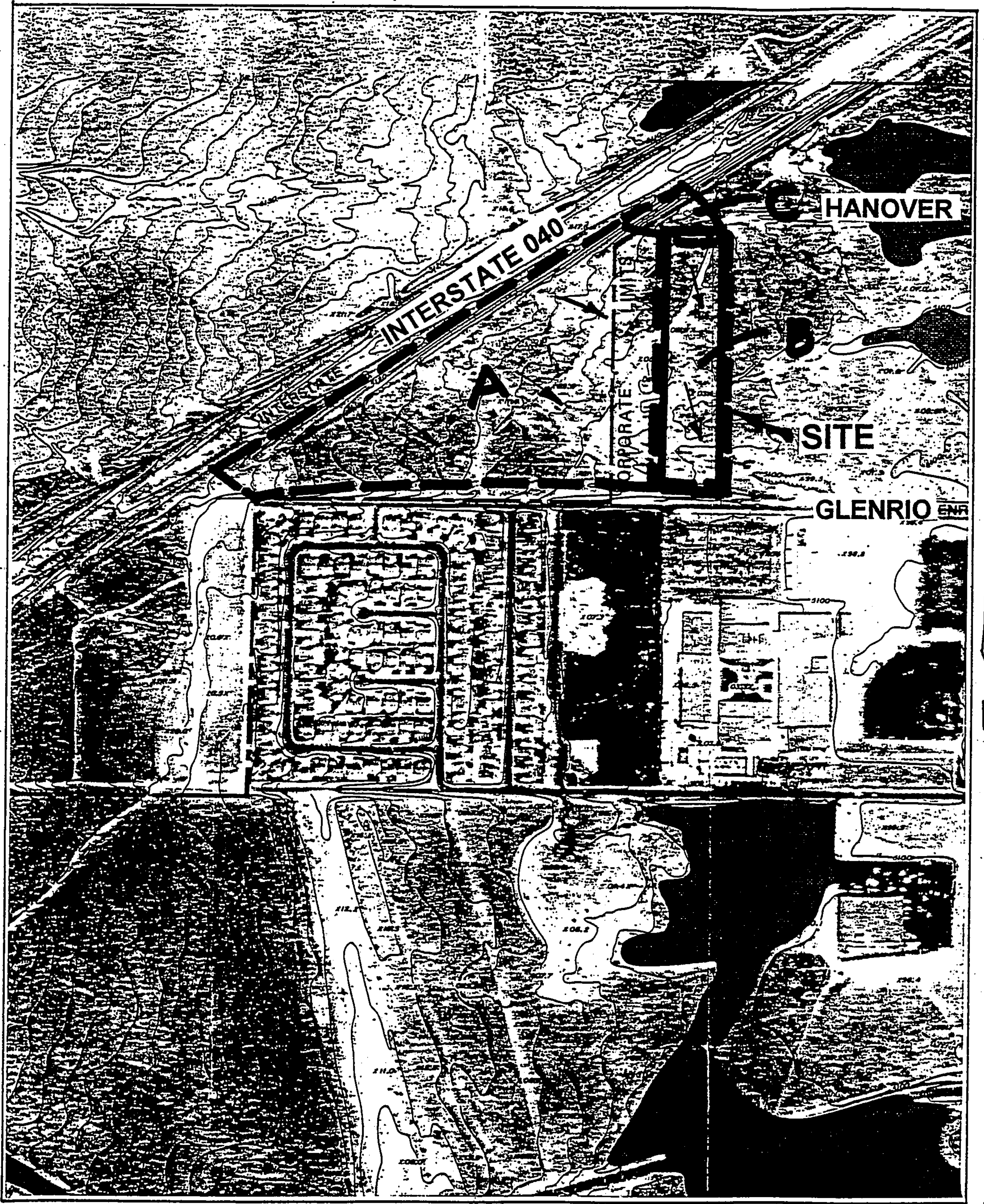


FIGURE 5 - BASIN MAP

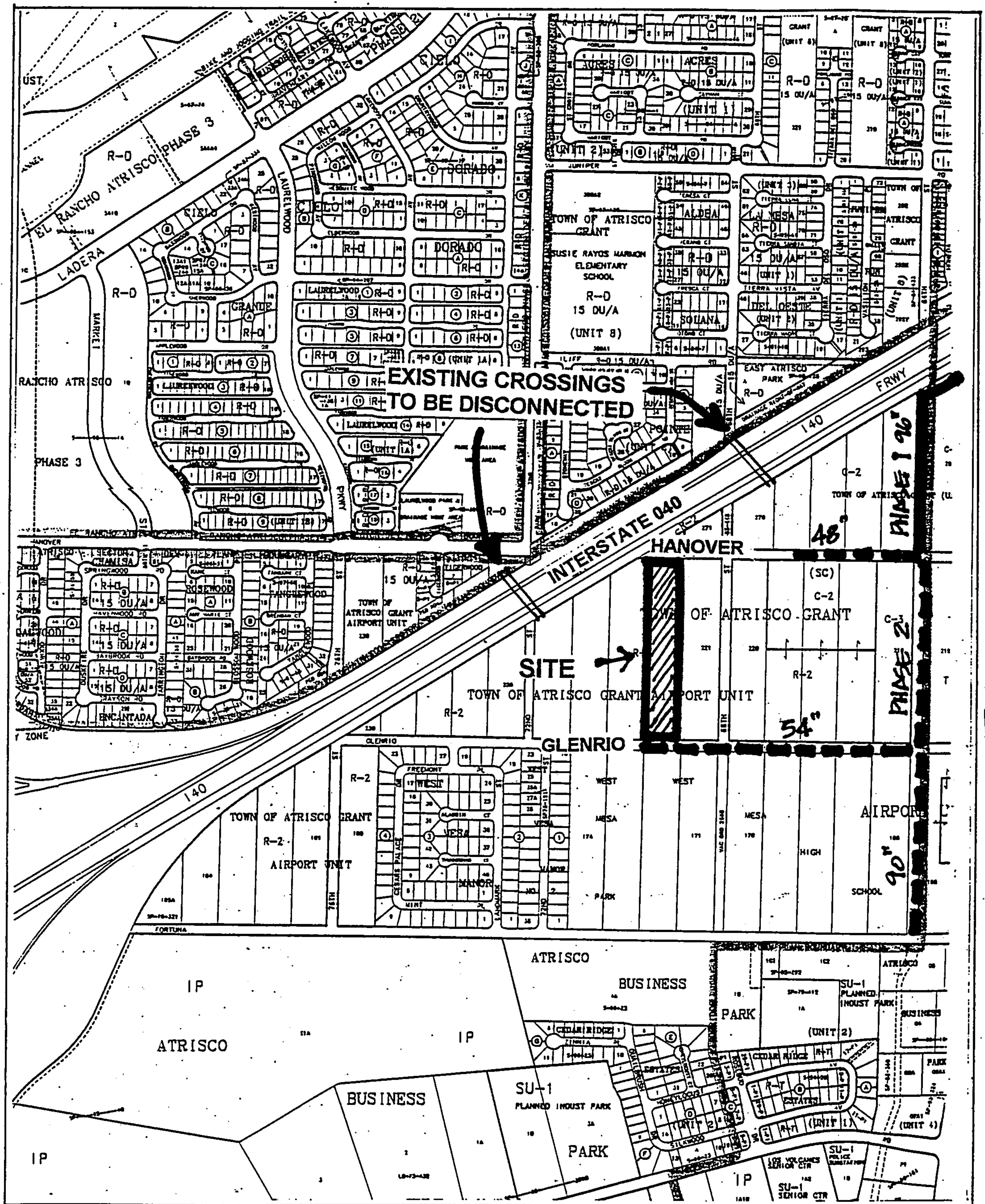
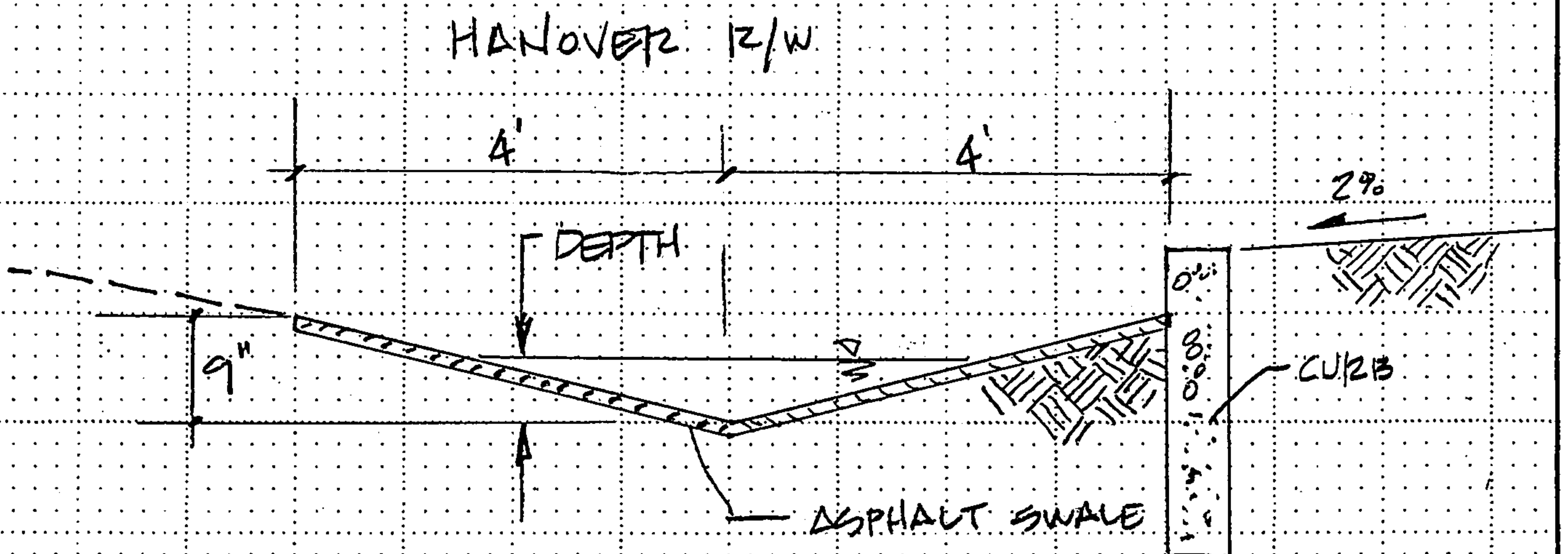


