



On-site Wastewater Treatment System (OWTS) Site Permit Application

Submission of this application and payment of the application fee is necessary for initial review of the proposed system design.
This is NOT a permit to begin construction.

Property Owner: Darrell Wiens (owner) Primary Phone #: (928) 308-0906
Email Address: dwokroofta@yahoo.com Secondary/Cell #: (405) 635-5986 MATT'S
Matt@mattjosef.com
Legal Address of OWTS site: 23710 Road F.5 T30
Mailing Address: PO Box 473 City: Cortez State: CO Zip: 81321
Parcel Identification #: 563709408001
Name of Engineer: Craig Wickstrom
Name of Installer: _____

PLEASE CHECK THE FOLLOWING THAT APPLY:

- a. Is this property located in a floodplain? _____
b. Indicate depth of all wells within 100 feet. _____
c. Exact distance (in feet) to the nearest community sewer system: _____
d. Was an effort made to connect the community sewer system? *Yes: _____ No: _____
*If yes, provide documentation of municipality refusal to connect.

SYSTEM

- ☒ New
☐ Replace old unpermitted system
☐ Replace old permitted system
☐ Repair (Permit #: _____)
☐ Alteration
☐ Vault

USE

- ☒ Year Round
☐ Seasonal (Indicate # days/year) _____
☐ Non-Domestic

WATER SUPPLY

- ☐ Cistern
☐ Well (Give Depth: _____)
☐ Spring
☐ Surface
☒ Public (give name of water supply): MCWD #1

____ Other (Please Explain): _____

If applicant is not the property owner, please provide applicant/other information below:

Applicant: _____ Office Phone #: _____
Applicant Email: _____ Cell #: _____
Installer: _____ Phone #: _____
Engineer/Firm: _____ Phone #: _____

Fee: _____ Received By: _____ Date: _____ Application #: _____

Multiple Connection

Revised: 03/2022

PROPOSED USE OF THE PROPERTY: Check the following that apply.

SINGLE FAMILY

_____ Frame
_____ Manufactured Home
_____ # of Bedrooms
_____ Clothes Washer
_____ Garbage Disposal
_____ Basement Plumbing
_____ # of People
_____ # of Bathrooms

MULTI-FAMILY

_____ # of units
_____ # of bedrooms/unit
_____ # of units with
_____ clothes washer
_____ # of units with
_____ garbage grinder
_____ Basement plumbing
_____ # of people
_____ # of bathrooms

COMMERCIAL

Type of business: _____
Maximum sewage flow rates: _____
of employees: _____
Building Occupancy: _____
of Bathrooms: _____
Toilets #: _____ Sinks #: _____ Showers #: _____
Urinals #: _____ Bath #: _____ Other #: _____
Lavatories #: _____ Wash Racks #: _____

ATTACH ENGINEERED DESIGN: AN ACCURATE SITE DESIGN (WITH PLAT INFORMATION) IS REQUIRED FOR ALL PERMIT APPLICATIONS SUBMITTED

The engineered design should accompany this application. The features to be included in the design are listed below. Some of the features may not exist or be applicable to your development. Try to be as detailed as possible:

1. Property boundaries, acres, length, width
2. Elevations and Contours indicating slope
3. Proposed/ existing buildings & access
4. Label all County Roads.
5. Distance between access & nearest neighbors
6. Site/Soil evaluation & depth to water table
7. Proposed/ existing septic and leach field location
8. Well location and setbacks
9. Cisterns
10. Springs/ Ponds/ Lakes
11. Ditches
12. Utility lines (electrical, water, gas)
13. All Easements (attach documentation)
14. Any garage space used as livable space

Note: The minimum tank capacity of a 1-3 bedroom is 1000 gallons, and a 4 bedroom is 1250 gallons. Capacity adjustments of 250 gallons are required for each additional bedroom (est. 2 additional persons per room).

Owner's Initials: MM

FINAL APPROVAL: The Health Department will issue final approval and permit number when the system meets the requirements, septic permitting fees have been paid, and ALL regulations and installed certification from the engineer is received.

Montezuma County Health Department

106 W. North Street, Cortez

Ph: (970) 564-4763

mmathews@co.montezuma.co.us

I hereby apply for a permit to construct an on-site wastewater treatment system on the above-described property and agree to construct such system in accordance with the above information, the attached plot plan and the regulations of the Montezuma County Health Department. The undersigned hereby certifies that the above information is true and correct to the best of my knowledge.

By: Montezuma

Date: 10/12/23

Wickstrom Engineering, LLC.

