Y2 CONSULTANTS

y2consultants.com
307 733 2999

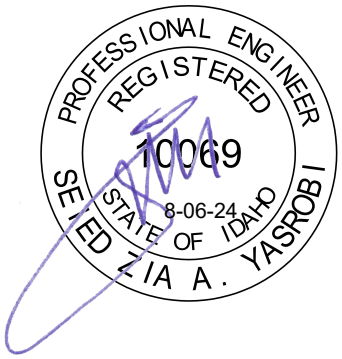
ENGINEERING, SURVEYING & PLANNING
LANDSCAPE ARCHITECTURE, GIS
NATURAL RESOURCE SERVICES

LEVEL I NUTRIENT PATHOGEN EVALUATION

JC RANCHES SUBDIVISION

Prepared by:
Y2 Consultants, LLC
Adrienne Lemmers

Reviewed By by:
Seied Zia A. Yasrobi, PE



Prepared for:
Idaho Department of Environmental Quality
900 N. Skyline Drive, Suite B
Idaho Falls, ID 83402

Eastern Idaho Public Health District
820 Valley Centre Drive
Driggs, ID 83422

Teton County Planning and Zoning
89 North Main Suite 6
Driggs, Idaho 83422

CONTENTS

FIGURES

TABLES

INTRODUCTION

The purpose of this document is to fulfill the requirements of a Level I Nutrient Pathogen Study to investigate the potential impacts on groundwater and surface water from on-site wastewater treatment systems. The project site is called JC Ranches Subdivision, owned by JD ID WY LLC. It is located in the northeast of the northeast and the northwest of the northeast quarter quarters of section 10 of T. 5 N. and R. 45 E., B.M. in Teton County Idaho and the parcel ID is RP05N45E101000.

The proposed project is for the subdivision of a 79.1-acre parcel of land. The parcel zoning at the time of the concept plan approval is "Agriculture/Rural Residential-2.5-Acre Min. Lot Size". The project as proposed is to subdivide the parcel into 18 sellable lots and an open space lot consisting of 10.87 acres. The parcel is bisected by Leigh Creek Canal. According to the Teton County GIS, irrigation in the parcel area is controlled by the Grand Teton Canal Company. Eight lots are located on parcel acreage on the west side of the canal. This area comprises 25.0 acres. Lot areas range from 2.51 to 5.88 acres with an average size of 3.12 acres. The other 10 sellable lots and open space lot are located on the east side of the irrigation canal. The sellable lots range in size from 2.78 to 6.40 acres. The average lot size is 4.32 acres with a total area of 43.2 acres plus the 10.87-acre open space lot. Please see the following figures for the vicinity map and proposed subdivision layout.

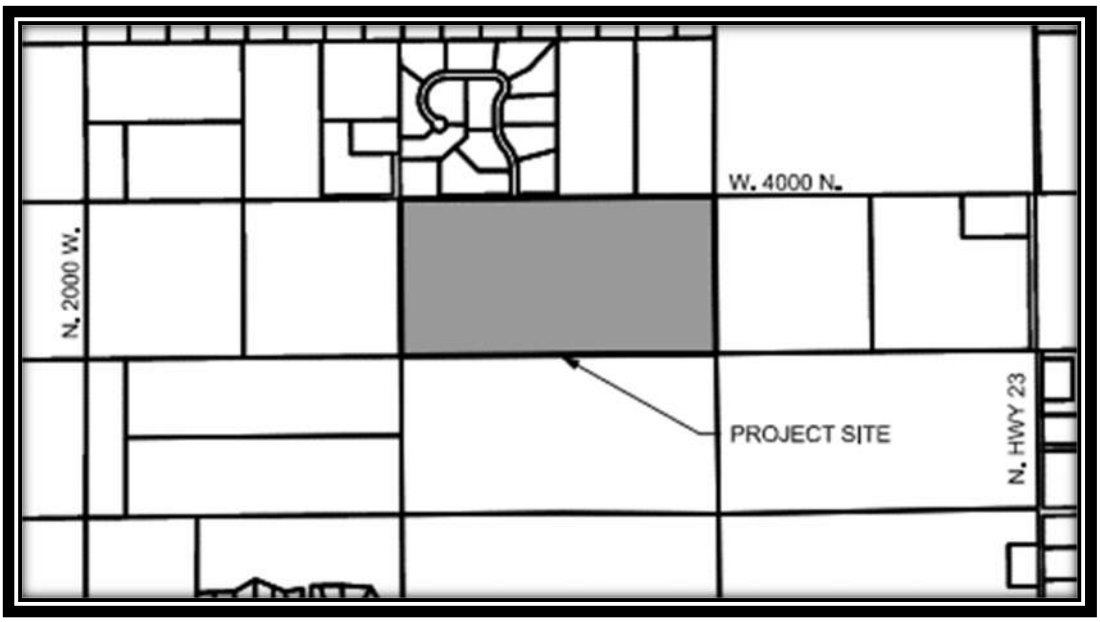


Figure 1: Subdivision Vicinity Map

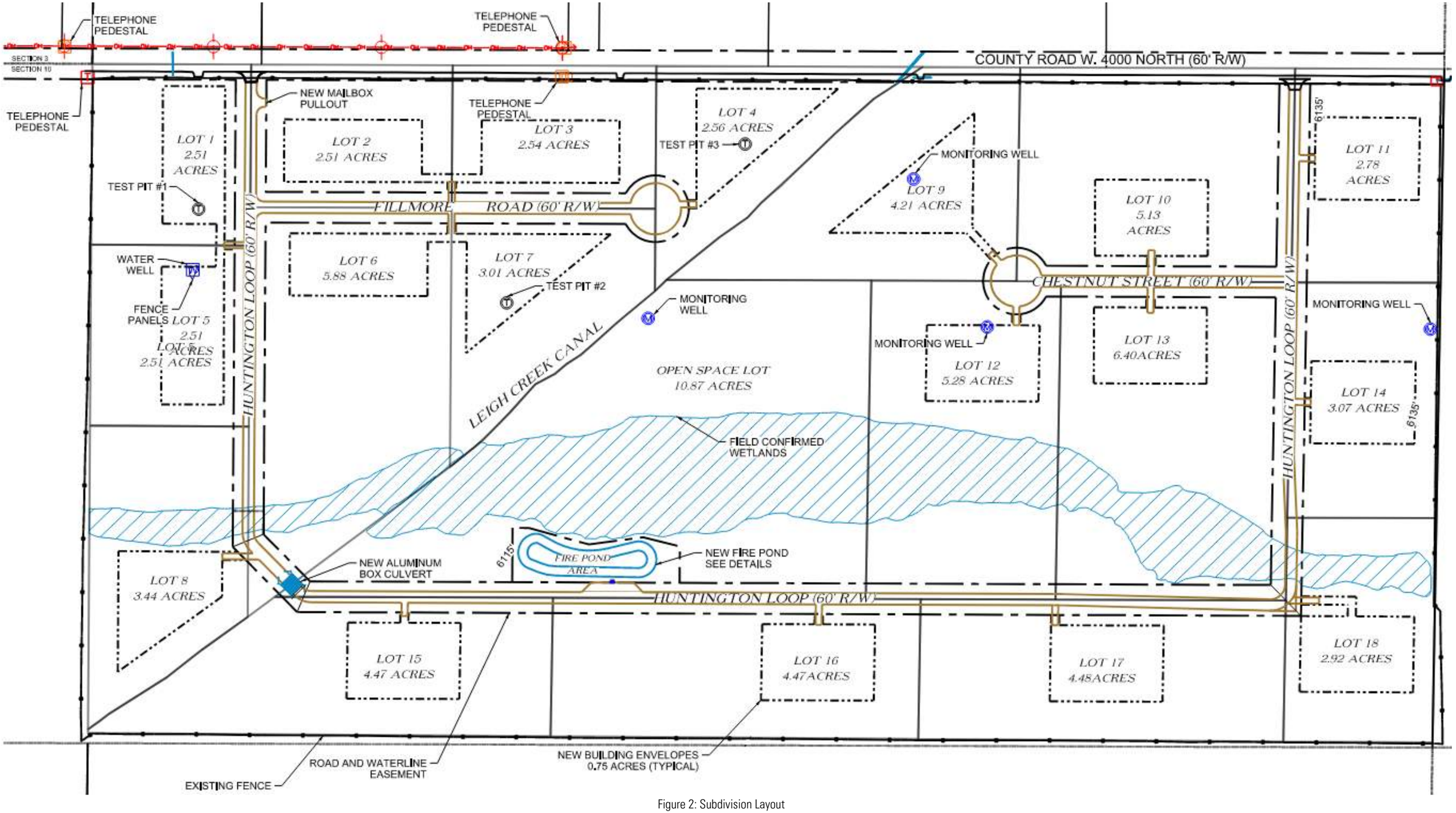


Figure 2: Subdivision Layout

To start the subdivision process, Y2 on behalf of JD ID WY LLC, had a pre-application meeting in December of 2021. A concept plan for the subdivision was submitted in February of 2022. A concept plan review was prepared by Teton County and a public hearing was held on April 12, 2022. Eastern Idaho Public Health (EIPH) completed field observations of test holes and provided a preliminary approval letter of the subdivision dated June 28, 2022.

The EIPH preliminary approval also summarized on site soil findings from three test pits excavated on site. Recommendations for the types of septic systems for the three different test pit areas were provided as well. The test pit locations are shown in Figure 2. Test pits were only completed on the west portion of the property due to the canal flowing and inaccessibility to the eastern portion. However, the EIPH letter did not express concern over this since the soil conditions do not change across the site significantly.

There was no groundwater or bedrock encountered in any of the test pits. Test pit #1 had fine sandy loam that varied in thickness and then transitioned to gravelly sandy loam down to 10 feet below the ground surface (bgs). Test pit #2 was excavated down to 120" and comprised of sandy silty loam. Past the 36" depth, the soil was more of sandy gravel with 40-50% rock content. Test pit #3 was mostly sandy silty loam down to 10" bgs and then more gravel and fine sand were encountered. Leach fields are to be sized according to a B1 soil type due to the presence of rocks in lower layers and a loamy sand soil type. The report from EIPH is included in Appendix A in its entirety of this report.

The proposed site lies partially within the Wetland Overlay area and therefore a Level I Nutrient Pathogen (NP) Evaluation is required Per Subdivision Regulations of Teton County, Idaho, Title 9, Section 9-3-2-C-3-b-i-a. The following sections provide information to meet the minimum required elements for an NP evaluation.

WELL DRILLER REPORTS

Per Appendix A of Title 09, Nutrient-Pathogen Evaluation Technical Guide for On-Site Wastewater Treatment Systems in Teton County, Idaho (referred to as Guide from now on in this submittal), the first of the minimum requirements is to provide well driller reports within ½ mile of the project site. See Figure 3 for the area for which well driller reports were researched and cataloged.

(Intentionally left blank)

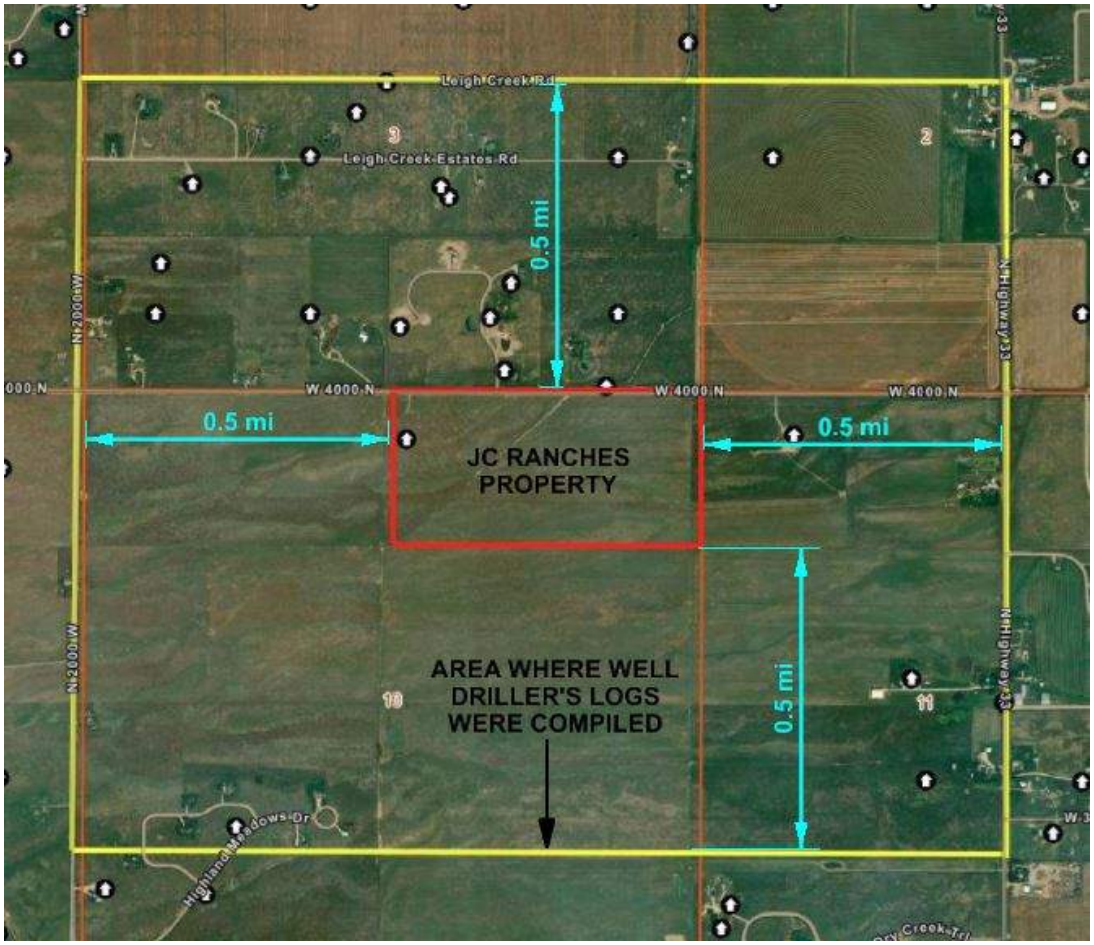


Figure 3: Area of Well Driller Report Compilation

The search area was all within T. 05 N. and R. 45 E. B.M. in Teton County. All of section 10 was included except for the southernmost row of quarter-quarters. The Northwest quarter of section 11 was included as well as the north half of the Southwest quarter. The south half of section 3 and the southwest quarter of section 2 was included in the search area.

A total of 29 wells were found within the area of review. Where well use was listed, it was for domestic, most of which were listed as a single residence.

(Intentionally left blank)

Table 1: Result Summary from IDWR Find a Well Map in the Area of Review

Permit ID	Metal Tag #	Construction Date	Section	Quarter - Quarter	Production Rate (gpm)	Static Water Level (ft bgs)	Casing Diameter (in)	Casing Depth (ft)	Total Depth (ft)
Section 2 Wells									
772451	D0021957	12/21/2001	2	NWSW		80	6	180	184
837999	D0037968	1/5/2006	2	NWSW	20	46	6	99	100
Section 3 Wells									
769608	D0021179	6/24/2001	3	NESE	30	17	6	79	80
703066	D0004108	8/7/1997	3	NESE	30	8	6	80	
702564		9/30/1994	3	NESE	30	25	6	80	
800174		5/31/1962	3	NESW		11	16	139	142
895620	D0083626	8/30/2020	3	NESW	35	10	6	100	100
780854	D0024649	7/16/2002	3	NESW	20	73	6	120	120
703039		7/6/1997	3	NESW	30	60	6	100	100
897398	D0084046	1/28/2021	3	NWSE	20	38	6	118	120
894735	D0081943	7/6/2020	3	NWSE	15	28	6	120	120
887264	D0075647	8/23/2018	3	NWSW		10	6	98	98
769242	D0021012	5/29/2001	3	SESE		35	6	84	84
878801	D0068770	5/23/2016	3	SESE		24	6	98	100
701985		8/20/1991	3	SESW	50	15	6		85
702847		5/13/1996	3	SESW	30	64	6	100	100
702556		9/17/1994	3	SESW	35	15	6	60	60
897773	D0084048	3/9/2021	3	SWSE	15	40	6	98	100
886148	D0075610	5/30/2018	3	SWSE		30	6	98	100

Permit ID	Metal Tag #	Construction Date	Section	Quarter - Quarter	Production Rate (gpm)	Static Water Level (ft bgs)	Casing Diameter (in)	Casing Depth (ft)	Total Depth (ft)
Section 3 Wells Continued									
838116	D0037981	1/23/2006	3	SWSE	20	46	6	99	100
702232		4/28/1993	3	SWSW	50	105	6	152	152
822910		3/14/1977	3	SWSW		23	6	60	60
702846		5/12/1996	3	SWSW	40	32	6	100	100
Section 10 Wells									
849279	D0048827	10/1/2007	10	NWNE		20	6	100	100
826174	D0035757	4/27/2005	10	NWSW		35	16	116	140
Section 11 Wells									
833585	D0035642	5/26/2005	11	NESW		35	6	100	100
814333		3/27/1982	11	NESW		80			95
840958	D0044152	7/17/2006	11	SENW	30	56	6	100	100
901596	D0089363	8/19/2021	11	NWNW	15	40	6	115	115

(Intentionally left blank)

Section 2 Well Summary

There are two wells listed in section 2. They both have drilling logs associated with them. One well was constructed in 2001 and was drilled down to 184 feet and had a static water level of 80 feet. The other well was constructed in 2006 and was drilled to 100 feet with a static water level of 46 feet. There is mixed clay, gravel, and sand in the soil profile. The deeper well encountered broken ryolite mixed with clay at 170' bgs.

Section 3 Well Summary

There are 21 wells within this section, which makes up the majority of the wells within the area of review. The shallowest static water level was at 8 feet and the deepest was at 105 feet below the ground surface. These wells show the general lithology in the area is mostly made up of sand, gravel, and clay.

Section 10 Well Summary

Section 10 has two wells located in the area of review, one was drilled in 2005 and the other in 2007. The 2007 well appears to be installed on the project property. One of the logs encountered mainly clay and gravel with some sand mixed in throughout the middle of the log. The other log encountered gravel and sand in the shallower depths and then started to encounter some larger gravels from 100 to 140 feet bags. One well had a static water level of 20 feet and the other was 40 feet.

Section 11 Well Summary

This section has four wells. One of the wells does not have a drilling log associated with it and it was constructed in August 2021. The other three wells have drilling logs associated with them. The static water level of these three wells ranges from 35 feet to 80 feet. All of these wells were drilled to a total depth of around 100 feet. Each lithologic log encounters some gravel, sand, and clay, with the gravel being encountered at the beginning and end, and the clay and sand being encountered around the middle of the log.

Overall Well Log and Topography Observations

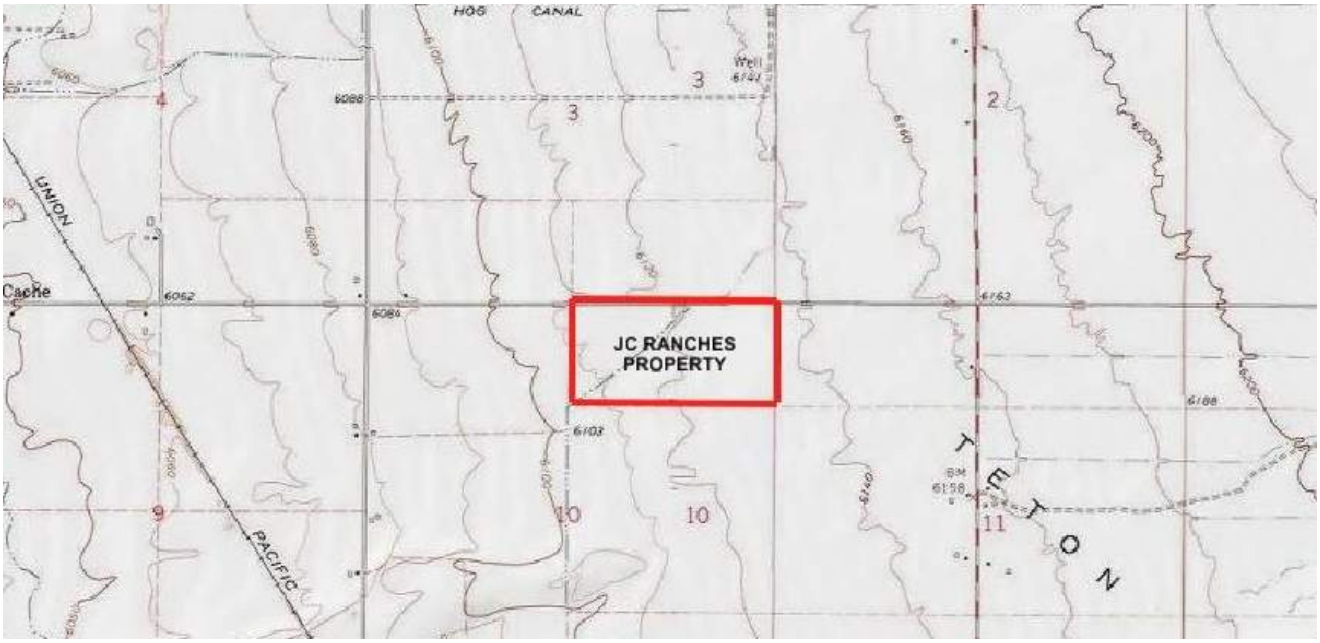


Figure 4: Topographic Map of Area of Review

The general topography in the project site area is sloping down from east to west and slightly south. The project site slopes at approximately 1 to 2%. The eastern side of the project property has an elevation of a little less than 6140 feet and the western end has an elevation ranging from about 6110 down to 6105 feet. There is also a canal that runs diagonally from the northeast corner to the southwest corner of the property.

There is only one well that is downgradient of most of the site and it is on the property itself. The well is located in the NWNE, is 100 feet deep, and the static water level is 20 feet bags.

Soil and Surface Geologic Conditions

The United States Department of Agriculture (USDA) Natural Resources Conservation District (NRCS) soil survey for the project area was utilized to supplement the information on soils in the area. A summary of site soil is presented below. The entire soil survey is included in Appendix C

Figure 5: Project Site Soil Survey Excerpt

Table 2: Soil Characteristic Summary

Soil Map Unit Number	Soil Group Name	Soil Description
13101	Redfish-Foxcreek complex, 0 to 2 percent slopes	Mucky peat on the surface underlain by loam progressing to extremely gravelly coarse sand. Soil Group C/D.
13113	Foxcreek mucky peat, 0 to 2 percent slopes	Mucky peat on the surface underlain by loam progressing to extremely gravelly coarse sand. Soil Group C/D.
13430	Alpine – St. Anthony complex, 0 to 2 percent slopes	Gravelly loams progressing to gravel. Well Drained. Soil Group B.
13431	Feltonia-Arimo complex 0 to 2 percent slopes	Loam, progressing to a very gravelly loamy sand. Well Drained. Soil Group B/C.

According to the area geologic map, the project is located in the East Teton Basin, which is influenced by Leigh Creek and Tributaries. The project area map unit is Ql/Qf which are alluvial fan deposits from the Holocene to Late Pliestocene area. The specific map unit means it is overlain by loess. This is a gravel and silt mixture said to be formed by a large flood of Leigh Creek. Please see the excerpt below. The entire geologic map is included in Appendix C.

Figure 6: Surface Geology

Background Nitrate Concentration

The Idaho Department of Environmental Quality (IDEQ) 2020 Nitrate Priority Area GIS server was used to determine nearby background nitrate concentrations. The figure below illustrates the nearby sample points. To the north, there are two sample points which are 0.27 and 0.73 mg/L. There are many sample points to the east of the project site, and they have a wide range of values, ranging from 0.18 to 3.44 mg/L Nitrate. The samples located south of the project site have a range from 1.44 to 3.12 mg/L of Nitrate. There is one sample point that is located southwest of the project site, and it has the highest value of 7.87 mg/L.

