

# DRAINAGE INFORMATION SHEET

PROJECT TITLE Royal Oak - Unit 2 ZONE ATLAS/DRAINAGE FILE # F-22-D15C

LEGAL DESCRIPTION: Tract B-1-A Replat of a portion of La Vista Grande, Unit 11  
Block 14, Block 5, and Tract B-1

CITY ADDRESS: NONE

ENGINEERING FIRM: NONE CONTACT: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ PHONE: \_\_\_\_\_

OWNER: Aico-Wood, a joint venture CONTACT: Kleston H. Laws

ADDRESS: P.O. BOX 35850; Albuq., NM 87176 PHONE: 881-1804

ARCHITECT: NONE CONTACT: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ PHONE: \_\_\_\_\_

SURVEYOR: A & E ENGINEERING CONTACT: John Esquibel

ADDRESS: 1330 San Pedro NE; Albuq., NM 87110 PHONE: 266-8791

CONTRACTOR: NONE CONTACT: \_\_\_\_\_

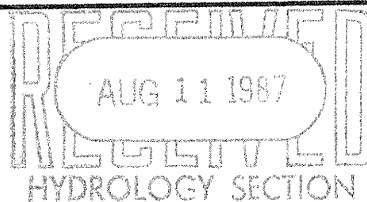
ADDRESS: \_\_\_\_\_ PHONE: \_\_\_\_\_

PRE-DESIGN MEETING:

☐ YES

☐ NO

☐ COPY OF CONFERENCE  
 RECAP SHEET PROVIDED



DRB NO. DRB 87-378

EPC NO. SD-78-1-5/Z-78-15-1

PROJECT NO. \_\_\_\_\_

TYPE OF SUBMITTAL:

☒ DRAINAGE REPORT

☐ DRAINAGE PLAN

☐ CONCEPTUAL GRADING & DRAIN PLAN

☐ GRADING PLAN

☐ EROSION CONTROL PLAN

☐ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

☐ SECTOR PLAN APPROVAL

☐ SKETCH PLAT APPROVAL

☒ PRELIMINARY PLAT APPROVAL

☐ SITE DEVELOPMENT PLAN APPROVAL

☐ FINAL PLAT APPROVAL

☐ BUILDING PERMIT APPROVAL

☐ FOUNDATION PERMIT APPROVAL

☐ CERTIFICATE OF OCCUPANCY  
 APPROVAL

☐ ROUGH GRADING PERMIT APPROVAL

☐ GRADING/PAVING PERMIT APPROVAL

☐ OTHER \_\_\_\_\_ (SPECIFY)

DATE SUBMITTED: \_\_\_\_\_

BY: Kleston H. Laws



# City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

F22/D15

October 4, 1991

## PROJECT ACCEPTANCE LETTER

Mr. Tom McConnell  
J.R. Hale Contracting Company, Inc.  
P.O. Box 25667  
Albuquerque, NM 87125

RE: LA VISTA GRANDE, PHASE III, PROJECT NO. 4010.90

Dear Mr. McConnell:

The above referenced project has been completed according to the plans and specifications. The project consisted of the construction of a new street, new sanitary sewer line with service lines to each lot, water service lines from existing water main and curb and gutter. A small portion of the project consisted of drainage improvements.

The City of Albuquerque accepts the referenced project as a whole and the contractual correction period began September 20, 1991. The correction period on this project is for one (1) year.

Sincerely,

Brian L. Speicher, P.E.  
Chief Construction Engineer  
Public Works Department

BLS:kt

## **Drainage Report For Royal Oak Unit 2**

### **Purpose:**

The purpose of this report is to present hydrologic and hydraulic information for the proposed Royal Oak, Unit 2 containing 58 lots on Tract B-1-A of the Replat of a portion of La Vista Grande, Unit II, Block 14, Block 5 and Tract B-1. Information is provided for the proposed drainage outlet to Bear Canyon Arroyo.

### **Location:**

The proposed subdivision is located west of Tramway Boulevard and south of Spain Road, shown on zone atlas map F-22 and the vicinity map on page 2 of this report.

### **Hydrology:**

Peak flow rates were determined by means of the Rational Formula for the 100-year Storm, using the methods presented in the Development Process Manual, Volume 2 - Design Criteria.

### **Other Reports:**

This property has been discussed in the Academy/Tramway/Eubank Sector Development Master Storm Water Conveyance Study by Community Science Corporation; by the Drainage Report for AICOWOOD Subdivision by Bohannon-Huston; and the Drainage Report for the Site Development Plan (F-22-D15C). In addition, Bear Canyon Arroyo was reviewed in a flood plan study by Wilson & Company and by Leedshill-Herkenhoff. All of these reports are in the City of Albuquerque files.

### **Exiting Drainage:**

Major runoff from the east has been diverted by the diversion channel west of Tramway Boulevard, Project 2260, accepted by AMAFCA (Appendix pages 1 and 2). South of the property is Bear Canyon Arroyo.

