



December 29, 2022

Routt County
Environmental Health Department
PO Box 770087
Steamboat Springs, CO 80477

**RE: Colette & Gerald Burris 25325 Paradise Valley Ln - Routt County,
Onsite Wastewater Treatment System Construction Certification**

Dear RC Environmental Health Department:

In accordance with Section 4.F of CDPHE/WQCC, Regulation #43, please accept this letter as certification by me, the design engineer, that the subject Onsite Wastewater Treatment System (OWTS) was constructed in general accordance with CDPHE/WQCC, Regulation #43 requirements and the design plans. Minor alterations to the design plan were noted and surveyed to prepare the as built/record drawing included as Attachment A. Photos of the OWTS during my October 20, 2022 inspection are included as Attachment B.

Inspection Narrative

The system installation was inspected for conformance with the design plans and supporting design documents. Since this is a pumped system, the pump system was operated to verify 1) the operation of pump system housed within effluent chamber of the septic tank, which includes the pump, and float control switches contained within a screened vault; and 2) the operation of the distribution system, which includes a perforated distribution lateral pipe attached to the drainfield chambers. The pump system was operated and the "squirt height" at the distal end of the distribution lateral was measured to gauge the system's performance and pump's adequacy. I estimated the squirt height was approximately 48 inches which is within the required range of 30 to 72 inches per Regulation 43. With all other aspects within our scope to inspect either being installed in accordance with the system design or that could be installed after backfilling, the owner was notified they could backfill the system ahead of the approaching snow. One task that was completed after my inspection but prior to backfill was to connect the sewer pipe up to the septic tank. At the time of the inspection the sewer pipe was connected to a former leach pit while final work was completed on the pump system.

The minor deviations from the design plans (none of which negatively impacted the system performance or environment) included the following:

- 1) Use of a different pump than specified,
- 2) Utilized a "on-demand" pump control operation rather than timed dose, and
- 3) The burial depth of the septic tank.

Each of these deviations are discussed below:

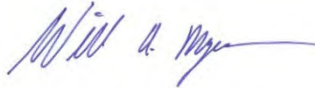
- The Goulds Pump model WS0511BF installed was considered comparable to the pump originally specified as confirmed by the squirt test,

- The original pump operation was based on a timed dose operation. While the mode of operation would have been marginally better in terms of spacing out the doses to the drainfield, the pump controls cost considerably more, and the on-demand pump operation is much more simple and common place. That said the float switch configuration was revised as specified in the attached Dose Volume Calculation Sheet included as Attachment C. In order to not overload the drainfield, and based on the relatively low design flow rate, the pump should operate no less than twice a day.
- The tank was buried deeper to provided additional cover over the sewer pipe while maintaining the required slope.

Other observations that support compliance of the system installation include that pipe grades and system component burial depths are within Regulation #43 requirements, and pertinent horizontal offset distances either meet or exceed those listed in Table 7.1 of Regulation 43. Specific materials and components used are provided in the as-built drawing.

Please let me know if you have any questions or comments about this OWTS.

