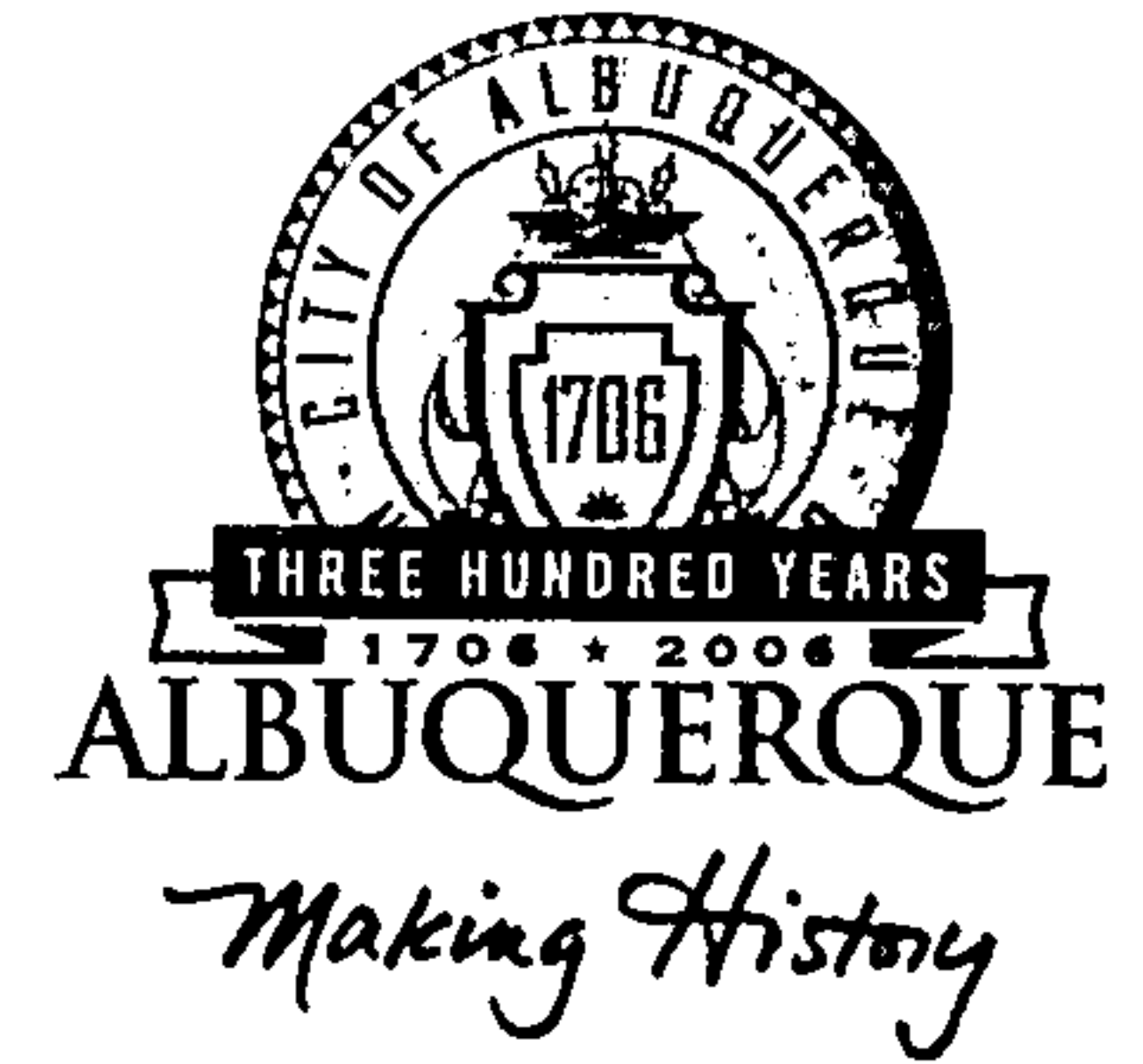


CITY OF ALBUQUERQUE

January 13, 2006

Tucker H. Green, PE
Per Se Engineering
2116 Lead Ave SE
Albuquerque, NM 87106



Re: Louise P. Casias Residence, Sandalwood Subdivision
Grading and Drainage Plan
Engineer's Stamp dated 1-03-06 (J10-D16)

Dear Mr. Green,

Based upon the information provided in your submittal received 1-03-06, the above referenced plan is approved for Final Plat and Building Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

If you have any questions, you can contact me at 924-3695.

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

Sincerely,

Rudy E. Rael, Associate Engineer
Planning Department.
Building and Development Services

C: file

DRAINAGE INFORMATION SHEET

(REV. 11/01/2001)

J-10/D16

PROJECT TITLE: Louis P. Casias Residence

ZONE MAP/DRG. FILE: J10/D16

DRB #: _____ EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: Lots 31 & 32 (31A) Sandalwood Sub. Bernalillo County, New Mexico

CITY ADDRESS: _____

ENGINEERING FIRM: Per Se Engineering
ADDRESS: 2116 LEAD Ave. SE
CITY, STATE: Albuquerque, NM

CONTACT: Tucker Green
PHONE: 232-9394
ZIP CODE: 87106

OWNER: _____ Loius P Casias
ADDRESS: _____
CITY, STATE: _____

CONTACT: Tony Deck
PHONE: 505.266-5324
ZIP CODE: 87110

ARCHITECT: _____ Ron Montoya Custom Designs (not an architect?)
ADDRESS: 4801 Alameda NE Suite G-1
CITY, STATE: Albuquerque NM

CONTACT: Ron Montoya
PHONE: 823-6464
ZIP CODE: _____

SURVEYOR: _____ Wayjohn Surveying
ADDRESS: 330 Louisiana NE
CITY, STATE: Albuquerque NM

CONTACT: Tim
PHONE: 255-2052
ZIP CODE: 87108

CONTRACTOR: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☒ DRAINAGE PLAN
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☒ GRADING PLAN
- ☐ APPROVAL
- ☐ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ENGINEERS CERTIFICATION (TCL)
- ☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ☐ CERTIFICATE OF OCCUPANCY (TEMP.)
- ☐ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA / FINANCIAL GUARANTEE RELEASE
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S. DEV. PLAN FOR BLDG. PERMIT
- ☐ SECTOR PLAN APPROVAL
- ☒ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☒ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY (PERM.)
- ☐ CERTIFICATE OF OCCUPANCY (TEMP.)
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ OTHER (SPECIFY)

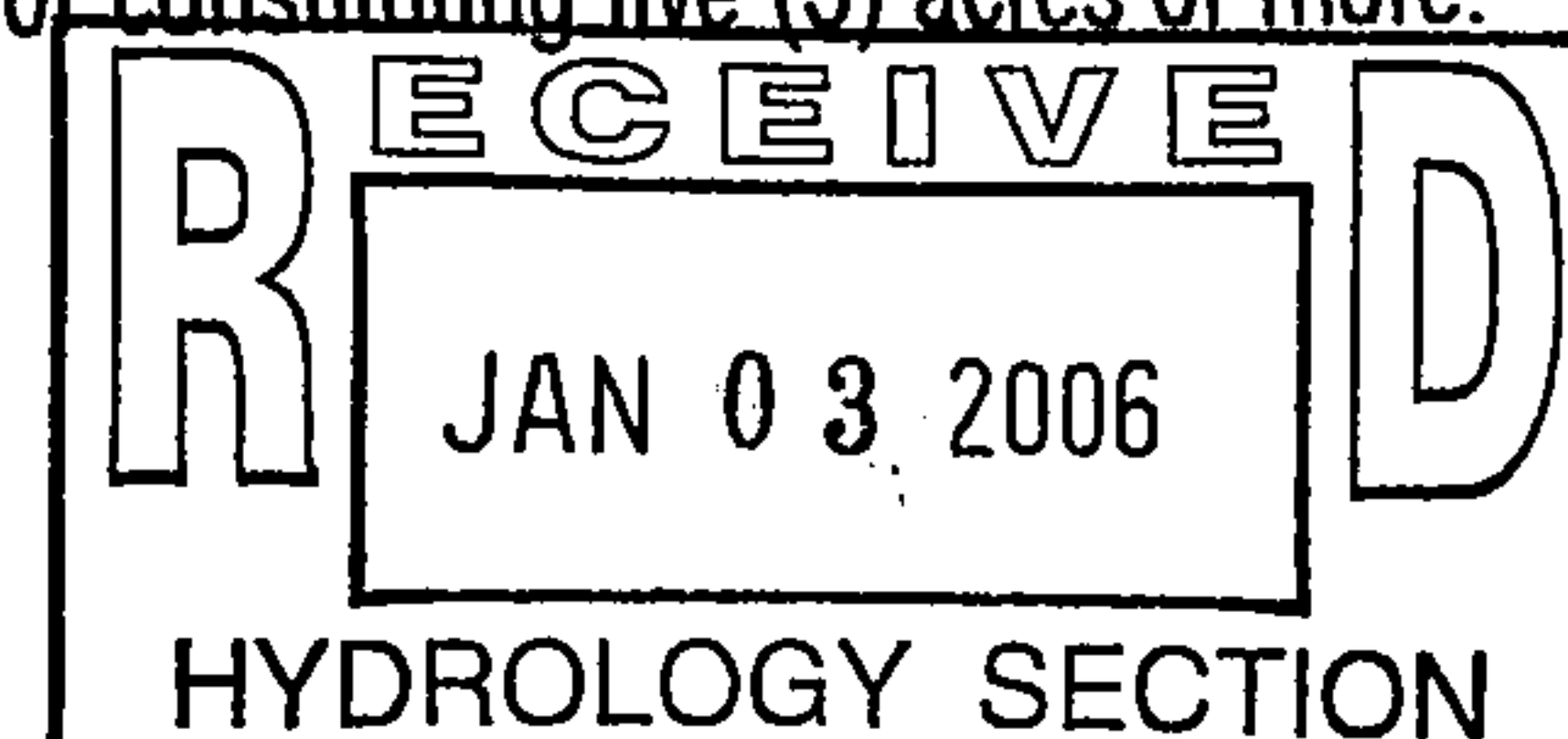
WAS A PRE-DESIGN CONFERENCE ATTENDED? ☐ YES ☒ NO ☐ COPY PROVIDED

DATE SUBMITTED: January 3, 2006

BY: Tucker Green

Requests for approvals of Site Development Plans and/or Subdivision Flats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. Conceptual Grading and Drainage Plan: Required for approval of Site Development Plans greater than five acres.
2. Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. Drainage Report: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.



Ronald D. Brown, Chair
Daniel F. Lyon, Vice Chair
Tim Eichenberg, Secretary-Treasurer
Janet Sayers, Asst. Secretary-Treasurer
Danny Hernandez, Director

John P. Kelly, P.E.
Executive Engineer



Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority

2600 Prospect N.E., Albuquerque, NM 87107
Phone: (505) 884-2215 Fax: (505) 884-0214

File
J10/D16

May 6, 2005

Brad Bingham
Section Head
Hydrology Development
600 2nd Street NW
Albuquerque, New Mexico 87102

Tony Deck
Pick at AMAFCA Office

Lynn Mazur
Development Review Engineer
AMAFCA
2600 Prospect NE
Albuquerque, New Mexico 87107

Chris Perea
Wilson & Company
4900 Lang Ave NE
Albuquerque, New Mexico 87109

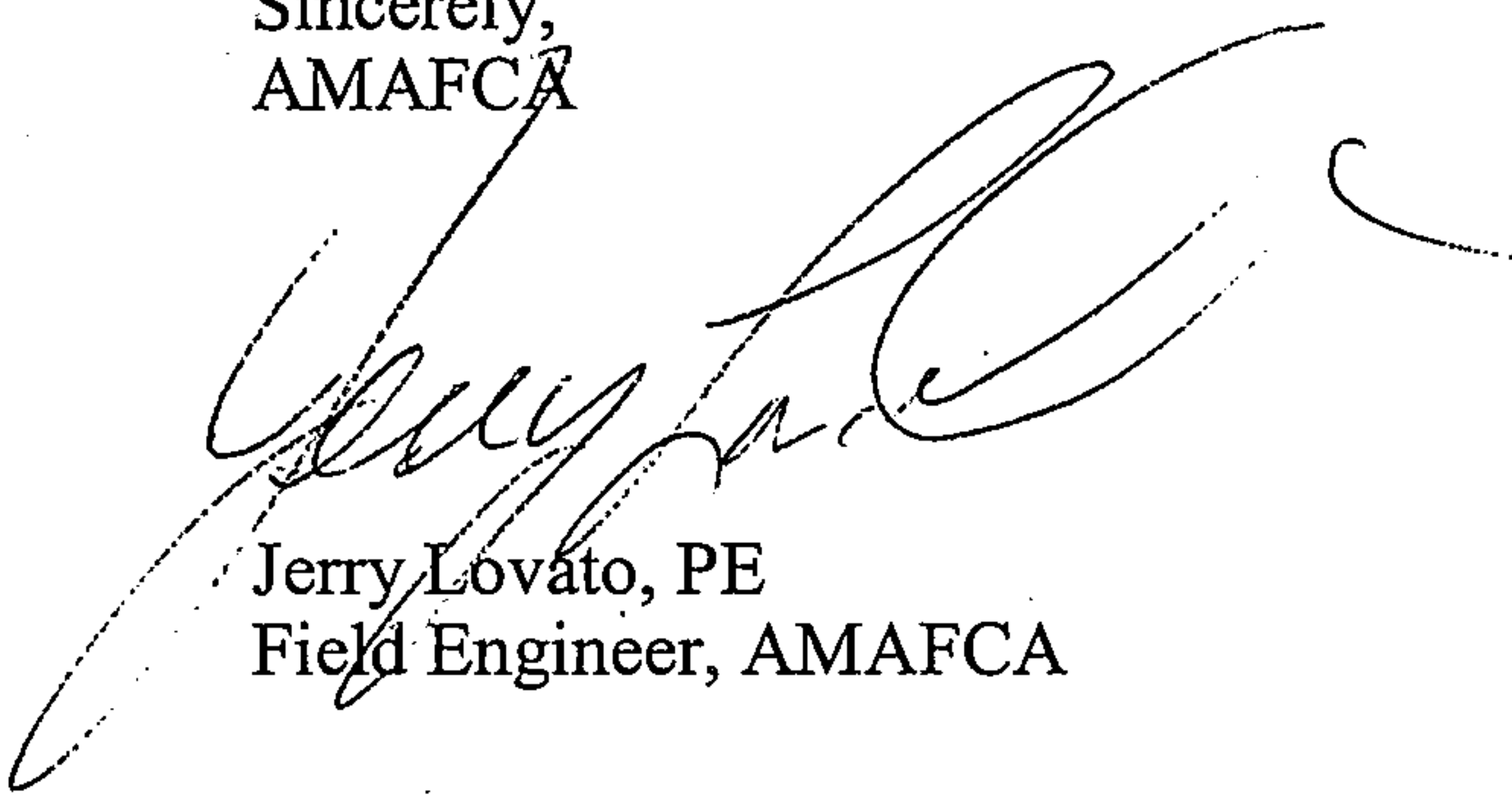
RE: West I-40 Phase Three Diversion Channel Project
Completion of Alwood Pl – Inlet Connection Sta 67+50

Dear Brad,

This letter shall serve as acceptance of the work done in and around the West I-40 Diversion Channel Phase III Project, at Alwood Place. The installation of the new 36-inch storm drain and one manhole has been completed by Albuquerque Excavators as part of their work on the project. Wilson & Company has reviewed the as-built information. This portion of the project has been completed to the satisfaction of AMAFCA.

If you have any questions or issues regarding this project please call me at 884-2215.

Sincerely,
AMAFCA


Jerry Lovato, PE
Field Engineer, AMAFCA

HEWITT ENGINEERING & ENVIRONMENTAL
CONSULTANTS

5615 CREGGS STREET, N.W.

ALBUQUERQUE, N.M. 87120

(505) 899-9586
FAX (505) 899-9586

Mr. Bernie J. Montoya, CE
Engineering Associate
City of Albuquerque
Public Works Department
Hydrology Division
P.O. Box 1293
Albuquerque, New Mexico 87103

June 6, 1996

Case No.: DRB-95-287

RE: SANDALWOOD SUBDIVISION GRADING AND DRAINAGE PLAN; TRACTS
238 AND 239, UNIT 8, TOWN OF ATRISCO GRANT (ALBUQUERQUE,
NEW MEXICO)

Dear Mr. Montoya:

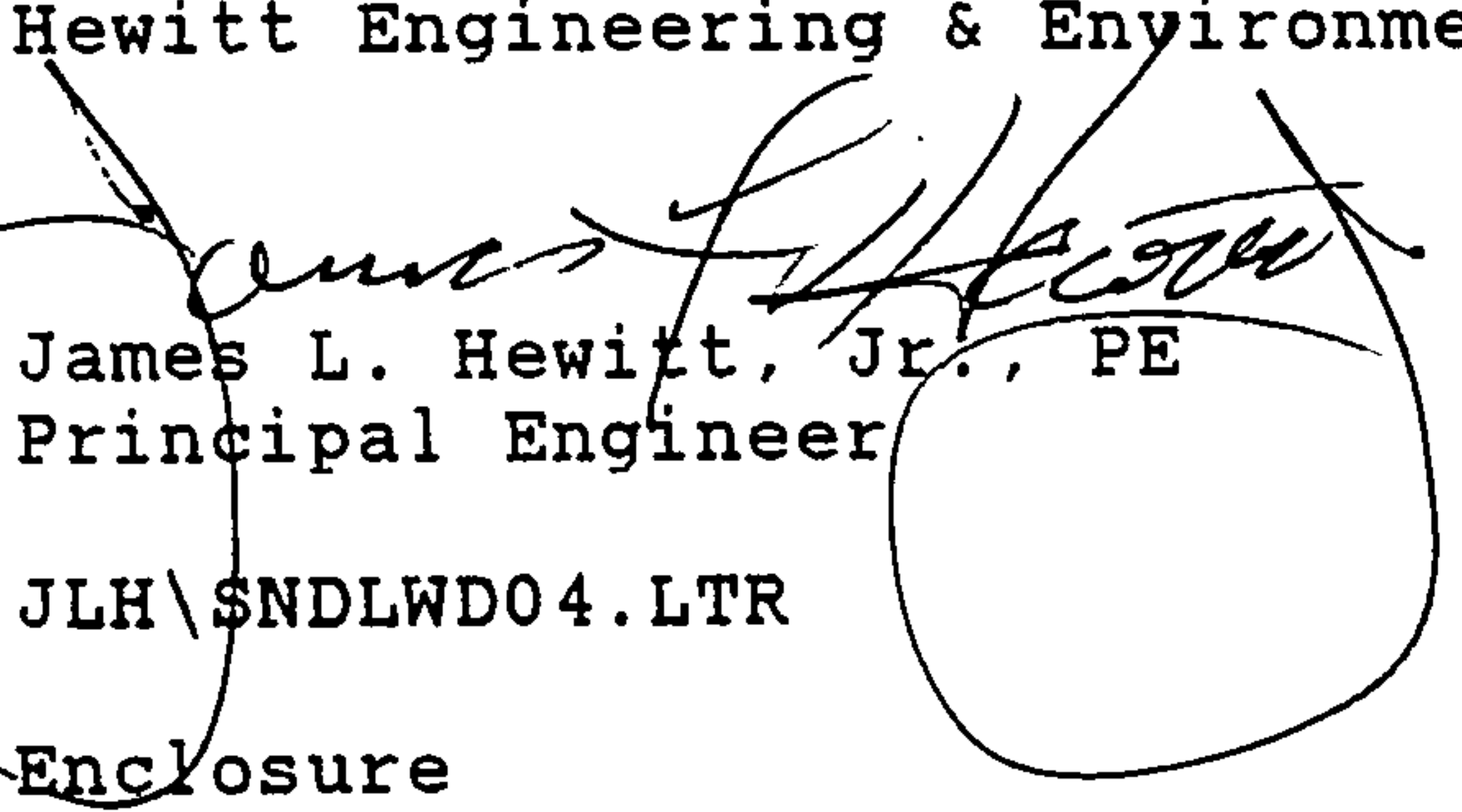
The grading and drainage plan (transmitted to your attention on February 6, 1996) for the Sandalwood Subdivision (Tracts 238 and 239, Unit 8, Town of Atrisco Grant) has been revised per your request (dated February 7, 1996). Specifically, top of curb, gutter flowline, and top of retaining wall elevations have been added to the grading and drainage plan and the infrastructure list has been revised.

Please note the minimum grade to ensure positive drainage from Lot 33 to Alwood Drive, N.W. would result in an excessive retaining wall height at the southeast corner of this lot; hence, Lot 33 storm drainage will be discharged to the I-40/Unser Boulevard interchange right-of-way via a drain through the perimeter retaining wall.

Three copies of the revised grading and drainage plan accompany this letter. We respectfully request your expedient review and approval of this document.

Should you have any questions regarding this matter, do not hesitate to contact me at (505) 899-9586.

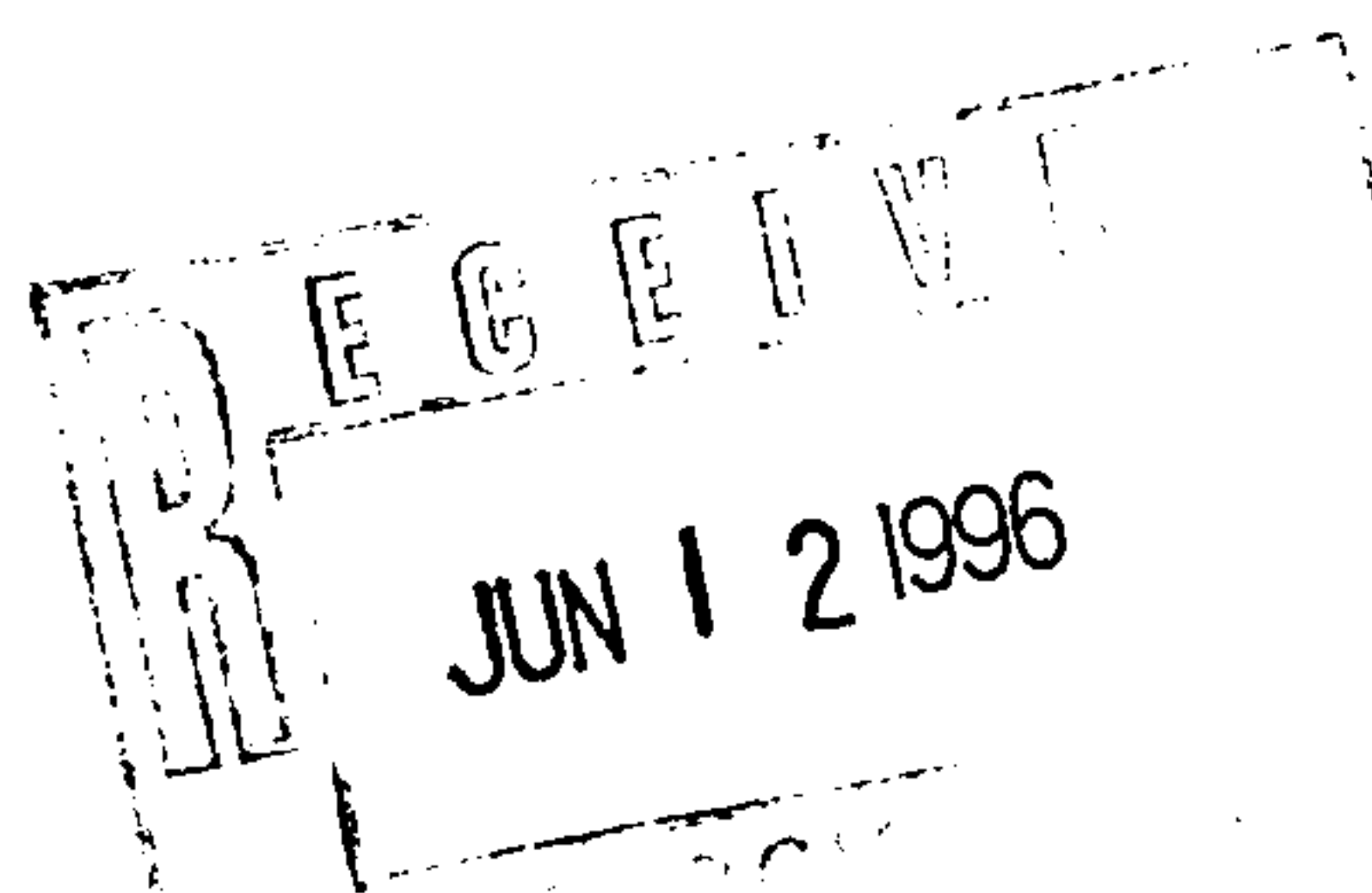
Sincerely,
Hewitt Engineering & Environmental Consultants (HEEC)


James L. Hewitt, Jr., PE
Principal Engineer

JLH\SNLWD04.LTR

Enclosure

cc: A. Rizvi



DRAINAGE INFORMATION SHEET

PROJECT TITLE: Sandalwood Subdivision ZONE ATLAS/DRNG. FILE #: J-10-D16
 DRB #: 95-287 EPC #: _____ WORK ORDER #: 5470.81
 LEGAL DESCRIPTION: Tract 238, 239, Unit 8, Town of Atascocita Grant
 CITY ADDRESS: _____

ENGINEERING FIRM: Hewitt Engineering CONTACT: James Hewitt
 ADDRESS: 3730 Coors Blvd, NW Suite 200 PHONE: 831-5596
Albuquerque, NM 87120

OWNER: Argus Development Co. CONTACT: Ben Spencer
 ADDRESS: 6400 Uptown Blvd., NE PHONE: 889-3061

ARCHITECT: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL: DEC 20 1996
 _____ DRAINAGE REPORT
 _____ DRAINAGE PLAN
 _____ CONCEPTUAL GRADING & DRAINAGE PLAN
 _____ GRADING PLAN
 _____ EROSION CONTROL PLAN
 ✓ ENGINEER'S CERTIFICATION
 _____ OTHER _____

PRE-DESIGN MEETING:
 _____ YES
 _____ NO
 _____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:
 _____ SKETCH PLAT APPROVAL
 _____ PRELIMINARY PLAT APPROVAL
 _____ S. DEV. PLAN FOR SUB'D. APPROVAL
 _____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
 _____ SECTOR PLAN APPROVAL
 _____ FINAL PLAT APPROVAL
 _____ FOUNDATION PERMIT APPROVAL
 _____ BUILDING PERMIT APPROVAL
 _____ CERTIFICATE OF OCCUPANCY APPROVAL
 _____ GRADING PERMIT APPROVAL
 _____ PAVING PERMIT APPROVAL
 _____ S.A.D. DRAINAGE REPORT
 _____ DRAINAGE REQUIREMENTS
 _____ SUBDIVISION CERTIFICATION
 ✓ OTHER Financial Guarantee (SPECIFY)
Release

DATE SUBMITTED: December 20, 1996
 BY: James F. Hewitt



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

February 7, 1996

James Hewitt, Jr.
Hewitt Engineering
5615 Creggs St. NW
Albuquerque, NM 87120

RE: REVISED DRAINAGE PLAN FOR SANDALWOOD SUBDIVISION (J10-D16)
REVISION DATED 2/5/96.

Dear Mr. Hewitt:

Based on the information provided on your February 6, 1996 resubmittal, the above referenced site is approved for Preliminary and Final Plat approval.

Please be advised that prior to Building Permit and Work Order approval, the following must be addressed:

1. Portion where the proposed retaining walls are located, please indicate top of wall elevations.
2. Revised infrastructure list.
3. Executed Agreement and Covenant for maintenance of the pond.
4. Top of curb and flowline elevations on all proposed streets including Hanover NW.

If I can be of further assistance, please feel free to contact me at 768-2667.

