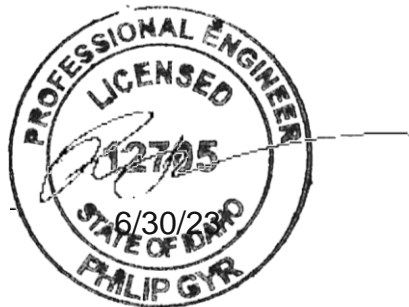


SKYLINE VIEW RANCH SUBDIVISION NUTRIENT PATHOGEN EVALUATION

**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

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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-foot 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.

Mahogany 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.

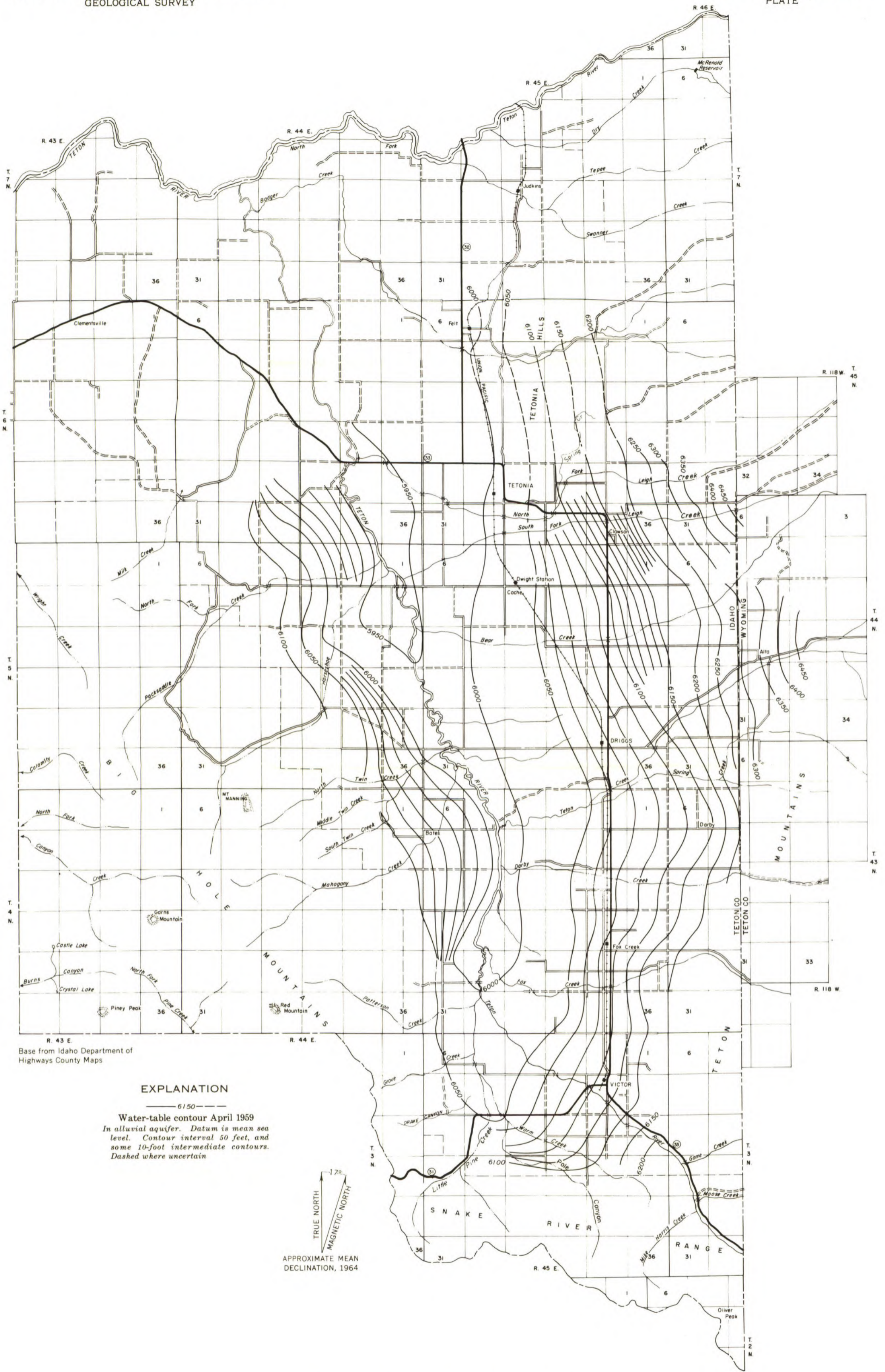
Results and Conclusions

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 Mahogany Creek. Pathogen survival rates in the unsaturated subsurface preclude transport in groundwater.

APPENDIX

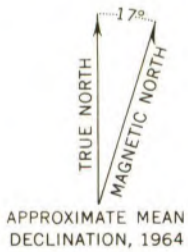
DRAWINGS



Base from Idaho Department of
Highways County Maps

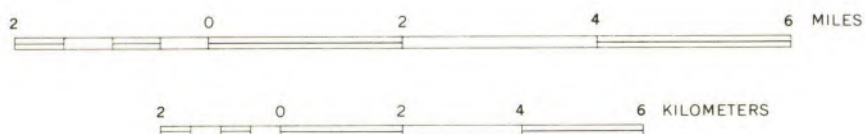
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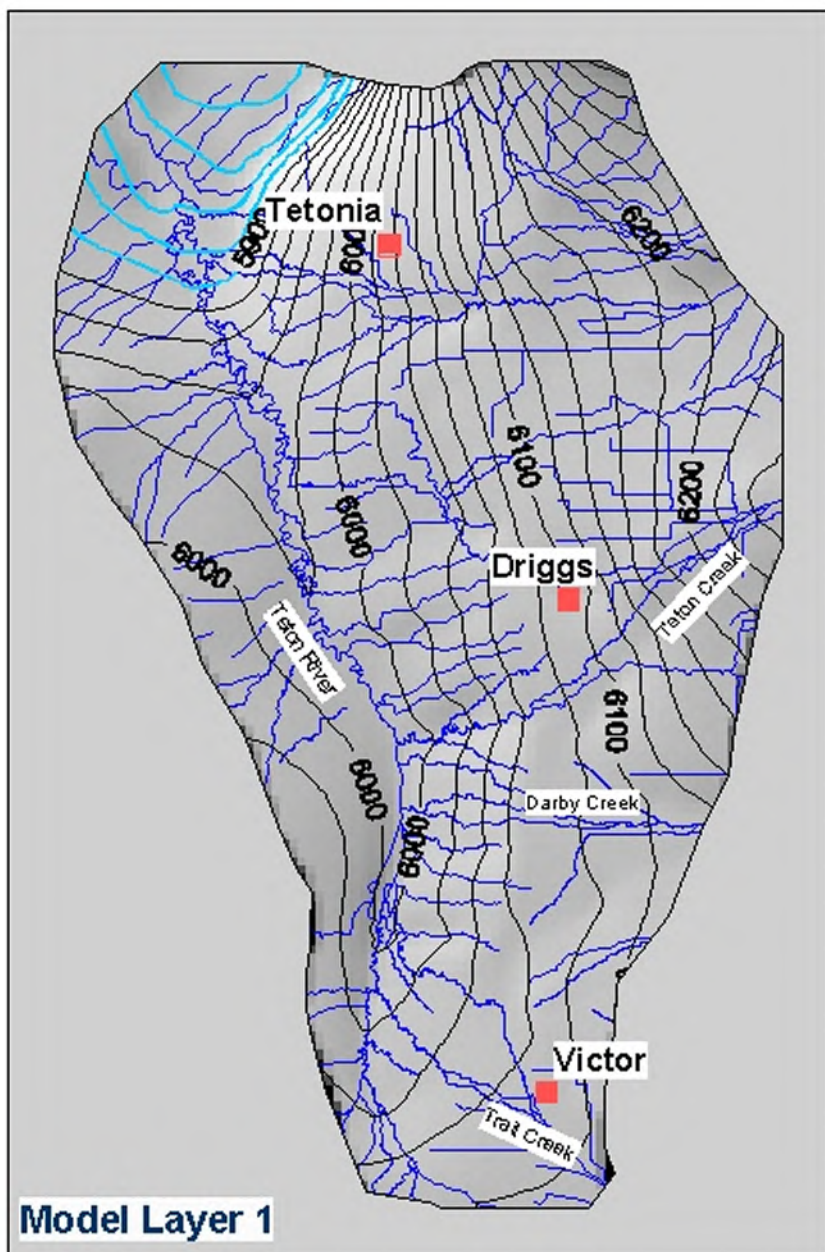
— 6150 —
Water-table contour April 1959
In alluvial aquifer. Datum is mean sea
level. Contour interval 50 feet, and
some 10-foot intermediate contours.
Dashed where uncertain



