PLANS/PLATS ON FILE

FILE DESC: E-17/D001D

PLANS/PLATS 2

DRAINAGE MANAGEMENT REPORT

for

BANDELIER FILMS AND PHASE II SHELL
3815 and 3819 Osuna Boulevard NE
Albuquerque, New Mexico

Prepared by:

ARTHUR W. DEKKER, ARCHITECT-ENGINEER
2403 San Mateo NE, Plaza 15
Albuquerque, New Mexico 87110

REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW MEXICO
NO. 1649
ARTHUR W. DEKKER

Commission No. 8034

22 January, 1981

DRAINAGE MANAGEMENT REPORT

BANDELIER FILMS AND PHASE II SHELL
3815 and 3819 Osuna Boulevard NE
Albuquerque, New Mexico

A SCOPE

The purpose of this report is to present the data, analysis and a proposed plan for drainage management of the above referenced project.

B GENERAL INFORMATION

The one acre site is located at the northeast corner of the intersection of Osuna Boulevard NE and Academy Parkway NE, and is described as Lot 8A, Block A of Unit One of the Interstate Industrial Tract. Presently the undeveloped site slopes from the southeast to the northwest with an average gradient of .014 FT per ft. Natural flows are generally sheet flow, traveling west northwest and continue across the adjacent Lot 8B (under same ownership as Lot 8A) and flow into the North Diversion Channel to the west. In accordance with the Drainage Report as prepared by Gordon Herkenhoff & Associates, dated 3-18-74, ponding is permitted but not mandatory in this area.

C PROPOSAL FOR SITE IMPROVEMENTS AND DRAINAGE MANAGEMENT

The proposed site improvements are to be as per the plans as prepared by Arthur W. Dekker, Architect-Engineer, dated 22 January, 1981. Drainage management is proposed as follows:

1. An area of 0.056 acres (Area 1 of the site) will sheet flow to the west onto the adjacent Lot 8B. Flow will be reduced from the natural total site run-off of 2.16 CFS to a developed run-off of .27 CFS (see calculations to follow) from this area.

2. An area of .13 acres (Area 2 of the site) will flow to the east and into Academy Parkway NE through new curb cuts at the northeast corner of the site at a developed run-off of .63 CFS.

3. The remaining area of .814 acres (Area 3 of the site) will sheet flow to the south and will be intercepted by a new grass lined and landscaped ponding area along the south property line from which water will be discharged into Osuna Blvd. at a rate that will result in a total developed run-off rate less than or equal to the total undeveloped run-off rate of the site.

   NOTE: Landscape areas not immediately adjacent to the building will be depressed to retain some run-off; however, to simplify the calculations planter area retention has not been included in any of the calculations and all areas have been treated as though they were to be hard surfaced.

D CALCULATION FORMULAS

1. The following formula is used to calculate the intensity of rainfall that is probable for a 100 year storm:

$$i_{100} = \frac{189}{t_c + 25} = 5.4 \text{ inches per hour}$$

i_{100} = rainfall in inches per hour

t_c = time of concentration in minutes = 10 minutes

2. The Rational Method is used to calculate the run-off from the study area. The Rational Formula is as follows:

   Q = CiA

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

   C = Coefficient of run-off expressed in a ration of rainfall to run-off = .90 for high density development areas, 0.40 for site in undeveloped state.

   i = Rainfall expressed in inches per hour = 5.4

   A = Drainage area expressed in acres

3. For the diameter of an outflow pipe of given length to deliver a given quantity of water under a given head the following formula is used:

$$d = 0.234 \sqrt[5]{\frac{Q^2 L}{h}}$$

d = diameter of pipe in feet
Q = cubic feet per second delivered
L = length of pipe in feet
h = head in feet

E CALCULATIONS AND ANALYSIS

1. Run-off calculations:

TOTAL $Q_{undeveloped}$ = 0.40 x 5.4 x 1 = 2.16 CFS

AREA 1 = 2440 sq. ft. = .056 acre
AREA 1 $Q_{developed}$ = 0.90 x 5.4 x .056 = .27 CFS