Sincerely,
Bernie J. Montoya
Bernie J. Montoya, CE
Engineering Associate

BJM/dl

c: Andrew Garcia
Adil Rizvi
<File>

**HEWITT ENGINEERING & ENVIRONMENTAL
CONSULTANTS**

5615 CREGGS STREET, N.W.

ALBUQUERQUE, N.M. 87120

(505) 899-9586
FAX (505) 899-9586

Mr. Bernie J. Montoya, CE
Engineering Associate
City of Albuquerque
Public Works Department
Hydrology Division
P.O. Box 1293
Albuquerque, New Mexico 87103

December 4, 1995

**RE: SANDALWOOD SUBDIVISION GRADING AND DRAINAGE PLAN; TRACTS
238 AND 239, UNIT 8, TOWN OF ATRISCO GRANT (ALBUQUERQUE,
NEW MEXICO)**

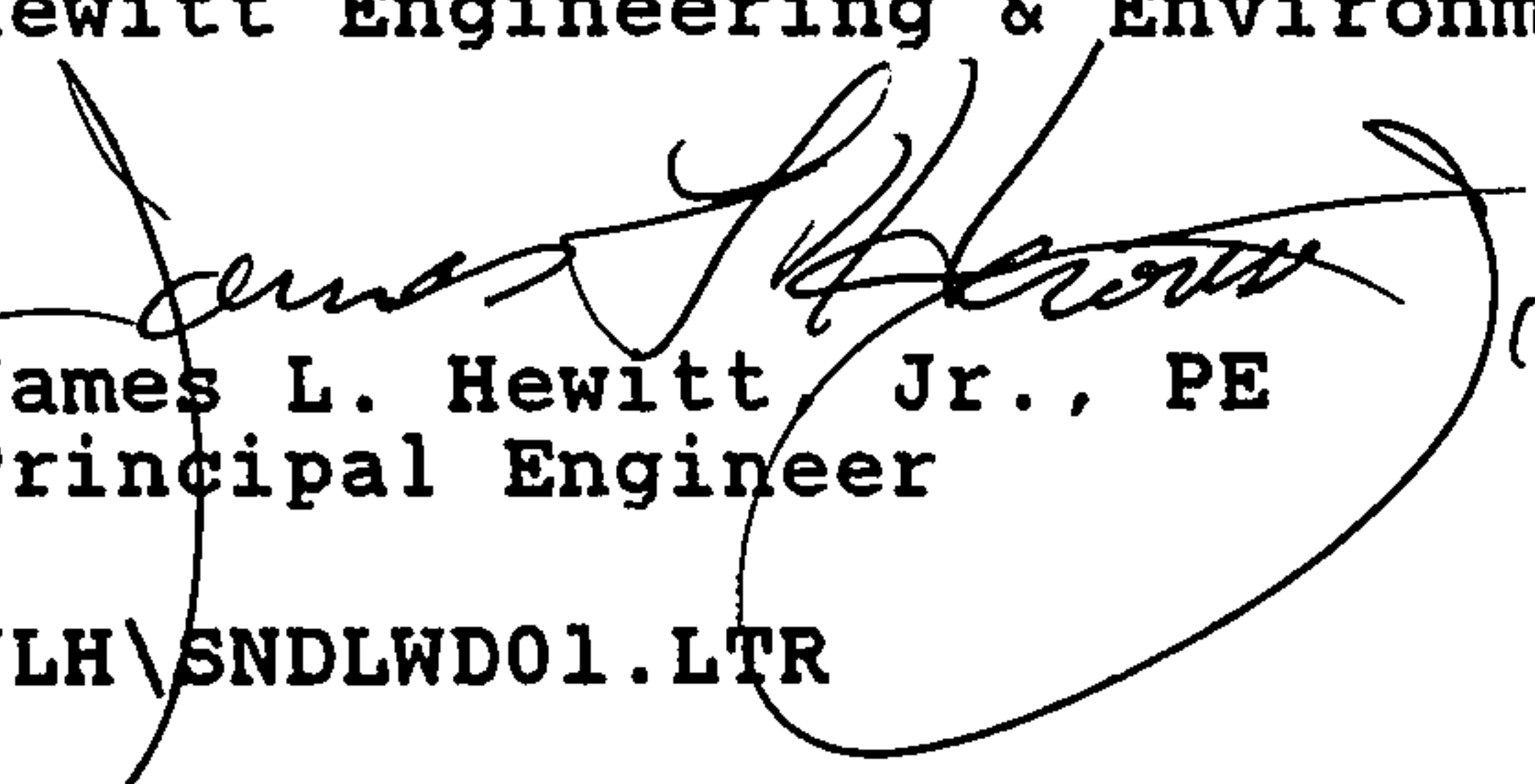
Dear Mr. Montoya:

Transmitted herewith (for your review and approval) is the final grading and plan for the Sandalwood Subdivision (Tracts 238 and 239, Unit 8, Town of Atrisco Grant). Per the Federal Emergency Management Agency's (FEMA's) Flood Insurance Rate Map (FIRM) Community-Panel No. 350002 0027 C (October 14, 1983), these parcels (i.e., Tracts 238 and 239) are located in an area of minimal flooding. This grading and plan was developed using the methods and criteria presented within the City of Albuquerque, Development Process Manual (DPM) - Volume 2, Section 22.2 - Hydrology, January, 1993.

Subdivision Lots 1 - 4 and 33 - 50 will have rear yard ponding. An interim retention pond will intercept storm flow from the 100-year 6-hour event. Any excess storm flow will be discharged to the I-40/Unser Boulevard interchange right-of-way via an emergency overflow. The retention pond will be eliminated upon completion of the West Bluff Interceptor.

Should you have any questions regarding this matter, do not hesitate to contact me at (505) 899-9586.

Sincerely,
Hewitt Engineering & Environmental Consultants (HEEC)


James L. Hewitt, Jr., PE
Principal Engineer

JLH\SNLWD01.LTR

Enclosure

cc: A. Rizvi

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Sandalwood Sub. ZONE ATLAS/DRNG. FILE #: J10/016
 DRB #: 95-287 EPC #: _____ WORK ORDER #: _____ Grant.
 LEGAL DESCRIPTION: Tracts 238 & 239 Unit 8 Town of Atrisco.
 CITY ADDRESS: _____
 ENGINEERING FIRM: Hewitt Engineering Consultants CONTACT: James Hewitt Jr. PE
 ADDRESS: 5615 Gregg St NW 87120 PHONE: 899-9586
 OWNER: Adil Rizvi CONTACT: Adil Rizvi
 ADDRESS: 7049 Luella Anne NE PHONE: 857-0467
 ARCHITECT: N/A CONTACT: _____
 ADDRESS: _____ PHONE: _____
 SURVEYOR: Southwest Surveying Co. Inc CONTACT: F. Wilson
 ADDRESS: 333 Longs NE PHONE: 247-4444
 CONTRACTOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

____ DRAINAGE REPORT
☒ DRAINAGE PLAN
 ____ CONCEPTUAL GRADING & DRAINAGE PLAN
☒ GRADING PLAN
 ____ EROSION CONTROL PLAN
 ____ ENGINEER'S CERTIFICATION
 ____ OTHER _____

PRE-DESIGN MEETING:

☒ YES
 ____ NO
 ____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

____ SKETCH PLAT APPROVAL
 ____ PRELIMINARY PLAT APPROVAL
☒ S. DEV. PLAN FOR SUB'D. APPROVAL
☒ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
 ____ SECTOR PLAN APPROVAL
☒ FINAL PLAT APPROVAL
 ____ FOUNDATION PERMIT APPROVAL
☒ BUILDING PERMIT APPROVAL
 ____ CERTIFICATE OF OCCUPANCY APPROVAL
 ____ GRADING PERMIT APPROVAL
 ____ PAVING PERMIT APPROVAL
 ____ S.A.D. DRAINAGE REPORT
☒ DRAINAGE REQUIREMENTS
 ____ SUBDIVISION CERTIFICATION
 ____ OTHER _____ (SPECIFY)

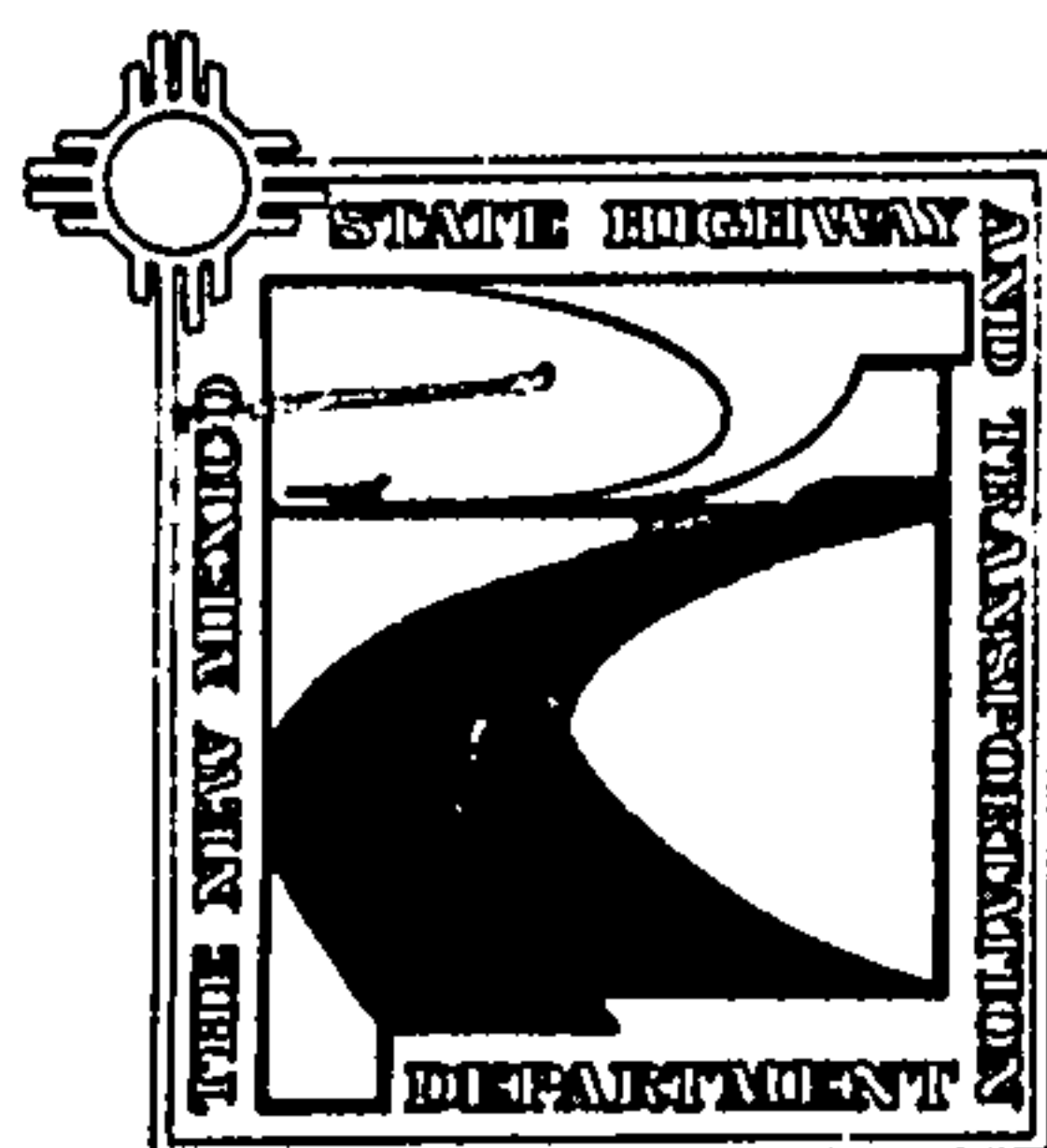
DATE SUBMITTED:

June 12, 1996

BY:

Adil Rizvi

JUN 12 1996



GARY E. JOHNSON
GOVERNOR

COMMISSION

Holm Bursum, III
Chairman, Socorro

Edward T. Begay
Vice-Chairman, Gallup

Peter T. Mocho, Sr.
Secretary, Albuquerque

Joe M. Anaya
Member, Stanley

Albert N. Sanchez
Member, Santa Rosa

Sidney G. Strebeck
Member, Clovis

DEPARTMENT

Secretary
Pete K. Rahn

General Office
P.O. Box 1149
Santa Fe, N.M.
87504-1149
505-827-5100

District One Office
P.O. Box 231
Deming, N.M.
88031-0231
505-546-2603

District Two Office
P.O. Box 1457
Roswell, N.M.
88202-1457
505-624-3300

District Three Office
P.O. Box 91750
Albuquerque, N.M.
87199-1750
505-841-2700

District Four Office
P.O. Box 10
Las Vegas, N.M.
87701-0030
505-454-3600

District Five Office
P.O. Box 4127
Coronado Station
Santa Fe, N.M.
87502-4127
505-827-9500

District Six Office
P.O. Box 2159
Milan, N.M.
87021
505-285-6623

**NEW MEXICO STATE HIGHWAY
AND TRANSPORTATION DEPARTMENT**
AN EQUAL OPPORTUNITY EMPLOYER

CITY OF ALBUQUERQUE
LEGAL

MAR 7 8 32 AM '97

March 6, 1997

R600R

Robert M. White, Esq.
Attorney for City of Albuquerque
City of Albuquerque-Legal Division
P.O. Box 2248
Albuquerque, New Mexico 87103-2248

J. Edward Hollington, Esq.
Attorney for Bernalillo County
J. Edward Hollington & Associates
708 Marquette NW
Albuquerque, New Mexico 87102

Re: Notice of Encroachment on New Mexico State Highway and Transportation
Department Property by Argus Development, Inc.

Dear Gentlemen:

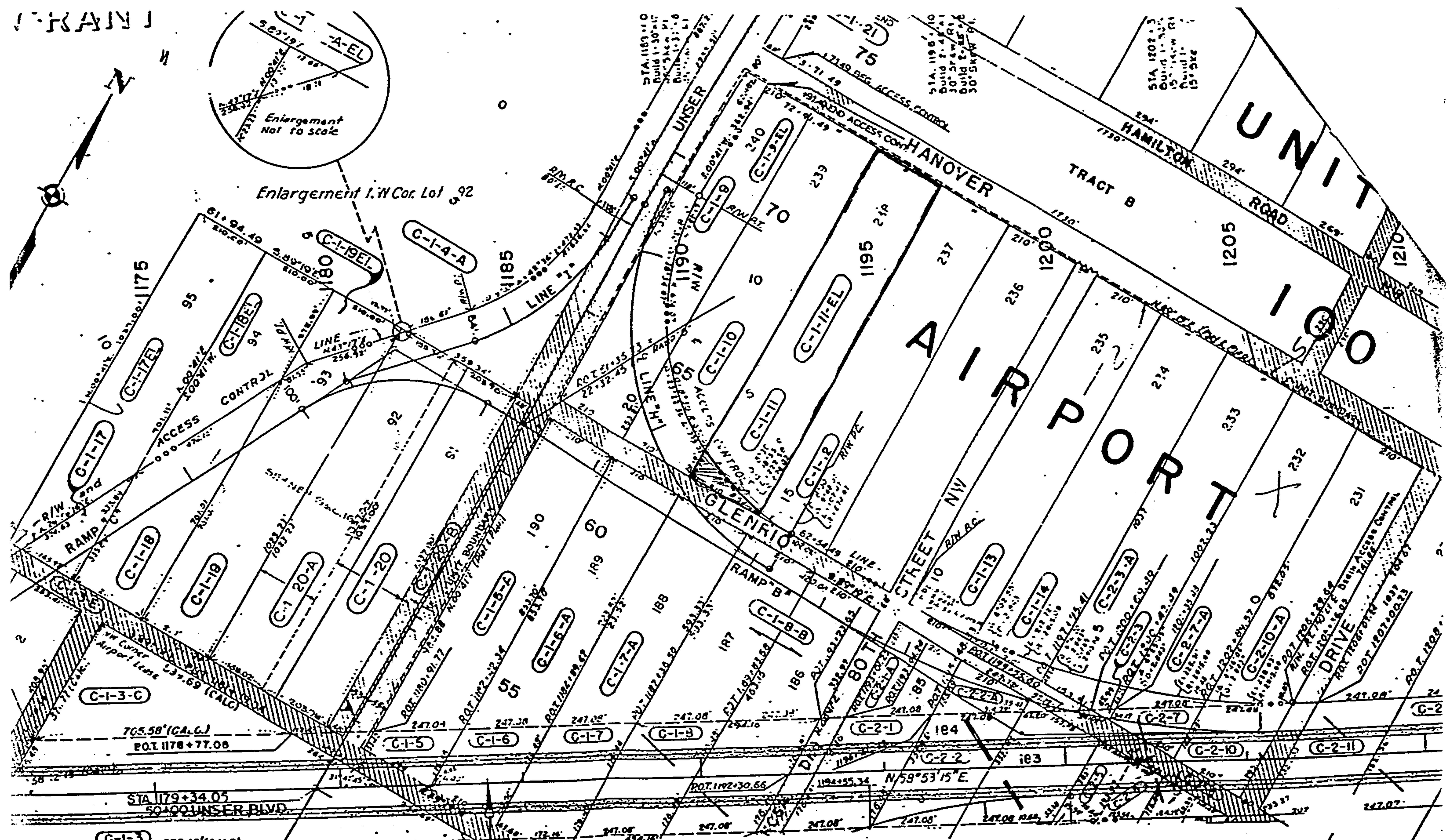
This letter is written to notify you that Argus Development, Inc. is encroaching on New Mexico State Highway and Transportation Department (NMSHTD) property. The property owned by NMSHTD is a 4.819 acre parcel at Unser and I-40 (see description and map attached). Argus Development is constructing a subdivision on that property without any right, authority or permission from the NMSHTD.

This is putting you on notice that Argus is constructing on NMSHTD property. NMSHTD has requested that construction stop if or until an agreement with NMSHTD about the disposition is attained.

Sincerely,

Anne Lovely
Anne Lovely
Assistant General Counsel

Attachments



END 1-040-3(44)151 CONST.
 REG. 1-040-3(11)154 CONST.
 OF ACCESS CONTROL

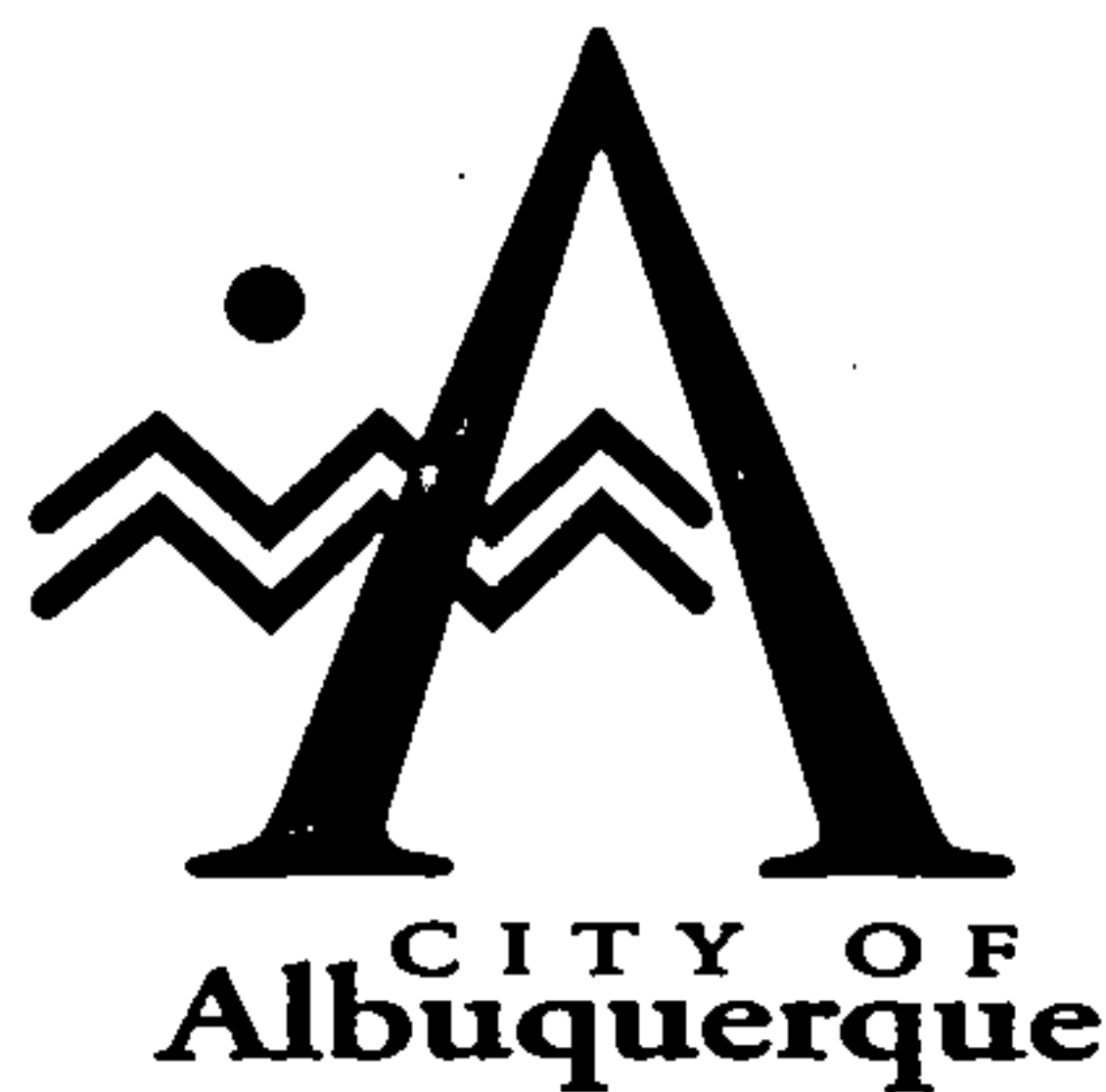
R/W SECTION B & C
 CONSTRUCTION PROJECT
 1-040-3(44)151
 1-040-3(11)154
 ACCESS CONTROLLED

7	Added Parcel C-1-11-EL	9-17-73 FDB
6	Added Parcel C-1-9-EL	11-20-70 FDB
5	Added BEG. & END ACCESS CONT. @ HAMILTON & HANOVER	10/69 SEV
4	Rev. Parcels (C-1-20)(C-1-20-A; B & A-EL	2-12-69 CHG.
3	Rev. Const. Proj. Designation	C-1-18 S.E.V.
2	Added EL Parcels C-1-17EL, C-1-18EL, C-1-19EL	5-27-68 CHG.
1	Added Note for ownership	3-6-68 SEV
DESCRIPTION		DATE BY
REVISIONS (OR CHANGE NOTICES)		

NEW MEXICO STATE H
 RIGHT OF
 NEW MEXICO
 1-040-3
 CERNALILLO
 SCALE 1" = 200'

as shown, all block, lot & tract dimensions
 are or dead.

1-040-3(28)15



December 23, 1996

Martin J. Chávez, Mayor

James Hewitt, Jr.
Hewitt Engineering
5615 Creggs St. NW
Albuquerque, NM 87120

**RE: ENGINEER CERTIFICATION FOR FINANCIAL GUARANTEE RELEASE
FOR SANDALWOOD SUBDIVISION (J10-D16) CERTIFICATION
STATEMENT DATED 12/20/96 (DRB 95-287, W.O. 5470.81) INFRASTRUCTURE
LIST DATED 2/6/96.**

Dear Mr. Hewitt:

Based on the information provided on your December 20, 1996 submittal, Engineer Certification for financial guarantee release is acceptable.

If I can be of further assistance, please feel free to contact me at 768-2667.

Sincerely,

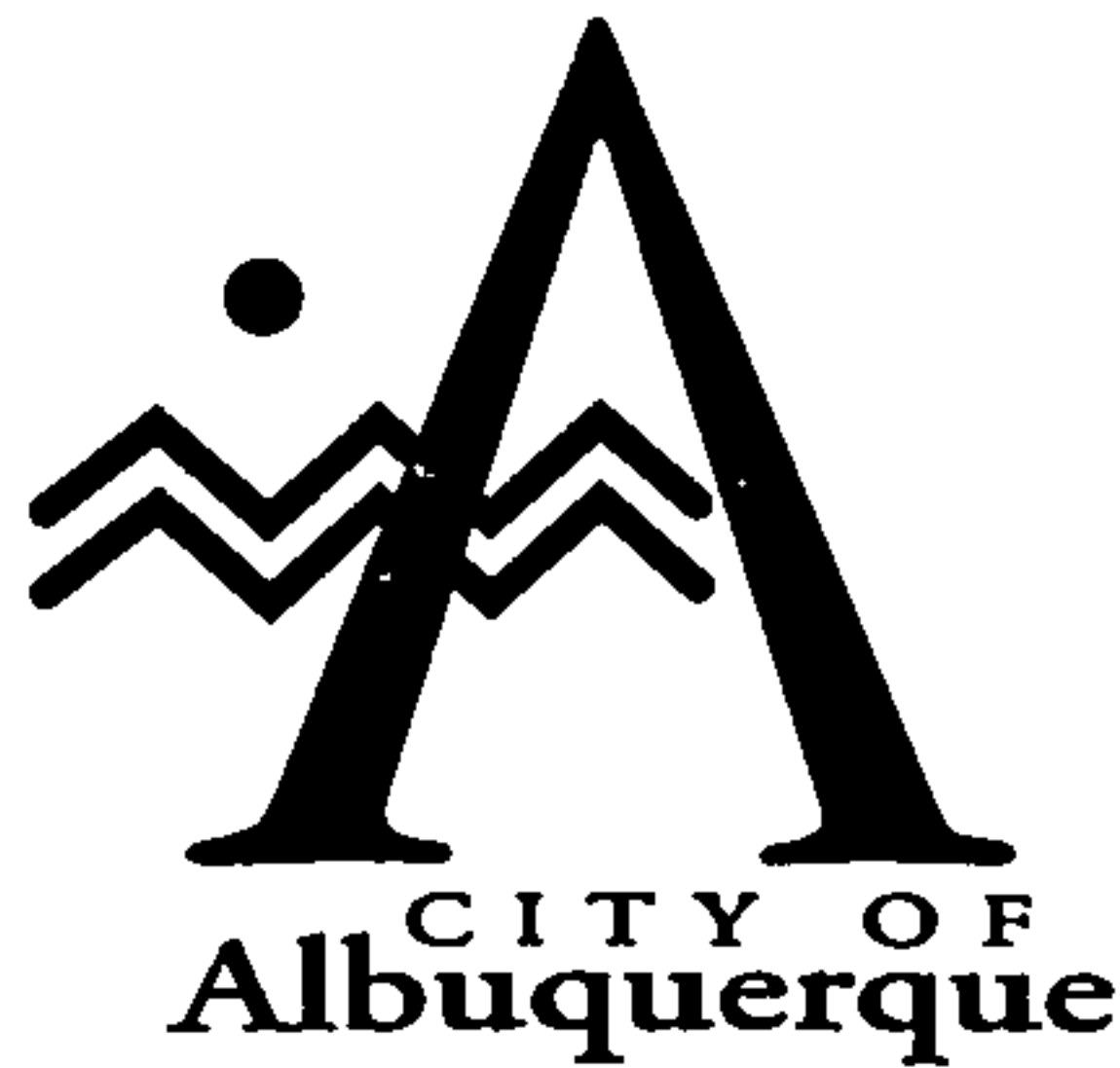
Bernie J. Montoya, CE
Engineering Associate

BJM/dl

c: Andrew Garcia
Terri Martin
File

Good for You, Albuquerque!





June 19, 1996

Martin J. Chávez, Mayor

James Hewitt Jr.
Hewitt Engineering
5615 Creggs St. NW
Albuquerque, NM 87120

RE: REVISED DRAINAGE PLAN FOR SANDALWOOD SUBDIVISION
(J10-D16) REVISION DATED 6/6/96.

Dear Mr. Hewitt:

Based on the information provided on your June 12, 1996 resubmittal, the above referenced site is approved for Final Plat, Work Order, and Building Permit.

Please be advised that the building permits willnot be issued until the following are satisfied:

1. Copy of the filed, executed Agreement and Covenant is submitted.
2. Concurrence from AMAFCA for discharge into their Right-of-Way from lot 33.

Also, prior to Certificate of Occupancy release, Engineer Certification per the D.P.M. checklist will be required.

If I can be of further assistance, please feel free to contact me at 768-2667.

Sincerely,

Bernie J. Montoya
Bernie J. Montoya, CE
Engineering Associate

BJM/dl

c: Andrew Garcia
Adil Rizvi
File

Good for You, Albuquerque!



**HEWITT ENGINEERING & ENVIRONMENTAL
CONSULTANTS**

3730 COORS BLVD, N.W. , SUITE C

ALBUQUERQUE, N.M. 87120

(505) 831-5596

FAX (505) 831-5596

Mr. Bernie J. Montoya, CE
Engineering Associate
City of Albuquerque
Public Works Department
Hydrology Division
P.O. Box 1293
Albuquerque, New Mexico 87103

August 12, 1996

Case No.: DRB-95-287

**RE: SANDALWOOD SUBDIVISION GRADING AND DRAINAGE PLAN; TRACTS
238 AND 239, UNIT 8, TOWN OF ATRISCO GRANT (ALBUQUERQUE,
NEW MEXICO)**

Dear Mr. Montoya:

The grading and drainage plan (transmitted to your attention on June 6, 1996) for the Sandalwood Subdivision (Tracts 238 and 239, Unit 8, Town of Atrisco Grant) has been revised in response to comments received during the City of Albuquerque Development Review Committee (DRC) meeting on June 20, 1996.

Specifically, the grade at the intersection of Alwood Drive, N.W. and Hanover Road, N.W. was modified to satisfy review comments from the City of Albuquerque Transportation Development Division. Although Alwood Drive top of curb and gutter flow line elevations have been lowered by approximately 1.75 ft, the grade has not changed significantly from that proposed in our previous submittals (i.e., 0.73% versus 0.74%). The grades and top of curb and gutter flow line elevations on the other internal streets have been modified accordingly.

Please note that the minimum grade to ensure positive drainage from Lot 33 to Alwood Drive, N.W. would result in an excessive retaining wall height at the southeast corner of this lot; consequently, the grading and drainage plan has been revised to include a storm water retention pond that will intercept the rear yard drainage from Lot 33.

