

CITY OF ALBUQUERQUE



February 08, 2016

David Thompson, P.E.
Thompson Engineering
P.O. Box 65760
Albuquerque, New Mexico 87193

RE: VIA SENDEROS SUBDIVISION (G10D007A)
Tract F, College Park West
Grading Certification, Engineer's Stamp Date 2/2/2016

Dear Mr. Thompson:

PO Box 1293

Albuquerque

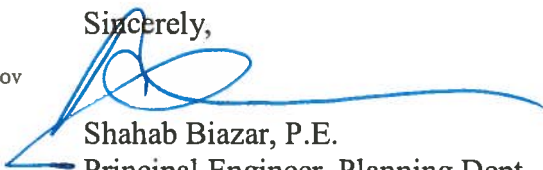
New Mexico 87103

Based upon the information provided in your submittal received on 2/3/2016, the Grading Certification is approved for Building Permit and Release of Financial Guarantee. Please include a copy of this letter with your work order closeout package to DRC for final acceptance of infrastructure.

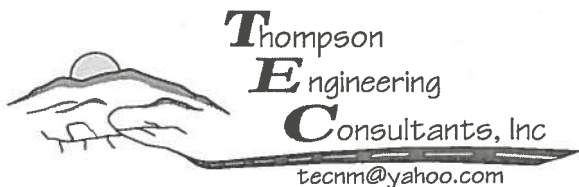
If you have any questions, you can contact me at 924-3999.

www.cabq.gov

Sincerely,


Shahab Biazar, P.E.
Principal Engineer, Planning Dept.
Development Review Services

C: File
E-mail



Thompson
Engineering
Consultants, Inc
tecnm@yahoo.com

PHONE (505) 271-2199 ♦ FAX: (505) ~~237-8422~~

~~4800 JUAN TABONE, SUITE C~~ ♦ ALBUQUERQUE, NEW MEXICO 87111

LETTER OF TRANSMITTAL

DATE <u>2-3-16</u>	JOB NO.
PROJECT: <u>Villa Sanderos</u>	
ATTENTION	
RE:	

TO Shahab Biazar
COA

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

- | | | | | |
|---------------------------------|---------------------------------|--------------------------------|----------------------------------|---|
| ☐ Report | ☐ Prints | ☐ Plans | ☐ Invoice | ☐ Specifications |
| ☐ Letter | ☐ Mylars | ☐ _____ | | |

COPIES	DATE	NO.	DESCRIPTION
1			Revised Grading Certification

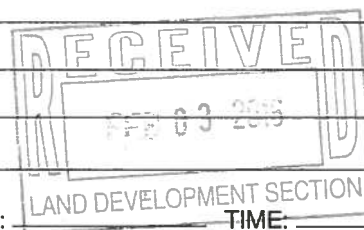
THESE ARE TRANSMITTED as checked below

- | | |
|--|---|
| ☒ For approval | ☐ Approved as submitted |
| ☐ For your use | ☐ Approved as noted |
| ☐ As requested | ☐ Returned for corrections |
| ☐ For review and comment | ☐ _____ |

REMARKS _____

COPY TO _____ SIGNED: _____

RECEIVED BY: _____ DATE: _____ TIME: _____



DRAINAGE INFORMATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: VIA SENDEROS SUBDIVISION

ZONE MAP/DRG. FILE #: G-10 - D007A

DRB #: 1001970 EPC #: _____

WORK ORDER#: _____

LEGAL DESCRIPTION: TRACT F, COLLEGE PARK WEST

CITY ADDRESS: _____

ENGINEERING FIRM: Thompson Engineering Consultants, Inc.

ADDRESS: P.O. Box 65760

CITY, STATE: Albuquerque, NM

CONTACT: David Thompson

PHONE: 271-2199

ZIP CODE: 87193

OWNER: Virgil Gil Development

ADDRESS: 6506 Calle Redonda NW

CITY, STATE: Albuquerque, NM

CONTACT: Virgil Gil

PHONE: 792-4742

ZIP CODE: 87120

ARCHITECT: _____

ADDRESS: _____

CITY, STATE: _____

CONTACT: _____

PHONE: _____

ZIP CODE: _____

SURVEYOR: Cartesian Surveys, Inc.

ADDRESS: P.O. Box 44414

CITY, STATE: Rio Rancho, NM

CONTACT: Will Plotner

PHONE: 896-3050

ZIP CODE: 87124

CONTRACTOR: _____

ADDRESS: _____

CITY, STATE: _____

CONTACT: _____

PHONE: _____

ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL, REQUIRES TCL or equal
- ☐ DRAINAGE PLAN RESUBMITTAL
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☒ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ENGINEER'S CERTIFICATION (TCL)
- ☐ ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN)
- ☐ OTHER

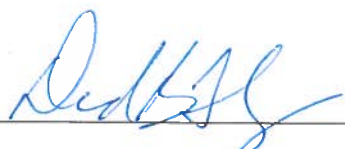
CHECK TYPE OF APPROVAL SOUGHT:

- ☒ SIA/FINANCIAL GUARANTEE RELEASE
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ☐ 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
- ☒ GRADING/PAD CERTIFICATION
- ☐ WORK ORDER APPROVAL
- ☐ OTHER - (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

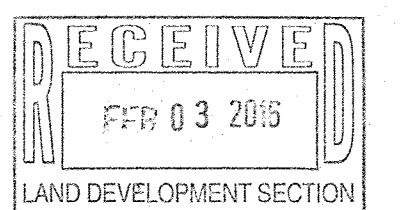
- ☐ YES
- ☒ NO
- ☐ COPY PROVIDED

DATE SUBMITTED: February 3, 2016

BY: 

Requests for approvals of Site Development Plans and/or Subdivision Plats 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)
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DRAINAGE INFORMATION SHEET

(REV. 1/28/2003rd)

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DRB #: 1001970

EPC #:

WORK ORDER#:

LEGAL DESCRIPTION: TRACT F, COLLEGE PARK WEST

CITY ADDRESS:

ENGINEERING FIRM: Thompson Engineering Consultants, Inc.

ADDRESS: P.O. Box 65760

CITY, STATE: Albuquerque, NM

CONTACT: David Thompson

PHONE: 271-2199

ZIP CODE: 87193

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- ☐ ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN)
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- ☐ WORK ORDER APPROVAL
- ☐ OTHER - (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

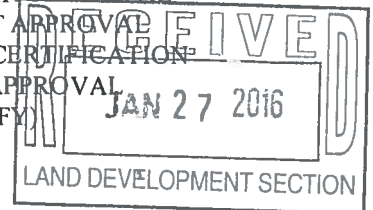
- ☐ YES
- ☒ NO
- ☐ COPY PROVIDED

DATE SUBMITTED: January 27, 2016

BY: 

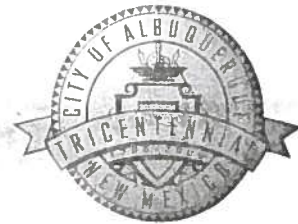
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CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development & Building Services



July ^H, 2008

David Thompson, P.E.
Thompson Engineering
P.O. Box 65760
Albuquerque, New Mexico 87193

RE: **VIA SENDEROS SUBDIVISION** – College Park West, Tract F (G10 – D 007 A)
Drainage Plan for Building Permit (PE Stamped 05-29-08)

Dear Mr. Thompson:

Based upon the information provided in your submittal received on 6-05-2008, the above referenced plan cannot be approved for Preliminary Plat or Grading Permit until the following comments are addressed:

- Take w/ Dave 2-9-09, ok to drain all out to St. Josephs because a majority of tract E will go to the channel*
1. The Drainage Report indicates no offsite flows reach the site, however contours on the grading plan show at least some of Tract E draining into Tract F from the west. Quantify these flows and address handling them with development of Tract F.
 2. The Master Drainage Plan prepared by Espey-Huston & Assoc. for College Park West also proposed surface discharge of Tract F to St. Josephs Ave., but at a developed rate of 6.03 cfs, Q_{100-6 Hr.} Your proposed rate of 8.82 cfs must be reduced to the 6.03 cfs rate, **-OR-** you must provide analysis to show that surface flow capacity exists downstream through the rundown on 67th Street, to convey this increased rate.
 3. Clarify the intent for the "Undeveloped" Parcel, Lot A. Will it be graded? Provide stabilization to keep sediment from entering the public R/W on Tallado Court.
 4. Provide a typical street cross section for Tallado Court and/or contours on Lot A to clearly show and ensure the erosion control requested in item 3, above.
 5. In the typical Lot Grading Plan, where is dimension "D1" and should the last note end with a reference to "SPOT ⑥" ?
 6. Since the site is 2.7 acres, remember that a SWPPP will be required.

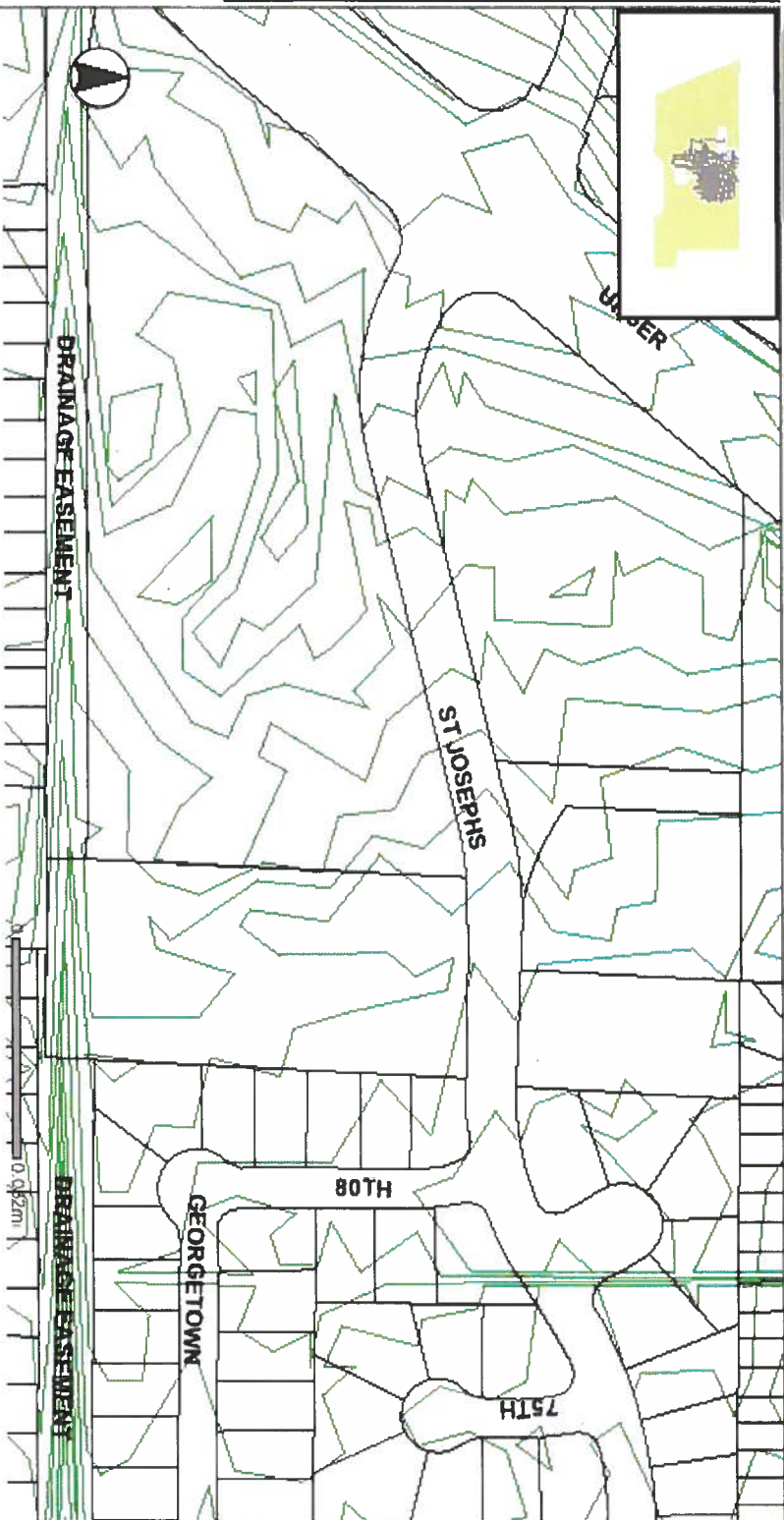
If you have any questions or would like to schedule a meeting to discuss this, you may contact me at 924-3981.

Sincerely,

Greg Olson 7/11/08

Gregory R. Olson, P.E.
Hydrology Section

XC: Bradley Bingham, COA-PLN/Hydrology
file G10 – D 007 A



PARCELS

Rec NUMBER	NAME	DESIGNATION	QUADRANT	LOT	BLOCK	SUBDIVISION
1	99999	ST JOSEPHS AV	NW	E1	10000	COLLEGE PARK WEST

LAYERS

- ☒ BASEMAP
- ☒ PARCELS
- ☐ METRO ADDRESS
- ☐ ZONING
- ☐ OWNERSHIP
- ☐ 10FT CONTOURS
- ☐ CONTOURS
- ☐ MAJOR STREETS
- ☐ FREeways
- ☐ STREET NETWORK
- ☐ STREET NAMES
- ☐ INFRASTRUCTURE
- ☐ BOUNDARIES
- ☐ SITES
- ☐ DRC
- ☐ APS
- ☐ STREETS
- ☐ TRAFFIC ENG.
- ☐ TRANSIT
- ☐ AIR PHOTO
- ☐ 2006 AIR PHOTO
- ☐ 2004 AIR PHOTO
- ☐ 2002 AIR PHOTO
- ☐ 1999 AIR PHOTO

Refresh Map

☒ Auto Refresh

Help:

- Closed group, click to open.
- Open group, click to close.
- Map layer.
- Hidden group/layer, click for visible.
- Visible group/layer, click to hide.
- Layer not visible at this scale.
- Partially visible group, click for visible.
- Inactive layer, click for active.
- The active layer.

9

UNITED STATES & ASSOCIATED CO. 1000 10th Ave. New York, N.Y. 10018
 Order No. 1000

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 1000 = 1000

en

ESPEY, HURSTON & ASSOCIATES INC.

Engineering & Construction Division

Cuttings Rate Sheet

Designation of Work

Sheet No.

Project No.

Table Conditions - Tables List of items (continued)

→ Det. Q, etc. - for each Table

<u>Item No.</u>	<u>Description</u>	<u>Quantity</u>	<u>Unit</u>
(4.17)	72 D - 8000 SWS, for use of 1000	100%	0.00
(8.00)	72 E - " " , Manual Labor for use of 1000	100%	0.00
(12.0)	72 F - E-67, residential use	100%	0.00
(2.57)	Full Equipment of 72 D / 72 E (1000)	0%	0.00

X use 1000 - External Storage (1000000)

Table (Type 2' 5000)

TC = 10 min.

