

CITY OF ALBUQUERQUE

Planning Department
Alan Varela, Director



Mayor Timothy M. Keller

October 16, 2023

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

**RE: Rio Grande & I-40 Development – Alameda Drain Crossing
Drainage Report
Engineer's Stamp Date: 09/21/23
Hydrology File: H13D109
CPN: 759484**

Dear Mr. Bohannon:

PO Box 1293

Based upon the information provided in your submittal received 09/21/2023, the Drainage Report is approved for Work Order.

Albuquerque

As a reminder, if the project total area of disturbance (including the staging area and any work within the adjacent Right-of-Way) is 1 acre or more, then an Erosion and Sediment Control (ESC) Plan and Owner's certified Notice of Intent (NOI) is required to be submitted to the Stormwater Quality Engineer (Dough Hughes, PE, jhughes@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

NM 87103

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov.

www.cabq.gov

Sincerely,

Renée C. Brissette, P.E. CFM
Senior Engineer, Hydrology
Planning Department



City of Albuquerque

Planning Department
Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (DTIS)

Project Title: _____ Hydrology File # _____

Legal Description: _____

City Address, UPC, OR Parcel: _____

Applicant/Agent: _____ Contact: _____

Address: _____ Phone: _____

Email: _____

Applicant/Owner: _____ Contact: _____

Address: _____ Phone: _____

Email: _____

(Please note that a DFT SITE is one that needs Site Plan Approval & ADMIN SITE is one that does not need it.)

TYPE OF DEVELOPMENT: PLAT (#of lots) _____ RESIDENCE
DFT SITE ADMIN SITE

RE-SUBMITTAL: YES NO

DEPARTMENT: TRANSPORTATION HYDROLOGY/DRAINAGE

Check all that apply under Both the Type of Submittal and the Type of Approval Sought:

TYPE OF SUBMITTAL:

ENGINEER/ARCHITECT CERTIFICATION
PAD CERTIFICATION
CONCEPTUAL G&D PLAN
GRADING & DRAINAGE PLAN
DRAINAGE REPORT
DRAINAGE MASTER PLAN
CLOMR/LOMR
TRAFFIC CIRCULATION LAYOUT (TCL)
ADMINISTRATIVE
TRAFFIC CIRCULATION LAYOUT FOR DFT
APPROVAL
TRAFFIC IMPACT STUDY (TIS)
STREET LIGHT LAYOUT
OTHER (SPECIFY) _____

TYPE OF APPROVAL SOUGHT:

BUILDING PERMIT APPROVAL
CERTIFICATE OF OCCUPANCY
CONCEPTUAL TCL DFT APPROVAL
PRELIMINARY PLAT APPROVAL
FINAL PLAT APPROVAL
SITE PLAN FOR BLDG PERMIT DFT
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
OTHER (SPECIFY) _____

DATE SUBMITTED: _____

Brissette, Renee C.

From: Alicia Lopez <alicia@mrgcd.us>
Sent: Friday, October 13, 2023 4:11 PM
To: Ron Bohannon; Luis Noriega; Eric Zamora; Jason Casuga
Cc: Vince Carrica; Ashley Veihl; Engineering Department; Brissette, Renee C.
Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch
Attachments: 2012100 Rio Grande Crossing Culvert Report Submittal 09.21.23 (1).pdf

[EXTERNAL] Forward to phishing@cabq.gov and delete if an email causes any concern.

Good afternoon Luis and Ron,

After review of the attached analysis, the culvert crossing proposed within the MRGCD Alameda Drain will not encumber MRGCD's interests. The MRGCD approves that the size and evaluated capacity of the pipe as they are in accordance with the Alameda Drain Study parameters. Additionally:

- The Bernalillo County and City of Albuquerque hold final approval of any additional storm water inputs in the Drain and may require an update to the model at their discretion.
- MRGCD Licensing of the final crossing design will be required prior to construction.

Please let us know if you have any questions.

Alicia Lopez, P.E.
Engineering & Mapping Manager

Middle Rio Grande Conservancy District
1931 Second Street SW | Albuquerque, NM 87102
O: (505) 247-0234 | C: (505) 263-0983
www.mrgcd.com | alicia@mrgcd.us

From: Ron Bohannon <rrb@tierrawestllc.com>
Sent: Friday, October 6, 2023 6:57 AM
To: Alicia Lopez <alicia@mrgcd.us>; Luis Noriega <lnoriega@tierrawestllc.com>; Eric Zamora <ezamora@mrgcd.us>; Jason Casuga <jason@mrgcd.us>
Cc: Vince Carrica <VCarrica@tierrawestllc.com>; Ashley Veihl <aveihl@mrgcd.us>; Engineering Department <EngrDept@mrgcd.us>; Brissette, Renee C. <rbrissette@cabq.gov>
Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Thanks

Ronald R. Bohannon, P.E.
Tierra West LLC
5571 Midway Parkplace NE
Albuquerque, NM 87109
Office 505-858-3100
Cell 505-238-5385

From: Alicia Lopez <alicia@mrgcd.us>
Sent: Thursday, October 5, 2023 6:18 PM
To: Ron Bohannon <rrb@tierrawestllc.com>; Luis Noriega <lnoriega@tierrawestllc.com>; Eric Zamora <ezamora@mrgcd.us>; Jason Casuga <jason@mrgcd.us>
Cc: Vince Carrica <VCarrica@tierrawestllc.com>; Ashley Veihl <aveihl@mrgcd.us>; Engineering Department <EngrDept@mrgcd.us>; Brissette, Renee C. <rbrissette@cabq.gov>
Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Thank you for the background Ron and Luis for the reminder.

Much of the team has been out this week so I apologize for the delay. Based on my conversation with Luis, the hydraulics look good. We will be preparing the approval internally and will get that back to you by Friday of next week.

Alicia

Alicia Lopez, PE
Engineering & Mapping Manager
MRGCD

From: Ron Bohannon <rrb@tierrawestllc.com>
Sent: Thursday, October 5, 2023 1:58:38 PM
To: Luis Noriega <lnoriega@tierrawestllc.com>; Alicia Lopez <alicia@mrgcd.us>; Eric Zamora <ezamora@mrgcd.us>; Jason Casuga <jason@mrgcd.us>
Cc: Vince Carrica <VCarrica@tierrawestllc.com>; Ashley Veihl <aveihl@mrgcd.us>; Engineering Department <EngrDept@mrgcd.us>; Brissette, Renee C. <rbrissette@cabq.gov>
Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Also, we believe we will be able to install both crossings and have it completed this winter while the water is off.

Ronald R. Bohannon, P.E.
Tierra West LLC
5571 Midway Parkplace NE
Albuquerque, NM 87109
Office 505-858-3100
Cell 505-238-5385

From: Luis Noriega <lnoriega@tierrawestllc.com>
Sent: Thursday, October 5, 2023 1:38 PM
To: Alicia Lopez <alicia@mrgcd.us>; Eric Zamora <ezamora@mrgcd.us>; Jason Casuga <jason@mrgcd.us>; Ron Bohannon <rrb@tierrawestllc.com>
Cc: Vince Carrica <VCarrica@tierrawestllc.com>; Ashley Veihl <aveihl@mrgcd.us>; Engineering Department <EngrDept@mrgcd.us>; Brissette, Renee C. <rbrissette@cabq.gov>
Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Hi Alicia,

Just wanted to follow up on the review status of our model and report?

Thank you,

Luis Noriega



Civil Engineering
5571 Midway Park Pl, NE
Albuquerque, NM 87109
(505)858-3100 ext. 1216

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From: Brissette, Renee C. <rbrissette@cabq.gov>
Sent: Friday, September 22, 2023 7:41 AM
To: Alicia Lopez <alicia@mrgcd.us>; Eric Zamora <ezamora@mrgcd.us>; Luis Noriega <lnoriega@tierrawestllc.com>; Jason Casuga <jason@mrgcd.us>; Ron Bohannan <rrb@tierrawestllc.com>
Cc: Vince Carrica <VCarrica@tierrawestllc.com>; Ashley Veihl <aveihl@mrgcd.us>; Engineering Department <EngrDept@mrgcd.us>
Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Alicia,

Also please send me an email if the model and report looks good from MRGCD. I will hold off on the City's approval till I hear back from you.



