



County of Routt
COLORADO

136 6th Street, 2nd Floor, Steamboat Springs, CO 80487
Phone: (970) 870-5588



PERMIT FOR ON-SITE WASTEWATER SYSTEM - NEW

Date: 2/5/2019

Permit No. S-19-103

Parcel ID: 945361001

Tank Type:

Permit Fee: \$300.00

Minimum
Tank Size:

Service Location: 23475 COUNTY ROAD 29, OAK CREEK

Bedrooms:

Type of Work: On-Site Wastewater System - New

Owner Name: DWAYNE M OSADCHUK TRUST

Type of Occupancy: Residential

Owner Address: 23850 TOBIANO TRAIL

OAK CREEK CO 80467-9707

Work Description: 3 bd new construction. Upper 30 in. topsoil classified as Soil Type 2A, remaining 44 in. investigated and described as clays that were slightly sandy, fine grained, moderately plastic, stiff to very stiff, moist and brown in color-were not given a class. Bed or trench system recomm. with installation in upper 2 to 12 in. 1,000 gal Concrete tank. Old septic tank located on site map must be abandoned following existing regs

As authorized and required by 25-10-101, et seq. C.R.S., permission is hereby granted to the owner or a Routt County On-Site Wastewater Treatment System (OWTS) installer to construct or repair an OWTS system at the property indicated above. All work must comply with the specifications on this permit and the Routt County On-Site Wastewater Treatment System Regulations. This permit expires one year from the date of issue.

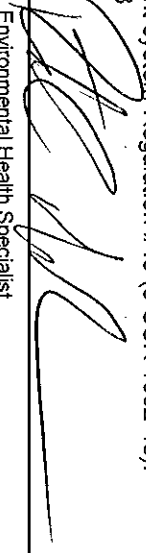
Applicant: DWAYNE M OSADCHUK TRUST

Phone# (970) 846-5592

Address: 23850 TOBIANO TRAIL

City/State/Zip: OAK CREEK CO 80467-9707

NOTICE: All tanks and vaults must meet Design Criteria as specified in Section 43.9 of the Colorado Department of Public Health and Environment Water Quality Control Commission On-Site Wastewater Treatment system Regulation #43 (5 CCR 1002-43). Inspections required (24 hours advanced notice required). Call (970) 870-5588


Environmental Health Specialist Date 2/5/2019

The above individual on-site wastewater system has received a final inspection. The system is hereby approved for use.

BUILDING PERMIT # 18-18-813
PERMIT PD 300 ct 9469
PERC PD

APPLICATION FOR ON-SITE WASTEWATER SYSTEM PERMIT

NEW _____ REMODEL X REPAIR _____ EMERGENCY USE _____

Name of Owner Dwayne Mark Osadchuk Trust Mailing Address 23850 TOBIANO TRAIL, OC 80467 Phone 846-5592

Name of Applicant Dwayne M Osadchuk Mailing Address 23850 TOBIANO TRAIL, OC 80467 Phone 846-5592

LOCATION OF PROPOSED SYSTEM: Street Address 23475 CR 29

Legal Description lengthy, see site plan Parcel ID# PIN 945361001
(Lot# and Subdivision if applicable) (this # can be found in the Assessor's Office)

Size of Lot 316.03 ac ☒ Residential ☐ Commercial ☐ Other (Describe) _____

Number of: Bedrooms 3

Water Supply: ☒ Private Well ☐ Private Spring
☐ Public (give name of supply) _____

An appropriate plot plan must accompany this application showing required information. Percolation tests and an on-site inspection must be arranged with the Routt County Department of Environmental Health after receipt of the application and plot plan. The permit, upon approval of this application may be obtained at the Routt County Department of Environmental Health with payment of the required fee.

Application for an individual wastewater system is hereby submitted. The on-site wastewater system will be constructed, installed and operated in accordance with the regulations governing individual sewage disposal systems within Routt County and will comply with applicable State Regulations adopted pursuant to Article 10 of Title 25, C.R.S. 1973, as amended. The undersigned acknowledges that the above information is true and that false information will invalidate the application or subsequent permit. The owner assumes all responsibility in case of failure or inadequacy of this sewage disposal system. (*Hot tubs and Jacuzzis shall not be connected to on-site sewage disposal systems.)

Signature of Applicant [Signature] Date 7 January, 2019

PLOT PLAN

Name Dwayne Mark Osadchuk Trust

Address 23850 TOBIANO TRAIL , Oak Creek, CO 80467

Location of proposed system:

Street Address 23475 COUNTY ROAD 29

Legal Address Lengthy, see site plan

PLOT PLAN MUST INCLUDE THE FOLLOWING INFORMATION: (LOCATE BY MEASURED DISTANCES)

1. Property lines and dimensions.
2. Proposed and existing water wells on subject property and adjacent property.
3. Domestic water service lines.
4. Proposed and existing building, driveways and other structures.
5. Streams, lakes, ponds, irrigation ditches and other water courses.
6. Proposed and existing waste disposal facilities.

SUBMIT A REVISED PLOT PLAN TO CONSTRUCTION IF INSTALLATION IS TO BE CHANGED FROM ORIGINAL PLAN.



November 28, 2018

Lucky 8 Ranch
23850 Tobiano Trail
Oak Creek, CO 80467
Attn: Nick Osadchuk

Job Number: 17-10928

Subject: On-Site Wastewater Treatment
System Design, Lucky 8 Ranch-
Proposed Manager's Residence, 23850
Tobiano Trail, Routt County, Colorado.

Nick,

This report presents the results of an On-site Wastewater Treatment System (OWTS) Design for the proposed Manager's Residence to be constructed within the Lucky 8 Ranch located at 23850 Tobiano Trail in Routt County, Colorado. The design was completed in accordance with Colorado Department of Public Health and Environment-Water Quality Commission On-site Wastewater Treatment System Regulation #43 (Regulation), as adopted by Routt County. NWCC previously completed a Subsoil and Foundation Investigation (SFI) for the Manager's Residence under this job number in a report dated October 31, 2018.

