REGINA HALL
DRAINAGE PLAN

ALBUQUERQUE , NEW MEXICO

JANUARY 7,1983

801-218-13

Boyle Engineering Corporation

Suite D
3939 San Pedro N.E.
Albuquerque, New Mexico 87110

consulting engineers

505 / 883-7700

Mr. Brian G. Burnett
Civil Engineer/Hydrology
Engineering Division
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

January 10, 1983

RE: REGINA HALL DRAINAGE PLAN
S01-218-18

Dear Mr. Burnett:

Submitted herewith are three (3) copies of Regina Hall Drainage Plan and necessary calculations and back-up information.

If you have any questions, please do not hesitate to contact me.

Sincerely,

BOYLE ENGINEERING CORPORATION

Frank D. Lovelady, P.E.
Senior Civil Engineer

cc: Bob Moraga
Stevens, Mallory, Pearl & Campbell

FDL/mw

TABLE OF CONTENTS

INFORMATION SHEET

PROJECT TITLE REGINA HALL DRAINAGE PLAN

TYPE OF SUBMITTAL Drainage Plan

ZONE ATLAS PAGE NO. K 15

CITY ADDRESS 806 Grand Ave. N.E.

LEGAL DESCRIPTION Por. Blk. 25, Vac. Alley N1/2 of Vac. Tijeras Ave.

ENGINEERING FIRM Boyle Engineering Corp. PHONE 883-7700

CONTACT Frank D. Lovelady

ADDRESS 3939 San Pedro N.E., Suite D

OWNER Regina Hall Investors PHONE 255-8668

CONTACT Bob Moraga

ADDRESS

ARCHITECT Stevens Mallory Pearl & Campbell PHONE 255-8668

CONTACT Bob Moraga

ADDRESS 115 Amherst Drive, S.E.

SURVEYOR Hall Engineering PHONE 884-6200

CONTACT Richard J. Hall

ADDRESS 2625 Pennsylvania N.E.

CONTRACTOR Summit Construction Co. PHONE 842-8113

CONTACT Tony Thomas

ADDRESS 900 Hazeldine S.E.

DATE SUBMITTED

BY

Use this Information Sheet when submitting the following:

Drainage report or plan, conceptual grading and drainage plan, engineer's certification plan, erosion plan and grading plan. Provide the information applicable to your submittal.

OFFICIAL NOTICE

DECIS. ON A REQUESTED SPECIAL EXCEPTIC

As provided by the Comprehensive City Zoning Code.
Chapter 7, Article XIV, Revised Ordinances of Albuquerque, NM, 1974

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
PLANNING DIVISION
P. O. Box 1293, Albuquerque, NM 87103

Regina Hall Investors requests conditional use in order to allow Doctors' Offices on Lots 7 through 12, Block 25, Huning Highland Addition, zoned SU-2/RO, and located at 806 Grand Avenue, N.E. (K-15)

Decision No.: ZA-82-242
Hearing Date: 9/8/82
Decision Date: 9/23/82

FINDINGS: The SU-2/RO zone of the Huning Highland Plan permits consideration of offices as a conditional use so long as the use does not alter the residential character of the neighborhood and any signs conform to the sign regulations of the O-1 zone. The original intent of this zone was to allow the consideration of mixed-use development in certain designated areas (zones) within the Plan area. While not a mixed-use development, this proposed use of a former convent as offices would not alter the residential character of the neighborhood. Any changes to the premises must be reviewed by the Landmarks and Urban Conservation Commission and will require issuance of a Certificate of Appropriateness. A Site Plan and other exhibits, as may be required, should be prepared and submitted to the Landmarks and Urban Conservation Commission prior to any request for building permits.

DECISION: A conditional use for physicians' offices is approved as requested. A Site Plan and other documents as required are to be reviewed and approved by the Landmarks and Urban Conservation Commission prior to approval of any building permits or modification of the premises in any way.

If you wish to appeal this decision you may do so by October 8, 1982 in the manner described below.

Appeal is to the Planning Commission within 15 days of the decision.

