

Sims, Timothy E.

---

From: Dourte, Richard H.  
Sent: Tuesday, September 28, 2010 9:44 AM  
To: Cherne, Curtis ; Sims, Timothy E.  
Cc: 'chuck@energy-associates.com'  
Subject: (12808 Piru SE)

{Chuck  
McKinney}  
821 - 0004

Curtis, Tim,

Please take a field visit to the site referenced above. A new driveway was paved and the drainage apparently runs onto the site to the south. Take pictures and get back to me on this, a drainage violation may be taking place here.

Make this an independent review, if there is a need to contact either one of the property owners, we will do this at a later date.

Thanks,

Richard

← 9-30-10

EAST HOUSE - CONCRETE.  
CANALIES w/ SLOPED DRIVE. ERODES. DIRT. DRIVE.

← 1:15.

6-22/2018







*Drainage Report  
for*

*Tijeras Heights  
Subdivison*



Goldberg · Mann & Associates

Engineers-Planners

911 Pennsylvania N.E.

Albuquerque, New Mexico 87110

## TABLE OF CONTENTS

PURPOSE AND SCOPE  
LOCATION AND DESCRIPTION OF PROJECT  
DESIGN CRITERIA  
EXISTING DRAINAGE CONDITIONS  
PROPOSED DRAINAGE CONDITIONS  
CONCLUSIONS  
CALCULATIONS

## LIST OF FIGURES

FIGURE 1. LOCATION MAP  
FIGURE 2. INTENSITY DURATION FREQUENCY CURVES  
FIGURE 3. TYPICAL LOT DRAINAGE  
FIGURE 4. DRAINAGE PLAN

## PURPOSE AND SCOPE

The purpose of this drainage plan is to establish the criteria for controlling surface runoff from a particular development in a manner that is acceptable to the City of Albuquerque and to the Albuquerque Metropolitan Arroyo Flood Control Authority.

This plan will determine the runoff resulting from a 100 year frequency storm falling on the site under existing and developed conditions.

The scope of this plan is to insure that the proposed project will be protected from storm runoff and that the construction of this project will not increase the flooding potential of the adjacent properties.

## LOCATION AND DESCRIPTION OF PROJECT

The Tijeras Heights Subdivision lies within Bernalillo County, and within Section 27, Township 10 South, Range 4 East. The northeast corner of the parcel is located within the corporate limits of the City of Albuquerque. Tijeras Heights is located on the south side of Piru Boulevard between Four Hills Mobile Home Park and Cañada Village.

The subdivision is  $\pm$  12.9 acres in size and will be developed as a single family residential subdivision. The parcel itself is relatively flat, however, it is situated atop a steep bluff overlooking the Tijeras Arroyo. This bluff slopes southward to the arroyo at approximately 35 percent. The vegetation is sparse and the soils are composed of decomposed granite.

## EXISTING DRAINAGE CONDITIONS

The existing topography (Figure 4) indicates a ridge line that divides the onsite flows into two drainage basins. Runoff flows northward from the ridge line, collecting in Piru Boulevard. Runoff flows southward from the ridge, down the embankment, and into the Tijeras Arroyo.

Recent development of the property to the north has greatly affected the nature of the offsite flows. Again referring to Figure 4, water blocks in Dorado Place and Nakomis Drive prevent flows from Four Hills Estates and Dorado Village Unit 4 from discharging into the east end of Piru. However; storm flows are conveyed through the development and finally discharge into Piru Boulevard near the west end of Tijeras Heights Subdivision. Tomlinson Drive carries the majority of the flow (220.8 cfs) and a drainage easement approximately 270 feet east of the intersection carries the remainder of the storm flow (64 cfs). Combining with this flow is the runoff conveyed westward in Piru Boulevard (26.5 cfs). A storm water rundown structure, located within the Tijeras Heights Subdivision, is used to convey the accumulation of the storm runoff (304.4 cfs) down the embankment and into the Tijeras Arroyo.

The storm flows used above represent runoff from the 100 year storm and are taken from the "Drainage Report, Proposed Roberson - Presley Development, Dorado Village Tract 4 and Four Hills Estates" by Bohannon, Westman, Huston and Associates, February 1976.

