SKYLINE VIEW RANCH SUBDIVISION
NUTRIENT PATHOGEN EVALUATION

PT OF S ½ OF SECTION 1 & PT OF N ½ OF SECTION 12, T4N, R44E OF THE BOISE P.M.
TETON COUNTY, IDAHO

PREPARED FOR:
SKYLINE HOLDINGS LLC
VICTOR, IDAHO

PREPARED BY:
NELSON ENGINEERING
VICTOR, IDAHO

JUNE 2023
Project No. 22-408

TABLE OF CONTENTS

PROJECT DESCRIPTION

The proposed Skyline View Ranch subdivision divides a 140-acre parcel into 7 lots of 20 acres. On-site wastewater treatment systems are proposed; therefore Title 9 of the Teton County Code directs that a Nutrient-Pathogen (NP) Study be conducted if any of applicability criteria in Appendix A are met. The Wetland and Waterways Overlay area lies within the parcel; specifically, the waterway of Mahogany Creek, therefore this NP study was conducted.

SITE INFORMATION

The parcel is located on alluvial fan deposits on the western side of Teton Valley. Access is provided by S 5000 W and W 2250 S along which bound the parcel to the east and south. Mahogany Creek is routed from south to north through the western part of the subdivision within a constructed channel. The creek rises in the Big Hole mountains to the southwest. Flows through the subdivision are intermittent as the creek flows infiltrate into the alluvial fan in winter and are also diminished by irrigation diversions upstream. Therefore, flows through the subdivision are typically seen during spring runoff and snowmelt in most years. An irrigation canal diverts Mahogany Creek within proposed Lot 3 and the flows through proposed Lots 1 and 2, Block 1 to the east. The topographic footprint of the historic channel is still present and visible to the east of the constructed channel.

Currently the land is under cultivation in the form of a pivot and wheel row-irrigated barley field. Topography slopes down the fan south to north/northeast at about 1 to 2 percent. Existing improvements include three adjoining grain silos along W 2250 S in proposed Lot 5, an irrigation supply well at the diversion of Mahogany Creek into the irrigation canal in proposed Lot 3, and an irrigation pivot supplied by the well in proposed Lot 2, Block 2.

Soils and Geologic Mapping

The USDA-NRCS Web-based Soil Survey of Teton County has mapped the Richvale silt loam within most of the parcel, Badgerton-Alpine complex is mapped in the the footprint of the historic Mahogany Creek channel. Richvale silt loam soils are mixed alluvial deposits with loess influence on 0 to 4 percent slopes described as very deep, well drained, and composed of silt loam and gravelly loam. Badgerton-Alpine complex soils are mixed alluvial deposits on 2 to 8 percent slopes described as very deep, well drained, and composed of loam, gravelly loam, very gravelly loam, extremely gravelly loam/sandy loam/loamy sand/coarse sand, very gravelly sandy loam, and gravel. Depth to water table for both soil units is described as greater than 80 inches.

The area's surface geology is mapped on the USGS "Geologic Map of the Driggs Quadrangle, Bonneville and Teton Counties, Idaho, and Teton County, Wyoming," Pampeyan, E.H., Schroeder, M.L., Schell, E.M., and Cressman, E.R., 1967. Mapped deposits throughout the subdivision are "Qf – Alluvial fan deposits." These deposits are commonly described as water transported gravel, sand, silt, and clay the spread from the mouths of canyons and drainages.

Field Investigation

On May 24, 2023, four test pits, TP-1 through TP-4, were excavated at the locations shown on Drawing 2 in the Appendix (**NP Study Map**). Test pits were located approximately using a Leica Zeno FLX100 GPS unit. Test pit locations and depths were selected to determine subsurface conditions as directed by Kathleen Price of the Eastern Idaho Health District. All

test pits were backfilled with excavated material after logging was completed. Monitoring wells were installed in all test pits.

Teton Valley Excavation of Victor, Idaho, excavated the test pits with a Case 580 backhoe. Andy Pruett, a Professional Geologist at Nelson Engineering, and Kathleen Price logged the test pits and directed the sampling. Soils were classified in the field and logged by the geologists. The soil classifications, moisture conditions, and presence of organic or other notable features were recorded in the field logs. Bulk samples were sealed in plastic bags and transported to our laboratory for testing and further classification. Groundwater observations were made at the time of the excavation based on field observations of soil moisture conditions. Field observations are presented on the test pit logs in the Appendix.

The stratification lines shown on the test pit logs represent the approximate boundary between soil types. The actual in-situ transition may be either gradual or abrupt. Due to the nature and depositional characteristics of natural soils and fills, care should be taken in interpolating subsurface conditions beyond the location of the test pits. Soil conditions can change rapidly in both the lateral and vertical directions. Groundwater conditions shown on the logs are only for the dates indicated. The subsurface conditions were interpreted from the described test pits at the site. The soil properties inferred from the field and laboratory analyses supported by our experience formed the basis for developing our conclusions and recommendations.

Soil Profiles

TP-1 and TP-2 (East of Mahogany Creek)

Surficial soils consisted of 0.5 to 1 foot of moist, dark brown, tilled silt loam topsoil with minor barley roots. Below the topsoil in TP-1 from 0.5 to 2.25 feet, were moist, brown silt loam loess with soil design sub-group B-2. Below loess in TP-1 to test pit bottom at 8 feet and below topsoil in TP-2 to test pit bottom at 8.5 feet were alluvial fan deposits composed of moist, brown very gravelly loamy sand with cobbles and boulders up to 16-inches maximum dimension. The very gravelly loamy sand is in soil design sub-group A-2b. Alluvial fan deposits were dense to very dense, poorly-graded, and contained approximately 40-percent sub-round to sub-angular gravels, cobbles, and boulders and 60-percent well-graded sand with silt matrix. In TP-2 from 3.5 to 4.5 feet, a lens of loamy fine sand was observed pinching out within the test pit. Groundwater was not encountered in either test pit. No indications of historic groundwater levels were observed in either test pit. Excavation was characterized as easy digging throughout each test pit. No caving of test pit walls was observed in each test pit.

On May 22, two days before the field investigation, Mahogany Creek was at or near peak flows for the 2023 snow melt season. Within proposed Lot 3, vegetation growth and debris build up in the channel had partially dammed the channel and water was overflowing into the historic stream channel. A pond formed on the south side of the irrigation ditch bank. At the start of the field investigation on May 24, the farmer had just finished clearing the dams in the channel. Water no longer overflowed into the historic stream channel and the pond formed was subsiding. TP-2 was excavated in the east bank of the historic channel approximately 10 feet from the channel that had contained water approximately 2 hours prior to excavation. Soils throughout the test pit were moist and showed no signs of historic groundwater or recent saturation.

TP-3 and TP-4 (West of Mahogany Creek)
Surficial soils in TP-3 to 1 foot were moist, dark brown tilled silt loam topsoil with minor barley roots. Below surficial soils in TP-3 to 3.5 feet, soils were moist, brown silt loam loess with minor pinhole voids and soil design sub-group B-2. Surficial soils in TP-4 were 3.75 feet of moist brown/dark brown sandy loamy silt with approximately 15 percent fine gravels and soil design sub-group B-2. From 3.5 to 7 feet in TP-3 and 3.75 to 6.5 feet in TP-4, alluvial fan deposits were moist, light brown gravelly fine sandy silt with approximately 35 percent silt loam, 30 to 35 percent very fine sand, and 30 to 35 percent gravels and soil design sub-group B-2. At depth in both pits to test pit bottoms of 10 feet in TP-3 and 9 feet in TP-4, alluvial fan deposits were composed of moist, brown very gravelly loamy sand with cobbles up to 6-inches maximum dimension. The very gravelly loamy sand is in soil design sub-group A-2b. Alluvial fan deposits were dense to very dense, poorly-graded, and contained approximately 40-percent sub-round to sub-angular gravels and cobbles and 60-percent well-graded sand with silt matrix. Groundwater was not encountered in either test pit. No indications of historic groundwater levels were observed in either test pit. TP-3 was excavated approximately 100 feet west of the active Mahogany Creek channel. Excavation was characterized as easy digging throughout each test pit. No caving of test pit walls was observed.

Groundwater Information
Groundwater information was obtained from local well logs, geologic mapping, monitoring wells placed in the test pits, and studies of groundwater in the Teton Valley. Groundwater studies included:

- "Ground Water in the Upper Part of the Teton Valley, Teton Counties, Idaho and Wyoming," C. Kilburn, Geological Survey Water-Supply Paper 1789, 1965
- "Final Report - Ground-Water Model for the Upper Teton Watershed", Nicklin Earth & Water, Inc., 2003.

Vicinity water well data was collected from the Idaho Department of Water Resources Well Construction and Drilling GIS database. Well logs from within an approximate 500-feet offset from the subdivision boundaries are included in the Appendix. General locations are shown on the NP Study Map. Summary water well information from wells within a half mile of the subdivision is given in a table in the Appendix. The area of well data collection is shown on the Vicinity Map.

Four wells within the ½ mile perimeter located in the NW ¼ of Section 12 are located on or at the base of the foothills of the Big Holes. These wells show different lithology and hydrology than the valley wells with the perimeter. Reported static depths were between 10 and 48 feet, with artesian pressure noted in all wells. Well logs indicate completion in bedrock/fractured bedrock. Bedrock type is difficult to determine from well driller descriptions, however, the Dane Richardson well log notes limestone bedrock.

Both the groundwater studies and our analysis of area well logs indicate the parcel and surrounding areas in the Teton Valley are underlain by an unconfined aquifer contained in alluvial fan deposits. Well logs show mixed clay and gravel alluvial fan deposits with strata of cemented gravel for the full depths of the wells. The deepest well is the on-property irrigation well at 400 feet, this is a high production irrigation well. Well log data shows static water level depth for wells within the valley to be between 21 and 110 feet. The on parcel well has a reported static depth of 60 feet. Within the NE ¼ of Section 12 static depths for the two wells are 90 and 110 feet with the 90-foot depth reported at Tyler Foster well on the SE corner of the property. Within the NW ¼ of Section 12, to the south,

the George Bates well has a reported static depth of 102 feet. Wells to the east in the western halves of Sections 6 and 7 reported static depths between 40 and 92 feet. While the data scatter is considerable, the static level data appears to show decreasing depth to groundwater from south/southwest to north/northeast.

Monitoring wells were installed in all test pits and monitored on June 2 and 9, 2023 when Mahogany Creek flows were subsiding. The monitoring wells were dry during all measurements. The absence of shallow groundwater in near proximity to the creek shows that the creek is largely hydraulically isolated from the underlying unconfined aquifer. While the creek may lose water to the underlying aquifer by losses vertically downward below the stream bed, the creek, leachfield effluent from the planned leachfields will also travel downward vertically and will not reach Mahogany Creek. Therefore, there will be no impact on nitrate or phosphorus to the surface waters of Mahogany Creek.

Hydraulic conductivity of the alluvial aquifer was estimated utilizing well logs, study data and evaluation of the soils found in the test pits. The large-scale basin wide study performed by Nicklin estimated hydraulic conductivity to be 80 ft/day in the project area (Figure 31 Zone 1). Well logs within the half mile radius show completion in gravel and sand alluvium with some clay strata. Test pits encountered alluvium consisting of cobbles and gravel with 20 percent sand and little to no fines. Standard correlations for hydraulic conductivity given in the range of 30 to 3000 ft/day are given in the IDEQ NP spreadsheet. "Groundwater", Freeze & Cherry 1979, Figure 32 shows gravels in the range of 280 to 28000 feet per day. For this study, a hydraulic conductivity of 225 feet per day is selected as a reasonable and conservative hydraulic conductivity.

Kilburn's map of the contours of groundwater shows a gradient of 0.0048 ft/ft from southwest to northeast roughly following area topography. Nicklin Earth and Waters static model results shown in Figure 34 (see Drawings) shows gradient direction to the northeast towards the Teton River, the drawing is not to scale not allowing gradient magnitude calculation. Magnitude appears to be similar to Kilburn with a similar direction. Kilburn's contour map is approximately commensurate with a depth to static water depth in range of 60 feet at Jay Dell Buxton Well Permit ID 785690 located within the property.

Nitrate levels in wells throughout the valley and in the project area have been analyzed measured by the Friends of the Teton River. Records from these measurements extend back to 2005. Nitrate sampling maps from 2012, 2016, 2017, and 2021 showing well locations and the range of nitrate concentrations are contained in the Appendix. Wells in the vicinity of the parcel are shown with nitrate levels in the range of 2 to 10mg/l and 2 to 5 mg/l. For this analysis, background nitrate level of 5 mg/l is assumed.

N-P Analysis

The 140-acre parcel is proposed to be divided into 7 nominally 20 acre lots. Zoning allows for a main and auxiliary residence on each lot. Wastewater disposal will be conventional septic tanks and leachfields, water will be supplied by on-lot domestic wells.

The IDEQ guideline for NP studies includes evaluation of nitrate and pathogens at three categories of compliance boundaries:

1. Downgradient individual lot boundaries.
2. Downgradient boundary of the overall subdivision.
3. Surface waterbodies.

Mahogony Creek forms a surface waterbody boundary. Monitoring wells in close proximity to the creek were dry through the spring runoff when the creek flows. From this we conclude the creek is at least partially hydraulically isolated from the underlying unconfined aquifer, likely by clay and silt size depositions within the creek bed. Seepage from the creek bed may occur, however the evidence shows the seepage does not extend a significant distance beyond the creek bed, flowing downward vertically. The creek surface water flow is hydraulically isolated from leachfield effluent from the planned cross gradient leachfields which seep into the water table well below the creek bottom. Leachfields will be located at a setback of 50 feet from the creek further ensuring compliance. There will be no impact on nitrate or phosphorus to the surface waters of Mahogany Creek.

The IDEQ Level 1 Nutrient-Pathogen Evaluation Nitrogen Mass-Balance Spread Sheet was used to predict downgradient nitrate concentration for two compliance boundaries. The entire 140-acre subdivision parcel compliance boundary was evaluated with 14 total homes at 300 gpd wastewater production. Block 1 Lot 5 was evaluated as it is the lot with the smallest length orthogonal to the groundwater gradient. Two homes were evaluated on Lot 5 Block 1. Model input parameters are summarized in Table 1.

Table 1. Model Input Parameters for Single Family Residences

Water Budget		
Parameters	**Input Value**	**Justification**
Hydraulic Conductivity (ft/day)	80 ft/d	Conservative estimate for gravel and sand alluvium found in well logs throughout the area
Hydraulic Gradient	0.0048	Kilburn Mapping
Mixing Zone Thickness (ft)	15	Default Value
Aquifer Width Perpendicular to Flow (ft)	3040/1300	140 Acre parcel/Lot 5 Block 1
Parcel Area (acres)	140/20	
Percent of Parcel That Is Impervious (Percent)	5%	Area of Roads and structures
Current/Acceptable Number of Homes in Parcel	2	Number of homes proposed
Septic Tank Effluent (gallons/d/home)	300	
Natural Recharge rate (inches/yr.)	1.2	Annual precipitation of 16 inches as per Driggs Airport long term average and the formula: $NRR = TAP^2*0.0046$
Nitrogen Budget		
Upgradient Ground Water Concentration (mg/l)	5	Nitrate Well Maps from Friends of the Teton River
Septic Tank Effluent Concentration (mg/l)	45	Default
Denitrification Rate (decimal fraction)	0	Default
Nitrate in Natural Recharge (mg/l)	0.3	Default

PATHOGEN FATE AND TRANSPORT DISCUSSION

Pathogen fate and transport cannot be modeled accurately through the unsaturated overlying soil using our available software. Existing literature shows that pathogen survival in the unsaturated subsurface is limited. Below is a portion of Table 3-19, "Wastewater constituents of concern and representative concentrations in the effluent of various treatment units", of EPA's Onsite Wastewater Treatment Systems Manual.