AREA 2 = 5645 sq. ft. = .13 acre
AREA 2 $Q_{developed}$ = 0.90 x 5.4 x .13 = .63 CFS

AREA 3 = 1 acre - .056 - .13 = .814 acre
AREA 3 $Q_{developed}$ = 0.90 x 5.4 x .814 = 3.96 CFS

TOTAL $Q_{developed}$ = 0.90 x 5.4 x 1 = 4.86 CFS

2. Pond outflow pipe calculations:

In order to reduce the total developed run-off of 4.86 CFS ponding will be provided along the south property line and ponded run-off will be discharged through an outflow pipe at a rate as required to result in a total run-off rate less than or equal to the undeveloped run-off rate of 2.16 CFS.

Area 1 $Q_{developed}$ + Area 2 $Q_{developed}$ + Pond outflow rate = 2.16 CFS maximum.

.27 + .63 + Pond outflow rate = 2.16 CFS
Pond outflow rate = 1.26 CFS maximum,
Outflow pipe length will be 18 feet,
Depth of pond will be 1.5 feet (maximum head),

therefore, in accordance with formula previously shown, the diameter of the outflow pipe may be calculated as follows:

$$d = 0.234 \sqrt[5]{\frac{1.26^2 \times 18}{1.5}} = .4219' \approx 5\ 1/8''$$

A 5" round pipe will result in an outflow rate from the ponding area of less than 1.26 CFS and the total developed run-off rate will be less than the undeveloped rate of 2.16 CFS.

3. Pond volume calculations:
The pond is to be grass lined and landscaped, with a retention depth of 1.5' and side slopes of 1 vertical to 3 horizontal. The pond will intercept the sheet flow run-off from Area 3, which includes all roof run-off from the buildings, all paved areas south of the building, and storm water falling on the landscaped ponding area itself for an area of .814 acre.

~~Volumes:~~
~~Historic (5 year):~~
~~Rainfall (6 hr. 5 yr.) = 1.3 inches~~

$$\cancel{V_{historic,\ 5\ yr.} = 0.4 \left(\frac{1.3}{12}\right)(.814)(43560) = 1537 \text{ cu. ft.}}$$

VOID - SEE REVISED VOL. CALCS. ON GRADING PLAN, SHEET 2 OF 13

~~Developed (100 yr.):~~

$$\cancel{V_{developed,\ 100\ yr.} = 0.9 \left(\frac{2.4}{12}\right)(.814)(43560) = 6382 \text{ cu. ft.}}$$

$V_{required} = V_{developed,\ 100\ yr.} - V_{historic,\ 5\ yr.}$

$V_{required} = 6382 - 1537 = 4845$ cu. ft.

$V_{provided}$ = (area @ bottom of pond x depth) + $\frac{\text{perimeter x depth}}{2}$ x (3 x depth)

VOID - SEE REVISED VOL. CALCS ON GRADING PLAN - SHEET 2 OF 13

$V_{provided}$ = (2950 sq. ft. x 1.5') + $\frac{495' \times 1.5' \times 4.5'}{2}$

$V_{provided}$ = 5974 cu. ft., which is greater than 4845 cu. ft. required

I certify that this drainage report and plan was prepared under my direction, and is true and correct to the best of my knowledge.

22 Jan. '81

ARTHUR W. DEKKER — Date

P.E. #1649

DOCUMENT.

Bandelier Films, Inc.
2001 Gold SE
Albuquerque, NM

Attn: Bob Stevens

Gentlemen:

Please let this serve as authorization to grade portions of the southerly twenty (20) feet of my property: Lot 7B, Block A, Unit 1 of Interstate Industrial Tract.

All grading must be only on the southerly twenty (20) feet of said lot; all grading will be done at no expense to me. It is further understood and agreed that you warrant any and all work done will be accomplished in a timely manner; that you will be totally responsible for all cost of liens or encumberances that could result therefrom; and finally, that you assume all liability for any injuries or claims resulting therefrom.

