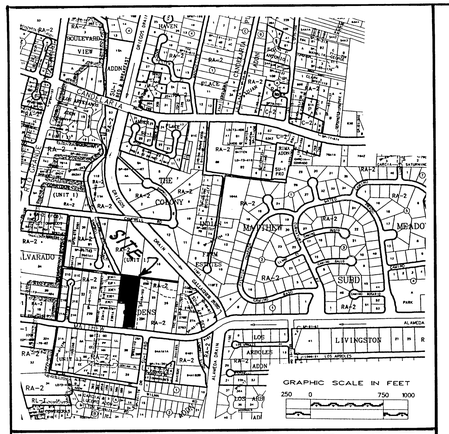
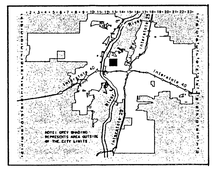
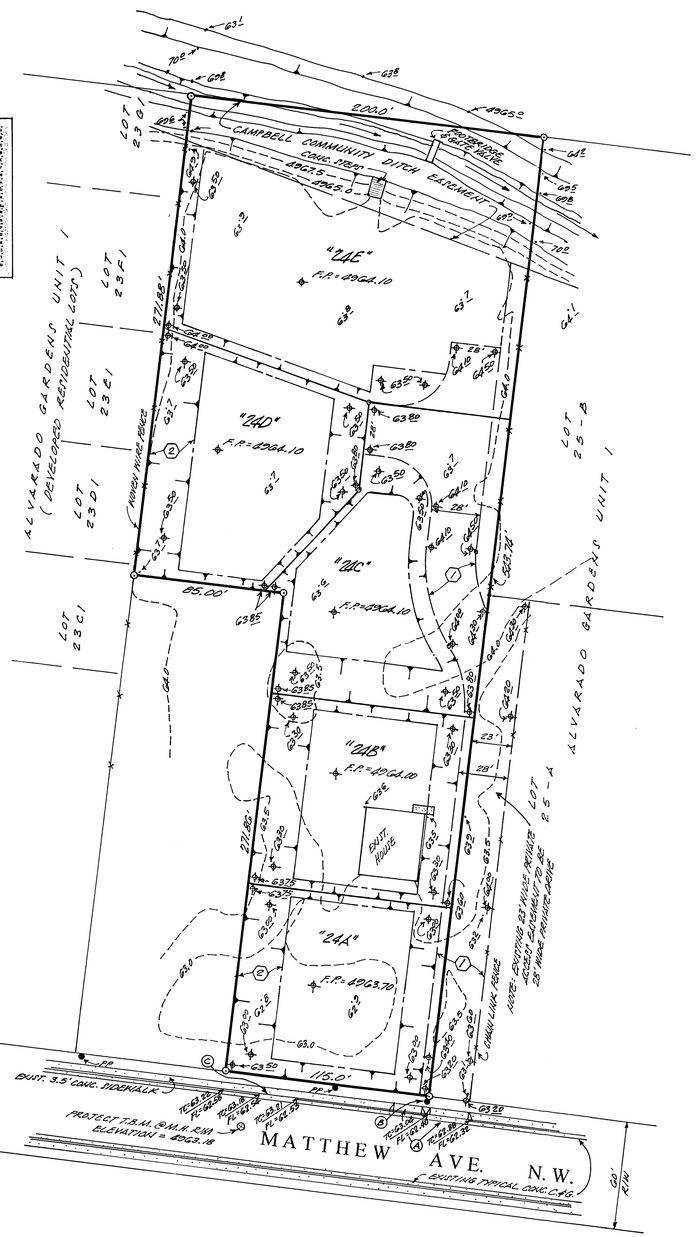


VICINITY MAP G-13-Z



LOCATION MAP

NORTH
SCALE: 1" = 40'



EROSION CONTROL MEASURES:

THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR MANAGEMENT OF STORM RUNOFF DURING CONSTRUCTION; HE SHALL ENSURE THAT THE FOLLOWING MEASURES ARE TAKEN:

1) ADJACENT PROPERTY SHALL BE PROTECTED AT ALL TIMES BY CONSTRUCTION OF BERMS, DIKES, SWALES, PONDS, AND OTHER TEMPORARY GRADING AS REQUIRED TO PREVENT STORM RUNOFF FROM LEAVING THE SUBJECT SITE AND ENTERING ADJACENT PROPERTIES.

2) ADJACENT PUBLIC RIGHT-OF-WAYS SHALL BE PROTECTED AT ALL TIMES FROM STORM WATER RUNOFF FROM THE SUBJECT SITE. NO SEDIMENT BEARING WATER SHALL BE PERMITTED TO ENTER PUBLIC STREET RIGHT-OF-WAYS.