Project Location



200' 0' 100' 0' 0' SCALE

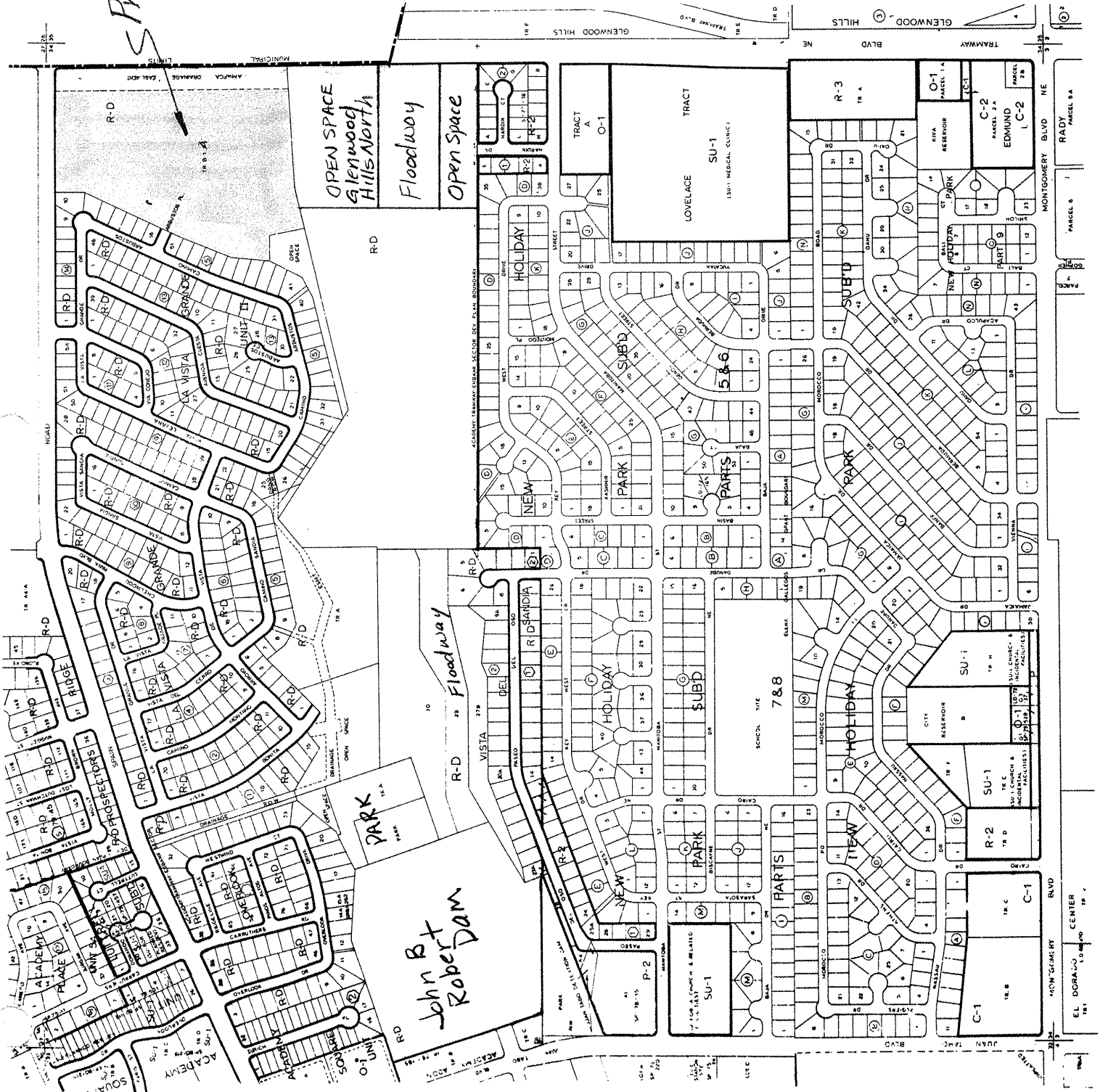
LEGAL DESCRIPTION  
T 11 N  
R 4 E  
SEC 34

UNIFORM PROPERTY CODE  
1-022-081

MAP ADDED THROUGH  
JUNE 1983

**F-22-Z**

ALBUQUERQUE PLANNING DIVISION  
MUNICIPAL DEVELOPMENT DEPARTMENT



VICINITY MAP

The Leedshill-Herkenhoff report contains methods of reducing erosion in this arroyo and defines the prudent limits of erosion. Areas west of the property are drained by City Streets to a pipe outlet which discharges into Bear Canyon Arroyo. This outlet was constructed as part of Project No. 1189, accepted by the City on May 8, 1985 (Appendix page 3). Areas north of the project are drained by Royal Oak and Peppertree Subdivision and Spain Road.

No offsite drainage flows onto this project. The only offsite drainage which effects the property is Bear Canyon Arroyo discussed by Wilson & Co. and Leedshill-Herkenhoff. The project location is shown on a floodway map (Appendix page 4). Fill for the proposed subdivision will begin at the edge of the 100-year flood plain as defined by Wilson & Co. (F-22-D15C). All the lots will be kept out of the limits of erosion as defined by Leedshill-Herkenhoff.

49 cfs  
revised

The onsite undeveloped flows from the property is 34 cfs in the 100-year storm and flows to the Bear Canyon Arroyo (Table 1, page 4).

#### Developed Drainage:

Since no offsite flows enter the property, the developed drainage is all onsite. Plate 1 shows the drainage areas to each intersection. The peak 100-year flows are shown in Tables 2 and 3. The information supporting the base information in Tables 2 and 3 is contained in the Appendix, beginning on page 6. Street flow depths and capacities are taken from the graph in the Appendix on page 11.

Table 3 shows the streets can adequately handle the developed 100-year flows. The Appendix, beginning on page 12, outlines two methods of taking the onsite flows safely to Bear Canyon Arroyo floodway.

? <sup>etc</sup> There alternates will be carefully reviewed for more detail and cost as the detailed plans are developed for the proposed subdivision.

infrastructure  
listings

? The rear yards will be drained by drainage swales with openings in walls to allow flows to reach the streets. No onsite ponding is proposed. John B. Robert Dam immediately downstream will provide retention of this site, and Bear Canyon Arroyo can handle the increased flows.

Private  
drainage easement

Three areas flow off this site by means other than the storm drain. Area A flows into Spain Road, which has a minimum slope of 3.6% to the storm inlet. This would create a flow depth of 0.23 feet in the gutter and encroach on the pavement 4 feet. Since Spain Road receives no flow from the subdivision to the west of the project, the street and drainage capacity is adequate.

Area B flows through La Vista Grande Unit II and is handled adequately by Camino Arbustos. When the peak flow from Area B is added to the peak flow in the Bohannon-Huston report for the AICOWOOD Subdivision, Camino Arbustos will flow 0.60 feet deep at a velocity of 9 feet per second.

Area C is the embankment slope and will flow directly into Bear Canyon Arroyo. ?

All flows from the developed area are properly conveyed to an adequate outlet. Therefore, the subdivision should be approved and developed.

#### **Conclusion:**

The proposed single-family units can be safely developed and 100-year flow can be safely conveyed to proper discharge points by streets and drainage conveyance as proposed in this report.