Proposed Construction: It is our understanding, based on our conversations with Jake's Drafting, the proposed Manager's Residence will be constructed with a total of three bedrooms. The soil treatment area (STA) for the OWTS will be placed to the east of the proposed residence.

Site Conditions: The property is situated east of County Road 29 in Routt County, Colorado. Potable water will be supplied to the proposed residence by an existing well located approximately 40 feet southwest of the proposed residence.

The proposed STA is located approximately 55 feet east of the proposed Manager's Residence. The vegetation in this area consists of grasses and weeds. The topography in the area of the proposed STA is variable and generally slopes moderately down to the east-southeast on the order of 10 to 12 percent.

A site plan showing the overall site and approximate locations of the existing features and proposed structure and OWTS is provided in Figure #1. Detailed site plans showing the proposed residence along with the proposed OWTS and alternate OWTS are shown in Figures #2 and #5.

November 28, 2018

Subsurface Conditions: Two test pits were excavated in the area of the OWTs at the time the field investigation was completed for the SFL. The subsurface conditions encountered in the test pits consisted of approximately 30 inches of topsoil and organic materials overlying natural clays to the maximum depth investigated. 7 feet below the existing ground surface (bgs). The clays were slightly sandy, fine-grained, moderately plastic, stiff to very stiff, moist and brown in color. Groundwater was not encountered in the test pits at the time of excavation and no evidence of a seasonal groundwater table was observed.

Based on soil conditions and percolation testing previously conducted at adjacent sites, NWCC has estimated that the upper 30 inches of natural topsoil and organic materials in this portion of the site will exhibit percolation rates ranging from 20 to 40 minutes per inch (mpi). Based on the assumed and actual percolation rates, and visual soil classification, NWCC has classified the upper 30 inches of topsoil materials as Soil Type 2A in accordance with Table 10-1 of the Regulations.

OWTS Design: Based on the soils encountered at the site and our understanding of the proposed construction, NWCC recommends the OWTs design consist of a bed or trench soil treatment system constructed in the upper 2 to 12 inches of natural topsoil and organic materials.

The OWTs design presented below is based on the total anticipated number of bedrooms (3) for the residence, as well as the classification for the natural topsoil and organic materials. Considering the anticipated construction, NWCC has determined, using Table 6-1 of the Regulations, an effluent design flow of 450 gallons per day (gpd) for a three bedroom system.

Gravel Bed System: Based on the soil type, design effluent flow, a Long Term Acceptance Rate (LTAR) of 0.5 gpd/ft² (Treatment Level 1) and size adjustment factors of 1.2 for a gravity distribution bed (Table 10-2) and 1.0 for gravel distribution media (Table 10-3), a minimum gravel bed area of 1,080 square feet is required for the residence. Therefore, a gravel distribution bed, at least 12 feet wide and 90 feet long will be required for the system. Due to site constraints and overhead power line, the system should be constructed using two gravel beds, each 12 feet wide and 45 feet in length.

If the owner elects to use a dosing system in the construction of the system, the size of the STA area required will decrease. NWCC must be contacted to provide adequate sizing of the soil treatment area if dosing is used.

The natural topsoil and organic materials exposed below the gravel bed should be scarified a minimum of 4 inches prior to placement of the washed gravels. A minimum of 18 inches of soil cover is required over the gravel bed. All finished surfaces should have a minimum of 3 inches of topsoil materials and seeded to prevent erosion.

Trench/Chamber System: An alternate OWTs to the gravel bed design presented above would be to use a trench absorption system utilizing chambers. Based on the soil type, design effluent flow, a Long Term Acceptance Rate (LTAR) of 0.5 gpd/ft² (Treatment Level 1) and size adjustment factors of 1.0 for a gravity

November 28, 2018

trench system (Table 10-2) and 0.7 for chambers (Table 10-3), a minimum trench STA of 630 square feet is required for the residence.

Using information provided by Infiltrator System, Inc., an absorption area of 12ft²/Quick-4 Standard Infiltrator chamber was used in the design. This results in a minimum of fifty-three (53) Quick-4 Standard Infiltrator chambers. NWCC recommends the chambers be installed with four runs with one run having 14 chambers/run and three runs having 13 chambers/run. An alternate to using Quick-4 Standard Infiltrator chambers is to use ADS ARC 36 chambers. Using an absorption area of 15ft²/ARC 36 chamber, a minimum of forty-two (42) ARC 36 chambers can be used for the OWTs. If the ARC 36 chambers are used, NWCC recommends the chambers be installed with two runs having 11 chambers/run and two runs having 10 chambers/run.

The soils exposed at the base of the trenches must be scarified a minimum of 4 inches prior to placement of the chambers. A distribution box, with flow equalizers, must be used to ensure equal flow to all of the trenches. The distribution box lid must be exposed at final grades. Extensions or an access manhole should be used as needed to reach final grades. Insulated lids are required to prevent freezing. A minimum of 18 inches of soil cover must be placed over the chambers in accordance with the manufacturer's recommendations. All finished surfaces should have a minimum of 3 inches of topsoil materials and seeded to prevent erosion.

The bases and sides of the chambers must be wrapped with a 1/4-inch galvanized steel or synthetic mesh to help prevent rodent intrusion. NWCC also recommends that the system be fenced off to livestock. If the system is not activated within 30 days of installation or if extended periods of inactivity occur at the residence, the chambers must be periodically flooded with water, every 30 days, to prevent rodents from nesting and burrowing in the chambers, which could result in another premature failure of the system.

As noted above, if a dosing system is used, the minimum STA required will decrease and NWCC must be consulted to determine the required number of chambers.

Septic Tank: A septic tank with a minimum capacity of 1,000-gallons is required for a three bedroom residence. Due to the subsurface conditions encountered at the site, we recommend that a concrete septic tank be used. We also recommend the septic tank capacity be increased if additional bedrooms are anticipated in the future.

A Biotube effluent filter (Orenco FT W0444-36) should be installed in the outlet "T" of the downstream septic tank. NWCC recommends a filter monitor system be installed in the downstream compartment of the septic tank to warn the owner in the event of a filter clog. The manhole lids must be exposed at final grades. Manhole ring extensions should be used as needed to reach final grades.

