CITY OF ALBUQUERQUE

March 14, 2014

Scott J. Steffen, P.E. ssteffen@bhinc.com
BOHANNAN-HUSTON, INC.
7500 Jefferson Street NE Courtyard I
Albuquerque, NM 87109

RE: Taos at the Trails—Unit 2, CPN 730076 (C-09/D001C)
Engineers Grading Certification for Release of Financial Guaranty
Engineers Stamp dated 06/21/11
Engineers Certification dated 2-13-14

Dear Mr. Steffen,

Based upon your Engineer's Certification submitted on 09/13/2012, the above referenced plan is adequate and satisfies the Grading and Drainage Certification for Release of Financial Guaranty.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Curtis Cherne, P.E.
Principal Engineer, Hydrology
Planning Dept.

C: Jane Rael, Hugh Floyd
File

730077
Unit 1

730079
Unit 2

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

2-24-14

Spoke with Hugh Stark w/ Scott Stelter concerning the ~~grading~~ as-built grading vs the certificate

1. The grade was low at the South end of Mission Ridge and Eagle Hill.
   - Hugh is to raise the grade

2 Lots 24-35 are to have the water opening 4" above grade w/ filter fabric over the hole to keep dirt out of the Hot tract Storm Sewer. Will... the holes are at grade or there is no filter fabric.
   - Hugh is to have filter fabric put over the holes. I did not ask him to raise them.

3. Hydrology will hold cert until Hugh contacts me saying the work is done. Then we will approve cert

Anita Ch

CITY OF ALBUQUERQUE
PLANNING DEPARTMENT

HYDROLOGY DEVELOPMENT SECTION
DEVELOPMENT REVIEW BOARD MEMO

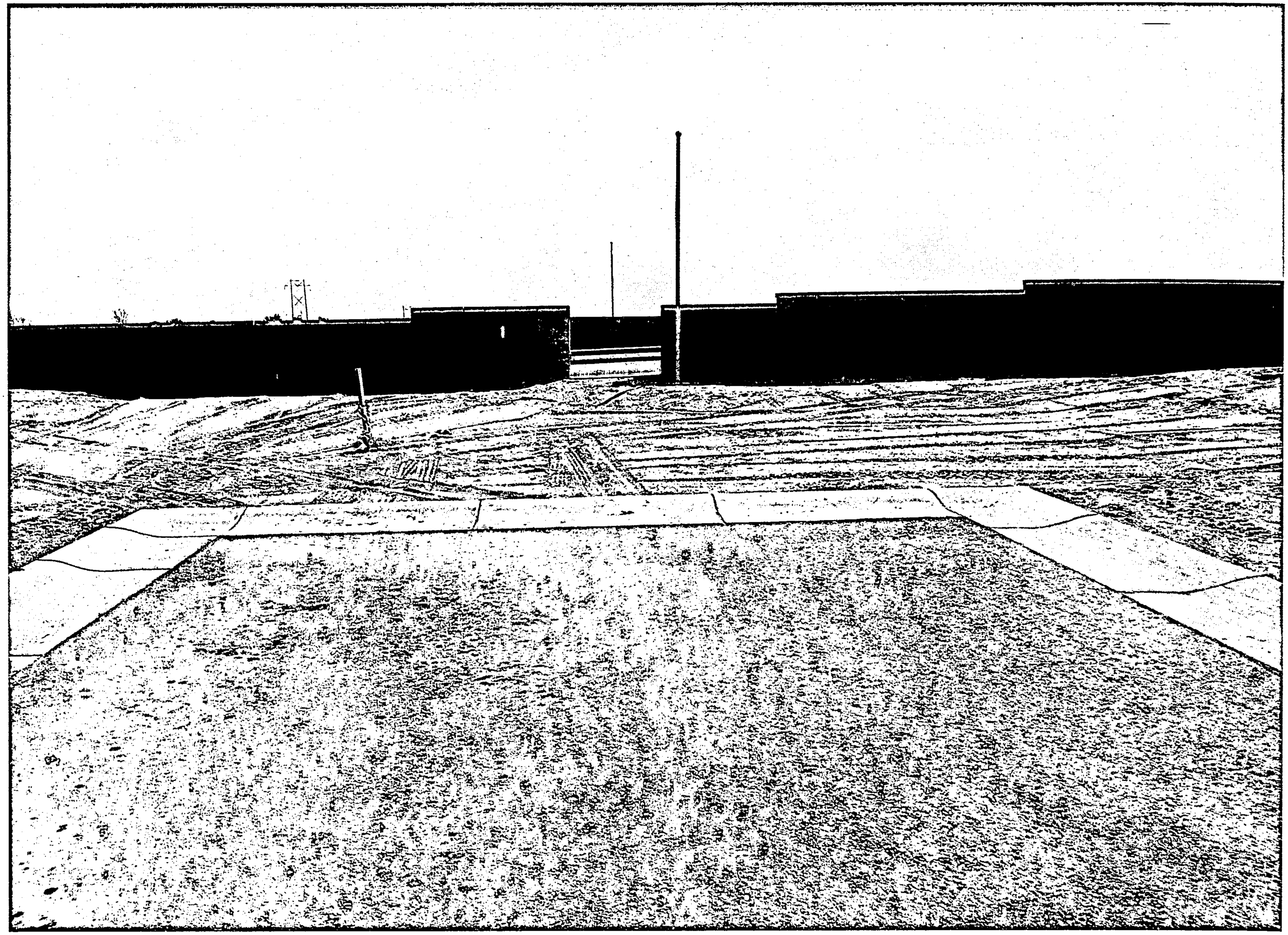
DRB PROJECT NO: 1009438 **AGENDA ITEM NO: 2**

SUBJECT:	**ENGINEERING COMMENTS:**
Bulk Land Variance	Hydrology has no objection.
Final Plat Approval	Hydrology has not objection. AMAFCA will sign the plat.

RESOLUTION/COMMENTS:

SIGNED:
Curtis Cherne
Hydrology Section
City Engineer Designee
AMAFCA Designee
924-3986

DATE: 2-19-14



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Taos Unit 2 at the Trails Building Permit #: _____ City Drainage #: C9/D0001C

DRB#: 1008798 EPC#: _____ Work Order#: 730076

Legal Description: Taos Unit 2 at the Trails

City Address: Southwest corner of Tree Line Avenue and Universe Blvd

Engineering Firm: Bohannan Huston, Inc. Contact: Scott Steffen

Address: Courtyard I 7500 Jefferson Street NE Albuquerque NM 87109

Phone#: 505-823-1000 Fax#: _____ E-mail: ssteffen@bhinc.com

Owner: RCS NM Holdings I, LLC Contact: Brian Anderson

Address: 371 Centennial Parkway, Suite 200 Louisville, CO 80027

Phone#: 303-533-1615 Fax#: 303-466-4202 E-mail: banderson@RealCapitalSolutions.com

Architect: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Surveyor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Contractor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

TYPE OF SUBMITTAL:

____ DRAINAGE REPORT
____ DRAINAGE PLAN 1st SUBMITTAL
____ DRAINAGE PLAN RESUBMITTAL
____ CONCEPTUAL G & D PLAN
____ GRADING PLAN
____ EROSION & SEDIMENT CONTROL PLAN (ESC)
X ENGINEER'S CERT (HYDROLOGY)
____ CLOMR/LOMR
____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ ENGINEER'S CERT (TCL)
____ ENGINEER'S CERT (DRB SITE PLAN)
____ ENGINEER'S CERT (ESC)
____ SO-19
____ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

X SIA/FINANCIAL GUARANTEE RELEASE
____ PRELIMINARY PLAT APPROVAL
____ S. DEV. PLAN FOR SUB'D APPROVAL
____ S. DEV. FOR BLDG. PERMIT APPROVAL
____ SECTOR PLAN APPROVAL
____ FINAL PLAT APPROVAL
____ CERTIFICATE OF OCCUPANCY (PERM)
____ CERTIFICATE OF OCCUPANCY (TCL TEMP)
____ FOUNDATION PERMIT APPROVAL
____ BUILDING PERMIT APPROVAL
____ GRADING PERMIT APPROVAL
____ PAVING PERMIT APPROVAL
____ WORK ORDER APPROVAL
____ GRADING CERTIFICATION
____ SO-19 APPROVAL
____ ESC PERMIT APPROVAL
____ ESC CERT. ACCEPTANCE
____ OTHER (SPECIFY)

RECEIVED FEB 14 2014 LAND DEVELOPMENT SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED: ____ Yes ____ No ____ Copy Provided

DATE SUBMITTED: February 13, 2014 By: Scott J. Steffen

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

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
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3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

Bohannan ▲ Huston

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

February 13, 2014

Mr. Curtis Cherne
Hydrology Section
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87102

Re: Grading and Drainage Certification, Taos Unit 2 at the Trails
DRB Case No. 1008797, (C9/D001C)

Dear Curtis:

Enclosed for your review is the DRB approved grading plan, dated 6/21/11, with as-built elevations. The DRB approved grading plan covers both Taos Unit 1 and Unit 2. This certification is only for Unit 2. The Unit 1 certification, dated 8/13/12, has been previously approved. The as-built survey was provided by Surv-Tek Inc. After reviewing these as-built elevations and visiting the site on February 13, 2014, it is my belief that the site has been graded in substantial compliance with the approved grading plan.

Your review and approval is requested for SIA/financial guaranty release of the project. I appreciate your time and consideration. If you have questions or require additional information, please contact me at 823-1000.

Sincerely,

Scott J. Steffen, P.E.
Vice President
Community Development & Planning

Enclosure

cc: Hugh Floyd, Easterling & Associates

RECEIVED
FEB 14 2014
LAND DEVELOPMENT SECTION

Engineering ▲
Spatial Data ▲
Advanced Technologies ▲

P:\20110333\Correspondence\Submittals\G&D Cert\Unit 2\20140213 Hydro Cert Letter.Docx

CITY OF ALBUQUERQUE

November 21, 2014

Hugh Floyd, P.E.
Floyd Development Services
918 Pinehurst Rd SE, Suite 102
Rio Rancho, NM 87124

Scott J. Steffen, P.E.
Bohannan Huston, Inc.
7500 Jefferson Street NE Courtyard I
Albuquerque, NM 87109

RE: Taos at the Trails Unit 1 Inlet Modification and Addendum to Taos Unit 1 Drainage Report for Inlet Modification (C09D001C)

Dear Mr. Floyd and Mr. Steffen,

Hydrology has reviewed the structural calculations by Nob Hill Structural Engineering, LLC and the Addendum to the Taos Unit 1 drainage report by Bohannan Huston Inc.

The structural modification Section A-A shows the concrete fill encapsulating a portion of the grate. This would not allow the grate to be removed for maintenance and reduces the capacity of the inlet.

The Addendum to the Taos Unit 1 Drainage report proposes to use the capacity of the throat area to show the inlet has capacity. Per the Development Process Manual, the throat area is not considered when calculating the capacity of an inlet.

In addition, it is important to Hydrology to be consistent from site to site. The areas of consistency include not altering inlets and the warped gutter adjacent to an inlet and not including the throat in capacity analysis.

Recently, Hydrology did not approve a building permit because the contractor cut the curb (without a permit) and poured the gutter stone without the warp. Hydrology had the contractor remove the incorrectly built improvements and build it per DPM standards. Hydrology then approved the building permit.

At another location, a drainage plan specified an emergency spillway. The emergency spillway was not constructed and Hydrology is not approving building permits in the low-elevation lots until the emergency spillway is constructed. The

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

engineer proposed to use the throat in his capacity analysis and Hydrology did not accept the proposal.

Hydrology is not approving the inlet modification for the reasons stated above as well as for future protection of flood control facilities.

Hydrology proposes:

1. Leave the inlet and driveway locations as-is and build a short fence or wall (within zoning criteria) behind the inlet to prevent the homeowner from driving over the curb.
2. Remove the existing inlet (double grate double wing) and construct a new single grate single wing inlet near this location and an additional single grate single wing inlet on the north side of the driveway with a lateral storm drain connecting the two inlets.

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Albuquerque

New Mexico 87103

www.cabq.gov

Sincerely,

Curtis Cherne, P.E.
Principal Engineer, Hydrology
Planning Dept.

C: File

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Taos Unit 1 Building Permit #: _____ City Drainage #: C9/D1C

DRB#: 1008798 EPC#: _____ Work Order#: 730077

Legal Description: Taos Unit 1

City Address: _____

Engineering Firm: Bohannan Huston, Inc. Contact: Scott Steffen

Address: Courtyard I 7500 Jefferson Street NE Albuquerque NM 87109

Phone#: 505-823-1000 Fax#: _____ E-mail: ssteffen@bhinc.com

Owner: RCS Trails, LLC Contact: Brian Paul

Address: 371 Centennial Parkway Suite 200 Louisville CO 80027

Phone#: 303-533-1615 Fax#: _____ E-mail: bpaul@realcapitalsolutions.com

Architect: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Surveyor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Contractor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

TYPE OF SUBMITTAL:

____ DRAINAGE REPORT
____ DRAINAGE PLAN 1st SUBMITTAL
____ DRAINAGE PLAN RESUBMITTAL
____ CONCEPTUAL G & D PLAN
____ GRADING PLAN
____ EROSION & SEDIMENT CONTROL PLAN (ESC)
____ ENGINEER'S CERT (HYDROLOGY)
____ CLOMR/LOMR
____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ ENGINEER'S CERT (TCL)
____ ENGINEER'S CERT (DRB SITE PLAN)
____ ENGINEER'S CERT (ESC)
____ SO-19
X OTHER (SPECIFY) Inlet Capacity Analysis

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

____ SIA/FINANCIAL GUARANTEE RELEASE
____ PRELIMINARY PLAT APPROVAL
____ S. DEV. PLAN FOR SUB'D APPROVAL
____ S. DEV. FOR BLDG. PERMIT APPROVAL
____ SECTOR PLAN APPROVAL
____ FINAL PLAT APPROVAL
____ CERTIFICATE OF OCCUPANCY (PERM)
____ CERTIFICATE OF OCCUPANCY (TCL TEMP)
____ FOUNDATION PERMIT APPROVAL
____ BUILDING PERMIT APPROVAL
____ GRADING PERMIT APPROVAL
____ PAVING PERMIT APPROVAL
____ WORK ORDER APPROVAL
____ GRADING CERTIFICATION
____ SO-19 APPROVAL
____ ESC PERMIT APPROVAL
____ ESC CERT. ACCEPTANCE
X OTHER (SPECIFY) Inlet Modification Approval

RECEIVED
NOV 13 2014
LAND DEVELOPMENT SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED: ____ Yes X No ____ Copy Provided

DATE SUBMITTED: November 12, 2014 By: Scott J. Steffen

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

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Scott Steffen

From: Scott Steffen
Sent: Wednesday, November 12, 2014 5:41 PM
To: Cherne, Curtis
Cc: 'Ortiz, Monica'; Hugh Floyd (Hugh@developnm.com)
Subject: Taos Unit 1 Mission Ridge inlet modification
Attachments: Taos at the Trails Drainage Addendum.pdf

Curtis,

Attached is the inlet capacity analysis for the proposed modification to the inlet on the west side of Mission Ridge Drive in Taos Unit 1.

You should receive a hard copy Thursday morning.

Thanks,

Scott J. Steffen
Vice President
Community Development and Planning
Bohannan Huston
Courtyard I
7500 Jefferson St. NE
Albuquerque, NM 87109-4335
www.bhinc.com
voice: 505.823.1000 **facsimile:** 505.798.7988 **toll free:** 800.877.5332

Bohannan ▲ Huston

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87109-4335

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toll free: 800.877.5332

November 12, 2014

Curtis Cherne, P. E.
Hydrology Section
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

Re: Taos Unit 1 at the Trails Unit 2, DRB 1008798, CPN#730077 (C9/D1C)

Dear Curtis:

This letter is an addendum to the previously approved drainage report for Taos at the Trails. The purpose of this addendum is to analyze the capacity of the double grate, double wing type A storm drain inlet on the west side of Mission Ridge Drive in Taos Unit 1 due to proposed inlet modifications required to address a conflict with a residential driveway. The proposed inlet modifications include filling the northern wing and the back of the north half of the inlet box with concrete to allow for construction of the residential driveway. See the attached inlet modification provided by Nob Hill Structural Engineering. The proposed modifications would only eliminate the northern wing and the curb opening for the northern grate, leaving both grates and the southern wing operational.

The attached addendum dated August 17, 2011 shows the flow in Mission Ridge Drive at the sump to be 27.4 cfs. There is a double grate/double wing Type A inlet on both sides of Mission Ridge Drive at the sump location with 13.7 cfs at each inlet. The capacity of the inlet on the west side of Mission Ridge Drive was analyzed based on the proposed reconfiguration described above. The modified inlet has capacity to accept 2 x 100-year runoff with the flow contained within the right-of-way per the attached analysis.

Attached for your information are the revised inlet capacity analysis for the inlet on the west side of Mission Ridge Drive, the Taos Drainage addendum dated August 17, 2011 and the inlet modification detail.

If you have any questions or require further information, please feel free to contact me.

Sincerely,

Scott J. Steffen, P.E.
Vice President
Community Development and Planning Group

Enclosures

Engineering ▲
Spatial Data ▲
Advanced Technologies ▲

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/2005)

PROJECT TITLE: Taos Unit 1 at the Trails ZONE MAP/DRG. FILE # C9/D001C
DRB#: 1008797 EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: Lots 7-P1 thru 113-P1, together with vacated Kayser Mill Road, Eagle Hills Drive, Mission Ridge Drive, Oasis Canyon Road, Snow Creek Court, and a Portion of Adobe Rose Place, of Taos at the Trails Unit 2 Subdivision, City of Albuquerque, Bernalillo County, New Mexico, as the same is shown and designated on the plat entitled "SUBDIVISION PLAT OF TAOS AT THE TRAILS UNIT 2 (BEING A REPLAT OF TRACTS 5 AND 7, THE TRAILS, UNIT 2) WITHIN THE TOWN OF ALAMEDA GRANT IN PROJECTED SECTION 16, TOWNSHIP 11 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO", filed in the office of the County Clerk of Bernalillo County, New Mexico, on October 26, 2007, in Plat Book 2007C, Page 314, as Document No. 2007149699.

CITY ADDRESS: Southwest corner of Tree Line Avenue and Universe Blvd.

ENGINEERING FIRM: Bohannan Huston Inc. CONTACT: Scott Steffen
ADDRESS: 7500 Jefferson NE PHONE: (505) 823-1000
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

OWNER: The Trails, LLC CONTACT: Rick Beltramo
ADDRESS: 6330 Riverside Plaza Lane #160 PHONE: (505) 761-9911
CITY, STATE: Albuquerque, NM ZIP CODE: 87120

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1st SUBMITTAL
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN RESUBMITTAL
_____ EROSION CONTROL PLAN
X ENGINEER'S CERT (HYDROLOGY)
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT
_____ ENGINEER CERT (TCL)
_____ ENGINEER CERT (DRB SITE PLAN)
_____ OTHER (REVISED G&D PLAN)

CHECK TYPE OF APPROVAL SOUGHT:
X SIA/FINANCIAL GUARANTEE RELEASE
_____ PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. 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 (ROUGH)
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER (SPECIFY)

RECEIVED
~~AUG 13 2012~~
SEPT 13 2012

WAS A PRE-DESIGN CONFERENCE ATTENDED:
_____ YES
_____ NO
_____ COPY PROVIDED

SUBMITTED BY: Scott Steffen DATE: 09-13-12

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope to the proposed development define 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 subdivision containing more than ten (10) lots or constituting five (5) acres or more.

Bohannan ▲ Huston INC.

Courtyard I
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Albuquerque, NM
87109-4335
www.bhinc.com
voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

CLIENT/COURIER/TRANSMITTAL

☒ To: Tim Sims
Hydrology Section
City of Albuquerque
600 2nd St. NW
Phone: 924-3986

☐ To:
Phone:

☐ To:
Phone:

☐ To:
Phone:

☐ To:
Phone:

☐ To:
Phone:

Date:	September 13, 2012	**Requested By:**	Scott Steffen
Job No.:	20110333.002.cdpabq	**Project:**	Taos at the Trails

DELIVER VIA

☒ Courier	☐ Federal Express	☐ Pickup
☐ Mail	☐ UPS	Item:
☐ Other		

TIME DUE:

☐ This AM	☐ By Tomorrow
☒ This PM	☐ Rush

ITEM NO	QUANTITY	DESCRIPTION
1	1	Taos Unit 1 G&D Cert Submittal Package

COMMENTS / INSTRUCTIONS

Tim,

Here is the revised G&D cert noting that the Taos storm drain discharges to Pond K, not a storm drain in Universe Blvd. Galway has indicated that they will remove the inlet protection. I will let you know when this has occurred.

Thanks,

Scott

REC'D BY: _____ DATE: _____ TIME: _____

ANALYSIS OF AN INLET IN A SUMP CONDITION - **West Side of Mission Ridge LP**

INLET TYPE: Double Grate Type "A" with curb opening wing on south side of inlet.

WEIR: Q=C*L*H^1.5		ORIFICE: Q=C*A*(2*G*H)**0.5	
~~Wing opening~~	Grate opeining	Grate opening	Wing opening
C= 3.0	C=3.0	C=0.6	C=0.6
L= 4.0 ft	L(double grate)=[2(2.67')+2(1.8')]=8.	A(double grate)=8.19 sf	A=2.0 sf
Q=3.0(4.0')H**1.5= 12.0H**1.5	Q=3.0(8.94)H^1.5=26.82*H^1.5	Q=4.194*(64.4*H)^0.5	Q=1.2*(64.4*H)^0.5

	WS ELEVATION	HEIGHT ABOVE INLET	Q (CFS) WEIR "A" OPENING	Q (CFS) WEIR DOUBLE GRATE	Q (CFS) ORIFICE DOUBLE GRATE	TOTAL Q (CFS)	COMMENTS:
~FL @ INLET	0.00	0.00	0.00	0.00	0.00	0.00	Flow at double "A" inlet w/ one wing opening
	0.10	0.10	0.38	0.76	11.88	1.14	Weir controls on grate analysis
	0.20	0.20	1.07	2.14	16.80	3.21	
	0.30	0.30	1.97	3.93	20.57	5.91	
	0.40	0.40	3.04	6.06	23.75	9.09	
	0.50	0.50	4.24	8.46	26.56	12.71	
	0.60	0.60	5.58	11.13	29.09	16.70	Q(100 yr) = 13.7 cfs is provided at this depth
TOP OF CURB	0.70	0.70	7.03	14.02	31.42	21.05	
	0.80	0.80	8.59	17.13	33.59	25.72	
	0.90	0.90	10.25	20.44	35.63	30.69	Q(2x100 yr) = 27.4 cfs is provided at this depth
ROW LIMIT	1.00	1.00	12.00	23.94	37.56	35.94	

NOTE: The total runoff intercepted by the inlet at the low point in the road is:

Qr(100) = [(runoff of the south wing opening) + (the lesser of the weir or orifice amount taken by the double grate)].

THE 100 YR STORM EVENT = 13.7 CFS at the sump condition

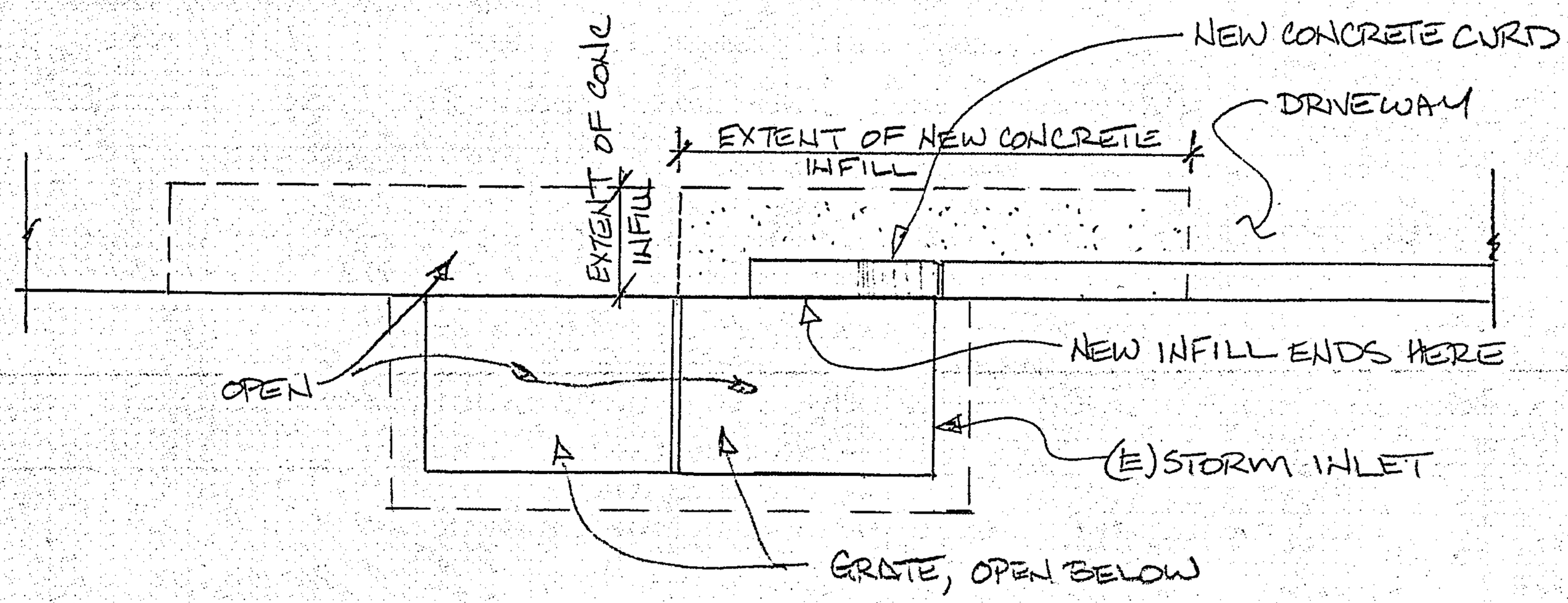
THE 2 x 100 YR STORM EVENT = 27.4 CFS at the sump condition

Sex [illegible]

9 mg 10

take [illegible]

COMET
3-0235 — 50 SHEETS — 5 SQUARES
3-0236 — 100 SHEETS — 5 SQUARES
3-0237 — 200 SHEETS — 5 SQUARES
3-0137 — 200 SHEETS — FILLER



PLAN - STORM INLET MODIFICATION

NTS

NHSE
nob hill structural engineering, llc

Project: TACS UNIT 1 INLET

By: SA

Date: 11/14

TAOS UNIT 1
STORM INLET MODIFICATION

Floyd Development Services, LLC

Rio Rancho, NM

STRUCTURAL CALCULATIONS

RECEIVED
OCT 28 2014
LAND DEVELOPMENT SECTION

Submitted by Hugh Floyd

Nob Hill Structural Engineering, LLC
420 Aliso Dr NE
Albuquerque, NM 87108
505-234-6861

1.0 GENERAL

1.1 DESCRIPTION

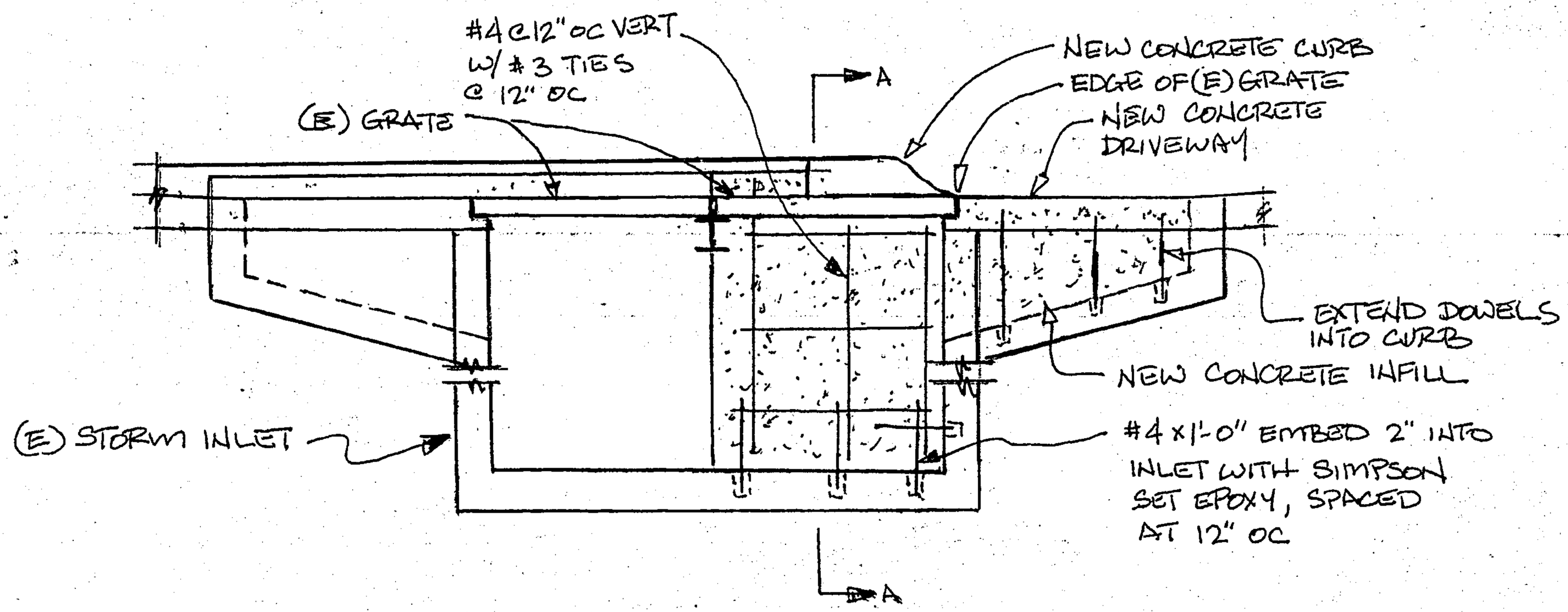
This project consists of the modification of a Double A storm inlet. The inlet was placed in front of a residential driveway. The modification shown in the sketches will widen the driveway. New concrete infill will be placed in a portion of the inlet. The new curb will start at the edge of the existing grate.

1.2 LOADING

Vehicle loads will occur at the sloped section of the inlet. The driveway will start at the edge of the grate and sit over the inlet slope. That slope will be packed tight with concrete infill and load will be transferred directly to the slope and soil. The load effects will be minimal in this section. Although not part of the driveway, the concrete infill section below the new curb was checked as a concrete column. The capacity of this section is 4.5 kips, well above the load of a vehicle. Therefore, the concrete infill will be adequate as a modification.

