CITY OF ALBUQUERQUE

February 8, 2017

Tyler Yamamoto, R.A.
Dekker/Perich/Sabatini
7601 Jefferson NE, Suite 100
Albuquerque, NM 87109

Re: I25Medical Park, 2901 Transport St. SE
Request for Certificate of Occupancy- Transportation Development
Engineer's/Architect's Stamp dated 07-27-16 (M15-D026B)
Certification dated 01-24-17

Dear Mr. Yamamoto,

Based upon the information provided in your submittal received 01-27-17, Transportation Development has no objection to the issuance of a Permanent Certificate of Occupancy. This letter serves as a "green tag" from Transportation Development for a Permanent Certificate of Occupancy to be issued by the Building and Safety Division.

If you have any questions, please contact me at (505) 924-3630.

Sincerely,

Logan Patz
Senior Engineer, Planning Dept.
Development Review Services

LWP via: email
C: CO Clerk, File

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

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09 2015)

Project Title: I-25 Medical Park Building Permit #: 1009090 City Drainage #: M15D026B

DRB#: EPC#: Work Order#:

Legal Description: Tract 2, Capstone Subdivision

City Address: 2901 Transport St, SE

Engineering Firm: Tierra West, LLC Contact: Joel Hernandez

Address: 5571 Midway Park Pl NE

Phone#: 505 858 3100 Fax#. E-mail: JDHernandez@tierrawestllc com

Owner: I-25 Medical Park Group Contact: Arthur Richey

Address: 2000 16th St.

Phone#: 303 405 2100 Fax#. E-mail: Arthur Richey@davita com

Architect: Dekker/Perich/Sabatini Contact: Tyler Yamamoto

Address: 7601 Jefferson NE, Suite 100

Phone#: 505 761 9700 Fax# 505 761 4222 E-mail: tylery@dpsdesign org

Other Contact: Klinger Constructors, LLC Contact: Adam Leyba

Address: 8701 Washington St. NE

Phone#: 505 822.9990 Fax#: 505 821 0439 E-mail: AdamL@klingerllc com

Check all that Apply.

DEPARTMENT:

____ HYDROLOGY/ DRAINAGE
x TRAFFIC/ TRANSPORTATION
____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

____ ENGINEER/ ARCHITECT CERTIFICATION

____ CONCEPTUAL G & D PLAN
____ GRADING PLAN
____ DRAINAGE MASTER PLAN
____ DRAINAGE REPORT
____ CLOMR/LOMR

x TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ EROSION & SEDIMENT CONTROL PLAN (ESC)

____ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

____ BUILDING PERMIT APPROVAL
x CERTIFICATE OF OCCUPANCY

____ PRELIMINARY PLAT APPROVAL
____ SITE PLAN FOR SUB'D APPROVAL
____ SITE PLAN FOR BLDG. PERMIT APPROVAL
____ FINAL PLAT APPROVAL
____ SIA/ RELEASE OF FINANCIAL GUARANTEE
____ FOUNDATION PERMIT APPROVAL
____ GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR

____ PRE-DESIGN MEETING
____ OTHER (SPECIFY) _____

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JAN 27 2017
LAND DEVELOPMENT SECTION

IS THIS A RESUBMITTAL?: ____ Yes x No

DATE SUBMITTED: January 24, 2017 By: Tyler Yamamoto

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED. ____

DEKKER
PERICH
SABATINI

January 24, 2017

Traffic Engineer
City of Albuquerque
Public Works Department
Development & Building Services Division
600 2nd Street NW
Albuquerque, New Mexico 87102

Re: Transportation Final C.O.
I-25 Medical Park
2901 Transport St. SE
Zone: M-15-Z

To Whom It May Concern:

I, Christopher R. Gunning, NMRA no.3203 of the firm Dekker/Perich/Sabatini, hereby certify that the referenced portion of this project is in substantial compliance with and in accordance with the design intent of the approved July 7, 2016 Administrative Amendment, with the exception of the items listed below that were changed in the field during construction.

Dekker/Perich/Sabatini visited the project site on January 20, 2017 to verify what has been constructed in accordance with the attached site plan.

The following item differs from the original plan. The design intent is still the same as what was approved on the AA dated July 7, 2016:

1. Three (3) parking spots along the west side of the lot, south of the billboard, have not been constructed because of clearances and grading around the retaining wall and billboard.
2. Traffic island at the entrance to the site has not been constructed and was removed from the plans due to concerns with delivery trucks running over it.

This certification is submitted in support of a request for Final Certificate of Occupancy. The record information presented herein is not complete and intended only to verify substantial compliance of the traffic aspects of this project as they relate to the above mentioned building. Those relying on the record document are advised to obtain independent verification of its accuracy before using it for any other purpose.

If you have any questions, please feel free to contact myself or Tyler Yamamoto at 761-9700, thank you.

Very truly yours,
Dekker/Perich/Sabatini Ltd.

Christopher R. Gunning AIA, LEED AP
Principal
Cc: File

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JAN 27 2017
LAND

STATE OF NEW MEXICO
CHRISTOPHER R. GUNNING
No. 3203
1/24/17
REGISTERED ARCHITECT

M15-D026B

From: Patz, Logan W.
To: Cordova, Camille C. (camillecordova@cabq.gov); Sandoval, Darlene M. (dsandoval@cabq.gov); Miranda, Rachel (rachelmiranda@cabq.gov); Serna, Yvette M. (yserna@cabq.gov)
Cc: "Tyler Yamamoto"; "Adaml@klingerllc.com"; "Pete Jacobson"
Subject: I-25 Medical Park, 2901 Transport St. SE 30-Day Temp CO approval
Date: Friday, January 27, 2017 4:20:00 PM

Hello,

Transportation will approve a 30-day temp Co for the site listed above Building permit #1009090.
Letter will follow after submittal of request for permanent CO.
Call me if you have any questions.

Thank you

Logan Patz
Planning Department
Transportation Development
600 2nd St. NW, Suite 201
Albuquerque, NM 87102
505-924-3630

CITY OF ALBUQUERQUE

January 27, 2017

Joel Hernandez, P.E.
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, New Mexico 87109

Re: 80K Medical Multi-Specialty Clinic
2901 Transport St SE
Requested Permanent C. O. - Accepted
Engineers Stamp Date 11/20/15 (M15D026B)
Certification Dated: 1/26/17

Dear Mr. Hernandez,

Based on the Certification received 1/26/2017, the site is acceptable for release of Certificate of Occupancy by Hydrology.

If you have any questions, you can contact me at 924-3999 or Totten Elliott at 924-3982.

Sincerely,

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

TE/SB
C: email Cordova, Camille C.; Miranda, Rachel; Sandoval, Darlene M.; Blocker, Lois

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

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09 2015)

Project Title: 80K Medical Office **Building Permit #:** _____ City Drainage #: M15D026B

DRB# _____ EPC# 1009090 Work Order#: _____

Legal Description: Tract 2 Plat of Capstone Subdivision

City Address: _____

Engineering Firm: Tierra West, LLC Contact: Joel Hernandez

Address: 5571 Midway Park Place NE Albuquerque NM 87109

Phone#: 505-858-3100 Fax# 505-858-1118 E-mail: jdhernandez@tierrawestllc.com

Owner: _____ Contact: _____

Address: _____

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

Architect: _____ Contact: _____

Address: _____

Phone# _____ Fax# _____ E-mail: _____

Other Contact: _____ Contact: _____

Address: _____

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

Check all that Apply

DEPARTMENT:

x HYDROLOGY/ DRAINAGE

____ TRAFFIC/ TRANSPORTATION

____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

x ENGINEER/ ARCHITECT CERTIFICATION

____ CONCEPTUAL G & D PLAN

____ GRADING PLAN

____ DRAINAGE MASTER PLAN

____ DRAINAGE REPORT

____ CLOMR/LOMR

____ TRAFFIC CIRCULATION LAYOUT (TCL)

____ TRAFFIC IMPACT STUDY (TIS)

____ EROSION & SEDIMENT CONTROL PLAN (ESC)

____ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

____ BUILDING PERMIT APPROVAL

x CERTIFICATE OF OCCUPANCY (TEMPORARY)

____ PRELIMINARY PLAT APPROVAL

____ SITE PLAN FOR SUB'D APPROVAL

____ SITE PLAN FOR BLDG PERMIT APPROVAL

____ FINAL PLAT APPROVAL

____ SIA/ RELEASE OF FINANCIAL GUARANTEE

____ FOUNDATION PERMIT APPROVAL

____ GRADING PERMIT APPROVAL

____ SO-19 APPROVAL

____ PAVING PERMIT APPROVAL

____ GRADING/ PAD CERTIFICATION

____ WORK ORDER APPROVAL

____ CLOMR/LOMR

____ PRE-DESIGN MEETING

____ OTHER (SPECIFY) _____

RECEIVED JAN 26 2017 LAND DEVELOPMENT SECTION

IS THIS A RESUBMITTAL?: ____ Yes ____ No

DATE SUBMITTED: 1/26/17 By: BF for Joel Hernandez

COA STAFF ELECTRONIC SUBMITTAL RECEIVED ___

CITY OF ALBUQUERQUE

Richard J. Berry, Mayor

December 4, 2015

Joel Hernandez
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM, 87109

RE: Multi-Specialty Clinic
Grading and Drainage Plan
Engineer's Stamp Date 11-20-2015 (File: M15D026B)

Dear Mr. Hernandez:

Based upon the information received on 11-20-2015, the above referenced Grading and Drainage Plan is approved for Site Plan for Building Permit, Grading Permit, and Building Permit. Please attach a copy of this approved plan in the construction sets when submitting for a Building Permit.

We understand that the asphalt trail will be detailed in a future DRC Set, please ensure that the trail's north and south termini will be ADA compliant.

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,

Abiel Carrillo, P.E.
Principal Engineer, Planning Dept.
Development Review Services

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

M15D026B_SPBP_GP_BP_APPR

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: 80K Medical Office Building Permit #: City Drainage #: M15D026B

DRB#: EPC#: 1009090 Work Order#:

Legal Description: Tract 2 Plat of Capstone Subdivision

City Address:

Engineering Firm: Tierra West, LLC Contact: Joel Hernandez

Address: 5571 Midway Park Place NE Albuquerque NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: jdhernandez@tierrawestllc com

Owner: Contact:

Address:

Phone#: Fax#: E-mail:

Architect: Deker Perich Sabatini Contact: Chris Gunning

Address: 7601 Jefferson NE, Suite 100 Albuquerque, NM 87109

Phone#: 505-842-7633 Fax#: E-mail: chrisg@dpsdesign org

Other Contact: Contact:

Address:

Phone#: Fax#: E-mail:

Check all that Apply:

DEPARTMENT:

x HYDROLOGY/ DRAINAGE
___ TRAFFIC/ TRANSPORTATION
___ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

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x GRADING PLAN
___ DRAINAGE MASTER PLAN
x DRAINAGE REPORT
___ CLOMR/LOMR

___ TRAFFIC CIRCULATION LAYOUT (TCL)
___ TRAFFIC IMPACT STUDY (TIS)
___ EROSION & SEDIMENT CONTROL PLAN (ESC)

___ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

X BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY

___ PRELIMINARY PLAT APPROVAL
___ SITE PLAN FOR SUB'D APPROVAL
x SITE PLAN FOR BLDG. PERMIT APPROVAL
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___ SO-19 APPROVAL
___ PAVING PERMIT APPROVAL
___ GRADING/ PAD CERTIFICATION
___ WORK ORDER APPROVAL
___ CLOMR/LOMR

___ PRE-DESIGN MEETING
___ OTHER (SPECIFY)

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NOV 20 2015
LAND DEVELOPMENT SECTION

IS THIS A RESUBMITTAL?: X Yes ___ No

DATE SUBMITTED: 11/20/2015 By: Joel Hernandez

COA STAFF ELECTRONIC SUBMITTAL RECEIVED: ___

TIERRA WEST, LLC

5571 Midway Park Place NE Albuquerque, NM 87109
(505) 858-3100 Fax (505) 858-1118 1-800-245-3102
tierrawestllc.com

November 20, 2015

Mr. Abiel Carrillo, P.E.
Planning Department- Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: Multi-Specialty Clinic Grading & Drainage (File M15-D026B)

Please find the following responses addressing staff comments from correspondence dated July 18, 2015 listed below:

1. ~~Provide~~ show the retaining wall layout on the Site Plan.

Response: We are including the Horizontal Control Plan/Paving Plan (Sheet C1) which also depicts the retaining wall layout with this submittal. Not shown, but it is now better shown on grading plan

2. Sheet RW-1 shows a back of wall profile that has a 2-foot drop, which implies that, the trail profile would have the drop as well. ✓ TW and BW are blank in plan view but detailed in profile

Response: We have revised the location of the bike trail to be within the trail right of way and adjusted the retaining wall location such that the trail elevation is unaffected by the retaining profile. Please see the typical section added to Sheet GR-2 which depicts the relationship between the wall and trail.

3. Show the HGL and Q on the storm drain profiles for the storm drain network that outfalls to The Diversion Channel.

Response: We have updated the storm drain profile sheet to include the HGL and Q, as requested. ✓

4. Will "heavy duty" decorative concrete paving be defined within the plan set? (Thickness, reinforcement).

Response: We are including the Horizontal Control Plan/Paving Plan (Sheet C1) which also depicts the various pavement sections. ✓

5. The grading plan does not appear to account for the construction of some of the ADA ramps, for example, Sheet GR-3, ✓ shows untied/conflicting contour line work and does not appear to give the contractor enough information to build the ramps correctly in the vicinity of

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the retaining wall. Elevations shown for the ramp will likely not work with the header curb dimensions suggested on the Site Plan.

Response: We have updated the grading plan sheets to reflect the revision to the trail and more clearly show the proposed contours in ramp areas. Also included in this submittal is an additional plan sheet (Sheet GR-4) at 1"=20' to more clearly show the ADA access in the flatwork around the building.

6. Ensure that all ADA ramps are shown on both the Site Plan and the Grading Plan Sheets.

Response: We are including the Horizontal Control Plan/Paving Plan (Sheet C1) which also depicts the ADA ramps, as well as plan sheet (Sheet GR-4) at 1"=20' to more clearly show the ADA access in the flatwork around the building.

7. Include a cross section of the bike trail to show the intended cross slope to ensure positive drainage from the wall.

Response: We have added a typical section detail to Sheet GR-2 which depicts the relationship between the wall and trail.

8. Show the pipe connection from Phase I as an existing structure to be preserved (or show new outlet structure improvements if that is the intent).

Response: We have added a note to the grading plan (Sheet GR-3) to install an end section to the storm drain pipe.

9. Reprint the StormCAD output for "Profile-2" (pipe CO-3), it is not legible in the report.

Response: We have reprinted the StormCAD output for "Profile 2" for inclusion in the report.

10. Sheet GR-2 references the concrete flume detail on SD-2, but it is not shown. Also, adjust the capacity worksheet to match the dimension (4' bottom width) shown on the plans.

Response: We have added the concrete flume detail to sheet SD-2 and included a revised capacity worksheet to match the 4-foot bottom width dimension as shown on the plans.

11. Has coordination with the USACE been completed per AMAFCA's review letter of the Capstone Student Housing Drainage Management Plan (letter dated June 25, 2013)?

Response: The review with the USACE is ongoing, but is limited to the construction of the outfall improvements. We have added a note to the storm drain plan (SD-1) requiring this work proceed upon and until approval is obtained from the USACE and authorization from AMAFCA. The work within the AMAFCA right of way is subject to executed license agreement which requires adherence to the approved plans and notification of the AMAFCA Project Manager at least forty-eight (48) hours prior to beginning work on or in the AMAFCA property.

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12. Provide email or correspondence from AMAFCA confirming that a license agreement is in place for the new outlet structure into the Diversion Channel.

Response: Attached with this submittal is the email correspondence from Lynn Mazur, the AMAFCA Development Review Engineer dated November 16, 2015 confirming the license agreement is in place, as well as a copy of the agreement in question.

If you have any questions or need additional information regarding this matter, please do not hesitate to contact me.

Sincerely,

Joel Hernandez, PE

JN: 2014088
RRB/jh/jg

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LAND DEVELOPMENT SECTION

Joel Hernandez

From: Mazur, Lynn <lmazur@amafca.org>
Sent: Monday, November 16, 2015 8:31 AM
To: Abiel X. Carrillo; Joel Hernandez
Subject: RE: M15D026B - Multi-Specialty Clinic
Attachments: ABQ HP Outfall to SDC - Final executed license.pdf

Thanks, Abiel.

I can address the AMAFCA-related comments. Attached is the license between the owner and AMAFCA for the storm drain outfall to the South Diversion Channel (SDC). The U.S. Army Corps of Engineers' (COE) review is ongoing. They have a new review process in place that has increased their turnaround time. I submitted this project last month, and I don't expect a letter of concurrence until March. AMAFCA must submit 90% plan sets for COE review with an application letter, and I do follow up every month or so.

I would like to take this opportunity to explain the COE's involvement with the North & South Diversion Channels, assuming you don't already know. The COE constructed the channels, and AMAFCA was designated the local sponsor. AMAFCA took ownership and maintenance after completion; however, any structural modification must be reviewed by COE. They also inspect the channels with AMAFCA staff every other year. We participate in the federal program for "insurance" so that in an emergency, or if major repair work is required on the channels, we can get federal funding to do the work.

Call me if you have any questions or wish to discuss further.

Albuquerque Metropolitan Arroyo
Flood Control Authority
Lynn M. Mazur, P.E., C.F.M.
Development Review Engineer
2600 Prospect Ave NE
Albuquerque, NM 87107
Office: (505) 884-2215
Mobile: (505) 362-1273

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From: Abiel X. Carrillo [mailto:acarrillo@cabq.gov]
Sent: Friday, November 13, 2015 4:42 PM
To: 'jdhernandez@tierrawestllc.com'
Cc: Mazur, Lynn
Subject: M15D026B - Multi-Specialty Clinic

Mr. Hernandez,

See attached review letter regarding the above-referenced project.

Any question just let me know.

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NOV 20 2015
LAND DEVELOPMENT SECTION

Abiel Carrillo, P.E.
Principal Engineer
Planning Department

Development Review Services Division
City of Albuquerque
505-924-3986
acarrillo@cabq.gov
600 2nd Street NW
Albuquerque, NM 87102

If this email is spam, report it to www.OnlyMyEmail.com

South Diversion Channel, Parcel 8
ZAP M-15

PRIVATE LICENSE AGREEMENT FOR STORM DRAIN CONNECTION TO SOUTH DIVERSION CHANNEL

This License Agreement is made and entered into this 29 day of September, 2015, by and between the Albuquerque Metropolitan Arroyo Flood Control Authority ("AMAFCA"), a political subdivision of the State of New Mexico, and ABQ Health Partners, LLC, a New Mexico limited liability company ("LICENSEE"), collectively referred to as the "PARTIES".

RECITALS:

WHEREAS, AMAFCA owns the fee right-of-way for Parcel 8 of the South Diversion Channel ("SDC") as shown on the plat for South Diversion Channel Drainage Right-of-Way Phase 1, filed for record in the Office of the County Clerk of Bernalillo County, New Mexico, on July 17, 2000, in Book 2000C, Page 183; and

WHEREAS, LICENSEE proposes to develop Tract 2 of Capstone Subdivision, the location of which is shown on Exhibit "A", and to install a thirty-six inch reinforced concrete storm drain pipe (36" RCP) connection to the SDC, along with eight inch (8") thick concrete slope paving, riprap erosion protection and grading ("IMPROVEMENTS") within AMAFCA's property. The specific area containing the IMPROVEMENTS will henceforth be referred to as the "Licensed Area"; and

WHEREAS, the IMPROVEMENTS will provide a benefit to AMAFCA by improving the existing pipe connection and providing a controlled drainage outfall with water quality treatment to the SDC.

NOW THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged:

AMAFCA hereby grants to LICENSEE, and its successors and assigns, a non-exclusive License to construct, operate and maintain the IMPROVEMENTS within the Licensed Area, as graphically shown on the attached Exhibit "B", together with full ingress thereto, subject to the following terms and conditions:

1. LICENSEE shall obtain AMAFCA's prior written approval for the following:

   a. All changes to the construction drawings for installation of the IMPROVEMENTS. The drawings, with an Engineer's stamp and as approved and signed by AMAFCA, shall be used.

   b. All future repairs, modifications, removal, or other activities affecting the IMPROVEMENTS.

2. LICENSEE or its contractor shall notify the AMAFCA Project Manager by telephone call to

884-2215 at least forty-eight (48) hours prior to beginning work on or in the AMAFCA's property.

3. LICENSEE shall be responsible for all damages caused by the construction activities to AMAFCA's facilities or property, whether caused by or in any way resulting from the actions of LICENSEE, its successors or assigns, or its contractor. To ensure repair of such damages, LICENSEE shall require its contractor, if work will be performed by a second party, to obtain a Temporary Construction and Access License from AMAFCA prior to construction.

4. All construction by LICENSEE or its contractor and all materials within AMAFCA's property shall be subject to inspection and approval by AMAFCA's Project Manager or his representative to ensure compliance with the approved plans. Any AMAFCA comments shall be directed to LICENSEE.

5. AMAFCA shall have the authority to cause the installation of any of the IMPROVEMENTS to be stopped, or to require that the IMPROVEMENTS be removed by LICENSEE from the Licensed Area, if the construction does not comply with the approved plans.

6. LICENSEE shall revegetate any disturbed ground area within AMAFCA's property that is disturbed by construction or any of LICENSEE's activities, with the exception of maintenance roads and the SDC bottom, which revegetation shall be completed in accordance with City of Albuquerque Standard Specifications for Public Works Construction, Section 1012 Native Grass Seeding, as currently updated.

7. All construction, operation, maintenance, repair, relocation and removal of the IMPROVEMENTS shall be accomplished at the sole expense of LICENSEE. Any existing survey control or right-of-way monuments that are moved or destroyed as a result of the actions permitted by this License Agreement shall be replaced by a registered surveyor at the sole expense of LICENSEE.

8. LICENSEE agrees that all rights granted herein are subordinate to the flood control function of and right of access to AMAFCA's facilities. All work shall be performed in such a manner as will not damage or interfere with the operation and maintenance of and access to AMAFCA's property, flood control facilities and equipment.

9. LICENSEE shall indemnify and hold AMAFCA harmless from all claims or judgments for damages or injury to property or persons to the extent caused by LICENSEE arising from the construction, operation, maintenance, relocation or removal of the IMPROVEMENTS and related equipment, and shall defend AMAFCA against any such claim. LICENSEE shall reimburse AMAFCA for all costs and expenses incurred by AMAFCA resulting from the installation, operation, maintenance or removal of the IMPROVEMENTS should such activities be required to prevent damage to AMAFCA or others. Determination of whether such damage is likely shall be by AMAFCA, which determination shall be reasonable. This agreement to indemnify shall not extend to liability, claims, damages, losses or expenses, including attorney fees, arising out of the preparation or approval of maps, drawings,

opinions, reports, surveys, change orders, designs or specifications by AMAFCA, its agents or employees.