If a dosing system is used, a size adjustment can be used in the sizing of the STA. NWCC must be contacted to determine the decreased field sizing and septic/dosing tank requirements. If a dosing system is opted for:

November 28, 2018

The system design for the gravel bed system is presented in Figures #2 through #4 and the alternate design for the chamber trench system is presented in Figures #5 through #6. Septic tank details are presented in Figure #7. The design calculations are shown in Appendix A and the specifications for the system are given in Appendix B. Any variance of equipment/materials specified in this design must be approved by NWCC prior to construction.

Operation and Maintenance: Observing the operation and performing routine maintenance of the OWTS is essential to allow proper, long term functioning of the system. NWCC recommends the operation be monitored and a qualified, licensed maintenance contractor provide maintenance of the system.

- 1) **Septic Tank:** The scum and sludge accumulation in the septic tank should be monitored yearly. Once the scum or sludge thickness reaches 25% of the chamber depth, the septic tank should be pumped. A pumping frequency of 1 to 3 years is likely at the design flows used for this system; however, depending on use, pumping may only be required every 3 to 5 years.

- 2) **Effluent Filter:** The effluent filter at the septic tank outlet should be cleaned when the septic tank is inspected or as required. If the high water alarm sounds, the system should be inspected and serviced immediately.

- 3) **Soil Treatment Area:** STA should be fenced off to livestock. The surface area around the STA should be observed monthly for signs of failure, such as lush vegetation growth or ponding. Liquid levels within the gravel bed or chambers should be observed through the observation pipes.

- 4) **Treated Water:** NWCC does not recommend water softeners or water treatment systems be connected to the OWTS. The chemical and hydraulic loading from the backwash of these treatment systems may be detrimental to the OWTS. If a treatment system is used, a separate dry well should be constructed for the backwash waste. In addition, chemically treated water from a swimming pool or spa must not be discharged into the OWTS.

- 5) **General Notes:** The owner should be aware that the operation of the OWTS is different from a public sewer service. Plastic and other non-biodegradable materials should not be placed into the system. Water use should be monitored so fixtures are not allowed to run if a seal malfunctions. Allowing fixtures to flow continuously to prevent water lines from freezing or a malfunctioning faucet or toilet can consume in excess of 1,000 gallons per day. Excessive flows could continually flood and cause premature failure of the system. No plastic or landscaping that requires additional irrigation should be placed over the absorption field.

Limitations: The procedures and design criteria used in this evaluation/design were obtained from the EPA "Design Manual - On-site Wastewater Treatment and Disposal Systems", 1980, as well as the Colorado Department of Public Health and Environment-Water Quality Control Commission, On-site Wastewater Treatment System Regulation, Regulation #43, effective June 30, 2017. The OWTS design

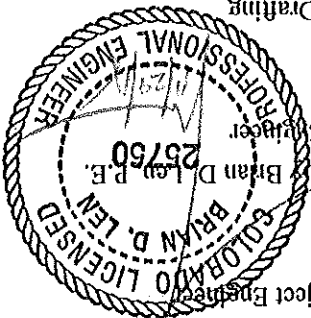
presented is based on currently accepted design procedures, the proposed structures and usage of the facilities. If the usage of the structure or addition of new facilities to those currently planned in the building changes, the OWTS design will also most likely change. It should also be noted that all OWTS require periodic maintenance as noted above. The failure of the owner to provide periodic inspection and maintenance of the system can lead to premature system failure.

Please be advised that Colorado law requires that a permit must be obtained prior to construction, alteration or use of an OWTS. In addition, this office must be retained by the client to observe the construction/installation of new components of the OWTS as well as provide an as-built report to the Routt County Department of Environmental Health when the construction is completed.

If you have any questions concerning this report, or if we may be of further service, please contact this office.

Sincerely,
NWCC, INC.

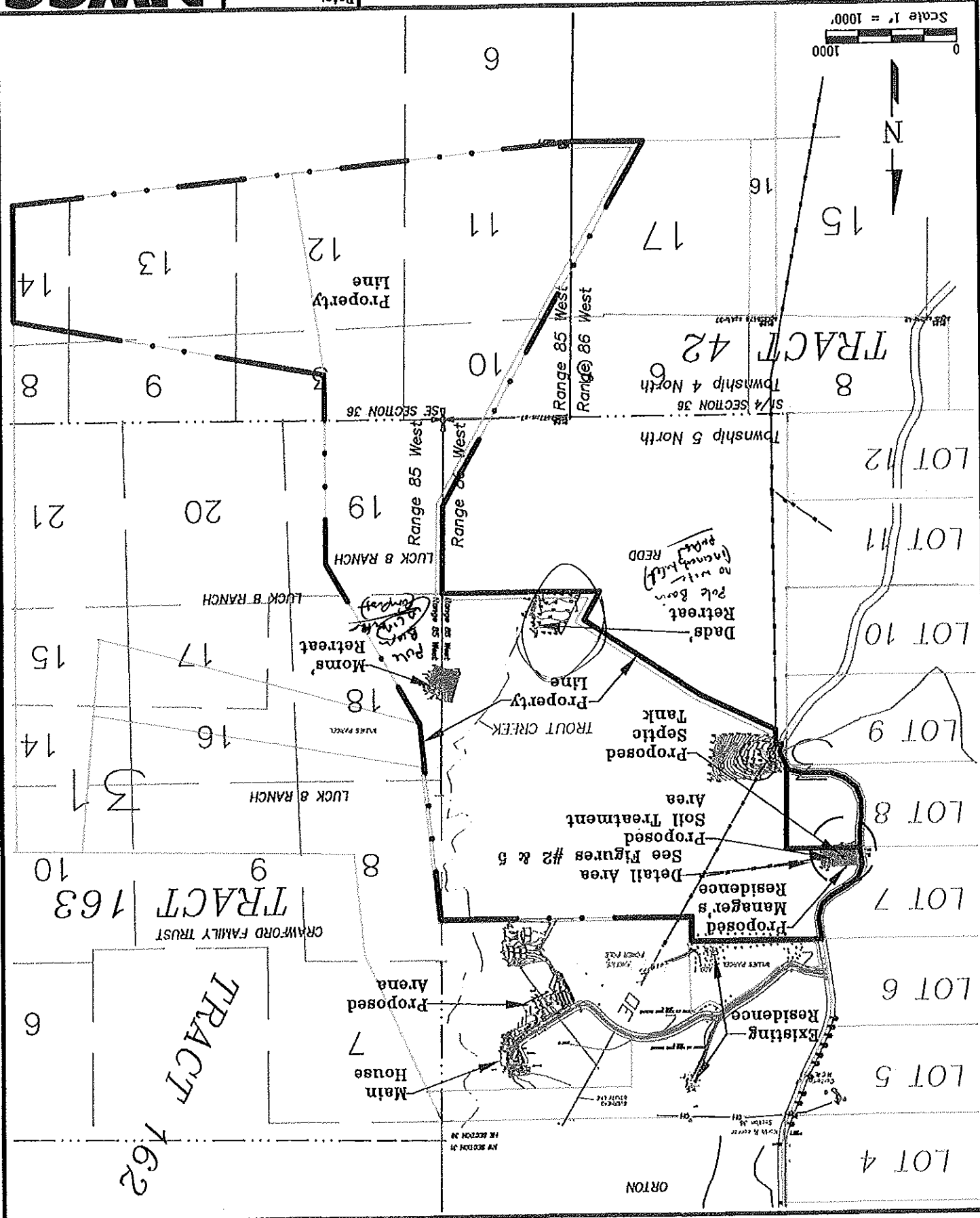
Timothy S. Travis, P.E.
Senior Project Engineer
Reviewed by Brian D. Len, P.E.
Principal Engineer
cc: Jake's Drafting



