PLANS/PLATS ON FILE

FILE DESC: P-10/D002

PLANS/PLATS 2

Transmittal

RESOURCE TECHNOLOGY, INCORPORATED

From _____ 266-3320
7800 Marble Avenue NE, Suite 5
Albuquerque, New Mexico 87110

To: City Hydrology

Date: _____

Our Project No. _____

Attn: Carlos Montoya

Re: Larry Vigil West

IF MATERIAL RECEIVED IS NOT AS LISTED, PLEASE NOTIFY US AT ONCE

WE ARE SENDING YOU

- [x] ATTACHED
- [ ] UNDER SEPARATE COVER VIA
- [ ] SHOP DRAWINGS
- [ ] TRACINGS
- [ ] PRINTS
- [ ] CATALOGS
- [x] DOCUMENTS
- [ ] COPY OF LETTER
- [ ] SPECIFICATIONS
- [ ] _____

COPIES	DATE	ITEM
1	5/8/85	Drainage Report w/ drawings

RECEIVED
MAY 09 1985
HYDROLOGY SECTION

REMARKS This is a resubmittal of previous reports by others. A copy of this report has been provided to AMAFCA.

COPY TO Dan Sebo, AMAFCA

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Vigil West Subd. ZONE ATLAS/DRNG. FILE #: P-10/D2

LEGAL DESCRIPTION: Lots 4-5, Block 2, NW 1/4, Sec. 10, T9N, R2E

CITY ADDRESS: Bernalillo County

ENGINEERING FIRM: Resource Tech. Inc. CONTACT: Elridio Diniz

ADDRESS: 2800 Marble NE Ste. 5 PHONE: 266 3320

OWNER: Larry Vigil CONTACT: Same

ADDRESS: 906 Ortega NW PHONE: 898 6930

ARCHITECT: — CONTACT:

ADDRESS: PHONE:

SURVEYOR: Oliver Trujillo CONTACT:

ADDRESS: PHONE:

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

PRE-DESIGN MEETING:

___ YES

_X_ NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

RECEIVED MAY 09 1985 HYDROLOGY SECTION

DRB NO. —

EPC NO.

PROJ. NO.

DRB 84-56

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

___ DRAINAGE PLAN

_✓_ CONCEPTUAL GRADING & DRAINAGE PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ 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: 5/9/85

BY: E. D

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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

June 28, 1985

Mr. Elvidio Diniz
Resource Technology NE
7800 Marble Ave. NE, Suite 5
Albuquerque, NM 87110

RE: CONCEPTUAL PLAN FOR VIGIL WEST SUBDIVISION (P10/D2) RECEIVED MAY 9, 1985

Dear Mr. Diniz:

I have reviewed the referenced plan and forward the following comments:

1. Please indicate who will build the following facilities and when they will be built.

   a. Adjacent proposed roads & swales.
   b. Proposed improvements in the floodplain. Address the dip section, training dike, rip rap, channel excavation, and the two culverts.

2. Has the improvements been coordinated with county road department.

If you should have any questions, please contact this office at 766-7644.

Sincerely,

Carlos A. Montoya
City/County Flood Plain Admin.

CAM/cl

RESOURCE TECHNOLOGY, INCORPORATED

7800 MARBLE AVENUE NE, SUITE 5
ALBUQUERQUE, NEW MEXICO 87110
(505) 266-3320

July 8, 1985

RECEIVED
JUL 16 1985
DH0225
HYDROLOGY SECTION

Mr. Carlos A. Montoya
Design Hydrology Section
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: CONCEPTUAL PLAN FOR VIGIL WEST SUBDIVISION (P10/D2) RECEIVED MAY 9, 1985

Dear Carlos:

In response to your inquiry regarding the referenced drainage plan, we submit the following responses:

1a. The developer will build all proposed roads and swales.

b. The developer will build all proposed improvements in the flood plain.

2. All improvements will be coordinated with the Bernalillo County Road Department.

I hope that this letter is adequate to your needs; if not, please let me know.

