DRAINAGE CALCULATIONS

EXISTING CONDITIONS

The proposed site is located on the east side of Academy Parkway East. The site is undeveloped with a small portion landscaped along the western property line. This is an infill site. Presently the site slopes from east to west at 4 to 9 percent slope. Storm water from the site free discharges into Academy Parkway. The adjacent properties to the north and the south are developed. The property to the east is undeveloped. The storm water from the developed properties free discharges into Academy Parkway North. The storm water then flows in the street to Academy Parkway West to an existing drainage easement. The storm water runoff is then discharged into the A.M.A.F.C.A. north Diversion Channel.

PROPOSED CONDITIONS

It is proposed to build a 12,925 square foot office building on this site. The building roof is a shed roof type and it slopes to the south. The runoff from the entire roof is discharged via roof drains to a swale which is also a xeriscaped area. The runoff is then channeled to Academy Parkway East via sheet flow. The runoff is then free discharge into Academy Parkway East where it travels in the street to Academy Parkway West and then to the existing drainage easement. The storm water runoffs is then channeled to the A.M.A.F.C.A. North Diversion Channel.

DRAINAGE CRITERIA

The calculations shown on this plan were prepared in accordance with Section 22.2, Hydrology, of the Development Process Manual, Volume 2, Design Criteria, for the City of Albuquerque, in cooperation with Bernalillo County, New Mexico and the Albuquerque Metropolitan Arroyo Flood Control Authority, January, 1993.

PRECIPITATION ZONE

The site is west of San Mateo Boulevard and is, therefore, in Precipitation Zone 2.

LAND TREATMENT AREAS, EXCESS PRECIPITATION AND UNIT PEAK DISCHARGE

The peak discharge per acre and excess precipitation are shown for the four land treatments in Zone 2 in the table below, and the values shown are from the City of Albuquerque D.P.M. Also shown are the existing and proposed land treatment areas.

LAND TREAT.	q(cfm/ac) 100-yr	10-yr	E (in) 100-yr	10-yr	Existing Site Areas %	Sq.Ft.	Acres	Developed Site Areas %	Sq.Ft.	Acres
A	1.56	0.38	0.53	0.13	0.0	0	0.0000	0.0	0	0.0000
B	2.28	0.95	0.78	0.28	16.0	4,997	0.1147	11.0	3,498	0.0803
C	3.14	1.71	1.13	0.52	84.0	26,689	0.6127	0	0	0.0000
D	4.70	3.14	2.12	1.34	0	0	0.0000	89.0	28,188	0.6471
Totals					100.0	31,686	0.7274	100.0	31,686	0.7274

PEAK DISCHARGE

EXISTING CONDITIONS

$Q100 = 2.28 * 0.1147 + 3.14 * 0.6127 = 2.19$
$Q10 = 0.95 * 0.1147 + 1.71 * 0.6127 = 1.16$

DEVELOPED CONDITIONS

$Q100 = 2.28 * 0.0803 + 4.70 * 0.6471 = 3.22$
$Q10 = 0.95 * 0.0803 + 3.14 * 0.6471 = 2.11$

VOLUME, 100-YEAR, 6-HOUR

EXISTING CONDITIONS

$V100 = (0.78 * 4997)/12 + (1.13 * 26689)/12 = 2838$
$V10 = (0.28 * 4997)/12 + (0.52 * 26689)/12 = 1273$

DEVELOPED CONDITIONS

$V100 = (0.78 * 3498)/12 + (2.12 * 28188)/12 = 5207$
$V10 = (0.28 * 3498)/12 + (1.34 * 28188)/12 = 3229$

SUMMARY OF ON-SITE VOLUMES AND PEAK DISCHARGE RATES

	V100(CF)	V10(CF)	Q100(CFS)	Q10(CFS)
DEVELOPED	5207	3229	3.22	2.11
EXISTING	2838	1273	2.19	1.16
INCREASE	2369	1956	1.03	0.95

OFF-SITE FLOW VOLUMES AND PEAK DISCHARGE RATES

Storm water runoff from the adjacent property to the north enters the proposed lot. The roof drains along the southern face of the building drain to the drainage easement and cross into this site. The area of concern is approximately 8100 sf. The contributing area is Treatment D.