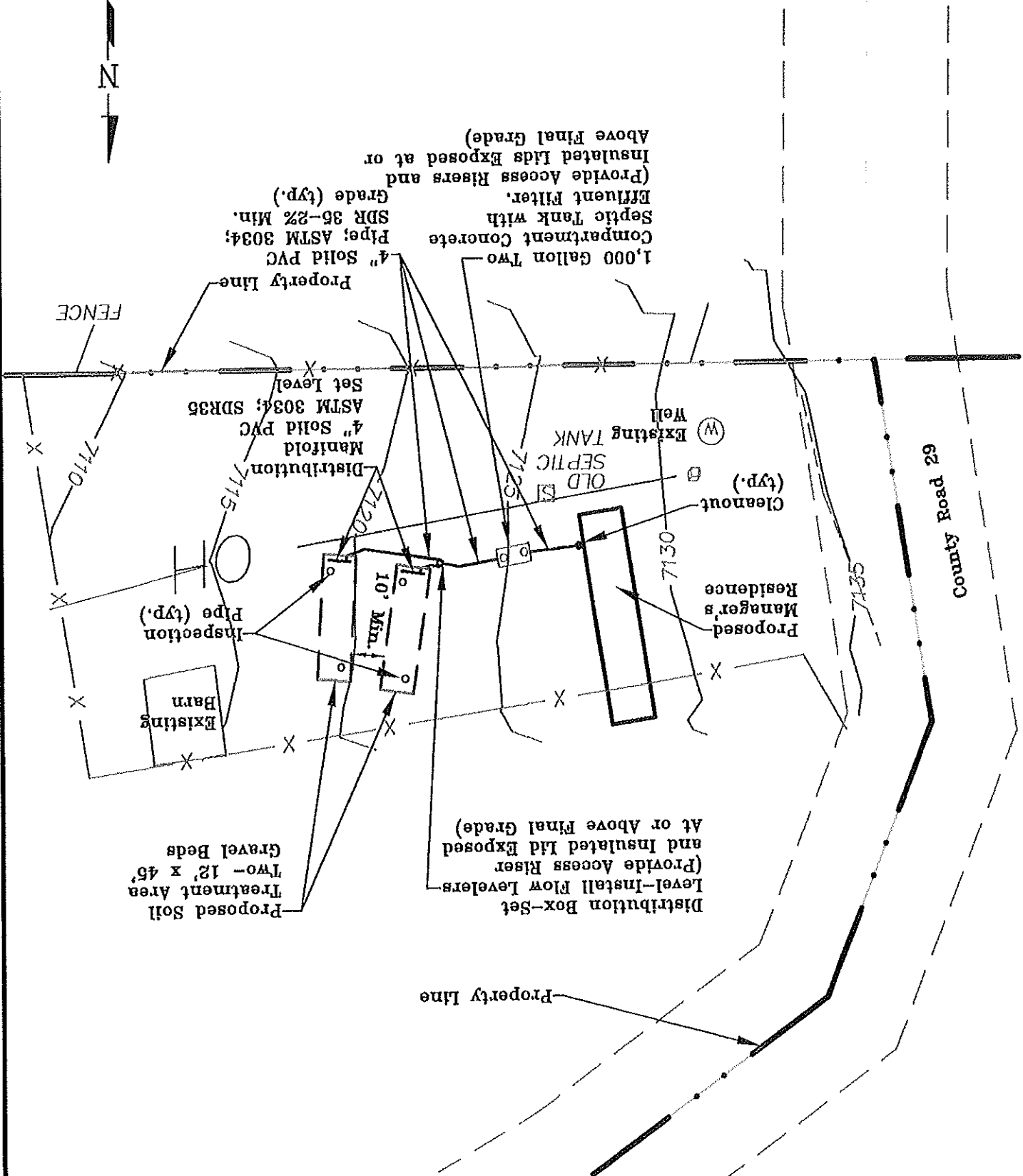
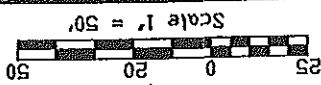
OWTS - OVERALL SITE PLAN

Location: 23850 Tobiano Trail, Routt County, Colorado	Figure #1
Job Name: Lucky 8 Ranch-Manager's Residence	Job No. 17-10828
Date: 11/19/18	

