Hydrology H15/D2 Moose Lodge #1517

H15 / D2

MOOSE LODGE

1517

1 PLAN

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

PRE-DESIGN CONFERENCE RECAP

HYDROLOGY SECTION PROJECT NO.: H-15 DATE: 2/25/85

PLANNING DIVISION NOS. EPC: _____ DRB: _____

SUBJECT: Moose Lodge

LEGAL DESCRIP.: Lots 6, 7 & 8 Blk 8 Franciscan Acres

APPROVAL REQUESTED

_____ PRELIMINARY PLAT
_____ SITE DEVELOPMENT PLAN
_____ ROUGH GRADING
X FINAL PLAT
X BUILDING PERMIT

	WHO:	REPRESENTING:
ATTENDANCE:	Harman Hood	
	Billy Goolsby	

_____ 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 Replat required to remove the lotlines or provide appropriate covenants. ② Direct discharge to SD is appropriate ③ Discharge from site to be determined by analysis of downstream capacity.

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: Billy J. Goolsby SIGNED: [illegible]
TITLE: CE/Design Hydrology TITLE: _____
DATE: 2/25/85 DATE: 2/25/85

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

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

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

April 11, 1985

Herman Hood
Lovelady & Associates
7408 Morrow Road, NE
Albuquerque, New Mexico 87110

RE: DRAINAGE PLAN FOR MOOSE LODGE (H-15/D2)
RECEIVED MARCH 15, 1985

Dear Herman:

I have reviewed the referenced plan dated March 13, 1985, and forward these comments:

1. Please submit a plat showing the removal of lot line.

2. Indicate whose Right-of-Way you are entering with the storm drain and their concurrance.

If you have any questions regarding this project, please call me at 766-7644.

Cordially,

Carlos A. Montoya

Carlos A. Montoya, P.E.
City/County Floodplain Administrator

CAM/bsj

DRAINAGE INFORMATION SHEET

PROJECT TITLE: MOOSE LODGE ZONE ATLAS/DRNG. FILE #: H-15-Z/D2

LEGAL DESCRIPTION:

CITY ADDRESS: 2121 EDITH BLVD. N.E.

ENGINEERING FIRM: LOVELADY & ASSOC. CONTACT: HERMAN HOOD

ADDRESS: 7408 MORROW RD. N.E. PHONE: 296-5897

OWNER: MOOSE LODGE #1517 CONTACT: JOE MARINO

ADDRESS: 2121 EDITH BLVD. N.E. PHONE: 247-4061

ARCHITECT: KEN HOVEY DESIGN CONTACT: KEN HOVEY

ADDRESS: 3700 SIMMS S.E. PHONE: 255-9400

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

RECEIVED
APR 22 1985
HYDROLOGY SECTION

PRE-DESIGN MEETING:

____ YES

____ NO

____ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO.

EPC NO.

PROJ. NO.

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

X BUILDING PERMIT APPROVAL

____ FOUNDATION PERMIT APPROVAL

____ CERTIFICATE OF OCCUPANCY APPROVAL

____ ROUGH GRADING PERMIT APPROVAL

____ GRADING/PAVING PERMIT APPROVAL

____ OTHER _____ (SPECIFY)

DATE SUBMITTED: APRIL 22, 1985

BY: GEORGE RODRIGUEZ

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

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

April 24, 1985

Herman Hood
Lovelady & Associates
7408 Morrow Road, NE
Albuquerque, New Mexico 87110

RE: DRAINAGE PLAN FOR MOOSE LODGE (H-15/D2)
RECEIVED APRIL 22, 1985

Dear Herman

The referenced plan dated March 13, 1985, is approved for building permit sign-off.

The plat was submitted to D.R.B. to remove lot lines. Therefore, prior to final Hydrology sign-off for a Certificate of Occupancy, a signed plat must be submitted.

Also, please attach a copy of this approved plan to both sets of construction plans prior to Hydrology sign-off for the building permit.

If you have any questions or comments regarding this project, please call me at 766-7644.

