



Community & Economic Development Department  
4430 S. Adams County Pkwy.  
1st Floor, Suite W2000B  
Brighton, CO 80601  
PHONE 720.523.6800  
EMAIL [epermitcenter@adcogov.org](mailto:epermitcenter@adcogov.org)  
[adcogov.org](http://adcogov.org)

## Request for Comments

Case Name: Peraro Harvest Hangar Lot Coverage Variance

Case Number: VSP2025-00053

November 21, 2025

The Adams County Board of Adjustment is requesting comments on the following application: **Variance to allow a lot coverage of 17.7% where the maximum allowed lot coverage on a 1.56 acre property within the Agricultural-1 zone district is 7.5%.** This request is located at 15869 HARVEST CT. The Assessor's Parcel Number is 0156707104032.

Owner Information: PERARO THOMAS A  
15869 HARVEST CT

Please forward any written comments on this application to the Community and Economic Development Department at 4430 South Adams County Parkway, Suite W2000A Brighton, CO 80601-8216 or call (720) 523-6800 by **12/10/25** in order that your comments may be taken into consideration in the review of this case. If you would like your comments included verbatim please send your response by way of e-mail to [DDeBoskey@adamscountycogov](mailto:DDeBoskey@adamscountycogov).

Once comments have been received and the staff report written, the staff report may be forwarded to you upon request. The full text of the proposed request and additional colored maps can be obtained by contacting this office or by accessing the Adams County web site at <https://adamscountycogov/our-county/community-economic-development/planning-development/current-land-use-cases/>.

Thank you for your review of this case.

David DeBoskey  
Planner II

BOARD OF COUNTY COMMISSIONERS

Julie Duran Mullica  
DISTRICT 1

Kathy Henson  
DISTRICT 2

Emma Pinter  
DISTRICT 3

Steve O'Dorisio  
DISTRICT 4

Lynn Baca  
DISTRICT 5



# VARIANCE

A variance is a means whereby the literal terms of these standards and regulations need not be applied if there are practical difficulties or unnecessary hardships associated with the subject site. In granting a variance, the spirit of these standards and regulations shall be observed, public safety and welfare secured, and substantial justice done.

Please include this page with your submittal. Submittal instructions and more information about checklist items can be found on page 2.

- Development Application Form (pg. 3)
- Written Narrative
- Site Plan
- Proof of Ownership (warranty deed or title policy)
- Proof of Water and Sewer Services
- Legal Description
- Statement of Taxes Paid

### Number of Variance Requests:

A variance may only be approved from the dimensional requirements, performance standards, and other special physical requirements contained in the Adams County development standards and regulations.

Type of Variance Request:	# of Requests:
Setback:	
Height:	
Lot Coverage: <i>ADDITIONAL 4599 SQ FT</i>	
Other:	

Application Fees:	Amount:
Variance	\$500-residential \$700-non-residential <i>*\$100 per each additional request</i>

## Guide to Development Application Submittal

This application shall be submitted electronically to [epermitcenter@adcogov.org](mailto:epermitcenter@adcogov.org). If the submittal is too large to email as an attachment, the application may be sent as an unlocked Microsoft OneDrive link. Alternatively, the application may be delivered on a flash drive to the One-Stop Customer Service Center. All documents should be combined in a single PDF, although you may provide multiple PDFs to ensure no file exceeds 100 MB. Once a complete application has been received, fees will be invoiced and payable online at [www.permits.adcogov.org](http://www.permits.adcogov.org).

### Written Explanation:

- Answer the two questions on the attached Written Explanation for Variance Request form. Please answer these questions on a separate document and attach to your submittal.

### Scaled Site Plan:

- A site plan prepared to-scale showing at minimum: the request, any existing or proposed structures, existing and proposed setbacks of structures, any hardship, location of well, location of septic field, location of easements, surrounding rights-of-way, north arrow.
- Site plan may be hand-drawn.

### Proof of Ownership (warranty deed or title policy):

- A deed may be found in the Office of the Clerk and Recorder; or
- A title commitment is prepared by a professional title company

### Proof of Water and Sewer:

- Public utilities - A written statement from the appropriate water & sanitation district indicating that they will provide service to the property OR a copy of a current bill from the service provider.
- Private utilities - Well permit(s) information can be obtained from the Colorado State Division of Water Resources at (303) 866-3587. A written statement from Adams County Health Department indicating the viability of obtaining Onsite Wastewater Treatment Systems.

### Legal Description:

- Geographical description used to locate and identify a property.

### Statement of Taxes

- All taxes on the subject property must be paid in full. Please contact the Adams County Treasurer's Office.
- Or [adcotax.com](http://adcotax.com)



### DEVELOPMENT APPLICATION FORM

#### APPLICANT

Name(s): THOMAS A PERARO Phone #: 303-570-5134  
Address: 15869 Harvest Ct  
City, State, Zip: Brighton, Colorado 80603  
2nd Phone #:  Email: SWIFT687@AOL.COM

#### OWNER

Name(s): Thomas A. Peraro Phone #: 303 570 5134  
Address: 15869 Harvest Ct  
City, State, Zip: Brighton, Colorado 80603  
2nd Phone #:  Email: SWIFT687@AOL.COM

#### TECHNICAL REPRESENTATIVE (Consultant, Building Engineer, Surveyor, Architect, etc.)

Name: Chris Herron Phone #: 308-672-4310  
Address: B9C Steel P.O. Box 1099  
City, State, Zip: Scottsbluff, Nebraska 69363-1099  
2nd Phone #:  Email: cherron@b-csteel.com

#### TECHNICAL REPRESENTATIVE (Consultant, Engineer, Surveyor, Architect, etc.)

Name: Stephen Weisman Phone #: 970-353-4463  
Address: 1011 42nd St  
City, State, Zip: Evans, Colorado 80620  
2nd Phone #:  Email: WEI.STEVE@Outlook.com

**DESCRIPTION OF SITE**

Address:

City, State, Zip:

Area (acres or square feet):

Tax Assessor Parcel Number

Existing Zoning:

Existing Land Use:

Proposed Land Use:

Have you attended a Conceptual Review? YES  NO

If Yes, please list PRE#:

I hereby certify that I am making this application as owner of the above-described property or acting under the authority of the owner (attached authorization, if not owner). I am familiar with all pertinent requirements, procedures, and fees of the County. I understand that the Application Review Fee is non-refundable. All statements made on this form and additional application materials are true to the best of my knowledge and belief.

Name:  Date:

Owner's Printed Name

Name:

Owner's Signature

## Variance Narrative

My home is zoned A-1. A-1 with a Septic system allows for 6% of Lot coverage. I am asking to build a Hangar, and increase the Lot coverage by 5.6%.

The MAIN reason for this variance is: **My house does NOT have a Hangar!** Van Aire is a flying community 5 miles east of Brighton, Colorado. Most houses in Van Aire have a Hangar to store their airplane(s). My house is in need of a Hangar for my 3 aircraft.

I am a Professional Pilot, and have been flying since 1975. I have over 19,000 flying hours including personal aircraft flying, airline and military flying. I have numerous flying ratings in many types of aircraft. I currently own 3 personal aircraft. A C172B; N7781X, a C172K ;N7588S, and a Swift GC!B; N80801. I currently hangar these aircraft at another Airpark on the Front Range.

It is my desire to build a Hangar at my house and move all three aircraft to my home in Van Aire. If allowed to build a Hangar I also plan to purchase a WW I aircraft (a British SE5a). The purpose is to promote Vintage and Nostalgic Aviation in the Denver Area. We currently have a DC-3 at Van Aire that performs the same function. I plan to join that process.

I am respectfully requesting a Variance of Building Area Coverage on my Lot at Van Aire. I am also involved in Mentoring future aviation pilots, and having these aircraft at my house will greatly enhance that endeavor! Thank you for your consideration in this matter.

V/R

Thomas A. Peraro

### Written Narrative for Variance Request

- Which dimensional standard(s), performance standard(s), or physical requirement(s) cannot be met? (Include code section reference from [Adams County Standards and Regulations](#))  
Reach out to the Planner of the Day ([cedd-plan@adcogov.org](mailto:cedd-plan@adcogov.org)) if you have any questions.

See Attached

- Why are you unable to meet this standard?

See Attached

## WHAT IS A VARIANCE and when may it be requested?

When a property owner cannot use their property in a way that meets the Adams County Development Standards & Regulations, a variance may be requested to allow the property owner to be exempt from one or more land use regulations.

### A VARIANCE MAY BE REQUESTED FOR:

- ✓ Dimensional requirements
- ✓ Performance standards
- ✓ Other special physical requirements

### A VARIANCE MAY NOT BE REQUESTED FOR:

- ✗ Change in use
- ✗ Change in zoning
- ✗ Amending a Planned Unit Development (PUD)
- ✗ Relief from airport overlays

## How long does a VARIANCE LAST?

A variance runs with the land. If a variance is granted, a building permit must be obtained within one year.

# 1

YEAR

## VARIANCE APPLICATION

Contact the E-Permit Center at [epermitcenter@adcogov.org](mailto:epermitcenter@adcogov.org) or visit their website:

[epermits.adcogov.org](http://epermits.adcogov.org)

For more information, please contact:

[cedd-pod@adcogov.org](mailto:cedd-pod@adcogov.org) | 720.523.6800

# VARIANCE REQUESTS

in Adams County



## STAY CONNECTED

4430 S. Adams County Pkwy., Brighton, CO 80601

 /AdamsCountyGov  @AdamsCountyGov

 Public Agencies  /AdamsCountyCo

[Adcogov.org](http://Adcogov.org)



ADAMS COUNTY  
COLORADO

## What are the criteria for APPROVAL?

A variance application is evaluated based upon the following criteria of approval (Sec. 2-02-23-06):

- 1 There is a physical hardship specific to the lot.
- 2 The property owner is being deprived of a right that's commonly enjoyed by other lots in the same zone district.
- 3 The variance doesn't give a special privilege to the applicant.
- 4 The property cannot be reasonably developed in conformity of the regulations.
- 5 The circumstances that cause the need for a variance are not self-imposed.
- 6 The proposal is harmonious with the neighborhood and compatible with the purpose of the regulations.
- 7 The public good and safety is not impaired.
- 8 The proposed use is allowed in the zone district and doesn't further a non-conforming use.

## What is the variance REVIEW PROCESS?

### APPLICATION SUBMITTAL

Application is submitted to the E-Permit Center. You can contact this office at [epermitcenter@adcogov.org](mailto:epermitcenter@adcogov.org) or visit their website at [permits.adcogov.org](http://permits.adcogov.org).



### FIRST REVIEW

35 calendar days for staff review and agency referral (school districts, fire districts, Colorado Department of Public Health & Environment etc.). Neighbors are also notified of the application at this time and are given the opportunity to make comments. At the end of this review period, a meeting is scheduled with the applicant to go over the review comments.

**35**

calendar days for the first review

### EACH ADDITIONAL REVIEW

21 days. If a resubmittal is required, the application will undergo an additional round of review. This may happen several times depending on the quality of each submittal.

**21**

calendar days for each additional review

### BOARD OF ADJUSTMENT (BOA) HEARING

BOA hearings are scheduled on the first and third Thursday of every month at 6 p.m. and are scheduled four weeks in advance. All review comments need to be resolved prior to scheduling the public hearing.

**First & Third THURSDAY** of every month BOA hearings are scheduled

### BOA MAY VOTE TO...



#### Approve.

The variance is valid upon approval by the BOA.



#### Approve with conditions.

The BOA may attach special conditions to the variance to make sure no special privileges are being granted to the applicant.



#### Deny.

**3**

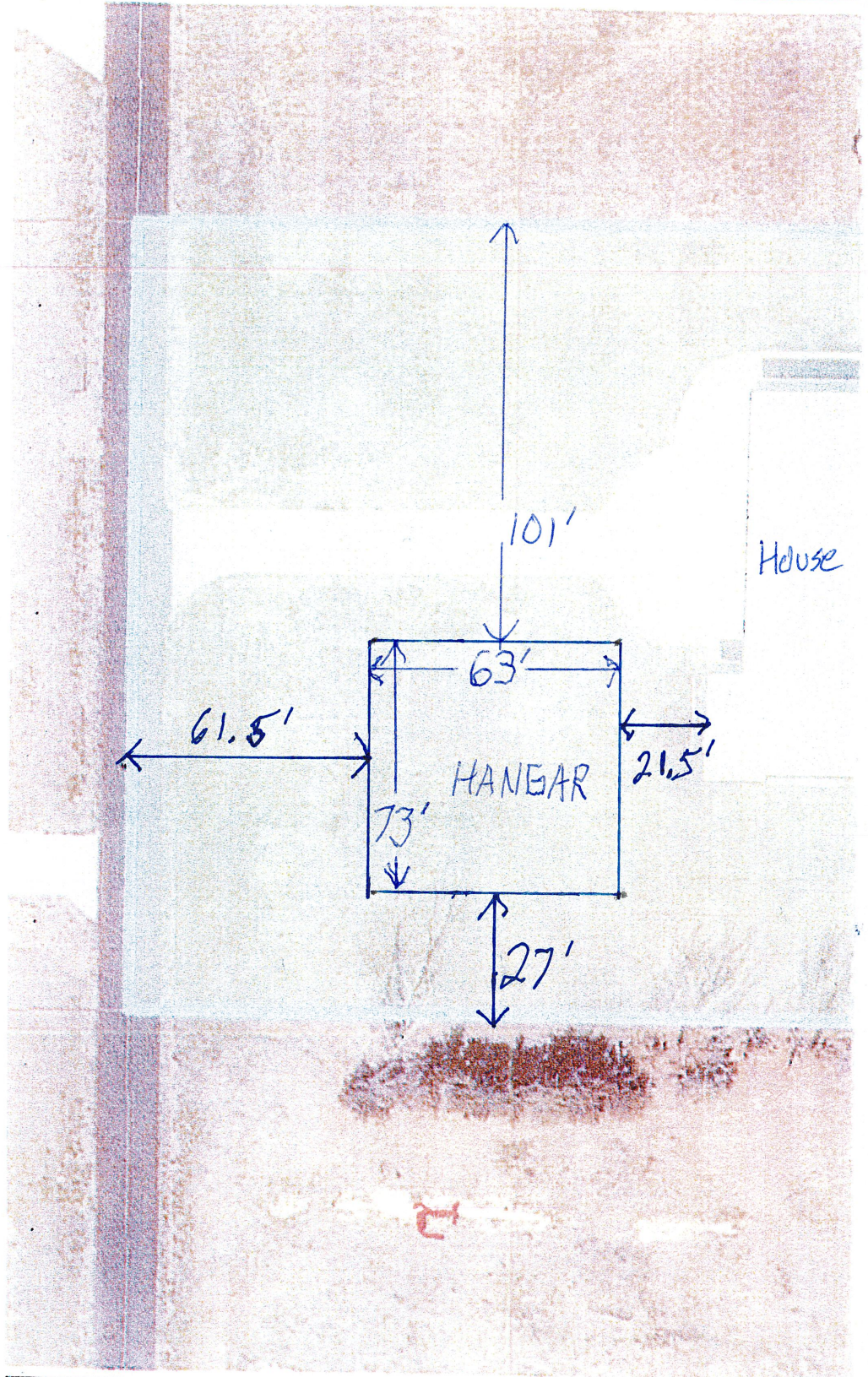
MONTHS+

The variance process can take three months or longer, depending on the number of resubmittals and available Board of Adjustment hearing dates.

**1**

YEAR

If a building permit is not issued within one year of the variance approval or the use associated with the variance has not been established, the variance will expire. Extensions may be requested — see Sec. 2-02-23-10



RECEPTION#: 2015000089704, 10/26/2015 at 02:24:04 PM, 1 OF 1, TD Pgs: 0 Doc Type:RDT Stan Martin, Adams County, CO

REQUEST FOR  FULL /  PARTIAL RELEASE OF DEED OF TRUST AND RELEASE BY HOLDER OF THE EVIDENCE OF DEBT WITHOUT PRODUCTION OF EVIDENCE OF DEBT PURSUANT TO § 38-39-102(1) (a) AND (3), COLORADO REVISED STATUTES

October 20, 2015 Date
THOMAS A PERARO Original Grantor (Borrower)
Check here if current address is unknown Current Address of Original Grantor, Assuming
Property Address: 15869 HARVEST MILE COURT, BRIGHTON, CO 80603 Party, or Current Owner
JPMORGAN CHASE BANK, N.A. Original Beneficiary (Lender)
March 6, 2013 / March 11, 2013 Date of Deed of Trust / Date of Recording

ADAMS / Volume/Book Page Document 201300020566
County Rept. No. and/or Film No. and/or Book/Page No. and/or Torrens Reg. No.