(Intentionally left blank)

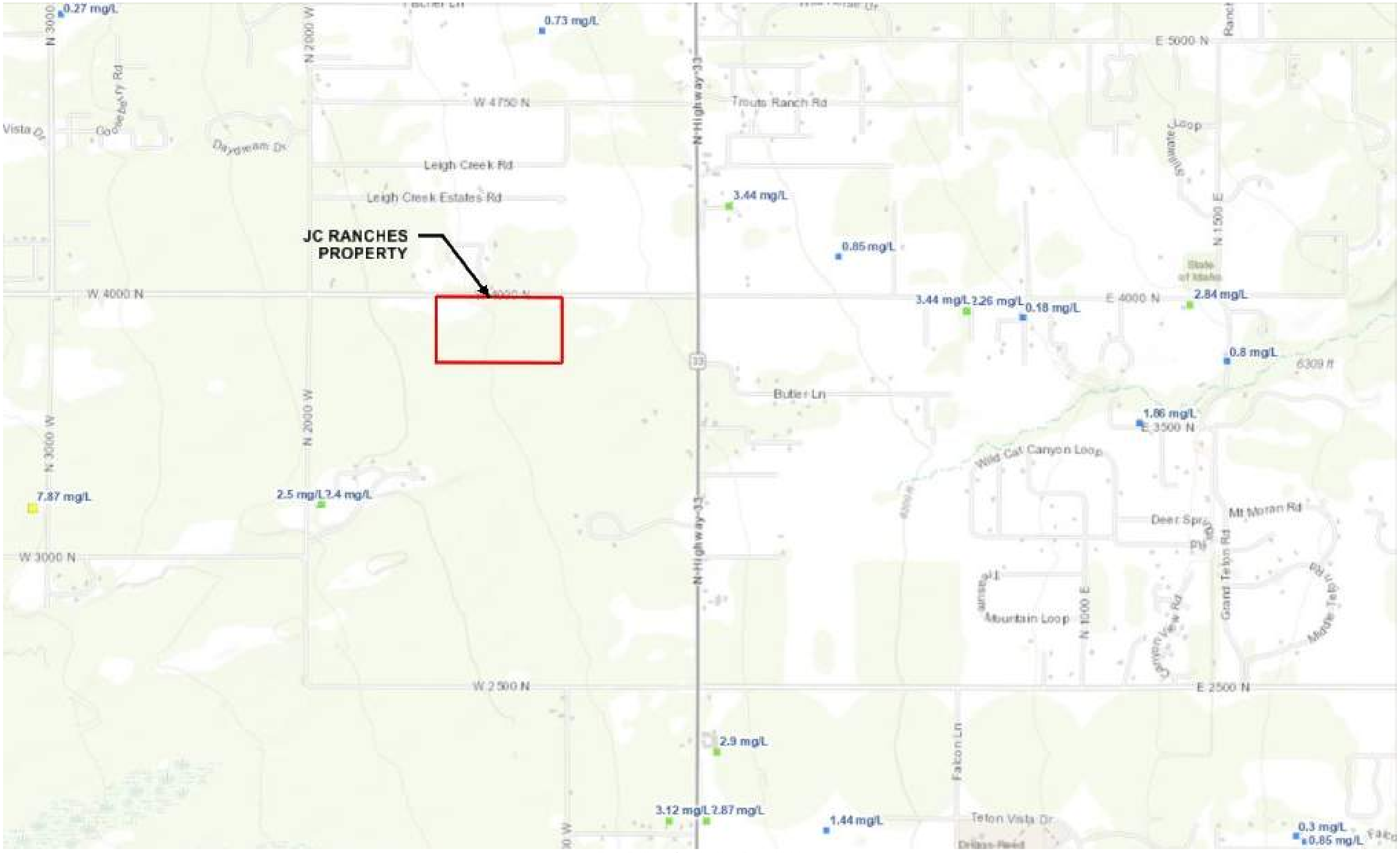


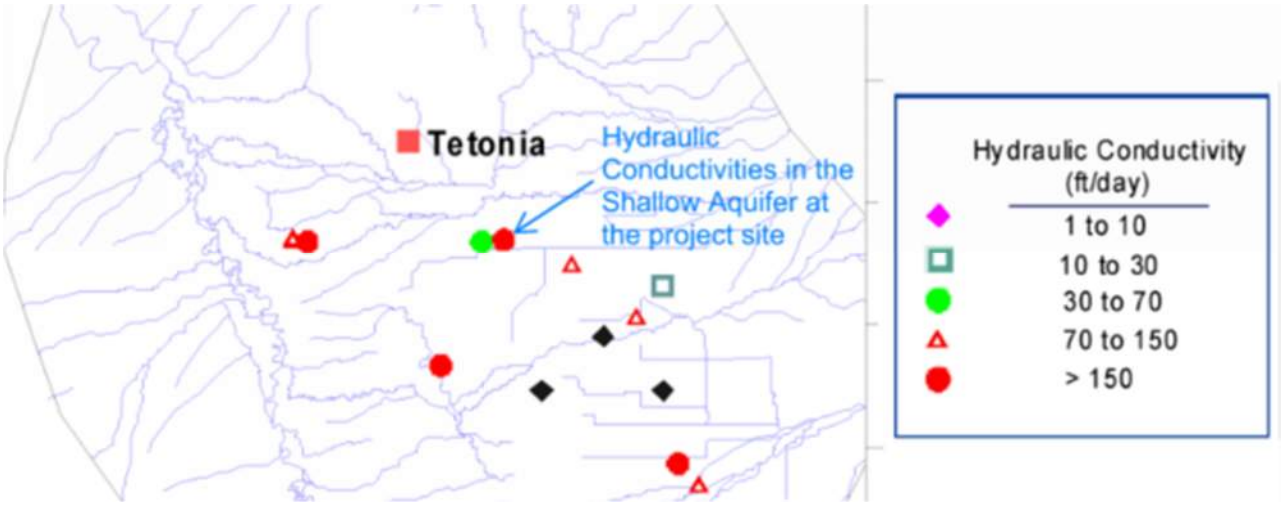
Figure 7: Nitrate Samples Near Project Vicinity

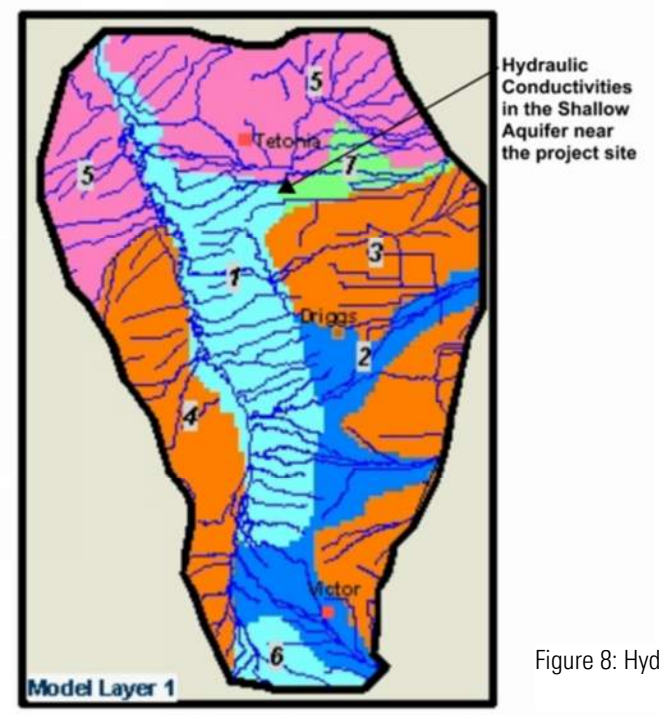
NITROGEN MASS BALANCE SPREADSHEET

Different combinations of lots were analyzed in order to see if the Nitrogen Mass Balance Spreadsheet exhibits an increase of 1 mg/L Nitrate. The subdivision has Leigh Creek, field confirmed wetlands, and the lots as compliance boundaries within the subdivision. Each individual lot was run. Then combinations of lots within the canal and wetland areas were ran. These were broken down into smaller two to four parcel combinations that are contiguous within the canal and wetland boundaries. Please see the Lot Layout Parameters and Mass Balance Spreadsheet Result sections for more information.

HYDRAULIC CONDUCTIVITY

The onsite test pits excavated exhibit a soil classification of poorly sorted sand (SP). Some gravel and very few fines were observed in the proposed leachfield areas. This on-site excavation indicates a relatively permeable soil. Drilling logs, soil survey, and geology for the project site all demonstrate sand and gravel with some silts and clays. Per the Nicklin (2003) report assigned shallow hydraulic conductivity, we have used 80 feet per day in this analysis. In the same report in the project area, there was also an assignment of over150 feet per day, but the lower, more conservative value was used for this analysis.





Final Hydrauclic Conductivity Zonation

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

Figure 8: Hydraulic Conductivity Information from Nicklin (2003)

HYDRAULIC GRADIENT

The final report: Ground-Water Model for the Upper Teton Watershed by Nicklin Earth & Water, Inc. dated March of 2003 has often been used for this parameter. This is an excellent study of the groundwater system for the entire Upper Teton Watershed. However, this study was not designed to provide site specific data for NP Evaluations. Y2 feels that it is appropriate to use this document as a general guideline for the direction of groundwater flow as well as the general magnitude of the slope of the groundwater surface. However, groundwater models, especially of the size of this one, can only be calibrated and expected to operate within an order of magnitude of accuracy.

In order to take a closer look at the hydraulic gradient, we have taken the groundwater levels that were used in the report to set up a general area for study. We created a potentiometric map of the groundwater in the subdivision area. This map was to go as far west as the Teton River to see how groundwater levels are trending in that direction. Water levels were utilized from the Idaho Department of Water Resources (IDWR) well database.

It is recognized that this data source has its limitations. Drillers do not log static water level data with the purpose of using that data for future groundwater modeling efforts in mind. Also, these wells are drilled at different times of the year, throughout different years. Finally, the NP Evaluation is assessing impacts on the shallow aquifer because this is where degradation to groundwater would first occur. Many of the wells are focused on deeper aquifer units so the well reliably productive over a long period of time and not subject to the variability that can be seen in a very shallow aquifer.

To help balance these imperfections of the data, parameters for well selection were limited to try and create a more uniform and reasonable potentiometric surface that has additional detail over what as in the Nicklin report:

1. Like the Nicklin report, wells drilled prior to 1990 were not used.

2. IDWR has a lot of data and wells in the project vicinity. Many of the newer wells are within subdivisions. Well parameters had patterns in these subdivisions that led to water level mapping that was based on several data points (instead of one) and an average of those water levels were used in the potentiometric map.
3. In areas with groups of wells, there would be some with shallow groundwater levels (30 feet below ground surface or less), and those that were relatively deep (over 60 feet deep). Since the shallow aquifer is of interest, shallower groundwater levels were utilized. This keeps in line with the 15-foot mixing zone thickness in the mass balance spreadsheet and is more conservative.

It was found in this exercise that shallow groundwater levels very closely parallel the slope of the ground surface. This is to be expected and the topographic slope was used in the first iteration of the study. The shallow groundwater levels range from 10 to 20 feet bgs in most areas. When a groundwater well is located adjacent to a surface water feature, the water level dropped below 10 feet to as shallow as 4 feet bgs. The following images from the Teton County GIS system with contours and measurements show the change in ground slope as we proceed west of the site toward the Teton River. At the project site the topographic slope is approximately 1%, which has been confirmed by our onsite survey. As we proceed about a mile west, the slope decreases to about 0.7%. The groundwater surface followed this same general trend but is sloping a little less steep than the ground and continues to get less steep the closer and closer we get to the River. One USGS well elevation from the Nicklin report, which is west of the river, shows that the groundwater slope likely changes direction at the River.

Figure 9: Area Topography from Teton County GIS

The results from the potentiometric mapping are shown below. Individual well points around the project site result in slopes varying from 0.8% to just shy of 2.0%. Averaging these slopes up and down gradient of the site result in a hydraulic gradient of 0.9%.

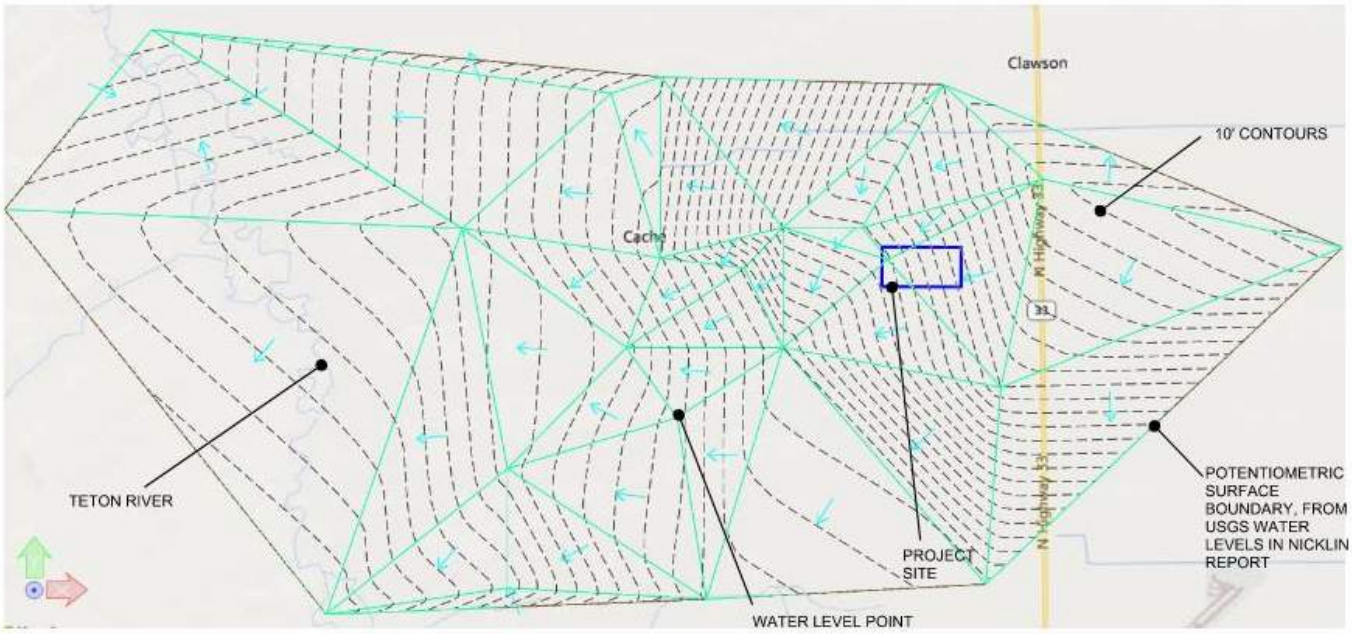


Figure 10: Hydraulic Gradient of 0.9% Estimate from nearby Well Logs

Y2 proposes to use a groundwater slope of 0.9% for the mass-balance spreadsheets. Additional information showing how the average slope across the site was estimated, along with notes and the drilling logs used to map the groundwater surface are provided in Appendix E.

Design Flow

Each developable lot will allow up to 5 bedrooms. Therefore 350 gallons per day per developable lot was used for the design flow. Per Idaho Administrative Procedures Act (IDAPA) 58.01.03.007.08 the following table was used to develop the design flow:

ESTABLISHMENTS	
Single Family Dwelling and Mobile Homes, 3 bedroom. Add/subtract 50 gallons/bedroom	250/Unit

Mixing Zone Thickness

The default mixing zone thickness was used for all the lots.

Lot Layout Parameters

The site flows from east to west, with a slight tilt towards the south. For each lot and combination of lots laid out above, the distance perpendicular to flow was measured using the lot lines and the gradient depicted in Figure 10. Please see Figure 12 for a dimensioned drawing for the lot layout parameters used in the mass balance spreadsheets.

Parcel Imperviousness

The west half of the development has an average lot size of 3.12 acres. The east half has an average lot size of 4.32 acres. A relatively large house, outbuildings, and an access drive are assumed to use a maximum of 6,000 square feet for each lot. This results in an imperviousness of between 3 and 4%. A value of 4% was used in the spreadsheets.

Natural Recharge Rate

The natural recharge rate was calculated as 1.65 inches per year from the natural recharge rate calculation in the spreadsheet. The average annual precipitation amount according to the Tetonia Experiment Station is 18.96 inches per year.

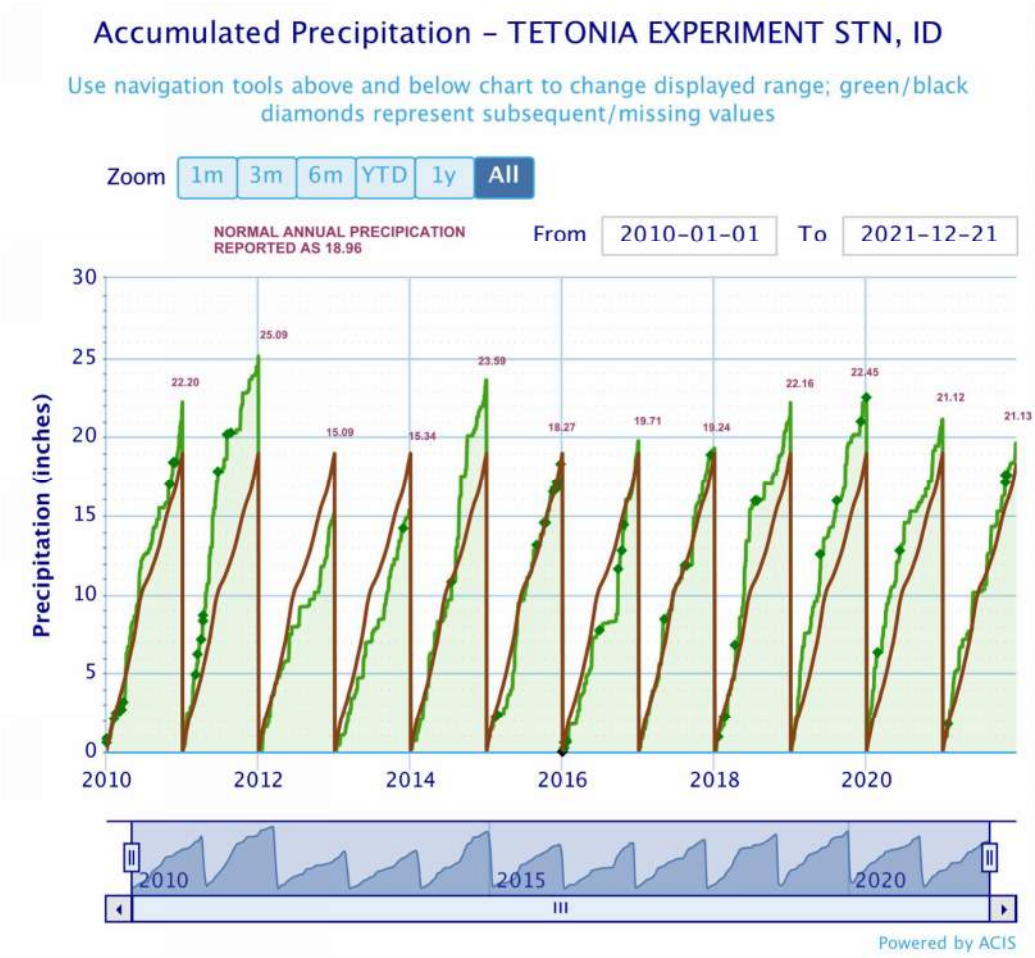


Figure 11: Annual Precipitation Information

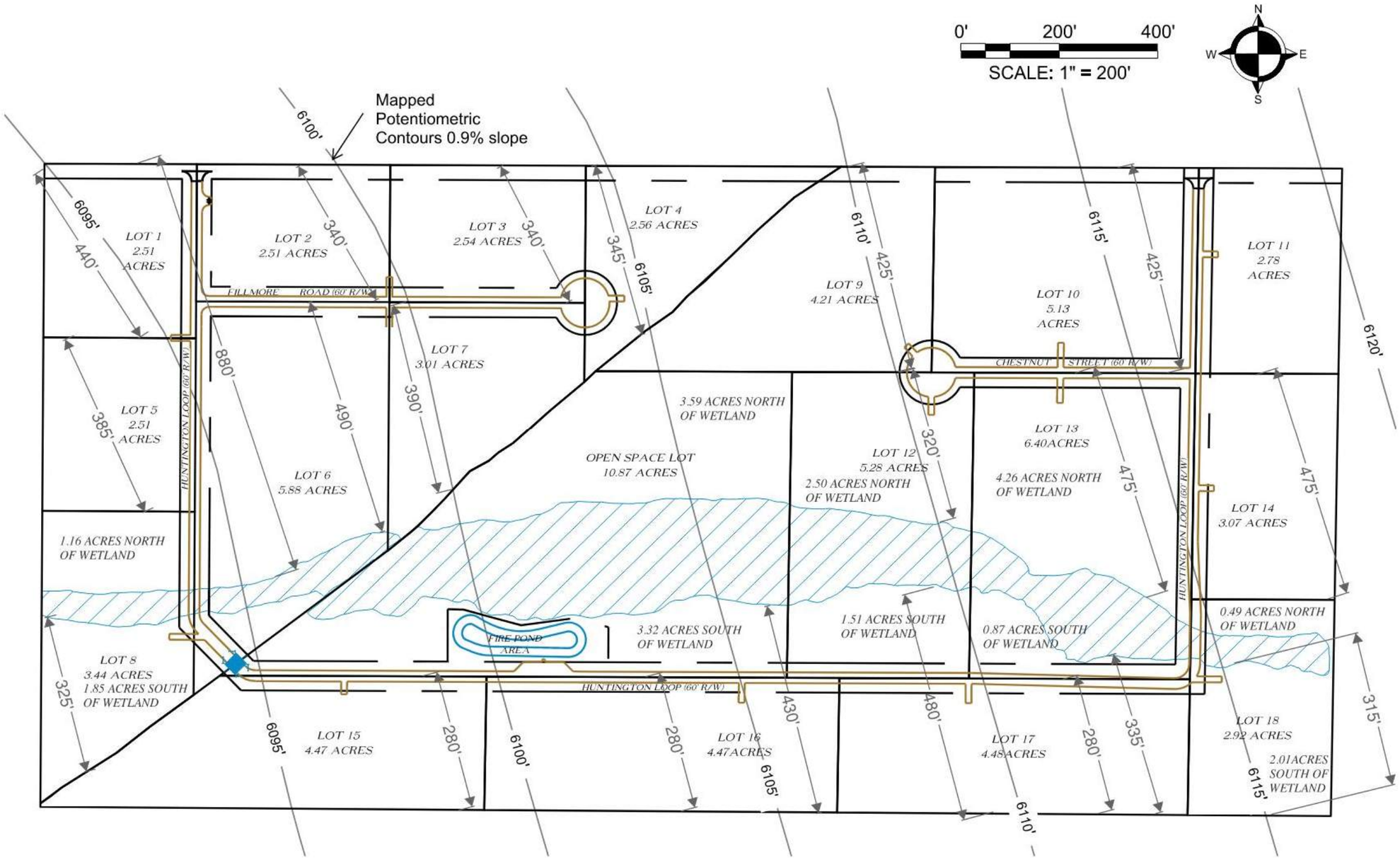


Figure 12: Lot Layout for Mass Balance Spreadsheet

Background Nitrate Concentration

The background nitrate concentration of 3.4 mg/L was used from the data point east of the site from the IDEQ 2020 Nitrate Priority Area GIS server. This was the highest value from the upgradient sample points.

Septic Tank Effluent Concentration

The density and layout of the proposed subdivision does not lend itself well to a conventional septic system and still meet nitrogen loading criteria. It is therefore proposed that each lot have an Advanced Septic System installed to reduce nitrate loading on the groundwater. Extended Treatment Package Systems (ETPS) manufacturer's report have nitrogen tank effluent concentrations ranging from under 10 up to 20 mg/L. This is a vast improvement over the typical septic tank nitrogen treatment, which only reduces nitrogen by 2-10% down to around 45 mg/L, mostly by trapping it in the scum and solids that are removed when a tank is pumped (Washing DOH 2014). Advanced Septic Systems will be required in the subdivision to ensure protection of groundwater.

While these systems can attain 20 mg/L or better effluent quality, the purpose of the Level I study is to provide a conservative screening to ensure that nitrate concentration increases are limited to 1 mg/L at the study area boundary. Therefore, an effluent limit of 32 mg/L was used in the mass balance spreadsheets. This value is supported by the IDEQ Nutrient-Pathogen Evaluation Program for On-Site Wastewater Treatment Systems modeling default parameters for enhanced nutrient treatment systems.

Mass Balance Spreadsheet Results

The summary of the downgradient nitrate concentration of each lot is shown in the table below. Individual mass balance spreadsheets are in Appendix D.