RENÉE CHRISTINA BRISSETTE, PE CFM

senior engineer, hydrology

o 505.924.3995

e rbrissette@cabq.gov

cabq.gov/planning

From: Alicia Lopez <alicia@mrgcd.us>
Sent: Thursday, September 21, 2023 5:04 PM
To: Eric Zamora <ezamora@mrgcd.us>; Luis Noriega <lnoriega@tierrawestllc.com>; Jason Casuga <jason@mrgcd.us>; Ron Bohannan <rrb@tierrawestllc.com>
Cc: Vince Carrica <VCarrica@tierrawestllc.com>; Ashley Veihl <aveihl@mrgcd.us>; Brissette, Renee C. <rbrissette@cabq.gov>; Engineering Department <EngrDept@mrgcd.us>
Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

[EXTERNAL] Forward to phishing@cabq.gov and delete if an email causes any concern.

Hi Luis,

Good to hear from you. Can you send me the attachments from your previous email. Can you also set up a meeting for you and I to discuss the model and it's results? Monday or Wednesday morning of next week works for me. Thanks!

Alicia Lopez, P.E.

Engineering & Mapping Manager, MRGCD | C (505) 263-0983

From: Eric Zamora <ezamora@mrgcd.us>

Sent: Thursday, September 21, 2023 11:23 AM

To: Luis Noriega <lnoriega@tierrawestllc.com>; Jason Casuga <jason@mrgcd.us>; Ron Bohannon <rrb@tierrawestllc.com>; Alicia Lopez <alicia@mrgcd.us>

Cc: Vince Carrica <VCarrica@tierrawestllc.com>; Ashley Veihl <aveihl@mrgcd.us>; Brissette, Renee C. <rbrissette@cabq.gov>

Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Luis, I've cc'd Alicia Lopez our Engineering Manger to follow up on this request.

Eric

From: Luis Noriega <lnoriega@tierrawestllc.com>

Sent: Thursday, September 21, 2023 10:02 AM

To: Jason Casuga <jason@mrgcd.us>; Ron Bohannon <rrb@tierrawestllc.com>; Eric Zamora <ezamora@mrgcd.us>

Cc: Vince Carrica <VCarrica@tierrawestllc.com>; Ashley Veihl <aveihl@mrgcd.us>; Brissette, Renee C. <rbrissette@cabq.gov>

Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Eric/Jason,

City hydrology is requiring an analysis of the proposed culvert crossing and is asking for MRGCD approval. Attached is the report and HEC-RAS model.

Let us know if there are questions or issues?

Thank you,

Luis Noriega



Civil Engineering
5571 Midway Park Pl, NE
Albuquerque, NM 87109
(505)858-3100 ext. 1216

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From: Jason Casuga <jason@mrgcd.us>

Sent: Thursday, August 31, 2023 10:51 AM

To: Luis Noriega <lnoriega@tierrawestllc.com>; Ron Bohannon <rrb@tierrawestllc.com>; Eric Zamora

<ezamora@mrgcd.us>

Cc: Vince Carrica <VCarrica@tierrawestllc.com>; Ashley Veihl <aveihl@mrgcd.us>

Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Luis

I found out from my team that the report was actually complete in October of last year. Please see attached.

Thank you.

Jason M. Casuga, P.E.
CEO/Chief Engineer
Middle Rio Grande Conservancy District
Phone: (505) 247-0234 ext. 1380
Cell: (505) 259 - 1005
Fax: (505) 243-7308

From: Luis Noriega <lnoriega@tierrawestllc.com>

Sent: Thursday, August 31, 2023 7:29 AM

To: Jason Casuga <jason@mrgcd.us>; Ron Bohannan <rbb@tierrawestllc.com>; Eric Zamora <ezamora@mrgcd.us>

Cc: Vince Carrica <VCarrica@tierrawestllc.com>; Ashley Veihl <aveihl@mrgcd.us>

Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Jason, if you can follow up on the study we would appreciate it, or if you can provide contact information we can also contact them ourselves.

Thank you,

Luis Noriega



Civil Engineering
5571 Midway Park Pl, NE
Albuquerque, NM 87109
(505)858-3100 ext. 1216

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From: Jason Casuga <jason@mrgcd.us>

Sent: Wednesday, August 30, 2023 6:43 AM

To: Ron Bohannan <rbb@tierrawestllc.com>; Eric Zamora <ezamora@mrgcd.us>

Cc: Luis Noriega <lnoriega@tierrawestllc.com>; Vince Carrica <VCarrica@tierrawestllc.com>; Ashley Veihl <aveihl@mrgcd.us>

Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Morning Ron

It is interesting that the City has asked for this drainage study. The City, AMAFCA, and MRGCD have partnered with BERNCO to have an H&H Study completed on the Alameda Drain. The scope of the study is to document all existing

stormwater inputs and then build a hydraulics model for the drain. BERNCO is the lead and is using RESPEC to complete the work.

We can follow up with Elias on the status of the study.

Jason M. Casuga, P.E.
CEO/Chief Engineer

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From: Ron Bohannon <rrb@tierrawestllc.com>
Sent: Wednesday, August 30, 2023 5:58:18 AM
To: Eric Zamora <ezamora@mrgcd.us>
Cc: Luis Noriega <lnoriega@tierrawestllc.com>; Vince Carrica <VCarrica@tierrawestllc.com>; Ashley Veihl <aveihl@mrgcd.us>; Jason Casuga <jason@mrgcd.us>
Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Eric, City Hydrology has asked for a copy of the drainage plan that was prepared for the Alameda Drain. Do you have a copy that you can share with us?

Thanks

Ronald R. Bohannon, P.E.
Tierra West LLC
5571 Midway Parkplace NE
Albuquerque, NM 87109
Office 505-858-3100
Cell 505-238-5385

From: Ron Bohannon
Sent: Sunday, August 27, 2023 3:26 PM
To: 'Eric Zamora' <ezamora@mrgcd.us>
Cc: Luis Noriega <lnoriega@tierrawestllc.com>; Vince Carrica <vcarrica@tierrawestllc.com>; Ashley Veihl <aveihl@mrgcd.us>; Jason Casuga <jason@mrgcd.us>; Ron Bohannon <rrb@tierrawestllc.com>
Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Eric, thanks for the email and we are working on those items and from my notes this is what we owe you for the next step:

1. Summary letters identify the history and trades for the project and Campbell ditch
2. Exhibits showing the exchange of properties.
3. Updated timing of the project and development of the property
4. Copies of the permits to date
5. Maintenance of the trails and ditch through the project.

If I have missed anything, please chime in. Luis is in front of the City of Albuquerque tomorrow to get the Design Review Committee (DRC) plans approved by the City for the pedestrian and vehicular crossing.

I will strive to have the remaining items to you by the end of the week.

Thanks

Ronald R. Bohannon, P.E.
Tierra West LLC
5571 Midway Parkplace NE
Albuquerque, NM 87109
Office 505-858-3100
Cell 505-238-5385

From: Eric Zamora <ezamora@mrgcd.us>
Sent: Friday, August 25, 2023 10:56 AM
To: Ron Bohannon <rrb@tierrawestllc.com>
Cc: Luis Noriega <lnoriega@tierrawestllc.com>; Vince Carrica <VCarrica@tierrawestllc.com>; Ashley Veihl <aveihl@mrgcd.us>; Jason Casuga <jason@mrgcd.us>
Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Hey Ron, just wanted to follow up. As I recall from our meeting, your staff would follow up with a written request to MRGCD with a proposal based on the needs of the developer. Has Mr. Garcia determined his needs?

