Federal Emergency Management Agency

Washington, D.C. 20472

APR 4 1988

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APR 18 1988
MAYOR/CAO
OFFICE

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IA-RA-RS (102a)

The Honorable Ken Schultz
Mayor of the City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

Community: City of Albuquerque,
Bernalillo County,
New Mexico
Map Panel Number: 350002 0010 C
Effective Date of
this Revision: APR 4 1988

Dear Mayor Schultz:

This is in reference to a letter dated October 30, 1987, submitted by Mr. Carlos A. Montoya, P.E., Floodplain Administrator for the City of Albuquerque, Bernalillo County, New Mexico, regarding the Flood Insurance Study (FIS) for your community. In his letter, Mr. Montoya requested that the Federal Emergency Management Agency (FEMA) issue a Letter of Map Revision (LOMR) to reflect floodplain changes resulting from the channelization of the Domingo Baca Arroyo in the vicinity of the Heritage Hills East development project. With the request, Mr. Montoya submitted the following technical materials: a report entitled Drainage Management for Heritage Hills East, prepared by Community Sciences Corporation, dated May 1983; a report entitled Storm Drainage Study on Heritage East Unit 4 for Bellamah Community Development, prepared by Gardner, Mason & Associates, Inc., dated April 1985; a copy of Albuquerque Metropolitan Arroyo Flood Control Authority Northeast Heights Drainage Management Plan, Volumes 1 and 2, both dated April 1975; and mapping of the area representing "as-built" conditions dated February 25, 1986.

Based on these data, we have revised the Flood Insurance Rate Map (FIRM) to reflect the effects of the completed channelization project, which runs from the City of Albuquerque corporate limits to an existing concrete lined channel at Ventura Street, a total distance of approximately 3,000 feet. The 100-year floodplain boundary has been changed from Zone AO to Zone A and is now contained within the constructed channel as depicted on the enclosed annotated portion of the FIRM. This LOMR amends FIRM number 350002, panel 0010 C, dated October 14, 1983, for the City of Albuquerque, New Mexico. Because no regulatory floodways are delineated for Domingo Baca Arroyo, the Flood Boundary and Floodway Map will not be revised.

Please note that National Flood Insurance Program regulation 44 CFR 60.3 (b)(7) requires communities to "assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained." This provision is incorporated into your community's existing floodplain management regulations; consequently, responsibility for maintenance of the modified channel rests with your community.

This revision is effective as of the date of this letter. However, a review of the determination made by this LOMR and any requests to alter this determination should be made within 30 days. Any such requests must be based on scientific or technical data.

Due to present funding constraints, FEMA must limit the number of physical FIS and FIRM revisions processed. Consequently, we will not republish the FIS and FIRM for the City of Albuquerque to reflect the determination made by this LOMR. However, should your community's FIS and FIRM warrant a physical revision and republication in the future, the determination in this LOMR will be incorporated at that time.

Since this determination will not be printed and distributed to users such as insurance agents and lenders, the community will serve as the repository for the new data. We encourage you to disseminate widely throughout the community the information reflected by this LOMR in order that interested persons may offer new information or comments.

This determination has been made pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and is in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. As required by this legislation, a community must adopt and enforce floodplain management regulations in order to ensure continued eligibility to participate in the National Flood Insurance Program. Therefore, the City of Albuquerque must enforce these regulations using, at a minimum, the elevations and zone designations in the Special Flood Hazard Areas as shown on your community's FIRM, including the modifications made by this LOMR.

The map as listed above and as amended by this letter will be used for all flood insurance policies and renewals issued for your community.

A Consultation Coordination Officer has been designated to assist you with any problems you may have concerning this LOMR. This officer will be the primary FEMA contact for your community, and can be reached at the following address:

Mr. Alton S. Ray, Chief
FEMA, Natural & Technological
Hazards Division
Federal Regional Center
800 North Loop 288
Denton, Texas 76201-3698
(817) 898-9127

Any questions may be directed to your Consultation Coordination Officer.

Sincerely,

John L. Matticks
Chief, Risk Studies Division
Federal Insurance Administration

Enclosure
cc: Mr. Carlos A. Montoya, P.E.
Mr. Kent M. Whitman, P.E., Community Sciences Corporation

REVISED TO
REFLECT LOMR
DATED APR 4 1988

SCALE: 1"=500'

500 0 500

NATIONAL FLOOD INSURANCE PROGRAM

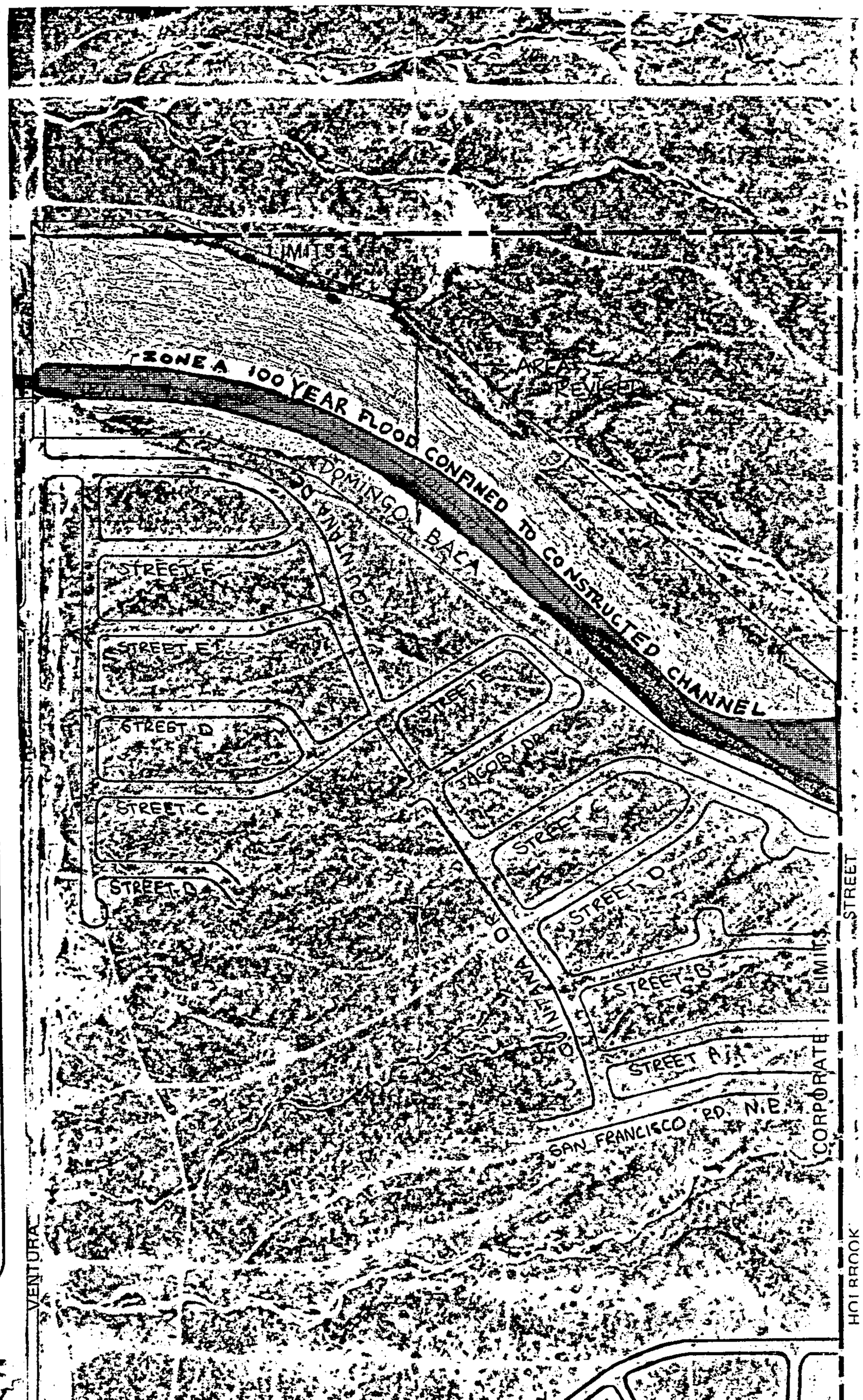
FIRM
FLOOD INSURANCE RATE MAP

CITY OF
ALBUQUERQUE,
NEW MEXICO
BERNALILLO COUNTY

PANEL 10 OF 50

COMMUNITY-PANEL NUMBER
350002 0010 C
EFFECTIVE DATE:
OCTOBER 14, 1983

Federal Emergency Management Agency



Federal Emergency Management Agency

Region VI, Federal Center, 800 North Loop 288
Denton, Texas 76201-3698

NTH

November 20, 1987

RECEIVED
NOV 27 1987
HYDROLOGY SECTION

Mr. Carlos A. Montoya, P. E.
City/County Floodplain Administrator
City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87103

RE: Letter of Map Revision for Domingo Baca Floodplain

Dear Mr. Montoya:

This is in response to your recent request for a Letter of Map Revision for the above mentioned area.

The initial review of the request and support data has been completed and the request has, as of the date of this letter, been forwarded to the appropriate staff for a technical review. If additional information is required, you will be notified. Should there be a fee associated with this service, you will be informed.

If I may provide additional assistance with this or other floodplain management matters, please contact me at the above address or call 817-898-9136.

Sincerely,

Diane Pippin

Diane Pippin
Natural Hazards
Program Specialist

Copy to: Matt Miller

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Ken Schultz
Mayor

UTILITY DEVELOPMENT DIVISION
HYDROLOGY SECTION
(505) 768-2650

October 30, 1987

Diane Leatherwood
Federal Emergency Management Agency
Region VI Federal Center
Denton, Texas 76201-3698

RE: L.O.M.R. REQUEST FOR DOMINGO BACA FLOODPLAIN

Dear Ms. Leatherwood:

We are requesting a Letter of Map Revision for the channelized floodplain between Ventura Street and Holbrook. A similar floodplain revision was obtained for the Pino Arroyo between the above streets. Included is the following information for your review:

1. Northeast Heights Drainage Management Plan.

2. Drainage Management for Heritage Hills East.

3. As-builts of the concrete channel.

4. Storm Drainage Study on Heritage East, Unit 4.

5. Certificate of Completion and Acceptance - City Project No. 2494.

Should you need further information to evaluate this request, or have any questions, please call me at 768-2650.

Cordially,

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

CAM/bsj

xc: Kent Whitman, Community Sciences Corp.

Enclosures

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Ken Schultz
Mayor

UTILITY DEVELOPMENT DIVISION
HYDROLOGY SECTION
(505) 768-2650

September 8, 1987

Kent Whitman, P.E.
Community Sciences Corporation
Post Office Box 1328
Corrales, New Mexico 87048

RE: LOMR REQUEST FOR DOMINGO BACA ARROYO AT HERITAGE EAST
RECEIVED AUGUST 12, 1987

Dear Mr. Whitman:

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

1. FEMA will need as much background information on the hydrology for the channel. The Rice Report will have to be duplicated.

2. Please submit vicinity maps as to which area is to be revised.

3. The Heritage East Unit 4 study needs to include the plates and figures that are referenced in the report.

4. I have obtained the as-built drawings signed-off by the City.

5. I will supply the needed floodplain maps.

If you should have any questions, please call me at 768-2650.

Cordially,

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

CAM/bsj

RECEIVED
AUG 12 1987
HYDROLOGY SECTION

STORM DRAINAGE STUDY

ON

HERITAGE EAST UNIT 4

FOR

BELLAMAH COMMUNITY DEVELOPMENT

APRIL 1985

ROBERT D. GARDNER
NEW MEXICO
5853
LAND SURVEYOR
REGISTERED PROFESSIONAL ENGINEER

GARDNER, MASON & ASSOCIATES, INC.
2127 MENAUL BOULEVARD N.E.
ALBUQUERQUE, NEW MEXICO 87107

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PART ONE

INTRODUCTION AND HISTORY

Location

Heritage East Units Four and Five are proposed residential subdivisions located in the far Northeast Heights of Albuquerque. The geographical boundaries of this area are Ventura Avenue to the west, Holbrook Avenue on the east, San Francisco on the south and Arroyo Domingo Baca on the north. Figure I-1 shows the location of this area in relation to the adjacent properties.