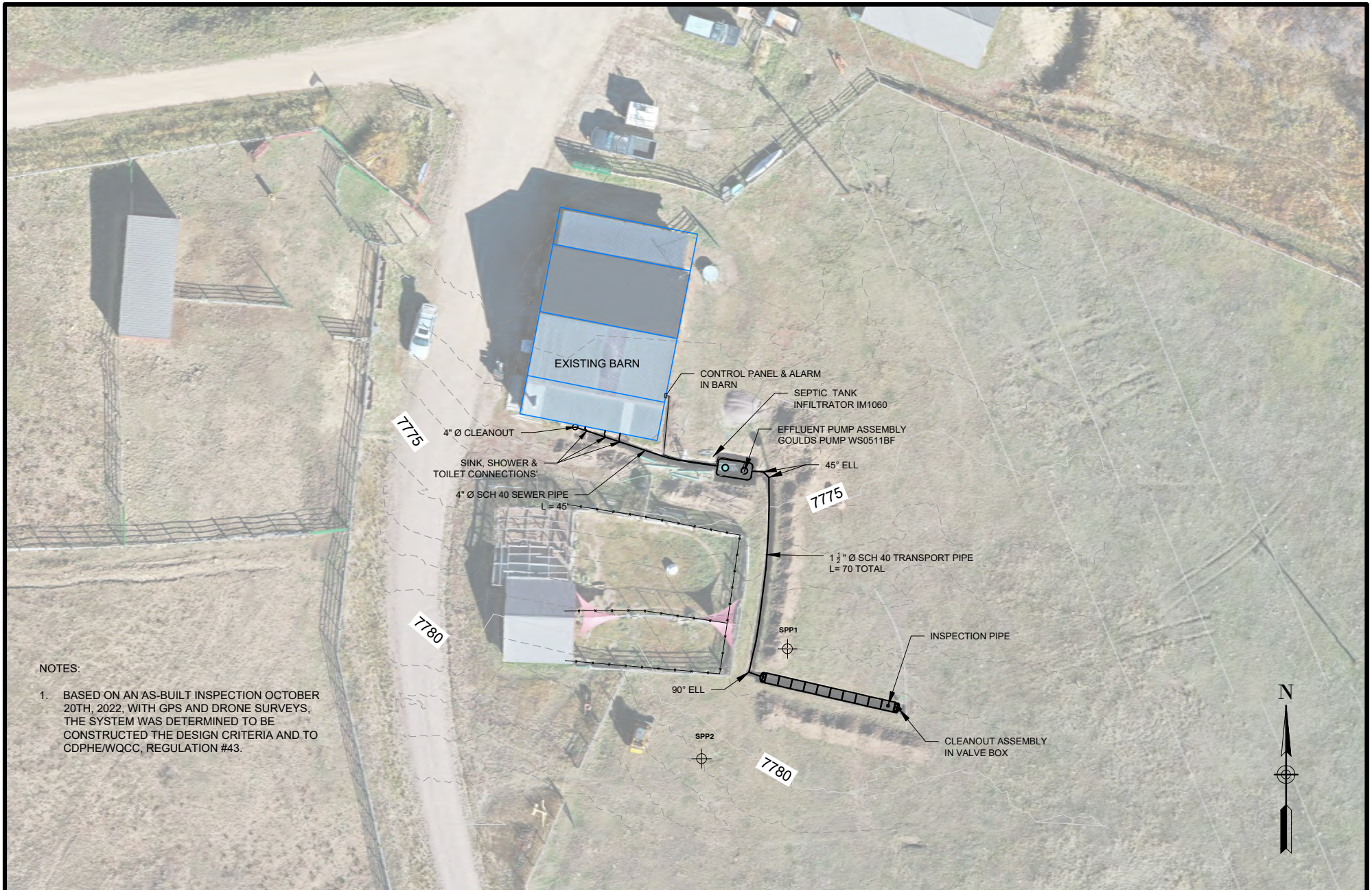
Best regards,

A handwritten signature in blue ink, appearing to read "Will A. Myers", with a long horizontal flourish extending to the right.

Will A. Myers, P.E.

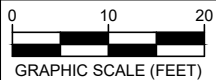
encl: as noted

Appendix A
As-Built / Record Drawing



NOTES:

1. BASED ON AN AS-BUILT INSPECTION OCTOBER 20TH, 2022, WITH GPS AND DRONE SURVEYS, THE SYSTEM WAS DETERMINED TO BE CONSTRUCTED THE DESIGN CRITERIA AND TO CDPHE/WQCC, REGULATION #43.