A filing fee of $40 shall accompany each appeal application. When an application is withdrawn, the fee shall not be refunded.

An appeal shall be heard by the Planning Commission within 60 days of its filing. The Municipal Development Department shall give written notice of an appeal, together with a notice of the date, time, and place of hearing to the applicant, a representative of the opponents, if any are known, and the appellant.

You will receive notice if any other person files an appeal. If there is no appeal, you can receive building permits any time after the appeal deadline quoted above provided all conditions imposed at the time of approval have been met. However, the Zoning Examiner may allow issuance of building permits if the public hearing produces no objection of any kind to approval of an application. To receive this approval, the applicant agrees in writing to return related building permits if an appeal is duly filed.

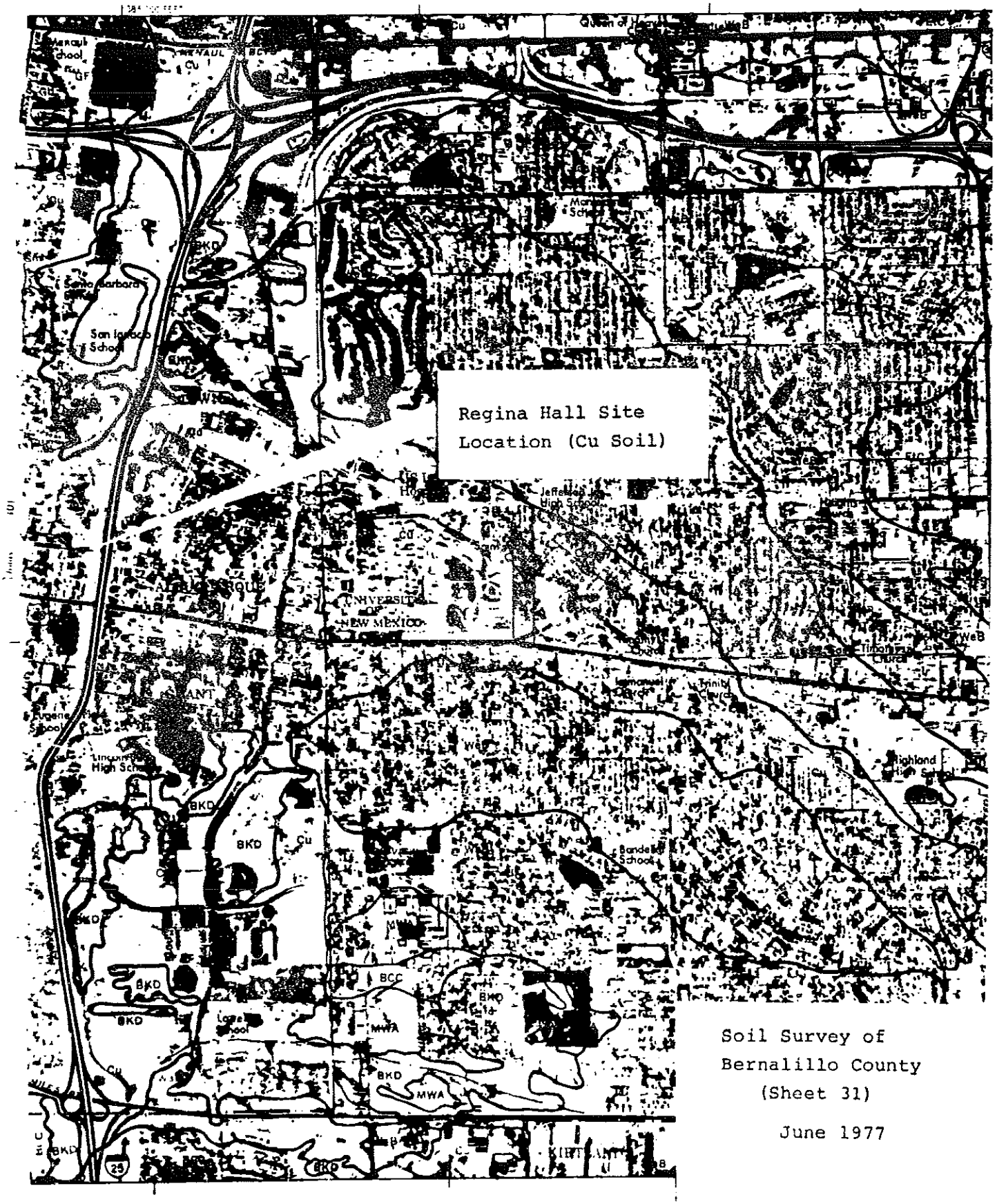
Successful applicants are reminded that other regulations of the City must be complied with, even after approval of a special exception is secured. This decision does not constitute approval of plans for a building permit. If your application is approved, bring this decision when you apply for any related building permit or occupation tax number.

