CITY OF ALBUQUERQUE

August 17, 2009

James D. Hughes, P.E.
URS
6501 Americas Parkway NE, Ste 900
Albuquerque, NM 87110

Re: Mesa Del Community Center Parking Block "F & O", Grading Plan Certification, (R-16/D004), Engineer's Stamp, 10/30/2008, Certification Stamp Date: 08-13-2009

Dear Mr. Hughes,

Thank you for providing an Engineer Certification for the Grading/Drainage Plan, received on 8-13-09, for the above referenced plan. It will be placed in the project file.

If you have any questions, I can be contacted at 924-3982.

Sincerely,

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

C: file

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 12/2005)

PROJECT TITLE: Mesa Del Sol - Community Center (Parking Block 'F' & 'O') ZONE MAP: R-16/D004

DRB#: N/A EPC#: N/A WORK ORDER#: N/A

LEGAL DESCRIPTION: A portion of tracts 24 and A of the Bulk Plat of Innovation Park

CITY ADDRESS: 5600 University Blvd.

ENGINEERING FIRM: URS Corp. CONTACT: Doug Hughes
ADDRESS: 6501 Americas Parkway NE #900 PHONE: 855-7535
CITY, STATE: Albuquerque NM 87110 ZIP CODE: 87110

OWNER: Mesa Del Sol LLC by FCC CONTACT: Manny Barrera
ADDRESS: ~~5600 ft~~ University Blvd. SE ~~Suite 105~~ PHONE: 400-3021
CITY, STATE: Albuquerque ZIP CODE: 87106

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

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

CONTRACTOR: Franklins 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
__X__ ENGINEER'S CERT (HYDROLOGY)
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT
_____ ENGINEER'S CERT (TCL)
_____ ENGINEER'S CERT (DRB SITE PLAN)
_____ 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
_____ BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
_____ GRADING PERMIT APPROVAL
PAVING PERMIT APPROVAL
WORK ORDER APPROVAL
__X__ OTHER (SPECIFY) File

RECEIVED
AUG 13 2009
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:

_____ YES
_____ NO
_____ COPY PROVIDED

DATE SUBMITTED: 8-13-09 BY: Doug Hughes

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 defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (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.

URS

One Park Square
6501 Americas Parkway NE, Suite 900
Albuquerque NM 87110
TEL: (505) 855-7500 FAX: (505) 855-7555

LETTER OF TRANSMITTAL

TO: **Curtis A Cherne P.E**
City of Albuquerque Hydrology Development Section
600 2nd ST. NW
Albuquerque, New Mexico 87102

DATE: Aug 13, 2009

REFERENCE: Engineer's Certification for
Mesa Del Sol, Community Center Parking Block F & O

Attached, please find:

- **1 Copy of 4 sheets Engineer's Certification for your files**

For:

X	For Your Use	☐	Signature and return	☐	Appropriate action
X	As requested	☐	For your information		

Remarks: **Please acknowledge receipt of this cert with a letter of concourance.**

Sincerely,

URS Corporation

By: Doug Hughes

Doug Hughes, PE
Senior Land Development Engineer-URS New Mexico

CC: n/a

RECEIVED
AUG 18 2009
HYDROLOGY SECTION

CITY OF ALBUQUERQUE

May 2, 2011

Dennis A. Lorenz, P.E.
Brasher & Lorenz, Inc.
2201 San Pedro NE
Albuquerque, NM 87110

Re: NEDO-ABQ MICRO GRID
Grading and Drainage Plan
Engineer's Stamp dated 4-28-11 (R16/D004)

Dear Mr. Lorenz,

Based upon the information provided in your submittal received 4-29-11, the above referenced plan is approved for Building Permit.

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

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

CITY OF ALBUQUERQUE

June 24, 2011

Dennis A. Lorenz, P.E.
Brasher & Lorenz, Inc.
2207 San Pedro NE, Bldg 1 Suite 1300
Albuquerque, NM 87110

Re: NEDO-ABQ MICRO GRID
Grading and Drainage Plan
Engineer's Stamp dated 6-13-11 (R16/D004)

Dear Mr. Lorenz,

Based upon the information provided in your submittal received 6-21-11, the above referenced plan is approved for Foundation Permit and Building Permit.

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

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

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 04/2009)

PROJECT TITLE: NEDO – ABQ MICRO GRID ZONE MAP: R-16/D004
DRB#: _____ EPC#: _____ WORK ORDER#: N/A

LEGAL DESCRIPTION: TRACT A, BLOCK O, TOWN CENTER
CITY ADDRESS: STRYKER CROSSING SE

ENGINEERING FIRM: BRASHER & LORENZ, INC. CONTACT: Dennis Lorenz
ADDRESS: 2207 SAN PEDRO NE, BUILDING 1, SUITE 1300 PHONE: 888-6088
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87110

OWNER: FOREST CITY COVINGTON LLC CONTACT: Manuel Barrera
ADDRESS: 5700 WEST UNIVERSITY BLVD SE SUITE 310 PHONE: 505-452-2600
CITY, STATE: ALBUQUERQUE, NM ZIP CODE: 87106

ARCHITECT: JON ANDERSON ARCHITECTURE CONTACT: Jarrod Arillano
ADDRESS: 912 ROMA AVE NW PHONE: 505-764-8306
CITY, STATE: ALBUQUERQUE, NM ZIP CODE: 87102

SURVEYOR: BRASHER & LORENZ, INE CONTACT: Lenore Armijo
ADDRESS: 2201 SAN PEDRO NE, BUILDING 1, SUITE 1200 PHONE: 888-6088
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87110

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

TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1st SUBMITTAL
__X__ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
_____ ENGINEER'S CERT (HYDROLOGY)
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT
_____ ENGINEER'S CERT (TCL)
_____ ENGINEER'S CERT (DRB SITE PLAN)
_____ 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
__X__ BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
_____ GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ GRADING CERTIFICATION
_____ OTHER (SPECIFY) SO-19

JUN 21 2011
GY
SECTI...

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

DATE SUBMITTED: 6.21.11 BY: D. LORENZ

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 defines the degree of drainage detail One or more of the following levels of submittal may be required based on the following.

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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.

BRASHER & LORENZ, INC.
CONSULTING ENGINEERS
2201 San Pedro NE Bldg 1 Suite 1300 • Albuquerque, NM 87110 • Phone (505) 888-6088 • Fax (505) 888-6188 • www.brasherlorenz.com

June 21, 2011

Curtis Cherne, PE
Hydrology Section
City of Albuquerque
Plaza Del Sol, 600 2nd St. NW
Albuquerque, New Mexico 87102

SUBJECT: NEDO ABQ MICRO GRID
Revised Grading and Drainage Plan
R16/D0004

Dear Curtis:

Submitted herewith is one copy of the revised Grading and Drainage Plan for NEDO – ABQ MICRO GRID. The revisions consist of very minor site plan adjustments that have little or no effect on the drainage aspects of the project.

Call me if you have any questions or comments.

Sincerely,

BRASHER & LORENZ, INC.

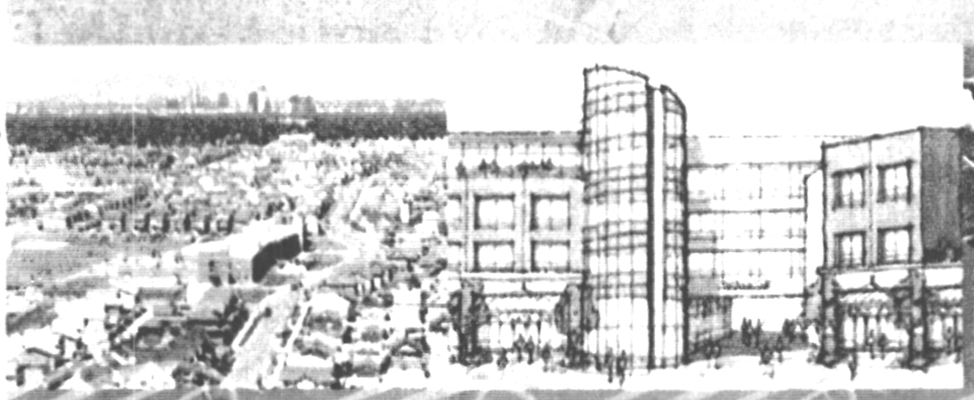
Dennis A. Lorenz,PE
Principal

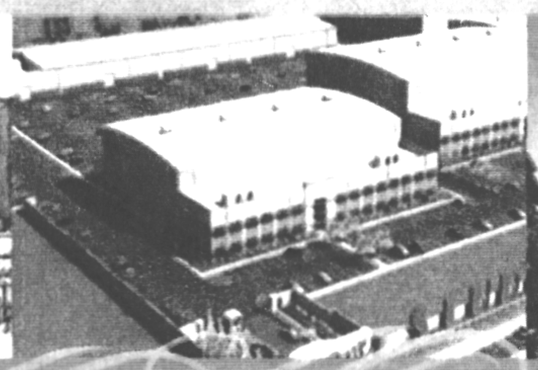
/dl/11512
Encl

Mesa del Sol

DRAINAGE REPORT

MESA DEL SOL TOWN CENTER UNITS 1 AND 2





August 15, 2007

DRAFT

FOREST CITY
COVINGTON NM, LLC

URS

Mesa del Sol

Draft

DRAINAGE REPORT

MESA DEL SOL TOWN CENTER UNITS 1 AND 2

August 15, 2007

Prepared for:
Hydrology Development Section
Department of Municipal Development
City of Albuquerque
One Stop Shop
Plaza del Sol Building
600 2nd Street NW
Albuquerque, NM 87102

Prepared by:
URS Corporation
One Park Square
6501 Americas Parkway NE, Suite 900
Albuquerque, NM 87110

Prepared on Behalf of:
Forest City Covington NM LLC
801 University Blvd. Suite 200
Albuquerque, NM 87106

JAMES D. HUGHES
11674
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER
10-1-07

URS Project Number: 24342772

RECEIVED
OCT 15 2008
HYDROLOGY SECTION

URS

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G. Grading Plan for Mesa del Sol Mixed-Use Town Center Sheets 3 and 4
H. Technical Appendix 4 to the Level B Plan for Mesa del Sol, Figures 4A-10 and 4A-11
I. BHI Mesa del Sol Phase 1B University Boulevard Drainage Design Analysis Report

1. PURPOSE

The primary purpose of this report is to demonstrate the adequacy of the proposed drainage to allow this 33 acre site to be subdivided into 6 "Town Center" blocks, and so associated public drainage infrastructure can be constructed and turned over to the City of Albuquerque for maintenance.

2. EXISTING CONDITIONS

This property is bounded on the uphill side (west side) by the First Neighborhood at Mesa del Sol (also currently being considered for immediate development), on the north by ABQ Studios and DRC Work Order 775482 for "University Boulevard Extension Phase 1B" (approved by hydrology for construction), and on the South and East by undeveloped property. The natural ground slopes from west to east at approximately 0.5% grade. There is no floodplain on this property.

3. PLANNING HISTORY

See attached pages 111 and 112 from the Level B Plan (Appendix 5) in Appendix H showing the conceptual drainage plan for this area. It was followed by the University Phase 1B Drainage Report (February 2007), attached in Appendix I. Also see the Drainage Basin Map for Residential Plat #1, dated May 17, 2007 (prepared by BHI, not included).

The Level B Plan was followed to the extent that the majority of the Town Center Units 1 and 2 drains to a retention pond in the east couplet of Mesa del Sol Blvd. The Phase 1B Plan is being modified to include a portion of Basins K and L of the Residential Plat #1.

4. PROPOSED MANAGEMENT PLAN

This 33 acre Town Center will drain east into a Master Planned, private retention pond for drainage basin "M," as identified in the Level B Plan. The west corner of the site will drain west into the First Neighborhood drainage basin "G," as identified in the Level B Plan. Cliché layers will be removed so the pond bottoms will infiltrate into the sand subsurface layers where permeability is high. See Drainage Map for Town Center Units 1 and 2 in Appendix C.

5. ANALYSIS PROCEDURES

On-site drainage is estimated by AHYMO for the entire site, and then flows for sub-basins are determined by prorating. Street flow depths are estimated using Plates 22.3, D-1 (Appendix F) and D-2. Storm sewer is designed to prevent excessive surface drainage depths.

The downstream off-site retention pond is designed for the 100-year, 10 day storm. Volume calculations are accomplished using the conic method.

The 10-year spread of water is checked for both University Blvd. and Mesa del Sol Blvd.

Table 5.1: Summary of Hydrology[1]

Basin ID	Area		Land Treatment				T_c	Peak 100-Yr Flow		Peak 10-Yr Flow		100-Yr Volume	
	(AC)	(SQ MI)	A	B	C	D	(HR)	Inc. (cfs)	Cum (Cfs)	Inc. (cfs)	Cum (cfs)	24 hr (ac ft)	10 day (ac ft)
M	33	0.0516	0	5	5	90	0.1333	133.0	133.0			6.031	8.036

Notes:
(1) See Drainage Map for Town Center Units 1 and 2 at Mesa del Sol (Appendix A)

133/33 = 4.03 137.8 cfs

100 YEAR PRECIPITATION (From Level 'B' Plan, and Eq. 28 of DPM 22.2)

P60 = 1.84", P360 = 2.17", P1440 = 2.58", P10 days = 10.0-[24.9/(2.67")1.4] = 3.39"

.9 x 4.37 + .05(2.07) + .05(2.03)2

3.937 0.14 0.10

4.17

Table 5.2: Street Drainage Capacities

Basin ID	Area		Flow		Contributing Basins	Curb Type & Slop	Flow Depth[1] (ft)	Velocity (fps)	Energy Depth[2] (ft)	Location
	(AC)	% of Total	Inc. (cfs)	Cum (cfs)						
1	9.0	27.27%	36.27	36.27	1	32' Std 0.50%	0.61	3.10	0.76	Mesa del Sol WB west of University Blvd NB
2[3]	4.0	12.12%	16.12	16.12	2	32' Std 0.50%	0.49	2.40	0.58	University Blvd NB at Scorcese Ave
3	3.4	10.30%	13.70	42.10	1-3	32' Std 0.50%	0.65	3.30	0.82	Mesa del Sol WB west of University Blvd NB
4	2.4	7.27%	9.67	9.67	4	32' Std 0.50%	0.40	1.90	0.46	Coppola Dr at Scorcese
5	1.9	5.76%	7.66	44.63	1-5	32' Std 0.50%	0.66	3.30	0.83	Mesa del Sol WB west of Fellini Dr
6	8.2	24.85%	33.05	49.08	1-6	32' Std 0.50%	0.69	3.50	0.88	Mesa del Sol WB east of Fellini Dr
M	33.0	100.00%	133.00							

Notes:
(1) Flow depths are taken from Plate 22.3 D-1 (Appendix F) of the DPM and reduced by 3/4" for roll curb types to account for the differences in gutter depression. Allowable depths may not exceed curb heights which are 0.33' for roll curb and gutter and 0.67' for standard curb and gutter.
(2) Energy depth is calculated as flow depth plus energy head. Allowable depths are 0.20' above top of curb.
~~(3) 6" curb will be used where 100YR street flows are less than 16.2 cfs for (32' Std 0.50%)~~

NO

6. INLETS ON GRADE

6.1. INLETS ON MESA DEL SOL BLVD WB, WEST OF UNIVERSITY BLVD NB – INLETS 1, 2, 3, & 4

Inlets #1 and #2 are single grates on a 0.5% grade flowing at a depth of 0.61'. Each inlet intercepts 7.2 cfs where the approaching flow is 36.27 cfs, leaving 21.87 cfs bypass flow at a depth of 0.50'. The next pair of single grate inlets #3 & #4 will intercept 4.8 cfs, each leaving 12.27 cfs bypass, which is joined by 29.82 cfs from University Blvd NB, for a total of 42.09 cfs approaching Coppola Dr.

6.2. INLETS ON MESA DEL SOL BLVD WB, WEST OF COPPOLA DR. – INLETS 5 & 6

Inlets #5 & #6 are single grates on a 0.5% grade flowing at a depth of 0.65'. Each inlet intercepts 7.4 cfs where the approaching flow is 42.09 cfs, leaving 27.29 cfs bypass flow, which is joined by 17.33 cfs from Coppola Dr. for a total of 44.62 cfs, flowing at a depth of 0.66' approaching Fellini Dr.

6.3. INLETS ON MESA DEL SOL BLVD WB, WEST OF FELLINI DR. – INLETS 7, 8, 9, &10

Inlets #7 & #8 are single grates on a 0.5% grade flowing at a depth of 0.66'. Each inlet intercepts 7.5 cfs where the approaching flow is 44.62 cfs, leaving 29.62 cfs bypass flow at a depth of 0.58'. The next pair of single grate inlets, #9 & #10, will intercept 6.8 cfs, each leaving 16.02 cfs bypass, which is joined by 33.05 cfs from Fellini Dr. for a total of 49.07 cfs, which then flows at a depth of 0.69', approaching the sump in Mesa del Sol Blvd WB, East of Fellini Dr.

6.4. N. MESA DEL SOL BLVD SUMP INLET CAPACITY – INLETS 11, 12, 13, & 14

Capacity is measured by the weir equation at the lip of the gutter assuming an allowable ponding elevation equal to the lowest adjacent right-of-way elevation. The length of the double grate facing the street is 6.5' ± and the depth is 0.865'* at the lip of the gutter. The sides are each 2' long (4' total) and the average depth is 1.032'*. From the weir equation:

(Front) $Q_{cap} = 3.0 \times 6.5' \times 0.865^{1.5} = 15.69$ cfs

(Sides) $Q_{cap} = 3.0 \times 4.0' \times 1.032^{1.5} = 12.58$ cfs

(Total) $Q_{cap} = 15.69$ cfs + 12.58 cfs = 28.27 cfs

* Note: These depths assume standard 8" curb with the right-of-way 16' behind the curb and 0.32' above the top of the curb. Inlet interception is per Plate 22.3 D-5 (Appendix F).

The 100-year flow to the sump inlets are 49.07 cfs. Each inlet has a capacity of 28.27 cfs for a total capacity of 113.08 cfs, thus providing a safety factor that would allow 57% of the inlets to clog without exceeding the normal design criteria.

7. REFERENCES

1. Technical Appendix 4 to the Level 'B' Plan for Mesa del Sol dated October 2006, p. 111-112. Attached in Appendix H.

2. "Mesa del Sol Phase 1B University Boulevard Drainage Design Analysis Report" by Bohannan Houston Inc. with collaboration from URS Corp., February 2007. Attached in Appendix I.

APPENDIX A

DRAINAGE INFORMATION SHEET

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

PROJECT TITLE: Town Center Units 1 & 2 at Mesa del Sol ZONE MAP/DRG. FILE # R-16 and S-16
DRB#: 1005538 EPC#: WORK ORDER#:

LEGAL DESCRIPTION: Tract 4-A-1 Mesa del Sol (33ac portion of 2242ac)
CITY ADDRESS: University Blvd at Mesa del Sol Blvd

ENGINEERING FIRM: URS — CONTACT: Doug Hughes
ADDRESS: 6501 Americas Parkway NE #900 — PHONE: 505-855-7535
CITY, STATE: Albuquerque, NM — ZIP CODE: 87110

OWNER: Forest City Covington NM LLC — CONTACT: Manny Barrera
ADDRESS: 801 University Blvd SE, Suite 200 — PHONE: 505-452-2800
CITY, STATE: Albuquerque, NM — ZIP CODE: 87106

ARCHITECT: N/A — CONTACT:
ADDRESS: — PHONE:
CITY, STATE: — ZIP CODE:

SURVEYOR: URS — CONTACT:
ADDRESS: — PHONE:
CITY, STATE: — ZIP CODE:

CONTRACTOR: N/A — CONTACT:
ADDRESS: — PHONE:
CITY, STATE: — ZIP CODE:

TYPE OF SUBMITTAL:
- X DRAINAGE REPORT
- X DRAINAGE PLAN 1st SUBMITTAL
- _____ DRAINAGE PLAN RESUBMITTAL
- _____ CONCEPTUAL G & D PLAN
- _____ GRADING PLAN
- _____ EROSION CONTROL PLAN
- _____ 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
- 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
- _____ PAVING PERMIT APPROVAL
- _____ WORK ORDER APPROVAL
- _____ OTHER (SPECIFY)

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

SUBMITTED BY: _____ DATE: _____

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.

