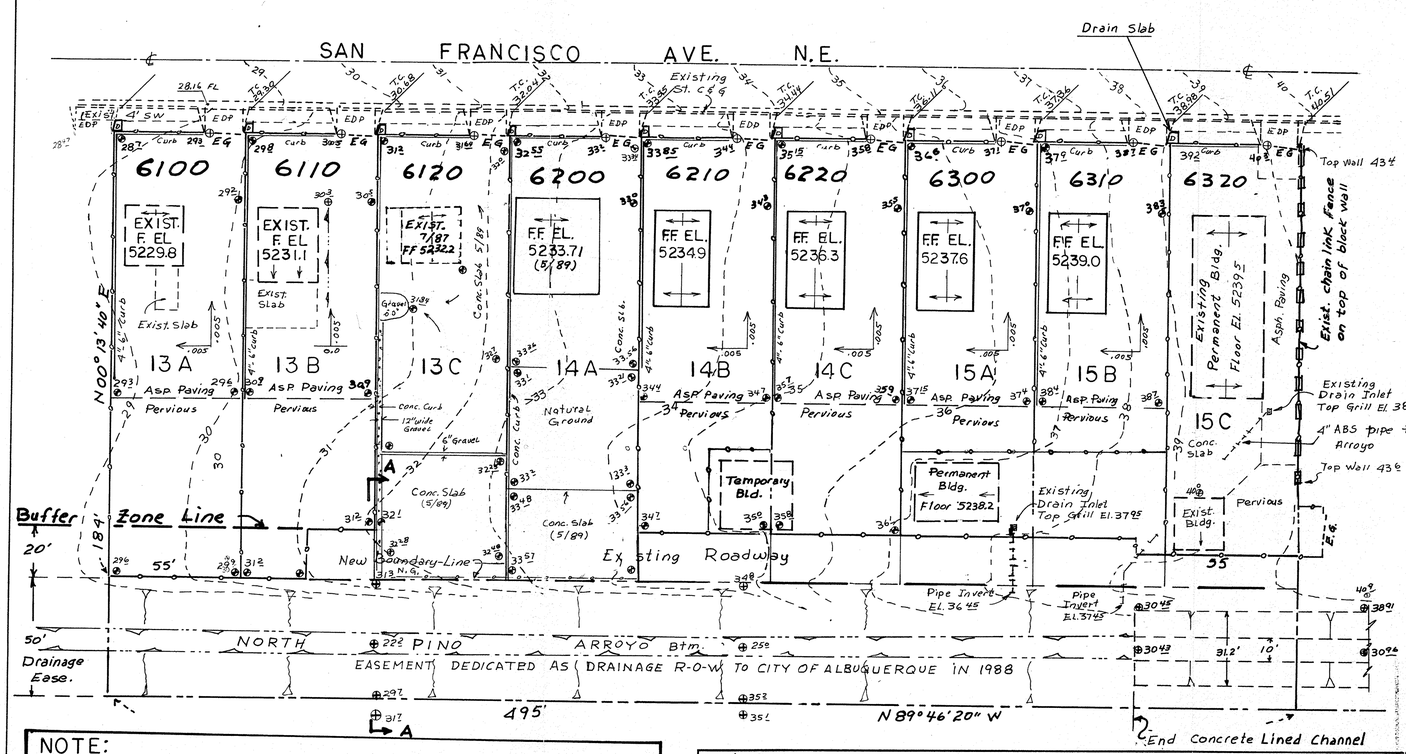
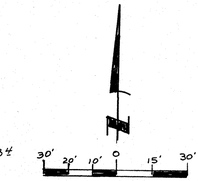
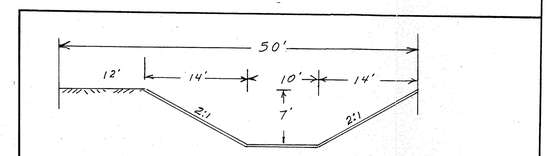


