HYDROLOGY H15/D39 3 PLANS

H15/D39

3 PLANS

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

October 18, 1985

Tucker Green
Engineering Associates, Inc.
532 Adams NE
Albuquerque, NM 87102

RE: DRAINAGE AND GRADING PLAN SUBMITTAL OF PALONI PLAZA (H15-D39) FOR BUILDING PERMIT APPROVAL, ENGINEERING DRAWINGS STAMPED AND DATED 9-23-85, RECEIVED 9/27/85

Dear Tucker:

The above referenced submittal is approved for building permit.

On future submittals, please deliniate interior drainage basins as outlined in the DPM, to help facilitate our reviews.

If you have further questions, call me at 766-7644.

Sincerely,

Roger A. Green, PE

Roger A. Green, PE
CE/Design Hdyrology

RAG/cl

cc: John Paloni
1915 Menaul

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Paloni Plaza ZONE ATLAS/DRNG. FILE #: H-15-Z039

LEGAL DESCRIPTION: Southeast 0.735 Ac corr of A(0.5779 Ac tract lying in N.E. intersection of I-25 & Menaul BLVD N.E

CITY ADDRESS: 1915 Menaul NE 87107

ENGINEERING FIRM: Engineering Associates CONTACT: Tucker Green

ADDRESS: 532 Adams NE 87102 PHONE: 265-6545

OWNER: John + Clarice Paloni CONTACT: Clarice Paloni

ADDRESS: 1915 Menaul PHONE: 884-1373

ARCHITECT: Rick Bennett Arch. CONTACT: Rick Bennett

ADDRESS: 3803 Riverview Place PHONE: 831-3950

SURVEYOR: Alpha Surveying Group CONTACT: Gary Gutsgo

ADDRESS: 623 Amherst NE 87108 PHONE:

CONTRACTOR: Paige + Wertz CONTACT:

ADDRESS: PHONE:

RECEIVED SEP 27 1985 HYDROLOGY SECTION

PRE-DESIGN MEETING:

X YES

___ NO

X COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. ___

EPC NO. ___

PROJ. NO. ___

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

X DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

X 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

X BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER ___ (SPECIFY)

DATE SUBMITTED: ___

BY: ___

DRAINAGE REPORT
FOR
PALONI SHOPPING CENTER
1915 MENAUL NE

PROJECT DESCRIPTION:

The project is located on a 6.6 acre site at the northwest corner of Menaul Blvd. and University Ave. NE. The site is currently occupied by a Chevron Truck Stop with restaurant and associated parking and, except for a small amount of landscaping, is entirely covered by buildings or paving. A pair of two-storey office/retail buildings will be built at the southeast corner of the site. The area affected by construction is roughly 200 ft by 160 ft. (0.735 acres) and slopes from northeast to southwest at about 4 %. It is this area only which is addressed by this report.

PREDESIGN CONFERENCE:

ZONE MAP NO.: H-15

LEGAL DESCRIPTION: A 6.5774 ACRE TRACT LYING IN THE NORTHEAST INTERSECTION OF I-25 AND MENAUL BOULEVARD NE. [THE NORTHWEST CORNER OF MENAUL AND UNIVERSITY NE.]

After development more of the site will be landscaped than at present and many of the coutours will be softened by the use of retaining walls. Peak runoff will actually be decreased slightly. For this reason and because the building is in an infill area, free discharge to Menaul will be permitted per the predesign conference. Although this report addresses only the portion of the site affected by construction, the site has a single owner and no easement is required to allow runoff over parts of the site that remain undisturbed.

The pre-design conference also identified Menaul from the intersection with University westward as susceptible to flooding from the 100-year storm (FEMA Panel 023), presumably because of inadequate downstream storm sewer capacity. University south of Menaul two blocks or so shares this problem. The FEMA map shows the flooding confined approximately to the paved width of the street; thus the depth of flow should be about 9 inches or 0.75 feet. According to pre-design, finished floor of the buildings is to be 2 feet above Menaul flow line, with that level designated as existing flow line at approximately midline of the building. Finished floor is set at MSL 5042.00, while flow line at midpoint is approximately 5038.71. The least clearance above flowline - 1.9 ft - occurrs at the far east edge of the east building, where flowline elevation is 40.10, the local slope is 2.2 %, and 2.0 ft clearance is reached within 5 feet. This is at the upstream end of the flooding in Menaul and the depth may well be less than downstream. ✓

Recieved Sept 27, 1985

EXISTING CONDITIONS:

The flow area is 32000 sq. ft. or 0.735 acres.
The flow area is 89 % impervious 93%
The soil is Group A, Type Cu (SCS Soil Survey Sheet 31)
Use Group B for analysis; only landscaped is pervious
The "C" factor is 0.93 (DPM Pl. 22.2 C-1) 0.89
The runoff Length L is 220 ft.u
The slope S is 4 %
The time of concentration Tc is 0.0078*(L^.77)/(S^.385) = 1.71 min
(Use 10 minutes minimum)
The average velocity is L / (Tc x 60) = 2.14 ft/sec.
The 100-yr 6-hr precipitation amount AMT is 2.2 in (Pl 22.2 D_1)
The 100-yr intensity I is 2.114 x 2.2 = 4.65 in/hr (Pl ~~22.2 D-2~~)
The 100-yr flow rate is CIAc = 0.89 x 4.65 x 0.735 = 3.04 cfs.
The 100-yr volume is 0.89 x 0.183 x 32000 = 5221 cu. ft.
The 10-yr values are 65.7 % of the 100-yr values
for amount, intensity, rate, and volume. (Pl 22.2 D-1)

OFFSITE FLOW:

There is no offsite flow to the area in question. The rest of the main site drains away from the corner in question; runoff ultimately enters the storm sewer system in Menaul Blvd. The only neighboring site lies to the north. Runoff from that site flows to the west and enters a drop inlet which leads to the storm sewer in Menaul.

PROPOSED CONDITIONS:

The flow area is 32000 sq. ft. or 0.735 acres.
The flow area is 89 % impervious
The soil is Group A, Type Cu (SCS Soil Survey Sheet 31)
Use Group B for analysis; only landscaped is pervious
The "C" factor is 0.85 (DPM Pl. 22.2 C-1)
The runoff Length L is 195 ft.u
The slope S is 3.5 %
The time of concentration Tc is 0.0078*(L^.77)/(S^.385) = 1.64 min
(Use 10 minutes minimum)
The average velocity is L / (Tc x 60) = 1.98 ft/sec.
The 100-yr 6-hr precipitation amount AMT is 2.2 in (Pl 22.2 D_1)
The 100-yr intensity I is 2.114 x 2.2 = 4.65 in/hr (Pl 22.2 D-2)
The 100-yr flow rate is CIAc = 0.85 x 4.65 x 0.735 = 2.91 cfs
The 100-yr volume is 0.89 x 0.183 x 32000 = 5212 cu. ft.
The 10-yr values are 65.7 % of the 100-yr values
for amount, intensity, rate, and volume. (Pl 22.2 D-1)

RUNOFF CONTROL:

The site will be graded as shown on the plans. Roof flow will be directed by gutters and canales to exit as shown. Most of the loading area east of Building A is higher than finished floor so care is essential in that area. A "speed-bump" type runoff-deflector is provided to exclude water from the driveway to the north and a continuous drain 3/4 inch lower than finsihed floor is provided almost adjacent to the building. Part of this area is enclosed by retaining walls as shown on the plans. South of the loading area, along the east wall of the building, finished grade is more than a foot above finished floor. The wall will have a minimum of two courses of water-proofed block above finished floor and will be protected by another continuous drain.

Flow from both these drains will enter a 6-inch PVC pipe and will exit under the sidewalk into Menaul near the east window line of Building B as shown. There the flowline elevation is 5039.32 feet. Since the city permits only 4-inch maximum diameter pipe to cross the sidewalk, the 6-inch pipe is split into two 4-inch pipes just upstream of the sidewalk. If Menaul is flooded by a 100-year storm the flow should be less than a foot deep, as mentioned earlier. Water will back up into the pipe and there will be full pipe flow through part of the length. At Menaul flow 1 foot deep the available head will be 5042 - 5039.32 - 1 = 1.68 feet. Routing the combined flow required by the 100-yr storm throughout the entire 110 foot length uses less than 0.75' of head, including entrance and exit losses and allowing for the effect of branched and reduced pipes; thus the capacity should be adequate even in flood conditions. 1.68 - 0.75 = 0.93' head in 110' ⇒ S = 0.008 ft/ft = HGL

Q_{cap} = 0.6 cfs ±

The courtyard between the buildings is also drained by two gratings. Calculations shown in the appendix for the pipe leading from the courtyard drains are conservative in that they ignore the effect of the planters and roof overhangs on reducing runoff. The 4-inch pipe drains to Menaul just west of than the six-inch pipe. Again capacity is adequate under either free flow or flood conditions.