County / Recording Information and/or Re-Recording of Deed of Trust

TO THE PUBLIC TRUSTEE OF ADAMS COUNTY, COLORADO (The County of the Public Trustee who is the appropriate grantee to whom the above Deed of Trust should grant an interest in the property described in the Deed of Trust.)

PLEASE EXECUTE AND RECORD A RELEASE OF THE DEED OF TRUST DESCRIBED ABOVE. The indebtedness secured by the Deed of Trust has been fully or partially paid and/or the purpose of the Deed of Trust has been fully or partially satisfied in regard to the property encumbered by the Deed of Trust as described therein as to a full release or, in the event of a partial release, only that portion of the real property described as:

(IF NO LEGAL DESCRIPTION IS LISTED THIS WILL BE DEEMED A FULL RELEASE.)

Pursuant to § 38-39-102 (3), Colorado Revised Statutes, in support of this Request for Release of Deed of Trust, the undersigned, as the owner of the evidence of debt secured by the Deed of Trust described above, or a Title Insurance Company authorized to request the release of a Deed of Trust pursuant to § 38-39-102 (3) (c), Colorado Revised Statutes, in lieu of the production or exhibition of the original evidence of debt with this Request for Release, certifies as follows:

- 1. The purpose of the Deed of Trust has been fully or partially satisfied.
2. The original evidence of debt is not being exhibited or produced herewith.
3. It is one of the following entities (check applicable box):
a. [X] The holder of the original evidence of debt that is a qualified holder, as specified in § 38-39-102 (3) (a), Colorado Revised Statutes, that agrees that it is obligated to indemnify the Public Trustee for any and all damages, costs, liabilities, and reasonable attorney fees incurred as a result of the action of the Public Trustee taken in accordance with this Request for Release;
b. [ ] The holder of the evidence of debt requesting the release of a Deed of Trust without producing or exhibiting the original evidence of debt that delivers to the Public Trustee a Corporate Surety Bond as specified in § 38-39-102 (3) (b), Colorado Revised Statutes; or
c. [ ] A Title Insurance Company licensed and qualified in Colorado, as specified in § 38-39-102 (3) (c), Colorado Revised Statutes, that agrees that it is obligated to indemnify the Public Trustee for any and all damages, costs, liabilities, and reasonable attorney fees incurred as a result of the action of the Public Trustee taken in accordance with this Request for Release.

JPMORGAN CHASE BANK, N.A., 3415 VISION DR, COLUMBUS, OH 43219
Name of the Holder of the Evidence of Debt Secured by Deed of Trust (Lender)

ANGELA L WILLIAMS, Vice President and JUSTYN COOPER, Assistant Secretary, 700 Kansas Lane, Monroe, LA 71203
Name, Title, and Address of Officers of the Holder of the Evidence of Debt Secured by Deed of Trust (Lender)

ANGELA L WILLIAMS Vice President
JUSTYN COOPER Assistant Secretary

STATE OF Louisiana
COUNTY/PARISH OF OUACHITA

On October 20, 2015, before me appeared ANGELA L WILLIAMS and JUSTYN COOPER, to me personally known, who did say that they are the Vice President and Assistant Secretary of JPMORGAN CHASE BANK, N.A. and that the instrument was signed on behalf of the corporation (or association), by authority from its board of directors, and that they acknowledged the instrument to be the free act and deed of the corporation (or association).

BRIDGET A. CHUNN, 64479, Notary Public
LIFETIME COMMISSION



RELEASE OF DEED OF TRUST

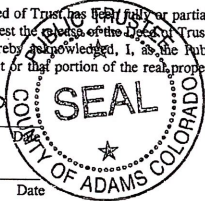
WHEREAS, the Grantor(s) named above, by Deed of Trust, granted certain real property described in the Deed of Trust to the Public Trustee of the County referenced above, in the State of Colorado, to be held in trust to secure the payment of the indebtedness referred to therein; and

WHEREAS, the indebtedness secured by the Deed of Trust has been fully or partially paid and/or the purpose of the Deed of Trust has been fully or partially satisfied according to the written request of the holder of the evidence of debt or Title Insurance Company authorized to request the release of the Deed of Trust;

NOW THEREFORE, in consideration of the premises and the payment of the statutory sum, receipt of which is hereby acknowledged, I, as the Public Trustee in the County named above, do hereby fully and absolutely release, cancel and forever discharge the Deed of Trust or that portion of the real property described above in the Deed of Trust, together with all privileges and appurtenances thereto belonging.

(Public Trustee's Seal)
(Public Trustee use only, use appropriate label)

Public Trustee
Deputy Public Trustee
Date 10/26/15



Prepared by/Record and Return to: Lien Release, JPMorgan Chase Bank, N.A., 700 Kansas Lane, Mail Code LA4-3120, Monroe, LA 71203, Telephone Nbr: 1-866-756-8747, Loan Number: 1448095651, Outbound Date: 10/21/15, MIN: , MERS Phone Number, if applicable: 1-888-679-6377, MERS Address, if applicable: P.O. Box 2026, Flint, MI 48501-2026

RECEPTION#: 2013000020565, 03/11/2013 at 07:29:55 AM, 1 OF 2, D \$50.00 TD  
Pgs: 2 Doc Type:SPWTY Karen Long, Adams County, CO Recorded As Received

**SPECIAL WARRANTY DEED**

**THIS DEED**, Made this 6th day of March, 2013 between

**The Jack H. Munroe Trust dated June 26, 1998**

of the County of Arapahoe and State of COLORADO, grantor(s), and

**Thomas A. Peraro**

whose legal address is **15869 Harvest Mile Road Brighton, CO 80603-3890**

of the County of Adams, State of Colorado, grantee(s):

**WITNESS**, That the grantor(s), for and in consideration of the sum of Five Hundred Thousand Dollars and No/100's (\$500,000.00), the receipt and sufficiency of which is hereby acknowledged, has granted, bargained, sold and conveyed, and by these presents does grant, bargain, sell, convey and confirm, unto the grantee(s), his heirs and assigns forever, all the real property together with improvements, if any, situate, lying and being in the City and County of Adams, State of COLORADO, described as follows:

See Exhibit A attached hereto and made a part hereof.

Doc Fee  
\$ 50.00

also known by street and number as 15869 Harvest Mile Road aka 15869 Harvest Court, Brighton, CO 80603-3890

**TOGETHER** with all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof, and all the estate, right, title, interest, claim and demand whatsoever of the grantor(s), either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

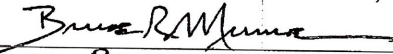

**TO HAVE AND TO HOLD** the said premises above bargained and described, with the appurtenances, unto the grantee(s), his heirs, and assigns forever. The grantor(s), for himself, his heirs and personal representatives or successors, does covenant and agree that he shall and will **WARRANT AND FOREVER DEFEND** the above-bargained premises in the quiet and peaceable possession of the grantee(s), his heirs and assigns, against all and every person or persons claiming the whole or any part thereof, by, through or under the grantor(s).

The singular number shall include the plural, the plural the singular, and the use of any gender shall be applicable to all genders.

**IN WITNESS WHEREOF**, the grantor(s) has executed this deed on the date set forth above.

**SELLER:**

**The Jack H. Munroe Trust dated June 26, 1998**

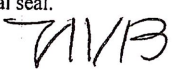
  
by:  Bruce R. Munroe, Trustee



STATE OF COLORADO  
COUNTY OF Adams

} ss:

The foregoing instrument was acknowledged before me this 6th day of March, 2013 by The Jack H. Munroe Trust dated June 26, 1998

Witness my hand and official seal.  
My Commission expires:



  
Notary Public  


RECEPTION#: 2013000020565, 03/11/2013 at 07:29:55 AM, 1 OF 2, D \$50.00 TD  
Pgs: 2 Doc Type:SPWTY Karen Long, Adams County, CO Recorded As Received

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**WITNESS**, That the grantor(s), for and in consideration of the sum of Five Hundred Thousand Dollars and No/100's (\$500,000.00), the receipt and sufficiency of which is hereby acknowledged, has granted, bargained, sold and conveyed, and by these presents does grant, bargain, sell, convey and confirm, unto the grantee(s), his heirs and assigns forever, all the real property together with improvements, if any, situate, lying and being in the City and County of Adams, State of COLORADO, described as follows:

See Exhibit A attached hereto and made a part hereof.

Doc Fee  
\$ 50.00

also known by street and number as 15869 Harvest Mile Road aka 15869 Harvest Court, Brighton, CO 80603-3890

**TOGETHER** with all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof, and all the estate, right, title, interest, claim and demand whatsoever of the grantor(s), either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

**TO HAVE AND TO HOLD** the said premises above bargained and described, with the appurtenances, unto the grantee(s), his heirs, and assigns forever. The grantor(s), for himself, his heirs and personal representatives or successors, does covenant and agree that he shall and will **WARRANT AND FOREVER DEFEND** the above-bargained premises in the quiet and peaceable possession of the grantee(s), his heirs and assigns, against all and every person or persons claiming the whole or any part thereof, by, through or under the grantor(s).

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**IN WITNESS WHEREOF**, the grantor(s) has executed this deed on the date set forth above.

**SELLER:**

**The Jack H. Munroe Trust dated June 26, 1998**

*Bruce R. Munroe*  
By: Bruce R. Munroe, Trustee  
*BRM*

STATE OF COLORADO )ss:  
COUNTY OF Adams

The foregoing instrument was acknowledged before me this 6th day of March, 2013 by **The Jack H. Munroe Trust dated June 26, 1998**

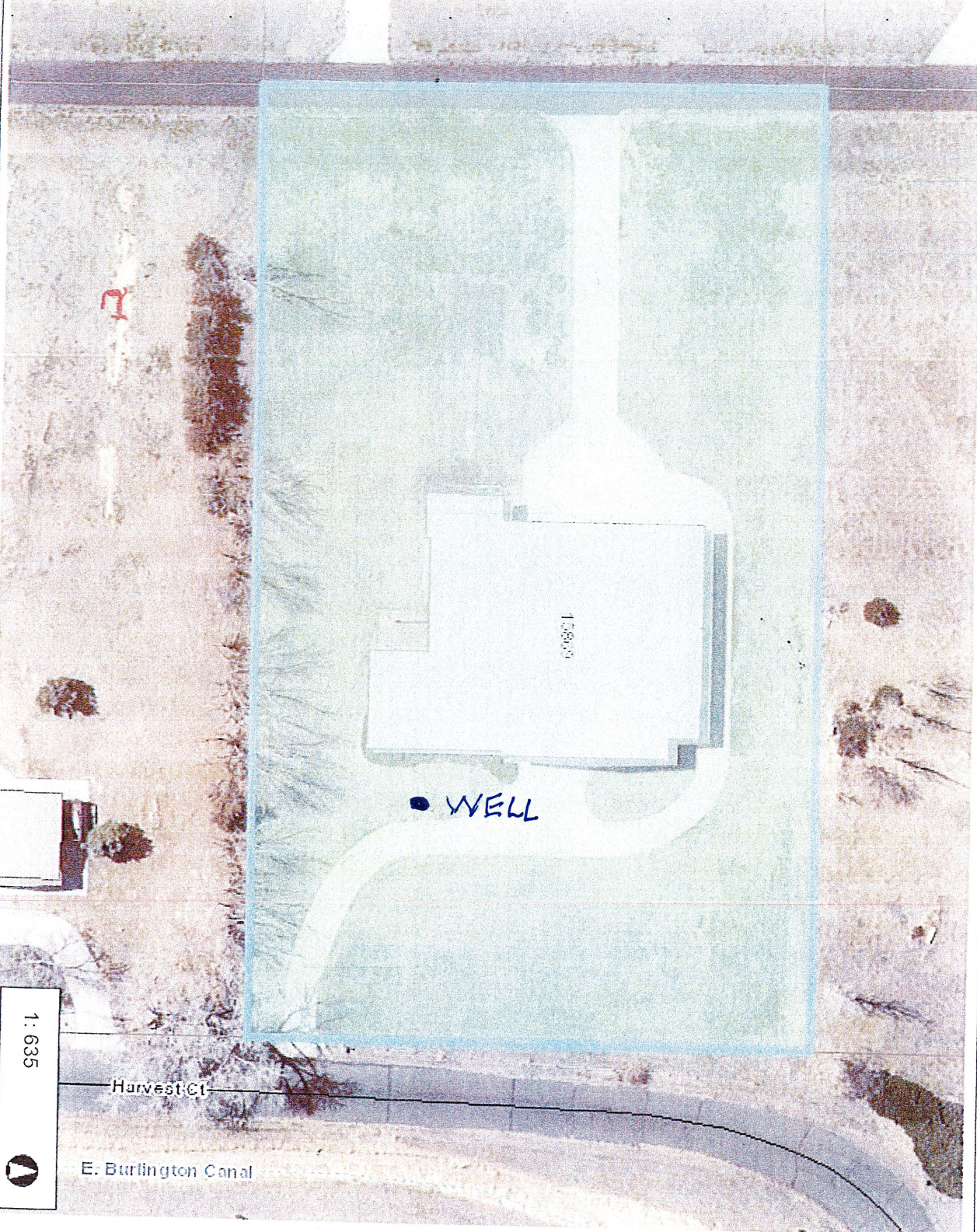
Witness my hand and official seal.  
My Commission expires: *7/11/13*

*John Sambuca*  
Notary Public



My Commission Expires July 11, 2013





This map is a user-generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION

0 0.01 0.0 Miles

Notes

1:635



COLORADO DIVISION OF WATER RESOURCES  
818 Centennial Building  
1313 Sherman Street  
Denver, Colorado 80203

LANDOWNERSHIP AFFIDAVIT INSTRUCTIONS

The landownership affidavit must be submitted with the well permit application in all cases where the well permit applicant believes or claims that water to be appropriated is "nontributary ground water" as defined in C.R.S. 1973, 37-90-137(4). The affidavit must be signed by the landowner and the signature must be notarized.

One of the following types of legal descriptions must be provided to identify the acreage owned by the applicant for which the underlying "nontributary ground water" is claimed.

1. Lot number, block number, subdivision name, and filing number.
2. A metes and bounds description tied to a section corner and including the township and range.
3. A survey plat tied to a section corner and including the township and range.
4. A quarter-quarter, section, township, and range description when the acreage is described as fractional parts of quarter sections.

If the legal description is too lengthy for the space provided on the affidavit, or if a survey plat is provided, please indicate. "See attached legal description" or "See attached Survey Plat" in the space provided on the affidavit and attach legal or plat to the affidavit. The survey plat or legal description provided must be complete and legible.

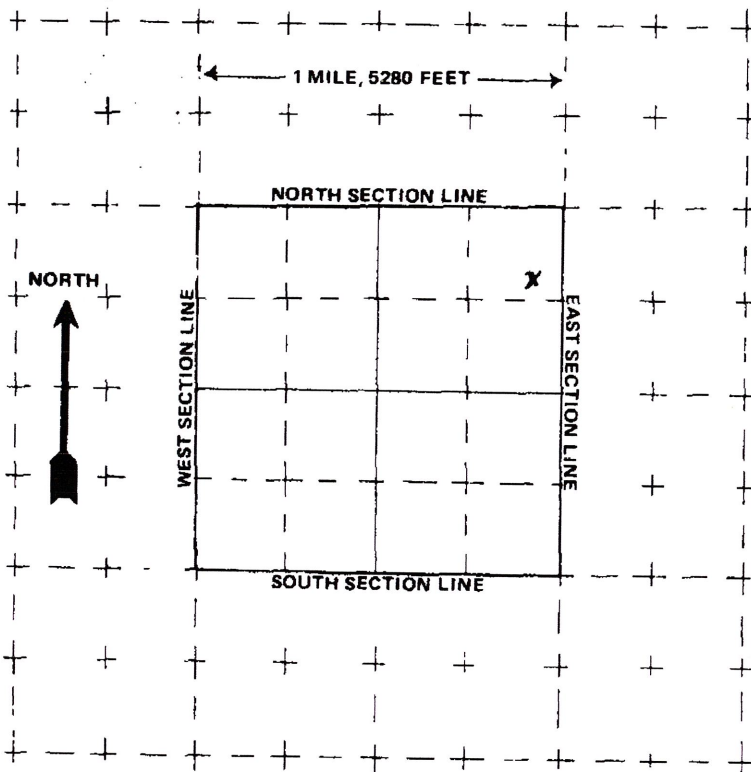
The number of acres described must be indicated on the affidavit.

For cases where the legal description is complex and refers to excepted parcels without providing specific legal descriptions of these parcels or when the legal description contains numerous curves, a survey plat, scaled drawing, or a copy of a USGS 7.5 minute topographic map with the property boundary outlined must accompany the well permit application and landownership affidavit.