10. Should LICENSEE fail to comply with the provisions of this License Agreement, or should LICENSEE fail to properly maintain the IMPROVEMENTS, this License Agreement and all rights and privileges herein granted may be terminated by AMAFCA. Any damage or maintenance issue caused by AMAFCA shall be excluded. However, such termination shall be preceded by written notice, giving LICENSEE at least thirty (30) days to effect a cure. If the notice concerns repair or lack of maintenance, and LICENSEE fails to effect a cure within thirty (30) days, AMAFCA may perform the required repair or maintenance and invoice LICENSEE for incurred costs, without impairing its right to terminate this License Agreement. LICENSEE shall pay such costs within sixty (60) days of the date of said invoice.

11. All notices with respect to this License Agreement shall be in writing and shall be delivered personally, via electronic mail with receipt request, or sent postage prepaid by United States Mail, via certified mail with return receipt requested, to the addresses set forth below or other such addresses as hereafter specified in writing by one PARTY to the others:

AMAFCA
2600 Prospect Ave. NE
Albuquerque, NM 87107
Attn: Jerry Lovato, Executive Engineer
Email: JLovato@amafca.org

ABQ Health Partners, LLC
5400 Gibson Blvd. SE
Albuquerque, NM 87108
Attn: Jill C. Klar, COO
Email: jill.klar@abqhp.com

12. This License Agreement shall be construed according to the laws of the State of New Mexico.

13. Each individual signing for each of the PARTIES hereafter warrants and represents that he or she is an authorized agent of such PARTY, on whose benefit he is executing this License, and is authorized to executive the same.

14. This License Agreement shall be in full force and effect for a period of twenty (20) years from the date of signature by AMAFCA and may be renewed for an additional twenty (20) year period upon request of LICENSEE and acceptance by AMAFCA. The burden of timely renewal is on LICENSEE.

15. In the event of a dispute between any of the PARTIES, each PARTY shall be responsible for its own costs and attorney's fees.

16. All terms, conditions and obligations contained herein shall inure to the benefit of and shall be binding upon the parties, their successors, assigns, administrators, executors, receivers and heirs.

IN WITNESS WHEREOF, the undersigned have caused this License Agreement to be executed as of the day and year set forth on Page 1.

LICENSOR:

ALBUQUERQUE METROPOLITAN ARROYO
FLOOD CONTROL AUTHORITY

By: _____
Jerry M. Lovato, P.E., Executive Engineer

ACKNOWLEDGMENT

STATE OF NEW MEXICO)
)SS
COUNTY OF BERNALILLO)

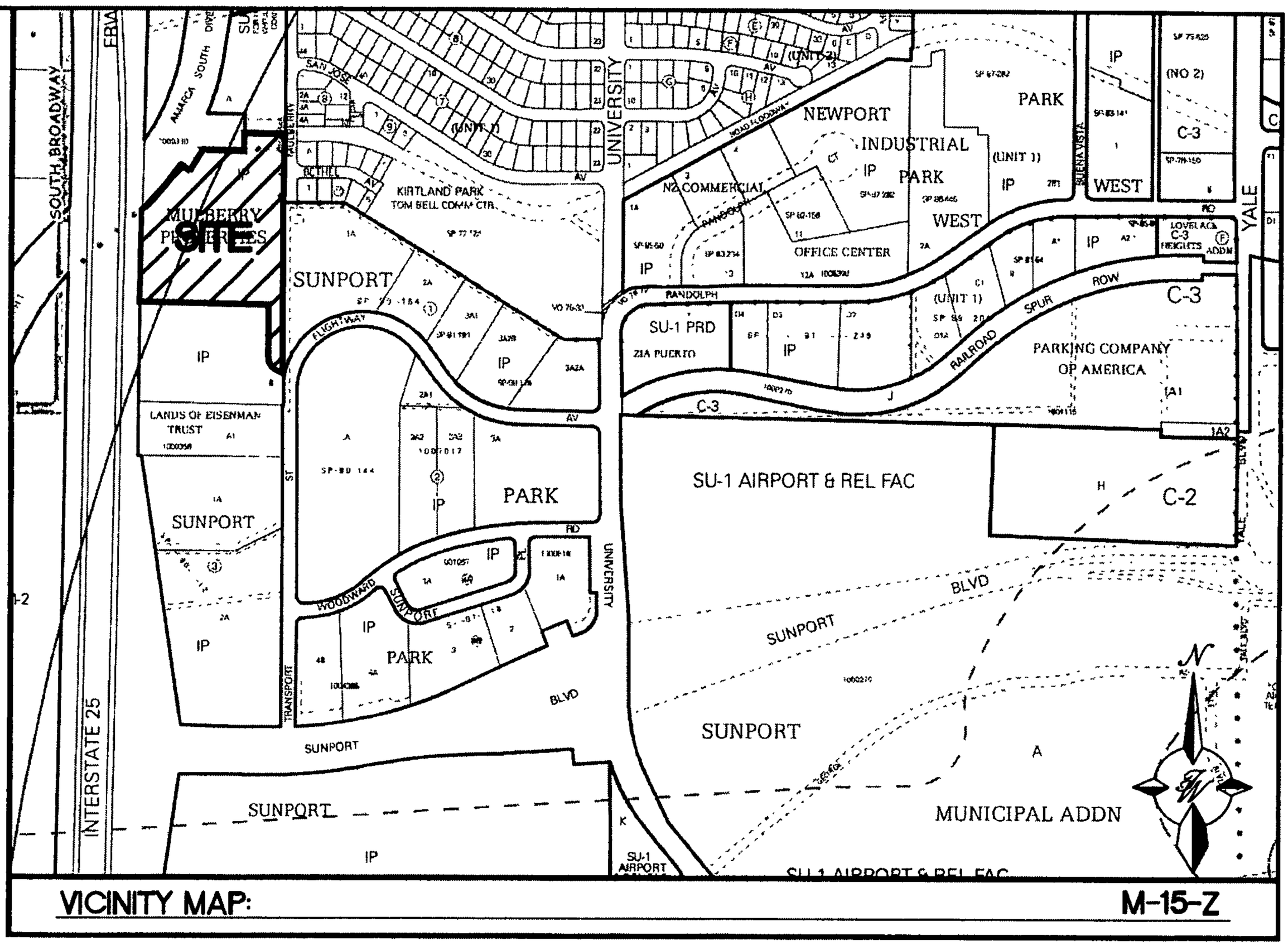
This instrument was acknowledged before me on October 7, 2015 by Jerry M. Lovato, as Executive Engineer of the Albuquerque Metropolitan Arroyo Flood Control Authority, a political subdivision of the State of New Mexico, on behalf of said political subdivision.

My Commission Expires: 09/15/2018

OFFICIAL SEAL
CHASTITY S WINEBRENNER
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires. 09/15/2018

_____
(SEAL)

_____
Notary Public



VICINITY MAP: M-15-Z

EXHIBIT A

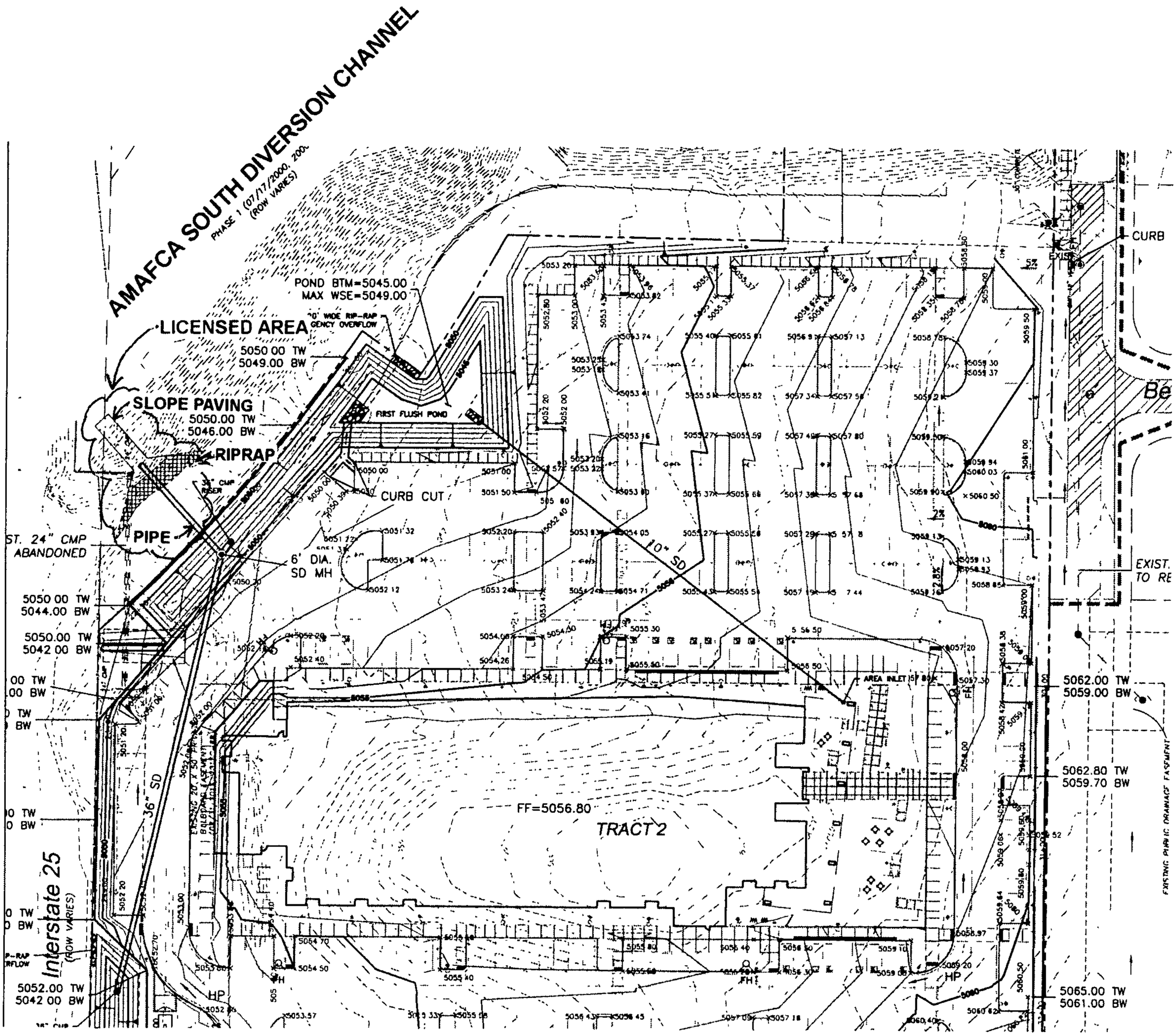

AMAFCA SOUTH DIVERSION CHANNEL
PHASE 1 (07/17/2000, 200.
(ROW VARIES)
POND BTM=5045.00
MAX WSE=5049.00
LICENSED AREA
5050.00 TW
5049.00 BW
SLOPE PAVING
5050.00 TW
5046.00 BW
RIPRAP
FIRST FLUSH POND
CURB CUT
PIPE
ST. 24" CMP
ABANDONED
6' DIA.
SD MH
10" SD
5050.00 TW
5044.00 BW
5050.00 TW
5042.00 BW
36" SD
FF=5056.80
TRACT 2
AREA INLET
5062.00 TW
5059.00 BW
5062.80 TW
5059.70 BW
5065.00 TW
5061.00 BW
5052.00 TW
5042.00 BW
Interstate 25
(ROW VARIES)
CURB
EXIST.
EXIST.
TO RE
EXISTING PUBLIC DRAINAGE EASEMENT
HP
FH

EXHIBIT B

Worksheet for 4-ft Conc Flume at Basin D-1

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.04000	ft/ft
Bottom Width	4.00	ft
Discharge	22.66	ft^3/s

Results

Normal Depth	0.47	ft	≤0.5 ft, OK
Flow Area	1.89	ft^2	
Wetted Perimeter	4.94	ft	
Hydraulic Radius	0.38	ft	
Top Width	4.00	ft	
Critical Depth	1.00	ft	
Critical Slope	0.00423	ft/ft	
Velocity	12.02	ft/s	
Velocity Head	2 24	ft	
Specific Energy	2.72	ft	
Froude Number	3.09		
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0 00	ft
Length	0 00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0 00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.47	ft
Critical Depth	1.00	ft
Channel Slope	0.04000	ft/ft
Critical Slope	0.00423	ft/ft

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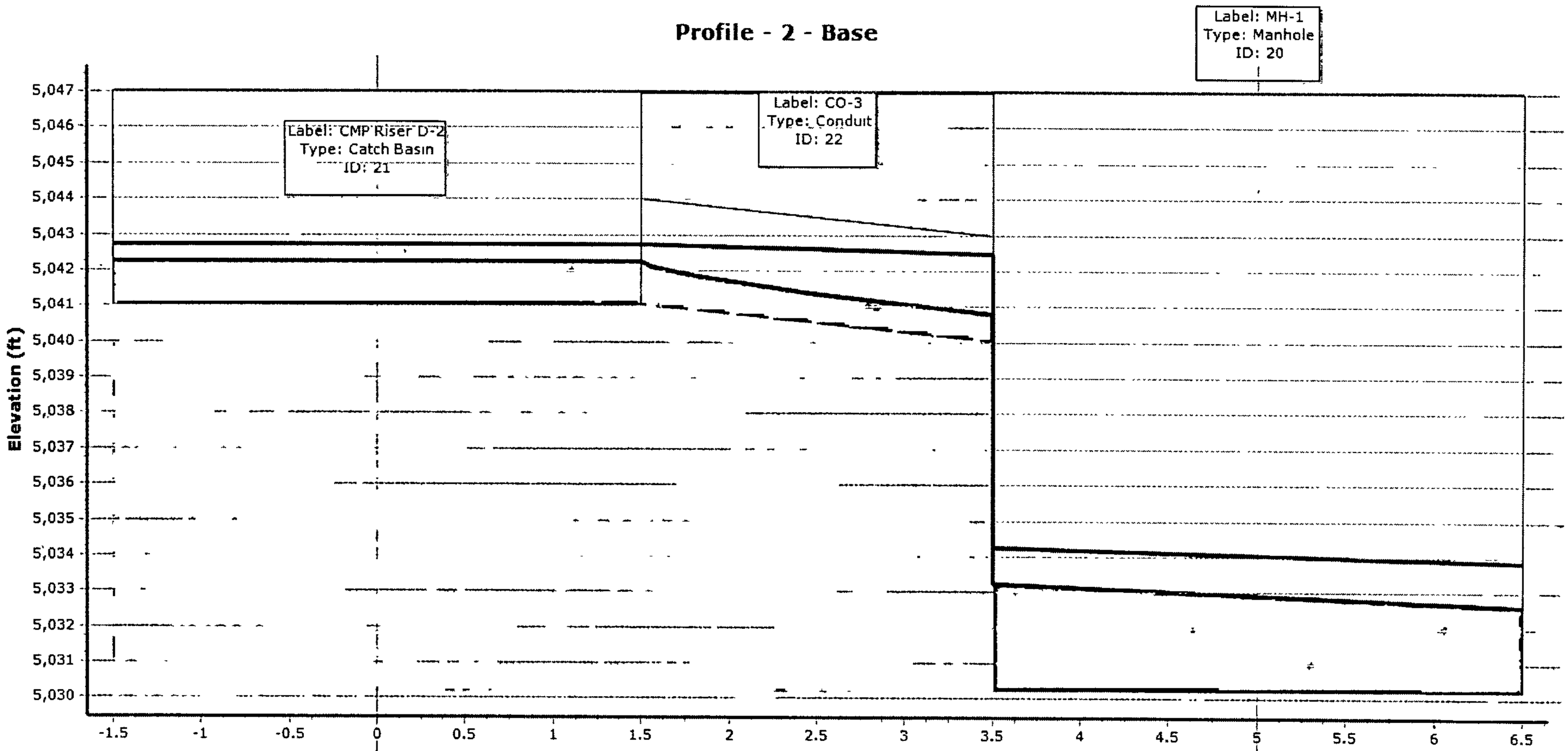
LAND DEVELOPMENT SECTION

Profile: Profile - 2



ID\Label		22 \ CO-3	
Link Length (ft)		2.0	
Rise (in)\Material		36.0 \ CMP	
Flow (ft³/s)		15.32	
Slope (ft/ft)		0.200	
ID\Label	21 \ CMP Riser D-2		20 \ MH-1
Ground (ft)	5047.00		5047.00
Invert (ft)	5041.00		5030.20
Station (ft)	0.0		5.0

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NOV 20
LAND DEVELOPMENT SECTION

CITY OF ALBUQUERQUE

Richard J. Berry, Mayor

November 13, 2015

Ronald R. Bohannan, P.E.
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM, 87109

RE: Multi-Specialty Clinic
Grading and Drainage Plan & Drainage Report
Engineer's Stamp Date 9-16-15 (File: M15D026B)

Dear Mr. Bohannan:

Based upon the information received on 9-17-2015, the above referenced submittal cannot be approved for Site Plan for Building Permit and Grading Permit until the following items are addressed:

Ask Lynn about USACE approval

1. Please show the retaining wall layout on the Site Plan. New horizontal control layout sheet
2. Sheet RW-1 shows a back of wall profile that has a 2-foot drop, which implies that the trail profile would have the drop as well. – Trail is now outside of property
3. Show the HGL and Q on the storm drain profiles for the storm drain network that outfalls to the Diversion Channel. - Will be included
4. Will "heavy duty" decorative concrete paving be defined within the plan set? (Thickness, reinforcement). On horizontal Control Sheet
5. The grading plan does not appear to account for the construction of some of the ADA ramps, for example, Sheet GR-3, shows untied/conflicting contour line work and does not appear to give the contractor enough information to build the ramps correctly in the vicinity of the retaining wall. Elevations shown for the ramp will likely not work with the header curb dimensions suggested on the Site Plan. Ramp is not connected to trail anymore
6. Ensure that all ADA ramps are shown on both the Site Plan and the Grading Plan Sheets. DONE
7. Include a cross section of the bike trail to show the intended cross slope to ensure positive drainage from the wall. Joel will add V-ditch between trail and wall.
8. Show the pipe connection from Phase I as an existing structure to be preserved (or show new outlet structure/improvements if that is the intent). Will show end section
9. Reprint the StormCAD output for "Profile-2" (pipe CO-3), it is not legible in the report.

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

10. Sheet GR-2 references the concrete flume detail on SD-2, but it is not shown. Also, adjust the capacity worksheet to match the dimension (4' bottom width) shown on the plans.

11. Has coordination with the USACE been completed per AMAFCA's review letter of the Capstone Student Housing Drainage Management Plan (letter dated June 25, 2013)?.
    ↳ will show the work in the channel to be delayed
12. Provide email or correspondence from AMAFCA confirming that a license agreement is in place for the new outlet structure into the Diversion Channel.

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

Sincerely,

Abiel Carrillo, P.E.
Principal Engineer, Planning Dept.
Development Review Services

Orig: Drainage file

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: 80K Medical Office Building Permit #: _____ City Drainage #: M15D026B

DRB#: _____ EPC#: 1009090 Work Order#: _____

Legal Description: Tract 2 Plat of Capstone Subdivision

City Address: _____

Engineering Firm: Tierra West, LLC Contact: Joel Hernandez

Address: 5571 Midway Park Place NE Albuquerque NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: jdhernandez@tierrawestllc com

Owner: _____ Contact: _____

Address: _____

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

Architect: Deker Perich Sabatini Contact: Chris Gunning

Address: 7601 Jefferson NE, Suite 100 Albuquerque, NM 87109

Phone#: 505-842-7633 Fax#: _____ E-mail: chrisg@dpsdesign org

Other Contact: _____ Contact: _____

Address: _____

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

Check all that Apply.

DEPARTMENT:

x HYDROLOGY/ DRAINAGE
____ TRAFFIC/ TRANSPORTATION
____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

____ ENGINEER/ ARCHITECT CERTIFICATION

____ CONCEPTUAL G & D PLAN
x GRADING PLAN
____ DRAINAGE MASTER PLAN
x DRAINAGE REPORT
____ CLOMR/LOMR

____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ EROSION & SEDIMENT CONTROL PLAN (ESC)

____ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

X BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY

____ PRELIMINARY PLAT APPROVAL
____ SITE PLAN FOR SUB'D APPROVAL
x SITE PLAN FOR BLDG. PERMIT APPROVAL
____ FINAL PLAT APPROVAL
____ SIA/ RELEASE OF FINANCIAL GUARANTEE
____ FOUNDATION PERMIT APPROVAL
x GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR

____ PRE-DESIGN MEETING
____ OTHER (SPECIFY) _____

RECEIVED
SEP 17 2015
LAND DEVELOPMENT SECTION

IS THIS A RESUBMITTAL?: _____ Yes _____ No

DATE SUBMITTED: 09/16/2015 By: Joel Hernandez

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

DRAINAGE REPORT
for

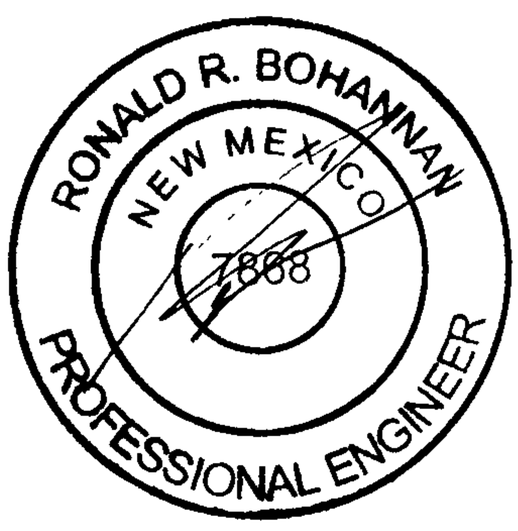
Multi-Specialty Clinic
2901 Transport St. S.E.

Prepared by:

Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, New Mexico 87109

September 16, 2015

I certify that this report was prepared under my supervision, and I am a registered professional engineer in the State of New Mexico in good standing.