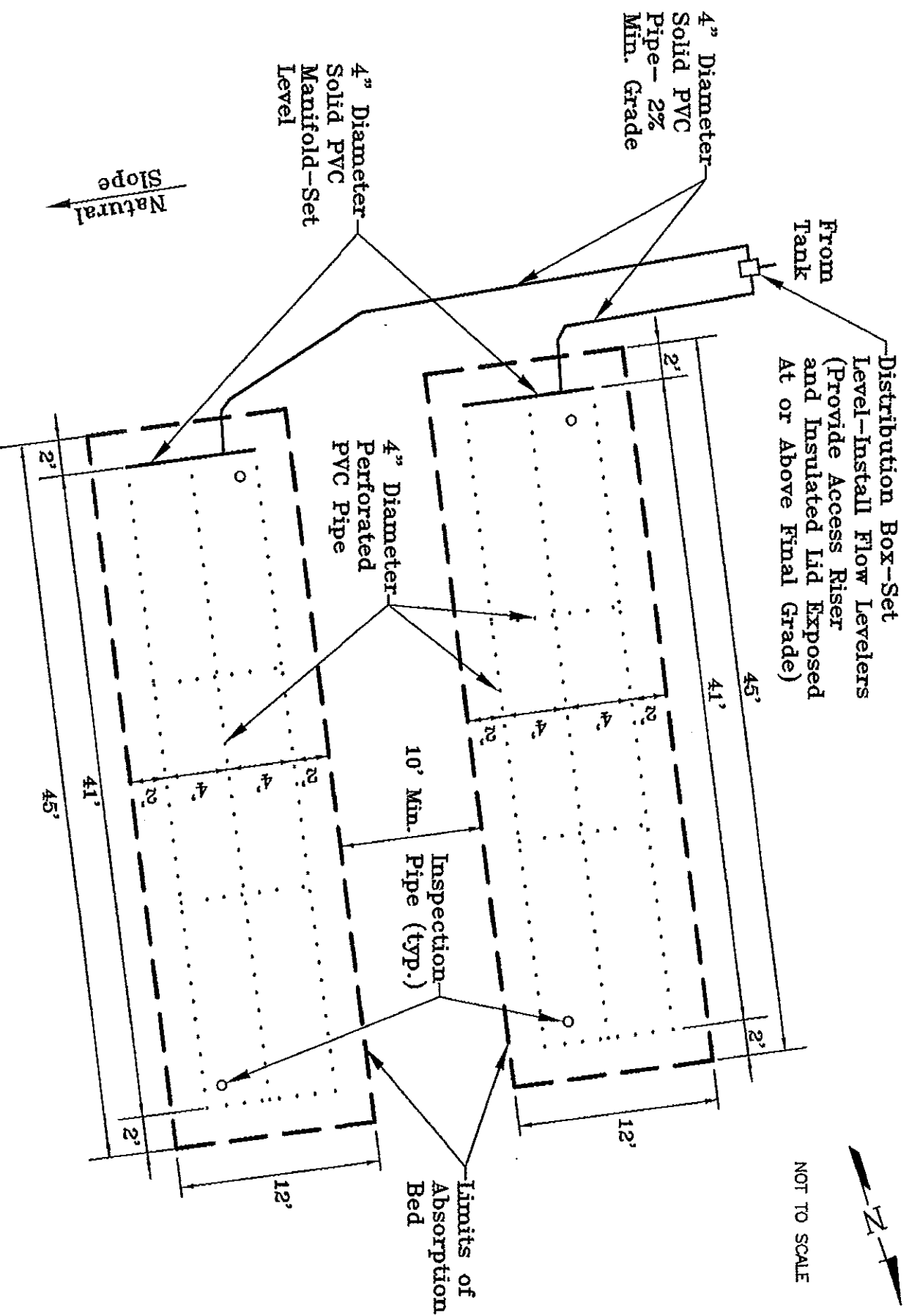
NWCC
 National Wildlife Conservation Council
 1000 North 1st Street, Suite 100
 Fort Collins, Colorado 80501
 (970) 221-1111
 www.nwcc.org



Title: OWTs - GRAVEL BED SITE PLAN		Date: 11/19/18	Job No.: 17-10928	Figure #2
Job Name: Lucky B Ranch-Manager's Residence		Location: 23850 Tobiano Trail, Routt County, Colorado		



NWCC
 North West Colorado Consulting Engineers
 1500 14th Street, Suite 100
 Steamboat Springs, Colorado 80487



OWTS - GRAVEL BED PLAN

Job Name: Lucky 8 Ranch-Manager's Residence
 Location: 23850 Tobiano Trail, Routt County, Colorado

Date: 11/19/18
 Job No. 17-10928
 Figure #3

W&C
 WATERS & COMPANY
 3700 N. 10th St., Suite 100
 Steamboat Springs, Colorado 80487
 970.738.7884 • Fax 970.738.7881
 www.watersandcompany.com

Place washed rock—
on natural topsoil after
stripping organics &
scarifying thoroughly

