

CITY OF ALBUQUERQUE



February 5, 2008

Ronald R. Bohannon, P.E.
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

Re: Sage Plaza Drainage Report

Engineer's Stamp dated 12-19-07 (M9-D12)

Dear Mr. Bohannon,

Based upon the information provided in your submittal received 12-26-07, the above referenced plan is approved for Preliminary Plat, Site Plan for Subdivision and Site Plan for Building Permit action by the DRB. A site-specific grading plan will be required for each subsequent Building Permit request.

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

P.O. Box 1293

Albuquerque

C: file

New Mexico 87103

www.cabq.gov

DRAINAGE AND TRANSPORTATION SHEET

(REV. 1/28/2003rd)

M-09/10012

PROJECT TITLE: Sage Plaza
DRB # 1001249 EPC #:

ZONE MAP/DRG. FILE #: M-9
WORK ORDER #:

LEGAL DESCRIPTION: Tract A, Snow Vista Investors
CITY ADDRESS: SW Corner of 98th and Sage

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

CONTACT: Sara Lavy
PHONE: (505) 858-3100
ZIP CODE: 87113

OWNER: Goodman Realty Group
ADDRESS: 100 Sun Avenue, Suite 100
CITY, STATE: Albuquerque, NM

CONTACT: James Dountas
PHONE: 872-7294
ZIP CODE: 87109

ARCHITECT: Rainhart & Associates
ADDRESS: 2325 San Pedro NE, Suite 2-B
CITY, STATE: Albuquerque, NM

CONTACT: George Rainhart
PHONE: 884-9110
ZIP CODE: 87110

SURVEYOR: Precision Surveys
ADDRESS: 8500-A Jefferson St.
CITY, STATE: Albuquerque, NM

CONTACT: Larry Medrano
PHONE: 856-5700
ZIP CODE: 87109

CONTRACTOR:
ADDRESS:
CITY, STATE:

CONTACT:
PHONE:
ZIP CODE:

CHECK TYPE OF SUBMITTAL:

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

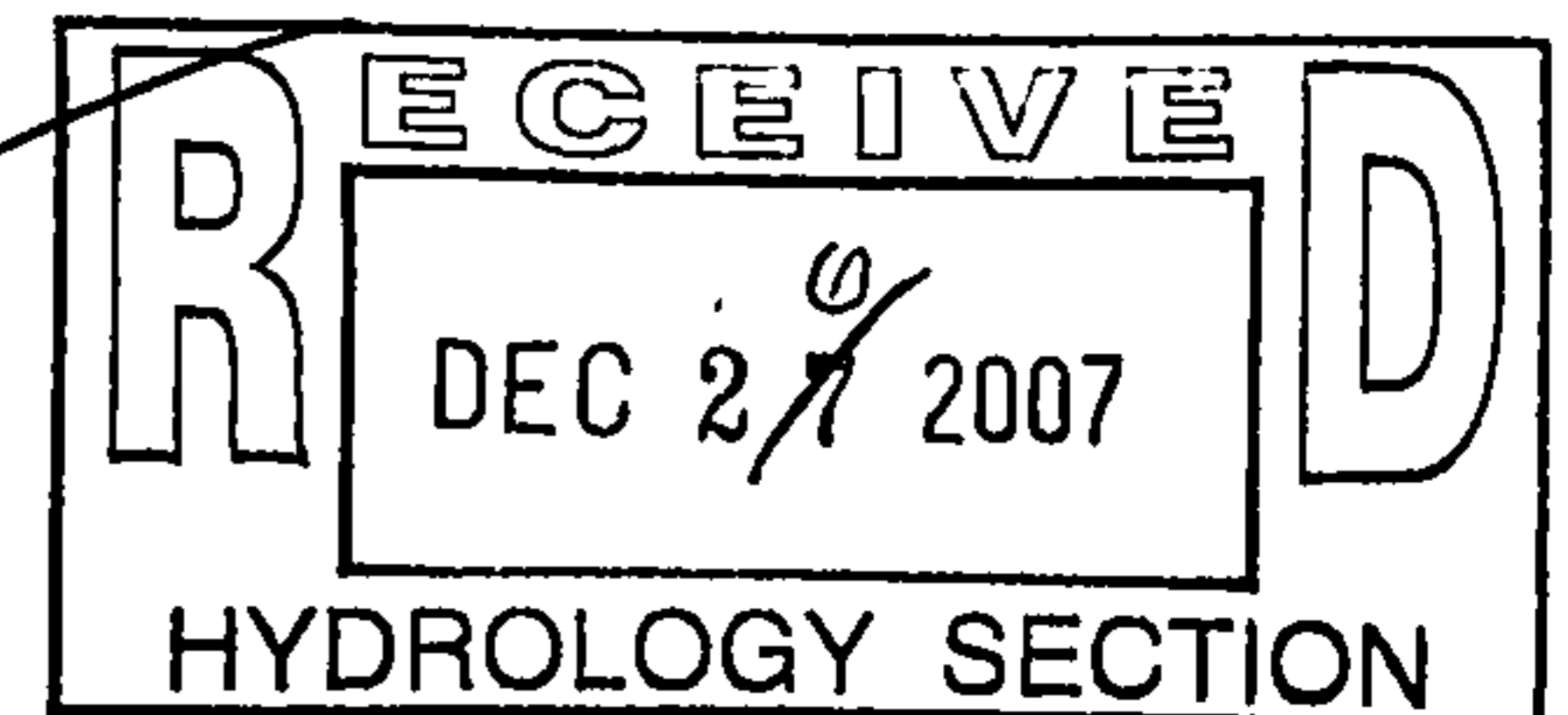
CHECK TYPE OF APPROVAL SOUGHT:

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

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
☒ NO
☐ COPY PROVIDED

Paid \$170.00



DATE SUBMITTED: 12/26/2007 BY: Sara Lavy

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

1. **Conceptual Grading and Drainage Plans:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.