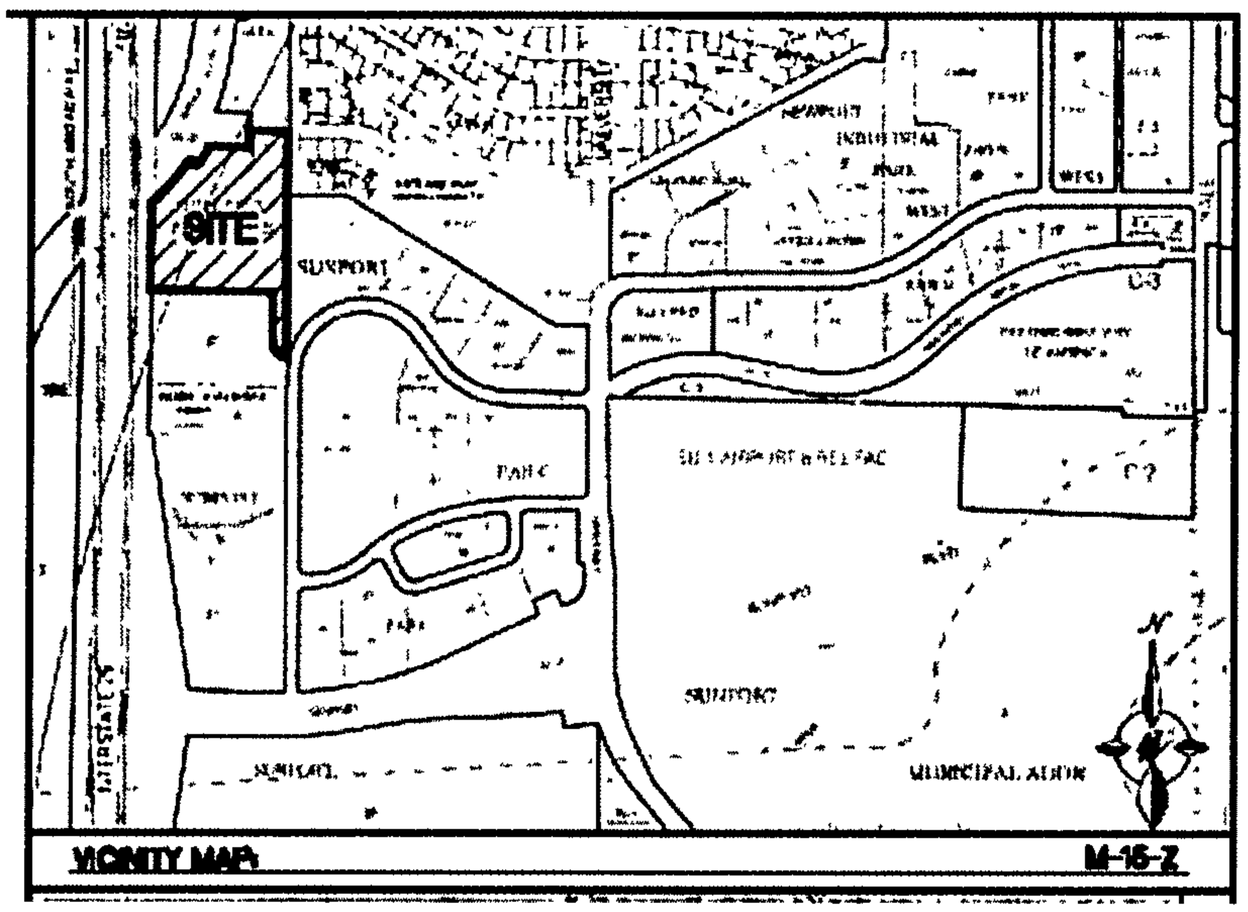
Ronald R. Bohannan, PE
9/16/15

DRAINAGE MANAGEMENT PLAN

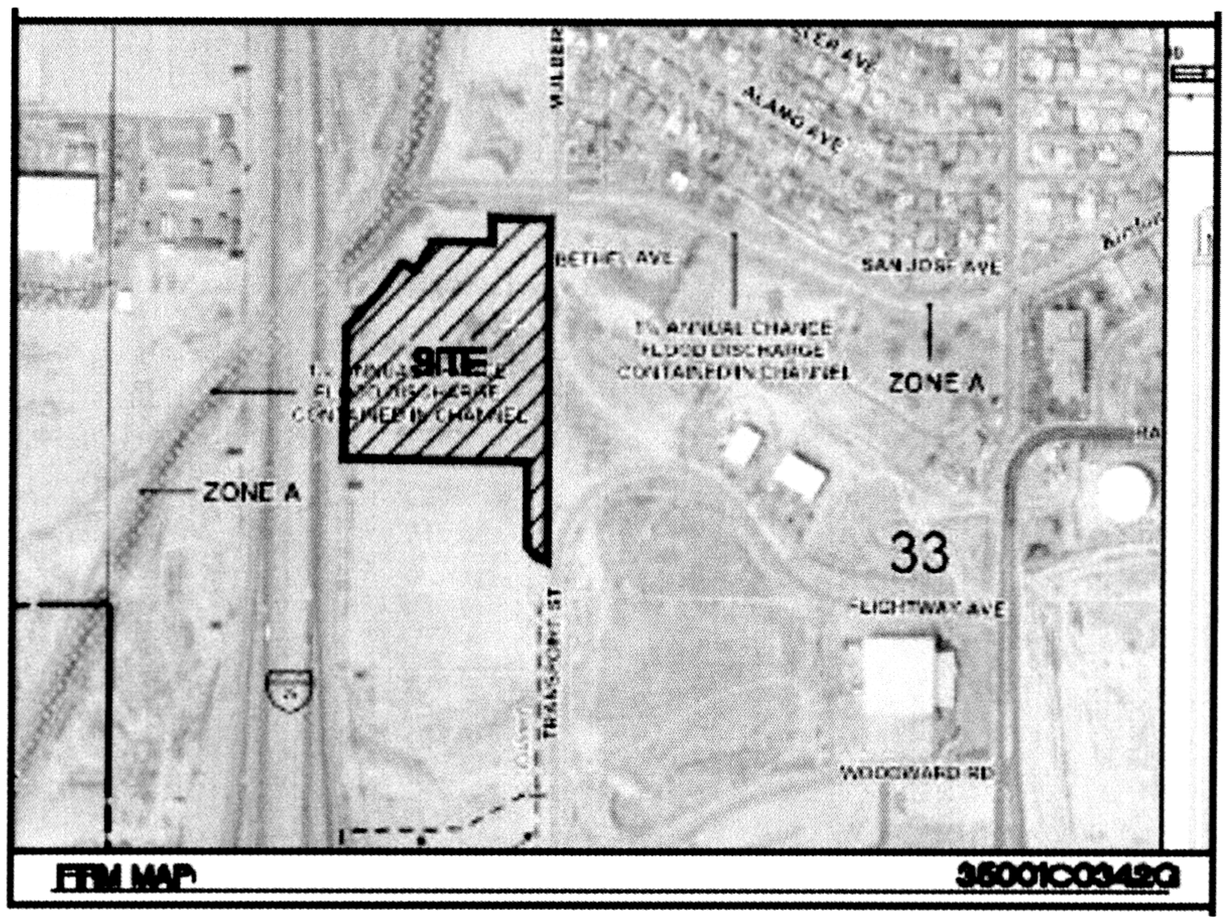
Introduction

The purpose of this submittal is to provide a conceptual drainage management plan for EPC approval of the Site Plan for Building Permit for the Multi-Specialty Clinic to be located at 2901 Transport Street, S.E. This project site lies within an 8.3 acre area previously designated as Phase 2 of the Capstone Student Housing and will consist of a 90,000 square foot two-story building along with associated parking and landscape areas. As shown in the vicinity map below, the site is located at the northeast corner of I-25 and Sunport Boulevard SE. The site lies within Precipitation Zone 2 according to Section 22.2 of the DPM. As shown in the FEMA Flood Map on page 2, the site lies outside any flood hazard zone.

Vicinity Map



FEMA FIRMap



Pre-Developed Conditions

A portion of this site was previously a landfill for construction debris (mainly concrete and asphalt) and has subsequently been mass graded to fill the site to the current grades. Some construction debris remains and this project will mitigate the soil as necessary, which includes removal of the deleterious material where encountered during over-excavation required to provide the specified engineered fill.

The site topography slopes generally from east to west and is covered with very limited natural vegetation. Per the attached Pre-Developed Conditions Basin Map, the site consists of a total of 2 distinct basins within the subject property, while flows from the Capstone Phase I project are routed through the property to an existing 24" CMP discharging into the AMAFCA South Diversion Channel. The Capstone Phase I project incorporated detention basins to attenuate the flows into the existing 24" CMP due to capacity limitations OF THE EXISTING 24" PIPE, however, the South Diversion Channel has adequate capacity for free discharge, per correspondence dated June 25, 2013, attached. The adjacent property to the east (Basin EX B-2) flows into an existing storm drain which discharges into the South Diversion Channel.

The proposed development will encompass portions of Basin B-2 and Basin C-1 as designated in the Drainage Management Plan for Capstone Student Housing report, attached for reference.

Post-Developed Conditions

The proposed project currently consists only of what had been designed as Capstone Phase 2 and contains approximately 8.3 acres. The first phase corresponds with the newly developed Capstone Student Housing, and the third phase will be left undeveloped at this time and a separate drainage management plan will be required prior to development of that area. Per the attached Post-Developed Conditions Basin Map, the site will consist of 2 basins onsite for the development of an office building and associated parking facilities.

The proposed grading and drainage plan is configured to accept flows from Capstone Phase I via an existing 36-inch RCP into a detention pond within Basin D-2 which will function as a single-interconnected pond with existing ponds B-1 and B-2. The capacity of the existing ponds is based on as-built information. The bottom two feet of the pond are sized to retain the first flush volume and are not included in the detention calculations. Discharge from this pond will be through a CMP riser and an emergency overflow weir is provided to accommodate the 100-year storm should the outlet become clogged.

This pond will discharge via a proposed 30-inch storm drain pipe with a manhole junction at Pond D-1 to the north. Drainage from Pond D-1, which accepts flows from Basin D-1, will likewise drain through a CMP riser connected to the junction manhole and outlet directly into the South Diversion Channel through a 36-inch storm drain pipe near the outlet of the existing 24-inch CMP which will be abandoned after the new system is installed. The pond on Basin D-1 will also be configured to retain the necessary first-flush volume in the first two feet of depth. An emergency overflow weir is provided to accommodate the 100-year storm should the outlet become clogged.

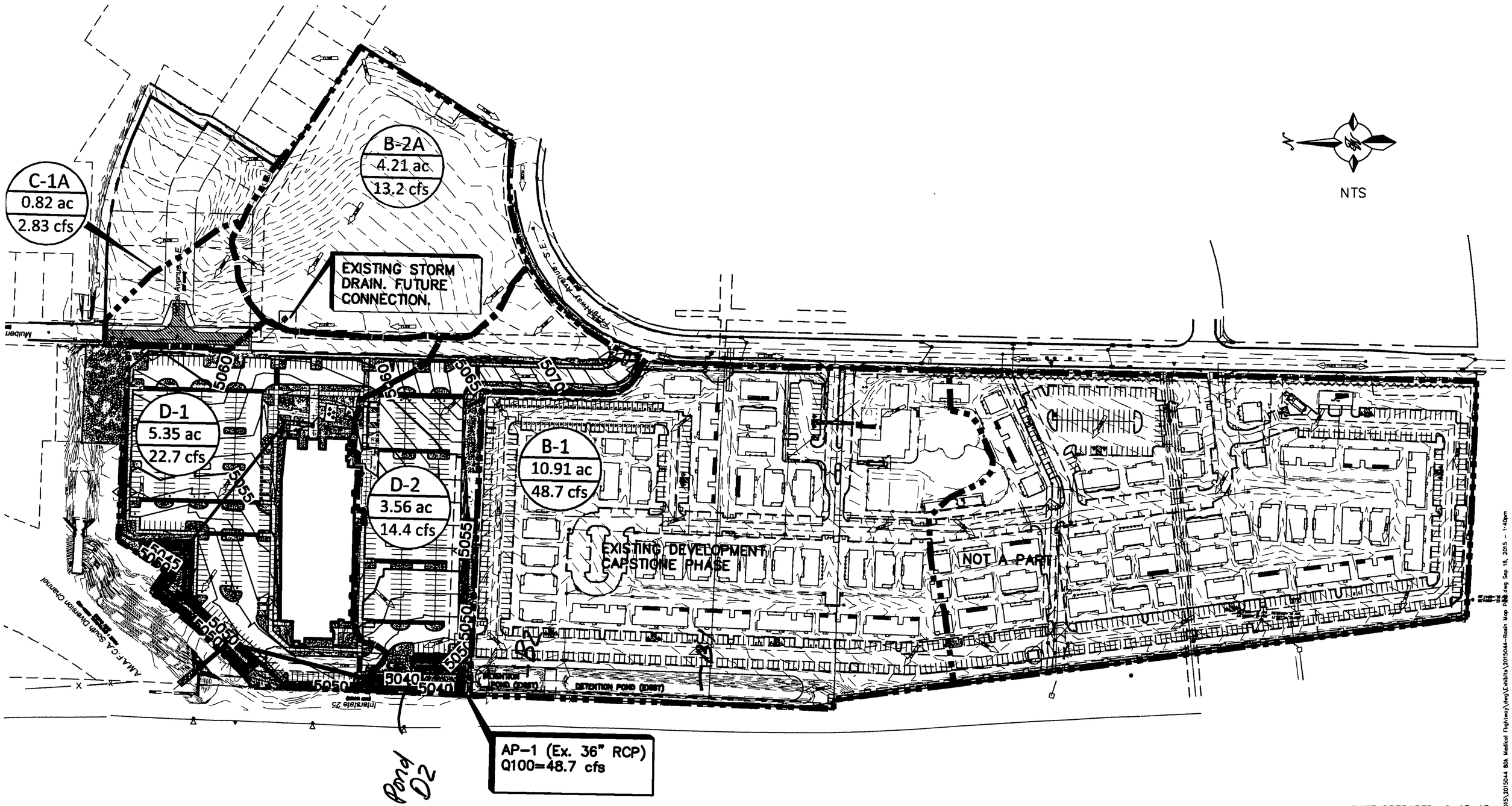
Water Quality Management

Discharge from the developed portions of the project will be captured in the detention/retention ponds which are sized to retain the first-flush flows. Calculations for sizing are provided in the appendix to this report.

Conclusion

This Drainage Management Plan provides for grading and drainage elements which are capable of safely conveying the 100-Yr, 6-Hr storm and which meet City requirements, as well as meeting the water quality requirements. With this submittal, we request Drainage Report and Grading Plan approvals for the Site Plan for Building Permit application.

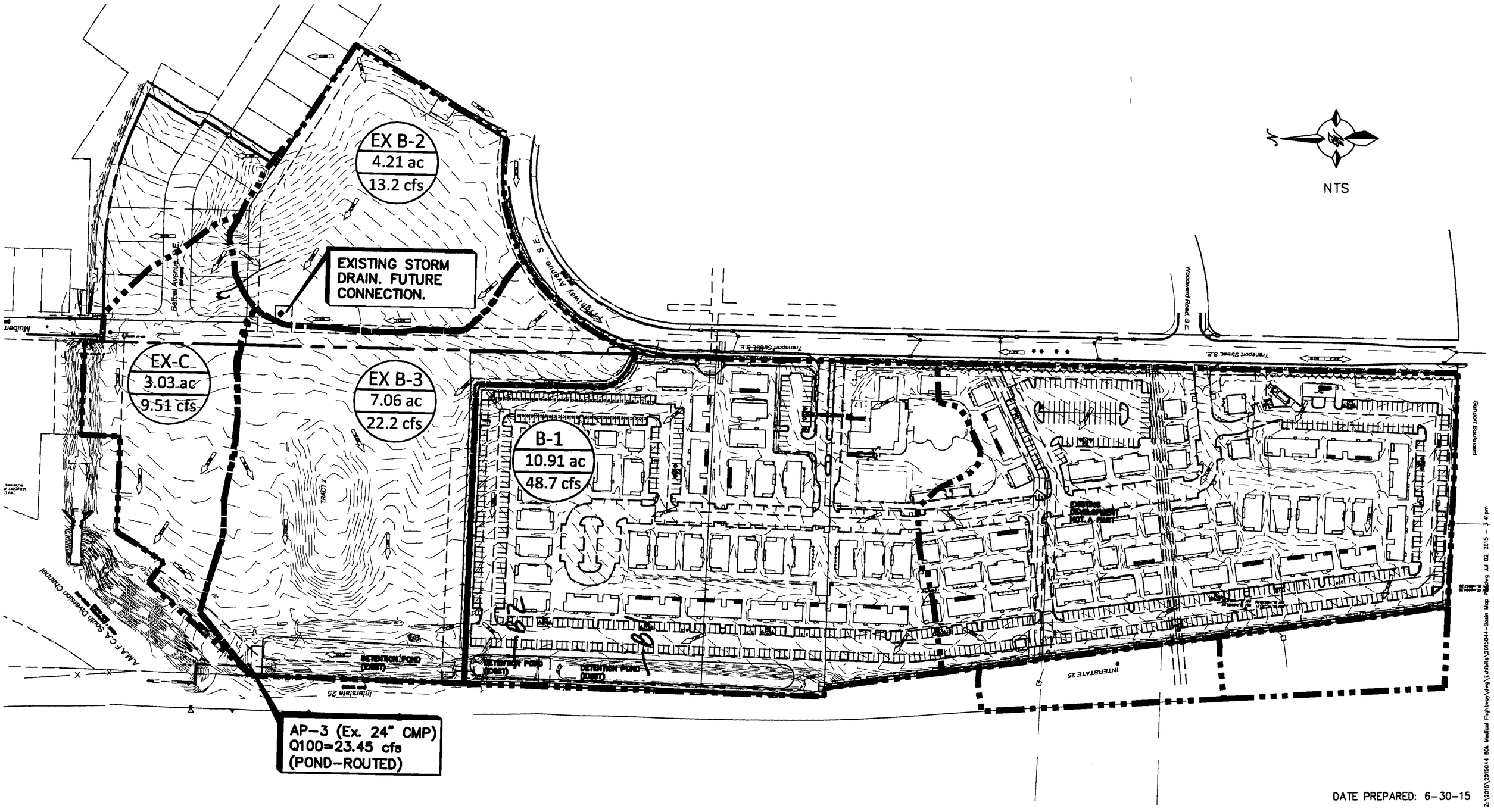
MULTI-SPECIALTY CLINIC
POST-DEVELOPED BASIN MAP



DATE PREPARED: 9-15-15

Z:\2015\2015044 80th Medical Flightway\dwg\Exhibits\2015044-Basin Map PDB.dwg Sep 16, 2015 - 1:40pm

MULTI-SPECIALTY CLINIC
PRE-DEVELOPED BASIN MAP



DATE PREPARED: 6-30-15

Z:\2015\2015044 80A Medical Pavilion\Eng\Exhibits\2015044-Basin Map Jul 02, 2015 - 3:41pm

DPM Weighted E Method

Precipitation Zone 2

MULTI-SPECIALTY CLINIC

2901 Transport St, SE

TWLLC/JH, PE **14-Sep-15**

Existing Conditions

Basin Descriptions												100-Year, 6-Hr			10-Year, 6-Hr		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
B-1	475,425 00	10.91	0.01705	0%	0	0%	0 000	15%	1.6371384	85%	9 277	1.972	1.793	48.74	1.217	1 107	31.93
Ex-B2	183,206 00	4.21	0 00657	0%	0	0%	0 000	100%	4 205831	0%	0 000	1.130	0.396	13.21	0.520	0 182	7.19
Ex-B3	307,640 00	7.06	0.01104	0%	0	0%	0.000	100%	7.0624426	0%	0.000	1 130	0 665	22.18	0.520	0 306	12 08
Ex-C	131,863.00	3.03	0.00473	0%	0	0%	0.000	100%	3.0271579	0%	0.000	1 130	0.285	9.51	0.520	0 131	5.18
Total	**1,098,134.00**	**25.210**	**0.03939**										**3.139**	**93.63**		**1.726**	**56.37**

Notes·

Developed Conditions

Basin Descriptions												100-Year, 6-Hr			10-Year, 6-Hr		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
D-1	232,936.00	5 35	0 00836	0%	0	0%	0.000	30%	1.5828525	70%	3.765	1.827	0 814	22 66	1.097	0 489	14.53
D-2	155,279.00	3 56	0 00557	0%	0	0%	0.000	42%	1.4971804	58%	2.068	1.704	0.506	14.42	0.996	0 296	9.05
C-1A	35,532 00	0 82	0 00127	0%	0	0%	0 000	79%	0.644405	21%	0.171	1.338	0.091	2 83	0 692	0 047	1.64
B-1	475,425 00	10 91	0.01705	0%	0	0%	0 000	15%	1.6371384	85%	9.277	1.972	1.793	48.74	1 217	1.107	31.93
B-2A	183,206 00	4 21	0.00657	0%	0	0%	0 000	100%	4.205831	0%	0.000	1.130	0.396	13.21	0 520	0.182	7.19
	35,532.00	0 82	0.00127	0%	0	0%	0 000	79%	0.644405	21%	0 171	1.338	0.091	2 83	0 692	0.047	1.64
Total	**1,117,910.00**	**25.664**	**0.04010**										**3.691**	**104.69**		**2.168**	**65.98**

Notes

%D = 3.765 + 2.068 =

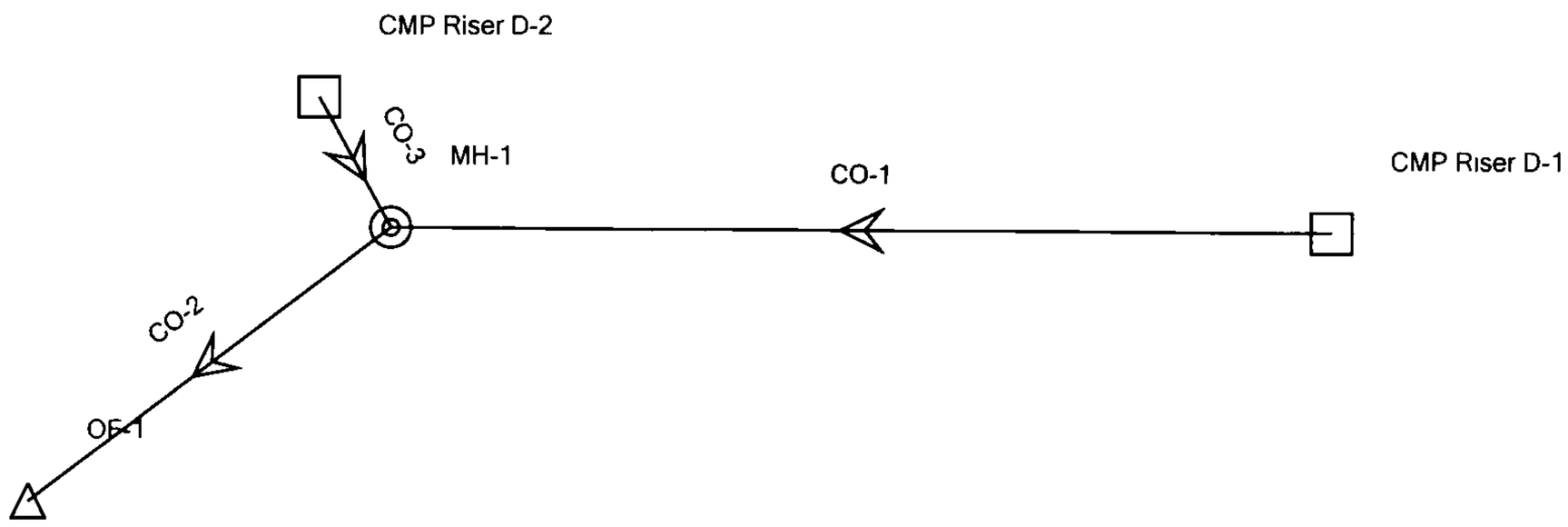
Equations:

Weighted E = $E_a*A_a + E_b*A_b + E_c*A_c + E_d*A_d$ / (Total Area)

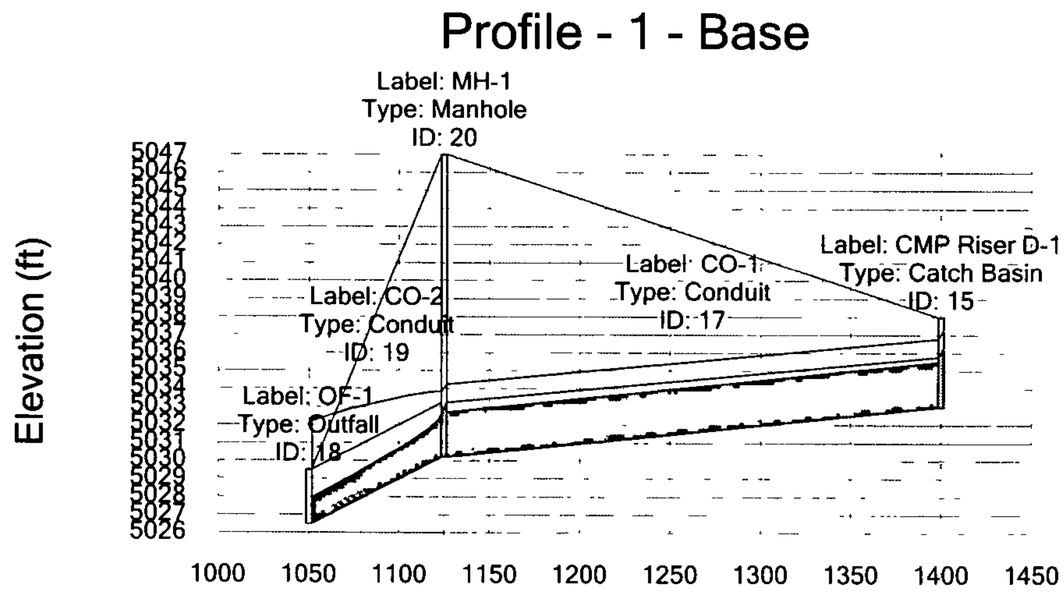
Volume = Weighted D * Total Area

Flow = $Q_a * A_a + Q_b * A_b + Q_c * A_c + Q_d * A_d$

Scenario: Base

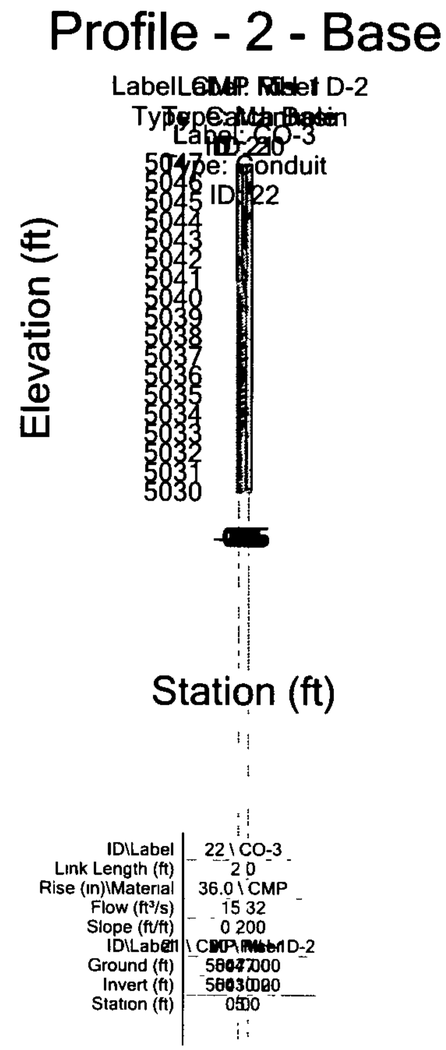


Profile Report
Profile: Profile - 1



ID\Label	19 \ CO-2		17 \ CO-1	
Link Length (ft)	72 0		272 0	
Rise (in)\Material	36 0 \ Concrete		30 0 \ Concrete	
Flow (ft³/s)	54 77		39 45	
Slope (ft/ft)	0 050		0 010	
ID\Label	18 \ OF-1	20 \ MH-1		15 \ CMP Riser D-1
Ground (ft)	5029 50	5047 00		5038 00
Invert (ft)	5026 50	5030 20		5033 00
Station (ft)	1050 0	1125 0		1400 0

Profile Report
Profile: Profile - 2



Reprint w/better scale CO-3

Scenario: Base
Current Time Step: 0.000Hr
Conduit FlexTable: Combined Pipe/Node Report

Label	Start Node	Stop Node	Length (Unified) (ft)	Capacity (Full Flow) (ft^3/s)	Flow (Link) (ft^3/s)	Velocity (Average) (ft/s)	Slope (ft/ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Invert (Downstream) (ft)	Invert (Upstream) (ft)
CO-3	CMP Riser D-2	MH-1	5 0	161 56	15 32	14 39	0 200	5,042 25	5,040.79	5,040 00	5,041 00
CO-2	MH-1	OF-1	74 0	149 13	54.77	19 48	0 050	5,032 60	5,027 92	5,026 50	5,030 20
CO-1	CMP Riser D-1	MH-1	275 0	41 39	39 45	8 04	0 010	5,035 78	5,033 24	5,030 20	5,033.00

Worksheet for Broad Crested Weir - D-2

Project Description

Solve For	Headwater Elevation

Input Data

Discharge		65.28	ft³/s
Crest Elevation		5040.90	ft
Tailwater Elevation		0.00	ft
Crest Surface Type	Gravel		
Crest Breadth		5.00	ft
Crest Length		20.00	ft

Results

Headwater Elevation	5041.95	ft
Headwater Height Above Crest	1.05	ft
Tailwater Height Above Crest	-5040.90	ft
Weir Coefficient	3.02	US
Submergence Factor	1.00	
Adjusted Weir Coefficient	3.02	US
Flow Area	21.08	ft²
Velocity	3.10	ft/s
Wetted Perimeter	22.11	ft
Top Width	20.00	ft

Worksheet for Broad Crested Weir - D-1

Project Description

Solve For	Headwater Elevation

Input Data

Discharge		23.54	ft³/s
Crest Elevation		5048.75	ft
Tailwater Elevation		0.00	ft
Crest Surface Type	Gravel		
Crest Breadth		5.00	ft
Crest Length		20.00	ft

Results

Headwater Elevation	5049.32	ft
Headwater Height Above Crest	0.57	ft
Tailwater Height Above Crest	-5048.75	ft
Weir Coefficient	2.72	US
Submergence Factor	1.00	
Adjusted Weir Coefficient	2.72	US
Flow Area	11.45	ft²
Velocity	2.06	ft/s
Wetted Perimeter	21.15	ft
Top Width	20.00	ft

Worksheet for 4-ft Concrete Flume at Basin D-1

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.04000	ft/ft
Bottom Width	5.00	ft
Discharge	22.66	ft^3/s

Results

Normal Depth	0.40	ft
Flow Area	2.01	ft^2
Wetted Perimeter	5.80	ft
Hydraulic Radius	0.35	ft
Top Width	5.00	ft
Critical Depth	0.86	ft
Critical Slope	0.00384	ft/ft
Velocity	11.28	ft/s
Velocity Head	1.98	ft
Specific Energy	2.38	ft
Froude Number	3.14	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.40	ft
Critical Depth	0.86	ft
Channel Slope	0.04000	ft/ft
Critical Slope	0.00384	ft/ft

Capacity of a Single 'C' Storm Drop Inlet

Capacity of the grate:

L = 40" - 2(2"$_{ends}$) - 7(½" $_{middle\ bars}$)
= 32 1/2"
= 2.7083'

W = 25" - 13(½" $_{middle\ bars}$)
= 18.5"
= 1.54'

Area = 2.7083' x 1.54'
= 4.18 ft^2

Effective Area = 4.18- 4.18 (0.5 $_{clogging\ factor}$)
= 2.09 ft^2 at the grate

Orifice Equation

Q = CA sqrt(2gH)
Q = 0.6*2.09*sqrt(2*32.2*0.67)
Q = 8.24 cfs

Capacity of the Throat:

L = 4.00'

H = 10 ¾" - 4 ½"
= 6 ¼"
= 0.5208'

Area = 4.00' x 0.5208'
= 2.08 ft^2 at the throat

Weir Equation

Q = CLH^(3/2)
Q = 2.95 * 2.08 * 0.67^(3/2)
Q = 3.37 cfs

Total Capacity:

Q = 8.24_{grate} + 3.37_{throat}
Q = 11.61 cfs

50% clogging but still ok

Check for Basin C-1A

Required Capacity =2.83 cfs < 11.61 Provided Capacity, therefore **OK**

Capacity of a Double 'C' Storm Drop Inlet

Capacity of the grate:

L = 80" - 2(2"$_{ends}$) - 14(½" $_{middle\ bars}$) – 6" $_{center\ piece}$
= 66 1/2"
= 5.25'

W = 25" - 13(½" $_{middle\ bars}$)
= 18.5"
= 1.54'

Area = 5.25' x 1.54'
= 8.09 ft^2

Effective Area = 8.09- 8.09 (0.5 $_{clogging\ factor}$)
= 4.04 ft^2 at the grate

Orifice Equation

Q = CA sqrt(2gH)
Q = 0.6*4.04*sqrt(2*32.2*0.50)
Q = 13.75 cfs

Capacity of the Throat:

L = 7.40'

H = 10 ¾" - 4 ½"
= 6 ¼"
= 0.5208'

Area = 7.40' x 0.5208'
= 3.85 ft^2 at the throat

Weir Equation

Q = CLH^(3/2)
Q = 2.95 * 3.85 * 0.50^(3/2)
Q = 4.01 cfs

Total Capacity:

Q = 15.93_{grate} + 6.24_{throat}
Q = 17.77 cfs

Check For Basin D-2:
Required Capacity=14.42 < 17.77 Provided Capacity; therefore **OK**

FIRST FLUSH RETENTION VOLUME CALCULATIONS

SOUTH POND (D-2) RETENTION VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
5037	953	0	0
5038	1440	1196.5	1197
5039	1997	1718.5	**2915**

VOLUME PROVIDED: **2915** ✓

VOLUME REQUIRED:

IMPERVIOUS AREA: 90,154 sf

VOLUME REQUIRED= (0.44-0.1)/12= **2,554 cf** ✓

OK

NORTH POND (D-1) RETENTION VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
5045	1735	0	0
5046	2606	2170.5	2170.5
5047	3588	3097	**5267.5** ✓

VOLUME PROVIDED: **5268** ✓

VOLUME REQUIRED:

IMPERVIOUS AREA: 164,025 sf

VOLUME REQUIRED= (0.44-0.1)/12= **4,647 cf** ✓

OK

Pond Discharge-Orifice Calculations (Pond D-1)

OFFSITE POND B-1 VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
5047	4271	0	0
5048	6202	5236.5	5237
5049	8210	7206	12443
5050	10294	9252	21695
5051	15375	12834.5	34529

ACTUAL ELEV.	DEPTH (FT)	VOLUME (CF)	Q (CFS)	VOLUME (AC-FT)
47.00	0	0	0.00	
48.00	1.00	5237	11.88	0.1202135
49.00	2.00	12443	18.31	0.2856405
50.00	3.00	21695	24.18	0.49803719

Orifice Equation

Q = CA SQRT(2gH)

C = 0.6
Diameter 2.5
Area (ft^2 0.034
g = 32.2
H (Ft) = Depth of water above center of orifice
Q (CFS)= Flow

Pond Discharge-Orifice Calculations (Pond D-2)

OFFSITE POND B-1 VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
5039	7118	0	0
5040	9192	8155	8155
5041	11206	10199	18354
5042	13265	12235.5	30590
5043	15375	14320	44910

OFFSITE POND B-2 VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
5039	2964	0	0
5040	3498	3231	3231
5041	4057	3777.5	7008.5
5042	4642	4349.5	11358
5042.5	4943	2396.25	13754.25

ONSITE POND D-2 VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
5039	2675	0	0
5040	3785	3230	3230
5041	4977	4381	7611
5042	6252	5614.5	13226
			13226

***NOTE: THREE PONDS INTERCONNECTED THEREFORE SUM USED**

ACTUAL ELEV.	DEPTH (FT)	VOLUME (CF)	Q (CFS)	VOLUME (AC-FT)
39.00	0	0	0.00	
40.00	1.00	14616	28.57	0.33553719
41.00	2.00	32974	42.92	0.7569674
42.00	3.00	55173	55.52	1.2665978

Orifice Equation

Q = CA SQRT(2gH)

C =	0.6
Diameter	3
Area (ft^2	0.049
g =	32.2

H (Ft) = Depth of water above center of orifice

Q (CFS)= Flow

```
        AHYMO PROGRAM (AHYMO-S4)                    - Version: S4.01a - Rel:
01a
             RUN DATE (MON/DAY/YR) = 09/14/2015
             START TIME (HR:MIN:SEC) = 16:06:34     USER NO.=
TierraWest-SiteA99368577
             INPUT FILE = C:\Users\Joel\Desktop\Clinic Basins.txt

    ************************************************************************

    *                Multi Specialty Clinic, ALBUQUERQUE, NM               *

    ************************************************************************

    * 100-YEAR, 24-HR STORM  (UNDER PROPOSED CONDITIONS) W/ routing *

    ************************************************************************

    *

    START                  TIME=0.0

    *

    *

    RAINFALL               TYPE=2 RAIN QUARTER=0.0 IN

                           RAIN ONE=2.01 IN RAIN SIX=2.35 IN

                           RAIN DAY=2.75 IN DT=0.05 HR

                     24-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR
CONVECTIVE AREAS (NM & AZ) - D1
                     DT =   0.050000 HOURS       END TIME =    24.000002 HOURS
                       0.0000  0.0023  0.0046  0.0071  0.0099  0.0127  0.0159
                       0.0203  0.0272  0.0347  0.0424  0.0509  0.0595  0.0684
                       0.0776  0.0870  0.0974  0.1084  0.1204  0.1437  0.1728
                       0.2117  0.2559  0.3104  0.3831  0.4649  0.6062  0.8258
                       1.2021  1.4666  1.6752  1.7800  1.8719  1.9379  1.9905
                       2.0362  2.0697  2.1005  2.1259  2.1418  2.1530  2.1629
                       2.1722  2.1803  2.1879  2.1953  2.2025  2.2084  2.2118
                       2.2152  2.2186  2.2217  2.2247  2.2278  2.2307  2.2336
                       2.2363  2.2391  2.2417  2.2443  2.2469  2.2494  2.2518
                       2.2542  2.2565  2.2588  2.2611  2.2633  2.2654  2.2676
                       2.2697  2.2717  2.2738  2.2758  2.2778  2.2798  2.2817
                       2.2837  2.2856  2.2874  2.2893  2.2911  2.2930  2.2948
                       2.2965  2.2983  2.3000  2.3017  2.3034  2.3051  2.3068
                       2.3084  2.3100  2.3117  2.3133  2.3148  2.3164  2.3180
                       2.3195  2.3210  2.3225  2.3240  2.3255  2.3269  2.3284
                       2.3298  2.3313  2.3327  2.3341  2.3355  2.3368  2.3382
                       2.3396  2.3409  2.3422  2.3436  2.3449  2.3462  2.3474
                       2.3487  2.3500  2.3513  2.3525  2.3538  2.3551  2.3563
                       2.3576  2.3589  2.3601  2.3614  2.3627  2.3639  2.3652
                       2.3665  2.3677  2.3690  2.3702  2.3715  2.3728  2.3740
                       2.3753  2.3765  2.3778  2.3790  2.3803  2.3815  2.3828
                       2.3840  2.3853  2.3865  2.3878  2.3890  2.3903  2.3915
                       2.3927  2.3940  2.3952  2.3965  2.3977  2.3989  2.4002
                       2.4014  2.4027  2.4039  2.4051  2.4064  2.4076  2.4088
                       2.4101  2.4113  2.4125  2.4137  2.4150  2.4162  2.4174
                       2.4186  2.4199  2.4211  2.4223  2.4235  2.4247  2.4260
                       2.4272  2.4284  2.4296  2.4308  2.4320  2.4333  2.4345
                       2.4357  2.4369  2.4381  2.4393  2.4405  2.4417  2.4429
                       2.4441  2.4453  2.4465  2.4478  2.4490  2.4502  2.4514
```

2.4526	2.4538	2.4550	2.4561	2.4573	2.4585	2.4597
2.4609	2.4621	2.4633	2.4645	2.4657	2.4669	2.4681
2.4692	2.4704	2.4716	2.4728	2.4740	2.4752	2.4764
2.4775	2.4787	2.4799	2.4811	2.4822	2.4834	2.4846
2.4858	2.4869	2.4881	2.4893	2.4905	2.4916	2.4928
2.4940	2.4951	2.4963	2.4975	2.4986	2.4998	2.5010
2.5021	2.5033	2.5044	2.5056	2.5068	2.5079	2.5091
2.5102	2.5114	2.5125	2.5137	2.5148	2.5160	2.5171
2.5183	2.5194	2.5206	2.5217	2.5229	2.5240	2.5252
2.5263	2.5274	2.5286	2.5297	2.5309	2.5320	2.5331
2.5343	2.5354	2.5365	2.5377	2.5388	2.5399	2.5411
2.5422	2.5433	2.5445	2.5456	2.5467	2.5478	2.5490
2.5501	2.5512	2.5523	2.5535	2.5546	2.5557	2.5568
2.5579	2.5590	2.5602	2.5613	2.5624	2.5635	2.5646
2.5657	2.5668	2.5679	2.5691	2.5702	2.5713	2.5724
2.5735	2.5746	2.5757	2.5768	2.5779	2.5790	2.5801
2.5812	2.5823	2.5834	2.5845	2.5856	2.5867	2.5878
2.5889	2.5899	2.5910	2.5921	2.5932	2.5943	2.5954
2.5965	2.5976	2.5986	2.5997	2.6008	2.6019	2.6030
2.6040	2.6051	2.6062	2.6073	2.6084	2.6094	2.6105
2.6116	2.6126	2.6137	2.6148	2.6159	2.6169	2.6180
2.6191	2.6201	2.6212	2.6223	2.6233	2.6244	2.6254
2.6265	2.6276	2.6286	2.6297	2.6307	2.6318	2.6328
2.6339	2.6350	2.6360	2.6371	2.6381	2.6392	2.6402
2.6413	2.6423	2.6433	2.6444	2.6454	2.6465	2.6475
2.6486	2.6496	2.6506	2.6517	2.6527	2.6538	2.6548
2.6558	2.6569	2.6579	2.6589	2.6600	2.6610	2.6620
2.6630	2.6641	2.6651	2.6661	2.6672	2.6682	2.6692
2.6702	2.6712	2.6723	2.6733	2.6743	2.6753	2.6763
2.6774	2.6784	2.6794	2.6804	2.6814	2.6824	2.6834
2.6844	2.6854	2.6865	2.6875	2.6885	2.6895	2.6905
2.6915	2.6925	2.6935	2.6945	2.6955	2.6965	2.6975
2.6985	2.6995	2.7005	2.7015	2.7025	2.7034	2.7044
2.7054	2.7064	2.7074	2.7084	2.7094	2.7104	2.7114
2.7123	2.7133	2.7143	2.7153	2.7163	2.7172	2.7182
2.7192	2.7202	2.7211	2.7221	2.7231	2.7241	2.7250
2.7260	2.7270	2.7280	2.7289	2.7299	2.7309	2.7318
2.7328	2.7338	2.7347	2.7357	2.7366	2.7376	2.7386
2.7395	2.7405	2.7414	2.7424	2.7433	2.7443	2.7452
2.7462	2.7472	2.7481	2.7491	2.7500		

```
*DEVELOPED CONDITIONS
*
*BASIN B-1
*
COMPUTE NM HYD      ID=1 HYD NO=100.1 AREA=0.01705 SQ MI
                    PER A=0.00 PER B=0.00 PER C=15.0 PER D=85.00
                    TP=-0.1333 HR MASS RAINFALL=-1

        K =  0.072649HR    TP =  0.133300HR    K/TP RATIO =  0.545000
SHAPE CONSTANT, N =  7.106428
        UNIT PEAK =   57.217    CFS   UNIT VOLUME =   0.9989       B =
526.28      P60 = 2.0100
        AREA =     0.014493 SQ MI    IA =   0.10000 INCHES    INF =   0.04000
INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =  0.050000
```

```
                                        AHYMO
        K =  0.107446HR    TP =  0.133300HR    K/TP RATIO =  0.806046
SHAPE CONSTANT, N =  4.440407
        UNIT PEAK =   7.3586    CFS   UNIT VOLUME =    1.000       B =
383.54      P60 = 2.0100
        AREA =     0.002558 SQ MI    IA =   0.35000 INCHES    INF =   0.83000
INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =  0.050000

    PRINT HYD           ID=1 CODE=1


                                        PARTIAL HYDROGRAPH   100.10


        RUNOFF VOLUME =     2.31096 INCHES     =       2.1014 ACRE-FEET
        PEAK DISCHARGE RATE =      50.21 CFS  AT   1.500 HOURS   BASIN AREA =
0.0171 SQ. MI.


    *

    *

    *BASIN D-2

    *

    COMPUTE NM HYD      ID=2 HYD NO=100.2 AREA=0.00557 SQ MI

                        PER A=0.00 PER B=0.00 PER C=42.0 PER D=58.0

                        TP=-0.1333 HR MASS RAINFALL=-1


        K =  0.072649HR    TP =  0.133300HR    K/TP RATIO =  0.545000
SHAPE CONSTANT, N =  7.106428
        UNIT PEAK =   12.755    CFS   UNIT VOLUME =   0.9983       B =
526.28      P60 = 2.0100
        AREA =     0.003231 SQ MI    IA =   0.10000 INCHES    INF =   0.04000
INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =  0.050000


        K =  0.107446HR    TP =  0.133300HR    K/TP RATIO =  0.806046
SHAPE CONSTANT, N =  4.440407
        UNIT PEAK =   6.7310    CFS   UNIT VOLUME =    1.000       B =
383.54      P60 = 2.0100
        AREA =     0.002339 SQ MI    IA =   0.35000 INCHES    INF =   0.83000
INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =  0.050000

    PRINT HYD           ID=2 CODE=1


                                        PARTIAL HYDROGRAPH   100.20


        RUNOFF VOLUME =     1.96150 INCHES     =       0.5827 ACRE-FEET
        PEAK DISCHARGE RATE =      15.07 CFS  AT   1.500 HOURS   BASIN AREA =
0.0056 SQ. MI.
```

```
*
*
*BASIN D-1
*
COMPUTE NM HYD       ID=3 HYD NO=100.3 AREA=0.00836 SQ MI
                     PER A=0.00 PER B=0.00 PER C=29.6 PER D=70.40
                     TP=-0.1333 HR MASS RAINFALL=-1

        K =  0.072649HR    TP =  0.133300HR    K/TP RATIO =  0.545000
SHAPE CONSTANT, N =  7.106428
        UNIT PEAK =   23.236    CFS   UNIT VOLUME =   0.9986       B =
526.28      P60 = 2.0100
        AREA =     0.005885 SQ MI    IA =   0.10000 INCHES    INF =   0.04000
INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =  0.050000


        K =  0.107446HR    TP =  0.133300HR    K/TP RATIO =  0.806046
SHAPE CONSTANT, N =  4.440407
        UNIT PEAK =   7.1199    CFS   UNIT VOLUME =    1.000       B =
383.54      P60 = 2.0100
        AREA =     0.002475 SQ MI    IA =   0.35000 INCHES    INF =   0.83000
INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =  0.050000

    PRINT HYD            ID=3 CODE=1


                                        PARTIAL HYDROGRAPH   100.30


        RUNOFF VOLUME =     2.12200 INCHES     =       0.9461 ACRE-FEET
        PEAK DISCHARGE RATE =      23.54 CFS  AT   1.500 HOURS   BASIN AREA =
0.0084 SQ. MI.


*
*
*
*
ADD HYD                          ID=50 HYD NO=100.21 ID=1 ID=2
*
*
PRINT HYD            ID=50 CODE=1


                                        PARTIAL HYDROGRAPH   100.21
```

RUNOFF VOLUME = 2.22489 INCHES = 2.6841 ACRE-FEET
PEAK DISCHARGE RATE = 65.28 CFS AT 1.500 HOURS BASIN AREA = 0.0226 SQ. MI.