## PROPOSED DRAINAGE CONDITIONS

The Drainage Plan for the proposed subdivision is shown in Figure 4. At the present time, the existing drainage structure, located in an easement east of Tomlinson Drive, releases concentrated storm flows into Piru Boulevard. In order to alleviate this problem, a drainage system will be constructed. A drop structure located north of Piru Boulevard and within the drainage easement will be constructed to intercept and introduce the storm flow into the system. The drop structure will be sized to convey 64 cfs. Inlet structures located in Piru Boulevard will be constructed to intercept the street flow and introduce the flow into the drainage system. The inlet structures will be sized to convey a total of 29 cfs. A conveyance system will be constructed to carry the flow under Piru Boulevard, through Tijeras Heights Subdivision, discharging into the existing storm water rundown structure. This system, consisting of underground conduits, open channels, or a combination of both, will be sized to convey 93 cfs (see calculations). At the discharge point, appropriate facilities will be constructed to divert the flow down the storm water rundown structure. All drainage facilities will be designed in accordance with the City of Albuquerque Standards.

Offsite flows conveyed southward in Tomlinson Drive will continue to cross Piru Boulevard and flow into the storm water rundown.

The lots within the subdivision will drain as shown in Figure 3. Runoff from the front of the lots will collect in Piru Boulevard, and then flow westward. Runoff from the rear lots will be allowed to flow over the embankment and directly into the Tijeras Arroyo.

### CONCLUSIONS

The following conclusions and recommendations are made for the development of Tijeras Heights Subdivision:

1. Drain all front yards to the street.
2. Drain all rear yards to the back, allowing runoff to flow over the embankment and into Tijeras Arroyo.
3. Construct a storm drain system to convey runoff from the offsite drainage easement in Four Hills Addition and from Piru Boulevard to the existing storm water rundown, located in Lot 28 of Tijeras Heights Subdivision.



## CALCULATIONS

### Undeveloped Flows

#### Area Draining to Piru Boulevard

$$\text{Area} = \pm 7.1 \text{ acres}$$

$$\text{Length} = 400'$$

$$\text{Slope} = 1.4\%$$

$$T_c^* = 18 \text{ min}$$

$$I = \frac{189}{25 + 18} = 4.40 \text{ inches/hour}$$

$$Q_{100} = (0.35)(4.40)(7.1) = 10.9 \text{ cfs}$$

#### Area Draining to Tijeras Arroyo

$$\text{Area} = \pm 5.8 \text{ acres}$$

$$\text{Length} = 80'$$

$$\text{Slope} = 12\%$$

$$T_c^* = 7 \text{ min.} \therefore \text{ use } 10 \text{ min}$$

$$I = \frac{189}{25 + 10} = 5.40 \text{ inches/hour}$$

$$Q_{100} = (0.35)(5.40)(5.8) = 11.0 \text{ cfs}$$

$$\text{Total Undeveloped Flow} = 21.9 \text{ cfs}$$

## Developed Conditions

### Area Draining to Piru Boulevard

#### Impervious Area

$$\text{House} = 70 \times 30 = 2100$$

$$\text{Driveway} = 18 \times 30 = 540$$

$$\text{Street and Sidewalk} = 20 \times 100 = \underline{200}$$

$$2840 \text{ s.f.} = 36\%$$

#### Pervious Area

$$80 \times 100 - 2840 = 5160 \text{ s.f.} = 64\%$$

$$\text{Total Area} = 8000 \text{ s.f.} = 100\%$$

#### Composite 'C' Factor

$$0.95 \times 0.36 = 0.34$$

$$0.35 \times 0.64 = \underline{0.22}$$

$$0.56$$

$$\text{Area} = 2950 \text{ feet} \times 80 \text{ feet} = 236,000 \text{ sq. ft.} = 5.4 \text{ acres}$$