27756 Rd. T.5

Dolores, CO 81323

(970) 749-5334

ON-SITE WASTEWATER TREATMENT SYSTEM

for the new multi-unit
facility

Located at

23710 Rd. F.5

Cortez, CO 81321

Prepared for:

Matt Josef

Prepared by:

Craig Wickstrom, PE

10/6/23



Conclusions and Recommendation

This is a design for an existing multi-use property that will have a five (5) bedroom residence with a detached studio with fixtures on a six plus acre parcel south of Cortez Colorado. The address is 23710 Rd. F.5, Cortez Colorado within Montezuma County. The area has accommodating grades, and geology for a standard type gravity flow onsite waste-water disposal system. The property is served by an existing domestic water source that will have adequate distance from all components of the OWTS. 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 OWTS. The land drains positively to the west from the home as well as away from the STA location at a low grade. The area where the STA is to be located is to the west of the home. Sufficient room is found west and allows the system to meet the required setbacks to the property lines, water line(s) and foundation. Sufficient percolation medium for the leach field is available in this area. All setbacks will be observed in the construction of the system by the installer and have been considered in the design. Test pits were observed near the STA with a tracked excavator under clear & sunny conditions with the Owner and Engineer. The Soils observed were a Type 2A silt Loam in the area where the STA is located. No limiting layer or groundwater was observed during testing.

This design is in compliance with all rules and regulations pertaining to OWTS currently in effect with the Montezuma County Health Department 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 type units (infiltrators), standard two compartment gallon water tight septic tanks and distribution boxes with speed levelers.

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 effluent filter 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(S) MUST BE INSPECTED AND CLEANED ANNUALLY or more frequently as demand requires.
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 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 the onsite well to the tank and (100') from the onsite well to the STA.
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.
10. All sewer lines and effluent lines will be properly bedded to prevent settling and potential shearing of the lines.
11. Seal all tank to PVC connections with watertight 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 in the west corner of the property. Trench depth must be able to maintain minimum 2% grade on lines and to ensure sufficient percolation medium, approximately 24"+ below the existing surface elevation. Base trench elevations will be in the native tan loam material as observed during site investigation – do not compact the ground below the trench base prior to installing infiltrators. Scratch base of trenches with excavator teeth to break-up material for leaching and fine grading purposes.

13. Avoid compacting base soils while excavating the absorption trenches 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 & MCHD 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, install risers to surface for access.
18. Outlet piping from the distribution box must evenly charge each run of chambered units. This may be accomplished by use of speed levelers or evenly cutting pipes within the leveled distribution box.
19. Grade the surface above the absorption trenches 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 watertight and accessible for future maintenance and inspections of the system.
21. Provide a 4" diameter SDR 35 inspection port at the beginning and end of the absorption line(s) and place an UNGLUED cap over the ports.
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. Cleanout must be within 5' of foundation stem-wall.
23. Wickstrom Engineering as well as MCHD 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.

OWTS (Septic System) Information

1. An Onsite Wastewater Treatment 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.
5. If any complications arise or you have questions please contact Wickstrom Engineering (970) 749-5334

Inspection Form

For

New OWTS at

23710 Rd. F.5

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:

Mr. Matt Josef

Location: 23710 Rd. F.5, Cortez CO, 81321

TABLE # 1
Test Results

The LTAR rate for results from the local geology:

LTAR = 0.6 (sand loam material – Type 2)

DESIGN CALCULATIONS:

5 Bedroom Home so: 8 persons at 75 gpd/person = 600 gpd

TOTAL DESIGN Flow = 600 gallons per day

Absorption Area Formula: $A = Q/LTAR = 600/0.6 = 1,000 \times SF$

Size Factor for Chambered units per table 10-3 so: $1,000 \text{ sf} \times 0.70 = 700 \text{ sf}$

USE 720 square feet STA so use 600 chambered 3'x4' units

Align five trenches of twelve (12) units long per trench

5 rows x 12 units long = 60 units

Run Length = 51' long at approx. 24" + ave. depth where material was granular sand loam as seen in testing.

Trench Width = 3' wide each with 4' minimum between.