DRAINAGE REPORT

for

Sage Plaza SW Corner of 98th and Sage

Prepared by

Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, New Mexico 87109

Prepared for

Goodwin Realty Group
100 Sun Avenue, Suite 100
Albuquerque, NM 87109

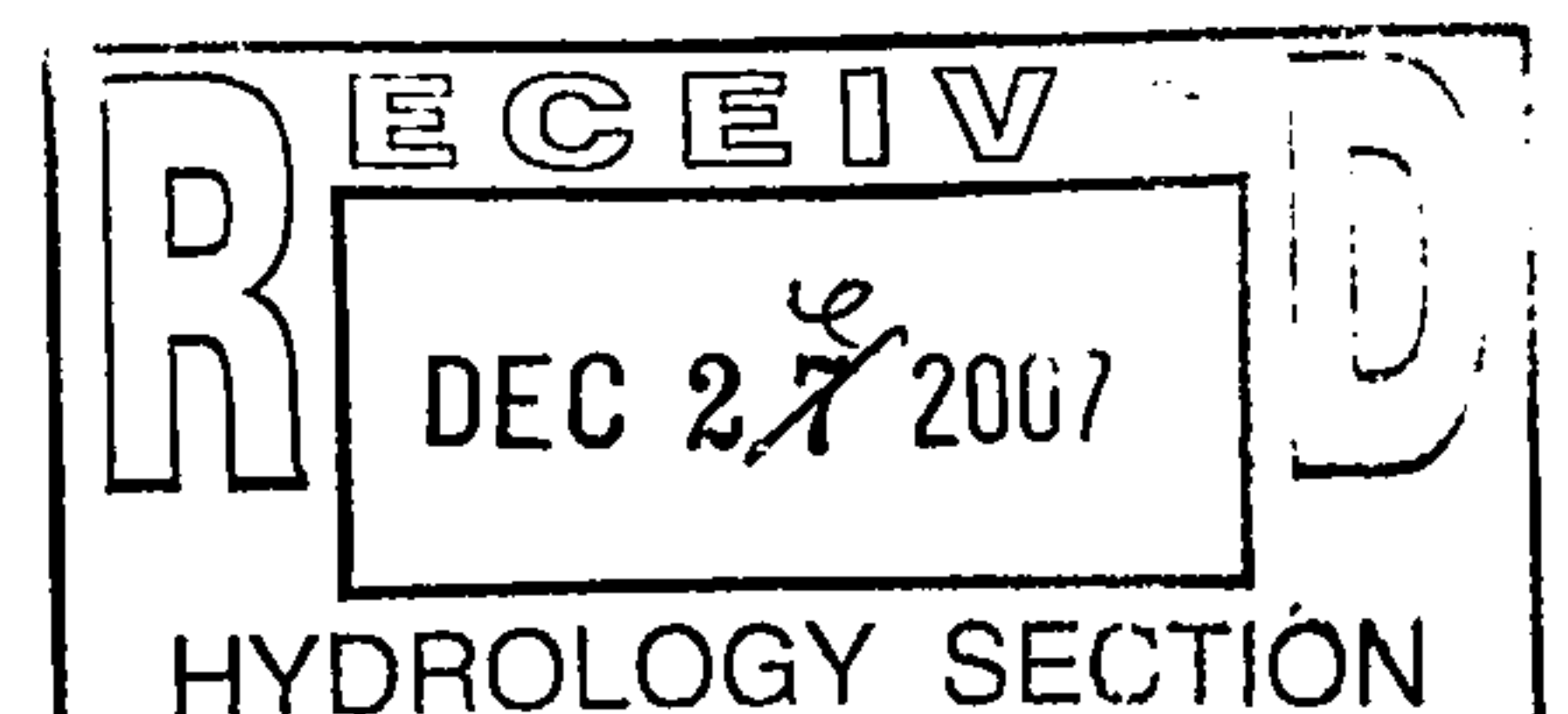
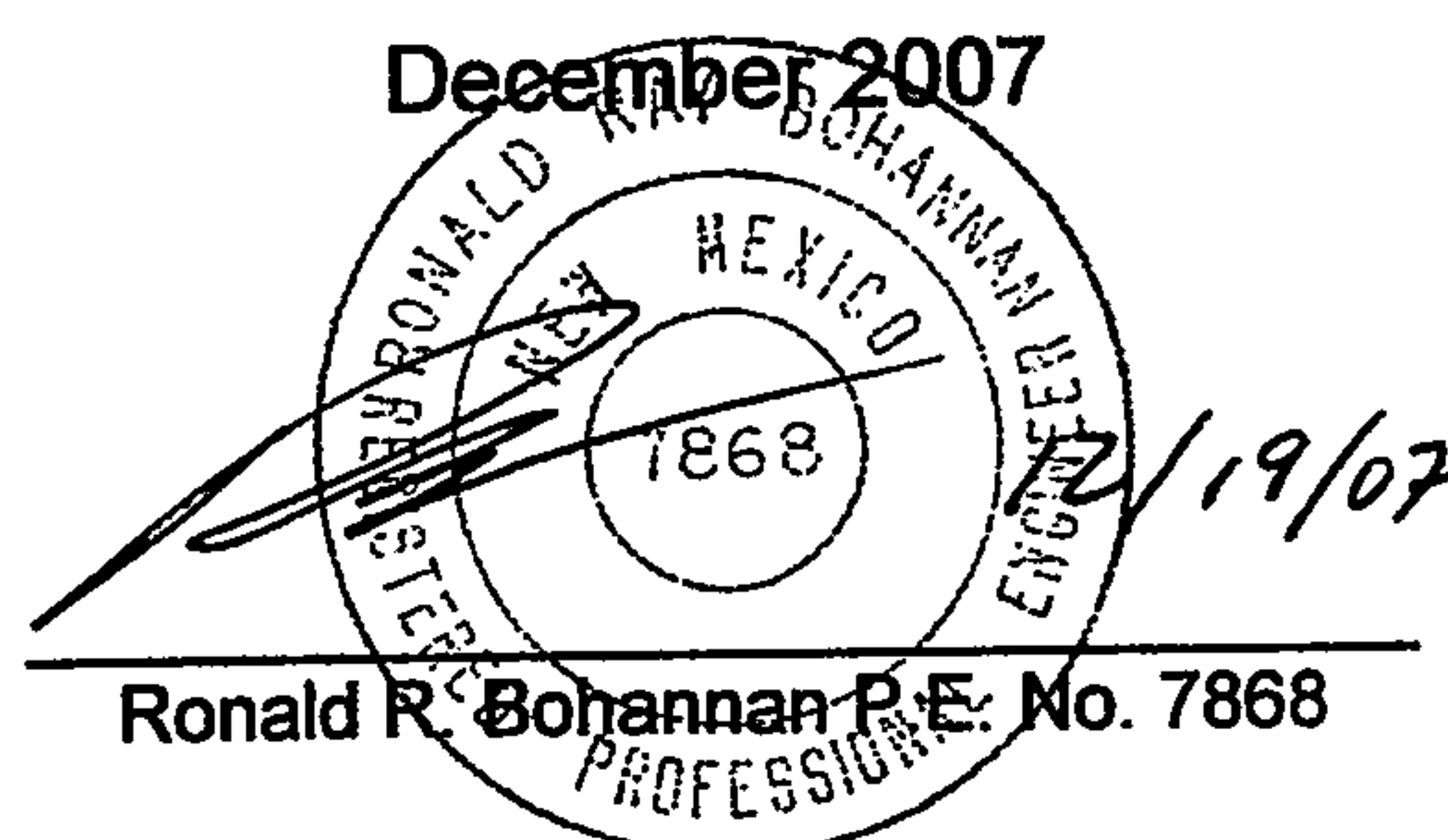


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Location

Sage Plaza is a proposed shopping center located on the southwest corner of Sage and 98th Street. The site is shown on the attached Zone Atlas Map M-9 and contains approximately 10.76 acres. The purpose of this report is to provide the drainage analysis and management plan for the shopping center.

Existing Drainage Conditions

The site is currently undeveloped and has an existing flow rate of 13.89 cfs. The site has an average slope of 1.8 percent from northwest to southeast. The existing drainage sheet flows towards the southeast corner. Some of the flow enters 98th Street and some enters an existing 42" concrete pipe at the corner of Benavides Road and 98th Street.

No offsite flows enter the site. The site is bordered by Sage Road, 98th Street and the Snow Vista Channel which cut off offsite flows from the site.