Cordially,

Carlos A. Montoya

Carlos A. Montoya, P.E.
City/County Floodplain Administrator

CAM/bsj

FORM NO. M-202
Rev. 9-11-78

APPLICATION FOR PERMIT TO INSTALL UTILITY FACILITIES WITHIN PUBLIC RIGHT OF WAY

TO: NEW MEXICO STATE HIGHWAY DEPARTMENT
P. O. BOX 1149
SANTA FE, NEW MEXICO 87503

RECEIVED
APR 22 1985
HYDROLOGY SECTION

Permit No. 311792
[X] New Installation
[ ] Renewal Permit
[ ] Relocation
[ ] Remain in Place

1. Pursuant to New Mexico Statutes Annotated, 1953 Compilation, Sections 55-7-19 and 55-2-7, the undersigned Moose Lodge No. 1517

Address: 2121 Edith Blvd. N.E. 87102

herein makes application to use highway rights of way to install:

Size and Type of Facility 24" Storm Sewer-connect to exist. catch basin

in the following location: N. M. Project No. I-040-3(27)155, S. R. No. I-40 RW only,

Hwy. Station 1467+00 to Hwy. Station 1471+61.61, Bernalillo

County, Section 9, Township 10 North, Range 3 East

2. For the purpose of this application "within" shall be construed as meaning "on, over, under, across or along."

a. "Engineer" shall be construed as meaning the District Highway Engineer of the New Mexico State Highway Department or his representative.

b. "Applicant" shall be construed as meaning the individual, firm, corporation, association, governmental subdivision, or other organization making application, or the successors of any of the above.

c. "Facility" shall be construed as meaning, but not limited to, and publicly, privately, cooperatively, municipally or governmentally owned facility used for carriage, distribution or transmission of water, gas or electricity, oil and products derived therefrom, sewage, steam or other projects carried by means of pipelines, conduits, wires, culverts, ditches, conveyors or other methods.

d. If application is for a parallel installation, justification as to why private right may not be utilized must be furnished.

3. Applicant proposes to relocate, install or leave facility NA feet within the North right of way line. The proposed installation shall be:

Parallel	Subsurface	Trenching
(Crossing or Parallel)	(Subsurface or Overhead)	(Boring, Jacking or Pavement Cut)

a. If Applicant requests installation by pavement cut, complete justification therefore shall be submitted by attachment.

b. Where application for pavement cut is justified, the application may be held in abeyance pending receipt of cash bond in an amount to be fixed by the Engineer.

4. There is attached hereto a diagrammatic dimensioned drawing showing the location of existing and/or proposed installation referenced to roadway and right of way, right of way lines, any access control lines, distance of proposed installation above or below grade, highway stationing, identification of materials to be used and any other pertinent data. If application is for parallel installation, nature of adjacent land use shall be shown. Proposed installations on or in bridges or other structures, or for the installation of any structures, will require detailed structural drawings.

5. Applicant desires this permit to be in affect for 25 years. Permit will not be issued for a period longer than 25 years, must be renewed upon expiration and the burden of timely renewal is on the Applicant. The Applicant shall formally notify the engineer of actual commencement and completion of construction of the installation. The Applicant shall also formally notify the Engineer of removal or abandonment of the facility, or relinquishment of the permit.

6. The signing of the application by the Engineer and returning it to the Applicant shall validate this application as a permit. The granting of this permit shall not be construed as granting any easement or property right.

7. Servicing of facilities will not be permitted within the access control lines on any controlled access project. Should an emergency occur, the Applicant shall notify the Engineer and shall provide such flagmen, flashers, warning or other safety devices as required by the Engineer. All routine maintenance shall be performed from outside any access control lines.

8. The relocation or installation of facilities within public right of way shall be in strict conformance with all provisions of this application, drawing and the Instructions for Utility Permits, as they may be modified by the Engineer, and no departure therefrom may be made without the written consent of the Engineer. All facilities shall be so placed that they will not interfere with nor endanger any roadway features nor other existing facilities. All construction of facilities shall be subject to the inspection and approval of the Engineer. All such work shall be performed so that danger, inconvenience and delay to the traveling public will be held to a minimum. Protection and handling of traffic during the installation are the responsibility of the Applicant and must be approved by the Engineer.