Constituents of Concern	Example direct or indirect measures (units)	Domestic Septic Tank Effluent	SWIS percolate into ground water at 3 to 5 ft depth (% removal)
Bacteria	Fecal Coliform (organisms per 100 ml)	10^6 to 10^8	>99.99%
Viruses	Specific Viruses (pfu/ml)	0 to 10^5	>99.9%

"Normal operation of septic tank/subsurface infiltration systems results in retention and die-off of most, if not all, observed pathogenic bacterial indicators within 2 to 3 feet of the infiltrative surface" (Anderson et al., 1994; Ayres Associates, 1993a, c; Bouma et al., 1972, McGauhey and Krone, 1967).

Based on this information in conjunction with the depth to groundwater of greater than 8 feet in the area of the subdivision planned for development, live pathogen concentration will have undergone 5 or more log cycles of treatment prior to entering the underlying groundwater.

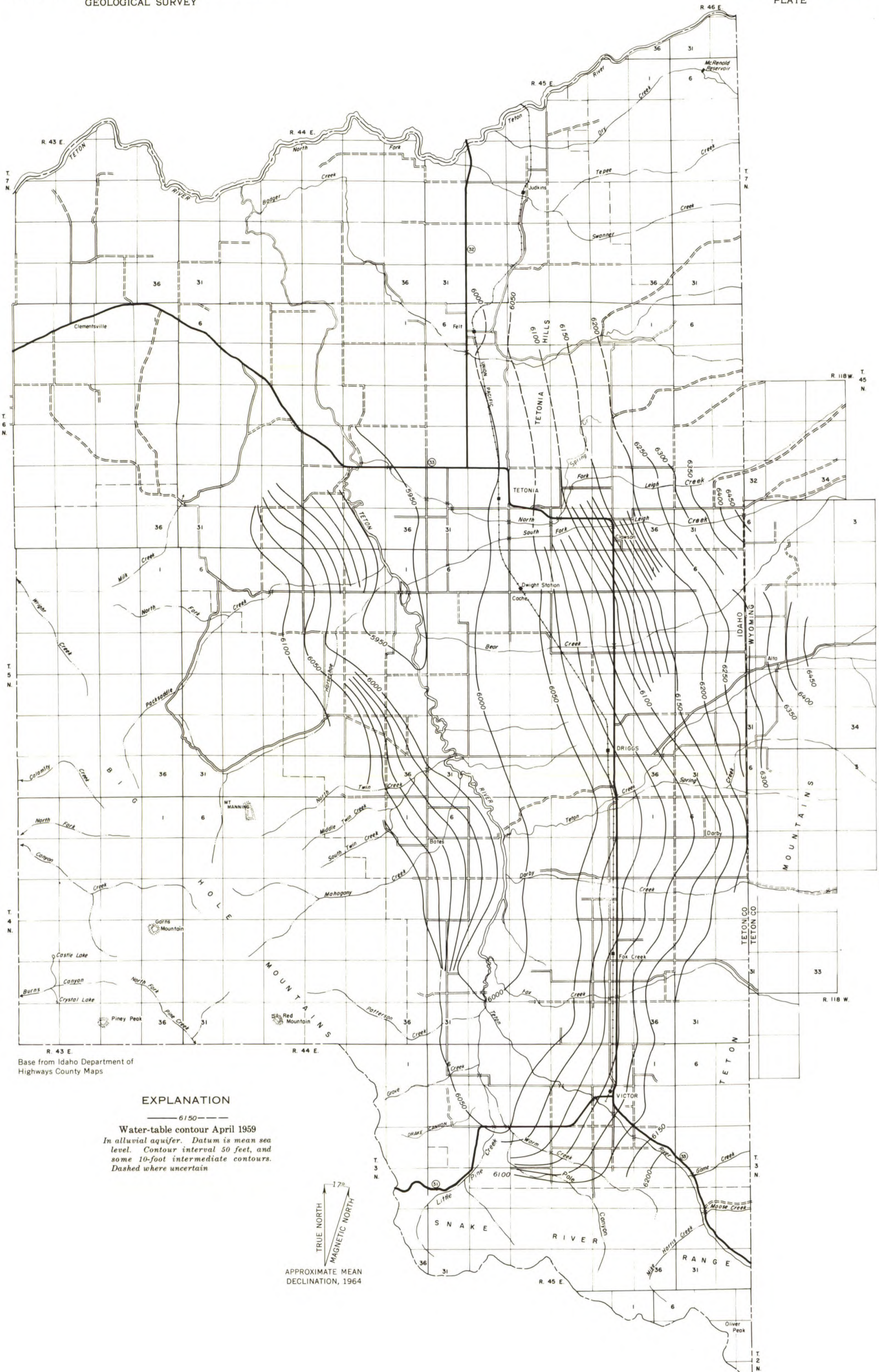
Results and Conclusions

Downgradient nitrogen concentrations at the compliance boundaries analyzed are within acceptable limits with the following limitations. Eastern Idaho Public Health designates setbacks for leachields from streams and other water bodies which should appear on the plat.

A maximum of total of 600 gpd of wastewater generation is allowed on each lot. Downgradient nitrogen concentrations show an increase of less than 1 mg/l at the compliance boundaries of the property boundary and Mahogony Creek. Pathogen survival rates in the unsaturated subsurface preclude transport in groundwater.

APPENDIX

DRAWINGS



EXPLANATION

——— *6150* — — —

Water-table contour April 1959

In alluvial aquifer. Datum is mean sea level. Contour interval 50 feet, and some 10-foot intermediate contours. Dashed where uncertain

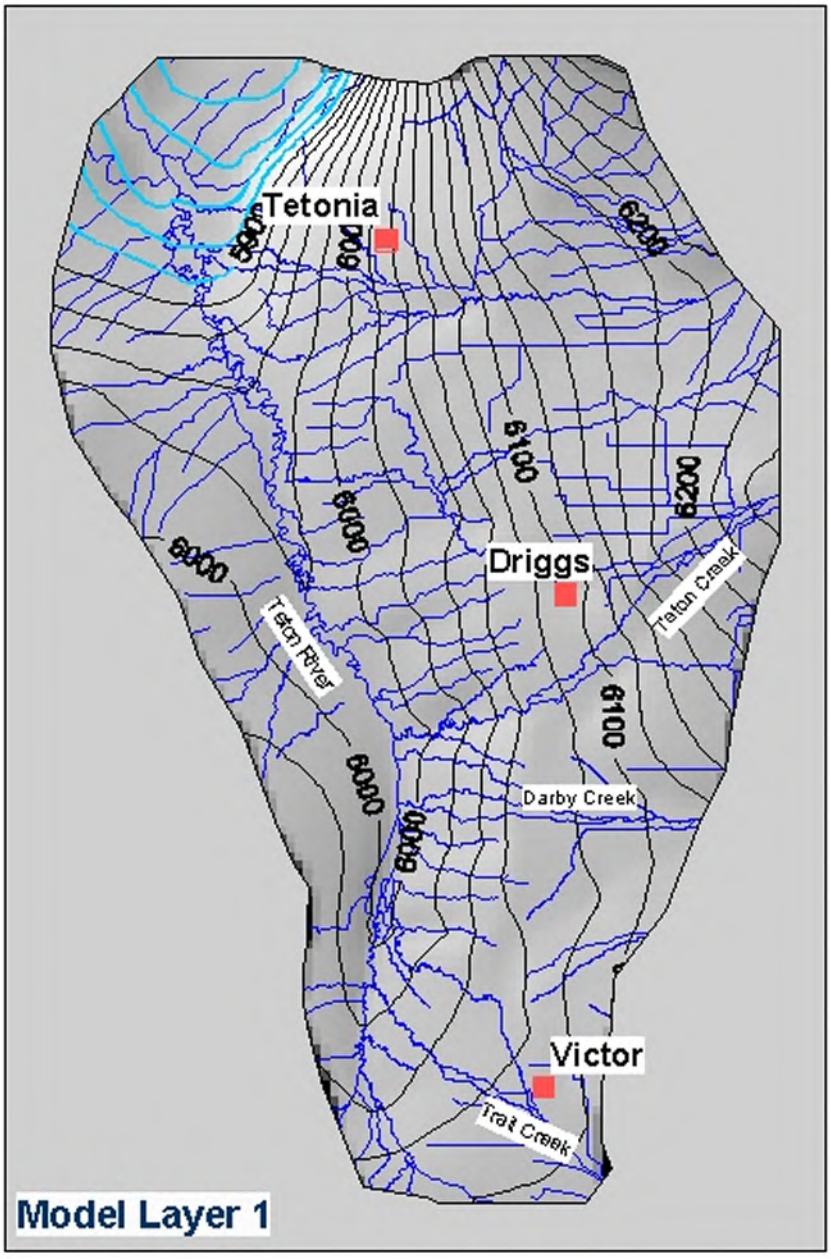
MAP SHOWING APPROXIMATE CONFIGURATION OF THE WATER TABLE IN THE UPPER TETON VALLEY, IDAHO AND WYOMING

SCALE 1:125 000

2 0 2 4 6 MILES

2 0 2 4 6 KILOMETERS

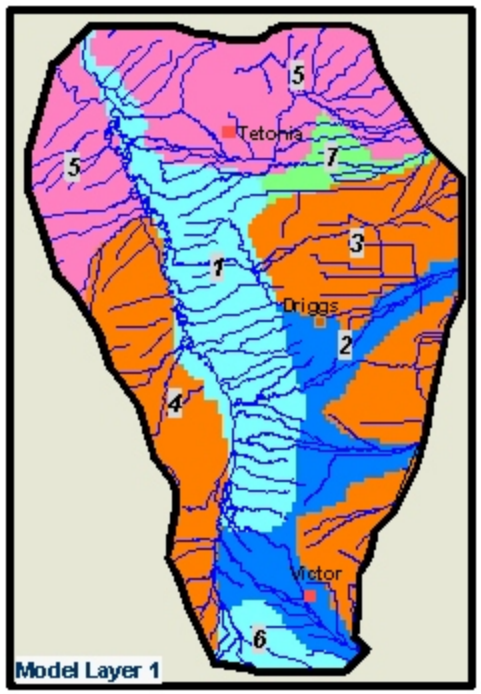
735-911 O - 64 (In pocket)

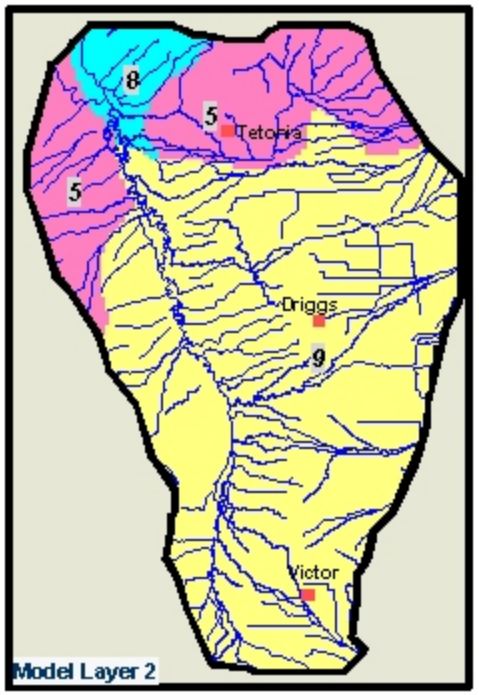


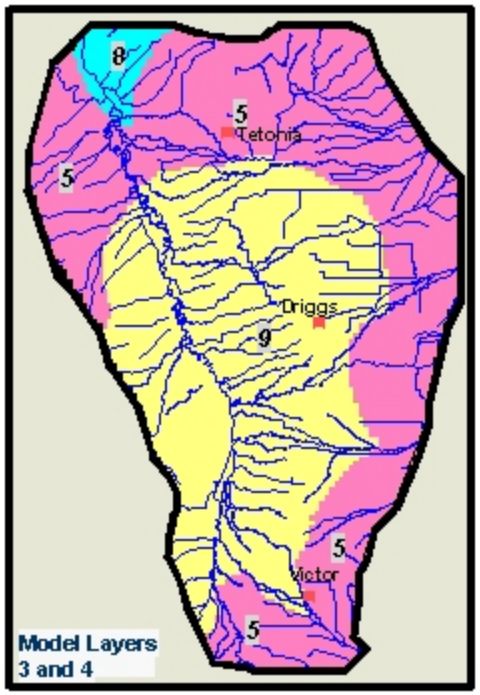
CES
Natural Solutions for Water

Scale Not Indicated

Date : October 12, 2002 File: c:\2002-146\figure_34.drf Issued for Cascade Earth Science	NICKLIN EARTH & WATER, INC.	**Simulated Potentiometric Head Steady State Model**	**Figure 34**







Final Hydraulic Conductivity Zonation

Zone	Hydraulic Conductivity (ft/day)
1	80
2	330
3	25
4	25
5	14
6	130
7	150
8	925
9	25

CES
Natural Solutions for Water

N

Scale Not Indicated

Note: The ground-water model actually transforms the data to transmissivity. For variable layer 1, transmissivity varies in accordance with saturated thickness. However, it is assumed for computational purposes that each remaining layer is 100 feet. In effect, if a zone shows a hydraulic conductivity of 25 ft/day the transmissivity for that layer at that zone is 2500 ft^2/day.

Date: February 28, 2003
File: c:\2002-146\fig_31.drf
Issued for Cascade Earth Sciences

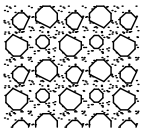
NICKLIN
EARTH & WATER, INC.

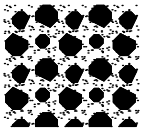
Hydraulic Conductivity Zonation
Teton Basin Ground- Water Model

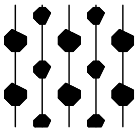
Figure 31

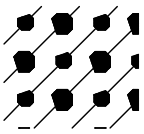
TEST PIT LOGS

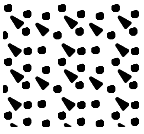
SOIL GRAPHICS

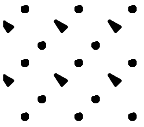
GW 

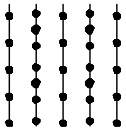
GP 

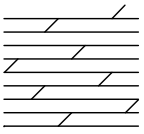
GM 

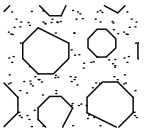
GC 

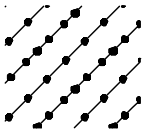
SW 

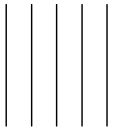
SP 

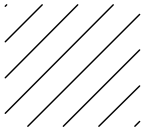
SM 

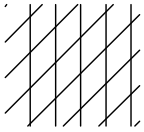
BEDROCK 

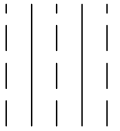
COBBLES/BOULDERS 

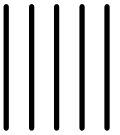
SC 

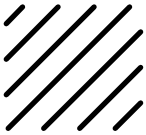
ML 

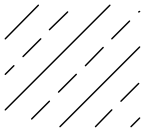
CL 

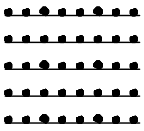
ML–CL 

OL 

MH 

CH 

OH 

PT 

NOTE: ANGLED DEMARCATIONS ON THE LOGS INDICATE APPROXIMATE OR POORLY DEFINED BOUNDARIES BETWEEN SOIL TYPES.

NELSON ENGINEERING
P.O. BOX 1599, JACKSON WYOMING (307) 733-2087

GEOTECHNICAL GENERAL NOTES

CORRECTED SPT: Standard Penetration Test values corrected to $N1_{60}$ correcting for theoretical free-fall hammer energy and overburden pressure per 7th edition of the AASHTO Bridge Design Specifications.