Runoff from the rest of the site occurrs as overland (overpaving) flow and also ends up in Menaul. There is an existing drop inlet just west of Building B and three more 160 - 200 feet west of that. There are no drop inlets in University Ave. near the site.

Under existing conditions, near the entrance from University Ave., the property side of the sidewalk forms a ridge line: the drive slopes away to both the west and east. It is proposed to maintain this line, even though it is about 0.7 feet above flow line, rather than 1.0 feet. The photo-topo map included in the appendix shows that the only flow in the west gutter of University should come from rain falling in approximately 1000 feet of street north of the driveway and that the gutter slope in this region is about 1.5 %. Thus there will be only light flow in the gutter and increasing the property line elevation to 1 foot above gutter line does not seem necessary.

EROSION AND DUST CONTROL:

A note on the plans directs the contractor to control ersosion during construction by constructing a 1 - 1/2 foot high berm inside the construction fence. The berm shall be the width of the site (200 ft approx) on the south and shall extend 86 feet northward on the west. On the west side the berm may be placed at the limit of soil disturbance.

The contractor shall control dust by wetting exposed earth as necessary or by other approved means.

END OF REPORT

APPENDIX

BY DJG DATE 8-12 SUBJECT PARONI SHEET NO 1 REV OF
CHKD. BY DATE CLIENT BENNETT JOB NO.

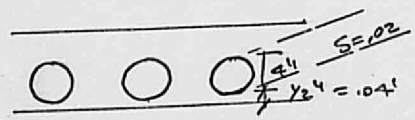
engineering associates, inc. • 532 Adams Street, NE • Albuquerque, NM 87108 • (505) 265-6545

FLOW LINE ELEV N SIDE OF MENAUL @ UNIVERSITY

(39.55 - 39.10)/25 = 0.01800

63' W OF UNIV 39.55 - 13 x .018 = 39.316 ~ 39.32
64' " " - 14 x .018 = 39.298 ~ 39.30
65' " " - 15 x .018 = 39.280 = 39.28

USE 3 4"ϕ SCH 40 PVC PIPES STD DWG F-75



6' SIDEWALK + 8" CURB = 6.67'
6.67 x .02 = 0.133 ~ 0.13
0.13 + .04 = 0.17 SAY Δel = 0.20 SIDEWALK

BASE DESIGN SLOPES ON Δel TOT - 0.20'

CONVERT 6" PIPE TO 2 4" PIPE JUST UPSTREAM OF SIDEWALK

4" @ MAIN RUN
41.76 - 0.91 = 40.85 40.85 - (39.28 + .02) = 1.37'
1.37/(103-6) = 0.0141 SAY 0.014 = $S_{4"}$

6" @ MAIN RUN
41.94 - 0.75 = 41.19 (.75 for 4" FLOW IN SEC # 615 IN FORM CAST DRAIN)

41.19 - (39.32 + .02) = 1.67
1.67/(110-6) = 0.0161 SAY 0.016 = $S_{6"}$

8-12 Palomar Drainage

4" COURTYARD AREA - INCLUDES PLANTERS

Area 77×20 = 1540 sf = 0.0354 Ac

Q = CIA = 0.95 × 4.64 × .0354 ≈ 0.156 CFS
= 70.15 GPM

4" SCH 40 PVC
D = 4" L = 47 S = 0.014 C = 120 n = 0.013
ASSUME FOR ANALYSIS CARRY S ≈ .02 ALL THE WAY TO THE FLOW LINE USE S = .03

(1) CAPACITY @ FULL PIPE OPEN CHANNEL
Q = 0.226 cfs > 0.156 OK FS = .226/.156 = 1.45 . .

(2) ✓ HEAD LOSS @ FULL LENGTH FLOW & PRESSURE FROM SURCHARE
CONSIDER 1' FLOOD DEPTH @ OUTLET

$H_{TOT,REQ} = h_f + h_v (K_{ent} + K_{exit} + K_{fittings})$
$= h_f + h_v (0.5 + 1.0 + 5 \times 1.12) = h_f + 2.9 h_v$

CONSERVE - ASSUMES 5 45° BENDS @ FULL FLOW

USE: $H_{TOT,REQ} = h_f + 2.5 h_v$.
Hazen Williams

@ Q = Q_{req} = 70.15 GPM h_{TOT} = 0.590'

@ Q = FS. Q_{req} = 102.72 gpm h_{TOT} = 1.232'

AVAILABLE HEAD @ 1' FLOOD DEPTH IN MEDIAN

42 - (39.28) - 1' = 1.72' > 1.23 > 0.59 OK

3-12 THE PRONG

6" PIPE EAST SIDE

(6" PIPE BRANCHES TO 2 4" PIPES @ ±2' FROM SIDEWALK)