You have represented to me that you will haul away all excess dirt resulting from this grading.

It is further understood and agreed that this agreement is not valid unless signed and dated by you and a copy returned to me.

Very truly yours,

Agreed: _____ this 2nd day of Dec., 1980

Witness: _____

DOCUMENT.

Bandelier Films, inc.

December 4, 1980

Wescon, Inc.
General Contractor
PO Box 14893
Albuquerque, New Mexico 87197

ATTN: Mr. Steve Kraft

Gentlemen:

Please let this letter serve as authorization for you to grade portions of the property owned by me, i.e. Lot 8B, Block A, Unit 1, Interstate Industrial Tract. All grading on the said Lot 8B shall be in compliance with the requirements of the grading plan prepared by A.W. Dekker, Architect-Engineer.

Sincerely,

Robert Stevens
Bd. Chm.

RS/md

cc: A.W. Dekker, Arc., Eng.

2001 Gold Ave., S.E. • Albuquerque, New Mexico 87106 • AC505/242-2679

CHARTER MEMBER INTERNATIONAL QUORUM OF MOTION PICTURE PRODUCERS

AWDAWDAWDAWDAWDAWDAWDAWDAWDAWDAWD

22 July 1982

Mr. Fred Aguirre, P.E.
P.O. Box 1293
Albuquerque, NM 87103

Re: Drainage Requirements
3815-3819 Osuna Blvd. NE

Dear Mr. Aguirre:

We enclose an "as built" drawing showing revised drainage and ponding design for subject project dated 5-5-82 and approved by Mountain Bell as to their manhole location 7-20-82.

As noted in discussion between Mr. Arfman, Consulting Engineer, Mr. Fletcher, Associate in this office and yourself, the original ponding volume was decreased when the Owner landscaped the area adjacent to Osuna Blvd. However, as shown by the attached calculations done by Mr. Arfman, the presently existing ponding volume is within an acceptable range for compliance with ponding requirements due to controlled discharge of water from the ponding area.

We respectfully request that you approve the ponding design "as built" so that a Certificate of Occupancy for this structure may be issued.

If you desire further information, please contact this office or Mr. Arfman at your convenience.

Very truly yours,

Arthur W. Dekker

AWD:hms

cc Mr. Bob Stevens

Enc.

A.W. DEKKER ARCHITECT

2403 san mateo n.e. plaza15 albuquerque n.m. 87110 505-884-3308, 884-3889

Mountain Bell

March 5, 1982

D.S.D.C., Station 774
Post Office Box 400
Albuquerque, New Mexico 87103-0400

A.W. Dekker
2403 San Mateo, N.E.
Plaza 15
Albuquerque, New Mexico 87110

Dear Mr. Dekker:

Mountain States Telephone and Telegraph Company is satisfied with the work that was done on the manhole at 3815 Osuna, N.E., for the Bandelier Inc., Company.

The ponding area where the work was done provides adequate working conditions for our going into and out of the manhole.

Very truly yours,

RECEIVED
MAR 9 1982
RECEIVED

Dennis G. Quintana
Right-of-Way Agent

EXT 66749
765-

NEIL AMES - 881-8196
~~765-6644~~

765-9788-
765-8160

JOHN SMITH
765-8793
PLAZA COMPANIA
400 TIJERAS St 778

ISAACSON & ARFMAN, P.A.
CONSULTING ENGINEERING ASSOCIATES

2727 SAN PEDRO N.E. SUITE 114A
ALBUQUERQUE, NEW MEXICO 87110
TELEPHONE – 883-2800

February 17, 1981

Mr. Fred Aguirre
Municipal Development Department
City of Albuquerque
Post Office Box 1293
Albuquerque, New Mexico 87103

Re: Bandelier Films and Phase II Shell

Dear Fred,

Our firm has been requested by Art Dekker to provide additional engineering services for the project referenced above. You are probably aware of the current project status and the related problems encountered by Mr. Dekker in his quest for securing a building permit. We have been asked to investigate two comments concerning the storm drainage management plan. The two comments are stated below along with our replies. All other comment from your department has been noted and appropriately modified.