$i_{100} = 100 \text{ in/hr.}$ (see page 100) $i_{10} = 100 \text{ in/hr.}$

$$Q_{100} = C \cdot i$$

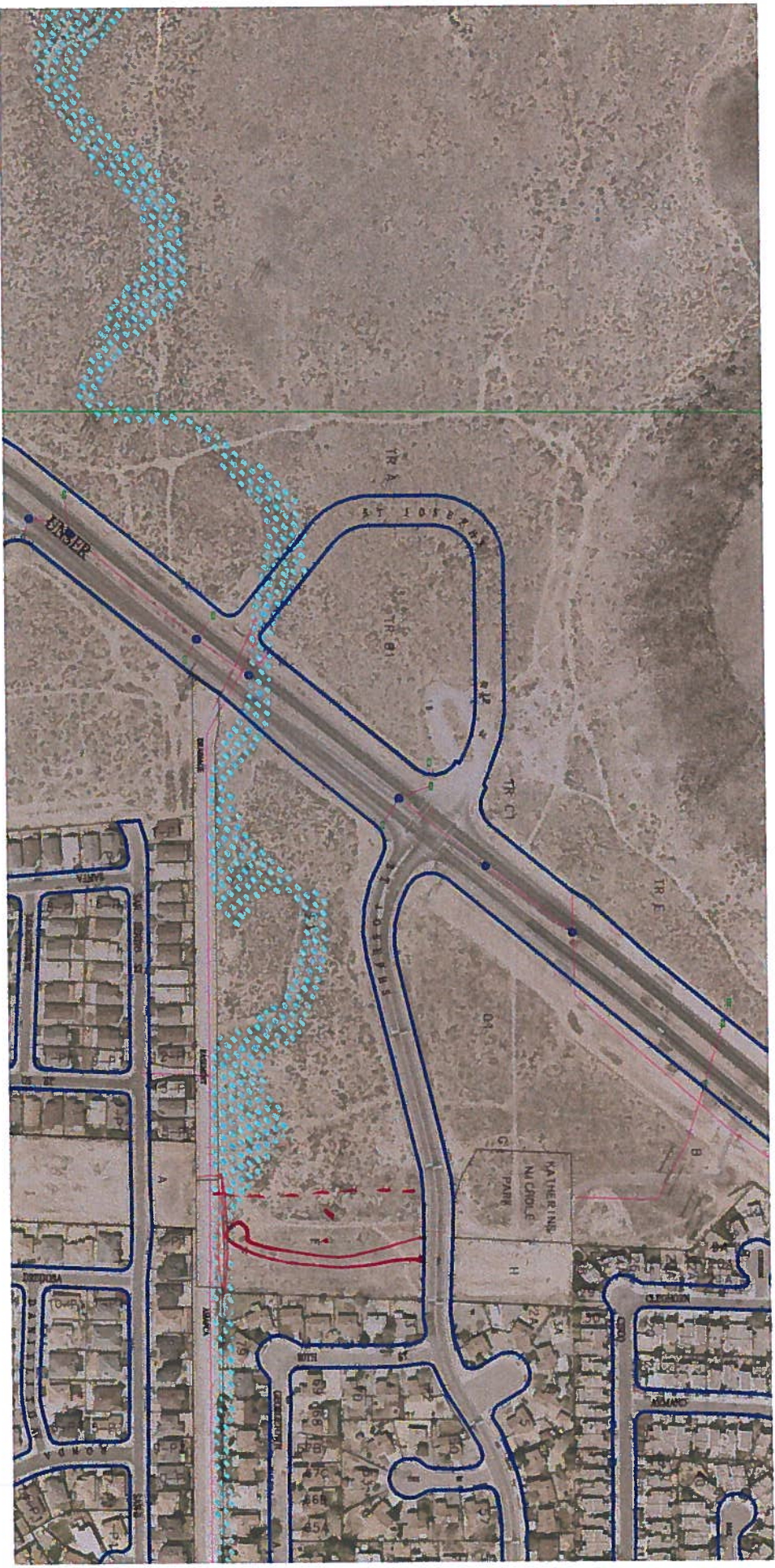
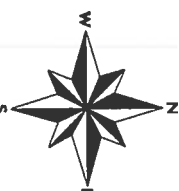
$$= 0.001 (100) (100)$$

$$Q_{100} = 10.00 \text{ cfs} \quad \Rightarrow \quad Q_{10} = 10.00 \text{ cfs}$$

$$V_{100} = P \cdot C \cdot i$$

$$= 2.2 (100) (100) (100)$$

$$V_{100} = 15,000 \text{ cu ft} \quad \text{if} \quad V_{10} = 15,000 \text{ cu ft}$$



CITY OF ALBUQUERQUE



February 19, 2009

David B. Thompson, P.E.
Thompson Engineering Consultants, Inc.
P.O. Box 65760
Albuquerque, NM 87193

Re: Villa Senderos Subdivision Grading and Drainage Plan
Engineer's Stamp dated 2-11-09 (G10/D007A)

Dear Mr. Thompson,

Based upon the information provided in your submittal received 2-11-09, the above referenced plan is approved for Preliminary Plat action by the DRB. Once that board approves the Grading Plan, please submit a mylar copy for signature in order to obtain a Rough Grading Permit.

PO Box 1293

This project requires a National Pollutant Discharge Elimination System (NPDES) permit.

Albuquerque

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

NM 87103

Sincerely,

Curtis A. Cherne, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

www.cabq.gov

C: file

DRAINAGE INFORMATION SHEET

(REV. 1/28/2003rd)

Lilla
PROJECT TITLE: VIA SENDEROS SUBDIVISION
DRB #: 1001970 EPC #:

ZONE MAP/DRG. FILE #: G-10 - D007A
WORK ORDER#:

LEGAL DESCRIPTION: TRACT F, COLLEGE PARK WEST
CITY ADDRESS:

ENGINEERING FIRM: Thompson Engineering Consultants, Inc.
ADDRESS: P.O. Box 65760
CITY, STATE: Albuquerque, NM

CONTACT: David Thompson
PHONE: 271-2199
ZIP CODE: 87193

OWNER: Virgil Gil Development
ADDRESS: 6506 Calle Redonda NW
CITY, STATE: Albuquerque, NM

CONTACT: Virgil Gil
PHONE: 792-4742
ZIP CODE: 87120

ARCHITECT:

ADDRESS:
CITY, STATE:

CONTACT:
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ZIP CODE:

SURVEYOR: Cartesian Surveys, Inc.
ADDRESS: P.O. Box 44414
CITY, STATE: Rio Rancho, NM

CONTACT: Will Plotner
PHONE: 896-3050
ZIP CODE: 87124

CONTRACTOR:

ADDRESS:
CITY, STATE:

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ZIP CODE:

CHECK TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
☐ DRAINAGE PLAN 1st SUBMITTAL, REQUIRES TCL or equal
☒ DRAINAGE PLAN RESUBMITTAL
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION (HYDROLOGY)
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ ENGINEER'S CERTIFICATION(TCL)
☐ ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN)
☐ OTHER

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☐ 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: February 11, 2009

BY: 

Requests for approvals of Site Development Plans and/or Subdivision Plats 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:

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3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or

February 11, 2009

Mr. Gregory Olson, P.E.
Mr. Curtis Cherne
Hydrology Section
Planning Department
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

**Re: RESPONSE TO COMMENTS FOR VILLA SENDEROS SUBDIVISION
(G-10 – D007A)**

Dear Mr. Olson and/or Mr. Cherne:

Enclosed is the revised Grading and Drainage Report for the Villa Senderos Subdivision. The following are responses to comments from Mr. Olson's letter dated July 11, 2008.