LEGEND
SOIL PROFILE PIT

By:
Headwater Engineering
P.O. BOX 1293
Craig, CO 81626



For:
Colette & Gerald Burris
25325 Paradise Valley Ln
Oak Creek, CO 80467

**ROUTT COUNTY OWTS DESIGN
AS-BUILT PLAN**

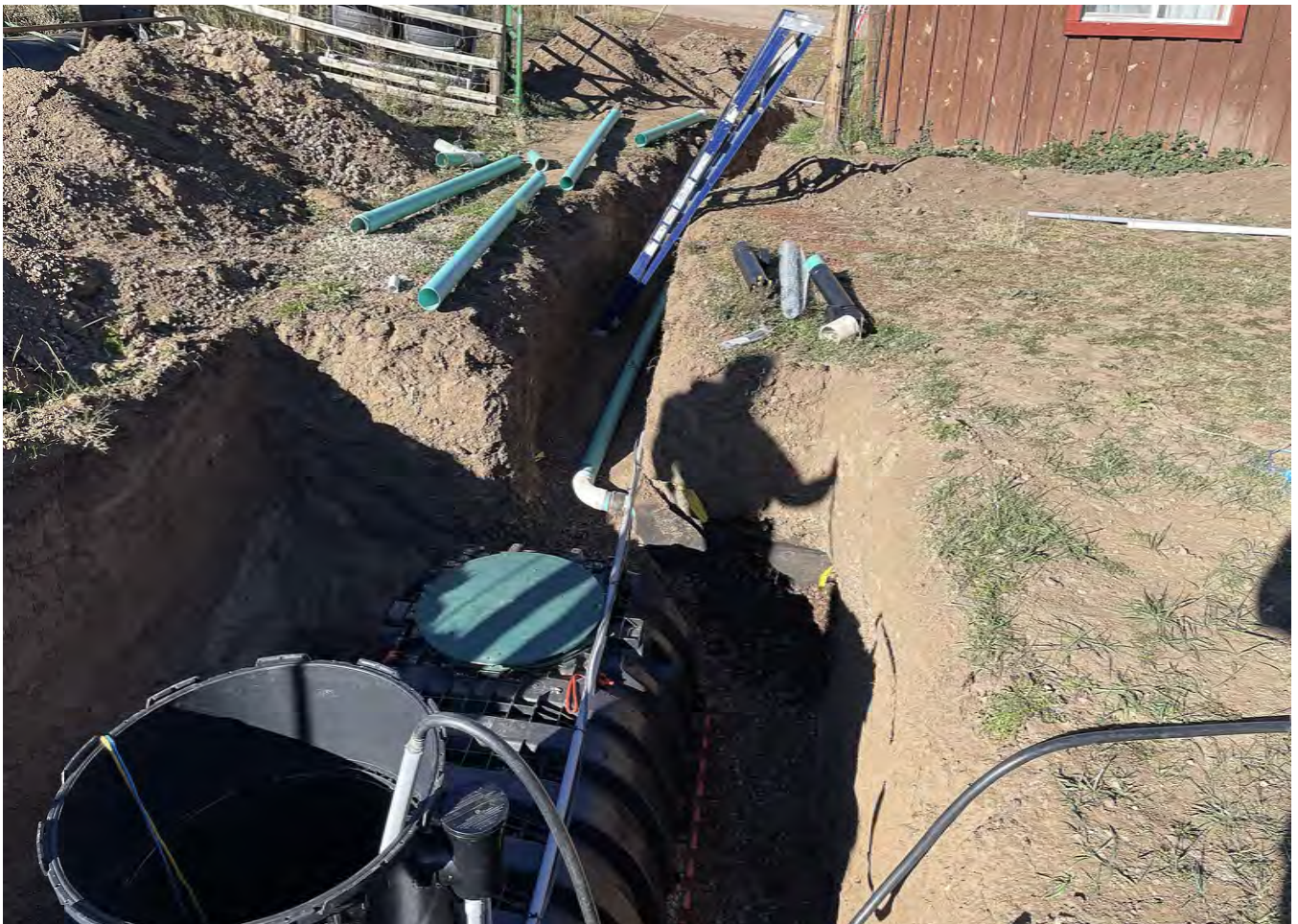
SITE ADDRESS:
25325 Paradise Valley Ln
Oak Creek, CO 80467

