AGENDA
TOWN OF RICO BOARD OF TRUSTEES
2 Commercial Street– Rico Town Hall
November 16th, 2022
7:00 PM

Topic: Board of Trustees
Time: Nov 16, 2022 07:00 PM Mountain Time (US and Canada)

Join Zoom Meeting
https://us02web.zoom.us/j/89542273693?pwd=dE9tYWlWVFUyUnRPdVAwREZqMW1mQT09

Meeting ID: 895 4227 3693
Passcode: 169423
One tap mobile
+17193594580,,89542273693#,,,,*169423# US
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Dial by your location
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+1 253 215 8782 US (Tacoma)
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ROLL CALL

APPROVAL OF THE AGENDA

APPROVAL OF MINUTES

CONSENT AGENDA
- Payment of bills

PUBLIC COMMENT

ACTION ITEMS

- Swearing in of the new member of the Rico Board of Trustees

- Consideration of a liquor license transfer, Boulder City Mixology LLC, applicant.
- Consideration of second reading of Ordinance No. 2022-11 an Ordinance of the Town of Rico, Colorado adopting the year 2023 town budget; appropriating sums of money; and setting and certifying town mill levies.
- Public hearing: preliminary plat of the Dolores River Trail Development, located on portions of the Hillside 1, 2 and Yankee Boy, Rebecca and Gordon Mortensen, applicants

STAFF REPORTS

- Clerk's Report
- Manager's Report

DISCUSSION ITEMS

- Voluntary lead soils clean up ("VCUP") agreement status
- Ordinance No. 2022-12 an Ordinance of the Town of Rico, amending the Rico Land Use Code Fee Schedule, and adopting the UBC 97 table no. 1-a – building permit fees
- Updating town building codes
- Moratorium on Subdivision, PUD, and multifamily development applications.
- Rico Public Library rent proposal

Executive Session

- North Argentine Access §24-6-402(4)(b), C.R.S., Conferences with an attorney for the public entity for the purposes of receiving legal advice on specific legal questions
- Town owned commercial space §24-6-402(4)(e), C.R.S. Determination of positions relative to matters that may be subject to negotiations, development of strategy for negotiations and instruction of negotiators.

ADJOURN

Town of Rico Memorandum

Date: November 10th, 2022

TO: Town of Rico Board of Trustees

From: Chauncey McCarthy

Swearing in of the new member of the Rico Board of Trustees

Thank you to outgoing Board member Linda Yellowman for her service and congratulations on the new role of County Commissioner.

Congratulations to Joe Dillsworth for his reappointment to the Rico Board of Trustees.

Consideration of a liquor license transfer, Boulder City Mixology LLC, applicant.

Boulder City Mixology LLC has purchased the Enterprise Bar and Grill. During last months Board of Trustees meeting the board approved a temporary transfer of the Enterprise Bar and Grill, Metropole LLC, license. The state has completed their review process and the board must now decide to approve the license at the local level.

Staff recommended motion:

- I move to approve the liquor license transfer, Boulder City Mixology LLC, applicant.

Consideration of second reading of Ordinance No. 2022-11 an Ordinance of the Town of Rico, Colorado adopting the year 2023 town budget; appropriating sums of money; and setting and certifying town mill levies.

Included in the packet is the proposed 2023 budget and Ordinance No. 2022-11 an Ordinance of the Town of Rico, Colorado adopting the year 2023 town budget; appropriating sums of money; and setting and certifying town mill levies. The board reviewed the budget during the October 3rd special meeting and approved it with no modifications during the October 19 regular meeting. The ordinance and budget as presented in this packet omits the final certification of valuation by the Dolores County Assessor. (The assessor believes that the valuation should not change from the august numbers) The updated valuation should be completed on November 15 and revised budget and ordinance will be provided at the meeting on November 16, 2022.

Staff recommended motion:

- I move to approve the second reading of Ordinance No. 2022-11 an Ordinance of the Town of Rico, Colorado adopting the year 2023 town budget; appropriating sums of money; and setting and certifying town mill levies.

Public hearing: preliminary plat of the Dolores River Trail Development, located on portions of the Hillside 1, 2 and Yankee Boy, Rebecca and Gordon Mortensen, applicants

During the last month's planning meeting the commission continued the hearing of the Dolores River Trail subdivision to allow for a site walk and additional time for Mountain Civil Engineering to provide a response to comments submitted by the National Forest and Town of Rico's contract engineer, Alpine Land Consulting. A site walk was conducted on October 26, 2022. Mountain Civil Engineering submitted

revised plans and a memo addressing the comments provided by the Nation Forest and Alpine Land Consulting on November 2, 2022. The planning commission conducted a public hearing on November 9, 2022 and recommended approval of the preliminary plat with conditions. The draft minutes are included in the packet.

Also included in the packet are the revised preliminary plat submittals from the applicant including comments from the applicant's engineer. A revised plat has not been included. Additional items included in this packet are a memo from the Town Planner, two engineering review memo provided by Alpine Land Consulting, along with comments from the National Forest Service.

The proposed improvements boarder delineated wetlands in which the applicant will need to obtain a disturbance permit per section 820 of the Rico Land Use Code. The applicant has submitted the necessary documentation for this permit but due to noticing requirements the hearing will happen during the December meeting.

The proposed plans and right-of-way were reviewed by public works and concerns were voiced regarding the road width and snow storage. The proposed variance for a 20-foot road will create issue when plowing if the loader were to meet oncoming traffic. In addition to that, there are concerns related to snow storage. The current plans do not depict locations to store snow and future land and homeowners may not be amendable to the idea of storing snow on their property. If the access to the subdivision is conveyed to the town as a right-of-way these concerns need to be addressed. If the access is not conveyed to the town the grade and width would be compliant to the driveway standards in the RLUC section 498. (This would trigger the need for an owners/maintenance association.)

The Rico Fire Protection District reviewed and approved the proposed hydrant placement and turn around areas during the conceptual phase. These locations and items have not been modified since.

Motions to be considered:

I move to approve the preliminary plat of the Dolores River Trail Subdivision located on portions of the Hillside 1, 2 and Yankee Boy, Rebecca and Gordon Mortensen, applicants with the following findings:

- The application meets the intent of preliminary review of the subdivision pursuant to LUC Section 532
- The application meets the Preliminary Subdivision Review Standards found at Section 538.3

With the following conditions:

I move to continue the review of the preliminary plat of the Dolores River Trail Subdivision located on portions of the Hillside 1, 2 and Yankee Boy, Rebecca and Gordon Mortensen, applicants with the following findings:

Voluntary lead soils clean up ("VCUP") agreement status

Mayor Pieterse to lead a discussion on the status of the Voluntary lead soils clean up ("VCUP") agreement.

Ordinance No. 2022-12 an Ordinance of the Town of Rico, amending the Rico Land Use Code Fee Schedule, and adopting the UBC 97 table no. 1-a – building permit fees

Included in this packet is draft Ordinance No. 2022-12 which would amend the Land Use Code fee schedule and adopt the UBC 97 table no. 1-a – building permit fees. Currently there is a building permit fee listed in appendix A of the Rico Land Use Code; it only addresses new construction and does not contemplate additional fees for plan review or other expenses. Ordinance 2016-01 adopted the 2006 IBC, IRC and other international codes related to safety. Upon adoption of this ordinance the town created two fee schedules based upon the 2006 residential and commercial building code. These fee schedules became effective May 18, 2016. The May 18, 2016 minutes show no approval of an updated fee schedule just that Mr. Lapp and Mr. England were working together to update the permit and application to align with the newly adopted 2006 Code (Appendix L). After additional research it was determined that the math in which the current fee structure was extrapolate, based upon appendix L, converts permit fee based on valuation into a permit fee based upon square footage. The proposed ordinance would shift the town's fee schedule to a valuation driven one. It would also allow for the building official to determine valuation based upon the most recent ICC building valuation data.

The board requested that permit fees for 2500 SQFT house be included in the packet. They are as follows:

Current fee schedule:

Base Permit $1722.95
Plan review $ 516.89
Mechanical permit $172.30
Processing fee $20
TOTAL: $1915.25

Feb 2021 ICC BVD (130.58 price per sqft) fee:

Base permit: $2261.87
Plan review: $1470.22
TOTAL: $3732.09

Aug 2022 ICC BVD (166.08 price per sqft) fee:

Base permit: $2758.87
Plan review: $1793.27
TOTAL: $4552.14

The Town has contracted SafeBuilt to preform plan and code review at 100% of what the town currently collects for plan review. This arrangement is a break even for them and potentially a loss if plans require multiple rounds of review. If the town transitions to the UBC 97 table, the plan review fee would be great enough to cover the plan review cost and would all the town to retain a percentage of the plan review fee to offset the town's administrative costs.

Updating town building codes

Updating the town building codes were discussed at last month's meeting and the board wanted to have a more in depth discuss. Updating the building code is a large undertaking and a committee could help in this process. There are also code compliance companies who assist in the code adoption process. The town could consider engaging one of these firms if the board determines that an updated code is in the best interest of the residents of the town. Colorado Energy Office provides no-cost technical assistance to jurisdictions to support the adoption of new energy codes and code enforcement. The International Code Council provides a matrix which compares the 2006 code against the 2009/2012/2015/2018 codes. This is

a large document which has not been provided in the packet, if interested please follow the link to their site: https://codes.iccsafe.org/content/IBCCOMPARISON0618/comparison-between-2006-ibc-2009-ibc-2012-ibc-2015-ibc-and-2018-ibc

Included in this packet is a list of current codes adopted by counties and municipalities within the state of Colorado.

Moratorium on Subdivision, PUD, and multifamily development applications.

Rico's access to water is limited and as subdivision and PUD applications are submitted and potentially approved it will continually take away from the town's ability to service all historically plated lots within town limits. Included in this packet is a memo from Harris engineering dated June 30, 2016 that explains the issues related to our water supply.

Town is currently working with the water court to decree an alternative point of diversion but have encountered some resistance from the state engineer. We need to prove the current wellsite is a headgate well to move forward with the alternative point of diversion. This will require additional engineering and the potential outcome may not be in favor of the town.

A moratorium for a period of 6 months would allow the town the necessary time to strategize and implement a plan in which the town could potentially collect impact fees to reactive Silver Creek. This time frame may also be long enough that filing in water court has been resolved.

Rico Public Library rent proposal

The Board requested at last month's meeting that staff reviews the expenses required to operate the Courthouse. This list below can be used to better understand what percentage of these expenses are related the library and will help determine a yearly lease rate. These operational costs are depicted below:

Expense	Yearly Cost
Propane	$5,675
Electric	$1,402
CIRSA	$3,698.68
	$10,776

There are many ways of determining the share of the yearly expenses which the board should discuss. The library square footage covers roughly 1/3 of the first floor of the building. The basement level provides no added value to either the town or the library. The second story is used mostly for meetings and storage by the town but has supported some library events over the past year. The daily hours for the library have fluctuated significantly over the years and using that as a metric to determine cost sharing of utilities would not provide much value.

RICO TOWN BOARD MEETING MINUTES

Date: October 19, 2022

Call to order
Mayor Nicole Pieterse called the meeting to order at 7:00PM.

Trustees Present: Mayor Nicole Pieterse
Mayor Pro Tem Patrick Fallon
Trustee Benn Vernadakis
Trustee Linda Yellowman
Trustee Christopher Condon (Arrived 7:03PM)
Trustee Joe Croke

Trustees Absent:
Trustee Joe Dillsworth

Staff Present. Chauncey McCarthy, Anna Wolf

Approval of the Agenda

Motion
To approve the agenda.
Moved by Trustee Linda Yellowman, seconded by Trustee Benn Vernadakis.

Vote. A roll call vote was taken and the motion was approved, 5-0.

Approval of the Minutes
The date on the October 3, 2022 meeting is incorrect. The September 21st meeting Petrolern was misspelled. Rock Laubster Liquor was also misspelled. The VCUP section has typos.

Motion
To approve the minutes with the above changes.
Moved by Trustee Benn Vernadakis, seconded by Trustee Linda Yellowman.

Vote. A roll call vote was taken and the motion was approved, 6-0.

Consent Agenda
Payment of the Bills

Motion
To approve the minutes with the above changes.
Moved by Trustee Linda Yellowman, seconded by Mayor Pro Tem Patrick Fallon.

Vote. A roll call vote was taken and the motion was approved, 6-0.

Public Comment:
Linda Yellowman gave an update on her campaign for county commissioner.

Action Items

Consideration of a temporary liquor license request/transfer, Boulder City Mixology LLC, applicant.
The Town Clerk Anna Wolf gave a summary regarding the temporary license request.
Applicant Stu Weitzman expressed his intentions with the Enterprise Bar and Grill.

Motion
To approve a temporary liquor license request/transfer, Boulder City Mixology LLC, applicant.
Moved by Trustee Joe Croke, seconded by Trustee Christopher Condon.

Vote. A roll call vote was taken and the motion was approved, 6-0.

Public hearing: preliminary plat of the Dolores River Trail Development, located on portions of the Hillside 1, 2, and Yankee Boy, Rebecca and Gordon Mortensen, applicants.
Trustee Benn Vernadakis recuses himself due to conflict of interest.
Town Manager Chauncey McCarthy gave a summary of the Planning Commission meeting. He added that a site walk thru will happen Wednesday October 26, 2022 from 5:00PM.

Public Comment:
Skip Zeller impressed upon the Board to make sure they understand that this could set a precedence for future applicants.
Mayor Nicole Pieterse asked Skip Zeller to make comment to the Planning Commission as well.

Motion
To continue the review of the preliminary plat of the Dolores River Trail Subdivision until November 16th.
Moved by Mayor Pro Tem Patrick Fallon, seconded by Mayor Nicole Pieterse.

Vote. A roll call vote was taken and the motion was approved, 5-0

Consideration of first reading of Ordinance No. 2022-11 an Ordinance of the Town of Rico, Colorado adopting the year 2023 town budget; appropriating sums of money; and setting and certifying town mill levies.
Town Manager gave a summary of ordinance 2022-11 and the October 3rd meeting discussion. He added that the Rico Center potential funding has been added to the budget per the Board's request. The format of the budget has been changed to be more streamlined.
Board Discussion:
Trustee Chris Condon asked clarifying questions regarding budget items.
Trustee Linda Yellowman inquired regarding the Plexiglas that will be added to the lower level windows and whether the Library will need to pay for their own.
Chauncey McCarthy responded that the Town will be paying for all Plexiglas as it is improving the building which belongs to the Town.
Trustee Chris Condon asked if there has been a lease made out for the Library.
Chauncey McCarthy expressed that it hasn't.
Trustee Chris Condon requested the Board revisit this in November.

Public Comment:
Allyn Svoboda would like the Board to consider repealing the Sewer Mill Levy next year on the election as the proposed sewer system will only benefit the commercial core.

Motion

To approve the first reading of Town of Rico Ordinance No. 2022-11 adopting the year 2023 town budget; appropriating sums of money; and setting and certifying town mill levies.

Moved by Mayor Nicole Pieterse, seconded by Trustee Benn Vernadakis.

Vote. A roll call vote was taken and the motion was approved, 6-0

Staff Report

Clerk's Report

Election:

The Rico Municipal Election will be help November 1, 2022 in Person at the Court House. Polls will be open 7:00AM to 7:00PM. All residence will receive a mail in ballot from the County with the county, State and Federal questions that will be due back via mail or in the Drop box outside of the Town Hall by 7:00 PM November 8, 2022.

Manager's Report

Emails will migrate to Google Work Suit starting in the next few weeks. This transition will be more secure

A new microphone setup has been ordered to make the audio for zoom better during the meetings.

The Middle water tank was emptied and Riley engineering is confident that the tank can be restored. The repairs would be made next summer after the 4th of July.

The Storm water RFQ is out. There are multiple interests in the project.

Winter parking ordinance will be a discussion item. This will alleviate issues and some liability off the Town.

Discussion Items

VCUP Status Update

Mayor Nicole Pieterse gave a summary on the public forum that was held. The Board will be presented with the document for revision by the end of the first quarter of next year.

Town building codes and fee schedule

The Board discussed the advantages of staying with the current building code. The Board agreed to have staff and legal draft an ordinance for next month's meeting according to the fee table presented to update the fee schedule to ensure the Town can cover all costs.

Quarterly Review

Town manager gave a summary of the 3rd Quarter.

Town Shop Project Update

The Town Manager Gave an update on the Town Shop progress including test pits, the burn pile being burnt, and vehicular access to the river being blocked by machinery. A gate bill be installed so pedestrian access will still be possible to the river from the Town Shop.

Motion

To adjourn

Moved by Trustee Benn Vernadakis, seconded by Trustee Linda Yellowman.

Vote. A roll call vote was taken and the motion was approved, 6-0

The meeting adjourned at 8:51 PM.

Anna Wolf
Rico Town Clerk

Nicole Pieterse
Mayor

DR 8404 (12/29/21)
COLORADO DEPARTMENT OF REVENUE
Liquor Enforcement Division
(303) 205-2300

Colorado Liquor Retail License Application

☐ New License ☐ New-Concurrent ☒ Transfer of Ownership ☐ State Property Only ☐ Master file

- **All answers must be printed in black ink or typewritten**
- **Applicant must check the appropriate box(es)**
- **Applicant should obtain a copy of the Colorado Liquor and Beer Code:** *SBG.Colorado.gov/Liquor*

1. Applicant is applying as a/an ☐ Individual ☒ Limited Liability Company ☐ Association or Other ☐ Corporation ☐ Partnership (includes Limited Liability and Husband and Wife Partnerships)

2. Applicant if an LLC, name of LLC; if partnership, at least 2 partner's names; if corporation, name of corporation	FEIN Number
BOULDER CITY MIXOLOGY, LLC	

2a. Trade Name of Establishment (DBA)	State Sales Tax Number	Business Telephone
ENTERPRISE BAR AND GRILL		(970) 967-5555

3. Address of Premises (specify exact location of premises, include suite/unit numbers)
3 N GLASGOW AVENUE

City	County	State	ZIP Code
RICO	DOLORES	CO	81332

4. Mailing Address (Number and Street)	City or Town	State	ZIP Code
3 N GLASGOW AVENUE	RICO	CO	81332

5. Email Address
STU@BCMIXOLOGY.COM

6. If the premises currently has a liquor or beer license, you must answer the following questions

Present Trade Name of Establishment (DBA)	Present State License Number	Present Class of License	Present Expiration Date
ENTERPRISE BAR AND GRILL	03-08195	Hotel & Restaurant	September 2023

Section A	Nonrefundable Application Fees*
☐ Application Fee for New License	$1,100.00
☐ Application Fee for New License w/Concurrent Review	$1,200.00
☒ Application Fee for Transfer	$1,100.00

Section B	Liquor License Fees*
☐ Add Optional Premises to H & R	$100.00 X _____ Total _____
☐ Add Related Facility to Resort Complex	$75.00 X _____ Total _____
☐ Add Sidewalk Service Area	$75.00
☐ Arts License (City)	$308.75
☐ Arts License (County)	$308.75
☐ Beer and Wine License (City)	$351.25
☐ Beer and Wine License (County)	$436.25
☐ Brew Pub License (City)	$750.00
☐ Brew Pub License (County)	$750.00
☐ Campus Liquor Complex (City)	$500.00
☐ Campus Liquor Complex (County)	$500.00
☐ Campus Liquor Complex (State)	$500.00
☐ Club License (City)	$308.75
☐ Club License (County)	$308.75
☐ Distillery Pub License (City)	$750.00
☐ Distillery Pub License (County)	$750.00
☒ Hotel and Restaurant License (City)	$500.00
☐ Hotel and Restaurant License (County)	$500.00
☐ Hotel and Restaurant License w/one opt premises (City)	$600.00
☐ Hotel and Restaurant License w/one opt premises (County)	$600.00
☐ Liquor-Licensed Drugstore (City)	$227.50

Section B (Cont.)	Liquor License Fees*
☐ Liquor-Licensed Drugstore (County)	$312.50
☐ Lodging & Entertainment - L&E (City)	$500.00
☐ Lodging & Entertainment - L&E (County)	$500.00
☐ Manager Registration - H & R	$75.00
☐ Manager Registration - Tavern	$75.00
☐ Manager Registration - Lodging & Entertainment	$75.00
☐ Manager Registration - Campus Liquor Complex	$75.00
☐ Optional Premises License (City)	$500.00
☐ Optional Premises License (County)	$500.00
☐ Racetrack License (City)	$500.00
☐ Racetrack License (County)	$500.00
☐ Resort Complex License (City)	$500.00
☐ Resort Complex License (County)	$500.00
☐ Related Facility - Campus Liquor Complex (City)	$160.00
☐ Related Facility - Campus Liquor Complex (County)	$160.00
☐ Related Facility - Campus Liquor Complex (State)	$160.00
☐ Retail Gaming Tavern License (City)	$500.00
☐ Retail Gaming Tavern License (County)	$500.00
☐ Retail Liquor Store License-Additional (City)	$227.50
☐ Retail Liquor Store License-Additional (County)	$312.50
☐ Retail Liquor Store (City)	$227.50
☐ Retail Liquor Store (County)	$312.50
☐ Tavern License (City)	$500.00
☐ Tavern License (County)	$500.00
☐ Vintners Restaurant License (City)	$750.00
☐ Vintners Restaurant License (County)	$750.00

*** Note that the Division will not accept cash**

Questions? Visit: *SBG.Colorado.gov/Liquor* **for more information**

Do not write in this space - For Department of Revenue use only

Liability Information

License Account Number	Liability Date	License Issued Through (Expiration Date)	Total
			$

DR 8404 (12/29/21)

Application Documents Checklist and Worksheet

Instructions: This checklist should be utilized to assist applicants with filing all required documents for licensure. **All** documents must be properly signed and correspond with the name of the applicant exactly. **All** documents must be typed or legibly printed. Upon final State approval the license will be mailed to the local licensing authority. Application fees are nonrefundable. **Questions? Visit:** *SBG.Colorado.gov/Liquor* **for more information**

Items submitted, please check all appropriate boxes completed or documents submitted

I. Applicant information

- ☒ A. Applicant/Licensee identified
- ☒ B. State sales tax license number listed or applied for at time of application
- ☒ C. License type or other transaction identified
- ☒ D. Return originals to local authority (additional items may be required by the local licensing authority)
- ☒ E. All sections of the application need to be completed
- ☐ F. Master file applicants must include the Application for Master File form DR 8415 and applicable fees to this Retail License Application

II. Diagram of the premises

- ☒ A. No larger than 8 1/2" X 11"
- ☒ B. Dimensions included (does not have to be to scale). Exterior areas should show type of control (fences, walls, entry/exit points, etc.)
- ☐ C. Separate diagram for each floor (if multiple levels)
- ☒ D. Kitchen - identified if Hotel and Restaurant
- ☒ E. Bold/Outlined Licensed Premises

III. Proof of property possession (One Year Needed)

- ☐ A. Deed in name of the applicant (or) (matching question #2) date stamped / filed with County Clerk
- ☒ B. Lease in the name of the applicant (or) (matching question #2)
- ☐ C. Lease assignment in the name of the applicant with proper consent from the landlord and acceptance by the applicant
- ☐ D. Other agreement if not deed or lease. (matching question #2)

IV. Background information (DR 8404-I) and financial documents

- ☒ A. Complete DR 8404-I for each principal (individuals with more than 10% ownership, officers, directors, partners, members)
- ☒ B. Fingerprints taken and submitted to the appropriate Local Licensing Authority through an approved state vendor.
  Do not complete fingerprint cards prior to submitting your application.
  The Vendors are as follows:
  IdentoGO – *https://uenroll.identogo.com/* Phone: 844-539-5539 (toll-free)
  Colorado Fingerprinting – *http://www.coloradofingerprinting.com*
  Appointment Scheduling Website: *http://www.coloradofingerprinting.com/cabs/*
  Phone: 720-292-2722 Toll Free: 833-224-2227
  Details about the vendors and fingerprinting in Colorado can be found on CBI's website here:
  https://cbi.colorado.gov/sections/biometric-identification-and-records-unit/employment-and-background-checks
- ☒ C. Purchase agreement, stock transfer agreement, and/or authorization to transfer license
- ☐ D. List of all notes and loans (Copies to also be attached)

V. Sole proprietor/husband and wife partnership (if applicable)

- ☐ A. Form DR 4679
- ☐ B. Copy of State issued Driver's License or Colorado Identification Card for each applicant

VI. Corporate applicant information (if applicable)

- ☐ A. Certificate of Incorporation
- ☐ B. Certificate of Good Standing
- ☐ C. Certificate of Authorization if foreign corporation (out of state applicants only)

VII. Partnership applicant information (if applicable)

- ☐ A. Partnership Agreement (general or limited).
- ☐ B. Certificate of Good Standing

VIII. Limited Liability Company applicant information (if applicable)

- ☒ A. Copy of articles of organization
- ☒ B. Certificate of Good Standing
- ☒ C. Copy of Operating Agreement (if applicable)
- ☐ D. Certificate of Authority if foreign LLC (out of state applicants only)

IX. Manager registration for Hotel and Restaurant, Tavern, Lodging & Entertainment, and Campus Liquor Complex licenses when included with this application

- ☐ A. $75.00 fee
- ☒ B. Individual History Record (DR 8404-I)
- ☒ C. If owner is managing, no fee required

DR 8404 (12/23/21) 13

Name	Type of License	Account Number
BOULDER CITY MIXOLOGY, LLC	HOTEL AND RESTAURANT	

		Yes	No
7.	Is the applicant (including any of the partners if a partnership; members or managers if a limited liability company; or officers, stockholders or directors if a corporation) or managers under the age of twenty-one years?	☐	☒
8.	Has the applicant (including any of the partners if a partnership; members or managers if a limited liability company; or officers, stockholders or directors if a corporation) or managers ever (in Colorado or any other state):		
	a. Been denied an alcohol beverage license?	☐	☒
	b. Had an alcohol beverage license suspended or revoked?	☐	☒
	c. Had interest in another entity that had an alcohol beverage license suspended or revoked?	☐	☒
	If you answered yes to 8a, b or c, explain in detail on a separate sheet.		
9.	Has a liquor license application (same license class), that was located within 500 feet of the proposed premises, been denied within the preceding two years? If "yes", explain in detail. _____	☐	☒
10.	Are the premises to be licensed within 500 feet, of any public or private school that meets compulsory education requirements of Colorado law, or the principal campus of any college, university or seminary?	☐	☒
	or		
	Waiver by local ordinance?	☐	☐
	Other: _____		
11.	Is your Liquor Licensed Drugstore (LLDS) or Retail Liquor Store (RLS) within 1500 feet of another retail liquor license for off-premises sales in a jurisdiction with a population of greater than (>) 10,0000? **NOTE:** The distance shall be determined by a radius measurement that begins at the principal doorway of the LLDS/RLS premises for which the application is being made and ends at the principal doorway of the Licensed LLDS/RLS.	☐	☒
12.	Is your Liquor Licensed Drugstore (LLDS) or Retail Liquor Store (RLS) within 3000 feet of another retail liquor license for off-premises sales in a jurisdiction with a population of less than (<) 10,0000? **NOTE:** The distance shall be determined by a radius measurement that begins at the principal doorway of the LLDS/RLS premises for which the application is being made and ends at the principal doorway of the Licensed LLDS/RLS.	☐	☒
13	a. For additional Retail Liquor Store only. Was your Retail Liquor Store License issued on or before January 1, 2016?	☐	☐
13	b. Are you a Colorado resident?	☒	☐
14.	Has a liquor or beer license ever been issued to the applicant (including any of the partners, if a partnership; members or manager if a Limited Liability Company; or officers, stockholders or directors if a corporation)? If yes, identify the name of the business and list any current financial interest in said business including any loans to or from a licensee.	☐	☒
15.	Does the applicant, as listed on line 2 of this application, **have legal possession of the premises by ownership**, lease or other arrangement?	☒	☐
	☐ Ownership ☒ Lease ☐ Other (Explain in Detail) _____		
	a. If leased, list name of landlord and tenant, and date of expiration, **exactly** as they appear on the lease:		

Landlord	Tenant	Expires
LAWLESS RICO, LLC	BOULDER CITY MIXOLOGY, LLC	10/31/2027

	b. Is a percentage of alcohol sales included as compensation to the landlord? If yes, complete question 16.	☐	☒
	c. Attach a diagram that designates the area to be licensed in black bold outline (including dimensions) which shows the bars, brewery, walls, partitions, entrances, exits and what each room shall be utilized for in this business. This diagram should be no larger than 8 1/2" X 11".		

16. Who, besides the owners listed in this application (including persons, firms, partnerships, corporations, limited liability companies) will loan or give money, inventory, furniture or equipment to or for use in this business; or who will receive money from this business? Attach a separate sheet if necessary.

Last Name	First Name	Date of Birth	FEIN or SSN	Interest/Percentage
Last Name	First Name	Date of Birth	FEIN or SSN	Interest/Percentage

Attach copies of all notes and security instruments and any written agreement or details of any oral agreement, by which any person (including partnerships, corporations, limited liability companies, etc.) will share in the profit or gross proceeds of this establishment, and any agreement relating to the business which is contingent or conditional in any way by volume, profit, sales, giving of advice or consultation.

17.	Optional Premises or Hotel and Restaurant Licenses with Optional Premises: Has a local ordinance or resolution authorizing optional premises been adopted?	☐	☐
	Number of additional Optional Premise areas requested. (See license fee chart)		
18.	For the addition of a Sidewalk Service Area per Regulation 47-302(A)(4), include a diagram of the service area and documentation received from the local governing body authorizing use of the sidewalk. Documentation may include but is not limited to a statement of use, permit, easement, or other legal permissions.		
19.	Liquor Licensed Drugstore (LLDS) applicants, answer the following:		
	a. Is there a pharmacy, licensed by the Colorado Board of Pharmacy, located within the applicant's LLDS premise? **If "yes" a copy of license must be attached.**	☐	☐

DR 8404 (12/29/21) 14

Name	Type of License	Account Number
BOULDER CITY MIXOLOGY, LLC	TAVERN	

20. Club Liquor License applicants answer the following: **Attach a copy of applicable documentation**

	Yes	No
a. Is the applicant organization operated solely for a national, social, fraternal, patriotic, political or athletic purpose and not for pecuniary gain?	☐	☐
b. Is the applicant organization a regularly chartered branch, lodge or chapter of a national organization which is operated solely for the object of a patriotic or fraternal organization or society, but not for pecuniary gain?	☐	☐
c. How long has the club been incorporated?		
d. Has applicant occupied an establishment for three years (three years required) that was operated solely for the reasons stated above?	☐	☐

21. Brew-Pub, Distillery Pub or Vintner's Restaurant applicants answer the following:

a. Has the applicant received or applied for a Federal Permit? (Copy of permit or application must be attached)	☐	☐

22. Campus Liquor Complex applicants answer the following:

a. Is the applicant an institution of higher education?	☐	☐
b. Is the applicant a person who contracts with the institution of higher education to provide food services? **If "yes" please provide a copy of the contract with the institution of higher education to provide food services.**	☐	☐

23. For all on-premises applicants.
a. Hotel and Restaurant, Lodging and Entertainment, Tavern License and Campus Liquor Complex, the Registered Manager must also submit an Individual History Record
- DR 8404-I and fingerprint submitted to approved State Vendor through the Vendor's website. See application checklist, Section IV, for details.
b. For all Liquor Licensed Drugstores (LLDS) the Permitted Manager must also submit an Manager Permit Application
- DR 8000 and fingerprints.

Last Name of Manager	First Name of Manager
WEITZMAN	STUART

24. Does this manager act as the manager of, or have a financial interest in, any other liquor licensed establishment in the State of Colorado? If yes, provide name, type of license and account number. Yes ☐ No ☒

25. Related Facility - Campus Liquor Complex applicants answer the following: ☐ ☐
a. Is the related facility located within the boundaries of the Campus Liquor Complex?
If yes, please provide a map of the geographical location within the Campus Liquor Complex.
If no, this license type is not available for issues outside the geographical location of the Campus Liquor Complex.
b. Designated Manager for Related Facility- Campus Liquor Complex

Last Name of Manager	First Name of Manager

26. Tax Information.

	Yes	No
a. Has the applicant, including its manager, partners, officer, directors, stockholders, members (LLC), managing members (LLC), or any other person with a 10% or greater financial interest in the applicant, been found in final order of a tax agency to be delinquent in the payment of any state or local taxes, penalties, or interest related to a business?	☐	☒
b. Has the applicant, including its manager, partners, officer, directors, stockholders, members (LLC), managing members (LLC), or any other person with a 10% or greater financial interest in the applicant failed to pay any fees or surcharges imposed pursuant to section 44-3-503, C.R.S.?	☐	☒

27. If applicant is a corporation, partnership, association or limited liability company, applicant must list all **Officers, Directors, General Partners, and Managing Members.** In addition, applicant must list any stockholders, partners, or members with **ownership of 10% or more in the applicant. All persons listed below** must also attach form DR 8404-I (Individual History Record), and make an appointment with an approved State Vendor through their website. See application checklist, Section IV, for details.

Name	Home Address, City & State	DOB	Position	%Owned
WEITZMAN, STUART	15060 ROAD 28, DOLORES CO	01/11/69	MANAGER	100
Name	Home Address, City & State	DOB	Position	%Owned
Name	Home Address, City & State	DOB	Position	%Owned
Name	Home Address, City & State	DOB	Position	%Owned
Name	Home Address, City & State	DOB	Position	%Owned

** If applicant is owned 100% by a parent company, please list the designated principal officer on above.
** Corporations - the President, Vice-President, Secretary and Treasurer must be accounted for above (Include ownership percentage if applicable)
** If total ownership percentage disclosed here does not total 100%, applicant must check this box:

☒ Applicant affirms that no individual other than these disclosed herein owns 10% or more of the applicant and does not have financial interest in a prohibited liquor license pursuant to Article 3 or 5, C.R.S.

DR 8404 (12/29/21) 15

Name	Type of License	Account Number
BOULDER CITY MIXOLOGY, LLC	HOTEL AND RESTAURANT	

Oath Of Applicant

I declare under penalty of perjury in the second degree that this application and all attachments are true, correct, and complete to the best of my knowledge. I also acknowledge that it is my responsibility and the responsibility of my agents and employees to comply with the provisions of the Colorado Liquor or Beer Code which affect my license.

Authorized Signature	Printed Name and Title	Date
	STUART WEITZMAN, MEMBER	9/13/22

Report and Approval of Local Licensing Authority (City/County)

Date application filed with local authority	Date of local authority hearing (for new license applicants; cannot be less than 30 days from date of application)

The Local Licensing Authority Hereby Affirms that each person required to file DR 8404-I (Individual History Record) or a DR 8000 (Manager Permit) has been:

- ☐ Fingerprinted
- ☐ Subject to background investigation, including NCIC/CCIC check for outstanding warrants

That the local authority has conducted, or intends to conduct, an inspection of the proposed premises to ensure that the applicant is in compliance with and aware of, liquor code provisions affecting their class of license

(Check One)

- ☐ Date of inspection or anticipated date _____
- ☐ Will conduct inspection upon approval of state licensing authority

	Yes	No
☐ Is the Liquor Licensed Drugstore (LLDS) or Retail Liquor Store (RLS) within 1,500 feet of another retail liquor license for off-premises sales in a jurisdiction with a population of > 10,0000?	☐	☐
☐ Is the Liquor Licensed Drugstore(LLDS) or Retail Liquor Store (RLS) within 3,000 feet of another retail liquor license for off-premises sales in a jurisdiction with a population of < 10,0000?	☐	☐
NOTE: The distance shall be determined by a radius measurement that begins at the principal doorway of the LLDS/RLS premises for which the application is being made and ends at the principal doorway of the Licensed LLDS/RLS.		
☐ Does the Liquor-Licensed Drugstore (LLDS) have at least twenty percent (20%) of the applicant's gross annual income derived from the sale of food, during the prior twelve (12) month period?	☐	☐

The foregoing application has been examined; and the premises, business to be conducted, and character of the applicant are satisfactory. We do report that such license, if granted, will meet the reasonable requirements of the neighborhood and the desires of the adult inhabitants, and will comply with the provisions of Title 44, Article 4 or 3, C.R.S., and Liquor Rules. **Therefore, this application is approved.**

Local Licensing Authority for	Telephone Number	☐ Town, City ☐ County	
Signature	Print	Title	Date
Signature	Print	Title	Date

DR 8495 (07/23/19)
COLORADO DEPARTMENT OF REVENUE
Liquor Enforcement Division

Tax Check Authorization, Waiver, and Request to Release Information

I, STUART BRYAN WEITZMAN am signing this Tax Check Authorization, Waiver and Request to Release Information (hereinafter "Waiver") on behalf of BOULDER CITY MIXOLOGY, LLC (the "Applicant/Licensee") to permit the Colorado Department of Revenue and any other state or local taxing authority to release information and documentation that may otherwise be confidential, as provided below. If I am signing this Waiver for someone other than myself, including on behalf of a business entity, I certify that I have the authority to execute this Waiver on behalf of the Applicant/Licensee.

The Executive Director of the Colorado Department of Revenue is the State Licensing Authority, and oversees the Colorado Liquor Enforcement Division as his or her agents, clerks, and employees. The information and documentation obtained pursuant to this Waiver may be used in connection with the Applicant/Licensee's liquor license application and ongoing licensure by the state and local licensing authorities. The Colorado Liquor Code, section 44-3-101. et seq. ("Liquor Code"), and the Colorado Liquor Rules, 1 CCR 203-2 ("Liquor Rules"), require compliance with certain tax obligations, and set forth the investigative, disciplinary and licensure actions the state and local licensing authorities may take for violations of the Liquor Code and Liquor Rules, including failure to meet tax reporting and payment obligations.

The Waiver is made pursuant to section 39-21-113(4), C.R.S., and any other law, regulation, resolution or ordinance concerning the confidentiality of tax information, or any document, report or return filed in connection with state or local taxes. This Waiver shall be valid until the expiration or revocation of a license, or until both the state and local licensing authorities take final action to approve or deny any application(s) for the renewal of the license, whichever is later. Applicant/Licensee agrees to execute a new waiver for each subsequent licensing period in connection with the renewal of any license, if requested.

By signing below, Applicant/Licensee requests that the Colorado Department of Revenue and any other state or local taxing authority or agency in the possession of tax documents or information, release information and documentation to the Colorado Liquor Enforcement Division, and is duly authorized employees, to act as the Applicant's/Licensee's duly authorized representative under section 39-21-113(4), C.R.S., solely to allow the state and local licensing authorities, and their duly authorized employees, to investigate compliance with the Liquor Code and Liquor Rules. Applicant/Licensee authorizes the state and local licensing authorities, their duly authorized employees, and their legal representatives, to use the information and documentation obtained using this Waiver in any administrative or judicial action regarding the application or license.

Name (Individual/Business)		Social Security Number/Tax Identification Number	
STUART BRYAN WEITZMAN/BOULDER CITY MIXOLOGY, LLC			
Address			
15060 COUNTY ROAD 28			
City		State	Zip
DOLORES		CO	81323
Home Phone Number		Business/Work Phone Number	
206-295-9084			
Printed name of person signing on behalf of the Applicant/Licensee			
STUART BRYAN WEITZMAN			
Applicant/Licensee's Signature (Signature authorizing the disclosure of confidential tax information)		Date signed	
		09/13/2022	

Privacy Act Statement

Providing your Social Security Number is voluntary and no right, benefit or privilege provided by law will be denied as a result of refusal to disclose it. § 7 of Privacy Act, 5 USCS § 552a (note).

Stuart Weitzman
Boulder City Mixology, LLC
523 Oakwood Court
Henderson, NV 89002

September 26, 2022

Anna Wolf
Town of Rico
P.O. Box 9
2 Commercial St
Rico, Colorado 81332

RE: Town of Rico Liquor License / The Enterprise Bar and Grill

Ms. Wolf,

Enclosed you will find all documents requested regarding the transfer of the liquor license from Metropole, LLC to Boulder City Mixology, LLC.

I have included unsigned copies of both the lease for the Dey Building (where the Enterprise Bar and Grill resides) and the Purchase and Sale Agreement. Both of these items will be submitted to you when final terms agreed to.

I stated on the application that I AM a Colorado resident, however I will not be in Colorado until October 10th, 2022. I am currently residing in Henderson, NV until that time. My intention is to move to the following address on that date:

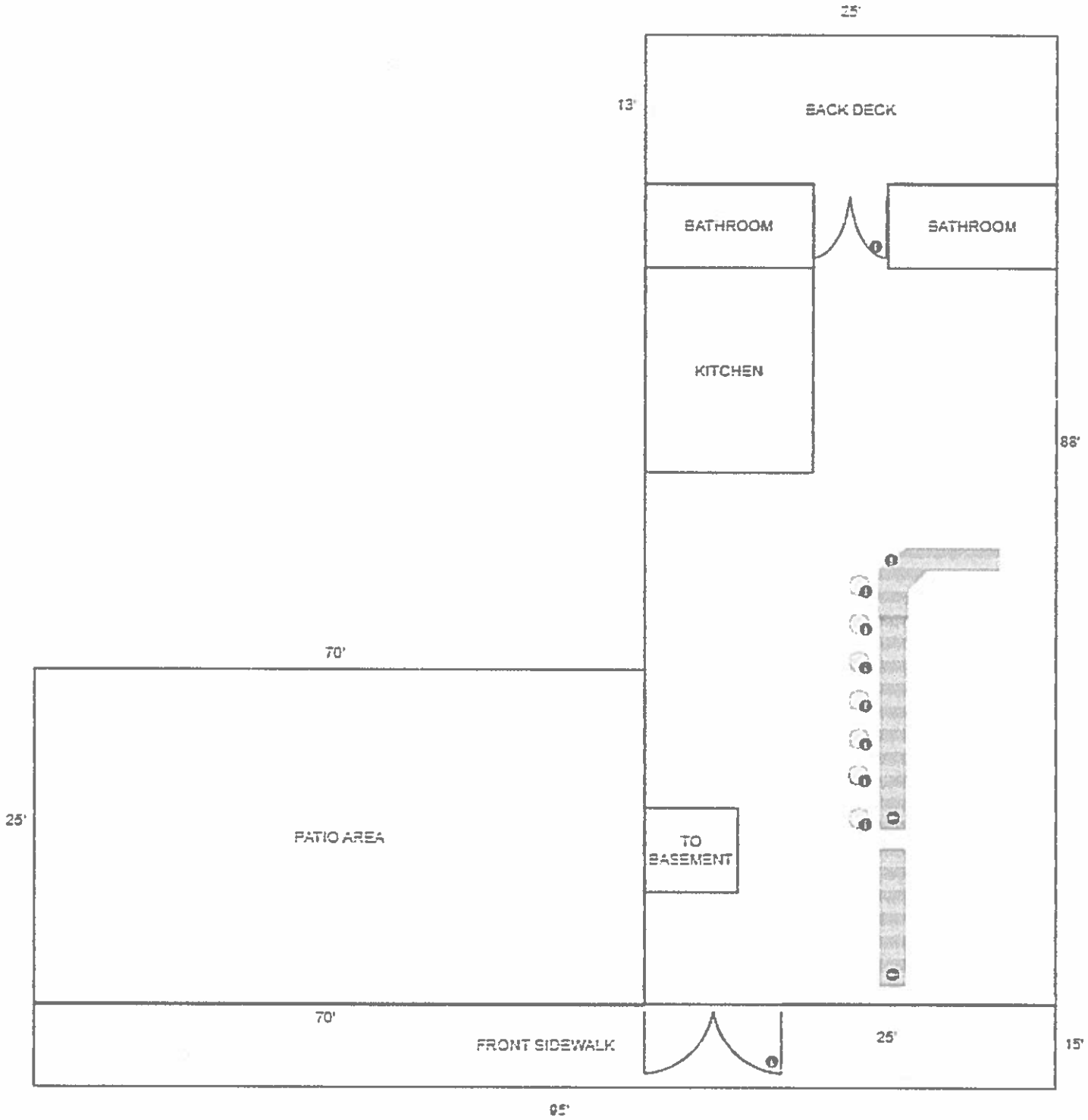
15060 County Road 28.3
Dolores, CO 81323

I will submit my fingerprints to IdentToGo when instructed, per section IV of the application.

Please let me know if there is anything else you may need going forward. I do sincerely appreciate your help.

Thank you,

Stuart Weitzman
Member, Boulder City Mixology, LLC


25'
13'
BACK DECK
BATHROOM
BATHROOM
KITCHEN
88'
70'
25'
PATIO AREA
TO
BASEMENT
70'
FRONT SIDEWALK
25'
15'
95'

DR 8404-I (03/20/19)
COLORADO DEPARTMENT OF REVENUE
Liquor Enforcement Division
(303) 205-2300

19

Individual History Record

To be completed by the following persons, as applicable: sole proprietors; general partners regardless of percentage ownership, and limited partners owning 10% or more of the partnership; all principal officers of a corporation, all directors of a corporation, and any stockholder of a corporation owning 10% or more of the outstanding stock; managing members or officers of a limited liability company, and members owning 10% or more of the company; and any intended registered manager of Hotel and Restaurant, Tavern and Lodging and Entertainment class of retail license

Notice: This individual history record requires information that is necessary for the licensing investigation or inquiry. All questions must be answered in their entirety or the license application may be delayed or denied. If a question is not applicable, please indicate so by "N/A". **Any deliberate misrepresentation or material omission may jeopardize the license application.** (Please attach a separate sheet if necessary to enable you to answer questions completely)

1. Name of Business	Home Phone Number	Cellular Number
BOULDER CITY MIXOLOGY, LLC		

2. Your Full Name (last, first, middle)	3. List any other names you have used
WEITZMAN, STUART BRYAN	

4. Mailing address (if different from residence)	Email Address
523 OAKWOOD COURT, HENDERSON NV 89002	STU@BCMIXOLOGY.COM

5. List current residence address. Include any previous addresses within the last five years. (Attach separate sheet if necessary)

	Street and Number	City, State, Zip	From	To
Current	SEE ATTACHED			
Previous				

6. List all employment within the last five years. Include any self-employment. (Attach separate sheet if necessary)

Name of Employer or Business	Address (Street, Number, City, State, Zip)	Position Held	From	To
SEE ATTACHED				

7. List the name(s) of relatives working in or holding a financial interest in the Colorado alcohol beverage industry.

Name of Relative	Relationship to You	Position Held	Name of Licensee

8. Have you ever applied for, held, or had an interest in a Colorado Liquor or Beer License, or loaned money, furniture, fixtures, equipment or inventory to any licensee? (If yes, answer in detail.) ☐ Yes ☒ No

9. Have you ever received a violation notice, suspension, or revocation for a liquor law violation, or have you applied for or been denied a liquor or beer license anywhere in the United States? (If yes, explain in detail.) ☐ Yes ☒ No

10. Have you ever been convicted of a crime or received a suspended sentence, deferred sentence, or forfeited bail for any offense in criminal or military court or do you have any charges pending? (If yes, explain in detail.) ☐ Yes ☒ No

11. Are you currently under probation (supervised or unsupervised), parole, or completing the requirements of a deferred sentence? (If yes, explain in detail.) ☐ Yes ☒ No

12. Have you ever had any professional license suspended, revoked, or denied? (If yes, explain in detail.) ☐ Yes ☒ No

Personal and Financial Information

Unless otherwise provided by law, the personal information required in question #13 will be treated as confidential. The personal information required in question #13 is solely for identification purposes.

13a. Date of Birth	b. Social Security Number	c. Place of Birth	d. U.S. Citizen
01/11/69		LOS ANGELES, CA	☒ Yes ☐ No

e. If Naturalized, state where	f. When	g. Name of District Court

h. Naturalization Certificate Number	i. Date of Certification	j. If an Alien, Give Alien's Registration Card Number	k. Permanent Residence Card Number

l. Height	m. Weight	n. Hair Color	o. Eye Color	p. Gender	q. Do you have a current Driver's License/ID? If so, give number and state.
5'9"	210	BRN	BRN	M	☒ Yes ☐ No # State NV

14. Financial Information.

a. Total purchase price or investment being made by the applying entity, corporation, partnership, limited liability company, other. $ 90,000

b. List the total amount of the **personal** investment , made by the person listed on question #2, in this business including any notes, loans, cash, services or equipment, operating capital, stock purchases or fees paid. $ _____

*** If corporate investment only please skip to and complete section (d)**

**** Section b should reflect the total of sections c and e**

c. Provide details of the personal investment described in 14b. You must account for all of the sources of this investment. (Attach a separate sheet if needed)

Type: Cash, Services or Equipment	Account Type	Bank Name	Amount

d. Provide details of the corporate investment described in 14 (a). You must account for all of the sources of this investment. (Attach a separate sheet if needed)

Type: Cash, Services or Equipment	Loans	Account Type	Bank Name	Amount
CASH	NA	NA	NA	90,000

e. Loan Information (Attach copies of all notes or loans)

Name of Lender	Address	Term	Security	Amount

Oath of Applicant

I declare under penalty of perjury that this application and all attachments are true, correct, and complete to the best of my knowledge.

Authorized Signature	Print Signature	Title	Date
	STUART WEITZMAN	MANAGER	9/13/22

Town of Rico

2023 Fiscal Year Budget

TOWN OF RICO ORDINANCE NO. 2022-11
ADOPTING THE YEAR 2023 TOWN BUDGET; APPROPRIATING SUMS OF MONEY; AND SETTING AND CERTIFYING TOWN MILL LEVIES

WHEREAS, the Board of Trustees designated Chauncey, Rico Town Manager to prepare and submit a proposed budget to the Governing Body; and

WHEREAS, a public hearing was conducted on the 3rd day of October, the 19th day of October and the 16th day of November 2022 in accordance with the law;

WHEREAS, the Rico Town Board finds that the adoption of the budget is essential to the provision of basic and necessary services and finds that this ordinance is necessary for the preservation of the health, safety and general welfare of the Rico community; and,

WHEREAS, the Town of Rico has reviewed and considered the Final 2023 Budget in accordance with the Local Government Budget Law on the 16th day of November, 2022; and,

WHEREAS, the proposed budget has made provisions therein for revenues in an amount equal to or greater than the total proposed described below; and,

WHEREAS, the November xxth, 2022 valuation for the Town of Rico as certified by the County Assessor is $_____ and,

NOW THEREFORE, THE BOARD OF TRUSTEES OF THE TOWN OF RICO ORDAINS:

SECTION 1. BUDGETED REVENUES AND EXPENDITURES

The following sums are hereby appropriated for the revenue of each fund, for the purposes stated. The budgeted revenues and expenditures for each fund are as follows:

General Fund Revenues:	
Reserve Balance	864,743.00
Non Property Tax Revenues	530,005.00
Property Tax revenues	77,580.00
Grant/Other Revenues	8,300.00
Total General Fund:	1,480,628.00
General Fund Expenditures:	614,090.00
Street Fund Revenues:	
Reserve Balance	133,658.00
Non Property Tax Revenue	64,740.00
Property Tax Revenue	11,775.00
Grant/Other	0.00
Total Street Fund:	210,173.00
Street Fund Expenditures:	87,500.00

Parks Trails and Open Space Revenue:	
Reserve Balance	82,071.00
Non Property Tax Revenues	26,995.00
Grants/Other Revenues	36,000.00
Total Parks, Trails and Open Space Fund:	145,066.00
Parks, Trails and Open Space Expenditures:	86,000.00

Water Enterprise Fund Revenues:	
Reserve Balance	205,346.00
Non Property Tax Revenues	235,020.00
Grants/Other Revenues	
Total Water Enterprise Fund:	440,366.00
Water Fund Expenditures:	151,500.00

Sewer Fund Revenues	
Reserve Balance	235,415.00
Non Property Tax Revenue	1,100.00
Property Tax Revenues	25,983.00
Grants/Other Revenues	0.00
Total Sewer Fund:	262,498.00
Sewer Fund Expenditures:	67,550.00

SECTION 2. ADOPTION OF BUDGET

The Budget as submitted, amended, and hereinabove summarized by fund hereby is approved and adopted as the Final Budget of the Town of Rico for the year 2023. The Budget shall be signed by the Mayor and made part of the public records of the Town.

SECTION 3. CERTIFICATION OF MILL LEVIES

That for the purpose of meeting all general operating expenses of the Town of Rico during the 2023 budget year there is hereby levied a tax of 13.020 mills upon each dollar of the total valuation for the assessment of all taxable property within the Town for the year 2022.

That for the purpose of meeting all Street Fund expenses of the Town of Rico during the 2023 budget year there is hereby levied a tax of 1.785 mills upon each dollar of the total valuation for assessment of all taxable property within the Town for year 2022.

That for the purpose of meeting all Sewer Fund expenses of the Town of Rico during the 2023 budget year, there is hereby levied a tax of 3.939 mills upon each dollar of the total valuation for assessment of all taxable property within the Town for year 2022.

SECTION 3. This Ordinance shall take effect immediately upon final adoption.

This budget document was presented on the 3rd day of October 2022. This Ordinance was introduced, read, approved, and adopted on the 19th day of October 2022 and considered for a second reading on the 16th day of November 2022.

THIS ORDINANCE WAS, FOLLOWING PUBLIC NOTICE, INTRODUCED, READ, AND APPROVED ON FIRST READING, AND ORDERED PUBLISHED BY TITLE ONLY THIS 19TH DAY OF OCTOBER 2022.

TOWN OF RICO, COLORADO

_____
Nicole Pieterse, Mayor

ATTEST:

_____
Anna Wolf, Town Clerk

THIS ORDINANCE WAS, FOLLOWING PUBLIC NOTICE, INTRODUCED, READ ON SECOND READING, PASSED AND ORDERED PUBLISHED BY TITLE ONLY TO BE EFFECTIVE IMMEDIATELY THIS 16TH DAY OF NOVEMBER 2022.

TOWN OF RICO, COLORADO

_____
Nicole Pieterse, Mayor

ATTEST:

_____
Anna Wolf, Town Clerk

Effective Date: November 16, 2022

Town of Rico Budget Summary

Date: September 29, 2022

TO: Town of Rico Board of Trustees

FROM: Chauncey McCarthy, Town Manager

SUBJECT: Town of Rico Budget Summary

Consideration of the 2023 Budget

State Statute requires that an annual budget must be presented to a municipality's governing body no later than October 15th. Included in the budget details are notes describing the method in which assumptions were made regarding revenues and expenses. The following is a summary of each fund.

General Fund Revenues:

2022 sales tax revenues have been doing very well and is on track to exceed $225,000. Due to the potential changes of our nation's economy over the next fiscal year, revenues where budgeted lower for 2023 then what 2022 has been projected to finish out as.

Property tax is based on the Town's assessed valuation. 2022 assessed valuation was $86,101.09. As of August 31st, the Town has received $79,566.39. Due to changes in state law, the percentage used to calculate assessed valuation has been lowered which has created small impact. Properties being reassessed next year should offset this impact. Development this year proceeded at a similar pace as last year. Revenues within these categories were budgeted to match past years. If people develop the lots sold within the last year, building revenues will surpass the budget.

Other revenues include licenses, lodging and specific ownership tax, and fines. These revenues are harder to forecast. Fines and forfeits have grown over the last year and our marshal department has focused on increasing tickets to offset labor and fuel cost.

General Fund Expenses - Employees:

Last year 78% of expenses are in employee costs; This percentage (79%) has grown due to budgeted raises. Positions have been budgeted to receive an 8% (CPI) cost of living raise. Full time Maintenance position will receive a greater increase to ensure the town is compliant to the minimum salary requirement as required for an exempt position.

The following is a summary of the staffing expenses that are reflected in this budget:

Town Manager. Full time, $79,000 per year with benefits that include insurance for one person and PERA retirement benefits at a 14.75% match with a total cost including payroll taxes of $105,983.06. This expense is distributed as follows: General Fund 40%, Water Fund 30%, Sanitation fund 20%, and Street Fund at 10%.

Maintenance 1. Full time, $50,000 per year with benefits that include insurance for one person and PERA retirement benefits at a 14.75% match with a total cost including payroll taxes of $70,367.56. This expense is distributed between the Water Fund 60% and the Street Fund 40%.

Town Clerk/Administrative Assistant. Full time (32 HR/WK), $46,650 per year with benefits that include insurance for one person, partial coverage for a spouse, and PERA retirement benefits at a 14.75% match with a total cost including payroll taxes of $72,312.55. This position is funded by the General Fund 50% and the Water Fund 50%.

POST Administrator. This position has been removed since the current town manager has taken over this roll

POST Groomer. Part Time, no benefits, $32.50 per hour. The amount spent on this activity is dependent entirely on the weather. There is $7,000 budgeted for this activity based on last year's expense.

POST Maintenance – Ice Rick and Park. Part Time, no benefits, $32.50 per hour. This position is also variable. There is $7,000 budgeted for this position. Due to forecasted weather patterns for the 2023 winter season and the location of the park, the Ice Rink will not be setup this year.

Maintenance 2. Part Time, no benefits, $32.50 per hour. There is $35,000 budgeted for this position based on last year's expense. This position is funded by the Water Fund, 50% and the Street Fund, 50%. (Funds are transferred based upon actual hours worked within each department). Ideally, the town will not need to expend the entirety of what has been appropriated. This position includes plowing snow, summer maintenance of roads, and assisting with the water system maintenance.

Water Technician. Part Time, no benefits, $45.00 per hour. This position is that of Rico's water system's Responsible Operator. Having a Responsible Operator is a requirement of the Colorado Department of Public Health and Environment. This activity is highly specialized and requires years of training and testing to become certified. This position is funded entirely by the Water Fund.

Town Marshal. Part Time, no benefits, $35.00 per hour. The Town currently employees one Marshal but has hired for the additional marshal. They will start within the next couple months. This position is funded through the General Fund. In 2022 the Marshal wage was offset by fines on traffic violations.

General Fund Expenses - Subcontractors:
Currently the Town employs several contractors

Municipal Court Judge. The Town has a long-standing arrangement with John Kelly for this duty. This arrangement will remain unchanged in the upcoming year.

Town Attorney. The Rico Home Charter requires that Rico have a Town Attorney. Karp, Neu, Hanlon is the appointed Town Attorney, but Marti Whitmore is currently being used by the Town for water matters. Tom Bloomfield is used by the Town for matters involving the VCUP. His costs are passed along to and paid for by ARCO. There is $30,000 budgeted for regular Town Attorney fees. This money comes from the General Fund. Marti Whitmore's fees come out of that water fund. There is 100,000 budgeted for the ongoing VCUP negotiations. This account is a pass-thru account and should create no actual expense for the town.

Town Planner. This position is offset by development application and has been budgeted based upon the 2022 projected year end. Current Town Manager handles smaller land use permit

applications (variances, special use permits) Larger development applications that are reviewed by the planner are treated as a pass thru.

Auditor. The Town of Rico signed a letter of engagement with Atlas CPA for the 2021 – 2023 Audits. The cost of the 2022 audit will be $12,600

Building Inspector. Gregg Phillips became a certified inspector during 2022 and has been the town's primary building inspector. In 2022 he volunteered his time when providing this service to give back to his community. This year there is $6,000 budgeted for building inspections. Permit fees offset the inspector's wage.

General Fund Expenses - Other:
The other 21% of the General Fund expenses are dedicated to administrative related expenses including insurance, utilities and supplies as well as other things that are included in the budget details attached to this summary. These expense estimates are based on last year's cost.

Water Fund Revenues:
Revenues from this year were based on minimum yearly rates for both active commercial and residential accounts. The budgeted revenue is very conservative, and Town should expend to exceed this number.

Water Fund Expenses:
The expense budget is based on last year's expenses since there are no significant changes. The 2021 fund ending balance was budgeted to be 234,474, due to miscalculations the fund, closed at $23,168. Major projects related to the town's water system have been tabled until next year due to the need to grow the account balance. If a large number of taps are sold or funds are available via a grant to replace the town's third water tank the budget will need to be amended.

Street Fund Revenues:
Street Fund revenues come from sales and use taxes, property taxes, franchise tax (SMPA), highway user's tax (State), lodging tax, excise tax, and the County Road and Bridge Reapportionment.

Mineral Leasing and Severance Tax have been inconsistent and historically shrinking. 2022 was a strong year with 26,000 deposited between the two revenue categories but 2021 saw only 10,000 in revenue.

Street Fund Expenses:
Cost estimates for the Street Fund were based on last year's expenses. The John Deere Loader will be purchased outright before the end of 2022, dramatically reducing total expenditures within this fund. With that said, Street Fund expenses continue to outpace revenue but at a slower rate then the past few years. The Board should consider a ballot measure in 2023 asking votes to increase the mills associated with this fund.

Sanitation Fund Revenues:
Sanitation fund revenues come from a 3.939 mill levy. The income estimate in this budget is based on the August valuation.

Sanitation Fund Expenses:
Payroll transfers have been budgeted to grow compared to last year. This is related to the recent funds appropriated by the Federal Government and the amount of time the Town Manager will have to allocate towards this project. Also included in this budget is $50,000 for miscellaneous engineering and legal which will be needed as town pursues a sanitation district.

Parks, Open Space and Trails Fund Revenues:
This fund is supported by sales and use tax, lodging tax, and excise tax from building permits.

Parks, Open Space and Trails Fund Expenses:
The budgeted expenses for day-to-day operations are based on last year's expenses since there are no significant changes. $20,000 from this fund have been appropriated to be used as a potential grant match for the FMP

Conservation Trust Fund
$40,000 from this fund have been appropriated to be used as a potential grant match for the FMP.

Additional Considerations:
Dependent on the timeline of the new public works facility and potential DOLA grant there will need to be a budget amendment in 2023 to address potential increase in both revenue and expenditure in all town funds

General Fund Revenues	2021 Audit	2022 Budget	2022 Original vs Projected	2022 Projected Year End Budget	2023 Proposed Budget	Notes
Operating Revenues	29					
Property Tax*	77,777.00	86,101.09	-5,101.09	81,000.00	85,885.00	1
Delinquent Taxes & Interest	303.00	200.00	4,650.00	4,850.00	1,000.00	
Lodging Tax	-	4,000.00	0.00	4,000.00	4,000.00	No new rentals
Sales & Use Tax	178,840.00	175,000.00	65,000.00	240,000.00	220,000.00	2022 - 8 month average 20,000 2023 - based upon 18,333 average
Specific Ownership Tax	4,507.00	4,000.00	0.00	4,000.00	4,500.00	Based on prior year audit
Cigarette Tax	-	190.00	-10.00	180.00	180.00	Based on 2022 collection
Motor Vehicle Tax	1,772.00	1,500.00	-1,100.00	400.00	0.00	Motor Vehicle sales tax goes into S/U
Total Operating Revenues	**263,199.00**	**270,991.09**	**63,438.91**	**334,430.00**	**315,560.00**	
Intergovernmental Revenue						
Mineral Leasing	13,077.00	5,000.00	-5,000.00	0.00	0.00	Moved to street fund
Severance Tax	385.00	0.00	0.00	0.00	0.00	Moved to street fund
Building Permits - All licenses and permits are grouped together in audit	18,487.00	5,000.00	1,000.00	6,000.00	6,000.00	Based on 2022 construction
Septic Permit	-	375.00	825.00	1,200.00	1,200.00	Based on 2022 construction
Development Applications	-	20,000.00	-18,500.00	1,500.00	4,000.00	
Business Licenses	-	200.00	525.00	725.00	725.00	Based on 2022 licenses (no new businesses)
Dog Licenses (licenses & permits together on audit)	-	100.00	50.00	150.00	150.00	Based on 2022
Total Intergovernmental Revenues & Fees	**31,949.00**	**30,675.00**	**-21,100.00**	**9,575.00**	**12,075.00**	
Miscellaneous Revenues						
Interest	728.00	475.00	75.00	550.00	550.00	Based on 2022 projected year end.
Fines & Forfeits	11,791.00	10,000.00	3,000.00	13,000.00	13,000.00	Based on 2022 projected year end.
Rent - in miscellaneous in audit	-	5,400.00	-600.00	4,800.00	4,800.00	May change if main street building is sold
SMPA dividend - in miscellaneous in audit	-	400.00	170.00	570.00	400.00	
Rico Center	-	0.00	0.00	0.00	0.00	No GF grant request
Miscellaneous Revenues (lumped together in audit	59,199.00	0.00	0.00	0.00	0.00	
CVRF (COVID relief fund) - in miscellaneous in audit	-	29,000.00	30.00	29,030.00	0.00	
Total Miscellaneous	**71,718.00**	**45,275.00**	**2,675.00**	**47,950.00**	**18,750.00**	
Total Revenues before Payroll Transfers	**366,866.00**	**346,941.09**	45,013.91	**391,955.00**	**346,385.00**	
Transfers						
Payroll Transfer	158,176.00	128,649.38	7,350.62	136,000.00	156,700.00	
Attorney pass through	-	75,000.00	159,000.00	234,000.00	100,000.00	Net 0 on budget
Contract Labor Transfers	-	8,000.00	-8,000.00	0.00	0.00	
Total Payroll Transfers to / From Other Funds	**158,176.00**	**211,649.38**	**158,350.62**	**370,000.00**	**256,700.00**	
Total Operating Revenues and Transfers	**525,042.00**	**558,590.47**	**203,364.53**	**761,955.00**	**603,092.11**	
Special Projects Revenues	**55,684.00**	**23,400.00**	**-10,600.00**	**12,800.00**	**12,800.00**	
Total Revenues	**580,726.00**	**581,990.47**	**192,764.53**	**774,755.00**	**615,885.00**	
Expenses - Total	**527,898.00**	**864,990.04**	**-17,590.04**	**847,400.00**	**614,090.00**	
Fund Balance Ending	**937,388.00**	**654,388.43**		**864,743.00**	**866,538.00**	

Notes:

1. A levy of 13.020 mills upon each dollar of the total valuation for assessment of taxable property in the Town of Rico.

	2022 Aug AV	**Property Taxes, 2022**	Mill Levy
Assessed Valuation (AV)	6,596,552.00	85,887.11	13.020

General Fund Employee & Contract Labor Expenses 30	2021 Audit	2022 Budget	2022 Original vs Projected	2022 Projected Year End Budget	2023 Proposed Budget	Notes
Operating Expenses						
Salaries & Wages						
Town Administrator / Manager	40,940.00	70,000.00	1,000.00	71,000.00	79,000.00	Cost of living increase (CPI)
Maintenance 1	36,570.00	37,044.89	3,455.11	40,500.00	50,000.00	Increase to stay compliant with exempt wage minimums
Town Clerk / Admin Assistant	33,723.00	43,000.00	-2,000.00	41,000.00	46,650.00	Cost of living increase (CPI)
Park & Recreation Administrator - combined with all POST programs in audit	-	5,000.00	-5,000.00	0.00	0.00	Position not needed due to town manager in role
Park & Recreation groomer - combined with all POST programs in audit	-	7,000.00	-500.00	6,500.00	7,000.00	Based on last year
Park & Recreation ice rink & park - combined with all POST programs in audit	-	8,900.00	-6,900.00	2,000.00	7,000.00	No rink for 2023
Maintenance 2	-	35,000.00	-2,000.00	33,000.00	35,000.00	Based on 2022
Water Technician	5,275.00	4,000.00	-1,500.00	2,500.00	4,000.00	Based on 2022
Town Marshall	20,552.00	30,000.00	-14,000.00	16,000.00	20,000.00	
Subtotal - Salaries & Wages	**137,060.00**	**239,944.89**	**-27,444.89**	**212,500.00**	**248,650.00**	
Employee Taxes and Benefits						
Payroll Taxes	12,266.00	35,000.00	-20,750.00	14,250.00	20,000.00	7.6% Employer match
FAMLI	-				1,200.00	.45% Employer match
Employer PERA (employee benefits combined on audit)	59,307.00	32,000.00	-8,000.00	24,000.00	26,000.00	14.75% of full time wages
Employee Health Insurance	-	38,000.00	-4,500.00	33,500.00	36,000.00	Small premium increase for 2023
Employee Life Insurance (employee benefits combined on audit)	-	137.00	3.00	140.00	140.00	Based on 2022
Employee Consideration	-	3,000.00	0.00	3,000.00	3,000.00	
Subtotal - Employee Taxes & Benefits	**71,573.00**	**108,137.00**	**-33,247.00**	**74,890.00**	**86,340.00**	
Subtotal - Employee Costs	**208,633.00**	**348,081.89**	-60,691.89	**287,390.00**	**334,990.00**	
Other Labor						
Municipal Court Judge (Part Time)	4,500.00	4,500.00	0.00	4,500.00	4,500.00	
Town Attorney (plus prosecutor)	37,087.00	30,000.00	0.00	30,000.00	30,000.00	
VCUP Attorney (pass through)	-	75,000.00	61,000.00	136,000.00	100,000.00	Net 0 on budget
Town Planner	-	20,000.00	-15,000.00	5,000.00	5,000.00	
Auditor	6,357.00	12,000.00	200.00	12,200.00	6,300.00	Split between water
Building Inspector - not on audit	-	5,000.00	-5,000.00	0.00	5,000.00	
Accounting Services (Contract)	-	0.00	0.00	0.00	0.00	
Subtotal - Other Labor	**47,944.00**	**146,500.00**	**41,200.00**	**187,700.00**	**150,800.00**	
Total Employee & Other Labor	**256,577.00**	**494,581.89**	**-19,491.89**	**475,090.00**	**485,790.00**	
Other Administrative Expenses	**223,399.00**	**93,250.40**	**5,259.60**	**98,510.00**	**118,000.00**	
Special Projects Expenses	**47,868.00**	**277,157.75**	**-3,357.75**	**273,800.00**	**10,300.00**	
Total General Fund Expenses	**527,898.00**	**864,990.04**	**-17,590.04**	**847,400.00**	**614,090.00**	

General Fund Other Administrative Expenses 31	2021 Audit	2022 Budget	2022 Original vs Projected	2022 Projected Year End Budget	2023 Proposed Budget	Notes
Administrative Costs						
Insurance (CIRSA)	4,169.00	5,200.00	2,210.00	7,410.00	6,000.00	Based on renewal price
IT/Website - Domain Maintenance - under miscellaneous in audit	-	2,000.00	-2,000.00	0.00	1,000.00	Domain hosting is free, additional website/email software is needed
Advertisements/Agenda - in supplies in audit	-	2,000.00	-1,500.00	500.00	1,000.00	
Supplies	15,769.00	12,000.00	-2,000.00	10,000.00	10,000.00	Based on 2022 projected year end
Dues & Fees - in miscellaneous in audit	-	3,000.00	-1,000.00	2,000.00	3,000.00	Region 9 EDD and SWCOG combining
Travel/Conference/ Training Expenses - in miscellaneous in audit	-	7,500.00	-2,500.00	5,000.00	7,500.00	CML conference for board members.
Miscellaneous	191,252.00	2,000.00	-1,800.00	200.00	0.00	
Subtotal - Administrative Costs	**211,190.00**	**33,700.00**	**-8,590.00**	**25,110.00**	**28,500.00**	
Utilities						
Electric	-	2,200.00	-700.00	1,500.00	2,000.00	Conservative estimate
Propane	-	5,000.00	500.00	5,500.00	5,500.00	
Telephone & Internet	-	6,000.00	-1,900.00	4,100.00	4,500.00	Cancelled unused accounts in 2022
Utilities-Other (all included in audit)	12,209.00	1,000.00	200.00	1,200.00	1,200.00	Based on 2022 projected year end
Subtotal - Utilities	**12,209.00**	**14,200.00**	**-1,900.00**	**12,300.00**	**13,200.00**	
Town Vehicle Costs						
Fuel (not separated on audit)	-	3,500.00	-1,300.00	2,200.00	3,000.00	
Repair & Maintenance	-	0.00	1,000.00	1,000.00	15,000	Marshal truck needed
Subtotal - Vehicle Costs	**0.00**	**3,500.00**	**-300.00**	**3,200.00**	**18,000.00**	
Other						
Facilities Maintenance - all lumped into special projects on Audit	-	0.00	0.00	0.00	5,000.00	
Elections	-	3,000.00	-2,000.00	1,000.00	2,000.00	
July 4th Expenses	-	2,500.00	-950.00	1,550.00	2,000.00	
Town Cleanup Day	-	6,000.00	-1,150.00	4,850.00	2,000.00	Town Cleanup day to be changed to an event focused on cleaning outdoor spaces
Treasurer Fees	-	2,500.00	0.00	2,500.00	2,500.00	Based on 2022
Lodging Tax Transfer	-	-	-	-	900.00	Transfers from General Fund to POST and Street Funds 20%
Sales & Use Tax Transfer	-	25,350.40	22,649.60	48,000.00	44,000.00	Transfers from General Fund to POST and Street Funds 20%
Traffic Fine-Surcharge	-	2,500.00	-2,500.00	0.00	0.00	
Subtotal - Other	**0.00**	**41,850.40**	**16,049.60**	**57,900.00**	**58,300.00**	
Total Other Administrative Expenses	**223,399.00**	**93,250.40**	**5,259.60**	**98,510.00**	**118,000.00**	

General Fund Capital Improvement Revenues	2021 Audit	2022 Budget	2022 Original vs Amended	2022 Projected Year End Budget	2023 Proposed Budget	Notes
Excise Tax	-	2,000.00	2,500.00	4,500.00	4,500.00	1
Total Capital Improvement Revenues	**0.00**	**2,000.00**	**2,500.00**	**4,500.00**	**4,500.00**	
Special Projects / Grants Revenues						
DOLA Planning Grant	-			25,000.00		
Rico Center Cemetery Pass through	-	3,400.00	4,900.00	8,300.00	8,300.00	Based on 2022 (pass-thru)
Rico Center - River Corridor	-	3,000.00	-3,000.00	0.00	0.00	
Rico Center - LUC Amendments	-	15,000.00	-15,000.00	0.00	0.00	
Rico Center - Facilities improvements	-	0.00	0.00	0.00	0.00	
Rico Center - Food Bank & Rico Cares	-	0.00	0.00	0.00	0.00	
All lumped together on Audit	55,684.00					
Total Special Projects / Grants Revenues	**55,684.00**	**21,400.00**	**-13,100.00**	**8,300.00**	**8,300.00**	
Total Capital & Special Projects Revenues	**55,684.00**	**23,400.00**	**-10,600.00**	**12,800.00**	**12,800.00**	
Capital Improvements Expenses						
Facility Improvements (all special projects together in audit)	47,868.00	135,000.00	0.00	135,000.00	0.00	
John Deere Loader		120,000.00	0.00	120,000.00	0.00	Purchased in 2022
Total Capital Improvements Expenses	**47,868.00**	**255,000.00**	**0.00**	**255,000.00**	**0.00**	
Special Projects Expenses						
River Corridor	-	5,000.00	5,000.00	10,000.00	0.00	Project completed
LUC Amendments & High Resolution Photo	-	10,757.75	-10,757.75	0.00	0.00	
Rico Center Cemetery Pass through	-	3,400.00	4,900.00	8,300.00	8,300.00	Based on 2022 (pass-thru)
Rico Cares	-	0.00	0.00	0.00	0.00	
Christmas Lights	-	0.00	0.00	0.00	0.00	
Community Meetings	-	3,000.00	-2,500.00	500.00	2,000.00	
Total Special Projects/ Capital Improvement Expenses	**47,868.00**	**277,157.75**	**-3,357.75**	**273,800.00**	**10,300.00**	

Notes:

1. The Town has a $2.00 per square foot excise tax on all new construction. The General Fund receives 25% of the excise tax. All revenues received from the excise tax can only be used for capital improvements and purchases.

