MEMORANDUM

TO: **Laramie County Planning Commission**

FROM: **Sonny M. Pourchot, Associate Planner**

DATE: **August 13th, 2026**

TITLE: **Review and Action on a Major Subdivision Permit and Plat for the R & R Heights, located in a portion of land situated in the W ½ of Section 2, T14N, R68W, of the 6th P.M., Laramie County, WY.**

EXECUTIVE SUMMARY

Palma Land Planning LLC, on behalf of landowner Jean Wheeler Revocable Trust, has submitted an application for a Major Subdivision Permit and Plat for the above location. The purpose of the application is to subdivide a 319.71-acre lot into fifty-two (52) single family residential lots.

BACKGROUND

The subject property is located in the Land Use (LU) zone district and is currently used for agricultural purposes. The surrounding area is residential to the west, agricultural/vacant land to the east and south, and commercial uses and detached residential. The property is located at the intersection of Horse Creek Road (State Highway 211) and Road 215. Given the difficulty of this intersection and access to the proposed subdivision, access will be reconfigured at this intersection to grant access from Road 215 and another access point off Road 116. No direct access will be from Horse Creek Road.

Pertinent Laramie County Land Use Regulations or Statutory Provisions include:

Wyoming § 18-5-301 through 18-5-306.
Wyoming § 34-12-101 through 34-12-115.
Section 4-5-100 governing Major Subdivision Permit and Plats.
Section 2-4-104 governing the LU – Land Use Zone District.
Section 1-3-100 governing public notice.

DISCUSSION

The Laramie County Comprehensive Plan identifies the area as Rural Ag Interface (RAI), which anticipates these areas to primarily be used for rural residential uses. Development should be located on existing Rights-of-Way where possible. A new development in this area shall address water availability, public lands access, cultural resource preservation, and roads and connectivity. Future development in the RAI area should take into consideration minimizing impacts to view sheds and wildlife, especially in western portions of Laramie County. This proposed project is in conformance with this plan.

According to the adopted AMEC Memo dated January 31, 2014, the property lies within Zone 2 of the study area. The memo states that lots within this zone shall be a minimum of 5 acres to sufficiently recharge groundwater after withdrawal from a pumping well. Development design standards contained within Section 2-1-104 of the Land Use Regulations dictate that minimum acreage within Zone 2 be 5.25 acres to accommodate for the impervious surface of residential structures and driveways. The proposed action does meet these requirements.

A subdivision of more than 5 lots requires a submittal of a Chapter 23 study to the Wyoming Department of Environmental Quality (DEQ). A DEQ Chapter 23 application will be submitted, and a letter of non-adverse recommendation will be required prior to recordation. Water and sanitary sewers will be provided by individual wells and septic systems.

The Environmental and Services Impact Report provides a general outline of the project and its impact on schools, stormwater runoff, and County services.

Portions of these parcels lie within the FEMA 100-year floodplain. The land analysis map provides information regarding the buildable area for the proposed subdivision.

At the time of this report agency reviewer comments are still being addressed.

Public notice was provided, and no public comments were received on this project.

The Planning Commission met on June 25th, 2026, for the Preliminary Subdivision Plan for R & R Heights and approved the project with a vote of (4-0).

Section 2-3-102 (a) of the Laramie County Land Use Regulations requires that the Laramie County Planning Commission find that the proposed use is permitted and is in conformance with all applicable development standards. Staff find this application is in conformance with the plans and policies of Laramie County.

RECOMMENDATION and FINDINGS

Based on evidence provided, staff finds that:

- **a.** This application meets the criteria for a Major Subdivision Permit and Plat pursuant to section 4-5-100 of the 2025 Laramie County Land Use Regulations (LCLUR); and,
- **b.** This application is in conformance with section 2-4-104 of the 2025 LCLUR governing the LU – Land Use Zone District.

and that the Planning Commission may recommend to the Board for approval of the Major Subdivision Permit and Plat for R & R Heights Subdivision with the following conditions:

1) **All agency comments must be addressed and/or corrected prior to recordation.**
2) **A Chapter 23 Non-Adverse Action letter must be received from DEQ prior to recordation.**

PROPOSED MOTION

I move to recommend approval of the Major Subdivision Permit and Plat for R & R Heights to the Laramie County Board of Commissioners, located in a portion of land situated in the W ½ of Section 2, T14N, R68W, of the 6th P.M., Laramie County, WY, and recommend adoption of the findings of facts a and b of the staff report with the following conditions:

1) **All agency comments must be addressed and/or corrected prior to recordation.**
2) **A Chapter 23 Non-Adverse Action letter must be received from DEQ prior to recordation.**

ATTACHMENTS

Attachment 1: Location Map
Attachment 2: Project Narrative
Attachment 3: Agency Review Comments and Responses
Attachment 4: DEQ Acknowledgement Letter
Attachment 5: DEQ Chapter 23 Review Report
Attachment 6: Public Safety Fees Credit Letter
Attachment 7: Transportation Assessment Worksheet
Attachment 8: Traffic Impact Study
Attachment 9: Environmental and Services Impact Report
Attachment 10: Land Analysis Map
Attachment 11: Major Subdivision Permit and Plat Resolution
Attachment 12: Exhibit A – R & R Heights Major Subdivision plat, dated 08/03/2026

Laramie County Wyoming MapServer

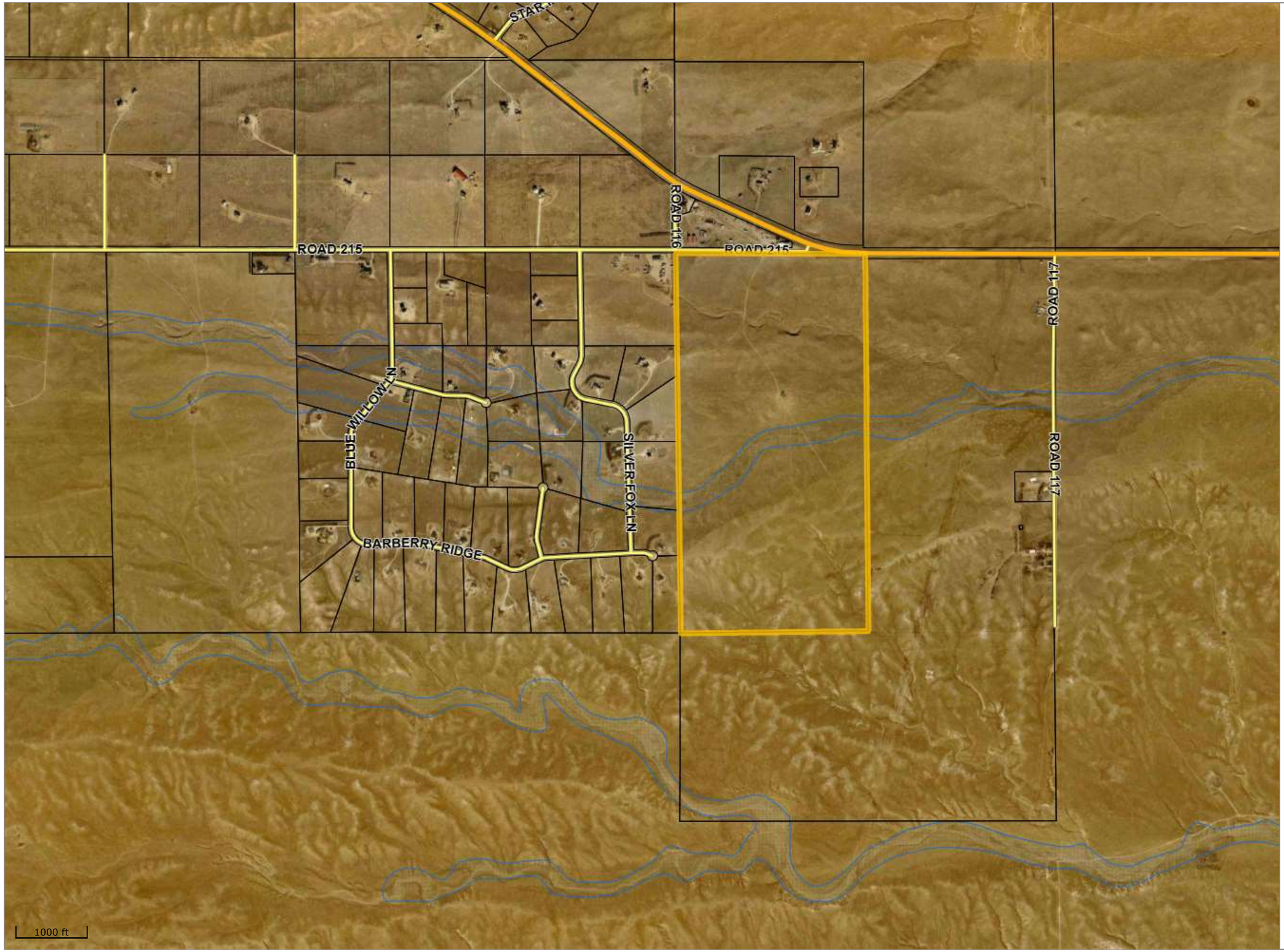
PZ-26-00061

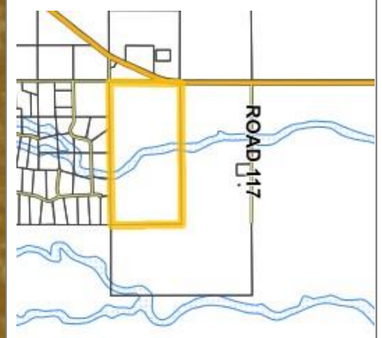
R & R HEIGHTS MAJOR SUBDIVISION PERMIT AND PLAT

LU - LAND USE ZONE DISTRICT

LCFA

LCSD1





NORTH

This map/data is made possible through the Cheyenne and Laramie County Cooperative GIS (CLCCGIS) Program and is for display purposes only. The CLCCGIS invokes its sovereign and governmental immunity in allowing access to or use of this data, and makes no warranties as to the validity, and assumes no liability associated with the use or misuse of this information.
printed 7/21/2026

PALMA
Land Planning LLC
SITE DESIGN | LAND DEVELOPMENT
LANDSCAPE ARCHITECTURE | ZONING
1775 Goodnight Trail, Suite 210 | Cheyenne, WY 82007
307-996-8281 | Info@PlanDesignWY.com

July 3, 2026

Laramie County Planning & Development Office
3966 Archer Parkway
Cheyenne, WY 82007
(307) 633-4303

InRe: Project Narrative and Request for a Final Plat and Subdivision Permit for R&R Heights, a subdivision of the West half of Section 2, Township 14 North, Range 68 West of the 6th P.M. (±319-acres)

Palma Land Planning, LLC, agent for the owner, has submitted a Final Plat Application on the above-described property, to develop the parcel for detached single-family residential uses. The parcel is currently vacant and is used for agricultural purposes. Two access points are proposed onto existing constructed Romsa Road (Road 215) off of Horse Creek Road (State Highway 211) and Road 116. The Preliminary Subdivision Plan (PSP) was approved on July 7, 2026 [PZ-26-00033]

A Traffic Impact Study prepared by Kellar Engineering is attached to the project pursuant to LCLUR §5-6-103. Two new accesses are proposed onto Romsa Road and due to the rural character, it is unlikely that the actual trip generation will meet ITE estimates.

A portion of this project falls within a FEMA 100-year SFHA per FIRM panel No. 56021C1055F; dated January 17, 2007; however historical observance is that there has almost never been flooding at this upstream end of the floodplain. A *Preliminary Drainage Design & Erosion Control Report* prepared by CivilWorx is provided to support this Application.

We respectfully submit this narrative on behalf of the owner.
Please contact me with any questions or concerns.

Sincerely,

Casey L. Palma, AICP
Palma Land Planning, LLC
Casey@PlanDesignWY.com

Permit Notes

Permit Number: PZ-26-00061
Parcel Number: 14680220000200
Site Address: UNKNOWN
Laramie County, WY 00000
Applicant: PLP, LLC
Owner: WHEELER, JEAN M REV TR
Project Description: A Subdivision Plat for (52) Single-Family Detached Residential (per PSP# PZ-26-00033)

Submitted: 07/03/2026
Technically Complete: 07/06/2026
Approved:
Issued:

Begin Date	End Date	Permit Area	Subject	Note Type	Note Text	Created By
07/06/2026	07/06/2026	Application	PZ-26-00061	GENERAL	Potential draw down of current aquifer with the development of 50 new domestic wells.	CONSERVATIONDISTRICT@LARAMIECOUNTYWY.GOV
07/06/2026	07/06/2026	Workflow	COUNTY ASSESSOR REVIEW	GENERAL	No comments.	CINDY.KEMIVES@LARAMIECOUNTYWY.GOV
07/06/2026	07/06/2026	Workflow	COUNTY REAL ESTATE OFFICE REVIEW	DEFICIENCY	Please be sure to add the name of the trustee "as trustee of the" trust in the dedication paragraph and the signature line. As on Deeds, the name of the trustee should be listed as trustee of the trust along with the name of the trust.	RACHEL.TRUDEAU@LARAMIECOUNTYWY.GOV
07/06/2026	07/06/2026	Workflow	COUNTY REAL ESTATE OFFICE REVIEW	GENERAL	corrections look good	TERESA.LEMASTER@LARAMIECOUNTYWY.GOV
07/09/2026		Workflow	BUILDING FIRE CODE REVIEW	GENERAL	Premises identification shall be in accordance with 2024 IFC section 505 and 2024 IRC section 308, and 2024 IBC section 502.1. Fire Apparatus Roads required per 2024 IFC section 503. Fire protection water Supplies required per 2024 IFC section 507	JEFFREY.COOPER@LARAMIECOUNTYWY.GOV

Permit Notes

07/16/2026	Workflow	WYDOT REVIEW	GENERAL	1. I agree with the reccomendation of a WB left turn lane. Please complete this work through a permit access. See the following comment: Access roads from the state highway system will require WYDOT access permits for new/modified/change in use, including removal. Maintain existing drainage patterns so that stormwater is not concentrated and diverted from locations where it currently crosses WYDOT R/W. Please submit all access documentation to Paul Beckett (Paul.Beckett@wyo.gov- 307.745.2118). To obtain an access permit application (Access application (M-3A)) see the following link: https://www.dot.state.wy.us/home/engineering_technical_programs/manuals_publications.html 2. While it is outside of WYDOT's right of way, we suggest Laramie County consider requiring the access Starcrest Lane and CR 215 lane be moved further to the East from Horse Creek Rd. We are concerned with the increased potential of conflicts of vehiles immediatly slowing down to turn left on Starcrest and while other vehiles behind may not be expecting this movement or will have less time to react.	TAYLOR.MCCORT@LARAMIECOUNTYWY.GOV
07/17/2026	Application	PZ-26-00061	GENERAL	Please note the Department's review letter for this project. Thank you for the opportunity to comment.	WYGAMEFISHDEPT@LARAMIECOUNTYWY.GOV
07/20/2026	Application	PZ-26-00061	GENERAL	Records indicate P15772.0P for stock use falls within the proposed subdivision. Our office requests that the subdivider provide the updated legal location description including the subdivision name and appropriate lot number for the well location, and the legal location description including subdivision name and lot numbers for where these uses occur. GPS coordinates for the well would be appreciated. An approved permit from the State Engineers Office is required prior to the drilling of any water well. The procurement of the necessary and appropriate State Engineer water right permit allows the applicant to attempt to develop a water supply adequate to meet their proposed needs, and is no guarantee that any water will be physically available. If any new wells are proposed, they must be constructed in accordance with the State Engineers Office Rules and Regulations, Part III, Water Well Minimum Construction Standards. With few exceptions, new wells must be constructed by a Wyoming licensed water well drilling contractor, and pumps	SUE.KINSLEY@LARAMIECOUNTYWY.GOV

Permit Notes

				must be installed by a Wyoming licensed pump installation contractor. Any well not to be used must be properly plugged and abandoned as outlined in the above referenced rules and regulations. Any wells developed for uses that do NOT fall within the definition of domestic or stock use require adjudication by the Board of Control. See attached complete review letter.	
07/20/2026	Workflow	ENGINEERS REVIEW	GENERAL	1st Review Engineer Comments: 1.There is a 40' and 100' "Circulation, Drainage, and Open Space Easement" called out on the plat. Please define on the plat what a circulation easement is. The notes basically define the drainage easement part and the open space easement part, but not the circulation easement part. For the open space easement are there any restrictions on what can be done in the open space or who and what can enter it, what can be built within the easement, etc.? It says it is for recreation. Are there any restrictions on why types of recreation can be done within this area? Target shooting? Does this mean that the owners of Tracts 16, 22, 14, 23, 33, 34, 35, and 31 are not allowed to place any type of fencing on their property lines? Or can they do that if they provide gates for access? These types of easements need to be clearly defined as to what can be done, what restrictions there may be on the property owners and on the people accessing the easements, who can access and utilize these easements, etc. It does say it is granted to all owners of the tracts, what about visiting friends or family members of the owners of the tracts? 2.Note 5.A. reads, "Franchised Utilities Provides" and I believe it should be "Utility Providers". 3.The vicinity map does not include the Section, Township, and Range labels. 4.Gray Peak Drive is labeled as a (60' R/W) and it should be labeled as 80' (it is drawn correctly at 80', just the label is incorrect). 5.The Traffic Impact Study should evaluate and discuss the location of the mailbox turnout, people turning in and out of Starcrest Lane and the proximity to Horse Creek Road. Will there be any issue with stacking, etc. that could impact vehicles turning off Horse Creek Road? 6.The Preliminary Drainage Report is adequate for the plat. A Final Drainage Report shall be submitted with the roadway construction plans. 7.Once plat is approved, the applicant shall comply with Section 4-5-109.b.	SCOTT.LARSON@LARAMIECOUNTYWY.GOV

Permit Notes

				8.All roadways shall be designed and constructed according to the regulations and plans shall be submitted to the County for review and approval prior to any work being performed. Surveyor Comments: 1.The Public Land Survey System corners on the boundary of the subdivision should be labeled 2.There are no Wyoming State Plane Coordinate System field observation coordinates provided on the Plat. 3.Points of curvature are not shown on lot boundaries. 4.Missing labels and data for curve segments in the east boundaries of Tracts 6, 36, and 41. 5.The differences between the radii given for curves C16 & C17, and for curves C56 & C61, do not add up to the full R/W width. 6.Radii for C56 & C61 also do not agree with the radius of C55. 7.Chord lengths for C26, C28, C31, and C32 do not match the rest of the curve data. 8.Adjacent to the northeast corner of the subdivision there is a tract shown and labeled as "WD TO WYDOT (Bk 1626, Pg 510)". The Quitclaim Deed provided for this subdivision lists a Warranty Deed in Book 1626 at Page 580.	
07/20/2026	Workflow	ENVIRONMENTAL HEALTH REVIEW	GENERAL	A DEQ Chapter 23 study must be submitted to Environmental Health prior to any permits being issued. Plan carefully when determining layout on lots with floodplains.	JENNIFER.ESCOBEDO@LARAMIECOUNTYWY.GOV
07/20/2026	Workflow	PUBLIC WORKS REVIEW	GENERAL	1. All comments from the review engineer and surveyor shall be addressed. 2. Due to the internal roads being dedicated to the public, access permit applications through Public Works will be required for each tract. Please apply for your Public Works access permit on the SmartGov Portal. Call (307-633-4302) or email (permits@laramiecountywy.gov) Public Works with any questions. 3. Laramie County Public Works is in agreement with WYDOT's comment in regard to Starcrest Ln. and its proximity to Horse Creek Rd. A realignment may be needed to move Starcrest Ln. further west along Road 215 to avoid vehicular conflicts. Public Works is willing to have a meeting to discuss prior to resubmittal. 4. Any work taking place within the boundaries of the designated floodplain and/or floodway will require an approved Floodplain Development Permit through the Laramie County Planning and Development office. 5. All cul-de-sacs shall have enough frontage to meet the access requirements in the LCLUR. 6. Please correct right-of-way width for Shell Rock Ct. and Gray Peak Dr. to 80' to accommodate current cross-sections in the LCLUR. 7.Any work taking place within the boundaries of the right-of-	PERMITS@LARAMIECOUNTYWY.GOV

Permit Notes

way will require an approved Right-of-Way Permit through Public Works.
8. Please reference 4-5-108 in the LCLUR and provide a road maintenance plan.
CS,JP,RM

Wyoming Game and Fish Department
Conserving Wildlife, Serving People
Governor Mark Gordon • Director Angi Bruce

Commissioners
Mark Jolovich, President
Rusty Bell, Vice President
Ashlee Lundvall
Bill Mai
Carlisle "Fonzy" Haskell
John Masterson
Kenneth D. Roberts

July 17, 2026

WER 4502.214
Laramie County Planning & Development Department
R & R Heights Major Subdivision Permit
PZ-26-00061
Laramie County

Sonny Pourchot
Associate Planner
Laramie County Planning & Development Department
3966 Archer Pkwy
Cheyenne, WY 82009
sonny.pourchot@laramiecountywy.gov

Dear Ms. Pourchot,

The staff of the Wyoming Game and Fish Department (Department) has reviewed the application materials for the Major Subdivision Permit at T14N R68W in Section 2. The Department is statutorily charged with managing and protecting all Wyoming wildlife (W.S. 23-1-103). Pursuant to our mission, we offer the following comments for your consideration.

The proposed subdivision would convert a 319.71-acre parcel into 52 single family residential lots. The parcel is currently undeveloped agricultural land. The location of the proposed subdivision is not within any big game crucial ranges, identified or designated big game migration corridors, sage-grouse core areas, or within 2 miles of any non-core area occupied leks. We recommend Best Management Practices be implemented to minimize impacts on the wildlife species present to the extent possible.

Minimize Road Development **–** Construct the minimum number of roads needed to serve the subdivision. Roads should be constructed to avoid watercourses, wetlands and other important wildlife habitats.

Use Wildlife Friendlier Fencing – The Department recommends avoiding fences to the extent possible. Where not possible, we recommend use of wildlife-friendlier fencing. General characteristics of wildlife-friendlier fence include:

- Smooth bottom wire set 16-18” above the ground.
- Smooth top wire or rail preferable 38” - 40” above the ground.
- At least 12” between top 2 wires.

- Gates, drop-downs, or other passages where wildlife concentrate and cross which can be left open when unneeded.
- More information on wildlife-friendlier fencing specifications can be found here: https://www.wlfw.org/wp-content/uploads/2024/02/TN-190-BIO-93.pdf

Avoid Feeding of and Expect Potential Damage from Wildlife – Given that big game species and other wildlife inhabit the area and may move through the proposed development, the Department recommends the following:

- The proponent, owners, and/or renters understand that wildlife live and/or move through the proposed subdivision area. Wildlife may damage ornamental shrubs, trees, fences, and/or homes. The Department will not accept compensation claims for damages caused by wildlife.
- Feeding of wildlife be prohibited.

Restrain Pets to Protect Wildlife – Unrestrained pets can harass and kill birds and mammals, and are one of the most significant threats to many native species. As such, the Department recommends:

- Prevent domestic pets, especially dogs and cats, from roaming at large.

Prevent Exposed or Loose Garbage – Garbage disposal should be regulated to prevent wildlife exposure, minimize the potential for conflict, and prevent litter from spreading to nearby areas including

Restrict the Use of Chemical Herbicides, Pesticides, and Fertilizers – The use of chemical herbicides, pesticides and fertilizers is discouraged. Spot treatments with herbicides are acceptable for controlling noxious terrestrial weeds. Only licensed personnel should apply herbicides, pesticides, and fertilizers.

Prevent Spread and Establishment of Noxious Weeds and IAGs – Noxious weeds and invasive annual grasses (IAGs) can cause significant harm to the ecosystem when introduced. Ground-disturbing activities can create an environment that facilitates establishment by unwanted plants that considerably reduce the quality of wildlife habitat and increases the probability of wildfire. The potential economic impacts to the State of Wyoming are severe, and once these species become established, eradication is difficult and costly. Prevention of establishment remains the best way to keep Wyoming's habitats free of noxious weeds and IAGs.

The most significant known threat to Wyoming is from cheatgrass, medusahead, and ventenata. To prevent the spread of noxious weeds and IAGs, we recommend the following:

1. Prevent introduction and establishment by cleaning vehicles and equipment prior to movement to a new location in order to minimize the potential for transporting seeds.
2. Use certified weed-free gravel, rock or soil products for landscaping or post-construction restoration efforts. Contact Laramie County Weed and Pest for more information and to

locate area suppliers of weed-free products. Weed and Pest district contact information can be found at https://wyoweed.org/offices/.

3. Work with land managers to develop and implement a plan to assess, treat, and monitor for noxious weeds and invasive plants at the project scale and in the adjacent landscape where they are present.
4. Work with the Laramie County Weed and Pest to implement and fund long-term plans for successful restoration of disturbed sites. Additional information on prevention and treatment options for these grasses can be found at https://www.invasivegrasses.com/.

Thank you for the opportunity to comment. If you have any questions or concerns, please contact Ross Crandall, Habitat Protection Biologist, at (307) 367-5615.

Sincerely,

Will Schultz
Habitat Protection Supervisor

WS/rc/tt

cc: U.S. Fish and Wildlife Service
Chris Wichmann, Wyoming Department of Agriculture

PALMA
Land Planning LLC
SITE DESIGN | LAND DEVELOPMENT
LANDSCAPE ARCHITECTURE | ZONING

August 3, 2026

Laramie County Planning and Development
3966 Archer Pkwy, Cheyenne, WY 82009
Attn: Sonny Pourchot, Associate Planner

RE: Applicant Response to [PZ-26-00061] 1st Round Agency Comments for a Final Plat and Subdivision Permit for R+R Heights, a subdivision of the West half of Section 2, Township 14 North, Range 68 West of the 6th P.M. (±319-acres)

Dear Ms. Pourchot,

On behalf of the owner, we have addressed all agency comments received June 21, 2026 as shown on the Revised Final Plat dated 8/3/2026.

Our written responses to agency/ department comments requiring the same can be found on the following pages. Please let me know if you have any questions or require additional information.

In addition, you will find attached a request to the County Commissioners to approve Public Safety Improvements in-lieu of the applicable Public Safety Fees (or portion thereof) made at the request of the Laramie County Fire Authority (LCFA).

Sincerely,

Casey L. Palma, AICP
Palma Land Planning, LLC
Casey@PlanDesignWY.com

Cc: Ryan and Rashell Roedekor, Owner's Agents | rgrconstruction307@gmail.com
Manuel Muzquiz, Deputy Chief, Laramie County Fire Authority | mmuzquiz@lcfawy.com

Encl: Request to the Laramie County Commissioners for direct Public Safety Improvements in-lieu of fees.

LC Conservation District

(conservationdistrict@laramiecountywy.gov)

1. Potential draw down of current aquifer with the development of 50 new domestic wells.

Chapter 23 Report Attached to Resubmittal and submitted to DEQ for recommendation.

County Real Estate Office Review

(rachel.trudeau@laramiecountywy.gov/ teresa.lemaster@laramiecountywy.gov)

1. Please be sure to add the name of the trustee "as trustee of the" trust in the dedication paragraph and the signature line. As on Deeds, the name of the trustee should be listed as trustee of the trust along with the name of the trust.
2. corrections look good

Resolved on Revised Final Plat.

BUILDING FIRE CODE REVIEW

(jeffrey.cooper@laramiecountywy.gov)

1. Premises identification shall be in accordance with 2024 IFC section 505 and 2024 IRC section 308, and 2024 IBC section 502.1.
2. Fire Apparatus Roads required per 2024 IFC section 503.
3. Fire protection water Supplies required per 2024 IFC section 507.

Acknowledged. Thank you.

AGENCIES / REVIEWERS WITH NO COMMENTS:

- County Assessor Review (C. Kemives)
- County Real Estate Office Review (T. LeMaster)

PALMA
Land Planning LLC
SITE DESIGN | LAND DEVELOPMENT
LANDSCAPE ARCHITECTURE | ZONING
1775 Goodnight Trail, Suite 210 | Cheyenne, WY 82007
307-996-8281 | Info@PlanDesignWY.com

July 3, 2026

Laramie County Planning & Development Office
3966 Archer Parkway
Cheyenne, WY 82007
(307) 633-4303

InRe: WDEQ Chapter 23 Study and Application for R&R Heights, a subdivision of the West half of S.2, Township 14 North, Range 68 West of the 6th P.M. (±319-acres)

To whom it may concern:

Palma Land Planning, agent for the owner, provides this letter on their behalf, confirming that the owner has contracted with a licensed Wyoming Geologist to prepare a Chapter 23 Report and Application to be submitted for the project.

All site investigation is complete, however the analysis and report was not completed by the application deadline. It is anticipated that the report will be completed and submitted to WDEQ within the next two weeks.

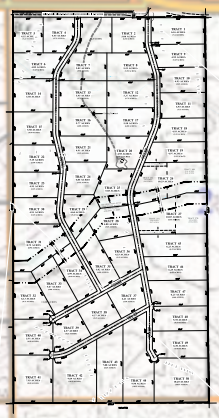
Please contact me with any questions or concerns.

Sincerely,

Casey L. Palma, AICP
Palma Land Planning, LLC
Casey@PlanDesignWY.com

RYAN AND RASHELL RODEKOHR

PALMA LAND PLANNING, LLC



R&R Heights Subdivision

R&R HEIGHTS SUBDIVISION
WDEQ SUBDIVISION STUDY

Report

ENGINEERING ASSOCIATES
CONSULTING ENGINEERS & SURVEYORS

July 2026

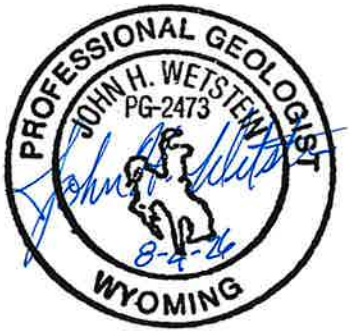
R&R Heights Subdivision
DEQ Chapter 23 Review Report

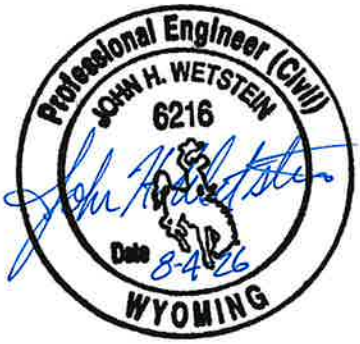
PREPARED FOR

Ryan and Rashell Rodekohr
Jean Wheeler Trust
3626 Fox Road
Cheyenne, WY 82001

and

Palma Land Planning
1775 Goodnight Trail, Suite 210
Cheyenne, Wyoming 82007





PREPARED BY

ENGINEERING ASSOCIATES
CONSULTING ENGINEERS & SURVEYORS
BILLINGS · CASPER · CODY · LARAMIE · POWELL · RIVERTON
SARATOGA · SHERIDAN · SUNDANCE · THERMOPOLIS

July 2026

Introduction.