Approval of a conditional use or variance application is void after one year from date of approval if the rights and privileges granted thereby have not been executed or utilized.

cc: George C. Pearl, 115 Amherst Drive, S.E.
Ken Roberts, 801 Loma Vista Drive, N.E.
Martin I. Mondlick, 1001 Medical Arts, N.E.
Rehab. Division.

Floyd O. Baker

Zoning Hearing Examiner



Soil Survey of
Bernalillo County
(Sheet 31)

June 1977

DRAINAGE CALCULATIONS

I. GENERAL INFORMATION

A. Offsite Conditions. The site has paved streets on three sides. To the east is Locust Street which is also the Frontage Road for Interstate 25. This street is paved with curb and gutter with 30 inch storm sewer.

To the north is Grand Avenue which slopes to the west at about 3 percent. To the west is Elm Street, also paved with curb and gutter, which slopes toward the south at about 1/2 percent.

To the south is an existing paved church parking lot which drains to Elm Street. This parking lot it to be repaved as part of this project.

B. On-site Conditions.

1. Area of site 1.1568 Acres
2. 6 hour rainfall volume, plate 2.2 D-1 2.25 inches
3. Watershed soils per Bernalillo County Soils Survey is is Cut and Fill Land Cu. Hydrologic Soil Group A
4. Time of Concentration

$$Tc = 0.0078 \frac{L^{0.77}}{S^{0.385}} = 2.08 \text{ use 10 minutes}$$

5. Average Velocity - calculate using Tc = 2.08

$$V = \frac{L}{Tc \times 60} = \frac{300}{2.08 \times 60} = 2.40 \text{ Ft/Sec.}$$

6. Intensity

$$I_{100} = (2.25 \text{ inches}/6 \text{ hours}) \; 6.84 \; (10)^{-0.51} = 4.76 \; \frac{\text{inches}}{\text{hour}}$$

I_5 = 4.76 X 0.541 = 2.58 inches/hour

I_{10}= 4.76 X 0.657 = 3.13 inches/hour

II. DRAINAGE AREAS

For the purpose of drainage analysis, the site is divided into three areas.

Area I. Area between Grand Avenue and the proposed parking lot, about 0.59 acres. The runoff is, if anything, considerably less after development due to the replacement of the concrete tennis court (see key note 15)* with grass and due to recontouring the area around the building to provide ponding.

Area II. The area between the building and the south property line (keyed note 1)*. This area is about 0.57 acres, presently bare earth and is to be AC paved parking. This is the only area where runoff will be greater after development requiring some ponding.

Area III. The existing paved parking lot belonging to the church is to be regraded and repaved to be compatible with the Regina Hall parking lot. No increase in runoff will occur as a result of development.

III. DRAINAGE SUB-AREAS

Area II is further subdivided into several smaller areas dictated by the location of drainage ponds.

* See Key Notes on Site Plan

SUB-AREA A. Contains 940 S.F. drains into island near east entrance.

SUB-AREA B. Contains 9240 S.F. and drains into long east-west curb divider in center of parking lot.

SUB-AREA C. Contains 1530 S.F. and drains into the parking island near the west entrance.