33 Water Fund Revenues	2021 Audit	2022 Budget	2022 Original vs Projected	2022 Projected Year End Budget	2023 Proposed Budget	Notes
Operating Revenues						
Water Revenue	174,952.00	127,500.00	22,500.00	150,000.00	135,000.00	1
Interest	76.00	50.00	24.00	74.00	70.00	
Electric Reimbursement	995.00	1,492.00	-52.00	1,440.00	1,450.00	
Miscellaneous	-	500.00	-500.00	-	0.00	
Total Water Fund Operating Revenues	**176,023.00**	**129,542.00**	**21,972.00**	**151,514.00**	**136,520.00**	
Capital Improvement Revenues						
Water Meter Replacement & Relocation Grant	132,311.00	0.00	120,064.00	120,064.00	-	
Water Tap	-	10,000.00	27,500.00	37,500.00	98,500.00	
Tank Replacement	-	234,500.00	-234,500.00	-	-	
Total Water Fund Capital Improvement Revenues	**132,311.00**	**244,500.00**	**(86,936.00)**	**157,564.00**	**98,500.00**	
Total Water Fund Revenues	**308,334.00**	**374,042.00**	**-64,964.00**	**309,078.00**	**235,020.00**	
Expenses - Total	**318,257.00**	**143,250.05**		**126,900.00**	**151,500.00**	
Fund Balance Ending	**23,168.00**	**253,959.95**		**205,346.00**	**288,866.00**	

Notes:
1 Base on number of accounts multiplied by monthly minimum rate: 20 Commercial ($68/Month), 250 residential ($38/Month)

Water Fund Expenses	2021 Audit	2022 Budget	2022 Original vs Amended	2022 Projected Year End Budget	2023 Proposed Budget	Notes
Operating Expenses						
Payroll Transfer	103,737.00	82,500.00	0.00	82,500.00	93,000.00	
Employee Benefits Life	31.00	50.00	-50.00	0.00	0.00	
Auditor	-	6,000.00	-6,000.00	0.00	6,300.00	Split between general
Accountant	-	0.00	0.00	0.00	0.00	
Attorney	-	2,000.00	2,000.00	4,000.00	2,500.00	
Subtotal - Employee and Other Labor Costs	**103,768.00**	**90,550.00**	**-4,050.00**	**86,500.00**	**101,800.00**	
Other Costs						
Insurance	4,612.00	7,000.00	-500.00	6,500.00	6,500.00	Based on renewal price
Repairs & Maintenance	-	7,500.00	-4,000.00	3,500.00	7,500.00	
Supplies	31,489.00	5,000.00	1,300.00	6,300.00	5,000.00	
Water Samples	2,158.00	2,500.00	-500.00	2,000.00	2,500.00	
Electric	5,069.00	5,500.00	-500.00	5,000.00	5,500.00	
Propane	3,000.00	5,000.00	-1,000.00	4,000.00	5,000.00	
Utilities - other	1,578.00	2,000.00	-500.00	1,500.00	2,000.00	
Dolores Water Conservation District	2,700.00	2,700.05	-0.05	2,700.00	2,700.00	
Miscellaneous	28.00	500.00	0.00	500.00	500.00	
Water Fund Operating Expenses	**50,634.00**	**37,700.05**	**-5,700.05**	**32,000.00**	**37,200.00**	
Total Water Fund Operating Expenses	**154,402.00**	**128,250.05**	-9,750.05	**118,500.00**	**139,000.00**	
Capital Improvement Expenses						
Water Meter Replacement & relocation	163,855.00	0.00	0.00	-	-	
Water Tap & Installation	-	7,500.00	-7,500.00	0.00	7,500.00	
Preliminary maintenance facility planning	-	5,000.00	-1,600.00	3,400.00	0.00	
Water Tank replacement	-	0.00	0.00	0.00	0.00	
Water Engineering Service	-	2,500.00	2,500.00	5,000.00	5,000.00	
Total Water Capital Improvement Expenses	**163,855.00**	**15,000.00**	**-6,600.00**	**8,400.00**	**12,500.00**	
Total Water Fund Expenses	**318,257.00**	**143,250.05**	**-16,350.05**	**126,900.00**	**151,500.00**	

Street Fund Revenues	2021 Audit	2022 Budget	2022 Original vs Projected	2022 Projected Year End Budget	2023 Proposed Budget	Notes
Operating Revenues						
Property Tax	10,704.00	11,804.18	-895.96	10,908.22	11,775.00	1
Sales & Use Tax	24,949.00	20,000.00	0.00	20,000.00	22,000.00	2
Specific Ownership Tax	618.00	500.00	100.00	600.00	500.00	
Delinquent Tax & Interest	-	15.00	505.00	520.00	250.00	
Franchise Tax	6,227.00	7,300.00	200.00	7,500.00	7,000.00	
Highway Users Tax	18,396.00	12,800.00	2,200.00	15,000.00	13,000.00	
County R&B Reapportionment	11,814.00	11,800.00	1,250.00	13,050.00	12,000.00	
Lodging Tax	-	-	-	-	450.00	3
Interest	44.00	30.00	15.00	45.00	40.00	
Miscellaneous	-	500.00	9,500.00	10,000.00	0.00	
Mineral Leasing	-	-	-	20,000.00	5,000.00	4
Severance Tax	-	-	-	6,000.00	0.00	4
Rico Center Grant - Plowing	20,000.00	33,000.00	0.00	33,000.00	0.00	
Total Street Fund Operating Revenues	**92,752.00**	**97,749.18**	**38,874.04**	**136,623.22**	**72,015.00**	
Capital Improvement Revenues						
Excise Tax	1,806.00	1,800.00	1,300.00	3,100.00	4,500.00	5
Total Street Fund Capital Improvement Revenues	**1,806.00**	**1,800.00**	**1,300.00**	**3,100.00**	**4,500.00**	
Total Street Fund Revenues	**94,558.00**	**99,549.18**	**40,174.04**	**139,723.22**	**76,515.00**	
Expenses - Total	**85,968.00**	**108,350.00**		**75,280.00**	**87,500.00**	
Fund Balance Ending	**69,215.00**	**60,414.18**		**133,658.22**	**122,673.22**	

Notes:

1. A levy of 1.785 mills upon each dollar of the total valuation for assessment of taxable property in the Town of Rico.

	2022 Aug AV	**Property Taxes, 2022**	Mill Levy
Assessed Valuation (AV)	6,596,552.00	11,774.85	1.785

2. Street Fund receives 10% of the total revenue collected from the Sales Tax. The Sales Tax rate for the Town of Rico is 5%.

3. The Street Fund receives 10% of proceeds from the lodging tax, which is a 7% tax on all lodging. Ordinance No. 2022-05.

4. Mineral leasing and severance tax has been shrinking historically. Past fiscal years funds have been deposited in the General Fund

5. The Town has a $2.00 per square foot excise tax on all new construction. The Street Fund receives 25% of the excise tax. All revenues received from the excise tax can only be used for capital improvements and purchases.

Street Fund Expenses	2021 Audit	2022 Budget	2022 Original vs Amended	2022 Projected Year End Budget	2023 Proposed Budget	Notes
Operating Expenses						
Payroll Transfer	37,631.00	40,000.00	0.00	40,000.00	47,900.00	
Auditor	-	0.00	0.00	0.00	0.00	
Accounting Services	-	0.00	0.00	0.00	0.00	
Subtotal - Employee and Other Labor Costs	**37,631.00**	**40,000.00**	**-**	**40,000.00**	**47,900.00**	
Contract Snow Removal	0.00	5,000.00	-5,000.00	0.00	0.00	1
Equipment Rental	596.00	0.00	0.00	0.00	5,000.00	
Fuel	7,918.00	7,500.00	2,500.00	10,000.00	10,000.00	
Equipment Repairs & Maintenance	4,652.00	5,000.00	2,500.00	7,500.00	5,000.00	
Insurance	4,321.00	6,500.00	0.00	6,500.00	3,500.00	2
Supplies	3,521.00	2,500.00	-2,000.00	500.00	2,500.00	
Electric	1,383.00	2,000.00	-625.00	1,375.00	2,000.00	
Street Lights	1,128.00	1,500.00	-300.00	1,200.00	1,250.00	
Utilities - other	1,926.00	2,500.00	-635.00	1,865.00	2,500.00	
Treasurer Fees	214.00	350.00	-10.00	340.00	350.00	
Total Street Fund Operating Expenses	**25,659.00**	**32,850.00**	**-3,570.00**	**29,280.00**	**32,100.00**	
Capital Improvement Expenses						
Gravel Project - Various Streets	-	5,000.00	-4,000.00	1,000.00	2,500.00	
Equipment Lease Loader	22,705.00	25,500.00	-25,500.00	0.00	0.00	
Preliminary maintenance facility planning	-	5,000.00	0.00	5,000.00	5,000.00	
Water Truck	-	0.00	0.00	0.00	0.00	
Total Street Fund Capital Improvement Expenses	**22,705.00**	**35,500.00**	-29,500.00	**6,000.00**	**7,500.00**	
Total Street Fund Expenses	**85,968.00**	**108,350.00**	**-33,070.00**	**75,280.00**	**87,500.00**	

Notes:

1. These funds are appropriated as a contingency but are not forecasted to be expended during 2023 fiscal year

2. Funds were over appropriated for insurance in 2022, this has been corrected for 2023 and allows for the park and street fund to share insurance expenses.

Sewer Fund	2021 Audit	2022 Proposed Budget	2022 Original vs Projected	2022 Projected Year End Budget	2023 Proposed Budget	Notes
Operating Revenues						
Property Tax	23,800.00	26,048.56	-1,978.56	24,070.00	25,983.00	1
Specific Ownership Tax	1,363.00	800.00	125.00	925	950.00	
Miscellaneous	-	0.00	0.00	0.00	0.00	
Delinquent Tax and Interest	105.00	105.00	1,115.00	1,220.00	150.00	
Total Sewer Fund Operating Revenues	**25,268.00**	**26,953.56**	**-738.56**	**26,215.00**	**27,083.00**	
Sewer Fund Expenses						
Payroll Transfer	8,109.00	3,250.00	2,925.00	6,175.00	15,800.00	
Septic Inspection Certification & Training	-	1,200.00	-1,200.00	0.00	1,000.00	
Treasurer Fees	-	700.00	50.00	750.00	750.00	
Misc. Engineering/ legal	-	10,000.00	-10,000.00	0.00	50,000.00	2
Total Sewer Fund Operating Expenses	**8,109.00**	**15,150.00**	**-8,225.00**	**6,925.00**	**67,550.00**	
Fund Balance Ending	**216,125.00**	**227,928.56**		**235,415.00**	**194,948.00**	

Notes:

1. A levy of 3.939 mills upon each dollar of the total valuation for assessment of taxable property in the Town of Rico.

	2022 Aug AV	Property Taxes, 2022	Mill Levy
Assessed Valuation (AV)	6,596,522.00	25,983.70	3.939

2. Misc. expenditures have been appropriated for the legal and engineering to be used for the creation of a sanitation district and cover cost associated with the CDS the town is to receive

Parks, Open Space and Recreation (POST Fund)	2021 Audit	2022 Budget	2022 Original vs Projected	2022 Projected Year End Budget	2023 Proposed Budget	Notes
Operating Revenues						
Sales & Use Tax	24,575.00	20,000.00	0.00	20,000.00	22,000.00	1
Lodging Tax	869.00	900.00	350.00	1,250.00	450.00	2
Interest	48.00	30.00	10.00	40.00	45.00	
Excise Tax	1,998.00	3,000.00	100.00	3,100.00	4,500.00	3
Miscellaneous Income	7,527.00					
Total POST Fund Operating Revenues	**35,017.00**	**23,930.00**	**460.00**	**24,390.00**	**26,995.00**	
Special Project Revenues						
Rico Center Grant		-	-	-	36,000.00	
Rio Grande Southern Extension Grant Revenues	-	125,000.00	-125,000.00	0.00	0.00	
Total POST Fund Revenues	**35,017.00**	**148,930.00**	**-124,540.00**	**24,390.00**	**62,995.00**	
Operating Expenses						
Grooming Payroll Transfer (all payroll combined on Audit)	2,184.00	7,000.00	-3,000.00	4,000.00	7,000.00	
Ice Rink & Park Maintenance Payroll Transfer	-	8,900.00	-3,900.00	5,000.00	7,000.00	
Administrator Payroll Transfer	-	0.00	0.00	0.00	0.00	
Repairs & Maintenance of Equipment (combined on audit)	-	1,500.00	0.00	1,500.00	1,000.00	
Supplies (combined on audit)	15,791.00	7,500.00	0.00	7,500.00	5,000.00	
Insurance	3,245.00	5,000.00	0.00	5,000.00	2,500.00	4
Miscellaneous	-	500.00	-500.00	0.00	500.00	
Total POST Fund Operating Expenses	**21,220.00**	**30,400.00**	**-7,400.00**	**23,000.00**	**23,000.00**	
Special Project Expenses						
Flowers	-	1,500.00	-415.00	1,085.00	1,500.00	
Carnival/Festival/Event	-	1,500.00	-1,500.00	0.00	1,500.00	
Grooming supplies	-	-	-	-	40,000.00	
Facility and Planning improvements (FPM Consulting)	-	20,000.00	0.00	20,000.00	20,000.00	5
Rio Grande Southern Extension Trail	-	100,000.00	-100,000.00	0.00	0.00	
POST Fund Special Project Expenses	**0.00**	**123,000.00**	**-101,915.00**	**21,085.00**	**63,000.00**	
Total POST Expenses	**21,220.00**	**153,400.00**		**44,085.00**	**86,000.00**	
Fund Balance Ending	**101,766.00**	**97,296.00**		**82,071.00**	**59,066.00**	

Notes:

1. The POST Fund receives 10% of the total revenue collected from the Sales Tax. The Sales Tax rate for the Town of Rico is 5%.
2. The POST Fund receives 10% of proceeds from the lodging tax, which is a 7% tax on all lodging. Ordinance No. 2022-05.
3. The Town has a $2.00 per square foot excise tax on all new construction. The POST Fund receives 25% of the excise tax. All revenues received from the excise tax can only be used for capital improvements and purchases.
4. Funds were over appropriated for insurance in 2022, this has been corrected for 2023 and allows for the park and street fund to share
5. Funds to be appropriated for the potential grant match required for the town's parks and rec facility improvements. Size and scope of project not yet determined by FMP consulting.

Conservation Trust Fund (CTF) Fund	2021 Audit	2022 Budget	2022 Original vs Projected	2022 Projected Year End Budget	2023 Proposed Budget	Notes
Operating Revenues						
Lottery Proceeds	3,517.00	2,000.00	1,000.00	3,000.00	2,500.00	
Reimbursements	-	0.00	0.00			
Total CTF Revenues	**3,517.00**	**2,000.00**	**1,000.00**	**3,000.00**	**2,500.00**	
Conservation Trust Expenses						
FMP Capital Park Improvement Grant Match	-				40,000.00	1
Projects - Rio Grande Southern Trail	-	30,000.00	-30,000.00	0.00	0.00	
Total CTF Expenses	**0.00**	**30,000.00**	**-30,000.00**	**0.00**	**40,000.00**	
Total POST Expenses	**0.00**	**30,000.00**		**0.00**	**40,000.00**	
Fund Balance Ending	**40,874.00**	**12,874.00**		**43,874.00**	**6,374.00**	

Notes:

1) Funds to be appropriated for the potential grant match required for the town's parks and rec facility improvements. Size and scope of project not yet determined by FMP consulting.

Employee Allocation Details

Summary of Total Wages and Allocation Percentages 2023

40

Employees	General Fund	Water Fund	Sewer Fund	Street Fund	Parks Fund	Total Allocation	2023 Compensation	Payroll Taxes 7.65%	FAMLI 0.45%	PERA 14.8%	Medical per EE per year $9,252.00	Dental per EE per year $540.00	Vision per EE per year $76.32	Total Health Care	Life Insurance per year	Total Cost
Town Manager	40%	30%	20%	10%	0%	100%	79,000.00	6,043.50	355.50	11,652.50	$8,279.64	540.00	76.32		35.60	105,983.06
Maintenance 1	0%	60%	0%	40%	0%	100%	50,000.00	3,825.00	225.00	7,375.00	$8,279.64	540.00	76.32		35.60	70,356.56
Town Clerk/Admin Assistant	50%	50%	0%	0%	0%	100%	46,650.00	3,568.73	209.93	6,880.88	$13,811.10	1,080.00	76.32		35.60	72,312.55
Parks & Recreation Administrator	0%	0%	0%	0%	100%	100%	0.00	-	-							-
Part Time POST Groomer	0%	0%	0%	0%	100%	100%	7,000.00	535.50	31.50							7,567.00
Part Time POST ice rink & park	0%	0%	0%	0%	100%	100%	7,000.00	535.50	31.50							7,567.00
Maintenance 2	0%	50%	0%	50%	0%	100%	35,000.00	2,677.50	157.50							37,835.00
Water Technician	0%	100%	0%	0%	0%	100%	4,000.00	306.00	18.00							4,324.00
Town Marshall	100%	0%	0%	0%	0%	100%	20,000.00	1,530.00	90.00							21,620.00
							248,650.00	**19,021.73**	**1,118.93**	**25,908.38**	**33,490.38**	**2,160.00**	**228.96**	**35,879.34**	**106.80**	**330,685.17**

Contract Labor	General Fund	Water Fund	Sewer Fund	Street Fund	Parks Fund	Total Allocation	2022 Compensation		
Municipal Court Judge	100%	0%	0%	0%	0%	100%	4,500.00		
Town Attorney	90%	10%	0%	0%	0%	100%	32,500.00		
VCUP Attorney	100%	0%	0%	0%	0%	100%	100,000.00		
Town Planner	100%	0%	0%	0%	0%	100%	5,000.00		
Auditor	50%	50%	0%	0%	0%	100%	12,400.00		
Accounting Services	50%	50%	0%	0%	0%	100%	0.00		
Building Inspector	100%	0%	0%	0%	0%	100%	5,000.00	Total labor cost	
							159,400.00	490,085.17	

Transfers

Employees	General Fund	Water Fund	Sewer Fund	Street Fund	Parks Fund	2022 Compensation
Town Manager	31,600	23,700	15,800	7,900	-	79,000.00
Maintenance 1		30,000	-	25,000	-	50,000.00
Town Clerk/Admin Assistant	23,328	23,328	-	-	-	46,655.00
Parks & Recreation Administrator	-	-	-	-	-	0.00
Part Time POST Groomer	-	-	-	-	7,000	7,000.00
Part Time POST ice rink & park	-	-	-	-	7,000	7,000.00
Part Time Maintenance	-	15,000	-	15,000	-	30,000.00
Water Technician	-	-	-	-	-	4,000.00
Town Marshall	30,000	-	-	-	-	30,000.00
Total Allocations	**84,927.50**	**92,027.50**	**15,800.00**	**47,900.00**	**14,000.00**	**253,655.00**

Contract Labor	General Fund	Water Fund	Sewer Fund	Street Fund	Parks Fund	Total Allocation
Municipal Court Judge	4,500	-	-	-	-	4,500.00
Town Attorney	30,000	2,500	-	-	-	32,500.00
VCUP Attorney	100,000	-	-	-	-	100,000.00
Town Planner	5,000	-	-	-	-	5,000.00
Auditor	6,200	6,200	-	-	-	12,400.00
Accounting Services	-	-	-	-	-	0.00
Building Inspector	5,000	-	-	-	-	5,000.00
Total Allocations	**150,700.00**	**8,700.00**	**-**	**-**	**-**	**159,400.00**

PLANNING COMMISION MEETING MINUTES

Date: November 9, 2022

Call to order
Michael Contillo called the meeting to order at 7:06PM.

Present:
Chairman Mike Contillo
Gerrish Willis
Cristal Hibbard
Brad Fox
Leah Chmielewski

Absent:
Andrew Romanyshyn

Staff Present. Chauncey McCarthy, Anna Wolf, Jen Stark, Wilton Anderson

Approval of the Agenda

Motion
To approve the agenda.
Moved by Gerrish Willis, seconded by Cristal Hibbard.

Vote. A roll call vote was taken and the motion was approved, 5-0.

Approval of the Minutes
Sam Patch was misspelled as well as Larry Carver's name.
Motion
To approve the minutes with the above corrections.
Moved by Cristal Hibbard, seconded by Gerrish Willis.

Vote. A roll call vote was taken and the motion was approved, 5-0.

Action Items
Public hearing of the preliminary plat of the Dolores River Trail Development, located on portions of the Hillside 1, 2, and Yankee Boy, Rebecca and Gordon Mortensen, applicants
Chairman Mike Contillo gives a summary of the previous public hearing as well as the site walk through. Town Manager brought the public comment that was in the packet to the Commission's attention. Chauncey McCarthy expressed the concerns that the public works department have regarding the width of the road for snowplowing. They are concerned that there will not be enough room for the plow and a larger vehicle to pass safely. They are also concerned about snow storage in the area.
Applicant Rebecca Adams explained that there are two sections to the road the one leading to the Forest Service road and beyond that. Originally this was going to be a private shared driveway however after discussion with the Town it has been proposed to dedicate it to the Town.
Chauncey McCarthy explained that if it was Town owned the Town would take over maintenance both summer and winter as well as the maintenance of the Iron Draw culvert. If it is a shared

driveway a maintenance agreement will be recorded with each plat and lot. The road would be an easement for utilities to the town.
Rebecca Adams expressed they are asking for the variance of 20' and 12 degree road to disrupt the neighborhood less.
Jen Stark advised that Planning Commission that they will be setting a precedence for the community for accepting HOA's or growing the Town's inventory of roads.
Leah Chmielewski asked what the concerns and impacts these would have on the Town.
Chauncey McCarthy explained that in the past not all agreements have been kept and with time the Town has taken on more than what has been agreed upon.
Gerrish Willis voiced his concern that the trail from the new development to Piedmont could be gated if the development had a private road.
Chauncey McCarthy expressed that these concerns should be addressed in the maintenance agreement if the road becomes a private driveway.
Cristal Hibbard brought up the concerns in the written public comment that seemed to emphasize the concern over the square footage of the proposed lots due to the RPUD designation. She questioned if the Planning condition could make the square footage a condition of the approval.
Rebecca Adams expressed they would like to keep the square footage to match the neighboring lots designation.
Chauncey McCarthy expressed that he made the rough calculations for a house of the designated RPUD would have an impact of 8-10 residential houses in a 6 lot subdivision.
Kim Perdue Attorney for the applicant cautioned to rezone the land there is a due process that is not up to the Planning Commission.
Discussion was had regarding the RPUD status and the rezoning that Rebecca Adams is doing by splitting up the lot.
Jen Stark commented that the Planning Commission is working under the Rico Land Use Code which heavily leans on the Rico Master Plan. The Master Plan leans on the quality of life in Rico, articulating the landscape of Rico. The Planning Commission is weighing the legitimacy of this Master Plan.
Cristal brought up the fact that the hydrology report assumed a 2000sqft home.
The applicant's engineer commented that he could not imagine building a 4500sqft one floor home on these sites.
Mice Contillo brought up the discussion item of the lots and their building sites, whether the plat should have to include building envelops.
Chauncey McCarthy went over the building envelops on the plat.
Leah Chmielewski asked if the Town could approve the plan as is with the variances and if needed later on correct the variances to fit the standard.
Chauncey McCarthy explained that this is possible however the improvements would be on the Town's dime.

Public Comment:
Will Lochte questioned what the Town's plan is for the traffic on Depot Hill.
The Town Manager commented that this is not relevant to the current application.

Skip Zeller: really what's in front of us is has the applicant met the requirements of the Rico Land Use code. This is not a time for personal vendettas. If the applicants meet the requirements you don't have a choice but to approve it. These applicants have worked with the town to minimize the impact. This could have an impact on the future of the town. Let's work with them folks.

Joe Croke: Expressed that he has no financial interest in this project. The applicants have done a great job. There are still questions raised by engineering about Iron Draw and importation of

Concrete for the site. The Land Use Code relies on the Master Plan, the Master Plan is a broad document, and it was an image of what the writers thought the Town would look like down the road. The PUD's were put there due to a lack of planning with the hope that future Planning Commissions would take them on. To have the Planning Commission take them on as individual zoning applications. They were put there as open zoning areas as you go. The development application process is how we should go forward in the future. The most impacted area of this development is the Iron Draw.

Lauri Adams: Expressed that she is a low impact kind of person. She is concerned about the disruption to the land. After the site walk through she questions what the benefit to the town is for this development to happen. This is precedence setting for future applications. While she respects private property she also believes there needs to be thoughts on the community rights as well. She emphasized the question of what is the benefit to the Town.

Planning Commission discussion:
Gerrish Willis: Concerns about the public access to the trail and dedicated land. There is also a concern for the snow storage in the development. Consideration of designated snow storage on the plat. Concerns about the precedence that accepting these road variances will set. Why not require them to meet the standards in the Land Use Code.
Brad Fox commented that the variances seem to benefit the Town, but agrees to the added snow storage to the plat.
Discussion between Mike Contillo and Brad Fox regarding the standard and the observation that not many roads in town meet the Standard. When to start enforcing the standard.
Rebecca Adams mentioned that in some places the road could be widened to the 24' width.

Motion
To recommend to the Board of Trustees to approve the preliminary plat, moving forward with it platted as a Town road with the conditions that snow storage areas are taken into consideration.
Moved by Cristal Hibbard, seconded by Brad Fox.

Vote. A roll call vote was taken and the motion was approved, 4-1

Motion
To adjourn the meeting.
Moved by Cristal Hibbard, seconded by Gerrish Willis.

Vote. A roll call vote was taken and the motion was approved, 5-0.

The meeting adjourned at 8:38 pm.

Anna Wolf
Rico Town Clerk

Mike Contillo
Chairman

DOLORES RIVER SUBDIVISION

To: Town Of Rico
From: Rebecca and Gordon Mortensen
Date: 10/2/2022
RE: Public Hearing on Subdivision Application, Dolores River Subdivision
Preliminary Plat Submittal
Cover Letter

To whom it may concern,

In the attached packet you will find our Preliminary plat for the Dolores River Subdivision, application materials, and engineering studies that we have been diligently working on over the past 2 years. We also wanted to share some background on the application and why we feel this subdivision will offer a needed and positive development opportunity for the Town of Rico.

When Gordon and I purchased this property in early 2020, we knew it was, like much of the Rico area, complex in terms of both history and platting. The land was and still is currently being used for recreation by the public, local residential access and through access for an existing residential parcel that already has plans to be built on in the next 12 months.

The entirety of our property exists within town boundaries and based on the current master plan, is all zoned residential PUD, making the initial intention for the area: residential development. Rather than half acre parcels throughout the entire property, we believe this plan is much more suited to the needs and desires of the Rico community.

It also allows us to address the issues with access roads, town ownership over right of ways, neighbors' driveways and yards, and public recreation.

As we all know, Rico is unique in the sense that it was created and platted around mining claims and without regard to building feasibility, public access or recreation. We know this is a larger issue that the town is currently facing as it revisits the new zoning and master plan. Moving forward that differentiation between the best areas for development is critical, as well as permanently putting in place critical public access.

We believe this plan creates the most holistic use and ensures lasting public access while creating thoughtful residential development.

We look forward to meeting and reviewing our materials.

All our best,

Rebecca and Gordon Mortensen

TOWN OF RICO

DOLORES COUNTY, COLORADO
INCORPORATED OCTOBER 11, 1879
2 North Commercial Street
Post Office Box 9
Rico, Colorado 81332
Office # 970.967.2861
Fax # 970.967.2862
www.townofrico.colorado.gov

To: Rico Planning Commission
From: Town Staff
RE: Dolores River Trails Subdivision Initial Application for Preliminary Plat Review

The Rico Town staff has received the Dolores River Trails subdivision for Preliminary Plat Review.
For General Information: (not applicable to the current Preliminary Plat review):
According to the RLUC section 270 et al;
-RUPD is for single-Family, duplex, triplex, accessory dwelling use, and home occupation.
Design regulations:

272. RESIDENTIAL PLANNED UNIT DEVELOPMENT DESIGN REGULATIONS

DESIGN REGULATIONS	REQUIREMENTS
LOT SIZE	22,000 sq.ft.
FRONT SET BACK	12 feet
SIDE SET BACK	7 feet
REAR SET BACK	5 feet
BUILDING HEIGHT	30 feet
MAXIMUM FLOOR AREA	Maximum Floor Area = 4,500 sq.ft.
OFF-STREET PARKING	Two vehicle spaces per dwelling unit

Review:
Preliminary Plat Approval Section 530 et al;

532. OVERVIEW OF PRELIMINARY PLAT APPROVAL PROCEDURES The Preliminary Plat Approval process is the second stage of the subdivision approval process. The Preliminary Plat Approval process is intended to review and approve technical drawings, surveys, and engineering plans in relation to Town standards and existing Town utilities, facilities, and other services. Approval at the Preliminary Plat stage generally approves the technical aspects of the proposed subdivision. After the Conceptual Plan is approved and a complete Preliminary Plat Approval application is submitted to the Town copies of the Preliminary Plat Approval application shall be forwarded to all appropriate agencies for their review and comment and the Town Manager and/or Planner shall schedule a date for official receipt and review of the Preliminary Plat on the next available Planning Commission agenda. The Applicant must supply all required information and meet all required review standards for approval of the Preliminary Plat. Required information includes: revised reports from the Conceptual

Plan stage if any changes were made or required when the Conceptual Plan was approved, a Preliminary Plat and any other required materials.

- *Staff Comments:* There were changes that occurred after Conceptual Plan approval. These changes were initiated by the applicant after a meeting with staff in preparation for Preliminary Plat review. Some of these changes include plat notes that denote zoning and use, naming of streets, reconfiguration of open space dedication, inclusion of building envelopes, and plat notes denoting easements. These will be pointed out by either the applicant or staff or jointly as the applicant moves through public hearing review.

534. PRELIMINARY PLAT, MAPS AND OTHER REQUIRED MATERIALS

534.1. Required Materials and Copies: The Applicant shall submit copies of the Preliminary Plat and Improvements Survey of a scale sufficient to be clearly legible and useful for review purposes, and copies of other required materials according to the following schedule:
A. One mounted Preliminary Plat and one copy of other required materials for public presentation and inspection.
B. Eleven (11)copies of the Preliminary Plat and other required materials [seven copies for Planning Commission members, one copy for Town Planning Staff, one copy for Town Attorney, one copy for Town Engineer, one copy for Town Clerk.]
C. Three copies of the Improvement Survey and Engineering Plans, if any improvements are proposed [one copy for Town Engineer, one copy for Town Clerk, one copy for Town Planning Staff].
D. Additional copies of the Preliminary Plat, Improvements Survey, Engineering Plans, and other required materials as determined at the Conceptual Plan Approval stage for the purpose of obtaining necessary or appropriate review and comment from other Rico Land Use Code ARTICLE V - SUBDIVISIONS AND REPLATS June 15th 2011 Page V-9 agencies.

According to subdivision Preliminary Plat Review procedures RLUC 534 et al., the applicant is required to have the following:

534.2 Preliminary Plat Requirements: The accuracy of location of alignments, boundaries, and monuments on the Preliminary Plat shall be certified by a registered land surveyor licensed to do such work in the State of Colorado. All plats and maps shall indicate true north line, name of subdivision, name of applicant, USGA township, range, section and quarter section, block and lot number. A work-man like execution of the plan shall be made in every detail. ***This includes 534.2 A-G***. Please note that poorly drawn or illegible plan shall be a sufficient cause for its rejection under the RLUC.

- *Staff Comment: this requirement has been met. Applicant improved this requirement by adding Block, street layout and designation of zoning and use.*

534.3. Improvements Survey and Engineering Plans: The Applicant shall submit an Improvements Survey and any Engineering Plans if any improvements are proposed, or engineering plans are required for review of proposed mitigation, as determined at the Conceptual Plan Approval stage. ***This includes 534.3 A & B***

- *Staff Comment: this requirement has been met. Applicant improved this requirement by adding existing easements from previously recorded plat notes of prior plats pertaining to portions affecting this application. Thorough review and a report will be provided prior to public hearing by a Town Engineer.*

534.4. Other Materials: The Applicant shall submit other materials associated with the Preliminary Plat Approval application ***including sections of 538.1 A-C***.

- *Staff Comment: this requirement has been met until further review by outside entities upon request of The Town of Rico for any anticipated or discovered concerns. The map has been revised after coordination with Town staff including road dedication, open space dedication and lot sizes/ numbers with Hazard Constraints.*

538. PRELIMINARY PLAT REVIEW: As a reminder here is the newly adopted process for Preliminary Plat Review **Ord. 2022-06**

538.1. Planning Commission Review and Board of Trustees Approval: The Rico Planning Commission shall review the Preliminary Plat and all supporting documents and information at a public hearing and shall review all comments taken at the public hearing and all comments taken from other reviewing agencies. The Planning Commission Board shall recommend that the Board of Trustees approve, approve with conditions, or deny the Preliminary Plat Application based upon compliance with standards in this Section and other applicable laws of the Town of Rico, State of Colorado, or United States of America. The Planning Commission may continue its review ~~decision~~ if mutually agreed upon by the Applicant and the Planning Commission, or if in the judgment of the Planning Commission and Town Staff the issues presented in the Preliminary Plat require additional time for review. After the Planning Commission issues its recommendation on the Preliminary Plat application, the Board of Trustees shall review the application at a regularly scheduled Board of Trustees meeting within the next forty-five (45) days. The Board of Trustees shall hold a public hearing on the application and shall approve, approve with conditions, or deny the Preliminary Plat application based upon compliance with standards in this Section and other applicable laws of the Town of Rico, State of Colorado, or United States of America.

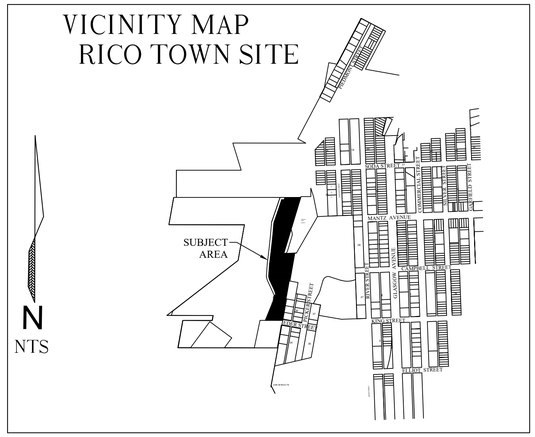
538.3. Standards: This paragraph sets forth the standards for Preliminary Plat Review. The Planning Commission and Board of Trustees shall cite specific standards when recommending or imposing conditions on approval, or denying, a Preliminary Plat ~~Approval~~ application.

A. The Preliminary Plat shall conform in all major respects to the Conceptual Plan as previously reviewed and approved by the Planning Commission and shall address any conditions imposed at the Conceptual Plan stage.

48 B. The Preliminary Plat and other engineering related materials, including proposed mitigation plans, are reviewed and approved, or approved with reasonable modifications, by the Town Engineer; 11

C. The Preliminary Plat shall meet the Minimum Subdivision Standards for subdivision design in Section 550, including standards for landscape preservation (550.1), lots (550.2), and streets (552.1).

D. All comments from other reviewing agencies have been reviewed by appropriate Town Staff, Planning Commission, and the Board of Trustees and all comments are addressed and resolved by the Planning Commission and the Board of Trustees.



OWNERS CERTIFICATE:

KNOW ALL PERSONS BY THESE PRESENTS That *Rebecca Adams and Gordon Mortensen* being the sole owner of the following described land:

Hillside Lode and Hillside No 2 Patented Mining Claim 23559, Mineral Survey No. 7994, in the Rico Mining District AKA the Pioneer Mining District;LESS AND EXCEPT that portion thereof deeded in that certain Quit Claim Deed recorded June 24, 2011 in Book 399 at page 140;and Home Lode Patented Mining Claim 25545, Mineral Survey No. 8031, in the Rico Mining District AKA the Pioneer Mining District;LESS AND EXCEPT that portion thereof deeded in that certain Quit Claim Deed recorded June24, 2011 in Book 399 at page 140; and LESS AND EXCEPT that portion thereof deeded in that certain Quit Claim Deed recorded June24, 2011 in Book 399 at page 138; and LESS AND EXCEPT that portion thereof deeded in that certain Quit Claim Deed recorded June 24, 2011 in Book 399 at page 136; and LESS AND EXCEPT that portion thereof deeded in that certain Quit Claim Deed recorded June 24, 2011 in Book 399 at page 134; and Sam Patch Patented Mining Claim 25545, Mineral Survey No. 8031, in the Rico Mining District AKA the Pioneer Mining District; LESS AND EXCEPT Lots 1, 2 and 3, Sam Patch Subdivision, according to the final plat thereof recorded in the office of the Clerk and Recorder, January 3, 2005 at Reception No. 148253 is Plat Book 2 at page 144; and Yanky Boy Patented Mining Claim 21107, Mineral Survey No. 6969, in the Rico Mining District AKA the Pioneer Mining District; all in the County of Dolores, State of Colorado.

Located in NE 1/4 Section 35, T40N, R11W, N.M.P.M.,The Town of Rico, Dolores County, Colorado. does hereby cause the same to be laid out, platted and subdivided into lots as shown on this plat under the name and style of DOLORES RIVER SUBDIVISION LOCATED IN THE NORTHEAST 1/4 OF SECTION 35, T40N, R11W, N.M.P.M., TOWN OF RICO, DOLORES COUNTY, COLORADO.

Owner:

*By:*_____ *Date:*_____

Rebecca Adams Owner

State of _____*)*

)ss.

County of _____*)*

Subscribed to and acknowledged before me this ____ *day of* _____*, 2022, by* _____.

Witness my hand and official seal.

_____ *My commission expires:* _____

Notary Public

TITLE CERTIFICATE

_____ _____ does hereby certify that he, she, or it has examined the Title to all lands shown upon this plat and that Title to such lands is vested in

_____, free and clear of all liens and encumbrances, except as follows:

_____

_____.

Dated this _____ day of _____, A.D., 2022.

_____

Authorized Representative

APPROVAL BY THE TOWN OF RICO, COLORADO:

This Plat titled DOLORES RIVER SUBDIVISION LOCATED IN THE NORTHEAST 1/4 OF SECTION 35, T40N, R11W, N.M.P.M., TOWN OF RICO, DOLORES COUNTY, COLORADO., is authorized and approved for filing

this _____*day of*

_____*,2022*

By:_____

Mayor, Nicole Pieterse

Attest:_____

Town Clerk, Anna Wolf

APPROVAL BY THE PLANNING AND ZONING COMMISSION TOWN OF RICO, COLORADO:

The Planning and Zoning Commission of Rico, Colorado did hereby authorize and approve this This Plat titled DOLORES RIVER SUBDIVISION LOCATED IN THE NORTHEAST 1/4 OF SECTION 35, T40N, R11W, N.M.P.M., TOWN OF RICO, DOLORES COUNTY, COLORADO.

at the meeting held on

this _____*day of* _____*,2022*

By:_____

Chair Person, _____

TREASURERS CERTIFICATE:

According to the records of the County of Dolores Treasurer there are no liens against this subdivision or any part thereof for unpaid state, county municipal or local taxes or special assessments due and payable.

Dated this:_____day of_____2022

Janle Stiasny

Dolores County Treasurer

PROPERTY ACCEPTANCE:

Tract A is to be joined with and become a part of Lots 18,19 and 20, Block36, Town of Rico Colorado and is hereby accepted by Thomas Clark

*By:*_____ *Date:*_____

Thomas Clark Owner

State of _____*)*

)ss.

County of _____*)*

Subscribed to and acknowledged before me this ____ *day of* _____*, 2022, by* _____.

Witness my hand and official seal.

_____ *My commission expires:* _____

Notary Public

Tract B is to be joined with and become a part of Lots 15,16 and 17, Block36, Town of Rico Colorado and is hereby accepted by Larry Carver and Jill Carver

*By:*_____ *Date:*_____

Larry carver Owner

State of _____*)*

)ss.

County of _____*)*

Subscribed to and acknowledged before me this ____ *day of* _____*, 2022, by* _____.

Witness my hand and official seal.

_____ *My commission expires:* _____

Notary Public

*By:*_____ *Date:*_____

Jill Carver Owner

State of _____*)*

)ss.

County of _____*)*

Subscribed to and acknowledged before me this ____ *day of* _____*, 2022, by* _____.

Witness my hand and official seal.

_____ *My commission expires:* _____

Notary Public

Tract C is to be joined with and become a part of Lots 12,13 and 14, Block36, Town of Rico Colorado and is hereby accepted by Larry Carver and Jill Carver

*By:*_____ *Date:*_____

Larry carver Owner

State of _____*)*

)ss.

County of _____*)*

Subscribed to and acknowledged before me this ____ *day of* _____*, 2022, by* _____.

Witness my hand and official seal.

_____ *My commission expires:* _____

Notary Public

Tract D is to be joined with and become a part of Lots 5,6, 7, 8, 9, 10 and 11, Block36, Town of Rico Colorado and is hereby accepted by Skip Zeller

*By:*_____ *Date:*_____

Skip Zeller Owner

State of _____*)*

)ss.

County of _____*)*

Subscribed to and acknowledged before me this ____ *day of* _____*, 2022, by* _____.

Witness my hand and official seal.

_____ *My commission expires:* _____

Notary Public

SURVEYOR'S CERTIFICATE:

I Thomas Clark, do hereby certify that I am a Licensed Professional Land Surveyor licensed under the laws of the State of Colorado; that this plat is a true, correct and complete Plat of Dolores River Subdivision, Located in The Town of Rico, Section 36, T40N, R11W, N.M.P.M., Dolores County, Colorado as laid out, platted, dedicated and shown hereon; that such plat was made from an accurate survey of said property by me and/or under my responsible supervision, and correctly shows the location and dimensions of the lots, easements, streets and roads of said subdivision as the same are staked upon the ground in compliance with applicable regulations governing the subdivision of land.

In Witness whereof, I have set my hand and seal this _____ *day of* _____*, A.D., 2022.*

_____

Thomas A. Clark PLS 38014

SURVEYORS NOTES:

1. Easement research and property description provided by ALPINE TITLE - TELLURIDE, File Number 2930CEA effective on February 12, 2021, 8:00 am

2. BASIS OF BEARINGS: Bearings for this survey are based on found monuments, at the centerline intersection of Glasgow Ave. and Mantz Ave. and the centerline intersection if Glasgow Ave and King Street, that bearing being N 02° 06' 00" W, the historic and accepted bearing for the Town of Rico.

3. Lineal units represented on this map are in U.S. Survey Feet or a decimal portion thereof.

4. This survey is valid only if a printed or electronic copy has a seal and signature of the surveyor noted within the statement above.

5. NOTICE: According to Colorado law you must commence any legal action based upon defect in this survey within three years after you first discover such defect. In no event may any action based upon any deficit in this survey be commenced more then ten years from the date of the certification shown hereon.

6. Approval of this plan may create a vested right pursuant to Article 68 of Title 24 C.R.S. as amended.

7. Total area of property within this subdivision is 6.090 Acres.

8. Construction of any improvements that may encroach on to adjoining property, not owned by the developer, shall require a temporary construction easement or an encroachment easement between the parties.

.

PLAT NOTES:

1. Maximum Floor Area. The properties depicted on the plat are classified as Residential Planned Unit Development as defined in the Town of Rico Official Zoning Map. Residential structure(s) shall be limited to a total maximum floor area of 4,500 square feet as defined in the Rico Land Use Code. This maximum floor area limitation shall be a restrictive covenant that shall run with and burden the land for the benefit of the owners of Lots 1, 2, 3, 4, 5, and 6, Dolores River Subdivision and for the benefit of the Town of Rico.

2. Building Envelopes. There are hereby established "Building Envelopes" on portions of Lots 1, 2, and 6 within the Dolores River Subdivision, as depicted and labeled on this plat. Building envelopes for Lots 3, 4, and 5, which are not depicted or labeled, comprise the entirety of those lots less the setbacks required by the Town of Rico Land Use Code. Subject to the applicable provisions of the Town of Rico Land Use Code, other Town ordinances, and applicable state law, the construction of improvements, structures, and buildings of any kind outside the Building Envelopes is prohibited, except that construction of landscaping and fences shall be allowed outside the Building Envelopes.

3. Forest Service Road: Owner shall dedicate to the Town a twenty (20)-foot wide non-exclusive easement for recreational, vehicular, public, and utility access, and other road rights-of-way purposes as shown on the plat, for connection to the existing Engle Cabin/Burnett forest service road. Owner is prohibited from gating or restricting public access over the easement. Owner reserves the right to relocate the twenty (20)-foot wide non-exclusive easement, subject to the Town road building application process and other applicable laws.

.

EASEMENTS ACCEPTED AND APPROVED BY:

_____
Town of Rico Public Works

_____
Rico Telephone

_____
San Miguel Power

_____

RECORDER'S CERTIFICATE:

*This Plat was filed for record in office of the Dolores County Clerk and Recorder on this*_____*day of* _____*, 2022, at Plat Book Number*_____*, Page Number*_____*, Reception Number*_____*, Time*_____*.*

_____

Dolores County Clerk

PRELIMINARY PLAT OF DOLORES RIVER SUBDIVISION LOCATED IN THE NORTHEAST 1/4 OF SECTION 35, T40N, R11W, N.M.P.M., TOWN OF RICO, DOLORES COUNTY, COLORADO.

ALL POINTS LAND SURVEY L.L.C.
PO BOX 754 OPHIR, COLORADO 81435 (970) 708-9694

DATE: 3/3/2022		
DRAWN BY	TC	JOB# 21013
CHECKED BY	JCC	SHEET-1-OF-2

TOTAL ACREAGE FOR
DOLORES RIVER SUBDIVISION = 6.036 ACRES

LOT 1 SINGLE FAMILY RESIDENTIAL LOT
LOT 2 SINGLE FAMILY RESIDENTIAL LOT
LOT 3 SINGLE FAMILY RESIDENTIAL LOT
LOT 4 SINGLE FAMILY RESIDENTIAL LOT
LOT 5 SINGLE FAMILY RESIDENTIAL LOT
LOT 6 SINGLE FAMILY RESIDENTIAL LOT

SHAMROCK
DSS LLC

YANKY BOY MS. 6969
ADAMS / MORTENSEN

HILL SIDE 2 MS. 7994
ADAMS / MORTENSEN

HILL SIDE MS. 7994
ADAMS / MORTENSEN

HOME
MS. 8031
ADAMS / MORTENSEN

SAM PATCH
MS. 8031
ADAMS / MORTENSEN

SAM PATCH
SUBDIVISION
KYLE

TRACT H
MERRITT
RECEPTION No.141962
2.607 ACRES

LOT 6
1.474 ACRES

LOT 5
0.502 ACRES

LOT 4
0.510 ACRES

LOT 3
0.541 ACRES

LOT 2
1.238 ACRES

LOT 1
.504 ACRES

TRACT F
OPEN SPACE
0.229 ACRES

TRACT D
0.108 ACRES

TRACT C
0.057 ACRES

TRACT B
0.039 ACRES

TRACT A
0.056 ACRES

LOT 6 BUILDING ENVELOPE

LOT 2 BUILDING ENVELOPE

LOT 1 BUILDING ENVELOPE

40' RIGHT OF WAY TO BE CREATED BY THIS PLAT

DOLORES RIVER TRAIL
40' R.O.W.

EXISTING GRAVEL ROAD

20' ROAD EASEMENT

25' WIDE ACCESS EASEMENT

LOTS 5-11
ZELLER

LOTS 12-14
CARVER

LOTS 15-17
CARVER

LOTS 18-20
CLARK

BLOCK 36 TOWN OF RICO

BLOCK 34 TOWN OF RICO

EDER
STREET

S 16°51'31" W, 10.32'
N 90°00'00" W, 108.90'
S 00°00'00" E, 93.00'
N 17°29'00" W, 100.00'
N 11°15'08" W, 222.47'
N 90°00'00" W, 176.29'
S 18°42'41" W, 26.01'
S 89°58'28" W, 26.40'
S 18°43'00" W, 286.05'
S 18°43'00" W, 229.93'
N 16°51'31" E, 374.26'
S 18°43'00" W, 37.95'
S 79°25'24" E, 111.57'
N 78°44'34" W, 58.14'
S 17°22'11" W, 55.02'
N 17°22'11" E, 72.72'
S 67°02'56" E, 80.38'
N 41°23'22" W, 87.41'
N 67°02'56" W, 94.91'
N 67°02'56" W, 33.76'
S 16°51'31" W, 17.80'
48.86'
C22
C20
S 14°01'54" E,
N 30°01'07" E, 463.45'
N 04°45'42" E, 129.85'
N 04°45'42" E, 129.24'
S 14°01'54" E, 30.87'
7' BUILDING SET BACK
S 73°10'01" E, 171.45'
L24
L25
12' BUILDING SET BACK
44.52'1
L23
L19
N 16°49'59" E,
S 05°51'20" W, 149.41'
12' BUILDING SET BACK
S 16°49'59" W, 129.58'
S 16°49'59" W, 174.10'
7' BUILDING SET BACK
71.73'
N 83°57'45" W
N 56°33'47" W
57.07'
C18
S 66°09'09" W, 15.90'
C15
C19
S 88°08'00" W, 91.44'
S 88°10'16" W, 19.93'
S 66°09'09" W, 15.90'
C14
S 19°13'00" W, 40.59'
S 19°13'00" W, 312.14'
N 10°00'00" E,
N 07°12'16" E, 173.98'
N 06°02'15" E, 59.90'
S 05°47'44" W, 112.23'
N 07°22'47" E, 151.40'
N 04°26'55" E, 100.44'
N 03°07'51" E, 43.27'
S 15°27'18" E, 67.35'
N 04°26'55" E, 100.31'
N 22°23'35" E, 172.96'
N 22°24'02" E, 41.43'
S 20°47'23" E, 59.84'
△=30°51'06"
R=130.00'
L=70.00'
ChB=N05°21'50"W
ChL=69.16'
△=12°07'26"
R=518.00'
L=109.61'
ChB=S11°48'29"W
ChL=109.40'
82.95'
N 55°24'07" W
67.71'
N 25°21'54" W
82.94'
S 48°52'12" W
S 44°08'23" E
79.04'
N 71°50'20" W, 77.60'
S 80°01'11" E, 7.23'
S 09°20'23" W, 38.26'
N 86°31'15" E
66.38'
N 73°30'10" E
66.12'
S 10°13'44" W, 98.56'
S 26°55'24" E
59.34'
N 26°55'24" W, 150.47'
S 80°16'05" W, 7.60'
66.03'
S 15°27'18" E
N 22°23'35" E, 172.96'
N 22°23'35" E, 164.55'
N 10°01'04" E, 59.38'
N 63°01'26" E, 49.99'
S 09°58'12" W, 89.49'
S 10°03'43" W, 138.23'
N 79°56'23" W, 40.00'
N 23°26'16" W, 21.97'
N 90°00'00" W, 121.37'

LINE TABLE		
LINE #	BEARING	DISTANCE
L23	N73°10'01"W	57.00
L24	N16°49'59"E	20.00
L25	S73°10'01"E	57.00

LINE TABLE		
LINE #	BEARING	DISTANCE
L1	N90°00'00"E	32.88
L2	S80°01'11"E	7.08
L3	N10°03'43"E	95.29
L4	S09°58'49"W	75.00
L5	S80°01'11"E	25.17
L6	N10°20'28"E	35.84
L7	S09°58'49"W	75.00
L8	S68°11'17"W	31.11
L9	S09°58'49"W	75.00
L10	N62°02'22"E	56.45
L11	S20°33'00"E	55.67
L12	S46°57'55"W	61.71
L13	N81°03'28"W	35.68
L14	S09°58'49"W	63.18

LINE TABLE		
LINE #	BEARING	DISTANCE
L15	N06°02'50"E	11.96
L16	N06°02'50"E	11.96
L17	N21°26'47"W	13.15
L18	N10°00'00"E	14.60
L20	N03°07'51"E	42.45

CURVE TABLE					
CURVE #	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C13	15.09	50.00	17°17'11"	N57°30'34"E	15.03
C14	65.53	80.00	46°56'09"	S42°41'05"W	63.72
C15	95.24	120.00	45°28'18"	S41°57'09"W	92.76
C16	267.78	530.00	28°56'56"	S04°44'33"W	264.94
C17	287.99	570.00	28°56'56"	S04°44'33"W	284.94
C18	8.61	10.00	49°19'10"	N41°29'34"E	8.34
C19	27.95	50.00	32°01'59"	N32°50'58"E	27.59
C20	37.71	70.00	30°51'53"	N01°24'02"E	37.25
C21	16.16	30.00	30°51'53"	N01°24'02"E	15.97
C22	23.46	70.00	19°11'58"	S04°25'55"E	23.35

CURVE TABLE					
CURVE #	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	22.84	170.00	7°41'47"	N06°12'50"E	22.82
C2	59.80	170.00	20°09'18"	N07°42'43"W	59.49
C3	102.29	528.52	11°05'20"	S15°15'39"E	102.13

CURVE TABLE					
CURVE #	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C5	20.44	570.00	2°03'18"	S19°45'44"E	20.44
C6	30.42	24.17	72°07'45"	S37°12'10"W	28.45
C7	57.08	200.00	16°21'12"	N14°13'26"E	56.89
C8	89.56	563.05	9°06'51"	S14°14'19"E	89.47
C9	55.60	44.17	72°07'45"	S37°12'10"W	52.00
C10	51.38	180.00	16°21'12"	N14°13'26"E	51.20

N

0 50' 100'

SCALE: 1" = 50'

PRELIMINARY PLAT FOR DOLORES RIVER SUBDIVISION
LOCATED IN THE NORTHEAST 1/4 OF SECTION 35, T40N, R11W, N.M.P.M.,
TOWN OF RICO, DOLORES COUNTY, COLORADO.

ALL POINTS LAND SURVEY L.L.C.
PO BOX 754 OPHIR, COLORADO
81435 (970) 708-9694

DATE:9/23/2016
DRAWN_BY TC
CHECKED_BY JCC

JOB#_21013
SHEET-2-OF-2

ALPINE LAND CONSULTING
CIVIL ENGINEERING & LAND PLANNING
Alpinelandconsulting.com

Memorandum

To: Chauncey McCarthy, Town Manager, Town of Rico, Colorado
From: Gregory E. Anderson, PE
Date: 10-07-22
Re: Dolores River Subdivision Preliminary Plat, Rico, Colorado
(DOS #2)

A. REVIEW REQUEST

Alpine Land Consulting (ALC) was requested to review on behalf of The Town of Rico, the Preliminary Plat for The Dolores River Subdivision. This review is based on the requirements of The Town of Rico Land Use Code, Adopted by Ordinance No. 1999-7 on August 31st, 1999, Latest Revision: Amendments Adopted by Ordinance No. 2011-03 on June 15th, 2011 (LUC).

B. PROVIDED DOCUMENTS FOR REVIEW

The following documents were presented to ALC for review:

1. Preliminary Plat of Dolores River Subdivision, sheet 1 of 2, prepared by All Points Land Survey, L.L.C., dated 3/3/2022, 1 sheet in 1 pdf.
2. Preliminary Plat of Dolores River Subdivision, sheet 2 of 2, prepared by All Points Land Survey, L.L.C., dated 9/23/2016, 1 sheet in 1 pdf.
3. Dolores River Subdivision Preliminary Plat Submittal Drainage Report, prepared by Mountain Civil Consulting, dated 6/30/2022, 148 sheets in 1 pdf.
4. Dolores River Subdivision Infrastructure Improvement Plans, Preliminary Plat Submittal, prepared by Mountain Civil Consulting, dated 8/8/2022, 10 sheets in 1 pdf

C. COMMENTS

ALC has the following comments on the Preliminary Plat Submittal.

Overall Comments:

1. The Southerly proposed access/road/shared driveway connects to existing road by crossing onto the San Patch Subdivision which is private property. Please provide easement agreements, or other Right-of-Way documents that allow this crossing of private property.
2. The proposed access road labels need to be changed from row to access. If the Town of Rico is not going to accept this proposed road into the Town maintained roads then it should not be called row or right-of-way on any documents. For clarification the road should be labeled as access or shared driveway as it will not be a public right-of-way. It may need to be changed to an access easement, but this is better answered by the Town's legal consultant. This clarification on the label will help eliminate confusion in the future about maintenance
3. LUC Sections 556 states that 10% useable land dedications to the Town of Rico for all Subdivisions. Where is this included in the proposed Preliminary Plat?
4. There are 3 variance requests on sheet one of the infrastructure Improvement Plans.

1. Proposed off street parking to be provided with site plan and building permit submittal. ALC suggest approval of this variance request.
2. Proposed road surface to 20', not 24' as required by the LUC. Due to the visual and physical impacts of the road this request is reasonable and ALC suggest approval of this request. LUC 748.3 reference should be changed to LUC 478.3.
3. Proposed road grade from 10% to 12%. This is common in this area, but the applicant does not propose any mitigation for this steeper slope. Town of Rico may want to consider requiring fire suppression system (sprinklers) requirement for the proposed lots on or past the 12% proposed road grade, which is commonly required mitigation in the surrounding area. Either way ALC suggest approval of this request.

5. A variance to LUC 478.3.B should be included for the proposed 2% sloped crown as currently a 6" crown is required. ALC would suggest approval for this variance.
6. A variance to LUC 478.2 for 60' right-of-way to be reduced to a 40' access should be included in the variance request section. ALC would support a 40' access easement as it will encompass the road and swales, but an easement will be required at the box culvert. See comment 7 below.
7. The Town should request maintenance easements for the box culvert at the inlet and outlet sides to allow for access for future maintenance by subdivision lot owners or other governmental agencies.
8. Basin P-1 roadside swale drains onto private property. This will need to be modified or the applicant will need to provide agreements with this private landowner.
9. A 1:1 (horizontal:vertical) slope is proposed at the culvert inlet. Applicant should provide a geotechnical report or study proving that such a steep slope will be stable. There is rip-rap proposed but with such a steep slope there may be a need for additional slope stability improvements. LUC 498.5 states that the maximum slope is 3:1. This may need to be an additional variance request.
10. Applicant needs to include all information in the Wetland Protection Regulations, LUC 820. As there is grading proposed into the delineated wetlands near roadway station 9+00 there will need to be a mitigation plan as required by LUC 823.5. LUC 824.3 requires a 100' buffer zone which may be reduced but this request will need to be included in the application.
11. Applicant should include the wetlands delineation report from SME that is reference on the infrastructure plans and drainage report.

Drainage Report:

12. The cover sheet needs to be signed, dated, and sealed by Colorado Professional Engineer.
13. Modify the general information section as the applicant is requesting variance to the Town road standards.

Infrastructure Improvement Plans:

14. All Sheets need to be signed, dated, and sealed by Colorado Professional Engineer for final set provided to the Town of Rico.
15. Revise all labels from ROW to access if the Town of Rico will not be accepting the proposed road into the Town roadway system.

Sheet C000:

16. Add space between notes 10 and 11.
17. Revise franchise utility notes as the plans do include electric installation and should include preliminary cable/telephone/communication layouts.

18. LUC 775.4 should be LUC 271
19. LUC 748.3 should be LUC 478.3 and include statement about required 24' width.
20. Include crown variance request under LUC 478.

Sheet C100:

21. Change 40' right-of-way to 40' access.
22. Applicant should include an angle at intersection with existing roadway to the South to confirm requirements of LUC 478.8.
23. This proposed intersection crosses onto Sam Patch Subdivision with is private property. See comment 1 above.
24. Change note 7 from sewer service to OWTS.

Sheet C101:

25. Add slope labels to confirm that the maximum LUC 3:1 slope. If requesting greater slopes than 3:1 include in variance request and provide supporting soils report or study.
26. Include Wetland Buffer setbacks as required by LUC
27. If no cul-de-sac is proposed at end of road, explain reasoning and include in variance request.

Sheet C200:

28. Add proposed grading slope labels.
29. Clean up text overlaps in profile.
30. Add profile scales both horizontal and vertical.

Sheet C201:

31. Add radius label at emergency access turnaround to confirm requirements of 2006 IFC.
32. Add station equations at all intersections.
33. Add vertical curves at all grade breaks of 2% or more.
34. Add profile scales both horizontal and vertical.

Sheet C300:

35. Add legend for all erosion control labels.
36. Add station equation at culvert and road centerline.
37. See comment 9 above.

Sheet C400:

38. See comment 9 above. Provide soils slope stability study to confirm 2:1 and 1:1 slope will be stable.
39. Include Geotechnical or Structural Engineering reference with Final Construction plan for retaining wall section.
40. Include required 6" crown in section or include in variance request. See comment 5 above.

Sheet C401: no comment

Sheet C402: no comment

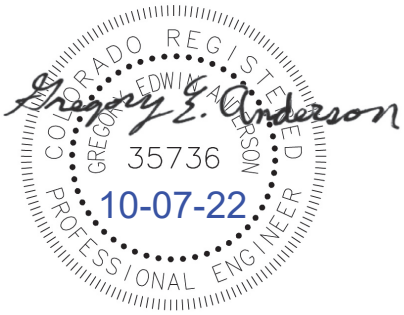
Sheet C403: no comment

Plat Documents:

41. Change row and right-of-way to access.
42. ALC suggest the Town of Rico have their legal and Professional Land Surveyor consultants review these 2 pages.

If you have any questions, please contact our office at 970-708-0326 or email me at gregg@alpinelandconsulting.com

This review memorandum was prepared by me on behalf of Alpine Land Consulting, LLC for Town of Rico includes review of engineering aspects of the document as listed above only. No planning or engineering design is included with this review.



Respectfully,
Gregory E. Anderson
Colorado Professional Engineer
Registration Number 35736

MOUNTAIN CIVIL CONSULTING
712 Eagle Pass
Durango, CO 81301
970-946-3175

To: Town of Rico
From: Mountain Civil Consulting, LLC
Date: 11/1/22
RE: Comment – Response Letter – Town Engineer
Dolores River Trail Subdivision
Preliminary Plat

This letter is being provided to address agency review comments from the Town of Rico dated 10/07/22.

The Agency Review comments are included as an appendix to this letter.

Comments:

1. The improvements at the southern property boundary have been modified to be within the existing Ute Trail and proposed ROW.
2. During the conceptual plan review phase it was established that the access road would be considered Town ROW moving forward into the Preliminary Plat phase.
3. See plat, the open space dedication includes Tract F and the Access Easement over the "Piedmont Road" which is used as a community trail.
4. No action required.
5. The road crown grade will be constructed per Town standards to provide adequate drainage in winter conditions.
6. A variance request for 40' ROW width has been added.
7. Drainage Easements have been added to allow for maintenance of the Iron Draw Culvert.
8. The road design has been modified. Drainage design has been modified to include conveyance of runoff in ROW. A note to convey runoff within the ROW has been added.
9. The Iron Draw Culvert design has been revised. The channel slope shall be 4:1 max.
10. Road design has been modified to avoid any disturbance to the wetland. A wetland disturbance permit will be processed with the town as road construction is within the wetland buffer zone.
11. Applicant has submitted the wetland delineation report to the Town.
12. Drainage report will be stamped as prepared by a CO PE.
13. General Information section has been modified as requested.
14. Plans will be signed/sealed by CO PE.

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712 Eagle Pass
Durango, CO 81301
970-946-3175

15. See response to comment #2 above.
16. Space has been added.
17. Note has been updated. Franchise utility (electric) design information has been removed from the plans. SMP shall submit design drawings as required.
18. Updated
19. Updated
20. See response to comment # 5 above.
21. See response to comment #2 above.
22. Angle has been added, intersection is at 64 degree skew with Ute Trail ROW.
23. See response to comment #1 above.
24. Updated.
25. Slope labels have been added as requested. Generally all road cut and fill slopes are 2:1 and within Town code for height of cut.
26. Wetland Buffer information has been added.
27. An alternative hammerhead turnaround is proposed meeting requirements of 2006 IFC Figure D103.1 Dead End Fire Apparatus Access Road Turnaround.
28. Proposed grading slope labels have been added.
29. Updated.
30. Profile scales added
31. Radii labels added.
32. Station equations added.
33. Vertical curves added.
34. Profile scales added.
35. Legend added.
36. Station equation added.
37. See response to comment # 9 above, culvert design has been revised.
38. 2:1 max slopes proposed for all road cuts meeting Town Road Design standards.
39. Retaining walls are not proposed.
40. Road crown shall be 6” per Town code.

MOUNTAIN CIVIL CONSULTING
712 Eagle Pass
Durango, CO 81301
970-946-3175

Sincerely,

Andrew Rapiejko, PE

Mountain Civil Consulting, LLC

Attachments:

1. Dolores River Subdivision Review comments by Alpine Land Consulting dated 10/07/22

ALPINE LAND CONSULTING
CIVIL ENGINEERING & LAND PLANNING
Alpinelandconsulting.com

Memorandum

To: Chauncey McCarthy, Town Manager, Town of Rico, Colorado
From: Gregory E. Anderson, PE
Date: 11-07-22
Re: Dolores River Subdivision Preliminary Plat, Rico, Colorado
(DOS #2)

A. REVIEW REQUEST

Alpine Land Consulting (ALC) was requested to review on behalf of The Town of Rico, the Preliminary Plat for The Dolores River Subdivision. This review is based on the requirements of The Town of Rico Land Use Code, Adopted by Ordinance No. 1999-7 on August 31st, 1999, Latest Revision: Amendments Adopted by Ordinance No. 2011-03 on June 15th, 2011 (LUC).

B. PROVIDED DOCUMENTS FOR REVIEW

The following documents were presented to ALC for review for a second review by Mountain Civil Consulting on 11-02-22:

1. Comments – Response Letter – Town Engineer, Dolores River Trail, prepared by mountain Civil Consulting, LLC, dated 11/1/22, 3 sheet in 1 pdf.
2. Dolores River Subdivision Preliminary Plat Submittal Drainage Report, prepared by Mountain Civil Consulting, dated 11/1/22, coversheet sealed by Andrew B. Rapiejko, PE, seal date 11/1/22, 154 sheets in 1 pdf.
3. Dolores River Subdivision Infrastructure Improvement Plans, Preliminary Plat Submittal, prepared by Mountain Civil Consulting, dated 11/1/2022, all sheets sealed by Andrew B. Rapiejko, PE, seal(s) date 11/1/22, 10 sheets in 1 pdf

C. COMMENTS

ALC has the following comments on the Revised Preliminary Plat Submittal. The numbers below correlate to the numbers listed on the 1st review comments memorandum dated 10-07-22 and only comments listed may need addressing, possibly as conditions to the approval of the Preliminary Plat.

Overall Comments:

2. The definition of the type of access and maintenance is still be negotiated. Once the Town of Rico Board of Trustees (BOT) approves this as right-of-way dedication or as a common access the labels though all documents should be changed to be consistent. This clarification on the labels will help eliminate confusion in the future about maintenance.
4. There are now 4 variance requests on sheet one of the Infrastructure Improvement Plans the variances are requested for the ROW but if the BOT determines this should be a common access the variance may not be required.
    1. LUC 272 - Proposed off-street parking plan

1.1 Proposed off street parking to be provided with site plan and building permit submittal.

ALC suggest approval of this variance request.

2. LUC 478.2 – ROW Width

2.1. The ROW width for the Dolores River Trail Road and water line extension is proposed as a 40 foot width. Town of Rico standard ROW is 60'.

ALC suggest approval of this variance request if the BOT approves this to be ROW and not a common access.

3. LUC 478.3 A. – Road Surface Width

3.1 Proposed road surface to 20', not 24' as required by the LUC.

Due to the visual and physical impacts of the road this request is reasonable and ALC suggest approval of this request. LUC 748.3 reference should be changed to LUC 478.3.

4. LUC 478.4 Road Grade

4.1 The grade of a portion of the road is proposed at 12% to limit the visual and physical impacts of the road construction while providing safe access for residents, maintenance, and emergencies. Per Town LUC the maximum grade for roads is 10%.

LUC 478.4 states: "roads shall be constructed with a maximum grade of 10%. The maximum grade of roads thirty (30) feet from intersections, on either side of the proposed driveway access, and on curves with a radius of less than 250 feet shall not exceed 8%."

The intersection is not being proposed to be modified and appears to have a greater slope than 8%, along with centerline curves appearing to be less than 250' in radius, and future driveways will be constructed intersecting centerline slopes greater than 8%. All centerline radii should be labeled to confirm that they are less than 250' in radius and the existing slope should be labeled at the intersection to clarify the existing slope. The variance request should be modified to include the 250' radius requirement, driveway requirement, and intersection requirements.

ALC suggest the approval of the modified variance request and the driveway portion of the request is significant to clarify for future individual Lot owners.

7. Change culvert sheet labels from C301 to C300 (plan and profile).
8. Basin P-1 existing swale is being modified and appears to drain over Ute Trail or continues down across private property. Due to FSR 422 being improved there may now be slightly less runoff reaching the existing swale. This needs to be clarified and the BOT may want to consider this a condition that must be clarified in Final Plat Submittal.

If you have any questions, please contact our office at 970-708-0326 or email me at gregg@alpinelandconsulting.com

This review memorandum was prepared by me on behalf of Alpine Land Consulting, LLC for Town of Rico includes review of engineering aspects of the document as listed above only. No planning or engineering design is included with this review.

Respectfully,
Gregory E. Anderson
Colorado Professional Engineer
Registration Number 35736

Chauncy and Jen,

61 21

Please see comments below from the Dolores Ranger District on the subdivision application and preliminary Plat.

Roads Engineering Comments:

From a roads perspective we do not see an issue with the new alignment proposal other than the new proposal will be well outside of the 20 foot easement when cut and fill calculations are considered. We would recommend that this be clearly described as the landowners proposal and that the new widths accurately described in some ROW grant. Technically no road construction efforts should occur outside of the 20 feet assuming 10 feet either side of centerline.

In terms of the design here are a few comments for 422:

Sheet 1: Grading and Erosion Control Notes – 8. It does not appear as though the proposed new segment will have cross drain culverts but cross drain culvert inlets should not receive Rip Rap treatment. Catch basins will need to be maintained and Rip Rap inlets prevent effective removal of sediment. Outlets should only receive Rip Rap if the slopes exceed 20%. These comments do not apply to the Iron Draw culvert. However, at the site visit we had discussed culvert replacement that would be outside of the design segment.

Sheet 5: It appears that the intent is to out slope the new alignment of 422 (indicated by the arrow and 2%).This seems like a risk given the new finished grade of 12% from station 1+00 to approximately 2+00. In addition, I believe the existing road beyond 1+00 continues at a steep grade. The risk I see is that the out slope will likely divert water off the newly constructed fill slope at the transition from 12% to 3% which appears to be approximately 7 feet of fill and on to the private property. The drawings do indicate a roadside ditch on the cut-slope side and it may be more appropriate to in-slope the road to this ditch. This would be the construction approach by the FS.

Sheet 5: The detail appears to indicate armored road side ditch from approximately 3+25 to 4+00 I am not clear on the intention of this design element but from a maintenance perspective the Forest Service would prefer to have the ditch remain native material.

A few unanswered questions worth mentioning: We did not see a typical section for the new alignment of 422 if we assume it will be different from the "Access and Driveway Typical". Will this be constructed of native material? What material class would be used? I assume fill embankment and roadway construction would be accomplished in compacted lifts no greater than 12"?

Thank you again for giving the Dolores Ranger District a chance to review and comment.

Denise

M. Denise Kuspir

MOUNTAIN CIVIL CONSULTING
712 Eagle Pass
Durango, CO 81301
970-946-3175

To: Town of Rico
From: Mountain Civil Consulting, LLC
Date: 11/1/22
RE: Comment – Response Letter – USFS
Dolores River Trail Subdivision
Preliminary Plat

This letter is being provided to address agency review comments from the Town of Rico dated 10/04/22.

The Agency Review comments are included as an appendix to this letter.

Response to Comments:

1. The proposed easement width has been increased to 30' which contains all road construction including cut/fill work.
2. The design of the new road conveys drainage tributary to the FR 422 road corridor to the proposed Iron Draw culvert.
3. The road
4. The road design has been revised per USFS suggestion of an in-slope condition. In general the alignment and grade of the proposed road has been revised and improved upon.
5. This roadside ditch will convey runoff to the Iron Draw culvert rather than to Lot 1 and the existing subdivision to the south and east. This is proposed to be finished with native material. Upon further site inspection the native material holds up will in borrow ditches.
6. Typical section for FR 422 has been added to sheet C400, including note on lift of fill material. All road work shall be constructed per Town of Rico or CDOT Standard Specifications for Road and Bridge Construction, including placing of embankment material.

Sincerely,

Andrew Rapiejko, PE
Mountain Civil Consulting, LLC

MOUNTAIN CIVIL CONSULTING
712 Eagle Pass
Durango, CO 81301
970-946-3175

Attachments:

1. Review comments by USFS dated 10/04/22

MOUNTAIN CIVIL CONSULTING

712 Eagle Pass
Durango, CO 81301

To: **Town of Rico**
From: **Mountain Civil Consulting, LLC**
Date: **11/1/2022**
RE: **Dolores River Subdivision**
Preliminary Plat Submittal
Drainage Report

This letter is being provided to describe the impact of the Dolores River Subdivision to the drainage patterns and describe mitigation measures to address additional onsite runoff and the conveyance of offsite runoff.

General Information:

The Project is located at the end of Eder St. in Rico, CO. The project involves the development of a 6-lot subdivision which encompasses 6 acres of land. The improvements include a new access road, a private driveway, and utility construction. The Iron Draw drainage bisects the project. There are identified wetlands, debris fans, and avalanche hazards located within the subdivision boundary. These features will generally be avoided and/or mitigated.

Site Conditions:

The site is assumed to be native forest in the historic condition, consisting of typical pine and aspen forest in the area. There are rough dirt roads which provide access to Forest Road 422 and the Dolores River Trail path along the hillside, and to a single-family lot at the north end of the subdivision. Portions of the subdivision have been used by residents for the driveways and access along the southeast edge. See Appendix 1 C100 -. Site Plan for proposed improvements.

Offsite Flows:

The Project is generally located along a bench on the west side of the Dolores River. The Dolores River Floodplain is located outside of the subdivision boundary. The Floodplain was interpreted from the Town of Rico Floodplain Hazard Map. The Iron Draw drainage bisects the site which is the major offsite runoff to manage. The Iron Draw drainage is slope varies between 3:1 and 6:1 across the project site. Average runoff appears to be between 0.5 cfs and 2 cfs. Applying the USGS Analysis of the Magnitude and Frequency of Floods in Colorado hydrologic calculation methods, the Iron Draw drainage runoff was calculated as follows:

Q2 = 58 CFS

Q10 = 72 CFS

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Durango, CO 81301

Q100 = 89 CFS

There is little to no impact from other offsite flow entering the site from the west. There are no defined drainages other than Iron Draw.

Iron Draw Debris Fan:

The Iron Draw debris fan, as identiifed in the Town of Rico Geologic Hazard Map is located within the proposed subdivision boundary. The proposed access road and driveway, Lots 1, and Lot 2 are located within the mapped debris fan. The following information was taken from the Hazard Assesment of Debris Fans at Rico, Co (Wilbur).

Iron Draw

The Iron Draw debris fan underlies the developed part of Rico west of the Dolores River (Figure 4). This fan is relatively small and its basin has a limited source of debris material. Most of the unconsolidated deposits in the basin are colluvium on slopes less than 20 degrees. A utility trench excavation on the upper part of the fan exposed stratified deposits of sand, gravel and cobbles in beds less than 75 cm thick. No particles larger than about 50 cm in diameter were noted. The slope of the fan at this location was about 10 degrees. The characteristics of the fan deposits and limited debris source material indicate that water flood events are dominant.

Debris flows are not likely, but large water floods are a significant hazard due to the possibility of intense precipitation over the relatively small basin. The fan has essentially no channel incised, thus floods can spread randomly. This fan also has a slope break about 90 meters from the apex where the slope changes from 10 to 7 degrees. A High Hazard water flood designation was assigned to the steepest portion of the fan near its apex.

To mitigate the flood hazard associated with this debris fan the following mitigation measures will be constructed.

- Swales, Berms, and roadside ditches to control and convey runoff from Iron Draw west of the project site to the proposed Iron Draw Culvert.
- Construct Iron Draw Culvert to convey runoff at a concentrated location at the Iron Draw drainage road crossing including minor channel improvements.
- Protect all swales, berms, ditches, and the culvert with rip rap outlet protection.