DRILLING, SAMPLING, AND SOIL PROPERTIES ABBREVIATIONS AND SYMBOLS

N: Standard Penetration Test
U_c: Unconfined compressive strength, Pounds/ft^2 (PSF)
Pp: Pocket Penetrometer values, Ton/ft^2 (TSF)
FILGC: Fragments indicate gravels and cobbles larger than split spoon diameter.
w: Water content, %
LL: Liquid limit, %
PI: Plasticity index, %
gd: In-situ dry density, lbs/ft^3 (PCF)
▽: Ground water level
SS: Split-Spoon Sample
ST: Shelby Tube Sampler
CS: Cylindrical Brass Lined Sample

Monitoring Well, diagonal hatching indicates screen and sand packed interval

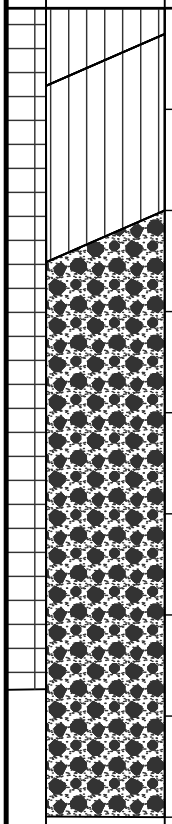
SOIL RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION

Non-Cohesive Soils	SPT	Cohesive Soils	Pp-(tons/ft^2)
Very Loose	0 - 4	Very Soft	0 - 0.25
Loose	4 - 10	Soft	0.25 - 0.50
Slightly Compact	8 - 15	Medium Stiff	0.50 - 1.00
Medium Dense	10 - 30	Stiff	1.00 - 2.00
Dense	30 - 50	Very Stiff	2.00 - 4.00
Very Dense	50+	Hard	4.00+

PARTICLE SIZE

Boulders:	12 in.+	**Coarse Sand:**	5 mm(#4)-2 mm(#10)	**Silts and Clays:** **<#200**
Cobbles:	12 in.-3in.	**Medium Sand:**	2 mm(#10)-0.4mm(#40)	
Gravel:	3in.-5mm(#4)	**Fine Sand:**	0.4mm(#40)-0.075mm(#200)	

PROJECT NAME: **SKYLINE VIEW RANCH SUB., NP STUDY**	**TEST PIT No. 1** PAGE: **1**
DATE STARTED / FINISHED: **5/24/2023**	OPERATOR: **TETON VALLEY EXCAVATION**
LOGGED BY: **ANDY PRUETT/KATHLEEN PRICE**	EXCAVATOR TYPE: **CASE 580 N BACKHOE**
BOREHOLE LOCATION/ELEVATION: **SEE NP STUDY MAP**	



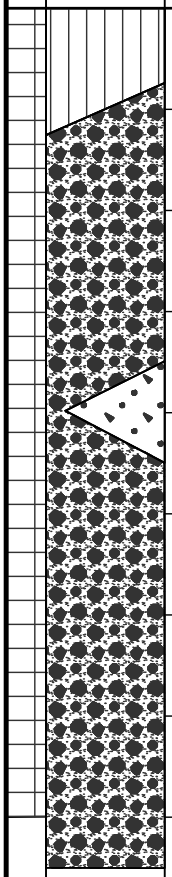
DEPTH (FT)	SAMPLES: UNDISTURBED	SAMPLES: BULK	SAMPLE ID	MATERIAL DESCRIPTION	LIQUID LIMIT	PLASTIC LIMIT	DRY DENSITY (PCF)	MOISTURE (%)	REMARKS
				This log is part of a report prepared by Nelson Engineering for this project and should be read with the report. This summary applies only at the location of the test pit and at the time of the excavation. Subsurface conditions may differ at other locations and may change at this location with passage of time. The data presented is a simplification of actual conditions encountered.					
1				*0'–0.5' MOIST, DK BROWN SILT LOAM TOPSOIL, MINOR BARLEY ROOTS, TILLED* *0.5'–2.25' MOIST, BROWN SILT LOAM, LOESS, SOIL DESIGN SUB-GROUP – B-2*					*BOUNDARY OF PROPOSED LOTS 1 & 2, VERY GENTLE NORTHEAST SLOPING PIVOT IRRIGATED BARLEY FIELD*
2									
3				*2.25'–BOP MOIST, BROWN VERY GRAVELLY SILTY LOAMY SAND WITH COBBLES AND BOULDERS UP TO 16–INCH MAXIMUM DIMENSION, DENSE TO VERY DENSE, POORLY–GRADED, ~40% SUB–ROUND TO SUB–ANGULAR GRAVELS, COBBLES, AND BOULDERS, ~60% WELL–GRADED SAND WITH SILT, NO OXIDATION STAINING, ALLUVIAL FAN DEPOSITS, SOIL DESIGN SUB–GROUP – A–2B*					*EASY DIGGING THROUGHOUT*
4									
5									*NO SIGNS OF HISTORICAL HIGH GROUNDWATER*
6									
7									
8				*BOP=8.0'* *NO GROUNDWATER ENCOUNTERED* *NO CAVING* *MONITORING WELL INSTALLED:* *10' OF 1.5"ø SCHEDULE 40 PVC SOLID PIPE, NO SLOTS* *STICK UP = 3.2'*					
9									
10									
11									
12									
13									
14									
15									

NELSON ENGINEERING
P.O. BOX 1599, JACKSON WYOMING (307) 733–2087

CLIENT: **SKYLINE HOLDINGS GROUP, LLC**
TETON COUNTY, IDAHO

JOB NO. 22–408

PROJECT NAME: **SKYLINE VIEW RANCH SUB., NP STUDY**	**TEST PIT No. 2** PAGE: **1**
DATE STARTED / FINISHED: **5/24/2023**	OPERATOR: **TETON VALLEY EXCAVATION**
LOGGED BY: **ANDY PRUETT/KATHLEEN PRICE**	EXCAVATOR TYPE: **CASE 580 N BACKHOE**
BOREHOLE LOCATION/ELEVATION: **SEE NP STUDY MAP**	



DEPTH (FT)	SAMPLES: UNDISTURBED	SAMPLES: BULK	SAMPLE ID	MATERIAL DESCRIPTION	LIQUID LIMIT	PLASTIC LIMIT	DRY DENSITY (PCF)	MOISTURE (%)	REMARKS
1				*0'–1.0' MOIST, DK BROWN SILT LOAM TOPSOIL, MINOR BARLEY ROOTS, TILLED*					*PROPOSED LOT 3, VERY GENTLE NORTHEAST SLOPING PIVOT IRRIGATED BARLEY FIELD, TEST PIT LOCATED ON EAST BANK OF HISTORIC MAHOGANY CREEK CHANNEL, ~200 FEET EAST OF ACTIVE CREEK CHANNEL*
2				*1.0'–BOP MOIST, BROWN VERY GRAVELLY LOAMY SAND WITH COBBLES UP TO 6–INCH MAXIMUM DIMENSION, DENSE TO VERY DENSE, POORLY–GRADED, ~40% SUB–ROUND TO SUB–ANGULAR GRAVELS AND COBBLES, ~60% WELL–GRADED SAND, NO OXIDATION STAINING, ALLUVIAL FAN DEPOSITS, SOIL DESIGN SUB–GROUP – A–2B*					
3									
4				*FROM 3.5'–4.5' LOAMY FINE SAND LENS PINCHES OUT WITHIN TEST PIT*					*EASY DIGGING THROUGHOUT*
5									
6									*NO SIGNS OF RECENT OR HISTORICAL HIGH GROUNDWATER*
7									
8				*BOP=8.5'*					
9				*NO GROUNDWATER ENCOUNTERED* *NO CAVING*					
10				*MONITORING WELL INSTALLED:* *10' OF 1.5"ø SCHEDULE 40 PVC SOLID PIPE, NO SLOTS* *STICK UP = 2.0'*					
11									
12				** APPROXIMATELY 2 HOURS PRIOR TO TEST PIT EXCAVATION AND FOR THE WEEK PRIOR, ACTIVE MAHOGANY CREEK CHANNEL WAS FLOODING BANKS INTO THE HISTORIC CREEK CHANNEL. FARMER HAD CLEARED DAMS IN ACTIVE CREEK 2 HOURS PRIOR TO INVESTIGATION AND WATER DRAINED QUICKLY FROM HISTORIC CHANNEL, NO WATER WAS PRESENT IN HISTORIC CHANNEL AT TIME OF INVESTIGATION.*					
13									
14									
15									

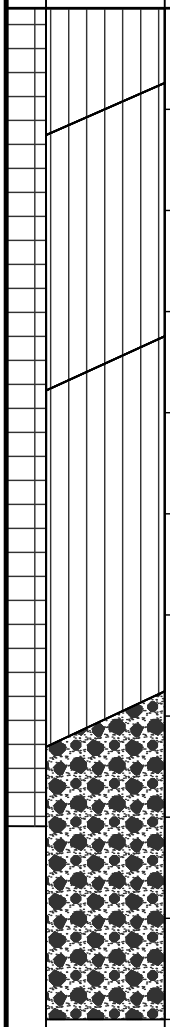
This log is part of a report prepared by Nelson Engineering for this project and should be read with the report. This summary applies only at the location of the test pit and at the time of the excavation. Subsurface conditions may differ at other locations and may change at this location with passage of time. The data presented is a simplification of actual conditions encountered.

NELSON ENGINEERING
P.O. BOX 1599, JACKSON WYOMING (307) 733–2087

CLIENT: **SKYLINE HOLDINGS GROUP, LLC**
TETON COUNTY, IDAHO

JOB NO. 22–408

PROJECT NAME: **SKYLINE VIEW RANCH SUB., NP STUDY**	**TEST PIT No. 3** PAGE: **1**
DATE STARTED / FINISHED: **5/24/2023**	OPERATOR: **TETON VALLEY EXCAVATION**
LOGGED BY: **ANDY PRUETT/KATHLEEN PRICE**	EXCAVATOR TYPE: **CASE 580 N BACKHOE**
BOREHOLE LOCATION/ELEVATION: **SEE NP STUDY MAP**	



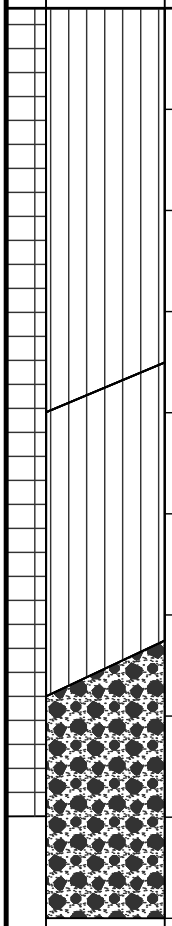
DEPTH (FT)	SAMPLES: UNDISTURBED	SAMPLES: BULK	SAMPLE ID	MATERIAL DESCRIPTION	LIQUID LIMIT	PLASTIC LIMIT	DRY DENSITY (PCF)	MOISTURE (%)	REMARKS
				This log is part of a report prepared by Nelson Engineering for this project and should be read with the report. This summary applies only at the location of the test pit and at the time of the excavation. Subsurface conditions may differ at other locations and may change at this location with passage of time. The data presented is a simplification of actual conditions encountered.					
0				*0'–1.0' MOIST, DK BROWN SILT LOAM TOPSOIL, MINOR BARLEY ROOTS, TILLED*					*PROPOSED LOT 3, VERY GENTLE NORTH SLOPING PIVOT IRRIGATED BARLEY FIELD, TEST PIT LOCATED ~100 FEET WEST OF ACTIVE MAHOGANY CREEK CHANNEL*
1				*1.0'–3.5' MOIST, BROWN SILT LOAM, LOESS, MINOR PINHOLE VOIDS, SOIL DESIGN SUB–GROUP – B–2*					
2									
3									*EASY DIGGING THROUGHOUT*
4				*3.5'–7.0' MOIST, LT BROWN GRAVELLY SANDY SILT LOAM, ~35% SILT LOAM, ~30% VERY FINE SAND, ~35% GRAVELS AND COBBLES UP TO 6–INCH MAXIMUM DIMENSION, ALLUVIAL FAN DEPOSITS, SOIL DESIGN SUB–GROUP – B–2*					*NO SIGNS OF HISTORICAL HIGH GROUNDWATER*
5									
6									
7				*7.0'–BOP MOIST, BROWN VERY GRAVELLY LOAMY SAND WITH COBBLES UP TO 6–INCH MAXIMUM DIMENSION, DENSE TO VERY DENSE, POORLY–GRADED, ~40% SUB–ROUND TO SUB–ANGULAR GRAVELS AND COBBLES, ~60% WELL–GRADED SAND WITH SILT, NO OXIDATION STAINING, ALLUVIAL FAN DEPOSITS, SOIL DESIGN SUB–GROUP – A–2B*					
8									
9									
10				*BOP=10.0'*					
11				*NO GROUNDWATER ENCOUNTERED* *NO CAVING*					
12				*MONITORING WELL INSTALLED:* *10' OF 1.5"ø SCHEDULE 40 PVC SOLID PIPE, NO SLOTS* *STICK UP = 1.9'*					
13									
14									
15									

NELSON ENGINEERING
P.O. BOX 1599, JACKSON WYOMING (307) 733–2087

CLIENT: **SKYLINE HOLDINGS GROUP, LLC**
TETON COUNTY, IDAHO

JOB NO. 22–408

PROJECT NAME: **SKYLINE VIEW RANCH SUB., NP STUDY**	**TEST PIT No. 4** PAGE: **1**
DATE STARTED / FINISHED: **5/24/2023**	OPERATOR: **TETON VALLEY EXCAVATION**
LOGGED BY: **ANDY PRUETT/KATHLEEN PRICE**	EXCAVATOR TYPE: **CASE 580 N BACKHOE**
BOREHOLE LOCATION/ELEVATION: **SEE NP STUDY MAP**	



DEPTH (FT)	SAMPLES: UNDISTURBED	SAMPLES: BULK	SAMPLE ID	MATERIAL DESCRIPTION	LIQUID LIMIT	PLASTIC LIMIT	DRY DENSITY (PCF)	MOISTURE (%)	REMARKS
				This log is part of a report prepared by Nelson Engineering for this project and should be read with the report. This summary applies only at the location of the test pit and at the time of the excavation. Subsurface conditions may differ at other locations and may change at this location with passage of time. The data presented is a simplification of actual conditions encountered.					
0				*0'–3.75' MOIST, BROWN/DK BROWN SANDY LOAMY SILT, ~15% FINE GRAVELS UP TO 3–INCH, SOIL DESIGN SUB–GROUP – B–2*					*BOUNDARY OF PROPOSED LOTS 4 & 5, VERY GENTLE NORTH SLOPING PIVOT/WHEEL–ROW IRRIGATED BARLEY FIELD*
1									
2									*EASY DIGGING THROUGHOUT*
3									
4				*3.75'–6.5' MOIST, LT BROWN GRAVELLY FINE SANDY SILT WITH MINOR CLAY, ~35% SILT LOAM, ~35% VERY FINE SAND, ~30% GRAVELS, ALLUVIAL FAN DEPOSITS, SOIL DESIGN SUB–GROUP – B–2*					*NO SIGNS OF HISTORICAL HIGH GROUNDWATER*
5									
6									
7				*6.5'–BOP MOIST, BROWN VERY GRAVELLY LOAMY SAND WITH COBBLES UP TO 6–INCH MAXIMUM DIMENSION, DENSE TO VERY DENSE, POORLY–GRADED, ~40% SUB–ROUND TO SUB–ANGULAR GRAVELS AND COBBLES, ~60% WELL–GRADED SAND WITH SILT, NO OXIDATION STAINING, ALLUVIAL FAN DEPOSITS, SOIL DESIGN SUB–GROUP – A–2B*					
8									
9				*BOP=9.0'*					
10				*NO GROUNDWATER ENCOUNTERED* *NO CAVING*					
11				*MONITORING WELL INSTALLED:* *10' OF 1.5"ø SCHEDULE 40 PVC SOLID PIPE, NO SLOTS* *STICK UP = 2.0'*					
12									
13									
14									
15									