COMMENT NO. 1: "The proposed plan of draining area 2 into the adjacent property is not acceptable. See AMAFCA Resolution 1980-15, Section 4."

Drainage Management Plan - Comment 1 states:

1. An area of 0.056 acres (area 1 of the site) will sheet flow to the West onto the adjacent Lot 8B. Flows will be reduced from the natural total site runoff of 2.16 CFS to a developed runoff of .027 CFS (see calculations to follow) from this area.

Our interpretation is as follows: The area is comprised of 0.056 acres of inpervious paving with no defined watercourse. Storm waters will sheet flow Westerly onto a parcel of land known as Lot 8B. Lot 8B is scheduled for Phase III construction by the same owner. Considering the overall undeveloped site, 2.16 CFS sheet flowed and exited the site over the Westerly boundary (271'). In the projected developed state, only 0.27 CFS exit over a length of 50'. This equates to an undeveloped discharge rate of 0.008 CFS/ft. compared to 0.005 CFS/ft. developed discharge, or an effective 38% reduction in sheet flow discharge rate per foot.

Section 4-B of the AMAFCA Resolution states that discharging flows not exceed downstream drainage facilities capacity or "discharge from such property at a rate of flow, velocity and location reasonably similar to that which existed before such alteration." It can be clearly seen

that the only downstream facility is the AMAFCA North Diversion Channel and since the discharge is equal or less than the undeveloped rate of discharge, the AMAFCA requirement is satisfied.

Section 4-D(1), "Compliance would be impractical by reason of the size, soil perviousness or grade of such lot..." It is logically deduced that for such a small surface area, the only practical solution is to let the storm waters discharge as sheet flows. The point of discharge is slated as a continuance of the rear service road that shall be undertaken in Phase III. Once Phase III is completed, flows from the rear service road will be routed through a detention pond.

COMMENT NO. 2: "Pad elevations must be 1.5' above top of curb, per the Gordon Herkenhoff Drainage Report."

The G-H study gave a general recommendation to insure that the lots would have sufficient slope to allow flows to enter onto street right-of-ways and eventually flow into the drainage easement.

Sheet 2 of 13 indicates a surface drainage plan capable of handling all of the storm waters and directing them away from the structure. These flows shall then enter into the adjacent streets with the exception of the minor sheet flows at the sites Northwest corner. It is our consensus that the plan as shown is workable and out of any flood plan and watercourses.

There seem to be no point of reference if one were to try to determine a pad grade 1.5' higher than the top of curb. On this site, the finished floor is 1.15' higher than the top of curb at the Northeast corner and 4.05' higher than the TC at the Southwest corner. That's a 2.8' average.

Finally, a level survey of the neighboring buildings were undertaken to determine a relationship between their finish floor elevations and their corresponding top of curbs (see attached data sheet). The reason for this survey was two-fold. First, to determine if there has been a historic trend of not adhering to the Herkenhoff recommendation and secondly to show that even though some of the neighboring buildings have finish floor elevations much lower than recommended, they have workable drainage plans. The raising of the pad grade from that shown to that suggested would not benefit the drainage plan, but would cause for the import of additional excessive fill material.

Therefore, it is our conclusion that a well planned drainage solution with all of the details thoroughly thought out far outweighs the general recommendation found in the master drainage study.

Please consider the above information for the approval of the drainage plan as shown. If there are any questions, please contact us for clarification.

Very Truly Yours,

Fred C. Arfman

Fred C. Arfman, P.E.