9. The Applicant will, except as otherwise ordered by the Engineer, restore the public right of way, and all bridges or other structures thereon or adjacent thereto which have been altered or affected by facility installation performed hereunder, in accordance with sound construction practices and the Engineer's specifications, and shall cause the work to be done in a workmanlike manner. If any damage is caused to the highway right of way or to any bridge, structure or improvement thereon or adjacent thereto by reason of the installation, maintenance, alteration or removal of such facilities or other appurtenances, the Applicant will reimburse the Engineer the full amount thereof promptly upon demand by the Engineer; provided, however, that the obligation imposed under this paragraph shall not apply in the event the damage resulted from causes beyond the control of

the Applicant. All such facilities located within the right of way shall at all times be ke, in such repair so as not to damage the highway, inconvenience or endanger the traveling public and shall be kept free from advertisement, posters and the like.

10. The Applicant will at all times indemnify and save harmless the Engineer from any and all claims of every kind of character caused by or incident to the installation, alteration, removal or condition of these facilities in the right of way and will promptly reimburse the Engineer for any and all expenses incurred by the Engineer in resisting any such claim or claims. Nothing herein shall be construed to mean that the Applicant hereunder will indemnify and save harmless the Engineer from any claim caused by or incident to any neglect, carelessness or breach of duty on the part of the Engineer.

11. Should the Applicant at any time fail to promptly and fully perform any of the obligations imposed hereby and after thirty (30) days written notice thereof, the Engineer may, at his option (a) cause the obligations to be fully carried out and performed, and the Applicant will promptly reimburse the Engineer for all costs and expenses incident thereto, (b) may summarily order the removal of such facility and if the Applicant fails to comply within a reasonable time, the Engineer may direct the removal of the facility with all costs and expenses thereto to be borne by Applicant.

12. If by reason of any change in the location, construction, grade or by any other matter affecting the highway upon which any facility is located because of changing traffic conditions or otherwise, it shall become advisable in the opinion of the Engineer that said facility be removed, relocated or otherwise modified, the Applicant, upon written notice from the Engineer, shall remove, relocate or modify such facility without undue delay in such manner as the Engineer may direct or approve, at the Applicant's expense and at no cost to the Engineer. All facilities located on public right of way under the dual jurisdiction of the State and a subordinate governmental entity shall comply with all applicable rules and regulations of such entity properly and lawfully in force and including but not limited to provisions of local franchises not in conflict with the rules and regulations of the Engineer. The Engineer makes no warranty either express or implied as to the continued existence of any highway in any particular location and expressly assumes no obligation with regard to the facility upon change, vacation or abandonment of any highway or portions thereof.

13. Neither the making of this application nor anything herein contained shall constitute a waiver on the part of the Applicant of any rights or claims had or made by some with respect to the occupancy of the streets and highways under the Constitution and Laws of the State of New Mexico, nor shall anything herein contained in anywise prejudice or impair any rights or claims existing independent of this application with respect to the construction, operation and maintenance of the Applicant's facilities in the State of New Mexico

14. Each copy of the application must be signed by the Applicant as an individual owner or by any official designated to execute such documents.

This application is hereby granted subject to all provisions herein and to the following special provisions, changes or amendments:

All work performed on State Right-of-Way shall meet the Standard Specifications for Road and Bridge Construction (Edition of 1984).

Traffic Control shall be in accordance with Manual on Uniform Traffic Control Devices for Streets and Highways.

The State Right-of-Way must be restored to its original condition or better.

This office will make a final inspection after the project has been completed.