Basin Characteristics

The study area is typical foothill terrain with average slopes ranging from 2.5 percent to 8 percent. The existing drainage is from east to west to Ventura and into the Heritage Hills subdivision west of Ventura. The northern portion of the study area lies within the flood plain of the Arroyo Domingo Baca.

Current Development

The study area is currently undeveloped. Ventura Road is constructed on the west side only with an existing bridge across the Arroyo Domingo Baca. Holbrook Street is undeveloped and impassable north of San Francisco. The Arroyo Domingo Baca is a natural (braided) channel to the east of Ventura.

Existing Storm Drainage Facilities

There are no existing Storm Drainage facilities within the study area. The existing facilities adjacent to the area consist of a lined concrete channel in the Arroyo Domingo Baca west of Ventura.

Present Drainage Patterns

The present drainage patterns may be delineated from Plates I, II, and III. Small berms along the east side of Ventura detain low flows with major flows entering Ventura. Most of the existing flows in the study area do not enter the Arroyo Domingo Baca.

Offsite Flows

The most significant characteristic of the offsite drainage area is the Arroyo Domingo Baca. The historic flow of the arroyo has been modified by the construction of the South Domingo Baca Dam west of Lowell Street. Flows south of the Domingo Baca enter the site as shown on Plate I.

PART TWO

GENERAL

This section of the report will address the recommended drainage improvements and will select an approach to be used to implement those improvements.

Previous Recommendations

The Drainage and Specific Site Development Conditions Plan shows conceptual drainage patterns that divert the flows north of San Francisco north to the Domingo Baca. Offsite flows will be diverted east of Holbrook south of the North Pino Arroyo. (See sheet 4 of 5 of the Heritage Hills East Sector Development Plan.)

Improvements to the Arroyo Domingo Baca

A concrete lined channel has been proposed in accordance with the Sector Development Plan. This channel will be constructed from Ventura to Holbrook with a soil cement transition just east of Ventura connecting to the existing channel; and a soil cement trainer just west of Holbrook.

Interior Drainage

The interior drainage will utilize street flows to carry the runoff to the interception point on Quintana east of Ventura. The drainage basin will encompass all of Unit 4; Unit 5 south of the Domingo Baca and Tract B of Unit 2. Quintana is a major local street and not subject to one lane dry criteria.

Method of Approach

The storm drainage system studies are predicated on the following assumptions:

1) Flows east of Holbrook will be diverted to the south.

2) Flows within the site will be diverted to the Domingo Baca prior to reaching Ventura.

3) Street and storm sewer flows will meet the present DPM criteria and will comply with the Drainage Ordinance.

Basin Subdivisions

The study area was divided into two watershed zones. These zones were further subdivided into sub-basins. See Plates I,II,IV, and V in the Appendix.

Perimeter Outlet

A perimeter outlet was established on Quintana 190 feet east of Ventura. Grade restrictions prevented the diversion of upstream flows to the Domingo Baca before this point.

Flood Plain Analysis

The construction of the lined channel for the Arroyo Domingo Baca will allow for the elimination of the flood plain limits shown on Plates II and III.

Crossing Structures

The east crossing structure at Ventura and the structure at Holbrook will be constructed by the City in the future. Temporary soil cement transition channels will be installed at each end of the continuously reinforced channel to allow for the future construction.

Holbrook Diversion

The future development of the lands east of Holbrook will require that the drainage be intercepted east of Holbrook. With this in mind, the temporary swale constructed in Unit Two has been continued adjacent to Unit Four.

PART THREE

HYDROLOGY, HYDRAULIC CONVEYANCE, STUDY DESIGN AND STRUCTURAL CONSIDERATIONS

HYDROLOGY

Parameters

The following values have been utilized for the hydrologic calculations

A. Rainfall - A rainfall of 2.5 inches was used in the analysis.

B. Coefficient of Runoff (Existing) - A coefficient of runoff of 0.35 was selected as representative of foothill conditions.

C. Coefficient of Runoff (Developed) - The proposed lot grading utililizing FHA Grading Standards provides for relatively long runoff times allowing additional infiltration and surface retention. A coefficient of runoff of 0.55 has been selected as representative of the developed conditions.

Analysis

The following tables present the flows from each zone and basin for 100 year and 10 year storms. The flows are the accumulation of model analysis to determine peak rates at intersections. See Plates III, IV and V.

HYDRAULIC CONVEYANCE

Surface Outfall Versus Storm Drain

The peak flows for the 100 year storm at the intersection of Quintana and Street A is 214 cfs of which 119 cfs enters from Street A. Conceptual design of this street indicates a maximum grade of 0.60 percent. This grade will require a storm sewer in Street A to intercept excess flows. Even if Street A - Unit 5 could be steepened to 1% in order to carry the runoff, two problems occur. One: The outfall channel opening would have to be 50 feet wide to allow for weir construction. Two: The grade change on Quintana would result in a hydraulic jump as the velocity changed from supercritical to subcritical. With this in mind, we have recommended a storm sewer system in Quintana with a stub to the south for Unit Five.

Calculations

Hydraulic calculations were done for the street flows in Unit Four and for Quintana Street. Hydraulic calculations were not done for those streets in Unit Five. Hydraulic calculations were done for pipe flows and Domingo Baca Channel. Following are those calculations.

HYDROLOGY CALCULATIONS

****EXISTING CONDITIONS****

INTERIOR FLOWS

LOC.	BASIN NO.	DRANG AREA	TRAVEL LENGTH	HIGH ELEV	LOW ELEV	SLOPE	TIME CONCEN	RUNOFF C	I(100)	I(10)	Q(100)	Q(10)	COMMENTS
	I1	63.40	2600	5650	5550	0.04	11.7	0.35	4.89	3.21	108	71	FUTURE UNIT 6 AND CHANNEL
	I2	49.50	3858	5640	5550	0.02	19.1	0.35	3.79	2.49	66	43	UNIT 4
	I3	46.10	3600	5615	5550	0.02	20.0	0.35	3.71	2.44	60	39	UNIT 5

OFFSITE FLOWS

	BASIN NO.	DRNGE AREA	TRAVEL LENGTH	HIGH ELEV	LOW ELEV	SLOPE	TIME CONCEN	RUNOFF C	I(100)	I(10)	Q(100)	Q(10)	COMMENTS
	O1	40	2500	5730	5640	0.04	11.6	0.35	4.90	3.22	68	45	
	O2	9	1250	5684	5640	0.04	6.9	0.35	6.40	4.21	21	14	
	O3	68	4000	5778	5640	0.03	16.9	0.35	4.04	2.65	96	63	
	O4	8	1500	5686	5640	0.03	8.3	0.35	5.80	3.81	16	11	
A1		40	2500	5730	5640	0.04	11.6	0.35	4.90	3.22	68	45	FLOWS
A2		9	1250	5684	5640	0.04	6.9	0.35	6.40	4.21	21	14	DIVERTED BY
A3		77	4000	5778	5640	0.03	16.9	0.35	4.04	2.65	109	72	HOLBROOK
A4		85	4500	5778	5640	0.03	19.4	0.35	3.77	2.48	113	74	TEMPORARY SWALE

##

HYDROLOGY CALCULATIONS

UNIT 4 ONSITE DRAINAGE AREAS

LOC.	BASIN NO.	DRANG AREA	TRAVEL LENGTH	HIGH ELEV	LOW ELEV	SLOPE	TIME CONCEN	RUNOFF C	I(100)	I(10)	Q(100)	Q(10)	COMMENTS
	1	4.75	1100	5613	5585	0.03	7.0	0.50	5.28	3.47	12.6	8.2	PARK SITE
	2	3.95	928	5625	5600	0.03	6.0	0.55	5.28	3.47	11.5	7.5	STREET E
	3	3.31	740	5625	5603	0.03	4.9	0.55	5.28	3.47	9.6	6.3	JACABO
	4	8.30	1331	5640	5608	0.02	8.3	0.55	5.28	3.47	24.1	15.8	STREET C
	5	0.82	564	5600	5585	0.03	4.1	0.90	5.28	3.47	3.9	2.6	QUINTANA
	6	0.62	180	5603	5600	0.02	2.1	0.90	5.28	3.47	2.9	1.9	QUINTANA
	7	0.55	274	5605	5603	0.01	3.9	0.90	5.28	3.47	2.6	1.7	QUINTANA
	8	0.42	280	5609	5605	0.01	3.1	0.90	5.28	3.47	2.0	1.3	QUINTANA
	9	3.91	650	5633	5610	0.04	4.1	0.55	5.28	3.47	11.4	7.5	STREET D
	10	6.19	930	5638	5612	0.03	6.0	0.55	5.28	3.47	18.0	11.8	STREET B
	11	4.39	820	5638	5618	0.02	5.7	0.55	5.28	3.47	12.8	8.4	STREET A
	12	0.34	260	5612	5609	0.01	3.1	0.90	5.28	3.47	1.6	1.1	QUINTANA
	13	0.35	250	5616	5612	0.02	2.7	0.90	5.28	3.47	1.7	1.1	QUINTANA
	14	0.10	85	5618	5616	0.02	1.0	0.90	5.28	3.47	0.5	0.3	QUINTANA
	15	1.34	830	5639	5615	0.03	5.4	0.90	5.28	3.47	6.4	4.2	SAN FRANSISCO
	16	2.14	750	5641	5637	0.01	9.6	0.80	5.28	3.47	9.0	5.9	HOLBROOK SOUTH
	17	0.16	130	5641	5640	0.01	2.2	0.90	5.28	3.47	0.8	0.5	HOLBROOK NORTH

UNIT 4 ACCUMULATED FLOWS

LOC.	BASIN NO.	DRANG AREA	TRAVEL LENGTH	HIGH ELEV	LOW ELEV	SLOPE	TIME CONCEN	RUNOFF C	I(100)	I(10)	Q(100)	Q(10)	COMMENTS
A		4.49	860	5638	5616	0.03	5.8	0.63	5.28	3.47	14.9	9.8	QUINTANA/STREET A
B		11.03	1110	5638	5612	0.02	7.3	0.59	5.28	3.47	34.5	22.7	QUINTANA/STREET B
C		15.28	1370	5638	5609	0.02	9.0	0.59	5.28	3.47	47.5	31.2	QUINTANA STREET D
D		24.00	1650	5638	5605	0.02	10.6	0.58	5.14	3.38	71.6	47.1	QUINTANA/STREET C
E		27.86	1924	5638	5603	0.02	12.3	0.58	4.75	3.12	77.2	50.7	QUINTANA/JACABO
F		32.43	2104	5638	5600	0.02	13.2	0.58	4.58	3.01	86.6	56.9	QUINTANA/STREET E
G		38.00	2668	5638	5585	0.02	15.3	0.58	4.26	2.80	93.8	61.6	QUINTANA/PARK
H	*	44.06	3493	5638	5555	0.02	17.6	0.58	3.96	2.60	100.5	66.0	QUINTANA/UNIT 5
I	*	89.23	3493	5638	5555	0.02	17.6	0.61	3.96	2.60	214.4	140.9	QUINTANA/UNIT 5
J		2.14	750	5641	5637	0.01	9.6	0.80	5.28	3.47	9.0	5.9	HOLBROOK/S FRNSCO
K		0.16	130	5641	5640	0.01	2.2	0.90	5.28	3.47	0.8	0.5	HOLBROOK/CHANNEL