The following report is a summary of our study findings that address the requirements for on-site wastewater and water supply systems for the R&R Heights Subdivision. The project site encompasses approximately 320 acres and is planned as a 55-lot residential subdivision. It is situated approximately 9.0 miles north - northwest of Cheyenne, Wyoming, within the W½ of Section 2, Township 14 North, Range 68 West of the 6th Principal Meridian, in Laramie County, Wyoming (refer to Figure 1). This report evaluates the required elements as outlined in Chapter 23 of the Wyoming Department of Environmental Quality (DEQ) Rules and Regulations, presented in the order specified therein.

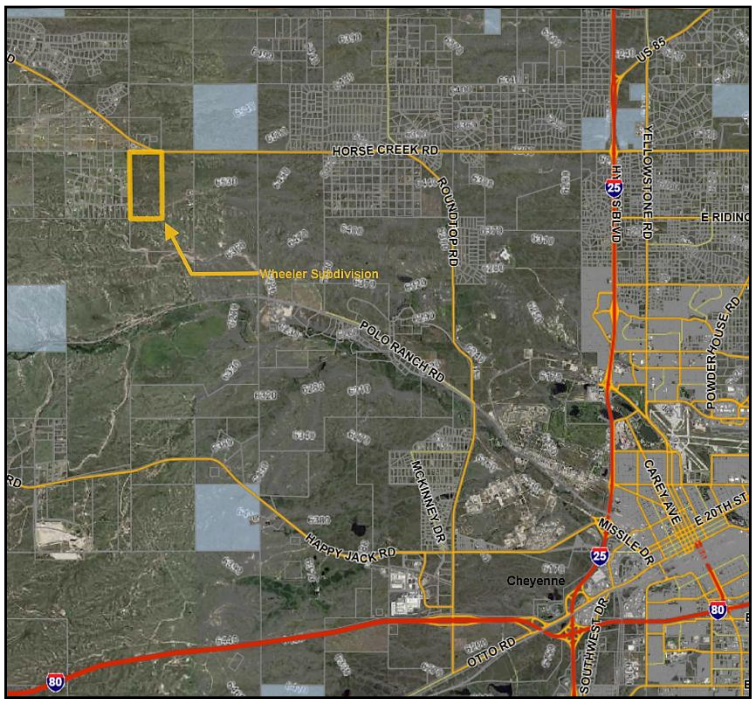


Figure 1 – Laramie County GIS Location Map

Section 7. Standards for Sewage Systems

Section 7(a)(i) – Identification of Sewage System Type
On-lot sewage systems are proposed for the R&R Heights Subdivision. These systems will be designed by a local engineering firm or individual homeowner and shall be maintained by the individual homeowner. The systems will be constructed by a qualified contractor in the area that is familiar with the installation of on-site sewage systems in the area.

Section 7(a)(ii) – Adequacy of Proposed Sewage System in Relation to Proposed Population
On-lot sewage systems for the R&R Heights Subdivision will have no negative impacts on the soil or groundwater conditions in the area that would affect the land, or water uses in the area. Likewise, the existing land and water uses in the surrounding area of the proposed R&R Heights Subdivision will have no impact on the effectiveness of the proposed on-lot sewage systems. Figure 2 is an aerial image of the subdivision area (Laramie County GIS image). As shown in this figure, most of the acreage around the proposed subdivision is residential rural development and/or range land, with the exception of the Silver Sage Estates Subdivision along the Western Boundary of the proposed R&R Heights Subdivision. The adequacy of the on-lot sewage systems will be addressed in more detail in the following sections of this report addressing the standards for sewage systems.

Section 7(a)(iii) – Demonstrate Proposed Sewage System Will Meet Standards
The on-lot sewage systems for the R&R Heights Subdivision will meet all counties, state, and federal standards. These standards will be more specifically addressed in later sections of this report pertaining to the standards for sewage systems. These subsequent sections will show that

the on-lot sewage systems will satisfy the requirements of Laramie County's Small Wastewater Systems Regulations which will satisfy the requirements of Laramie County and the State of Wyoming. The on-lot sewage systems will also treat the effluent to levels which will not exceed EPA's nitrate MCL standards. This will satisfy the requirements to meet the federal standards.

The minimum lot size in the proposed R&R Heights Subdivision is 4.58 acres; therefore, per the Cheyenne-Laramie County Subdivision Development Regulations (Article VIII.80.020.C), the proposed subdivision will be able to install both on-lot water supply and wastewater systems.

Figure 2 – Laramie County GIS Map of R&R Heights Subdivision

Section 7(d)(i) – Separation of Drainfield Relative to Groundwater and Impervious Soils

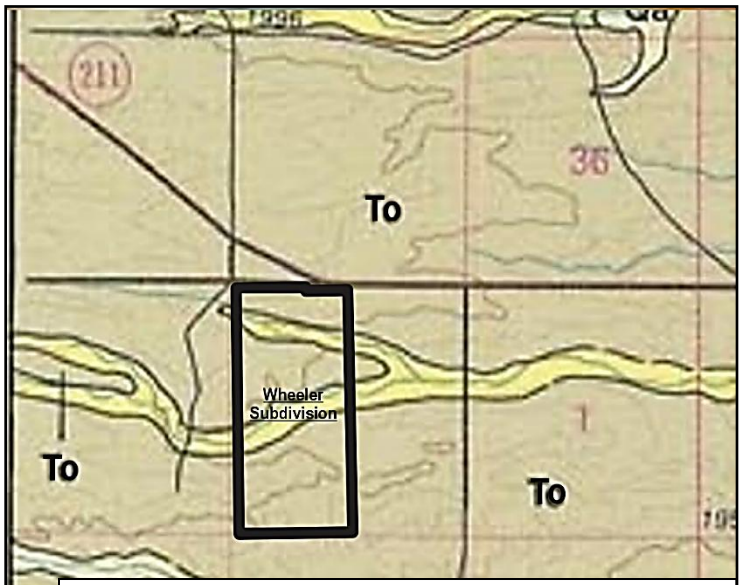
The proposed R&R Heights Subdivision complies with the minimum separation standards for drain fields as defined in the Wyoming Water Quality Rules and Regulations, Chapter 25. Specifically, Section 7(c) requires that, "For standard soil absorption systems, effective suitable soil depth shall extend at least four (4) feet below the bottom of the soil absorption system to any restrictive layer, fractured rock, or highly permeable material." This condition is met within the subdivision. Furthermore, Section 7(d) states, "The depth to high groundwater shall be at least four (4) feet below the bottom of the absorption surface for all treatment systems except pressure distribution. For pressure distribution systems, the depth to high groundwater shall be at least three (3) feet below the bottom of the absorption surface if the percolation rate of the soil is five (5) minutes per inch or greater (5-60 MPI)." This requirement is also satisfied and is discussed in more detail later in this report.

The subdivision is in an area where the Tertiary Ogallala Formation outcrops (see Figure 3). This formation is a member of the High Plains Aquifer in Laramie County and consists of fine to very fine-grained sandstone, siltstone, claystone, minor volcanic ash, cemented conglomerates, and occasional limestone beds (JR Engineering, 2009). The Ogallala Formation in the immediate vicinity of the proposed development is estimated to be approximately 200 to 220 feet thick. This estimate is derived from the 2008 *Water Resource Atlas of Laramie County, Wyoming* (See Figure 4) and is further supported by driller logs from wells located within a one-mile radius of the proposed R&R Heights Subdivision found on the Statements of Completions for wells filed with the State Engineers Office. The Tertiary Arikaree Formation, which would typically underly the Ogallala Formation, was not reported to be encountered by any driller logs surrounding the R&R Heights Subdivision nor in the Laramie County Water Resource Atlas. Therefore, beneath the Ogallala Formation lies the White River Group, the lowermost stratigraphic unit of the High Plains Aquifer. The White River Group and is composed predominantly of buff to gray siltstone, with localized coarse-grained channel or basal deposits. Driller logs in the vicinity of the R&R Heights Subdivision report the thickness of the White River Group generally ranging from approximately

300 to 400 feet. Several wells in Sections 34 and 35, Township 15 North, Range 68 West have been completed in the Lance Formation. The average depth to the top of the Lance in these eight (8) wells was 608 feet.

The wide variability of reported contact depths could be the result of inconsistent sampling intervals, with driller logs reporting limited details to determine otherwise, and the inherent difficulty of drillers identifying the precise stratigraphic contact between the Ogallala Formation and the underlying White River Group. Considering the absence of the Arikaree Formation in the R&R Heights Subdivision area, the Ogallala to White River contact is expected to occur at a shallower depth than some of the deeper log interpretations suggest. Consequently, the deeper reported contacts likely reflect uncertainty in field identification rather than true geologic variability and formation change. Due to the lack of well completions that penetrate below the White River Formation within the vicinity of the R&R Heights Subdivision that has usable lithology logs, the total thickness of the unit in this area is an approximation, based on localized driller's logs. Localized driller's logs approximate the Ogallala Formation is approximately 200 feet thick, and the underlying White River Formation is approximately 400 feet thick. Together, these units yield an estimated maximum High Plains aquifer thickness of roughly 600 feet in the vicinity of the subdivision.

As described above, the High Plains Aquifer is a heterogeneous aquifer comprised of lenticular beds of sand, gravel, silt clay, and thin limestone beds. Regionally, the High Plains Aquifer system behaves as an unconfined (water-table) aquifer; however, due to the lenticular nature of the aquifer, locally confining or semi-confining conditions occur. Therefore, the first spatially extensive impermeable material is the shale sections of the Cretaceous Lance Formation which underlies the White River Group. As described previously, the Lance Formation was reported in several of the local driller logs at a depth of approximately 608 feet. There are beds of clay/claystone in the Ogallala Formation; however, the Ogallala Formation was deposited by braided streams and temporary lakes (Lowry and Crist, 1967) and are therefore, lenticular in nature and do not constitute a spatially extensive impermeable barrier. Due to the depth of the shales in the Lance Formation (> 600 feet) it will be possible to maintain the required four (4) feet of separation between bedrock or impermeable soils and the bottom of the absorption system stone.



Qt: Terrace deposits – beds of course sand and gravel with some boulders and lenses of silt and clay. Includes fragments of weathered granite and other igneous rocks. Thickness 0 to 100 feet (Lowry and Crist, 1967)
Qa: Alluvial deposits – unconsolidated and poorly consolidated clay, silt, sand, and gravel in floodplains and lowest terraces. Thickness 0 to 85 feet (Lowry and Crist, 1967
To: Ogallala Formation – Tan to brown, unconsolidated to well-cemented sandstone, siltstone, volcanic ash, and conglomerates. Thickness 0 to 330 feet (Lowry and Crist, 1967)

Figure 3
R&R Heights Subdivision Geology

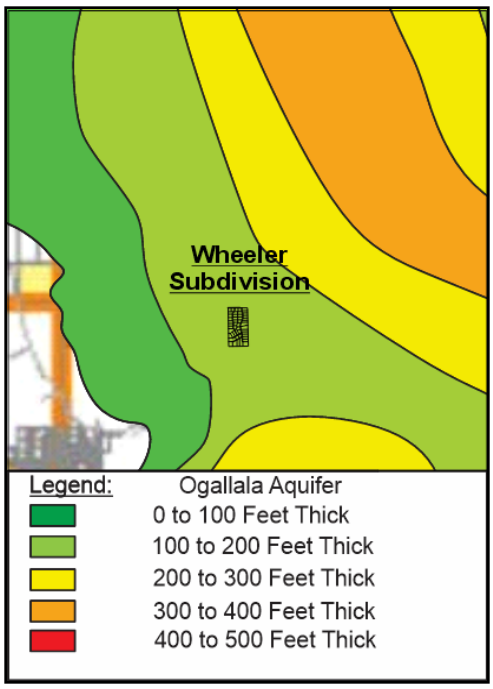


Figure – 4
Ogallala Aquifer Thickness

A review of available hydrogeologic information indicates that no regional shallow water-table aquifer is present in the immediate vicinity of the proposed subdivision. Within approximately a one-mile radius of the project area, 84 completed wells were identified and are summarized in Table 1, with their locations being shown in Figure 7. Across the 84 wells, the reported depth to first encountered water ranges from 60 feet to 560 feet and averages approximately 186.9 feet below ground level (BGL). This value is very close to the average static water level depth of 187.6 feet, which is reasonable given the High Plains Aquifer, regionally, is considered an unconfined aquifer. Using the average reported depth to first water (187 feet BGL) and an estimated High Plains Aquifer thickness of approximately 600 feet in this area (comprising roughly 200 feet of Ogallala Formation and 400 feet of White River Group), the resulting saturated thickness is estimated to be about 412 feet. This estimated saturated thickness is slightly higher than the values presented in the 2008 *Laramie County Water Resource Atlas*, which depicts saturated thicknesses of roughly 300 feet at the northern extent of the subdivision and approximately 200 feet at the southern extent (see Figure 6). The reported depths to the first water bearing formation (average of 187 feet) exceeds the required minimum vertical separation of 4 feet between the proposed on-lot wastewater system leach fields and the saturated zone.

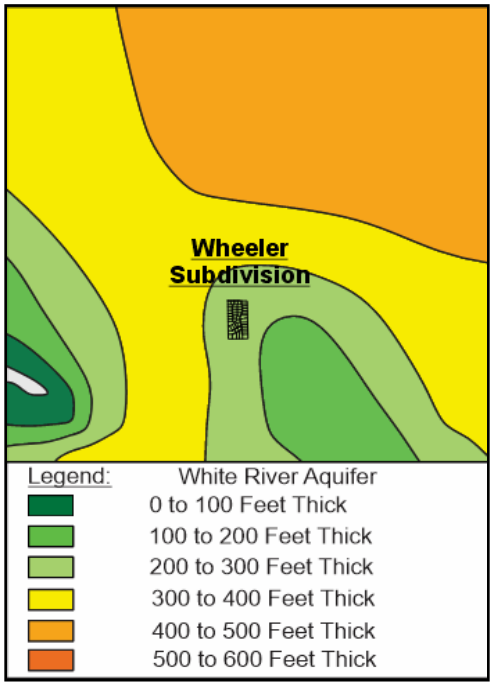


Figure – 5
White River Aquifer Thickness

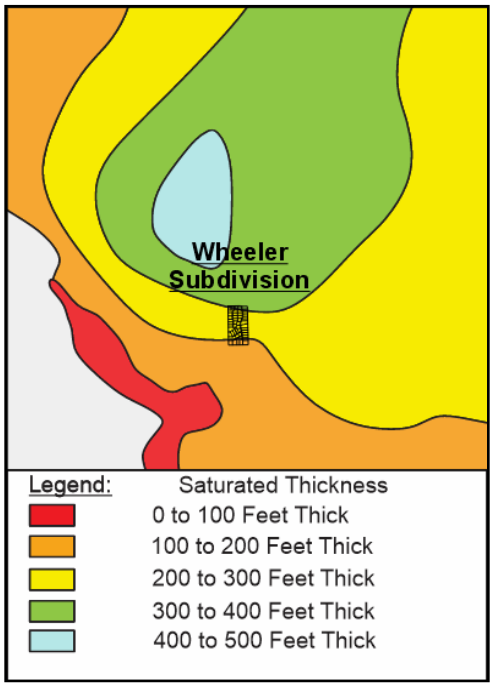


Figure – 6
Ogallala Saturated Thickness

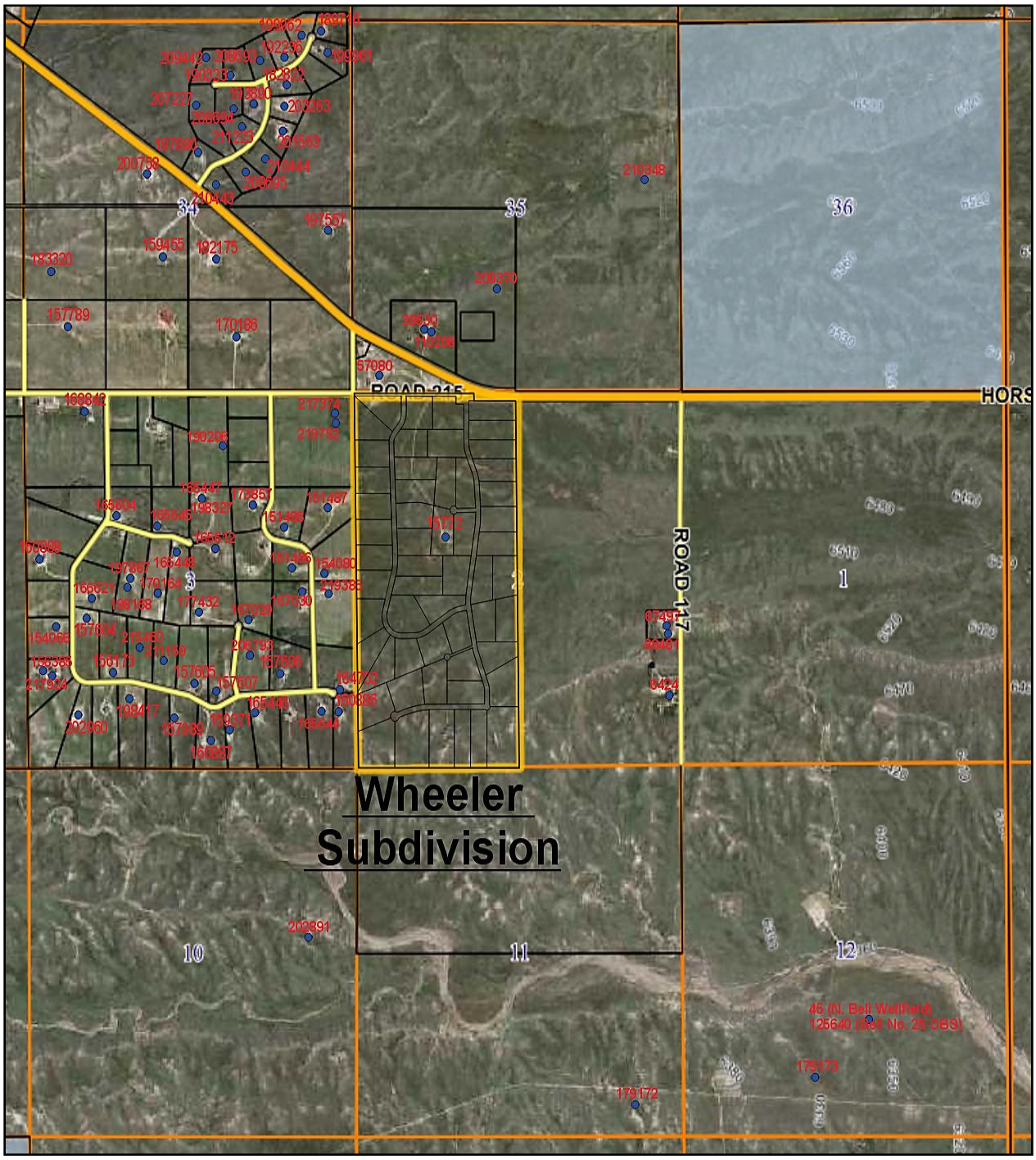


Figure 7
Well Locations Surrounding R&R Heights Subdivision

Table 1 – SEO Completed Well Data

Permit Number	Facility Name	Uses	Twn	Rng	Sec	Total Flow	Total Depth	Static Water Level	Depth Of Pump	Top Of Water Bearing Formation	Bottom of Water Bearing Formation	Top Of Perferations	Bottom Of Perferations	Yield	Drawdown	Duration
						[GPM]	[FT]	[FT]	[FT]	[FT]	[FT]	[FT]	[FT]	[GPM]	[FT]	[HRS]
6424	KOSTER #1	DOM_GW; STK	014N	068W	2	6	240	204		218	235	220	240	6	230	2
67497	KOSTER #3	DOM_GW; STK	014N	068W	2	12	280	110	260	220	260	220	280			
88481	KENT H 1	DOM_GW; STK	014N	068W	2	12	340	170	322	290	340	260	340			
151485	SAGE # 1	DOM_GW	014N	068W	3	21	500	100	460	440	500	440	500			
151486	SAGE # 29	DOM_GW	014N	068W	3	21	520	100	460	460	520	460	520			
151487	SAGE # 2	DOM_GW	014N	068W	3	21	500	100	460	440	500	440	500			
154066	SILVER SAGE #19	DOM_GW	014N	068W	3	16	400	120	287	325	385	320	400			
154080	SAGE #28	DOM_GW	014N	068W	3	25	520	160	460	460	520	460	520			
156173	ROMSA #1	DOM_GW	014N	068W	3	3	660	495	560	560	580	580	640	5		
156385	TREES #1	DOM_GW	014N	068W	3	5	520	160	265	460	520	460	520			
157604	SAGE #40	DOM_GW	014N	068W	3	15	520	160	460	460	520	460	520			
157605	SAGE #36	DOM_GW	014N	068W	3	25	520	160	460	460	520	460	520			
157606	SAGE #31	DOM_GW	014N	068W	3	15	520	160	460	460	520	460	520			
157607	SAGE #35	DOM_GW	014N	068W	3	25	380	100	320	320	380	320	380			
157858	KAYLI #1	DOM_GW	014N	068W	3	25	480	175	287	370	465	360	480			
157989	AMUNDSON-HIGGINBOTHAM	DOM_GW	014N	068W	3	15	660	196	500	580	600	600	660			
159371	SAGE #10	DOM_GW	014N	068W	3	25	520	160	400	460	520	460	520			
160886	SAGE #6	DOM_GW	014N	068W	3	25	520	160	460	460	520	460	520			
160887	SAGE #11	DOM_GW	014N	068W	3	15	520	160	460	460	520	460	520			
160888	SAGE #21	DOM_GW	014N	068W	3	25	520	160	460	460	520	460	520			
164752	SAGE #5	DOM_GW	014N	068W	3	25	520	160	460	460	520					
165446	SMOKEY COWBOY #1	DOM_GW	014N	068W	3	25	520	160	460	460	520	460	520			
165447	SAGE #26	DOM_GW	014N	068W	3	25	520	160	460	460	520	460	520			
165448	SAGE #45	DOM_GW	014N	068W	3	25	520	160	460	460	520	460	520			
165604	SILVER SAGE 24	DOM_GW	014N	068W	3	15	470	175	360	143	238	400	460			
165612	SAGE #46	DOM_GW; STK	014N	068W	3	25	520	160	460	460	520	460	520			
165644	SAGE #7	DOM_GW	014N	068W	3	25	520	160	460	460	520	460	520			
165645	SAGE #25	DOM_GW	014N	068W	3	25	520	160	460	460	520	460	520			
166621	BLUE WILLOW	DOM_GW; STK	014N	068W	3	15	640	180	440	194	230					
167029	SANCHEZ CONSTRUCTION #1	DOM_GW	014N	068W	3	25	520	160	460	460	520	460	520			
167030	SANCHEZ CONSTRUCTION #2	DOM_GW	014N	068W	3	25	520	160	460	460	520	460	520			
168842	BAUMAN #1	DOM_GW; STK	014N	068W	3	4.5	520	160	460	460	520	460	520			
170164	KEY STONE #1	DOM_GW	014N	068W	3	15	630	120	380	108	300	380, 500, 600	400, 520, 620			
173857	HEATH #1	DOM_GW	014N	068W	3	15	700	100	440	510	610	640	700			
177432	LITTLE LEAF #34	DOM_GW; STK	014N	068W	3	14	400	166	340	260	360	300	360			
190206	BAUMAN #1	DOM_GW; STK	014N	068W	3	15,26	520	160	460	460	520					
197867	DAVIS WELL	DOM_GW	014N	068W	3	15	460	130	260	220		240, 320, 380, 440	260, 340, 400, 460			
198168	SILVER SAGE 8	DOM_GW	014N	068W	3	10	460	195	400	310	445	400	460			
198327	JJ2	DOM_GW	014N	068W	3	10	665	480	520	480	660	600	660			
198417	GREGG #14 SILVER SAGE ESTATES	DOM_GW	014N	068W	3	10	300	145	280			200, 240,280	220, 260, 300			
202860	SILVER SAGE 16	DOM_GW	014N	068W	3	5	680	180	589	600	680	200, 600	240, 680			
206793	BUFFALO #20	DOM_GW	014N	068W	3	15	360	140	280	300	360	300	360			
211159	RYAN #1	DOM_GW	014N	068W	3	15	540	198	0	195	523	480, 520	500, 540			
215460	SANCHEZ 38	DOM_GW	014N	068W	3	20	338	200	300	300	340	278,318	298, 338			
217374	O CONNOR	DOM_GW; STK	014N	068W	3	7	660	206	635	620	660	200	660			
217924	SILVER SAGE EST T 18	DOM_GW	014N	068W	3	12	680	264	420			560, 660	640, 680			
219385	SILVER SAGE 04	DOM_GW; STK	014N	068W	3	5	520	160	460	460	520	460	520			
219752	FOX MEADOWS T17	DOM_GW; STK	014N	068W	3	16	640	160	400	600	640	160, 600	260, 640			
202891	POLO - 10 AIRPLANE MONUMENT WELL	STK	014N	068W	10	10	560	160	500	480	540					
179172	SECTION NO. 11 WELL	DOM_GW; STK	014N	068W	11	25	1000	480	675							
125640	BELL NO. 25 OBS	MON	014N	068W	12		314	88								
179173	HOMESTEAD SECTION 12 WELL	DOM_GW; STK	014N	068W	12	25	250	40	65							
45	NORTH BELL WELL FIELD #25	DOM_GW; IRR_GW; MUN_GW; STK	014N	068W	12	425	278	97.5	247	206	264	136, 206, 249	141, 227, 264	500	113.2	125
157789	KENNEDY #1	DOM_GW	015N	068W	34	7	600	273	460	560	580			15		
159455	HARMON 1551	DOM_GW	015N	068W	34	4	640	280	600	315	640	300, 440	360, 640			
170186	GOODWATER 1 1564	DOM_GW	015N	068W	34	15	460	210	367			380	460			
182175	KIM JIM 1	DOM_GW	015N	068W	34	15	600	225	560	210	360	540	600			
182822	SKY TOP	DOM_GW	015N	068W	34	7	600	190	560	185	237	180, 240, 420, 460, 500, 540	200, 260, 440, 480, 520, 580			
183320	FOX MEADOWS TRACT 4	DOM_GW; STK	015N	068W	34	2	540	100	460	480	540	480	540			
189716	CHRISTIAN #1	DOM_GW	015N	068W	34	21	660	160	600	600	660	600	660			
190323	ROCKING STAR WELL 13	DOM_GW	015N	068W	34	10	650	180	360			520	580			
192236	ROCKING STAR RANCH 11	DOM_GW	015N	068W	34	5	650	190	500	80	560	240	540			
193890	ROCKING STAR RANCH #17	DOM_GW	015N	068W	34	5	620	195	500	300	580	360	620			
197557	VANVOAST #1	DOM_GW; STK	015N	068W	34	15	640	235	505	225	640	240	640			
197890	ROCKING STAR RANCH 20	DOM_GW	015N	068W	34	10	650	225	320	280	640	240	640			
199961	ROCKING STAR RANCH #8	DOM_GW	015N	068W	34	5	620	225	568	500	620	240	620			
199962	ROCKING STAR RANCH #10	DOM_GW	015N	068W	34	5	640	245	568	260	640	260	640			
200758	SMITH 2427	DOM_GW	015N	068W	34	3	680	280	660	560	680	180, 660	640, 680			
201563	1571 STARPASS	DOM_GW	015N	068W	34	5	660	208	400			240	660	8.5	30	4
203263	STAR PASS TRACT 5	DOM_GW; STK	015N	068W	34	3	660	194	605	580	660	260, 600	320, 660			
207227	TRACT 15 ROCKING STAR RANCH	DOM_GW	015N	068W	34	10	960	320	900	880	940	900	960			
208693	ROCKING STAR 12	DOM_GW	015N	068W	34	7	700	240	700	640	700	640	700			
208694	ROCKING STAR NO 16	DOM_GW	015N	068W	34	7	700	240	700	620	700	640	700			
208695	ROCKING STAR NO 2	DOM_GW	015N	068W	34	7	700	260	700	560	700	640	700			
209442	SKY TOP 14	DOM_GW; STK	015N	068W	34	10	660	140	480	300	540	140, 320, 520	160, 340, 540			
210443	ROCKING STAR #1	DOM_GW	015N	068W	34	7	660	280	660	600	660	600	660			
210444	ROCKING STAR #3	DOM_GW	015N	068W	34	10	660	260	600	580	660	600	660			
211223	ROCKING STAR RANCH 18	DOM_GW	015N	068W	34	10	650	220	500	520	540	220, 320, 520	240, 340, 540			
110208	KIRKWOOD #1	DOM_GW; STK	015N	068W	35	25	460	210	260	390	450	380	460			
209370	WE ARE #1	DOM_GW	015N	068W	35	7	660	210	600	600	660	600	660			
210348	CARPENTER WEST	STK	015N	068W	35	11	640	110	480	580	620	580	640			
212952	LOCKED AND LOADED NO 28	DOM_GW	015N	068W	35	16	580	147	520	500	560	520	580			
39530	THIEL #1	DOM_GW; STK	015N	068W	35	25	370	220	340	220	370	220	370			
57080	THOMPSON #1	DOM_GW	015N	068W	35	10	415	150	360	300	410	315	415			

Section 7(d)(ii) – Soil Percolation

Eighteen (18) soil percolation tests were performed in the proposed R&R Heights Subdivision. The locations of these percolation tests are shown on Figure 8. The percolation test locations are overlay the NRCS soils map. The soils present are tabulated in Table 2. The tests were performed on April 15, 2026, by an employee of JB Engineers. in accordance with the procedures described in Chapter 25, Appendix A of the Wyoming Water Quality Rules, and Regulations. The eighteen (18) percolation tests satisfy the requirement that one (1) percolation test be conducted for every three (3) lots as stated in section 7(d)(ii)(B). Of these tests, seven (7) were performed in soil unit 131 (Evanston loam, 0–6% slopes), seven (7) in soil unit 138 (Ipson–Evanston complex, 6–30% slopes), three (3) in soil unit 162 (Poposhia–Trimad complex, 3–15% slopes), and one (1) in soil unit 196 (Weed loam, 0–6% slopes). The percolation rate for these 18 tests ranged from 0.8 to 10 minutes per inch.

A mapped 100-year floodplain traverses the subdivision from west to east, primarily within soil unit 131. Septic system placement within this floodplain is not recommended. Systems should instead be located in adjacent, upland portions of each lot to avoid areas subject to flooding.

The testing frequency of eighteen (18) Evanston percolation tests for fifty-five (55) lots satisfies the “every third lot” requirement and confirms that the subdivision as a whole meets the initial percolation evaluation criteria with the exception of those tests exceeding permitted rapid percolation rates. Table 3 presents the corresponding percolation test results.