TABLE 1

# PROJECT

Mr F-22

### Pre development conditions

[illegible]

5

# Royal Oaks Unit 2

PROJECT

TABLE 2

Areas contributing to off site flows

| AREA<br>SYMB | A<br>ACRES | C   | AC  | ΣAC | T<br>MIN. | I<br>in/hr | Q<br>cfs | SLOPE<br>% | LENGTH<br>ft. | VEL.<br>ft./sec | ΔT<br>min | ALLOW<br>Q | NOTES                                       |
|--------------|------------|-----|-----|-----|-----------|------------|----------|------------|---------------|-----------------|-----------|------------|---------------------------------------------|
| A            | 0.56       | .57 | .32 | .31 | 10        | 5.65       | 1.8      |            |               |                 |           |            | Flows to Spain Road                         |
| B            | .72        | .56 | .41 | .40 | 10        | 5.65       | 2.3      |            |               |                 |           |            | Flow through Unit 2 to Improved outlet      |
| C            | 2.49       | .34 | 1.0 | .85 | 10        | 5.65       | 4.8      |            |               |                 |           |            | slope drains directly to Bear Canyon Arroyo |
|              |            |     |     |     |           |            |          |            |               |                 |           |            | Revised Sept 16, 1967                       |

# Royal Oaks Unit 2

PROJECT

TABLE 3

Revised Sept, 1987

| AREA<br>SYMB | A<br>ACRES | C   | AC   | ΣAC   | T<br>MIN. | I<br>in/hr | Q<br>cfs | SLOPE<br>% | LENGTH<br>ft. | VEL.<br>ft./sec | ΔT<br>min | ALLOW<br>Q | NOTES                     |
|--------------|------------|-----|------|-------|-----------|------------|----------|------------|---------------|-----------------|-----------|------------|---------------------------|
| 1            | 2.19       | .56 | 1.23 |       | 10        | 5.65       | 7.0      | 1.5        |               |                 |           |            | street depth .32'         |
| 2            | 1.46       | .56 | 0.82 |       | 10        | 5.65       | 4.6      | 2.3        |               |                 |           |            |                           |
| Σ 1 to 2     |            |     |      | 2.05  | 10        | 5.65       | 11.6     | 2.3        |               |                 |           |            | street depth .36'         |
| 3            | 2.88       | .56 | 1.61 |       | 10        | 5.65       | 9.1      | 3.5        |               |                 |           |            | street depth .30 V= 4 fps |
| Σ 1 to 3     |            |     |      | 3.66  | 10        | 5.65       | 20.7     | 1.7        |               |                 |           |            | depth .42 V= 3.5 fps      |
| 4            | 1.52       | .56 | 0.85 |       | 10        | 5.65       | 4.8      | 1.9        |               |                 |           |            | depth .33 V= 3.0 fps      |
| Σ 1 to 4     |            |     |      | 4.51  | 10        | 5.65       | 25.5     | 1.4        |               |                 |           |            | depth .47 V= 3.8 fps      |
| 5            | 3.88       | .56 | 2.17 |       | 10        | 5.65       | 12.3     | 1.2        |               |                 |           |            | depth .38 V= 2.7 fps      |
| Σ 1 to 5     |            |     |      | 6.68  | 10        | 5.65       | 37.7     | 1.4        |               |                 |           |            | depth .52 V= 4.1 fps      |
| 6            | 1.46       | .56 | .82  |       | 10        | 5.65       | 4.6      | 1.4        |               |                 |           |            | depth .29 V= 2.3 fps      |
| Σ 1 to 6     |            |     |      | 7.50  | 10        | 5.65       | 42.4     | 1.4        |               |                 |           |            | depth .55 V= 4.5          |
| 7            | 4.49       | .56 | 2.51 |       | 10        | 5.65       | 14.2     | 2.1        |               |                 |           |            | depth .38 V= 3.41         |
| Total Area   |            |     |      | 10.01 | 10        | 5.65       | 56.6     |            |               |                 |           |            | sum to inlet              |

D. M. SWINBURNE, CHAIRMAN  
LIAM V. HERFORD, VICE-CHAIRMAN  
CES MCCOY, SECRETARY-TREASURER  
R. WARD MUNNICUTT, DIRECTOR  
REX FUNK, DIRECTOR

RICHARD E. LEONARD  
EXECUTIVE ENGINEER



**Albu que  
Metropolitan  
Arroyo  
Flood  
Control  
Authority**

P. O. BOX 25851 • ALBUQUERQUE, N. M. 87125  
TELEPHONE 684-2218

April 22, 1985

Mr. Kleston Laws  
Wood Bros. Homes  
P.O. Box 16019  
Albuquerque, NM 87191

RE: Tramway Channel Drop Structure

Dear Mr. Laws:

This is in reference to Scanlon and Associates letter of  
March 28, 1985.

AMAFCA accepts the project, as recommended. Enclosed is a  
copy of the Certificate of Completion, which was filed on  
April 19, 1985.

I apologize for the delay.

Sincerely,

Larry A. Blair  
Field Engineer

ic

cc: Scanlon & Associates  
The Wylie Corporation

## CERTIFICATE OF COMPLETION

By this document, the Albuquerque Metropolitan Arroyo Flood Control Authority, a political subdivision of the State of New Mexico, hereby does certify that all permanent channel construction and related facilities on the west side of Tramway Boulevard, and within that certain easement filed for public record in Bernalillo County, New Mexico, as Document 80-52332 on the 11 day of September 1980, have been completed. This Authority does, furthermore, assume the responsibility of operating and maintaining this facility.

The aforementioned easement is also included in the Replat of a portion of La Vista Grande Unit II, Block 14, Block 5 and Tract B-1 as filed for public record in Book C 25, Page 181 on the 18 day of December 1984.

Witness my hand and seal this 18 day of April 1985.