*

*

*ROUTE BASIN B-1 and D-2 THROUGH SOUTH DETENTION PONDS

ROUTE RESERVOIR ID=55 HYD NO=200.1 INFLOW ID=50 CODE=24

OUTFLOW (CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0	0.0	39.00
28.57	0.3355	40.00
42.920	0.7569	41.00
55.520	1.2666	42.00

* * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	39.00	0.000	0.00
1.20	8.68	39.17	0.056	4.77
2.40	2.11	39.15	0.051	4.31
3.60	0.11	39.00	0.001	0.13
4.80	0.17	39.01	0.002	0.16
6.00	0.28	39.01	0.003	0.27
7.20	0.29	39.01	0.003	0.29
8.40	0.28	39.01	0.003	0.28
9.60	0.28	39.01	0.003	0.28
10.80	0.27	39.01	0.003	0.27
12.00	0.27	39.01	0.003	0.27
13.20	0.26	39.01	0.003	0.26
14.40	0.26	39.01	0.003	0.26
15.60	0.25	39.01	0.003	0.25
16.80	0.25	39.01	0.003	0.25
18.00	0.24	39.01	0.003	0.24
19.20	0.24	39.01	0.003	0.24
20.40	0.24	39.01	0.003	0.23
21.60	0.23	39.01	0.003	0.23
22.80	0.22	39.01	0.003	0.22
24.00	0.22	39.01	0.003	0.22

PEAK DISCHARGE = 39.454 CFS - PEAK OCCURS AT HOUR 1.65
MAXIMUM WATER SURFACE ELEVATION = 40.758
MAXIMUM STORAGE = 0.6551 AC-FT INCREMENTAL TIME= 0.050000HRS

*

*

PRINT HYD ID=55 CODE=1

PARTIAL HYDROGRAPH 200.10

RUNOFF VOLUME = 2.22489 INCHES = 2.6841 ACRE-FEET
PEAK DISCHARGE RATE = 39.45 CFS AT 1.650 HOURS BASIN AREA = 0.0226 SQ. MI.

*

*ROUTE BASIN D-1 THROUGH NORTH DETENTION POND

ROUTE RESERVOIR ID=56 HYD NO=200.2 INFLOW ID=3 CODE=24

OUTFLOW (CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0	0.0	47.00
11.880	0.1202	48.00
18.310	0.2856	49.00
24.180	0.4980	50.00

* * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	47.00	0.000	0.00
1.20	2.89	47.14	0.017	1.71
2.40	0.75	47.11	0.013	1.29
3.60	0.04	47.00	0.000	0.04
4.80	0.06	47.00	0.001	0.05
6.00	0.09	47.01	0.001	0.09
7.20	0.09	47.01	0.001	0.10
8.40	0.09	47.01	0.001	0.09
9.60	0.09	47.01	0.001	0.09
10.80	0.09	47.01	0.001	0.09
12.00	0.09	47.01	0.001	0.09
13.20	0.09	47.01	0.001	0.09
14.40	0.09	47.01	0.001	0.09
15.60	0.08	47.01	0.001	0.08
16.80	0.08	47.01	0.001	0.08
18.00	0.08	47.01	0.001	0.08
19.20	0.08	47.01	0.001	0.08
20.40	0.08	47.01	0.001	0.08
21.60	0.08	47.01	0.001	0.08
22.80	0.07	47.01	0.001	0.07
24.00	0.07	47.01	0.001	0.07

PEAK DISCHARGE = 15.319 CFS - PEAK OCCURS AT HOUR 1.65
MAXIMUM WATER SURFACE ELEVATION = 48.535
MAXIMUM STORAGE = 0.2087 AC-FT INCREMENTAL TIME= 0.050000HRS

*

*

PRINT HYD ID=55 CODE=1

PARTIAL HYDROGRAPH 200.10

RUNOFF VOLUME = 2.22489 INCHES = 2.6841 ACRE-FEET

```
                                        AHYMO
        PEAK DISCHARGE RATE =      39.45 CFS  AT   1.650 HOURS   BASIN AREA =
0.0226 SQ. MI.


    *

    ADD HYD                          ID=57 HYD NO=100.22 ID=55 ID=56

    *

    *

    PRINT HYD            ID=57 CODE=1

                                          PARTIAL HYDROGRAPH   100.22

        RUNOFF VOLUME =     2.19710 INCHES     =       3.6302 ACRE-FEET
        PEAK DISCHARGE RATE =      54.77 CFS  AT   1.650 HOURS   BASIN AREA =
0.0310 SQ. MI.


    *

    *

    FINISH

        NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 16:06:34
```

Tim Eichenberg, Chairman
Danny Hernandez, Vice Chairman
Bruce M. Thomson, Secretary-Treasurer
Ronald D. Brown, Assistant Secretary-Treasurer
Daniel F Lyon, Director

Jerry M. Lovato, P.E.
Executive Engineer

Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority

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

Mr. Jeff Wooten, P.E., LEED AP
Tierra West, LLC
5571 Midway Park Pl. NE
Albuquerque, NM 87109

June 25, 2013

Via E-mail

Re: Drainage Management Plan for Capstone Student Housing, Engineer's Stamp Dated June 14, 2013

Dear Mr. Wooten:

AMAFCA approves Development Review Board action for Preliminary and Final Plat for the referenced plan. AMAFCA will sign the Final Plat. I have reviewed the drainage report and have the following comments:

1. AMAFCA recently completed a re-study of the South Diversion Channel (SDC) which indicated freeboard deficiency for the 100-year flow in certain sections. The section by Capstone does have adequate capacity, so free discharge is allowed.
2. For the Phase 1 development, some type of onsite water quality treatment will be required prior to Basin A-1 discharge to the existing 48-inch storm drain which outfalls to the SDC. This can be in the form of bio-swales, hooded, sock or similar inserts for the inlets or a water quality manhole on the storm drain.
3. The detention ponds and discharge through the existing 24-inch CMP will be acceptable for Basin B-1. However, a debris fence, similar to the photo attached to the email, will be required in the downstream pond prior to the 24-inch pipe opening.
4. Basin C-1 direct discharge to the Kirtland Channel is acceptable for Phase 1. Future development will require a controlled discharge with water quality treatment measures.
5. Basin B-2 discharge to the 24-inch CMP is acceptable for Phase 1; however, future phases of development will require a new reinforced pipe outfall to the SDC with water quality. The design will require review by the U.S. Army of Corps of Engineers.

I do not require a revised drainage report at this time, but I do request a letter response to these comments for my file. These items must be taken into consideration for Site Plan for Building Permit approval. If you have any questions, please call me at 884-2215.

Sincerely,
AMAFCA

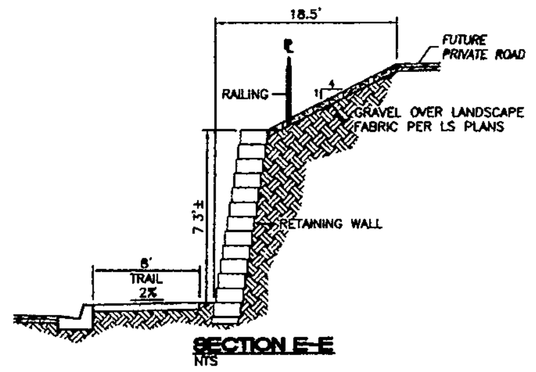
Lynn M. Mazur

Lynn M. Mazur, P.E., C.F.M.
Development Review Engineer

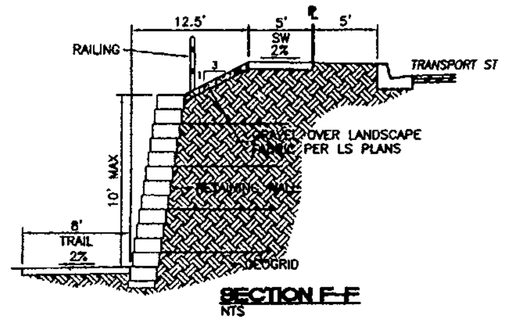
C: Curtis Cherne, City Hydrology

LEGEND

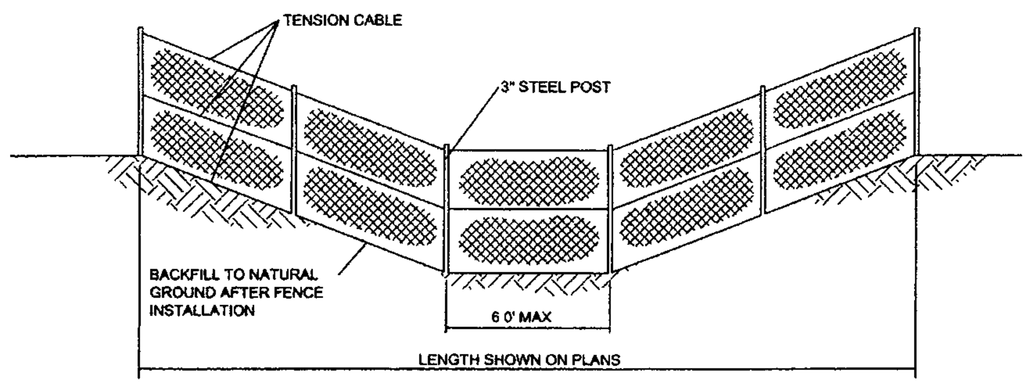
- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- SIDEWALK
- EXISTING CURB & GUTTER
- EXISTING SD MANHOLE
- EXISTING SAS MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING WATER METER
- EXISTING POWER POLE
- EXISTING GAS VALVE
- EXISTING OVERHEAD UTILITIES
- EXISTING GAS
- EXISTING SANITARY SEWER LINE
- EXISTING WATER LINE
- EXISTING STORM SEWER LINE
- EXISTING INDEX CONTOUR
- EXISTING CONTOUR



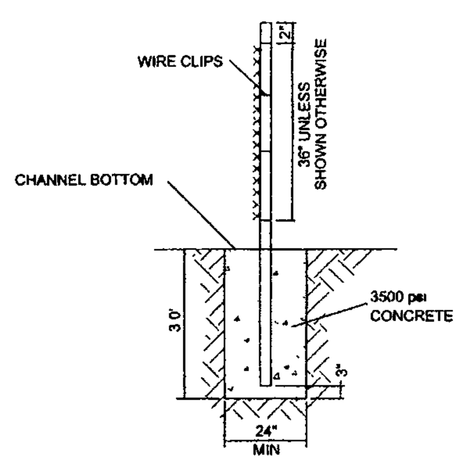
SECTION E-E
NTS



SECTION F-F
NTS



ELEVATION



SECTION

NOTES

1 FENCE FABRIC SHALL BE 2" MESH 9 GAGE GALVANIZED WIRE, CHAINLIKE PLACED ON THE UPSTREAM SIDE OF THE POSTS AND TENSION CABLES

2 TENSION CABLE SHALL BE 5/16" DIA STEEL AT 18" C/C SECURED AT ENDS WITH CLAMPS SECURE FENCE TO CABLE WITH NO 12 GALVANIZED STEEL WIRE LOOPED AT 6" C/C

3 POSTS SHALL BE 3" DIA STEEL PIPE, 5.79 LB/FT FILL MORTAR AFTER PLACING

4 FENCE FABRIC SHALL BE SECURED TO POSTS WITH 9 GAGE WIRE CLIPS AT 9" C/C

DRAINAGE CERTIFICATION BASED ON FIELD OBSERVATION AND MEASUREMENTS

DRAINAGE CERTIFICATION FOR ZONE 4

I, RONALD R. BOHANNAN, NMPE 8 7868 OF THE FIRM TIERRA WEST, LLC HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND WILL DRAIN IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE TO THE DESIGN INTENT OF THE APPROVED PLAN DATED 12/13/13. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY FIELD MEASUREMENTS TAKEN ON DECEMBER 13, 2014 THIS CERTIFICATION IS SUBMITTED IN SUPPORT OF A REQUEST FOR DRAINAGE CERTIFICATION FOR CONDITIONAL/TEMPORARY CERTIFICATE OF OCCUPANCY

EXCEPTIONS AMENDED AS-BUILT DRAWING USING DATA PROVIDED BY PROFESSIONAL SURVEYOR TO BE PROVIDED PRIOR TO ISSUANCE OF PERMANENT CERTIFICATE OF OCCUPANCY

THE RECORD INFORMATION PRESENTED HEREON IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO REFLECT SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE PLAN FOR THE PROJECT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS SUITABILITY FOR ANY PURPOSE USING IT FOR ANY OTHER PURPOSE

RONALD R. BOHANNAN NMPE 8 7868

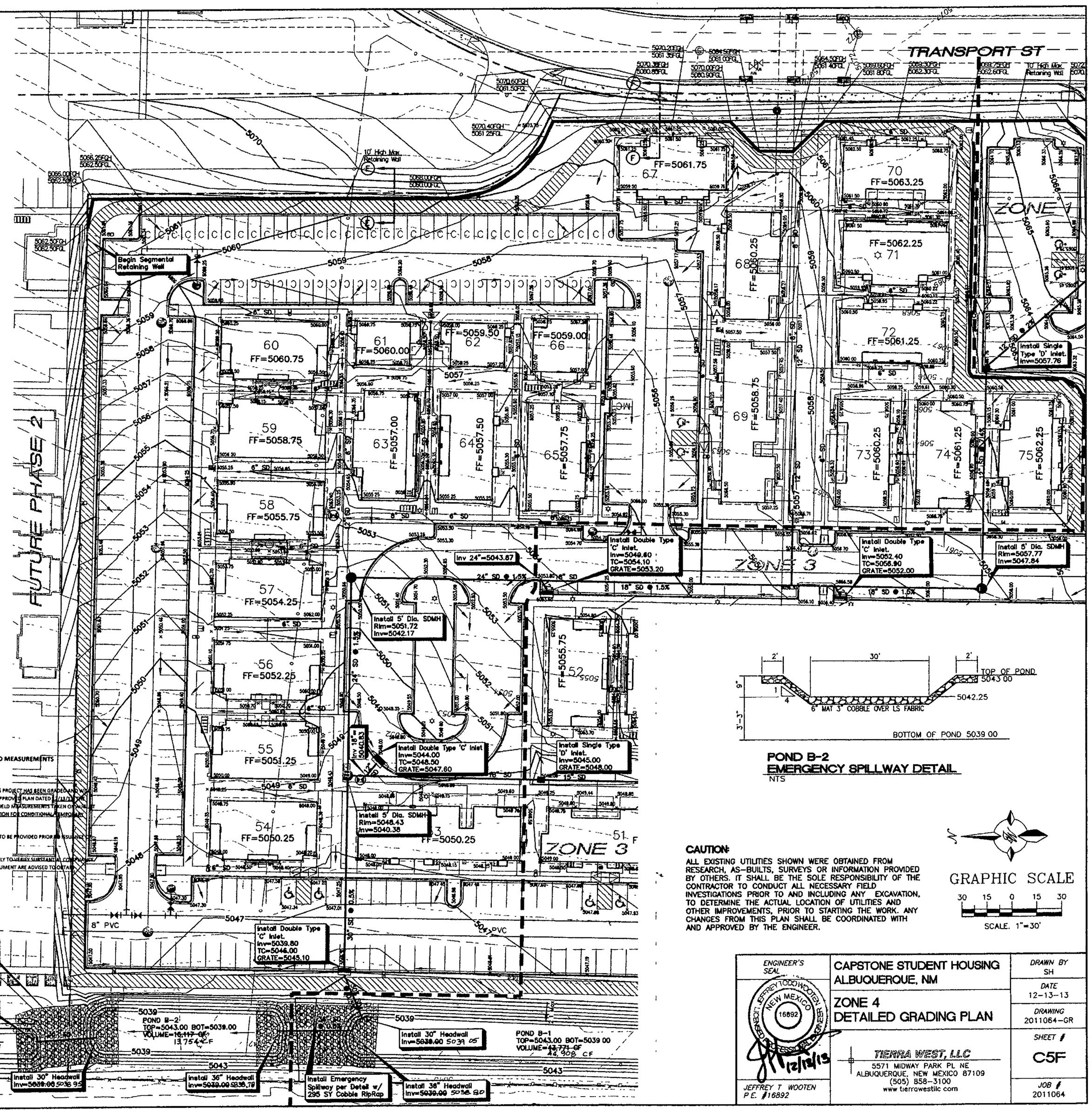
8/14/14

DATE

NEW MEXICO PROFESSIONAL ENGINEER

POND VOLUME
REQUIRED PER HYDROLOGY REPORT
= 73,798 CF
AS-BUILT PROVIDED Σ B-1, B-2, B3
= 78,698 CF OK

DEBRIS FENCE DETAIL
NTS



POND B-2
EMERGENCY SPILLWAY DETAIL
NTS

CAUTION:
ALL EXISTING UTILITIES SHOWN WERE OBTAINED FROM RESEARCH, AS-BUILTS, SURVEYS OR INFORMATION PROVIDED BY OTHERS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO AND INCLUDING ANY EXCAVATION, TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND OTHER IMPROVEMENTS, PRIOR TO STARTING THE WORK. ANY CHANGES FROM THIS PLAN SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER.

GRAPHIC SCALE
30 15 0 15 30
SCALE. 1"=30'

ENGINEER'S SEAL JEFFREY TODD WOOTEN NEW MEXICO 16892 12/13/13 JEFFREY T WOOTEN P.E. #16892	CAPSTONE STUDENT HOUSING ALBUQUERQUE, NM ZONE 4 DETAILED GRADING PLAN TIERRA WEST, LLC 5571 MIDWAY PARK PL NE ALBUQUERQUE, NEW MEXICO 87109 (505) 858-3100 www tierrawestllc com	DRAWN BY SH DATE 12-13-13 DRAWING 2011064-GR SHEET # C5F JOB # 2011064

DPM Weighted E Method

Precipitation Zone 2

Capstone Student Housing

I-25 and Sunport Blvd SE

TWLLC/JW, PE 6-Jun-13

Existing Conditions

Basin Descriptions												100-Year, 6-Hr			10-Year, 6-Hr		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
Ex-A1	237,886.14	5.46	0.00853	0%	0	0%	0.000	100%	5.461114	0%	0.000	1.130	0.514	17.15	0.520	0.237	9.34
Ex-A2	213,668.45	4.91	0.00766	0%	0	0%	0.000	100%	4.905153	0%	0.000	1.130	0.462	15.40	0.520	0.213	8.39
Ex-B	1,054,224.00	24.20	0.03782	0%	0	0%	0.000	100%	24.20165	0%	0.000	1.130	2.279	75.99	0.520	1.049	41.38
Ex-C	113,030.00	2.59	0.00405	0%	0	0%	0.000	100%	2.594812	0%	0.000	1.130	0.244	8.15	0.520	0.112	4.44
Total	**1,618,808.59**	**37.163**	**0.05807**										**3.499**	**116.69**		**1.610**	**63.55**

Notes:

Developed Conditions

Basin Descriptions												100-Year, 6-Hr			10-Year, 6-Hr		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
A-1	24,838.00	0.57	0.00089	0%	0	0%	0.000	15%	0.08553	85%	0.485	1.972	0.094	2.55	1.217	0.058	1.67
A-2	105,565.00	2.42	0.00379	0%	0	0%	0.000	15%	0.363516	85%	2.060	1.972	0.398	10.82	1.217	0.246	7.09
A-3	29,549.00	0.68	0.00106	0%	0	0%	0.000	15%	0.101753	85%	0.577	1.972	0.111	3.03	1.217	0.069	1.98
A-4	30,691.00	0.70	0.00110	0%	0	0%	0.000	15%	0.105685	85%	0.599	1.972	0.116	3.15	1.217	0.071	2.06
A-5	98,872.00	2.27	0.00355	0%	0	0%	0.000	15%	0.340468	85%	1.929	1.972	0.373	10.14	1.217	0.230	6.64
A-6	69,286.00	1.59	0.00249	0%	0	0%	0.000	15%	0.238588	85%	1.352	1.972	0.261	7.10	1.217	0.161	4.65
A-7	31,324.00	0.72	0.00112	0%	0	0%	0.000	15%	0.107865	85%	0.611	1.972	0.118	3.21	1.217	0.073	2.10
A-8	22,174.00	0.51	0.00080	0%	0	0%	0.000	15%	0.076357	85%	0.433	1.972	0.084	2.27	1.217	0.052	1.49
A-9	23,416.00	0.54	0.00084	0%	0	0%	0.000	100%	0.537557	0%	0.000	1.130	0.051	1.69	0.520	0.023	0.92
A-10	40,443.00	0.93	0.00145	0%	0	0%	0.000	100%	0.928444	0%	0.000	1.130	0.087	2.92	0.520	0.040	1.59
A-11	51,106.00	1.17	0.00183	0%	0	0%	0.000	100%	1.173232	0%	0.000	1.130	0.110	3.68	0.520	0.051	2.01
B-1	93,541.00	2.15	0.00336	0%	0	0%	0.000	15%	0.322111	85%	1.825	1.972	0.353	9.59	1.217	0.218	6.28
B-2	15,607.00	0.36	0.00056	0%	0	0%	0.000	15%	0.053743	85%	0.305	1.972	0.059	1.60	1.217	0.036	1.05
B-3	91,753.00	2.11	0.00329	0%	0	0%	0.000	15%	0.315954	85%	1.790	1.972	0.346	9.41	1.217	0.214	6.16
B-4	18,480.00	0.42	0.00066	0%	0	0%	0.000	15%	0.063636	85%	0.361	1.972	0.070	1.89	1.217	0.043	1.24
B-5	48,223.00	1.11	0.00173	0%	0	0%	0.000	15%	0.166057	85%	0.941	1.972	0.182	4.94	1.217	0.112	3.24
B-6	52,071.00	1.20	0.00187	0%	0	0%	0.000	15%	0.179308	85%	1.016	1.972	0.196	5.34	1.217	0.121	3.50
B-7	7,973.00	0.18	0.00029	0%	0	0%	0.000	15%	0.027455	85%	0.156	1.972	0.030	0.82	1.217	0.019	0.54
B-8	42,800.00	0.98	0.00154	0%	0	0%	0.000	15%	0.147383	85%	0.835	1.972	0.161	4.39	1.217	0.100	2.87
B-9	59,402.00	1.36	0.00213	0%	0	0%	0.000	100%	1.363682	0%	0.000	1.130	0.128	4.28	0.520	0.059	2.33
B-10	48,961.00	1.12	0.00176	0%	0	0%	0.000	100%	1.12399	0%	0.000	1.130	0.106	3.53	0.520	0.049	1.92
B-11	509,537.00	11.70	0.01828	0%	0	0%	0.000	100%	11.69736	0%	0.000	1.130	1.102	36.73	0.520	0.507	20.00
C-1	113,067.00	2.60	0.00406	0%	0	0%	0.000	100%	2.595661	0%	0.000	1.130	0.244	8.15	0.520	0.112	4.44
Total	**1,628,679.00**	**37.389**	**0.05842**										**4.781**	**141.23**		**2.664**	**85.78**

Notes:

10.99

+ 6.06 cfs

45.8 cfs + 1.78 =

48.58 + 48.7 cfs OK

OK for D-BASINS AC

(Revised Calcs on 10/8/2013)

MS-D06

Revised Drainage Management Plan Sept/27/13 (stamp)

Equations:

Weighted E = $E_a*A_a + E_b*A_b + E_c*A_c + E_d*A_d$ / (Total Area)

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

August 7, 2015

Ron Bohannan, PE
Tierra West, LLC
5571 Midway Park Pl NE
Albuquerque, NM 87109

RE: **Multi-Specialty Clinic**
Drainage Report and Conceptual Grading and Drainage Plan
Engineer's Stamp Date 7-2-2015 (File: M15D026B)

Dear Mr. Bohannan:

Based upon the information provided in your submittal received 7-2-2015, the above referenced plan is approved for EPC action.

