

HINES INDUSTRIAL
2700 POST OAK BOULEVARD
HOUSTON, TEXAS 77056
AREA CODE 713, 629-8400

JIB-DIA

August 28, 1985
AL-1691.70-L-75

Mr. Billy J. Goolsby, P.E.
Civil Engineer Hydrology
Municipal Development Department
City of Albuquerque
123 Central, NW
Albuquerque, NM 87102

PARK SQUARE DRAINAGE PLAN (J-18-DIA)

6501 Americas Parkway, N.E.
6588 Indian School Road, N.E.


Dear Mr. Goolsby:

The Park Square site improvements are in the final stage of completion. At this time, however, we request that a conditional certificate of occupancy permit be issued for (30) days. By that time, all Phase I site improvements will be completed and our Engineer, Holmes & Narver, Inc., will have provided "as-built" grading and storm drainage plans to your office along with a certification that the project is in substantial compliance with the approved plan.

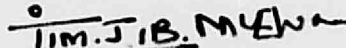
If we can provide additional information, please don't hesitate to call.

Thank You For Your Continued Cooperation

Yours Faithfully,



Robert L. Johnson
Vice President
IBS Contractors, Inc.
(Contractor)



Tim J. B. McEwan
Vice President Construction
Hines Industrial
(Owner)

RLJ/TM/ad:0298H

Bob.

ENGINEER'S DRAINAGE REPORT
FOR
PROPOSED THEATER
NEAR INDIAN SCHOOL RD. & GEORGIA ST. NE
ALBUQUERQUE, NEW MEXICO

um *Plan I-II-III*

WILSON & COMPANY
ALBUQUERQUE, NEW MEXICO
JANUARY 1973

REVISED 18 JANUARY 1973

ENGINEER'S DRAINAGE REPORT
FOR
PROPOSED THEATER NEAR INDIAN SCHOOL RD. & GEORGIA ST. NE
ALBUQUERQUE, NEW MEXICO

PURPOSE: The purpose of this report is to analyze the amount of run-off entering the study area and the method of disposing of resulting rainfall run-off.

CLIMATOLOGICAL INFORMATION: A 100 year design rainfall was used to determine run-off. The City of Albuquerque has adopted a drainage master plan which presents the following formula for calculating the intensity of rainfall that is probable for a 100 year design storm:

$$i_{100} = \frac{189}{t_c + 25}$$

i_{100} - rainfall intensity, inches per hour

t_c - time of concentration in minutes

RUN-OFF CALCULATION: The Rational Method was used to calculate the run-off from the study area. The Rational Method is:

$$Q = CIA$$

Q = Quantity of run-off in cubic feet per second

C = Coefficient of run-off expressed in a ratio of rainfall to run-off

i = Rainfall Intensity expressed in inches per hour

A = Drainage area expressed in acres

DISCUSSION: The existing topography slopes from the east to the west. The drainage area of the small arroyo entering the project area is 48.4 acres, of which 22.8 acres is paved parking, roofs and streets, the remainder is undeveloped land. At

the present time this drainage is ponded on the project area immediately east of the Canlen House Apartments, and either percolates into the soil or evaporates to the atmosphere.

It is proposed that the off project storm water run-off be ponded on the property immediately east of Georgia St. and between the Fire Station and the Freeway. Based on a 100 year storm run-off of 1.5 inches per acre, the storage capacity required is 6.05 acre-feet. Based on Rational Formula, the storage required for a 100 year 2 hour storm is 5.2 acre-feet. It is recommended that 6.5 acre-feet of storage be provided with 1 foot of free-board.

When the area between Georgia St. and Louisiana Blvd. and between Indian School Road and the Freeway is developed, it will be necessary to install a storm sewer system as a part of the development plan. The proposed storm sewer could be discharged into the existing 48" storm sewer at Georgia St. and Indian School Rd.

The project area will be graded so that 2.4 acres will drain to the northwest and discharge into Indian School Road and 3.4 acres will drain to the southwest and will discharge into the ditch along the north side of the west-bound lanes of the Freeway.

The 100 year storm run-off from the 2.4 acres is calculated to be 11.3 c.f.s. There is a 48 inch diameter storm sewer in Indian School Road which can easily handle the 11.3 c.f.s.

The 100 year storm run-off from the 3.4 acres is calculated to be 16.1 c.f.s. and will be discharged into the ditch along the Freeway. The calculated capacity of the Freeway ditch is 26 c.f.s.