Place Compacted Clay Fill—
Around Daylighted Surfaces

Existing
Ground
Surface

12" Max.
Cut into
Natural Topsoil
Materials

Topsoil Cover
and Seed All
Surfaces

Existing
Ground
Surface

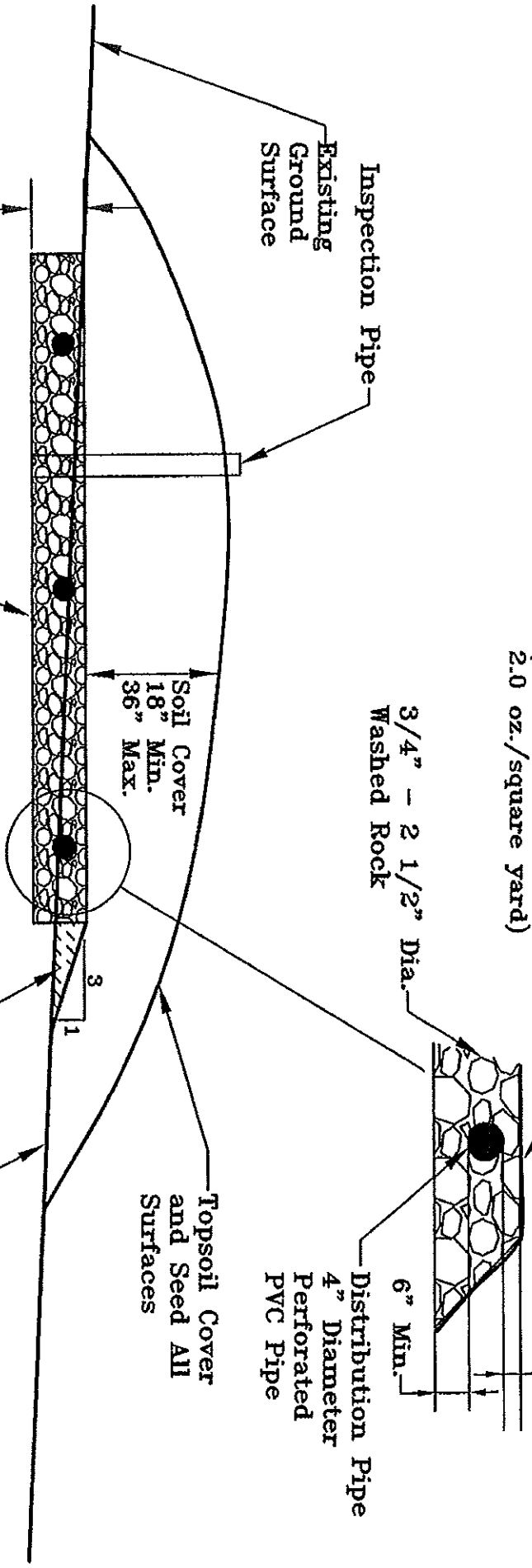
Inspection Pipe

Barrier Material—Non-Woven
Permeable Geotextile
(Max. Thickness of
2.0 oz./square yard)

3/4" - 2 1/2" Dia.
Washed Rock

Distribution Pipe
4" Diameter
Perforated
PVC Pipe

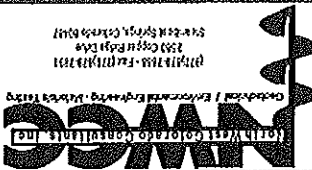
2" Min.
6" Min.

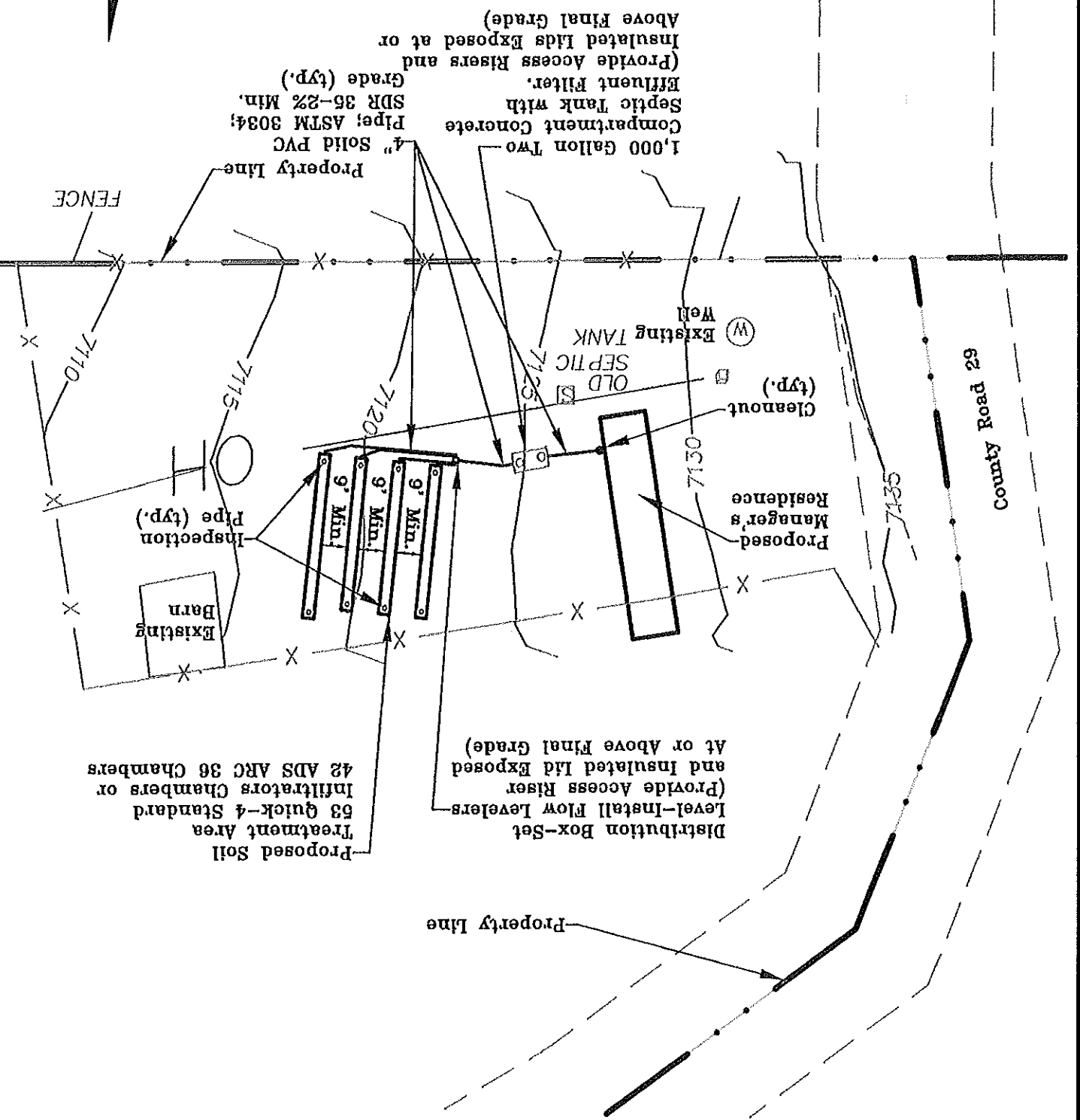
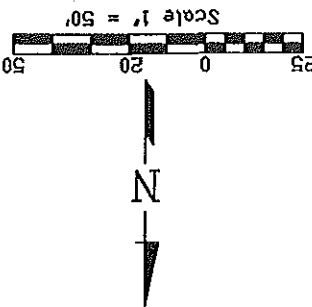