The aquifer from which nontributary ground water is claimed must be indicated on the affidavit. Where applications for more than one nontributary aquifer are submitted, the applicant shall provide an original affidavit for each aquifer.



(5) **THE LOCATION OF THE PROPOSED WELL** and the area on which the water will be used must be indicated on the diagram below. Use the CENTER SECTION (1 section, 640 acres) for the well location.



The scale of the diagram is 2 inches = 1 mile  
Each small square represents 40 acres.

**WATER EQUIVALENTS TABLE (Rounded Figures)**

An acre-foot covers 1 acre of land 1 foot deep  
1 cubic foot per second (cfs) . . . 449 gallons per minute (gpm)  
A family of 5 will require approximately 1 acre-foot of water per year.  
1 acre-foot . . . 43,560 cubic feet . . . 325,900 gallons.  
1,000 gpm pumped continuously for one day produces 4.42 acre-feet.

(6) **THE WELL MUST BE LOCATED BELOW** by distances from section lines.

900 ft. from NORTH sec. line  
(north or south)

125 ft. from EAST sec. line  
(east or west)

LOT 8 BLOCK 1 FILING # \_\_\_\_\_

SUBDIVISION VAN AIRE

(7) **TRACT ON WHICH WELL WILL BE LOCATED** Owner: EDWIN P. MILLER

No. of acres LESS THAN 2 Will this be the only well on this tract? YES

**(8) PROPOSED CASING PROGRAM**

Plain Casing  
6 5/8 in. from 0 ft. to 200 ft.

Perforated casing

4 1/2 in. from 200 ft. to 450 ft.  
\_\_\_\_\_ in. from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

(9) **FOR REPLACEMENT WELLS** give distance and direction from old well and plans for plugging it:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**(10) LAND ON WHICH GROUND WATER WILL BE USED:**

Owner(s): EDWIN PERRY MILLER No. of acres: LESS THAN 2

Legal description: LOT 8, EDGEMONT E. 1/4 SEC. 1, BLK 1, VAN AIRE SUBDIVISION

(11) **DETAILED DESCRIPTION** of the use of ground water: Household use and domestic wells must indicate type of disposal system to be used.

SEPTIC TANK & LEACH FIELD

**(12) OTHER WATER RIGHTS** used on this land, including wells. Give Registration and Water Court Case Numbers.

Type or right	Used for (purpose)	Description of land on which used

(13) **THE APPLICANT(S) STATE(S) THAT THE INFORMATION SET FORTH HEREON IS TRUE TO THE BEST OF HIS KNOWLEDGE.**

Edwin Perry Miller  
SIGNATURE OF APPLICANT(S)

COLORADO DIVISION OF WATER RESOURCES  
818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203

RECEIVED

NOV 28 1984 346

WATER RESOURCES  
STATE - ENGINEER  
COLO.

PERMIT APPLICATION FORM

Application must be complete where applicable. Type or print in **BLACK INK**. No overstrikes or erasures unless initialed.

FOR:  A PERMIT TO USE GROUND WATER  
 A PERMIT TO CONSTRUCT A WELL  
 A PERMIT TO INSTALL A PUMP

( ) REPLACEMENT FOR NO. \_\_\_\_\_  
( ) OTHER \_\_\_\_\_  
WATER COURT CASE NO. \_\_\_\_\_

(1) **APPLICANT** - mailing address

NAME EDWIN PERRY MILLER  
STREET 15889 HARVEST MILE RD  
CITY BRIGHTON CO 80601  
(State) (Zip)  
TELEPHONE NO. 659-6793

(2) **LOCATION OF PROPOSED WELL**

County ADAMS  
NE  $\frac{1}{4}$  of the NE  $\frac{1}{4}$ , Section 7  
Twp. 1 S, Rng. 65 W, 6 P.M.  
(N.S) (E.W)

(3) **WATER USE AND WELL DATA**

Proposed maximum pumping rate (gpm) 15  
Average annual amount of ground water to be appropriated (acre-feet): 1.5  
Number of acres to be irrigated: LESS THAN ONE  
Proposed total depth (feet): 450  
Aquifer ground water is to be obtained from:  
ARAPAHOE  
Owner's well designation \_\_\_\_\_

**GROUND WATER TO BE USED FOR:**

( ) HOUSEHOLD USE ONLY - no irrigation (0)  
 DOMESTIC (1) ( ) INDUSTRIAL (5)  
( ) LIVESTOCK (2) ( ) IRRIGATION (6)  
( ) COMMERCIAL (4) ( ) MUNICIPAL (8)  
( ) OTHER (9) \_\_\_\_\_

DETAIL THE USE ON BACK IN (11)

(4) **DRILLER**

Name KENNETH L. RUTT  
Street 8108 TURNPIKE DR  
City WESTMINSTER COLO 80030  
(State) (Zip)  
Telephone No. 429-1464 Lic. No. 9

FOR OFFICE USE ONLY: DO NOT WRITE IN THIS COLUMN

Receipt No. 51246  
Basin \_\_\_\_\_ Dist. \_\_\_\_\_

**CONDITIONS OF APPROVAL**

This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of the permit does not assure the applicant that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.

- 1) APPROVED PURSUANT TO CRS 37-92-602 (3)(b)(I).
- 2) Install plain (non-perforated) casings from ground surface down to a minimum depth of 200 feet and properly sealed.
- 3) DEPTH OF THIS WELL SHALL NOT EXCEED 550 FEET WHICH CORRESPONDS TO THE BASE OF THE ARAPAHOE AQUIFER.
- 4) AVERAGE ANNUAL APPROPRIATION FROM THIS WELL SHALL NOT EXCEED .44 ACRE FEET.
- 5) THE USE OF GROUNDWATER FROM THIS WELL IS LIMITED TO FIRE PROTECTION, ORDINARY HOUSEHOLD PURPOSES INSIDE A SINGLE FAMILY DWELLING, THE IRRIGATION OF 1,800 SQUARE FT. OF HOME GARDENS AND LAWNS, AND THE WATERING OF DOMESTIC ANIMALS.

WJ3. 12/28/84

(NOTE! TO INSURE A MAXIMUM PRODUCTIVE LIFE OF THIS WELL, PERFORATED CASING SHOULD BE SET THROUGH THE ENTIRE PRODUCING INTERVAL OF THE AQUIFER, TO THE DEPTH INDICATED ABOVE).

**APPLICATION APPROVED**

PERMIT NUMBER 138357  
DATE ISSUED JAN 04 1985  
EXPIRATION DATE JAN 04 1987  
Robert G. Langenbaugh  
(STATE ENGINEER)  
BY Steve Lautenschlager  
I.D. 1-02 COUNTY 01

**PUMP INSTALLATION REPORT**

Pump Make \_\_\_\_\_

Type \_\_\_\_\_

Powered by \_\_\_\_\_ HP \_\_\_\_\_

Pump Serial No. \_\_\_\_\_

Motor Serial No. \_\_\_\_\_

Date Installed \_\_\_\_\_

Pump Intake Depth \_\_\_\_\_

Remarks \_\_\_\_\_

**WELL TEST DATA WITH PERMANENT PUMP**

Date Tested \_\_\_\_\_

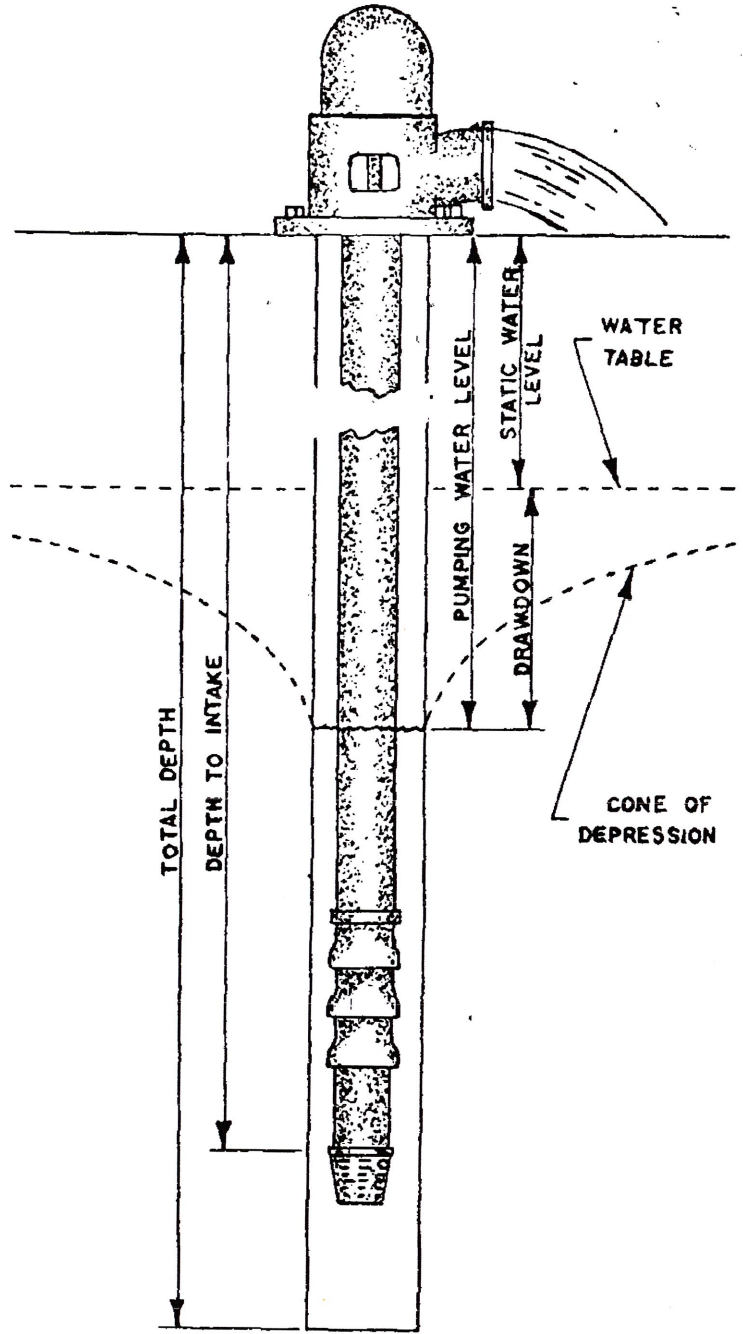
Static Water Level Prior to Test \_\_\_\_\_

Length of Test \_\_\_\_\_ Hours

Sustained yield (Metered) \_\_\_\_\_ GPM

Pumping Water Level \_\_\_\_\_

Remarks \_\_\_\_\_



**CONTRACTORS STATEMENT**

The undersigned, being duly sworn upon oath, deposes and says that he is the contractor of the well or pump installation described hereon; that he has read the statement made hereon; knows the content thereof, and that the same is true of his own knowledge.

Signature *Kenneth L. Ruff* License No. 9

State of Colorado, County of *Denver* SS

Subscribed and sworn to before me this 2 day of April, 19 85.

My Commission expires: 7-23, 19 86.

Notary Public *Alice J. Trumble*

FORM TO BE MADE OUT IN QUADRUPPLICATE: WHITE FORM must be an original copy on both sides and signed. WHITE AND GREEN copies must be filed with the State Engineer. PINK COPY is for the Owner and YELLOW COPY is for the Driller.

RECEIVED

COLORADO DIVISION OF WATER RESOURCES

1313 Sherman Street - Room 818  
Denver, Colorado 80203

APR - 2 1985

WATER RESOURCES  
STATE - ENGINEER  
C.O.D.

THIS FORM MUST BE SUBMITTED  
WITHIN 60 DAYS OF COMPLETION  
OF THE WORK DESCRIBED HERE-  
ON. TYPE OR PRINT IN BLACK  
INK.

WELL COMPLETION AND PUMP INSTALLATION REPORT

PERMIT NUMBER 138357

(Was Edwin Perry Miller)

WELL OWNER Jack Munroe NE 1/4 of the NE 1/4 of Sec. 7  
ADDRESS 725 W. 39th. Ave.,  
Denver, Colo. 80216 T. 1 S, R. 65 W, 6 P.M.

DATE COMPLETED Mar. 15, 1985, 19

HOLE DIAMETER

8 1/4 in. from 0 to 197 ft.

6 in. from 197 to 490 ft.

\_\_\_\_\_ in. from \_\_\_\_\_ to \_\_\_\_\_ ft.

DRILLING METHOD Rotary

CASING RECORD: Plain Casing

Size 6 5/8 & kind steel from 0 to 197 ft.

Size 4 1/2 & kind " from 190 to 210 ft.

Size " & kind " from 225 to 235 ft.

Size " & kind " from 340 to 375 ft.

Size " & kind " from 385 to 470 ft.

Size " & kind " from 480 to 490 ft.

Perforated Casing

Size 4 1/2 & kind steel from 210 to 225 ft.

Size " & kind " from 335 to 340 ft.

Size " & kind " from 375 to 385 ft.

Size " & kind " from 470 to 480 ft.

Size \_\_\_\_\_ & kind \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ ft.

GROUTING RECORD

Material Cement

Intervals 0-197

Placement Method Halliburton

GRAVEL PACK: Size \_\_\_\_\_

Interval \_\_\_\_\_

TEST DATA

Date Tested Mar. 15, 1985, 19

Static Water Level Prior to Test 70' ft.

Type of Test Pump Airlift

Length of Test 3 Hrs

Sustained Yield (Metered) 35GPM

Final Pumping Water Level Jet at 315'

WELL LOG

From	To	Type and Color of Material	Water Loc.
0	30	Sand & Sandy clay	
30	63	Weathered shale	
63	68	Blue Shale	
68	78	Sand	
78	113	Shale	
113	125	Sand	
125	160	Shale	
160	170	Sand	
170	208	Shale	
208	223	Sand	X
223	302	Shale	
302	310	Chalky Sandy clay	X
310	335	Shale	
335	340	Sand & Sandy clay	X
340	369	Shale	
369	375	Br. Rock 1' & Shale	
375	384	Gritty shale	X
384	470	Shale	
470	471	Rock	
471	479	Sandy clay	X
479	480	Shale	

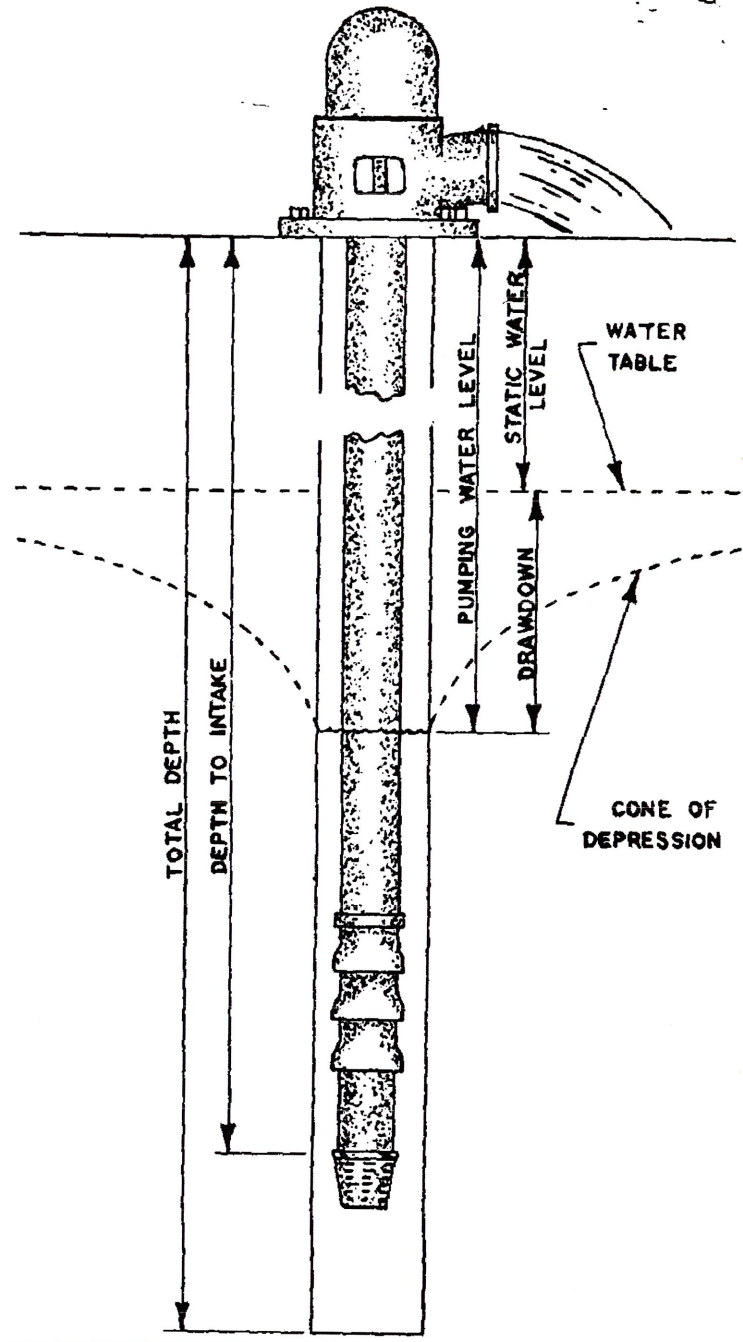
TOTAL DEPTH 480

Use additional pages necessary to complete log.