One 1,500 gallon tank

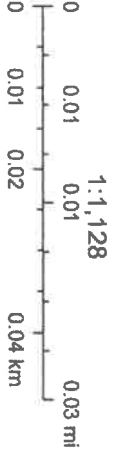
23710 Rd. F.5 Cortez OWTS



10/5/2023, 3:06:03 PM

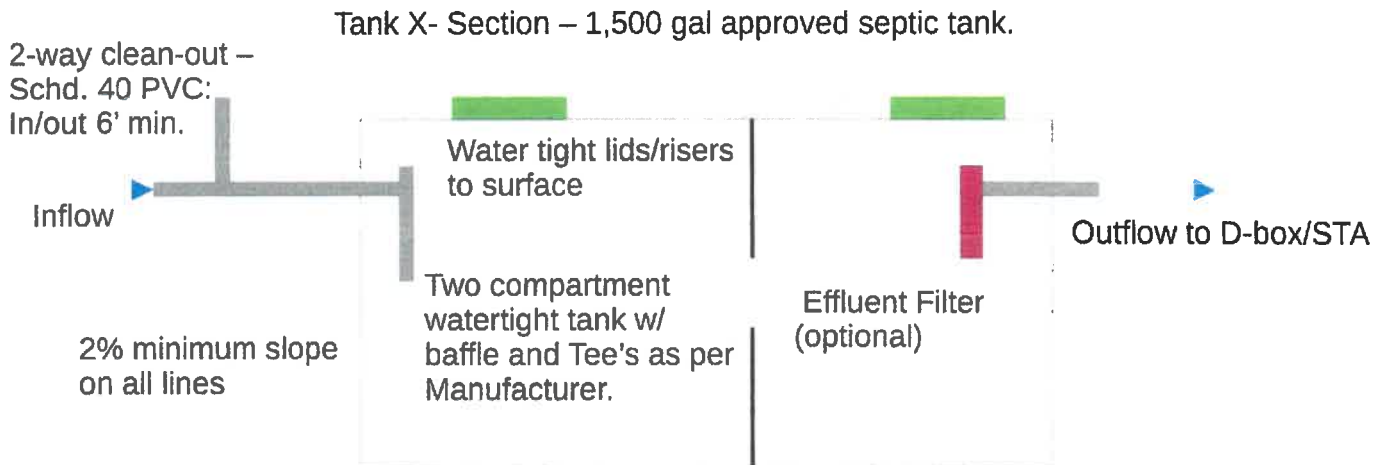
Lines Areas Public Lands & BIA Land

- Override 1 BIA
- Override 2 BLM
- Override 3

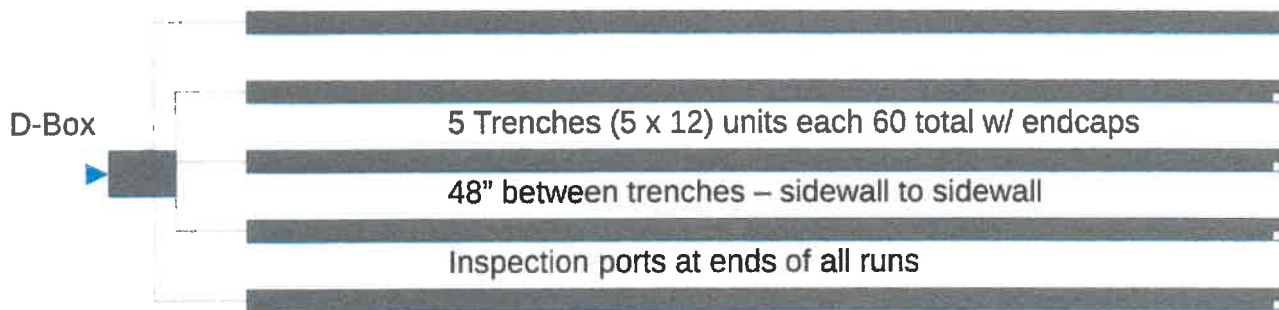


Hexagon Imagery. Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

23710 Rd.F.5, Cortez; System Layout

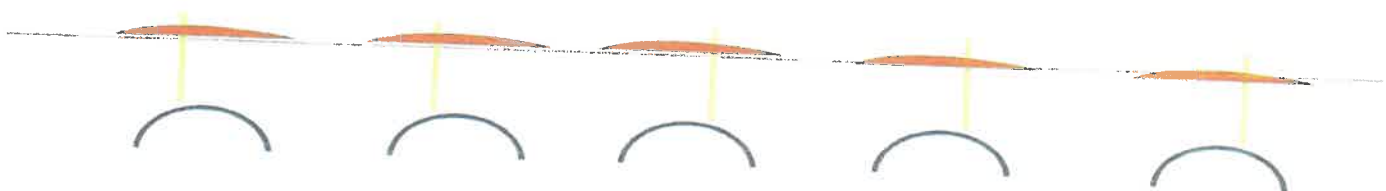


STA Top- View



STA Cross Section- View

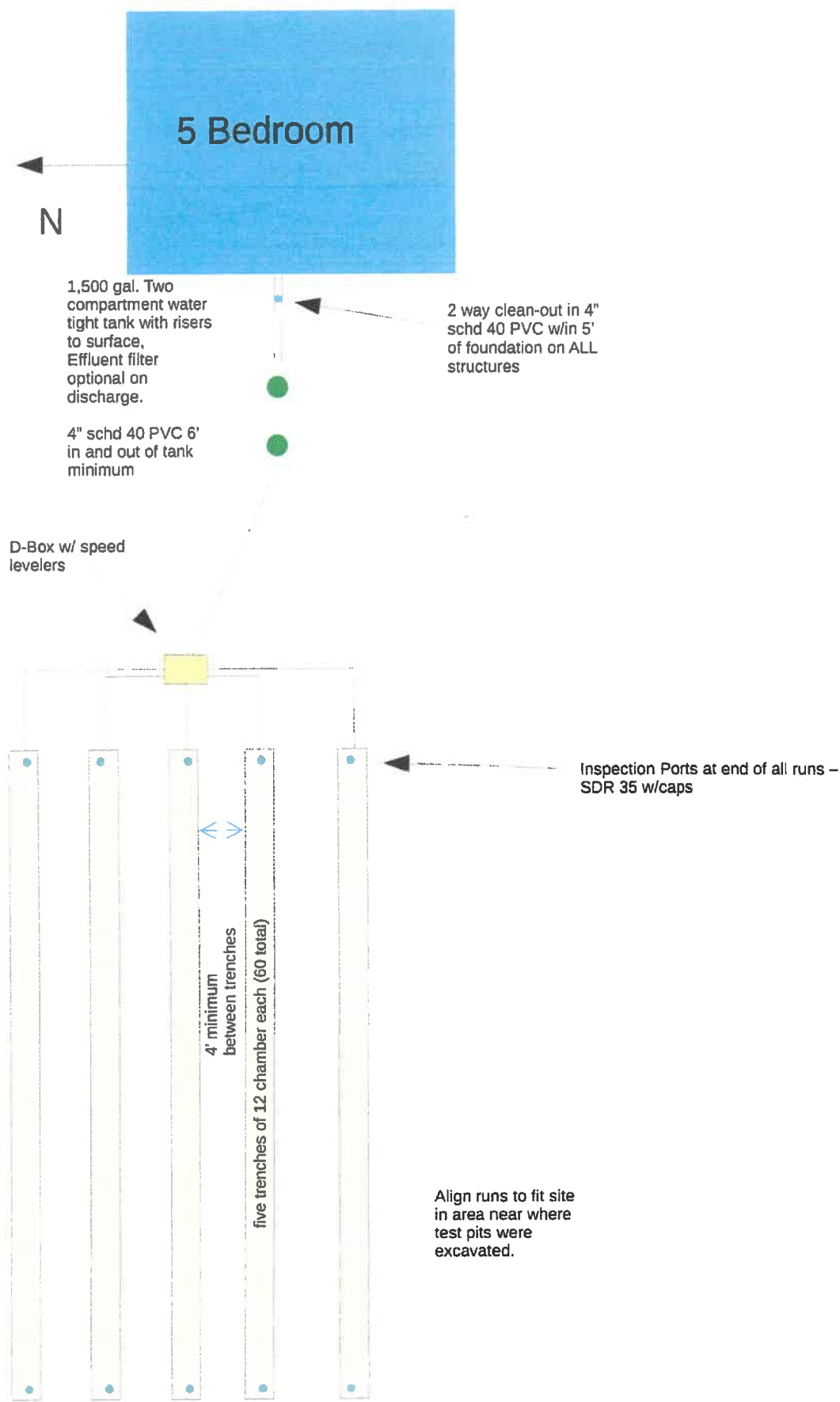
Inspection ports at ends of all runs with slip on caps (unglued)



Base of STA at 18"-24" with slope – backfill with clean native
12" minimum cover over all trenches – Heap soil for settlement

Not to Scale

Site Location Map – 23710 CR. F.5, Cortez, CO



Profile Hole # 1 & 2

23710 Rd. F.5

Cortez, CO 81321



0-6" brown silty w/ clay
with organics,

6"- 96" **Type 2** Sand loam, tan brown
color granular
fine/clean

No groundwater or limiting layer encountered



0"-9" topsoil, silt
w/organics

9"- 60" Type 2
sand loam,
moderate struct.