FLOW REQUIRED

EAST LOAD: PAVED AREA $44 \times 44 \times 1/2 = 968$ SF

: ROOF AREA (CONSERVE)

$55 \times 22.5 + 3 \times \frac{1}{2} \times 22.5^2 = 1997$

2965 SF

= 0.0681 Ac

$C = 0.95$

$Q_{100} = .95 \times 4.64 \times 0.681 = 0.3000$ cfs

EAST OF BLDG & WALL, & N OF SIDEWALK

$\sim 76 \times 18 = 1368$ SF

$22.5^2 \times 1/2 = 253$

1621 SF = 0.0372 Ac

$\text{IMPERV} = \frac{253 + (2+5+7)18}{1621} = .3115$ SOIL GROUP B

SAY $C = 0.50$

$Q = CIA = 0.5 \times 4.64 \times .0372 = 0.086$ cfs

$Q_{P100,TOT} = .386$ cfs = 173.24 gpm

INCREASE LENGTH @ 4" BY $\approx \frac{1}{2} \times \left[\left(\frac{h_{v2}}{h_{v1}}\right)^2 + \left(\frac{d_1}{d_2}\right)^4\right]$

BY $\sim 1/2 \times (6/4)^4 = 2.53$

" " K fitting by same

$h_{TOT\ req} = h_f + h_v\,(K_{ent} + K_{exit} + K_{fittings})$

$= h_f + h_v\,(.5 + 1.0 + 3(.18) + (.15) + 2(.15) \times 2.53)$

$= h_f + h_v(2.94)$ say $h_f + 3h_v$

$L_{equiv} = 110 - 6 + 2 \times 6 \times 2.53 = 134.36$:= KEEP $S = S_o = .016$

9-12 Ditch Primary

Ground (min)

capacity @ 6" S = .016 full pipe n = .013

Q = .712 > .386 ok FS = .712/.386 = 1.84

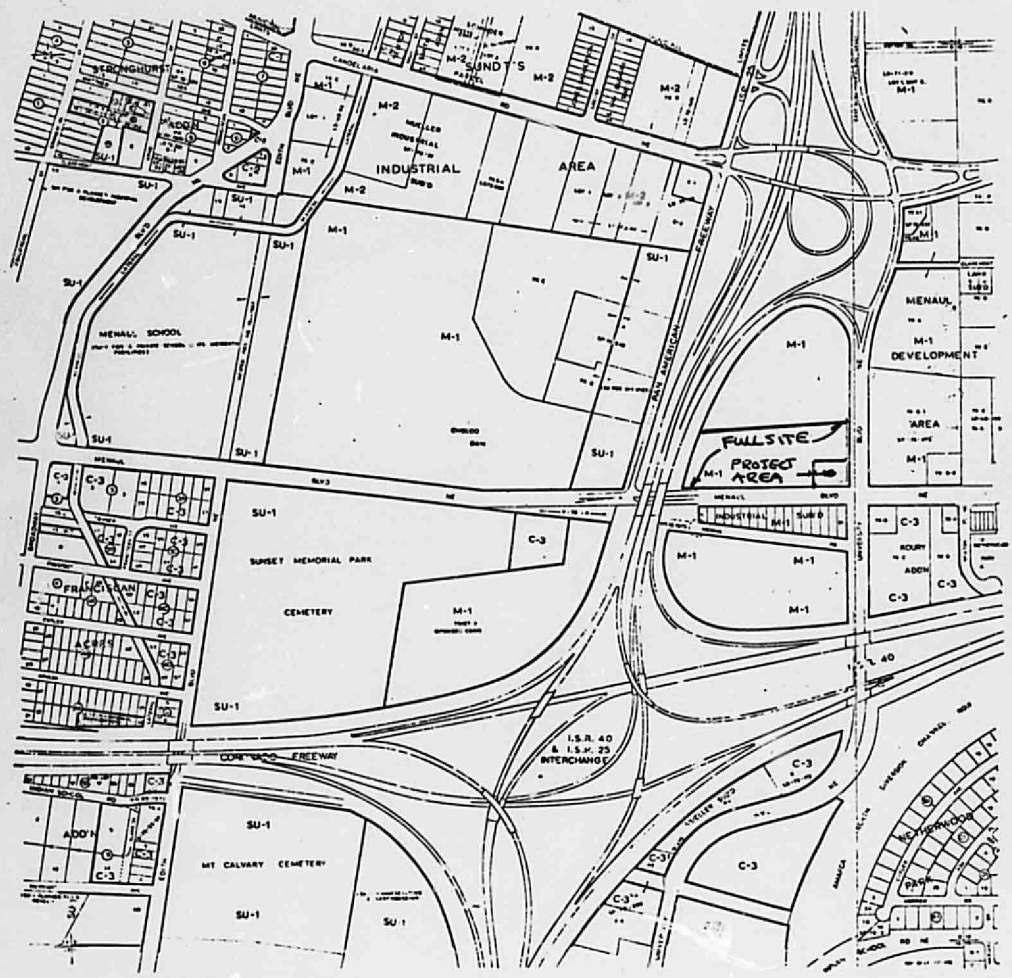
head required for pressure (surcharge) flow