Richard E Leonard  
Richard E. Leonard, Executive Engineer  
Albuquerque Metropolitan Arroyo  
Flood Control Authority

STATE OF NEW MEXICO )  
 ) ss.  
COUNTY OF BERNALILLO )

The foregoing instrument was acknowledged before me this 18 day of April, 1985, by Richard E. Leonard, Executive Engineer of the Albuquerque Metropolitan Arroyo Flood Control Authority, a New Mexico municipal corporation, on behalf of said corporation.

My commission expires:

24 May 1988

Progen Flegel  
Notary Public

STATE OF NEW MEXICO  
COUNTY OF BERNALILLO

1985 APR 19 AM 11:47  
Misc 221A PG. 520  
DOLORES C. WALLER  
CO. CLERK & RECORDER  
Lora B. [Signature] DEPUTY

**City of Albuquerque**

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103



May 8, 1985

AICOWOOD  
P. O. Box 16019  
Albuquerque, New Mexico 87191

RE: City Project No. 1189

Gentlemen:

This is to certify that the City of Albuquerque hereby accepts Project No. 1189 as being completed according to construction specifications and accepts same. The project is more particularly described as follows:

Sewer mains & services, water mains & services, curb, gutter & paving in Vista Lejana, Via Conejo, La Vista Grande Drive from Vista Lejana to 74' west of Avenida Cuesta, and Arroyo De Vista from Vista Lejana to 135' west of Vista Lejana except for existing water main, sewer main and sewer services, La Vista Grande, Unit II, Phase I Subdivision. W.O. 1189.

Sincerely,

*C. D. Sheppard, P.E.*  
C. Dwayne Sheppard, P.E.  
City Engineer

HKB

CDS/fs

cc: Bohannon-Huston, Inc.

KNC, Inc.

William F. McNamara, Assistant City Engineer/Field

Jim Gill, Director/Water Resources

Dean Wall, Liquid Waste Engineer, Water Resources

Walter Nickerson, Engineering Div. Manager, Water Resources

Joe Martin, Director/Transportation

George Paul, Street Maintenance Engineer

Josie Gutierrez, New Meter Sales Clerk, Water Resources

Claudia Gallegos, Standby Charges Clerk, Water Resources

Denise Wilcox, Administrative Assistant, MDD/ENG

Greg Olson, Assistant City Engineer/Design

File

**MUNICIPAL DEVELOPMENT DEPARTMENT**

C. Dwayne Sheppard, P.E., City Engineer

ENGINEERING DIVISION

Telephone (505) 766-7467

3



# *City of Albuquerque*

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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

April 22, 1986

Kleston Laws  
AICO WOOD  
Post Office Box 16019  
Albuquerque, New Mexico 87191

RE: BANK PROTECTION ALTERNATIVES FOR BEAR CANYON ARROYO  
LA VISTA GRANDE UNIT III (F-22/D15C)

Dear Mr. Laws:

We have reviewed the alternatives and find the following protection schemes acceptable.

- A. Bank Protection
  - 1. Soil cement
  - 2. Rip rap
- B. Stilling Basin (Required for A1 & A2)
  - 1. Concrete
  - 2. Rip rap plunge pool
- C. Flood Control Channel
  - 1. Concrete lined with energy dissipator
  - 2. Soil-Cement lined with energy dissipator

The flow diversion protection scheme should address the following:

- A. Approvals from the properties affected by the diversion of the channel.

MUNICIPAL DEVELOPMENT DEPARTMENT

ENGINEERING DIVISION

Telephone (505) 766-7467

AN EQUAL OPPORTUNITY EMPLOYER

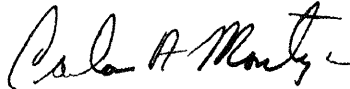
RECEIVED APR 24 1986

Kleston Laws  
April 22, 1986  
Page Two

- B. The impact downstream in diverting the flow as it effects new watersurface elevation, sedimentation transport, new concentration points, and impact on downstream properties.

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

Cordially,



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

CAM/bsj

Soils types (appendix pg 6) are EmB, TgB, & EtC

pg 76 of Soil Survey shows EmB, EtC to be hydrologic soil group B

pg 82 shows TgB to be group B, therefore all soils are Type B.

Time of concentration

high elev 69.5

low elev 35.0

Fall 34.5

length 1690

$$T_c = .0078 \frac{1690^{.77}}{.02^{.385}} = 10.7 \text{ min}$$

new  $T_c = \frac{1690}{60(1.9)} = 14.8$

Use  $T_c = 10 \text{ min}$  for this project.

Intensity:

From plate 22.2D-1 This project is located between 2.5 & 2.6 inch 6-hour rainfall use 2.6

From plate 22.2D-2  $I/6 = 2.17$

$$I = 2.6 \times 2.17 = 5.65$$

C Factor

| Estimated impervious area |      |
|---------------------------|------|
| size of heated area       | 3000 |
| garage                    | 500  |
| patio 10x12               | 120  |
| Driveway 20x25            | 500  |
| leadwalk 3.5x60           | 210  |
| TOTAL                     | 4330 |

