

DRAINAGE INFORMATION SHEET

PROJECT TITLE: HERITAGE PLAZA S/D ZONE ATLAS/DRNG. FILE #: H-9-D-1BLEGAL DESCRIPTION: TR. 1, EL RANCHO ATRISCO, PHASE IIICITY ADDRESS: DNAENGINEERING FIRM: ISAACSON & ARFMAN CONTACT: FRED ARFMANADDRESS: 128 MONROE ST. PHONE: 268-8828OWNER: WESTLAND DEV. CO. CONTACT: RON BOHANNANADDRESS: 401 N. COORS PHONE: 831-9600

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: RON FORSTBAUER CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: DNA CONTACT: _____

ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

X YES

~~SE~~ NO

X PREVIOUSLY
COPY OF CONFERENCE RECAP
SHEET PROVIDED

DRB NO. 85-196

EPC NO. _____

PROJECT NO. _____

TYPE OF SUBMITTAL:

____ DRAINAGE REPORT

____ DRAINAGE PLAN

X **REVISED**
CONCEPTUAL GRADING & DRAIN. PLAN

____ GRADING PLAN

____ EROSION CONTROL PLAN

____ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

____ SKETCH PLAT APPROVAL

____ PRELIMINARY PLAT APPROVAL

____ SITE DEVELOPMENT PLAN APPROVAL

X FINAL PLAT APPROVAL

____ BUILDING PERMIT APPROVAL

____ FOUNDATION PERMIT APPROVAL

____ CERTIFICATE OF OCCUPANCY APPROVAL

____ ROUGH GRADING PERMIT APPROVAL

DATE SUBMITTED: 9-18-85 _____ GRADING/PAVING PERMIT APPROVALBY: Fred C. Arfman OTHER _____ (SPECIFY)



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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

October 18, 1985

Mr. Fred Arfman
Isaacson & Arfman, PA
128 Monroe Street NE
Albuquerque, NM 87108

REF: CONCEPTUAL DRAINAGE PLAN FOR TRACT 1 EL RANCHO ATRISCO PHASE III
(H9-D1B) RECEIVED SEPTEMBER 18, 1985

Dear Mr. Arfman:

I have reviewed the above referenced submittal and it is in compliance with the comments that you previously received regarding this development. Consequently, the above referenced plan, dated 9/16/85 is approved in concept whereby, allowing Site Development Plan sign-off and the granting of Preliminary Plat approval by DRB. For Preliminary Plat approval the DRB will also need to approve the required infrastructure listing.

Prior to any further approvals or sign-offs, i.e. final plat, building permits or work order plans, a comprehensive detailed Drainage Report will be required for review and approval.

Should you have any questions or comments, please call this office at 766-7644.

Cordially,

Billy J. Goolsby, PE
Civil Engineer/Hydrology

for

BJG:mrk

MUNICIPAL DEVELOPMENT DEPARTMENT

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

ENGINEERING DIVISION

Telephone (505) 766-7467

AN EQUAL OPPORTUNITY EMPLOYER

CONCEPTUAL DRAINAGE PLAN

HERITAGE PLAZA

THE STUDY SITE IS BOUNDED BY UNSER BLVD., HANOVER RD., HERITAGE BLVD. AND LADERA DR. CONTAINING APPROXIMATELY 23.34 ACRES. THE SITE IS PRESENTLY UNDEVELOPED AND SLOPES FROM NORTHWEST TO SOUTHEAST WITH AN AVERAGE SLOPE OF 2 PERCENT. FLOWS FROM THE SITE DISCHARGE TO HANOVER RD. AND HERITAGE BLVD. (PRESENTLY UNDER DESIGN BY ISAACSON & ARFMAN CONSULTING ENGINEERING ASSOCIATES).

OFF-SITE FLOWS HAVE NO IMPACT ON THE PROPOSED SITE DUE TO EXISTING ELEVATIONS.

THE PROPOSED DEVELOPMENT IS BEING PLANNED CONCURRENT WITH HERITAGE BLVD. AND HANOVER RD. IMPROVEMENTS. THE EXISTING STORM DRAIN IN HANOVER RD. HAS BEEN DESIGNED FOR THE INJECTION OF 50 CFS OF STORM RUNOFF FROM THE SITE AS SHOWN ON THE PLAN. THIS INFORMATION IS PROVIDED IN SAD #212. A NEW STORM DRAIN WILL BE EXTENDED NORTH ALONG HERITAGE BLVD. TO INTERCEPT THE REMAINING SITE FLOWS. ALL SITE FLOWS ARE THEN TRANSPORTED TO AN EXISTING DETENTION POND LOCATED SOUTHEAST OF THE LAURELWOOD DEVELOPMENT. CAPACITIES OF ALL DOWNSTREAM FACILITIES ARE BEING INVESTIGATED BY ISAACSON & ARFMAN, CONSULTING ENGINEERING ASSOCIATES. PONDING WILL BE PROVIDED IN BASINS THREE, FIVE, AND SIX AS REQUIRED TO MATCH DOWNSTREAM CAPACITIES, HOWEVER, IT IS NOT NOW ANTICIPATED THAT PONDING WILL BE REQUIRED.