Very truly yours,

Elvidio

Elvidio V. Diniz, P.E.
Principal Engineer

c.c. Larry Vigil

EVD/ec

DRAINAGE INFORMATION SHEET

PROJECT TITLE: VIGIL WEST SUBDIVISION ZONE ATLAS/DRNG. FILE #: P-10

LEGAL DESCRIPTION: LOTS 4 & 5 NW QUARTER, SECTION 10 TOWN OF ATRISCO GRANT

CITY ADDRESS:

ENGINEERING FIRM: RESOURCE TECHNOLOGY CONTACT: ELUIDIO DINIZ

ADDRESS: 7800 MARBLE NE STE 5 PHONE: 266-3320

OWNER: LARRY VIGIL CONTACT: LARRY VIGIL

ADDRESS: 906 ORTEGA NW PHONE: 898-2277

ARCHITECT: CONTACT:

ADDRESS: PHONE:

SURVEYOR: OLIVER TRUJILLO CONTACT: OLIVER TRUJILLO

ADDRESS: 221 AVALON PL NW PHONE: 836-0328

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

RECEIVED
JUL 16 1985
HYDROLOGY SECTION

PRE-DESIGN MEETING:

✓ YES

___ NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. ___

EPC NO. ___

PROJ. NO. ___

TYPE OF SUBMITTAL:

✓ DRAINAGE REPORT

___ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ 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: ___

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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

October 16, 1985

Mr. Elvidio Diniz
Resources Tech. Inc.
7800 Marble NE, #5
Albuquerque, NM 87110

REF: CONCEPTUAL DRAINAGE PLAN FOR VIGIL WEST SUBDIVISION (P10-D2) RECEIVED JULY 16, 1985

Dear Mr. Diniz:

I have reviewed the referenced plan and forward the following recommendation. Need to dedicate to the county the existing floodplain area. This area should not be developed till permanent improvements are made.

If you have any questions, please contact this office at 766-7644.

Sincerely,

Carlos A. Montoya
City/County Flood Plain Admin.

CAM/cl

cc: Richard Dineen, DRB Chairman
John Taschek
Bern. County Rd. Dept.

DRAINAGE REPORT

FOR

VIGIL WEST SUBDIVISION

prepared for

Mr. Larry Vigil
906 Ortega NW
Albuquerque, NM 87114

by

Resource Technology Incorporated
7800 Marble Avenue NE, Suite 5
Albuquerque, NM 87110

May 1985

DRAINAGE REPORT

FOR

VIGIL WEST SUBDIVISION

prepared for

Mr. Larry Vigil
906 Ortega NW
Albuquerque, NM 87114

by

Resource Technology Incorporated
7800 Marble Avenue NE, Suite 5
Albuquerque, NM 87110

May 1985

ELVIDIO DINIZ
NEW MEXICO
7111
REGISTERED PROFESSIONAL ENGINEER

PURPOSE

This report presents an analysis of existing and future conceptual drainage conditions for Lots 4 and 5 in Block 2 located within the Northwest Quarter of Section 10, Township 9 North, Range 2 East, Town of Atrisco Grant, Bernalillo County, New Mexico.

This report was prepared in accordance with the U.S. Soil Conservation Service criteria and the results were compared to those based on the Development Process Manual of the City of Albuquerque. The report includes the calculation of flows resulting from the proposed development, analysis of the off-site flows under present and future conditions, and determination of alternatives to handle these flows.

SITE LOCATION AND DESCRIPTION

As shown on the Location Map (Figure 1) the site lies west of Coors Boulevard SW, and approximately 800 feet west of the existing Hubbell Diversion Channel. It is bounded on the north by the proposed Barbara Vista Road SW, to the west by the proposed Grace Road SW, to the east by Meade Place SW (an existing unimproved dirt road), and on the south by Meade Avenue SW, which is also an unimproved existing dirt road. The site has a moderate slope to the southeast, with an elevation difference of about 12 feet from north to south, and about 5 feet from

No paved access

west to east.

There is an arroyo crossing the south portion of the site from west to east. This arroyo has been identified in the Flood Insurance Rate Map (FIRM); Figure 2 is a copy of a portion of this map. The 100-year floodplain for this arroyo includes a portion of the study area. Figure 3 shows the extent the floodplain in the vicinity of the study area for a flow depth of one foot, as indicated on the FIRM.