* FLOWS AT NODES H AND I INCLUDE DRAINAGE FROM UNIT 5

HYDROLOGY CALCULATIONS

*** UNIT 5 ONSITE CONCEPTUAL DRAINAGE***

LOC. NO.	BASIN AREA	DRAINAGE LENGTH	TRAVEL ELEV	HIGH ELEV	LOW ELEV	SLOPE	TIME CONCEN	RUNOFF C	I(100)	I(10)	Q(100)	Q(10)	COMMENTS
1	15.7	1200	5615	5572		0.04	6.6	0.80	5.28	3.47	66.4	43.6	FLOWS LISTED
2	2.9	700	5604	5572		0.05	4.0	0.55	5.28	3.47	8.5	5.6	ARE CONCEPTUAL
3	4.4	479	5572	5563		0.02	4.2	0.55	5.28	3.47	12.9	8.5	ONLY AND WILL
4	6.6	1100	5600	5560		0.04	6.1	0.55	5.28	3.47	19.1	12.5	BE REFINED DURING
5	5.4	946	5590	5559		0.03	5.7	0.55	5.28	3.47	15.6	10.2	SUBDIVISION DESIGN
6	0.9	350	5600	5588		0.03	2.6	0.55	5.28	3.47	2.7	1.8	IN THE FUTURE.
7	5.3	940	5590	5557		0.04	5.5	0.55	5.28	3.47	15.5	10.2	
8	4.9	810	5586	5556		0.04	4.8	0.55	5.28	3.47	14.2	9.3	
9	6.1	825	5585	5555		0.04	4.9	0.55	5.28	3.47	17.6	11.6	
10	1.3	200	5555	5554		0.01	3.5	0.55	5.28	3.47	3.8	2.5	

UNIT 5 ACCUMULATED FLOWS

LOC. NO.	BASIN AREA	DRANG LENGTH	TRAVEL ELEV	HIGH ELEV	LOW ELEV	SLOPE	TIME CONCEN	RUNOFF C	I(100)	I(10)	Q(100)	Q(10)	
A	18.6	1200	5615	5572		0.04	6.6	0.76	5.28	3.47	74.9	49.2	JACABO/STREET B
B	23.0	1779	5615	5563		0.03	9.7	0.72	5.28	3.47	87.7	57.6	STREET B/STREET A
C	29.6	2129	5615	5560		0.03	11.6	0.68	4.89	3.21	98.8	64.9	STREET C/STREET A
D	35.0	2389	5615	5559		0.02	13.2	0.66	4.59	3.01	106.2	69.8	STREET D/STREET A
E	40.3	2649	5615	5557		0.02	14.7	0.65	4.34	2.85	113.3	74.5	STREET E/STREET A
F	45.2	2909	5615	5556		0.02	16.3	0.64	4.12	2.71	118.7	78.0	STREET F/ STREET A
G	1.3	200	5555	5554		0.01	3.5	0.55	5.28	3.47	3.8	2.5	QUINTANA/VENTURA
H	SEE UNIT 4 FLOWS ON QUINTANA												

UNIT FOUR STREET FLOWS

I. 100 Year Storm

Location A (Quintana and Street A)

Q = 14.9 cfs, Slope = 2.25%
From Plate 22.3 D-2 D = 0.46 feet
V = 4.4 fps Flow in east half of street

Location B (Quintana and Street B)

Q = 34.5 cfs, Slope = 1.22%
From Plate 22.3 D-2 D = 0.5 feet
V = 3.6 fps Flow now in both sides

Location C (Quintana and Street D)

Q = 47.5 cfs, Slope = 1.22%
From Plate 22.3 D-2 D = 0.6 feet
V = 3.8 fps

Location D (Quintana and Street C)

Q = 71.6 cfs, Slope = 1.22%
From Plate 22.3 D-2 D = 0.65 feet
V = 4.5 fps

Location E (Quintana and Jacabo)

Q = 77.2 cfs, Slope = 1.22%
From Plate 22.3 D-2 D = 0.67 feet
V = 4.6 fps Flow at top of curb

Location F (Quintana and Street E)

Q = 86.6 cfs, Slope = 1.22%
From Plate 22.3 D-2 D = 0.70 feet
V = 4.8 fps

Location G (Quintana and Park Boundry

Q = 93.8 cfs, Slope = 2.40%
From Plate 22.3 D-2 D = 0.64 feet
V = 6.0 fps

UNIT FOUR STREET FLOWS

II. 10 Year Storm

Location A (Quintana and Street A)

Q = 9.8 cfs, Slope = 2.25%
From Plate 22.3 D-2 D = 0.38 feet
V = 4.0 fps. Flow in east half of street
D x V = 4.0 x 0.38 = 1.52 which is less than 6.5 & ok.

Location B (Quintana and Street B)

Q = 22.7 cfs, Slope = 1.22%
From Plate 22.3 D-2 D = 0.49 feet east, 0.40 feet west
V_E = 3.6 fps; V_W = 3.2 pfs. Flow now in both sides of street-
15 cfs on the east side, 7.7 cfs on the west side.

Location C (Quintana and Street D)

Q = 31.2 cfs, Slope = 1.22%
From Plate 22.3 D-2 D = 0.5 feet
V = 3.7 fps

Location D (Quintana and Street C)

Q = 47.1 cfs, Slope = 1.22%
From Plate 22.3 D-2 D = 0.58 feet
V = 4.0 fps

Location E (Quintana and Jacabo)

Q = 50.7 cfs, Slope = 1.22%
From Plate 22.3 D-2 D = 0.58 feet
V = 4.1 fps

Location F (Quintana and Street E)

Q = 56.9 cfs, Slope = 1.22%
From Plate 22.3 D-2 D = 0.60 feet
V = 4.2 fps

Location G (Quintana and Park Boundry)

Q = 61.6 cfs, Slope = 2.40%
From Plate 22.3 D-2 D = 0.57 feet
V = 5.3 fps

NOTE: For the following locations, the total flow is assumed to be 100.5 cfs.

Location H1 (Quintana Street at Station 4+36 - 2 Type A Inlets)

Q = 66 cfs, Slope = 3.9%
D = 0.53 feet
V = 6.5 fps
From Plate 22.3 D-5. For S = 4% and D = 0.53
Capacity of Type A inlet in 10 cfs. Use 8 cfs.

Net street flow = 66 - 16 = 50 cfs.

Location H2 (Quintana Street at Station 4+00)

Q_{street} = 50 cfs, Slope = 3.9%
D = 0.48 feet
V = 6.0 fps
From Plate 22.3 D-7. For S = 4% and D = 0.48
Capacity of Type B inlet is 14 cfs. Use 12 cfs.

Net street flow = 50 - 24 = 26 cfs.
NOTE: Assume a 60/40 flow split.

Location H3 (Quintana Street at Station 3+35)

Q = 16 cfs north, Slope = 3.9%
Q = 10 cfs south
V_{north} = 5.6 fps D_{north} = 0.42 feet
V_{south} = 5.1 fps D_{south} = 0.36 feet
From Plate 22.3 D-7. For S = 4% and D = 0.42
Capacity of Type B inlet is 11 cfs. Use 10 cfs.
For S = 4% and D = 0.36; Q = 7.8. Use 7 cfs.

Net street flow = 26 - 17 = 9 cfs.

Location H4 (Quintana Street at Station 2+75)

Q = 6 cfs north, Slope = 3.9%
Q = 3 cfs south
V_{north} = 4.6 fps D_{north} = 0.32 feet
V_{south} = 3.8 fps D_{south} = 0.25 feet
From Plate 22.3 D-7. For S = 4% and D_{north} = 0.32
Capacity of Type B inlet is 6.5 cfs. Use 6 cfs.
For S = 4% and D_{south} = 0.25; Q = 3.5 cfs which is greater that 3.

Net street flow = 9 - 9 = 0 cfs.

This flow from a 10 year storm will not coninue to Ventura along with flows from Area 10, Unit 5.

III. PIPE FLOWS

A. Location H1 (Quintana Street at Station 4+36)

Two Type A inlets:

Q = 9 cfs for each inlet. Use 18" RCP with minimum slope of 0.91%. Inlet depth = 4.0 feet.

B. Location H2 (Quintana Street at Station 3+70)

$Q_{upstream}$ = 18 cfs. Slope = 4.32%
Required K = $Q / S^{\frac{1}{2}}$ = 86.6 cfs. Use 18 " RCP
Inlets - Two Type B. Q = 14 cfs each.
$Q_{downstream}$ = 18 + 14 + 14 = 46 cfs

C. Location H3 (Quintana Street at Station 1+99)

$Q_{upstream}$ = 46 + 12 + 12 + 5 + 5 = 80 cfs
Slope = 4.32%
Required K = $Q / S^{\frac{1}{2}}$ = 384. Use 30 inch RCP

D. Outfall Line

Total Q_{100} = 214 cfs
Flow in pipe from Unit 4 = 80 cfs.

Flow from Unit 5 = 119 cfs

Street Capacity (S = 0.60%) = 70 cfs

Use 60 inch pipe at 0.25% slope
Pipe capacity = 130 cfs

Pipe flow from Unit 7 = 130 - 80 = 50 cfs.

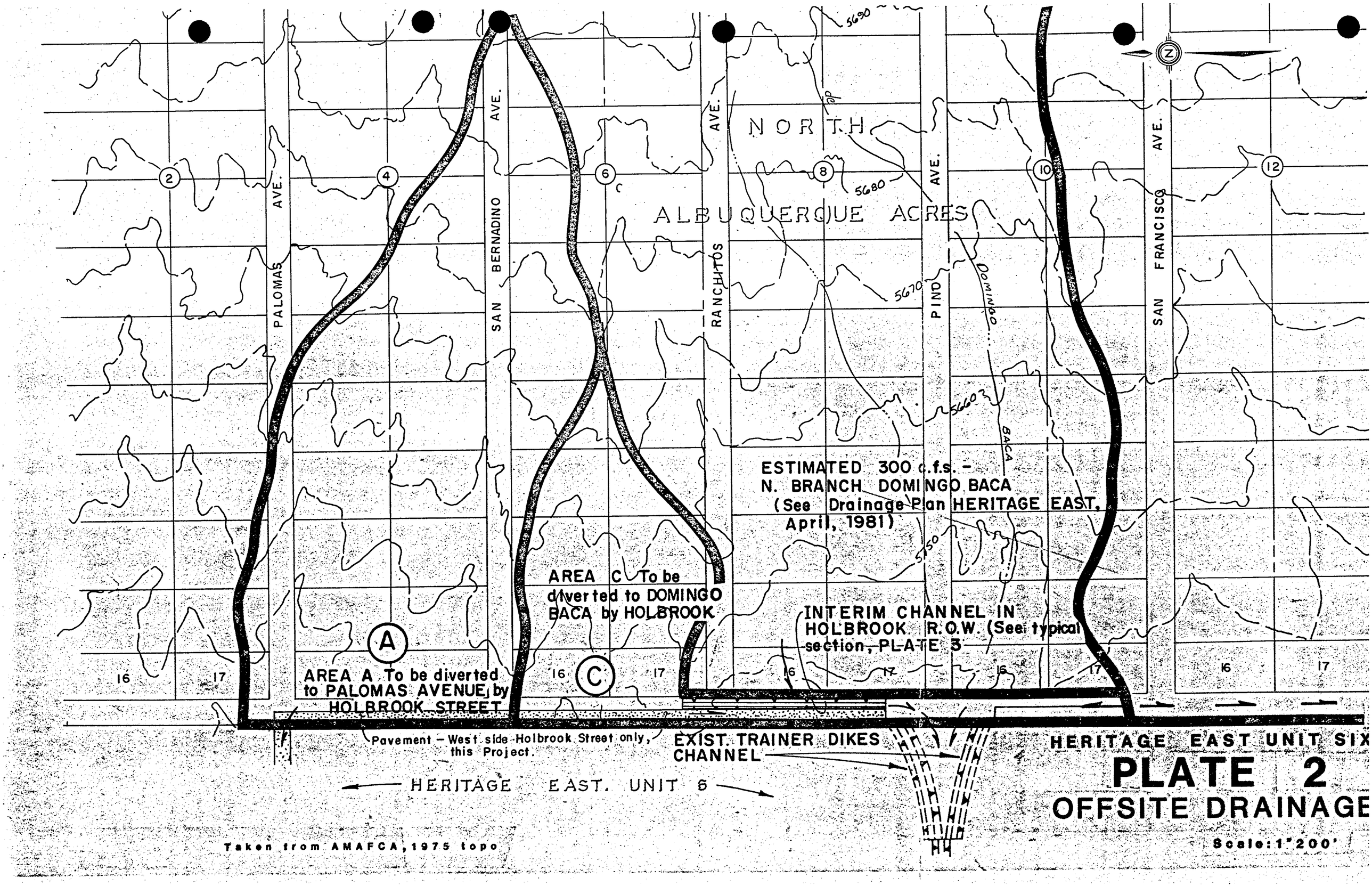
Required pipe size to Unit 5 (Slope = 0.60%) = 36 inch
Net street flow in Street E, Unit 5 = 69 cfs.