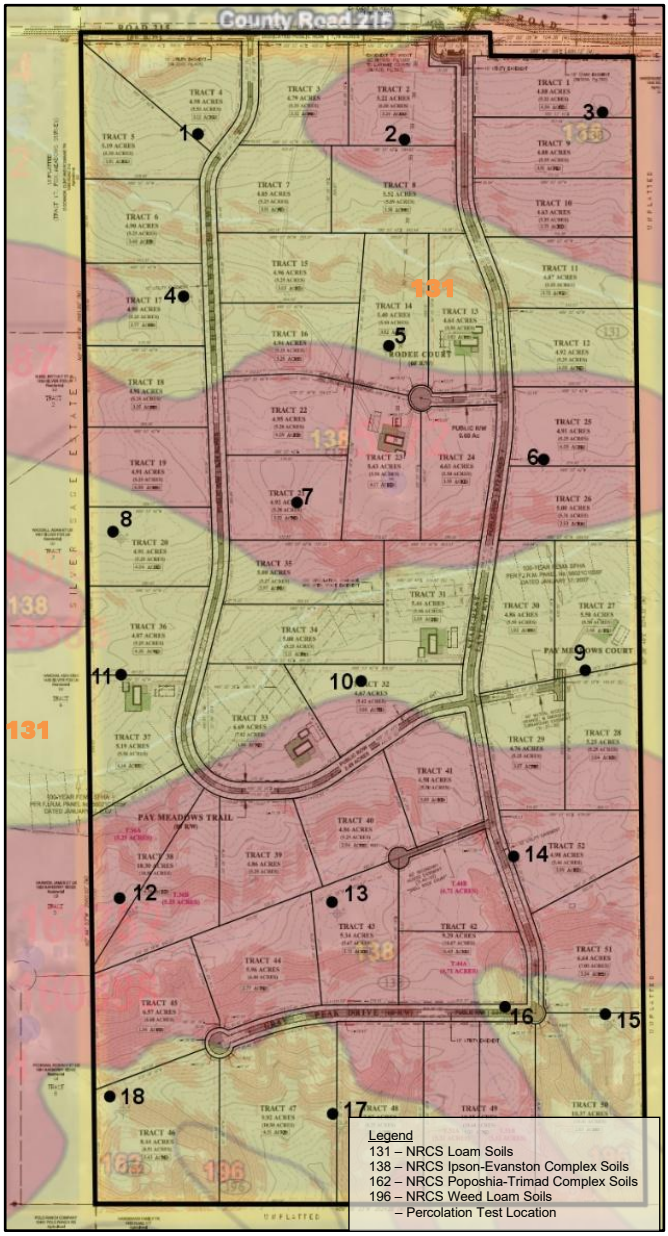


Figure 8 Percolation Test Locations Within R&R Heights Subdivision

TABLE 2
NRCS Soil Units

Laramie County Area, Wyoming	
Map Unit Symbol	Map Unit Name
131	Evanston loam, 0 to 6 percent slopes
138	Ipson-Evanston complex, 6 to 30 percent slopes
162	Poposhia-Trimad Complex, 3 to 15 percent slopes
196	Weed loam, 0 to 6 percent slopes

Table 3
R&R Heights Subdivision Soil Percolation Test Results

Percolation Test Hole No.	Lot Number	Test Date	NRCS Soil Type	Percolation Rate (minutes/inch)
1	Tract 4	4/15/2026	131	8.9
2	Tract 2	4/15/2026	138	3.3
3	Tract 1	4/15/2026	138	5.0
4	Tract 14	4/15/2026	131	10.0
5	Tract 17	4/15/2026	131	10.0
6	Tract 19	4/15/2026	138	5.0
7	Tract 24	4/15/2026	138	0.8
8	Tract 23	4/15/2026	131	5.0
9	Tract 27	4/15/2026	131	5.0
10	Tract 28	4/15/2026	131	2.5
11	Tract 31	4/15/2026	131	5.0
12	Tract 2	4/15/2026	138	5.0
13	Tract 2	4/15/2026	138	6.7
14	Tract 2	4/15/2026	138	10.0
15	Tract 2	4/15/2026	162	10.0
16	Tract 2	4/15/2026	196	10.0
17	Tract 2	4/15/2026	162	10.0
18	Tract 2	4/15/2026	162	10.0

As shown in Table 3, the soil percolation rates in the proposed R&R Heights Subdivision are fairly rapid at approximately 0.8 to 10.0 minutes per inch. All of the percolation tests were conducted within WDEQ's standards. Based on the percolation results, it appears that the most of the soils in the subdivision area are adequate for the construction and utilization of a leach field and they will satisfy the Wyoming Department of Environmental Quality percolation standards detailed in Chapter 25 which correspond to a maximum percolation rate of 5 minute per inch and a minimum percolation rate of 60 minutes per inch. Several areas within the subdivision, specifically proposed Tracts 2, 7, and 10 exhibit percolation rates faster than 5 minutes per inch, which fall below WDEQ's minimum allowable threshold. In all cases where rapid infiltration rates were observed, other tests in similar soil conditions were found to meet the required percolation standards. If adequate soil conditions (perc rate 5 minutes per inch or greater) cannot be found within an individual lot area, soil importation will likely be required prior to septic system installation.

All four mapped soil units (131, 138, 162, and 196) are identified in the NRCS database as having limitations for absorption-field construction due to slow water movement. However, field percolation testing does not support these mapped limitations; instead, measured rates are generally rapid. Soil unit 131 shows percolation rates between 2.5 and 10 minutes per inch, while soil unit 138 exhibits the widest variability, ranging from 0.8 to 10 minutes per inch. Some test locations within these two units fall outside WDEQ standards and will require corrective measures by the lot homeowner. In contrast, soil units 162 and 196 both demonstrate percolation rates of approximately 10 minutes per inch, which fall within the acceptable WDEQ Chapter 25 range of 5 to 60 minutes per inch. Along with this, the area exhibits limited slopes with an average across the subdivision of only 2.3% (See Figure 9). The Ipson-Evanston complex, 6 to 30 percent slopes soil (138) is classified as being severely limited due to the land slope. However as will be discussed in a later section - 7(d)(iii), the subdivision area is relatively flat with a maximum slope of 2.3%.

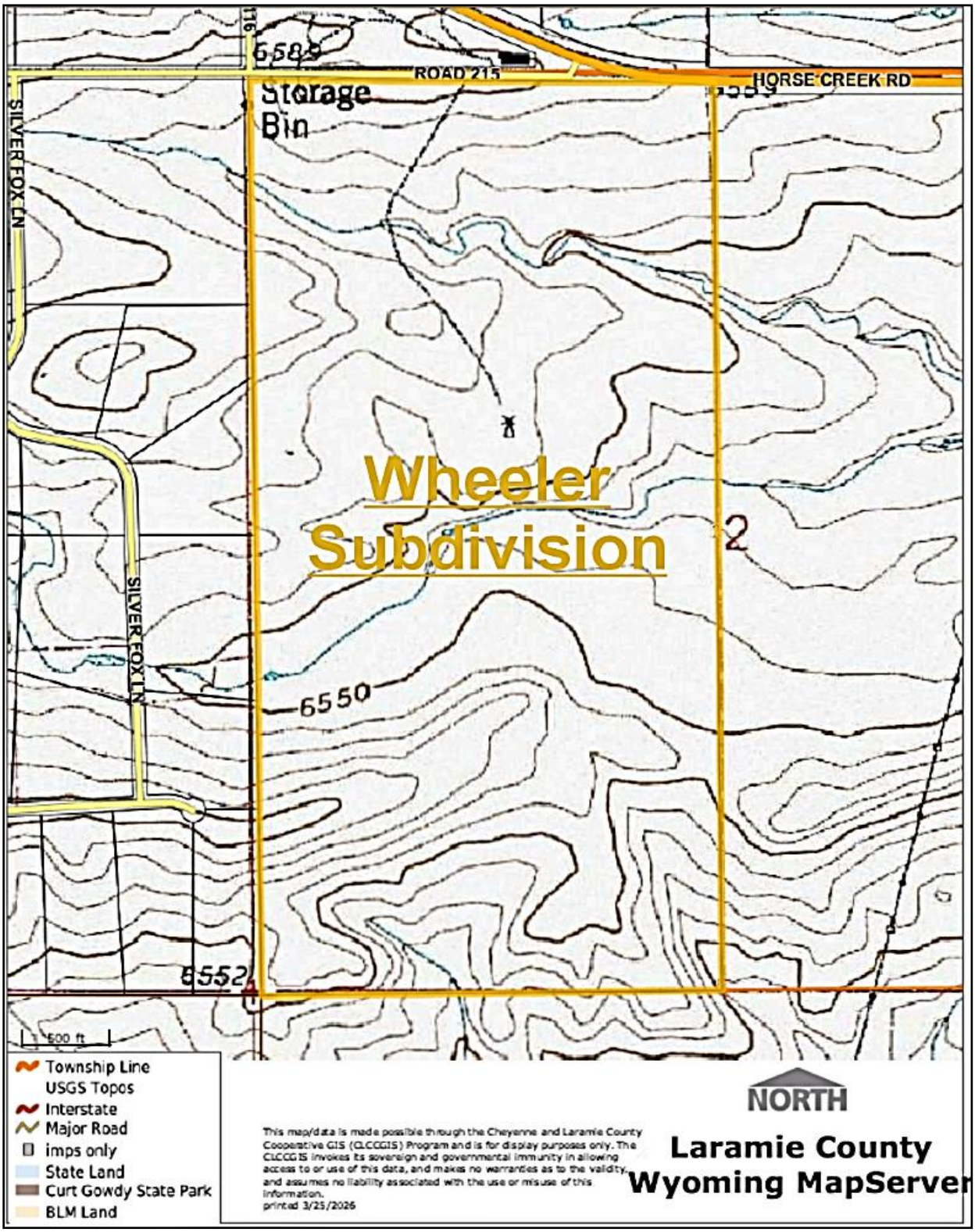


Figure 9 – USGS Topographic Map Overlay of the Laramie County GIS Map Server

Chapter 25 of WDEQ's Rules and Regulations states that standard soil absorption systems with a soil percolation rate that is either less than 5 minutes per inch (MPI) or more than 60 minutes per inch (MPI) will require the application package to be sealed, signed, and dated by a

professional engineer (PE). Based on the percolation results, it appears that most of the soils in the subdivision area are adequate for the construction and utilization of a leach field with the exceptions as mentioned previously. The leach field design may require importing a soil layer if no area within the tract meets WDEQ percolation rate standards due to excessively fast percolation. Future landowners shall perform additional percolation tests prior to constructing wastewater systems to ensure proper system sizing based on the soil conditions at the exact location of the proposed leach field, and to avoid the 100-year floodplain.

Section 7(d) (iii) – Minimum Standards for Topographic Slope.
The surface topography of the proposed Subdivision has been assessed using the USGS Topo layer of the Laramie County GIS Map Server with a topographic base map and outlined Subdivision area (see Figure 9), which provides a representation of the slope variability across the R&R Heights Subdivision. The contour interval for this figure is 10 feet. The terrain has an average slope across the subdivision area from north to south of approximately 1.8% with a gradient going from a low of 6,510 feet to a high of approximately 6,600 feet. The steepest slopes occur in the southwest corner of the subdivision, Tracts 39 and 40, with slopes of approximately 12%.

As reported in Chapter 25, Section 7(e)(i) of Wyoming Water Quality Rules and Regulations, the maximum permissible slope for soils with percolation rates faster than 5 minutes per inch is 25%, between 6 minutes per inch and 45 minutes per inch is 20% and for those with percolation rates between 46 minutes per inch and 60 minutes per inch is 15%. As shown in Table 3, the slowest percolation rate in the proposed Subdivision area was approximately 10.0 minutes per inch with the most rapid being 0.8 MPI. Therefore, the slope conditions in the proposed development meet the WDEQ requirements.

With a subdivision-wide median percolation rate of 5.9 minutes per inch (and an average of 6.8 minutes per inch), the proposed development generally meets Wyoming Water Quality Rules and Regulations for on-lot septic system installation. However, individual tracts exhibiting excessively rapid percolation rates will require corrective measures, such as soil importation or other approved methods, to reduce infiltration rates to within WDEQ standards. These adjustments will need to be addressed on a tract-by-tract basis prior to system installation.

The High Plains Aquifer formations generally dip to the east in the same direction as the potentiometric surface of the water table aquifer. Therefore, since the Formations dip in the same general direction as the water table aquifer and the land surface in the subdivision area is generally flat. It is unlikely that the effluent from the on-site wastewater systems will surface, resulting in the direct discharge of effluent into a surface water body or a wetland.

The potentiometric surface elevations in Figures 10 and 11 were developed using static water-level measurements from surrounding wells. For each well, the potentiometric elevation was calculated by subtracting the measured depth to static water level from the ground-surface elevation at that location. These calculated elevations were then used to define

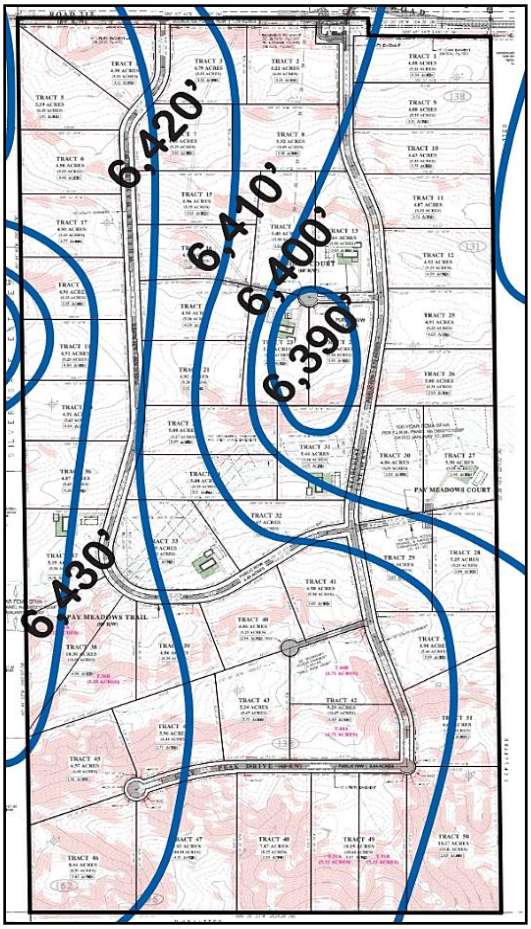


Figure 10 – Potentiometric Map of R&R Heights Subdivision

the hydraulic gradient and characterize groundwater flow direction perpedicular to the gradient across the subdivision. The resulting surface was compared with data from the nearest monitoring well MX West B7 to confirm relative consistency. The potentiometric surface within the subdivision ranges from approximately 6,450' to 6,392', yielding the steepest gradient of 0.036 between the western edge of tract 15/20 to the Eastern edge of tract 20. In contrast, the generalized potentiometric surface for the High Plains Aquifer in the same area spans ~6,425' to ~6,375', with a slightly gentler gradient of approximately 0.029. (see Figure 12). The results of the percolation tests indicate that the topographic conditions within the proposed subdivision meet or exceed the minimum slope criteria required for effective subsurface wastewater dispersal.

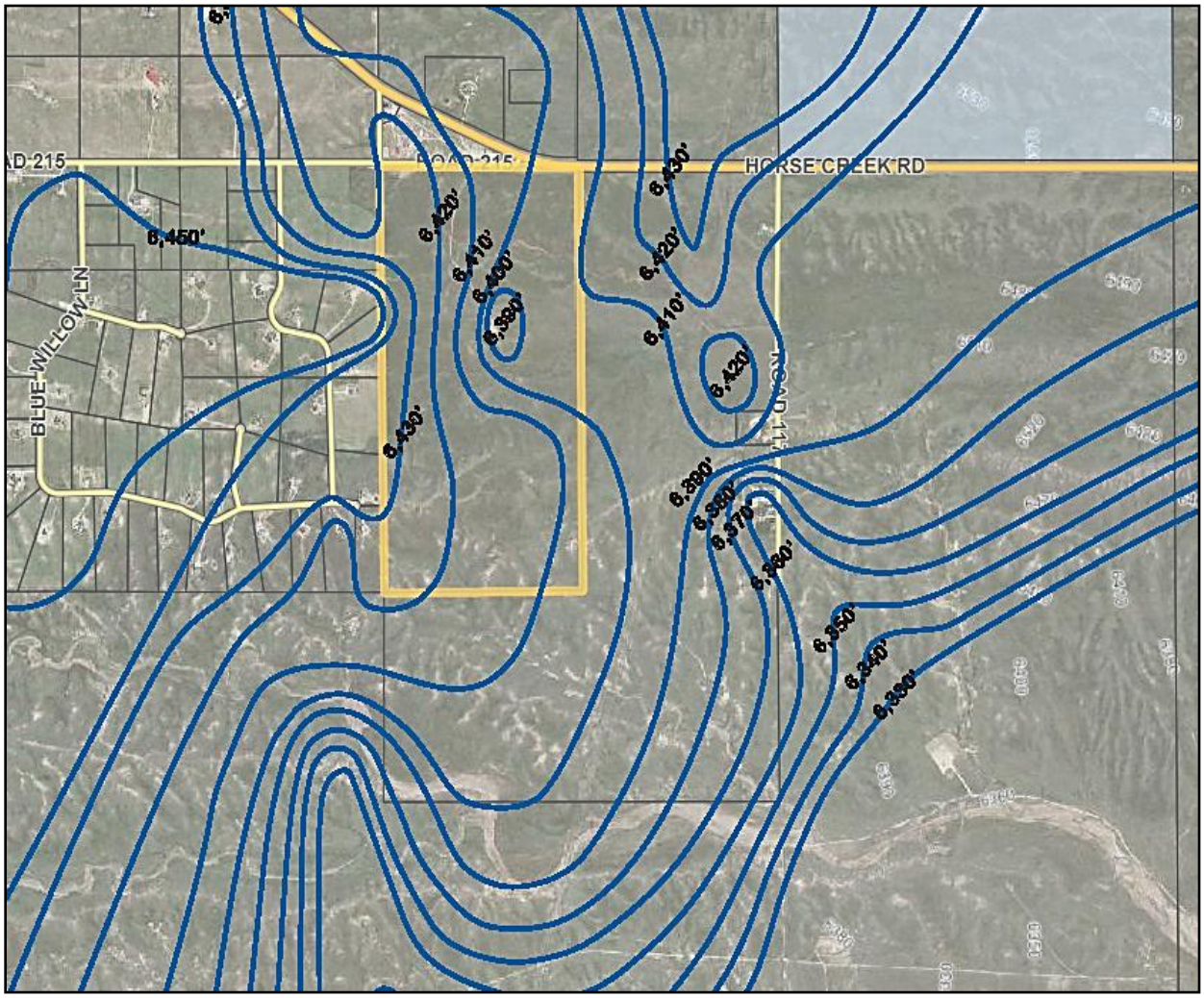


Figure 11 – Expanded view of potentiometric surface elevations for R&R Heights Subdivision
Modified from the Laramie County GIS Map Server

Section 7(d)(iv) – Watersheds in Subdivision Area

Figure 12 provides an overview of the watersheds located in the surrounding region of the proposed R&R Heights Subdivision in Laramie County, Wyoming. An analysis of the area reveals that there exists an ephemeral tributary of the Ninemile Draw, which generally flows from west to east across the adjacent landscape. This particular drainage originates west of the subdivision, beginning in a higher elevation zone and gradually descending as it crosses through the western and eastern boundaries of the proposed R&R Heights Subdivision (See Figure 12).

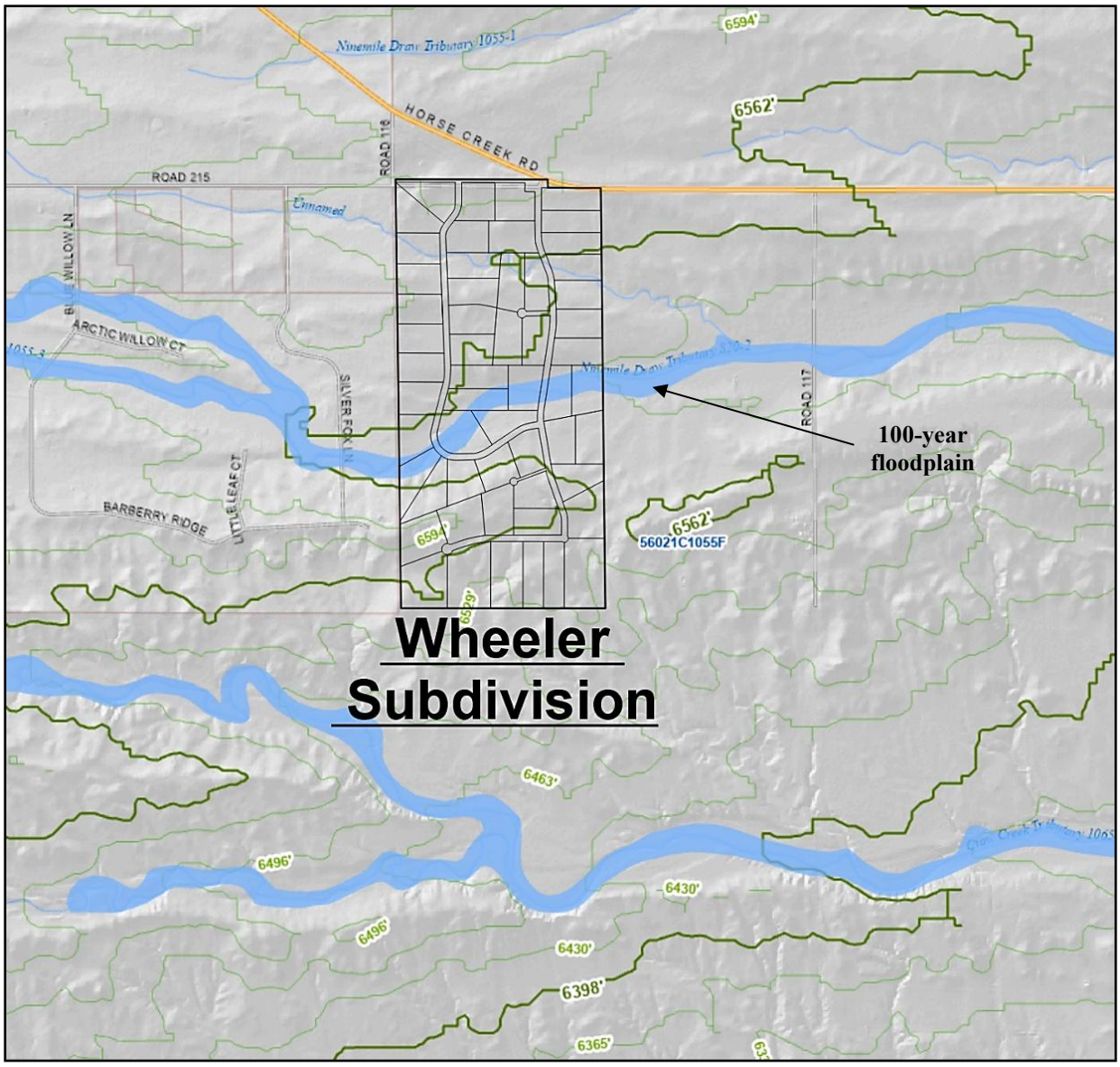


Figure 12 – 100 Year Floodplain R&R Heights Subdivision
Modified from Laramie County GIS Map Server

The extent of potential flood risks in the area has been evaluated using data from the Federal Emergency Management Agency (FEMA). According to the Flood Insurance Rate Map (FIRM) Panel 1055F, identified as Map Number 56021C1055F (see Figure 13), with an effective date of January 17, 2007, the ephemeral watercourse is cataloged as Nine-mile Draw Tributary 820-2. This tributary has been designated as part of the 100-year floodplain, indicating a zone where there is a 1% annual chance of the 100-year flood occurring. However, this tributary that runs West to East Through the proposed Subdivision is cataloged as 'zone A' and no specific base flood elevation has been determined, which limits the precision in predicting flood depths and potential flood hazard zones. Nine-mile Draw Tributary 820-2 ephemeral drainage eventually merges with Lodgepole Creek, a more prominent and perennial watercourse. The confluence where Ninemile Draw joins Lodgepole Creek is roughly 17.5 miles east-northeast of the R&R Heights Subdivision. Although the drainage system remains dry for most of the year, surface flow is commonly observed during spring snowmelt and following significant precipitation events. The nearest perennial stream is Crow Creek, located approximately 1.5 miles south of the R&R Heights Subdivision boundary, and it serves as a key component of the regional hydrologic system. A Crow Creek tributary, identified as Tributary 1065-1, lies roughly 0.5 miles south of the

subdivision boundary and flows eastward before joining the main stem of Crow Creek.

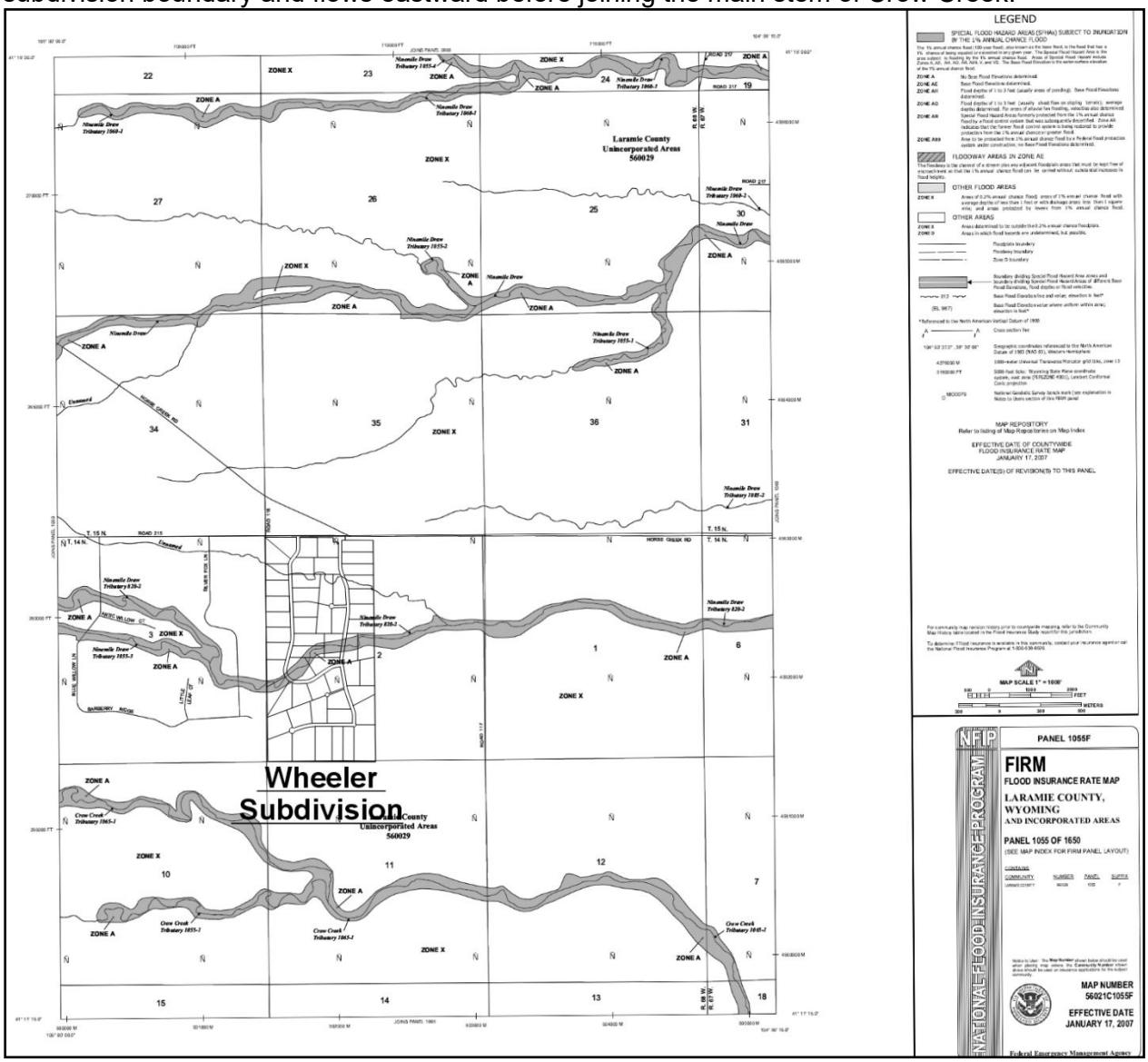


Figure 13 – FIRM Panel 1055F

Section 7(d)(v) – Adequacy of Lot Size

Lot sizes in the proposed Subdivision range from 4.58 acres to 10.20 acres. The average lot size is 6.16 acres. As shown in Table 3, the median percolation rate is 5.9 minutes per inch. This equates to a soil-loading rate of 0.75 gallons/ ft^2/day. Using this soil-loading rate and an effluent discharge of 390 gallons per day (assume three-bedroom home with design flow of 130 gallons/bedroom/day); the required area for the leach field is approximately 520 ft^2. The area required for the leach field represents 1.2% of an acre. To account for a replacement leach field, approximately 1,040 square feet will need to be set aside. This area is still only approximately 2.4% of an acre. Based on the size of the proposed lots and the percolation rates observed, both an on-lot wastewater system and an on-lot well can be constructed on these lots without violating the isolation distances listed in WDEQ Rules and Regulations Chapter 25, Section 7(g). There is also adequate room within each subdivision lot to satisfy the minimum isolation distance between the proposed on-lot leach fields and down gradient wells and/or property boundaries as described in Section 7(d)(viii)(A) – Adequacy of Separation Distance and Nitrate Levels. This distance was calculated to be 100 feet (See attached spreadsheet – Appendix B). With a minimum

downgradient lot width of approximately 276 feet along the eastern boundary of Tract 19, this exceeds the required 100-foot separation between wells and the proposed drain fields.

Section 7(d)(vi) – Subdivision Population Density
The proposed type of use for the R&R Heights Subdivision is residential. Based on this use, it is estimated that the population density for the proposed development will be approximately 206 people or 3.75 people per residential lot (3.75 x 55 ≈ 206).

Section 7(d)(vii)(A) – Groundwater and Surface Water Protection – Geologic Setting
Figure 3 is a regional surface geology map of the proposed subdivision area. The outcropping formation in the vicinity of the proposed R&R Heights Subdivision, as described earlier, is the Tertiary Ogallala Formation which is underlain by the White River Group Formation. The approximate thickness of the High Plains Aquifer formations in the proposed development area is approximately 600 feet. The structural dip of these formations is gentle to the east - northeast. The nearest major fault is a shallow-dipping thrust fault along Table Mountain, located approximately 10.5 miles west of the R&R Heights Subdivision. A simplified cross-section of the Tertiary High Plains Aquifer system in Laramie County and southeastern Wyoming is shown in Figure 14.