Area = 162 * 50 = 8100 sf.

$V100 = (8100 * 2.12)/12 = 1431$ cf. $Q100 = 0.1860 * 4.70 = 0.87$ cfs.

ANALYSIS OF DOWNSTREAM CONDITIONS:

The site is an infill site, meaning that practically every other property around it is developed and the development of this site will not significantly impact downstream streets and drainage facilities. The increase in discharge from development is 1.06 cfs. Runoff leaving the site enters Academy Parkway East and flows approximately 150 feet (or so) to Academy Parkway North then flows west to Academy Parkway West 650 feet to a drainage easement which discharges into A.M.A.F.C.A. North Diversion Channel.

CAPACITY OF SWALE - SOUTH SIDE OF BUILDING:
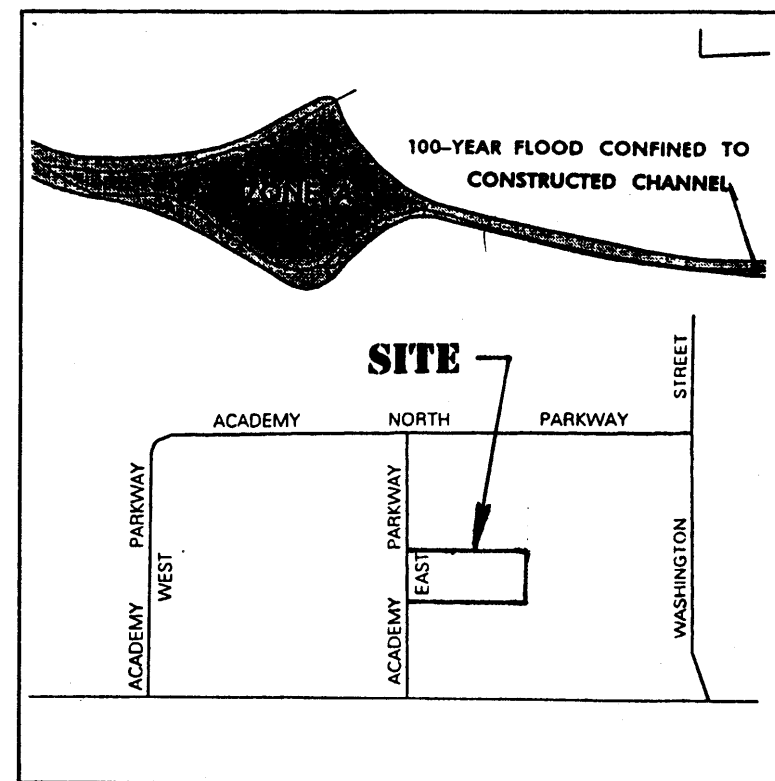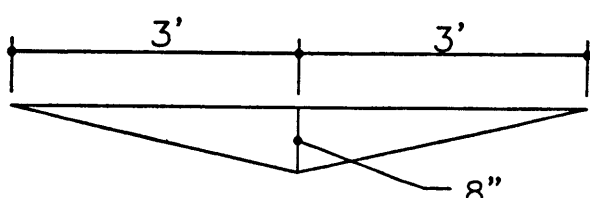
AREA = ROOF AREA PLUS SWALE BETWEEN BLDG. & S. PROP. LINE.

BLDG. = 12,925 SF (0.2962 AC)   SWALE = 330 X 6 = 1,980 SF (0.0455 AC)