APPENDIX B

VICINITY MAPS (R-16-Z AND S-16-Z)

Town Center Units 1 & 2
At Mesa del Sol

2

4A

1004075

MESA DEL SOL

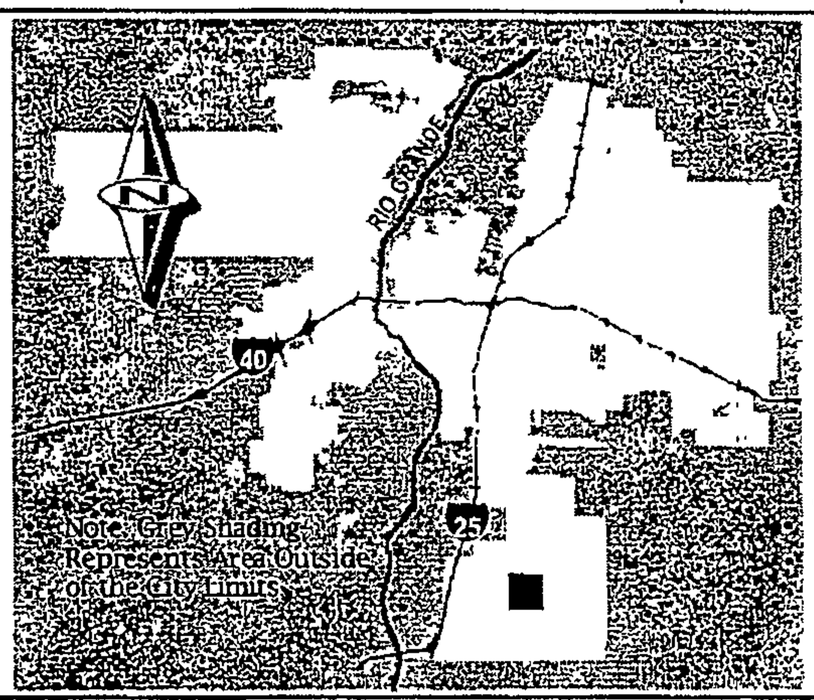
SU-2/PLANNED COMMUNITY

3

For more current information and more details visit: http://www.cabq.gov/gis

Albuquerque Geographic Information System

Map amended through: 2/18/2007



Zone Atlas Page:

S-16-Z

Selected Symbols

- SECTOR PLANS
- Design Overlay Zones
- City Historic Zones
- H-1 Buffer Zone
- Petroglyph Mon.
- Escarpment
- 2 Mile Airport Zone
- Airport Noise Contours
- Wall Overlay Zone

0 750 1,500 Feet

AR MESA AV

4C

1

LA SEMILLA WY

4A

1004075

MESA DEL SOL

SU-2/PLANNED COMMUNITY

4B

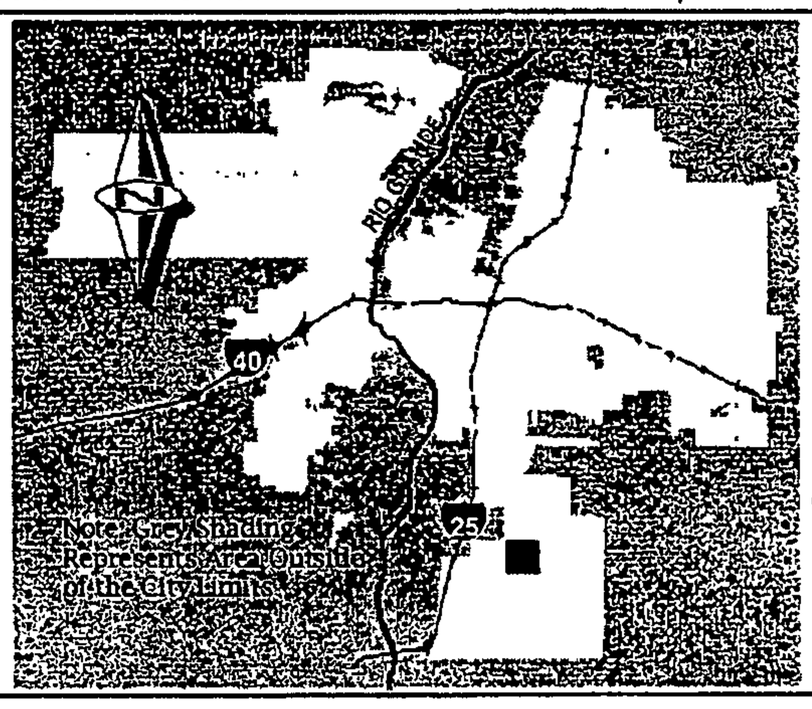
Town Center Units 1&2
@ Mesa Del Sol

2

For more current information and more details visit: http://www.cabq.gov/gis

Albuquerque Geographic Information System

Map amended through: 2/18/2007



Zone Atlas Page:

R-16-Z

Selected Symbols

- SECTOR PLANS
- Design Overlay Zones
- City Historic Zones
- H-1 Buffer Zone
- Petroglyph Mon.
- Escarpment
- 2 Mile Airport Zone
- Airport Noise Contours
- Wall Overlay Zone

0 750 1,500 Feet

APPENDIX C

DRAINAGE MAP FOR TOWN CENTER UNITS 1 AND 2

DRAINAGE MAP
FOR
TOWN CENTER UNITS 1 AND 2 AT MESA DEL SOL

SECTIONS 15, 21-23, 26-29, 35
TOWNSHIP 9 NORTH, RANGE 3 EAST, N.M.P.M.
(A REPLAT OF TRACT 4-A-1, PLAT OF MESA DEL SOL, TRACTS 4-A-1 THRU 4-A-4)
ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO
MAY, 2007

PURPOSE OF PLAT
THE PURPOSE OF THIS PLAT IS TO DIVIDE TRACT 4-A-1 INTO TRACT 4-A-1-A AND TOWN CENTER, UNITS 1 & 2, COMPRISED OF 6 LOTS, AND TO DEDICATE RIGHTS-OF-WAY AND GRANT ANY EASEMENTS AS SHOWN.

LEGEND

ROW	RIGHT-OF-WAY
▲	CENTER LINE MONUMENT
△	ALBUQUERQUE CONTROL STATION

PROPERTY CORNERS

●	FOUND 5/8" REBAR WITH CAP "15700"
○	SET 5/8" REBAR WITH CAP "13838"

OWNER:
MESA DEL SOL, LLC, A NEW MEXICO LIMITED LIABILITY COMPANY

BY: FC COVINGTON MANAGER, LLC, A NEW MEXICO LIMITED LIABILITY COMPANY, MEMBER

BY: FC MESA, INC., A NEW MEXICO CORPORATION MEMBER

BY:_____
MICHAEL D. DALY — DATE
CHIEF OPERATING OFFICER

APPROVED FOR MONUMENTATION AND STREET NAMES

_____
CITY SURVEYOR, CITY OF ALBUQUERQUE, N.M. — DATE

EVANS AVE
UNIVERSITY BLVD
LANGE AVE
WITKIN AVE
ROTHKO DR
ACS MONUMENT 7-Q16, 1984
STRYKER ROAD SE
ACS MONUMENT 1-R16,1980
HAWKING DRIVE SE
DE KOONING LOOP SE
W UNIVERSITY BLVD SE
UNIVERSITY BLVD SE
COPPOLA AVE SE
FELLINI DR
SCORCESE AVE SE
TOWN CENTER UNITS 1 AND 2 AT MESA DEL SOL
32.3883 ACRES MORE OR LESS
UNIT 1
UNIT 2
M-1 A=9.3ac Q100=36.27cfs
M-2 A=4.0ac Q100=16 12cfs
M-3 A=3.4ac Q100=13.7cfs
M-4 A=2.4ac Q100=9.67cfs
M-5 A=1.9ac Q100=7.66cfs
M-6 A=8.2ac Q100=33.05cfs
TYPE A INLET #1
TYPE C INLET #3
TYPE A INLET #5
TYPE A INLET #7
TYPE C INLET #9
TYPE A INLET #2
TYPE C INLET #4
TYPE A INLET #6
TYPE C INLET #10
TYPE A INLET #8
18" RCP Q100=7.2cfs
24" RCP Q100=12cfs
30" RCP @ 0.5% Q100=24.0cfs V100=4.9fps
18" RCP Q100=7.4cfs
36" RCP @ 0.5% Q100=38.8cfs V100=5.5fps
18" RCP Q100=7.5cfs
24" RCP Q100=14.3cfs
Q100=49.07cfs
42" RCP @ 0.5% Q100=67.4cfs V100=7.02fps
Q100=32.09cfs
N MESA DEL SOL BLVD SE

100 0 100 200
SCALE=1·100

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

SHEET X OF X

24342665 P:\06_Design\06 03_Survey\Preliminary Plat\DRAINAGE MAP DWG PLOTTED: 7/12/07 - 1:46pm doug_hughes

APPENDIX D

POND VOLUME CALCULATIONS

POND VOLUME CALCULATIONS

CALCULATED 07-11-2007 21:43:00
DISK FILE : C:MDSTC .VOL

Planimeter scale: 1 inch = 1 ft.

Elevation (ft)	Planimeter (sq.in.)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (acre-ft)	Volume Sum (acre-ft)
5,279.00	42,418.00	0.97	0.00	0.00	0.00
5,284.72	*I*	1.89	4.22	8.05	8.05
5,287.00	101,947.00	2.34	4.82	12.86	12.86

I ---> Interpolated area from closest two planimeter readings.

$$IA = (sq.rt(Area1) + ((Ei-E1)/(E2-E1))*(sq.rt(Area2)-sq.rt(Area1)))^2$$

where: E1, E2 = Closest two elevations with planimeter data
Ei = Elevation at which to interpolate area
Area1,Area2 = Areas computed for E1, E2, respectively
IA = Interpolated area for Ei

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

APPENDIX E

AHYMO SUMMARY AND AHYMO DETAILED OUTPUT

AHYMO SUMMARY

```
AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -                    - VERSION:  1997.02d      RUN DATE (MON/DAY/YR) =05/18/2007
INPUT FILE = C:\DOCUME~1\DOUG_H~1\Desktop\BASINM.DAT                                  USER NO.= AHYMO-S-9702c3URSGrnr-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 MESA DEL SOL,TOWN CENTER UNITS 1 AND 2, DRB#1005538
*S 100-YEAR, 24-HOUR STORM EVENT
START                                                                                                  TIME=       .00
RAINFALL  TYPE= 2                                                                                      RAIN24=    2.580
COMPUTE NM HYD      BASIN-M   -     1        .05160      133.51       6.031      2.19155    1.500     4.043 PER IMP=  90.00
FINISH
```

10 day

Land treatment

3 or proved

AHYMO Detailed Output

```
    AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02d
         RUN DATE (MON/DAY/YR) = 05/18/2007
         START TIME (HR:MIN:SEC) = 14:32:32     USER NO.= AHYMO-S-9702c3URSGrnr-AH
         INPUT FILE = C:\DOCUME~1\DOUG_H~1\Desktop\BASINM.DAT

*S MESA DEL SOL,TOWN CENTER UNITS 1 AND 2, DRB#1005538
*S 100-YEAR, 24-HOUR STORM EVENT
*        1         2         3         4         5         6         7         8
*2345678901234567890123456789012345678901234567890123456789012345678901234567890
START                TIME=0.0 HR  PUNCH CODE=0
RAINFALL             TYPE=2  QUARTER HR RAIN=0.00  ONE HR RAIN=1.84
                     SIX HR RAIN=2.17  DAILY RAIN=2.58  DT=0.05 HR

                 COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                 DT =     .050000 HOURS       END TIME =    24.000000 HOURS
                    .0000   .0025   .0051   .0077   .0105   .0133   .0163
                    .0193   .0225   .0258   .0293   .0329   .0367   .0407
                    .0450   .0494   .0542   .0592   .0647   .0705   .0769
                    .0847   .0933   .1181   .1768   .2777   .4337   .6584
                    .9657  1.2080  1.3175  1.4089  1.4890  1.5606  1.6254
                   1.6846  1.7388  1.7888  1.8349  1.8775  1.9169  1.9258
                   1.9340  1.9417  1.9488  1.9556  1.9620  1.9680  1.9738
                   1.9793  1.9846  1.9896  1.9945  1.9992  2.0038  2.0082
                   2.0124  2.0166  2.0206  2.0245  2.0283  2.0320  2.0356
                   2.0392  2.0426  2.0460  2.0493  2.0525  2.0557  2.0588
                   2.0618  2.0648  2.0677  2.0706  2.0734  2.0762  2.0790
                   2.0816  2.0843  2.0869  2.0894  2.0920  2.0945  2.0969
                   2.0993  2.1017  2.1041  2.1064  2.1087  2.1109  2.1132
                   2.1154  2.1175  2.1197  2.1218  2.1239  2.1260  2.1281
                   2.1301  2.1321  2.1341  2.1360  2.1380  2.1399  2.1418
                   2.1437  2.1456  2.1474  2.1493  2.1511  2.1529  2.1547
                   2.1564  2.1582  2.1599  2.1616  2.1633  2.1650  2.1667
                   2.1684  2.1700  2.1718  2.1735  2.1753  2.1770  2.1787
                   2.1804  2.1822  2.1839  2.1856  2.1873  2.1890  2.1907
                   2.1924  2.1940  2.1957  2.1974  2.1990  2.2007  2.2023
                   2.2040  2.2056  2.2072  2.2089  2.2105  2.2121  2.2137
                   2.2153  2.2169  2.2185  2.2201  2.2217  2.2233  2.2249
                   2.2264  2.2280  2.2295  2.2311  2.2327  2.2342  2.2357
                   2.2373  2.2388  2.2403  2.2418  2.2434  2.2449  2.2464
                   2.2479  2.2494  2.2509  2.2524  2.2539  2.2553  2.2568
                   2.2583  2.2597  2.2612  2.2627  2.2641  2.2656  2.2670
                   2.2685  2.2699  2.2713  2.2728  2.2742  2.2756  2.2770
                   2.2784  2.2798  2.2812  2.2826  2.2840  2.2854  2.2868
                   2.2882  2.2896  2.2910  2.2923  2.2937  2.2951  2.2964
                   2.2978  2.2992  2.3005  2.3019  2.3032  2.3045  2.3059
                   2.3072  2.3085  2.3099  2.3112  2.3125  2.3138  2.3151
                   2.3164  2.3178  2.3191  2.3204  2.3216  2.3229  2.3242
                   2.3255  2.3268  2.3281  2.3294  2.3306  2.3319  2.3332
                   2.3344  2.3357  2.3369  2.3382  2.3394  2.3407  2.3419
                   2.3432  2.3444  2.3457  2.3469  2.3481  2.3493  2.3506
                   2.3518  2.3530  2.3542  2.3554  2.3566  2.3579  2.3591
```

2.3603	2.3615	2.3626	2.3638	2.3650	2.3662	2.3674
2.3686	2.3698	2.3709	2.3721	2.3733	2.3744	2.3756
2.3768	2.3779	2.3791	2.3802	2.3814	2.3825	2.3837
2.3848	2.3860	2.3871	2.3883	2.3894	2.3905	2.3916
2.3928	2.3939	2.3950	2.3961	2.3973	2.3984	2.3995
2.4006	2.4017	2.4028	2.4039	2.4050	2.4061	2.4072
2.4083	2.4094	2.4105	2.4116	2.4126	2.4137	2.4148
2.4159	2.4170	2.4180	2.4191	2.4202	2.4212	2.4223
2.4234	2.4244	2.4255	2.4265	2.4276	2.4286	2.4297
2.4307	2.4318	2.4328	2.4339	2.4349	2.4359	2.4370
2.4380	2.4390	2.4401	2.4411	2.4421	2.4431	2.4442
2.4452	2.4462	2.4472	2.4482	2.4492	2.4502	2.4512
2.4522	2.4532	2.4542	2.4552	2.4562	2.4572	2.4582
2.4592	2.4602	2.4612	2.4622	2.4632	2.4642	2.4651
2.4661	2.4671	2.4681	2.4690	2.4700	2.4710	2.4719
2.4729	2.4739	2.4748	2.4758	2.4768	2.4777	2.4787
2.4796	2.4806	2.4815	2.4825	2.4834	2.4844	2.4853
2.4862	2.4872	2.4881	2.4891	2.4900	2.4909	2.4919
2.4928	2.4937	2.4946	2.4956	2.4965	2.4974	2.4983
2.4992	2.5002	2.5011	2.5020	2.5029	2.5038	2.5047
2.5056	2.5065	2.5074	2.5083	2.5092	2.5101	2.5110
2.5119	2.5128	2.5137	2.5146	2.5155	2.5164	2.5173
2.5182	2.5191	2.5199	2.5208	2.5217	2.5226	2.5235
2.5243	2.5252	2.5261	2.5270	2.5278	2.5287	2.5296
2.5304	2.5313	2.5322	2.5330	2.5339	2.5347	2.5356
2.5365	2.5373	2.5382	2.5390	2.5399	2.5407	2.5416
2.5424	2.5433	2.5441	2.5449	2.5458	2.5466	2.5475
2.5483	2.5491	2.5500	2.5508	2.5516	2.5525	2.5533
2.5541	2.5550	2.5558	2.5566	2.5574	2.5583	2.5591
2.5599	2.5607	2.5615	2.5624	2.5632	2.5640	2.5648
2.5656	2.5664	2.5672	2.5680	2.5688	2.5696	2.5704
2.5712	2.5720	2.5728	2.5736	2.5744	2.5752	2.5760
2.5768	2.5776	2.5784	2.5792	2.5800		

```
COMPUTE NM HYD       ID=1  HYD=BASIN-M DA=.0516
                     A B C D 0 5 5 90
                     TP=0.13330   MASS RAIN=-1

     K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   183.35    CFS   UNIT VOLUME =    .9990       B =   526.28      P60 = 1.8400
     AREA =      .046440 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


     K =   .118524HR    TP =   .133300HR    K/TP RATIO =   .889153     SHAPE CONSTANT, N =  3.989065
     UNIT PEAK =   13.720    CFS   UNIT VOLUME =    1.000       B =   354.44      P60 = 1.8400
     AREA =      .005160 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD            ID=1  CODE=0 ALL
```

HYDROGRAPH FROM AREA BASIN-M

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.050	.8	10.100	.8	15.150	.7	20.200	.5
.050	.0	5.100	.8	10.150	.8	15.200	.6	20.250	.5

.100	.0	5.150	.8	10.200	.8	15.250	.6	20.300	.5
.150	.0	5.200	.8	10.250	.8	15.300	.6	20.350	.5
.200	.0	5.250	.8	10.300	.8	15.350	.6	20.400	.5
.250	.0	5.300	.8	10.350	.8	15.400	.6	20.450	.5
.300	.0	5.350	.8	10.400	.8	15.450	.6	20.500	.5
.350	.0	5.400	.9	10.450	.8	15.500	.6	20.550	.5
.400	.0	5.450	.9	10.500	.8	15.550	.6	20.600	.5
.450	.0	5.500	.9	10.550	.8	15.600	.6	20.650	.5
.500	.0	5.550	.9	10.600	.8	15.650	.6	20.700	.5
.550	.0	5.600	.9	10.650	.8	15.700	.6	20.750	.5
.600	.0	5.650	.9	10.700	.8	15.750	.6	20.800	.5
.650	.0	5.700	.9	10.750	.8	15.800	.6	20.850	.5
.700	.0	5.750	.9	10.800	.8	15.850	.6	20.900	.5
.750	.0	5.800	.9	10.850	.8	15.900	.6	20.950	.5
.800	.0	5.850	.9	10.900	.8	15.950	.6	21.000	.5
.850	.0	5.900	.9	10.950	.8	16.000	.6	21.050	.5
.900	.0	5.950	1.0	11.000	.8	16.050	.6	21.100	.5
.950	.0	6.000	1.0	11.050	.8	16.100	.6	21.150	.5
1.000	.0	6.050	1.0	11.100	.8	16.150	.6	21.200	.5
1.050	.0	6.100	1.0	11.150	.8	16.200	.6	21.250	.5
1.100	.0	6.150	1.0	11.200	.8	16.250	.6	21.300	.5
1.150	.3	6.200	1.0	11.250	.8	16.300	.6	21.350	.5
1.200	3.6	6.250	1.0	11.300	.8	16.350	.6	21.400	.5
1.250	13.3	6.300	1.0	11.350	.8	16.400	.6	21.450	.5
1.300	29.4	6.350	1.0	11.400	.8	16.450	.6	21.500	.5
1.350	52.1	6.400	1.0	11.450	.8	16.500	.6	21.550	.5
1.400	82.9	6.450	1.0	11.500	.8	16.550	.6	21.600	.5
1.450	117.9	6.500	1.0	11.550	.8	16.600	.6	21.650	.5
1.500	133.5	6.550	1.0	11.600	.8	16.650	.6	21.700	.5
1.550	116.7	6.600	1.0	11.650	.8	16.700	.6	21.750	.5
1.600	90.3	6.650	1.0	11.700	.8	16.750	.6	21.800	.5
1.650	71.5	6.700	1.0	11.750	.8	16.800	.6	21.850	.5
1.700	59.9	6.750	1.0	11.800	.8	16.850	.6	21.900	.5
1.750	52.4	6.800	1.0	11.850	.8	16.900	.6	21.950	.5
1.800	47.0	6.850	1.0	11.900	.7	16.950	.6	22.000	.5
1.850	42.4	6.900	1.0	11.950	.8	17.000	.6	22.050	.5
1.900	38.5	6.950	1.0	12.000	.7	17.050	.6	22.100	.5
1.950	35.1	7.000	1.0	12.050	.8	17.100	.6	22.150	.5
2.000	32.0	7.050	1.0	12.100	.7	17.150	.6	22.200	.5
2.050	28.7	7.100	1.0	12.150	.7	17.200	.6	22.250	.5
2.100	22.3	7.150	1.0	12.200	.7	17.250	.6	22.300	.5
2.150	15.6	7.200	1.0	12.250	.7	17.300	.6	22.350	.5
2.200	11.4	7.250	1.0	12.300	.7	17.350	.6	22.400	.5
2.250	9.0	7.300	1.0	12.350	.7	17.400	.6	22.450	.5
2.300	7.5	7.350	1.0	12.400	.7	17.450	.6	22.500	.5
2.350	6.4	7.400	1.0	12.450	.7	17.500	.6	22.550	.5
2.400	5.5	7.450	1.0	12.500	.7	17.550	.6	22.600	.5
2.450	4.8	7.500	1.0	12.550	.7	17.600	.6	22.650	.5
2.500	4.2	7.550	1.0	12.600	.7	17.650	.6	22.700	.5
2.550	3.7	7.600	1.0	12.650	.7	17.700	.6	22.750	.5
2.600	3.3	7.650	1.0	12.700	.7	17.750	.6	22.800	.5
2.650	2.9	7.700	1.0	12.750	.7	17.800	.6	22.850	.5
2.700	2.6	7.750	.9	12.800	.7	17.850	.6	22.900	.5
2.750	2.4	7.800	.9	12.850	.7	17.900	.6	22.950	.5
2.800	2.2	7.850	.9	12.900	.7	17.950	.6	23.000	.5
2.850	2.0	7.900	.9	12.950	.7	18.000	.6	23.050	.5
2.900	1.8	7.950	.9	13.000	.7	18.050	.6	23.100	.5