Onsite Flows:

The native soil is classified as Hourglass-Bucklon-Wander Complex (Hydrologic Soil Group C) in the lower bench areas and Frisco-Horsethief Complex (Hydrologic Soil Group B) on the upper hillside areas. To be conservative the site soils are assumed as Type C. The site generally slopes from the W to the E and is tributary to the Dolores River. Iron Draw bisects the site and is a small mountain stream with a tributary

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Durango, CO 81301

drainage area of approximately 0.79 square miles or 506 acres. Historic grade range between 2% -20% on the lower bench and are 20% or greater above this area to the east. The project area is generally undeveloped with the exception of the gravel roads and east side of the adjacent neighborhood, where the private land has been used by the residents for parking and driveways. See Appendix 1 – Site Plan and Appendix 2 C200 – Grading and Drainage plan for site improvement and overall drainage information.

Existing:

Existing Land Use is summarized in the table below. This represents the conditions of the site in the existing condition with the gravel roads and adjacent neighborhood site development. The existing drainage was divided into 4 basins as described below:

E1 – This includes the area generally between the existing gravel road and Forest Road 422, south of Iron Draw. Runoff is generally tributary to the roadside ditch along the west side of the gravel road.

E2 – This includes the area east of the gravel road up to the property line, and south of Iron Draw. This includes gravel drives as developed by the adjacent residents to the east. Runoff is generally tributary to the east property line. There is not a defined drainageway and runoff sheet flows to the east.

E3 – This includes the Iron Draw drainage area, both north and south of the creek. Runoff is tributary to Iron Draw and the creek.

E4 – This includes the undeveloped land north of Iron Draw and the gravel driveway to the neighbor's lot. Runoff is generally tributary to the east property line. There is not a defined drainageway and runoff sheet flows to the east.

See Appendix 3 – DR01 -Drainage Map Existing for an illustration of the existing site.

Existing Land Use

ID	Area (sf)	Area (ac)	Native Veg. (sf)	Building (sf)	Gravel (sf)	Pavement (sf)	Deck (sf)	% IMP	CN
E1	30,826	0.71	26,026	-	4,800	-	-	7.9%	57.8
E2	20,953	0.48	13,627	60	7,266	-	-	15.5%	64.2
E3	22,821	0.52	22,913	-	500	-	-	2.9%	43.4
E4	206,282	4.74	197,813	-	8,469	-	-	3.6%	46.1
TOTAL	**280,882**	**6.45**	**260,379**	**60**	**21,035**	-	-	**4.9%**	**48.5**

Existing hydrologic calculations are summarized in the table below. The SCS-TR55 method was used, detailed calcs are included in the Appendix. Autodesk Storm and Sanitary Analysis Software was used to calculate hydrology in the existing and proposed condition.

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Durango, CO 81301

EXISTING CONDITIONS					PEAK FLOW, Q (cfs)		
BASIN	DP	AREA	% IMP	CN	2 YR	10 YR	100 YR
E1	E1	0.71	7.9%	57.80	0.05	0.42	1.39
E2	E2	0.48	15.5%	64.20	0.22	0.64	1.45
E3	E3	0.52	2.9%	43.40	0.00	0.00	0.35
E4	E4	4.74	3.6%	46.10	0.00	0.02	4.05
TOTAL		***6.45***	***4.9%***	***48.51***	***0.27***	***1.08***	***7.24***

Proposed:

Proposed Land Use is summarized in the table below. This represents the conditions when fully developed with the subdivision infrastructure and residences. It was assumed that each residential lot would include a 2,000-sf building site (footprint), a paved driveway, and a deck. Infrastructure construction generally includes the gravel road and driveway, drainage, and utility improvements. The proposed drainage was divided into 7 basins as described below:

P1 – This includes the area between the gravel road and Forest Road 422 and south of Iron Draw, which is Lot 1. Runoff is tributary to the roadside ditch along the west side of the gravel road.

P2 – This includes the area east of the new gravel road up to the property line, and south of Iron Draw. This includes gravel drives as developed by the adjacent residents to the east. Runoff is generally tributary to the east property line. There is not a defined drainageway and runoff sheet flows to the east.

P3 – This includes the Iron Draw drainage area and new gravel road and box culvert improvements. Runoff is tributary to Iron Draw and the creek.

P4 – This includes the area north of Iron Draw and east of the gravel driveway, which is generally lot 2. Runoff is tributary to the east property line and is sheet flow, there is no defined drainage within this basin.

P5 – This includes the area north of Iron Draw, west of the gravel driveway, and east of the existing trail. This includes Lots 3, 4, and 5. Runoff is tributary to the roadside ditch along the west side of the gravel driveway along Lots 3, 4, and 5. A culvert will collect and discharge runoff under the driveway to the east.

P6 – This basin includes the gravel driveway through the neighbor's property and runoff sheet flows to the west.

P7 – This basin generally includes Lot 7 and runoff is tributary to the east property line and is sheet flow, there is no defined drainage within this basin.

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Durango, CO 81301

See Appendix 4 – DR02 -Drainage Map Proposed for an illustration of the proposed site.

Proposed Land Use

ID	Area (sf)	Area (ac)	Native Veg. (sf)	Building (sf)	Gravel (sf)	Pavement (sf)	Deck (sf)	% IMP	CN
P1	32,114	0.74	21,899	2,000	8,015	200	200	18.3%	59.96
P2	19,695	0.45	11,695	-	8,000	-	-	17.4%	59.4
P3	22,821	0.52	20,639	-	2,182	-	-	5.6%	44.8
P4	53,013	1.22	46,583	2,000	4,230	200	200	9.1%	49.7
P5	76,213	1.75	67,013	6,000	2,600	600	600	11.9%	50.2
P6	11,448	0.26	7,533	-	3,915	-	-	15.0%	57.5
P7	65,542	1.50	63,142	2,000	200	200	200	5.4%	46.3
TOTAL	**280,846**	**6.45**	**238,504**	**12,000**	**29,142**	**1,200**	**1,200**	**10.6%**	**50.8**

Imperviousness for each type of land use was developed from the table below.

%IMP	*Native Veg*	*Building*	*Gravel*	*Pavement*	*Deck*
	2%	*100%*	*40.0%*	*100.0%*	*10.0%*

Proposed hydrologic calculations are summarized in the table below. The SCS-TR55 method was used, detailed hydrologic calcs are included in the Appendix. Autodesk Storm and Sanitary Analysis Software was used to calculate hydrology in the existing and proposed condition. See Appendix 4 – Drainage Map Proposed for an illustration of the proposed site.

PROPOSED CONDITIONS					PEAK FLOW, Q (cfs)		
BASIN	DP	AREA	% IMP	CN	2 YR	10 YR	100 YR
P1	P1	0.74	18.3%	59.96	0.11	0.54	1.70
P2	P2	0.45	17.4%	59.40	0.07	0.38	1.09
P3	P3	0.52	5.6%	44.84	0.00	0.00	0.44
P4	P4	1.22	9.1%	49.71	0.00	0.12	1.41
P5	P5	1.75	11.9%	50.15	0.00	0.21	2.11
P6	P6	0.26	15.0%	57.50	0.03	0.21	0.65
P7	P7	1.50	5.4%	46.25	0.00	0.007	1.06
TOTAL		***6.45***	***10.6%***	***50.80***	***0.21***	***1.47***	***8.46***

In the proposed condition site runoff is increased slightly from the existing condition for the 10-yr and 100-yr storms, while runoff from the 2-yr event is relatively unchanged. The majority of the runoff from the project will sheet flow to the east directly to the Dolores River corridor.

Drainage Improvements:

Proposed drainage improvements include the following items:

- Roadside Ditch along the west side of the gravel road and driveway, both north and south of Iron Draw.

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Durango, CO 81301

- Roadside Ditch along the west side of Forest Road 422.
- The native material supports borrow ditch construction without rip rap in grades less than 10% upon site inspection. Additional rip rap shall not be required where road grades are less than 10%.
- Construct Iron Draw Culvert with rip rap inlet and outlet protection where the gravel road crosses the Iron Draw drainage. This includes channel grading improvements to convey runoff from the Iron Draw drainage to the Culvert. The proposed channel grade is 4:1 which is consistent with the native conditions of the stable Iron Draw stream through the project.
- 18" Dia. culverts with inlet and outlet protection beneath the road at the low points at the north end of the driveway.

The calculated increase in runoff from the existing condition to the proposed condition is minimal, and due to limited to no impact to adjacent properties and the proximity to the Dolores River floodplain, stormwater detention is not proposed.

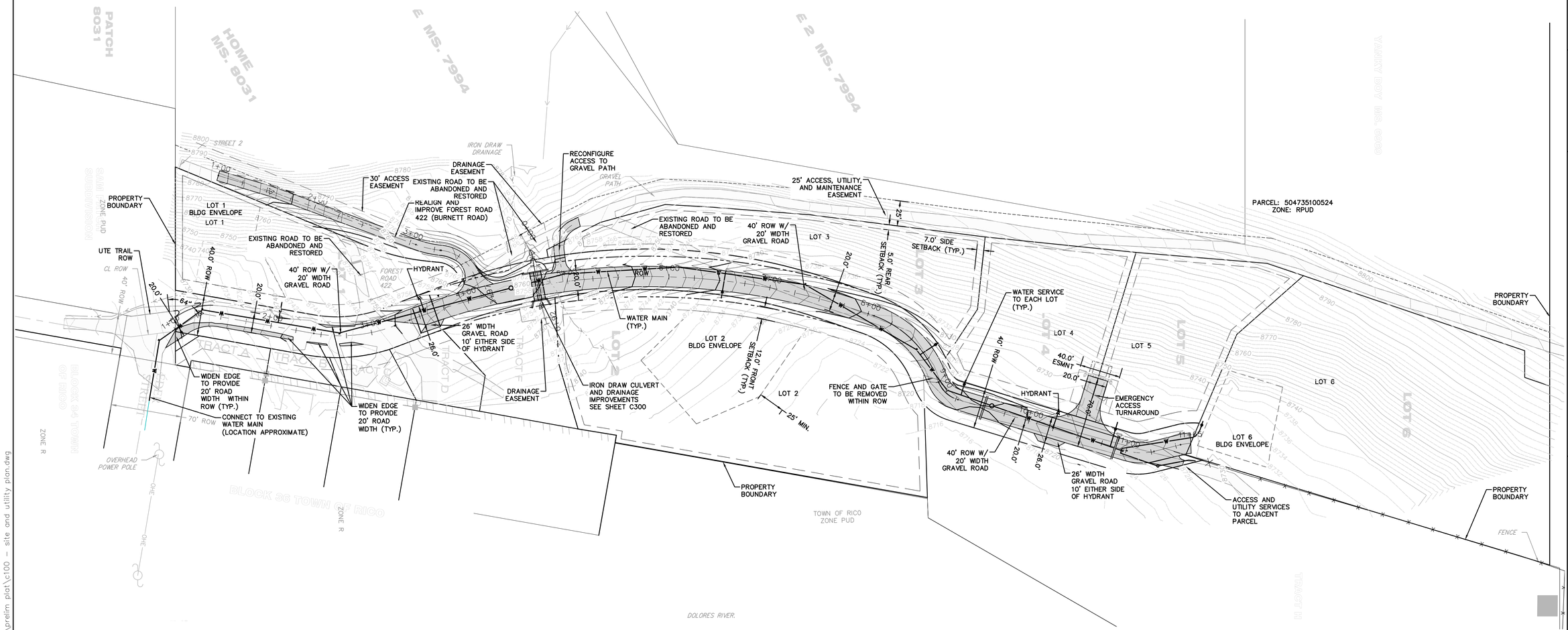
The site generally provides for water quality measure by routing runoff through unpaved and landscaped areas prior to discharge to the Dolores River.

MOUNTAIN CIVIL CONSULTING

712 Eagle Pass
Durango, CO 81301

Appendix:

1. C100 – Site Plan
2. C200 – Grading, Drainage, and Erosion Control Plan
3. DR01 – Drainage Map Existing
4. DR02 – Drainage Map Proposed
5. Atlas 14 Rainfall Data - Rico
6. Hydrologic Calcs – SCS Tr-55 –Existing, and Proposed
7. Iron Draw hydrologic calculations
8. Hydraulic Calcs – Roadside Ditch, Culverts, Iron Draw Channel
9. NRCS Soil Report
10. FEMA Floodplain Map



NOTES:

1. THE PARCEL IS ZONED RPUD. ALL IMPROVEMENTS SHALL MEET TOWN OF RICO LAND USE CODE.

272. Residential Planned Unit Development Design Regulations

Design Regulations	Requirements
Lot Size	22,000 sq.ft.
Front Set Back	12 feet
Side Set Back	7 feet
Rear Set Back	5 feet
Building Height	30 feet
Maximum Floor Area	Maximum Floor Area = 4,500 sq.ft.
Off-Street Parking	Two vehicle spaces per dwelling unit

2. EXISTING CONDITION SURVEY INFORMATION PROVIDED BY ALL POINTS LAND SURVEY LLC. SEE PRELIMINARY PLAT FOR LOT DIMENSIONS AND ADDITIONAL INFORMATION.
3. AVALANCHE AND GEOLOGIC HAZARD INFORMATION SHOWN WAS INTERPOLATED FROM TOWN OF RICO MAPS.
4. WETLANDS ARE SHOWN PER AQUATIC RESOURCES DELINEATION MAP BY SME DATED 5/7/21.
5. OFF STREET PARKING SHALL BE PROVIDED WITHIN EACH LOT.
6. WATER SERVICE SHALL BE EXTENDED TO PROVIDE SERVICE FROM THE TOWN OF RICO WATER SYSTEM. WATER TAPS FOR EACH LOT SHALL BE OBTAINED WITH BUILDING PERMIT SUBMITTAL AND ARE SHOWN FOR REFERENCE ONLY.
7. ONSITE WASTEWATER SYSTEM DESIGN AND CONSTRUCTION IS THE RESPONSIBILITY OF EACH LOT AND ONSITE WASTEWATER DESIGN APPROVAL SHALL BE COMPLETED AS REQUIRED BY TOWN OF RICO, DOLORES COUNTY HEALTH DEPT., AND THE STATE OF COLORADO.
8. FRANCHISE UTILITY DESIGN AND INSTALLATION (ELECTRIC, GAS, TELECOM) SHALL BE PROVIDED BY UTILITY OWNER.
9. LOTS WITHOUT DEFINED BUILDING ENVELOPE ARE DEVELOPABLE PER APPLICABLE TOWN REQUIREMENTS.

GRAPHIC SCALE
0 25 50
0 ¼ ½ ¾ 1

FOR REVIEW ONLY
NOT FOR CONSTRUCTION

Revisions: #	DATE	DESCRIPTION

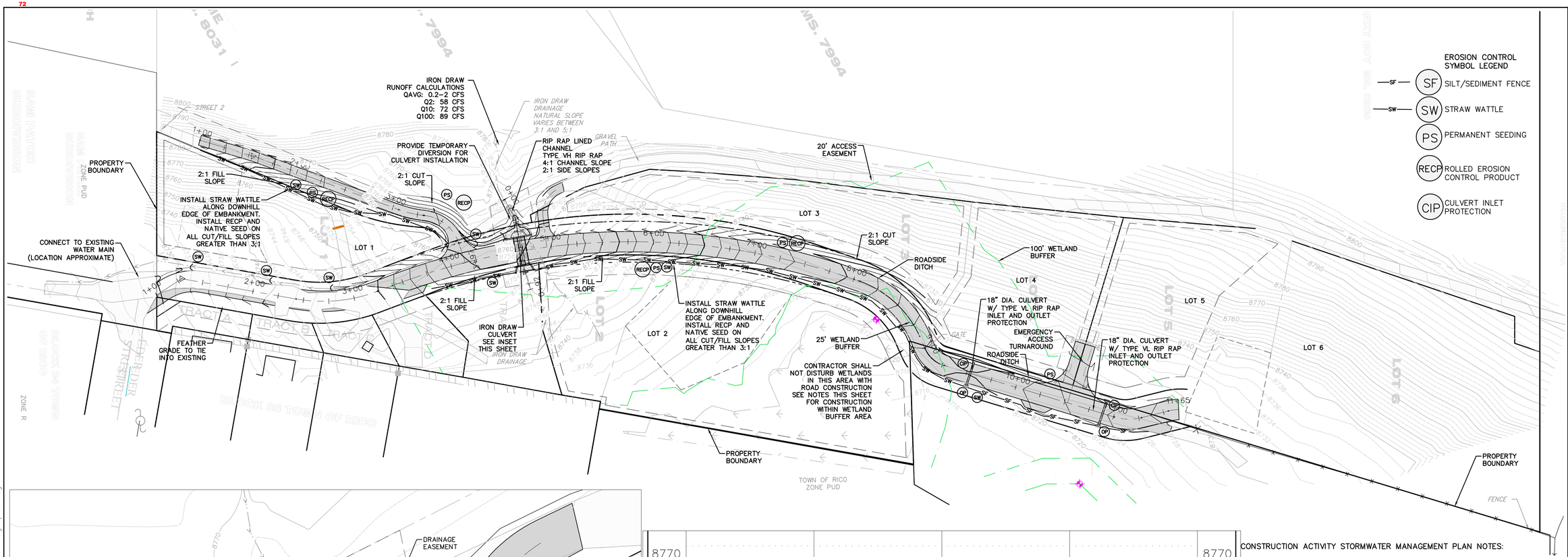
DOLORES RIVER SUBDIVISION
PRELIMINARY PLAT
SITE AND OVERALL UTILITY PLAN
TOWN OF RICO, CO

MOUNTAIN CIVIL CONSULTING
712 EAGLE PASS
DURANGO, CO 81301
970-946-3175

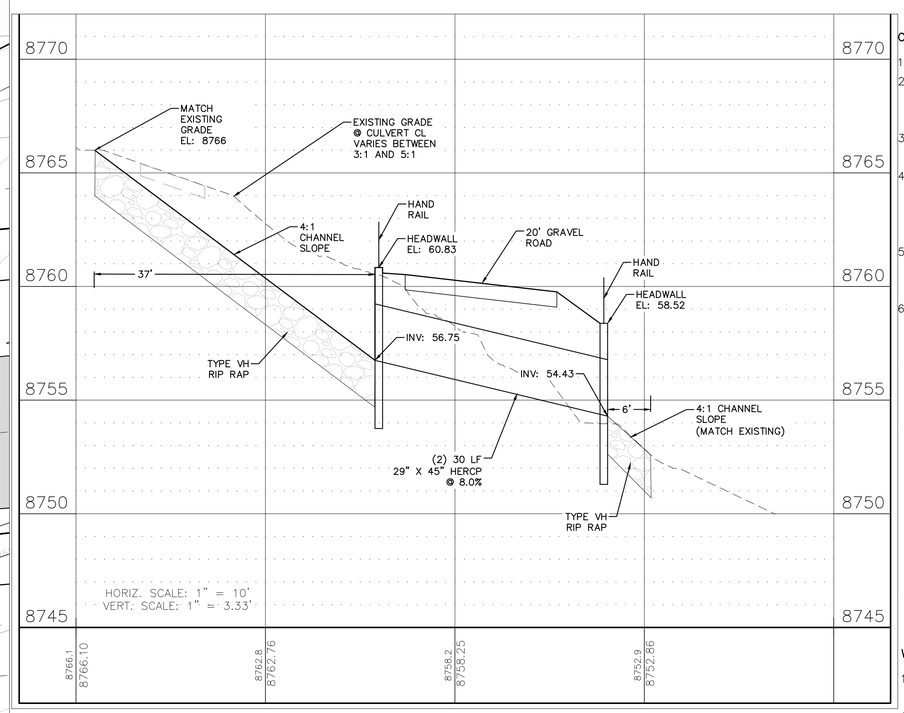
PLAN NO.
C100

Sheet 2 of 10
Project: 2021-002
Date: 11/1/22
Drawn By: ABR
Checked By: ABR

g:\my drive\mountain civil_current projects\2021-002 dolores river subdivision\cad\plansheets\prelim plat\c100 - site and utility plan.dwg



IRON DRAW CULVERT PLAN VIEW
(1" =10')



IRON DRAW CULVERT PROFILE VIEW
(1" =10')

CONSTRUCTION ACTIVITY STORMWATER MANAGEMENT PLAN NOTES:

1. TOTAL AREA OF DISTURBANCE IS 45,000 SF OR 1.031 ACRES.
2. CONTRACTOR OR OWNER SHALL OBTAIN ALL REQUIRED EXCAVATION AND CONSTRUCTION ACTIVITY STORMWATER MANAGEMENT PERMITS PRIOR TO COMPLETING WORK.
3. CONTRACTOR SHALL DEVELOP A SWMP AND SHALL ADJUST LOCATION AND SCOPE OF BMPS AS REQUIRED FOR PHASING.
4. CONTRACTOR MAY USE ADDITIONAL BMPS NOT SHOWN IN THIS PLAN TO CONTROL CONSTRUCTION ACTIVITY STORMWATER RUNOFF, SEE MILE HIGH FLOOD CONTROL DISTRICT VOLUME 3, CHAPTER 7 OR CDOT EROSION CONTROL MANUAL FOR ADDITIONAL ACCEPTABLE BMPS.
5. FUEL AND CHEMICAL STORAGE SHALL NOT BE STORED ON SITE. IF THEY ARE STORED ON SITE CONTRACTOR SHALL PROVIDE CONTAINMENT AND SPILL PREVENTION AND RESPONSE PLAN.
6. GENERAL SCOPE OF BMP INSTALLATION IS DESCRIBED BELOW:
   - 6.1. INSTALL SILT FENCE OR STRAW WATTLE ALONG DOWNHILL EDGE OF DISTURBED AREAS.
   - 6.2. PROVIDE GOOD HOUSEKEEPING PRACTICES DURING CONSTRUCTION INCLUDING PORTABLE TOILET FACILITIES AND TRASH/WASTE COLLECTION FACILITY.
   - 6.3. PROVIDE STREET SWEEPING OR HAND CLEANING IF SEDIMENT IS TRACKED INTO PAVED ST.
   - 6.4. PROVIDE CONSTRUCTION WATER TO LIMIT DUST DURING OVERLOT GRADING OPERATIONS.
   - 6.5. DISTURBED AREAS NOT RECEIVING FINAL SITE OR LANDSCAPE IMPROVEMENTS SHALL REQUIRE PERMANENT SEEDING AND MULCHING. ALL SEED SHALL BE CERTIFIED WEED FREE.
   - 6.13. INSTALL ROLLED EROSION BLANKET AND SEED/MULCH ON ALL SLOPES 3:1 OR GREATER.
   - 6.14. REMOVE BMPS UPON FINAL SITE IMPROVEMENT INSTALLATION AND 70% VEGETATION OF SITE FROM LANDSCAPE AND SEEDING.

WETLAND BUFFER CONSTRUCTION PLAN NOTES:

1. GRADING WITHIN THE WETLAND BUFFER AREA SHALL BE LIMITED TO ROAD AND UTILITY CONSTRUCTION.
2. ALL AREAS OUTSIDE OF PROPOSED ROAD SURFACE SHALL BE REVEGETATED WITH NATIVE SEED. USE WESTERN SEED HIGH ALTITUDE MEADOW MIX OR APPROVED EQUAL FOR REVEGETATION IN BUFFER ZONES.
3. THE WETLAND AREA SHALL BE DELINEATED PRIOR TO CONSTRUCTION WITH FLAGGING BY THE SURVEYOR. CONTRACTOR SHALL INSTALL SEDIMENT LOGS OR STRAW WATTLES ALONG OUTSIDE EDGE OF PROPOSED GRADING AND UTILITY WORK, DISTURBANCE SHALL NOT ENCROACH BEYOND THIS LOCATION.

FOR REVIEW ONLY
NOT FOR
CONSTRUCTION

Revisions:

#	DESCRIPTION	DATE

DOLORES RIVER SUBDIVISION
PRELIMINARY PLAT
GRADING AND DRAINAGE PLAN
TOWN OF RICO, CO

MOUNTAIN CIVIL CONSULTING
712 EAGLE PASS
DURANGO, CO 81301
970-946-3175

PLAN NO.
C300

Sheet 6 of 10
Project: 2021-002
Date: 11/1/22
Drawn By: ABR
Checked By: ABR

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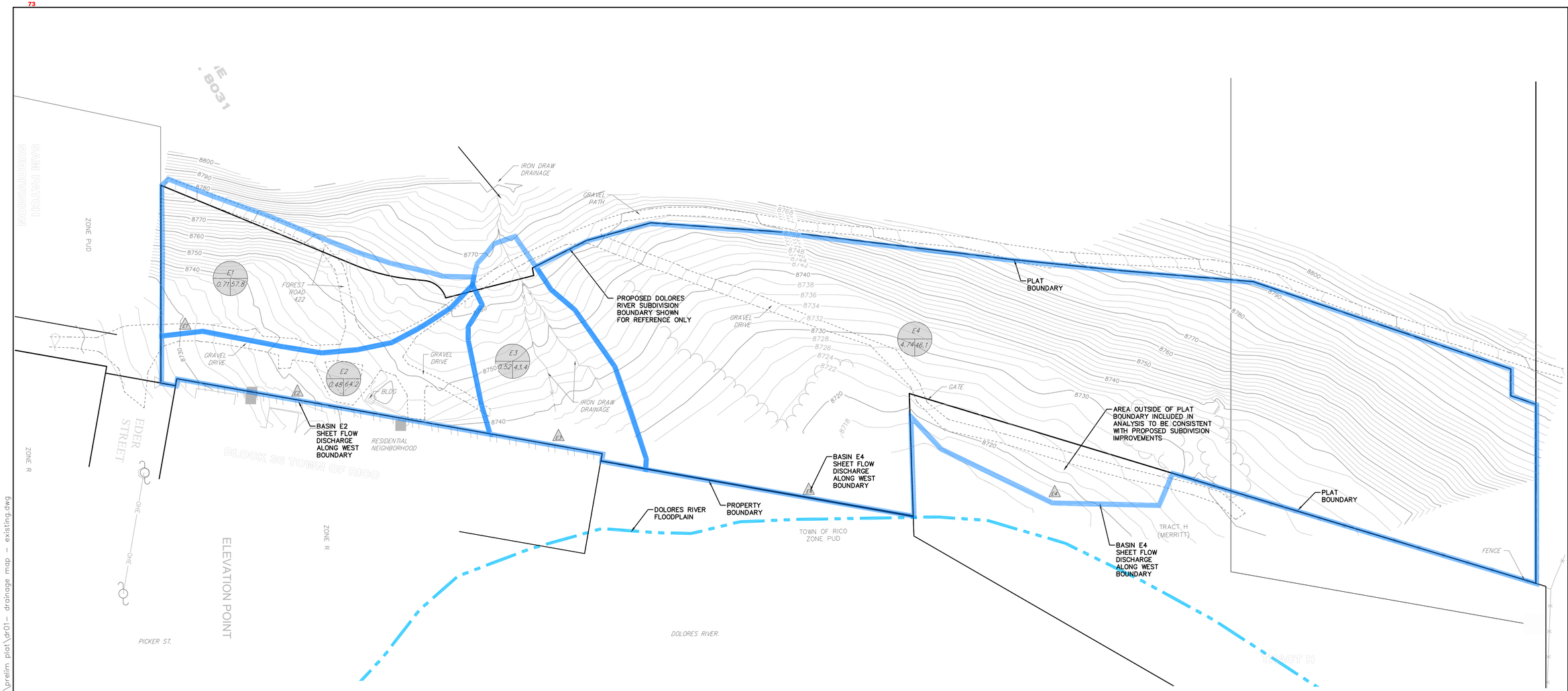
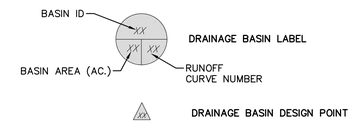


Existing Land Use

ID	Area (sf)	Area (ac)	Native Veg. (sf)	Building (sf)	Gravel (sf)	Pavement (sf)	Deck (sf)	% IMP	CN
E1	30,826	0.71	26,026	-	4,800	-	-	7.9%	57.8
E2	20,953	0.48	13,627	60	7,266	-	-	15.5%	64.2
E3	22,821	0.52	22,913	-	500	-	-	2.9%	43.4
E4	206,282	4.74	197,813	-	8,469	-	-	3.6%	46.1
TOTAL	**280,882**	**6.45**	**260,379**	**60**	**21,035**	**-**	**-**	**4.9%**	**48.5**

EXISTING CONDITIONS					PEAK FLOW, Q (cfs)		
BASIN	DP	AREA	% IMP	CN	2 YR	10 YR	100 YR
E1	E1	0.71	7.9%	57.80	0.05	0.42	1.39
E2	E2	0.48	15.5%	64.20	0.22	0.64	1.45
E3	E3	0.52	2.9%	43.40	0.00	0.00	0.35
E4	E4	4.74	3.6%	46.10	0.00	0.02	4.05
TOTAL		***6.45***	***4.9%***	***48.51***	***0.27***	***1.08***	***7.24***



GRAPHIC SCALE
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NOT FOR CONSTRUCTION

Revisions:

#	DATE	DESCRIPTION

DOLORES RIVER SUBDIVISION
PRELIMINARY PLAT
DRAINAGE MAP - EXISTING
TOWN OF RICO, CO

MOUNTAIN CIVIL CONSULTING
712 EAGLE PASS
DURANGO, CO 81301
970-946-3175

PLAN NO.
DR01

Sheet of
Project: 2021-002
Date: 6/29/22
Drawn By: ABR
Checked By: ABR

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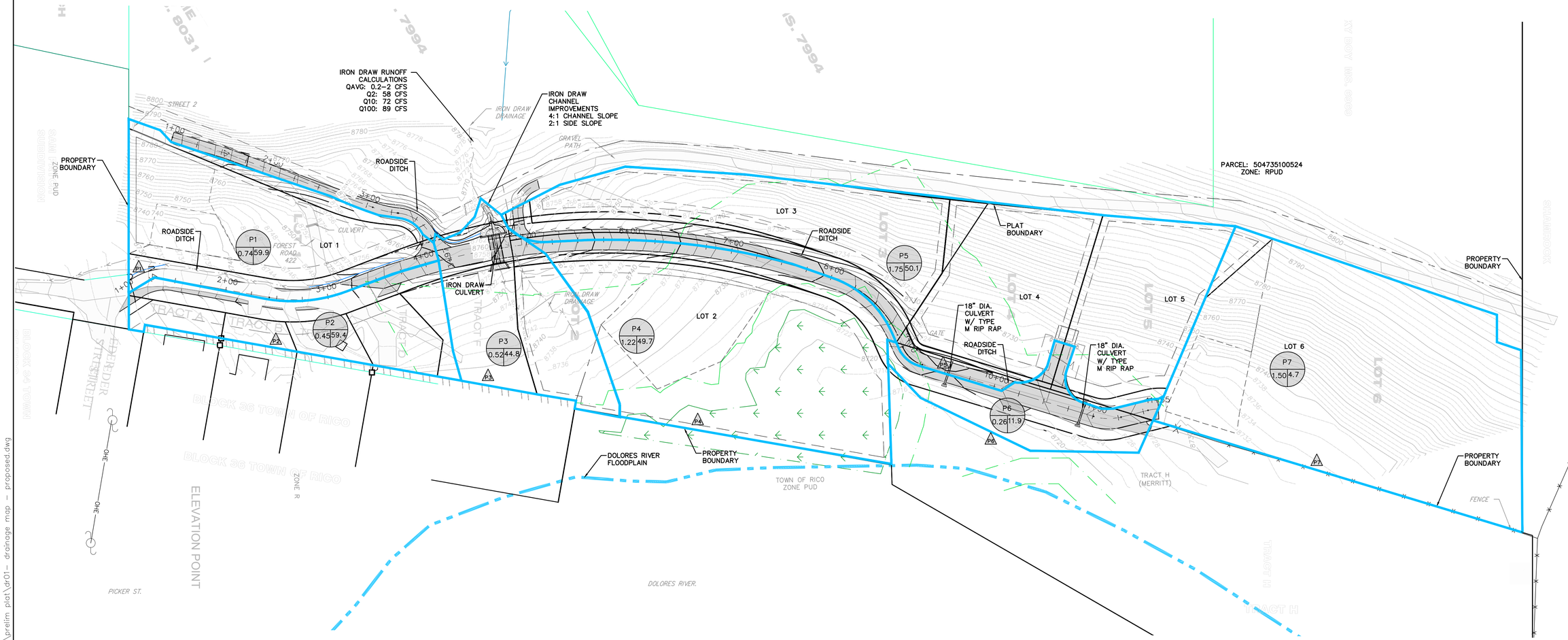
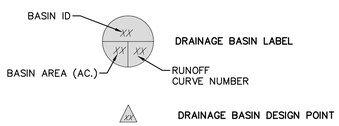


Proposed Land Use

ID	Area (sf)	Area (ac)	Native Veg. (sf)	Building (sf)	Gravel (sf)	Pavement (sf)	Deck (sf)	% IMP	CN
P1	32,114	0.74	21,899	2,000	8,015	200	200	18.3%	59.96
P2	19,695	0.45	11,695	-	8,000	-	-	17.4%	59.4
P3	22,821	0.52	20,639	-	2,182	-	-	5.6%	44.8
P4	53,013	1.22	46,583	2,000	4,230	200	200	9.1%	49.7
P5	76,213	1.75	67,013	6,000	2,600	600	600	11.9%	50.2
P6	11,448	0.26	7,533	-	3,915	-	-	15.0%	57.5
P7	65,542	1.50	63,142	2,000	200	200	200	5.4%	46.3
TOTAL	**280,846**	**6.45**	**238,504**	**12,000**	**29,142**	**1,200**	**1,200**	**10.6%**	**50.8**

PROPOSED CONDITIONS					PEAK FLOW, Q (cfs)		
BASIN	DP	AREA	% IMP	CN	2 YR	10 YR	100 YR
P1	P1	0.74	18.3%	59.96	0.11	0.54	1.70
P2	P2	0.45	17.4%	59.40	0.07	0.38	1.09
P3	P3	0.52	5.6%	44.84	0.00	0.00	0.44
P4	P4	1.22	9.1%	49.71	0.00	0.12	1.41
P5	P5	1.75	11.9%	50.15	0.00	0.21	2.11
P6	P6	0.26	15.0%	57.50	0.03	0.21	0.65
P7	P7	1.50	5.4%	46.25	0.00	0.007	1.06
TOTAL		***6.45***	***10.6%***	***50.80***	***0.21***	***1.47***	***8.46***



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FOR REVIEW ONLY
NOT FOR CONSTRUCTION

Revisions: #	DATE	DESCRIPTION

DOLORES RIVER SUBDIVISION
PRELIMINARY PLAT
DRAINAGE MAP - PROPOSED
TOWN OF RICO, CO

MOUNTAIN CIVIL CONSULTING
712 EAGLE PASS
DURANGO, CO 81301
970-946-3175

PLAN NO.

DR02

Sheet of
Project: 2021-002
Date: 6/30/22
Drawn By: ABR
Checked By: ABR

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NOAA Atlas 14, Volume 8, Version 2 RICO
Station ID: 05-7017
Location name: Cahone, Colorado, USA*
Latitude: 37.7055°, Longitude: -108.0319°
Elevation:
Elevation (station metadata): 8800 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.193 (0.155-0.248)	0.222 (0.178-0.286)	0.285 (0.228-0.368)	0.352 (0.280-0.457)	0.467 (0.367-0.652)	0.572 (0.434-0.799)	0.693 (0.503-0.986)	0.831 (0.574-1.21)	1.04 (0.684-1.54)	1.21 (0.767-1.79)
10-min	0.282 (0.227-0.364)	0.325 (0.261-0.419)	0.417 (0.334-0.539)	0.516 (0.410-0.669)	0.683 (0.538-0.955)	0.838 (0.635-1.17)	1.01 (0.737-1.44)	1.22 (0.841-1.77)	1.52 (1.00-2.25)	1.77 (1.12-2.62)
15-min	0.344 (0.277-0.444)	0.396 (0.318-0.511)	0.509 (0.407-0.658)	0.629 (0.500-0.816)	0.833 (0.656-1.16)	1.02 (0.774-1.43)	1.24 (0.898-1.76)	1.48 (1.03-2.15)	1.85 (1.22-2.75)	2.16 (1.37-3.19)
30-min	0.458 (0.369-0.591)	0.520 (0.418-0.670)	0.660 (0.528-0.853)	0.814 (0.648-1.06)	1.08 (0.855-1.52)	1.33 (1.01-1.87)	1.62 (1.18-2.32)	1.96 (1.35-2.85)	2.46 (1.62-3.65)	2.88 (1.83-4.25)
60-min	0.562 (0.452-0.725)	0.634 (0.509-0.817)	0.796 (0.637-1.03)	0.974 (0.775-1.26)	1.28 (1.01-1.80)	1.57 (1.19-2.20)	1.90 (1.38-2.71)	2.28 (1.58-3.32)	2.86 (1.89-4.24)	3.34 (2.12-4.93)
2-hr	0.666 (0.543-0.846)	0.748 (0.608-0.950)	0.932 (0.755-1.19)	1.13 (0.913-1.45)	1.48 (1.18-2.04)	1.81 (1.39-2.49)	2.18 (1.61-3.06)	2.61 (1.83-3.74)	3.26 (2.18-4.75)	3.80 (2.44-5.52)
3-hr	0.741 (0.608-0.933)	0.830 (0.680-1.05)	1.02 (0.837-1.30)	1.23 (1.00-1.56)	1.59 (1.27-2.15)	1.91 (1.48-2.60)	2.29 (1.69-3.17)	2.71 (1.91-3.84)	3.35 (2.25-4.83)	3.89 (2.51-5.59)
6-hr	0.935 (0.777-1.16)	1.04 (0.865-1.30)	1.26 (1.04-1.57)	1.49 (1.22-1.86)	1.85 (1.50-2.45)	2.18 (1.70-2.90)	2.56 (1.91-3.47)	2.98 (2.12-4.13)	3.60 (2.45-5.10)	4.12 (2.70-5.83)
12-hr	1.23 (1.04-1.51)	1.37 (1.15-1.68)	1.63 (1.37-2.00)	1.89 (1.57-2.32)	2.29 (1.86-2.95)	2.64 (2.08-3.43)	3.03 (2.29-4.02)	3.46 (2.49-4.70)	4.09 (2.82-5.68)	4.61 (3.06-6.42)
24-hr	1.58 (1.35-1.90)	1.77 (1.51-2.13)	2.11 (1.79-2.55)	2.42 (2.04-2.93)	2.89 (2.36-3.64)	3.28 (2.61-4.17)	3.70 (2.83-4.81)	4.16 (3.03-5.52)	4.80 (3.35-6.53)	5.33 (3.59-7.30)
2-day	1.96 (1.69-2.32)	2.22 (1.91-2.63)	2.66 (2.29-3.16)	3.05 (2.60-3.64)	3.61 (2.97-4.44)	4.05 (3.25-5.04)	4.52 (3.49-5.74)	5.01 (3.69-6.51)	5.68 (4.01-7.57)	6.21 (4.25-8.36)
3-day	2.25 (1.95-2.64)	2.53 (2.20-2.98)	3.02 (2.62-3.56)	3.44 (2.96-4.07)	4.05 (3.36-4.93)	4.53 (3.66-5.58)	5.03 (3.91-6.32)	5.55 (4.12-7.14)	6.26 (4.46-8.26)	6.82 (4.71-9.10)
4-day	2.49 (2.18-2.90)	2.80 (2.44-3.27)	3.32 (2.89-3.89)	3.78 (3.27-4.43)	4.42 (3.69-5.35)	4.94 (4.02-6.04)	5.47 (4.28-6.83)	6.03 (4.50-7.70)	6.79 (4.86-8.88)	7.39 (5.13-9.78)
7-day	3.05 (2.70-3.51)	3.44 (3.03-3.96)	4.08 (3.59-4.71)	4.63 (4.04-5.36)	5.40 (4.56-6.43)	6.01 (4.95-7.25)	6.64 (5.26-8.17)	7.30 (5.51-9.19)	8.18 (5.92-10.5)	8.87 (6.23-11.6)
10-day	3.53 (3.14-4.03)	3.95 (3.52-4.52)	4.67 (4.13-5.34)	5.27 (4.64-6.05)	6.12 (5.20-7.22)	6.79 (5.62-8.11)	7.47 (5.96-9.11)	8.18 (6.23-10.2)	9.14 (6.67-11.7)	9.89 (7.00-12.8)
20-day	4.87 (4.40-5.47)	5.35 (4.82-6.01)	6.14 (5.51-6.91)	6.81 (6.08-7.70)	7.76 (6.69-9.00)	8.51 (7.15-9.98)	9.27 (7.50-11.1)	10.1 (7.77-12.3)	11.1 (8.24-14.0)	12.0 (8.59-15.2)
30-day	5.97 (5.43-6.64)	6.53 (5.94-7.27)	7.46 (6.75-8.31)	8.23 (7.40-9.21)	9.31 (8.08-10.7)	10.1 (8.59-11.8)	11.0 (8.96-13.0)	11.9 (9.24-14.4)	13.0 (9.72-16.1)	13.9 (10.1-17.5)
45-day	7.35 (6.74-8.08)	8.10 (7.42-8.92)	9.31 (8.50-10.3)	10.3 (9.35-11.4)	11.7 (10.2-13.2)	12.7 (10.8-14.5)	13.7 (11.2-16.0)	14.7 (11.5-17.6)	16.0 (12.1-19.6)	17.0 (12.4-21.2)
60-day	8.50 (7.84-9.29)	9.48 (8.74-10.4)	11.0 (10.1-12.1)	12.3 (11.2-13.5)	14.0 (12.2-15.7)	15.2 (13.0-17.3)	16.4 (13.5-19.0)	17.6 (13.9-20.8)	19.1 (14.4-23.1)	20.2 (14.8-24.9)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

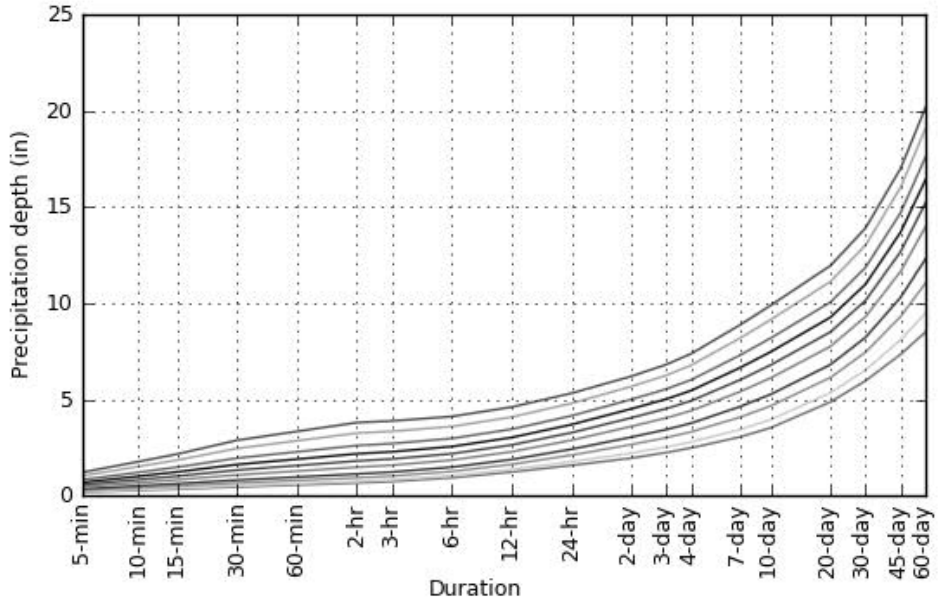
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

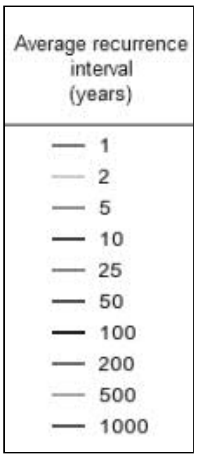
Please refer to NOAA Atlas 14 document for more information.

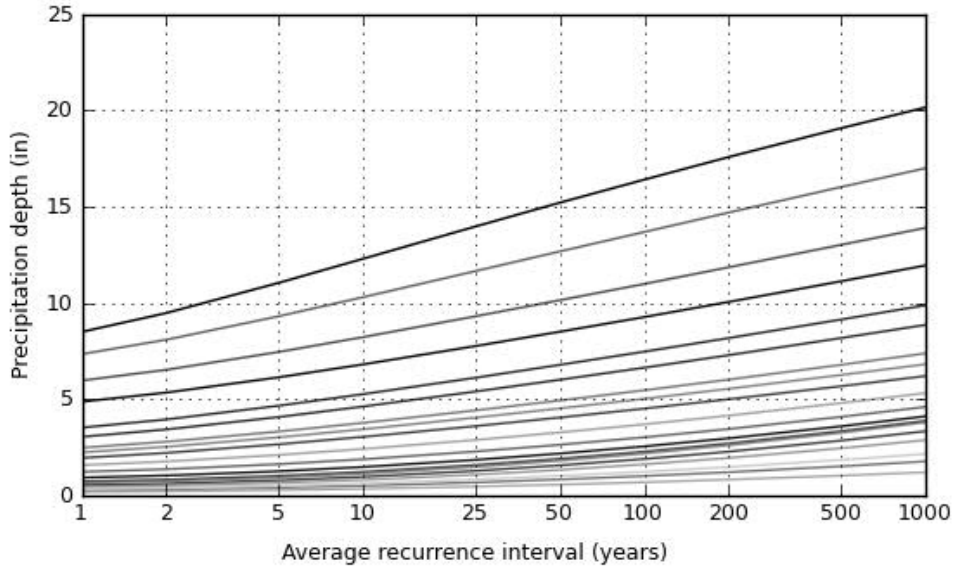
Back to Top

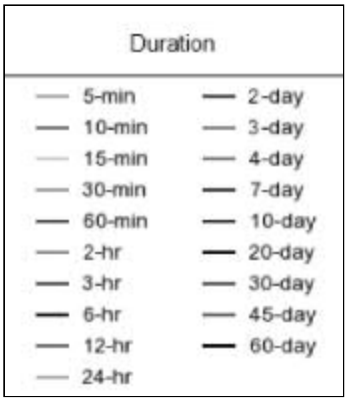
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 37.7055°, Longitude: -108.0319°









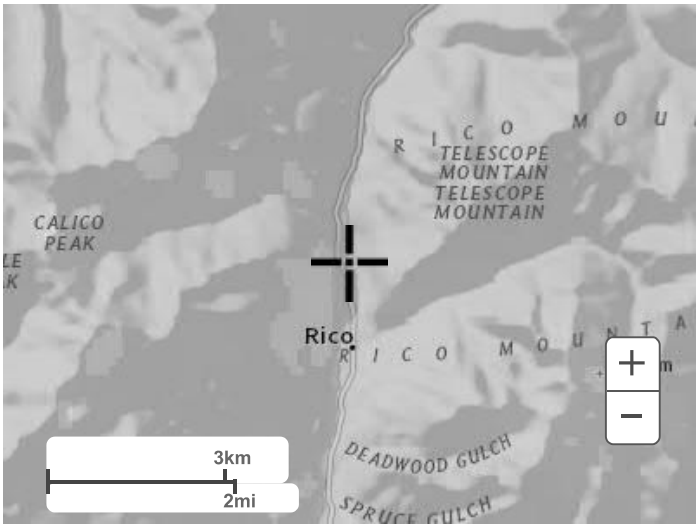
NOAA Atlas 14, Volume 8, Version 2

Created (GMT): Tue Jun 28 21:55:43 2022

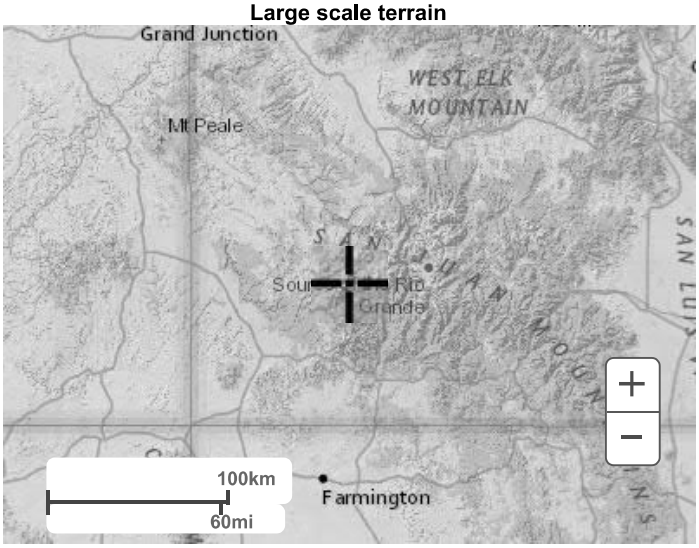
Back to Top

Maps & aerials

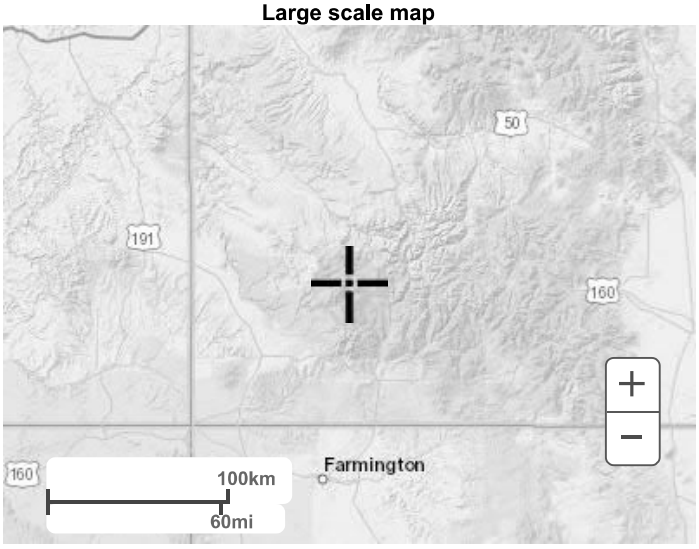
Small scale terrain



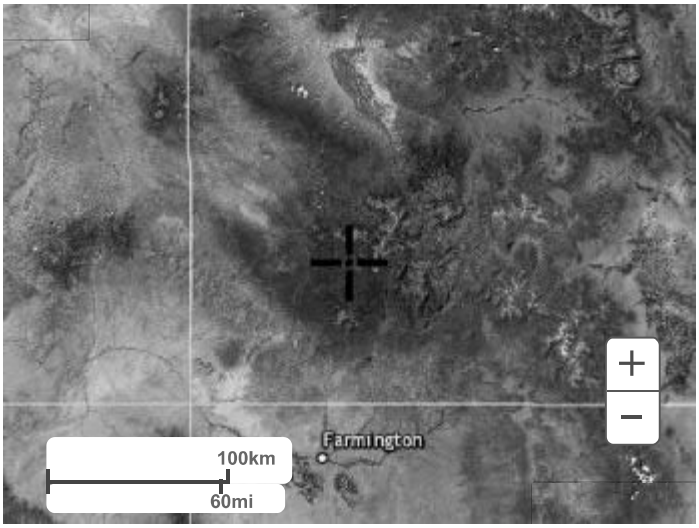
Large scale terrain



Large scale map

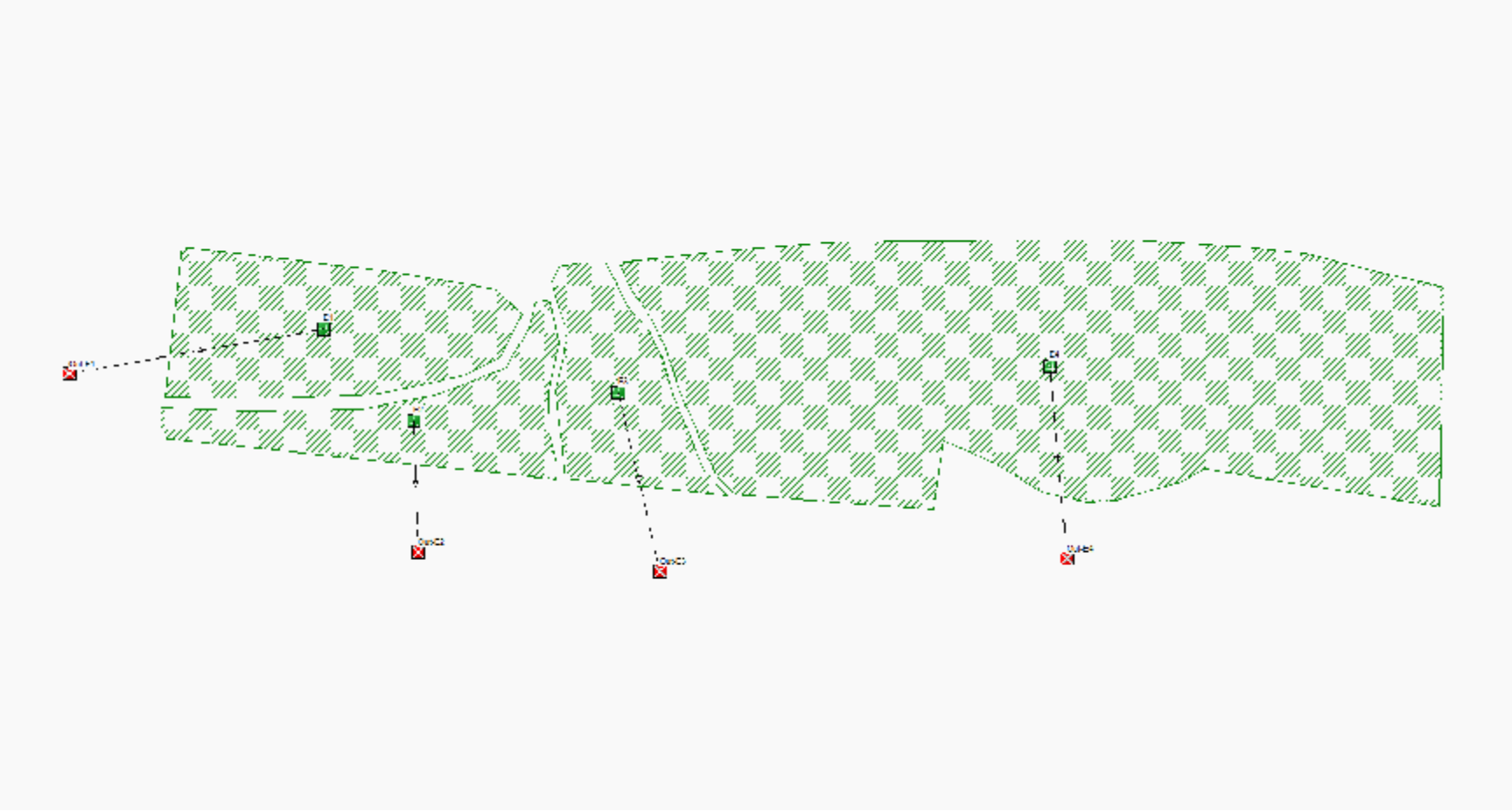


Large scale aerial



Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov



Project Description

File Name	Dolores River Subdivision - Existing.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	SCS TR-55
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Kinematic Wave
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	YES

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins	4
Nodes	4
Junctions	0
Outfalls	4
Flow Diversions	0
Inlets	0
Storage Nodes	0
Links	0
Channels	0
Pipes	0
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1	RICO	Time Series	2 YR	Cumulative	inches				0.00	

Subbasin Summary

SN	Subbasin ID	Area (ac)	Peak Rate Factor	Weighted Curve Number	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	E1	0.71	484.00	57.80	1.77	0.01	0.01	0.05	0 00:11:39
2	E2	0.48	484.00	64.20	1.77	0.07	0.03	0.22	0 00:08:56
3	E3	0.52	484.00	43.40	1.77	0.00	0.00	0.00	0 00:06:43
4	E4	4.81	484.00	46.10	1.77	0.00	0.00	0.00	0 00:09:06

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	Out-E1	Outfall	8728.00					0.00	0.00					
2	Out-E2	Outfall	8728.00					0.00	0.00					
3	Out-E3	Outfall	8730.00					0.00	0.00					
4	Out-E4	Outfall	8720.00					0.00	0.00					

Subbasin Hydrology

Subbasin : E1

Input Data

Area (ac) 0.71
Peak Rate Factor 484
Weighted Curve Number 57.8
Rain Gage ID ..... RICO

Composite Curve Number

32

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.46	C	41
Gravel roads	0.25	C	89
Composite Area & Weighted CN	0.71		57.8

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where :

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft^2)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's roughness

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.4	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	20	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.14	0	0
Computed Flow Time (min) :	11.49	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	10	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	5.1	0	0
Computed Flow Time (min) :	0.16	0	0

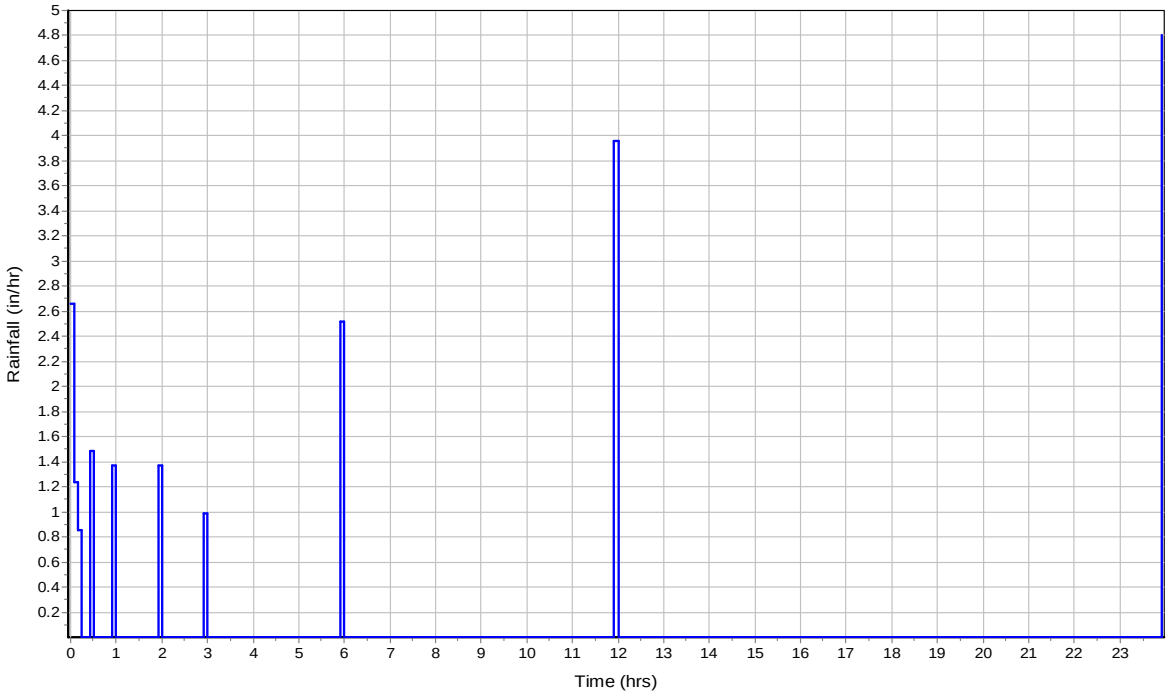
Total TOC (min) 11.66

Subbasin Runoff Results

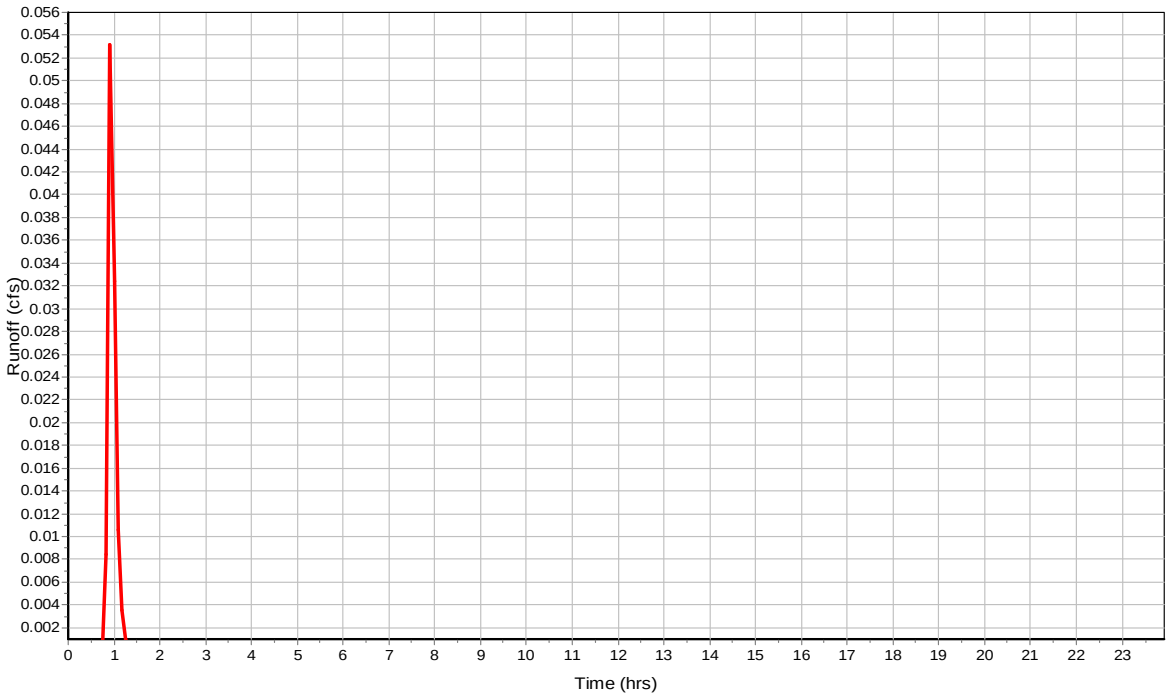
Total Rainfall (in)	1.77
Total Runoff (in)	0.01
Peak Runoff (cfs)	0.05
Weighted Curve Number	57.8
Time of Concentration (days hh:mm:ss)	0 00:11:40

Subbasin : E1

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : E2

Input Data

Area (ac) 0.48
Peak Rate Factor 484
Weighted Curve Number 64.2
Rain Gage ID ..... RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.14	C	41
Gravel roads	0.14	C	89
Sagebrush range, Fair	0.19	C	63
Composite Area & Weighted CN	0.47		64.2

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.4	0	0
Flow Length (ft) :	50	0	0
Slope (%) :	10	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	8.71	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	5	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	3.61	0	0
Computed Flow Time (min) :	0.23	0	0

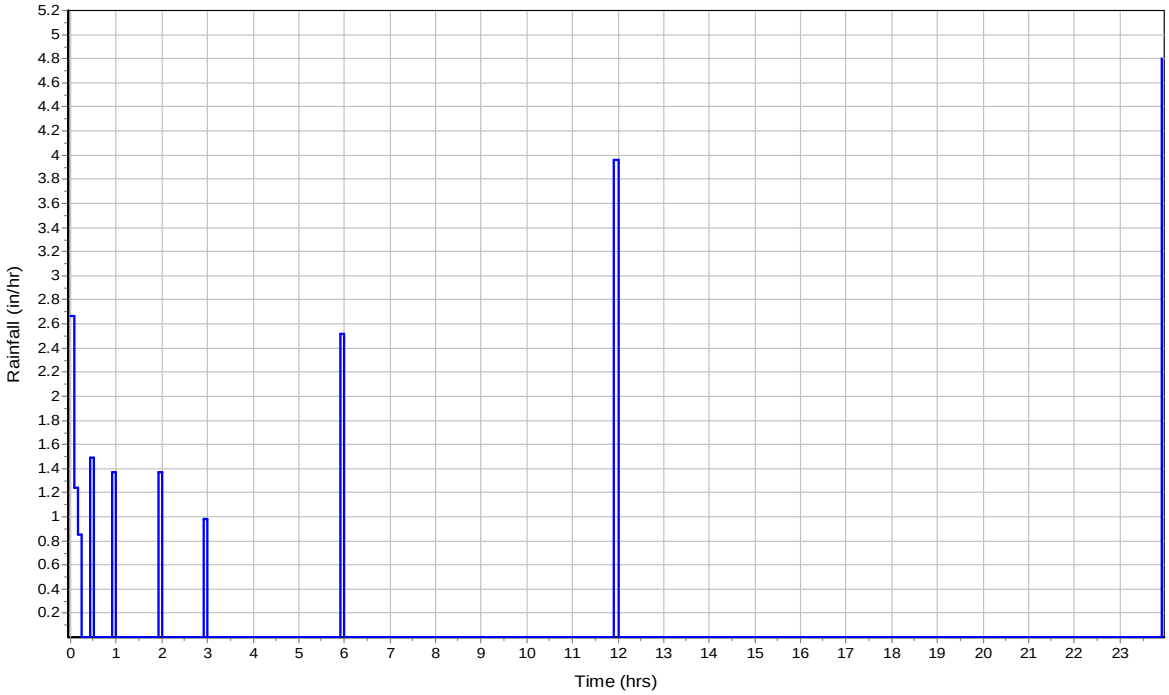
Total TOC (min) 8.94

Subbasin Runoff Results

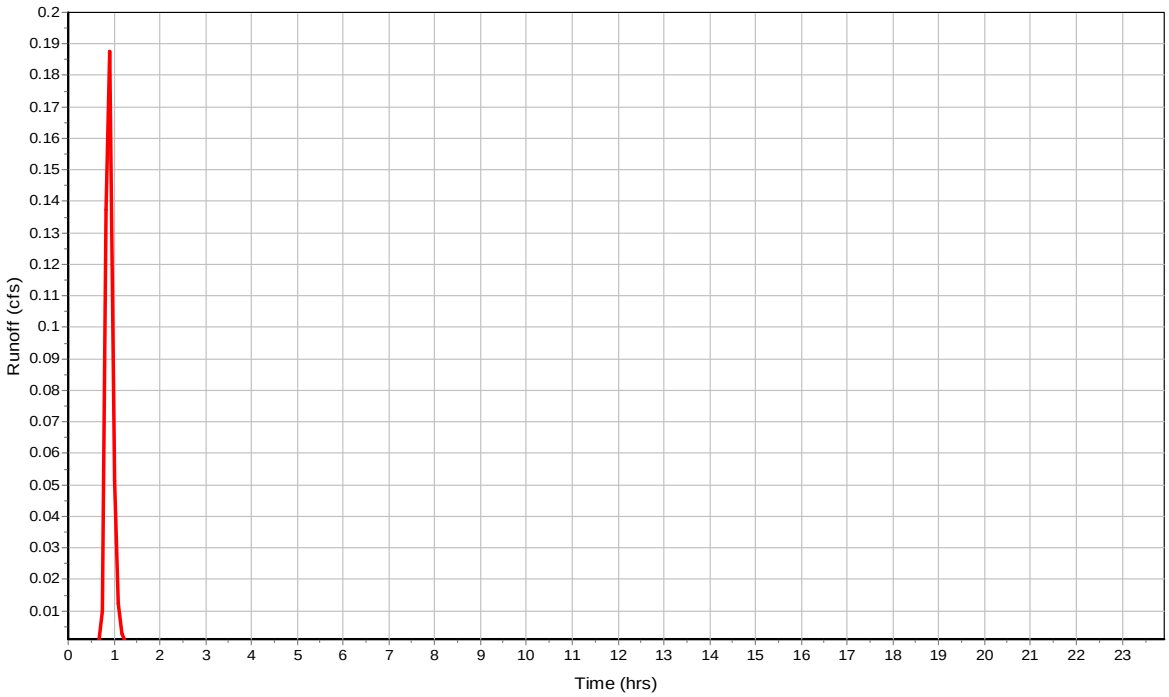
Total Rainfall (in) 1.77
Total Runoff (in) 0.07
Peak Runoff (cfs) 0.22
Weighted Curve Number 64.2
Time of Concentration (days hh:mm:ss) 0 00:08:56

Subbasin : E2

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : E3

Input Data

Area (ac) 0.52
Peak Rate Factor 484
Weighted Curve Number 43.4
Rain Gage ID ..... RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.49	C	41
Gravel roads	0.03	C	89
Composite Area & Weighted CN	0.52		43.4

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.4	0	0
Flow Length (ft) :	50	0	0
Slope (%) :	20	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.13	0	0
Computed Flow Time (min) :	6.6	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	20	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	7.22	0	0
Computed Flow Time (min) :	0.12	0	0

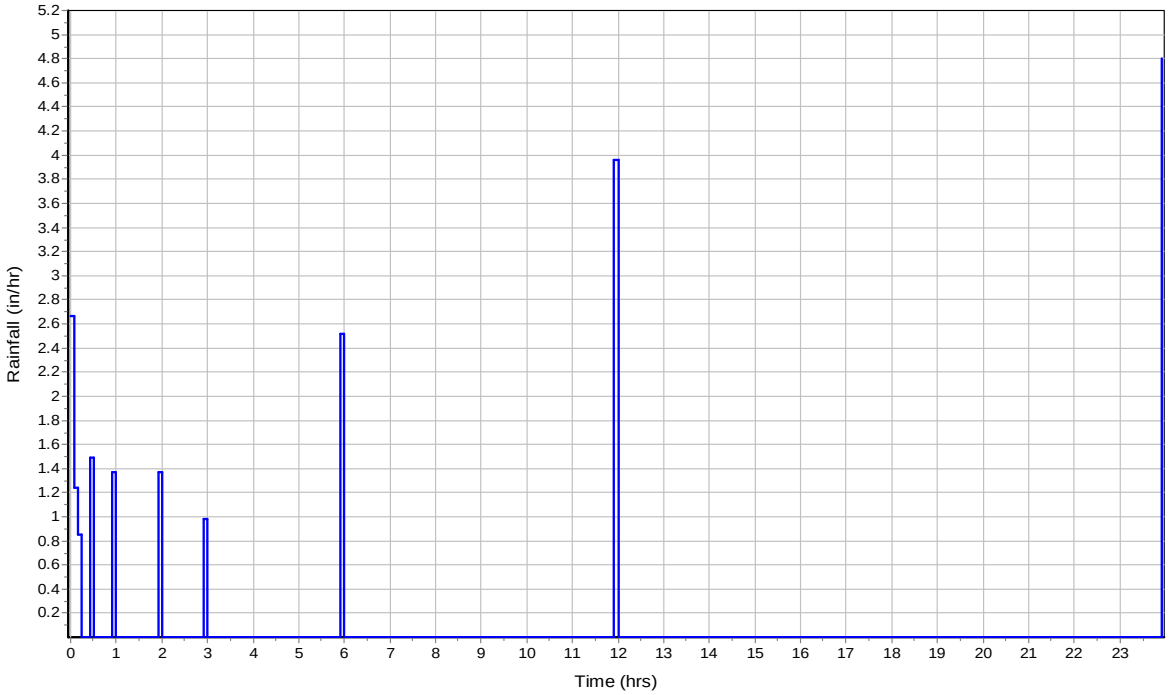
Total TOC (min) 6.72

Subbasin Runoff Results

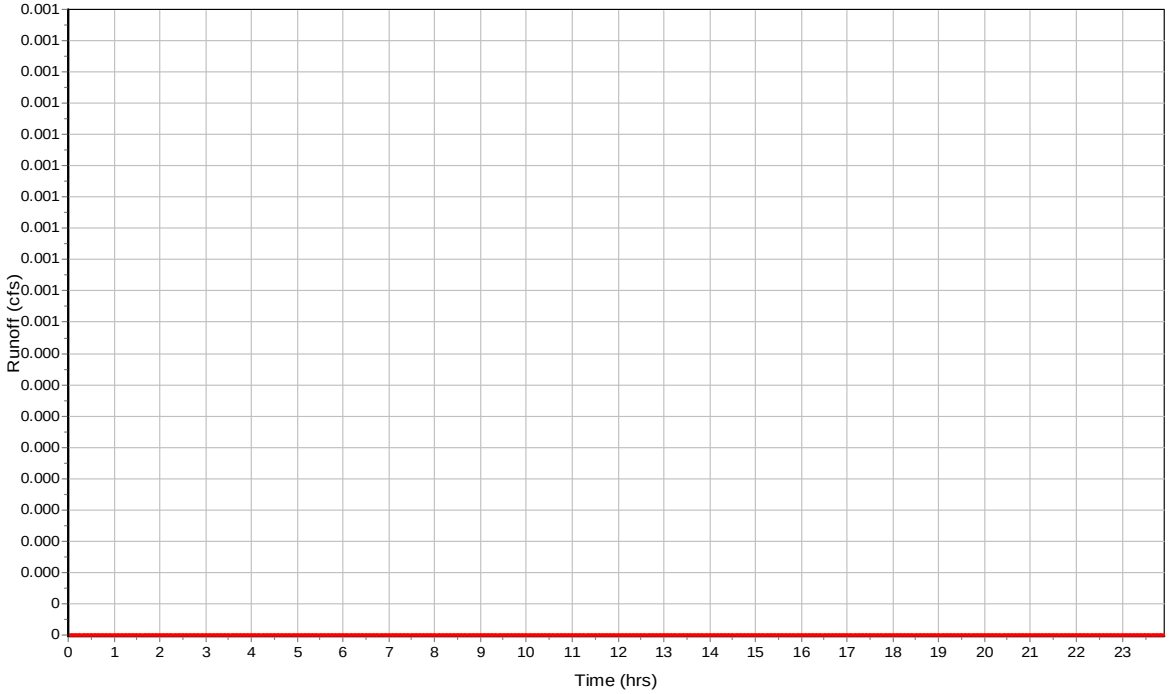
Total Rainfall (in) 1.77
Total Runoff (in) 0
Peak Runoff (cfs) 0
Weighted Curve Number 43.4
Time of Concentration (days hh:mm:ss) 0 00:06:43

Subbasin : E3

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : E4

Input Data

Area (ac) 4.81
Peak Rate Factor 484
Weighted Curve Number 46.1
Rain Gage ID ..... RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	2.41	C	41
Sagebrush range, Good	2.16	C	47
Gravel roads	0.24	C	89
Composite Area & Weighted CN	4.81		46.1

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.35	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	30	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.19	0	0
Computed Flow Time (min) :	8.78	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	100	0	0
Slope (%) :	10	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	5.1	0	0
Computed Flow Time (min) :	0.33	0	0