Eric Zamora, PE
COO
MRGCD

From: Ron Bohannon <rrb@tierrawestllc.com>
Sent: Thursday, July 27, 2023 10:29 AM
To: Eric Zamora <ezamora@mrgcd.us>
Cc: Luis Noriega <lnoriega@tierrawestllc.com>; Vince Carrica <VCarrica@tierrawestllc.com>
Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Caution! This message was sent from outside your organization.

It probably would be better for Ed and Matt to try and get here if that works for you?

Thanks
Ron

From: Eric Zamora <ezamora@mrgcd.us>
Sent: Thursday, July 27, 2023 10:27 AM
To: Ron Bohannon <rrb@tierrawestllc.com>
Cc: Luis Noriega <lnoriega@tierrawestllc.com>; Vince Carrica <VCarrica@tierrawestllc.com>
Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Sure, meet here or your place?

From: Ron Bohannon <rrb@tierrawestllc.com>
Sent: Thursday, July 27, 2023 10:26 AM
To: Eric Zamora <ezamora@mrgcd.us>

Cc: Luis Noriega <lnoriega@tierrawestllc.com>; Vince Carrica <VCarrica@tierrawestllc.com>

Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Caution! This message was sent from outside your organization.

Yes and 11 works for my schedule as well. Do you want me to send out an meeting invite?

Thanks

Ron Bohannon

From: Eric Zamora <ezamora@mrgcd.us>

Sent: Thursday, July 27, 2023 10:24 AM

To: Ron Bohannon <rrb@tierrawestllc.com>; Jason Casuga <jason@mrgcd.us>

Cc: Luis Noriega <lnoriega@tierrawestllc.com>; Vince Carrica <VCarrica@tierrawestllc.com>; 'Garcia, Ed' <EGarcia@garciacars.com>; Matt Konker - Garcia Cars (mkonker@garciacars.com) <mkonker@garciacars.com>

Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

On Wednesday did you mean 10-12? If so, let's meet at 11

From: Ron Bohannon <rrb@tierrawestllc.com>

Sent: Thursday, July 27, 2023 10:22 AM

To: Eric Zamora <ezamora@mrgcd.us>; Jason Casuga <jason@mrgcd.us>

Cc: Luis Noriega <lnoriega@tierrawestllc.com>; Vince Carrica <VCarrica@tierrawestllc.com>; 'Garcia, Ed' <EGarcia@garciacars.com>; Matt Konker - Garcia Cars (mkonker@garciacars.com) <mkonker@garciacars.com>

Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Caution! This message was sent from outside your organization.

Eric, here is my availability next week:

Monday	9:30 to 12
Tuesday	9 to 11:30 2:30 to 5
Wednesday	2 to 12
Thursday	2 to 5
Friday	10 to 12

Thanks

Ronald R. Bohannon, P.E.
Tierra West LLC
5571 Midway Parkplace NE
Albuquerque, NM 87109
Office 505-858-3100
Cell 505-238-5385

From: Eric Zamora <ezamora@mrgcd.us>

Sent: Thursday, July 27, 2023 9:53 AM

To: Ron Bohannon <rrb@tierrawestllc.com>; Jason Casuga <jason@mrgcd.us>

Cc: Luis Noriega <lnoriega@tierrawestllc.com>; Vince Carrica <VCarrica@tierrawestllc.com>; 'Garcia, Ed' <EGarcia@garciacars.com>; Matt Konker - Garcia Cars (mkonker@garciacars.com) <mkonker@garciacars.com>
Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Ron, I'll be able to work with you on this, what does your schedule look like next week.

Eric Zamora, PE
COO
MRGCD

From: Ron Bohannon <rrb@tierrawestllc.com>
Sent: Thursday, July 27, 2023 9:48 AM
To: Jason Casuga <jason@mrgcd.us>; Eric Zamora <ezamora@mrgcd.us>
Cc: Luis Noriega <lnoriega@tierrawestllc.com>; Vince Carrica <VCarrica@tierrawestllc.com>; 'Garcia, Ed' <EGarcia@garciacars.com>; Matt Konker - Garcia Cars (mkonker@garciacars.com) <mkonker@garciacars.com>
Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Caution! This message was sent from outside your organization.

Jason, I hope you have caught up from your time off. Checking to see if we can set up a follow up call to discuss the trade?

Thanks

Ronald R. Bohannon, P.E.
Tierra West LLC
5571 Midway Parkplace NE
Albuquerque, NM 87109
Office 505-858-3100
Cell 505-238-5385

From: Ron Bohannon <rrb@tierrawestllc.com>
Sent: Wednesday, July 19, 2023 9:41 AM
To: Jason Casuga - MRGCD (jason@mrgcd.us) <jason@mrgcd.us>
Cc: Luis Noriega <lnoriega@tierrawestllc.com>; Vince Carrica <VCarrica@tierrawestllc.com>; 'Garcia, Ed' <EGarcia@garciacars.com>; Matt Konker - Garcia Cars (mkonker@garciacars.com) <mkonker@garciacars.com>; Ron Bohannon <rrb@tierrawestllc.com>
Subject: RE: [#2012100] Notes for Ed Garcia Property & MRGCD Campbell Ditch

Jason, we are working with the City to establish a trail along the drain, and we are proceeding with the roadway and pedestrian crossing of the ditch as well. I wanted to see if it is time to try and work out the trade for the Campbell Ditch during this process?

Let me know.

Thanks

Ronald R. Bohannon, P.E.
Tierra West LLC
5571 Midway Parkplace NE

Albuquerque, NM 87109

Office 505-858-3100

Cell 505-238-5385

**Rio Grande Crossing
Culvert Bridge Analysis
NE Corner of Rio Grande Blvd & Interstate-40**

Prepared for:

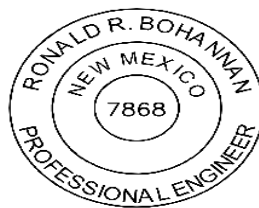
Ed Garcia Properties

Prepared by:

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

September 2023

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.



09-21-23

Ronald R. Bohannon
PE # 7868

City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION

APPROVED

DATE: 10/16/23
BY: *Renée C. Brissette*
HydroTrans # H13D109

THE APPROVAL OF THESE PLANS/REPORT SHALL NOT BE
CONSTRUED TO PERMIT VIOLATIONS OF ANY CITY
ORDINANCE OR STATE LAW, AND SHALL NOT PREVENT
THE CITY OF ALBUQUERQUE FROM REQUIRING
CORRECTION, OR ERROR OR DIMENSIONS IN PLANS,
SPECIFICATIONS, OR CONSTRUCTIONS. SUCH APPROVED PLANS
SHALL NOT BE CHANGED, MODIFIED OR ALTERED WITHOUT
AUTHORIZATION.

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Introduction

Rio Grande Crossing (RGX) is a roughly 5-acre area comprised of developed and undeveloped tracts along with 21 acres on the east side of the Alameda Drain that will be connected via a street crossing. The site is located on the northeast quadrant of I-40 and Rio Grande Blvd in Albuquerque, New Mexico. A previously approved report (report file H13-D109) was approved for the west side of the property. The purpose of this report is to review the proposed crossing structure and capacity of the drain for the structure. The property is bisected by the Alameda Drain that flows from north to south. The Alameda Drain is a 10.4-mile-long drain from the “AMAFCA Bathtub” through a series of 80 culvert crossings and ending at the Albuquerque Riverside Drain. The segment of the drain adjacent to RGX is roughly 0.19 miles long or 1,000 feet long (the “subject segment”). The subject segment is bordered by a 12ft wide, 5 ft high corrugated metal pipe arch at Lilac Ave and a 10ft by 6ft concrete box culvert under Rio Grande Blvd.