FIGURE 6 - WEST MESA DIVERSION LINES

HANOVER SWALE CAPACITY



$$n = 0.017$$

$$s = 0.0208$$

$$Q_{100} (\text{BASIN C}) = 232 \text{ CFS}$$

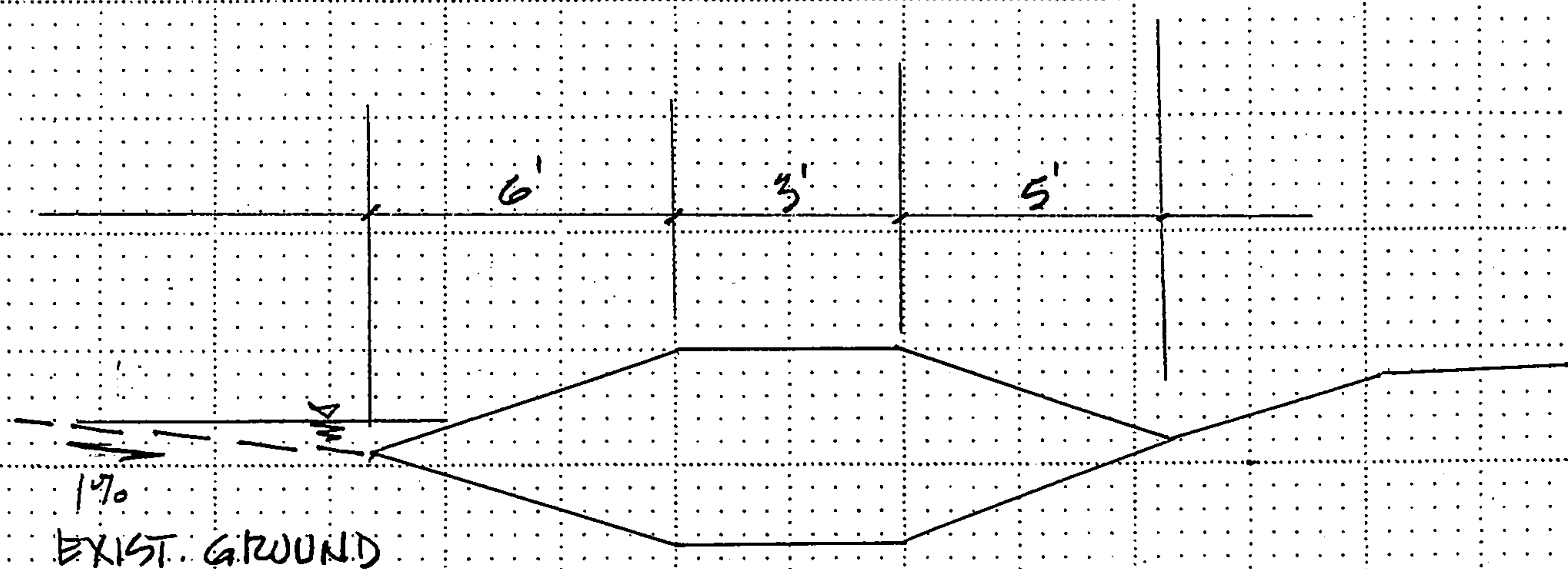
$$V = 4.0 \text{ FT/SEC}$$

$$\text{DEPTH} = 0.36'$$

$$\frac{V^2}{2g} = \frac{(4.0)^2}{2(32.17)} = 0.25'$$

$$\text{EGL @ DEPTH} = 0.36 + 0.25 = 0.61'$$

TRAINER DIKE



$$n = 0.025$$

$$S = 0.005$$

$$Q_{100} (\text{BASIN B}) = 54.54 \text{ CFS}$$

$$\text{FLOW DEPTH} = 0.71 \text{ FT}$$

NATURAL CHANNELS

VARIABLES LIST:

Y - FLOW ELEVATION

Q - FLOWRATE

S - CHANNEL SLOPE

VARIABLE TO BE SOLVED (Y, Q OR S) ? Y

Enter up to 20 cross-section points.
Enter <Return> only for distance to end.

Q (CFS) ? 54.535

S (FT/FT) ? .005

CROSS-SECTION POINTS

DIST	ELEV	COEFF	DIST	ELEV	COEFF
0	102	.025			
200	100	.025			
206	102	.025			

RESULTS

=====

Y= 100.71 FT

A= 25.92 SF

P= 73.19 FT

V= 2.10 FPS

F= 0.62 SUB-CRITICAL FLOW

BASIN .. A
UN DEVELOPED

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 05/19/2000
START TIME (HR:MIN:SEC) = 11:32:02 USER NO.= BRASHERE.I01
INPUT FILE = RGLEN2.DAT

*RIVERGLEN - A SINGLE HYDROGRAPH (RGLEN1.DAT
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RAINFALL TYPE=1 QUARTER=0
ONE=1.87 SIX=2.2
DAY=2.66 DT=0.033333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40
HR.

DT = .033333 HOURS END TIME = 5.999940 HOURS

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.0122	.0141	.0160	.0180	.0201	.0222	.0243
.0266	.0289	.0312	.0337	.0362	.0388	.0415
.0443	.0472	.0502	.0534	.0567	.0601	.0637
.0675	.0715	.0758	.0810	.0865	.0924	.1051
.1335	.1773	.2400	.3257	.4384	.5820	.7607
.9789	1.1808	1.2652	1.3365	1.4000	1.4577	1.5108
1.5602	1.6063	1.6495	1.6902	1.7285	1.7648	1.7991
1.8316	1.8624	1.8917	1.9194	1.9458	1.9519	1.9576
1.9631	1.9683	1.9732	1.9780	1.9826	1.9870	1.9912
1.9953	1.9993	2.0031	2.0068	2.0105	2.0140	2.0174
2.0207	2.0240	2.0272	2.0303	2.0333	2.0363	2.0392
2.0420	2.0448	2.0476	2.0502	2.0529	2.0554	2.0580
2.0605	2.0629	2.0653	2.0677	2.0701	2.0724	2.0746
2.0769	2.0791	2.0812	2.0834	2.0855	2.0876	2.0896
2.0916	2.0936	2.0956	2.0976	2.0995	2.1014	2.1033
2.1052	2.1070	2.1088	2.1106	2.1124	2.1142	2.1159
2.1176	2.1193	2.1210	2.1227	2.1244	2.1260	2.1276
2.1292	2.1308	2.1324	2.1340	2.1355	2.1371	2.1386
2.1401	2.1416	2.1431	2.1446	2.1461	2.1475	2.1489
2.1504	2.1518	2.1532	2.1546	2.1560	2.1573	2.1587
2.1601	2.1614	2.1627	2.1641	2.1654	2.1667	2.1680
2.1693	2.1705	2.1718	2.1731	2.1743	2.1756	2.1768
2.1780	2.1793	2.1805	2.1817	2.1829	2.1841	2.1852
2.1864	2.1876	2.1887	2.1899	2.1911	2.1922	2.1933
2.1945	2.1956	2.1967	2.1978	2.1989	2.2000	

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PERC=0 PER D=0
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2.899764
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AREA = .032297 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033333

BASIN B
EXISTING CONDITION

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DAY=2.66 DT=0.033333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40

HR.

DT = .033333 HOURS END TIME = 5.999940 HOURS

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.0122	.0141	.0160	.0180	.0201	.0222	.0243
.0266	.0289	.0312	.0337	.0362	.0388	.0415
.0443	.0472	.0502	.0534	.0567	.0601	.0637
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.1335	.1773	.2400	.3257	.4384	.5820	.7607
.9789	1.1808	1.2652	1.3365	1.4000	1.4577	1.5108
1.5602	1.6063	1.6495	1.6902	1.7285	1.7648	1.7991
1.8316	1.8624	1.8917	1.9194	1.9458	1.9519	1.9576
1.9631	1.9683	1.9732	1.9780	1.9826	1.9870	1.9912
1.9953	1.9993	2.0031	2.0068	2.0105	2.0140	2.0174
2.0207	2.0240	2.0272	2.0303	2.0333	2.0363	2.0392
2.0420	2.0448	2.0476	2.0502	2.0529	2.0554	2.0580
2.0605	2.0629	2.0653	2.0677	2.0701	2.0724	2.0746
2.0769	2.0791	2.0812	2.0834	2.0855	2.0876	2.0896
2.0916	2.0936	2.0956	2.0976	2.0995	2.1014	2.1033
2.1052	2.1070	2.1088	2.1106	2.1124	2.1142	2.1159
2.1176	2.1193	2.1210	2.1227	2.1244	2.1260	2.1276
2.1292	2.1308	2.1324	2.1340	2.1355	2.1371	2.1386
2.1401	2.1416	2.1431	2.1446	2.1461	2.1475	2.1489
2.1504	2.1518	2.1532	2.1546	2.1560	2.1573	2.1587
2.1601	2.1614	2.1627	2.1641	2.1654	2.1667	2.1680
2.1693	2.1705	2.1718	2.1731	2.1743	2.1756	2.1768
2.1780	2.1793	2.1805	2.1817	2.1829	2.1841	2.1852
2.1864	2.1876	2.1887	2.1899	2.1911	2.1922	2.1933
2.1945	2.1956	2.1967	2.1978	2.1989	2.2000	

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PERC=0 PER D=0
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2.899764
UNIT PEAK = 13.193 CFS UNIT VOLUME = .9987 B = 273.54 P60 = 1.8700
AREA = .007813 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033333

BASIN B
DEVELOPED

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994

RUN DATE (MON/DAY/YR) = 05/31/2000

START TIME (HR:MIN:SEC) = 14:29:54 USER NO.= BRASHERE.I01

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*RIVERGLEN - A SINGLE HYDROGRAPH (RGLEN1.DAT)

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ONE=1.87 SIX=2.2

DAY=2.66 DT=0.033333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40

HR.

DT = .033333 HOURS END TIME = 5.999940 HOURS

.0000	.0016	.0033	.0050	.0067	.0085	.0103
.0122	.0141	.0160	.0180	.0201	.0222	.0243
.0266	.0289	.0312	.0337	.0362	.0388	.0415
.0443	.0472	.0502	.0534	.0567	.0601	.0637
.0675	.0715	.0758	.0810	.0865	.0924	.1051
.1335	.1773	.2400	.3257	.4384	.5820	.7607
.9789	1.1808	1.2652	1.3365	1.4000	1.4577	1.5108
1.5602	1.6063	1.6495	1.6902	1.7285	1.7648	1.7991
1.8316	1.8624	1.8917	1.9194	1.9458	1.9519	1.9576
1.9631	1.9683	1.9732	1.9780	1.9826	1.9870	1.9912
1.9953	1.9993	2.0031	2.0068	2.0105	2.0140	2.0174
2.0207	2.0240	2.0272	2.0303	2.0333	2.0363	2.0392
2.0420	2.0448	2.0476	2.0502	2.0529	2.0554	2.0580
2.0605	2.0629	2.0653	2.0677	2.0701	2.0724	2.0746
2.0769	2.0791	2.0812	2.0834	2.0855	2.0876	2.0896
2.0916	2.0936	2.0956	2.0976	2.0995	2.1014	2.1033
2.1052	2.1070	2.1088	2.1106	2.1124	2.1142	2.1159
2.1176	2.1193	2.1210	2.1227	2.1244	2.1260	2.1276
2.1292	2.1308	2.1324	2.1340	2.1355	2.1371	2.1386
2.1401	2.1416	2.1431	2.1446	2.1461	2.1475	2.1489
2.1504	2.1518	2.1532	2.1546	2.1560	2.1573	2.1587
2.1601	2.1614	2.1627	2.1641	2.1654	2.1667	2.1680
2.1693	2.1705	2.1718	2.1731	2.1743	2.1756	2.1768
2.1780	2.1793	2.1805	2.1817	2.1829	2.1841	2.1852
2.1864	2.1876	2.1887	2.1899	2.1911	2.1922	2.1933
2.1945	2.1956	2.1967	2.1978	2.1989	2.2000	

COMPUTE NM HYD ID=1 HYD NO=101.01

DA=0.0078125 SQ MI

PER A=0 PER B=3.540

PER C=51.260 PER D=45.20

TP=0.162 HR MASSRAIN=-1

K = .088290HR TP = .162000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420

UNIT PEAK = 11.472 CFS UNIT VOLUME = .9988 B = 526.28 P60 = 1.8700

AREA = .003531 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .130633HR TP = .162000HR K/TP RATIO = .806375 SHAPE CONSTANT, N =
4.438381
UNIT PEAK = 10.133 CFS UNIT VOLUME = .9988 B = 383.41 P60 = 1.8700
AREA = .004281 SQ MI IA = .35969 INCHES INF = .85713 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033333

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 101.01

RUNOFF VOLUME = 1.41952 INCHES = .5915 ACRE-FEET
PEAK DISCHARGE RATE = 15.90 CFS AT 1.533 HOURS BASIN AREA = .0078 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 14:29:54

BASIN C
EXISTING CONDITION

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994

RUN DATE (MON/DAY/YR) = 05/31/2000

START TIME (HR:MIN:SEC) = 13:59:42 USER NO.= BRASHERE.I01

INPUT FILE = rglen4.dat

*RIVERGLEN - A SINGLE HYDROGRAPH (RGLEN1.DAT

START TIME=0.0 PUNCH CODE=0

RAINFALL TYPE=1 QUARTER=0

ONE=1.87 SIX=2.2

DAY=2.66 DT=0.033333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40

HR.