The soils within the study area are predominantly from the Madurez and Bluepoint Series, loamy sand with gravel and fine sandy loam. These soils are grouped in the SCS Hydrologic Groups A and B. Soils in off-site contributing areas are from the Bluepoint Series, all in Hydrologic Soil Group A.

Proposed development in the study area will include the subdivision of the total area into twenty five parcels of 0.33 acre each, and one tract of 1 acre (Tract A). It is expected that the size of these parcels will produce only light residential development without excessive increase of impervious cover. The existing arroyo floodplain is located on Tract A which will remain undeveloped as a floodplain area.

OFF-SITE FLOWS

There are off-site flows coming into the study area from two

tributary basins. Tributary Basin 1 is the watershed for the arroyo mentioned above. Tributary Basin 2 contributes mostly overland flow that comes into the site from the northwest. Figure 1 shows the off-site tributary areas with respect to the area under study. Pertinent hydrologic information and calculations are included in Table 1. Future development in the off-site contributing areas is expected to be low to medium density residential. How do you Know

Field investigation showed that the major arroyo's floodplain has been encroached by land owners to the south of the study area. This property is protected by a dirt berm which restricts the floodplain and increases the flow depth along Meade Avenue SW.

Downstream from the study area, the owner of the lot immediately to the east has also filled in the arroyo. Therefore, the arroyo channel is not well defined at this point. A new excavated channel will be required if Meade Place SW is to have a culvert crossing for the arroyo. Further downstream the arroyo channel will have to be moved north to allow Meade Avenue SW to circumvent a set of PNM power poles which lie in the existing straight alignment of Meade Avenue SW. The tract of land where this channel realignment will occur is also owned by Mr. Larry Vigil. The new channel will be bordered by Meade Avenue SW on the south side and an excavated slope on the north. Figure 3 shows the location of this channel and the limits of the required excavation. Dedicate easement

Tributary Basins 1 and 2 are within a zone that will most probably

be developed in the near future. If no detention, infiltration, or diversion measures are provided upstream, expected runoff will increase considerably. The peak flow from a 100-year storm over Tributary Basin 1 will be approximately 246 cfs assuming full development with 30% of impervious cover. Under present (undeveloped) land use conditions, the peak flow from Tributary Basin 1 for the 100-year storm is approximately 97 cfs.

Tributary Basin 1 has approximately 570 acres; therefore, the rational method was not utilized to determine the peak runoff. It was computed utilizing the SCS curve number method, without the modifications to determine the time of concentration proposed in the Development Process Manual for the City of Albuquerque (DPM). Field investigation of the lower portion of Tributary Basin 1 indicated that the unmodified SCS method probably represents more closely the hydrologic characteristics of this drainage basin. Additionally, the available cross section flooplain area as given in the FIRM does not seem large enough to carry the 439 cfs computed utilizing the DPM method.

Tributary Basin 2 has approximately 120 acres. The rational method was utilized to determine the peak runoff from this area. Peak flow from this basin will be approximately 102 cfs under the 100-year storm, for future conditions. The design flow for the proposed improvements on the main arroyo is 310 cfs. It was determined by combination of the hydrographs from Tributary Basins 1 and 2, under

future development. Figure 5 shows the individual and combined hydrographs.

The construction of the drainage measures to transport the off-site flows through the study area will be in two stages. For immediate development, Tract A which lies in the 100-year floodplain will be left undeveloped, and no modification will be made to the existing floodplain. This tract is shown in Figure 3. Runoff from Tributary Basin 2 will be intercepted at Grace Road SW at the western edge of the study area and transported to the arroyo.

There is not more than 2 feet of depth currently available at the site of the proposed culvert, but the most convenient culvert section will require about 4.5 feet of depth above the upstream invert of the culvert. Therefore, installation of this culvert will require excavation of the arroyo channel to accomodate the pipes. Several culvert sections were analyzed, and a structure with two 68-inch x 43-inch concrete oval pipes will minimize the cost of the culvert and excavation, under a maximum operating head of two feet. The excavation will have to be carried downstream from the culvert for approximately 140 feet at a 0.5 % slope. This excavation will form a 15 feet wide temporary trapezoidal channel that will empty back to the existing arroyo channel, within the property immediately downstream from the site.

who will build

who will build

A dip section will be built for Grace Road SW near Meade Avenue SW. A swale will ~~also be excavated~~ on the west edge of the study area,

arroyo has been filled in

who will build

along Grace Road SW. It will have enough capacity to intercept and carry 102 cfs draining from Tributary Area 2.

who?