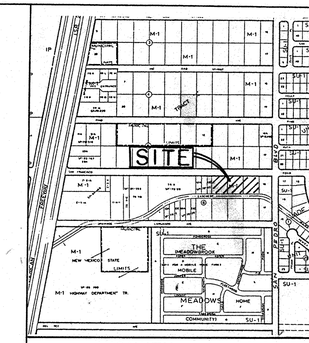


LEGEND

- Existing Curb and Gutter
- Existing Sidewalk
- Existing Chain Link Fence
- Exist. Chain Link Fence Gate
- Existing Drivepad
- Existing Block Wall
- Existing Contours
- Existing Arroyo Bottom
- Existing Arroyo Side Slopes
- Existing Spot Elevations
- Proposed Spot Elevations
- Proposed Swales
- Property Boundary
- Proposed Drain Slab



SECTION
POSSIBLE IMPROVED CHANNEL Scale 1" = 10'

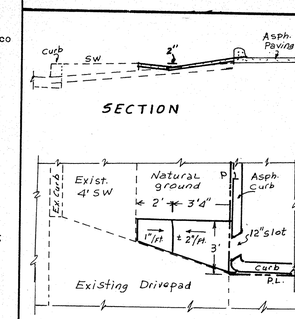


VICINITY MAP
ZONE ATLAS D-18-Z

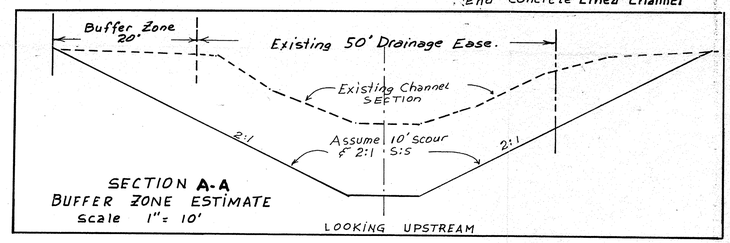
LEGAL:
Lots 13A, 13B, 13C, 14A, 14B, 14C, 15A, 15B & 15C
Block 6, Tract A, Unit A
NORTH ALBUQUERQUE ACRES

Address:

Lot	No.	
13A	6100	San Francisco N.E.
B	6110	"
C	6120	"
14 A	6200	"
B	6210	"
C	6220	"
15 A	6300	"
B	6310	"
C	6320	"



NOTE:
NO DEVELOPMENT WILL BE ALLOWED BETWEEN THE BUFFER ZONE LINE AND THE CHANNEL DUE TO POTENTIAL EROSION HAZARD.



SECTION A-A
BUFFER ZONE ESTIMATE
scale 1" = 10'

CALCULATIONS

HYDROLOGY: Used Rational Formula for Q & SCS Procedures for Volume
Soils: EMB (Embudo gravelly fine Sandy Loam) SCS Std. Soil Survey
Hydrologic Soil Group = B (Table B " " " ")
6hr.-100 yr. Rainfall = 2.3" (Plate 22.2 D-1)
Assume Tc = 10min. ∴ I = 2.18 (Plate 22.2 D-2)
Intensity = i = 6hr. rain × I = 2.3" × 2.18 = 5.01

C Values Roofs = 0.90 Paved = 0.95 Unimproved = 0.40
CN " " = 98 " " = 98 " = 79 (Plate 22.2 C-2)
Formulas: $Q_{100} = CiA$ $Vol._{100} = R_o = 12" \times A$

UNDEVELOPED: $R_o = 0.80"$ (Plate 22.2 C-4 – Rainfall = 2.3" CN = 79)
Assume each Lot = 184' × 55' = 10,120 ft² = 0.2323 Acs.
$Q_{100} = CiA = 0.4 \times 5.01 \times 0.2323 = 0.47$ cfs
$Vol._{100} = R_o \div 12" \times A = 0.80" \div 12" \times 10{,}120\,ft^2 = 675$ C.F.