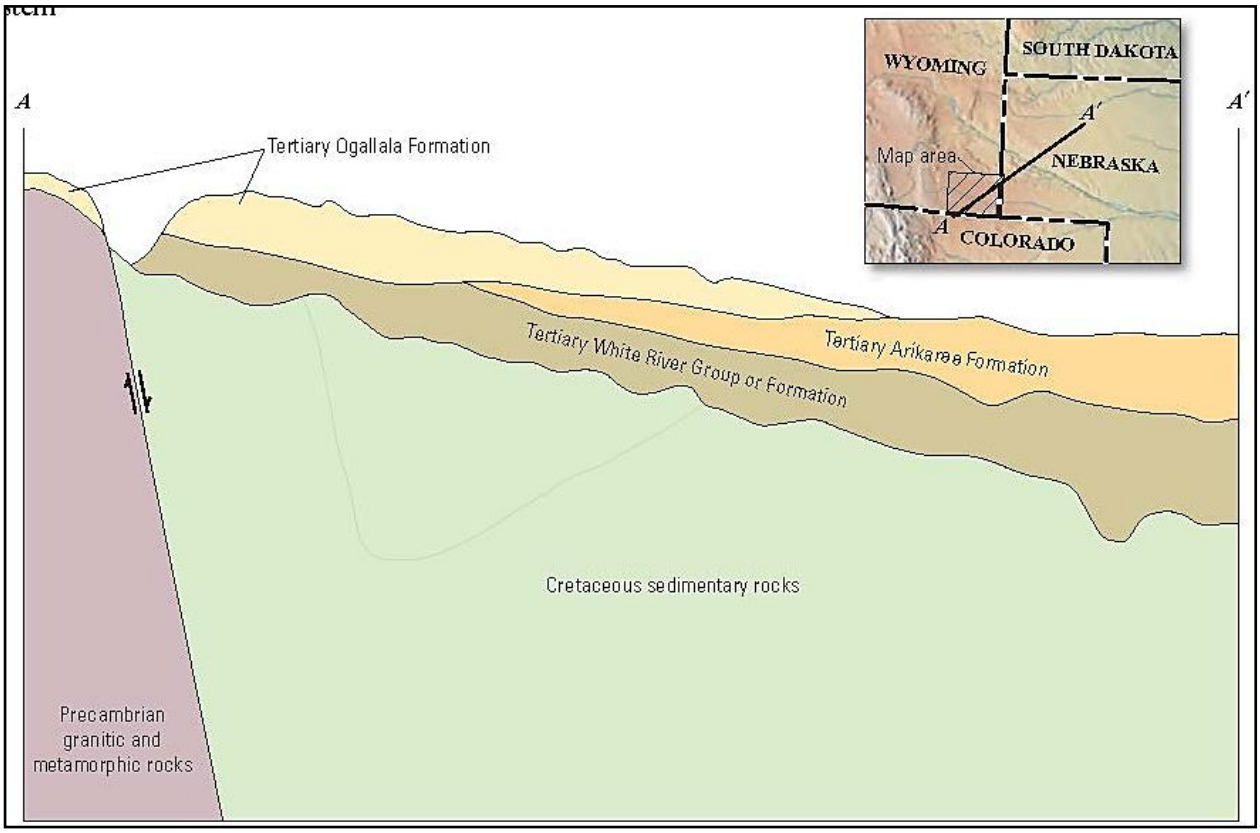


Figure 14 – Cross Section of High plains Aquifer
Modified From: Bartos, Timothy T. and Laura L. Hallberg (2011)

Section 7(d)(vii)(B) - Groundwater and Surface Water Protection – Hydrogeologic Setting
As outlined in Section 7(d)(i), the depth to the potentiometric surface of the High Plains water table aquifer in the vicinity of the R&R Heights Subdivision varies spatially. According to the *Generalized Potentiometric Surface of the High Plains Aquifer System, March–June 2009, Laramie County, Wyoming,* potentiometric surface in the vicinity is at approximately 6,400 feet above sea level. A review of surrounding well Statements of Completion (SOCs) completed in R&R Heights subdivision area indicates an average depth to the potentiometric surface as 187

feet deep within the subdivision boundaries or 6,383 feet (6,570' Elevation – 187' depth) above sea level which directly aligns with the reported generalized potentiometric surface.

As mentioned in Section 7(d)(i), the High Plains Aquifer is a heterogeneous aquifer comprised of lenticular bed of sand, gravel, silt clay, and thin limestone beds. Regionally, the High Plains Aquifer system behaves as an unconfined (water-table) aquifer; however, due to the lenticular nature of the aquifer, locally confining or semi-confining conditions occur. The Statement of Completion records for the wells in the area indicate that the majority of the wells are completed in a locally confined layer of the High Plains Aquifer as indicated by the static water levels being significantly higher above the "Depth to First Water" or the top of principal water bearing formation.

A summary of earlier studies performed on the High Plains Aquifer as reported in the Cheyenne Water Supply Master Plan, Level I Project (Black & Veatch, 1994) are shown below. The summarized properties for the High Plains Aquifer in this master plan report are in general agreement with those tabulated in The Water resource Atlas of Laramie County, Wyoming (Table 4).

White River:	Transmissivity Range	692 – 17,000 gpd/ft
	Storage Coefficient Range	3.5×10^{-4} – 0.015
	Hydraulic Conductivity Range	0.12 – 6.91 ft/day
Ogallala:	Transmissivity Range	374 – 62,700 gpd/ft
	Storage Coefficient Range	7.85×10^{-6} – 0.015
High Plains Aquifer	Transmissivity	250 gpd/ft
	Storage Coefficient Range	0.15

Table 4
High Plains Aquifer Properties
Water Resource Atlas of Laramie County, Wyoming

Aquifer Unit	Aquifer Properties
Ogallala	Yields: 5 - 1,800 gpm Transmissivities: 45 - 343,000 gpd / ft Storage Coefficients: $1x10^{-5}$ – $1x10^{-2}$ Hydraulic Conductivities: 164 - 4000 gpd / ft²
Arikaree	Yields: 5 - 1,600 gpm Transmissivities: 110 - 77,000 gpd / ft Storage Coefficients: $1x10^{-4}$ – $1x10^{-3}$ Hydraulic Conductivities: 10 - 100 gpd / ft²
White River	Yields: 1 - 2,000 gpm Transmissivities: 2,600 - 780,000 gpd / ft Storage Coefficients: $1x10^{-5}$ - 0.10 Hydraulic Conductivities: 0.1 - 6000 gpd / ft²

On a more localized level, the Wyoming State Engineer's Office records in the R&R Heights Subdivision area were reviewed for pump test data. A total of three (3) wells had recorded pump test data. These pump test data are summarized in Table 5. Based on the depth of completion, all three wells have been completed in the White River. The transmissivities calculated from these data range from 52 to 8834 gpd/ft with an average of 3151 gpd/ft and the hydraulic conductivities

(using just the screen length as the aquifer thickness) range from 0.18 to 28.2 ft/day with an average of 9.8 ft/day.

Table 5 – Pump Test Data

Permit Number	Yield (Q)	Drawdown (S)	Time (t)	Top of Screen	Bottom of Screen	Transmissivity (T)	Hydraulic Conductivity (K)	Specific Capacity (SC)	Formation Completed
	[GPM]	[FT]	[HRS]	[FT]	[FT]	[GPD/FT]	[FT/Day]	[GPM/FT]	
6424	6	230	2	220	240	52.2	0.3	0.0	White River
45	500	113.2	125	136, 206, 249	141, 227, 264	8833.9	28.8	4.4	White River
201563	8.5	30	4	240	660	566.7	0.2	0.3	White River

Section 7(d)(vii)(C) – Classification of Groundwater

The quality of water produced from the High Plains Aquifer is a Class I water as defined in WDEQ's Rules and Regulations Chapter 8 (Quality Standards for Wyoming Groundwaters). The High Plains Aquifer is a primary source of drinking water for many of the municipalities and private homes in southeast Wyoming. Table 6 shows the quality of water produced from a well located near the center of the proposed subdivision (Wheeler #1, UW 15772) which water quality results falls within US EPA standards particularly Nitrates and Nitrites having a maximum allowable amount of 10 mg/L (see Table 6). The full laboratory analysis is contained in the Geotechnical Engineering Report prepared by JB Engineers which is attached as an appendix to this report.

Table 6
High Plains Aquifer Water Quality Data
R&R Heights Subdivision Area

ANALYTE	US EPA	Wheeler #1 Well U.W. 15772
TDS (mg/L)	500	232
Nitrate +Nitrite as N (mg/L)	10	2.85
Calcium (mg/L)		56
Magnesium (mg/L)		9
Sodium (mg/L)		5
Chloride (mg/L)	250	13
Sulfates (mg/L)	250	15
Iron (mg/L)	0.3	0.31
Zinc (mg/L)	5	0.25
Lead (mg/L)	0.015	ND
Fluoride (mg/L)	4	0.5
Manganese (mg/L)	0.05	0.004
Copper (mg/L)	1	0.006
pH	6.5-8.5	8.1

MCL values in italics represent Secondary Maximum Contaminant Level (SMCL) Standards
NDWS MCL = National Drinking Water Standards, Maximum Contaminant Level
ND = non-detect

Section 7(d)(vii)(C)(I) – Classification of Groundwater – Survey of Existing Wells

A single existing stock well, Wheeler #1 (U.W. 15772), is located within the boundaries of the proposed R&R Heights Subdivision. The well is located in the SE ¼ NW ¼ of Section 2, T14N, R68W, and is completed to a total depth of 228 feet BGL. According to records from the State Engineer's Office, a statement of completion is on file indicating a static water level of 180 feet BGL. Wheeler #1 was equipped with a gas powered 5 HP pump jack capable of producing 20 gallons per minute at the time of completion in October 1964. No additional construction or performance data are currently available for this well from the state engineering office. Within a one-mile radius of the proposed subdivision, 84 completed wells are recorded in the State Engineer's Office database; their locations are shown in Figure 7. Based on reported completion depths, these surrounding wells are predominantly finished in the deeper intervals of the White River Formation rather than the shallower 200 feet thick Ogallala Formation in this area. Most wells in the vicinity are permitted for domestic use, with a smaller number designated for stock water supply. The City of Cheyenne Board of Public Utilities North Bell Well Field #25 well (U.W. 45) is also located just outside of of the one mile radius at a distance of approximately 1.3 miles from the proposed development. This well is permitted as a municipal supply well with a permitted production rate of 425 GPM.

Section 7(d)(vii)(D) – Characteristics of Unconfined Aquifer

Figure 15 shows the High Plains Aquifer in the area of the proposed R&R Heights Subdivision with the blue, equipotential lines reflecting the potentiometric surface. The horizontal extent of the High plain's aquifer extends from the base of the Laramie Range eastward through Laramie County and into Nebraska. The High Plains Aquifer underlies an area of approximately 174,000 square miles through parts of Colorado, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, and Wyoming (Robinson and Banta, 1995). The thickness of the High Plains Aquifer as previously mentioned in the R&R Heights Subdivision is approximately 600 feet.

Vertically, the High Plains aquifer is restricted by the impermeable shales in the Lance Formation at a depth of approximately 600 feet. The saturated thickness of the High Plains aquifer in the vicinity of the R&R Heights Subdivision is approximately 413 feet based on a thickness the High Plains aquifer of 600 feet and a depth to water bearing formation of 187 feet.

As previously shown in Table 5, aquifer test results, as reported on the SEO Statement of Completion forms, were available on 3 wells. The transmissivities calculated from these data range from 52 to 8834 gpd/ft with an average of 3150 gpd/ft and the hydraulic conductivities (using just the screen length as the aquifer thickness) range from 0.18 to 28.8 ft/day with an average of 9.77 ft/day Transmissivities were calculated from an empirical equation where the specific capacity is multiplied by 2,000 (Driscoll, 1986). This transmissivity was then converted from gpd/ft to ft^2/day and divided by the saturated thickness of the aquifer (well completion zone) to determine the hydraulic conductivity.

The porosity of the aquifer is unknown but given that it is comprised predominantly of sand and silt, it is estimated to be approximately 0.25. Based on the hydraulic conductivity (0.18 ft/day to 28.8 ft/day), the porosity (0.25) and the gradient of the High Plains aquifer (0.014 ft/ft), the water could move through the aquifer at approximately 0.01 feet per day to 1.61 feet per day. Calculated using a modified form of the Darcy Equation, as presented in Equation 15.18b of *Groundwater and Wells*, 2nd edition by Driscoll (p. 83).

$$V_a = \frac{K(h_1 - h_2)}{\frac{L}{\eta}}$$

Where:

K = Hydraulic Conductivity (ft/day)
$h_1 - h_2$ = Aquifer gradient (ft)
L = Length (ft)
η = Porosity

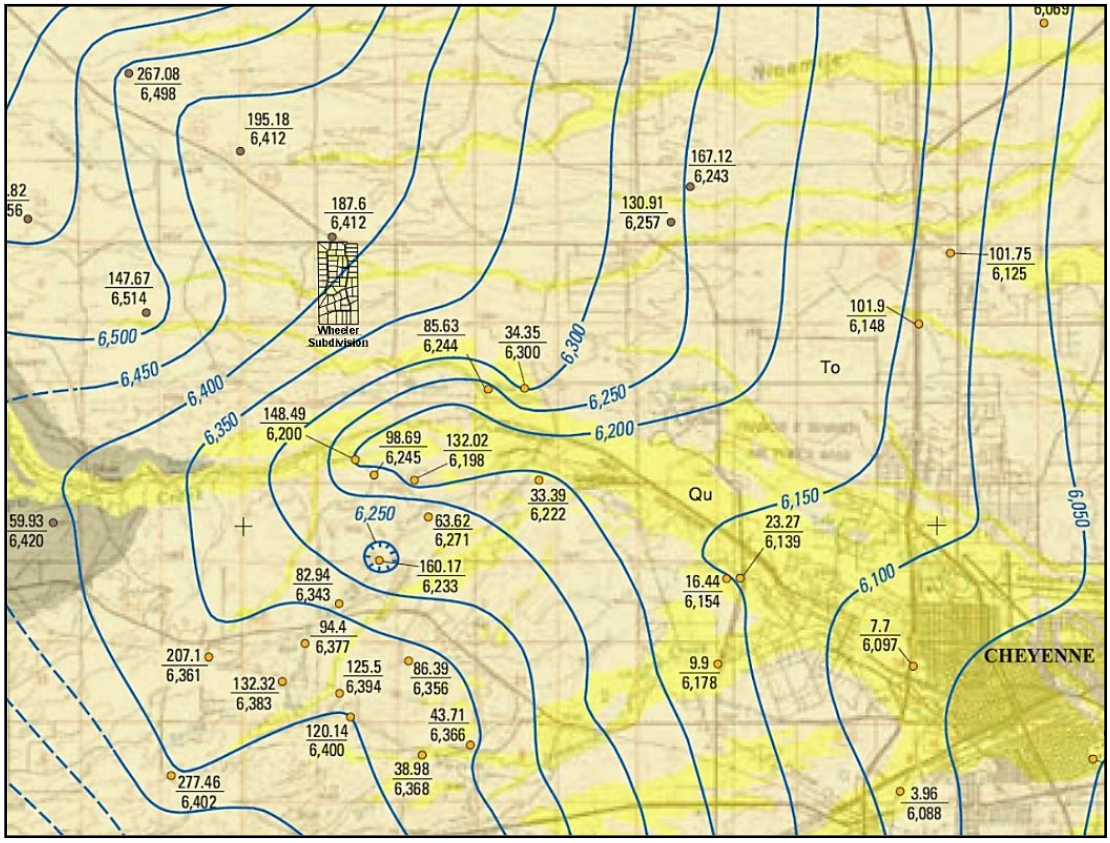


Figure 15 – Potentiometric Surface of High Plains Aquifer

Section 7(d)(viii)(A) – Adequacy of Separation Distance and Nitrate Levels
This section presents a discussion related to the adequacy of the separation distance between the proposed on-lot sewage systems for the R&R Heights subdivision and wells and/or property boundaries. The first analysis looks at the nitrate loading at the down gradient boundary of the proposed development.

This step evaluates whether the mass loading of nitrate from on-site wastewater systems to the aquifer creates a concentration of nitrates that exceeds EPA's Safe Drinking Water standard of 10 mg/l down gradient of the proposed subdivision. The method used to calculate this was the Wehrmann Nitrate Model (Spreadsheet furnished by DEQ). The concentration of nitrates was calculated as described in the following steps.

1. The first step is to calculate the infiltration of precipitation into the aquifer (Vi) in the proposed R&R Heights subdivision area, which encompasses approximately 318.23 acres. An infiltration rate of 0.50 inches per year, only 3.1% of the average annual precipitation of 15.92 inches was used to calculate the volume of water infiltrating the aquifer due to precipitation (climate data for Cheyenne Municipal Airport, 1981 to 2010, US Climate Data).https://www.usclimatedata.com/climate/cheyenne/wyoming/united-states/uswy0032).

   Estimates of the recharge to the High Plains Aquifer in the Cheyenne and Laramie County area range from less than 1 inch per year to 6 inches per year (JR Engineering, et.al, 2008). The recharge rate of 0.50 inches per year used in this study was based upon the recent modeling efforts performed during the Hydrogeologic Study of the Laramie County

Control Area (Amec, et al, 2014). The calculated precipitation infiltration volume (Vi) is 11,730 gallons per day (gpd).

2. Next the volume of septic effluent beneath the development area (Vs) is calculated. This equated to a total septic effluent discharge rate of 16,500 gpd (55 lots at 300 gpd/lot).

3. The next step involves the calculation of the volume of ground water entering the subdivision in the up-gradient area (Vb). This is the volume of water moving through the aquifer in the cross-sectional area of the proposed development area. The width of the development area (perpendicular to the direction of groundwater flow through the area) is approximately 5,311 feet. The thickness of the saturated aquifer (b) was set at 30 feet. Although the saturated thickness of the High Plains Aquifer in the R&R Heights subdivision area is approximately 413 feet (600' of High Plains Aquifer – 187' depth to first water bearing formation), it has been determined that most of the mixing of nitrates in the groundwater occurs within the upper 30 feet. The hydraulic gradient used was 0.014 (gradient shown in figures 10 and 11) reflecting the subdivisions gradient calculated across nearby well data. The hydraulic conductivity used was the average from well data listed in Table 5 (pump test data wells) which is 9.8 feet per day. The groundwater inflow flux volume (Vb) was calculated to be 163,525 gpd.

4. The volume of water pumped (Vp) from the aquifer for irrigational purposes was not factored in. The recommended design for the R&R Heights Subdivision wells is to target the White River Formation at depths greater than 400 feet. The average depth to first water (or saturated zone depth) is approximately 187 or over 200 feet below the surface of the saturated zone. Since it is assumed, and the nitrate dilution model is calculated on nitrate mixing only occurring in the upper 30 feet of the aquifer, with the proposed well design, the well will be completed over 170 feet below this mixing zone, and therefore, the irrigation water pumped from the well will not be impacting the nitrate loading of the aquifer.

5. The final step is to calculate the nitrate loading at the down gradient property boundary (Co). The equation for this calculation is shown on the attached spreadsheet entitled Appendix A. The nitrate concentrations used in this calculation where 1) 0.05 mg/l for the nitrate that is associated with precipitation (Ci), 2) 40 mg/l for the nitrate in the leach field effluent (Cs), and 3) 2.85 mg/l for the ambient nitrate level in the groundwater (Cb). The ambient groundwater nitrate concentration (Cleach) was obtained from nitrate levels reported for the well located near the center of the proposed subdivision (Table 6).

This double dilution model (Wehrmann Nitrate Model) indicates that the concentration of nitrates at the downgradient boundary of the R&R Heights subdivision area is approximately 5.88 mg/l for a 3-bedroom lot, 6.83 mg/l for a 4-bedroom lot, and 8.58 mg/l for a 6-bedroom lot. All of which are less than EPA's Safe Drinking Water standard of 10 mg/l.

The second element of this section looks at the minimum isolation distance between the proposed on-lot leach fields and down gradient wells and/or property boundaries. The calculated minimum isolation distance associated with the two-year time of travel for the High Plains Aquifer in the proposed R&R Heights subdivision Area as calculated using the methodology described in Appendix B to Chapter 23 of Wyoming DEQ's Rules and Regulations is 100 feet. This calculation is shown below and in Appendix B.

$X = t_2 * v$

Where:
X = isolation distance associated with a 2-year time of travel;
t_2 = horizontal travel time; and

v = horizontal linear velocity.

A vertical component associated with the travel of leachate to groundwater is a preliminary step in this calculation. The vertical travel component is calculated using the following equation:

$t_1 = d * \theta \div (0.5*\alpha)$ where

t_1 = vertical travel time in years

d = depth to the groundwater in cm

θ = volumetric soil moisture - because the High Plains Aquifer is comprised predominantly of fine to very fine sands and siltstone with some clays, a value of 0.284 ml/cm^3 which is associated with a silty loam was used.

α = total recharge (effluent plus 5% of the precipitation).

The recharge from the leach field is based on an effluent discharge of 300 gpd or 14,639 ft^3/yr. The size of the leach field was based on the median percolation rate summarized in Table 3, which is 5.9 minutes per inch and a design flow rate of 390 gpd. From Table 5 in DEQ Water Quality Rules and Regulations, Chapter 25, the associated soil loading rate for a percolation rate of 5.9 minutes per inch is 0.75 gallons per square foot per day (gal/ft^2/day). Using this loading rate, a leach field with an area equal to or greater than 520 square feet is required. Dividing the annual effluent discharge by the area of the leach field yields the annual effluent recharge in feet, which is 28.15 feet/year. The total recharge (α) is then calculated by adding 3.1% of the annual precipitation of 15.92 inches (assuming only 3.1% infiltrates the leach field area and the remainder runs off or is lost to evapotranspiration) to the effluent recharge for a total recharge of 29.48 feet Using an unsaturated thickness of the Aquifer of 187 feet (the average depth to the first water bearing formation in reported wells), the vertical travel time was calculated to be 3.60 years or 1,315 days. This time was subtracted from two years to calculate the horizontal component of the total two-year travel time.

Since the vertical travel time exceeds the 2-year travel time limit, there is no horizontal component (See Appendix B). Per WDEQ direction, a horizontal component of 100 feet was reviewed since the horizontal travel time distance calculated was less than 100 feet. The minimum lot width in the down-gradient direction (eastern edge) of the 55 eastern lots is approximately 202 feet in tract 52. Therefore, the wells can be able to be adequately separated from the drain fields by the required distance of approximately 100 feet.

The final element of this section of Chapter 23 Rules and Regulations deals with the potential impact to public water supply wells. There are no proposed public water supply wells for the R&R Heights Subdivision. A review of Figure 7 (Well Location Map) and Table 1 shows that there are no public water supply wells located in the High Plains Aquifer within one mile of the subdivision area. Therefore, the potential impact to public water supply wells was not conducted.

Section 7(d)(viii)(B) – Enhanced Treatment System

Although the High Plains Aquifer is classified as a water table aquifer, the significant depth to the first water-bearing formation (approximately 187 feet), combined with the low permeability and attenuating capacity of the fine-grained sands and silts present between the land surface and the saturated zone, significantly reduces the potential for contaminant migration. As a result, leachate from on-lot sewage systems undergoes substantial natural treatment before reaching the aquifer. Consequently, on-lot sewage systems are not expected to pose a threat to groundwater quality, and enhanced treatment systems will not be required.

Section 7(d)(ix) - Identification of the Nearest Facility that can and will Accept Septage Wastes
The nearest facility that can and will accept septage waste from the proposed R&R Heights Subdivision is the City of Cheyenne wastewater system. Presently there is no means of conveying wastewater from the proposed subdivision to the City's wastewater treatment facilities.

The proposed use of on-lot wastewater treatment systems for the R&R Heights subdivision is not anticipated to pose any threat to either groundwater or surface water resources within the project area. Percolation testing confirms that the existing soils exhibit adequate drainage capacity, thereby facilitating effective subsurface dispersal of effluent. These drainage characteristics are also expected to prevent leachate from surfacing under normal operating conditions. Furthermore, modeling of nitrate transport indicates that the predicted concentration of nitrates in the downgradient groundwater will remain below the U.S. Environmental Protection Agency's maximum contaminant level (MCL) of 10 mg/L. Therefore, the subsurface wastewater disposal systems are expected to function within environmental regulatory limits while protecting surrounding water resources.

Section 8. Standards for Water Supply Systems

Section 8(a)(i) - Identification of the Type of Water Supply System
On-lot groundwater supply wells are proposed for development within the R&R Heights Subdivision. All wells will be designed and constructed by a Wyoming-licensed water well drilling contractor with demonstrated experience in the hydrogeologic conditions characteristic of the project area. Future lot owners are advised to retain a qualified and reputable well driller and to ensure that all well construction complies with the State Engineer's Office (SEO) Rules and Regulations, Part III: Water Well Minimum Construction Standards. Each individual lot owner will be solely responsible for the long-term operation, monitoring, and maintenance of their respective on-lot well system.

Groundwater withdrawals from the High Plains Aquifer in Laramie County, including the greater Cheyenne area, have historically placed significant stress on the aquifer system. This condition prompted:

1. Designation of a groundwater control area (See Figure 16);
2. Implementation of an extensive groundwater-level monitoring program; and
3. Completion of a comprehensive hydrogeologic evaluation of the High Plains Aquifer system (*Hydrogeologic Study of the Laramie County Control Area*, 2014).

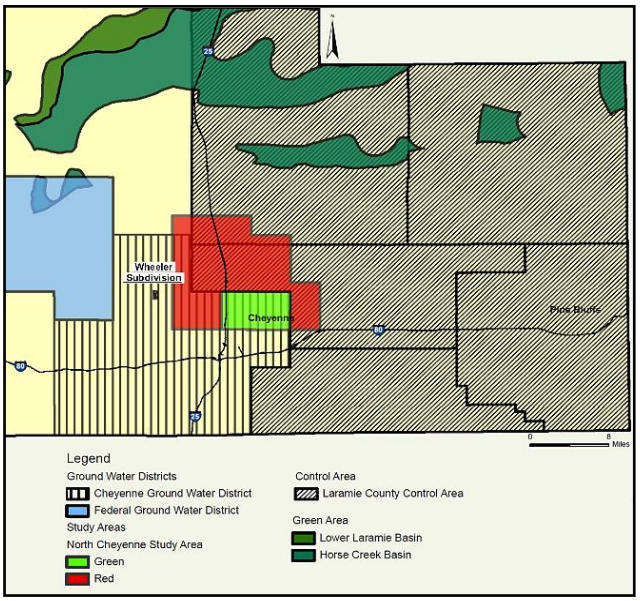


Figure 16 – Laramie County Control Area
Modified From: JR Engineering, et al, 2008.

Among the three principal units of the High Plains Aquifer system (Ogallala, Arikaree, and White River formations), the Ogallala Aquifer has experienced the greatest impacts. This is attributable to its relatively shallow depth, high transmissivity, and its historical use as the primary target for domestic and irrigation wells. Increased groundwater production associated

with rural development and the transition from flood irrigation to center-pivot sprinkler irrigation contributed to notable declines in water levels, necessitating the deepening of several existing wells. However, the establishment of the Control Area and associated regulatory measures by the SEO appear to have helped in stabilization of groundwater levels within the High Plains Aquifer.

The R&R Heights Subdivision is located outside the North Cheyenne Study Area and is therefore not subject to the mandatory well design requirements applicable within that regulated area. Nevertheless, adherence to similar design practices is recommended to minimize potential adverse impacts to the underlying aquifer system and to promote long-term reliability of the individual water supply wells themselves. While not legally required, the recommended well design criteria outlined below are consistent with SEO guidance for subdivisions within the North Cheyenne Study Area and may be modified by individual lot owners on a case-by-case basis.

Recommended well design include the following:

1. A maximum of one domestic and/or stock well shall be constructed per individual lot.
2. Each well should include a minimum of 60 feet of perforated casing installed within the lower portion of the borehole.
3. A minimum of 100 feet of saturated thickness should be maintained above the uppermost perforations.
4. Wells should be completed in either the Lance Formation or the High Plains Aquifer; dual-aquifer completions are not allowed.

These design practices are supplemental to the standard SEO construction requirements, which include, at minimum, installation of a 2-inch annular seal extending through the upper 20 feet of the well.

Given the projected depth to the White River Formation (target formation) of 200 to 220 feet and the thickness of the formation (approximately 400 feet) the following minimum recommended well design is proposed for the R&R Heights Subdivision:

Minimum Depth of Well:	580 feet,
Estimated Static Water Level:	187 feet.
Top of Upper Screen Section:	500 feet (313 feet of water above upper screen),
Lower Well Screen Section:	60 feet (minimum installed in bottom section of well),
Gravel Pack:	Bottom of well to 5 feet above top of highest (shallowest) screen section,
Bentonite Seal:	Minimum 5 feet thick bentonite seal on top of gravel pack
Well Seal:	Neat grout or bentonite grout seal (minimum 2-inch) thick from bentonite seal to land surface.

The White River Formation is the preferred aquifer for new groundwater wells within the proposed R&R Heights Subdivision. Review of nearby well completion records and pump test data, combined with information from the Laramie County Water Resource Atlas, indicates that the Ogallala Formation in this area is relatively thin approximately 200 feet and provides limited long-term yield potential. In contrast, all 84 of the wells within a one-mile radius of the subdivision are completed in the deeper White River Formation which will have superior sustained production capacity. Based on these conditions, the White River Formation represents the most viable and reliable source for long-term residential water supply development in the subdivision.

Figure 17 identifies the State Engineer's Office (SEO) High Plains Aquifer monitoring wells in the region. The monitoring well nearest to the proposed R&R Heights Subdivision is the Laramie

County MX West B7 well, which is completed in the White River Group of the High Plains Aquifer system. The corresponding hydrograph, shown in Figure 18, indicates that groundwater levels at this location exhibit minimal seasonal and year-to-year variability, with only a slight overall decline observed over the past five years. This well was drilled in 1984 and the reported depth to water on the Statement of Completion form is 175 feet bgl; therefore, the water level in this area has remained fairly stable over the past 42 years.

Because MX West B7 is completed in the same formation recommended for future on-lot wells, its long-term record provides a relevant indicator of expected aquifer performance. Historical measurements demonstrate that water levels in this well remain relatively stable, even during documented drought periods. This stability supports the conclusion that the White River Formation is a favorable and reliable production zone for future domestic well development within the subdivision.