The existing property owner is proposing to build an aluminum box culvert and a vehicular crossing within the subject segment to provide increased traffic capacity over the Alameda Drain off Rio Grande Blvd. and Floral Rd. This connection will connect the two properties east and west of the drain. As stated, the intent of this report is to analyze the proposed culvert/crossing and report the results. The proposed site lays within hydrology number H13-D109. The boundary of the proposed site is located on the Zone atlas page H-13-Z as shown on **Figure 1**. We have submitted DRC crossing plans for review and this report is in response to that review. Those plans are available if needed for this review.

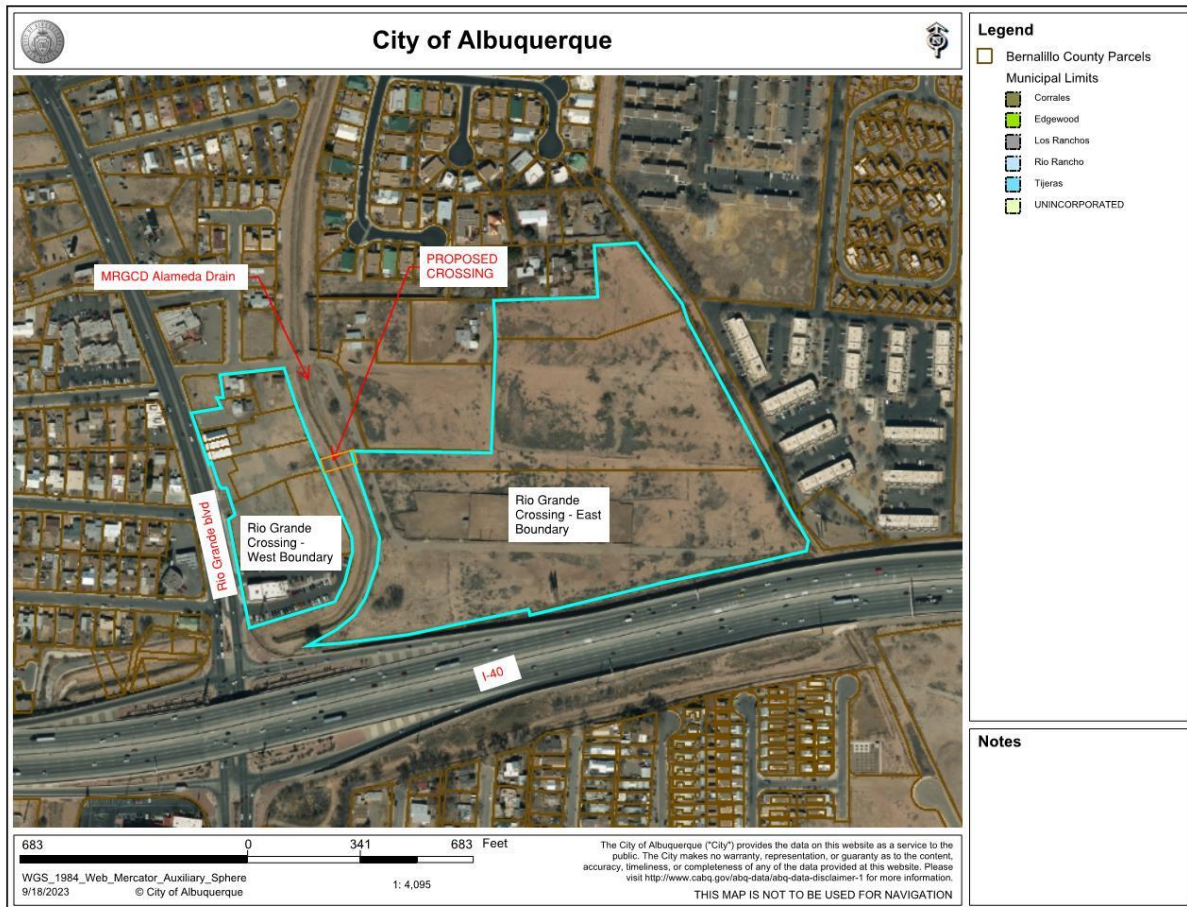


Figure 2– Ariel Map

Previous Studies

Listed below are the previous studies that provided critical information regarding the subject segment of the Alameda Drain related to the existing capacity of the drain and historic flow data.

- Alameda Drain and Riverside Drain Study by Leedshill Herkenhoff, 1991, analyzed both drains and provided options and recommendations for improvements.
- Alameda SWMM Drainage Study Report by RESPEC, Inc. 2022, analyzed the hydraulic capacity of the Alameda Drain, to understand the hydraulic capacity of the drain.

Flood Plain

The floodplain information is published for the site by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Bernalillo County, New Mexico, and Incorporated Areas. The Rio Grande Crossing property is included in Community Panel Number 35001C0331H dated August 16, 2012, and is shown below in **Figure 3**. The subject site is located within Flood Zone X, which is defined as, "Areas determined to be outside the 0.2% annual chance floodplain". The site lies within an area with reduced flood risk due to the levee. A portion of eastern part of the subject Alameda Drain segment is known to flood and is shown as being in Zone AH with an elevation of 4960 feet. The area within the flood plain remains undeveloped.

National Flood Hazard Layer FIRMette

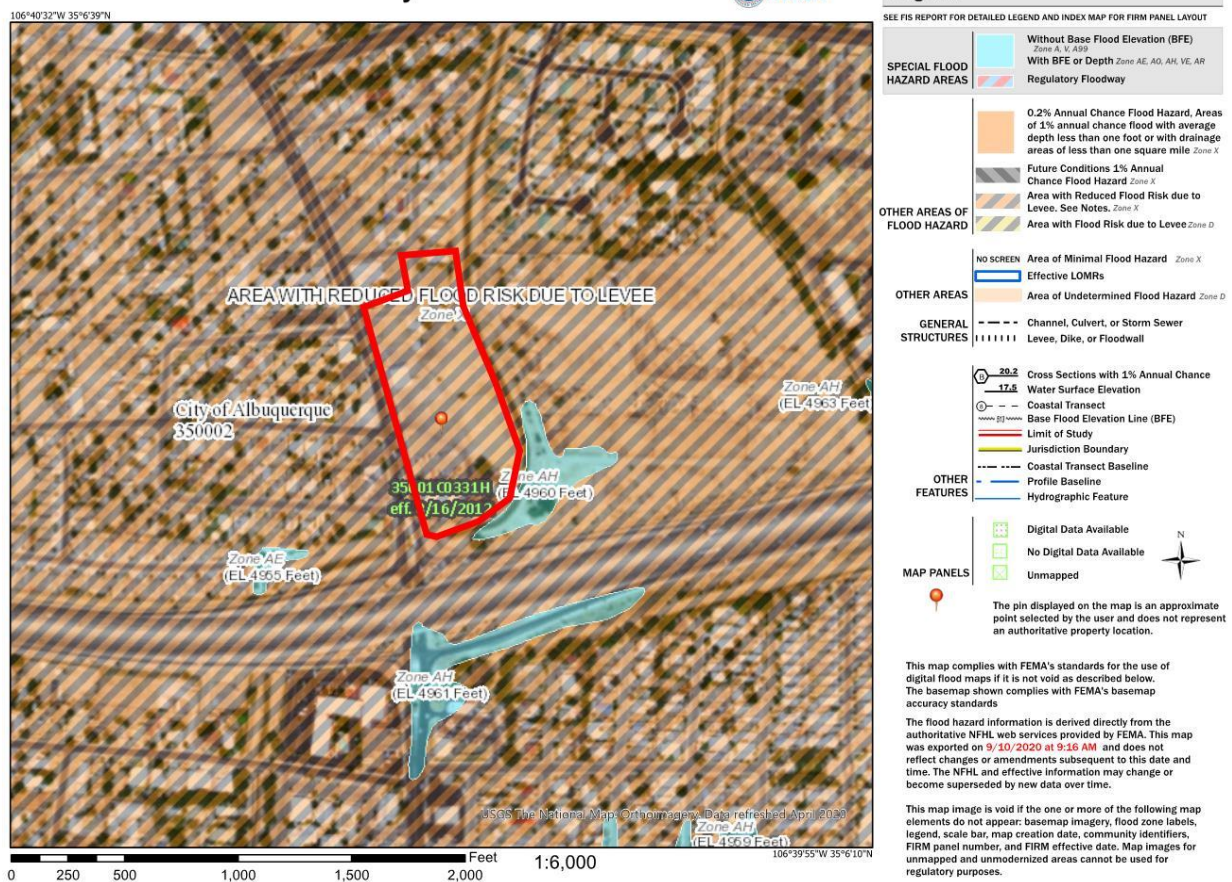


Figure 3 – FIRM Map

As-Builts and Field Observations

Background information for the existing subject segment was comprised of topographic surveys and as-built data from the city of Albuquerque. The subject segment was also visited to observe the conditions of the drain, the various crossing structures and to confirm the dimensions of the channel.