$$58 \times 4330 = 251,140$$

$$\text{street length } 3210 \times 42 = 134,820$$

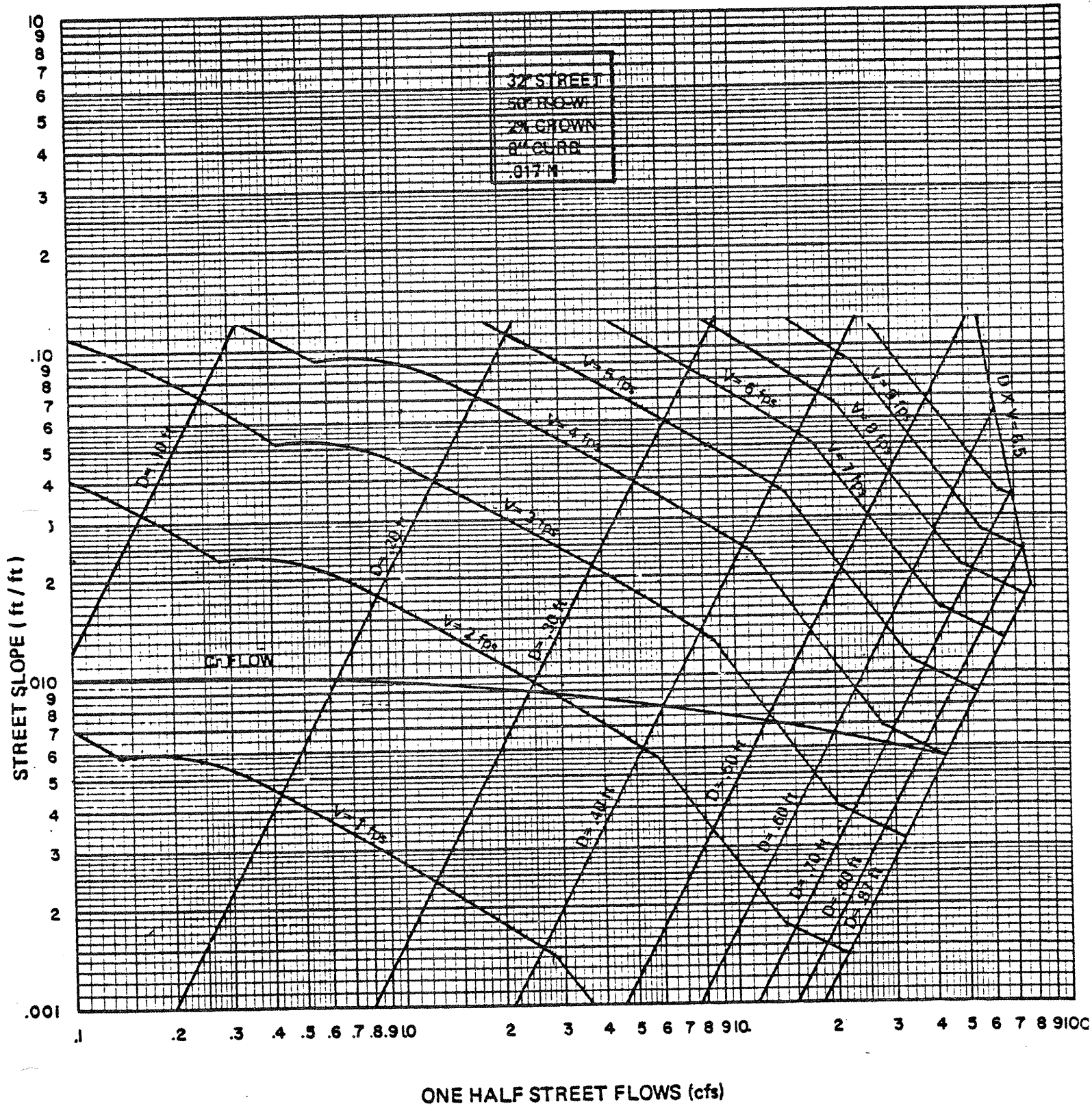
$$385,960 = 8.86 \text{ acres}$$

$$8.86 \times .95 = 8.4$$

$$10.31 \times .25 = 2.5$$

$$\frac{10.9}{19.17} = .57$$

## STREET CAPACITY



## Outlet

The total onsite flow to the outlet is 57.6 cfs. If flowing in a street at 1% slope the depth would be .65 feet, velocity of 4.5 and a velocity head of .31.

We propose to construct a large inlet to accept these flow, convey them down the slope in a concrete pipe, and dissipate energy in a structure.

The inlet opening can be determined by free flow or orifice flow into the inlet opening. First assume the water is standing in the street .65 feet deep. The flow into the Inlet would be as a broadcrested weir.

$$\text{Formula } Q = CLH^{3/2}$$

$$Q = 57.6$$

$$C = 2.64 \text{ King's Handbook Table 5-3}$$

$$H = .65$$

$$L = \frac{57.6}{2.64 (.65)^{3/2}} = L = 41.6'$$

Use an inlet of 42 ft wide.

If the inlet serves as an orifice the minimum water depth would be to the top of the inlet. King's Handbook Table 4-8 Figure F indicates a C value of .53

$$57.6 = .53(.5L) \sqrt{2g(.646)}$$

$$L = 33.11' \text{ the } 42' \text{ inlet is wide enough.}$$

The depth of the inlet will need to be adequate to provide inlet control and provide free fall through the inlet opening.

DPM section 22.3.D.2 show necessary head as  $1.2 \frac{V^2}{2g}$ . using a 30" pipe

$$V = \frac{57.6}{4.909} = 11.73 \quad \frac{V^2}{2g} = 2.14'$$

$$1.2(2.14) = 2.57 + 2.5 = 5.07$$

inlet needs to be 5.07 ft deeper than inlet opening.

If pipe acts as an orifice King's Handbook Table 4-11 lists  $C$  as .77

$$Q = C a \sqrt{2gh} \quad 57.6 = .77 (4.909) \sqrt{2gh}$$

$$h = 3.6 + \frac{1}{2} \text{ diameter } 1.25 = 4.85 \text{ ft}$$

We will use larger depth of 5.06 feet.

To create free fall for inlet the depth below gutter will be at least 5.5 feet since the curb face will be 10" the inlet needs to be 6.5 feet from the top of the inlet.

We propose to lay the pipe as flat as possible to the rear of the bts so the water line will not be exposed due to a deep pipe trench. Thus we will avoid the risk of the water pipe

14  
revised  
11 Sep.

breaking

The flattest slope required to handle the flow is:

$$V = \frac{1.486}{.013} R^{2/3} S^{1/2} \quad R = \frac{A}{P} = .63$$

$$11.73 = \frac{1.486}{.013} (.63)^{2/3} S^{1/2}$$

$$S^{1/2} = \frac{(11.73)(.013)}{1.486 (.73)} = .141$$

$$S = .01988$$

from the end of this flat section the pipe will be on a slope of 3:1 to 4:1. These slopes will create

a pipe flowing part full at high velocity. The exact number will be determined by the detailed design.

The previous report showed that pipes sloping from .09375 to .333 use the same size energy dissipator.

The same size dissipator will be used as outlined originally.