COMP. RFS
CK.
DATE 8 Jan 73

WILSON
& COMPANY
ENGINEERS &
ARCHITECTS
808 3305
ALBUQUERQUE
NEW MEXICO

LOC. Albuquerque NM
PROJ. SHEET 1
SUBJ. OF 2

DRAINAGE AREA A-1a

$$\text{Area} = 3.4 \text{ Ac}$$

$$t_c = 5 \text{ min}$$

$$L_{100} = \frac{189}{5+25} = \frac{189}{30} = 6.3 \text{ in/hr}$$

$$C = 0.75 \text{ (Roof \& Paved Area)}$$

$$Q = C i A = .75 \times 6.3 \times 3.4 = 16.1 \text{ cfs}$$

DRAINAGE AREA A-1b

$$\text{Area} = 2.4 \text{ Ac}$$

$$t_c = 5 \text{ min}$$

$$L = 6.3 \text{ in/hr}$$

$$C = 0.75$$

$$Q = C i A = .75 \times 6.3 \times 2.4 = 11.3 \text{ cfs}$$

DRAINAGE AREA A-2

$$\text{Area} = 48.4 \text{ Ac} \quad t_c = 15 \text{ min}$$

$$L_{100} = \frac{189}{15+25} = \frac{189}{40} = 4.7 \text{ in/hr}$$

$$C = 0.50 \text{ (22.8 Ac @ 0.75 \& 25.6 Ac @ 0.25)}$$

$$Q = C i A = 0.5 \times 4.7 \times 48.4 = 113.7 \text{ cfs} \leftarrow \text{To Be Ponded}$$

POND AREA REQD.

Corp of Eng 1 2 Hr Storm = 1.5 inches of rainfall

$$\text{VOLUME POND} = 48.4 \text{ Ac} \times \frac{1.5}{12} = 6.05 \text{ Ac Ft.}$$

Rational Method: (2 hr)

$$L = \frac{189}{12+25} = \frac{189}{37} = 5.1 \text{ in/hr} \quad C = 0.5 \quad A = 48.4 \text{ Ac}$$

$$Q = C i A = .5 \times 5.1 \times 48.4 = 123.5 \text{ cfs}$$

$$\text{VOLUME} = \frac{123.5 \times 3600 \times 2}{43,560} = 2.0 \text{ Ac Ft}$$

COMP RFS

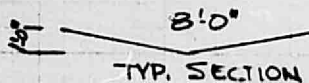
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DATE 8 Jan 73WILSON
& COMPANY
ENGINEERS &
ARCHITECTSBOX 3305
ALBUQUERQUE
NEW MEXICO

LOC _____ FILE _____

PROJ _____ SHEET 2SUBJ _____ OF 2

CAPACITY HIGHWAY DITCH



$$\text{AREA} = 8 \times 1 \times \frac{1}{2} = 4 \text{ sq ft}$$

$$\text{Wetted Per.} = 8 \text{ ft}$$

$$R = \text{Hyd Rad} = \frac{A}{WP} = \frac{4}{8} = .5$$

$$S = \text{slope } .02 \text{ ft/ft}$$

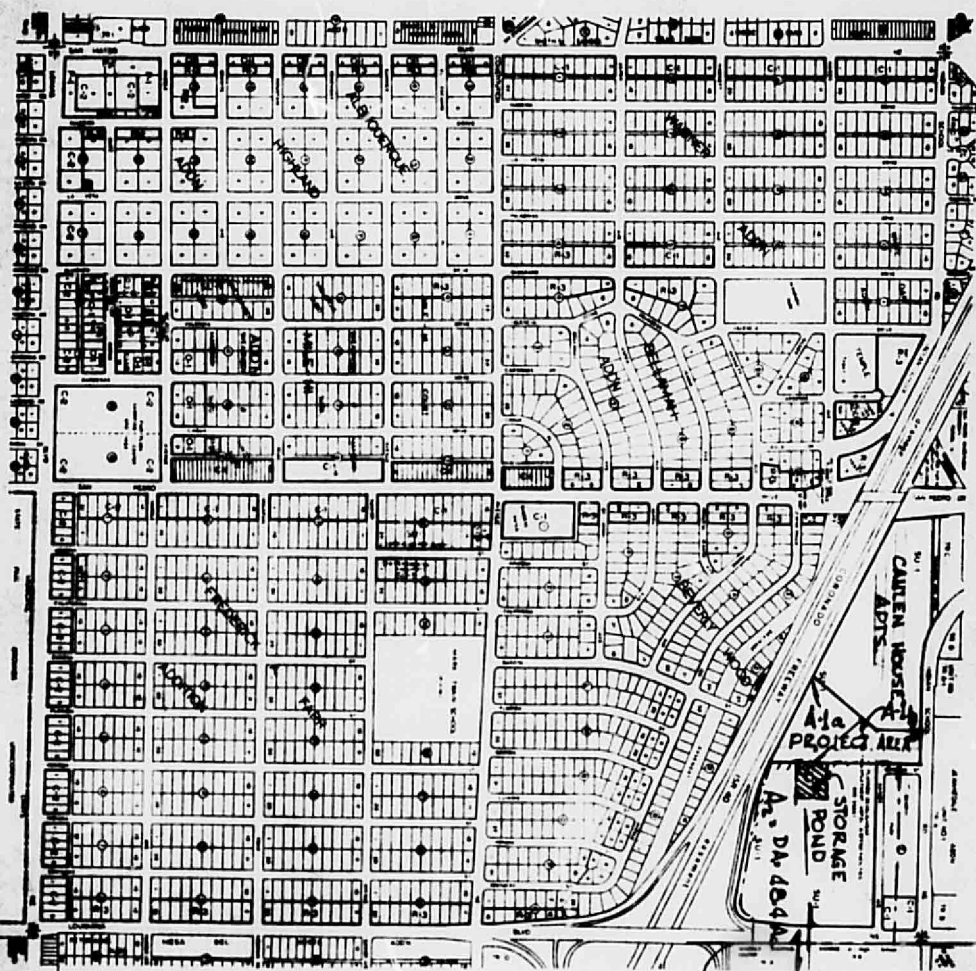
$$n = .02$$

$$V = \frac{1.486}{n} \times R^{2/3} \times S^{1/2}$$

$$= \frac{1.486}{.02} \times .5^{2/3} \times .02^{1/2} = \frac{1.486}{.02} \times .63 \times .14$$