DT = .033333 HOURS END TIME = 5.999940 HOURS

.0000	.0016	.0033	.0050	.0067	.0085	.0103
.0122	.0141	.0160	.0180	.0201	.0222	.0243
.0266	.0289	.0312	.0337	.0362	.0388	.0415
.0443	.0472	.0502	.0534	.0567	.0601	.0637
.0675	.0715	.0758	.0810	.0865	.0924	.1051
.1335	.1773	.2400	.3257	.4384	.5820	.7607
.9789	1.1808	1.2652	1.3365	1.4000	1.4577	1.5108
1.5602	1.6063	1.6495	1.6902	1.7285	1.7648	1.7991
1.8316	1.8624	1.8917	1.9194	1.9458	1.9519	1.9576
1.9631	1.9683	1.9732	1.9780	1.9826	1.9870	1.9912
1.9953	1.9993	2.0031	2.0068	2.0105	2.0140	2.0174
2.0207	2.0240	2.0272	2.0303	2.0333	2.0363	2.0392
2.0420	2.0448	2.0476	2.0502	2.0529	2.0554	2.0580
2.0605	2.0629	2.0653	2.0677	2.0701	2.0724	2.0746
2.0769	2.0791	2.0812	2.0834	2.0855	2.0876	2.0896
2.0916	2.0936	2.0956	2.0976	2.0995	2.1014	2.1033
2.1052	2.1070	2.1088	2.1106	2.1124	2.1142	2.1159
2.1176	2.1193	2.1210	2.1227	2.1244	2.1260	2.1276
2.1292	2.1308	2.1324	2.1340	2.1355	2.1371	2.1386
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2.1504	2.1518	2.1532	2.1546	2.1560	2.1573	2.1587
2.1601	2.1614	2.1627	2.1641	2.1654	2.1667	2.1680
2.1693	2.1705	2.1718	2.1731	2.1743	2.1756	2.1768
2.1780	2.1793	2.1805	2.1817	2.1829	2.1841	2.1852
2.1864	2.1876	2.1887	2.1899	2.1911	2.1922	2.1933
2.1945	2.1956	2.1967	2.1978	2.1989	2.2000	

COMPUTE NM HYD ID=1 HYD NO=101.01

DA=0.0014348 SQ MI

PER A=0 PER B=30

PERC=40 PER D=30

TP=0.162 HR MASSRAIN=-1

K = .088290HR TP = .162000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420

UNIT PEAK = 1.3983 CFS UNIT VOLUME = .9915 B = 526.28 P60 = 1.8700

AREA = .000430 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .141747HR TP = .162000HR K/TP RATIO = .874979 SHAPE CONSTANT, N = 4.058425

UNIT PEAK = 2.2260 CFS UNIT VOLUME = .9938 B = 359.05 P60 = 1.8700

AREA = .001004 SQ MI IA = .41429 INCHES INF = 1.01000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 101.01

RUNOFF VOLUME = 1.17690 INCHES = .0901 ACRE-FEET

PEAK DISCHARGE RATE = 2.53 CFS AT 1.533 HOURS BASIN AREA = .0014 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 13:59:42

RIVERGLEN POND (TEMP. RETENTION)

BASIN B (DEVELOPED) :

$$V_{10} = V_{360} + A_b (P_{10} - P_{360}) / 12$$

$$= 0.5915 + 2.26 (3.67 - 2.20) / 12$$

$$= 0.868 \text{ AF} = 37,825 \text{ FT}^3$$

POND VOL. PROVIDED : 42,333 FT^3 @ DEPTH = 8.0 FT

DRAINAGE INFORMATION SHEET
(REV. 11/01/2001)

PROJECT TITLE: RIVERGLEN APARTMENTS

DRB #: _____ EPC#: _____

ZONE MAP/DRG. FILE #: J-10 / D31

WORK ORDER#: _____

LEGAL DESCRIPTION: TR. 222, AIRPORT UNIT, TOWN OF ATRISCO GRANT

CITY ADDRESS: 6801 GLENRIO NW

ENGINEERING FIRM: BRASHER & LORENZ, INC.

ADDRESS: 2201 SAN PEDRO BLVD. NE. BLDG 1, SUITE 220
CITY, STATE: ALBUQUERQUE, NEW MEXICO

CONTACT: PAUL BRASHER

PHONE: 888-6088

ZIP CODE: 87110

OWNER: GSL PROPERTIES

ADDRESS: 2164 SW PARK PL

CITY, STATE: PORTLAND, OREGON

CONTACT: J. CALDARERA

PHONE: 459-6740

ZIP CODE: 97205

ARCHITECT: ARCHITECTURE DESIGN & DEVELOPMENT

ADDRESS: 2160 W. CHARLESTON

CITY, STATE: LAS VEGAS NV

CONTACT: T. O'NEIL

PHONE: (702) 382-0427

ZIP CODE: 81092

SURVEYOR: STEVE WALKER

ADDRESS: _____

CITY, STATE: _____

CONTACT: _____

PHONE: 261-8848

ZIP CODE: _____

CONTRACTOR: OWNER

ADDRESS: _____

CITY, STATE: _____

CONTACT: _____

PHONE: _____

ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:

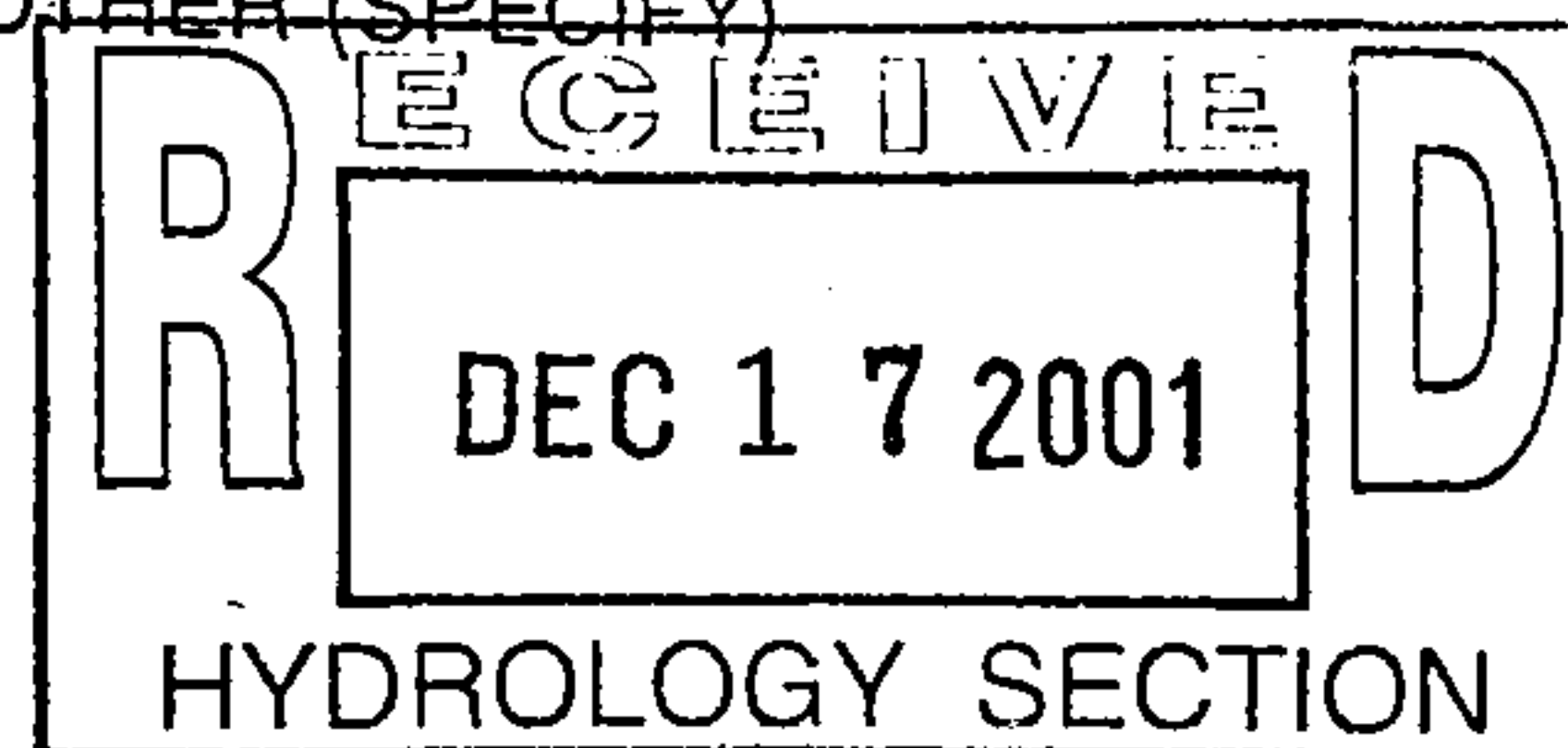
- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☒ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☒ ENGINEERS CERTIFICATION (TCL)
- ☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ☐ OTHER

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



DATE SUBMITTED: 12-17-01

BY: _____

PAUL BRASHER

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
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 constituting five (5) acres or

12/17/01 - CL in GPT; - Sent in letter dated 12/17/01; Logged in T.M. 12/17



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

***Public Works Department
Transportation Development Services Section***

December 17, 2001

Paul Brasher, Registered Professional Engineer
2201 San Pedro Blvd. NE
Bldg. 1, Suite 220
Albuquerque, NM 87110

Re: Certification Submittal for Final Building Certificate of Occupancy for
RiverGlen Apartments, [J10 / D31]
6801 Glenrio NW
Engineer's Stamp Dated 12/17/01

Dear Mr. Brasher:

The TCL / Letter of Certification submitted is sufficient for acceptance by this office for final Certificate of Occupancy (C.O.). Notification has been made to Building and Safety and final C.O. has been logged in by Vicki Chavez in the Building Safety Section downstairs.

Sincerely,

Leslie Romero
Engineering Associate
Development and Building Services
Public Works Department

c: Architect
Terri Martin, Hydrology
Mike Zamora, Plan Checker

DRAINAGE INFORMATION SHEET
(REV. 11/01/2001)

PROJECT TITLE: RIVERGLEN APTS ZONE MAP/DRG. FILE #: J10-D31
DRB #: _____ EPC#: _____ WORK ORDER#: _____
LEGAL DESCRIPTION: TR 222, AIRPORT UNIT, TOWN OF ATASCOC GRANT
CITY ADDRESS: 6801 GLENRIO NW
ENGINEERING FIRM: BRASHER + LORENZ
ADDRESS: 2201 SAN PEDRO NE
CITY, STATE: ALBUQUERQUE NM
CONTACT: P. BRASHER
PHONE: 800-6088
ZIP CODE: 87110
OWNER: GSL PROPERTIES
ADDRESS: 2164 SW PARK PL
CITY, STATE: PORTLAND OR 97205
CONTACT: J. CALDERERA
PHONE: 459-6740
ZIP CODE: _____
ARCHITECT: ARCHITECTURE DESIGN DEV
ADDRESS: 2160 West Charleston
CITY, STATE: LAS VEGAS NV
CONTACT: T. D'NEIL
PHONE: 702-382-0427
ZIP CODE: 89102
SURVEYOR: STEVE WALKER
ADDRESS: _____
CITY, STATE: _____
CONTACT: _____
PHONE: _____
ZIP CODE: _____
CONTRACTOR: OWNER
ADDRESS: _____
CITY, STATE: _____
CONTACT: _____
PHONE: _____
ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:

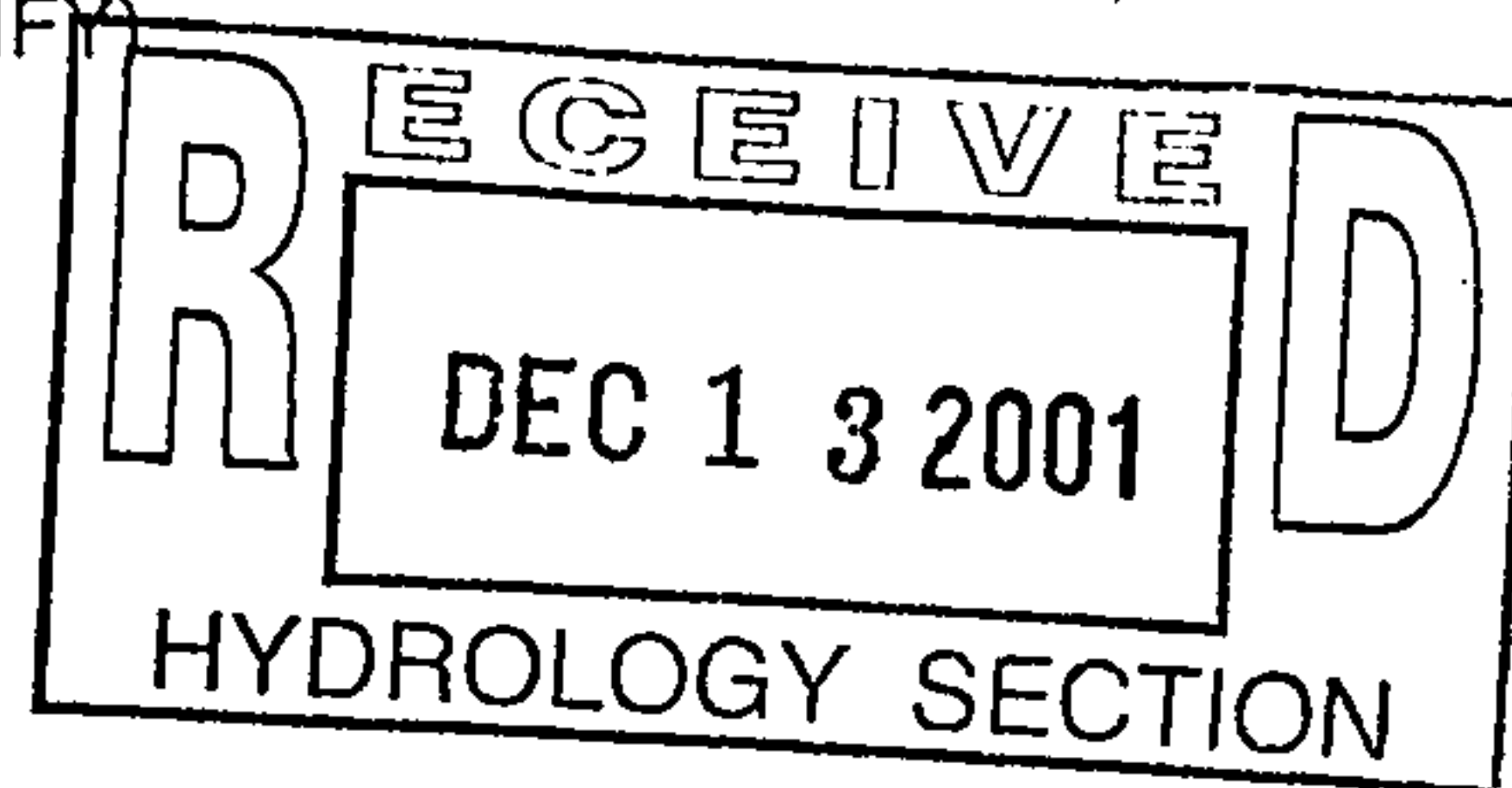
- ☐ DRAINAGE REPORT
☐ DRAINAGE PLAN
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☒ ENGINEER'S CERTIFICATION (HYDROLOGY)
☒ CLOMR/LOMR
☒ TRAFFIC CIRCULATION LAYOUT (TCL)
☒ ENGINEERS CERTIFICATION (TCL)
☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
☐ OTHER

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



DATE SUBMITTED: 12.12.01 BY: P. BRASHER

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
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 constituting five (5) acres or

- Engineer's certification must be stamped, signed, dated
- ^{practice of} Original ^{Site} plan ~~set~~ w/ manual notations ^{made} prior to plan approval for permit



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

***Public Works Department
Transportation Development Services Section***

December 14, 2001

Paul T. Brasher, Registered Professional Engineer
2201 San Pedro NE
Albuquerque, NM 87110

Re: Certification Submittal for Final Building Certificate of Occupancy for
RiverGlen Apartments, [J10 / D31]
6801 Glenrio NW
Engineer's Stamp Dated (Need Date on Stamp)

Dear Mr. Brasher:

The TCL / Letter of Certification submitted on 12/13/01 is not sufficient for acceptance by this office for final Certificate of Occupancy (C.O.).

The TCL (or DRB Site Plan) submitted for Final C.O. needs to be the exact copy of the original site plan with the original red mark notations made prior to approval for building permit. This will be the latest edition, which may have redlined comments, initialed and dated by the designer-of-record. In addition, the professional registered stamp must be stamped by the engineer's certification area as well. The registered stamp must be signed and dated on both areas of the site plan in order for Final C.O. approval.

Sincerely,

Leslie Romero
Engineering Associate
Development and Building Services
Public Works Department

c: Architect
Terri Martin, Hydrology
Mike Zamora, Plan Checker

DRAINAGE REPORT
FOR
RIVERGLEN APARTMENTS

Albuquerque, New Mexico

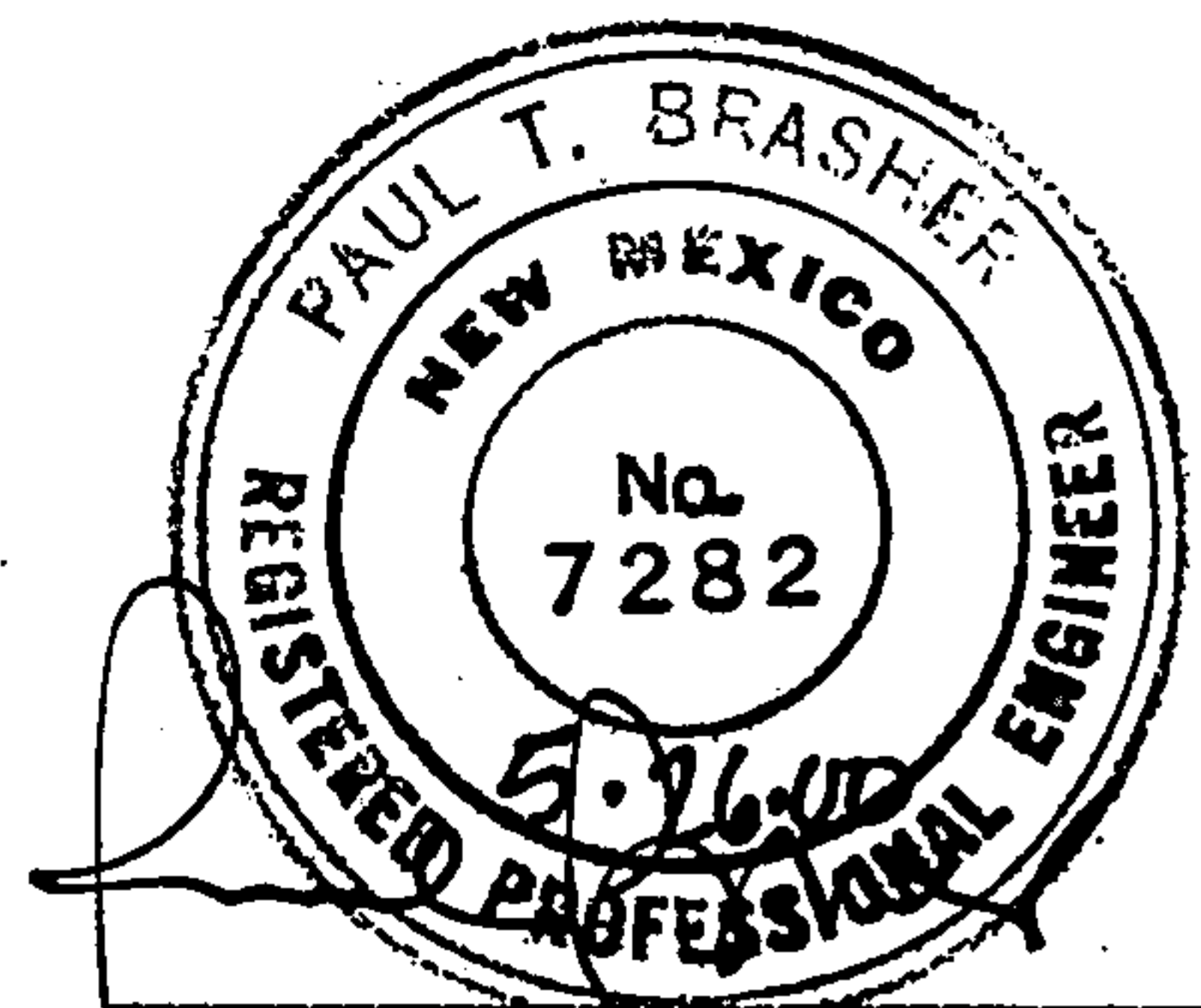
Prepared for

GSL Properties, Inc.
2164 SW Park Place
Portland, Oregon 97205-1125

Prepared by

BRASHER & LORENZ, INC.
Consulting Engineers
2201 San Pedro Blvd, NE
Albuquerque, New Mexico

6/1/2000
gls



Paul Brasher, PE

May, 2000

PURPOSE AND SCOPE

Pursuant to the established Drainage Ordinance for the City of Albuquerque and the Development Process Manual, this Drainage Report outlines the drainage management criteria for controlling developed runoff from the project site. The property is to be developed as Riverglen Apartments, a 96-unit apartment complex, with office and ancillary facilities. Paving, landscaping, utility, grading and drainage improvements will be provided to support the project. The scope of this plan is to provide drainage criteria for the safe management of excess runoff, and illustrate the grading, paving and drainage improvements required to support the project.

SITE DESCRIPTION

Riverglen Apartments will be located on Tract 222, Airport Unit, Town of Atrisco Grant. The project site is a 5.0-acre tract, undeveloped, lying within the City Limits, and zoned R-2 (See Figure 1). It is bounded on the north by Hanover right-of-way; on the south by Glenrio; on the east by an existing 5-acre apartment complex; and on the west by vacant 5-acre tracts. The site slopes generally down from north to south, and slightly from west down to east. The land is vegetated with a moderate density of native grasses and shrubs.

According to the Bernalillo County Soils Survey, on site soils consist of MWA, the Madurez-Wink association. This unit is about 55 percent a Madurez fine sandy loam that has one to five percent slopes and about 25 percent a Wink fine sandy loam that has one to seven percent slopes. Runoff is slow, and a hazard of soil blowing is moderate to severe. MWA is used for range, wildlife habitat, watershed, and community development. (See Figure 2).

As shown on the attached FIRM Panel, No. 327 of 825, the site does not lie within a designated flood hazard zone. (See Figures 3 and 4)

EXISTING DRAINAGE CONDITIONS

The undeveloped site receives sheet flow from the undeveloped lands to its west, a basin of approximately 20 acres (See Figure 5). These flows travel generally from northwest down toward the southeast, eventually discharging into Glenrio, a paved street. Glenrio does not have curb and gutter and storm water directs itself east along the edges of the paved right-of-way. Within this basin, a crossing structure beneath I-040 conveys runoff from the north side of the interstate and a portion of the median of the interstate to the south side of the interstate. According to the City (Mr. Dan Hogan, 5/21/99), this conveyance beneath the interstate is to be intercepted on the north side of the interstate by AMAFCA under the West Mesa Diversion Project (City Project No. 5381), and will not contribute to runoff upstream from Riverglen. The apartment complex to the east of Riverglen has paved and curbed frontage on its north, east, and south sides. On site runoff which cannot, by grade, reach paved

right-of-way, is directed toward a retention pond in the southwest corner of the site. There is no existing closed-conduit storm sewer system in the vicinity of this project.

PROPOSED CONDITIONS

The project hydrology assumes that the West Mesa Diversion Project will intercept flows from the opposite side of the interstate. Under Phase 1 of the West Mesa Diversion Project, a 96" storm sewer will be constructed in 64th St., from I-040 to Hanover. In Phase 2, the 96" line will be extended in 64th St., south to Fortuna. A 48" line will be built in Hanover from 64th to the west, approximately 650 feet. A 54" line will be constructed in Glenrio, from 64th St. to the west property line of Riverglen (See Figure 6). Completion of Phase 2, originally scheduled for June, 2000, has been delayed by approximately one year.