FIRM Map and Soil Conditions

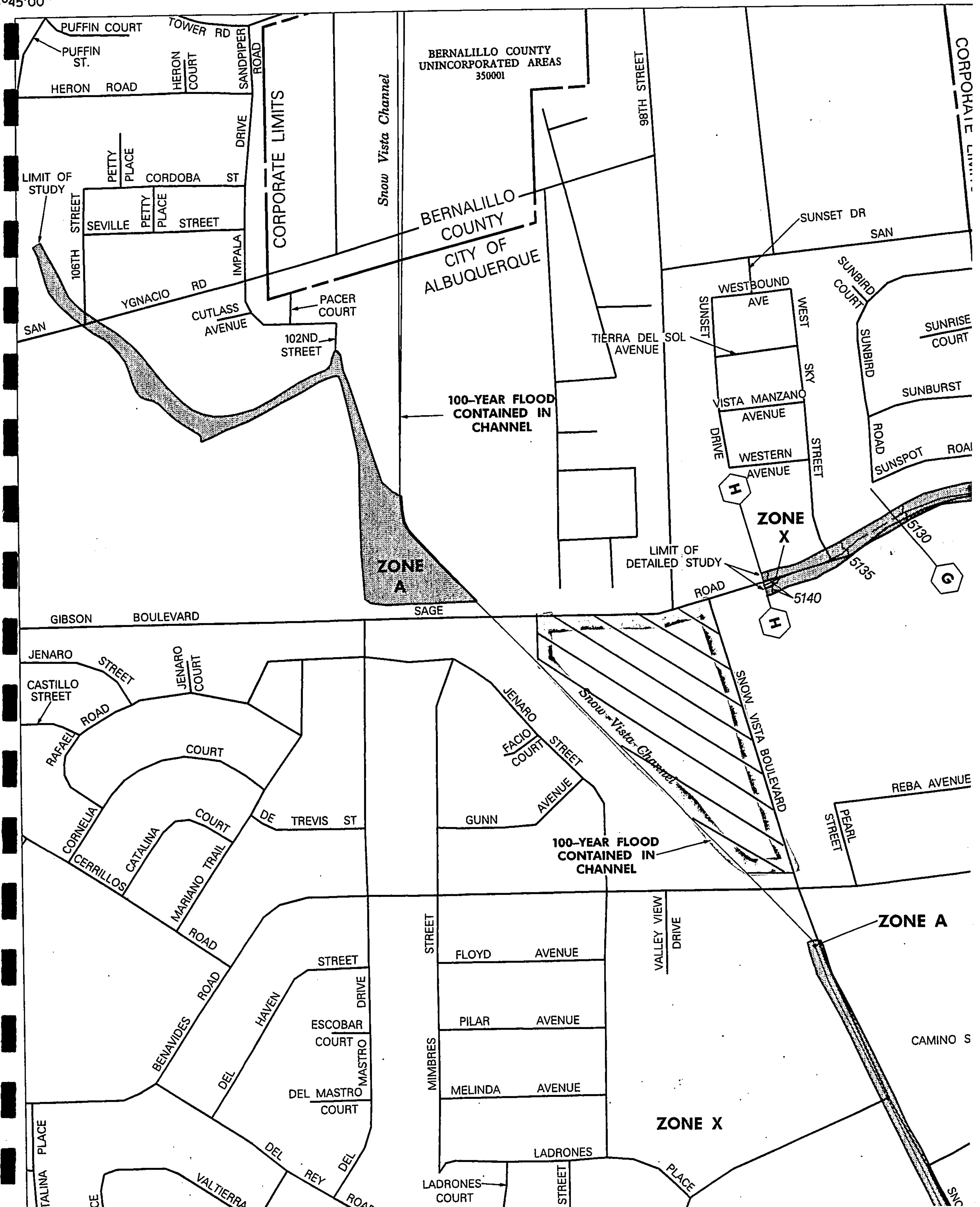
The site is located on FIRM Map 35001C0336 D as shown on the attached excerpt. The map shows that the site does not lie within any 100-year flood plains.

According to the Soil Conservation Service Soil Survey of Bernalillo County the site contains a Pajarito loamy fine sand. This soil has slow runoff and the hazard of soil blowing is severe.

Proposed Drainage Management Plan

The proposed drainage management plan is to collect the developed flows in a new storm drain and convey the flows to the existing Snow Vista Channel. The site has been divided into eight proposed basins. Basins 6, 7 and 8 drain to 98th Street. These basins are small with minimal flows and the total flow to 98th Street is 1.19 cfs. Existing inlets in 98th Street

5°45'00"



will connect these flows and convey them to the Snow Vista Channel. The remaining basins (Basins 1-5) will drain to a new storm drain that will connect to an existing 42" storm drain at the corner of Benavides Road and 98th Street. Drop inlets located within each basin will convey the flows to the new storm drain system.

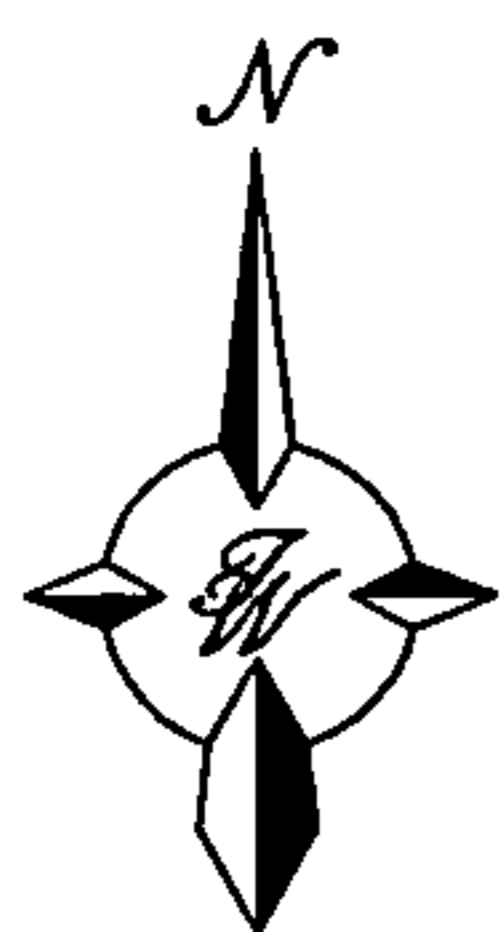
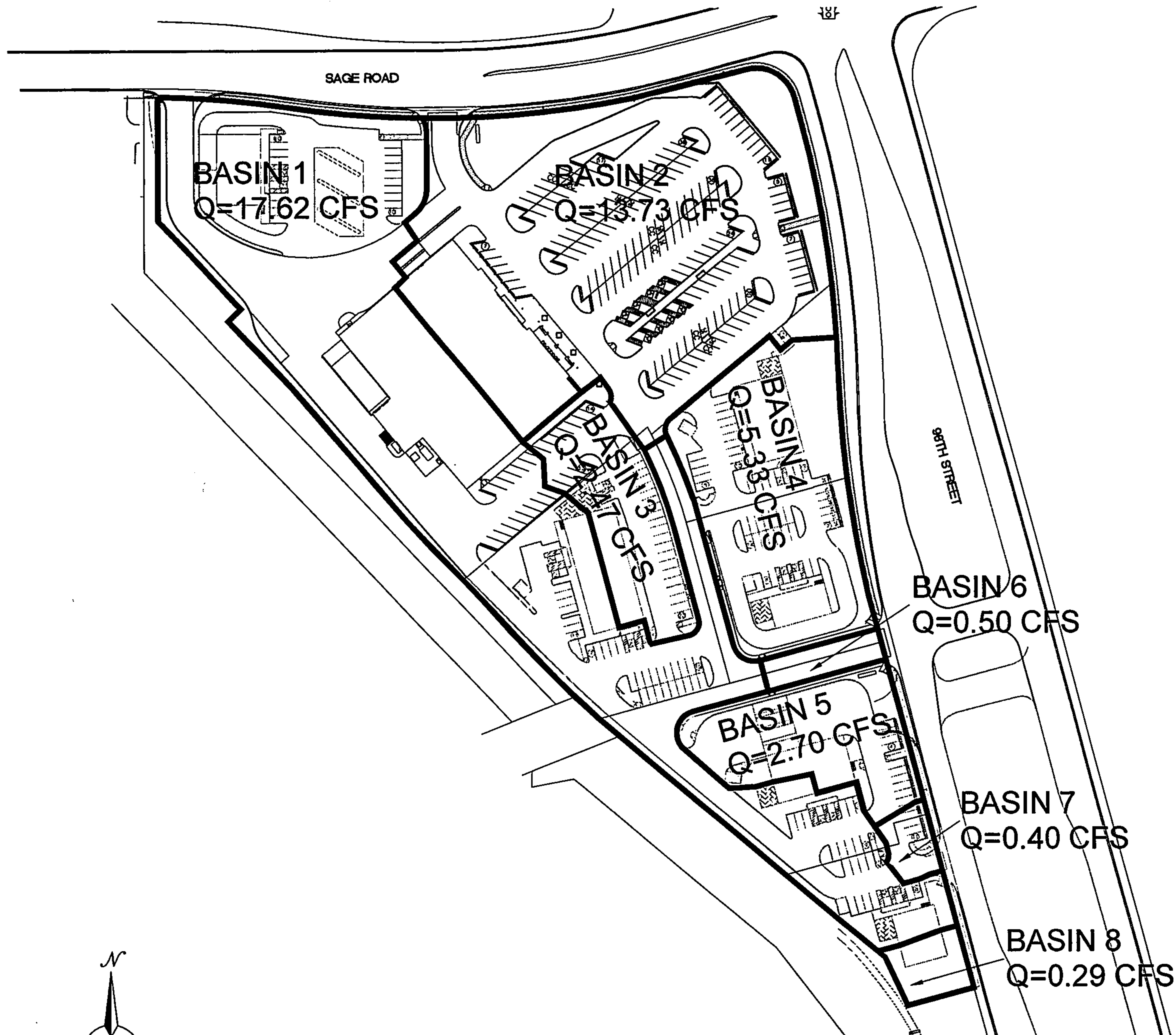
The site is too low to drain to the Snow Vista Channel located directly west of the site. Also, it was revealed during conversations with AMAFCA and the City of Albuquerque that the Snow Vista Channel adjacent to the site does not have adequate freeboard. An existing 42" pipe is located at the northwest corner of Benavides Road and 98th Street, which has capacity for the site. This pipe crosses Benavides Road and connects to the Snow Vista Channel south of Benavides Road, where the channel has adequate freeboard and capacity. There are no pipes connecting to this pipe and it has capacity for the flows from this site. The site will discharge 41.85 cfs through the storm drain to the Snow Vista Channel.

