

MONTEZUMA COUNTY
PERMIT TO INSTALL AN ON-SITE WASTEWATER
TREATMENT SYSTEM (OWTS)

Nº 6012

Date 4/20, 2021

Fee Paid \$ 400.00

Type Installation: Tank & Leach Field (X) Vault () Other ()

Owner: Tucker, Adrian + Rhonda

Address: 13689 Road 23 Cater, CO 81321

Permission hereby given for installation of above as set forth in application and specification attached.

By Cody Sprague
Public Health Dept.

Final Inspection 4/19/21 Inspection by Engineer only
Date _____ Public Health Officer _____

TO OWNER: Leave entire OWTS uncovered for final inspection. The Public Health Officer shall assume no responsibility in case of failure or inadequacy of an OWTS beyond consulting in good faith with the property owner or representative. Malfunctions may be due to improper maintenance and usage, high ground water table, soil compaction, and other factors.

This permit shall remain valid for one (1) year from date of issuance if construction has not begun.

Inspection Form

For

Adrian Tucker

13689 Rd. 23

Cortez, CO 81321

Please call 24 hours PRIOR to the time when inspection will be required and NOT before the stage to be inspected is completed (PRIOR TO BACKFILL)

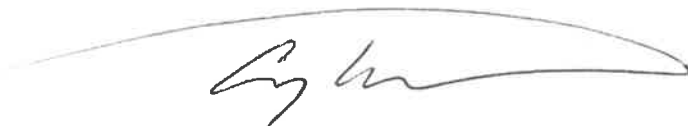
(970) 749-5334 Craig Wickstrom, PE

Note: All stages must be signed off by designing Engineer prior to covering components or the design will be null and void.

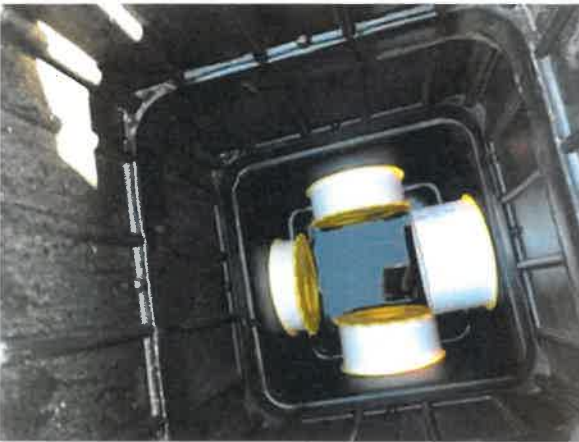
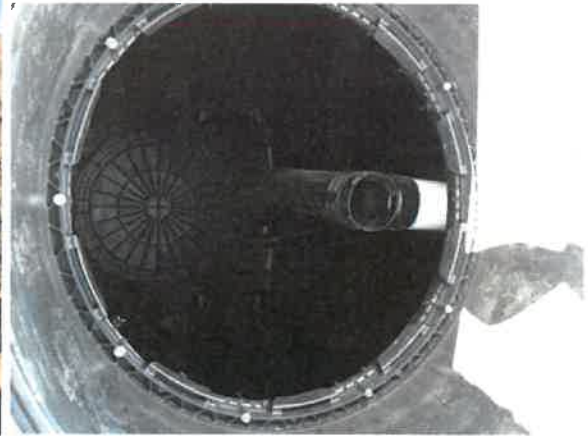
1. Excavation In Area of Test Pits
Max Depth 30"
Minimum Depth 18"
Soil conditions As tested
 2. Tank and components 1000 gal w/tees, lids, riser
 3. Construction of Lines Schd 40 / SDR 35 D. Box on Conc w/leveling
 4. Final As per design
- MC Permit Yes

NOTES:

4/19/21



Tucker



Wickstrom Engineering, LLC.

27756 Rd. T.5

Dolores, CO 81323

(970) 749-5334

ON-SITE WASTEWATER TREATMENT SYSTEM

for the

Single Family Residence

Located at

13689 Rd. 23

Cortez, CO 81321

Prepared for:

Adrian Tucker

Prepared by:

Craig Wickstrom, PE

4/13/21



ONSITE WASTEWATER TREATMENT SYSTEM

For

Adrian Tucker

13689 Rd. 23

Cortez, CO 81321

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1. Conclusions and Recommendation

This is a design for a single family three bedroom residence, which is to be located at 13689 Rd. 23, Cortez Colorado. A suitable area for the Onsite Wastewater Treatment System (OWTS) has been located within the three acre parcel. The system will use a standard septic tank, and chambered units in an infiltration area that will accommodate the flow. The area has accommodating grades and geology for a standard type gravity flow onsite waste-water disposal system. Additional area is available for an alternate site for a leach field if necessary. The property is served by rural water. The Montezuma County Health Department requires a permit and an associated fee for the permitting of the System. Montezuma County may require development fees and permits which are not addresses in this report.