CC: Art Dekker

SURVEY OF BUILDINGS IN AREA OF ACADEMY PARKWAY
UNIT ONE, INTERSTATE INDUSTRIAL TRACT

LOT NUMBER & FACING STREET	RELATIVE GRADES OF BUILDING FINISH FLOORS AND TOP OF CURBS		
	BUILDING FINISH FLOOR	CURB @ HIGH POINT	CURB @ LOW POINT
7A, Academy Parkway South	0.00	- 1.9	- 2.3
7B, Academy Parkway	0.00	+ 1.25	- 1.3
C5, Academy Parkway South	0.00	+ 0.42	- 0.67
C6 & C7, Academy Parkway & Osuna Blvd.	0.00	- 0.208	- 2.7
4B, Academy Parkway West	0.00	- 0.2	- 1.3
Block A, Academy Parkway North	0.00	+ 3.2	+ 2.7

RECAP:

FINISH FLOOR OF BUILDING ON

Lot 7A varies from 1.9' to 2.3' above curb.

Lot 7B varies from 1.25' below to 1.3' above curb.

Lot C5 varies from 0.42' below to 0.67' above curb.

Lots C6 and C7 vary from 0.208' to 2.75' above curb.

Lot 4B varies from 0.208' to 1.37' above curb.

Lot (Block A) varies from 2.7' to 3.2' below curb.

FINISH FLOOR OF BUILDING proposed on Lot 8A is 0.75' below top of curb @ high point (peak in Academy Parkway just North of Osuna Boulevard), .15' above top of curb at Northeast corner and 4.05' above top of curb at Southwest corner.

Isaacson & Arfman, P.A.
Consulting Engineering Associates

2727 San Pedro N.E. Suite 114A
Albuquerque, New Mexico 87110
Telephone – 883-2800

MEMORANDUM

To: Art Dekker

From: Isaacson & Arfman, P.A.
Fred C. Arfman, P.E.

Subject: Bandelier Films Drainage Plan

I am supplying your office with the following drainage calculations for your use in securing a final C.O. for the subject property located at 3815-19 Osuna Blvd., NE. The calculations are based on the "as built" drawings prepared by your office and are reflected in the following table:

DATA TABLE

Time (min)	Discharge (4"ø w/1.5H)	Rainfall (in)	Volume (cf)	Volume After Discharge (cf)
10	360	0.84	2234	1874
30	1,080	1.48	3936	2856
60	2,160	1.88	4989	2829
120	4,320	2.05	5460	1140
360	12,960	2.40	6382	--

Note of Explanation: The above table reflects the amount of rainfall for the time durations shown for the 100 year frequency storm. The table shows that the 30 minute intensity storm is the most critical with respect to the site ponding conditions. This storm is projected to produce 3936 cu. ft. of storm water runoff while the pond is discharging 1,080 cu. ft. Therefore the required ponding capacity is the difference of the two (3,936 - 1,080 = 2,856 cu. ft.).

The "as-built" drawings and subsequent ponding volume calculations show a detention volume of 2,809 cu. ft. This is only 47 cu. ft. less than required or it can be stated that the pond has 98.4% of the required ponding capacity.

Since there is an adequate spillway with sufficient erosion control, it is felt that this completed storm drainage facility is within an acceptable range for compliance.

Fred C. Arfman

Fred C. Arfman, P.E.

PERMIT FOR EXCAVATION & CONSTRUCTION, CITY OF ALBUQUERQUE D 08645

LOCATION: 3819 Osuna Blvd. N.E.						DATE: 07-28-82	
	DP	C&G	CC OK TRAFFIC	SEWER TAP	SEWER EXT.	WATER CUT	WATER EXT.
NEW SERVICE	NEW YD. LINES		S/W CURBS	MAIN LEAK	OTHER: Installing 6'inch Pipe Line		
SW 4'	8'	TO PROPERTY	CURB	CITY TO RESURFACE: YES	NO		
LENGTH	WIDTH	TOTAL	NO. OF EX.	PAVED	UNPAVED		
STARTING DATE xxx 07-28-82		COMPL. DATE 08-20-82		PERMIT EXPIRES 08-08-82			
INSURANCE EXP. 12-01-82		BOND EXPIRES 12-82		SAW CUT. YES xxx	NO		
QUALIFIED: Pete Serna Const.							