3) THE CONTRACTOR SHALL IMMEDIATELY AND THOROUGHLY REMOVE ANY AND ALL SEDIMENT FROM PUBLIC STREETS THAT HAS BEEN ERODED FROM THE SUBJECT SITE AND DEPOSITED THEREON.

CONSTRUCTION NOTES:

1) TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE AT 260-1990 FOR THE ACTUAL FIELD LOCATION OF THE EXISTING SURFACE OF SUB-SURFACE UTILITIES.

2) PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION(S) OF ALL POTENTIAL OBSTRUCTIONS; SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM OF DELAY.

3) ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.

4) ALL CONSTRUCTION WITHIN PUBLIC STREET RIGHT-OF-WAY(S) SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE/BERNALILLO COUNTY STANDARDS AND PROCEDURES.

LEGEND:

TOP OF CURB ELEVATION = TC = 63.25
CURB FLOWLINE ELEVATION = FL = 62.37
EXISTING SPOT ELEVATION = × 62.8
EXISTING CONTOUR ELEVATION = 63.0
PROPOSED SPOT ELEVATION = + 63.50
PROPOSED CONTOUR ELEVATION = N/A
PROPOSED OR EXISTING CONCRETE SURFACE =
EXISTING FENCE LINE =

GENERAL NOTES:

1) NO PERIMETER BOUNDARY CORNERS HAVE BEEN FIELD ESTABLISHED PER THIS SURVEY OF THE SUBJECT PROPERTY.

2) NO SEARCH HAS BEEN MADE FOR EASEMENTS OF RECORD OTHER THAN SHOWN HERON.

N O T E S

1. CONTRACTOR MUST OBTAIN A TOPSOIL DISTURBANCE PERMIT FROM THE ENVIRONMENTAL HEALTH DIVISION PRIOR TO CONSTRUCTION.
2. CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION SHALL GOVERN ALL WORK.
3. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE AND FEDERAL DUST CONTROL MEASURES AND REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APPROVALS.
4. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE LOTS INTO PUBLIC RIGHT-OF-WAY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AND WETTING THE SOIL TO KEEP IT FROM BLOWING.

NOTES:

(A) → REMOVE 2 EXISTING CURB CUTS, PROVIDE NEW 28' WIDE CURB CUT FOR NEW 28' PRIVATE DRIVE PER C.O.A. STANDARD.
(B) → RELOCATE EXISTING POWER POLE.
(C) → EXISTING CURB CUT TO BE REMOVED AND REPLACED WITH NEW SIDEWALK, CURB & GUTTER PER C.O.A. STANDARD.
(1) → PROPOSED 28' PAVED PRIVATE DRIVE.
(2) → 3:1 MAX. ON ALL SIDE SLOPES (TYPICAL)

LEGAL DESCRIPTION: LOTS 24A, 24B, 24C, 24D, & 24E, ALVARADO GARDENS, UNIT 1, (BEING A REPLAT OF PORTION OF LOT 24), ALBUQUERQUE, NEW MEXICO.

BENCHMARK REFERENCE: ACS STATION "3-G12", LOCATED AT THE WEST SIDE OF THE INTERSECTION OF MATTHEW AVE. N.W. AND RIO GRANDE BLVD. N.W.; ELEV. = 4963.294, (T.B.M. AS SHOWN).

INTRODUCTION AND SITE LOCATION

The proposed Alvarado Gardens Subdivision as shown hereon is located east of Rio Grande Boulevard just north of Matthew Avenue. The 2.0 acre property will be subdivided into 5 residential lots. The site generally drains from north to south.

METHODOLOGY

The hydrologic and hydraulic criteria in Section 22 of the City of Albuquerque Development Process Manual (DPM), entitled "Drainage, Flood Control, and Erosion Control," was followed to perform the analyses given in this report. The design storm used for both the existing undeveloped and developed conditions of the Alvarado Gardens Subdivision are the 100-year, 6-hour, 100-year, 24-hour and 100-year, 10-day storm events for runoff volume computations.

EXISTING DRAINAGE CONDITIONS

INTRODUCTION

The FEMA Flood Insurance Rate Map Number 35001C0331D, effective date September 20, 1996, shown in Figure 1, indicates that the property is in Zone X, which is an area of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OFF-SITE FLOWS

There are no offsite flows that reach the site.

ON-SITE FLOWS

For the existing conditions hydrologic analysis, land treatment types, C and D were used to determine peak flows. The Type D land treatment was used for the existing buildings onsite. Although there is only one drainage basin during existing conditions, runoff calculations were calculated for each proposed lot for comparison purposes.

DEVELOPED DRAINAGE CONDITIONS

DRAINAGE BASIN DELINEATION

Plate 1 shows that each lot will be a drainage basin since it will have CMU garden walls/berms along the lot lines. The building pads and the road will be raised above the natural ground to allow for ponding on the lots.