2.950	1.7	8.000	.9	13.050	.7	18.100	.6	23.150	.5
3.000	1.5	8.050	.9	13.100	.7	18.150	.6	23.200	.5
3.050	1.4	8.100	.9	13.150	.7	18.200	.6	23.250	.5
3.100	1.3	8.150	.9	13.200	.7	18.250	.6	23.300	.5
3.150	1.3	8.200	.9	13.250	.7	18.300	.6	23.350	.5
3.200	1.2	8.250	.9	13.300	.7	18.350	.6	23.400	.5
3.250	1.1	8.300	.9	13.350	.7	18.400	.6	23.450	.5
3.300	1.1	8.350	.9	13.400	.7	18.450	.6	23.500	.5
3.350	1.0	8.400	.9	13.450	.7	18.500	.6	23.550	.5
3.400	1.0	8.450	.9	13.500	.7	18.550	.6	23.600	.5
3.450	1.0	8.500	.9	13.550	.7	18.600	.6	23.650	.5
3.500	.9	8.550	.9	13.600	.7	18.650	.6	23.700	.5
3.550	.9	8.600	.9	13.650	.7	18.700	.6	23.750	.5
3.600	.9	8.650	.9	13.700	.7	18.750	.6	23.800	.5
3.650	.9	8.700	.9	13.750	.7	18.800	.6	23.850	.5
3.700	.8	8.750	.9	13.800	.7	18.850	.6	23.900	.5
3.750	.8	8.800	.9	13.850	.7	18.900	.6	23.950	.5
3.800	.8	8.850	.9	13.900	.7	18.950	.6	24.000	.5
3.850	.8	8.900	.9	13.950	.7	19.000	.6	24.050	.5
3.900	.8	8.950	.9	14.000	.7	19.050	.5	24.100	.3
3.950	.8	9.000	.9	14.050	.7	19.100	.6	24.150	.2
4.000	.8	9.050	.9	14.100	.7	19.150	.6	24.200	.1
4.050	.8	9.100	.9	14.150	.7	19.200	.6	24.250	.1
4.100	.8	9.150	.9	14.200	.7	19.250	.5	24.300	.1
4.150	.8	9.200	.9	14.250	.7	19.300	.5	24.350	.0
4.200	.8	9.250	.9	14.300	.7	19.350	.6	24.400	.0
4.250	.7	9.300	.9	14.350	.7	19.400	.6	24.450	.0
4.300	.8	9.350	.9	14.400	.7	19.450	.6	24.500	.0
4.350	.8	9.400	.9	14.450	.7	19.500	.5	24.550	.0
4.400	.8	9.450	.8	14.500	.7	19.550	.5	24.600	.0
4.450	.8	9.500	.8	14.550	.7	19.600	.5	24.650	.0
4.500	.7	9.550	.8	14.600	.7	19.650	.5	24.700	.0
4.550	.8	9.600	.8	14.650	.7	19.700	.5	24.750	.0
4.600	.8	9.650	.8	14.700	.7	19.750	.5	24.800	.0
4.650	.8	9.700	.8	14.750	.7	19.800	.5	24.850	.0
4.700	.8	9.750	.8	14.800	.7	19.850	.5	24.900	.0
4.750	.8	9.800	.8	14.850	.7	19.900	.5	24.950	.0
4.800	.8	9.850	.8	14.900	.7	19.950	.5	25.000	.0
4.850	.8	9.900	.8	14.950	.6	20.000	.5	25.050	.0
4.900	.8	9.950	.8	15.000	.6	20.050	.5	25.100	.0
4.950	.8	10.000	.8	15.050	.6	20.100	.5	25.150	.0
5.000	.8	10.050	.8	15.100	.7	20.150	.5		

RUNOFF VOLUME = 2.19155 INCHES = 6.0311 ACRE-FEET
PEAK DISCHARGE RATE = 133.51 CFS AT 1.500 HOURS BASIN AREA = .0516 SQ. MI.

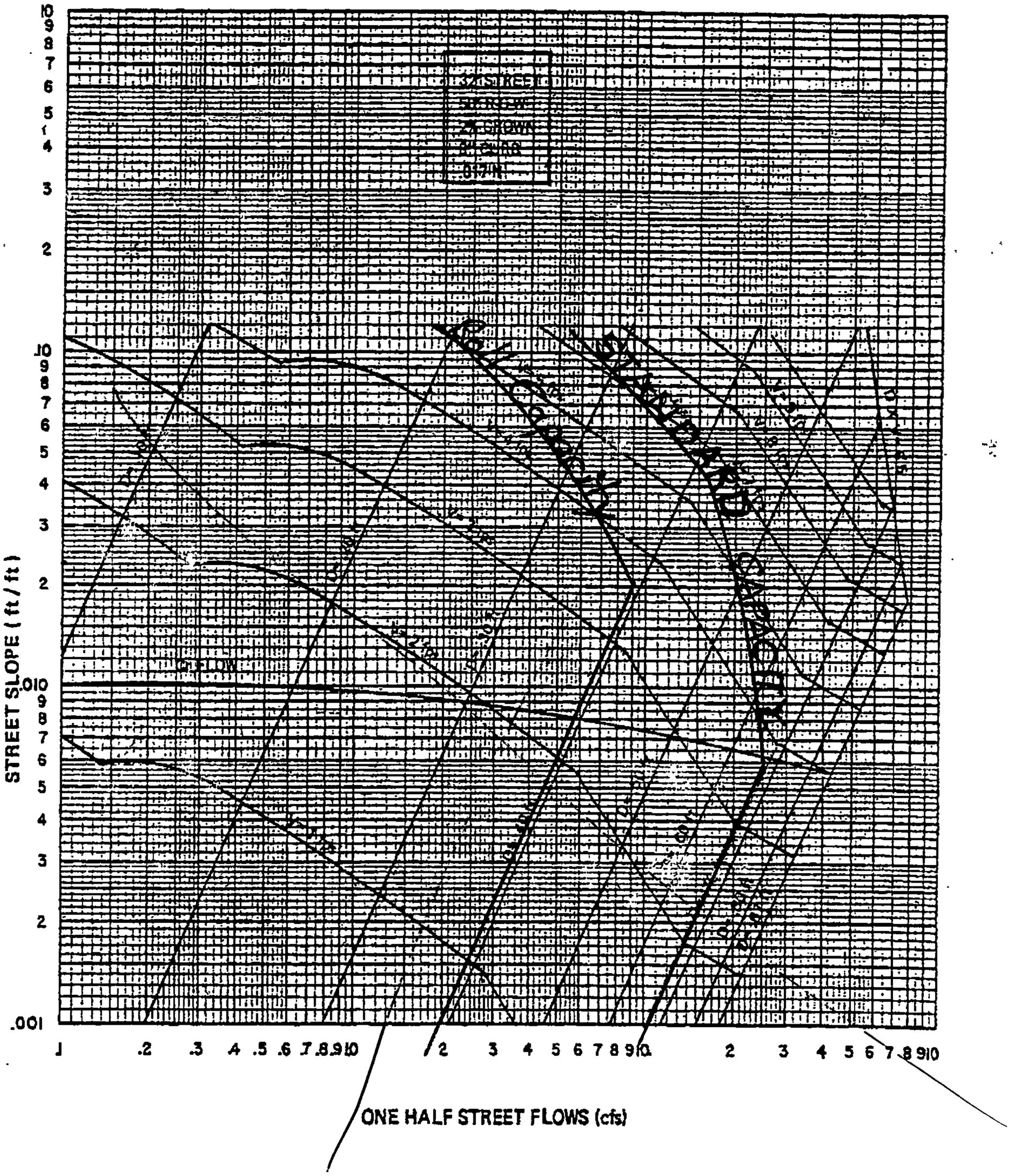
FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 14:32:32

APPENDIX F

STREET CAPACITY & INLET CAPACITY PLATES 22.3 D-1 & D-5

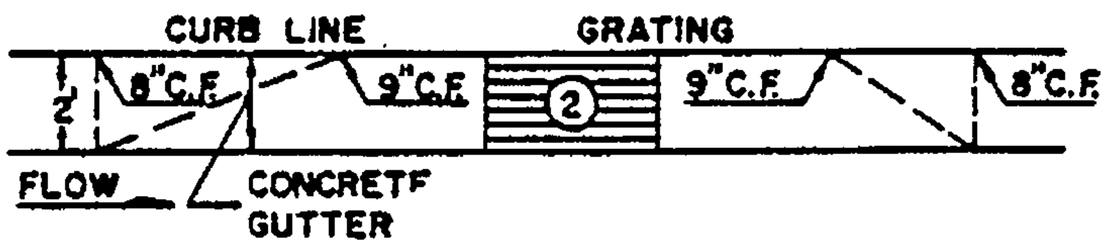
STREET CAPACITY



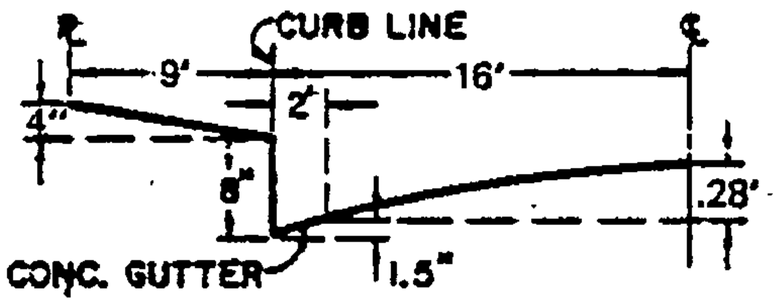
Depths shown here are reduced by 3/4" for Roll Curb to account for different gutter depression.

PLATE 22.3 D-1

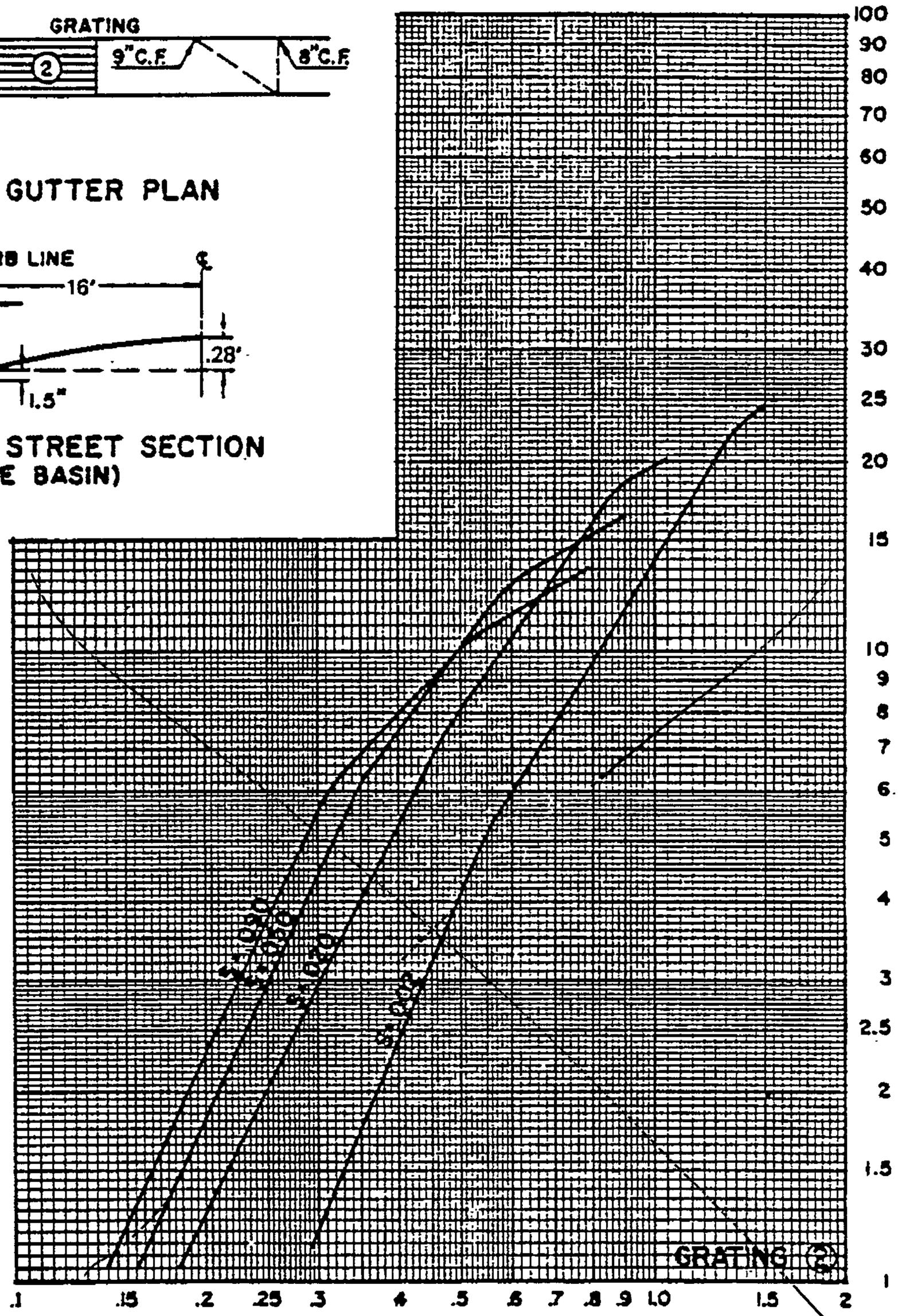
GRATING CAPACITIES FOR TYPE "A" , "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



APPENDIX G

GRADING PLAN FOR MESA DEL SOL MIXED-USE TOWN CENTER SHEETS 3 AND 4

GRADING PLAN
FOR
Mesa del Sol
Mixed-Use Town Center

TANGENT TABLE		
ID	BEARING	DISTANCE
T1	N 43° 57' 36" W	2141.82'
T2	N 71° 02' 24" W	311.31'
T3	N 43° 57' 36" W	1922.00'
T4	N 43° 57' 36" W	1150.00'
T5	N 43° 57' 36" W	1822.00'
T6	N 46° 02' 24" E	3118.93'
T7	N 46° 02' 24" W	2115.14'
T8	N 43° 57' 36" W	320.67'
T9	N 43° 57' 36" W	1922.00'
T10	N 18° 57' 36" W	289.23'
T11	N 43° 57' 36" W	374.91'

SB-C1

CURVE TABLE: SB-C1

PI STA=3324+65 70
N=1,450993 081
E=1,531,954.920
R=415'
T=92.00'
L=181 08'
Δ=25° 00' 00"R

SB-C2

CURVE TABLE: SB-C2

PI STA=3329+36.01
N=1,451,440 646
E=1,531,801.159
R=415'
T=92.00'
L=181.08'
Δ=25° 00' 00"L

Legend

- GRADING LIMITS
- FUTURE RIGHT OF WAY
- FUTURE CONSTRUCTION
- EXISTING IMPROVEMENTS
- 5290 EXISTING GROUND MAJOR CONTOUR
- EXISTING GROUND MINOR CONTOUR
- 0000.00 PROPOSED GROUND SPOT ELEVATIONS
- 0.0% DIRECTION OF FLOW W/ APPROX GRADE

BENCH MARKS

ACS 3-1/4" ALUMINUM CAP RIVETED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-0-14, 1987". FROM THE RIO BRAVO BLVD AND BROADWAY INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE. STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1480471.432, E=1521388 180 (GROUND) ELEVATION=4981.17

Elevations are in INTERIM NAVD 88 DATUM. To convert from INTERIM NAVD 88 to NGVD 29 subtract 2.63 feet. All Elevations in () are NGVD 29

100 0 100 200

SCALE=1·100

MAY, 2007

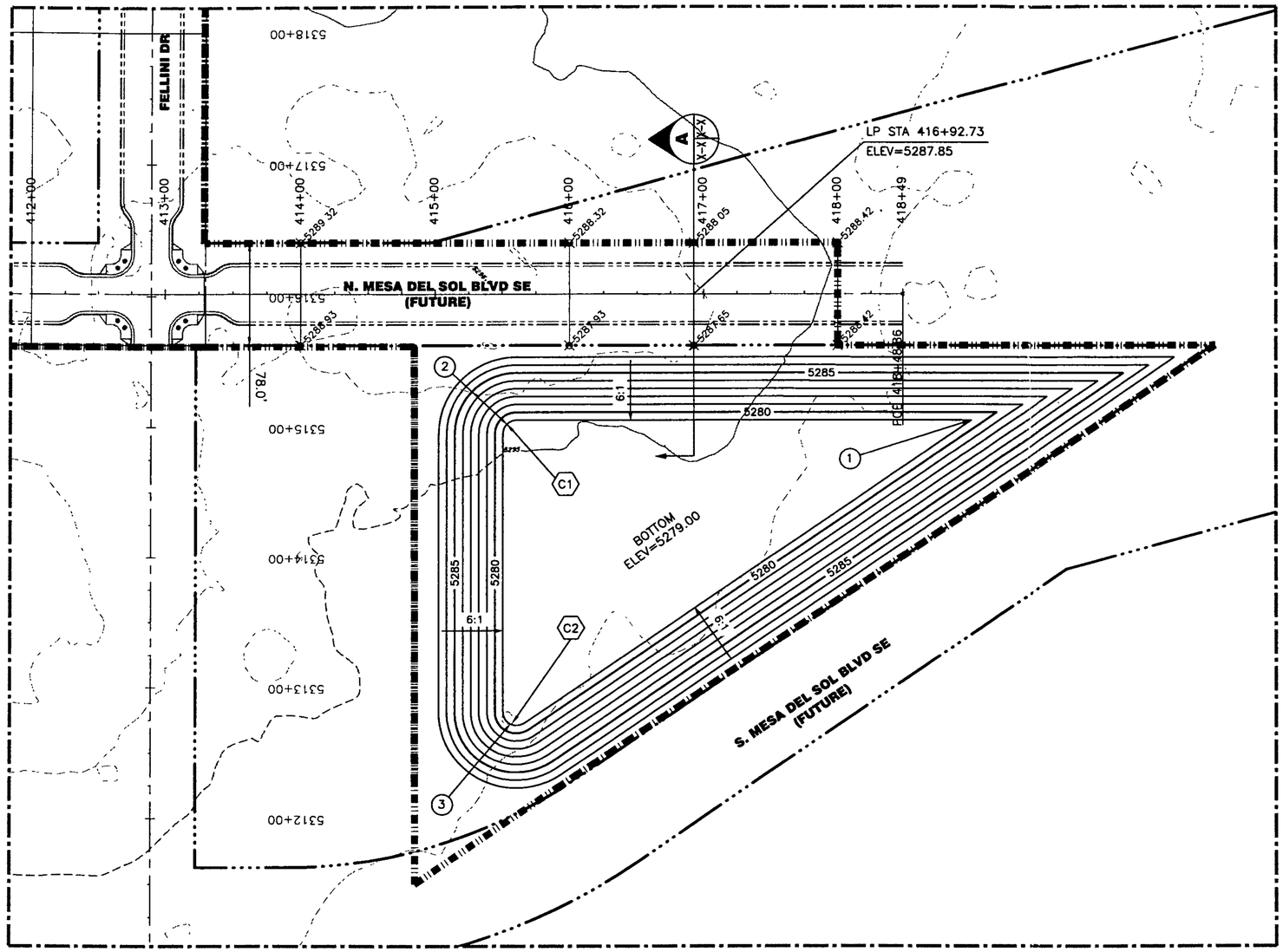
GRADING PLAN

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

SHEET 3 OF 4

24342665 P:\07_Drawings\07.02_Plans\MUTC-Phl\Preliminary Grading Plan\PRELIM_grading_ALT.dwg PLOTTED: 7/02/07 - 3:40pm doug_hughes