$$V = 6.55 \text{ ft/sec}$$

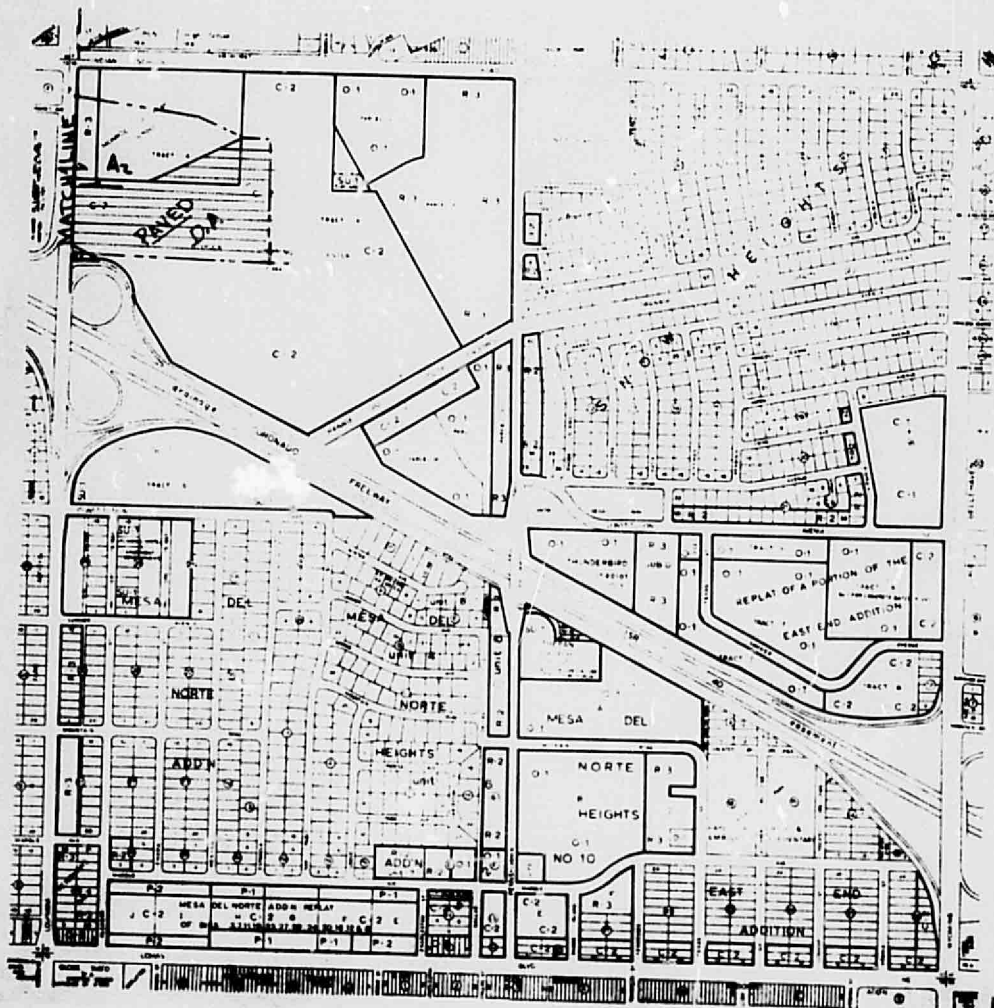
$$Q = \text{Cap} = Av = 4 \times 6.55 = 26.2 \text{ cfs}$$



LOCATION MAP 1/2

1-18-7





J-19-Z

LOCATION MAP 3/2

ENGINEER'S DRAINAGE REPORT
FOR
PROPOSED THEATER
NEAR INDIAN SCHOOL RD. & GEORGIA ST. NE
ALBUQUERQUE, NEW MEXICO

WILSON & COMPANY
ALBUQUERQUE, NEW MEXICO
JANUARY 1973

REVISED 19 FEBRUARY 1973

ENGINEER'S DRAINAGE REPORT
FOR
PROPOSED THEATER NEAR INDIAN SCHOOL RD. & GEORGIA ST. NE
ALBUQUERQUE, NEW MEXICO

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the present time this drainage is ponded on the project area immediately east of the Canlen House Apartments, and either percolates into the soil or evaporates to the atmosphere.

It is proposed that the off project storm water run-off be discharged to the paved channel in the median of the Freeway (I-40). The calculated maximum discharge is 205 cfs when the drainage area is fully developed. The pipe size would be dependent upon the slope of the pipe, type of material, and other design factors. It has been advised that the City of Albuquerque prepare plans and supervise the installation of the pipe under the Freeway as a part of the City's Block to Block Program.