CALCULATIONS:

SOIL SERIES: PAC, BCC: HYDROLOGIC SOIL GROUP = B

AREA = 23.34 ACRES

L = 1550 FT.

S = $(85-50)/1550 = 0.0226$

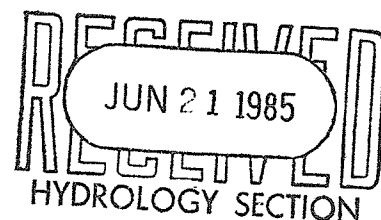
$T_c = 0.0078(1550)^{.77} / (.0226)^{.385} = 9.60 \text{ MIN.}$

USE $T_c = 10 \text{ MIN.}$

I = 2.2 IN./HR. PLATE 22.2 D-2

RAINFALL = 2.2 IN. PLATE 22.2 D-1

i = $(2.2)(2.2) = 4.84 \text{ IN./HR.}$



EXISTING ON-SITE CONDITIONS:

PERCENT IMPERVIOUS = 0%

C = 0.34 PLATE 22.2 C-1

Q(100) = (0.34)(4.84)(23.34) = 38.41 CFS

Q(10) = (0.657)(38.41) = 25.23 CFS

CN = 70 PLATE 22.2 C-2

DIRECT RUNOFF = 0.35 IN. PLATE 22.2 C-4

V(100) = (0.35)(23.34)(43560)/12 = 29653 CU. FT.

V(10) = (0.657)(29653) = 19482 CU. FT.

PROPOSED ON-SITE CONDITIONS:

PERCENT IMPERVIOUS = 83%

C = 0.79 PLATE 22.2 C-1

Q(100) = (0.79)(4.84)(23.34) = 89.24 CFS

Q(10) = (0.657)(89.24) = 58.63 CFS

CN = 92 PLATE 22.2 C-2

DIRECT RUNOFF = 1.4 IN. PLATE 22.2 C-4

V(100) = (1.4)(23.34)(43560)/12 = 118614 CU. FT.

V(10) = (0.657)(118614) = 77929 CU. FT.

CAPACITY OF HANOVER ROAD:

40' STREET

S = 0.025

Q(100) = (90)(2) = 180 CFS

Q(10) = (22)(2) = 44 CFS

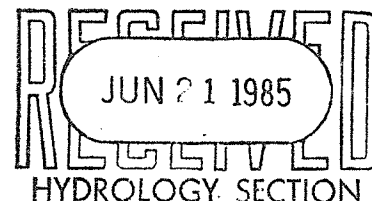
CAPACITY OF HERITAGE BLVD.:

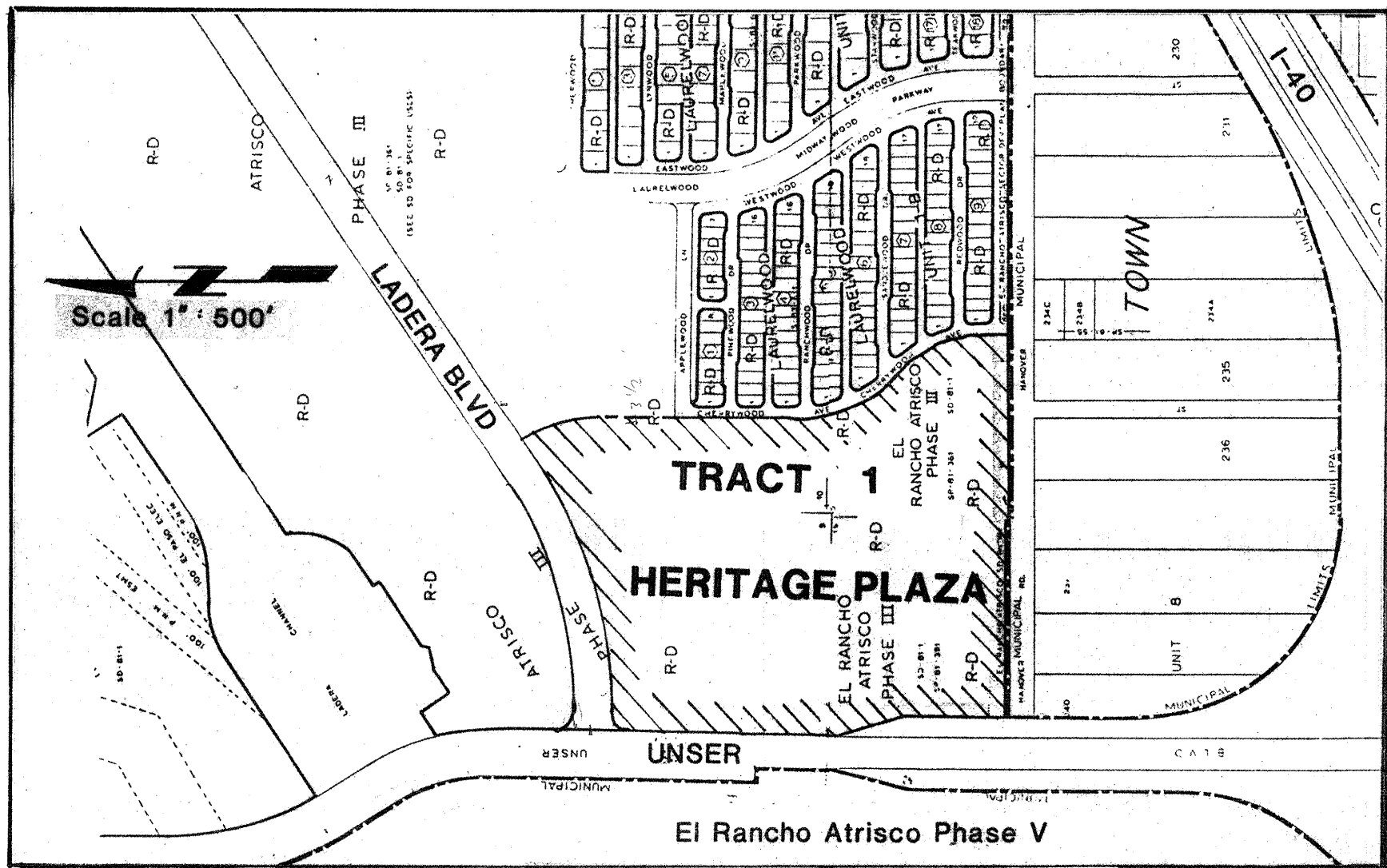
70' STREET

S = 0.015

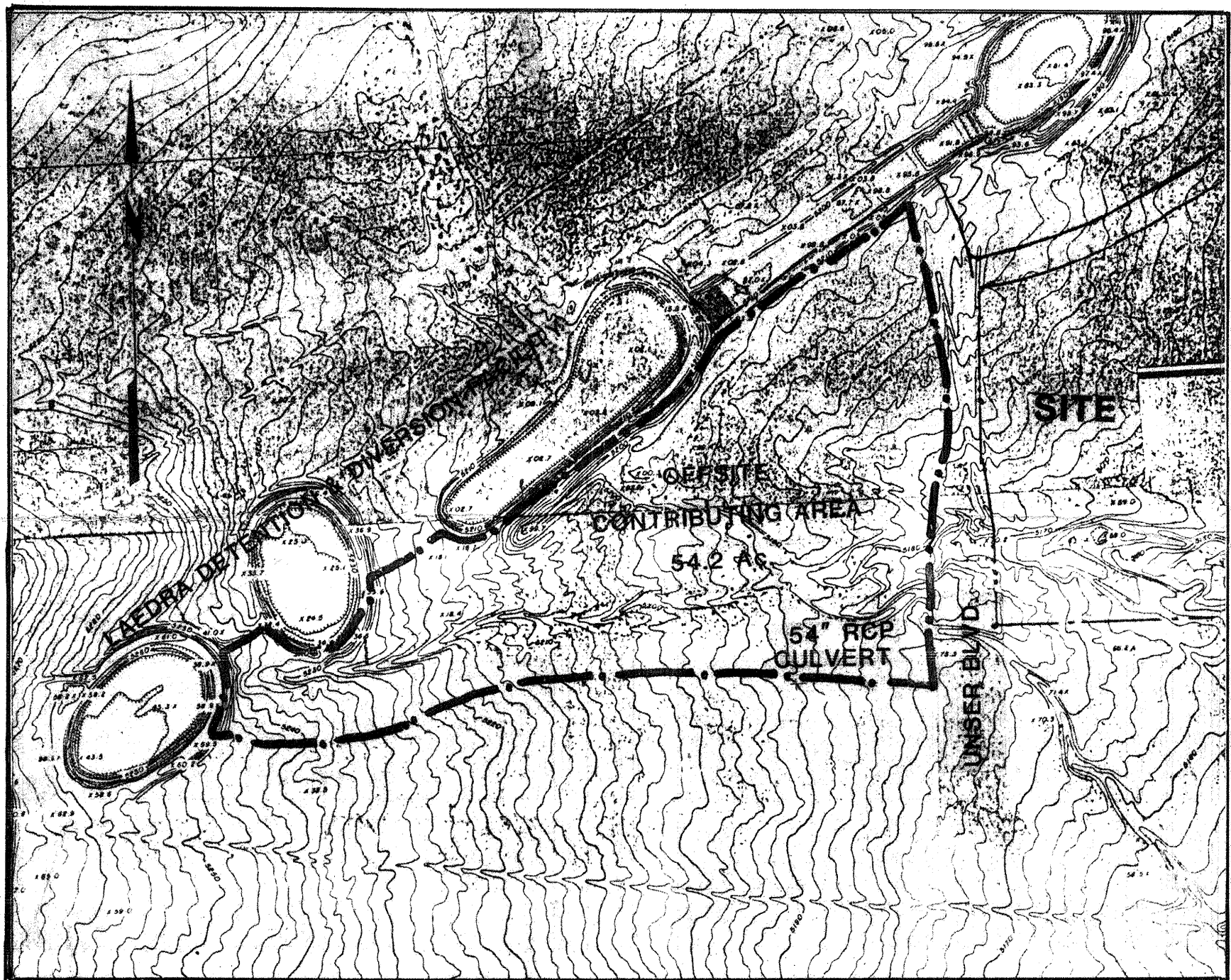
Q(100) = (93)(2) = 186 CFS

Q(10) = (16.5)(2) = 33 CFS

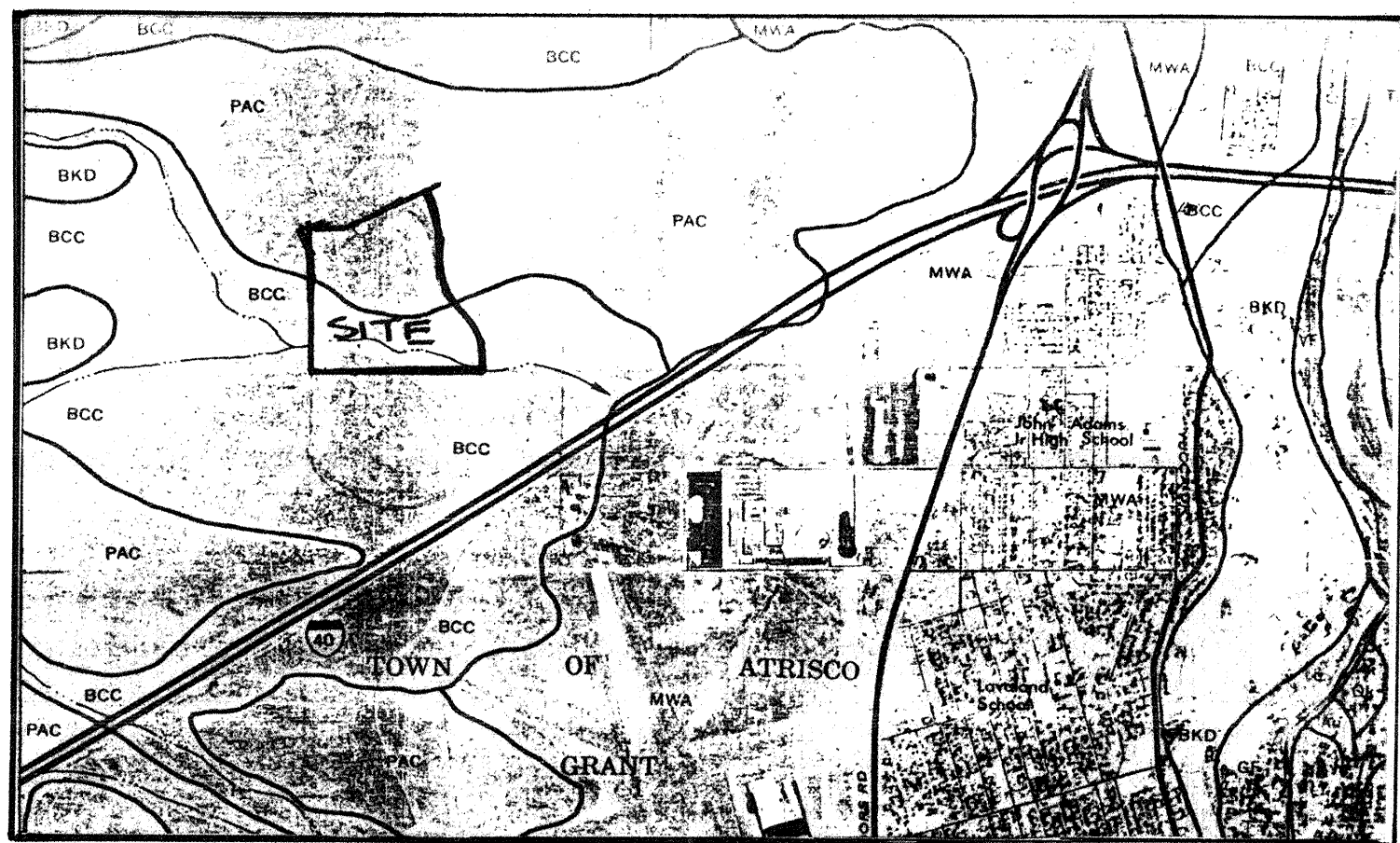




VICINITY MAP
MAP NOS. H-9, H-10, J-9, J-10



SURROUNDING & CONTRIBUTING AREAS



SOILS MAP

LEGAL DESCRIPTION

TRACT 1 OF EL RANCHO ATRISCO, PHASE III AS FOUND IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO IN BOOK C-19, PAGE 143-1 AND RECORDED ON MAY 17, 1982 AND CONTAINING 35.9707 ACRES.

FLOOD HAZARD

THIS SITE IS NOT AFFECTED BY ANY EXISTING FLOOD PLAINS OR FLOODWAY AS DEFINED ON PLATE 26 AND 27 OF THE CITY ACCEPTED FLOOD HAZARD MAPS PREPARED BY FEMA IN OCTOBER OF 1983.