The apartment complex will consist of a total of 96 units in eight buildings, office, and ancillary facilities. Access will be taken from both Glenrio and Hanover by a private, on site paved road which will run continuously between both City streets. Under City work order for this project, curb and gutter will be constructed in Glenrio across the frontage of the site. Hanover paving will be extended west, from its existing end section, to the Hanover driveway entrance to the project. The City will not require the paving of the entire Hanover frontage of the project, since its right-of-way narrows as it approaches the interstate such that it cannot be used effectively as full access to lands to the west. To manage storm water flows running down from the interstate, an asphalt swale with curb will be provided along the unpaved frontage of Hanover, as shown on the Plan. This swale will convey flows shown on Figure 5 as generated in Basin C, and which will remain in Hanover.

The apartment buildings will back up to the vacant lands to the west, and will front on the on site private street. Along the entire west frontage of the site, a trainer dike approximately 3 feet high will intercept the offsite sheet flows and direct that storm water south to Glenrio. This runoff is from Basin A as shown on Figure 5. Runoff generated on site, Basin B, will be directed by site grading and by graded swales around the buildings toward the private street. The street will be graded down toward the south where water will be discharged to the on site temporary retention pond. Until the line in Glenrio is constructed, all storm water generated on site will be directed to the southwest corner of the site to a temporary retention pond. Once City storm sewer reaches the west end of the apartment complex, the pond can be reclaimed, provided all on site water can be collected and discharged directly to the storm sewer. No other on site ponding is intended.