The project area will be graded so 2.4 acres will drain to the northwest and discharge into Indian School Road and 3.4 acres will drain to the southwest and will discharge to the ditch along the north side of the west-bound lanes of the Freeway.

The 100 year storm run-off from the 2.4 acres is calculated to be 13.6 cfs. This peak flow would develop within 5 min. after the beginning of the storm, and is 900 ft. east of the low point in Indian School Road. It is estimated that the time of concentration for peak flow in Indian School Road is 40 min. at which time the discharge from the 2.4 acres is 6.2 cfs. At the present time this area discharges to Indian School Road and the present discharge would be 2.8 cfs so the net increase in flow would be 3.4 cfs which is due to the paving of the parking area.

The 100 year storm run-off from the 3.4 acres is calculated to be 19.3 cfs and will be discharged into the ditch along the Freeway. The calculated capacity of the Freeway ditch is 26.2 cfs.

13

MT 13 Feb. 73

ARCHITECTS
POLINA
NANBA

PROJ.

SHEET

SUBJ.

OF

DRAINAGE AREA A-1a

Area = 3.0 Ac

$t_c = 5 \text{ min.}$

$$i_{\text{top}} = \frac{189}{5.25} = \frac{189}{30} = 6.3 \text{ in/hr}$$

$C = 0.90$ (Roof & Paved Area)

$$Q = C \cdot A \cdot i = .90 \times 6.3 \times 3.0 = 19.3 \text{ cfs}$$

Area A-1a discharges to I-40 e. S.W. cor. of project.

Capacity Ditch = 26.2 cfs (See Sheet 3 Comp.)

DRAINAGE AREA A-1b

Area = 2.4 Ac

$t_c = 5 \text{ min.}$ $i_{\text{top}} = 6.3 \text{ in/hr}$

$C = 0.90$ (paved)

$$Q = C \cdot A \cdot i = .9 \times 6.3 \times 2.4 = 13.6 \text{ cfs}$$

Area A-1b discharges to Indiana School Rd. e. N.W. Cor. of Project.

DRAINAGE AREA A-2

A = 48.0 Ac { 22.8 Ac Paved $C = .9$ 41%
25.6 Ac Soil $C = .6$ 53%

$$C = \frac{22.8 \times .9}{48.0} + \frac{25.6 \times .6}{48.0} = .42 + .21 = .63$$

$$t_c = 15 \text{ min.} \quad i_{\text{top}} = \frac{189}{15.25} = \frac{189}{20} = 4.7 \text{ in/hr}$$

$$Q_{\text{Total}} = C \cdot A \cdot i = .63 \times 4.7 \times 48.0 = 143.2 \text{ cfs}$$

current flow
47.67 cfs (soil) on-site
> 95.53 cfs (paved) from off-site sources

13 Feb 73

BOX
BALANCE

PAGE
SUBJ
OF

CORPS OF ENGINEERS: FLOOD PLAIN INFORMATION			
ALBUQUERQUE ARROYOS PART II			
Intermediate Regional Flood (100yr.)			
Runoff Developed Areas		1.92 inches	
Runoff Undeveloped Mesa		1.21	
Since 50% Developed & 50% Undeveloped		$2 \frac{1.92 + 1.21}{2} = 1.565 \text{ in} = 1.57 \text{ inches}$	
Storage =		$\frac{48.4 \times 1.57}{12} = 6.33 \text{ Ac. Ft.}$	
STORAGE REQ'D			
Rational 6 Hr/100yr. (City)		7.42 Ac Ft.	
Rational 6 Hr/100yr. (Tech. Papers)		6.05 Ac Ft.	
Corps of Engineers Reg. runoff		6.33 Ac Ft.	
Area A-2 When Fully Developed			
$t_c = 15 \text{ min} \quad L_{100} = \frac{189}{15 \times 25} = 4.7 \text{ in/hr}$			
C = .9			
$Q = CIA = .9 \times 4.7 \times 48.4 = 205 \text{ cfs}$		$\begin{matrix} 95 \text{ (east)} \\ 110 \text{ (west)} \end{matrix}$ <p>when west side is developed</p>	
Requires 54 inch pipe $n = .015$ & $s = .02$			
<p>The logic is: Why not build the proposed flume structure when the west side of Area A2 is developed, build a retention pond on the west side of Area A2 until developed, and allow the water from the proposed structure to exit at the SW corner of the flume site in accordance w/ Morrison's 2 plan sheets?</p>			