To create free fall for inlet the depth below gutter will be at least 5.5 feet.

We can run pipe parallel with ground surface to rear of lots

$$V = \frac{1.486}{.013} R^{2/3} S^{1/2}$$

$$R = \frac{A}{P} = \frac{4.909}{7.85}$$

$$R = .63$$

$$11.53 = \frac{1.486}{.013} (.63)^{2/3} S^{1/2}$$

$$S^{1/2} = \frac{(11.53)(.013)}{1.486 (.73)} = .14$$

$$S = .01904 \quad \text{use } .0192$$

From the end of the lots to the energy dissipator would slope 3:1 or .3333.

If the pipe straight grades from inlet to energy dissipator or 22.5 in 240 ft or .09375 slope.

Kings Handbook Table 7-14

$$Q = \frac{K'}{n} d^{8/3} S^{1/2}$$

$$56.6 = \frac{K'}{.013} 11.51 (.306)$$

$$K' = \frac{56.6 (.013)}{(.306) 11.51} = .2088$$

$$D/d = .47 \quad D = .47(2.5) = 1.17$$

table 7.4  $a = .3627(2.5)^2 = 2.27$

$$V = \frac{56.6}{2.27} = 24.97 \quad V^{2/29} = 9.68$$

If the .3333 slope were used

Kings Table 7-14

$$\frac{56.6 (.013)}{11.51 .57735}$$

$$K' = .1107$$

$$D/d = .333$$

$$D = .333 (2.5) = .83$$

$$\text{Table 7.4} = Q = .22885 (2.5)^2 \quad 1.43$$

$$V = \frac{56.6}{1.43} \quad 39.57 \quad V^2/g = 24.3$$

From Hydr 4

.3333 slope

$$y_e = \left(\frac{A}{2}\right)^{1/2} \frac{1.43}{2} .85$$

.09375 slope

$$\frac{2.27}{2} = 1.06$$

$$H_o = y_e + V^2/g \quad .85 + 24.3 = 25.15$$

$$9.68 + 1.06 = 10.74$$

$$Fr = \left(\frac{V_o}{g y_e}\right)^{1/2} = 7.56$$

$$4.27$$

from figure VIII-C-2

$$H_o/w = 3$$

$$H_o/w = 1.3$$

$$W = \frac{25.15}{3} = 8.38$$

$$\frac{10.74}{1.3} = 8.26$$

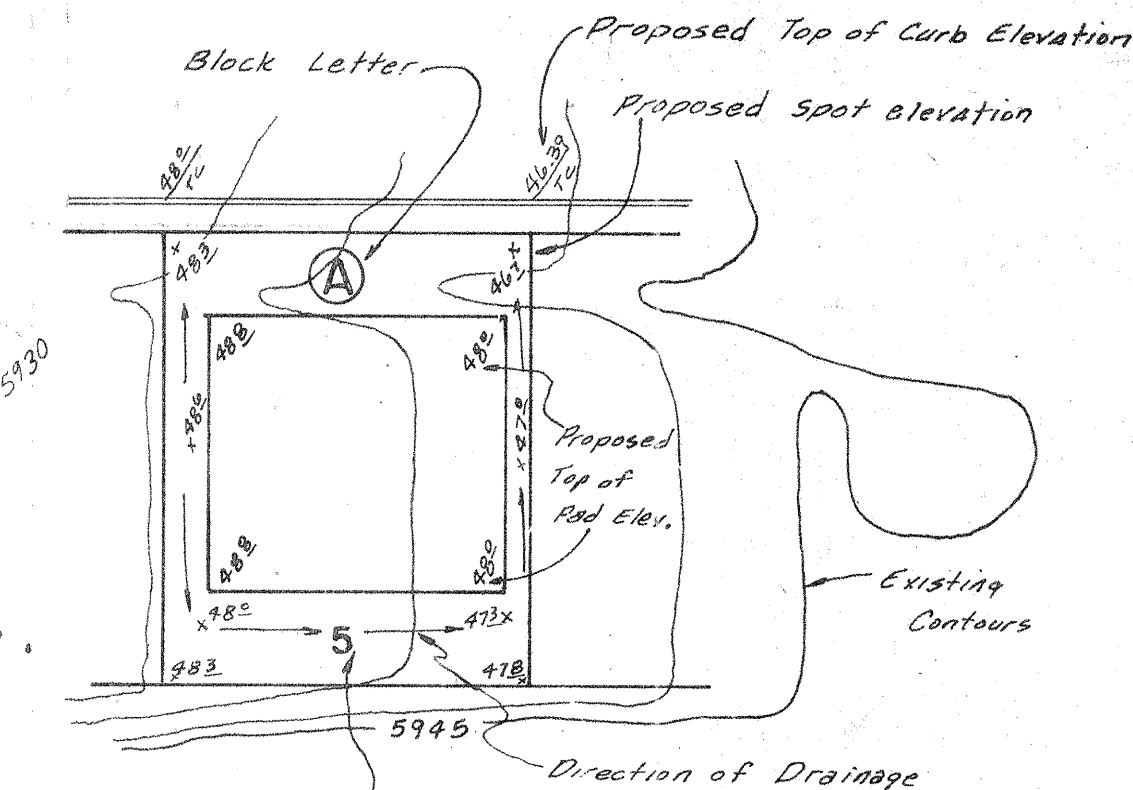
Table VIII-C-1 would indicate energy dissipator would be the same size for both pipes.

Either open channel or pipes can adequately handle flow. Plan details and costs will determine which to use.

# APPROVED FOR ROUGH GRADING

BY HYDROLOGY DEPT.