SUB-AREA D. Contains 13,120 S.F., some of which drains into the southwest corner of the parking lot.

IV. STORAGE VOLUMES

For the calculation of storage volumes, the soil type according to the Bernalillo County Soil Survey is Cu, Cut and Fill Land, Hydrologic Soil Group A. The C factor before and after development are as follows:

Undeveloped = 0.76 gravel street, Group A soil, plate 22.2 C-2

Developed = 0.98 paved street, Group A soil, plate 22.2 C-2

SUB-AREA A. Required Storage Vol. = 0.98-0.76 (2.25/12) 940=39 CF

Pond Vol. 22' long X 6' wide X 0.5' deep. with 2:1 side slopes: X-SEC Area = 2.5 SF approx. vol. = 2.5 X 22 = 55 CF > 35 CF OK.

SUB-AREA B. Required Storage Vol.= 0.98-0.76 (2.25/12) 9240= 381 CF

Pond Vol. 2 ponds each with following dimensions 30' long X 6' wide X 1.5' deep with 2:1 side slopes X-SEC Area = 4.5 SF

To maintain min. of 15' from canopy piers only the last 30' of the Planter on each end can be

used for storage Approx. Vol. = 4.5 X 30 X 2 = 270 < 381. Remaining drainage to overflow to street. (see letter regarding ponding requirements, 12-10-82).

SUB-AREA C. Required Storage Vol. = 0.98-0.76 (2.25/12) 1530= 63 CF.
Pond Vol. same as pond for SUB-AREA A
55 CF < 63 CF.
(see letter regarding ponding requirements,12-10-82).

SUB-AREA D. Required Storage Vol. = 0.98-0.76 (2.25/12) 13120= 541 CF.
Pond Vol. low point at S.W. corner of parking lot is elev. 21.75. Elev. low point of driveway is 22.45. Depth of ponding is 0.70', about 8 inches. Area is approx. 450 SF. Vol. = 450 X 0.70/3 = 105. The pond vol. is less than 1 fifth of the required volume. The remaining volume will discharge through the parking lot extrance into the street. Please note that the driveway has a slight swale to channel drainage to the southwest corner until it is full at which time the water will flow out through the driveway. (see letter regarding ponding requirements, 12-10-82).

V. POND INLETS (Curb Cuts)

SUB-AREA A. Peak Flow - Q = Ci A = 0.98 X 4.76 X (940/43560) = 0.16 CFS.

Q = CLH 3/2 C = 0.6 L = 1.0' H = 0.1'

$Q = 0.6\ (1.0)(0.1)^{1.5} = 0.019 < 0.16$ CFS.

TRY H = 0.3'

$Q = 0.6\ (1.5)(0.2)^{1.5} = 0.08$

Number of openings = 0.16/0.08 = 2

SUB-AREA B. Q = Ci A = 0.98 X 4.76 X (9240/43560) = 0.99 CFS.

Since storage can only accomodate 270/381 of the required volume, inlet channels should be sized accordingly. (270/381) 0.95 = 0.67 CFS curb opening Q = CLH 3/2

$Q = 0.6\ (1.5)(0.3)^{1.5} = 0.15$ =

Number of curb cuts 0.67/0.15 = 4.46 say 5

SUB-AREA C. Q = Ci A = 0.98 X 4.76 (1530/43560) = 0.16 CFS.

Curb opening Q = CLH 3/2

$Q = 0.6\ (1.5)(0.2)^{1.5} = 0.08$ CFS.

Number of openings is 0.16/0.08 = 2.0

SUB-AREA D. Ponding is in the parking lot - no entrance channel.

VI. POND DISCHARGE PIPES

SUB-AREA A. Q5 = 0.98 X 2.58 X (940/43560) = 0.05 CFS.

TRY 3" pipe - Use orifice equation

$Q = CA\sqrt{2gh}$ C = 0.6 $A = (\frac{3}{12})^2 \frac{\pi}{4} = 0.05$ SF

h = 1.5'

$Q = 0.6\ (0.05)\ \sqrt{2 \times 32.2 \times 1.5} = 0.29$ CFS. OK.