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

SCALE 1:125 000





Natural Solutions for Water



Scale Not Indicated

Date : October 12, 2002

File: c:\2002-146\figure_34.dxf

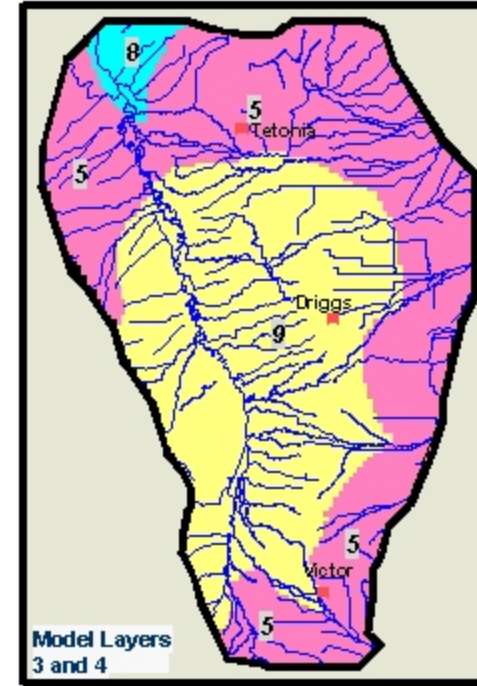
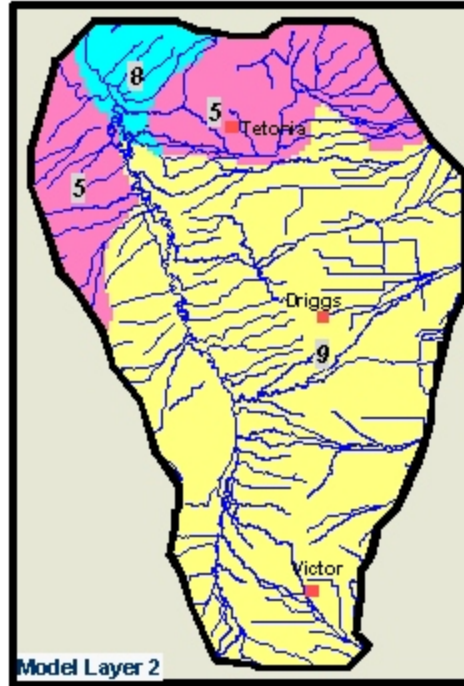
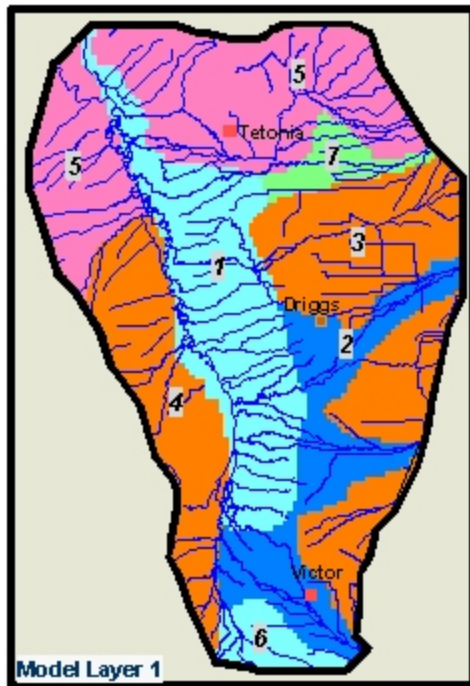
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**Simulated Potentiometric Head
Steady State Model**

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



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 ft²/day.



Natural Solutions for Water

Date: February 28, 2003

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Issued for Cascade Earth Sciences



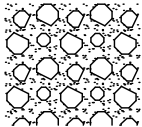
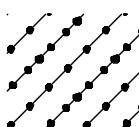
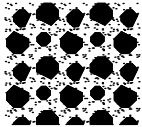
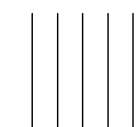
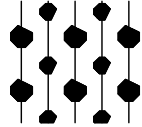
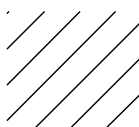
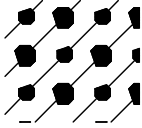
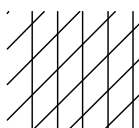
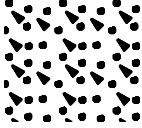
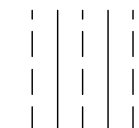
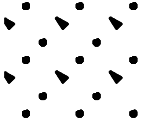
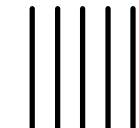
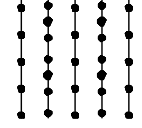
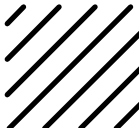
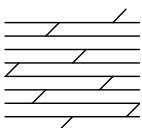
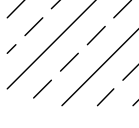
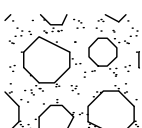
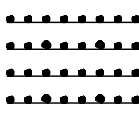
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**Hydraulic Conductivity Zonation
Teton Basin Ground-Water Model**

Figure 31

TEST PIT LOGS

SOIL GRAPHICS



<i>GW</i>		<i>SC</i>	
<i>GP</i>		<i>ML</i>	
<i>GM</i>		<i>CL</i>	
<i>GC</i>		<i>ML-CL</i>	
<i>SW</i>		<i>OL</i>	
<i>SP</i>		<i>MH</i>	
<i>SM</i>		<i>CH</i>	
<i>BEDROCK</i>		<i>OH</i>	
<i>COBBLES/BOULDERS</i>		<i>PT</i>	