1. The revised drainage report identifies a small offsite basin that drains onto Tract F from Tract E. The offsite flows will be retained in a temporary retention pond until Tract E is developed in the near future.
2. The peak discharge from Villa Senderos to St. Joseph's Avenue has been reduced to 7.40 CFS, which is still greater than the 6.03 CFS discharge allowed in the College Park West Master Drainage Plan. The difference will be made up when Tract E is developed by the same owner and developer. A portion of Tract E that currently drains to St. Joseph's Avenue will be directed to the Rinconada Channel. A minimum of the 1.37 CFS peak flow from Tract E will be drain south to the Rinconada Channel.
3. the north portion of Tract A will be graded to temporarily retain onsite and offsite runoff. The southern portion of Tract A will have one-foot high earthen berms to provide protection to Tallado Court and to the Rinconada Channel.
4. Contours on Tract A have been provided on the revised grading plan.
5. The typical lot grading plan detail has been revised accordingly.
6. We are aware that a SWPPP will be required for the subdivision.

If you should have any questions about the revised drainage report or these responses, please call me at 271-2199.

Sincerely,



David B. Thompson, P.E.

DRAINAGE REPORT
FOR
VILLA SENDEROS SUBDIVISION

February 2009

DRAINAGE REPORT
FOR
VILLA SENDEROS SUBDIVISION



Prepared by:
Thompson Engineering Consultants, Inc.
P.O. Box 65760
Albuquerque, NM 87193

February 2009

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INTRODUCTION AND SITE LOCATION

The proposed Villa Senderos Subdivision is located on St. Joseph's Avenue NW between Unser Boulevard and Ladera Boulevard. The 2.70 acre property will be subdivided into a total of 11 single family lots and one Tract. This report specifically addresses the grading and drainage plan and analysis for Villa Senderos subdivision.

METHODOLOGY

The hydrologic and hydraulic criteria in Section 22 of the City of Albuquerque Development Process Manual (DPM), entitled "Drainage, Flood Control, and Erosion Control," was followed to perform the analyses given in this report. The design storm used for both the existing undeveloped and developed conditions of the Villa Senderos Subdivision is the 100-year, 6-hour storm event for peak flow computations and the 100-year, 24-hour storm for detention computations. The property is located in Zone 1, which has a 100-year, 6-hour storm event of 2.20 inches and a 100-year, 24-hour storm event of 2.66 inches.

Street capacities were modeled using Haested Flowmaster program to determine normal depths and conjugate depths.

EXISTING DRAINAGE CONDITIONS

INTRODUCTION

The site generally drains both north to St. Joseph's Avenue and south to the Rinconada Channel at an average slope of about 1%. Runoff in St. Joseph's Avenue drains from west to east to 67th Street. At 67th Street runoff is conveyed south to a concrete rundown that drains to the Rinconada Channel and into the Ladera Dam (golf course). The site is sparsely vegetated with native grasses and scrub brush.

The FEMA Flood Insurance Rate Map Number 35001C0113 G, effective date September 26, 2008, shown in Figure 1, indicates the presence of a Zone X flood hazard zone on the site. Zone X is an area in the 500-year flood or areas less than 1 foot deep 100-year flood. The Rinconada Channel south of the subdivision is encumbered with a Flood Hazard Zone A.

OFF-SITE FLOWS

There are offsite flows that drain onto the property from Tract E which is west of Tract F (see Figure 2). Approximately an area of 1.23 acres (Offsite Basin 2) with a peak flow of 1.59 CFS drains to a depressed area on the western portion of the property within the PNM easement. Offsite Basin 1 currently drains north to St. Joseph's Avenue.

ON-SITE FLOWS

For the existing conditions hydrologic analysis land treatment type A is used. The peak flow from the site is 3.48 CFS. Table shows the a summary of the existing conditions hydrology.

Table 1 Existing Drainage Conditions

BASIN	Area (acres)	100yr-6hr Peak Flow (cfs)	100yr- 24hr Runoff Volume (cubic-ft)	Land Treatment
ONSITE BASIN	2.70	3.48	4,312	100% A
OFFSITE BASIN 1	2.13	2.75	3,402	100% A
OFFSITE BASIN 2	1.23	1.59	1,965	100% A

DEVELOPED DRAINAGE CONDITIONS

HYDROLOGIC ANALYSIS

The site was divided into three drainage basins. Basin 1 includes the northwest portion of Tract A within the PNM power line easement. This basin will remain undeveloped in the near future. All offsite flows from the west drain to this basin.

Basin 2 is located at the southwest corner of Tract A. This basin, which will remain undeveloped, drains directly to the Rinconada Channel following existing drainage patterns.

Basin 3 includes the remainder of the property which includes a small portion of Tract A, Tallado Court, and the 11 residential lots. This basin will drain to St. Joseph's Avenue. Runoff in St. Joseph's Avenue drains from west to east to 67th Street. At 67th Street runoff is conveyed south to a concrete rundown that drains to the Rinconada Channel and into the Ladera Dam (golf course).

The site was assigned land treatment values in accordance with Tables A-4 and A-5 of the DPM's section 22.2. Table 2 shows the Land Treatments and peak flows for each basin. See Appendix A for hydrologic calculations.

Table 2 Developed Drainage Conditions

BASIN	Area (acres)	100yr-6hr Peak Flow (cfs)	100yr- 24hr Runoff Volume (cubic-ft)	Land Treatment
BASIN 1	0.35	0.45	559	100% A
BASIN 2	0.10	0.13	160	100% A
BASIN 3	2.25	7.40	12,503	28.1% B, 28.1% C, 43.8% D

DRAINAGE CONCEPT

Introduction

The drainage concept for Basin 1 is to collect the offsite runoff and excavate a temporary retention pond to retain the runoff. Once Tract E is developed, which is owned by the Tract F owner and developer, the offsite runoff from Offsite Basin 2 and from Onsite Basin 1 will drain to Tract E and then into the Rinconada Channel. Of course AMAFCA approval will be obtained when Tract E is developed. Current plans are to start development on Tract E in 2010 once Villa Senderos is completed.

The drainage concept for Basin 2 is to collect the runoff in a temporary retention pond formed by a temporary one-foot high earthen berm located at the south property line. When Tract E is developed runoff from Basin 2 will be discharged onto Tract E and then into the Rinconada Channel.

The drainage concept for Basin 3 includes collecting the runoff in Tallado Court and conveying it in the street section to St. Joseph's Avenue. From St. Joseph's Avenue the runoff will drain to the east where it will eventually discharge to the Rinconada Channel. The total runoff reaching St. Joseph's Avenue from Tallado Court is 7.40 CFS, which is 1.37 CFS higher than the allowable discharge of 6.03 CFS according to the College Park West Master Drainage Plan. Offsite Basin 1 located in Tract E (see Figure 2) currently drains a total of 2.75 CFS under existing conditions to St. Joseph's Avenue. When Tract E is developed in the near future by the same owner and developer, a portion of Offsite Basin 1 will be directed south toward the Rinconada Channel to account for the 1.37 CFS over the allowable flow into St. Joseph's Avenue from Tract F. Therefore, the peak flow draining to St. Joseph's Avenue from Tract E and F will be equal to or less than the peak flow allowed in the College Park West Master Drainage Plan. Also, a small portion of Basin 3 within Tract A will have a temporary one-foot high earthen berm constructed along the Tallado Court right-of-way to protect the road from sediment discharging onto the road.

