DEVELOPMENT & BUILDING SERVICE CENTER

ONE STOP
600 SECOND ST. N.W./2ND FLOOR
ATTENTION: Arlene
505-924-3900

Records Withdrawal Form

Project No. _____ Date: 04/17/00

Project Title: Arturas Sub'd J17/D20

(a.) File b. Mylars c. Redlines/Comments
d. Other _____

Requested By: Scott McGee Isaacson & Arfman **Phone No.:** 268-8828
Company

Comments: _____

Anticipated Return Date: _____

Receipt Acknowledged

I here by accept full responsibility for the security of the above noted records/plans until return receipt acknowledgement is completed. Records/plans will be returned to the Development & Building Services Center on or before the indicated anticipated return date.

Delivery Picked Up By:

Name: Ray Sedillo **Organization:** Reliable
Print

Signed: [signature] Date: 4-17-00
Phone No. 247-1548

Office Use Only

Return Acknowledged

Received by: Ange **Date:** 04/17/00
Print

IMPORTANT MESSAGE

FOR

DATE TIME A.M. P.M.

WHILE YOU WERE AWAY

M Tom (with Eric Miller)

OF

PHONE NO. 764-8550

TELEPHONED	✓	RET'D YOUR CALL	
PLEASE CALL	X	URGENT	
WILL CALL AGAIN		WANTS TO SEE YOU	

MESSAGE for Alfonso.

WANTS To talk about lot 13 B/K B Back yard Pond OK

SIGNED JPC 2-13-95

AOL 2/17/00

Richard Smith
wife Nauachi Freshour
1715 ALENIDA
ALTURAS
NE

256-9168

Gated Community

Wash & Tub Sch

Home Owner's Assoc

J17-020
I&A 12/92

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

March 3, 1994

Scott M McGee, P.E.
Isaacson & Arfman
128 Monroe NE
Albuquerque, NM 87108

RE: ENGINEER'S CERTIFICATION FOR LAS ALTURAS SUBDIVISION (J17/D20), ENGINEER'S STAMP DATED FEBRUARY 25, 1994, PROJECT NO. 4702.90.

Dear Mr. McGee:

Based on the information provided on the referenced submittal received February 28, 1994, the plan meets the requirements for Engineer's Certification as called for on the infrastructure list. This office has no objection to DRC releasing the financial guarantees.

If you should have any questions, please do not hesitate to call me at 768-2650.

Cordially,

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Lynda Michelle DeVanti, DRC
Fred Aguirre, City Hydrologist
File

wp+7464

4/20
REFILE

2/17
IQUIRY/
COMPLAINT
PROCY

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER

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

January 19, 1994

Scott M McGee, P.E.
Isaacson & Arfman
128 Monroe NE
Albuquerque, NM 87108

RE: ENGINEER'S CERTIFICATION FOR LAS ALTURAS SUBDIVISION (J17/D20), RECEIVED JANUARY 6, 1994, PROJECT NO. 4702.90.

Dear Mr. McGee:

A field visit by this office on January 18, 1994 and further review of your grading plan indicates that Lot 1, Block C, does not meet the D.P.M. requirements for grading. Slopes on this lot are in excess of 3:1 and the grade difference between lots exceed 18 inches without walls being proposed.

This lot needs to be brought up to D.P.M. grading standards. I believe that the addition of retaining walls to this lot is the only solution, and is the developer's responsibility.

If you should have any questions, please do not hesitate to call me at 768-2650.

Cordially,

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Lynda Michelle DeVanti, DRC
Fred Aguirre, City Hydrologist
File

wp+7464

DRAINAGE INFORMATION SHEET

PROJECT TITLE: LAS ALTURAS SUBDIVSN ZONE ATLAS/DRAINAGE FILE # J-17/D20

LEGAL DESCRIPTION: PORTIONS OF BLOCKS A & B, NEAT'S PARK ADD'N

CITY ADDRESS: SW CORNER OF WASHINGTON ST & INDIAN SCHOOL RD NE

ENGINEERING FIRM: ISAACSON & ARFMAN CONTACT: FRED / SCOTT

ADDRESS: 128 MONROE NE PHONE: 268-8828

OWNER: LAS ALTURAS LTD CONTACT: STU SHERMAN

ADDRESS: 6400 INDIAN SCHOOL RD NE, STE 204 PHONE: 881-8900

ARCHITECT: DEKKER / PERICH & ASSOCS. CONTACT: STEVE

ADDRESS: 6501 AMERICAS PARKWAY NE PHONE: 888-3111

SURVEYOR: ALDRICH LAND SURVEYING CONTACT: TIM

ADDRESS: P.O. BOX 30701 PHONE: 884-1900

CONTRACTOR: UNKN CONTACT: —

ADDRESS: PHONE:

PRE-DESIGN MEETING:

X YES

___ NO

Y COPY OF CONFERENCE RECAP SHEET ~~PROVIDED~~ ON FILE

DRB NO. 92-0296

EPC NO.

PROJECT NO.

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

___ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAIN PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

X ENGINEER'S CERTIFICATION

REVISED

RECEIVED FEB 28 1994 HYDROLOGY DIV.

CHECK TYPE OF APPROVAL SOUGHT:

___ SECTOR PLAN APPROVAL

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

X OTHER GUARANTY RELEASE (SPECIFY)

DATE SUBMITTED: 2/25/94

BY: Scott McGee

REV. 6/85

Isaacson & Arfman, P.A.

Consulting Engineering Associates

Letter of Transmittal

To HYDROLOGY PWD
DESIGN REVIEW SECTION
CITY OF ALBUQUERQUE

Date 2/25/94

Job No. 0726

Attn: DOLORES

Reference LAS ALTURAS SUBDIVISION

~~Gentlemen~~:

We transmit to you 1 copy(ies) of the following

- [ ] _____ Plats
- [ ] _____ Plans
- [ ] Specifications
- [ ] _____ Report
- [x] Engineer's Certification REVISED
- [ ] _____
- [ ] Shop Drawings
- [ ] Submittals
- [ ] Material Specifications
- [ ] Copy of Letter

This information is transmitted:

- [ ] As per your request
- [x] For your review & approval
- [ ] For your information
- [ ] For your attention
- [ ] For your signature
- [ ] _____
- [ ] For your files
- [ ] For your use
- [ ] Please review & return
- [ ] For return to your files
- [x] Please advise
- [ ] _____

Remarks: Gilbert - retaining walls have been constructed adjacent to Lot 1C as we discussed.

RECEIVED FEB 28 1994 HYDROLOGY SECTION

By: Scott M Gee

Copies To file

128 Monroe, NE • Albuquerque, NM 87108 • (505) 268-8828

ISAACSON & ARFMAN, P.A.

Consulting Engineering Associates

Thomas O. Isaacson, PE & LS • Fred C. Arfman, PE
Scott M. McGee, PE

g 17/D20

July 13, 1993

Mr. Fred Aguirre, P.E.
Hydrology Division
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Las Alturas Subdivision, 4702.90, J-17

Dear Mr. Aguirre:

A variance is hereby requested from the subdivision ordinance requirements and the DPM (Section 22.6.C.2) for minimum easement width for the storm drain and sanitary sewer outfalls of the referenced subdivision. The outfall alignment was described and shown by attached sketch in my June 14 letter to Mr. Aldaz and Mr. Kane of the Design Review Committee. The proposed outfall alignment has been approved by the DRC and remains unchanged from that shown on June 14.

All access manholes will be located in public right-of-way except two which are located in a private paved cul-de-sac. The entire private street area is to be dedicated as a public easement by the filing of the plat, providing adequate access for any future maintenance or restoration work.

The use of modern materials and construction techniques in the installation of this line minimizes the possibility of any future excavation need. The storm drain outfall capacity of 70 cfs is double the calculated 100-year discharge of 35 cfs. This ensures extra capacity should the storm drain ever need to be sliplined, the likelihood of which is very low. The underground utility industry is making great advances in "no-dig" technology and is trending away from the open-trench technique for line maintenance and replacement.

JUL 15 1993
HYDROLOGY DIVISION

128 Monroe St. NE • Albuquerque, NM 87108 • (505) 268-8828 • FAX (505) 268-2632

The 20-foot public utility easement is adequate for installation and is hereby requested to be approved by means of a variance to the standard minimum width.

Very truly yours,

ISAACSON & ARFMAN, P.A.

Scott M. McGee, P.E.

SMM/rtl

pc: Jack Cloud

ISAACSON & ARFMAN, P.A.

Consulting Engineering Associates

Thomas O. Isaacson, PE & LS • Fred C. Arfman, PE
Scott M. McGee, PE

RECEIVED
JUN 16 1993
PUBLIC WORKS/ENGINEERING GROUP
DEVELOPMENT DIVISION

June 14, 1993

Mr. Gilbert Aldaz, P.E. & P.S.
Hydrology Division
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Mr. Bob Kane, P.E.
Utility Development Section
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: **Las Alturas Subdivision, 4702.90, J-17**

Dear Mr. Aldaz & Mr. Kane:

This letter requests approval for a variance of public storm drain and sanitary sewer easement width (DPM Sections 22.6.C.2 and 24.2.C.7 respectively). The attached drawings show the proposed parallel storm drain and sanitary sewer outfall lines and representative sections along the alignment.

Typical of an in-fill project, where adjacent development imposes multiple constraints, Las Alturas has limited outfall alignments due to various site restrictions. The proposed alignment is one preferred by Hydrology per the 5-28-93 DRC meeting comments, as it locates access manholes outside of backyard areas. The sanitary sewer alignment was revised after the proposed connection in Indian School Road was determined not to be feasible. The only remaining connection point is the sanitary sewer in Sunningdale Avenue as shown.

The proposed easement is 20' centered along the lot line between lots 16 and 17. The DPM formula for storm drain easement width (W = 2 x depth + pipe diameter + 4') gives a 32' width at its deepest point. The minimum two-utility easement width is typically 25'. Considering the trend toward "no-dig" utility line maintenance and rehabilitation techniques, we ask that the 20' public utility easement width be approved in this case.

128 Monroe St. NE • Albuquerque, NM 87108 • (505) 268-8828 • FAX (505) 268-2632

Very truly yours,

ISAACSON & ARFMAN, P.A.

Scott M McGee

Scott M. McGee

SMM/rtl

APPROVED:

Hydrology Section
City of Albuquerque

Date

APPROVED:

Robert W. Kane

Utility Development Section
City of Albuquerque

6-17-93
Date

Attachments

cc: Tom Woodson, Las Alturas Ltd.

DRAINAGE INFORMATION SHEET

PROJECT TITLE: LAS ALTURAS SUBDIVSN ZONE ATLAS/DRAINAGE FILE # J-17/D20

LEGAL DESCRIPTION: PORTIONS OF BLOCKS A & B, NEAT'S PARK ADD'N

CITY ADDRESS: SW CORNER OF WASHINGTON ST & INDIAN SCHOOL RD NE

ENGINEERING FIRM: ISAACSON & ARFMAN CONTACT: FRED / SCOTT

ADDRESS: 128 MONROE NE PHONE: 268-8828

OWNER: LAS ALTURAS LTD CONTACT: STU SHERMAN

ADDRESS: 6400 INDIAN SCHOOL RD NE, STE 204 PHONE: 881-8900

ARCHITECT: DEKKER / PERICH & ASSOCS. CONTACT: STEVE

ADDRESS: 6501 AMERICAS PARKWAY NE PHONE: 888-3111

SURVEYOR: ALDRICH LAND SURVEYING CONTACT: TIM

ADDRESS: P.O. BOX 30701 PHONE: 884-1900

CONTRACTOR: UNKN CONTACT: —

ADDRESS: PHONE:

PRE-DESIGN MEETING:

X YES DRB NO. 92-0296

___ NO EPC NO. ___

___ COPY OF CONFERENCE RECAP SHEET PROVIDED PROJECT NO. ___

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

___ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAIN PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

X ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SECTOR PLAN APPROVAL

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

X OTHER CERTIFICATION (SPECIFY)

RECEIVED
JAN 6 1994
HYDROLOGY DIV.