Construction Fee $ 2.50 Cr. 443008 - 5253000
Excavation Fee $ N/C Cr. 443008 - 5253000
Restoration Fee $ N/C Cr. 461601 - 8233000

Restoration Fee Required	YES	NO	BY
		xxx	bes

PERMIT IS APPROVED FOR WORK DESCRIBED ABOVE IN ACCORDANCE WITH CITY ORDINANCE NO. 8-1978 & 219 - 1972

State License	Date	City License	Date

APPLICANT	ADDRESS	PHONE NO.
Pete Serna Const.	437 Tennessee S.E.	268-5197

SIGNATURE	APPROVED
[illegible]	CITY ENGINEER bes

Permit is granted in consideration of the permittee assuming all liability, defending, and holding the City harmless for claims for damages or injury to persons or property resulting from permittee's excavation work.

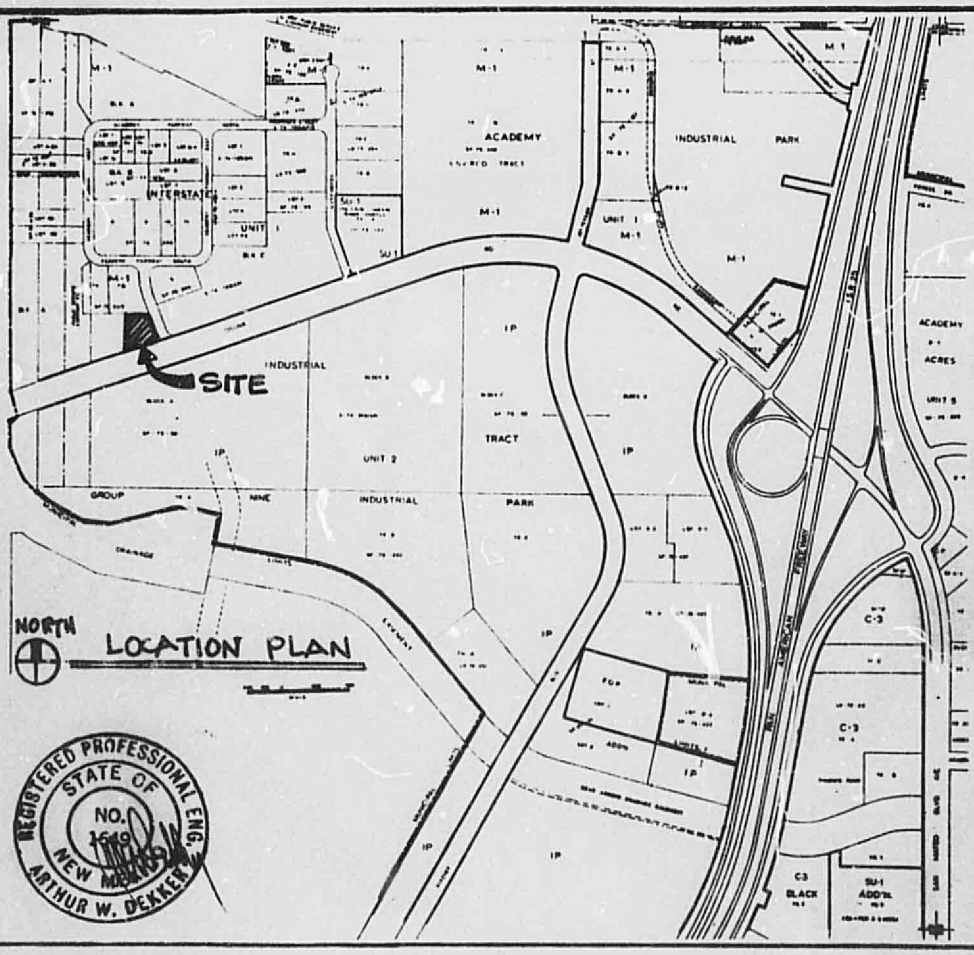
CONTR _____ CODE _____

CAUTION: PROTECT UNDERGROUND UTILITIES.
CALL 766-1234, 48 HOURS IN ADVANCE FOR LINE STAKING

DOCUMENT.