SERGIO ACOSTA
NEW MEXICO
18664
PROFESSIONAL ENGINEER
10-21-14

COMET
3-0235 — 50 SHEETS — 5 SQUARES
3-0236 — 100 SHEETS — 5 SQUARES
3-0237 — 200 SHEETS — 5 SQUARES
3-0137 — 200 SHEETS — FILLER



STORM INLET MODIFICATION

NTS

NOTES:

1. CONCRETE: 3000psi
2. REINFORCING: ASTM A615 GRADE 60

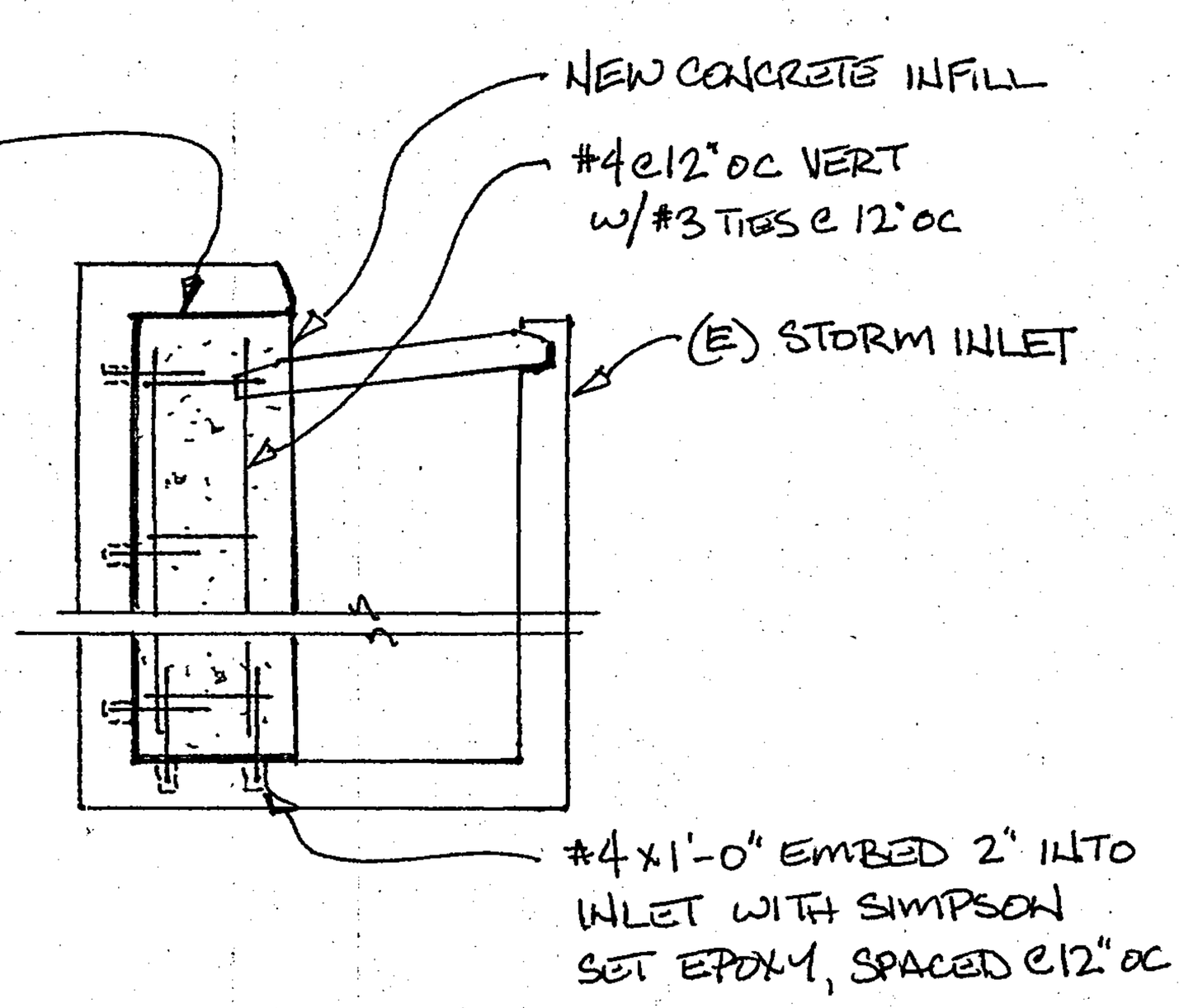
NHSE
nob hill structural engineering, llc

Project: TAOS UNIT 1 INLET

By: SA

Date: 10/14

COMET
3-0235 — 50 SHEETS — 5 SQUARES
3-0236 — 100 SHEETS — 5 SQUARES
3-0237 — 200 SHEETS — 5 SQUARES
3-0137 — 200 SHEETS — FILLER



SECTION A-A
NTS

Bentley

WALL

Design Results

Concrete Wall

GENERAL INFORMATION:

Design code : ACI 318-05

Geometry:

Total height	:	4.00 [ft]
Total length	:	3.00 [ft]
Base support type	:	Continuous
Wall bottom restraint	:	Pinned
Column bottom restraint	:	Fixed
Rigidity elements	:	None

Materials:

Material	:	C 3-60
Steel tension strength (Fy)	:	60 [Kip/in2]
Concrete compressive strength (fc)	:	3 [Kip/in2]
Steel elasticity modulus (Es)	:	29000 [Kip/in2]
Concrete modulus of elasticity (E)	:	3122.02 [Kip/in2]
Concrete unit weight	:	0.149818 [Kip/ft3]

Number of stories: 1

Story	Story height [ft]	Wall thickness [in]
1	4.00	24.00

Load conditions:

ID	Comb.	Category	Description
DL	No	DL	Dead Load
LL	No	LL	Live Load
SC1	Yes		DL
DC1	Yes		1.4DL
D1	Yes		1.4DL
D2	Yes		1.2DL+1.6LL

Concentrated loads:

Story	Condition	Direction	Magnitude [Kip]	Eccentricity [in]	Distance [ft]
1	DL	Vertical	0.50	0.00	1.50
1	LL	Vertical	4.00	0.00	1.50

Distributed loads:

Consider self weight : DL

BEARING WALL DESIGN:

Status : OK

Geometry:

Segment	X Coordinate [ft]	Y Coordinate [ft]	Width [ft]	Height [ft]
1	0.00	0.00	3.00	4.00

Vertical reinforcement:

Reinforcement layers : 2

Segment	Bars	Spacing [in]	Ld [in]
1	3-#4	12.00	21.91

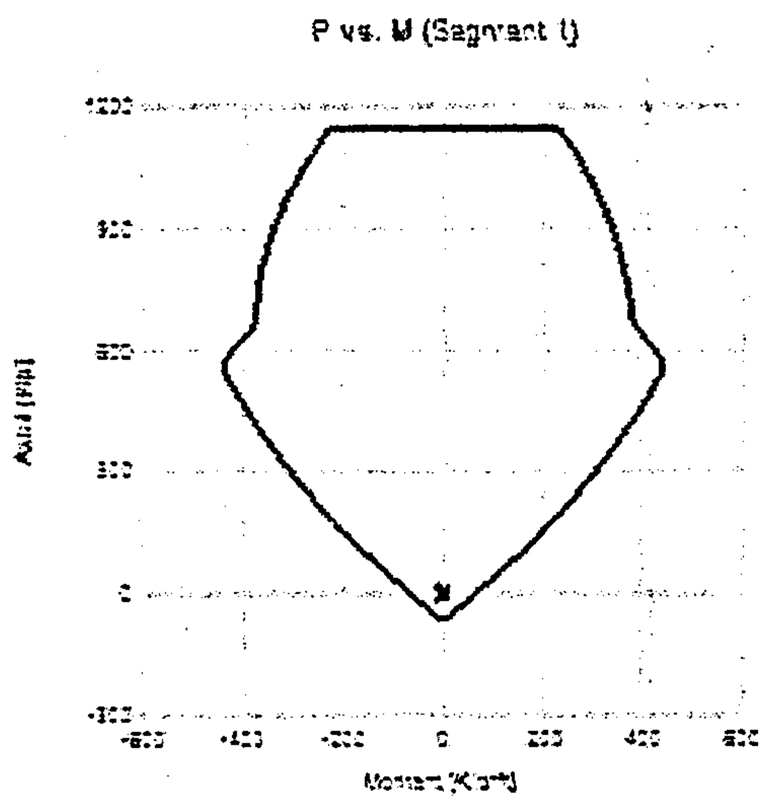
Intermediate results for axial-bending

Segment	Condition	c [in]	d [in]
1	DC1 (Top)	0.79	22.63

Combined axial flexure

Segment	Condition	Pu [Kip]	Mu [Kip*ft]	ϕ*Mn [Kip*ft]	Mu/ϕ*Mn
1	DC1 (Top)	0.83	0.00	62.54	0.00

Interaction diagrams, P vs. M:



Axial compression

Segment	Condition	Pu [Kip]	ϕ*Pn [Kip]	Pu/ϕ*Pn
1	D2 (Bottom)	11.18	1144.07	0.01

Axial tension

Segment	Condition	Pu [Kip]	ϕ*Pn [Kip]	Pu/ϕ*Pn
1	DC1 (Top)	0.00	64.80	0.00

Shear

Segment	Condition	Vu [Kip]	ϕ*Vn [Kip]	Vu/ϕ*Vn
1	DC1 (Top)	0.000	66.918	0.00

CITY OF ALBUQUERQUE

September 14, 2012

Scott J. Steffen, P.E. ssteffen@bhinc.com
BOHANNAN-HUSTON, INC.
7500 Jefferson Street NE Courtyard I
Albuquerque, NM 87109

RE: Taos at the Trails—Unit 1, W.O. # 73077, (C-09/D001C)
Engineers Grading Certification for Release of Financial Guaranty
Engineers Stamp dated 06/21/11
Engineers Certification dated 08-13-12

Dear Mr. Steffen,

Based upon your Engineer's Certification submitted on 09/13/2012, the above referenced plan is adequate and satisfies the Grading and Drainage Certification for Release of Financial Guaranty.

If you have any questions, you can contact me at 924-3982.

Sincerely,

Timothy E. Sims,
Plan Checker—Hydrology,
Development and Building Services

C: Marilyn Maldonado, COA# 773077
File

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

Bohannan Huston

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

August 17, 2011

Shahab Biazar, P. E.
Hydrology Section
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

Re: Taos Unit 1 at the Trails Unit 2, DRB 1008798, CPN#730077 (C9/D1C)

Dear Shabab:

This letter is an addendum to the previously approved drainage report for Taos at the Trails. The purpose of this addendum is to revise the street flow and inlet capacity analyses for Mission Ridge Drive and Kayser Mill Road based on the vertical design of these streets in the public work order plans. The approved drainage report assumes no flow enters Mission Ridge Drive from Kayser Mill Road. The street design does not have a water block on Mission Ridge Drive preventing water from entering from Kayser Mill Road.

The flow in Kayser Mill Road at the intersection with Mission Ridge Drive is approximately 16 cfs. The roadway half width would carry approximately 8 cfs. It is estimated that 4 cfs would turn the corner and head into Mission Ridge Drive. The additional of 4 cfs has no negative impact on the street capacity or the storm drain design for Mission Ridge Drive.

The updated analyses are shown in blue on the original submittal. Attached for your review and approval are the revised street capacity analyses for Kayser Mill Road and Mission Ridge Drive, the revised inlet capacity analysis for Mission Ridge Drive, and the revised HGL calculation for the Mission Ridge Drive storm drain system.

If you have any questions or require further information, please feel free to contact me.

Sincerely,

Scott J. Steffen, P.E.
Vice President
Community Development and Planning Group

Enclosures

Engineering ▲

Spatial Data ▲

Advanced Technologies ▲

P:\20110333\CDP\Hydro\20110333drainage Biazar Ltr.Docx

MANNING'S N = 0.017 SLOPE = 0.008

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	11.5	0.1	9.0	37.7	0.7
2.0	8.9	0.7	6.0	23.5	0.4	10.0	38.1	0.7
3.0	9.3	0.7	7.0	35.5	0.1	11.0	47.0	0.9
4.0	9.5	0.0	8.0	37.5	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.025	0.025	0.010	0.004	0.822	0.394	1.702	0.027
0.050	0.050	0.039	0.024	1.645	0.626	2.484	0.056
0.075	0.075	0.088	0.072	2.467	0.820	3.266	0.085
0.100	0.100	0.156	0.155	3.290	0.993	4.048	0.115
0.125	0.125	0.244	0.282	4.112	1.153	4.830	0.146
0.150	0.150	0.366	0.414	6.318	1.133	6.996	0.170
0.175	0.175	0.549	0.650	8.870	1.184	9.509	0.197
0.200	0.200	0.795	1.019	11.423	1.281	12.021	0.226
0.225	0.225	1.104	1.539	13.975	1.394	14.534	0.255
0.250	0.250	1.476	2.232	16.527	1.512	17.047	0.286
0.275	0.275	1.910	3.119	19.079	1.632	19.560	0.316
0.300	0.300	2.408	4.218	21.631	1.752	22.072	0.348
0.325	0.325	2.968	5.549	24.183	1.870	24.585	0.379
0.350	0.350	3.591	7.130	26.735	1.985	27.098	0.411
0.375	0.375	4.276	9.078	28.787	2.123	29.110	0.445
0.400	0.400	4.981	11.693	28.839	2.348	29.123	0.486
0.425	0.425	5.686	14.563	28.890	2.561	29.136	0.527
0.450	0.450	6.391	17.677	28.942	2.766	29.148	0.569
0.475	0.475	7.097	21.024	28.993	2.962	29.161	0.611
0.500	0.500	7.803	24.596	29.045	3.152	29.174	0.655
0.525	0.525	8.510	28.385	29.097	3.335	29.186	0.698
0.550	0.550	9.217	32.383	29.148	3.514	29.199	0.742
0.575	0.575	9.924	36.586	29.200	3.687	29.212	0.786
0.600	0.600	10.631	40.987	29.251	3.855	29.224	0.831
0.625	0.625	11.339	45.582	29.303	4.020	29.237	0.876
0.650	0.650	12.047	50.365	29.354	4.181	29.250	0.922
0.675	0.675	12.757	54.744	29.889	4.291	29.753	0.961
0.700	0.700	13.536	56.259	33.273	4.156	32.217	0.969
0.725	0.725	14.372	59.278	35.737	4.124	34.681	0.990
0.750	0.750	15.270	62.726	38.202	4.108	37.144	1.012
0.775	0.775	16.229	66.597	40.666	4.103	39.608	1.037
0.800	0.800	17.250	70.889	43.131	4.109	42.072	1.063
0.825	0.825	18.333	75.605	45.595	4.124	44.536	1.090

#1 KAYSER MILL ROAD...

≈16.05 CFS → EGL ≈ 0.55' < 0.85' ✓ ok

~4 cfs FROM SOUTH SIDE OF ROAD ENTERS MISSION RIDGE DRIVE

Std - 0.5%.txt

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	11.5	0.1	9.0	37.7	0.7
2.0	8.9	0.7	6.0	23.5	0.4	10.0	38.1	0.7
3.0	9.3	0.7	7.0	35.5	0.1	11.0	47.0	0.9
4.0	9.5	0.0	8.0	37.5	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.025	0.025	0.010	0.003	0.822	0.322	1.702	0.027
0.050	0.050	0.039	0.020	1.645	0.511	2.484	0.054
0.075	0.075	0.088	0.059	2.467	0.670	3.266	0.082
0.100	0.100	0.156	0.127	3.290	0.811	4.048	0.110
0.125	0.125	0.244	0.230	4.112	0.941	4.830	0.139
0.150	0.150	0.366	0.338	6.318	0.925	6.996	0.163
0.175	0.175	0.549	0.531	8.870	0.967	9.509	0.190
0.200	0.200	0.795	0.832	11.423	1.046	12.021	0.217
0.225	0.225	1.104	1.257	13.975	1.138	14.534	0.245
0.250	0.250	1.476	1.823	16.527	1.235	17.047	0.274
0.275	0.275	1.910	2.546	19.079	1.333	19.560	0.303
0.300	0.300	2.408	3.444	21.631	1.430	22.072	0.332
0.325	0.325	2.968	4.531	24.183	1.526	24.585	0.361
0.350	0.350	3.591	5.822	26.735	1.621	27.098	0.391
0.375	0.375	4.276	7.412	28.787	1.734	29.110	0.422
0.400	0.400	4.981	9.547	28.839	1.917	29.123	0.457
0.425	0.425	5.686	11.891	28.890	2.091	29.136	0.493
0.450	0.450	6.391	14.433	28.942	2.258	29.148	0.529
0.475	0.475	7.097	17.166	28.993	2.419	29.161	0.566
0.500	0.500	7.803	20.082	29.045	2.574	29.174	0.603
0.525	0.525	8.510	23.176	29.097	2.723	29.186	0.640
0.550	0.550	9.217	26.441	29.148	2.869	29.199	0.678
0.575	0.575	9.924	29.873	29.200	3.010	29.212	0.716
0.600	0.600	10.631	33.466	29.251	3.148	29.224	0.754
0.625	0.625	11.339	37.217	29.303	3.282	29.237	0.793
0.650	0.650	12.047	41.123	29.354	3.413	29.250	0.831
0.675	0.675	12.757	44.698	29.889	3.504	29.753	0.866
0.700	0.700	13.536	45.935	33.273	3.394	32.217	0.879
0.725	0.725	14.372	48.400	35.737	3.368	34.681	0.901
0.750	0.750	15.270	51.215	38.202	3.354	37.144	0.925
0.775	0.775	16.229	54.376	40.666	3.350	39.608	0.950
0.800	0.800	17.250	57.881	43.131	3.355	42.072	0.975
0.825	0.825	18.333	61.731	45.595	3.367	44.536	1.001

#2 KAYSER MILL ROAD

Σ 18.06 cfs ⇒ EGL ≈ 0.58' < 0.65' ✓ OK

−4 cfs TO MISSION RIDGE DR

14.06 cfs EGL ≈ 0.53' < 0.75' ∴ OK

Std - 0.5%.txt

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	11.5	0.1	9.0	37.7	0.7
2.0	8.9	0.7	6.0	23.5	0.4	10.0	38.1	0.7
3.0	9.3	0.7	7.0	35.5	0.1	11.0	47.0	0.9
4.0	9.5	0.0	8.0	37.5	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.025	0.025	0.010	0.003	0.822	0.322	1.702	0.027
0.050	0.050	0.039	0.020	1.645	0.511	2.484	0.054
0.075	0.075	0.088	0.059	2.467	0.670	3.266	0.082
0.100	0.100	0.156	0.127	3.290	0.811	4.048	0.110
0.125	0.125	0.244	0.230	4.112	0.941	4.830	0.139
0.150	0.150	0.366	0.338	6.318	0.925	6.996	0.163
0.175	0.175	0.549	0.531	8.870	0.967	9.509	0.190
0.200	0.200	0.795	0.832	11.423	1.046	12.021	0.217
0.225	0.225	1.104	1.257	13.975	1.138	14.534	0.245
0.250	0.250	1.476	1.823	16.527	1.235	17.047	0.274
0.275	0.275	1.910	2.546	19.079	1.333	19.560	0.303
0.300	0.300	2.408	3.444	21.631	1.430	22.072	0.332
0.325	0.325	2.968	4.531	24.183	1.526	24.585	0.361
0.350	0.350	3.591	5.822	26.735	1.621	27.098	0.391
0.375	0.375	4.276	7.412	28.787	1.734	29.110	0.422
0.400	0.400	4.981	9.547	28.839	1.917	29.123	0.457
0.425	0.425	5.686	11.891	28.890	2.091	29.136	0.493
0.450	0.450	6.391	14.433	28.942	2.258	29.148	0.529
0.475	0.475	7.097	17.166	28.993	2.419	29.161	0.566
0.500	0.500	7.803	20.082	29.045	2.574	29.174	0.603
0.525	0.525	8.510	23.176	29.097	2.723	29.186	0.640
0.550	0.550	9.217	26.441	29.148	2.869	29.199	0.678
0.575	0.575	9.924	29.873	29.200	3.010	29.212	0.716
0.600	0.600	10.631	33.466	29.251	3.148	29.224	0.754
0.625	0.625	11.339	37.217	29.303	3.282	29.237	0.793
0.650	0.650	12.047	41.123	29.354	3.413	29.250	0.831
0.675	0.675	12.757	44.698	29.889	3.504	29.753	0.866
0.700	0.700	13.536	45.935	33.273	3.394	32.217	0.879
0.725	0.725	14.372	48.400	35.737	3.368	34.681	0.901
0.750	0.750	15.270	51.215	38.202	3.354	37.144	0.925
0.775	0.775	16.229	54.376	40.666	3.350	39.608	0.950
0.800	0.800	17.250	57.881	43.131	3.355	42.072	0.975
0.825	0.825	18.333	61.731	45.595	3.367	44.536	1.001

#4 MISSION RIDGE DR (NORTH OF CP)

≈ 5.68 CFS ⇒ EGL ≈ 0.39' < 0.85' ✓ ok

+4 CFS FROM KAYSER MILL

9.68 CFS EGL ≈ 0.46' < 0.85' ∴ OK

SEE SHEET A FOR INLET ANALYSIS

SHEET A

ANALYSIS OF AN INLET IN A SUMP CONDITION - **Mission Ridge LP**

INLET TYPE: Double Grate Type "A" with curb opening wings on both sides on inlet.

WEIR: Q=C*L*H^1.5		ORIFICE: Q=C*A*(2*G*H)**0.5	
Wing opening	Grate opeining	Grate opening	Wing opening
C= 3.0	C=3.0	C=0.6	C=0.6
L= 4.0 ft	L(double grate)=[2(2.67')+2(1.8')]=8.	A(double grate)=8.19 sf	A=2.0 sf
Q=3.0(4.0')H**1.5= 12.0H**1.5	Q=3.0(8.94)H^1.5=26.82*H^1.5	Q=4.194*(64.4*H)^0.5	Q=1.2*(64.4*H)^0.5

	WS ELEVATION	HEIGHT ABOVE INLET	Q (CFS) WEIR "A" OPENING	Q (CFS) WEIR DOUBLE GRATE	Q (CFS) ORIFICE DOUBLE GRATE	TOTAL Q (CFS)	COMMENTS:
~FL @ INLET	0.00	0.00	0.00	0.00	0.00	0.00	Flow at double "A" inlet w/ two wing openings
	0.10	0.10	0.38	0.85	12.47	1.61	Weir controls on grate analysis
	0.20	0.20	1.07	2.40	17.64	4.55	
	0.30	0.30	1.97	4.41	21.60	8.35	
	0.40	0.40	3.04	6.78	24.94	12.86	Q(100 yr) = 11.69 cfs is provided at this depth
	0.50	0.50	4.24	9.48	27.88	17.97	Q(100YR) = 13.69 cfs " " "
	0.60	0.60	5.58	12.46	30.55	23.62	Q(2x100 yr) = 23.38 cfs is provided at this depth
TOP OF CURB	0.70	0.70	7.03	15.71	32.99	29.76	Q(2x100YR) = 27.38 cfs IS PROVIDED
	0.80	0.80	8.59	19.19	35.27	36.36	AT THIS
	0.90	0.90	10.25	22.90	37.41	43.39	DEPTH
ROW LIMIT	1.00	1.00	12.00	26.82	39.43	50.82	

NOTE: The total runoff intercepted by the inlet at the low point in the road is:

Qr(100) = 2*[(runoff of the wing opening) + (the lesser of the weir or orifice amount taken by the double grate)].

THE 100 YR STORM EVENT = ~~11.69~~ 13.69 CFS at the sump condition

THE 2 x 100 YR STORM EVENT = ~~23.38~~ 27.38 CFS at the sump condition

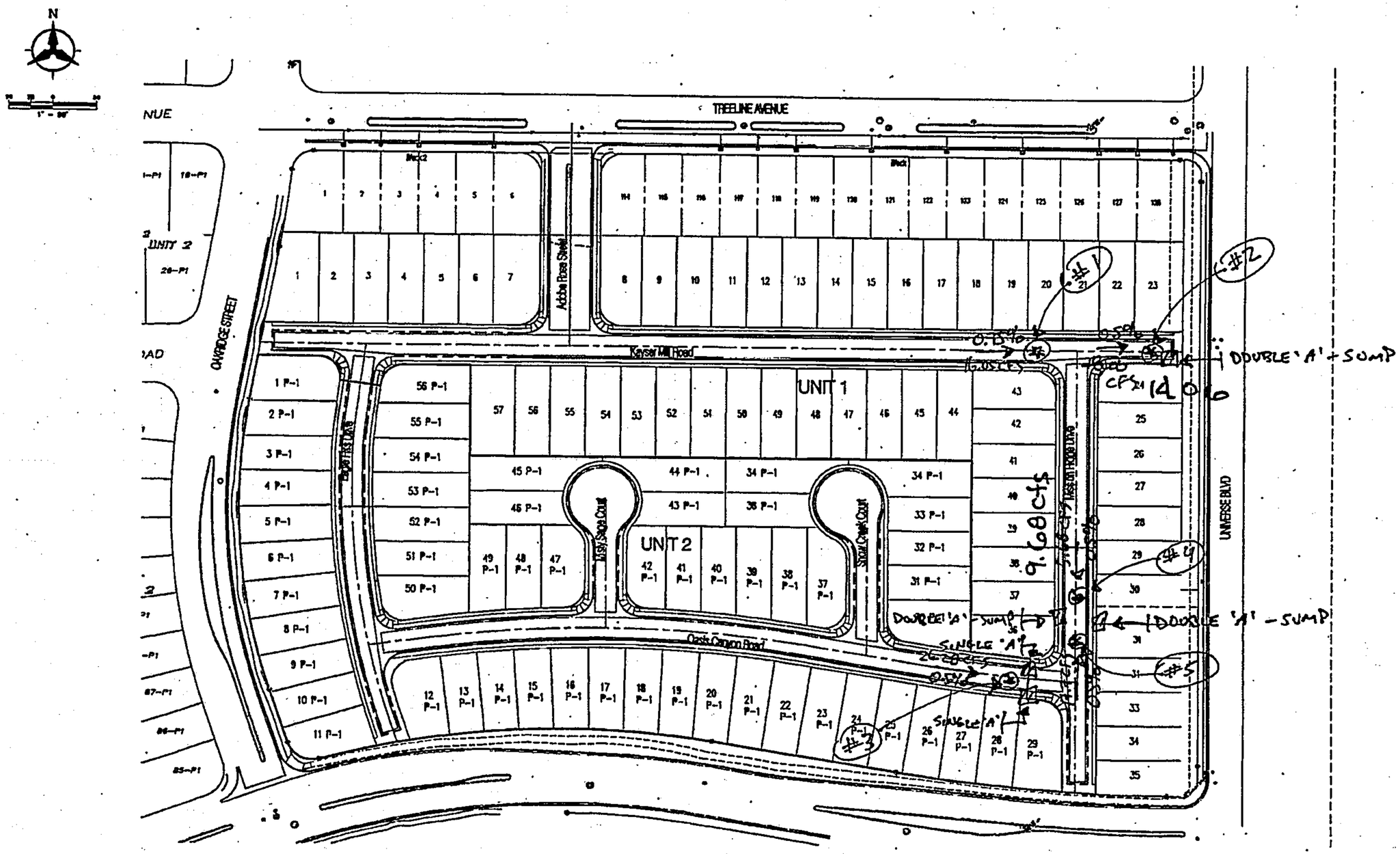
TOTAL FLOW TO LP = 23.38 CFS / 2 INLETS = 11.69 CFS

+ 4 CFS FROM KAYSER MILL

27.38 cfs / 2 = 13.69 CFS

P:\20110333\CDP\Hydro\20110333basins.xls

Bohannan Huston



STREET CAPACITY
TAOS at the TRAILS SUBDIVISION

Bohannan Huston

==========

InRoads Storm & Sanitary Design Log

Drainage File: P:\20110333\CDP\Control\Utilities\20110333 sd.sdb

Design File: P:\20110333\CDP\CONTROL\UTILITIES\UTIL SDB WORKING.DWG

Display Log: P:\20110333\CDP\CONTROL\UTILITIES\design.log

Date: Wednesday, August 17, 2011 14:48:44

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HGL/EGL Computations:

Struct_ID	D (in)	Q (cfs)	L (ft)	V (ft/s)	d (ft)	dc (ft)	V^2/2g (ft)	Sf (ft/ft)	Dn_Soffit (ft)	EGLdn (ft)	HGLdn (ft)	Tot_Loss (ft)	EGLup (ft)	HGLup (ft)	Rim_Elev. (ft)
Outfall	-	-	-	-	-	-	-	-	-	-	-	-	-	5413.85	-
EXSDP01	30	38.38	46.27	7.82	-	-	0.95	0.0088	5410.01	5414.80	5413.85	0.41	5415.21	5414.26	-
SDMH1	-	-	-	-	-	-	-	-	-	5415.21	5414.26	0.82	5416.03	5415.08	5416.34
SDP6	36	38.38	18.43	5.43	-	-	0.46	0.0033	5411.06	5416.03	5415.08	0.06	5416.09	5415.63	-
SDMH2	-	-	-	-	-	-	-	-	-	5416.09	5415.63	0.27	5416.36	5415.90	5416.82
SDP5	36	38.38	109.34	5.43	-	-	0.46	0.0033	5414.00	5416.36	5415.90	0.36	5416.72	5416.26	-
IN1	-	-	-	-	-	-	-	-	-	5416.72	5416.26	0.06	5416.78	5416.32	5418.08
PO	30	24.86	21.23	5.06	-	-	0.40	0.0037	5415.15	5416.78	5416.32	0.08	5416.86	5416.46	-
SDMH5	-	-	-	-	-	-	-	-	-	5416.86	5416.46	0.07	5416.92	5416.52	5418.23
SDP4	24	13.52	7.26	4.30	-	-	0.29	0.0036	5415.42	5416.92	5416.52	0.03	5416.95	5416.66	-
IN2	-	-	-	-	-	-	-	-	-	5416.95	5416.66	-	5416.95	5416.66	5418.08
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5416.86	5416.46	-
SDMH5	-	-	-	-	-	-	-	-	-	5416.86	5416.46	0.14	5416.99	5416.60	5418.23
SDP3	24	11.34	65.13	3.61	-	-	0.20	0.0025	5415.42	5416.99	5416.60	0.16	5417.16	5416.96	-
SDMH3	-	-	-	-	-	-	-	-	-	5417.16	5416.96	0.21	5417.37	5417.17	5418.53
SDP2	24	11.34	51.69	3.61	-	-	0.20	0.0025	5416.12	5417.37	5417.17	0.13	5417.50	5417.30	-
IN3	-	-	-	-	-	-	-	-	-	5417.50	5417.30	0.18	5417.68	5417.48	5418.60
SDP1	18	5.67	24.54	3.21	-	-	0.16	0.0029	5416.51	5417.68	5417.48	0.07	5417.75	5417.59	-
IN4	-	-	-	-	-	-	-	-	-	5417.75	5417.59	-	5417.75	5417.59	5418.69

Table B:

LOSSES

Str_ID	Hf	Hb	Hstr	Hc	He	Hj	Total	LOSS_COEFFICENTS Dstr	Ko	CD	Cd	Cq	Cp	Cb	K
Outfall	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EXSDP01	0.41	-	-	-	-	-	0.41	-	-	-	-	-	-	-	-
SDMH1	-	-	0.82	-	-	-	0.82	6.30	0.994	1.000	0.870	1.000	1.000	1.000	0.865
SDP6	0.06	-	-	-	-	-	0.06	-	-	-	-	-	-	-	-
SDMH2	-	-	0.27	-	-	-	0.27	4.23	0.952	1.000	0.614	1.000	1.000	1.000	0.585
SDP5	0.36	-	-	-	-	-	0.36	-	-	-	-	-	-	-	-
IN1	-	-	0.06	-	-	-	0.06	4.21	0.220	1.000	0.613	1.000	1.000	1.000	0.135
PO	0.08	-	-	-	-	-	0.08	-	-	-	-	-	-	-	-
SDMH5	-	-	0.07	-	-	-	0.07	3.64	0.172	1.000	0.626	1.545	1.000	1.000	0.166
SDP4	0.03	-	-	-	-	-	0.03	-	-	-	-	-	-	-	-
IN2	-	-	-	-	-	-	-	2.58	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH5	-	-	0.14	-	-	-	0.14	3.64	1.502	1.000	0.626	0.367	1.000	1.000	0.345
SDP3	0.16	-	-	-	-	-	0.16	-	-	-	-	-	-	-	-
SDMH3	-	-	0.21	-	-	-	0.21	2.93	1.650	1.000	0.629	1.000	1.000	1.000	1.038
SDP2	0.13	-	-	-	-	-	0.13	-	-	-	-	-	-	-	-
IN3	-	-	0.18	-	-	-	0.18	2.79	1.480	1.000	0.610	1.000	1.000	1.000	0.903

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10-6-14

met w/ Hugh Floyd concerning the inlet in front of lot 37, wherein, the home builder built the driveway on the south side of the lot rather than the north side.

1. I was ok w/ modifying the double A double wing to a double A single wing if Scott Steffen is ok with it

2. Hugh mentioned modifying the inlet, but it looks like a remove and replace. Remove and replace was preferred by me

3. Work to be done per Work Order process

Antoinette

Existing parking lot downstream of site:

From the images above, it would appear the site doesn't have any issues (other than some minor erosion) with the existing historic flow path as the conditions appear to match the grading plan. Based on our discussion and field visit documented above, we believe that discharging along the historic flow path at undeveloped peak flow rates is the best solution. Please let us know as soon as possible if you have any concerns. We plan to submit our grading and drainage plan to city hydrology within the next few days.

Thanks again for your time Curtis, and we look forward to hearing from you.

Matt Satches, E.I.
Engineer Intern
Community Development & Planning

Bohannan Huston
Courtyard I
7500 Jefferson St. NE
Albuquerque, NM 87109-4335
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August 17, 2011

Shahab Biazar, P. E.
Hydrology Section
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

Re: Taos Unit 1 at the Trails Unit 2, DRB 1008798, CPN#730077 (C9/D1C)

Dear Shabab:

This letter is an addendum to the previously approved drainage report for Taos at the Trails. The purpose of this addendum is to revise the street flow and inlet capacity analyses for Mission Ridge Drive and Kayser Mill Road based on the vertical design of these streets in the public work order plans. The approved drainage report assumes no flow enters Mission Ridge Drive from Kayser Mill Road. The street design does not have a water block on Mission Ridge Drive preventing water from entering from Kayser Mill Road.

The flow in Kayser Mill Road at the intersection with Mission Ridge Drive is approximately 16 cfs. The roadway half width would carry approximately 8 cfs. It is estimated that 4 cfs would turn the corner and head into Mission Ridge Drive. The additional of 4 cfs has no negative impact on the street capacity or the storm drain design for Mission Ridge Drive.

The updated analyses are shown in blue on the original submittal. Attached for your review and approval are the revised street capacity analyses for Kayser Mill Road and Mission Ridge Drive, the revised inlet capacity analysis for Mission Ridge Drive, and the revised HGL calculation for the Mission Ridge Drive storm drain system.

If you have any questions or require further information, please feel free to contact me.