NELSON ENGINEERING
P.O. BOX 1599, JACKSON WYOMING (307) 733–2087

CLIENT: **SKYLINE HOLDINGS GROUP, LLC**
TETON COUNTY, IDAHO

JOB NO. 22–408

Vicinity Well Data

Wells within Half Mile Radius of Skyline View Ranch Subdivision

Well ID	Permit ID	Owner	Well Address	Township	Range	Section	QQ	Quarter	Well Use	Production (GPM)	Static Water Level (ft)	Casing Depth (ft)	Total Depth (ft)	Construction Date
SE 1/4 of Section 1, T4N, R44E - PROPERTY WELL														
356743	**785690**	**JAY DELL BUXTON**		**04N**	**44E**	**1**	**SW**	**SE**		**0**	**60**		**400**	**10/30/1979**
NE 1/4 of Section 12, T4N, R44E														
453978	888857	TYLER FOSTER	5000 West 2250 South	04N	44E	12	NE	NE	Domestic-Single Residence	20	90	158	165	2/14/2019
345245	773404	JAY DELL BUXTON		04N	44E	12	SE	NE		0	0		296	4/7/1968
NE 1/4 of Section 1, T4N, R44E														
441958	876156	DARREN CROW	1250 S 5000 N	04N	44E	1	SE	NE	Domestic-Single Residence		21	79	80	7/29/2015
NW 1/4 of Section 1, T4N, R44E														
326825	702665	SMISCHNEY JAMES	1/4 SOUTH OF BATES CEMETARY	04N	44E	1	SW	NW		0	35	178		6/4/1995
413526	843343	MERLE YODER	129 S 600 W, PAST BATES CEMETERY	04N	44E	1	SW	NW	Domestic-Single Residence		37	360	440	11/9/2006
413741	843560	JOHN HIBBS	550 S 100 W	04N	44E	1	SW	NW	Domestic-Single Residence		0	60	60	11/6/2006
SW 1/4 of Section 1, T4N, R44E														
389487	818819	GOLDEN R WOOD		04N	44E	1	SE	SW			48		142	5/1/1974
NW 1/4 of Section 12, T4N, R44E														
326422	703018	GEORGE BATES		04N	44E	12	NW	NW		0	102	139		5/20/1997
359885	788851	DAVID J RICHARDSON		04N	44E	12	NW	NW			100		180	7/14/1978
378117	807306	DANE RICHARDSON		04N	44E	12	NW	NW			19		140	9/24/1982
326819	702659	MARK S ROCKEFELLER	575 W 225 S	04N	44E	12	SW	NW		0	25	120		5/25/1995
418281	875624	MARK S ROCKEFELLER	BATES ROAD	04N	44E	12	SW	NW	Domestic-Single Residence		0	130	520	6/16/2015
SW 1/4 of Section 12, T4N, R44E														
387501	816834	STEVEN L BATES		04N	44E	12	NE	SW			50		120	6/30/1977
SE 1/4 of Section 12, T4N, R44E														
439172	873188	SUNRAIN RESEARCH	S BATES ROAD	04N	44E	12	NE	SE	Domestic-Single Residence		88	245	260	8/27/2014
467991	903689	RAYMOND CHERRY	5448 W 3000 S	04N	44E	12	SW	SE	Domestic-Single Residence	18	150	194	194	1/26/2022
SW 1/4 of Section 7, T4N, R45E - NO WELLS RECORDED														
NW 1/4 of Section 7, T4N, R45E														
427563	858058	MARK TETEMAN	888 NETHERCOTT LANE	04N	45E	7	NE	NW	Domestic-Single Residence	40	30		200	10/29/2009
427567	858062	TOM FERGESSON	461 W 200 S	04N	45E	7	NE	NW	Domestic-Single Residence	35	40		200	11/4/2009
423110	853373	JAYDELL BURTON	231 S 500 W	04N	45E	7	SW	NW	Domestic-Single Residence		70	160	180	9/11/2008
SW 1/4 of Section 6, T4N, R45E														
326622	703218	STANLEY EDWARDS	200 SOUTH 475 WEST	04N	45E	6	SE	SW		0	60	115		8/11/1998
326924	702757	JEFF HANSEN	CACHE RD	04N	45E	6	SW	SW		0	92	140		9/20/1995
459322	894568	DEAN (KEITH) MORTON	1865 S 5000 W BATES	04N	45E	6	SW	SW	Domestic-Single Residence	20	40	100	100	6/24/2020
NW 1/4 of Section 6, T4N, R45E														
458019	893205	ROBERT PIQUET	148 S 5000 W	04N	45E	6	SW	NW	Domestic-Single Residence	20	37	98	100	3/9/2020

Form 238-7
1/78

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

RECEIVED FEB 3 1983

Department of Water Resources
Eastern District Office

1. WELL OWNER

Name Dave Richardson

Address Victor, Idaho

Owner's Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning) _____

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☒ Rotary ☐ Air ☐ Hydraulic ☐ Reverse rotary
☐ Cable ☐ Dug ☐ Other _____

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6 inches	+ 1 feet	64 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☒ Yes ☐ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No
Manufacturer's name _____
Type _____ Model No. _____
Diameter ____ Slot size ____ Set from _____ feet to _____ feet
Diameter ____ Slot size ____ Set from _____ feet to _____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 18' Material used in seal: ☐ Cement grout ☐ Puddling clay ☒ Well cuttings
Sealing procedure used: ☐ Slurry pit ☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld ☐ Cemented between strata
Describe access port _____

6. LOCATION OF WELL

Sketch map location must agree with written location.

Subdivision Name _____
Lot No. _____ Block No. _____
County Teton
NW ¼ NW ¼ Sec. 12, T. 4 (N)S, R. 4(E)W.

7. WATER LEVEL

Static water level 19' feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature ____ °F. Quality _____

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG

85374

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
6"	0	3	Clay		X
	3	18	Gravel		X
	18	60	Clay		X
	60	80	Lime Stone		X
	80	90'	Broken	X	
	90'	104	Lime Stone		X
	104	105	Broken	X	
	105	135	Lime Stone		X
	135	140	Broken	X	

RECEIVED
FEB 8 1983
Department of Water Resources

10.

Work started 9-25-82 finished 9-25-82

11. DRILLERS CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Denning Drill Firm No. 18
Address Drawer Box 460 Date 9-25-82
Signed by (Firm Official) Daniel Denning
and
(Operator) Denning Daniel

USE ADDITIONAL SHEETS IF NECESSARY -- FORWARD THE WHITE COPY TO THE DEPARTMENT

Form 238-7
/78

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name Dave Richardson - 44 Danforth St.

Address ~~Dagg's Pothole~~ Rehoboth, Mass. 02769
Rehoboth,

Owner's Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning) _____

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☒ Rotary ☐ Air ☐ Hydraulic ☐ Reverse rotary
☐ Cable ☐ Dug ☐ Other _____

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	8" inches	+ 1 feet	20' feet
.250 inches	6" inches	1 feet	131 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

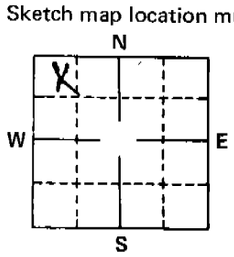
Was casing drive shoe used? ☒ Yes ☐ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No
Manufacturer's name _____
Type _____ Model No. _____
Diameter ____ Slot size ____ Set from _____ feet to _____ feet
Diameter ____ Slot size ____ Set from _____ feet to _____ feet
Gravel packed? ☐ Yes ☐ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 18' Material used in seal: ☐ Cement grout ☐ Puddling clay ☒ Well cuttings
Sealing procedure used: ☐ Slurry pit ☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld ☐ Cemented between strata
Describe access port _____

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
County Teton
NW ¼ NW ¼ Sec. 12, T. 4 (N.)S, R. 44 (E.)W.

7. WATER LEVEL

Static water level 100' feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG

021642

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
8"	+1	20'	Clay		x
6"	20'	100'	Shale		x
6"	100'	110'	Broken Shale	x	
6"	110'	140'	gray shale	x	x
6"	140'	160'	red shale		x
6"	160'	180'	clay		x

RECEIVED
SEP 18 1978
Department of Water Resources

10.

Work started July 13 finished July 15, 1978

11. DRILLERS CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Denning Drilling Firm No. 10
Address Ucon Box 64 Date July 15, 1978
Signed by (Firm Official) Duane Denning
and
(Operator) Dave Denning

MICROFILMED

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

6-7

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

COPY

1. WELL TAG NO. D 0081933
Drilling Permit No. _____
Water right or Injection well # _____
2. OWNER: Keith & Sheryl Morton
Name _____
Address 5666 E 65th N
City Idaho Falls State ID Zip 83401
3. WELL LOCATION:
Twp. 4 North ☒ or South ☐ Rge. 45 East ☒ or West ☐
Sec. 6 10 acres 1/4 SW 40 acres 1/4 SW 160 acres 1/4
Gov't Lot _____ County Teton
Lat. 43 ° 41 812 (Deg. and Decimal minutes)
Long. 111 ° 11 976 (Deg. and Decimal minutes)
Address of Well Site 1855 5000 W Bates
(Give at least name of road + Distance to Road or Landmark) City Driggs
Lot. _____ Blk. _____ Sub. Name _____
4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Thermal ☐ Injection
☐ Other _____
5. TYPE OF WORK:
☒ New well ☐ Replacement well ☐ Modify existing well
☐ Abandonment ☐ Other _____
6. DRILL METHOD:
☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other _____
7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method/procedure
Bentonite	0	38	1200	10" temp casing

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material	Casing	Liner	Threaded	Welded
[illegible] 6"	+2	100	-250		☒	☐	☐	☒
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 100
9. PERFORATIONS/SCREENS:
Perforations ☐ Y ☒ N Method _____
Manufactured screen ☐ Y ☒ N Type _____
Method of installation _____

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule

Length of Headpipe _____ Length of Tailpipe _____
Packer ☐ Y ☒ N Type _____
10. FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method

11. FLOWING ARTESIAN:
Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG) _____
Describe control device _____

12. STATIC WATER LEVEL and WELL TESTS:
Depth first water encountered (ft) 60 Static water level (ft) 40
Water temp. (°F) _____ Bottom hole temp. (°F) _____
Describe access port _____
Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)	Test method: Pump	Bailer	Air	Flowing artesian
	20	20	☐	☐	☒	☐
			☐	☐	☐	☐

Water quality test or comments: _____
13. LITHOLOGIC LOG and/or repairs or abandonment:

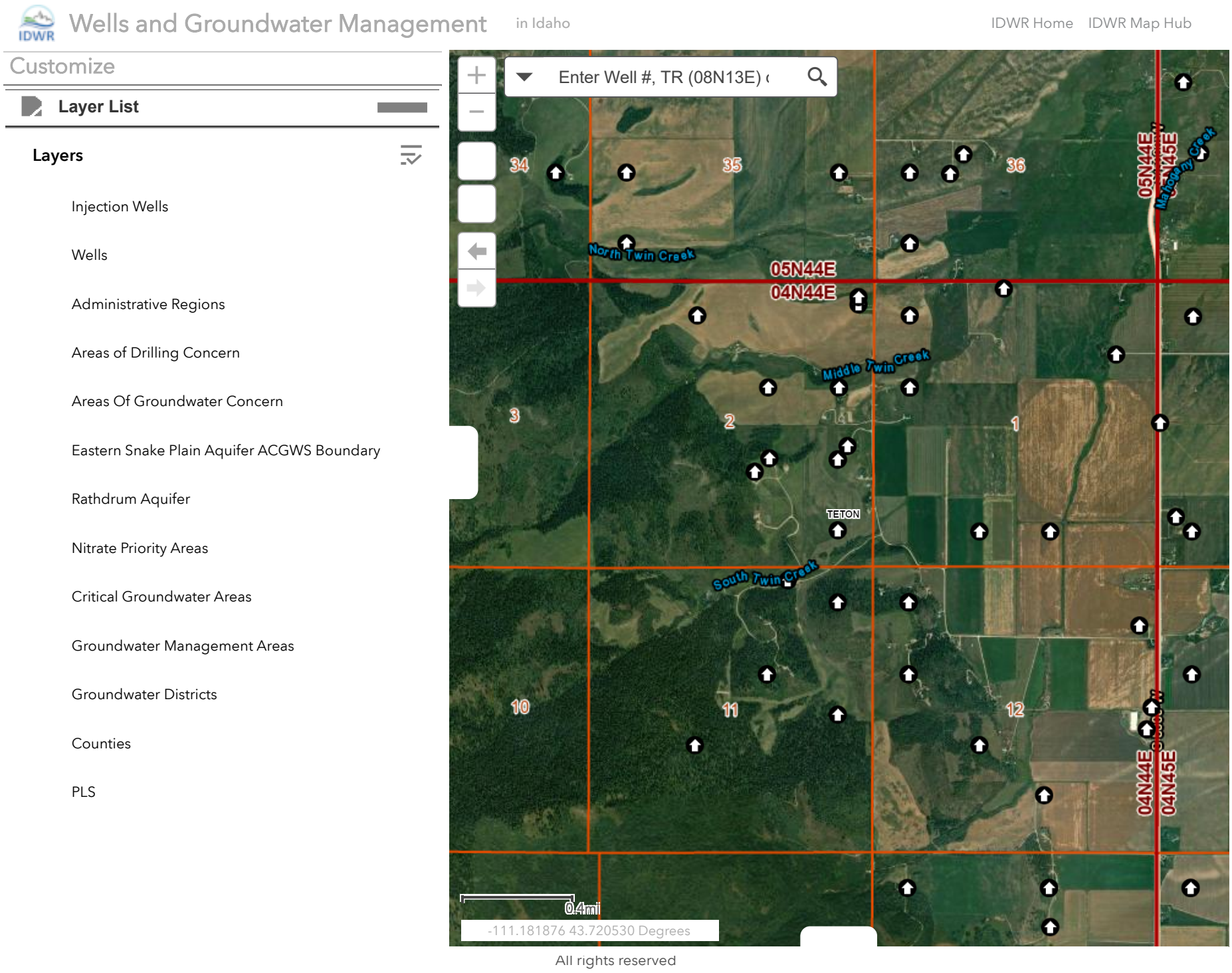
Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water Y	Water N
10	0	38	clay, gravel		X
6	38	60	clay, gravel		X
6	60	100	gravel, clay	X	

RECEIVED
SEP 14 2020
Department of Water Resources

Completed Depth (Measurable): 100
Date Started: 6-23-20 Date Completed: 6-25-20
14. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Company Name Daniel Denning Drilling Co. No. 518
*Principal Driller [signature] Date 6-30-20
*Driller Ben Berg Date 6-26-20
*Operator II _____ Date _____
Operator I _____ Date _____
* Signature of Principal Driller and rig operator are required.

Find a Well Map

Use the map below to view well locations layered with areas of drilling concern in addition to nitrate priority areas, groundwater management areas, and more.



Need a larger map?