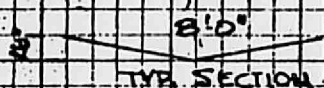
8 Jan 73

NEW MEXICO
ALBUQUERQUE

FROM

DATE

CAPACITY HIGHWAY DITCH



$$AREA = 8 \times 1 \times \frac{1}{2} = 4 \text{ sq. ft.}$$

$$\text{Wetted Per.} = 8.5 \text{ ft.}$$

$$R = \frac{A}{W} = \frac{4}{8.5} = .5$$

$$S = \text{slope} = .02 \text{ ft./ft.}$$

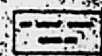
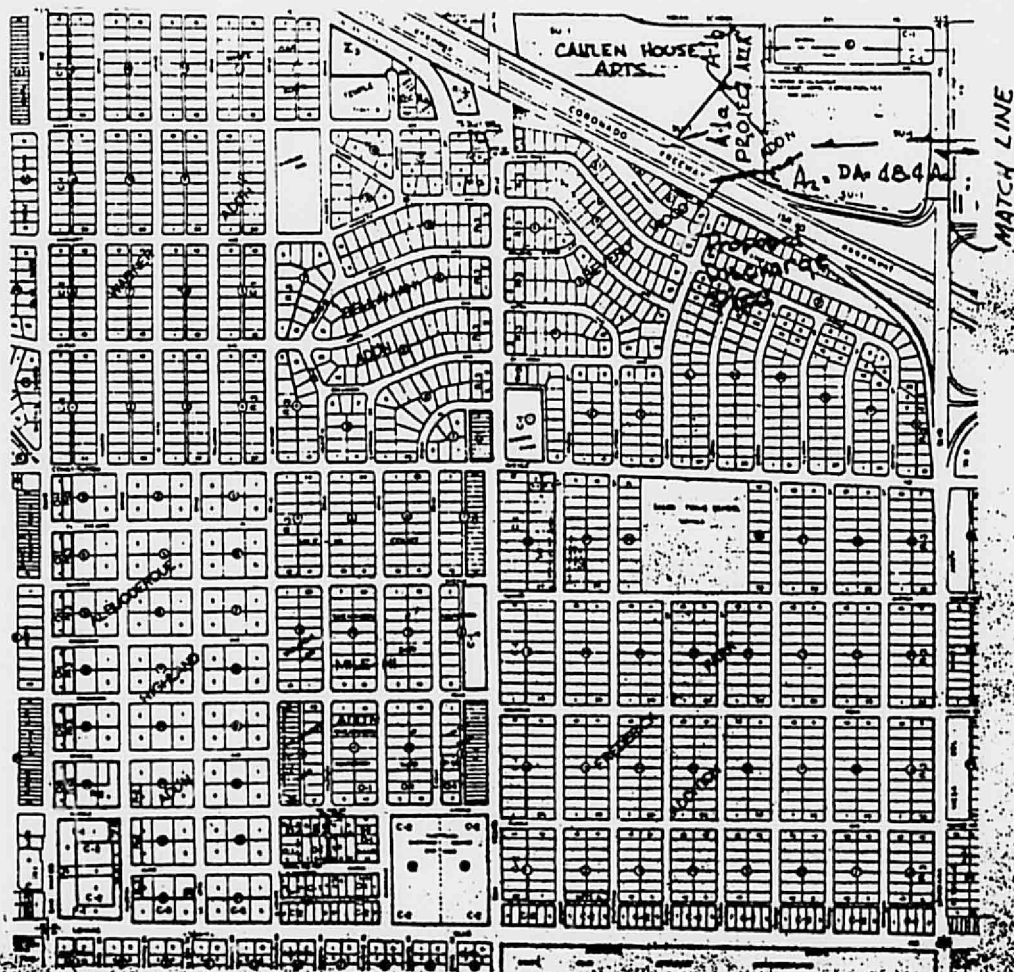
$$n = .02$$

$$V = \frac{1.486}{n} \times R^{2/3} \times S^{1/2}$$

$$= \frac{1.486}{.02} \times .5^{2/3} \times .02^{1/2} = \frac{1.486}{.02} \times .63 \times .14$$

$$V = 6.55 \text{ ft./sec.}$$

$$Q = \text{Cap} = A \times V = 4 \times 6.55 = 26.2 \text{ cfs.}$$



1-18-2

LOCATION MAP 50/2



J-19-7

LOCATION MAP 2/2

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

April 26, 1974

PROPOSED STORM SEWER EXTENSION IN THE BEVERLY-WOOD ADDITION, TRACT A
(EASTERLY PORTION OF REPLATTED PORTION OF BEVERLEY-WOOD ADDITION) NOTE:
IN ACCORDANCE WITH POLICY 2a(3) CITY PAYS THAT PORTION OF COST OF THE
IMPROVEMENT, EXCLUSIVE OF DESIGN, RIGHT-OF-WAY AND EXCAVATION COSTS WHICH
IS ATTRIBUTABLE TO THE AREA SERVED OUTSIDE OF THE NEW SUBDIVISION. PERCENTAGES
OF PAYMENTS ARE BASED ON QUANTITIES OF RUN-OFF. 143 CFS ENTERS THE BEVERLEY-
WOOD ADDITION FROM LOUISIANA BLVD. N.E. TOTAL DISCHARGE INTO NEW STRUCTURE
WILL BE 205 CFS. CITY PERCENTAGE IS $\frac{143}{205} \times 100 = 69.75\%$. DEVELOPER PER-
CENTAGE IS $\frac{62}{205} \times 100 = 30.25\%$ + COST OF EXCAVATION, DESIGN AND RIGHT-OF-WAY.
STRUCTURE LOCATED AT 140 WEST OF LOUISIANA N.E.