Sincerely,

Scott J. Steffen, P.E.
Vice President
Community Development and Planning Group

Enclosures

Engineering ▲

Spatial Data ▲

Advanced Technologies ▲

P:\20110333\CDP\Hydro\20110333drainage Biazar Ltr.Docx

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InRoads Storm & Sanitary Design Log

Drainage File: P:\20110333\CDP\Control\Utilities\20110333 sd.sdb

Design File: P:\20110333\CDP\CONTROL\UTILITIES\UTIL SDB WORKING.DWG

Display Log: P:\20110333\CDP\CONTROL\UTILITIES\design.log

Date: Wednesday, August 17, 2011 14:48:44

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HGL/EGL Computations:

Struct_ID	D (in)	Q (cfs)	L (ft)	V (ft/s)	d (ft)	dc (ft)	V^2/2g (ft)	Sf (ft/ft)	Dn_Soffit (ft)	EGLdn (ft)	HGLdn (ft)	Tot_Loss (ft)	EGLup (ft)	HGLup (ft)	Rim_Elev. (ft)
Outfall	-	-	-	-	-	-	-	-	-	-	-	-	-	5413.85	-
EXSDP01	30	38.38	46.27	7.82	-	-	0.95	0.0088	5410.01	5414.80	5413.85	0.41	5415.21	5414.26	-
SDMH1	-	-	-	-	-	-	-	-	-	5415.21	5414.26	0.82	5416.03	5415.08	5416.34
SDP6	36	38.38	18.43	5.43	-	-	0.46	0.0033	5411.06	5416.03	5415.08	0.06	5416.09	5415.63	-
SDMH2	-	-	-	-	-	-	-	-	-	5416.09	5415.63	0.27	5416.36	5415.90	5416.82
SDP5	36	38.38	109.34	5.43	-	-	0.46	0.0033	5414.00	5416.36	5415.90	0.36	5416.72	5416.26	-
IN1	-	-	-	-	-	-	-	-	-	5416.72	5416.26	0.06	5416.78	5416.32	5418.08
P0	30	24.86	21.23	5.06	-	-	0.40	0.0037	5415.15	5416.78	5416.32	0.08	5416.86	5416.46	-
SDMH5	-	-	-	-	-	-	-	-	-	5416.86	5416.46	0.07	5416.92	5416.52	5418.23
SDP4	24	13.52	7.26	4.30	-	-	0.29	0.0036	5415.42	5416.92	5416.52	0.03	5416.95	5416.66	-
IN2	-	-	-	-	-	-	-	-	-	5416.95	5416.66	-	5416.95	5416.66	5418.08
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5416.86	5416.46	-
SDMH5	-	-	-	-	-	-	-	-	-	5416.86	5416.46	0.14	5416.99	5416.60	5418.23
SDP3	24	11.34	65.13	3.61	-	-	0.20	0.0025	5415.42	5416.99	5416.60	0.16	5417.16	5416.96	-
SDMH3	-	-	-	-	-	-	-	-	-	5417.16	5416.96	0.21	5417.37	5417.17	5418.53
SDP2	24	11.34	51.69	3.61	-	-	0.20	0.0025	5416.12	5417.37	5417.17	0.13	5417.50	5417.30	-
IN3	-	-	-	-	-	-	-	-	-	5417.50	5417.30	0.18	5417.68	5417.48	5418.60
SDP1	18	5.67	24.54	3.21	-	-	0.16	0.0029	5416.51	5417.68	5417.48	0.07	5417.75	5417.59	-
IN4	-	-	-	-	-	-	-	-	-	5417.75	5417.59	-	5417.75	5417.59	5418.69

Table B:

LOSSES Str_ID	Hf	Hb	Hstr	Hc	He	Hj	Total	LOSS_COEFFICENTS Dstr	Ko	CD	Cd	Cq	Cp	Cb	K
Outfall	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EXSDP01	0.41	-	-	-	-	-	0.41	-	-	-	-	-	-	-	-
SDMH1	-	-	0.82	-	-	-	0.82	6.30	0.994	1.000	0.870	1.000	1.000	1.000	0.865
SDP6	0.06	-	-	-	-	-	0.06	-	-	-	-	-	-	-	-
SDMH2	-	-	0.27	-	-	-	0.27	4.23	0.952	1.000	0.614	1.000	1.000	1.000	0.585
SDP5	0.36	-	-	-	-	-	0.36	-	-	-	-	-	-	-	-
IN1	-	-	0.06	-	-	-	0.06	4.21	0.220	1.000	0.613	1.000	1.000	1.000	0.135
P0	0.08	-	-	-	-	-	0.08	-	-	-	-	-	-	-	-
SDMH5	-	-	0.07	-	-	-	0.07	3.64	0.172	1.000	0.626	1.545	1.000	1.000	0.166
SDP4	0.03	-	-	-	-	-	0.03	-	-	-	-	-	-	-	-
IN2	-	-	-	-	-	-	-	2.58	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH5	-	-	0.14	-	-	-	0.14	3.64	1.502	1.000	0.626	0.367	1.000	1.000	0.345
SDP3	0.16	-	-	-	-	-	0.16	-	-	-	-	-	-	-	-
SDMH3	-	-	0.21	-	-	-	0.21	2.93	1.650	1.000	0.629	1.000	1.000	1.000	1.038
SDP2	0.13	-	-	-	-	-	0.13	-	-	-	-	-	-	-	-
IN3	-	-	0.18	-	-	-	0.18	2.79	1.480	1.000	0.610	1.000	1.000	1.000	0.903

MANNING'S N = 0.017 SLOPE = 0.008

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	11.5	0.1	9.0	37.7	0.7
2.0	8.9	0.7	6.0	23.5	0.4	10.0	38.1	0.7
3.0	9.3	0.7	7.0	35.5	0.1	11.0	47.0	0.9
4.0	9.5	0.0	8.0	37.5	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.025	0.025	0.010	0.004	0.822	0.394	1.702	0.027
0.050	0.050	0.039	0.024	1.645	0.626	2.484	0.056
0.075	0.075	0.088	0.072	2.467	0.820	3.266	0.085
0.100	0.100	0.156	0.155	3.290	0.993	4.048	0.115
0.125	0.125	0.244	0.282	4.112	1.153	4.830	0.146
0.150	0.150	0.366	0.414	6.318	1.133	6.996	0.170
0.175	0.175	0.549	0.650	8.870	1.184	9.509	0.197
0.200	0.200	0.795	1.019	11.423	1.281	12.021	0.226
0.225	0.225	1.104	1.539	13.975	1.394	14.534	0.255
0.250	0.250	1.476	2.232	16.527	1.512	17.047	0.286
0.275	0.275	1.910	3.119	19.079	1.632	19.560	0.316
0.300	0.300	2.408	4.218	21.631	1.752	22.072	0.348
0.325	0.325	2.968	5.549	24.183	1.870	24.585	0.379
0.350	0.350	3.591	7.130	26.735	1.985	27.098	0.411
0.375	0.375	4.276	9.078	28.787	2.123	29.110	0.445
0.400	0.400	4.981	11.693	28.839	2.348	29.123	0.486
0.425	0.425	5.686	14.563	28.890	2.561	29.136	0.527
0.450	0.450	6.391	17.677	28.942	2.766	29.148	0.569
0.475	0.475	7.097	21.024	28.993	2.962	29.161	0.611
0.500	0.500	7.803	24.596	29.045	3.152	29.174	0.655
0.525	0.525	8.510	28.385	29.097	3.335	29.186	0.698
0.550	0.550	9.217	32.383	29.148	3.514	29.199	0.742
0.575	0.575	9.924	36.586	29.200	3.687	29.212	0.786
0.600	0.600	10.631	40.987	29.251	3.855	29.224	0.831
0.625	0.625	11.339	45.582	29.303	4.020	29.237	0.876
0.650	0.650	12.047	50.365	29.354	4.181	29.250	0.922
0.675	0.675	12.757	54.744	29.889	4.291	29.753	0.961
0.700	0.700	13.536	56.259	33.273	4.156	32.217	0.969
0.725	0.725	14.372	59.278	35.737	4.124	34.681	0.990
0.750	0.750	15.270	62.726	38.202	4.108	37.144	1.012
0.775	0.775	16.229	66.597	40.666	4.103	39.608	1.037
0.800	0.800	17.250	70.889	43.131	4.109	42.072	1.063
0.825	0.825	18.333	75.605	45.595	4.124	44.536	1.090

#1 KAYSER MILL ROAD...

≈16.05 CFS → EGL ≈0.55' < 0.85' ✓ ok

~4 cfs FROM SOUTH SIDE OF ROAD ENTERS MISSION RIDGE DRIVE

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	11.5	0.1	9.0	37.7	0.7
2.0	8.9	0.7	6.0	23.5	0.4	10.0	38.1	0.7
3.0	9.3	0.7	7.0	35.5	0.1	11.0	47.0	0.9
4.0	9.5	0.0	8.0	37.5	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.025	0.025	0.010	0.003	0.822	0.322	1.702	0.027
0.050	0.050	0.039	0.020	1.645	0.511	2.484	0.054
0.075	0.075	0.088	0.059	2.467	0.670	3.266	0.082
0.100	0.100	0.156	0.127	3.290	0.811	4.048	0.110
0.125	0.125	0.244	0.230	4.112	0.941	4.830	0.139
0.150	0.150	0.366	0.338	6.318	0.925	6.996	0.163
0.175	0.175	0.549	0.531	8.870	0.967	9.509	0.190
0.200	0.200	0.795	0.832	11.423	1.046	12.021	0.217
0.225	0.225	1.104	1.257	13.975	1.138	14.534	0.245
0.250	0.250	1.476	1.823	16.527	1.235	17.047	0.274
0.275	0.275	1.910	2.546	19.079	1.333	19.560	0.303
0.300	0.300	2.408	3.444	21.631	1.430	22.072	0.332
0.325	0.325	2.968	4.531	24.183	1.526	24.585	0.361
0.350	0.350	3.591	5.822	26.735	1.621	27.098	0.391
0.375	0.375	4.276	7.412	28.787	1.734	29.110	0.422
0.400	0.400	4.981	9.547	28.839	1.917	29.123	0.457
0.425	0.425	5.686	11.891	28.890	2.091	29.136	0.493
0.450	0.450	6.391	14.433	28.942	2.258	29.148	0.529
0.475	0.475	7.097	17.166	28.993	2.419	29.161	0.566
0.500	0.500	7.803	20.082	29.045	2.574	29.174	0.603
0.525	0.525	8.510	23.176	29.097	2.723	29.186	0.640
0.550	0.550	9.217	26.441	29.148	2.869	29.199	0.678
0.575	0.575	9.924	29.873	29.200	3.010	29.212	0.716
0.600	0.600	10.631	33.466	29.251	3.148	29.224	0.754
0.625	0.625	11.339	37.217	29.303	3.282	29.237	0.793
0.650	0.650	12.047	41.123	29.354	3.413	29.250	0.831
0.675	0.675	12.757	44.698	29.889	3.504	29.753	0.866
0.700	0.700	13.536	45.935	33.273	3.394	32.217	0.879
0.725	0.725	14.372	48.400	35.737	3.368	34.681	0.901
0.750	0.750	15.270	51.215	38.202	3.354	37.144	0.925
0.775	0.775	16.229	54.376	40.666	3.350	39.608	0.950
0.800	0.800	17.250	57.881	43.131	3.355	42.072	0.975
0.825	0.825	18.333	61.731	45.595	3.367	44.536	1.001

#2 KAYSER MILL ROAD

≈ 18.06 cfs ⇒ EGL ≈ 0.58' < 0.85' ✓ ok

− 4 cfs TO MISSION RIDGE DR

14.06 cfs EGL ≈ 0.53' < 0.75' ∴ OK

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	11.5	0.1	9.0	37.7	0.7
2.0	8.9	0.7	6.0	23.5	0.4	10.0	38.1	0.7
3.0	9.3	0.7	7.0	35.5	0.1	11.0	47.0	0.9
4.0	9.5	0.0	8.0	37.5	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.025	0.025	0.010	0.003	0.822	0.322	1.702	0.027
0.050	0.050	0.039	0.020	1.645	0.511	2.484	0.054
0.075	0.075	0.088	0.059	2.467	0.670	3.266	0.082
0.100	0.100	0.156	0.127	3.290	0.811	4.048	0.110
0.125	0.125	0.244	0.230	4.112	0.941	4.830	0.139
0.150	0.150	0.366	0.338	6.318	0.925	6.996	0.163
0.175	0.175	0.549	0.531	8.870	0.967	9.509	0.190
0.200	0.200	0.795	0.832	11.423	1.046	12.021	0.217
0.225	0.225	1.104	1.257	13.975	1.138	14.534	0.245
0.250	0.250	1.476	1.823	16.527	1.235	17.047	0.274
0.275	0.275	1.910	2.546	19.079	1.333	19.560	0.303
0.300	0.300	2.408	3.444	21.631	1.430	22.072	0.332
0.325	0.325	2.968	4.531	24.183	1.526	24.585	0.361
0.350	0.350	3.591	5.822	26.735	1.621	27.098	0.391
0.375	0.375	4.276	7.412	28.787	1.734	29.110	0.422
0.400	0.400	4.981	9.547	28.839	1.917	29.123	0.457
0.425	0.425	5.686	11.891	28.890	2.091	29.136	0.493
0.450	0.450	6.391	14.433	28.942	2.258	29.148	0.529
0.475	0.475	7.097	17.166	28.993	2.419	29.161	0.566
0.500	0.500	7.803	20.082	29.045	2.574	29.174	0:603
0.525	0.525	8.510	23.176	29.097	2.723	29.186	0.640
0.550	0.550	9.217	26.441	29.148	2.869	29.199	0.678
0.575	0.575	9.924	29.873	29.200	3.010	29.212	0.716
0.600	0.600	10.631	33.466	29.251	3.148	29.224	0.754
0.625	0.625	11.339	37.217	29.303	3.282	29.237	0.793
0.650	0.650	12.047	41.123	29.354	3.413	29.250	0.831
0.675	0.675	12.757	44.698	29.889	3.504	29.753	0.866
0.700	0.700	13.536	45.935	33.273	3.394	32.217	0.879
0.725	0.725	14.372	48.400	35.737	3.368	34.681	0.901
0.750	0.750	15.270	51.215	38.202	3.354	37.144	0.925
0.775	0.775	16.229	54.376	40.666	3.350	39.608	0.950
0.800	0.800	17.250	57.881	43.131	3.355	42.072	0.975
0.825	0.825	18.333	61.731	45.595	3.367	44.536	1.001

#4 MISSION—RIDGE DR (NORTH OF CP)

≈ 5.68 CFS ⇒ EGL ≈ 0.39' < 0.85' ✓ ok

+4 CFS FROM KAYSER MILL

9.68 CFS EGL ≈ 0.46' < 0.85' ∴ OK

SEE SHEET A FOR INLET ANALYSIS

Type "A" Double-Mission Ridge

SHEET A

ANALYSIS OF AN INLET IN A SUMP CONDITION - **Mission Ridge LP**

INLET TYPE: Double Grate Type "A" with curb opening wings on both sides on inlet.

WEIR: Q=C*L*H^1.5		ORIFICE: Q=C*A*(2*G*H)**0.5	
Wing opening	Grate opening	Grate opening	Wing opening
C= 3.0	C=3.0	C=0.6	C=0.6
L= 4.0 ft	L(double grate)=[2(2.67')+2(1.8')]=8.	A(double grate)=8.19 sf	A=2.0 sf
Q=3.0(4.0')H**1.5= 12.0H**1.5	Q=3.0(8.94)H^1.5=26.82*H^1.5	Q=4.194*(64.4*H)^0.5	Q=1.2*(64.4*H)^0.5

	WS ELEVATION	HEIGHT ABOVE INLET	Q (CFS) WEIR "A" OPENING	Q (CFS) WEIR DOUBLE GRATE	Q (CFS) ORIFICE DOUBLE GRATE	TOTAL Q (CFS)	COMMENTS:
~FL @ INLET	0.00	0.00	0.00	0.00	0.00	0.00	Flow at double "A" inlet w/ two wing openings
	0.10	0.10	0.38	0.85	12.47	1.61	Weir controls on grate analysis
	0.20	0.20	1.07	2.40	17.64	4.55	
	0.30	0.30	1.97	4.41	21.60	8.35	
	0.40	0.40	3.04	6.78	24.94	12.86	Q(100 yr) = 11.69 cfs is provided at this depth
	0.50	0.50	4.24	9.48	27.88	17.97	Q(100YR) = 13.69 cfs " " "
	0.60	0.60	5.58	12.46	30.55	23.62	Q(2x100 yr) = 23.38 cfs is provided at this depth
TOP OF CURB	0.70	0.70	7.03	15.71	32.99	29.76	Q(2x100YR) = 27.38 cfs IS PROVIDED
	0.80	0.80	8.59	19.19	35.27	36.36	AT THIS
	0.90	0.90	10.25	22.90	37.41	43.39	DEPTH
ROW LIMIT	1.00	1.00	12.00	26.82	39.43	50.82	

NOTE: The total runoff intercepted by the inlet at the low point in the road is:

Qr(100) = 2*[(runoff of the wing opening) + (the lesser of the weir or orifice amount taken by the double grate)].

THE 100 YR STORM EVENT = ~~11.69~~ 13.69 CFS at the sump condition

THE 2 x 100 YR STORM EVENT = ~~23.38~~ 27.38 CFS at the sump condition

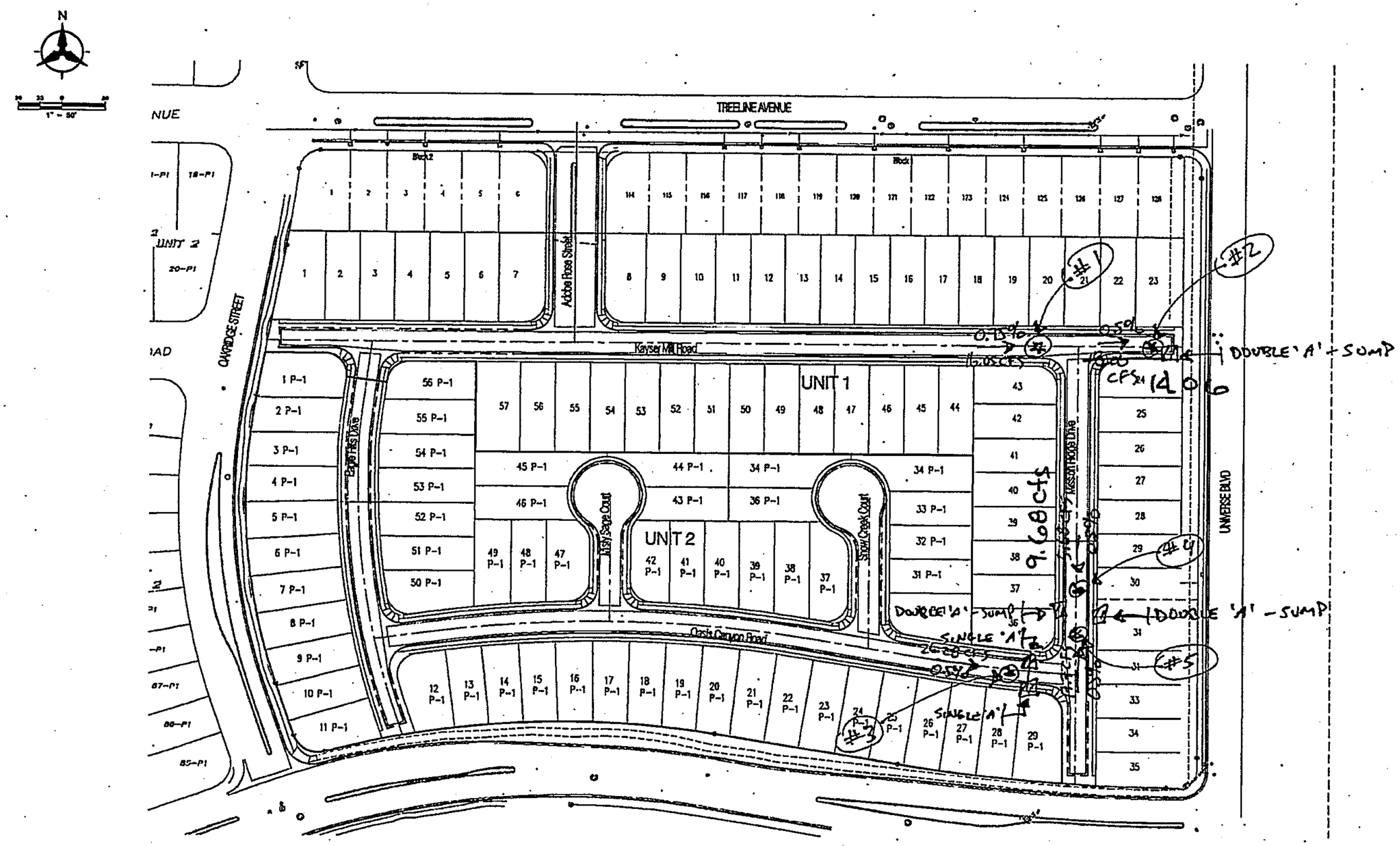
TOTAL FLOW TO LP = 23.38 CFS / 2 INLETS = 11.69 CFS

+ 4 CFS FROM KAYSER MILL

27.38 cfs / 2 = 13.69 CFS

P:\20110333\CDP\Hydro\20110333basins.xls

Bohannan Huston



STREET CAPACITY
TAOS at the TRAILS SUBDIVISION

Bohannan Huston

InRoads Storm & Sanitary Design Log

Drainage File: P:\20110333\CDP\Control\Utilities\20110333 sd.sdb

Design File: P:\20110333\CDP\CONTROL\UTILITIES\UTIL SDB WORKING.DWG

Display Log: P:\20110333\CDP\CONTROL\UTILITIES\design.log

Date: Wednesday, August 17, 2011 14:48:44

HGL/EGL Computations:

What is the Max. Flow Capacity For This Section

Struct_ID	D (in)	Q (cfs)	L (ft)	V (ft/s)	d (ft)	dc (ft)	V^2/2g (ft)	Sf (ft/ft)	Dn_Soffit (ft)	EGLdn (ft)	HGLdn (ft)	Tot_Loss (ft)	EGLup (ft)	HGLup (ft)	Rim_Elev. (ft)
Outfall	-	-	-	-	-	-	-	-	-	-	-	-	-	5413.85	-
EXSDP01	30	38.38	46.27	7.82	-	-	0.95	0.0088	5410.01	5414.80	5413.85	0.41	5415.21	5414.26	-
SDMH1	-	-	-	-	-	-	-	-	-	5415.21	5414.26	0.82	5416.03	5415.08	5416.34
SDP6	36	38.38	18.43	5.43	-	-	0.46	0.0033	5411.06	5416.03	5415.08	0.06	5416.09	5415.63	-
SDMH2	-	-	-	-	-	-	-	-	-	5416.09	5415.63	0.27	5416.36	5415.90	5416.82
SDP5	36	38.38	109.34	5.43	-	-	0.46	0.0033	5414.00	5416.36	5415.90	0.36	5416.72	5416.26	-
IN1	-	-	-	-	-	-	-	-	-	5416.72	5416.26	0.06	5416.78	5416.32	5418.08
P0	30	24.86	21.23	5.06	-	-	0.40	0.0037	5415.15	5416.78	5416.32	0.08	5416.86	5416.46	-
SDMH5	-	-	-	-	-	-	-	-	-	5416.86	5416.46	0.07	5416.92	5416.52	5418.23
SDP4	24	13.52	7.26	4.30	-	-	0.29	0.0036	5415.42	5416.92	5416.52	0.03	5416.95	5416.66	-
IN2	-	-	-	-	-	-	-	-	-	5416.95	5416.66	-	5416.95	5416.66	5418.08
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5416.86	5416.46	-
SDMH5	-	-	-	-	-	-	-	-	-	5416.86	5416.46	0.14	5416.99	5416.60	5418.23
SDP3	24	11.34	65.13	3.61	-	-	0.20	0.0025	5415.42	5416.99	5416.60	0.16	5417.16	5416.96	-
SDMH3	-	-	-	-	-	-	-	-	-	5417.16	5416.96	0.21	5417.37	5417.17	5418.53
SDP2	24	11.34	51.69	3.61	-	-	0.20	0.0025	5416.12	5417.37	5417.17	0.13	5417.50	5417.30	-
IN3	-	-	-	-	-	-	-	-	-	5417.50	5417.30	0.18	5417.68	5417.48	5418.60
SDP1	18	5.67	24.54	3.21	-	-	0.16	0.0029	5416.51	5417.68	5417.48	0.07	5417.75	5417.59	-
IN4	-	-	-	-	-	-	-	-	-	5417.75	5417.59	-	5417.75	5417.59	5418.69

Table B:

LOSSES

Str_ID	Hf	Hb	Hstr	Hc	He	Hj	Total	LOSS_COEFFICENTS Dstr	Ko	CD	Cd	Cq	Cp	Cb	K
Outfall	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EXSDP01	0.41	-	-	-	-	-	0.41	-	-	-	-	-	-	-	-
SDMH1	-	-	0.82	-	-	-	0.82	6.30	0.994	1.000	0.870	1.000	1.000	1.000	0.865
SDP6	0.06	-	-	-	-	-	0.06	-	-	-	-	-	-	-	-
SDMH2	-	-	0.27	-	-	-	0.27	4.23	0.952	1.000	0.614	1.000	1.000	1.000	0.585
SDP5	0.36	-	-	-	-	-	0.36	-	-	-	-	-	-	-	-
IN1	-	-	0.06	-	-	-	0.06	4.21	0.220	1.000	0.613	1.000	1.000	1.000	0.135
P0	0.08	-	-	-	-	-	0.08	-	-	-	-	-	-	-	-
SDMH5	-	-	0.07	-	-	-	0.07	3.64	0.172	1.000	0.626	1.545	1.000	1.000	0.166
SDP4	0.03	-	-	-	-	-	0.03	-	-	-	-	-	-	-	-
IN2	-	-	-	-	-	-	-	2.58	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH5	-	-	0.14	-	-	-	0.14	3.64	1.502	1.000	0.626	0.367	1.000	1.000	0.345
SDP3	0.16	-	-	-	-	-	0.16	-	-	-	-	-	-	-	-
SDMH3	-	-	0.21	-	-	-	0.21	2.93	1.650	1.000	0.629	1.000	1.000	1.000	1.038
SDP2	0.13	-	-	-	-	-	0.13	-	-	-	-	-	-	-	-
IN3	-	-	0.18	-	-	-	0.18	2.79	1.480	1.000	0.610	1.000	1.000	1.000	0.903

InRoads Storm & Sanitary Design Log

Drainage File: P:\20110333\CDP\Control\Utilities\20110333 sd.sdb

Design File: P:\20110333\CDP\CONTROL\UTILITIES\UTIL SDB WORKING.DWG

Display Log: P:\20110333\CDP\CONTROL\UTILITIES\design.log

Date: Thursday, August 18, 2011 09:03:31

HGL/EGL Computations:

@ Full Capacity

Struct_ID	D (in)	Q (cfs)	L (ft)	V (ft/s)	d (ft)	dc (ft)	V^2/2g (ft)	Sf (ft/ft)	Dn_Soffit (ft)	EGLdn (ft)	HGLdn (ft)	Tot_Loss (ft)	EGLup (ft)	HGLup (ft)	Rim_Elev. (ft)
Outfall	-	-	-	-	-	-	-	-	-	-	-	-	-	5413.85	-
EXSDP01	30	43.94	46.27	8.95	-	-	1.25	0.0115	5410.01	5415.10	5413.85	0.53	5415.63	5414.38	-
SDMH1	-	-	-	-	-	-	-	-	-	5415.63	5414.38	1.09	5416.72	5415.47	5416.34
SDP6	36	43.94	18.43	6.22	-	-	0.60	0.0043	5411.06	5416.72	5415.47	0.08	5416.80	5416.20	-
SDMH2	-	-	-	-	-	-	-	-	-	5416.80	5416.20	0.38	5417.17	5416.57	5416.82
SDP5	36	43.94	109.34	6.22	-	-	0.60	0.0043	5414.00	5417.17	5416.57	0.47	5417.65	5417.05	-
IN1	-	-	-	-	-	-	-	-	-	5417.65	5417.05	0.09	5417.74	5417.14	5418.08
PO	30	27.64	21.23	5.63	-	-	0.49	0.0045	5415.15	5417.74	5417.14	0.10	5417.84	5417.34	-
SDMH5	-	-	-	-	-	-	-	-	-	5417.84	5417.34	0.09	5417.93	5417.43	5418.23
SDP4	24	16.30	7.26	5.19	-	-	0.42	0.0052	5415.42	5417.93	5417.43	0.04	5417.96	5417.55	-
IN2	-	-	-	-	-	-	-	-	-	5417.96	5417.55	-	5417.96	5417.55	5418.08
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5417.84	5417.34	-
SDMH5	-	-	-	-	-	-	-	-	-	5417.84	5417.34	0.17	5418.01	5417.52	5418.23
SDP3	24	11.34	65.13	3.61	-	-	0.20	0.0025	5415.42	5418.01	5417.52	0.16	5418.17	5417.97	-
SDMH3	-	-	-	-	-	-	-	-	-	5418.17	5417.97	0.25	5418.42	5418.22	5418.53
SDP2	24	11.34	51.69	3.61	-	-	0.20	0.0025	5416.12	5418.42	5418.22	0.13	5418.55	5418.35	-
IN3	-	-	-	-	-	-	-	-	-	5418.55	5418.35	0.22	5418.77	5418.57	5418.60
SDP1	18	5.67	24.54	3.21	-	-	0.16	0.0029	5416.51	5418.77	5418.57	0.07	5418.85	5418.69	-
IN4	-	-	-	-	-	-	-	-	-	5418.85	5418.69	-	5418.85	5418.69	5418.69

LOSSES Str_ID	Hf	Hb	Hstr	Hc	He	Hj	Total	LOSS_COEFFICENTS Dstr	Ko	CD	Cd	Cq	Cp	Cb	K
Outfall	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EXSDP01	0.53	-	-	-	-	-	0.53	-	-	-	-	-	-	-	-
SDMH1	-	-	1.09	-	-	-	1.09	6.42	0.994	1.000	0.881	1.000	1.000	1.000	0.875
SDP6	0.08	-	-	-	-	-	0.08	-	-	-	-	-	-	-	-
SDMH2	-	-	0.38	-	-	-	0.38	4.79	0.952	1.000	0.662	1.000	1.000	1.000	0.630
SDP5	0.47	-	-	-	-	-	0.47	-	-	-	-	-	-	-	-
IN1	-	-	0.09	-	-	-	0.09	5.00	0.220	1.000	0.679	1.000	1.000	1.000	0.149
PO	0.10	-	-	-	-	-	0.10	-	-	-	-	-	-	-	-
SDMH5	-	-	0.09	-	-	-	0.09	4.52	0.172	1.000	0.713	1.504	1.000	1.000	0.184
SDP4	0.04	-	-	-	-	-	0.04	-	-	-	-	-	-	-	-
IN2	-	-	-	-	-	-	-	3.47	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH5	-	-	0.17	-	-	-	0.17	4.52	1.502	1.000	0.713	0.327	1.000	1.000	0.350
SDP3	0.16	-	-	-	-	-	0.16	-	-	-	-	-	-	-	-
SDMH3	-	-	0.25	-	-	-	0.25	3.94	1.650	1.000	0.752	1.000	1.000	1.000	1.240
SDP2	0.13	-	-	-	-	-	0.13	-	-	-	-	-	-	-	-
IN3	-	-	0.22	-	-	-	0.22	3.84	1.480	1.000	0.740	1.000	1.000	1.000	1.095
SDP1	0.07	-	-	-	-	-	0.07	-	-	-	-	-	-	-	-
IN4	-	-	-	-	-	-	-	3.53	-	-	-	-	-	-	-

CITY OF ALBUQUERQUE

July 1, 2011

Scott J. Steffen, P.E.
Bohannan Huston, Inc.
7500 Jefferson NE
Albuquerque, NM 87109

Re: Taos Units 1 and 2 at the Trails Unit 2, NE of Woodmont and Universe, Grading and Drainage Plan
Engineer's Stamp dated 6-21-11 (C9/D001C)

Dear Mr. Steffen,

Based upon the information provided in your submittal received 6-22-11, the above referenced plan is approved for Grading Permit since the DRB approved the Grading Plan for Preliminary Plat on 6-29-11.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit for storm water discharge and a Topsoil Disturbance Permit since it is disturbing ¾ of an acre or more.

If you have any questions, you can contact me at 924-3986.

Sincerely,

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

C: file
Kathy Verhage

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

Albuquerque - Making History 1706-2006

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/2005)

C-09/D001C

PROJECT TITLE: Taos at the Trails Unit II
ZONE MAP/DRG. FILE # C9/D1C
DRB#: N/A EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: Lots 7-P1 thru 113-P1, together with vacated Kayser Mill Road, Eagle Hills Drive, Mission Ridge Drive, Oasis Canyon Road, Snow Creek Court, and a Portion of Adobe Rose Place, of Taos at the Trails Unit 2 Subdivision, City of Albuquerque, Bernalillo County, New Mexico, as the same is shown and designated on the plat entitled "SUBDIVISION PLAT OF TAOS AT THE TRAILS UNIT 2 (BEING A REPLAT OF TRACTS 5 AND 7, THE TRAILS, UNIT 2) WITHIN THE TOWN OF ALAMEDA GRANT IN PROJECTED SECTION 16, TOWNSHIP 11 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO", filed in the office of the County Clerk of Bernalillo County, New Mexico, on October 26, 2007, in Plat Book 2007C, Page 314, as Document No. 2007149699.