Calculations

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

Summary

The site has been divided into 8 basins. Basins 1 through 5 have a total flow of 41.85 cfs and will drain to an existing 42" pipe located at the southeast corner of the site. The existing pipe connects to the Snow Vista Channel south of Benavides Road, where the channel has capacity for the flows from this site. Basins 5 through 8 have a total flow of 1.19 cfs and will drain to 98th Street where it is collected by a storm drain in 98th Street and conveyed to the Snow Vista Channel.



DEVELOPED BASINS

Runoff Calculations

Weighted E Method

Developed Basins

Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		100-Year			10-Year		
			Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
			%	(acres)	%	(acres)	%	(acres)	%	(acres)						
1	191,021	4.39	0%	0	15%	0.66	0%	0.00	85%	3.73	1.775	0.649	17.62	1.087	0.397	11.27
2	148,835	3.42	0%	0	15%	0.51	0%	0.00	85%	2.90	1.775	0.505	13.73	1.087	0.310	8.78
3	26,762	0.61	0%	0	15%	0.09	0%	0.00	85%	0.52	1.775	0.091	2.47	1.087	0.056	1.58
4	57,761	1.33	0%	0	15%	0.20	0%	0.00	85%	1.13	1.775	0.196	5.33	1.087	0.120	3.41
5	29,312	0.67	0%	0	15%	0.10	0%	0.00	85%	0.57	1.775	0.100	2.70	1.087	0.061	1.73
6	4,975	0.11	0%	0	0%	0.00	0%	0.00	100%	0.11	1.970	0.019	0.50	1.240	0.012	0.33
7	4,307	0.10	0%	0	15%	0.01	0%	0.00	85%	0.08	1.775	0.015	0.40	1.087	0.009	0.25
8	5,929	0.14	0%	0	77%	0.10	0%	0.00	13%	0.02	0.772	0.009	0.29	0.331	0.004	0.13
Total	468,904	10.76		0.00		1.68		0.00		9.07		1.583	43.05		0.968	27.49

Existing Basins

Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		100-Year			10-Year		
			Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
			%	(acres)	%	(acres)	%	(acres)	%	(acres)						
1	468,904	10.76	100%	10.76455	0%	0.00	0%	0.00	0%	0.00	0.440	0.395	13.89	0.080	0.072	2.58

Equations:

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

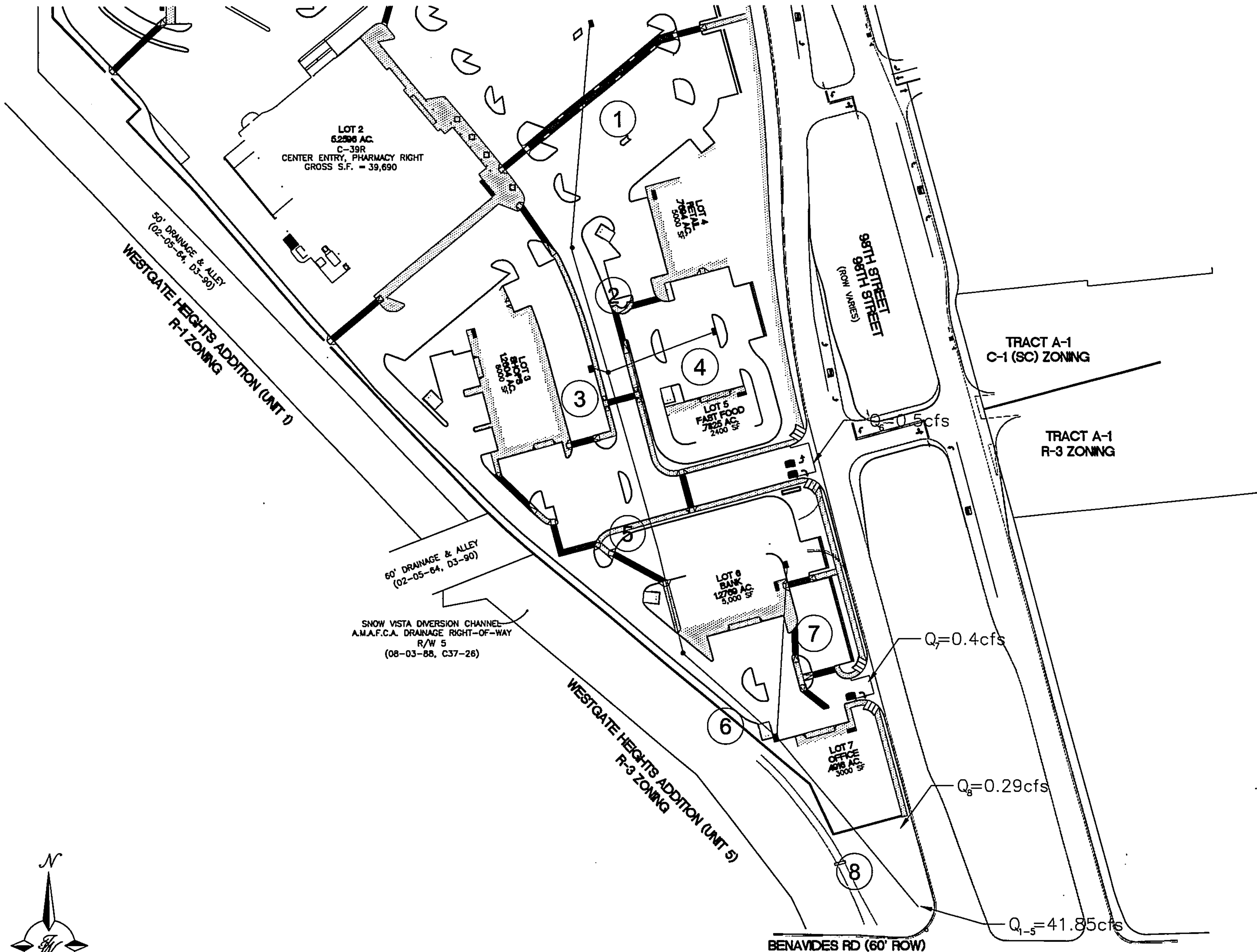
Volume = Weighted D * Total Area

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

Excess Precipitation, E (Inches)		
Zone 1	100-Year	10 - Year
E _a	0.44	0.08
E _b	0.67	0.22
E _c	0.99	0.44
E _d	1.97	1.24