Prior to approval for DRB action on the Site Plan, the following comments must be addressed:

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

1. AMAFCA will need to approve the Report and Grading plan for Site Plan action
2. In the Drainage Report, pg.2: what are the "capacity limitations" spoken of in paragraph 2? If free discharge was allowed into the channel, why did flows have to be attenuated? Was the 24" line existing? – due to 24" pipe size
3. Attach significant excerpts and basin map from the Drainage Management Plan for Capstone in an appendix.
4. In the Drainage Report, pg.3: Revise the 2nd paragraph. It incorrectly states that the more southern pond accepts flows from the northern pond. Also, it would be helpful to label ponds on the maps and plans as Pond 1, and Pond 2, and refer to them as such in the report.
5. On the Grading Plan show the Detention Pond and the 36" pipe from Phase 1.
6. Show/note the Emergency overflow for both ponds.
7. According to letter from AMAFCA dated June 25,2013, review of U.S. Army Corps of Engineers is required. Verify that this is required, and the reason. IN PROCESS

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

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c pdf via Email. Recipient

M15D026_SPBP_Cmmt.doc

Albuquerque - Making History 1706-2006

1. Lynne has committ
~~Bet in~~ marked up
in Sept. 17 subm.

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Multi-Specialty Clinic City Drainage #: M15D026B

DRB#: EPC#: Work Order#:

Legal Description:

City Address:

Engineering Firm: Tierra West, LLC Contact: Joel Hernandez

Address: 5571 Midway Park Place NE Albuquerque NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: jdhernandez@tierrawestll.com

Owner: Josh Skarsgard Contact:

Address: 8220 San Pedro NE Suit

Phone#: Fax#: E-mail:

Architect: Contact:

Address:

Phone#: Fax#: E-mail:

Surveyor: Precision Surveys Contact:

Address: 5571 Midway Park Place NE Albuquerque, NM 87109

Phone#: 505-856-5700 Fax#: E-mail: larry@presurv.com

Contractor: Contact:

Address:

Phone#: Fax#: E-mail:

TYPE OF SUBMITTAL:

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

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

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

RECEIVED JUL - 2 2015 LAND DEVELOPMENT SECTION

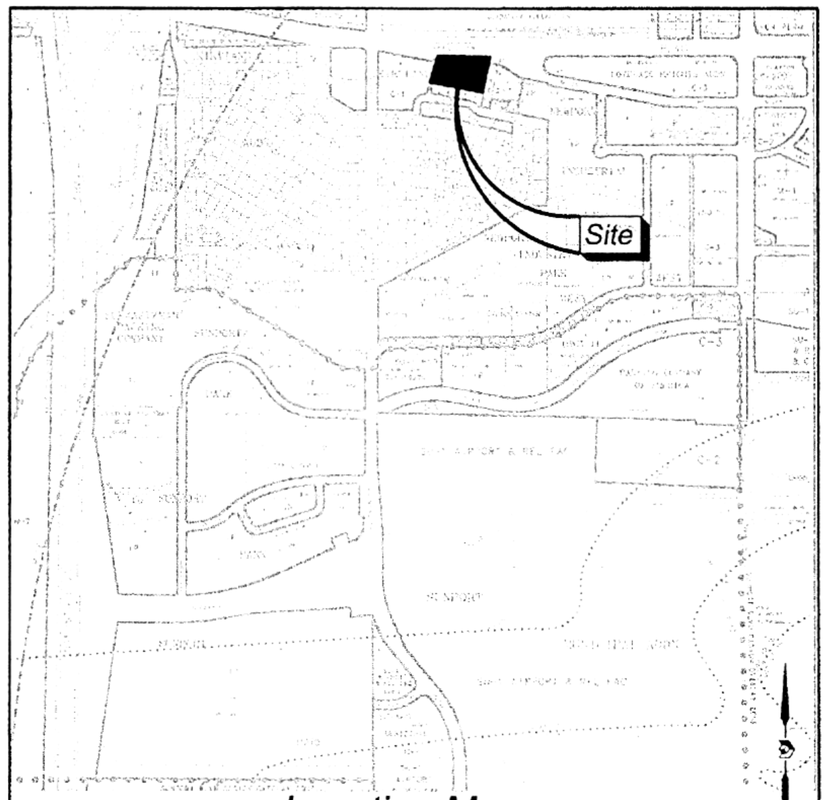
WAS A PRE-DESIGN CONFERENCE ATTENDED: ____ Yes ____ No ____ Copy Provided

DATE SUBMITTED: By: Joel Hernandez

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

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

8.3 Ac.



Location Map
Zone Atlas Map No. M-15-Z

N.T.S.

RECORDING STAMP
DOC# 2015038690
05/08/2015 02:36 PM Page: 1 of 2
PLAT R:$25.00 B: 2015C P: 0050 M. Toulouse Oliver, Bernalillo Cour

Plat of
Tract A-1
Airport Center
Albuquerque, Bernalillo County, New Mexico
April 2015

Project No. 1010060
Application No. 15DRB- 70091

Subdivision Data:

ZONING: C-3
GROSS SUBDIVISION ACREAGE: 2.990 ACRES±
ZONE ATLAS INDEX NO: M-15-Z
NO. OF TRACTS CREATED: 1
NO. OF LOTS CREATED: 0
MILES OF FULL-WIDTH STREETS CREATED: 0
DATE OF SURVEY: JULY 10-11, 2014.

Purpose of Plat

THE PURPOSE OF THIS PLAT IS TO VACATE A PORTION OF MILES ROAD, S.E. AND TO CONSOLIDATE AND REPLAT SAID VACATED PORTION WITH EXISTING TRACT A AND CREATE ONE NEW TRACT A-1, AND TO GRANT AN EASEMENT.

Notes:

1. BEARINGS SHOWN ARE GRID BEARINGS (NEW MEXICO STATE PLANE CENTRAL ZONE – NAD 1983).
2. ALL DISTANCES ARE GROUND DISTANCES–US SURVEY FOOT.
3. THIS PROPERTY LIES WITHIN SECTION 33, TOWNSHIP 10 NORTH, RANGE 3 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO.
4. PLAT SHOWS ALL EASEMENTS OF RECORD.
5. EASEMENT BEARINGS AND DISTANCES SHOWN HEREON ARE RECORD AND EASEMENTS HAVE BEEN ROTATED TO MATCH BASIS OF BEARINGS AND BOUNDARY UNLESS OTHERWISE INDICATED.

Easements

THIS PLAT SHOWS EXISTING RECORDED AND APPARENT EASEMENTS AS NOTED.

PUBLIC UTILITY EASEMENTS SHOWN ON THIS PLAT ARE GRANTED FOR THE COMMON AND JOINT USE OF:

1. PNM (ELECTRIC) FOR INSTALLATION, MAINTENANCE, AND SERVICE OF OVERHEAD AND UNDERGROUND ELECTRICAL LINES, COMMUNICATION FACILITIES, TRANSFORMERS, POLES AND ANY OTHER EQUIPMENT, FIXTURES, STRUCTURES AND RELATED FACILITIES REASONABLY NECESSARY TO PROVIDE ELECTRICAL SERVICE.
2. NEW MEXICO GAS COMPANY FOR INSTALLATION, MAINTENANCE, AND SERVICE OF NATURAL GAS LINES, VALVES AND OTHER EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE NATURAL GAS.
3. QWEST CORPORATION D/B/A CENTURYLINK QC FOR THE INSTALLATION, MAINTENANCE AND SERVICE OF ALL BURIED AND AERIAL COMMUNICATION LINES AND OTHER RELATED EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE COMMUNICATION SERVICES, INCLUDING BUT NOT LIMITED TO ABOVE GROUND PEDESTALS AND CLOSURES.
4. COMCAST CABLE FOR THE INSTALLATION, MAINTENANCE, AND SERVICE OF SUCH LINES, CABLE, AND OTHER RELATED EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE CABLE TV SERVICE.

INCLUDED IS THE RIGHT TO BUILD, REBUILD, CONSTRUCT, RECONSTRUCT, LOCATE, RELOCATE. CHANGE, REMOVE, MODIFY, RENEW, OPERATE, AND MAINTAIN FACILITIES FOR THE PURPOSES DESCRIBED ABOVE, TOGETHER WITH FREE ACCESS TO, FROM, AND OVER SAID EASEMENTS, INCLUDING SUFFICIENT WORKING AREA SPACE FOR ELECTRIC TRANSFORMERS, WITH THE RIGHT AND PRIVILEGE TO TRIM AND REMOVE TREES, SHRUBS OR BUSHES WHICH INTERFERE WITH THE PURPOSES SET FORTH HEREIN. NO BUILDING, SIGN, POOL (ABOVEGROUND OR SUBSURFACE), HOT TUB, CONCRETE OR WOOD POOL DECKING, OR OTHER STRUCTURE SHALL BE ERECTED OR CONSTRUCTED ON SAID EASEMENTS, NOR SHALL ANY WELL BE DRILLED OR OPERATED THEREON. PROPERTY OWNERS SHALL BE SOLELY RESPONSIBLE FOR CORRECTING ANY VIOLATIONS OF NATIONAL ELECTRICAL SAFETY CODE CAUSED BY CONSTRUCTION OF POOLS, DECKING, OR ANY STRUCTURES ADJACENT TO WITHIN OR NEAR EASEMENTS SHOWN ON THIS PLAT.

EASEMENTS FOR ELECTRIC TRANSFORMERS/SWITCHGEARS, AS INSTALLED, SHALL EXTEND TEN FEET (10') IN FRONT OF TRANSFORMER/SWITCHGEAR DOOR AND FIVE FEET (5') ON EACH SIDE.

IN APPROVING THIS PLAT, PNM, ~~(ELECTRIC AND GAS)~~ AND NEW MEXICO GAS COMPANY DID NOT CONDUCT A TITLE SEARCH OF THE PROPERTIES HEREON. CONSEQUENTLY, PNM DOES NOT WAIVE NOR RELEASE ANY EASEMENT OR EASEMENT RIGHTS TO WHICH IT MAY BE ENTITLED.

Legal Description

PARCEL 1:

TRACT LETTERED "A" OF THE SUBDIVISION PLAT OF TRACTS A THROUGH E, AIRPORT CENTER, ALBUQUERQUE, NEW MEXICO, AS THE SAME IS SHOWN AND DESIGNATED ON THE PLAT THEREOF, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO, ON MAY 5, 1998, IN PLAT BOOK 98C, PAGE 116

PARCEL 2:

A TRACT OF LAND BEING A PORTION OF VACATED MILES ROAD, S.E., LYING AND SITUATE WITHIN SECTION 33, TOWNSHIP 10 NORTH, RANGE 3 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO. BEING MORE PARTICULARLY DESCRIBED BY NEW MEXICO STATE PLANE COORDINATE GRID BEARINGS (CENTRAL ZONE – N.A.D. 1983) AND GROUND DISTANCES (U.S. SURVEY FOOT) AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF DESCRIBED VACATED RIGHT OF WAY, ALSO BEING THE NORTHEAST CORNER OF TRACT A, AIRPORT CENTER, LYING ON THE SOUTH RIGHT OF WAY OF MILES ROAD, S.E. MARKED BY A NO. 5 REBAR WITH CAP "PS 11184", FROM WHENCE A TIE TO ALBUQUERQUE GEODETIC REFERENCE SYSTEM MONUMENT "7_L15 1984" BEARS, N 31°39'39" E, A DISTANCE OF 3,391.91 FEET;

THENCE FROM SAID POINT OF BEGINNING, ALONG SAID SOUTH RIGHT OF WAY LINE, ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 279.00 FEET, AN ARC LENGTH OF 31.71 FEET, A DELTA ANGLE OF 06°30'40", A CHORD BEARING OF N 86°30'15" W, AND A CHORD LENGTH OF 31.69 FEET TO A POINT OF TANGENCY;

THENCE CONTINUING ALONG SAID SOUTH RIGHT OF WAY LINE, N 89°45'35" W, A DISTANCE OF 126.22 FEET TO A POINT OF CURVATURE MARKED BY A FOUND NO. 5 REBAR WITH PLASTIC CAP "PS 11184";

THENCE CONTINUING ALONG SAID SOUTH RIGHT OF WAY, ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 279.00 FEET, AN ARC LENGTH OF 159.36 FEET, A DELTA ANGLE OF 32°43'31", A CHORD BEARING OF S 73°54'56" W, AND A CHORD LENGTH OF 157.20 FEET TO A POINT OF REVERSE CURVATURE MARKED BY A FOUND CHISELED "X";

THENCE CONTINUING ALONG SAID SOUTH RIGHT OF WAY, ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 45.00 FEET, AN ARC LENGTH OF 135.37 FEET, A DELTA ANGLE OF 172°21'34", A CHORD BEARING OF N 36°12'28" W, AND A CHORD LENGTH OF 89.80 FEET TO AN ANGLE POINT;

THENCE LEAVING SAID SOUTH RIGHT OF WAY LINE, N 01°16'02" E, A DISTANCE OF 5.86 FEET TO THE NORTHWEST CORNER OF DESCRIBED TRACT BEING A POINT OF CURVATURE;

THENCE ALONG A NON-TANGENT CURVE TO THE LEFT HAVING A RADIUS OF 5807.50 FEET, AN ARC LENGTH OF 92.30 FEET, A DELTA ANGLE OF 00°54'38", A CHORD BEARING OF S 89°11'17" E, AND A CHORD LENGTH OF 92.30 FEET TO A POINT OF TANGENT;

THENCE S 89°38'37"E, A DISTANCE OF 269.74 FEET TO THE NORTHEAST CORNER OF DESCRIBED TRACT;

THENCE S 00°21'31"W, A DISTANCE OF 34.24 FEET TO THE POINT OF BEGINNING, SAID PARCELS 1 AND 2 CONTAINING A GROSS AREA OF 2.990 ACRES (100,145 SQUARE FEET) MORE OR LESS, NOW COMPRISING TRACT A-1, AIRPORT CENTER.

Solar Note:

NO PROPERTY WITHIN THE AREA OF REQUESTED FINAL ACTION SHALL AT ANY TIME BE SUBJECT TO A DEED RESTRICTION, COVENANT, OR BINDING AGREEMENT PROHIBITING SOLAR COLLECTORS FROM BEING INSTALLED ON BUILDINGS OR ERECTED ON THE LOTS OF PARCELS WITHIN THE AREA OF THIS PLAT.

Free Consent

THE REPLAT SHOWN HEREON IS WITH THE FREE CONSENT AND IN ACCORDANCE WITH THE DESIRES OF THE UNDERSIGNED OWNERS. EXISTING PUBLIC UTILITY EASEMENTS SHOWN HEREON FOR THE COMMON AND JOINT USE OF GAS, ELECTRICAL POWER AND COMMUNICATION SERVICES FOR BURIED AND/OR OVERHEAD DISTRIBUTION LINES, CONDUITS, AND PIPES FOR UNDERGROUND UTILITIES WHERE SHOWN OR INDICATED, AND INCLUDING THE RIGHT OF INGRESS AND EGRESS FOR CONSTRUCTION AND MAINTENANCE, AND THE RIGHT TO TRIM INTERFERING TREES AND SHRUBS. SAID OWNERS DO HEREBY CERTIFY THAT THIS SUBDIVISION IS THEIR FREE ACT AND DEED. SAID OWNERS WARRANT THAT THEY HOLD AMONG THEM COMPLETE AND INDEFEASIBLE TITLE IN FEE SIMPLE TO THE LAND SUBDIVIDED.

SAID OWNERS DO HEREBY GRANT ALL EASEMENTS AS SHOWN HEREON WITH LISTED BENEFICIARIES AND STIPULATIONS.

BY: _____ 5-7-2015
JOSHUA J. SKARSGARD
MANAGING MEMBER
RED SHAMROCK 10,
LLC NEW MEXICO LIMITED LIABILITY COMPANY
DATE

Acknowledgment

STATE OF NEW MEXICO)
COUNTY OF BERNALILLO) SS

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS 7 DAY OF May, 2015 BY JOSHUA J. SKARSGARD, MANAGING MEMBER, RED SHAMROCK 10, LLC NEW MEXICO LIMITED LIABILITY COMPANY

BY _____ NOTARY PUBLIC MY COMMISSION EXPIRES: 4/10/2017

OFFICIAL SEAL
Trisha A. Lopes
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: 4/10/2017

Utility Approvals

Fernando Vigil	5-7-15
PNM	DATE
	5/7/15
NEW MEXICO GAS COMPANY	DATE
	5-7-15
QWEST CORPORATION D/B/A CENTURYLINK QC	DATE
	5/7/15
COMCAST	DATE

City Approvals

Loren N. Rienhoerer P.S.	5/1/15
CITY SURVEYOR	DATE
	5-1-15
REAL PROPERTY DIVISION	DATE
Kristopher Cedillo	05/08/15
A.B.C.W.U.A.	DATE
Carol S. Dumont	4-22-15
PARKS AND RECREATION DEPARTMENT	DATE
	4-22-15
AMAFCA	DATE
	4/22/15
TRAFFIC ENGINEERING, TRANSPORTATION DEPARTMENT	DATE
	4-22-15
CITY ENGINEER	DATE
	5-8-15
DRB CHAIRPERSON, PLANNING DEPARTMENT	

TREASURER'S CERTIFICATE
THIS IS TO CERTIFY THAT TAXES ARE CURRENT AND PAID ON UPC #: 101505532448911705
PROPERTY OWNER OF RECORD: Red Shamrock 10 LLC
BERNALILLO COUNTY TREASURER'S OFFICE
George Stone 5-7-15

Surveyor's Certificate

I, LARRY W. MEDRANO, A REGISTERED NEW MEXICO PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF NEW MEXICO, HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY MEETING THE MINIMUM REQUIREMENTS FOR MONUMENTATION AND SURVEYS OF THE CITY OF ALBUQUERQUE SUBDIVISION ORDINANCE AND OF THE MINIMUM STANDARDS FOR LAND SURVEYS AS ADOPTED BY THE N.M. BOARD OF LICENSURE FOR ENGINEERS AND SURVEYORS AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT NO ENCROACHMENTS EXIST EXCEPT AS NOTED ABOVE AND THAT ALL IMPROVEMENTS ARE SHOWN IN THEIR CORRECT LOCATION RELATIVE TO RECORD BOUNDARIES AS LOCATED BY THIS SURVEY.

_____ 4/20/15
LARRY W. MEDRANO DATE
N.M.P.S. No. 11993

LARRY W. MEDRANO
NEW MEXICO
11993
REGISTERED PROFESSIONAL SURVEYOR

PRECISION SURVEYS, INC.
OFFICE LOCATION:
5571 Midway Park Place, NE
Albuquerque, NM 87109
MAILING ADDRESS:
PO Box 90636
Albuquerque, NM 87199
505.856.5700 PHONE
505.856.7900 FAX

INDEXING INFORMATION FOR COUNTY CLERK
OWNER RED SHAMROCK 10 LLC
SECTION 33, TOWNSHIP 10 N, RANGE 3 E,
U.P.C. NO. 101505532448911705
SUBDIVISION AIRPORT CENTER

146175P

DRAINAGE REPORT
for

Multi-Specialty Clinic
2901 Transport St. S.E.

Prepared by:

Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, New Mexico 87109

July 2, 2015

I certify that this report was prepared under my supervision, and I am a registered professional engineer in the State of New Mexico in good standing.