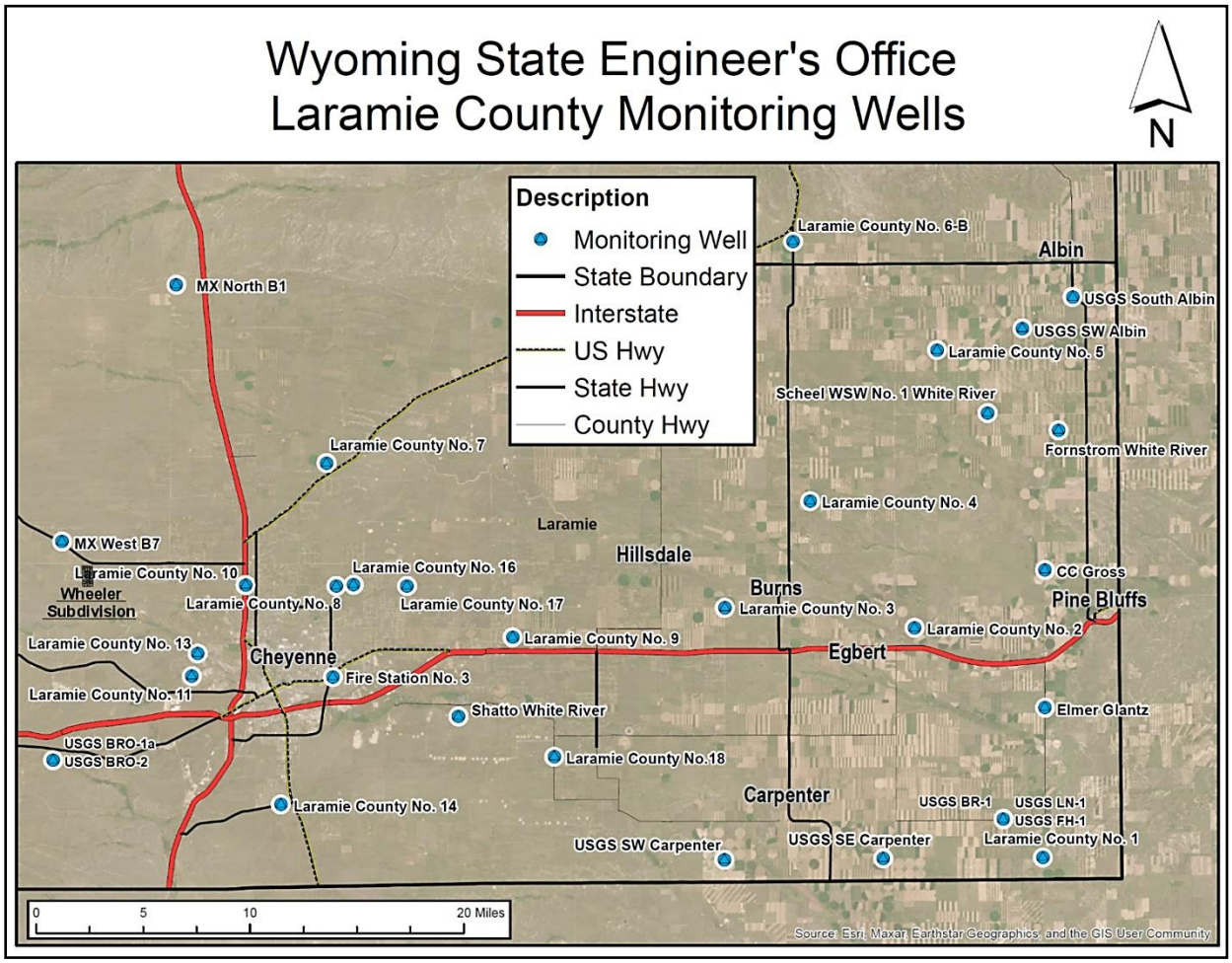


FIGURE 17 - SEO Monitoring Well Location Map

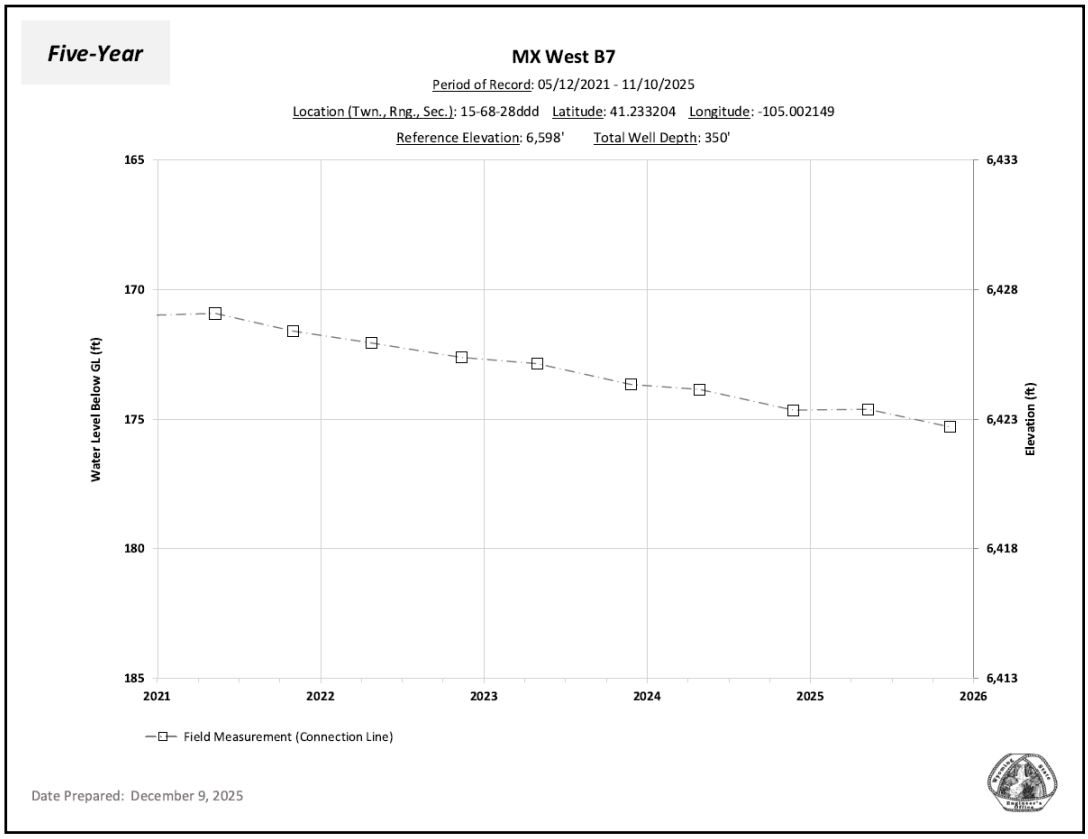


FIGURE 18 - SEO Monitoring Well MX West B7

Section 8(a)(ii) - Estimated Average and Maximum Day Demand

The estimated average day demand for each individual residential lot is approximately 110 gallons per capita, or approximately 410 gallons per day (3.75 people per lot). AMEC (2014) estimated that the consumptive use demand would be 85 gpcd based on an entire year period, or 203 gpcd for just the 153-day irrigation period (May – September). Using a consumptive demand of 203 gpcd (760 gpd), the estimated maximum day demand is approximately 1,180 gallons per day (410 gpd non-consumptive plus 760 gpd consumptive). In reviewing the estimated water use data, it is assumed nearly all the average day demand, 410 gpd, would be non-consumptive. The maximum day demand period would occur during the summer irrigation months (153 days), where the difference between the average day demand and maximum day demand would be predominantly consumptive use. The total annual volume pumped would be approximately 267,460 gallons [(410 gpd x 212 days) + (1,180 gpd x 153 days)]. Based on these numbers approximately 44% of the annual volume pumped is for consumptive use purposes.

Section 8(a)(iii) – Compatibility of Water Supply System with Wastewater System

As stated in Section 8(a)(i), the individual wells proposed for the R&R Heights Subdivision will be completed in the upper section of the White River Group Formation. As described in Section 8(a)(i), the minimum total depth of the well recommended, that follows SEO regulations, is approximately 580 feet below ground level. This would provide more than the required 100 feet of water above the estimated potentiometric surface (static water level) depth of 187 feet. As described in Section 7(d)(viii)(A), the vertical separation between the bottom of the leach fields and the groundwater surface will prevent the migration of the septic leachate down into the water supply wells within the two-year time of travel standard. Other than the proposed on-lot wastewater systems, there are no other sources of pollution within a close proximity to the proposed on-lot wells.

Section 8(a)(iv) - List of all Surface and Groundwater Rights and Expected Effects

Groundwater rights for the proposed on-lot wells will be the only water rights associated with the proposed R&R Heights Subdivision. To date, there is currently one permitted well on record with the Wyoming State Engineer's Office for the appropriation of groundwater in the proposed R&R Heights subdivision located in the SE¼ NW¼ of Section 2, Township 14 North, Range 68 West of the 6th Principal Meridian. The R&R Heights No. 1 well (U.W. 15772) was constructed in October 1964 to a total depth of 228 feet below ground level, with a reported static water level of 180 feet. The only other water rights that could be potentially impacted would be the groundwater rights associated with existing nearby wells completed in the High Plains Aquifer. To determine the potential impacts to the surrounding wells and to each of the proposed wells for the R&R Heights Subdivision, the pump test data submitted with State Engineer's Office well records were reviewed (see Table 7). For determining the impact to surrounding water wells pump test data from only the White River formation was used because the subdivision wells that could possibly be influencing the surrounding area are recommended to be completed in the White River Formation. The specific capacities reported from these wells ranged from 0.03 to 4.42 gpm per foot of drawdown. The calculated corresponding transmissivities from these pump tests range from 52 gpd/ft to 8834 gpd/ft. The average specific capacity and transmissivity values, from the 3 aquifer tests from the White River Fm., were 1.58 gpm/foot of drawdown and 3151 gpd/ft, respectively. These average values will be used to evaluate the potential impact on the existing wells in the area and on the proposed R&R Heights Subdivision wells.

In order to determine the potential impact on the existing wells in the immediate area of the proposed subdivision, an analysis of the potential impact caused by the production from the proposed subdivision's wells was calculated. The drawdown imposed upon a well by pumping the R&R Heights Subdivision wells at 20 gpm for one hour was calculated using the Theis nonequilibrium equation (1935). Wells operating for one hour at a rate of 20 gpm would be the most extreme stress anticipated for these wells, as this would provide nearly three (3) times the anticipated average day demand and would be slightly over the maximum day demand. To determine the potential area of impact, it was assumed that all 55 of the R&R Heights subdivision wells were operating at the same time (combined pumping rate of 1100 gpm). Using the average transmissivity value discussed previously (3151 gpd/ft), a storage coefficient of 0.015 (unconfined scenario) and a pumping rate of 1100 gpm, the area of impact is approximately 109 feet. Beyond this radial distance, the impact is minimal (less than 1 foot). There are no existing wells besides the previously discussed R&R Heights No. 1 well in above Section 8(a)(iv) that are within this radial distance (109 feet) from the proposed R&R Heights subdivision. Therefore, the proposed wells for the R&R Heights subdivision (under assumed unconfined conditions) will have no impact on the existing wells outside of the subdivision boundary.

If the High Plains Aquifer is evaluated as semi-confined in the R&R Heights Subdivision area, the area of influence (potential area of impact) is approximately 420 feet. Beyond this distance, the interference will be less than one foot. To determine the potential area of impact, it was assumed that all 55 of the R&R Heights subdivision wells were again operating at the same time (combined pumping rate of 1100 gpm) and the aquifer characteristics were represented by the average transmissivity value discussed previously (3151 gpd/ft) and a storage coefficient of $1x10^{-3}$ (typical of a semi-confined aquifer).

Within a 420-foot radius of influence for the proposed R&R Heights Subdivision, five existing groundwater wells were identified (Table 7). To evaluate potential impacts to these wells, drawdown was calculated under semi-confined aquifer conditions using the previously established transmissivity values for the area. The analysis incorporated a conservative, worst-case scenario in which all proposed subdivision wells operate simultaneously at the subdivision boundary at 1100 GPM (cumulation of 55 lots at 20 GPM per lot). For each existing

well, the additional drawdown imposed by the subdivision pumping was added to the well's calculated initial drawdown. The resulting available water column above the pump intake was determined by subtracting the static water level reported on the well's individual statement of completion and the cumulative drawdown imposed by the well itself and surrounding influence from the pump set depth.

As shown in Table 7, all existing wells maintain a substantial margin of available water above their pump intakes even after one week of both continuous and simultaneous pumping from the proposed subdivision wells. Under these conditions, no well experiences a reduction in available water below its pump set depth that would impair performance. Based on these results, the proposed subdivision is not expected to cause any negative impacts to nearby existing wells, even under extreme, sustained pumping conditions within a semi-confined aquifer system.

Table 7 – Wells Influenced Under Semi-Confined Conditions

Pumping Rate 20 GPM	Current Pumping Rate	Radial Distance	1 day at 1100 gpm	1 week at 1100 gpm	1 Day at Current Pumping Rate	1 Week at Current Pumping Rate	Static Water level (BGL)	Pump Depth (BGL)	Final Water Above Pump (1 Week)
Well Permit Nos.	GPM	FT	Additional Drawdown (s) [Ft]	Additional Drawdown (s) [Ft]	Initial Drawdown (s) [Ft]	Initial Drawdown (s) [Ft]	FT	FT	Pump Depth - Water Level- S_0 - S_1
164752	25	261	106.86	183.34	15.03	16.80	160	460	99.86
160886	25	280	101.48	177.75	15.03	16.80	160	460	105.45
57080	10	286	99.86	176.06	6.01	6.72	150	360	27.22
219385	5	401	74.63	149.29	3.01	3.36	160	460	147.35
217374	7	419	71.45	145.83	4.21	4.70	206	635	278.47

The radial impact of a well representing the annual production of all 55 of the proposed R&R Heights subdivision wells was also evaluated. The estimated annual production from each of the R&R Heights subdivision wells is 267,460 gallons (0.51 gpm). The total annual discharge rate for all 55 wells would be 28 gpm (55 x 0.51). If a well located in the center of the R&R Heights subdivision were to represent all 55 wells pumping at a total rate of 28 gpm nonstop for one year, the radial impact under unconfined conditions is approximately 3,325 feet. Unconfined conditions were assumed because it is generally accepted that over long-term or steady-state conditions, the High Plains Aquifer is represented as an unconfined aquifer. This pumping scenario also neglects the recharge to the aquifer, which, as demonstrated by the state's monitoring wells, has been sufficient to maintain the water levels in the proposed development area. Under these conditions at the simulated well anticipated drawdown was 20.1 feet this scenario produces a very shallow but horizontally wider spread zone of influence. Thirty-nine (39) wells are located within the 3,325-foot radial distance from the center of the subdivision. There is, however, minimal impact to these wells (see Table 10) in the form of additional drawdown and impacts to either the pump setting depth or dewatering of a screen.

Table 10 – Impact to wells outside of Subdivision
One Year Plumping at Average Annual Rate from Proposed R&R Heights Wells

Pumping Rate 28 GPM	Current Pumping Rate	Radial Distance	1 year at 28 gpm	1 year at Current Pumping Rate	Static Water level (BGL)	Pump Depth (BGL)	Final Water Above Pump (1 Week)
Well Permit Nos.	GPM	FT	Additional Drawdown (s) [Ft]	Initial Drawdown (s) [Ft]	FT	FT	Pump Depth - Water Level- S_0 - S_1
164752	25	261	5.93	17.93	160	460	276.14
160886	25	280	5.79	17.93	160	460	276.28
57080	10	286	5.75	7.17	150	360	197.08
219385	5	401	5.06	3.59	160	460	291.35
217374	7	419	4.97	5.02	206	635	419.01
154080	25	432	4.91	17.93	160	460	277.16
151487	21	440	4.87	15.06	100	460	340.07
165644	25	563	4.37	17.93	160	460	277.70
167030	25	907	3.41	17.93	160	460	278.66
110208	25	984	3.25	17.93	210	260	28.82
151486	21	1000	3.22	15.06	100	460	341.72
39530	25	1103	3.02	17.93	220	340	99.05
151485	21	1105	3.02	15.06	100	460	341.92
157606	15	1230	2.81	10.76	160	460	286.43
209370	7	1514	2.41	5.02	210	600	382.57
206793	15	1612	2.29	10.76	140	280	126.95
165446	25	1627	2.27	17.93	160	460	279.80
173857	15	1633	2.26	10.76	100	440	326.98
167029	25	1692	2.19	17.93	160	460	279.88
170186	15	2053	1.83	10.76	160	400	227.41
159371	25	2057	1.83	17.93	100	320	200.24
157607	25	2250	1.66	17.93	160	460	280.41
165612	25	2267	1.65	17.93	110	260	130.42
67497	12	2316	1.61	8.61	235	505	259.78
197557	15	2374	1.57	10.76	160	500	327.67
202891	10	2442	1.52	7.17	170	322	143.31
88481	12	2477	1.49	8.61	204		
6424	6	2503	1.48	4.30	160	460	294.22
160887	15	2516	1.47	10.76	160	460	287.77
165447	25	2517	1.47	17.93	160	460	280.60
157605	25	2546	1.45	17.93	480	520	20.62
198327	10	2574	1.43	7.17	166	340	165.40
177432	14	2580	1.42	10.04	160	460	288.54
190206	15	2615	1.40	10.76	160	460	287.84
165448	25	2887	1.23	17.93	196	500	284.84
157989	15	2888	1.23	10.76	225	560	323.01
182175	15	2949	1.20	10.76	198		
211159	15	3017	0.16	10.76	160	460	289.08
165645	25	3159	1.08	17.93	120	380	240.99
170164	15	3164	1.08	10.76	175	360	173.16

The existing Wheeler No. 1 well was used to calculate potential interference to the proposed wells in the subdivision from the operation of other subdivision wells. Under a conservative, worst-case scenario in which all proposed R&R Heights Subdivision wells operate simultaneously and are represented as a single pumping source of 1,100 gallons per minute (55 lots at 20 GPM per lot) for a one-hour duration the radius of influence as described earlier is approximately 420 feet. There is a potential of 5 other R&R Heights Subdivision wells to fall within this radius. However, the combined pumping rate of only 5 wells at 20 gpm is 100 gpm. In a one hour period of pumping at 100 gpm, the radius of influence is reduced to 245 feet which is within the tract boundary so that no other well will impact the Wheeler No. 1 well.

Figure 15 presents the potentiometric surface elevation of the High Plains Aquifer as mapped by Bartos and Hallberg (2011). At the location of the proposed R&R Heights Subdivision, the equipotential contour passes directly through the site at an elevation of approximately 6,400 feet above mean sea level, corresponding to an estimated depth to the potentiometric surface of about 187.6 feet.

Review of driller logs from wells surrounding the subdivision indicates an average static water level depth of 187.6 feet, which is consistent with the regional potentiometric surface depicted by Bartos and Hallberg. The exact numerical match is coincidental, as individual static water level measurements exhibit substantial variability; however, the overall agreement supports the reliability of both the mapped and reported groundwater levels.

Based on the groundwater conditions described above, no adverse impacts to future wells within the proposed R&R Heights Subdivision are anticipated. Although the subdivision lies outside the Cheyenne North Study Area and Laramie County Control Area, this report outlines construction practices consistent with those standards because they generally represent sound measures I construction and for protecting the underlying aquifer resource. While these practices are not required for wells drilled within the subdivision, it is anticipated that wells will be constructed in a similar manner with minor alterations on a case-to-case basis. Even without mandatory adherence to these standards, the hydrogeologic analysis indicates that wells constructed in the proposed development are not expected to experience negative impacts from existing or future neighboring wells.

Section 8(a)(v) - Plans for the Mitigation of Water Right Conflicts
Since it is anticipated that there will be no measurable negative impacts to other water rights holders in the area due to the pumping of water from the proposed on-lot wells for the R&R Heights Subdivision, there are no plans for the mitigation of water rights conflicts.

Section 8(a)(vi) – W.S. 18-5-306 (a) (xi) - The Intended Disposition of Surface Water Rights
There are no existing surface water rights on the property.

Section 8(d) - Information Describing the Potential Availability and Quality of Groundwater
Recharge of the High Plains Aquifer in the Cheyenne and Laramie County has been extensively studied and modeled. However, due to the heterogeneity of the aquifer, it has been difficult to accurately model the aquifer to construct a representative mass balance of the system. The aquifer as a whole is less permeable than many of the wells that have been completed in more permeable discrete zones. This discrepancy in the estimated transmissivities of the aquifer as a whole (modeled) versus that of the measured well data (pump tests) has made the development of a High Plains Aquifer model more difficult. Estimates of the recharge to the High Plains Aquifer in the Cheyenne and Laramie County area range from less than 1 inch per year to 6 inches per year (JR Engineering, et.al, 2008). The recent modeling efforts performed during the Hydrogeologic Study of the Laramie County Control Area (Amec, et al, 2014) projected the recharge rate in the R&R Heights Subdivision to be 0.50 inches per year. Using 0.50 inches of recharge per year, the total volume of recharge beneath the R&R Heights Subdivision area would

be approximately 4.3 million gallons per year (V_i = 11,730 gpd = 4.3 million gal/yr). As described in Section 8(a)(ii), the estimated consumptive use demand for each lot is approximately 116,280 gallons per year (760gpd x 153 days) or a total consumptive demand by the development of 6.4 MG per year(116,280 gallons per year per lot x 55 lots) or 19.6 ac-ft. The area required to replace the 19.6 ac-ft consumptive use loss at 0.5 inches per year of recharge is 471 acres or approximately 147% of the total subdivision area. Figure 2 illustrates undeveloped agricultural land surrounding much of the proposed subdivision. Additionally, roughly 635 acres of undeveloped land, owned by Hargraves Family Trust, lie within the cross-gradient and down-gradient zones to the South and east of the subdivision, followed by 7,000 acres of the Polo Ranch Co. The natural recharge occurring across these undeveloped areas is expected to sufficiently offset the projected consumptive use associated with the proposed development.

The High Plains Aquifer is comprised of two media types: porous sandstone/siltstone and fractured siltstone. The latter being associated with the White River Group. Groundwater flow in the sands of the Ogallala and the upper White River Group member, the primary target aquifers in the R&R Heights Subdivision, is porous flow. The transmissivity of the aquifer in the proposed subdivision averages approximately 3151 gpd/ft. The storage coefficient for the aquifer in the proposed subdivision is unknown. Calculations to estimate the potential impacts from the development of the R&R Heights Subdivision assumed a storage coefficient of 0.015. The static water level in the R&R Heights Subdivision is projected to be approximately 187 feet below ground level.

Yield from the High Plains Aquifer ranges from less than 10 gpm to over 2,000 gpm. In the area of the proposed subdivision, as reported on the SEO records, the yields range from 3 to 425 gpm with an average value for the wells of 19 gpm. Based on the historical use and production of the High Plains Aquifer in the Cheyenne area and the reported production and pump test records associated with the wells in the proposed subdivision area, the High Plains Aquifer in the R&R Heights Subdivision area is capable of meeting the projected demands of the proposed subdivision.

Section 8(d)(i) – Water Quality

Water quality in the area of the proposed R&R Heights Subdivision area is expected to be of good quality as previously referenced in Section 7(d)(vii)(C). Table 6 lists the results of a laboratory analysis of the groundwater as required by WDEQ Chapter 23 produced from the Wheeler #1 well located near the center of the subdivision that has been completed in the High Plains Aquifer. Wells drilled in the proposed R&R Heights subdivision should yield water very similar to that described in Table 6.

Section 8(d)(ii) - Activities, within a Distance of One Quarter (¼) Mile of the Subdivision

Activities within ¼ mile of the proposed R&R Heights Subdivision (See Figure 2) consist of residential development and undeveloped acreage used primarily for livestock grazing. Most of the residential development in the area is up gradient from the proposed subdivision. Due to the depth of the producing horizon, there is minimal potential for contamination of the High Plains Aquifer from the land uses in the immediate vicinity of the R&R Heights Subdivision.

Based on the data and analyses presented in Sections 8(d) and 8(a)(iii), the High Plains Aquifer is considered a viable and appropriate source of water supply for the proposed R&R Heights Subdivision.

Attached to this report are: 1) copies of the SEO Statement of Completion forms for a sampling of the wells in the subdivision area; 2) a copy of the NRCS soils report for the subdivision area; 3) the nitrate loading and minimum isolation distance analyses spreadsheets (Appendices A, and B); 4) a copy of geotech report prepared by JB Engineers which contains the water quality

analyses for the existing well in the property - Table 6 ; and 5) the plat of the R&R Heights subdivision.

References:

AMEC Environment & Infrastructure, Inc. and Hinckley Consulting, 2014, Hydrogeologic Study of the Laramie County Control Area, Prepared for the Wyoming State Engineer's Office.

Bartos, Timothy T. and Laura L. Hallberg, 2011, U.S. Geological Survey Scientific Investigations Map 3180.

Black & Veatch, 1994, Cheyenne Water Supply Master Plan, Level I, Prepared for the Wyoming Water Development Commission.

Driscoll, Fletcher G., 1986, Groundwater and Wells, 2nd Edition, Johnson Division, pp 556 – 559.

JR Engineering, HDR and Lidstone and Associates, Inc., 2008, Water Resources Atlas of Laramie County Wyoming, Prepared for the Wyoming Water Development Commission.

JR Engineering and Lidstone and Associates, Inc., 2009, Laramie County Aquifer Study Final Report, Prepared for the Wyoming Water Development Commission.

Lowry, Marlin E, and Marvin A. Crist, 1967, Geology and Ground-Water Resources of Laramie County Wyoming: U.S. Geological Survey Water-Supply Paper 1834.

State Engineer's Office (SEO) records for well completion records.

Theis, C.V., 1935, The Relation between Lowering of the Piezometric Surface and the Rate and Duration of Discharge of a Well Using Ground Water Storage: Transactions, American Geophysical Union, vol. 16, pp. 518-524.

Bartos, T. T. (2011). *Generalized potentiometric surface, estimated depth to water, and estimated saturated thickness of the High Plains aquifer system, March–June 2009, Laramie County, Wyoming* (Scientific Investigations Map 3180). U.S. Geological Survey. https://pubs.usgs.gov/publication/sim3180

R&R HEIGHTS SUBDIVISION
CHAPTER 23 REPORT

Appendix A

SEO Statement of Completions

T14N, R68W, Section 2

4565 1-29-71

M

SCANNED NOV 17 2011

RECEIVED JAN 18 1971 STATE ENGINEER Cheyenne, Wyo.

Form U.W. 7

IF WELL IS TO BE ABANDONED, SEE ITEM 20

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL

for Domestic or Stock Watering Use Only

A preferred water right is given to such use when the yield or flow does not exceed .056 cubic feet per second or 25 gallons per minute. Domestic use refers to household use and the watering of lawns and gardens for family use, not to exceed one acre.

Permit No. U.W. 6424 Temporary Filing No. 4-2-259

Water Division No. 1 (1)

U.W. District Cheyenne

**Completed Prior to May 24, 1969 ☐

NAME OF WELL Koster No. 1

1. Owner Wayne E. Koster
2. Address Route 1, Box 740, Cheyenne, Wyo. 82001
3. Agent to receive correspondence
4. Name & address of driller Stewart Drilling Co., P.O. Box 2007, Cheyenne, Wyo.
5. Well is constructed on lands owned by Wayne E Koster
(Obtaining of easement or right of way is the responsibility of the applicant's. Include copy if land is privately owned and owner is not a co-applicant.)
6. Type of construction: Dug ☐ Drilled ☑ Cable Tool (Type of Rig)
Driven ☐ Jet ☐ Other
7. Use of Water—Domestic ☑ Stock ☑
8. Means of conveyance, distance and direction to point of use
Piped 15 ft NW to the house.
9. Date started Oct. 6, 19 70.
10. Date completed Oct. 15, 19 70. (including pump)
11. Date after completion when water was used Oct. 15, 19 70.
12. WELL DESCRIPTION
Total Depth 240' Depth to Water Level 204 ft.
13. TEST DATA
Yield 6 gpm How Tested Bailer
Drawdown 230 Length of Test 2 hrs.
14. PUMP DATA
Type Submersible (Turbine, Centrifugal, etc.) Power Source Elect. (Elec., Gas, etc.)
Horsepower 3/4 Amount of Water Being Used 6 gpm (Gallons per Minute)
15. CASING RECORD

Plain Casing

Size 6 5/8"	Kind Steel	from 0 ft.	to 34' ft.
Size 5 1/2"	Kind "	from 30 ft.	to 220' ft.
Size	Kind	from ft.	to ft.

Perforated Casing

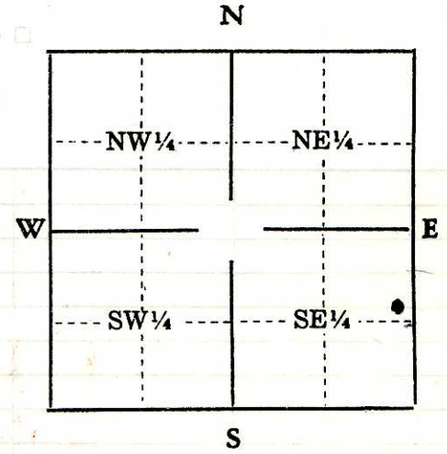
Size 5 1/2"	Kind Steel	from 220 ft.	to 240 ft.
Size	Kind	from ft.	to ft.

WELL LOCATION

Laramie County

NE ¼ of SE ¼ of Sec. 2

T. 14 N., R. 68 W.



Scale: 2" = 1 mile

Above diagram represents one full section. Locate well accurately in small square representing 40 ac.
or
fill in the following:

Lot ____ & Block ____ or Tract ____

of the ____ (Subdivision or Addition)

of ____ (City, Town or County)

Section ____, T. ____ N., R. ____ W.

**For wells constructed after May 24, 1969, Application Form U.W. 5 must be submitted prior to construction.

Permit No. U.W. 6424 Book No. 37 Page No. 71

THE MILLS COMPANY, SHERIDAN 127214

U.W. 6424

16. Was surface seal provided? Yes ☑ No ☐ To What Depth 34' Material used: Surface Casing
Was well gravel packed? Yes ☐ No ☑

17. FLOWING WELL (Owner is responsible for installing control device on flowing well.)
Does well flow? Yes ☐ No ☑
Flow controlled by: Valve ☐ Cap ☐ Plug ☐ Does well leak around casing? Yes ☐ No ☐

18. LOG OF WELL—Clearly indicate first water bearing material and principal water bearing material.

From Feet	To Feet	Material Type, Texture, Color	REMARKS (Cementing, Shutoff, Packing, etc.)	Indicate Water Bearing Formation	Indicate Perforated Casing Location
0	30	Sand + gravel w/clay	Surface Casing To 34'		
30'	218'	Clay (Lt Tan) w/layers of sand, Gravel			
218	235	Coarse gravel		Water bearing	Perf.
235	240	Lt Tan Sandy Clay			

19. QUALITY OF WATER INFORMATION
Was a chemical analysis made? Yes ☐ No ☑
If so, please include a copy of the analysis with this form.
If not, do you consider the water as: Good ☑ Acceptable ☐ Poor ☐ Unusable ☐
Was a bacteriological analysis made? Yes ☑ No ☐
If a domestic well, was the well disinfected by the driller? Yes ☑ No ☐

20. IF WELL IS TO BE ABANDONED, complete only Items 1 through 6, Item 10 and Item 18 (Log of Well) and state reason for abandonment below.
It is the responsibility of the owner to properly plug or fill in the well in order to prevent contamination of ground water and to cover or cap the well at ground level.

REMARKS: The actual well location is different from the location shown on the permit. The location shown on the Statement of Completion is the correct well location.

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Wayne Kontz
Signature of Owner or Authorized Agent

January 18, 1971
Date

Date of Receipt: January 18, 1971 Date of Priority: September 9, 1970

Sylvia H. Ross

Date of Approval: 28 January, 1971.

Sylvia H. Ross
for State Engineer

MICRO-FILMED NOV 20'72

Form U.W. 7

IF WELL IS TO BE ABANDONED, SEE ITEM 20

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL

for Domestic or Stock Watering Use Only

A preferred water right is given to such use when the yield or flow does not exceed .056 cubic feet per second or 25 gallons per minute. Domestic use refers to household use and the watering of lawns and gardens for family use, not to exceed one acre.