DATE SUBMITTED: 1/5/94

BY: Scott M McGee

REV. 6/85
5130

Isaacson & Arfman, P.A.

Consulting Engineering Associates

Letter of Transmittal

To HYDROLOGY
PWD
CITY OF ALBUQUERQUE

Date 1-5-94

Job No. 0726X

Attn: GILBERT

Reference LAS ALTURAS S/D

Gentlemen:

We transmit to you 1 copy(~~ies~~) of the following

- [ ] _____ Plats
- [ ] _____ Plans
- [ ] Specifications
- [ ] _____ Report
- [ ] Shop Drawings
- [ ] Submittals
- [ ] Material Specifications
- [ ] Copy of Letter
- [x] Grading Plan Certification
- [x] Drainage Info Sheet

This information is transmitted:

- [ ] As per your request
- [x] For your review & approval
- [ ] For your information
- [ ] For your attention
- [ ] For your signature
- [ ] For your files
- [ ] For your use
- [ ] Please review & return
- [ ] For return to your files
- [x] Please advise
- [ ] _____
- [ ] _____

Remarks: _____

By: Scott M McGee

Copies To TOM WOODSON file

128 Monroe, NE • Albuquerque, NM 87108 • (505) 268-8828

Isaacson & Arfman, P.A.

Consulting Engineering Associates

Letter of Transmittal

To HYDROLOGY

Date 7-8-93

Job No. 0726

Attn: GILBERT

Reference LAS ALTURAS S/D

Gentlemen:

We transmit to you 1 copy(ies) of the following

- [ ] Plats
- [ ] Plans
- [ ] Specifications
- [ ] Report
- [x] Supplemental Spot Elevations
- [ ]
- [ ] Shop Drawings
- [ ] Submittals
- [ ] Material Specifications
- [ ] Copy of Letter

This information is transmitted:

- [x] As per your request
- [ ] For your review & approval
- [ ] For your information
- [ ] For your attention
- [ ] For your signature
- [ ]
- [ ]
- [x] For your files
- [x] For your use
- [ ] Please review & return
- [ ] For return to your files
- [ ] Please advise

RECEIVED JUL - 9 1993 HYDROLOGY DIVISION

Remarks: Here are spot elevations at the back of lot 126 (Sellick?). The proposed retaining wall all along here is Top of Wall = 76.3, which is a 4'0" wall compared to their lowest grade @ the rear center = 72.3. Please call with any questions.

By: Scott M McGee

Copies To file, Tom Woodson

128 Monroe, NE • Albuquerque, NM 87108 • (505) 268-8828

ALDRICH LAND SURVEYING

FAX TRANSMITTAL

DATE: 7.8.93
JOB NO: 93-66
FAX NO:

TO: Scott McGee
Tom Wilson

RE: Las Alturas - Existing grades - Lot 126

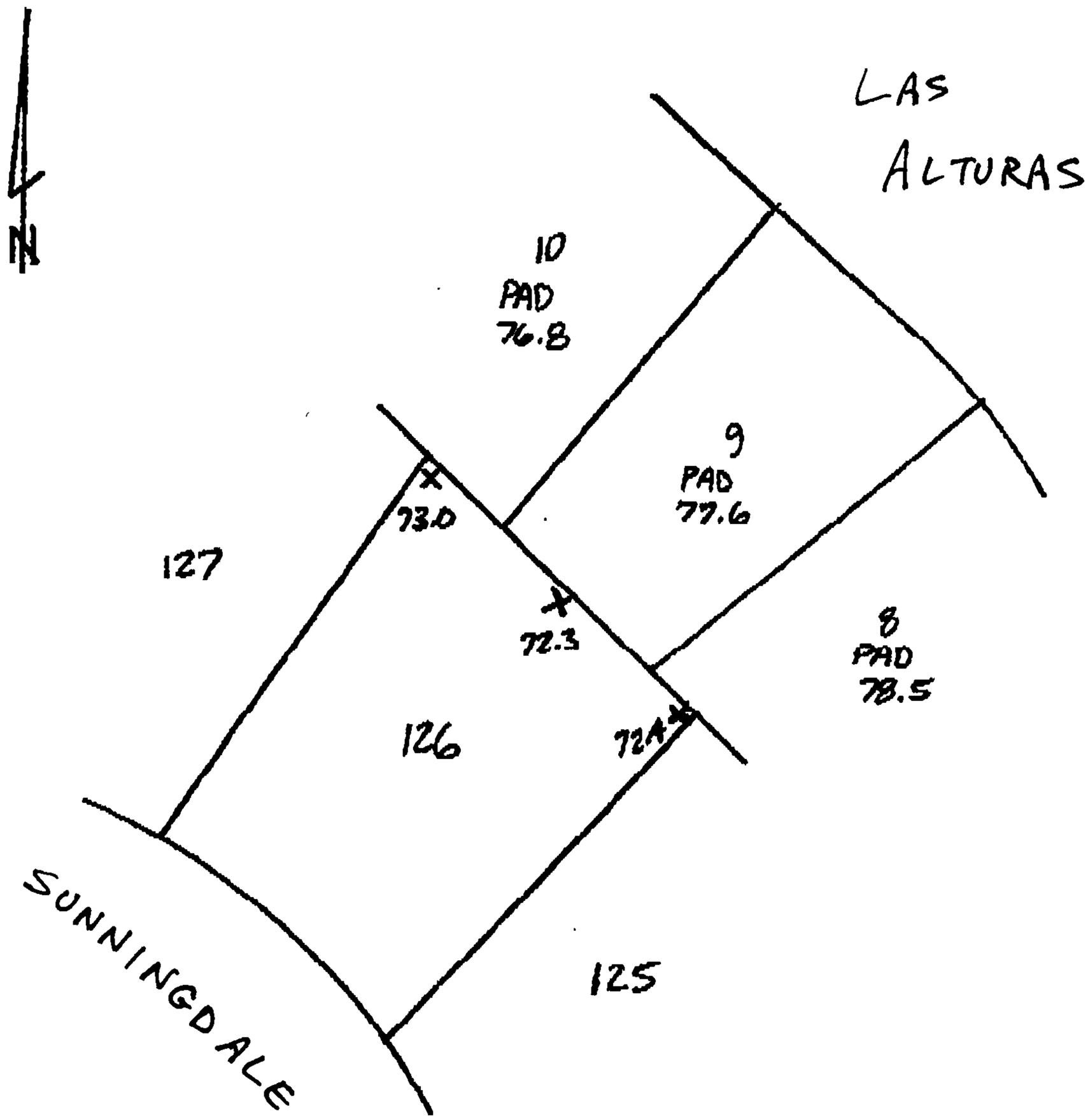
REMARKS: per your request

FROM: Dave
ALDRICH LAND SURVEYING

NUMBER OF COPIES INCLUDING COVER SHEET 2

P.O. Box 30701 Albuquerque, New Mexico 87190-0701 505-884-1990

EXISTING PAD GRADES, LOTS 8-10
± REAR YARD GRADES, LOT 126



7-8-93

7-8-93
ALDRICH LAND SURVEYING

Equity Devco, Inc.

RECEIVED
JUL 6 1993
HYDROLOGY DIVISION

HAND DELIVERED

Mr. Gilbert Aldaz
City/County Flood plain Administrator
City of Albuquerque
400 Marquette N.W.
Room 301
Albuquerque, New Mexico 87103

Dear Mr. Aldaz:

As one of the general partners of Las Alturas Associates, the owner and developer of the Las Alturas subdivision, located at the southwest corner of Indian School Road and Washington Street, I wanted to forward to you the following information on the grading and lot elevations within the subdivision. I am forwarding this information to you, in response to Mr. and Mrs. Selleck's inquiry to you regarding the finished pad grade elevations on the lots that are northerly adjacent to their home located on Sunningdale Avenue N.E. Please find enclosed the following documents:

1. Las Alturas Grading & Drainage Plan, dated January 9, 1993, indicating 46 lots and pad elevations,

2. A copy of your letter to Mr. Scott McGee, approving the grading and drainage plan dated June 30, 1993,

3. A copy of Aldrich Land Surveying's letter to Tom Woodson, dated June 28, 1993, verifying final pad elevations for the lots within the Las Alturas subdivision,

4. A copy of the Settlement Agreement between Las Alturas Ltd. and the Altura Park Neighborhood Association (APNA) dated March 23,1993.

Although, the City is not a party to the Settlement Agreement, it is paramount to the claim that the Sellecks are asserting in regards to the finished pad elevations. As part of the Agreement, we the developers, negotiated with the APNA to "lower" the finished pad elevations from the January 9th grading plan by one and one-half foot; which is indicated on the approved March Preliminary plat. The Agreement and the subsequent City

6400 INDIAN SCHOOL ROAD N.E., SUITE 204 • ALBUQUERQUE, NEW MEXICO 87110 • 505-881-8900

approval of the Project's grading and drainage plan was not tied to any existing elevations of the adjacent homes along Sunningdale Avenue, but were tied to existing City of Albuquerque monumentation in the vicinity of the Las Alturas project. As is evidenced by the verification of pad elevations conducted by Aldrich Land Surveying, the majority of the pad elevations are well within the ranges permitted by the City. In fact the lots that are adjacent to the Selleck's lot, Lots 8,9, & 10, Block A are either at design grade or no more than one tenth foot above final pad elevation design.

A second purpose in forwarding this information to you, is that we hope to file the Project's final plat within the next several weeks and will be applying for several home building permits. When I spoke with the hydrology staff at the Permit Department, they suggested that I have the pad elevations verified and forwarded to you, so that your approval could be granted for the issuance of these building permits. I would appreciate your attention to this matter, so that the builders who have purchased lots within Las Alturas, may be issued building permits within the next several weeks.

Again, we appreciate your assistance in approving the plans for the Project and hope the enclosed information will assist you in responding to any further inquiries made concerning pad elevations within Las Alturas. If there is any further information that we can provide your office regarding any aspect of Las Alturas, please do not hesitate to contact either Stu Sherman or me.

Sincerely,

Thomas D. Woodson

cc: Stu Sherman
John Myers

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 30, 1993

Scott M McGee, P.E.
Isaacson & Arfman
128 Monroe NE
Albuquerque, NM 87108

RE: DRAINAGE REPORT FOR LAS ALTURAS SUBDIVISION (J-17/D20),
ENGINEER'S STAMP DATED JUNE 15, 1993, PROJECT NO. 4702.90

Dear Mr. McGee:

Based on the information provided on the referenced submittal received June 16, 1993, the plan is acceptable for Final Plat approval.

Please be advised that prior to release of financial guarantees by DRC, an Engineer's Certification that the site is in substantial compliance with the approved plan, must be submitted and approved by this office.

If you should have any questions, please do not hesitate to call me at 768-2650.

Cordially,

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Lynda Michelle DeVanti, DRC
Alan Martinez
File

wp+7464

ALDRICH LAND SURVEYING

June 28, 1993

Mr. Tom Woodson
6400 Indian School Road NE
Albuquerque, NM 87110

SUBJECT: LAS ALTURAS SUBDIVISION - PAD CERTIFICATION

Dear Tom:

As per your request, I have verified the final pad grading at Las Alturas. The following are the results of my survey performed on June 23, 1993:

BLOCK	LOT	PAD GRADE (Plan)	PAD GRADE (Field)	DIFFERENCE
A	1	86.8	86.6	-0.2
A	2	84.5	84.5	0.0
A	3	82.3	82.5	+0.2
A	4	81.5	81.4	-0.1
A	5	80.7	80.7	0.0
A	6	80.0	80.0	0.0
A	7	79.2	79.1	-0.1
A	8	78.4	78.4	0.0
A	9	77.5	77.6	+0.1
A	10	76.7	76.8	+0.1
A	11	76.0	76.0	0.0
A	12	75.5	75.6	+0.1
A	13	75.1	75.1	0.0
A	14	73.5	73.5	0.0
A	15	72.6	72.4	-0.2
A	16	73.9	73.6	-0.3
A	17	75.0	74.9	-0.1
B	1	77.0	76.6	-0.4
B	2	78.5	78.5	0.0
B	3	79.5	79.5	0.0
B	4	80.5	80.4	-0.1
B	5	81.5	81.5	0.0
B	6	82.6	82.7	+0.1
B	7	84.0	83.8	-0.2
B	8	86.0	86.0	0.0
B	9	88.0	87.9	-0.1
B	10	88.0	87.9	-0.1
B	11	85.0	85.2	+0.2
B	12	85.5	85.6	+0.1
B	13	86.0	86.0	0.0
B	14	86.0	86.0	0.0
B	15	84.5	84.5	0.0
B	16	84.5	84.4	-0.1
B	17	84.5	84.3	-0.2
B	18	88.0	87.9	-0.1
C	1	81.8	81.9	+0.1
C	2	84.5	84.6	+0.1

P.O. Box 30701 Albuquerque, New Mexico 87190-0701 505-884-1990

BLOCK	PAD	PAD GRADE (Plan)	PAD GRADE (Field)	DIFFERENCE
C	3	83.8	83.8	0.0
C	4	82.0	82.0	0.0
C	5	80.5	80.6	+0.1
C	6	79.0	79.1	+0.1
C	7	76.0	75.9	-0.1

The field pad grades were obtained by taking one measurement in the approximate center of pad.