$$Q_{100} = (0.56)(4.40)(5.4) = 13.3 \text{ cfs}$$

### Area Draining to Tijeras Arroyo

#### Impervious Area

$$\text{House} = 70 \times 30 = 2,100 \text{ s.f.} = 17\%$$

#### Pervious Area

$$12,500 - 2,100 = 10,400 \text{ s.f.} = 83\%$$

$$\text{Total Area} = 12,500 \text{ s.f.} = 100\%$$

Composite 'C' Factor

$$0.95 \times 0.17 = 0.16$$

$$0.35 \times 0.64 = \underline{0.22}$$

$$0.38$$

$$Q_{100} = (0.38)(5.40)(5.8) + (0.38)(4.40)(1.7) = 13.7 \text{ cfs}$$

Total Developed Flow

$$= 27.0 \text{ cfs}$$

Pipe Sizes

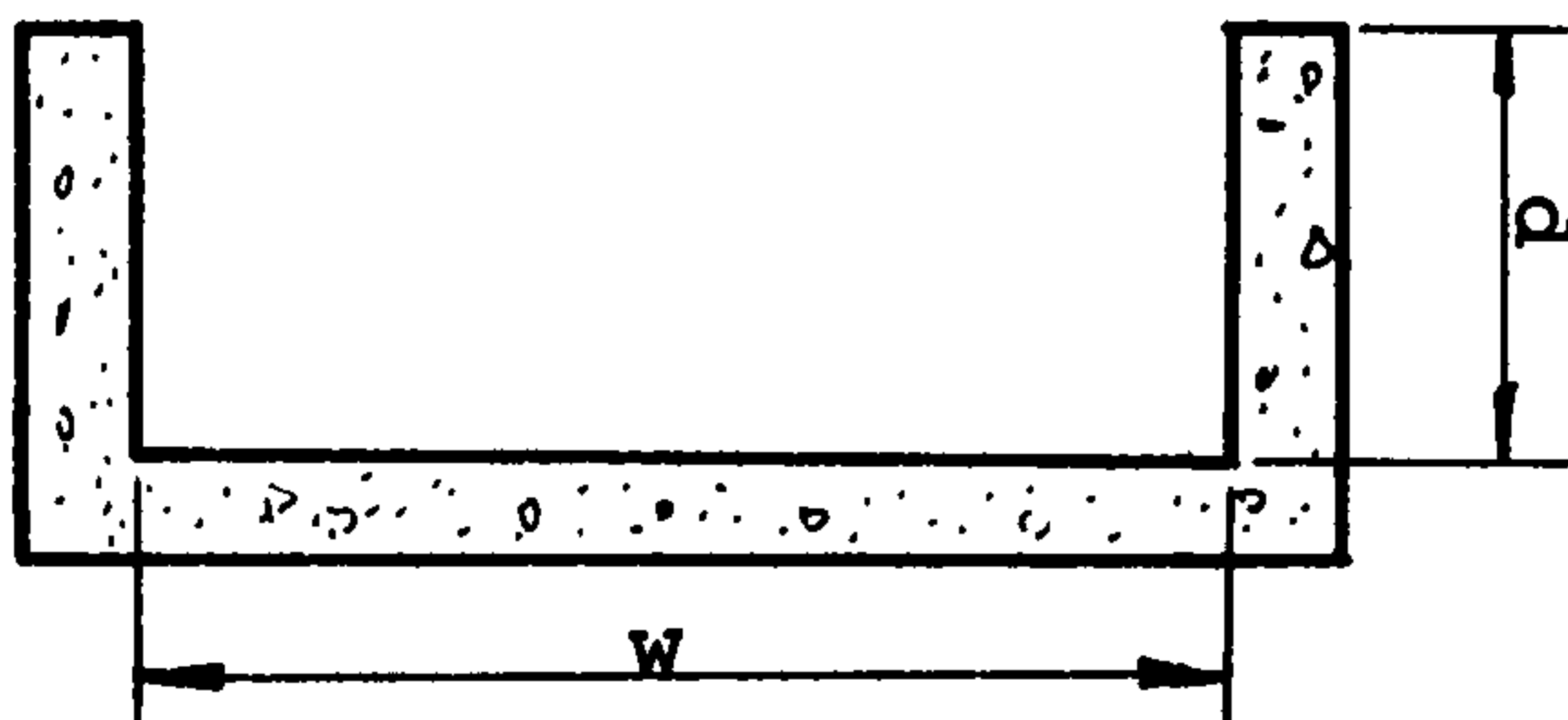
$$Q = 93 \text{ cfs}$$

$$S = 0.010$$

$$n = 0.013$$

$$d = 42"$$

Open Channel Sizes



$$Q = 93 \text{ cfs}$$

$$S = 0.010$$

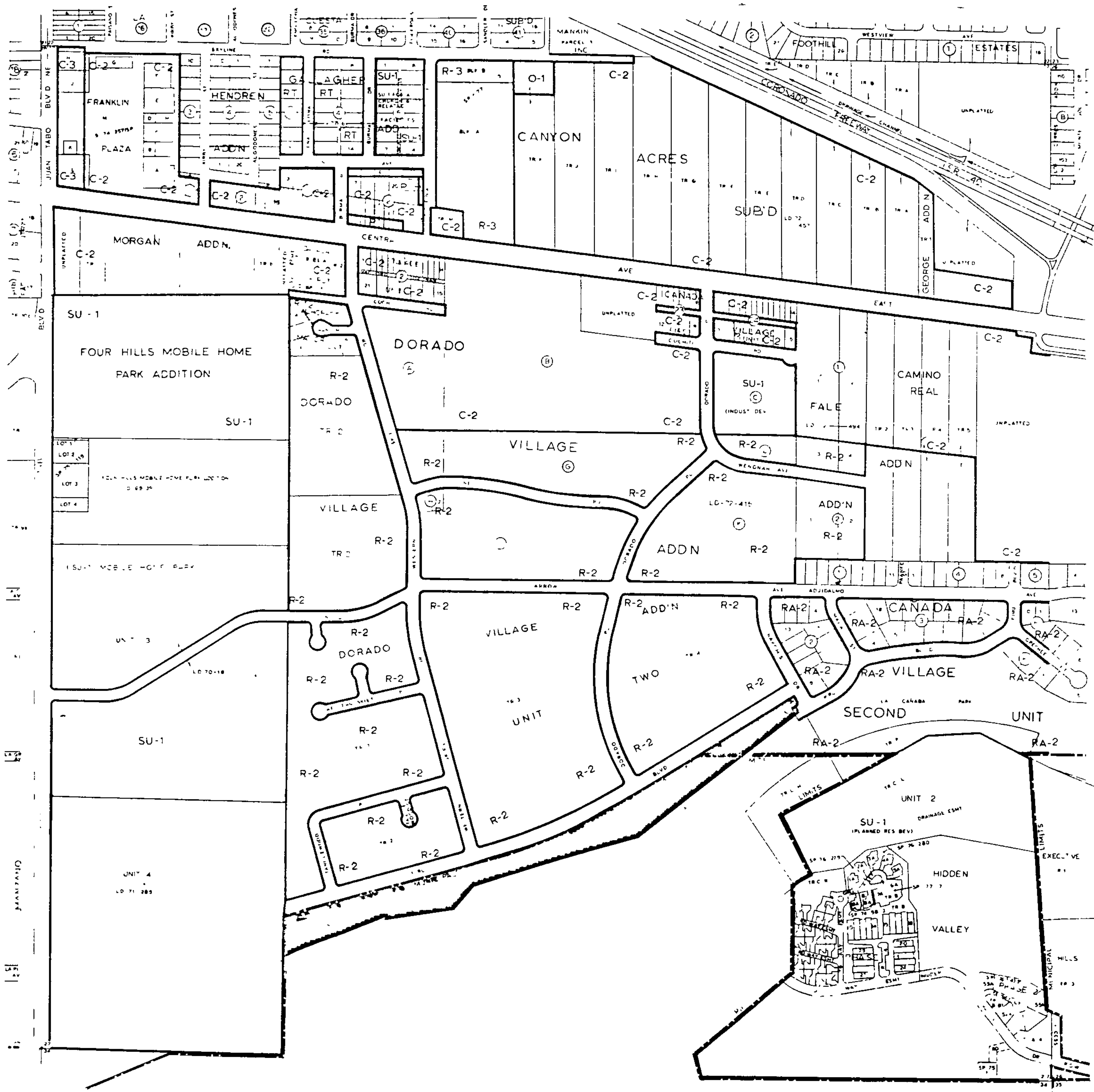
$$n = 0.014$$

w	d	velocity
3'	3.0'	10.6 ft./sec.
4'	2.2'	10.9 ft./sec.
5'	1.8'	10.9 ft./sec.