use L = 135' ΣK = 3.0 Q = .386 cfs = 175 gpm

h = hf + 3 hv = .460 + 3x.061 = .644'

Head avail = 42 - (39.32) = 1 = 1.68' > .644 ok

@ 1' head FL


STRONGHURST
SUNDT'S
INDUSTRIAL
AREA
MENAUL SCHOOL
MENAUL
DEVELOPMENT
AREA
FULL SITE
PROJECT AREA
PAN AMERICAN FREEWAY
MENAUL BLVD
SUNSET MEMORIAL PARK
CEMETERY
FRIEDMAN
CORRIDOR FREEWAY
I.S.R. 40
& I.S.H. 25
INTERCHANGE
MT CALVARY CEMETERY
NEIGHBORS
PARK
M-1
M-2
SU-1
C-3

H-15-Z

CLAREMONT
PAN AMERICAN FRWY.
ALBUQUERQUE
GRANT
APPROX.
TOWN & COUNTY
BLVD.
BLVD.
FULL SITE
PROJECT AREA
X41.1
X34.3
X78.7
X82.4
X80.3
19.0X
X34.8
X35.1
X49
X36.8
X37.2
X33.5
X34.3
36.3X
X42.1
X44.5
X34.7
X44.0
X41.0
X42.8
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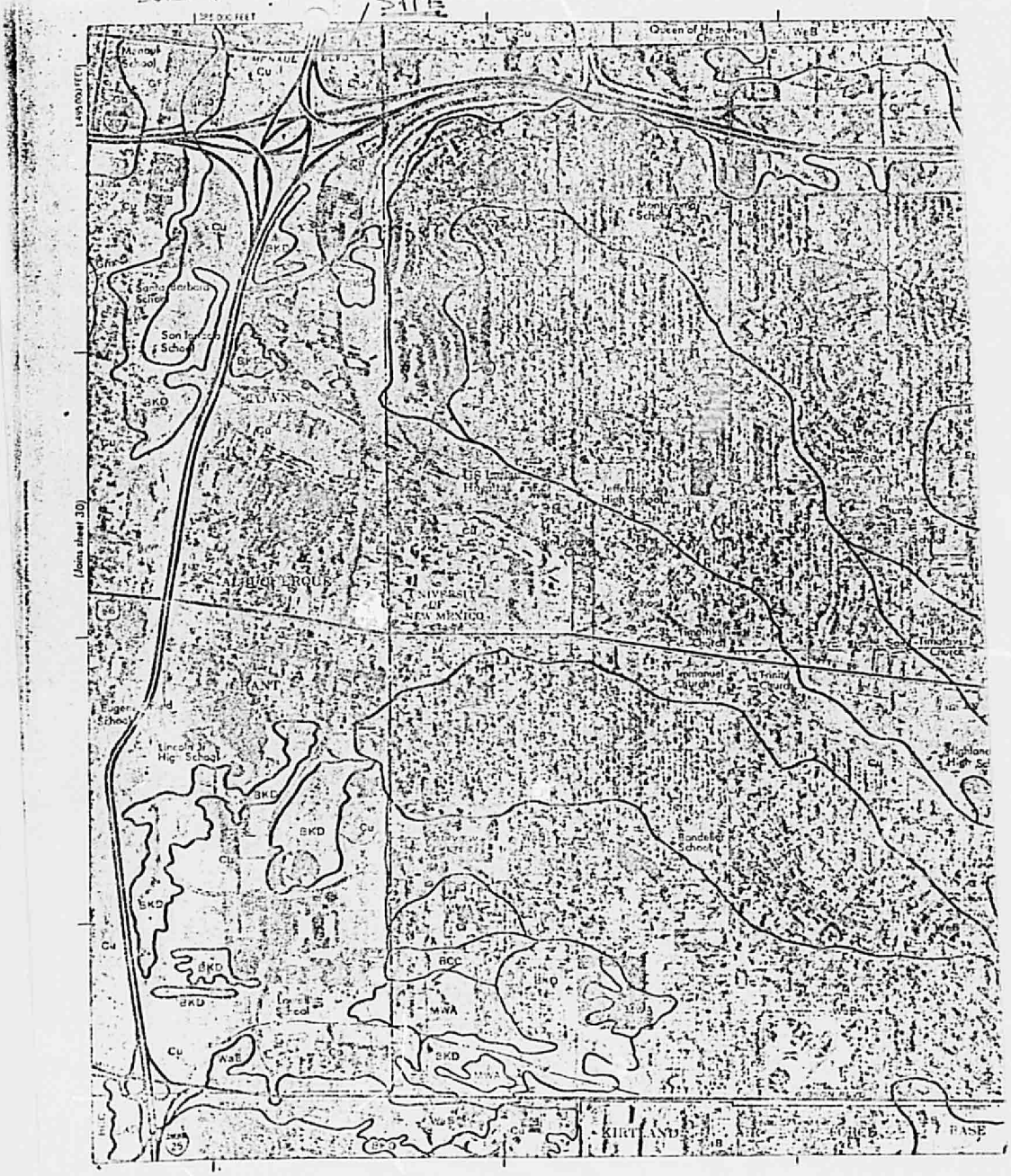
BERNALILLO COUNTY AND PARTS OF SANDOVAL AND \