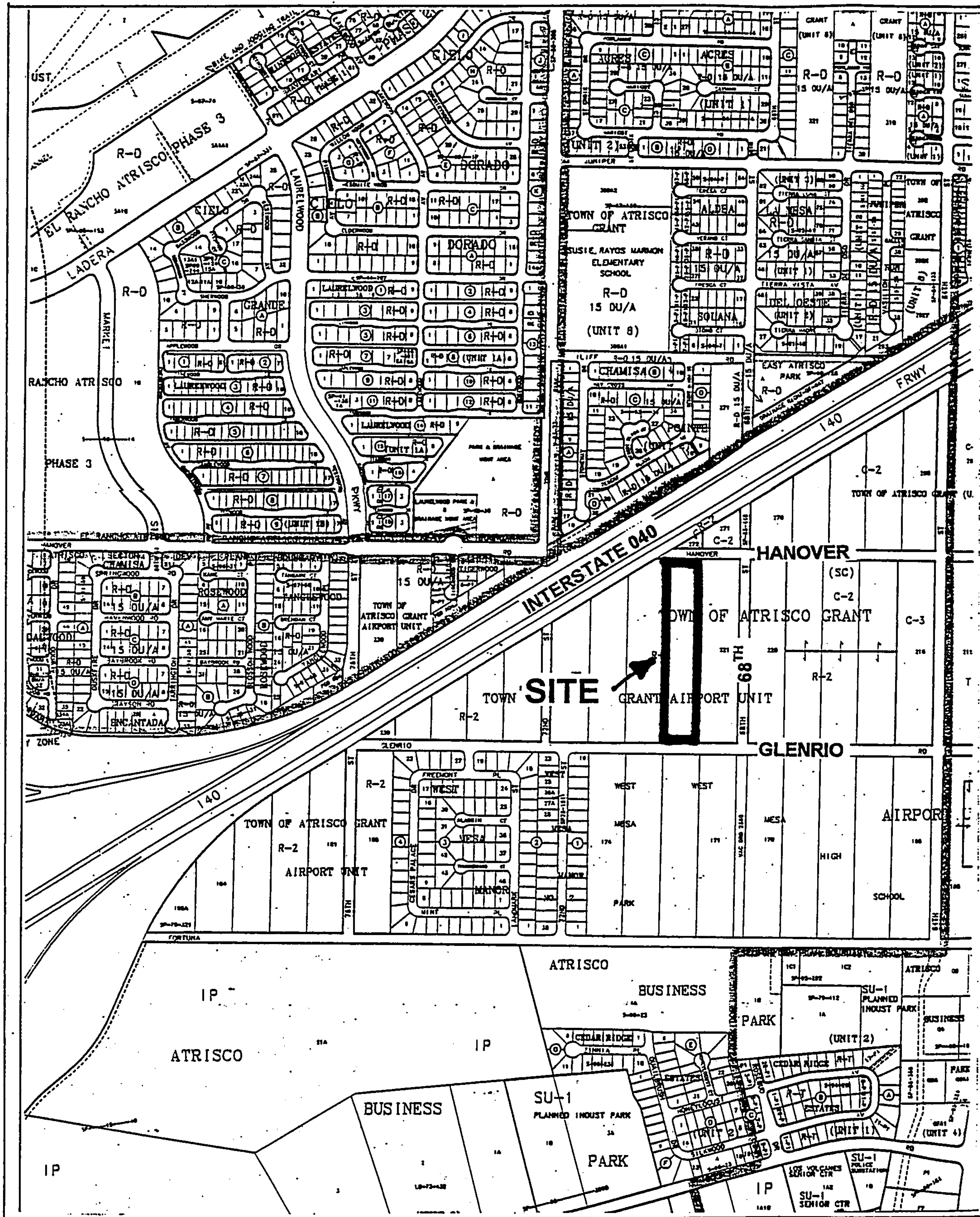


FIGURE 1 - LOCATION MAP

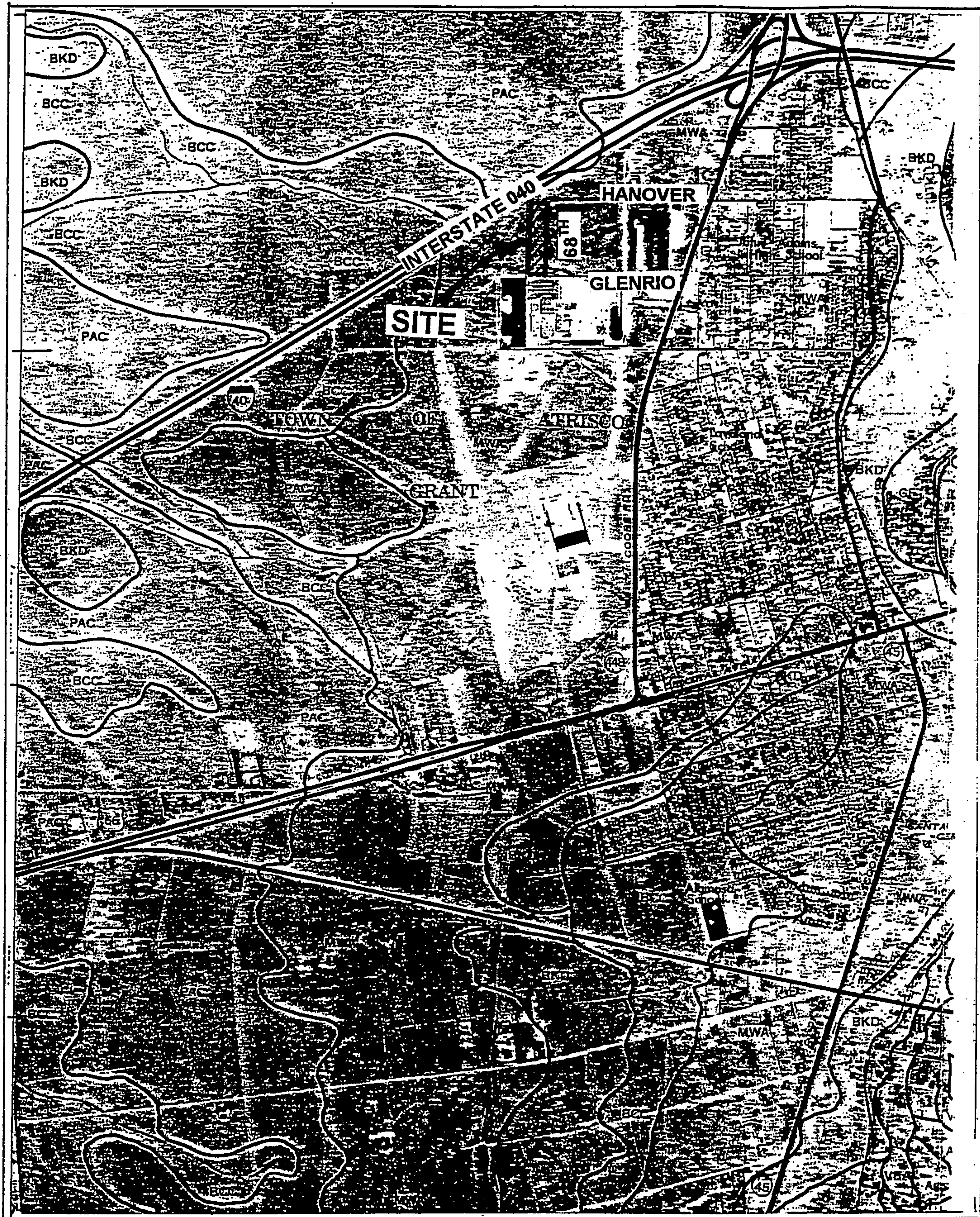


FIGURE 2 - SOILS MAP

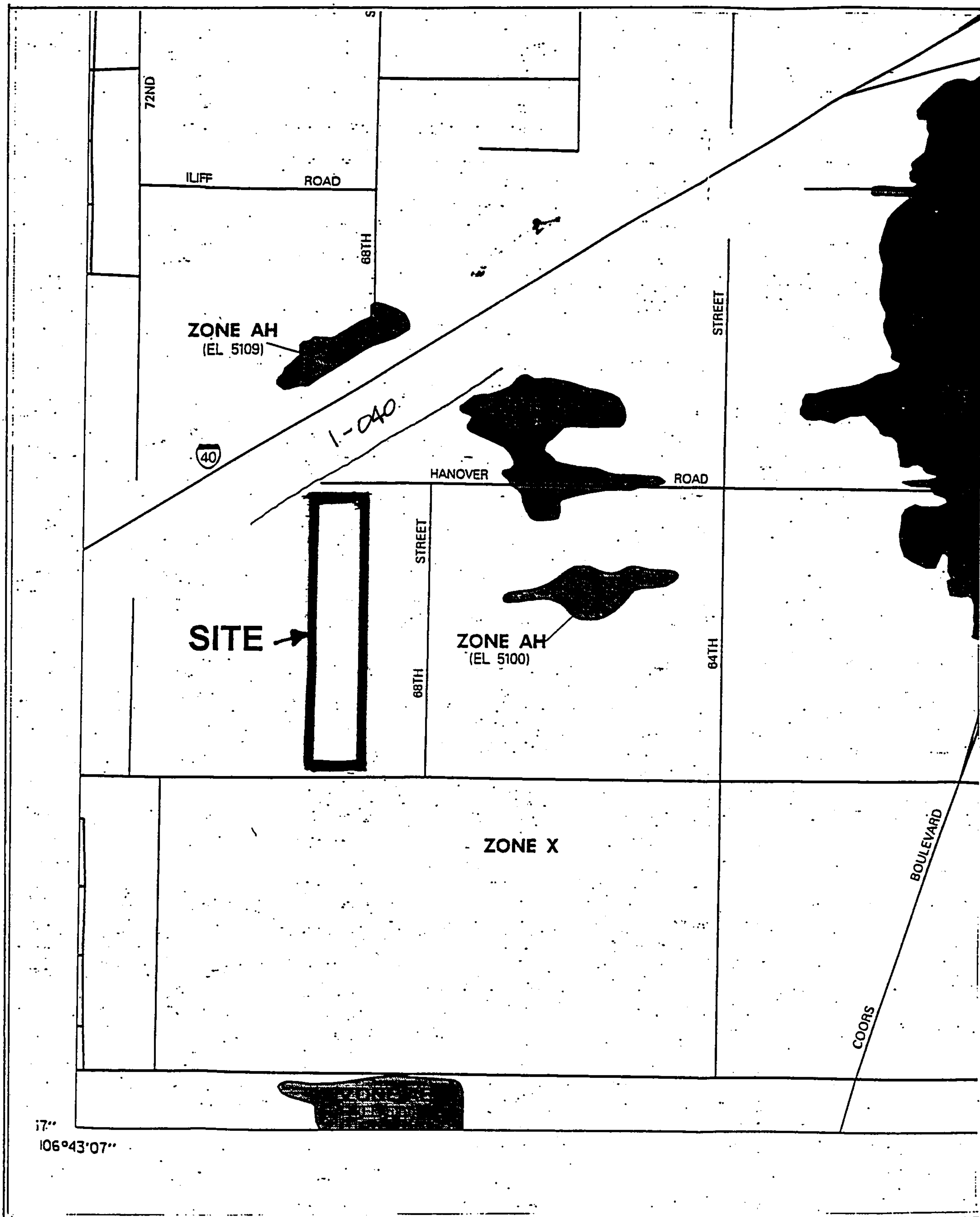


FIGURE 3 – FIRM PANEL 327 / 825

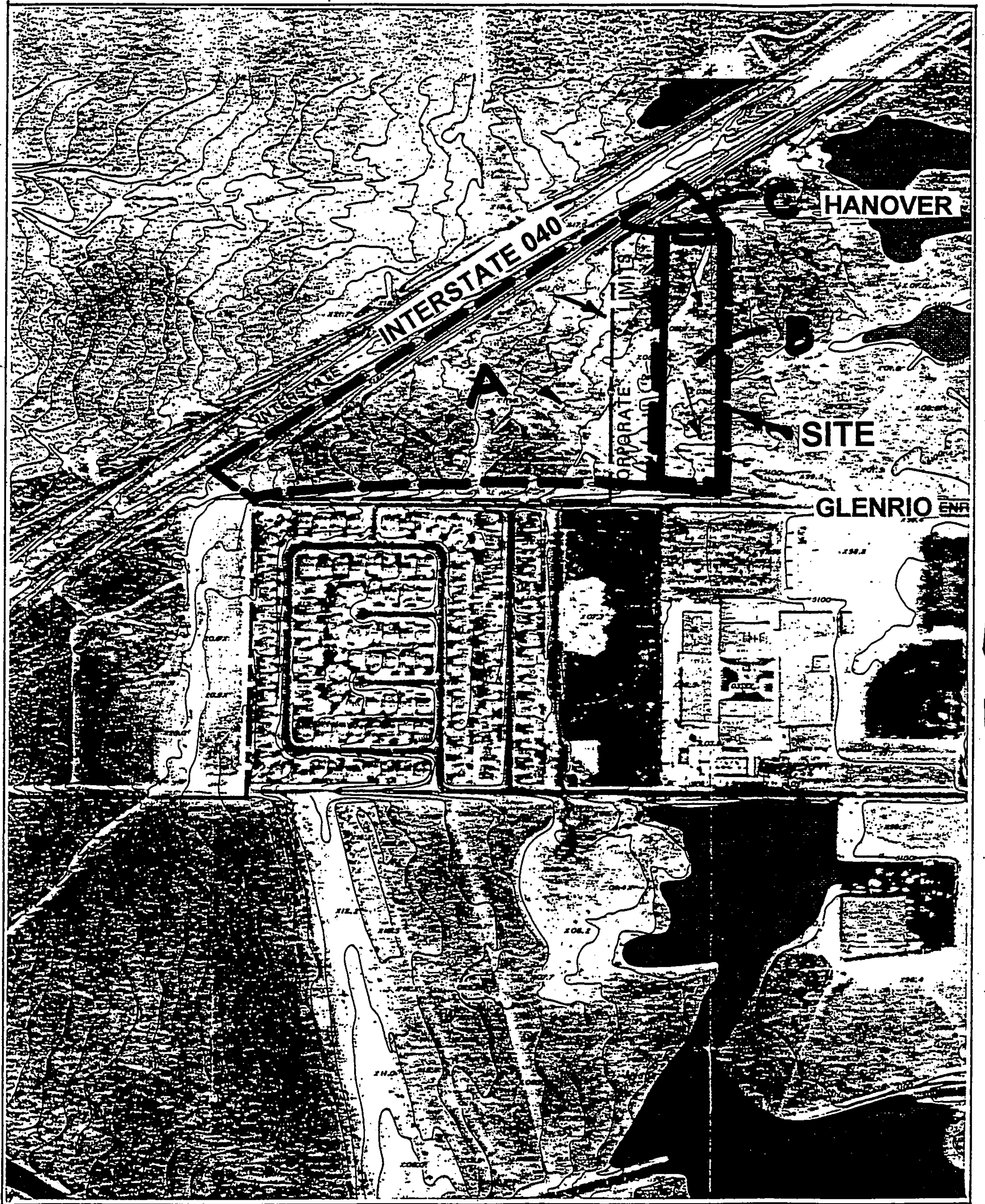


FIGURE 5 - BASIN MAP

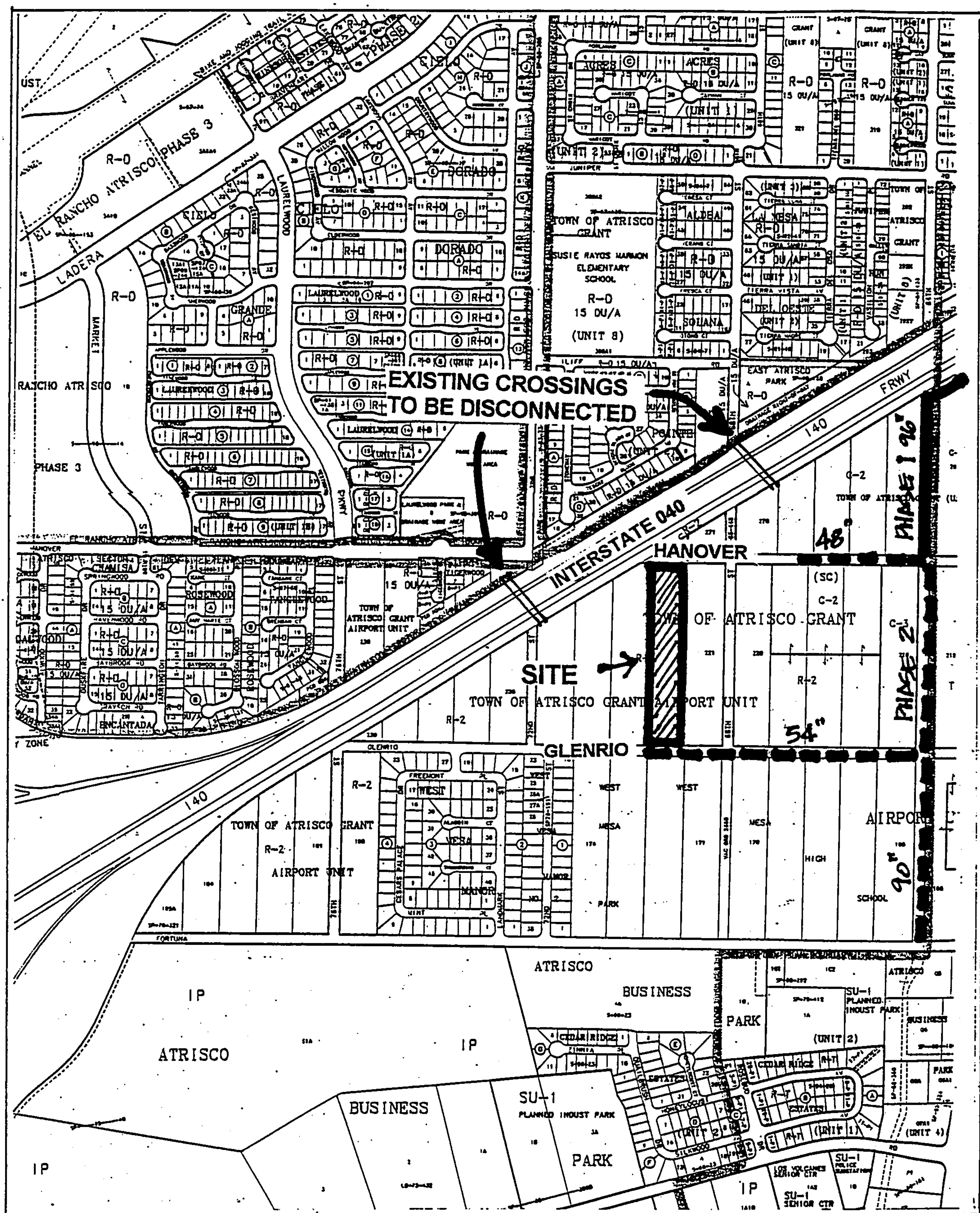
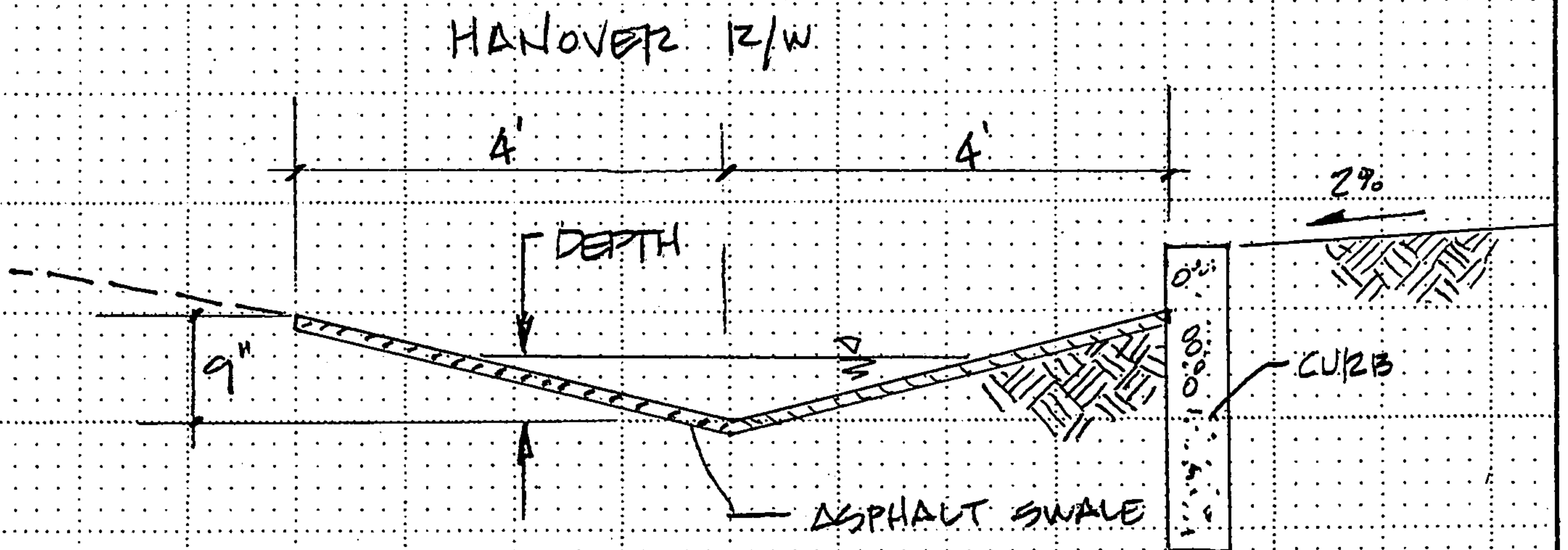