Tract A of Taos Unit 1 at the Trails Unit 2 Subdivision, City of Albuquerque, Bernalillo County, New Mexico, as the same is shown and designated on the plat entitled "SUBDIVISION PLAT OF TAOS UNIT 1 AT THE TRAILS UNIT 2 (BEING A REPLAT OF LOTS 7-P1 THRU 113-P1, TOGETHER WITH VACATED KAYSER MILL ROAD, EAGLE HILLS DRIVE, MISSION RIDGE DRIVE, OASIS CANYON ROAD, SNOW CREEK COURT, AND A PORTIOON OF ADOBE ROSE PLACE, TAOS AT THE TRAILS, UNIT 2) WITHIN THE TOWN OF ALAMEDA GRANT IN PROJECTED SECTION 16, TOWNSHIP 11 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO", filed in the office of the County Clerk of Bernalillo County, New Mexico, on _____, in Plat Book _____, Page _____, as Document No. _____.
CITY ADDRESS: _____

ENGINEERING FIRM: Bohannan Huston Inc. CONTACT: Scott Steffen
ADDRESS: 7500 Jefferson NE PHONE: (505) 823-1000
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

OWNER: The Trails, LLC CONTACT: Rick Beltramo
ADDRESS: 6840 Treeline Avenue PHONE: (505) 761-9911
CITY, STATE: Albuquerque, NM ZIP CODE: 87114

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

JUN 29 2011
HYDROLOGY

TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1st SUBMITTAL
X DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN RESUBMITTAL
_____ EROSION CONTROL PLAN
_____ ENGINEER'S CERT (HYDROLOGY)
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT
_____ ENGINEER CERT (TCL)
_____ ENGINEER CERT (DRB SITE PLAN)
_____ OTHER (REVISED G&D PLAN)

CHECK TYPE OF APPROVAL SOUGHT:
_____ SIA/FINANCIAL GUARANTEE RELEASE
X PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. 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 (ROUGH)
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:
_____ YES
_____ NO
_____ COPY PROVIDED

SUBMITTED BY: Scott Steffen DATE: 06-22-11

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope to the proposed development define 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 (5) acres and Sector Plans.
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

CITY OF ALBUQUERQUE

June 23, 2011

Scott J. Steffen, P.E.
Bohannan Huston, Inc.
7500 Jefferson NE
Albuquerque, NM 87109

Re: Taos Units 1 and 2 at the Trails Unit 2, NE of Woodmont and Universe, Grading and Drainage Plan

Engineer's Stamp dated 6-21-11 (C9/D001C)

Dear Mr. Steffen,

Based upon the information provided in your submittal received 6-22-11, the above referenced plan is approved for Preliminary Plat action by the DRB. Once the board approves the plan, Hydrology will approve the site for Grading Permit.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Curtis A. Cherne

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

C: file

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Albuquerque - Making History 1706-2006

C9-D01C

AGREEMENT AND COVENANT

COA PROJECT #730084

This Agreement and Covenant ("Agreement"), between the City of Albuquerque, New Mexico ("City") THE TRAILS, LLC, ("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 UNIVERSE BLVD. AND WOODMONT AVE., SW, in Albuquerque, New Mexico, and more particularly described as: (give legal description and filing information)

TRACTS 2, 3, and 4 of THE TRAILS, UNIT 4, as shown on plat entitled "BULK LAND PLAT OF THE TRAILS UNIT 4" recorded 12/28/2007, DOC. #2007173084, PG 1 of 4, BK 2007C PG. 0357

The City is the owner of a 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:

If the City's Property is an easement, then give legal description and filing information:
A PUBLIC BLANKET DRAINAGE EASEMENT ON TRACTS 2, 3 & 4, UNIT 4, OF THE TRAILS, RECORDED: NOV 8, 2011, DOC# 2011102117, Pgs 1-4

The User wishes to construct upon, improve or repair and to maintain the following ~~road~~ DRAINAGE improvement ("Improvement") on the City's Property (or already has done so):
DRAINAGE PONDS "J" AND "K",

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

Doc# 2011102118
11/08/2011 04:13 PM Page: 1 of 7
AGRE R:$25.00 M. Toulouse Oliver, Bernalillo County

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 G+D RPT. C9-D1B, D1C on file at the City Engineer's office. 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 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 canceled 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 of the Cancellation and Release. After the effective date, the City will record the Cancellation and Release with the Bernalillo County Clerk.

Cancellation of this Agreement for any reason shall not release the User from any liability or obligation relating to the installation, operation, maintenance, or removal of the Improvement or any other term of this Agreement.

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:

THE TRAILS, LLC
KELLY CALHOUN OR JOHN MURTAGH
3077 E. WARM SPRINGS ROAD
LAS VEGAS, NEVADA, 89120

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 shall be solely responsible for maintaining the premises upon which the Improvements are being constructed in a safe condition. The User agrees to indemnify and hold harmless the City and its officials, agents and employees from any claims, actions, suits or other proceedings arising from or out of the acts or omissions of the User, its agents, representatives, contractors or subcontractors or arising from the failure of the User, its agents, representatives, contractors or subcontractors to perform any act or duty required of the User herein. The indemnification required hereunder shall not be limited as a result of the specifications of any applicable insurance coverage. Nothing herein is intended to impair any right or immunity under the laws of the State of New Mexico.

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.

USER: THE TRAILS, LLC

By [signature]: _____
Name [print]: KELLY CALHOUN
Title: VICE PRESIDENT, LONGFORD GROUP INC.
Dated: AUGUST 11, 2011

CITY OF ALBUQUERQUE

By: _____
Richard Dourte, City Engineer
Dated: 11-8-11

11-4-11

CITY'S NOTARY

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on November 8, 20 11 by Richard Dourte, City Engineer, for the City of Albuquerque, a New Mexico municipal corporation, on behalf of the corporation.

Linda G. Evans
Notary Public

10-07-12
My Commission Expires:

LINDA G. EVANS NOTARY PUBLIC STATE OF NEW MEXICO

USER'S NOTARY

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on August 11, 20 11, by KELLY CALHOUN (name), VICE PRESIDENT (title), on behalf of LONGFORD GROUP, INC. (entity). MANAGER OF THE TRAILS, LLC

Jacqueline Vargas
Notary Public

My Commission Expires:
10-1-12 Dr.

OFFICIAL SEAL
Jacqueline Vargas
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: 10-1-2012

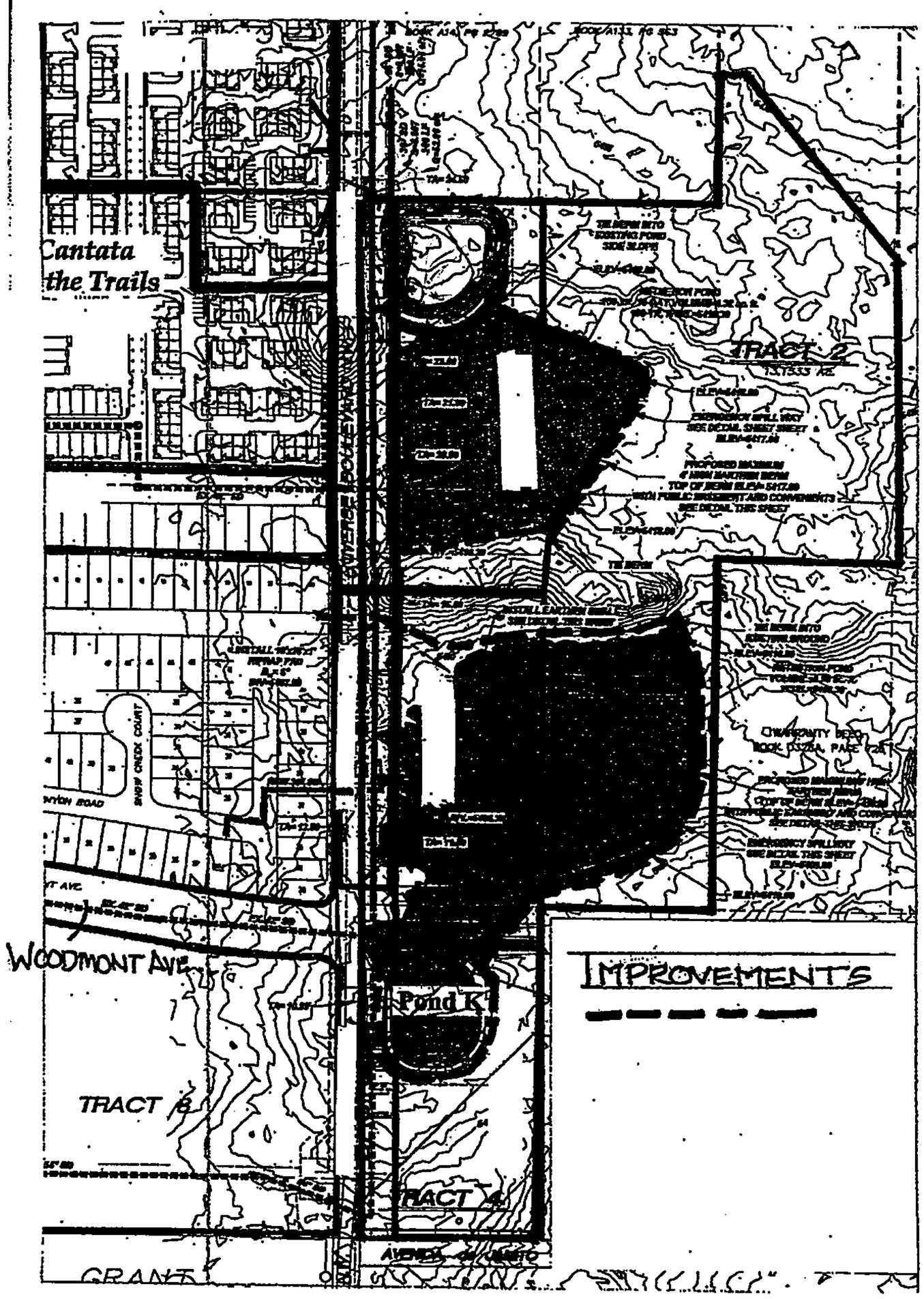
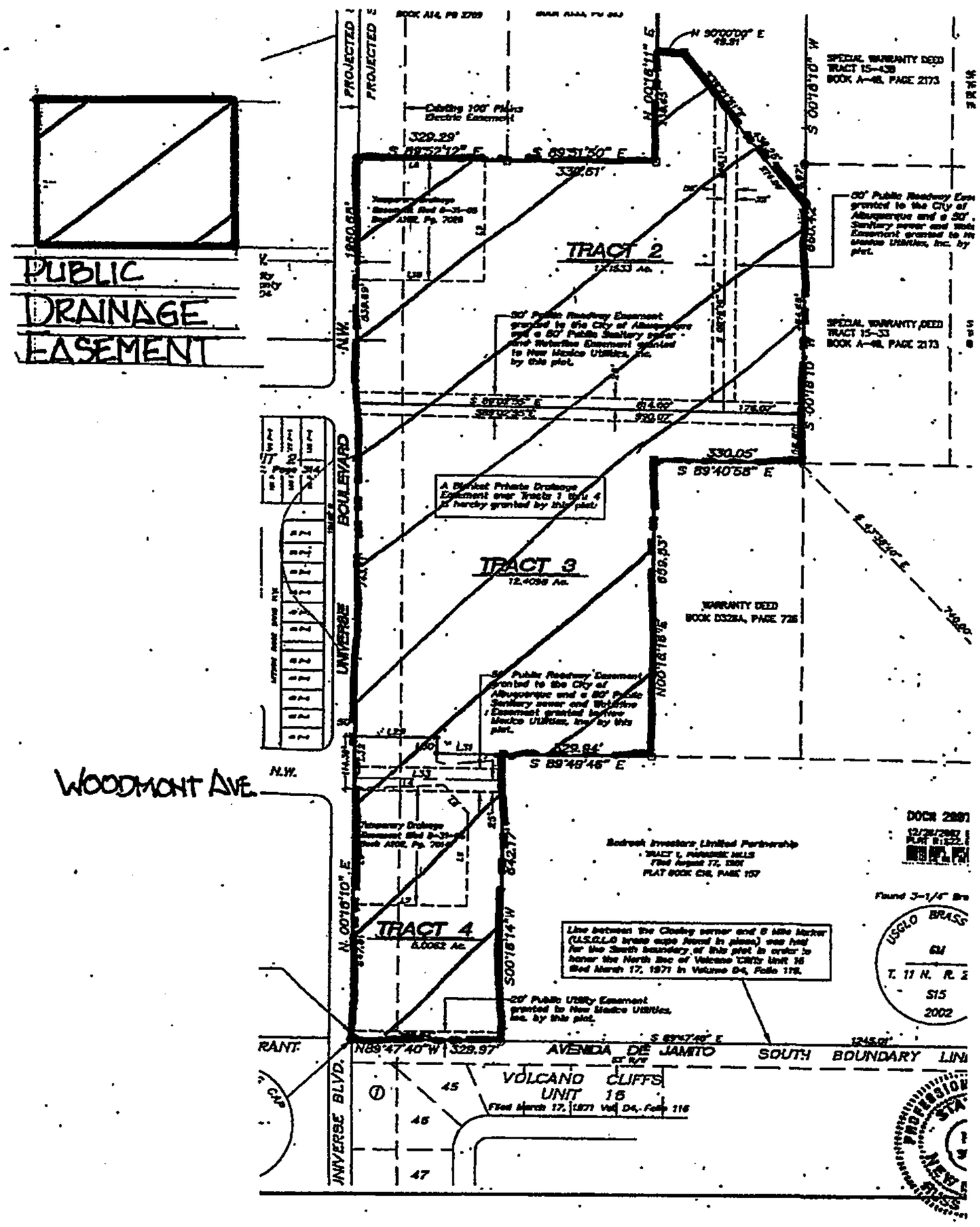


EXHIBIT A

PAGE 1 of 2

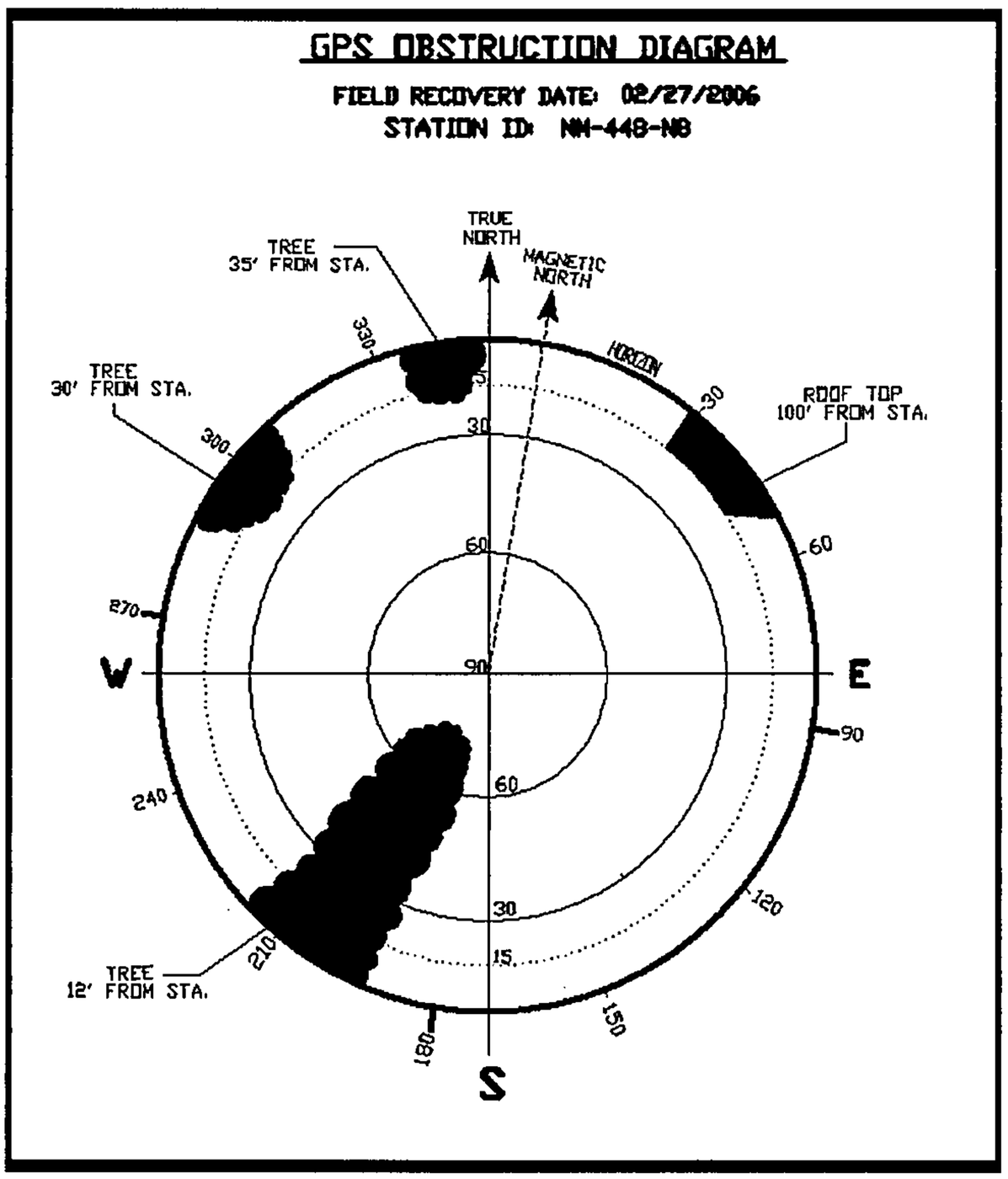

PUBLIC DRAINAGE EASEMENT
WOODMONT AVE.
TRACT 2
TRACT 3
TRACT 4
UNIVERSE BOULEVARD
N.W.
N. 00°16'10" E
S 00°16'14" W
S 89°40'58" E
S 89°48'46" E
N89°47'40"W 329.97'
AVENIDA DE JAMITO
SOUTH BOUNDARY LINE
VOLCANO CLIFFS UNIT 16
INVERSE BLVD.
WARRANTY DEED
BOOK D3284, PAGE 726
SPECIAL WARRANTY DEED
TRACT 15-33
BOOK A-48, PAGE 2173
A Blanket Private Drainage Easement over Tracts 1 thru 4 is hereby granted by this plat.
20' Public Utility Easement granted to New Mexico Utilities, Inc. by this plat.

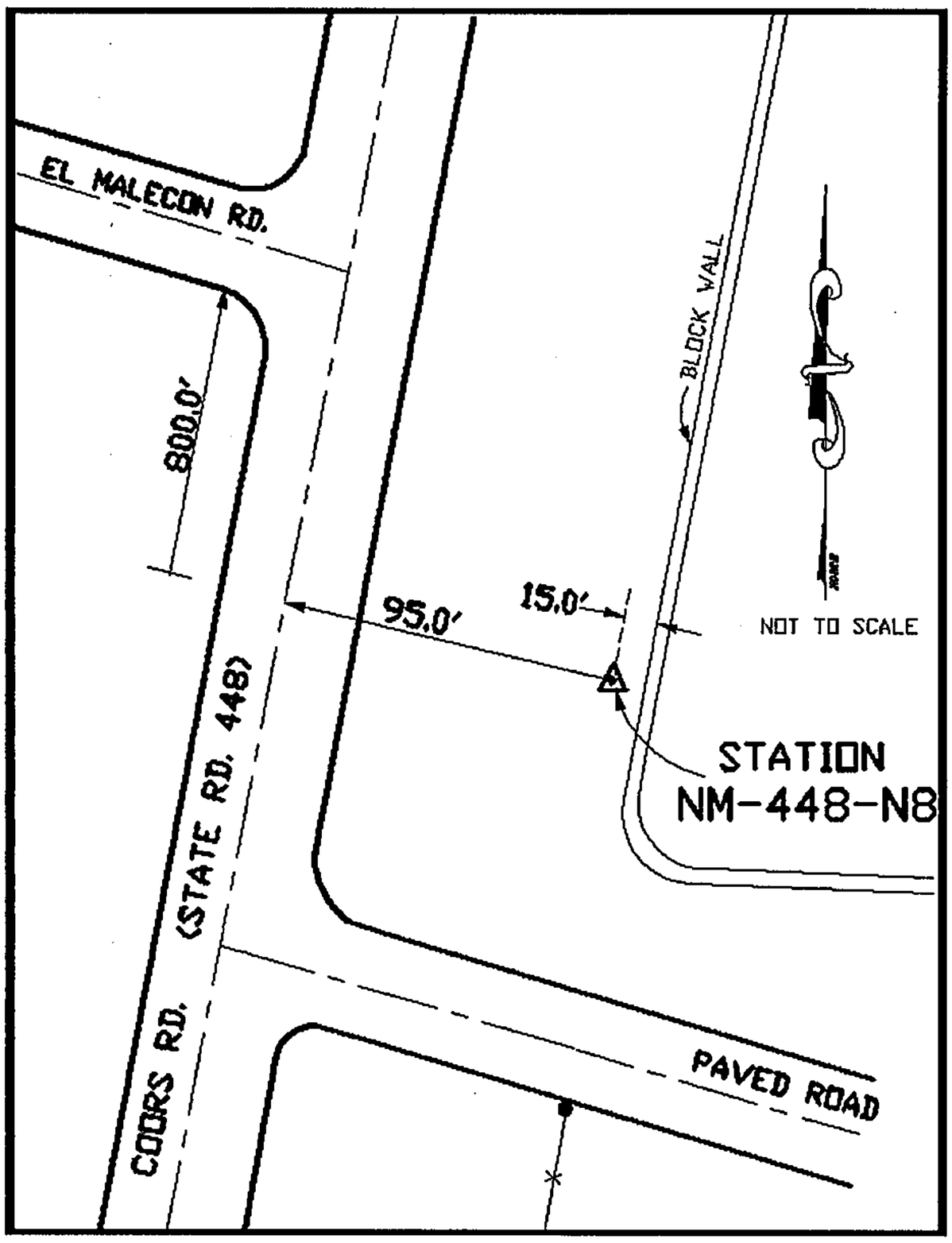
Control Station Data

Station Name: NM_448_N8

Status: Active

City of Albuquerque, New Mexico
Department of Municipal Development
Construction Services Division
Survey Section





Description:
The station is located 5.4 miles north of downtown Albuquerque.

To reach the station from the intersection of Montano Road and Coors Boulevard NW travel north on Coors Boulevard 1.05 miles to the station on the right.

The station mark is an NMSHC survey control brass disc set in a concrete post flush with the ground and is stamped "STA NM448-N8".

For more information contact the Geodetic Surveyor Cliff Wilkie at 505-768-3609 or Cwilkie@cabq.gov.

NAD 83 Position

Datum: NAD 83
Projection: New Mexico State Plane
Zone: Central

Latitude: 35 - 9 - 46.90266
Longitude: 106 - 40 - 37.51231
Ellipsoidal Height (meters): 1509.196

Order: 1 **Class:** 1

Ground to Grid Factor: 0.999682367
Mapping Angle: -0_14_45.47

Northing (US survey feet): 1514900.643
Easting (US survey feet): 1512770.226

Northing (meters): 461742.639
Easting (meters): 461093.287

NAVD 1988 Elevation
Datum: NAVD 1988

Orthometric Height (US survey feet): 5021.651
Order: 2 **Class:** 1

Azimuth Orientation
No azimuth data available

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/2005)

PROJECT TITLE: Taos Unit 1 at the Trails ZONE MAP/DRG. FILE # C9/D001C
DRB#: 1008797 EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: Lots 7-P1 thru 113-P1, together with vacated Kayser Mill Road, Eagle Hills Drive, Mission Ridge Drive, Oasis Canyon Road, Snow Creek Court, and a Portion of Adobe Rose Place, of Taos at the Trails Unit 2 Subdivision, City of Albuquerque, Bernalillo County, New Mexico, as the same is shown and designated on the plat entitled "SUBDIVISION PLAT OF TAOS AT THE TRAILS UNIT 2 (BEING A REPLAT OF TRACTS 5 AND 7, THE TRAILS, UNIT 2) WITHIN THE TOWN OF ALAMEDA GRANT IN PROJECTED SECTION 16, TOWNSHIP 11 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO", filed in the office of the County Clerk of Bernalillo County, New Mexico, on October 26, 2007, in Plat Book 2007C, Page 314, as Document No. 2007149699.

CITY ADDRESS: Southwest corner of Tree Line Avenue and Universe Blvd.

ENGINEERING FIRM: Bohannan Huston Inc. CONTACT: Scott Steffen
ADDRESS: 7500 Jefferson NE PHONE: (505) 823-1000
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

OWNER: The Trails, LLC CONTACT: Rick Beltramo
ADDRESS: 6330 Riverside Plaza Lane #160 PHONE: (505) 761-9911
CITY, STATE: Albuquerque, NM ZIP CODE: 87120

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:
- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN 1st SUBMITTAL
- ____ DRAINAGE PLAN RESUBMITTAL
- ____ CONCEPTUAL G & D PLAN
- ____ GRADING PLAN RESUBMITTAL
- ____ EROSION CONTROL PLAN
- X ENGINEER'S CERT (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT
- ____ ENGINEER CERT (TCL)
- ____ ENGINEER CERT (DRB SITE PLAN)
- ____ OTHER (REVISED G&D PLAN)

CHECK TYPE OF APPROVAL SOUGHT:
- X SIA/FINANCIAL GUARANTEE RELEASE
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D APPROVAL
- ____ S. DEV. 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 (ROUGH)
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:
- ____ YES
- ____ NO
- ____ COPY PROVIDED

N UERSAL CAE

RECEIVED AUG 13 2012

SUBMITTED BY: Scott Steffen DATE: 08-13-12

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope to the proposed development define 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 (5) acres and Sector Plans.
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

CITY OF ALBUQUERQUE

January 27, 2012

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

Re: Cantata at the Trails Unit 2 Pond J Grading Plan Certification
Engineer's Stamp Date 8-9-11 (C09-D001B)
Certification Dated 1-23-12

Dear Mr. Thompson,

Based upon the information provided in your submittal received 1-23-12, the above referenced plan is approved for pond certification.

If you have any questions, you can contact me at 924-3986.

Sincerely,

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

C: e-mail

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/05)

PROJECT TITLE: Cantata at the Trails ZONE MAP PAGE: C-9/D1B
DRB#: 1002962 EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: Tract B, Cantata at the Trails Unit 2
CITY ADDRESS: Southwest Corner of Oakridge St. and Universe Blvd. NW

ENGINEERING FIRM: Thompson Engineering Consultants, Inc. CONTACT: David Thompson
ADDRESS: P.O. Box 65760 PHONE: 271-2199
CITY, STATE: Albuquerque, NM ZIP CODE: 87193

OWNER: Longford Homes CONTACT: Rick Beltramo
ADDRESS: 7007 Jefferson Street NE PHONE: (505) 761-9911
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1st SUBMITTAL
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
XX ENGINEER'S CERT (HYDROLOGY)
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT
_____ ENGINEER/ARCHITECT CERT (TCL)
_____ ENGINEER/ARCHITECT CERT (DRB S.P.)
_____ ENGINEER/ARCHITECT CERT (AA)
_____ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL SOUGHT:
_____ SIA/FINANCIAL GUARANTEE RELEASE
_____ PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. FOR BLDG. PERMIT APPROVAL
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
il XX BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
_____ GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
X OTHER (SPECIFY)
pine Cert

RECEIVED
JAN 23 2012
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:
_____ YES
_____ NO
_____ COPY PROVIDED

SUBMITTED BY: David Thompson DATE: 1-23-12

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope to the proposed development define 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 (5) acres and Sector Plans.

2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.

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

CITY OF ALBUQUERQUE

September 21, 2011

Scott J. Steffen, P.E.
Bohannan Huston, Inc.
7500 Jefferson NE
Albuquerque, NM 87109

Re: Tierra Vista Unit 1 and 2 at the Trails, Revised Grading Plans
Engineer's Stamp Dated 2-21-11 For Sheets 1 of 3 and 2 of 3 (C9/D001F)

Dear Mr. Steffen,

Based upon the information provided in your submittal received 9-06-11, the Grading Plans are approved for the revisions.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit for storm water discharge and a Topsoil Disturbance Permit since it is disturbing ¾ of an acre or more.

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

Sincerely,

Shahab Biazar, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

Copy: file

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

Bohannan ▲ Huston INC.

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

May 25, 2011

Curtis Cherne, P. E.
Planning Department
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

Re: Tract 7 - Taos at the Trails Unit 2, DRB 1003973 (C9/D1C)

Dear Curtis:

This letter presents a comparison of the drainage for Taos at the Trails Unit 2 between the previously approved plan prepared by Wilson & Company and a revised analysis for a revised layout. Also attached is a revised grading plan. This submittal is in support of preliminary plat and grading permit approval.

The "Drainage Report for Taos at the Trails Unit II" dated 3/21/07 was prepared by Wilson & Company and approved by the City of Albuquerque on 4/5/07. Since the approval, the layout of the site has been modified. The modifications to the site include the creation of an additional 7 lots for a total of 134 lots and a reconfiguration of the internal street network for Taos at the Trails Unit II. This letter is intended to show that the modification to the site layout does not create any additional runoff from what was approved and that the flows discharge off the site in the same manner which was approved.

There are a few discrepancies with the approved drainage report. According to the approved drainage report dated 3/21/07, the total generated runoff was 64.46 cfs. When reviewing the sub-basin map, a runoff of 67.58 cfs was generated by the site. With that stated, this analysis will be conservative and reference the 64.46 cfs as being the allowed and approved runoff for this site.

Since the lots adjacent to Treeline Ave. have already been graded and Treeline Ave. being constructed, sub-basin 1 along with 50% of sub-basin 5 was not reanalyzed. The sub-basins that are relevant to the layout modifications are sub-basins 2 thru sub-basins 4, and 50% of sub-basin 5 for a total runoff of 53.73 cfs. An AYHMO analysis was done by Bohannan Huston Inc. with the same design criteria that was used by Wilson & Company to the modified layout and associated basins and determined a total runoff of 52.79 cfs for those basins.

Attached are the BHI AHYMO input and summary output files. Based on our drainage analysis of Taos at the Trails Unit II, the review of previously approved reports, and the fact that the change in the layout and the number of lots is negligible, it is our option that no significant additional flow results from the change to the layout for Taos at the Trails Unit II.

Also attached are the street and inlet capacity sheets, along with an exhibit to show the location of where those capacity calculations are located.

MAY 25 2011
HYDROLOGY SECTION
MAY 24 2011
HYDROLOGY SECTION

If you have any questions or require further information, please feel free to contact me.

Sincerely,

Brian Patterson, P.E.
Project Engineer
Community Development and Planning Group

BCP
Enclosures

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/2005)

PROJECT TITLE: Tierra Vista at the Trails Unit II
ZONE MAP/DRG. FILE # C9/D1F
DRB#: N/A EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: All of Tract 9-A, The Trails Unit 2 Subdivision, City of Albuquerque, Bernalillo County, New Mexico, as the same is shown and designated on the plat entitled "BULK LAND PLAT OF TRACTS 9-A AND 10-A, THE TRAILS UNIT 2 (BEING A REPLAT OF TRACTS 9 AND 10, THE TRAILS, UNIT 2) WITHIN THE TOWN OF ALAMEDA GRANT IN PROJECTED SECTION 16, TOWNSHIP 11 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO", filed in the office of the County Clerk of Bernalillo County, New Mexico, on March 7, 2006, in Plat Book 2006C, Page 75, as Document No. 2006032746.
Parcel A of Tierra Vista Unit 1 at the Trails Subdivision, City of Albuquerque, Bernalillo County, New Mexico, as the same is shown and designated on the plat entitled "SUBDIVISION PLAT OF TIERRA VISTA UNIT 1 AT THE TRAILS (BEING A REPLAT OF TRACT 9-A AT THE TRAILS, UNIT 2) WITHIN THE TOWN OF ALAMEDA GRANT IN PROJECTED SECTION 16, TOWNSHIP 11 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO", filed in the office of the County Clerk of Bernalillo County, New Mexico, on _____, in Plat Book _____, Page _____, as Document No. _____.
CITY ADDRESS: _____

ENGINEERING FIRM: Bohannan Huston Inc. CONTACT: Scott Steffen
ADDRESS: 7500 Jefferson NE PHONE: (505) 823-1000
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

OWNER: The Trails, LLC CONTACT: Rick Beltramo
ADDRESS: 6840 Treeline Avenue PHONE: (505) 761-9911
CITY, STATE: Albuquerque, NM ZIP CODE: 87114

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1st SUBMITTAL
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN RESUBMITTAL
_____ EROSION CONTROL PLAN
_____ ENGINEER'S CERT (HYDROLOGY)
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT
_____ ENGINEER CERT (TCL)
_____ ENGINEER CERT (DRB SITE PLAN)
X OTHER (REVISED G&D PLAN)

CHECK TYPE OF APPROVAL SOUGHT:
_____ SIA/FINANCIAL GUARANTEE RELEASE
_____ PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. 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 (ROUGH)
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
X OTHER (REVISED G&D PLAN)

RECEIVED
SEP 6 2011
HYDROLOGY SECTION

DEVELOPMENT REVIEW BOARD SUPPLEMENTAL SUBMITTAL

TO: **PROJECT NO.** 2011036 9.002.CDP/BQ

___ALL MEMBERS
___Jack Cloud, DRB Chairman, Planning Department
✓ Curtis Cherne, P.E., Hydrology
___Kristal Metro, P.E. , Transportation Development
___Allan Porter, P.E., Albuquerque/ Bernalillo Co.WUA
___Christina Sandoval, Parks/Municipal Development

NEXT HEARING DATE: _____

NOTE: REQUESTS FOR DEFERRAL OF CASES WILL BE DISCUSSED BY THE BOARD AND THE APPLICANT AND/OR AGENT AT THE BEGINNING OF THE AGENDA. BOTH PARTIES MUST AGREE UPON THE DATE OF DEFERRAL. IF THE APPLICANT/AGENT IS NOT PRESENT, THE ADMINISTRATIVE ASSISTANT MUST RECEIVE A LETTER, PRIOR TO THE HEARING DATE, REQUESTING A SPECIFIC DEFERRAL DATE. THE BOARD WILL DISCUSS AND MAKE A DECISION AT THE HEARING. THE APPLICANT/AGENT WILL THEN BE INFORMED OF THE DEFERRAL DATE AND REASON. IF THE APPLICANT IS NOT PRESENT WHEN THEIR REQUEST IS CALLED, THEN THE REQUEST MAY BE INDEFIINITELY DEFERRED ON A NO SHOW.