Peak Discharge (cfs/acre)		
Zone 1	100-Year	10 - Year
Q _a	1.29	0.24
Q _b	2.03	0.76
Q _c	2.87	1.49
Q _d	4.37	2.89

Storm Sewer



STORM DRAIN LAYOUT

DROP INLET CALCULATIONS

Basin	Type of Inlet	Effective Area of Grate (SF)	Q (CFS)	Height of Water Over Grate (ft)
1	Double 'D'	4.21	17.62	0.76
2	Double 'D'	4.21	13.73	0.46
3	Single 'D'	2.30	2.47	0.05
4	Single 'D'	2.30	5.33	0.23
5	Single 'D'	2.30	2.7	0.06

ORIFICE EQUATION

$Q = CA \sqrt{2gH}$

$C = 0.6$

$g = 32.2$

Pipe Capacity

Pipe	D	Slope	Area	R	Q Provided	Q Required	Velocity
	(in)	(%)	(ft^2)		(cfs)	(cfs)	(ft/s)
1	24	0.5	3.14	0.500	16.04	13.73	4.37
2	24	0.5	3.14	0.500	16.04	13.73	4.37
3	12	9.7	0.79	0.250	11.13	2.47	3.14
4	18	0.5	1.77	0.375	7.45	5.33	3.02
5	30	0.5	4.91	0.625	29.08	21.53	4.39
6	30	0.5	4.91	0.625	29.08	21.53	4.39
7	12	1.22	0.79	0.250	3.95	2.70	3.44
8	36	0.5	7.07	0.750	47.29	41.85	5.92
Existing 42"	42	0.88	9.62	0.875	94.63	41.85	4.35

Manning's Equation:

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

A = Area

R = D/4

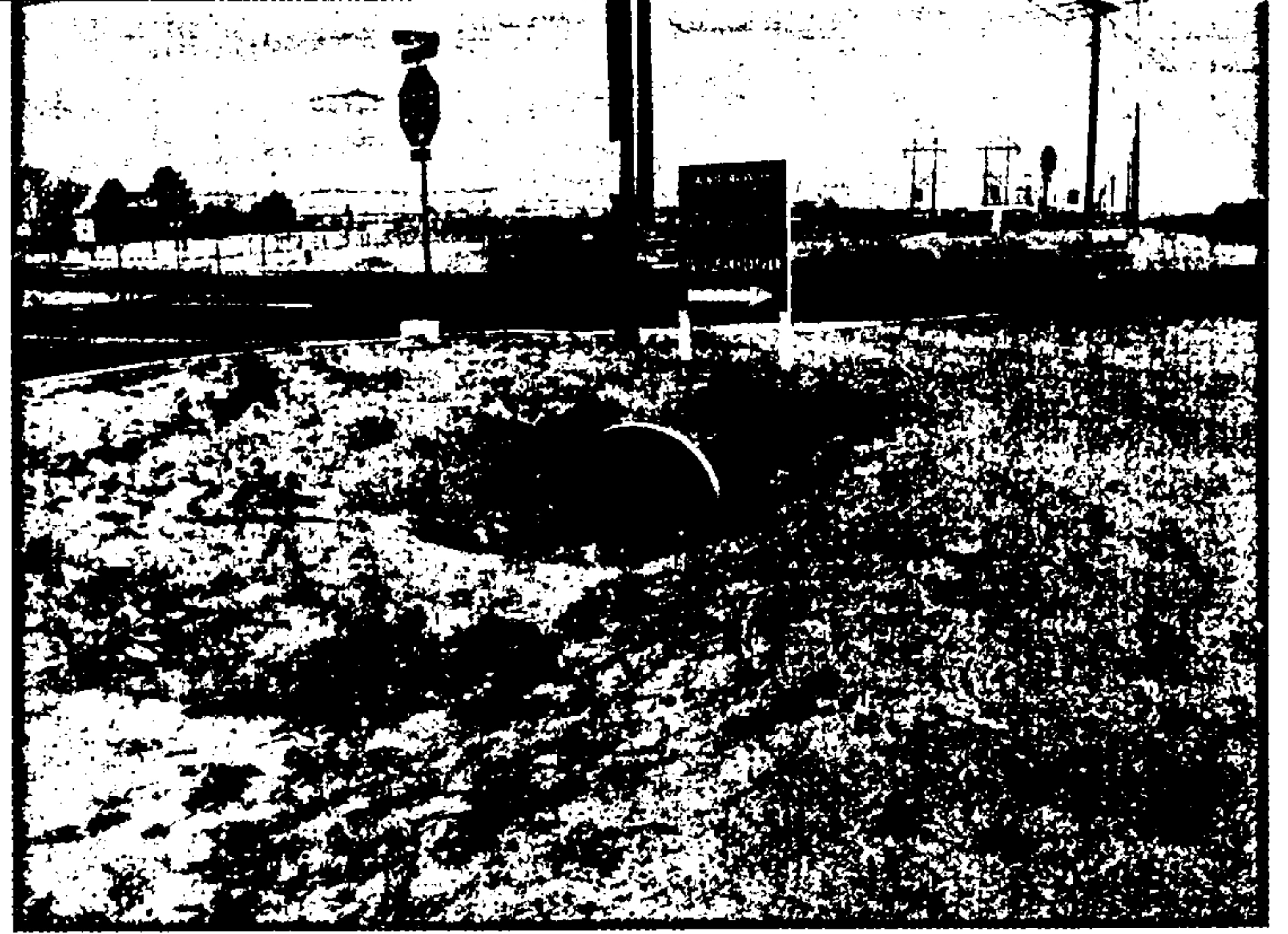
S = Slope

n = 0.013

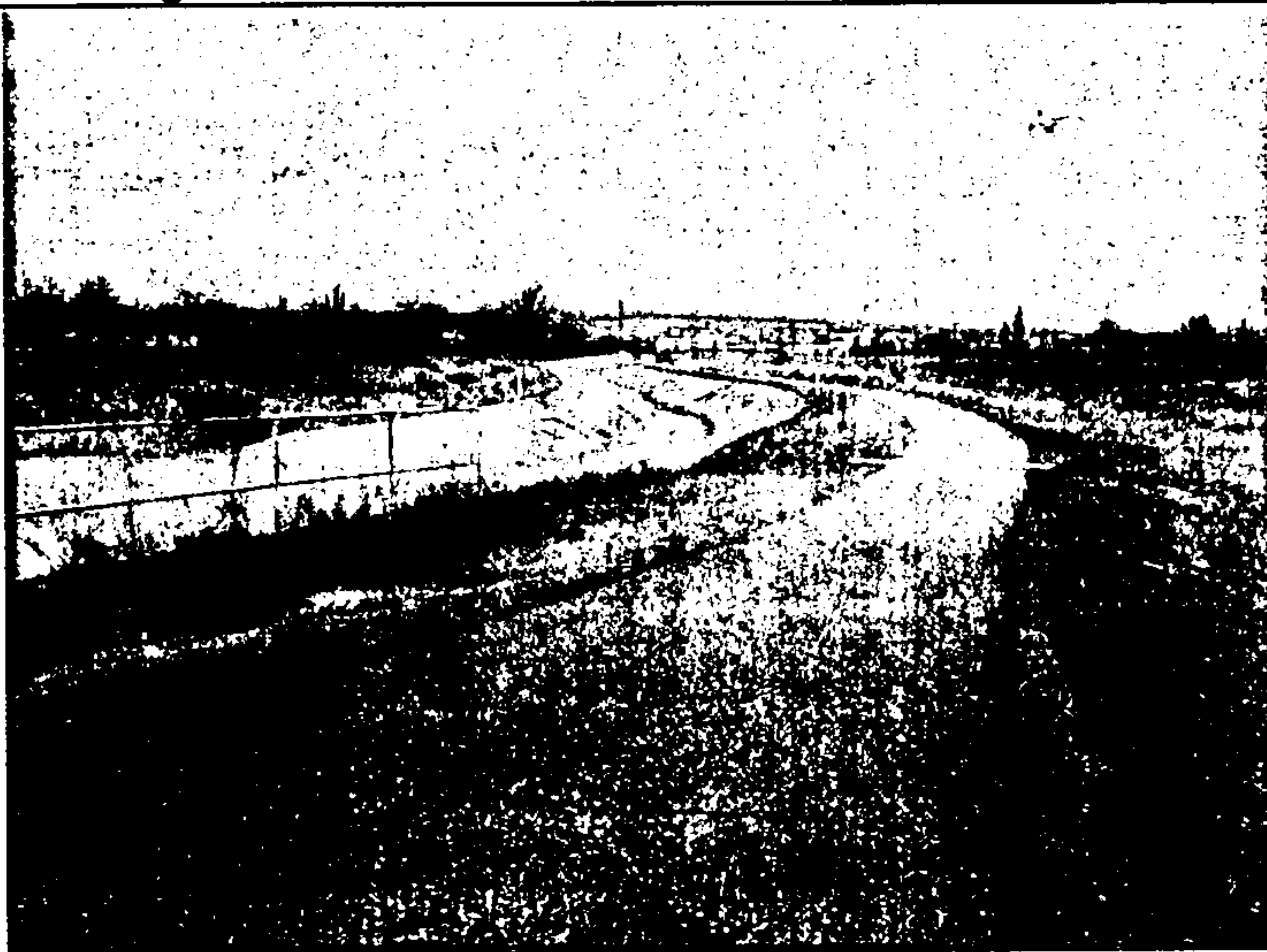
Photos of Existing Drainage Structures



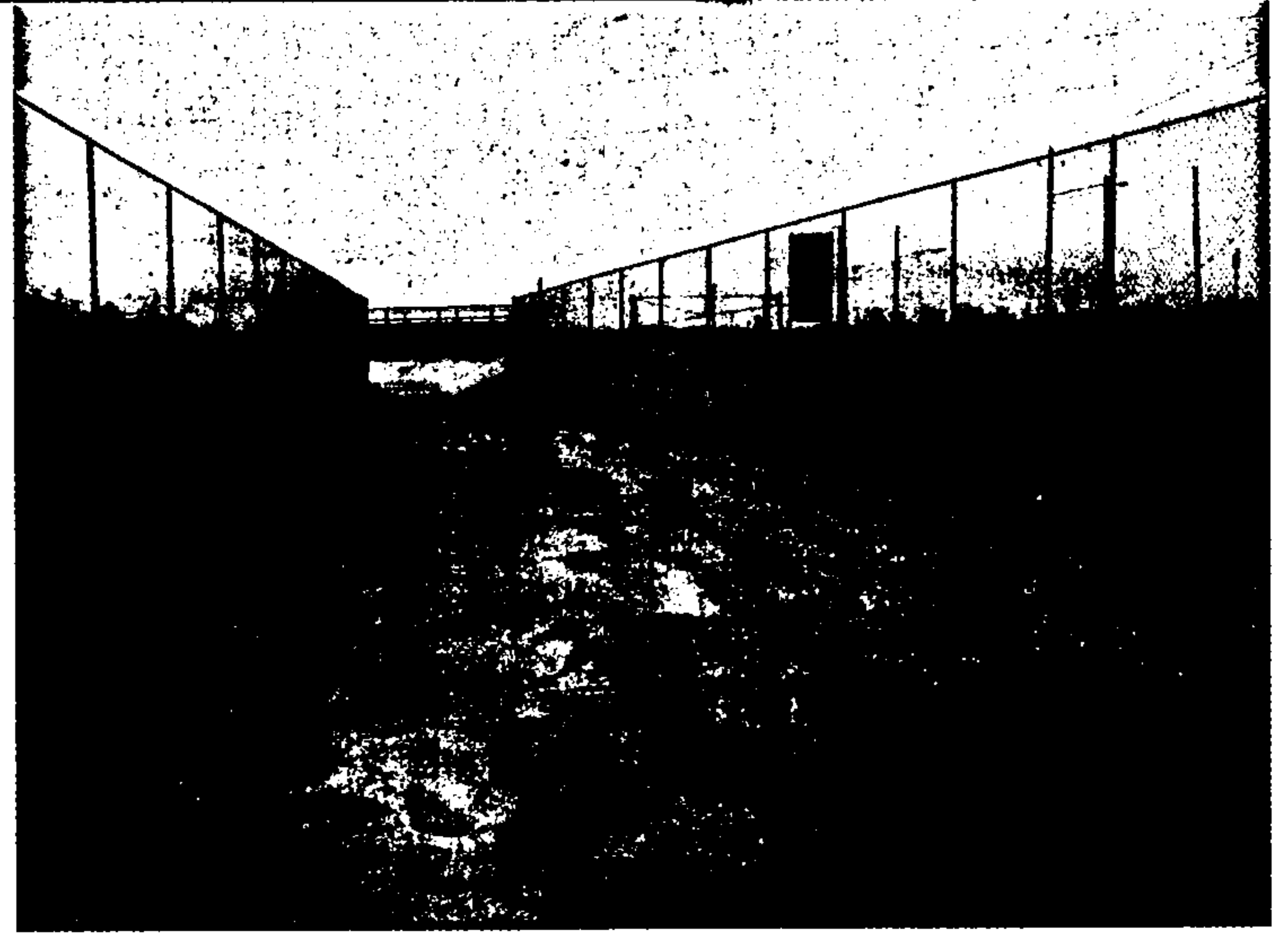
Existing 42" RCP at South End of Site



Existing 42" RCP at South End of Site

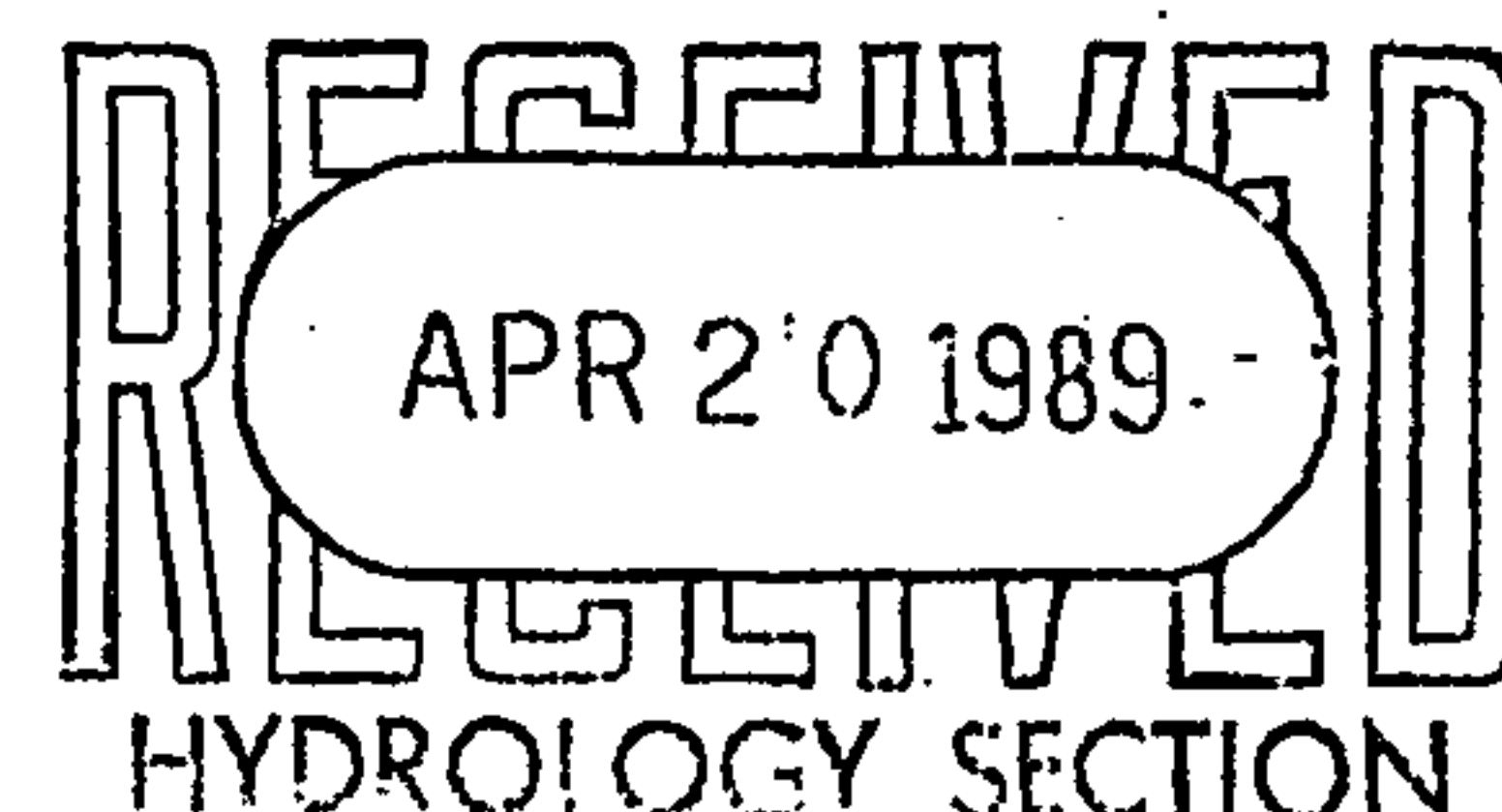


Looking North at Snow Vista Channel



Looking North at Benavides crossing and 42" RCP Connection

City of Albuquerque
Planning Department
Planning Division
P.O. Box 1293, Albuquerque, New Mexico 87103



Date: OCTOBER 21, 1988

NOTIFICATION OF DECISION

Snow Vista Investors
P.O. Box 14708
Albuquerque, NM 87191

File: Z-88-66
LEGAL DESCRIPTION: Tract 50-A-1 and 50-B-1, Unit 5, Atrisco Village, zoned C-1 (SC), located west of Snow Vista Boulevard, SW, between Gibson Boulevard, SW, and Benavides Road SW, containing approximately 10.412 acres. (M-9)

On October 20, 1988, the Environmental Planning Commission voted to approve Z-88-66, a site development plan, based on the following Findings and subject to the following Conditions:

Findings:

1. The proposed development meets the requirements of the C-1 zone as delineated in the Comprehensive Zoning Code.
2. The proposed development meets the requirements of Section 40.B of the Comprehensive Zoning Code concerning the development of shopping center sites.

Conditions:

1. Sidewalk connections between internal sidewalks and the public streets should be provided.
2. The applicant must provide adequate drainage which meets AMAFCA and City specifications.
3. The colors, materials, and outside dimensions of the wall at the intersection of Gibson and Snow Vista must be indicated on the site development plan.
4. Dedication of right-of-way for the following is required: right turnlane and bus bay on Snow Vista, right-of-way along Gibson to the line described as "Future Property Line", and a 30 feet intersection radius.