(Intentionally left blank)

Table 3: Nitrate Concentration Results

Lot #	Downgradient Nitrate Concentration (mg/L)	≤1 mg/L Nitrate Increase?
1	3.7	Yes
2	3.8	Yes
3	3.8	Yes
4	3.8	Yes
5	3.7	Yes
6	3.6	Yes
7	3.7	Yes
1-7	4.2	Yes
1-3, 5-7	4.1	Yes
1,2,5,6	3.9	Yes
5,6	3.8	Yes
5-7	4.0	Yes
8	3.8	Yes
9	3.7	Yes
10	3.7	Yes

Lot #	Downgradient Nitrate Concentration (mg/L)	≤1 mg/L Nitrate Increase?
11	3.7	Yes
9-11	4.1	Yes
12	3.8	Yes
13	3.7	Yes
14	3.7	Yes
9-14	4.1	Yes
12-14	4.0	Yes
15	3.8	Yes
16	3.8	Yes
15-16	3.9	Ye
17	3.8	Yes
15-17	4.0	Yes
16-17	4.0	Yes
18	3.8	Yes
15-18	4.2	Yes

PATHOGEN TRANSPORT ANALYSIS

According to Appendix A, Nutrient-Pathogen Evaluation Technical Guide for On-Site Wastewater Treatment Systems in Teton County, Idaho "pathogen transport modeling cannot be done with enough certainty to be useful". However, septic systems, by design are very effective at removing pathogens from the wastewater stream prior to water migrating into the aquifer. A properly maintained system will develop a biomat in the leachfield which prevents migration of pathogens off site.

PHOSPHOROUS TRANSPORT ANALYSIS

Phosphorus is the chemical of concern when assessing impacts to surface water bodies. Additional phosphorus can lead to excessive vegetation and algae growth that lowers the oxygen in the surface water body. This leads to fish die-off and an overall decrease in water quality. The irrigation canal bisecting the subdivision would be the nearest water body that could be affected by Phosphorus concentrations. However, being that it is an irrigation canal for water crops, Phosphorus is less of a concern than if it were a stream that housed aquatic life. The Nitrogen analysis

demonstrates that nitrate increases from the development will be held to less than 1 mg/L increase. Phosphorus, even assuming no treatment from the septic system, will be similarly diluted and not decrease groundwater or surface water quality.

CONCLUSION

The proposed layout of the JC Ranches Subdivision will not degrade groundwater utilizing the proposed Advanced/Extended Treatment Package Systems (ETPS). The ETPS must be approved for reductions in nitrate as ETPS that are not rated for nutrient reduction will be allowed. The outcome of the mass balance spreadsheets is limited to 5 bedrooms per developable lot. The site layout with nutrient reducing ETPS and limiting to 5-bedroom single family house per lot will protect groundwater from degradation due to the development of the JC Ranches Subdivision.

REFERENCES

Idaho Administrative Procedures Act (IDAPA). 58.01.03 – Individual/Subsurface Sewage Disposal Rules. IAC. 2006.

Idaho Department of Environmental Quality. July 14, 2021. 2020 Nitrate Priority Areas. https://mapcase.deq.idaho.gov/npa/.

Idaho Department of Environmental Quality. May 6, 2002. Nutrient-Pathogen Evaluation Program for On-Site Wastewater Treatment Systems.

Idaho Department of Water Resources. Find a Well Map. June 28, 2022. https://idwr.idaho.gov/wells/find-a-well-map/

National Oceanic and Atmospheric Administration. July 14, 2022. https://www.ncdc.noaa.gov/cdo-

Nicklin Earth & Water, Inc. Ground-Water Model for the Upper Teton Valley Watershed. 2003.

Embree, Glenn F. Geologic Map of the Clawson Quadrangle, Teton County, Idaho. 2014.

Teton County Code. Title 09 Subdivision Regulations. 2013.

Teton County Online Geographic Information System. July 15, 2022. https://tetonidaho.maps.arcgis.com/apps/webappviewer/index.html?id=7cad88173b644a6a8e8c1147e94aa524.

United States Department of Agriculture, Natural Resources Conservation District. Custom Soil Resource Report for Teton Area, Idaho, and Wyoming JC Ranches Subdivision. Downloaded September 6, 2022.

Washington Department of Health. How Nitrogen from Septic Systems Can Harm Water Quality. August 2014.

Appendix A: EIPH Letter Report

Eastern Idaho Public Health
Prevent. Promote. Protect.

TETON COUNTY
820 Valley Centre Drive
Driggs, ID 83422
OFFICE (208) 354-2220
FAX (208) 354-2224

06/28/2022
Teton County Planning and Zoning
89 North Main Suite 6
Driggs, Idaho 83422

Jim Herbert
4750 S Cortland Drive
Jackson, WY 83001

Re: JC Ranches Subdivision

I have reviewed the application to have RP05N45E101000 subdivided into twenty-five (25)) lots to be known as JC Ranches Subdivision and determined the parcel and proposed lots are suitable for sub-surface waste disposal systems to serve residences.

Soil information observed is consistent across the parcel and is as follows:
0-48 inches of fine sandy loam topsoil with minor rock content. B1 Soil Type. The thickness of this layer varies across the property ranging from 10 inches up to 48 inches. Minor rock content.
Below the top soil layer to depth of 120 inches lies very gravelly fine to medium sandy loam with up to 65% rock content. Rock content has slight increase with depth. Rounded clasts range from .5 to 5 inches diameter. A2b Soil Type.
No groundwater evidence was seen any test hole. No bedrock was encountered to a depth of 120 inches.

The parcel is cut diagonally by an irrigation canal/ditch. Due to deep fast water the eastern portion was not accessible. The soil horizon and rock content will not change from that observed in the western portion of the property. Adjacent properties to the south and east have been evaluated and have the same soil types and horizons. All areas of the parcel are suitable for sub-surface wastewater disposal systems. All drainfields should be sized using B1 application rate of 0.6 gpd/sq ft due to the rock content in the lower layer.

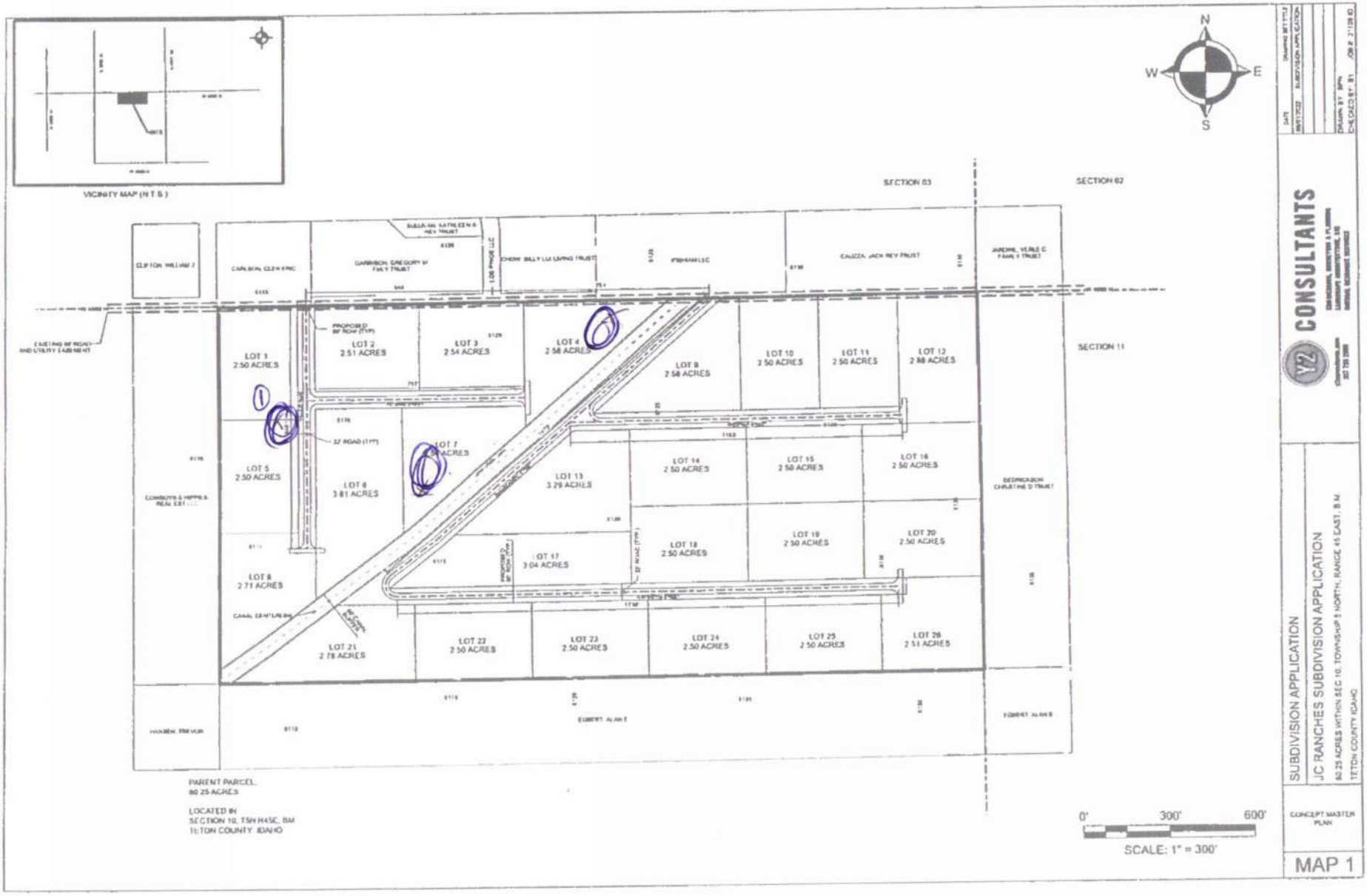
The parcel has a very minor slope from the Northeast to the southwest.

Eastern Idaho Public Health gives preliminary approval of the application to divide RP05N45E101000 creating the JC Ranches Subdivision. The site is suitable for residential sub-surface waste disposal. Individual subsurface sewage disposal systems may be allowed in accordance with IDAPA 58.01.03 and the Technical Guidance Manual for Individual Subsurface Waste Disposal. All current Idaho Rules must be met. Suitability criteria and required separation distances are to be maintained.

A copy of the final plat is to be provided to the Health District at the time the Health Certificate is signed. The application fee balance if any will also be collected prior to signing the Health Certificate. If this application /plan changes for any reason, please coordinate those changes in advance, with this office.

Kathleen Price
REHS/MSG
Eastern Idaho Public Health District
kprice@eiph.idaho.gov
208-354-2220


W 4000 N
W 4000 N
TH3
TH1
Irrigation ditch/canal
TH2
JC Ranches


VICINITY MAP (N T S)
N
W
E
S
SECTION 03
SECTION 02
SECTION 11
LOT 1
2.50 ACRES
LOT 2
2.51 ACRES
LOT 3
2.54 ACRES
LOT 4
2.58 ACRES
LOT 5
2.50 ACRES
LOT 6
3.81 ACRES
LOT 7
ACRES
LOT 8
2.71 ACRES
LOT 8
2.58 ACRES
LOT 10
2.50 ACRES
LOT 11
2.50 ACRES
LOT 12
2.88 ACRES
LOT 13
3.29 ACRES
LOT 14
2.50 ACRES
LOT 15
2.50 ACRES
LOT 16
2.50 ACRES
LOT 17
3.04 ACRES
LOT 18
2.50 ACRES
LOT 19
2.50 ACRES
LOT 20
2.50 ACRES
LOT 21
2.78 ACRES
LOT 22
2.50 ACRES
LOT 23
2.50 ACRES
LOT 24
2.50 ACRES
LOT 25
2.50 ACRES
LOT 26
2.51 ACRES
PROPOSED 66' ROW (TYP)
32' ROAD (TYP)
EXISTING 66' ROAD AND UTILITY EASEMENT
EGBERT ALAN T
PARENT PARCEL
60 25 ACRES
LOCATED IN
SECTION 10, T5N R45E, BM
TETON COUNTY IDAHO
0'
300'
600'
SCALE: 1" = 300'
CONSULTANTS
SUBDIVISION APPLICATION
JC RANCHES SUBDIVISION APPLICATION
60 25 ACRES WITHIN SEC 10, TOWNSHIP 5 NORTH, RANGE 45 EAST, B M
TETON COUNTY IDAHO
CONCEPT MASTER PLAN
MAP 1

Eastern Idaho Public Health
Prevent. Promote. Protect.

ENVIRONMENTAL HEALTH
1250 Hollipark Drive
Idaho Falls, ID 83401
OFFICE (208) 523-5382
FAX (208) 528-0857

SUBDIVISION ON-SITE

Conducted on: June 2022 Time: Travel _____ On-site _____

I. NAME OF SUBDIVISION: JC Ranches

II. LOCATION (COUNTY): Teton

III. GENERAL INFORMATION:

A. Current Land Use: Ag / Pasture.

B. Adjoining Property Use: Same as above / Residential

C. Surface Water (on or near development): Irrigation Canal / Ditch -

D. Slope: Minor to None

E. Drainage Areas Present: No

F. Rock Outcrop Present: No

G. Wetland Indications: No County has designated small amount of property as wetland, but this is Ag wetland / flood irrigation.

IV. EVALUATION:

A. Individual water and sewer:
Does each lot appear to have sufficient area to install proposed system and to meet minimum separation requirements? Yes X No _____

B. Individual water and central sewer:
Does there appear to be sufficient area for central system and replacement area? Yes _____ No _____

C. Individual sewer and central water system:
Does each lot appear to have sufficient area to install proposed system and to meet minimum separation requirements? Yes _____ No _____

D. Individual sewer and public water system:
Does each lot have sufficient area to install proposed system and to meet minimum separation requirements? Yes _____ No _____

COMMENTS:

No problems w/ suitability for septic systems. 50' separation from irrigation Ditch required ~~from~~ for any portion of septic system.

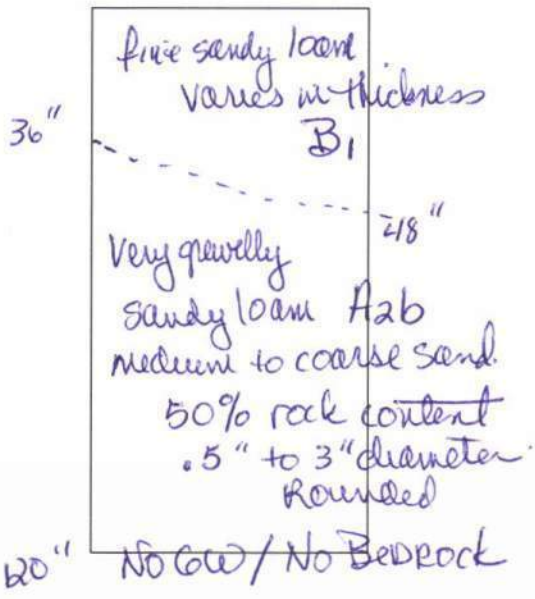
EHS: K Price

TEST HOLE INFORMATION

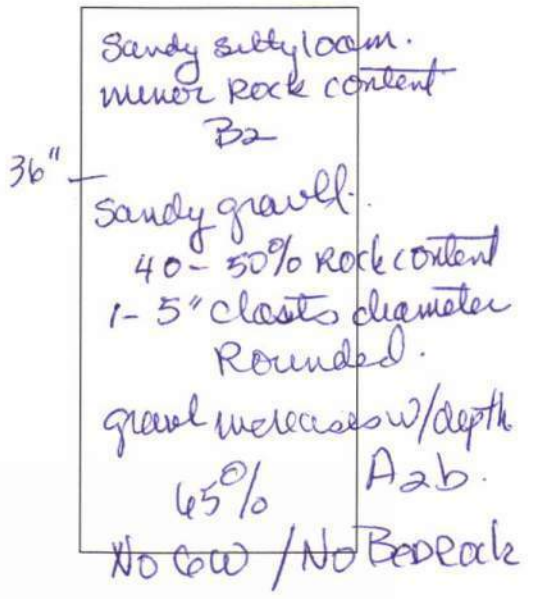
SUBDIVISION JC Ranches DATE

~60' from canal/ditch

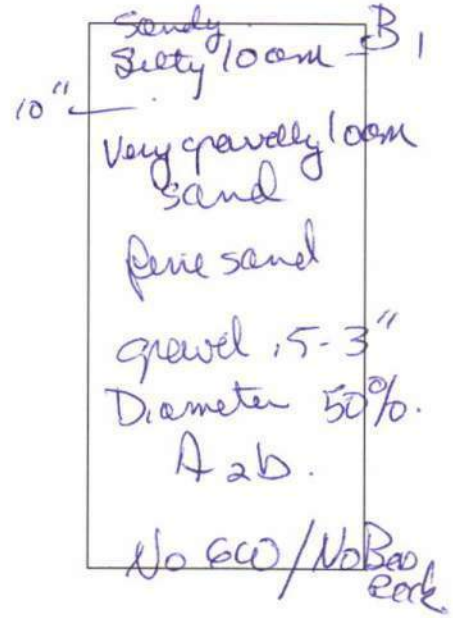
Test Hole # 1
Location: Between Lot 1 + 5
Depth: 120"



Test Hole # 2
Location: Lot 7
Depth: 120"

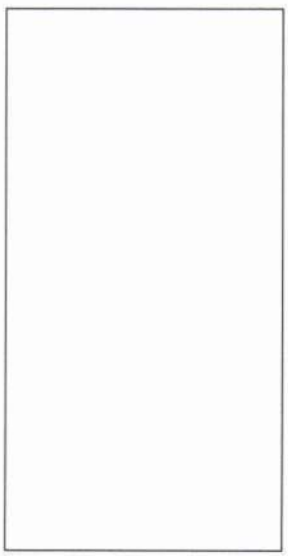


Test Hole # 3
Location: NE corner Lot 3
Depth: 120"

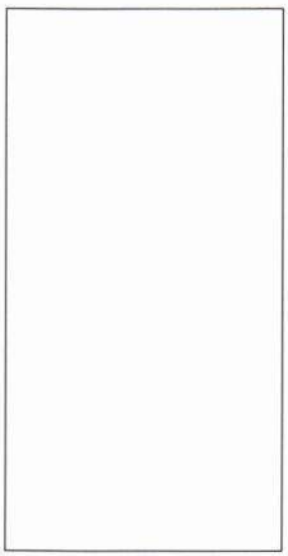


- Unable to cross Ditch to eastern portion of site

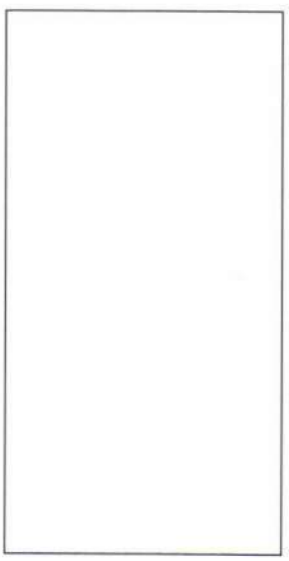
Test Hole # _____
Location: _____
Depth: _____



Test Hole # _____
Location: _____
Depth: _____



Test Hole # _____
Location: _____
Depth: _____



Appendix B: Well Driller Reports

Form 238-7
11/97

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

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

1. WELL TAG NO. D [redacted] 0021957
DRILLING PERMIT NO. - 772451
Other IDWR No. _____

2. OWNER:
Name Sean & Lori Collins
Address PO Box 589
City Driggs State Id Zip 83422

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

N / W / E / S

Twp. 5 North ☒ or South ☐
Rge. 45 East ☐ or West ☐
Sec. 2, NW 1/4 (10 acres) SW 1/4 (40 acres) ____ 1/4 (160 acres)
Gov't Lot ____ County Teton
Lat: : : Long: : :
Address of Well Site _____
(4 Peaks) (Give at least name of road + Distance to Road or Landmark) City Driggs
Lt. _____ Blk. _____ Sub. Name Packsaddle Estates

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

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

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

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0'	20'	600 lbs.	Auger Bore

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

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+18"	180'	.250	steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

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

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

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

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

Yield gal./min.	Drawdown	Pumping Level	Time

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

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10"	0'	3'	Top Soil		
	3'	20	Brown Clay & Gravel		
6"	20'	170'	Brown Clay & Gravel		
	170'	184'	Broken Rhyolite & Gravel	X	

RECEIVED
APR 10 2002
Department of Water Resources

RECEIVED
FEB 26 2002
Department of Water Resources
Eastern Region

Completed Depth [redacted] 184 ft (Measurable)
Date: Started 12-17-01 Completed 12-20-01

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

Company Name Martins Well Service Firm No. 478
Firm Official [signature] Date 12-31-01
and
Driller or Operator _____ Date _____
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
6/02

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 0037268
DRILLING PERMIT NO.
Water Right or Injection Well No.

2. OWNER:
Name Quality Construction
Address 3720 Taylor View
City Idaho Falls State Id Zip 83401

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 6 North ☒ or South ☐
Rge. 45 East ☒ or West ☐
Sec. 32, 10 acres 1/4 NW 40 acres 1/4 SW 160 acres 1/4
Gov't Lot ____ County Teton
Lat: : : Long: : :
Address of Well Site 407 Los Pinos
City Driggs
(Nearest name of road + Distance to Road or Landmark)
Lt. 7 Blk. ____ Sub. Name Los Pinos

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

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

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

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
Bentonite	0	20	450	Overbore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 99'
Was drive shoe seal tested? ☐ Y ☐ N How?

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+1	99	280	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

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

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

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

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
46 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
20 +	460 @	550	1 hr

Water Temp. Cool Bottom hole temp. Cool
Water Quality test or comments:
Depth first Water Encounter 60'

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
6	0	20	Sand & gravel		☒
6	20	70	Clay & gravel	☒	
6	70	80	Brown Clay	☒	
6	80	100	Clay & gravel	☒	

RECEIVED
JAN 26 2006
Department of Water Resources
Eastern Region

Completed Depth 100' (Measurable)
Date: Started 1-4-06 Completed 1-6-06

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 Mark Mitchell Well Drl Firm No. 262
Principal Driller [signature] Date 1-26-06
and
Driller or Operator II ____ Date ____
Operator I ____ Date ____
Principal Driller and Rig Operator *Required.*
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
1/97

VC omd

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

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

1. WELL TAG NO. D 0021179
DRILLING PERMIT NO. ___-___-769608
Other IDWR No. _____

2. OWNER:
Name Christian Onufer
Address P.O. Box 3724
City Jackson State Wy Zip 83001

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

N / W / E / S — X

Twp. 5 North ■ or South ☐
Rge. 45 East ■ or West ☐
Sec. 3, ____ 1/4 (10 acres) NE 1/4 (40 acres) SE 1/4 (160 acres)
Gov't Lot ____ County Teton
Lat: : : Long: : :
Address of Well Site _____
City _____
(Give at least name of road + Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

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

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

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

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	20	5 Sacks	Annular

Was drive shoe used? ■ Y ☐ N Shoe Depth(s) -79
Was drive shoe seal tested? ■ Y ☐ N How? Air

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+1	-79	.250	Steel	■	☐	■	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

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

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

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
17 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
30+			

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

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8"	0	20	Sand & Gravel		X
6"	20	80	Sand & Gravel	X	

RECEIVED
AUG - 6 2001
Department of Water Resources

RECEIVED
JUL 26 2001
Department of Water Resources
Eastern Region

Completed Depth 80' (Measurable)
Date: Started 6-21-2001 Completed 6-25-2001

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

Company Name Independent Drilling Firm No. 343
Firm Official Brent Henderson Date 6-25-2001
and
Driller or Operator _____ Date _____
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
3/95

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen

68044

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

1. DRILLING PERMIT NO. Tag #. D000 - 4108
Other IDWR No. 22-97-E-0082-000

2. OWNER:
Name Larry Reynolds
Address P. O Box 527
City DRIGGS State ID Zip 83422

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

N / W / E / S

Twp. 5 North ☑ or South ☐
Rge. 45 East ☑ or West ☐
Sec. 3, NE 1/4 (10 acres) SE 1/4 (40 acres) ____ 1/4 (160 acres)
Gov't Lot ____ County Teton
Lat: : : Long: : :
Address of Well Site 135 Leigh Creek Estates City ____
(Give at least name of road + Distance to Road or Landmark)

Lt. ____ Blk. ____ Sub. Name ____

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

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

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

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	20	200	Gravity

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

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+1	80	280	steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____

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

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

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
8 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
30+			1 hr

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments: Good water
Depth first Water Encountered ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
6	0	3	Top Soil		
	3	62	Sand & Gravel	X	
	62	64	Clay & Gravel		
	64	TD	Gravel	X	

RECEIVED
AUG 20 1997
Department of Water Resources
Eastern Region

RECEIVED
MICROFILMED
AUG 26 1997
OCT 15 1997
Department of Water Resources

Completed Depth 80 (Measurable)
Date: Started 8-8-97 Completed 8-8-97

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

Firm Name TETON WATER WORKS LLC P.O. BOX 502 SHELLEY, ID 83274 Firm No. 506
Firm Official [signature] Date 8-11-97
and
Supervisor or Operator [signature] Date 8/11/97
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
1/94

DMD ✓ C

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

PERMIT ID 702564

Use Typewriter or Ball Point Pen

55900

1. DRILLING PERMIT NO. 22-94-E-175-000
Other IDWR No.

2. OWNER:
Name Keith Jones
Address P.O Box 1714
City Murphys State Ca Zip 95247

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

N / W / E / S

Twp. 5 North ☒ or South ☐
Rge. 45 East ☒ or West ☐
Sec. 3, NE 1/4 (10 acres) SE 1/4 (40 acres) ____ 1/4 (160 acres)
Gov't Lot 32 County TETON

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

Lt. Blk. Sub. Name Leigh Creek Estates

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

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

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

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	20	2	Over Bore

Was drive shoe used? Y ☐ N ☒
Was drive shoe seal tested? Y ☐ N ☐ How?