Street Hydraulic Analysis

A hydraulic analysis of the street flows for Tallado Court was completed to determine normal depth and sequent depth of the flow (see Appendix B). For the onsite basin the sequent depth must remain within the street right-of-way. Therefore, the sequent depth must be equal to or less than 0.53 feet for the streets that have 4" mountable curb. A normal depth analysis using Haested Methods Flowmaster program was completed. Flowmaster automatically calculates the energy grade depth, which is always greater than the sequent depth. Therefore, if the energy grade depth is equal to or less than 0.53 feet for a street section with mountable curb and gutter, then the sequent depth is also less

than 0.53 feet. Mountable curb and gutter will be used in Tallado Court. Table 3 shows the results of the analysis including the energy grade depth.

Table 3 Street Hydraulic Analysis

Street	Width (ft)	Slope (%)	Curb and Gutter Type	Flow (cfs)	Normal Depth (ft)	Energy Grade Depth (ft)
Tallado Court	26	0.50	Mountable	7.40	0.28	0.34

Grading Plan

Plate 1 shows the Mass Grading Plan for the subdivision. The grading plan shows that the subdivision will drain from south to north to St. Joseph's Avenue.

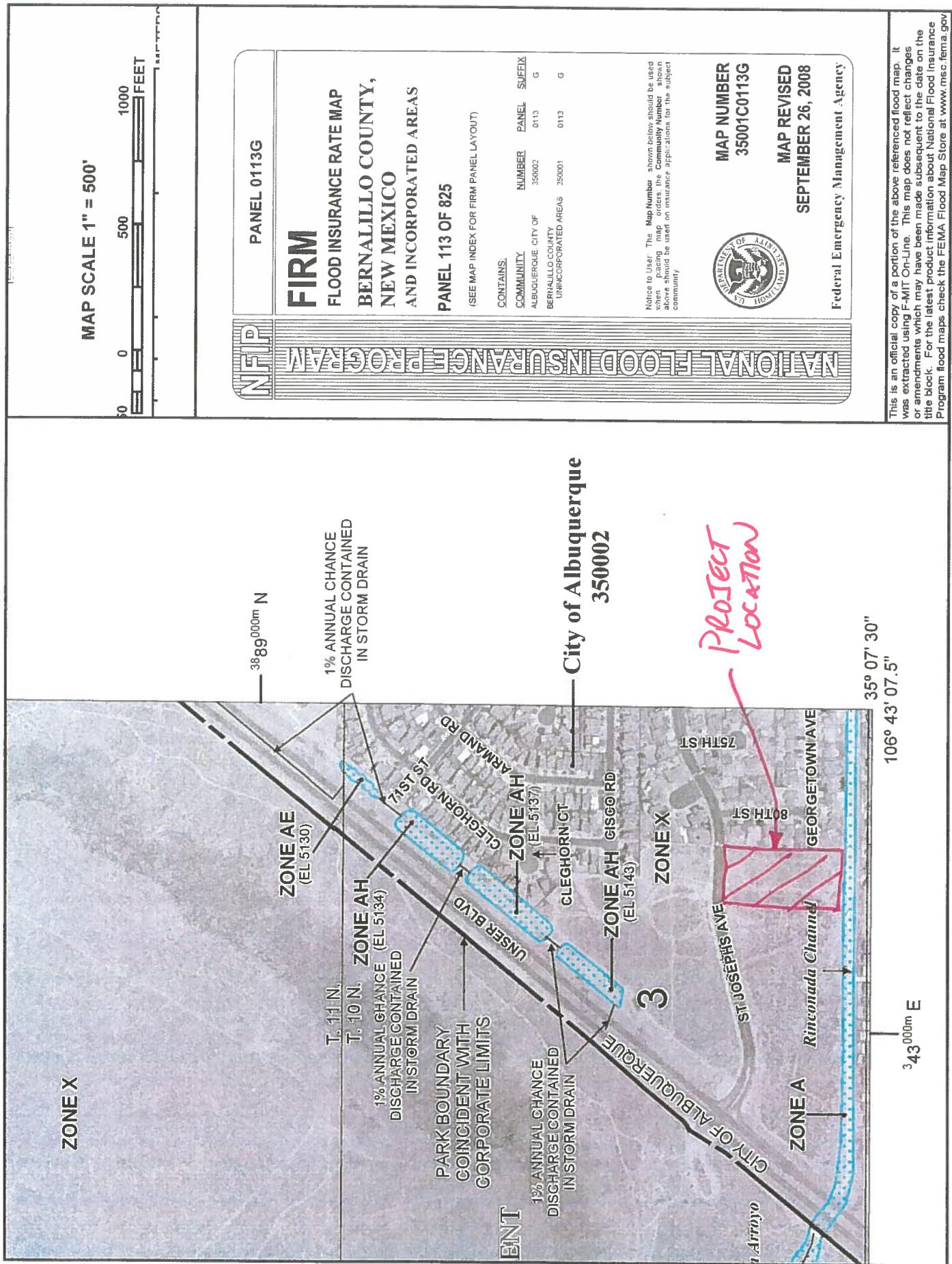


FIGURE 1. FEMA Flood Insurance Rate Map

APPENDIX A
HYDROLOGIC CALCULATIONS

100-YEAR HYDROLOGIC CALCULATIONS

BASIN #	AREA (acre)	LAND TREATMENT				WEIGHTED E (in)	100-YEAR PRECIPITATION				
		A (%)	B (%)	C (%)	D (%)		V (6-hr) (acre-ft)	V (6-hr) (cu-ft)	V(24-hr) (acre-ft)	V(24-hr) (cu-ft)	Q (cfs)
EXISTING CONDITIONS											
OFFSITE 1	2.1300	100.00	0.00	0.00	0.00	0.44	0.08	3,402	0.08	3,402	2.75
OFFSITE 2	1.2300	100.00	0.00	0.00	0.00	0.44	0.05	1,965	0.05	1,965	1.59
SUBDIVISION	2.7000	100.00	0.00	0.00	0.00	0.44	0.10	4,312	0.10	4,312	3.48
TOTAL RUNOFF	6.06						0.22	9,679	0.22	9,679	7.82
PROPOSED CONDITIONS											
BASIN 1	0.3500	100.00	0.00	0.00	0.00	0.44	0.01	559	0.01	559	0.45
BASIN 2	0.1000	100.00	0.00	0.00	0.00	0.44	0.00	160	0.00	160	0.13
BASIN 3	2.2500	0.00	28.10	28.10	43.80	1.33	0.25	10,857	0.29	12,503	7.40
TOTAL RUNOFF	2.70						0.27	11,576	0.30	13,222	7.99
EXCESS PRECIP.		0.44	0.67	0.99	1.97	E _i (in)					
PEAK DISCHARGE		1.29	2.03	2.87	4.37	Q _{Pi} (cfs)					

WEIGHTED E (in) = (E_A)(%A) + (E_B)(%B) + (E_C)(%C) + (E_D)(%D)

V_{6-HR} (acre-ft) = (WEIGHTED E)/(AREA)/12

V_{10DAY} (acre-ft) = V_{6-HR} + (A_D)(P_{10DAY} - P_{6-HR})/12

Q (cfs) = (Q_{PA})(A_A) + (Q_{PB})(A_B) + (Q_{PC})(A_C) + (Q_{PD})(A_D)

ZONE = 1

P_{6-HR} (in.) = 2.20

P_{24-HR} (in.) = 2.66

P_{10DAY} (in.) = 3.67

APPENDIX B
HYDRAULIC CALCULATIONS

Tallado Court
Worksheet for Irregular Channel

Project Description	
Project File	c:\haestad\fmw\bluewate.fm2
Worksheet	SUBDIVISION STREET
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