DEVELOPED:

LOTS	AREAS Total	Roofs	Paved	Unimpr.	COMPOSITE C	CN	Q_{100} cfs	Vol.100 C.F.
13A & 13B	55' × 184' 10,120 ft² 0.2323 Acs.	24' × 40' 960 ft² 9.5%	5090 ft² 50.3%	4,070 ft² 40.2%	0.68	89 R_o = 1.25"	0.81	1,054
13C - 14C	55' × 129' 9,020 ft² 0.2071 ft²	960 ft² 10.6%	5090 ft² 56.4%	2,970 ft² 33.0%	0.76	92 R_o = 1.50"	0.79	1,128
15A & 15B	55' × 129' 7,095 ft² 0.1629 Acs.	960 ft² 13.5%	5090 ft² 71.8%	1,045 ft² 14.7%	0.86	95 R_o = 1.88"	0.70	1,112
15C	55' × 170' 9,350 ft² 0.2146 Acs	30' × 75' 2,690 ft² 28.8%	5,910 ft² 63.2%	750 ft² 8.0%	0.89	97 R_o = 1.95"	0.95	1,519

HYDRAULICS:
San Francisco Ave: Design Q = 60 c.f.s. + 6 c.f.s. (from Lots)
Street Capacity - Plate 22.3 D-2 40' Street S = 2.5% N = 0.017 2% Crown

D	V	Q ½st.	Q Total
0.2'	2.3	1.0	2.0
.3	3.1	3.9	7.8
.4	3.8	10.5	21
.5	4.6	21	42
.6	6.0	39	78
.67	7.0	56	112

Unlined Arroyo Channel: Most restrictive Section – Design Q = 2454 c.f.s.
Slopes covered w/dumped conc. & asphalt or broken C&G and other conc. pieces.
Btm. = 12' S:S = 1.9:1 N = 0.45 Av. S = 0.02 ft/ft

D	Area	WP	Hyd. R.	Vel.	Q
2'	31.6 ft²	20.6'	1.33'	6.2	196
4'	78.4	29.2	1.93	9.0	708
6'	140.4	37.8	2.41	11.2	1,574
7'	177.1	42.1	2.61	12.2	2,158
8	217.6	46.4	2.81	13.1	2,850

Existing Storm Drains – 4" ABS Pipe n = 0.010
At Lot 15A L = 24' A = 0.0871 ft² Kp = 0.08015 Available Head = 1.33'
Use $H = Kp \cdot L \cdot V^2/2g$ and $He = 0.5 \times V^2/2g$

Q	V	$V^2/2g$	$L \times Kp$	Hp	He	H_{Total}
.2cfs	2.29	.0819	1.9236	.15'	.04'	.19'
.4	4.59	.3275	"	.62'	.17'	.80'
.5	5.74	.5117	"	.98'	.25'	1.23'
.6	6.89	.737	"	1.41'	.36'	1.77'

At Lot 15C L = 110' Available Head = 1.05'

.2cfs	2.29	.0819	8.817	0.72'	.04'	0.76'
.25	2.87	.1279	"	1.12'	.06'	1.18'

DRAINAGE AND GRADING PLAN

The following items concerning this drainage and grading plan are contained hereon:
1. Vicinity Map 2. Drainage Plan 3. Grading Plan 4. Calculations
5. Erosion Control Plan.

This plan includes 9 lots; 13A, 13B, 13C, 14A, 14B, 14C, 15A, 15B and 15C located south of San Francisco Ave. and west of San Pedro Drive N.E.. Each lot is 55 feet by 184 feet with a 55 feet by 50 feet drainage easement along the south. The owner plans to dedicate the drainage easement to the City of Albuquerque.

The general slope of the land is from east to west on an average slope of about 2.5 percent and a slight slope from south to north. The lots are bounded by the drain channel on the south and by San Francisco Ave. on the north, both at lower elevations. Offsite runoff does not come into these lots from those two sources. Under present conditions, offsite runoff comes into each lot from the lot to the east. At lot 15C, an existing block wall along the east lot line keeps offsite runoff from entering into it.

Except for lots 15B and 15C, runoff from each lot will free discharge into San Francisco Ave.. Lots 15B and 15C drain to the south into the existing arroyo channel. Free discharge into San Francisco is based on the following: A study, prepared for the City of Albuquerque during the latter part of 1984, indicates that about 60 cfs flows west along San Francisco from the intersection at San Pedro. Estimated discharge from the 7 lots is about 6 cfs, for a total discharge of 66 cfs. The hydraulic computations for a standard 40 feet wide street, with a 2% crown and an average slope of .0252 ft. per ft. indicates a flow depth of about 0.55 feet to discharge 66cfs. Total capacity, at top of curb, is about 116 cfs. (Used Plate 22.3 D-2 for this values) Based on these values, it appears that flood flows do not exceed curb capacities and floods do not encroach onto these lots.