RONALD R. BOHANNAN
NEW MEXICO
7868
PROFESSIONAL ENGINEER

7/2/15

Ronald R. Bohannan, PE

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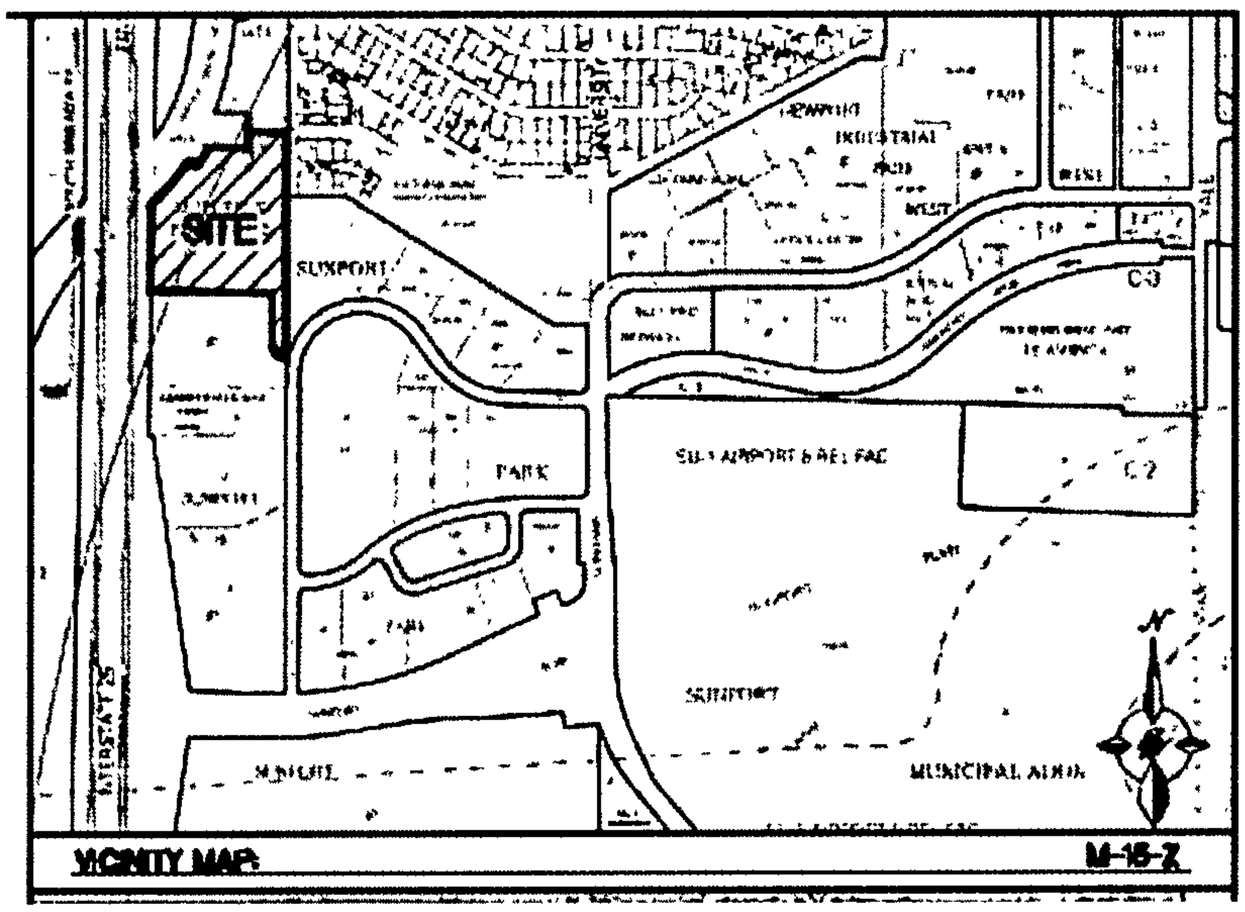
JUL - 2 2015
LAND DEVELOPMENT SECTION

DRAINAGE MANAGEMENT PLAN

Introduction

The purpose of this submittal is to provide a conceptual drainage management plan for EPC approval of the Site Plan for Building Permit for the Multi-Specialty Clinic to be located at 2901 Transport Street, S.E. This project site lies within an 8.3 acre area previously designated as Phase 2 of the Capstone Student Housing and will consist of a 90,000 square foot two-story building along with associated parking and landscape areas. As shown in the vicinity map below, the site is located at the northeast corner of I-25 and Sunport Boulevard SE. The site lies within Precipitation Zone 2 according to Section 22.2 of the DPM. As shown in the FEMA Flood Map on page 2, the site lies outside any flood hazard zone.

Vicinity Map



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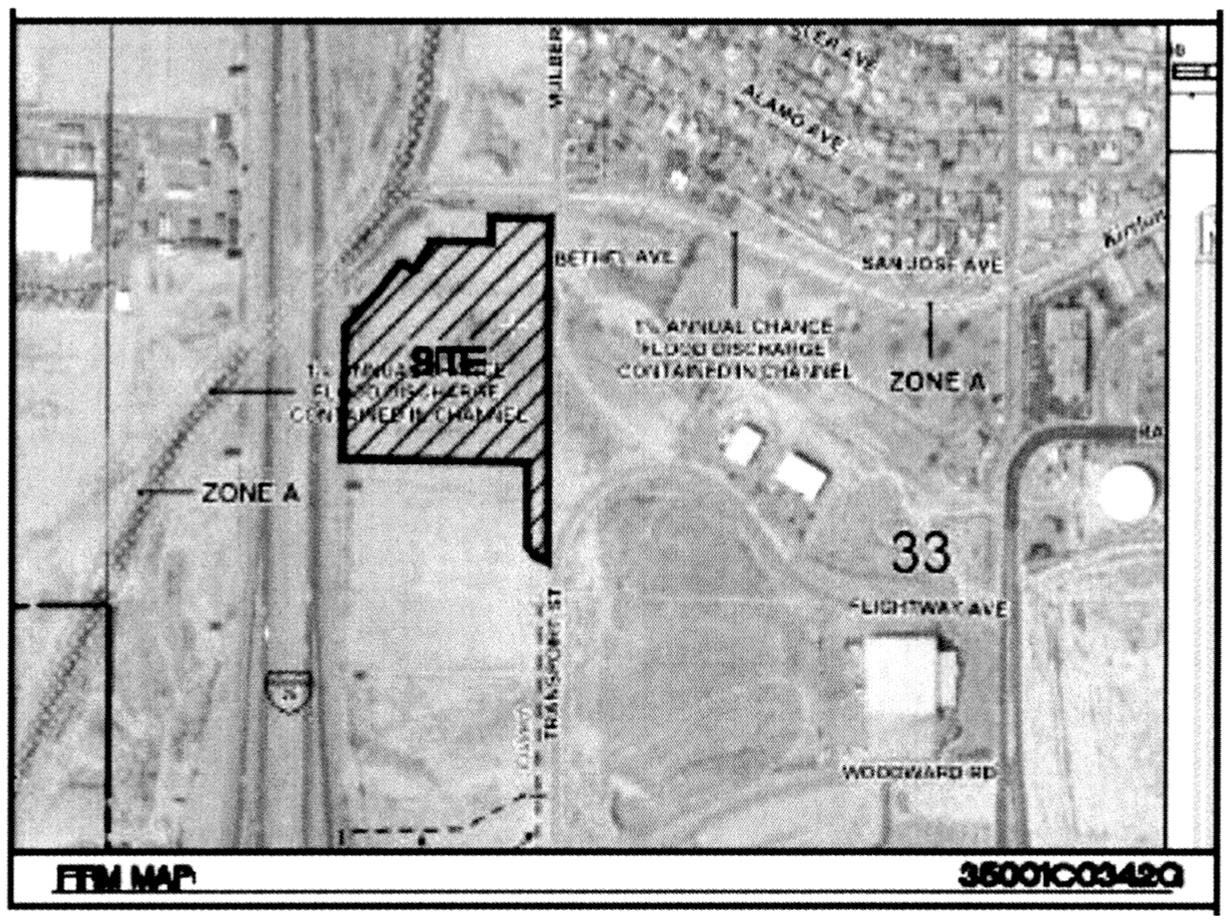
FEMA FIRMap



Pre-Developed Conditions

A portion of this site was previously a landfill for construction debris (mainly concrete and asphalt) and has subsequently been mass graded to fill the site to the current grades. Some construction debris remains and this project will mitigate the soil, which includes removal of the deleterious material below grade to an average depth of approximately 30 feet and then fill the site back to grade with engineered fill.

The site topography slopes generally from east to west and is covered with very limited natural vegetation. Per the attached Pre-Developed Conditions Basin Map, the site consists of a total of 2 distinct basins within the subject property, while flows from the Capstone Phase I project are routed through the property to an existing 24" CMP discharging into the AMAFCA South Diversion Channel. The Capstone Phase I project incorporated detention basins to attenuate the flows into the existing 24" CMP due to capacity limitations, however, the South Diversion Channel has adequate capacity for free discharge, per correspondence dated June 25, 2013, attached. The adjacent property to the east (Basin EX B-2) flows into an existing storm drain which discharges into the South Diversion Channel.

?

of what

The proposed development will encompass portions of Basin B-2 and Basin C-1 as designated in the Drainage Management Plan for Capstone Student Housing report, attached for reference.

needs to provide

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Post-Developed Conditions

The proposed project currently consists only of what had been designed as Capstone Phase 2 and contains approximately 8.3 acres. The first phase corresponds with the newly developed Capstone Student Housing, and the third phase will be left undeveloped at this time and a separate drainage management plan will be required prior to development of that areas. Per the attached Post-Developed Conditions Basin Map, the site will consist of 2 basins onsite.

The proposed grading and drainage plan is configured to accept flows from Capstone Phase I via an existing 36-inch RCP into a detention pond within Basin D-2 with additional capacity sized to retain the first-flush. This pond will discharge via a proposed 36-inch storm drain pipe which will also collect drainage from a second pond which accepts flows from Basin D-1 and then discharge directly into the South Diversion Channel near the outlet of the existing 24-inch CMP which will be abandoned. The pond on Basin D-1 will also be configured to retain the necessary first-flush volume.

needs to be revised

Refer to Appendix C for preliminary pond sizing calculations. Additional detail for the proposed ponds will be provided in the future Building Permit and Grading Permit approval requests.

Conclusion

This Drainage Management Plan provides for grading and drainage elements which are capable of safely conveying the 100-Yr, 6-Hr storm and which meet City requirements, as well as meeting the water quality requirements. With this submittal, we request Drainage Report and Grading Plan approvals for the Site Plan for Building Permit application.

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DPM Weighted E Method

Precipitation Zone 2

MULTI-SPECIALTY CLINIC

2901 Transport St, SE

TWLLC/JH, PE **2-Jul-15**

Existing Conditions

Basin Descriptions												100-Year, 6-Hr			10-Year, 6-Hr		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
B-1	475,425.00	10.91	0.01705	0%	0	0%	0.000	15%	1.637138	85%	9.277	1.972	1.793	48.74	1.217	1.107	31.93
Ex-B2	183,206.00	4.21	0.00657	0%	0	0%	0.000	100%	4.205831	0%	0.000	1.130	0.396	13.21	0.520	0.182	7.19
Ex-B3	307,640.00	7.06	0.01104	0%	0	0%	0.000	100%	7.062443	0%	0.000	1.130	0.665	22.18	0.520	0.306	12.08
Ex-C	131,863.00	3.03	0.00473	0%	0	0%	0.000	100%	3.027158	0%	0.000	1.130	0.285	9.51	0.520	0.131	5.18
Total	**1,098,134.00**	**25.210**	**0.03939**										**3.139**	**93.63**		**1.726**	**56.37**

Notes:

Developed Conditions

Basin Descriptions												100-Year, 6-Hr			10-Year, 6-Hr		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
D-1	232,936.00	5.35	0.00836	0%	0	0%	0.000	15%	0.802121	85%	4.545	1.972	0.879	23.88	1.217	0.542	15.64
D-2	155,279.00	3.56	0.00557	0%	0	0%	0.000	15%	0.534707	85%	3.030	1.972	0.586	15.92	1.217	0.362	10.43
C-1A	35,532.00	0.82	0.00127	0%	0	0%	0.000	79%	0.644405	21%	0.171	1.338	0.091	2.83	0.692	0.047	1.64
B-1	475,425.00	10.91	0.01705	0%	0	0%	0.000	15%	1.637138	85%	9.277	1.972	1.793	48.74	1.217	1.107	31.93
B-2A	183,206.00	4.21	0.00657	0%	0	0%	0.000	100%	4.205831	0%	0.000	1.130	0.396	13.21	0.520	0.182	7.19
	35,532.00	0.82	0.00127	0%	0	0%	0.000	79%	0.644405	21%	0.171	1.338	0.091	2.83	0.692	0.047	1.64
																	(2)
Total	**1,117,910.00**	**25.664**	**0.04010**										**3.835**	**107.41**		**2.287**	**68.47**

Notes:

Equations:

Weighted E = $E_a*A_a + E_b*A_b + E_c*A_c + E_d*A_d$ / (Total Area)

Volume = Weighted D * Total Area

Flow = $Q_a * A_a + Q_b * A_b + Q_c * A_c + Q_d * A_d$

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POND 1 VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
5037	953	0	0
5038	1650	1301.5	1302
5039	2675	2162.5	**3464**

POND 2 VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
5045	1735	0	0
5046	2584	2159.5	2159.5
5047	4271	3427.5	**5587**

TOTAL VOLUME PROVIDED: 9051

VOLUME REQUIRED:

IMPERVIOUS AREA: 285,900 sf

VOLUME REQUIRED= (0.44-0.1)/12= **8100 cf**

OK

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MULTI-SPECIALTY CLINIC
PRE-DEVELOPED BASIN MAP

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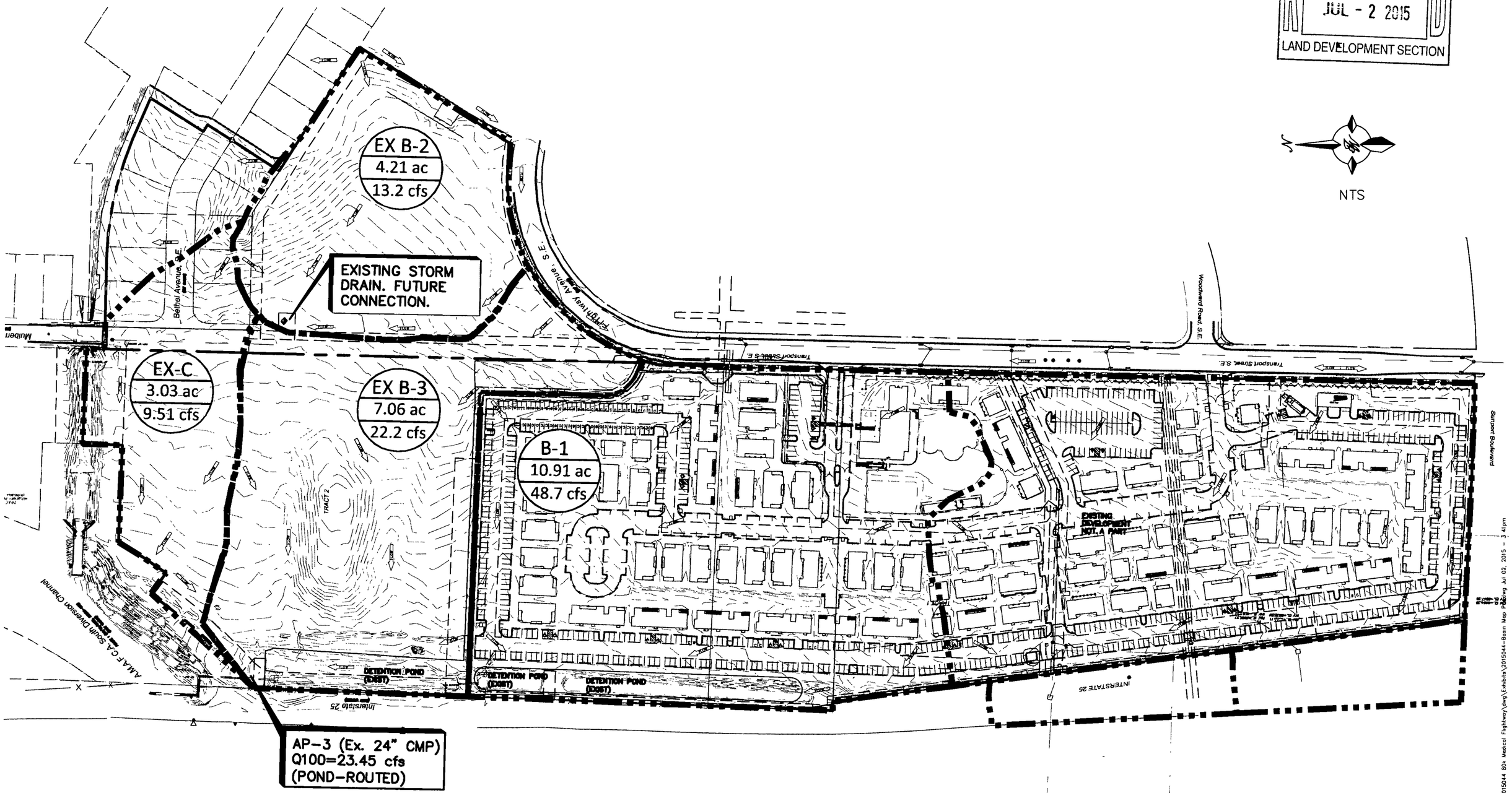
LAND DEVELOPMENT SECTION

NTS



DATE PREPARED: 6-30-15

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6

MULTI-SPECIALTY CLINIC
POST-DEVELOPED BASIN MAP

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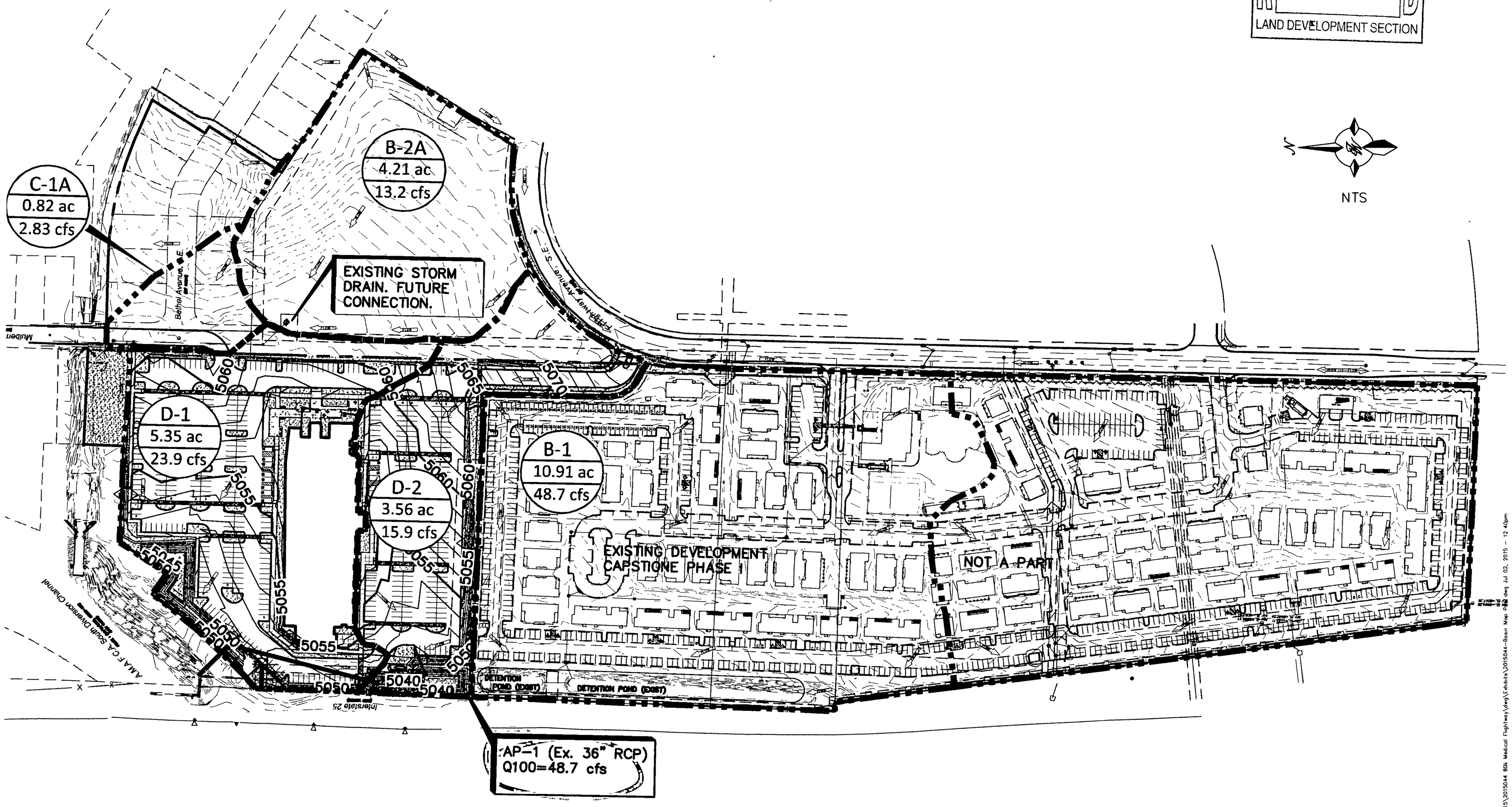
LAND DEVELOPMENT SECTION



DATE PREPARED: 6-30-15

Z:\2015\2015044 80k Medical Flightway\dwg\Exhibits\2015044-Basin Map.dwg Jul 02, 2015 - 12:40pm

36-in RCP Capacity Check

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0 013	
Channel Slope	0.01000	ft/ft
Diameter	3 00	ft
Discharge	65 00	ft³/s

Results

Normal Depth	2.39	ft
Flow Area	6.05	ft²
Wetted Perimeter	6.63	ft
Hydraulic Radius	0 91	ft
Top Width	2.41	ft
Critical Depth	2.59	ft
Percent Full	79 8	%
Critical Slope	0.00877	ft/ft
Velocity	10.75	ft/s
Velocity Head	1.80	ft
Specific Energy	4 19	ft
Froude Number	1 20	
Maximum Discharge	71 74	ft³/s
Discharge Full	66 69	ft³/s
Slope Full	0.00950	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	79 76	%
Downstream Velocity	Infinity	ft/s

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LAND DEVELOPMENT SECTION

4

Tim Eichenberg, Chairman
Danny Hernandez, Vice Chairman
Bruce M. Thomson, Secretary-Treasurer
Ronald D. Brown, Assistant Secretary-Treasurer
Daniel F. Lyon, Director

Jerry M. Lovato, P.E
Executive Engineer

Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority
2600 Prospect N.E., Albuquerque, NM 87107
Phone: (505) 884-2215 Fax: (505) 884-0214
Website: www.amafca.org

Mr. Jeff Wooten, P.E., LEED AP
Tierra West, LLC
5571 Midway Park Pl. NE
Albuquerque, NM 87109

June 25, 2013

Via E-mail

Re: Drainage Management Plan for Capstone Student Housing, Engineer's Stamp Dated June 14, 2013

Dear Mr. Wooten:

AMAFCA approves Development Review Board action for Preliminary and Final Plat for the referenced plan. AMAFCA will sign the Final Plat. I have reviewed the drainage report and have the following comments:

1. AMAFCA recently completed a re-study of the South Diversion Channel (SDC) which indicated freeboard deficiency for the 100-year flow in certain sections. The section by Capstone does have adequate capacity, so free discharge is allowed.
2. For the Phase 1 development, some type of onsite water quality treatment will be required prior to Basin A-1 discharge to the existing 48-inch storm drain which outfalls to the SDC. This can be in the form of bio-swales, hooded, sock or similar inserts for the inlets or a water quality manhole on the storm drain.
3. The detention ponds and discharge through the existing 24-inch CMP will be acceptable for Basin B-1. However, a debris fence, similar to the photo attached to the email, will be required in the downstream pond prior to the 24-inch pipe opening.
4. Basin C-1 direct discharge to the Kirtland Channel is acceptable for Phase 1. Future development will require a controlled discharge with water quality treatment measures.
5. Basin B-2 discharge to the 24-inch CMP is acceptable for Phase 1; however, future phases of development will require a new reinforced pipe outfall to the SDC with water quality. The design will require review by the U.S. Army of Corps of Engineers.