Applicant Moose Lodge No. 1517

By Jack D. Barton

Title Administrator

Jack D Barton ADM

Approval of this permit is hereby given this 2nd day of April, 19 85

NEW MEXICO STATE HIGHWAY DEPARTMENT

By Earl Myers

311792

STATE OF NEW ME. .O
HIGHWAY DEPARTMENT

TONEY ANAYA
GOVERNOR

COMMISSION

Sosimo Padilla
Chairman, Albuquerque

Bill Lee
Vice-Chairman, Lovington

Emerlinda De Brine
Secretary, Socorro

James W. Chaney
Member, Moriarty

Chris Gallegos
Member, Las Vegas

DEPARTMENT

Chief Highway
Administrator
L. A. Larranaga

General Office
P.O. Box 1149
Santa Fe, N.M.
87504-1149
505-983-0100

District One Office
P.O. Box 231
Deming, NM
88031-0231
505-546-2603

District Two Office
P.O. Box 1457
Roswell, NM
88202-1457
505-622-8441

District Three Office
P.O. Box 3768
Station D
Albuquerque, NM
87109-3768
505-841-2700

District Four Office
P.O. Box 30
Las Vegas, NM
87701-0030
505-425-7827

District Five Office
P.O. Box 4127
Coronado Station
Santa Fe, NM
87502-4127
505-983-0221

AN EQUAL
OPPORTUNITY
EMPLOYER

March 29, 1985

Mr. Paul Myers
Engineer Technical III
New Mexico State Highway Department
P.O. Box 3768 Station D
Albuquerque, New Mexico 87190

Dear Mr. Myers:

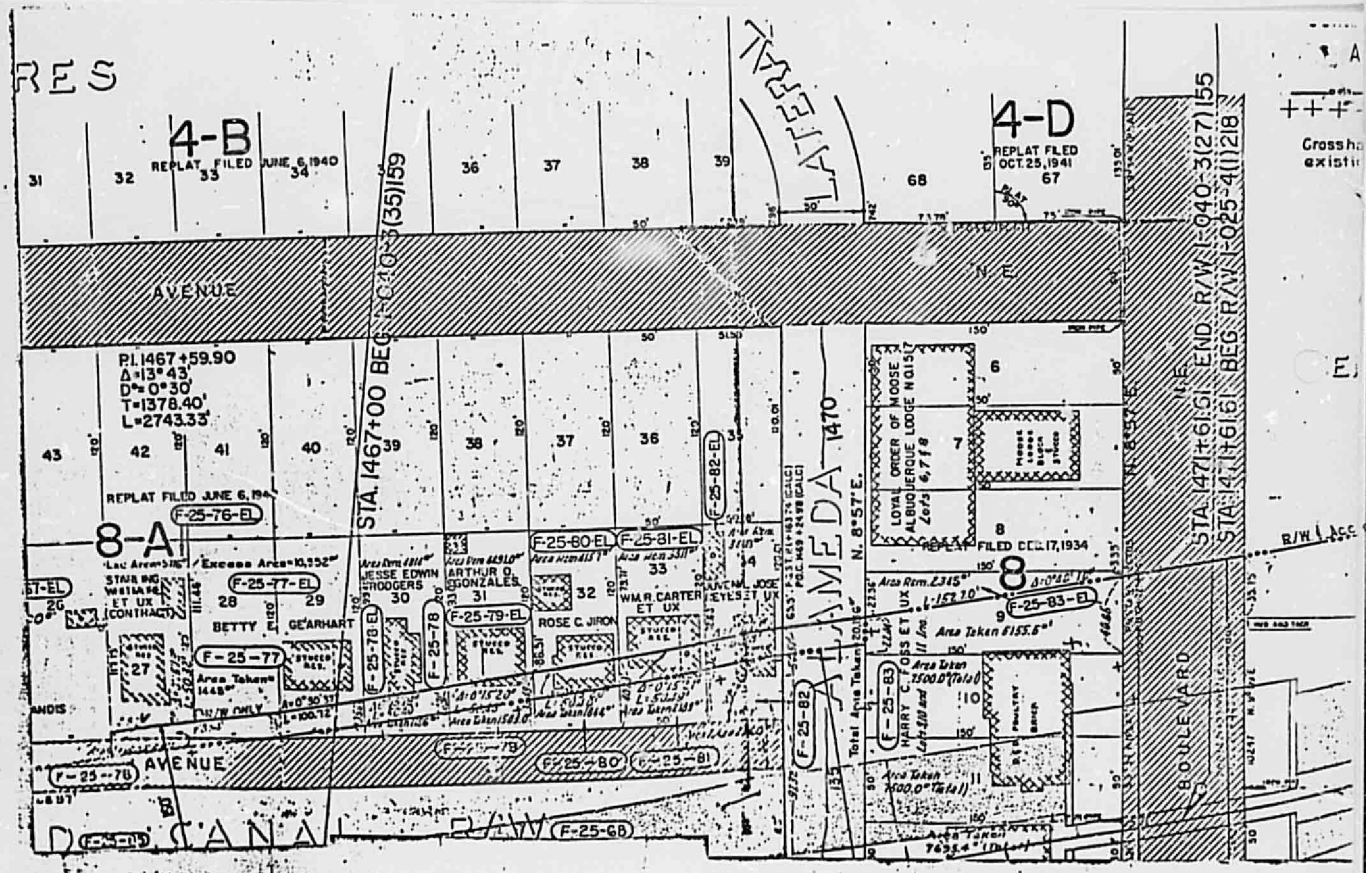
Subject: Grading & Drainage Plan for Moose Lodge No. 1517
located at Edith Blvd. & Interstate 40, Alb., NM.