SUBMITTAL DESCRIPTION: Tierra Vista at the trails

1 · Cover Letter

1 · Revised unit 1 & 2 grading Plans

1. Revised Tempe Avenue inlet analysis

RECEIVED
SEP 6 2011
HYDROLOGY SECTION

CONTACT NAME: Scott Steffen

TELEPHONE: 823-1000 EMAIL: _____

Bohannan ▲ Huston INC.

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335
www.bhinc.com
voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

CLIENT/COURIER/TRANSMITTAL

☒ To: Curtis Cherne
Hydrology Section
City of Albuquerque
600 2nd St. NW
Phone: 924-3986

☐ To:
Phone:

☐ To:
Phone:

☐ To:
Phone:

☐ To:
Phone:

☐ To:
Phone:

Date: September 1, 2011 **Requested By:** Scott Steffen

Job No.: 20110369.002.cdpabq **Project:** Tierra Vista at the Trails

DELIVER VIA

☒ Courier ☐ Federal Express ☐ Pickup
☐ Mail ☐ UPS Item:
☐ Other

TIME DUE:

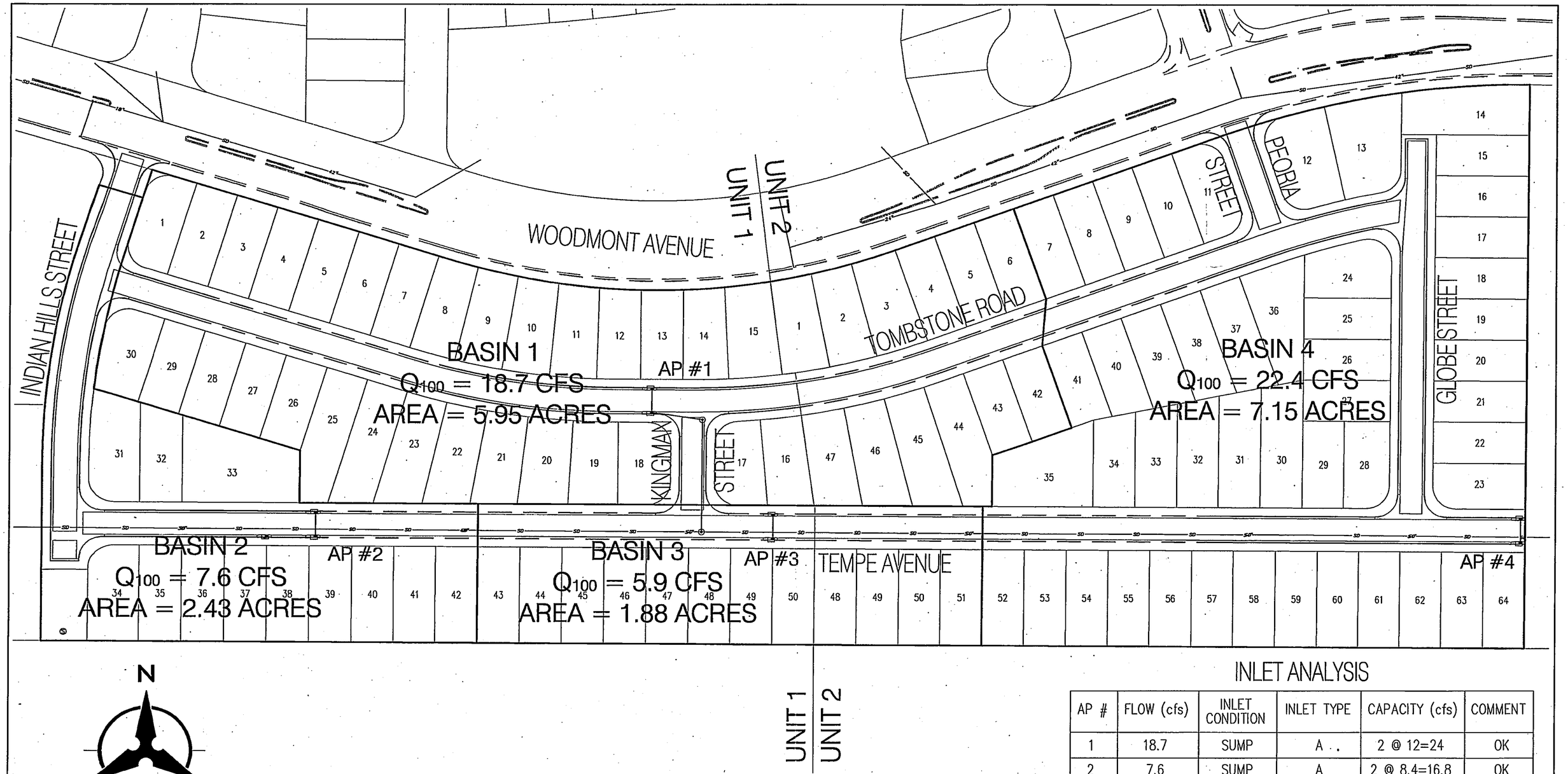
☐ This AM ☒ By Tomorrow
☐ This PM ☐ Rush

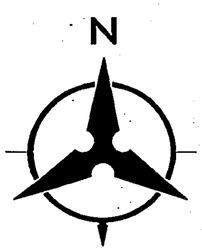
ITEM NO	QUANTITY	DESCRIPTION
1	1	Cover Letter
2	1	Revised Unit 1& 2 grading plans
3	1	Revised Tempe Avenue inlet analysis

COMMENTS / INSTRUCTIONS

RECEIVED
SEP 6 2011
HYDROLOGY SECTION

REC'D BY: _____ DATE: _____ TIME: _____





100 50 0 100

1" = 100'

P:\20110369\CDP\Hydro\20110369_BASIN_MAP.dwg
June 22, 2011 – 11:43am

TIERRA VISTA UNITS 1 & 2
BASIN MAP & INLET ANALYSIS
JUNE 2011

INLET ANALYSIS

AP #	FLOW (cfs)	INLET CONDITION	INLET TYPE	CAPACITY (cfs)	COMMENT
1	18.7	SUMP	A	2 @ 12=24	OK
2	7.6	SUMP	A	2 @ 8.4=16.8	OK
3	5.9	SUMP	A	2 @ 7.2=14.4	OK
4	22.4	ON-GRADE	A	2 @ 5.5=11.0	11.4 cfs BY-PASS FLOW

Bohannan Huston

Std - 0.5%.txt

MANNING'S N = 0.017 SLOPE = 0.005

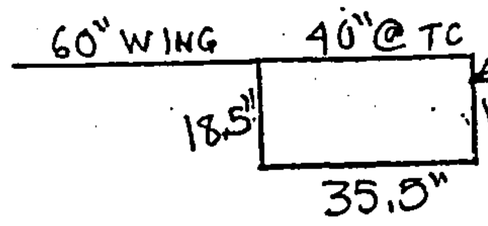
POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	11.5	0.1	9.0	37.7	0.7
2.0	8.9	0.7	6.0	23.5	0.4	10.0	38.1	0.7
3.0	9.3	0.7	7.0	35.5	0.1	11.0	47.0	0.9
4.0	9.5	0.0	8.0	37.5	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.025	0.025	0.010	0.003	0.822	0.322	1.702	0.027
0.050	0.050	0.039	0.020	1.645	0.511	2.484	0.054
0.075	0.075	0.088	0.059	2.467	0.670	3.266	0.082
0.100	0.100	0.156	0.127	3.290	0.811	4.048	0.110
0.125	0.125	0.244	0.230	4.112	0.941	4.830	0.139
0.150	0.150	0.366	0.338	6.318	0.925	6.996	0.163
0.175	0.175	0.549	0.531	8.870	0.967	9.509	0.190
0.200	0.200	0.795	0.832	11.423	1.046	12.021	0.217
0.225	0.225	1.104	1.257	13.975	1.138	14.534	0.245
0.250	0.250	1.476	1.823	16.527	1.235	17.047	0.274
0.275	0.275	1.910	2.546	19.079	1.333	19.560	0.303
0.300	0.300	2.408	3.444	21.631	1.430	22.072	0.332
0.325	0.325	2.968	4.531	24.183	1.526	24.585	0.361
0.350	0.350	3.591	5.822	26.735	1.621	27.098	0.391
0.375	0.375	4.276	7.412	28.787	1.734	29.110	0.422
0.400	0.400	4.981	9.547	28.839	1.917	29.123	0.457
0.425	0.425	5.686	11.891	28.890	2.091	29.136	0.493
0.450	0.450	6.391	14.433	28.942	2.258	29.148	0.529
0.475	0.475	7.097	17.166	28.993	2.419	29.161	0.566
0.500	0.500	7.803	20.082	29.045	2.574	29.174	0.603
0.525	0.525	8.510	23.176	29.097	2.723	29.186	0.640
0.550	0.550	9.217	26.441	29.148	2.869	29.199	0.678
0.575	0.575	9.924	29.873	29.200	3.010	29.212	0.716
0.600	0.600	10.631	33.466	29.251	3.148	29.224	0.754
0.625	0.625	11.339	37.217	29.303	3.282	29.237	0.793
0.650	0.650	12.047	41.123	29.354	3.413	29.250	0.831
0.675	0.675	12.757	44.698	29.889	3.504	29.753	0.866
0.700	0.700	13.536	45.935	33.273	3.394	32.217	0.879
0.725	0.725	14.372	48.400	35.737	3.368	34.681	0.901
0.750	0.750	15.270	51.215	38.202	3.354	37.144	0.925
0.775	0.775	16.229	54.376	40.666	3.350	39.608	0.950
0.800	0.800	17.250	57.881	43.131	3.355	42.072	0.975
0.825	0.825	18.333	61.731	45.595	3.367	44.536	1.001

STREET CAPACITY

TEMPE AVE (EAST END)

- BASIN 4 FLOW = 22.4 cfs < 41.1 cfs CAPACITY ∴ OK
- FLOW DEPTH @ 22.4 cfs = 0.51'
- ~~INLET CAPACITY = 5.5 cfs (SEE NOMOGRAPH)~~
- ~~2 INLETS @ 5.5 cfs = 11 cfs~~
- ~~BY-PASS FLOW = 11.4 cfs~~
- INLET CAPACITY @ SUMP = 13.1 cfs (SEE NOMOGRAPH)
- 2 INLETS @ 13.1 cfs = 26.2 cfs > 22.4 cfs ∴ OK
- CAPACITY @ TOP OF CURB = 27.5 cfs
  - 2 INLETS = 55 cfs > 2 x 100-YR FLOW



GRATE OPEN AREA - 7.06 SF / GRATE

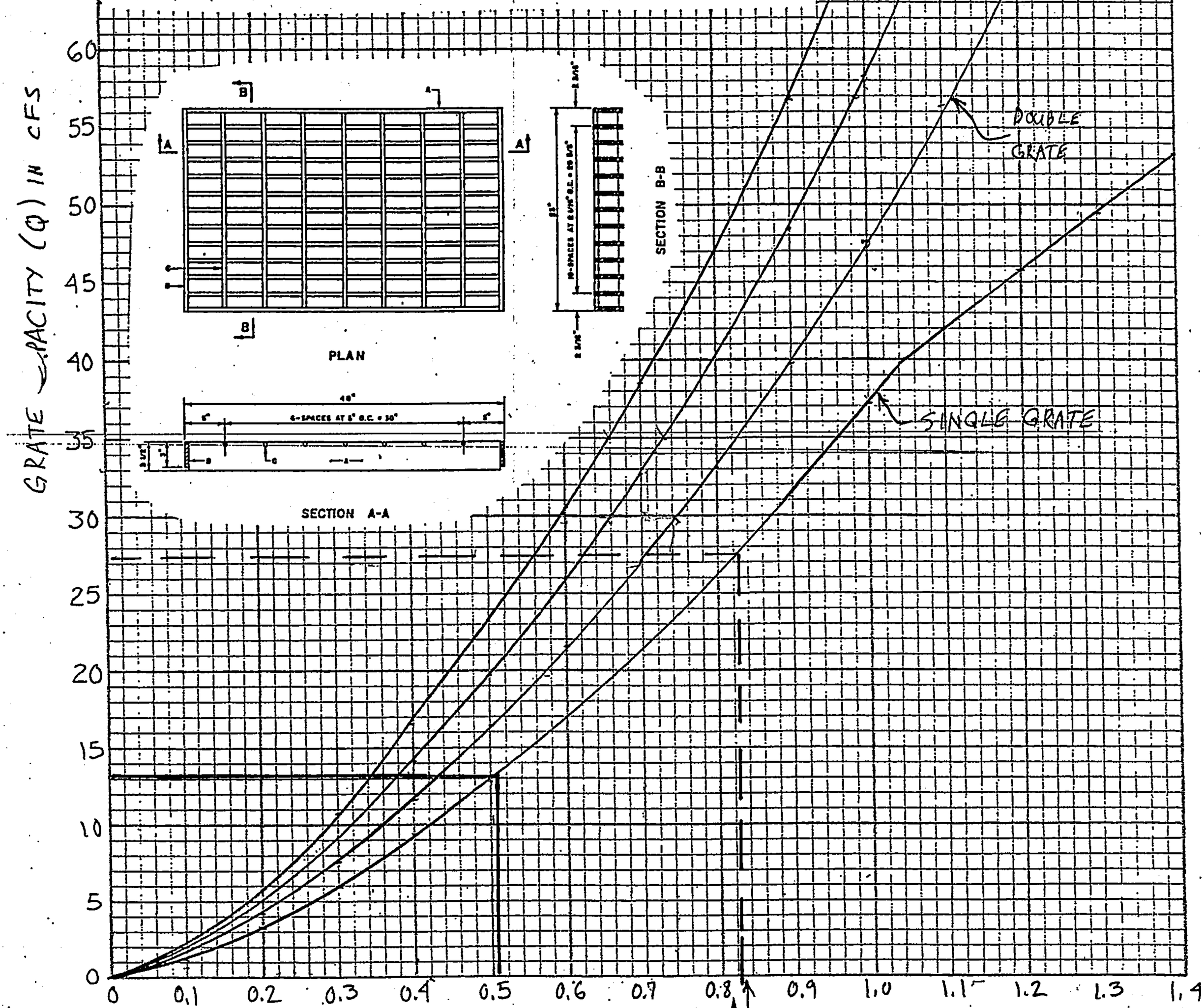
NET OPEN AREA

GRATE @ 10" (0.83') BELOW TC

EQUATION	SGL A	DBL A	TRPL A	QDPL A
1) ORIFICE	$22.0\,h^{0.5} + 16.5\,h^{1.5}$	$43.9\,h^{0.5} + 16.5\,h^{1.5}$	$65.9\,h^{0.5} + 16.5\,h^{1.5}$	$87.8\,h^{0.5} + 16.5\,h^{1.5}$
2) 3-SIDED WEIR ($h \le 0.83'$)	$36.4\,h^{1.5}$	$46.2\,h^{1.5}$	$56.0\,h^{1.5}$	$65.7\,h^{1.5}$
3) 4-SIDED WEIR ($h > 0.83'$)	ADD TO 2): $11(h-.83)^{1.5}$	ADD TO 2): $22(h-.83)^{1.5}$	ADD TO 2): $33(h-.83)^{1.5}$	ADD TO 2): $44(h-.83)^{1.5}$

1) $Q = 0.6A\sqrt{2gh} + 3.3(5')\,h^{1.5}$

2) & 3) $Q = 3.3\,P\,h^{1.5}$



h = 0.51'

Q = 13.1 cfs

BOHANNAN-HUSTON INC.

PROJECT NAME TIERRA VISTA SHEET ____ OF ____

PROJECT NO. TEMPE AVE @ EAST END BY ~~JPK~~ SJS DATE ~~4/9/92~~ 9/1/4

SUBJECT RATING CURVE FOR TYPE A INLETS CH'D DATE

WAS A PRE-DESIGN CONFERENCE ATTENDED:

_____ YES

_____ NO

_____ COPY PROVIDED

SUBMITTED BY: Scott Steffen DATE: 09-01-11

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope to the proposed development define 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 (5) acres and Sector Plans.
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

Bohannan Huston

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7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

September 1, 2011

Curtis Cherne, P. E.
Planning Department
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

Re: Tierra Vista Units 1 and 2 at the Trails, Amended Grading and Drainage Plan (C9/D001F)

Dear Curtis:

This letter provides a written description of the changes to the Tierra Vista Units 1 and 2 at the Trails Grading and Drainage Plan.

- The alignment of Indian Hills Street and Tempe Avenue had to be revised due to the presence of an existing 12-inch waterline in Indian Hills Street and Tempe Avenue that was under the west and north curbs, respectively.
- On Indian Hills the alignment remained unchanged from Woodmont Avenue until a point of curvature just north of Tombstone Road. Just north of Tempe Avenue the alignment shifted about 3.5 feet west.
- On Tempe Avenue the ABCWUA required that the north lip of gutter be 2 feet from the centerline of the 12-inch waterline. This resulted in the Tempe Alignment to be shifted about 3.5 feet north on the west end and about 2.0 feet north on the east end.
- As a result, lots adjacent to Tempe Avenue and Indian Hills Street were adjusted to accommodate the roadway alignment shifts.
- In addition, the lots on the east side of Globe Street shifted north by about 2.0 feet to accommodate the shift in Tempe Avenue.
- The lot and street grading that were changed are clouded on the Unit 1 and 2 grading plans.
- The storm drain inlets at the east end of Tempe Avenue in both Units 1 and 2 were adjusted to align with existing storm drain manholes. This is reflected on the grading plans and the infrastructure plans.
- The inlet analysis at the east end of Tempe Avenue in Unit 2 has been revised, changing from on-grade inlets to sump inlets. The sump is located off Tract 9A, within a public drainage easement. See attached inlet analysis that shows the sump inlets have capacity to carry the 100-year storm. This results in the removal of the temporary pond and D inlet on the previously approved grading plan.
- The curb, gutter and paving will be extended beyond the inlets at the east end of Tempe Avenue in Unit 2 to accommodate the flows. This will be shown on the Unit 2 public infrastructure plans. A berm will be placed at the east end of the

pavement to prevent flows from spilling outside of the paved area in larger storm events.

If you have any questions or require further information in order to approve the amendment to the revised Grading and Drainage Plan, please feel free to contact me at 823-1000.

Sincerely,

Scott J. Steffen, P.E.
Vice President
Community Development and Planning Group

Enclosures

CITY OF ALBUQUERQUE

January 25, 2012

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

Re: Taos at the Trails Unit 2 Pond K Grading Plan Certification
Engineer's Stamp Date 8-12-11 (C09-D001C)
Certification Dated 1-23-12

Dear Mr. Thompson,

Based upon the information provided in your submittal received 1-23-12, the above referenced plan is approved for pond certification.

If you have any questions, you can contact me at 924-3986.

Sincerely,

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

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

C: e-mail

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/2005)

PROJECT TITLE: Taos at the Trails Unit II POND K
ZONE MAP/DRG. FILE # C9/D1C
DRB#: N/A EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: Lots 7-P1 thru 113-P1, together with vacated Kayser Mill Road, Eagle Hills Drive, Mission Ridge Drive, Oasis Canyon Road, Snow Creek Court, and a Portion of Adobe Rose Place, of Taos at the Trails Unit 2 Subdivision, City of Albuquerque, Bernalillo County, New Mexico, as the same is shown and designated on the plat entitled "SUBDIVISION PLAT OF TAOS AT THE TRAILS UNIT 2 (BEING A REPLAT OF TRACTS 5 AND 7, THE TRAILS, UNIT 2) WITHIN THE TOWN OF ALAMEDA GRANT IN PROJECTED SECTION 16, TOWNSHIP 11 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO", filed in the office of the County Clerk of Bernalillo County, New Mexico, on October 26, 2007, in Plat Book 2007C, Page 314, as Document No. 2007149699.

Tract A of Taos Unit 1 at the Trails Unit 2 Subdivision, City of Albuquerque, Bernalillo County, New Mexico, as the same is shown and designated on the plat entitled "SUBDIVISION PLAT OF TAOS UNIT 1 AT THE TRAILS UNIT 2 (BEING A REPLAT OF LOTS 7-P1 THRU 113-P1, TOGETHER WITH VACATED KAYSER MILL ROAD, EAGLE HILLS DRIVE, MISSION RIDGE DRIVE, OASIS CANYON ROAD, SNOW CREEK COURT, AND A PORTIOON OF ADOBE ROSE PLACE, TAOS AT THE TRAILS, UNIT 2) WITHIN THE TOWN OF ALAMEDA GRANT IN PROJECTED SECTION 16, TOWNSHIP 11 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO", filed in the office of the County Clerk of Bernalillo County, New Mexico, on _____, in Plat Book _____, Page _____, as Document No. _____.
CITY ADDRESS: _____

ENGINEERING FIRM: Thompson Engineering Consultants, Inc. CONTACT: David Thompson
ADDRESS: P.O. Box 65760 PHONE: 271-2199
CITY, STATE: Albuquerque, NM ZIP CODE: 87193

OWNER: The Trails, LLC CONTACT: Rick Beltramo
ADDRESS: 6840 Treeline Avenue PHONE: (505) 761-9911
CITY, STATE: Albuquerque, NM ZIP CODE: 87114

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1st SUBMITTAL
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN RESUBMITTAL
_____ EROSION CONTROL PLAN
XX ENGINEER'S CERT (HYDROLOGY)
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT
_____ ENGINEER CERT (TCL)
_____ ENGINEER CERT (DRB SITE PLAN)
_____ OTHER (REVISED G&D PLAN)

CHECK TYPE OF APPROVAL SOUGHT:
_____ SIA/FINANCIAL GUARANTEE RELEASE
_____ PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. FOR BLDG. PERMIT APPROVAL
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
CK XX BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
_____ GRADING PERMIT APPROVAL (ROUGH)
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
X OTHER (SPECIFY)
pond cert
a

RECEIVED
JAN 23 2012
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:
_____ YES
_____ NO
_____ COPY PROVIDED

SUBMITTED BY: David Thompson DATE: 1-23-12

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope to the proposed development define 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 (5) acres and Sector Plans.
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

RECEIVED
JAN 23 2012
HYDROLOGY SECTION

CITY OF ALBUQUERQUE

April 5, 2007

Steve J. Salazar, P.E.
Wilson & Company, Inc.
2600 The American Road SE, Suite 100
Rio Rancho, NM 87124

Re: Tract 7 - Taos at the Trails, Unit 2 – Engineer's Stamp dated 3-21-07
Request for Preliminary Plat, Grading Permit Approval, (C9/D1C)

Dear Mr. Salazar,

Based upon the information provided in your submittal received on March 21, 2007, the above referenced plan is approved for Preliminary Platting Action by the DRB. Once the plan has been approved by the DRB, please submit a mylar copy to me for signature in order to obtain rough grading approval.

If you have any questions, you can contact me at 924-3990.

Sincerely,

Jeremy Hoover, P.E.
Senior Engineer
Hydrology Section
Development and Building Services

cc: file C9/D1C

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

DRAINAGE REPORT

for

TAOS AT THE TRAILS UNIT II
Albuquerque, New Mexico

MARCH 2007

RECEIVED
MAR 21 2007
HYDROLOGY SECTION

I, Steve J. Salazar, do hereby certify that this report was prepared by me or under my direction and that I am a duly registered Professional Engineer under the laws of the State of New Mexico.

Steve J. Salazar, P.E.
NM No. 16241

3/21/07
Date

STEVE J. SALAZAR
NEW MEXICO
16241
LICENSED PROFESSIONAL ENGINEER

C09/D001C

Table of Contents

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I.	Introduction	1
II.	Project Description	1
III.	Existing Conditions	2
IV.	Developed Conditions	2
V.	Grading Plan	3
VI.	Conclusion	3
VII.	Exhibits	4
VIII.	Appendices	5-10
IX.	Plates	11

List of Exhibits

Exhibit A: Vicinity Map

Exhibit B: FEMA Flood map with site

Exhibit C: Zone Atlas Sheet C-9-Z with site

Exhibit D: Soils Map

List of Plates
(Located in Pockets)

Plate 1: Overall Pond Grading & Drainage plan - Interim Conditions

Plate 2: Overall Pond Grading & Drainage plan - Future Developed Conditions (Drainage Master Plan)

Plate 3: Grading & Drainage Plan

Plate 4: Proposed Basin Map

Plate 5: Roll Curb Map

List of Appendices

Appendix A: AHYMO Input and Summary for Interim Conditions

Appendix B: AHYMO Input and Summary for Fully Developed Conditions

Appendix C: FLOWMASTER Street Capacity Analysis

Appendix D: HYDRAFLOW Storm Drain Sizing Analysis

Introduction

Wilson & Company prepared this drainage report under contract to The Trails, LLC. The document provides a basis for the design of storm water conveyance systems within Taos of the Trails Unit II (subject property). The objective of this report is to analyze the hydrologic characteristics associated with the existing and developed conditions.

Taos of the Trails Unit II is a single-family residential subdivision with 127 total lots within The Trails master planned community. The "Master Drainage Study for The Trails Subdivision", dated December 2003, prepared by Bohannan-Huston, Inc (BHI Study) outlines the major drainage requirements for the entire Trails development. This DMP covers a large area surrounding the subject property. The master planned area will drain through a series of detention surge ponds to the southeast corner of the Trails project to reduce flows. As established in the "Amendment to The Trails Subdivision Master Drainage Study", dated May 5, 2004 and prepared by Wilson & Company. A future storm drain system (currently under design, COA#761281) is scheduled to carry developed flows from the southeast corner of the Trails south to the Boca Negra Detention Dam (currently under BID). Wilson & Company has revised the BHI Study as the project progresses to more accurately model the drainage conditions. This revised Drainage Master Plan is included in this report as Plate 2 (also referred to as the Overall Pond Grading & Drainage Plan for Future Developed Conditions). The Drainage Master Plan establishes revised Basin, Pond and Hydrologic summary data. Taos at The Trails Unit II drains into a storm drain system built by COA 730084. This system has been designed to accept developed flows as per the "Amendment to The Trails Subdivision Master Drainage Study", dated May 5, 2004. Pond K shall accept developed flows generated by Taos at The Trails Unit II.

Project Description

The proposed development is located within the city limits of Albuquerque, New Mexico. The subject property consists of approximately 18.0 acres of undeveloped land on the west side of Albuquerque, south of Ventana Ranch subdivision. The Trails Subdivision is located on Albuquerque's Northwest Mesa, west of Universe Boulevard and south of Paseo Del Norte. The subject property is bound by Tract 8 (of the Trails to the south, Universe Blvd. to the east, Tract 5 to the north, and Tract 6 (Santa Fe at the Trails Unit II) to the west. See Exhibit A, Vicinity Map.

There are currently nine other tracts within the Trails Subdivision that are developed or under construction - Santa Fe at the Trails (Tract C of the Trails), Estados at the Trails (Tract D of the Trails), Heritage at the Trails Units I and II (Tract A & B of the Trails respectively), The Reserve at the Trails (Tract F of the Trails), Santa Fe at the Trails Unit II (Tract 6 of the Trails Unit II), Valle Vista at The Trails Unit II (Tract 11 of Trails Unit II). The Trails Unit II (COA #730084) is also currently under construction, which includes the development of Woodmont Avenue, Oakridge Street, Rainbow Boulevard, Paseo Del Norte and Universe Boulevard within the boundaries of The Trails Unit II.

Also included is the construction of all major drainage facilities, including ponds, necessary for the development of The Trails Unit II, including facilities within Tract 7.

The current legal description of the proposed development is "Tract 7 of the Trails Unit II (Filed in Book 2004C, Page 332, on 10/18/2004). The site is located on Zone Atlas Sheet C-9-Z. See Exhibit C for site location on this Zone Atlas Sheet. Tract 7 of Trails Unit II is currently zoned R-D. No portion of Tract 8 lies within the 100-year flood zone based on FIRM Map #35001C0111D dated September 20, 1996. See Exhibit B for site location on the Flood Insurance Rate Map.

Existing Conditions

Currently, the site is located in a local depression with slopes ranging from 1% to 5% and has been mass graded. The soils are classified as Alemeda Sandy Loam (AmB) for slopes based on sheet 10 of Soil survey of Bernalillo County. See Exhibit D for site location on the Soils map. A shallow basaltic layer runs subsurface of the natural grade, and varies in depth from 0 ft to 9 ft.

Developed Conditions

(Refer to Plates 1 & 2 – Interim and Developed Conditions)

The developed site will consist of 127 lots of single-family housing. Taos and Tract A of Toas (Replat of Tracts) of Trails Unit II is contained within Basins K of the Drainage Master Plan. Proposed flows for individual sub-basins are determined based on an area percentage of the overall Basin K flow. The overall Basin K has an area of 45.12 acres and a fully developed 100-year flow of 128.14 cfs. This plan develops 39.9% (18.0 acres) of the total 45.12 acres. Please see the AHYMO summary file for calculations. The total generated runoff for Tract 7 under fully developed conditions is 64.46 cfs. The remainder of Basin K, which is Replat of Tract 5 at The Trails Unit II, generates a flow of 63.68 cfs and is available once 'Tract A" (Replat Tract 5) is developed.

This report divides the proposed development into sub-basins. (See the proposed Basin Map in Plate 4). Drainage & basin boundaries were determined based on the grades established in the grading & drainage plan, and by street flow capacity and storm drain requirements. (See the Grading & Drainage Plans in Plate 3 and Street Flow Capacity Calculations in Appendix C).

Proposed flows from Sub-Basin 1 flow to the Universe Blvd. storm drain system through a series of inlets on Treeline Road (adjacent to Universe). Proposed flows from Sub-Basins 2 through 4 are collected through a series of inlets on Kayser Mill Road, Oasis Canyon Road and Mission Ridge Drive and are ultimately routed to the Universe storm drain system and contained in Pond K. See the proposed Sub-Basin Map in Plate 4. Developed flows from Sub-Basin 5 are collected by the inlets on Oakridge road as shown on the Sub-Basins Map. There will be no ponds built in the Tract 7 of The Trails Unit II sub-division and developed flows are contained in Pond K (East of Universe Blvd). See

the proposed Sub-Basin Map in Plate 4. See the HydraFlow Storm Drain Calculations and Inlet Capacity Calculations in Appendix D.

See Plate 1, Overall Pond Grading & Drainage Plan - Interim Conditions for summary tables. See Appendix A for AHYMO input and output. In the future developed conditions, all ponds will be detention surge ponds. According to the "Amendment to the Trails Subdivision Master Drainage Study", a maximum of flowrate of 200 cfs is allowed from the Trails Subdivision. According to the revised Drainage Master Plan, a maximum flowrate of 198 cfs will enter the Universe Blvd. storm drain system to the Boca Negra Dam. See Plate 2 for the Overall Pond Grading & Drainage Plan for Developed Conditions.

Once the storm drain from The Trails to the Boca Negra Detention Dam is completed, all of the plugs in the ponds within The Trails Unit II can be removed, creating detention facilities and eliminating the need to retain runoff from the Trails.