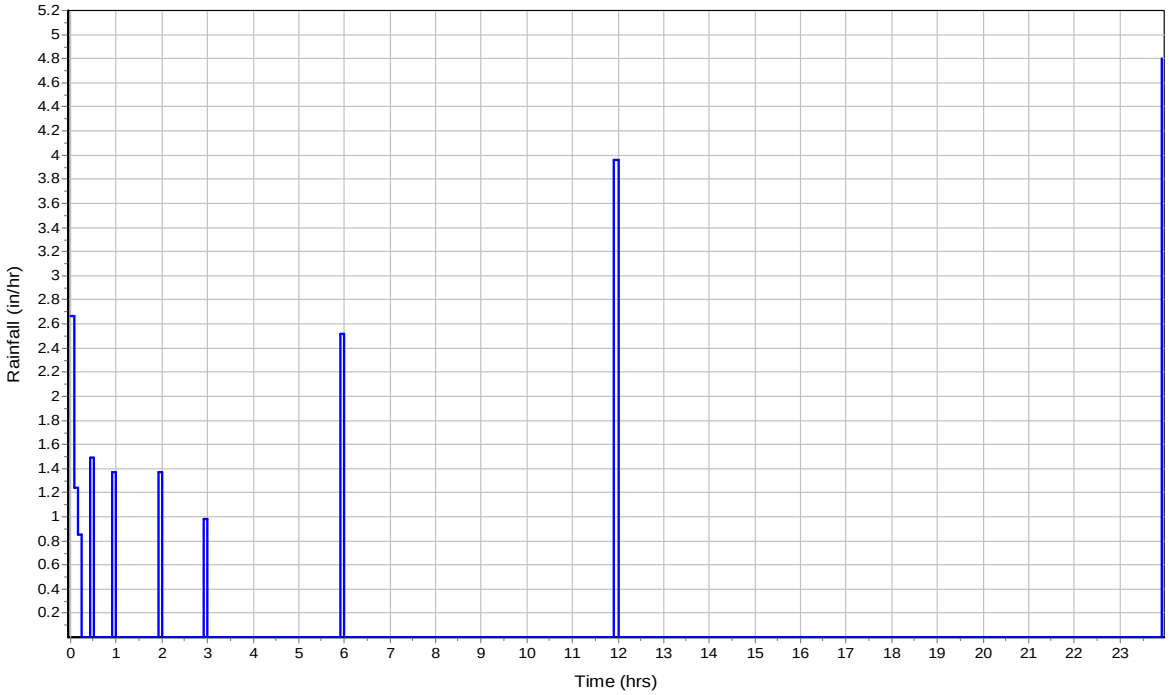
Total TOC (min) 9.11

Subbasin Runoff Results

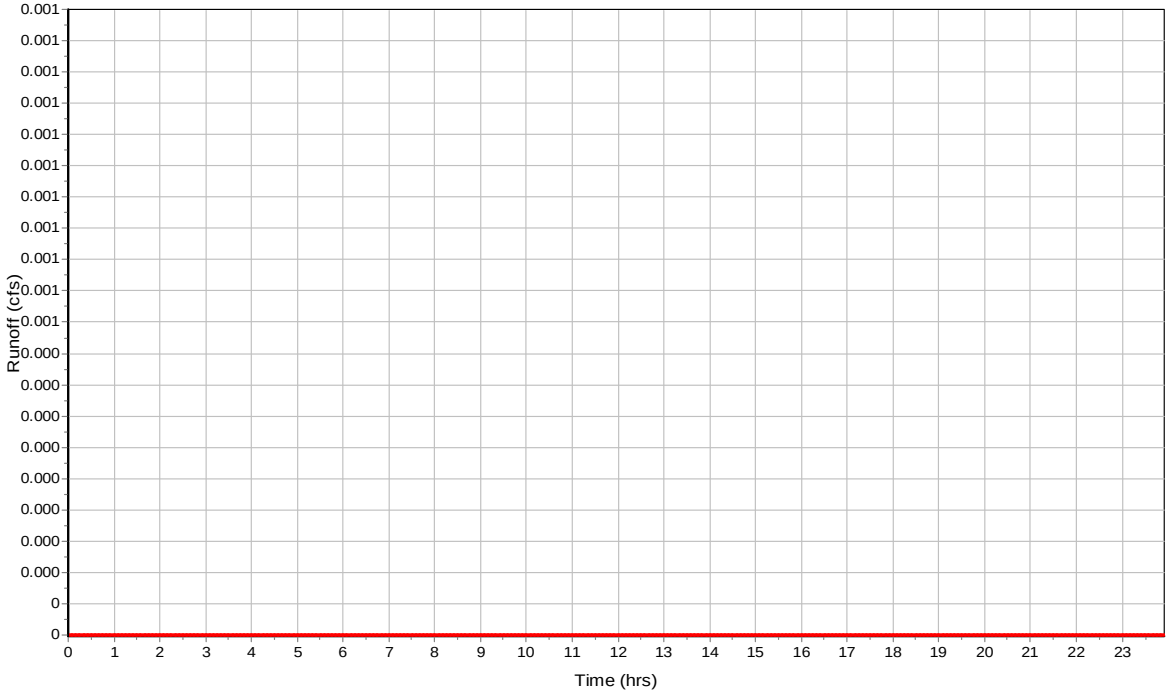
Total Rainfall (in) 1.77
Total Runoff (in) 0
Peak Runoff (cfs) 0
Weighted Curve Number 46.1
Time of Concentration (days hh:mm:ss) 0 00:09:07

Subbasin : E4

Rainfall Intensity Graph



Runoff Hydrograph



Project Description

File Name ..... Dolores River Subdivision - Existing.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	SCS TR-55
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Kinematic Wave
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	YES

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins	4
Nodes	4
Junctions	0
Outfalls	4
Flow Diversions	0
Inlets	0
Storage Nodes	0
Links	0
Channels	0
Pipes	0
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1	RICO	Time Series	10 YR	Cumulative	inches				0.00	

Subbasin Summary

SN	Subbasin ID	Area (ac)	Peak Rate Factor	Weighted Curve Number	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	E1	0.71	484.00	57.80	2.42	0.11	0.08	0.42	0 00:11:39
2	E2	0.48	484.00	64.20	2.42	0.25	0.12	0.64	0 00:08:56
3	E3	0.52	484.00	43.40	2.42	0.00	0.00	0.00	0 00:06:43
4	E4	4.81	484.00	46.10	2.42	0.00	0.00	0.02	0 00:09:06

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	Out-E1	Outfall	8728.00					0.00	0.00					
2	Out-E2	Outfall	8728.00					0.00	0.00					
3	Out-E3	Outfall	8730.00					0.00	0.00					
4	Out-E4	Outfall	8720.00					0.00	0.00					

Subbasin Hydrology

Subbasin : E1

Input Data

Area (ac)	0.71
Peak Rate Factor	484
Weighted Curve Number	57.8
Rain Gage ID	RICO

Composite Curve Number

32

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.46	C	41
Gravel roads	0.25	C	89
Composite Area & Weighted CN	0.71		57.8

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where :

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft^2)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's roughness

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.4	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	20	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.14	0	0
Computed Flow Time (min) :	11.49	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	10	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	5.1	0	0
Computed Flow Time (min) :	0.16	0	0

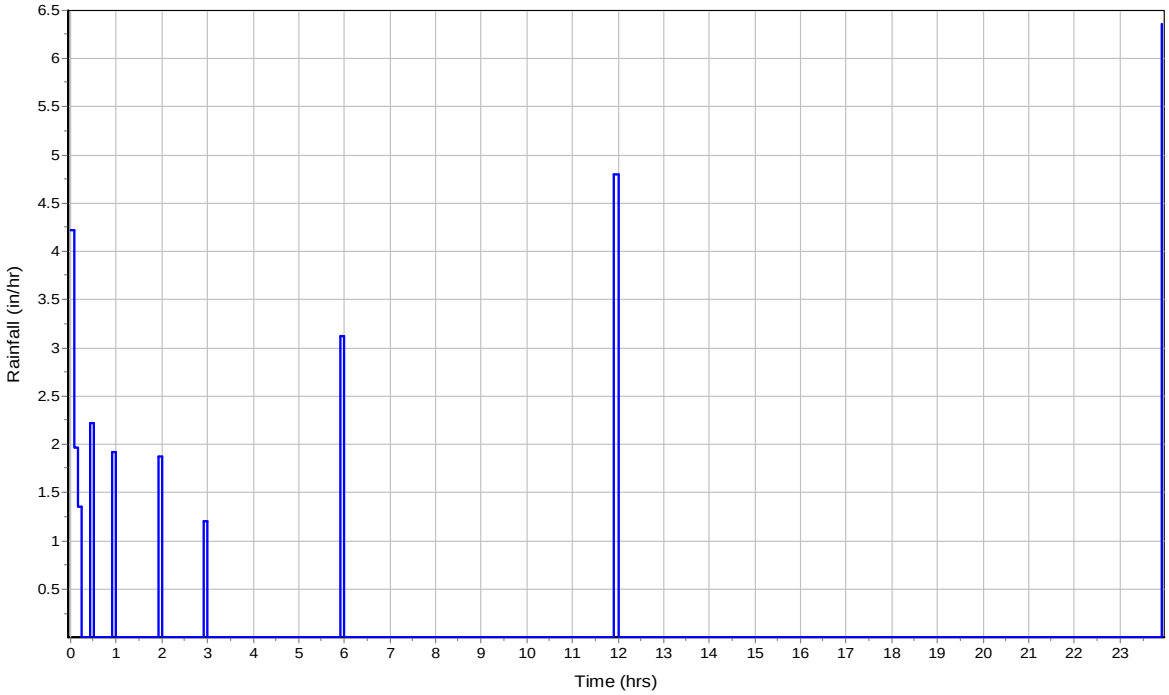
Total TOC (min) 11.66

Subbasin Runoff Results

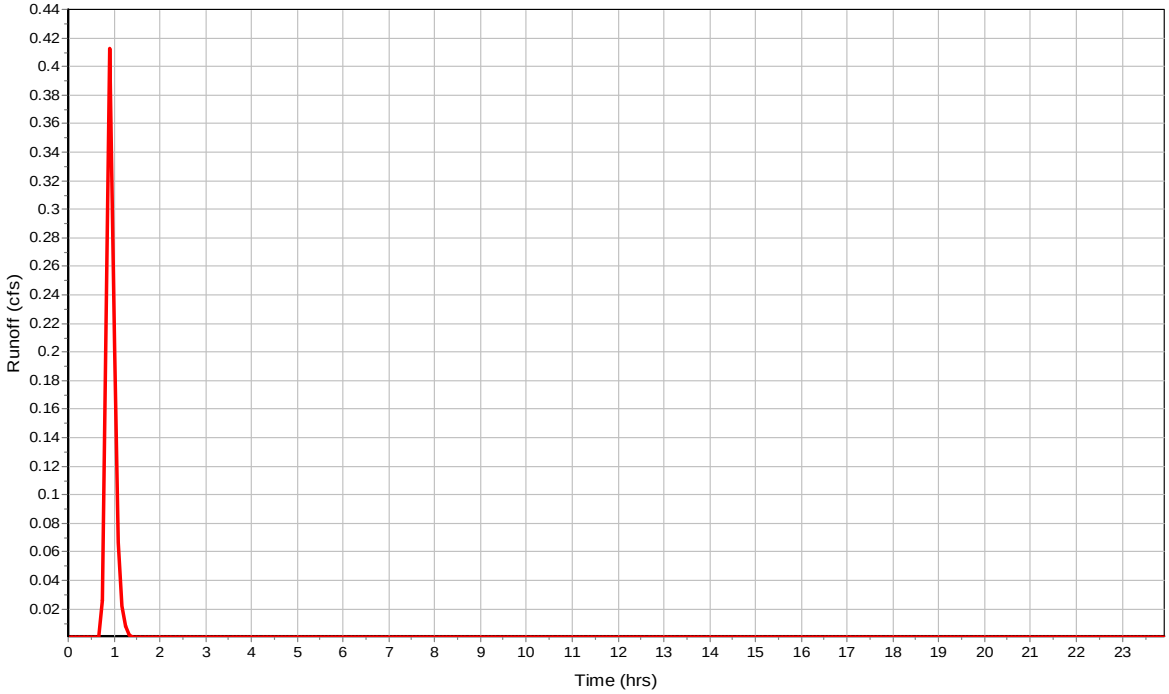
Total Rainfall (in)	2.42
Total Runoff (in)	0.11
Peak Runoff (cfs)	0.42
Weighted Curve Number	57.8
Time of Concentration (days hh:mm:ss)	0 00:11:40

Subbasin : E1

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : E2

Input Data

Area (ac) 0.48
Peak Rate Factor 484
Weighted Curve Number 64.2
Rain Gage ID ..... RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.14	C	41
Gravel roads	0.14	C	89
Sagebrush range, Fair	0.19	C	63
Composite Area & Weighted CN	0.47		64.2

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.4	0	0
Flow Length (ft) :	50	0	0
Slope (%) :	10	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	8.71	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	5	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	3.61	0	0
Computed Flow Time (min) :	0.23	0	0

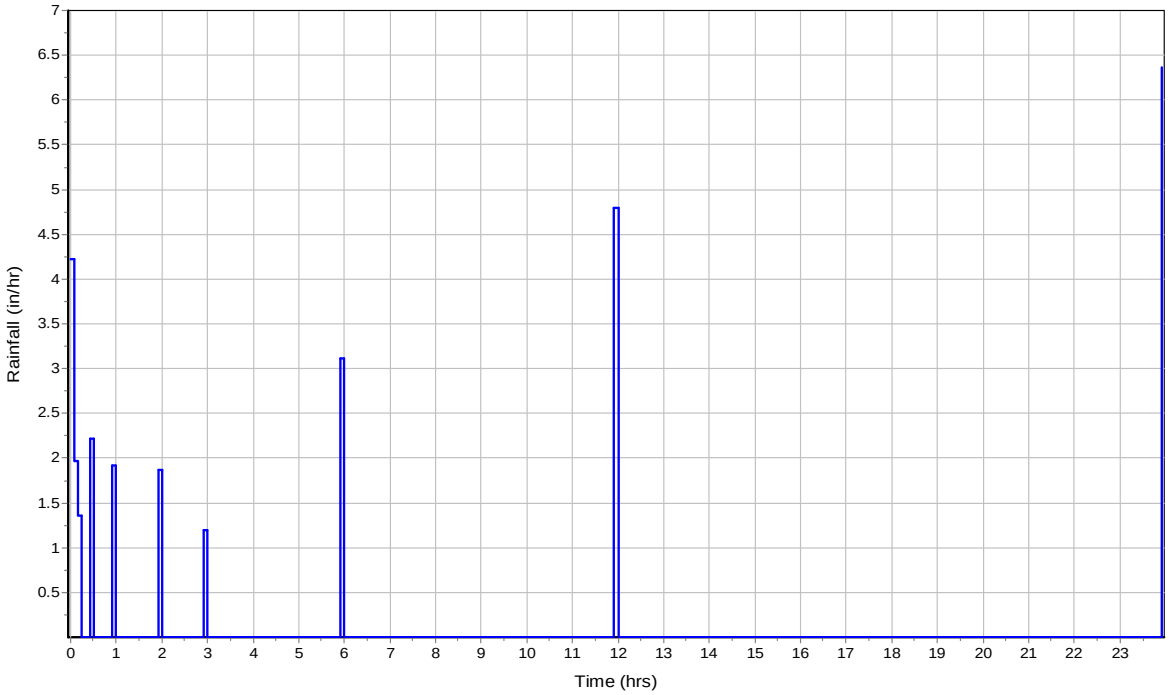
Total TOC (min) 8.94

Subbasin Runoff Results

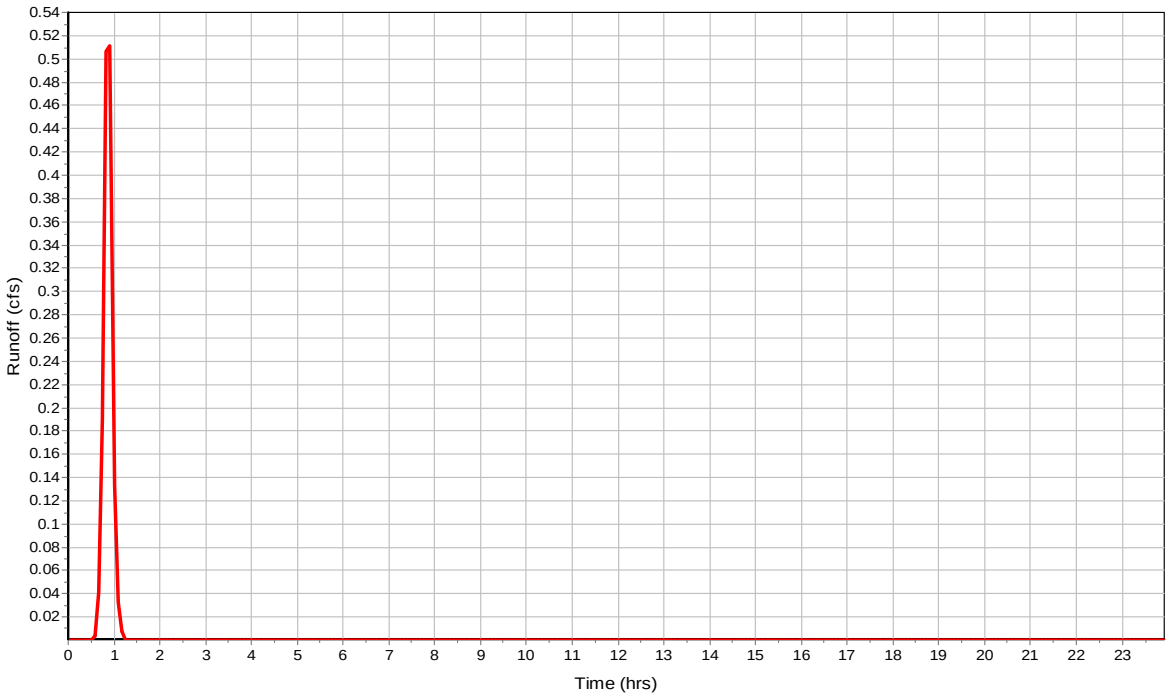
Total Rainfall (in) 2.42
Total Runoff (in) 0.25
Peak Runoff (cfs) 0.64
Weighted Curve Number 64.2
Time of Concentration (days hh:mm:ss) 0 00:08:56

Subbasin : E2

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : E3

Input Data

Area (ac)	0.52
Peak Rate Factor	484
Weighted Curve Number	43.4
Rain Gage ID	RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.49	C	41
Gravel roads	0.03	C	89
Composite Area & Weighted CN	0.52		43.4

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.4	0	0
Flow Length (ft) :	50	0	0
Slope (%) :	20	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.13	0	0
Computed Flow Time (min) :	6.6	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	20	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	7.22	0	0
Computed Flow Time (min) :	0.12	0	0

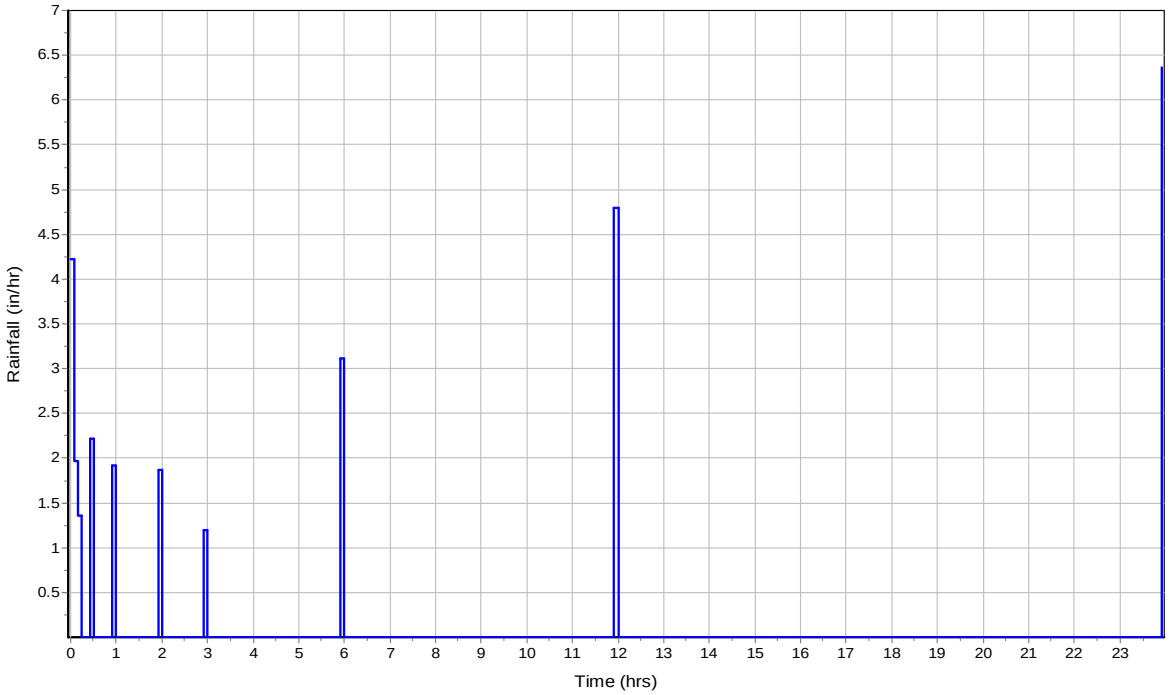
Total TOC (min) 6.72

Subbasin Runoff Results

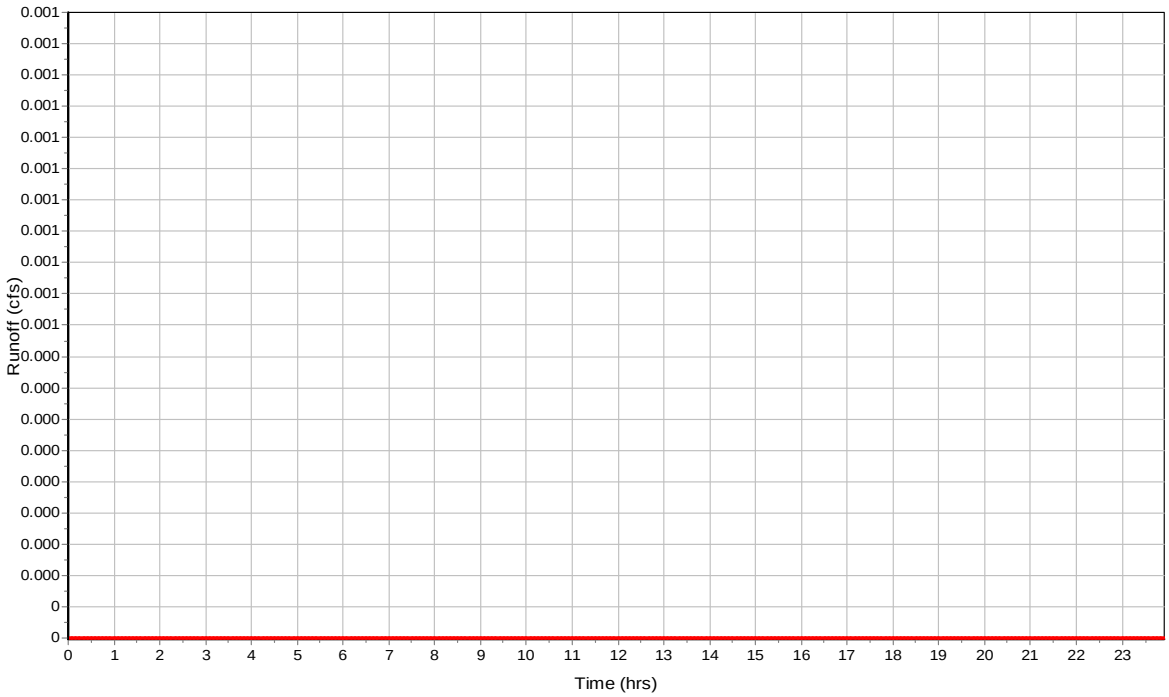
Total Rainfall (in)	2.42
Total Runoff (in)	0
Peak Runoff (cfs)	0
Weighted Curve Number	43.4
Time of Concentration (days hh:mm:ss)	0 00:06:43

Subbasin : E3

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : E4

Input Data

Area (ac)	4.81
Peak Rate Factor	484
Weighted Curve Number	46.1
Rain Gage ID	RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	2.41	C	41
Sagebrush range, Good	2.16	C	47
Gravel roads	0.24	C	89
Composite Area & Weighted CN	4.81		46.1

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.35	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	30	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.19	0	0
Computed Flow Time (min) :	8.78	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	100	0	0
Slope (%) :	10	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	5.1	0	0
Computed Flow Time (min) :	0.33	0	0

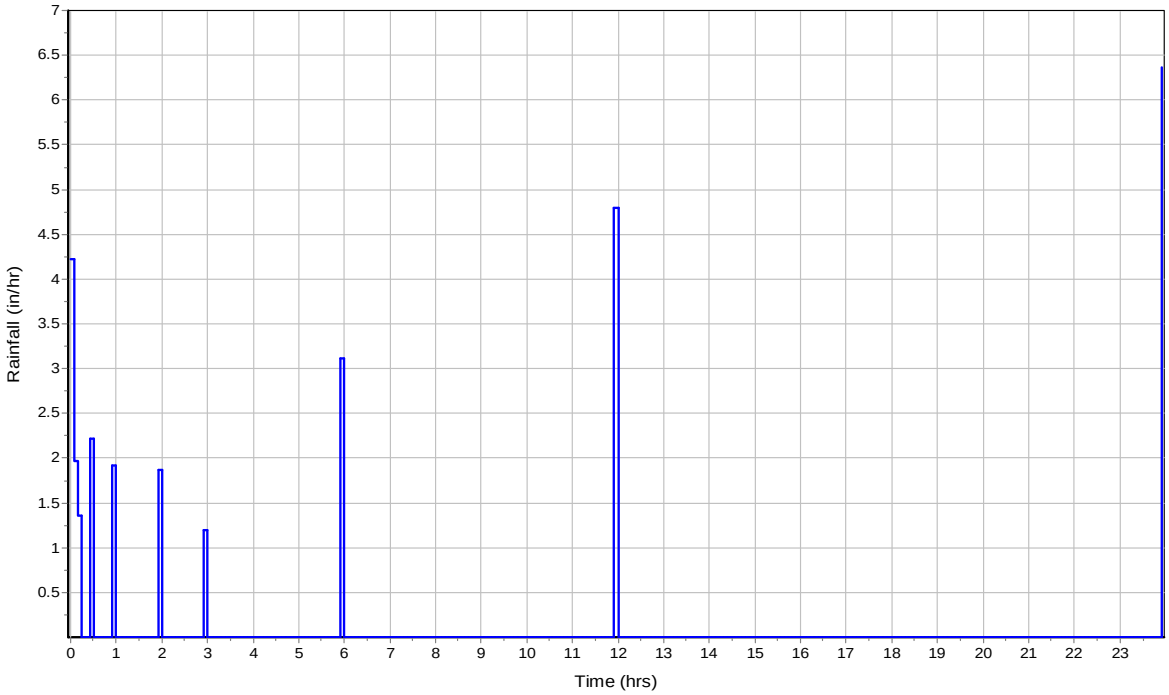
Total TOC (min) 9.11

Subbasin Runoff Results

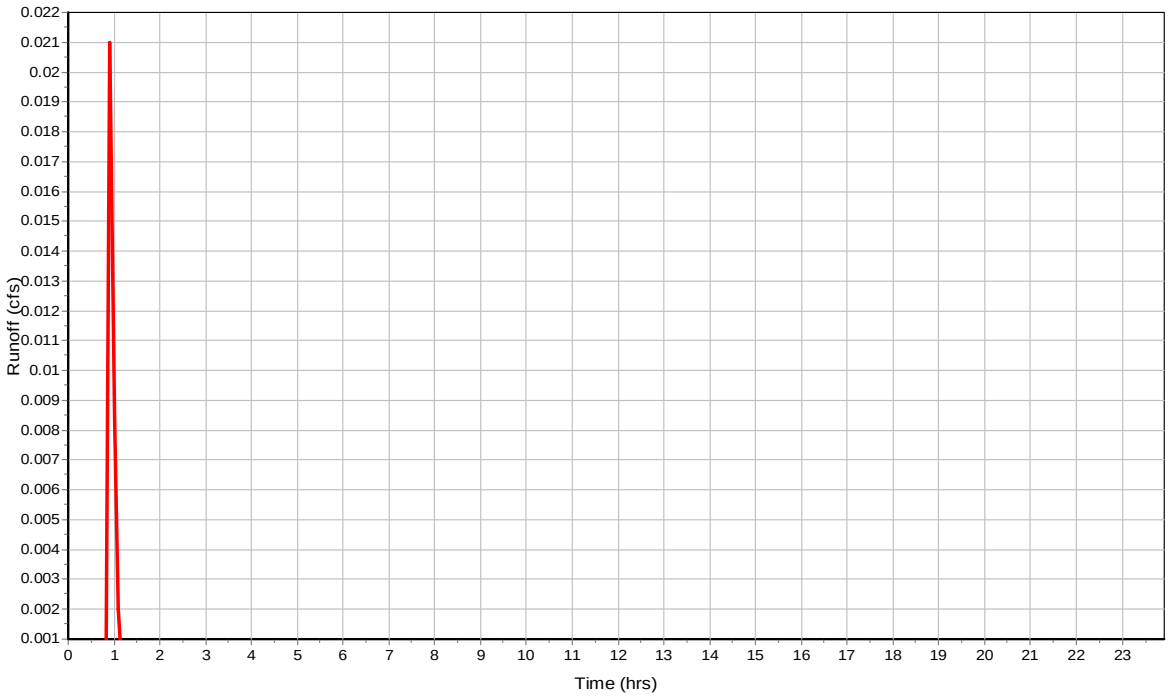
Total Rainfall (in)	2.42
Total Runoff (in)	0
Peak Runoff (cfs)	0.02
Weighted Curve Number	46.1
Time of Concentration (days hh:mm:ss)	0 00:09:07

Subbasin : E4

Rainfall Intensity Graph



Runoff Hydrograph



Project Description

File Name	Dolores River Subdivision - Existing.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	SCS TR-55
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Kinematic Wave
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	YES

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins	4
Nodes	4
Junctions	0
Outfalls	4
Flow Diversions	0
Inlets	0
Storage Nodes	0
Links	0
Channels	0
Pipes	0
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1	RICO	Time Series	100 YR	Cumulative	inches				0.00	

Subbasin Summary

SN	Subbasin ID	Area (ac)	Peak Rate Factor	Weighted Curve Number	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	E1	0.71	484.00	57.80	3.70	0.53	0.37	1.39	0 00:11:39
2	E2	0.48	484.00	64.20	3.70	0.82	0.39	1.45	0 00:08:56
3	E3	0.52	484.00	43.40	3.70	0.08	0.04	0.35	0 00:06:43
4	E4	4.81	484.00	46.10	3.70	0.14	0.68	4.05	0 00:09:06

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	Out-E1	Outfall	8728.00					0.00	0.00					
2	Out-E2	Outfall	8728.00					0.00	0.00					
3	Out-E3	Outfall	8730.00					0.00	0.00					
4	Out-E4	Outfall	8720.00					0.00	0.00					

Subbasin Hydrology

Subbasin : E1

Input Data

Area (ac) 0.71
Peak Rate Factor 484
Weighted Curve Number 57.8
Rain Gage ID ..... RICO

Composite Curve Number

32

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.46	C	41
Gravel roads	0.25	C	89
Composite Area & Weighted CN	0.71		57.8

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where :

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft^2)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's roughness

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.4	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	20	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.14	0	0
Computed Flow Time (min) :	11.49	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	10	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	5.1	0	0
Computed Flow Time (min) :	0.16	0	0

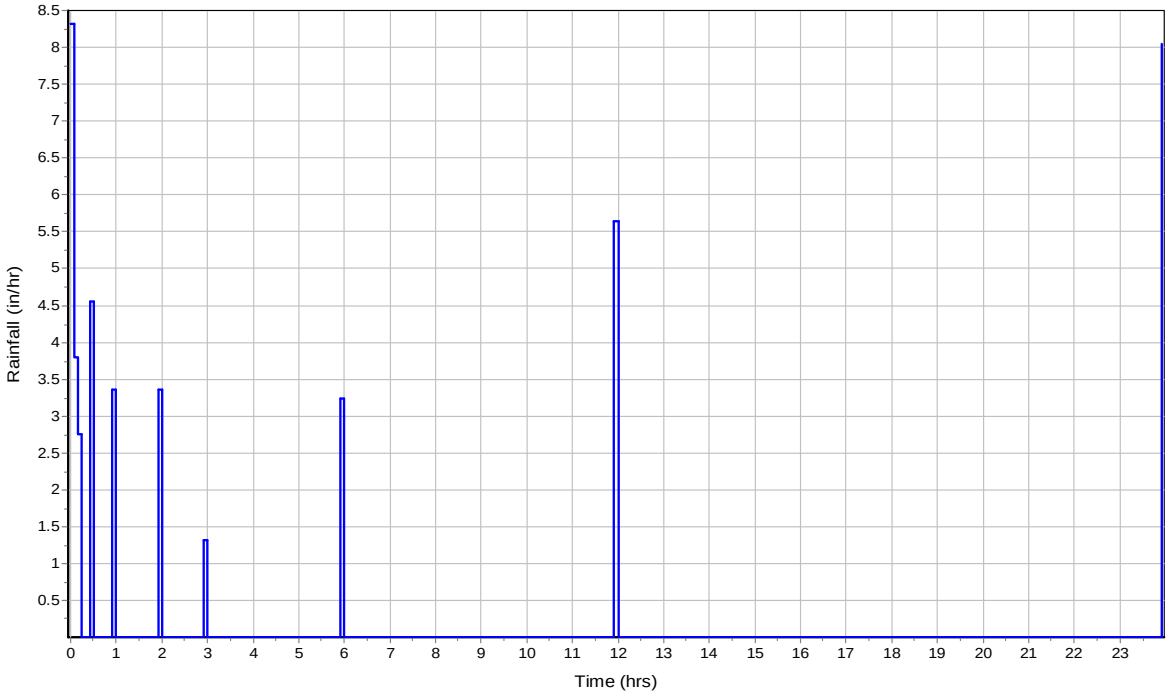
Total TOC (min) 11.66

Subbasin Runoff Results

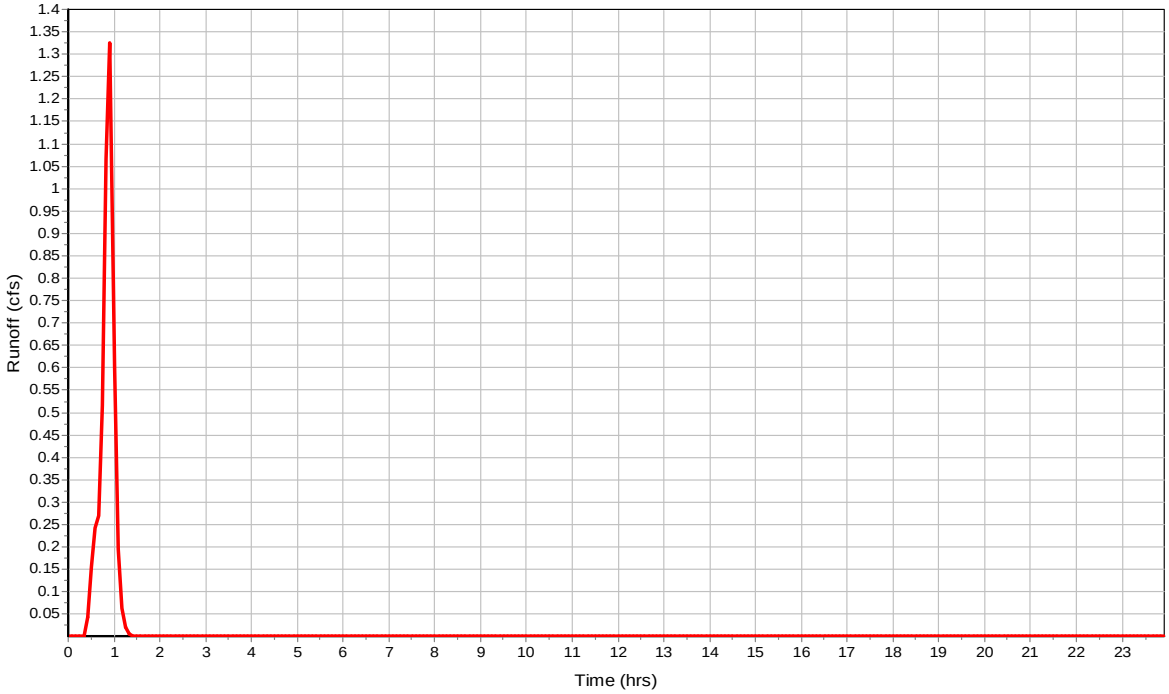
Total Rainfall (in)	3.7
Total Runoff (in)	0.53
Peak Runoff (cfs)	1.39
Weighted Curve Number	57.8
Time of Concentration (days hh:mm:ss)	0 00:11:40

Subbasin : E1

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : E2

Input Data

Area (ac) 0.48
Peak Rate Factor 484
Weighted Curve Number 64.2
Rain Gage ID ..... RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.14	C	41
Gravel roads	0.14	C	89
Sagebrush range, Fair	0.19	C	63
Composite Area & Weighted CN	0.47		64.2

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.4	0	0
Flow Length (ft) :	50	0	0
Slope (%) :	10	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	8.71	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	5	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	3.61	0	0
Computed Flow Time (min) :	0.23	0	0

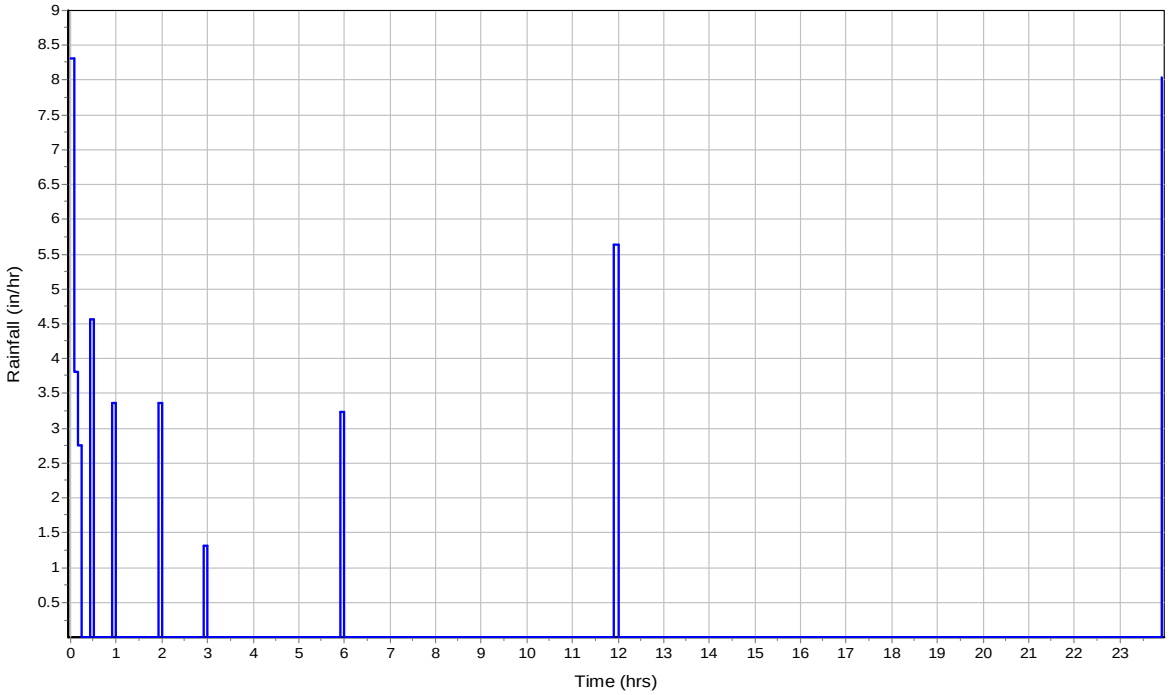
Total TOC (min) 8.94

Subbasin Runoff Results

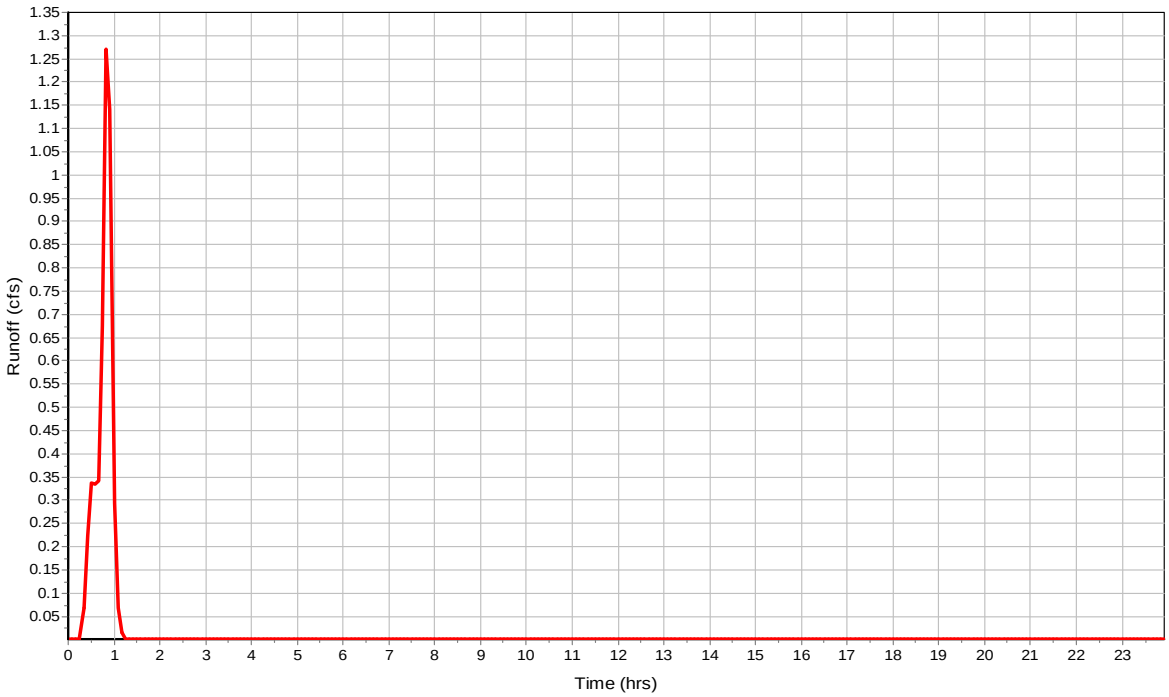
Total Rainfall (in) 3.7
Total Runoff (in) 0.82
Peak Runoff (cfs) 1.45
Weighted Curve Number 64.2
Time of Concentration (days hh:mm:ss) 0 00:08:56

Subbasin : E2

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : E3

Input Data

Area (ac)	0.52
Peak Rate Factor	484
Weighted Curve Number	43.4
Rain Gage ID	RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.49	C	41
Gravel roads	0.03	C	89
Composite Area & Weighted CN	0.52		43.4

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.4	0	0
Flow Length (ft) :	50	0	0
Slope (%) :	20	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.13	0	0
Computed Flow Time (min) :	6.6	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	20	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	7.22	0	0
Computed Flow Time (min) :	0.12	0	0

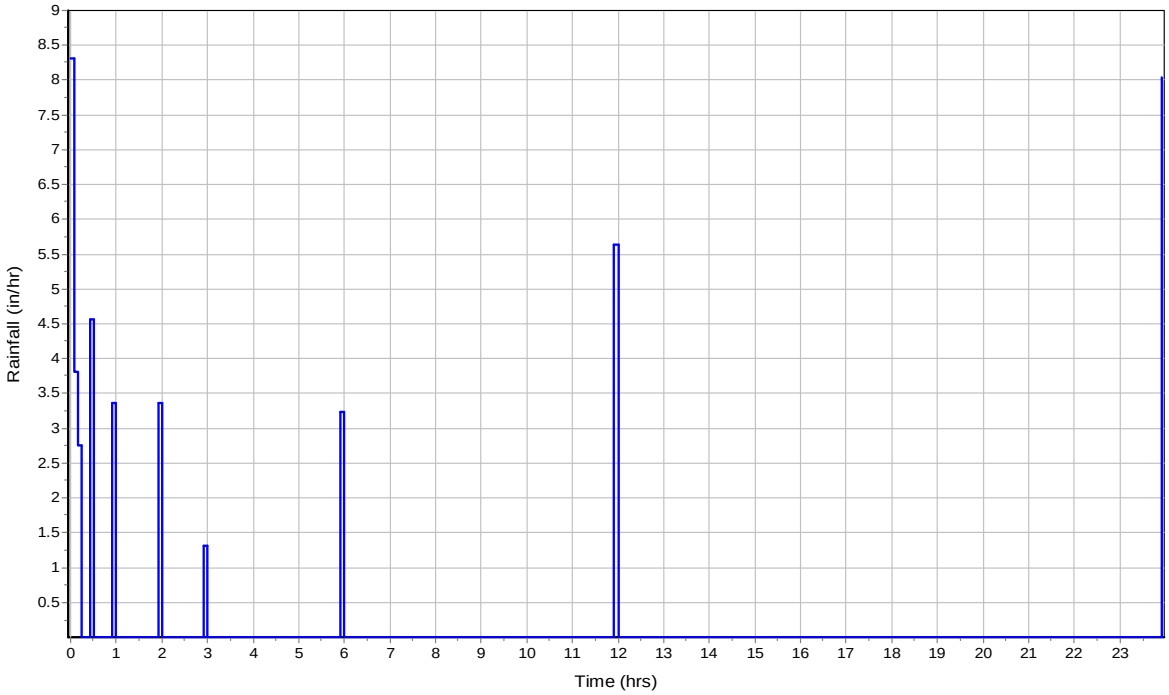
Total TOC (min) 6.72

Subbasin Runoff Results

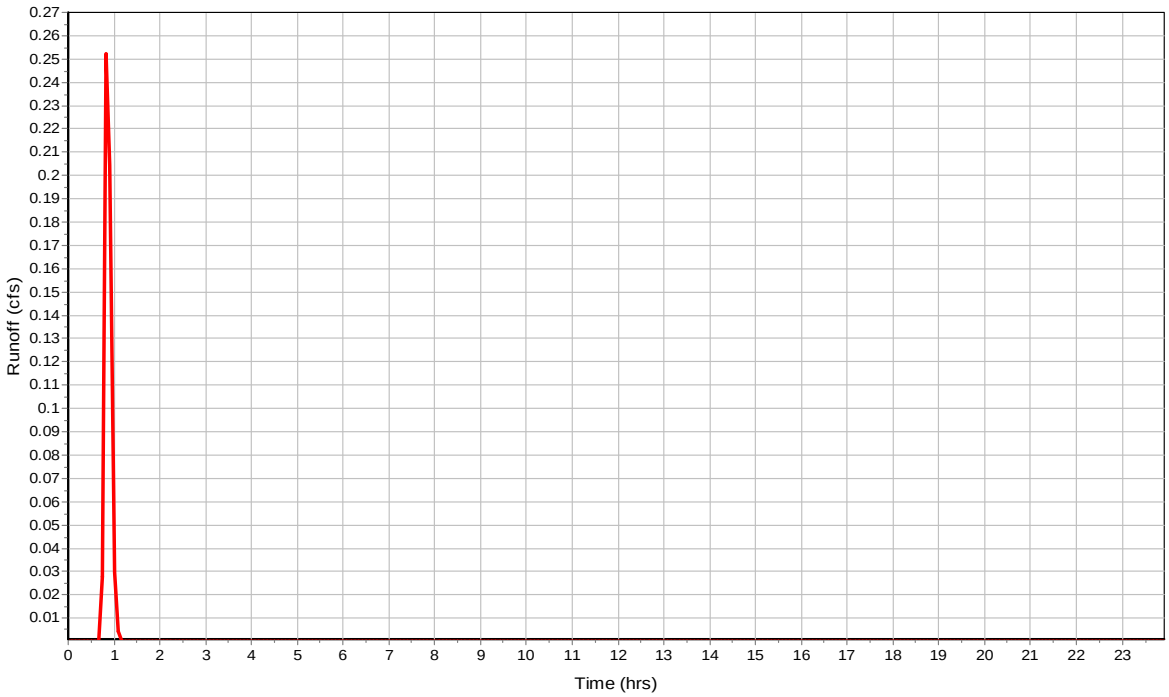
Total Rainfall (in)	3.7
Total Runoff (in)	0.08
Peak Runoff (cfs)	0.35
Weighted Curve Number	43.4
Time of Concentration (days hh:mm:ss)	0 00:06:43

Subbasin : E3

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : E4

Input Data

Area (ac) 4.81
Peak Rate Factor 484
Weighted Curve Number 46.1
Rain Gage ID ..... RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	2.41	C	41
Sagebrush range, Good	2.16	C	47
Gravel roads	0.24	C	89
Composite Area & Weighted CN	4.81		46.1

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.35	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	30	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.19	0	0
Computed Flow Time (min) :	8.78	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	100	0	0
Slope (%) :	10	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	5.1	0	0
Computed Flow Time (min) :	0.33	0	0

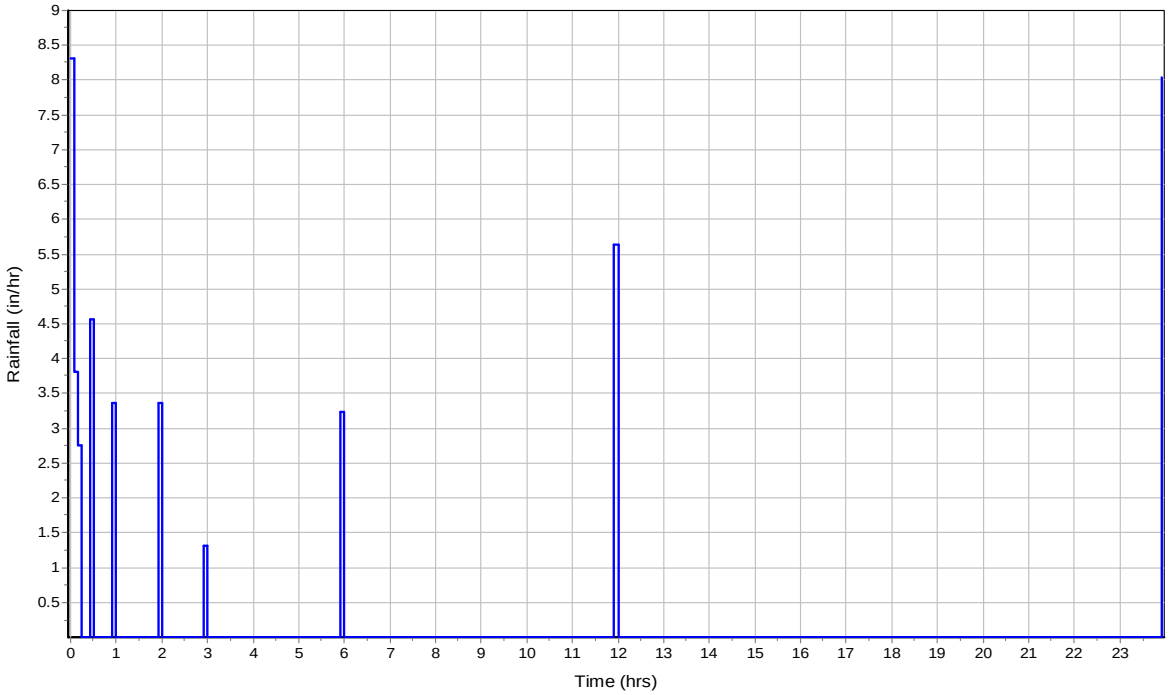
Total TOC (min) 9.11

Subbasin Runoff Results

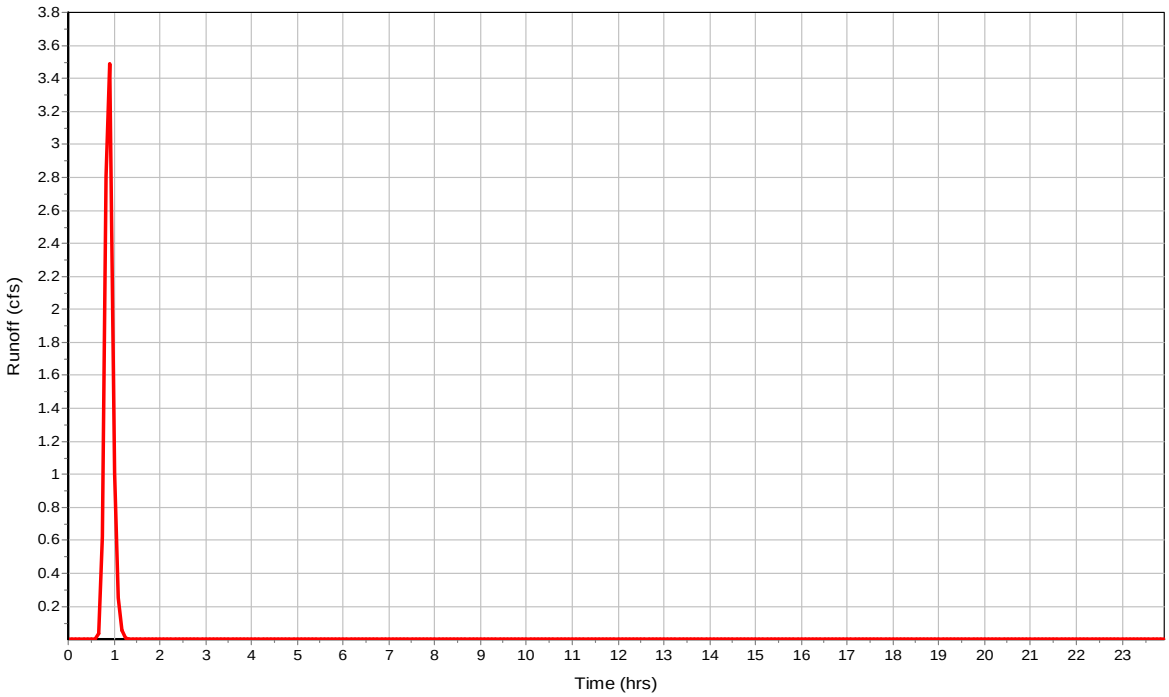
Total Rainfall (in) 3.7
Total Runoff (in) 0.14
Peak Runoff (cfs) 4.05
Weighted Curve Number 46.1
Time of Concentration (days hh:mm:ss) 0 00:09:07

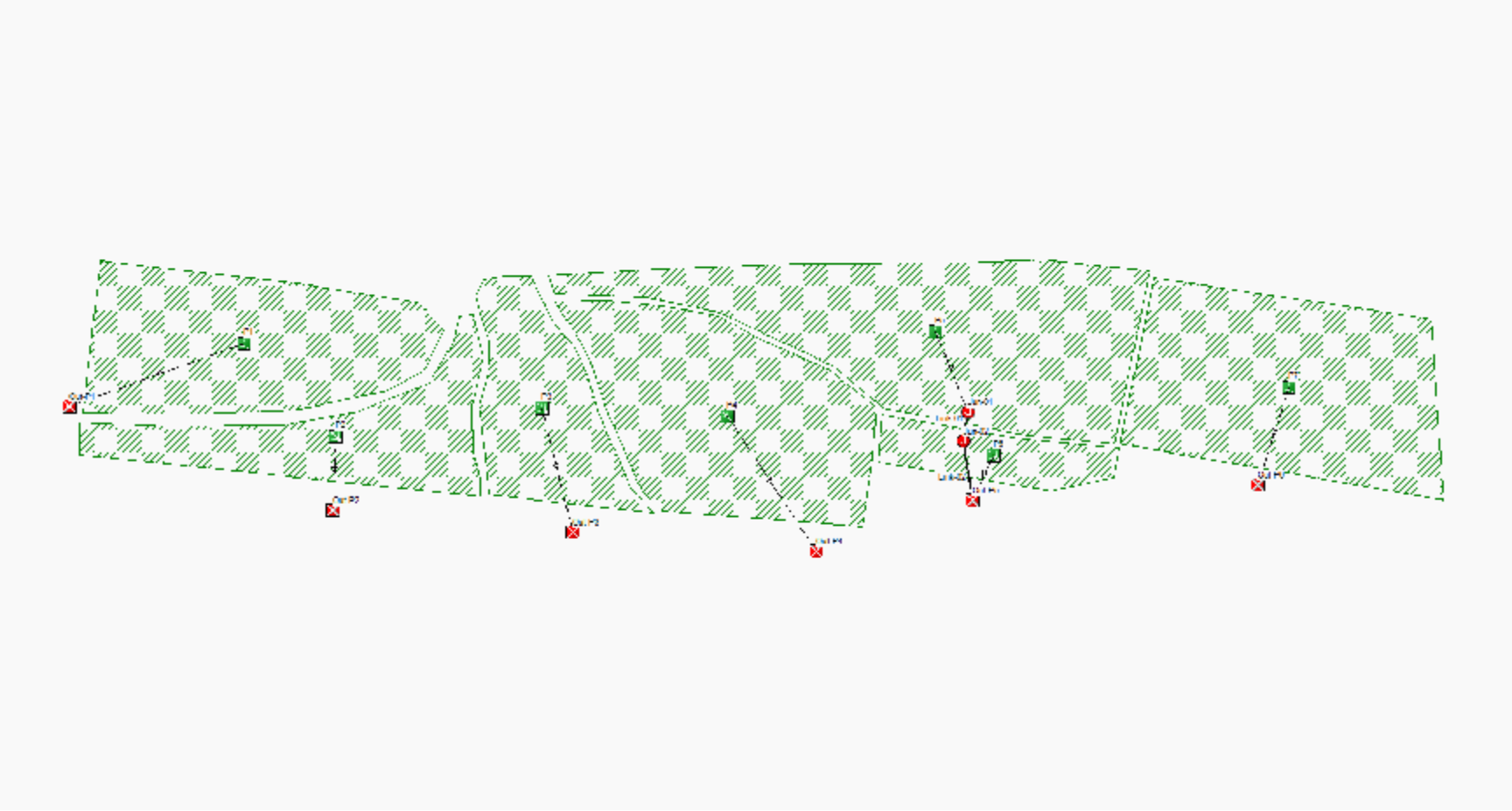
Subbasin : E4

Rainfall Intensity Graph



Runoff Hydrograph





Project Description

File Name	Dolores River Subdivision - Proposed.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	SCS TR-55
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Kinematic Wave
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	YES

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins	7
Nodes	8
Junctions	2
Outfalls	6
Flow Diversions	0
Inlets	0
Storage Nodes	0
Links	2
Channels	1
Pipes	1
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1	RICO	Time Series	2 YR	Cumulative	inches				0.00	

Subbasin Summary

SN	Subbasin ID	Area (ac)	Peak Rate Factor	Weighted Curve Number	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	P1	0.71	484.00	59.96	1.77	0.03	0.02	0.11	0 00:11:39
2	P2	0.45	484.00	59.40	1.77	0.02	0.01	0.07	0 00:08:56
3	P3	0.52	484.00	44.84	1.77	0.00	0.00	0.00	0 00:06:43
4	P4	1.22	484.00	49.71	1.77	0.00	0.00	0.00	0 00:10:33
5	P5	1.75	484.00	50.15	1.77	0.00	0.00	0.00	0 00:10:27
6	P6	0.26	484.00	57.50	1.77	0.01	0.00	0.03	0 00:06:33
7	P7	1.50	484.00	46.25	1.77	0.00	0.00	0.00	0 00:12:14

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	1-Jun	Junction	8720.00	6.00	0.00	0.00	0.00	0.00	8720.00	0.00	1.50	0 00:00	0.00	0.00
2	2-Jun	Junction	8718.00	6.00	0.00	0.00	0.00	0.00	8718.00	0.00	1.50	0 00:00	0.00	0.00
3	Out-P1	Outfall	8728.00					0.11	8728.00					
4	Out-P2	Outfall	8728.00					0.07	8728.00					
5	Out-P3	Outfall	8730.00					0.00	8730.00					
6	Out-P4	Outfall	8720.00					0.00	8720.00					
7	Out-P5	Outfall	8714.00					0.02	8714.00					
8	Out-P6	Outfall	8720.00					0.00	8720.00					

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged	Reported Condition
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)		(min)	
1	Link-01	Pipe	1-Jun	2-Jun	24.00	8720.00	8718.00	8.3300	18.000	0.0150	0.00	26.28	0.00	0.00	0.00	0.00	0.00	Calculated
2	Link-02	Channel	2-Jun	Out-P5	31.06	8718.00	8714.00	12.8800	12.000	0.0320	0.00	177.35	0.00	0.00	0.00	0.00	0.00	

Subbasin Hydrology

Subbasin : P1

Input Data

Area (ac) 0.71
Peak Rate Factor 484
Weighted Curve Number 59.96
Rain Gage ID ..... RICO

Composite Curve Number

32

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.44	C	41
Gravel roads	0.21	C	89
Paved parking & roofs	0.06	C	98
Composite Area & Weighted CN	0.71		59.96

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where :

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft^2)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's roughness

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.4	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	20	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.14	0	0
Computed Flow Time (min) :	11.49	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	10	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	5.1	0	0
Computed Flow Time (min) :	0.16	0	0

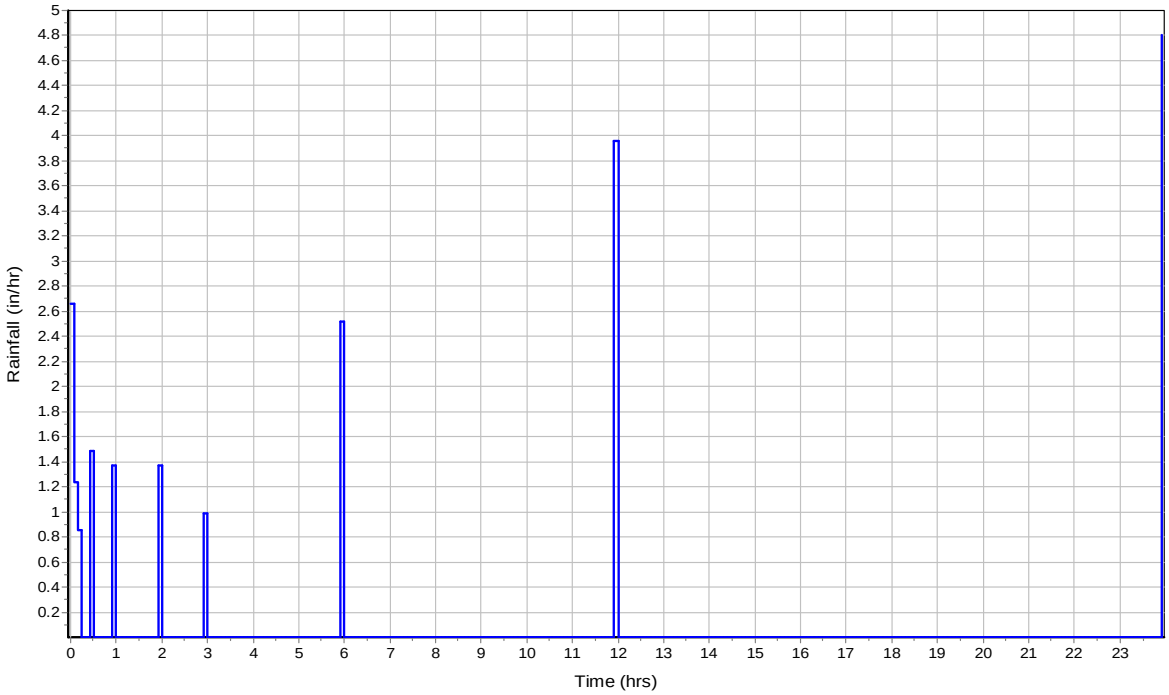
Total TOC (min) 11.66

Subbasin Runoff Results

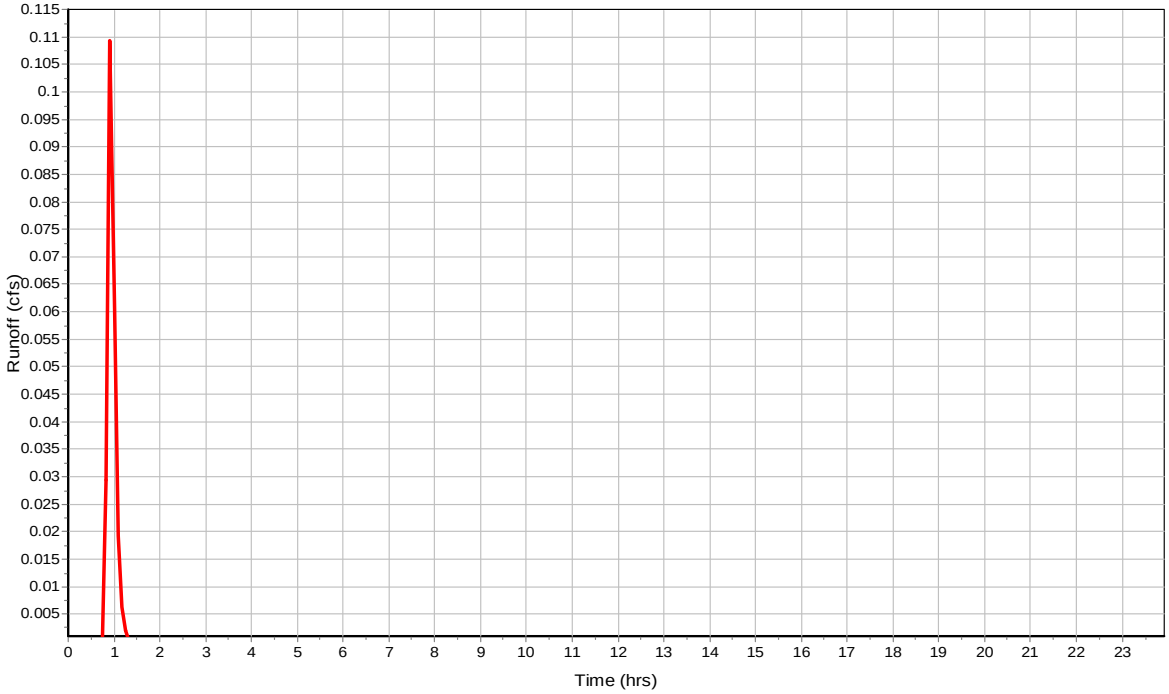
Total Rainfall (in)	1.77
Total Runoff (in)	0.03
Peak Runoff (cfs)	0.11
Weighted Curve Number	59.96
Time of Concentration (days hh:mm:ss)	0 00:11:40

Subbasin : P1

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : P2

Input Data

Area (ac) 0.45
Peak Rate Factor 484
Weighted Curve Number 59.4
Rain Gage ID ..... RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.18	C	41
Gravel roads	0.09	C	89
Sagebrush range, Fair	0.18	C	63
Composite Area & Weighted CN	0.45		59.4

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.4	0	0
Flow Length (ft) :	50	0	0
Slope (%) :	10	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	8.71	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	5	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	3.61	0	0
Computed Flow Time (min) :	0.23	0	0

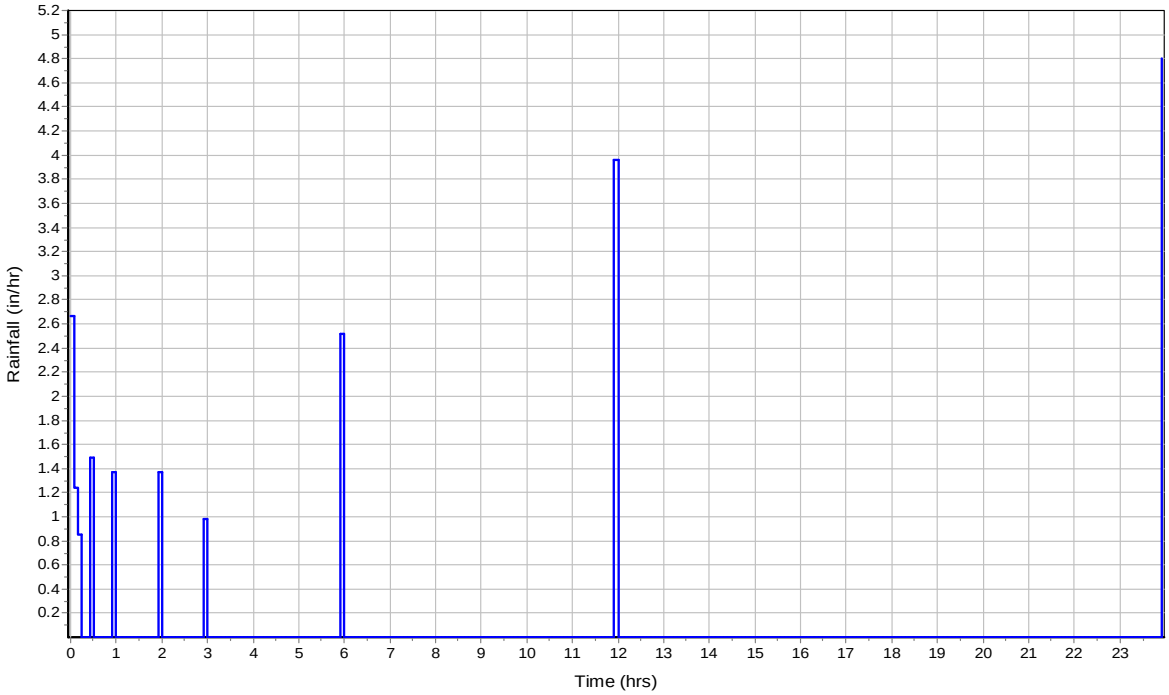
Total TOC (min) 8.94

Subbasin Runoff Results

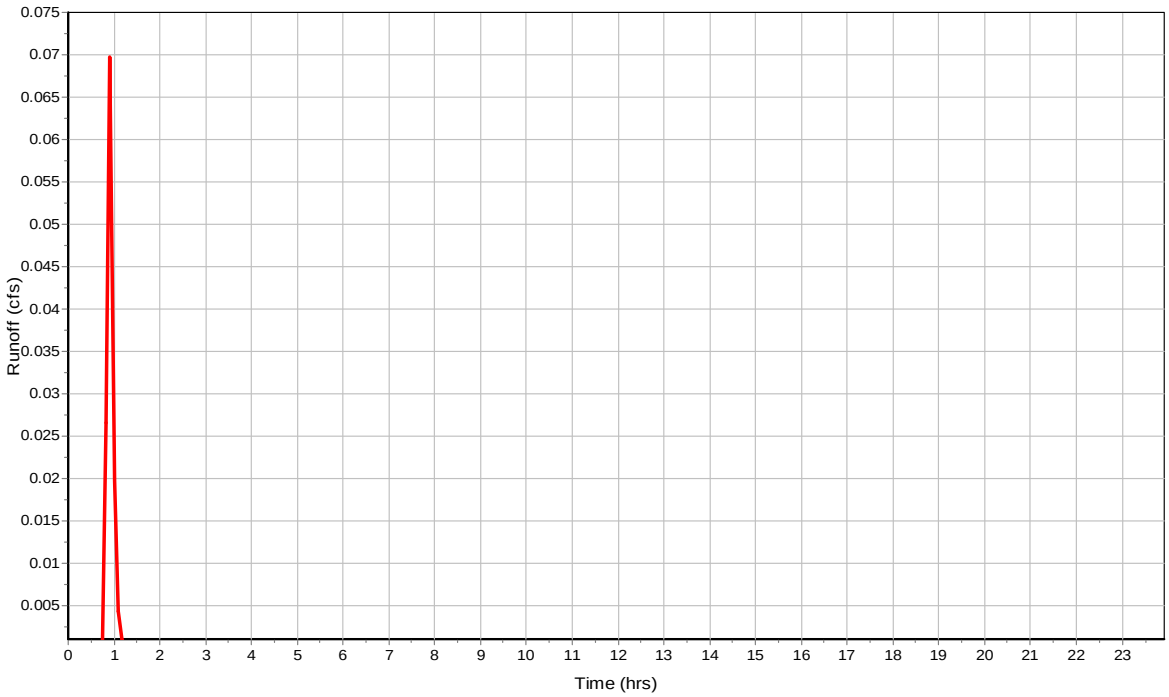
Total Rainfall (in) 1.77
Total Runoff (in) 0.02
Peak Runoff (cfs) 0.07
Weighted Curve Number 59.4
Time of Concentration (days hh:mm:ss) 0 00:08:56

Subbasin : P2

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : P3

Input Data

Area (ac) 0.52
Peak Rate Factor 484
Weighted Curve Number 44.84
Rain Gage ID ..... RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.48	C	41
Gravel roads	0.04	C	89
Composite Area & Weighted CN	0.52		44.84

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.4	0	0
Flow Length (ft) :	50	0	0
Slope (%) :	20	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.13	0	0
Computed Flow Time (min) :	6.6	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	20	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	7.22	0	0
Computed Flow Time (min) :	0.12	0	0

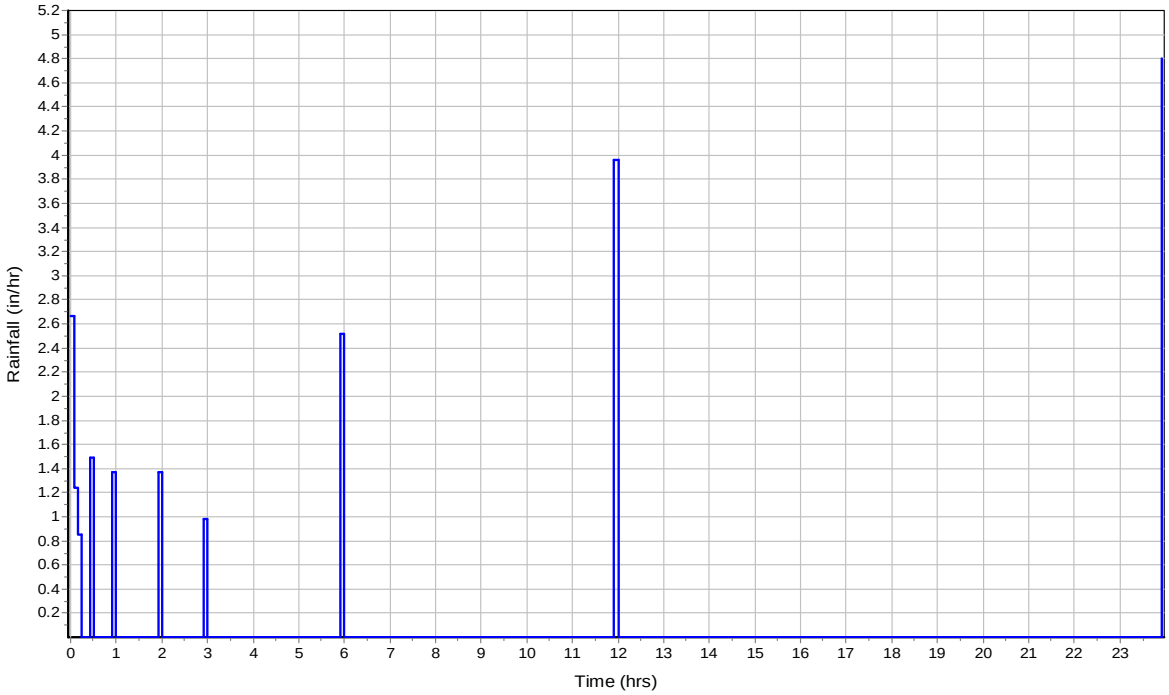
Total TOC (min) 6.72

Subbasin Runoff Results

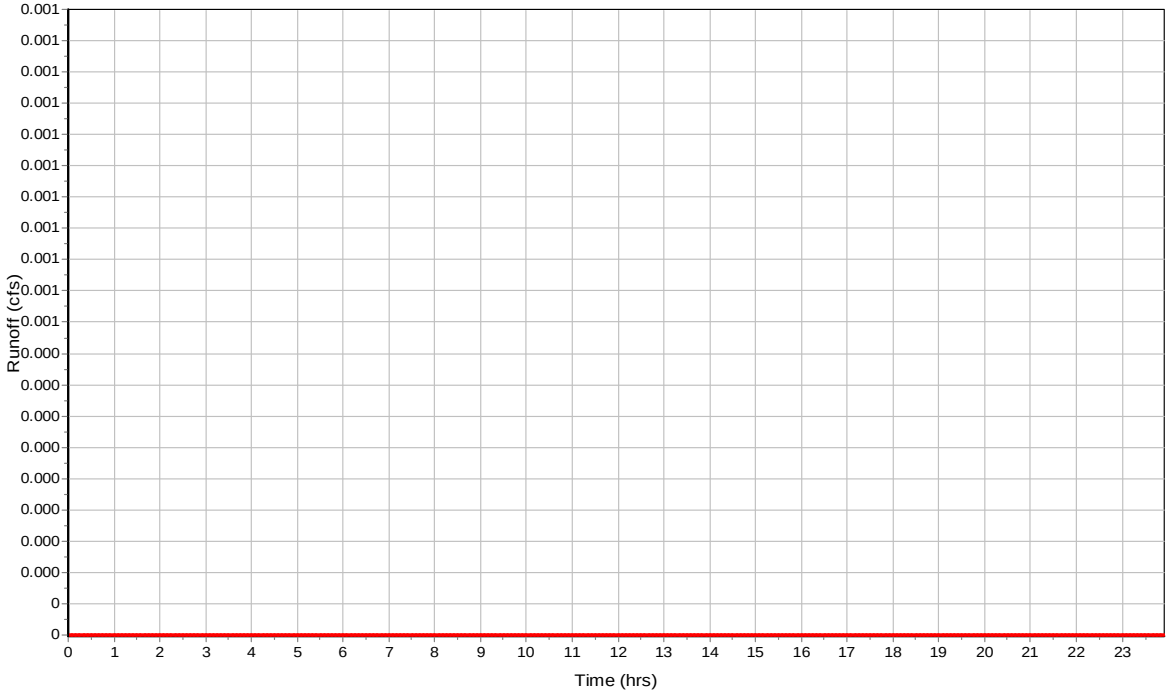
Total Rainfall (in) 1.77
Total Runoff (in) 0
Peak Runoff (cfs) 0
Weighted Curve Number 44.84
Time of Concentration (days hh:mm:ss) 0 00:06:43