For future development, a channel will be built to confine off-site arroyo flows along Meade Avenue SW. The required capacity will be equal to the capacity of the proposed culvert. To handle the expected peak flow of 310 cfs, a drainage easement at least 20 feet wide will be required. Several possible channel sections have been analyzed, but a specific channel section will not be recommended at this time.

who will obtain easement?

ON-SITE FLOWS

The study area presently consists of two separate drainage areas. Figure 4 shows the proposed grading plan plus the existing divide between these two on-site drainage areas. Drainage Area "A" is the southern portion of the tract. It includes the site area in the vicinity of Meade Avenue SW that naturally drains toward the arroyo or is within the 100-year floodplain. Runoff from this drainage area, combined with the off-site flows, drains along Meade Avenue SW to Condershire Drive SW, and along an existing roadside earth swale to the Hubbell Diversion Channel.

Drainage Area "B" presently drains directly to the east. Runoff from this drainage area also reaches the Hubbell Diversion Channel, but at a section upstream from Condershire Drive SW.

Proposed development will change the size of the area draining to the arroyo. Drainage Area "B", the north portion of the proposed development, is presently not draining toward the arroyo. However, all runoff from the development will drain to the arroyo as shown in Figure 4. Runoff from all lots, as listed in Table 2, will drain to either Meade Place SW or Grace Road SW, which will then transport this runoff to the arroyo. These two streets will have roadside swales to transport the 100-year runoff from the development.

The increase in the peak 100-year runoff rate from the study area draining to the arroyo caused by the diversion of Drainage Area B is negligible as shown in Table 2. The total area draining to the arroyo will be increased by this development, but peak flows do not increase due to the longer flowpaths proposed in the grading plan.

Under present and future conditions, there is little need to provide detention ponds in this development because the capacity requirements of the structures handling the arroyo will not be modified. It can be seen in Figure 5 that the on-site flows are insignificant compared with the off-site flows; furthermore, the peak on-site flows will drain through the proposed structures before the arroyo peak flows reach the site.

The required roadside swale capacities will be 8.3 cfs for Meade Place SW and 8.4 cfs for Grace Road SW. Detailed computations regarding on-site flows are shown in Table 2.

PROPOSED ARROYO IMPROVEMENTS

Proposed arroyo improvements are shown in Figure 3. These include the structures mentioned above plus rip rap lined transition areas, cutoff walls, and a 80 foot long training dike. The proposed dip section and culverts have been selected to fit within the proposed 20 foot wide drainage easement that will be utilized during the second development phase, as mentioned above. This will allow the utilization of these structures when off-site contributing areas reach full development and Tract A is developed. ?

The dip section on Grace Road NW near Meade Avenue SW will require upstream and downstream rip rap transition areas and cutoff walls. Additionally, excavation to reach the existing ground elevation will have to be carried approximately 60 feet downstream from this dip section.

comment

The proposed swale to be excavated west of Grace Road SW will drain into the arroyo immediately upstream from the dip section. Several channel sections were investigated and a "vee" shape on existing slope with 2:1 side slopes was selected. Such section will carry the design flow of 102 cfs, 2.8 feet deep at a velocity of 10 fps. This flow velocity will require lining of the channel or a reduced grade channel with drop structures will be designed.

where will build

The proposed culvert will also require upstream and downstream rip

rap transitions. An 80-foot long training dike will be required to divert the arroyo flows from the existing channel to the proposed culvert. Excavation to reach existing ground will have to be carried at a slope of 0.5 % approximately 140 feet downstream from the culvert outlet. Therefore, excavation will extend into the property immediately to the east of the study area, shown in Figure 3 as Lot D of Lauro Replat. The owners of this property have agreed to allow such improvements on the property, as shown in Figure 6.