$Q100 = 0.2962 * 4.70 + 0.0455 * 3.14 = 1.53$ CFS

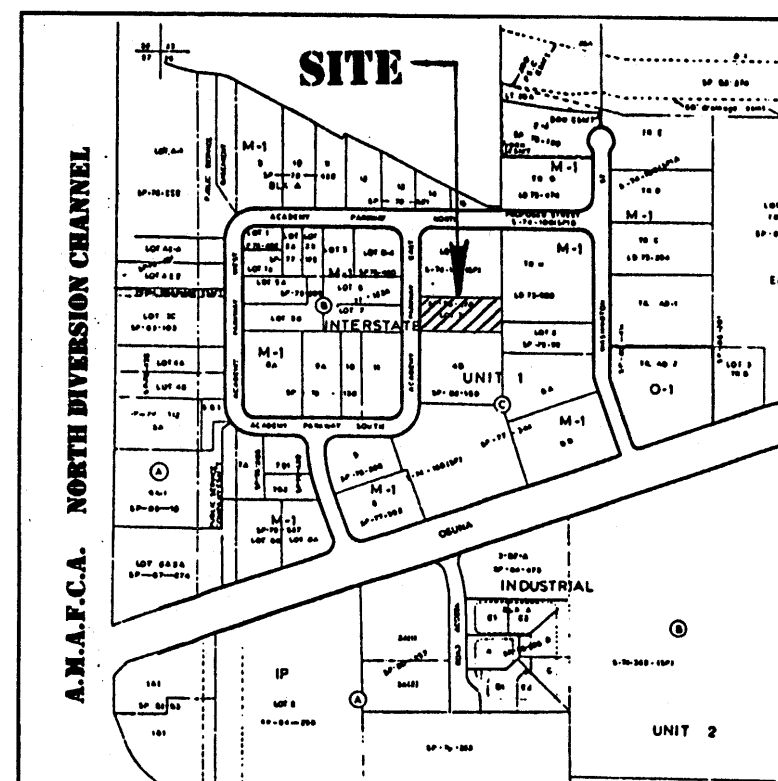A= 1.00   P = 3.28   R = A/P = 1.00 / 3.28 = 0.30
$V= 1.486/0.033)(0.30)^{2/3} (0.0154)^{1/2} = 2.50$ FPS
$Q = AV = 1.00 X 2.50 = 2.50$ CFS > 1.53 CFS

```
|← 3' →|← 3' →|
            8"
```