Subbasin : P3

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : P4

Input Data

Area (ac) 1.22
Peak Rate Factor 484
Weighted Curve Number 49.71
Rain Gage ID ..... RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.61	C	41
Sagebrush range, Good	0.45	C	47
Gravel roads	0.1	C	89
Urban commercial, 85% imp	0.06	C	94
Composite Area & Weighted CN	1.22		49.71

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.35	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	20	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.16	0	0
Computed Flow Time (min) :	10.33	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	100	0	0
Slope (%) :	20	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	7.22	0	0
Computed Flow Time (min) :	0.23	0	0

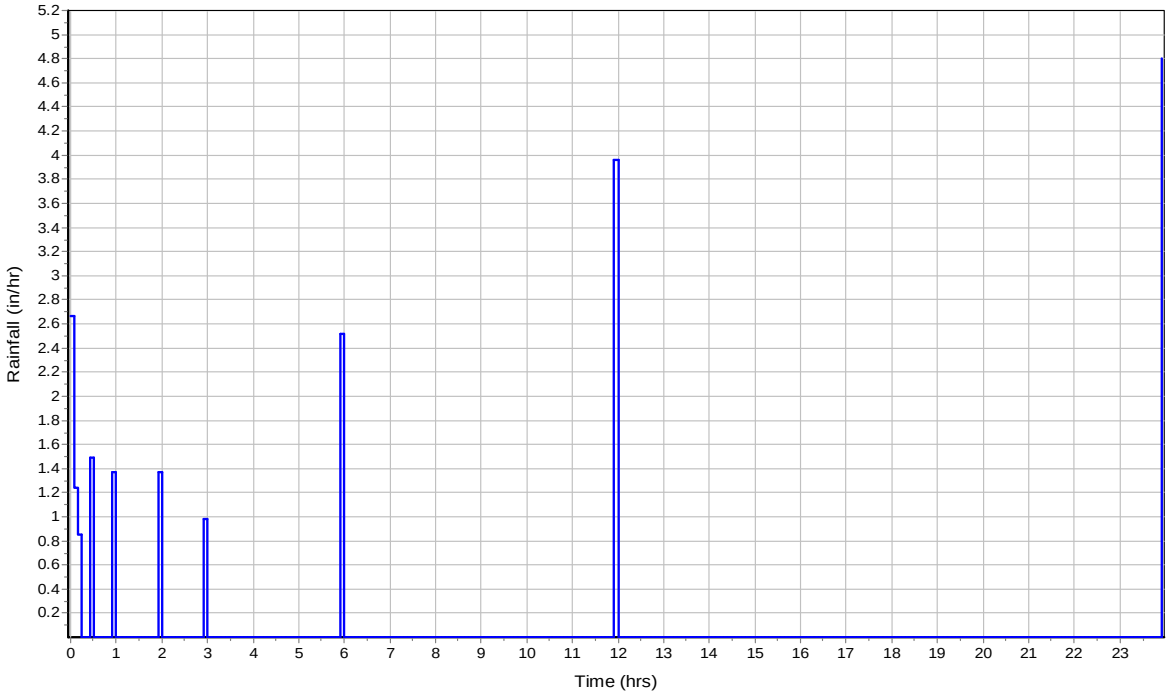
Total TOC (min) 10.56

Subbasin Runoff Results

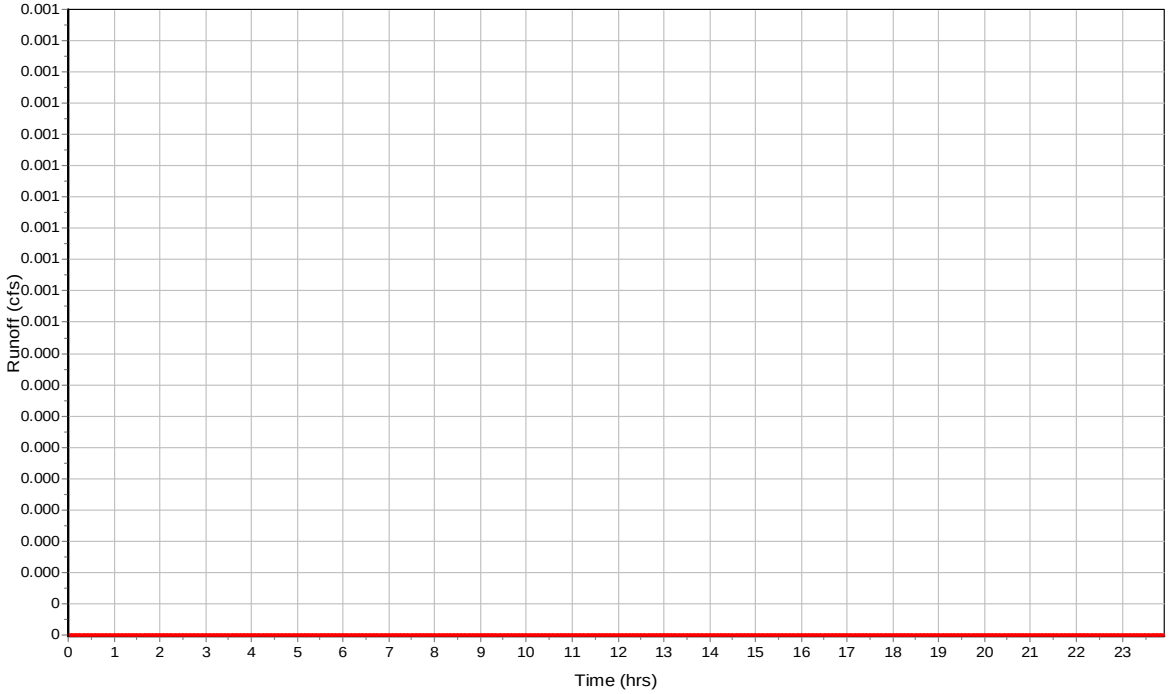
Total Rainfall (in) 1.77
Total Runoff (in) 0
Peak Runoff (cfs) 0
Weighted Curve Number 49.71
Time of Concentration (days hh:mm:ss) 0 00:10:34

Subbasin : P4

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : P5

Input Data

Area (ac) 1.75
Peak Rate Factor 484
Weighted Curve Number 50.15
Rain Gage ID ..... RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	1.05	C	41
Sagebrush range, Good	0.44	C	47
Paved parking & roofs	0.09	C	98
Gravel roads	0.18	C	89
Composite Area & Weighted CN	1.76		50.15

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.35	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	20	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.16	0	0
Computed Flow Time (min) :	10.33	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	15	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	6.25	0	0
Computed Flow Time (min) :	0.13	0	0

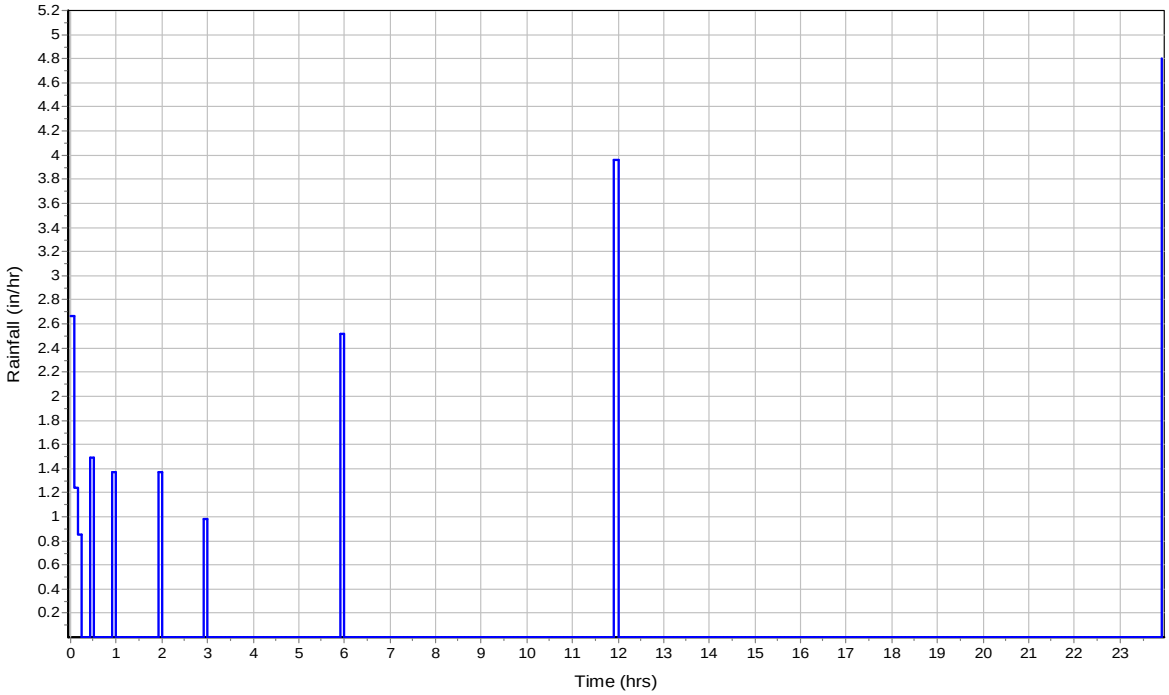
Total TOC (min) 10.46

Subbasin Runoff Results

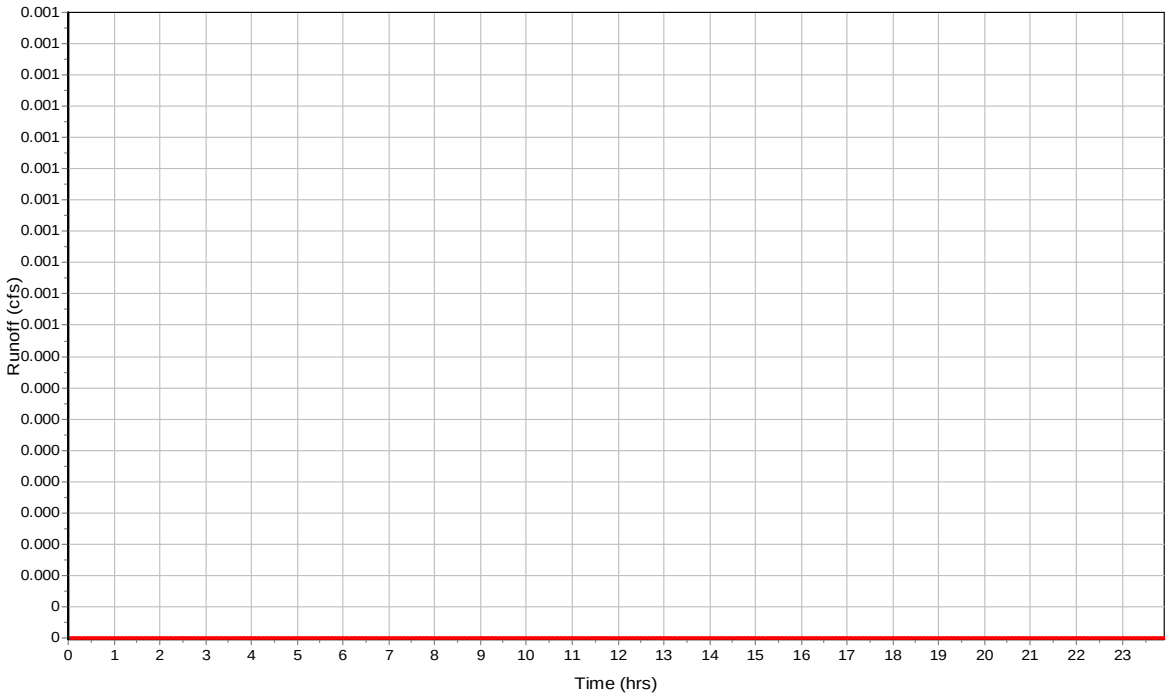
Total Rainfall (in) 1.77
Total Runoff (in) 0
Peak Runoff (cfs) 0
Weighted Curve Number 50.15
Time of Concentration (days hh:mm:ss) 0 00:10:28

Subbasin : P5

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : P6

Input Data

Area (ac)	0.26
Peak Rate Factor	484
Weighted Curve Number	57.5
Rain Gage ID	RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Gravel roads	0.07	C	89
Sagebrush range, Good	0.2	C	47
Composite Area & Weighted CN	0.27		57.5

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.25	0	0
Flow Length (ft) :	24	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.06	0	0
Computed Flow Time (min) :	6.33	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	5	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	3.61	0	0
Computed Flow Time (min) :	0.23	0	0

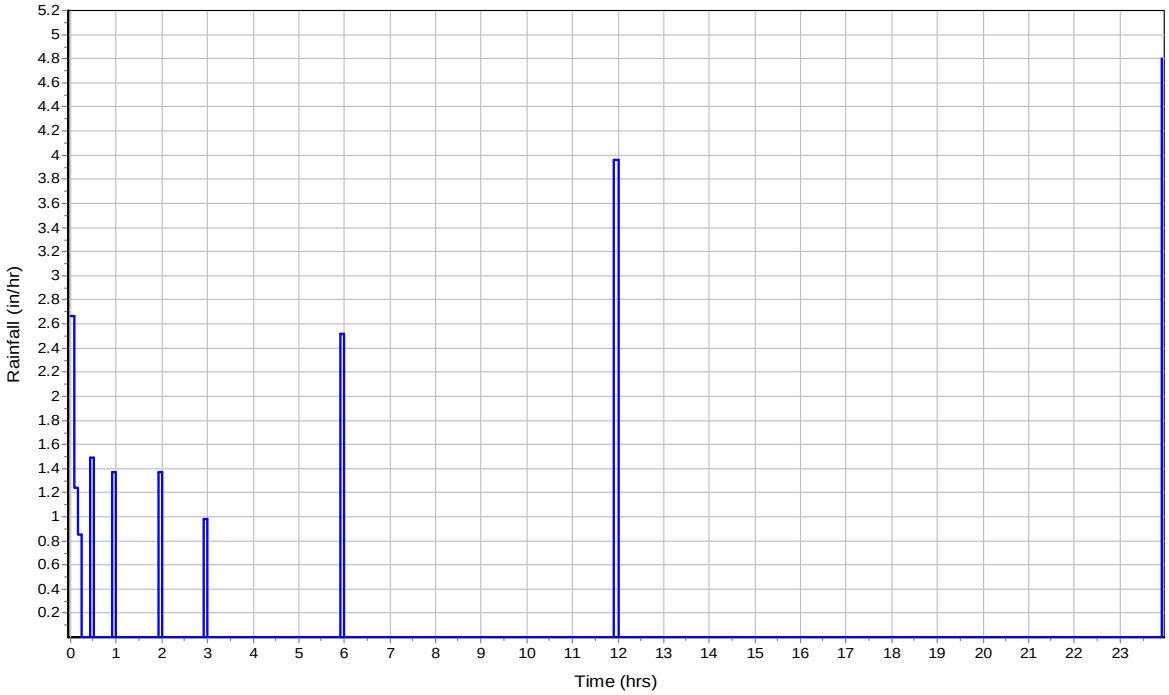
Total TOC (min) 6.56

Subbasin Runoff Results

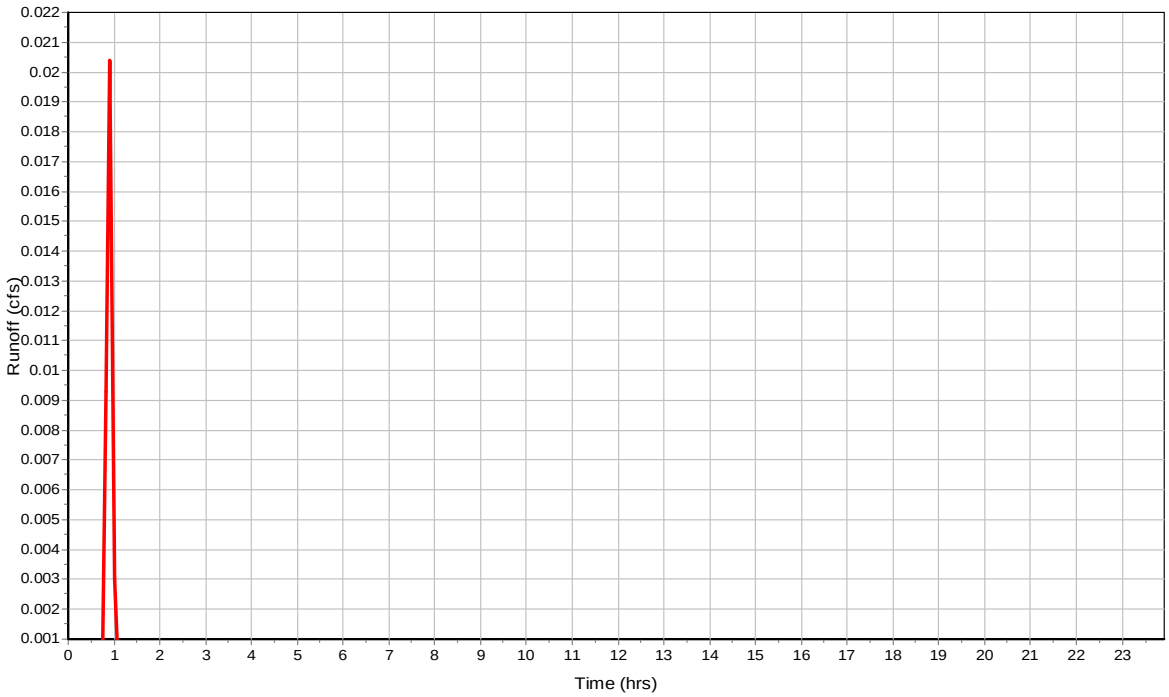
Total Rainfall (in)	1.77
Total Runoff (in)	0.01
Peak Runoff (cfs)	0.03
Weighted Curve Number	57.5
Time of Concentration (days hh:mm:ss)	0 00:06:34

Subbasin : P6

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : P7

Input Data

Area (ac) 1.5
Peak Rate Factor 484
Weighted Curve Number 46.25
Rain Gage ID ..... RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	1.35	C	41
Paved parking & roofs	0.08	C	98
Gravel roads	0.08	C	89
Composite Area & Weighted CN	1.51		46.25

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.35	0	0
Flow Length (ft) :	150	0	0
Slope (%) :	30	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.21	0	0
Computed Flow Time (min) :	12.15	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	30	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	8.84	0	0
Computed Flow Time (min) :	0.09	0	0

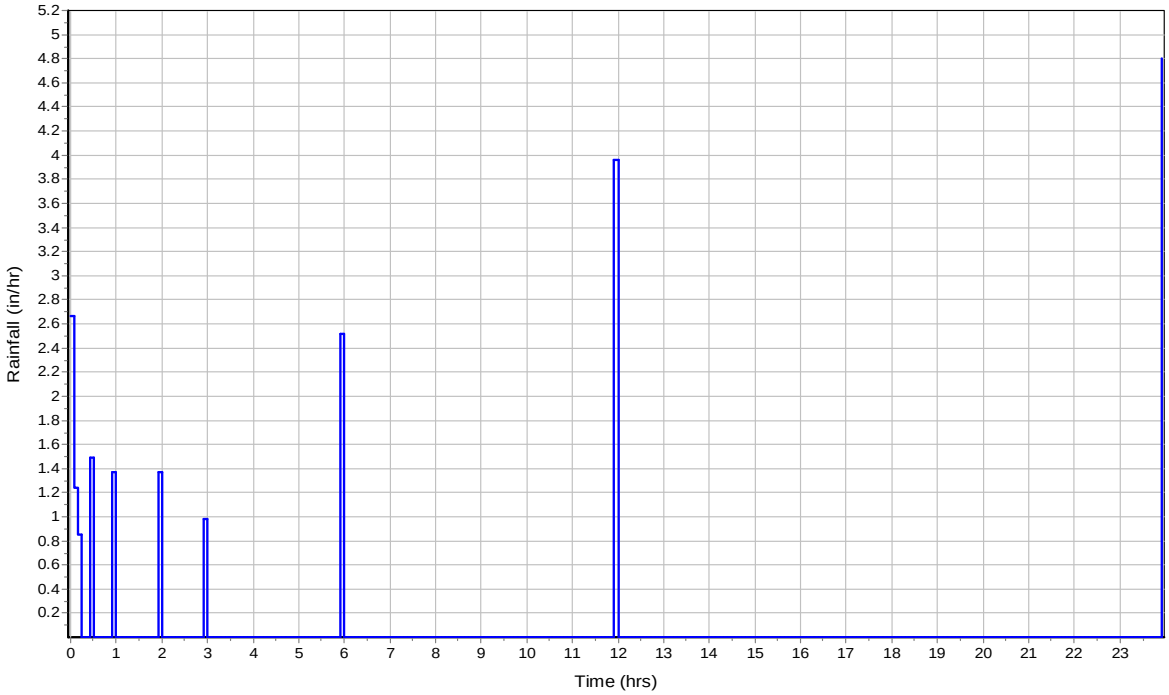
Total TOC (min) 12.24

Subbasin Runoff Results

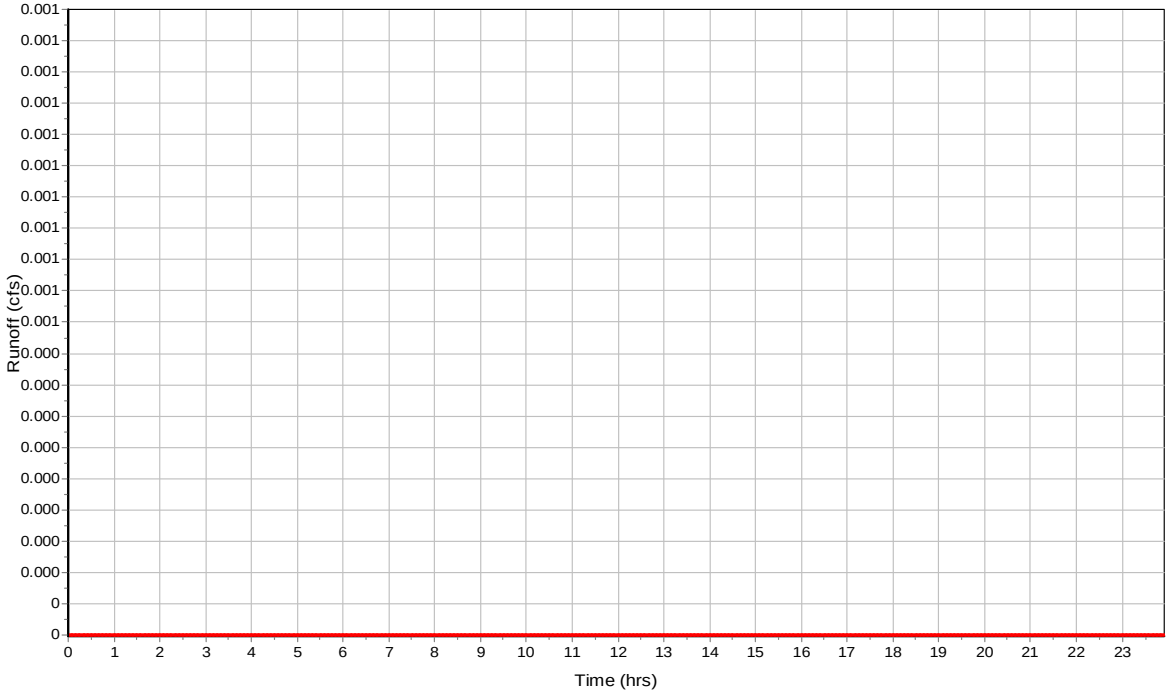
Total Rainfall (in) 1.77
Total Runoff (in) 0
Peak Runoff (cfs) 0
Weighted Curve Number 46.25
Time of Concentration (days hh:mm:ss) 0 00:12:14

Subbasin : P7

Rainfall Intensity Graph



Runoff Hydrograph



Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft^2)	Minimum Pipe Cover (in)
1	1-Jun	8720.00	6.00	-8714.00	0.00	-8720.00	0.00	-6.00	0.00	0.00
2	2-Jun	8718.00	6.00	-8712.00	0.00	-8718.00	0.00	-6.00	0.00	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	1-Jun	0.00	0.00	8720.00	0.00	0.00	1.50	8720.00	0.00	0 00:00	0 00:00	0.00	0.00
2	2-Jun	0.00	0.00	8718.00	0.00	0.00	1.50	8718.00	0.00	0 00:00	0 00:00	0.00	0.00

Channel Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Shape	Height (ft)	Width (ft)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Additional Losses	Initial Flow (cfs)	Flap Gate
1	Link-02	31.06	8718.00	0.00	8714.00	0.00	4.00	12.8800	Trapezoidal	1.000	25.000	0.0320	0.5000	0.5000	0.0000	0.00	No

Channel Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Froude Number	Reported Condition
1	Link-02	0.00	0 00:00	177.35	0.00	0.00		0.00	0.00	0.00		

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Additional Losses	Initial Flow (cfs)	Flap Gate	No. of Barrels
1	Link-01	24.00	8720.00	0.00	8718.00	0.00	2.00	8.3300	CIRCULAR	18.000	18.000	0.0150	0.5000	0.5000	0.0000	0.00	No	1

Pipe Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Froude Number	Reported Condition
1	Link-01	0.00	0 00:00	26.28	0.00	0.00		0.00	0.00	0.00		Calculated

Project Description

File Name ..... Dolores River Subdivision - Proposed.SPF

Project Options

Flow Units ..... CFS
Elevation Type ..... Elevation
Hydrology Method ..... SCS TR-55
Time of Concentration (TOC) Method ..... SCS TR-55
Link Routing Method ..... Kinematic Wave
Enable Overflow Ponding at Nodes ..... YES
Skip Steady State Analysis Time Periods ... YES

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	7
Nodes.....	8
Junctions	2
Outfalls	6
Flow Diversions	0
Inlets	0
Storage Nodes	0
Links.....	2
Channels	1
Pipes	1
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1	RICO	Time Series	10 YR	Cumulative	inches				0.00	

Subbasin Summary

SN	Subbasin ID	Area (ac)	Peak Rate Factor	Weighted Curve Number	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	P1	0.71	484.00	59.96	2.42	0.15	0.11	0.54	0 00:11:39
2	P2	0.45	484.00	59.40	2.42	0.14	0.06	0.38	0 00:08:56
3	P3	0.52	484.00	44.84	2.42	0.00	0.00	0.00	0 00:06:43
4	P4	1.22	484.00	49.71	2.42	0.02	0.02	0.12	0 00:10:33
5	P5	1.75	484.00	50.15	2.42	0.02	0.03	0.21	0 00:10:27
6	P6	0.26	484.00	57.50	2.42	0.11	0.03	0.21	0 00:06:33
7	P7	1.50	484.00	46.25	2.42	0.00	0.00	0.01	0 00:12:14

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	1-Jun	Junction	8720.00	6.00	0.00	0.00	0.00	0.21	8720.09	0.00	1.41	0 00:00	0.00	0.00
2	2-Jun	Junction	8718.00	6.00	0.00	0.00	0.00	0.21	8718.09	0.00	1.41	0 00:00	0.00	0.00
3	Out-P1	Outfall	8728.00					0.53	8728.00					
4	Out-P2	Outfall	8728.00					0.32	8728.00					
5	Out-P3	Outfall	8730.00					0.00	8730.00					
6	Out-P4	Outfall	8720.00					0.12	8720.00					
7	Out-P5	Outfall	8714.00					0.32	8714.03					
8	Out-P6	Outfall	8720.00					0.01	8720.00					

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged	Reported Condition
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)		(min)	
1	Link-01	Pipe	1-Jun	2-Jun	24.00	8720.00	8718.00	8.3300	18.000	0.0150	0.21	26.28	0.01	4.41	0.09	0.06	0.00	Calculated
2	Link-02	Channel	2-Jun	Out-P5	31.06	8718.00	8714.00	12.8800	12.000	0.0320	0.20	177.35	0.00	1.45	0.03	0.03	0.00	

Subbasin Hydrology

Subbasin : P1

Input Data

Area (ac) 0.71
Peak Rate Factor 484
Weighted Curve Number 59.96
Rain Gage ID ..... RICO

Composite Curve Number

32

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.44	C	41
Gravel roads	0.21	C	89
Paved parking & roofs	0.06	C	98
Composite Area & Weighted CN	0.71		59.96

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where :

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft^2)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's roughness

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.4	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	20	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.14	0	0
Computed Flow Time (min) :	11.49	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	10	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	5.1	0	0
Computed Flow Time (min) :	0.16	0	0

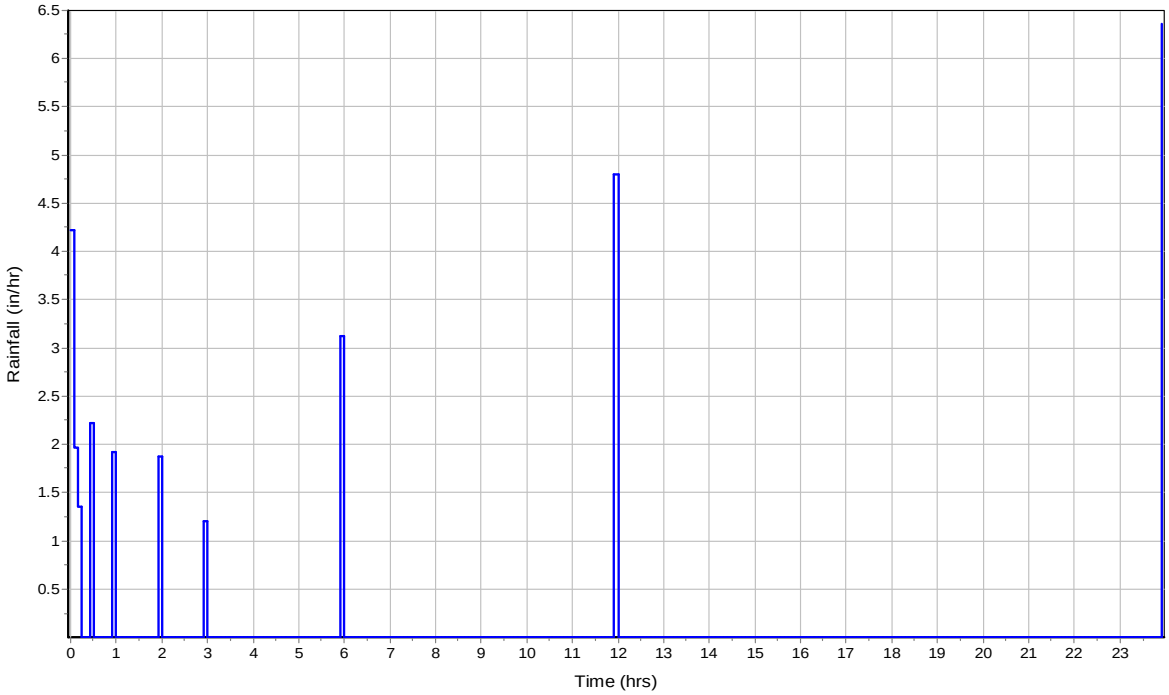
Total TOC (min) 11.66

Subbasin Runoff Results

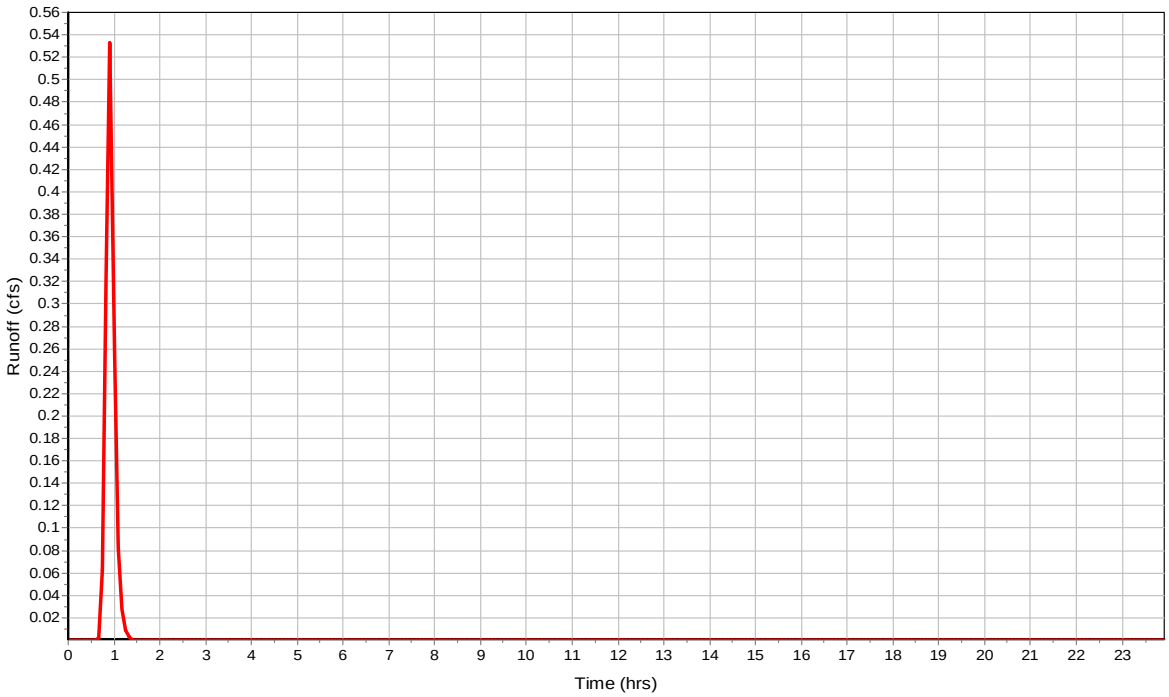
Total Rainfall (in)	2.42
Total Runoff (in)	0.15
Peak Runoff (cfs)	0.54
Weighted Curve Number	59.96
Time of Concentration (days hh:mm:ss)	0 00:11:40

Subbasin : P1

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : P2

Input Data

Area (ac)	0.45
Peak Rate Factor	484
Weighted Curve Number	59.4
Rain Gage ID	RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.18	C	41
Gravel roads	0.09	C	89
Sagebrush range, Fair	0.18	C	63
Composite Area & Weighted CN	0.45		59.4

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.4	0	0
Flow Length (ft) :	50	0	0
Slope (%) :	10	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	8.71	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	5	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	3.61	0	0
Computed Flow Time (min) :	0.23	0	0

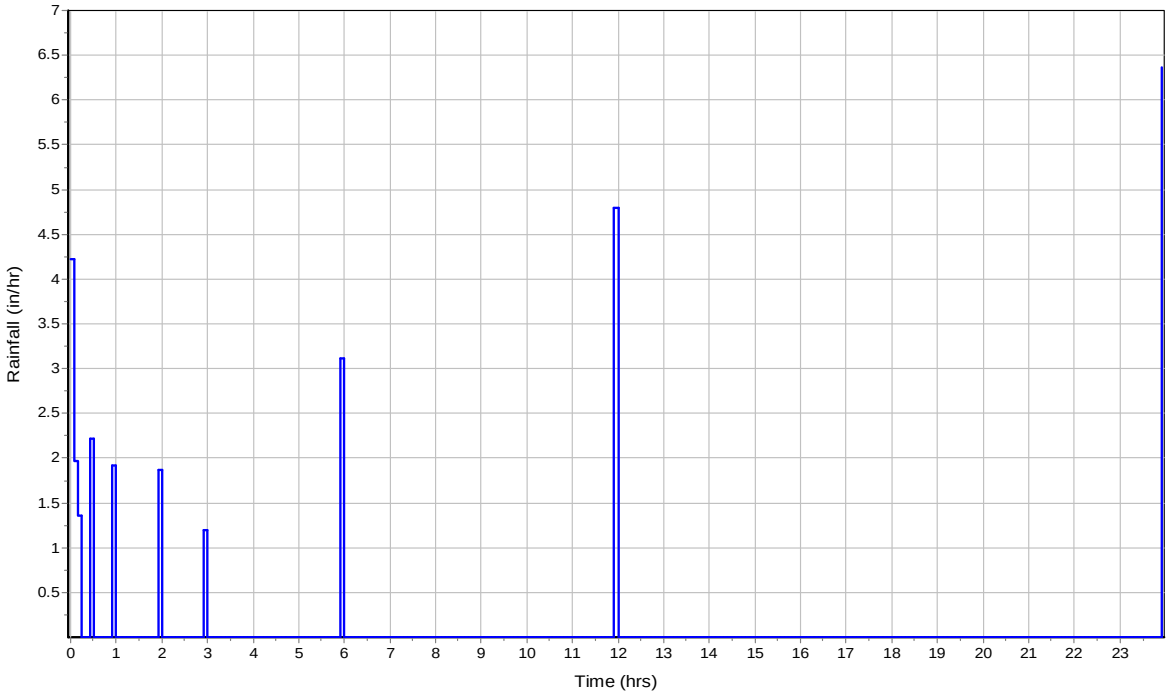
Total TOC (min) 8.94

Subbasin Runoff Results

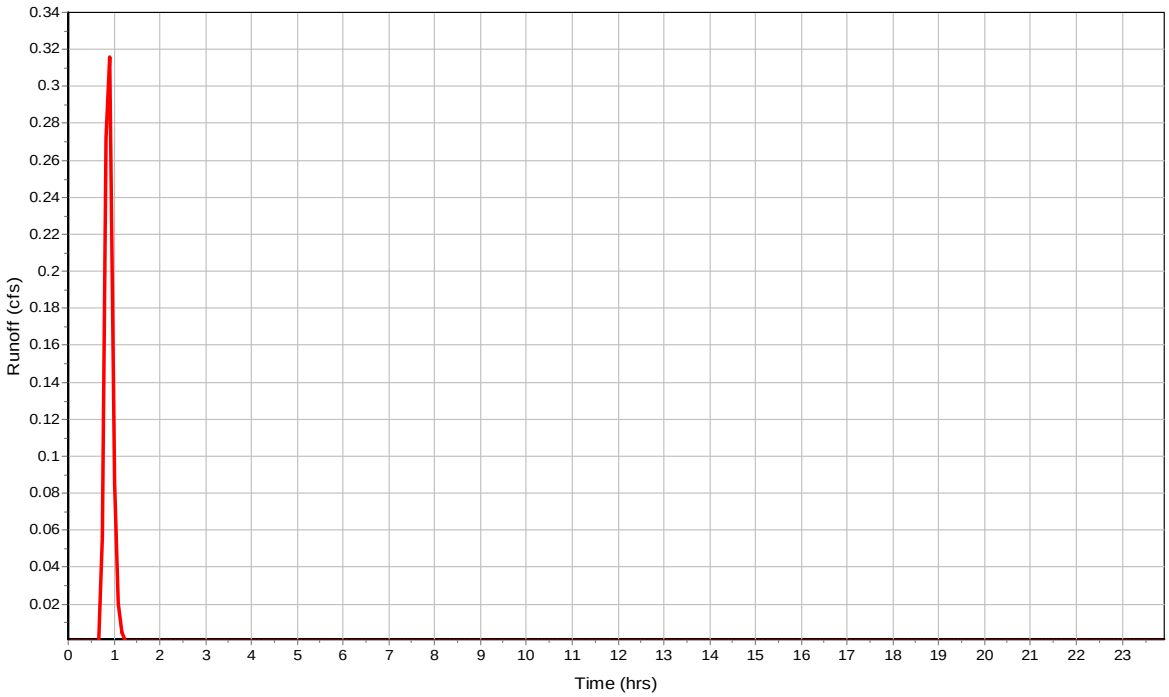
Total Rainfall (in)	2.42
Total Runoff (in)	0.14
Peak Runoff (cfs)	0.38
Weighted Curve Number	59.4
Time of Concentration (days hh:mm:ss)	0 00:08:56

Subbasin : P2

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : P3

Input Data

Area (ac)	0.52
Peak Rate Factor	484
Weighted Curve Number	44.84
Rain Gage ID	RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.48	C	41
Gravel roads	0.04	C	89
Composite Area & Weighted CN	0.52		44.84

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.4	0	0
Flow Length (ft) :	50	0	0
Slope (%) :	20	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.13	0	0
Computed Flow Time (min) :	6.6	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	20	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	7.22	0	0
Computed Flow Time (min) :	0.12	0	0

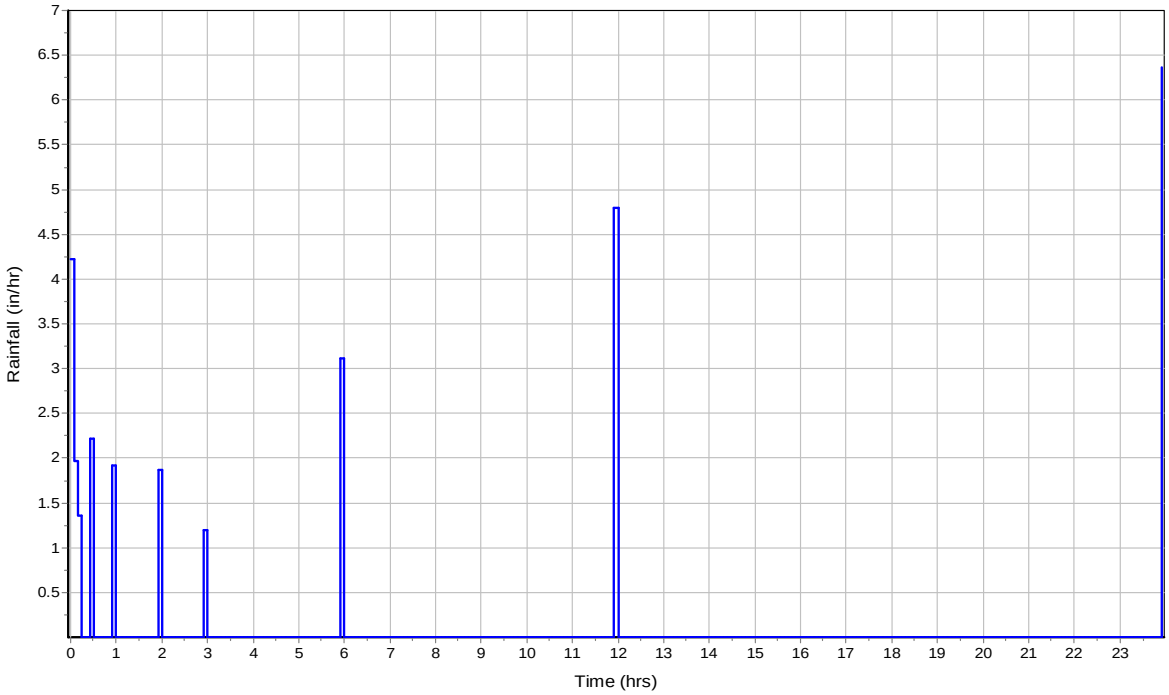
Total TOC (min) 6.72

Subbasin Runoff Results

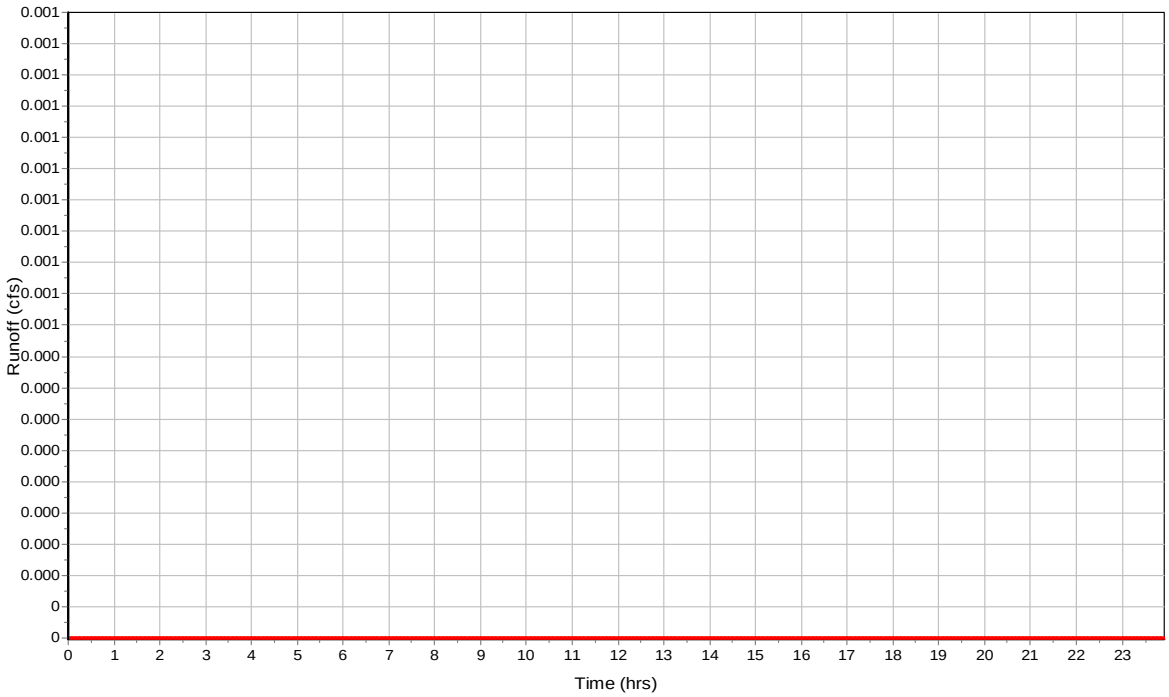
Total Rainfall (in)	2.42
Total Runoff (in)	0
Peak Runoff (cfs)	0
Weighted Curve Number	44.84
Time of Concentration (days hh:mm:ss)	0 00:06:43

Subbasin : P3

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : P4

Input Data

Area (ac) 1.22
Peak Rate Factor 484
Weighted Curve Number 49.71
Rain Gage ID ..... RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.61	C	41
Sagebrush range, Good	0.45	C	47
Gravel roads	0.1	C	89
Urban commercial, 85% imp	0.06	C	94
Composite Area & Weighted CN	1.22		49.71

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.35	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	20	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.16	0	0
Computed Flow Time (min) :	10.33	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	100	0	0
Slope (%) :	20	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	7.22	0	0
Computed Flow Time (min) :	0.23	0	0

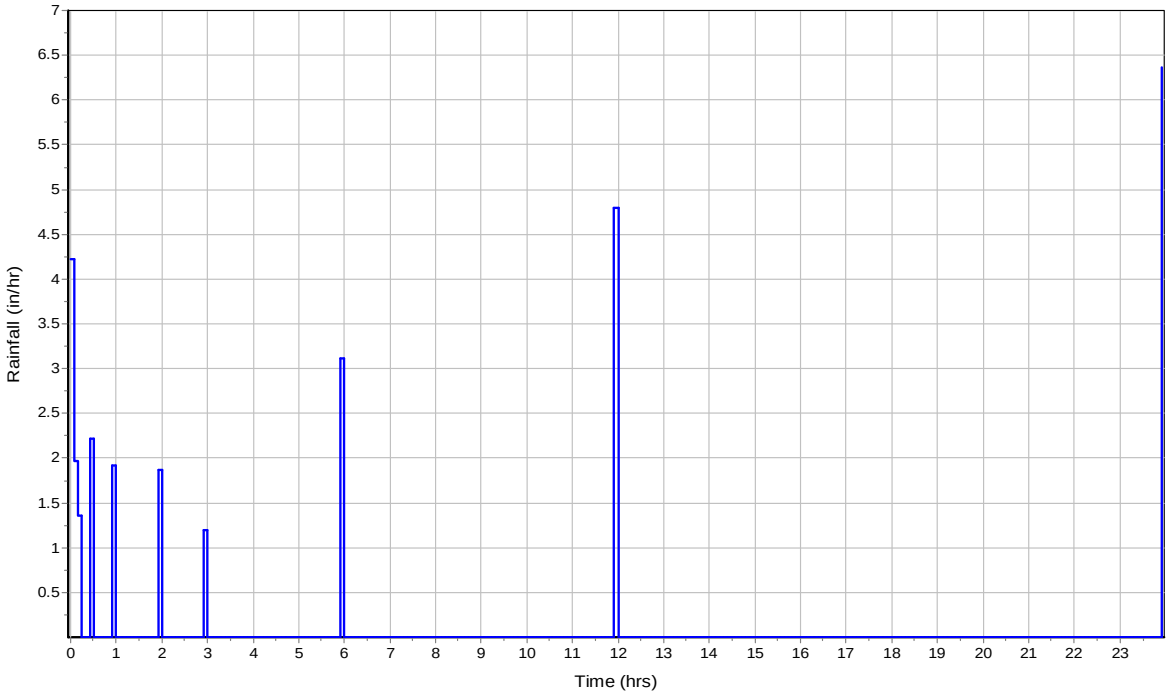
Total TOC (min) 10.56

Subbasin Runoff Results

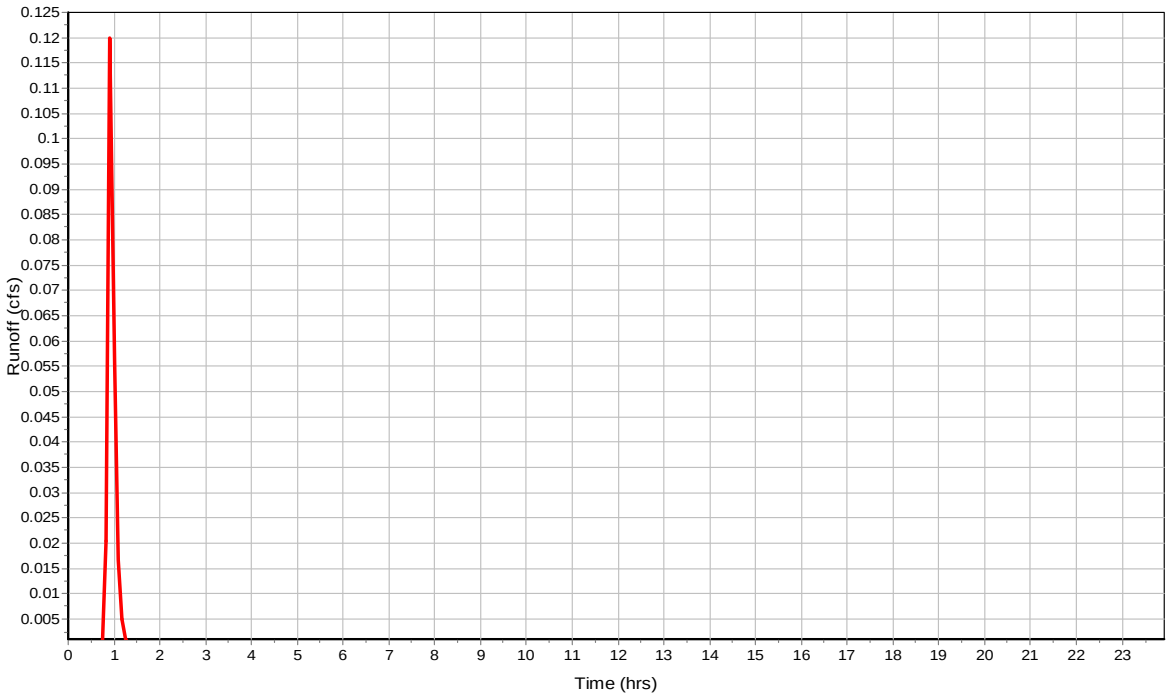
Total Rainfall (in) 2.42
Total Runoff (in) 0.02
Peak Runoff (cfs) 0.12
Weighted Curve Number 49.71
Time of Concentration (days hh:mm:ss) 0 00:10:34

Subbasin : P4

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : P5

Input Data

Area (ac) 1.75
Peak Rate Factor 484
Weighted Curve Number 50.15
Rain Gage ID ..... RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	1.05	C	41
Sagebrush range, Good	0.44	C	47
Paved parking & roofs	0.09	C	98
Gravel roads	0.18	C	89
Composite Area & Weighted CN	1.76		50.15

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.35	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	20	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.16	0	0
Computed Flow Time (min) :	10.33	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	15	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	6.25	0	0
Computed Flow Time (min) :	0.13	0	0

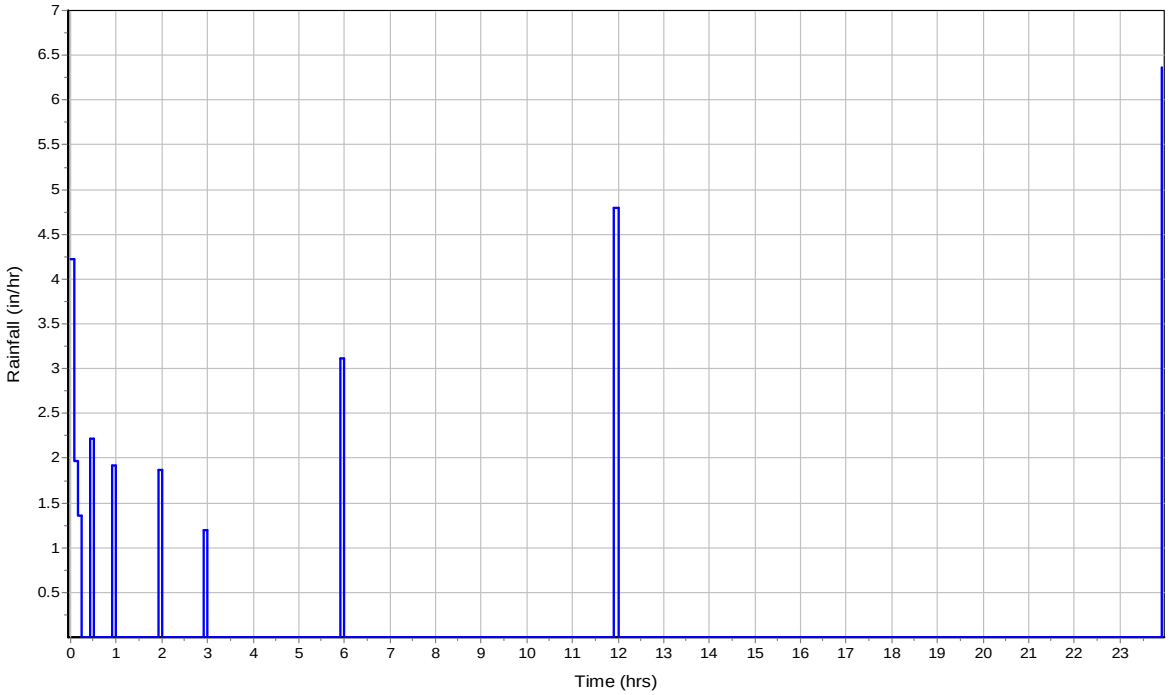
Total TOC (min) 10.46

Subbasin Runoff Results

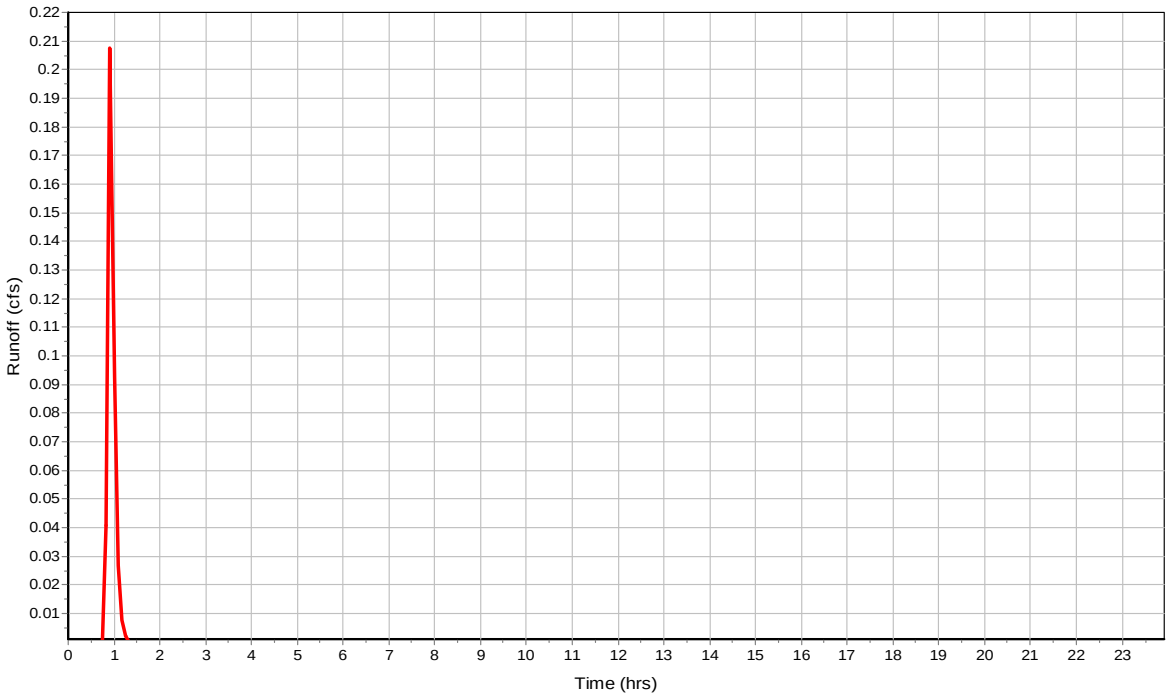
Total Rainfall (in) 2.42
Total Runoff (in) 0.02
Peak Runoff (cfs) 0.21
Weighted Curve Number 50.15
Time of Concentration (days hh:mm:ss) 0 00:10:28

Subbasin : P5

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : P6

Input Data

Area (ac)	0.26
Peak Rate Factor	484
Weighted Curve Number	57.5
Rain Gage ID	RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Gravel roads	0.07	C	89
Sagebrush range, Good	0.2	C	47
Composite Area & Weighted CN	0.27		57.5

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.25	0	0
Flow Length (ft) :	24	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.06	0	0
Computed Flow Time (min) :	6.33	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	5	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	3.61	0	0
Computed Flow Time (min) :	0.23	0	0

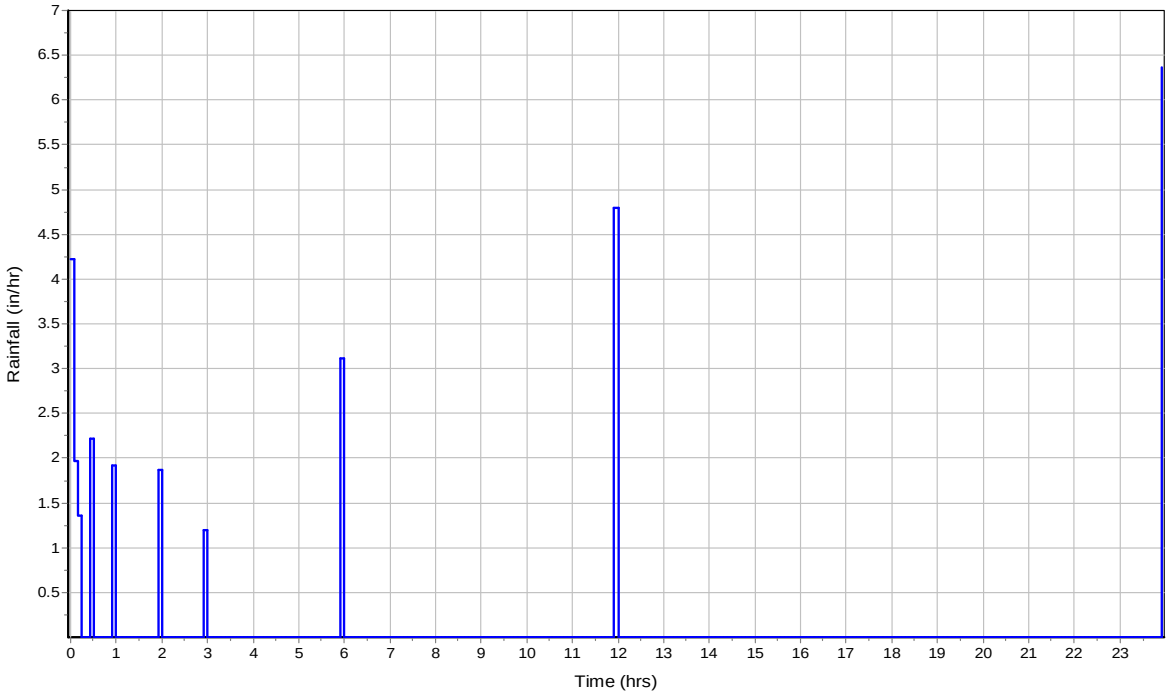
Total TOC (min) 6.56

Subbasin Runoff Results

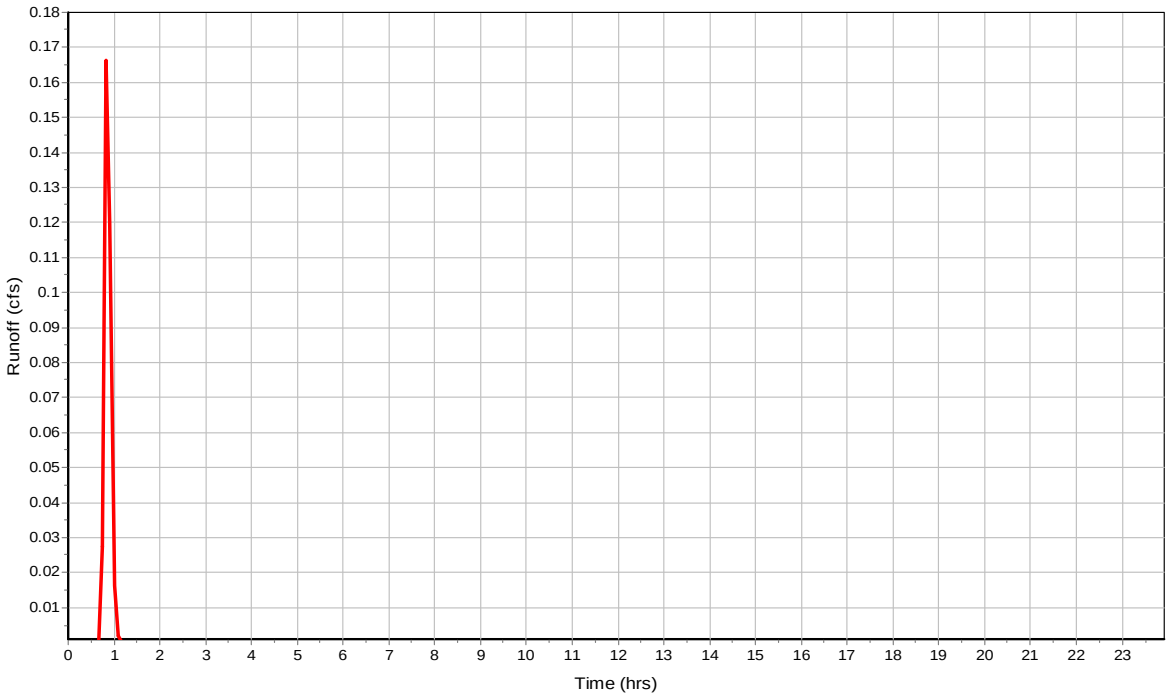
Total Rainfall (in)	2.42
Total Runoff (in)	0.11
Peak Runoff (cfs)	0.21
Weighted Curve Number	57.5
Time of Concentration (days hh:mm:ss)	0 00:06:34

Subbasin : P6

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : P7

Input Data

Area (ac) 1.5
Peak Rate Factor 484
Weighted Curve Number 46.25
Rain Gage ID ..... RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	1.35	C	41
Paved parking & roofs	0.08	C	98
Gravel roads	0.08	C	89
Composite Area & Weighted CN	1.51		46.25

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.35	0	0
Flow Length (ft) :	150	0	0
Slope (%) :	30	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.21	0	0
Computed Flow Time (min) :	12.15	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	30	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	8.84	0	0
Computed Flow Time (min) :	0.09	0	0

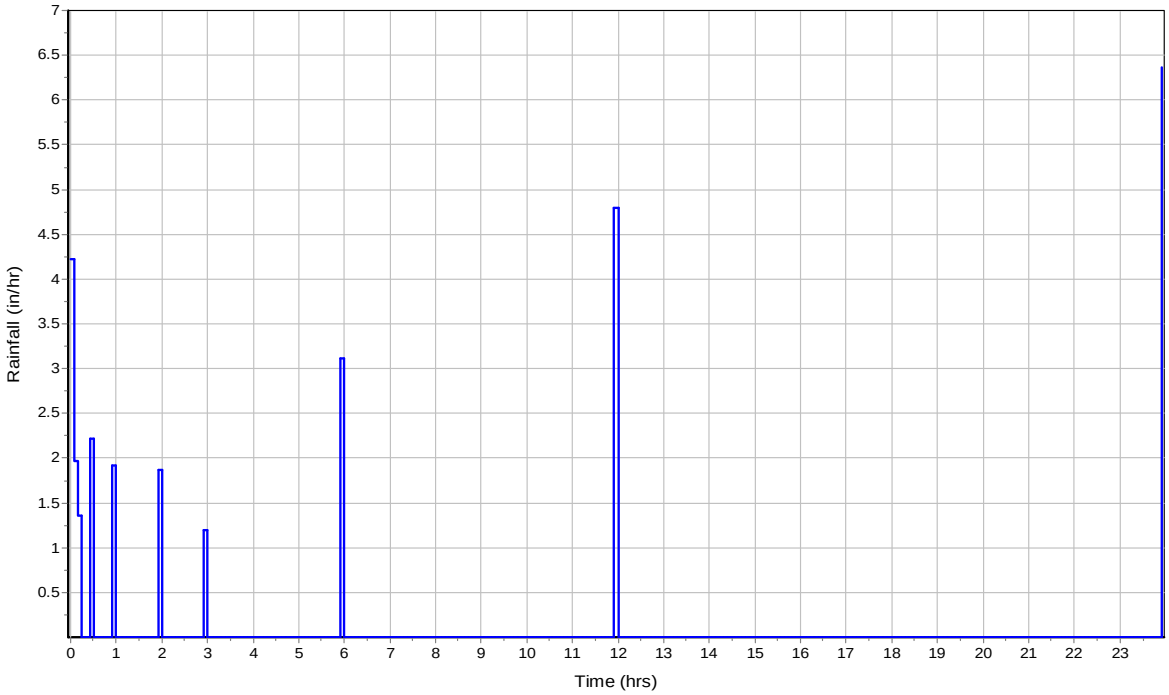
Total TOC (min) 12.24

Subbasin Runoff Results

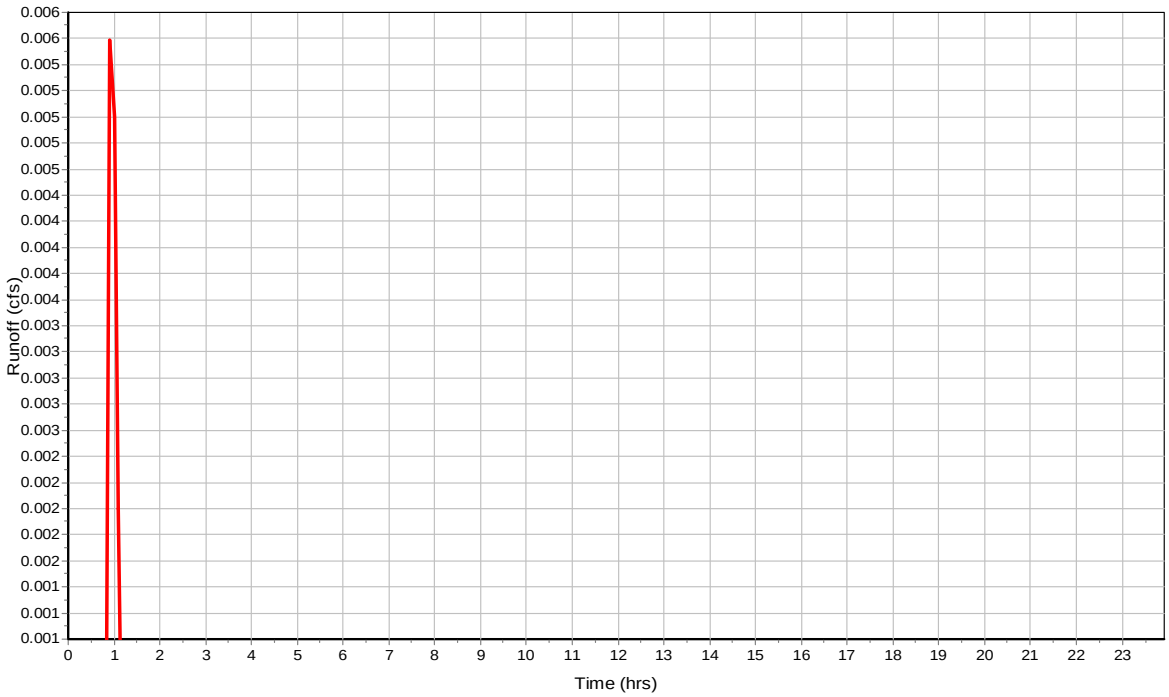
Total Rainfall (in) 2.42
Total Runoff (in) 0
Peak Runoff (cfs) 0.01
Weighted Curve Number 46.25
Time of Concentration (days hh:mm:ss) 0 00:12:14

Subbasin : P7

Rainfall Intensity Graph



Runoff Hydrograph



Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft^2)	Minimum Pipe Cover (in)
1	1-Jun	8720.00	6.00	-8714.00	0.00	-8720.00	0.00	-6.00	0.00	0.00
2	2-Jun	8718.00	6.00	-8712.00	0.00	-8718.00	0.00	-6.00	0.00	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	1-Jun	0.21	0.21	8720.09	0.09	0.00	1.41	8720.00	0.00	0 01:00	0 00:00	0.00	0.00
2	2-Jun	0.21	0.00	8718.09	0.09	0.00	1.41	8718.00	0.00	0 01:00	0 00:00	0.00	0.00

Channel Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Shape	Height (ft)	Width (ft)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Additional Losses	Initial Flow (cfs)	Flap Gate
1	Link-02	31.06	8718.00	0.00	8714.00	0.00	4.00	12.8800	Trapezoidal	1.000	25.000	0.0320	0.5000	0.5000	0.0000	0.00	No

Channel Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Froude Number	Reported Condition
1	Link-02	0.20	0 01:00	177.35	0.00	1.45	0.36	0.03	0.03	0.00		

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Additional Losses	Initial Flow (cfs)	Flap Gate	No. of Barrels
1	Link-01	24.00	8720.00	0.00	8718.00	0.00	2.00	8.3300	CIRCULAR	18.000	18.000	0.0150	0.5000	0.5000	0.0000	0.00	No	1

Pipe Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Froude Number	Reported Condition
1	Link-01	0.21	0 01:00	26.28	0.01	4.41	0.09	0.09	0.06	0.00		Calculated

Project Description

File Name ..... Dolores River Subdivision - Proposed.SPF

Project Options

Flow Units ..... CFS
Elevation Type ..... Elevation
Hydrology Method ..... SCS TR-55
Time of Concentration (TOC) Method ..... SCS TR-55
Link Routing Method ..... Kinematic Wave
Enable Overflow Ponding at Nodes ..... YES
Skip Steady State Analysis Time Periods ... YES

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	7
Nodes.....	8
Junctions	2
Outfalls	6
Flow Diversions	0
Inlets	0
Storage Nodes	0
Links.....	2
Channels	1
Pipes	1
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1	RICO	Time Series	100 YR	Cumulative	inches				0.00	

Subbasin Summary

SN	Subbasin ID	Area (ac)	Peak Rate Factor	Weighted Curve Number	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	P1	0.71	484.00	59.96	3.70	0.62	0.44	1.57	0 00:11:39
2	P2	0.45	484.00	59.40	3.70	0.59	0.27	1.09	0 00:08:56
3	P3	0.52	484.00	44.84	3.70	0.11	0.06	0.44	0 00:06:43
4	P4	1.22	484.00	49.71	3.70	0.24	0.29	1.41	0 00:10:33
5	P5	1.75	484.00	50.15	3.70	0.25	0.44	2.11	0 00:10:27
6	P6	0.26	484.00	57.50	3.70	0.51	0.13	0.65	0 00:06:33
7	P7	1.50	484.00	46.25	3.70	0.15	0.22	1.06	0 00:12:14

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	1-Jun	Junction	8720.00	6.00	0.00	0.00	0.00	1.95	8720.28	0.00	1.22	0 00:00	0.00	0.00
2	2-Jun	Junction	8718.00	6.00	0.00	0.00	0.00	1.95	8718.28	0.00	1.22	0 00:00	0.00	0.00
3	Out-P1	Outfall	8728.00					1.49	8728.00					
4	Out-P2	Outfall	8728.00					0.93	8728.00					
5	Out-P3	Outfall	8730.00					0.34	8730.00					
6	Out-P4	Outfall	8720.00					1.31	8720.00					
7	Out-P5	Outfall	8714.00					2.28	8714.10					
8	Out-P6	Outfall	8720.00					1.05	8720.00					

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged	Reported Condition
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)		(min)	
1	Link-01	Pipe	1-Jun	2-Jun	24.00	8720.00	8718.00	8.3300	18.000	0.0150	1.95	26.28	0.07	8.72	0.28	0.18	0.00	Calculated
2	Link-02	Channel	2-Jun	Out-P5	31.06	8718.00	8714.00	12.8800	12.000	0.0320	1.94	177.35	0.01	3.24	0.10	0.10	0.00	

Subbasin Hydrology

Subbasin : P1

Input Data

Area (ac) 0.71
Peak Rate Factor 484
Weighted Curve Number 59.96
Rain Gage ID ..... RICO

Composite Curve Number

32

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.44	C	41
Gravel roads	0.21	C	89
Paved parking & roofs	0.06	C	98
Composite Area & Weighted CN	0.71		59.96

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where :

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft^2)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's roughness

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.4	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	20	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.14	0	0
Computed Flow Time (min) :	11.49	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	10	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	5.1	0	0
Computed Flow Time (min) :	0.16	0	0