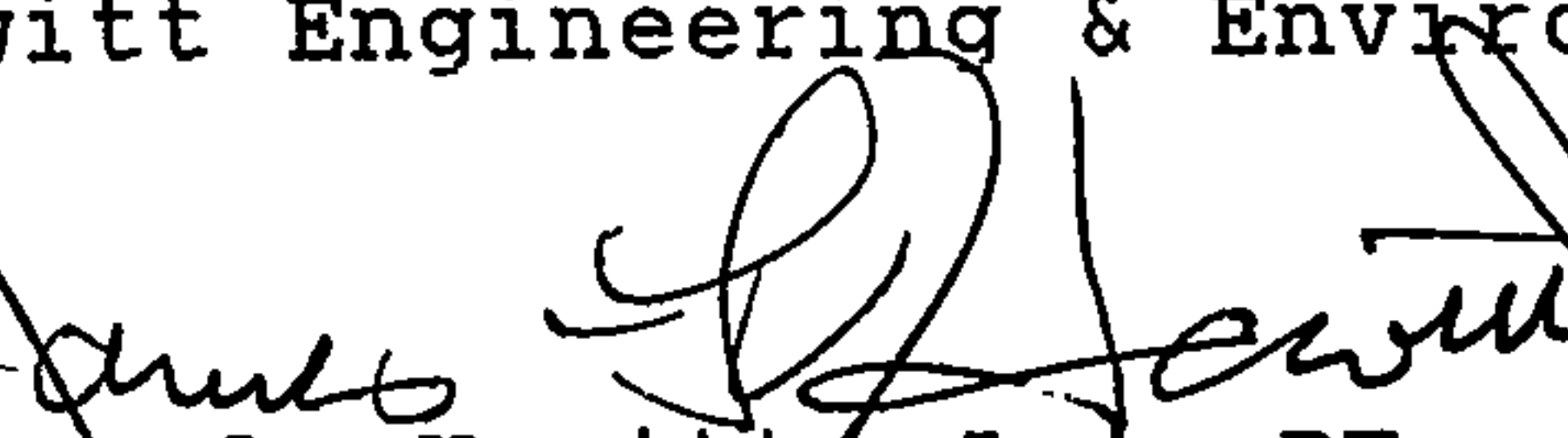
Three copies of the revised grading and drainage plan accompany this letter. We respectfully request your expedient review and approval of this document.

AUG 12 1996

Mr. Bernie J. Montoya, CE
August 12, 1996
Page 2

Should you have any questions regarding this matter, do not
hesitate to contact me at (505) 899-9586.

Sincerely,
Hewitt Engineering & Environmental Consultants (HEEC)



James L. Hewitt, Jr., PE
Principal Engineer

JLH\SNLWD06.LTR

Enclosure

cc: A. Rizvi

AUG 12 1996

DRAINAGE INFORMATION SHEET

J10/1016

PROJECT TITLE: Sandalwood Subdivision ZONE ATLAS/DRNG. FILE #: ~~5-72~~

DRB #: 95-287 EPC #: Tracts WORK ORDER #:

LEGAL DESCRIPTION: Plots 238 & 239, Unit 8 Town of Atresco Grant

CITY ADDRESS: Hanover RD. & Alwood RD NW

ENGINEERING FIRM: Hew. H Eng. & Env. Consultants CONTACT: James Hewitt
3730 Coors Blvd., N.W. Suite C
 ADDRESS: Albany, N.M. 87120 PHONE: 831-5596

OWNER: Adil Rizvi CONTACT: Adil Rizvi
 ADDRESS: 7049 Luella Anne Dr. NE PHONE: 857-0467
87109

ARCHITECT: N/A CONTACT:
 ADDRESS: PHONE:

SURVEYOR: Southwest Surveying CONTACT:
 ADDRESS: 333 Lomas Blvd NE PHONE: 247-4444

CONTRACTOR: CONTACT:
 ADDRESS: PHONE:

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☒ DRAINAGE PLAN
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☒ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERTIFICATION
- ☐ OTHER

PRE-DESIGN MEETING:

- ☒ YES
- ☐ NO
- ☐ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SKETCH PLAT APPROVAL
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☒ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☒ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY APPROVAL
- ☒ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ S.A.D. DRAINAGE REPORT
- ☐ DRAINAGE REQUIREMENTS
- ☐ SUBDIVISION CERTIFICATION
- ☒ OTHER DRC (SPECIFY)

DATE SUBMITTED: August 12, 1996

BY: James L. Hewitt, Jr.

AUG 12 1996



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 9, 1996

James Hewitt, Jr.
Hewitt Engineering
5615 Creggs St. NW
Albuquerque, NM 87120

RE: REVISED DRAINAGE PLAN FOR SANDALWOOD SUBDIVISION
(J10-D16) REVISION DATED 1/3/96.

Dear Mr. Hewitt:

Based on the information provided on your January 8, 1996 resubmittal, the above referenced site is approved or Preliminary and Final Plat approval.

Please be advised that prior to Building Permit and Work Order approval, the following must be addressed:

1. Portion where the proposed retaining walls are located, please indicate top of wall elevations.
2. Revised infrastructure list. ✓
3. Executed Agreement and Covenant for maintenance of the pond.
4. Top of curb and flowline elevations on all proposed streets including Hanover NW.

If I can be of further assistance, please feel free to contact me at 768-2667.

Sincerely,

Bernie J. Montoya, CE
Engineering Associate

BJM/dl

c: Andrew Garcia
Adil Rizvi
File

Sandalwood Subdivision
 DBR Case No. 95-287
 DRC Project No.:
 Date Submitted: 02-01-96
 Prelim. Plat Approved:
 Prelim Plat Expires:

FIGURE 12
 EXHIBIT "A"
TO SUBDIVISION IMPROVEMENT AGREEMENT
 DEVELOPMENT REVIEW BOARD
 REQUIRED INFRASTRUCTURE LISTING
 DRB 95-287
 TRACTS 238 AND 239, TOWN OF ATRISCO GRANT, AIRPORT UNIT
 BEING REPLATED AS

SANDALWOOD SUBDIVISION

Following is a summary of Public/Private Infrastructure required to be constructed or financially guaranteed to be constructed for the above development. This summary is not necessarily a complete listing. During the design process, if the City determines that appurtenant items have not been included in the summary, those items will be included in the listing and related financial guarantee, if the items normally are Subdivider responsibility. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility are the responsibility of the Subdivider and will be included in the financial guarantee provided by the City.

SIZE	IMPROVEMENT	LOCATION	FROM	TO
28' F-F	Res. Paving	Alwood Rd.	Hanover Rd.	Lot 33
STD	Curb & Gutter (Both Sides)	"	"	"
4'	*PCC Sidewalk (Both Sides)	"	"	"
8"	Waterline	"	"	"
8"	Sanitary Sewer	"	"	"
4'	PCC Sidewalk (south sides)	Hanover Rd.	West Prop Line - Lot 4	East Prop Line - Lot 50
28' F-F	Res. Paving	Lockwood Court	Alwood Drive	Cul-de -sac
STD	Curb & Gutter (Both sides)	"	"	"
4'	*PCC S idewalk (Both Sides)	"	"	"
8"	Sanitary Sewer	"	"	"
6"	Waterline	"	"	"
28' F-F	Res. Paving	Havenwood Court	Alwood Drive	Cul-de-sac

SIZE	IMPROVEMENT	LOCATION	FROM	TO
STD	Curb & Gutter (Both Sides)	"	"	"
4'	*PCC S idewalk (Both Sides)	"	"	"
8"	Sanitary Sewer	"	"	"
6"	Waterline	"	"	"
28' F-F	Res. Paving	Havenwood Rd.	Alwood Drive	Duskfire Dr NW To existing pave- ment, curb & gutter, SAS, and waterline
STD	Curb & Gutter (Both Sides.)	"	"	"
4'	*PCC Sidewalk (Both Sides)	"	"	"
8"	Sanitary Sewer	"	"	"
8"	Waterline	"	"	"
28' F-F	Res. Paving	Tafwood Rd.	Alwood Drive	Richwood Rd
STD	Curb & Gutter (Both Sides.)	"	"	"
4'	*PCC Sidewalk (Both Sides)	"	"	"
8"	Sanitary Sewer	"	"	"
6"	Waterline	"	"	"
28' F-F	Res. Paving	Richwood Rd.	Alwood Drive	Tafwood Rd.
STD	Curb & Gutter (Both Sides)	"	"	"
4'	*PCC Sidewalk (Both Sides)	"	"	"
8"	Sanitary Sewer	"	"	"
6"	Waterline	"	"	"
18" RCP to 30"	Storm Sewer Out- let, including all appurtenances, inlets, manholes, etc.	Alwood Drive	Intersection of Alwood Dr. & Richwood Rd.	South end of Alwood Rd.

(Final Size(s) To be determined
at DRC.

MISCELLANEOUS

Street lighting per DPM.

Grading & Drainage: Certification per DPM (prior to release of financial guarantees). To include private perimeter and retaining walls as required on the approved Grading Plan.

*Sidewalks to be deferred.

**Concrete drainage rundown as per Grading/Drainage Plan (if required).

All water to include fire hydrants, valves, and appurtenances per DPM.

Temporary storm water retention pond on Lot 31 & 32 with perimeter fence.

Prepared by: Adil Rizvi
Adil Rizvi, P.E.

Date: 2-05-96

* * * * *

Development Review Board Member Approval

[Signature]
Transportation Development

2-06-96
Date

Robert W. Kane
Utility Development

2-6-96
Date

[Signature]
Parks & General Services

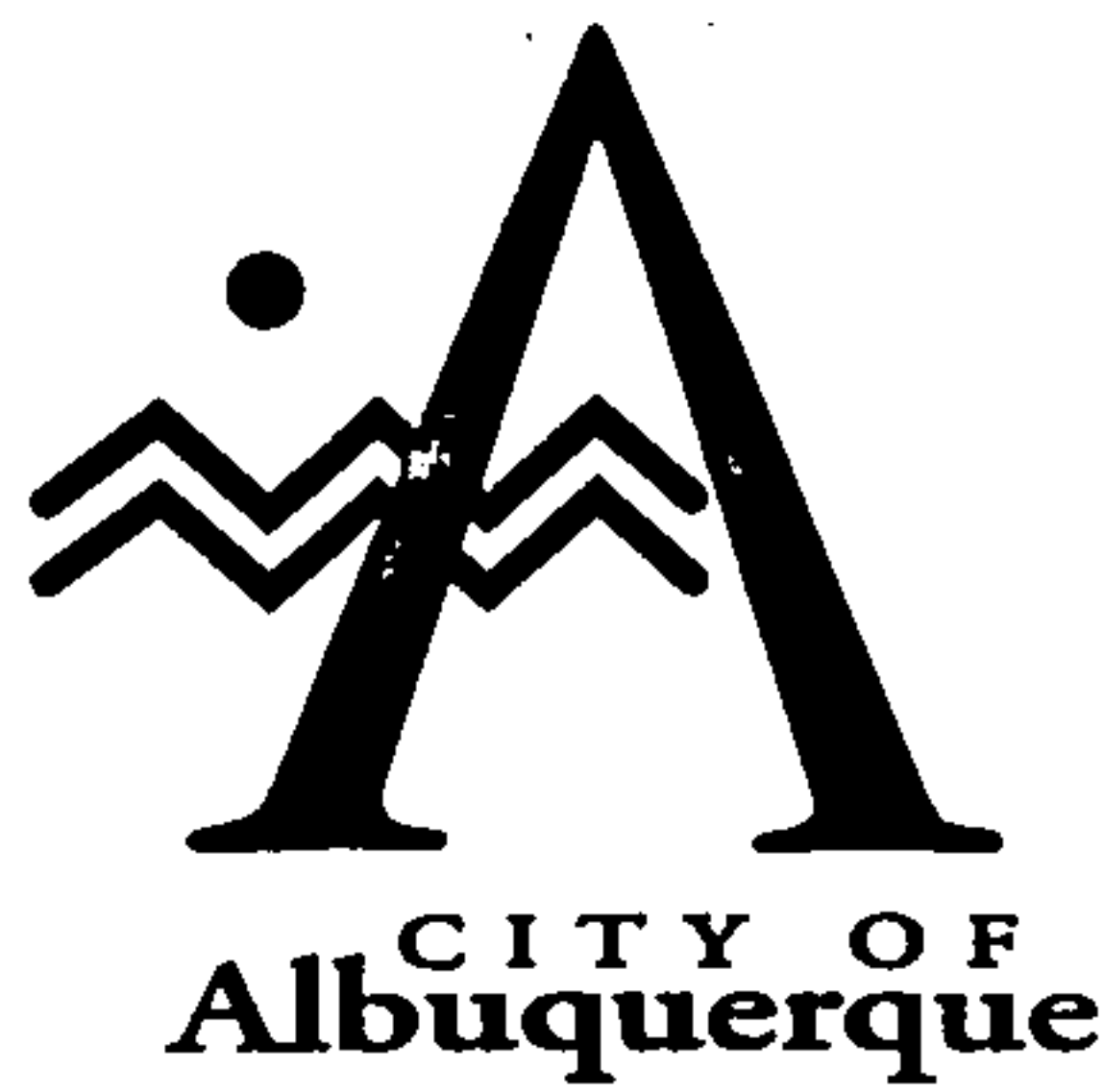
2-6-96
Date

[Signature]
City Engineer/AMAFCA

2-6-96
Date

[Signature]
DRB Chairman

2-6-96
Date



August 16, 1996

Martin J. Chávez, Mayor

James Hewitt, Jr.
Hewitt Engineering
5615 Creggs St. NW
Albuquerque, NM 87120

RE: REVISED DRAINAGE PLAN FOR SANDALWOOD SUBDIVISION
(J10-D16) REVISION DATED 8/12/96.

Dear Mr. Hewitt:

Based on the information provided on your August 12, 1996 resubmittal, the above referenced site is approved for Final Plat, Work Order, and Building Permit.

Please be advised that the building permits will not be issued until the following is satisfied:

1. Copy of the filed, executed Agreement Covenant is submitted to our office.

Prior to financial guarantee release, Engineer Certification per the D.P.M. checklist will be required.

If I can be of further assistance, please feel free to contact me at 768-2667.

Sincerely,

Bernie J. Montoya, CE
Engineering Associate

BJM/dl

c: Andrew Garcia
Adil Rizvi
File

Good for You, Albuquerque!



100yr 6 DR

SANDALWOOD

DRAINAGE INFORMATION SHEET

PROJECT TITLE: SANDALWOOD SUBDIVISION ZONE ATLAS/DRNG. FILE #: 510/016
~~19710~~

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: Tracts 238 & 239, Unit 8, Town of Atrisco Grant

CITY ADDRESS: _____

ENGINEERING FIRM: Hewitt Engineering, Env. Consultants CONTACT: James C. Hewitt, Jr.ADDRESS: 5615 Creggs, NW Albuquerque, NM PHONE: 899-9586OWNER: Adil Rizvi CONTACT: Adil RizviADDRESS: 7049 Luella Anne, NE Albuquerque, NM PHONE: 857-0467

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: Southwest Surveying Co., Inc. CONTACT: Franklin E. WilsonADDRESS: 333 Comas NE, Albuquerque, NM PHONE: 247-4444

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ☒ DRAINAGE REPORT
☒ DRAINAGE PLAN
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION
☐ OTHER _____

PRE-DESIGN MEETING:

- ☒ YES
☐ NO
☐ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SKETCH PLAT APPROVAL
☒ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D. APPROVAL
☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☒ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☒ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY APPROVAL
☒ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ S.A.D. DRAINAGE REPORT
☐ DRAINAGE REQUIREMENTS
☐ SUBDIVISION CERTIFICATION
☐ OTHER W.O. (SPECIFY)

DATE SUBMITTED: January 5, 1996BY: James C. Hewitt, Jr.

JAN - 8 1996

BIOLOGY DIVISION

**HEWITT ENGINEERING & ENVIRONMENTAL
CONSULTANTS**

5615 CREGGS STREET, N.W.

ALBUQUERQUE, N.M. 87120

(505) 899-9586
FAX (505) 899-9586

Mr. Bernie J. Montoya, CE
Engineering Associate
City of Albuquerque
Public Works Department
Hydrology Division
P.O. Box 1293
Albuquerque, New Mexico 87103

January 3, 1996

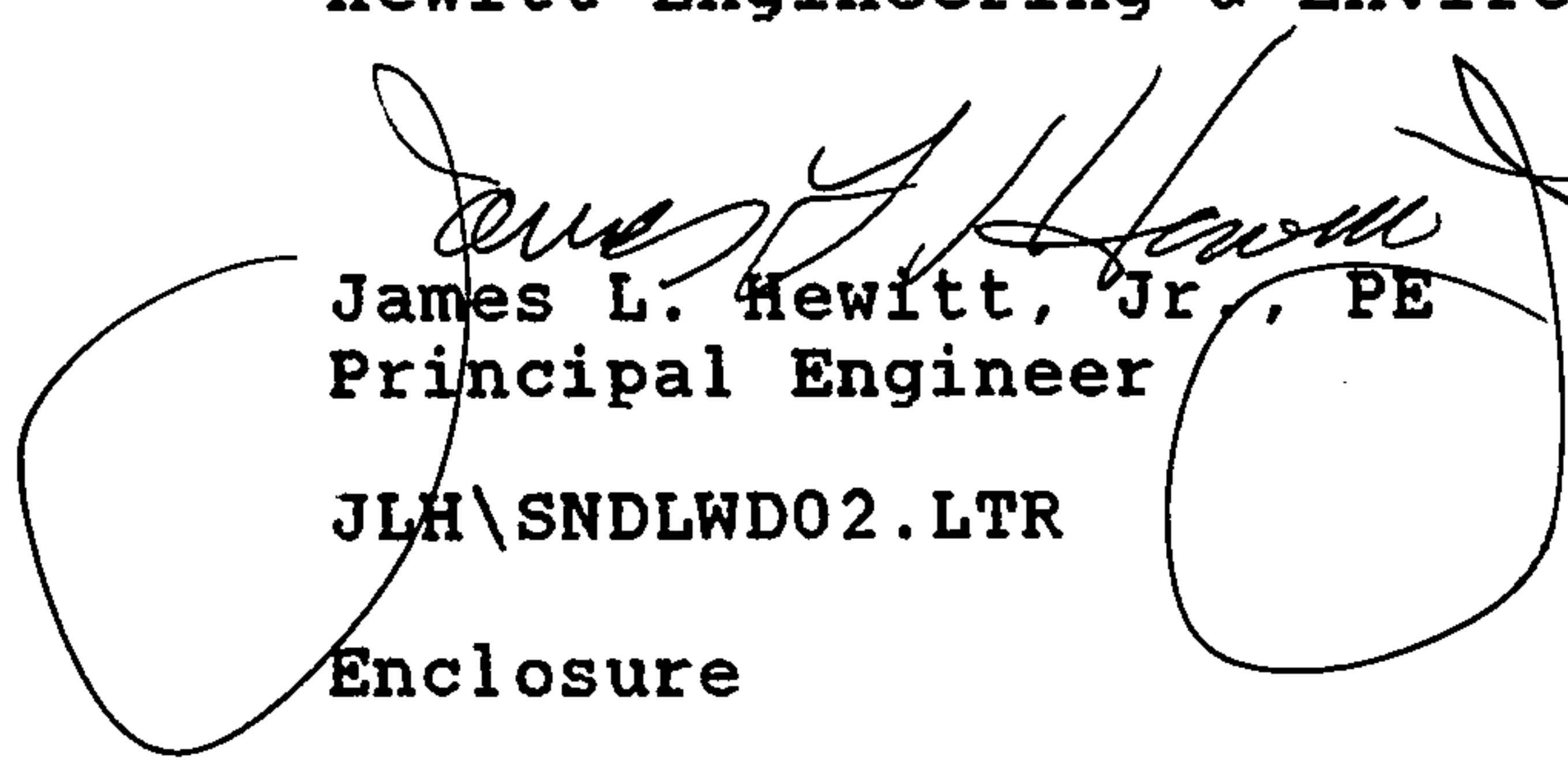
**RE: SANDALWOOD SUBDIVISION GRADING AND DRAINAGE PLAN; TRACTS
238 AND 239, UNIT 8, TOWN OF ATRISCO GRANT (ALBUQUERQUE,
NEW MEXICO)**

Dear Mr. Montoya:

The drainage report and the grading and drainage plan (transmitted to your attention on December 4, 1995) for the Sandalwood Subdivision (Tracts 238 and 239, Unit 8, Town of Atrisco Grant) have been revised in response to your review comments dated December 8, 1995. Copies of these revised documents accompany this letter. We respectfully request your expedient review and approval of these documents.

Should you have any questions regarding this matter, do not hesitate to contact me at (505) 899-9586.

Sincerely,
Hewitt Engineering & Environmental Consultants (HEEC)



James L. Hewitt, Jr., PE
Principal Engineer

JLH\SNLWD02.LTR

Enclosure

cc: A. Rizvi

**Drainage Report
for
Sandalwood Subdivision
(Revised)**

**Tracts 238 & 239, Unit 8,
Town of Atrisco Grant,
Bernalillo County, New Mexico**

SUPPLEMENTAL HYDROLOGIC & HYDRAULIC INFORMATION

January 3, 1996

Prepared for:

**Adil Rizvi
7049 Luella Anne Drive, N.E.
Albuquerque, New Mexico 87112**

Prepared by:

**Hewitt Engineering & Environmental Consultants
5615 Creggs Street, N.W.
Albuquerque, New Mexico 87120**

**TEL. (505) 899-9586
FAX. (505) 899-9586**



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Drainage Report for Sandalwood Subdivision
Supplemental Hydrologic & Hydraulic Information

HEEC

1.0 General Information

1.1 Legal Description:

Tracts 238 and 239, Unit 8, Town of Atrisco Grant, Airport Unit. Filed in Vol. D, Folio 118 on December 5, 1944.

1.2 Engineer:

James L. Hewitt, Jr
NMPE No. 6871
Hewitt Engineering & Environmental Consultants
5615 Creggs Street, N.W.
Albuquerque, New Mexico 87120
(505) 899-9586

1.3 Surveyor:

Franklin E. Wilson
NMLS No. 6446
Southwest Surveying Co., Inc.
333 Lomas Boulevard, N.E.
Albuquerque, New Mexico 87102
(505) 247-4444

1.4 Benchmark:

ACS "1-J9 & ~~1-J10~~" located at the I-40/Unser Boulevard interchange, approximately 222 feet north of the I-40 centerline. Elevation 5199.19.

1.5 Temporary Benchmark:

'X' chiseled in the top of the south curb along Hanover Road, N.W. approximately 5 feet north of the northwest corner of Tract 238. Elevation 5161.56.

1.6 Zoning:

RD (15 Dwelling Units/Acre maximum)

Drainage Report for Sandalwood Subdivision
Supplemental Hydrologic & Hydraulic Information

HEEC

1.7 Proposed Development:

52 Single Family Residential Lots.

1.8 Land Area:

9.04 acres.

1.9 Flood Hazard:

The proposed site (i.e., Tracts 238 and 239) is located within Flood Hazard Zone C (i.e., areas of minimal flooding) designated on the Federal Emergency Management Agency's (FEMA's) Flood Insurance Rate Map (FIRM) Community-Panel No. 350002 0027 C (October 14, 1983).

1.10 Location and Description:

The proposed site is currently undeveloped and undisturbed. Existing ground cover at the site is comprised of sage and native grasses. The proposed site is bounded on the north by Hanover Road, N.W., on the south by the northbound Unser Boulevard off ramp from the I-40/Unser Boulevard, N.W. interchange, on the east by the Chamisa Encantada Subdivision (currently under development), and on the west by an undeveloped tract (i.e., Tract 240). Hanover Road is fully developed. The proposed West Bluff Outfall, Phase II Storm Interceptor (West Bluff Interceptor) to the south of the Sandalwood Subdivision (to be located within the I-40/Unser Boulevard, N.W. interchange right-of-way) is scheduled for construction in 1997.

Drainage Report for Sandalwood Subdivision
Supplemental Hydrologic & Hydraulic Information

HEEC

2.0 Hydrologic Analysis

2.1 Existing Conditions:

Unser Boulevard has altered the historic off site drainage pattern. Off-site storm flow to the west of Tract 240 is intercepted and conveyed southward within the Unser Boulevard right-of-way and is discharged to the I-40/Unser Boulevard interchange right-of-way.

The proposed site intersects two drainage basins. These drainage basins slope from the northwest to the southeast at a gradient of 2 percent. Storm flow from these basins predominantly occurs as sheet flow.

An existing drainage swale diagonally transects (from northwest to southeast) Tracts 238, 239, and 240. This drainage swale is a remnant of the historic drainage pattern to the west of Tract 240. Storm flow from the northernmost drainage basin (5.28 acres, total land area) is intercepted and conveyed to the I-40/Unser Boulevard interchange right-of-way via the drainage swale. The off site storm flow that enters the drainage swale is now limited to that which originates from a 0.29 acre drainage subbasin within Tract 240.

Storm flow from the southernmost drainage basin (5.26 acres, total land area) occurs as sheet flow to the southeast. The southern drainage basin includes a 1.22 acre drainage subbasin within Tract 240. Storm flow from this drainage basins is conveyed and discharged to the I-40/Unser Boulevard interchange right-of-way via sheet flow.

Storm flow within the I-40/Unser Boulevard interchange right-of-way is conveyed southward via a drainage structure beneath the northbound Unser Boulevard off ramp.

Off site storm flow to the north of Tracts 238, 239, and 240 is intercepted and conveyed eastward within Hanover Road and is discharged to the Laurelwood Drainage Management Area at the northwest corner of Hanover Road and 72nd Street.

Drainage Report for Sandalwood Subdivision
Supplemental Hydrologic & Hydraulic Information

HEEC

2.2 Site Hydrology (Existing Conditions):

The site hydrology calculations presented herein are based on the methods and criteria presented within the City of Albuquerque, Development Process Manual (DPM) - Volume 2, Section 22.2 - Hydrology, January, 1993. The proposed site is within Precipitation Zone 1 (west of the Rio Grande). The P_{360} (100-year 6-hour event) depth is 2.20 inches (Table A-2). The proposed site (i.e., Tracts 238 and 239) and Tract 240 are currently undeveloped and undisturbed (10.55 acres, total land area); hence, Land Treatment A (Table A-2) is applicable for these conditions. The Excess Precipitation, E from the 100-year 6-hour event (for Precipitation Zone 1, Land Treatment A) is 0.44 in (Table A-8). The Peak Discharge, Q_p from the 100-year 6-hour event (for Precipitation Zone 1, Land Treatment A) is 1.29 ft³/sec-acre (Table A-9). The total runoff volume and peak discharge from the undeveloped site and adjacent Tract 240 are computed as follows:

Total Volume of Runoff

$$\begin{aligned} V_{360} &= 0.44 \text{ in} \times 10.55 \text{ acres} \times 1 \text{ ft}/12 \text{ in} \\ &= 0.39 \text{ acre-ft} \times 43,560 \text{ ft}^2/\text{acre} \\ &= 16,850.5 \text{ ft}^3 \end{aligned}$$

Peak Discharge

$$\text{Total } Q_p = 1.29 \text{ ft}^3/\text{sec-acre} \times 10.55 \text{ acres} = 13.6 \text{ ft}^3/\text{sec}$$

2.3 Proposed Improvements:

Storm flow from each subdivision lot (with the exception of Lots 49 and 50) will be intercepted and conveyed as street flow to Alwood Drive, N.W. Storm flow from Lots 49 and 50 will be discharged to Alwood Drive and conveyed to Hanover Road due to the water block created in Alwood Drive (at the intersection of Alwood Drive and Hanover Road). Street flow will be intercepted and conveyed to an interim storm water retention pond via catch-basins and a storm drain located in and near the terminus of Alwood Drive (at the southeast corner of the subdivision). Excess storm flow from the interim

Drainage Report for Sandalwood Subdivision
Supplemental Hydrologic & Hydraulic Information

HEEC

retention pond will be discharged to the I-40/Unser Boulevard interchange right-of-way via an at grade, emergency spillway.

Upon completion of the West Bluff Interceptor, the storm drain outfall and the retention pond will be eliminated and the storm drain will be connected to the West Bluff Interceptor.

Storm flow from the 0.29 acre off site drainage subbasin (within Tract 240) will be intercepted and conveyed to the I-40/Unser Boulevard interchange right-of-way via a drainage swale. Storm flow from the 1.22 acre off site drainage subbasin (within Tract 240) is conveyed and discharged to the I-40/Unser Boulevard interchange right-of-way via sheet flow.

2.4 Site Hydrology (Proposed Improvements):

The completed 52 lot subdivision will have six on site drainage subbasins. Storm flow from Lots 49 and 50 will be discharged to Alwood Drive and conveyed to Hanover Road. On site street flow will be intercepted and conveyed to an interim storm water retention pond (to be located on Sandalwood Subdivision Lots # 31 & 32) via catch-basins and a storm drain in Alwood Drive. The total runoff volume and peak discharge from the developed site are computed as follows:

LAND TREATMENT CLASSIFICATION	LAND AREA (acres)*	EXCESS PRECIPITATION in	PEAK DISCHARGE ft ³ /sec
A	0.00	0.44	1.29
B	2.86	0.67	2.03
C	1.10	0.99	2.87
D	4.80	1.97	4.37

* Total area reduced by 0.28 acres (Lots 49 and 50 drain to Hanover Road)

Total Volume of Runoff

$$\begin{aligned}\text{Weighted E} &= ((2.86 \times 0.67) + (1.10 \times 0.99) + \\ &\quad (4.80 \times 1.97))/8.76 \\ &= 1.42 \text{ in}\end{aligned}$$

Drainage Report for Sandalwood Subdivision
Supplemental Hydrologic & Hydraulic Information

HEEC

$$\begin{aligned} V_{360} &= 1.42 \text{ in} \times 8.76 \text{ acre} \times 1 \text{ ft}/12 \text{ in} \\ &= 1.04 \text{ acre-ft} \times 43,560 \text{ ft}^2/\text{acre} \\ &= 45,154 \text{ ft}^3 \end{aligned}$$

Peak Discharge

$$\begin{aligned} \text{Total } Q_p &= (2.86 \times 2.03) + (1.10 \times 2.87) + \\ &\quad (4.80 \times 4.37) = 29.94 \text{ ft}^3/\text{sec} \end{aligned}$$

As within the adjacent subdivision (i.e., Chamisa Encantada), storm flow in excess of the runoff volume from the 100-year 6-hour event will be discharged from the interim retention pond to the I-40/Unser Boulevard interchange right-of-way via an at grade, emergency spillway. Emergency spillway design calculations are presented in Appendix A.