FLOODWAY MAP

100-YEAR FLOOD CONFINED TO CONSTRUCTED CHANNEL

SITE

VICINITY MAP   E-17-Z

SITE

ACADEMY NORTH PARKWAY
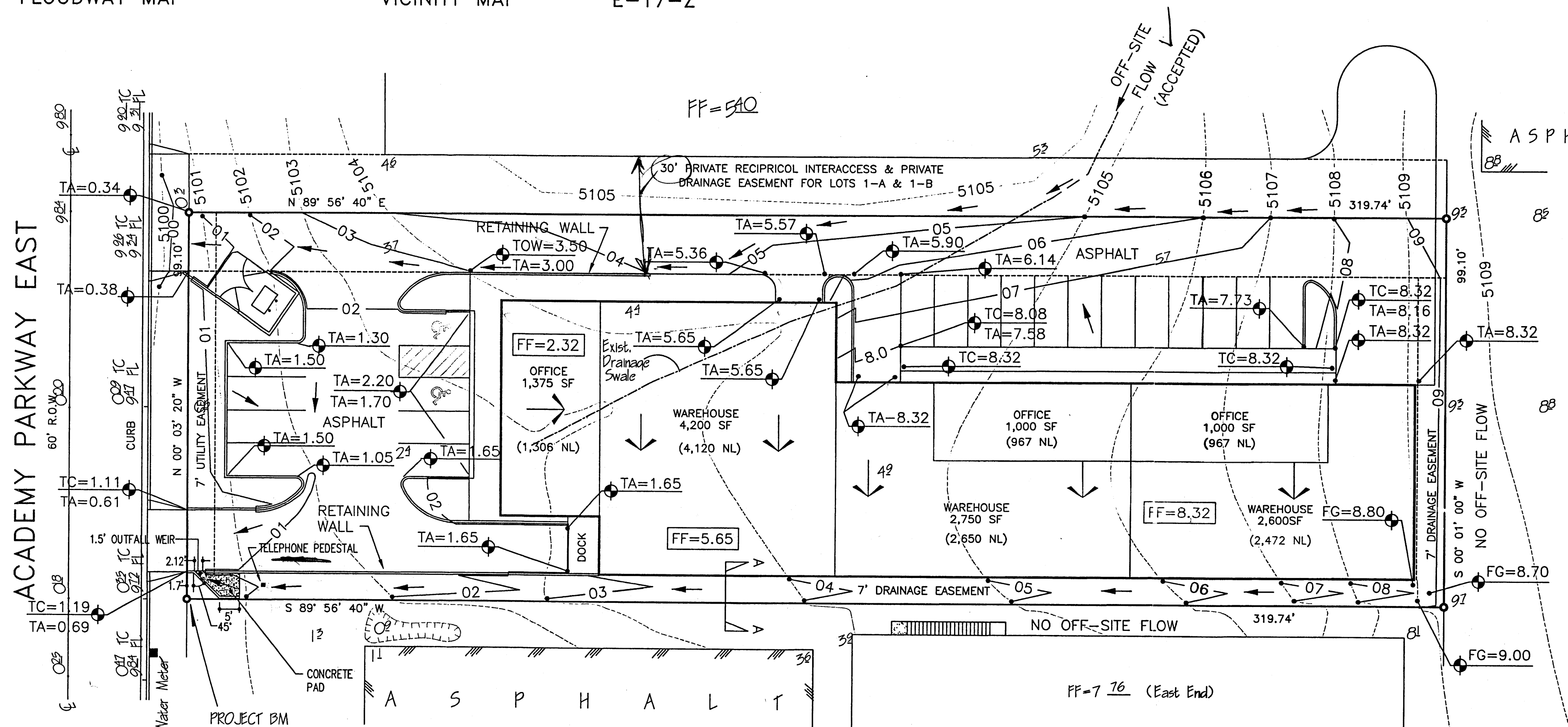
A.M.A.F.C.A. NORTH DIVERSION CHANNEL

UNIT 2

INTERSTATE INDUSTRIAL PARK

LEGAL DESCRIPTION

LOT 1-B
BLOCK C,
INTERSTATE INDUSTRIAL PARK
UNIT 1,
BERNALILLO COUNTY
ALBUQUERQUE, NEW MEXICO

LEGEND

TC	= TOP OF CURB	⊩⊩	= GAS METER
FL	= FLOW LINE	⬥	= NEW SPOT ELEV.
TOW	= TOP OF WALL	10.00	= EXIST. SPOT ELEV.
TA	= TOP OF ASPHALT	→	= SHEET FLOW
CP	= TOP OF CONCRETE		= SWALE
FG	= FINISHED GRADE	-5110--	= EXIST. CONTOUR
FF	= FINISHED FLOOR	— 10 —	= NEW CONTOUR
		↓	= ROOF SLOPE

GRADING & DRAINAGE PLAN

SCALE: 1=20.0'

0 5 10   20   40

FF=5.40

ASPH

ACADEMY PARKWAY EAST
60' R.O.W.

30' PRIVATE RECIPRICOL INTERACCESS & PRIVATE DRAINAGE EASEMENT FOR LOTS 1-A & 1-B

OFF-SITE FLOW (ACCEPTED)

RETAINING WALL
TOW=3.50
TA=3.00

N 89° 56' 40" E

ASPHALT

FF=2.32
OFFICE 1,375 SF (1,306 NL)

WAREHOUSE 4,200 SF (4,120 NL)

OFFICE 1,000 SF (967 NL)

OFFICE 1,000 SF (967 NL)

WAREHOUSE 2,750 SF (2,650 NL)

WAREHOUSE 2,600 SF (2,472 NL)

FF=8.32

FF=5.65

FG=8.80
FG=8.70
FG=9.00

DOCK

RETAINING WALL
Telephone Pedestal

7' DRAINAGE EASEMENT
NO OFF-SITE FLOW
319.74'

7' UTILITY EASEMENT

CONCRETE PAD

Water Meter

PROJECT BM
Capped Rebar Stamped
NMRLS 7925
Top Cap El. = 5100

FF=7.76 (East End)

7' DRAINAGE EASEMENT
NO OFF-SITE FLOW

S 89° 56' 40" W

S 00° 01' 00" W   99.01'

A S P H A L T

GENERAL NOTES:

1. ADD 5100 TO SPOT ELEVATIONS TO SHOW TRUE ELEVATION.
2. CONTOUR INTERVAL IS ONE (1) FOOT.
3. ELEVATIONS ARE BASED ON A SURVEY PROVIDED BY THE ARCHITECT.
4. UTILITIES SHOWN HEREON ARE IN THEIR APPROXIMATE LOCATION BASED ONLY ON ABOVE GROUND EVIDENCE FOUND IN THE FIELD AND AS-BUILT INFORMATION PROVIDED BY THE CLIENT. UTILITIES SHOWN HEREON, WHETHER INDICATED AS ABANDONED OR NOT, SHALL BE VERIFIED BY OTHERS FOR EXACT LOCATION AND/ OR DEPTH PRIOR TO EXCAVATION OR DESIGN CONSIDERATIONS.
5. THIS IS NOT A BOUNDARY SURVEY, BEARINGS, DISTANCES AND FOUND PROPERTY CORNERS ARE FOR INFORMATION PURPOSES ONLY.

OUTFALL WEIR:

WIDTH OF WEIR = L = 1.5'

DEPTH OF FLOW = H = 0.5'

USE WEIR EQ. $Q = CLH^{3/2}$

$Q = CLH = 3.0 X 1.5 X 0.5^{3/2}$

$Q = 1.59$ CFS > 1.53 CFS OK

SECTION A-A   SWALE ON S. SIDE OF BLDG.
1/2" = 1' - 0"

PL

|← 3' →|← 3' →|

8"

4" THICK - 2" CRUSHED GRAVEL
6 MIL. PLASTIC SHEETING

EROSION CONTROL REQUIREMENTS:

1. No sediment-bearing water shall be allowed to discharge from the site during construction.
2. During grading operations and until the project has been completed, all adjacent property, rights-of-way, and easements shall be protected from flooding by runoff from the site.
3. Should the contractor fail to prevent sediment-bearing water from entering public right-of-way, he shall promptly remove from the public right-of-way any and all sedimentation originating from the site.
4. Control of sediment-bearing waters will be accomplished by use of a compacted earth berm of adequate height. The berm shall be located along the downstream perimeter of the property.
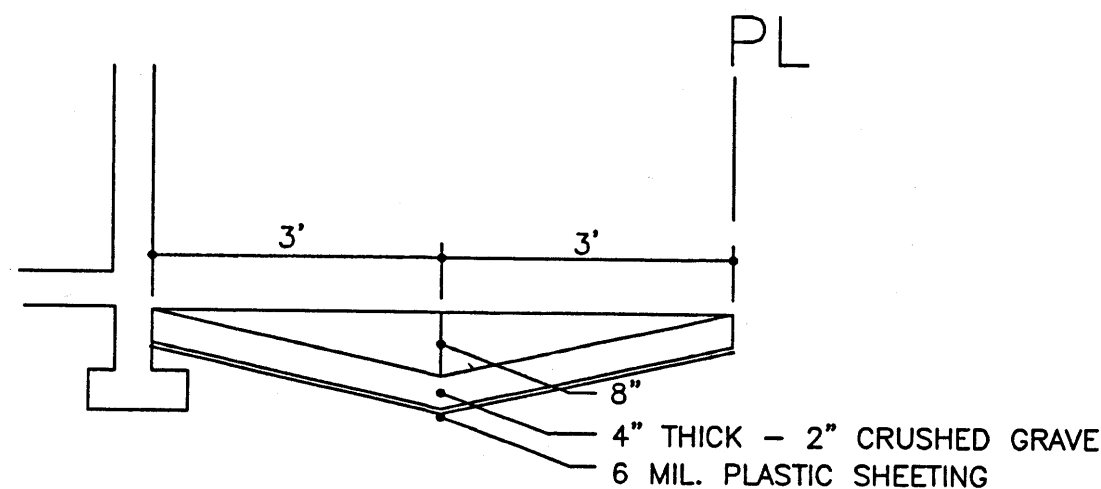

Office & Warehouse Facility
ACADEMY PARKWAY, EAST, ALBUQUERQUE, NEW MEXICO

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