Methodology

HEC-RAS was the modeling software used to analyze the proposed crossing structure. According to the HEC-RAS user manual this software allows to perform one- and two-dimensional steady flow. The existing cross sections were derived using the topographic survey imported from civil 3D. At the time of the topographic survey the depth of the channel was obscured by water in the Alameda Drain. A combination of field measurements and topographic point elevations were used to derive the existing bottom dimensions of the subject segment as well as the drains slope along the subject segment.

For the calculations to be consistent with the manning's numbers and other characteristic were derived from the Alameda and Riverside drainage report, 1991, and is also referenced in the Alameda SWMM Drainage Study Report by RESPEC, Inc. 2022. The existing conditions of the drain characteristics and the design assumptions are listed below.

Alameda Drain Existing Typical Characteristics

Historic Flow: 287 CFS
Side slope: 1.4:1.0 – 2.0:1.0 (H:V)
Bottom Width: 6 ft to 17 ft
Depth: 7 ft to 11 ft
Bottom slope: 0.00034 ft/ft
Length: ~1000 ft
Existing Culvert Crossings: 2
Channel 'n' Value: 0.035

Culvert Data

Corrugated Metal Pipe Arch (CMPA) 'n' Value: 0.030
Concrete Box Culvert (CBC) 'n' Value: 0.015
Corrugated Aluminum Box Culvert (CABC) 'n' Value: 0.030
Entrance and Exist loss (CMPA): 0.15, 1
Entrance and Exist loss (CBC): 0.9, 1
Entrance and Exist loss (CABC): 0.9, 1

Existing Conditions

The existing conditions model calculated the drains capacity at the historic flow conditions. Two existing culvert crossings are included in the model. The first is the 12'x6' corrugated metal pipe arch (CMPA) on Lilac Ave and the other is a 10'x6' concrete box culvert (CBC) under Rio Grande Blvd. The intent of this report is to show that the proposed new crossing structure exceeds the limitation of those culverts on the system. As shown in **Figure 5** the results of the HEC-RAS existing conditions model confirm that the crossing at Lilac Ave floods and is consistent with the results of the Alameda SWMM Drainage Study Report, 2022, and the Alameda and Riverside Drain Study Report, 1991. The location of the cross sections is depicted in **Figure 4** below, consistent with the flood plain map the HEC-RAS model calculated flooding around the cross-section station 636.42 on the east side. As shown in **Figure 6** the crossing at Rio Grande Blvd does not show overtopping, however the energy grade line is above the top of the CBC.

The existing conditions results are consistent with what has already been reported. Per the Drainage Study report, 2022, the Alameda Drain acts like a long linear pond, as such if a culvert capacity does get exceeded by inflows, the pond is able to provide enough storage volume to attenuate the peak without overtopping most culvert structures. Future developed flows into the drain have been reduced to historic flows due to the capacity issues of the drain.

There are existing deficiencies in the drain which are a result from a combination of insufficient culvert capacity and insufficient channel cross sectional area. The system is heavily time dependent due to the length of the Alameda Drain, the large size of the tributary water shed, long runs of storm drain and the presence of many regional and smaller private ponds and pump stations. This report does not attempt to recommend improvements to offsite facilities and only reports on the existing conditions.