The hydrologic analysis for the interim and developed condition was completed using the Arid Lands Hydrologic Model (AHYMO) Version 1997.02. The 100-year 24-hour return frequency storm was used as the basis of analysis. (See Appendices A & B for input and output data). Methodology outlined in Section 22.2 of the City of Albuquerque Development Process Manual was also incorporated into this analysis. Street flows have been evaluated using Flow Master by Haested Methods. Street flows were analyzed for the use of roll type curb where capacities permitted. Inlets are located to prevent exceeding the street flow capacities per the DPM. See Appendix C for street capacity analysis. Storm Drain design and analysis was performed using *Hydraflow*. See Appendix D for *Hydraflow* output.

Grading Plan

Taos of Trails Unit II Grading Plan is attached as Plate 3. It illustrates the overall grading concept for the Taos of Trails Unit 2 as well as the proposed storm drain.

Conclusion

The analysis performed for this report demonstrates that the proposed system of streets and storm drainage improvements will safely convey and adequately detain the 100-year storm runoff from the offsite and the onsite basins contributing to the site development. Wilson & Company recommends that the proposed storm drain system undergo regular maintenance activities. This should include removing debris from grate inlets, as well as removing sediment buildup within the pipe system.

Per The Trails Unit II Construction Plans (COA 730084), storm drain plugs at Pond E, Pond G and Pond K are scheduled to be installed. As a result of the interim conditions analysis, Wilson & Company recommends also installing temporary plugs at Pond D and Pond F to retain runoff from the 100-year, 10-day event, until the Universe storm drain to the Boca Negra Detention Dam is constructed.

```
    AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -                          - VERSION:  1997.02c      RUN DATE
(MON/DAY/YR) =03/14/2007
    INPUT FILE = trails.wpd                                                                    USER NO.=
AHYMO-C-9803c01UNMLIB-AH

                                      FROM  TO                        PEAK         RUNOFF                TIME TO
CFS      PAGE =   1
                        HYDROGRAPH    ID    ID          AREA      DISCHARGE      VOLUME      RUNOFF      PEAK
PER
    COMMAND         IDENTIFICATION    NO.   NO.       (SQ MI)      (CFS)        (AC-FT)    (INCHES)   (HOURS)
ACRE     NOTATION

    *S THE TRAILS OVERALL DRAINAGE - INTERIM CONDITIONS
    *SUMMARY              1 MID. B. PIEDRAS- DEV CONDS WITH BULK - MODIFIED 7/95
    START
    TIME=       .00
    RAINFALL  TYPE= 2
    RAIN24=   2.660
    SEDIMENT BULK
    PK BF =    1.00
    *S*
    *S*************************************************************************
    *S*************************************************************************
    *S************** COMPUTE ONSITE BASINS FROM THE TRAILS SUBDIVISION**************
    COMPUTE NM HYD       OFFSITE1   -    50        .19980        38.48        4.588       .43051    2.050
.301 PER IMP=    .00
    *S BASIN A IS CURRENTLY 0% DEVELOPED
    COMPUTE NM HYD        BASIN.A   -    20        .10480        86.57        2.406       .43051    1.500
1.291 PER IMP=    .00
    *S BASIN D IS CURRENTLY 73% DEVELOPED
    COMPUTE NM HYD        BASIN.D   -    25        .09110       122.40        6.205      1.27718    1.550
2.099 PER IMP=  36.50
    *S BASIN C IS CURRENTLY 0% DEVELOPED
    COMPUTE NM HYD        BASIN.C   -    20        .02110        17.06         .484       .43051    1.500
1.263 PER IMP=    .00
    *S BASIN F IS CURRENTLY 55% DEVELOPED
    COMPUTE NM HYD        BASIN.F   -    20        .12960       196.82        7.347      1.06295    1.500
2.373 PER IMP=  27.50
    *S WITH TRACT 6 IMPROVEMENTS, BASIN G IS CURRENTLY 100% DEVELOPED
    COMPUTE NM HYD        BASIN.G   -    20        .04990       105.96        4.292      1.61257    1.500
3.318 PER IMP=  50.00
    COMPUTE NM HYD       OFFSITE2   -    55        .08050        14.42        1.848       .43051    2.050
.280 PER IMP=    .00
    *S BASIN B IS CURRENTLY 0% DEVELOPED
    COMPUTE NM HYD        BASIN.B   -    30        .03910        31.61         .898       .43051    1.500
1.263 PER IMP=    .00
    *S BASIN E IS CURRENTLY 22% DEVELOPED
    COMPUTE NM HYD        BASIN.E   -    30        .12060       132.88        4.377       .68044    1.500
```

```
1.722 PER IMP=  11.00
    *S BASIN H IS CURRENTLY 16% DEVELOPED
    COMPUTE NM HYD       BASIN.H   -    20        .03110        28.24       1.015       .61193    1.550
1.419 PER IMP=   8.00
    *S BASIN L IS CURRENTLY 4% DEVELOPED
    COMPUTE NM HYD       BASIN.L   -    20        .02770        19.34        .703       .47583    1.550
1.091 PER IMP=   2.00
    *S BASIN J IS CURRENTLY 15% DEVELOPED
    COMPUTE NM HYD       BASIN.J   -    80        .05140        34.57       1.647       .60067    1.600
1.051 PER IMP=   7.50
    ROUTE RESERVOIR       POND.J   80   90        .05140         9.86       1.647       .60066    2.050
.300 AC-FT=     .863
    *S BASIN K IS CURRENTLY 14% DEVELOPED
    COMPUTE NM HYD       BASIN.K   -    85        .07050        55.37       2.215       .58923    1.550
1.227 PER IMP=   7.00
    *S*****************************************************************************
    *S****RUNOFF FROM THE TRAILS IS CONVEYED TO THE BOCA NEGRA DETENTION FACILITY
    *S****VIA UNIVERSE SD PER "AMENDMENT TO THE TRAILS SUBDIVISION MASTER DRAINAGE S
    *S****DATED MAY 5, 2004 BY WILSON & CO.
    *S*****************************************************************************
    *S****END OF THE TRAILS DRAINAGE ANALYSIS
    FINISH
```

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02c RUN DATE (MON/DAY/YR) =03/14/2007
INPUT FILE = TRAILS3.WPD USER NO.= AHYMO-C-9803c01UNMLIB-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE
PAGE = 1									
*S THE TRAILS OVERALL DRAINAGE - FULLY DEVELOPED CONDITIONS									
*SUMMARY	1 MID. B. PIEDRAS- DEV CONDS WITH BULK - MODIFIED 7/95								
START									
TIME= .00									
RAINFALL TYPE= 2									
RAIN24= 2.660									
SEDIMENT BULK									
PK BF = 1.00									
S									
*S**********									
*S**********									
*S********** COMPUTE ONSITE BASINS FROM THE TRAILS SUBDIVISION**********									
COMPUTE NM HYD	OFFSITE1	-	50	.19980	38.48	4.588	.43051	2.050	.301
PER IMP= .00									
ROUTE RESERVOIR	OFF.POND.1	50	53	.19980	9.40	4.588	.43051	3.250	.073
AC-FT= 2.420									
COMPUTE NM HYD	BASIN.A	-	20	.10480	222.42	9.013	1.61257	1.500	3.316
PER IMP= 50.00									
ADD HYD	1.A	53&20	52	.30460	224.45	13.601	.83721	1.500	1.151
ROUTE RESERVOIR	POND.A	52	50	.30460	16.94	13.601	.83721	2.400	.087
AC-FT= 6.375									
COMPUTE NM HYD	BASIN.D	-	25	.09110	151.97	7.835	1.61257	1.550	2.606
PER IMP= 50.00									
ADD HYD	1.A.D	50&25	30	.39570	164.89	21.436	1.01571	1.550	.651
DIVIDE HYD	BYPASS.D	30	31	.27474	16.00	14.883	1.01571	1.300	.091
	SURGE.D	and	32	.12096	148.89	6.553	1.01571	1.550	1.923
ROUTE RESERVOIR	POND.D	30	50	.39570	23.56	21.436	1.01571	2.700	.093
AC-FT= 5.387									
COMPUTE NM HYD	BASIN.C	-	20	.02110	44.81	1.815	1.61257	1.500	3.319
PER IMP= 50.00									
ADD HYD	1.A.D.C	50&20	25	.41680	63.88	23.250	1.04593	1.500	.239

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                                                                AHYMO
    COMPUTE NM HYD        BASIN.F   -     20        .12960       274.98       11.146      1.61257     1.500
3.315 PER IMP=  50.00
    ADD HYD             1.A.D.C.F 20&25   30        .54640       338.86       34.396      1.18033     1.500
.969
    DIVIDE HYD           BYPASS.F   30    31        .41899        46.00       26.376      1.18033     1.300
.172
                          SURGE.F  and    32        .12741       292.86        8.021      1.18033     1.500
3.591
    ROUTE RESERVOIR        POND.F   30    50        .54640        33.92       34.396      1.18033     2.450
.097 AC-FT=    9.405
    COMPUTE NM HYD        BASIN.G   -     20        .04990       105.96        4.292      1.61257     1.500
3.318 PER IMP=  50.00
    ADD HYD           1.A.D.C.F.G 20&50   30        .59630       138.81       38.688      1.21650     1.500
.364
    ROUTE RESERVOIR        POND.G   30    27        .59630        33.51       38.692      1.21664     3.400
.088 AC-FT=    3.656
    COMPUTE NM HYD       OFFSITE2   -     55        .08050        14.42        1.848       .43051     2.050
.280 PER IMP=    .00
    ROUTE RESERVOIR      OFFPOND2   55    50        .08050         4.49        1.848       .43051     3.200
.087 AC-FT=     .857
    COMPUTE NM HYD        BASIN.B   -     30        .04010        85.15        3.449      1.61257     1.500
3.318 PER IMP=  50.00
    ADD HYD                   2.B 50&30   35        .12060        85.67        5.297       .82355     1.500
1.110
    ROUTE RESERVOIR        POND.B   35    50        .12060         3.38        5.297       .82350     6.450
.044 AC-FT=    3.150
    COMPUTE NM HYD        BASIN.E   -     30        .06494        46.06        1.491       .43051     1.550
1.108 PER IMP=    .00
    COMPUTE NM HYD       BASIN.E1   -     32        .02480        31.45         .967       .73104     1.500
1.981 PER IMP=   7.00
    ADD HYD                 2.B.E 50&30   40        .18554        48.64        6.788       .68595     1.550
.410
    ADD HYD              2.B.E.E1 40&32   41        .21034        78.13        7.755       .69126     1.550
.580
    COMPUTE NM HYD       BASIN.E8   -     **        .00748        15.91         .644      1.61257     1.500
3.321 PER IMP=  50.00
    ADD HYD           2.B.E.E1.E8 41&**   42        .21783        93.29        8.399       .72292     1.500
.669
    ROUTE RESERVOIR        POND.E   42    43        .21783         9.23        8.398       .72291     2.250
.066 AC-FT=    2.293
    COMPUTE NM HYD       BASIN.H1   -     33        .01830        32.46        1.101      1.12838     1.500
2.772 PER IMP=  20.20
    COMPUTE NM HYD       BASIN.H2   -     34        .00900        23.59        1.094      2.28007     1.500
4.096 PER IMP=  90.00
    ADD HYD                 H1.H2 33&34   35        .02730        56.06        2.196      1.50804     1.500
3.208
    ADD HYD          2.B.E.E1.H1. 43&35   40        .24513        63.00       10.594       .81035     1.500
.402
```

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                                                                  AHYMO
    COMPUTE NM HYD        BASIN.H   -    20        .01161        26.30       1.109      1.79108    1.500
3.539 PER IMP=  60.00
    ADD HYD          2.B.E.H1.H2. 40&20  21        .25674        89.30      11.703       .85470    1.500
.543
    ROUTE RESERVOIR       POND.H   21   30        .25674        27.69      11.703       .85470    1.950
.169 AC-FT=    1.377
    DIVIDE HYD          BYPASS.H   21   35        .23804        37.00      10.851       .85470    1.400
.243
                         SURGE.H  and   36        .01870        52.30        .852       .85470    1.500
4.370
 0
                                  FROM  TO                      PEAK       RUNOFF                TIME TO
CFS      PAGE =   2
                     HYDROGRAPH   ID   ID        AREA     DISCHARGE      VOLUME      RUNOFF      PEAK
PER
    COMMAND        IDENTIFICATION  NO.  NO.     (SQ MI)      (CFS)      (AC-FT)   (INCHES)   (HOURS)
ACRE     NOTATION

    COMPUTE NM HYD        BASIN.L   -    20        .04224        83.92       4.072      1.80754    1.550
3.104 PER IMP=  62.00
    ADD HYD                  2BEHL 20&30  25        .29898       106.41      15.775       .98932    1.550
.556
    COMPUTE NM HYD        BASIN.J   -    80        .05140        82.74       4.421      1.61257    1.600
2.515 PER IMP=  50.00
    ROUTE RESERVOIR       POND.J   80   90        .05140        21.36       4.421      1.61256    2.100
.649 AC-FT=    2.140
    COMPUTE NM HYD        BASIN.K   -    85        .07050       128.14       6.063      1.61257    1.550
2.840 PER IMP=  50.00
    ADD HYD                   J.K 90&85  91        .12190       136.13      10.484      1.61255    1.550
1.745
    ADD HYD             1ADCFG.JK 27&91  95        .71820       164.27      49.176      1.28384    1.550
.357
    ROUTE RESERVOIR       POND.K   95   70        .71820       101.37      49.176      1.28384    1.850
.221 AC-FT=    2.150
    DIVIDE HYD          BYPASS.K   95   97        .68793        80.00      47.103      1.28384    1.450
.182
                         SURGE.K  and   98        .03027        84.27       2.073      1.28384    1.550
4.350
    ADD HYD            TRAILS.ALL 25&70  **       1.01718       181.69      64.951      1.19727    1.600
.279
    *S*****************************************************************************
    *S****RUNOFF FROM THE TRAILS IS CONVEYED TO THE BOCA NEGRA DETENTION FACILITY
    *S****VIA UNIVERSE SD PER "AMENDMENT TO THE TRAILS SUBDIVISION MASTER DRAINAGE S
    *S****DATED MAY 5, 2004 BY WILSON & CO.
    *S*****************************************************************************
    *S****END OF THE TRAILS DRAINAGE ANALYSIS
    FINISH
```

```
    AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -                          - VERSION:  1997.02c      RUN DATE
(MON/DAY/YR) =03/12/2007
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AHYMO-C-9803c01UNMLIB-AH

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CFS      PAGE =   1
                        HYDROGRAPH    ID    ID          AREA      DISCHARGE      VOLUME      RUNOFF      PEAK
PER
    COMMAND         IDENTIFICATION    NO.   NO.       (SQ MI)      (CFS)        (AC-FT)    (INCHES)  (HOURS)
ACRE     NOTATION

    *S*****************************************************************
    *S        100 YEAR 24 HOUR STORM - DEVELOPED CONDITIONS
    *S        RAINFALL DATA FROM THE DPM SECTION 22.2
    *S*****************************************************************
    START
    TIME=       .00
    RAINFALL  TYPE= 1
    RAIN6=    2.200
    *S*************************************************************************
    *S*************************************************************************
    *S****         ONSITE BASIN - TRACT 7 TRAILS UNIT II
    *S****         COMPUTE HYD FOR TRACT 7
    *S*************************************************************************
    *S*************************************************************************
    *S TRACT 7 - Drainage Study for TRACT 7 TRAILS UNIT II - JULY, 2006
    COMPUTE NM HYD          1.00   -     3        .02813        64.46       2.282      1.52132    1.500
3.581 PER IMP=  62.00
    *S
    FINISH
```

Infrastructure List

- *For Kayser Mill Rd – 1 line item from Oakridge to Universe.* **There are 3 lines shown because there are stub streets with different pavement widths on both the west and east ends of Kayser Mill Road.**
- *Add Oasis Canyon Rd.* **Oasis Canyon Road has been added to the Unit 1 infrastructure list. See revised infrastructure list.**
- *It is not clear from the as-builts that the storm drain was built in Universe north of Woodmont. Sheet 28A has the storm drain bubbled with a Note 3 "Delete Mainline SD from Project".* **Upon field investigation it appears that this storm drain has not been constructed. It has been added to the infrastructure list. See revised infrastructure list.**
- *Storm drain is not required to be on the Infrastructure List north of Treeline Ave. Doesn't this area drain to Pond K?* **As was discussed in our June 13th meeting, Longford would like to keep it on the infrastructure list.**
- *In addition, if storm drain is to be built north of Treeline, the existing DMP and as-builts show a 48" and 54" storm drain north of pond J.* **The infrastructure list has been revised to include up to 54" storm drain. See revised infrastructure list.**
- *Please provide a copy of the existing Agreement and Covenant for Pond K.* **Longford is researching this request.**
- *Add a Note to the Infrastructure List "Certification of the Grading and Drainage Plan is required for release of Financial Guarantees".* **Note has been added to both Unit 1 and 2 . See revised infrastructure lists.**
- For Unit 2 the storm drain in Mission Ridge is required. **Mission Ridge storm drain has been added to the Unit 2 infrastructure list. See revised infrastructure list.**

If you have any questions or require further information in order to approve the Grading and Drainage Plan, please feel free to contact me at 823-1000.

Sincerely,

Scott J. Steffen, P.E.
Vice President
Community Development and Planning Group

Enclosures

Bohannan Huston

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InRoads Storm & Sanitary Design Log

Drainage File: P:\20110333\CDP\Control\Utilities\20110333 sd.sdb

Design File: C:\PROGRAM FILES\AUTOCAD 2008\DRAWING1.DWG

Display Log: C:\PROGRAM FILES\AUTOCAD 2008\design.log

Date: Tuesday, June 21, 2011 09:39:09

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MISSION RIDGE STORM DRAIN HGL ANALYSIS

HGL/EGL Computations:

Table A:

Struct_ID	D (in)	Q (cfs)	L (ft)	V (ft/s)	d (ft)	dc (ft)	V^2/2g (ft)	Sf (ft/ft)	Dn_Soffit (ft)	EGLdn (ft)	HGLdn (ft)	Tot_Loss (ft)	EGLup (ft)	HGLup (ft)	Rim_Elev. (ft)
Outfall	-	-	-	-	-	-	-	-	-	-	-	-	-	5414.75	-
EXSDP01	30	34.72	46.27	7.07	-	-	0.78	0.0072	5410.01	5415.53	5414.75	0.33	5415.86	5415.08	-
SDMH1	-	-	-	-	-	-	-	-	-	5415.86	5415.08	0.72	5416.58	5415.81	5416.34
SDP6	36	34.72	17.83	4.91	-	-	0.37	0.0027	5411.06	5416.58	5415.81	0.05	5416.63	5416.26	-
SDMH2	-	-	-	-	-	-	-	-	-	5416.63	5416.26	0.29	5416.93	5416.55	5416.82
SDP5	36	34.72	109.34	4.91	-	-	0.37	0.0027	5412.44	5416.93	5416.55	0.30	5417.22	5416.85	-
IN1	-	-	-	-	-	-	-	-	-	5417.22	5416.85	0.06	5417.28	5416.91	5418.08
SDP4	30	23.03	28.35	4.69	-	-	0.34	0.0032	5413.33	5417.28	5416.91	0.09	5417.37	5417.03	-
IN2	-	-	-	-	-	-	-	-	-	5417.37	5417.03	0.45	5417.83	5417.48	5418.08
SDP3	24	11.34	65.17	3.61	-	-	0.20	0.0025	5413.42	5417.83	5417.48	0.16	5417.99	5417.79	-
SDMH3	-	-	-	-	-	-	-	-	-	5417.99	5417.79	0.30	5418.29	5418.09	5418.47
SDP2	24	11.34	45.49	3.61	-	-	0.20	0.0025	5414.47	5418.29	5418.09	0.11	5418.41	5418.21	-
IN3	-	-	-	-	-	-	-	-	-	5418.41	5418.21	0.22	5418.63	5418.43	5418.60
SDP1	18	5.67	24.55	3.21	-	-	0.16	0.0029	5416.02	5418.63	5418.43	0.07	5418.70	5418.54	-
IN4	-	-	-	-	-	-	-	-	-	5418.70	5418.54	-	5418.70	5418.54	5418.69

Table B:

LOSSES Str_ID	Hf	Hb	Hstr	Hc	He	Hj	Total	LOSS_COEFFICENTS Dstr	Ko	CD	Cd	Cq	Cp	Cb	K
Outfall	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EXSDP01	0.33	-	-	-	-	-	0.33	-	-	-	-	-	-	-	-
SDMH1	-	-	0.72	-	-	-	0.72	7.12	0.994	1.000	0.937	1.000	1.000	1.000	0.931
SDP6	0.05	-	-	-	-	-	0.05	-	-	-	-	-	-	-	-
SDMH2	-	-	0.29	-	-	-	0.29	6.91	0.952	1.000	0.825	1.000	1.000	1.000	0.786
SDP5	0.30	-	-	-	-	-	0.30	-	-	-	-	-	-	-	-
IN1	-	-	0.06	-	-	-	0.06	6.02	0.217	1.000	0.759	1.000	1.000	1.000	0.165
SDP4	0.09	-	-	-	-	-	0.09	-	-	-	-	-	-	-	-
IN2	-	-	0.45	-	-	-	0.45	5.71	1.616	1.000	0.821	1.000	1.000	1.000	1.326
SDP3	0.16	-	-	-	-	-	0.16	-	-	-	-	-	-	-	-
SDMH3	-	-	0.30	-	-	-	0.30	5.42	1.650	1.000	0.909	1.000	1.000	1.000	1.500
SDP2	0.11	-	-	-	-	-	0.11	-	-	-	-	-	-	-	-
IN3	-	-	0.22	-	-	-	0.22	3.79	1.481	1.000	0.734	1.000	1.000	1.000	1.086
SDP1	0.07	-	-	-	-	-	0.07	-	-	-	-	-	-	-	-
IN4	-	-	-	-	-	-	-	3.38	-	-	-	-	-	-	-

MANNING'S N = 0.017 SLOPE = 0.008

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	11.5	0.1	9.0	37.7	0.7
2.0	8.9	0.7	6.0	23.5	0.4	10.0	38.1	0.7
3.0	9.3	0.7	7.0	35.5	0.1	11.0	47.0	0.9
4.0	9.5	0.0	8.0	37.5	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.025	0.025	0.010	0.004	0.822	0.394	1.702	0.027
0.050	0.050	0.039	0.024	1.645	0.626	2.484	0.056
0.075	0.075	0.088	0.072	2.467	0.820	3.266	0.085
0.100	0.100	0.156	0.155	3.290	0.993	4.048	0.115
0.125	0.125	0.244	0.282	4.112	1.153	4.830	0.146
0.150	0.150	0.366	0.414	6.318	1.133	6.996	0.170
0.175	0.175	0.549	0.650	8.870	1.184	9.509	0.197
0.200	0.200	0.795	1.019	11.423	1.281	12.021	0.226
0.225	0.225	1.104	1.539	13.975	1.394	14.534	0.255
0.250	0.250	1.476	2.232	16.527	1.512	17.047	0.286
0.275	0.275	1.910	3.119	19.079	1.632	19.560	0.316
0.300	0.300	2.408	4.218	21.631	1.752	22.072	0.348
0.325	0.325	2.968	5.549	24.183	1.870	24.585	0.379
0.350	0.350	3.591	7.130	26.735	1.985	27.098	0.411
0.375	0.375	4.276	9.078	28.787	2.123	29.110	0.445
0.400	0.400	4.981	11.693	28.839	2.348	29.123	0.486
0.425	0.425	5.686	14.563	28.890	2.561	29.136	0.527
0.450	0.450	6.391	17.677	28.942	2.766	29.148	0.569
0.475	0.475	7.097	21.024	28.993	2.962	29.161	0.611
0.500	0.500	7.803	24.596	29.045	3.152	29.174	0.655
0.525	0.525	8.510	28.385	29.097	3.335	29.186	0.698
0.550	0.550	9.217	32.383	29.148	3.514	29.199	0.742
0.575	0.575	9.924	36.586	29.200	3.687	29.212	0.786
0.600	0.600	10.631	40.987	29.251	3.855	29.224	0.831
0.625	0.625	11.339	45.582	29.303	4.020	29.237	0.876
0.650	0.650	12.047	50.365	29.354	4.181	29.250	0.922
0.675	0.675	12.757	54.744	29.889	4.291	29.753	0.961
0.700	0.700	13.536	56.259	33.273	4.156	32.217	0.969
0.725	0.725	14.372	59.278	35.737	4.124	34.681	0.990
0.750	0.750	15.270	62.726	38.202	4.108	37.144	1.012
0.775	0.775	16.229	66.597	40.666	4.103	39.608	1.037
0.800	0.800	17.250	70.889	43.131	4.109	42.072	1.063
0.825	0.825	18.333	75.605	45.595	4.124	44.536	1.090

#1 KAYSER MILL ROAD

≈ 16.6 CFS → EGL ≈ 0.55' < 0.65' ✓ ok.

Std - 0.5%.txt

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	11.5	0.1	9.0	37.7	0.7
2.0	8.9	0.7	6.0	23.5	0.4	10.0	38.1	0.7
3.0	9.3	0.7	7.0	35.5	0.1	11.0	47.0	0.9
4.0	9.5	0.0	8.0	37.5	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.025	0.025	0.010	0.003	0.822	0.322	1.702	0.027
0.050	0.050	0.039	0.020	1.645	0.511	2.484	0.054
0.075	0.075	0.088	0.059	2.467	0.670	3.266	0.082
0.100	0.100	0.156	0.127	3.290	0.811	4.048	0.110
0.125	0.125	0.244	0.230	4.112	0.941	4.830	0.139
0.150	0.150	0.366	0.338	6.318	0.925	6.996	0.163
0.175	0.175	0.549	0.531	8.870	0.967	9.509	0.190
0.200	0.200	0.795	0.832	11.423	1.046	12.021	0.217
0.225	0.225	1.104	1.257	13.975	1.138	14.534	0.245
0.250	0.250	1.476	1.823	16.527	1.235	17.047	0.274
0.275	0.275	1.910	2.546	19.079	1.333	19.560	0.303
0.300	0.300	2.408	3.444	21.631	1.430	22.072	0.332
0.325	0.325	2.968	4.531	24.183	1.526	24.585	0.361
0.350	0.350	3.591	5.822	26.735	1.621	27.098	0.391
0.375	0.375	4.276	7.412	28.787	1.734	29.110	0.422
0.400	0.400	4.981	9.547	28.839	1.917	29.123	0.457
0.425	0.425	5.686	11.891	28.890	2.091	29.136	0.493
0.450	0.450	6.391	14.433	28.942	2.258	29.148	0.529
0.475	0.475	7.097	17.166	28.993	2.419	29.161	0.566
0.500	0.500	7.803	20.082	29.045	2.574	29.174	0.603
0.525	0.525	8.510	23.176	29.097	2.723	29.186	0.640
0.550	0.550	9.217	26.441	29.148	2.869	29.199	0.678
0.575	0.575	9.924	29.873	29.200	3.010	29.212	0.716
0.600	0.600	10.631	33.466	29.251	3.148	29.224	0.754
0.625	0.625	11.339	37.217	29.303	3.282	29.237	0.793
0.650	0.650	12.047	41.123	29.354	3.413	29.250	0.831
0.675	0.675	12.757	44.698	29.889	3.504	29.753	0.866
0.700	0.700	13.536	45.935	33.273	3.394	32.217	0.879
0.725	0.725	14.372	48.400	35.737	3.368	34.681	0.901
0.750	0.750	15.270	51.215	38.202	3.354	37.144	0.925
0.775	0.775	16.229	54.376	40.666	3.350	39.608	0.950
0.800	0.800	17.250	57.881	43.131	3.355	42.072	0.975
0.825	0.825	18.333	61.731	45.595	3.367	44.536	1.001

#5 MISSION RIDGE DR (SOUTH OF LP)

RESIDUAL - 14.94 CFS
2.76 CFS
17.7 CFS

STREET CAPACITY
41.23 CFS > 17.7 CFS ✓ ok

SEE SHEET 4 FOR INLET ANALYSIS

3

SHEET A

ANALYSIS OF AN INLET IN A SUMP CONDITION - **Mission Ridge LP**

INLET TYPE: Double Grate Type "A" with curb opening wings on both sides on inlet.

WEIR: Q=C*L*H^1.5		ORIFICE: Q=C*A*(2*G*H)**0.5	
Wing opening	Grate opeining	Grate opening	Wing opening
C= 3.0	C=3.0	C=0.6	C=0.6
L= 4.0 ft	L(double grate)=[2(2.67')+2(1.8')]=8.	A(double grate)=8.19 sf	A=2.0 sf
Q=3.0(4.0')H**1.5= 12.0H**1.5	Q=3.0(8.94)H^1.5=26.82*H^1.5	Q=4.194*(64.4*H)^0.5	Q=1.2*(64.4*H)^0.5

	WS ELEVATION	HEIGHT ABOVE INLET	Q (CFS) WEIR "A" OPENING	Q (CFS) WEIR DOUBLE GRATE	Q (CFS) ORIFICE DOUBLE GRATE	TOTAL Q (CFS)	COMMENTS:
~FL @ INLET	0.00	0.00	0.00	0.00	0.00	0.00	Flow at double "A" inlet w/ two wing openings
	0.10	0.10	0.38	0.85	12.47	1.61	Weir controls on grate analysis
	0.20	0.20	1.07	2.40	17.64	4.55	
	0.30	0.30	1.97	4.41	21.60	8.35	
	0.40	0.40	3.04	6.78	24.94	12.86	Q(100 yr) = 11.69 cfs is provided at this depth
	0.50	0.50	4.24	9.48	27.88	17.97	
	0.60	0.60	5.58	12.46	30.55	23.62	Q(2x100 yr) = 23.38 cfs is provided at this depth
TOP OF CURB	0.70	0.70	7.03	15.71	32.99	29.76	
	0.80	0.80	8.59	19.19	35.27	36.36	
	0.90	0.90	10.25	22.90	37.41	43.39	
ROW LIMIT	1.00	1.00	12.00	26.82	39.43	50.82	

NOTE: The total runoff intercepted by the inlet at the low point in the road is:

Qr(100) = 2*[(runoff of the wing opening) + (the lesser of the weir or orifice amount taken by the double grate)].

THE 100 YR STORM EVENT = 11.69 CFS at the sump condition

THE 2 x 100 YR STORM EVENT = 23.38 CFS at the sump condition

TOTAL FLOW TO LP = 23.38 CFS / 2 INLETS = 11.69 CFS

SHEET B

ANALYSIS OF AN INLET IN A SUMP CONDITION - **Kayser Mill Rd-East Side**

INLET TYPE: Double Grate Type "A" with curb opening wings on both sides on inlet.

WEIR: Q=C*L*H^1.5		ORIFICE: Q=C*A*(2*G*H)**0.5	
Wing opening	Grate opeining	Grate opening	Wing opening
C= 3.0	C=3.0	C=0.6	C=0.6
L= 4.0 ft	L(double grate)=[2(2.67')+2(1.8')]=8.	A(double grate)=8.19 sf	A=2.0 sf
Q=3.0(4.0')H**1.5= 12.0H**1.5	Q=3.0(8.94)H^1.5=26.82*H^1.5	Q=4.194*(64.4*H)^0.5	Q=1.2*(64.4*H)^0.5

50% Clay

	WS ELEVATION	HEIGHT ABOVE INLET	Q (CFS) WEIR "A" OPENING	Q (CFS) WEIR DOUBLE GRATE	Q (CFS) ORIFICE DOUBLE GRATE	TOTAL Q (CFS)	COMMENTS:
~FL @ INLET	0.00	0.00	0.00	0.00	0.00	0.00	Flow at double "A" inlet w/ two wing openings
	0.10	0.10	0.38	0.85	12.47	1.61	Weir controls on grate analysis
	0.20	0.20	1.07	2.40	17.64	4.55	
	0.30	0.30	1.97	4.41	21.60	8.35	
	0.40	0.40	3.04	6.78	24.94	12.86	
	0.50	0.50	4.24	9.48	27.88	17.97	
	0.60	0.60	5.58	12.46	30.55	23.62	Q(100 yr) = 18.06 cfs is provided at this depth
TOP OF CURB	0.70	0.70	7.03	15.71	32.99	29.76	
	0.80	0.80	8.59	19.19	35.27	36.36	Q(2x100 yr) = 36.12 cfs is provided at this depth
	0.90	0.90	10.25	22.90	37.41	43.39	
ROW LIMIT	1.00	1.00	12.00	26.82	39.43	50.82	

NOTE: The total runoff intercepted by the inlet at the low point in the road is:

Qr(100) = 2*[(runoff of the wing opening) + (the lesser of the weir or orifice amount taken by the double grate)].

THE 100 YR STORM EVENT = 18.06 CFS at the sump condition

THE 2 x 100 YR STORM EVENT = 36.12 CFS at the sump condition

30084
Pond J

AGREEMENT AND COVENANT
(Drainage)

This Agreement and Covenant ("Agreement") between the City of Albuquerque, a New Mexico municipal corporation ("City"), and The Trails, LLC, a Nevada limited liability company ("User"), is made in Albuquerque, New Mexico and is entered into as of the date of the recording of this Agreement with the Bernalillo County Clerk.