5. A landscaped strip of five feet consisting primarily of trees or shrubs which grow at least eight feet high is required for the rear of the subject property along the arroyo in order to screen the back of buildings from view.

IF YOU WISH TO APPEAL THIS DECISION, YOU MUST DO SO BY NOVEMBER 4, 1988, IN THE MANNER DESCRIBED BELOW. A NON-REFUNDABLE FILING FEE OF \$50 IS REQUIRED AT THE TIME THE APPEAL IS FILED.

Appeal to the City Council: Any person aggrieved with any determination of the Environmental Planning Commission acting under this ordinance may file an appeal to the City Council by submitting written application on the Planning Division form to the Planning Division within 15 days of the Planning Commission's decision. The date the determination in question is issued is not included in the 15-day period for filing an appeal, and if the fifteenth day falls on a Saturday, Sunday or holiday as listed in the Merit System Ordinance, the next working day is considered as the deadline for filing the appeal. The City Council may decline to hear the appeal if it finds that all City plans, policies and ordinances have been properly followed. If it decides that all City plans, policies and ordinances have not been properly followed, it shall hear the appeal. Such appeal, if heard, shall be heard within 60 days of its filing.

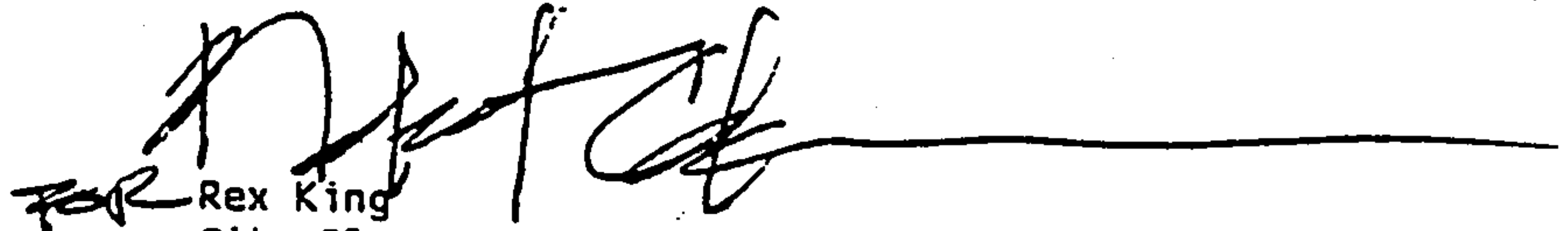
Snow Vista Investors

2

October 21, 1988

YOU WILL RECEIVE NOTIFICATION IF ANY OTHER PERSON FILES AN APPEAL. IF THERE IS NO APPEAL, YOU CAN RECEIVE BUILDING PERMITS AT ANY TIME AFTER THE APPEAL DEADLINE QUOTED ABOVE, PROVIDED ALL CONDITIONS IMPOSED AT THE TIME OF APPROVAL HAVE BEEN MET. SUCCESSFUL APPLICANTS ARE REMINDED THAT OTHER REGULATIONS OF THE CITY MUST BE COMPLIED WITH, EVEN AFTER APPROVAL OF THE REFERENCED APPLICATION(S).