EXISTING CONDITIONS

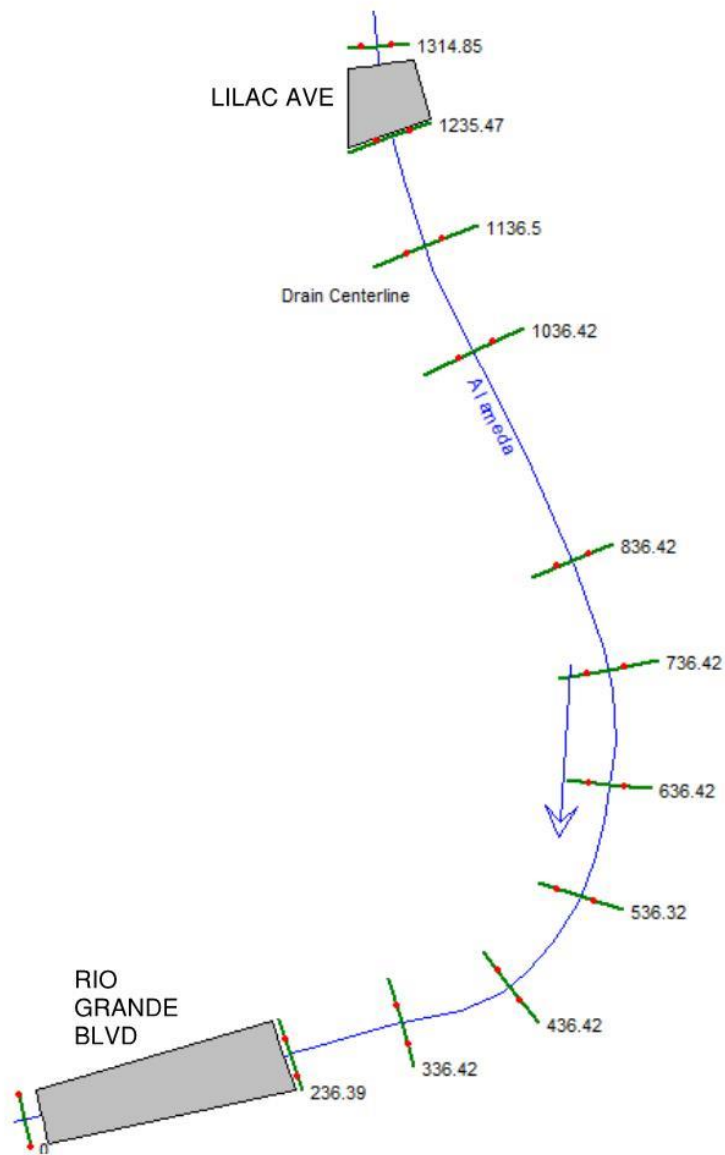


Figure 4– Existing Conditions Plan View

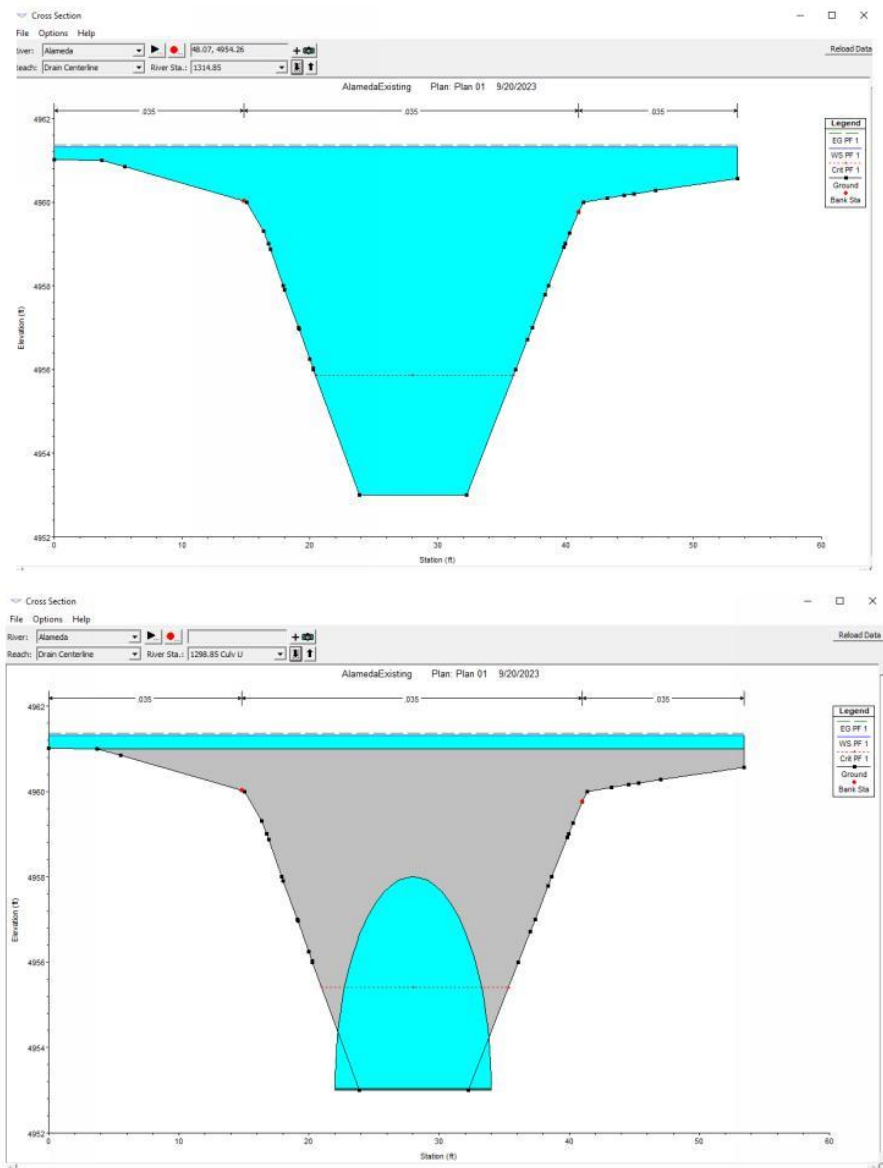


Figure 5– Existing Conditions- Cross Section at Lilac Ave (CMPA)

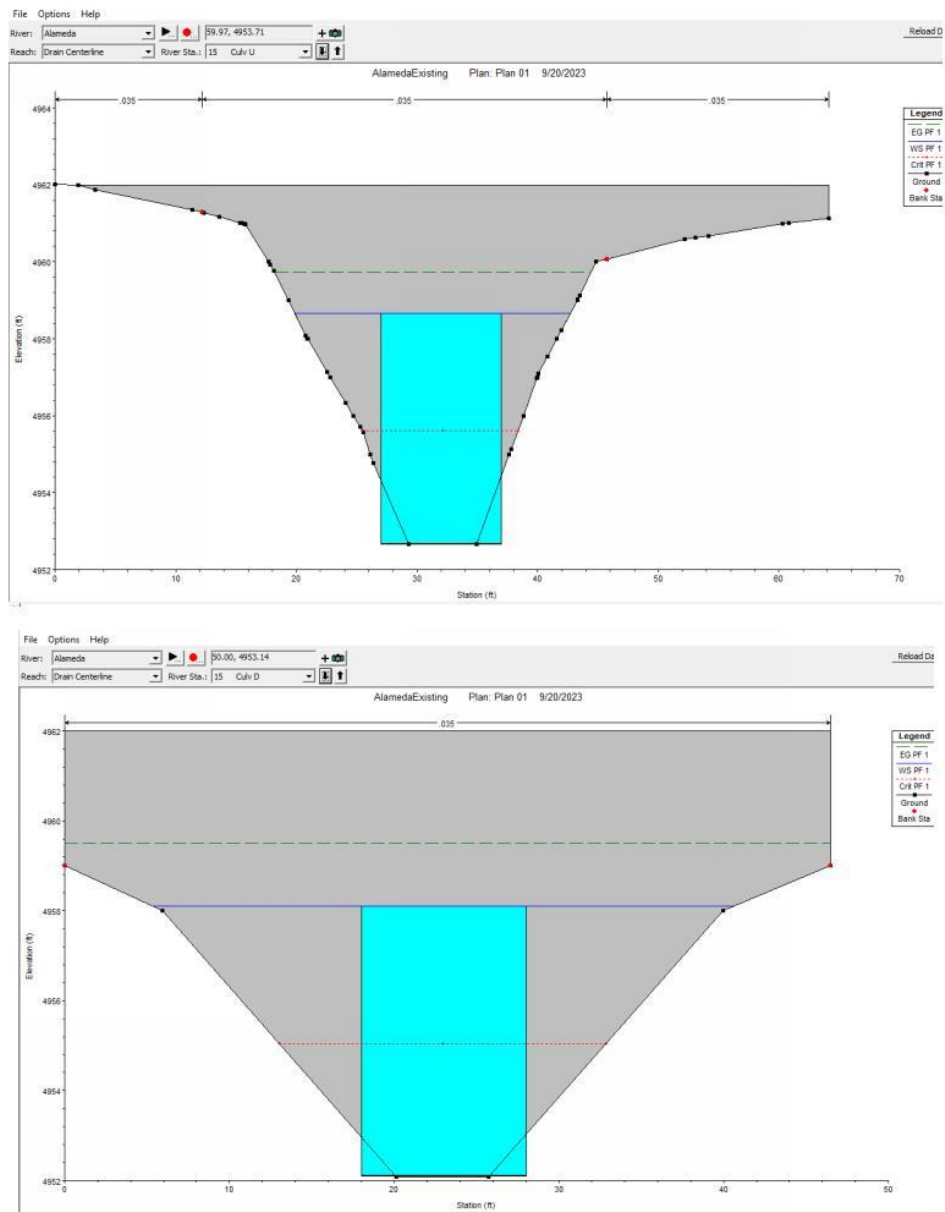


Figure 6– Existing Conditions- Cross Section at Rio Grande Blvd (CBC)

Proposed Conditions

The proposed conditions model calculated the capacity of the Alameda Drain at the subject segment with a proposed 12.5'x7.33' corrugated aluminum box culvert (CABC) at station 972 as shown in **Figure 7**. The results indicate that the proposed CABC does not significantly change the capacity of the drain and has the capacity for the ultimate historic flow conditions see **Figure 9**. The proposed culvert structure has the capacity to convey the 100 year – 24-hour storm and as shown in **Figures 8 and 10** there are no significant impacts to the drain's capacity. Per the Alameda SWMM Drainage Study Report, 2022, the calculations in the existing models are very conservative because the hydraulic analysis assumes that the design storm occurs at the same intensity over a watershed that is almost 17 square miles for the full 100-year rainfall depth. The likelihood of such a storm is very low. There are also no records of overtopping along the drain's corridor.