Permit No. U.W. 15772 Temporary Filing No. 6-3-298

Water Division No. 1(1)

U.W. District Federal

**Completed Prior to May 24, 1969 ☐

NAME OF WELL Wheeler No. 1

1. Owner Lewis A. Wheeler
2. Address 3626 Foxcroft Rd. Cheyenne, Wy
3. Agent to receive correspondence Applicant
4. Name & address of driller Beaver
5. Well is constructed on lands owned by Applicant
   (Obtaining of easement or right of way is the responsibility of the applicant's. Include copy if land is privately owned and owner is not a co-applicant.)
6. Type of construction: Dug ☐ Drilled ☐ Cable Tool (Type of Rig)
   Driven ☐ Jet ☐ Other
7. Use of Water—Domestic ☐ Stock ☒
8. Means of conveyance, distance and direction to point of use
9. Date started Oct, 1964
10. Date completed Oct, 1964. (including pump)
11. Date after completion when water was used Oct, 1964.
12. **WELL DESCRIPTION**
    Total Depth 228 Depth to Water Level 180 ft.
13. **TEST DATA**
    Yield ____ How Tested ____
    Drawdown ____ Length of Test ____
14. **PUMP DATA**
    Type Pump Jack (Turbine, Centrifugal, etc.) Power Source Gasoline (Elec., Gas, etc.)
    Horsepower 5 Amount of Water Being Used 20 (Gallons per Minute)
15. **CASING RECORD**

Plain Casing

Size ____ Kind ____ from ____ ft. to ____ ft.
Size ____ Kind ____ from ____ ft. to ____ ft.
Size ____ Kind ____ from ____ ft. to ____ ft.

Perforated Casing

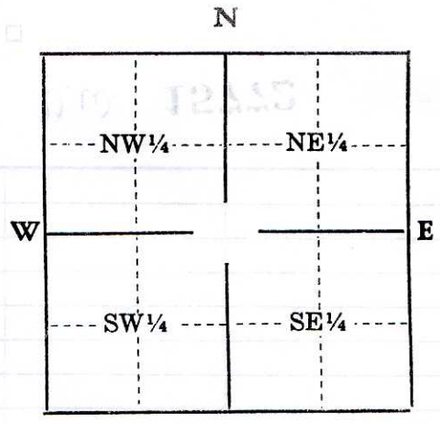
Size ____ Kind ____ from ____ ft. to ____ ft.
Size ____ Kind ____ from ____ ft. to ____ ft.

WELL LOCATION

Laramie County

SE ¼ of NW ¼ of Sec. 2

T. 14 N., R. 68 W.



Scale: 2" = 1 mile

Above diagram represents one full section. Locate well accurately in small square representing 40 ac.
or
fill in the following:

Lot ____ & Block ____ or Tract ____

of the ____ (Subdivision or Addition)

of ____ (City, Town or County)

Section ____, T. ____ N., R. ____ W.

**For wells constructed after May 24, 1969, Application Form U.W. 5 must be submitted prior to construction.

Permit No. U.W. 15772 Book No. 84 Page No. 14

THE MILLS COMPANY, SHERIDAN

16. Was surface seal provided? Yes ☒ No ☐ To What Depth _____ Material used: _____
Was well gravel packed? Yes ☒ No ☐

17. FLOWING WELL (Owner is responsible for installing control device on flowing well.)
Does well flow? Yes ☐ No ☒
Flow controlled by: Valve ☐ Cap ☐ Plug ☐ Does well leak around casing? Yes ☐ No ☐

18. LOG OF WELL—Clearly indicate first water bearing material and principal water bearing material.

From Feet	To Feet	Material Type, Texture, Color	REMARKS (Cementing, Shutoff, Packing, etc.)	Indicate Water Bearing Formation	Indicate Perforated Casing Location

19. QUALITY OF WATER INFORMATION
U.W. 15772
Was a chemical analysis made? Yes ☐ No ☒
If so, please include a copy of the analysis with this form.
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐
Was a bacteriological analysis made? Yes ☐ No ☐
If a domestic well, was the well disinfected by the driller? Yes ☐ No ☐

20. IF WELL IS TO BE ABANDONED, complete only Items 1 through 6, Item 10 and Item 18 (Log of Well) and state reason for abandonment below.
It is the responsibility of the owner to properly plug or fill in the well in order to prevent contamination of ground water and to cover or cap the well at ground level.

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Louis A. Wheeler
Signature of Owner or Authorized Agent

September 28, 1972
Date

Date of Receipt: SEP 28 1972, 19____.

Date of Priority: October 31, 1964
(In lieu of specific date)

Jimmie L. Garrett

Date of Approval: Oct. 2, 1972

Richard D. Stockdale
for State Engineer

SCANNED FEB 07 2012

SCANNED JAN 28 2013
MICRO. FILMED SEP 5 '84

Form U.W. 6
Rev. 2-83

RECEIVED
AUG 6 1984
STATE ENGINEER
CHEYENNE, WYOMING

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

IF WELL IS TO BE ABANDONED, SEE STATEMENT OF COMPLETION AND DESCRIPTION OF WELL ITEM 15, PAGE 4

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 67497 NAME OF WELL Koster No. 3

1. NAME OF OWNER Wayne Koster

2. ADDRESS 1404 Koster #117 Cheyenne, WY Zip Code 82009

3. USE OF WATER: Domestic [X] Stock Watering [X] Irrigation [ ] Municipal [ ] Industrial [ ] Miscellaneous [ ]

4. LOCATION OF WELL: NE ¼ NE ¼ of Section 2, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.), Wyoming, being specifically

(Bearing and Distance)

or _____ ft. North / South and _____ ft. East / West from the _____ corner of Section _____, T. _____ N., R. _____ W.
(Strike out words not needed).

5. TYPE OF CONSTRUCTION: Drilled [X] Rotary Dug [ ] Driven [ ] Jetted [ ]
(Type of Rig)

Other _____

6. CONSTRUCTION: Total Depth of Well 280 ft. Depth to Static Water Level 120 ft.

a. Casing Schedule New [X] Used [ ]

5" diameter from 0 ft. to 280 ft. Material PVC Gage .250

_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____

_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____

b. Perforations: Type of perforator used Saw

Size of perforations ⅛ inches by 5 inches.

Number of perforations and depths where perforated:

300 perforations from 220 ft. to 280 feet.

_____ perforations from _____ ft. to _____ feet.

c. Was well screen installed? Yes [ ] No [X]

Diameter: _____ slot size: _____ set from _____ feet to _____ feet.

Diameter: _____ slot size: _____ set from _____ feet to _____ feet.

d. Was well gravel packed? Yes [X] No [ ] Size of gravel ⅛ x ¼"

e. Was surface casing used? Yes [ ] No [X] Was it cemented in place? Yes [ ] No [X]

7. NAME & ADDRESS OF DRILLER Stewart Drilling Co. Cheyenne, Wyo

8. DATE OF COMPLETION OF WELL (including pump installation) July 26 - 84

9. PUMP INFORMATION: Manufacturer Berkeley Type Submersible

Source of power electric Horsepower 1 Depth of Pump Setting 260

Amount of Water Being Pumped 12 Gallons Per Minute. (For springs or flowing wells, see item 11.)

Permit No. U.W. 67497 Book No. 455 Page No. _____

UW67497

10. PUMP TEST: Was a pump test made? Yes ☐ No ☒

If so, by whom _____ Address _____

Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

11. FLOWING WELL (Owner is responsible for control of flowing well).

If well yields artesian flow, yield is _____ gal./min. Surface pressure is _____ lb./sq. inch, or _____ feet of water.

The flow is controlled by: valve ☐ cap ☐ plug ☐

Does well leak around casing? Yes ☐ No ☐

12. LOG OF WELL: Total depth drilled 280 feet.

Depth of completed well 280 feet. Diameter of well 7 7/8 inches.

Depth to first water bearing formation 220 feet.

Depth to principal water bearing formation. Top 220 feet to Bottom 260 feet.

Ground Elevation, if known _____

From Feet	To Feet	Material Type, Texture, Color	REMARKS (Cementing, Shutoff, Packing, etc.)	Indicate Water Bearing Formation	Indicate Perforated Casing Location
0	80	Clay w/gravel (Brown)			
80	220	Sandy Clay + Sandstone			
220	260	Coarse sand w/clay streaks		WB	perf. in
260	280	Clay			

QUALITY OF WATER INFORMATION:

Was a chemical analysis made? Yes ☐ No ☐

If so, please include a copy of the analysis with this form.

If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

UW61497

13. TABULATION

a. If for irrigation, the land proposed to be irrigated should be described in the following tabulation. Describe in the "Remarks" section, under Item 14, the means of conveying the water to the lands and the method of irrigation.

(Give irrigable acreage in each legal subdivision. If proposed use is for additional supply for lands with a right from another source, indicate in the tabulation the priority or permit number, the source of supply and the name of the ditch or other well.)

b. If not used for irrigation, show the area and point(s) of use and location of well in the tabulation below. Also describe the method of conveyance in the "Remarks" section under Item 14.

Town-Ship	Range	Sec.	NE¼				NW¼				SW¼				SE¼				TOTALS
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	

TOTAL NUMBER OF ACRES TO BE IRRIGATED_____

Original Supply _____ acres

Additional Supply _____ acres

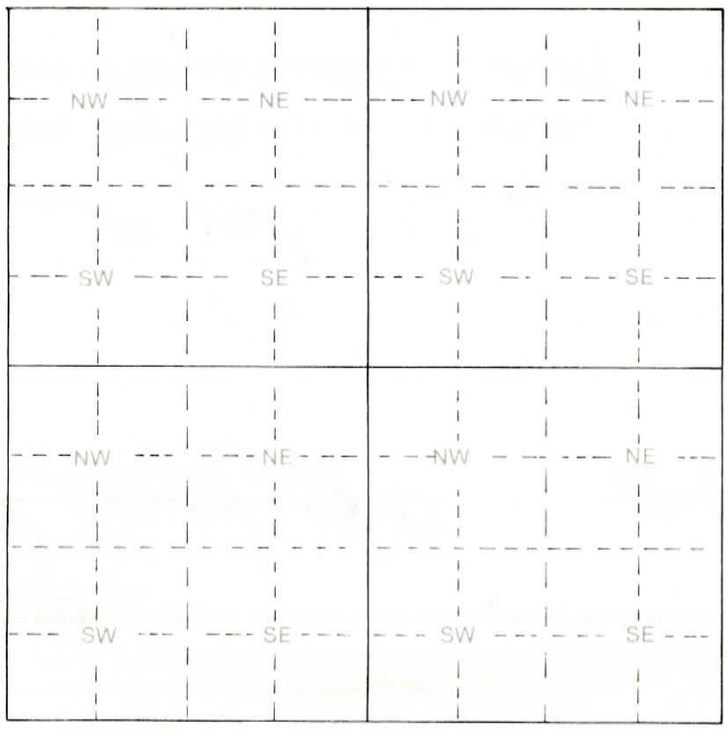
14. PLAT

a. If the well is to be used for irrigation, industrial, miscellaneous or municipal use, show the location of the well on the plat below. For such uses, a plat certified by a licensed engineer or land surveyor is required to be submitted at the time the Proof of Appropriation and Beneficial Use of Ground Water is submitted.

b. For other uses, accurately show the well location, point of use or uses and describe method of conveyance of water to points of use on plat and in "Remarks" section below. Make certain location on plat agrees with written description.

c. A separate map may be submitted if the information required cannot be shown on this plat.

R._____W. R._____W.



Scale: 2" = 1 Mile

T._____N.

T._____N.

REMARKS: _____

UW67497

15. IF WELL IS TO BE ABANDONED, complete Items 1 through 8, Item 12 (Log of Well) and state reason for abandonment and details of the plugging below.

    It is the responsibility of the owner to properly plug or fill in the well in order to prevent contamination of ground water and to cover or cap the well at ground level.

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

R D Stewart (Agent) — Signature of Owner or Authorized Agent

Aug 4, 19 84 — Date

AUG 6 1984 at

Date of Receipt _____, 19 _____

Date of Priority June 6th, 19 84

Date of Approval August 21, 19 84

John D Montgomery

for State Engineer

SCANNED JUL 29 2013

Form U.W. 6
Rev. 2-83

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

MICRO FILMED SEP 1 1992

IF WELL IS TO BE ABANDONED, SEE ITEM 15, PAGE 4

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 88481 NAME OF WELL KENT H 1

1. NAME OF OWNER KENT AND SANDRA HARGRAVES

2. ADDRESS 1410 KOSTER RD CHEYENNE WY Zip Code 82009

3. USE OF WATER: Domestic [X] Stock Watering [X] Irrigation [ ] Municipal [ ] Industrial [ ] Miscellaneous [ ]

4. LOCATION OF WELL: NE ¼ SE ¼ of Section 2, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.), Wyoming, being specifically _____ (Bearing and Distance)

or _____ ft. North South and _____ ft. East West from the _____ corner of Section _____, T. _____ N., R. _____ W. (Strike out words not needed).

5. TYPE OF CONSTRUCTION: Drilled [X] Rotary (Type of Rig) Dug [ ] Driven [ ] Jetted [ ]

Other _____

6. CONSTRUCTION: Total Depth of Well ~~340~~ 340 ft. Depth to Static Water Level ~~170~~ 170 ft.

a. Casing Schedule New [X] Used [ ]

5" diameter from 0 ft. to 340 ft. Material PVC Gage sch40

_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____

_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____

b. Perforations: Type of perforator used Saw

Size of perforations 1/16 inches by 5 inches.

Number of perforations and depths where perforated:

400 perforations from 260 ft. to 340 feet.

_____ perforations from _____ ft. to _____ feet.

c. Was well screen installed? Yes [ ] No [X]

Diameter: _____ slot size: _____ set from _____ feet to _____ feet.

Diameter: _____ slot size: _____ set from _____ feet to _____ feet.

d. Was well gravel packed? Yes [X] No [ ] Size of gravel 1/8 x 1/4

e. Was surface casing used? Yes [ ] No [X] Was it cemented in place? Yes [ ] No [X]

7. NAME & ADDRESS OF DRILLER STEWART DRILLING Co. 2308 Gordon Rd 82007

8. DATE OF COMPLETION OF WELL (including pump installation) ~~05-15-92~~ 05-15-92

9. PUMP INFORMATION: Manufacturer Grundfos Type Submersible

Source of power 240 Horsepower 1 Depth of Pump Setting 322

Amount of Water Being Pumped 12 Gallons Per Minute. (For springs or flowing wells, see item 11.)

Permit No. U.W. 88481 Book No. 665 Page No. 82

U.W. 88481

10. PUMP TEST: Was a pump test made? Yes ☐ No ☒

If so, by whom _____ Address _____

Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

NA 11. FLOWING WELL (Owner is responsible for control of flowing well).

If well yields artesian flow, yield is _____ gal./min. Surface pressure is _____ lb./sq. inch, or _____ feet of water.

The flow is controlled by: valve ☐ cap ☐ plug ☐

Does well leak around casing? Yes ☐ No ☐

12. LOG OF WELL: Total depth drilled 340' feet.

Depth of completed well 340' feet. Diameter of well 7 7/8 inches.

Depth to first water bearing formation 290' feet.

Depth to principal water bearing formation. Top 290 feet to Bottom 340 feet.

Ground Elevation, if known _____

From Feet	To Feet	Material Type, Texture, Color	REMARKS (Cementing, Shutoff, Packing, etc.)	Indicate Water Bearing Formation	Indicate Perforated Casing Location
0	290'	Clay w/ layers of Deteriorated Granite			
290	340	Deteriorated Granite w/ layers Fine Sand		W/B	perf.

QUALITY OF WATER INFORMATION:

Was a chemical analysis made? Yes ☐ No ☒

If so, please include a copy of the analysis with this form.

If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

U.W. 88481

13. TABULATION

a. If for irrigation, the land proposed to be irrigated should be described in the following tabulation. Describe in the "Remarks" section, under Item 14, the means of conveying the water to the lands and the method of irrigation.

(Give irrigable acreage in each legal subdivision. If proposed use is for additional supply for lands with a right from another source, indicate in the tabulation the priority or permit number, the source of supply and the name of the ditch or other well.)

b. If not used for irrigation, show the area and point(s) of use and location of well in the tabulation below. Also describe the method of conveyance in the "Remarks" section under Item 14.

Town-Ship	Range	Sec.	NE¼				NW¼				SW¼				SE¼				TOTALS
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	

TOTAL NUMBER OF ACRES TO BE IRRIGATED_____

Original Supply _____ acres

Additional Supply _____ acres

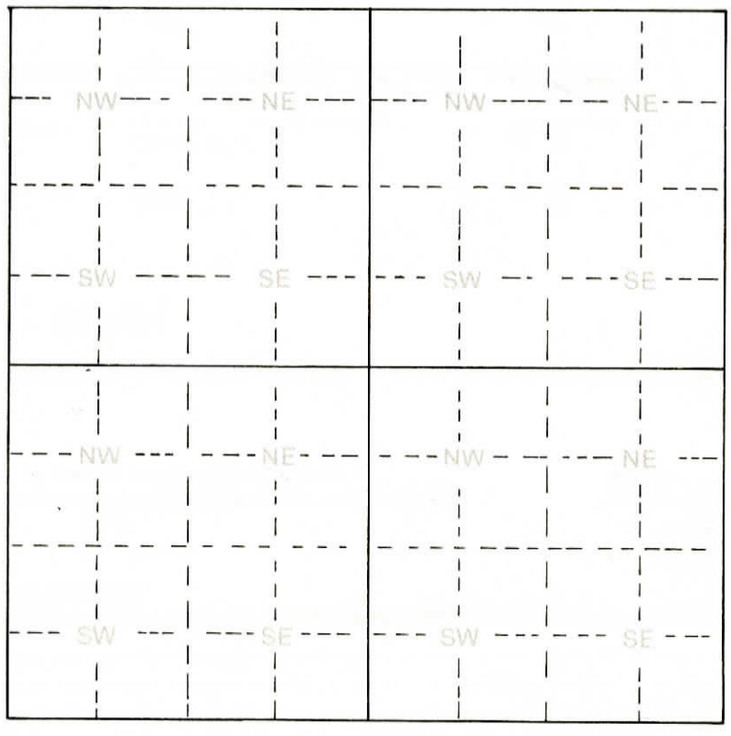
14. PLAT

a. If the well is to be used for irrigation, industrial, miscellaneous or municipal use, show the location of the well on the plat below. For such uses, a plat certified by a licensed engineer or land surveyor is required to be submitted at the time the Proof of Appropriation and Beneficial Use of Ground Water is submitted.

b. For other uses, accurately show the well location, point of use or uses and describe method of conveyance of water to points of use on plat and in "Remarks" section below. Make certain location on plat agrees with written description.

c. A separate map may be submitted if the information required cannot be shown on this plat.

R._____W. R._____W.



Scale: 2" = 1 Mile

T._____N.

T._____N.

REMARKS: _____

15. IF WELL IS TO BE ABANDONED, complete Items 1 through 8, Item 12 (Log of Well) and state reason for abandonment and details of the plugging below.

It is the responsibility of the owner to properly plug or fill in the well in order to prevent contamination of ground water and to cover or cap the well at ground level.

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Kurt Hays
Signature of Owner or Authorized Agent

06-10, 19 92
Date

U.W. 88481

Date of Receipt June 10, 19 92

Date of Priority June 10, 19 92

Date of Approval June 12, 19 92

for State Engineer

R&R HEIGHTS SUBDIVISION
CHAPTER 23 REPORT

Appendix A

SEO Statement of Completions

T14N, R68W, Section 3

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED JUL 16 2014
MICRO FILMED JUL 05 2005

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 151485 NAME OF WELL (SPRING) SAGE #1

1. NAME OF OWNER LEANING TREE HOMES, INC.
2. ADDRESS 1740 1740th Dell Range Blvd. #423
   Please check if address has changed from that shown on permit. ☐
   City Cheyenne State WY Zip Code 82009 Phone No. 7781856
3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
   One Single Family Dwelling
4. LOCATION OF WELL (SPRING): SE 1/4 NE 1/4 of Section 3, T. 14N N., R. 68W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Silver Sage Estates Lot 1 Block
   If surveyed, bearing, distance and reference point:
   Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
   Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey
5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary Combination Dug ☐ Driven ☐ Other ☐
   (type of rig, and fluid used if any)
   Describe:
6. CONSTRUCTION: Total Depth of Well/Spring 500' ft.
   Depth to Static Water Level 100 ft. (Below land surface) Casing Height above ground (ft.) 2'
   a. Diameter of borehole (Bit size) 7 7/8 inches.
   b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☐ glued ☐ welded
   5" diameter from 0 ft. to 500' ft. Material PVC Gage SDR17
   ____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
   c. Grouted interval, from ____ ft. to ____ ft.
   Amount of grout used: ____ (example: 10 sacks) type: ____ (example: bentonite pellets)
   d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
   Perforation: Type of perforator used Factory
   Size of perforations 0.035 inches by 3.00 inches.
   Number of perforations and depths where perforated:
   2400 perforations from 440 ft. to 500 ft.
   ____ perforations from ____ ft. to ____ ft.
   Open hole from ____ ft. to ____ ft.
   Well screen details:
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   e. Well development method Air How long did development last? 8 Hours
   f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel .125 to .375" diameter
   Filter pack installed from 0 ft. to 500 ft.
   g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
   Surface casing installed from ____ ft. to ____ ft.
7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 9/20/03
9. PUMP INFORMATION: Manufacturer Gould Type ~~submersible~~
   Source of power electricity Horsepower 1 1/2 Depth of Pump Setting or intake 460 ft.
   Amount of Water Being Pumped 15-21 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
   Total Volumetric Amount Used Per Calendar Year.
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
    If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
    The flow is controlled by: valve ☐ cap ☐ plug ☐
    Does well leak around casing? Yes ☐ No ☐

OCT 26 2004 STATE ENGINEER CHEYENNE, WY

151485 Permit No. U.W. 1116 Book No. 125 Page No.

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 500 feet.
Depth of completed well 500 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 100 feet.
Depth to principal water bearing formation. Top 440 feet to Bottom 500 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	Pale pink to white blocky claystones & sandstones			
220	440	White claystones interbedded w/poorly cemented silty sandstones			
440	500	Hard sandstones layers interbedded w/freshwater limestone			
			Gravel	White River	440-500

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Shana A. Shumpert
Signature of Owner or Authorized Agent

10-1
Date , 20 04

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 151485

Date of Receipt OCT 26 2004 , 20____

Date of Priority MAY 9, 2003 , 20____

Date of Approval May 18 , 20 05

Shug Lott
for State Engineer

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED JUL 16 2014
MICRO FILMED JUL 05 2005

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 151486 NAME OF WELL (SPRING) SAGE #29

1. NAME OF OWNER ~~LEANING TREE HOMES, INC.~~
2. ADDRESS 1740H Dell Range Blvd. #423
   Please check if address has changed from that shown on permit. ☐
   City Cheyenne State WY Zip Code 82009 Phone No. 7781856
3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
   One-Single Family Dwelling
4. LOCATION OF WELL (SPRING): SE 1/4 NE 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Silver Sage Estates Lot 29 Block
   If surveyed, bearing, distance and reference point:
   Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
   Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey
5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary Combination (type of rig, and fluid used if any) Dug ☐ Driven ☐ Other ☐
   Describe:
6. CONSTRUCTION: Total Depth of Well/Spring 520' ft.
   Depth to Static Water Level 100 ft. (Below land surface) Casing Height above ground (ft.) 2'
   a. Diameter of borehole (Bit size) 7 7/8 inches.
   b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☐ glued ☐ welded
   5" diameter from 0 ft. to 520' ft. Material PVC Gage SDR17
   ____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
   c. Grouted interval, from ____ ft. to ____ ft.
   Amount of grout used: ____ (example: 10 sacks) type: ____ (example: bentonite pellets)
   d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
   Perforation: Type of perforator used Factory
   Size of perforations 0.035 inches by 3.00 inches.
   Number of perforations and depths where perforated:
   2400 perforations from 460 ft. to 520 ft.
   ____ perforations from ____ ft. to ____ ft.
   Open hole from ____ ft. to ____ ft.
   Well screen details:
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   e. Well development method Air How long did development last? 8 Hours
   f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel .125 to .375" diameter
   Filter pack installed from 0 ft. to 520 ft.
   g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
   Surface casing installed from ____ ft. to ____ ft.
7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 9/20/03
9. PUMP INFORMATION: Manufacturer Gould Type submersible
   Source of power electricity Horsepower 1 1/2 Depth of Pump Setting or intake 460 ft.
   Amount of Water Being Pumped 11-15-21 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
   Total Volumetric Amount Used Per Calendar Year.
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
    If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
    The flow is controlled by: valve ☐ cap ☐ plug ☐
    Does well leak around casing? Yes ☐ No ☐

OCT 26 2004
STATE ENGINEER
CHEYENNE, WY

Permit No. U.W. 151486 Book No. 1116 Page No. 126

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 520 feet.
Depth of completed well 520 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 100 feet.
Depth to principal water bearing formation. Top 460 feet to Bottom 520 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	~~Pale pink to white~~ blocky			
		claystones & sandstones			
220	460	~~White claystones interbedded~~			
		w/poorly cemented silty sandstones			
460	520	~~Hard sandstones layers interbedded~~			
		w/freshwater limestone			
			Gravel	White River	460-520

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Stefanie A. Sturgeon
Signature of Owner or Authorized Agent

10-4, 20 04
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 151486

Date of Receipt OCT 26 2004, 20____

Date of Priority MAY 9, 2003, 20____

Date of Approval 5/18, 20 05

Cheryl Vuplancich
for State Engineer

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED JUL 16 2014
MICRO FILMED JUL 05 2005

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 151487 NAME OF WELL (SPRING) SAGE #2

1. NAME OF OWNER LEANING TREE HOMES, INC.
2. ADDRESS 1740 Dell Range Blvd. # 423
   Please check if address has changed from that shown on permit. ☐
   City Cheyenne State WY Zip Code 82009 Phone No. 6038405
3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
   One Single Family Dwelling
4. LOCATION OF WELL (SPRING): SE 1/4 NE 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Silver Sage Estates Lot 2 Block
   If surveyed, bearing, distance and reference point:
   Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
   Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey
5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary Combination Dug ☐ Driven ☐ Other ☐
   (type of rig, and fluid used if any)
   Describe:
6. CONSTRUCTION: Total Depth of Well/Spring 500' ft.
   Depth to Static Water Level 100 ft. (Below land surface) Casing Height above ground (ft.) 2'
   a. Diameter of borehole (Bit size) 7 7/8 inches.
   b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☐ glued ☐ welded
   5" diameter from 0 ft. to 500' ft. Material PVC Gage SDR17
   ____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
   c. Grouted interval, from ____ ft. to ____ ft.
   Amount of grout used: ____ (example: 10 sacks) type: ____ (example: bentonite pellets)
   d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
   Perforation: Type of perforator used Factory
   Size of perforations 0.035 inches by 3.00 inches.
   Number of perforations and depths where perforated:
   2400 perforations from 440 ft. to 500 ft.
   ____ perforations from ____ ft. to ____ ft.
   Open hole from ____ ft. to ____ ft.
   Well screen details:
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   e. Well development method Air How long did development last? 8 Hours
   f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel .125 to .375" diameter
   Filter pack installed from 0 ft. to 500 ft.
   g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
   Surface casing installed from ____ ft. to ____ ft.
7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 9/20/03
9. PUMP INFORMATION: Manufacturer Gould Type submersible
   Source of power electricity Horsepower 1 1/2 Depth of Pump Setting or intake 460 ft.
   Amount of Water Being Pumped 15-21 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
   Total Volumetric Amount Used Per Calendar Year.
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
    If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
    The flow is controlled by: valve ☐ cap ☐ plug ☐
    Does well leak around casing? Yes ☐ No ☐

OCT 26 2004 STATE ENGINEER CHEYENNE, WY

Permit No. U.W. 151487 Book No. 1116 Page No. 127

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 500 feet.
Depth of completed well 500 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 100 feet.
Depth to principal water bearing formation. Top 440 feet to Bottom 500 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	~~Pale pink to white blocky~~ claystones & sandstones			
220	440	~~White claystones interbedded~~ w/poorly cemented silty sandstones			
440	500	~~Hard sandstones layers interbedded~~ w/freshwater limestone			
			Gravel	White River	440-500

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Stefan A. Illingworth
Signature of Owner or Authorized Agent

10-1, 2004
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 151487

Date of Receipt OCT 26 2004, 20____

Date of Priority MAY 9, 2003, 20____

Date of Approval May 18, 2005

for State Engineer

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED AUG 01 2014

MICRO FILMED AUG 03 2004

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 154066 NAME OF WELL (SPRING) SILVER SAGE #19

1. NAME OF OWNER ~~JEFFCO CONST. INC.~~
2. ADDRESS 3650 Joes Road. Per UW5JR
   Please check if address has changed from that shown on permit. ☐
   City Cheyenne State WY Zip Code 82009 Phone No. 307-634-2942
3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
4. LOCATION OF WELL (SPRING): NW 1/4 SW 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Silver Sage Estates Lot 19 Block
   If surveyed, bearing, distance and reference point:
   Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
   Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey
5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary Dug ☐ Driven ☐ Other ☐
   (type of rig, and fluid used if any)
   Describe:
6. CONSTRUCTION: Total Depth of Well/Spring 400 ft.
   Depth to Static Water Level 180 ft. (Below land surface) Casing Height above ground (ft.)
   a. Diameter of borehole (Bit size) 7 7/8 inches.
   b Casing Schedule: New ☑ Used ☐ Joint type: ☐ threaded ☑ glued ☐ welded
   5" diameter from 0 ft. to 400 ft. Material PVC Gage SDR21
   ____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
   c. Grouted interval, from ____ ft. to ____ ft.
   Amount of grout used: ____ (example: 10 sacks) type: ____ (example: bentonite pellets)
   d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
   Perforation: Type of perforator used Saw
   Size of perforations .032 inches by 2 inches.
   Number of perforations and depths where perforated:
   3200 perforations from 320 ft. to 400 ft.
   ____ perforations from ____ ft. to ____ ft.
   Open hole from ____ ft. to ____ ft.
   Well screen details:
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   e. Well development method Bailer How long did development last? 2 hrs
   f. Was a filter pack installed? Yes ☑ No ☐ Size of sand/gravel 1/8 x 1/4"
   Filter pack installed from 10. ft. to 400 ft.
   g. Was surface casing used: Yes ☐ No ☑ Was it cemented in place? Yes ☐ No ☑
   Surface casing installed from ____ ft. to ____ ft.

RECEIVED MAR 11 2004 STATE OF WYOMING CHEYENNE, WYO.