**PUMP INSTALLATION REPORT**

Pump Make JACUZZI  
 Type Submersible  
 Powered by Electricity HP 2  
 Pump Serial No. 3G822  
 Motor Serial No. A-84  
 Date Installed August 1, 1985  
 Pump Intake Depth 320  
 Remarks \_\_\_\_\_

**WELL TEST DATA WITH PERMANENT PUMP**  
 Date Tested August 1, 1985  
 Static Water Level Prior to Test 62  
 Length of Test Two (2) Hours  
 Sustained yield (Metered) 15 GPM  
 Pumping Water Level 210  
 Remarks \_\_\_\_\_



**CONTRACTORS STATEMENT**

The undersigned, being duly sworn upon oath, deposes and says that he is the contractor of the well or pump installation described hereon; that he has read the statement made hereon; knows the content thereof, and that the same is true of his own knowledge.

Signature Tom W. Spivey Jr. License No. 715  
 State of Colorado, County of Weld SS  
 Subscribed and sworn to before me this 9 day of December, 1985.  
 My Commission expires: April 24, 1988.  
 Notary Public Devin L. Dusham

FORM TO BE MADE OUT IN QUADRUPPLICATE: WHITE FORM must be an original copy on both sides and signed. WHITE AND GREEN copies must be filed with the State Engineer. PINK COPY is for the Owner and YELLOW COPY is for the Driller.



# Adams County Residential Property Profile

Parcel Number: 0156707104032

<b>Owners Name and Address:</b>	<b>Property Address:</b>
PERARO THOMAS A 15869 HARVEST CT BRIGHTON CO 80603	15869 HARVEST CT

## Account Summary

### Legal Description

SUB:VAN AIRE BLK:1 LOT:8 DESC: EXC E 65 FT

### Subdivision Plat

VAN AIRE

### Account Summary

<b>Account Numbers</b>	<b>Date Added</b>	<b>Tax District</b>	<b>Mill Levy</b>
R0001123	On or Before 01/01/1996	<u>292</u>	106.065

## Permits

### Permit Cases

BDP18-2229  
BDP24-4583

## Sales Summary

Sale Date	Sale Price	Deed Type	Reception Number	Book	Page	Grantor	Grantee	Doc. Fee	Doc. Date
04/27/2000	\$10.00	WD	C0666041	6113	837	MUNROE JACK H	MUNROE JACK H TRUST THE	\$0	05/01/2000
05/01/2000	\$10.00	AFF	C0666040	6113	836	MUNROE JACK H	MUNROE JACK H TRUST THE	\$0	05/01/2000
03/06/2013	\$500,000.00	SWD	2013000020565	2013		MUNROE JACK H TRUST THE	PERARO THOMAS A	\$50	03/11/2013
03/11/2013	\$0	AFF	2013000020564	2013		MUNROE JACK H TRUST THE	MUNROE JACK H TRUST THE	\$0	03/11/2013

Click [here](#) to go to Clerk / Recorder search page

## Valuation Summary

### Land Valuation Summary

Account Number	Land Type	Unit of Measure	Number of Units	Fire District	School District	Vacant/Improved	Actual Value	Assessed Value
R0001123	Residential	Acres	1.8600	GREATER BRIGHTON FIRE PROTECTION DISTRICT 6	School District 27J-Brighton	I	\$170,000.00	\$11,390.00
<b>Land Subtotal:</b>							<b>\$170,000.00</b>	<b>\$11,390.00</b>

### Improvements Valuation Summary

Account Number	Actual Value	Assessed Value
R0001123	\$679,000.00	\$45,490.00
<b>Improvements Subtotal:</b>	<b>\$679,000.00</b>	<b>\$45,490.00</b>

<b>Total Property Value</b>	<b>\$849,000.00</b>	<b>\$56,880.00</b>
-----------------------------	---------------------	--------------------

	<b>Adjusted Actual Value</b>	<b>Adjusted Assessed Value</b>
<b>*Total Adjusted Value</b>	<b>\$794,000.00</b>	<b>\$53,200.00</b>

\*Per SB24-233 the value may be reduced by \$55,000.00 for residential and \$30,000 for commercial. For more information, go to the [Assessor's website](#).

## Building Summary

**Building Number: 1.00**

**Individual Built As Detail**

<b>Built As:</b>	Ranch 1 Story
<b>Year Built:</b>	1985
<b>Building Type:</b>	Residential
<b>Construction Type:</b>	Frame Siding
<b>Built As SQ Ft:</b>	2286
<b>Number of Rooms:</b>	8
<b>Number of Baths:</b>	2.50
<b>Number of Bedrooms:</b>	3
<b>Attached Garage SQ Ft:</b>	5184
<b>Detached Garage Square Ft:</b>	
<b>Basement SQ Ft:</b>	
<b>Finished Basement SQ Ft:</b>	

**Tax Summary**

Click [here](#) to go to Treasurer's search page

**Enterprise Zone Summary****Property within Enterprise Zone**

False

**Precincts and Legislative Representatives Summary****Precinct**

227

**Commissioner Representative**

Commissioner District	Link to Representative
5	<a href="#">Click Here</a>

**State House Representative**

House District	Link to Representative
48	<a href="#">Click Here</a>

**State Senate Representative**

Senate District	Link to Representative
13	<a href="#">Click Here</a>

**US Congress Representative**

Congressional District	Link to Representative
8	<a href="#">Click Here</a>

**Zoning Summary**

**Zoning Summary**

Zoning Authority	Zoning
Adams County	A-1

**Note:** Data is updated daily. Above data was updated as of: 03/24/25

**Legal Disclaimer:** Although every reasonable effort has been made to ensure the accuracy of the public information data and graphic representations, Adams County cannot be responsible for consequences resulting from any omissions or errors contained herein. Adams County assumes no liability whatsoever associated with the use or misuse of this data



## Account Balance

Sorted by area showing outstanding tax charges (does not show  
interest or other fees)  
running over a subset of accounts

---

No Delinquent Accounts for the year 2024

- [Tax Account Search](#)
- [Shopping Cart](#)
- [My Reports](#)
- [Help](#)
- [Treasurer Main Page](#)
- [Assessor Main Page](#)
- [Adams County Main Page](#)
- [Logout public](#)

The amount of taxes due on this page are based on last year's property value assessments.

The actual value is the value before the adjustment and the assessed value is based off the new adjusted value.


Per SB22-238 and SB23-001 the value may be reduced by \$55,000.00 for residential and \$30,000 for commercial. Click [here](#) for further information.

For current year values and for a full breakdown of the values visit the [Adams County Assessor's site](#).

### Summary

Account Id R0001123  
 Parcel Number 0156707104032  
 Owners PERARO THOMAS A  
 Address 15869 HARVEST CT  
 BRIGHTON, CO 80603  
 Situs Address 15869 HARVEST CT  
 Legal SUB:VAN AIRE BLK:1 LOT:8 DESC: EXC E 65 FT

### Inquiry

As Of 10/18/2025 

Payment Type  First  
 Full

Total Due \$0.00

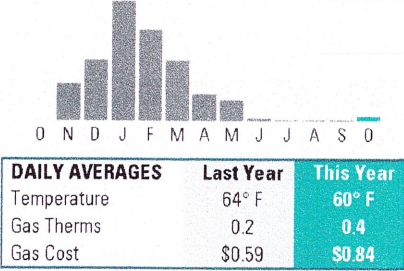
### Value

Area Id	Actual	Assessed	Mill Levy
292 - 292			106.0650000
RES IMPRV LAND - 1112	170,000	10,650	
SINGLE FAMILY RES - 1212	679,000	42,550	
<b>Total Value</b>	<b>849,000</b>	<b>53,200</b>	
<b>Taxes</b>		<b>\$5,642.66</b>	



SERVICE ADDRESS	ACCOUNT NUMBER	DUE DATE	
THOMAS A PERARO 15869 HARVEST MILE RD BRIGHTON, CO 80603-3890	53-2339707-3	11/13/2025	
	STATEMENT NUMBER	STATEMENT DATE	CREDIT AMOUNT
	949959659	10/23/2025	<b>-\$232.85 CR</b>

**YOUR MONTHLY NATURAL GAS USAGE**



**QUESTIONS ABOUT YOUR BILL?**

See our website: [xcelenergy.com](http://xcelenergy.com)  
 Call Mon - Fri 7 a.m.-7 p.m. or Sat 9 a.m.-5 p.m.  
 Please Call: 1-800-895-4999  
 Español: 1-800-687-8778  
 Or write us at: XCEL ENERGY  
 PO BOX 8  
 EAU CLAIRE WI 54702-0008



**SUMMARY OF CURRENT CHARGES** (detailed charges begin on page 2)

Natural Gas Service	09/24/25 - 10/23/25	13 therms	\$24.30
<b>Current Charges</b>			<b>\$24.30</b>

**ACCOUNT BALANCE** (Balance de su cuenta)

Previous Balance	As of 09/24	\$42.85
Payment Received	Electronic 10/06	-\$300.00 CR
Balance Forward		<b>-\$257.15 CR</b>
Current Charges		\$24.30
<b>Amount Due</b> (Cantidad a pagar)		<b>-\$232.85 CR</b>

**INFORMATION ABOUT YOUR BILL**

Thank you for your payment.

No amount due at this time.

RETURN BOTTOM PORTION WITH PAYMENT ONLY • PLEASE DO NOT INCLUDE OTHER REQUESTS • SEE BACK OF BILL FOR CONTACT METHODS



Please help our neighbors in need by donating to Energy Outreach Colorado. Please mark your donation amount on the back of this payment stub and CHECK THE RED BOX under your address below.

AB 01 017775 05997 B 63 A



THOMAS A PERARO  
 2524 S DAWSON WAY  
 AURORA CO 80014-2414

ACCOUNT NUMBER	DUE DATE	CREDIT AMOUNT	AMOUNT ENCLOSED
53-2339707-3	11/13/2025	<b>-\$232.85 CR</b>	Credit Do Not Pay

No payment is due this month.

NOVEMBER							
S	M	T	W	T	F	S	
	2	3	4	5	6	7	1
	9	10	11	12	13	14	8
	16	17	18	19	20	21	15
	23	24	25	26	27	28	22
	30						29



XCEL ENERGY  
 P.O. BOX 660553  
 DALLAS TX 75266-0553



31 53111325 23397073 00000002430\*0000023285

017775 1/2





SERVICE ADDRESS	ACCOUNT NUMBER	DUE DATE	
THOMAS A PERARO 15869 HARVEST MILE RD BRIGHTON, CO 80603-3890	53-2339707-3	11/13/2025	
	STATEMENT NUMBER	STATEMENT DATE	CREDIT AMOUNT
	949959659	10/23/2025	-\$232.85 CR

### There's always time to save energy and money

Winter is right around the corner, and now is the time to get your home ready for the heating season. Staying warm and cozy at home can increase your energy bills, but luckily it doesn't have to. Simply upgrade to energy-efficient heating equipment around your home and keep those winter energy bills low.

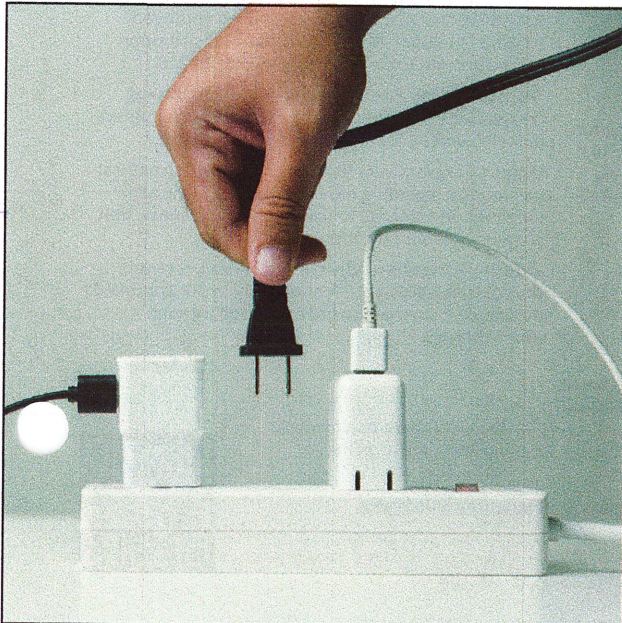
Visit [xcelenergy.com](http://xcelenergy.com) for seasonal efficiency tips and to learn more about Xcel Energy's energy efficiency programs.



### STAY AWAY. STAY SAFE.

Always assume that electric lines and equipment are energized, even if they do not appear to be "live". Stay at least 30 feet away from downed lines.

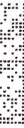
Learn more at [xcelenergy.com/Safety](http://xcelenergy.com/Safety).



### WE ALL HAVE OUR GHOSTS. THEY'RE CALLED PHANTOM POWER.

Phantom power is the drain that electronics, like a computer, have on energy even while they're powered off. So unplug, or use a power strip.

017775 2/2



10/23/2025

53-2339707-3



500 Cooperative Way  
Brighton CO 80603-8728

Your Touchstone Energy® Cooperative

[www.unitedpower.com](http://www.unitedpower.com)

Member Services 303-637-1300  
Payments 844-980-3030  
Report an Outage 303-637-1350

6389 0 AB 0.641  
THOMAS A PERARO  
2524 S DAWSON WAY  
AURORA CO 80014-2414

5 6389  
C-16



Payment Due By  
**11/10/2025**

Total Due  
**\$59.19**

From Date	To Date	Days	Billing Date
09/15/2025	10/15/2025	30	10/20/2025

Service Address **15869 HARVEST MILE RESIDENCE**

Account # **2913902** District **CENTRAL** Cycle **11**

**BE SCAM SMART**

UNITED POWER WILL **NEVER** VISIT YOUR HOME OR BUSINESS TO COLLECT PAYMENT

[www.unitedpower.com/scamsmart](http://www.unitedpower.com/scamsmart)



Rate	Meter	Prev Rdg	Pres Rdg	Mult	kWh	Dmd
R1	1538571	53192	53612	1	420	7.484

Demand Time/Date 10/11/2025 02:00 PM

**ACTIVITY SINCE LAST BILL**

Previous Balance -34.14  
Payment Received 0.00  
Balance Forward -34.14

**CURRENT BILLING DETAIL**

Energy Charge 420 KWH @ 0.1057 44.39  
Demand Charge 7.484 KW @ 4.00 29.94  
Fixed Charge 19.00  
Current Month 93.33

**TOTAL DUE 59.19**

THOMAS A PERARO  
2524 S DAWSON WAY  
AURORA CO 80014-0000

Payment Due By  
**11/10/2025**

Total Due  
**\$59.19**

Account # **2913902**

Amount Enclosed \$



**United Power**  
Operation Round-Up  
FOUNDATION

Want your small change to give  
? Round-up your bill to \$60.00  
and check here to enroll in our  
Round-Up Assistance program.



**Pay Your Bill Online**  
Visit [www.unitedpower.com](http://www.unitedpower.com)



**Pay Your Bill By Phone**  
Call 844-980-3030



**Pay Your Bill By Mail**  
Return Stub with check payment

Please Make Checks Payable and Return to:

UNITED POWER  
PO BOX 173703  
DENVER CO 80217-3703

11





**ON-SITE WASTEWATER TREATMENT SYSTEM (OWTS)  
DESIGN REPORT  
DECEMBER 31, 2024**

Prepared By:  
CHURCH Onsite Wastewater Consultants, LLC  
P.O. Box 18796  
Golden CO 80402  
Phone: 720-898-3434  
E-Mail: [kcarney@cowc.info](mailto:kcarney@cowc.info)

Prepared for:  
Tom Peraro  
15869 Harvest Ct.  
Brighton, CO 80603  
Phone: 303-570-5134  
Email: [swift687@aol.com](mailto:swift687@aol.com)

Subject Site: 15869 Harvest Ct.  
Job No: B1899  
Adams County, Colorado

**BASIS OF DESIGN**

The following OWTS report provides design information for an existing 3-bedroom residence. The residence is located at 15869 Harvest Ct., in Adams County, Colorado. The ±1.86-acre property is currently developed.