The topography and geologic structure of the site is accommodating for a standard type sewage disposal system. The land drains positively to the west from the building site as well as away from the leach field location. Sufficient room is found to the west of the building site allowing the system to meet the required setbacks to the property lines, water line, foundation and sufficient percolation medium for the leach field is available. All setbacks will be observed in the construction of the system by the installer and have been considered in the design

This design is in compliance with all rules and regulations pertaining to individual sewage disposal systems currently in effect in the County of Montezuma and State of Colorado. It is my opinion, based on topography, geology and test results that this site is suitable for a standard system incorporating chambered units, a standard two compartment 1,000 gallon, water tight septic tank and distribution box. The design includes the use of infiltrators or other chamber type units of equal design in the absorption bed to be laid in and over the natural tan-brown colored silt that was found at depth during testing.

2. Test Results/Design Criteria

Test holes were excavated onsite within the leach field/trench area with good infiltration material found at 12" and below in depth. Material was sampled from approximately 18" below ground surface which was silt-clay loam, light brown/gray in color with granular structure and was dry when excavated. the test sample was taken within the fine silt loam material that was encountered at depth. This is the material is what the base of the field is to be located within. Testing was performed in the primary bed area with sufficient surrounding area of similar geology for an alternate site. The LTAR to be used is 0.5 for a silt loam soil. According to State standards this material is acceptable for an Engineered Onsite Wastewater Treatment System.

3. Local Geology

The site found in Montezuma County at 13689 Rd. 23, Cortez Colorado. The geology consisted of tan brown topsoil to 6"+ in depth with organics, over fine grained silty loam to a depth of 42". This is underlain by a fine decomposed dark gray silt stone to a depth of 7'. The upper silt loam is where the base of the STA is to be located. Ground water was not encountered. Competent bedrock was not encountered within the test hole or testing area nor was a limiting geologic layer.

Craig Wickstrom, PE

Wickstrom Engineering, LLC.

27756 Road T.5

Dolores, CO 81323

(970) 749-5334

Limitation of Liability: utilization of this design for construction and remitting the fees for said design to the Engineer, the Owner agrees through those actions to limit the liability of the Engineer for any claims or losses, costs or damages, including outside fees or costs to the total compensation received for this design and associated work/inspections. Design done without contract.

4. Installation Notes for Construction

1. A 4" diameter (or equivalent) effluent filter is recommended on the outflow pipe of the second compartment in the septic tank prior to allowing effluent to enter the absorption bed. It shall be installed in a way that allows for proper support of the filter and easy access for future filter maintenance and inspection. IF INSTALLED THE FILTER MUST BE INSPECTED AND CLEANED ANNUALLY OR MORE FREQUENT.
2. Minimum pipe slopes to the septic tank and absorption bed must be maintained in order to ensure a properly functioning gravity flow septic system (MINIMUM 2%).
3. A minimum of 12" of clean loose cover (1 1/2" minus) shall be placed over all effluent lines (native material onsite).
4. Minimum setbacks from any potable water lines to the septic tank (10') and to the absorption bed (25') shall be observed during construction of the septic system.
5. Minimum clearances from the building foundation to the absorption bed (20') and septic tank (5') shall be observed.
6. Minimum setbacks to the property lines (10') shall be observed and (50') setback from surface water.
7. Driving any type of machinery over the septic tank, distribution box, effluent line or absorption bed shall be avoided entirely.
8. All effluent pipes are to be 4" diameter SDR 35 grade PVC or better.
9. Sewer lines from the residence to the tank and from the tank to a minimum of 6' from the outlet of the tank will be 4" Schedule 40 PVC or better.
11. Seal all tank to PVC connections with water tight butyl or water tight grout. Check all connections for watertight seals after application and before inspection.
12. STA PREPARATION: Excavate the trenches in the area delineated to the west of the structures' foundation. trench depth must be able to maintain minimum 2% grade on lines and to ensure sufficient percolation medium ~24" in depth below the existing surface elevation. Base trench elevation (floor of the leach field) will be in the native granular loam material as observed during site investigation – do not compact the ground below the leach field base prior to installing infiltrators. Scratch base of runs with excavator teeth to break-up material for leaching and fine grading purposes.
13. Avoid compacting base soils while excavating the absorption bed and ensure the floor of the excavation is level and evenly graded in soils observed. If soil conditions change please contact Wickstrom Engineering to evaluate soil conditions.