This excavation will be done to form a trapezoidal channel that will carry the flows back to the existing arroyo channel. The proposed section will have 2:1 side slopes, 15 feet of bottom width, and will carry the design flow at a depth of 2.2 feet with a velocity of 6.4 fps. A freeboard of two feet has also been included in the computations.

Further downstream alongside Meade Avenue SW and Condershire Drive SW a "vee" shaped channel will be built. This channel will be constructed at a slope of 1.6 %, have 2:1 side slopes, and will carry the peak flow of 310 cfs at a depth of 3.8 feet at 10.7 fps. The south side of the channel section will be the south slope of the embankment of Grace Avenue SW and Condershire Drive SW which will be protected against erosion.

Glosin

TABLE 1

OFF-SITE FLOWS

	Tributary Basin 1	Tributary Basin 2
Area (acres)	570	120
Channel Length (feet)	13,000	6,000
Average Slope (feet/feet)	0.04	0.028
Rainfall Depths (in)		
100-year	2.20	2.20
10-year	1.45	1.45
PRESENT CONDITIONS		
Time of Concentration (min.)	72	25
Runoff Coefficient		0.16
CN Curve Number	68	
Impervious Area (%)	0	0
Peak Flowrates (cfs)		
100-year	97	53
10-year	18	35
Runoff Volumes (acre-ft)		
100-year	13	3.52
10-year	2.38	2.32
FUTURE CONDITIONS		
Time of Concentration (min)	58	25
Runoff Coefficient		0.31
CN Curve Number	77	
Impervious Area (%)	30	30

Peak Flowrates (cfs)		
100-year	246	102
10-year	84	67
Runoff Volumes (acre-ft)		
100-year	27	6.82
10-year	9.03	4.50

TABLE 2

ON-SITE FLOWS

Total Area (acres)	11.4
Total Lot Area (acres)	9.6
Street Area	1.8

PRESENT CONDITIONS

	Drainage Area A	Drainage Area B
Area (acres)	8.9	2.8
Impervious Area %	0	0
Length (feet)	900	430
Average Slope (feet/feet)	0.0133	0.0163
Time of Concentration (min.)	10	10
Runoff Coefficient	0.26	0.26
Rainfall Intensities (in/hr)		
100-year	4.86	.86
10-year	3.19	3.19
Peak Flowrates (cfs)		
100-year	11.3	3.5
10-year	7.4	2.3
Runoff Volumes (acre-ft)		
100-year	0.43	0.13
10-year	0.28	0.09

FUTURE CONDITIONS

	Meade Place Drainage	Grace Road Drainage
Area (acres)	5.93	5.43
Total Length (feet)	1,370	940
Street Segment	1,215	790

Lot Segment	155	150
Time of Concentration (min.)	14	12
Impervious Area %	20	20
Runoff Coefficients	0.35	0.35
Rainfall Intensities (in/hr)		
100-year	3.98	4.42
10-year	2.61	3.19
Peak Flowrates (cfs)		
100-year	8.3	8.4
10-year	5.4	5.5
Runoff Volumes (acre-ft)		
100-year	0.38	0.35
10-year	0.25	0.23