Click here to view a full-size interactive map of the wells.
(https://maps.idwr.idaho.gov/agol/WellsandGroundwaterManagement/)

Form 238-7
3/95

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen

68084

Office Use Only
Inspected by _____
Twp____ Rge____ Sec____
____1/4 ____1/4 ____1/4
Lat: : : Long: : :

1. DRILLING PERMIT NO. 22 - 97 - E - 0034 - 000
Other IDWR No. _____

2. OWNER:
Name George Bates
Address 544 W 225 So.
City Driggs State Id Zip 83422

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 4 North ☒ or South ☐
Rge. 44 East ☒ or West ☐
Sec. 12, ____ 10 acres 1/4 NW 40 acres 1/4 NW 160 acres 1/4
Gov't Lot ____ County Teton
Lat: : : Long: : :
Address of Well Site _____
_____ City _____
(Give at least name of road + Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	18'	440 LBS	over Bore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+1	139'	.250	Steel	☒	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS
☐ Perforations Method _____
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
102' ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: _____

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. _____ Bottom hole temp. _____
Water Quality test or comments: _____
_____ Depth first Water Encountered _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8"	0	18'	Clay Gravel Cobble Rocks		X
6"	18'	55'	Clay Gravel Cobble Rocks		X
6"	55'	62'	Clay Gravel	X	
6"	62'	140'	Cobbled Gravels		X
6"	10'	140'	Clay + Gravels	X	

RECEIVED
JUL 16 1997
Department of Water Resources
Eastern Region

RECEIVED
JUL 21 1997
Department of Water Resources

Completed Depth _____ (Measurable)
Date: Started 5-20-97 Completed 5-21-97

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Denning Drilling Inc Firm No. 518
Firm Official Daniel Denning Date 5-21-97
and
Supervisor or Operator _____ Date _____
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Administration

WELL DRILLER'S REPORT

RECEIVED
AUG 12 1974
Department of Water Resources
Eastern District Office

State law requires that this report be filed with the Director, Department of Water Administration within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name Golden Wood

Address Driggs, Idaho

Owner's Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

_____

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Other (specify type)

☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection

4. METHOD DRILLED

☐ Cable ☒ Rotory ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 6 inches Total depth 142 feet

Casing schedule: ☐ Steel ☐ Concrete

Thickness	Diameter	From	To
.250 inches	6 inches	+ 1 feet	53½ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was a packer or seal used? ☐ Yes ☒ No

Perforated? ☐ Yes ☒ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No

Manufacturer's name _____

Type _____ Model No. _____

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Gravel packed? ☐ Yes ☒ No Size of gravel _____

Placed from _____ feet to _____ feet

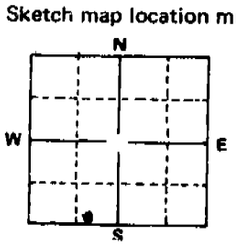
Surface seal depth 18 Material used in seal ☐ Cement grout ☒ Puddling clay ☐ Well cuttings

Sealing procedure used ☐ Slurry pit ☐ Temporary surface casing ☒ Overbore to seal depth

6. LOCATION OF WELL

Sketch map location must agree with written location.

B 22 CB



Subdivision Name _____

Lot No. _____ Block No. _____

MICROFILMED

County Teton

SE ¼ SW ¼ Sec. 1, T. 4 (N) S, R. 44 (E) W

7. WATER LEVEL

Static water level 48 feet below land surface

Flowing? ☐ Yes ☒ No G.P.M. flow _____

Temperature 53 ° F. Quality _____

Artesian closed-in pressure _____ p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped

9. LITHOLOGIC LOG

46452

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
6	0	5	Soil		x
)	5	53	Clay & Boulders		x
)	53	60	Grey WT		x
)	60	62	Broken Rock & Clay		x
)	62	80	Broken Rock	x	
)	80	91	Grey WT		x
)	91	110	Broken Rock & Clay		x
)	110	120	Grey WT		x
)	120	125	Broken Rock	x	
)	125	128	Grey Wt		x
6	128	142	Broken Rock & Clay	x	

10.

Work started May 1, 1974 finished May 2, 1974

11. DRILLERS CERTIFICATION

Firm Name Hopkins Brothers Firm No. 32

Address Driggs, Idaho Date 7/13/74

Signed by (Firm Official) H L Hopkins

and

(Operator) H L Hopkins

USE ADDITIONAL SHEETS IF NECESSARY FORWARD THE WHITE COPY TO THE DEPARTMENT

RECEIVED
APR

REPORT OF WELL DRILLER
State of Idaho

State law requires that this report shall be filed with the State Reclamation Engineer within 30 days after completion or abandonment of the well.

WELL OWNER: JAY DELL BUXTON
Name
Address BRIGGS, IDAHO

Owner's Permit No. G33114
NATURE OF WORK (check): Replacement well ☐
New well [X] Deepened ☐ Abandoned ☐
Water is to be used for: irrigation
METHOD OF CONSTRUCTION: Rotary ☐ Cable [X]
Dug ☐ Other (explain)
CASING SCHEDULE: Threaded ☐ Welded [X]
16 "Diam. from 0 ft. to 254 ft.
"Diam. from ft. to ft.
"Diam. from ft. to ft.
"Diam. from ft. to ft.
Thickness of casing: .250 Material:
Steel [X] concrete ☐ wood ☐ other ☐

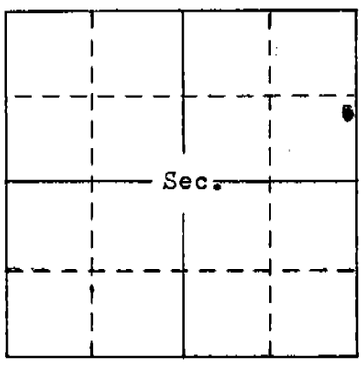
PERFORATED? Yes [X] No ☐ Type of perforator used: (explain)
Size of perforations: ½ " by 3 "
1000 perforations from 124 ft. to 250 ft.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.
WAS SCREEN INSTALLED? Yes ☐ No [X]
Manufacturer's name [redacted]
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

CONSTRUCTION: Well gravel packed? Yes ☐
No [X] size of gravel Gravel placed from ft. to ft. Surface seal provided? Yes ☐ No ☐ To what depth? ft. Material used in seal:

Did any strata contain unusable water? Yes ☐
No [X] Type of water:
Depth of strata 110 ft. Method of sealing strata off:

Surface casing used? Yes [X] No. ☐
Cemented in place? Yes ☐ No [X]

Locate well in section



LOCATION OF WELL: County TETON
S.[X] N.E ¼ Sec. 12 T. 4 N/S R. 44 E/W

Size of drilled hole: 16" Total depth of well: 296 Standing water level below ground: 110 Temp. Fahr. 56 ° Test delivery: 1200 gpm or cfs Pump? [X] Bail ☐
Size of pump and motor used to make test: See Mel Brown Co
Length of time of test: Hrs. Min.
Drawdown: 185 ft. Artesian pressure: ft. above land surface Give flow cfs or gpm. Shutoff pressure:
Controlled by: Valve ☐ Cap ☐ Plug ☐
No control ☐ Does well leak around casing?
Yes ☐ No [X]

DEPTH FROM FEET	DEPTH TO FEET	MATERIAL	WATER YES OR NO
0	2	top soil	no
2	11	brown sandy clay	no
11	34	clay and gravel	no
34	42	brown clay	no
42	49	cobble rocks	no
49	54	clay and gravel	no
54	62	cobble rocks	no
62	124	clay and gravel (water	yes
124	127	pea gravel and sand	yes
127	153	brown clay and gravel	yes
153	174	gravel conglomerate	yes
174	182	clay and gravel	yes
182	185	gravel conglomerate	yes
185	197	clay and gravel	yes
197	202	brown clay	
202	214	gravel conglomerate	yes
214	220	cobbles	yes
220	224	gravel conglomerate	yes
224	252	brown clay and gravel	yes
252	263	gravel conglomerate, clay	yes
263	283	brown sticky clay	
283	288	clay and gravel	yes
288	291	sticky clay	
291	296	clay and gravel	yes

CO 613

Work started: FEB. 24, 1968
Work finished: April 8, 1968
Well Driller's Statement: This well was drilled under my supervision and this report is true to the best of my knowledge.
Name: G.L. HOPKINS
Address: THORNTON, IDAHO
Signed by: [signature]
License No. 32 Date: April 17, 1968

(4469)

Use other side for additional remarks

USGS

22

copied

Form 238-7
1/78

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name J.D. Buxton ~~Baxton~~

Address Driggs, Idaho 83422

Owner's Permit No. 22-7309

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning) _____

3. PROPOSED USE

☐ Domestic ☒ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☐ Rotary ☐ Air ☐ Hydraulic ☐ Reverse rotary
☒ Cable ☐ Dug ☐ Other _____

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness		Diameter		From		To	
.250	inches	20"	inches +	1	feet	401	feet
	inches		inches		feet		feet
	inches		inches		feet		feet
	inches		inches		feet		feet

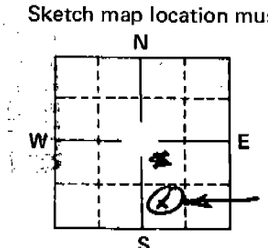
Was casing drive shoe used? ☒ Yes ☐ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☒ Yes ☐ No
How perforated? ☐ Factory ☒ Knife ☐ Torch
Size of perforation 3/8 inches by 2 inches

Number		From		To	
1600	perforations	84	feet	400	feet
	perforations		feet		feet
	perforations		feet		feet

Well screen installed? ☐ Yes ☒ No
Manufacturer's name _____
Type _____ Model No. _____
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 20' Material used in seal: ☒ Cement grout ☐ Puddling clay ☒ Well cuttings
Sealing procedure used: ☒ Slurry pit ☐ Temp. surface casing ☐ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld ☐ Cemented between strata
Describe access port 2" pipe

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____

County Teton
SW ~~NW~~ ¼ SE ¼ Sec. 1, T. 4 N, R. 44 E

7. WATER LEVEL

Static water level 60 feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
2000	160'	10 hr.

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
20	0	4	Top Soil		X
"	4	24	Gravel and Clay		X
"	24	68	Red Clay		X
"	68	75	Gravel and Clay		X
"	75	84	Clay		X
"	84	88	Gravel and Clay	X	
"	88	104	Gravel and Clay	X	
40	104	109	Clay		X
"	109	120	Gravel and Clay	X	
"	120	174	Clay Red		X
9"	174	183	Cemented Gravel	X	
"	183	192	Clay		X
8"	192	200	Cemented Gravel	X	
"	200	221	Clay (Sticky Red)		X
20"	221	231	Gravel (Some Clay Streaks)	X	
"	231	236	Clay		X
"	236	241	Gravel (Bigger, Cleaner)	X	
"	241	244	Clay		X
6"	244	250	Gravel	X	
"	250	274	Clay (Some Gravel)		X
4"	274	278	Gravel	X	
"	278	303	Clay		X
4"	303	307	Gravel	X	
"	307	338	Clay (Some Gravel)		X
"	338	361	Gravel	X	
"	361	365	Clay		X
6"	365	374	Gravel (little sand & Clay	X	
"	374	385	Clay		X
"	385	399	Gravel (Cemented)	X	
"	399	400	Clay		

RECEIVED
APR 13 1981
Department of Water Resources

RECEIVED
FEB 22 1980
Department of Water Resources
Eastern District Office

10.

Work started Sept.18,1979 finished Oct. 31, 1979

11. DRILLERS CERTIFICATION

cb dl

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Paul Vollmer & Son Firm No. 67
Address Aberdeen, Idaho 83210 Date Nov. 2, 1979
Signed by (Firm Official) Paul Vollmer Jr
and
(Operator) Paul Vollmer Jr

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

Form 238-7
6/07

Bond

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

22

1. WELL TAG NO. D 0049740
Drilling Permit No. 58
Water right or injection well #

2. OWNER: Saydell Buxton
Name
Address 231 So. 500W
City Driggs State ID Zip 83422

3. WELL LOCATION:
Twp. 4 North ☒ or South ☐ Rge. 45 East ☒ or West ☐
Sec. 7 10 acres 1/4 SW 40 acres 1/4 NW 160 acres 1/4
Gov't Lot County Teton
Lat. 43 ° 41.390 (Deg. and Decimal minutes)
Long. 111 ° 12.020 (Deg. and Decimal minutes)
Address of Well Site 231 S. 500W City
(Give at least name of road + Distance to Road or Landmark)
Lot. Blk. Sub. Name

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Thermal ☐ Injection
☐ Other

5. TYPE OF WORK:
☒ New well ☐ Replacement well ☐ Modify existing well
☐ Abandonment ☐ Other

6. DRILL METHOD:
☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method/procedure
bentonite	0	18	250 lbs	overbore

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material	Casing	Liner	Threaded	Welded
6"	+1	160	.280	steel	☒	☐	☐	☒
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 160

9. PERFORATIONS/SCREENS:
Perforations ☐ Y ☒ N Method
Manufactured screen ☐ Y ☒ N Type
Method of installation

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule

Length of Headpipe Length of Tailpipe
Packer ☐ Y ☒ N Type

10. FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method

11. FLOWING ARTESIAN:
Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG)
Describe control device

12. STATIC WATER LEVEL and WELL TESTS:
Depth first water encountered (ft) 70 Static water level (ft) 70
Water temp. (°F) Bottom hole temp. (°F)
Describe access port

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)

Test method: ☐ Pump ☐ Bailer ☐ Air ☐ Flowing artesian

Water quality test or comments:

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water Y	Water N
8"	0	18	clay gravels		
6"	18	35	clay-gravels		
6"	35	40	clay		
6"	40	45	clay-gravels		
6"	45	50	clay		
6"	50	70	clay-gravels		
6"	70	110	clay gravels	X	
6"	110	120	clay		9
6"	120	125	clay-gravels	X	
6"	125	160	clay		X
6"	160	180	cemented gravels	X	

RECEIVED
OCT 07 2008
Department of Water Resources
Eastern Region

Completed Depth (Measurable): 180
Date Started: 9-11-08 Date Completed: 9-12-08

14. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Deming Well Drilling Co. No. 518
*Principal Driller Date 9-18-08
*Driller Date 9-17-08
*Operator II Date 9-17-08
Operator I Date

*** Signature of Principal Driller and rig operator are required.**

Form 238-7
3/95

V C DMD

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen

63927

Office Use Only
Inspected by _____
Twp____ Rge____ Sec____
____1/4 ____1/4 ____1/4
Lat: : : Long: : :

1. DRILLING PERMIT NO. ~~22~~ - 95 - E 0160 -000
Other IDWR No. _____

2. OWNER:
Name Jeff Hansen
Address 61 E Dogwood
City Victor State Id Zip 83455

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S — X

Twp. 4 N North ☑ or South ☐
Rge. 45E East ☑ or West ☐
Sec. 26, ____ 1/4 (10 acres) SW 1/4 (40 acres) SW 1/4 (160 acres)
Gov't Lot ____ County Teton
Lat: : : Long: : :
Address of Well Site Victor
Cache Rd City _____
(Give at least name of road + Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

4. USE:
☑ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)
☑ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD
☑ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	20'	400 LBS	Over Bore

Was drive shoe used? ☑ Y ☐ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+2	140'	.250"	Steel	☑	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS
☐ Perforations Method _____
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
92' ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: _____

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. _____ Bottom hole temp. _____
Water Quality test or comments: _____
Depth first Water Encountered _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8"	0	90'	Clay Gravel Small Cobble Rocks		X
6"	90'	140'	Clay Gravel Cobble Rocks	X	

RECEIVED
NOV 27 1995
Department of Water Resources

RECEIVED
OCT 05 1995
Department of Water Resources
Eastern District Office

MAR 07 1996

Completed Depth 140' (Measurable)
Date: Started 9-21-95 Completed 9-21-95

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Denning Drilling Inc Firm No. 518
Firm Official _____ Date 9-21-95
and
Supervisor or Operator _____ Date _____
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