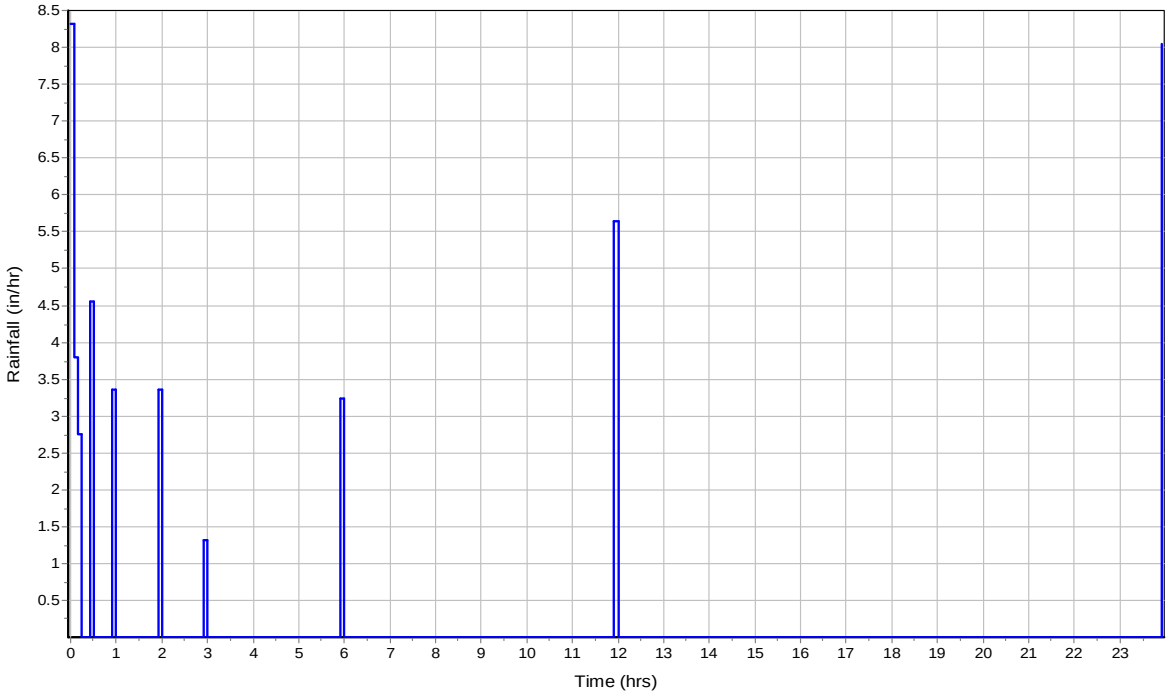
Total TOC (min) 11.66

Subbasin Runoff Results

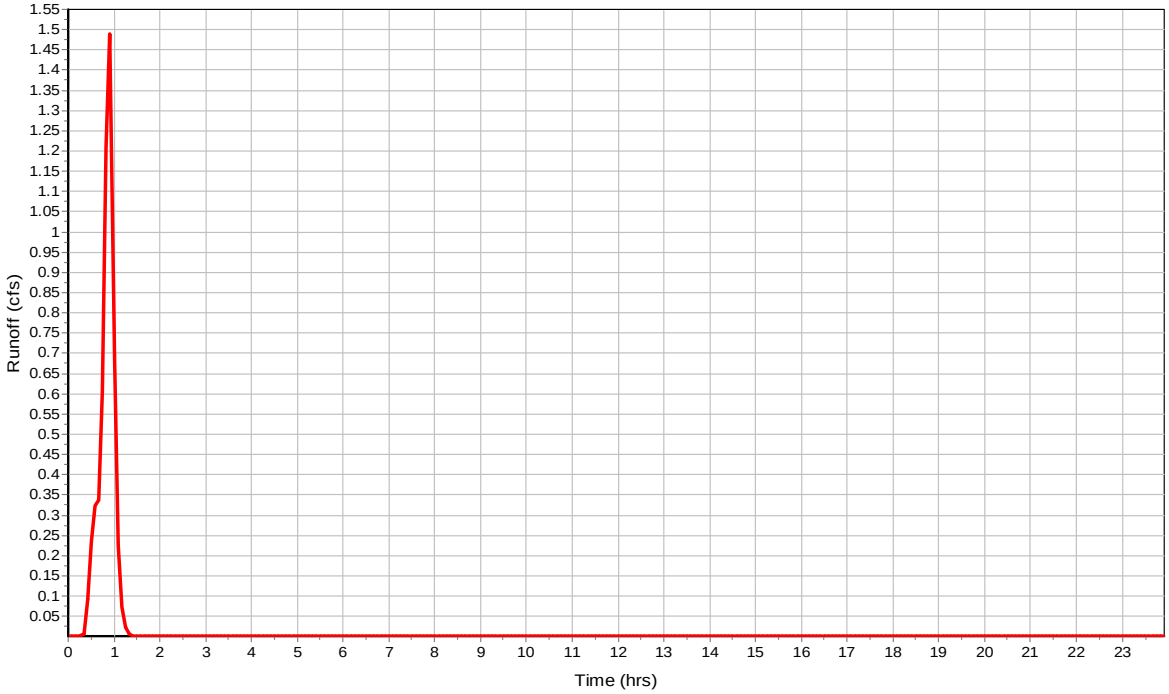
Total Rainfall (in)	3.7
Total Runoff (in)	0.62
Peak Runoff (cfs)	1.57
Weighted Curve Number	59.96
Time of Concentration (days hh:mm:ss)	0 00:11:40

Subbasin : P1

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : P2

Input Data

Area (ac)	0.45
Peak Rate Factor	484
Weighted Curve Number	59.4
Rain Gage ID	RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.18	C	41
Gravel roads	0.09	C	89
Sagebrush range, Fair	0.18	C	63
Composite Area & Weighted CN	0.45		59.4

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.4	0	0
Flow Length (ft) :	50	0	0
Slope (%) :	10	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	8.71	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	5	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	3.61	0	0
Computed Flow Time (min) :	0.23	0	0

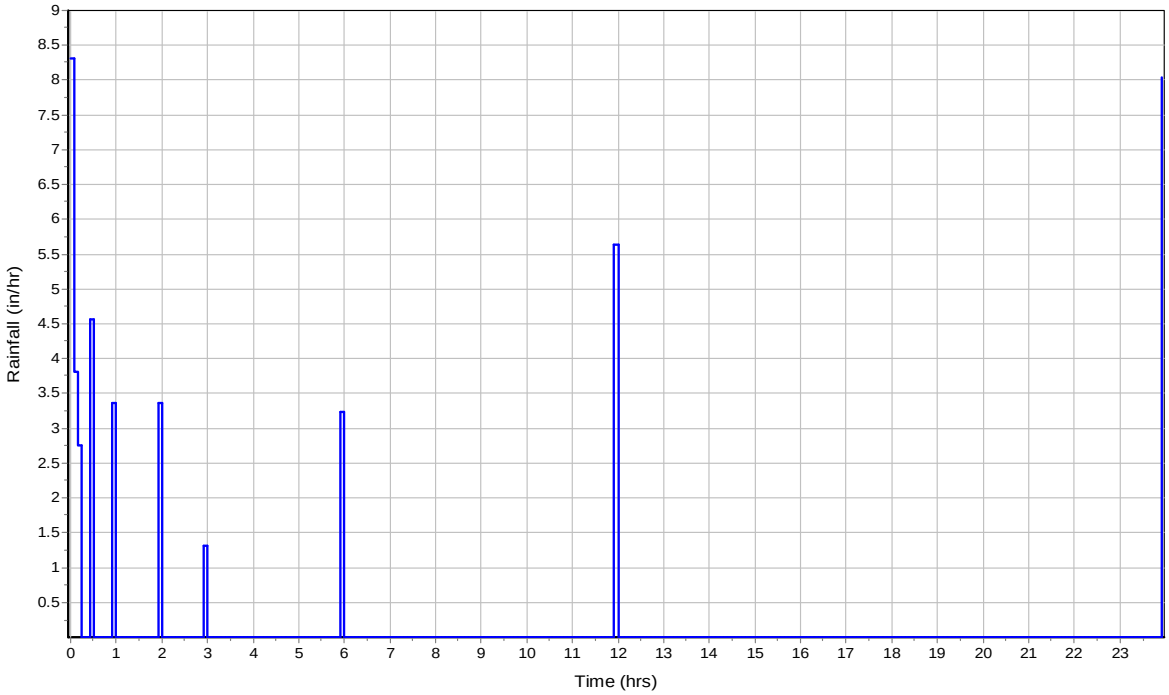
Total TOC (min) 8.94

Subbasin Runoff Results

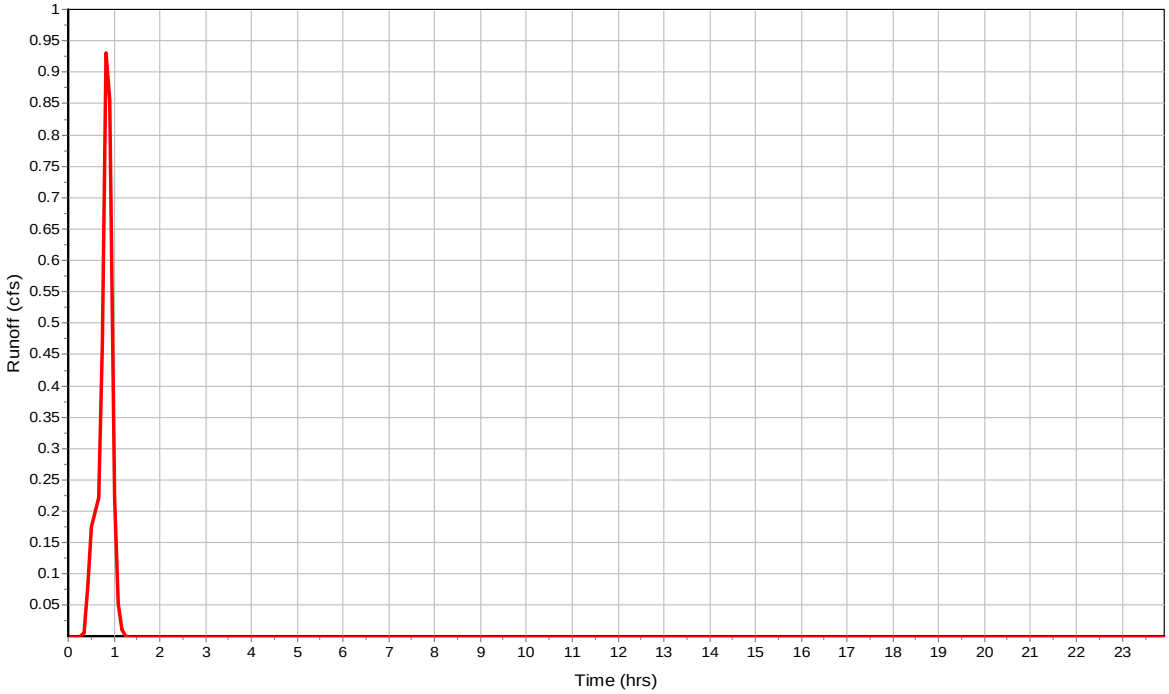
Total Rainfall (in)	3.7
Total Runoff (in)	0.59
Peak Runoff (cfs)	1.09
Weighted Curve Number	59.4
Time of Concentration (days hh:mm:ss)	0 00:08:56

Subbasin : P2

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : P3

Input Data

Area (ac)	0.52
Peak Rate Factor	484
Weighted Curve Number	44.84
Rain Gage ID	RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.48	C	41
Gravel roads	0.04	C	89
Composite Area & Weighted CN	0.52		44.84

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.4	0	0
Flow Length (ft) :	50	0	0
Slope (%) :	20	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.13	0	0
Computed Flow Time (min) :	6.6	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	20	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	7.22	0	0
Computed Flow Time (min) :	0.12	0	0

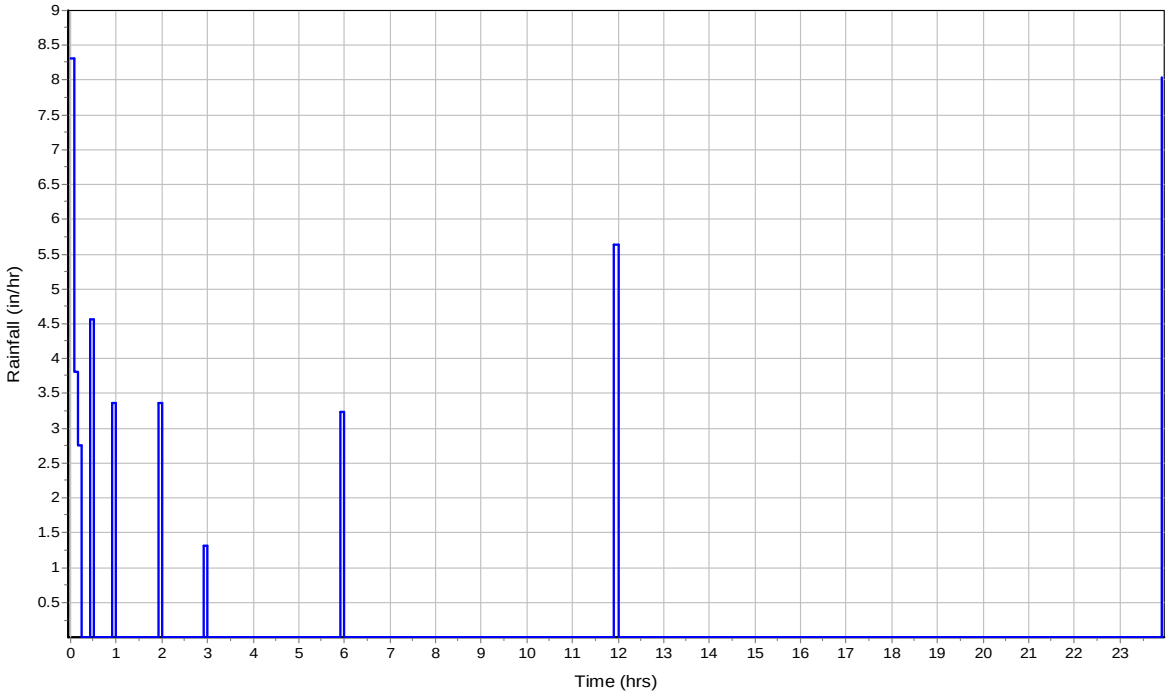
Total TOC (min) 6.72

Subbasin Runoff Results

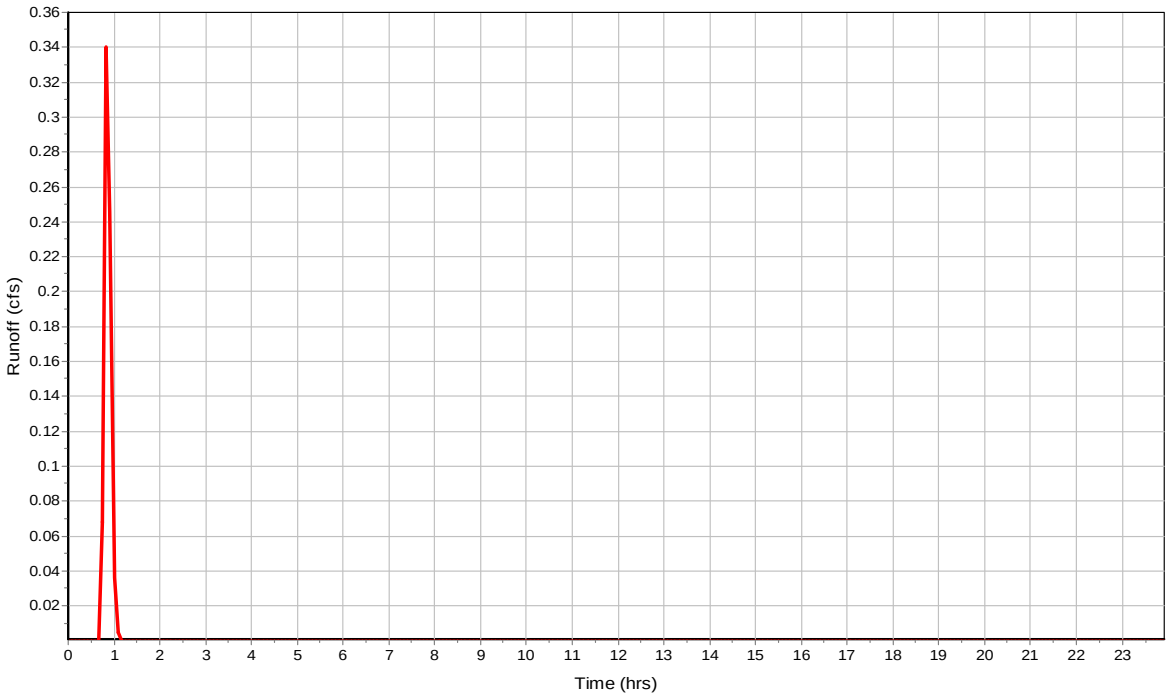
Total Rainfall (in)	3.7
Total Runoff (in)	0.11
Peak Runoff (cfs)	0.44
Weighted Curve Number	44.84
Time of Concentration (days hh:mm:ss)	0 00:06:43

Subbasin : P3

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : P4

Input Data

Area (ac) 1.22
Peak Rate Factor 484
Weighted Curve Number 49.71
Rain Gage ID ..... RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	0.61	C	41
Sagebrush range, Good	0.45	C	47
Gravel roads	0.1	C	89
Urban commercial, 85% imp	0.06	C	94
Composite Area & Weighted CN	1.22		49.71

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.35	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	20	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.16	0	0
Computed Flow Time (min) :	10.33	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	100	0	0
Slope (%) :	20	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	7.22	0	0
Computed Flow Time (min) :	0.23	0	0

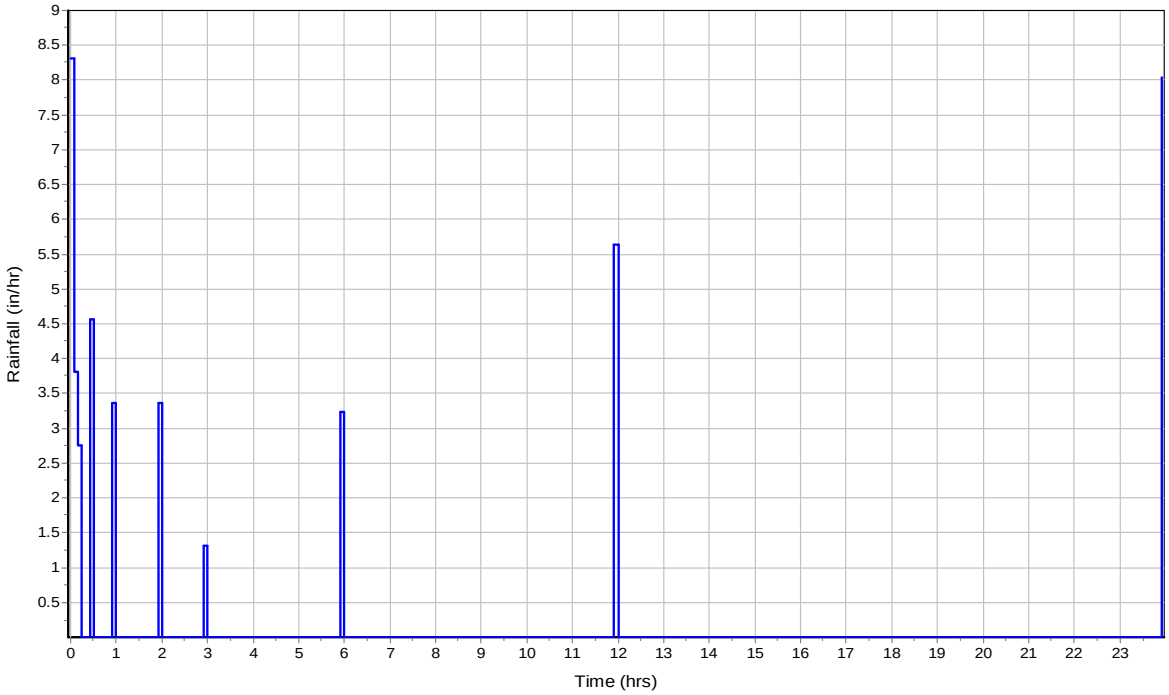
Total TOC (min) 10.56

Subbasin Runoff Results

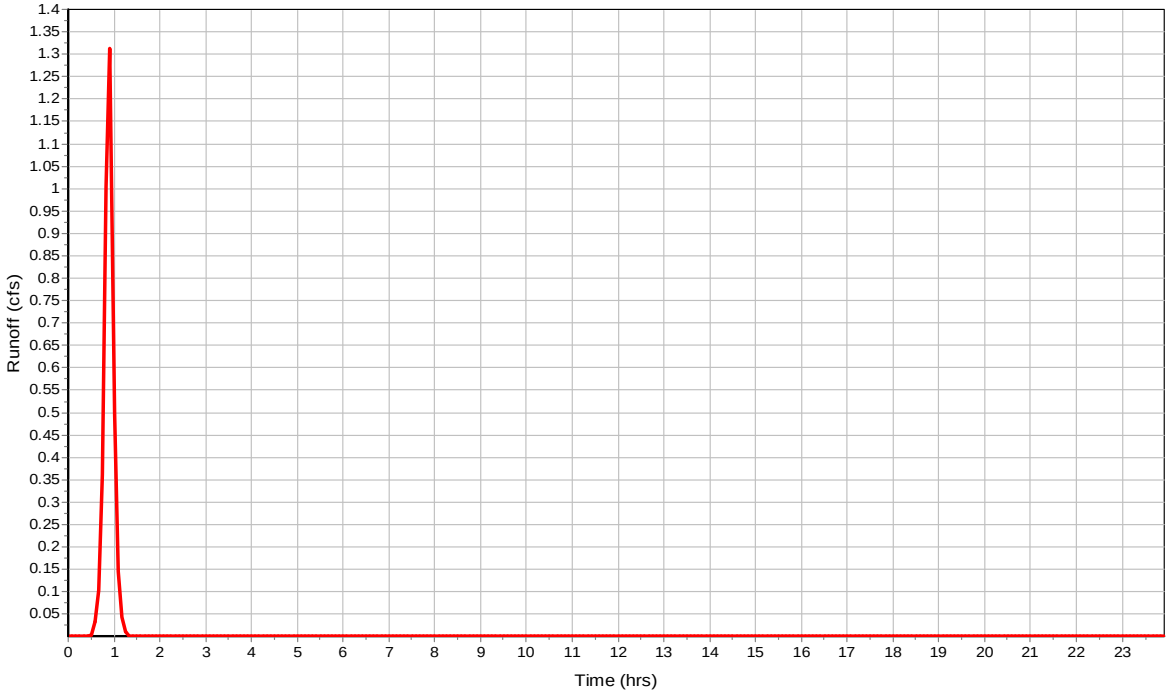
Total Rainfall (in) 3.7
Total Runoff (in) 0.24
Peak Runoff (cfs) 1.41
Weighted Curve Number 49.71
Time of Concentration (days hh:mm:ss) 0 00:10:34

Subbasin : P4

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : P5

Input Data

Area (ac)	1.75
Peak Rate Factor	484
Weighted Curve Number	50.15
Rain Gage ID	RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	1.05	C	41
Sagebrush range, Good	0.44	C	47
Paved parking & roofs	0.09	C	98
Gravel roads	0.18	C	89
Composite Area & Weighted CN	1.76		50.15

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.35	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	20	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.16	0	0
Computed Flow Time (min) :	10.33	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	15	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	6.25	0	0
Computed Flow Time (min) :	0.13	0	0

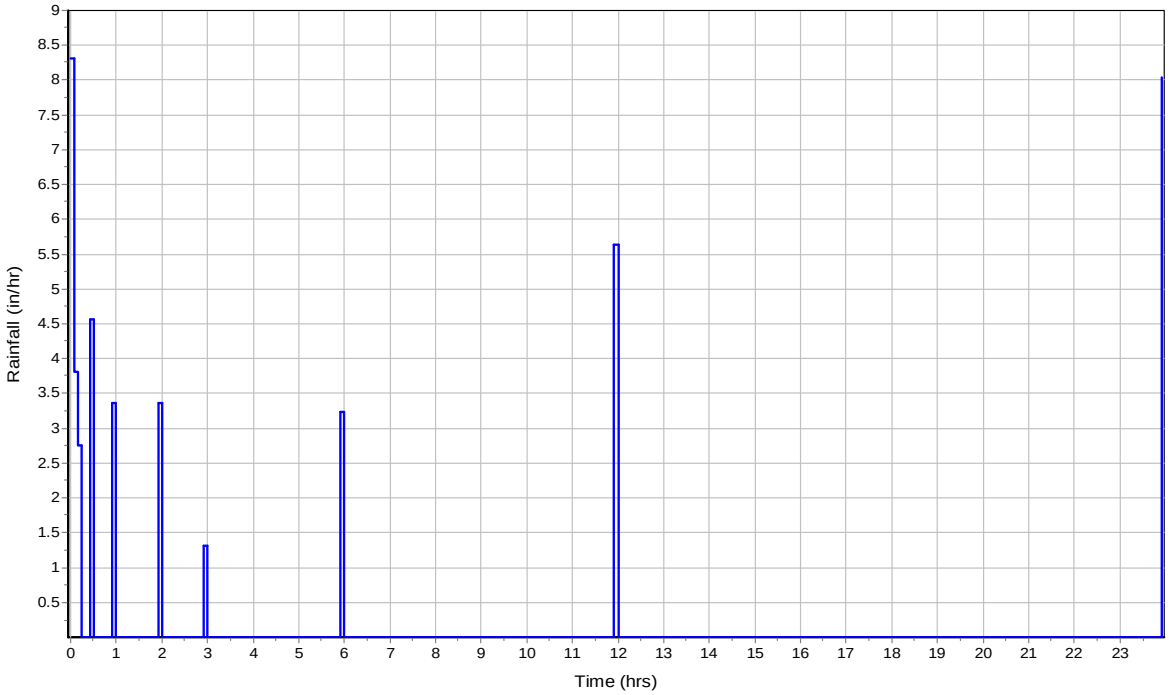
Total TOC (min) 10.46

Subbasin Runoff Results

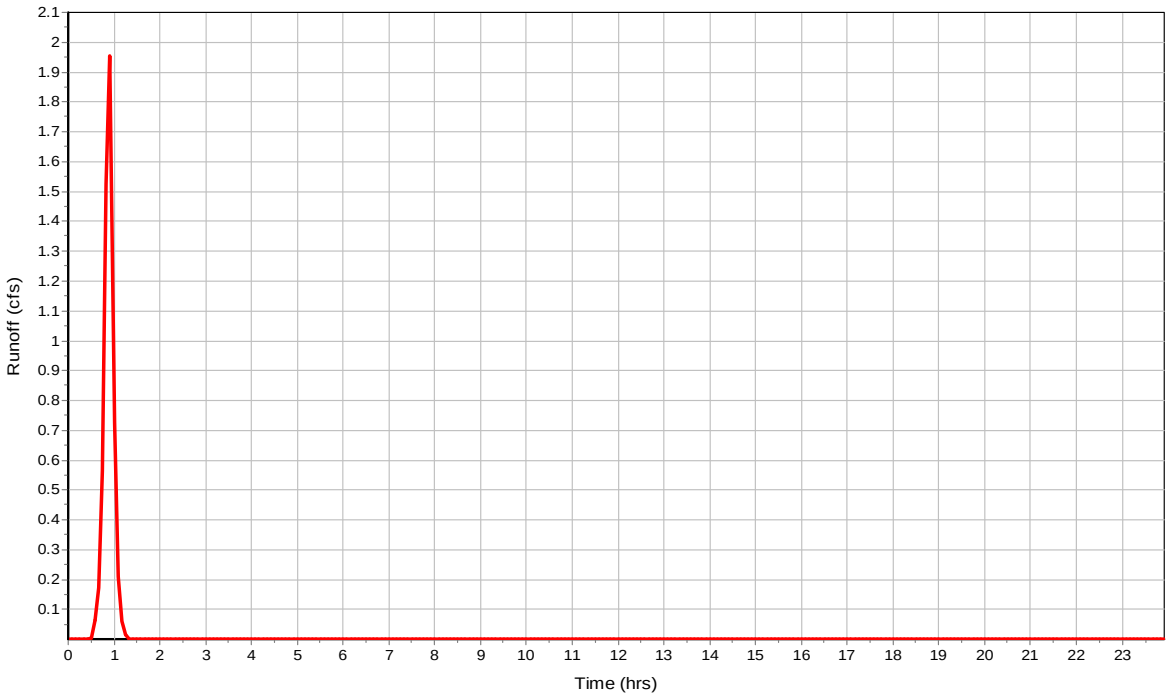
Total Rainfall (in)	3.7
Total Runoff (in)	0.25
Peak Runoff (cfs)	2.11
Weighted Curve Number	50.15
Time of Concentration (days hh:mm:ss)	0 00:10:28

Subbasin : P5

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : P6

Input Data

Area (ac)	0.26
Peak Rate Factor	484
Weighted Curve Number	57.5
Rain Gage ID	RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Gravel roads	0.07	C	89
Sagebrush range, Good	0.2	C	47
Composite Area & Weighted CN	0.27		57.5

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.25	0	0
Flow Length (ft) :	24	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.06	0	0
Computed Flow Time (min) :	6.33	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	5	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	3.61	0	0
Computed Flow Time (min) :	0.23	0	0

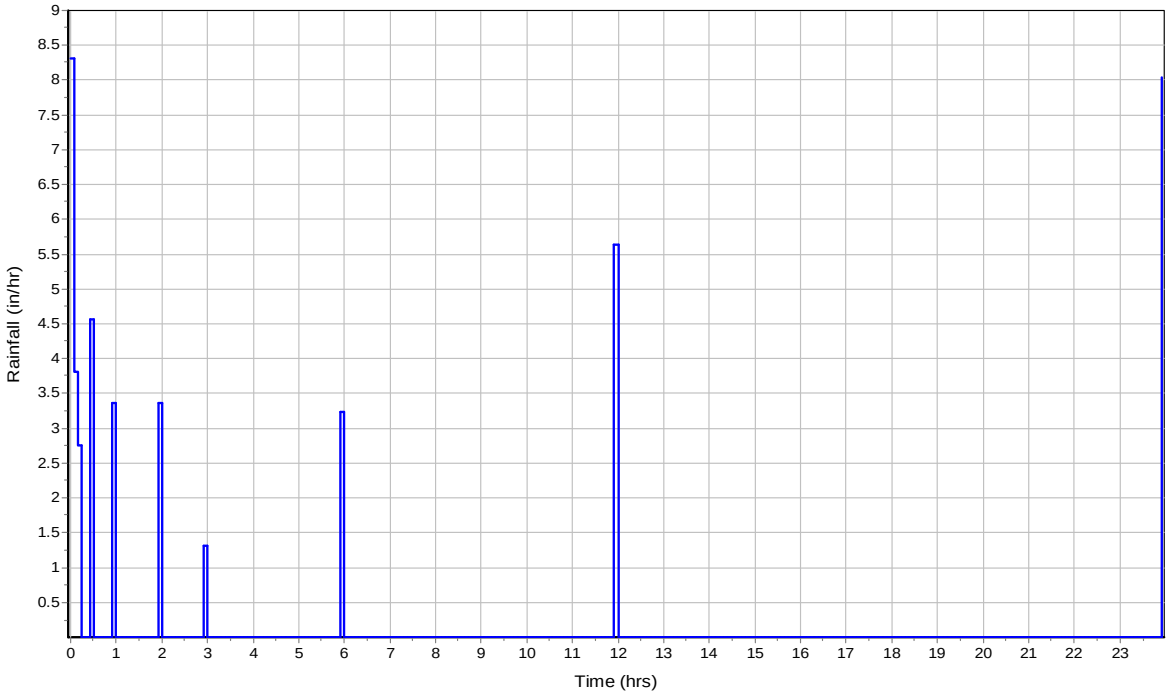
Total TOC (min) 6.56

Subbasin Runoff Results

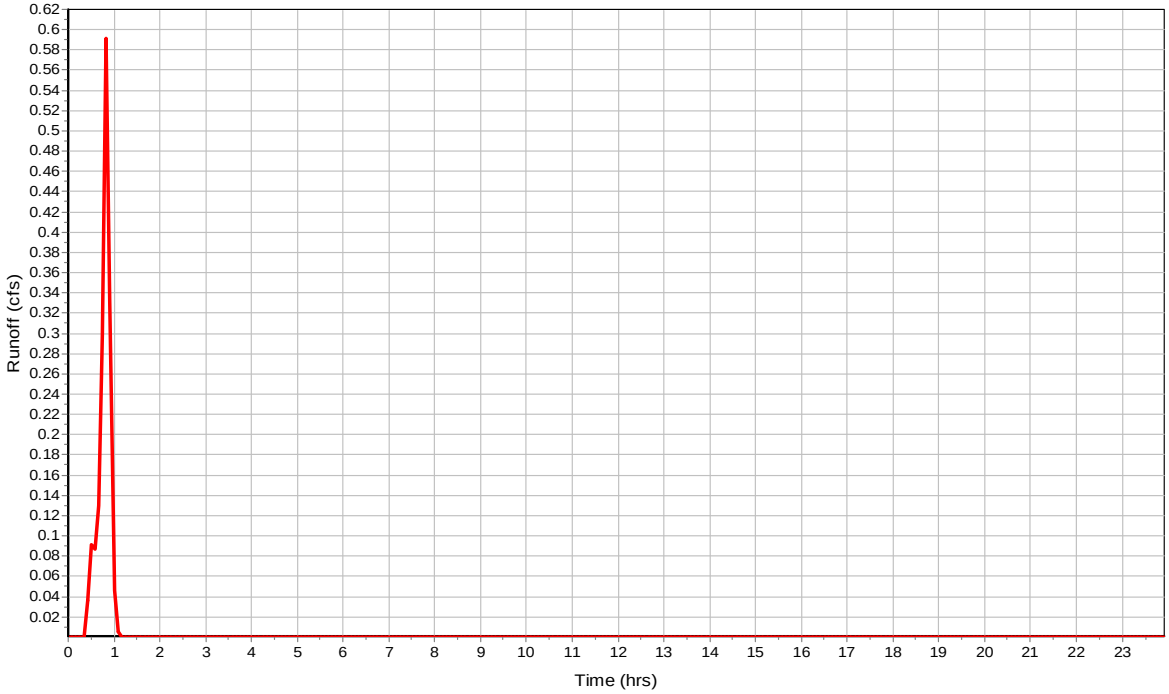
Total Rainfall (in)	3.7
Total Runoff (in)	0.51
Peak Runoff (cfs)	0.65
Weighted Curve Number	57.5
Time of Concentration (days hh:mm:ss)	0 00:06:34

Subbasin : P6

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : P7

Input Data

Area (ac) 1.5
Peak Rate Factor 484
Weighted Curve Number 46.25
Rain Gage ID ..... RICO

Composite Curve Number

32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Oak & Aspen range, Good	1.35	C	41
Paved parking & roofs	0.08	C	98
Gravel roads	0.08	C	89
Composite Area & Weighted CN	1.51		46.25

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.35	0	0
Flow Length (ft) :	150	0	0
Slope (%) :	30	0	0
2 yr, 24 hr Rainfall (in) :	1.77	0	0
Velocity (ft/sec) :	0.21	0	0
Computed Flow Time (min) :	12.15	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	50	0	0
Slope (%) :	30	0	0
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	8.84	0	0
Computed Flow Time (min) :	0.09	0	0

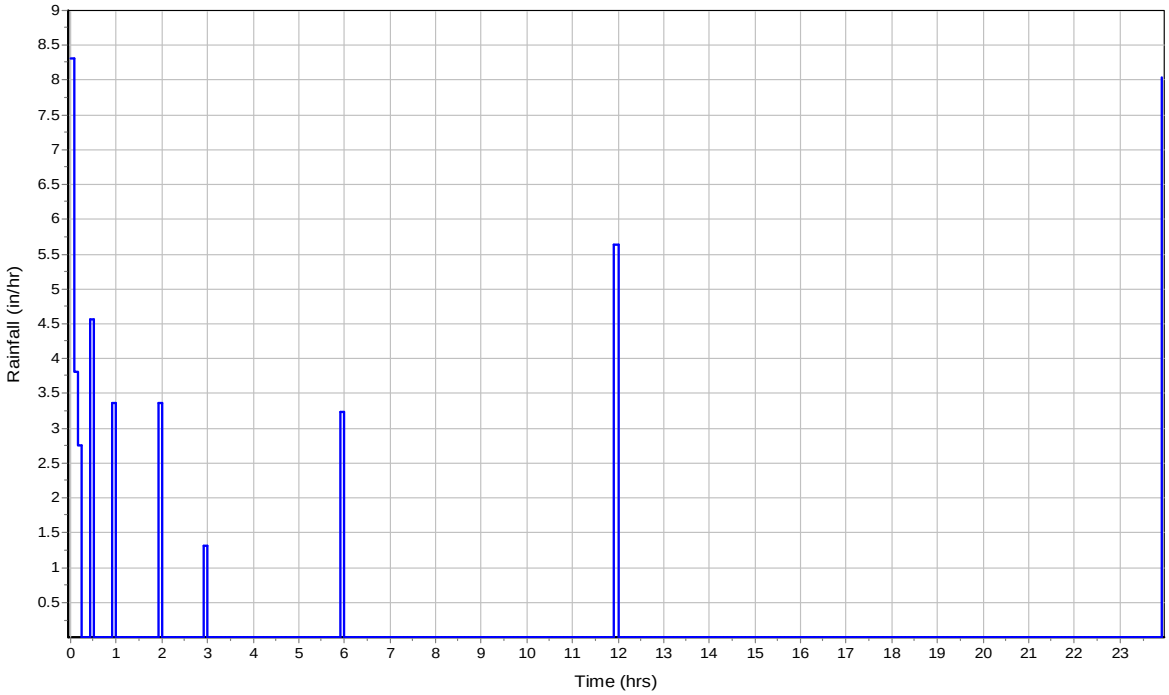
Total TOC (min) 12.24

Subbasin Runoff Results

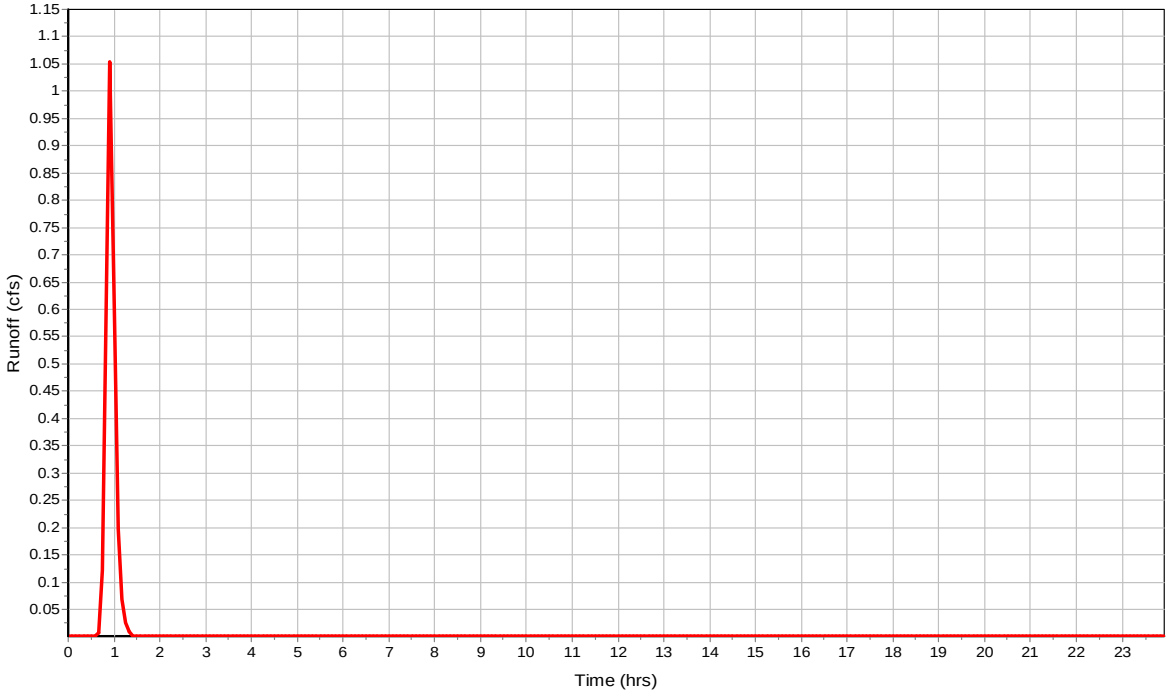
Total Rainfall (in) 3.7
Total Runoff (in) 0.15
Peak Runoff (cfs) 1.06
Weighted Curve Number 46.25
Time of Concentration (days hh:mm:ss) 0 00:12:14

Subbasin : P7

Rainfall Intensity Graph



Runoff Hydrograph



Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft²)	Minimum Pipe Cover (in)
1	1-Jun	8720.00	6.00	-8714.00	0.00	-8720.00	0.00	-6.00	0.00	0.00
2	2-Jun	8718.00	6.00	-8712.00	0.00	-8718.00	0.00	-6.00	0.00	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	1-Jun	1.95	1.95	8720.28	0.28	0.00	1.22	8720.00	0.00	0 01:00	0 00:00	0.00	0.00
2	2-Jun	1.95	0.00	8718.28	0.28	0.00	1.22	8718.00	0.00	0 01:00	0 00:00	0.00	0.00

Channel Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Shape	Height (ft)	Width (ft)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Additional Losses	Initial Flow (cfs)	Flap Gate
1	Link-02	31.06	8718.00	0.00	8714.00	0.00	4.00	12.8800	Trapezoidal	1.000	25.000	0.0320	0.5000	0.5000	0.0000	0.00	No

Channel Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Froude Number	Reported Condition
1	Link-02	1.94	0 01:00	177.35	0.01	3.24	0.16	0.10	0.10	0.00		

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Additional Losses	Initial Flow (cfs)	Flap Gate	No. of Barrels
1	Link-01	24.00	8720.00	0.00	8718.00	0.00	2.00	8.3300	CIRCULAR	18.000	18.000	0.0150	0.5000	0.5000	0.0000	0.00	No	1

Pipe Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Froude Number	Reported Condition
1	Link-01	1.95	0 01:00	26.28	0.07	8.72	0.05	0.28	0.18	0.00		Calculated

Dolores River Subdivision
Iron Draw Drainage Calculation
USGS Analysis of the Magnitude and Frequency of Floods in Colorado

Mountain region				
2	$Q = 11.0\ (A)^{0.663}\ (S+1.0)^{3.465}$	58.5	59.6
5	$Q = 17.9\ (A)^{0.677}\ (S+1.0)^{2.739}$	47.7	48.6
10	$Q = 23.0\ (A)^{0.685}\ (S+1.0)^{2.364}$	43.7	44.6
25	$Q = 29.4\ (A)^{0.695}\ (S+1.0)^{2.004}$	41.4	42.3
50	$Q = 34.5\ (A)^{0.700}\ (S+1.0)^{1.768}$	41.4	42.3
100	$Q = 39.5\ (A)^{0.706}\ (S+1.0)^{1.577}$	42.4	43.4
200	$Q = 44.6\ (A)^{0.710}\ (S+1.0)^{1.408}$	44.2	45.2
500	$Q = 51.5\ (A)^{0.715}\ (S+1.0)^{1.289}$	47.5	48.6

Iron Draw Area = 0.79 square miles
Iron Draw Slope = 48%

	Avg	Low	High
Q2	36.60	21.59	58.41
Q5	44.66	21.70	66.36
Q10	49.44	22.05	71.49
Q25	54.75	23.16	77.91
Q50	59.20	25.04	84.24
Q100	62.06	26.93	89.00
Q200	65.52	29.62	95.14

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Jun 30 2022

Rico - Roadside Ditch - 5% Grade - 0.5 ft depth

Triangular

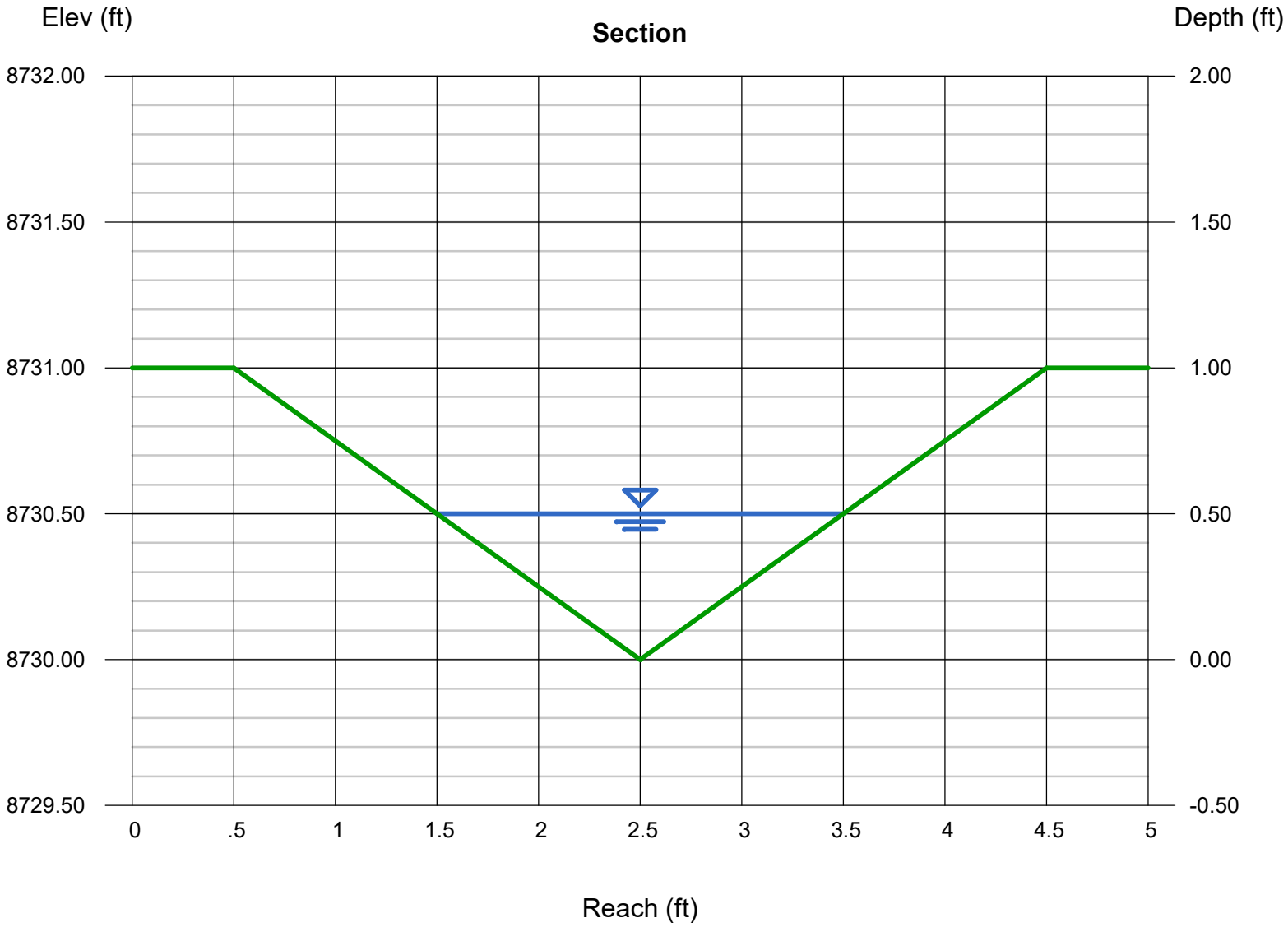
Side Slopes (z:1)	= 2.00, 2.00
Total Depth (ft)	= 1.00
Invert Elev (ft)	= 8730.00
Slope (%)	= 5.00
N-Value	= 0.035

Calculations

Compute by:	Q vs Depth
No. Increments	= 10

Highlighted

Depth (ft)	= 0.50
Q (cfs)	= 1.748
Area (sqft)	= 0.50
Velocity (ft/s)	= 3.50
Wetted Perim (ft)	= 2.24
Crit Depth, Yc (ft)	= 0.55
Top Width (ft)	= 2.00
EGL (ft)	= 0.69



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Jun 30 2022

Rico - Roadside Ditch - 10% Grade - 0.5 ft depth

Triangular

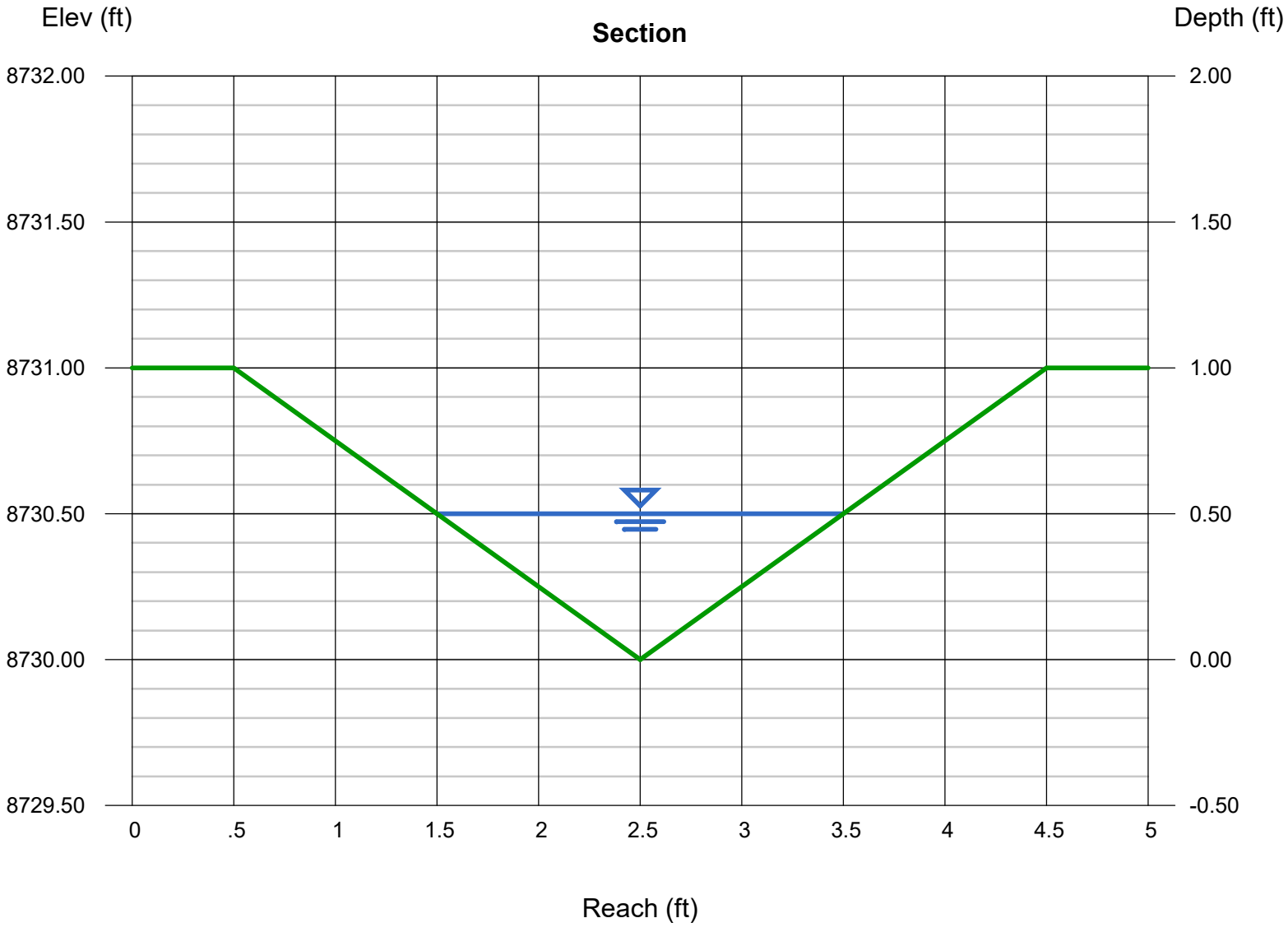
Side Slopes (z:1)	= 2.00, 2.00
Total Depth (ft)	= 1.00
Invert Elev (ft)	= 8730.00
Slope (%)	= 10.00
N-Value	= 0.035

Calculations

Compute by:	Q vs Depth
No. Increments	= 10

Highlighted

Depth (ft)	= 0.50
Q (cfs)	= 2.472
Area (sqft)	= 0.50
Velocity (ft/s)	= 4.94
Wetted Perim (ft)	= 2.24
Crit Depth, Yc (ft)	= 0.63
Top Width (ft)	= 2.00
EGL (ft)	= 0.88



Culvert Report

Iron Draw (2) 29 x 42 HERCP - Q2

Invert Elev Dn (ft)	=	8754.43
Pipe Length (ft)	=	29.00
Slope (%)	=	8.00
Invert Elev Up (ft)	=	8756.75
Rise (in)	=	29.0
Shape	=	Elliptical
Span (in)	=	45.0
No. Barrels	=	2
n-Value	=	0.013
Culvert Type	=	Horizontal Ellipse Concrete
Culvert Entrance	=	Square edge w/headwall (H)
Coeff. K,M,c,Y,k	=	0.01, 2, 0.0398, 0.67, 0.5

Embankment

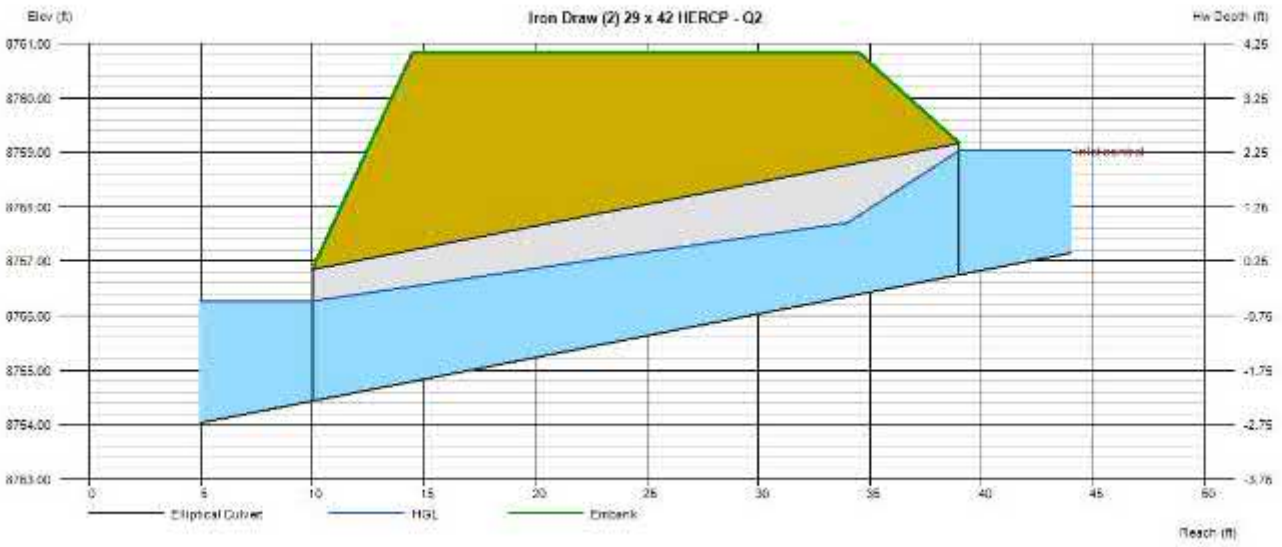
Top Elevation (ft)	=	8760.83
Top Width (ft)	=	20.00
Crest Width (ft)	=	20.00

Calculations

Qmin (cfs)	=	58.00
Qmax (cfs)	=	58.00
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	58.00
Qpipe (cfs)	=	58.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	4.68
Veloc Up (ft/s)	=	7.84
HGL Dn (ft)	=	8756.27
HGL Up (ft)	=	8758.01
Hw Elev (ft)	=	8759.03
Hw/D (ft)	=	0.94
Flow Regime	=	Inlet Control



Culvert Report

Iron Draw (2) 29 x 42 HERCP - Q10

Invert Elev Dn (ft)	=	8754.43
Pipe Length (ft)	=	29.00
Slope (%)	=	8.00
Invert Elev Up (ft)	=	8756.75
Rise (in)	=	29.0
Shape	=	Elliptical
Span (in)	=	45.0
No. Barrels	=	2
n-Value	=	0.013
Culvert Type	=	Horizontal Ellipse Concrete
Culvert Entrance	=	Square edge w/headwall (H)
Coeff. K,M,c,Y,k	=	0.01, 2, 0.0398, 0.67, 0.5

Embankment

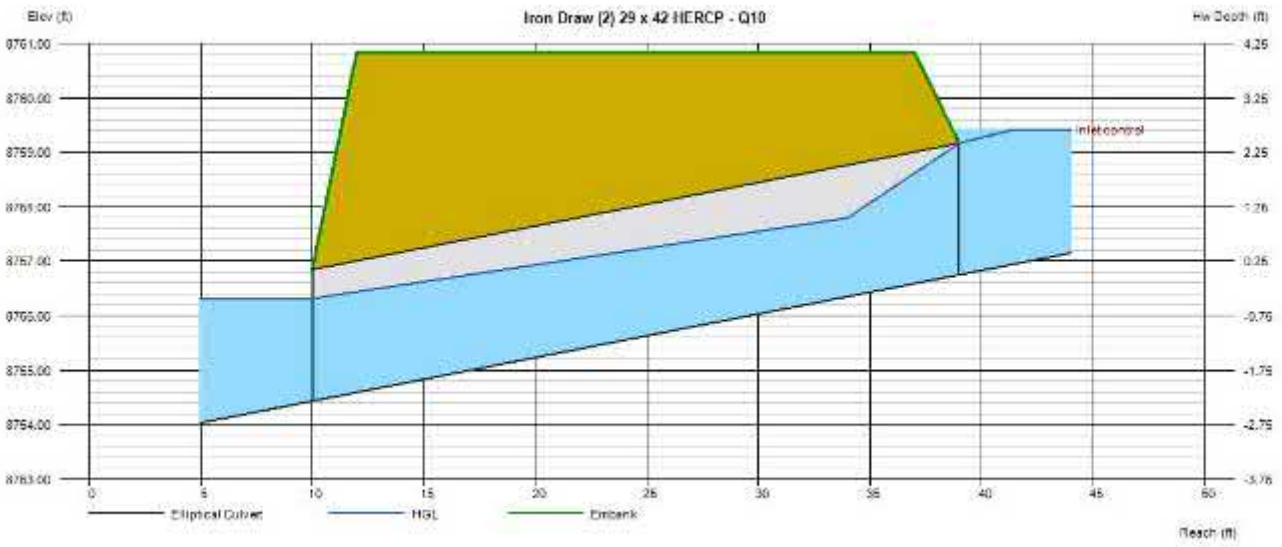
Top Elevation (ft)	=	8760.83
Top Width (ft)	=	25.00
Crest Width (ft)	=	20.00

Calculations

Qmin (cfs)	=	72.00
Qmax (cfs)	=	72.00
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	72.00
Qpipe (cfs)	=	72.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	5.81
Veloc Up (ft/s)	=	8.65
HGL Dn (ft)	=	8756.31
HGL Up (ft)	=	8758.10
Hw Elev (ft)	=	8759.43
Hw/D (ft)	=	1.11
Flow Regime	=	Inlet Control



Culvert Report

Iron Draw (2) 29 x 42 HERCP - Q100

Invert Elev Dn (ft)	=	8754.43
Pipe Length (ft)	=	29.00
Slope (%)	=	8.00
Invert Elev Up (ft)	=	8756.75
Rise (in)	=	29.0
Shape	=	Elliptical
Span (in)	=	45.0
No. Barrels	=	2
n-Value	=	0.013
Culvert Type	=	Horizontal Ellipse Concrete
Culvert Entrance	=	Square edge w/headwall (H)
Coeff. K,M,c,Y,k	=	0.01, 2, 0.0398, 0.67, 0.5

Embankment

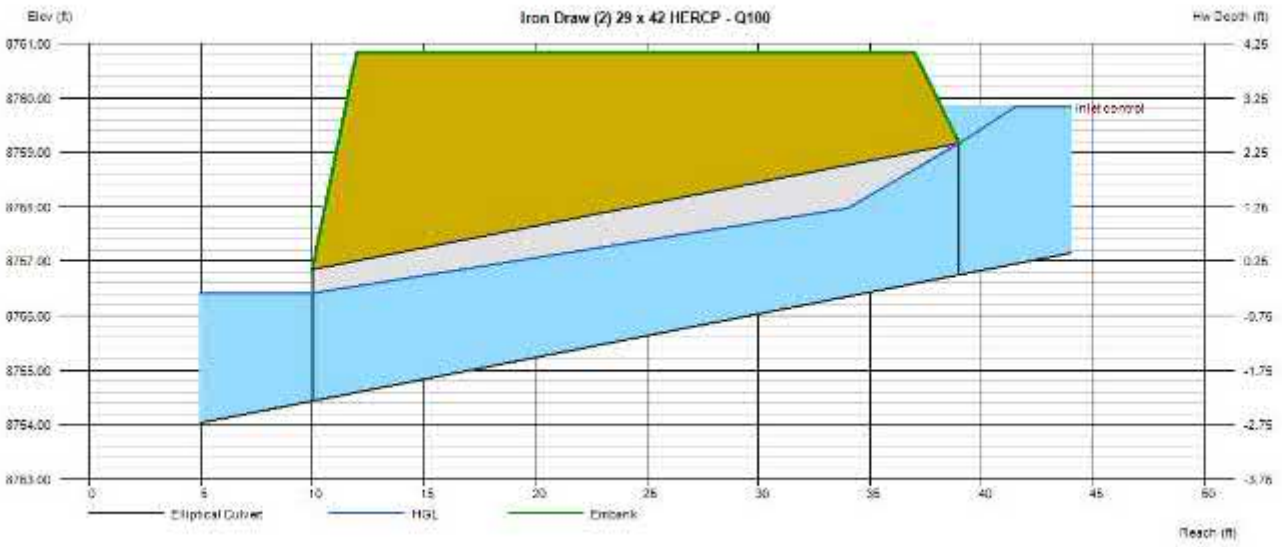
Top Elevation (ft)	=	8760.83
Top Width (ft)	=	25.00
Crest Width (ft)	=	20.00

Calculations

Qmin (cfs)	=	89.00
Qmax (cfs)	=	89.00
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	89.00
Qpipe (cfs)	=	89.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	6.91
Veloc Up (ft/s)	=	8.93
HGL Dn (ft)	=	8756.41
HGL Up (ft)	=	8758.30
Hw Elev (ft)	=	8759.83
Hw/D (ft)	=	1.27
Flow Regime	=	Inlet Control



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Nov 1 2022

IRON DRAW - NATURAL CHANNEL ABOVE CULVERT

User-defined

Invert Elev (ft)	= 8766.00
Slope (%)	= 25.00
N-Value	= 0.055

Calculations

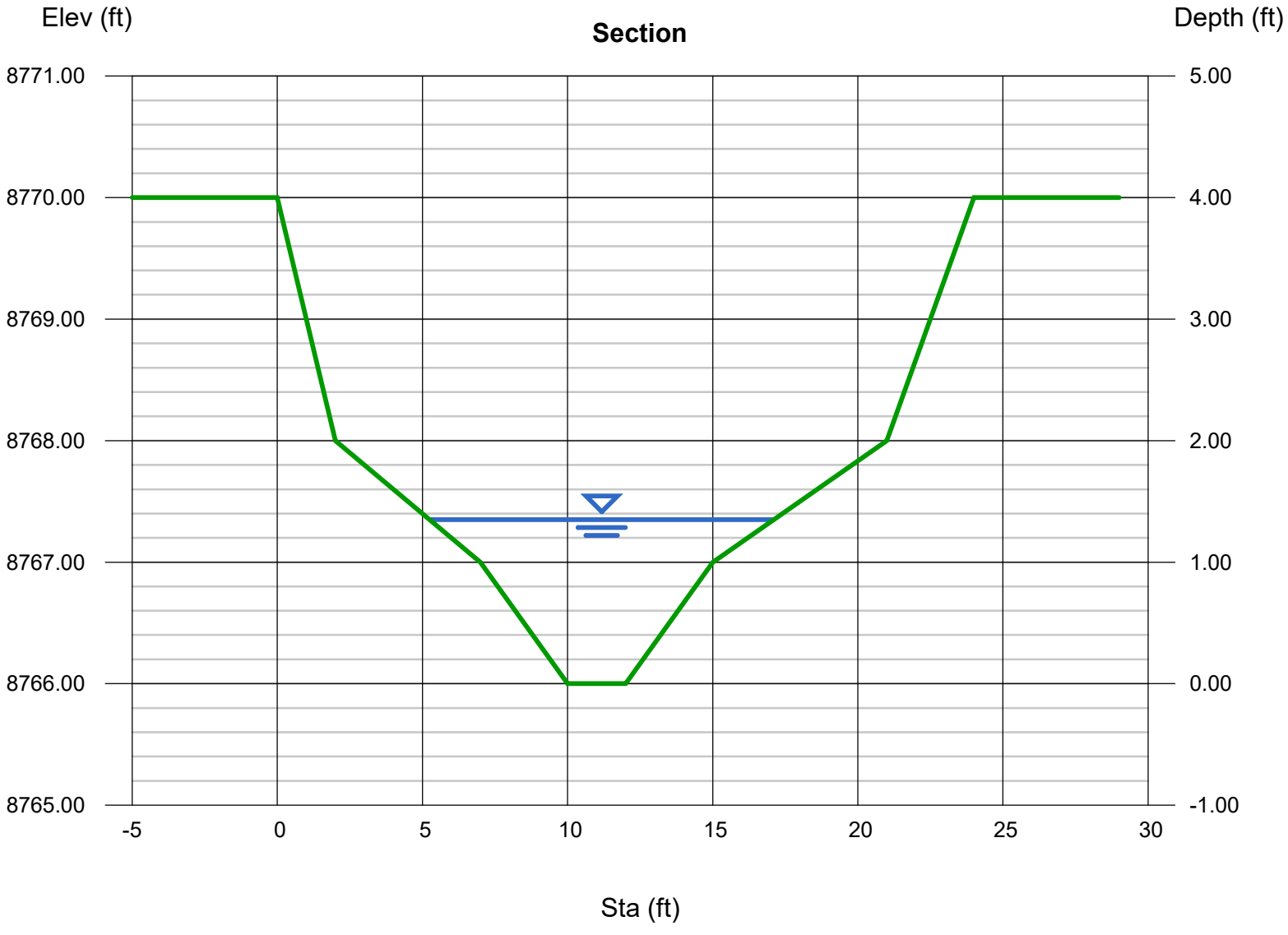
Compute by:	Known Q
Known Q (cfs)	= 89.00

Highlighted

Depth (ft)	= 1.35
Q (cfs)	= 89.00
Area (sqft)	= 8.47
Velocity (ft/s)	= 10.51
Wetted Perim (ft)	= 12.23
Crit Depth, Yc (ft)	= 1.89
Top Width (ft)	= 11.85
EGL (ft)	= 3.07

(Sta, El, n)-(Sta, El, n)...

(0.00, 8770.00)-(2.00, 8768.00, 0.070)-(7.00, 8767.00, 0.065)-(10.00, 8766.00, 0.050)-(12.00, 8766.00, 0.050)-(15.00, 8767.00, 0.050)-(21.00, 8768.00, 0.065)-(24.00, 8770.00, 0.070)



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Nov 1 2022

IRON DRAW - IMPROVED CHANNEL

User-defined

Invert Elev (ft)	= 8766.00
Slope (%)	= 25.00
N-Value	= 0.062

Calculations

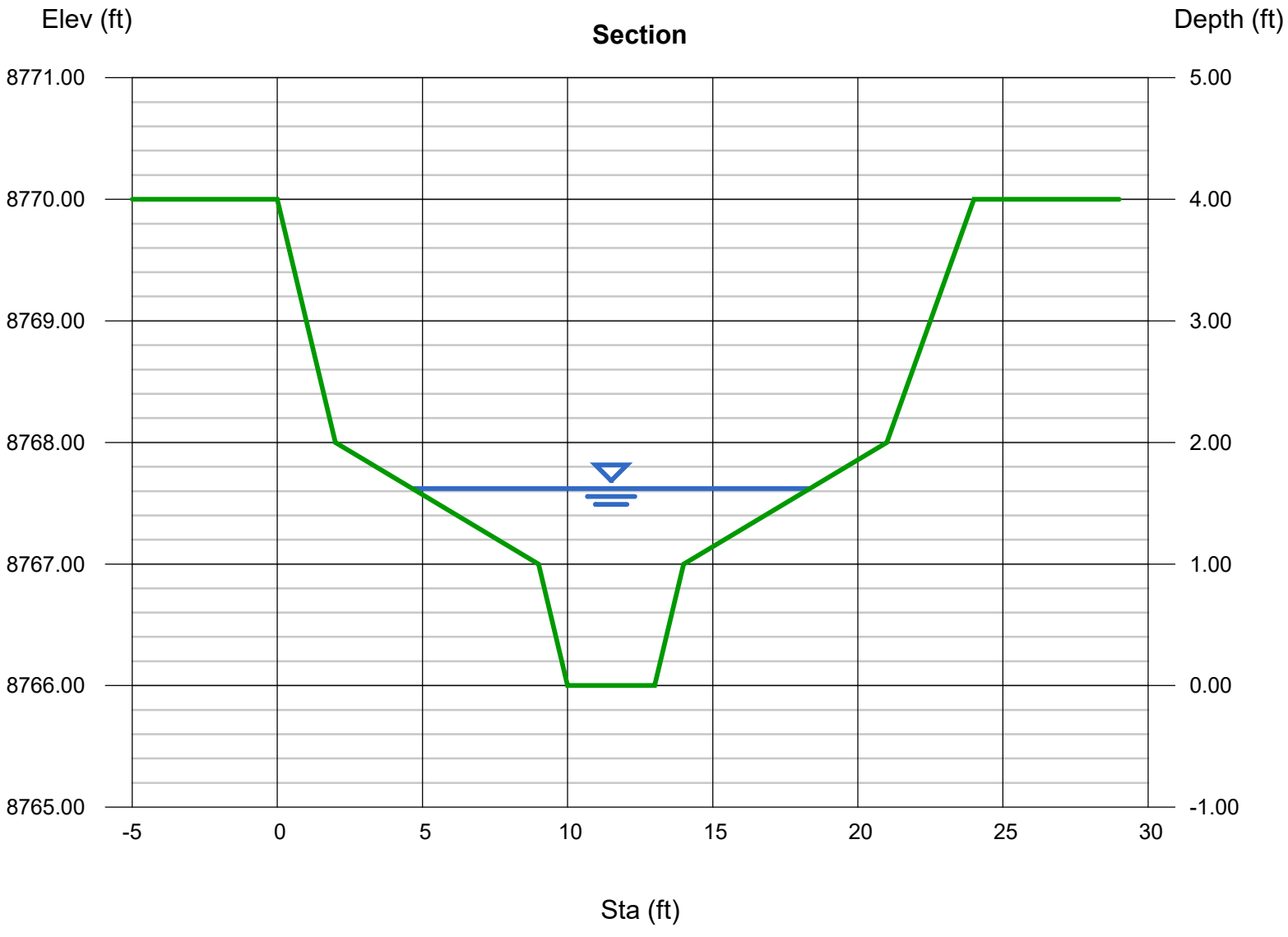
Compute by:	Known Q
Known Q (cfs)	= 89.00

Highlighted

Depth (ft)	= 1.62
Q (cfs)	= 89.00
Area (sqft)	= 9.79
Velocity (ft/s)	= 9.09
Wetted Perim (ft)	= 14.60
Crit Depth, Yc (ft)	= 2.04
Top Width (ft)	= 13.68
EGL (ft)	= 2.90

(Sta, El, n)-(Sta, El, n)...