I do not require a revised drainage report at this time, but I do request a letter response to these comments for my file. These items must be taken into consideration for Site Plan for Building Permit approval. If you have any questions, please call me at 884-2215.

Sincerely,
AMAFCA

Lynn M. Mazur

Lynn M. Mazur, P.E., C.F.M.
Development Review Engineer

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C: Curtis Cherne, City Hydrology

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

October 2, 2015

Ron Bohannan, PE
Tierra West, LLC
5571 Midway Park Pl NE
Albuquerque, NM 87109

RE: **Multi-Specialty Clinic**
Rough Grading Plan
Engineer's Stamp Date 9-30-2015 (File: M15D026B)

Dear Mr. Bohannan:

Based upon the information provided in your submittal received 9-30-2015, the above referenced plan is approved for Grading Permit for a temporary condition .

Since the disturbed area on this site exceeds 1.0 acre, an Erosion and Sediment Control (ESC) Plan, prepared by a NM PE and approved by the City's Stormwater Engineer, will be required for this site

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

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

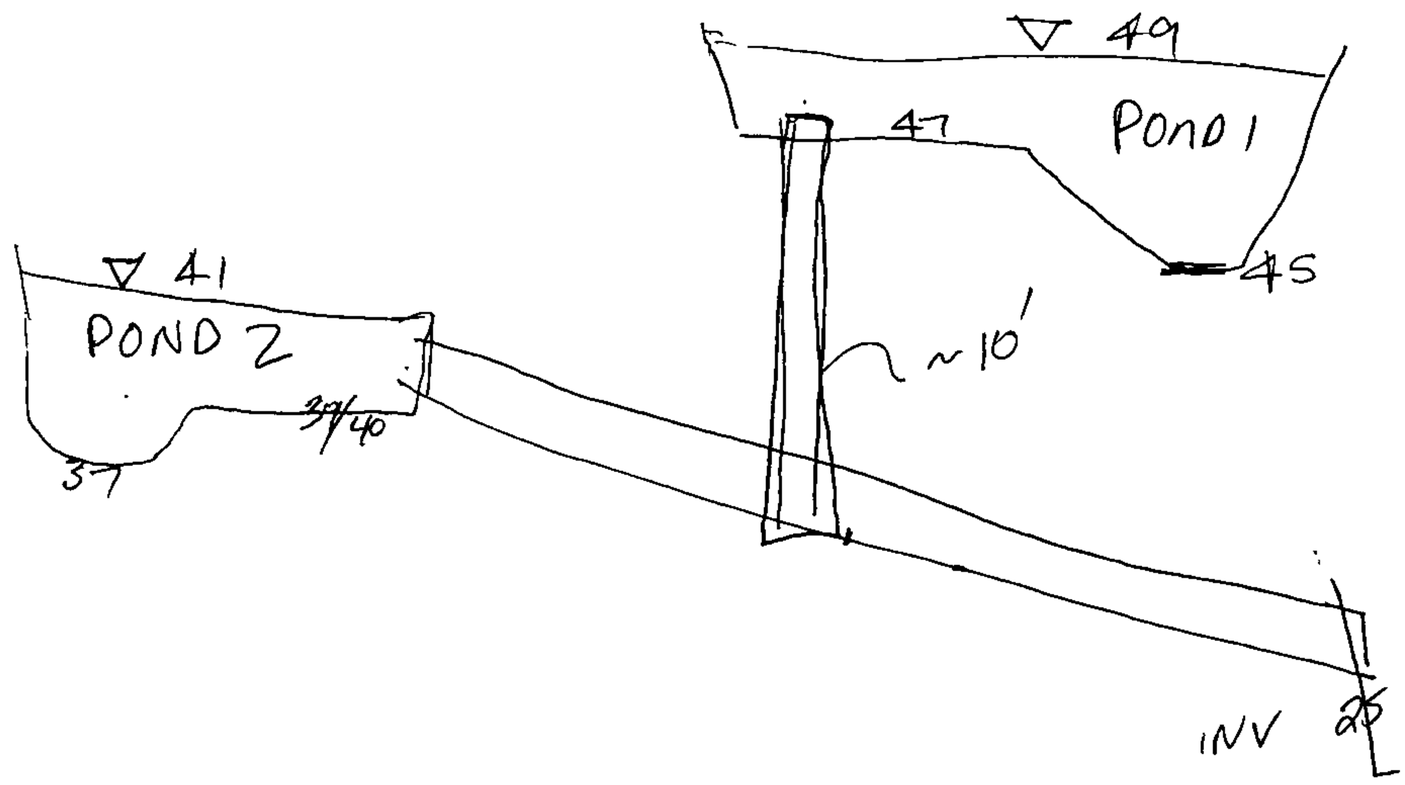
Orig Drainage file
c.pdf via Email. Recipient

0% D
free

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

M15D026B_GP_Rough_Appr.doc

Albuquerque - Making History 1706-2006


49
47
POND 1
45
41
POND 2
39/40
37
~10'
INV
25

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

D026B

Project Title: 80K Medical Office/Multi-Specialty Clinic Building Permit #: _____ City Drainage #: (M-15/)

DRB#: _____ EPC#: 1009090/15EPC-40026 Work Order#: _____

Legal Description: Tract 2 Plat of Capstone Subdivision

City Address: 2901 Transport Street, SE

Engineering Firm: Tierra West, LLC Contact: Joel Hernandez

Address: 5571 Midway Park Place NE Albuquerque NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: jdhernandez@tierrawestllc.com

Owner: _____ Contact: _____

Address: _____

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

Architect: Deker Perich Sabatini Contact: Chris Gunning

Address: 7601 Jefferson NE, Suite 100 Albuquerque, NM 87109

Phone#: 505-842-7633 Fax#: _____ E-mail: chrisg@dpsdesign.org

Other Contact: _____ Contact: _____

Address: _____

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

Check all that Apply:

DEPARTMENT:

x HYDROLOGY/ DRAINAGE
____ TRAFFIC/ TRANSPORTATION
____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

____ ENGINEER/ ARCHITECT CERTIFICATION

____ CONCEPTUAL G & D PLAN
x GRADING PLAN
____ DRAINAGE MASTER PLAN
____ DRAINAGE REPORT
____ CLOMR/LOMR

____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ EROSION & SEDIMENT CONTROL PLAN (ESC)

____ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

____ BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY

____ PRELIMINARY PLAT APPROVAL
____ SITE PLAN FOR SUB'D APPROVAL
____ SITE PLAN FOR BLDG. PERMIT APPROVAL
____ FINAL PLAT APPROVAL
____ SIA/RELEASE OF FINANCIAL GUARANTEE
____ FOUNDATION PERMIT APPROVAL
x GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR

____ PRE-DESIGN MEETING
____ OTHER (SPECIFY) _____

AO

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SEP 30 2015
LAND DEVELOPMENT SECTION

IS THIS A RESUBMITTAL?: x Yes ____ No

DATE SUBMITTED: 09/30/2015 By: Joel Hernandez

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

Worksheet for Temp 24 in for Pond Outlet

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01500	ft/ft
Diameter	2.00	ft
Discharge	26.47	ft^3/s

Results

Normal Depth	1.56	ft
Flow Area	2.64	ft^2
Wetted Perimeter	4.34	ft
Hydraulic Radius	0.61	ft
Top Width	1.65	ft
Critical Depth	1.80	ft
Percent Full	78.2	%
Critical Slope	0.01207	ft/ft
Velocity	10.04	ft/s
Velocity Head	1.57	ft
Specific Energy	3.13	ft
Froude Number	1.40	
Maximum Discharge	29.80	ft^3/s
Discharge Full	27.71	ft^3/s
Slope Full	0.01369	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	78.22	%
Downstream Velocity	Infinity	ft/s

Worksheet for Broad Crested Weir - Temp Pond

Project Description

Solve For	Headwater Elevation

Input Data

Discharge		84.64	ft^3/s
Crest Elevation		5041.45	ft
Tailwater Elevation		0.00	ft
Crest Surface Type	Gravel		
Crest Breadth		5.00	ft
Crest Length		80.00	ft

Results

Headwater Elevation	5041.98	ft
Headwater Height Above Crest	0.53	ft
Tailwater Height Above Crest	-5041.45	ft
Weir Coefficient	2.70	US
Submergence Factor	1.00	
Adjusted Weir Coefficient	2.70	US
Flow Area	42 79	ft^2
Velocity	1.98	ft/s
Wetted Perimeter	81 07	ft
Top Width	80 00	ft

Pond Discharge-Orifice Calculations (TEMPORARY POND)

OFFSITE POND B-1 VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
5039	7118	0	0
5040	9192	8155	8155
5041	11206	10199	18354
5042	13265	12235.5	30590
5043	15375	14320	44910

OFFSITE POND B-2 VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
5039	2964	0	0
5040	3498	3231	3231
5041	4057	3777.5	7008.5
5042	4642	4349.5	11358
5042.5	4943	2396.25	13754.25

ONSITE TEMPORARY POND VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
5039	10510	0	0
5040	12459	11484.5	11485
5041	14455	13457	24942
5042	16955	15705	40647
			40647

***NOTE: THREE PONDS INTERCONNECTED THEREFORE SUM USED**

ACTUAL ELEV.	DEPTH (FT)	VOLUME (CF)	Q (CFS)	VOLUME (AC-FT)
39.00	0	0	0.00	
40.00	1.00	22871	15.89	0.52503444
41.00	2.00	50304	23.56	1.15482094
42.00	3.00	82594	30.19	1.89609734

Orifice Equation

Q = CA SQRT(2gH)

C =	0.6
Diameter	2
Area (ft^2	0.022
g =	32.2

H (Ft) = Depth of water above center of orifice

Q (CFS)= Flow

AHYMO PROGRAM (AHYMO-S4) - Version: S4.01a - Rel: 01a

RUN DATE (MON/DAY/YR) = 09/28/2015
START TIME (HR:MIN:SEC) = 13:24:59 USER NO.= TierraWest-SiteA99368577
INPUT FILE = C:\Users\Joel\Desktop\Clinic Basins RGRADE.txt

```
**********************************************************************
*                Multi Specialty Clinic, ALBUQUERQUE, NM             *
**********************************************************************
* 100-YEAR, 24-HR STORM  (ROUGH GRADE CONDITIONS) W/ routing         *
**********************************************************************
*
START                    TIME=0.0
*
*
RAINFALL                 TYPE=2 RAIN QUARTER=0.0 IN
                         RAIN ONE=2.01 IN RAIN SIX=2.35 IN
                         RAIN DAY=2.75 IN DT=0.05 HR
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24-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - D1

DT = 0.050000 HOURS END TIME = 24.000002 HOURS

0.0000	0.0023	0.0046	0.0071	0.0099	0.0127	0.0159
0.0203	0.0272	0.0347	0.0424	0.0509	0.0595	0.0684
0.0776	0.0870	0.0974	0.1084	0.1204	0.1437	0.1728
0.2117	0.2559	0.3104	0.3831	0.4649	0.6062	0.8258
1.2021	1.4666	1.6752	1.7800	1.8719	1.9379	1.9905
2.0362	2.0697	2.1005	2.1259	2.1418	2.1530	2.1629
2.1722	2.1803	2.1879	2.1953	2.2025	2.2084	2.2118
2.2152	2.2186	2.2217	2.2247	2.2278	2.2307	2.2336
2.2363	2.2391	2.2417	2.2443	2.2469	2.2494	2.2518
2.2542	2.2565	2.2588	2.2611	2.2633	2.2654	2.2676
2.2697	2.2717	2.2738	2.2758	2.2778	2.2798	2.2817
2.2837	2.2856	2.2874	2.2893	2.2911	2.2930	2.2948
2.2965	2.2983	2.3000	2.3017	2.3034	2.3051	2.3068
2.3084	2.3100	2.3117	2.3133	2.3148	2.3164	2.3180
2.3195	2.3210	2.3225	2.3240	2.3255	2.3269	2.3284
2.3298	2.3313	2.3327	2.3341	2.3355	2.3368	2.3382
2.3396	2.3409	2.3422	2.3436	2.3449	2.3462	2.3474
2.3487	2.3500	2.3513	2.3525	2.3538	2.3551	2.3563
2.3576	2.3589	2.3601	2.3614	2.3627	2.3639	2.3652
2.3665	2.3677	2.3690	2.3702	2.3715	2.3728	2.3740
2.3753	2.3765	2.3778	2.3790	2.3803	2.3815	2.3828
2.3840	2.3853	2.3865	2.3878	2.3890	2.3903	2.3915
2.3927	2.3940	2.3952	2.3965	2.3977	2.3989	2.4002
2.4014	2.4027	2.4039	2.4051	2.4064	2.4076	2.4088
2.4101	2.4113	2.4125	2.4137	2.4150	2.4162	2.4174
2.4186	2.4199	2.4211	2.4223	2.4235	2.4247	2.4260
2.4272	2.4284	2.4296	2.4308	2.4320	2.4333	2.4345
2.4357	2.4369	2.4381	2.4393	2.4405	2.4417	2.4429
2.4441	2.4453	2.4465	2.4478	2.4490	2.4502	2.4514

2.4526	2.4538	2.4550	2.4561	2.4573	2.4585	2.4597
2.4609	2.4621	2.4633	2.4645	2.4657	2.4669	2.4681
2.4692	2.4704	2.4716	2.4728	2.4740	2.4752	2.4764
2.4775	2.4787	2.4799	2.4811	2.4822	2.4834	2.4846
2.4858	2.4869	2.4881	2.4893	2.4905	2.4916	2.4928
2.4940	2.4951	2.4963	2.4975	2.4986	2.4998	2.5010
2.5021	2.5033	2.5044	2.5056	2.5068	2.5079	2.5091
2.5102	2.5114	2.5125	2.5137	2.5148	2.5160	2.5171
2.5183	2.5194	2.5206	2.5217	2.5229	2.5240	2.5252
2.5263	2.5274	2.5286	2.5297	2.5309	2.5320	2.5331
2.5343	2.5354	2.5365	2.5377	2.5388	2.5399	2.5411
2.5422	2.5433	2.5445	2.5456	2.5467	2.5478	2.5490
2.5501	2.5512	2.5523	2.5535	2.5546	2.5557	2.5568
2.5579	2.5590	2.5602	2.5613	2.5624	2.5635	2.5646
2.5657	2.5668	2.5679	2.5691	2.5702	2.5713	2.5724
2.5735	2.5746	2.5757	2.5768	2.5779	2.5790	2.5801
2.5812	2.5823	2.5834	2.5845	2.5856	2.5867	2.5878
2.5889	2.5899	2.5910	2.5921	2.5932	2.5943	2.5954
2.5965	2.5976	2.5986	2.5997	2.6008	2.6019	2.6030
2.6040	2.6051	2.6062	2.6073	2.6084	2.6094	2.6105
2.6116	2.6126	2.6137	2.6148	2.6159	2.6169	2.6180
2.6191	2.6201	2.6212	2.6223	2.6233	2.6244	2.6254
2.6265	2.6276	2.6286	2.6297	2.6307	2.6318	2.6328
2.6339	2.6350	2.6360	2.6371	2.6381	2.6392	2.6402
2.6413	2.6423	2.6433	2.6444	2.6454	2.6465	2.6475
2.6486	2.6496	2.6506	2.6517	2.6527	2.6538	2.6548
2.6558	2.6569	2.6579	2.6589	2.6600	2.6610	2.6620
2.6630	2.6641	2.6651	2.6661	2.6672	2.6682	2.6692
2.6702	2.6712	2.6723	2.6733	2.6743	2.6753	2.6763
2.6774	2.6784	2.6794	2.6804	2.6814	2.6824	2.6834
2.6844	2.6854	2.6865	2.6875	2.6885	2.6895	2.6905
2.6915	2.6925	2.6935	2.6945	2.6955	2.6965	2.6975
2.6985	2.6995	2.7005	2.7015	2.7025	2.7034	2.7044
2.7054	2.7064	2.7074	2.7084	2.7094	2.7104	2.7114
2.7123	2.7133	2.7143	2.7153	2.7163	2.7172	2.7182
2.7192	2.7202	2.7211	2.7221	2.7231	2.7241	2.7250
2.7260	2.7270	2.7280	2.7289	2.7299	2.7309	2.7318
2.7328	2.7338	2.7347	2.7357	2.7366	2.7376	2.7386
2.7395	2.7405	2.7414	2.7424	2.7433	2.7443	2.7452
2.7462	2.7472	2.7481	2.7491	2.7500		

*DEVELOPED CONDITIONS

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*BASIN B-1

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COMPUTE NM HYD ID=1 HYD NO=100.1 AREA=0.01705 SQ MI

PER A=0.00 PER B=0.00 PER C=15.0 PER D=85.00

TP=-0.1333 HR MASS RAINFALL=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000
SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 57.217 CFS UNIT VOLUME = 0.9989 B =
526.28 P60 = 2.0100
AREA = 0.014493 SQ MI IA = 0.10000 INCHES INF = 0.04000
INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT = 0.050000

```
        K =  0.107446HR    TP =  0.133300HR    K/TP RATIO =  0.806046
SHAPE CONSTANT, N =  4.440407
        UNIT PEAK =   7.3586    CFS   UNIT VOLUME =    1.000       B =
383.54      P60 = 2.0100
        AREA =     0.002558 SQ MI    IA =   0.35000 INCHES    INF =   0.83000
INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =  0.050000

    PRINT HYD           ID=1 CODE=1


                                        PARTIAL HYDROGRAPH   100.10


        RUNOFF VOLUME =     2.31096 INCHES     =       2.1014 ACRE-FEET
        PEAK DISCHARGE RATE =      50.21 CFS  AT   1.500 HOURS   BASIN AREA =
0.0171 SQ. MI.


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    *BASIN EX-B3

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    COMPUTE NM HYD      ID=2 HYD NO=100.2 AREA=0.01104 SQ MI

                        PER A=0.00 PER B=0.00 PER C=100.0 PER D=0.0

                        TP=-0.1333 HR MASS RAINFALL=-1


        K =  0.107446HR    TP =  0.133300HR    K/TP RATIO =  0.806046
SHAPE CONSTANT, N =  4.440407
        UNIT PEAK =   31.765    CFS   UNIT VOLUME =    1.001       B =
383.54      P60 = 2.0100
        AREA =     0.011040 SQ MI    IA =   0.35000 INCHES    INF =   0.83000
INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =  0.050000

    PRINT HYD           ID=2 CODE=1


                                        PARTIAL HYDROGRAPH   100.20


        RUNOFF VOLUME =     1.21081 INCHES     =       0.7129 ACRE-FEET
        PEAK DISCHARGE RATE =      24.09 CFS  AT   1.500 HOURS   BASIN AREA =
0.0110 SQ. MI.


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    *BASIN EX-C

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    COMPUTE NM HYD      ID=3 HYD NO=100.3 AREA=0.00473 SQ MI
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AHYMO

PER A=0.00 PER B=0.00 PER C=100.0 PER D=0.0

TP=-0.1333 HR MASS RAINFALL=-1

K = 0.107446HR TP = 0.133300HR K/TP RATIO = 0.806046
SHAPE CONSTANT, N = 4.440407
UNIT PEAK = 13.609 CFS UNIT VOLUME = 1.001 B =
383.54 P60 = 2.0100
AREA = 0.004730 SQ MI IA = 0.35000 INCHES INF = 0.83000
INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT = 0.050000

PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 100.30

RUNOFF VOLUME = 1.21081 INCHES = 0.3054 ACRE-FEET
PEAK DISCHARGE RATE = 10.33 CFS AT 1.500 HOURS BASIN AREA =
0.0047 SQ. MI.

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ADD HYD ID=50 HYD NO=100.21 ID=1 ID=2

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ADD HYD ID=51 HYD NO=100.22 ID=3 ID=50

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PRINT HYD ID=51 CODE=1

PARTIAL HYDROGRAPH 100.22

RUNOFF VOLUME = 1.78232 INCHES = 3.1198 ACRE-FEET
PEAK DISCHARGE RATE = 84.64 CFS AT 1.500 HOURS BASIN AREA =
0.0328 SQ. MI.

MAX Q_{100} INTO TEMP POND

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*ROUTE BASIN B-1, EX-B3 and EX-C THROUGH DETENTION PONDS (TEMP+EXIST)

ROUTE RESERVOIR ID=55 HYD NO=200.1 INFLOW ID=51 CODE=24

OUTFLOW (CFS) STORAGE(AC-FT) ELEVATION(FT)

AHYMO

0.0	0.0	39.00
15.89	0.5250	40.00
23.560	1.1548	41.00
30.190	1.8961	42.00

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TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	39.00	0.000	0.00
1.20	7.27	39.12	0.065	1.98
2.40	2.47	40.35	0.748	18.61
3.60	0.10	39.09	0.047	1.43
4.80	0.14	39.01	0.006	0.19
6.00	0.23	39.01	0.007	0.20
7.20	0.23	39.01	0.008	0.23
8.40	0.23	39.01	0.008	0.23
9.60	0.23	39.01	0.008	0.23
10.80	0.22	39.01	0.007	0.22
12.00	0.22	39.01	0.007	0.22
13.20	0.22	39.01	0.007	0.22
14.40	0.21	39.01	0.007	0.21
15.60	0.21	39.01	0.007	0.21
16.80	0.20	39.01	0.007	0.20
18.00	0.20	39.01	0.007	0.20
19.20	0.20	39.01	0.006	0.20
20.40	0.19	39.01	0.006	0.19
21.60	0.19	39.01	0.006	0.19
22.80	0.18	39.01	0.006	0.18
24.00	0.18	39.01	0.006	0.18
25.20	0.00	39.00	0.001	0.02

PEAK DISCHARGE = 26.469 CFS - PEAK OCCURS AT HOUR 1.75
MAXIMUM WATER SURFACE ELEVATION = 41.439
MAXIMUM STORAGE = 1.4800 AC-FT INCREMENTAL TIME= 0.050000HRS

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PRINT HYD ID=55 CODE=1

PARTIAL HYDROGRAPH 200.10

RUNOFF VOLUME = 1.78232 INCHES = 3.1198 ACRE-FEET
PEAK DISCHARGE RATE = 26.47 CFS AT 1.750 HOURS BASIN AREA = 0.0328 SQ. MI.

MAX Q_{100} TO OUTLET PIPE

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FINISH

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NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 13:24:59
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