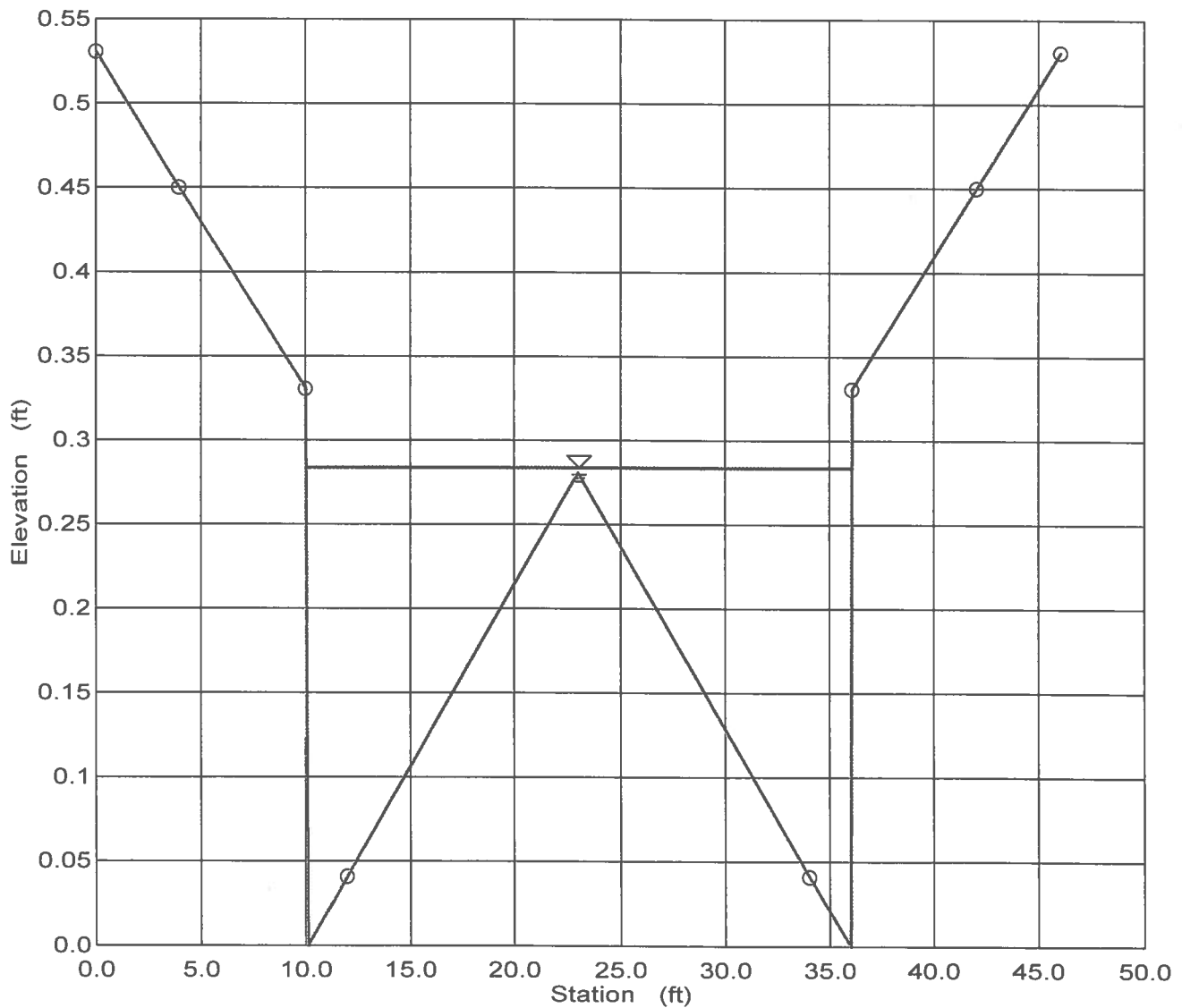
Input Data				
Channel Slope		0.005000 ft/ft		
Elevation range: 0.00 ft to 0.53 ft.				
Station (ft)	Elevation (ft)	Start Station	End Station	Roughness
0.00	0.53	0.00	4.00	0.013
4.00	0.45	4.00	10.00	0.025
10.00	0.33	10.00	12.00	0.013
10.10	0.00	12.00	34.00	0.017
12.00	0.04	34.00	36.10	0.013
23.00	0.28	36.10	42.00	0.025
34.00	0.04	42.00	46.00	0.013
36.00	0.00			
36.10	0.33			
42.00	0.45			
46.00	0.53			
Discharge	7.40	cfs		

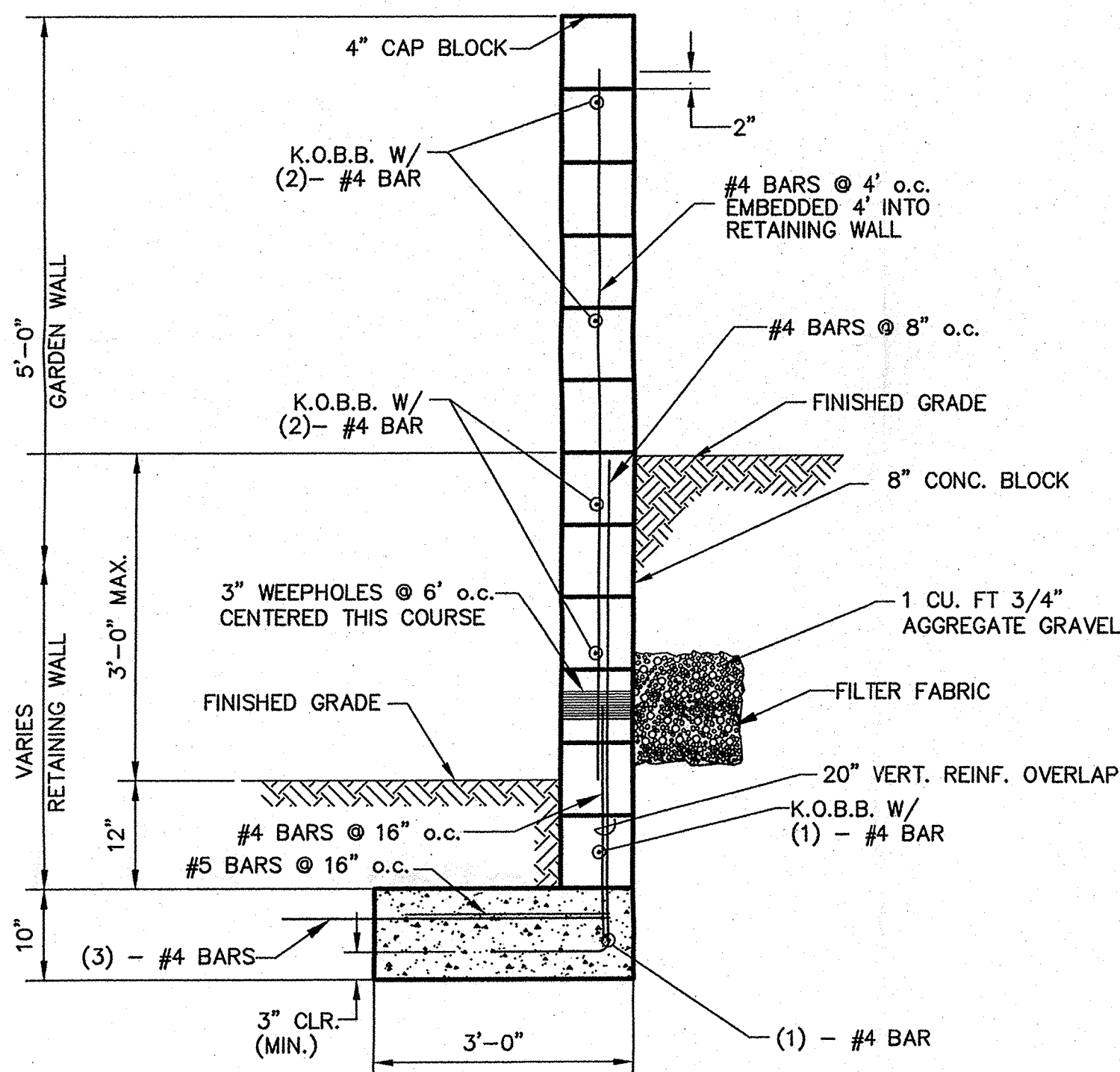
Results		
Wtd. Mannings Coefficient	0.015	
Water Surface Elevation	0.28	ft
Flow Area	3.77	ft ²
Wetted Perimeter	26.50	ft
Top Width	26.07	ft
Height	0.28	ft
Critical Depth	0.27	ft
Critical Slope	0.006044	ft/ft
Velocity	1.96	ft/s
Velocity Head	0.06	ft
Specific Energy	0.34	ft
Froude Number	0.91	
Flow is subcritical.		