DRAINAGE INFORMATION SHEET

PROJECT TITLE: Paloni Plaza Shipping Centre ZONE ATLAS / DRNG FILE: H-15

LEGAL DESCRIPTION: [The southeast 0.735 acre corner of] A 6.5774 acre tract lying in the northeast intersection of I-25 and Menaul Blvd. NE

CITY ADDRESS: 1915 Menaul Blvd. NE

ENGINEERING FIRM: Engineering Associates CONTACT: Tucker Green

ADDRESS: 532 Adams NE 87102 PHONE: 865-6545

OWNER: John and Clarice Paloni CONTACT: Clarice Paloni

ADDRESS: _____ PHONE: 884-1373

ARCHITECT: Rick Bennett CONTACT: Rick Bennett

ADDRESS: 3803 Riverview Pl.NW PHONE: 831-3150

SURVEYOR: Alpha Surveying Group CONTACT: Gary Gritsko

ADDRESS: 623 Amherst NE 87108 PHONE: 265-5538

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

PREDESIGN MEETING:

_X_YES
___NO
_X_COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO.
EPC NO.
PROJ. NO.

TYPE OF SUBMITTAL:
___DRAINAGE REPORT
_X_DRAINAGE PLAN
___CONCEPTUAL GRADING & DRAINAGE PLAN
_X_GRADING PLAN
___EROSION CONTROL PLAN
___ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:
___SKETCH PLAT
___PRELIMINARY PLAT
___SITE DEVELOPMENT PLAN
___FINAL PLAT APPROVAL
_X_BUILDING PERMIT APPROVAL
___CERTIFICATE OF OCCUPANCY
___ROUGH GRADING PERMIT
___GRADING/PAVING PERMIT
___OTHER (SPECIFY)

DATE SUBMITTED: 9/23/85

BY:

AUGUST F. HOFMANN
STATE OF NEW MEXICO
NO. 6148
REGISTERED PROFESSIONAL ENGINEER

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION/DESIGN HYDROLOGY SECTION

PRE-DESIGN CONFERENCE RECAP

HYDROLOGY SECTION PROJECT NO.: H 15 DATE: 4-3-85

PLANNING DIVISION NOS. EPC: _____ DRB: _____

SUBJECT: Palon Centre

LEGAL DESCRIP.: Corner of McWaulk & University

APPROVAL REQUESTED

____ PRELIMINARY PLAT ____ FINAL PLAT

____ SITE DEVELOPMENT PLAN X BUILDING PERMIT

____ ROUGH GRADING

	WHO:	REPRESENTING:
ATTENDANCE:	Tucker Green	
	Carlos A Martin	

____ Conceptual Drainage Plan/Report required for Preliminary Plat and/or Site Development Plan sign-off.

X Approved Drainage Plan/Report required for Final Plat and/or Building Permit sign-off.