If we can be of any further service or if you have any questions, please do not hesitate to call.

Sincerely,

Tim Aldrich

Tim Aldrich
Aldrich Land Surveying

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

June 30, 1993

RECEIVED
JUL 2 1993

Scott M McGee, P.E.
Isaacson & Arfman
128 Monroe NE
Albuquerque, NM 87108

RE: DRAINAGE REPORT FOR LAS ALTURAS SUBDIVISION (J-17/D20),
ENGINEER'S STAMP DATED JUNE 15, 1993, PROJECT NO. 4702.90

Dear Mr. McGee:

Based on the information provided on the referenced submittal received June 16, 1993, the plan is acceptable for Final Plat approval.

Please be advised that prior to release of financial guarantees by DRC, an Engineer's Certification that the site is in substantial compliance with the approved plan, must be submitted and approved by this office.

If you should have any questions, please do not hesitate to call me at 768-2650.

Cordially,

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Lynda Michelle DeVanti, DRC
Alan Martinez
File

wp+7464

PUBLIC WORKS DEPARTMENT

Walter H. Nickorson, Jr., P.E. ENGINEERING GROUP Telephone (505) 768-2500

FIRST AMERICAN OFFICE TEL:505-268-2632 Jul 06,'93 14:13 No.001 P.01

SETTLEMENT AGREEMENT

THIS SETTLEMENT AGREEMENT ("Agreement") is entered into as of the 23rd day of March, 1993, by and among Las Alturas Ltd., a New Mexico partnership (the "Developer"), The Altura Park Neighborhood Association, a New Mexico nonprofit corporation (the "Association"), Tim Sheehan, Alma B. Sanderson, Partha Buell, Fabrizio Follis (collectively "the Individual Appellants"), and W. Raymond Sanderson, IV and Alma B. Sanderson, husband and wife, Eugenia Follis and Fabrizio Follis, husband and wife, Theodore Trujillo and Mary Jane Trujillo, husband and wife, T.H. Flora, Jerry Danziger and Zelda Danziger, husband and wife, Joanne Walker Wheeler, Ralph M. Coe and Nina V. ~~Coe-Ussery~~ Ussery-Coe, husband and wife, Colin B. Selleck and Suzy Mound Selleck, husband and wife, John Q. ~~Del~~ Dal Santo and Helen ~~Del~~ Dal Santo, husband and wife, William C. Hegge, First National Bank, Trustee, Shirley Aguirre, Sunwest Bank of Albuquerque, Trustee, Robert W. Simmons and Leona L. Simmons, husband and wife, Amelia B. Tanny, and Helen E. Murphy (collectively "the Abutting Lot Owners"). ~~Carl~~ Karl H. Schwerin, Russel D. Hiller, Vivian Leslie, Margaret E. Bannick, Paula ~~Del~~ Dal Santo and Zelma McIlwain ("Other Surrounding Properties Owners"). The Association, Individual Appellants, Abutting Lot Owners and the Other Surrounding Property Owners are sometimes collectively referred to herein as the "Neighbors".

RECITALS:

1. The Developer is the contract purchaser of the following described property situate in Bernalillo County, New Mexico (the

"Developer's Property"):

> Lots 101 through 108, inclusive, the North 30 feet of Lot 109, and Lots 115 through 125, Block A, and Lots 102 through 115, Block B, of NEAT'S PARK ADDITION, as the same are shown and designated on the Replat recorded September 8, 1954, in Map Book C2, Folio 190, records of Bernalillo County, New Mexico

2. The Abutting Lot Owners own homes on residential building lots adjacent to the Developer's Property, which lots are described as follows (the "Abutting Lot Owner's Property"):

> South 40 feet of Lot 109, Lots 110 through 114, inclusive, Block "A", and Lots 116, 120, 122 ~~121~~ and 123 through 128, inclusive, Block "B" of NEAT'S PARK ADDITION, as the same are shown and designated on the Replat recorded September 8, 1954, in Map Book C2, Folio 190, records of Bernalillo County, New Mexico

3. The City of Albuquerque's (the "City") Development Review Board ("DRB") has approved a resubdivision of the Developer's Property into 46 new lots (the "Approved Resubdivision") and the vacation of ~~Thorn~~ Thorne Drive, NE, and ~~Thorn~~ Thorne Circle, NE (the "Approved Vacation") in cases designated as S-92-44, DRB-92-296, V-92-77, SV-92-52 (NE);

4. The Association and the Individual Appellants appealed the Approved Subdivision and the Approved Vacation to the City's Environmental Planning Commission ("EPC"), which commission upheld the DRB's decision;

5. The parties have agreed to resolve their disputes regarding the use and development of the Developer's Property.

NOW, THEREFORE, the parties agree as follows:

1. The Developer agrees to revise its subdivision of the

Developer's Property as follows (the "New Resubdivision"):

1.1 The New Resubdivision will subdivide the Developer's Property into forty-two (42) residential lots;

1.2 The New Resubdivision will have vehicular access to Washington Street and to Indian School Boulevard. The accesses may be to private roads which have gates to control access to the New Resubdivision. Neither of the accesses can be permanently closed by the Developer without the written approval of the Association. The New Resubdivision will be substantially as shown on Exhibit "A";

1.3 The grading plan for the New Resubdivision will provide that the grade difference at the property line dividing the Developer's Property from the Abutting Lot Owners' Properties which front on Sunningdale Avenue, shall not exceed three and one-half feet (3½'). The grade difference shall be measured from the top of the footing of the wall at the rear of the Abutting Lot Owners' Property;

1.4 The height of property walls on the Developer's Property and within one foot (1') of the Abutting Lot Owners' Property shall not exceed a height of eight feet (8') above the top of the footing of the wall at the rear of the Abutting Lot Owners' Properties which front on Sunningdale Avenue. This height includes the retaining wall and the privacy or garden wall, therefore, if the retaining wall is three and one-half feet (3½') above the grade of the Abutting Lot Owner's finished grade, the privacy or garden wall on the

Developer's Property can be up to four and one-half feet (4½') higher than the retaining wall;

1.5 The grading plan for the New Resubdivision shall have finished building pad elevations no higher than the pad elevations identified on Exhibit "A", however, if required by the City's Hydrology Department, notwithstanding the Developer's best efforts to obtain a grading plan with pad elevations as shown on Exhibit "A", the pad elevations may be raised by up to one-half foot (½');

1.6 The security gate for the vehicular access at Washington will be located no less than sixty-five feet (65') west of the westerly right-of-way line of Washington Boulevard.

2. The Association and the Individual Appellants agree to waive their right to appeal, and not to appeal, the EPC's decision to uphold the DRB's decision to approve the Approved Resubdivision and the Approved Vacation.

3. The Neighbors agree:

3.1 To support the City's approval of the New Resubdivision so long as the New Resubdivision is consistent with the parameters set out in Article 1 of this Agreement;

3.2 Not to appeal any approval by the City of, or relating to, the New Resubdivision so long as the New Resubdivision approved is consistent with the parameters set out in Article 1 of this Agreement.

3.3 That they have no other claims relating to the REPLAT FOR THE New.

Resubdivision. THIS SECTION DOES NOT RELIEVE THE DEVELOPER FROM LIABILITY FOR NEGLIGENT ACTS.

4. The Abutting Property Owners consent to, and shall do all things reasonably required to effectuate, the removal of the overhead utility lines located at the rear of the Abutting Property Owner's Lots so long as:

4.1 The utility lines are replaced with underground utility lines, serving the Abutting Lot Owners' Property:

4.2 The cost of the modification of the utility service shall be at no expense to the Abutting Lot Owners except that the Developer shall not be responsible for the cost of restoration of landscaping or improvements disturbed by the construction of the underground utility line trench on the Abutting Lot Owners' Property, UNLESS NEGLIGENCE BY DEVELOPER, ITS EMPLOYEES, AND CONTRACTORS CAUSES UNEXPECTED DAMAGES TO SURROUNDING PROPERTY OF THE ABUTTING LOT OWNERS.

5. The Developer agrees to make its best efforts to give notice to the Neighbors in writing or by telephone of all future hearings or formal meetings relating to the New Resubdivision at the following address and/or telephone numbers:

c/o Tim Sheehan, Esq.
Sheehan, Sheehan & Stelzner
707 Broadway, NE, Suite 300
P.O. Box 271
Albuquerque, New Mexico 87103
Telephone - 247-0411
Telefax - 842-8890

and

Russel D. Hiller, III
4134 Coe Drive, NE,
Albuquerque, New Mexico 87110
Telephone - 243-4566
Telefax - 242-3667

and Alma B. Sanderson
1807 WASHINGTON NE
ALBUQUERQUE, NM 87110
TELEPHONE 265-0015

6. This Agreement is contingent upon the final approval of

the New Resubdivision, and related or incidental approvals, without an appeal being filed by the Neighbors, or any other third party. That is, if the Neighbors fully comply with the terms of this Agreement, but the New Resubdivision is appealed by a third person not a party to this Agreement, ~~than~~ then the parties acknowledge that the Developer will have lost the benefit of this Agreement, and therefore this Agreement shall terminate and be of no further force and effect.

7. The Developer agrees to stucco and color coat or skim coat and paint the side of the privacy walls or garden walls, but not the retaining wall, facing and adjacent to the Abutting Lot Owners' Property on Sunningdale Avenue.

8. In the event of breach of this Agreement, the nondefaulting party shall be entitled to any remedies available at law or equity and shall be entitled to recover their attorneys fees.

Developer: LAS ALTURAS LTD., a New Mexico partnership

By: _____
Its: General Partner

Association: THE ALTURA PARK NEIGHBORHOOD ASSOCIATION, a New Mexico nonprofit corporation,

By: _____
Its: VICE PRESIDENT

Individual Appellants:

_____
Tim Sheehan

Alma B. Sanderson
_____
Alma B. Sanderson

Abutting Lot Owners:

Partha Buell

Fabrizio Follis

W. Raymond Sanderson, IV

Alma B. Sanderson

Eugenia Follis

Fabrizio Follis

Theodore Trujillo

Mary Jane Trujillo

T. H. Flora

Jerry Danziger

Zelda S. Danziger

Joanne Walker Wheeler

~~Ralph M. Coe~~ NON PROPERTY OWNER

Nina V. ~~Coe-Ussery~~ Ussery-Coe

Colin B. Selleck

Suzy Mound Selleck

John Q. Dal Santo

Helen Dal Santo

Helen Dal Santo

William C. Hegge

William C. Hegge

First National Bank, Trustee of the Coe Trust

By: _____

Its: _____

Shirley Aguirre

Shirley Aguirre

Sunwest Bank of Albuquerque, Trustee of _____

By: _____

Its: _____

Robert W. Simmons

Robert W. Simmons

Leona L. Simmons

Leona L. Simmons

Amelia B. Tanny

Amelia B. Tanny

Helen E. Murphy

Helen E. Murphy

Other Surrounding Property Owners:

Karl H. Schwerin

Karl H. Schwerin

Russel D. Hiller

Russel D. Hiller

Vivian Leslie

Vivian Leslie

Margaret E. Bannick

Margaret E. Bannick

Paula Dal Santo

Zelma McIlwain

Zelma McIlwain

shersett.agr/klw/legaldoc.dir

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

April 15, 1993

Scott M McGee, P.E.
Isaacson & Arfman
128 Monroe NE
Albuquerque, NM 87108

RE: DRAINAGE REPORT FOR LAS ALTURAS SUBDIVISION (J-17/D20), ENGINEER'S STAMP DATED APRIL 13, 1993

Dear Mr. McGee:

Based on the information provided on the referenced submittal received April 13, 1993, the plan is acceptable for Preliminary Plat and Rough Grading Permit approval.