DE

Form 238-7
6/07

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

COPY

1. WELL TAG NO. D 0075686
Drilling Permit No. _____
Water right or injection well # _____

2. OWNER:
Name Foster, Kerstyn and Tyler
Address P.O. Box 604
City Driggs State ID Zip 83422

3.WELL LOCATION:
Twp. 4 North ☒ or South ☐ Rge. 44 East ☒ or West ☐
Sec. 12 ____ 10 acres 1/4 NE 40 acres 1/4 NE 160 acres 1/4
Gov't Lot _____ County Teton
Lat. 43 ° 41.480 (Deg. and Decimal minutes)
Long. 111 ° 12.130 (Deg. and Decimal minutes)
Address of Well Site 5000 W 2250 S
(Give at least name of road + Distance to Road or Landmark) City Driggs
Lot. _____ Blk. _____ Sub. Name _____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Thermal ☐ Injection
☐ Other _____

5. TYPE OF WORK:
☒ New well ☐ Replacement well ☐ Modify existing well
☐ Abandonment ☐ Other _____

6. DRILL METHOD:
☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other _____

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method/procedure
bentonite	0'	40'	1400 lbs	temp casing

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material	Casing	Liner	Threaded	Welded
6"	+2	158'	.250	steel	☒	☐	☐	☒
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 158'

9. PERFORATIONS/SCREENS:
Perforations ☐ Y ☒ N Method _____
Manufactured screen ☐ Y ☒ N Type _____
Method of installation _____

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule

Length of Headpipe _____ Length of Tailpipe _____
Packer ☐ Y ☒ N Type _____

10.FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method

11. FLOWING ARTESIAN:
Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG) _____
Describe control device _____

12. STATIC WATER LEVEL and WELL TESTS:
Depth first water encountered (ft) 90' Static water level (ft) 90'
Water temp. (°F) 58* Bottom hole temp. (°F) 58*
Describe access port _____

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)
150'	20	45

Test method: Pump ☐ Bailer ☐ Air ☒ Flowing artesian ☐

Water quality test or comments: _____

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water Y	Water N
10"	0'	40'	clay, gravel, top soil		X
6"	40'	70'	clay, gravel		X
	70'	72'	cemented gravel layer		X
	72'	93'	clay, gravel	X	
	93'	95'	cemented gravel layer	X	
	93'	110'	clay		X
	110'	112'	cemented gravel layer	X	
	112'	140'	gravel, clay very low GPM	X	
	140'	150'	clay		X
	150'	165'	clay, gravel	X	

RECEIVED
MAY 20 2019
Department of Water Resources
Eastern Region

Completed Depth (Measurable): 158'
Date Started: Feb 13, 2019 Date Completed: Feb 15, 2019

14. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Denning Well Drilling Co. No. 518
*Principal Driller _____ Date Feb 15, 2019
*Driller _____ Date Feb 15, 2019
*Operator II _____ Date _____
Operator I _____ Date Feb 15, 2019

* Signature of Principal Driller and rig operator are required.

Form 238-7
6/07

OMR

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. WELL TAG NO. D 80168055 | old well D0045769 we modified.
Drilling Permit No. _____
Water right or injection well # _____

2. OWNER:
Name Mark Rockefeller
Address PO Box 604
City Driggs State Id Zip 83422

3. WELL LOCATION:
Twp. 4 North ☒ or South ☐ Rge. 44 East ☒ or West ☐
Sec. 12 ____ 1/4 (10 acres) SW 1/4 (40 acres) NW 1/4 (160 acres)
Gov't Lot _____ County Teton
Lat. _____ ° _____ (Deg. and Decimal minutes)
Long. _____ ° _____ (Deg. and Decimal minutes)
Address of Well Site Bates Rd
(Give at least name of road + Distance to Road or Landmark) City Victor
Lot. _____ Blk. _____ Sub. Name _____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Thermal ☐ Injection
☐ Other _____

5. TYPE OF WORK:
☐ New well ☐ Replacement well ☒ Modify existing well
☐ Abandonment ☐ Other _____

6. DRILL METHOD:
☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other _____

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method/procedure
Neat Cement				

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material	Casing	Liner	Threaded	Welded
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☐ Y ☐ N Shoe Depth(s) _____

9. PERFORATIONS/SCREENS:
Perforations ☒ Y ☐ N Method Air Perforator
Manufactured screen ☐ Y ☐ N Type _____
Method of installation _____

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule
90'	100'	1/4"	6 rows	6"	Steel	.250"

Length of Headpipe _____ Length of Tailpipe _____
Packer ☐ Y ☐ N Type _____

10. FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method

11. FLOWING ARTESIAN:
Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG) _____
Describe control device _____

12. STATIC WATER LEVEL and WELL TESTS:
Depth first water encountered (ft) _____ Static water level (ft) _____
Water temp. (°F) _____ Bottom hole temp. (°F) _____
Describe access port _____

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)

Test method: Pump ☐ Bailer ☐ Air ☐ Flowing artesian ☐

Water quality test or comments: _____

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water Y	Water N
			drilled 4½ PVC out to 130' filled Entire hole from 0' to 520' with neat Cement let set 3 days drilled to 120' - 6" drill then perforated from 90' to 100' with air perforator six rows and developed for one hr.		

RECEIVED
AUG 03 2015
Department of Water Resources
Eastern Region

Completed Depth (Measurable): 120'
Date Started: 6-11-15 Date Completed: 6-17-15

14. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Denning Drilling Inc Co. No. 518
*Principal Driller Denny Denning Date 7-18-15
*Driller Denny Denning Date 7-18-15
*Operator II _____ Date _____
Operator I _____ Date _____

* Signature of Principal Driller and rig operator are required.

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Well ID No. _____
Inspected by _____
Twp _____ Rge _____ Sec _____
_____ 1/4 _____ 1/4 _____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0045769
DRILLING PERMIT NO. _____
Water Right or Injection Well No. _____

2. OWNER:
Name Mark Rockefeller
Address PO Box 604
City Driggs State Id Zip 83422

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 4N North ☑ or South ☐
Rge. 44E East ☑ or West ☐
Sec. 12, 10 acres 1/4 SW 40 acres 1/4 NW 160 acres 1/4
Gov't Lot _____ County Teton
Lat: : : Long: : :
Address of Well Site Bates Road
(Give at least name of road + Distance to Road or Landmark) City Driggs
Lt. _____ Blk. _____ Sub. Name _____

4. USE:
☑ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)
☑ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD:
☑ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
Bentonite	0	20'	1000 LBS	over Bore

Was drive shoe used? ☑ Y ☐ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☑ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+1	205'	.250"	Steel	☑	☐	☐	☐
5"	-15'	320'	Sch 40		☑	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____
Packer ☐ Y ☑ N Type _____

9. PERFORATIONS/SCREENS PACKER TYPE
Perforation Method _____
Screen Type & Method of Installation _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
10' ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: _____

12. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. _____ Bottom hole temp. _____
Water Quality test or comments: _____
Depth first Water Encounter _____

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8"	0'	20'	Clay		X
8"	20'	100'	Clay Rock Gravel	X	
6"	100'	120'	Rock		X
6"	120'	200'	Clay Gravel	X	
6"	200'	230'	Rock		X
6"	230	235'	Broken Rock	X	
6"	235'	505'	Rock (Grey)		X
6"	505	520'	Broken Rock Lots of Water	X	

RECEIVED
AUG 20 2007
Department of Water Resources
Eastern Region

Completed Depth 520' (Measurable)
Date: Started 8-8-07 Completed 8-13-07

14. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Denning Drilling Firm No. 518
Principal Driller Daniel Denning Date 8-14-07
and
Driller or Operator II Dennis Denning Date 8-14-07
Operator I _____ Date _____
Principal Driller and Rig Operator *Required.*
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
7/94

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT 48909

Use Typewriter or Ball Point Pen

1. DRILLING PERMIT NO. 22-95-E-054-000
Other IDWR No.

2. OWNER:
Name Mark Rockefeller
Address PO Box 604
City Driggs State Id Zip 83422

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 4 North ☑ or South ☐
Rge. 44 East ☑ or West ☐
Sec. 12, ____ 1/4 SW 1/4 NW 1/4
(10 acres / 40 acres / 160 acres)
Gov't Lot ____ County Teton

Address of Well Site
City
(Give at least name of road + Distance to Road or Landmark)

Lt. Blk. Sub. Name

4. PROPOSED USE:
☑ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

5. TYPE OF WORK
☑ New Well ☐ Modify or Repair ☐ Replacement ☐ Abandonment

6. DRILL METHOD
☐ Mud Rotary ☑ Air Rotary ☐ Cable ☐ Other

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	20'	400 lbs	Dry Drive

Was drive shoe used? ☑ Y ☐ N Shoe Depth(s)
Was drive shoe seal tested? Y ☑ N ☐ How?

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+2	120'	.280"	Steel	☑	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe Length of Tailpipe

9. PERFORATIONS/SCREENS
☑ Perforations Method Air Perforator
☐ Screens Screen Type

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
100'	118'	3/4"	3 passes			☐	☐
						☐	☐
						☐	☐

Air Perforator has a Cog or Sprocket that travels down pipe

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
25' ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices:

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. Bottom hole temp.
Water Quality test or comments:

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8"	0	10'	Clay		
8"	10'	25'	Clay & Gravel		
8"	25'	30'	Clay		
8"	30'	76'	Rock		
8"	76'	88'	Clay & Gravel	X	
8"	88'	95'	Clay		X
8"	95	110	Clay & Gravel		X
8"	110'	115'	Rock		X
8"	115	125'	Clay & Gravel	X	
6"	125'	135'	Clay		X
6"	135'	150'	Clay & Gravel		X
6"	150'	152'	Clay		X
6"	152	160'	Clay with small Amount of Gravel		X

RECEIVED
AUG 23 1995
Department of Water Resources

JUN 12 1996
Department of Water Resources
Eastern District Office

OCT 0 8 1996

Completed Depth 120' (Measurable)
Date: Started 5-25-95 Completed 5-26-95

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Denning Drilling Inc Firm No. 518
Firm Official Dennis Denning Date 5-26-95
and
Supervisor or Operator Date
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
11/97

DMD

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

67686

Office Use Only
Twp 4N Rge 45E Sec 06
1/4 SE 1/4 SW 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 000 6066
DRILLING PERMIT NO. 22-98E-0092-000
Other IDWR No.

2. OWNER:
Name Stanley Edwards
Address 200 S 475 W
City Driggs State Id. Zip 83422

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 4 North ☒ or South ☐
Rge. 45 East ☒ or West ☐
Sec. 6, 1/4 (10 acres) SE 1/4 (40 acres) SW 1/4 (160 acres)
Gov't Lot ____ County Teton
Lat: : : Long: : :
Address of Well Site 200 S 475 W
City Driggs
(Give at least name of road + Distance to Road or Landmark)

Lt. ____ Blk. ____ Sub. Name ____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other ____

6. DRILL METHOD
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	20'	300 LBS	OVER BORE

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) ____
Was drive shoe seal tested? ☐ Y ☒ N How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+1	115'	.250	Steel	☒	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____

9. PERFORATIONS/SCREENS
Perforations Method ____
Screens Screen Type ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
60' ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: ____

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments: ____
Depth first Water Encounter ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8"	0	20'	Clay		X
6"	20'	60'	Clay Gravel	X	
6"	60'	115'	Clay Gravel	X	

AUG 31 1998
Department of Water Resources
Eastern District Office
RECEIVED
SEP 08 1998
MICROFILMED
Department of Water Resources NOV 04 1998

Completed Depth 115' (Measurable)
Date: Started 8-11-98 Completed 8-12-98

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Denning Drilling Firm No. 578
Firm Official Daniel Denning Date 8-12-98
and
Driller or Operator ____ Date ____
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Manufactured by Alexander Clark Business Forms - Boise, Idaho - (208) 322-0611

C

D&D

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Inspected by _____
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

..WELL TAG NO. D0065558
DRILLING PERMIT NO. ____-____-____-____-____
Other IDWR No. _____

2. OWNER:
Name Sun Raw Research
Address 3270 E 17th st # 229
City Ammon State Id Zip 83406

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 4 North ☒ or South ☐
Rge. 44 East ☒ or West ☐
Sec. 12 ____ 1/4 NE 1/4 SE 1/4 (10 acres / 40 acres / 160 acres)
Gov't Lot ____ County Teton
Lat: : : Long: : :
Address of Well Site So. Bates Rd
City _____
(Give at least name of road + Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	40'	26 Sacks	over Bore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+2'	193'	.250"	Steel	☒	☐	☐	☐
5"	185	245'	.25"	Steel	☐	☒	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS
Perforations Method Torch
Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
186'	244'	1/4" x 4"				☐	☐
	3 perfs Every 2'					☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
88' ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: _____

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Pumping Level	Time

Water Temp. _____ Bottom hole temp. _____
Water Quality test or comments: _____
Depth first Water Encounter _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10"	0	18'	Clay		X
10"	18'	40'	Clay Gravel		X
6"	40'	55'	Clay Gravel		no
6"	55'	90'	Clay Sand	X	
6"	90'	120'	Clay Gravel	X	
6"	120'	190'	Clay Sand	X	
6"	190	235'	Clay Sand Gravel	X	
6"	235'	260	Clay Gravel	X	

RECEIVED
APR 15 2015
Department of Water Resources
Eastern Region

Completed Depth 260' (Measurable)
Date: Started 8-20-14 Completed 8-28-14

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Denning Drilling Inc Firm No. 578
Firm Official Daniel Denning Date 8-28-14
and
Driller or Operator _____ Date _____
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

NRCS SOIL REPORT

United States Department of Agriculture

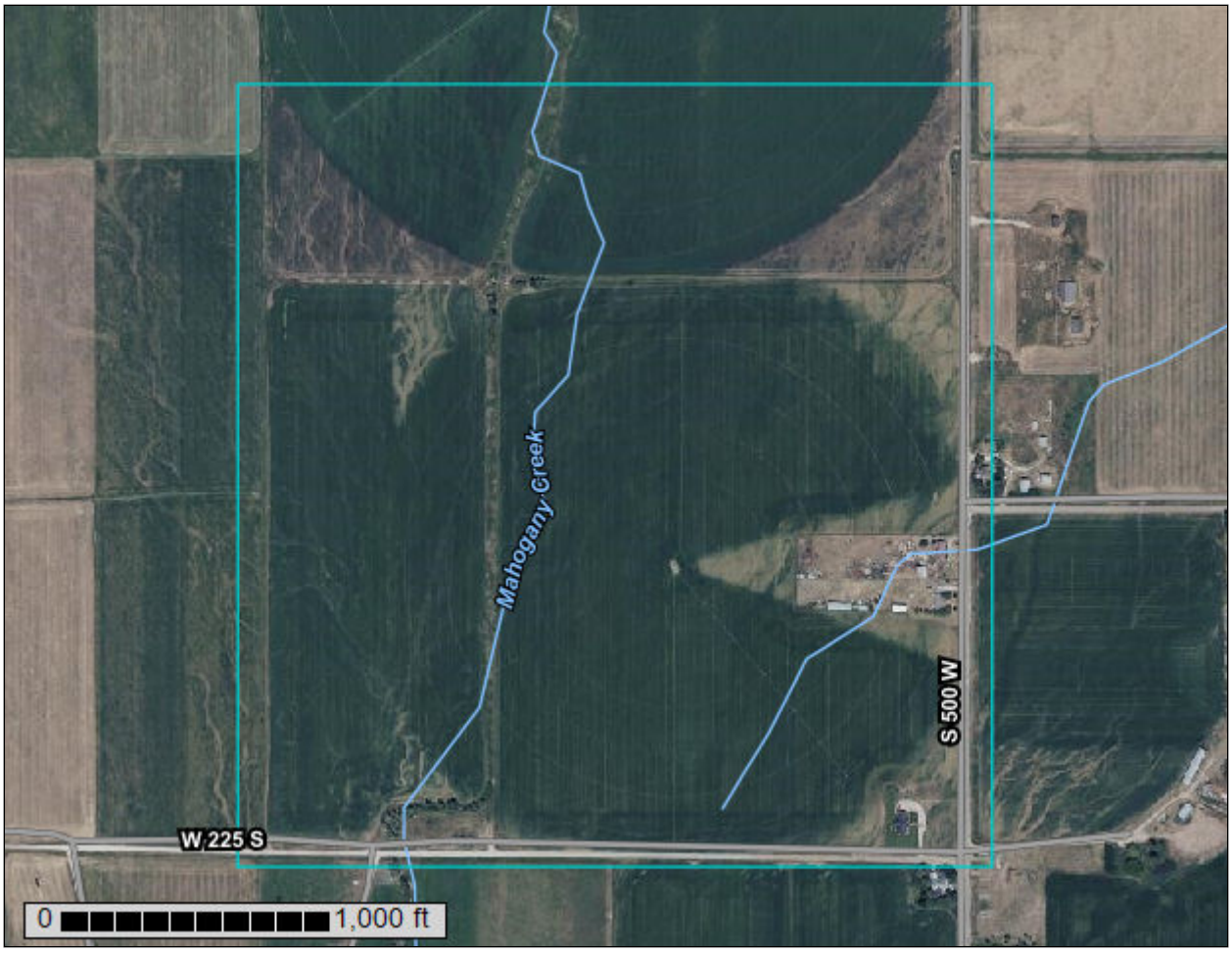
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Teton Area, Idaho and Wyoming