7. NAME AND ADDRESS OF DRILLING COMPANY Stewart Drilling Co. Inc., Cheyenne, WY
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) Feb 15-04
9. PUMP INFORMATION: Manufacturer Goulds Type Submersible
   Source of power electric Horsepower 1½ Depth of Pump Setting or intake 287 ft.
   Amount of Water Being Pumped 16 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
   Total Volumetric Amount Used Per Calendar Year. 1 acre ft
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
    If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
    The flow is controlled by: valve ☐ cap ☐ plug ☐
    Does well leak around casing? Yes ☐ No ☐

Permit No. U.W. 154066 Book No. 1134 Page No. 2

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☑
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 400 feet.
Depth of completed well 400 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 325 feet.
Depth to principal water bearing formation. Top 325 feet to Bottom 385 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	325	Tan To Brown Sandy Clay + Sand Stone			
325	385	Sandstone w/ layers Lime Stone - coarse Sand + Brown clay		WB	Perf.
385	400	Brown Clay			

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

R D Stewart (Agent) — Signature of Owner or Authorized Agent

Mar 1 — Date, 20 04

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 154066

Date of Receipt MAR 11 2004, 20____

Date of Priority SEPTEMBER 12, 2003, 20____

Date of Approval June 29, 20 04

George D Taylor — for State Engineer

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED AUG 01 2014

MICRO FILMED JUL 25 2005

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

154080

PERMIT NO. U.W. _____ NAME OF WELL (SPRING) SAGE #28

1. NAME OF OWNER ~~LEANING TREE HOMES~~
2. ADDRESS 1740 Dell Range Blvd. #423
   Please check if address has changed from that shown on permit. ☐
   City Cheyenne State WY Zip Code 82009 Phone No. 3077781856
3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
   One, Single-family Dwelling
4. LOCATION OF WELL (SPRING): SW 1/4 NE 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Silver Sage Estates Lot 28 Block _____
   If surveyed, bearing, distance and reference point: _____
   Longitude (degrees, minutes, seconds) _____ Latitude (degrees, minutes, seconds) _____
   Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey
5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary Combination Dug ☐ Driven ☐ Other ☐
   (type of rig, and fluid used if any)
   Describe: _____
6. CONSTRUCTION: Total Depth of Well/Spring 520 ft.
   Depth to Static Water Level 160 ft. (Below land surface) Casing Height above ground (ft.) 2'
   a. Diameter of borehole (Bit size) 7 7/8 inches.
   b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☐ glued ☐ welded
   5" diameter from 0 ft. to 520 ft. Material PVC Gage SDR17
   ____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
   c. Grouted interval, from ____ ft. to ____ ft.
   Amount of grout used: ____ (example: 10 sacks) type: ____ (example: bentonite pellets)
   d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
   Perforation: Type of perforator used Factory
   Size of perforations 0.035 inches by 3.00 inches.
   Number of perforations and depths where perforated:
   2400 perforations from 460 ft. to 520 ft.
   ____ perforations from ____ ft. to ____ ft.
   Open hole from ____ ft. to ____ ft.
   Well screen details:
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   e. Well development method Air How long did development last? 6 Hours
   f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel .125 to .375" diameter
   Filter pack installed from 0 ft. to 520 ft.
   g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
   Surface casing installed from ____ ft. to ____ ft.
7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 5/3/04
9. PUMP INFORMATION: Manufacturer Grundfos Type submersible
   Source of power electricity Horsepower 1 1/2 Depth of Pump Setting or intake 460 ft.
   Amount of Water Being Pumped 25 ~~15-26~~ Gallons Per Minute. (For Springs or flowing wells, see item 10.)
   Total Volumetric Amount Used Per Calendar Year. per U.W. SJH
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
    If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
    The flow is controlled by: valve ☐ cap ☐ plug ☐
    Does well leak around casing? Yes ☐ No ☐

RECEIVED MAR 21 2005 STATE ENGINEER CHEYENNE, WY

MAR 21 2005 STATE ENGINEER CHEYENNE, WY

154080

Permit No. U.W. _____ Book No. 1134 Page No. 16

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 520 feet.
Depth of completed well 520 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 100 feet.
Depth to principal water bearing formation. Top 460 feet to Bottom 520 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	Pale pink to white blocky claystones & sandstones			
220	460	White claystones interbedded w/poorly cemented silty sandstones			
460	520	Hard sandstones layers interbedded w/freshwater limestone			
			Gravel	White River	480-520

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete. Stefanie A. Illingworth 3-5-05

Stefanie A. Illingworth
Signature of Owner or Authorized Agent

2-28, 20 05
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 154080

Date of Receipt MAR - 2 2005 MAR 2 1 2005, 20____

Date of Priority SEPTEMBER 15, 2003, 20____

Date of Approval June 22, 20 05

John R. Hayes
for State Engineer

THE STATE OF WYOMING)
County of Laramie)

I hereby certify that the foregoing statement was signed in my presence and sworn to before me by STEFANIE ILLINGWORTH this 5 day of MARCH, 20 05

Donna M. Wells
NOTARY PUBLIC

My Commission Expires : 3-21-06

SCANNED AUG 06 2014
SCAN-MICRO JAN 10 2006
MICRO FILMED MAR 04 2005

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 156173 NAME OF WELL (SPRING) ROMSA #1

1. NAME OF OWNER ~~DALMAC CONSTRUCTION COMPANY~~ Justin and Dani Romsa

2. ADDRESS ~~P.O. Box 21594~~ 1520 Barberry Ridge
Please check if address has changed from that shown on permit. ☐
City Cheyenne State WY Zip Code ~~82003~~ 82009 Phone No. 635-2575

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)

4. LOCATION OF WELL (SPRING): SE 1/4 SW 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Silver Sage Estates Lot 39 Block
If surveyed, bearing, distance and reference point:
Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey

5. TYPE OF CONSTRUCTION: DRILLED ☒ Mud Rotary Dug ☐ Driven ☐ Other ☐
Describe: Gardner Denver 1000 (type of rig, and fluid used if any)

6. CONSTRUCTION: Total Depth of Well/Spring 660 ft.
Depth to Static Water Level 495 ft. (Below land surface) Casing Height above ground (ft.) 2'
a. Diameter of borehole (Bit size) 8 3/4" inches.
b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☒ glued ☐ welded
5" diameter from 0 ft. to 380 ft. Material Gage
5" diameter from 380 ft. to 660 ft. Material Gage
c. Grouted interval, from ft. to ft.
Amount of grout used: N/A (example: 10 sacks) type: (example: bentonite pellets)
d. Type of completion: ☐ factory screen ☐ open hole ☐ customized perforations
Perforation: Type of perforator used factory slot
Size of perforations .032 inches by 3 inches.
Number of perforations and depths where perforated:
5280 perforations from 580 ft. to 640 ft.
perforations from ft. to ft.
Open hole from ft. to ft.
Well screen details:
Diameter slot size: set from ft. to ft.
Diameter N/A slot size: set from ft. to ft.
e. Well development method Air How long did development last? 1 1/2 hr.
f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel 1/4"
Filter pack installed from 660 ft. to 40 ft.
g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
Surface casing installed from N/A ft. to ft.

7. NAME AND ADDRESS OF DRILLING COMPANY K.E. Taylor Drilling, Inc. Douglas, WY

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 6-17-04

9. PUMP INFORMATION: Manufacturer Gould Type Submersible
Source of power Electric Horsepower 2 Depth of Pump Setting or intake 560 ft.
Amount of Water Being Pumped 3 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
Total Volumetric Amount Used Per Calendar Year.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
If well yields artesian flow or if spring, yield is gal./min. Surface pressure is lb./sq.inch, or feet of water.
The flow is controlled by: valve ☐ cap ☐ plug ☐
Does well leak around casing? Yes ☐ No ☐

RECEIVED JUL 19 2004 STATE ENGINEER CHEYENNE, WY
RECEIVED JUL 13 2004 STATE ENGINEER CHEYENNE, WY

Permit No. U.W. 156173 Book No. 1148 Page No. 001

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐ Air
If so, by whom Driller B.L. _____ _____
Yield: 5 gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 720 feet.
Depth of completed well 660 feet. Diameter of well 8 3/4 inches.
Depth to first water bearing formation 560 feet.
Depth to principal water bearing formation. Top 560 feet to Bottom 580 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	1	top soil			
1	70	brn clay			
70	180	decomposed granite			
180	200	brn clay			
200	230	decomposed granite			
230	560	brn sandy clay			
560	580	brn sand some clay		H2O	580'-640'
580	610	white clay			
610	720	fine white sand			

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable XX Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Darrell Johnson
Signature of Owner or Authorized Agent

7-8-2004 , 20____
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 156173

Date of Receipt JUL 13 2004 JUL 19 2004, 20____

Date of Priority FEBRUARY 6, 2004, 20____

Date of Approval November 15, 20 04

Scott A. Hogen
for State Engineer

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED AUG 08 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 156385 NAME OF WELL (SPRING) TREES #1

1. NAME OF OWNER ~~RODNEY & EVA TREES~~
2. ADDRESS 1412 Blue Willow Lane
   Please check if address has changed from that shown on permit. ☐
   City Cheyenne State Wyoming Zip Code 82009 Phone No. 307-634-5814
3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____
4. LOCATION OF WELL (SPRING): SW 1/4 SW 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Silversage Estates Lot 18 Block _____
   If surveyed, bearing, distance and reference point: _____
   Longitude (degrees, minutes, seconds) _____ Latitude (degrees, minutes, seconds) _____
   Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey
5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary Combination Dug ☐ Driven ☐ Other ☐
   (type of rig, and fluid used if any)
   Describe: _____
6. CONSTRUCTION: Total Depth of Well/Spring 520 ft.
   Depth to Static Water Level 160 ft. (Below land surface) Casing Height above ground (ft.) 2'
   a. Diameter of borehole (Bit size) 7 7/8 inches.
   b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☐ glued ☐ welded
   5" diameter from 0 ft. to 520 ft. Material PVC Gage SDR17
   ____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
   c. Grouted interval, from ____ ft. to ____ ft.
   Amount of grout used: ____ (example: 10 sacks) type: ____ (example: bentonite pellets)
   d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
   Perforation: Type of perforator used Factory
   Size of perforations 0.035 inches by 3.00 inches.
   Number of perforations and depths where perforated:
   ~~2400~~ perforations from 460 ft. to 520 ft.
   ____ perforations from ____ ft. to ____ ft.
   Open hole from ____ ft. to ____ ft.
   Well screen details:
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   e. Well development method Air How long did development last? 6 Hours
   f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel .125 to .375" diameter
   Filter pack installed from 0 ft. to 520 ft.
   g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
   Surface casing installed from ____ ft. to ____ ft.
7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) Dec 15 2005
9. PUMP INFORMATION: Manufacturer Grnfos Type submersible
   Source of power Home ½ Horsepower Depth of Pump Setting or intake 265 ft.
   Amount of Water Being Pumped 5 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
   Total Volumetric Amount Used Per Calendar Year. N/A
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
    If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
    The flow is controlled by: valve ☐ cap ☐ plug ☐
    Does well leak around casing? Yes ☐ No ☐

RECEIVED DEC 2005 STATE ENGINEER CHEYENNE, WY

Permit No. U.W. 156385 Book No. 1149 Page No. 60

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☒
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 520 feet.
Depth of completed well 520 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 100 feet.
Depth to principal water bearing formation. Top 460 feet to Bottom 520 feet.

Land surface elevation (ft. above mean sea level) 6605 Datum: ☐ 1929 ☒ 1988
How determined: ☒ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	Pale pink to white blocky claystones & sandstones			
220	460	White claystones interbedded w/poorly cemented silty sandstones			
460	520	Hard sandstones layers interbedded w/freshwater limestone			
			Gravel	White River	480-520

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☒
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☒ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Tody [illegible] — Signature of Owner or Authorized Agent

16 Dec , 20 05 — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 156385

Date of Receipt DEC 16 2005 , 20____

Date of Priority FEBRUARY 24, 2004 , 20____

Date of Approval Sept. 26 , 20 06

B. Tubbs — for State Engineer

1429 Blue Willow Ln

520'

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED AUG 07 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 157604 NAME OF WELL (SPRING) SAGE #40

1. NAME OF OWNER LEANING TREE HOMES, INC
2. ADDRESS 1740 H Dell Range Blvd. #423
   Please check if address has changed from that shown on permit. ☐
   City Cheyenne State WY Zip Code 82009 Phone No.
3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
   One Single-Family Dwelling
4. LOCATION OF WELL (SPRING): NW 1/4 SW 1/4 of Section 31, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Silver Sage Developers Inc. Lot 40 Block
   If surveyed, bearing, distance and reference point: ~~N41°42'54" W104°59'37"~~ 500 178 E DRPT
   Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds) ~~41° 42' 54" N.~~ 456 2124 N.
   Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey
5. TYPE OF CONSTRUCTION: DRILLED ☒ ~~Rotary Combination~~ (type of rig, and fluid used if any) Dug ☐ Driven ☐ Other ☐
   Describe:
6. CONSTRUCTION: Total Depth of Well/Spring ~~520~~ ft.
   Depth to Static Water Level ~~160~~ ft. (Below land surface) Casing Height above ground (ft.) 2'
   a. Diameter of borehole (Bit size) ~~7 7/8~~ inches.
   b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☒ glued ☐ welded
   ~~5"~~ diameter from ~~0~~ ft. to ~~520~~ ft. Material ~~PVC~~ Gage ~~SDR17~~
   ____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
   c. Grouted interval, from ____ ft. to ____ ft.
   Amount of grout used: ____ (example: 10 sacks) type: ____ (example: bentonite pellets)
   d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
   Perforation: Type of perforator used Factory
   Size of perforations ~~0.035~~ inches by ~~3.00~~ inches.
   Number of perforations and depths where perforated:
   ~~2400~~ perforations from ~~460~~ ft. to ~~520~~ ft.
   ____ perforations from ____ ft. to ____ ft.
   Open hole from ____ ft. to ____ ft.
   Well screen details:
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   e. Well development method Air How long did development last? 6 Hours
   f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel ~~.125 to .375" diameter~~
   Filter pack installed from ~~0~~ ft. to ~~520~~ ft.
   g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
   Surface casing installed from ____ ft. to ____ ft.
7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 2/9/05
9. PUMP INFORMATION: Manufacturer Grundfos Type submersible
   Source of power electricity Horsepower 1 1/2 Depth of Pump Setting or intake 460 ft.
   Amount of Water Being Pumped ~~15~~ 26 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
   Total Volumetric Amount Used Per Calendar Year. 1 AF/yr per DWS RT
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
    If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
    The flow is controlled by: valve ☐ cap ☐ plug ☐
    Does well leak around casing? Yes ☐ No ☐

RECEIVED JUL 26 2007 STATE ENGINEER CHEYENNE, WY

RECEIVED JUN 26 2007 STATE ENGINEER CHEYENNE, WY

Permit No. U.W. 157604 Book No. 1157 Page No. 74

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 520 feet.
Depth of completed well 520 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 100 feet.
Depth to principal water bearing formation. Top 460 feet to Bottom 520 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	Pale pink to white blocky claystones & sandstones			
220	460	White claystones interbedded w/poorly cemented silty sandstones			
460	520	Hard sandstones layers interbedded w/freshwater limestone			
			Gravel	White River	480-520

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☒
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Rachel A. Frauendienst
Signature of Owner or Authorized Agent

9/21, 2006
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 157604

Date of Receipt JUN 26 2007 JUL 26 2007

Date of Priority APRIL 1, 2004, 20____

Date of Approval Sept. 25, 2009

for State Engineer

THE STATE OF WYOMING)
County of LARAMIE)

I hereby certify that the foregoing statement was signed in my presence and sworn to before me by RACHEL FRAUENDIENST this 26 day of JULY, 2007.

Donna M. Wells
NOTARY PUBLIC

My Commission Expires : 3-21-2010

1574 Barberry Ridge

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED AUG 07 2014

SCAN-MICRO JAN 23 2006

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. * 157605 NAME OF WELL (SPRING) SAGE #36

1. NAME OF OWNER * ~~LEANING TREE HOMES, INC~~ ASSIGNED: SEE CURRENT ENDORSEMENT

2. ADDRESS ~~1740 H Dell Range Blvd. #423~~ X Please check if address has changed from that shown on permit.

City ~~Cheyenne~~ State ~~WY~~ Zip Code ~~82009~~ Phone No. ~~307-778-1854~~ 632-6706

3. USE OF WATER ✓ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
One Single Family Dwelling

4. LOCATION OF WELL (SPRING): NW 1/4 SE 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Silver Sage Estates Lot 36 Block
If surveyed, bearing, distance and reference point:
Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey

5. TYPE OF CONSTRUCTION: DRILLED X Rotary Combination Dug ☐ Driven ☐ Other ☐
(type of rig, and fluid used if any)
Describe:

6. CONSTRUCTION: Total Depth of Well/Spring 520 ft.
Depth to Static Water Level 160 ft. (Below land surface) Casing Height above ground (ft.) 2'
a. Diameter of borehole (Bit size) 7 7/8 inches.

b Casing Schedule: New X Used ☐ Joint type: ☐ threaded ☐ glued ☐ welded
5" diameter from 0 ft. to 520 ft. Material PVC Gage SDR17
____ diameter from ____ ft. to ____ ft. Material ____ Gage ____

c. Grouted interval, from ____ ft. to ____ ft.
Amount of grout used: ____ (example: 10 sacks) type: ____ (example: bentonite pellets)

d. Type of completion: ☐ factory screen ☐ open hole X customized perforations
Perforation: Type of perforator used Factory
Size of perforations 0.035 inches by 3.00 inches.
Number of perforations and depths where perforated:
2400 perforations from 460 ft. to 520 ft.
____ perforations from ____ ft. to ____ ft.
Open hole from ____ ft. to ____ ft.
Well screen details:
Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
Diameter ____ slot size: ____ set from ____ ft. to ____ ft.

RECEIVED MAR 2 2005 STATE ENGINEER CHEYENNE, WY

e. Well development method Air How long did development last? 6 Hours

f. Was a filter pack installed? Yes X No ☐ Size of sand/gravel .125 to .375" diameter
Filter pack installed from 0 ft. to 520 ft.

g. Was surface casing used: Yes ☐ No X Was it cemented in place? Yes ☐ No ☐
Surface casing installed from ____ ft. to ____ ft.

7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 6/22/04

9. PUMP INFORMATION: Manufacturer Grundfos Type submersible
Source of power electricity Horsepower 1 1/2 Depth of Pump Setting or intake 460 ft.
Amount of Water Being Pumped 15-26 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
Total Volumetric Amount Used Per Calendar Year.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
The flow is controlled by: valve ☐ cap ☐ plug ☐
Does well leak around casing? Yes ☐ No ☐

157605 1157 75
Permit No. U.W. Book No. Page No.

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 520 feet.
Depth of completed well 520 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 460 feet.
Depth to principal water bearing formation. Top 460 feet to Bottom 520 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	Pale pink to white blocky claystones & sandstones			
220	460	White claystones interbedded w/poorly cemented silty sandstones			
460	520	Hard sandstones layers interbedded w/freshwater limestone			
			Gravel	White River	480-520

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Stefanie A. Illingworth
Signature of Owner or Authorized Agent

2-28-05, 20____
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 157605

Date of Receipt MAR - 2 2005, 20____

Date of Priority APRIL 1, 2004, 20____

Date of Approval 9/24, 20 05

Jeremy A. Markley
for State Engineer

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED AUG 07 2014

SCAN-MICRO MAR 10 2006

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 157606 NAME OF WELL (SPRING) SAGE #31

1. NAME OF OWNER LEANING TREE HOMES, INC

2. ADDRESS 1740H Dell Range Blvd. #423
Please check if address has changed from that shown on permit. [ ]
City Cheyenne State WY Zip Code 82009 Phone No. 7781856

3. USE OF WATER [X] Domestic [ ] Stock Watering [ ] Irrigation [ ] Municipal [ ] Industrial [ ] Miscellaneous
[ ] Monitor or Test [ ] Coal Bed Methane Explain proposed use (Example: One single family dwelling)
One, Single-family Dwelling

4. LOCATION OF WELL (SPRING): NE 1/4 SE 1/4 of Section 13, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Silversage Estates Lot 31 Block
If surveyed, bearing, distance and reference point:
Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
Datum: [ ] 1927 [ ] 1983 Source: [ ] GPS [ ] Map [ ] Survey

5. TYPE OF CONSTRUCTION: DRILLED [X] Rotary Combination Dug [ ] Driven [ ] Other [ ]
(type of rig, and fluid used if any)
Describe:

6. CONSTRUCTION: Total Depth of Well/Spring 520 ft.
Depth to Static Water Level 160 ft. (Below land surface) Casing Height above ground (ft.) 2'
a. Diameter of borehole (Bit size) 7 7/8 inches.
b Casing Schedule: New [X] Used [ ] Joint type: [ ] threaded [ ] glued [ ] welded
5" diameter from 0 ft. to 520 ft. Material PVC Gage SDR17
diameter from ft. to ft. Material Gage
c. Grouted interval, from ft. to ft.
Amount of grout used: type:
(example: 10 sacks) (example: bentonite pellets)
d. Type of completion: [ ] factory screen [ ] open hole [X] customized perforations
Perforation: Type of perforator used Factory
Size of perforations 0.035 inches by 3.00 inches.
Number of perforations and depths where perforated:
2400 perforations from 460 ft. to 520 ft.
perforations from ft. to ft.
Open hole from ft. to ft.
Well screen details:
Diameter slot size: set from ft. to ft.
Diameter slot size: set from ft. to ft.
e. Well development method Air How long did development last? 6 Hours
f. Was a filter pack installed? Yes [X] No [ ] Size of sand/gravel .125 to .375" diameter
Filter pack installed from 0 ft. to 520 ft.
g. Was surface casing used: Yes [ ] No [X] Was it cemented in place? Yes [ ] No [ ]
Surface casing installed from ft. to ft.

RECEIVED MAR 2 2005 STATE ENGINEER CHEYENNE, WY

7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 7/29/04

9. PUMP INFORMATION: Manufacturer Grundfos Type submersible
Source of power electricity Horsepower 1 1/2 Depth of Pump Setting or intake 460 ft.
Amount of Water Being Pumped 15-20 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
Total Volumetric Amount Used Per Calendar Year. 1 Acre-foot
Per ows JR

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
If well yields artesian flow or if spring, yield is gal./min. Surface pressure is lb./sq.inch, or feet of water.
The flow is controlled by: valve [ ] cap [ ] plug [ ]
Does well leak around casing? Yes [ ] No [ ]

Permit No. U.W. 157606 Book No. 1157 Page No. 76

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 520 feet.
Depth of completed well 520 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 460 feet.
Depth to principal water bearing formation. Top 460 feet to Bottom 520 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	Pale pink to white blocky claystones & sandstones			
220	460	White claystones interbedded w/poorly cemented silty sandstones			
460	520	Hard sandstones layers interbedded w/freshwater limestone			
			Gravel	White River	480-520

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Stephanie A. Sliquerth
Signature of Owner or Authorized Agent

2-28, 20 05
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 157606

Date of Receipt MAR - 2 2005, 20____

Date of Priority APRIL 1, 2004, 20____

Date of Approval May 18, 2005

for State Engineer

FORM U.W.6
Rev. 12/2002

380'
8 7/8 hole

SCANNED AUG 07 2014

SCAN-MICRO OCT 18 2006

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

*157607

PERMIT NO. U.W. _____ NAME OF WELL (SPRING) SAGE #35

1. NAME OF OWNER ~~LEANING TREE HOMES, INC~~
2. ADDRESS 1740 Dell Range Blvd. #423
   Please check if address has changed from that shown on permit. ☐
   City Cheyenne State WY Zip Code 82009 Phone No. 3077781852
3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
   One, Single-Family Dwelling
4. LOCATION OF WELL (SPRING): NW 1/4 SE 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Silver Sage Estates Lot 35 Block _____
   If surveyed, bearing, distance and reference point: _____
   Longitude (degrees, minutes, seconds) _____ Latitude (degrees, minutes, seconds) _____
   Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey
5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary Combination Dug ☐ Driven ☐ Other ☐
   (type of rig, and fluid used if any)
   Describe: _____
6. CONSTRUCTION: Total Depth of Well/Spring 380 ft.
   Depth to Static Water Level 100 ft. (Below land surface) Casing Height above ground (ft.) 2'
   a. Diameter of borehole (Bit size) 7 7/8 inches.
   b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☐ glued ☐ welded
   5" diameter from 0 ft. to 380 ft. Material PVC Gage SDR17
   ____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
   c. Grouted interval, from ____ ft. to ____ ft.
   Amount of grout used: ____ (example: 10 sacks) type: ____ (example: bentonite pellets)
   d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
   Perforation: Type of perforator used Factory
   Size of perforations 0.035 inches by 3.00 inches.
   Number of perforations and depths where perforated:
   2400 perforations from 320 ft. to 380 ft.
   ____ perforations from ____ ft. to ____ ft.
   Open hole from ____ ft. to ____ ft.
   Well screen details:
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   e. Well development method Air How long did development last? 4 Hours
   f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel .125 to .375" diameter
   Filter pack installed from 0 ft. to 420 ft.
   g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
   Surface casing installed from ____ ft. to ____ ft.
7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 7/30/04
9. PUMP INFORMATION: Manufacturer Grundfos Type submersible
   Source of power electricity Horsepower 1 1/2 Depth of Pump Setting or intake 320 ft.
   Amount of Water Being Pumped 25 ~~15-25~~ Gallons Per Minute. (For Springs or flowing wells, see item 10.)
   Total Volumetric Amount Used Per Calendar Year. per U.W.S 2am 1 Acre-foot Arous JR
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
    If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
    The flow is controlled by: valve ☐ cap ☐ plug ☐
    Does well leak around casing? Yes ☐ No ☐

RECEIVED
OCT - 4 2005
STATE ENGINEER
CHEYENNE, WYO.

157607 Permit No. U.W. _____ Book No. 1157 Page No. 77

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 380 feet.
Depth of completed well 380 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 320 feet.
Depth to principal water bearing formation. Top 320 feet to Bottom 380 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	Pale pink to white blocky claystones & sandstones			
220	300	White claystones interbedded w/poorly cemented silty sandstones			
300	380	Hard sandstones layers interbedded w/freshwater limestone			
			Gravel	White River	320-380

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Stefanie A. Ellingrath — Signature of Owner or Authorized Agent

9-30-05, 20____ — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 157607

Date of Receipt OCT 4 - 2005, 20____

Date of Priority APRIL 1, 2004, 20____

Date of Approval March 29, 2006

for State Engineer

FORM U.W.6
Rev. 6/00

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BUILDING
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED AUG 11 2014
MICRO MAR 04 2005

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 157858 NAME OF WELL (SPRING) ~~KAYLI #1~~

1. NAME OF OWNER PAUL & REGGIE CLAFLIN
2. ADDRESS P.O. Box 1591
   Please check if address has changed from that shown on permit
   City Cheyenne State Wy Zip Code 82003 Phone No. 635-9204
3. USE OF WATER: Domestic ☒ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous ☐
   Monitor or Test ☐ Coal Bed Methane ☐ Explain proposed use (Example: One single family dwelling) _____
4. LOCATION OF WELL (SPRING): SE ¼ NE ¼ of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.),
   Subdivision Name _____ Lot _____ Block _____
   If surveyed, bearing, distance and reference point: _____
5. TYPE OF CONSTRUCTION: Drilled ☑ Rotary (Type of Rig) Dug ☐ Driven ☐ Other ☐
   Describe: _____
6. CONSTRUCTION: Total Depth of Well/Spring 480 ft.
   Depth to Static Water Level 175 ft. (Below land surface)
   a. Diameter of borehole (Bit size) 7 7/8 inches.
   b. Casing Schedule New ☑ Used ☐
   5" diameter from 0 ft. to 480 ft. Material PVC Gage SDR21
   _____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
   c. Was casing cemented: Yes ☐ No ☑ Cemented Interval, From 0 feet to 30 feet.
   d. Number of sacks of ~~cement~~ Bentonite chips used 2 type of ~~cement~~ Bentonite chips
   e. Perforations: Type of perforator used Saw
   Size of perforations .032 inches by 2 inches.
   Number of perforations and depths where perforated:
   4800 perforations from 360 ft. to 480 feet.
   _____ perforations from _____ ft. to _____ feet.
   f. Was well screen installed? Yes ☐ No ☑
   Diameter: _____ slot size: _____ set from _____ feet to _____.
   Diameter: _____ slot size: _____ set from _____ feet to _____.
   g. Was well gravel packed? Yes ☑ No ☐ Size of gravel ⅛ x ¼"
   h. Was surface casing used: Yes ☐ No ☑ Was it cemented in place? Yes ☐ No ☑
7. NAME & ADDRESS OF DRILLING COMPANY Stewart Drilling Co, Inc - Cheyenne, Wy.
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) Sept 7-04
9. PUMP INFORMATION: Manufacturer Goulds Type Submersible
   Source of power electric Horsepower 1½ Depth of Pump Setting or intake 287
   Amount of Water Being Pumped 16 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
   Total Volumetric Gallons Used Per Calendar Year. 1 acre ft.
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
    If well yields artesian flow or if spring, yield is _____ gal./min. Surface pressure is _____ lb./sq. inch, or _____ feet of water.
    The flow is controlled by: valve ☐ cap ☐ plug ☐
    Does well leak around casing? Yes ☐ No ☐

RECEIVED
SEP 27 2004
STATE ENGINEER
CHEYENNE, WYO.

Permit No. U.W. 157858 Book No. 1159 Page No. 28

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12. PUMP TEST: Was a pump test made? Yes ☐ No ☑
If so, by whom _____ Address _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 480 feet.
Depth of completed well 480 feet. Diameter of well _____ inches.
Depth to first water bearing formation 370 feet.
Depth to principal water bearing formation. Top 370 feet to Bottom 465 feet.

Ground Elevation, if known _____

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	370	Tan To lt Brown Sandy clay + sand Stone			
370	465	Tan-very soft Sandstone w/ Streaks fine sand + lime-stone		WRB	perf.
465	480	Brown Clay			

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

R D Stewart (Agent)
Signature of Owner or Authorized Agent

Sept 11, 2004
Date

FOR STATE ENGINEER'S USE ONLY

Date of Receipt SEP 27 2004, 20 ____

Date of Priority ~~APRIL 13, 2004~~, 20 ____

Date of Approval December 8, 2004

for State Engineer

U.W. 157858

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED AUG 15 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

157989

PERMIT NO. U.W. _____ NAME OF WELL (SPRING) AMUNDSON HIGGINBOTHAM

1. NAME OF OWNER MIKE & CINDY HIGGINBOTHAM

2. ADDRESS 1543 Barberry Ridge
Please check if address has changed from that shown on permit. ☑
City Cheyenne State Wy Zip Code 82009 Phone No. 635-5265

3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL (SPRING): SE 1/4 SW 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Silver Sage Estates Lot 12 Block _____
If surveyed, bearing, distance and reference point: _____
Longitude (degrees, minutes, seconds) _____ Latitude (degrees, minutes, seconds) _____
Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey

5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary (type of rig, and fluid used if any) Dug ☐ Driven ☐ Other ☐
Describe: _____

6. CONSTRUCTION: Total Depth of Well/Spring 660 ft.
Depth to Static Water Level 196 ft. (Below land surface) Casing Height above ground (ft.) 1½'
a. Diameter of borehole (Bit size) 8 3/4 inches.
b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☒ glued ☐ welded
5" diameter from 0 ft. to 660 ft. Material PVC Gage 1330
____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
c. Grouted interval, from 10 ft. to 20 ft.
Amount of grout used: 2 (example: 10 sacks) type: Enviromental Plug (example: bentonite pellets)
d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
Perforation: Type of perforator used Slot
Size of perforations .032 inches by 3 inches.
Number of perforations and depths where perforated:
4500 perforations from 600 ft. to 660 ft.
____ perforations from ____ ft. to ____ ft.
Open hole from 660 ft. to 680 ft.
Well screen details:
Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
e. Well development method Bailing How long did development last? 3 hrs
f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel ¼" -
Filter pack installed from 20 ft. to 680 ft.
g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
Surface casing installed from ____ ft. to ____ ft.