Please be advised that a detailed grading plan should be submitted to this office prior to Final Plat approval.

If you should have any questions, please do not hesitate to call me at 768-2650.

Cordially,

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Alan Martinez
File

wp+7464

J17/D20

S.C. Sherman & Company

RECEIVED
JAN 19 1993
HYDROLOGY

January 14, 1993

Mr. Hy Rosner
President
Altura Park Neighborhood Association
4300 Sunningdale Ave. NE
Albuquerque, NM 87110

Dear Hy:

As I said at the DRB Hearing on Tuesday, we appreciate your continued interest in working with Tom Woodson and me on the final approval of the Las Alturas subdivision. In an effort to respond to the APNA Subcommittee members' request for information, I am enclosing for your use and subsequent distribution to the Subcommittee a copy of the Hydrology study prepared by Issacson & Arfman, P.C. This is the same document submitted to the City's Hydrology Department as a part of the Preliminary Plat application for the project and supplements the grading and drainage plans already distributed to the Subcommittee members.

If you or the Association require any additional information or would like to meet to discuss any aspect of the Project, please do not hesitate to contact either Tom or me. We may be reached at 881-8900.

Sincerely,

Stuart C. Sherman

SCS:rbf
Enclosure

cc: Mr. Thomas D. Woodson
Mr. Jack Cloud, Chairman DRB
Mr. Fred Aguirre

6400 Indian School Rd., N.E., Suite 204, Albuquerque, New Mexico 87110 • (505) 881-8900

DRAINAGE INFORMATION SHEET

PROJECT TITLE: LAS ALTURAS SUBDIVSN ZONE ATLAS/DRAINAGE FILE # J-17 / D20

LEGAL DESCRIPTION: PORTIONS OF BLOCKS A & B, NEAT'S PARK ADD'N

CITY ADDRESS: SW CORNER OF WASHINGTON ST & INDIAN SCHOOL RD NE

ENGINEERING FIRM: ISAACSON & ARFMAN CONTACT: FRED / SCOTT

ADDRESS: 128 MONROE NE PHONE: 268-8828

OWNER: LAS ALTURAS LTD CONTACT: STU SHERMAN

ADDRESS: 6400 INDIAN SCHOOL RD NE, STE 204 PHONE: 881-8900

ARCHITECT: DEKKER / PERICH & ASSOCS. CONTACT: STEVE

ADDRESS: 6501 AMERICAS PARKWAY NE PHONE: 888-3111

SURVEYOR: ALDRICH LAND SURVEYING CONTACT: TIM

ADDRESS: P.O. BOX 30701 PHONE: 884-1900

CONTRACTOR: UNKN CONTACT: —

ADDRESS: PHONE:

PRE-DESIGN MEETING:

X YES DRB NO. 92-0296

___ NO EPC NO. ___

Y COPY OF CONFERENCE RECAP SHEET PROVIDED (ON FILE) PROJECT NO. ___

RECEIVED APR 13 1993 HYDROLOGY SECTION

TYPE OF SUBMITTAL:

X DRAINAGE REPORT

___ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAIN PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SECTOR PLAN APPROVAL

___ SKETCH PLAT APPROVAL

X PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

X ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER ___ (SPECIFY)

DATE SUBMITTED: 4-13-93

BY: Scott M McGee

REV. 6/85

ISAACSON & ARFMAN, P.A.

Consulting Engineering Associates

Thomas O. Isaacson, PE & LS • Fred C. Arfman, PE
Scott M. McGee, PE

April 13, 1993

Mr. Gilbert Aldaz, P.E. & P.S.
Hydrology Division
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: Las Alturas Subdivision (DRB-92-296)
J-17/D20

Dear Mr. Aldaz:

The attached Grading & Drainage Plan exhibits replace those submitted on March 29th. The Temporary Erosion Control Berm has been added around the low-side perimeter and along Indian School Road. Since the internal streets are private, the berm has not been shown there.

The proposed outfall line will have a slope of 5 percent and though unlikely to clog, it has been upsized to a 30-inch storm drain pipe. The capacity of this line is well in excess of twice the 100-year estimated discharge from the subdivision. Manning's equation gives a 145 cfs capacity for the 30-inch line while Q100 equals 35 cfs.

Should you have any questions, please call me at 268-8828.

Very truly yours,

ISAACSON & ARFMAN, P.A.

Scott M McGee

Scott M. McGee, P.E.

SMM/rtl

Attachments

RECEIVED
APR 13 1993
HYDROLOGY DIVISION

128 Monroe St. NE • Albuquerque, NM 87108 • (505) 268-8828 • FAX (505) 268-2632

Isaacson & Arfman, P.A.

Consulting Engineering Associates

J17/D20

Letter of Transmittal

To HYDROLOGY DESIGN REVIEW CITY OF ALBUQUERQUE

Date 3.29.93

Job No. 0726

Attn: DELORES

Reference LAS ALTURAS SUBDIVISION

Gen~~tlemen~~:

We transmit to you 1 copy(~~ies~~) of the following

- [ ] _____ Plats
- [ ] _____ Plans
- [ ] Specifications
- [x] Revised DRAINAGE Report
- [ ] _____
- [ ] _____
- [ ] Shop Drawings
- [ ] Submittals
- [ ] Material Specifications
- [ ] Copy of Letter

APR 9 1993

This information is transmitted:

- [ ] As per your request
- [x] For your review & approval
- [ ] For your information
- [ ] For your attention
- [ ] For your signature
- [ ] For your files
- [ ] For your use
- [ ] Please review & return
- [ ] For return to your files
- [x] Please advise
- [ ] _____
- [ ] _____

Remarks: The drainage concept remains unchanged from the January '93 submittal, but the # of lots has been reduced. The DRB is scheduled to review the prelim. plat 3.30.93.

By: Scott M McGee

Copies To file

128 Monroe, NE • Albuquerque, NM 87108 • (505) 268-8828

ISAACSON & ARFMAN, P.A.

Consulting Engineering Associates

Thomas O. Isaacson, PE & LS • Fred C. Arfman, PE
Scott M. McGee, PE

March 26, 1993

NOISIAN ... 9 1993 RECEIVED

Mr. Gilbert Aldaz, P.E./P.S.
Hydrology Division
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: Las Alturas Subdivision (DRB-92-296)
J-17/D20

Dear Gilbert:

The referenced subdivision has been revised somewhat and the enclosed Drainage Report and Grading Plan reflects these minor changes. The drainage concept remains unchanged and the following responses to your January 25 review comments incorporate the minor changes:

1. Drainage sub-basin boundaries have been added.

2. The low-flow channel has been eliminated and lots 1 through 14, Block A (previously lots 1-16), have been regraded. These 14 Block A lots will allow for backyard ponding of waters that fall in the backyard, but still direct developed flows to discharge to the street in front.

3. The proposed platting does now include three (3) lots which front onto Sunningdale (lots A, B, and C).

4. The proposed 20-foot drainage and utility easement is within the proposed plat boundary and will be granted by final plat action. The Grading Plan includes the proposed retaining wall which does partially wrap around the north end of Lot 130.

5. The offset for retaining wall "B" has been reduced to 1 foot (a practical minimum), in order to avoid disturbing the existing wall footing. Several landowners, fronting onto Sunningdale, are agreeable to removing their existing back wall and replacing it with a single retaining wall on the common property line.

128 Monroe St. NE • Albuquerque, NM 87108 • (505) 268-8828 • FAX (505) 268-2632

6. The proposed storm drain will have a slope between 5 and 6 percent and is unlikely to clog. The proposed 24-inch storm drain provides 50 percent capacity above that estimated for 100-year flows. The use of DPM Plate 22.3 D-5 (Grating Capacity), already accounts for the throat of the inlet being clogged. While clogging may be possible for an individual inlet, it seems very unlikely that eight inlet throats would be completely blocked simultaneously.

7. Offsite flows do not enter the subdivision from the existing lots 110-114 (fronting on Washington), as they all have existing walls along the rear lot lines and do not currently discharge to the site.

8. A one foot minimum water block will be provided at the Avenida Alturas intersection with both Washington Street NE and Indian School Road NE.

9. The revised private street section includes widened 32' back-to-back streets with standard 8-inch curb and gutter sections. An 8 foot sidewalk and landscape easement is proposed behind each curb. The grade at the outside edge of this easement will be 4-inches higher than the adjacent top of curb. This grade change will be accomplished with both a cross-slope in the sidewalk (toward the street), and with landscaped slopes directing any storm waters to the street.

10. Inlet capacity calculations have been included in the Appendix of the report.

Should you have any questions, please call me at 268-8828.

Very truly yours,

ISAACSON & ARFMAN, P.A.

Scott M McGee

Scott M. McGee

SMM/rtl

Enclosure

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

January 25, 1993

Scott M McGee, P.E.
Isaacson & Arfman
128 Monroe NE
Albuquerque, NM 87108

RE: DRAINAGE REPORT FOR LAS ALTURAS SUBDIVISION, RECEIVED JANUARY 11, 1993 FOR PRELIMINARY PLAT APPROVAL, (J-17/D20)

Dear Mr. McGee:

Based on the information provided, the following comments should be addressed prior to Rough Grading or Work Order approval:

1. Show the drainage basin boundaries on the plan, particularly the sub basin boundaries that relate to the upstream inlets, check the D.P.M. checklist.

2. Per the DRB approvals recently, it is my understanding lots 1 through 16 will be regraded, with the low flow channel eliminated.

3. Are you proposing any platting on Tract A or any of the lots fronting Sunningdale Avenue?

4. Please provide a copy of the offsite 20 foot drainage easement that connects to Sunningdale Avenue. You are proposing significant grading on the north end of lot 130, I think you probably need to consider some retaining walls.

5. Per the section shown for retaining wall "B", what will happen to the flows that fall between the existing and proposed wall?

6. You should consider an emergency overflow spillway to handle the 100-year flowrate in case the underground storm drain should become clogged; otherwise, consider designing the storm drain for 2 times the 100-year storm for the emergency overflow.

7. Please address offsite flows that may exist for the existing lots 110 through 114 on Washington Street.

8. What is the size of water block on Avenida Alturas and Washington Street intersection?

9. Page 3 of the report identifies a "standard 8-inch curb and gutter section will be used with an additional 4-inch rise, behind the curbs". What is meant by this additional 4-inch rise?

10. I could not find any calculations for sizing the inlets. I believe you will have to address comment No. 1 above prior to being able to address this comment.

If you should have any questions, please do not hesitate to contact me at 768-2650.

Cordially,

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

wp+7464
file

Isaacson & Arfman, P.A.

Consulting Engineering Associates

J17/D20

Letter of Transmittal

To HYDROLOGY

Date 1/11/93

Job No. 0726

Attn: Fred Aguirre

Reference Las Alturas Subdivision

RECEIVED JAN 11 1993 HYDROLOGY DIVISION

Gentlemen:

We transmit to you 2 copy(ies) of the following

- [ ] _____ Plats
- [x] Supplemental Grading Plans
- [ ] Specifications
- [ ] _____ Report
- [ ] _____
- [ ] _____
- [ ] Shop Drawings
- [ ] Submittals
- [ ] Material Specifications
- [ ] Copy of Letter

This information is transmitted:

- [ ] As per your request
- [ ] For your review & approval
- [ ] For your information
- [ ] For your attention
- [ ] For your signature
- [ ] _____
- [x] For your files
- [x] For your use
- [ ] Please review & return
- [ ] For return to your files
- [ ] Please advise
- [x] Drainage Info Sheet on file (in Drainage Report)

Remarks: Retaining Wall Details added for proposed perimeter walls.