Existing site conditions include the following: 1. Chain link fences along the north lot lines and along each east and west lot line, extending various distances to the south. The chain link fences along the south are not on the lot lines and are located as shown on the plan. 2. Sixteen feet wide drivepads, located at the northeast corner of each lot. 3. Metal buildings located toward the front (north) at lots 13A, 13B, 13C and 15C. Three other buildings are located toward the south end of lots 15A and 15C, also one building straddling lots 14B and 14C.

Planned improvements at each lot include a building approximately 24 feet by 40 feet and asphalt paving at the parking-driveway areas. The buildings will be set back about 30 feet from the north lot line and 5 feet to 15 feet from each west lot line. Paving will include all of the area around each building from east lot line to west lot line, and extending to 40 feet south of each building. At the rear of each lot, the south portion beyound the 40 feet, only grading work, to direct flows to the north, is planned. Small dikes and asphalt curbing will be installed along the west lot line to keep runoff within each lot. Grading of the parking-driveway areas will be done so that runoff will flow toward the northwest corner (the low area) of each lot.

Except for the improvements on lot 15C, all other existing buildings are considered temporary. If necessary, they will be removed or will be upgraded. The existing building slab at Lot 15C is 1.1 feet higher than the existing storm drain inlet structure located close to the southeast corner of the metal building. From the inlet structure, a 4" ABS pipe extends to the arroyo channel. According to the owner this installation has performed well.

Another storm drain installation is located at the south end of Lot 15A, which drains the south portions of Lots 15A and 15B. However, the majority of these lots will be graded to drain to San Francisco Ave..

Drainage covenants will be prepared to allow drainage across or thru lots along the south end of Lots 15A to 15C.

The following items concerning the grading plan show: existing contours, proposed grades indicated by spot elevations, swales with direction of flow and also shows that retaining walls are not needed.

EROSION CONTROL PLAN

Sediment deposition, due to erosion during construction, will be kept to a minimum by the following methods:
1. Paving will not take place until building construction is completed. This will reduce runoff if rainfall occurs during construction.
2. Before building construction is started, a shallow pit with low dikes along the downstream side, will be constructed at the northwest corner (the low area) of each lot and runoff will be directed in that direction with small dikes or swales.

AS BUILT INFORMATION
CONTRACTOR — DATE
WORK STAKED BY — DATE
INSPECTORS ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS
San Francisco Road N.E. Paving Sheet 3 of 6
July 15, 1982 EL. 5234.61 Top of Curb "X" at curb return on San Pedro Blvd. N.E. north west corner of intersection.

SURVEY INFORMATION
REVISIONS & FIELD NOTES

NO.	BY	DATE
4	Lots 13 & 14 to 2 sand conditions as of 5/18/89	5/18/89

ENGINEER'S SEAL
JOHN L. RIVERA NEW MEXICO 6833 REGISTERED PROFESSIONAL ENGINEER
Paul A. Rivera Aug. 7, 1987

NO.	DATE	REMARKS	BY
1	9/14/87	Add Buffer Zone & Improved Sect.	RAR
2	11/4/87	Statement regarding No development between Buffer Line & closest adjacent	RAR
3	3/15/88	To update base & add Section Location	RAR

REVISIONS

DESIGN
DESIGNED BY RAR DATE 7-87
DRAWN BY RAR DATE 7-87
CHECKED BY DATE

RECEIVED
MAY 18 1989
HYDROLOGY SECTION

RIVERA ENGINEERING
2624 Valencia Dr. N.E.
Albuquerque, NM 87110
Phone 881-3419

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: DRAINAGE & GRADING PLAN
DEMERS CONSTRUCTION CO.

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair					
Trans. Dev.					
Utility Dev.					

DRAWING NO. MAP NO. SHEET OF

D18-D3 1/1