2.5 Site Hydrology (Catch Basin Analyses):

The proposed width of Alwood Drive is 28 feet wide from face of curb to face of curb. City of Albuquerque DPM Plates 22.3, D-1 through D-4 are applicable for determination of the flow carrying capacity of streets ranging from 32 to 70 feet wide. Therefore, the flow carrying capacity of Alwood Drive was derived by an alternate method (i.e., the U.S. Army Corps of Engineers HEC-2 Water Surface Profiles computer model). The output file from this computer model analysis is included in appendix B. The results from this analysis were as follows:

Alwood Drive (north-south)	Q = 29.94 cfs
	S = 0.7441 %
	D = 0.49 ft
	V = 3.85 fps
	Critical Flow

The result derived with City of Albuquerque DPM Plate 22.3, D-1 is also included in appendix B for comparison.

The grating and inlet capacities for the Alwood Drive catch basins were derived with the HY12 hydraulics microcomputer program. This program automates the design methods described in the U.S. Department of Transportation, Federal Highway Administration, Hydraulic Engineering Circular No. 12 (HEC-12)

Drainage Report for Sandalwood Subdivision
Supplemental Hydrologic & Hydraulic Information

HEEC

"Drainage of Highway Pavements." The output file from this computer model analysis is included in appendix C. Catch basin grating capacities derived with City of Albuquerque DPM Plate 22.3, D-5 and D-6 are also included in appendix B for comparison.

Two Type 'A' and two Type Double 'C' catch basins are proposed for Alwood Drive. Two Type 'A' catch basins will be located on each side and immediately south of the intersection of Alwood Drive and Tafwood Road. Two Type 'C' catch basins will be located at the terminus of Alwood Drive.

The following catch basin capacities were derived from the HY12 analysis:

Alwood Drive (S = 0.7441 %, D = 0.54 ft)
Q = 8.46 cfs x 2 Type 'A' catch basins = 16.92 cfs

Alwood Drive terminus (S = 0.7441 %, D = 0.42 ft)
Q = 5.19 cfs x 2 Type 'C' catch basins = 10.38 cfs

The Type 'C' catch basins will also intercept the remaining street flow (i.e., 2.64 cfs) as it is ponded by the curb and gutter at the terminus of Alwood Drive. The connector pipes between the catch basins and the storm drain manholes will be 18" diameter reinforced concrete pipe (RCP). The storm drain in Alwood Drive will be a 24" diameter RCP. The storm drain outfall to the interim storm water retention pond will be a 30" diameter RCP.

Upon completion of the West Bluff Interceptor, the storm drain outfall and the retention pond will be eliminated and the 30" diameter storm drain will be extended and connected to the West Bluff Interceptor.

Drainage Report for Sandalwood Subdivision
Supplemental Hydrologic & Hydraulic Information

HEEC

3.0 References

City of Albuquerque, Development Process Manual - Volume 2,
Section 22.2 - Hydrology, January, 1993.

City of Albuquerque, Standard Specifications for Public Works
Construction, June 1, 1995.

Richards, Dennis L., Simons, Li & Associates, July 1988,
Hydraulics Microcomputer Program HY12 - Drainage of
Highway Pavements.

U.S. Army Corps of Engineers, Hydrologic Engineering Center,
1990, HEC-2 Water Surface Profiles.

U.S. Department of Transportation, Federal Highway
Administration, 1984, Hydraulic Engineering Circular
(HEC) No. 12 - Drainage of Highway Pavements.

/SNDLWD05.DOC

Appendix A

Emergency Spillway Design Calculations

Emergency Spillway Design Calculations

Design Assumptions and Criteria:

The emergency spillway design provided herein assumes that the interim storm water retention pond will intercept and contain the runoff volume from the 100-year 6-hour event (i.e., 45,154 ft³). The spillway design provided herein will facilitate safe discharge of storm flow from a subsequent 10 year event to the I-40/Unser Boulevard interchange right-of-way. The total runoff volume and peak discharge from the developed site are computed as follows:

<u>LAND TREATMENT CLASSIFICATION</u>	<u>LAND AREA (acres)*</u>	<u>PEAK DISCHARGE ft³/sec</u>
A	0.00	0.24
B	2.86	0.76
C	1.10	1.49
D	4.80	2.89

* Total area reduced by 0.28 acres (Lots 49 and 50 drain to Hanover Road)

Peak Discharge

$$\begin{aligned}\text{Total } Q_{p10} &= (2.86 \times 0.76) + (1.10 \times 1.49) + \\ &\quad (4.80 \times 2.89) = 17.68 \text{ ft}^3/\text{sec}\end{aligned}$$

Trapezoidal Weir (Cippoletti Weir):

$$Q = 3.367 LH^{1.5}$$

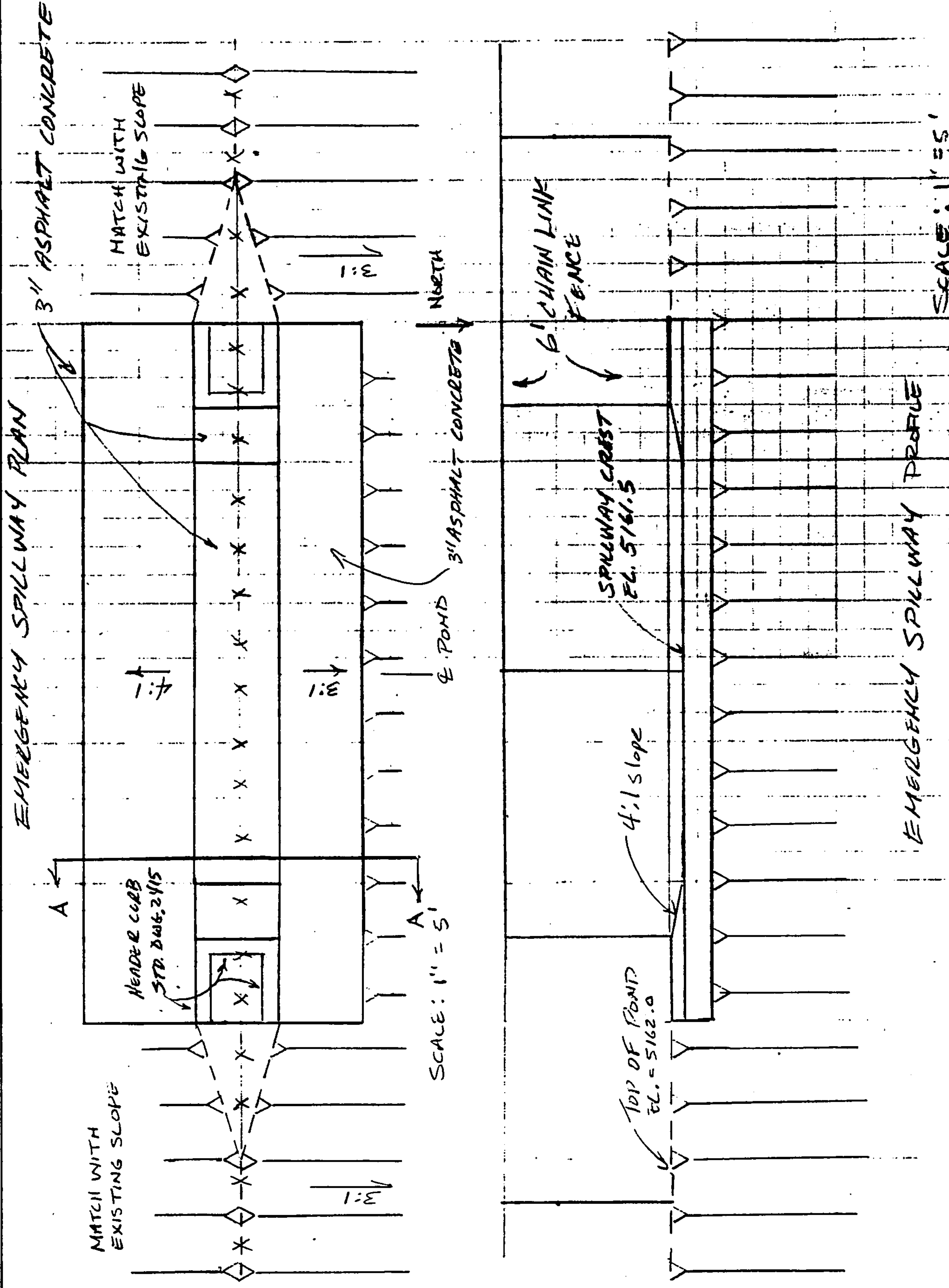
where: Q = discharge, 17.68 cfs
 L = length of crest of weir, ft
 H = head above crest of weir, 0.5 ft

solving for L :

$$\begin{aligned}L &= Q / (3.367 H^{1.5}) \\ &= 14.85 \text{ ft} \quad (\text{use } 15 \text{ ft})\end{aligned}$$

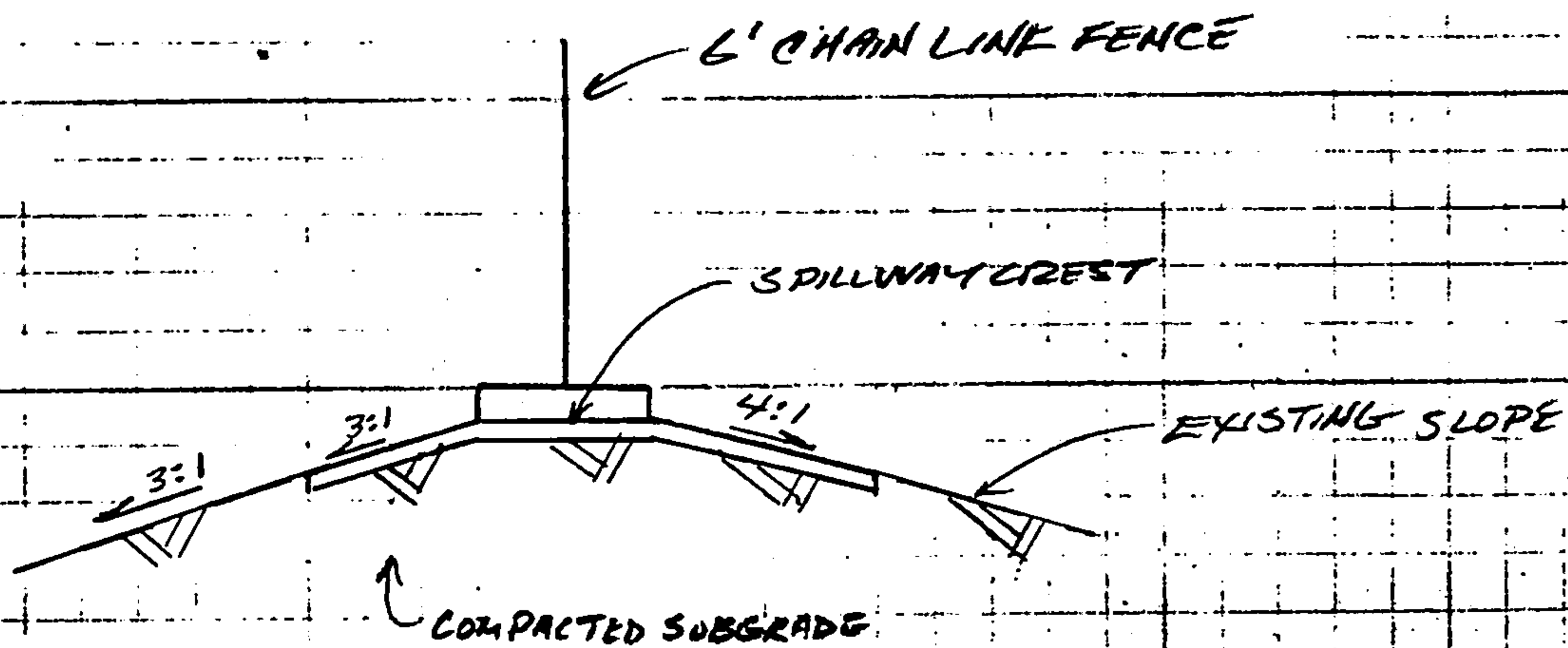


EMERGENCY SPILLWAY DESIGN



DECEMBER 20, 1995

J. HEWITT

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETSEMERGENCY SPILLWAY
SECTION A-A

Appendix B

HEC-2 Analysis
Street Flow Carrying Capacity

* HEC-2 WATER SURFACE PROFILES *
* *
* Version 4.6.2; May 1991 *
* *
* RUN DATE 20DEC95 TIME 14:18:45 *

* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET, SUITE D *
* DAVIS, CALIFORNIA 95616-4687 *
* (916) 756-1104 *

X	X	XXXXXXX	XXXXX		XXXXX
X	X	X	X	X	X
X	X	X	X		X
XXXXXXXX	XXXX	X		XXXXX	XXXXX
X	X	X	X		X
X	X	X	X	X	X
X	X	XXXXXXXX	XXXXX		XXXXXXXX

THIS RUN EXECUTED 20DEC95 14:18:45

HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

T1 SANDALWOOD SUBDIVISION - STREET FLOW ANALYSIS

T2 SUPERCRITICAL FLOW - ALWOOD DRIVE, N.W.

T3 FILE NAME - RIZVIO12.DAT

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
				1	-1.		0.2	29.94	5162.	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
			0	0	0		-1.			

NC	0.013	0.013	0.017	0.1	0.3					
X1	216.	8.	8.9	37.1	25.	25.	25.		5061.74	
X3	10.									
GR	100.49	0.	100.30	8.9	99.64	9.	99.76	11.	100.	23.
GR	99.76	35.	99.64	37.	100.30	37.1	100.49	46.		
X1	184.5	8.	8.9	37.1					5061.51	
X3	10.									
GR	100.49	0.	100.30	8.9	99.64	9.	99.76	11.	100.	23.
GR	99.76	35.	99.64	37.	100.30	37.1	100.49	46.		

20DEC95

14:18:45

PAGE 2

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300

*SECNO 216.000

3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 5162.04 ELREA= 5162.04

216.000	.54	5161.92	5161.92	5162.00	5162.09	.17	.00	.00	5162.04
29.9	.0	29.9	.0	.0	9.1	.0	.0	.0	5162.04
.00	.00	3.28	.00	.000	.017	.000	.000	5161.38	8.92
.006633	0.	0.	0.	0	14	0	.00	28.16	37.08

*SECNO 184.500

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 5161.81 ELREA= 5161.81

184.500	.51	5161.66	5161.69	.00	5161.88	.22	.21	.01	5161.81
29.9	.0	29.9	.0	.0	7.9	.0	.0	.0	5161.81
.00	.00	3.77	.00	.000	.017	.000	.000	5161.15	8.92
.010439	25.	25.	25.	4	5	0	.00	28.15	37.08

THIS RUN EXECUTED 20DEC95 14:18:46

HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

E NAME - RIZVIO12.DAT

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	216.000	.00	.00	.00	5161.38	29.94	5161.92	5161.92	5162.09	66.33	3.28	9.12	3.68
	184.500	25.00	.00	.00	5161.15	29.94	5161.66	5161.69	5161.88	104.39	3.77	7.95	2.93

E NAME - RIZVIO12.DAT

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	216.000	29.94	5161.92	.00	.00	-.08	28.16	.00
	184.500	29.94	5161.66	.00	-.26	.00	28.15	25.00

20DEC95

14:18:45

PAGE

5

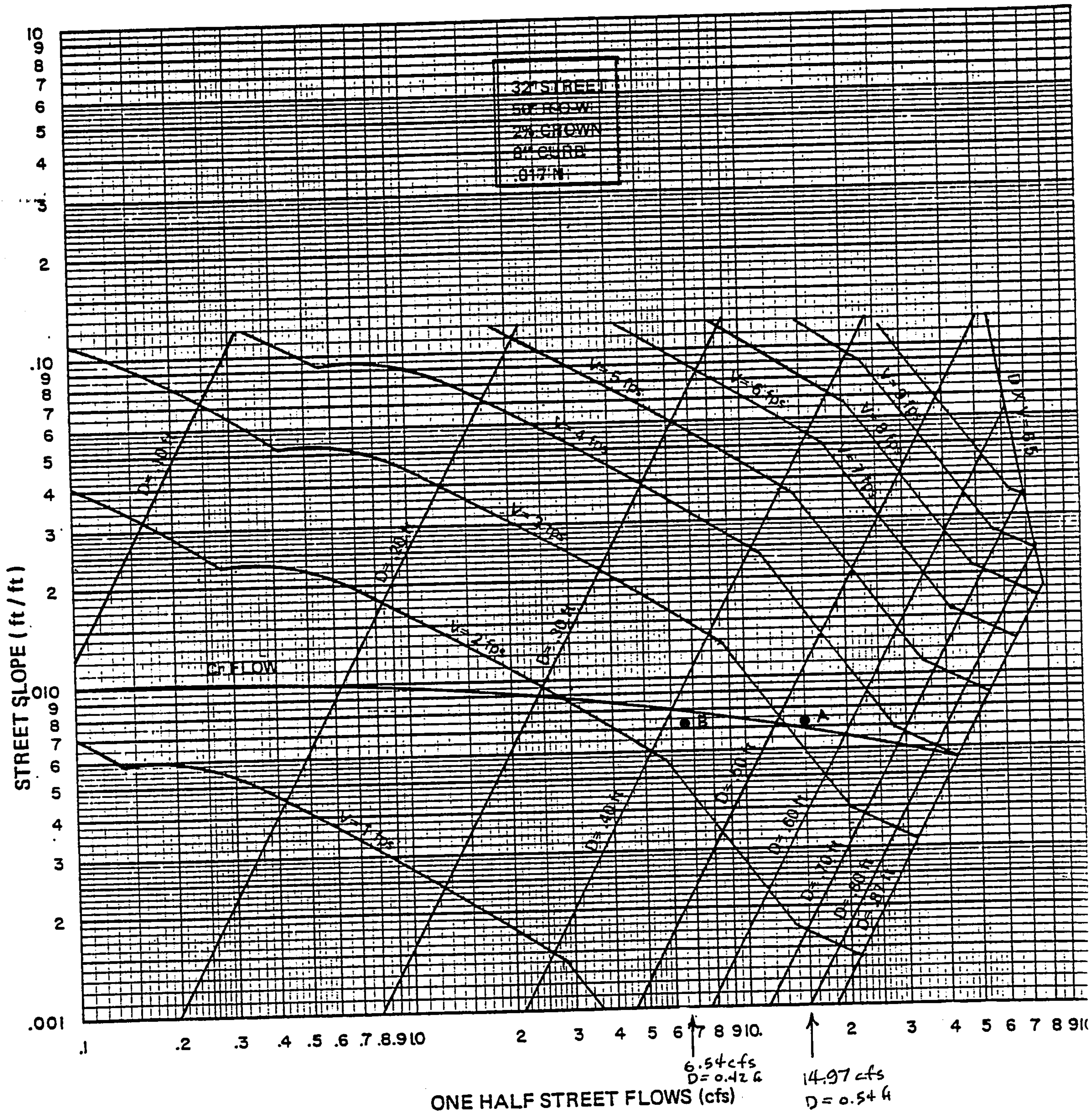
SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECN0= 216.000 PROFILE= 1 CRITICAL DEPTH ASSUMED

STREET

A. ALWOOD DRIVE STA 1+84.5
 B. ALWOOD DRIVE STA 0+73.38

STREET CAPACITY



Appendix C

HY12 Analyses
Catch Basin Capacities

 ***** ROADWAY DRAINAGE DESIGN *****

DESIGNER: J. Hewitt

DATE: 12-20-1995

PROJECT: Sandalwood Subdivision

PROJECT NO.: 95-008

INLET NO.: 1

STATION: 1+84.5

DRAINAGE AREA: 8.76Acres

DESIGN FREQUENCY: 100Years

ROADWAY & DISCHARGE DATA

Cross-Slope	S (ft/ft)	Sx (ft/ft)	n	Q (cfs)	T (ft)
Composite	0.007	0.020	0.016	14.98	20.50

GUTTER FLOW

W (ft)	Sw (ft/ft)	a (in)	Eo	d (ft)	V (fps)
2.08	0.080	1.50	0.288	0.54	3.46

INLET INTERCEPTION

Inlet Type	LT or W (ft)	L (ft)	E	Qi (cfs)	Qb (cfs)
Curb-Opening	36.98	7.50	0.190	2.89	12.08
P-1-7/8	2.08	3.33	0.460	5.57	6.52
Combination			0.565	8.46	6.52

 ***** ROADWAY DRAINAGE DESIGN *****

DESIGNER: J. Hewitt

DATE: 12-20-1995

PROJECT: Sandalwood Subdivision

PROJECT NO.: 95-008

INLET NO.: 2

STATION: 1+84.5

DRAINAGE AREA: 8.76Acres

DESIGN FREQUENCY: 100Years

ROADWAY & DISCHARGE DATA

Cross-Slope	S (ft/ft)	Sx (ft/ft)	n	Q (cfs)	T (ft)
-----	-----	-----	-----	-----	-----
Composite	0.007	0.020	0.016	14.98	20.50

GUTTER FLOW

W (ft)	Sw (ft/ft)	a (in)	Eo	d (ft)	V (fps)
-----	-----	-----	-----	-----	-----
2.08	0.080	1.50	0.288	0.54	3.46

INLET INTERCEPTION

Inlet Type	LT or W (ft)	L (ft)	E	Qi (cfs)	Qb (cfs)
-----	-----	-----	-----	-----	-----
Curb-Opening	36.98	7.50	0.190	2.89	12.08
P-1-7/8	2.08	3.33	0.460	5.57	6.52
Combination			0.565	8.46	6.52

 ***** ROADWAY DRAINAGE DESIGN *****

DESIGNER: J. Hewitt

DATE: 12-20-1995

PROJECT: Sandalwood Subdivision

PROJECT NO.: 95-008

INLET NO.: 3

STATION: 0+73.38

DRAINAGE AREA: 8.76Acres

DESIGN FREQUENCY: 100Years

ROADWAY & DISCHARGE DATA

Cross-Slope	S (ft/ft)	Sx (ft/ft)	n	Q (cfs)	T (ft)
-----	-----	-----	-----	-----	-----
Composite	0.007	0.020	0.016	6.54	14.68

GUTTER FLOW

W (ft)	Sw (ft/ft)	a (in)	Eo	d (ft)	V (fps)
-----	-----	-----	-----	-----	-----
2.08	0.080	1.50	0.404	0.42	2.86

INLET INTERCEPTION

Inlet Type	LT or W (ft)	L (ft)	E	Qi (cfs)	Qb (cfs)
-----	-----	-----	-----	-----	-----
Curb-Opening	23.56	7.50	0.060	0.41	6.13
P-1-7/8	2.08	6.66	0.780	4.80	1.35
Combination			0.794	5.19	1.35

 ***** ROADWAY DRAINAGE DESIGN *****

DESIGNER: J. Hewitt

DATE: 12-20-1995

PROJECT: Sandalwood Subdivision

PROJECT NO.: 95-008

INLET NO.: 4

STATION: 0+73.38

DRAINAGE AREA: 8.76Acres

DESIGN FREQUENCY: 100Years

ROADWAY & DISCHARGE DATA

Cross-Slope	S (ft/ft)	Sx (ft/ft)	n	Q (cfs)	T (ft)
Composite	0.007	0.020	0.016	6.54	14.68

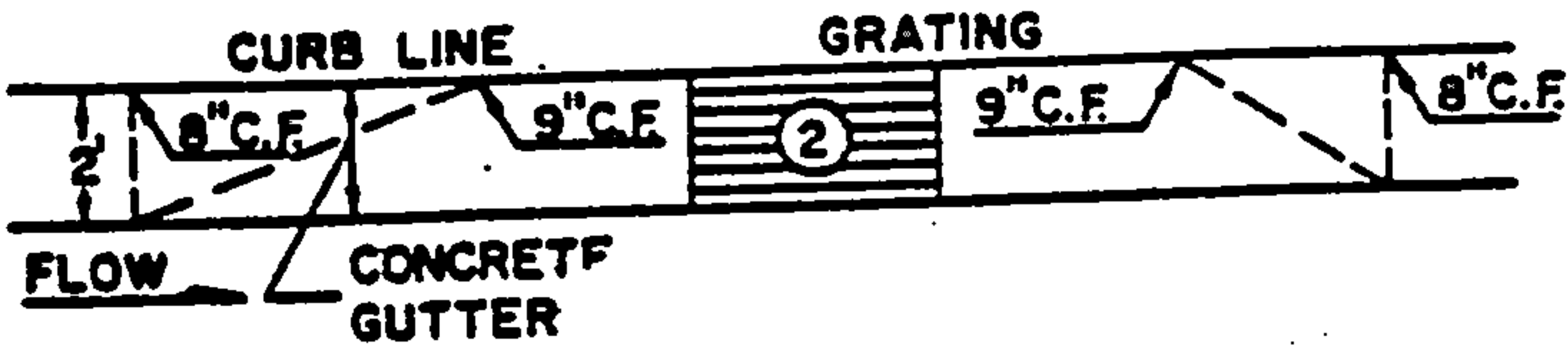
GUTTER FLOW

W (ft)	Sw (ft/ft)	a (in)	Eo	d (ft)	V (fps)
2.08	0.080	1.50	0.404	0.42	2.86

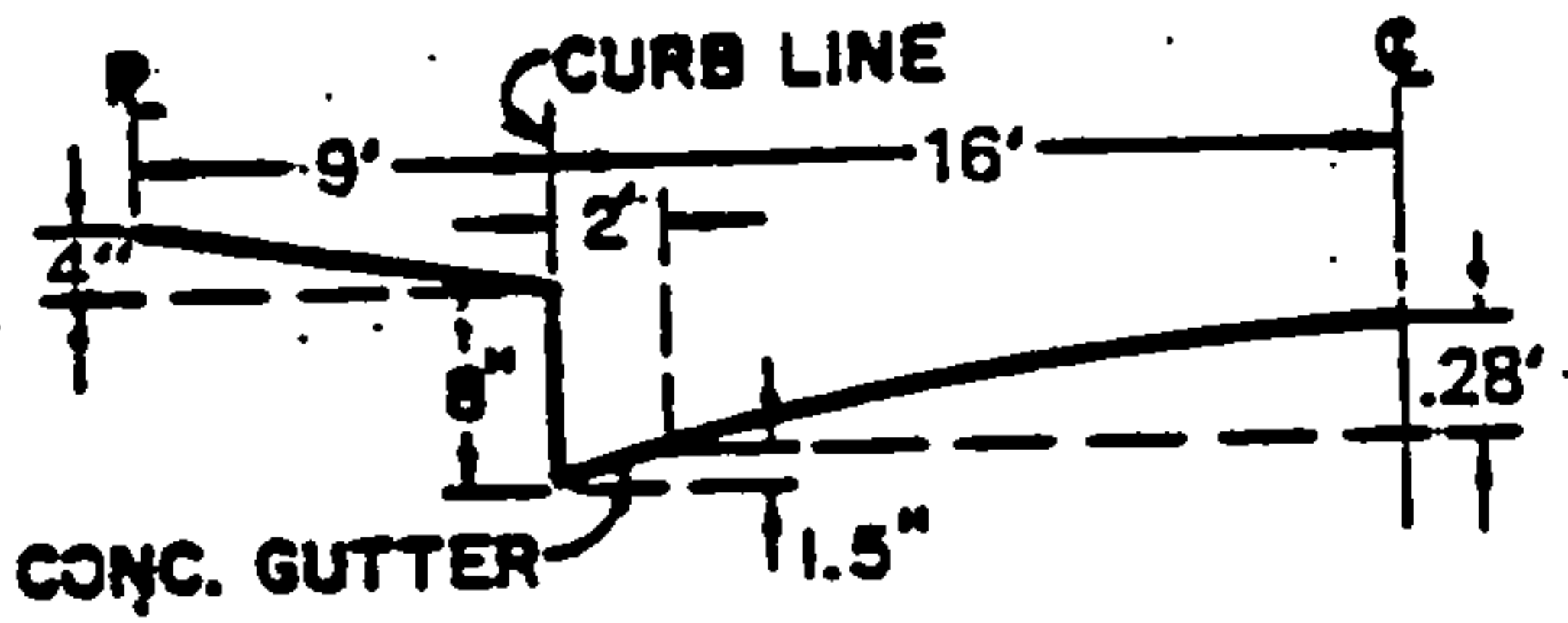
INLET INTERCEPTION

Inlet Type	LT or W (ft)	L (ft)	E	Qi (cfs)	Qb (cfs)
Curb-Opening	23.56	7.50	0.060	0.41	6.13
P-1-7/8	2.08	6.66	0.780	4.80	1.35
Combination			0.794	5.19	1.35