(0.00, 8770.00)-(2.00, 8768.00, 0.075)-(9.00, 8767.00, 0.070)-(10.00, 8766.00, 0.035)-(13.00, 8766.00, 0.035)-(14.00, 8767.00, 0.070)-(21.00, 8768.00, 0.075)-(24.00, 8770.00, 0.050)



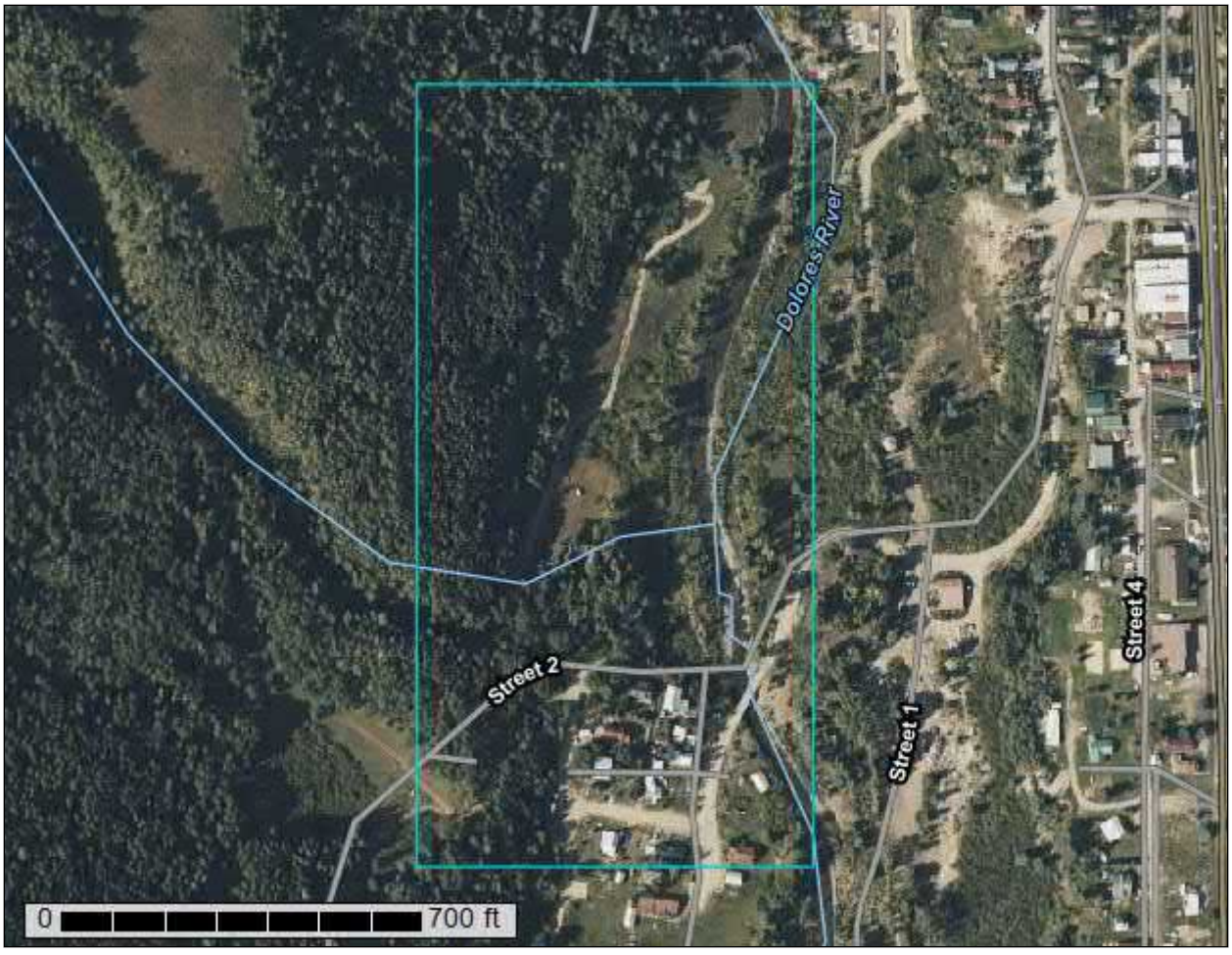
United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Animas-Dolores Area, Colorado, Parts of Archuleta, Dolores, Hinsdale, La Plata, Montezuma, San Juan, and San Miguel Counties

Dolores River Subdivision



June 17, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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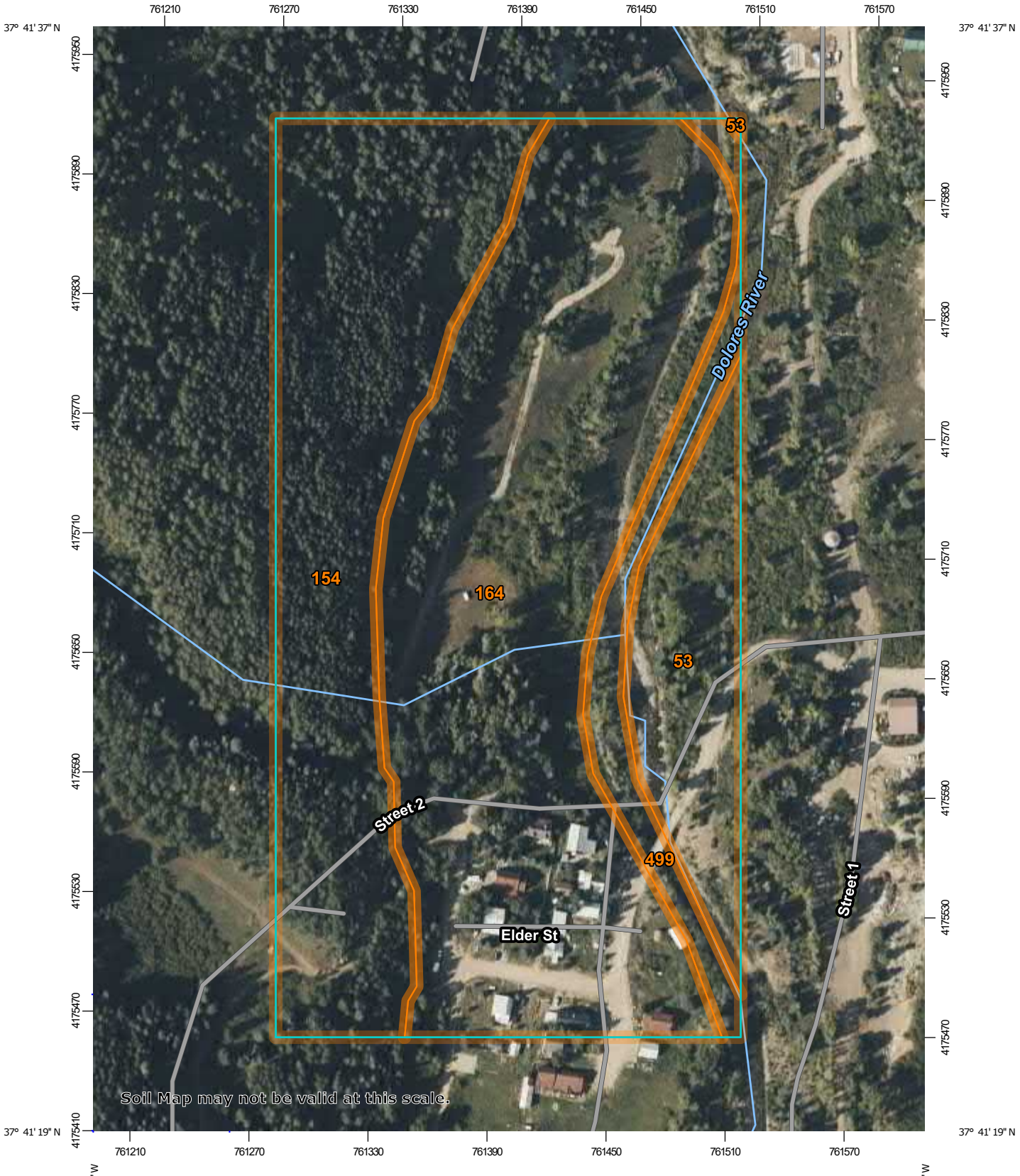
Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



Map Scale: 1:2,700 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 40 80 160 240

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Animas-Dolores Area, Colorado, Parts of Archuleta, Dolores, Hinsdale, La Plata, Montezuma, San Juan, and San Miguel Counties
Survey Area Data: Version 16, Sep 2, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 23, 2021—Sep 10, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
53	Cryaquolls-Typic Cryaquents complex, 1 to 5 percent slopes	2.9	10.7%
154	Frisco-Horsethief complex, 30 to 75 percent slopes	8.5	31.7%
164	Hourglass-Bucklon-Wander complex, 30 to 60 percent slopes	13.8	51.3%
499	Water	1.7	6.3%
Totals for Area of Interest		**26.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Animas-Dolores Area, Colorado, Parts of Archuleta, Dolores, Hinsdale, La Plata, Montezuma, San Juan, and San Miguel Counties

53—Cryaquolls-Typic Cryaquents complex, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: srmf
Elevation: 8,500 to 10,000 feet
Mean annual precipitation: 20 to 40 inches
Mean annual air temperature: 34 to 38 degrees F
Frost-free period: 50 to 75 days
Farmland classification: Not prime farmland

Map Unit Composition

Cryaquolls and similar soils: 50 percent
Typic cryaquents and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cryaquolls

Setting

Landform: Flood plains, valley floors
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources

Typical profile

A1 - 0 to 7 inches: loam
A2 - 7 to 12 inches: loam
C - 12 to 60 inches: stratified extremely gravelly loam to extremely gravelly sandy loam

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 6 to 20 inches
Frequency of flooding: NoneOccasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B/D
Ecological site: R048AY241CO - Mountain Meadow
Hydric soil rating: Yes

Description of Typic Cryaquents

Setting

Landform: Flood plains, valley floors
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources

Typical profile

Oi - 0 to 3 inches: slightly decomposed plant material
A - 3 to 11 inches: loam
C - 11 to 63 inches: stratified very gravelly loamy sand to very gravelly sandy loam

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 6 to 20 inches
Frequency of flooding: NoneOccasional
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B/D
Ecological site: R048AY241CO - Mountain Meadow
Hydric soil rating: Yes

Minor Components

Quazar

Percent of map unit: 10 percent
Hydric soil rating: No

Howardsville

Percent of map unit: 4 percent
Landform: Flood plains
Hydric soil rating: No

Riverwash

Percent of map unit: 1 percent
Landform: Flood plains
Hydric soil rating: Yes

154—Frisco-Horsethief complex, 30 to 75 percent slopes

Map Unit Setting

National map unit symbol: k0nw
Elevation: 8,400 to 11,500 feet
Mean annual precipitation: 25 to 45 inches
Mean annual air temperature: 34 to 38 degrees F
Frost-free period: 50 to 70 days
Farmland classification: Not prime farmland

Map Unit Composition

Frisco and similar soils: 60 percent
Horsethief and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Frisco

Setting

Landform: Mountain slopes
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Outwash, colluvium, and slope alluvium derived from granitic, volcanic, and sedimentary rocks

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 5 inches: loam
E1 - 5 to 11 inches: loam
E2 - 11 to 19 inches: cobbly loam
Bt1 - 19 to 48 inches: extremely stony sandy clay loam
Bt2 - 48 to 62 inches: extremely stony loam

Properties and qualities

Slope: 30 to 70 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F048AY918CO - Spruce-Fir Woodland
Other vegetative classification: Subalpine fir - Engelmann spruce/myrtle whortleberry (ABLA-PIEN/VAMY2) (C0320)
Hydric soil rating: No

Description of Horsethief

Setting

Landform: Mountain slopes
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium and slope alluvium derived from sandstone, volcanic and igneous rocks

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 5 inches: loam
E1 - 5 to 16 inches: fine sandy loam
E2 - 16 to 24 inches: fine sandy loam
E/B - 24 to 32 inches: sandy clay loam
Bt - 32 to 49 inches: very stony clay loam
BC - 49 to 62 inches: very stony clay loam

Properties and qualities

Slope: 30 to 75 percent
Surface area covered with cobbles, stones or boulders: 2.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: F048AY918CO - Spruce-Fir Woodland
Other vegetative classification: Subalpine fir - Engelmann spruce/myrtle whortleberry (ABLA-PIEN/VAMY2) (C0320)
Hydric soil rating: No

Minor Components

Snowdon

Percent of map unit: 10 percent

Quazar

Percent of map unit: 5 percent
Hydric soil rating: Unranked

164—Hourglass-Bucklon-Wander complex, 30 to 60 percent slopes

Map Unit Setting

National map unit symbol: k0p7
Elevation: 8,000 to 10,600 feet
Mean annual precipitation: 30 to 45 inches
Mean annual air temperature: 32 to 36 degrees F
Frost-free period: 40 to 60 days
Farmland classification: Not prime farmland

Map Unit Composition

Hourglass and similar soils: 50 percent
Bucklon and similar soils: 25 percent
Wander and similar soils: 15 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hourglass

Setting

Landform: Mountain slopes
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Slope alluvium derived from limestone, sandstone, and shale

Typical profile

A - 0 to 11 inches: loam
Bt1 - 11 to 18 inches: clay loam
Bt2 - 18 to 31 inches: gravelly clay loam
Bt3 - 31 to 46 inches: very stony clay loam
C - 46 to 60 inches: very stony clay loam

Properties and qualities

Slope: 30 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C

Ecological site: F048AY449CO - Aspen Woodland
Other vegetative classification: Quaking aspen/mountain snowberry (POTR5/SYOR2) (D0511)
Hydric soil rating: No

Description of Bucklon

Setting

Landform: Mountain slopes
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from sandstone and shale

Typical profile

A1 - 0 to 1 inches: loam
A2 - 1 to 12 inches: loam
Cr - 12 to 22 inches: weathered bedrock

Properties and qualities

Slope: 30 to 60 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: F048AY449CO - Aspen Woodland
Other vegetative classification: Quaking aspen/mountain snowberry (POTR5/SYOR2) (D0511)
Hydric soil rating: No

Description of Wander

Setting

Landform: Mountain slopes
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium and slope alluvium derived from sandstone and shale

Typical profile

A - 0 to 14 inches: very cobbly loam
Bt1 - 14 to 27 inches: very cobbly clay loam
Bt2 - 27 to 40 inches: very cobbly clay loam
C - 40 to 60 inches: very cobbly clay loam

Properties and qualities

Slope: 30 to 60 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: F048AY449CO - Aspen Woodland
Other vegetative classification: Quaking aspen/mountain snowberry (POTR5/SYOR2) (D0511)
Hydric soil rating: No

Minor Components

Clayburn

Percent of map unit: 5 percent
Hydric soil rating: No

Frisco

Percent of map unit: 4 percent

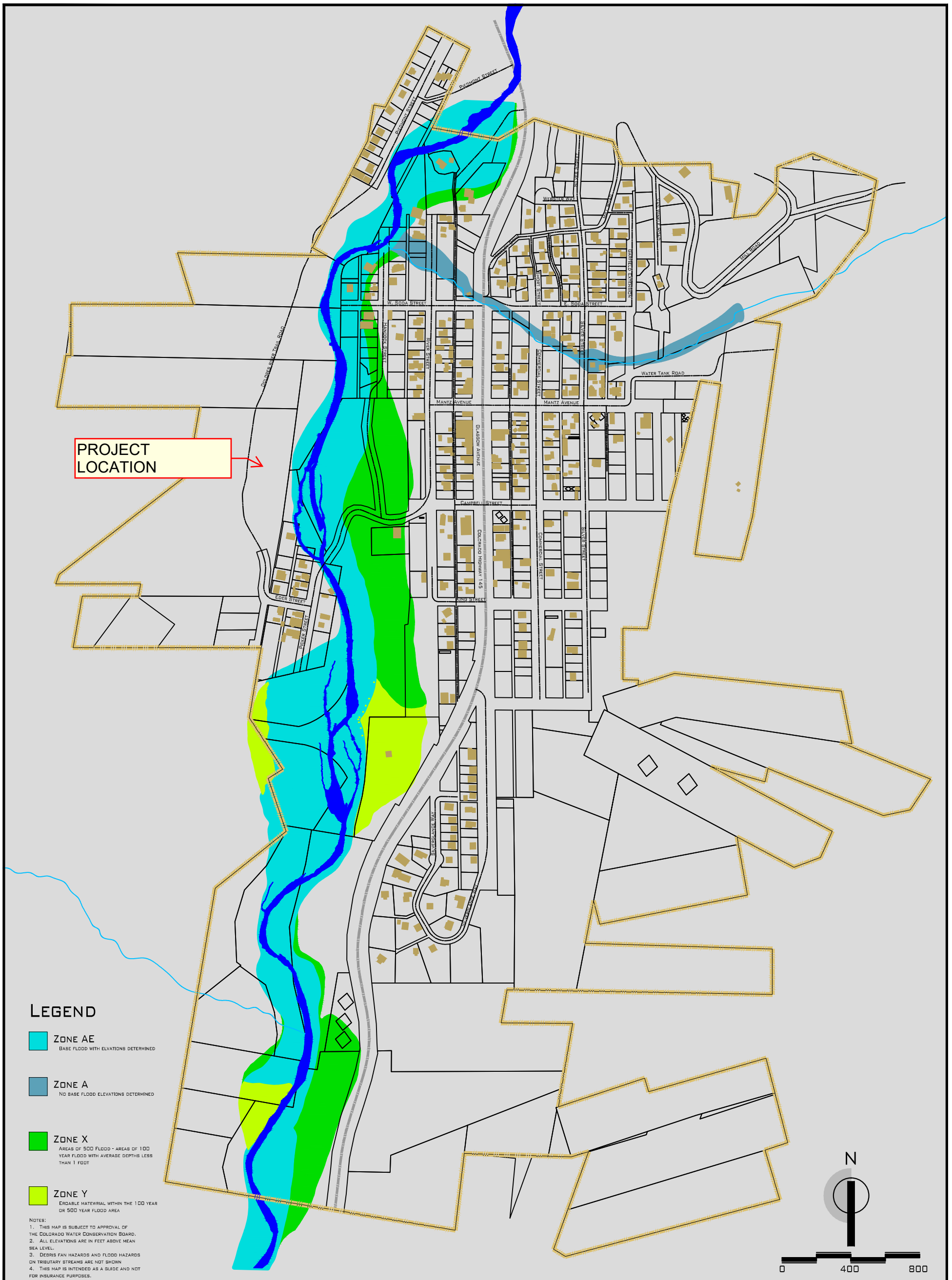
Tamarron

Percent of map unit: 1 percent

499—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.



Town of Rico
Flood Hazard Map

BENCHMARK:

1. CONTACT ALL POINTS LAND SURVEYING TO ESTABLISH BENCHMARK AND CONSTRUCTION CONTROL.

GENERAL NOTES:

1. THESE PLANS ARE FOR INFRASTRUCTURE IMPROVEMENTS ONLY.
2. EXISTING CONDITIONS SHOWN IN THESE PLANS IS FROM TOPOGRAPHIC SURVEY DATA PROVIDED BY ALL POINTS LAND SURVEYING SURVEYING.
3. ALL MATERIALS AND CONSTRUCTION SHALL BE COMPLETED PER TOWN OF RICO LAND USE CODE AND/OR STANDARDS AND REQUIREMENTS, MOST CURRENT VERSION. WHERE TOWN OF RICO STANDARDS AND REQUIREMENTS DO NOT COVER THE SCOPE OF WORK, CDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SHALL USED.
4. THE CONTRACTOR SHALL HAVE ONE APPROVED AND SIGNED (COUNTY AND ENGINEER) COPY OF THE PLANS ON THE JOB SITE AT ALL TIMES. CONTRACTOR SHALL ALSO HAVE THE JOB SPECIFICATIONS, AND CONSTRUCTION STANDARDS ON SITE.
5. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL HAVE A COPY OF ALL APPLICABLE PERMITS ON SITE.
6. AT LEAST TWO (2) FULL WORKING PRIOR TO CONSTRUCTION ACTIVITIES OF ANY KIND THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 1-800-922-1987 OR 811 TO OBTAIN AN INQUIRE IDENTIFICATION NUMBER AND TO REQUEST THE UTILITY OWNERS TO MARK THE LOCATION OF ALL UNDERGROUND UTILITIES WHICH MAY BE IMPACTED BY CONSTRUCTION.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL EXISTING UTILITIES, INCLUDING UTILITIES NOT SHOWN ON THE CONSTRUCTION DRAWINGS. PRIOR TO ADJUSTING ANY UTILITIES THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE UTILITY OWNER.
8. IF THERE ARE EXISTING UTILITIES IN CONFLICT WITH THE PROPOSED IMPROVEMENTS THE CONTRACTOR SHALL STOP WORK AND NOTIFY THE OWNER, ENGINEER, AND UTILITY OWNER TO DETERMINE A SOLUTION FOR THE CONFLICT. THE CONTRACTOR SHALL PROTECT ALL UTILITIES AND STRUCTURES FOUND AT THE SITE UNLESS OTHERWISE INDICATED IN THESE PLANS.
9. ALL TRENCHING CONSTRUCTION SHALL MEET OSHA STANDARDS AND REQUIREMENTS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING CONSTRUCTION ACTIVITIES STORMWATER MANAGEMENT BEST MANAGEMENT PRACTICES. CONTRACTOR SHALL OBTAIN ALL REQUIRED LOCAL AND STATE CONSTRUCTION ACTIVITIES STORMWATER MANAGEMENT PERMITS.
11. ALL ABANDONED ROADS SHALL BE RESTORED TO NATIVE GRADE AND REVEGETATED WITH NATIVE SEED.

GRADING AND EROSION CONTROL NOTES:

1. ALL FILL MUST BE COMPACTED TO 90% MODFIFIED PROCTOR AT PLUS OR MINUS 2% OF THE OPTIMUM MOISTURE CONTENT OR AS REQUIRED IN THE PROJECT GEOTECHNICAL ENGINEERING SOIL REPORT.
2. UNSUITABLE MATERIAL SHALL BE REMOVED AS REQUIRED BY THE GEOTECHNICAL ENGINEER.
3. EARTHWORK SHALL NOT BE COMPLETED WHEN THE GROUND IS FROZEN.
4. TOPSOIL SHALL BE STOCKPILED FOR USE ON FINAL LANDSCAPING. STOCKPILES SHALL BE PROTECTED FROM EROSION.
5. AT ALL TIMES THE CONSTRUCTION SHALL INCORPORATE TECHNIQUES TO LIMIT WIND-CAUSED EROSION INCLUDING BUT NOT LIMITED TO WATERING.
6. CONTRACTOR SHALL KEEP STREET CLEAN OF DEBRIS AT ALL TIMES. CONTRACTOR SHALL CLEAN STREET AND ADJACENT PROPERTIES AS REQUIRED.
7. CONTRACTOR SHALL ESTABLISH A CONSTRUCTION ENTRANCE AND STORAGE/STAGING AREA.
8. ALL CULVERT INLETS AND OUTLETS SHALL BE RECEIVE RIP RAP PROTECTION.

WATER UTILITY NOTES:

1. ALL WATER UTILITY WORK, MATERIALS, AND CONSTRUCTION SHALL MEET TOWN OF RICO WATER OPERATIONS RULES AND REGULATIONS, MOST CURRENT VERSION.

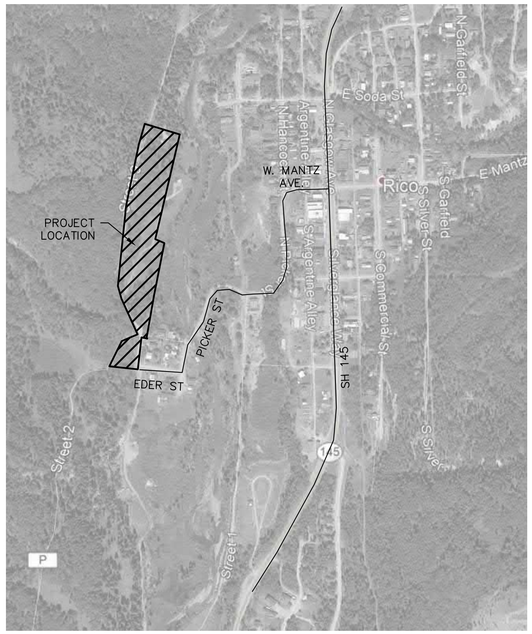
FRANCHISE UTILITY NOTES:

1. FRANCHISE (GAS, ELECTRIC, TELECOM, FIBER, ETC...) DESIGN IS BY THE UTILITY PROVIDER. DEVELOPED SHALL PROVIDE CONTRACTOR FRANCHISE UTILITY DESIGN AND CONSTRUCTION IMPROVEMENT INFORMATION AND PERMITTING.
2. CONTRACTOR SHALL BE COMPLETE ALL WORK PER FRANCHISE UTILITY PROVIDER REQUIREMENTS.

DOLORES RIVER SUBDIVISION INSTRASTRUCTURE IMPROVEMENT PLANS

PRELIMINARY PLAT SUBMITTAL

11/1/22



LOCATION MAP:
1"=300'

VARIANCE REQUESTS:

1. LUC 272 – PROPOSED OFF-STREET PARKING PLAN
   1.1 INDIVIDUAL LOT OWNERS WILL BE REQUIRED TO PROVIDE OFF-STREET PARKING WITH SITE PLAN AND BUILDING PERMIT SUBMITTAL.
2. LUC 478.2 – ROW WIDTH
   2.1. THE ROW WIDTH FOR THE DOLORES RIVER TRAIL ROAD AND WATER LINE EXTENSION IS PROPOSED AS A 40 FOOT WIDTH. TOWN OF RICO STANDARD ROW WIDTH IS 60'.
3. LUC 478.3 A. – ROAD SURFACE WIDTH
   3.1 THE PROPOSED ROAD SURFACE FOR THE ACCESS ROAD IS PROPOSED AS 20' WIDTH TO LIMIT THE VISUAL AND PHYSICAL IMPACTS OF THE ROAD CONSTRUCTION. THE 20' WIDTH PROVIDED ADEQUATE ACCESS FOR EMERGENCY ACCESS, RESIDENTIAL ACCESS, MAINTENANCE, AND MAINTENANCE. TOWN OF RICO STANDARD ROAD MIN. ROAD WIDTH IS 24'.
4. LUC 478.4 – ROAD GRADE
   4.1 THE GRADE OF A PORTION OF THE ROAD IS PROPOSED AT 12% TO LIMIT THE VISUAL AND PHYSICAL IMPACTS OF THE ROAD CONSTRUCTION WHILE PROVIDING SAFE ACCESS FOR RESIDENTS, MAINTENANCE, AND EMERGENCIES. PER TOWN LUC THE MAXIMUM GRADE FOR ROADS IS 10%.

SHEET INDEX

TOWN OF RICO APPROVAL

PRINTED NAME

SIGNATURE DATE

COLORADO 811 KNOW WHAT'S BELOW CALL BEFORE YOU DIG.

PRELIMINARY NOT FOR CONSTRUCTOIN

Revisions:

#	DATE	DESCRIPTION

DOLORES RIVER SUBDIVISION
COVER SHEET AND NOTES
TOWN OF RICO, CO

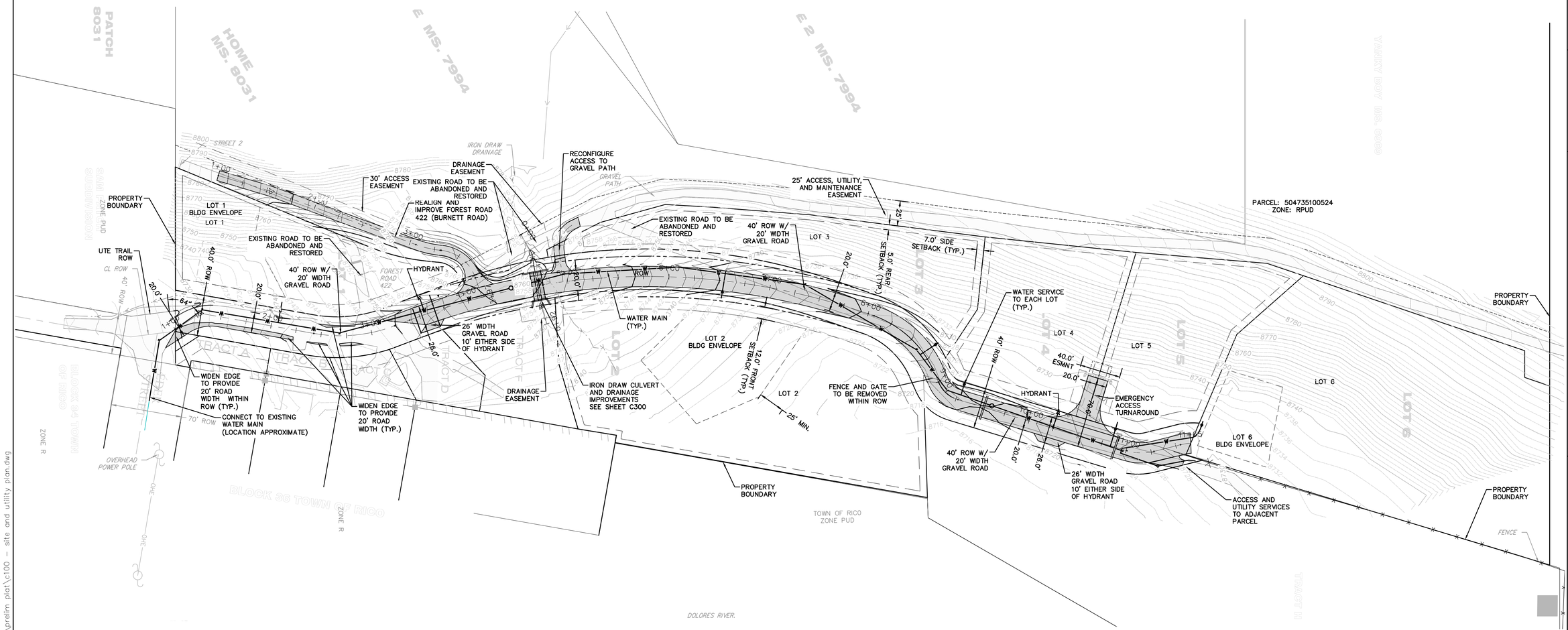
MOUNTAIN CIVIL CONSULTING
712 Eagle- Pass
Durango, CO 81301
970-946-3175

PLAN NO.
C000

Sheet 1 of 10
Project: 2021-002
Date: 11/1/22
Drawn By: ABR
Checked By:

COLORADO LICENSED ANDREW B. ANDREWS 40308 11/1/22 PROFESSIONAL ENGINEER

PRELIMINARY
NOT FOR
CONSTRUCTOIN



NOTES:

1. THE PARCEL IS ZONED RPUD. ALL IMPROVEMENTS SHALL MEET TOWN OF RICO LAND USE CODE.

272. Residential Planned Unit Development Design Regulations

Design Regulations	Requirements
Lot Size	22,000 sq.ft.
Front Set Back	12 feet
Side Set Back	7 feet
Rear Set Back	5 feet
Building Height	30 feet
Maximum Floor Area	Maximum Floor Area = 4,500 sq.ft.
Off-Street Parking	Two vehicle spaces per dwelling unit

2. EXISTING CONDITION SURVEY INFORMATION PROVIDED BY ALL POINTS LAND SURVEY LLC. SEE PRELIMINARY PLAT FOR LOT DIMENSIONS AND ADDITIONAL INFORMATION.
3. AVALANCHE AND GEOLOGIC HAZARD INFORMATION SHOWN WAS INTERPOLATED FROM TOWN OF RICO MAPS.
4. WETLANDS ARE SHOWN PER AQUATIC RESOURCES DELINEATION MAP BY SME DATED 5/7/21.
5. OFF STREET PARKING SHALL BE PROVIDED WITHIN EACH LOT.
6. WATER SERVICE SHALL BE EXTENDED TO PROVIDE SERVICE FROM THE TOWN OF RICO WATER SYSTEM. WATER TAPS FOR EACH LOT SHALL BE OBTAINED WITH BUILDING PERMIT SUBMITTAL AND ARE SHOWN FOR REFERENCE ONLY.
7. ONSITE WASTEWATER SYSTEM DESIGN AND CONSTRUCTION IS THE RESPONSIBILITY OF EACH LOT AND ONSITE WASTEWATER DESIGN APPROVAL SHALL BE COMPLETED AS REQUIRED BY TOWN OF RICO, DOLORES COUNTY HEALTH DEPT., AND THE STATE OF COLORADO.
8. FRANCHISE UTILITY DESIGN AND INSTALLATION (ELECTRIC, GAS, TELECOM) SHALL BE PROVIDED BY UTILITY OWNER.
9. LOTS WITHOUT DEFINED BUILDING ENVELOPE ARE DEVELOPABLE PER APPLICABLE TOWN REQUIREMENTS.

GRAPHIC SCALE
0 25 50
0 ¼ ½ ¾ 1

COLORADO LICENSED
ANDREW B. RAMEY NO
40308
11/1/22
PROFESSIONAL ENGINEER

Revisions:

#	DATE	DESCRIPTION

DOLORES RIVER SUBDIVISION
PRELIMINARY PLAT
SITE AND OVERALL UTILITY PLAN
TOWN OF RICO, CO

MOUNTAIN CIVIL CONSULTING
712 EAGLE PASS
DURANGO, CO 81301
970-946-3175

PLAN NO.
C100

Sheet 2 of 10
Project: 2021-002
Date: 11/1/22
Drawn By: ABR
Checked By: ABR

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PRELIMINARY
NOT FOR
CONSTRUCTOIN

HILL SIDE MS. 7994

SIDE 2 MS. 7994

HOME MS. 8031

MS. 6969

IRON DRAW

IRON DRAW RUNOFF CALCULATIONS
QAVG: 0.2–2 CFS
Q2: 24.4 CFS
Q10: 56.0 CFS
Q10: 100.1 CFS

IRON DRAW DRAINAGE DRAINAGE IMPROVEMENTS TO MITIGATE POTENTIAL FLOODING THROUGH DEBRIS FAN AREA

DEBRIS FAN (HIGH HAZARD)

PROPERTY BOUNDARY

PARCEL: 504735100524
ZONE: RPUD

STREET 2

10' WIDE GRAVEL FOREST ROAD 422

4:1 CHANNEL SLOPE
2:1 SIDE SLOPES

2:1 CUT SLOPE

2:1 FILL SLOPE

LOT 1 BLDG ENVELOPE

LOT 1

40' ROW

ROAD WIDENING (TYP.)

20' WIDE GRAVEL ROAD

STREAM

DUAL CULVERT

2:1 CUT SLOPE

2:1 FILL SLOPE

20' WIDE GRAVEL ROAD

LOT 2

25' MIN.

25' WETLAND BUFFER

WETLAND (SME)

DEBRIS FAN (LOW HAZARD)

PROPERTY BOUNDARY

TRAIL

100' WETLAND BUFFER

LOT 3

GRAVEL ROAD

2:1 CUT SLOPE

LOT 4

2:1 CUT SLOPE

2:1 FILL SLOPE

FLOODPLAIN (ZONE AE)

WETLAND (SME)

AVALANCHE ZONE MODERATE POTENTIAL

LOT 5

LOT 6

PROPERTY BOUNDARY

FENCE

PROPERTY BOUNDARY

EDER STREET

EDER ST.

BLOCK 36 TOWN OF RICO

ELEVATION POINT

PICKER ST.

ZONE R

DOLORES RIVER.

TOWN OF RICO ZONE PUD

SLOPES TABLE				
Number	Minimum Slope	Maximum Slope	Area	Color
1	7.00%	15.00%	88924.48	
2	15.00%	30.00%	124441.47	
3	30.00%	549.99%	107661.97	

WETLAND

DEBRIS FAN HAZARD

AVALANCHE HAZARD

FLOODPLAIN

LEGEND

NOTES:

1. SURVEY INFORMATION PROVIDED BY ALL POINTS LAND SURVEY LLC. SEE PRELIMINARY PLAT FOR DIMENSIONS AND ADDITIONAL INFORMATION.
2. AVALANCHE, FLOODPLAIN, AND GEOLOGIC HAZARD INFORMATION SHOWN WAS INTERPOLATED FROM TOWN OF RICO MAPS.
3. WETLANDS ARE SHOWN PER AQUATIC RESOURCES DELINEATION MAP BY SME DATED 5/7/21.

GRAPHIC SCALE
0 25 50
0 ¼ ½ ¾ 1

COLORADO LICENSED
ANDREW B. RUPPEL
40308
PROFESSIONAL ENGINEER
11/1/22

Revisions:
#	DATE	DESCRIPTION

DOLORES RIVER SUBDIVISION PRELIMINARY PLAT SLOPE AND CONSTRAINTS MAP RICO, CO

MOUNTAIN CIVIL CONSULTING
712 EAGLE PASS
DURANGO, CO 81301
970-946-3175

PLAN NO.
C101

Sheet 3 of 10
Project: 2021-002
Date: 10/31/22
Drawn By: ABR
Checked By: ABR

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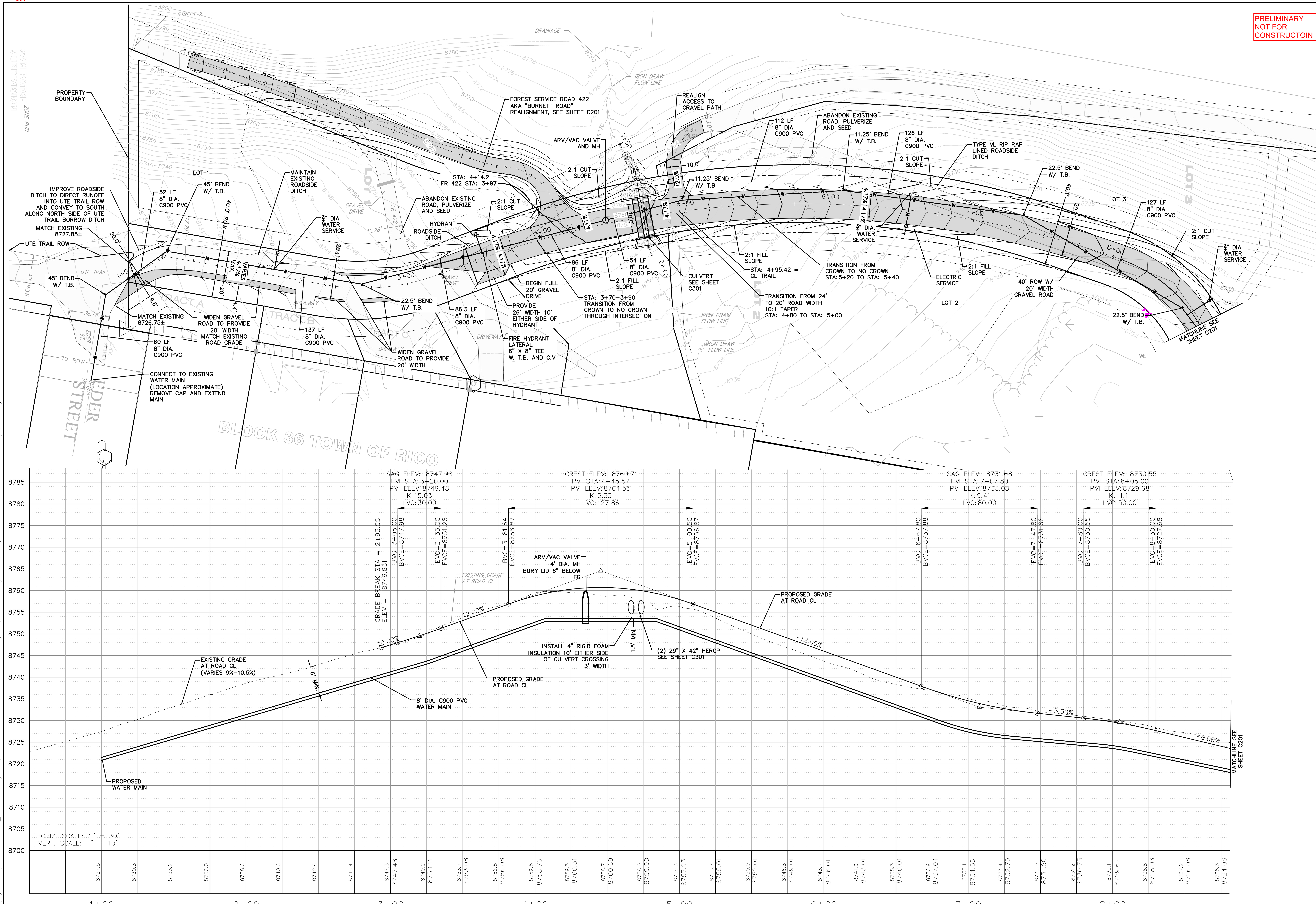


GRAPHIC SCALE 0 15 30

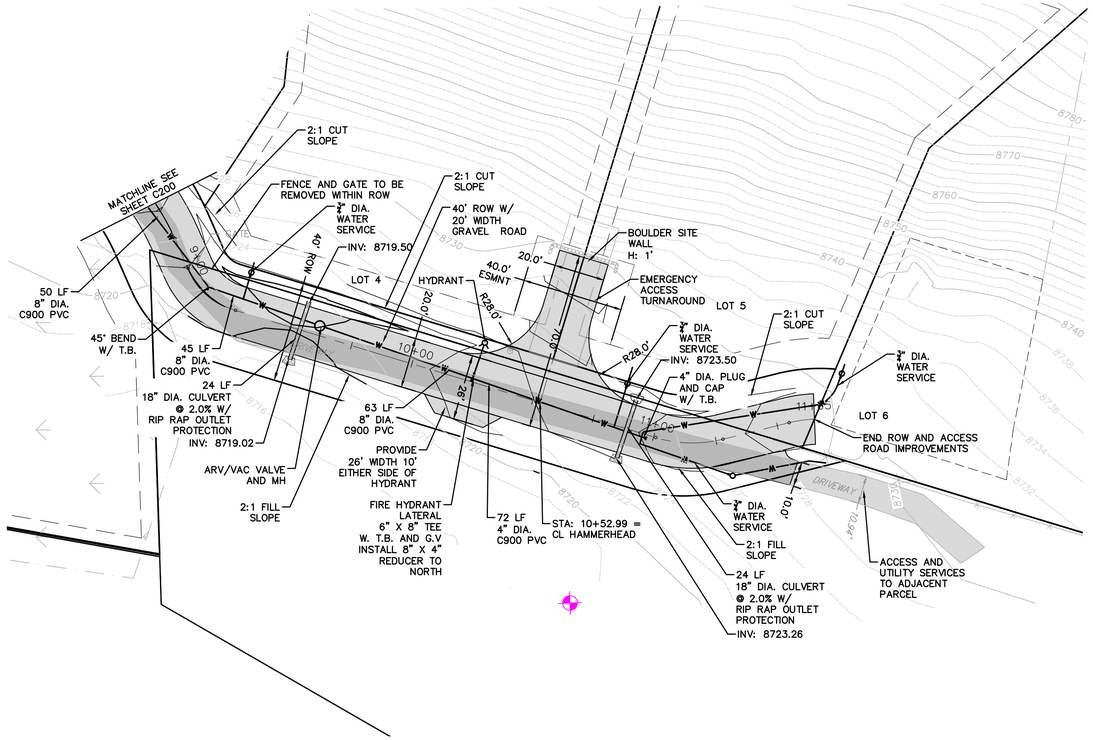
Revisions: # DATE DESCRIPTION

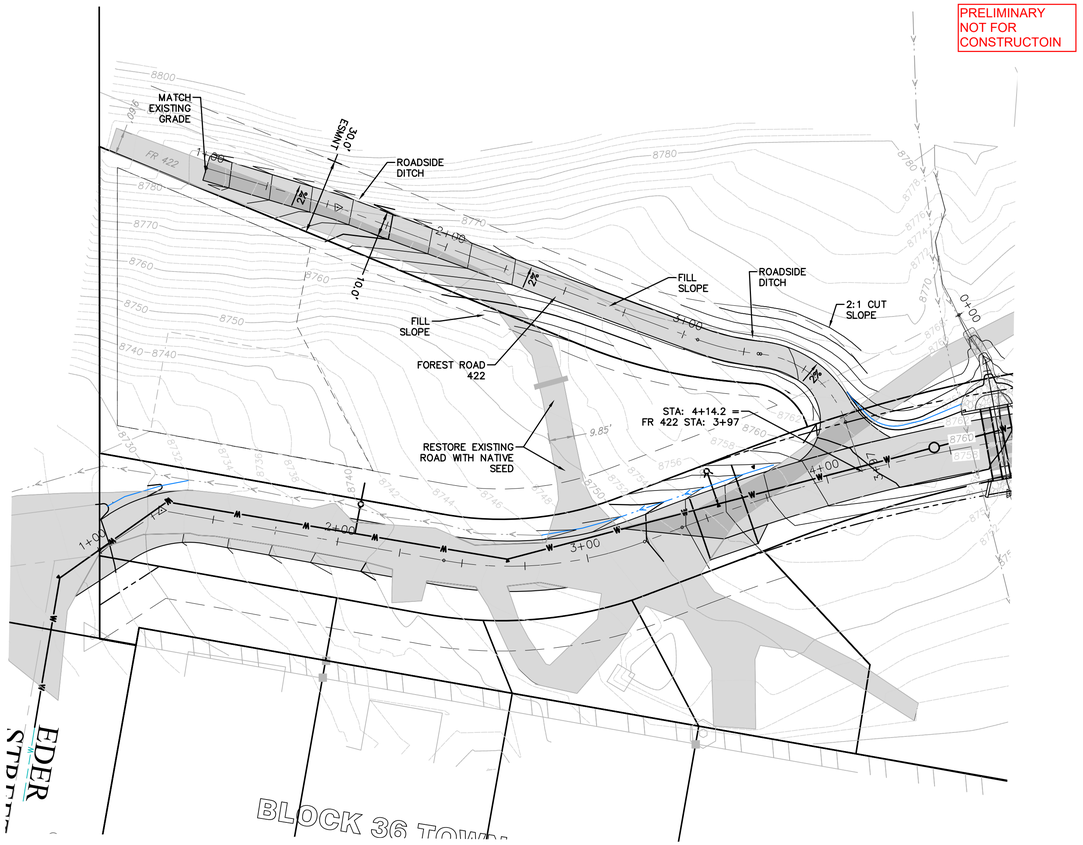
DOLORES RIVER SUBDIVISION ACCESS AND UTILITY PLAN AND PROFILE TOWN OF RICO, CO

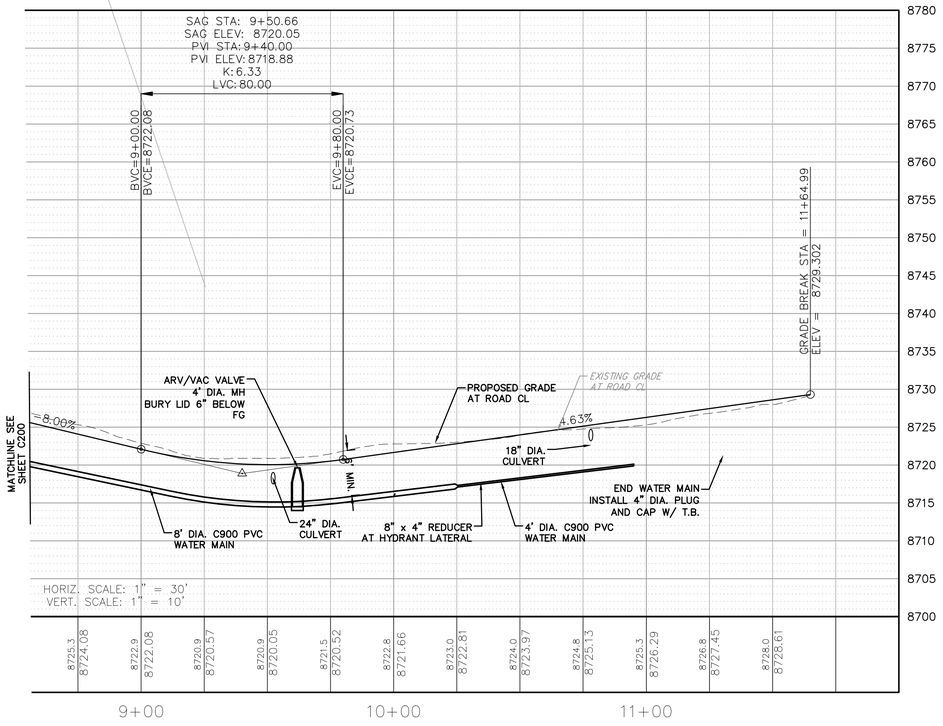
MOUNTAIN CIVIL CONSULTING
712 EAGLE PASS
DURANGO, CO 81301
970-946-3175

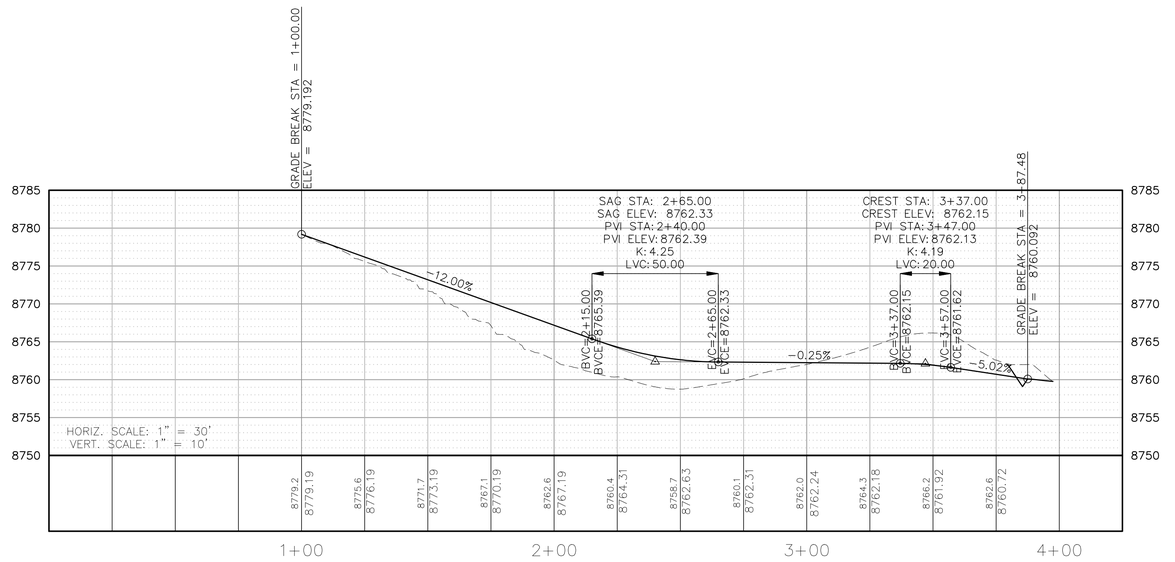
PLAN NO.
C200

Sheet 4 of 10
Project: 2021-002
Date: 11/1/22
Drawn By: ABR
Checked By: ABR









GRAPHIC SCALE
0 15 30
0 ¼ ½ ¾ 1

COLORADO LICENSED ANDREW B. RAMEY 40308 11/1/22 PROFESSIONAL ENGINEER

Revisions:

#	DATE	DESCRIPTION

DOLORES RIVER SUBDIVISION
ACCESS AND UTILITY
PLAN AND PROFILE
TOWN OF RICO, CO

MOUNTAIN CIVIL CONSULTING
712 EAGLE PASS
DURANGO, CO 81301
970-946-3175

PLAN NO.
C201

Sheet	5 of 10
Project:	2021-002
Date:	11/1/22
Drawn By:	ABR
Checked By:	ABR

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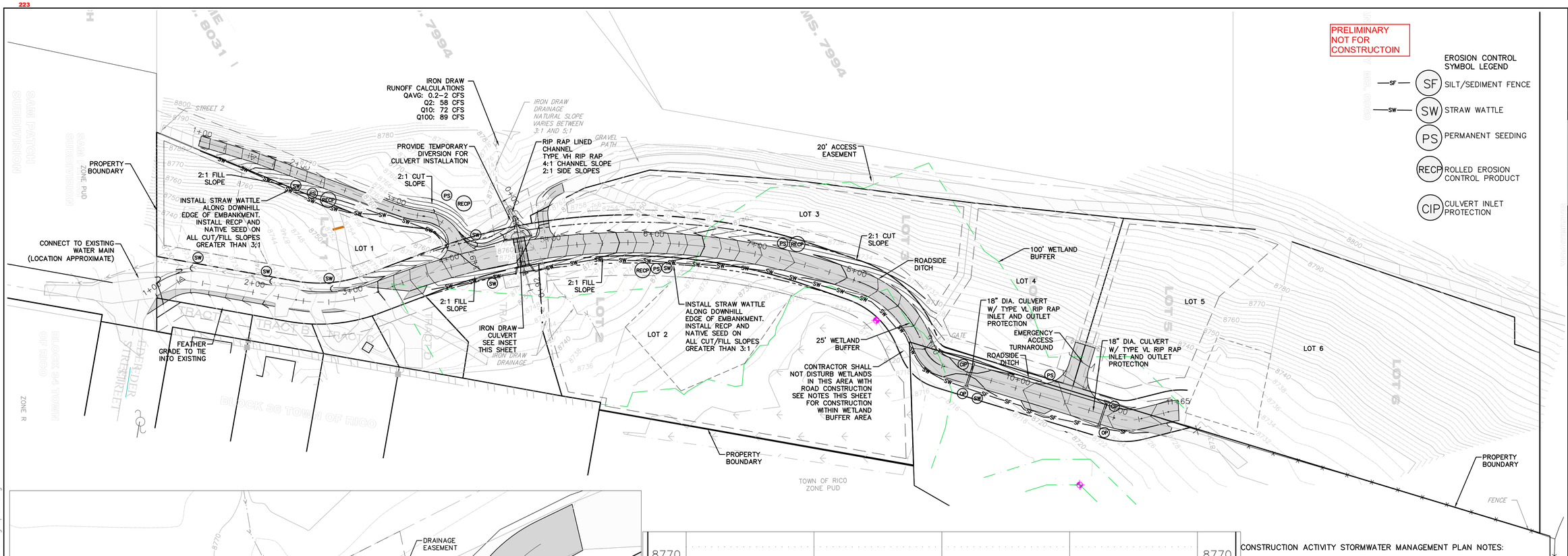
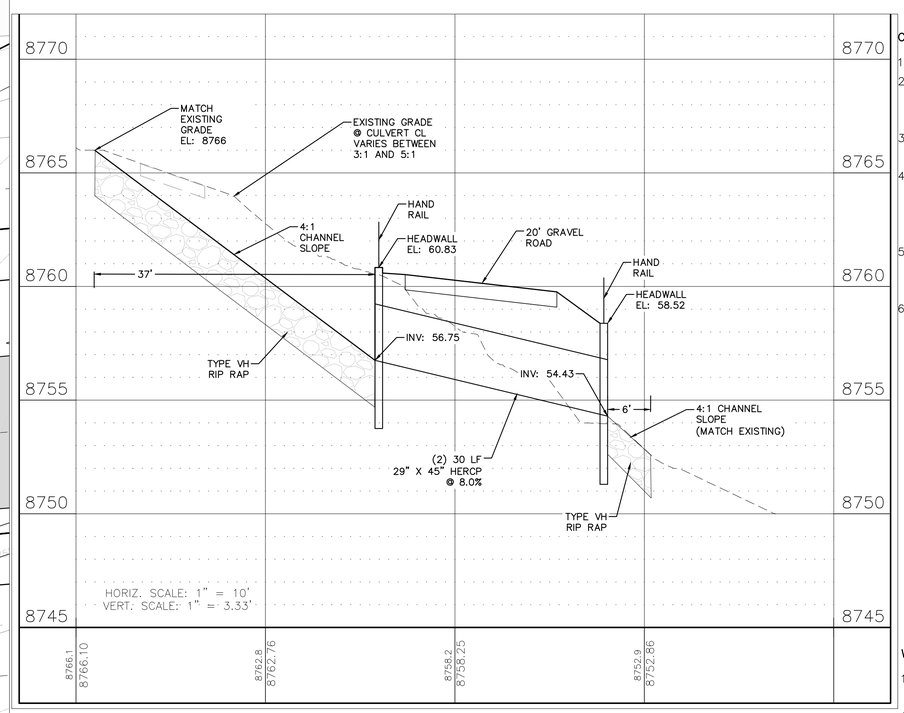


EROSION CONTROL
SYMBOL LEGEND

- SF — SILT/SEDIMENT FENCE
- SW — STRAW WATTLE
- PS — PERMANENT SEEDING
- RECP — ROLLED EROSION CONTROL PRODUCT
- CIP — CULVERT INLET PROTECTION

IRON DRAW CULVERT PLAN VIEW
(1" =10')



IRON DRAW CULVERT PROFILE VIEW
(1" =10')

CONSTRUCTION ACTIVITY STORMWATER MANAGEMENT PLAN NOTES:

1. TOTAL AREA OF DISTURBANCE IS 45,000 SF OR 1.031 ACRES.
2. CONTRACTOR OR OWNER SHALL OBTAIN ALL REQUIRED EXCAVATION AND CONSTRUCTION ACTIVITY STORMWATER MANAGEMENT PERMITS PRIOR TO COMPLETING WORK.
3. CONTRACTOR SHALL DEVELOP A SWMP AND SHALL ADJUST LOCATION AND SCOPE OF BMPS AS REQUIRED FOR PHASING.
4. CONTRACTOR MAY USE ADDITIONAL BMPS NOT SHOWN IN THIS PLAN TO CONTROL CONSTRUCTION ACTIVITY STORMWATER RUNOFF, SEE MILE HIGH FLOOD CONTROL DISTRICT VOLUME 3, CHAPTER 7 OR CDOT EROSION CONTROL MANUAL FOR ADDITIONAL ACCEPTABLE BMPS.
5. FUEL AND CHEMICAL STORAGE SHALL NOT BE STORED ON SITE. IF THEY ARE STORED ON SITE CONTRACTOR SHALL PROVIDE CONTAINMENT AND SPILL PREVENTION AND RESPONSE PLAN.
6. GENERAL SCOPE OF BMP INSTALLATION IS DESCRIBED BELOW:
   - 6.1. INSTALL SILT FENCE OR STRAW WATTLE ALONG DOWNHILL EDGE OF DISTURBED AREAS.
   - 6.2. PROVIDE GOOD HOUSEKEEPING PRACTICES DURING CONSTRUCTION INCLUDING PORTABLE TOILET FACILITIES AND TRASH/WASTE COLLECTION FACILITY.
   - 6.3. PROVIDE STREET SWEEPING OR HAND CLEANING IF SEDIMENT IS TRACKED INTO PAVED ST.
   - 6.4. PROVIDE CONSTRUCTION WATER TO LIMIT DUST DURING OVERLOT GRADING OPERATIONS.
   - 6.5. DISTURBED AREAS NOT RECEIVING FINAL SITE OR LANDSCAPE IMPROVEMENTS SHALL REQUIRE PERMANENT SEEDING AND MULCHING. ALL SEED SHALL BE CERTIFIED WEED FREE.
   - 6.13. INSTALL ROLLED EROSION BLANKET AND SEED/MULCH ON ALL SLOPES 3:1 OR GREATER.
   - 6.14. REMOVE BMPS UPON FINAL SITE IMPROVEMENT INSTALLATION AND 70% VEGETATION OF SITE FROM LANDSCAPE AND SEEDING.

WETLAND BUFFER CONSTRUCTION PLAN NOTES:

1. GRADING WITHIN THE WETLAND BUFFER AREA SHALL BE LIMITED TO ROAD AND UTILITY CONSTRUCTION.
2. ALL AREAS OUTSIDE OF PROPOSED ROAD SURFACE SHALL BE REVEGETATED WITH NATIVE SEED. USE WESTERN SEED HIGH ALTITUDE MEADOW MIX OR APPROVED EQUAL FOR REVEGETATION IN BUFFER ZONES.
3. THE WETLAND AREA SHALL BE DELINEATED PRIOR TO CONSTRUCTION WITH FLAGGING BY THE SURVEYOR. CONTRACTOR SHALL INSTALL SEDIMENT LOGS OR STRAW WATTLES ALONG OUTSIDE EDGE OF PROPOSED GRADING AND UTILITY WORK, DISTURBANCE SHALL NOT ENCROACH BEYOND THIS LOCATION.

COLORADO LICENSED
ANDREW B. RAMEY, PE
40308
11/1/22
PROFESSIONAL ENGINEER

Revisions:

#	DATE	DESCRIPTION

DOLORES RIVER SUBDIVISION
PRELIMINARY PLAT
GRADING AND DRAINAGE PLAN
TOWN OF RICO, CO

MOUNTAIN CIVIL CONSULTING
712 EAGLE PASS
DURANGO, CO 81301
970-946-3175

PLAN NO.
C300

Sheet	6 of 10
Project:	2021-002
Date:	11/1/22
Drawn By:	ABR
Checked By:	ABR

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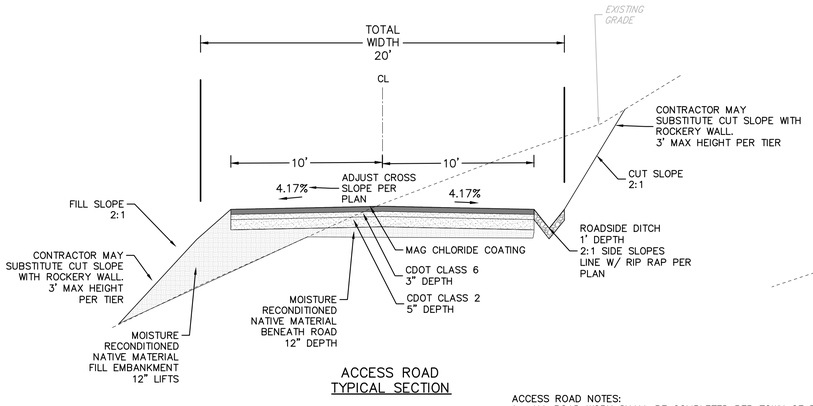
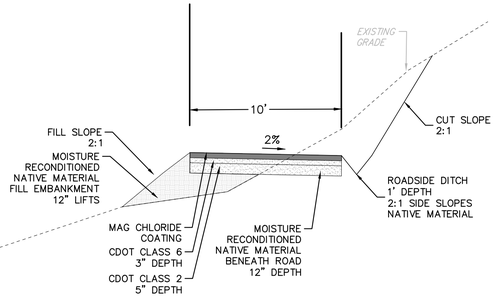
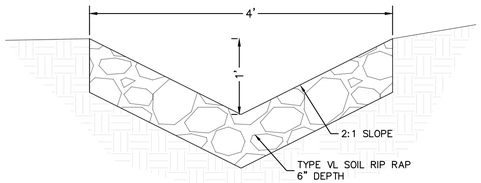


ACCESS ROAD
TYPICAL SECTION

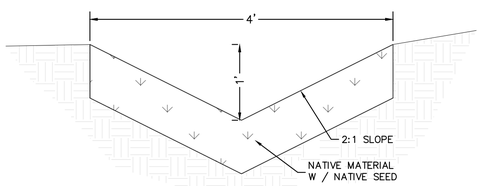


FR 422
(BURNETT ROAD)
TYPICAL SECTION

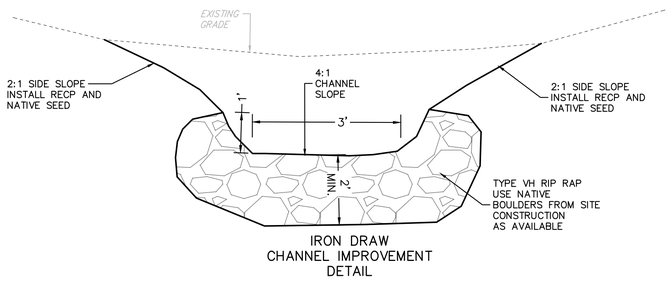
ACCESS ROAD NOTES:
1. ALL ROAD WORK SHALL BE COMPLETED PER TOWN OF RICO ROAD CONSTRUCTION REQUIREMENTS OR CDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION WHERE TOWN STANDARDS DO NOT COVER THE SCOPE OF WORK.
2. FR 422 (BURNETT ROAD) SHALL BE MAINTAINED BY OWNER AND/OR FOREST SERVICE.
3. SUBGRADE SHALL BE COMPACTED TO 90% MAX. DRY DENSITY MODIFIED PROCTOR AT ±2% OPTIMUM MOISTURE CONTENT.
4. CLASS 2 AND CLASS 6 BASE COURSE SHALL BE COMPACTED TO 95% MAX. DRY DENSITY MODIFIED PROCTOR AT ±2% OPTIMUM MOISTURE CONTENT.
5. DRIVEWAY SHALL BE PRIVATELY OWNED AND MAINTAINED.
6. ALL DISTURBED AREAS OUTSIDE OF ROAD SURFACE SHALL RECEIVE NATIVE SEED AND ROLLED EROSION BLANKETS WHERE SLOPE IS GREATER THAN 3:1.



ROADSIDE DITCH
SLOPES > 10%



ROADSIDE DITCH
SLOPES < 10%



IRON DRAW
CHANNEL IMPROVEMENT
DETAIL

Riprap Designation	% Smaller Than Given Size By Weight	Intermediate Rock Dimension (inches)	d_{50}* (inches)
Type VL	70 - 100 50 - 70 35 - 50 2 - 10	12 9 6 2	6**
Type L	70 - 100 50 - 70 35 - 50 2 - 10	15 12 9 3	9**
Type M	70 - 100 50 - 70 35 - 50 2 - 10	21 18 12 4	12**
Type H	70 - 100 50 - 70 35 - 50 2 - 10	30 24 18 6	18
Type VH	70 - 100 50 - 70 35 - 50 2 - 10	41 33 24 9	24

*d_{50} = Mean Particle Size

**Mix VL, L and M riprap with 35% topsoil (by volume) and bury it with 4 to 6 inches of topsoil, all vibration compacted, and revegetate.

RIP RAP SCHEDULE

PRELIMINARY
NOT FOR
CONSTRUCTOIN

Revisions:

#	DATE	DESCRIPTION

DOLORES RIVER SUBDIVISION
CIVIL DETAILS
TOWN OF RICO, CO

MOUNTAIN CIVIL CONSULTING
712 Eagle- Pass
Durango, CO 81301
970-946-3175

PLAN NO.
C400

Sheet 7 of 10
Project: 2021-002
Date: 11/1/22
Drawn By: ABR
Checked By:

COLORADO LICENSED
ANDREW B. RAPIER
40308
11/1/22
PROFESSIONAL ENGINEER

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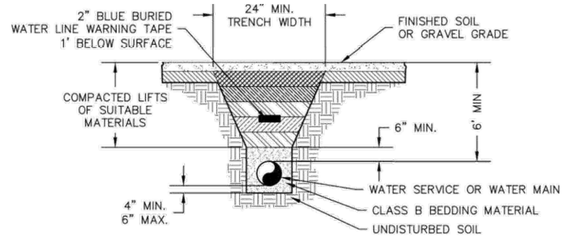
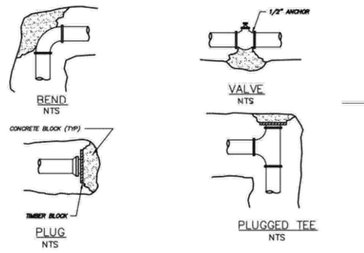


NOTES:

1. ALL TRENCHES SHALL BE BACKFILLED IN ACCORDANCE WITH THE ABOVE DETAIL UNLESS OTHERWISE SPECIFIED BY THE TOWN.
2. TRENCH WIDTH SHALL NOT BE LESS THAN 24" WIDE.
3. 95% COMPACTION IS REQUIRED ON ALL TRENCHING ZONES, BOTH IMPROVED & UNIMPROVED AREAS.
4. IN UNIMPROVED AREAS, ALL DISTURBED AREAS SHALL BE RE-GRADED, SEEDED & MULCHED.
5. WHEN INSTALLING SLEEVE BEDDING MATERIAL DEPTH SHALL BE 6" ABOVE SLEEVE.
6. WATER LINES MUST BE SLEEVED WITHIN 10 FEET OF SEWER LINE OR 25' OF SEPTIC SOIL TREATMENT AREA WITH SCHED 40 PVC PIPE.
7. TOP 1' OF BACKFILL TO BE CDOT CLASS 6 COMPACTED TO 95% MODIFIED PROCTOR AT ±2% OPTIMUM MOISTURE CONTENT.

WATER PIPE BACKFILL DETAIL

NTS



MINIMUM BEARING AREA IN sq.ft.					
SIZES OF PIPE	TEES,VAL. DEAD ENDS	90° BENDS	45° BENDS	22.5° BENDS	11.25° BENDS
4"	2	2	2	2	2
6"	3	4	3	2	2
8"	5	8	4	2	2
10"	8	12	6	4	3
12"	12	16	9	5	3
14"	18	26	14	7	4
16"	21	29	16	8	4

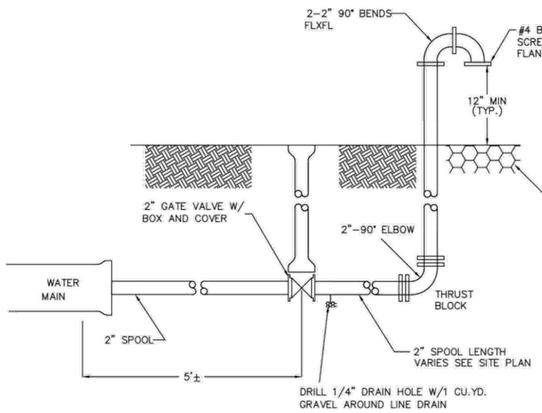
NOTES:
VALVE BLOCKING REQUIRED AT ALL TEMP, DEAD END LOCATIONS

THRUST AT FITTINGS @ 100 PSI WATER PRESSURE

PIPE SIZES & CLASS (psi)	TEES	90° BEND	45° BEND	22-1/2° BEND
4" – 100	1260	1780	960	490
150	1880	2670	1440	740
200	2510	3550	1920	980
6" – 100	2830	4000	2160	1100
150	4240	6000	3250	1650
200	5650	8000	4330	2200
8" – 100	5030	7110	3850	1960
150	7540	10,660	5770	2940
200	10,060	14,220	7700	3920
10" – 100	7850	11,110	6010	3060
150	11,780	16,660	9020	4600
200	15,710	22,210	12,020	6130
12" – 100	11,310	15,990	8660	4410
150	16,960	23,990	12,980	6620
200	22,620	31,980	17,310	8820
14" – 100	15,390	21,770	11,780	6000
150	23,090	32,650	17,670	9010
200	30,790	43,530	23,560	12,000
16" – 100	20,110	28,430	15,390	7850
150	30,160	42,645	23,080	11,770
200	40,220	56,860	30,780	15,690

THRUST BLOCK DETAIL

NTS

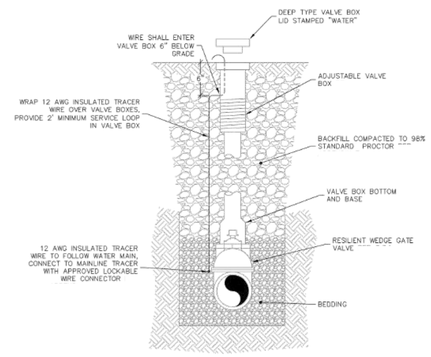


NOTES

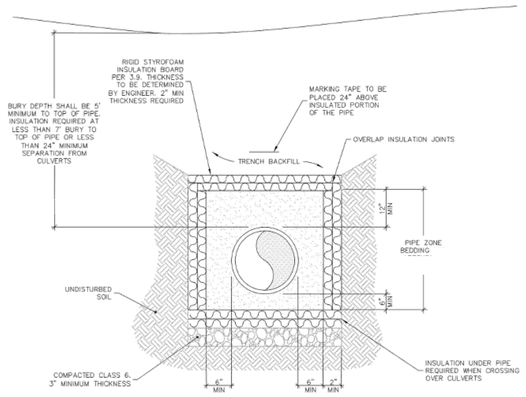
1) CORP. STOP SHALL BE LOCATED @ MIDPOINT BETWEEN VALVE BOX & VERTICAL BLOWOFF PIPE.
2) ALL MECHANICAL JOINT FITTINGS SHALL HAVE LOCK-IN FOLLOWERS.
3) ALL PIPING SHALL BE 2"ø AWWA C-151 CL-51 D.I.P.
4) COAT SERVICE SADDLE CLAMP WITH CHEVRON POLYFM GREASE & WRAP WITH 10 MIL POLYVINYL.

BLOWOFF DETAIL

NTS

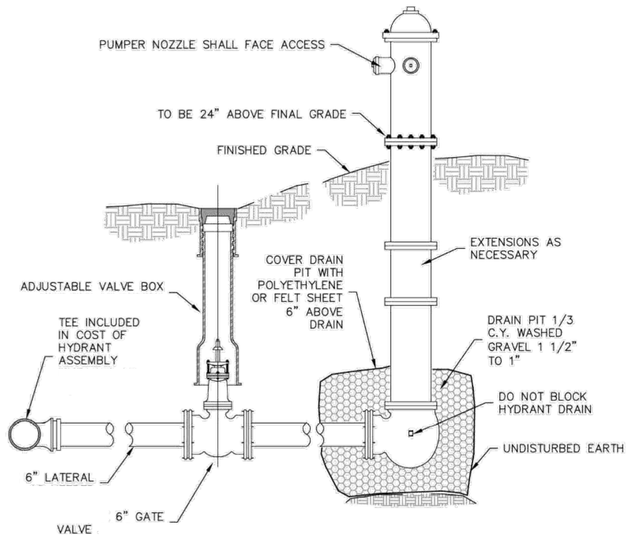


GATE VALVE DETAIL



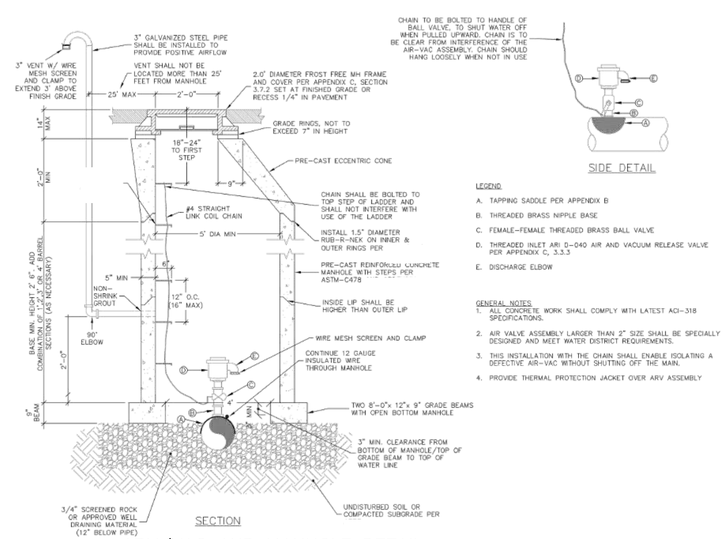
ELEVATION

WATER MAIN CULVERT CROSSING DETAIL



FIRE HYDRANT ASSEMBLY

NTS



LEGEND

A. TAPPING SADDLE PER APPENDIX B
B. THREADED BRASS NIPPLE BASE
C. FEMALE-FEMALE THREADED BRASS BALL VALVE
D. THREADED INLET AIR D-040 AIR AND VACUUM RELEASE VALVE PER APPENDIX C, 3.3.3
E. DISCHARGE ELBOW

GENERAL NOTES

1. ALL CONCRETE WORK SHALL COMPLY WITH LATEST ACI-318 SPECIFICATIONS.
2. AIR VALVE ASSEMBLY LARGER THAN 2" SIZE SHALL BE SPECIALLY DESIGNED AND MEET WATER DISTRICT REQUIREMENTS.
3. THIS INSTALLATION WITH THE CHAIN SHALL ENABLE ISOLATING A DEFECTIVE AIR-VAC WITHOUT SHUTTING OFF THE MAIN.
4. PROVIDE THERMAL PROTECTION JACKET OVER ARV ASSEMBLY

ARV/VAC AND MANHOLE DETAIL

PRELIMINARY NOT FOR CONSTRUCTOIN

Revisions:

#	DATE	DESCRIPTION

DOLORES RIVER SUBDIVISION
CIVIL DETAILS
TOWN OF BAYFIELD, CO

MOUNTAIN CIVIL CONSULTING
712 Eagle- Pass
Durango, CO 81301
970-946-3175

PLAN NO.
C401

Sheet 8 of 10
Project: 2021-002
Date: 11/1/22
Drawn By: ABR
Checked By:

COLORADO LICENSED ANDREW B. RAPKOCH 40308 PROFESSIONAL ENGINEER
11/1/22

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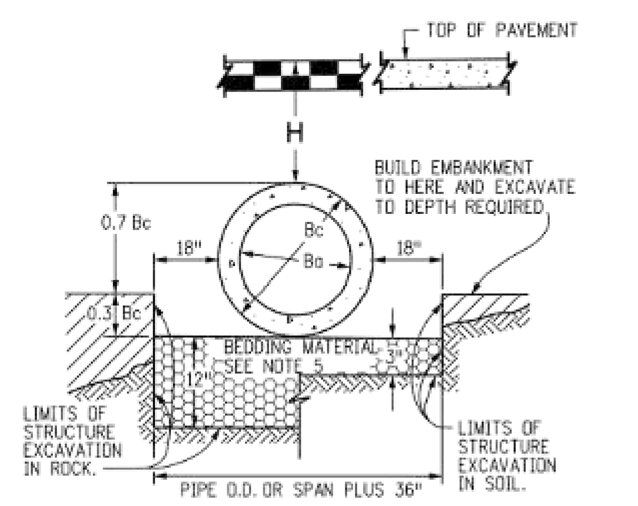


NOTE: Bc IS THE OUTSIDE DIMENSION FOR DIAMETER, SPAN OR RISE.

PIPE INSTALLATION
(WITH 0.7 PROJECTION RATIO)

△ PIPE SIZE- Ba (INSIDE DIA)	WALL THICKNESS	0.3 Bc (OUTSIDE DIA)	VE SPAN	VE RISE	VE WALL THICKNESS	VE 0.3 OUTSIDE RISE	HE SPAN	HE RISE	HE WALL THICKNESS	HE 0.3 OUTSIDE RISE
IN.	IN.	FT.	IN.	IN.	IN.	FT.	IN.	IN.	IN.	FT.
12	2	0.40								
15	2-1/4	0.49								
18	2-1/2	0.58					23	14	2-3/4	0.49
21	2-3/4	0.66								
24	3	0.75					30	19	3-1/4	0.66
27	3-1/4	0.84					34	22	3-1/2	0.73
30	3-1/2	0.92					38	24	3-3/4	0.79
33	3-3/4	1.01								
36	4	1.10	29	45	4-1/2	1.35	45	29	4-1/2	0.95
42	4-1/2	1.28	34	53	5	1.58	53	34	5	1.10
48	5	1.45	38	60	5-1/2	1.78	60	38	5-1/2	1.23
54	5-1/2	1.62	43	68	6	2.00	68	43	6	1.38
60	6	1.80	48	76	6-1/2	2.23	76	48	6-1/2	1.53
66	6-1/2	1.97	53	83	7	2.43	83	53	7	1.68
72	7	2.15	58	91	7-1/2	2.65	91	58	7-1/2	1.83
78	7-1/2	2.32	63	98	8	2.85	98	63	8	1.98
84	8	2.50	68	106	8-1/2	3.08	106	68	8-1/2	2.13
90	8-1/2	2.68	72	113	9	3.28	113	72	9	2.25
96	9	2.85	77	121	9-1/2	3.50	121	77	9-1/2	2.40
102	9-1/2	3.02	82	128	9-3/4	3.69	128	82	9-3/4	2.54
108	10	3.20	87	136	10	3.90	136	87	10	2.68

(Column groups: CIRCULAR (CIR); VERTICAL ELLIPTICAL (VE); HORIZONTAL ELLIPTICAL (HE))

△ ALSO EQUIVALENT ROUND DIMENSION FOR ELLIPTICAL PIPE.