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

GEOTECHNICAL GENERAL NOTES

CORRECTED SPT: Standard Penetration Test values corrected to N_{160} 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/ft² (PSF)
- Pp:** Pocket Penetrometer values, Ton/ft² (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/ft³ (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		

WELL LOG	GRAPHICS LOG	DEPTH (FT)	SAMPLES		SAMPLE ID	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.	LIQUID LIMIT	PLASTIC LIMIT	DRY DENSITY (PCF)	MOISTURE (%)	REMARKS
			UNDISTURBED	BULK							
MATERIAL DESCRIPTION											
		0-1				0'-0.5' MOIST, DK BROWN SILT LOAM TOPSOIL, MINOR BARLEY ROOTS, TILLED					BOUNDARY OF PROPOSED LOTS 1 & 2, VERY GENTLE NORTHEAST SLOPING PIVOT IRRIGATED BARLEY FIELD
		1-2.25				0.5'-2.25' MOIST, BROWN SILT LOAM, LOESS, SOIL DESIGN SUB-GROUP - B-2					
		2-8.0				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
		8.0				BOP=8.0'					NO SIGNS OF HISTORICAL HIGH GROUNDWATER
		8.0-9.0				NO GROUNDWATER ENCOUNTERED NO CAVING					
		9.0-10.0				MONITORING WELL INSTALLED: 10' OF 1.5"Ø SCHEDULE 40 PVC SOLID PIPE, NO SLOTS STICK UP = 3.2'					
		10.0-11.0									
		11.0-12.0									
		12.0-13.0									
		13.0-14.0									
		14.0-15.0									

 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		

WELL LOG	GRAPHICS LOG	DEPTH (FT)	SAMPLES		SAMPLE ID	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.	LIQUID LIMIT	PLASTIC LIMIT	DRY DENSITY (PCF)	MOISTURE (%)	REMARKS
			UNDISTURBED	BULK							
MATERIAL DESCRIPTION											
		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
		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					EASY DIGGING THROUGHOUT
						FROM 3.5'-4.5' LOAMY FINE SAND LENS PINCHES OUT WITHIN TEST PIT					NO SIGNS OF RECENT OR HISTORICAL HIGH GROUNDWATER
						BOP=8.5'					
						NO GROUNDWATER ENCOUNTERED NO CAVING					
						MONITORING WELL INSTALLED: 10' OF 1.5"Ø SCHEDULE 40 PVC SOLID PIPE, NO SLOTS STICK UP = 2.0'					
						* 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.					

 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		

WELL LOG	GRAPHICS LOG	DEPTH (FT)	SAMPLES		SAMPLE ID	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.	LIQUID LIMIT	PLASTIC LIMIT	DRY DENSITY (PCF)	MOISTURE (%)	REMARKS
			UNDISTURBED	BULK							
MATERIAL DESCRIPTION											
		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 EASY DIGGING THROUGHOUT NO SIGNS OF HISTORICAL HIGH GROUNDWATER
		1				1.0'-3.5' MOIST, BROWN SILT LOAM, LOESS, MINOR PINHOLE VOIDS, SOIL DESIGN SUB-GROUP - B-2					
		2									
		3									
		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					
		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									

 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		

WELL LOG	GRAPHICS LOG	DEPTH (FT)	SAMPLES		SAMPLE ID	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.	LIQUID LIMIT	PLASTIC LIMIT	DRY DENSITY (PCF)	MOISTURE (%)	REMARKS
			UNDISTURBED	BULK							
MATERIAL DESCRIPTION											
		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									EASY DIGGING THROUGHOUT
		2									
		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									

 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 FERGESON	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

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

USE TYPEWRITER OR
BALLPOINT PEN

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

1. WELL OWNER

Name Clare Richardson

Address Victor, Idaho

Owner's Permit No. _____

7. WATER LEVEL Department of Water Resources
Eastern District Office

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 _____

2. NATURE OF WORK

New well Deepened Replacement

Abandoned (describe method of abandoning) _____

8. WELL TEST DATA

Pump Bailer Air Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

3. PROPOSED USE

Domestic Irrigation Test Municipal

Industrial Stock Waste Disposal or Injection

Other _____ (specify type)

9. LITHOLOGIC LOG 85374

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

4. METHOD DRILLED

Rotary Air Hydraulic Reverse rotary

Cable Dug Other _____

5. WELL CONSTRUCTION

Casing schedule: Steel Concrete Other _____

Thickness	Diameter	From	To
<u>1.250</u> inches	<u>6</u> inches	<u>1</u> feet	<u>69</u> 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 _____

RECEIVED

FEB 8 1983

Department of Water Resources

6. LOCATION OF WELL

Sketch map location must agree with written location.

Subdivision Name _____

Lot No. _____ Block No. _____

County Teton

NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 12, T. 4 N., R. 49 E.

10. Work started 9-25-82 finished 9-25-82

11. DRILLERS CERTIFICATION dl

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

Firm Name Deming Drill Firm No. 10


Address Mail Box 460 Date 9-25-82

Signed by (Firm Official) Daniel Deming

and
(Operator) Deming Daniel

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.