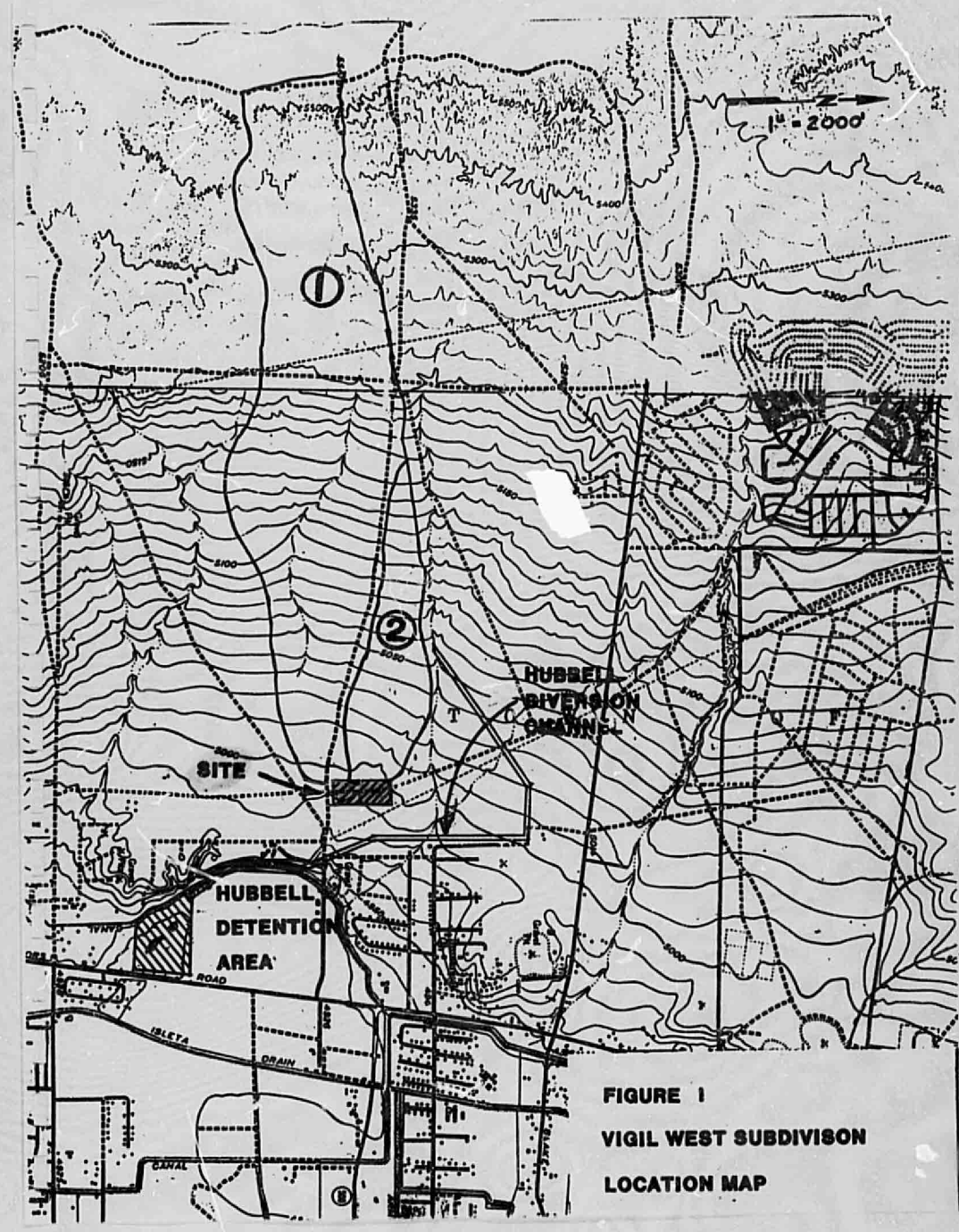


FIGURE 1

VIGIL WEST SUBDIVISON

LOCATION MAP

THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.