HYDROLOGIC ANALYSIS

To determine the peak flows of each basin a hydrologic analysis was performed in accordance to section 22.2 of the Development Process Manual (DPM). The property is located in Zone 2, which has a 100-year 24-hour storm event of 2.75 inches and a 100-year, 10 day storm event of 3.95 inches.

The subdivision was assigned land treatment values in accordance with Tables A-4 and A-5 of the DPM's section 22.2. Table 2 shows the Land Treatments and peak flows for each basin.

DRAINAGE CONCEPT

It is proposed that this subdivision will follow the "flat grading scheme." The subdivision fits all of the requirements for a flat grading scheme. The site is flat with no off-site flows. The maximum impervious area for each lot will be approximately 55% including the pad and the driveway. The access road will have a paved surface with no sidewalks. The pad elevation will be a minimum of one foot above the 100-year, 10-day storm water surface elevation. The high point of the road will be a minimum 4 inches above the 100-year, 10-day storm water surface elevation. The flow between the front yard and back yard will not be obstructed to allow for equalization of ponded water.

SITE AREA: 1.97 ACRES, ZONE: TWO (2)

PRECIPITATION:
360 = 2.35 IN.
1440 = 2.75 IN.
10 DAY = 3.95 IN.

EXCESS PRECIPITATION:	PEAK DISCHARGE: (CFS/AC)
TREATMENT 'A' = 0.53 IN.	1.56
TREATMENT 'B' = 0.78 IN.	2.28
TREATMENT 'C' = 1.13 IN.	3.14
TREATMENT 'D' = 2.12 IN.	4.70

EXISTING CONDITIONS:

TREATMENT	AREA/ACRES		FACTOR		CFS
C	1.94	X	3.14	=	6.09
D	0.03	X	4.70	=	0.14

"Qp' = 6.23 CFS

V100 - 360 = (1.15) x (1.97) / 12 = 0.1888 AC./FT. = 8,224.1 CU. FT.
V100 - 1440 = (0.1888) + (0.03) x (2.75 - 2.35) / 12 = 8,267.7 CU. FT.
V100 - 10 DAY = (0.1888) + (0.03) x (3.95 - 2.35) / 12 = 8,398.4 CU.FT.
TO POND: 8,398.4 - 8,224.1 = 174.3 CU. FT.

TABLE A-9. PEAK DISCHARGE (cfs/acre)

Zone	Treatment A	Treatment B	Treatment C	Treatment D (100-YR [2-YR, 10-YR])
1	1.29 [0.00, 0.24]	2.03 [0.03, 0.76]	2.87 [0.47, 1.49]	4.37 [1.69, 2.89]
2	1.56 [0.00, 0.38]	2.28 [0.09, 0.95]	3.14 [0.60, 1.71]	4.70 [1.95, 3.14]
3	1.87 [0.00, 0.58]	2.60 [0.21, 1.19]	3.45 [0.78, 2.00]	5.02 [2.04, 3.39]
4	2.20 [0.05, 0.87]	2.93 [0.39, 1.45]	3.73 [1.00, 2.25]	5.25 [2.17, 3.57]

TABLE A-10. PEAK INTENSITY (IN/HR at t_c = 0.2 hour)

Zone	Intensity (100-YR [2-YR, 10-YR])
1	4.70 [1.84, 3.14]
2	5.06 [2.04, 3.41]
3	5.38 [2.21, 3.65]
4	5.61 [2.34, 3.83]

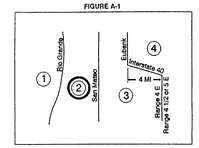
A.1 PRECIPITATION ZONES

Bernalillo County's four precipitation zones are indicated in TABLE A-1 and on FIGURE A-1.

TABLE A-1. PRECIPITATION ZONES

Zone	Location
1	West of the Rio Grande
2	Between the Rio Grande and San Mateo
3	Between San Mateo and Eubank, North of Interstate 40; and between San Mateo and the East boundary of Range 4 East, South of Interstate 40
4	East of Eubank, North of Interstate 40; and East of the East boundary of Range 4 East, South of Interstate 40

FIGURE A-1



Where a watershed extends across a zone boundary, use the zone which contains the largest portion of the watershed.

TABLE A-4. LAND TREATMENTS

Treatment	Land Condition
A	Soil uncompacted by human activity with 0 to 10 percent slopes. Native grasses, weeds and shrubs in typical densities with minimal disturbance to grading, groundcover and infiltration capacity. Croplands. Unlined arroyos.
B	Irrigated lawns, parks and golf courses with 0 to 10 percent slopes. Native grasses, weeds and shrubs, and soil uncompacted by human activity with slopes greater than 10 percent and less than 20 percent.
C	Soil compacted by human activity. Minimal vegetation. Unpaved parking, roads, trails. Most vacant lots. Gravel or rock on plastic (desert landscaping). Irrigated lawns and parks with slopes greater than 10 percent. Native grasses, weeds and shrubs, and soil uncompacted by human activity with slopes at 20 percent or greater. Native grass, weed and shrub areas with clay or clay loam soils and other soils of very low permeability as classified by SCS Hydrologic Soil Group D.
D	Impervious areas, pavement and roofs.