FIGURE 1.  
LOCATION MAP

DATE  
RECEIVED



ALBUQUERQUE PLANNING DEPARTMENT  
UNIFORM PROPERTY CODE  
-012-056

MAP AMENDED THROUGH

**L-22-7**  
ALBUQUERQUE PLANNING DEPARTMENT

APPLICANT

NAME: Don Hanosh  
ADDRESS: P.O. Box 502  
Albuquerque, NM  
PHONE: 242-2636  
SIGNATURE: \_\_\_\_\_

LOCATION OF PARCEL

LOT NO: N/A BLOCK NO: N/A  
SUBDIVISION: N/A  
STREET ADDRESS: Piru Blvd. S.E.  
CURRENT ZONING: A-1

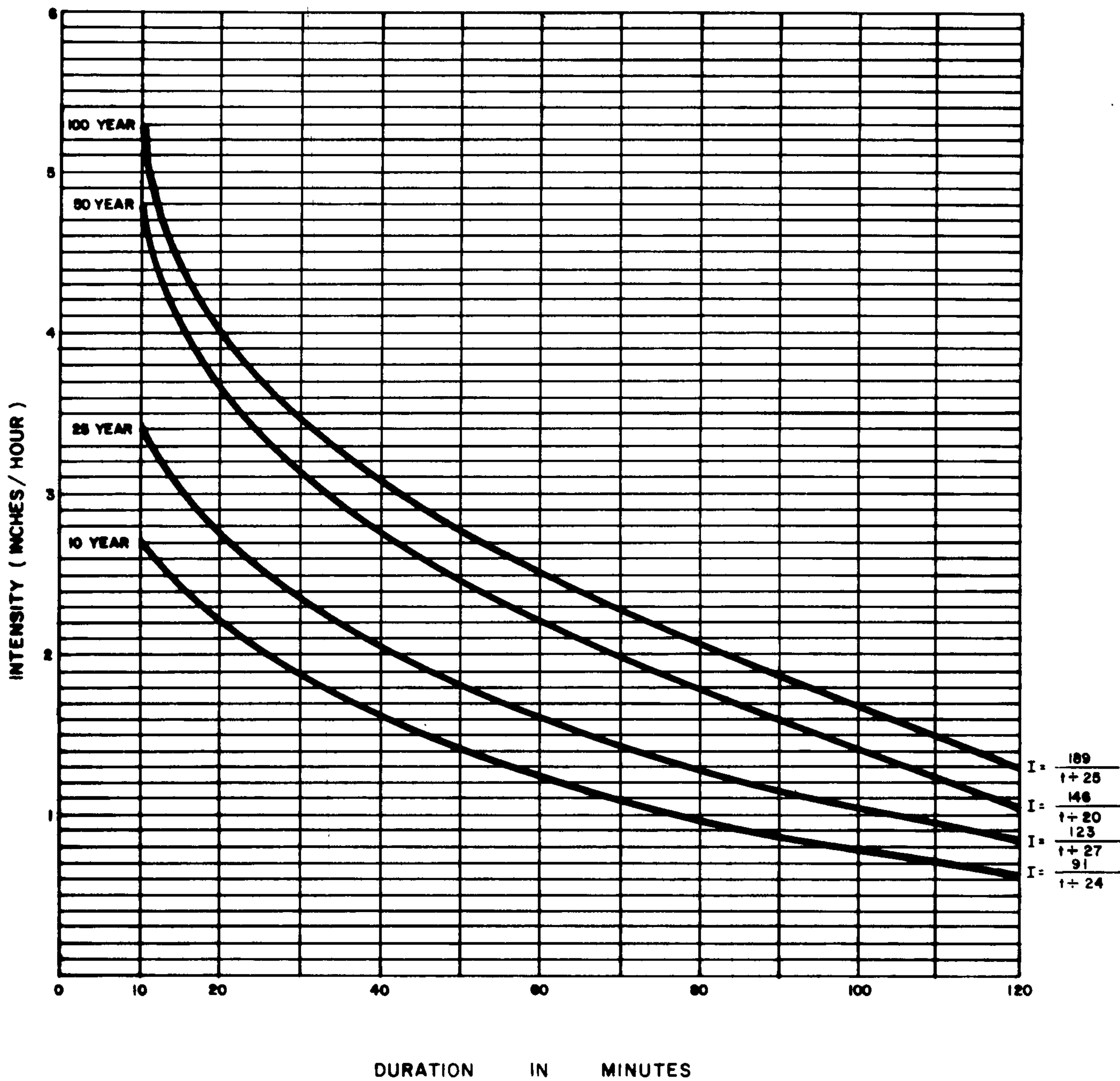
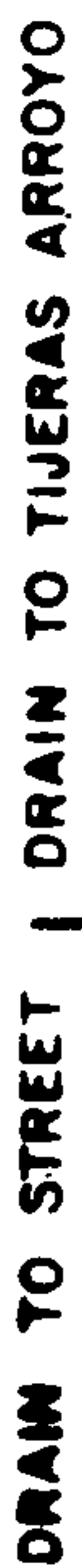