Tallado Court
Cross Section for Irregular Channel

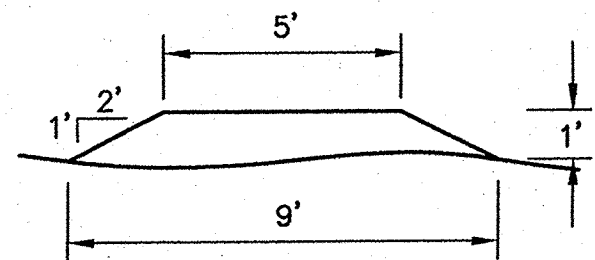
Project Description	
Project File	c:\haestad\fmw\bluewate.fm2
Worksheet	SUBDIVISION STREET
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Section Data	
Wtd. Mannings Coefficient	0.015
Channel Slope	0.005000 ft/ft
Water Surface Elevation	0.28 ft
Discharge	7.40 cfs

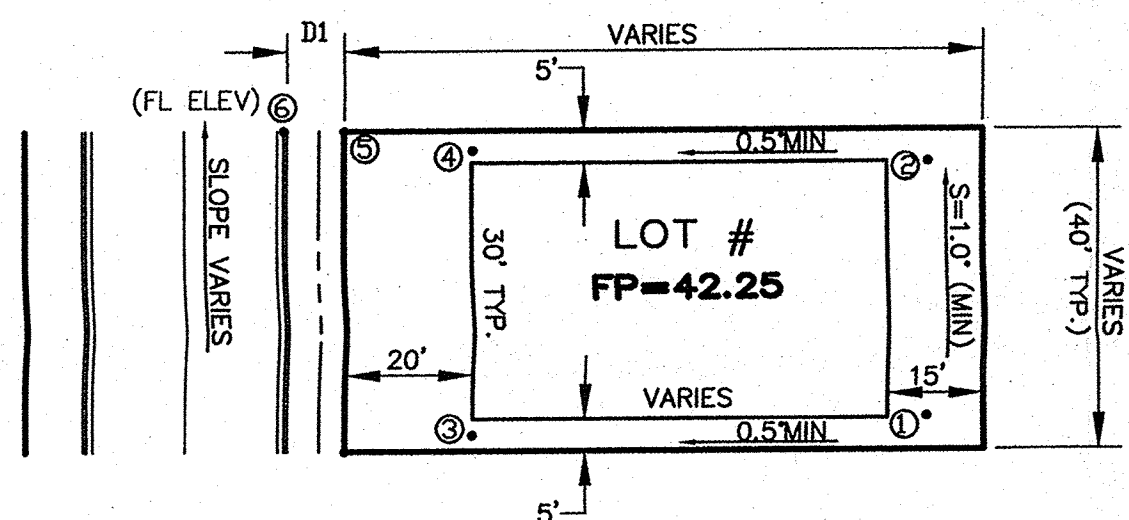




**TYPICAL 3' PROPERTY LINE RETAINING WALL
W/GARDEN WALL EXTENSION**
NOT TO SCALE

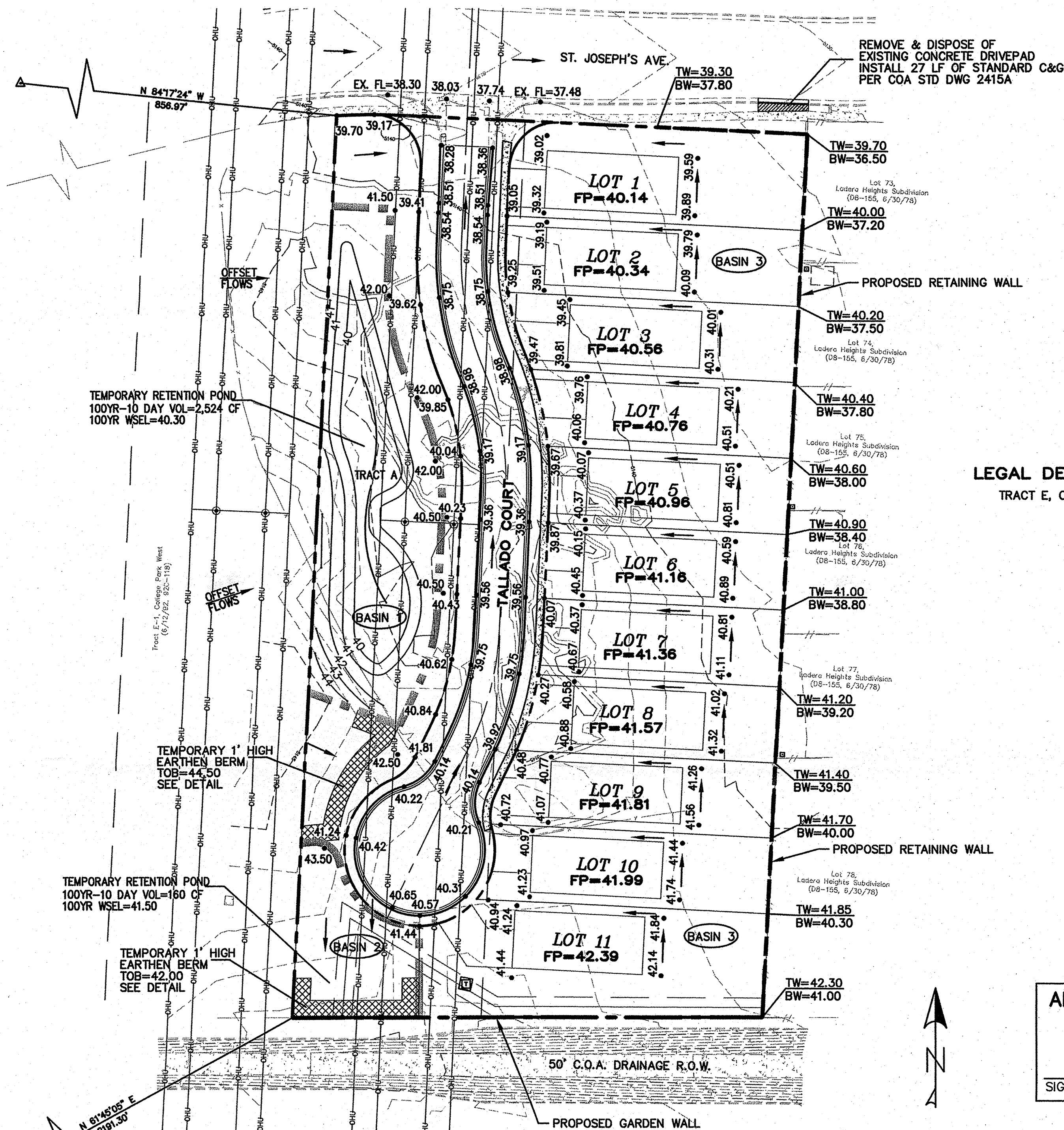


1' HIGH EARTHEN BERM DETAIL
NOT TO SCALE



TYPICAL LOT GRADING PLAN
NO SCALE

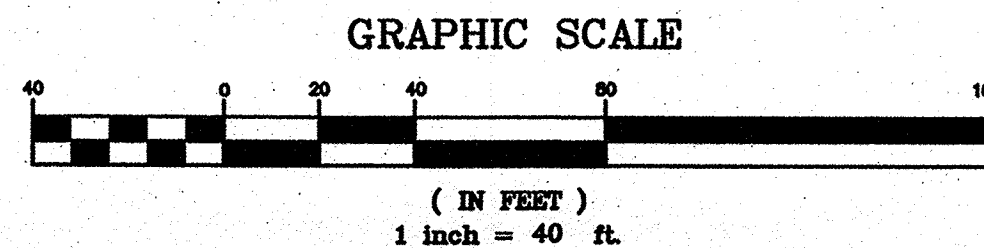
TO SET SPOT ① - SUBTRACT 0.25' FROM THE PAD ELEV.
TO SET SPOT ② - SUBTRACT 0.32' FROM SPOT ①
TO SET SPOTS ③ & ④ - MULTIPLY 0.5% BY DISTANCE SUBTRACT FROM SPOTS ① & ② RESPECTIVELY
TO SET SPOT ⑤ - MULTIPLY D1 BY 2.0%, ADD CURB HEIGHT, AND ADD TO SPOT ⑤



LEGAL DESCRIPTION:
TRACT E, COLLEGE PARK WEST SUBDIVISION

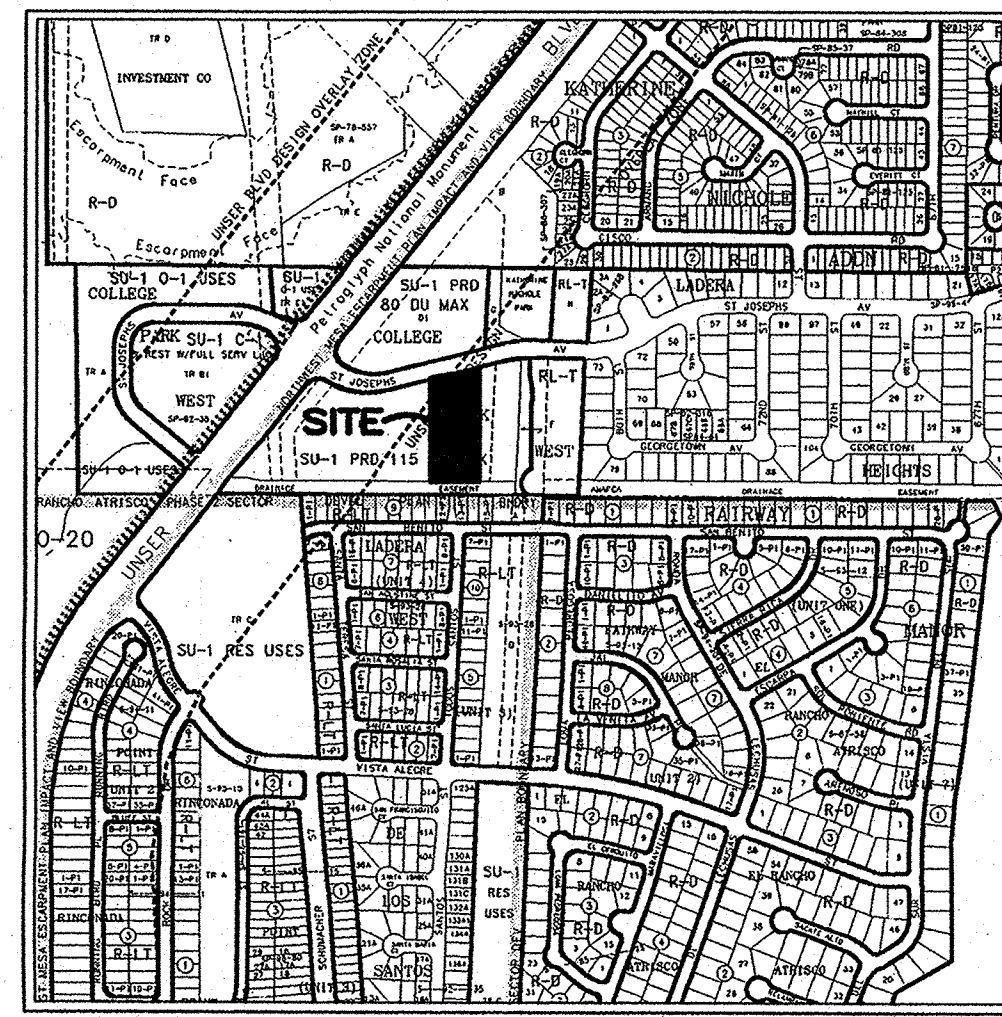
APPROVED FOR ROUGH GRADING

SIGNATURE _____ DATE _____



LEGEND

- | | |
|--|--|
| --- EXISTING MAJOR CONTOUR | --- PROPOSED RIGHT OF WAY |
| --- EXISTING MINOR CONTOUR | --- PROPOSED CENTERLINE |