SOILS

SUBJECT SITE CONSIST OF A PAJARITO SERIES (PAC) SOIL ON THE NORTH HALF AND A BLUEPOINT SERIES (BCC) SOIL IN THE SOUTHERLY HALF. THE PAJARITO IS IN THE HYDROLOGICAL SOIL GROUP "A" WHILE THIS BLUEPOINT IS IN GROUP "B".

OFFSITE DRAINAGE

AREA = 54.2 ACRES
L = 2600'
S = 0.02541/1
Tc = 21 MIN
I = (1.45) (2.2) = 3.19
'C'(UND) = 0.37
'C'(DEV) = 0.70

UNDEVELOPED
 $Q_{100} = (0.37) (3.19) (54.2) = 64$ CFS
COMPARES WITH 61 CFS FROM SAD 212 STUDY
 $Q_{10} = (0.657) (64) = 42$ CFS

DEVELOPED (Tc = 30 MIN.)
 $Q_{100} = (0.70) (2.68) (54.2) = 102$ CFS - DISCHARGE IS CONTROLLED BY THE ENTRANCE TO THE 54" CULVERT AND THE REDUCTION TO A 36" RCP TO THE EAST OF UNSER. THE SAD 212 PLAN CALLED FOR 80 CFS ACCEPTANCE ON THE EAST R.O.W. OF UNSER BOULEVARD.
 $Q_{10} = (102) (0.657) = 67$ CFS

ALL OTHER OFFSITE FLOWS ARE DEFLECTED BY EITHER UNSER OR LADERA BOULEVARDS.

EXISTING CONDITIONS

NORTH - LADERA BOULEVARD IMPROVED AS A FOUR LANE DIVIDE ROAD WITHIN A 106' RIGHT-OF-WAY. NO STORM WATER FLOWS FROM LADERA BOULEVARD ENTER ONTO THE SITE.

EAST - LAURELWOOD SUBDIVISION BORDERS ON THE ENTIRE EASTERLY BOUNDARY. THE SOUTHEASTERLY PORTION (SOUTH OF APPLEWOOD) HAS IMPROVED PUBLIC STREETS, UTILITIES AND STORM DRAINS. THIS OFFSITE AREA IS DOWN GRADE FROM THE SUBJECT SITE, THEREFORE IT DOES NOT CONTRIBUTE STORM WATERS TO TRACT 1 B OR 1 C.