FIGURE 2

INTENSITY DURATION  
FREQUENCY CURVES



— — — — — PROPERTY LINE  
 — — — — — STREET CENTERLINE

## TYPICAL LOT DRAINAGE





# City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

November 20, 1978

L22-D18

Mr. Don L. Hanosh  
1400 Stagecoach Rd. S.E.  
Albuquerque, N.M. 87123

Subject: Test Turnkey Project Work Authorization #T-27  
TIJERAS HEIGHTS SUBDIVISION

Dear Mr. Hanosh:

Under the provisions of the Test Turnkey Project procedures, this letter is the Work Authorization to begin field work on the project.

Sincerely,

C. D. Sheppard  
Acting City Engineer

CDS/fs

cc - H. R. Orr  
Kent Nowlin Construction Co.  
Ray Dawson  
Water Resources  
Dwayne Sheppard  
Bob Kielich  
LaMonte Urban  
✓ Bruno Conegliano  
Bill Mueller  
Jim Wilson - Traffic Engineering



# Goldberg · Mann & Associates

Engineers · Planners

911 Pennsylvania St. Albuquerque, New Mexico 87110

(505) 265-3521

8-13

July 11, 1978

Mr. Richard Leonard,  
Executive Engineer  
2600 Prospect, NE  
Albuquerque, NM

Re: Drainage Plan for Tijeras Heights Subdivision

Dear Mr. Leonard:

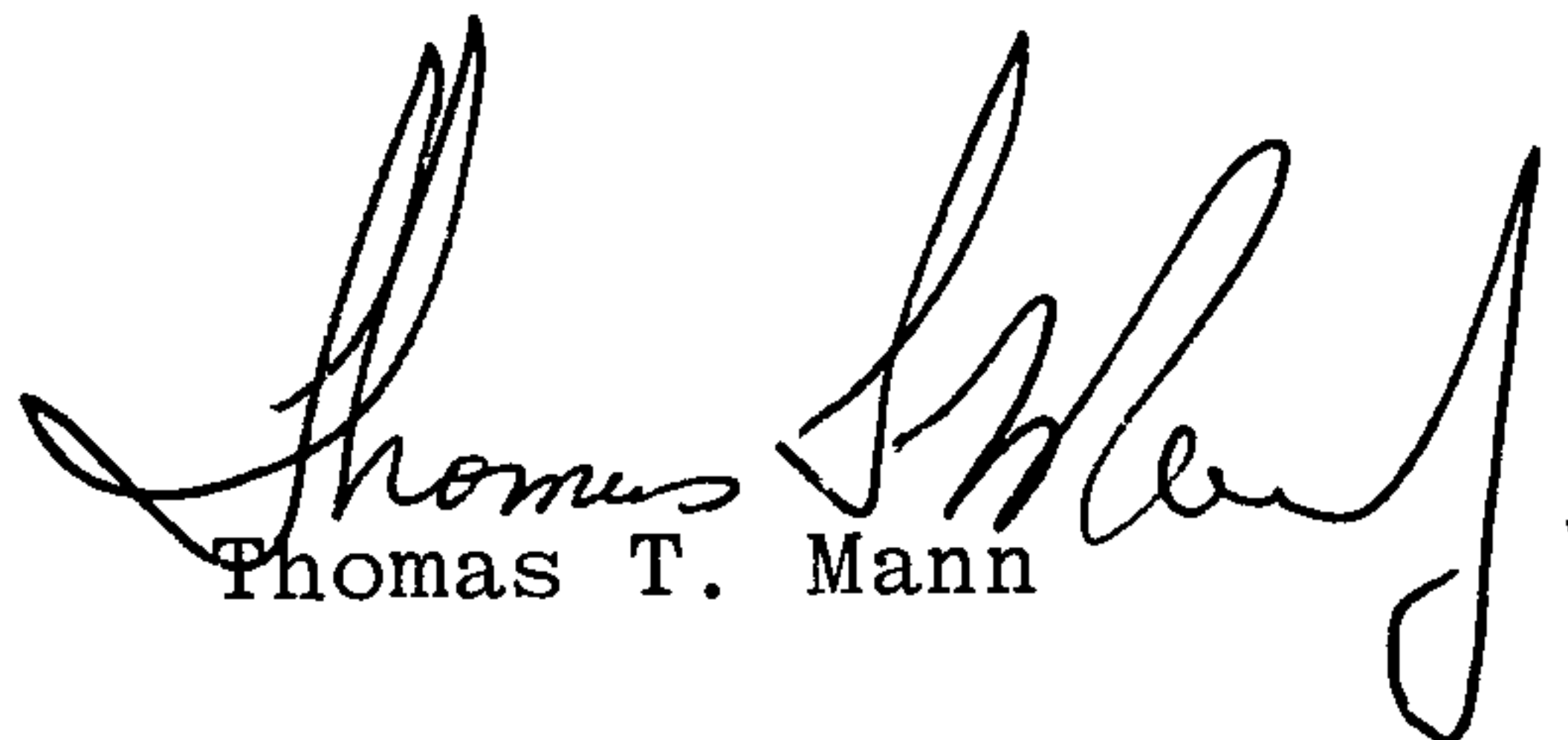
This letter is to confirm the meeting on Monday, July 10, 1978, between Mssrs. Leonard, Conegliano, W. Smith, and Mann. The meeting was in response to a letter dated July 6, 1978, from Mr. Conegliano to Mr. Mann requesting additional restrictions on the drainage plan for Tijeras Heights Subdivision.