1. Recitals. The User is the owner of certain real property ("User's Property") located in Bernalillo County, New Mexico, and more particularly described as:

"A certain tract of land located within the Alameda Grant, being more particularly described as follows:

BEGINNING for a tie at the U.S.L.O. marker on the South boundary of the Town of Alameda Grant, which is a point common to Sections 15 and 16, T11N, R2E, NMPM, Bernalillo County, New Mexico;
Thence N 0° 02' E, a distance of 1,302.60 feet to the SW corner and point of beginning of the parcel herein described;
Thence N 0° 02' E, a distance of 660.0 feet to the NW corner;
Thence N 89° 55' 30" E, a distance of 330.0 feet to the NE corner;
Thence S 0° 02' W, a distance of 660.0 feet to the SE corner;
Thence S 89° 55' 30" W, a distance of 330.0 feet to the point of beginning."

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 in Exhibit A attached hereto and incorporated herein.

The User wishes to construct upon, improve or repair and to maintain temporary drainage facilities and areas, including without limitation drainage ponds, (collectively, "Improvement") on the City's Property (or already has done so), as such Improvement is more particularly depicted on the diagram attached hereto as Exhibit B and incorporated herein.

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 identified as "Grading and Drainage Report C9-D1" on file at the City Engineer's office. 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 applicable laws, ordinances and regulations.

4. Use of the Improvement. If the City's Property is a public right-of-way, it shall be

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Page: 1 of 8
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Mary Manrara Bern. Co. AGRE R 23.00

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 User requiring the User to repair, modify or remove the Improvement within thirty (30) days ("Deadline") and the User will comply promptly with the requirements of the Notice. If removal is demanded, the City also may require User to return City's Property to its original condition by the Deadline. 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 canceled 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. Written notice required or permitted under this Agreement shall be sent to the User at the address set forth below:

To User: The Trails, LLC
c/o Longford Group, Inc.
3077 E. Warm Springs Road
Las Vegas, Nevada 89120

Notice may be given to User either in person or by mailing the notice by regular U.S. mail, postage paid. Notice will be considered to have been received within 3 days after the notice is mailed if there is no actual evidence of receipt. The address set forth above may be changed by the User 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.

and Association DM 9/9/05 8-10-05

11. Indemnification. The User agrees to defend, indemnify and hold harmless the City,

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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 attorneys' 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: _____
Chief Administrative Officer

Dated: 8-26-05

USER:

THE TRAILS LLC, a Nevada limited liability company

By: Longford Group, Inc., a Nevada corporation, Its Manager

By: _____
David A. Murtagh, Division President

Dated: May 16, 2005

APPROVED:

_____
City Engineer

8-7-05

Dated: 8-26-05

Kfe 8/25/05

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CITY'S ACKNOWLEDGMENT

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on August 26, 2005, by Richard Dourte for, Chief Administrative Officer for the City of Albuquerque, a New Mexico municipal corporation, on behalf of the corporation.

Gloria D. Saavedra
Notary Public
My Commission Expires:
11-25-2007

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USER'S ACKNOWLEDGMENT

STATE OF ~~NEVADA~~ New Mexico)
) ss.
COUNTY OF ~~CLARK~~ Bernalillo)

This instrument was acknowledged before me on May 16th, 2005, by David A. Murtagh, Division President of Longford Group, Inc., a Nevada corporation, as manager of The Trails, LLC, a Nevada limited liability company.

Donna Lawson
Notary Public

OFFICIAL SEAL
DONNA LAWSON
NOTARY PUBLIC-STATE OF NEW MEXICO
My commission expires: 12-1-08

My Commission Expires: 12-1-08

Exhibit A
sheet 1 of 2

LEGAL DESCRIPTION - Drainage Easement within unplatted Parcel 1-6

An Easement within that certain parcel of land situate within the Town of Alameda Grant in projected Section 15, Township 11 North, Range 2 East, New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico comprising a Westerly portion of unplatted lands of The Trails, LLC as the same is described in that certain Warranty Deed, filed in the office of the County Clerk of Bernalillo County, New Mexico, on September 24, 2003 in Book A65, Page 5664 more particularly described by survey performed by Russ P.Hugg, New Mexico Professional Surveyor Number 9750 using New Mexico State Plane Coordinate System, Central Zone (NAD 27) grid bearings and ground distances as follows:

BEGINNING at the Southwest corner of the easement herein described, whence the closing corner for Sections 16 and 15 on the South Boundary of the Town of Alameda Grant(a brass cap found in place)bears S 00° 15' 38" W, 1694.72 feet distant; Thence running as an easement:

N 00° 16' 10" E ,	267.88 feet to the Northwest corner of the easement herein described; Thence,
S 89° 50' 20" E ,	280.44 feet to the Northeast corner of the easement herein described; Thence,
S 00° 09' 40" W ,	268.41 feet to the Southeast corner of the easement herein described; Thence,
N 89° 43' 50" W ,	280.94 feet to the Southwest corner and point of beginning of the easement herein described.

PROFESSIONAL SURVEYOR
STATE OF
No. 9750
NEW MEXICO
RUSS P. HUGG

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Exhibit A

EXHIBIT "B"

DRAINAGE EASEMENT
within
BULK LAND
PLAT, THE TRAILS
UNIT II
CITY OF ALBUQUERQUE
BERNALILLO COUNTY, NEW MEXICO

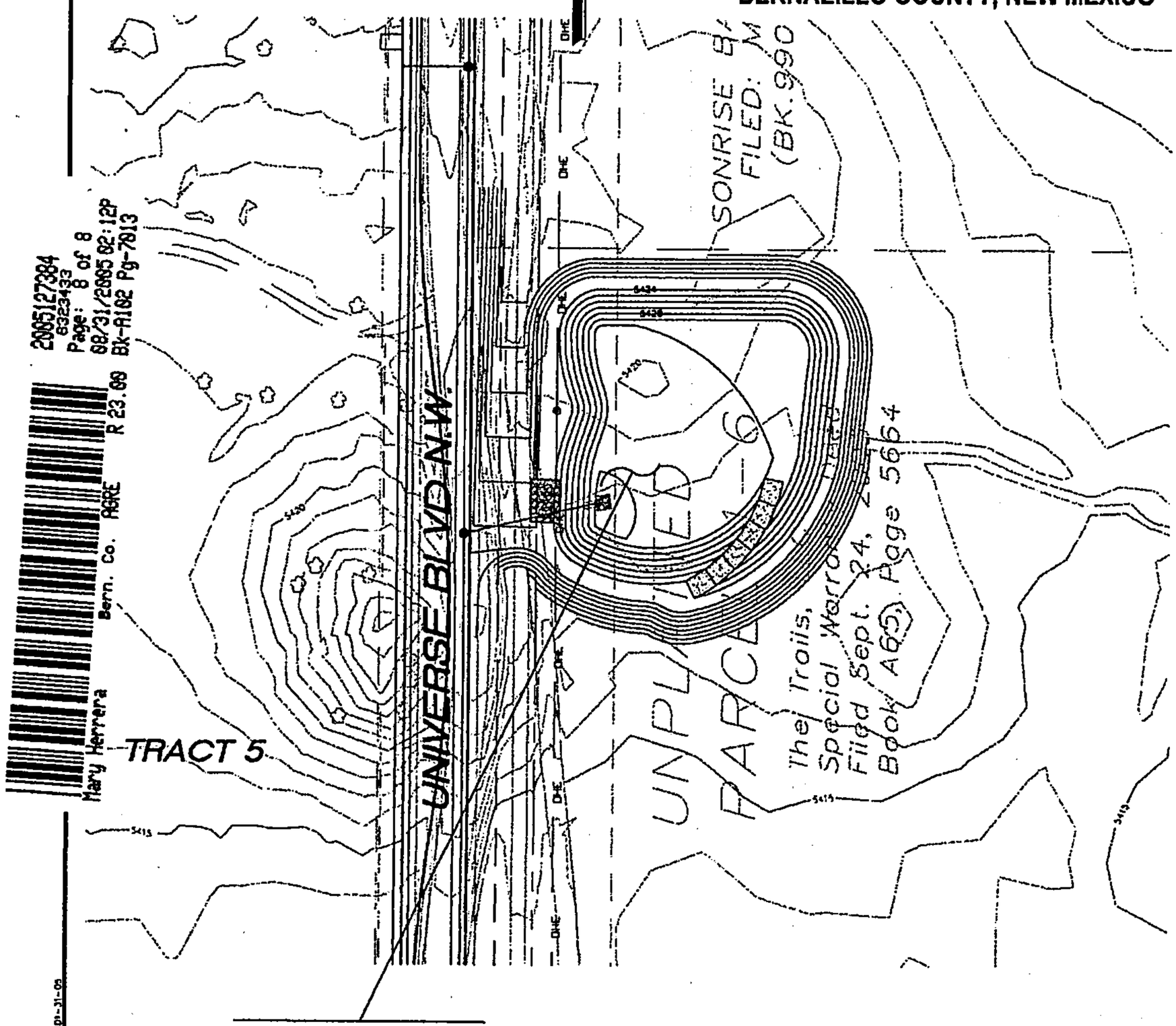
DM 7/7/06
8-10-05

GRAPHIC SCALE

0 50 100 200

(IN FEET)
1 inch = 100 ft.

N



POND J
MAX STORAGE = 2.09 AC-FT
MAX WSEL = 5421.73
TOP OF POND = 5423
BOTTOM OF POND ELEV = 5417
Q(in) = 79.5 cfs
Q(out) = 20.8 cfs

DM 7/7/06

WILSON & COMPANY 2600 RIO AMERICAN ROAD S.E. SUITE 100 RIO RANCHO, NEW MEXICO 87124 (505) 896-8021	CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT ENGINEERING GROUP		
	EXHIBIT "B" POND J 8-10-05		
DESIGN S.J.S	WCEA NO. X4218008	DATE MAY 2005	
DRAWN D.D	PROJECT NO. 730084	SHEET NO. 1 OF 1	
CHECK S.J.S			

COA#: 730084
A&C: POND K

AGREEMENT AND COVENANT
(Drainage)

This Agreement and Covenant ("Agreement") between the City of Albuquerque, a New Mexico municipal corporation ("City"), and The Trails, LLC, a Nevada limited liability company ("User"), is made in Albuquerque, New Mexico and is entered into as of the date of the recording of this Agreement with the Bernalillo County Clerk.

1. Recitals. The User is the owner of certain real property ("User's Property") located in Bernalillo County, New Mexico, and more particularly described as:

"A tract of land situate within the Town of Alameda Grant, being within the NW1/4 NW1/4 SW1/4, projected Section 15, Black Ranch, Township 11 North, Range 2 East, NMPM, City of Albuquerque, Bernalillo County, New Mexico, and being more particularly described as follows:

BEGINNING at the Southeast corner of the herein described tract, from whence Albuquerque Control Survey Monument bears N 57° 00' 46" E, 1403.09 feet;
Thence, N 89° 41' 49" W, 330.0 feet to the Southwest corner;
Thence, N 00°15' 57" E, 641.89 feet to the Northwest corner;
Thence, S 89° 49' 59" E, 330.00 feet to the Northeast corner;
Thence, S 0° 15' 57" W, 642.67 feet to the point of beginning."

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 in Exhibit A attached hereto and incorporated herein.

The User wishes to construct upon, improve or repair and to maintain temporary drainage facilities and areas, including without limitation drainage ponds, (collectively, "Improvement") on the City's Property (or already has done so), as such Improvement is more particularly depicted on the diagram attached hereto as Exhibit B and incorporated herein.

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 identified as "Grading and Drainage Report C9-D1" on file at the City Engineer's office. 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 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

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Mary Herrera Bern. Co. AGRE R 23.00 Bk-A102 Pg-7018

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 thirty (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 canceled 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. Written notice required or permitted under this Agreement shall be sent to the User at the address set forth below:

To User: The Trails, LLC
c/o Longford Group, Inc.
3077 E. Warm Springs Road
Las Vegas, Nevada 89120

Notice may be given to User either in person or by mailing the notice by regular U.S. mail, postage paid. Notice will be considered to have been received within 3 days after the notice is mailed if there is no actual evidence of receipt. The address set forth above may be changed by the User 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.

and Association DM 8/8/06 DM 8-10-05

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

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Mary Herrera Bern. Co. AGRE R 23.00

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 attorneys' 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: _____
Chief Administrative Officer

Dated: 8-26-05

USER:

THE TRAILS LLC, a Nevada limited liability company

By: Longford Group, Inc., a Nevada corporation, Its Manager

By: _____
David A. Murtagh, Division President

Dated: May 16, 2005

APPROVED:

_____ 6-7-05
City Engineer

Dated: 8-26-05 kgl 8/25/05

Trails\Parcel 5-37\Temp Drainage

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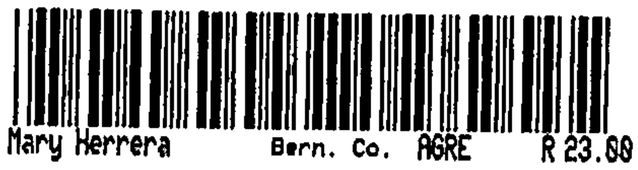
Mary Herrera Bern. Co AGRE

CITY'S ACKNOWLEDGMENT

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on August 26, 2005, by Richard Dourte for, Chief Administrative Officer for the City of Albuquerque, a New Mexico municipal corporation, on behalf of the corporation.

Gloria D. Saavedra
Notary Public
My Commission Expires:
11-25-2007



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Mary Herrera Bern. Co. AGRE R 23.00 Bk-A102 Pg-7818

USER'S ACKNOWLEDGMENT

STATE OF New Mexico)
) ss.
COUNTY OF Bernalillo

This instrument was acknowledged before me on May 16th, 2005, by David A. Murtagh, Division President of Longford Group, Inc., a Nevada corporation, as manager of The Trails, LLC, a Nevada limited liability company.

Donna Lawson
Notary Public

OFFICIAL SEAL
DONNA LAWSON
NOTARY PUBLIC-STATE OF NEW MEXICO
My commission expires: 12-1-08

My Commission Expires: 12-1-08

Exhibit A, pg 1 of 2

LEGAL DESCRIPTION - Drainage Easement within unplatted Parcel 5-37

An Easement within that certain parcel of land situate within the Town of Alameda Grant in projected Section 15, Township 11 North, Range 2 East, New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico comprising a Westerly portion of unplatted lands of The Trails, LLC as the same is described in that certain Warranty Deed, filed in the office of the County Clerk of Bernalillo County, New Mexico, on September 24, 2003 in Book A65, Page 5664 more particularly described by survey performed by Russ P.Hugg, New Mexico Professional Surveyor Number 9750 using New Mexico State Plane Coordinate System, Central Zone (NAD 27) grid bearings and ground distances as follows:

BEGINNING at the Southwest corner of the easement herein described, whence the closing corner for Sections 16 and 15 on the South Boundary of the Town of Alameda Grant(a brass cap found in place)bears S 00° 13' 50" W, 303.48 feet distant; Thence running as an easement:

N 00° 16' 10" E ,	259.62 feet to the Northwest corner of the easement herein described; Thence,
N 87° 24' 02" E ,	196.72 feet to a point; Thence,
S 42° 18' 42" E ,	83.10 feet to a point; Thence,
S 00° 16' 10" W ,	208.28 feet to the Southeast corner of the easement herein described; Thence,
N 89° 43' 50" W ,	252.70 feet to the Southwest corner and point of beginning of the easement herein described.

PROFESSIONAL SURVEYOR STATE OF NEW MEXICO No. 9750 RUSS P. HUGG

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EXHIBIT "A"
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TRACT 5

TRACT 7

TRACT 8

N00°16'10"E

1059.36

S 89°30'20" E 280.44'

N 00°16'10" E 267.68'

Temporary Drainage Easement

S00°09'40"W 268.41'

N89°43'50"W 280.94'

S00°15'43"W 1894.72' (Tie to closing corner)

UNPLATTED PARCEL 1-6
The Trails, LLC
Special Warranty Deed
Filed Sept. 24, 2003
Book A65, Page 5664

Existing 100' Plains Electric Easement

10' Public Service Company Easement granted by Document # 2004121843 filed August 27, 2004 in Book A83 page 1518.

S69°11'26"E 380.06'

Set 5/8" Rebar and cap stamped "L.S. 9750" (typical all interior corners)

Found 5/8" Rebar and cap stamped "L.S. 5978"

N

Scale 1"= 200'

BOULEVARD N.W.

UNPLATTED PARCEL 4-7
The Trails, LLC
Special Warranty Deed
Filed Sept. 24, 2003

Existing 50' Roadway and Underground Public and Private Utility Easement filed October 8, 2002 in Book A43, page 259.

Additional street right of way dedicated to the City of Albuquerque in fee simple with warranty covenants by plat filed October 18, 2004 in Plat Book 2004C, Page 332

Existing 100' Plains Electric Easement

AVENUE N.W.

UNIVERSE

Pond "K"

N87°24'02"E 196.72'

S42°19'42"E 84.10'

N 00°16'10" E 259.62'

Temporary Drainage Easement

S00°16'10"W 208.28'

252.70'

N89°43'50"W

UNPLATTED PARCEL 5-37
The Trails, LLC
Special Warranty Deed
Filed Sept. 24, 2003
Book A65, Page 5664

617.40'

S 00°19'17" W

509.78

20'x 23' PNM Switchgear Easement filed August 27 2004 in Book A83, Pg 1517

S00°16'10"W 303.48'

S 89°39'13" E 629.55'

80'X 64' Sanitary Sewer Easement

S 00°13'50" W

130.02

Found 5/8" Rebar and cap stamped "L.S. 5978"

8.99

715.69

N89°40'43"W (N89°40'58"W, 1064.88')

1064.68'

N89°41'06"W

AVENIDA de JAMITO

COMPASS DRIVE N.W.

VOLCANO CLIFFS UNIT 16

46

47

9

1

USGLO BRASS CAP
T. 11 N.
TA
16 15
R. 2 E.
N.M.P.M.

nd 3-1/4" Brass cap
lace

Found 3-1/4" Brass cap in place. 3.06 feet South of SE corner Tract J

050003

SURV TEK, INC.
Consulting Surveyors
5643 Paradise Blvd. N.W. Albuquerque, New Mexico 87114
Phone: 505-897-3366
Fax 505-897-3377

EXHIBIT "B"

DRAINAGE EASEMENT
within
BULK LAND
PLAT, THE TRAILS
UNIT II
CITY OF ALBUQUERQUE
BERNALILLO COUNTY, NEW MEXICO

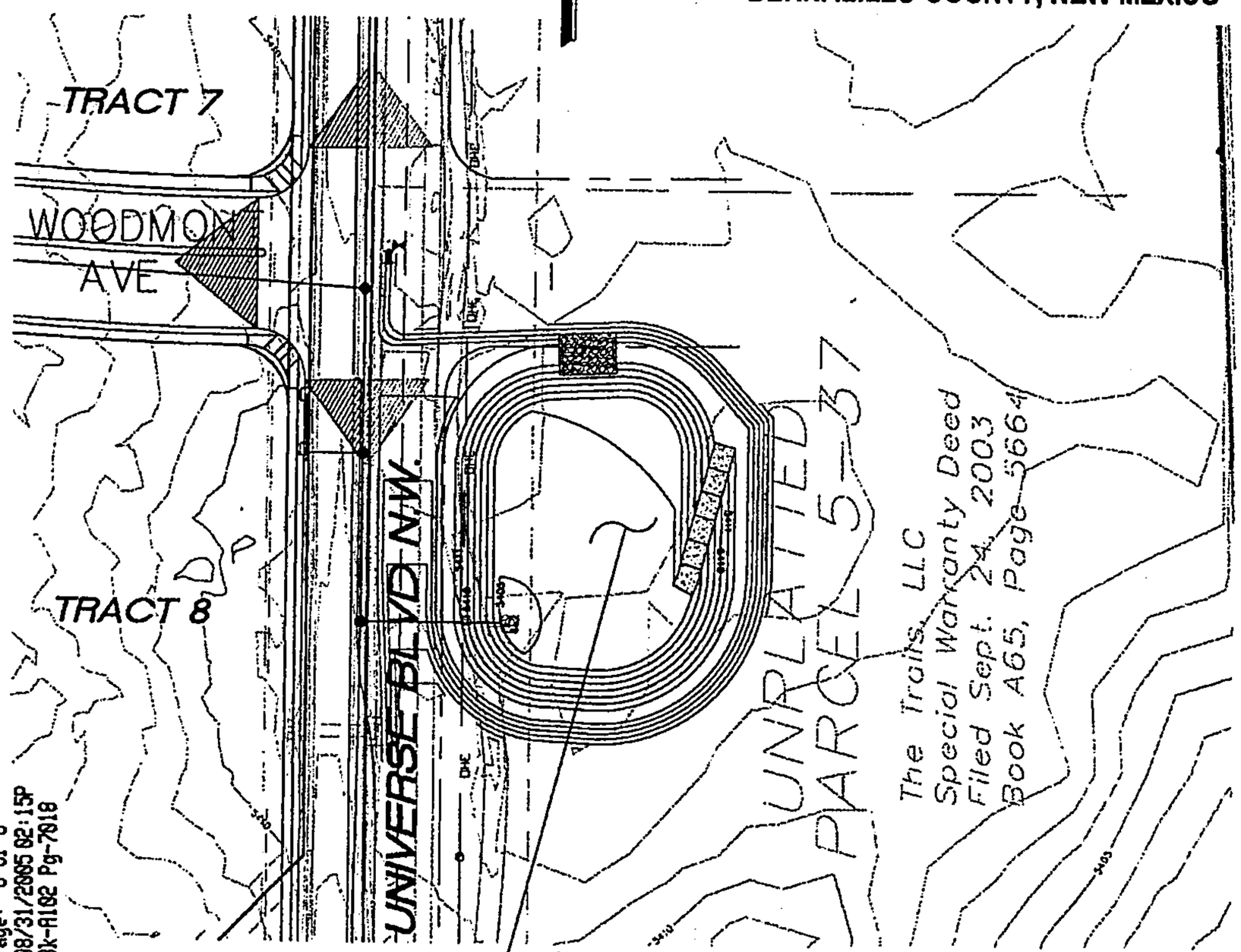
DM 8/8/05
8-10-05

GRAPHIC SCALE

0 50 100 200

(IN FEET)
1 inch = 100 ft.

N



POND K
MAX STORAGE = 2.17 AC-FT
MAX WSEL = 5410.20
TOP OF POND = 5411
BOTTOM OF POND ELEV = 5405
Q(in) = 151.5 cfs
Q(out) = 80.2 cfs

DM 7/8/05

WILSON & COMPANY
2600 THE AMERICAN ROAD S.E.
SUITE 100
RIO RANCHO, NEW MEXICO
87124
(505) 896-8021

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

EXHIBIT "B"
POND K 8-10-05

DESIGN S.J.S	WCEA NO. X4218008	DATE MARCH 2005	
DRAWN D.D	PROJECT NO. 730084	SHEET NO. 1 OF 1	
CHECK S.J.S			

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Mary Herrera

COA #- 730084
POND K

TEMPORARY EASEMENT
(Drainage)

Grant of Temporary Easement, between The Trails, LLC, a Nevada limited liability company ("Grantor"), whose address is 3077 E. Warm Springs Road, Las Vegas, Nevada, 89120, and the City of Albuquerque, a New Mexico municipal corporation ("City"), whose address is P.O. Box 1293, Albuquerque, New Mexico, 87103.

Grantor grants to the City a temporary easement ("Easement") in, over, upon and across the real property described on Exhibit "A" attached hereto ("Property") for the construction, installation, maintenance, repair, modification, replacement and operation of temporary drainage facilities and areas, including without limitation drainage ponds, together with the right to remove trees, bushes, undergrowth and any other obstacles upon the Property if the City determines they interfere with the appropriate use of this Easement.

In the event Grantor constructs any improvements ("Improvements") within the Easement, the City has the right to enter upon Grantors property at any time and perform whatever inspection, installation, maintenance, repair, modification or removal ("Work") it deems appropriate without liability to the City. If the Work effects any Improvements or encroachments made by the Grantor, the City will not be financially or otherwise responsible for rebuilding or repairing the Improvements or encroachments. If in the opinion of the City, the Work to be performed by the City could endanger the structural integrity or otherwise damage the Improvements or encroachments, the Grantor shall, at its own expense, take whatever protective measures are required to safeguard the Improvements or encroachments.

Grantor covenants and warrants that Grantor is the owner in fee simple of the Property, that Grantor has a good lawful right to convey the Property or any part thereof and that Grantor will forever warrant and defend the title to the Property against all claims from all persons or entities.

The grant and other provisions of this Easement constitute covenants running with the Property for the benefit of the City and its successors and assigns until terminated.

This Easement shall not be effective until approved by the City Engineer for the City in the signature block below.

WITNESS its hand and seal this 9th day of May, 2005.

GRANTOR:

THE TRAILS, LLC, a Nevada limited liability company

By: The Longford Group, Inc., a Nevada corporation,
Its Manager

By: _____
David A. Murtagh
Its: Division President
Dated: May 9, 2005

APPROVED:

_____

Print Name: Richard Dourte
City Engineer
Dated: 5-26-05

Trails\Parcel 5-37\Temp Drainage

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Mary Herrera Bern. Co. EASE R 15.00

CORPORATION

STATE OF NEW MEXICO)
)ss
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on the 9th day of May, 2005, by David A. Murtagh, President of Longford Group, Inc., a Nevada corporation, as manager of The Trails, LLC, a Nevada limited liability company.

Donna Lawson
Notary Public

My Commission Expires:
12-1-08

OFFICIAL SEAL
DONNA LAWSON
NOTARY PUBLIC-STATE OF NEW MEXICO
My commission expires: 12-1-08

Mary Herrera Bern. Co. EASE R 15.00

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Trails\Parcel 5-37\Temp Drainage

LANDIA H
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LEGAL DESCRIPTION - Drainage Easement within unplatted Parcel 5-37

An Easement within that certain parcel of land situate within the Town of Alameda Grant in projected Section 15, Township 11 North, Range 2 East, New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico comprising a Westerly portion of unplatted lands of The Trails, LLC as the same is described in that certain Warranty Deed, filed in the office of the County Clerk of Bernalillo County, New Mexico, on September 24, 2003 in Book A65, Page 5664 more particularly described by survey performed by Russ P.Hugg, New Mexico Professional Surveyor Number 9750 using New Mexico State Plane Coordinate System, Central Zone (NAD 27) grid bearings and ground distances as follows:

BEGINNING at the Southwest corner of the easement herein described, whence the closing corner for Sections 16 and 15 on the South Boundary of the Town of Alameda Grant(a brass cap found in place)bears S 00° 13' 50" W, 303.48 feet distant; Thence running as an easement:

N 00° 16' 10" E ,	259.62 feet to the Northwest corner of the easement herein described; Thence,
N 87° 24' 02" E ,	196.72 feet to a point; Thence,
S 42° 18' 42" E ,	83.10 feet to a point; Thence,
S 00° 16' 10" W ,	208.28 feet to the Southeast corner of the easement herein described; Thence,
N 89° 43' 50" W ,	252.70 feet to the Southwest corner and point of beginning of the easement herein described.

PROFESSIONAL SURVEYOR
STATE OF
No. 9750
NEW MEXICO
RUSS P. HUGG

Mary Herrera Bern. Co. EASE R 15.00
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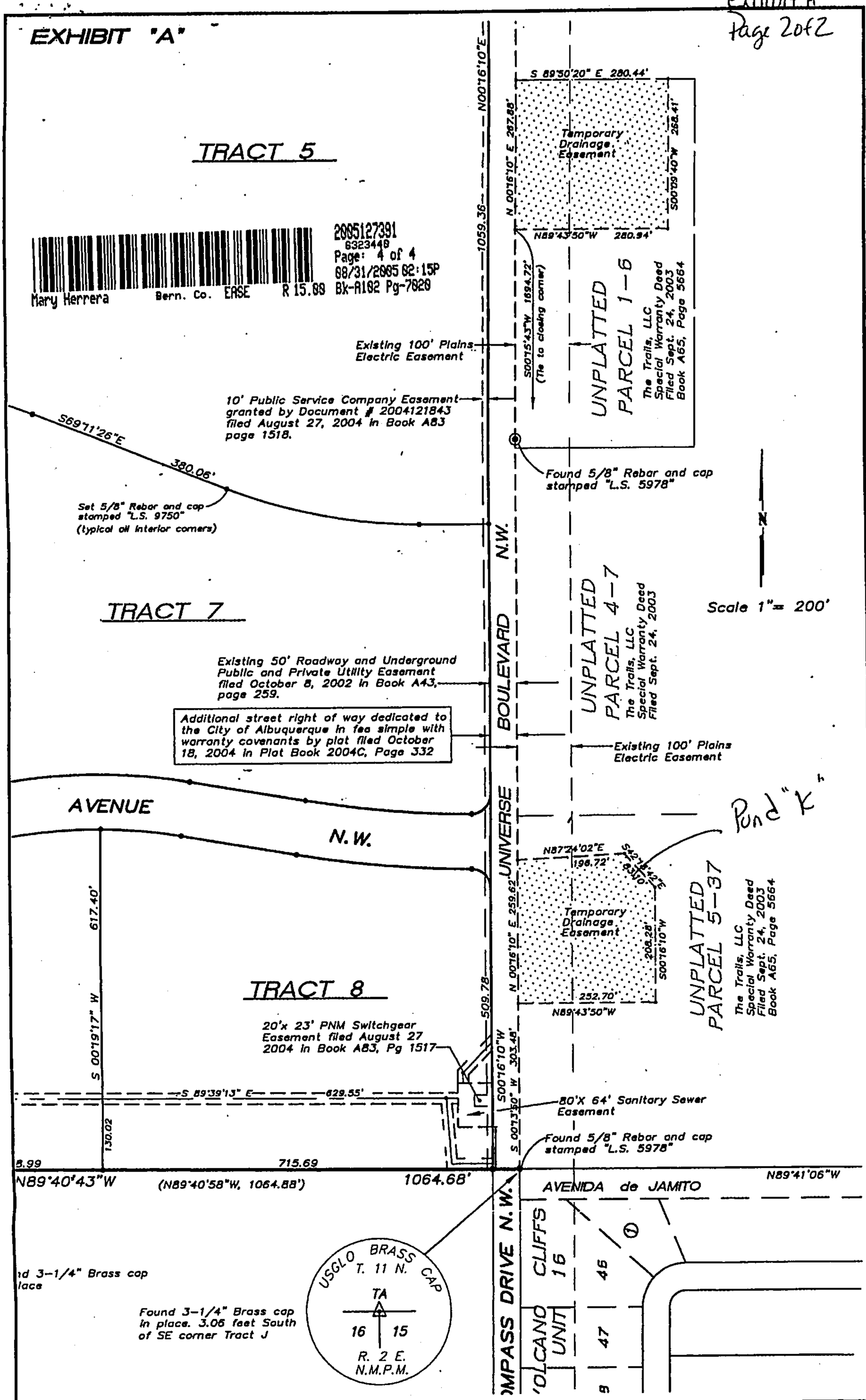
Exhibit A
Page 2 of 2

EXHIBIT "A"



050003

SURV TEK, INC.
Consulting Surveyors
5643 Paradise Blvd. N.W. Albuquerque, New Mexico 87114
Phone: 505-897-3366
Fax: 505-897-3377

CITY OF ALBUQUERQUE

March 29, 2006

Angela Valdez, PE
Wilson & Company
2600 American Rd, SE, Ste. 100
Rio Rancho, NM 87124

Re: Tract 5 at The Trails Rough Grading Plan
Engineer Stamp 2-22-06 (C9/D1B)

Dear Ms. Valdez,

Based upon information provided in your submittal dated 2-22-06, the above referenced plan is approved for Rough Grading Permit.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. Refer to the attachment that is provided with this letter for details. If you have any questions please feel free to call the Municipal Development Department, Hydrology section at 768-3654 (Charles Caruso).

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Principal Engineer, Planning Dept.
Development and Building Services

C: Chuck Caruso, DMD
file

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

CITY OF ALBUQUERQUE

January 12, 2012

Scott J. Steffen, P.E. ssteffen@bhinc.com
BOHANNAN-HUSTON, INC.
7500 Jefferson Street NE Courtyard I
Albuquerque, NM 87109

Re: Taos @ the Trails Unit 2, Lots 1-6, & 114-128,
Request: Pad Certification for Building Permit—Approved
Engineer's Stamp dated: 03-21-2007, (C-09/D001C)
Certification dated: 01-09-12

Dear Mr. Steffen,

Based upon the information provided in the Certification received 01-10-12, the above referenced Certification is approved for a release of Building Permit.

Hydrology is asking for an electronic copy, in .pdf format, of this certification for our records. This certification can be e-mailed to me at: tsims@cabq.gov.

If you have any questions, you can contact me at 924-3982.