 Wells and Groundwater Management in Idaho IDWR Home IDWR Map Hub

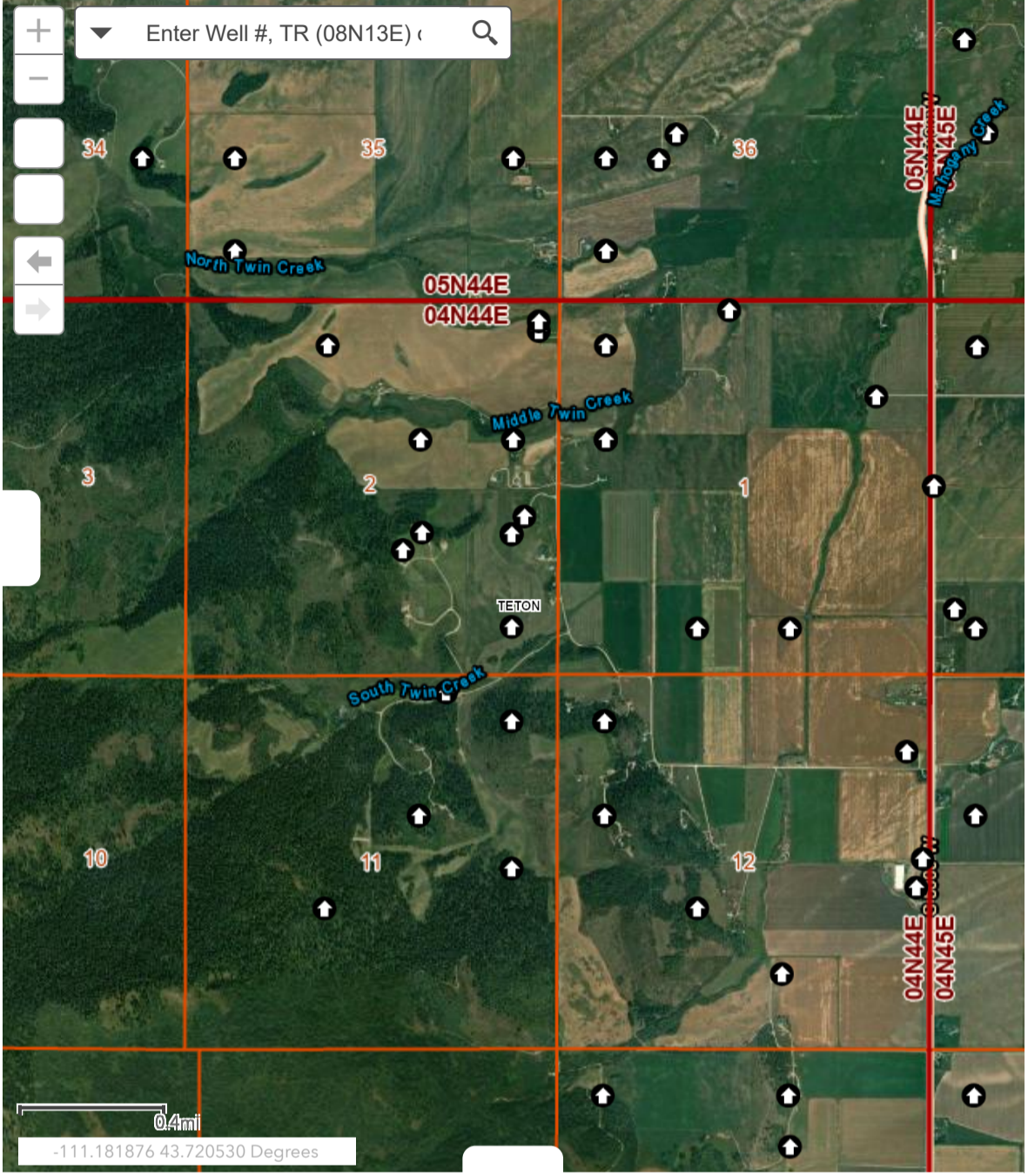
Customize

Layer List

Layers

- Injection Wells
- Wells
- Administrative Regions
- Areas of Drilling Concern
- Areas Of Groundwater Concern
- Eastern Snake Plain Aquifer ACGWS Boundary
- Rathdrum Aquifer
- Nitrate Priority Areas
- Critical Groundwater Areas
- Groundwater Management Areas
- Groundwater Districts
- Counties
- PLS

Enter Well #, TR (08N13E)



All rights reserved

Need a larger map?

Click here to view a full-size interactive map of the wells.

(<https://maps.idwr.idaho.gov/agol/WellsandGroundwaterManagement/>)

REPORT OF WELL DRILLER
State of Idaho

RECEIVED
APR 17 1968

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 DRIGGS, IDAHO

Owner's Permit No. G33774
NATURE OF WORK (check): Replacement well
New well Deepened Abandoned
Water is to be used for: irrigation
METHOD OF CONSTRUCTION: Rotary Cable
Dug Other

(explain)
CASING SCHEDULE: Threaded Welded
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 concrete wood other

(explain)
PERFORATED? Yes No Type of perforator used:

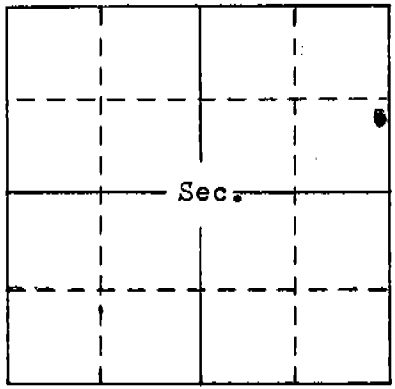
Size of perforations: 2" by 3"
1000 perforations from 124 ft. to 250 ft.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.
WAS SCREEN INSTALLED? Yes No

Manufacturer's name
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. 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. Type of water:
Depth of strata 110 ft. Method of sealing strata off:

Surface casing used? Yes No.
Cemented in place? Yes No

Locate well in section



LOCATION OF WELL: County TETON
S.E. N.E. 1/4 Sec. 12 T. 4 N. 1/4 R. 44 E. 1/4

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? 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

DEPTH		MATERIAL	WATER YES OR NO
FROM FEET	TO FEET		
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	yes
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	yes
283	288	clay and gravel	yes
288	291	sticky clay	yes
291	296	clay and gravel	yes

00613

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: G. L. Hopkins
License No. 32 Date: April 17, 1968

4469

USGS

Use other side for additional remarks

copied

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
 Address Driggs, Idaho 83422
 Owner's Permit No. 22-7309

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 _____

2. NATURE OF WORK
 New well Deepened Replacement
 Abandoned (describe method of abandoning) _____

8. WELL TEST DATA
 Pump Bailer Air Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
<u>2000</u>	<u>160</u>	<u>10 hr.</u>

3. PROPOSED USE
 Domestic Irrigation Test Municipal
 Industrial Stock Waste Disposal or Injection
 Other _____ (specify type)

9. LITHOLOGIC LOG

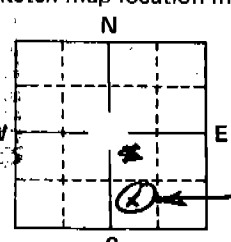
Hole Diam.	Depth		Material	Water	
	From	To		Yes	No
20"	0	4	Top Soil		X
"	4	24	Gravel and Clay		X
"	24	68	Red Clay		X
"	68	75	Gravel and Clay		X
"	75	84	Clay		X
"	84	88	Gravel and Clay	X	
"	88	104	Gravel and Clay	X	
"	104	109	Clay		X
"	109	120	Gravel and Clay	X	
"	120	174	Clay Red		X
9"	174	183	Cemented Gravel	X	
"	183	192	Clay		X
8"	192	200	Cemented Gravel	X	
"	200	221	Clay (Sticky Red)		X
8 1/2"	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 1/2"	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		X

4. METHOD DRILLED
 Rotary Air Hydraulic Reverse rotary
 Cable Dug Other _____

5. WELL CONSTRUCTION
 Casing schedule: Steel Concrete Other _____
 Thickness _____ inches Diameter _____ inches From _____ feet To _____ feet
 .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" pin

10.

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

6. LOCATION OF WELL
 Sketch map location must agree with written location.

 Subdivision Name _____
 Lot No. _____ Block No. _____
 County Teton
SW SE 1/4 Sec. 1, T. 4 N., R. 44 E.

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
 and
 (Operator) Paul Vollmer

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: Sydell Buxton

Name _____

Address 231 So. 500W

City Diggs State ID Zip 83422

3. WELL LOCATION:

Twp. 4 North or South Rge. 4.5 East or West

Sec. 7 10 acres 1/4 40 acres SW 1/4 NW 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 ft ³)	Placement method/procedure
ben tonite	0	18	250 lbs	over bore

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/Schedule	Material	Casing	Liner	Threaded	Welded
6" +1	160	290	290	steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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 ft ³)	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: _____ Test method:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)	Pump	Bailer	Air	Flowing artesian
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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	N
8"	0	18	Orange 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		X
6"	120	125	clay-gravels	X	
6"	125	160	clay		X
6"	160	180	cemented gravels	X	

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OCT 6 7 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 Deering Well Drilling Co. No. 518

*Principal Driller [Signature] Date 9-18-08

*Driller [Signature] Date 9-17-08

*Operator II [Signature] Date 9-17-08

Operator I _____ Date _____

* Signature of Principal Driller and rig operator are required.