SUB-AREA B. Q_5 = 0.98 X 2.58 (9240/43560) = 0.54 CFS

Assume 1/2 for each of the 2 ponds.

Discharge of first pond - Use 3 inch dia. pipe maximum discharge same as SUB-AREA A above 0.29 CFS.

0.29 CFA > 0.27

Discharge of second pond must equal the required discharge for that pond plus first two ponds.

0.27 + 0.27 + 0.05 = 0.59 CFS

TRY 4" dia. pipe $A = (4/12)^2 (\pi/4) = 0.09$

$Q = 0.6\ (0.09)\ \sqrt{2 \times 32.2 \times 1.5} = 0.53$ CFS 0.59

SUB-AREA C. Q_5 = 0.98 X 2.58 (1530/43560) = 0.09 < 0.29 CFS

3" dia. pipe is adequate

SUB-AREA D. Q_5 = 0.98 X 2.58 X (13.120/43560) = 0.76 CFS.

$Q = CA\sqrt{2gh}$ h = 22.60-21.75 0.85 FT

$A = (4/12)^2 (\pi/4) = 0.09$ SF

$Q = 0.6\ (0.09)\ \sqrt{2 \times 32.2 \times 0.85} = 0.4$ CFS

Number of 4 inch diameter pipes 0.74/0.4 = 1.85

Use 2

VII. JUNCTION BOX

An existing 8" concrete drain pipe from the chruch court yard presently "daylights" in the church parking lot. There is no place for this pipe to discharge except into the gutter on Elm Street. The pipe is too large to be extended under the curb. Allowing it to coninue discharging into the parking lot is not desireable since it will create a nuisance and possible safety hazard.

It is proposed to remove a portion of the downstream end of the pipe back to the point where it will have at least 4 inches of cover. At that point a concrete junction box is proposed. Between the junction box and the curb on Elm Street will be a 4" diameter PVC pipe and a 3" diameter PVC pipe. The discharge pipes from two of the ponds will connect to the junction which will be equipped with a removeable grate.

The rational for having a smaller outlet pipe cross section area than the area of incoming pipes is as follows: During storms, the outlet pipe will essentially carry only slightly more than pond discharge flows. Any excess from the 8" drain pipe that cannot be carried by the 3" and 4" discharge pipes will flow out of the junction box through the grate, across the parking lot and under the curb to Elm Street via the other two PVC pipes that drain the southwest corner of the parking lot. This should occur only for brief periods during heavy rainfall. At all other times the flows that are less than peak flows, including any nuisance flows from the drain pipe, will be carried via the 3" and 4" pipe to Elm Street. This will greatly improve the present situation by eliminating the possibility of ice forming in the parking lot where the drain pipe now discharges and will also eliminate the present unsightly condition.

DRAINAGE FACILITY WITHIN CITY RIGHT-OF-WAY

VICINITY MAP
SCALE: 1"=750.0'
(CITY MAP NO. K-15-Z)

NORTH

PROJECT LOCATION
POR BLK 25 VAC. ALLEY & N1/2 OF VAC. TIJERAS AVE.

OWNER:
REGINA HALL INVESTORS

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. 31 "
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 RESIDENTIAL street use.