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



OWNER: Robert Stevens
3815 Osuna Blvd. NE
Albuquerque, NM

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 "Contract Documents for City-Wide Utilities and Cash Paving No 30 "

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.

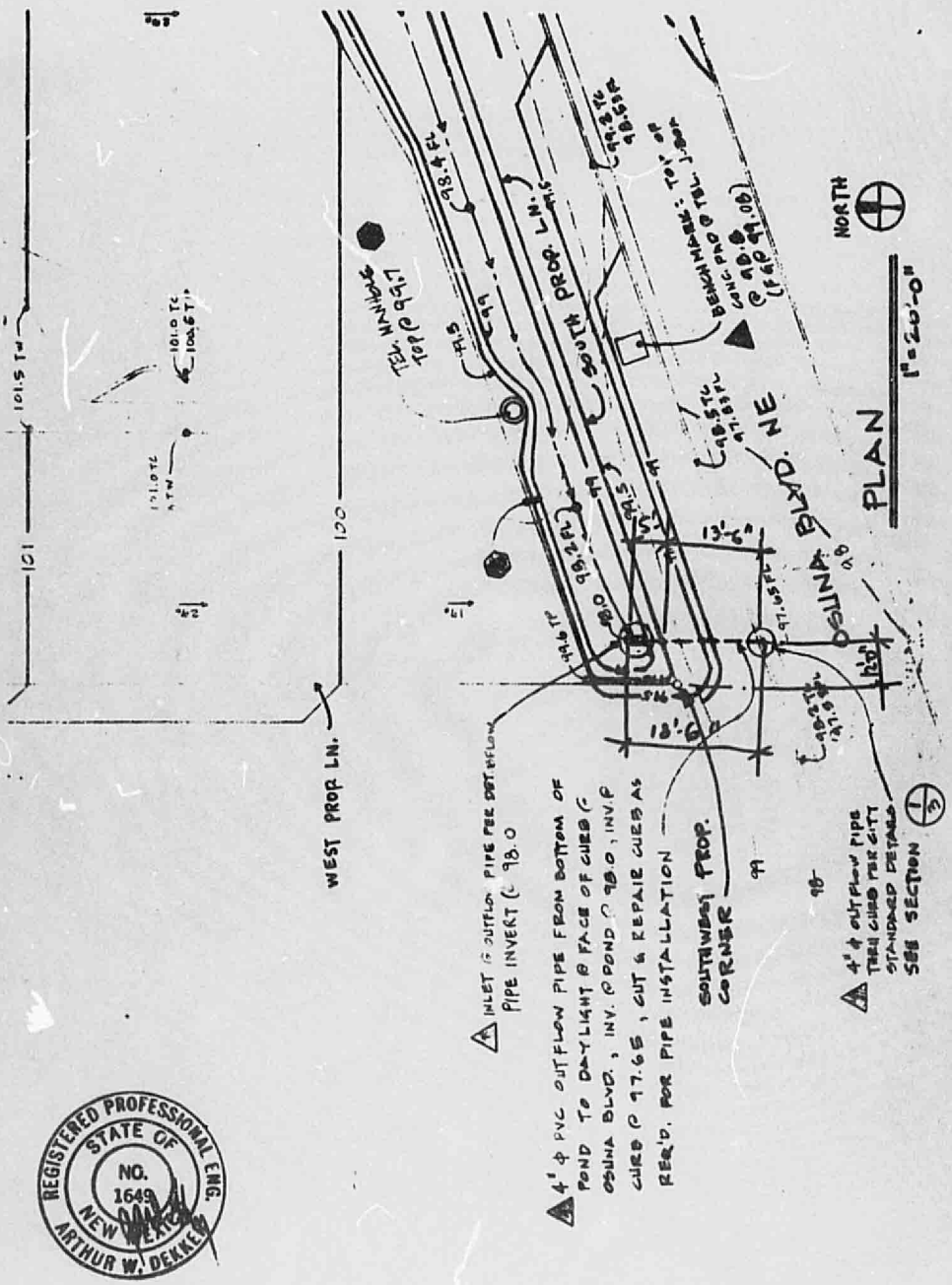
B-40

APPROVALS	NAME	DATE	TITLE: UNIT ONE, INTERSTATE INDUSTRIAL TRACT Block A, Lot 8A 3815 & 3819 Osuna Blvd. NE DRAIN PIPE THRU CURB FROM PONDING AREA	
A.C.E./DESIGN	GKelsch	5 Aug 82		
INSPECTOR	[illegible]	8-10-82	PERMIT NO. 08645	MAP NO. E-17
A.C.E./FIELD			SHEET 1 OF 3	

DOCUMENT.

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



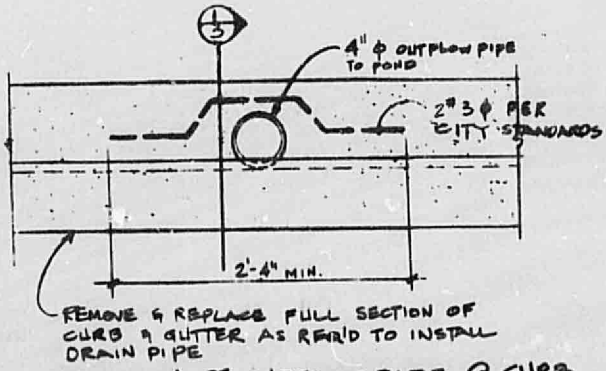
REGISTERED PROFESSIONAL ENG. STATE OF NEW MEXICO NO. 1649 ARTHUR W. DEKKER