PROPOSED CONDITIONS

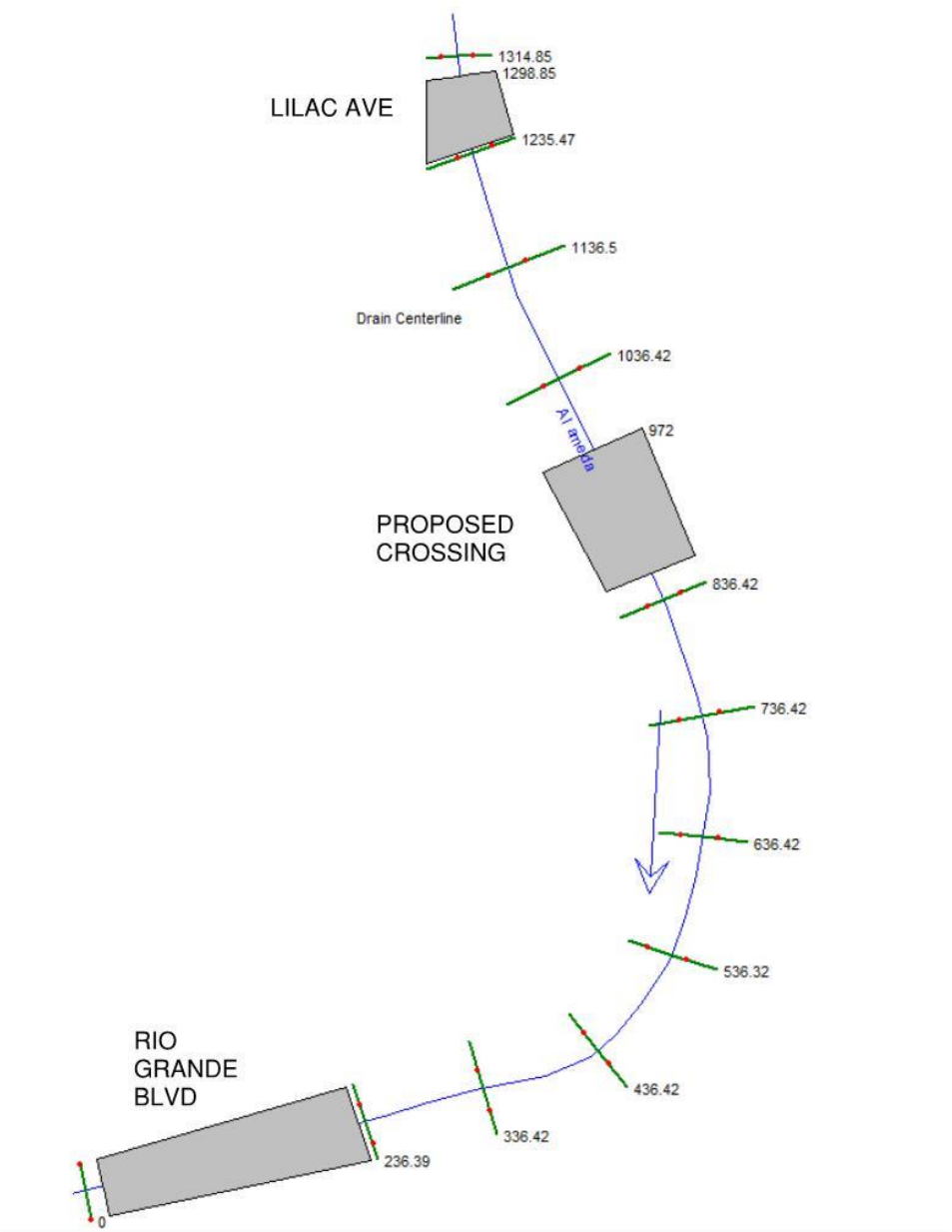


Figure 7– Proposed Conditions Plan View

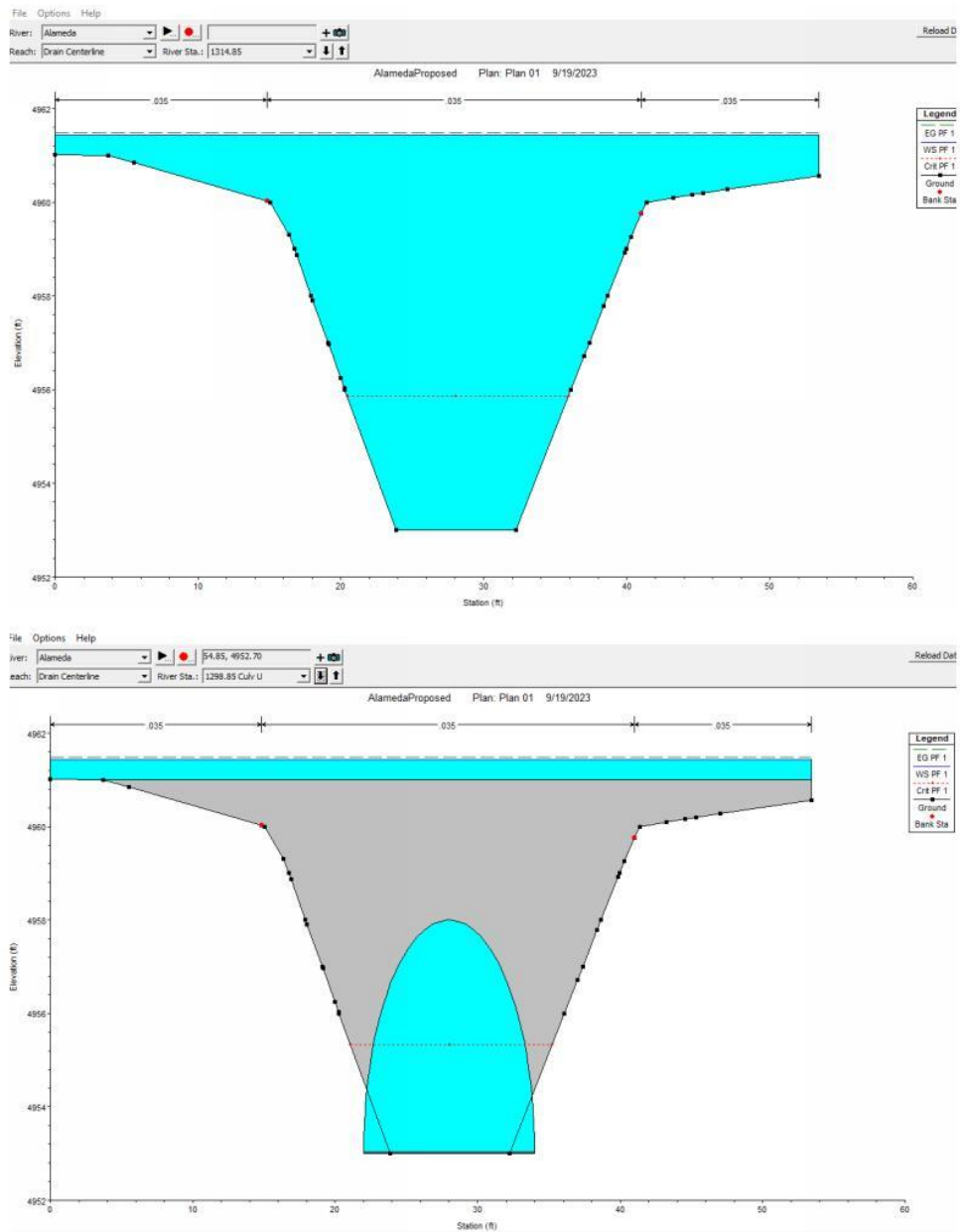


Figure 8– Proposed Conditions- Cross Section at Lilac Ave (CMPA)