____ Subdivision Improvements Agreement or Financial Security required.

FINDINGS: (1) DRAINAGE PLAN PER DPM (2) FREE DISCHARGE - infill & build over asphalt (3) building must be 2 ft above Maximum flow line

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED:	Carlos Martin	SIGNED:	[illegible]
TITLE:	CE - Hydrology	TITLE:	CE Engr Assoc
DATE:	4-3-85	DATE:	4-3-85

NOTE PLEASE PROVIDE A COPY OF THIS RECAP WITH THE DRAINAGE SUBMITTAL

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY

RECEIVED
JUL 18 1986
HYDROLOGY SECTION

AUGUST F. LOSIGNAH
STATE OF NEW MEXICO
NO. 6148
REGISTERED PROFESSIONAL ENGINEER
8-15-85

VICINITY MAP H-15-Z 1"=800'

PROJECT BENCHMARK : City of Albuquerque B.M. "1-H15A". An "x" chisled in the top of concrete parking divider near the N.W. corner of the intersection of Menaul and University. Elevation = 5040.446 (M.S.L.D.). (T.B.M. Same)

LEGAL DISCRIPTION: [The southeast 0.735 acre corner of] a 6.5774 acre tract lying in the northeast intersection of I-25 and Menaul Blvd. N.E.

NOTICE TO CONTRACTOR

1. An excavation/construction permit will be required before beginning any work within City right-of-way. An approved copy of these plans must be submitted at the time of application for this permit.
2. All work detailed on these plans to be performed, except as otherwise stated or provided hereon, shall be constructed in accordance with "Public Works Contract No. 85-4".
3. Two working days prior to any excavation, contractor must contact Line Locating Service, 765-1234, for location of existing utilities.
4. Prior to construction, the contractor shall excavate and verify the horizontal and vertical locations of all obstructions. Should a conflict exist, the contractor shall notify the engineer so that the conflict can be resolved with a minimum amount of delay.
5. Backfill compaction shall be according to ARTERIAL street use.

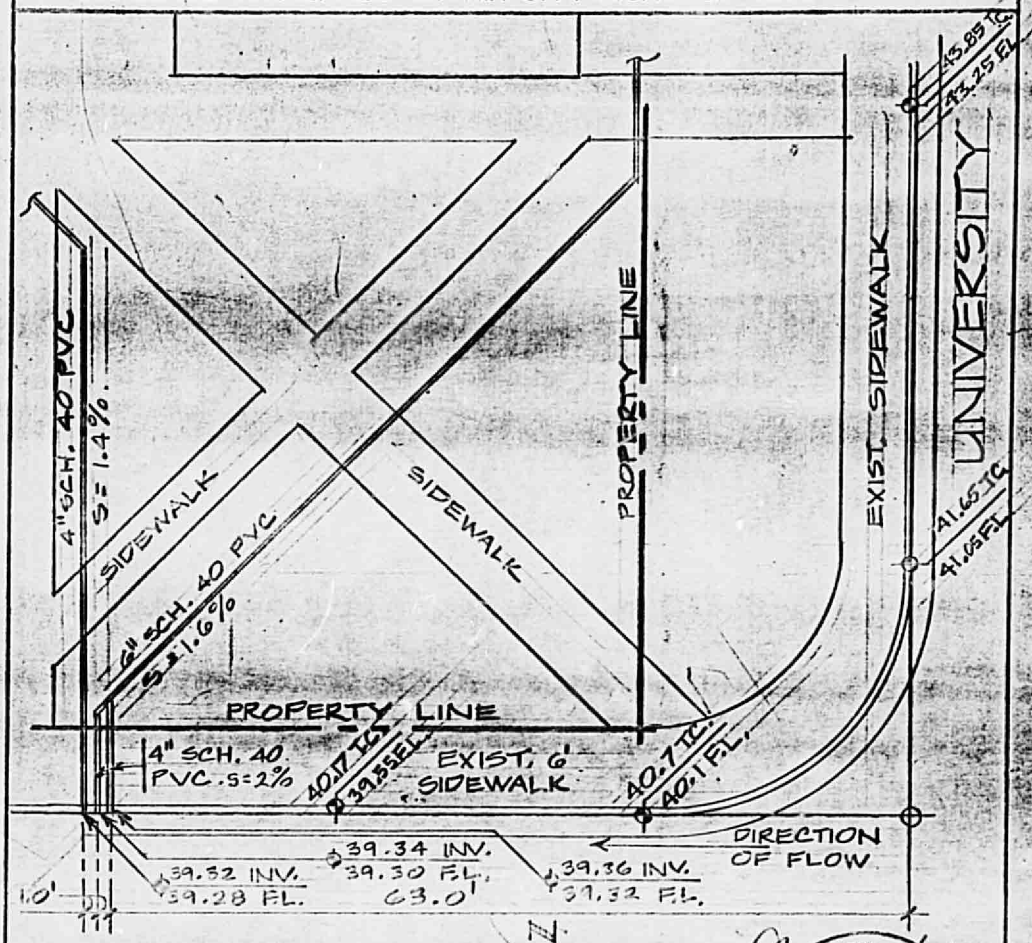
APACHE CONSTRUCTION

APPROVALS	NAME	DATE	TITLE:
CITY ENGINEER			TALONI SHOPPING CENTER 1515 MENAUL

H15 D35 E-96

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



MENAUL

NOTE

ALL WORK SHALL CONFORM TO CITY STD. DRWG. K-15.