SOUTHBOUND LANE FLOW CHARACTERISTICS UNCONTROLLED DISCHARGE FROM CONTRIBUTING AREAS

10 YR. EVENT ANALYSIS		1/2 ST. FLOW CARRYING CHARACTERISTICS						STORM DRAIN		
PT.	STREET GRADE	Q(CFS)	V(FPS)	D(FT)	QD=0.5'	QD=0.67'		DIA.	SLOPE %	Q(CFS)
1	1.0 %	1.6	1.9	0.27	13.5	36		N/A	N/A	N/A
2	1.6 %	32	4.6	0.58	17.0	36		"	"	"
3	"	41	5.2	0.65	"	"		"	"	"
4	"	19	4.0	0.52	"	"		24"	1.7	29.6
5	"	3	2.6	0.29	"	"		30"	1.24	45.6
6	"	0	0	0	"	"		42"	1.24	45.6
ALL FLOWS ACCEPTED BY 42" DIA. STORM DRAIN										
100 YEAR EVENT		1/2 ST. FLOW CARRYING CHARACTERISTICS						STORM DRAIN		
PT.	STREET GRADE	Q(CFS)	V(FPS)	D(FT)	QD=0.5'	QD=0.67'		DIA.	SLOPE %	Q(CFS)
1	1.0 %	2.4	2.4	0.36				N/A	N/A	N/A
2	1.6 %	47.4	5.5	0.68				"	"	"
3	"	61	5.7	0.75				"	"	"
4	"	39	5.1	0.64				24"	2.14	33.1
5	"	19	3.8	0.49				36"	0.63	53.0
6	"	0	0	0				42"	0.63	53.0
ALL FLOWS (79 CFS) ACCEPTED BY 42" DIA. STORM DRAIN										

EXISTING CONDITIONS (CONTINUED)

EAST - LOCATED IN CHERRYWOOD LANE, WHICH BORDERS THE SITE, IS A BATTERY OF FOUR CATCH BASINS WHICH TIE INTO THE AREA'S MAJOR STORM DRAIN. THESE CATCH BASINS WOULD ACCEPT THE UNDEVELOPED FLOWS FROM THE WESTERLY AREAS DUE TO THEIR PROXIMITY TO THE PRIMARY STORM WATER ROUTE THROUGH THE SUBJECT SITE. AFTER THE DEVELOPMENT OF TRACT 1, THESE BASINS SHALL STILL BE USEFUL BY ACCEPTING THOSE STORM WATERS GENERATED BY A PORTION OF BOTH TRACTS 1B & 1C.

SOUTH - HANOVER ROAD BORDERS ALONG THE SOUTH PROPERTY LINE. THIS ROAD IS NOT ANNEXED INTO THE CITY AND DOES NOT CONTRIBUTE STORM WATER TO THE SUBJECT SITE. ADJACENT AND OFFSITE 25 FEET FROM THE PROPOSED NORTHERLY RIGHT-OF-WAY LINE OF HANOVER ROAD IS A CITY STORM DRAIN CENTERED WITHIN A 30' EASEMENT. THIS STORM DRAIN WAS CONSTRUCTED UNDER S.A.D. 212 AND CONVEYS STORM WATERS FROM THOSE AREAS WEST OF UNSER BOULEVARD TO THE PUBLIC PARK AND DETENTION POND AT THE NORTHWEST QUADRANT OF 72ND STREET AND HANOVER ROAD. THE STORM DRAIN SIZES, MANHOLE LOCATIONS AND DESIGNED FLOW RATES ARE ALL SHOWN ON THE SITE EXHIBIT (SHEET 2 OF 2). THIS STORM DRAIN WAS DESIGNED TO PROVIDE THE STORM WATER RELIEF FOR THE ENTIRE DEVELOPED TRACT AND SHALL BE USED TO ITS FULL POTENTIAL IN HANDLING THE DEVELOPED STORM WATERS.

WEST - UNSER BOULEVARD DEFLECTS ALL OFFSITE STORM WATERS WHICH HISTORICALLY CONTRIBUTED TO THE SITE. THESE FLOWS ARE DIRECTED TO THE 54" DIA. R.C.P. CULVERT WHICH ALIGNS WITH THE PUBLIC STORM DRAIN PARALLELING THE NORTH R.O.W. LINE OF HANOVER RD. UNSER BLVD'S STORM WATERS DO NOT ENTER ONTO THE SUBJECT SITE.

PROPOSED CONDITIONS

THE SECTOR DEVELOPMENT PLAN FOR EL RANCHO ATRISCO, PHASE III HAS THE FOLLOWING LAND USE DESIGNATIONS FOR THE THREE TRACTS:

TRACT 1A-OFFICE/COMMERCIAL MIX TRACT 1B - MULTI-FAMILY
TRACT 1C - MULTI-FAMILY

TRACT 1A HAS BEEN MASTERPLANNED AND SUBMITTED TO THE CITY (EPC). THE POINTS OF RELEASE OF STORM WATER HAVE BEEN IDENTIFIED ON THE SITE'S EXHIBIT ALONG WITH THEIR CORRESPONDING DISCHARGE RATES. THESE FLOWS MUST BE CONVEYED BY HERITAGE BLVD. AND COLLECTED BY CATCH BASINS WHERE THEY WOULD BE ALLOWED TO ENTER INTO THE PREVIOUSLY MENTIONED STORM DRAIN.