I have reviewed the grading and drainage plan for the Moose Lodge and see no problems.

H.V. Parr
Drainage Engineer

HVP:ilc

RECEIVED
APR 2 9 10 AM '85
N.M. STATE HWY. DEPT.
DISTRICT 3


RES
4-B
REPLAT FILED JUNE 6, 1940
4-D
REPLAT FILED OCT. 25, 1941
AVENUE
N.E.
P.I. 1467+59.90
Δ=13° 43'
D=0° 30'
T=1378.40'
L=2743.33'
STA. 1467+00 BEG. R/W=040-3(35)159
STA. 1471+61.61 END R/W=040-3(27)155
STA. 1471+61.61 BEG R/W=025-4(1)218
REPLAT FILED JUNE 6, 194
8-A
F-25-76-EL
F-25-77-EL
F-25-77
F-25-78-EL
F-25-78
F-25-79-EL
F-25-79
F-25-80-EL
F-25-80
F-25-81-EL
F-25-81
F-25-82-EL
F-25-82
F-25-83-EL
F-25-83
F-25-68
BETTY GEARHART
ROSE C. JIRON
WM. R. CARTER ET UX
JESSE EDWIN RODGERS
ARTHUR O. GONZALES
LOYAL ORDER OF MOOSE ALBUQUERQUE LODGE NO 1517
HARRY C. TOSS ET UX
REPLAT FILED DEC. 17, 1934
8
N. 8°57'E.
BOULEVARD
CANAL
R/W
LATERAL
ALAMEDA 1470
Crosshair existing

DRAINAGE INFORMATION SHEET

PROJECT TITLE: MOOSE LODGE ZONE ATLAS/DRNG. FILE #: H5/D2

LEGAL DESCRIPTION: LOTS 6,7,9, BLK 8, LOTS 27 THRU 34, BLK 8

CITY ADDRESS: 2121 EDITH BLVD N.E.

ENGINEERING FIRM: LOVELADY & HOOD CONTACT: HERMAN HOOD

ADDRESS: 7408 MORROW RD NE PHONE: 296-[illegible]97

OWNER: MOOSE LODGE #1517 CONTACT: JOE MARINO

ADDRESS: 2121 EDITH BLVD NE PHONE: 247-4061

ARCHITECT: THE KEN HOVEY DESIGN CONTACT: KEN HOVEY

ADDRESS: 3700 SIMMS AVE. SE PHONE: 255-9400

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

RECEIVED MAR 15 1985 HYDROLOGY SECTION

PRE-DESIGN MEETING:

X YES

___ NO

X COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. 2 4/17/80

EPC NO. Z-80-36 4/17/80

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: MARCH 16TH 1985

BY: HERMAN HOOD

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

PRE-DESIGN CONFERENCE RECAP

HYDROLOGY SECTION PROJECT NO.: H-15 DATE: 2/25/85

PLANNING DIVISION NOS. EPC: _____ DRB: _____

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_____ ROUGH GRADING
X FINAL PLAT
X BUILDING PERMIT

	WHO:	REPRESENTING:
ATTENDANCE:	Harman Hood	
	Billy Goolsby	

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_____ Subdivision Improvements Agreement or Financial Security required.