Skyline View Ranch



December 19, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

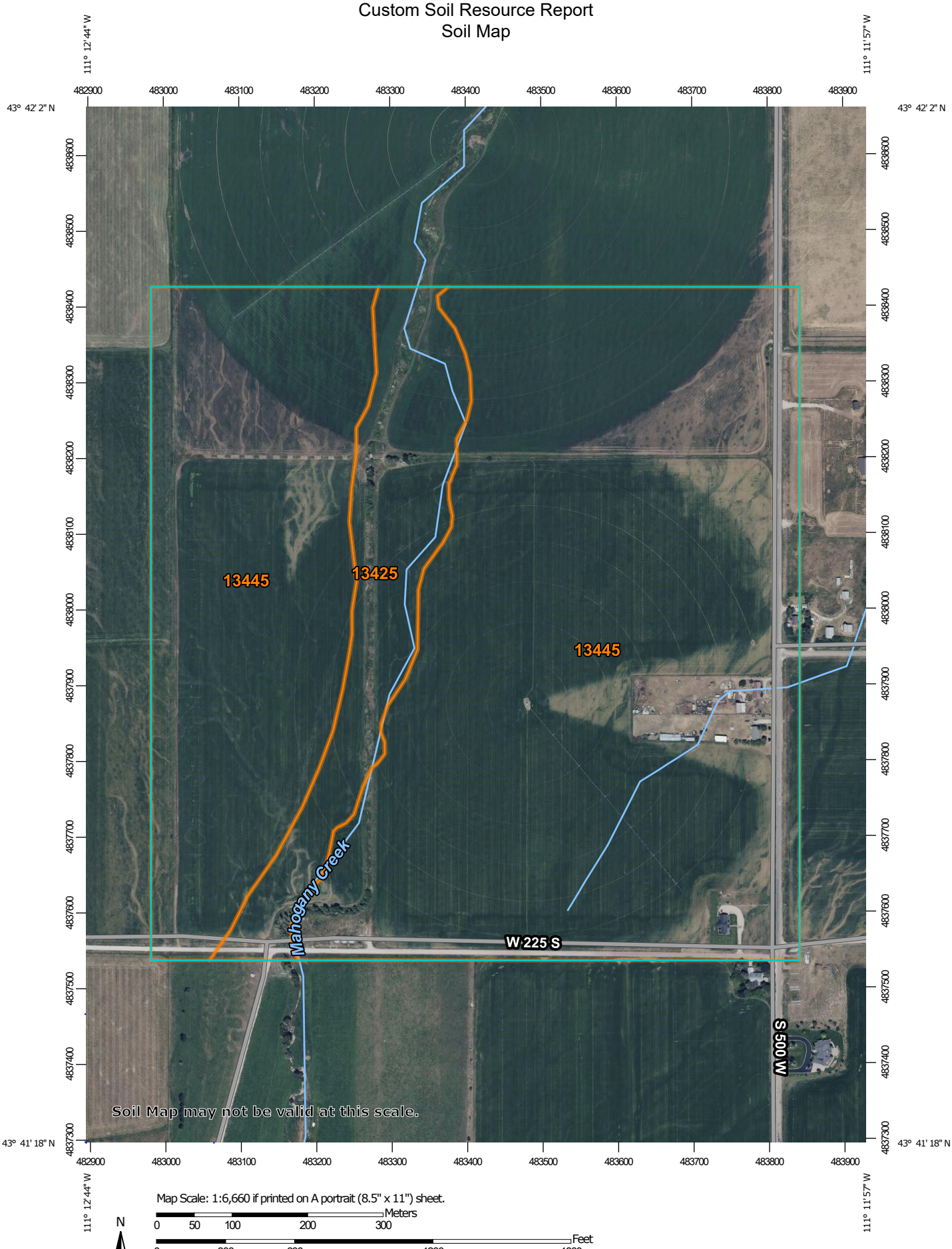
alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:6,660 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Teton Area, Idaho and Wyoming
Survey Area Data: Version 11, Sep 2, 2022

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

Date(s) aerial images were photographed: Jul 20, 2022—Jul 25, 2022

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
13425	Badgerton-Alpine complex, 2 to 8 percent slopes	21.2	11.2%
13445	Richvale silt loam, 0 to 4 percent slopes	168.4	88.8%
Totals for Area of Interest		**189.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Teton Area, Idaho and Wyoming

13425—Badgerton-Alpine complex, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 1vggt
Elevation: 6,040 to 6,680 feet
Mean annual precipitation: 16 to 26 inches
Mean annual air temperature: 36 to 44 degrees F
Frost-free period: 20 to 90 days
Farmland classification: Not prime farmland

Map Unit Composition

Badgerton, rarely flooded, and similar soils: 55 percent
Alpine and similar soils: 35 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Badgerton, Rarely Flooded

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Concave, linear
Parent material: Mixed alluvium

Typical profile

A - 0 to 9 inches: loam
AB - 9 to 17 inches: very gravelly loam
BC - 17 to 31 inches: extremely gravelly loamy sand
C1 - 31 to 43 inches: extremely gravelly loamy coarse sand
C2 - 43 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: NoneRare
Frequency of ponding: None
Calcium carbonate, maximum content: 4 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): 6c
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: B
Ecological site: R013XY050ID - Riparian Wet Meadow SALIX/CAREX
Hydric soil rating: No

Description of Alpine

Setting

Landform: Fan remnants, stream terraces
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Mixed alluvium

Typical profile

A1 - 0 to 2 inches: gravelly loam
A2 - 2 to 11 inches: very gravelly loam
ABk - 11 to 17 inches: extremely gravelly loam
Bk - 17 to 25 inches: extremely gravelly sandy loam
Bkq - 25 to 31 inches: extremely gravelly loamy sand
Bk' - 31 to 35 inches: extremely gravelly sandy loam
Bkq' - 35 to 44 inches: extremely gravelly loamy sand
Bk1'' - 44 to 51 inches: extremely gravelly sandy loam
Bk2'' - 51 to 60 inches: gravel

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 75 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): 4c
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: R013XY004ID - Shallow Gravelly 12-16 PZ ARTRV/PSSPS
Hydric soil rating: No

Minor Components

Redfish, wooded

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R013XY050ID - Riparian Wet Meadow SALIX/CAREX
Hydric soil rating: Yes

Foxcreek, wooded

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R013XY050ID - Riparian Wet Meadow SALIX/CAREX

Hydric soil rating: Yes

13445—Richvale silt loam, 0 to 4 percent slopes

Map Unit Setting

National map unit symbol: 20j5z
Elevation: 6,000 to 6,250 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 38 to 44 degrees F
Frost-free period: 50 to 90 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Richvale and similar soils: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Richvale

Setting

Landform: Stream terraces, fan remnants
Down-slope shape: Linear
Across-slope shape: Convex, linear
Parent material: Mixed alluvium derived primarily from sandstone and limestone with loess inflence

Typical profile

Ap - 0 to 7 inches: silt loam
A - 7 to 14 inches: silt loam
Bt1 - 14 to 24 inches: silt loam
Bt2 - 24 to 28 inches: silt loam
Bk1 - 28 to 38 inches: silt loam
Bk2 - 38 to 60 inches: gravelly loam

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): 4c
Land capability classification (nonirrigated): 4c

Hydrologic Soil Group: B
Ecological site: R013XY005ID - Loamy 16-22 PZ ARTRV/FEID-PSSPS
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

N-P Spreadsheets

IDEQ LEVEL 1 NUTRIENT-PATHOGEN EVALUATION NITROGEN MASS-BALANCE SPREADSHEET

V. 1.3 5/2/2002

This spreadsheet is based on the mass balance approach documented in: 1985.Bauman, B.J. and W.M. Schaefer.Estimating Ground-Water Quality Impacts From On-Site Sewage Treatment Systems. In Proceedings of 5th Northwest On-Site Wastewater Treatment Shortcourse, September 10-11, 1985. University of Washington, Seattle, WA. Pages 23-41. See **Instructions for Use** below.

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.0048	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	3040	Site-specific	
Parcel Area (acres)	140	Site-specific	
Percent of Parcel That Is Impervious (Percent)	5	Site-specific	
Current/Acceptable Number of Homes in Parcel	14.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	300	300	Default
Natural Recharge rate (inches/yr)	1.2	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	5.0	Site-specific	
Septic Tank Effluent Concentration (mg/l)	45.0	45.0	Default
Denitrification Rate (decimal fraction)	0	0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	1.81E+05	89.1
Effluent	5.80E+03	2.9
Recharge	1.64E+04	8.1
Total Water Volume	**2.03E+05**	
Point of Compliance Nitrate Concentration Goal (mg/l)	**5.0**	
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**5.8**	
Current/Acceptable Lot Size (Acres)	**10.0**	
Yearly Nitrogen Budget		
	Mass (mg)	**% of Total**
Background GW Nitrate Mass	9.06E+08	77.3
Septic Tank Effluent Nitrate Mass	2.61E+08	22.3
Recharge Nitrate Mass	4.92E+06	0.4
Total Nitrate Mass	**1.17E+09**	

Instructions for Use

Input parameter values appropriate to conditions at the site under consideration are entered in the blue shaded cells on the *INPUT* side of the spreadsheet. These input values form the basis for calculating yearly water and nitrogen budgets. Default values for selected parameters are provided, as described in the accompanying N-P guidance. Selecting values other than these defaults will require providing adequate justification. Sources of water and nitrogen include ground water inflow from upgradient, natural recharge on pervious portions of the site, and from septic tank effluent. The total yearly nitrogen mass input is then divided by the total yearly volume of water available to recharge groundwater to arrive at an estimated **Average Downgradient Nitrate Concentration in GW** (shown in the *OUTPUT* side of the spreadsheet).

As values are input into the blue shaded cells the totals and percent of total for various components of the water and nitrogen budgets are calculated and shown on the *OUTPUT* side of the spreadsheet. The **Avg. Downgradient Nitrate Concentration in GW** is also calculated. The Density button allows the calculation of both the Acceptable Number of Homes in the Parcel (shown in the *INPUT* area) as well as the acceptable lot size. Clicking the Density button opens an input box that allows the input of the **Point of Compliance Nitrate Concentration Goal**. The number of homes in the parcel is then adjusted to meet the specified goal.This calculation can be redone iteratively along with changing other site input parameters to examine the resultant impact on nitrate concentrations.

Aquifer Width Perpendicular to Flow: For land development projects not completely oriented perpendicular to ground water flow, the site specific aquifer width value is determined using the average property width that is perpendicular to flow.

Ranges of Hydraulic Conductivity (K) for Unconsolidated Sediments (feet/day)	
Silt and sandy silt	0.003 to 0.3
Silty sands and fine sands	0.03 to 3
Well-sorted sands and glacial outwash	3 to 300
Well-sorted gravel	30 to 3000
Typical Range of Hydraulic Gradient	0.0001 to 0.1

Natural Recharge Rate (NRR) can be estimated from total annual precipitation (TAP) using the equation: NRR (inches/yr) = $(TAP)^2 * 0.0046$
TAP is input in inches/yr.

SITE INFORMATION

Skyline View Ranch 140 Acre	Site Name
Entire Parcel	Parcel Identification
6 29 23	Date
Philip Gyr	Prepared By

Disclaimer: Considerable care was exercised in developing this software. However, the Idaho Department of Environmental Quality makes no warranty regarding its accuracy and shall not be held liable for any damages resulting from its use.

IDEQ LEVEL 1 NUTRIENT-PATHOGEN EVALUATION NITROGEN MASS-BALANCE SPREADSHEET

V. 1.3 5/2/2002

This spreadsheet is based on the mass balance approach documented in: 1985.Bauman, B.J. and W.M. Schaefer.Estimating Ground-Water Quality Impacts From On-Site Sewage Treatment Systems. In Proceedings of 5th Northwest On-Site Wastewater Treatment Shortcourse, September 10-11, 1985. University of Washington, Seattle, WA. Pages 23-41. See **Instructions for Use** below.

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.0048	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	1300	Site-specific	
Parcel Area (acres)	20	Site-specific	
Percent of Parcel That Is Impervious (Percent)	5	Site-specific	
Current/Acceptable Number of Homes in Parcel	2.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	300	300	Default
Natural Recharge rate (inches/yr)	1.2	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	5.0	Site-specific	
Septic Tank Effluent Concentration (mg/l)	45.0	45.0	Default
Denitrification Rate (decimal fraction)	0	0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	7.75E+04	96.1
Effluent	8.29E+02	1.0
Recharge	2.34E+03	2.9
Total Water Volume	**8.06E+04**	
Point of Compliance Nitrate Concentration Goal (mg/l)	**5.0**	
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**5.3**	
Current/Acceptable Lot Size (Acres)	**10.0**	
Yearly Nitrogen Budget		
	Mass (mg)	**% of Total**
Background GW Nitrate Mass	3.87E+08	91.1
Septic Tank Effluent Nitrate Mass	3.73E+07	8.8
Recharge Nitrate Mass	7.03E+05	0.2
Total Nitrate Mass	**4.25E+08**	

Instructions for Use

Input parameter values appropriate to conditions at the site under consideration are entered in the blue shaded cells on the *INPUT* side of the spreadsheet. These input values form the basis for calculating yearly water and nitrogen budgets. Default values for selected parameters are provided, as described in the accompanying N-P guidance. Selecting values other than these defaults will require providing adequate justification. Sources of water and nitrogen include ground water inflow from upgradient, natural recharge on pervious portions of the site, and from septic tank effluent. The total yearly nitrogen mass input is then divided by the total yearly volume of water available to recharge groundwater to arrive at an estimated **Average Downgradient Nitrate Concentration in GW** (shown in the *OUTPUT* side of the spreadsheet).

As values are input into the blue shaded cells the totals and percent of total for various components of the water and nitrogen budgets are calculated and shown on the *OUTPUT* side of the spreadsheet. The **Avg. Downgradient Nitrate Concentration in GW** is also calculated. The Density button allows the calculation of both the Acceptable Number of Homes in the Parcel (shown in the *INPUT* area) as well as the acceptable lot size. Clicking the Density button opens an input box that allows the input of the **Point of Compliance Nitrate Concentration Goal**. The number of homes in the parcel is then adjusted to meet the specified goal.This calculation can be redone iteratively along with changing other site input parameters to examine the resultant impact on nitrate concentrations.