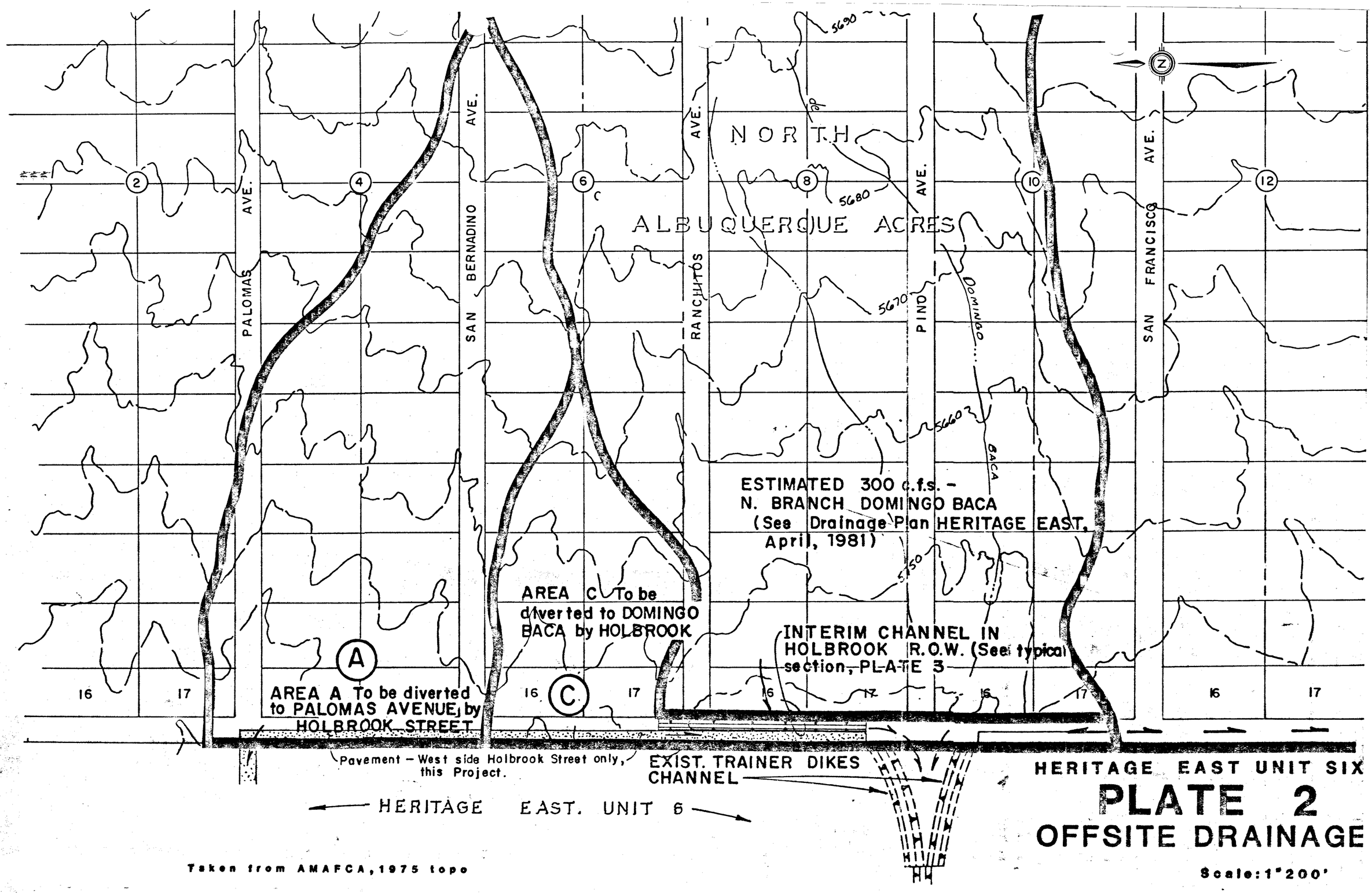
Net street flow into Area 10 for 100 year storm =
214 - 130 = 84 cfs

Net street flow into Area 10 for 10 year storm =
141 - 130 = 11 cfs. All from Unit 5.

IV. STREET FLOW (ON QUINTANA STREET FROM STATION 0+00 TO STATION 1+89)

A. Q_{100} = 84 cfs. Peak S = 0.60%
From Plate 22.3 D-2. D = 0.78
V = 3.7 fps


NORTH
ALBUQUERQUE ACRES
PALOMAS AVE.
SAN BERNADINO AVE.
RANCHITOS AVE.
PINO AVE.
SAN FRANCISCO AVE.
DOMINGO BACA
5690
5680
5670
5660
5650
2
4
6
8
10
12
16
17
A
C
ESTIMATED 300 c.f.s. -
N. BRANCH DOMINGO BACA
(See Drainage Plan HERITAGE EAST,
April, 1981)
AREA C To be
diverted to DOMINGO
BACA by HOLBROOK
INTERIM CHANNEL IN
HOLBROOK R.O.W. (See typical
section, PLATE 3
AREA A To be diverted
to PALOMAS AVENUE by
HOLBROOK STREET
Pavement - West side Holbrook Street only,
this Project.
EXIST. TRAINER DIKES
CHANNEL
HERITAGE EAST. UNIT 6
HERITAGE EAST UNIT SIX
PLATE 2
OFFSITE DRAINAGE
Taken from AMAFCA, 1975 topo
Scale: 1"200'



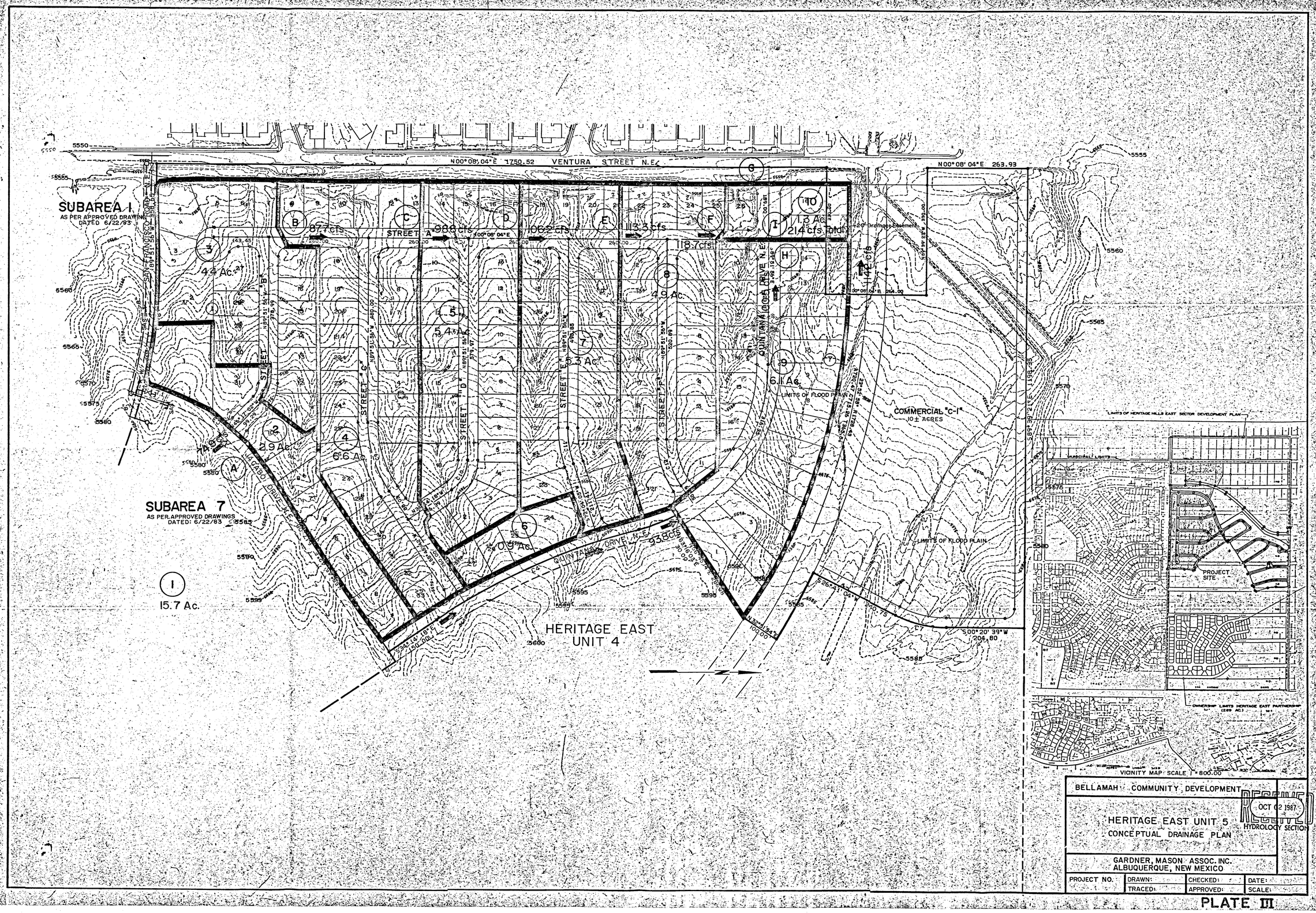
HERITAGE EAST UNIT SIX

PLATE 2

OFFSITE DRAINAGE

Taken from AMAFCA, 1975 topo

Scale: 1"200'