Requested by: Cyril Wolfson
2435 Zearing Ave. N.W.
Albuquerque, New Mexico 87104
Phone: 242-5403

The Coldwell Banker Fund
c/o Coldwell Banker
Management Corporation
4350 East Camelback Rd.
Suite 110-B, Phoenix, Ariz. 85018

Policy No. 2a(3) Storm Drainage Facilities AAN0103-288

CODE	ITEM	QUANTITY	DESCRIPTION	UNIT	PRICE	COST
55236000	S-42	181.30LF	36"X3/8" Steel Boring Under I-40		92.00	\$16679.6
34100002	M-3	2 S.Y.	Conc. Pavement Removal		2.00	4.0
60600001	P-44	6 Ea.	Warning Posts		15.00	90.0
41000000	P-45	96 S.F.	Chain Link Fence incl. Post&H.W.		1.25	120.0
50030002	M-20	14 C.Y.	5.5B3000 Structural Reinf. Conc.		150.00	2,100.0
				TOTAL		18,993.6

City to Pay $69.75\% \times 18,993.60 = 13,248.03$ \$13,248.03
Contingency $10\% \times 13,248.03 = 1,324.80$ 1,324.80
TOTAL \$14,572.83

Developer to Pay $30.25\% \times 18,993.60 = 5,745.56$
3011002' P-1 160 C.Y. Ex. Classified over 2' Cut at .75 \$120.00
Design $10\% \times (18,993.60 + 120.00)$ 1,911.36
Testing Fee $2\% \times (18,993.60 + 120.00)$ 382.27
Contingency $10\% \times 5865.56$ 586.56
TOTAL 8,745.75

NOTE: ACCESS AND CONSTRUCTION EASEMENT REQUIRED PRIOR TO CONSTRUCTION.

Recommended:

Approved:

V. M. KIELICH
City Engineer

E. F. HENSCH
Director of Public Works

Recommended:

Recommended:

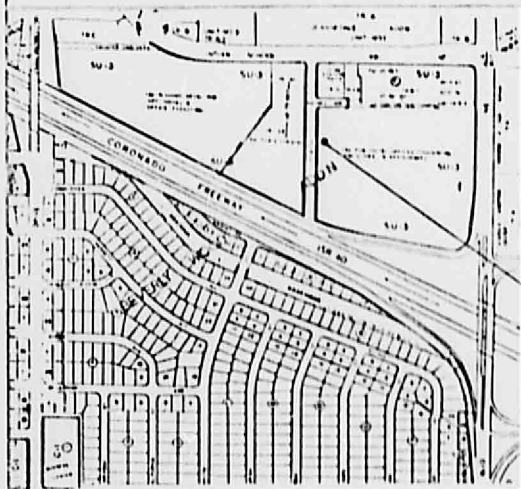
QUENTIN R. KIELICH
Assistant City Engineer-Design

ROBERT P. LOWE
Liquid Waste Engineer

INFORMATION FOR STREET EXC. ORD. This project will be constructed by
Work to begin on or about

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



SCALE: 1" = 800'

PROJECT LOCATION

VICINITY MAP

ZONE ATLAS PAGE J-18-Z

LEGAL DESCRIPTION:

TRACT 1, PARK SQUARE ADDITION

PROJECT BENCHMARK:

A BRASS CAP LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF INDIAN SCHOOL ROAD NE AND LOUISIANA BOULEVARD NE. CITY BENCHMARK 4-J18. ELEVATION: 5271.491.

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 herein, shall be constructed in accordance with "Contract Documents for City-wide Utilities and Cash Paving No. 85-1."
3. Two working days prior to any excavation, contractor must contact Line Locating Service, 725-1234, 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.

JAYNES CORPORATION

APPROVALS

NAME

DATE

J18-DIA

E-57

FOR DESIGN

REVISION

100,000

TITLE:

SIDEWALK CULVERTS AT
6501 AMERICAS PARKWAY, NE.