It was agreed that:

1. A note will be placed on the final plat stating - "All front yards and roofs shall drain to Piru Blvd. and drainage from rear yards shall not form a concentrated discharge but shall remain as sheet flow when draining to the arroyo".
2. The developer will not dedicate the flood plain to AMAFCA at this time.
3. The developer intends to retain the bank of the arroyo as open space.
4. AMAFCA concurs with the drainage plan as submitted and modified herein.

Your signature below will indicate your concurrence with the above.

Thank you.

  
Thomas T. Mann

TTM:alo

  
Richard Leonard



# Goldberg · Mann & Associates

Engineers · Planners

911 Pennsylvania St.

Albuquerque, New Mexico 87110

(505) 265-3521

May 17, 1978

Mr. Don L. Hanosh  
P.O. Box 502  
Albuquerque, NM 87110

Re: Tijeras Heights

8-13

We are herewith transmitting three (3) copies of the drainage plan for the Tijeras Heights Subdivision.

This plan is in accordance with the requirements of the City of Albuquerque and Resolution 1972-2, Albuquerque Metropolitan Arroyo Flood Control Authority.

We have enjoyed working with you on this project and look forward to future opportunities to assist you.

Yours sincerely,

Thomas T. Mann, Jr., P.E.  
President

djv

Enclosure





# *City of Albuquerque*

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

---

July 6, 1978

Tom Mann  
Goldberg-Mann & Assoc.  
911 Pennsylvania St., NE  
Albuquerque, New Mexico 87110

RE: Tijeras Heights

Dear Mr. Mann:

The drainage provision for Tijeras Heights Subdivision are generally acceptable except for the recommendation of allowing the runoff from the rear lots to flow over the embankment and directly into the Tijeras Arroyo. The discharge of the runoff into the Arroyo is not objectionable in itself, rather the possibility of gullying and erosion of the steep bank. For instance as shown on Figure 4 of the drainage report Lots 1,2,5,6 & 18 appear to be particularly susceptible to damages. I would therefore like to receive an addendum indicating a positive method of control of the potential erosion problem.

Please define also the status of the southern part of the property which covers the slope of the Tijeras Canyon Arroyo and part of the channel.

Very truly yours,

Bruno Conegliano  
Asst. City Engineer-Hydrology

cc; V.M. Kimmick  
Richard Leonard  
Drainage file