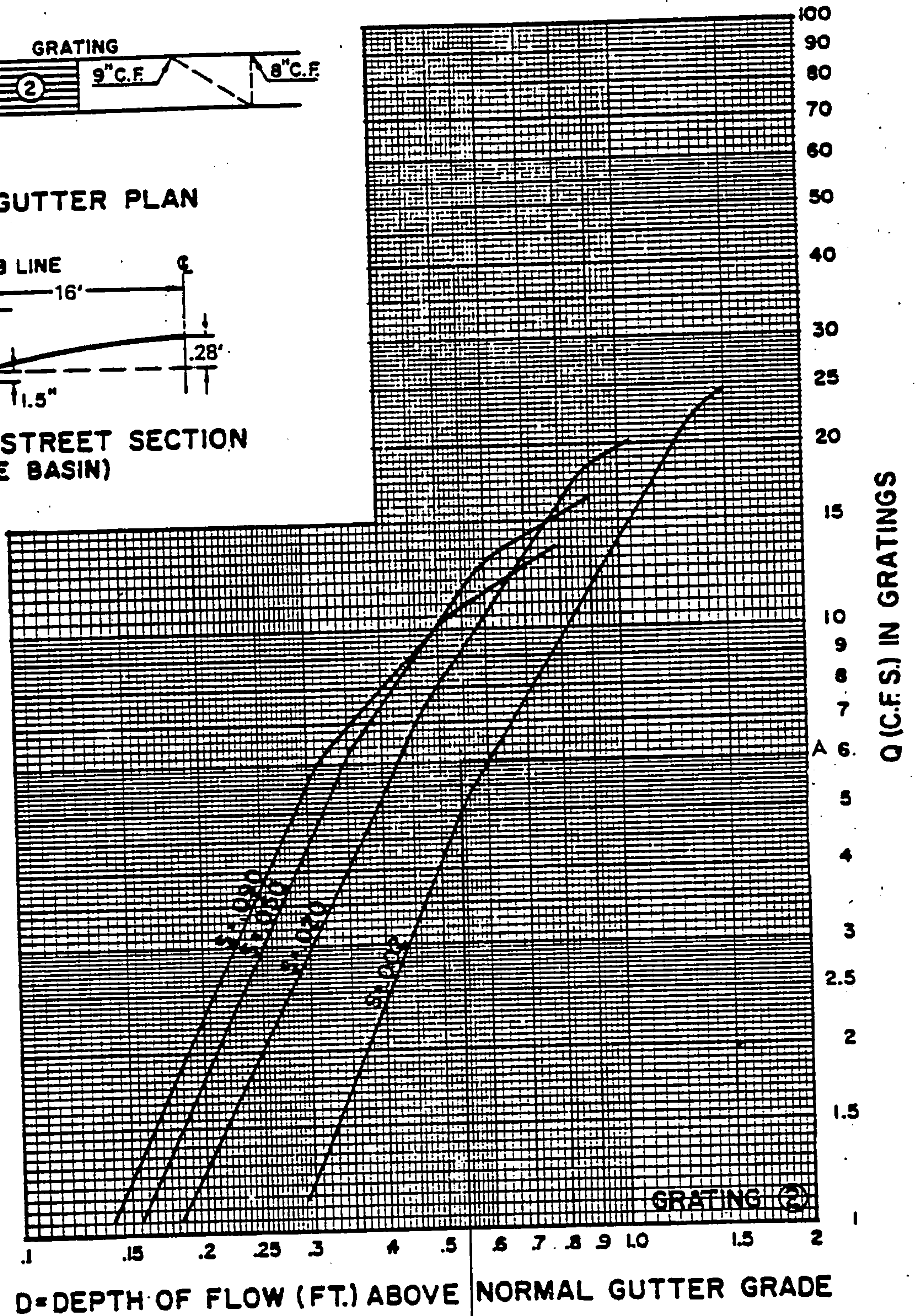
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



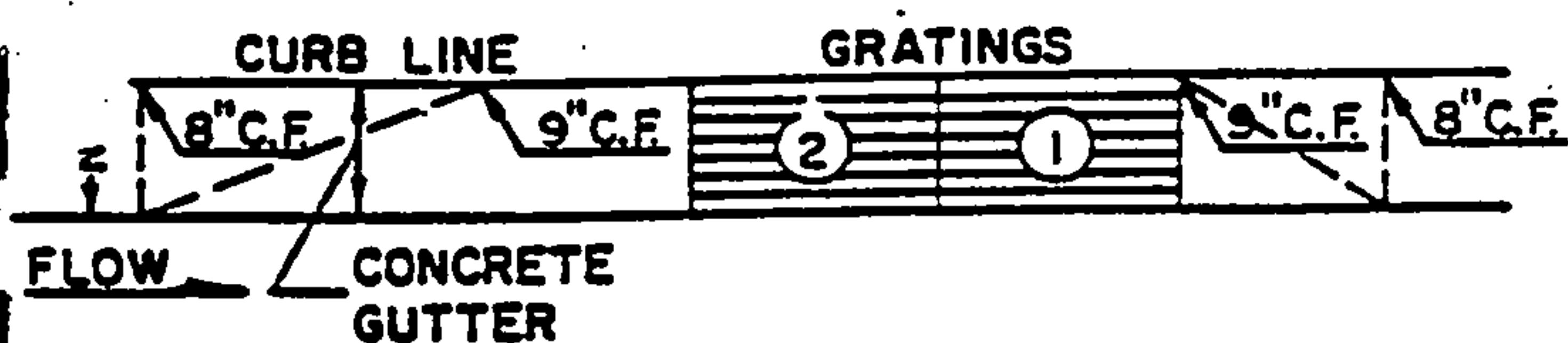
TYPICAL HALF STREET SECTION
(ABOVE BASIN)



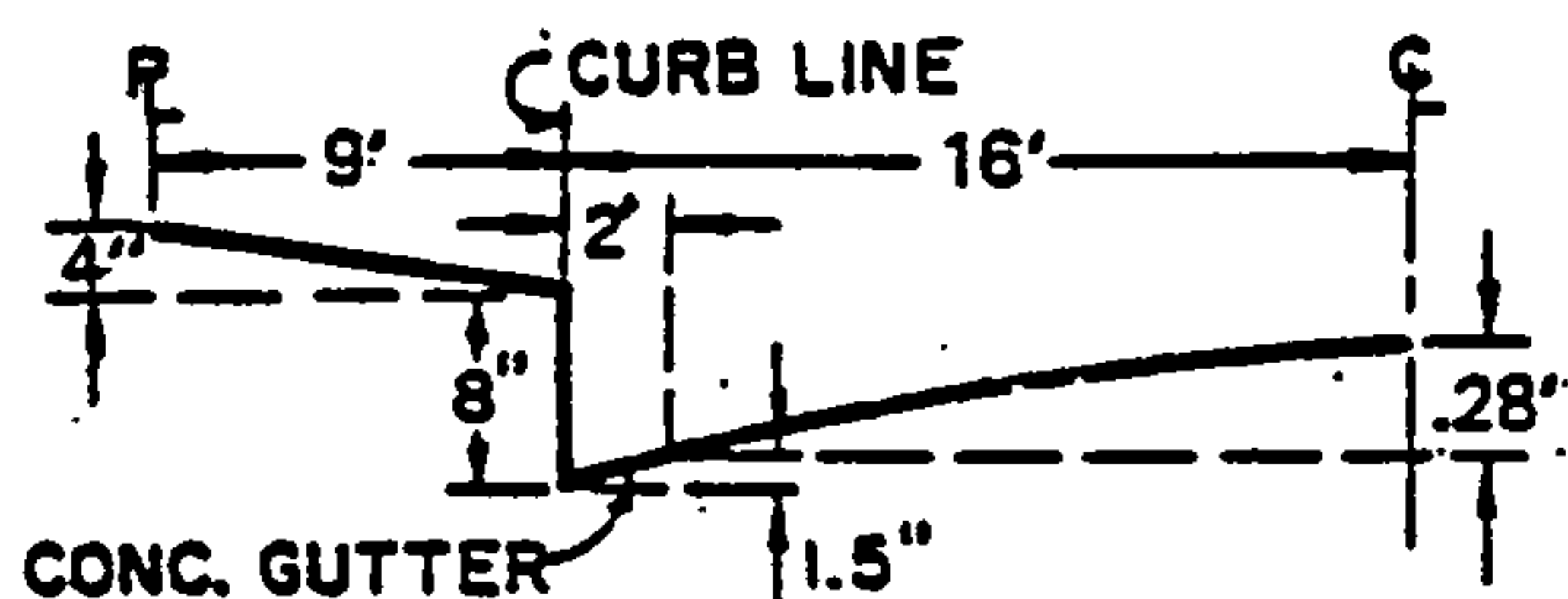
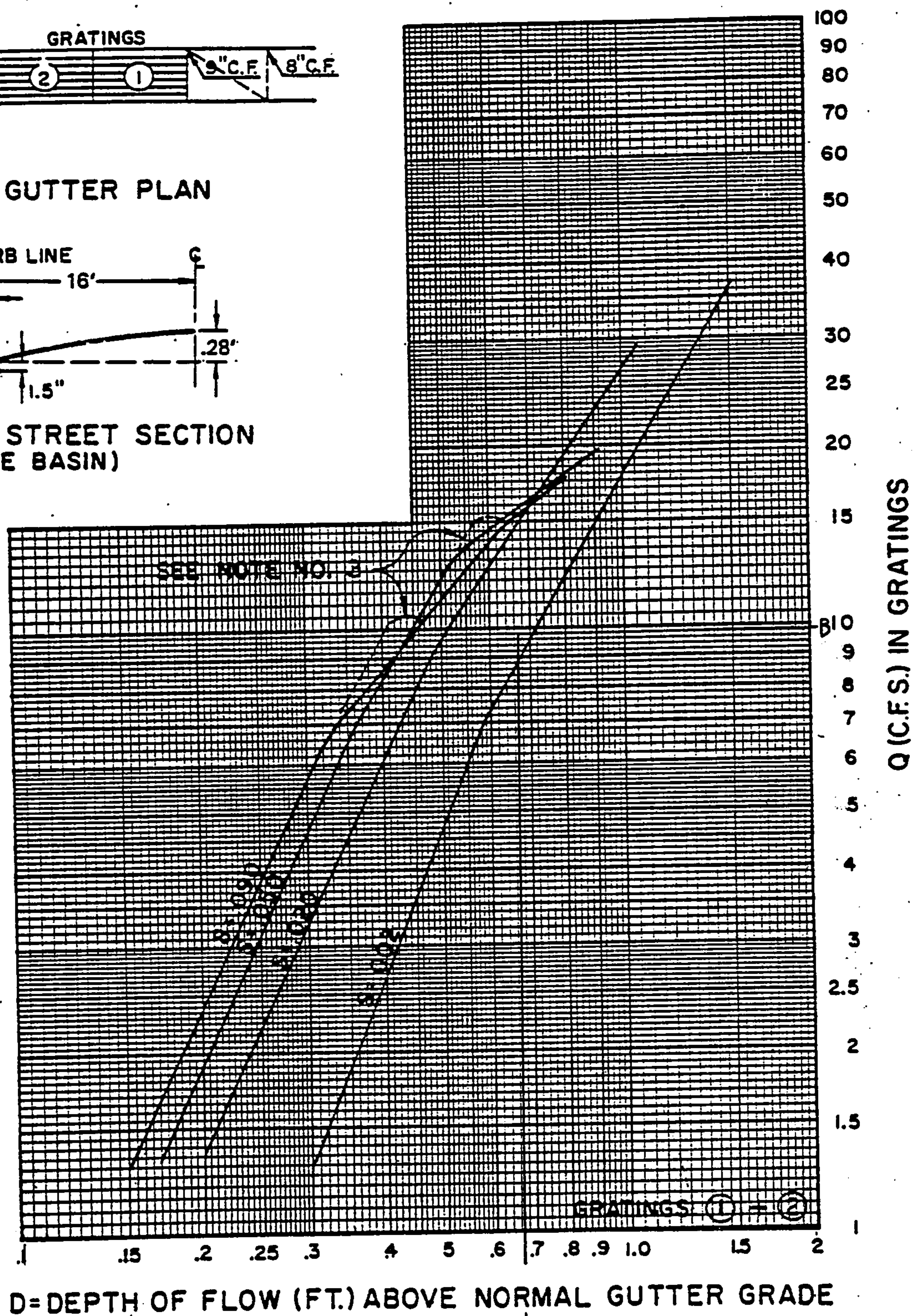
ALWOOD DRIVE STA 1484.5
S = 0.7441 %
Q = 6 cfs

GRATING CAPACITIES FOR TYPE DOUBLE

"C," AND "D"



GRATING & GUTTER PLAN

TYPICAL HALF STREET SECTION
(ABOVE BASIN)

DOUBLE "C" END OF ALWOOD DRIVE STA 0+73.38

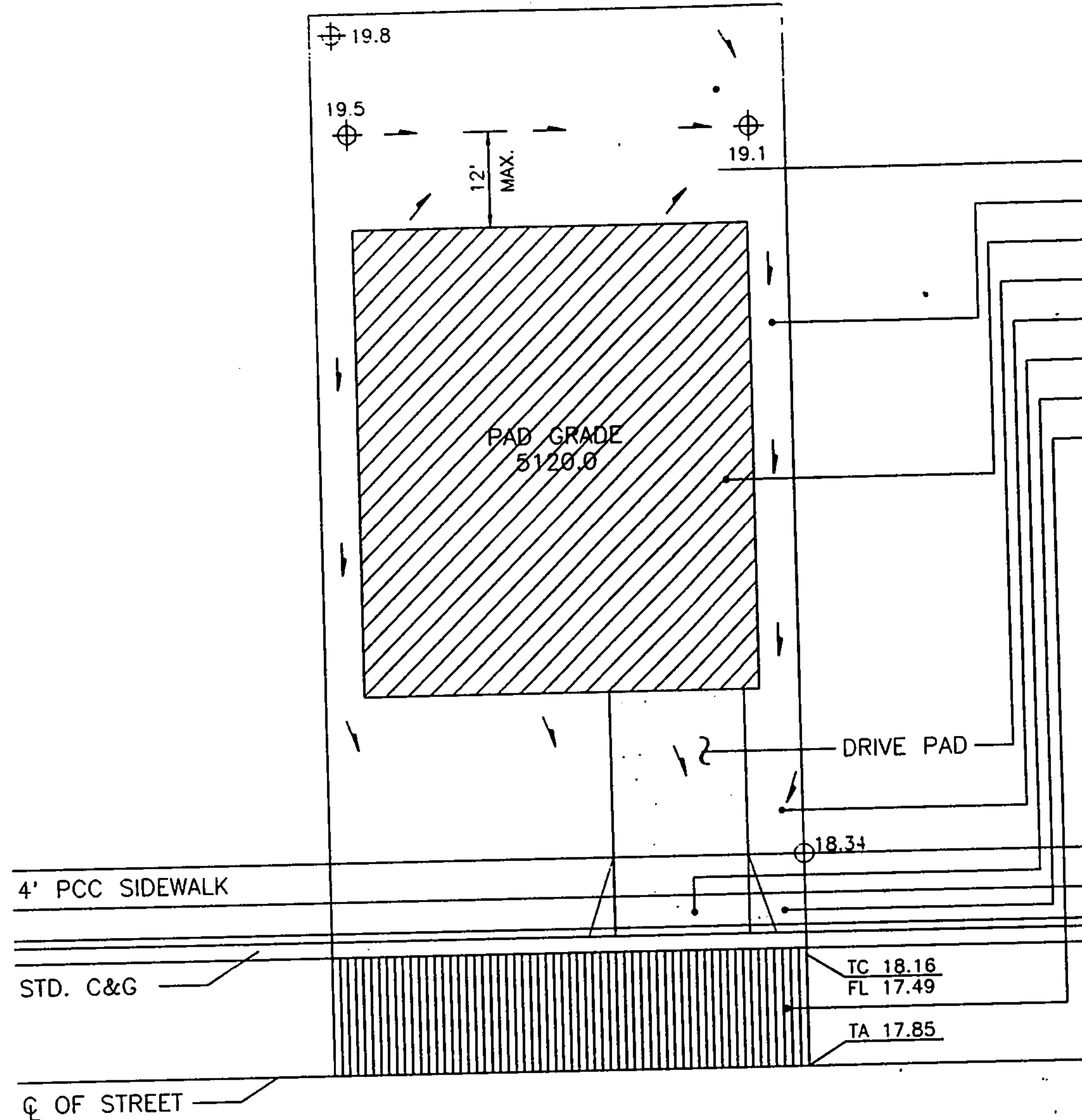
8" CURB AT TERMINUS PROVIDES PONDING

DEPTH = 0.67 ft

Q REQUIRED $\approx$ 9 cfs

Q CAPACITY = 9.8 cfs - OK

Appendix D
Miscellaneous Information



LAND TREATMENT (AREA S.F.)			
B	C	D	COMMENTS
1,540			REAR YARD
250	250		SIDE YARDS
		2,250	HOUSE/GARAGE
		450	DRVPD & WALK
462	462		FRONT YARD
		320	SDWK & DRPD
	148		COMP. R/W
		770	PAVING/C&G
2,252	860	3,790	TOTAL AREA (S.F.)
32.6	12.5	54.9	TOTAL AREA (%)

LAND TREATMENTS and TYPICAL LOT GRADING PLAN

N.T.S.

Interim Storm Water Retention Pond Design Calculations

Design Assumptions and Criteria:

The required capacity (i.e., V_{360}) of the interim storm water retention pond is 45,154 ft³. Storm flow in excess of the runoff volume from the 100-year 6-hour event will be discharged from the interim retention pond to the I-40/Unser Boulevard interchange right-of-way via an at grade, emergency spillway. Emergency spillway design calculations are presented in Appendix A.

The proposed pond has a trapezoidal shape with 3:1 side slopes and a total depth of 8 feet. Based on the head above the crest of the weir, the total pond depth at capacity is 7.5 feet. The pond will be surrounded by a chain link fence (height = 6 feet).

Pond Volume (Frustum of Inverted Pyramid):

$$V = 1/3H (B_1 + B_2 + ((B_1 \times B_2)^{0.5}))$$

where:

- V = volume, ft³
- H = height above pond invert, 7.5 ft
- B_1 = upper surface area, 9,864.5 ft²
- B_2 = lower surface area, 2,880.0 ft²

Solving for V:

$$\begin{aligned} V &= 1/3H (B_1 + B_2 + ((B_1 \times B_2)^{0.5})) \\ &= 45,186.45 \text{ ft}^3 > 45,154 \text{ ft}^3 \end{aligned}$$

DECEMBER 20, 1995

J. HEWITT

INTERIM STORM WATER RETENTION
POND

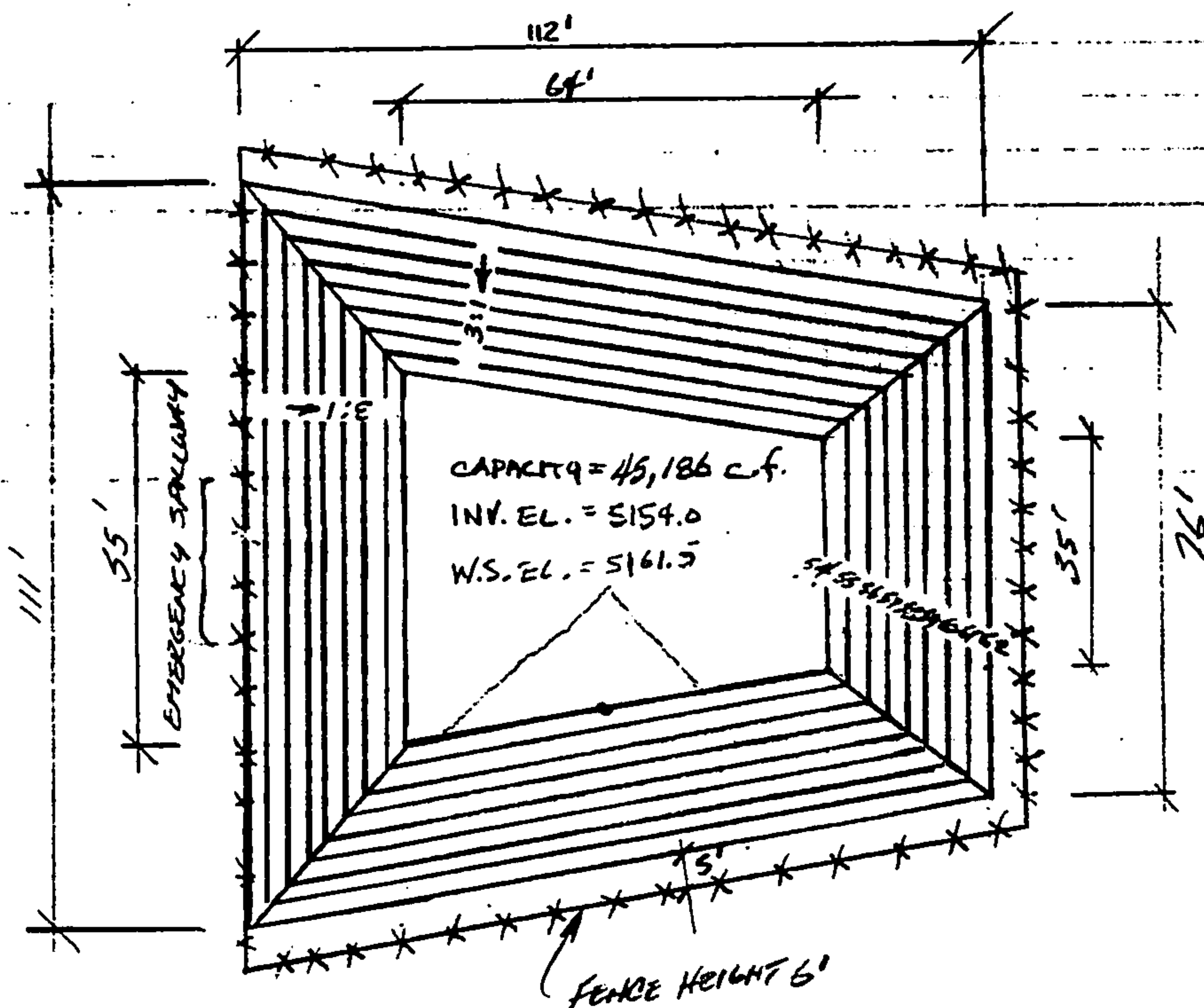
$$V = \frac{1}{3} h (B_1 + B_2 + \sqrt{B_1 B_2})$$

where $h = 7.5$ ft

$$B_1 = 2,880 \text{ ft}^2$$

$$B_2 = 9,864.5 \text{ ft}^2$$

$$\text{hence } V = 45,186 \text{ ft}^3$$



22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS



96123972

4081

547081

AGREEMENT AND COVENANT

This Agreement and Covenant, between the City of Albuquerque, New Mexico ("City") and Oppel Jenkins of Albuquerque, Inc., ("User") is made in Albuquerque, New Mexico and is entered into as of the date of recording this Agreement with the Bernalillo County Clerk.

1. Recital. The User is the owner of certain real property ("User's Property") located at Sandalwood Subdivision, in Albuquerque, New Mexico, and more particularly described as:

Tracts 238 and 239 of the Atrisco Grant Airport Addition, Recorded Dec. 5, 1944
VOL. D FOLIO 118 IN BERNALILLO COUNTY CLERK'S OFFICE, NEW MEXICO.

The City is the owner of certain real property, easement or public right-of-way ("City's Property") in the vicinity of, contiguous to, abutting or within User's Property, and more particularly described as: Lots 31 & 32 of the Sandalwood Subdivision

See Exhibit "A"

The User wishes to construct upon, improve or repair and to maintain the following "Improvement" on the City's Property (or already has done so):

Temporary Storm Water Retention Pond.

A sketch of the proposed or existing Improvement is attached as Exhibit A and made a part of this Agreement.

The City agrees to permit the Improvement to exist on the City's Property provided the User complies with the terms of this Agreement.

2. City Use of City's Property and City Liability. The City has the right to enter upon the City's Property at any time and perform whatever inspection, installation, maintenance, repair, modification or removal ("Work") it deems appropriate without liability to the User. If the Work affects the Improvement the City will not be financially or otherwise responsible for rebuilding or repairing the Improvement. The User promptly will repair the Improvement to the City's satisfaction. The cost of repairing the Improvement will be paid by User.

3. User's Responsibility for Improvement. The User will be solely responsible for constructing, maintaining, repairing and, if required, removing the Improvement, all in accordance with standards required by the City as per the approved Grading and Drainage Plan J10-D16 on file at City Hydrology. The User will be solely responsible for paying all related costs. The User will not permit the Improvement to constitute a hazard to the health or safety of the general public or to interfere with the City's use of the City's Property. The User will conform with all

Fred,
your file
copy

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applicable laws, ordinances and regulations.

4. Use of the Improvement. If the City's Property is a public right-of-way, it shall be open to the use of the general public at all times, subject to reasonable curtailment during periods of construction, maintenance or repair.

5. Demand for Repair, Modification or Removal. The City may send written notice ("Notice") to the User requiring the User to repair, modify or remove the Improvement within 30 days ("Deadline") and the User will comply promptly with the requirements of the Notice. If removal is demanded, the City also may require the User to return the City's Property to its original condition by the Deadline. The User will perform all required work by the Deadline, at User's sole expense.

6. Failure to Perform by User and Emergency Work by City. If the User fails to comply with the terms of the Notice by the Deadline stated, or, if the City determines that an emergency condition exists, the City may perform the work itself. The City then may assess the User for the cost of the work and for any other expenses or damages which result from User's failure to perform. The User agrees promptly to pay the City the amount assessed. If the User fails to pay the City within thirty (30) days after the City gives the User written notice of the amount due, the City may impose a lien against User's Property for the total resulting amount.

7. Cancellation of Agreement and Release of Covenant. This Agreement may be cancelled and User's covenants released by the City at will by the City's mailing to the User notice of the City's intention to record a Cancellation and Release with the Bernalillo County Clerk. The Cancellation and Release will be effective thirty (30) days after the date of mailing the notice to the User unless a later date is stated in the notice or the Cancellation and Release. After the effective date, the City will record the Cancellation and Release with the Bernalillo County Clerk.

8. Condemnation. If any part of the User's Property is ever condemned by the City, the User will forego all claims to compensation for any portion of User's structure which encroaches on City Property and for severance damage to the remaining portion of User's structure on User's Property.

9. Assessment. Nothing in this Agreement shall be construed to relieve the User, his heirs, assigns and successors from an assessment against User's Property for improvements to the City Property under a duly authorized and approved Special Assessment District. The parties specifically agree that the value of the Improvement will not reduce the amount assessed by the City.

10. Notice. For purposes of giving formal written notice to the User, User's address is:

Oppel Jenkins of Albuquerque, Inc.
7850 Jefferson NE #110
Albuquerque, NM 87109
Attention: Scott Henry

Notice may be given to the User either in person or by mailing the notice by regular U.S. mail, postage paid. Notice will be considered to have been received by the User within 3 days after the notice is mailed if there is no actual evidence of receipt. The User may change User's address by giving written notice of the change by certified mail, return receipt requested, to the City Engineer at P.O. Box 1293, Albuquerque, New Mexico 87103.

11. Indemnification. The User agrees to defend, indemnify and hold harmless the City, its officials, agents and employees from and against any and all claims, actions, suits or proceedings of any kind brought against said parties as a result of User's use of the City's Property. To the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this Agreement to indemnify will not extend to liability, claims, damages, losses or expenses, including attorney's fees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by the indemnitee, or the agents or employees of the indemnitee; or (2) the giving of or the failure to give direction or instructions by the indemnitee, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

12. Term. This Agreement shall continue until revoked by the City pursuant to Section 7 above.

13. Binding on User's Property. The covenants and obligations of the User set forth herein shall be binding on User, his heirs, assigns and successors and on User's Property and constitute covenants running with User's Property until released by the City.

14. Entire Agreement. This Agreement contains the entire agreement of the parties and supersedes any and all other agreements or understandings, oral or written, whether previous to the execution hereof or contemporaneous herewith.

15. Changes of Agreement. Changes to this Agreement are not binding unless made in writing, signed by both parties.

16. Construction and Severability. If any part of this Agreement is held to be invalid or unenforceable, the remainder of the Agreement will remain valid and enforceable if the remainder is reasonably capable of completion.

17. Captions. The captions to the sections or paragraphs of this Agreement are not part of this Agreement and will not affect the meaning or construction of any of its provisions.

CITY OF ALBUQUERQUE

By: [Signature]

for Lawrence Rael

Chief Administrative Officer

Dated: 11-13-96

USER: Oppel Jenkins of Albuquerque, Inc.