FOR ITB 02/17

SHEET 1 OF 4

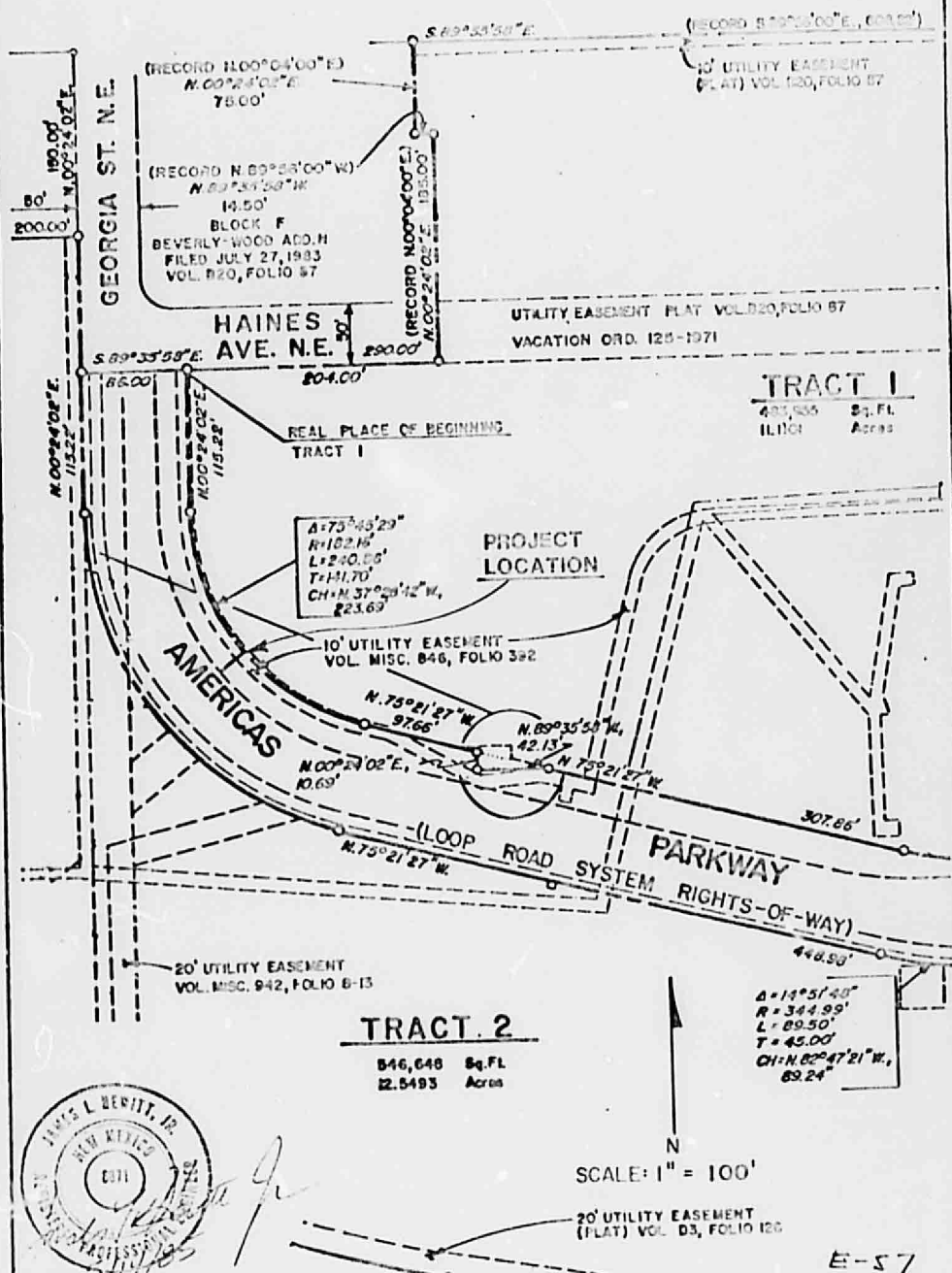
MAP

NO. J-18

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY

INDIAN SCHOOL RD. N.E.