DIMENSIONS FOR REINFORCED CONCRETE PIPE
(FOR INFORMATION ONLY)

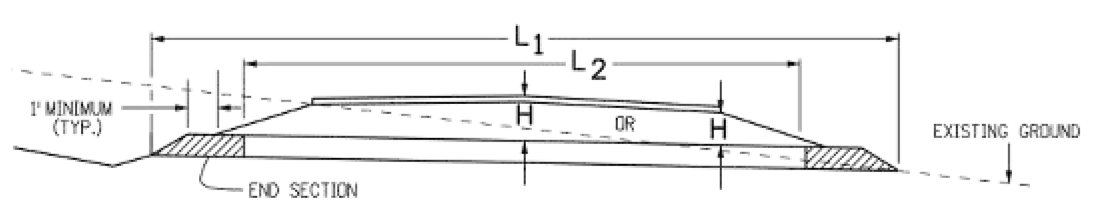
GENERAL NOTES

REINFORCED CONCRETE PIPE

1. FILL HEIGHTS GREATER THAN MAXIMUM ALLOWED IN THE HEIGHTS OF FILL TABLE ON THIS SHEET REQUIRE SPECIAL DESIGN OF STRUCTURE.
2. PIPE DESIGN IS BASED ON SAFETY FACTOR OF 1.33 ON ULTIMATE STRENGTH.
3. THE HEIGHTS OF FILL OVER TOP OF PIPE ARE BASED ON UNIT WEIGHT OF SOIL AT 135 LBS. PER CUBIC FT.
4. PIPE CLASS IS DETERMINED FROM 0.01 IN. CRACK D-LOAD.
5. BEDDING IS CLASS B (MODIFIED) (FROM CONCRETE PIPE DESIGN MANUAL-AMERICAN CONCRETE PIPE ASSOCIATION) WITH SETTLEMENT RATIO $R = 0.0_{sd}$ (YIELDING BED). BEDDING MATERIAL FOR RIGID PIPE IN SOIL SHALL BE 3 IN. LOOSE THICKNESS STRUCTURE BACKFILL CLASS 2. BEDDING MATERIAL FOR RIGID PIPE IN ROCK SHALL BE 12 IN. LOOSE THICKNESS STRUCTURE BACKFILL CLASS 1.
6. CHANGES IN DESIGN FACTORS REQUIRE COMPENSATING CHANGES IN PIPE DESIGN.
7. MINIMUM WALL THICKNESS DIMENSIONS ARE BASED ON AASHTO M 170 (WALL B) FOR CIRCULAR PIPE, AND AASHTO M 207 FOR ELLIPTICAL PIPE.
8. SPACING FOR MULTIPLE PIPE INSTALLATIONS SHALL CONFORM TO THE DETAILS SHOWN ON STANDARD PLAN M-206-1.
9. WHEN A PIPE IS TO BE EXTENDED, THE SAME PIPE MATERIAL AND SIZE AS IN THE ORIGINAL PIPE INSTALLATION SHALL BE USED.

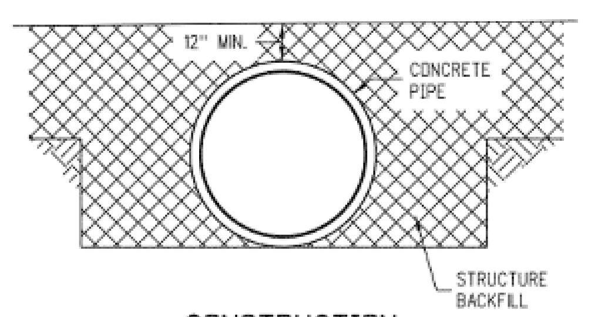
NONREINFORCED CONCRETE PIPE

1. AT THE OPTION OF THE CONTRACTOR, NONREINFORCED CONCRETE PIPE CONFORMING TO AASHTO M 86 MAY BE USED IN LIEU OF REINFORCED CONCRETE PIPE FOR ALL SIZES 36 INCHES IN DIAMETER AND SMALLER. THE NONREINFORCED CONCRETE PIPE SHALL MEET THE SAME D-LOAD TO PRODUCE THE ULTIMATE LOAD UNDER THE THREE-EDGE BEARING METHOD AS SPECIFIED FOR REINFORCED CONCRETE PIPE IN CONFORMANCE WITH AASHTO M 170. THE CONTRACTOR SHALL PROVIDE WRITTEN CERTIFICATION OF CONFORMACE. THE WALL THICKNESS OF THE NONREINFORCED PIPE MAY BE INCREASED AS REQUIRED TO MEET D-LOAD REQUIREMENT.
2. ALL REQUIREMENTS FOR REINFORCED CONCRETE PIPE, EXCEPT THOSE REFERRING TO REINFORCEMENT, SHALL APPLY TO NONREINFORCED CONCRETE PIPE.

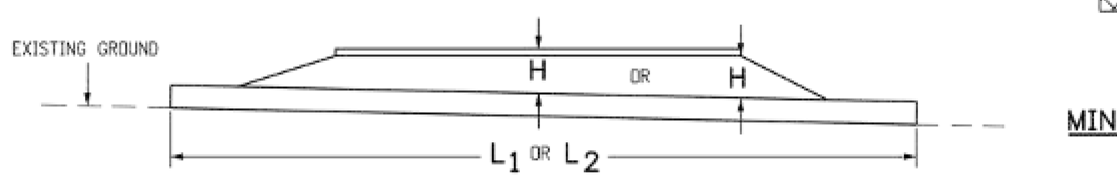


CONCRETE PIPE WITH END SECTIONS
NOTE: USE THE H THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.

H = HEIGHT OF FILL OVER TOP OF PIPE, INCLUDING PAVEMENT THICKNESS.
L_1 = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 624.
L_2 = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 603.



CONSTRUCTION
MINIMUM COVER FOR RIGID PIPE



CONCRETE PIPE WITHOUT END SECTIONS
NOTE: USE THE H THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.

TYPE OF PIPE	HEIGHT OF FILL OVER TOP OF PIPE, H (FEET) — CLASS OF PIPE (0.01 IN. CRACK D-LOAD): CLASS CIR II / CLASS VE II / CLASS HE II 1000 D	CLASS CIR III / CLASS VE III / CLASS HE III 1350 D	CLASS CIR IV / CLASS VE IV / CLASS HE IV 2000 D	CLASS CIR V / CLASS VE V 3000 D	CLASS VE VI 4000 D
CIRCULAR (CIR)	1 TO 18	1 TO 25	± 25 TO 37	± 37 TO 45	
VERTICAL ELLIPTICAL (VE)	1 TO 18	1 TO 25	± 25 TO 37	± 37 TO 45	± 45 TO 62
HORIZONTAL ELLIPTICAL (HE)	1 TO 18	1 TO 25	± 25 TO 37		

ALLOWABLE RANGE OF HEIGHTS FOR FILL
OVER REINFORCED CONCRETE PIPE
(ALL SIZES)

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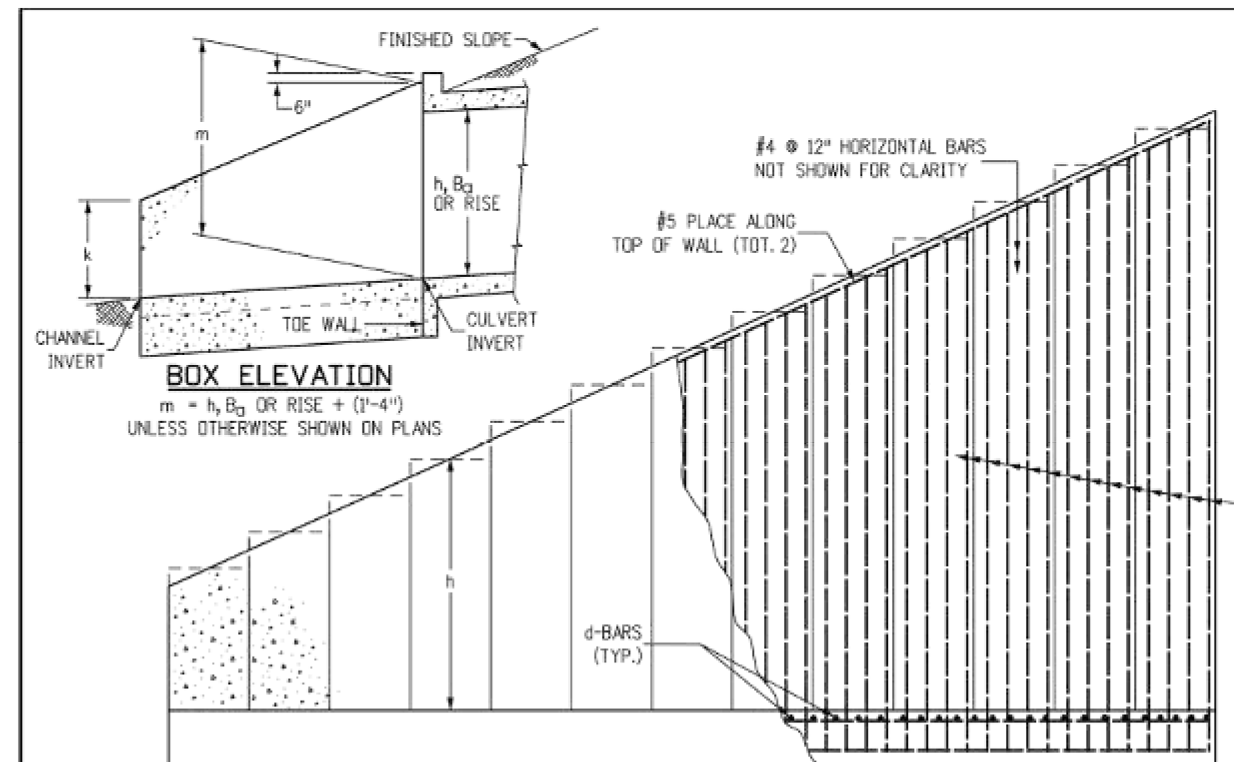
Last Modification Date: 07/31/19			
Detailer Initials: LTA			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

REINFORCED CONCRETE PIPE

STANDARD PLAN NO.
M-603-2
Standard Sheet No. 1 of 1

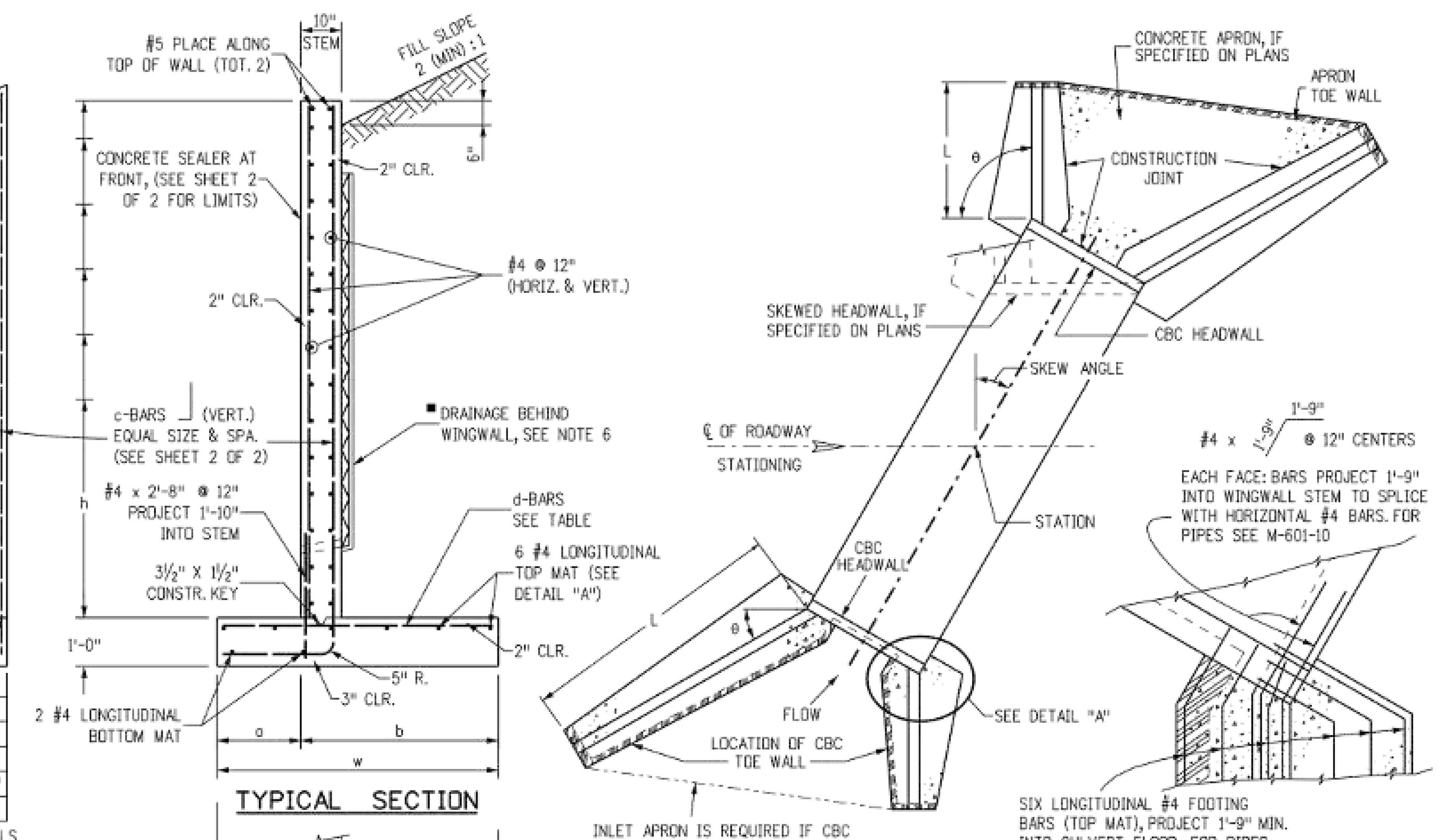
Issued by the Project Development Branch: July 31, 2019
Project Sheet Number:



h =	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	■ 12'	13'	14'
a =	1'-0"	1'-2"	1'-4"	1'-6"	1'-8"	1'-10"	2'-0"	2'-2"	2'-4"	2'-6"	2'-8"	2'-10"	3'-0"
b =	1'-8"	2'-0"	2'-4"	2'-8"	3'-0"	3'-4"	3'-8"	4'-0"	4'-4"	4'-8"	5'-0"	5'-4"	5'-8"
c =	2'-8"	3'-2"	3'-8"	4'-2"	4'-8"	5'-2"	5'-8"	6'-2"	6'-8"	7'-2"	7'-8"	8'-2"	8'-8"
✱ CONC. CY/LF	0.161	0.210	0.259	0.309	0.358	0.407	0.457	0.506	0.556	0.605	0.654	0.704	0.753

✱ DOES NOT INCLUDE TOE WALL QUANTITIES
SEE SHEET 2 OF 2 FOR REINFORCING STEEL QUANTITY

■ REQUIRED DRAINAGE BEHIND WINGWALLS
SEE NOTE 6

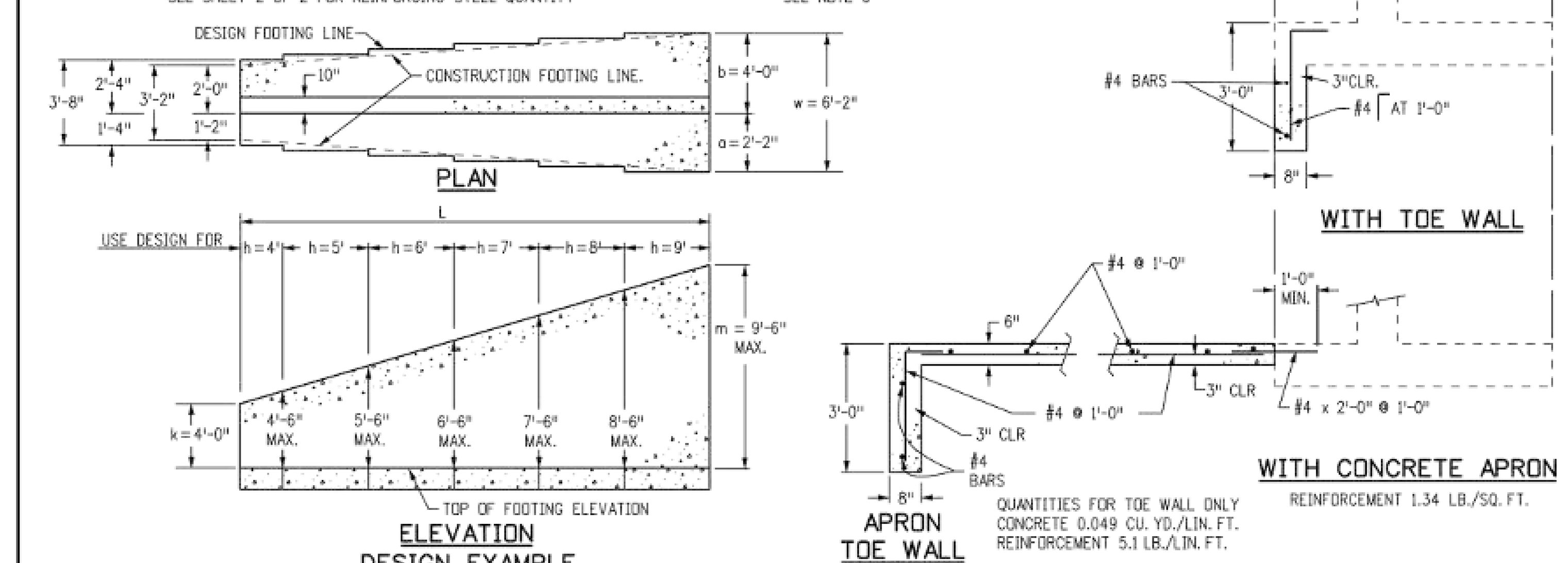


INLET APRON IS REQUIRED IF CBC IS USED AS AN ANIMAL PASS

TYPICAL CULVERT LAYOUT

SIX LONGITUDINAL #4 FOOTING BARS (TOP MAT), PROJECT 1'-9" MIN. INTO CULVERT FLOOR. FOR PIPES (SEE M-601-10)

DETAIL "A"



QUANTITIES FOR TOE WALL ONLY
CONCRETE 0.049 CU. YD./LIN. FT.
REINFORCEMENT 5.1 LB./LIN. FT.

REINFORCEMENT 1.34 LB./SQ. FT.

DESIGN DATA:

AASHTO LRFD EIGHTH EDITION, 2017
DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN, YIELD LINE METHOD

REINFORCED CONCRETE:
CONCRETE CLASS D (BOX CULVERT): f'_c = 4,500 PSI
REINFORCING STEEL: f_y = 60,000 PSI

LOADING:
AT-REST EARTH (FLUID) PRESSURE FOR CONCRETE STEM DESIGN = 55 PCF FOR 2 (MIN.) : 1 SLOPED BACKFILL
ACTIVE EARTH (FLUID) PRESSURE FOR CONCRETE FOOTING DESIGN = 40 PCF FOR 2 (MIN.) : 1 SLOPED BACKFILL
LIVE LOAD SURCHARGE = 2'
MINIMUM RESISTANCE FOR SOIL BEARING = 5.5 KSF
SOIL BEARING RESISTANCE FACTOR = 0.45

GENERAL NOTES:

1. ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾ IN.
2. WINGWALL FOOTING AND FLOOR OF BOX CULVERT SHALL BE PLACED MONOLITHICALLY.
3. DIMENSIONS "h", "k", "L", "m" AND ANGLE "θ" FOR WINGWALL SHALL BE AS SHOWN ON THE PLANS.
4. MINIMUM CLASS B LAP SPLICE LENGTH FOR BLACK REINFORCING BARS:

BAR SIZE:	#4	#5	#6	#7
SPLICE LENGTH:	1'-6"	1'-11"	2'-3"	2'-7"

5. DESIGN DOES NOT CONSIDER ANY SCOUR EFFECTS.
6. WINGWALL DRAIN SHALL BE REQUIRED IF "h" ≥ 12.0 FT., SEE SHEET 2 OF 2 FOR DETAILS.

Computer File Information		Sheet Revisions	
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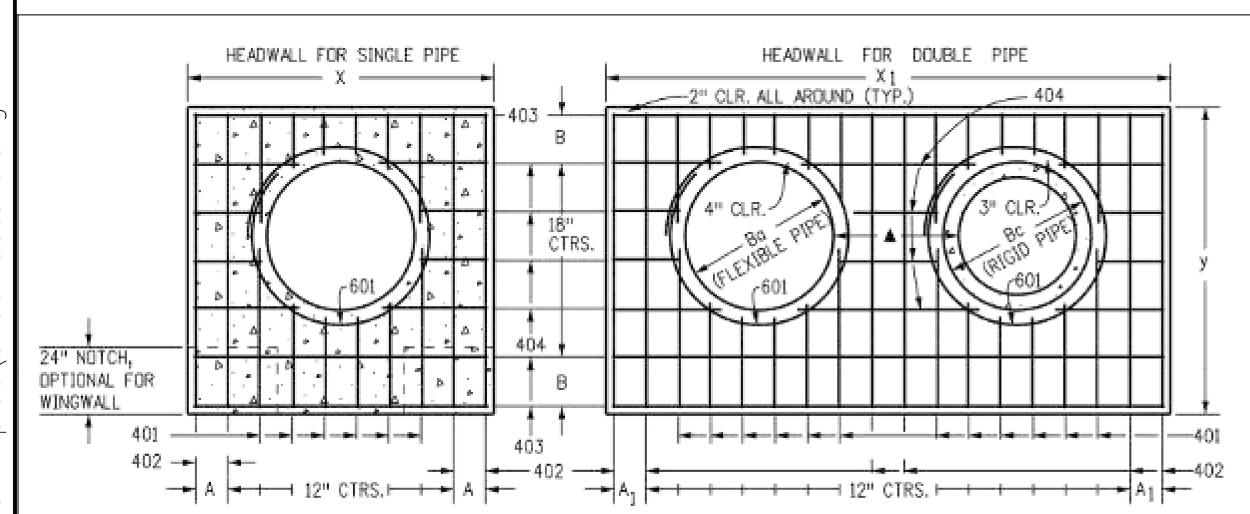
Detailer Initials: LTA			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

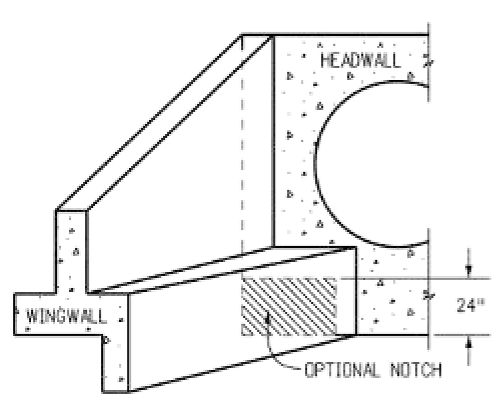
WINGWALLS FOR PIPE OR BOX CULVERTS

STANDARD PLAN NO.
M-601-20
Standard Sheet No. 1 of 2

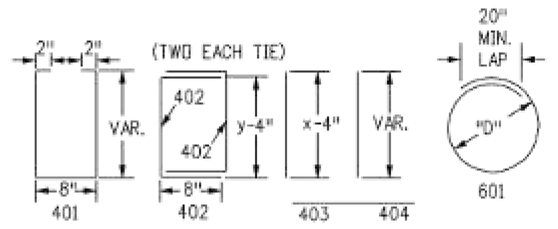
Issued by the Project Development Branch: July 31, 2019
Project Sheet Number:



TYPICAL BAR LAYOUT FOR CONCRETE HEADWALLS

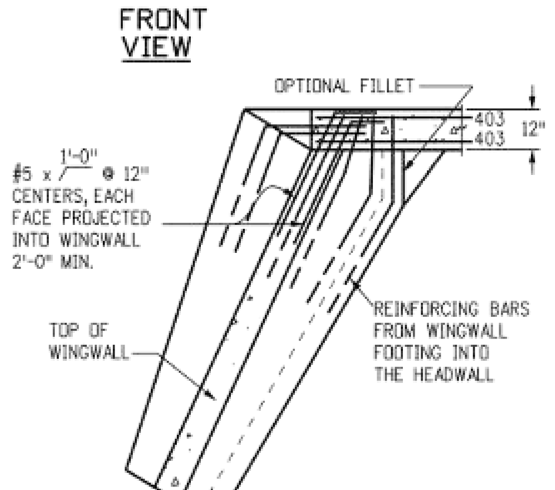


FRONT VIEW



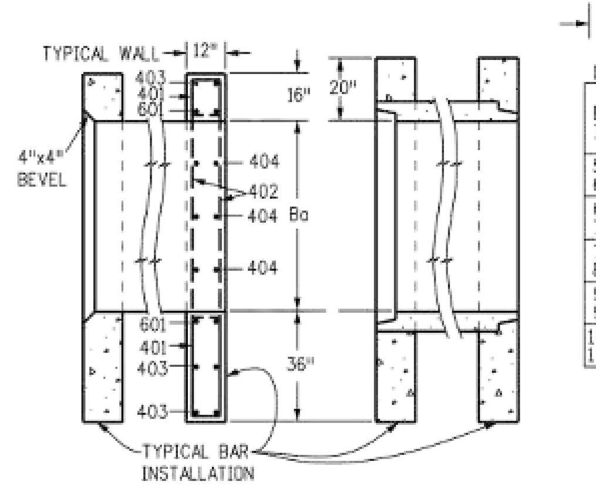
RIGID PIPE = Bc + 6"
"D" = FLEXIBLE PIPE = Ba + 8"
FLEXIBLE ARCH = SPAN + 8"
STRUCTURAL PLATE ARCH = RISE + 8"

BAR BENDING



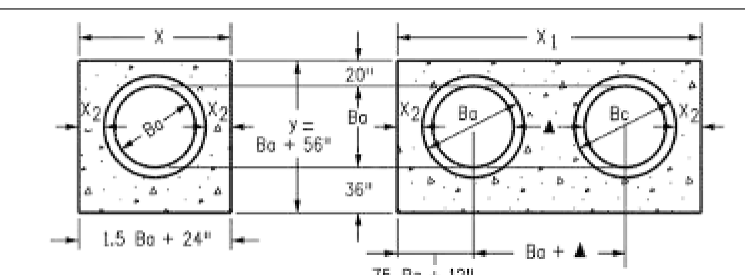
TOP VIEW

WINGWALL CONNECTION



INLET OUTLET
ENDS OF FLEXIBLE PIPE

INLET OUTLET
ENDS OF RIGID PIPE



Ba IN.	Bc IN.	X FT.-IN.	A IN.	X_1 FT.-IN.	A_1 IN.	y FT.-IN.	B IN.	X_2 IN.	CONCRETE SGL CU.YD.	CONCRETE DBL CU.YD.	STEEL ■ SGL LBS.	STEEL ■ DBL LBS.
54	65	8-9	8½	15-6	7	9-2	17	20	2.12	3.55	209	364
60	72	9-6	7	17-0	10	9-8	11	21	2.35	3.99	236	414
66	79	10-3	11½	18-6	7	10-2	14	22	2.60	4.44	249	453
72	86	11-0	10	20-0	10	10-8	17	23	2.85	4.91	270	476
78	93	11-9	8½	21-3	11	11-2	11	24	3.11	5.29	306	527
84	100	12-6	7	22-6	7	11-8	14	25	3.38	5.68	333	572
90	107	13-3	11½	23-9	8½	12-2	17	26	3.66	6.08	335	593
96	114	14-0	10	25-0	10	12-8	11	27	3.94	6.48	379	649
102	121	14-9	8½	26-3	11½	13-2	14	28	4.24	6.89	400	664
108	128	15-6	7	27-6	7	13-8	17	29	4.54	7.30	424	707

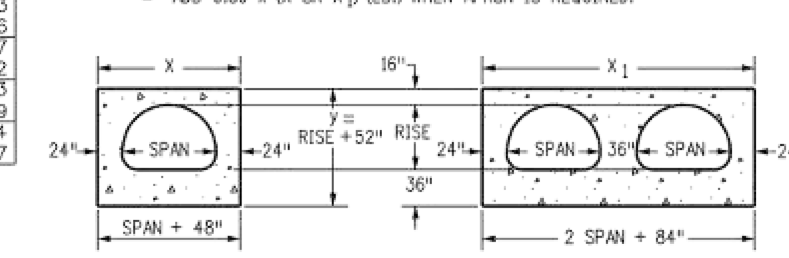
HEADWALL FOR RIGID ROUND PIPE

GENERAL NOTES

1. CONCRETE SHALL BE CLASS B.
2. HEADWALL SHALL BE PERPENDICULAR TO THE PIPE ℄ UNLESS OTHERWISE SHOWN ON THE PLANS. TABULATED DIMENSIONS AND QUANTITIES MUST BE ADJUSTED FOR SKEWED INSTALLATIONS.
3. FOR WINGWALL DETAILS, SEE STANDARD PLAN M-601-20.
4. VOLUME OCCUPIED BY PIPE HAS BEEN DEDUCTED FROM STEEL AND CONCRETE QUANTITIES.
5. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾ IN.
6. ALL REINFORCING BARS SHALL HAVE A 2 IN. MINIMUM CLEARANCE.

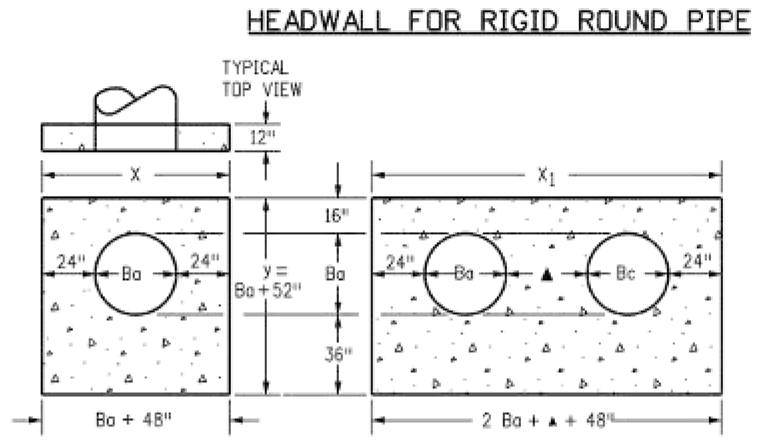
▲ WHEN TWO OR MORE PIPES ARE LAID SIDE BY SIDE, THEY SHALL BE PLACED SO THAT THE ADJACENT PIPES WILL BE ½ INSIDE DIAMETER APART, OR ½ INSIDE SPAN APART, OR 3 FT. APART (INCLUDING WALL THICKNESS), WHICHEVER IS LESS.

■ ADD 0.89 x (X OR X_1) (LB.) WHEN APRON IS REQUIRED.



EQUIV. Ba IN.	SPAN IN.	RISE IN.	X FT.-IN.	A IN.	X_1 FT.-IN.	A_1 IN.	y FT.-IN.	B IN.	CONCRETE SGL CU. YD.	CONCRETE DBL CU. YD.	STEEL ■ SGL LBS.	STEEL ■ DBL LBS.
72	81	59	10-9	8½	20-6	7	9-3	17½	2.72	5.10	250	467
78	87	63	11-3	11½	21-6	7	9-7	10½	2.85	5.34	275	531
84	95	67	11-9	8½	22-10	9	9-11	12½	3.08	5.79	290	547
90	103	71	12-7	7½	24-2	11	10-3	15	3.30	6.21	321	591
96	112	75	13-4	12	25-8	8	10-7	16½	3.52	6.65	314	606
102	117	79	13-9	8½	26-6	7	10-11	9½	3.63	6.86	356	672
108	128	83	14-8	8	28-4	12	11-3	11½	3.96	7.51	376	699

HEADWALL FOR FLEXIBLE PIPE ARCH

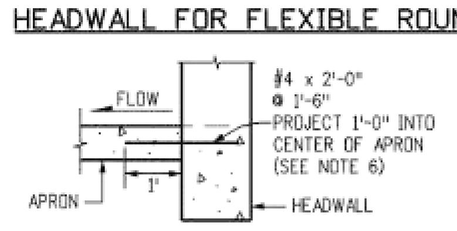


Ba IN.	X FT.-IN.	A IN.	X_1 FT.-IN.	A_1 IN.	y FT.-IN.	B IN.	CONCRETE SGL CU. YD.	CONCRETE DBL CU. YD.	STEEL ■ SGL LBS.	STEEL ■ DBL LBS.
54	8-6	7	15-3	11½	8-10	15	2.19	3.81	211	358
60	9-0	10	16-6	7	9-4	18	2.38	4.25	217	396
66	9-6	7	17-9	8½	9-10	12	2.58	4.70	252	454
72	10-0	10	19-0	10	10-4	15	2.78	5.17	255	472
78	10-6	7	20-0	10	10-10	18	2.98	5.56	276	499
84	11-0	10	21-0	10	11-4	12	3.19	5.95	297	553
90	11-6	7	22-0	10	11-10	15	3.40	6.36	317	517
96	12-0	10	23-0	10	12-4	18	3.62	6.79	321	597
102	12-6	7	24-0	10	12-10	12	3.84	7.21	364	663
108	13-0	10	25-0	10	13-4	15	4.06	7.63	362	678

HEADWALL FOR FLEXIBLE ROUND PIPE

EQUIV. Ba IN.	SPAN FT.-IN.	RISE FT.-IN.	X FT.-IN.	A IN.	X_1 FT.-IN.	A_1 IN.	y FT.-IN.	B IN.	CONCRETE SGL CU. YD.	CONCRETE DBL CU. YD.	STEEL ■ SGL LBS.	STEEL ■ DBL LBS.
66	6-1	4-7	10-1	10½	19-2	11	8-11	15½	2.52	4.70	232	424
75	7-0	5-1	11-0	10	21-0	10	9-5	9½	2.80	5.25	282	509
84	7-11	5-7	11-11	9½	22-10	9	9-11	12½	3.08	5.79	291	540
93	8-10	6-1	12-10	9	24-8	8	10-5	15½	3.36	6.33	309	622
102	9-9	6-7	13-9	8½	26-6	7	10-11	9½	3.63	6.86	379	673
111	10-11	7-1	14-11	9½	28-10	9	11-5	12½	4.05	7.67	377	711
120	11-10	7-7	15-10	9	30-8	8	11-11	15½	4.36	8.28	395	731
132	12-10	8-4	16-10	9	32-8	8	12-8	11	4.75	9.03	441	839
141	14-1	8-9	18-1	10½	35-2	11	13-1	13½	5.17	9.86	448	931
150	15-4	9-3	19-4	12	37-8	8	13-7	16½	5.69	10.88	490	953
159	15-10	9-10	19-10	9	38-8	8	14-2	11	5.89	11.25	534	1019

HEADWALL FOR STRUCTURAL PLATE ARCH



WHEN APRON IS REQUIRED

SKEW ANGLE A°	90	85	80	75	70	65	60	55	50	45	40	35	30
FACTOR (cosecA°)	1.000	1.004	1.015	1.035	1.064	1.103	1.155	1.221	1.305	1.414	1.556	1.743	2.000

SKEW FACTOR TABLE

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK			
Last Modification Date: 07/31/19			
Detailer Initials: LTA			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

HEADWALL FOR PIPES

STANDARD PLAN NO.
M-601-10
Standard Sheet No. 1 of 1

Issued by the Project Development Branch: July 31, 2019
Project Sheet Number:

g:\my drive\mountain civil_current projects\2021-002 dolores river subdivision\cad\plansheets\prelim plat\c400-details.dwg

PRELIMINARY NOT FOR CONSTRUCTOIN

Revisions:
#	DATE	DESCRIPTION

DOLORES RIVER SUBDIVISION
CIVIL DETAILS
TOWN OF RICO, CO

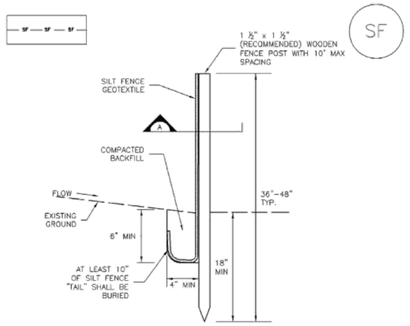
MOUNTAIN CIVIL CONSULTING
712 Eagle- Pass
Durango, CO 81301
970-946-3175

PLAN NO.
C402

Sheet 9 of 10
Project: 2021-012
Date: 11/1/22
Drawn By: ABR
Checked By:

COLORADO LICENSED PROFESSIONAL ENGINEER 40308 11/1/22

Silt Fence (SF) SC-1

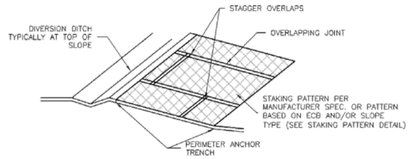


SILT FENCE

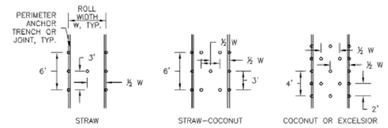
SECTION A

SF-1. SILT FENCE

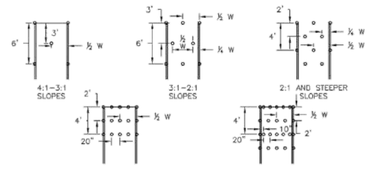
Rolled Erosion Control Products (RECP) EC-6



ECB-3. OUTSIDE OF DRAINAGEWAY

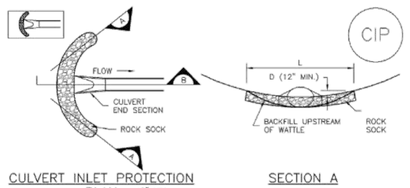


STAKING PATTERNS BY ECB TYPE

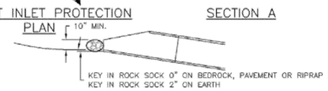


STAKING PATTERNS BY SLOPE OR CHANNEL TYPE

Inlet Protection (IP) SC-6



CULVERT INLET PROTECTION PLAN



SECTION A

SECTION B

CIP-1. CULVERT INLET PROTECTION

CULVERT INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR -LOCATION OF CULVERT INLET PROTECTION.

2. SEE ROCK SOCK DESIGN DETAIL FOR ROCK GRADATION REQUIREMENTS AND JOINTING DETAIL.

CULVERT INLET PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

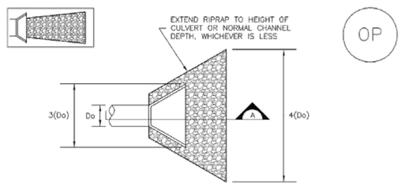
4. SEDIMENT ACCUMULATED UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS ½ THE HEIGHT OF THE ROCK SOCK.

5. CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

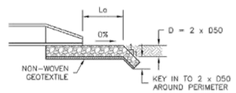
(DETAILS ADAPTED FROM AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

EC-8 Temporary Outlet Protection (TOP)



TEMPORARY OUTLET PROTECTION PLAN



SECTION A

TABLE OP-1. TEMPORARY OUTLET PROTECTION SIZING TABLE

PIPE DIAMETER, Do (INCHES)	DISCHARGE, Q (CFS)	APRON LENGTH, Lo (FT)	RIPRAP D50 DIAMETER MIN (INCHES)
8	2.5 5	5 10	4 6
12	5 10	10 13	4 6
18	10 20 30 40	10 16 23 26	6 9 12 16
24	30 40 50 60	16 26 28 30	9 9 12 16

OP-1, TEMPORARY OUTLET PROTECTION

PRELIMINARY
NOT FOR
CONSTRUCTOIN

Revisions:

#	DATE	DESCRIPTION

DOLORES RIVER SUBDIVISION
CIVIL DETAILS
TOWN OF RICO, CO

MOUNTAIN CIVIL CONSULTING
712 Eagle- Pass
Durango, CO 81301
970-946-3175

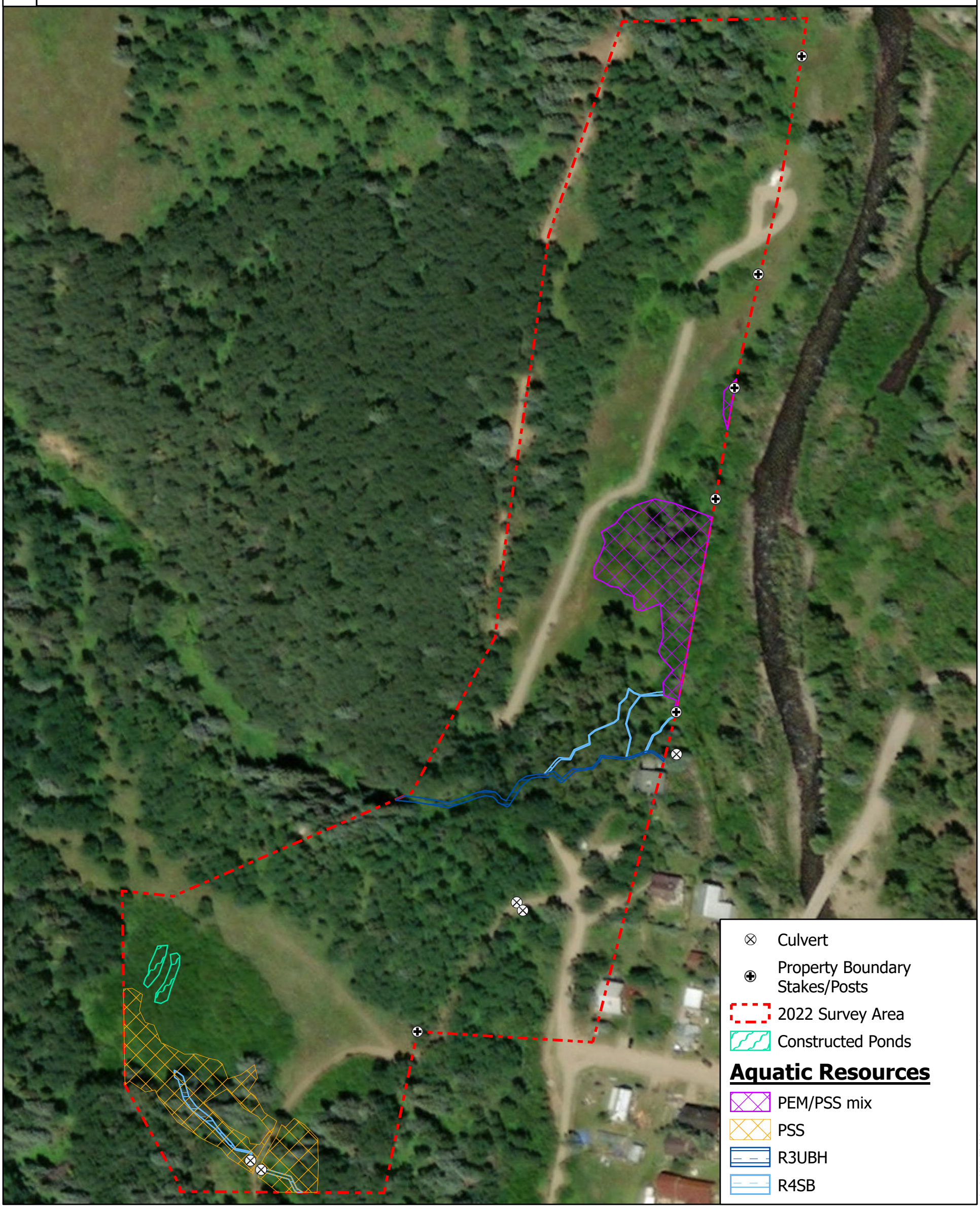
PLAN NO.
C403

Sheet 10 of 10
Project: 2021-012
Date: 11/1/22
Drawn By: ABR
Checked By:

COLORADO LICENSED 40308 PROFESSIONAL ENGINEER
11/1/22

GENERAL NOTES

1. Survey area boundary created by SME, based on plat sheets and plan data provided by Mountain Civil, a site walk through with the project manager, and property boundary data collected by SME in the field.
2. SME Environmental, Inc. (SME) staff originally visited the site on May 5, 2021 to assess and delineate the boundaries of wetlands and other Waters of the U.S. (WOUS) in the project area. Due to May 2021 site conditions (prior to the main portion of growing season) and climatic conditions (Dolores County was in extreme drought- U.S. Drought Monitor), SME was not able to accurately assess hydrology within the project area. Therefore, it was determined that an additional site visit should be conducted to recheck/reassess WOUS boundaries. SME revisited the site on June 27, 2022 during the growing season after the area had received some precipitation and site conditions were closer to "normal". This map reflects the boundaries as assessed during the June 2022 site visit. Both site visits were conducted using the methodology defined in the Routine Determination procedure set forth in the U.S. Army Corps of Engineers Wetlands Delineation Manual (USACE 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains Region (USACE 2010), and A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States (USACE 2014.
3. Wetland boundaries were defined based on presence of hydrophytic vegetation, hydric soils, and hydrologic indicators that under normal conditions would indicate wetland conditions. Where wetland conditions did not occur adjacent to surface water, the jurisdictional boundary was identified based on evidence of the OHWM.
4. The boundaries of WOUS were survey-located using a Trimble R1 GNSS Receiver (real-time sub-meter accuracy).
5. Areas which likely satisfy the USACE criteria as WOUS are labeled. Note that WOUS continue beyond the survey area boundary.
6. All WOUS boundaries, depicted hereon, are subject to modification until jurisdictional verification has been completed the USACE.
7. Please be aware that impacts to WOUS may require authorization from Local, State and/or Federal regulatory agencies.



Sources: Aerial Imagery provided by Microsoft (acquisition date: September 8, 2011), World Imagery: Maxar, Microsoft

ENVIRONMENTAL CONSULTANTS
679 East 2nd Ave. Unit E2
Durango, Colorado 81301
www.sme-env.com
(970) 259-9595

Proj. No.:	Drawn By:	Rvwd. By:
210027	SB	KZ
Date:	Rvsd. Date:	Scale:
7/3/2022	NA	1:1,600

N

0 100 200
Feet

AQUATIC RESOURCES DELINEATION MAP

AQUATIC RESOURCES ASSESSMENT
RICO SUBDIVISION
DOLORES COUNTY, COLORADO

FIGURE 1

Document Path: \\SERVER2\Shared\Projects\210027 Rico Subdivision\GIS\Rico Subdivision ArcPro\Rico Subdivision ArcPro.aprx"Figure 4 Delineation Map- Overall Site"; Coordinate System: NAD 1983 StatePlane Colorado South FIPS 0503 Feet

Re: Dolores River Trail Development

229

JC

Jill Carver <artist@jillcarver.com>
To Chauncey McCarthy

Reply | Reply All | Forward 189

Thu 11/3/2022 4:15 PM

Dear Chauncey,

I will not be able to attend the next planning commission meeting, but I wanted to extend heartfelt thanks for the site walk and for the attendance of everybody. It was very helpful indeed! Thank you!

I have one outstanding question/concern:

Regarding the Ute Trail connecting the neighborhoods of West Rico and Piedmont areas. I really appreciate Rebecca and Gordon's acknowledgement as to its current usage as a walking/cycling town loop trail for current residents, even though we have all been trespassing all this time! It makes sense for this to be offered as part of their open space allocation and we support that proposal for sure.

In the meeting it was described as pedestrian and cycle access. But when I asked on the site-walk if homeowners that choose to build high up on their lots might use it, Rebecca said they could have possible vehicular access 'with permission'.

My questions are:

1. If in essence it becomes someone's 'back alley access', does it still qualify as 'open space' if it is functioning as someone's access?
2. I wonder if it could be the slippery slope of it then being used for FedEx or propane delivery access for those folks that might choose to build high…

When Rebecca and Gordon first communicated their intentions of this development to us, I think our main concern was to somehow maintain the cul-de-sac living experience for those in West Rico and Piedmont as this corridor gets developed, and that certainly remains our priority 'wish', if possible.

Rebecca and Gordon have been extremely generous in their communications with us and we wish to continue the good relationship we have with them.

Thanks to you and the board/trustees for all that you do on our behalf!

Jill Carver.

Dear Rico Planning Commission and Dolores River Trail Applicants,

Since my first visit to Rico, CO it's pretty much been love at first sight. I liked the sparse downtown, the modest development low down in the valley, the raw recreation opportunities — a mix of old mining roads and network of official and unofficial trails, and the friendly and outdoor nature of long-time locals. It's my kind of place — semi forgotten compared to too many places in this state that wanted to be the next big thing and then got more than they bargained for [1].

The mindset that Rico is great the way it is shapes my comments on the subdivision Rebecca Adams and Gordon Mortensen (the applicants) have proposed. I have no expectations for Rico to remain unchanged, but I don't wish to see development be the cause of material change to the character of Rico. The small town mountain "hamlet" character, referenced in the 2004 Rico Master Plan, is at the heart of what I hope to be preserved as development takes place.

Rico was born from the mining rush and even though active mining is a distant legacy, the rush for riches is still repeated in the race to acquire scarce physical assets, aka homes and property. The human emotions involved in anticipation of striking it rich are no different for finding silver or flipping property. Having felt it myself I can fault no one else for feeling it. This characterization is of the time period we find ourselves in and not specific to the applicants, but it's the trend towards commodifying and financializing a "small mountain hamlet" that has me worried.

Rico has dodged undergoing intense development several times and the benefit to that is getting the experience of watching the growing pains mountain towns most analogous to Rico have experienced. It's a situation that laissez-faire free market capitalism has gotten us into, and only protective/protectionist type behavior can solve [2]. I'm not introducing a new concept but one that has already caught on with the ordinance limiting the total number of short-term rentals in Rico.

With only the design criteria for PUD lots and knowledge of the physical setting in mind I'm left to speculate on what will be built on each lot. There are no certainties, only probable outcomes, but typically the nicest land gets the biggest houses and it's no secret, the land proposed for development is quite nice.

Looking around Rico there are very few houses that exceed the 3250 sq ft size that can be built on city lots and perhaps only one topping 4000. Since 1998 Ordinance 334 has prevented development on PUD areas, essentially preventing any new housing over 3250 sq ft from being built and sheltering Rico from the trend of bigger housing in mountain towns. With the repeal of this ordinance last year, this development marks the first chance see what a 4500 sq ft house looks like in town and but I think we can turn to other analogous towns to form our opinion.

The concept of increasing housing supply to meet demand is basic economics but I'd argue that all housing cannot be created equal. Creating a new type of housing supply can simultaneously create a new type of housing demand, solving nothing of the current shortage or tight market [3]. In a global real estate market the larger the size and higher the price the greater the chance the buyer isn't a resident but rather a collector of scarce real assets [4,5].

To consolidate and summarize my views related to this proposed development, I would like to see the following actions taken.

1. I hope the applicants explore the possibility of deed restrictions, and any potential incentive programs for providing local housing. The benefits it will offer people living and working in Rico will be far greater than taking a market based approach to selling the lots/homes.
2. I urge the planning commission to adopt a housing size limitation of 3250 sq ft if this development is passed. This mirrors the existing housing and helps to maintain the historic feel of the town and natural surroundings versus imposing upon them.
3. I warn that embracing free market capitalism and expecting the nature and character of Rico to remain unchanged has been disproven many times over in similar mountain towns. It's time to get protective of Rico's uniqueness and a key to that is ensuring that the market price for for a significant portion of housing is set by those that live and work in town.

I believe the best fate for Rico is to continue to attract and keep people that love what they see at first sight, don't require it to change for them to be happy, and realize the high quality life they can live here. They're not looking to "cash in" or "cash out" but truly love and care about the place. In an indirect way, I believe the actions I've proposed support this vision.

Thanks for your consideration of these comments,

Matt Schiff
1/8 time resident of North River
but dreamer of more

1. https://www.denverpost.com/2022/08/07/colorado-mountain-town-housing-safe-parking-salida/

2. https://www.vaildaily.com/news/no-vacancy-deed-restrictions-are-the-weapon-of-choice-for-governments-in-the-fight-against-vacant-homes/

3. https://aperturecb.com/about

4. https://mix1043fm.com/tommy-hilfiger-aspen-colorado/

5. https://coloradosun.com/2021/05/11/colorado-resort-towns-real-estate-records-pricing-out-locals/

TOWN OF RICO
ORDINANCE NO. 2022-12

AN ORDINANCE OF THE TOWN OF RICO, COLORADO AMENDING THE RICO LAND USE CODE FEE SCHEDULE AND ADOPTING THE UBC 97 TABLE NO. 1-A – BUILDING PERMIT FEES

WHEREAS, the Town of Rico, Colorado ("Town") is a Colorado home rule municipality organized pursuant to Article XX of the Colorado Constitution and with the authority of the Rico Home Rule Charter; and

WHEREAS, The Board of Trustees of the Town ("Board") recognizes the need to amend the Rico Land Use Code ("RLUC") so that the Town recover the related costs and expenses of administer a building department and contracting plan review; and

WHEREAS, Section 3.1 of the Town of Rico Home Rule Charter provides that enactments of the Board imposing fees shall be made by ordinance; and

WHEREAS, The Rico Planning Commission may propose changes and amendments to the RLUC which are in the public interest pursuant to RLUC Sec. 412; and

WHEREAS, The RLUC may be amended by adoption of an ordinance by the Board of Trustees of the Town of Rico ("Board") after a public hearing and after the Rico Planning Commission conducts a public hearing on the amendments and makes a recommendation to the Board of Trustees; and

WHEREAS, the Rico Planning Commission has considered the amendments to the RLUC contained in this Ordinance, conducted a duly noticed public hearing regarding the amendments at its December 14 meeting, and recommended the Board adopt the amendments; and

WHEREAS, the Board has determined that the amendments contained in Exhibit A, attached hereto and incorporated by reference, meet the standards for review contained in Sec. 418 of the RLUC because the amendments will serve a community need and thereby promote the public health, safety, or welfare of the Rico community and the public services and infrastructure are adequate to meet the needs of the proposed amendments; and the proposed Amendment is consistent with the purposes of the RLUC and the goals and objectives of the Rico Regional Master Plan; and

WHEREAS, the Board finds and declares that the amendments to the RLUC set forth herein are proper in light of the needs and desires of the Town and in the promotion of the public health, safety, and welfare of the Town's residents.

NOW THEREFORE, BE IT ORDAINED BY THE BOARD OF TRUSTEES OF THE TOWN OF RICO THAT:

Section 1. The recitals hereinabove are hereby adopted as findings and incorporated herein.

Section 2. The Rico Land Use Code shall be and is hereby amended as set forth in **Exhibit A** to this Ordinance, incorporated by reference hereto.

Section 3. This Ordinance shall take effect immediately on final adoption.

THIS ORDINANCE WAS, FOLLOWING PUBLIC NOTICE, INTRODUCED, READ, AND APPROVED ON FIRST READING, AND ORDERED PUBLISHED BY TITLE ONLY THIS 21ST DAY OF DECEMBER 2022.

TOWN OF RICO, COLORADO

_____
Nicole Pieterse, Mayor

ATTEST:

_____
Anna Wolf, Town Clerk

THIS ORDINANCE WAS, FOLLOWING PUBLIC NOTICE, INTRODUCED, READ ON SECOND READING, PASSED AND ORDERED PUBLISHED BY TITLE ONLY TO BE EFFECTIVE IMMEDIATELY THIS 18 DAY OF JANUARY 2023.

TOWN OF RICO, COLORADO

_____
Nicole Pieterse, Mayor

ATTEST:

_____
Anna Wolf, Town Clerk

Effective Date: January 18, 2023

EXHIBIT A

AMENDMENTS TO THE RICO LAND USE CODE

Additions shown in double underline; deletions shown in ~~strikethrough~~.

Rico Land Use Code APPENDIX A – FEE SCHEDULE

FEE SCHEDULE

~~Building Permits (new construction) = $25.00 minimum; 15 cents per square foot of construction for structures up to and including 2,500 sq.ft.; 20 cents per square foot of construction for structures over 2,500 square feet.~~

Electronic Copy of Rico Land Use Code	$	25.00
Hard Copy of Rico Land Use Code	$	100.00
Formal Interpretation of Rico Land Use Code - §408	$	200.00
Amendments to Code and Plans * - §410	$	500.00
Special Use Permit * - §420	$	300.00
All Variance Applications - §430	$	300.00
Development Permit for Areas of State and Local Interest * - § 804	$	400.00
Road Building * - §470	$	350.00
Road Vacation * - §480	$	350.00
Utility Improvements - §490	$	100.00
Excavation Permits - §494	$	100.00
Minor Subdivision * - Article V	$	750.00
Subdivision * - Article V	$	1,800.00
Planned Unit Development * - Article III	$	1,000.00
Annexation * - Article VI	$	2,000.00
Encroachment Permit * - Ord. No. 2019-02	$	200.00
HC District Fence Permit - §243.2	$	100.00
Special Sign Design Permit - §206.12	$	100.00
Septic Permit * - §405.6 & Ord. No. 2017-01	$	400.00
Extension of Subdivision Approval - §570	$	200.00

Hourly rate charged for any other approved contractual Town Employee review shall be determined by the Board of Trustees.

* These applications shall be treated as pass-through accounts whereby the Applicant shall be liable for all costs of review. Additional review fees will be paid by the Applicant where the application requires review by an approved contractual Town employee.

Building Permit Fees (Schedule Pursuant to 1997 UBC Table No. 1-A)

TOTAL VALUATION	FEE
$1.00 to $500.00	$23.00
$501.00 to $2,000.00	$23.50 for the first $500.00 plus $3.05 for each additional $100.00, or fraction thereof, to and including $2,000.00
$2,001.00 to $25,000.00	$69.25 for the first $2,000.00 plus $14.00 for each additional $1,000.00, or fraction thereof, to and including $25,000.00
$25,001.00 to $50,000.00	$391.25 for the first $25,000.00 plus $10.10 for each additional $1,000.00, or fraction thereof, to and including $50,000.00
$50,001.00 to $100,000.00	$643.75 for the first $50,000.00 plus $7.00 for each additional $1,000.00, or fraction thereof, to and including $100,000.00
$100,001.00 to $500,000.00	$993.75 for the first $100,000.00 plus $5.60 for each additional $1,000.00, or fraction thereof, to and including $500,000.00
$500,001.00 to $1,000,000.00	$3,233.75 for the first $500,000.00 plus $4.75 for each additional $1,000.00, or fraction thereof, to and including $1,000,000.00
$1,000,001.00 and up	$5,608.75 for the first $1,000,000.00 plus $3.15 for each additional $1,000.00, or fraction thereof

Other Inspections and Fees:

1. Plan review fee shall be 65% of the permit fee.
2. Inspections outside of normal business hours ..... $47.00 per hour ^
3. Reinspection fees assessed under provisions of Section 305.8 ..... $47.00 per hour ^
4. Inspections for which no fee is specifically indicated ..... $47.00 per hour ^ (minimum charge – one-half hour)
5. Additional plan review required by changes, additions or revisions to plans . . . . . $47.00 per hour ^
6. For use of outside consultants for plan checking and inspections, or both ..... Actual costs ^^

^Or the total hourly cost to the jurisdiction, whichever is the greatest. This cost shall include supervision, overhead, equipment, hourly wages and fringe benefits of the employees involved.

^^ Actual costs include administrative and overhead costs.

Valuation of work

The determination of value or valuation shall be established by the Building Official utilizing the most recent valuation schedule printed in the Building Safety Journal, published by the International Code Council, as a guide using a modifier of one (1). Or, the applicant for a permit shall provide an estimated permit value at time of application. Permit valuations shall include total value of work, including materials and labor, for which the permit is being issued, such as electrical, gas, mechanical, plumbing equipment and permanent systems. If, in the opinion of the Building Official, the valuation is underestimated on the application, the permit shall be denied, unless the applicant can show detailed estimates to meet the approval of the Building Official. Final building permit valuation shall be set by the Building Official.

Jurisdiction	I-Codes	IECC	Solar-Ready	Electric-Ready/Electric Requirement	EV-Ready	
Adams County	2018	2018				*adoption of 2021 IECC in progress
Aguilar	2006	2003				
Akron	2009	None				
Alamosa	2015	2009				*adoption of 2021 IECC in progress
Alamosa County	2012	2009				
Alma	2012	2012				
Antonito	None	None				
Arapahoe County	2021	2021				
Archuleta County	2015	2015				
Arriba	2006	2003				
Arvada	2018	2018				*adoption of 2021 IECC in progress
Aspen	2015	2015			X	*adoption of 2021 IECC in progress
Ault	2018	2012				
Aurora	2021	2021				
Avon	2015	2015	X		X	*adoption of 2021 IECC in progress
Baca County	None	None				
Bailey	2012	2012				
Basalt	2015	2015	X	Electric-ready	X	*adoption of 2021 IECC in progress
Bayfield	2015	2009				
Bennett	2018	2018				
Bent County	1998	None				
Berthoud	2018	2018				*adoption of 2021 IECC in progress
Bethune	None	None				
Blackhawk	2015	2015				*adoption of 2021 IECC in progress
Blanca	None	None				
Blue River	2018	2012				
Boulder County	2015	2015	X		X	*adoption of 2021 IECC in progress
Boulder, City of	2018	2018	X		X	*adoption of 2021 IECC in progress
Bow Mar	2015	2006				
Branson	2009	None				
Breckenridge	2018	2018			X	
Brighton	2018	2018				*adoption of 2021 IECC in progress
Brookside	2003	2006				
Broomfield, City and County of	2018	2018			X	*adoption of 2021 IECC in progress
Brush	2003	2003				
Buena Vista	2015	2006				
Burlington	None	None				
Calhan	2006	2006				
Campo	None	None				
Canon City	2018	2018				
Carbondale	2015	2015				*adoption of 2021 IECC in progress
Castle Pines	2015	2015				*adoption of 2021 IECC in progress
Castle Rock	2018	2018				*adoption of 2021 IECC in progress
Cedaredge	2018	2018				
Centennial	2015	2015				*adoption of 2021 IECC in progress
Center	2018	2018				
Central City	2015	2015				
Chaffee County	2015	2006				*adoption of 2021 IECC in progress
Cheraw	2006	2006				
Cherry Hills Village	2018	2018				
Cheyenne County	None	None				
Cheyenne Wells	None	None				
Clear Creek County	2015	2009				
Coal Creek	2006	None				
Cokedale	2009	2009				
Collbran	2018	2009				
Colorado Dept of Local Affairs, Division of I	2018	2015				
Colorado Springs	2015	2015				*adoption of 2021 IECC in progress
Columbine	2015	2015				
Commerce City	2018	2018				*adoption of 2021 IECC in progress
Como	2012	2012				
Conejos County	None	None				
Cortez	2015	2009				
Costilla County	None	None				
Craig	2018	2018				
Crawford	2006	2006				
Creede	2003	None				
Crested Butte	2021	2021	X	All Electric	X	
Crestone	None	None				
Cripple Creek	2018	2018				
Crook	2006	2006				
Crowley County	2018	None				
Crowley, Town of	None	None				
Custer County	None	None				
Dacono	2018	2012				
De Beque	2018	2009				
Deer Trail	2012	2009				
Del Norte	2006	1977				
Delta	2018	2012				
Delta County	None	None				
Denver, City & County of	2018	2018	X		X	*adoption of 2021 IECC in progress
Dillon	2018	2018			X	
Dinosaur	2006	2009				
Dolores	1997	None				

Jurisdiction	I-Codes	IECC	Solar-Ready	Electric-Ready/Electric Requirement	EV-Ready	
Dolores County	None	None				
Douglas County	2018	2018				
Dove Creek	None	None				
Durango	2018	2018			X	
Eads	2012	2012				
Eagle County	2015	2015				*adoption of 2021 IECC in progress
Eagle, Town of	2015	2015				*adoption of 2021 IECC in progress
Eaton	2018	2012				
Eckley	None	None				
Edgewater	2015	2015				*adoption of 2021 IECC in progress
Edwards	2015	2015				
El Jebel	2015	2015				
El Paso County (PPRBD)	2015	2015				*adoption of 2021 IECC in progress
Elbert County	2018	2018				
Elizabeth	2018	2018				
Empire	2009	2009				
Englewood	2018	2018				*adoption of 2021 IECC in progress
Erie	2015	2015				*adoption of 2021 IECC in progress
Estes Park	2015	2015				
Evans	2018	2012				
Fairplay	2012	2012				
Federal Heights	2015	2015				
Firestone	2012	2009				
Flagler	None	None				
Flemming	2006	2006				
Florence	2006	2006				
Fort Collins	2021	2021	X	Electric-ready	X	
Fort Lupton	2012	2006			X	
Fort Morgan	2018	2018				
Fountain (PPRBD)	2015	2015				*adoption of 2021 IECC in progress
Fowler	2006	None				
Foxfield	2015	2015				
Franktown	2018	2018				
Fraser	2015	2015				
Frederick	2018	2018				
Fremont County	2018	2018				
Frisco	2018	2018			X	
Fruita	2018	2009				
Garden City	2012	2009				
Garfield County	2015	2009				*adoption of 2021 IECC in progress
Genoa	2006	2003				
Georgetown	2015	2015				
Gilcrest	2018	2012				
Gilpin County	2015	2015				
Glendale	2018	2018				
Glenwood Springs	2015	2009				*adoption of 2021 IECC in progress
Golden	2021	2021			X	
Granada	None	None				
Granby	2015	2015				
Grand County	2015	2015				
Grand Junction	2018	2009				
Grand Lake	2015	2015				
Greeley	2018	2018				
Green Mountain Falls (PPRBD)	2015	2015				
Greenwood Village	2018	2018				
Grover	2012	2006				
Guffey	2012	2012				
Gunnison	2015	2015				
Gunnison County	2015	2015				
Gypsum	2015	None				
Hartman	None	None				
Hartsel	2012	2012				
Haswell	2012	2012				
Haxtun	None	None				
Hayden	2018	2018				
Hillrose	2009	None				
Hinsdale County	2015	2018				
Holly	2006	2006				
Holyoke	None	None				
Hooper	2012	2009				
Hot Sulphur Springs	2009	2009				
Hotchkiss	2018	2018				
Hudson	2018	2012				
Huerfano County	2015	2015				
Hugo	2006	None				
Idaho Springs	2018	2018				
Ignacio	2003	None				
Iliff	2006	2006				
Jackson County	1994	1977				
Jamestown	2015	2015				
Jefferson County	2018	2018				
Jefferson, Town of	2012	2012				
Johnstown	2018	2012				
Julesburg	None	None				

Jurisdiction	I-Codes	IECC	Solar-Ready	Electric-Ready/Electric Requirement	EV-Ready	
Keenesburg	2018	2018				
Kersey	2018	2012				
Kim	2009	None				
Kiowa	2012	2012				
Kiowa County	2018	2018				
Kit Carson	None	None				
Kit Carson County	None	None				
Kremmling	2009	2006				
La Jara	2012	None				
La Junta	2006	None				
La Plata County	2015	2009				
La Veta	2006	2006				
Lafayette	2015	2015	X		X	*adoption of 2021 IECC in progress
Lake City	2015	2018				
Lake County	2012	2006				
Lakeside	None	None				
Lakewood	2015	2015			X	*adoption of 2021 IECC in progress
Lamar	2006	2006				
Larimer County	2021	2021				
Larkspur	2012	2009				
Las Animas County	2018	2018				*adoption of 2021 IECC in progress
Las Animas, City of	2006	2006				
LaSalle	1991 UBC	None				
Leadville	2012	2006				
Limon	2006	2006				
Lincoln County	2006	None				
Littleton	2012	2012				
Lochbuie	2018	2018				
Log Lane Village	2009	None				
Logan County	2006	2006				
Lone Tree	2018	2018				
Longmont	2021	2021			X	
Louisville	2021	2021	X	Electric-ready	X	
Loveland	2018	2018				*adoption of 2021 IECC in progress
Lyons	2015	2015				*adoption of 2021 IECC in progress
Manassa	None	None				
Mancos	2006	2006				
Manitou Springs (PPRBD)	2015	2015				*adoption of 2021 IECC in progress
Manzanola	None	None				
Marble	None	None				
Mead	2018	2012				
Meeker	2003	2006				*adoption of 2021 IECC in progress
Merino	2006	2006				
Mesa County	2018	2009				
Milliken	2012	2009				*adoption of 2021 IECC in progress
Mineral County	None	None				
Minturn	2015	2015				
Moffat	None	None				
Moffat County	2018	2018				
Monte Vista	2006	2006				
Montezuma County	1997	None				
Montrose	2003	2003				
Montrose County	2009	2009				
Monument (PPRBD)	2015	2015				*adoption of 2021 IECC in progress
Morgan County	2009	2009				
Morrison	2015	2015				
Mount Crested Butte	2015	2015				
Mountain View	2015	2015				
Mountain Village	2018	2018				
Naturita	None	None				
Nederland	2012	2012				*adoption of 2021 IECC in progress
New Castle	2015	2009				
Northglenn	2018	2018				*adoption of 2021 IECC in progress
Norwood	2009	2009				
Nucla	2003	2003				
Nunn	2018	2012				
Oak Creek	2018	2018				
Olathe	2006	2006				
Olney Springs	2009	None				
Ophir	1979	1979				
Orchard City	2018	2018				
Ordway	1994	None				
Otero County	2006	2006				
Otis	None	None				
Ouray (City)	2009	2009				
Ouray County	2018	2018				
Ovid	None	None				
Pagosa Springs	2015	2015				
Palisade	2018	2009				
Palmer Lake (PPRBD)	2015	2015				*adoption of 2021 IECC in progress
Paoli	None	None				
Paonia	2003	2003				
Parachute	2018	2018				
Park County	2012	2012				*adoption of 2021 IECC in progress

Jurisdiction	I-Codes	IECC	Solar-Ready	Electric-Ready/Electric Requirement	EV-Ready	
Parker	2021	2021				
Peetz	None	None				
Phillips County	None	None				
Pierce	2018	2012				
Pikes Peak RBD	2015	2015				*adoption of 2021 IECC in progress
Pitkin County	2015	2015	X			
Platteville	2018	2012				
Poncha Springs	2015	2006				
Pritchett	None	None				
Prowers County	None	None				
Pueblo County	2015	2015				*adoption of 2021 IECC in progress
Pueblo RBD	2015	2015				*adoption of 2021 IECC in progress
Ramah	None	None				
Rangely	2006	None				
Raymer	2012	2006				
Red Cliff	2009	2009				
Rico	2006	2006				
Ridgway	2018	2018				
Rifle	2015	2009				
Rio Blanco County	2006	2006				
Rio Grande County	2006	2006				
Rockvale	1994	2006				
Rocky Ford	2012	1977				
Romeo	None	None				
Routt County	2018	2018				*adoption of 2021 IECC in progress
Rye	None	None				
Saguache County	None	None				
Salida	2015	2015				*adoption of 2021 IECC in progress
San Juan County	2006	2006				
San Luis	None	None				
San Miguel County	2009	2009				
Sanford	None	None				
Sawpit	2009	2009				
Sedgwick County	None	None				
Seibert	None	None				
Severance	2018	2012				
Sheridan	2015	2015				
Silt	2015	2009				
Silver Cliff	2006	None				
Silverplume	None	None				
Silverthorne	2018	2018				
Silverton	2006	2006				
Simla	1994	None				
Snowmass Village	2015	2015				
South Fork	2006	2006				
Springfield	None	None				
Starkville	2009	2009				
Steamboat Springs	2018	2018				
Sterling	2006	2006				
Stratton	None	None				
Sugar City	2009	None				
Summit County	2018	2018			X	*adoption of 2021 IECC in progress
Superior	2021	2021	X	Electric-preferred	X	
Swink	2006	2006				
Teller County	2015	2009				
Telluride	2018	2018				
Thornton	2018	2018				*adoption of 2021 IECC in progress
Timnath	2018	2012				
Trinidad	2018	2018				
Two Buttes	None	None				
Vail	2021	2021	X	Electric-ready	X	
Victor	2012	2009				
Vilas	None	None				
Vona	None	None				
Walden	2018	2018				
Walsenburg	2015	2015				
Walsh	None	None				
Ward	None	None				
Washington County	2006	2006				
Weld County	2018	2018				
Wellington	2018	2018				
Westcliffe	2006	2006				
Westminster	2015	2015				*adoption of 2021 IECC in progress
Wheat Ridge	2018	2018	Partial			*adoption of 2021 IECC in progress
Wiggins	2003	None				
Wiley	None	None				
Williamsburg	None	None				
Windsor	2018	2018				
Winter Park	2015	2015				
Wolcott	2015	2015				
Woodland Park (PPRBD)	2015	2015				*adoption of 2021 IECC in progress
Wray	1967	1977				
Yampa	2018	2018				
Yuma	2015	2015				

Jurisdiction	I-Codes	IECC	Solar-Ready	Electric-Ready/Electric Requirement	EV-Ready				
Yuma County	None	None							
IECC = International Energy Conservation Code, a model energy code that sets out minimum efficiency standards for new construction for a structure's walls, floors, ceilings, lighting, windows, doors, duct leakage and air leakage.									
The International Codes (I-Codes), developed by the International Code Council, are a family of fifteen coordinated, modern building safety codes that help ensure the engineering of safe, sustainable, affordable and resilient structures.									
Last updated October 26, 2022									

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June 30, 2016

Memorandum
To: Mike England, Town Manager
Marti Whitmore, Town Attorney
From: Steven C Harris, PE
Subject: Update of 2009 PER Water Supply and the Safe Number of Homes

I have been involved since 1995 with the Town of Rico in assessing the water supply and the safe number of homes that can be served from the available water supply. During the last 20 years there have been several evaluations and updates to reflect new information. This memo is an update of information available since the November, 2009 - Preliminary Engineering Report "Alluvium Pipeline Water Supply Project" (2009 PER).

Background Information
The following are key findings of the previous water supply evaluations.

- Previous to the 2002 and 2003 drought, the Silver Creek supply was believed to be adequate to supply the Town through buildout if not further. However, the drought showed that Silver Creek was not a reliable source of water and at best could serve the number of homes served by the water system in 2002 (about 250 connections).

- The increasing regulatory requirements for treatment of surface water has severely restricted the ability to treat Silver Creek water. The existing membrane GE units were installed over 10 years ago but can no longer consistently meet the water treatment criteria. A complete new water treatment plant would be required to continue to use Silver Creek water but funding is not currently available to construct a new facility.

- The alluvium well which began use in 2013 is permitted and decreed to provide up to 80 gpm. Testing prior to development of the well and use during operation, indicate that the well can provide 80 gpm on a consistent basis. Increasing this water supply beyond the current decreed amount would be very challenging for a number of reasons, including decreed instream flow rights that would be senior to any enlargement of this right.

- The alluvium well was determined to be a ground water source and therefore only needs disinfection, no filtration.

- Due to the 2002 drought and the current inability to treat the Silver Creek water, the alluvium well at 80 gpm is the only the reliable source of water currently available to the Town of Rico.

- The 2009 PER Section V.I.C. "Proposed Water Supply from Alluvium Well" page 10 estimated the safe number of homes that can be served at 410.

Current Evaluation

The 80 gpm well can provide a maximum of 110,000 gallons per day. The average daily use in June and July from 2007 to 2015 is approximately 70,000 gallons per day. There are currently approximately 270 single family homes or equivalent connected to the Rico water system. There are a few commercial connections but the water use is similar to a single family home. There are no large commercial uses such as an apartment buildings but there is the Rico Hotel that has about 25 rooms and a bed and breakfast with around 10 rooms.

There are approximately 1,300 platted historic lots in Rico. The Town required that two of the 25' by 100' historic lots are required to build a home in order to meet the septic requirements; therefore, there is approximately 650 buildable lots. Included in the 1,300 is the Atlantic Cable Subdivision with 45 ± lots that are a little bigger (average 0.3 to 0.5 acres) and the Silver Glance #2 Subdivision with 13 lots around 0.5 ± acre; however, these lots have plat restrictions that they cannot be re-subdivided, also cannot have an accessory dwelling. There are also ten or so larger parcels like the nine acres in the River Corridor plus others in the same area of smaller size of 1-4 acres that may be developed in the future; however, there may be flood plain issues with some of these lots. In summary, there are a maximum of approximately 650 buildable lots of which 270 are already developed, leaving a maximum of 380 homes that could be built. New homes are being constructed at a rate of 1 to 5 per year.

Proportioning the maximum available 110,000 gallons per day and the current usage of 70,000 gallons per day for approximately 270 single family homes, results in a maximum number of homes that can be served at approximately 400. Rico has a maximum of approximately 650 buildable lots; however, there is only a current water supply for approximately 400. Based on existing conditions, Rico will have difficulty providing water to all of the buildable lots assuming single family homes on each lot. Larger developments on any of these lots would exacerbate the potential water supply problem.

Potential methods to increase the water availability assuming that funds are available include:

Continue to upgrade the water distribution system to reduce leaks particularly to reduce the peak demand in June and July.

Rebuild the Silver Creek treatment plant to meet current regulations which would allow continued use of the existing 0.28 cfs (125 gpm) available during a drought. A cost estimate for this plant has not been prepared but is likely high. The new treatment plant should allow the Town to serve all 650 buildable lots.

The 1996 PER described another source of water which is to diverted water from the Dolores River downstream of Rico to a new treatment plant. This would be an entirely new set of facilities and much more expensive than any other options.

Based on the current facilities and water usage information, the existing 80 gpm cannot supply much more than about 400 lots which confirms the evaluation in the 2009 PER. Higher density of units on any of the lots will exacerbate the problem. To provide more water, significant funding is needed to first rebuild the Silver Creek treatment plant.