14. Install the chambered units per the manufacturer's instructions.
15. Hand backfill with native excavated soils along the sides of the chambered units and lightly compact to ensure units do not move during final backfilling.
16. Notify Wickstrom Engineering prior to completing backfilling activities.
17. Ensure the distribution box is set level on compacted native soils or a concrete/block pad to prevent settling.
18. Outlet piping from the distribution box must evenly charge each run of chambered units. This may be accomplished by use of speed levelers.
19. Grade the surface above the absorption bed to positively drain away from the field and to prevent the ponding of water above or along the edges of the bed.
20. All tank lid access rises shall be water tight and accessible for future maintenance and inspections of the system.
21. Provide a 4" diameter SDR 35 inspection portal at the far corner of the absorption line(s) and place an UNGLUED cap over the portal.
22. Provide 4" SCH 40 PVC cleanouts with street type sweeps in the line between the residence and the tank. Sweeps should point towards each other so the entire line may be cleaned if necessary or a single cleanout that can be use both directions is acceptable.
23. Wickstrom Engineering shall monitor the excavation, construction and installation of the septic system. All stages are to be signed off and inspected as detailed on the Inspection Sheet included in this report.

5. OWTS Basics

1. A septic system is an individual sewage treatment plant which requires consistent monitoring and maintenance in order to perform properly and to avoid possible failures. The homeowner is responsible for proper septic system maintenance and monitoring for the protection of the ground and surface waters located in the surrounding areas.
2. Typically with average use a septic system requires annual inspection of the tank and its' components. As well a visual inspection of the remainder of the system should be done to ensure piping is intact and field is not day lighting effluent or other problems are observed. The septic tank should be periodically evacuated by pumping when sludge/scum layers dictate or on a consistent basis that will prevent excess buildup of either.
3. The effluent filter (if installed) inside the tank should be inspected and cleaned on an annual basis or as needed to prevent plugging of the filter and an unstable sewer system.
4. Information is available on the CDPHE website under Onsite Wastewater Treatment Systems as well as the EPA and various Health Departments.
5. If any complications arise or you have questions please contact Wickstrom Engineering (970) 749-5334

Inspection Form

For

Adrian Tucker

13689 Rd. 23

Cortez, CO 81321

Please call 24 hours PRIOR to the time when inspection will be required and NOT before the stage to be inspected is completed (PRIOR TO BACKFILL)

(970) 749-5334 Craig Wickstrom, PE

Note: All stages must be signed off by designing Engineer prior to covering components or the design will be null and void.

1. Excavation _____
 Max Depth _____
 Minimum Depth _____
 Soil conditions _____

2. Tank and components _____

3. Construction of Lines _____

4. Final _____

MC Permit _____

NOTES:

Adrian Tucker

Location: 13689 Rd. 23, Cortez CO, 81321

TABLE # 1
Test Results

The LTAR rate for results from the local geology:

LTAR = 0.5 (loam silt material)

DESIGN CALCULATIONS:

Design flow PER TABLE 6-1, 3 bedroom so: 6 persons @ 75 gal/person

$Q = 450 \text{ gpd}$

Absorption Area Formula: $A = Q/LTAR = 450/0.5 = 900 \text{ x SF}$

Size Factor for Chambered units per table 10-3 so: $900 \text{ sf} \times 0.70 = 630 \text{ sf}$

USE 648 SF BED AREA so use 54 chambered 3'x4' units

Align three rows of eighteen units long (54 total) or alternate configuration to meet required area.

3 rows x 18 units long = 54 units OR equivalent configuration

Run Length = 72' long at ~ 18"-24" ave depth where material was fine silt loam as seen in testing.

Trench Width = 3' wide each using three rows. Trenches must be separated by 4' or greater to an accommodating width as well as direction.