Aquifer Width Perpendicular to Flow: For land development projects not completely oriented perpendicular to ground water flow, the site specific aquifer width value is determined using the average property width that is perpendicular to flow.

Ranges of Hydraulic Conductivity (K) for Unconsolidated Sediments (feet/day)	
Silt and sandy silt	0.003 to 0.3
Silty sands and fine sands	0.03 to 3
Well-sorted sands and glacial outwash	3 to 300
Well-sorted gravel	30 to 3000
Typical Range of Hydraulic Gradient	0.0001 to 0.1

Natural Recharge Rate (NRR) can be estimated from total annual precipitation (TAP) using the equation: NRR (inches/yr) = $(TAP)^2 * 0.0046$
TAP is input in inches/yr.

SITE INFORMATION

Skyline View Ranch 20 Acre Parcel	**Site Name**
Lot 5 Block 1	**Parcel Identification**
6 29 23	**Date**
Philip Gyr	**Prepared By**

Disclaimer: Considerable care was exercised in developing this software. However, the Idaho Department of Environmental Quality makes no warranty regarding its accuracy and shall not be held liable for any damages resulting from its use.

Water Quality Data

2012 Nitrate Testing

Green & Blue Pins

< 2 mg/L

Yellow Pins

2-10 mg/L

Red Pins

> 10 mg/L

Friends of the Teton River

August 2005

County Lines

Forest Service Boundary

N

0 0.375 0.75 1.5 2.25 3 Miles

Data Sources: NRCS, IDWR, US Census, FTR

2016 Nitrate Testing

Green Pins
< 2 mg/L
Yellow Pins
2-10 mg/L
Red Pins
> 10 mg/L

Friends of the Teton River
August 2005
County Lines
Forest Service Boundary
N
0 0.375 0.75 1.5 2.25 3 Miles
Data Sources: NRCS, IDWR, US Census, FTR

2017 Nitrate Testing

Green Pins:

< 2 mg/L

Yellow Pins:

2-10 mg/L

Red Pins:

> 10 mg/L

Friends of the Teton River

August 2005

County Lines

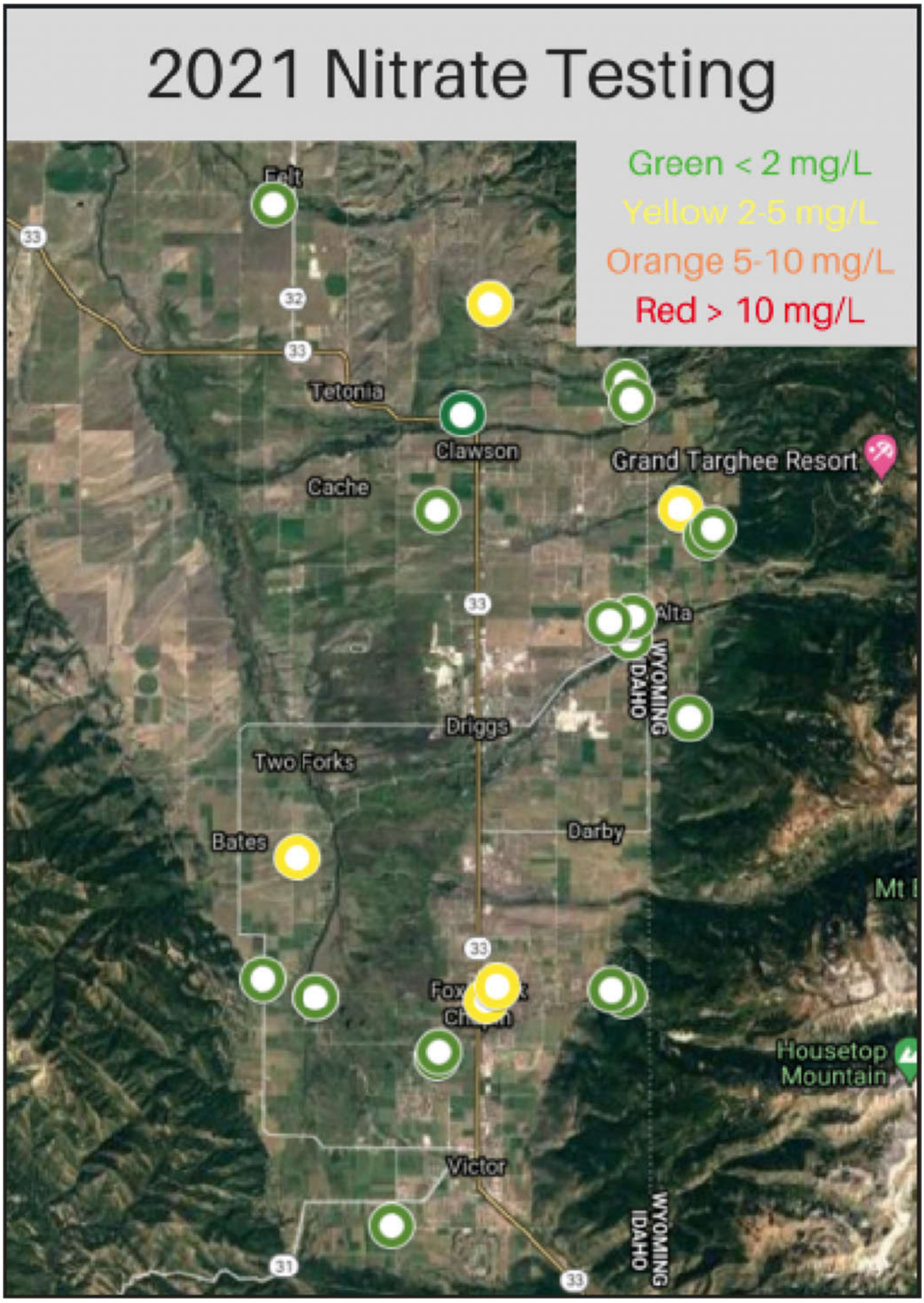
Forest Service Boundary

N

0 0.375 0.75 1.5 2.25 3 Miles

Data Sources: NRCS; IDWR; US Census; FTR

2021 Nitrate Testing



900 N. Skyline Drive, Suite B
Idaho Falls, ID 83402 • (208) 528-2650

Brad Little, Governor
Jess Byrne, Director

July 7, 2023

By email: mvanarsdell@co.teton.id.us

Mitzi Van Arsdell
Teton County P&Z
150 Courthouse Drive Rm 107
Driggs, ID 83422

Re: Teton County, Skyline View Ranch Water Quality Impact Analysis Nutrient/ Pathogen (NP) Evaluation. DEQ # 23-16-41

Dear Mrs. Arsdell

Teton County has required the preparation of a Water Quality Impact Analysis (NP Evaluation) for the proposed development pursuant to the Teton County Subdivision Ordinance. Teton County has requested DEQ review the NP Evaluation. This letter contains DEQ's comments and recommendations regarding the NP Evaluation. This letter does not constitute and approval, license, permit or any other form of authorization required by law. The comments and recommendations contained in this letter are provided to Teton County for its consideration in reviewing the development pursuant to Teton County law. This letter reflects DEQ's opinion, based upon the information and analysis in the **June 30, 2023,** NP Evaluation, regarding whether the discharges from wastewater systems for the proposed development will comply with the Idaho Ground Water Rule and Idaho Water Quality Standards.

After our review of the NP evaluation DEQ has the following comments:

1. Reference, Nitrate goal for mass balance spread sheet: The nitrate goal for the mass balance spread sheet should be listed as 1 mg/l above the background nitrate value identified in the spread sheet. Change the nitrate goal value to be 6.0 mg/l.
2. Reference Page 4, 3rd Paragraph, Last Sentence: A reference of 225 ft/day for the hydraulic conductivity is made, which is not consistent with the value used in the mass balance spread sheet or model. Change this sentence to match the spread sheet value to 80 ft/day.
3. Page 5, 1st paragraph, 2nd to last sentence: Delete reference to 50 feet set back from leach field to surface waters. Change sentence to match the required set back required base on soil type found in Subsurface Disposal Rule IDAPA 58.01.03.008.02.d (100-300 feet based on soil types either A, B, or C).

If you have any questions regarding this letter or if we can be of further assistance, please call (208) 528-2650.

Sincerely,

William Teuscher PE
Water Quality Engineer
Idaho Falls Regional Office

2023AFM1002

C: Kathleen Price, EIHD, KPrice@eiph.idaho.gov
Philip Gyr PE, Nelson Engineering, pgyr@nelsonengineering.net

900 N. Skyline Drive, Suite B
Idaho Falls, ID 83402 • (208) 528-2650

Brad Little, Governor
Jess Byrne, Director

July 11, 2023

By email: mvanarsdell@co.teton.id.us

Mitzi Van Arsdell
Teton County P&Z
150 Courthouse Drive Rm 107
Driggs, ID 83422

Re: Teton County, Skyline View Ranch Revised Water Quality Impact Analysis Nutrient/ Pathogen (NP) Evaluation. DEQ # 23-16-41

Dear Mrs. Arsdell

Teton County has required the preparation of a Water Quality Impact Analysis (NP Evaluation) for the proposed development pursuant to the Teton County Subdivision Ordinance. Teton County has requested DEQ review the NP Evaluation. This letter contains DEQ's comments and recommendations regarding the NP Evaluation. This letter does not constitute an approval, license, permit or any other form of authorization required by law. The comments and recommendations contained in this letter are provided to Teton County for its consideration in reviewing the development pursuant to Teton County law. This letter reflects DEQ's opinion, based upon the information and analysis in the revised **July 7, 2023,** NP Evaluation, regarding whether the discharges from wastewater systems for the proposed development will comply with the Idaho Ground Water Rule and Idaho Water Quality Standards.

After our review of the revised NP evaluation DEQ concurs with the finding of the report. The NP evaluation has indicated that there will not be significant degradation to the ground water or surface water from the individual subsurface disposal systems if construction per the current *Individual Subsurface Sewage Disposal Rules IDAPA 58.01.03 and the Technical Guidance Manual.*

The East Idaho Public Health will need to verify compliance with the Rules for Individual Subsurface Disposal Systems IDAPA 58.01.03 and the Technical Guidance Manual (TGM) requirements when issuing the subsurface disposal permits. All separation distances and effective soil depths will need to be met.

If you have any questions regarding this letter or if we can be of further assistance, please call (208) 528-2650.

Sincerely,

William Teuscher PE
Water Quality Engineer
Idaho Falls Regional Office

2023AFM1002

C: Kathleen Price, EIHD, KPrice@eiph.idaho.gov
Philip Gyr PE, Nelson Engineering, pgyr@nelsonengineering.net

Fwd: Skyline View Ranch Subdivision Level 1 NPE Review

5 messages

Dustin Kuttler <kuttdustin@gmail.com> Wed, Sep 13, 2023 at 7:38 PM
To: Mitzi Van Arsdell <mvanarsdell@co.teton.id.us>

Mitzi,

Here is the response from the engineering firm that prepared the study. I'm you review letter in paragraph 3 it states

" We have assumed that this was corrected in the revised July 7, 2023, report referenced in the DEQ letter to reflect the required setbacks per IDAPA 58.01.03.008.02.d based on soil types. If this is the case, we have no other comments or concerns regarding this evaluation."

They have assumed correctly and the engineer who prepared it says it was indeed revised in the July 7 copy.

Thank you,

Dustin kuttler

Begin forwarded message:

On Sep 13, 2023, at 2:59 PM, Phil Gyr <pgyr@nelsonengineering.net> wrote:

The memo isn't asking for anything additional. You are good to go with the County.

Phil Gyr PE

Geotechnical Engineer/Principal

(307) 733-2087 Office

(307) 690-8086 Cell

NELSON ENGINEERING *since 1964*

Professional Engineers & Land Surveyors

JACKSON, WY • BUFFALO, WY • VICTOR, ID

P.O. Box 1599

430 South Cache St.

Jackson, WY 83001

(307) 733-2087

nelsonengineering.net

_____

From: Mitzi Van Arsdell <mvanarsdell@co.teton.id.us>
Date: September 13, 2023 at 12:33:11 PM MDT
To: kuttdustin@gmail.com
Cc: Jade Krueger <jkrueger@co.teton.id.us>, Sharon Fox <sfox@co.teton.id.us>
Subject: Skyline View Ranch Subdivision Level 1 NPE Review

Hi Dustin,

Please review the attached NPE Review for Skyline View Ranch Subdivision and verify that the leachfield setbacks are correct as mentioned in paragraph 3 of the review. Please submit revisions ASAP as we'll send them out again to DEQ and our technical consultant for review.

Thanks,

Mitzi Van Arsdell <mvanarsdell@tetoncountyidaho.gov> Thu, Dec 21, 2023 at 3:18 PM
To: Jade Krueger <jkrueger@tetoncountyidaho.gov>
Cc: Sharon Fox <sfox@co.teton.id.us>

Yep, Jen's 9/12/23 technical review just wanted the 50' setbacks confirmed which they did on 9/14/23. I'll put this email in the file.

On Thu, Dec 21, 2023 at 1:53 PM Jade Krueger <jkrueger@tetoncountyidaho.gov> wrote:

> Mitzi,
>
> Just confirming we have all of the reviews necessary from Jen Zung on this one after those revisions.
>
> Thank you!

> > Here is the response from the engineering firm that prepared the study. I'm you review letter in paragraph 3 it states
> >
> > " We have assumed that this was corrected in the revised July 7, 2023, report referenced in the DEQ letter to reflect the required setbacks per IDAPA 58.01.03.008.02.d based on soil types. If this is the case, we have no other comments or concerns regarding this evaluation."
> >
> > They have assumed correctly and the engineer who prepared it says it was indeed revised in the July 7 copy.
> >
> > Thank you,
> >
> > Dustin kuttler
> >
> > Begin forwarded message:
> >
> > [Quoted text hidden]

Memo

HARMONY
DESIGN & ENGINEERING

To: Jade Krueger, Planning Administrator, Teton County Idaho

From: Ted Van Holland, P.E. & Jennifer Zung, P.E.

CC: Sharon Fox, Planner I, Teton County, Idaho

Date: 9/12/2023

Re: Skyline View Ranch Subdivision Level I Nutrient-Pathogen Evaluation Review

---

Per request from the Teton County Planning and Zoning Department, Harmony Design & Engineering has reviewed the Level I Nutrient Pathogen Evaluation for the Skyline View Ranch Subdivision dated June 6, 2023, prepared by Nelson Engineering. The report is sealed by an Idaho-licensed professional engineer, and follows the basic steps outlined in DEQ guidance (Howarth, et al., 2002). The report presents and explains the relevant factors in the evaluation, with possible surface water impacts to Mahogany Creek justifiably dismissed based on local groundwater observations cited. Pathogen attenuation is also appropriately addressed, and the conclusions are supported.

Although the use of 80 feet per day for the modeled hydraulic conductivity could use additional justification, we found that recomputing the spreadsheet model with a lower hydraulic conductivity of 25 feet per day as cited by Nicklin Earth & Water (2003) still shows that the impacts of discharged nitrate to the aquifer are less than 1mg/l, and therefore still negligible.

The only item that should be revised is the statement that a 50-foot setback from any leachfield in this subdivision to Mahogany creek would apply. We have assumed that this was corrected in the revised July 7, 2023, report referenced in the DEQ letter to reflect the required setbacks per IDAPA 58.01.03.008.02.d based on soil types. If this is the case, we have no other comments or concerns regarding this evaluation.