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 10 acres NE 10 acres 1/4 10 acres NE 10 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

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 ft ³)	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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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 ft ³)	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	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 [Signature] Date Feb 15, 2019
*Driller [Signature] Date Feb 15, 2019
*Operator II _____ Date _____
Operator I [Signature] Date Feb 15, 2019

* Signature of Principal Driller and rig operator are required.

IDAHO DEPARTMENT OF WATER RESOURCES WELL DRILLER'S REPORT

1. WELL TAG NO. D 0068055 / old well D0045769
 Drilling Permit No. we modified
 Water right or injection well # _____

2. OWNER:
 Name Mark Rocketteller
 Address PO Box 604
 City Driggs State Id Zip 83402

3. WELL LOCATION:
 Twp. 4 North or South Rge. 44 East or West
 Sec. 12 1/4 SW 1/4 NW 1/4
 Gov't Lot _____ County Teton
 Lat. _____ (Deg. and Decimal minutes)
 Long. _____ (Deg. and Decimal minutes)
 Address of Well Site Bates Rd City Victor

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 ft ³)	Placement method/procedure
<u>Neat Cement</u>				

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/Schedule	Material	Casing	Liner	Threaded	Welded
					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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
<u>90'</u>	<u>100'</u>	<u>1/4"</u>	<u>6 rows</u>	<u>6"</u>	<u>Steel</u>	<u>1.250"</u>

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

10. FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft ³)	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: _____ Test method:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)	Pump	Baller	Air	Flowing artesian
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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	N
			<u>drilled 4 1/2" 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.</u>		

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 Dennig Drilling Inc Co. No. 518
 *Principal Driller Dennig Drilling Date 7-18-15
 *Driller Dennig Drilling Date 7-18-15
 *Operator II _____ Date _____
 Operator I _____ Date _____

* Signature of Principal Driller and rig operator are required.

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

22

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 83402

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 1/4 SW 1/4 NW 1/4
 Gov't Lot _____ 10 acres Teten 40 acres 160 acres
 Lat: _____ Long: _____
 Address of Well Site Bates Road 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 Material	From	To	Weight / Volume	Seal Placement Method
<u>Bentonite</u>	<u>0</u>	<u>20'</u>	<u>1000 LBS</u>	<u>OVER CORE</u>

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
<u>6"</u>	<u>+</u>	<u>205'</u>	<u>.230"</u>	<u>Steel</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>5"</u>	<u>-15'</u>	<u>320'</u>	<u>Sch 40</u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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
						<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>

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) Water

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
<u>8"</u>	<u>0'</u>	<u>20'</u>	<u>Clay</u>		<input checked="" type="checkbox"/>
<u>8"</u>	<u>20'</u>	<u>100'</u>	<u>Clay Pack Gravel</u>	<input checked="" type="checkbox"/>	
<u>6"</u>	<u>100'</u>	<u>120'</u>	<u>Rock</u>		<input checked="" type="checkbox"/>
<u>6"</u>	<u>120'</u>	<u>200'</u>	<u>Clay Gravel</u>	<input checked="" type="checkbox"/>	
<u>6"</u>	<u>200'</u>	<u>230'</u>	<u>Rock</u>		<input checked="" type="checkbox"/>
<u>6"</u>	<u>230'</u>	<u>235'</u>	<u>Broken Rock</u>	<input checked="" type="checkbox"/>	
<u>6"</u>	<u>235'</u>	<u>505'</u>	<u>Rock (Grey)</u>		<input checked="" type="checkbox"/>
<u>6"</u>	<u>505'</u>	<u>520'</u>	<u>Broken Rock lots of water</u>	<input checked="" type="checkbox"/>	

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 Denning Date 8-14-07
 and
 Driller or Operator II Denning Date 8-14-07
 Operator I _____ Date _____

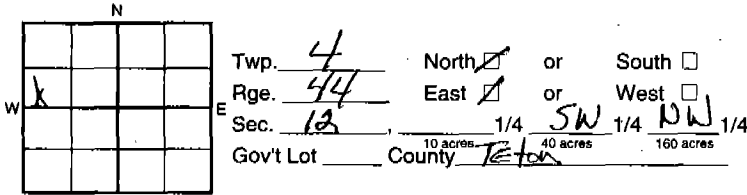
IDAHO DEPARTMENT OF WATER RESOURCES WELL DRILLER'S REPORT 48909

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.



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			AMOUNT	METHOD
Material	From	To	Sacks or Pounds	
<u>Bentonite</u>	<u>0</u>	<u>20'</u>	<u>40 LBS</u>	<u>Dry Drive</u>

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
<u>6"</u>	<u>±1</u>	<u>120'</u>	<u>250"</u>	<u>Steel</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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
<u>100'</u>	<u>118'</u>	<u>3/8"</u>	<u>3 passes</u>			<input type="checkbox"/>	<input type="checkbox"/>

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) Water

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	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		Y
8"	95'	100'	Clay & Gravel		X
8"	100'	115'	Rock		Y
8"	115'	125'	Clay & Gravel	X	
6"	125'	135'	Clay		X
6"	135'	150'	Clay & Gravel		Y
6"	150'	152'	Clay		Y
6"	152'	160'	Clay with small amount of Gravel		Y

RECEIVED

AUG 23 1995

Department of Water Resources

JUN 12 1995

Department of Water Resources

Basin District Office

OCT 02 1995

Completed Depth 160' (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 Samuel Denning Date 5-26-95