A MAJORITY OF THE STORM WATER RUNOFF FROM TRACTS 1B AND 1C CANNOT BE RELEASED INTO HERITAGE BLVD. THEY MUST DISCHARGE TO THE EAST AND ENTER ONTO CHERRYWOOD LANE AT A RELEASE RATE COMPATIBLE WITH THE EXISTING AND PROPOSED IMPROVEMENTS. HERITAGE BLVD. SHALL BE CONSTRUCTED AS A MINOR ARTERIAL (86' R.O.W. AND A 66 FOOT FACE TO FACE DIMENSIONING). A PUBLIC STORM DRAIN SHALL BE CONSTRUCTED WITHIN ITS RIGHT-OF-WAY TO COLLECT ALL SURFACE FLOWS. THE FOLLOWING TABLE IS PROVIDED TO SHOW THE STORM WATER CONVEYANCE CHARACTERISTICS OF HERITAGE BLVD. AND ITS RELATED STORM DRAIN. ALL FLOW RATES AND POINTS OF ACCEPTANCE ARE FROM THE CONCEPTUAL DRAINAGE PLAN PREPARED BY CHAVEZ-GREIVES & ASSOCIATES AS PART OF THE EPC SUBMITTAL PACKAGE OF MAY 30, 1985. THE ADDITION OF A CONTROLLED DISCHARGE RATE FOR BASINS NO. 5&6 HAS BEEN INCORPORATED TO BRING THE TOTAL FLOW RATE FOR THE SITE INTO AN ACCEPTABLE AND WORKING RANGE SUCH THAT THE PLANNED CARRYING CAPACITY OF THE 42" DIA. STORM DRAIN IS NOT OVERTAXED.

NOTES

- ALL STREET CAPACITY VALUES WERE DERIVED FROM THE DPM, PLATE 22.3 D-3.
- CATCH BASIN CAPACITIES WERE DERIVED FROM THE DPM, PLATE 22.3 D-5 & D-7.
- STORM DRAIN DIAMETERS WERE DERIVED FROM THE DPM, PLATE 22.3 B-5, "FACTORS FOR CLOSED CONDUITS FLOWING FULL."

10 YR. EVENT ANALYSIS		STREET		1/2 ST. FLOW CARRYING CHARACTERISTICS				STORM DRAIN		
PT.	GRADE	PT.	GRADE	Q(CFS)	V(FPS)	D(FT)	QMAX @ 0.5'	Q=0.67'	DIA.	SLOPE %
1	1.0 %	1	1.0 %	1.6	1.9	0.27	13.5	36	N/A	N/A
2	1.6 %	2	1.6 %	21.6	4.1	0.52	17.0	46	"	"
3	"	3	"	31	3.8	0.60	"	"	"	"
4	"	4	"	12	3.5	0.42	"	"	24"	1.0
5	"	5	"	12	3.5	0.42	"	"	24"	1.4
6	"	6	"	0	0	0	"	"	24"	1.4
MAIN STORM DRAIN LINE										
100 YEAR EVENT		STREET		1/2 ST. FLOW CARRYING CHARACTERISTICS				STORM DRAIN		
PT.	GRADE	PT.	GRADE	Q(CFS)	V(FPS)	D(FT)	QMAX @ 0.5'	Q=0.67'	DIA.	SLOPE %
1	1.0 %	1	1.0 %	2.4	2.4	0.36		56	N/A	N/A
2	1.6 %	2	1.6 %	24.4	4.3	0.55		72	"	"
3	"	3	"	38.4	5.0	0.63		"	"	"
4	"	4	"	17.0	3.9	0.51		"	24"	2.54
5	"	5	"	19	3.8	0.49		"	36"	0.63
6	"	6	"	0	0	0		"	36"	0.63
MAIN STORM DRAIN LINE										

61 CFS INJECTED INTO 42" STORM DRAIN AT JUNCTION MH

CONCEPTUAL DRAINAGE PLAN

FOR

TRACT 1, EL RANCHO ATRISCO, PHASE III

LANDS OF

WESTLAND DEVELOPMENT CO., INC.