By: Scott M McGee

Copies To file

128 Monroe, NE • Albuquerque, NM 87108 • (505) 268-8828

Isaacson & Arfman, P.A.

Consulting Engineering Associates

Letter of Transmittal

To HYDROLOGY DESIGN REVIEW SECTION
CITY OF ALBUQUERQUE

Date 12/19/92

Job No. 0726

Attn:

Reference LAS ALTURAS SUBDIVISION

Gentlemen:

We transmit to you 1 copy(ies) of the following

- [ ] Plats
- [x] G & D Plans
- [ ] Specifications
- [x] Drainage Report
- [x] Information Sheet is inside report cover
- [ ]
- [ ] Shop Drawings
- [ ] Submittals
- [ ] Material Specifications
- [ ] Copy of Letter

This information is transmitted:

- [ ] As per your request
- [x] For your review & approval
- [ ] For your information
- [ ] For your attention
- [ ] For your signature
- [ ]
- [ ] For your files
- [ ] For your use
- [ ] Please review & return
- [ ] For return to your files
- [x] Please advise
- [ ]

Remarks:

By: Scott M McGee

Copies To file

128 Monroe, NE • Albuquerque, NM 87108 • (505) 268-8828

DRAINAGE REPORT

FOR

LAS ALTURAS SUBDIVISION

ALBUQUERQUE NEW MEXICO
MARCH 1993
REVISED JUNE 1993

DRAINAGE REPORT

FOR

LAS ALTURAS SUBDIVISION

ALBUQUERQUE NEW MEXICO
MARCH 1993
REVISED JUNE 1993

RECEIVED
JUN 16 1993
HYDROLOGY DIVISION

Prepared by:

ISAACSON & ARFMAN, P.A.
128 Monroe Street, NE
Albuquerque, NM 87108

SCOTT M. McGEE
NEW MEXICO
10519
REGISTERED PROFESSIONAL ENGINEER

Scott M McGee 6·15·93
Scott M. McGee, P.E. Date

DRAINAGE INFORMATION SHEET

PROJECT TITLE: LAS ALTURAS SUBDIVSN ZONE ATLAS/DRAINAGE FILE # J-17/D20

LEGAL DESCRIPTION: PORTIONS OF BLOCKS A & B, NEAT'S PARK ADD'N

CITY ADDRESS: SW CORNER OF WASHINGTON ST & INDIAN SCHOOL RD NE

ENGINEERING FIRM: ISAACSON & ARFMAN CONTACT: FRED / SCOTT

ADDRESS: 128 MONROE NE PHONE: 268-8828

OWNER: LAS ALTURAS LTD CONTACT: STU SHERMAN

ADDRESS: 6400 INDIAN SCHOOL RD NE, STE 204 PHONE: 881-8900

ARCHITECT: DEKKER / PERICH & ASSOCS. CONTACT: STEVE

ADDRESS: 6501 AMERICAS PARKWAY NE PHONE: 888-3111

SURVEYOR: ALDRICH LAND SURVEYING CONTACT: TIM

ADDRESS: P.O. BOX 30701 PHONE: 884-1900

CONTRACTOR: UNKN CONTACT: —

ADDRESS: PHONE:

PRE-DESIGN MEETING:

X YES

___ NO

Y COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. 92-0296

EPC NO. ___

PROJECT NO. ___

TYPE OF SUBMITTAL:

X DRAINAGE REPORT

___ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAIN PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SECTOR PLAN APPROVAL

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

X FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER ___ (SPECIFY)

RECEIVED JUN 16 1993 HYDROLOGY DIVISION

DATE SUBMITTED: 6-15-93

BY: Scott M McLee

REV. 6/85

I. INTRODUCTION

Las Alturas is a proposed 42-lot residential subdivision. Total land area is 10.76 acres which includes three additional residential lots which front on Sunningdale Avenue NE. Present zoning is R-1 which will remain unchanged. The proposed development will blend with the existing single-family detached residences to the east, south, and west. Proposed lot sizes result in a density of 4.2 dwelling units per acre.

See Vicinity Map in Appendix.

A pre-design meeting was held with Mr. Fred Aguirre of the Hydrology Section of the City of Albuquerque. The following two findings were established as design criteria for this project:

1. The proposed replat of portions of blocks A & B of the Neat's Park Addition will require a Drainage Report. The report shall confirm the free discharge determination based on review of AMDS Volume II.

2. Discharge method into the existing storm drain system in Sunningdale shall be per City standards.

II. EXISTING SITE CONDITIONS

A. Flood Hazard--This site is not shown to be within an established flood hazard area as shown on the FIRM Panel 29. A Zone AO flooding area is designated on Sunningdale Avenue NE approximately 200 feet west.

B. Soils--From the SCS Soil Survey of Bernalillo County, this Wink-Embudo fine sandy loam and gravelly fine sandy loam is classified as a Hydrologic Soil Group 'B' soil.

C. Topography--Located near the center of Albuquerque, this land slopes generally from east to west at 3 to 7 percent. Drainage courses are undefined and most of the site drains as overland sheetflow.

D. Offsite Flows--No offsite flows presently enter the site as they are intercepted and either carried south on Washington Street NE or carried west on Indian School Road NE. This historic drainage pattern will remain unchanged with the proposed development.

III. ONSITE DRAINAGE MANAGEMENT

Proposed subdivision grading requires building pads to be elevated above the adjacent street (see Grading & Drainage Plan in pocket). All developed flows will be required to flow toward the street. Backyards will drain to the street where lots are on the "upland" side of the street. Lots 1 through 16, Block A, will have backyards that are lower than the adjacent street in order to minimize retaining wall heights at the rear of the lots. Water that falls in these backyard areas will be ponded in the backyard, while developed flows will be routed to the street. All developed flows will be intercepted onsite by the proposed storm drain system.

Las Alturas 100-year discharge is 34.9 cfs (see hydrology calculations in Appendix), which is carried to the northwest corner of the site by two proposed streets. Avenida Alturas carries approximately 16 cfs while Via de Luna carries about 19 cfs. The backyard ponding areas will have no discharge, but no credit is given for this area. The proposed storm drain system intercepts this flow (total interception capacity will be 125% of design discharge to account for inlet clogging) and carries it to an existing 102-inch-diameter storm sewer in Sunningdale Avenue NE.

Proposed street grades are 1.7 percent for Via de Luna and 1.1 percent on Avenida Alturas. Private streets are proposed with a 32-foot width between the face of curbs. Standard 8-inch curb and gutter sections will be used with an

additional 4-inch sloping rise across the abutting 8-foot sidewalk and landscape easements. DPM Plate 22.3 D-1 was used (32-foot street half-capacity), to determine flow depths within Las Alturas.

Maximum flow depths are found to be 0.42 feet for 16 cfs on Avenida Alturas and 0.40 feet for 19 cfs on Via de Luna (see Appendix). Inlet batteries are proposed on both streets with additional inlets located at the low end cul-de-sac of Via de Luna. Flows are carried in a proposed 30-inch storm drain (capacity equals 70 cfs which is 200% of the design flow), to the existing 102-inch storm drain in Sunningdale.

IV. DOWNSTREAM CAPACITY

The Drainage Facilities Map for J-17N shows the storm sewer system in nearby Sunningdale Avenue NE as a 96-inch-diameter line. This line size was also used by the AMDS (see reproduced portions of Volume II in the Appendix) to compute storm drain capacity at this point. The record drawings for this line however, indicate the storm drain is 102-inch-diameter. We field verified the line size which is actually 102-inch diameter. The field measured slope is 0.89 percent which gives a capacity (using Manning's equation for non-pressure flow) of Q=1,178 cfs. A comparison follows of the AMDS figures and the actual system capacity:

DESCRIPTION	Q (cfs)
AMDS PEAK DISCHARGE	890
AMDS STORM SEWER CAPACITY (BASED ON 96-INCH DIA. PIPE)	880
AMDS OVERLAND FLOW	10
ACTUAL CAPACITY OF 102-INCH PIPE AT FIELD-MEASURED SLOPE	1,178

The AMDS values appear incorrect and the flooding zone on Sunningdale may be based on an erroneous pipe size. The 102-inch-diameter storm sewer provides adequate capacity to accept the increased flow rates from the proposed development. A marked-up copy of the Storm System Map is included in the Appendix showing the line sizes per the Record Drawings.

APPENDIX

Pre-Design Conference, Recap 1

Vicinity Map 2

Site Hydrology 3-4

Backyard Pond Volume 5

Street & Catch Basin Hydraulics 6-7

Sunningdale Storm Drain
Record Drawing 8

Storm Sewer Atlas (J-17) 9

AMDS 10-16

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
UTILITY DEVELOPMENT DIVISION/HYDROLOGY SECTION

PRE-DESIGN CONFERENCE

DRAINAGE FILE/ZONE ATLAS PAGE NO.: J17 DATE: 7/1/92

EPC NO.: _____ DRB NO.: _____ ZONE: _____

SUBJECT: Alturas Compound

STREET ADDRESS: _____

LEGAL DESCRIPTION: Replat of Blocks A+B (2.5. portions of A+B)

APPROVAL REQUESTED: X PRELIMINARY PLAT ____ FINAL PLAT

____ SITE DEVELOPMENT PLAN ____ BUILDING PERMIT

____ GRADING/PAVING PERMIT ____ OTHER

	WHO	REPRESENTING
ATTENDANCE:	Fred Arfman	
	Fred J. Aguirre	

FINDINGS:

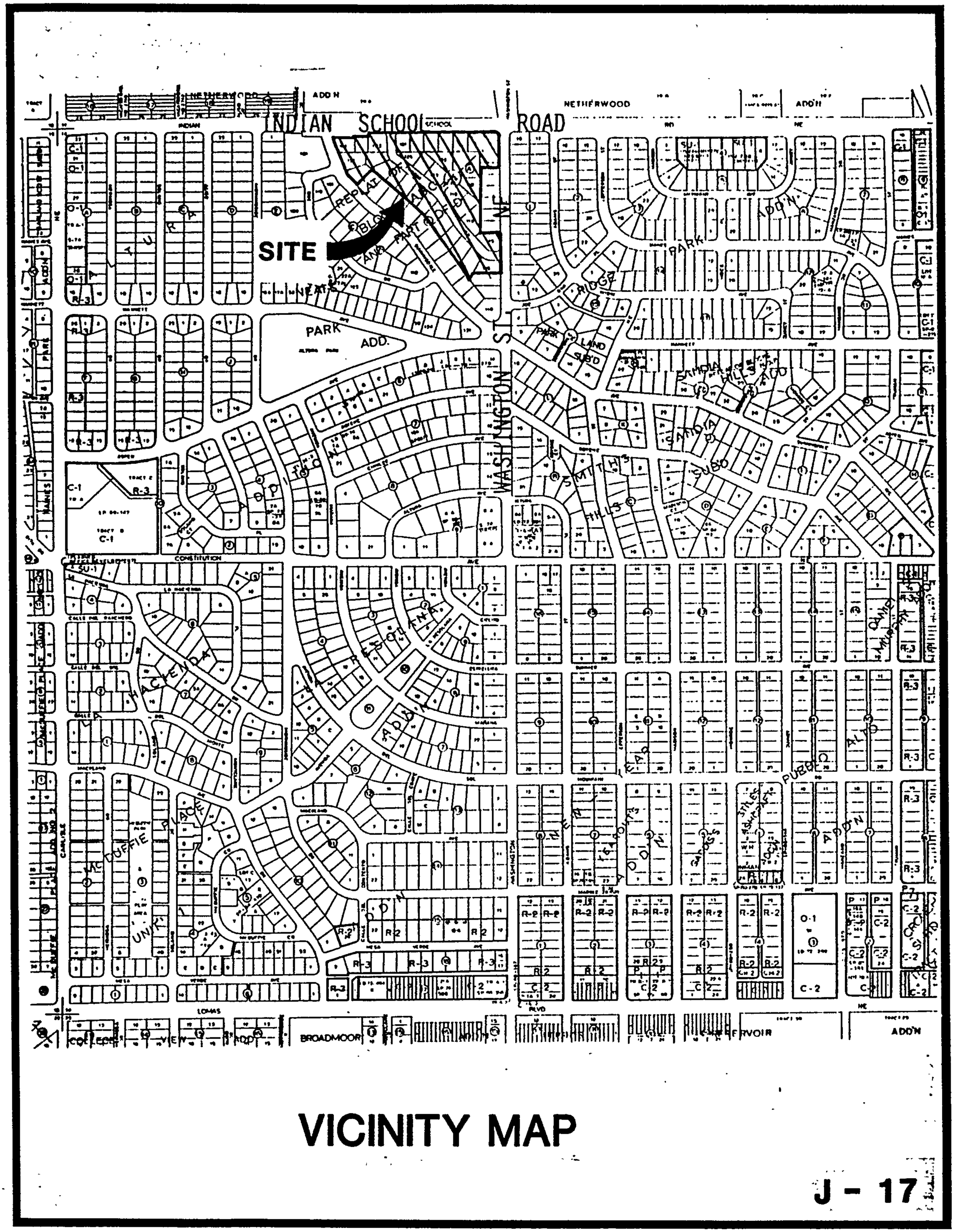
- The proposed replat of portions of Blocks A+B of the Alturas Neats Addn will require a drainage report. The report will need to confirm our free discharge determination based on our review of AMDS Volume II. See attached printout of the Hydrographs for A.P. 1503.