BELLAMAH COMMUNITY DEVELOPMENT

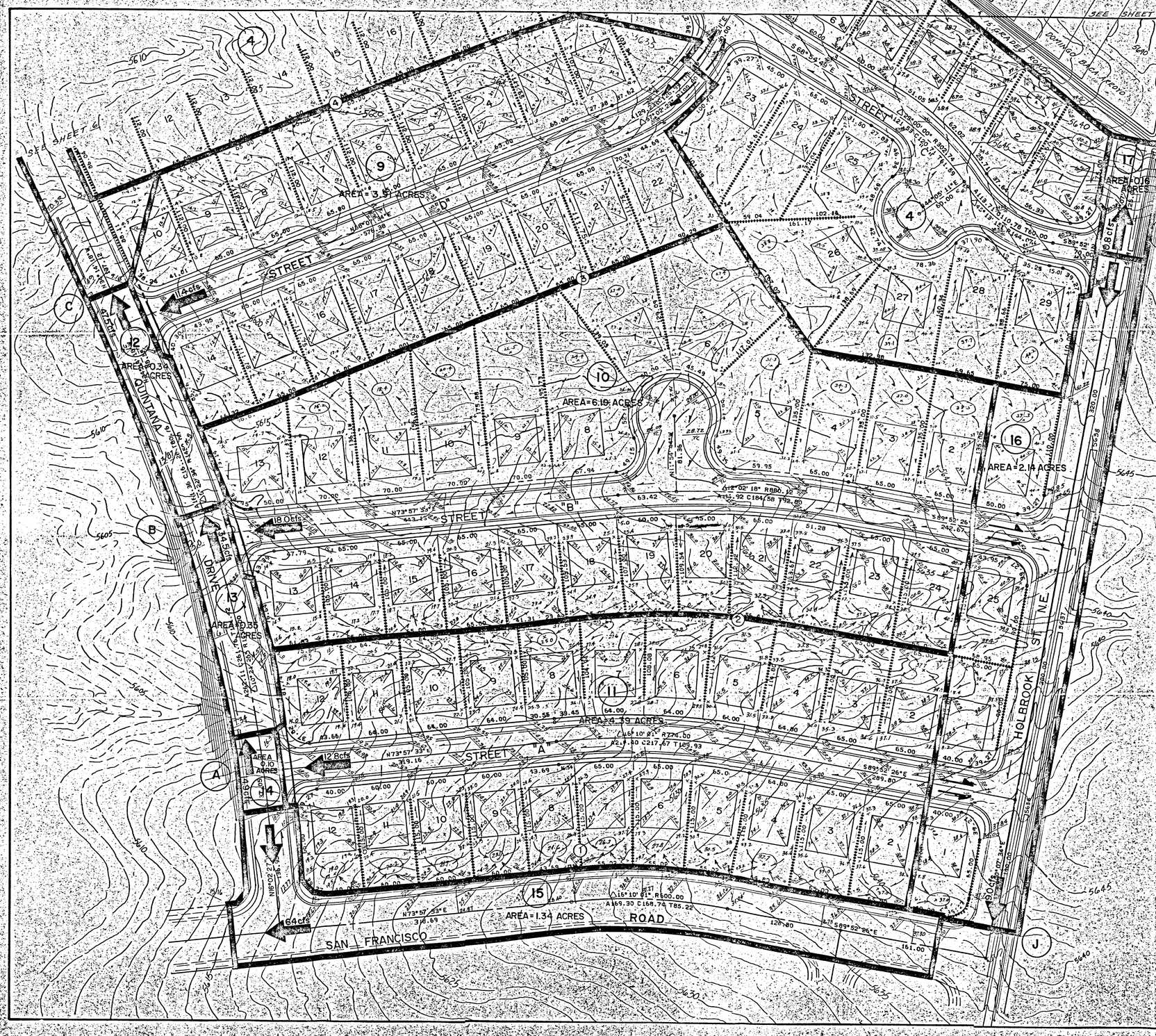
RECEIVED OCT 02 1987 HYDROLOGY SECTION

HERITAGE EAST UNIT 5
CONCEPTUAL DRAINAGE PLAN

GARDNER, MASON ASSOC. INC.
ALBUQUERQUE, NEW MEXICO

PROJECT NO.	DRAWN:	CHECKED:	DATE:
	TRACED:	APPROVED:	SCALE:

PLATE III



LEGEND

- DIRECTION OF DRAINAGE FLOW
- 5600 NEW CONTOURS
- 5610 EXISTING CONTOURS
- NEW CURB & GUTTER WITH 4' SIDEWALK AT PROPERTY LINE
- PAD ELEVATIONS
- RETAINING WALL GREATER THAN 18" HIGH
- RETAINING WALL LESS THAN 18" HIGH

GENERAL NOTES FOR GRADING PLAN

1. SEE SHEET 7 FOR LOT GRADING DETAILS.
2. SEE SHEETS 10 THROUGH 20 FOR PAVING PLAN AND PROFILES.
3. SEE SHEET 40 FOR STREET SECTIONS.
4. SEE SHEET 21 THROUGH 23 FOR DOMINGO BACA ARROYO CHANNEL GRADING.
5. ALL GRADING AND EARTH WORK TO BE COMPLETED IN ACCORDANCE WITH EARTHWORK SPECIFICATIONS.
6. REMOVAL OF STRUCTURES, OBSTRUCTIONS, ASPHALT PAVEMENT, FENCES, RIPRAP, ABANDONED UTILITIES, AND OTHER REMOVAL ITEMS NOT SPECIFICALLY COVERED BY A BID ITEM TO BE INCIDENTAL TO CONSTRUCTION AND NO SEPARATE PAYMENT TO BE MADE.
7. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL CITY OF ACCEPTANCE.
8. ONLY SIDEWALK ADJACENT TO THE PARK TO BE BUILT UNDER THIS CONTRACT.
9. ALL FINISHED FLOOR ELEVATIONS ARE 8" HIGHER THAN THE HIGHER SIDE ELEVATIONS OF THE PADS.

RECEIVED
OCT 02 1987
HYDROLOGY SECTION

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE: HERITAGE EAST UNIT 4

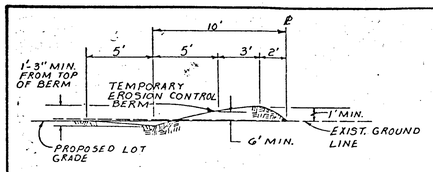
DRAINAGE MAP

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer			Liquid Waste		
A.C.E.-Design			Traffic		
A.C.E.-Hydrology			Water		

DRAWING NO. | MAP NO. | SHEET OF

AS BUILT INFORMATION: CONTRACTOR, WORK STAKED BY, INSPECTOR, STAKING CHECKED BY, FIELD VERIFICATION BY, DRAWINGS CORRECTED BY — DATE
MICRO-FILM INFORMATION: RECORDED BY, DATE, NO.
BENCH MARKS
SURVEY INFORMATION: FIELD NOTES — NO., BY, DATE
ENGINEER'S SEAL
REVISIONS: NO., DATE, BY
DESIGN: DESIGNED BY, DATE; DRAWN BY, DATE; CHECKED BY, DATE

PLATE IV



TEMPORARY EROSION CONTROL BERM DETAIL

(BERM TO BE REMOVED AFTER COMPLETION OF IMPROVEMENTS)

NOT TO SCALE

UNIT 4

EROSION CONTROL NOTES

1. The contractor is to maintain a one foot high berm along Quintana Street to prevent erosion onto the paved streets. This berm is to remain in place after completion of site improvements.
2. The erosion control berm shall be placed at locations shown on this sheet; and other locations selected by the engineer if erosion becomes a problem.
3. Upon completion of all improvements, the contractor is to remove silt from all the streets and channels.

TEMPORARY MEASURES

1. Top of Subgrade, bottom of excavation, or top of embankment shall be watered or otherwise kept dust free. The contractor at the direction of the engineer, shall use his watering equipment for dust pollution abatement. This operation shall be given priority over any other operation where the water equipment might be required. Watering, as required, shall be considered incidental to construction and no measurement or payment will be made, therefore,
2. As directed by the engineer, roadway slopes which are exposed during construction and will be subject to erosion are to be treated by watering to prevent erosion. Watering shall be considered incidental, and no measurement or payment will be made, therefore,
3. If construction operations need to be suspended for a period of time longer than two weeks, the engineer shall request the contractor to treat all exposed areas with a temporary soil stabilant. No measurement or payment will be made, therefore,
4. All areas occupied by the contractor in connection with the work, shall be kept free of dust. This work shall be considered incidental, and no measurement or payment will be made therefore.

APPROVED FOR ROUGH GRADING

DATE

NOTES:

1. GRADING WITHIN CHANNEL R.O.W. TO BE CONSIDERED CHANNEL EXCAVATION.
2. SEE SHEET 6 FOR "GENERAL NOTES FOR GRADING PLAN"

LEGEND

- SIDE SLOPE
- DIRECTION OF DRAINAGE FLOW
- 560 — EXISTING INDEX CONTOUR
- NEW CURB & GUTTER WITH 4' SIDEWALK AT PROPERTY LINE
- PAD ELEVATIONS
- RETAINING WALL GREATER THAN 18" HIGH
- RETAINING WALL LESS THAN 18" HIGH

SCALE 1"=50'

PARK AREA = 4.75 ACRES

AREA = 5.95 ACRES

AREA = 3.31 ACRES

AREA = 8.30 ACRES

AREA = 0.82 ACRES

AREA = 0.62 ACRES

AREA = 0.55 ACRES

AREA = 0.42 ACRES

12.6 cfs

93.8 cfs

86.6 cfs

77.2 cfs

71.6 cfs

24 cfs

QUINTANA

DOMINGO BACA

ARROYO

15' GRADE ROAD

IVON ST.

SEE SHEET 6

HERITAGE EAST UNIT

PARCEL A

AS BUILT INFORMATION

NO.	DATE	REMARKS	BY
4	10-12-85	Revised grades on Block 5 & 6	PA

REVISIONS

DESIGN

DESIGNED BY P.A.L. DATE 2-1-85

DRAWN BY B.G. DATE 3-10-85

CHECKED BY G.L.G. DATE 5-3-85

BENCH MARKS

ACS, BRASS TABLET, STAMPED "4-D20-1978" SET IN TOP OF A CONCRETE POST FLUSH W/GROUND, APPROX. .43 MILES SOUTH OF LOS ANGELES, 1000± WEST OF HOLBROOK STREET ELEV. 5624.779'

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE HERITAGE EAST UNIT

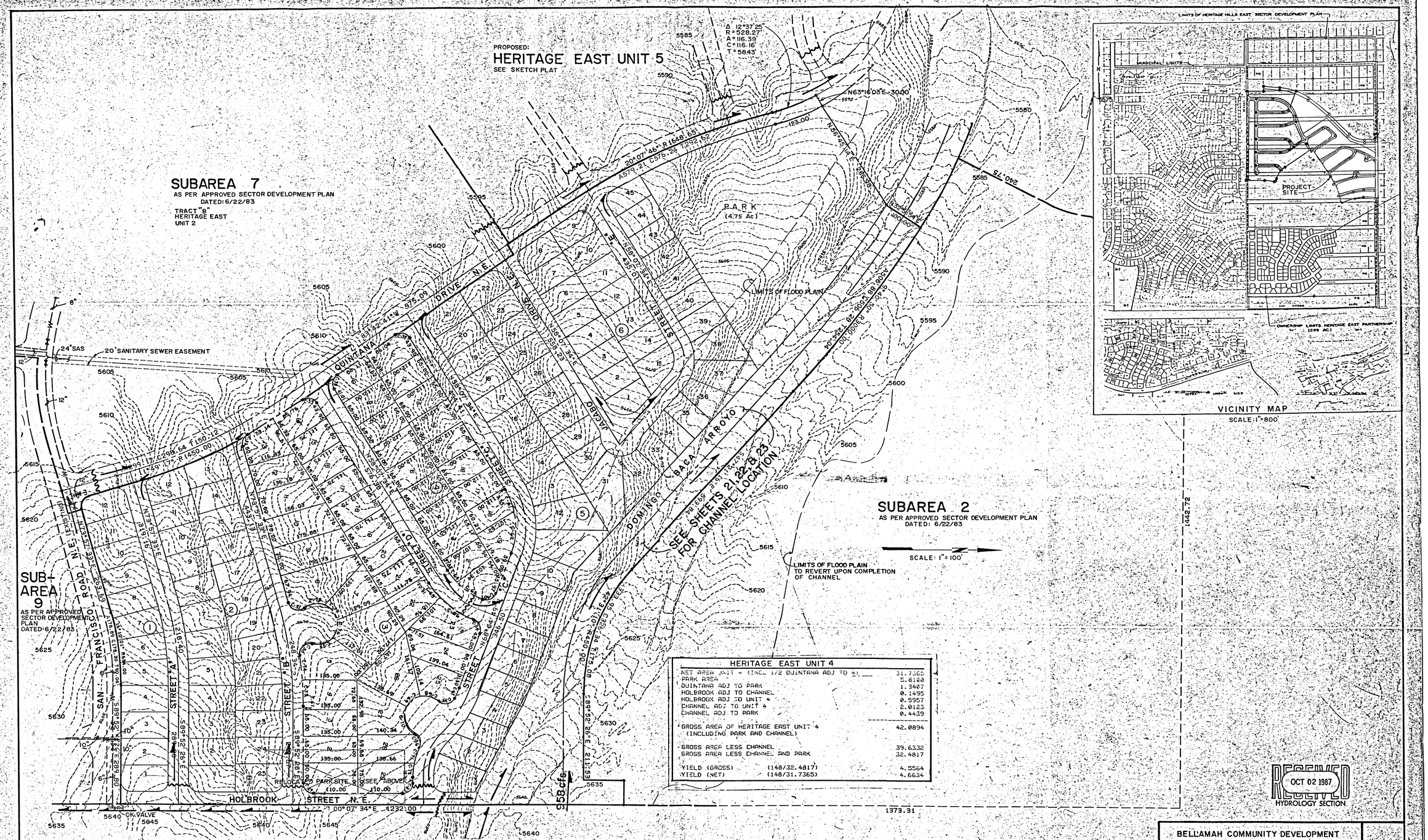
GRADING PLAN & PAVING L

RECEIVED OCT 02 1987 HYDROLOGY SECTION

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer	[signature]	9/4/85	Liquid Waste	NA	7/24/85
Asst. City Engineer	[signature]	9/4/85	Traffic	NA	8/12/85
Hydrology	[signature]	7/24/85	Water	NA	7/24/85