CITY OF ALBUQUERQUE

APPROVALS	ENGINEER	DATE
A.C.E. / DESIGN		
INSPECTOR		
A.C.E. / FIELD		

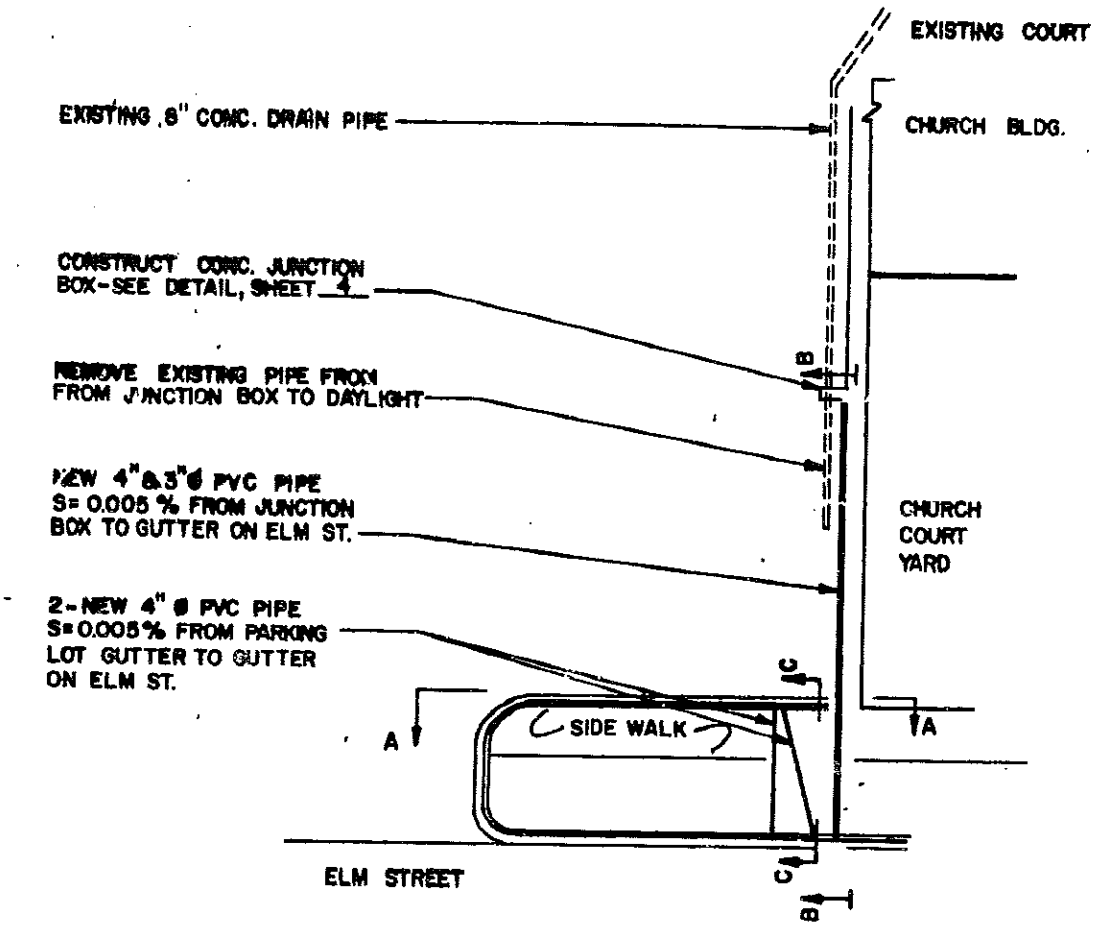
TITLE
REGINA HALL DRAINAGE PLAN
VICINITY MAP

PERMIT NO.

SHEET 1 OF 4

REV.