OWTS—GRAVEL BED CROSS SECTION

Job Name:	Lucky 8 Ranch—Manager's Residence	Date:	11/19/18
Location:	23850 Tobiano Trail, Routt County, Colorado	Job No.:	17-10928
		Figure:	#4

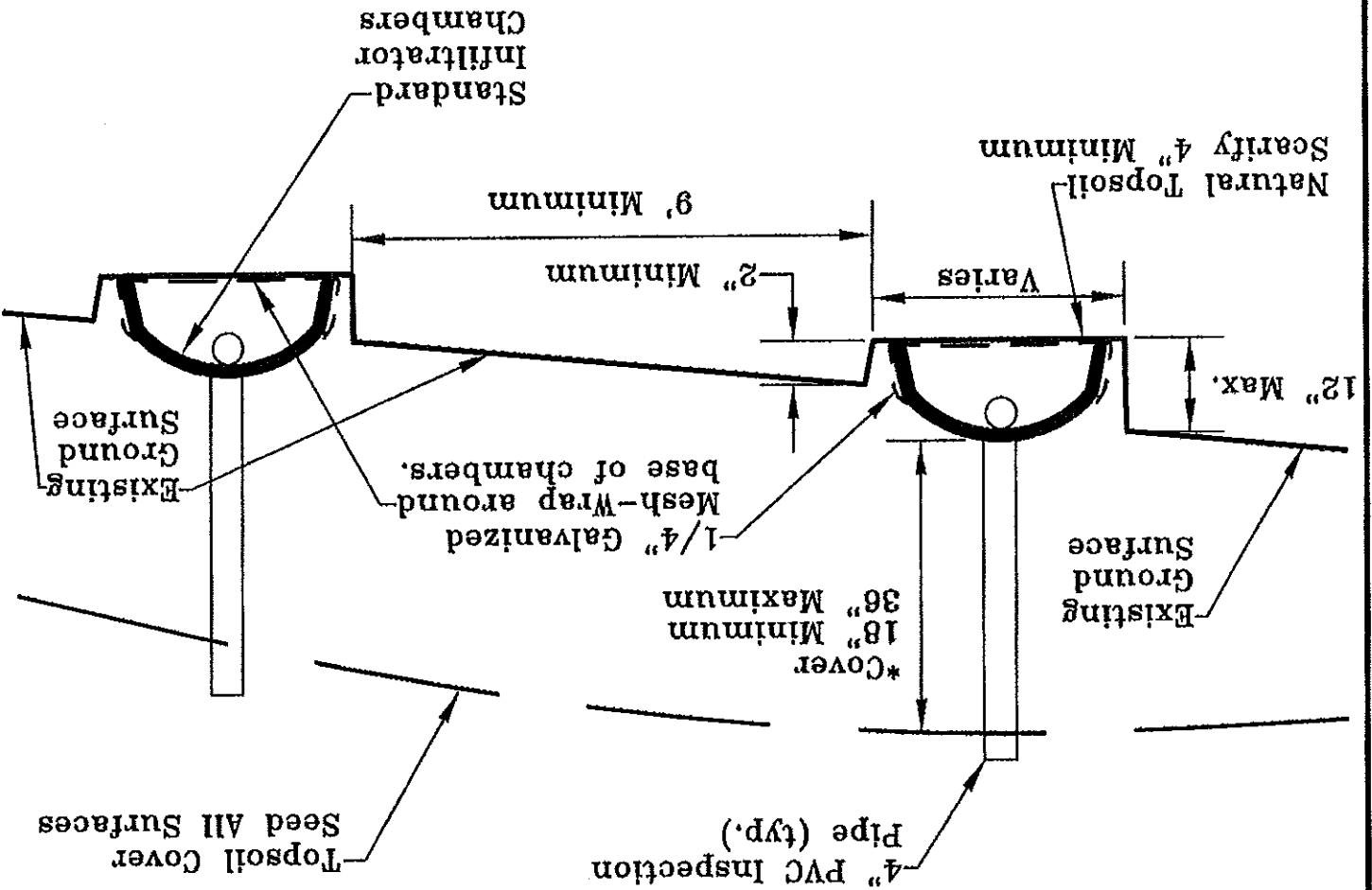
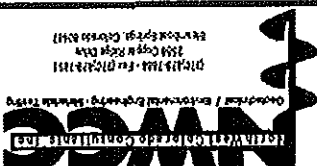


 NWCC NORTHWEST CONSULTING & CONSTRUCTION, INC. 2300 Cottage Road, Suite 100 Fort Collins, CO 80504 (970) 225-1111	Date: 11/19/18 Job No. 17-10928 Figure #5	OWTS-TRENCH/CHAMBERS SITE PLAN Job Name: Lucky 8 Ranch-Manager's Residence Location: 23850 Tobiano Trail, Routt County, Colorado
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Title: TRENCH SYSTEM CROSS SECTION
 Job Name: Lucky B Ranch-Manager's Residence
 Location: 23860 Tobiano Trail, Routt County, Colorado