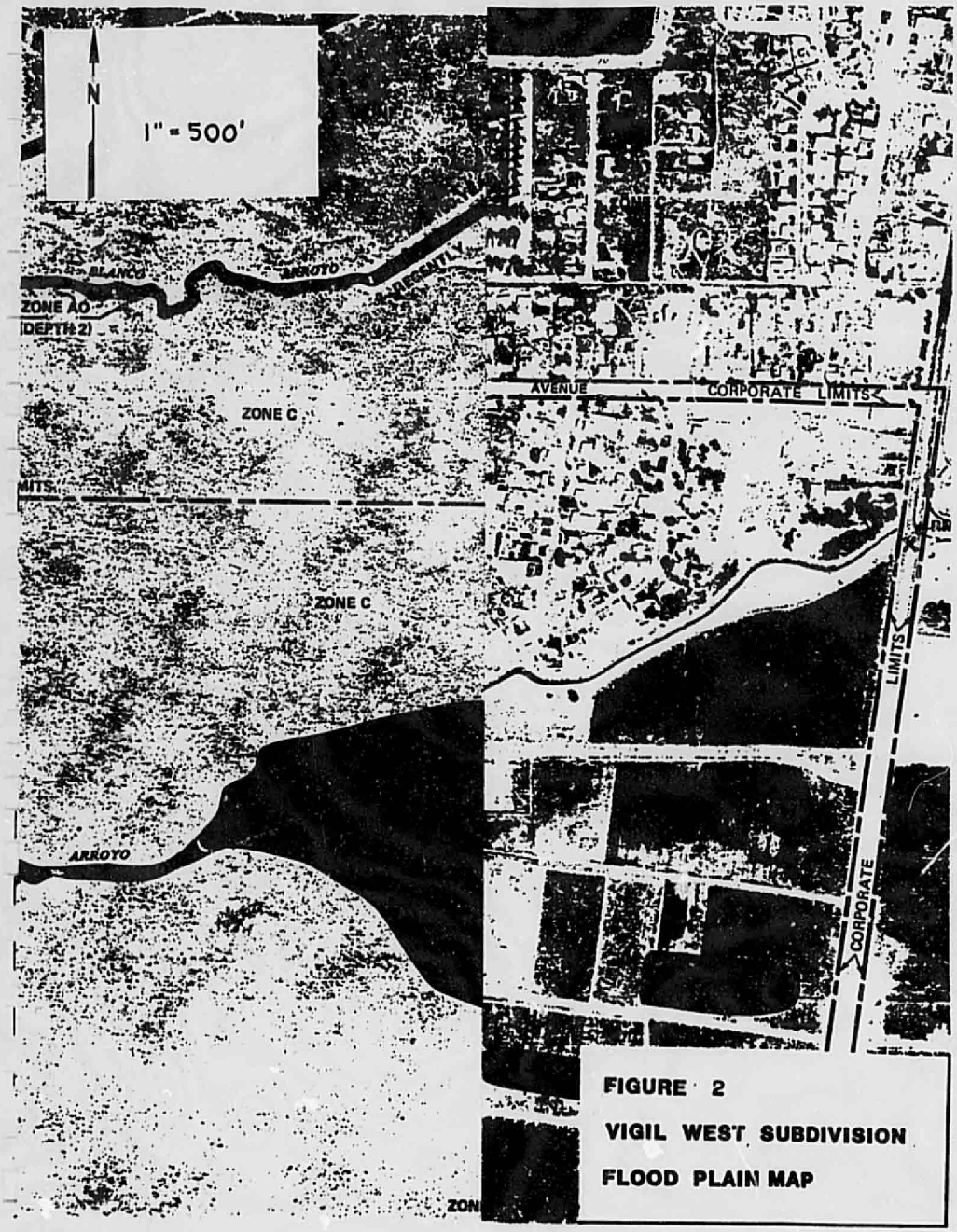


FIGURE 2

VIGIL WEST SUBDIVISION

FLOOD PLAIN MAP

FILMED IN TWO SECTIONS

THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.