APPROVALS	NAME	DATE	TITLE: UNIT ONE, INTERSTATE INDUSTRIAL TRACT Block A, Lot 8A 3815 & 3819 Osuna Blvd. NE DRAIN PIPE THRU CURB FROM PONDING AREA	
A.C.E./DESIGN	[illegible]	5 Aug 82		
INSPECTOR	[illegible]	8-10-82	PERMIT NO. 08645 SHEET 2 OF 3	MAP NO. E-17
A.C.E./FIELD				

DOCUMENT.

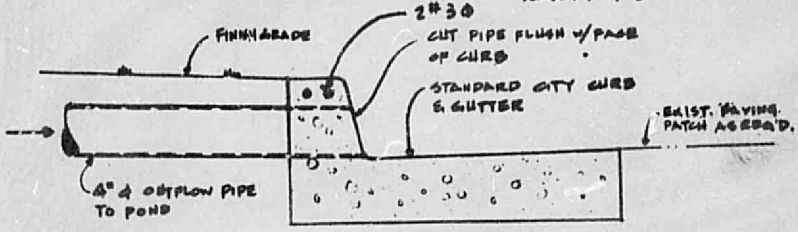
CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



ELEVATION OF OUTFLOW PIPE ℄ CURB

SCALE: 1"=1'-0"



SECTION 1/3

1"=1'-0"

As built acceptable to City in substantial compliance with plan.

Larry Simmons P.E. 8/11/82

REGISTERED PROFESSIONAL ENG. STATE OF NEW MEXICO NO. 7649 ARTHUR W. DEKKER

APPROVALS	NAME	DATE	TITLE: UNIT ONE, INTERSTATE INDUSTRIAL TRACT Block A, Lot 8A 3815 & 3819 Osuna Blvd. NE DRAIN PIPE THRU CURB FROM PONDING AREA	
A.C.E./DESIGN		5 Aug 82		
INSPECTOR		8-10-82	PERMIT NO. 08645 SHEET 3 OF 3	MAP NO. E-17
A.C.E./FIELD				

PLAN/PLATS

ON

FILE

570