**SHEET
1 OF 1**

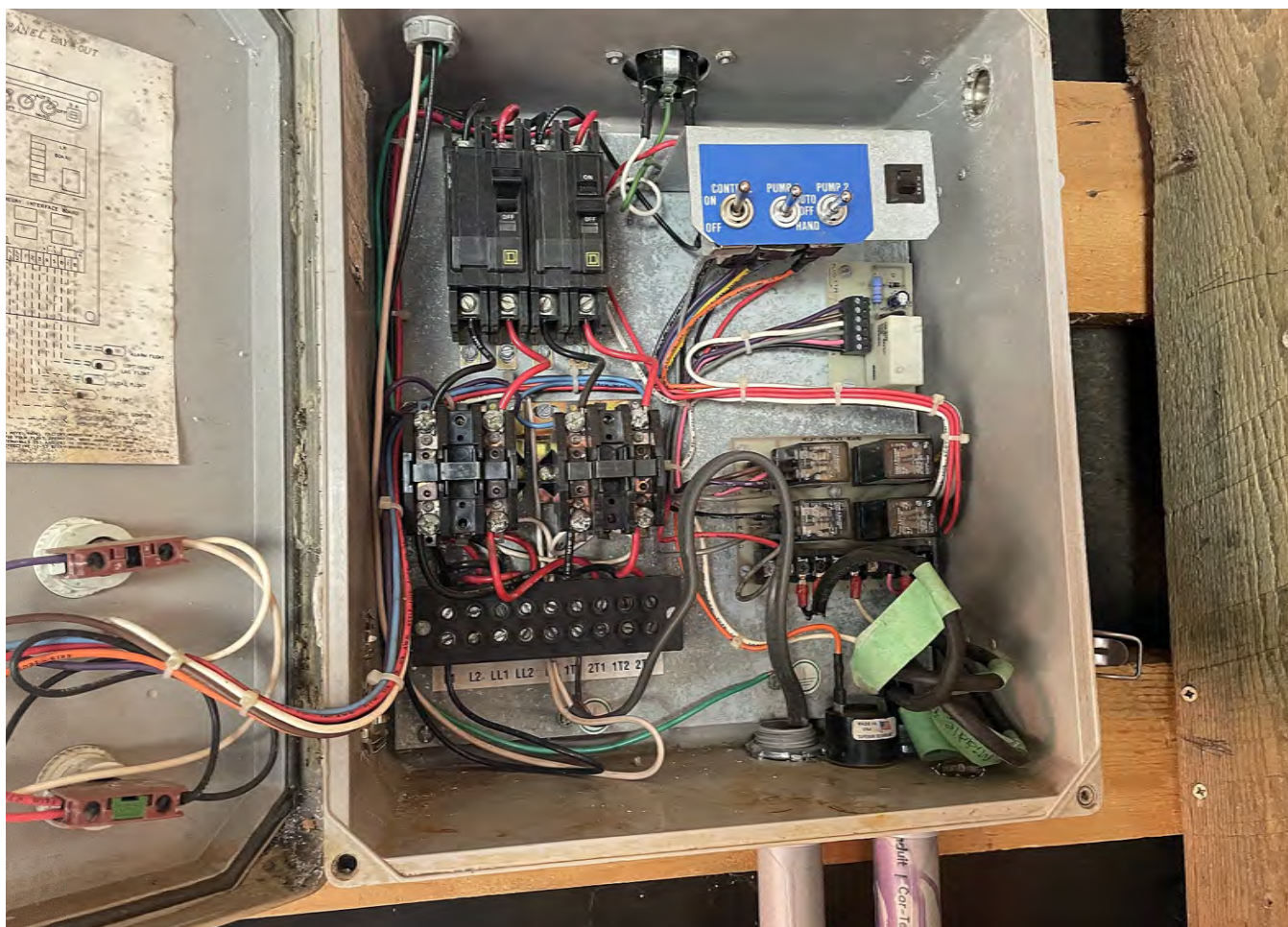
File:	Revised:
Drawn By: WAM	Checked By: WAM
Date: 12/29/22	Revised:

Appendix B

Construction Photos











Appendix C

Dose Volume Calculations and Float Control Settings

V. Dosing Volume & Float Levels			
Volume of piping that may drain between doses			
Max. transport length:	80	ft	
Transport pipe diameter:	1.5	in	(1.5-in Sch 40 PVC)
Max. transport volume:	7.3	gal	
Manifold pipe length:	0	ft	
Manifold pipe diameter:	3	in	(3-in Sch 40 PVC)
Manifold pipe volume:	0.0	gal	
Lateral pipe length:	40	ft	
Lateral pipe diameter:	1.25	in	(1.25-in Sch 40 PVC)
Lateral pipe volume:	2.5	gal	
Max. total volume:	9.9	gal	
Total drain back volume	9.9	gal	
Recommended dosing volume ¹			
5 x lateral volume	12.7	gal	use 5x lateral lateral
20 % Design Flow	10.7	gal	
Septic Tank /Float Levels			
Septic Tank	Infiltrator Water Technologies IM 1060 Septic Tank.		
Nominal Septic Tank Liquid Capacity:	1094.0	gal	
First Compartment:	733.0	gal	
Second Compartment:	361	gal	
Detention Time in First Compartment > 48 hrs.	328	hrs.	Section 43.9.I.3.b
Capacity per foot:	298.4	gal/ft	
Top of Baffle Hole Height	30.5	in	
Set "Pump Off" Float 8" Above²	38.5	in	EPA On-site wastewater manual
Height of Design Flow (DF)	2.2	in	
Use 2.5"			
Proposed Dose Volume ³	27	gal	
Percent of DF	50	percent	
Set "Pump On" Float 1.3" above "Pump Off"	39.8	in	
Set "High Water Alarm" Float @ Outlet	44	in	
Dosing frequency			
Doses/day³	2		
Design daily flow:	54	gal/day	
Max dose volume ³	27	gal	
Design pump flow rate:	29.2	gpm	
Design pump run time:	0.9	min	

Notes:

¹ Wisconsin Mound Soil Absorption System, Siting, Design and Construction Manual System suggests that the dose is 5X the lateral volume, but less than 20 percent of the design flow.

² Set to 8" above baffel hole to ensure scum remains in first compartment.

³ Determine within dosing volume and to not short-cycle pump based on "on-demad" float switches.