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	0	80	260	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe Length of Tailpipe

9. PERFORATIONS/SCREENS NONE
☐ Perforations Method
☐ Screens Screen Type

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

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
30	70	75	2 Hr

Water Temp. Bottom hole temp.
Water Quality test or comments: Clear + good

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
6	0	20	sand + gravel		X
	20	35	sand	X	
	35	45	washed gravel		X
	45	60	Clay + gravel	X	
6	60	80	gravel	X	

DEC 1 1994
Department of Water Resources
Eastern District Office

OCT 14 1994
Department of Water Resources
Eastern District Office

RECEIVED
DEC 7 1994
Department of Water Resources

MAY 08 1995

Completed Depth 80 (Measurable)
Date: Started 10-1-94 Completed 10-1-94

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 Teton water works Firm No. 506

Firm Official Date 10-12-94
and
Supervisor or Operator Richard Thue Date
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

025222

WELL LOG AND REPORT OF THE STATE RECLAMATION ENGINEER OF IDAHO

Department of Reclamation

Permit ID 800174

Permit No. _____ Well No. 1 County Teton

Owner ~~Earl~~ Spencer

Address Idaho Falls, Idaho

Driller R. P. Cope

Address 927 Poulsen Idaho Falls, Idaho

Well location S½ ¼ N½ ¼ Sec. 3, T. 5 N/~~S~~, R. 45 E/~~W~~

Size of drilled hole 16 inch

Total depth of well 142 ft.

Locate well in section

NW¼	NE¼
SW¼	SE¼

Give depth to standing water from the ground 11 ft. Water temp. _____ °Fahr.

On "Pumping Test" delivery was _____ g.p.m. or _____ c.f.s. Drawdown was _____ feet.

Size of pump and motor used to make test _____

Length of time of test _____ hours _____ minutes.

If flowing well, give flow _____ c.f.s. or _____ g.p.m. and of shut off pressure _____

If flowing well, described control works _____
(TYPE AND SIZE OF VALVE, ETC.)

Water will be used for Irrigation Weight of casing per lineal foot _____

Thickness of casing ¼ in. Casing material Steel
(STEEL, CONCRETE, WOOD, ETC.)

Diameter, length and location of casing 139 ft. of 16" O.D.
(CASING 12" IN DIAMETER OR LESS, GIVE INSIDE DIAMETER; CASING OVER 12" IN DIAMETER, GIVE OUTSIDE DIAMETER)

CASING RECORD

Diam. Casing	From Feet	To Feet	Length	Remarks—seals, grouting, etc.

Number and size of perforations _____ located _____ feet to _____ feet from ground

Perforated 133 ft.

Date of commencement of well May 1962 Date of completion of well May 1962

4585

SN — 45E — 3 s½ n½

22

025223

WELL LOG

From Feet	To Feet	Type of Material	Water-bearing Formation Ans. Yes or No	Casing Perforated Ans. Yes or No
0	15	Coarse gravel and clay		
15	25	Coarse gravel and clay		
25	31	Coarse gravel and clay		
31	45	Sand and gravel- some water		
45	62	Sand and gravel		
62	90	Sand and gravel		
90	116	Clay and gravel		
116	120	Sand and gravel		
120	126	Sand and gravel-more water		
126	142	Clay and gravel		
		If more space is required use Sheet No. 2		

WELL DRILLER'S STATEMENT

This well was drilled under my supervision and the above information is true and correct to the best of my knowledge and belief.

Signed R. P. Cope

By Rhea Cope

License No. 28

Dated April 15, 1963.

Form 238-7
6/07

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. WELL TAG NO. D0083626

Drilling Permit No. _____

Water right or injection well # _____

2. OWNER: Scott Barlow

Name _____

Address 27614 Robillard Springs In.

City Katy State TX Zip 77494

3. WELL LOCATION:

Twp. 5 North ☒ or South ☐ Rge. 45 East ☒ or West ☐

Sec. 3 ____ 1/4 (10 acres) NE 1/4 (40 acres) SW 1/4 (160 acres)

Gov't Lot _____ County Teton

Lat. 43 ° 47.263 (Deg. and Decimal minutes)

Long. 111 ° 07.910 (Deg. and Decimal minutes)

Address of Well Site 1530 Leigh Creek Estates Rd

(Give at least name of road + Distance to Road or Landmark) City Tetonia

Lot. _____ Blk. _____ Sub. Name _____

4. USE:

☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Thermal ☐ Injection
☐ Other _____

5. TYPE OF WORK:

☒ New well ☐ Replacement well ☐ Modify existing well
☐ Abandonment ☐ Other _____

6. DRILL METHOD:

☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other _____

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method/procedure
Bentonite	0	35	1100 LBS	10" temp casing

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material	Casing	Liner	Threaded	Welded
6	+1	100	250	Steel	☒	☐	☐	☒
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 100

9. PERFORATIONS/SCREENS:

Perforations ☐ Y ☒ N Method _____

Manufactured screen ☐ Y ☒ N Type _____

Method of installation _____

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

Length of Headpipe _____ Length of Tailpipe _____

Packer ☐ Y ☒ N Type _____

10. FILTER PACK:

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

11. FLOWING ARTESIAN:

Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG) _____

Describe control device _____

12. STATIC WATER LEVEL and WELL TESTS:

Depth first water encountered (ft) 10 Static water level (ft) 10

Water temp. (°F) _____ Bottom hole temp. (°F) _____

Describe access port _____

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)
	35	20

Test method:

Pump	Bailer	Air	Flowing artesian
☐	☐	☒	☐
☐	☐	☐	☐

Water quality test or comments: _____

13. LITHOLOGIC LOG and/or repairs or abandonment:

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

RECEIVED
SEP 28 2020
Department of Water Resources
Eastern Region

Completed Depth (Measurable): 100'

Date Started: 8/31/20 Date Completed: 8/31/20

14. DRILLER'S CERTIFICATION:

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

Company Name Daniel Denning Drilling Co. No. 518

*Principal Driller _____ Date _____

*Driller Beau Bay Date 9/1/20

*Operator II _____ Date _____

Operator I Brand Piquet Date 9/1/20

* Signature of Principal Driller and rig operator are required.

Form 238-7
11/97

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

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

1. WELL TAG NO. D 0024049
DRILLING PERMIT NO. 780854
Other IDWR No.

2. OWNER: River Bend Construction
Name
Address P.O. Box 588
City Victor State ID Zip 83455

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

N / W / E / S

Twp. 5 North ☒ or South ☐
Rge. 45 East ☒ or West ☐
Sec. 3 NE 1/4 SW 1/4 ____ 1/4 ____ 1/4
(10 acres / 40 acres / 160 acres)
Gov't Lot 2 County Teton
Lat: : : Long: : :
Address of Well Site 475 N. 125 W.
City Tetonia
(Give at least name of road + Distance to Road or Landmark)

Lt. ____ Blk. ____ Sub. Name ____

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

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

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

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	20	300	overbore

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

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+2	120	.250	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____

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

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

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
73 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
20+			1 hr.

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments: ____
Depth first Water Encounter 77

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8"	0	1	dirt		✓
6"	1	76	gravel & sand		✓
6"	76	111	sand & gravel	✓	
6"	111	120	gravel	✓	

RECEIVED
NOV 12 2002
Department of Water Resources
Eastern Region

Completed Depth 120'
Date: Started 7-17-02 Completed 7/17/02 (Measurable)

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

Company Name Teton Water Works Firm No. 5040
Firm Official [signature] Date 7-17-02
and
Driller or Operator [signature] Date 7/17/02
(Signatures if Firm Official & Operator)

Form 238-7
3/95

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT
Use Typewriter or Ballpoint Pen

68043

Permit ID 703039

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

1. DRILLING PERMIT NO. 22-97-E-0055-000
Other IDWR No. _____

2. OWNER:
Name Dave VanEssen
Address HC 83
City Cascade State ID Zip 83611

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

N / W / E / S

Twp. 5 North ☑ or South ☐
Rge. 45 East ☑ or West ☐
Sec. 3, NE 1/4 (10 acres) SW 1/4 (40 acres) ____ 1/4 (160 acres)
Gov't Lot ____ County Teton
Lat: : : Long: : :
Address of Well Site _____
_____ City Driggs
(Give at least name of road + Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

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

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

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

7. SEALING PROCEDURES

SEAL/FILTER PACK			AMOUNT	METHOD
Material	From	To	Sacks or Pounds	
Bentonite	0	20	100	Overbore

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

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+01	100	280	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

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

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

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

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

Yield gal./min.	Drawdown	Pumping Level	Time
30+			1 hr

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

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
6	0	6	Top Soil		X
	6	40	Sand & Gravel some Clay	X	
	40	87	Clay & Gravel	X	X
	87	90	Clay	X	X
	90	100	Gravel	X	

RECEIVED
JUL 30 1997
Department of Water Resources
Eastern Region

RECEIVED
AUG 08 1997
Department of Water Resources

MICROFILMED
OCT 15 1997

Completed Depth 100 (Measurable)
Date: Started 7/7/97 Completed 7/7/97

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

Firm Name Teton Water Works LLC Firm No. 506
Firm Official _____ Date 7-8-97
and
Supervisor or Operator _____ Date 7/7/97
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
6/07

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. WELL TAG NO. D 0084046
Drilling Permit No. _____
Water right or injection well # _____

2. OWNER:
Name Randy Dawson
Address P.O. Box 1535
City Driggs State ID Zip 83422

3.WELL LOCATION:
Twp. 5 North ☒ or South ☐ Rge. 45 East ☒ or West ☐
Sec. 3 ____ 1/4 NW 1/4 SE 1/4
(10 acres / 40 acres / 160 acres)
Gov't Lot _____ County teton
Lat. 43 ° 47.160 (Deg. and Decimal minutes)
Long. 111 ° 07.747 (Deg. and Decimal minutes)
Address of Well Site 4283 Log Pines DR City Tetonia
(Give at least name of road + Distance to Road or Landmark)
Lot. _____ Blk. _____ Sub. Name _____

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

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

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

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method/procedure
bentonite	0'	40'	1150 lbs	overbore

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material	Casing	Liner	Threaded	Welded
6"	+1	118'	.250	steel	☒	☐	☐	☒
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 118'

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

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

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

10.FILTER PACK:

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

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

12. STATIC WATER LEVEL and WELL TESTS:
Depth first water encountered (ft) 38' Static water level (ft) 38'
Water temp. (°F) 58* Bottom hole temp. (°F) 58*
Describe access port _____

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)
110'	20	45

Test method:

Pump	Bailer	Air	Flowing artesian
☐	☐	☒	☐
☐	☐	☐	☐

Water quality test or comments: _____

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water Y	Water N
10"	0'	44'	clay gravel	X	
6"	44'	120'	clay gravel	X	

Completed Depth (Measurable): 120'
Date Started: Jan 25, 2021 Date Completed: Jan 29, 2021

RECEIVED
MAR 01 2021
Department of Water Resources
Eastern Region

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. 702
*Principal Driller Steven Justin Farmer Date Feb 1, 2021
*Driller Steven Justin Farmer Date Feb 1, 2021
*Operator II _____ Date _____
Operator I _____ Date _____

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

Form 238-7
6/07

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. WELL TAG NO. D 0081943
Drilling Permit No. _____
Water right or injection well # _____

2. OWNER:
Name Riverbend Builders
Address 2810 Wood Bridge
City Idaho Falls State ID Zip 83402

3.WELL LOCATION:
Twp. 5 North ☒ or South ☐ Rge. 45 East ☒ or West ☐
Sec. 3 ____ (10 acres) 1/4 NW (40 acres) 1/4 SE (160 acres) 1/4
Gov't Lot _____ County Teton
Lat. 43 ° 47.144 (Deg. and Decimal minutes)
Long. 111 ° 07.731 (Deg. and Decimal minutes)
Address of Well Site 1401 Leigh Creek Estate
City Tetonia
(Give at least name of road + Distance to Road or Landmark)
Lot. _____ Blk. _____ Sub. Name _____

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

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

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

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method/procedure
Bentonite	0	40'	1100lbs	Temp Casing Overburden

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material	Casing	Liner	Threaded	Welded
6"	+2'	120'	.250	steel	☒	☐	☐	☒
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 120'

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

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

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

10.FILTER PACK:

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

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

12. STATIC WATER LEVEL and WELL TESTS:
Depth first water encountered (ft) 38' Static water level (ft) 28'
Water temp. (°F) _____ Bottom hole temp. (°F) _____
Describe access port _____

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)	Test method: Pump	Bailer	Air	Flowing artesian
100'	15+gpm	60 min	☐	☐	☒	☐
			☐	☐	☐	☐

Water quality test or comments: _____

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water Y	Water N
10"	0	20'	topsoil, gravel		N
	20'	40'	gravel, sand	Y	
6"	40'	60'	gravel, clay	Y	
	60'	80'	gravel, clay	Y	
	80'	100'	clay, gravel	Y	
	100'	120'	gravel	Y	

RECEIVED
AUG 03 2020
Department of Water Resources
Eastern Region

Completed Depth (Measurable): 120'
Date Started: 7/6/20 Date Completed: 7/7/20

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

Company Name Denning Drilling Co. No. 518
*Principal Driller Dennis Denning Date 7-21-20
*Driller Ryan Cook Date 7/8/20
*Operator II _____ Date _____
Operator I Riley Hill Date 7/8/20

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

Form 238-7
6/07

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. WELL TAG NO. D 0075647

Drilling Permit No. _____

Water right or injection well # _____

2. OWNER: Benjamin & Heather Bollinger

Name _____

Address P.O. Box 241

City Tetonia State ID Zip 83452

3.WELL LOCATION:

Twp. 5 North ☒ or South ☐ Rge. 45 East ☒ or West ☐

Sec. 3 ____ 1/4 (10 acres) NW 1/4 (40 acres) SW 1/4 (160 acres)

Gov't Lot _____ County Teton

Lat. 43 ° 47.166 (Deg. and Decimal minutes)

Long. 111 ° 8.232 (Deg. and Decimal minutes)

Address of Well Site 1827 Leigh Creek Estates Rd.

City Tetonia

(Give at least name of road + Distance to Road or Landmark)

Lot. _____ Blk. _____ Sub. Name _____

4. USE:

☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Thermal ☐ Injection
☐ Other _____

5. TYPE OF WORK:

☒ New well ☐ Replacement well ☐ Modify existing well
☐ Abandonment ☐ Other _____

6. DRILL METHOD:

☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other _____

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method/procedure
Bentonite	0'	38'	1050 lbs.	10" temp. casing

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material	Casing	Liner	Threaded	Welded
6"	+2'	98'	.250	steel	☒	☐	☐	☒
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 98'

9. PERFORATIONS/SCREENS:

Perforations ☐ Y ☒ N Method _____

Manufactured screen ☐ Y ☒ N Type _____

Method of installation _____

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

Length of Headpipe _____ Length of Tailpipe _____

Packer ☐ Y ☐ N Type _____

10.FILTER PACK:

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

11. FLOWING ARTESIAN:

Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG) _____

Describe control device _____

12. STATIC WATER LEVEL and WELL TESTS:

Depth first water encountered (ft) 10' Static water level (ft) 10'

Water temp. (°F) _____ Bottom hole temp. (°F) _____

Describe access port _____

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)
80'	25 +	30 min.

Test method:

Pump	Bailer	Air	Flowing artesian
☐	☐	☒	☐
☐	☐	☐	☐

Water quality test or comments: _____

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water Y	Water N
10"	0'	38'	clay & gravel	X	
6"	38'	78'	sand & gravel	X	
	78'	98'	sand & gravel	X	

RECEIVED
AUG 31 2018
Department of Water Resources
Eastern Region

Completed Depth (Measurable): 98'

Date Started: 8-24-18 Date Completed: 8-24-18

14. DRILLER'S CERTIFICATION:

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

Company Name Daniel Denning Drilling inc. Co. No. 518

*Principal Driller _____ Date 8-24-18

*Driller _____ Date 8-24-18

*Operator II _____ Date _____

Operator I _____ Date 8-24-18

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

Form 238-7
11/97

DMD

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

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

1. WELL TAG NO. D 0021012
DRILLING PERMIT NO. 76-9242
Other IDWR No. _____

2. OWNER:
Name Cleve & Angela Booker
Address 2066 Sherwood Forest Drive
City Orange City State FL Zip 32763

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

N / W / E / S / A

Twp. 5 North ☒ or South ☐
Rge. 45 East ☒ or West ☐
Sec. 3, ____ 1/4 (10 acres) SE 1/4 (40 acres) SE 1/4 (160 acres)
Gov't Lot ____ County Teton
Lat: : : Long: : :
Address of Well Site 172 Leigh Creek Estates
City Driggs
(Give at least name of road + Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

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

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

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

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	18'	200 LBS	over Bore

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

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+1	84'	.250"	Steel	☒	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

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

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

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

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

Yield gal./min.	Drawdown	Pumping Level	Time

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

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8"	0'	18'	Sand Gravel Clay		K
6"	18'	35'	Sand Gravel Clay		K
6"	35'	84'	Sand Gravel Clay	K	

RECEIVED
JUL 16 2001
Department of Water Resources

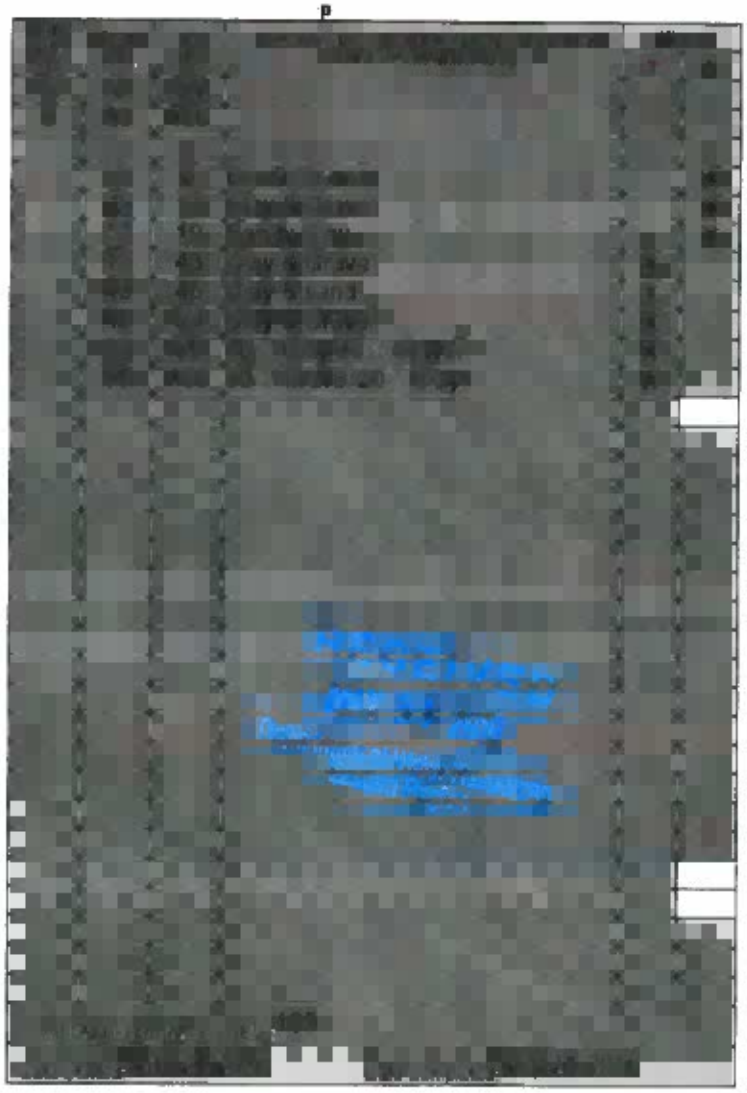
RECEIVED
JUL 02 2001
Department of Water Resources
Eastern Region

Completed Depth 84' (Measurable)
Date: Started 5-30-01 Completed 5-30-01

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

Company Name Denning Drilling Firm No. 518
Firm Official Dennis Denning Date 5-30-01
and
Driller or Operator _____ Date _____
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES



Form 238-7
6/89

DMC

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

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.

USE TYPEWRITER OR BALLPOINT PEN

1. WELL OWNER

Permit ID 701985

Name Don Dabell

Address Star Route Box 343 Wilson, Wyoming

Owner's Permit No. 22-91-E-087

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Well diameter increase
☐ Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)

3. PROPOSED USE

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

4. METHOD DRILLED

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

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6" inches	+ _____ feet	_____ 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 ☐ Gun
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 ☐ Bentonite ☒ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit ☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld ☐ Cemented between strata
Describe access port _____

6. LOCATION OF WELL

Sketch map location must agree with written location.

N / W / E / S

Subdivision Name _____

Lot No. _____ Block No. _____

County Teton

SE ¼ SW ¼ Sec. 3, T. 5 N ☒ S ☐ R. 45 E ☒ W ☐

7. WATER LEVEL

Static water level 15' 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 _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☒ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
50		

9. LITHOLOGIC LOG

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
6"	0	56	Sand + Gravel		☒
	56	59	Gravel + Brown Clay		☒
	59	85	Sand + Gravel	☒	

10.

Work started 8/21/91 finished 8/21/91

11. DRILLERS CERTIFICATION

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

Firm Name Independent Drilling Firm No. 343
Address 664 W. 200 N. Bluff Date 8/26/91
Signed by (Firm Official) Brent Henderson
and
(Operator) Kip L Rahmig

RECEIVED
MAY 05 1992

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

Form 238-7
8/95

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT 093649

Use Typewriter or Ballpoint Pen

Permit ID 702847

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

1. DRILLING PERMIT NO. 22 - 96 - E - 0037 - 000
Other IDWR No. _____

2. OWNER:
Name Todd or Cindy Friend
Address P.O. Box 590
City Driggs State ID Zip 83422

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

N / W / E / S

Twp. 5 North ☒ or South ☐
Rge. 45 East ☒ or West ☐
Sec. 3, SE 1/4 (10 acres) SW 1/4 (40 acres) ____ 1/4 (160 acres)
Gov't Lot ____ County Teton
Lat: : : Long: : :
Address of Well Site _____
_____ City _____
(Give at least name of road + Distance to Road or Landmark)
Lt. _____ Blk. _____ Sub. Name _____

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

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

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

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	20	200	over Bore

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

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+2	100	250	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS
☐ Perforations Method None
☐ Screens Screen Type _____

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

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
64 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
30	100	100	2 Hrs

Water Temp. _____ Bottom hole temp. _____
Water Quality test or comments: Excellent
Depth first Water Encountered 80'

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
6	0	14	Top Soil		X
	14	21	clay & gravel		X
	21	27	Large Black Rock & clay		X
	27	40	Large gravel & clay		X
	40	55	Small gravel & Clay		X
	55	80	Clay	X	
6	80	100	Clay & small gravel	X	

RECEIVED
MAY 17 1996
Department of Water Resources
Eastern District Office

AUG 21 1996

Completed Depth 100' (Measurable)
Date Started 5-14-96 Completed 5-14-96

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 Teton Water Works LLC Firm No. 506
Firm Official [signature] Date 5-15-96
and
Supervisor or Operator [signature] Date 5-15-96
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
1/94

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Permit ID 701985

Use Typewriter or Ball Point Pen

55899

1. DRILLING PERMIT NO. 22-94-E-167
Other IDWR No.

2. OWNER:
Name Kent Hale
Address P.O. Box 117
City Tetonia State Id Zip 83452

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

N / W / E / S

Twp. 5 North ☒ or South ☐
Rge. 45 East ☒ or West ☐
Sec. 3, SE 1/4 (10 acres) SW 1/4 (40 acres) 1/4 (160 acres)
Gov't Lot ____ County TETON

Address of Well Site 178 W. 400 N
Pucksaddle Rd. City Tetonia
(Give at least name of road + Distance to Road or Landmark)

Lt. ____ Blk. ____ Sub. Name ____

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

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

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

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	20	3	Outdoor

Was drive shoe used? Y ☐ N ☒
Was drive shoe seal tested? Y ☐ N ☐ How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	0	60	250	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____

9. PERFORATIONS/SCREENS NONE
☐ Perforations Method ____
☐ Screens Screen Type ____

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

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
15 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
35	55	55	1 Hr

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments: Clear + good

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
6	0	20	sand & gravel (12' HARD)	X	
	20	30	sand		X
	30	40	washed gravel	X	
	40	60	sand & gravel		

RECEIVED
DEC 23 1994
Department of Water Resources

RECEIVED
DEC 14 1994
Department of Water Resources
Eastern District Office

OCT 14 1994
Department of Water Resources
Eastern District Office

MAY 08 1995

Completed Depth 60' (Measurable)
Date: Started 9-18-94 Completed 9-18-94

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 Teton Water Works Firm No. 506
Firm Official ____ Date 10-12-94
and
Supervisor or Operator ____ Date ____
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
6/07

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. WELL TAG NO. D 0084048
Drilling Permit No. _____
Water right or injection well # _____

2. OWNER:
Name Bob Fylling
Address 1020 Cresent Lane
City Bismark State ND Zip 58501

3.WELL LOCATION:
Twp. 5 North ☒ or South ☐ Rge. 45 East ☒ or West ☐
Sec. 3 ____ (10 acres) 1/4 SW (40 acres) 1/4 SE (160 acres) 1/4

Gov't Lot _____ County Teton
Lat. 43 ° 46.962 (Deg. and Decimal minutes)
Long. -111 °07.827 (Deg. and Decimal minutes)
Address of Well Site 4433 Los Pinos
(Give at least name of road + Distance to Road or Landmark) City Tetonia
Lot. _____ Blk. _____ Sub. Name _____

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

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

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

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method/procedure
bentonite	0'	40'	1050 lbs	overbore

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material	Casing	Liner	Threaded	Welded
6"	+2	98'	.250	steel	☒	☐	☐	☒
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 98'

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

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

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

10.FILTER PACK:

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

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

12. STATIC WATER LEVEL and WELL TESTS:
Depth first water encountered (ft) 40' Static water level (ft) 40'
Water temp. (°F) 58* Bottom hole temp. (°F) 58*
Describe access port _____

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)
90'	15	45

Test method:

Pump	Bailer	Air	Flowing artesian
☐	☐	☒	☐
☐	☐	☐	☐

Water quality test or comments: _____

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water Y	Water N
10"	0'	40'	clay gravel	X	
6"	40'	75'	clay gravel	X	
	75'	90'	mostly clay few gravel	X	
	90'	100'	clay gravel	X	

RECEIVED
MAR 26 2021
Department of Water Resources
Eastern Region

Completed Depth (Measurable): 98'
Date Started: Mar 5, 2021 Date Completed: Mar 10, 2021

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. 702
*Principal Driller Steven Justin Farmer Date Mar 12, 2021
*Driller Steven Justin Farmer Date Mar 12, 2021
*Operator II _____ Date _____
Operator I _____ Date _____

* Signature of Principal Driller and rig operator are required.