By: [Signature]

Its: [Signature]

Dated: 11/7/96

APPROVED:

[Signature]

Robert E. Gurule, Director
Public Works Department

KJE 11/8/96

Reviewed by:

[Signature]

Ric Roybal, City Engineer
Construction Management/PWD

11/7/96

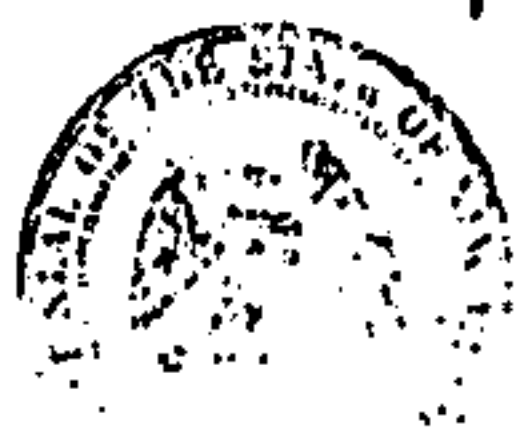
CITY'S ACKNOWLEDGEMENTS

STATE OF NEW MEXICO)

) ss

COUNTY OF BERNALILLO)

This instrument was acknowledged before me on November 13, 1996, by Lawrence Rael, Chief Administrative Officer for the City of Albuquerque, a New Mexico municipal corporation, on behalf of the corporation.

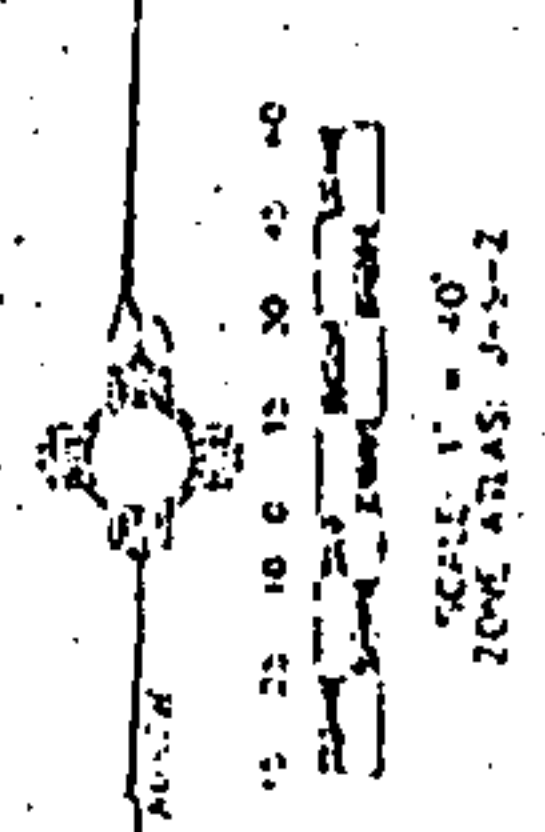
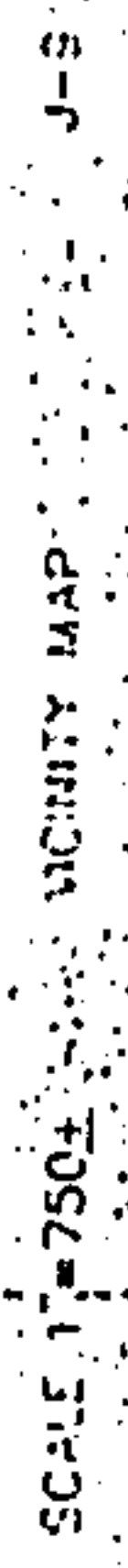


OFFICIAL SEAL
RENIE HERRERA
NOTARY PUBLIC
STATE OF NEW MEXICO

My Commission Expires: 1/3/98

[Signature]
Notary Public

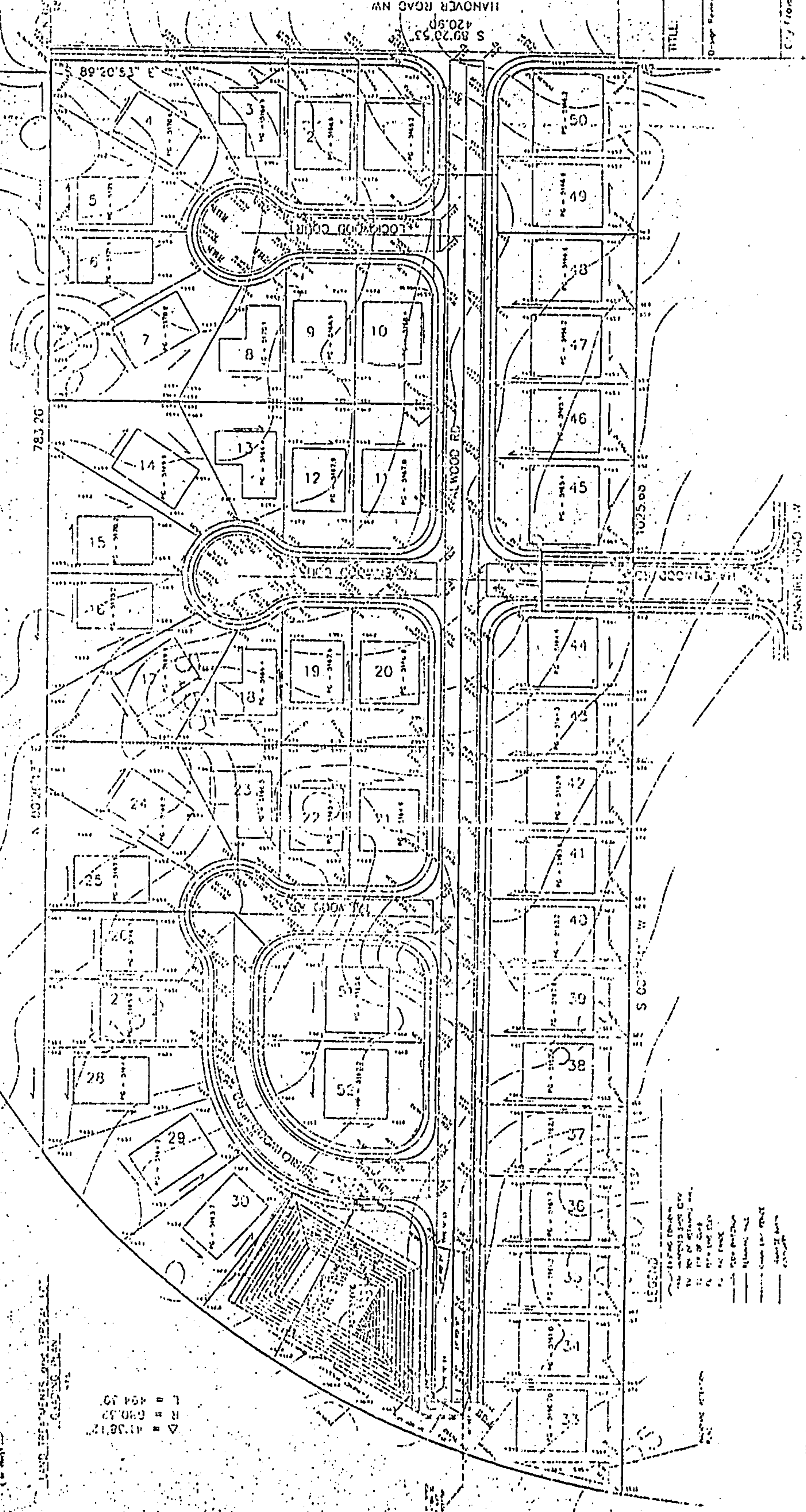
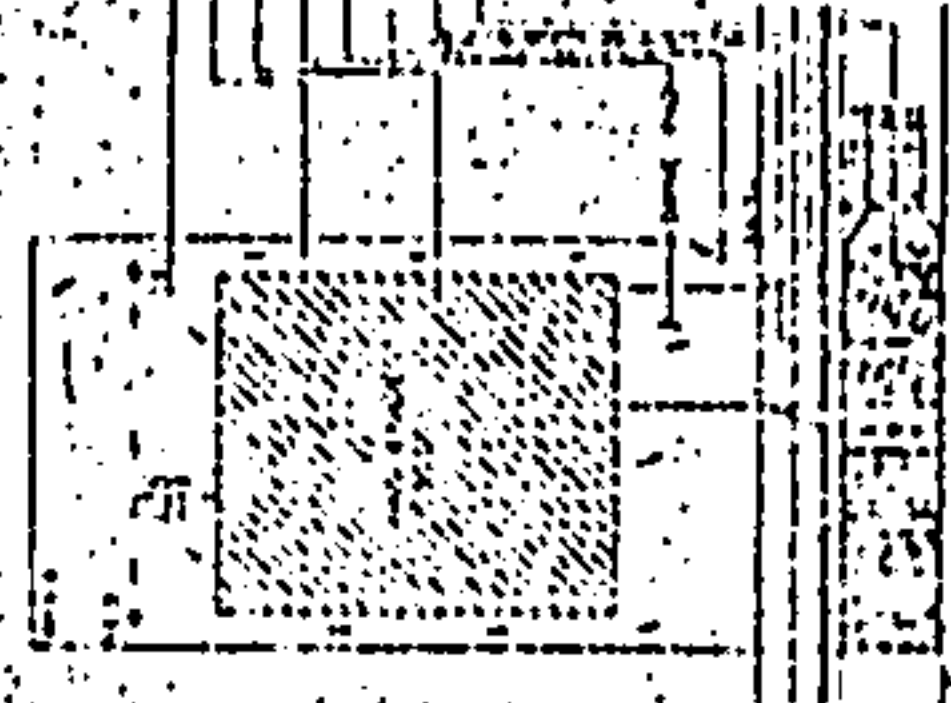
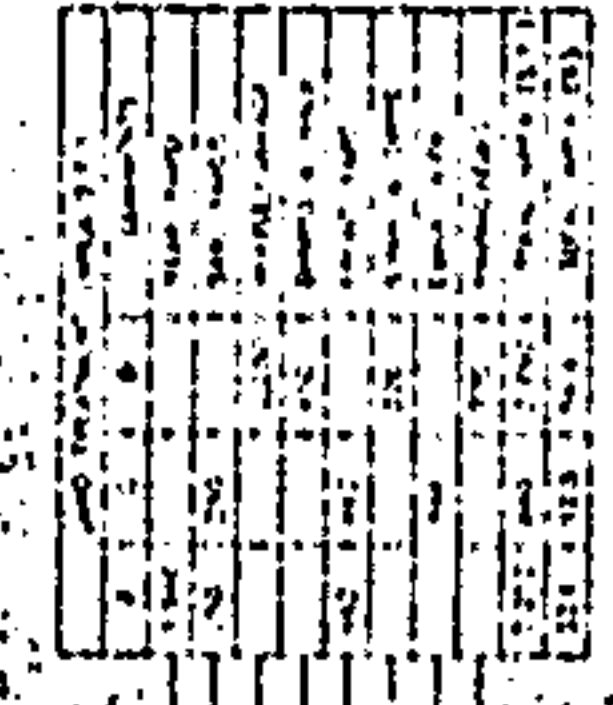
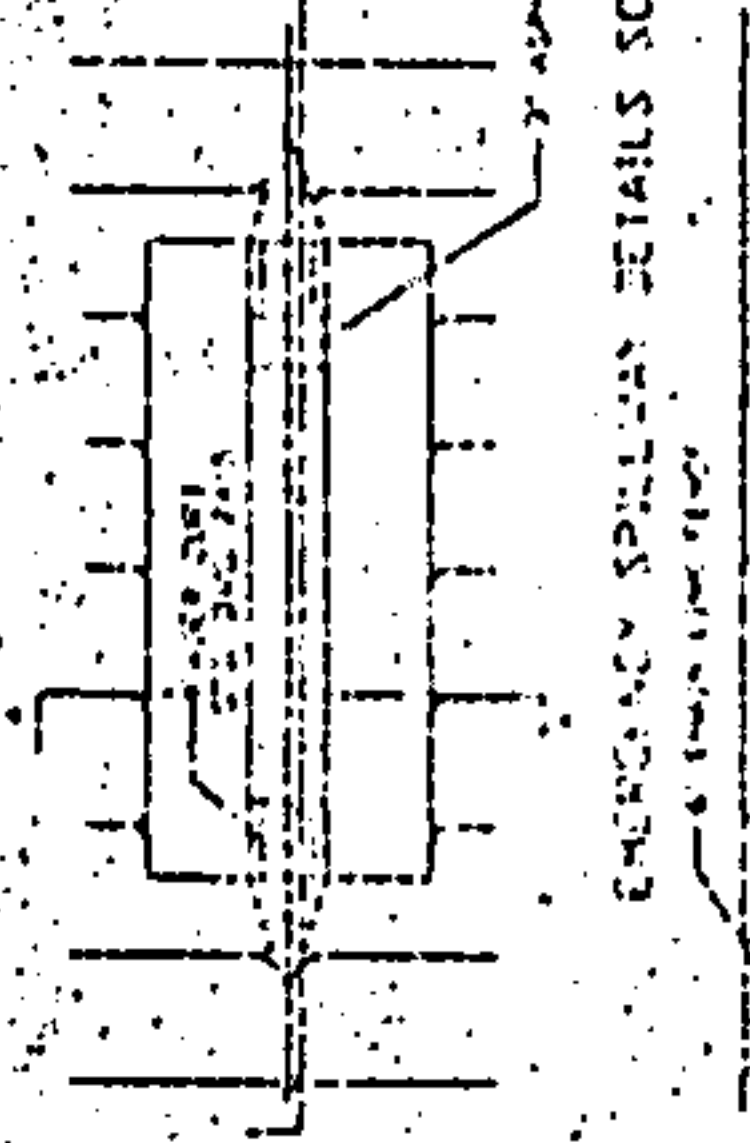
4086



06-57 HED 09-2809, 600
JAN 19 1967

EMERGENCY SITUATION SCALE: 10'

10'

[illegible]

Mr. J. H. Smith

$21.36.14 = \Delta$
 $25.06.0 = \Delta$
 $26.05.0 = \Delta$



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

December 8, 1995

James Hewitt, Jr.
Hewitt Engineering
5615 Creggs St. SW
Albuquerque, NM 87120

RE: DRAINAGE PLAN FOR SANDALWOOD SUBDIVISION (J10-D16)
ENGINEER'S STAMP DATED 12/04/95.

Dear Mr. Hewitt:

Based on the information provided on your December 6, 1995 submittal, the above referenced site is approved for Preliminary Plat.

Please be advised that prior to Final Plat, Building Permit and Work Order approval, the following concerns must be addressed:

1. ✓ Plan drawing indicated the wrong ACS monument number used. Should be 1-J9& 1-J10.
2. ✓ Comparing the as-built information from Chamisa Encantada as-built information on the west property line with the proposed spot elevations on your plan drawing, indicates that there is an average of three feet difference in elevation which would indicate a retaining wall will be required.
3. ✓ On your narrative you indicate that lot 1-4 and 33-50 will have rear yard ponding. It is o.k. to pond what ever falls in the rear yard, but you can not take credit for the developed run-off on your analysis. 100% retention of developed run-off is not allowed unless provisions are made to release the water within 24 hours. On your narrative please indicate that all developed run-off must be routed to the street.
4. ? Please provide an off-site basin map indicating the off-site flows entering the site and how they will be accounted for.
5. Please provide the plates from the D.P.M. indicating the comparison between your HEC-2 and HY12 software results for the streets & inlets.
6. ✓ Please provide the computations for the emergency spillway requirements. Also, the spillway will need to be erosion and sediment proof.

James Hewitt, Jr.

Page 2

7. ✓ Typical detail showing the proposed ponding area. Please indicate the 100-year W.S.E. on the plan drawing. Also, indicate that fencing will be required on your narrative and what size.
8. ✓ Label Alwood Drive and Hanover Road on plan drawing.
9. ✓ Indicate the project T.B.M. on the plan drawing.
10. More spot elevations on the house footprint to identify that the developed run-off will all be routed to the street.

If I can be of further assistance, please feel free to contact me at 768-2667.

Sincerely,



Bernie J. Montoya, CE
Engineering Associate

BJM/dl

c: Andrew Garcia
File

**HEWITT ENGINEERING & ENVIRONMENTAL
CONSULTANTS**

5615 CREGGS STREET, N.W.

ALBUQUERQUE, N.M. 87120

(505) 899-9586
FAX (505) 899-9586

Mr. Bernie J. Montoya, CE
Engineering Associate
City of Albuquerque
Public Works Department
Hydrology Division
P.O. Box 1293
Albuquerque, New Mexico 87103

February 5, 1996

Case No.: DRB-95-287

**RE: SANDALWOOD SUBDIVISION GRADING AND DRAINAGE PLAN; TRACTS
238 AND 239, UNIT 8, TOWN OF ATRISCO GRANT (ALBUQUERQUE,
NEW MEXICO);**

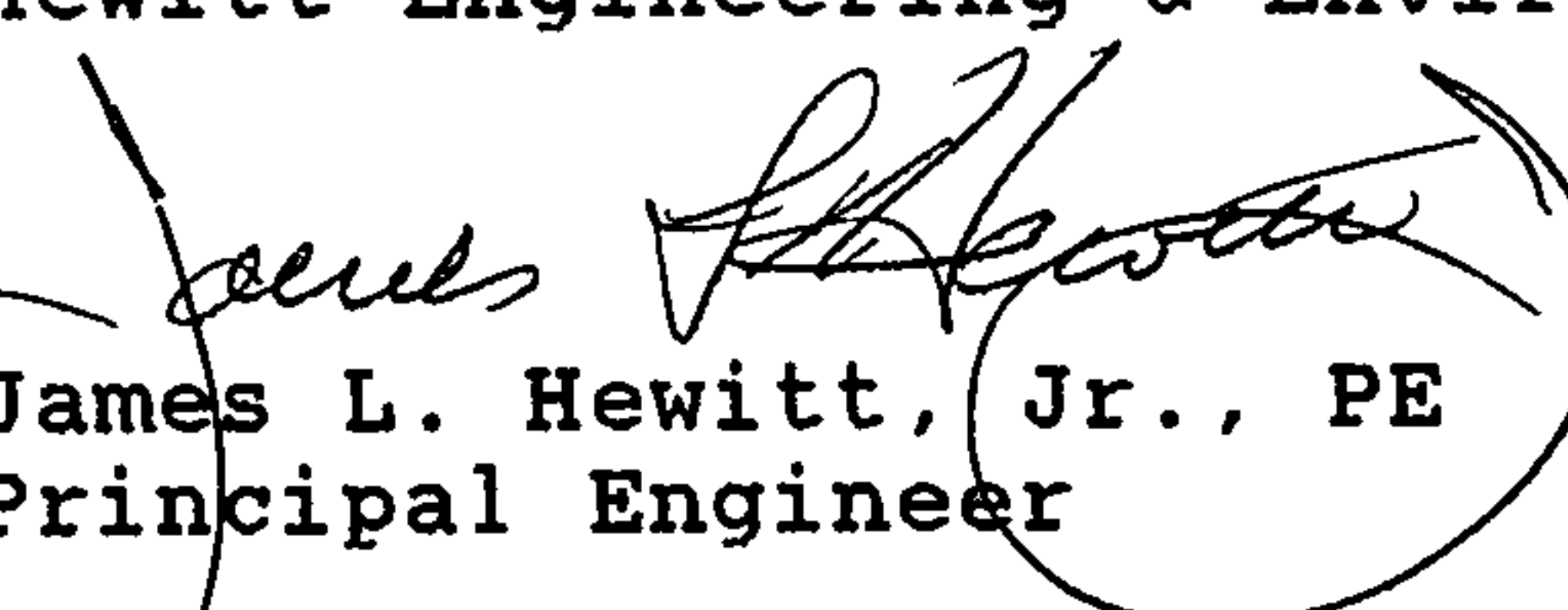
Dear Mr. Montoya:

The grading and drainage plan (transmitted to your attention on January 3, 1996) for the Sandalwood Subdivision (Tracts 238 and 239, Unit 8, Town of Atrisco Grant) has been revised in response to comments from the Development Review Board (DRB). Specifically, the configuration and dimensions of the interim retention pond were modified to accommodate a water line easement (along the southern property boundary of Lots 31 and 32).

As you will note from the attached sketch, the capacity of the modified pond will be sufficient to intercept the runoff volume from the 100-year 6-hour storm. Three copies of the revised grading and drainage plan accompany this letter. We respectfully request your expedient review and approval of this document.

Should you have any questions regarding this matter, do not hesitate to contact me at (505) 899-9586.

Sincerely,
Hewitt Engineering & Environmental Consultants (HEEC)

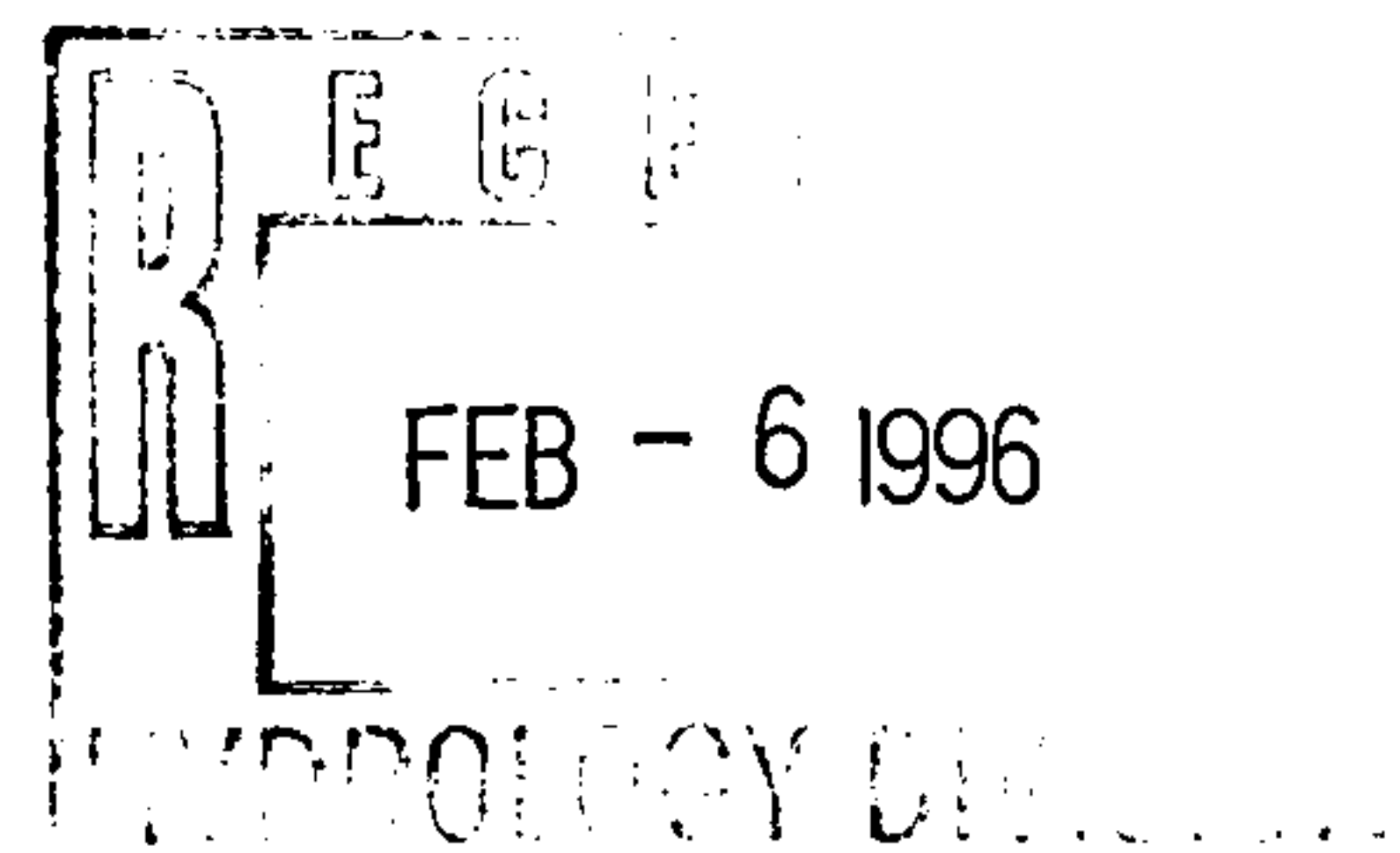


James L. Hewitt, Jr., PE
Principal Engineer

JLH/SNDLWD03.LTR

Enclosure

cc: A. Rizvi



FEBRUARY 2, 1996

J. HEWITT

INTERIM STORM WATER RETENTION POND

$$V = \frac{1}{3} h (B_1 + B_2 + \sqrt{B_1 B_2})$$

where

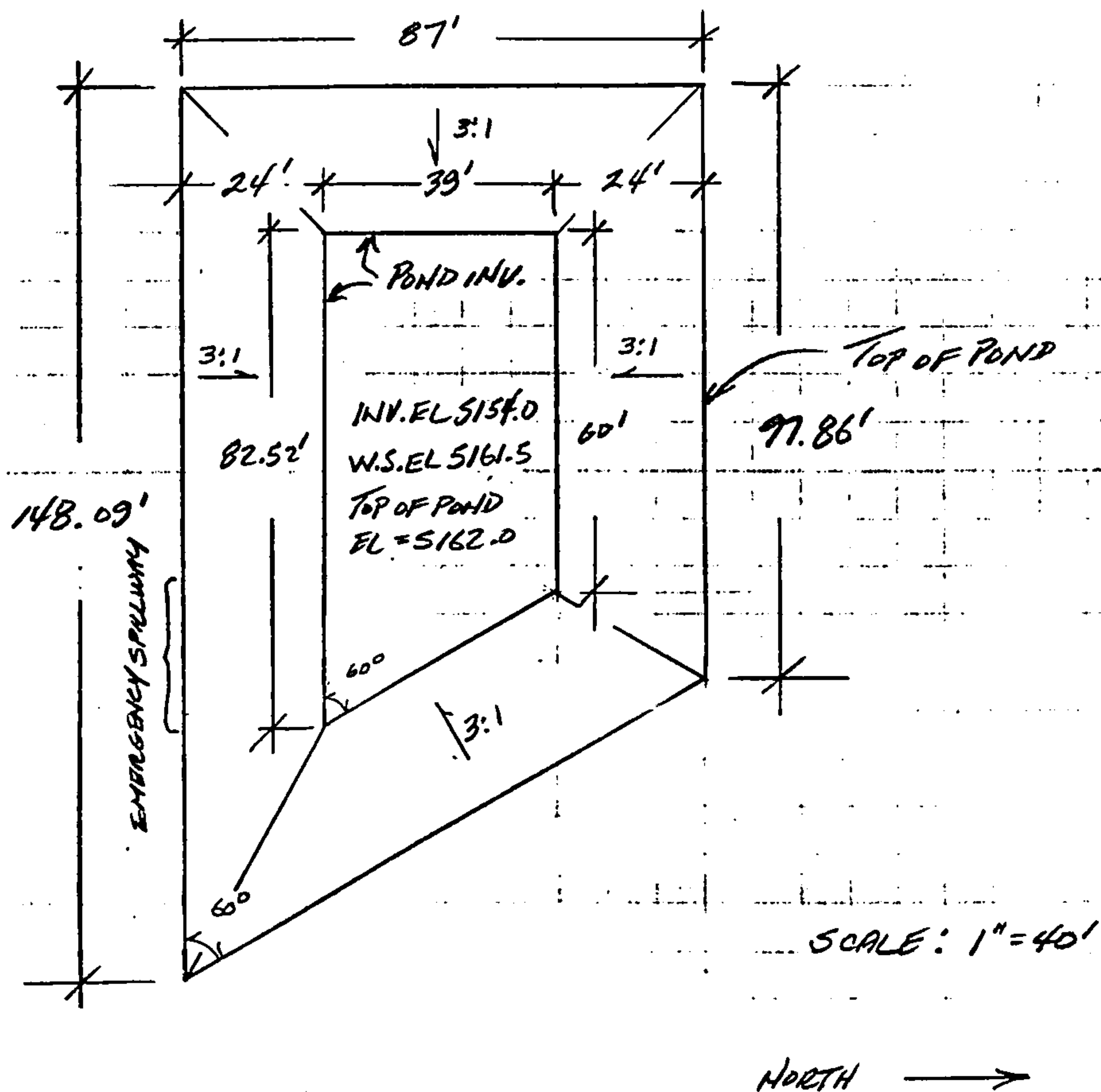
$$h = 7.54$$

$$B_1 = 2779 \text{ ft}^2$$

$$B_2 = 10,038 \text{ ft}^2$$

hence

$$V = 43,310 \text{ ft}^3 > 43,154 \text{ ft}^3 \text{ OK}$$



CITY OF ALBUQUERQUE
PLANNING DEPARTMENT
DEVELOPMENT SERVICES DIVISION

ELOPMENT REVIEW BOARD
January 9, 1996
S-96-6/V-96-8/DRB-95-287

S-96-6 Adil Rizvi requests Vacation (closing) of the southerly 10 feet
DRB-95-287 of Public Right-of-Way for Hanover Road NW adjacent to Tracts 238
V-96-8 and 239, plus Preliminary Plat approval (includes grading
 approval) for approximately 52 lots on Tracts 238 and 239, Town
 of Atrisco Grant, Airport Unit, zoned R-D (City) and located on
 the south side of Hanover Rd NW between Unser Blvd NW and 76th
 St NW, containing approximately 9.5 acres. (J-9, J-10)

Zoning Enforcement

"No adverse comment."

AMAFCA Preliminary alignments of the west I-40 diversion channel
 indicate that the channel is to be located in NMSHTD ROW next to
 Tracts 238 and 239. It appears, no additional property is needed
 for this proposed channel, however on site retention is
 warranted until the channel is constructed. Also, see COA/PWD
 Hydrology comments.

Office of Econ. Develop.

"No adverse comment."