DRAWING NO.	MAP NO	SHEET	OF
2494	D-20-Z	7	45

PLATE V



HERITAGE EAST UNIT 4	
NET AREA UNIT 4 (INCL. 1/2 QUINTANA ADJ TO 4)	31.7365
PARK AREA	5.8148
QUINTANA ADJ TO PARK	1.3487
HOLBROOK ADJ TO CHANNEL	0.1495
HOLBROOK ADJ TO UNIT 4	0.5957
CHANNEL ADJ TO UNIT 4	2.0123
CHANNEL ADJ TO PARK	0.4439
GROSS AREA OF HERITAGE EAST UNIT 4 (INCLUDING PARK AND CHANNEL)	42.0894
GROSS AREA LESS CHANNEL	39.6332
GROSS AREA LESS CHANNEL AND PARK	32.4817
YIELD (GROSS) (148/32.4817)	4.5564
YIELD (NET) (148/31.7365)	4.6634

BELLAMAH COMMUNITY DEVELOPMENT

HERITAGE EAST UNIT 4
SKETCH PLAT

GARDNER, MASON ASSOC. INC.
ALBUQUERQUE, NEW MEXICO

PROJECT NO.	DRAWN:	CHECKED:	DATE:
	TRACED:	APPROVED:	SCALE:

PLATE II

SUBDIVISION IMPROVEMENT PLANS

FOR

HERITAGE EAST UNIT 4

IN

ALBUQUERQUE, NEW MEXICO

FOR

BELLAMAH COMMUNITY DEVELOPMENT

INDEX

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EROSION CONTROL PLANS		8-9
LOT GRADING		10
WATER & SEWER LAYOUT		11-12
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VICINITY MAP
SCALE: 1" = 8000'

ZONE MAP D-20-Z

GENERAL NOTES

1. ALL WORK DETAILED ON THESE PLANS PERFORMED UNDER CONTRACT SHALL, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH THE "CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION-1985"
2. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1934, FOR LOCATION OF EXISTING UTILITIES.
3. 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 OR SURVEYOR SO THAT THE CONFLICT CAN BE RESOLVED WITH MINIMUM AMOUNT OF DELAY.
4. ALL WATER, SEWER, AND SERVICE LINES SHALL BE INSTALLED PRIOR TO PAVING.
5. BACKFILL COMPACTION SHALL BE ACCORDING TO SPECIFIED STREET USE.
6. TACK COAT REQUIREMENTS SHALL BE DETERMINED BY THE ENGINEER.
7. SIDEWALKS AND WHEELCHAIR RAMPS WITHIN THE CURB RETURNS SHALL BE CONSTRUCTED WHEREVER A NEW CURB RETURN IS CONSTRUCTED (STD. DET., P-17).
8. IF CURB IS DEPRESSED FOR A DRIVEPAD OR A HANDICAP RAMP, THE DRIVEPAD OR RAMP SHALL BE CONSTRUCTED PRIOR TO ACCEPTANCE OF THE CURB AND GUTTER.
9. REFER TO "CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION-1985" FOR TECHNICAL SPECIFICATIONS, STANDARD SERIAL DRAWINGS AND ANY SPECIAL PROVISIONS OR SPECIFICATIONS NEEDED.
10. A DISPOSAL SITE FOR ALL EXCESS EXCAVATION MATERIAL AND ALL REMOVAL AND DISPOSAL OF PAVEMENT, CURB AND GUTTER AND SIDEWALK SHALL BE OBTAINED BY THE CONTRACTOR.
11. DISPOSAL OF ALL WASTE MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

3 2 3 4 5 6 7 8 9 10 11 12
Z6 2494 01 56

APPROVAL OF AS BUILT DRAWINGS
ASST. CITY ENGINEER-FIELD
W.J. McNamara
DATE 2-25-86

RECORD
Drawings 2-24-86

SET NO.
DATE

REV.	SHEETS	CITY ENGR.	DATE	USER DEPT.	DATE	USER DEPT.	DATE
1	8,9,12,13,14,21 22,23,24,25,26,27	RBOlson	11/8/85	Prot. D.A. Parks	11/8/85	WUD Bernie Faught	11/8/85

APPROVAL OF REVISIONS

GILBERT D. GARDNER NEW MEXICO 5853 LAND SURVEYOR REGISTERED PROFESSIONAL ENGINEER
Gilbert D. Gardner 11-30-85

GARDNER, MASON & ASSOC., INC.
ALBUQUERQUE, NEW MEXICO

2494 D-20-Z

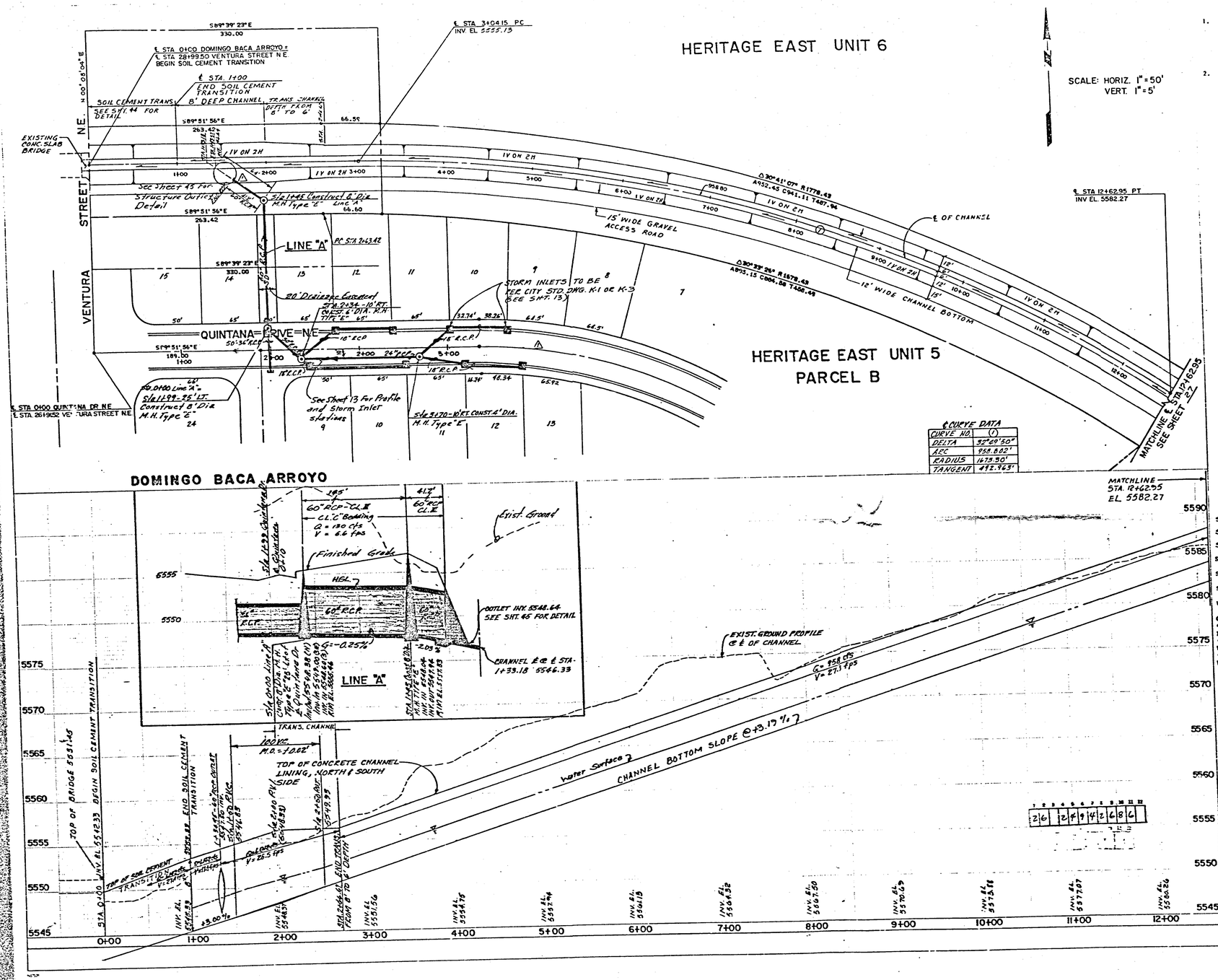
APPROVED FOR CONSTRUCTION
C.A. Shepard
CITY ENGINEER 11/8/85 DATE

SHEET 1 OF 45

D 24 C 20 B 16 A 12

CITY OF ALBUQUERQUE

C



1. 4' concrete sidewalks as per Section B-B, City of Albuquerque Std. Dwg. P-13-1, and concrete drivepads as per City of Albuquerque Std. Dwg. P-11-1 shall be constructed on a per lot basis at the time of development.

2. Centerline monumentation to be installed by DEVELOPER prior to acceptance of paving.

Centerline monumentation to be installed at all centerline PC's, PT's, Angle Points and Street Intersections - prior to acceptance of subdivision street improvements - will consist of a four-inch (4") aluminum alloy cap attached to a sectional aluminum rod which is driven directly into the paving surface and embedded in the sub-base. The cap and rod are connected by a floating thread so that the cap can be removed and an additional rod section inserted to accommodate subsequent paving overlays. The cap will be stamped "CITY OF ALBUQUERQUE", "CENTERLINE MONUMENTATION", "Survey Marker", "Do Not Disturb", "LS # ——". The centerline monumentation is to be set in conformance with the standards and specifications for Class 3 surveys, under the supervision of a New Mexico Registered Land Surveyor.

A.C.S. BRASS TABLET STAMPED "A-020-1978" SET IN TOP OF A CONCRETE POST FLUSH W/GROUND APPROX. 43 MILES SOUTH OF LOS ANGELES, 1000' WEST OF HOLBROOK STREET. ELEV. 5624.779'.

SURVEY INFORMATION FIELD NOTES NO BY DATE

ENGINEER'S SEAL — REGISTERED PROFESSIONAL ENGINEER — STATE OF NEW MEXICO — 5983 — 7-30-85

NO.	DATE	REMARKS	BY
1	10-8-85	ADJUSTED LOT LINES, LOCATION OF STORM INLETS & LOCATION OF OUTLET STRUCTURE.	R.A.