FILMED IN TWO SECTIONS

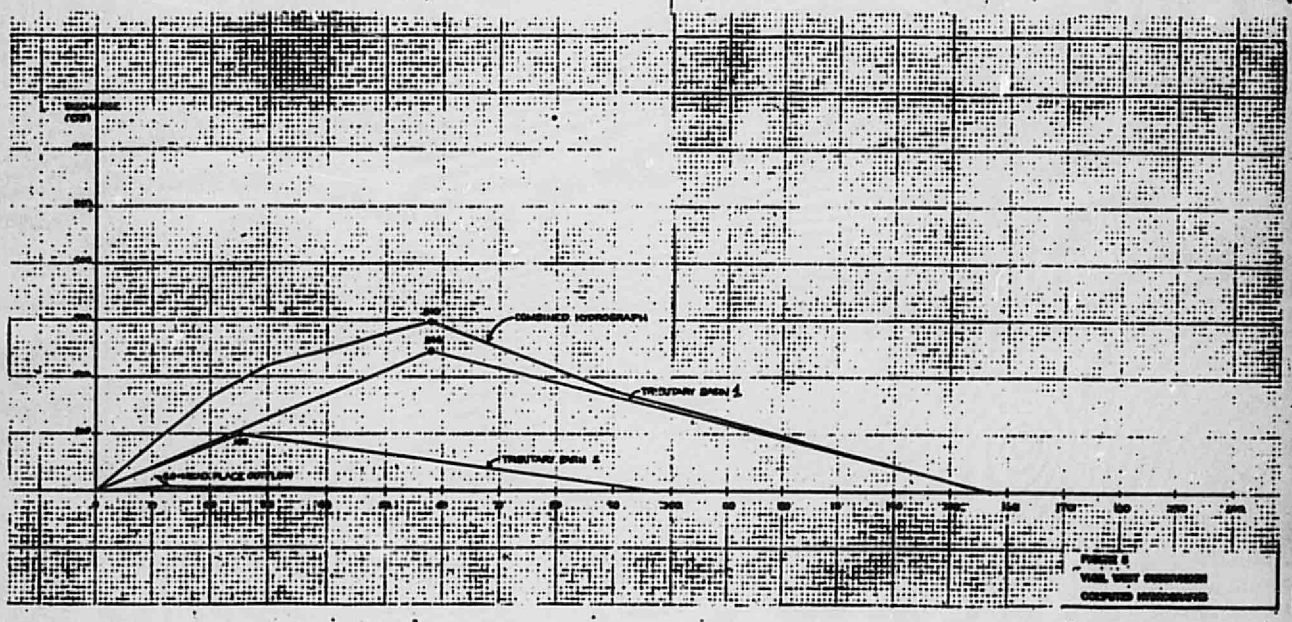
THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.

FIGURE 2

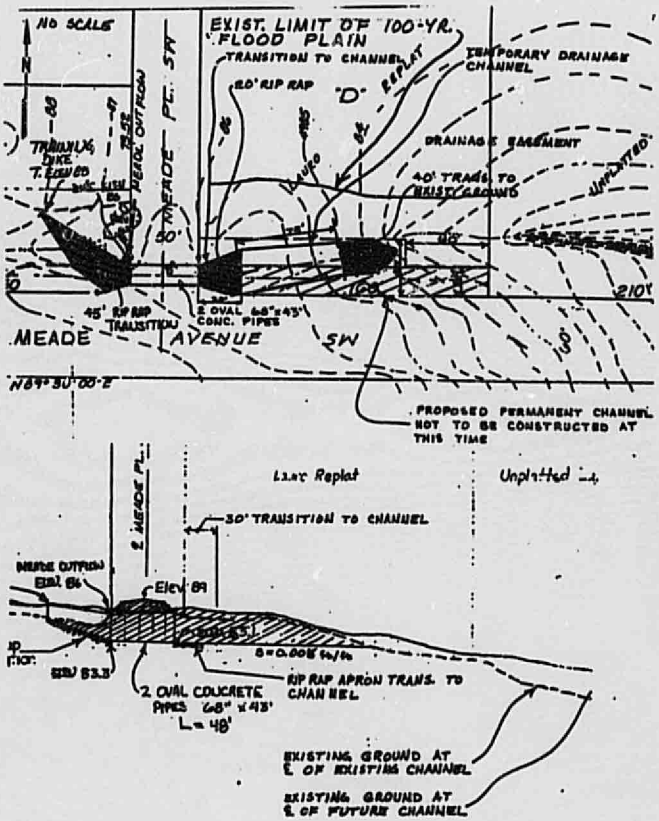
VIGIL WEST SUBDIVISION

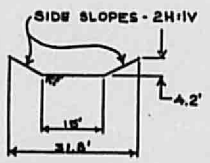
FLOOD PLAIN MAP

THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.



THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.





TEMP. EARTH CHANNEL

We hereby agree to provide a private easement, as shown, for the temporary and permanent channels.

Fernando Carboni

Joyce Carboni

4331 Meade Ave. SW 873-0410

FIGURE 6

THIS MICROIMAGE IS THE BEST
POSSIBLE REPRODUCTION DUE TO THE
POOR QUALITY OF THE ORIGINAL
DOCUMENT.

PLAN/PLATS

ON

FILE