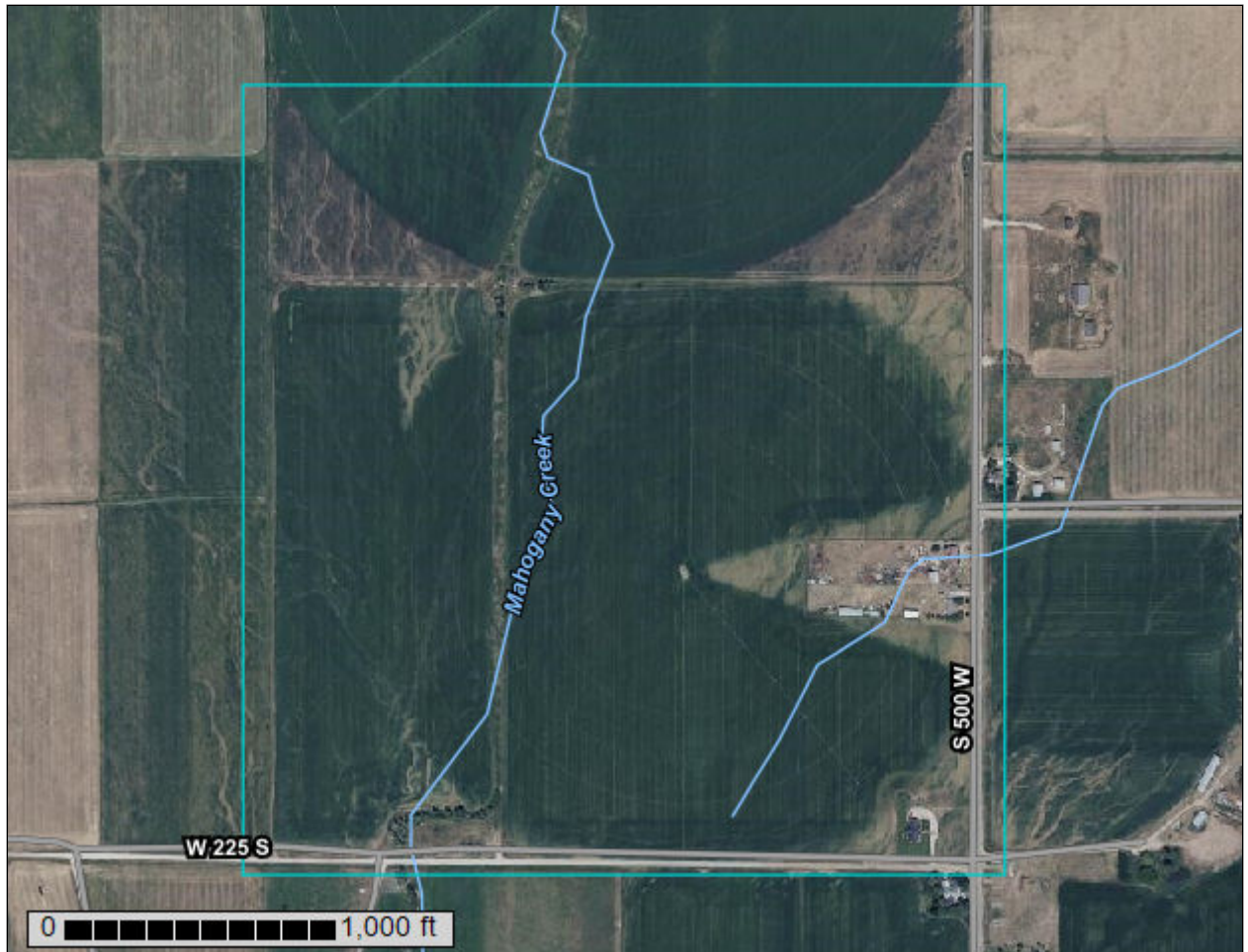
and Supervisor or Operator _____ Date _____

(Sign once if Firm Official & Operator)

NRCS SOIL REPORT

Custom Soil Resource Report for Teton Area, Idaho and Wyoming

Skyline View Ranch



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.

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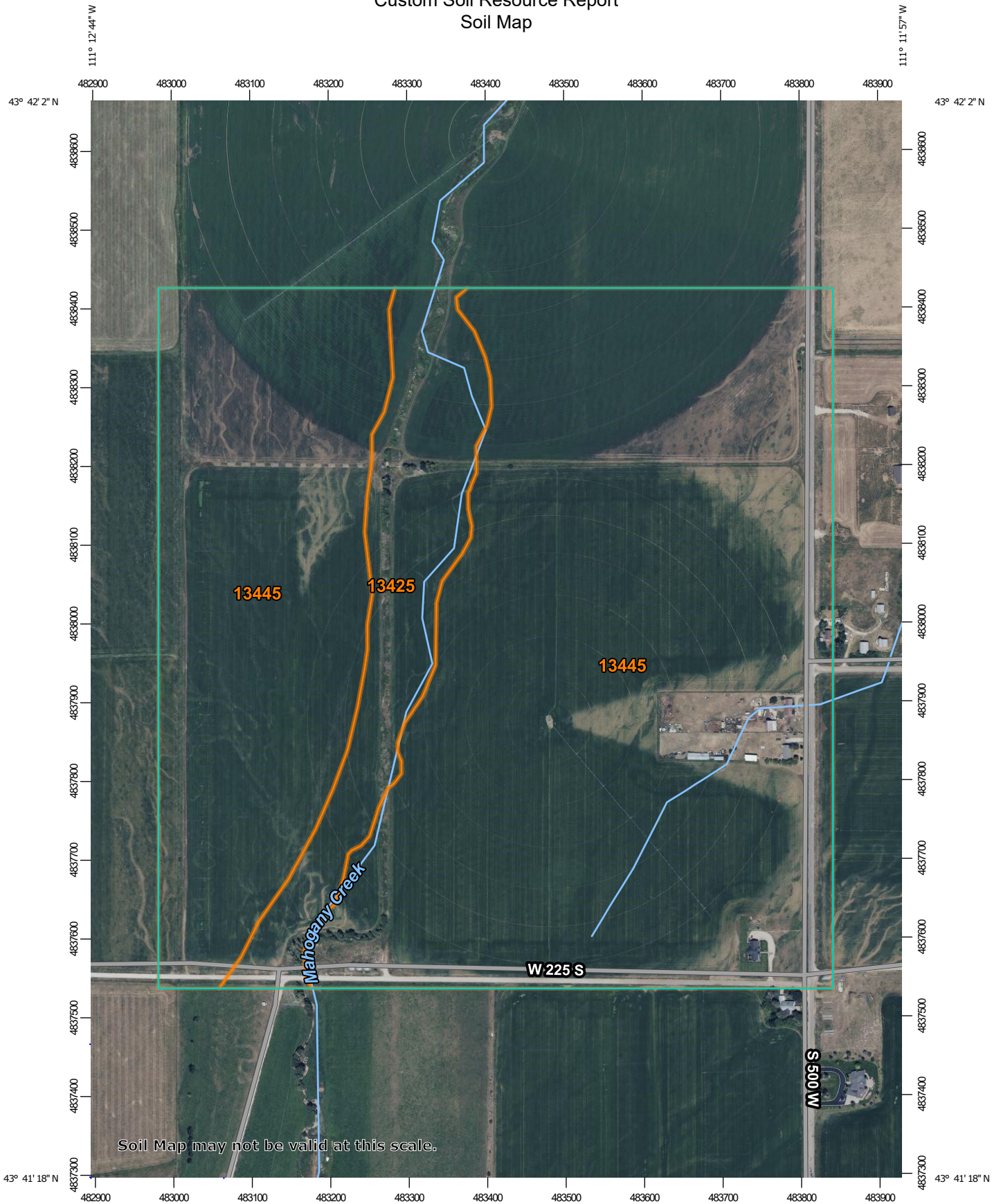
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Soil Map

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



Soil Map may not be valid at this scale.