The raw wastewater characteristics for this design are expected to be similar to the average residential raw wastewater properties as indicated in the table below:

<b>Table 8: Typical Composition of Untreated Domestic Wastewater</b>				
Composition	Units	Concentration		
		Weak	Average	Strong
Total Suspended Solids	Mg/L	100	220	350
BOD <sub>5</sub> at 20°C	Mg/L	110	220	400
Nitrogen (total as N)	Mg/L	20	40	85
Phosphorus (total as P)	Mg/L	4	8	15
Fats, Oils & Grease (FOG)	Mg/L	50	100	150
Total Coliform	Mg/L	10 <sup>6</sup> -10 <sup>7</sup>	10 <sup>7</sup> -10 <sup>8</sup>	10 <sup>8</sup> -10 <sup>9</sup>

Source: Table 8, Typical composition of untreated domestic wastewater from Wastewater Engineering, Treatment, Disposal and Reuse, Metcalf & Eddy, 1991.

The wastewater flows are anticipated to be within the normal range for the residential application indicated. The estimated wastewater flows from the structure are provided in the calculations of the components in this report. These OWTS design documents are based on the requirements of sound OWTS engineering design principles and the Adams County Public Health Department, Onsite Wastewater Treatment System regulations, effective December 5, 2022.

Note that the design for this onsite wastewater system shall include both the written report and the design figures. The OWTS design incorporates the County OWTS regulations, as currently amended, by this reference.

COWC recommends that when soliciting for costs of equipment, the complete design package be submitted to suppliers to allow them to understand the design and provide the correct components/equipment.

It is the responsibility of the installer to have sufficient knowledge and experience installing systems of this type to be able to review the entire set of design documents and understand the system concept and the intent of the design. If the installer does not understand the design intent and the system concept, the system installation should not be bid. If there are items in the design that are not clear, or if errors are noted during the installer's review of the design package, the installer should call COWC, before bidding, to clarify and correct.

The county permit issued for this site is specific to the engineered design documents as submitted. No changes to the system design are allowed without written permission from the design engineer. If at any time, the installer changes any portion of the design without written permission from the design engineer, there is the risk that the engineer may reject the changes and that the changed item(s) will have to be removed and/or reworked to conform to the permitted design documents at the installer's own expense.

#### **SITE CONDITIONS**

Date Site Investigation Conducted: 11/26/2024

Water Supply: The subject property is served by public water. All proposed OWTS components meet the required well setbacks to the water line.

Topography: Topography at the site consists of slopes of approximately 2% generally to the south. The slope in vicinity of the proposed STAS is approximately 2% to the south.

Soil Data: A Web Soil Survey has been obtained from the USDA, Natural Resources Conservation Service (NRCS), and is attached to this report.

Subsurface Investigation: Subsurface conditions were observed to be silty clay loam underlain by clay. Redoximorphic features indicating seasonally high groundwater were found at 30" in test pit 1 and 42" in test pit 2. See Appendix A for details of the soil logs.

Based on all available soils information the soil is classified as Soil Type 4. The OWTS design will utilize pressurized chambered beds with a long-term acceptance rate (LTAR) of 0.3 (HLT-TL3N).

Existing OWTS Records: There is an existing 1,250-gallon septic tank which gravity flows to a 912 SF gravel bed. The tank and bed will be removed to install the proposed hanger.

Landscape Position: Landscape position was determined by observation of the site in comparison to the Slope Shape and Hillslope descriptions as defined by the National Resource Conservation Service, NRCS (formerly Soil Conservation Service, SCS), 1998. Landscape position in proximity

of the proposed STA is described as LL (linear, linear) having a slope to the south at approximately 2%.

Vegetation: The site is covered in native grasses and trees.

Natural and Cultural Features: No known natural or cultural features exist on this site.

Current and Historic Land Use: The current use of the parcel is residential. Historical use is unknown.

Additional Information:

- A. Survey: A site survey was not provided. The site plans were derived from information obtained during the initial site visit, the original plat, and aerial images.
- B. Easements: There is a 10' easement along the western property line for the runway.
- C. Floodplain: There are no known floodplains on the property.
- D. Aerial: An aerial image has been included with this report. Please see attached NRCS soils report for aerial image.
- E. Climate information: Refer to the attached NRCS soils report for climate information.
- F. Delineated Wetlands: There are no known wetlands on the property.

## **OWTS DESIGN**

There is an existing 3-bedroom residence. There are no known or anticipated changes in land use that would impact the proposed system.

Design flow value: 450 GPD  
 $(3 \text{ Bedrooms} \times 2 \text{ People} \times 75 \text{ GPD}) = 450 \text{ GPD}$

Building Sewer: The sewer piping shall be 4-inch Schedule 40 PVC pipe installed with a minimum slope of 2% to the septic tank. Joints shall be solvent welded or gasketed bell & spigot. Cleanouts are required 1) at the stub out from the building, within 5-feet of the face of the structure, 2) at spacing not exceeding 100 feet, and 3) upslope of two or more bends closer than ten feet in the sewer pipe, within 2-feet above the upslope bend. Short sweep bends in the building sewer pipe are not to exceed 45 degrees although a long sweep 90-degree bend is permissible. The pipe should be properly bedded per the typical trench detail presented on the design drawings.

Tank: The existing septic tank shall be removed. A new 1,000-gallon, 2-compartment, FLXX concrete septic tank shall be installed with an effluent filter with high-water alarm in the second compartment of the tank. The 1,000-gallon tank shall gravity flow to the AX20-RT unit. The tank shall be fitted with watertight risers and lids that secure at the ground surface. The installer shall provide a handle extension, if necessary, to bring any handle within 6 to 12-inches of the bottom of the compartment riser lid. Provide a stable subgrade for the tank. Over-excavate all soft and yielding material and backfill with ½" minus-material. Tank bedding shall be 5-inches of sand. Backfill around the tanks in lifts not to exceed 12" loose thickness and compact each lift. Compact all fill and backfill to a minimum 90% max dry density and all bedding to a minimum 95% max dry density. All compaction shall be in accordance with ASTM D698. See Figure 3 for tank installation details.

AdvanTex Treatment Unit: An AdvanTex AX20-RT treatment unit is specified to treat the wastewater for a 3-bedroom. The AX unit shall be buried so that 2-inches protrudes above final grade and such that treated effluent will gravity flow from the units back to the recirculation tank. Installer shall ensure adequate compaction of backfill soils between unit. The excavation dimensions for the higher-level treatment unit shall be in accordance with the manufacturer's installation guidelines. The AX20-RT unit shall be backfilled in accordance with the manufacturer's instructions, with granular material, placed and consolidated as instructed.

Pumping System: The pump for the discharge from the pump tank shall be an Orenco Systems, Inc (OSI) PF3005, 1/2 HP, 115 Volt, Single Phase pump. The control system shall have 3 floats: 1) High Water Alarm, 2) On float and 3) Off float as indicated on Figure 3.

Tank Discharge Piping: See Figure 4 for discharge pipe sizing. A minimum pipe slope of 1% is required from the high point to both directions. The pipe shall be properly bedded per the typical trench detail presented on the design drawings. Reference pump float activation elevations provided on Figure 3.

The depth of the crown of the tank discharge pipe will be approximately 24 inches below finished grade. To ensure that the pipe is protected from frost penetration, a minimum of 2-inch thick, high-density, closed-cell, extruded, insulboard (not white bead-board) shall be installed at the crown of the pipe, to a minimum distance of 12-inches each side of the pipe crown. The soil below the pipe insulation on each side shall be placed in lifts not to exceed 6-inches and compacted to a minimum of 95% maximum dry density.

Control Panel: The control panel for this system shall be an Orenco MVP-AX20B2/DMHTSA panel. The panel shall be wired by an electrician licensed in the State of Colorado. All installation and wiring shall be in accordance with the instructions of the manufacturer and the National Electric Code; the more stringent requirements shall govern the installation process. The electrical control panel shall be installed on the exterior of the structure with a line of site to the pump vault riser. Do not install the control panel on an exterior bedroom wall. Controls and alarms shall be listed per UL 508. As an alternative, the control panel can be installed near the septic tank on a 4-inch by 4-inch pressure treated post. Furnish and install a pressure treated plywood backing board to mount the control panel. Coordinate with owner for location of panel. Coordinate with design engineer for a detail of an approved post & board installation.

Soil Treatment Area: The Soil Treatment Area (STA) shall be (2) beds. The soil in the area of the proposed STA is classified as Type 4; an LTAR of 0.30 (TL3N) will be used for the design. The STA size using Infiltrator Quick-4 Low Profile chambers as follows:

1. Long Term Acceptance Rate (LTAR) = 0.30 Gallons/day/SF.
2. Hydraulic loading rate = 450 gallons per day (4-bedrooms)
3. STA = Design Flow (gallons/day)/LTAR (gallons/day/SF) = 450/0.30 = 1,500 SF.
4. Estimated number and configuration of Infiltrator Quick4 Low Profile Chambers  
1,500 SF/12 SF/Chamber = 125 chambers
5. Configuration: Use (2) beds with six rows of 11 chambers per row for a total of 132 Infiltrator low profile chambers.

The STA shall be excavated to the lines and grades indicated on the design figures. The lateral piping shall be secured to the ceiling of the Infiltrator Quick4 Plus Standard low profile chambers with hanger material that is not susceptible to deterioration from the chamber environment. See Figure 4 for pipe sizing details.

The chambers shall be installed a maximum of 6" deep. The finished grade of the STA area shall be configured to drain precipitation or snow melt away from the field area. The OWTS STA shall be constructed similar to details in Figure 5.

Vertical Separations: Two (2) feet of vertical separation is required between the bottom of the chambers (infiltrative surface) and the restrictive layer. Effluent shall be pressure dosed via an effluent pump in the septic tank over the STA to attain full, even distribution of the effluent.

Surface Activity: No surface activities that compact the soils of the non-traffic rated section of the STA shall be permitted.

Ground Cover: The STA shall be planted with drought tolerant native grasses, and irrigation shall not be allowed over the STA. Continually watering the absorption area will cause premature absorption system failure. The installer shall verify with the system owner who will have the responsibility of maintaining and watering the seed until it germinates and becomes established.

## **OWTS CONSTRUCTION**

The OWTS shall be constructed to meet all Adams County OWTS requirements. Please see the attached OWTS design drawings for elevations of the key components of the OWTS. There are no anticipated or expected construction issues with the installation of the OWTS. The area selected for piping and STA is set back from existing structures far enough to allow the use of standard excavation equipment and piling of soil spoil. There are no known subsurface impediments to the installation of the system.

## **INSTALLATION OBSERVATIONS**

The installation of the OWTS shall be observed by the design engineer. A minimum of one observation is required: 1) after the chambers, automatic distribution valve, STA laterals, septic tank, AX20-RT unit and pump system, installed with risers on the tank, and inlet and outlet connections properly bedded, prior to backfill. A final observation shall be required after the final electrical connection has been made prior to placing the OWTS into service, if power is not available at the first observation. Our office should be called at 720-898-3434 to observe the installation of the OWTS at least 24 hours in advance. These observations, any repeat observations, OWTS design revisions, staking of STAs or additional site visit requirements are not included in the scope of work of this design and will be invoiced at an additional unit rate fee.

## **OPERATION AND PREVENTATIVE MAINTENANCE SCHEDULE**

The goal of an operation and maintenance schedule is to observe the system function and operation, perform minor maintenance to allow for proper, long term functioning of the system and to record performance data for future evaluation.

Operating Permit: An Operating Permit is required for the life of the OWTS due to the higher-level treatment of the system, and must be applied for and maintained with Adams County Health Department.

General Operation and Preventative Maintenance: All system equipment will require some level of monitoring and maintenance to ensure it is functioning within the manufacturer's specifications and the intent of the design documents. The owner should obtain the manufacturer's Operations and Maintenance Manual for each piece of proprietary equipment in the system, and ensure that the equipment/component is properly serviced per the manufacturer's recommendations. To ensure that the equipment/component is functioning properly, the system owner can periodically check the equipment, or can hire a trained and certified maintenance provider.

*Septic Tanks:* The scum and sludge accumulation in the septic tank(s) should be monitored yearly. Once the cumulative scum or sludge thickness reaches 18-inches, the entire tank should be pumped. A pumping frequency of 1 to 3 years at design flows is common. An alternative is a regular pumping frequency of every 2 years.

*Filter and Effluent Pumping System:* The effluent filter at the septic tank discharge should be cleaned (hosed off) at the time of pumping or as needed. The effluent pump should be checked semi-annually to ensure pump is functioning properly. If the alarm sounds, the pumps and floats should be checked and/or serviced immediately. The filter should be pulled and observed every six-months for at least the first 18-months to establish a cleaning frequency. If the filter is observed to be relatively clean after a six-month interval, then the interval can be extended to 9-12 months between cleanings. If the filter is observed to be relatively clogged after a six-month interval, then the observation and cleaning frequency should be shortened to 3-4 months.

*AX20-RT Unit:* A maintenance agreement with a certified service provider to provide maintenance of the AX20-RT unit is required.

*Automatic Distributing Valve:* The ADV should be checked at the time the pump and float system is checked. Each discharge pipe of the ADV has a section of clear PVC pipe, through which the flow of pumped effluent can be observed. To check that the ADV is properly alternating through the outlet pipes, the observer removes the lid of the ADV vault to see the ADV. Then activate the pump and observe which outlet pipe the effluent is discharging through. Shut off the flow by turning the valve preceding the ADV and allow the cam to drop into position. Open the valve and observe the ADV to see that the effluent is discharging through a different outlet pipe; repeat these steps for each outlet pipe.

*Soil Treatment Area:* The surface area around the STA is to be observed monthly for signs of failure such as lush vegetation growth or effluent ponding. Liquid levels within each field section are to be observed through the observation pipes, and levels recorded. Flow to each field is to be controlled through the pump and piping manifolds.

*General:* System users must realize an onsite wastewater system is different from public sewer service. There are daily considerations such as not putting plastic or other nonbiodegradable material into the system. Water use should be monitored so toilets are not allowed to leak when seals malfunction. Allowing fixtures to flow continuously to prevent water lines from freezing is not acceptable. Laundry should be spread out through the week to prevent hydraulically overloading the field. Although the proposed system can

accommodate variable flows, spreading water use over several hours and eliminating peak flows is recommended. To illustrate the point, a malfunctioning toilet can discharge in excess of 1000 GPD. Excessive daily loading could flood and irreparably harm the OWTS.

Water softener backwash from a salt-type water softener must not be plumbed into the septic tank or AX25-RT unit, as this will void the system's warranty. See the Orenco white paper, Water Softeners and Wastewater Treatment Systems, CWP-SOFT-1, for more information. A separate drywell should be constructed for the backwash waste, if a softener is installed.

Discharging fats, oils and grease (FOG) from any source into the household drains can be detrimental to the OWTS. COWC strongly recommends that the owner limit the use of any garbage disposal and dispose of FOG, uneaten food when cleaning dishes before washing, food scraps and food preparation remains into the trash and not down the household drains. The design of the OWTS is based on the treatment of domestic sewage only. Swimming pool or spa water should not be discharged into the OWTS. The proposed OWTS design is based on the flows noted in the report. Increased flows may hydraulically or organically overload the OWTS, causing premature failure.

#### **LIMITATIONS**

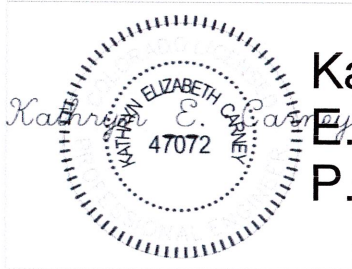
Our investigation, layout, design, and recommendations are based on data submitted. If conditions different from those described in this report are encountered, COWC should be called to observe the conditions and make design changes if necessary. If proposed construction is changed, COWC should be notified to evaluate the effect of the changes on the wastewater system. All construction is to be in accordance with the current OWTS regulations. Pipe type and size, burial requirements, septic tank construction, and other specifications, which are not depicted in our report, are to conform to the requirements of the OWTS regulations. The system installer shall be licensed by the county health department & have demonstrated knowledge of the OWTS regulations & requirements.

This onsite wastewater system design is intended to be used only for the wastewater load specified in the STA calculations and for the site indicated on the subject line. Any other application of this design is not authorized by CHURCH Onsite Wastewater Consultants, LLC. Use of this design for any other area on the subject lot than designated, on any other lot or for wastewater volumes or strengths not indicated, constitutes a misapplication of the design and voids all liabilities on the part of COWC.