GRADING PLAN
FOR
Mesa del Sol
Mixed-Use Town Center



POINT TABLE*		
ID	NORTHING	EASTING
1	1,451,620.983	1,533,989.013
2**	1,451,378.686	1,533,737.759
3**	1,451,203.303	1,533,906.388

*POINT COORDINATES ARE FOR POND BOTTOM ELEVATION 5279.00

**POINT COORDINATES ARE AT INTERSECTION OF PROJECTED TANGENTS.

CURVE TABLE			
ID	RADIUS	LENGTH	TANGENT
C1	10'	15.71'	10.00'
C2	10'	21.80'	19.18'

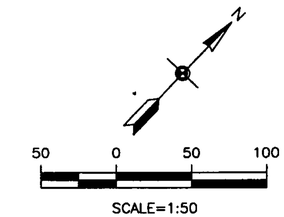
Legend

- GRADING LIMITS
- FUTURE RIGHT OF WAY
- FUTURE CONSTRUCTION
- EXISTING IMPROVEMENTS
- 5280 EXISTING GROUND MAJOR CONTOUR
- EXISTING GROUND MINOR CONTOUR
- 5000.00 PROPOSED GROUND SPOT ELEVATIONS
- 0.0% DIRECTION OF FLOW W/ APPROX GRADE

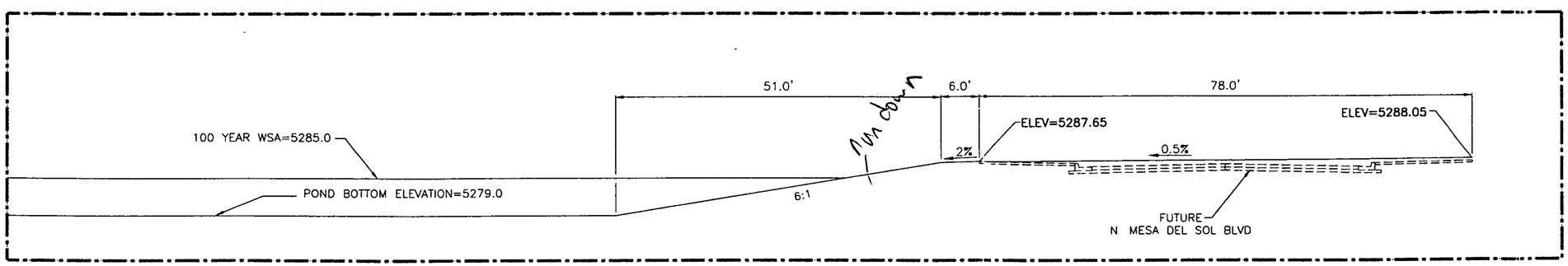
BENCH MARKS

ACS 3-1/4" ALUMINUM CAP RIVETED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-Q-14, 1987", FROM THE RIO BRAVO BLVD AND BROADWAY INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE. STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1460471.432, E=1521388.180 (GROUND) ELEVATION=4881.17

Elevations are in INTERIM NAVD 88 DATUM. To convert from INTERIM NAVD 88 to NGVD 29 subtract 2.63 feet. All Elevations in () are NGVD 29



MAY, 2007



A X-X X-X SECTION -POND DETAIL
SCALE=1:10

GRADING PLAN

SHEET 4 OF 4

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

24342665 P:\07_Drawings\07 02_Plans\MUTC-Ph1\Preliminary Grading Plan\PRELIM_grading_ALT-sht2.dwg PLOTTED: 6/13/07 - 12:46pm chris_rosol

APPENDIX H

TECHNICAL APPENDIX 4 TO THE LEVEL B PLAN FOR MESA DEL SOL, FIGURES 4A-10 AND 4A-11

APPENDIX I

BHI MESA DEL SOL PHASE 1B UNIVERSITY BOULEVARD DRAINAGE DESIGN ANALYSIS REPORT

MESA DEL SOL PHASE 1B UNIVERSITY BOULEVARD DRAINAGE DESIGN ANALYSIS REPORT

(REVISION TO MESA DEL SOL PHASE 1A/1B UNIVERSITY BOULEVARD DRAINAGE DESIGN ANALYSIS REPORT)
MESA DEL SOL PHASE 1A UNIVERSITY BLVD DAR
ENGINEER'S STAMP DATED 10-13-06, COA HYDRO FILE # R16/D3

PREPARED BY:
BOHANNAN HUSTON INC.
COURTYARD ONE
7500 JEFFERSON NE
ALBUQUERQUE, NM 87109

WITH COLLABORATION FROM:
URS CORPORATION
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110-5311

RECEIVED
FEB 23 2007
HYDROLOGY SECTION

JEFFREY L. MULBERY LICENSED PROFESSIONAL ENGINEER NEW MEXICO 16858

PHILIP C. FISCHER NEW MEXICO 7706 REGISTERED PROFESSIONAL ENGINEER

Prepared by:

2.22.07
Jeffrey L. Mulbery, PE. Date
Bohannan Huston Inc.

2-20-07
Philip Fischer, P.E. Date
URS Corporation

Courtya
7500 Jefferson St.
Albuquerque,
87109-4
www.bhinc.c
voice: 505.823.1(
facsimile: 505.798.7!
toll free: 800.877.5:

February 22, 2007

Brad Bingham, P.E.
Hydrology Development Division
City of Albuquerque Planning Department
P. O. Box 1293
Albuquerque, NM 87103

Re: Mesa del Sol Phase 1B University Blvd – DAR
(*Revision* to Mesa del Sol Phase 1A University Blvd – DAR
COA Work Order 7754.82; COA Drainage File # H16/D3)

Dear Brad:

The purpose of this letter is to provide you with revisions to the approved DAR (stamp date 10-13-06). This DAR was submitted in support of the COA Work Order 7754.82 hydrology approval. There will be additional storm drainage constructed with this project as a change order (currently known as Phase 1B), which was not previously addressed in the approved DAR. This letter, along with the attachments, will be a supplement to the DAR to address this change order.

The change order will extend infrastructure south along University Blvd. through the couplet to the first intersecting road (Simms Dr). The storm drain constructed with this change order will extend the 30" RCP as shown on approved Phase 1A drawing (SD-1) to the south within University Blvd. extending to Simms Dr., and then northeast to the Albuquerque Studios regional retention pond (Also attached is Figure 5 showing calculations). This storm drain will also serve the tract created by the couplet (Towne Center) and the parking area south of Simms Dr.

The approved DAR addresses three drainage areas (Drainage Areas A, B & C) associated with the construction of the University Blvd Phase 1A. The work associated with the change order lies within Drainage Area C. A revised Figure 1C is attached as Figure 4, showing the updated basin boundary.

Overall Drainage Area C consists of approximately 7.4 acres of University Blvd., 6.7 acres from the Towne Center A and B site and the parking south of Simms Dr., and 3.4 acres of Simms Dr. Runoff will be carried via storm drain to the existing regional retention pond located east of Albuquerque Studios (See Figure 5). Standard roadway drainage criteria procedures have been utilized with a minimum of one driving lane clear during Q_{10} and the Q_{100} event being contained in the ROW. Inlets and pipe design is per Storm CAD (Refer to Appendix C). Approximately 14 inlets will be constructed at ultimate build out for Phase 1B (Refer to Appendix D for construction plans and HGL locations).

Offsite flows from the west, which currently affect Drainage Area C, shall be mitigated with strategically placed interim retention ponds constructed under Mesa del Sol – University Blvd., Offsite Interim Grading and Drainage Plan (Engineer Stamp Date 10-10-06 – COA Hydrology File R16/D3). This plan has been approved by the city and will be constructed under a separate contract.

Submitted

ENGINEERING
SPATIAL DATA
ADVANCED TECHNOLOGIES

A summary of the figures and appendices included with this revision are as follows;

FIGURE 4 – (UPDATED) OVERALL DRAINAGE AREA C
FIGURE 5 – REGIONAL RETENTION POND VOLUME CALCULATIONS
FIGURE 6 – PHASE 1B OVERALL DRAINAGE AREA MAP (Showing Stationing and Q's)

APPENDIX C – ADDITIONAL HYDRAULIC CALCULATIONS
APPENDIX D – CONSTRUCTION PLANS SHOWING HGL

With this revision we are requesting COA hydrology approval in support of DRC change order approval for Phase 1B (COA Project 7754.82).

If you have any questions or require further information, please feel free to contact me at 823-1000.

Sincerely,

Jeffery L. Mulbery, P.E.
Project Engineer
Community Development and Planning

JLM/cc
Enclosures

cc: Philip Fischer, URS (w/ encls.)

FIGURES

CITY OF ALBUQUERQUE

March 23, 2007

Jeff Mulberry, PE
Bohannan Huston, Inc
7500 Jefferson NE
Albuquerque, NM 87109

Phil Fischer, PE
URS Corporation
6501 Americas Pkwy, Ste 900
Albuquerque, NM 87110

Re: Mesa del Sol Phase 1B University Blvd DAR
Engineer's Stamp dated 2-22-07, (R16/D3)

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

Dear Mr. Mulberry and Mr. Fischer,

Based upon the information provided in your submittal dated 2-23-07, the above referenced report is approved for the phase of the Work Order. If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham

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

C: file

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV. 1/11/2002)

PROJECT TITLE: Mesa del Sol Phase 1A University Blvd - DAR ZONE MAP/DRG. FILE # R15-R16
DRB #: _____ EPC#: _____ WORK ORDER#: 775482

LEGAL DESCRIPTION: _____
CITY ADDRESS: _____

ENGINEERING FIRM: Bohannan Huston, Inc. CONTACT: Jeff Mulbery
ADDRESS: 7500 Jefferson NE – Courtyard I PHONE: (505) 823-1000
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

OWNER: Forest City Covington, N.M., LLC
ADDRESS: 801 University Blvd. SE, Suite 200 CONTACT: Mike Castillo
CITY, STATE: Albuquerque, NM PHONE: 505-400-3021
ZIP CODE: 87106

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

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

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

CHECK TYPE OF SUBMITTAL:
- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEERS CERTIFICATION (TCL)
- ____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- X OTHER (DRAINAGE DESIGN ANALYSIS REPORT)
  REVISION

CHECK TYPE OF APPROVAL SOUGHT:
- ____ SIA / FINANCIAL GUARANTEE RELEASE
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D. APPROVAL
- ____ S. DEV. PLAN FOR DRB APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY (PERM.)
- ____ CERTIFICATE OF OCCUPANCY (TEMP.)
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- X WORK ORDER (*CHANGE ORDER)* APPROVAL
- X OTHER (DRC HYDROLOGY APPROVAL)

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

RECEIVED
FEB 23 2007
HYDROLOGY SECTION

DATE SUBMITTED: 02-23-07 BY: Jeff Mulbery/mb

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

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (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 subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

University Blvd. Extension Phase 1B - Drainage Area (C)

Drainage Area Numbers	Stations (Obtained From AutoCAD Roadway)	Low Point Stations	Area (Acres)	Peak Discharge (cfs/acre) Zone 2, Treatment D, From DPM Table A-9		10 Year Flows (cfs)	100 Yr Flows (cfs)
				10 Year	100 Year		
SB Couplet DA-1A	3322+74.00 to 3328+23.15	3323+20.00	0.98	3.14	4.70	3.08	4.61
		3326+65.00					
NB Couplet DA-1B	2322+18.94 to 2330+00.30	2323+17.70	1.40	3.14	4.70	4.40	6.58
		2324+57.06					
		2325+93.80					
		2328+43.67					
Simms Drive DA-1C	200+00.00 to 206+12.22	205+31.67	1.12	3.14	4.70	3.52	5.26
Simms Drive DA-1D	206+12.22 to 212+93.00	---------	1.25	3.14	4.70	3.93	5.88
Simms Drive DA-1E	212+93.00 to 218+25.00	---------	0.98	3.14	4.70	3.08	4.61
DA-1F	Parking Lot South of Simms Drive	---------	3.20	3.14	4.70	10.05	15.04
DA-1G	Buildings A&B of Community Center	---------	2.28	3.14	4.70	7.16	10.72
DA-1H	Community Center Park and Plaza Road	---------	1.26	3.14	4.70	3.96	5.92
DA-1I	Future Flows From North Section of Hawking Drive- Future Phase	---------	5.10	3.14	4.70	16.01	24.00
DA 2	2330+00.30 to 2336+74.32	2333+75.00	2.43	3.14	4.70	7.65	11.44
DA 3	2336+74.32 to 2344+63.96	2338+86.31	2.61	3.14	4.70	8.20	12.27
Total Flow Contributing to Regional Retention Pond							106.16

Scenario: Scenario 6

>>>> Info: Subsurface Network Rooted by: Pond
>>>> Info: Subsurface Analysis iterations: 1
>>>> Info: Convergence was achieved.

CALCULATION SUMMARY FOR SURFACE NETWORKS

Label	Inlet Type	Inlet	Total Intercepted Flow (cfs)	Total Bypassed Flow (cfs)	Capture Efficiency (%)	Gutter Spread (ft)	Gutter Depth (ft)
I-C7a	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-C7b	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-B2	Combination Inlet	Combination COA_Type A	3.29	0.00	100.0	5.11	0.19
I-B6	Combination Inlet	Combination COA_Type A	1.33	0.00	100.0	2.42	0.11
I-C3	Combination Inlet	Combination COA_Type A	2.84	0.06	98.1	10.32	0.29
I-C3a	Combination Inlet	Combination COA_Type A	2.84	0.06	98.1	10.32	0.29
I-HAWK	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-C6a	Combination Inlet	Combination COA_Type A	1.83	0.00	100.0	2.60	0.14
I-C6b	Combination Inlet	Combination COA_Type A	1.84	0.00	100.0	2.61	0.14
I-JC4a	Combination Inlet	Combination COA_Type A	0.81	0.00	100.0	2.13	0.07
I-JC4b	Combination Inlet	Combination COA_Type A	0.81	0.00	100.0	2.13	0.07
I-A6	Combination Inlet	Combination COA_Type A	1.31	0.00	100.0	2.41	0.11
I-A3	Combination Inlet	Combination COA_Type A	5.01	0.00	100.0	7.70	0.24
I-A1	Combination Inlet	Combination COA_Type A	6.13	0.00	100.0	9.22	0.27
I-A2	Combination Inlet	Combination COA_Type A	1.43	0.00	100.0	2.46	0.12
I-A1a	Combination Inlet	Combination COA_Type A	6.14	0.00	100.0	9.23	0.27
I-A3a	Combination Inlet	Combination COA_Type A	5.00	0.00	100.0	7.69	0.24
I-A7	Combination Inlet	Combination COA_Type A	1.31	0.00	100.0	2.41	0.11
I-A8	Combination Inlet	Combination COA_Type A	1.31	0.00	100.0	2.41	0.11
I-A9	Combination Inlet	Combination COA_Type A	1.31	0.00	100.0	2.41	0.11
I-A10	Combination Inlet	Combination COA_Type A	1.34	0.00	100.0	2.42	0.11
I-C2	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00
I-PARK	Combination Inlet	Combination COA_Type A	0.00	0.00	100.0	0.00	0.00

CALCULATION SUMMARY FOR SUBSURFACE NETWORK WITH ROOT: Pond

Label	Number of Sections	Section Size	Section Shape	Length (ft)	Total System Flow (cfs)	Average Velocity (ft/s)	Hydraulic Grade Upstream (ft)	Hydraulic Grade Downstream (ft)
P-C1	1	48 inch	Circular	109.48	106.16	8.45	5,286.60	5,286.00
P-C2	1	48 inch	Circular	400.00	82.16	6.54	5,288.17	5,286.86
P-HAWK	1	30 inch	Circular	31.00	24.00	4.89	5,286.79	5,286.68
P-C3	1	48 inch	Circular	427.50	77.57	6.17	5,289.60	5,288.35
P-C2a	1	24 inch	Circular	51.00	4.59	1.46	5,288.34	5,288.32
P-HAWKN	1	30 inch	Circular	111.00	24.00	6.82	5,287.49	5,286.87
P-C4	1	48 inch	Circular	312.50	71.88	5.72	5,290.42	5,289.64
P-C3b	1	18 inch	Circular	30.00	2.84	2.11	5,293.82	5,293.62
P-C3a	1	18 inch	Circular	30.00	2.84	2.11	5,293.82	5,293.62
P-C4b	1	24 inch	Circular	30.00	0.81	2.66	5,294.51	5,294.36
P-C5	1	48 inch	Circular	67.00	70.26	5.59	5,290.61	5,290.45
P-C4a	1	24 inch	Circular	30.00	0.81	2.66	5,294.51	5,294.36
P-C6	1	30 inch	Circular	52.00	34.05	6.94	5,291.00	5,290.64
P-A10	1	36 inch	Circular	36.00	36.21	5.12	5,290.75	5,290.64
P-C7	1	30 inch	Circular	181.00	30.38	6.19	5,292.37	5,291.38
P-C6a	1	24 inch	Circular	30.00	1.83	4.33	5,295.20	5,294.81
P-C6b	1	24 inch	Circular	30.00	1.84	4.33	5,295.20	5,294.82
P-A10a	1	24 inch	Circular	17.00	1.34	5.03	5,295.30	5,294.85
P-A9	1	36 inch	Circular	138.00	34.87	4.93	5,291.20	5,290.82
P-C7a	1	24 inch	Circular	50.00	10.72	3.41	5,293.94	5,293.83
P-C8	1	30 inch	Circular	250.00	4.62	0.94	5,292.67	5,292.64
P-C7b	1	24 inch	Circular	50.00	15.04	4.79	5,294.05	5,293.83
P-A9a	1	24 inch	Circular	17.00	1.31	5.00	5,294.20	5,293.74
P-A8	1	36 inch	Circular	128.00	33.56	4.75	5,291.57	5,291.25
P-B2	1	24 inch	Circular	43.00	4.62	1.47	5,292.71	5,292.69
P-A8b	1	24 inch	Circular	40.00	5.92	1.88	5,291.63	5,291.61
P-A8a	1	24 inch	Circular	17.00	1.31	5.00	5,294.35	5,293.89
P-A7	1	36 inch	Circular	80.00	26.33	3.72	5,291.75	5,291.63
P-B2a	1	18 inch	Circular	19.00	3.29	2.20	5,297.02	5,296.85
P-B3	1	24 inch	Circular	56.00	1.33	0.42	5,292.73	5,292.72
P-A7a	1	24 inch	Circular	17.00	1.31	5.00	5,294.45	5,293.99
P-A6	1	30 inch	Circular	173.00	25.02	5.10	5,292.42	5,291.77
P-B4	1	24 inch	Circular	89.10	1.33	0.42	5,292.73	5,292.73
P-A6a	1	24 inch	Circular	17.00	1.31	4.90	5,294.52	5,294.09
P-A5	1	30 inch	Circular	161.00	23.71	4.83	5,293.08	5,292.55
P-B5	1	24 inch	Circular	92.30	1.33	0.42	5,292.73	5,292.73
P-A4	1	30 inch	Circular	87.00	23.71	4.83	5,293.56	5,293.27
P-B6	1	24 inch	Circular	86.20	1.33	0.42	5,292.74	5,292.73
P-A3	1	30 inch	Circular	250.00	23.71	4.83	5,294.83	5,293.99
P-B6a	1	24 inch	Circular	22.00	1.33	2.16	5,295.87	5,295.76
P-A2	1	30 inch	Circular	220.00	13.70	2.79	5,295.15	5,294.91
P-A3a	1	18 inch	Circular	50.00	5.00	3.32	5,295.69	5,295.37
P-A3b	1	18 inch	Circular	120.00	5.01	2.84	5,295.91	5,295.37

P-A1	1	30 inch	Circular	274.00	12.27	2.50	5,295.42	5,295.18
P-A2a	1	18 inch	Circular	90.00	1.43	1.81	5,296.34	5,296.07
P-A1a	1	18 inch	Circular	50.00	6.14	8.82	5,296.89	5,295.27
P-A1b	1	18 inch	Circular	130.00	6.13	6.17	5,296.89	5,295.45