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

0 50 100 200 300 Meters


0 300 600 1200 1800 Feet

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,

Custom Soil Resource Report

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

Custom Soil Resource Report

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 influence

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

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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>

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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				OUTPUT		
Water Budget	Input Value	Default Value		Yearly Water Budget	Volume (m³)	% of Total
Hydraulic Conductivity (ft/day)	80.000	Site-specific		Ground Water	1.81E+05	89.1
Hydraulic Gradient	0.0048	Site-specific		Effluent	5.80E+03	2.9
Mixing Zone Thickness (ft)	15	15	Default	Recharge	1.64E+04	8.1
Aquifer Width Perpendicular to Flow (ft)	3040	Site-specific		Total Water Volume	2.03E+05	
Parcel Area (acres)	140	Site-specific		Point of Compliance Nitrate Concentration Goal (mg/l)	5.0	
Percent of Parcel That Is Impervious (Percent)	5	Site-specific		Avg. Downgradient Nitrate Concentration in GW (mg/l)	5.8	
Current/Acceptable Number of Homes in Parcel	14.0	Site-specific		Current/Acceptable Lot Size (Acres)	10.0	
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)				Yearly Nitrogen Budget		
Upgradient Ground Water Concentration (mg/l)	5.0	Site-specific			Mass (mg)	% of Total
Septic Tank Effluent Concentration (mg/l)	45.0	45.0	Default	Background GW Nitrate Mass	9.06E+08	77.3
Denitrification Rate (decimal fraction)	0	0	Default	Septic Tank Effluent Nitrate Mass	2.61E+08	22.3
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default	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:

$$\text{NRR (inches/yr)} = (\text{TAP})^2 * 0.0046$$
 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				OUTPUT		
Water Budget	Input Value	Default Value		Yearly Water Budget	Volume (m³)	% of Total
Hydraulic Conductivity (ft/day)	80.000	Site-specific		Ground Water	7.75E+04	96.1
Hydraulic Gradient	0.0048	Site-specific		Effluent	8.29E+02	1.0
Mixing Zone Thickness (ft)	15	15	Default	Recharge	2.34E+03	2.9
Aquifer Width Perpendicular to Flow (ft)	1300	Site-specific		Total Water Volume	8.06E+04	
Parcel Area (acres)	20	Site-specific		Point of Compliance Nitrate Concentration Goal (mg/l)	5.0	
Percent of Parcel That Is Impervious (Percent)	5	Site-specific		Avg. Downgradient Nitrate Concentration in GW (mg/l)	5.3	
Current/Acceptable Number of Homes in Parcel	2.0	Site-specific		Current/Acceptable Lot Size (Acres)	10.0	
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)				Yearly Nitrogen Budget		
Upgradient Ground Water Concentration (mg/l)	5.0	Site-specific			Mass (mg)	% of Total
Septic Tank Effluent Concentration (mg/l)	45.0	45.0	Default	Background GW Nitrate Mass	3.87E+08	91.1
Denitrification Rate (decimal fraction)	0	0	Default	Septic Tank Effluent Nitrate Mass	3.73E+07	8.8
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default	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: $NRR \text{ (inches/yr)} = (TAP)^2 * 0.0046$
TAP is input in inches/yr.

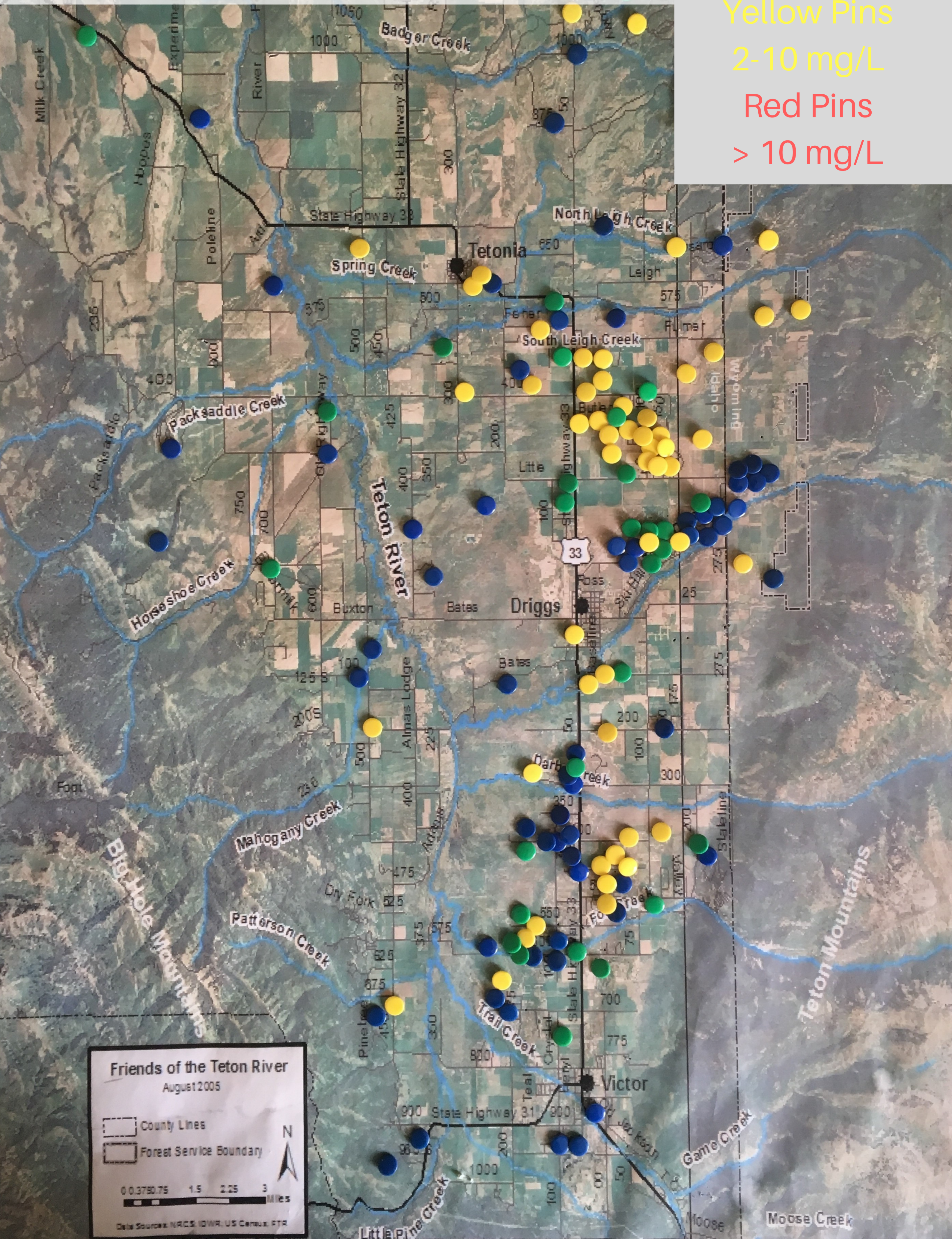
SITE INFORMATION	
Skyline View Ranch 20 Acre Parcel	Site Name
Lot 5 Block 1	Parcel Identification
6 29 23	Date
Philip Gyr	Prepared By
Disclaimer: Considerable care was exercised in developing this software. However, the Idaho Department of Environmental Quality makes no warranty regarding its accuracy 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