- The method of discharge into the existing storm drain system in Sunningdale will need to be per City Standards.

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED:	[signature]	SIGNED:	Scott M McGee
TITLE:		TITLE:	for Fred Arfman, V.P.
DATE:	7/1/92	DATE:	7/1/92

NOTE PLEASE PROVIDE A COPY OF THIS PRE-DESIGN FORM WITH THE DRAINAGE SUBMITTAL.



VICINITY MAP

J - 17

ISAACSON & ARFMAN, P.A.

SUBJECT LAS ALTURAS JOB NO. 726

BY SMM DATE 12/15/92 SHEET NO. 2 OF

HYDROLOGY - EXISTING CONDITIONS

AREA = 10.76 ACRES PRECIPITATION ZONE: 2

UNDEVELOPED SITE SHEETFLOWS FROM EAST TO WEST DISCHARGING TO THE PUBLIC RIGHT-OF-WAY OF SUNNINGDALE AVENUE NE.

LAND TREATMENT: 100% A

$Q_{100} = (10.76)(1.56 \text{ cfs/acre}) = 16.8 \text{ CFS}$

$Q_{10} = (10.76)(0.38) = 4.1 \text{ CFS}$

$V_{100} = (10.76)(0.53/12) = 0.48 \text{ AC-FT}$

$V_{10} = (10.76)(0.13/12) = 0.12 \text{ AC-FT}$

HYDROLOGY - PROPOSED CONDITIONS

PRECIPITATION ZONE: 2 AREA = 10.76 ACRES

TWO AREAS: 1) LOTS A, B & C DISCHARGE TO SUNNINGDALE, ARE NOT PART OF LAS ALTURAS, AND WILL HAVE BUILDING PADS REGRADED AT THIS TIME.

(A = 0.75AC)

2) 42-LOT LAS ALTURAS DEVELOPMENT WILL DISCHARGE TO EXISTING 102" ϕ STORM DRAIN IN SUNNINGDALE VIA A PROPOSED 24" ϕ STORM DRAIN.

(A = 10.01AC)

1) LOTS A, B, & C LAND TREATMENT: 100% C

Q_{100} = (0.75)(3.14 cfs/acre) = 2.4 CFS

Q_{10} = (0.75)(1.71) = 1.3 CFS

2) LAS ALTURAS (42 LOTS) 0% A 40% B 16% C 44% D

Q_{100} = (4.00)(2.28) + (1.60)(3.14) + (4.41)(4.70) = 34.9 CFS ←

Q_{10} = (4.00)(0.95) + (1.60)(1.71) + (4.41)(3.14) = 20.4 CFS

100-YEAR FLOWS REPRESENT 34.9/10 AC = 3.5 CFS/ACRE WHICH IS IN THE RANGE. ACTUAL PEAK DISCHARGE WILL BE LOWER AS BACKYARD AREAS ARE PONDED, BUT NO CREDIT IS GIVEN IN THESE CALCULATIONS.

BACKYARD POND VOLUMES

AREA = 20' x 70' (TYP.) = 1400 SF

ESTIMATE 50% B & 50% C LAND TREATMENT

$V_{100} = [(700)(0.78) + (700)(1.13)] \cdot /12 = 111$ CF

FOR 10" (0.83') DEPTH

REQUIRED POND AREA = $\frac{111 \text{ CF}}{10/12}$ = 133 SF

USE 6' x 25' (= 150 SF) POND AREA

Street Hydraulics

Street: AVENIDA ALTURAS

100-yr. Q: 16 CFS 1/2 Street Flow: 8 CFS

Street slope: 1.1 %

Max. flow depth: 0.42' (DPM Plate 22.3 D-1)

Catch Basin Hydraulics

Upstream inlet(s): 2 single 'A'

DPM grating capacity plate: 22.3 D-5

Intercepted Q: (4.0 cfs/inlet)(2 inlets) = 8.0 cfs

Remaining surface flow: 8.0 cfs

Max. flow depth: 0.34' (22.3 D-1)

Downstream inlet(s): 2 double 'C'

DPM grating capacity plate: 22.3 D-6

Intercepted Q: (3.0 cfs/grate)(4 grates) = 12.0 cfs

Total interception capacity: 8.0 + 12.0 = 20.0 cfs

As % of design Q: (20/16)(100%) = 125 %

Street Hydraulics

Street: VIA DE LUNA

100-yr. Q: 19 cfs 1/2 Street Flow: 9.5 cfs

Street slope: 1.9 %

Max. flow depth: 0.40' (DPM Plate 22.3, D-1)

Catch Basin Hydraulics

Upstream inlet(s): 2 single 'A'

DPM grating capacity plate: 22.3 D-5

Intercepted Q: (5.0 cfs/inlet)(2 inlets) = 10.0 cfs

Remaining surface flow: 9.0 cfs

Max. flow depth: 0.35' (22.3 D-1)

Downstream inlet(s): 2 double 'C' (one in sump condition)

DPM grating capacity plate: 22.3 D-6

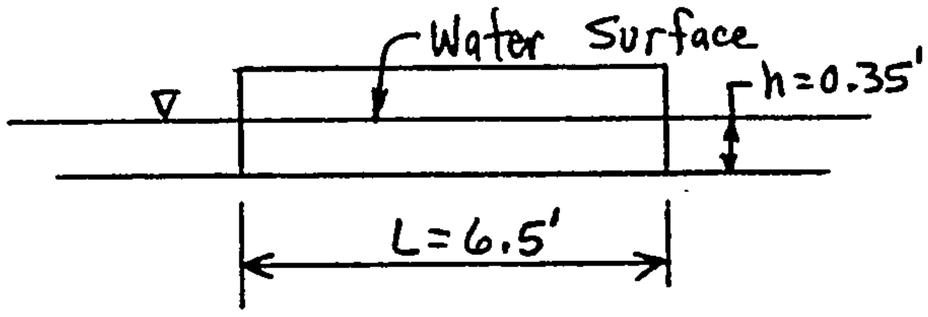
Intercepted Q: (3.2 cfs/grate)(4 grates) = 12.8 cfs

Total interception capacity: 10.0 + 12.8 = 22.8 cfs

As % of design Q: (22.8/19)(100%) = 120 %

If only one inlet throat (out of 8) remains open, added capacity is as follows: $Q_t = \frac{2}{3} L \sqrt{2g}\, h^{3/2}$ (14)

(from KING, Handbook of Hydraulics, for orifices under low heads)



$Q_t = (0.67)(6.5)(64.4)^{1/2}(0.35)^{3/2}$

$Q_t = 7.2$ cfs (Capacity of 1 throat)

Accounting for the interception of one inlet throat, total interception capacity is: 22.8 + 7.2 = 30.0 cfs

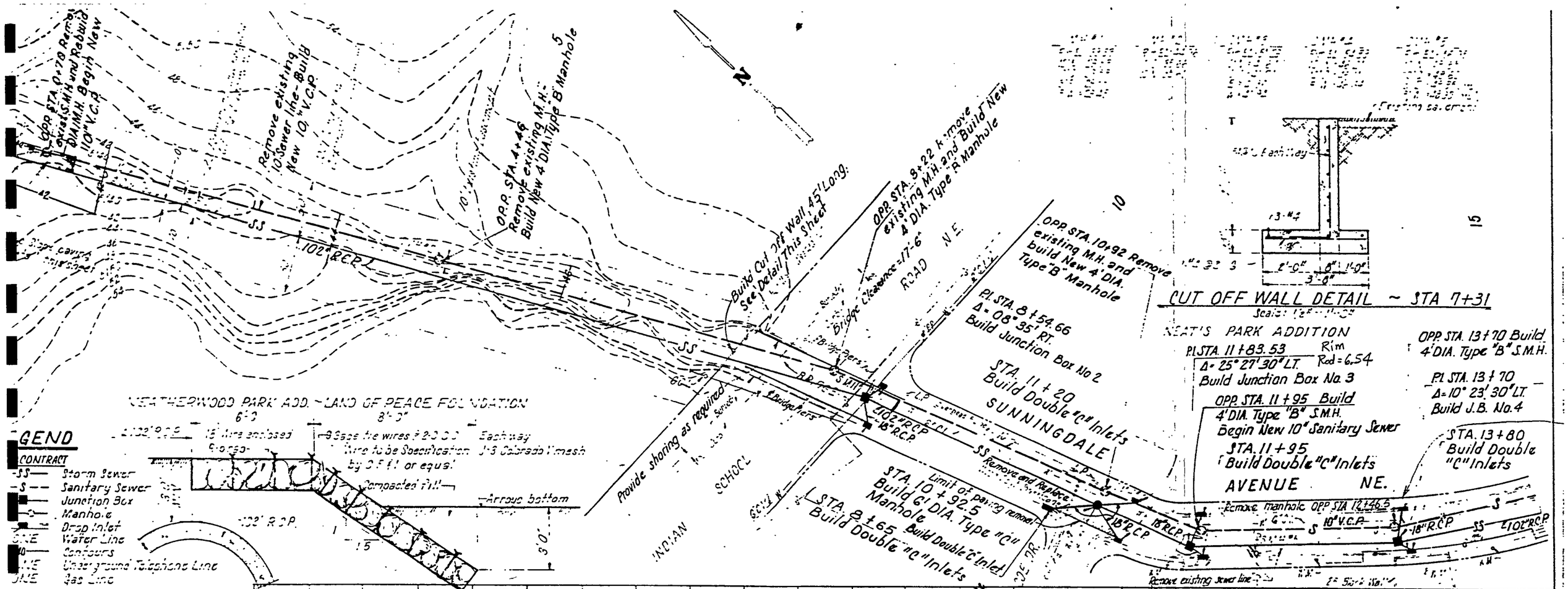
$\frac{30}{19}(100\%) = 157\%$ of design Q ←