3 bedroom residence = 1,000 gallon 2 compartment water tight tank for the residence

13689 Rd. 23 Cortez - Tucker

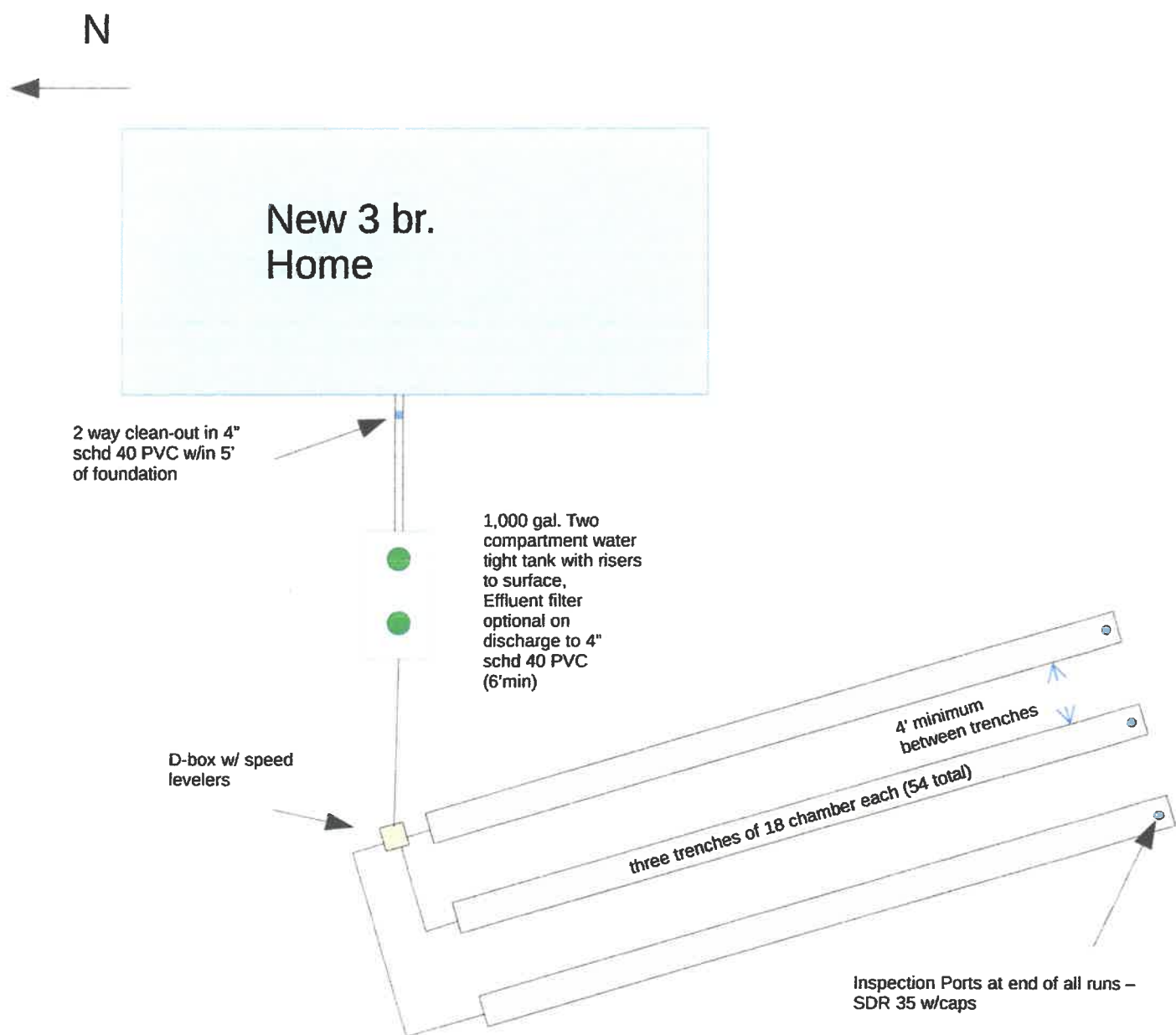


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- Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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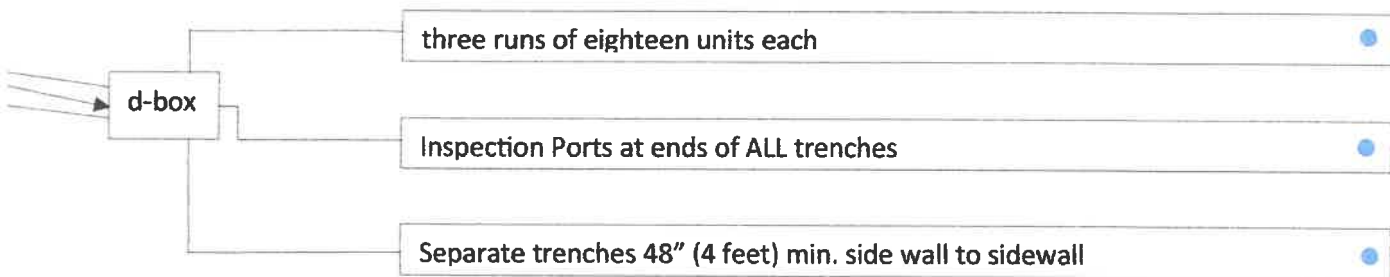
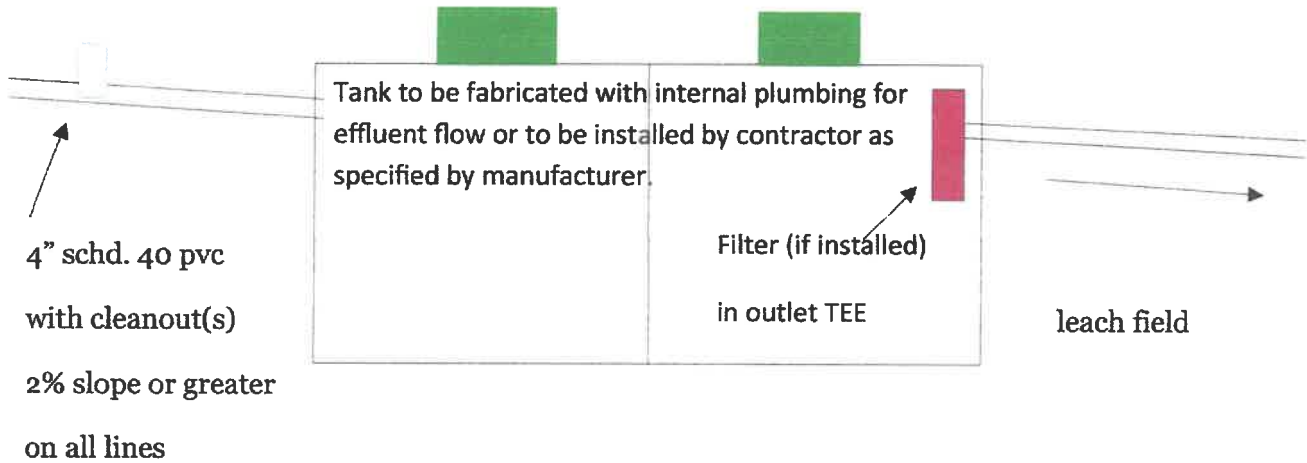