FINDINGS: ① Replat required to remove the lotlines or provide appropriate covenants. ② Direct discharge to SD is appropriate. ③ Discharge from site to be determined by analysis of downstream capacity.

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: Billy J. Goolsby SIGNED: [illegible]
TITLE: CE/Design Hydrology TITLE: _____
DATE: 2/25/85 DATE: 2/25/85

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

MENAUL SCHOOL
MENAUL SCHOOL BUSINESS PARK
INDUSTRIAL AREA
SUNSET MEMORIAL PARK
CEMETERY
SPEECHLEY PLAT
MT CALVARY CEMETERY
CORONADO FREEWAY
I-40 & I-25 INTERCHANGE
MENAUL DEVELOPMENT AREA
MENAUL BLVD NE
Site
M-1
M-2
SU-1
C-3

H-15-Z

DRAINAGE CALCULATIONS

I. REFERENCES:

A. City of Albuquerque Development Process Manual (DPM) Volume 2, Design Criteria, Chapter 22, Drainage, Flood Control and Erosion Control.

B. Soil Survey of Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico, United States Department of Agriculture, Soil Conservation Service.

C. Floodway, Flood Boundary and Floodway Map, City of Albuquerque, New Mexico, Panel 23 Of 50.

II. GENERAL INFORMATION:

A. Soil Type (Ref.B., Sheet No. 31) Soil type is Gb(Gila loam) and Gf(Gila complex, moderately alkali), both in Hydrologic Soil Group "B".

B. Imperviousness:

	Existing Area		Proposed Area	
Type of Surface	Sq.Ft.	Acres	Sq.Ft.	Acres
Building roof	9962	0.229	12080	0.277
Concrete Surfaces	1247	0.029	700	0.016
Asphalt Surfaces	12828	0.294	29478	0.677
Landscaping	938	0.022	600	0.014
Undeveloped surface	43370	0.996	25487	0.585
Site total	68345	1.569	68345	1.569
Percent impervious	25%		62%	

C. "C" Factor (See Ref. A., Plate 22.2 C-1)
1. Undeveloped "C" Factor = 0.50
2. Developed "C" Factor = 0.64

D. Rainfall, 100-year, 6-hour, R_6; (See Ref.A., Plate 22.2 D-1) R_6 = 2.2 inches.

E. Time of Consentration, T_c; By Kirpich Equation.

$T_c = 0.0078\ (L^{0.77}/S^{0.385})$

L = 615 ft. Delta Elev. = 10.6 S = 0.0172 ft./ft.

$T_c = 0.0078(615^{0.77}/0.0172^{0.385}) = 5.13$ minutes

Use 10 minutes minimum.

F. Rainfall Intensity, I; (See Ref. A, Plate 22.2 D-2)

$I = R_6 \times 6.84 \times T_c^{-0.51} = 2.2 \times 6.84 \times (10)^{-0.51}$

I = 4.65 In/Hr

III. PEAK DISCHARGE:

A. Existing Conditions. (Use Rational Equation)

$Q_{100} = 0.50 \times 4.65 \times 1.569 = 3.65$ cfs

$Q_{10} = 0.657 \times 3.65 = 2.40$ (Ref. A., Plate 22.2 D-1)

B. Developed Conditions.

Q_{100} = 0.64 x 4.65 x 1.569 = 4.67 cfs

Q_{10} = 0.657 x 4.67 = 3.07 cfs

C. Drainage By Area. (Developed)

Area "A" 7531 sq.ft. 0.173 acres
97% Impervious, "C" Factor = 0.95
Peak Discharge
Q_{100} = 0.95 x 4.65 x 0.173 cfs
Q_{10} = 0.657 x 0.076 = 0.50 cfs

Area "B" 37122 sq.ft. 0.852 acres
75% Impervious, "C" Factor = 0.73
Peak Discharge.
Q_{100} = 0.73 x 4.65 x 0.852 = 2.89 cfs
Q_{10} = 0.657 x 2.89 = 1.90 cfs