Label	Total System Flow (cfs)	Ground Elevation (ft)	Hydraulic Grade Line In (ft)	Hydraulic Grade Line Out (ft)
Pond	106.16	5,290.00	5,286.00	5,286.00
JC1	106.16	5,291.00	5,286.68	5,286.60
JC2	82.16	5,294.54	5,288.32	5,288.17
J-HAWK	24.00	5,291.20	5,286.86	5,286.79
J-C3	77.57	5,296.68	5,289.64	5,289.60
I-C2	4.59	5,294.52	5,288.34	5,288.34
I-HAWK	24.00	5,291.50	5,287.49	5,287.49
J-C4	71.88	5,298.00	5,290.45	5,290.42
I-C3	2.84	5,296.21	5,293.82	5,293.82
I-C3a	2.84	5,296.21	5,293.82	5,293.82
I-JC4b	0.81	5,298.20	5,294.51	5,294.51
J-C5	70.26	5,298.35	5,290.64	5,290.61
I-JC4a	0.81	5,298.20	5,294.51	5,294.51
J-C6	34.05	5,298.87	5,291.38	5,291.00
J-A10	36.21	5,299.13	5,290.82	5,290.75
J-C7	30.38	5,299.61	5,292.64	5,292.37
I-C6a	1.83	5,298.93	5,295.20	5,295.20
I-C6b	1.84	5,298.93	5,295.20	5,295.20
I-A10	1.34	5,299.10	5,295.30	5,295.30
J-A9	34.87	5,298.11	5,291.25	5,291.20
I-C7a	10.72	5,298.86	5,293.94	5,293.94
J-C8	4.62	5,300.15	5,292.69	5,292.67
I-C7b	15.04	5,300.28	5,294.05	5,294.05
I-A9	1.31	5,298.00	5,294.20	5,294.20
J-A8	33.56	5,298.34	5,291.61	5,291.57
J-B2	4.62	5,299.06	5,292.72	5,292.71
I-PARK	5.92	5,298.30	5,291.63	5,291.63
I-A8	1.31	5,298.15	5,294.35	5,294.35
J-A7	26.33	5,298.24	5,291.77	5,291.75
I-B2	3.29	5,299.06	5,297.02	5,297.02
J-B3	1.33	5,299.58	5,292.73	5,292.73
I-A7	1.31	5,298.25	5,294.45	5,294.45
J-A6	25.02	5,298.84	5,292.55	5,292.42
J-B4	1.33	5,299.86	5,292.73	5,292.73
I-A6	1.31	5,298.32	5,294.52	5,294.52
J-A5	23.71	5,298.96	5,293.27	5,293.08
J-B5	1.33	5,300.31	5,292.73	5,292.73
J-A4	23.71	5,299.02	5,293.99	5,293.56
J-B6	1.33	5,300.43	5,292.74	5,292.74
J-A3	23.71	5,298.91	5,294.91	5,294.83
I-B6	1.33	5,299.60	5,295.87	5,295.87
J-A2	13.70	5,298.11	5,295.18	5,295.15
I-A3a	5.00	5,298.20	5,295.69	5,295.69
I-A3	5.01	5,298.20	5,295.91	5,295.91
J-A1	12.27	5,299.68	5,295.48	5,295.42
I-A2	1.43	5,299.47	5,296.34	5,296.34
I-A1a	6.14	5,299.47	5,296.89	5,296.89
I-A1	6.13	5,299.47	5,296.89	5,296.89

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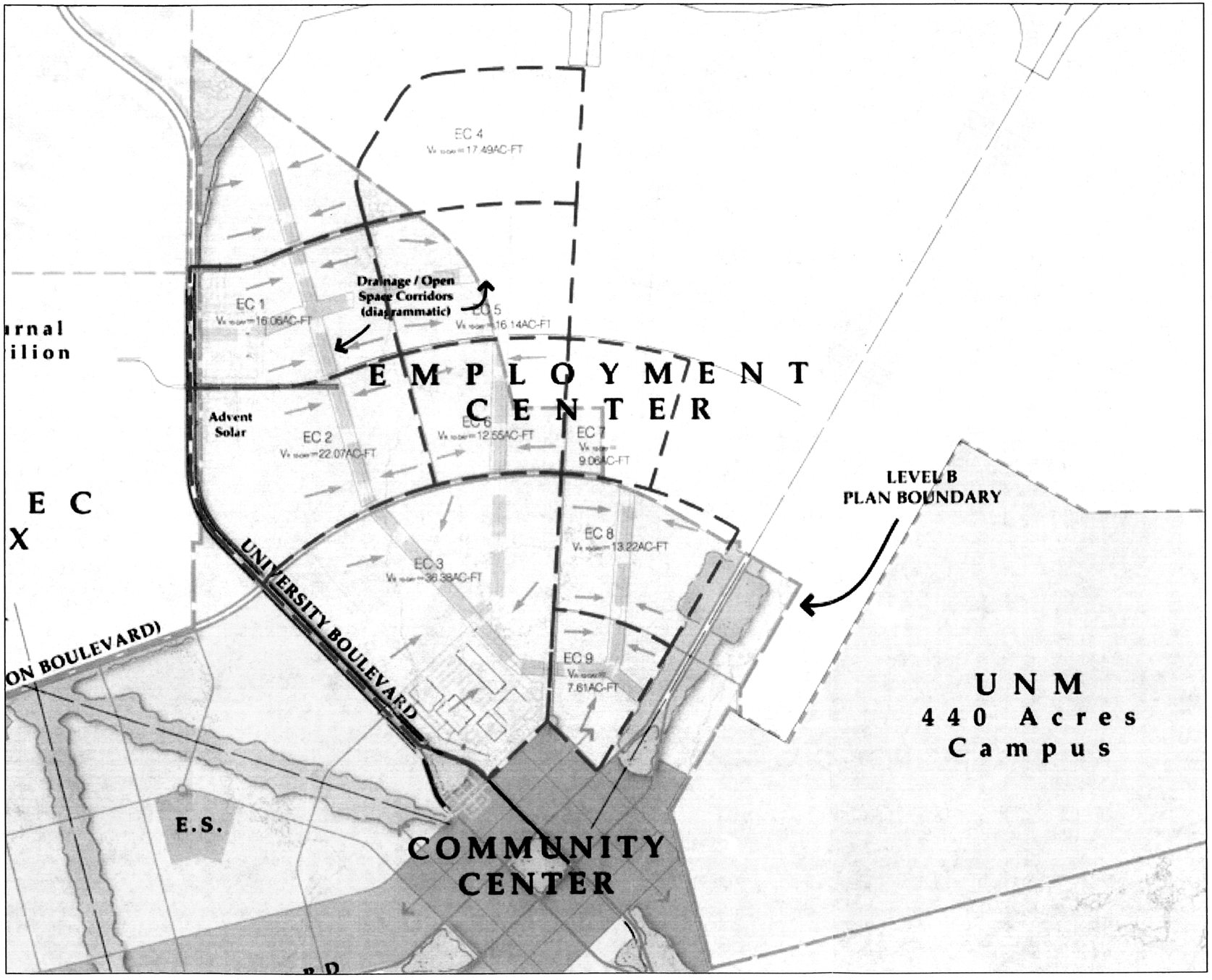
APPENDIX D



MESA TOP/COMMERCIAL
DRAINAGE PLAN

Figure 4A-10

Legend

- Drainage Basin
- Open Space/Regional Ponds
- Basin Flow Direction

RESIDENTIAL AREAS DRAINAGE MANAGEMENT PLAN

Figure 4A-11

Legend

Notes:

- Illustrative Only
- Storm drain system shown is intended to illustrate typical storm drain collection system and drip pond. Does not necessarily apply to final future subdivision planning

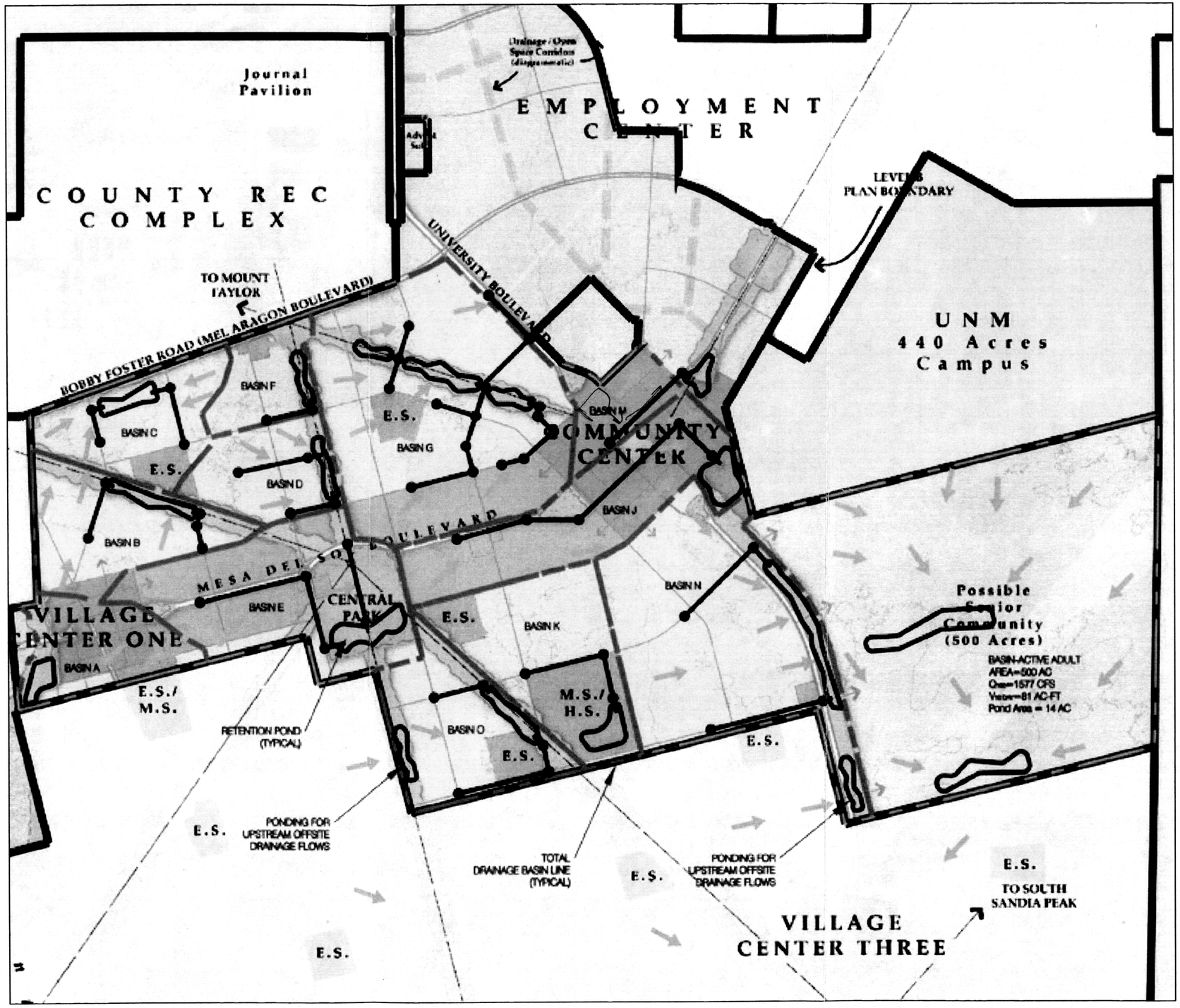
Total Drainage Basin

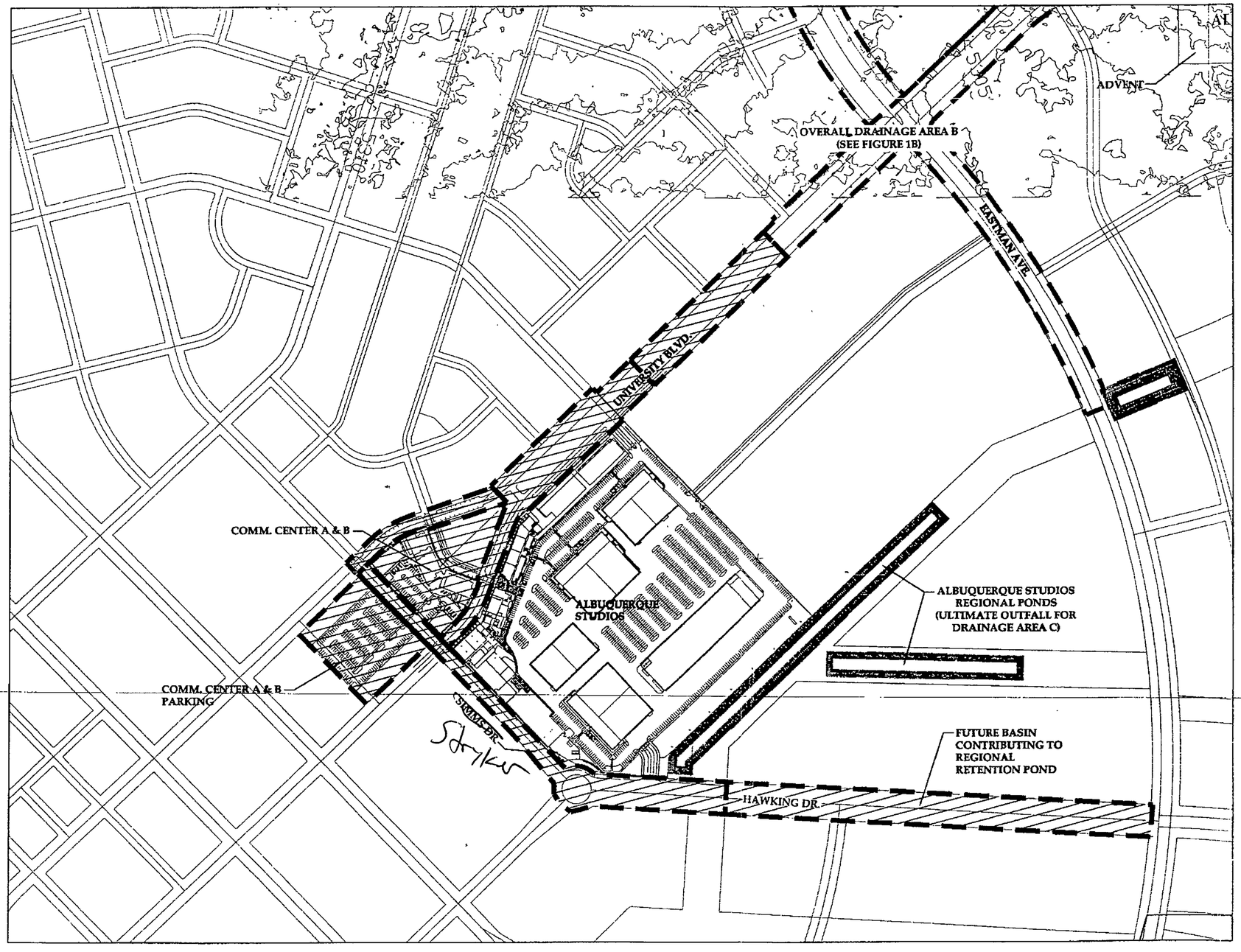
Drainage Subbasin

Storm Drain and Outfall

Basin Flow Direction

Drip Pond
(Retention Pond)





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February 21, 2007 - 4:53pm

ENGINEER'S SEAL

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

BENCH MARKS

1" ALUMINUM CAP, STAMPED BM 096-1
NAD 83, NAVD 88
NORTHING: 1,451,106.025, EASTING: 1,532,411.519
ELEVATION: 5336.020

AS-BUILT INFORMATION

CONTRACTOR DATE
STAKED BY DATE
INSPECTION'S DATE
RECOMMENDED BY DATE
FIELD
INSPECTION BY DATE
APPROVED
CORRECTED BY DATE

MICROFILM INFORMATION

RECORDED BY DATE
NO

No.	Date	REMARKS	By
		REVISIONS	
		DESIGN	
		Designed By:	DATE:
		Drawn By:	DATE:
		Checked By:	DATE:

Bohannan ▲ Huston
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

FIGURE 4
(UPDATED) OVERALL DRAINAGE AREA C

Last Design Update	No./Dsy/Yr.	No./Dsy/Yr.

Zone Map No. R-13

Sheet 4 Of

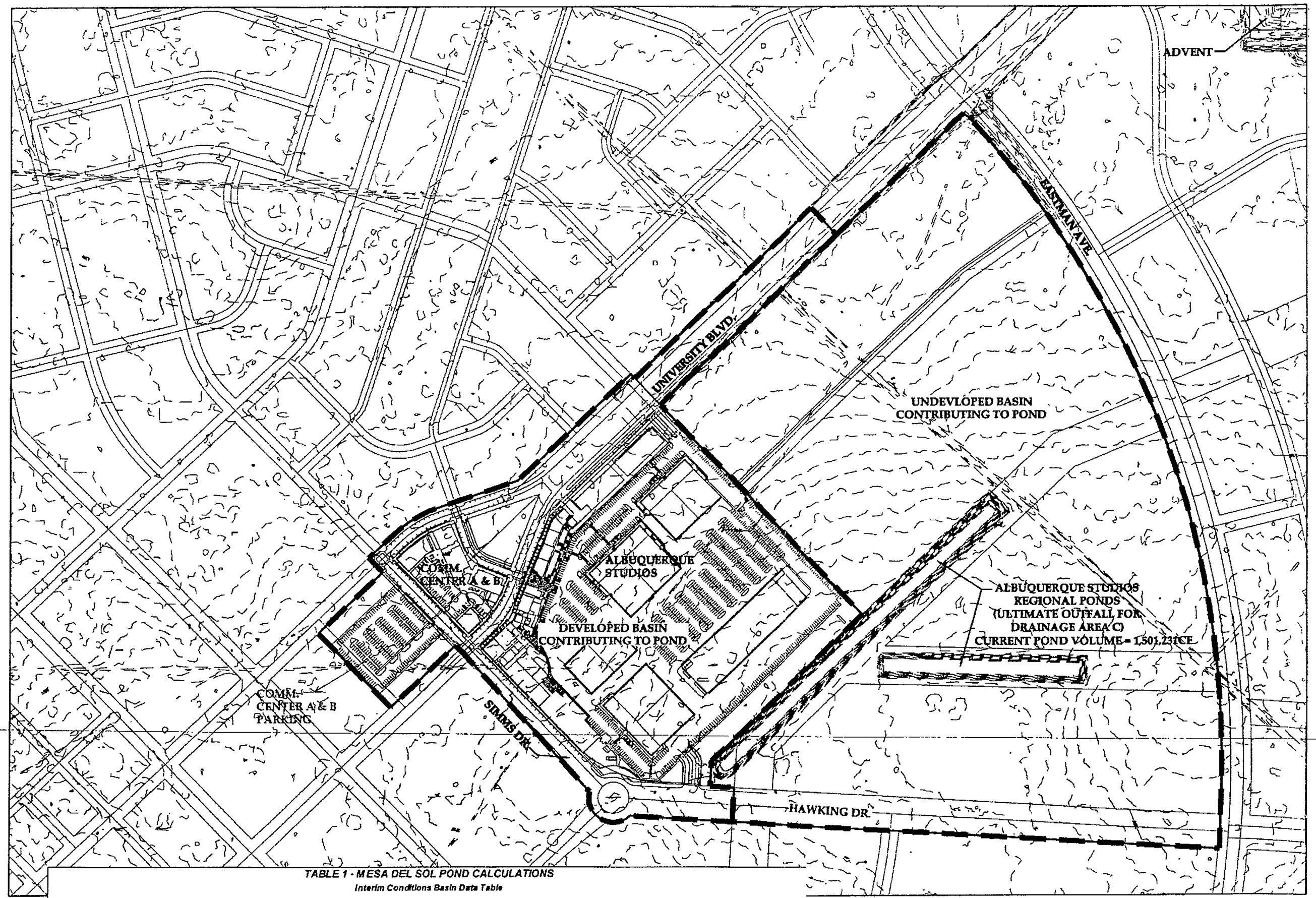

TABLE 1 - MESA DEL SOL POND CALCULATIONS

Interim Conditions Basin Data Table

This table is based on the DPM Section 22.2, Zone. 2

BASIN ID	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages A	B	C	D	Q(100) (cfs/ac.)	Q(100) (cfs)	WTE (inches)	$V(100)_{360}$ (CF)	$V(100)_{10day}$ (CF)
Developed	2000588	45.93	0.0%	10.0%	0.0%	90.0%	4.5	204.7	1.99	331097	571168
Undeveloped	3986172	91.51	90.0%	10.0%	0.0%	0.0%	1.6	149.3	0.56	184360	184360
TOTAL	5986760	137.44						354.1		515456	755528
CURRENT POND VOLUME =	1,501,231CF	>	755,528CF								

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February 21, 2007 - 4:25pm

BENCH MARKS

2" ALUMINUM CAP, STAMPED BM 099-1
NAD 83, NAVD 88
NORTHING: 1,451,106.005, EASTING: 1,532,413.519
ELEVATION: 5298.020

AS-BUILT INFORMATION

CONTRACTOR DATE
WORK STAKED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWING CORRECTED BY DATE

MICROFILM INFORMATION

RECORDED BY DATE
NO.