COWC encourages the owners of the system to research OWTS operations and maintenance information and also visit online websites providing OWTS information: [www.nowra.org](http://www.nowra.org), [www.cpow.net](http://www.cpow.net) or <https://adamscountyhealthdepartment.org/septic-rules-and-regulations> to learn how the OWTS should be operated and maintained.

If there are questions, or if clarifications are desired, please feel free to contact COWC.

Sincerely, CHURCH Onsite Wastewater Consultants, LLC.

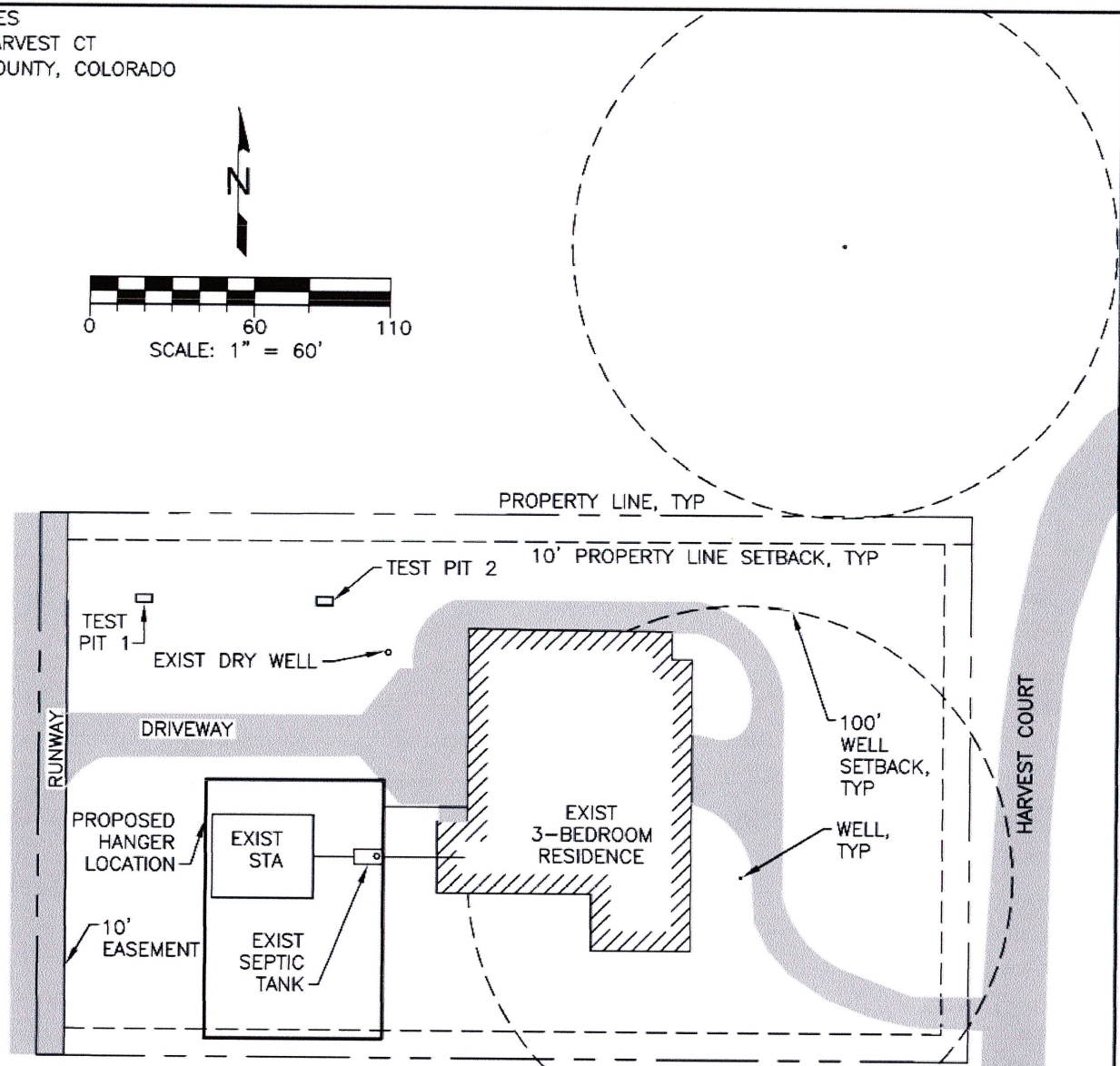
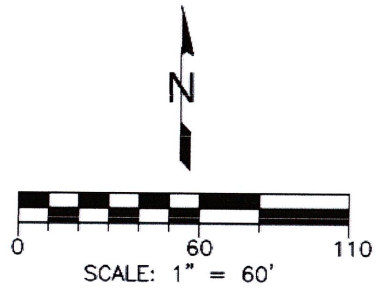


**Kathryn  
E. Carney  
P.E.**

Digitally signed by Kathryn E. Carney P.E.  
DN: cn=Kathryn E. Carney  
P.E. gn=Kathryn E. Carney  
P.E. c=US United States l=US  
United States o=Church  
OWC, LLC.  
e=kcarney@cowc.info  
Reason: I am the author of  
this document  
Location: Wheat Ridge, CO  
Date: 2024-12-31 14:15:07:00

Kathryn E. Carney, MS PE  
Principal

1.86 ACRES  
 15869 HARVEST CT  
 ADAMS COUNTY, COLORADO



CALL UTILITY NOTIFICATION  
 CENTER OF COLORADO  
**1-800-922-1987**  
 CALL TWO BUSINESS DAYS IN  
 ADVANCE BEFORE YOU DIG, GRADE,  
 OR EXCAVATE FOR THE MARKING OF  
 UNDERGROUND MEMBER UTILITIES

THE LOCATION OF EXISTING AND PROPOSED IMPROVEMENTS SHOWN HEREIN ARE NOT THE RESULT OF A PROPERTY SURVEY. IMPROVEMENT LOCATIONS ARE APPROXIMATE. IT IS THE PROPERTY OWNER'S RESPONSIBILITY TO DEFINE PROPERTY BOUNDARIES AND ENSURE ALL ONSITE IMPROVEMENTS ARE LOCATED WITHIN THE PLATTED SITE AND OUT OF INAPPROPRIATE EASEMENTS. ALL SEPARATION DISTANCES ARE TO BE VERIFIED PRIOR TO EXCAVATION.

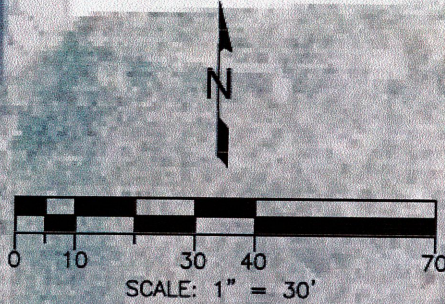
**CHURCH OWC, LLC**  
 Onsite Wastewater Consultants  
 Onsite Wastewater Engineering-Civil Engineering  
 P.O. Box 18796, Golden, CO 80402  
 Voice: (720) 898-3434

15869 HARVEST CT - OWTS  
**SITE PLAN**  
 JOB NO. B1899      12/31/2024      Figure 1 of 7

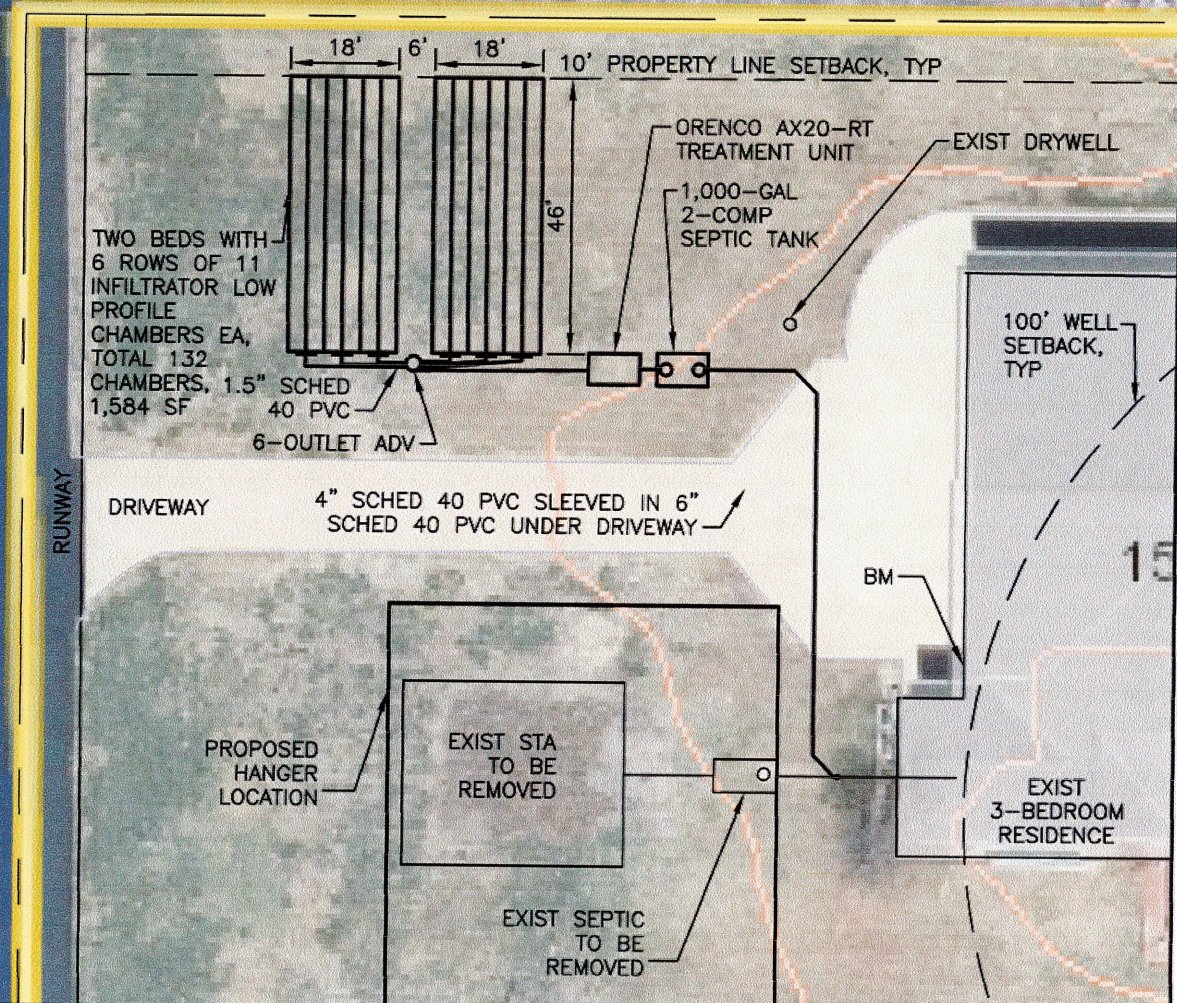
1.86 ACRES  
 15869 HARVEST CT  
 ADAMS COUNTY, COLORADO

**ELEVATIONS**

BM - CONCRETE AT CORNER OF GARAGE = 100'  
 INVERT INLET OF EXISTING TANK = 97.62'  
 FG OF PROPOSED TANK = 98.64'  
 TOP OF PROPOSED TANK = 97.64'  
 INVERT INLET OF PROPOSED TANK = 96.39'  
 INVERT OUTLET OF PROPOSED TANK = 96.14'  
 AX-20RT INLET = 96'  
 TOP OF AX20-RT UNIT = 98.33'  
 PROP FG OF ADV = 100'  
 INVERT OUTLET OF ADV = 98.5'  
 FG OF BED 1 = 97.92' - 98.11'  
 TOP OF CHAMBER = 98.28'  
 INFILTRATIVE SURFACE = 97.61'  
 PROP FG BED 1 = 99.28'  
 FG OF BED 2 = 97.67' - 97.92'  
 TOP OF CHAMBER = 98.09'  
 INFILTRATIVE SURFACE = 97.42'  
 PROP FG BED 2 = 99.09'  
 REDOX INDICATING GROUND WATER @ 30' BELOW  
 FG IN TP 1



PROPERTY LINE, TYP



**CHURCH OWC, LLC**  
 Onsite Wastewater Consultants  
 Onsite Wastewater Engineering-Civil Engineering  
 P.O. Box 18796, Golden, CO 80402  
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15869 HARVEST CT - OWTS

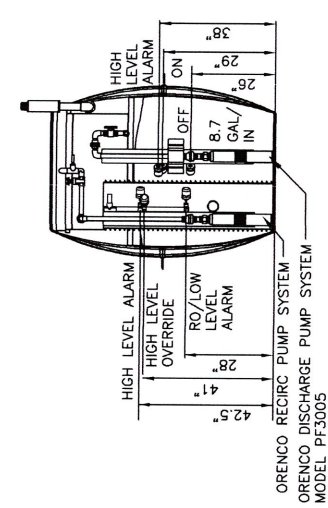
**OWTS PLAN**

JOB NO. B1899

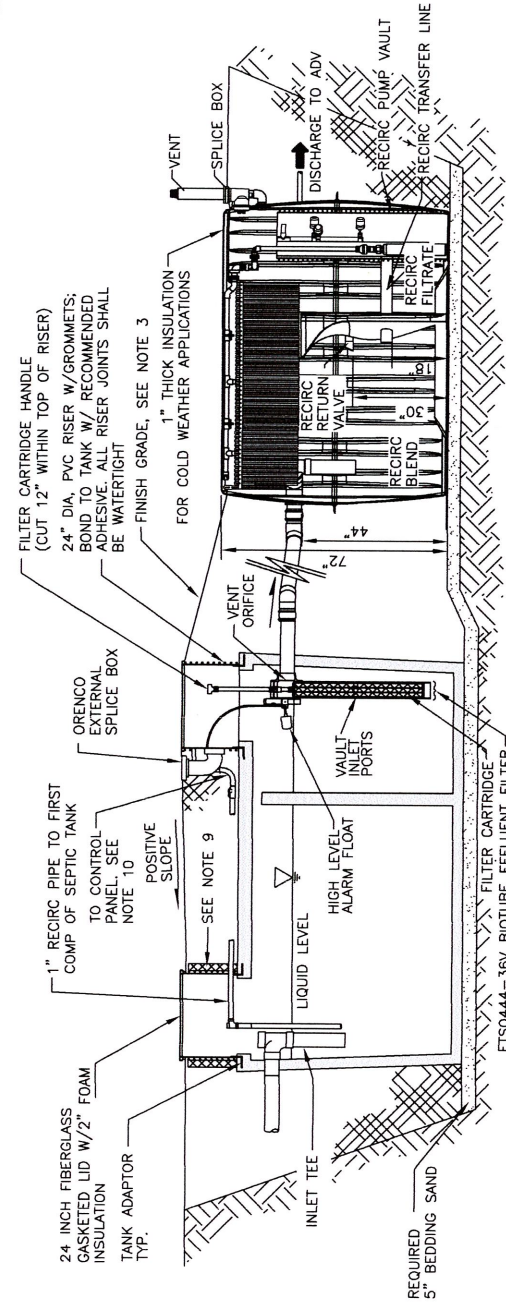
12/31/2024

Figure 2 of 7

- DEMAND DOSING CALCULATIONS
- VOLUME OF TRANSPORT LINE = 5.1 GALS
  - VOLUME OF MANIFOLD = 0.3 GALS
  - 3 TIMES LATERAL VOLUME = 20.4 GALS
  - MIN DOSE VOLUME = 25.8 GALS
  - FLOAT SEPARATION = 25.8 GALS/8.7 GPI = 3"



**DISCHARGE CHAMBER - END VIEW**  
NTS



**AX20-RT MODE 3B - SIDE VIEW**  
NTS

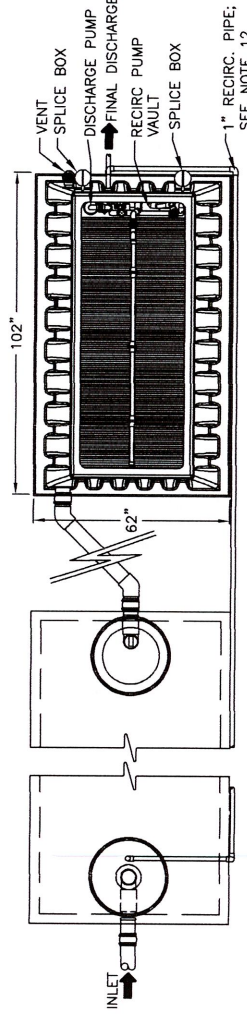
**1,000-GALLON SEPTIC TANK - SIDE VIEW**  
NTS