Area "C" 23692 sq.ft. 0.544 acres
0% Impervious "C" Factor = 0.34
Peak Discharge.
Q_{100} = 0.34 x 4.65 x 0.544 = 0.86 cfs
Q_{10} = 0.657 x 0.86 = 0.565cfs

IV. CAPACITY:

A. Catch Basin (Type "D") By Orifice Equation
H = 1.0ft. A = o.785 sf. C = 0.6 g = 32.2 ft./sec.^{2}

$Q = 0.6 \times 0.785\ (2 \times 32.2 \times 1.0)^{1/2}$

Q = 3.78 cfs

B. Existing 24" RCP Storm Sewer, By Mannings Equation
n = 0.013 A = 3.14 sq.ft. P = 6.28 ft. S = 0.0435
R = A/P = 3.14/ 6.28 = 0.5 ft.

$Q = 1.486/0.013 \times 3.14 \times 0.5^{2/3} \times 0.0435^{1/2}$

Q = 47.15 cfs
(Note: The existing storm sewer system was apparently designed to drain the Alameda Lateral, which has recently been abandoned.

C. Existing Capacity of Arvada Ave. (North of property)
Total Area Considered 14 acres; "C" Factor (Plate 22.2 C-1) = 0.85; Flow time by Kirpich Equation

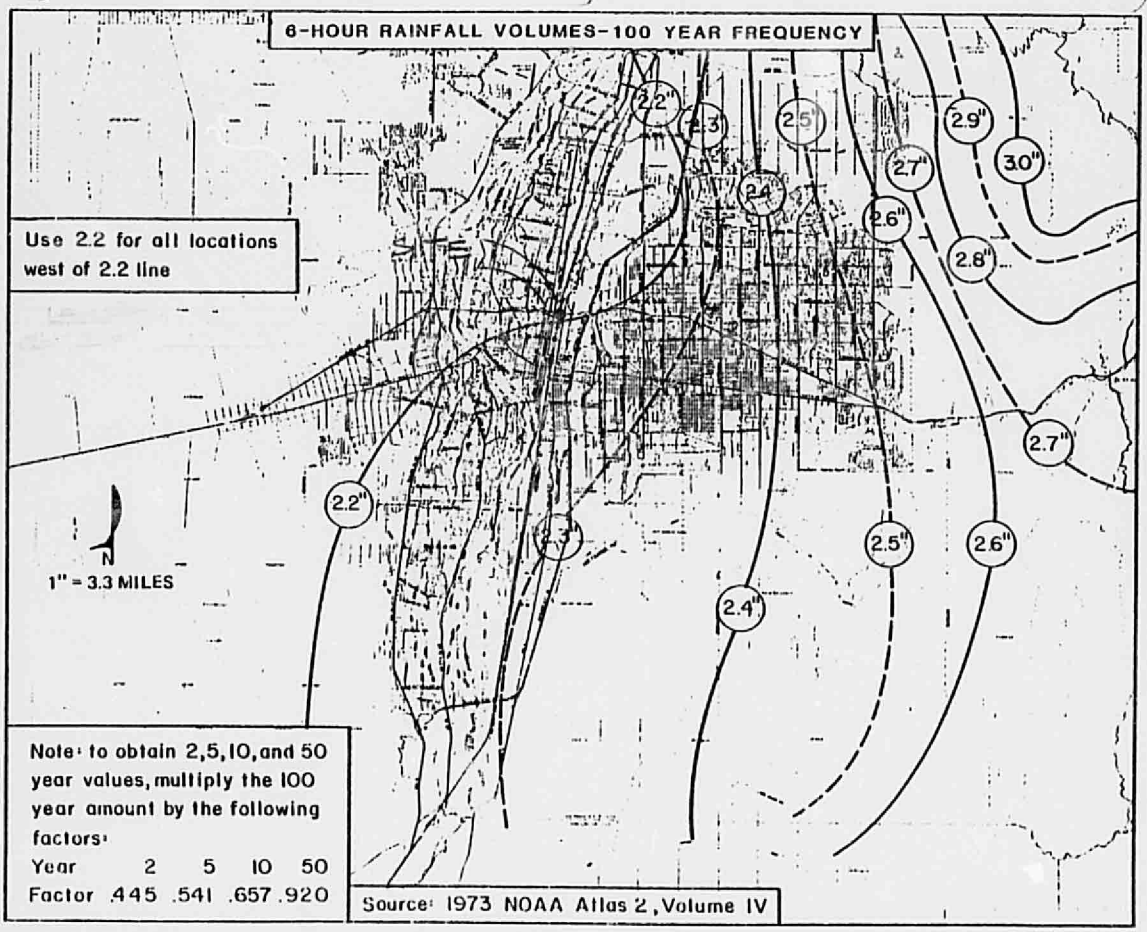
$T_c = 0.0078(2150^{0.77}/0.0186^{0.385})$