Date: 11/19/18
 Job No. 17-10928
 Figure #6



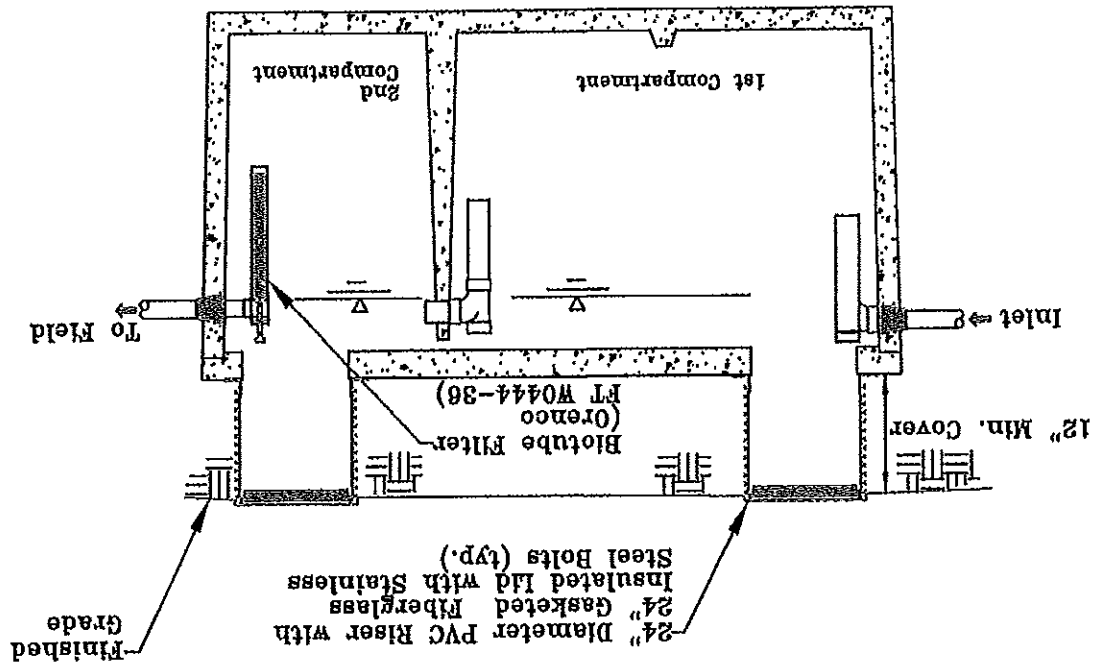
* The chambers should be backfilled in accordance with the manufacturer's recommendations.

Job Name: Lucky 8 Ranch-Manager's Residence Location: 23850 Tobiano Trail, Routt County, Colorado	
Figure # 17-1092B	Job No. 17-1092B
Date: 11/19/18	
Title: OWTs - SEPTIC TANK DETAILS	

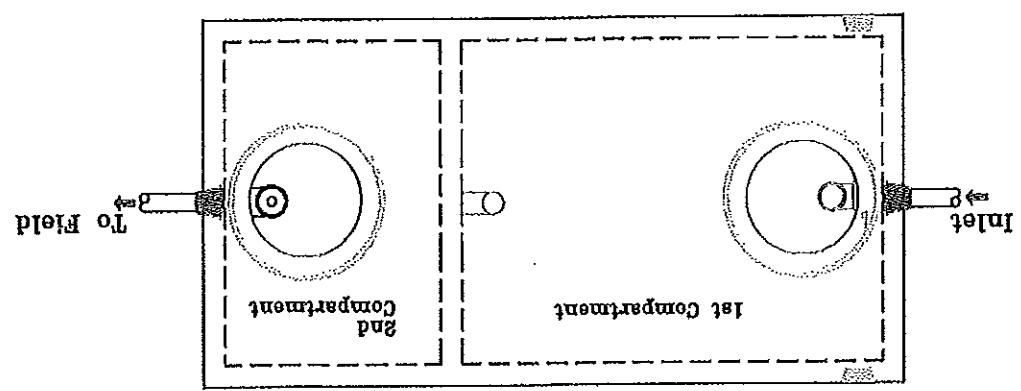
NWCC
 North West Consulting & Construction, Inc.
 1500 1st Ave. S.E.
 Grand Rapids, MI 49507
 Phone: (616) 941-1111
 Fax: (616) 941-1112

* Note: Septic tank shown is a typical 2-compartment septic tank configuration. Installer must submit detail from septic tank manufacturer, for approval by NWCC prior to construction.

Section View



Top View



APPENDIX B

- 1) The Rules and Regulations of the CDPHE and Routt County Department of Environmental Health must be complied with during the installation/construction of the system.
- 2) Periodic inspections must be made by NWCC at the following points during construction:
 - a. After subgrade excavation, septic tank and solid PVC pipe installation.
 - b. After placement of washed gravel and perforated PVC pipe or chambers, prior to backfilling.
 - c. Upon final completion of the project.
- 3) The 4-inch PVC pipe shall conform to ASTM 3034/SDR 35 or better quality.
- 4) Soils beneath the pipes entering and leaving a septic or aeration tank, which has been excavated, shall be backfilled in 6 inch lifts and mechanically compacted to a minimum of 95% of the maximum standard Proctor density. Cast iron pipe or PVC pipe meeting ASTM 3034-SDR 35 or schedule 40 shall be used for 5 feet on the inlet and outlet sides of the tank.
- 5) Provide a minimum of 12 inches of soil cover over the septic tank, 18 inches of soil over the chambers and 24 inches of soils cover over all pipes. Any piping placed under a driveway or other paved areas should have a minimum of 48 inches of soil cover or be protected from freezing using insulation or other approved means. Manhole and distribution box lids must be exposed at final grades. Provide manhole ring or distribution box extensions as needed to reach final grades. Insulated lids are required.
- 6) Special care should be taken when backfilling the system to prevent disturbance/crushing of the chambers and distribution lines. In addition, the distribution lines must be carefully bedded to minimize the settlement in these lines.
- 7) Surface drainage shall be ditched and diverted away from the soil treatment area and all tanks.
- 8) Disturbed surfaces, mounds and berms shall be covered with topsoil and heavily seeded. Heavy farm equipment and livestock should be fenced or kept off of the soil treatment area.
- 9) Inspection pipes to be constructed of PVC pipe with the portion of the pipe penetrating the gravel being perforated. Inspection pipes must be extended to infiltrative surface at bottom of gravel or allow observation of the infiltrative surface at the bottom of the chambers. Cleanouts must be placed in the solid distribution line upstream of the septic tank at maximum intervals of 100' or above any pipe bends 45 degrees or greater.
- 10) It is the responsibility of the owner and the installer to comply with all of the minimum setback requirements in the Regulations.