Police Department

"No adverse comment."

Neighborhood Coordin. Letter sent to Laurelwood Neighborhood Association.

COG "No adverse comment." For information, Hanover Road will not
 have access to Unser Boulevard.

APS The 52 homes in the Sandalwood Subdivision will affect Susie
 Rayos Marmon Elementary School, Adams Middle School, and West
 Mesa High School. The APS facilities in the area are already
 large and overcrowded. The district will open another
 elementary school in August 1998 (contingent upon funding) to
 relieve conditions at elementary schools in the area.
 Nevertheless, ongoing residential development will likely keep
 schools large in the near future. As schools become
 overcrowded, boundary changes, alternative schedules,
 transportation to less crowded schools, and/or combinations of
 the above strategies may be employed to relieve schools with
 large numbers of students.

PNM Gas

Approves.

PNM Electric

No objections.

Jones Intercable

"No adverse comment."

Environmental Health

Prior to any earthmoving activities involving a parcel of 3/4 of
an acre or more, a Topsoil Disturbance Permit must be obtained
from the City's Environmental Health Department pursuant to
Albuquerque/Bernalillo County Air Quality Control Board, Part
20. Revegetation or stabilization of disturbed areas can be
coordinated as part of the permitting process. Contact Larry
Caudill (768-2600).

Environmental Health

As the proposal proceeds toward the implementation of residential units, EHD encourages the applicant to consider alternatives to the use of woodburning fireplaces. Possibilities include gas logs and Environmental Protection Agency approved woodburning devices. Operating a fireplace for 4 hours can produce as much carbon monoxide as 2 days worth of driving to and from work. In contrast, gas logs produce about 35 times less carbon monoxide than a woodburning fireplace.

Parks and General Services

The Developer under Ordinance 7-1976, as amended, is required to dedicate land which is suitable for development. The City may in lieu of dedication of land accept a cash payment of an amount equal to the value of the land required. In this case, a cash-in-lieu payment for 57 lots will be required at the time of Final Plat. At the time of issuance of building permits, the developer shall be required to pay a development fee.

Please provide an accounting on the plat how proposed lots will meet the 2400 square feet required in the R-D zoning district.

The I-40 Trail is identified on the Trails and Bikeways Facility Plan. Access to the trail has been provided on the plat. A Grading Plan was not received by Parks and General Services for review (approval).

An Infrastructure List was not received by Parks and General Services for review. Parks and General Services has no adverse comment on the request to vacate right-of-way.

Utilities Development

The developer must submit a profile of the existing right-of-way which shows the trench prisms of the existing utility lines in Hanover in order to determine if there is a surplus of right-of-way. The infrastructure list must be based on the August 25, 1995 water and sanitary sewer availability statement. The existing 18-inch waterline along the south property line must be located in the field relative to the property line. The City will not allow the line to be situated in the backyards of the proposed lots.

City Engineer

An approved drainage report is required for Preliminary Plat approval. City Surveyor's review and approval is required for Preliminary Plat approval. An approved Infrastructure listing is required for Preliminary Plat approval. An Executed Subdivision Improvements Agreement with financial guarantees are required for final plat sign-off. Development projects with land area of 5 acres, or more, are required to file a Notice Of Intent (NOI) with the U.S. Environmental Protection Agency for storm water discharge during construction.

Transportation Develop.

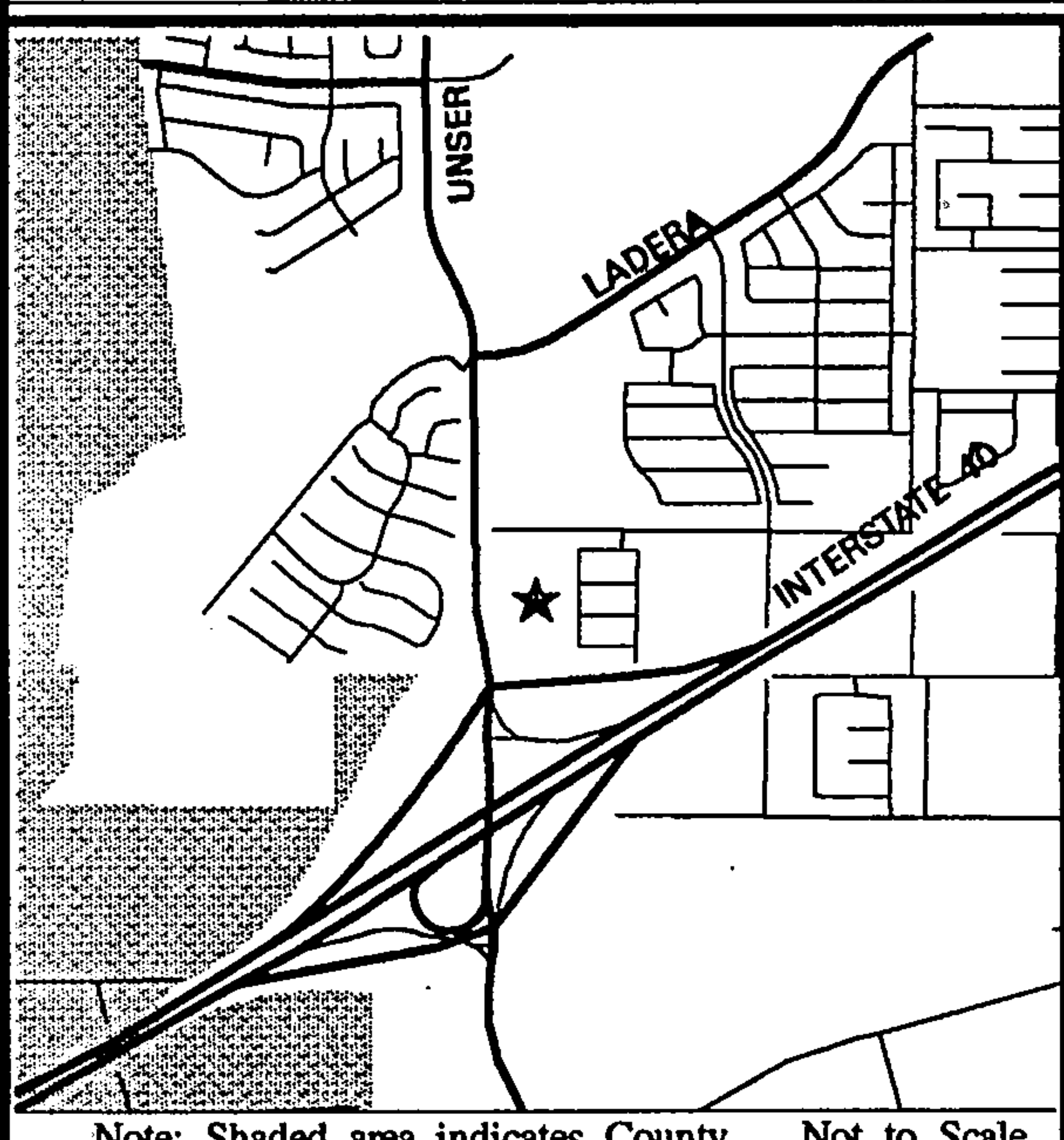
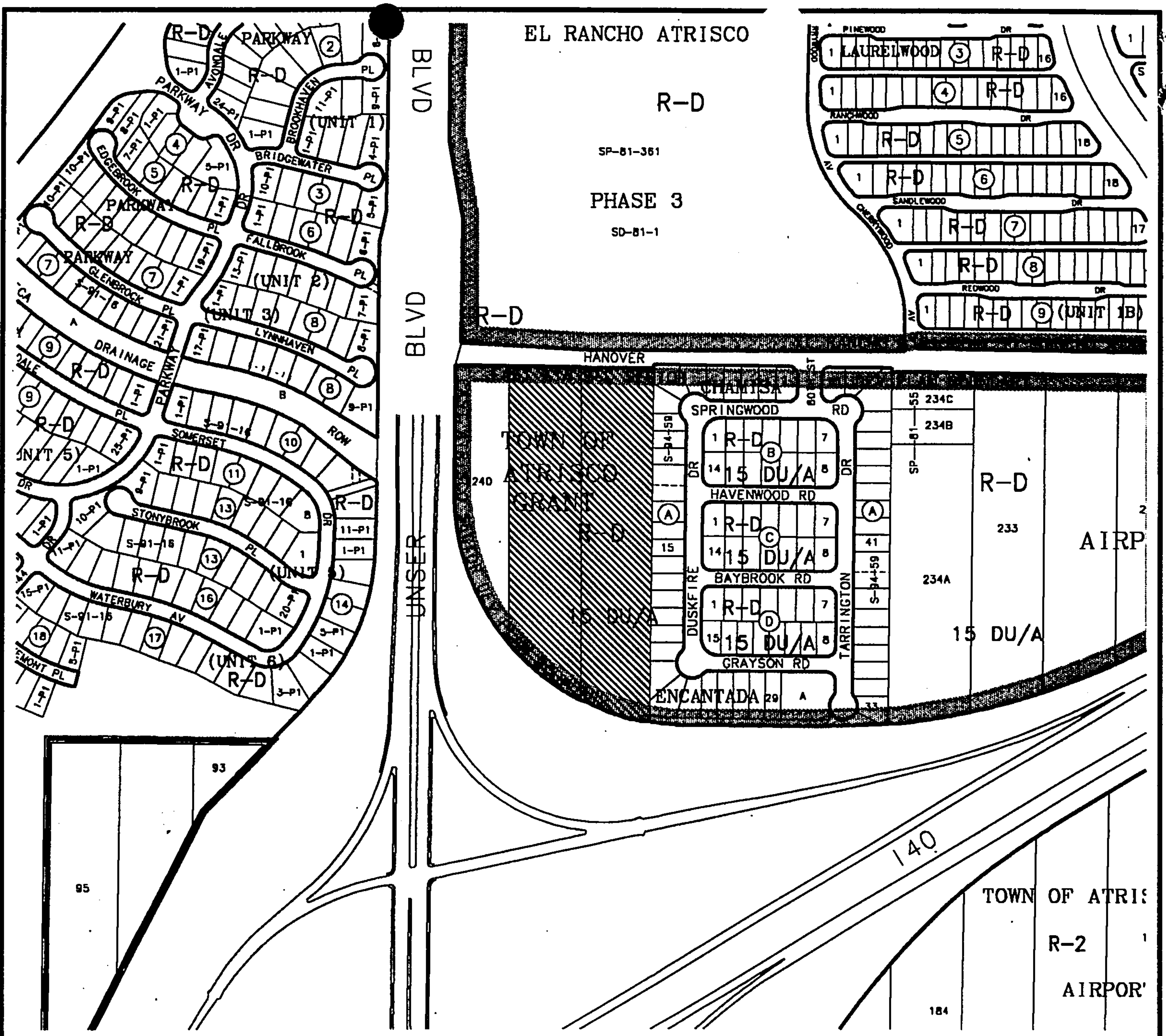
1. Has the previously submitted plat been changed? Refer to previous comments.. 2. Comments on infrastructure list. 3. A site sketch is needed with respect to street location and property lines.

Planning Department

No adverse comment on proposed Vacation. Scale/graphic scale are incorrect. Infrastructure List must correspond to current plat. Per sketch plat comments 6/27/95, access to west (Tract 240) needs to be addressed. "Front" of lots 51 and 52 need to be noted.

IT IS REQUESTED THAT THE APPLICANT AND/OR AGENT BE PRESENT AT THE HEARING

cc:Adil Rizvi, 7049 Luella Anne NE, 87109



ZONING MAP



Scale 1"= 419'

DRB-95-287/S-96-6

HEARING DATE
1-9-96

MAP NO.
J-9

FILE NO.
V-96-08

Note: Shaded area indicates County Not to Scale

DRAINAGE INFORMATION SHEET

J10/016

PROJECT TITLE: Sundalwood Subdivision ZONE ATLAS/DRNG. FILE #: ~~79~~ 710
DRB #: 95-287 EPC #: _____ WORK ORDER #: _____
LEGAL DESCRIPTION: Tracts 258 & 239 Unit 8 Town of Atasca Grant
CITY ADDRESS: _____
ENGINEERING FIRM: Hewitt Engineering & Environmental Consultants CONTACT: James Hewitt Jr. PE
ADDRESS: 5615 Creegys St NW 87120 PHONE: 899-9586
OWNER: Adil Rizvi CONTACT: Adil Rizvi
ADDRESS: 7049 Luella Anne NE PHONE: 857-0467
ARCHITECT: N/A CONTACT: _____
ADDRESS: _____ PHONE: _____
SURVEYOR: Southwest Surveying Co., Inc. CONTACT: F. Wilson
ADDRESS: 333 Comas NE PHONE: 247-4444
CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT
☒ DRAINAGE PLAN
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☒ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION
☐ OTHER _____

PRE-DESIGN MEETING:

☒ YES
☐ NO
☐ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT APPROVAL
☐ PRELIMINARY PLAT APPROVAL
☒ S. DEV. PLAN FOR SUB'D. APPROVAL
☒ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☒ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☒ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY APPROVAL
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ S.A.D. DRAINAGE REPORT
☒ DRAINAGE REQUIREMENTS
☐ SUBDIVISION CERTIFICATION
☐ OTHER _____ (SPECIFY)

DATE SUBMITTED:

February 5, 1996

FEB - 6 1996

BY:

James A. Brown

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

PRE-DESIGN CONFERENCE

DRAINAGE FILE/ZONE ATLAS PAGE NO.: J 109 DATE: 1/6/95

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

SUBJECT: RIZVI Subdivisions

STREET ADDRESS: _____

LEGAL DESCRIPTION: Lots 238 + 239 Town 17 Arisco Transt
Unit 2

APPROVAL REQUESTED: ☒ PRELIMINARY PLAT ☐ FINAL PLAT
☐ SITE DEVELOPMENT PLAN ☐ BUILDING PERMIT
☐ GRADING/PAVING PERMIT ☐ OTHER

ATTENDANCE: WHO, REPRESENTING
ADIL RIZVI
JAKE BORDENAVE

FINDINGS:
• Follow same concept used for J10-D15
(copy of pre-design attached)
• SHD CONCURRENCE will be REQUIRED to BLOCK
FLOWS FROM their property.
• Comply with street flow requirement Section 22.3
Page 188

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: [Signature]
TITLE: _____ TITLE: Project Engineer
DATE: _____ DATE: _____

DRAINAGE INFORMATION SHEET

J10/016

PROJECT TITLE: Sandalwood Subdivision ZONE ATLAS/DRNG. FILE #: J-99-110

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: Tracts 238 & 239, Unit 8, Town of Atascocita Grant

CITY ADDRESS: _____

ENGINEERING FIRM: Hewitt Engineering & Environmental Consultants CONTACT: James HewittADDRESS: 5615 Crepps St., NW Albany 87120 PHONE: 899-9586OWNER: Adil Rizvi CONTACT: Adil RizviADDRESS: 7049 Luella Avenue NE Albany PHONE: 857-0467

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: Southwest Surveying Co CONTACT: Frank WilsonADDRESS: 333 Louisa NE 87102 PHONE: 247-4444

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
☒ DRAINAGE PLAN
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☒ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION
☐ OTHER _____

PRE-DESIGN MEETING:

- ☒ YES
☐ NO
☐ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SKETCH PLAT APPROVAL
☒ PRELIMINARY PLAT APPROVAL
☒ S. DEV. PLAN FOR SUB'D. APPROVAL
☒ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☒ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ BUILDING PERMIT APPROVAL
☒ CERTIFICATE OF OCCUPANCY APPROVAL
☒ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ S.A.D. DRAINAGE REPORT
☐ DRAINAGE REQUIREMENTS
☐ SUBDIVISION CERTIFICATION
☐ OTHER Work Order (SPECIFY)

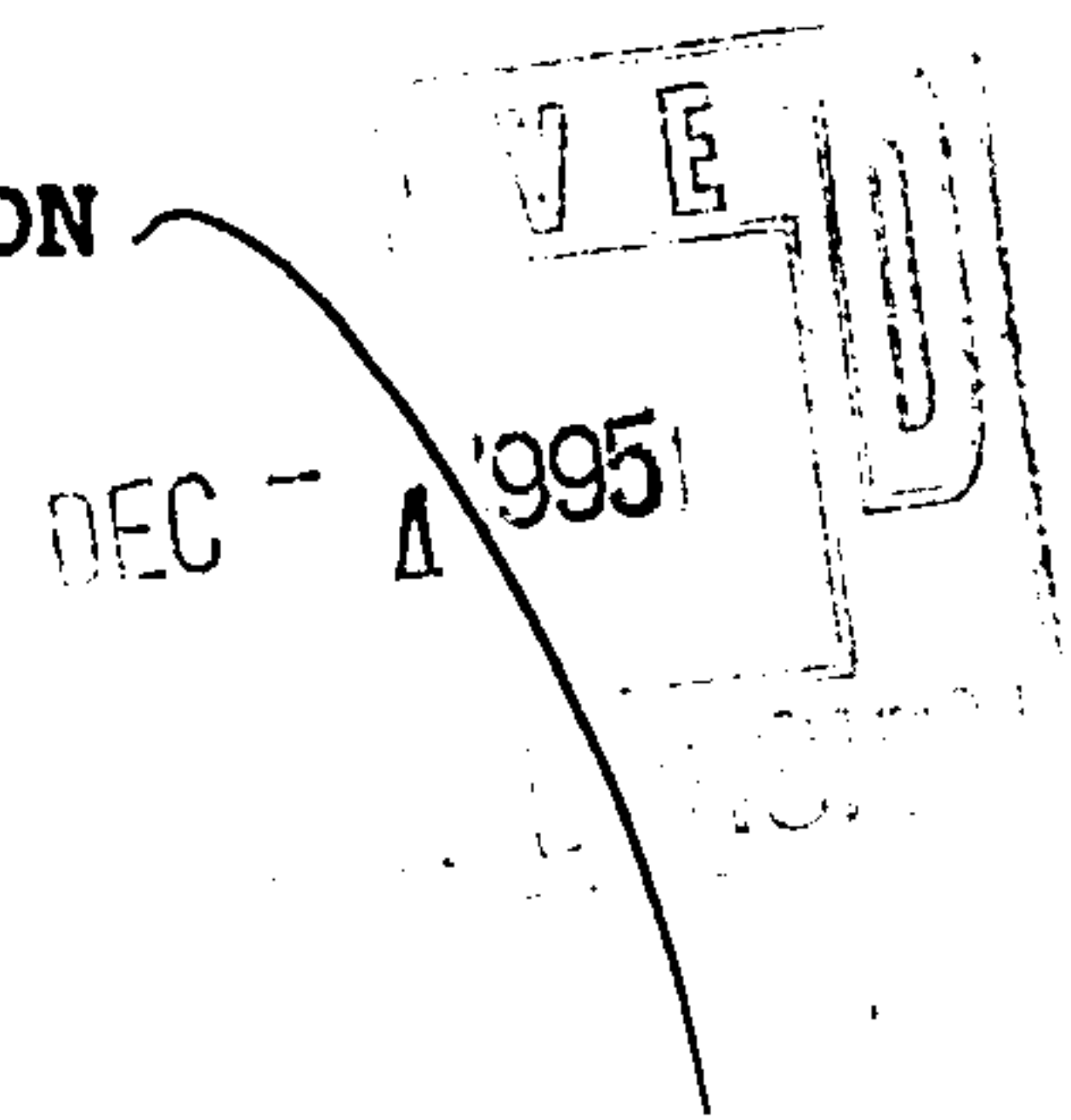
DATE SUBMITTED: 12/04/95BY: JAMES L. HEWITT, JR.

DEC 6 1995
 CHMISC
 ENCLOSURE

**Drainage Report
for
Sandalwood Subdivision**

**Tracts 238 & 239, Unit 8,
Town of Atrisco Grant,
Bernalillo County, New Mexico**

**SUPPLEMENTAL HYDROLOGIC INFORMATION
December 4, 1995**



Prepared for:

**Adil Rizvi
7049 Luella Anne Drive, N.E.
Albuquerque, New Mexico 87112**

Prepared by:

**Hewitt Engineering & Environmental Consultants
5615 Creggs Street, N.W.
Albuquerque, New Mexico 87120**

**TEL. (505) 899-9586
FAX. (505) 899-9586**

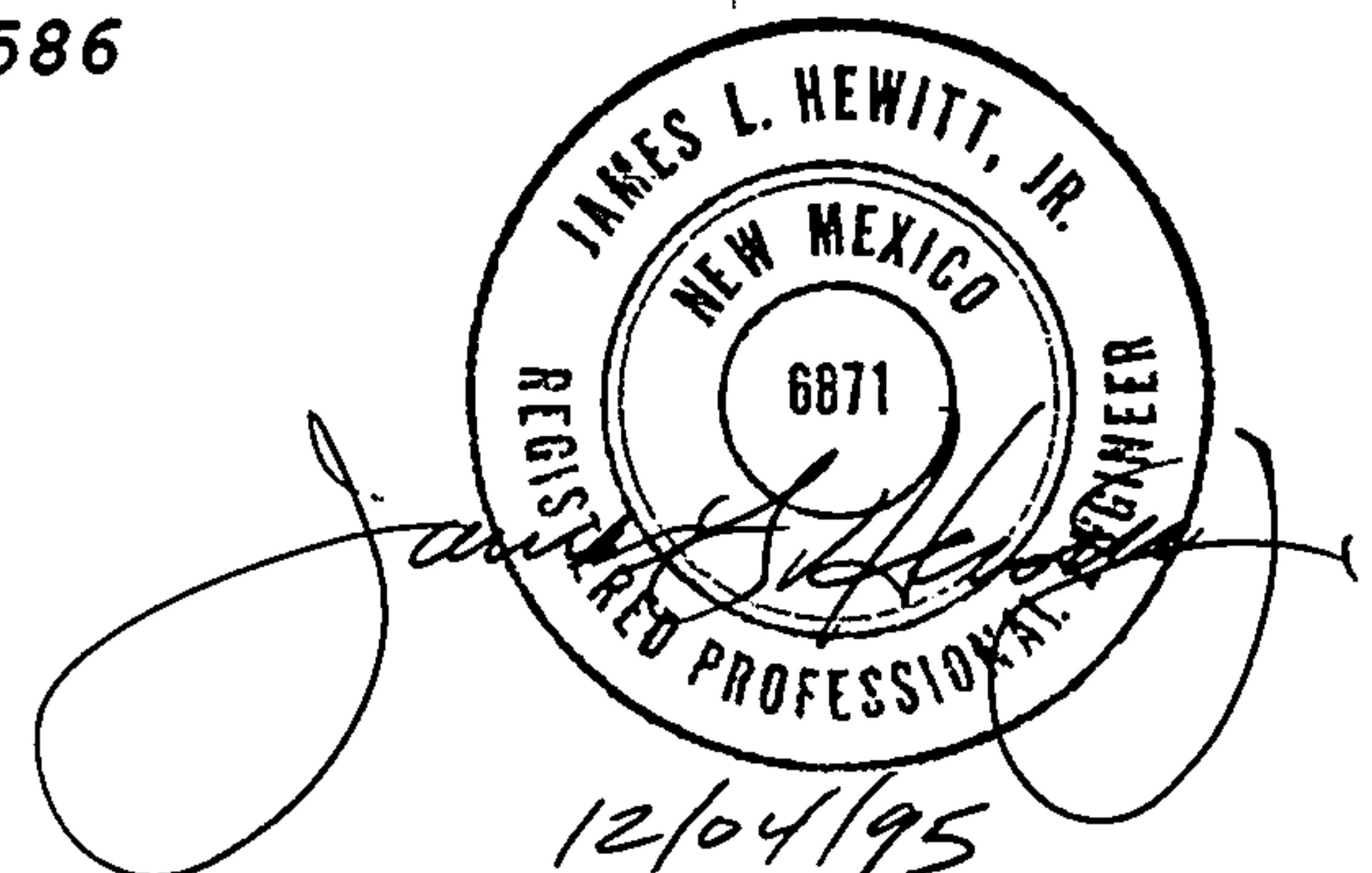
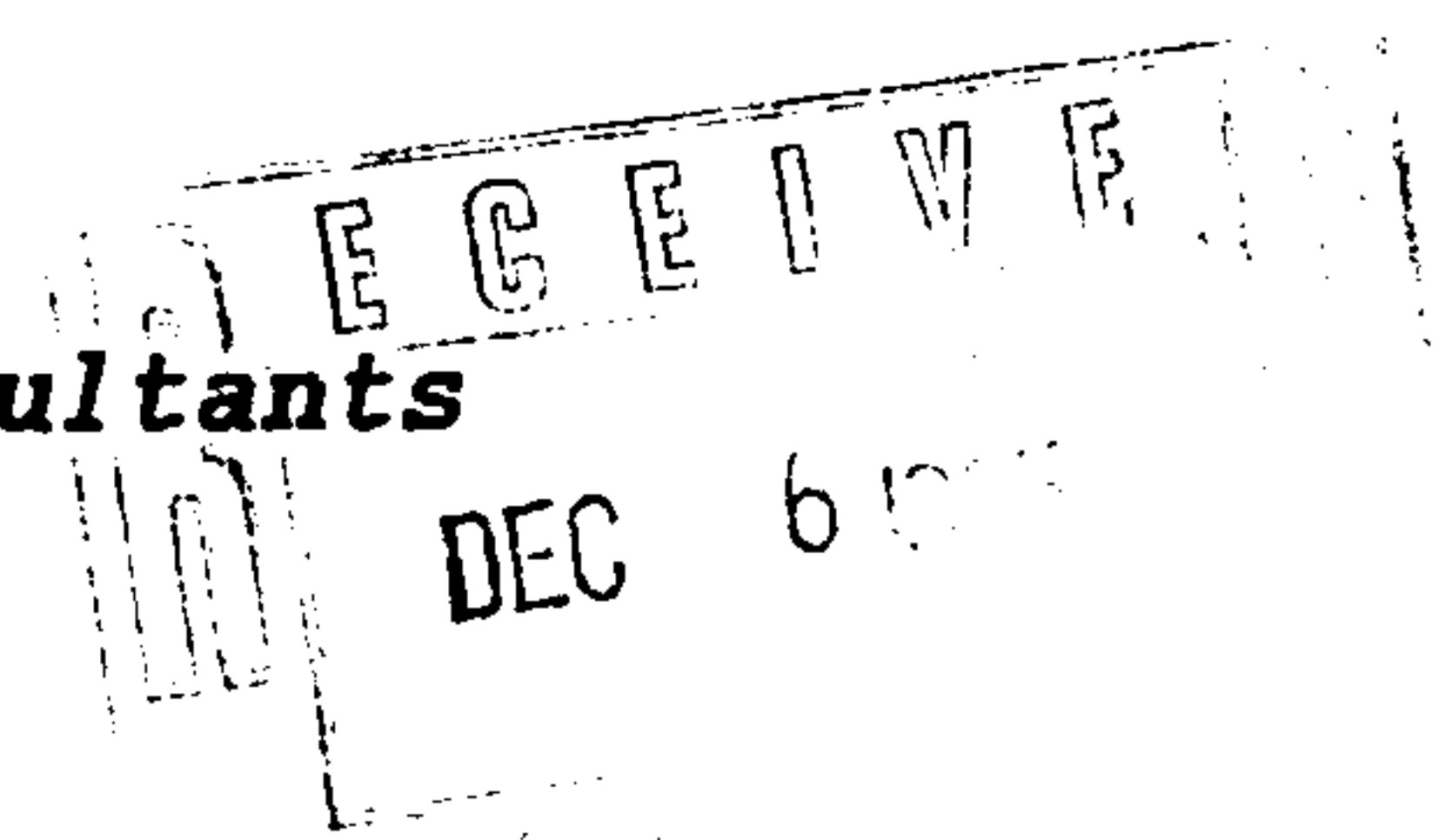


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- B HY12 Analyses - Catch Basin Capacities
- C Miscellaneous Information

Drainage Report for Sandalwood Subdivision
Supplemental Hydrogeologic Information

HEEC

1.0 General Information

1.1 Legal Description:

Tracts 238 and 239, Unit 8, Town of Atrisco Grant, Airport Unit. Filed in Vol. D, Folio 118 on December 5, 1944.

1.2 Engineer:

James L. Hewitt, Jr
NMPE No. 6871
Hewitt Engineering & Environmental Consultants
5615 Creggs Street, N.W.
Albuquerque, New Mexico 87120
(505) 899-9586

1.3 Surveyor:

Franklin E. Wilson
NMLS No. 6446
Southwest Surveying Co., Inc.
333 Lomas Boulevard, N.E.
Albuquerque, New Mexico 87102
(505) 247-4444

1.4 Benchmark:

ACS "I-J9" located at the I-40/Unser Boulevard interchange, approximately 222 feet north of the I-40 centerline.
Elevation 5199.19.

1.5 Temporary Benchmark:

'X' chiseled in the top of the south curb along Hanover Road, N.W. approximately 5 feet north of the northwest corner of Tract 238. Elevation 5161.56.

1.6 Zoning:

RD (15 Dwelling Units/Acre maximum)

Drainage Report for Sandalwood Subdivision
Supplemental Hydrogeologic Information

HEEC

1.7 Proposed Development:

52 Single Family Residential Lots.

1.8 Land Area:

9.04 acres.

1.9 Flood Hazard:

The proposed site (i.e., Tracts 238 and 239) is located within Flood Hazard Zone C (i.e., areas of minimal flooding) designated on the Federal Emergency Management Agency's (FEMA's) Flood Insurance Rate Map (FIRM) Community-Panel No. 350002 0027 C (October 14, 1983).