w/ 2 throats $\frac{37}{19} = 195\%$

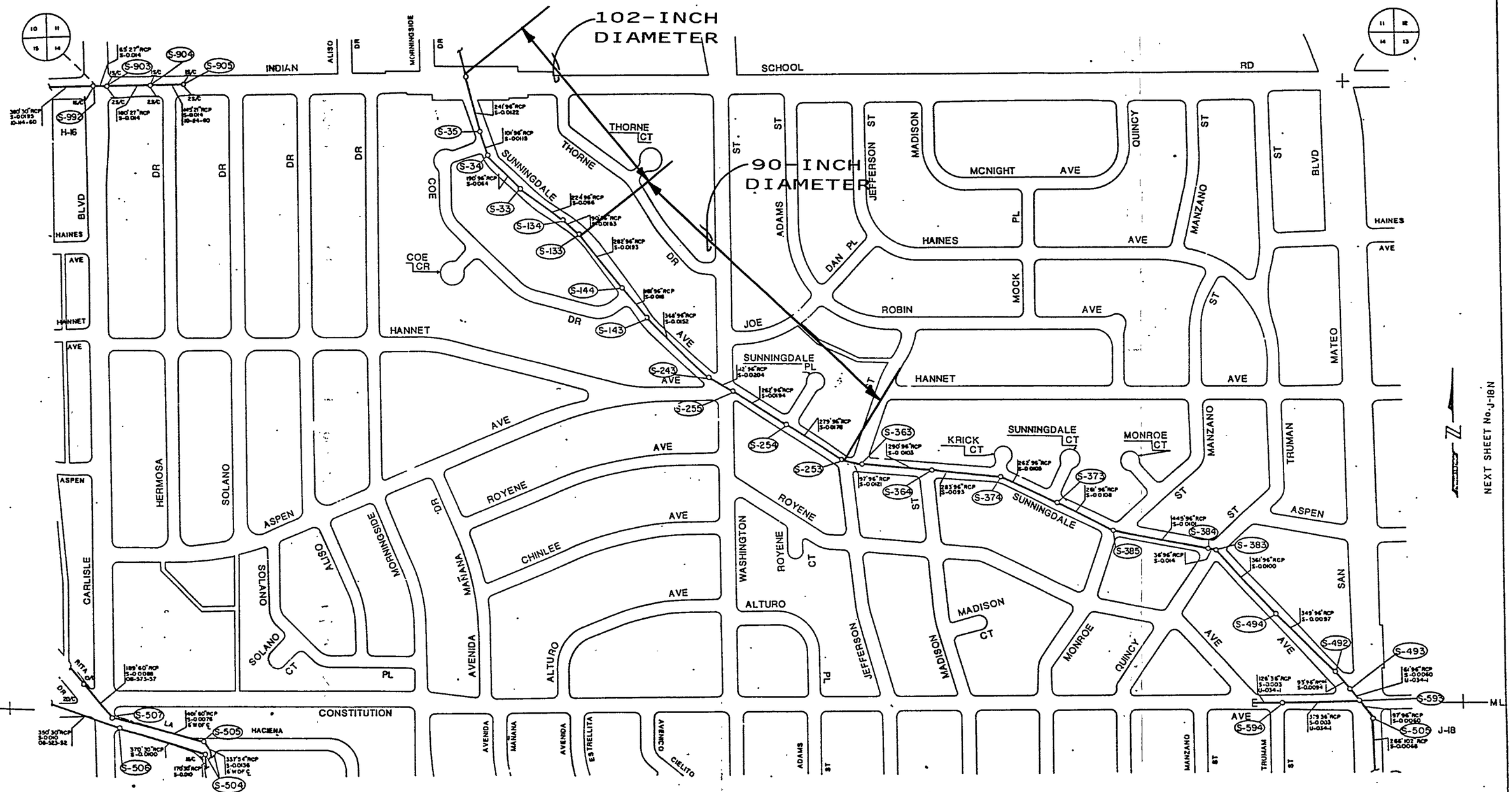
ISAACSON & ARFMAN, P.A.

SUBJECT LAS ALTURAS JOB NO.

BY SMM DATE 3-93 SHEET NO. 7 OF


OPP. STA. 0+78 Remove existing S.M.H. and Rebuild 4' DIA. M.H. Begin New 10" V.C.P.
Remove existing 10" Sewer line - Build New 10" V.C.P.
OPP. STA. 4+46 Remove existing M.H. Build New 4' DIA. Type "B" Manhole
Build Cut Off Wall, 45' Long. See Detail This Sheet
OPP. STA. 8+22 Remove existing M.H. and Build New 4' DIA. Type "B" Manhole
OPP. STA. 10+92 Remove existing M.H. and build New 4' DIA. Type "B" Manhole
Pl. STA. 8+54.66 Δ = 08° 35' RT. Build Junction Box No 2
STA. 11+20 Build Double "C" Inlets
SUNNINGDALE AVENUE NE.
Pl. STA. 11+83.53 Δ = 25° 27' 30" LT. Rim Rod = 6.54
Build Junction Box No. 3
OPP. STA. 11+95 Build 4' DIA. Type "B" S.M.H. Begin New 10" Sanitary Sewer
STA. 11+95 Build Double "C" Inlets
OPP. STA. 13+70 Build 4' DIA. Type "B" S.M.H.
Pl. STA. 13+70 Δ = 10° 23' 30" LT. Build J.B. No. 4
STA. 13+80 Build Double "C" Inlets
STA. 10+92.5 Build 6' DIA. Type "C" Manhole
STA. 8+65 Build Double "C" Inlets
Build Double "C" Inlet
Limit of paving removal
Remove and Replace
Remove manhole OPP. STA. 12+46.5
Remove existing sewer line
Provide shoring as required
INDIAN SCHOOL ROAD N.E.
Bridge Clearance = 17'-6"
102" R.C.P.
18" R.C.P.
10" V.C.P.
SS
S
NEATHERWOOD PARK ADD. - LAND OF PEACE FOUNDATION
Arroyo bottom
Compacted Fill
Each way 1/3 Colorado Mesh
CUT OFF WALL DETAIL ~ STA 7+31
NEAT'S PARK ADDITION
GEND
CONTRACT
Storm Sewer
Sanitary Sewer
Junction Box
Manhole
Drop Inlet
Water Line
Contours
Underground Telephone Line
Gas Line
existing paving and repave
a 3" crown on Sunningdale Ave.
and rebuild curb, gutter
outh side of Sunningdale Ave.
nd rebuild sidewalk curb and
required for inlets.
and replace water and sewer services,
temporary water service to meters.
ts locations are approximate and
adjusted to avoid driveways and
bstructions.
RIPRAP SLOPE PAVING DETAIL
STA. 0+00 to 1+00
OPP. STA. 10+92 Build 4' DIA. Type "B" Manhole INV. Out = 5146.11 INV. In = 5145.81
OPP. STA. 11+95 Build 4' DIA. Type "B" S.M.H. INV. EL. 5147.65 Begin New 10" Sanitary Sewer
OPP. STA. 11+46.5 Remove existing S.M.H. No. 5
OPP. STA. 13+70 Build 4' DIA. Type "B" S.M.H. INV. EL. 5149.70
Slab of Sanitary Sewer Manhole with Cast Iron Pipe
Remove existing pavement
Remove existing 4" sanitary sewer
3' Compacted Fill over Pipe
Existing ground
Existing 10" Sanitary Sewer
102" R.C.P.
Class III Wall B
10" V.C.P.
S-0.0093
5160
5155
5150
5145
5140
5135

NEXT SHEET No. H-17S



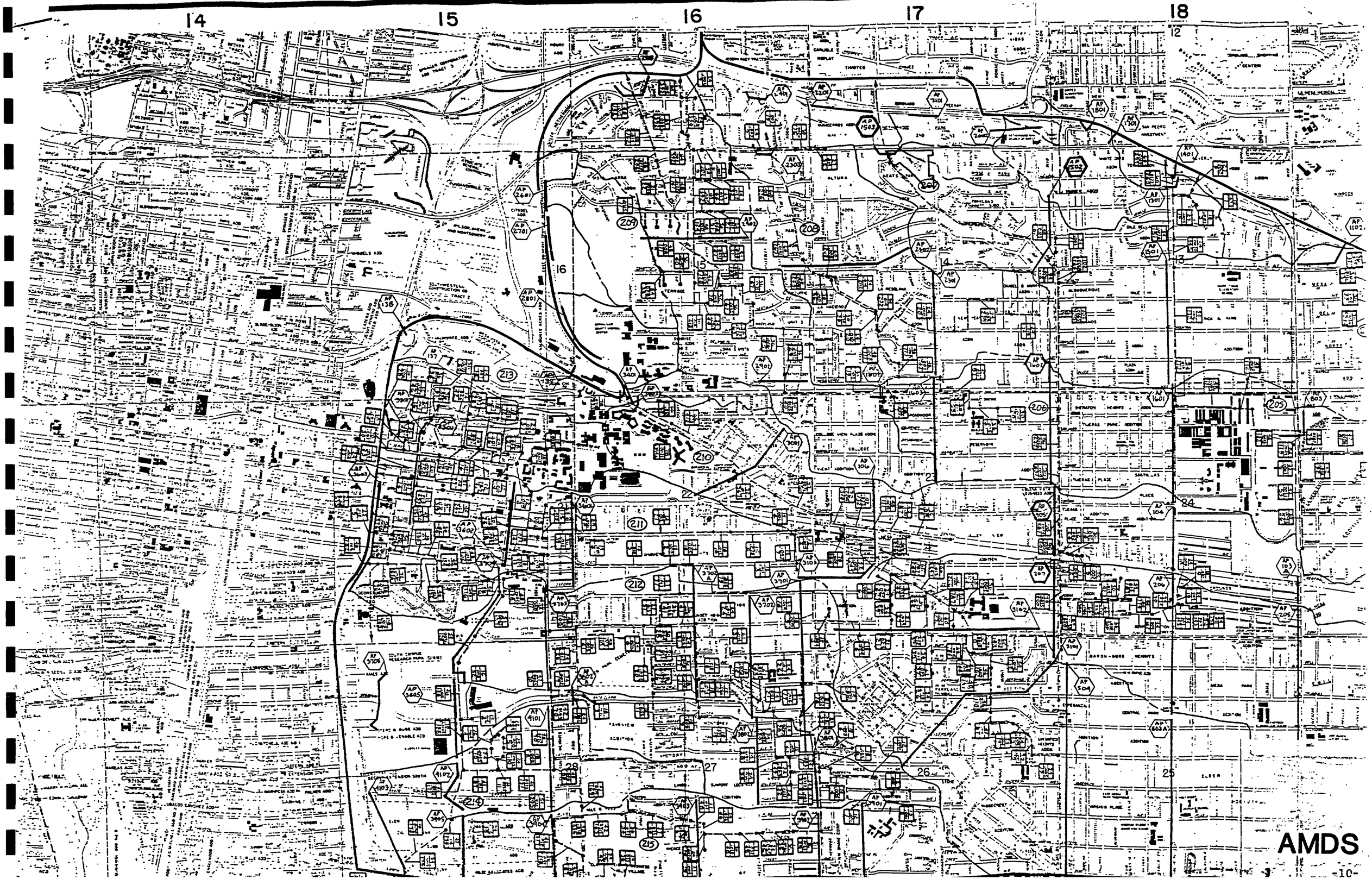
STORM SEWER PIPE SIZES PER RECORD DRAWINGS

SCALE 200 100 0 200 400

DRAINAGE FACILITIES MAP

LEGEND	NOTES	REVISIONS	MAP GRID
STORM SEWER LINE MANHOLE (S-H2) MANHOLE NUMBER STORM INLET	1. MANHOLE IDENTIFICATION REQUIRES BOTH THE MAP GRID & MANHOLE No. 2. MANHOLE NUMBERS CARRIED FROM ADJACENT MAPS HAVE THE MAP GRID SHOWN.	DATE / REMARKS	J-17N

NEXT SHEET No. J-17S


14
15
16
17
18
AMDS

5.89	39.7	705.3
6.32	42.6	763.1
6.74	45.2	809.1
7.16	47.5	840.6
7.58	49.3	849.8
8.00	50.3	849.8

COMPUTE TRAVEL TIME ID=2 REACH NO=1 NO VS=1
L=4400 SLP=.01

TRAVEL TIME TABLE
REACH 1.0

WATER DEPTH FEET	FLOW RATE CFS	TRAVEL TIME HRS
0.42	4.	0.29
0.84	18.	0.19
1.26	42.	0.15
1.68	76.	0.12
2.11	120.	0.11
2.53	171.	0.10
2.95	229.	0.09
3.37	293.	0.08
3.79	360.	0.08
4.21	431.	0.08
4.63	502.	0.07
5.05	573.	0.07
5.47	642.	0.07
5.89	705.	0.07
6.32	763.	0.07
6.74	809.	0.07
7.16	841.	0.07
7.58	850.	0.07
7.58	850.	0.07

PRINT HYD ID=23

HYDROGRAPH NUMBER 340

RUNOFF VOLUME = 83.795 ACRE-FT
PEAK DISCHARGE RATE = 825.0 CFS
PEAK OCCURRED AT 0.26 HRS.