ELECTRICAL REQUIREMENTS	
TWO	115V, 20 AMP CIRCUIT FOR PUMPS
ONE	115V, 10-AMP CIRCUIT FOR CONTROLS



CONTROL PANEL	
OSI	MVP-AX20B2/DMHTSA

- GENERAL SEPTIC TANK NOTES:
- A 1,000-GALLON 2-COMPARTMENT FLX CONCRETE TANK SHALL BE INSTALLED. A BIOTUBE EFFLUENT FILTER SHALL BE FITTED TO THE OUTLET OF THE TANK.
  - ALTERNATE TANK CONFIGURATIONS ARE POSSIBLE WITH PRIOR WRITTEN APPROVAL OF DESIGN ENGINEER.
  - SLOPE FINISHED GRADE AWAY FROM TANK LIDS AT MIN 5% FOR 5'-FEET. MIN SLOPE THEREAFTER IS 2% AWAY FROM TANK. LID OF AX20-RT UNIT SHALL BE 2" ABOVE GRADE. GRADE BETWEEN TANKS SUCH THAT SURFACE WATER DOES NOT INUNDATE AX25-RT UNIT LID.
  - EXTEND ALL RISERS TO 1" ABOVE SURFACE AT FINISHED GRADE.
  - PROOF ROLL SUBGRADE PRIOR TO PLACING BEDDING. COMPACT BEDDING TO MIN 95% MAX DRY DENSITY.
  - PROVIDE EXCAVATION FOR TANK IN ACCORDANCE W/OSHA REGULATIONS TO FURNISH A SAFE WORKING ENVIRONMENT FOR INSTALLERS.
  - PROVIDE A STABLE SUBGRADE FOR TANK. OVEREXCAVATE ALL SOFT & YIELDING MAT'L. BACKFILL W/1/2" MINUS SAND, BACKFILL & COMPACT IN LIFTS TO BOT PIPES BEFORE INSTALLING PIPES. COMPACT ALL SUBGRADE & SOIL TO MIN 95% MAX DRY DENSITY PER ASTM D698.
  - BACKFILL BETWEEN TANKS AND COMPACT BACKFILL SOIL TO INVERT OF CONNECTING PVC PIPE, IN 12" LIFTS, BEFORE INSTALLING PVC PIPE.
  - INSTALL MIN 2" CLOSED CELL FOAM INSULATION ALL AROUND EA RISER AND TO BOT RISER LIDS FOR ALL AREAS WHERE FROST REACHES 36".
  - EXTEND CONDUIT FULL LENGTH TO CONTROL PANEL. FURNISH & INSTALL A CONDUIT SEAL IN CONDUIT TO CONTROL PANEL.
  - SEPTIC TANK SHALL BE FITTED WITH MAXIMUM 1' TALL RISERS IN ORDER TO ENSURE GRAVITY FLOW TO THE AX20-RT UNIT.
  - INSTALL A 1" RECIRCULATION PIPE WITH A TEE WITH AN EXTENSION TO EXTEND PAST THE SCUM LAYER.



**1,000-GALLON SEPTIC TANK - TOP VIEW**  
NTS

**AX20-RT 800 GALLON RECIRC TANK - TOP VIEW**  
NTS

**CHURCH OWC, LLC**  
Onsite Wastewater Consultants  
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Voice: (720) 898-3434

15869 HARVEST CT - OWTS  
**1,000 GALLON 2-COMPARTMENT SEPTIC TANK FOLLOWED BY AN AX20-RT TREATMENT UNIT**

No.	Revision	Date

DESIGNED BY: KEC  
DRAWN BY: KEC  
CHECKED BY: NMV  
DATE: 12/31/2024

**JOB NO. B1899**  
Figure 3 of 7

# Pump Selection for a Pressurized System - Single Family Residence Project

B1899, Figure 4, 15869 Harvest Ct., 12-31-2024, kec

## Parameters

Discharge Assembly Size	1.25	inches
Transport Length Before Valve	29	feet
Transport Pipe Class	40	
Transport Line Size	1.50	inches
Distributing Valve Model	6606	
Transport Length After Valve	19	feet
Transport Pipe Class	40	
Transport Pipe Size	1.50	inches
Max Elevation Lift	5	feet
Manifold Length	3	feet
Manifold Pipe Class	40	
Manifold Pipe Size	1.50	inches
Number of Laterals per Cell	12	
Lateral Length	44	feet
Lateral Pipe Class	40	
Lateral Pipe Size	1.25	inches
Orifice Size	1/8	inches
Orifice Spacing	3	feet
Residual Head	5	feet
Flow Meter	None	inches
'Add-on' Friction Losses	0	feet

## Calculations

Minimum Flow Rate per Orifice	0.43	gpm
Number of Orifices per Zone	30	
Total Flow Rate per Zone	13.0	gpm
Number of Laterals per Zone	2	
% Flow Differential 1st/Last Orifice	0.9	%
Transport Velocity Before Valve	2.1	fps
Transport Velocity After Valve	2.1	fps

## Frictional Head Losses

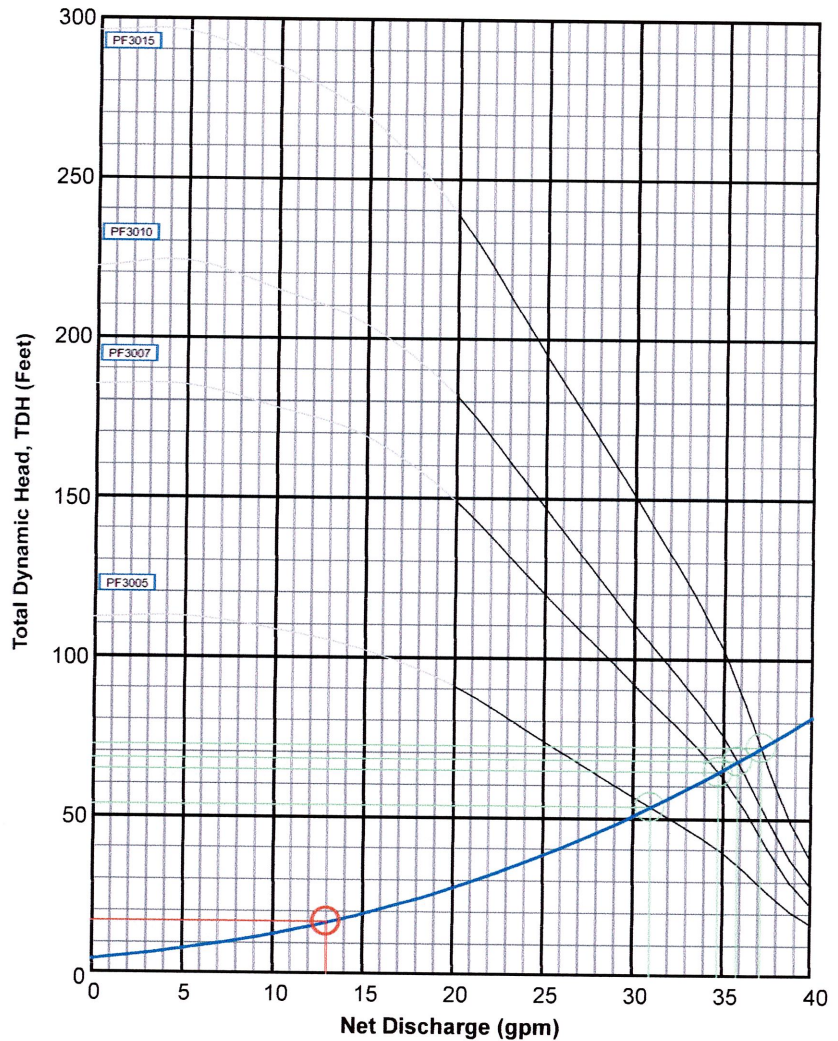
Loss through Discharge	1.2	feet
Loss in Transport Before Valve	0.3	feet
Loss through Valve	4.8	feet
Loss in Transport after Valve	0.2	feet
Loss in Manifold	0.0	feet
Loss in Laterals	0.1	feet
Loss through Flowmeter	0.0	feet
'Add-on' Friction Losses	0.0	feet

## Pipe Volumes

Vol of Transport Line Before Valve	3.1	gals
Vol of Transport Line After Valve	2.0	gals
Vol of Manifold	0.3	gals
Vol of Laterals per Zone	6.8	gals
Total Vol Before Valve	3.1	gals
Total Vol After Valve	9.2	gals

## Requirements

	13.0	gpm
	16.7	feet



## PumpData

PF3005 High Head Effluent Pump  
30 GPM, 1/2HP  
115/230V 1Ø 60Hz, 200V 3Ø 60Hz

PF3007 High Head Effluent Pump  
30 GPM, 3/4HP  
230V 1Ø 60Hz, 200/460V 3Ø 60Hz

PF3010 High Head Effluent Pump  
30 GPM, 1HP  
230V 1Ø 60Hz, 200/460V 3Ø 60Hz

PF3015 High Head Effluent Pump  
30 GPM, 1-1/2HP  
230V 1Ø 60Hz, 200/230/460V 3Ø 60Hz

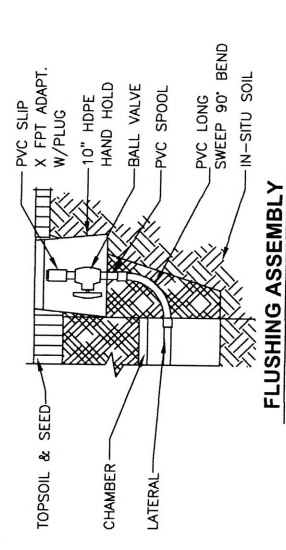
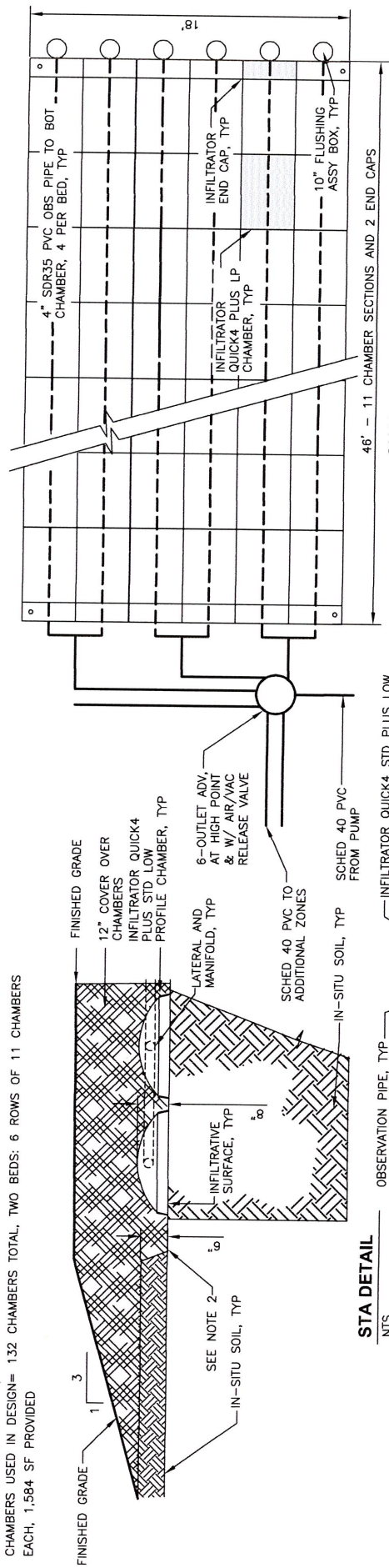
## Legend

System Curve:	—
Pump Curve:	----
Pump Optimal Range:	—
Operating Point:	○
Design Point:	○

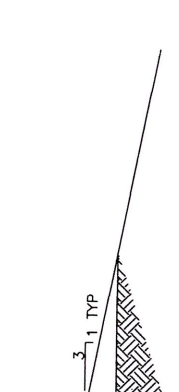
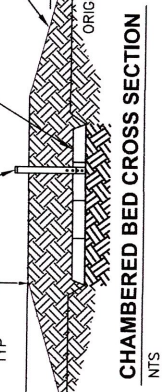


BOULDER COUNTY DESIGN CALCULATIONS  
 3-BEDROOM RESIDENCE  
 LOADING= Q= (3 X 2 X 75) = 450 GPD  
 SOIL TYPE 4, LTAR: 0.30  
 SOIL TREATMENT AREA = Q/LTAR = 450/0.30 = 1,500 SF  
 1,500 SF/(12 SF/CHAMBER)= 125 CHAMBERS  
 CHAMBERS USED IN DESIGN= 132 CHAMBERS TOTAL, TWO BEDS: 6 ROWS OF 11 CHAMBERS EACH, 1,584 SF PROVIDED

SEE FIGURE 4 FOR PIPE DETAILS



- SOIL TREATMENT AREA NOTES:
1. ALL PRESSURE PIPE SHALL BE SCHEDULE 40 PVC.
  2. EXCAVATE TO A MAXIMUM OF 6" BELOW EXISTING GROUND TO ESTABLISH INFILTRATIVE SURFACE.
  3. BACKFILL OVER CHAMBERS WITH SOIL SO THAT FINAL COVERING AFTER SETTLING IS A MINIMUM OF 12".
  4. PVC LATERALS SHALL HAVE 1/8" Ø ORIFICES ON 36" CENTERS. FIRST, LAST AND MIDDLE ORIFICE SHALL BE AT 6 O'CLOCK POSITION. ALL OTHERS SHALL BE AT 12 O'CLOCK POSITION.
  5. OBSERVATION PORTS ARE REQUIRED. VAULTED MON TUBE IS OPTIONAL AT THE DISCRETION OF THE OWNER. STANDARD MON PIPE CONFIGURATION SHALL OMIT THE VAULT AND EXTEND THE PIPE MIN 18" ABOVE FINISHED GRADE.
  6. PIPE HANGERS SHALL BE OF A MATERIAL NON-DEGRADABLE IN THE SEPTIC ENVIRONMENT.



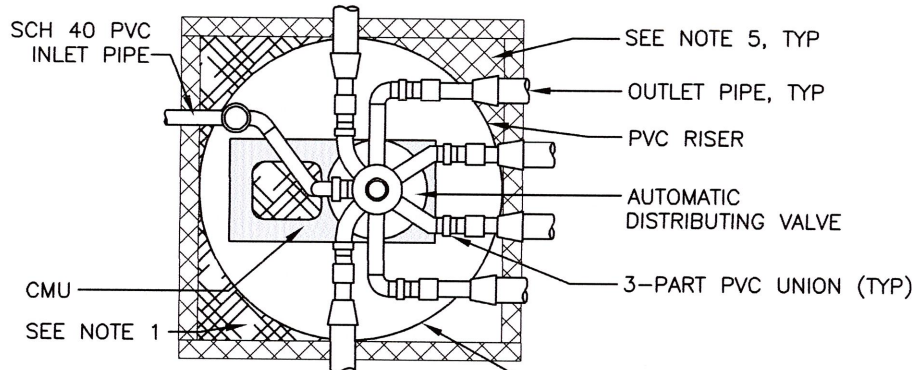
- ① FLUSHING ASSEMBLY
- ② 4" PVC OBSERVATION PIPE
- ③ PVC MANIFOLD AND LATERALS

DESIGNED BY: KEC		DATE:	
DRAWN BY: KEC		12/31/2024	
CHECKED BY: NMW		JOB NO. B1899	
DATE:		Figure 5 of 7	
No.	Revision	Date	
<b>SOIL TREATMENT AREA CHAMBERED BED DETAILS</b>			
15868 HARVEST CT - OWTS			
<b>CHURCH OWC, LLC</b>			
Onsite Wastewater Consultants Onsite Wastewater Engineering-Civil Engineering P.O. Box 18796, Golden, CO 80402 Voice: (720) 898-3434			

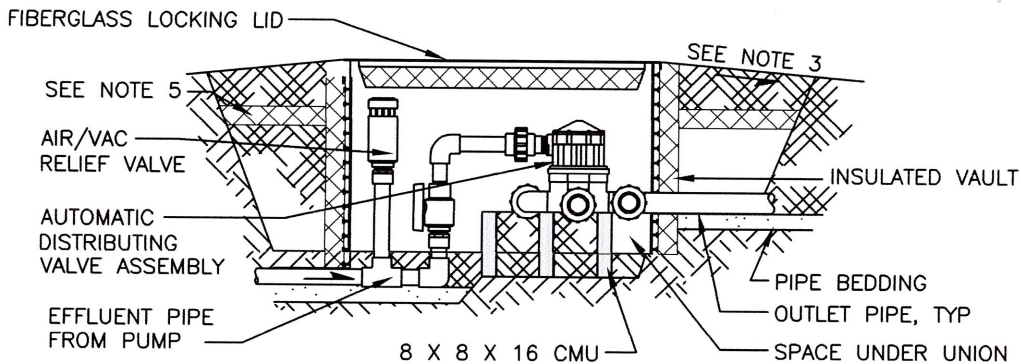
## AUTOMATIC DISTRIBUTING VALVE(ADV)

NTS ORENCO MODEL 6606

### PLAN VIEW



### PROFILE VIEW



**NOTES:**

1. BACKFILL & COMPACT SOIL BETWEEN RISER AND INSULATION, TYP.
2. VAULT SHALL BE SIZED TO ALLOW ACCESS TO ALL PIPE UNIONS TO FACILITATE REMOVAL OF ADV. VAULT SHALL BE MINIMUM 30" DIAMETER.
3. SLOPE FINISHED GRADE AWAY FROM RISER AT MIN 2% FOR 5-FEET.
4. OUTLET CONFIGURATION INDICATED IS GENERIC. REFER TO SPECIFIC MODEL NUMBER ABOVE.
5. INSTALL 2" HIGH DENSITY FOAM INSULATION AT TOP OF AUTOMATIC DISTRIBUTING VALVE. COVER WITH SOIL TO FINISHED GRADE.
6. FURNISH AND INSTALL MIN 2" THICK HIGH DENSITY FOAM INSULATION OVER ALL PIPING NOT BURIED TO MIN COUNTY BURY DEPTH.
7. CENTER MIN 24" WIDE INSULATION BOARD OVER CROWN OF PIPE.
8. 3-PART UNIONS REQUIRED ON ALL ADV CONNECTIONS TO INLET AND OUTLET PIPES.
9. INSTALL CMU AS INDICATED TO SUPPORT ADV BODY & ALLOW REMOVAL OF UNIONS. FILL CMU W/SOIL.
10. PROVIDE SPACE BELOW UNIONS FOR DISASSEMBLY, AND SOIL BENCH WITHIN 12" OF UNIONS FOR PIPE BEDDING.