REVISIONS

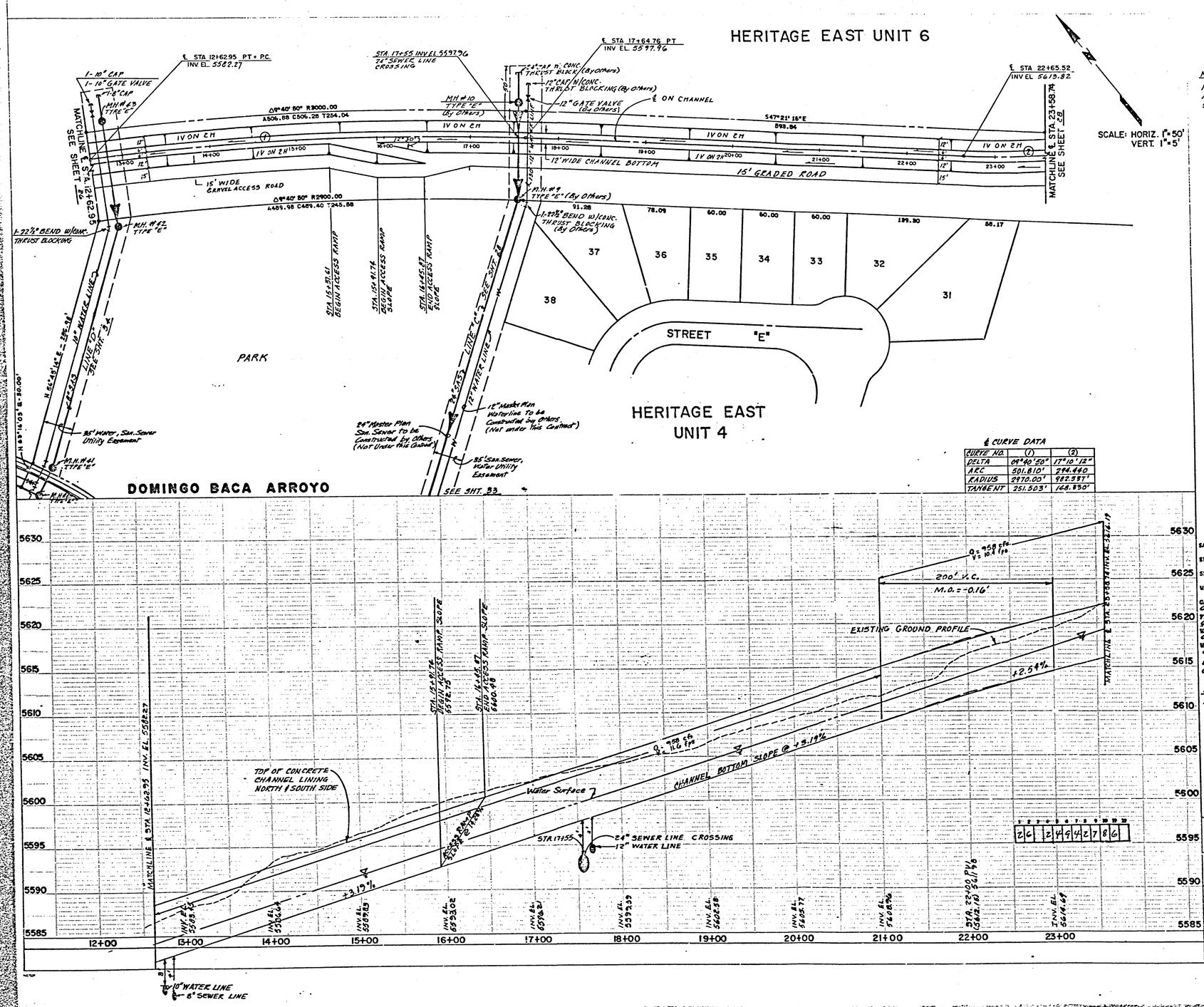
		DATE
DESIGN	R.A.	4-11-85
	M.K.	4-22-85
	G.G.	5-3-85

CITY ENGINEER | DRAWN BY | CHECKED BY

CITY OF ALBUQUERQUE

24 C 20 B 16 A 12 | CITY OF ALBUQUERQUE C

HERITAGE EAST UNIT 6



SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

NOTE:
MANHOLES TO BE PER CITY OF ALBUQ. STD. DWG. 5-1, 5-2 OR 5-4

℄ CURVE DATA

CURVE NO.	(1)	(2)
DELTA	09°40'50"	17°10'12"
ARC	501.810'	294.440
RADIUS	2970.00'	982.587'
TANGENT	251.503'	148.850'

NOTE:
SEE SHT. 11 - FOR GENERAL NOTES

LEGEND

	NEW	EXIST
SAN. SEWER M.H.		
SEWER LINE	—SAS—	—SAS—
SEWER ENCASED		
WATER LINE	—W—	—W—
GATE VALVES City STD. W-2, 4&8		
FIRE HYDRANTS City STD. W-8 & 81		
WATER METER, SINGLE City STD. W-40, 17 & 18		
WATER METER, DOUBLE City STD. W-40, 18 & 18		
SEWER SERVICE LINE City STD. S-9	—SAS—	

RECORD Drawings 2-29-84

BENCH MARKS
ACS. BRASS TABLET STAMPED "4-D20-1978" SET IN TOP OF A CONCRETE POST FLUSH W/GROUND. APPROX. 43 MILES SOUTH OF LOS ANGELES, 1000± WEST OF HOLBROOK STREET ELEV. 5624.779'.

SURVEY INFORMATION
FIELD NOTES
NO. BY DATE

ENGINEER'S SEAL
ELBERT D. GARDNER 5833 NEW MEXICO REGISTERED PROFESSIONAL ENGINEER
7-29-85

NO.	DATE	REMARKS	BY
		REVISIONS	

DESIGNED BY P.A. DATE 4-19-85
DRAWN BY M.V. DATE 4-22-85
CHECKED BY G.G. DATE 5-3-85

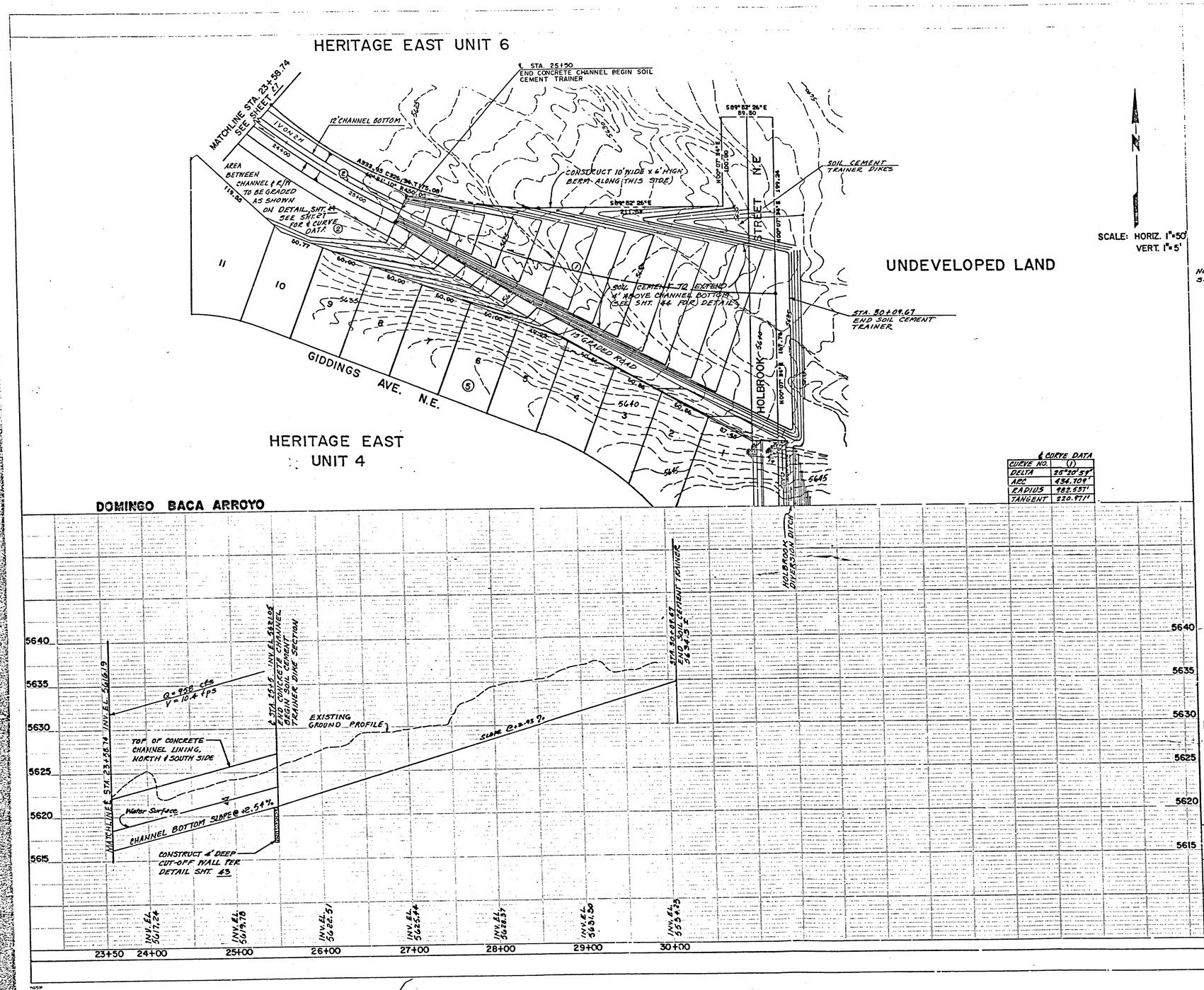
CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE: HERITAGE EAST UNIT 4
DOMINGO BACA ARROYO
CHANNEL PLAN & PROFILE

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer			Liquid Waste		
A.C.E.-Design			Traffic		
A.C.E.-Hydrology			Water		

DRAWING NO. 2494 MAP NO. D-20-Z SHEET 27 OF 45

CITY OF ALBUQUERQUE



℄ CURVE DATA	
CURVE NO.	(1)
DELTA	25°20'59"
ARC	434.709'
RADIUS	982.557'
TANGENT	220.977'

BENCH MARKS
ACS. BRASS TABLET STAMPED "4-D20-1978" SET IN TOP OF A CONCRETE POST FLUSH W/GROUND. APPROX. 43 MILES SOUTH OF LOS ANGELES, 1000± WEST OF HOLBROOK STREET. ELEV. 5624.779'.

SURVEY INFORMATION
FIELD NOTES
NO. BY DATE

ENGINEER'S SEAL
REGISTERED PROFESSIONAL ENGINEER
R. D. GARDNER
NEW MEXICO
5533
7-30-85

REVISIONS
NO. DATE REMARKS BY

DESIGN
DESIGNED BY R.H. DATE 4-15-85
DRAWN BY M.Y. DATE 4-25-85
CHECKED BY G.G. DATE 5-3-85

RECORD
Drawings 2-24-86
26 2494286

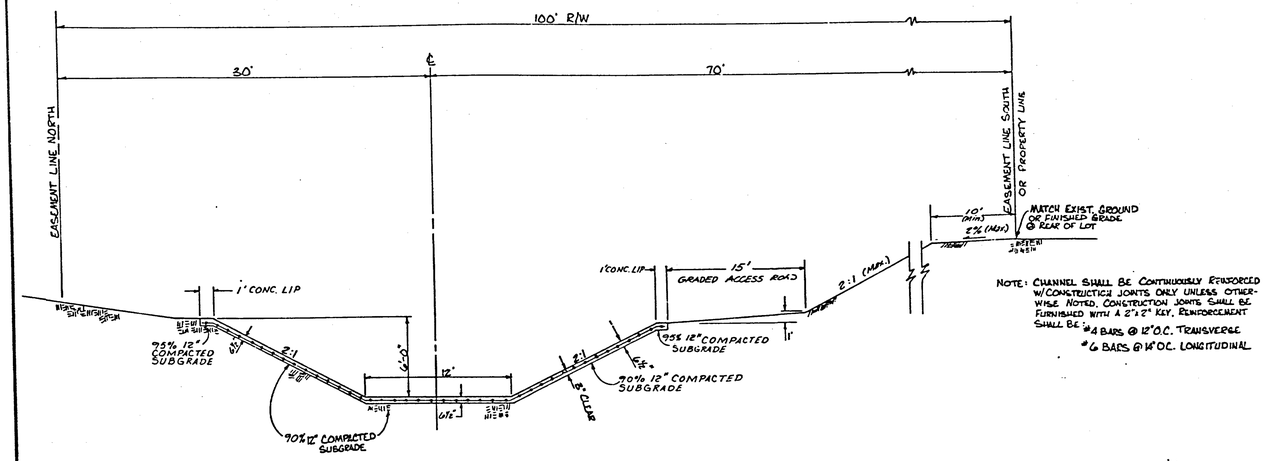
CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE: HERITAGE EAST UNIT 4
DOMINGO BACA ARROYO
CHANNEL PLAN & PROFILE

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer			Liquid Waste	NA	7/24/85
A.C.E.-Design		7/24/85	Traffic	DR	8/1/85
~~A.C.E.~~-Hydrology		7/24/85	Water	NA	7/24/85

DRAWING NO. 2494 MAP NO. D-20-Z SHEET 28 OF 45

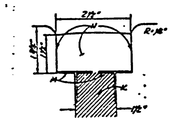
CITY OF ALBUQUERQUE



NOTE: CHANNEL SHALL BE CONTINUOUSLY REINFORCED W/ CONSTRUCTION JOINTS ONLY UNLESS OTHERWISE NOTED. CONSTRUCTION JOINTS SHALL BE FURNISHED WITH A 2"x2" KEY. REINFORCEMENT SHALL BE: #4 BARS @ 12" O.C. TRANSVERSE
#6 BARS @ 16" O.C. LONGITUDINAL

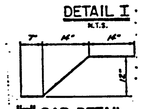
TYPICAL CHANNEL SECTION

SCALE: 1" = 5'



DETAIL I

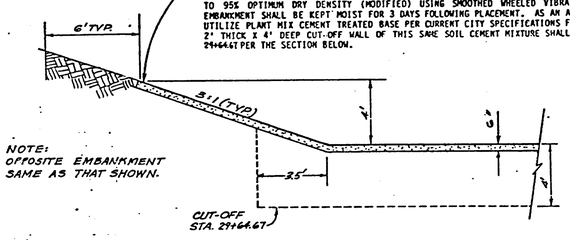
N.T.S.