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

SEAL

ENGINEER'S SEAL

No.	Date	By	REMARKS
			REVISIONS
			DESIGN
			Designed By: DATE:
			Drawn By: DATE:
			Checked By: DATE:

Bohannan ▲ Huston

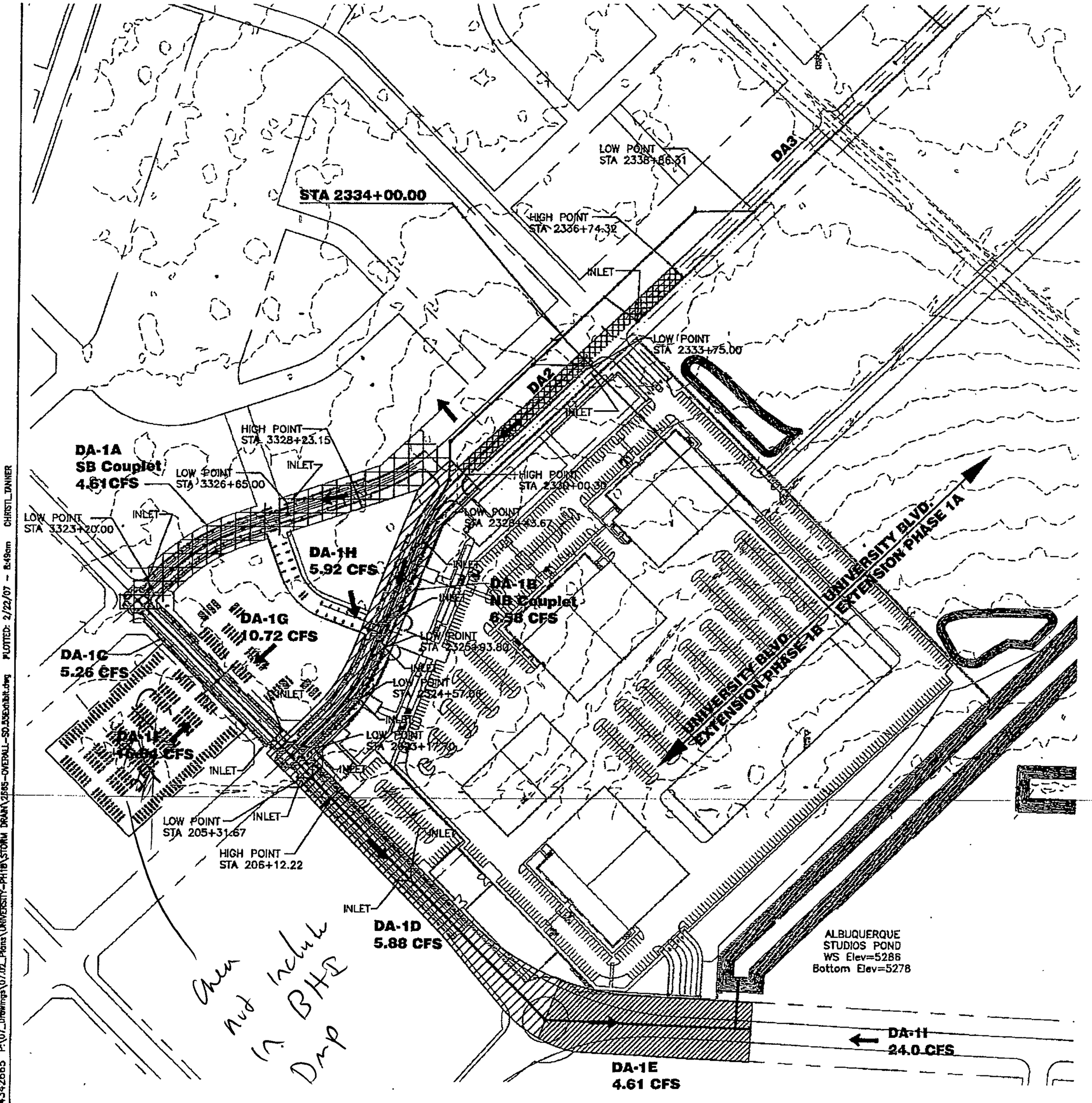
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

FIGURE 5
REGIONAL RETENTION POND VOLUME CALCULATIONS

Last Design Update: Mo./Day/Yr. Mo./Day/Yr.

Zone Map No. R-13

Sheet 5 Of



DA	STATIONS	STATION	AREA (ACRES)	Q10 (CFS)	Q100 (CFS)	AREA (ACRES)	Q10 (CFS)	Q100 (CFS)
1A	3322+74.00 TO 3328+23.15	3323+20.00	---	---	---	0.98	3.08	4.61
		3326+65.00						
		3333+74.91						
1B	2322+50.00 TO 2330+00.30	2323+17.70	---	---	---	1.40	4.40	6.58
		2324+57.06						
		2325+93.80						
		2328+43.67						
1C	200+00.00 TO 206+12.22	205+31.67	---	---	---	1.12	3.52	5.26
1D	206+12.22 TO 212+93.00	--------	---	---	---	1.25	3.93	5.88
1E	212+93.00 to 218+00	--------	---	---	---	0.98	3.08	4.61
1F	Parking Lot South of Simms Drive	--------	---	---	---	3.20	10.05	15.04
1G	Buildings A&B of Community Center	--------	---	---	---	2.28	7.16	10.72
1H	Community Center Park And Plaza Road	--------	---	---	---	1.26	3.96	5.92
1I	North of Hawking Drive Future Phase	--------	---	---	---	5.10	16.03	24.00
2	2330+00.30 TO 2336+74.32	2333+75.00	1.22	3.82	5.72	2.43	7.65	11.44
3	2336+74.32 TO 2344+63.96	2338+86.31	1.31	4.10	6.13	2.61	8.20	12.27

NOT TO SCALE

ENGINEER'S SEAL

SURVEY INFORMATION
FIELD NOTES

No.	By	Date

BENCH MARKS

ACS 3-1/4" ALUMINUM CAP RIVETED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-0-14, 1987", FROM THE RIO BRAVO BLVD AND BROADWAY INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE.

STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1460471.432, E=1521368.180 (GROUND) ELEVATION=4981.17

AS BUILT INFO

CONTRACTOR
WORK STAKED BY
SURVEYANCE BY
PLOTTED BY
CONSTRUCTION BY
CORRECTED BY

MICRO-FILM INF

RECORDED BY

No.	Remarks	By	Date
	REVISIONS		
	DESIGN	CR	10/06
	Designed By	URS	10/06
	Drawn By	BPB	10/06
	Checked By		

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE: **UNIVERSITY BLVD. EXTENSION PHASE 1B OVERALL DRAINAGE AREA MAP**

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr.	Mo./Day/Yr.

City Project No.	Zone Map No	Sheet	Of
775482	R-16, S-16		

Figure 6

24342665 P:\07_Drawings\07.02_Plans\UNIVERSITY-PH1B\STORM DRAIN\2665-OVERALL-50.35Exhibit.dwg PLOTTED: 2/22/07 - 8:49am CHRISTL_TANNER

REMOVE BEND, SECTION OF PIPE AND OUTLET STRUCTURE. PHASE 1A STA 1333+68 PHASE 1B STA 2333+68

TIE INTO EXISTING 30" SD STA 2333+80.00

2. ALL STORM DRAIN PIPE WILL BE CLASS IV RCP PIPE

STA 2333+09.42, 6.0' RT BUILD 10LF 18" WITH CAP & EMD FOR FUTURE CONNECTION

8" PLUG INV. 5292.89

MHA-3 2333+00 XX.XX LT

EXISTING MHA-2 PHASE 1A STA 1335+17.73 = PHASE 1B STA 2335+17.73

8"SAS

12" WATER

24" SAS

12" WATER

MHA-5 2329+89.00 XX.XX LT

MHA-4 2330+50.00 XX.XX LT

MHA-6 2328+28.00 XX.XX RT

UNIVERSITY BLVD

STA 2326+14 24" STUBOUT FOR FUTURE CONNECTION 38.80' LT INV. OF PLUG 5286.52

MHA-7 2326+55.00 XX.XX RT

MHA-11 STA 2322+73.70 University NB COUPLET MHC-5 STA 204+83.00 SIMMS DRIVE

MHA-8 2325+75.00 XX.XX RT

12" WATER

MHA-10 2323+09.80 XX.XX RT

MHA-9 2324+47.00 XX.XX RT

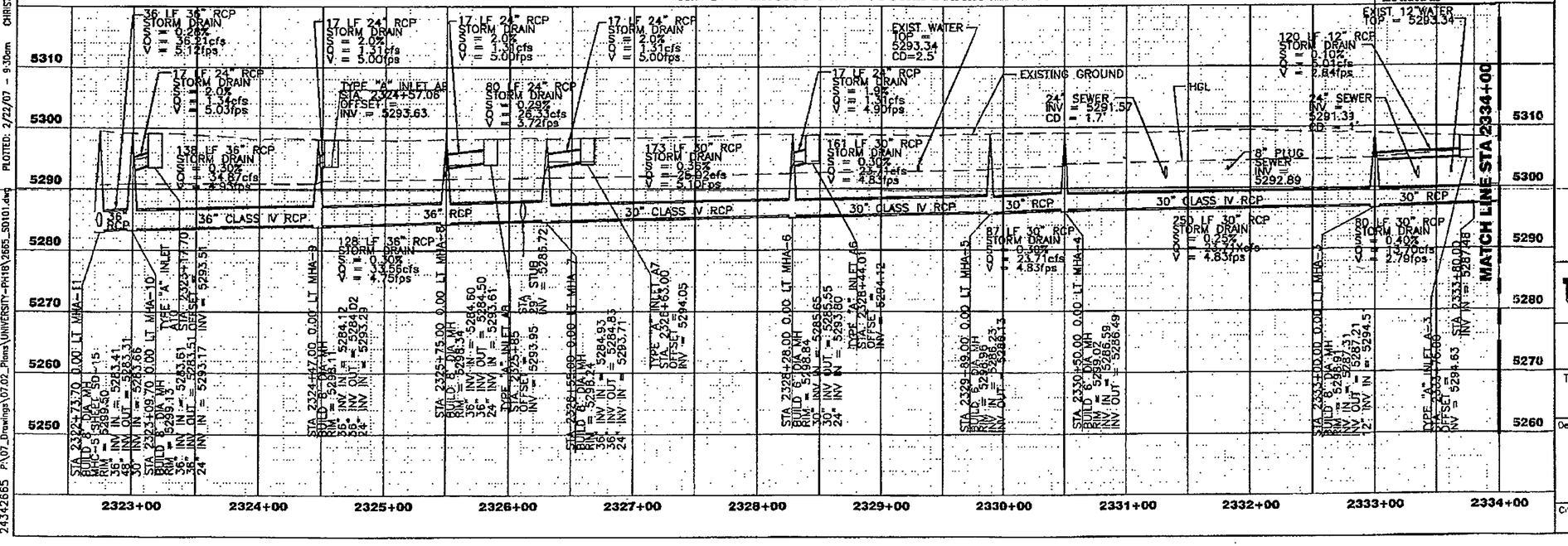
MATCH LINE STA 2334+00

KEYED NOTES

1. TYPE "A" DOUBLE WING INLET SEE SHEET SD-_
2. TYPE "C" MANHOLE PER COA STD DWG 2101 FOR DEPTHS < 6'. TYPE "E" MANHOLE PER COA STD DWG 2102 FOR DEPTHS > 6'
3. TYPE "A" INLET PER COA STD DWG 2201
4. PROTECT AND SUPPORT EXISTING 24" WATERLINE
5. DRAINAGE EASEMENT REF NO. 2006173798 RECORDED 17 NOV 2006 BOOK: A127 PAGE: 3321
6. EXISTING EASEMENT REF NO:2006092610 RECORDED 06 JUN 2006 BOOK: 2006C PAGE: 197

Elevations are in INTERIM NAVD 88 DATUM. To convert from INTERIM NAVD 88 to NGVD 29 subtract 2.83 feet. All Elevations in ( ) are NGVD 29

NB UNIVERSITY BLVD STORM DRAIN LINE "A"



GRAPHIC SCALE IN FEET

50 0 50 100

HORIZONTAL GRAPHIC SCALE IN FEET

10 0 10 20

VERTICAL

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

CITY OF ALBUQUERQUE

DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE: **UNIVERSITY BLVD. EXTENSION - PHASE 1B STORM DRAIN PLAN AND PROFILE STA 2322+73.70 TO STA 2334+00**

Design Review Committee | City Engineer Approval | Last Design Update

City Project No.	Zone Map No.	Sheet	Of	
775482	R-16, S-16	0		SD-13

AS BUILT INFORMATION

CONTRACTOR

WORK STAKED BY

WORK INSPECTED BY

FIELD VERIFICATION BY

DRAWINGS CORRECTED BY

MICRO-FILM INFO

RECORDED BY

BENCH MARKS

ACS 3-1/4" ALUMINUM CAP RIVETED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-0-14, 1987", FROM THE RIO BRAVO BLVD AND BROADWAY INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE.

STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1460471.432, E= 1521388.780 (GROUND) ELEVATION=4981.17

SURVEY INFORMATION

FIELD NOTES

No.	By	Date

ENGINEER'S SEAL

No.	Remarks	By	Date
	REVISIONS		
	DESIGN		10/06
Designed By		URS	10/06
Drawn By			10/06
Checked By			

PLOTTED: 2/22/07 - 9:30am CHRISTL_TANNER

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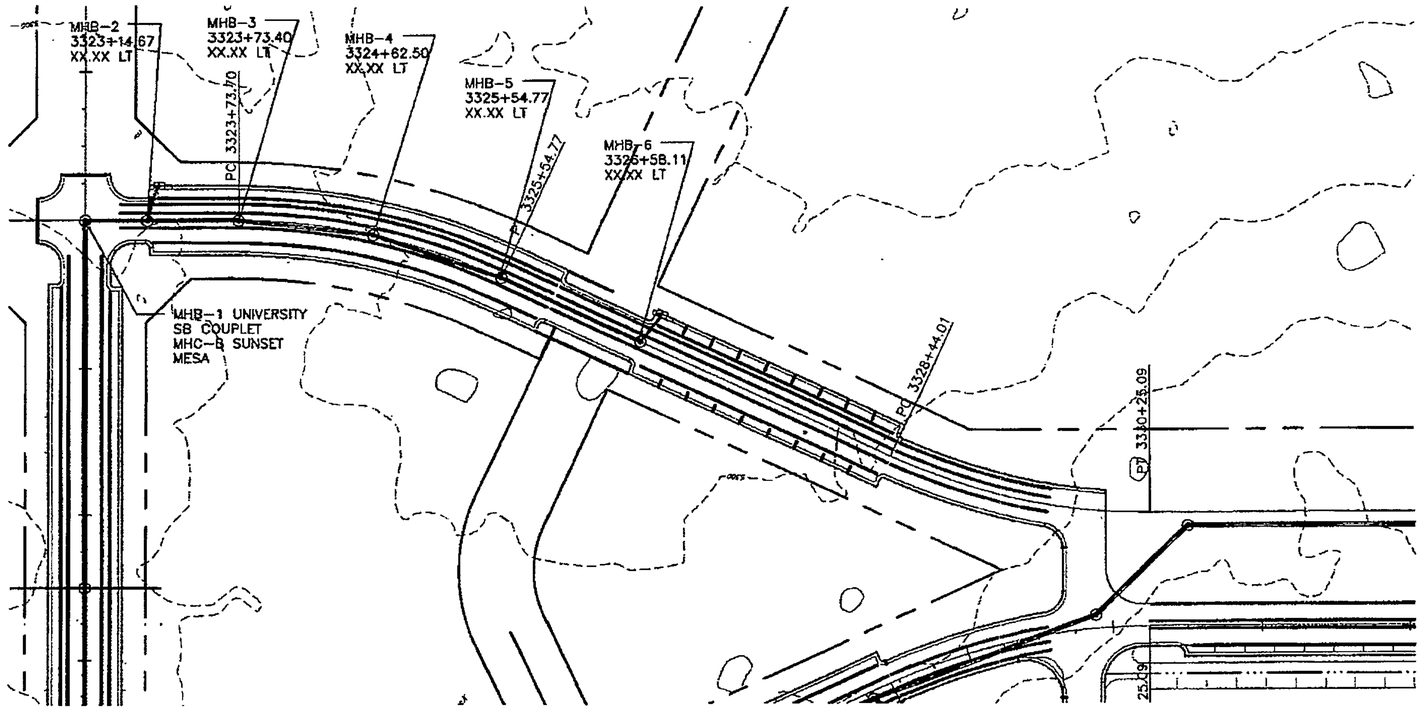
24342665

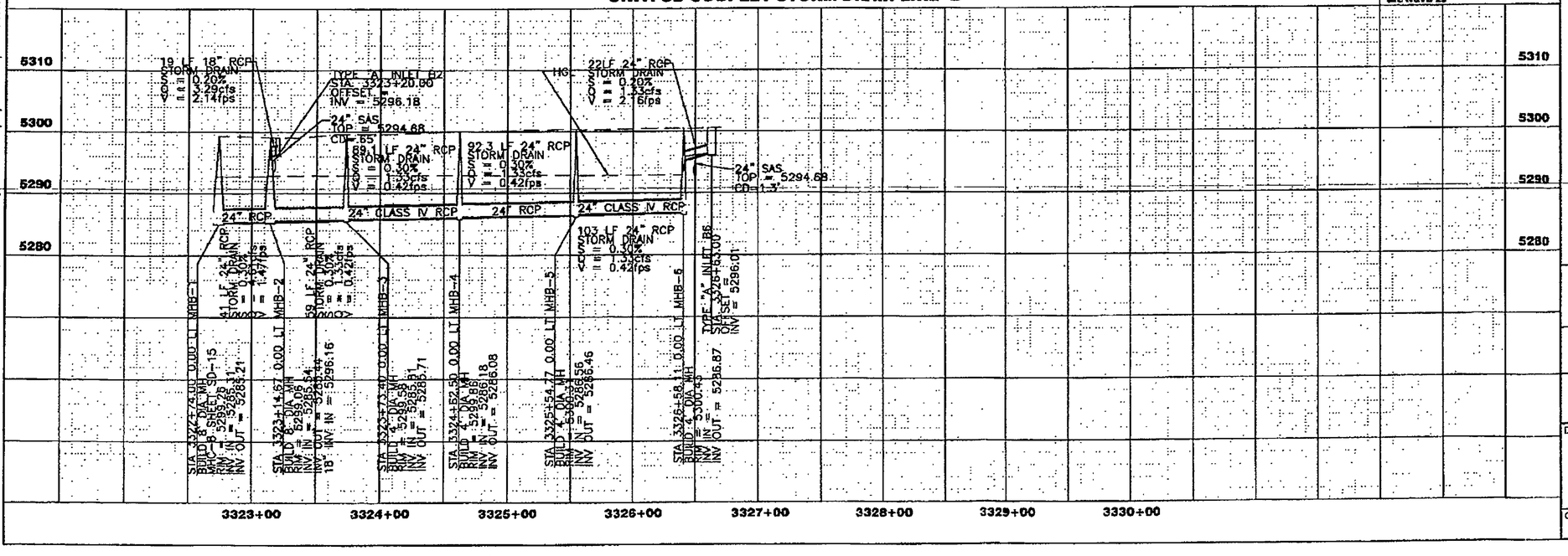


2. ALL STORM DRAIN PIPE WILL BE CLASS IV RCP PIPE

KEYED NOTES

1. TYPE "A" DOUBLE WING INLET SEE SHEET SD-_
2. TYPE "C" MANHOLE PER COA STD DWG 2101 FOR DEPTHS < 6'. TYPE "E" MANHOLE PER COA STD DWG 2102 FOR DEPTHS > 6'
3. TYPE "A" INLET PER COA STD DWG 2201
4. PROTECT AND SUPPORT EXISTING 24" WATERLINE
5. OUTFALL WITH EROSION CONTROL SEE SHEET __-__
6. WEST POND OUTLET SEE SHEET SD-_
7. POND OUTLET STRUCTURE, SEE _____
8. DRAINAGE EASEMENT REF NO. 2006173798 RECORDED 17 NOV 2006 BOOK: A127 PAGE: 3321
9. EXISTING EASEMENT REF NO:2006092610 RECORDED 06 JUN 2006 BOOK: 2006C PAGE: 197

UNIV. SB COUPLET STORM DRAIN LINE "B"



Elevations are in INTERIM NAVD 88 DATUM. To convert from INTERIM NAVD 88 to NGVD 29 subtract 2.53 feet. All Elevations in [] are NGVD 29

GRAPHIC SCALE IN FEET
50 0 50 100
HORIZONTAL GRAPHIC SCALE IN FEET
10 0 10 20
VERTICAL

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

AS BUILT INFOR
CONTRACTOR
WORK INSPECTED BY
INSPECTION ACCEPTANCE BY
FIELD LOCATION BY
DRAWINGS CORRECTED BY
MICRO-FILM INFO
RECORDED BY

BENCH MARKS
ACS 3-1/4" ALUMINUM CAP RIVETED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-0-14, 1987", FROM THE RIO BRAVO BLVD AND BROADWAY INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE.
STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1460471.432, E=1521388.780 (GROUND) ELEVATION=4981.17

SURVEY INFORMATION
FIELD NOTES

No.	By	Date

ENGINEER'S SEAL

No.	Remarks	By	Date
	REVISIONS		
	DESIGN		10/06
	Designed By		10/06
	Drawn By	URS	10/06
	Checked By		