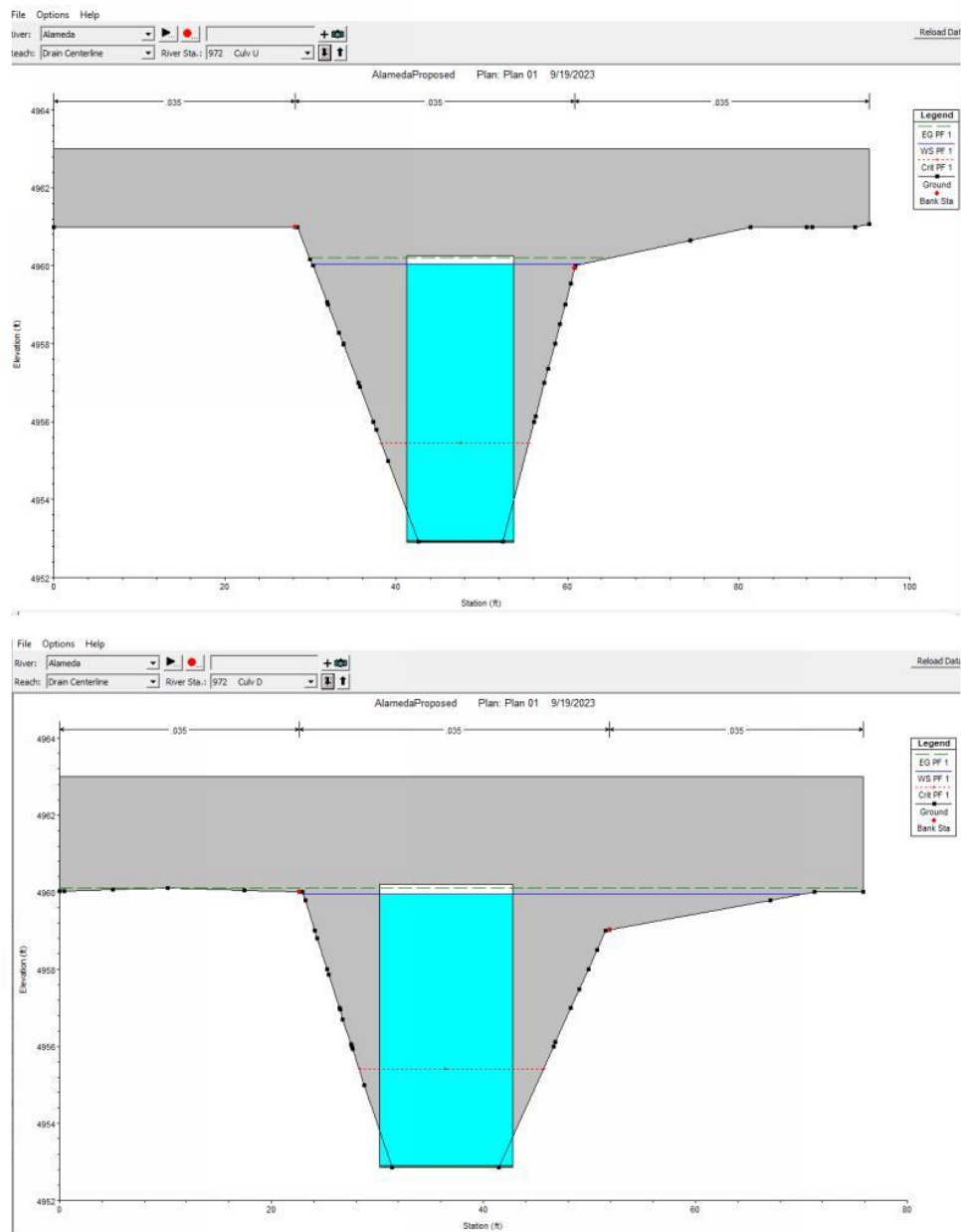


Figure 9– Proposed Conditions- Cross Section at Proposed Culvert (CABC)

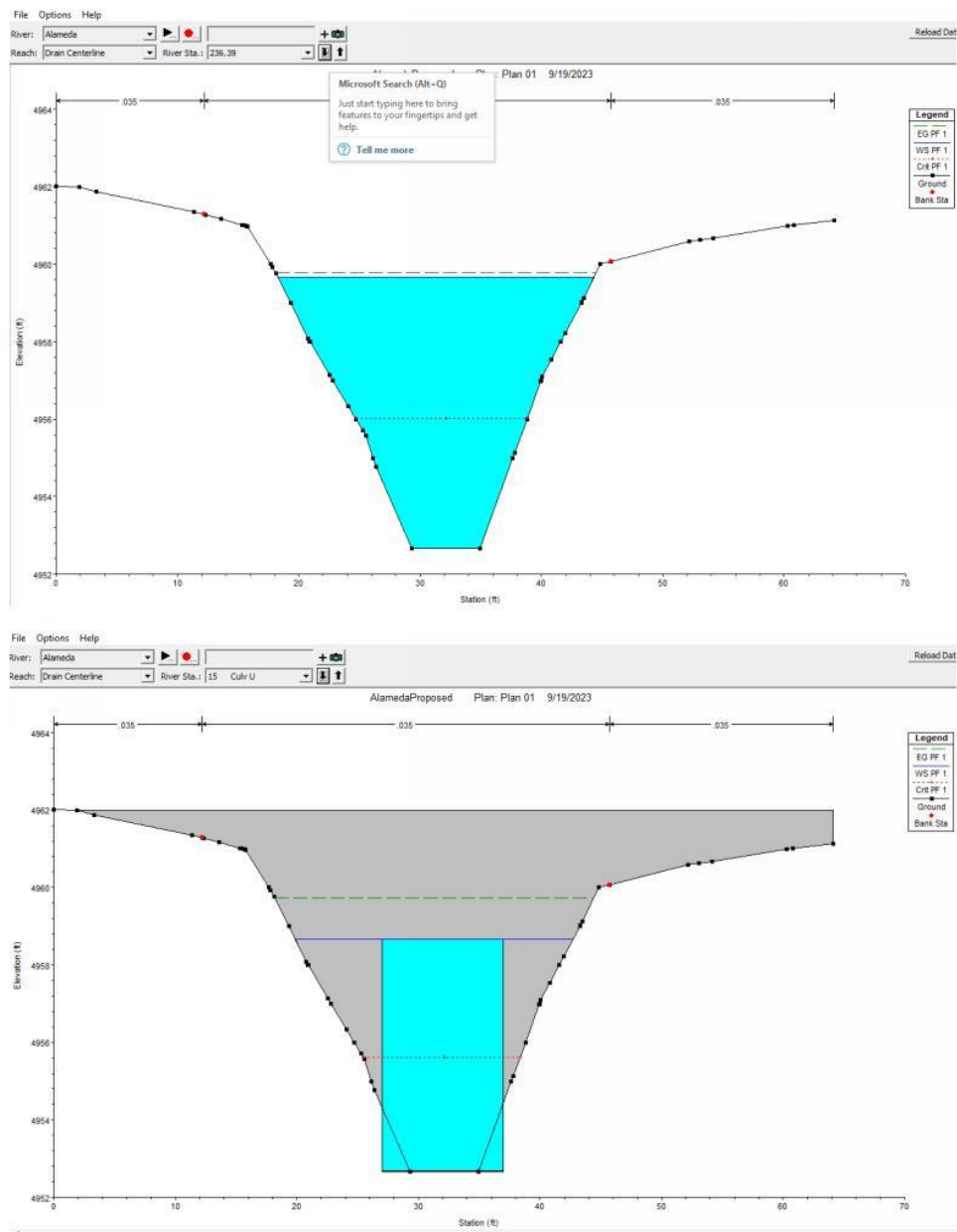


Figure 10– Proposed Conditions- Cross Section at Rio Grande Blvd (CBC)

Summary

In summary, based on the HEC-RAS model and the site parameters, the existing culvert at Lilac Ave has a capacity of around 145 cfs, the culvert at Rio Grande Blvd and I-40 has a capacity of 225 cfs and the proposed culvert has a capacity of about 295 cfs. The Alameda SWMM Drainage Study Report by RESPEC, Inc. 2022, recommends that future flows will be restricted to the culvert under I-40. Rio Grande Crossing is proposed to be fully developed in the future; the proposed culvert crossing structure is meant to provide additional vehicular access to all portions of the property. The existing conditions confirm what is already known about the channel and its deficiencies. The purpose of this report is to show that the proposed culvert crossing structure does not negatively impact the capacity of the drain and the capacity of the culvert is sufficient to convey the 100-year, 24 hours storm event without overtopping and flooding.