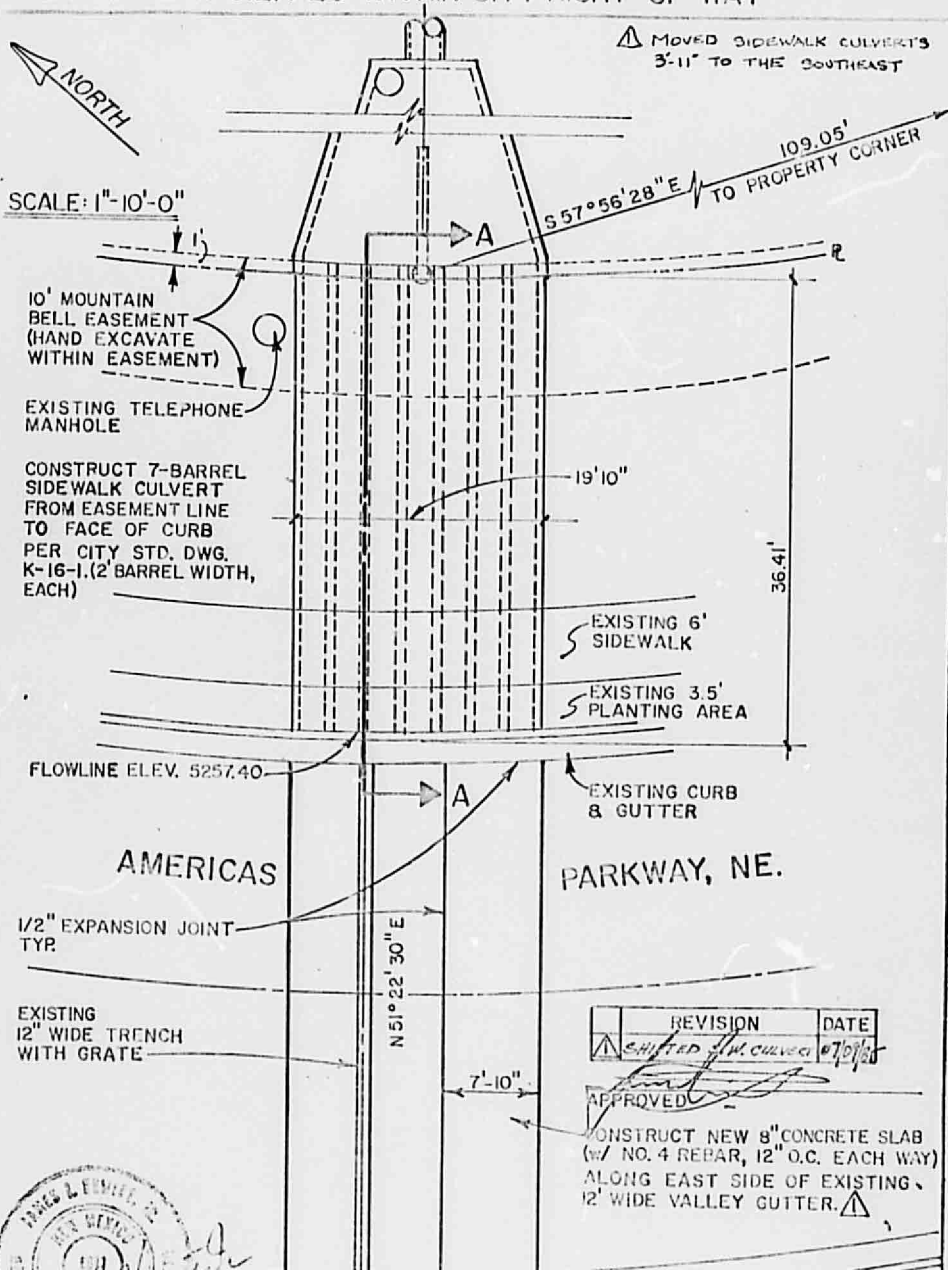


JAYNES CORPORATION

APPROVALS	NAME	DATE	TITLE:
A.C.E./DESIGN	<i>[Signature]</i>	05/20/85	SIDEWALK CULVERTS AT 6501 AMERICAS PARKWAY, NE.
INSPECTOR	<i>[Signature]</i>		PERMIT NO. 22317
A.C.E./FIELD	<i>[Signature]</i>	8/30/85	SHEET 2 OF 4
			MAP NO. J-18

CITY OF ALBUQUERQUE

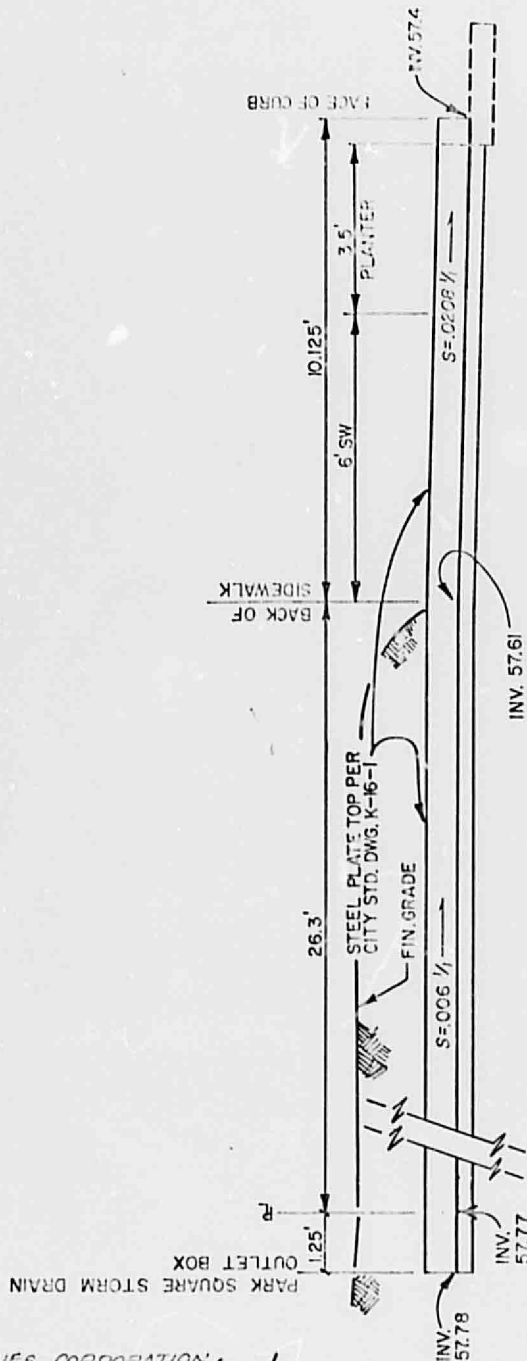
DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



JAYNES CORPORATION		E-57	
APPROVALS	NAME	DATE	TITLE
A.C.E./DESIGN	[Signature]	7/10/85	SIDEWALK CULVERTS AT 6501 AMERICAS PARKWAY, NE.
INS. FOR	[Signature]		
A.C.E./FIELD	[Signature]	7/10/85	
PERMIT NO. 22317		MAP NO. J-13	
SHEET 3 OF 4			

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



SIDEWALK CULVERTS SECTION A-A

SCALE: 3/8" = 1'-0"



E-57

JAYNE'S CORPORATION

APPROVALS	NAME	DATE	TITLE:
A.C.E./DESIGN	<i>[Signature]</i>	<i>8/20/85</i>	SIDEWALK CULVERTS AT
INSPECTOR	<i>[Signature]</i>		6501 AMERICAS PARKWAY, NE.
A.C.E./FIELD	<i>W.F. McManis</i>	<i>8/20/85</i>	PERMIT NO. 22317
			SHEET 4 OF 4
			MAP NO. J-18