Sincerely,


Rex King
City Planner

RK/NR)vb
(9490)

cc: Fred Arfman, 128 Monroe NE; 87108
John Winton, Traffic Engineer
Joe David Montano, Transportation Planner
Fred Sanchez, 1414 Canyon Road SW, 87105

FILE COPY



KEN SCHULTZ
MAYOR

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

November 28, 1988

Fred Arfman, P.E.
Isaacson & Arfman, P.A.
128 Monroe Street, NE
Albuquerque, NM 87108

RE: CONCEPTUAL DRAINAGE PLAN SUBMITTAL OF SNOW VISTA SHOPPING
CENTER, RECEIVED NOVEMBER 3, 1988, FOR SITE DEVELOPMENT PLAN
AND FINAL PLAT APPROVALS. (M-9/D12)

Dear Mr. Arfman:

The above referenced submittal dated 5-27-88, is approved for Site
Development Plan and Final Plat sign off by the City Engineer. Signature
will be subject to any requirements imposed by the Development Review
Board.

Prior to Building Permit approvals, a detailed Grading and Drainage Plan
will be required.

If you have any questions call me at 768-2650.

Cordially;

Roger A. Green, P.E.
C.E./ Hydrology Section

RAG/(WP+934)

DRAINAGE INFORMATION SHEET

PROJECT TITLE: SNOW VISTA SHOPPING CENTER ZONE ATLAS/DRNG. FILE #: M-9/D12
 LEGAL DESCRIPTION: TR(S) 50-A-1 & 50-B-1, UNITS, ATRISCO VILLAGE
 CITY ADDRESS: NOT ESTABLISHED

ENGINEERING FIRM: ISAACSON & ARMAN CONTACT: FRED ARMAN

ADDRESS: 128 MONROE ST. NE PHONE: 268-8828

OWNER: SNOW VISTA INVESTORS CONTACT: R.J. SCHAEFER

ADDRESS: P.O. Box 14708, 87191 PHONE: 883-7666

ARCHITECT: DEKKER & ASSOC. CONTACT: STEVE PERISH

ADDRESS: 601 1st ST. NW PHONE: 247-2888

SURVEYOR: WILLIAM P. PETTIT CONTACT: BILL PETTIT

ADDRESS: _____ PHONE: 268-6631

CONTRACTOR: N/A CONTACT: _____

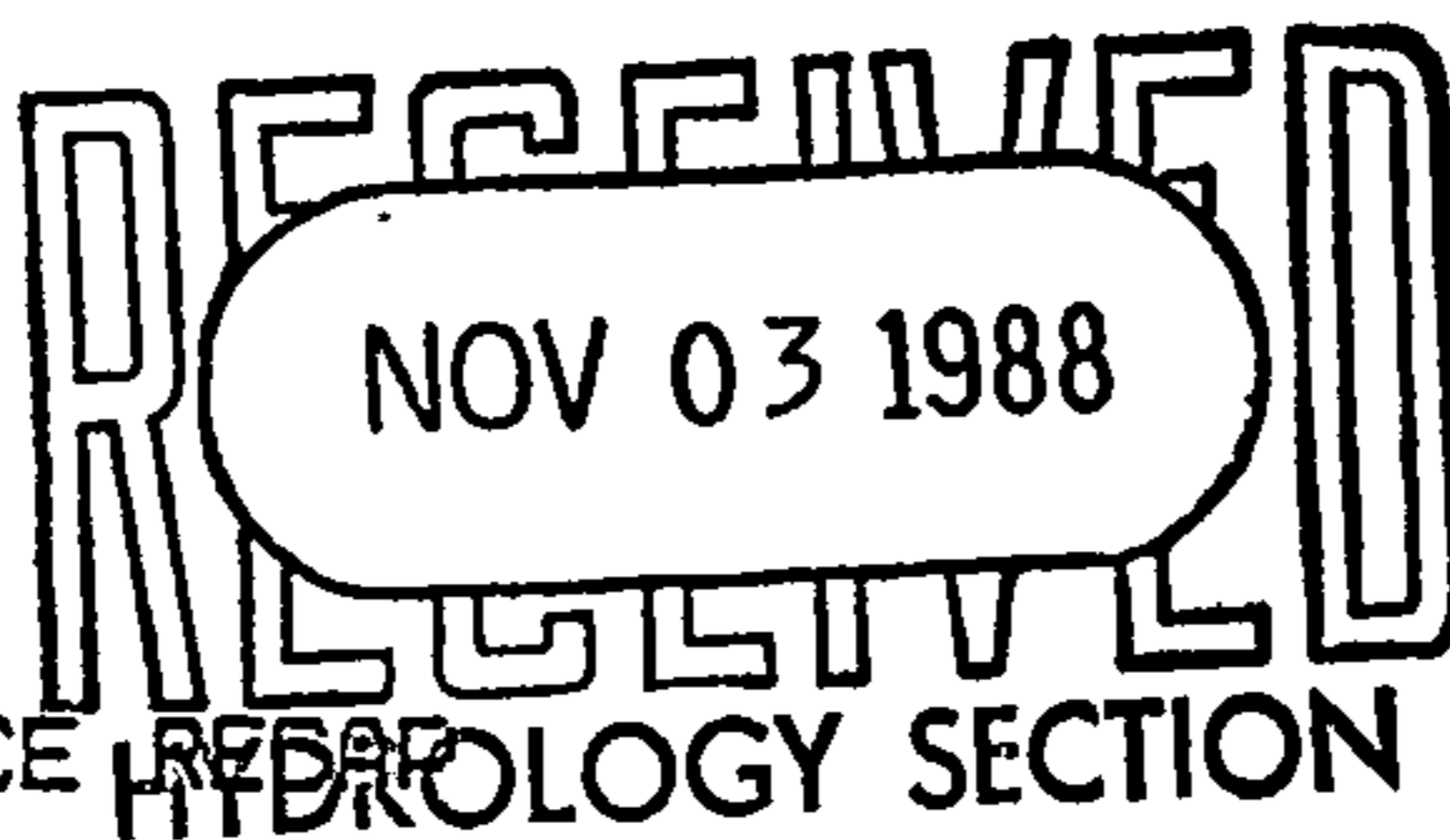
ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

☐ YES

☐ NO

☐ COPY OF CONFERENCE RECORD SHEET PROVIDED



DRB NO. _____

EPC NO. E-88-66

PROJ. NO. _____

WP+934

TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT

☐ DRAINAGE PLAN

☒ CONCEPTUAL GRADING & DRAINAGE PLAN

☐ GRADING PLAN

☐ EROSION CONTROL PLAN

☐ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT APPROVAL

☐ PRELIMINARY PLAT APPROVAL

☒ SITE DEVELOPMENT PLAN APPROVAL

☒ FINAL PLAT APPROVAL

☐ BUILDING PERMIT APPROVAL

☐ FOUNDATION PERMIT APPROVAL

☐ CERTIFICATE OF OCCUPANCY APPROVAL

☐ ROUGH GRADING PERMIT APPROVAL

☐ GRADING/PAVING PERMIT APPROVAL

☐ OTHER _____ (SPECIFY)

DATE SUBMITTED: Nov. 3, 1988

BY: FRED ARMAN, P.E.



KEN SCHULTZ
MAYOR

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

November 28, 1988

Fred Arfman, P.E.
Isaacson & Arfman, P.A.
128 Monroe Street, NE
Albuquerque, NM 87108

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C.E./ Hydrology Section

RAG/(WP+934)