8-15-83

AUGUST F. ROSICIANN STATE OF NEW MEXICO NO. 6148 REGISTERED PROFESSIONAL ENGINEER

PROJECT BENCHMARK; City of Albuquerque B.M. "1-H15A". An "x" chisled in the top of concrete parking divider near the N.W. corner of the intersection of Menaul and University. Elevation = 5040.446 (M.S.L.D.). (T.B.M. Same)

LEGAL DISCRIPTION; [The southeast 0.735 acre corner of] a 6.5774 acre tract lying in the northeast intersection of I-25 and Menaul Blvd. N.E.

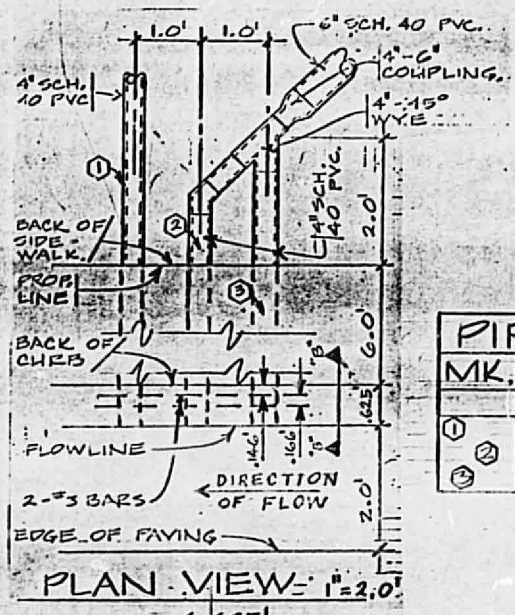
APACHE CONSTRUCTION

E-96

APPROVALS	NAME	DATE	TITLE: PALONI SHOPPING CENTER 1915 MENAUL
ACCEPTANCE			
INSPECTOR			MAP

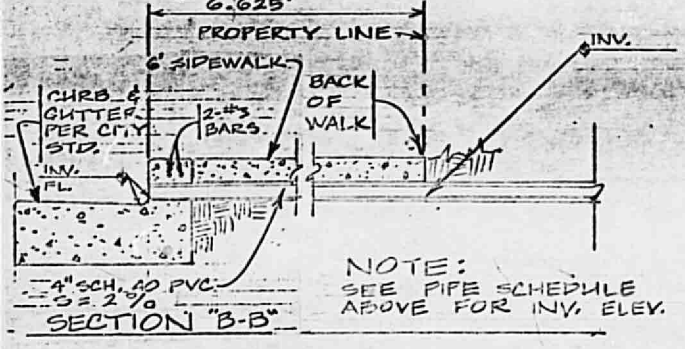
CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



PLAN VIEW 1"=2.0'

PIPE SCHEDULE			
MK.	INV.		FL.
	AT CURB	BACK OF WALK	
1	39.32	39.46	39.28
2	39.34	39.48	39.30
3	39.36	39.50	39.32



SECTION "B-B"

NOTE:
SEE PIPE SCHEDULE ABOVE FOR INV. ELEV.

NOTE
WORK SHALL CONFORM TO CITY STD. DRWG K-15.

PROJECT BENCHMARK: (T.B.M. SAME)
City of Albuquerque B.M.
"1-HIFA", An "X" chiseled in the top of concrete, parking divider near the N.W. corner of the intersection of Menaul and University.
Elevation = 5040.446(M.S.L

LOCAL BENCHMARK:
The southeast 0.755 acre corner of a 6.2774 acre tract lying in the northeast intersection of I-25 and Menaul Blvd. N.E.

AUGUST F. HOSMANN, STATE OF NEW MEXICO, NO. 6148, REGISTERED PROFESSIONAL ENGINEER

E-96

APACHE CONSTRUCTION

APPROVALS	NAME	DATE	TITLE: PALONI SHOPPING CENTER 1015 MENAUL
APPROVAL			
DIRECTOR			