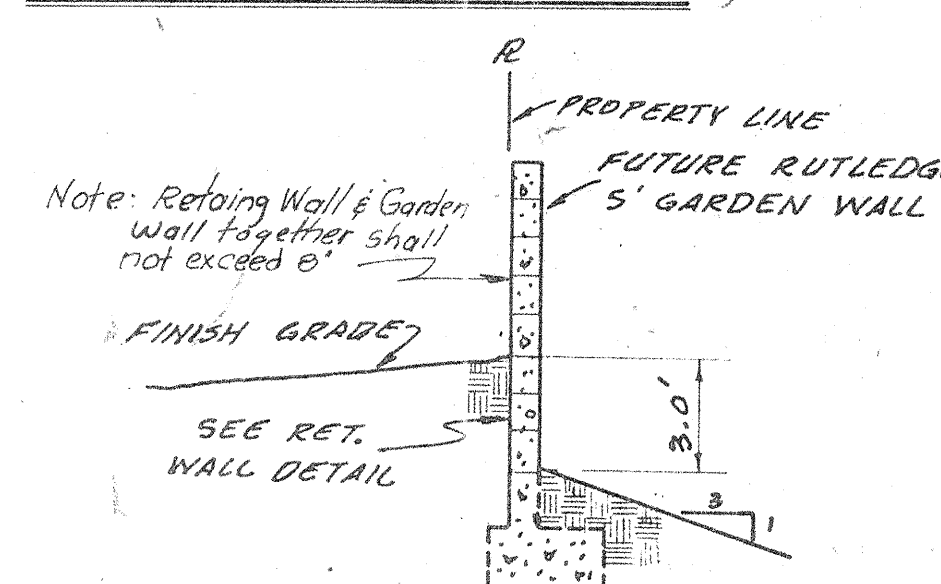
BY *Carl A. Blum* DATE 3-11-88



Finish Floor Elevation to be .50' Above Top of pad elevation.

Retaining Wall

## TYPICAL LOT LAYOUT



## SECTION B-B

TOOWOOD, A JOINT VENTURE  
BY DONALD D. MARTIN AND WILLA H. MARTIN, HUSBAND AND WIFE JOINT VENTURER  
DATE 12/23/87  
BY DONALD D. MARTIN  
WILLA H. MARTIN  
DATE 12/23/87