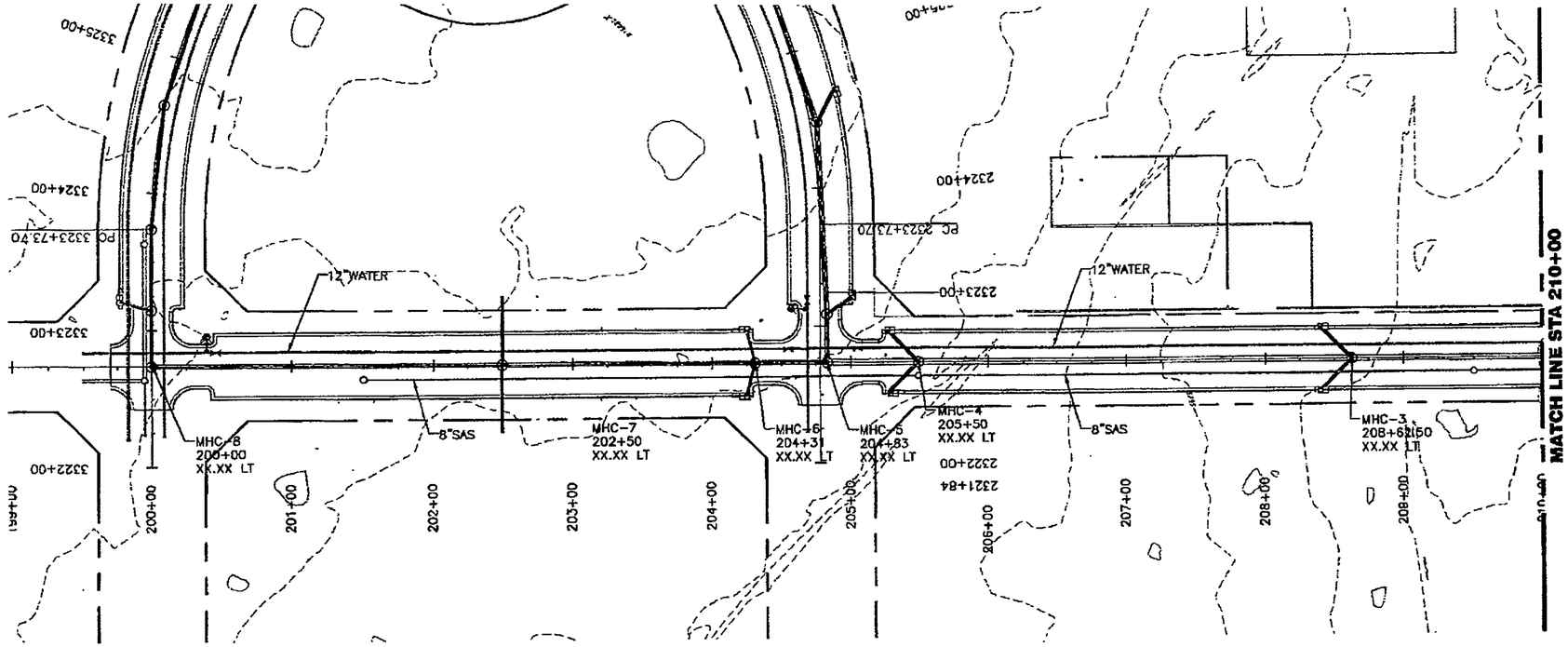
CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE: UNIVERSITY BLVD. EXTENSION - PHASE 1B
STORM DRAIN PLAN AND PROFILE
STA 0000+00 TO STA 0000+00

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr.	Mo./Day/Yr.

City Project No.	Zone Map No.	Sheet	Of	
775482	R-16, S-16	0		SD-14

PLOTTED: 2/21/07 - 2:19pm CHRIST_TANNER
P:\07_Drawings\07.02_Plans\UNIVERSITY-PH1B\2665_SD102.dwg
24342665



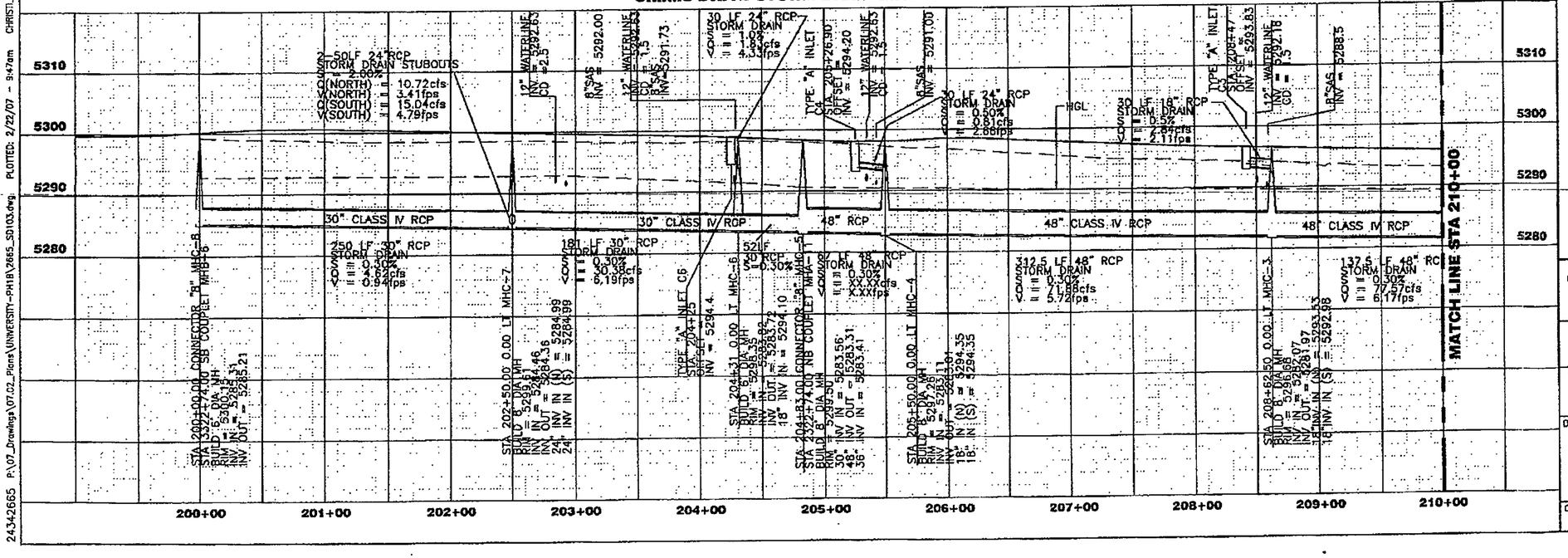
2. ALL STORM DRAIN PIPE WILL BE CLASS IV RCP PIPE

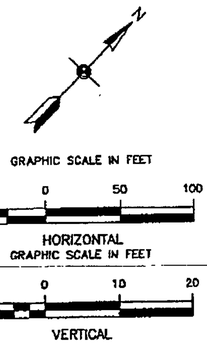
KEYED NOTES

1. TYPE "A" DOUBLE WING INLET SEE SHEET SD-_
2. TYPE "C" MANHOLE PER COA STD DWG 2101 FOR DEPTHS < 8'. TYPE "E" MANHOLE PER COA STD DWG 2102 FOR DEPTHS > 6'
3. TYPE "A" INLET PER COA STD DWG 2201
4. PROTECT AND SUPPORT EXISTING 24" WATERLINE
5. OUTFALL WITH EROSION CONTROL SEE SHEET __-__
6. WEST POND OUTLET SEE SHEET SD-_
7. POND OUTLET STRUCTURE, SEE _____
8. DRAINAGE EASEMENT REF NO. 2006173798 RECORDED 17 NOV 2006 BOOK: A127 PAGE: 3321
9. EXISTING EASEMENT REF NO:2006092610 RECORDED 06 JUN 2006 BOOK: 2006C PAGE: 197

SIMMS DRIVE STORM DRAIN LINE "C"

Elevations are in INTERIM NAVD 88 DATUM. To convert from INTERIM NAVD 88 to NGVD 29 subtract 2.63 feet. All Elevations in () are NGVD 29





URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE: **UNIVERSITY BLVD. EXTENSION - PHASE 1B STORM DRAIN PLAN AND PROFILE STA 200+00 TO STA 210+00**

Design Review Committee	City Engineer Approval	Last Design Update	mo/day/yr.

City Project No.	Zone Map No.	Sheet	Of	
775482	R-16, S-16	0		SD-15

AS BUILT INFORMATION
CONTRACTOR
WORK STAKED BY
INSPECTED BY
FIELD VERIFICATION BY
CORRECTED BY
RECORDED BY
MICRO-FILM IN

BENCH MARKS
ACS 3-1/4" ALUMINUM CAP RIVETED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-0-14, 1987". FROM THE RIO BRAVO BLVD AND BROADWAY INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE.
STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1460471.432, E=1521388.180 (GROUND) ELEVATION=4981.17

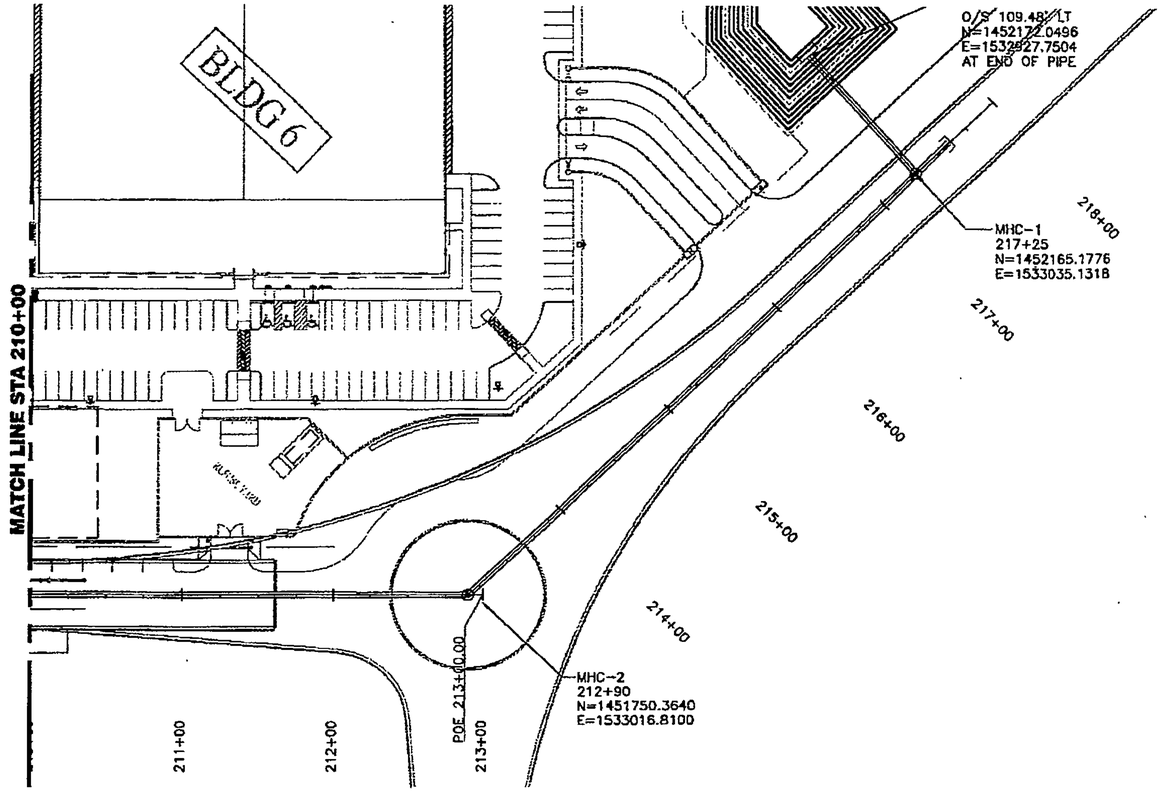
SURVEY INFORMATION
FIELD NOTES

No.	By	Date

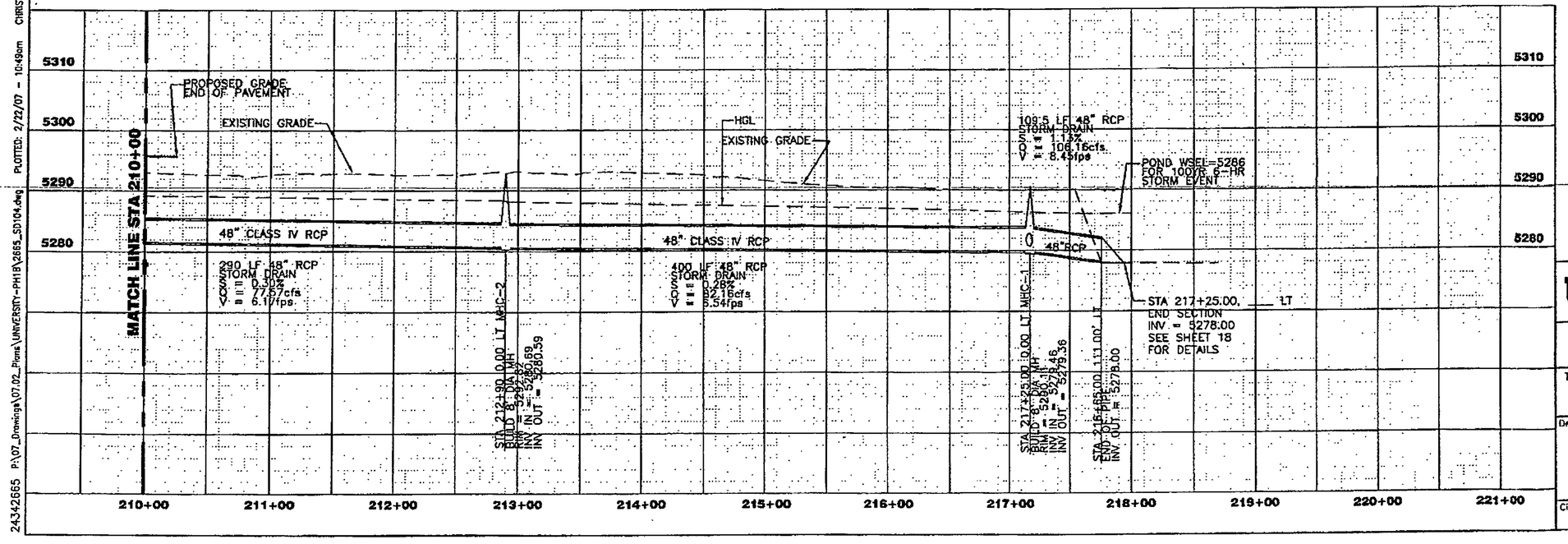
ENGINEER'S SEAL

No.	Remarks	By	Date
	REVISIONS		
	DESIGN		10/06
Designed By		URS	10/06
Drawn By			10/06
Checked By			

PLOTTED: 2/22/07 - 9:47am CHRISTI_TANNER
P:\07_Drawings\07.02_Plans\UNIVERSITY-PH1B\2665_SD103.dwg
24342665



SIMMS DRIVE STORM DRAIN LINE "C"



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6. WEST POND OUTLET SEE SHEET SD-_
7. POND OUTLET STRUCTURE, SEE ___
8. DRAINAGE EASEMENT
   REF NO. 2008173798
   RECORDED 17 NOV 2006
   BOOK: A127
   PAGE: 3321
9. EXISTING EASEMENT
   REF NO:2006092610
   RECORDED 06 JUN 2006
   BOOK: 2006C
   PAGE: 197

AS BUILT INFO
CONTRACTOR
WORK STAKED BY
ACCEPTANCE BY
FIELD LOCATION BY
DRAWINGS CORRECTED BY

BENCH MARKS
ACS 3-1/4" ALUMINUM CAP RIVETED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-0-14, 1987", FROM THE RIO BRAVO BLVD AND BROADWAY INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE.
MICRO-FILM INFO
RECORDED BY
STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1460471.432, E=1521388.780 (GROUND) ELEVATION=4981.17

SURVEY INFORMATION
FIELD NOTES
No. | By | Date

ENGINEER'S SEAL

GRAPHIC SCALE IN FEET
50 0 50 100
HORIZONTAL GRAPHIC SCALE IN FEET
10 0 10 20
VERTICAL

No.	Remarks	By	Date
	REVISIONS		
	DESIGN		10/06
	Designed By	URS	10/06
	Drawn By		10/06
	Checked By		10/08

URS
ONE PARK SQUARE
6501 AMERICAS PARKWAY, NE
SUITE 900
ALBUQUERQUE, NM 87110
(505) 855-7500

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

TITLE: **UNIVERSITY BLVD. EXTENSION - PHASE 1B**
PLAN AND PROFILE
STA 210+00 TO STA 218+00

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr.	Mo./Day/Yr.

City Project No.	Zone Map No.	Sheet	Of	
775482	R-16, S-16	0		SD-16

PLOTTED: 2/22/07 - 10:49am CHRISTL_TANNER
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24342665

CITY OF ALBUQUERQUE

March 26, 2012

Steven K. Marrow, P.E. stevem@brasherlorenz.com
Brasher & Lorenz Consulting Engineers
2201 San Pedro NE Bldg 1 Ste. 1300
Albuquerque, NM 87110

Re: NEDO—Abq Micro Grid, 2660 Stryker Crossing SE,
Request for Permanent C.O. - Approved
Engineer's Stamp dated: 06-15-11, (R16/D004)
Certification dated: 03-19-12

Dear Mr. Marrow,

Based upon the information provided in the Certification received 03-19-12, the above referenced Certification is approved for a release of a Permanent Certificate of Occupancy by Hydrology.

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: CO Clerk—Katrina Sigala
File

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV 04/2009)

PROJECT TITLE: NEDO – ABQ MICRO GRID — ZONE MAP: R-16/D004
DRB#: _____ EPC#: _____ — WORK ORDER#: N/A

LEGAL DESCRIPTION: TRACT A, BLOCK O, TOWN CENTER
CITY ADDRESS: 2660 STRYKER CROSSING SE 87105

ENGINEERING FIRM: BRASHER & LORENZ, INC. — CONTACT: Dennis Lorenz
ADDRESS: 2207 SAN PEDRO NE, BUILDING 1, SUITE 1300 — PHONE: 888-6088
CITY, STATE: ALBUQUERQUE, NEW MEXICO — ZIP CODE: 87110

OWNER: FOREST CITY COVINGTON LLC — CONTACT: Manuel Barrera
ADDRESS: 5700 WEST UNIVERSITY BLVD SE SUITE 310 — PHONE: 505-452-2600
CITY, STATE: ALBUQUERQUE, NM — ZIP CODE: 87106

ARCHITECT: JON ANDERSON ARCHITECTURE — CONTACT: Jarrod Arillano
ADDRESS: 912 ROMA AVE NW — PHONE: 505-764-8306
CITY, STATE: ALBUQUERQUE, NM — ZIP CODE: 87102

SURVEYOR: BRASHER & LORENZ, INE — CONTACT: Lenore Armijo
ADDRESS: 2201 SAN PEDRO NE, BUILDING 1, SUITE 1200 — PHONE: 888-6088
CITY, STATE: ALBUQUERQUE, NEW MEXICO — ZIP CODE: 87110

CONTRACTOR: SHIMIZU NA LLC — CONTACT: ROBT. MULHAIR
ADDRESS: 5700 UNIVERSITY WEST BLVD SE — PHONE: _____
CITY, STATE: SUITE 320 ALBUQ. NM 87106 — ZIP CODE: _____

TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1st SUBMITTAL
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
X ENGINEER'S CERT (HYDROLOGY)
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT
_____ ENGINEER'S CERT (TCL)
_____ ENGINEER'S CERT (DRB SITE PLAN)
_____ 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
_____ BUILDING PERMIT APPROVAL
X CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
_____ GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ GRADING CERTIFICATION
_____ OTHER (SPECIFY) SO-19

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

DATE SUBMITTED: 3-19-12 BY: STEVE MORRIS

RECEIVED
MAR 19 2012
HYDROLOGY SECTION

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 defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (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.

Cherne, Curtis

From: Steve Morrow [stevem@brasherlorenz.com]
Sent: Friday, November 14, 2008 9:31 AM
To: Cherne, Curtis
Subject: Community Center Parking Lot
Attachments: block F0001.pdf; ArchSign-OffFormMdSInnovationPark.doc

Curtis:

Attached is the Archaeological Clearance for First Neighborhood and Innovation Park. This clearance includes Block F but not Block O.

I am requesting a grading and paving permit for Block F only. Block F is the area bounded by East University on the east, West University on the west, Stryker on the north and Scorcese on the south as shown on the attached drawing.

I will send you the Archaeological Clearance for Block O when I receive it. No work will take place on Block O until I receive the archaeological clearance.

Thank you very much.

Steve Morrow
Brasher and Lorenz, Inc.