Form 238-7
6/07

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. WELL TAG NO. D 0075610

Drilling Permit No. _____

Water right or injection well # _____

2. OWNER: Darren Enrico

Name _____

Address 548 Cobblecrest Rd.

City Driggs State ID Zip 83422

3.WELL LOCATION:

Twp. 5 North ☒ or South ☐ Rge. 46 East ☒ or West ☐

Sec. 3 10 acres 1/4 40 acres SW 1/4 160 acres SE 1/4

Gov't Lot _____ County Teton

Lat. 43 ° 47.023 (Deg. and Decimal minutes)

Long. 111 ° 7.610 (Deg. and Decimal minutes)

Address of Well Site 4183 Los Pinos Dr.

(Give at least name of road + Distance to Road or Landmark) City Tetonia

Lot. _____ Blk. _____ Sub. Name _____

4. USE:

☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Thermal ☐ Injection

☐ Other _____

5. TYPE OF WORK:

☒ New well ☐ Replacement well ☐ Modify existing well

☐ Abandonment ☐ Other _____

6. DRILL METHOD:

☐ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other _____

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method/procedure
Bentonite	0	40'	20 Bags	overbore

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material	Casing	Liner	Threaded	Welded
6"	+2	98'	.230"	Steel	☒	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

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

9. PERFORATIONS/SCREENS:

Perforations ☐ Y ☒ N Method _____

Manufactured screen ☐ Y ☐ N Type _____

Method of installation _____

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

Length of Headpipe _____ Length of Tailpipe _____

Packer ☐ Y ☒ N Type _____

10.FILTER PACK:

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

11. FLOWING ARTESIAN:

Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG) _____

Describe control device _____

12. STATIC WATER LEVEL and WELL TESTS:

Depth first water encountered (ft) 30' Static water level (ft) 30'

Water temp. (°F) _____ Bottom hole temp. (°F) _____

Describe access port _____

Well test:

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

Test method:

Pump	Bailer	Air	Flowing artesian
☐	☐	☐	☐
☐	☐	☐	☐

Water quality test or comments: _____

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water Y	Water N
10"	0	40'	Clay Gravel		X
6"	40	65'	Clay Gravel	X	
6"	65'	68'	Clay		X
6"	68'	100'	Clay & Gravel	X	

RECEIVED
AUG 13 2018
Department of Water Resources
Eastern Region

Completed Depth (Measurable): 98'

Date Started: 5-30-18 Date Completed: 5-31-18

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 Co. No. 518

*Principal Driller Daniel Denning Date 6-12-18

*Driller Daniel Denning Date 6-12-18

*Operator II _____ Date _____

Operator I Ray Cook Date 6/12/18

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

Form 238-7
6/02

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 0037951
DRILLING PERMIT NO.
Water Right or Injection Well No.

2. OWNER:
Name Brad R. Nelson
Address P.O Box 157
City Letonia State Id Zip 83452

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 5 North ☒ or South ☐
Rge. 45 East ☒ or West ☐
Sec. 3, SW 1/4 SE 1/4
(10 acres / 40 acres / 160 acres)
Gov't Lot ____ County Latah
Lat: : : Long: : :
Address of Well Site Lot 1 Los Pinos Sub P.U.D.
City
(Give at least name of road + Distance to Road or Landmark)
Lt. 1 Blk. ____ Sub. Name Los Pinos

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

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

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

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
Bentonite	0	20	450	Overbore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 99'
Was drive shoe seal tested? ☐ Y ☐ N How?

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+1	99	250	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

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

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

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

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
46 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
20T	450 @ 250		1hr

Water Temp. Cool Bottom hole temp Cool
Water Quality test or comments:
Depth first Water Encounter 60'

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8	0	20	Sand & gravel		☒
6	20	70	Clay & gravel	☒	
1	70	80	Brn clay	☒	
1	80	100	Clay & gravel	☒	

RECEIVED
JAN 26 2006
Department of Water Resources
Eastern Region

Completed Depth 100' (Measurable)
Date: Started 1-19-06 Completed 1-24-06

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 Mark Mitchell Well Dr. Firm No. 612
Principal Driller [signature] Date 1-24-06
and
Driller or Operator II ____ Date ____
Operator I ____ Date ____
Principal Driller and Rig Operator *Required.*
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
4/92

Permit ID 702232

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

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

Location Corrected by IDWR To:
T05N R45E Sec. 3 NESWSW
By: mciscell 2012-12-13

KC

1. WELL OWNER

Name Monte Whittier
Address P.O. Box 4833 Pocatello, Id
Drilling Permit No. 22-93E-023-000
Water Right Permit No. A22-02161F A22-02151F

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE

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

4. METHOD DRILLED

☐ Rotary ☐ Air ☐ Auger ☐ Reverse rotary
☒ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6 inches	+ 0 feet	162 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 ☐ Gun
Size of perforation? _____ inches by _____ inches

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

Well screen installed? ☐ Yes ☒ No
Manufacturer _____ Type _____
Top Packer or Headpipe _____
Bottom of Tailpipe _____

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
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☐ Welded
☐ Solvent Weld ☐ Cemented between strata

Describe access port _____

6. LOCATION OF WELL

Sketch map location **must** agree with written location.

N / W / E / S

Subdivision Name _____
Lot No. _____ Block No. _____
County _____
Address of Well Site Packsaddle road
(give at least name of road)
SW ¼ NW ¼ Sec. 3, T. 5S N ☒ or S ☐, R. 45 E ☒ or W ☐

7. WATER LEVEL

Static water level 105 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 _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

☒ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
50		3

9. LITHOLOGIC LOG

107138

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
	0	30	dirty clay mixed w/ gravel		X
	30	46	real fine sand mixed w/ clay		X
	46	56	dirty water, gravel, sand	X	
	56	108	clay w/ 1 1/2" to 2" gravel mixed w/ some gravel		X
	108	150	water w/ gravel & fine sand Kept going dry	X	
	150	152	gravel - good flow	X	

RECEIVED
MAY 2 1993
Department of Water Resources
Eastern District Office

FEB 09 1994

10.

Work started 3-30-93 finished 4-29-93

11. DRILLER'S CERTIFICATION

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

Firm Name Teton Water Firm No. 506
Address Idaho Falls Id Date 5-18-93
Signed by Drilling Supervisor Richard Teton
and
(Operator) _____
(If different than the Drilling Supervisor)

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

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Resources

WELL DRILLER'S REPORT

RECEIVED
JUN 30 1977
Department of Water Resources
Eastern District Office

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.

Permit ID 822910

1. WELL OWNER

Name Floyd Baler

Address Rt. #1 Tetonia, Idaho 83452

Owner's Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

_____

3. PROPOSED USE

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

☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection

4. METHOD DRILLED

☐ Cable ☒ Rotary ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 6 inches Total depth 60 feet

Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
.250 inches	6 inches	+ 1 feet	60 feet
_____ inches	_____ inches	_____ feet	_____ 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 _____

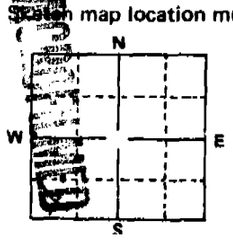
Placed from _____ feet to _____ feet

Surface seal depth 21' Material used in seal ☐ Cement grout ☐ Puddling clay ☐ Well cuttings

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

6. LOCATION OF WELL

Section map location must agree with written location.



Subdivision Name _____

Lot No. _____ Block No. _____

County Teton

SW ¼ SW ¼ Sec. 3, T. 5 N/S, R. 45 E/W

7. WATER LEVEL

Static water level 23 feet below land surface

Flowing? ☐ Yes ☒ No G.P.M. flow _____

Temperature _____° F. Quality _____

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

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped

9. LITHOLOGIC LOG

46363

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
6"	0'	6'	Clay and cobble rocks		X
	6'	23'	Clay and gravel		X
	23'	60'	Clay, gravel and intermitted cobble rock.		X

10.

Work started March 15, 1977 finished March 15, 1977

11. DRILLERS CERTIFICATION

Firm Name D. Denning Well Drilling Firm No. 10

Address Box 64 Ucon, Idaho 83454 Date March 18'77

Signed by (Firm Official) Edwin D. Denning

and

(Operator) Daniel Denning

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

Form 238-7
3/96

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen

093648

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

Permit ID 702846

1. DRILLING PERMIT NO. 22 - 96 - E-0036 - 000
Other IDWR No. _____

2. OWNER:
Name Don Delaunay
Address 174 Yellow Creek Road, Apt P
City Evanston State Wy Zip 83930

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

N / W / E / S

Twp. 15 North ☒ or South ☐
Rge. 45 East ☒ or West ☐
Sec. 3, ~~SW~~ 1/4 (10 acres) SW 1/4 (40 acres) SW 1/4 (160 acres)
Gov't Lot ____ County ____
Lat: : : Long: : :
Address of Well Site _____
City _____
(Give at least name of road + Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

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

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

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

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	20	300	Overtone

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

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+2	100	250	Stw	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS None
☐ Perforations Method _____
☐ Screens Screen Type _____

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

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
32 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
40	100	100	2 Hrs

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

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
6	0	40	Top soil		X
	4	25	Clay & gravel		X
	25	40	gravel		X
	40	69	clay	X	
	69	80	Clay & gravel	X	
6	80	100	Clay & gravel	X	

RECEIVED
MAY 17 1996
Department of Water Resources
Eastern District Office

AUG 21 1996

Completed Depth 100' (Measurable)
Date Started 5-13-96 Completed 5-13-96

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 Teton Water Works LLC Firm No. 506
Firm Official _____ Date 5-15-96
and
Supervisor or Operator _____ Date 5-15-96
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

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

1. WELL TAG NO. D 0048827
DRILLING PERMIT NO.
Water Right or Injection Well No.

2. OWNER:
Name Shaun Perkins
Address 307 North Hwy 33
City Driggs State ID Zip 83455

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 5 North ☒ or South ☐
Rge. 45 East ☒ or West ☐
Sec. 10, ____ 1/4 (10 acres) NW 1/4 (40 acres) NE 1/4 (160 acres)
Gov't Lot ____ County Teton
Lat: 43 : 46 : 869 Long: 111 : 07 : 859
Address of Well Site 400 N. 95 West
(Give at least name of road + Distance to Road or Landmark) City Driggs
Lt. ____ Blk. ____ Sub. Name

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

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

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

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
bentonite	0'	18'	450 lbs	overbore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 100'
Was drive shoe seal tested? ☐ Y ☒ N How?

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	0'	100'	.250	steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

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

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

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

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

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

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

Yield gal./min.	Drawdown	Pumping Level	Time

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

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8"	0'	18'	clay-gravels		X
6"	18'	40'	clay-gravels	X	
6"	40'	60'	clay-sand-gravels	X	
6"	60'	80'	clay-sand-gravels	X	
6"	80'	100'	clay-gravels	X	

RECEIVED
OCT 11 2007
Department of Water Resources
Eastern Region

Completed Depth 100' (Measurable)
Date: Started 10-2-07 Completed 10-2-07

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 Deming Drilling Firm No. 518
Principal Driller Daniel Deming Date 10-3-07
and
Driller or Operator II Daniel Deming Date 10-3-07
Operator I Seth Deming Date 10-5-07
Principal Driller and Rig Operator *Required.*
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
6/02

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 0035757
DRILLING PERMIT NO.
Water Right or Injection Well No.

2. OWNER:
Name Highland Meadows LLC
Address PO Box 408
City Driggs State Id Zip 83422

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 5N North ☐ or South ☐
Rge. 45E East ☐ or West ☐
Sec. 10, ____ 1/4 (10 acres) SW 1/4 (40 acres) SW 1/4 (160 acres)
Gov't Lot ____ County Teton
Lat: : : **Long:** : :
Address of Well Site
(Give at least name of road + Distance to Road or Landmark) City
Lt. ____ Blk. ____ Sub. Name Highland Meadows Subdivision

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

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
NEAT Cement	0'	60'	3½ yds	over Bore

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) 140'
Was drive shoe seal tested? ☐ Y ☐ N How?

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
16"	+1	60'	.50	Steel	☒	☐	☐	☐
12"	+1	116'	.322	Steel	☒	☐	☐	☐
					☐	☐	☐	☐

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

9. PERFORATIONS/SCREENS PACKER TYPE
Perforation Method Johnson Wirewrap (Stainless)
Screen Type & Method of Installation Lowered W K Packer

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
116'	140'	.080"	Tele	12"	Stainless	☐	☐
						☐	☐
						☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
35' 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 40'

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
16"	0'	20'	Gravels, Sand		x
16"	20'	40'	Gravels, Sand	x	
16"	40'	50'	Boulders, Gravel	x	
16"	50'	60'	Gravel (Small)	x	
12"	60'	80'	Gravels (Small)	x	
12"	80'	100'	Gravels (Small)	x	
12"	100'	120'	Gravel (Large)	x	
12"	120	140	Gravel (Mixed)	x	

RECEIVED
MAY 06 2005
Department of Water Resources
Eastern Region

Completed Depth 140' (Measurable)
Date: Started 11-26-04 Completed 4-28-05

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 Firm No. 518
Principal Driller Clement Denning Date 4-28-05
and
Driller or Operator II ____ Date ____
Operator I ____ Date 2/17/05
Principal Driller and Rig Operator *Required.*
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
6/02

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 0035642
DRILLING PERMIT NO.
Water Right or Injection Well No.

2. OWNER:
Name Travis Rockefeller
Address P.O. Box 1278
City Driggs State Id Zip

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 5 North ☑ or South ☐
Rge. 45 East ☑ or West ☐
Sec. 11, ____ 1/4 (10 acres) NE 1/4 (40 acres) SW 1/4 (160 acres)
Gov't Lot ____ County ____
Lat: : : Long: : :
Address of Well Site 83W Dry Creek Trail
City
(Give at least name of road + Distance to Road or Landmark)
Lt. 6 Blk. 1 Sub. Name Dry Creek Ranch

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

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

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

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
Bentonite	0'	20'	300#	overbore

Was drive shoe used? ☑ Y ☐ N Shoe Depth(s) 100'
Was drive shoe seal tested? ☐ Y ☐ N How?

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+1	100'	250	Steel	☑	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

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

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

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

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
35 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices:
well Cap

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

Yield gal./min.	Drawdown	Pumping Level	Time

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

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8"	0'	20'	Gravel		X
6"	20'	40'	Sandy clay	X	
6"	40'	60'	Sandy	X	
6"	60'	100'	Gravel	X	

RECEIVED
JUN 13 2005
Department of Water Resources
Eastern Region

Completed Depth 100' (Measurable)
Date: Started 5-26-05 Completed 5-27-05

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 Downing Drilling Firm No. 518
Principal Driller [signature] Date 5-31-05
and
Driller or Operator II [signature] Date 5/31/05
Operator I Date

Principal Driller and Rig Operator *Required.*
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
1/78

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

Permit ID 814333

WELL DRILLER'S REPORT

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

RECEIVED
APR 27 1982

1. WELL OWNER

Name Calvin Kyte

Address Driggs, Idaho 83422

Owner's Permit No. _____

2. NATURE OF WORK

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

3. PROPOSED USE

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

4. METHOD DRILLED

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

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6 inches	+ 1 feet	94 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

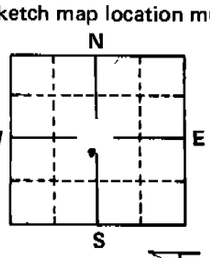
Was casing drive shoe used? ☒ Yes ☐ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation _____ inches by _____ inches

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

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

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
County Teton
NE ¼ SW ¼ Sec. 11, T. 5 ☐N ☒S, R. 45 ☐E ☒W.

7. WATER LEVEL

Department of Water Resources
Eastern District Office

Static water level 80 feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG

73655

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
6"	0	3	overburden		
	3	80	Gravel & Dirt		✓
	80	90	Clay		
	90	95	Gravel & Dirt	✓	

RECEIVED
APR 30 1982
Department of Water Resources

10.

Work started Mar 29, 82 finished Mar 29, 82

11. DRILLERS CERTIFICATION

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

Firm Name Denning Drilling Firm No. 10
Address Box 460 Ucon Id. Date Apr 2, 82
Signed by (Firm Official) Orville Denning
and
(Operator) Jody Denning

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

Form 238-7
6/02

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 044152
DRILLING PERMIT NO.
Water Right or Injection Well No.

2. OWNER:
Name Aaron Myler
Address PO Box 262
City Driggs State Id Zip 83422

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 5 North ☒ or South ☐
Rge. 45 East ☒ or West ☐
Sec. 11, ____ 1/4 (10 acres) 36 1/4 (40 acres) NW 1/4 (160 acres)
Gov't Lot ____ County Teton
Lat: : : **Long:** : :
Address of Well Site 362 N Hwy 33
(Give at least name of road + Distance to Road or Landmark) City Driggs
Lt. ____ Blk. ____ Sub. Name ____

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

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

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

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
bentonite	0	20	160	overbore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 100
Was drive shoe seal tested? ☐ Y ☒ N How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+2	100	250	steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

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

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

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

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
56 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: ____
well cap

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

Yield gal./min.	Drawdown	Pumping Level	Time
30			

Water Temp. 51° Bottom hole temp. ____
Water Quality test or comments: ____
Depth first Water Encounter 56

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8	0	20	gravel sand clay		X
6	20	56	gravel clay sand		X
6	56	60	gravel	X	
6	60	90	sand clay gravel	X	
6	90	100	gravel	X	

RECEIVED
SEP 25 2006
Department of Water Resources
Eastern Region

Completed Depth 100 (Measurable)
Date: Started 7-18-06 Completed 7-18-06

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 High Plains Firm No. 299
Principal Driller Marcus Frandsen Date 7-21-06
and
Driller or Operator II ____ Date ____
Operator I Travis Frandsen Date 7-21-06
Principal Driller and Rig Operator *Required.*
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Appendix C: Soil Resources

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Teton Area, Idaho and Wyoming

JC Ranches Subdivision

September 6, 2022

Preface

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

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

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

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

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

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

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

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

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

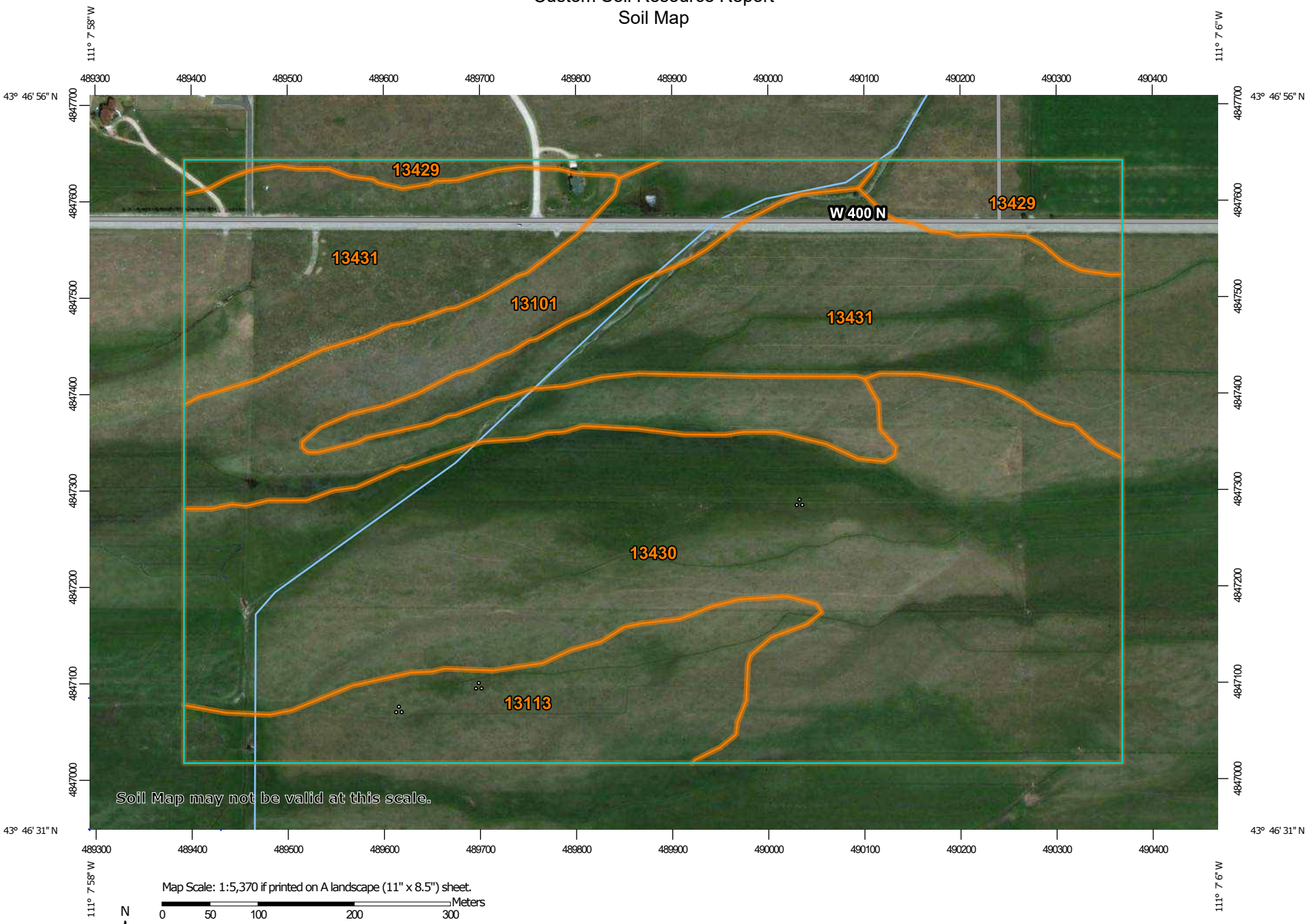
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