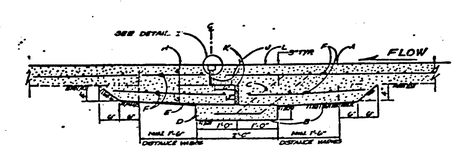
"Z" BAR DETAIL

N.T.S.

SOIL CEMENT EMBANKMENT STABILIZATION: SOIL CEMENT SHALL BE CONSTRUCTED FROM NATIVE GRANULAR SOILS WITH A 5% PORTLAND CEMENT CONTENT (8% WEIGHT) AND THOROUGHLY MIXED W/WATER TO OPTIMUM MOISTURE CONTENT. MIXTURE SHALL BE PROCESSED IN 6" LIFTS WITHIN 2 HRS. OF MIXING AND COMPACTED TO 95% OPTIMUM DRY DENSITY (MODIFIED) USING SMOOTHED WHEELED VIBRATORY ROLLING EQUIPMENT. EMBANKMENT SHALL BE KEPT MOIST FOR 3 DAYS FOLLOWING PLACEMENT. AS AN ALTERNATE, CONTRACTOR MAY UTILIZE PLANT MIX CEMENT TREATED BASE PER CURRENT CITY SPECIFICATIONS FOR ARTERIAL PAVEMENT. A 2' THICK X 4' DEEP CUT-OFF WALL OF THIS SAME SOIL CEMENT MIXTURE SHALL BE FURNISHED AT STA. 29+64.67 PER THE SECTION BELOW.

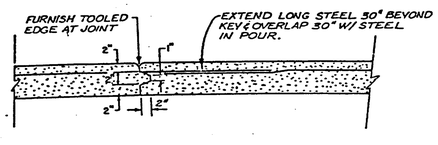


SOIL CEMENT EMBANKMENT SECTION



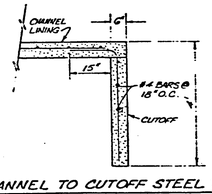
CROSS SECTION DETAIL OF EXPANSION JOINT WITH CONCRETE SLEEPER

N.T.S.



TYPICAL CONSTRUCTION JOINT

N. T. S.



CHANNEL TO CUTOFF STEEL TIES

N. T. S.

CONSTRUCTION NOTES:

A. SAW CUT EXISTING CONCRETE LINING AS MARKED IN FIELD 1" TO 1 1/2" DEEP, BREAK OUT AND REMOVE EXISTING LINING AND JOINT. CAREFULLY PRESERVE REINFORCING STEEL 18" FROM CUT.

B. RE-COMPACT SUB-GRADE TO MIN. 90% PER ASTM D 1557. SHAPE TO DIMENSIONS SHOWN.

C. TIE STEEL AS SHOWN: #4 GRADE 40 OR 60: REVERSE Z BAR EVERY OTHER SPACE. SEE DETAIL FOR Z BAR THIS SHEET.

D. FORM AND POUR 4000 PSI FLY ASH CONCRETE SLEEPER. RECOMPACT ADJACENT SOIL.

E. POLYETHYLENE BEARING PLATE, 1/4" x 18", LOW DENSITY, PLACED FLAT ON SAME GRADE AS CHANNEL.

F. TIE STEEL AS SHOWN: #5 GRADE 60 @ 12" PARALLEL TO CHANNEL AND #4 GRADE 40 OR 60 @ 18" MAXIMUM SPACING TRANSVERSE TO CHANNEL. SUPPORT BOTTOM MAT WITH PREFORMED CONCRETE CHAIRS. STEEL SHALL BE FREE OF RUST SCALE.

G. SANDBLAST BROKEN EDGE OF EXISTING CONCRETE AND APPLY TWO COMPONENT EPOXY BONDING AGENT, EVA-POX HI MOD., OR EQUAL, PRIOR TO PLACING NEW CONCRETE.

H. FORM, POUR DOWNSTREAM CONCRETE SECTION AS SHOWN WITH 4000 PSI FLY ASH CONCRETE WITH ALUMINUM FLOAT AND DRY BROOM FINISH. STEEL TROWEL BEARING PLATE SURFACE ONLY, PARALLEL TO THE CONCRETE SLEEPER SURFACE.

J. PLACE 1/4" X 6" LOW DENSITY POLYETHYLENE BEARING PLATE AS SHOWN BETWEEN THE TWO FILLER SECTIONS.

K. PLACE FOAM POLYETHYLENE FILLERS AS SHOWN PLASTAZOTE OR EQUAL. DO NOT ANCHOR WITH NAILS. KEEP FILLER FLAT AGAINST POURED CONCRETE SECTION WITH FRESH CONCRETE WHEN POURING UPSTREAM SECTION.

L. POUR UPSTREAM SECTION AS PER SKETCH AND AND NOTE "F".

M. PLACE POLYETHYLENE BOND BREAKER UNDER STEEL.

N. APPLY 2 COMPONENT EPOXY BONDER TO BOTH SIDES EVA-POX BONDER OR EQUAL AND IMMEDIATELY INSTALL ETHYLENE VINYL ACETATE FOAM SEALANT. EV+-SEAL OR EQUAL AS SHOWN. DIMENSION OF SEALANT BEFORE INSTALLATION SHALL BE 3" WIDE AND 1 1/2" DEEP.

P. CONSTRUCT SIDE SLOPES, IF REQUIRED BY THE CONTRACT PER DWG.

1	2	3	4	5	6	7	8	9	10	11	12
Z	6		Z	4	3	4	4	4	8	6	

RECORD
Drawings 2-24-86

AS BUILT INFORMATION
CONTRACTOR
WORK STAKED BY — DATE
ACCEPTANCE BY — DATE
REDLINE VERIFICATION BY — DATE
CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO

BENCH MARKS
ACS. BRASS TABLET STAMPED "4-D20-1978" SET IN TOP OF A CONCRETE POST FLUSH W/GROUND. APPROX. 43 MILES SOUTH OF LOS ANGELES, 1000' WEST OF HOLBROOK STREET ELEV. 5624.779'.

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL
STATE OF NEW MEXICO — JAMES C. CARPENTER — REGISTERED PROFESSIONAL ENGINEER — 5263
7-30-85

NO.	DATE	REMARKS	BY

REVISIONS

		DATE
DESIGN		
DESIGNED BY	R.A.	5-1-85
DRAWN BY	R.R.	5-2-85
CHECKED BY	G.G.	5-3-85

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE: HERITAGE EAST UNIT 4
DRAINAGE CHANNEL DETAILS

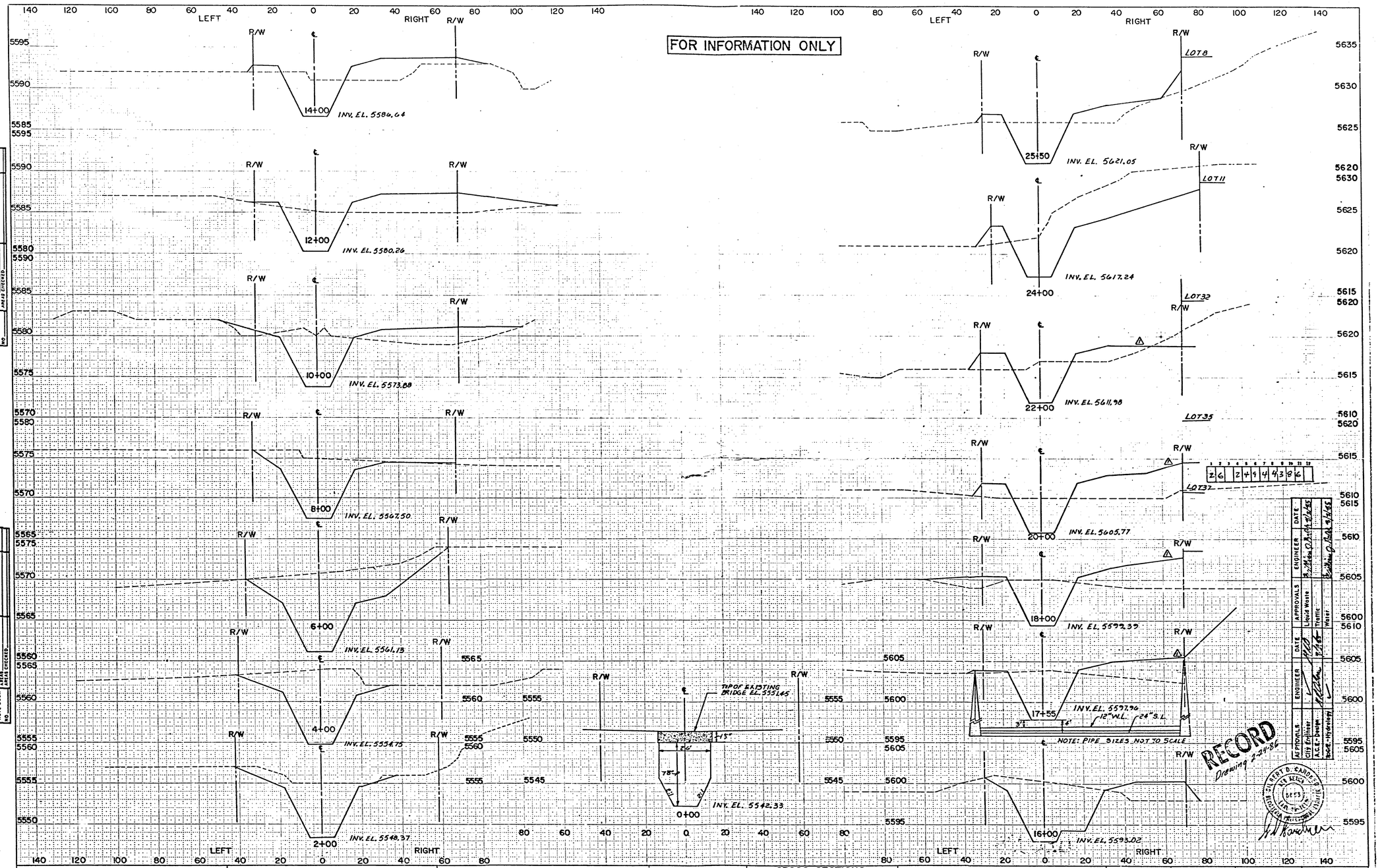
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer	[illegible]	7/24/85	Liquid Waste	N.A. [illegible]	7/24/85
A.C.E.-Design	[illegible]	7/24/85	Traffic	N.A. [illegible]	8/12/86
~~A.C.E.~~-Hydrology	[illegible]	7/24/85	Water	N.A. [illegible]	7/24/85

DRAWING NO.	MAP NO.	SHEET	OF
2494	D-20-Z	44	45

D 24 C 20 B 16 A 12

CITY OF ALBUQUERQUE

C



CITY OF ALBUQUERQUE	HERITAGE EAST UNIT 4	PLATE 3 CROSS SECTION - DOTTED CHARLES BRUNING COMPANY MADE IN U.S.A.	CROSS SECTIONS STA. 0+00 TO STA. 25+50	DOMINGO BACA ARROYO CHANNEL	DRAWN: M.E.Y. / TRACED:	CHECKED: DC-D / APPROVED:	DATE: 4-15-85 / SHEET 43 OF 45 / SCALE HORZ. 1"=20' VERT. 1"=5'

2494

REVISION △ GRADES ADJUSTED ON SECTION 17+55 THROUGH 23+00 11/85

D 24 C 20 B 16 A 12

CITY OF ALBUQUERQUE

C