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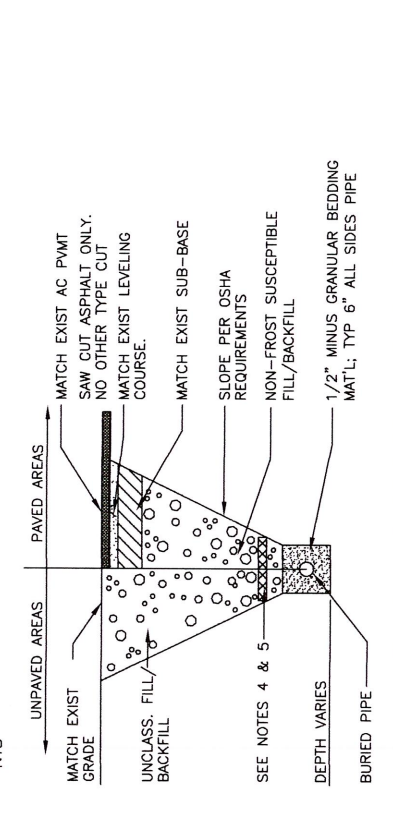
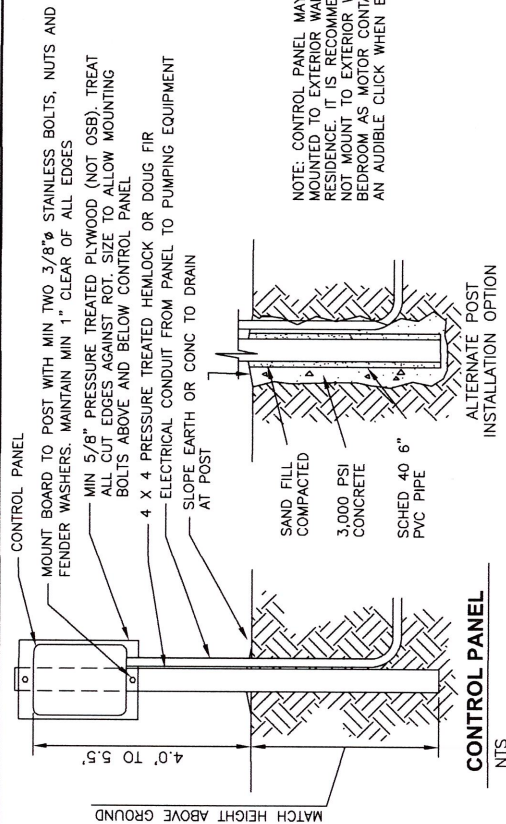
15869 HARVEST CT - OWTS

### AUTOMATIC DISTRIBUTION VALVE

Job No. B1899

DATE: 12/31/2024

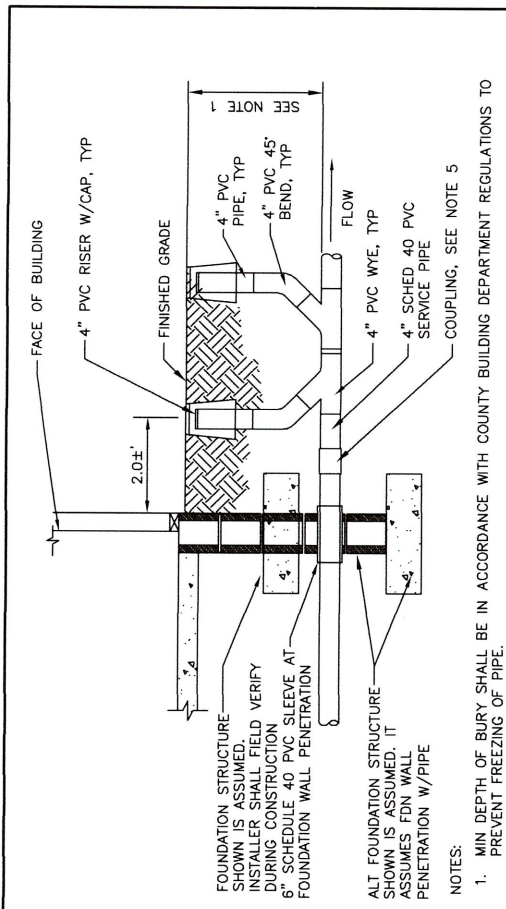
Figure 6 of 7



**BUILDING SEWER/DISCHARGE PIPE SECTION**

NTS

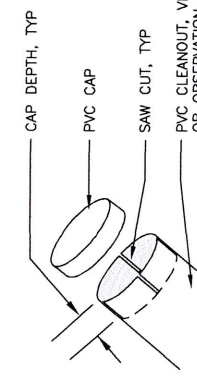
- TRENCH NOTES:
1. PLACE & COMPACT BEDDING MATERIAL TO BOTTOM OF PIPE ELEVATION BEFORE INSTALLING PIPE.
  2. BEDDING SHALL BE IN PLACE, COMPACTED, & PIPE INSTALLED AT TIME OF COWC INSTALLATION OBSERVATION.
  3. BURY DEPTH MEANS DISTANCE FROM FINISHED GRADE TO THE PIPE CROWN.
  4. FOR ALL SITUATIONS WHERE THE MIN PIPE BURY DEPTH PER COUNTY REQUIREMENTS CANNOT BE MET, A MIN OF 1" OF HIGH DENSITY CLOSED CELL FOAM INSULATION CAN BE SUBSTITUTED FOR EA 12" OF SOIL COVER THAT IS LACKING. A MIN OF 2" OF FOAM INSULATION SHALL BE REQUIRED. STYROFOAM BEAD BOARD IS NOT ACCEPTABLE.
  5. MINIMUM INSULATION WIDTH IS 24", CENTERED OVER CROWN OF PIPE.
  6. ALL COMPACTION SHALL BE IN ACCORDANCE WITH ASTM D-698. COMPACT FILL & BACKFILL OUTSIDE RIGHT OF WAY TO MIN 90% MAX DRY DENSITY. COMPACT FILL & BACKFILL INSIDE RIGHT OF WAY TO MIN 95% MAX DRY DENSITY.



- NOTES:
1. MIN DEPTH OF BURY SHALL BE IN ACCORDANCE WITH COUNTY BUILDING DEPARTMENT REGULATIONS TO PREVENT FREEZING OF PIPE.
  2. FOR EACH FOOT LESS THAN COUNTY MANDATED MINIMUM BURY, INSTALL MIN 1" THICKNESS OF HIGH DENSITY CLOSED CELL FOAM INSULATION. MIN INSULATION WIDTH SHALL BE 24", CENTERED OVER CROWN OF PIPE.
  3. CLEANOUT RISER IN HDPE VAULT SHOWN IS OPTIONAL. ALTERNATE IS TO EXTEND CLEANOUT MIN 18" ABOVE FINISHED GRADE AND CAP. SEE ALTERNATE RISER & CAP DETAIL BELOW.
  4. CLEANOUT RISER SHALL BE HIGH DENSITY POLYETHYLENE.
  5. FURNISH & INSTALL (F&I) AN APPROVED TRANSITION COUPLING BETWEEN BUILDING WASTEWATER PIPING AND BUILDING SEWER TO TANK.
  6. FOR AREAS SUBJECT TO TRAFFIC OVER CLEANOUT, F&I A CAST OR DUCTILE IRON, TRAFFIC RATED FRAME & LID.
  7. WHERE BUILDING SEWER PENETRATES FOUNDATION WALL SLEEVE BUILDING SEWER IN 6" SCHEDULE 40 PVC.

**BUILDING SEWER CLEANOUT**

NTS



RISER PIPE CAP NOTES:

1. SAW CUT THE TOP OF THE PIPE THE DEPTH OF THE CAP, ON THE QUADRANTS OF THE PIPE TO ALLOW EASE OF CAP REMOVAL IN THE FUTURE.
2. DETAIL APPLIES TO ALL OBSERVATION PORTS AND RISER PIPES

**VENT AND CLEANOUT CAP**

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**CONTROL PANEL, TRENCH,  
 PIPE CAP AND CLEANOUT DETAILS**

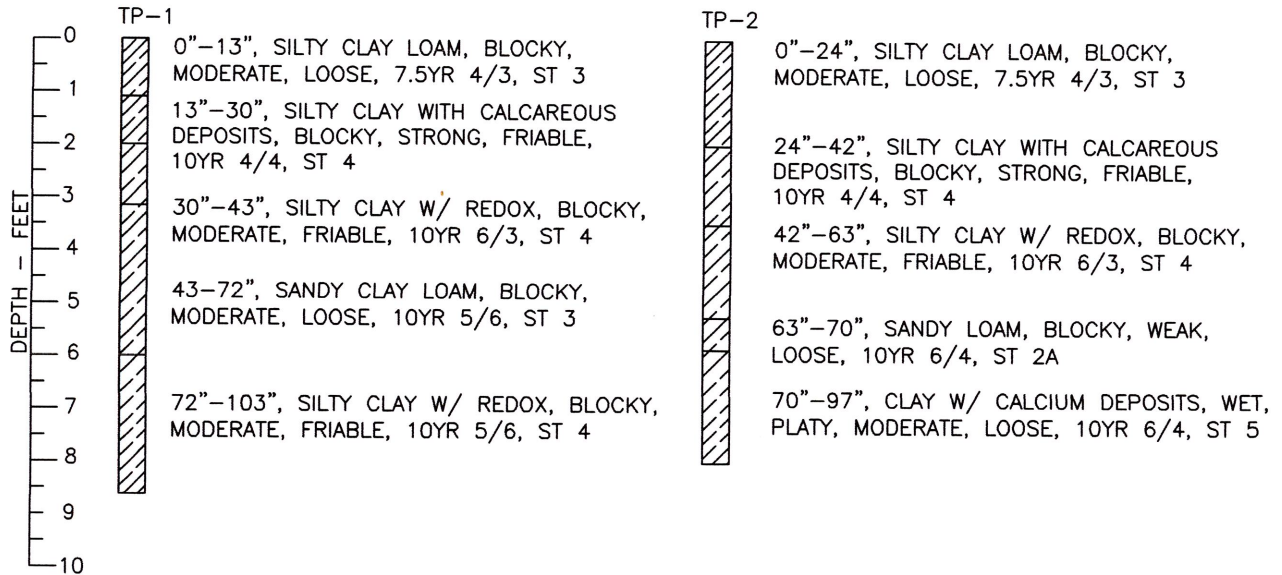
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CHECKED BY:	NMM
DATE:	12/31/2024

No.	Revision	Date

**JOB NO. B1899**  
**Figure 7 of 7**

**APPENDIX A  
SOILS LOG  
NRCS SOILS REPORT**

**JOB NO. B1899  
15869 HARVEST CT., OWTS**



**TEST PIT**

- NOTES:
1. THE EXPLORATORY PROFILE HOLES WERE DUG USING A BACKHOE.
  2. THE PROFILE HOLES WERE EVALUATED ON 11-26-2024 BY KATHRYN CARNEY, P.E., OF COWC.
  3. REDOX FEATURES WERE ENCOUNTERED AT 30" IN TEST PIT 1 AND 42" IN TEST PIT 2.
  4. FREE WATER WAS ENCOUNTERED AT 70" IN TEST PIT 2.

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15869 HARVEST CT - OWTS

**SOIL LOG**

JOB NO. B1899







































DATE: 12/31/2024

Figure A1

Soil Map—Adams County Area, Parts of Adams and Denver Counties, Colorado



## MAP LEGEND

 Area of Interest (AOI)	 Spoil Area
 Soils	 Stony Spot
 Soil Map Unit Polygons	 Very Stony Spot
 Soil Map Unit Lines	 Wet Spot
 Soil Map Unit Points	 Other
 Special Point Features	 Special Line Features
 Blowout	<b>Water Features</b>
 Borrow Pit	 Streams and Canals
 Clay Spot	<b>Transportation</b>
 Closed Depression	 Rails
 Gravel Pit	 Interstate Highways
 Gravelly Spot	 US Routes
 Landfill	 Major Roads
 Lava Flow	 Local Roads
 Marsh or swamp	<b>Background</b>
 Mine or Quarry	 Aerial Photography
 Miscellaneous Water	
 Perennial Water	
 Rock Outcrop	
 Saline Spot	
 Sandy Spot	
 Severely Eroded Spot	
 Sinkhole	
 Slide or Slip	
 Sodic Spot	

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: Adams County Area, Parts of Adams and Denver Counties, Colorado  
 Survey Area Data: Version 21, Aug 29, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background 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
AsB	Ascalon sandy loam, 0 to 3 percent slopes	1.8	100.0%
<b>Totals for Area of Interest</b>		<b>1.8</b>	<b>100.0%</b>

## Adams County Area, Parts of Adams and Denver Counties, Colorado

### AsB—Ascalon sandy loam, 0 to 3 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2swl3

*Elevation:* 3,870 to 5,960 feet

*Mean annual precipitation:* 12 to 16 inches

*Mean annual air temperature:* 46 to 57 degrees F

*Frost-free period:* 135 to 160 days

*Farmland classification:* Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

#### Map Unit Composition

*Ascalon and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Ascalon

##### Setting

*Landform:* Interfluves

*Landform position (two-dimensional):* Summit

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Wind-reworked alluvium and/or calcareous sandy eolian deposits

##### Typical profile

*Ap - 0 to 6 inches:* sandy loam

*Bt1 - 6 to 12 inches:* sandy clay loam

*Bt2 - 12 to 19 inches:* sandy clay loam

*Bk - 19 to 35 inches:* sandy clay loam

*C - 35 to 80 inches:* sandy loam

##### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well 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:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 10 percent

*Maximum salinity:* Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)

*Sodium adsorption ratio, maximum:* 1.0

*Available water supply, 0 to 60 inches: Moderate (about 7.7 inches)*

**Interpretive groups**

*Land capability classification (irrigated): 3e*

*Land capability classification (nonirrigated): 4c*

*Hydrologic Soil Group: B*

*Ecological site: R067BY024CO - Sandy Plains*

*Hydric soil rating: No*

**Minor Components**

**Olnest**

*Percent of map unit: 10 percent*

*Landform: Interfluves*

*Landform position (two-dimensional): Summit*

*Landform position (three-dimensional): Tread*

*Down-slope shape: Linear*

*Across-slope shape: Linear*

*Ecological site: R067BY024CO - Sandy Plains*

*Hydric soil rating: No*

**Vona**

*Percent of map unit: 5 percent*

*Landform: Interfluves*

*Landform position (two-dimensional): Summit*

*Down-slope shape: Linear*

*Across-slope shape: Linear*

*Ecological site: R067BY024CO - Sandy Plains*

*Hydric soil rating: No*

**Data Source Information**

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado

Survey Area Data: Version 21, Aug 29, 2024