No virus found in this outgoing message. Checked by AVG. Version: 7.5.549 / Virus Database: 270.9.3/1786 - Release Date: 11/13/2008 6:01 PM

WEST UNIVERSITY BLVD

FUTURE SIDEWALK

FUTURE SHOPS

FUTURE GROCERY STORE

FUTURE CAFE

TRACT 24
BLOCK F

TRACT 24

FUTURE SCORCESE AVE

FUTURE SIDEWALK

FUTURE SIDEWALK

EAST UNIVERSITY BLVD

EXISITING STRYKER ROAD

8' SIDEWALK THIS PROJECT

Scale 1"=20'

LEGAL DESCRIPTION

MESA DEL SOL
COMMUNITY CENTER
PARKING BLOCK F & O
ALBUQUERQUE, NEW MEXICO

DATE
SEPTEMBER 9, 2005
SHEET TITLE
SITE PLAN
SHEET NUMBER
SHEET 2 OF 11

URS
6501 americas parkway ne
suite 600
albuquerque, nm 87110
505 856 7900 p
505 856 7551 f

landscape architect
heads up
po box 10387
albuquerque, nm 87184
505 898 9615 p
505 898 2105 f

CITY OF ALBUQUERQUE

December 8, 2008

James D. Hughes, P.E.
URS Corp
6501 Americas Parkway NE #900
Albuquerque, NM 87110

Re: Mesa Del Sol Community Center Parking Block F &O Grading Plan
Engineer's Stamp dated 11-12-08 (R16/D004)

Dear Mr. Hughes,

Based upon the information provided in your submittal received 11-13-08, the above referenced plan is approved for Grading Permit and Paving Permit.

Upon completion of the project, provide an Engineer Certification for our files.

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

Sincerely,

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

Copy: file

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

CITY OF ALBUQUERQUE

November 19, 2008

James D. Hughes, P.E.
URS Corp
6501 Americas Parkway NE #900
Albuquerque, NM 87110

Re: Mesa Del Sol Community Center Parking Block F &O Grading Plan
Engineer's Stamp dated 11-12-08 (R16/D004)

Dear Mr. Hughes,

Based upon the information provided in your submittal received 11-13-08, the above referenced plan is approved for Grading Permit and Paving Permit for the area within the platted Innovation Park which appears on Sheet 6 of the above referenced plan.

Another Grading Permit and Paving Permit will be issued when archeological clearance is received for the remainder of the site. Another plan is not required.

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

Sincerely,

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

Copy: file

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

Cherne, Curtis

From: Chris_Rosol@URSCorp.com
Sent: Wednesday, November 19, 2008 12:14 PM
To: Cherne, Curtis
Cc: mbarrera@fcmds.com; stevem@brasherlorenz.com
Subject: Mesa del Sol, Parking blocks F and O

Curtis,

I understand Manny has provided both a letter and map indicating that archeological clearances have been obtained for Parking Block F. Understanding that such clearances have not been obtained for Block O, would it be possible to get the necessary grading permit to begin on Block F only?

If you have any questions or need further assistance, please feel free to ring me.
Christopher Rosol, P.E.
URS Corporation
6501 Americas Parkway NE
Albuquerque NM, 87110
Main: 505-855-7500
Direct: 505-855-7473
Fax: 505-855-7555

This e-mail and any attachments are confidential If you receive this message in error or are not the intended recipient, you should not retain, distribute, disclose or use any of this information and you should destroy the e-mail and any attachments or copies

CITY OF ALBUQUERQUE

To: Chris. Rosol
FAX: 855-7555
from: curtis cherne

November 19, 2008

James D. Hughes, P.E.
URS Corp
6501 Americas Parkway NE #900
Albuquerque, NM 87110

Re: Mesa Del Sol Community Center Parking Block F &O Grading Plan
Engineer's Stamp dated 11-12-08 (R16/D004)

Dear Mr. Hughes,

Based upon the information provided in your submittal received 11-13-08, the above referenced plan is approved for Grading Permit and Paving Permit for the area within the platted Innovation Park which appears on Sheet 6 of the above referenced plan.

Another Grading Permit and Paving Permit will be issued when archeological clearance is received for the remainder of the site. Another plan is not required.

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

Sincerely,

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

Copy: file

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 12/2005)

PROJECT TITLE: MDS Community CTR F&O ZONE MAP: R16-D004

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

LEGAL DESCRIPTION: _____

CITY ADDRESS: _____

ENGINEERING FIRM: URS CONTACT: Chris Rosol

ADDRESS: _____ PHONE: 855-7423

CITY, STATE: _____ ZIP CODE: _____

OWNER: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

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
__X__ GRADING PLAN (2)
_____ EROSION CONTROL PLAN
_____ ENGINEER'S CERT (HYDROLOGY)
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT
_____ ENGINEER'S CERT (TCL)
_____ ENGINEER'S CERT (DRB SITE PLAN)
_____ 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
_____ BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
__X__ GRADING PERMIT APPROVAL
__X__ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

__X__ YES (Tom 11-12-18)
_____ NO
_____ COPY PROVIDED

RECEIVED
NOV 13 2018
HYDROLOGY

DATE SUBMITTED: _____ BY: _____

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope 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 following:

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

City of Albuquerque

P.O. Box 1293 Albuquerque, New Mexico 87103

Planning Department

Martin J. Chavez, Mayor **Richard Dineen, Director**

Interoffice Memorandum

April 14, 2008

Subject: Albuquerque Archaeological Ordinance—Compliance Documentation

Project Number(s):
Case Number(s):
Agent:
Applicant: **Forest City Covington**
Legal Description: **SW ¼ of Section 15; NW ¼ and NE ¼ and SW ¼ and SE ¼ of Section 22; NW ¼ of Section 27, Township 9 North, Range 3 East (NMPM)**
Acreage: **416 acres**
Zone Atlas Page: **Q-16/R-16/S-16**

CERTIFICATE OF APPROVAL: Yes __X__ No _____

CERTIFICATE OF NO EFFECT: Yes ____ No _____

SUPPORTING DOCUMENTATION:
A Class I and Class III Cultural Resource Survey of 168.4 Hectares (416 Acres) for the Proposed Innovation Park and First Neighborhood Developments on Mesa del Sol, Albuquerque, Bernalillo County, NM by Quirolo, Brown, and Brown (Kenneth Brown PhD, P.I.) NMCRIS#109747.

CERTIFICATE OF NO EFFECT IS ISSUED (ref O-07-72 Section 4B(1)-- no significant sites in project area)

SUBMITTED:
Matthew Schmader, PhD
Superintendent, Open Space Division
Acting City Archaeologist

City of Albuquerque

P.O. Box 1293 Albuquerque, New Mexico 87103

Planning Department

Martin J. Chavez, Mayor **Richard Dineen, Director**

Interoffice Memorandum

December 5, 2008

Subject: Albuquerque Archaeological Ordinance—Compliance Documentation

Project Number(s):
Case Number(s):
Agent: **Forest City Covington**
Applicant: **Forest City Covington**
Legal Description: **Tracts 61A1-A & 61A1-B, Town of Atrisco Grant, Unit 6**
Acreage: **50 acres +/-**
Zone Atlas Page: **R-16/S-16**

CERTIFICATE OF NO EFFECT: Yes ____ No _____
CERTIFICATE OF APPROVAL: Yes __X__ No _____

SUPPORTING DOCUMENTATION:
A Class I and Class III Cultural Resource Survey of 20.2 Hectares (50 Acres) for the Mesa del Sol Town Center, Albuquerque, Bernalillo County, NM by McEnany, Brown, and Brown (Kenneth Brown PhD, P.I.) NMCRIS#112230.

SITE VISIT: n/a

RECOMMENDATION(S):

- ***CERTIFICATE OF APPROVAL IS ISSUED***

NOTE:

1. ***Project recordation of affected segment of LA 153415 (Hell Canyon Road) has exhausted information potential within the project area / area of effect.***
2. ***Recommended preservation plan for site LA 153415 has been addressed in prior surveys and submittals.***

SUBMITTED:
Matthew Schmader, PhD
Superintendent, Open Space Division
Acting City Archaeologist

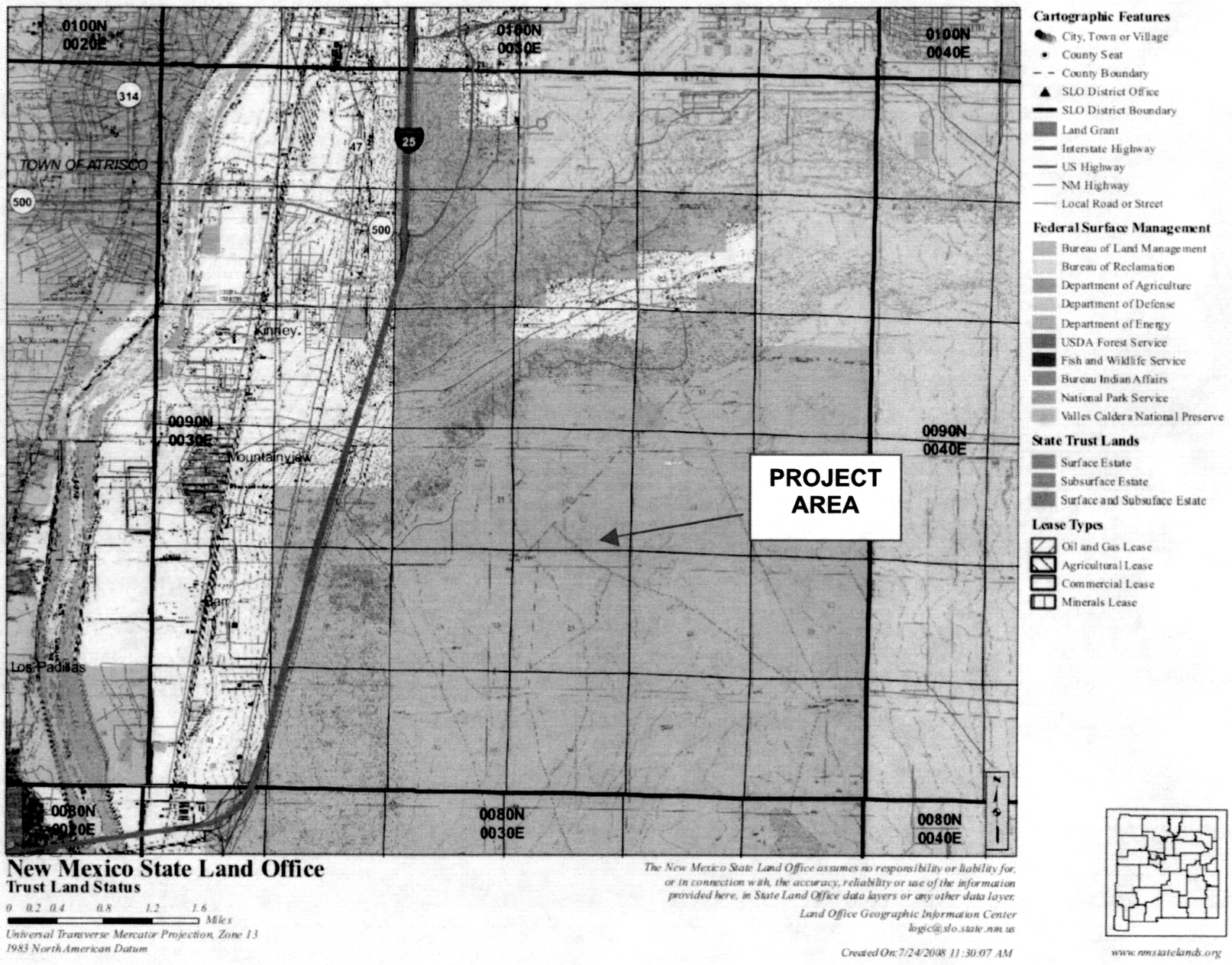
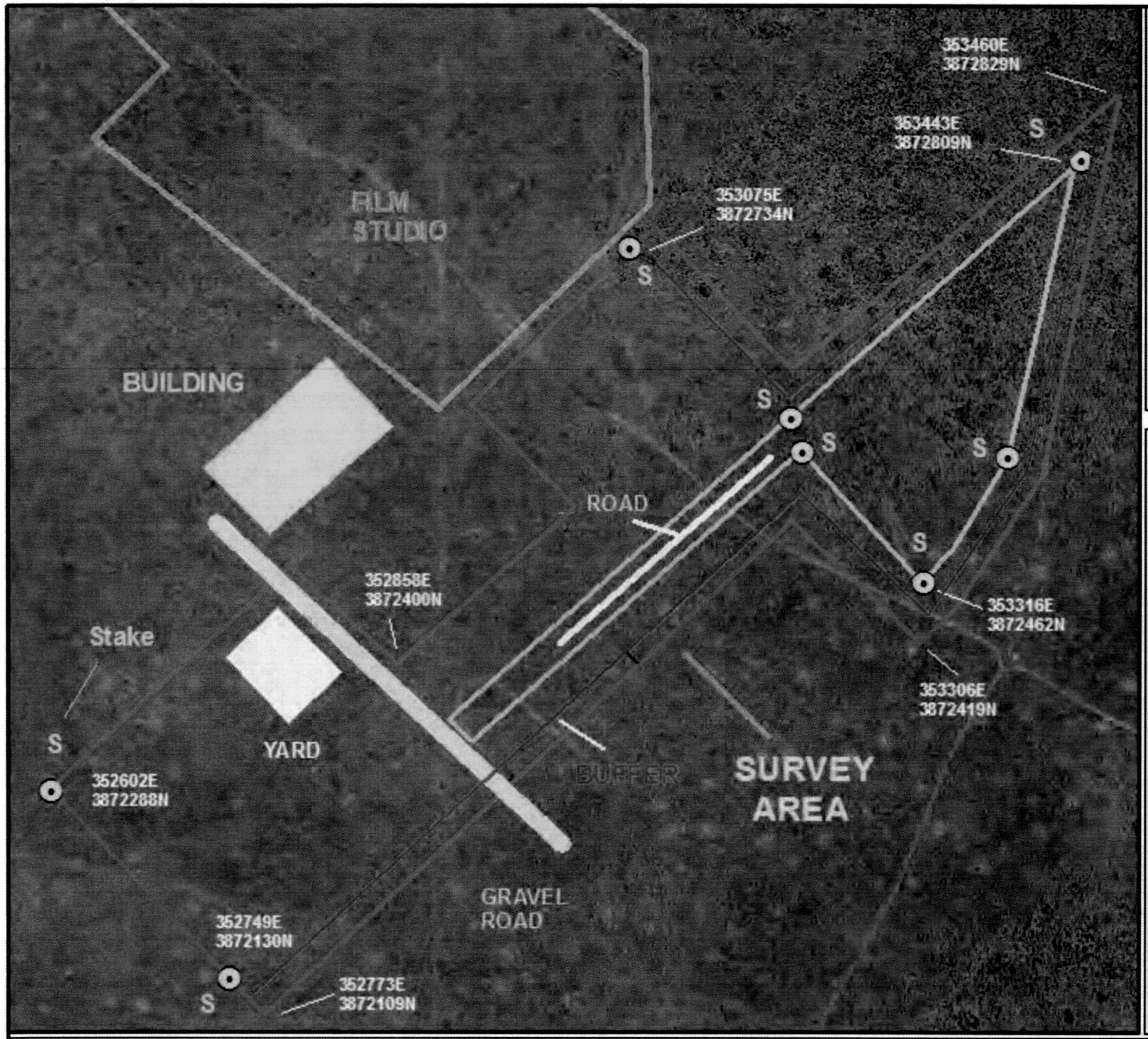


Figure 2a. Project area land status (New Mexico State Land Office 2008).



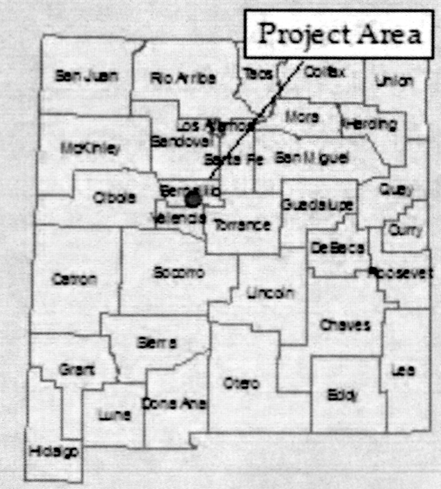


Figure 4
Project Area
Aerial Photo Map

N

0 0.05 0.1 Miles

USGS 7.5 Minute Hubbell Spring, NM Quadrangle

1:5,000

Marron and Associates, Inc.

Mesa del Sol Town Center Survey - Bernalillo County

Cherne, Curtis

To: Barrera, Manny
Subject: RE: Mesa del Sol Town Center

Manny,
Yes, you can resume work. I will send another Grading Permit letter to Chris at .. .. week.

Curtis

-----Original Message-----
From: Barrera, Manny [mailto:mannybarrera@forestcity.net]
Sent: Friday, December 05, 2008 12:09 PM
To: Cherne, Curtis
Subject: Fw: Mesa del Sol Town Center

Curtis
Please find the attached Arc Clearance for our parking lot project.

It is my understanding that we can now resume work on the balance of our project.

Sincerely
Manny

----- Original Message -----
From: Schmader, Matthew F. <MSchmader@cabq.gov>
To: Barrera, Manny; Cloud, Jack W. <jcloud@cabq.gov>
Cc: Dourte, Richard H. <RDourte@cabq.gov>
Sent: Fri Dec 05 12:27:26 2008
Subject: RE: Mesa del Sol Town Center

Thank you, Manny--
Here is the Certificate of Approval.
Please resend any info we may have agreed upon for onsite interpretation and/or in-place preservation of some portions of the Hell Canyon Road in the future build-out of Mesa del Sol. Not required for the present submittal but for my files and future reference.
Regards,
Matt

-----Original Message-----
From: Barrera, Manny [mailto:mannybarrera@forestcity.net]
Sent: Tuesday, December 02, 2008 11:27 AM
To: Schmader, Matthew F.
Subject: FW: Mesa del Sol Town Center

Matt,
I recall you prefer electronic files.
Please find the attached PDF of the report I dropped off yesterday for your records.
Thanks
Manny
-----Original Message-----
From: Yvonne Garcia [mailto:yvonne@marroninc.com]
Sent: Tuesday, December 02, 2008 10:53 AM
To: Barrera, Manny
Cc: Ken Brown; Tim McEnany
Subject: Mesa del Sol Town Center

Good Morning Manny:

Attached please find the Mesa del Sol Town Center (report only no LA

forms) in PDF format as requested.

Should you have any questions or concerns please feel free to contact me or Tim McEnany should I be unavailable.

Please let me know if you received it.

Thank you,
Yvonne Garcia
Marron and Associates, Inc.
505-898-8848

CITY OF ALBUQUERQUE

November 6, 2008

James D. Hughes, P.E.
URS Corp
6501 Americas Parkway NE #900
Albuquerque, NM 87110

Re: Mesa Del Sol Community Center Parking Block F &O Grading Plan
Engineer's Stamp dated 10-30-08 (R16/D004)

Dear Mr. Hughes,

Based upon the information provided in your submittal received 10-31-08, the above referenced plan cannot be approved for Grading Permit or Paving Permit until the following comments are addressed:

- At the north end of this project you are proposing to cut approx. 8 feet. The proposed street grades are approx. 0.5%. This seems to be an excessive amount of cut for an area that drains naturally. What direction does this project area naturally drain and is the proposed pond in the correct location?
- It seems there will be 6 to 8 foot high banks on either side of the road.
- Label all existing contours.
- Are the flow line elevations in Stryker Rd at the north edge of this project existing? If so, do not use a proposed line type.
- The benchmark used for this plan is at Broadway and Rio Bravo. There are closer benchmarks that may be more appropriate to use.
- Provide a spot elevation at the low point near the pond and at the end of the street. Does the grade abruptly change from 87 to 94 at the end of the street? Provide a cross-section of the pond, street and to a distance 20' out from limits of grading. Provide existing contours east of the pond.

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

Sincerely,

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

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

October 27, 2008

James D. Hughes, P.E.
URS Corp
6501 Americas Parkway NE #900
Albuquerque, NM 87110

Re: Mesa Del Sol Community Center Parking Block F &O Grading Plan Engineer's Stamp dated 9-9-08 (R16/DA3008)

Dear Mr. Hughes,

Based upon the information provided in your submittal received 10-15-08, the above referenced plan cannot be approved for Preliminary Plat action by the DRB, Building Permit, Paving Permit, or Grading Permit until the following comments are addressed:

Preliminary Plat comments:

- The latest Drainage Management Plan on file for DA3 (Bohannan Huston) does not include this site.
- The DMP for the first neighborhood does not include this area. Therefore, this site
- Note 3 on Sheet 2 mentions use of 6" curb. Standard curb is 8". 6" curb was approved on a trial basis for the first neighborhood.
- Does the land between Basin M-1 and De Kooning Loop SE drain to this proposed retention pond? Add this area to the Drainage Map.
- Does overland flow from south of the future North Mesa del Sol Blvd enter this pond?
- The AHYMO summary notes the 100 yr-24 hour storm for rainfall. Use the 100 yr-10 day event since you are proposing retention.
- Provide flow and depths in the streets for streets in this development. As well as for the inlets.

Not sent cc 10-27-08

Grading, Paving and Building Permit comments:

- Platting is required prior to Building Permit approval.
- The storm drain proposed on Sheet 6 appears to go to an undefined outfall.
- The parking lots drain out the corner. Inlets or sidewalk culverts (when sidewalks are built) may be required.
- Plan site grades assuming an 8" curb.
- Show the location of the curb block-outs on the plan.