Site Location Map – 13689 Rd. 23, Cortez CO



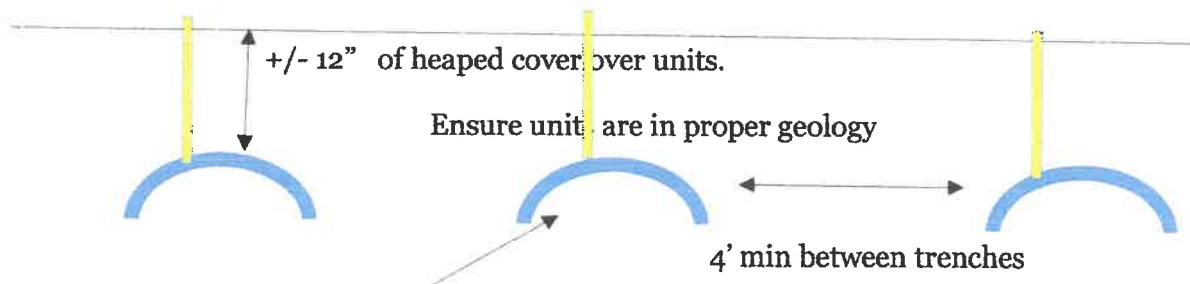
System Layout

13689 Rd. 23, Cortez CO, 81321

1,000 gal. 2 compartment water tight septic tanks



Field configuration may vary based on soil conditions, the layout in this design is based on field observations.



Use native fine silt loam as percolation medium, separate runs 48" or more as needed.