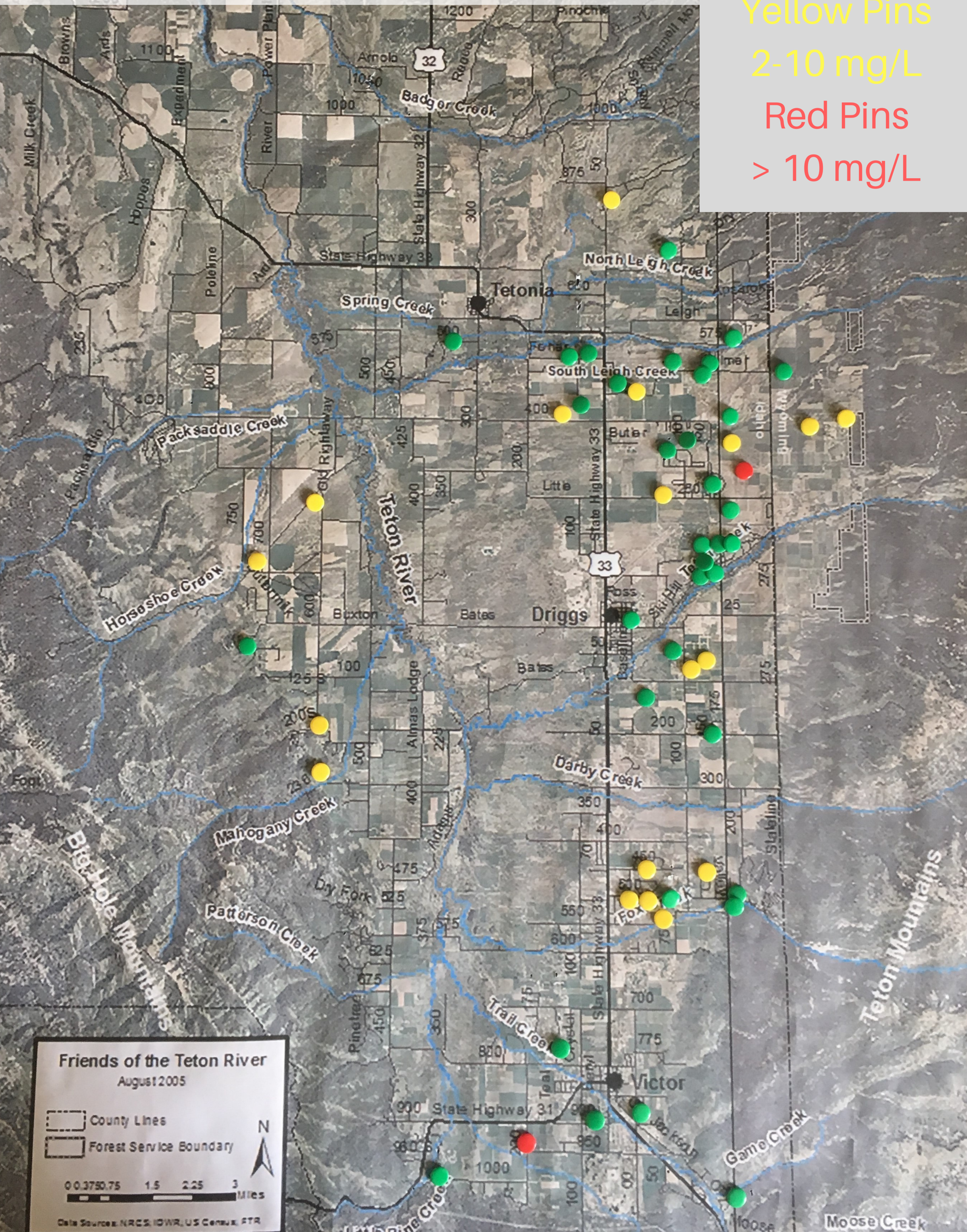
County Lines
Forest Service Boundary

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

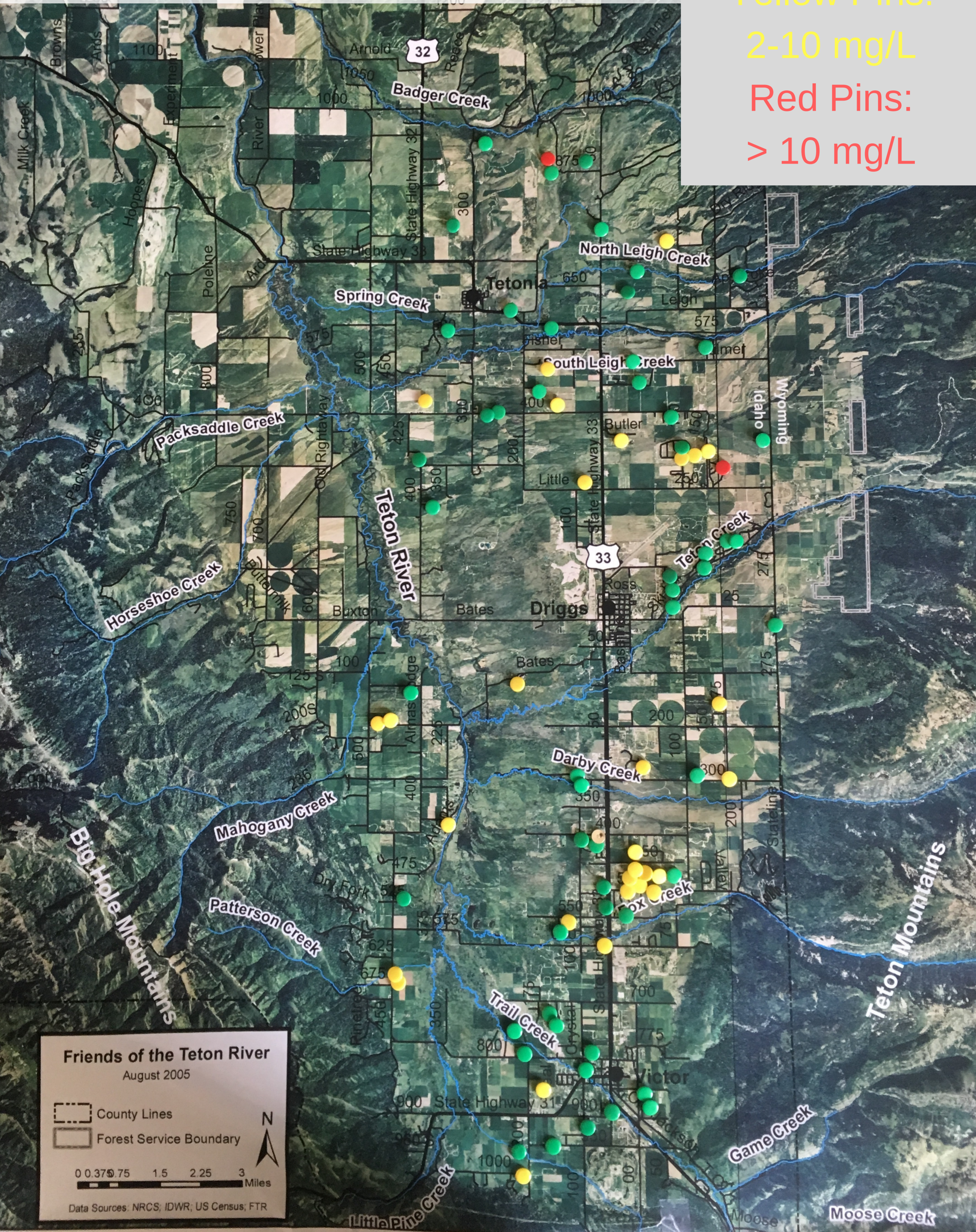
County Lines
Forest Service Boundary

0 0.375 0.75 1.5 2.25 3 Miles

Data Source: NRCs, IDWR, US Census, STR

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

0 0.375 0.75 1.5 2.25 3 Miles

Data Sources: NRCS, IDWR, US Census; FTR

2021 Nitrate Testing

Green < 2 mg/L
Yellow 2-5 mg/L
Orange 5-10 mg/L
Red > 10 mg/L