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

Custom Soil Resource Report
Soil Map



Map Scale: 1:5,370 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

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 10, Sep 9, 2021

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

Date(s) aerial images were photographed: Sep 24, 2011—Oct 25, 2016

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
13101	Redfish-Foxcreek complex, 0 to 2 percent slopes	22.9	15.1%
13113	Foxcreek mucky peat, 0 to 2 percent slopes	15.0	9.9%
13429	Alpine gravelly loam, 0 to 2 percent slopes	7.5	4.9%
13430	Alpine-St. Anthony complex, 0 to 2 percent slopes	65.5	43.2%
13431	Feltonia-Arimo complex, 0 to 2 percent slopes	40.8	26.9%
Totals for Area of Interest		**151.6**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

Teton Area, Idaho and Wyoming

13101—Redfish-Foxcreek complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1qmkh
Elevation: 5,920 to 6,230 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 38 to 44 degrees F
Frost-free period: 20 to 50 days
Farmland classification: Not prime farmland

Map Unit Composition

Redfish and similar soils: 70 percent
Foxcreek and similar soils: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Redfish

Setting

Landform: Flood plains, fan remnants
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

Oe - 0 to 2 inches: mucky peat
A - 2 to 10 inches: loam
AB - 10 to 13 inches: gravelly loam
2BC - 13 to 16 inches: very gravelly loamy sand
2C - 16 to 43 inches: extremely gravelly sand
2Cg - 43 to 60 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly 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: About 0 to 10 inches
Frequency of flooding: OccasionalNone
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 3.2 inches)

Interpretive groups

Land capability classification (irrigated): 6c
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: C/D
Ecological site: R013XY050ID - RIPARIAN WET MEADOW SALIX/CAREX
Hydric soil rating: Yes

Description of Foxcreek

Setting

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

Typical profile

Oe - 0 to 2 inches: mucky peat
Ag - 2 to 8 inches: loam
ABg - 8 to 15 inches: loam
Bg1 - 15 to 21 inches: loam
2Bg2 - 21 to 26 inches: very gravelly coarse sandy loam
2Bkg - 26 to 42 inches: very gravelly loamy sand
2Cg - 42 to 60 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 0.57 in/hr)
Depth to water table: About 0 to 10 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Calcium carbonate, maximum content: 15 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 5.2 inches)

Interpretive groups

Land capability classification (irrigated): 6c
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: C/D
Ecological site: R013XY050ID - RIPARIAN WET MEADOW SALIX/CAREX
Hydric soil rating: Yes

13113—Foxcreek mucky peat, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1qmks
Elevation: 5,920 to 6,520 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 38 to 44 degrees F
Frost-free period: 20 to 50 days
Farmland classification: Not prime farmland

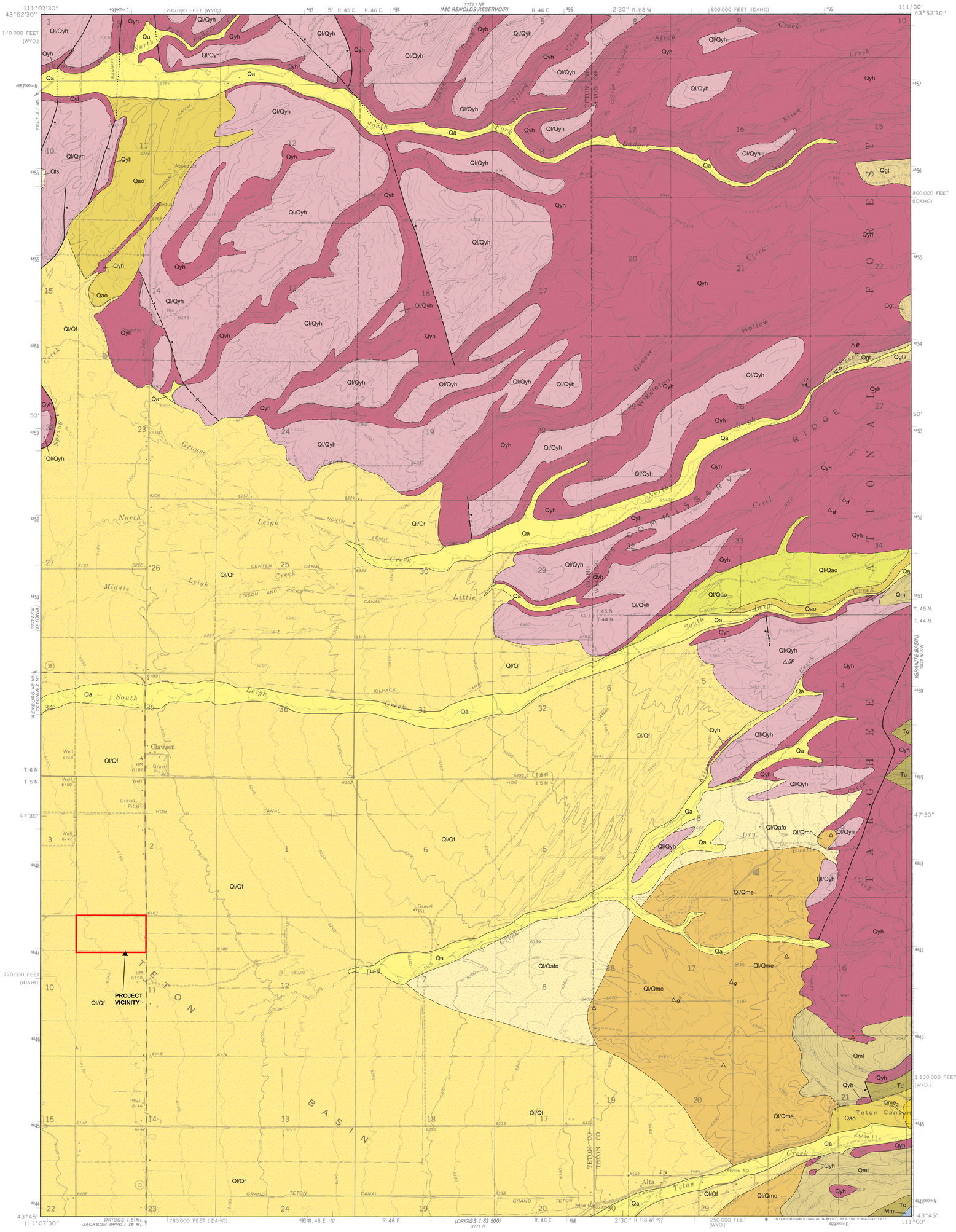
Map Unit Composition

Foxcreek and similar soils: 90 percent

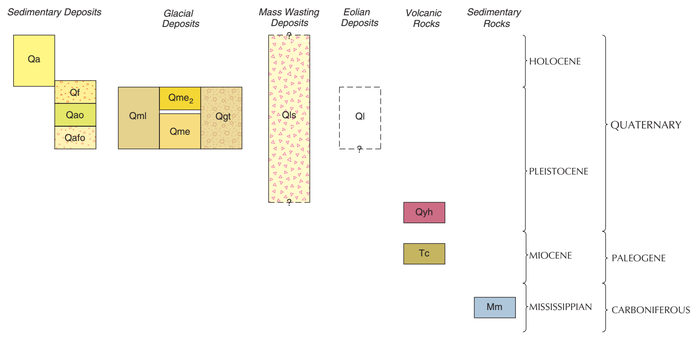
GEOLOGIC MAP OF THE CLAWSON QUADRANGLE, TETON COUNTY, IDAHO AND TETON COUNTY, WYOMING

Glenn F. Embree[1]

2014



CORRELATION OF MAP UNITS



SYMBOLS

Contact: dashed where approximately located.

Normal fault: ball and bar on downthrown side; dashed where approximately located; dotted where concealed.

17 Strike and dip of eutaxitic foliation.

Glacial erratic showing location and lithology.

- $\triangle_p$ pegmatite
- $\triangle_g$ granite
- $\triangle_{gp}$ pegmatitic granite
- $\triangle_d$ dolomite
- $\triangle$ lithology not determined

MAP UNITS

SEDIMENTARY DEPOSITS

Qa **Alluvium (Holocene)**

Ql/Qf **Alluvial fan deposits (Holocene to Late Pleistocene)**—Shown as Ql/Qf where overlain by loess.

Ql/Qao **Outwash deposits (Late Pleistocene)**—Shown as Ql/Qao where overlain by loess.

Ql/Qafo **Older alluvial fan deposits (Late Pleistocene)**—Shown as Ql/Qafo where overlain by loess.

EOLIAN DEPOSITS

Ql **Loess (Pleistocene)**—Massive silt, clay, and fine sand; used in combination with other unit symbols where they are concealed under a meter or more of loess.

MASS WASTING DEPOSITS

Qls **Landslides (Quaternary)**

GLACIAL DEPOSITS

Qml **Lateral moraine (Pleistocene)**

Qme2 **Younger end moraine (Late Pleistocene)**—Deposits are possibly of Pinedale age.

Ql/Qme **End moraine (Pleistocene)**—Piedmont deposits at the mouth of Teton Canyon; possibly of Bull Lake age.

Qgt **Till, undivided (Pleistocene)**

VOLCANIC ROCKS

Qal/Qyh **Huckleberry Ridge Tuff of the Yellowstone Group (early Pleistocene)**—Shown as *Ql/Qyh* where overlain by loess.

Tc **Conant Creek Tuff of the Heise volcanic field (late Miocene)**

SEDIMENTARY ROCKS

Mm **Madison Group (Mississippian)**

This Technical Report is independent mapping by Glenn F. Embree. Its content and format may not conform to IGS standards.

Base Map Credit

Base: USGS 1:24,000-scale quadrangle, 1965, downloaded from USGS US Topo.

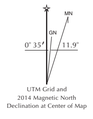
Topography by photogrammetric methods from aerial photographs taken 1963. Field checked 1965.

Projection: Idaho coordinate system, east zone (Transverse Mercator). 1927 North American Datum.

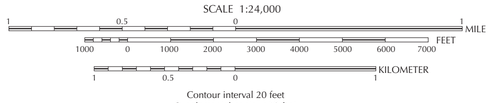
10,000-foot grid ticks based on Idaho coordinate system, east zone and Wyoming coordinate system, west zone.

1000-meter Universal Transverse Mercator grid ticks, zone 12.

Declination from NOAA National Geophysical Data Center.



UTM Grid and 2014 Magnetic North Declination at Center of Map



Contour interval 20 feet
Supplemental contour 10 feet

QUADRANGLE LOCATION

ADJOINING QUADRANGLES

Field work conducted 2001.

[1]Department of Geology, Brigham Young University–Idaho, Rexburg, ID 83460-0510.

Digital cartography by Jane S. Freed at the Idaho Geological Survey's Digital Mapping Lab.

Technical review status: Author only.

Map version 1-16-2015.

PDF (Acrobat Reader) map may be viewed online at www.idahogeology.org.

Published and sold by the Idaho Geological Survey
University of Idaho, Moscow, Idaho 83844-3014

Appendix D: NUTRIENT MASS BALANCE SPREADSHEETS

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	440	Site-specific	
Parcel Area (acres)	2.51	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	4.92E+04	98.2
Effluent	4.84E+02	1.0
Recharge	4.04E+02	0.8
Total Water Volume	**5.00E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**3.7**
Current/Acceptable Lot Size (Acres)	**2.5**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.69E+08	91.6
Septic Tank Effluent Nitrate Mass	1.55E+07	8.4
Recharge Nitrate Mass	1.21E+05	0.1
Total Nitrate Mass	**1.85E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	**Site Name**
Lot 1	**Parcel Identification**
8/5/2024	**Date**
Adrienne Lemmers, PE Y2 Consultants, LLC	**Prepared By**

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

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	340	Site-specific	
Parcel Area (acres)	2.51	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	3.80E+04	97.7
Effluent	4.84E+02	1.2
Recharge	4.04E+02	1.0
Total Water Volume	**3.89E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**3.8**
Current/Acceptable Lot Size (Acres)	**2.5**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.31E+08	89.3
Septic Tank Effluent Nitrate Mass	1.55E+07	10.6
Recharge Nitrate Mass	1.21E+05	0.1
Total Nitrate Mass	**1.46E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	**Site Name**
Lot 2	**Parcel Identification**
8/5/2024	**Date**
Adrienne Lemmers, PE Y2 Consultants, LLC	**Prepared By**

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

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	340	Site-specific	
Parcel Area (acres)	2.51	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	3.80E+04	97.7
Effluent	4.84E+02	1.2
Recharge	4.04E+02	1.0
Total Water Volume	**3.89E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**3.8**
Current/Acceptable Lot Size (Acres)	**2.5**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.31E+08	89.3
Septic Tank Effluent Nitrate Mass	1.55E+07	10.6
Recharge Nitrate Mass	1.21E+05	0.1
Total Nitrate Mass	**1.46E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	**Site Name**
Lot 3	**Parcel Identification**
8/5/2024	**Date**
Adrienne Lemmers, PE Y2 Consultants, LLC	**Prepared By**

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

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	345	Site-specific	
Parcel Area (acres)	2.56	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	3.85E+04	97.7
Effluent	4.84E+02	1.2
Recharge	4.12E+02	1.0
Total Water Volume	**3.94E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**3.8**
Current/Acceptable Lot Size (Acres)	**2.6**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.33E+08	89.5
Septic Tank Effluent Nitrate Mass	1.55E+07	10.4
Recharge Nitrate Mass	1.24E+05	0.1
Total Nitrate Mass	**1.48E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	**Site Name**
Lot 4	**Parcel Identification**
8/5/2024	**Date**
Adrienne Lemmers, PE Y2 Consultants, LLC	**Prepared By**

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	385	Site-specific	
Parcel Area (acres)	2.51	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	4.30E+04	98.0
Effluent	4.84E+02	1.1
Recharge	4.04E+02	0.9
Total Water Volume	**4.39E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**3.7**
Current/Acceptable Lot Size (Acres)	**2.5**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.48E+08	90.5
Septic Tank Effluent Nitrate Mass	1.55E+07	9.5
Recharge Nitrate Mass	1.21E+05	0.1
Total Nitrate Mass	**1.64E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	**Site Name**
Lot 5	**Parcel Identification**
8/5/2024	**Date**
Adrienne Lemmers, PE Y2 Consultants, LLC	**Prepared By**

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

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	490	Site-specific	
Parcel Area (acres)	5.88	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	5.47E+04	97.5
Effluent	4.84E+02	0.9
Recharge	9.47E+02	1.7
Total Water Volume	**5.62E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**3.6**
Current/Acceptable Lot Size (Acres)	**5.9**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.88E+08	92.3
Septic Tank Effluent Nitrate Mass	1.55E+07	7.6
Recharge Nitrate Mass	2.84E+05	0.1
Total Nitrate Mass	**2.04E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	Site Name
Lot 6	Parcel Identification
8/5/2024	Date
Adrienne Lemmers, PE Y2 Consultants, LLC	Prepared By

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	390	Site-specific	
Parcel Area (acres)	3.01	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	4.36E+04	97.8
Effluent	4.84E+02	1.1
Recharge	4.85E+02	1.1
Total Water Volume	**4.45E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**3.7**
Current/Acceptable Lot Size (Acres)	**3.0**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.50E+08	90.6
Septic Tank Effluent Nitrate Mass	1.55E+07	9.3
Recharge Nitrate Mass	1.45E+05	0.1
Total Nitrate Mass	**1.65E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	**Site Name**
Lot 7	**Parcel Identification**
8/5/2024	**Date**
Adrienne Lemmers, PE Y2 Consultants, LLC	**Prepared By**

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	880	Site-specific	
Parcel Area (acres)	22.46	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	7.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	9.83E+04	93.3
Effluent	3.38E+03	3.2
Recharge	3.66E+03	3.5
Total Water Volume	**1.05E+05**	

Point of Compliance Nitrate Concentration Goal (mg/l)	4.4
Avg. Downgradient Nitrate Concentration in GW (mg/l)	4.2
Current/Acceptable Lot Size (Acres)	3.2

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	3.38E+08	75.6
Septic Tank Effluent Nitrate Mass	1.08E+08	24.2
Recharge Nitrate Mass	1.10E+06	0.2
Total Nitrate Mass	**4.48E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	Site Name
Lots 1-7	Parcel Identification
8/5/2024	Date
Adrienne Lemmers, PE Y2 Consultants, LLC	Prepared By

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	880	Site-specific	
Parcel Area (acres)	20.12	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	6.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	9.83E+04	94.1
Effluent	2.90E+03	2.8
Recharge	3.28E+03	3.1
Total Water Volume	**1.04E+05**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**4.1**
Current/Acceptable Lot Size (Acres)	**3.4**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	3.38E+08	78.3
Septic Tank Effluent Nitrate Mass	9.28E+07	21.5
Recharge Nitrate Mass	9.83E+05	0.2
Total Nitrate Mass	**4.32E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	Site Name
Lots 1-3, 5-7	Parcel Identification
8/5/2024	Date
Adrienne Lemmers, PE Y2 Consultants, LLC	Prepared By

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	880	Site-specific	
Parcel Area (acres)	14.57	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	4.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	9.83E+04	95.8
Effluent	1.93E+03	1.9
Recharge	2.37E+03	2.3
Total Water Volume	**1.03E+05**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**3.9**
Current/Acceptable Lot Size (Acres)	**3.6**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	3.38E+08	84.4
Septic Tank Effluent Nitrate Mass	6.19E+07	15.4
Recharge Nitrate Mass	7.12E+05	0.2
Total Nitrate Mass	**4.01E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	**Site Name**
Lots 1,2,5,6	**Parcel Identification**
8/5/2024	**Date**
Adrienne Lemmers, PE Y2 Consultants, LLC	**Prepared By**

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	490	Site-specific	
Parcel Area (acres)	9.55	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	2.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	5.47E+04	95.6
Effluent	9.67E+02	1.7
Recharge	1.55E+03	2.7
Total Water Volume	**5.73E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	4.4
Avg. Downgradient Nitrate Concentration in GW (mg/l)	3.8
Current/Acceptable Lot Size (Acres)	4.8

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.88E+08	85.7
Septic Tank Effluent Nitrate Mass	3.09E+07	14.1
Recharge Nitrate Mass	4.66E+05	0.2
Total Nitrate Mass	**2.20E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	**Site Name**
Lots 5,6	**Parcel Identification**
8/5/2024	**Date**
Adrienne Lemmers, PE Y2 Consultants, LLC	**Prepared By**

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	490	Site-specific	
Parcel Area (acres)	12.56	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	3.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	5.47E+04	94.0
Effluent	1.45E+03	2.5
Recharge	2.05E+03	3.5
Total Water Volume	**5.82E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	4.4
Avg. Downgradient Nitrate Concentration in GW (mg/l)	4.0
Current/Acceptable Lot Size (Acres)	4.2

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.88E+08	80.0
Septic Tank Effluent Nitrate Mass	4.64E+07	19.7
Recharge Nitrate Mass	6.14E+05	0.3
Total Nitrate Mass	**2.35E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	Site Name
Lots 5-7	Parcel Identification
8/5/2024	Date
Adrienne Lemmers, PE Y2 Consultants, LLC	Prepared By

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	325	Site-specific	
Parcel Area (acres)	1.85	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	3.63E+04	97.7
Effluent	4.84E+02	1.3
Recharge	3.71E+02	1.0
Total Water Volume	**3.72E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**3.8**
Current/Acceptable Lot Size (Acres)	**2.3**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.25E+08	88.9
Septic Tank Effluent Nitrate Mass	1.55E+07	11.0
Recharge Nitrate Mass	1.11E+05	0.1
Total Nitrate Mass	**1.40E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	**Site Name**
Lots 8	**Parcel Identification**
8/5/2024	**Date**
Adrienne Lemmers, PE Y2 Consultants, LLC	**Prepared By**

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

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	425	Site-specific	
Parcel Area (acres)	4.21	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	4.75E+04	97.6
Effluent	4.84E+02	1.0
Recharge	6.85E+02	1.4
Total Water Volume	**4.86E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**3.7**
Current/Acceptable Lot Size (Acres)	**4.2**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.63E+08	91.2
Septic Tank Effluent Nitrate Mass	1.55E+07	8.6
Recharge Nitrate Mass	2.06E+05	0.1
Total Nitrate Mass	**1.79E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	Site Name
Lots 9	Parcel Identification
8/5/2024	Date
Adrienne Lemmers, PE Y2 Consultants, LLC	Prepared By

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	425	Site-specific	
Parcel Area (acres)	5.13	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	4.75E+04	97.3
Effluent	4.84E+02	1.0
Recharge	8.35E+02	1.7
Total Water Volume	**4.88E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**3.7**
Current/Acceptable Lot Size (Acres)	**5.1**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.63E+08	91.2
Septic Tank Effluent Nitrate Mass	1.55E+07	8.6
Recharge Nitrate Mass	2.51E+05	0.1
Total Nitrate Mass	**1.79E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	**Site Name**
Lots 10	**Parcel Identification**
8/5/2024	**Date**
Adrienne Lemmers, PE Y2 Consultants, LLC	**Prepared By**

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

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	425	Site-specific	
Parcel Area (acres)	2.78	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	4.75E+04	98.1
Effluent	4.84E+02	1.0
Recharge	4.53E+02	0.9
Total Water Volume	**4.84E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**3.7**
Current/Acceptable Lot Size (Acres)	**2.8**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.63E+08	91.3
Septic Tank Effluent Nitrate Mass	1.55E+07	8.6
Recharge Nitrate Mass	1.36E+05	0.1
Total Nitrate Mass	**1.79E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	**Site Name**
Lots 11	**Parcel Identification**
8/5/2024	**Date**
Adrienne Lemmers, PE Y2 Consultants, LLC	**Prepared By**

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

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	425	Site-specific	
Parcel Area (acres)	12.12	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	3.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	4.75E+04	93.3
Effluent	1.45E+03	2.8
Recharge	1.97E+03	3.9
Total Water Volume	**5.09E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	4.4
Avg. Downgradient Nitrate Concentration in GW (mg/l)	4.1
Current/Acceptable Lot Size (Acres)	4.0

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.63E+08	77.6
Septic Tank Effluent Nitrate Mass	4.64E+07	22.1
Recharge Nitrate Mass	5.92E+05	0.3
Total Nitrate Mass	**2.10E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	**Site Name**
Lots 9-11	**Parcel Identification**
8/5/2024	**Date**
Adrienne Lemmers, PE Y2 Consultants, LLC	**Prepared By**

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	320	Site-specific	
Parcel Area (acres)	2.5	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	3.57E+04	97.6
Effluent	4.84E+02	1.3
Recharge	4.07E+02	1.1
Total Water Volume	**3.66E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	4.4
Avg. Downgradient Nitrate Concentration in GW (mg/l)	3.8
Current/Acceptable Lot Size (Acres)	2.5

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.23E+08	88.7
Septic Tank Effluent Nitrate Mass	1.55E+07	11.2
Recharge Nitrate Mass	1.22E+05	0.1
Total Nitrate Mass	**1.39E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	**Site Name**
Lots 12	**Parcel Identification**
8/5/2024	**Date**
Adrienne Lemmers, PE Y2 Consultants, LLC	**Prepared By**

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

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	475	Site-specific	
Parcel Area (acres)	4.26	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	5.31E+04	97.8
Effluent	4.84E+02	0.9
Recharge	6.94E+02	1.3
Total Water Volume	**5.42E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	4.4
Avg. Downgradient Nitrate Concentration in GW (mg/l)	3.7
Current/Acceptable Lot Size (Acres)	4.3

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.83E+08	92.1
Septic Tank Effluent Nitrate Mass	1.55E+07	7.8
Recharge Nitrate Mass	2.08E+05	0.1
Total Nitrate Mass	**1.98E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	**Site Name**
Lots 13	**Parcel Identification**
8/5/2024	**Date**
Adrienne Lemmers, PE Y2 Consultants, LLC	**Prepared By**

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

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	475	Site-specific	
Parcel Area (acres)	3.07	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	5.31E+04	98.2
Effluent	4.84E+02	0.9
Recharge	5.00E+02	0.9
Total Water Volume	**5.40E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**3.7**
Current/Acceptable Lot Size (Acres)	**3.1**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.83E+08	92.1
Septic Tank Effluent Nitrate Mass	1.55E+07	7.8
Recharge Nitrate Mass	1.50E+05	0.1
Total Nitrate Mass	**1.98E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	Site Name
Lots 14	Parcel Identification
8/5/2024	Date
Adrienne Lemmers, PE Y2 Consultants, LLC	Prepared By

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	900	Site-specific	
Parcel Area (acres)	25.54	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	6.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	

Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	1.01E+05	93.4
Effluent	2.90E+03	2.7
Recharge	4.16E+03	3.9
Total Water Volume	**1.08E+05**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**4.1**
Current/Acceptable Lot Size (Acres)	**4.3**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	3.46E+08	78.6
Septic Tank Effluent Nitrate Mass	9.28E+07	21.1
Recharge Nitrate Mass	1.25E+06	0.3
Total Nitrate Mass	**4.40E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	Site Name
Lots 9-14	Parcel Identification
8/5/2024	Date
Adrienne Lemmers, PE Y2 Consultants, LLC	Prepared By

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	475	Site-specific	
Parcel Area (acres)	13.91	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	3.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	5.31E+04	93.5
Effluent	1.45E+03	2.6
Recharge	2.26E+03	4.0
Total Water Volume	**5.68E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	4.4
Avg. Downgradient Nitrate Concentration in GW (mg/l)	4.0
Current/Acceptable Lot Size (Acres)	4.6

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.83E+08	79.5
Septic Tank Effluent Nitrate Mass	4.64E+07	20.2
Recharge Nitrate Mass	6.79E+05	0.3
Total Nitrate Mass	**2.30E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	Site Name
Lots 12-14	Parcel Identification
8/5/2024	Date
Adrienne Lemmers, PE Y2 Consultants, LLC	Prepared By

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	280	Site-specific	
Parcel Area (acres)	4.47	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	

Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	3.13E+04	96.3
Effluent	4.84E+02	1.5
Recharge	7.28E+02	2.2
Total Water Volume	**3.25E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**3.8**
Current/Acceptable Lot Size (Acres)	**4.5**

Yearly Nitrogen Budget		
	Mass (mg)	% of Total
Background GW Nitrate Mass	1.08E+08	87.3
Septic Tank Effluent Nitrate Mass	1.55E+07	12.6
Recharge Nitrate Mass	2.18E+05	0.2
Total Nitrate Mass	**1.23E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	**Site Name**
Lots 15	**Parcel Identification**
8/5/2024	**Date**
Adrienne Lemmers, PE Y2 Consultants, LLC	**Prepared By**

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	280	Site-specific	
Parcel Area (acres)	4.47	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	

Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	3.13E+04	96.3
Effluent	4.84E+02	1.5
Recharge	7.28E+02	2.2
Total Water Volume	**3.25E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**3.8**
Current/Acceptable Lot Size (Acres)	**4.5**

Yearly Nitrogen Budget		
	Mass (mg)	% of Total
Background GW Nitrate Mass	1.08E+08	87.3
Septic Tank Effluent Nitrate Mass	1.55E+07	12.6
Recharge Nitrate Mass	2.18E+05	0.2
Total Nitrate Mass	**1.23E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	Site Name
Lots 16	Parcel Identification
8/5/2024	Date
Adrienne Lemmers, PE Y2 Consultants, LLC	Prepared By

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	430	Site-specific	
Parcel Area (acres)	12.26	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	2.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	4.80E+04	94.2
Effluent	9.67E+02	1.9
Recharge	2.00E+03	3.9
Total Water Volume	**5.10E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**3.9**
Current/Acceptable Lot Size (Acres)	**6.1**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.65E+08	84.0
Septic Tank Effluent Nitrate Mass	3.09E+07	15.7
Recharge Nitrate Mass	5.99E+05	0.3
Total Nitrate Mass	**1.97E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	Site Name
Lots 15-16	Parcel Identification
8/5/2024	Date
Adrienne Lemmers, PE Y2 Consultants, LLC	Prepared By

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	280	Site-specific	
Parcel Area (acres)	4.48	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	3.13E+04	96.3
Effluent	4.84E+02	1.5
Recharge	7.29E+02	2.2
Total Water Volume	**3.25E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**3.8**
Current/Acceptable Lot Size (Acres)	**4.5**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.08E+08	87.3
Septic Tank Effluent Nitrate Mass	1.55E+07	12.5
Recharge Nitrate Mass	2.19E+05	0.2
Total Nitrate Mass	**1.23E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	**Site Name**
Lots 17	**Parcel Identification**
8/5/2024	**Date**
Adrienne Lemmers, PE Y2 Consultants, LLC	**Prepared By**

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

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	480	Site-specific	
Parcel Area (acres)	19.12	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	3.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	5.36E+04	92.2
Effluent	1.45E+03	2.5
Recharge	3.11E+03	5.4
Total Water Volume	**5.82E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	4.4
Avg. Downgradient Nitrate Concentration in GW (mg/l)	4.0
Current/Acceptable Lot Size (Acres)	6.4

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.84E+08	79.6
Septic Tank Effluent Nitrate Mass	4.64E+07	20.0
Recharge Nitrate Mass	9.34E+05	0.4
Total Nitrate Mass	**2.32E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	Site Name
Lots 15-17	Parcel Identification
8/5/2024	Date
Adrienne Lemmers, PE Y2 Consultants, LLC	Prepared By

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	335	Site-specific	
Parcel Area (acres)	11.33	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	2.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	3.74E+04	93.0
Effluent	9.67E+02	2.4
Recharge	1.84E+03	4.6
Total Water Volume	**4.02E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**4.0**
Current/Acceptable Lot Size (Acres)	**5.7**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.29E+08	80.3
Septic Tank Effluent Nitrate Mass	3.09E+07	19.3
Recharge Nitrate Mass	5.53E+05	0.3
Total Nitrate Mass	**1.60E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	Site Name
Lots 16-17	Parcel Identification
8/5/2024	Date
Adrienne Lemmers, PE Y2 Consultants, LLC	Prepared By

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	315	Site-specific	
Parcel Area (acres)	2.01	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	3.52E+04	97.7
Effluent	4.84E+02	1.3
Recharge	3.27E+02	0.9
Total Water Volume	**3.60E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	**4.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**3.8**
Current/Acceptable Lot Size (Acres)	**2.0**

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.21E+08	88.6
Septic Tank Effluent Nitrate Mass	1.55E+07	11.3
Recharge Nitrate Mass	9.82E+04	0.1
Total Nitrate Mass	**1.37E+08**	

Instructions for Use

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

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

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

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

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

SITE INFORMATION

JC Ranches Subdivision	**Site Name**
Lots 18	**Parcel Identification**
8/5/2024	**Date**
Adrienne Lemmers, PE Y2 Consultants, LLC	**Prepared By**

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

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

V. 1.3 5/2/2002

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

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	80.000	Site-specific	
Hydraulic Gradient	0.009	Site-specific	
Mixing Zone Thickness (ft)	15	15	Default
Aquifer Width Perpendicular to Flow (ft)	480	Site-specific	
Parcel Area (acres)	21.13	Site-specific	
Percent of Parcel That Is Impervious (Percent)	4	Site-specific	
Current/Acceptable Number of Homes in Parcel	4.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	350	300	Provide Justification
Natural Recharge rate (inches/yr)	1.65	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	3.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	32.0	45.0	Provide Justification
Denitrification Rate (decimal fraction)		0	Default
Nitrate in Natural Recharge (mg/l)	0.3	0.3	Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	5.36E+04	90.9
Effluent	1.93E+03	3.3
Recharge	3.44E+03	5.8
Total Water Volume	**5.90E+04**	

Point of Compliance Nitrate Concentration Goal (mg/l)	4.4
Avg. Downgradient Nitrate Concentration in GW (mg/l)	4.2
Current/Acceptable Lot Size (Acres)	5.3

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	1.84E+08	74.6
Septic Tank Effluent Nitrate Mass	6.19E+07	25.0
Recharge Nitrate Mass	1.03E+06	0.4
Total Nitrate Mass	**2.47E+08**	

Instructions for Use

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

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

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

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

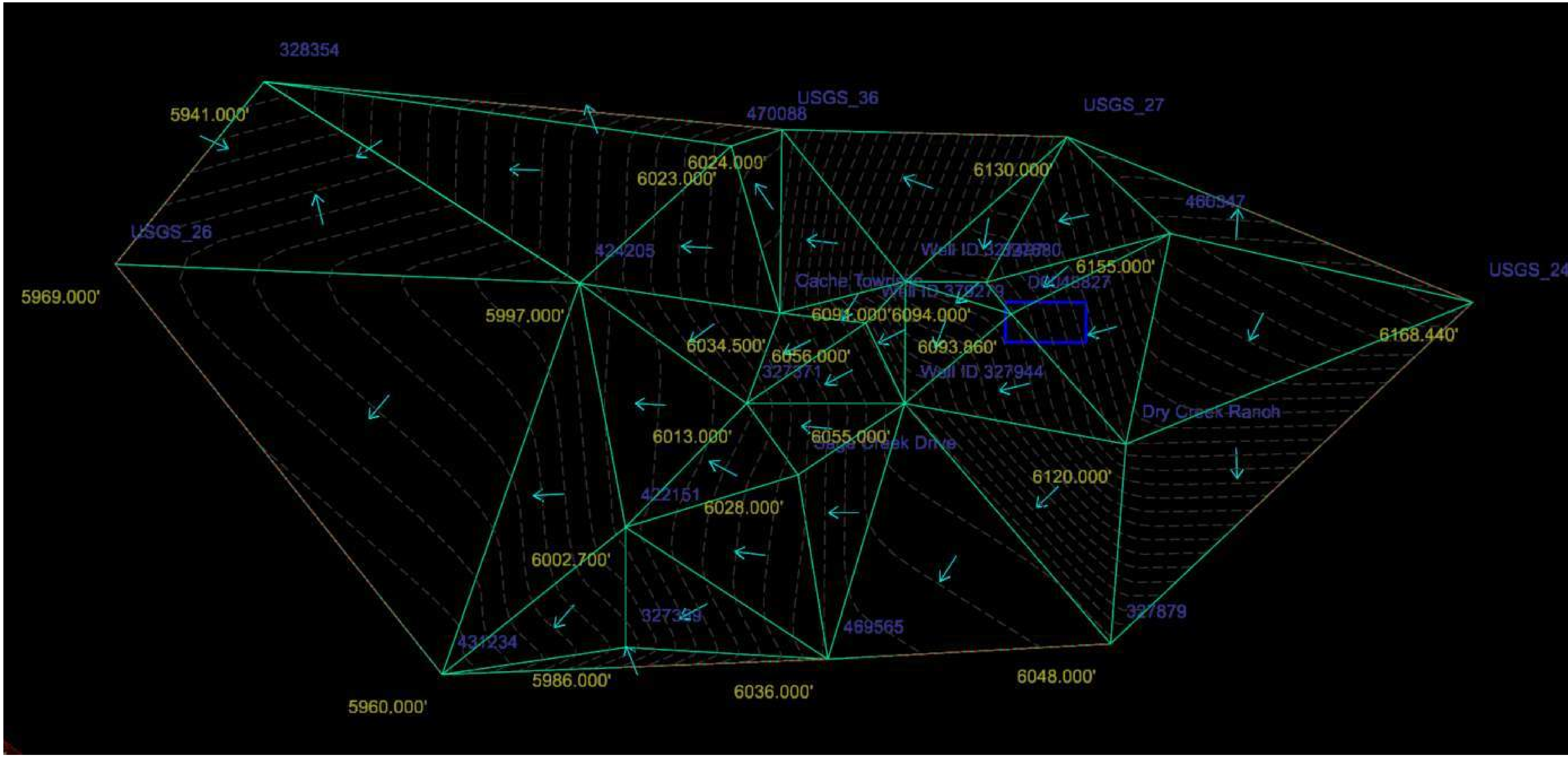
Natural Recharge Rate (NRR) can be estimated from total annual precipitation (TAP) using the equation: NRR (inches/yr) = $(TAP)^2 * 0.0046$
TAP is input in inches/yr.

SITE INFORMATION

JC Ranches Subdivision	Site Name
Lots 15-18	Parcel Identification
8/5/2024	Date
Adrienne Lemmers, PE Y2 Consultants, LLC	Prepared By

Appendix E: Potentiometric Mapping Data

Appendix E: Potentiometric Mapping Data



328354
5941.000'
USGS_36
470088
USGS_27
6024.000'
6023.000'
6130.000'
USGS_26
424205
USGS_24
6155.000'
5969.000'
5997.000'
6094.000'
6093.860'
6168.440'
6034.500'
6056.000'
Well ID 327944
Dry Creek Ranch
6013.000'
6055.000'
6120.000'
422151
6028.000'
6002.700'
327879
469565
431234
5986.000'
6036.000'
6048.000'
5960.000'

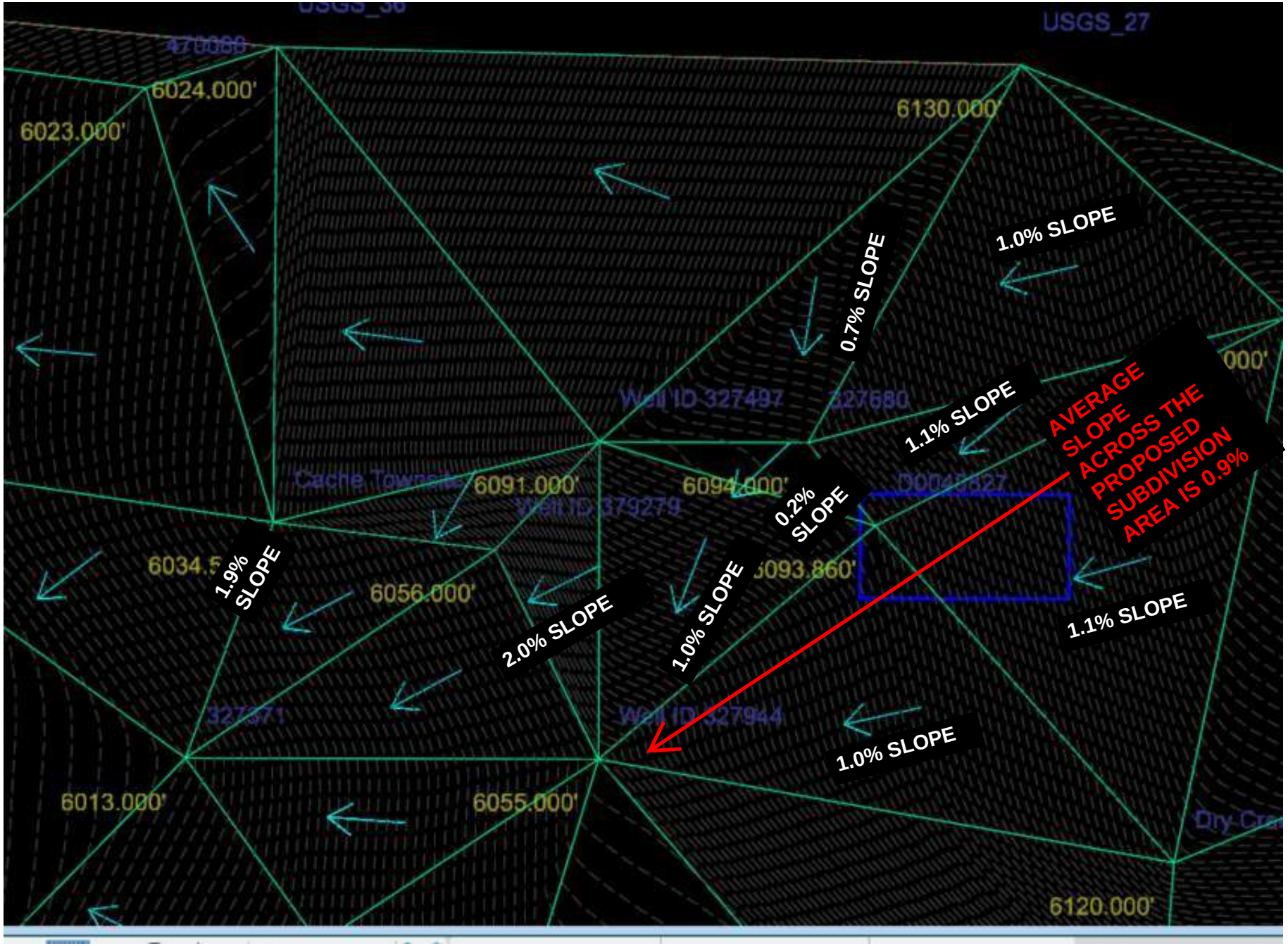

USGS_27
6024.000'
6023.000'
6130.000'
0.7% SLOPE
1.0% SLOPE
1.1% SLOPE
AVERAGE SLOPE ACROSS THE PROPOSED SUBDIVISION AREA IS 0.9%
6091.000'
0.2% SLOPE
1.9% SLOPE
6056.000'
2.0% SLOPE
1.0% SLOPE
1.1% SLOPE
1.0% SLOPE
6013.000'
6055.000'
6120.000'

Table 6
Model Calibration Targets
Teton Basin Ground-water Model

USGS Designation	Model Designation	State Plane Coordinates x	y	Water Level (ft, msl)	Date	Accuracy Datum (ft)
433439111090401	1	925076	697983	6077.00	05/09/94	5
433502111070601	2	933738	700425	6085.00	08/08/90	10
433604111072701	3	932097	706675	6045.00	01/10/94	5
433624111091401	4	924204	708654	6040.00	02/02/90	5
433640111102901	5	918677	710155	6029.11	07/27/99	40
433828111060201	6	938214	721298	6090.00	05/22/97	5
433832111071901	7	932517	721663	6059.10	05/06/02	5
433911111054701	8	939191	725721	6065.00	05/08/00	5
434008111104801	9	917022	731170	6022.00	05/18/90	5
434032111045001	10	943396	734052	6093.55	09/12/96	0.01
434047111065401	12	934172	735354	6084.23	09/14/98	10
434100111120701	13	911573	737813	6021.80	05/21/93	10
434110111062301	14	936416	737753	6081.00	06/19/00	5
434142111113701	15	913311	740641	6011.77	05/06/02	5
434323111133601	17	904442	750745	6007.27	05/07/02	5
434354111055101	18	938584	754369	6082.19	05/06/02	5
434501111035301	20	947340	761294	6203.96 (1)	*	10
434503111034701	21	947529	761450	6202.13	05/06/02	5
434514111025501	22	951346	762630	6250.00	10/12/00	5
434627111043401	23	944037	769898	6175.00	07/25/01	5
434651111041901	24	945035	772317	6168.44	05/07/02	5
434708111142701	26	900486	773558	5969.00	10/19/93	2
434746111072001	27	931732	777723	6130.00	06/24/96	5
434931111110201	30	915288	788202	5969.81	05/08/02	5
434936111143601	31	899525	788750	5828.15	03/18/98	0.01
434937111140701	32	901743	788629	5866.26	06/03/91	10
435016111064401	33	934152	793028	6180.00	10/22/98	5
435110111074101	34	929915	798444	6180.39	05/07/02	5
434827111122701	35	909745	781569	5922.00	10/24/99	5
434749111093401	36	922351	777957	6024.00	03/09/94	5

Highlighted wells were used to set a boundary for the potentiometric surface area. Other wells were initially included, but are very far north or south of the site (several miles) and were removed.

Data points in the 3D TIN model to generate the potentiometric surface. The USGS wells were from the Nicklin Table 6 on the previous sheet. Other wells were selected from the IDWR website and shown on the following pages.

Name	Field Code	Terrain Mo...	Easting	Northing	Elevation
USGS_24	PNT	Spot	945035.000'	772317.000'	6168.440'
USGS_26	PNT	Spot	900486.000'	773558.000'	5969.000'
USGS_27	PNT	Spot	931732.000'	777723.000'	6130.000'
USGS_36	PNT	Spot	922351.000'	777957.000'	6024.000'
D0048827	PNT	Spot	929899.380'	771912.320'	6093.860'
Well ID 327944	PNT	Spot	926398.604'	768975.502'	6055.000'
Well ID 379279	PNT	Spot	925102.604'	771613.927'	6056.000'
Cache Townsite	PNT	Spot	922307.950'	771962.529'	6034.500'
Well ID 327497	PNT	Spot	926413.513'	772976.429'	6091.000'
Dry Creek Ranch	PNT	Spot	933656.326'	767667.156'	6120.000'
431234	PNT	Spot	911214.408'	760115.976'	5960.000'
327369	PNT	Spot	917244.676'	760982.530'	5986.000'
422151	PNT	Spot	917229.152'	764942.198'	6002.700'
Sage Creek Drive	PNT	Spot	922889.102'	766650.989'	6028.000'
327879	PNT	Spot	933147.920'	761119.283'	6048.000'
327680	PNT	Spot	929043.180'	772966.110'	6094.000'
460347	PNT	Spot	935087.871'	774552.521'	6155.000'
327371	PNT	Spot	921203.983'	768979.619'	6013.000'
470088	PNT	Spot	920697.327'	777434.955'	6023.000'
424205	PNT	Spot	915714.757'	772941.887'	5997.000'
469565	PNT	Spot	923872.093'	760615.421'	6036.000'
328354	PNT	Spot	905375.200'	779531.096'	5941.000'

Well point data used in the potentiometric surface. Logs are provided for individual wells that were used - this happened when there was only one shallower well in an area. When multiple wells were used, the number, date range, and average water level was used in the mapping.

WellID - 4199166
PermitID - 849279
MetalTagNumber - D0048827
Construction Date - 10/01/2007
Static water level depth - 20' bgs
Elevation from survey - 6113.86
Water level depth = 6093.86
x= 929899.38
y= 771912.32

WellID 327944
PermitID 702246
Construction Date - 4/8/1993
Static water level - 26' bgs
Location is by quarter-quarter
Lat:43.772108
Long:-111.143584
x= 926398.604
y= 768975.502
Surface = 6081 from topo map
Water level depth = 6055

WellID - 379279
PermitID - 808484
MetalTagNumber - D0027575
Construction Date - 10/30/2003
Static water level depth - 20' bgs
Surface = 6076 from topo map
Water level depth = 6056
Lat:43.779389
Long:-111.148367
x= 925102.604
y= 771613.927

The Cache Townsite subdivision located at the corner of W 4000 N and N 3000 W has 10 well records from 2007 through 2022. All of these wells were drilled in the range of 60 to 100 feet bgs. The water level from the logs was averaged due to their proximity. The water levels range from 10 to 20 feet bgs with an average of 15.5 feet bgs.
Surface = 6050 from topo map
Water level depth = 6034.5
Lat:43.780439
Long:-111.158931
x= 922307.950
y= 771962.529

WellID - 327497
PermitID - 702556
MetalTagNumber -
Construction Date - 9/17/1994
Static water level depth - 15' bgs
Surface = 6106 from topo map
Water level depth = 6091
Lat:43.783082
Long:-111.1433404
x= 926413.513
y= 772976.429

Dry Creek Ranch
8 wells within subdivision drilled from 2005 to 2023. Shallow water levels are at 20' bgs.
Average Depth to Static Water Level = 20
Surface El = 6140 at about the center of the subdivision
Lat:43.768270
Long:-111.116174
x= 933656.326
y= 767667.156

Well right next to the river
WellID - 431234
PermitID - 861998
MetalTagNumber - D0059712
Construction Date - 9/12/2011
Static water level depth - 18' bgs
Surface El = 5978
Lat:43.748306
Long:-111.201453
x= 911214.408
y= 760115.976

Wells along Sage Creek Drive
20' and 24' depth, one anomalous well had a depth greater than the completion depth and was not used. Wells were drilled in 2020 and 2023.
Use a depth of 22'
Surface El=6050
Lat: 43.765850
Long: -111.156976
x=922889.102
y=766650.989

Well just east of N 4000 W - located in stream bed
WellID - 327369
PermitID - 702433
MetalTagNumber -
Construction Date - 4/27/1994
Static water level depth - 18' bgs
Surface El = 6004
Lat:43.750488
Long:-111.178596
x= 917244.676
y=760982.530

WellID - 327879
PermitID - 702183
MetalTagNumber -
Construction Date -10/17/1992
Static water level depth - 68' bgs
Surface = 6116 from topo map
Water level depth = 6048
Lat:43.750327
Long:-111.118412
x= 933147.920
y= 761119.283
This well is much deeper than most wells used. Used as a south boundary point and not used for average slope for mass-balance spreadsheets.