Profile Hole # 1 (Geology consistent on Lot)

Adrian Tucker

13689 Rd. 23, Cortez CO, 81321



0"-12"+ Topsoil - gray-brown silt/clay loam
w/ organics and root structure.

12"-42" fine grain light gray brown, silt loam
clean & granular in structure.

Type 2A soil

Sample at 18"

42" - 84" decomposed siltstone – gray
highly friable, excavates with minor effort.

No limiting geological layer or bedrock encountered. STA in upper 24"-32"



ONSITE WASTEWATER TREATMENT SYSTEM (OWTS)
SEPTIC SYSTEM APPLICATION

106 W. North Street

Cortez, CO 81321

Phone: (970) 565-3056 Fax: (970) 565-0647

Parcel ID # from the Montezuma County Assessor's Office (970) 565-3428

561105 -- 101004 --

13689 Road 23

Purpose of Permit:



New



Repair



Alterations



Tank Only

Property Address: 13689 Road 23

Lot: 4

Block:

Subdivision: EVENING SKY

Type of Development: Residential ☒ Commercial Industrial

Property Owner(s): Adrian + Rhonda Tucker

Owner's Mailing Address: P.O. Box 1324

City, State, Zip: Cortez, CO 81321

Home Phone: 970-739-4522

Business Phone:

Email Address: gartucker@outlook.com

***Contact Information must be provided for the owner signing this application.**

Applicant (If not owner):

Company:

Applicant Mailing Address:

City, State, Zip:

Cell Phone:

Business Phone:

Fax Number:

Email Address:

Lot Size (in acres): 3

Primary Resident: Adrian Tucker

Number of Bedrooms: 3

Detached Accessory Unit: RV Hookup

Size of Building (square feet): 2100



YES



NO

Number of Bedrooms:

Road Impact Fees: **Please bring receipt if fees were paid**



YES



NO

Water Source:



Private Well



Community/Public Water System

Engineering Firm:

Phone Number:

Mailing Address:

Cell Phone Number:

City, State, Zip:

Email Address:

****Engineered plans must be submitted with the application**

PLEASE READ BEFORE SIGNING:

I certify that the above information is complete and accurate and that I have provided complete and accurate information in all of the documents included in my application package. I acknowledge that Montezuma County Public Health may revoke any permit I am issued if my application is found to contain any inaccurate, false, or misleading information. I understand that no construction may be started on an OWTS until a septic permit is issued.

Owner Signature (Required):

Date:

4/10/21

Applicant Signature:

Date:

PAYMENT:

PERMIT NUMBER:



Montezuma County Planning Department
109 W Main St. Room 270
Cortez, CO 81321

↓ Please return this form to: ↓
addressing@co.montezuma.co.us

County staff will respond to you within 2 days of receiving this form

PROPERTY CONTACT FORM

Montezuma County does not enforce residential building codes. The purpose of this form is to assist landowners in getting information about the land use code, subdivisions, building setbacks, obtaining a residential address, septic and driveway permit

SUBJECT Property Details and Proposed Land Use

Development Type (check all that apply):

- ☒ New Residence ☐ New Driveway Access ☒ Septic System ☐ New Address
☐ Subdivision of Parcel ☐ New Commercial/Industrial Use ☐ Change in Commercial/Industrial Use
☐ Zoning Change ☐ Parcel Boundary Line Adjustment
☐ Other: _____

SUBJECT Parcel ID #: 561105101004 13689 Road 23, Cortez

Project Description: _____

Install new septic

Please attach a basic pre-sketch plan or map which shows the general location of the development in relationship to parcel lot lines, county roads, driveways, buildings and fence lines.

It is acceptable to use the County GIS as the basemap for your site plan.

You can access the County GIS here: <http://montezumacounty.maps.arcgis.com/home/index.html>

Applicant Information

Property Owner(s): Adrian + Rhonda Tucker Phone: 970-739-4522

Email Address: artucker@outlook.com

Mailing Address of Owner(s): P.O. Box 1324, Cortez, CO 81321

Agent* (If applicable): _____ Agent Phone: _____

Agent Email Address: _____

**If the Applicant is not the property owner then a notarized 'Agent Letter' will need to be submitted. This form is on the County Planning webpage.*

There is **No Fee** associated with this contact form. Any application process will only commence with your consent.

Signature of Owner/Agent: [Signature] Date Signed: 4/10/21