1.10 Location and Description:

The proposed site is currently undeveloped and undisturbed. Existing ground cover at the site is comprised of sage and native grasses. The proposed site is bounded on the north by Hanover Road, N.W., on the south by the northbound Unser Boulevard off ramp from the I-40/Unser Boulevard, N.W. interchange, on the east by the Chamisa Encantada Subdivision (currently under development), and on the west by an undeveloped tract (i.e., Tract 240). Hanover Road is fully developed. The proposed West Bluff Outfall, Phase II Storm Interceptor (West Bluff Interceptor) to the south of the Sandalwood Subdivision (to be located within the I-40/Unser Boulevard, N.W. interchange right-of-way) is scheduled for construction in 1997.

2.0 Hydrologic Analysis

2.1 Existing Conditions:

Unser Boulevard has altered the historic off site drainage pattern. Off-site storm flow to the west of Tract 240 is intercepted and conveyed southward within the Unser Boulevard right-of-way and is discharged to the I-40/Unser Boulevard interchange right-of-way.

The proposed site intersects two drainage basins. These drainage basins slope from the northwest to the southeast at a gradient of 2 percent. Storm flow from these basins predominantly occurs as sheet flow.

An existing drainage swale diagonally transects (from northwest to southeast) Tracts 238, 239, and 240. This drainage swale is a remnant of the historic drainage pattern to the west of Tract 240. Storm flow from the northernmost drainage basin (5.28 acres, total land area) is intercepted and conveyed to the I-40/Unser Boulevard interchange right-of-way via the drainage swale. The off site storm flow that enters the drainage swale is now limited to that which originates from a 0.29 acre drainage subbasin within Tract 240.

Storm flow from the southernmost drainage basin (5.26 acres, total land area) occurs as sheet flow to the southeast. The southern drainage basin includes a 1.22 acre drainage subbasin within Tract 240. Storm flow from this drainage basins is conveyed and discharged to the I-40/Unser Boulevard interchange right-of-way via sheet flow.

Storm flow within the I-40/Unser Boulevard interchange right-of-way is conveyed southward via a drainage structure beneath the northbound Unser Boulevard off ramp.

Off site storm flow to the north of Tracts 238, 239, and 240 is intercepted and conveyed eastward within Hanover Road and is discharged to the Laurelwood Drainage Management Area at the northwest corner of Hanover Road and 72nd Street.

Drainage Report for Sandalwood Subdivision
Supplemental Hydrogeologic Information

HEEC

2.2 Site Hydrology (Existing Conditions):

The site hydrology calculations presented herein are based on the methods and criteria presented within the City of Albuquerque, Development Process Manual (DPM) - Volume 2, Section 22.2 - Hydrology, January, 1993. The proposed site is within Precipitation Zone 1 (west of the Rio Grande). The P_{360} (100-year 6-hour event) depth is 2.20 inches (Table A-2). The proposed site (i.e., Tracts 238 and 239) and Tract 240 are currently undeveloped and undisturbed (10.55 acres, total land area); hence, Land Treatment A (Table A-2) is applicable for these conditions. The Excess Precipitation, E from the 100-year 6-hour event (for Precipitation Zone 1, Land Treatment A) is 0.44 in (Table A-8). The Peak Discharge, Q_p from the 100-year 6-hour event (for Precipitation Zone 1, Land Treatment A) is 1.29 ft³/sec-acre (Table A-9). The total runoff volume and peak discharge from the undeveloped site and adjacent Tract 240 are calculated as follows:

Total Volume of Runoff

$$\begin{aligned} V_{360} &= 0.44 \text{ in} \times 10.55 \text{ acres} \times 1 \text{ ft}/12 \text{ in} \\ &= 0.39 \text{ acre-ft} \times 43,560 \text{ ft}^2/\text{acre} \\ &= 16,850.5 \text{ ft}^3 \end{aligned}$$

Peak Discharge

$$\text{Total } Q_p = 1.29 \text{ ft}^3/\text{sec-acre} \times 10.55 \text{ acres} = 13.6 \text{ ft}^3/\text{sec}$$

2.3 Proposed Improvements:

Storm flow from each subdivision lot will be intercepted and conveyed as street flow to Alwood Drive, N.W. Rear yard ponding will be provided for Lots 1 - 4 and 33 - 50. Street flow will be intercepted and conveyed to an interim storm water retention pond via catch-basins and a storm drain located in and near the terminus of Alwood Drive (at the southeast corner of the subdivision). Excess storm flow from the interim retention pond will be discharged to the I-40/Unser Boulevard interchange right-of-way via an at grade, emergency spillway.

Drainage Report for Sandalwood Subdivision
Supplemental Hydrogeologic Information

HEEC

Upon completion of the West Bluff Interceptor, the storm drain outfall and the retention pond will be eliminated and the storm drain will be connected to the West Bluff Interceptor.

AMAFCA Schedule to the Subdivision Build out schedule

Storm flow from the 0.29 acre off site drainage subbasin (within Tract 240) will be intercepted and conveyed to the I-40/Unser Boulevard interchange right-of-way via a drainage swale. Storm flow from the 1.22 acre off site drainage subbasin (within Tract 240) is conveyed and discharged to the I-40/Unser Boulevard interchange right-of-way via sheet flow.

*off-site
BWSM MAP*

2.4 Site Hydrology (Proposed Improvements):

The completed 52 lot subdivision will have seven on site drainage subbasins. Rear yard ponding will be provided for Lots 1 - 4 and 33 - 50 (i.e., total land area = 1.03 acres). On site street flow will be intercepted and conveyed to an interim storm water retention pond (to be located on Sandalwood Subdivision Lots # 31 & 32) via catch-basins and a storm drain in Alwood Drive. The total runoff volume and peak discharge from the developed site are calculated as follows:

*can not take
credit only
for what
falls in the
area*

LAND TREATMENT CLASSIFICATION	LAND AREA (acres)	EXCESS PRECIPITATION in	PEAK DISCHARGE ft ³ /sec
A	0.00	0.44	1.29
B	2.32 *	0.67	2.03
C	1.18	0.99	2.87
D	4.51	1.97	4.37

* Area reduced by rear yard ponding on Lots 1 - 4 and 33 - 50.

Total Volume of Runoff

$$\begin{aligned}\text{Weighted E} &= ((2.32 \times 0.67) + (1.18 \times 0.99) + \\ &\quad (4.51 \times 1.97))/8.01 \\ &= 1.45 \text{ in}\end{aligned}$$

$$\begin{aligned}V_{360} &= 1.45 \text{ in} \times 8.01 \text{ acre} \times 1 \text{ ft}/12 \text{ in} \\ &= 0.97 \text{ acre-ft} \times 43,560 \text{ ft}^2/\text{acre} \\ &= 42,253 \text{ ft}^3\end{aligned}$$

Drainage Report for Sandalwood Subdivision
Supplemental Hydrogeologic Information

HEEC

Peak Discharge

$$\begin{aligned} \text{Total } Q_p &= (2.32 \times 2.03) + (1.18 \times 2.87) + \\ &\quad (4.51 \times 4.37) = 27.80 \text{ ft}^3/\text{sec} \end{aligned}$$

As within the adjacent subdivision (i.e., Chamisa Encantada), excess storm flow from the 100-year 6-hour event will be discharged from the interim retention pond to the I-40/Unser Boulevard interchange right-of-way via an at grade, emergency spillway.

2.5 Site Hydrology (Catch Basin Analyses):

The proposed width of Alwood Drive is 28 feet wide from face of curb to face of curb. City of Albuquerque DPM Plates 22.3, D-1 through D-5 are applicable for determination of the flow carrying capacity of streets ranging from 32 to 70 feet wide. Therefore, the flow carrying capacity of Alwood Drive was derived by an alternate method (i.e., the U.S. Army Corps of Engineers HEC-2 Water Surface Profiles computer model). The output file from this computer model analysis is included in appendix A. The results from this analysis were as follows:

Alwood Drive (north-south)	Q = 27.8 cfs
	S = 0.7441 %
	D = 0.49 ft
	V = 3.5 fps
	Critical Flow

The grating and inlet capacities for the Alwood Drive catch basins were derived with the HYL2 hydraulics microcomputer program. This program automates the design methods described in the U.S. Department of Transportation, Federal Highway Administration, Hydraulic Engineering Circular No. 12 (HEC-12) "Drainage of Highway Pavements." The output file from this computer model analysis is included in appendix B.

Two Type 'A' and two Type 'C' catch basins are proposed for Alwood Drive. Two Type 'A' catch basins will be located on each side and immediately south of the intersection of Alwood Drive and Tafwood Road. Two Type 'C' catch basins will be located at the terminus of Alwood Drive.

Drainage Report for Sandalwood Subdivision
Supplemental Hydrogeologic Information

HEEC

The following catch basin capacities were derived from the HY12 analysis:

Alwood Drive ($s = 0.7441\%$, $D = 0.52$ ft)
 $Q = 8.03$ cfs x 2 Type 'A' catch basins = 16.06 cfs

Alwood Drive terminus ($s = 0.7441\%$, $D = 0.41$ ft)
 $Q = 4.75$ cfs x 2 Type 'C' catch basins = 9.50 cfs

The remaining street flow (i.e., 2.24 cfs) will also be intercepted by the Type 'C' catch basins as it is ponded by the curb and gutter at the terminus of Alwood Drive. The connector pipes between the catch basins and the storm drain manholes will be 18" diameter reinforced concrete pipe (RCP). The storm drain in Alwood Drive will be a 24" diameter RCP. The storm drain outfall to the interim storm water retention pond will be a 30" diameter RCP.

Upon completion of the West Bluff Interceptor, the storm drain outfall and the retention pond will be eliminated and the 30 " diameter storm drain will be extended and connected to the West Bluff Interceptor.

Drainage Report for Sandalwood Subdivision
Supplemental Hydrogeologic Information

HEEC

3.0 References

City of Albuquerque, Development Process Manual - Volume 2,
Section 22.2 - Hydrology, January, 1993.

City of Albuquerque, Standard Specifications for Public Works
Construction, June 1, 1995.

Richards, Dennis L., Simons, Li & Associates, July 1988,
Hydraulics Microcomputer Program HYL2 - Drainage of
Highway Pavements.

U.S. Army Corps of Engineers, Hydrologic Engineering Center,
1990, HEC-2 Water Surface Profiles.

U.S. Department of Transportation, Federal Highway
Administration, 1984, Hydraulic Engineering Circular
(HEC) No. 12 - Drainage of Highway Pavements.

/SNDLWD03.DOC

Appendix A

HEC-2 Analysis
Street Flow Carrying Capacity

* HEC-2 WATER SURFACE PROFILES *
* *
* Version 4.6.2; May 1991 *
* *
* RUN DATE 04DEC95 TIME 11:43:02 *

* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET, SUITE D *
* DAVIS, CALIFORNIA 95616-4687 *
* (916) 756-1104 *

X	X	XXXXXXX	XXXXX		XXXXX
X	X	X	X	X	X
X	X	X	X		X
XXXXXXXX	XXXX	X		XXXXX	XXXXX
X	X	X	X		X
X	X	X	X	X	X
X	X	XXXXXXX	XXXXX		XXXXXXX

THIS RUN EXECUTED 04DEC95 11:43:02

HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

T1 SANDALWOOD SUBDIVISION - STREET FLOW ANALYSIS
 T2 SUPERCRITICAL FLOW - ALWOOD DRIVE, N.W.
 T3 FILE NAME - RIZVIO12.DAT

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
----	--------	-----	------	------	------	--------	-------	---	------	----

				1	-1.		0.2	27.8	5162.	
--	--	--	--	---	-----	--	-----	------	-------	--

J2	NPROF	IPLLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
----	-------	--------	-------	-------	-------	----	-------	-----	-------	--------

			0	0	0		-1.			
--	--	--	---	---	---	--	-----	--	--	--

NC	0.013	0.013	0.017	0.1	0.3					
X1	216.	8.9	8.9	37.	25.	25.	25.			5061.74
X3	10.									
GR	100.49	0.	100.30	8.9	99.64	9.	99.76	11.	100.	23.
GR	99.76	35.	99.64	37.	100.30	37.1	100.49	46.		
X1	184.5	8.9	8.9	37.						5061.51
X3	10.									
GR	100.49	0.	100.30	8.9	99.64	9.	99.76	11.	100.	23.
GR	99.76	35.	99.64	37.	100.30	37.1	100.49	46.		

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300

*SECNO 216.000

3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 5162.04 ELREA= 5161.38

216.000	.53	5161.91	5161.91	5162.00	5162.06	.16	.00	.00	5162.04
27.8	.0	27.8	.0	.0	8.8	.0	.0	.0	5161.38
.00	.00	3.17	.09	.000	.017	.013	.000	5161.38	8.92
.006319	0.	0.	0.	0	11	0	.00	28.16	37.08

*SECNO 184.500

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 5161.81 ELREA= 5161.15

184.500	.49	5161.64	5161.67	.00	5161.85	.22	.20	.01	5161.81
27.8	.0	27.8	.0	.0	7.5	.0	.0	.0	5161.15
.00	.00	3.72	.12	.000	.017	.013	.000	5161.15	8.93
.010834	25.	25.	25.	3	5	0	.00	28.15	37.07

THIS RUN EXECUTED 04DEC95 11:43:02

HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

E NAME - RIZVI012.DAT

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CHSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	216.000	.00	.00	.00	5161.38	27.80	5161.91	5161.91	5162.06	63.19	3.17	8.80	3.50
	184.500	25.00	.00	.00	5161.15	27.80	5161.64	5161.67	5161.85	108.34	3.72	7.48	2.67

E NAME - RIZVI012.DAT

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	216.000	27.80	5161.91	.00	.00	-.09	28.16	.00
	184.500	27.80	5161.64	.00	-.27	.00	28.15	25.00

04DEC95

11:43:02

PAGE 5

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 216.000 PROFILE= 1 CRITICAL DEPTH ASSUMED

Appendix B

HY12 Analyses Catch Basin Capacities

 ***** ROADWAY DRAINAGE DESIGN *****

DESIGNER: J. Hewitt

DATE: 11-29-1995

PROJECT: Sandalwood Subdivision

PROJECT NO.: 95-008

INLET NO.: 1

STATION: 1+84.5

DRAINAGE AREA: 8.0 Acres

DESIGN FREQUENCY: 100Years

ROADWAY & DISCHARGE DATA

Cross-Slope	S (ft/ft)	Sx (ft/ft)	n	Q (cfs)	T (ft)
-----	-----	-----	-----	-----	-----
Composite	0.007	0.020	0.016	13.91	19.91

GUTTER FLOW

W (ft)	Sw (ft/ft)	a (in)	Eo	d (ft)	V (fps)
-----	-----	-----	-----	-----	-----
2.08	0.080	1.50	0.297	0.52	3.40

INLET INTERCEPTION

Inlet Type	LT or W (ft)	L (ft)	E	Qi (cfs)	Qb (cfs)
-----	-----	-----	-----	-----	-----
Curb-Opening	35.54	7.50	0.200	2.79	11.12
P-1-7/8	2.08	3.33	0.470	5.26	5.88
Combination			0.577	8.03	5.88

 ***** ROADWAY DRAINAGE DESIGN *****

DESIGNER: J. Hewitt

DATE: 11-29-1995

PROJECT: Sandalwood Subdivision

PROJECT NO.: 95-008

INLET NO.: 2

STATION: 1+84.5

DRAINAGE AREA: 8.0 Acres

DESIGN FREQUENCY: 100Years

ROADWAY & DISCHARGE DATA

Cross-Slope	S (ft/ft)	Sx (ft/ft)	n	Q (cfs)	T (ft)
-----	-----	-----	-----	-----	-----
Composite	0.007	0.020	0.016	13.91	19.91

GUTTER FLOW

W (ft)	Sw (ft/ft)	a (in)	Eo	d (ft)	V (fps)
-----	-----	-----	-----	-----	-----
2.08	0.080	1.50	0.297	0.52	3.40

INLET INTERCEPTION

Inlet Type	LT or W (ft)	L (ft)	E	Qi (cfs)	Qb (cfs)
-----	-----	-----	-----	-----	-----
Curb-Opening	35.54	7.50	0.200	2.79	11.12
P-1-7/8	2.08	3.33	0.470	5.26	5.88
Combination			0.577	8.03	5.88

 ***** ROADWAY DRAINAGE DESIGN *****

DESIGNER: J. Hewitt

DATE: 12-04-1995

PROJECT: Sandalwood Subdivision

PROJECT NO.: 95-008

INLET NO.: 3

STATION: 0+73.38

DRAINAGE AREA: 8.0 Acres

DESIGN FREQUENCY: 100Years

ROADWAY & DISCHARGE DATA

Cross-Slope	S (ft/ft)	Sx (ft/ft)	n	Q (cfs)	T (ft)
-----	-----	-----	-----	-----	-----
Composite	0.007	0.020	0.016	5.90	14.07

GUTTER FLOW

W (ft)	Sw (ft/ft)	a (in)	Eo	d (ft)	V (fps)
-----	-----	-----	-----	-----	-----
2.08	0.080	1.50	0.421	0.41	2.80

INLET INTERCEPTION

Inlet Type	LT or W (ft)	L (ft)	E	Qi (cfs)	Qb (cfs)
-----	-----	-----	-----	-----	-----
Curb-Opening	22.25	7.50	0.060	0.39	5.51
P-1-7/8	2.08	6.66	0.790	4.39	1.15
Combination			0.805	4.75	1.15

 ***** ROADWAY DRAINAGE DESIGN *****

DESIGNER: J. Hewitt

DATE: 12-04-1995

PROJECT: Sandalwood Subdivision

PROJECT NO.: 95-008

INLET NO.: 4

STATION: 0+73.38

DRAINAGE AREA: 8.0 Acres

DESIGN FREQUENCY: 100Years

ROADWAY & DISCHARGE DATA

Cross-Slope	S (ft/ft)	Sx (ft/ft)	n	Q (cfs)	T (ft)
-----	-----	-----	-----	-----	-----
Composite	0.007	0.020	0.016	5.90	14.07

GUTTER FLOW

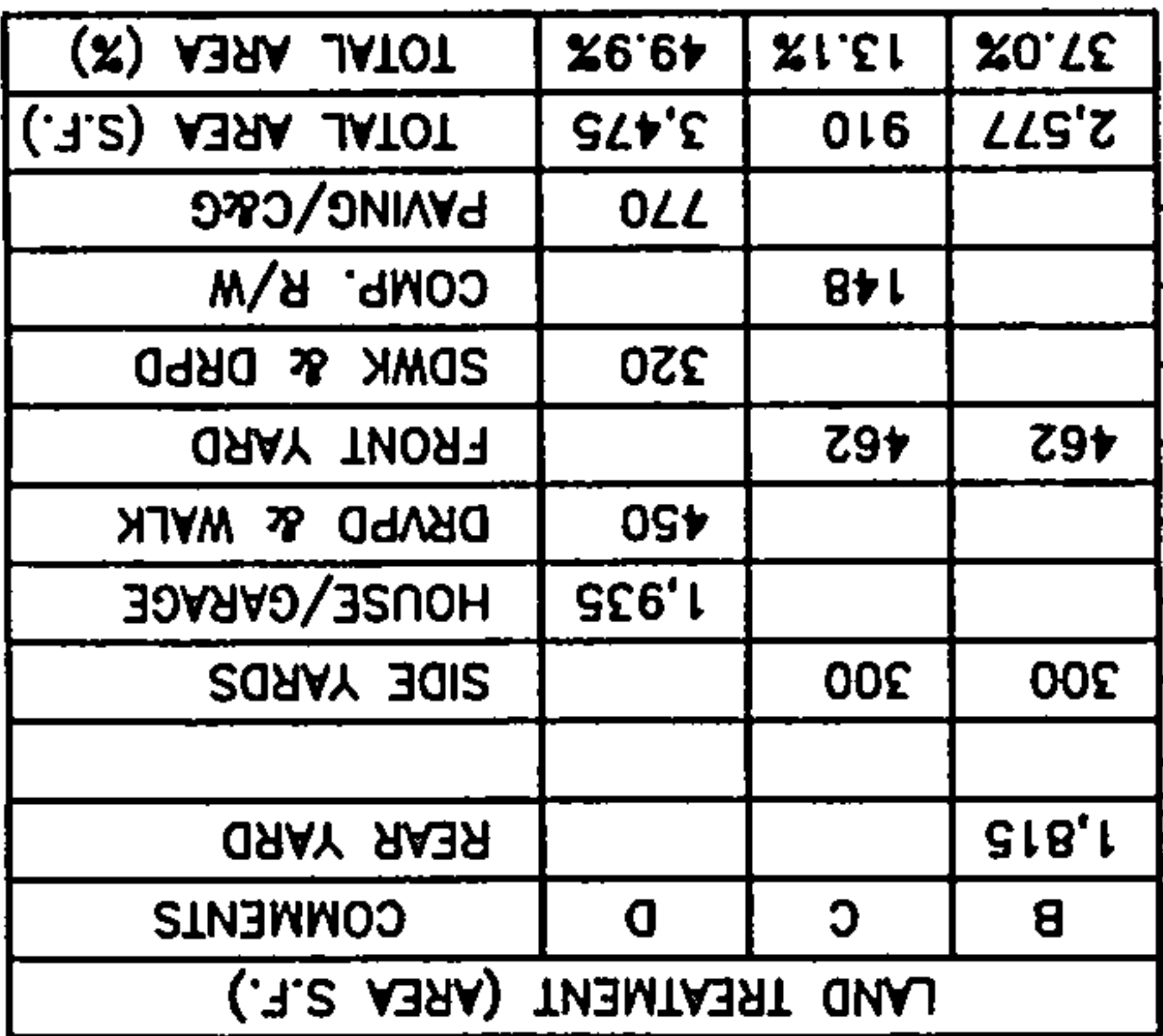
W (ft)	Sw (ft/ft)	a (in)	Eo	d (ft)	V (fps)
-----	-----	-----	-----	-----	-----
2.08	0.080	1.50	0.421	0.41	2.80

INLET INTERCEPTION

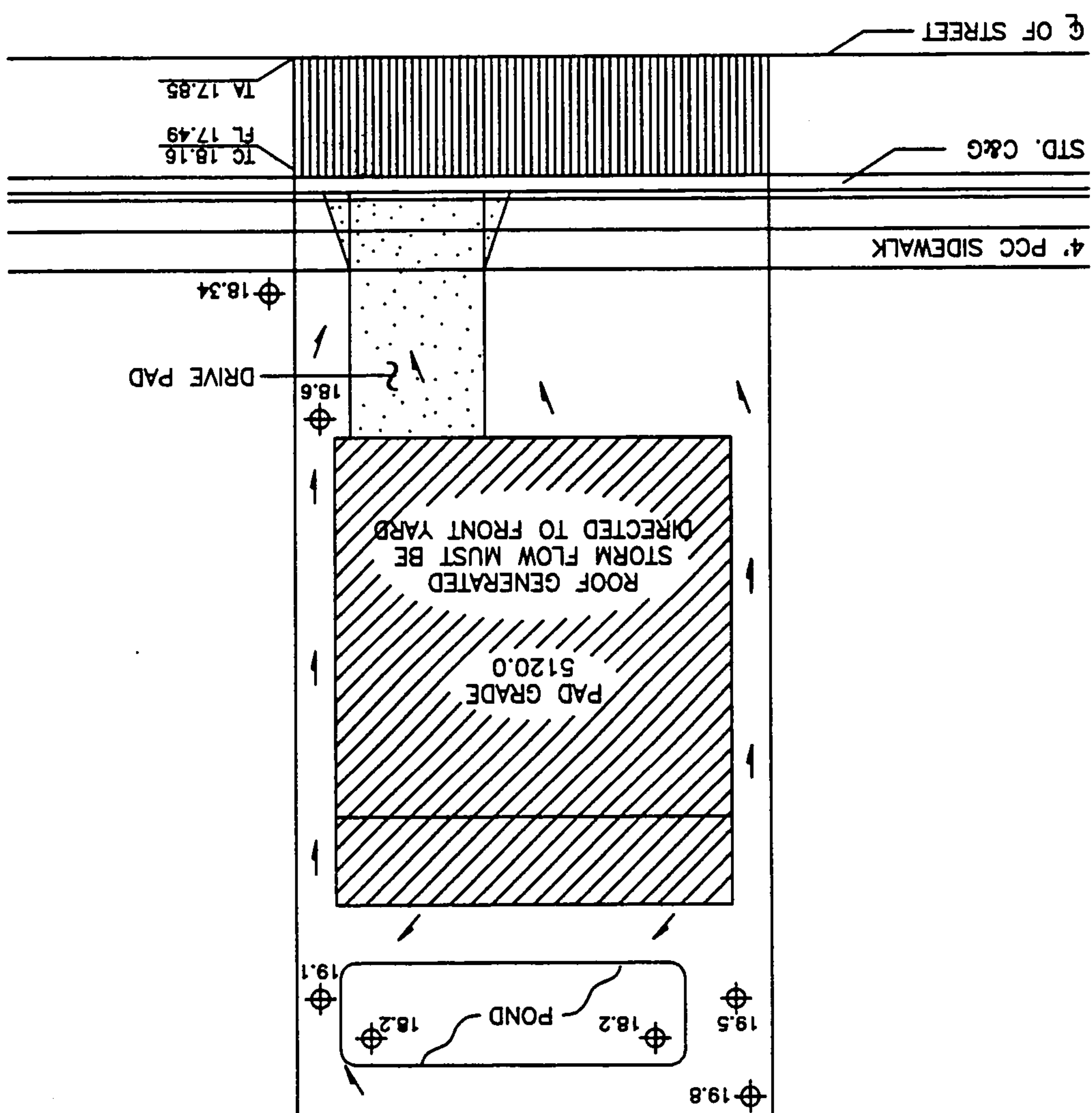
Inlet Type	LT or W (ft)	L (ft)	E	Qi (cfs)	Qb (cfs)
-----	-----	-----	-----	-----	-----
Curb-Opening	22.25	7.50	0.060	0.39	5.51
P-1-7/8	2.08	6.66	0.790	4.39	1.15
Combination			0.805	4.75	1.15

Appendix C
Miscellaneous Information

N.T.S.



N.T.S.





City of Albuquerque

P. O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103
PUBLIC WORKS DEPARTMENT

October 14, 1997

CERTIFICATE OF WORK ORDER COMPLETION

Adil Rizvi
7049 Luella Anne Drive NE
Albuquerque, NM 87109

**RE: SANDALWOOD SUBDIVISION UNIT 1 PROJECT NO. 547081 MAP
NO. J-9**

Dear Sir:

This is to certify that the City of Albuquerque accepts Project No. 547081 as being completed according to approved plans and construction specifications. Please be advised this certificate of completion and acceptance shall only become effective upon final plat approval and filing in the office of the Bernalillo County Clerk's Office.

The project is described as follows:

Alwood St. - Construction of standard curb and gutter, 3" pavement, fillets and valley gutter at Hanover, 8" sanitary sewer with manholes and 4" servicelines, 8" PVC waterline with four 8" gate vales and water services, four catch basins with 18", 24" and 30" RCP storm drain line into the temporary ponds, two storm drain manholes, rip rap in pond.

Hanover - Construction of sidewalk and wheelchair ramps along the south side of the street, waterline tie-in to 12" water from Alwood St.

Lochwood Ct.- Construction of mountable curb and gutter, 3" pavement, 6" waterline with one 6" gate valve and water services, 8" sanitary sewer line with 1 manhole and 4" services, fillets and valley gutter, wheelchair ramps.

Havenwood Rd. and Ct.- Construction of standard curb and gutter Havenwood Road, mountable curb and gutter on Havenwood Ct, 3" pavement, fillets and valley gutters at bothsides of Alwood Drive also on westside of Duskfire Drive, 8" sanitary sewer with services, 6" and 8" waterlines with services, 8" gatevalve, sanitary sewer manholes.

7 Sandalwood Subd
Project No. 547081
May 14, 1997
Page 2

Tafwood Rd - Construction of mountable curb and gutter, valley gutter and fillets, 3" pavement, 8" sanitary sewer with services, 6" waterline, 6" gate valve, water services, sanitary sewer manholes.

Richwood Road - Construction of mountable curb and gutter, fillets and valley gutter, 8" sanitary sewer with manholes and services, 6" waterline with 6" gate valve and services, 3" pavement.

The contractor's correction period began the date of this letter and is effective for a period of one (1) year.

Sincerely,



Russell B. Givler, P.E.
Chief Construction Engineer,
Engineering Group
Public Works Department

c: Hewitt Engineering
Sundance Mechanical
Fred Aguirre, Engineering Group, PWD
Tina Pohl, Engineering Group, PWD
Terri Martin, Engineering Group, PWD
Martin Barker, Engineering Group, PWD
Linda Adamsko, Special Assessments, DFM
Sam Hall, Operations Group, PWD
Jim Fink, Operations Group, PWD
Dean Wall, Engineering Group, PWD
Jack McDonough, Water/Wastewater Group, PWD
Ray Chavez, Traffic Engineering, PWD
Josie Jaramillo, New Meter Sales, Finance Group, PWD
Richard Zamora, Engineering Group, PWD
f/Project No.547081
f/Readers
f/Warranty:Contract