Sincerely,

Timothy E. Sims,
Plan Checker—Hydrology Section
Development and Building Services

C: Curtis A. Cherne, P.E.
File

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

Bohannan ▲ Huston

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

January 5, 2012

Mr. Tim Sims
Hydrology Section
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87102

Re: Partial Grading and Drainage Certification, Taos at the Trails Unit 2
DRB Case No. 1003973, (C9/D1C)

Dear Tim:

Enclosed for your review is the DRB approved grading and drainage plan dated 3/21/07, with as-built elevations. This certification is for the twenty-one lots (lots 1 through 6, and 114 through 128) facing Tree Line Avenue of the Taos at the Trails Unit 2 subdivision. The remainder of the original Taos at the Trails Unit 2 subdivision is being redeveloped as Taos Units 1 and 2 at the Trails. Separate certifications will be submitted at a later date.

The as-built survey was provided by Surv-Tek, Inc. After reviewing these as-built elevations and visiting the site on 1/5/12, it is my belief that the lots have been graded in substantial compliance with approved grading and drainage plan.

Your review and approval is requested for SIA/financial guaranty release and Building Permit approval for the above listed lots. I appreciate your time and consideration. If you have questions or require additional information, please contact me at 823-1000.

Sincerely,

Scott J. Steffen, P.E.
Vice President
Community Development & Planning

SJS/tms
Enclosure

cc: Rick Beltramo, Longford Homes
Dave Newell, DR Horton

RECEIVED
JAN 05 2012
HYDROLOGY SECTION

Engineering ▲
Spatial Data ▲
Advanced Technologies ▲

P:\20110333\Correspondence\Submittals\G&D Cert\Treeline 21 Lots\20120105 Hydro Cert Letter.Docx

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/2005)

PROJECT TITLE: Taos at the Trails Unit 2
ZONE MAP/DRG. FILE # C9/D1C
DRB#: 1003973 EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: Lots 1-P1 thru 6-P1 and 114-P1 thru 128-P1, Taos at the Trails Unit 2 Subdivision

CITY ADDRESS: South side of Tree Line Avenue, between Oakridge Street and Universe Boulevard

ENGINEERING FIRM: Bohannan Huston Inc. CONTACT: Scott Steffen
ADDRESS: 7500 Jefferson NE PHONE: (505) 823-1000
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

OWNER: The Trails, LLC CONTACT: Rick Beltramo
ADDRESS: 6840 Treeline Avenue PHONE: (505) 761-9911
CITY, STATE: Albuquerque, NM ZIP CODE: 87114

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1st SUBMITTAL
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN RESUBMITTAL
_____ EROSION CONTROL PLAN
X ENGINEER'S CERT (HYDROLOGY)
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT
_____ ENGINEER CERT (TCL)
_____ ENGINEER CERT (DRB SITE PLAN)
_____ OTHER (REVISED G&D PLAN)

CHECK TYPE OF APPROVAL SOUGHT:
X SIA/FINANCIAL GUARANTEE RELEASE
_____ PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. FOR BLDG. PERMIT APPROVAL
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
X BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
_____ GRADING PERMIT APPROVAL (ROUGH)
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER (SPECIFY)

RECEIVED
JAN 10 2012
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:
_____ YES
_____ NO
_____ COPY PROVIDED

SUBMITTED BY: Scott Steffen DATE: 01-09-12

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope to the proposed development define 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 (5) acres and Sector Plans.
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

CITY OF ALBUQUERQUE

August 16, 2011

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

Re: Pond K Grading Plan

Engineer's Stamp dated 8-12-11 (C9/D001C)

Dear Mr. Thompson,

Based upon the information provided in your submittal received 8-12-11, the above referenced plan is approved for Grading Permit for the Pond.

This letter does not approve installation of Proposed Storm Drain shown on the plan.

Certification of this Grading plan is required prior to issuance of Building Permits in Taos at the Trails and Tierra Vista at the Trails.

If you have any questions, you can contact me at 924-3986.

Sincerely,

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

C: file

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

Albuquerque - Making History 1706-2006

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/2005)

PROJECT TITLE: Taos at the Trails Unit II
ZONE MAP/DRG. FILE # C9/D1C
DRB#: N/A EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: Lots 7-P1 thru 113-P1, together with vacated Kayser Mill Road, Eagle Hills Drive, Mission Ridge Drive, Oasis Canyon Road, Snow Creek Court, and a Portion of Adobe Rose Place, of Taos at the Trails Unit 2 Subdivision, City of Albuquerque, Bernalillo County, New Mexico, as the same is shown and designated on the plat entitled "SUBDIVISION PLAT OF TAOS AT THE TRAILS UNIT 2 (BEING A REPLAT OF TRACTS 5 AND 7, THE TRAILS, UNIT 2) WITHIN THE TOWN OF ALAMEDA GRANT IN PROJECTED SECTION 16, TOWNSHIP 11 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO", filed in the office of the County Clerk of Bernalillo County, New Mexico, on October 26, 2007, in Plat Book 2007C, Page 314, as Document No. 2007149699.

Tract A of Taos Unit 1 at the Trails Unit 2 Subdivision, City of Albuquerque, Bernalillo County, New Mexico, as the same is shown and designated on the plat entitled "SUBDIVISION PLAT OF TAOS UNIT 1 AT THE TRAILS UNIT 2 (BEING A REPLAT OF LOTS 7-P1 THRU 113-P1, TOGETHER WITH VACATED KAYSER MILL ROAD, EAGLE HILLS DRIVE, MISSION RIDGE DRIVE, OASIS CANYON ROAD, SNOW CREEK COURT, AND A PORTIOON OF ADOBE ROSE PLACE, TAOS AT THE TRAILS, UNIT 2) WITHIN THE TOWN OF ALAMEDA GRANT IN PROJECTED SECTION 16, TOWNSHIP 11 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO", filed in the office of the County Clerk of Bernalillo County, New Mexico, on _____, in Plat Book _____, Page _____, as Document No. _____.
CITY ADDRESS: _____

ENGINEERING FIRM: Thompson Engineering Consultants, Inc. CONTACT: David Thompson
ADDRESS: P.O. Box 65760 PHONE: 271-2199
CITY, STATE: Albuquerque, NM ZIP CODE: 87193

OWNER: The Trails, LLC CONTACT: Rick Beltramo
ADDRESS: 6840 Treeline Avenue PHONE: (505) 761-9911
CITY, STATE: Albuquerque, NM ZIP CODE: 87114

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:
- _____ DRAINAGE REPORT
- _____ DRAINAGE PLAN 1st SUBMITTAL
- XX DRAINAGE PLAN RESUBMITTAL
- _____ CONCEPTUAL G & D PLAN
- _____ GRADING PLAN RESUBMITTAL
- _____ EROSION CONTROL PLAN
- _____ ENGINEER'S CERT (HYDROLOGY)
- _____ CLOMR/LOMR
- _____ TRAFFIC CIRCULATION LAYOUT
- _____ ENGINEER CERT (TCL)
- _____ ENGINEER CERT (DRB SITE PLAN)
- _____ OTHER (REVISED G&D PLAN)

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

RECEIVED
AUG 12 2011
HYDROLOGY SECTION

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/2005)

PROJECT TITLE: Taos at the Trails Unit II
ZONE MAP/DRG. FILE # C9/D1C
DRB#: N/A EPC#: _____ WORK ORDER#: _____

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OWNER: The Trails, LLC CONTACT: Rick Beltramo
ADDRESS: 6840 Treeline Avenue PHONE: (505) 761-9911
CITY, STATE: Albuquerque, NM ZIP CODE: 87114

Verbal NO

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

8-11-11

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:
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_____ DRAINAGE PLAN 1st SUBMITTAL
XX DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN RESUBMITTAL
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_____ ENGINEER'S CERT (HYDROLOGY)
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT
_____ ENGINEER CERT (TCL)
_____ ENGINEER CERT (DRB SITE PLAN)
_____ OTHER (REVISED G&D PLAN)

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_____ SIA/FINANCIAL GUARANTEE RELEASE
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_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
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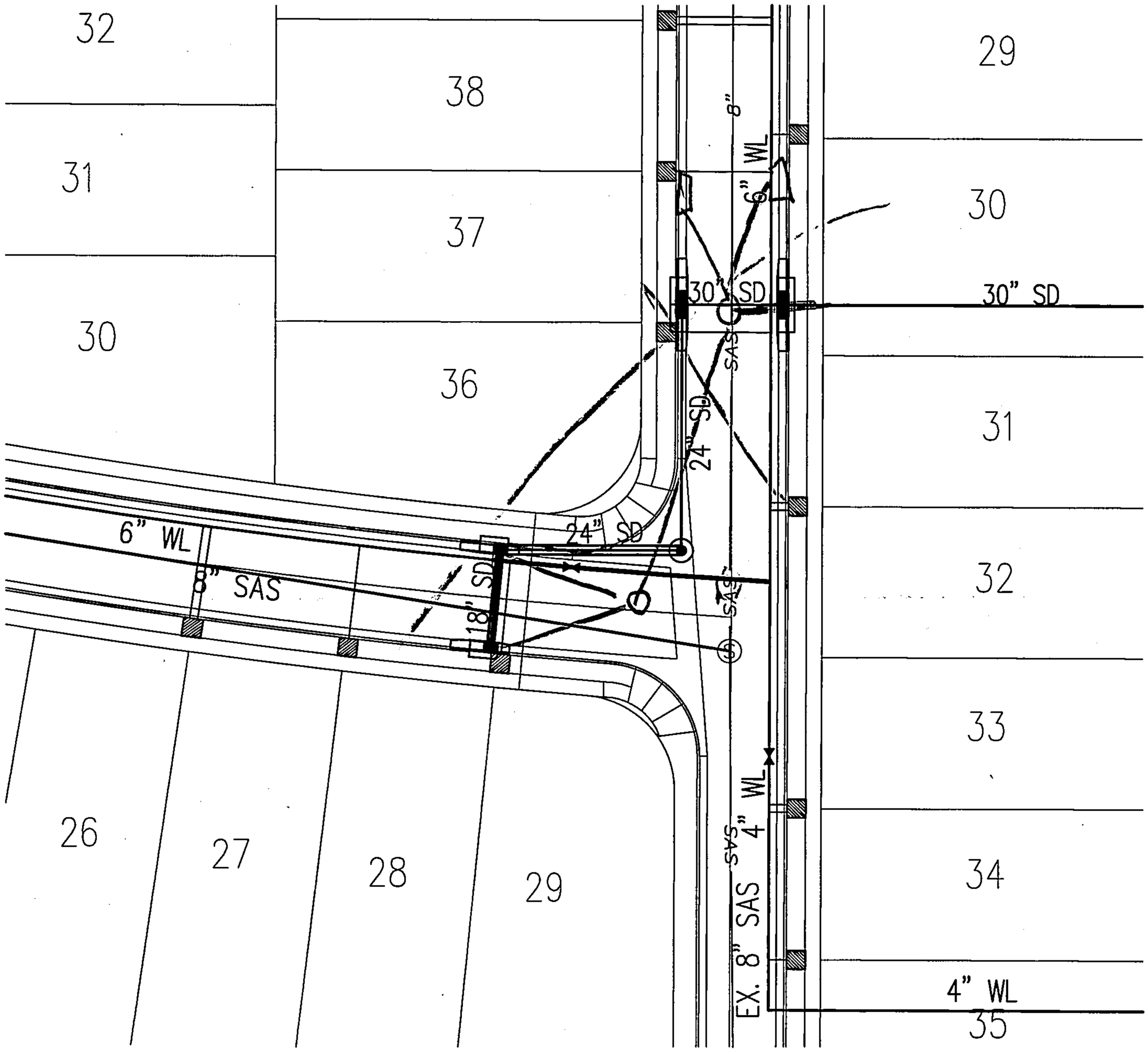
XX GRADING PERMIT APPROVAL (ROUGH)
_____ PAVING PERMIT APPROVAL
XX WORK ORDER APPROVAL
_____ OTHER (SPECIFY)

RECEIVED
AUG 09 2011
HYDROLOGY SECTION


32
38
29
31
37
30
30
36
31
6" WL
8" SAS
24" SD
18" SD
24" SD
30" SD
30" SD
8"
WL
6"
SAS
SAS
32
33
26
27
28
29
4" WL
SAS
34
EX. 8" SAS
4" WL
35

Std - 0.5%.txt

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	11.5	0.1	9.0	37.7	0.7
2.0	8.9	0.7	6.0	23.5	0.4	10.0	38.1	0.7
3.0	9.3	0.7	7.0	35.5	0.1	11.0	47.0	0.9
4.0	9.5	0.0	8.0	37.5	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.025	0.025	0.010	0.003	0.822	0.322	1.702	0.027
0.050	0.050	0.039	0.020	1.645	0.511	2.484	0.054
0.075	0.075	0.088	0.059	2.467	0.670	3.266	0.082
0.100	0.100	0.156	0.127	3.290	0.811	4.048	0.110
0.125	0.125	0.244	0.230	4.112	0.941	4.830	0.139
0.150	0.150	0.366	0.338	6.318	0.925	6.996	0.163
0.175	0.175	0.549	0.531	8.870	0.967	9.509	0.190
0.200	0.200	0.795	0.832	11.423	1.046	12.021	0.217
0.225	0.225	1.104	1.257	13.975	1.138	14.534	0.245
0.250	0.250	1.476	1.823	16.527	1.235	17.047	0.274
0.275	0.275	1.910	2.546	19.079	1.333	19.560	0.303
0.300	0.300	2.408	3.444	21.631	1.430	22.072	0.332
0.325	0.325	2.968	4.531	24.183	1.526	24.585	0.361
0.350	0.350	3.591	5.822	26.735	1.621	27.098	0.391
0.375	0.375	4.276	7.412	28.787	1.734	29.110	0.422
0.400	0.400	4.981	9.547	28.839	1.917	29.123	0.457
0.425	0.425	5.686	11.891	28.890	2.091	29.136	0.493
0.450	0.450	6.391	14.433	28.942	2.258	29.148	0.529
0.475	0.475	7.097	17.166	28.993	2.419	29.161	0.566
0.500	0.500	7.803	20.082	29.045	2.574	29.174	0.603
0.525	0.525	8.510	23.176	29.097	2.723	29.186	0.640
0.550	0.550	9.217	26.441	29.148	2.869	29.199	0.678
0.575	0.575	9.924	29.873	29.200	3.010	29.212	0.716
0.600	0.600	10.631	33.466	29.251	3.148	29.224	0.754
0.625	0.625	11.339	37.217	29.303	3.282	29.237	0.793
0.650	0.650	12.047	41.123	29.354	3.413	29.250	0.831
0.675	0.675	12.757	44.698	29.889	3.504	29.753	0.866
0.700	0.700	13.536	45.935	33.273	3.394	32.217	0.879
0.725	0.725	14.372	48.400	35.737	3.368	34.681	0.901
0.750	0.750	15.270	51.215	38.202	3.354	37.144	0.925
0.775	0.775	16.229	54.376	40.666	3.350	39.608	0.950
0.800	0.800	17.250	57.881	43.131	3.355	42.072	0.975
0.825	0.825	18.333	61.731	45.595	3.367	44.536	1.001

#3

OASIS CANYON RD.

26.28 CFS

STREET CAPACITY

41.23 CFS > 26.28 CFS ✓ ok

INLET CAPACITY

x = 0.55

Q 0.2% - 5 CFS

Q 2% - 9 CFS

$$\frac{2-0.2}{9-5} = \frac{2-0.5}{9-x}$$

$$\frac{1.8}{4} = \frac{1.5}{9-x}$$

$$6 = 16.2 - 1.8x$$

x = 5.67 CFS what

$$\frac{26.28}{(2 \times 5.67)}$$ = SINGLE 'A' INLET ON EACH SIDE OF STREET

RESIDUAL = 14.94 CFS

RECEIVED
MAY 2 4 2011
HYDROLOGY SECTION

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	11.5	0.1	9.0	37.7	0.7
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0.775	0.775	16.229	54.376	40.666	3.350	39.608	0.950
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0.825	0.825	18.333	61.731	45.595	3.367	44.536	1.001

#4 MISSION RIDGE DR (NORTH OF CP)

≈ 5.68 CFS ⇒ EGL ≈ 0.39' < 0.85' ✓ ok

SEE SHEET A FOR INLET ANALYSIS

Cherne, Curtis

To: steffen, scott
Subject: Taos unit 2 sd

Scott,
Decided not to be as concerned about the two manholes in Universe Blvd ROW due to the increased cost (permanent section) and disruption to traffic on Universe.

Curtis

Bohannan ▲ Huston

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

June 22, 2011

Curtis Cherne, P. E.
Planning Department
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

RECEIVED
JUN 22 2011
HYDROLOGY
SECTION

Re: Taos at the Trails Unit 2, NE of Woodmont and Universe, Grading and Drainage Plan (C9/D001C)

Dear Curtis:

This letter provides a written response to your comments dated June 13, 2011:

- OK *Will Unit 2 be graded at the same time as Unit 1? If so, please state on the grading plan.* **A note has been added to the grading plan dated 6/21/11.**
- ok *Please indicate on the storm drain/pond exhibit, the infrastructure that is built and which is proposed. In addition, please indicate the CPN.* **See the revised exhibit included with this submittal.**
- *I would like to discuss the inlet configurations that are proposed.*

  In Kaiser Mill Rd., super-elevating the street to turn the water to the south will cause low flows to drain across the pavement. Hydrology would prefer an inlet on each side of the road. **As was discussed at our meeting on June 13, 2011 it is not possible to have an inlet on the north side of the road due to the presence of the proposed 12-inch waterline. As agreed we have move the double A inlet to the east curb line in Kayser Mill and eliminated the superelevation. See the revised layout on the enclosed grading plan dated 6/21/11.** ok

  In Mission Ridge Dr., it would be preferable not to run all the flows through one inlet. **As was discussed at our meeting on June 13, 2011, we believe that the proposed storm drain configuration works as show. See the attached hydraulic grade line analysis for the Mission Ridge storm drain system.** provide HGL on plans
- *Show the existing wall along Universe Blvd.* **Wall is shown and label on the enclosed grading plan dated 6/21/11.**
- *Show the landscape fabric over the wall drains as discussed.* **The filter fabric has been added to the Wall Drain Detail**

```
    AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -                          - VERSION:  1997.02c
RUN DATE (MON/DAY/YR) =05/03/2011
    INPUT FILE = AHYMO.HYM
USER NO.= AHYMO-S-9702c1BohanHu-AH

                                        FROM  TO                    PEAK        RUNOFF
TIME TO    CFS      PAGE =   1
                      HYDROGRAPH        ID    ID        AREA     DISCHARGE     VOLUME      RUNOFF
PEAK     PER
    COMMAND        IDENTIFICATION       NO.   NO.     (SQ MI)     (CFS)       (AC-FT)    (INCHES)
(HOURS)    ACRE      NOTATION

    START
              TIME=        .00
    RAINFALL  TYPE= 1
              RAIN6=     2.200
    COMPUTE NM HYD          2.00   -     1        .00786       18.06        .641      1.52977
1.500     3.591 PER IMP=  62.00
    COMPUTE NM HYD          3.00   -     2        .01144       26.28        .933      1.52977
1.500     3.591 PER IMP=  62.00
    COMPUTE NM HYD          4.00   -     3        .00367        8.45        .300      1.52977
1.500     3.595 PER IMP=  62.00
    FINISH
```

```
*                    PROJECT NAME:  TAOS AT THE TRAILS UNIT II
*                    DATE:  MAY 2, 2011
*                    INPUT FILE NAME:  AHYMO.HYM
*                    OUTUPUT FILE NAME:  AHYMO.OUT
*                    PROJECT NUMBER:  20110333
*                    DESIGN STORM:   100 YEAR-24 HOUR STORM
*
*////////////////////////////////////////////////////////////////////*
START                TIME=0.0 HR PUNCH CODE=0
**********************************************************************
*  ZONE 1, 100 YEAR RAINFALL TABLE
**********************************************************************
RAINFALL                TYPE=1  RAIN QUARTER=0.0
                        RAIN ONE=1.87 IN  RAIN SIX=2.20 IN
                        RAIN DAY=2.66 IN  DT=0.05 HRS
**********************************************************************
*   BASIN CALCULATIONS
**********************************************************************

*******************BASIN TWO (2)*******************
COMPUTE NM HYD          ID=1  HYD=2  AREA=0.007859SQ MI
                        PER A=0  PER B=19  PER C=19  PER D=62
                        TP=0.1333 HR  MASS RAIN=-1
PRINT HYD               ID=1     CODE=1

*******************BASIN THREE (3)*******************
COMPUTE NM HYD          ID=2  HYD=3  AREA=0.011438SQ MI
                        PER A=0  PER B=19  PER C=19  PER D=62
                        TP=0.1333 HR  MASS RAIN=-1
PRINT HYD               ID=2     CODE=1

*******************BASIN FOUR (4)*******************
COMPUTE NM HYD          ID=3  HYD=4  AREA=0.003672SQ MI
                        PER A=0  PER B=19  PER C=19  PER D=62
                        TP=0.1333 HR  MASS RAIN=-1
PRINT HYD               ID=3     CODE=1

*
FINISH
```

RECEIVED
MAY 25 2011
HYDROLOGY
SECTION
RECEIVED
MAY 24 2011
HYDROLOGY
SECTION

C 9/0001 C

drainage

public b easement for part K

and Agreement - covenant for Temp

drainage part

for work order

CITY OF ALBUQUERQUE
PLANNING DEPARTMENT
HYDROLOGY DEVELOPMENT SECTION

DEVELOPMENT REVIEW BOARD MEMO

DRB PROJECT NO: 1008526 **AGENDA ITEM NO: 8**

SUBJECT:

Plat Approval

ENGINEERING COMMENTS:

What is the purpose of sub-dividing? If homes are to be built, the flat grading scheme applies.

Hydrology has no objection

give variance

RESOLUTION/COMMENTS:

SIGNED:
Curtis Cherne
Hydrology Section
City Engineer Designee
AMAFCA Designee
924-3986

DATE: 6-22-11

CITY OF ALBUQUERQUE

June 13, 2011

Scott J. Steffen, P.E.
Bohannan Huston, Inc.
7500 Jefferson NE
Albuquerque, NM 87109

Re: Taos at the Trails Unit 2, NE of Woodmont and Universe, Grading and Drainage Plan
Engineer's Stamp dated 5-25-11 (C9/D001C)

Dear Mr. Steffen,

Based upon the information provided in your submittal received 5-25-11, the above referenced plan cannot be approved for Preliminary Plat action by the DRB until the following comments are addressed:

- Will Unit 2 be graded at the same time as Unit 1? If so, please state on the grading plan.
- Please indicate on the storm drain/pond exhibit, the infrastructure that is built and which is proposed. In addition, please indicate the CPN.
- I would like to discuss the inlet configurations that are proposed.
  In Kaiser Mill Rd., super-elevating the street to turn the water to the south will cause low flows to drain across the pavement. Hydrology would prefer an inlet on each side of the road.
  In Mission Ridge Dr., it would be preferable not to run all the flows through one inlet. Something more like: the two inlets in Oasis Canyon to a manhole (not inlet through inlet), to a manhole at the easement location in Mission Ridge, and the inlets in Mission Ridge moved north tying into the manhole at the easement location (in center of the street).
- Show the existing wall along Universe Blvd.
- Show the landscape fabric over the wall drains as discussed.
- Comments on the Infrastructure List Unit:
  - PAVING
  - For Kayser Mill Rd- 1 line item from Oakridge to Universe
  - Add Oasis Canyon Rd.
  - STORM DRAIN
  - It is not clear from the as-builts that the storm drain was built in Universe north of Woodmont. Sheet 28A has the storm drain bubbled with a Note 3 "Delete Mainline SD from Project".

Scott
to provide hydraulic analysis of SD

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- Storm drain is not required to be on the Infrastructure List north of Treeline Ave. Doesn't this area drain to Pond K?
- In addition, if storm drain is to be built north of Treeline, the existing DMP and as-builts show a 48" and 54" storm drain north of Pond J.

- Please provide a copy of the existing Agreement and Covenant for Pond K.
- Add a Note to the Infrastructure List "Certification of the Grading and Drainage Plan is required for release of Financial Guarantees."
- For Unit 2 the storm drain in Mission Ridge is required.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Curtis A. Cherne

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

C: file

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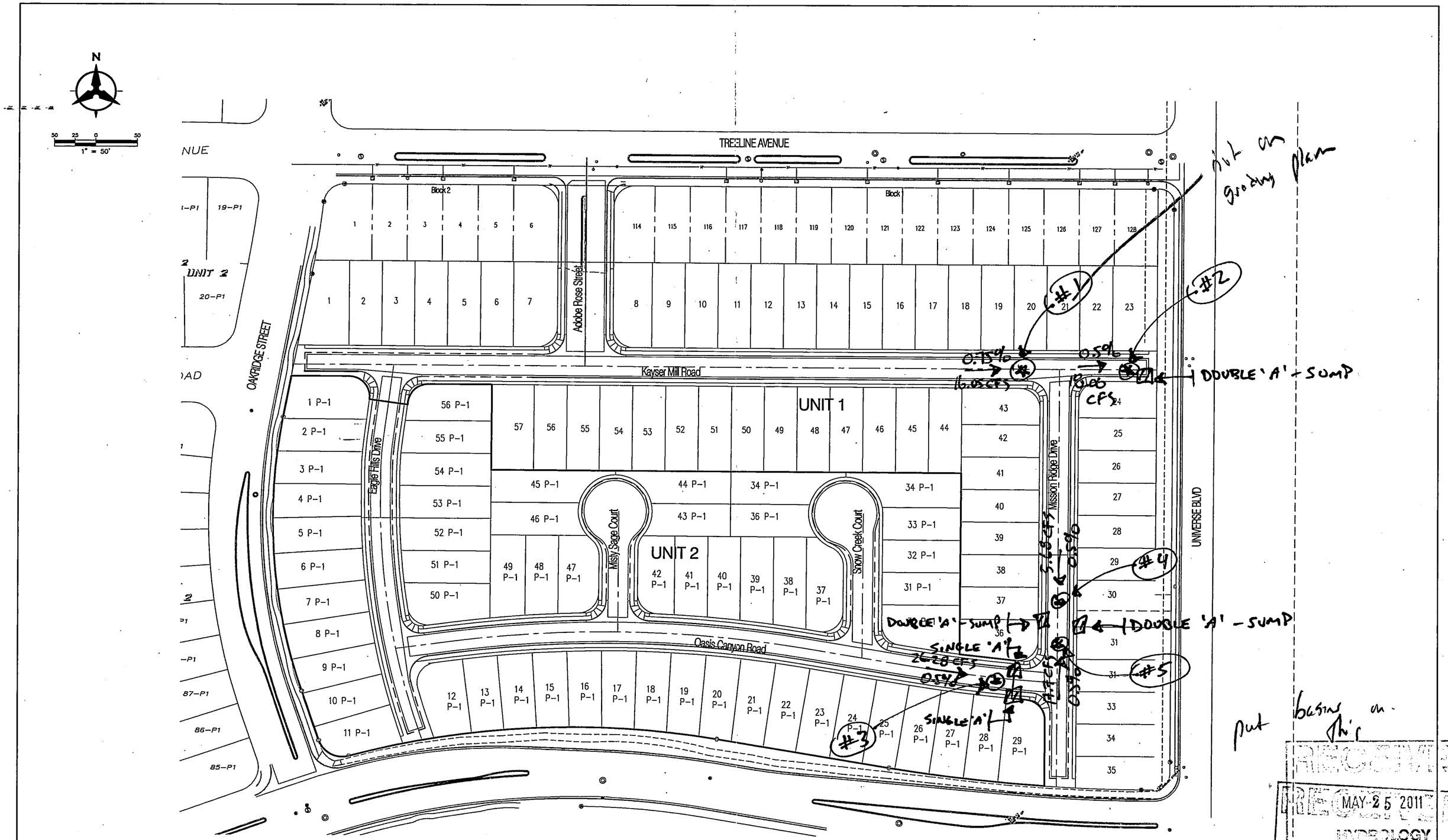

STREET CAPACITY
TAOS at the TRAILS SUBDIVISION

P:\20110333\CDP\Hydro\20110333_street capacity.dwg
May 24, 2011 – 2:48pm

RECEIVED
MAY 25 2011
HYDROLOGY
MAY 24 2011
HYDROLOGY

Bohannan Huston

CITY OF ALBUQUERQUE

September 18, 2007

Steve J. Salazar, P.E.
Wilson & Company, Inc
2600 The America Road SE
Rio Rancho, NM 87124

Re: Taos at the Trails, Tract 7, Unit 2
Engineer's Stamp dated 9-12-07 (C9/D1C)

Dear Mr. Salazar,

Upon review of the information provided in your submittal received on August 27, 2007 and revised on September 13, the above referenced plan cannot be approved for Rough Grading Permit until the following condition is addressed.

As discusses during the design review (DRC) meeting on September 17, clarification of the rear yard flow paths is necessary. With the spot elevations given, the flow would appear to be in the opposite direction as shown by the flow arrows in many of the properties. Please revise the plan accordingly and submit a mylar copy with a signature block to me in order to obtain rough grading approval.

If you have any questions or wish to schedule a meeting, you can contact me at 924-3990.

Sincerely,

Jeremy Hoover, P.E., C.F.M.
Senior Engineer
Hydrology Section
Development and Building Services

cc: file C9/D1C
file 1003973

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

bpatterson@bhinc.com

City of Albuquerque

Planning Department
Development & Building Services Division
DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV 02/2013)

Project Title: Taos Unit 2 at the Trails Building Permit #: _____ City Drainage #: C9/D001C

DRB#: 1008798 EPC#: _____ Work Order#: 730076

Legal Description: Taos Unit 2 at the Trails

City Address: _____

Engineering Firm: Bohannan Huston, Inc. Contact: Scott Steffen

Address: Courtyard I 7500 Jefferson Street NE Albuquerque NM 87109

Phone#: 505-823-1000 Fax#: _____ E-mail: ssteffen@bhinc.com

Owner: Real Capital Solutions Contact: Eric Roshon

Address: 371 Centennial Parkway Suite 200 Louisville, CO 80027

Phone#: 303-533-1661 Fax#: _____ E-mail: _____

Architect: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Surveyor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Contractor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

TYPE OF SUBMITTAL:

____ DRAINAGE REPORT
____ DRAINAGE PLAN 1st SUBMITTAL
____ DRAINAGE PLAN RESUBMITTAL
____ CONCEPTUAL G & D PLAN
____ GRADING PLAN
____ EROSION & SEDIMENT CONTROL PLAN (ESC)
____ ENGINEER'S CERT (HYDROLOGY)
____ CLOMR/LOMR
____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ ENGINEER'S CERT (TCL)
____ ENGINEER'S CERT (DRB SITE PLAN)
____ ENGINEER'S CERT (ESC)
____ SO-19
X OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

____ SIA/FINANCIAL GUARANTEE RELEASE
____ PRELIMINARY PLAT APPROVAL
____ S. DEV. PLAN FOR SUB'D APPROVAL
____ S. DEV. FOR BLDG. PERMIT APPROVAL
____ SECTOR PLAN APPROVAL
____ FINAL PLAT APPROVAL
____ CERTIFICATE OF OCCUPANCY (PERM)
____ CERTIFICATE OF OCCUPANCY (TCL TEMP)
____ FOUNDATION PERMIT APPROVAL
____ BUILDING PERMIT APPROVAL
____ GRADING PERMIT APPROVAL
____ PAVING PERMIT APPROVAL
X WORK ORDER APPROVAL
____ GRADING CERTIFICATION
____ SO-19 APPROVAL
____ ESC PERMIT APPROVAL
____ ESC CERT. ACCEPTANCE
____ OTHER (SPECIFY)

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JUN 11 2013
LAND DEVELOPMENT SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED: ____ Yes ____ No ____ Copy Provided

DATE SUBMITTED: June 11, 2013 By: Scott J. Steffen

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

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, includin project less than 1-acre than are part of a larger common plan of development

Bohannan Huston

Engineering
Spatial Data
Advanced Technologies

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335
www.bhinc.com
voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

CLIENT/COURIER TRANSMITTAL

To: Shahab Biazar
Hydrology Review Division
Plaza del Sol - 2nd Floor
600 2nd St NW
Alb, NM 87120

Requested by: Scott Steffen

Date: 6/11/13

Time Due:
- ☐ This A.M.
- ☒ This P.M.
- ☐ Rush _____
- ☐ By Tomorrow

Phone: 924-3695
Job No.: 20130203.002.01.cdpabq

Job Name: Taos Unit 2 Universe SD

DELIVERY VIA

- ☒ Courier
- ☐ Federal Express
- ☐ Mail
- ☐ UPS
- ☐ Other

PICK UP

Item: _____

ITEM NO.	QUANTITY	DESCRIPTION
1	1	Universe storm drain plan and profile sheet

COMMENTS / INSTRUCTIONS

Shahab,

Attached is the Universe storm drain plan and profile drawing across the Taos at the Trails frontage for your review and comment.

Thanks,
Scott

RECEIVED
JUN 11 2013
LAND DEVELOPMENT SECTION

REC'D BY:_____ **DATE:**_____ **TIME:**_____