T_c = 13.3 minutes

$I = 2.2 \times 6.84 \times 13.3^{-0.51} = 4.02$cfs

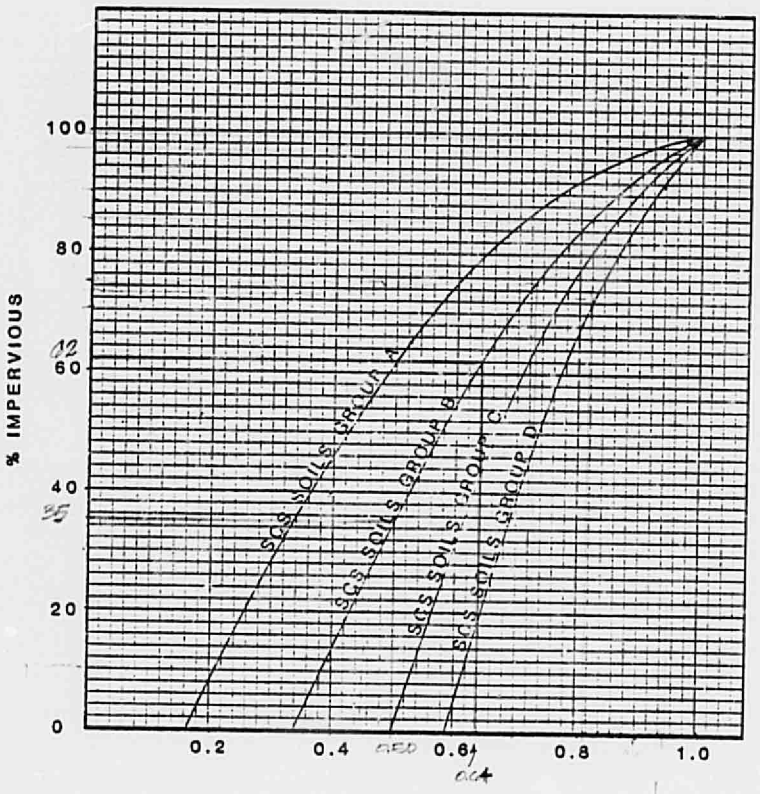
Peak Discharge, (Rational Method)
Q = 0.85 x 4.02 x 14 = 47.8 cfs

Street Capacity, Plate 22.3 D-1 at the analysis Point,
intersection of Broadway and Arvada Ave.
Slope of Arvada Ave. 0.0120 ft./ft.
For D = 0.75 ft., 1/2 street flow 45 cfs
Total capacity of street 90 cfs
90 > 47.8 Therefore, the street has adequate capacity


6-HOUR RAINFALL VOLUMES-100 YEAR FREQUENCY
Use 2.2 for all locations west of 2.2 line
1" = 3.3 MILES
N
2.2"
2.3"
2.5"
2.9"
3.0"
2.7"
2.4"
2.6"
2.8"
2.7"
2.2"
2.3"
2.5"
2.6"
2.4"
Note: to obtain 2,5,10,and 50 year values, multiply the 100 year amount by the following factors:
Year 2 5 10 50
Factor .445 .541 .657 .920
Source: 1973 NOAA Atlas 2, Volume IV

DRAINAGE CRITERIA

DETERMINATION OF RATICNAL FORMULA 'C' FACTOR



THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.

RECEIVED
MAR 15 1985
HYDROLOGY SECTION

2123