FIGURE 6 - WEST MESA DIVERSION LINES

HANOVER SWALE CAPACITY



$$n = 0.017$$

$$s = 0.0208$$

$$Q_{100} (\text{BASIN C}) = 232 \text{ CFS}$$

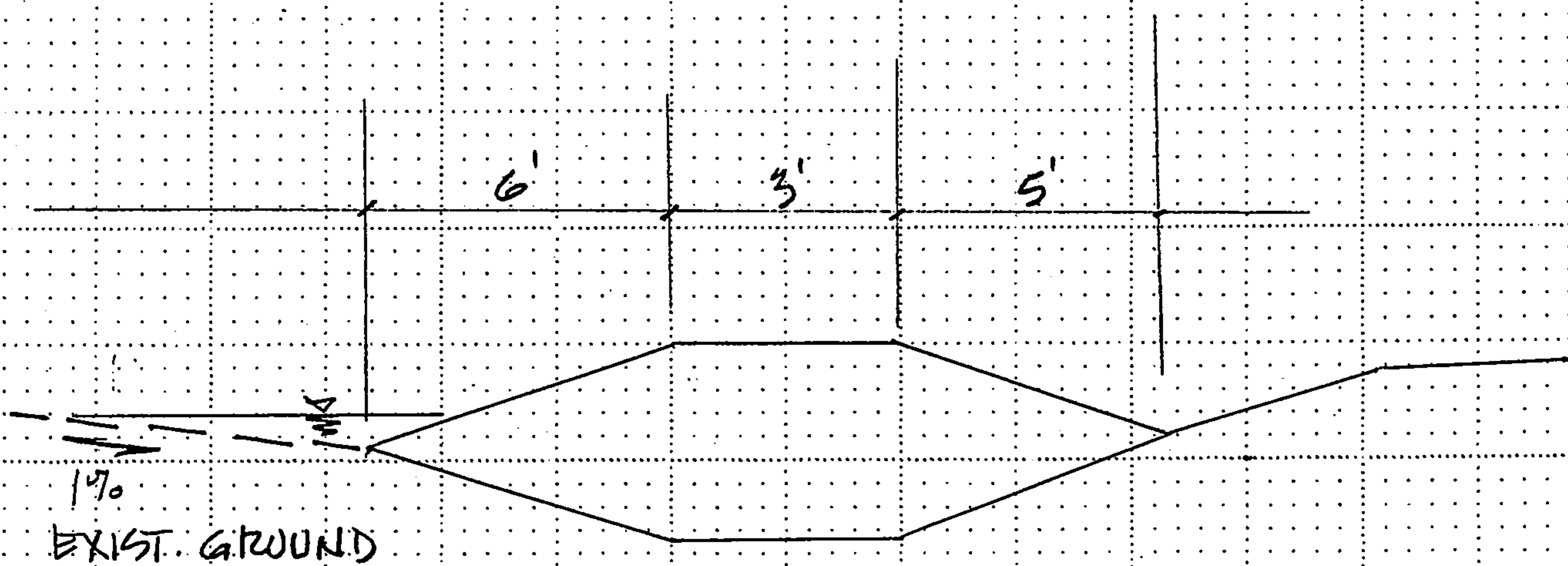
$$V = 4.0 \text{ FT/SEC}$$

$$\text{DEPTH} = 0.36'$$

$$\frac{V^2}{2g} = \frac{(4.0)^2}{2(32.17)} = 0.25'$$

$$\text{EGL @ DEPTH} = 0.36 + 0.25 = 0.61'$$

TRAINER DIKE



$$n = 0.025$$

$$S = 0.005$$

$$Q_{100} (\text{BASIN B}) = 54.54 \text{ CFS}$$

$$\text{FLOW DEPTH} = 0.71 \text{ FT}$$

NATURAL CHANNELS

VARIABLES LIST:

Y - FLOW ELEVATION

Q - FLOWRATE

S - CHANNEL SLOPE

VARIABLE TO BE SOLVED (Y, Q OR S) ? Y

Enter up to 20 cross-section points.
Enter <Return> only for distance to end.

Q (CFS) ? 54.535

S (FT/FT) ? .005

CROSS-SECTION POINTS

DIST	ELEV	COEFF	DIST	ELEV	COEFF
0	102	.025			
200	100	.025			
206	102	.025			

RESULTS

=====

Y= 100.71 FT

A= 25.92 SF

P= 73.19 FT

V= 2.10 FPS

F= 0.62 SUB-CRITICAL FLOW

BASIN .. A
UN DEVELOPED

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994

RUN DATE (MON/DAY/YR) = 05/19/2000

START TIME (HR:MIN:SEC) = 11:32:02 USER NO.= BRASHERE.I01

INPUT FILE = RGLEN2.DAT

*RIVERGLEN - A SINGLE HYDROGRAPH (RGLEN1.DAT

START TIME=0.0 PUNCH CODE=0

RAINFALL TYPE=1 QUARTER=0

ONE=1.87 SIX=2.2

DAY=2.66 DT=0.033333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40

HR.

DT = .033333 HOURS END TIME = 5.999940 HOURS

.0000	.0016	.0033	.0050	.0067	.0085	.0103
.0122	.0141	.0160	.0180	.0201	.0222	.0243
.0266	.0289	.0312	.0337	.0362	.0388	.0415
.0443	.0472	.0502	.0534	.0567	.0601	.0637
.0675	.0715	.0758	.0810	.0865	.0924	.1051
.1335	.1773	.2400	.3257	.4384	.5820	.7607
.9789	1.1808	1.2652	1.3365	1.4000	1.4577	1.5108
1.5602	1.6063	1.6495	1.6902	1.7285	1.7648	1.7991
1.8316	1.8624	1.8917	1.9194	1.9458	1.9519	1.9576
1.9631	1.9683	1.9732	1.9780	1.9826	1.9870	1.9912
1.9953	1.9993	2.0031	2.0068	2.0105	2.0140	2.0174
2.0207	2.0240	2.0272	2.0303	2.0333	2.0363	2.0392
2.0420	2.0448	2.0476	2.0502	2.0529	2.0554	2.0580
2.0605	2.0629	2.0653	2.0677	2.0701	2.0724	2.0746
2.0769	2.0791	2.0812	2.0834	2.0855	2.0876	2.0896
2.0916	2.0936	2.0956	2.0976	2.0995	2.1014	2.1033
2.1052	2.1070	2.1088	2.1106	2.1124	2.1142	2.1159
2.1176	2.1193	2.1210	2.1227	2.1244	2.1260	2.1276
2.1292	2.1308	2.1324	2.1340	2.1355	2.1371	2.1386
2.1401	2.1416	2.1431	2.1446	2.1461	2.1475	2.1489
2.1504	2.1518	2.1532	2.1546	2.1560	2.1573	2.1587
2.1601	2.1614	2.1627	2.1641	2.1654	2.1667	2.1680
2.1693	2.1705	2.1718	2.1731	2.1743	2.1756	2.1768
2.1780	2.1793	2.1805	2.1817	2.1829	2.1841	2.1852
2.1864	2.1876	2.1887	2.1899	2.1911	2.1922	2.1933
2.1945	2.1956	2.1967	2.1978	2.1989	2.2000	

COMPUTE NM HYD ID=1 HYD NO=101.01

DA=0.032297 SQ MI

PER A=100 PER B=0

PERC=0 PER D=0

TP=0.162 HR MASSRAIN=-1

K = .198926HR TP = .162000HR K/TP RATIO = 1.227936 SHAPE CONSTANT, N = 2.899764

UNIT PEAK = 54.535 CFS UNIT VOLUME = .9996 B = 273.54 P60 = 1.8700

AREA = .032297 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

BASIN B

EXISTING CONDITION

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994

RUN DATE (MON/DAY/YR) = 05/19/2000

START TIME (HR:MIN:SEC) = 11:20:44 USER NO.= BRASHERE.I01

INPUT FILE = RGLEN1.DAT

*RIVERGLEN - A SINGLE HYDROGRAPH (RGLEN1.DAT

START TIME=0.0 PUNCH CODE=0

RAINFALL TYPE=1 QUARTER=0

ONE=1.87 SIX=2.2

DAY=2.66 DT=0.033333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40

HR.

DT = .033333 HOURS END TIME = 5.999940 HOURS

.0000	.0016	.0033	.0050	.0067	.0085	.0103
.0122	.0141	.0160	.0180	.0201	.0222	.0243
.0266	.0289	.0312	.0337	.0362	.0388	.0415
.0443	.0472	.0502	.0534	.0567	.0601	.0637
.0675	.0715	.0758	.0810	.0865	.0924	.1051
.1335	.1773	.2400	.3257	.4384	.5820	.7607
.9789	1.1808	1.2652	1.3365	1.4000	1.4577	1.5108
1.5602	1.6063	1.6495	1.6902	1.7285	1.7648	1.7991
1.8316	1.8624	1.8917	1.9194	1.9458	1.9519	1.9576
1.9631	1.9683	1.9732	1.9780	1.9826	1.9870	1.9912
1.9953	1.9993	2.0031	2.0068	2.0105	2.0140	2.0174
2.0207	2.0240	2.0272	2.0303	2.0333	2.0363	2.0392
2.0420	2.0448	2.0476	2.0502	2.0529	2.0554	2.0580
2.0605	2.0629	2.0653	2.0677	2.0701	2.0724	2.0746
2.0769	2.0791	2.0812	2.0834	2.0855	2.0876	2.0896
2.0916	2.0936	2.0956	2.0976	2.0995	2.1014	2.1033
2.1052	2.1070	2.1088	2.1106	2.1124	2.1142	2.1159
2.1176	2.1193	2.1210	2.1227	2.1244	2.1260	2.1276
2.1292	2.1308	2.1324	2.1340	2.1355	2.1371	2.1386
2.1401	2.1416	2.1431	2.1446	2.1461	2.1475	2.1489
2.1504	2.1518	2.1532	2.1546	2.1560	2.1573	2.1587
2.1601	2.1614	2.1627	2.1641	2.1654	2.1667	2.1680
2.1693	2.1705	2.1718	2.1731	2.1743	2.1756	2.1768
2.1780	2.1793	2.1805	2.1817	2.1829	2.1841	2.1852
2.1864	2.1876	2.1887	2.1899	2.1911	2.1922	2.1933
2.1945	2.1956	2.1967	2.1978	2.1989	2.2000	

COMPUTE NM HYD ID=1 HYD NO=101.01

DA=0.007813 SQ MI

PER A=100 PER B=0

PERC=0 PER D=0

TP=0.162 HR MASSRAIN=-1

K = .198926HR TP = .162000HR K/TP RATIO = 1.227936 SHAPE CONSTANT, N = 2.899764

UNIT PEAK = 13.193 CFS UNIT VOLUME = .9987 B = 273.54 P60 = 1.8700

AREA = .007813 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

BASIN B
DEVELOPED

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 05/31/2000
START TIME (HR:MIN:SEC) = 14:29:54 USER NO.= BRASHERE.I01
INPUT FILE = RGLEN3.DAT

*RIVERGLEN - A SINGLE HYDROGRAPH (RGLEN1.DAT
START TIME=0.0 PUNCH CODE=0
RAINFALL TYPE=1 QUARTER=0
ONE=1.87 SIX=2.2
DAY=2.66 DT=0.033333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40
HR.