DRAINAGE FACILITY WITHIN CITY RIGHT-OF-WAY



FOR SECTION SEE SHEET 3 OF 4

CITY OF ALBUQUERQUE

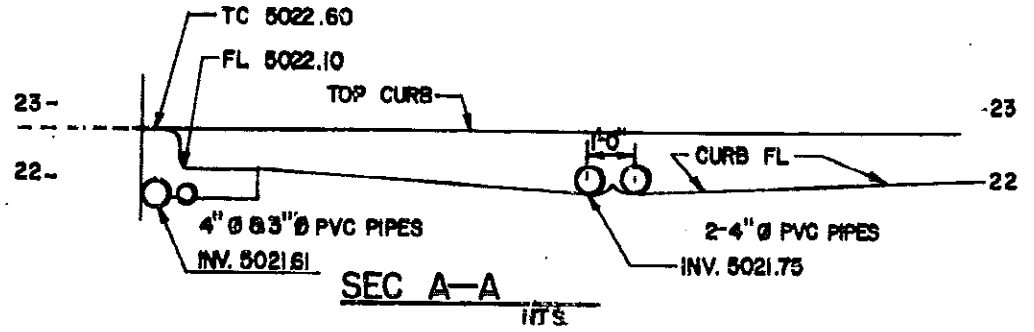
APPROVALS	ENGINEER	DATE
A.C.E. / DESIGN		
INSPECTOR		
A.C.E. / FIELD		

TITLE
REGINA HALL DRAINAGE PLAN
PLAN - SW CORNER PARKING LOT

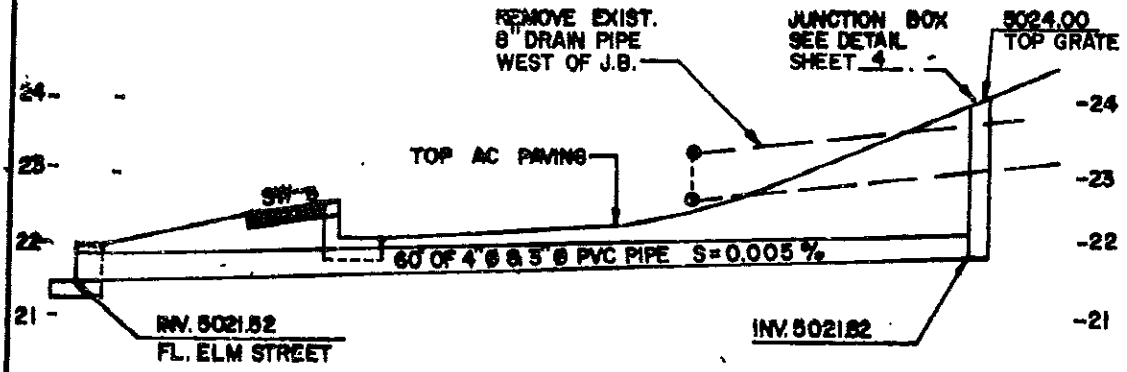
PROJECT NO. 2 OF 4

MAP NO.

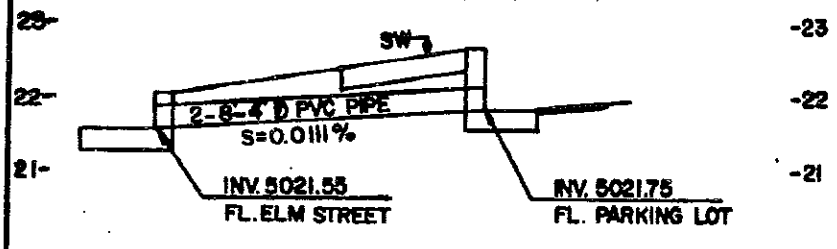
DRAINAGE FACILITY WITHIN CITY RIGHT-OF-WAY



SEC A—A
N.T.S.



SEC B—B
N.T.S.



SEC C C
N.T.S.