CONCLUSIONS

- BASINS 3, 5, AND 6 SHALL HAVE RESTRICTIVE RUNOFF RATES NOT TO EXCEED THOSE OF THE 10 YEAR EVENT.
- BASINS 1, 2 AND 4 MAY HAVE UNRESTRICTED STORM WATER DISCHARGE RATES AND RELEASE THEIR FLOWS DIRECTLY INTO THE HANOVER ROAD STORM DRAIN SYSTEM OR ONTO THE DRIVING SURFACE OF HERITAGE BLVD.
- HERITAGE BLVD. SHALL HAVE A SECONDARY STORM DRAIN SYSTEM TO COLLECT ALL OF THE STORM WATERS FROM THOSE UPLAND CONTRIBUTING AREAS. THESE FLOWS SHALL BE ACCEPTED BY THE HANOVER STORM DRAIN VIA A NEW MANHOLE AT THE INTERSECTION OF HERITAGE BLVD. AND HANOVER ROAD.
- BASINS 6 AND 7, TRACTS 1B & 1C RESPECTIVELY, STORM WATER RUNOFF DOES NOT AFFECT THE DRAINAGE CHARACTERISTICS OF HERITAGE BLVD. STORM WATER MANAGEMENT PLANS FOR THOSE TRACTS SHALL BE DEVELOPED AT A FUTURE TIME AND SHOULD BE BASED ON AN INVESTIGATION OF DOWNSTREAM CONDITIONS.
- ALL STORM WATERS COLLECTED BY THE HANOVER STORM DRAIN ARE RELEASED INTO THE PUBLIC PARK AND DETENTION POND AT HANOVER & 72ND ST. CURRENTLY, AN OUTLET PIPE ALLOWS A CONTROLLED DISCHARGE TO I-40. FUTURE AREA DRAINAGE IMPROVEMENT, INCLUDING THE WEST BLUFF DRAINAGE CHANNEL, MAY REDUCE OR ELIMINATE THE NEED OF THIS PARK TO ACT AS A DETENTION FACILITY.

Date
6/85
Designed
JCA
Checked
PTD

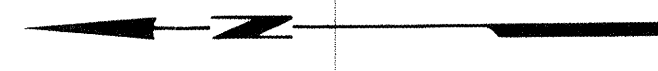
Isaacson & Arfman, P.A.
CONSULTING ENGINEERING ASSOCIATES
Albuquerque, New Mexico

EL RANCHO ATRISCO, PHASE III

CONCEPTUAL DRAINAGE PLAN

Sheet
1
of
2

RECEIVED
JUN 21 1985
HYDROLOGY SECTION



SCALE: 1" = 60'

LAURELWOOD SUBDIVISION
(UNDEVELOPED)

LAURELWOOD SUBDIVISION

(DEVELOPED PUBLIC IMPROVEMENTS)

$\Delta = 33^\circ 53' 33''$
 $R = 542.51'$
 $L = 320.91'$

$\Delta = 47^\circ 11' 34''$
 $R = 436.18'$
 $L = 354.81'$

$\Delta = 47^\circ 11' 34''$
 $R = 436.18'$
 $L = 359.27'$

$\Delta = 90^\circ 0' 0''$
 $R = 25.00'$
 $L = 39.27'$

$\Delta = 31^\circ 08' 46''$
 $R = 1160.00'$
 $L = 630.58'$

$\Delta = 87^\circ 13' 04''$
 $R = 25.00'$
 $L = 38.06'$

LEGEND

- FLOW DIRECTIONAL ARROW
- CONSTRUCTION WORK NOT PART OF THIS PLAN
- ANALYSIS POINT NO.
- FINISH FLOOR ELEVATION
- EXISTING IMPROVEMENTS
- EXISTING CONTOURS
- DRAINAGE BASIN BOUNDARY

TRACT 1B
SU FOR MULTI-FAMILY
BASIN NO. 7
2.66 AC.

TRACT 1C
SU FOR MULTI-FAMILY

BASIN NO. 8
5.76 AC.

BASIN NO. 2
2.1 AC.

TRACT 1A
1.3 AC.

BASIN NO. 6
8.04 AC.

BASIN NO. 4
4.0 AC.

BASIN NO. 5
3.4 AC.

BASIN NO. 3
3.5 AC.

BASIN NO. 1
1.7 AC.

HERITAGE BLVD.

UNSER BLVD.

HANOVER ROAD

EL RANCHO ATRISCO PHASE III
TRACT 1

CONCEPTUAL DRAINAGE PLAN
(FOR INFORMATION ONLY)

Isaacson & Arfman, P.A.
CONSULTING ENGINEERING ASSOCIATES
Abuquerque, New Mexico

Date: 6-85
Designed: REA
Checked: PTP

Sheet
11