DT = .033333 HOURS END TIME = 5.999940 HOURS

.0000	.0016	.0033	.0050	.0067	.0085	.0103
.0122	.0141	.0160	.0180	.0201	.0222	.0243
.0266	.0289	.0312	.0337	.0362	.0388	.0415
.0443	.0472	.0502	.0534	.0567	.0601	.0637
.0675	.0715	.0758	.0810	.0865	.0924	.1051
.1335	.1773	.2400	.3257	.4384	.5820	.7607
.9789	1.1808	1.2652	1.3365	1.4000	1.4577	1.5108
1.5602	1.6063	1.6495	1.6902	1.7285	1.7648	1.7991
1.8316	1.8624	1.8917	1.9194	1.9458	1.9519	1.9576
1.9631	1.9683	1.9732	1.9780	1.9826	1.9870	1.9912
1.9953	1.9993	2.0031	2.0068	2.0105	2.0140	2.0174
2.0207	2.0240	2.0272	2.0303	2.0333	2.0363	2.0392
2.0420	2.0448	2.0476	2.0502	2.0529	2.0554	2.0580
2.0605	2.0629	2.0653	2.0677	2.0701	2.0724	2.0746
2.0769	2.0791	2.0812	2.0834	2.0855	2.0876	2.0896
2.0916	2.0936	2.0956	2.0976	2.0995	2.1014	2.1033
2.1052	2.1070	2.1088	2.1106	2.1124	2.1142	2.1159
2.1176	2.1193	2.1210	2.1227	2.1244	2.1260	2.1276
2.1292	2.1308	2.1324	2.1340	2.1355	2.1371	2.1386
2.1401	2.1416	2.1431	2.1446	2.1461	2.1475	2.1489
2.1504	2.1518	2.1532	2.1546	2.1560	2.1573	2.1587
2.1601	2.1614	2.1627	2.1641	2.1654	2.1667	2.1680
2.1693	2.1705	2.1718	2.1731	2.1743	2.1756	2.1768
2.1780	2.1793	2.1805	2.1817	2.1829	2.1841	2.1852
2.1864	2.1876	2.1887	2.1899	2.1911	2.1922	2.1933
2.1945	2.1956	2.1967	2.1978	2.1989	2.2000	

COMPUTE NM HYD ID=1 HYD NO=101.01
DA=0.0078125 SQ MI
PER A=0 PER B=3.540
PER C=51.260 PER D=45.20
TP=0.162 HR MASSRAIN=-1

K = .088290HR TP = .162000HR K/TP RATIO = .545000 SHAPE CONSTANT, N =
7.106420

UNIT PEAK = 11.472 CFS UNIT VOLUME = .9988 B = 526.28 P60 = 1.8700
AREA = .003531 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033333

K = .130633HR TP = .162000HR K/TP RATIO = .806375 SHAPE CONSTANT, N = 4.438381

UNIT PEAK = 10.133 CFS UNIT VOLUME = .9988 B = 383.41 P60 = 1.8700

AREA = .004281 SQ MI IA = .35969 INCHES INF = .85713 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 101.01

RUNOFF VOLUME = 1.41952 INCHES = .5915 ACRE-FEET

PEAK DISCHARGE RATE = 15.90 CFS AT 1.533 HOURS BASIN AREA = .0078 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 14:29:54

BASIN C
EXISTING CONDITION

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 05/31/2000
START TIME (HR:MIN:SEC) = 13:59:42 USER NO.= BRASHERE.I01
INPUT FILE = rglen4.dat

*RIVERGLEN - A SINGLE HYDROGRAPH (RGLEN1.DAT
START TIME=0.0 PUNCH CODE=0
RAINFALL TYPE=1 QUARTER=0
ONE=1.87 SIX=2.2
DAY=2.66 DT=0.033333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40

HR.

DT = .033333 HOURS END TIME = 5.999940 HOURS

.0000	.0016	.0033	.0050	.0067	.0085	.0103
.0122	.0141	.0160	.0180	.0201	.0222	.0243
.0266	.0289	.0312	.0337	.0362	.0388	.0415
.0443	.0472	.0502	.0534	.0567	.0601	.0637
.0675	.0715	.0758	.0810	.0865	.0924	.1051
.1335	.1773	.2400	.3257	.4384	.5820	.7607
.9789	1.1808	1.2652	1.3365	1.4000	1.4577	1.5108
1.5602	1.6063	1.6495	1.6902	1.7285	1.7648	1.7991
1.8316	1.8624	1.8917	1.9194	1.9458	1.9519	1.9576
1.9631	1.9683	1.9732	1.9780	1.9826	1.9870	1.9912
1.9953	1.9993	2.0031	2.0068	2.0105	2.0140	2.0174
2.0207	2.0240	2.0272	2.0303	2.0333	2.0363	2.0392
2.0420	2.0448	2.0476	2.0502	2.0529	2.0554	2.0580
2.0605	2.0629	2.0653	2.0677	2.0701	2.0724	2.0746
2.0769	2.0791	2.0812	2.0834	2.0855	2.0876	2.0896
2.0916	2.0936	2.0956	2.0976	2.0995	2.1014	2.1033
2.1052	2.1070	2.1088	2.1106	2.1124	2.1142	2.1159
2.1176	2.1193	2.1210	2.1227	2.1244	2.1260	2.1276
2.1292	2.1308	2.1324	2.1340	2.1355	2.1371	2.1386
2.1401	2.1416	2.1431	2.1446	2.1461	2.1475	2.1489
2.1504	2.1518	2.1532	2.1546	2.1560	2.1573	2.1587
2.1601	2.1614	2.1627	2.1641	2.1654	2.1667	2.1680
2.1693	2.1705	2.1718	2.1731	2.1743	2.1756	2.1768
2.1780	2.1793	2.1805	2.1817	2.1829	2.1841	2.1852
2.1864	2.1876	2.1887	2.1899	2.1911	2.1922	2.1933
2.1945	2.1956	2.1967	2.1978	2.1989	2.2000	

COMPUTE NM HYD ID=1 HYD NO=101.01
DA=0.0014348 SQ MI
PER A=0 PER B=30
PERC=40 PER D=30
TP=0.162 HR MASSRAIN=-1

K = .088290HR TP = .162000HR K/TP RATIO = .545000 SHAPE CONSTANT, N =
7.106420
UNIT PEAK = 1.3983 CFS UNIT VOLUME = .9915 B = 526.28 P60 = 1.8700
AREA = .000430 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033333

K = .141747HR TP = .162000HR K/TP RATIO = .874979 SHAPE CONSTANT, N =
4.058425
UNIT PEAK = 2.2260 CFS UNIT VOLUME = .9938 B = 359.05 P60 = 1.8700
AREA = .001004 SQ MI IA = .41429 INCHES INF = 1.01000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033333

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 101.01

RUNOFF VOLUME = 1.17690 INCHES = .0901 ACRE-FEET
PEAK DISCHARGE RATE = 2.53 CFS AT 1.533 HOURS BASIN AREA = .0014 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 13:59:42

RIVERGLEN POND (TEMP. RETENTION)

BASIN B (DEVELOPED) :

$$V_{10} = V_{360} + \Delta_b (P_{10} - P_{360}) / 12$$

$$= 0.5915 + 2.26 (3.67 - 2.20) / 12$$

$$= 0.868 \text{ AF} = 37,825 \text{ FT}^3$$

POND VOL. PROVIDED : 42,333 FT³ @ DEPTH = 8.0 FT



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

December 14, 2001

Paul Brasher, P.E.
Brasher & Lorenz
2201 San Pedro NE Bldg. 1 Suite 220
Albuquerque, New Mexico 87110

RE: RIVERGLEN APARTMENTS (J-10/D31)
(Hanover/Glenrio @ 68th St NW)
ENGINEERS CERTIFICATION FOR CERTIFICATE OF OCCUPANCY
ENGINEERS STAMP DATED 5/31/2000
ENGINEERS CERTIFICATION DATED 12/11/2001

Dear Mr. Brasher:

Based upon the information provided in your Engineers Certification submittal dated 12/13/2001, the above referenced site is approved for a Permanent Certificate of Occupancy.

If I can be of further assistance, please contact me at 924-3981.

Sincerely,


Teresa A. Martin
Hydrology Plan Checker
Public Works Department
363

C: Vickie Chavez, COA
✓ drainage file
approval file

DRAINAGE INFORMATION SHEET
(REV. 11/01/2001)

PROJECT TITLE: RIVERGLEN APTS ZONE MAP/DRG. FILE #: J10-B31
DRB #: _____ EPC#: _____ WORK ORDER#: _____
LEGAL DESCRIPTION: TR 222, AIRPORT UNIT, TOWN OF ATASCOC GRANT
CITY ADDRESS: 6801 GLENVIEW NW
ENGINEERING FIRM: BRASHER + LORENZ CONTACT: P. BRASHER
ADDRESS: 2201 SAN PEDRO NE PHONE: 888-6088
CITY, STATE: ALBUQUERQUE NM ZIP CODE: 87110
OWNER: GSL PROPERTIES CONTACT: J. CALDERERA
ADDRESS: 2164 SW PARK PL PHONE: 459-6740
CITY, STATE: PORTLAND OR 97205 ZIP CODE: _____
ARCHITECT: ARCHITECTURE DESIGN DEV CONTACT: T. O'NEIL
ADDRESS: 2160 PHONE: 702-382-0427
CITY, STATE: LAS VEGAS NV ZIP CODE: 89102
SURVEYOR: STEVE WALKER CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____
CONTRACTOR: OWNER CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:

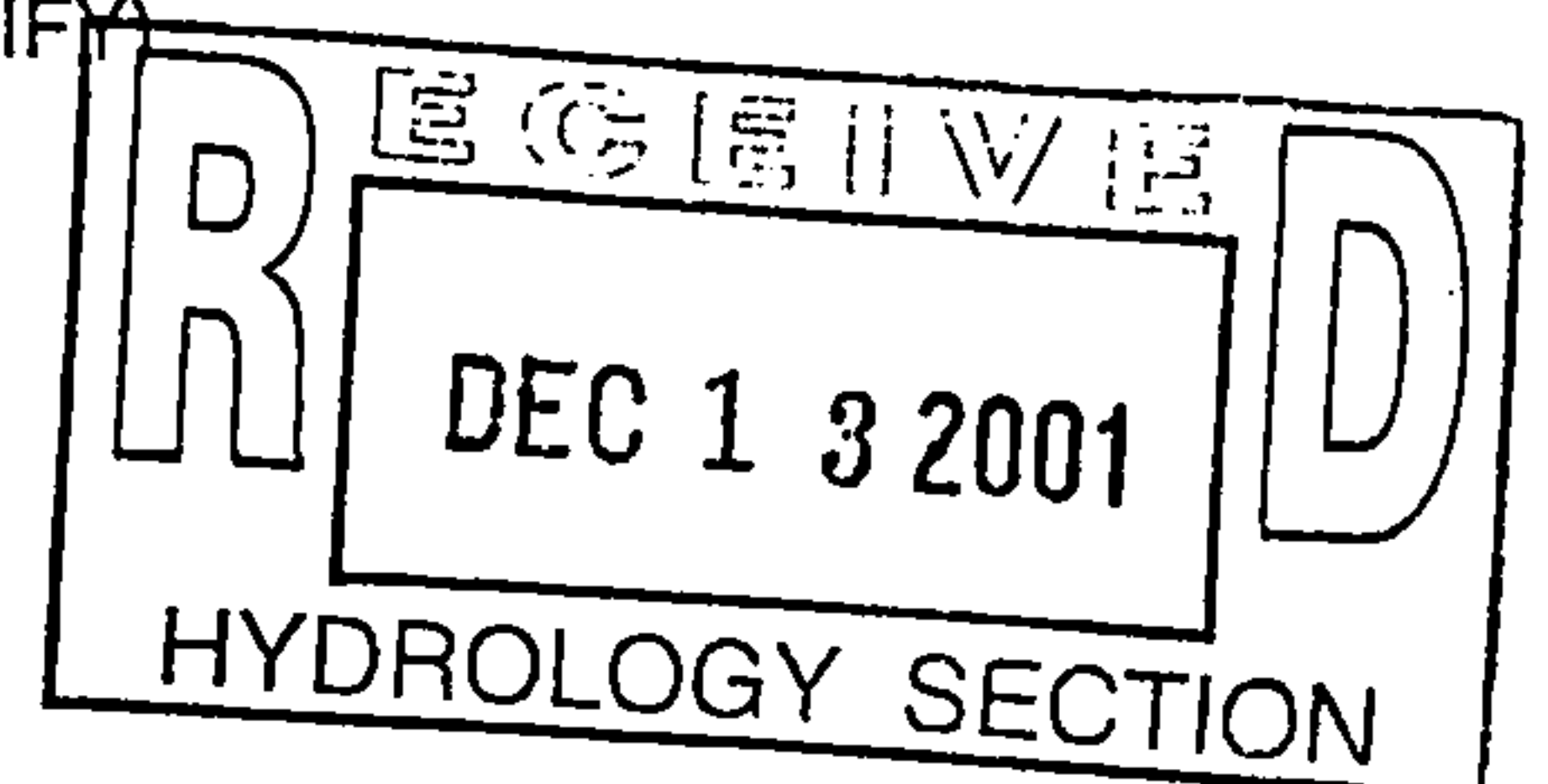
- ☐ DRAINAGE REPORT
☐ DRAINAGE PLAN
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☒ ENGINEER'S CERTIFICATION (HYDROLOGY)
☒ CLOMR/LOMR
☒ TRAFFIC CIRCULATION LAYOUT (TCL)
☒ ENGINEERS CERTIFICATION (TCL)
☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
☐ OTHER

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



DATE SUBMITTED: 12.12.01 BY: P. BRASHER

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
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 constituting five (5) acres or