Most watersheds contain a mix of land treatments. To determine proportional treatments, measure respective subareas. In lieu of specific measurement for treatment D, the areal percentages in TABLE A-5 may be employed.

PROPOSED DEVELOPED LOTS: (3,800 SQ. FT. ± RESIDENTIAL STRUCTURES, 0.09 AC.)

(LOT 24A, 0.28 AC.)

TREATMENT	AREA/ACRES		FACTOR		CFS
C	0.19	X	3.14	=	0.60
D	0.09	X	4.70	=	0.42

"Qp' = 1.02 CFS

V100 - 360 = (1.45) x (0.28) / 12 = 0.034 AC./FT. = 1,481.0 CU. FT.
V100 - 1440 = (0.034) + (0.09) x (2.75 - 2.35) / 12 = 1,611.7 CU. FT.
V100 - 10 DAY = (0.034) + (0.09) x (3.95 - 2.35) / 12 = 2,003.8 CU.FT.
TO POND: 2,003.8 - 1,481.0 = 522.8 CU. FT.

(LOT 24B, 0.28 AC.)

TREATMENT	AREA/ACRES		FACTOR		CFS
C	0.19	X	3.14	=	0.60
D	0.09	X	4.70	=	0.42

"Qp' = 1.02 CFS

V100 - 360 = (1.45) x (0.28) / 12 = 0.034 AC./FT. = 1,481.0 CU. FT.
V100 - 1440 = (0.034) + (0.09) x (2.75 - 2.35) / 12 = 1,611.7 CU. FT.
V100 - 10 DAY = (0.034) + (0.09) x (3.95 - 2.35) / 12 = 2,003.8 CU.FT.
TO POND: 2,003.8 - 1,481.0 = 522.8 CU. FT.

(LOT 24C, 0.39 AC.)

TREATMENT	AREA/ACRES		FACTOR		CFS
C	0.18	X	3.14	=	0.57
D	0.21	X	4.70	=	0.99

"Qp' = 1.56 CFS

V100 - 360 = (1.66) x (0.39) / 12 = 0.0540 AC./FT. = 2,350.1 CU. FT.
V100 - 1440 = (0.0540) + (0.21) x (2.75 - 2.35) / 12 = 2,657.2 CU. FT.
V100 - 10 DAY = (0.0540) + (0.21) x (3.95 - 2.35) / 12 = 3,571.9 CU.FT.
TO POND: 3,571.9 - 2,350.1 = 1,221.8 CU. FT.

(LOT 24D, 0.32 AC.)

TREATMENT	AREA/ACRES		FACTOR		CFS
C	0.23	X	3.14	=	0.72
D	0.09	X	4.70	=	0.42

"Qp' = 1.14 CFS

V100 - 360 = (1.41) x (0.32) / 12 = 0.0376 AC./FT. = 1,637.9 CU. FT.
V100 - 1440 = (0.0376) + (0.09) x (2.75 - 2.35) / 12 = 1,768.5 CU. FT.
V100 - 10 DAY = (0.0376) + (0.09) x (3.95 - 2.35) / 12 = 2,160.6 CU.FT.
TO POND: 2,160.6 - 1,637.9 = 522.7 CU. FT.

(LOT 24E, 0.67 AC.)

TREATMENT	AREA/ACRES		FACTOR		CFS
C	0.56	X	3.14	=	1.76
D	0.11	X	4.70	=	0.52

"Qp' = 2.28 CFS

V100 - 360 = (1.29) x (0.67) / 12 = 0.0720 AC./FT. = 3,136.3 CU. FT.
V100 - 1440 = (0.0720) + (0.11) x (2.75 - 2.35) / 12 = 3,296.0 CU. FT.
V100 - 10 DAY = (0.0720) + (0.11) x (3.95 - 2.35) / 12 = 3,775.2 CU.FT.
TO POND: 3,775.2 - 3,136.3 = 638.9 CU. FT.

LEVI J. VALDEZ
NEW MEXICO
5693
REGISTERED PROFESSIONAL ENGINEER
03-18-05

ENGINEER'S SEAL

A PROPOSED
GRADING AND DRAINAGE PLAN
FOR
LOTS 24A, 24B, 24C, 24D, AND 24E
ALVARADO GARDENS, UNIT 1
ALBUQUERQUE, NEW MEXICO
FEBRUARY, 2005