N.T.S.  
MARTIN DEVELOPMENT CORP., JOINT VENTURER  
BY DONALD D. MARTIN  
DATE 12/23/87  
ITS: PRESIDENT  
DATE 12/23/87

APPROVED BY:  
R.R. RUTLEDGE  
DATE 12-27-87  
BARBARA J. RUTLEDGE  
DATE 12-27-87

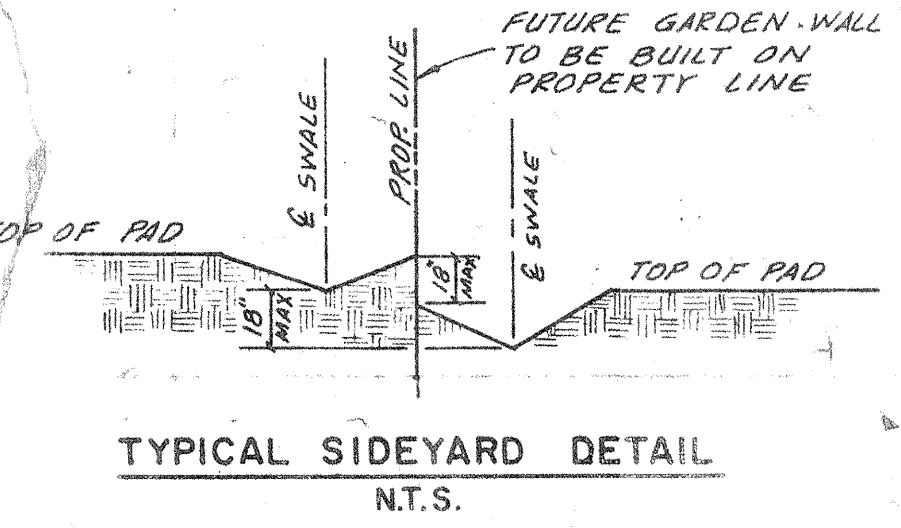
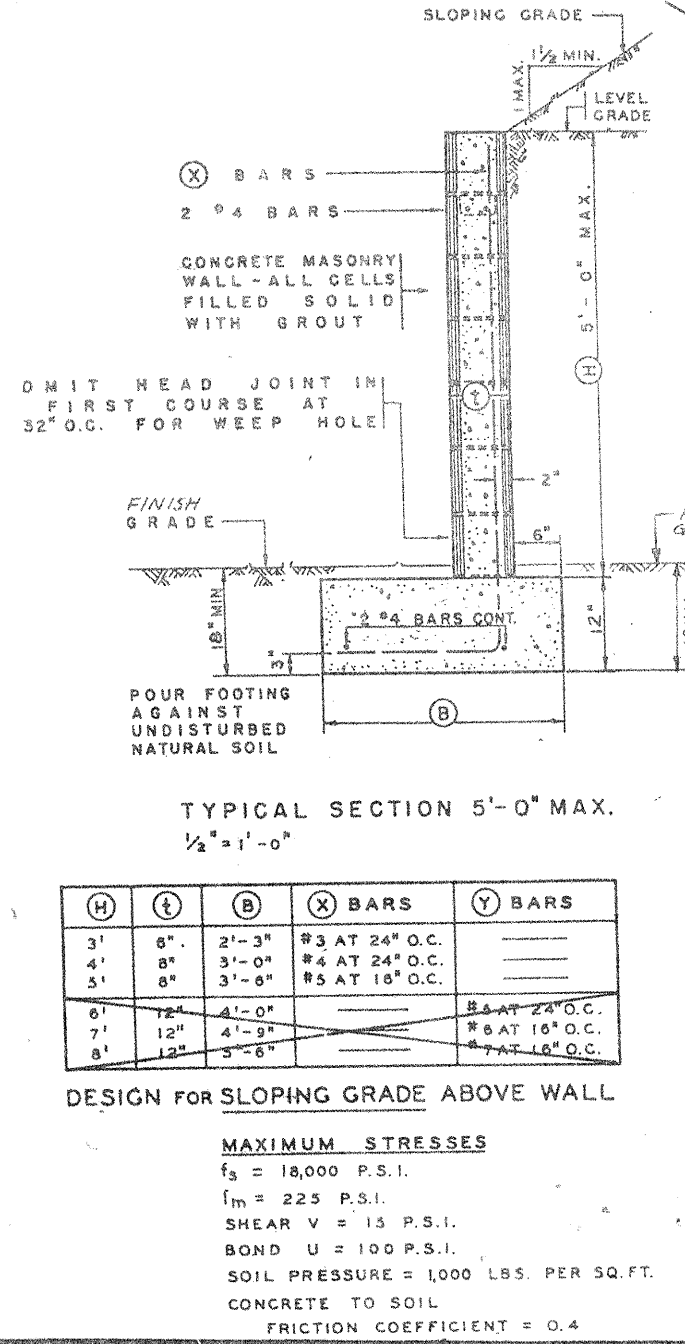
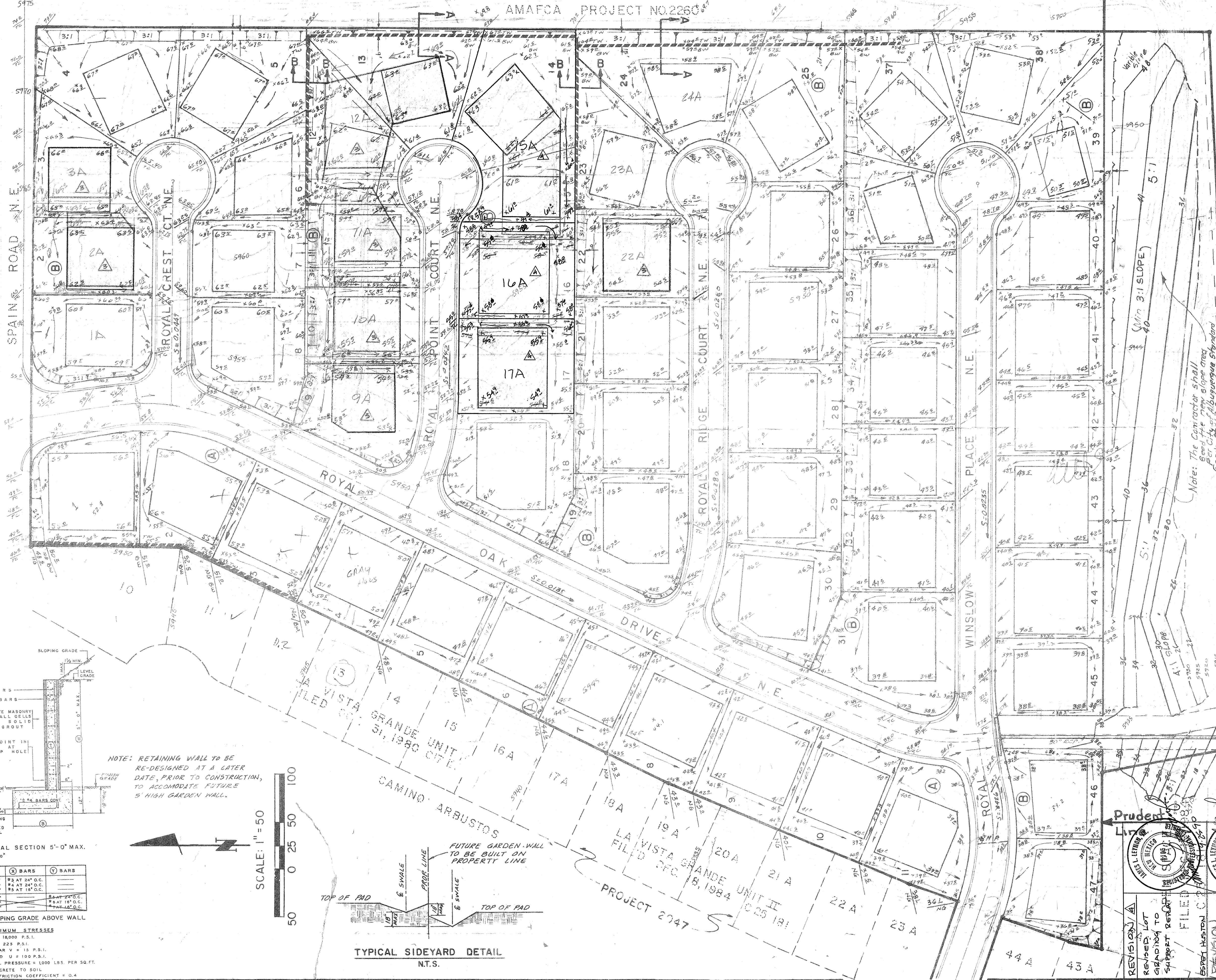
PROPERTY LINE  
DATE: 12-27-87  
RECEIVED DATE: 12-27-87  
FUTURE RUTLEDGE 5' GARDEN WALL  
VARIABLES:  
DATE: 12-27-87

APPROVED FOR ROUGH GRADING  
DATE: 3/28/88  
REVISOR: *John P. Blum*  
DATE: 7/27/90  
SEE RET. WALL DETAIL  
20.0' MIN. TO PAD  
FIN. GRADE

## SECTION A-A

REVISED GRADING 12-16-87  
REVISED GRADING 2-20-88  
CITY OF ALBUQUERQUE  
MUNICIPAL DEVELOPMENT DEPARTMENT  
ENGINEERING DIVISION 261800

| TITLE: ROYAL OAK, UNIT II GRADING PLAN |         |              | APPROVALS     |         |  |
|----------------------------------------|---------|--------------|---------------|---------|--|
| ENGINEER                               | DATE    | APPROVALS    | ENGINEER      | DATE    |  |
| City Engineer                          | 3/24/88 | Liquid Waste | FEBO          | 3/24/88 |  |
| A.C.E.-Design                          | "       | Traffic      | Adolph        | 3/24/88 |  |
| A.C.E.-Hydrology                       | 3-16-88 | Water        | REBO          | 3/24/88 |  |
| DRAWING NO. 3453                       |         |              | MAP NO. F-22  |         |  |
|                                        |         |              | SHEET 4 OF 16 |         |  |



Note: The Contractor shall build the new slope area per City of Albuquerque Standard Specs 101.3.2