3 wells, just south of N 4000 W & W 3000 N
One drilled in 1993 and the other two in 2008
WellID - 422151
PermitID - 852378
MetalTagNumber -D0049730
Water levels 10, 13, and 20
Static water level depth = 14.3
Surface EL = 6017
Lat:43.761350
Long:-111.178476
x= 917229.152
y=764942.198

WellID - 327680
PermitID - 701985
MetalTagNumber -
Construction Date -8/20/1991
Static water level depth - 15' bgs
Surface = 6109 from topo map
Water level depth = 6094
Lat:43.750327
Long:-111.118412
x= 933147.920
y= 761119.283

WellID - 460347
PermitID - 895654
MetalTagNumber - D0083627
Construction Date -8/31/2020
Static water level depth - 20' bgs
Surface = 6175 from topo map
Water level depth = 6155
x= 935085.45
y= 774535.30

WellID - 469565
PermitID - 905346
MetalTagNumber - D0091772
Construction Date -5/26/2022
Static water level depth - 4' bgs
Surface = 6040 from topo map
Water level depth = 6036
x=923872.09
y=760615.42

WellID - 327371
PermitID - 702435
MetalTagNumber -
Construction Date -4/28/1994
Static water level depth - 19' bgs
Surface = 6032 from topo map
Water level depth = 6013
x= 921203.98'
y= 768979.62'

WellID - 328354
PermitID - 701878
MetalTagNumber -
Construction Date -10/4/1990
Static water level depth - 5' bgs
Surface = 5946 from topo map
Water level depth = 5941
x=905375.20
y=779531.10

WellID - 470088
PermitID - 905888
MetalTagNumber - D0092439
Construction Date -6/27/2022
Static water level depth - 20' bgs
Surface = 6043 from topo map
Water level depth = 6023
x= 920697.33'
y= 777434.96

WellID - 424205
PermitID - 854539
MetalTagNumber - D0049755
Construction Date -12/29/2008
Static water level depth - 20' bgs
Surface = 6017 from topo map
Water level depth = 5997
x=915714.76
y=772941.89

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

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

1. WELL TAG NO. D 0048827
DRILLING PERMIT NO.
Water Right or Injection Well No.

2. OWNER:
Name Shaun Perkins
Address 307 North Hwy 33
City Driggs State ID Zip 83455

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 5 North ☒ or South ☐
Rge. 45 East ☒ or West ☐
Sec. 10, ____ 1/4 (10 acres) NW 1/4 (40 acres) NE 1/4 (160 acres)
Gov't Lot ____ County Teton
Lat: 43 : 46 : 869 Long: 111 : 07 : 859
Address of Well Site 400 N. 95 West
(Give at least name of road + Distance to Road or Landmark) City Driggs
Lt. ____ Blk. ____ Sub. Name

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

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

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

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
bentonite	0'	18'	450 lbs	overbore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 100'
Was drive shoe seal tested? ☐ Y ☒ N How?

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	0'	100'	.250	steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

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

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

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

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

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

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

Yield gal./min.	Drawdown	Pumping Level	Time

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

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8"	0'	18'	clay-gravels		X
6"	18'	40'	clay-gravels	X	
6"	40'	60'	clay-sand-gravels	X	
6"	60'	80'	clay-sand-gravels	X	
6"	80'	100'	clay-gravels	X	

RECEIVED
OCT 11 2007
Department of Water Resources
Eastern Region

Completed Depth 100' (Measurable)
Date: Started 10-2-07 Completed 10-2-07

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 Deming Drilling Firm No. 518
Principal Driller Daniel Deming Date 10-3-07
and
Driller or Operator II Daniel Deming Date 10-3-07
Operator I Seth Deming Date 10-5-07
Principal Driller and Rig Operator *Required.*
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
4/92

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

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

1. WELL OWNER

Name Steve L Johnson

Address 225 N 100 S Driggs

Drilling Permit No. 22-93-E-038-000

Water Right Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE

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

4. METHOD DRILLED

☒ Rotary ☒ Air ☐ Auger ☐ Reverse rotary
☐ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6 inches	+ 1 feet	61 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 ☐ Gun
Size of perforation? _____ inches by _____ inches

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

Well screen installed? ☐ Yes ☒ No
Manufacturer _____ Type _____
Top Packer or Headpipe _____
Bottom of Tailpipe _____

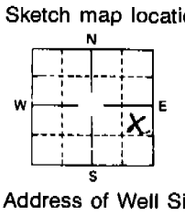
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 20' Material used in seal: ☐ Cement grout
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded
☐ Solvent Weld ☐ Cemented between strata

Describe access port _____

6. LOCATION OF WELL

Sketch map location **must** agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
County Teton
Address of Well Site _____ (give at least name of road)
NE ¼ SE ¼ Sec. 9, T. 5 N ☒ or S ☐, R. 45 E ☒ or W ☐

7. WATER LEVEL

Static water level 26' 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 _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☒ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG

107139

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
6"	0	7'	Clay		☒
6"	7'	35'	Clay and Gravel		☒
6"	35'	41	Clay	☒	
6"	41	61'	Clay & Gravel	☒	

RECEIVED
APR 19 1993
Department of Water Resources
Eastern District Office

FEB 09 1994

10.

Work started 4-8-93 finished 4-8-93

11. DRILLER'S CERTIFICATION

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

Firm Name Dennis Denning Drilling Firm No. 518
Address PO Box 460 Alcova Date 4-8-93
Signed by Drilling Supervisor Dennis Denning
and
(Operator) _____ *(If different than the Drilling Supervisor)*

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

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

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

1. WELL TAG NO. D 0027575
DRILLING PERMIT NO.
Water Right or Injection Well No. 22

2. OWNER:
Name Jarold Gee
Address 2272 E Hwy 33
City Sugar City State ID Zip 83448

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 5 North ☒ or South ☐
Rge. 45 East ☒ or West ☐
Sec. 9, ____ 1/4 (10 acres) NW 1/4 (40 acres) NE 1/4 (160 acres)
Gov't Lot ____ County Teton
Lat: : : Long: : :
Address of Well Site 375 N 300 W
City Driggs
(Give at least name of road + Distance to Road or Landmark)
Lt. ____ Blk. ____ Sub. Name ____

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

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

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

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
Bentonite	0'	20'	400 #	overbore

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

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+1	100'	.250	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

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

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

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

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

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

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

Yield gal./min.	Drawdown	Pumping Level	Time

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

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8"	0'	20'	Dirt, clay, gravel		X
6"	20'	68'	clay gravel	X	
	68'	90'	clay sand gravel	X	
	90'	100'	clay gravel	X	

RECEIVED
DEC 08 2003
Department of Water Resources
Eastern Region

Completed Depth 100' (Measurable)
Date: Started 10/28/03 Completed 10/30/03

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 Firm No. 518
Principal Driller ____ Date 11-3-03
and
Driller or Operator II ____ Date 10/30/03
Operator I ____ Date ____
Principal Driller and Rig Operator *Required*.
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
1/94

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Use Typewriter or Ball Point Pen

55899

1. DRILLING PERMIT NO. 22-94-E-167
Other IDWR No.

2. OWNER:
Name Kent Hale
Address P.O. Box 117
City Tetonia State Id Zip 83452

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

N / W / E / S

Twp. 5 North ☒ or South ☐
Rge. 45 East ☒ or West ☐
Sec. 3, SE 1/4 (10 acres) SW 1/4 (40 acres) 1/4 (160 acres)
Gov't Lot ____ County TETON

Address of Well Site 178 W. 400 N
Pucksaddle Rd. City Tetonia
(Give at least name of road + Distance to Road or Landmark)

Lt. ____ Blk. ____ Sub. Name ____

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

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

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

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	20	3	Outdoor

Was drive shoe used? Y ☐ N ☒
Was drive shoe seal tested? Y ☐ N ☐ How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	0	60	250	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____

9. PERFORATIONS/SCREENS NONE
☐ Perforations Method ____
☐ Screens Screen Type ____

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

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
15 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
35	55	55	1 Hr

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments: Clear + good

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
6	0	20	sand & gravel (12' H2O)	X	
	20	30	sand		X
	30	40	washed gravel	X	
6	40	60	sand & gravel		

RECEIVED
DEC 23 1994
Department of Water Resources

RECEIVED
DEC 14 1994
Department of Water Resources
Eastern District Office

OCT 14 1994
Department of Water Resources
Eastern District Office

MAY 08 1995

Completed Depth 60' (Measurable)
Date: Started 9-18-94 Completed 9-18-94

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 Teton Water Works Firm No. 506

Firm Official ____ Date 10-12-94
and
Supervisor or Operator ____ Date ____
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
6/07

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

22

BMD

1. WELL TAG NO. D 0059712

Drilling Permit No. _____

Water right or injection well # _____

2. OWNER: Willow Bend LLC % Derek Hora

Name Derek Hora

Address P.O. Box 761

City Victor State ID Zip 83455

3.WELL LOCATION:

Twp. 5 North ☒ or South ☐ Rge. 45 East ☒ or West ☐

Sec. 19 ____ 10 acres 1/4 SW 40 acres 1/4 NW 160 acres 1/4

Gov't Lot _____ County Teton

Lat. 43 ° 44 . 912 (Deg. and Decimal minutes)

Long. 111 ° 12 . 032 (Deg. and Decimal minutes)

Address of Well Site 6000 W 2000 N

(Give at least name of road + Distance to Road or Landmark) City Driggs

Lot. _____ Blk. _____ Sub. Name _____

4. USE:

☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK:

☒ New well ☐ Replacement well ☐ Modify existing well ☐ Abandonment ☐ Other _____

6. DRILL METHOD:

☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other _____

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method/procedure
Bentonite	0	38	800#	overbore 10"

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material	Casing	Liner	Threaded	Welded
6"	+2	58	.250	steel	☒	☐	☐	☒
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 58'

9. PERFORATIONS/SCREENS:

Perforations ☐ Y ☒ N Method _____

Manufactured screen ☐ Y ☒ N Type _____

Method of installation _____

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

Length of Headpipe _____ Length of Tailpipe _____

Packer ☐ Y ☒ N Type _____

10.FILTER PACK:

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

11. FLOWING ARTESIAN:

Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG) _____

Describe control device _____

12. STATIC WATER LEVEL and WELL TESTS:

Depth first water encountered (ft) 36' Static water level (ft) 18'

Water temp. (°F) _____ Bottom hole temp. (°F) _____

Describe access port _____

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)
50'	5+	

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

Water quality test or comments: _____

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water Y	Water N
10"	0	5	overburden/clay		1
	5	16	Clay + Gravel		1
	16	36	Clay		
	36	38	Sand + Gravel	1	
6"	38	42	Sand + Gravel	1	
	42	56	Clay		1
	55	58	Gravel + Sediment	1	

RECEIVED
OCT 27 2011
Department of Water Resources
Eastern Region

Completed Depth (Measurable): 58'

Date Started: 9-13-11 Date Completed: 9-13-11

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 Co. No. 518

*Principal Driller Darrel Denning Date 9-16-11

*Driller _____ Date _____

*Operator II Tyler Hill Date 9-15-11

Operator I _____ Date _____

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

RECEIVED
MAY 9 1994
Department of Water Resources
Eastern District Office

Form 238 4/92

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

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

RECEIVED
JUN 13 1994
Department of Water Resources

USE TYPEWRITER OR BALLPOINT PEN

1. WELL OWNER

Name Ken Dunn

Address 250 N 400 W Driggs Id.

Drilling Permit No. 22-94-E-040-000

Water Right Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE

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

4. METHOD DRILLED

☒ Rotary ☒ Air ☐ Auger ☐ Reverse rotary
☐ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250" inches	6" inches	+ 1 feet	60' 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 ☐ Gun
Size of perforation? _____ inches by _____ inches

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

Well screen installed? ☐ Yes ☒ No
Manufacturer _____ Type _____
Top Packer or Headpipe _____
Bottom of Tailpipe _____

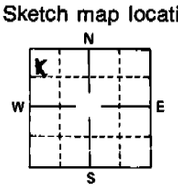
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 18' Material used in seal: ☐ Cement grout
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded
☐ Solvent Weld ☐ Cemented between strata

Describe access port _____

6. LOCATION OF WELL

Sketch map location **must** agree with written location.



Subdivision Name _____

Lot No. _____ Block No. _____

County Teton

Address of Well Site _____ (give at least name of road)

NW ¼ NW ¼ Sec. 20, T. 5 N ☒ or S ☐, R. 45 E ☒ or W ☐

7. WATER LEVEL

Static water level 18' 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 _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG

89935

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
8"	0	18'	Clay & Some Gravel		✓
6"	18'	35'	Clay & Gravel	✓	
6"	35'	58'	Clay & Sand	✓	
6"	58'	65'	Clay Gravel Sand	✓	

MICROFILMED
FEB 08 1995

10.

Work started 4-28-94 finished 4-28-94

11. 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 Firm No. 518
Address Box 460 Ucon Id Date 4-28-94
Signed by Drilling Supervisor Daniel Denning
and
(Operator) _____
(If different than the Drilling Supervisor)

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

Form 238-7
4/92

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

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

1. WELL OWNER

Name Anthony & Carol Tank

Address PO Box 452 Driggs 83422

Drilling Permit No. 22-92-E-159

Water Right Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE

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

4. METHOD DRILLED

☒ Rotary ☒ Air ☐ Auger ☐ Reverse rotary
☐ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
250" inches	6" inches	+ 1 feet	100' 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 ☐ Gun
Size of perforation? _____ inches by _____ inches

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

Well screen installed? ☐ Yes ☒ No
Manufacturer _____ Type _____
Top Packer or Headpipe _____
Bottom of Tailpipe _____

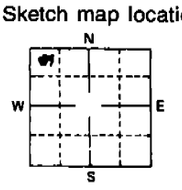
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 20' Material used in seal: ☐ Cement grout
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded
☐ Solvent Weld ☐ Cemented between strata

Describe access port _____

6. LOCATION OF WELL

Sketch map location **must** agree with written location.



Subdivision Name Flying Saddle Rd, Driggs
Lot No. 6 Block No. 12H3
County _____
Address of Well Site Teton
(give at least name of road)
NW ¼ NW ¼ Sec. 23, T. 5 N ☒ or S ☐, R. 45 E ☒ or W ☐

7. WATER LEVEL

Static water level 68' 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 _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG

96126

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
8"	0'	20'	Clay & Gravel		✓
6"	20'	100'	Clay & Gravel	X	

RECEIVED
DEC 9 1992
Department of Water Resources

PROCESSED
NOV 25 1992
Department of Water Resources
Eastern District Office

MICROFILMED
AUG 09 1993

10.

Work started 10-16-92 finished 10-18-92

11. 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 Firm No. 10
Address Box 460 Ucon ID Date 10-18-92
Signed by Drilling Supervisor _____
and
(Operator) _____
(If different than the Drilling Supervisor)

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

Form 238-7
6/89

DMC

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

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

1. WELL OWNER

Name Don Dabell

Address Star Route Box 343 Wilson, Wyoming

Owner's Permit No. 22-91-E-087

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Well diameter increase
☐ Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)

3. PROPOSED USE

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

4. METHOD DRILLED

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

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6" inches	+ _____ feet	_____ 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 ☐ Gun
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 ☐ Bentonite ☒ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit ☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld ☐ Cemented between strata
Describe access port _____

6. LOCATION OF WELL

Sketch map location must agree with written location.

N / W / E / S

Subdivision Name _____

Lot No. _____ Block No. _____

County Teton

SE ¼ SW ¼ Sec. 3, T. 5 N ☒ S ☐ R. 45 E ☒ W ☐

7. WATER LEVEL

Static water level 15' 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 _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☒ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
50		

9. LITHOLOGIC LOG

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
6"	0	56	Sand + Gravel		☒
	56	59	Gravel + Brown Clay		☒
	59	85	Sand + Gravel	☒	

10.

Work started 8/21/91 finished 8/21/91

11. DRILLERS CERTIFICATION

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

Firm Name Independent Drilling Firm No. 343
Address 664 W. 200 N. Bluff Date 8/26/91
Signed by (Firm Official) Brent Henderson
and
(Operator) Kip L Rahmig

RECEIVED
MAY 05 1992

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

Form 238-7
6/07

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. WELL TAG NO. D 0083627

Drilling Permit No. _____

Water right or injection well # _____

2. OWNER: Douglas Evans

Name _____

Address 4369 N Hwy 33

City Teton'a State ID Zip 83452

3. WELL LOCATION:

Twp. 5 North ☒ or South ☐ Rge. 46 East ☒ or West ☐

Sec. 2 ____ 10 acres 1/4 NW 40 acres 1/4 SE 160 acres 1/4

Gov't Lot _____ County Teton

Lat. 43 ° 47.927 (Deg. and Decimal minutes)

Long. 111 ° 06.627 (Deg. and Decimal minutes)

Address of Well Site 4369 N Hwy 33

(Give at least name of road + Distance to Road or Landmark) City Teton'a

Lot. _____ Blk. _____ Sub. Name _____

4. USE:

☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Thermal ☐ Injection
☐ Other _____

5. TYPE OF WORK:

☒ New well ☐ Replacement well ☐ Modify existing well
☐ Abandonment ☐ Other _____

6. DRILL METHOD:

☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other _____

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method/procedure
Bentonite	0	38	1150 LBS	10" temp casing

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material	Casing	Liner	Threaded	Welded
6	+2	120	.250	Steel	☒	☐	☐	☒
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 120

9. PERFORATIONS/SCREENS:

Perforations ☐ Y ☒ N Method _____

Manufactured screen ☐ Y ☒ N Type _____

Method of installation _____

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

Length of Headpipe _____ Length of Tailpipe _____

Packer ☐ Y ☒ N Type _____

10. FILTER PACK:

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

11. FLOWING ARTESIAN:

Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG) _____

Describe control device _____

12. STATIC WATER LEVEL and WELL TESTS:

Depth first water encountered (ft) 20 Static water level (ft) 20

Water temp. (°F) _____ Bottom hole temp. (°F) _____

Describe access port _____

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)	Test method: Pump	Bailer	Air	Flowing artesian
	35	20	☐	☐	☒	☐
			☐	☐	☐	☐

Water quality test or comments: _____

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water Y	Water N
10	0	20	clay & gravel		X
10	20	38	clay & gravel	X	
6	38	120	clay & gravel	X	

RECEIVED
SEP 28 2020
Department of Water Resources
Eastern Region

Completed Depth (Measurable): 120

Date Started: 9/1/20 Date Completed: 9/1/20

14. DRILLER'S CERTIFICATION:

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

Company Name Daniel Denning Drilling Co. No. 518

*Principal Driller [signature] Date 9-11-20

*Driller [signature] Date 9/2/20

*Operator II _____ Date _____

Operator I Brand Piquet Date 9/2/20

* Signature of Principal Driller and rig operator are required.

RECEIVED
MAY 9 1994
Department of Water Resources
Eastern District Office

RECEIVED
JUN 13 1994
Department of Water Resources

Form 238-5
Rev. 1-92

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

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

1. WELL OWNER

Name H. D. Dunn

Address 326 N 300 W Driggs Id.

Drilling Permit No. 22-94-E-042-000

Water Right Permit No. _____

2. NATURE OF WORK

☑ New well ☐ Deepened ☐ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE

☑ Domestic ☐ Irrigation ☐ Monitor
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☑ Rotary ☑ Air ☐ Auger ☐ Reverse rotary
☐ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION

Casing schedule: ☑ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
~~.250~~ inches	____ inches	+ ____ feet	____ feet
.250" inches	6" inches	1' feet	80' 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 ☐ Gun
Size of perforation? ____ inches by ____ inches

Number	From	To
____ perforations	____ feet	____ feet
____ perforations	____ feet	____ feet
____ perforations	____ feet	____ feet

Well screen installed? ☐ Yes ☑ No
Manufacturer _____ Type _____
Top Packer or Headpipe _____
Bottom of Tailpipe _____

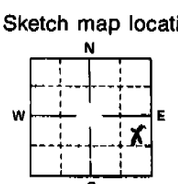
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☑ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 20' Material used in seal: ☐ Cement grout
☑ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☐ Temp. surface casing ☑ Overbore to seal depth
Method of joining casing: ☐ Threaded ☑ Welded
☐ Solvent Weld ☐ Cemented between strata

Describe access port _____

6. LOCATION OF WELL

Sketch map location **must** agree with written location.



Subdivision Name _____

Lot No. ____ Block No. ____

County Teton

Address of Well Site _____ (give at least name of road)

NE ¼ SE ¼ Sec. 8, T. 5 N ☑ or S ☐, R. 45 E ☑ or W ☐

7. WATER LEVEL

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

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG 89934

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
6"	0	8'	Clay		✓
6"	8'	40'	Clay + Gravel	✓	
6"	40'	50'	Clay + Sand	✓	
6"	50	80'	Clay Sand Gravel	✓	

MICROFILMED
FEB 08 1995

10.

Work started 4-29-94 finished 4-29-94

11. 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 Firm No. 518

Address Box 460 Ucon Id Date 4-29-94

Signed by Drilling Supervisor Dennis Denning

and

(Operator) _____
(If different than the Drilling Supervisor)

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

Form 238-7
6/07

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. WELL TAG NO. D 0092439
Drilling Permit No. _____
Water right or injection well # _____

2. OWNER: Brian maw
Name _____
Address Box 156
City Victor State _____ Zip _____

3.WELL LOCATION:
Twp. 5 North ■ or South ☐ Rge. 45 East ■ or West ☐
Sec. 5 _____ 1/4 (10 acres) ne 1/4 (40 acres) ne 1/4 (160 acres)
Gov't Lot _____ County Teton
Lat. 43 ° 47 7309 (Deg. and Decimal minutes)
Long. 111 ° 09 8862 (Deg. and Decimal minutes)
Address of Well Site 4851 N 3250 W
City tetonia
(Give at least name of road + Distance to Road or Landmark)
Lot. _____ Blk. _____ Sub. Name _____

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

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

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

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method/procedure
Bentonite	0	38	1100	10" temp casing

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material	Casing	Liner	Threaded	Welded
6	+2	100	.250	Steel	■	☐	☐	■
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ■ Y ☐ N Shoe Depth(s) 100

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

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

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

10.FILTER PACK:

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

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

12. STATIC WATER LEVEL and WELL TESTS:
Depth first water encountered (ft) 48 Static water level (ft) 20
Water temp. (°F) _____ Bottom hole temp. (°F) _____
Describe access port _____

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)
	25	20

Test method:

Pump	Bailer	Air	Flowing artesian
☐	☐	■	☐
☐	☐	☐	☐

Water quality test or comments: _____

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water Y	Water N
10	0	38	clay, gravel		Y
6	38	80	clay, sand gravel	Y	
	80	100	gravel, sand	Y	

RECEIVED
JUL 25 2022
Department of Water Resources
Eastern Region

Completed Depth (Measurable): 100
Date Started: 6/27/22 Date Completed: 6/28/22

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

Company Name Daniel Deming Drilling Co. No. 518
*Principal Driller _____ Date 6-29-22
*Driller _____ Date 6/28/22
*Operator II _____ Date _____
Operator I _____ Date _____

* Signature of Principal Driller and rig operator are required.

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

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 0049755
DRILLING PERMIT NO.
Water Right or Injection Well No.

2. OWNER:
Name Roy Bell
Address 450 S 450 W
City Tetonia State Id Zip 83452

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 5 North ☒ or South ☐
Rge. 45 East ☒ or West ☐
Sec. 6, ____ (10 acres) 1/4 SG (40 acres) 1/4 SE (160 acres) 1/4
Gov't Lot ____ County
Lat: : : Long: : :
Address of Well Site 441 N 450 W
City Tetonia
(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
Bentonite	0	30'	500 LBS	over Bore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 60'
Was drive shoe seal tested? ☐ Y ☒ N How?

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+1	59'	.250	Steel	☒	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

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

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

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

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

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

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

Yield gal./min.	Drawdown	Pumping Level	Time

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

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

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

RECEIVED
JAN 23 2009
Department of Water Resource
Eastern Region

Completed Depth 60' (Measurable)
Date: Started 12-30-08 Completed 12-30-08

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 Denning Drilling Firm No. 518
Principal Driller Daniel Denning Date 12-31-08
and
Driller or Operator II Daniel Denning Date 12-31-08
Operator I Date

Principal Driller and Rig Operator *Required.*
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
6/89

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

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

1. WELL OWNER

Name Breckenridge Bros

Address 494 N 500 W Tetonia 83452

Owner's Permit No. 22-90-E-0856-000

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Well diameter increase
☐ Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)

3. PROPOSED USE

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

4. METHOD DRILLED

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

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6 inches +	1 feet	51 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 ☐ Gun
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
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit ☐ Temp. surface casing
☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld
☐ Cemented between strata
Describe access port _____

6. LOCATION OF WELL

Sketch map location must agree with written location.

N / W / E / S

Subdivision Name _____
Lot No. _____ Block No. _____

County Teton

NE ¼ SE ¼ Sec. 35, T. 6 N ☐ S ☒, R. 44 E ☒ W ☐

MICROFILMED
AUG 29 1991

7. WATER LEVEL

Static water level 55 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 _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
6	0	15	Gravel	✓	
	15	52	Sand	✓	

RECEIVED
OCT 19 1990
Department of Water Resources
Eastern District Office

10.

Work started 10/4/90 finished 10/5/90

11. DRILLERS CERTIFICATION

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

Firm Name Jennings Drilling Firm No. 10
Address Box 460 Ucon Date 10/5/90
Signed by (Firm Official) William Jennings
and
(Operator) Jody Jennings

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