| --- EXISTING SIDEWALK AND HANDICAP RAMPS | FP=09.07 FINISHED PAD SITE ELEVATION |
| --- EXISTING CURB AND GUTTER | 99.99 PROPOSED SPOT ELEVATION |
| --- EXISTING OVERHEAD UTILITY LINES | TW=12.51 PROPOSED TOP OF WALL |
| --- EXISTING EASEMENT | BW=11.84 PROPOSED BOTTOM OF WALL |
| --- BOUNDARY | --- PROPOSED MOUNTABLE CURB AND GUTTER |
| --- PROPOSED BASIN BOUNDARY | --- PROPOSED FLOW DIRECTION |
| --- PROPOSED GARDEN WALL | --- PROPOSED EARTHEN BERM |
| | --- PROPOSED RETAINING WALL |



AS BUILT INFORMATION		BENCH MARK		SURVEY INFORMATION		ENGINEER'S SEAL		REMARKS		DESIGN	
CONTRACTOR	DATE	ACS MONUMENT	DATE	NO.	BY	NO.	DATE	NO.	DATE	NO.	DATE
		NAD 1983 CENTRAL ZONE									
		X=1497506.497									
		Y=1500192.246									
		Z=5182.437 (NAVD 1988)									
		G-G=0.999679436									
		MAPPING ANGLE= 00°16'29.87"									

Thompson Engineering Consultants, Inc.
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tecnc@yahoo.com

**CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
TRANSPORTATION DEVELOPMENT
VILLA SENDEROS SUBDIVISION
GRADING AND DRAINAGE PLAN**

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	MO./DAY/YR.	MO./DAY/YR.

City Project No. XXXXXX Zone Map No. G-10-Z Sheet 3 Of 6