ROUTE ID=2 HYD NO=445
INFLOW ID=23 DT=.02
* HYD OF SS FLOW ROUTED FROM AP-1502 TO AP-1503
PRINT HYD ID=2 CODE=5

HYDROGRAPH NUMBER 445

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLO CF
0.000	0.	2.000	136.	4.000	8
0.100	1.	2.100	131.	4.100	8
0.200	246.	2.200	126.	4.200	8
0.300	691.	2.300	122.	4.300	8
0.400	793.	2.400	118.	4.400	8
0.500	753.	2.500	115.	4.500	8
0.600	620.	2.600	112.	4.600	8
0.700	501.	2.700	109.	4.700	7
0.800	415.	2.800	107.	4.800	7
0.900	348.	2.900	104.	4.900	7
1.000	299.	3.000	102.	5.000	76
1.100	262.	3.100	100.	5.100	75
1.200	234.	3.200	98.	5.200	74
1.300	211.	3.300	97.	5.300	73
1.400	193.	3.400	95.	5.400	72
1.500	178.	3.500	94.	5.500	71
1.600	166.	3.600	92.	5.600	70
1.700	156.	3.700	91.	5.700	70
1.800	148.	3.800	90.	5.800	69
1.900	142.	3.900	88.	5.900	68

RUNOFF VOLUME = 83.078 ACRE-FT
PEAK DISCHARGE RATE = 800.3 CFS
PEAK OCCURRED AT 0.44 HRS.

* ROUTE OLF AT AP-1502 DOWN SUNNINGDALE TO AP-1503
COMPUTE RATING CURVE ID=1 VS NO=1 NO SEGS=3

```
ELMIN=0    ELMAX=1
CHAN SLP=.016          FP SLP=.016
N=.035     STA=30      N=.02      STA=62
N=.035     STA=92
DIST       ELEV        DIST       ELEV       DIST       ELE
0          1           .01        .8         30         .8
30.01      0           46         .5         62         0
62.01      .8          92         .8         92.01      1
```

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS
0.00	0.0	0.0
0.05	0.1	0.1
0.11	0.4	0.5
0.16	0.8	1.4
0.21	1.4	2.9
0.26	2.2	5.3
0.32	3.2	8.7
0.37	4.3	13.1
0.42	5.7	18.7
0.47	7.2	25.6
0.53	8.8	34.9
0.58	10.5	46.6
0.63	12.2	59.6
0.68	13.9	73.8
0.74	15.6	89.2
0.79	17.3	105.8
0.84	21.5	125.1
0.89	26.3	148.6
0.95	31.2	175.3
1.00	36.0	204.9

```
COMPUTE TRAVEL TIME ID=3        REACH NO=1          NO VS=1
                    L=4400      SLP=.016
```

TRAVEL TIME TABLE
REACH 1.0

WATER DEPTH FEET	FLOW RATE CFS	TRAVEL TIME HRS
0.05	0.	1.49
0.11	0.	0.94
0.16	1.	0.71
0.21	3.	0.59
0.26	5.	0.51
0.32	9.	0.45
0.37	13.	0.41
0.42	19.	0.37
0.47	26.	0.34
0.53	35.	0.31
0.58	47.	0.28
0.63	60.	0.25
0.68	74.	0.23
0.74	89.	0.21
0.79	106.	0.20
0.84	125.	0.21
0.89	149.	0.22
0.95	175.	0.22
1.00	205.	0.21

```
PRINT HYD           ID=24
```

HYDROGRAPH NUMBER 341

```
RUNOFF VOLUME =        0.812 ACRE-FT
PEAK DISCHARGE RATE =        90.3 CFS
PEAK OCCURRED AT  0.32 HRS.
```

```
ROUTE               ID=3        HYD NO=446
                    INFLOW ID=24          DT=.02
* HYD OF OLF ROUTED DOWN SUNNINGDALE FROM AP-1502 TO AP-1503
PRINT HYD           ID=3        CODE=5
```

HYDROGRAPH NUMBER 446

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.	1.100	4.	2.200	1.

0.100	0.	1.200	3.	2.300	1.
0.200	0.	1.300	3.	2.400	1.
0.300	5.	1.400	3.	2.500	1.
0.400	24.	1.500	2.	2.600	1.
0.500	7.	1.600	2.	2.700	1.
0.600	6.	1.700	2.	2.800	1.
0.700	6.	1.800	2.	2.900	1.
0.800	5.	1.900	2.	3.000	1.
0.900	5.	2.000	1.	3.100	1.
1.000	4.	2.100	1.		

RUNOFF VOLUME = 0.762 ACRE-FT
PEAK DISCHARGE RATE = 24.7 CFS
PEAK OCCURRED AT 0.38 HRS.

```
* COMBINE ROUTED SS (HYD445) AND OLF (HYD446) AT AP-1503
ADD HYD          ID=2      HYD NO=447
                 ID=2      ID=3
* HYD OF TOTAL ROUTED FLOW FROM AP-1502 TO AP-1503
PRINT HYD        ID=2      CODE=5
```

HYDROGRAPH NUMBER 447

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.	2.000	138.	4.000	87.
0.100	1.	2.100	132.	4.100	86.
0.200	246.	2.200	128.	4.200	85.
0.300	696.	2.300	123.	4.300	84.
0.400	817.	2.400	119.	4.400	83.
0.500	761.	2.500	116.	4.500	81.
0.600	626.	2.600	113.	4.600	80.
0.700	507.	2.700	110.	4.700	79.
0.800	420.	2.800	107.	4.800	78.
0.900	353.	2.900	105.	4.900	77.
1.000	303.	3.000	103.	5.000	76.
1.100	266.	3.100	101.	5.100	75.
1.200	237.	3.200	98.	5.200	74.
1.300	214.	3.300	97.	5.300	73.
1.400	196.	3.400	95.	5.400	72.
1.500	181.	3.500	94.	5.500	71.
1.600	168.	3.600	92.	5.600	70.
1.700	158.	3.700	91.	5.700	70.
1.800	150.	3.800	90.	5.800	69.
1.900	143.	3.900	88.	5.900	68.

RUNOFF VOLUME = 83.840 ACRE-FT
PEAK DISCHARGE RATE = 816.8 CFS
PEAK OCCURRED AT 0.40 HRS.

```
* COMPUTE HYD FOR INTERVENING AREA BETWEEN AP-1502 AND AP-1503
COMPUTE HYD      ID=4      IMPERVIOUS AREA
                 HYD NO=448
                 DT=.02
                 DA=.026
                 CN=95
                 K=-.12
                 TP=-.24
                 MASS RAIN=-1
SHAPE CONSTANT, N =  7.947
UNIT PEAK =      61.2CFS
* HYD OF IMPERVIOUS AREA ABOVE AP-1503
PRINT HYD        ID=4      CODE=5
```

HYDROGRAPH NUMBER 448

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.	2.000	2.	4.000	1.
0.100	8.	2.100	2.	4.100	1.
0.200	60.	2.200	2.	4.200	1.
0.300	64.	2.300	2.	4.300	1.
0.400	37.	2.400	2.	4.400	1.
0.500	21.	2.500	1.	4.500	1.
0.600	14.	2.600	1.	4.600	1.
0.700	11.	2.700	1.	4.700	1.
0.800	9.	2.800	1.	4.800	1.
0.900	7.	2.900	1.	4.900	1.

1.000	6.	3.000	1.	5.000	1.
1.100	5.	3.100	1.	5.100	1.
1.200	5.	3.200	1.	5.200	1.
1.300	3.	3.300	1.	5.300	1.
1.400	3.	3.400	1.	5.400	1.
1.500	3.	3.500	1.	5.500	1.
1.600	2.	3.600	1.	5.600	1.
1.700	2.	3.700	1.	5.700	1.
1.800	2.	3.800	1.	5.800	1.
1.900	2.	3.900	1.	5.900	1.

RUNOFF VOLUME = 2.519 ACRE-FT
PEAK DISCHARGE RATE = 70.8 CFS
PEAK OCCURRED AT 0.26 HRS.

```
COMPUTE HYD              ID=5      PERVIOUS AREA
                         HYD NC=449
                         DT=.02
                         DA=.274
                         CN=65
                         K=-.12
                         TP=-.24
                         MASS RAIN=-1
     SHAPE CONSTANT, N =  7.947
     UNIT PEAK =        644.5CFS
```

```
* HYD OF PERVIOUS AREA ABOVE AP-1503
PRINT HYD                ID=5      CODE=5
```

HYDROGRAPH NUMBER 449

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.	2.000	6.	4.000	3.
0.100	2.	2.100	6.	4.100	3.
0.200	26.	2.200	6.	4.200	3.
0.300	42.	2.300	6.	4.300	3.
0.400	36.	2.400	5.	4.400	3.
0.500	28.	2.500	5.	4.500	3.
0.600	22.	2.600	5.	4.600	3.
0.700	19.	2.700	5.	4.700	3.
0.800	17.	2.800	5.	4.800	3.
0.900	15.	2.900	4.	4.900	3.
1.000	13.	3.000	4.	5.000	3.
1.100	12.	3.100	4.	5.100	3.
1.200	11.	3.200	4.	5.200	3.
1.300	10.	3.300	4.	5.300	3.
1.400	9.	3.400	4.	5.400	3.
1.500	9.	3.500	4.	5.500	3.
1.600	8.	3.600	4.	5.600	3.
1.700	8.	3.700	4.	5.700	2.
1.800	7.	3.800	4.	5.800	2.
1.900	7.	3.900	3.	5.900	2.

RUNOFF VOLUME = 3.733 ACRE-FT
PEAK DISCHARGE RATE = 41.9 CFS
PEAK OCCURRED AT 0.30 HRS.

```
* COMBINE HYD FOR IMPERVIOUS (HYD448) AND PERVIOUS (HYD449) INTERVENING A
ADD HYD                  ID=4      HYD NO=450
                         ID=4      ID=5
* HYD FOR TOTAL INTERVENING AREA ABOVE AP-1503
PRINT HYD                ID=4      CODE=5
```

HYDROGRAPH NUMBER 450

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.	2.000	8.	4.000	4.
0.100	10.	2.100	8.	4.100	4.
0.200	86.	2.200	7.	4.200	4.
0.300	106.	2.300	7.	4.300	4.
0.400	73.	2.400	7.	4.400	4.
0.500	49.	2.500	7.	4.500	4.
0.600	36.	2.600	6.	4.600	4.
0.700	30.	2.700	6.	4.700	4.
0.800	26.	2.800	6.	4.800	4.
0.900	22.	2.900	6.	4.900	4.
1.000	20.	3.000	6.	5.000	4.

1.100	17.	3.100	5.	5.100	3.
1.200	16.	3.200	5.	5.200	3.
1.300	13.	3.300	5.	5.300	3.
1.400	12.	3.400	5.	5.400	3.
1.500	11.	3.500	5.	5.500	3.
1.600	11.	3.600	5.	5.600	3.
1.700	10.	3.700	5.	5.700	3.
1.800	9.	3.800	4.	5.800	3.
1.900	9.	3.900	4.	5.900	3.

RUNOFF VOLUME = 6.252 ACRE-FT
PEAK DISCHARGE RATE = 109.7 CFS
PEAK OCCURRED AT 0.26 HRS.

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* COMBINE ROUTED FLOW (HYD447) AND INTERVENING OLF (HYD450) AT AP-1503
ADD HYD              ID=2      HYD NO=451
                     ID=2      ID=4
*-*-*-
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1.700	168.	3.700	96.	5.700	73.
1.800	159.	3.800	94.	5.800	72.
1.900	152.	3.900	93.	5.900	71.

RUNOFF VOLUME = 90.063 ACRE-FT
PEAK DISCHARGE RATE = 880.0 CFS
PEAK OCCURRED AT 0.38 HRS.

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