CITY OF ALBUQUERQUE

APPROVALS	ENGINEER	DATE
A.C.E. / DESIGN		
INSPECTOR		
A.C.E. / FIELD		

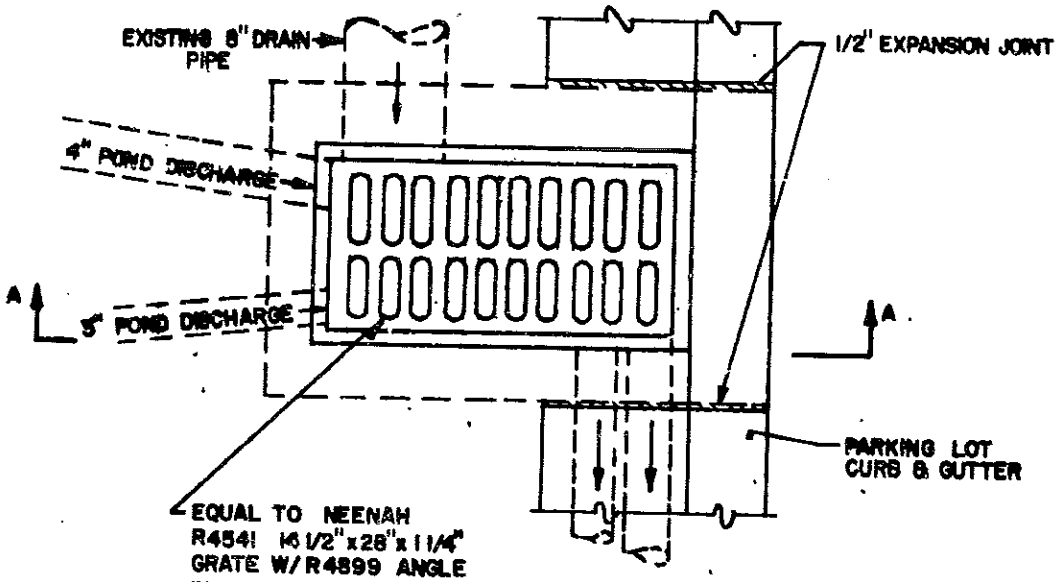
TITLE
REGINA HALL DRAINAGE PLAN
PIPE CROSS SECTIONS

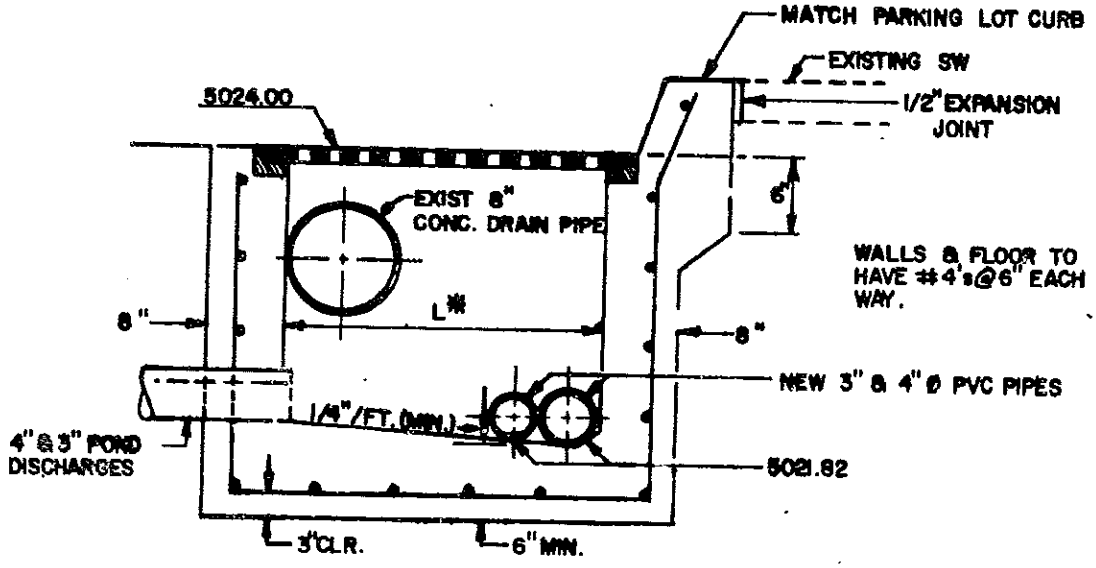
PERMIT NO.

SHEET 3 OF 4

MAP NO.

DRAINAGE FACILITY WITHIN CITY RIGHT-OF-WAY





* LENGTH AND WIDTH OF INSIDE OF BOX TO EQUAL INSIDE DIMENSIONS OF ANGLE FRAME.

CITY OF ALBUQUERQUE

APPROVALS	ENGINEER	DATE	TITLE
A.C.E. / DESIGN			REGINA HALL DISCHARGE PLAN JUNCTION BOX DETAILS
INSPECTOR			
A.C.E. / FIELD			PERMIT NO. / SHEET 4 OF 4 / MAP NO.