RECEIVED
OCT - 3 2005
STATE ENGINEER
CHEYENNE, WY

7. NAME AND ADDRESS OF DRILLING COMPANY Rock Creek Drilling, Cheyenne, Wy

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 9-22-04

9. PUMP INFORMATION: Manufacturer Goulds Type Submersible
Source of power Electric Horsepower 2 Depth of Pump Setting or intake 500' ft.
Amount of Water Being Pumped 15 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
Total Volumetric Amount Used Per Calendar Year. 325,000 per U.W. 5 JH

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
The flow is controlled by: valve ☐ cap ☐ plug ☐
Does well leak around casing? Yes ☐ No ☐

157989 1160 9
Permit No. U.W. _____ Book No. _____ Page No. _____

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☒
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 1080 feet.
Depth of completed well 1060 feet. Diameter of well 5 inches.
Depth to first water bearing formation 60 feet.
Depth to principal water bearing formation. Top 580 feet to Bottom 600 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	2	Top Soil			
2	20	CLAY			
20	60	SAND			
60	300	SANDY CLAY & SANDSTONE			
300	580	SANDSTONE & CLAY			
580	1000	SAND w/ LAYERS OF SANDSTONE			
1000	1080	CLAY			

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☒ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Don Fowler
Signature of Owner or Authorized Agent

10/03
Date, 20 05

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 157989

Date of Receipt OCT 03 2005, 20____

Date of Priority APRIL 6, 2004, 20____

Date of Approval Sept. 7, 20 06

Mark R. Hogie
for State Engineer

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED AUG 13 2014

SCANNED OCT 1 2007

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

159371

PERMIT NO. U.W. _____ NAME OF WELL (SPRING) SAGE #10

1. NAME OF OWNER ~~LEANING TREE HOMES, INC~~ Matthew A* & Lynne C. Bilodeau

2. ADDRESS ~~1740 Dell Range Blvd. #423~~ 1555 Bar Berry Ridge ~~Che~~

Please check if address has changed from that shown on permit. ☐

City Cheyenne State WY Zip Code 82009 Phone No. _____

3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
per letter 5-12-05 pat One, Single Family Dwelling

4. LOCATION OF WELL (SPRING): ~~NE~~ SE 1/4 ~~SE~~ NE 1/4 of Section 3, T. ~~14~~ 14 N., R. ~~68~~ 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Silver Sage Estates Lot 10 Block _____
If surveyed, bearing, distance and reference point: _____
Longitude (degrees, minutes, seconds) _____ Latitude (degrees, minutes, seconds) _____
Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey

5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary Combination Dug ☐ Driven ☐ Other ☐
(type of rig, and fluid used if any)
Describe: _____

6. CONSTRUCTION: Total Depth of Well/Spring 520 ft.
Depth to Static Water Level 160 ft. (Below land surface) Casing Height above ground (ft.) 2'
a. Diameter of borehole (Bit size) 7 7/8 inches.
b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☐ glued ☐ welded
5" diameter from 0 ft. to 520 ft. Material PVC Gage SDR17
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Grouted interval, from _____ ft. to _____ ft.
Amount of grout used: _____ (example: 10 sacks) type: _____ (example: bentonite pellets)
d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
Perforation: Type of perforator used Factory
Size of perforations 0.035 inches by 3.00 inches.
Number of perforations and depths where perforated:
2400 perforations from 460 ft. to 520 ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from _____ ft. to _____ ft.
Well screen details:
Diameter _____ slot size: _____ set from _____ ft. to _____ ft.
Diameter _____ slot size: _____ set from _____ ft. to _____ ft.
e. Well development method Air How long did development last? 6 Hours
f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel .125 to .375" diameter
Filter pack installed from 0 ft. to 520 ft.
g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
Surface casing installed from _____ ft. to _____ ft.

RECEIVED MAR 2 2005 STATE ENGINEER CHEYENNE, WY

7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 11/1/04

9. PUMP INFORMATION: Manufacturer Grundfos Type submersible
Source of power electricity Horsepower 1 1/2 Depth of Pump Setting or intake 460 ft.
Amount of Water Being Pumped ~~25~~ 15-25 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
Total Volumetric Amount Used Per Calendar Year. 1 acre - feet per U.W. 5 A

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
If well yields artesian flow or if spring, yield is _____ gal./min. Surface pressure is _____ lb./sq.inch, or _____ feet of water.
The flow is controlled by: valve ☐ cap ☐ plug ☐
Does well leak around casing? Yes ☐ No ☐

159371

Permit No. U.W. _____ Book No. 1169 Page No. 39

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) N/A

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 520 feet.
Depth of completed well 520 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 100 feet.
Depth to principal water bearing formation. Top 460 feet to Bottom 520 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	Pale pink to white blocky			
		claystones & sandstones			
220	460	White claystones interbedded			
		w/poorly cemented silty sandstones			
460	520	Hard sandstones layers interbedded			
		w/freshwater limestone			
			Gravel	White River	480-520

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Stefanie A. Feingerth
Signature of Owner or Authorized Agent

2-28, 2005
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 159371

Date of Receipt MAR - 2 2005, 20____

Date of Priority JUNE 3, 2004, 20____

T23137

Date of Approval July 28, 2005

Scott A Hongen
for State Engineer

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED AUG 26 2014
SCAN-MICRO OCT 18 2006

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 160886 NAME OF WELL (SPRING) SAGE #6

1. NAME OF OWNER LEANING TREE HOMES, INC
2. ADDRESS 1740 H Dell Range Blvd. #423
   Please check if address has changed from that shown on permit. ☐
   City Cheyenne State WY Zip Code 82009 Phone No. 3077781856
3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
   One, Single-Family Dwelling
4. LOCATION OF WELL (SPRING): SE 1/4 SE 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Silver Sage Estates Lot 6 Block
   If surveyed, bearing, distance and reference point:
   Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
   Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey
5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary Combination Dug ☐ Driven ☐ Other ☐
   (type of rig, and fluid used if any)
   Describe:
6. CONSTRUCTION: Total Depth of Well/Spring 520 ft.
   Depth to Static Water Level 160 ft. (Below land surface) Casing Height above ground (ft.) 2'
   a. Diameter of borehole (Bit size) 7 7/8 inches.
   b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☐ glued ☐ welded
   5" diameter from 0 ft. to 520 ft. Material PVC Gage SDR17
   ____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
   c. Grouted interval, from ____ ft. to ____ ft.
   Amount of grout used: ____ (example: 10 sacks) type: ____ (example: bentonite pellets)
   d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
   Perforation: Type of perforator used Factory
   Size of perforations 0.035 inches by 3.00 inches.
   Number of perforations and depths where perforated:
   2400 perforations from 460 ft. to 520 ft.
   ____ perforations from ____ ft. to ____ ft.
   Open hole from ____ ft. to ____ ft.
   Well screen details:
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   e. Well development method Air How long did development last? 6 Hours
   f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel .125 to .375" diameter
   Filter pack installed from 0 ft. to 520 ft.
   g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
   Surface casing installed from ____ ft. to ____ ft.
7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 12/17/04
9. PUMP INFORMATION: Manufacturer Grundfos Type submersible
   Source of power electricity Horsepower 1 1/2 Depth of Pump Setting or intake 460 ft.
   Amount of Water Being Pumped 25 15-26 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
   Total Volumetric Amount Used Per Calendar Year. 1 Acre-foot
   per call 3-6-06 jgm
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well). Re: ow5 vR
    If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
    The flow is controlled by: valve ☐ cap ☐ plug ☐
    Does well leak around casing? Yes ☐ No ☐

RECEIVED
OCT - 4 2005
STATE ENGINEER
CHEYENNE, WYO.

Permit No. U.W. 160886 Book No. 1179 Page No. 50

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 520 feet.
Depth of completed well 520 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 100 feet.
Depth to principal water bearing formation. Top 460 feet to Bottom 520 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	Pale pink to white blocky claystones & sandstones			
220	460	White claystones interbedded w/poorly cemented silty sandstones			
460	520	Hard sandstones layers interbedded w/freshwater limestone			
			Gravel	White River	480-520

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

David Thompson
Signature of Owner or Authorized Agent

9-30-05 , 20
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 160886

Date of Receipt OCT 4 - 2005 , 20

Date of Priority JULY 19, 2004 , 20

Date of Approval March 29 , 2006

for State Engineer

SCANNED AUG 26 2014

MICRO FILMED JUL 05 2005

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 160887 NAME OF WELL (SPRING) SAGE #II

1. NAME OF OWNER LEANING TREE HOMES, INC

2. ADDRESS 1740 H x Dell Range Blvd. #423
Please check if address has changed from that shown on permit. ☐
City Cheyenne State WY Zip Code 82009 Phone No. 638-4865 778-1856

3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
One - Single Family Dwelling

4. LOCATION OF WELL (SPRING): SW 1/4 SE 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Silver Sage Estates Lot 11 Block
If surveyed, bearing, distance and reference point:
Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey

5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary Combination Dug ☐ Driven ☐ Other ☐
(type of rig, and fluid used if any)
Describe:

6. CONSTRUCTION: Total Depth of Well/Spring 520 ft.
Depth to Static Water Level 160 ft. (Below land surface) Casing Height above ground (ft.) 2'
a. Diameter of borehole (Bit size) 7 7/8 inches.

b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☐ glued ☐ welded
5" diameter from 0 ft. to 520 ft. Material PVC Gage SDR17
diameter from ft. to ft. Material Gage

c. Grouted interval, from ft. to ft.
Amount of grout used: type:
(example: 10 sacks) (example: bentonite pellets)

d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
Perforation: Type of perforator used Factory
Size of perforations 0.035 inches by 3.00 inches.
Number of perforations and depths where perforated:
2400 perforations from 460 ft. to 520 ft.
perforations from ft. to ft.
Open hole from ft. to ft.
Well screen details:
Diameter slot size: set from ft. to ft.
Diameter slot size: set from ft. to ft.

e. Well development method Air How long did development last? 6 Hours

f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel .125 to .375" diameter
Filter pack installed from 0 ft. to 520 ft.

g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☒ BT.
Surface casing installed from ft. to ft.

7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 11/2/04

9. PUMP INFORMATION: Manufacturer Grundfos Type submersible
Source of power electricity Horsepower 1 1/2 Depth of Pump Setting or intake 460 ft.
Amount of Water Being Pumped 15-26 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
Total Volumetric Amount Used Per Calendar Year.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
If well yields artesian flow or if spring, yield is gal./min. Surface pressure is lb./sq.inch, or feet of water.
The flow is controlled by: valve ☐ cap ☐ plug ☐
Does well leak around casing? Yes ☐ No ☐

RECEIVED MAR 2 2005 STATE ENGINEER CHEYENNE, WY

160887
Permit No. U.W.

Book No. 1179 Page No. 51

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 520 feet.
Depth of completed well 520 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 100 feet.
Depth to principal water bearing formation. Top 460 feet to Bottom 520 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	Pale pink to white blocky			
		claystones & sandstones			
220	460	White claystones interbedded			
		w/poorly cemented silty sandstones			
460	520	Hard sandstones layers interbedded			
		w/freshwater limestone			
			Gravel	White River	480-520

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Stephanie A. Illingworth
Signature of Owner or Authorized Agent

2-28, 20 05
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 160887

Date of Receipt MAR - 2 2005, 20____

Date of Priority JULY 19, 2004, 20____

Date of Approval May 25, 20 05

Beth Gebhart
for State Engineer

520' p 2/9/05

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED AUG 26 2014

SCAN-MICRO OCT 18 2006

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. * 160888 NAME OF WELL (SPRING) SAGE #21

1. NAME OF OWNER * LEANING TREE HOMES, INC *
2. ADDRESS 1740 Dell Range Blvd. #423
   Please check if address has changed from that shown on permit. ☐
   City Cheyenne State WY Zip Code 82009 Phone No. 3077781856
3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
   One, Single-Family Dwelling
4. LOCATION OF WELL (SPRING): SW 1/4 NW 1/4 of Section 13, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Silver Sage Estates Lot 21 Block
   If surveyed, bearing, distance and reference point:
   Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
   Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey
5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary Combination Dug ☐ Driven ☐ Other ☐
   (type of rig, and fluid used if any)
   Describe:
6. CONSTRUCTION: Total Depth of Well/Spring 520 ft.
   Depth to Static Water Level 160 ft. (Below land surface) Casing Height above ground (ft.) 2'
   a. Diameter of borehole (Bit size) 7 7/8 inches.
   b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☐ glued ☐ welded
   5" diameter from 0 ft. to 520 ft. Material PVC Gage SDR17
   ____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
   c. Grouted interval, from ____ ft. to ____ ft.
   Amount of grout used: ____ (example: 10 sacks) type: ____ (example: bentonite pellets)
   d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
   Perforation: Type of perforator used Factory
   Size of perforations 0.035 inches by 3.00 inches.
   Number of perforations and depths where perforated:
   2400 perforations from 460 ft. to 520 ft.
   ____ perforations from ____ ft. to ____ ft.
   Open hole from ____ ft. to ____ ft.
   Well screen details:
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   e. Well development method Air How long did development last? 6 Hours
   f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel .125 to .375" diameter
   Filter pack installed from 0 ft. to 520 ft.
   g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
   Surface casing installed from ____ ft. to ____ ft.
7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 2/9/05
9. PUMP INFORMATION: Manufacturer Grundfos Type submersible
   Source of power electricity Horsepower 1 1/2 Depth of Pump Setting or intake 460 ft.
   Amount of Water Being Pumped 25 15-26 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
   Total Volumetric Amount Used Per Calendar Year. 1 Acre-foot per UWS+R
   per call 3-6-06 jgm
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
    If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
    The flow is controlled by: valve ☐ cap ☐ plug ☐
    Does well leak around casing? Yes ☐ No ☐

RECEIVED
OCT - 4 2005
STATE ENGINEER
CHEYENNE, WYO.

Permit No. U.W. 160888 Book No. 1179 Page No. 52

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 520 feet.
Depth of completed well 520 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 100 feet.
Depth to principal water bearing formation. Top 460 feet to Bottom 520 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	Pale pink to white blocky			
		claystones & sandstones			
220	460	White claystones interbedded			
		w/poorly cemented silty sandstones			
460	520	Hard sandstones layers interbedded			
		w/freshwater limestone			
			Gravel	White River	480-520

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Signature of Owner or Authorized Agent

9-30-05, 20____
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 160888

Date of Receipt OCT 4 - 2005, 20____

Date of Priority JULY 19, 2004, 20____

Date of Approval March 29, 2006

for State Engineer

FORM U.W.6
Rev. 1/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

SCANNED SEP 08 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

1588 Barberry

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 164752 NAME OF WELL/SPRING Sage #5

1. NAME OF OWNER Leaning Tree Homes, Inc.
2. ADDRESS 1740 N Dell Range Blvd. #423
   ☐ Please check if address has changed from that shown on permit
   City Cheyenne State* WY Zip Code 82009 Phone No. 307-778-1856
3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____
4. LOCATION OF WELL/SPRING ____ 1/4 ____ 1/4 of Section 3 T. 14 N.,R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Silver Sage Estates Lot 5 Block _____
   Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
   Geographic Coordinates: Latitude _____ N Longitude _____ W (degrees, minutes, seconds)
   UTM: Zone _____ Northing _____ Easting _____ (meters)
   State Plane Coordinates: Zone _____ Northing 456175 Easting 501385 (feet)
   Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
   Source ☐ GPS ☐ Map ☐ Survey ☐ Unkown ☐ Other ☐ Altimeter (for elevation only)
5. TYPE OF CONSTRUCTION ☐ Drilled ☒ Rotary Combination ☐ Dug ☐ Driven ☐ Other
   Describe _____
6. CONSTRUCTION Total depth of well/spring 520 ft.
   Depth of static water level 160 ft. (below land surface) Casing height 2 ft. above ground
   a. Diameter of borehole (bit size) 7 7/8 inches
   b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
   5" diameter from 0 ft. to 520 ft. Material PVC Gage SDR 17
   _____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
   c. Cemented/grouted interval, from _____ ft. to _____ ft.
   Amount of cement/grout used _____ (example: 10 sacks) type _____ (example: bentonite pellets)
   d. Type of completion ☒ Customized perforations ☐ Open hole ☐ Factory screen
   Type of perforator used Factory
   Size of perforations 0.035 inches by 3.00 inches.
   Number of perforations and depths where perforated
   2400 perforations from 0 ft. to 520 ft.
   _____ perforations from _____ ft. to _____ ft.
   Open hole from _____ ft. to _____ ft.
   Well screen details
   Diameter _____ slot size _____ set from _____ ft. to _____ ft.
   Diameter _____ slot size _____ set from _____ ft. to _____ ft.
   e. Well development method Air How long was well developed? 4 Hours
   f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel .125 to .375" diameter
   Filter/gravel pack installed from 0 ft. to 520 ft.
   g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
   Surface casing installed from _____ ft. to _____ ft.

RECEIVED
FEB 7 2008
STATE ENGINEERS
CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 6/30/05
9. PUMP INFORMATION Manufacturer Grundfos Type submersible
   Source of power electricity Horsepower 1 1/2 Depth of pump setting or intake 460 ft.
   Amount of water being pumped 15 to 25 gal./min.* (For springs or flowing wells, see item 10)
   Total volumetric quantity used per calendar year.* 1 AF per UW.5
   *If these amounts exceed permitted amount an enlargement is required.
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
    If artesian flow or spring, yield is _____ gal./min. *Surface pressure is _____ lb./sq.inch, or _____ feet of water.
    The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
    Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 164752 Book No. _____ Page No. _____

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☐ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 520 ft.

Depth of completed well 520 ft. Diameter of well 7 7/8 inches
Depth to first water bearing formation 100 ft.
Depth to principal water bearing formation Top 460 ft. to Bottom 520 ft.

DRILL CUTTINGS DESCRIPTION Z (00)

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface 0	220	Pale pink to white blocky claystones & sandstones		
220	460	White claystones interbedded w/poorly cemented silty sandstones		
460	520	Hard sandstone layers interbedded w/freshwater limestone	White River	Yes

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).
If not, do you consider the water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Rachel Frauendienst
Signature of Owner or Authorized Agent

9/22, 20 07
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 164752

Date of Receipt FEB 07 2008, 20____

Date of Approval 5-1, 20 12

Date of Priority January 10, 20 09

for State Engineer

THE STATE OF WYOMING)
County of Laramie)
I hereby certify that the forgoing statement was signed in my presence and sworn to before me by RACHEL FRAUENDIENST this 22ND day of SEPTEMBER 2007.

Donna M. Wells
NOTARY PUBLIC

My Commission Expires: 3-21-2010

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED SEP 15 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 165446 NAME OF WELL (SPRING) SMOKEY COWBOY #1

1. NAME OF OWNER LEANING TREE HOMES, INC

2. ADDRESS 1740 H Dell Range Blvd, #423
Please check if address has changed from that shown on permit. ☐
City Cheyenne State WY Zip Code 82009 Phone No. 778-1856

3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
One - Single Family Dwelling

4. LOCATION OF WELL (SPRING): SE 1/4 SE 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Silver Sage Estates Lot 9 Block
If surveyed, bearing, distance and reference point:
Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey

5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary Combination Dug ☐ Driven ☐ Other ☐
(type of rig, and fluid used if any)
Describe:

6. CONSTRUCTION: Total Depth of Well/Spring 520 ft.
Depth to Static Water Level 160 ft. (Below land surface) Casing Height above ground (ft.) 2'
a. Diameter of borehole (Bit size) 7 7/8 inches.
b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☒ glued ☐ welded SDR17
5" diameter from 0 ft. to 520 ft. Material PVC Gage
diameter from ft. to ft. Material Gage
c. Grouted interval, from ft. to ft.
Amount of grout used: type:
(example: 10 sacks) (example: bentonite pellets)
d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations Factory
Perforation: Type of perforator used
Size of perforations 0.035 inches by 3.00 inches.
Number of perforations and depths where perforated:
2400 perforations from 460 ft. to 520 ft.
perforations from ft. to ft.
Open hole from ft. to ft.
Well screen details:
Diameter slot size: set from ft. to ft.
Diameter slot size: set from ft. to ft.
e. Well development method Air How long did development last? 6 Hours
f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel .125 to .375" diameter
Filter pack installed from 0 ft. to 520 ft.
g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
Surface casing installed from ft. to ft.

RECEIVED JAN 15 2005 STATE ENGINEER CHEYENNE, WY

7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 5/5/05

9. PUMP INFORMATION: Manufacturer Grundfos Type submersible
Source of power electricity Horsepower 1 1/2 Depth of Pump Setting or intake 460 ft.
Amount of Water Being Pumped 25 15 - 26 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
Total Volumetric Amount Used Per Calendar Year.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
If well yields artesian flow or if spring, yield is gal./min. Surface pressure is lb./sq.inch, or feet of water.
The flow is controlled by: valve ☐ cap ☐ plug ☐
Does well leak around casing? Yes ☐ No ☐

Permit No. U.W. 165446 Book No. 1209 Page No. 103

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 520 feet.
Depth of completed well 520 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 460 feet.
Depth to principal water bearing formation. Top 460 feet to Bottom 520 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	Pale pink to white blocky claystones & sandstones			
220	460	White claystones interbedded w/poorly cemented silty sandstones			
460	520	Hard sandstones layers interbedded w/freshwater limestone			
			Gravel	White River	480-520

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Rachel Brauer Hurd
Signature of Owner or Authorized Agent

1/13, 2006
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 165446

Date of Receipt JAN 13 2006, 20____

Date of Priority 2/1/2005, 20____

Date of Approval Sept. 25, 2006

B. Tebben
for State Engineer

520'
p 2128/05

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED SEP 15 2014
SCAN-MICRO AUG 01 2006

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 165447 NAME OF WELL (SPRING) SAGE #26

1. NAME OF OWNER LEANING TREE HOMES, INC
2. ADDRESS 1740 Dell Range Blvd. #423
   Please check if address has changed from that shown on permit. ☐
   City Cheyenne State WY Zip Code 82009 Phone No. 3077781856
3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
   One, Single-Family Dwelling
4. LOCATION OF WELL (SPRING): SW 1/4 NE 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Silver Sage Estates Lot 26 Block
   If surveyed, bearing, distance and reference point:
   Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
   Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey
5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary Combination Dug ☐ Driven ☐ Other ☐
   (type of rig, and fluid used if any)
   Describe:
6. CONSTRUCTION: Total Depth of Well/Spring 520 ft.
   Depth to Static Water Level 160 ft. (Below land surface) Casing Height above ground (ft.) 2'
   a. Diameter of borehole (Bit size) 7 7/8 inches.
   b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☐ glued ☐ welded
   5" diameter from 0 ft. to 520 ft. Material PVC Gage SDR17
   ____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
   c. Grouted interval, from ____ ft. to ____ ft.
   Amount of grout used: ____ (example: 10 sacks) type: ____ (example: bentonite pellets)
   d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
   Perforation: Type of perforator used Factory
   Size of perforations 0.035 inches by 3.00 inches.
   Number of perforations and depths where perforated:
   2400 perforations from 460 ft. to 520 ft.
   ____ perforations from ____ ft. to ____ ft.
   Open hole from ____ ft. to ____ ft.
   Well screen details:
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   e. Well development method Air How long did development last? 6 Hours
   f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel .125 to .375" diameter
   Filter pack installed from 0 ft. to 520 ft.
   g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
   Surface casing installed from ____ ft. to ____ ft.
7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 2/28/05
9. PUMP INFORMATION: Manufacturer Grundfos Type submersible
   Source of power electricity Horsepower 1 1/2 Depth of Pump Setting or intake 460 ft.
   Amount of Water Being Pumped 25 15-26 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
   Total Volumetric Amount Used Per Calendar Year. per U.W.S 1 Acre-Foot
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
    If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
    The flow is controlled by: valve ☐ cap ☐ plug ☐
    Does well leak around casing? Yes ☐ No ☐

RECEIVED
OCT - 4 2005
STATE ENGINEER
CHEYENNE, WYO.

Permit No. U.W. 165447 Book No. 1209 Page No. 104

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 520 feet.
Depth of completed well 520 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 100 feet.
Depth to principal water bearing formation. Top 460 feet to Bottom 520 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	Pale pink to white blocky claystones & sandstones			
220	460	White claystones interbedded w/poorly cemented silty sandstones			
460	520	Hard sandstones layers interbedded w/freshwater limestone			
			Gravel	White River	480-520

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Shawna Livingston
Signature of Owner or Authorized Agent

9-30-05, 20____
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. .165447

Date of Receipt OCT 4 - 2005, 20____

Date of Priority 2/1/2005, 20____

Date of Approval Feb 10, 2006

for State Engineer

520' P 41181-5

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED SEP 15 2014
SCAN-MICRO OCT 18 2006

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 165448 NAME OF WELL (SPRING) SAGE #45

1. NAME OF OWNER LEANING TREE HOMES, INC
2. ADDRESS 1740 N. Dell Range Blvd. #423
   Please check if address has changed from that shown on permit. ☐
   City Cheyenne State WY Zip Code 82009 Phone No. 7781836
3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
   One, Single-Family Dwelling
4. LOCATION OF WELL (SPRING): SE 1/4 NW 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Silver Sage Estates Lot 45 Block
   If surveyed, bearing, distance and reference point:
   Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
   Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey
5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary Combination Dug ☐ Driven ☐ Other ☐
   (type of rig, and fluid used if any)
   Describe:
6. CONSTRUCTION: Total Depth of Well/Spring 520 ft.
   Depth to Static Water Level 160 ft. (Below land surface) Casing Height above ground (ft.) 2'
   a. Diameter of borehole (Bit size) 7 7/8 inches.
   b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☐ glued ☐ welded
   5" diameter from 0 ft. to 520 ft. Material PVC Gage SDR17
   ____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
   c. Grouted interval, from ____ ft. to ____ ft.
   Amount of grout used: ____ (example: 10 sacks) type: ____ (example: bentonite pellets)
   d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
   Perforation: Type of perforator used Factory
   Size of perforations 0.035 inches by 3.00 inches.
   Number of perforations and depths where perforated:
   2400 perforations from 460 ft. to 520 ft.
   ____ perforations from ____ ft. to ____ ft.
   Open hole from ____ ft. to ____ ft.
   Well screen details:
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   e. Well development method Air How long did development last? 6 Hours
   f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel .125 to .375" diameter
   Filter pack installed from 0 ft. to 520 ft.
   g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
   Surface casing installed from ____ ft. to ____ ft.
7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 4/8/05
9. PUMP INFORMATION: Manufacturer Grundfos Type submersible
   Source of power electricity Horsepower 1 1/2 Depth of Pump Setting or intake 460 ft.
   Amount of Water Being Pumped 2.5 ~~15-26~~ Gallons Per Minute. (For Springs or flowing wells, see item 10.)
   Total Volumetric Amount Used Per Calendar Year. 1 Acre-Feet per U.W.S
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
    If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
    The flow is controlled by: valve ☐ cap ☐ plug ☐
    Does well leak around casing? Yes ☐ No ☐

RECEIVED OCT - 4 2005 STATE ENGINEER CHEYENNE, WYO.

Permit No. U.W. 165448 Book No. 1209 Page No. 105

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____ _____ _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 520 feet.
Depth of completed well 520 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 100 feet.
Depth to principal water bearing formation. Top 460 feet to Bottom 520 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	Pale pink to white blocky claystones & sandstones			
220	460	White claystones interbedded w/poorly cemented silty sandstones			
460	520	Hard sandstones layers interbedded w/freshwater limestone			
			Gravel	White River	480-520

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Signature of Owner or Authorized Agent

9-30-05, 20____
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 165448

Date of Receipt OCT 4 - 2005, 20____

Date of Priority 2/1/2005, 20____

Date of Approval 4/10/06, 20____

for State Engineer

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED SEP 16 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 165604 NAME OF WELL (SPRING) Silver Sage 24

1. NAME OF OWNER ~~Todd Glandt~~ Lance + Billie Karlene Power

2. ADDRESS 1526 Arctic Willow Ct
Please check if address has changed from that shown on permit. ☐

City Cheyenne State Wy Zip Code 82009 Phone No.

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) Single Family dwelling

4. LOCATION OF WELL (SPRING) SE 1/4 NW 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Silver Sage Estates Lot Block Tract 24
If surveyed, bearing, distance and reference point:
Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey

5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary Dug ☐ Driven ☐ Other ☐
(type of rig, and fluid used if any)
Describe:

6. CONSTRUCTION: Total Depth of Well/Spring 470 ft.
Depth to Static Water Level 175 ft. (Below land surface) Casing Height above ground (ft.) 1½'
a. Diameter of borehole (Bit size) 8 3/4 inches.
b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☒ glued ☐ welded
5" diameter from 0 ft. to 460 ft. Material PVC Gage 330
____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
c. Grouted interval, from 31 ft. to 34 ft.
Amount of grout used: 2 (example: 10 sacks) type: Environmental Plug (example: bentonite pellets)
d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
Perforation: Type of perforator used Slot
Size of perforations .032 inches by 3 inches.
Number of perforations and depths where perforated:
450 perforations from 400 ft. to 460 ft.
____ perforations from ____ ft. to ____ ft.
Open hole from 460 ft. to 470 ft.
Well screen details:
Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
e. Well development method Bailing How long did development last? 3 hrs
f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel 1/4" -
Filter pack installed from 34 ft. to 470 ft. 0-31'
g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
Surface casing installed from ____ ft. to ____ ft.

RECEIVED
OCT 20 2005
STATE ENGINEER
CHEYENNE, WY

7. NAME AND ADDRESS OF DRILLING COMPANY Rock Creek Drilling, Cheyenne, Wy

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 4-13-05

9. PUMP INFORMATION: Manufacturer Goulds Type Submeesible
Source of power Electric Horsepower 1½ Depth of Pump Setting or intake 360' ft.
Amount of Water Being Pumped 15 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
Total Volumetric Amount Used Per Calendar Year.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
The flow is controlled by: valve ☐ cap ☐ plug ☐
Does well leak around casing? Yes ☐ No ☐

Permit No. U.W. 165604 Book No. 1210 Page No. 111

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☒
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 470 feet.
Depth of completed well 460 feet. Diameter of well 5 inches.
Depth to first water bearing formation 143 feet.
Depth to principal water bearing formation. Top 143 feet to Bottom 238 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	47	CLAY			
47	143	SANDSTONE & CLAY			
143	238	SANDSTONE & SAND			
238	381	CLAY & SANDSTONE			
381	470	TAN CLAY			

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☒ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Patsy Christensen
Signature of Owner or Authorized Agent

10-20-05 , 20____
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 165604

Date of Receipt OCT 20 2005 , 20____

Date of Priority March 11 , 2005

Date of Approval 4/27 , 2007

for State Engineer

FORM U.W.6
Rev. 7/05

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

SCANNED SEP 16 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 165612 NAME OF WELL/SPRING Sage #46

1. NAME OF OWNER Joan McIntyre
2. ADDRESS 6222 Rue Royal
   ☐ Please check if address has changed from that shown on permit
   City Cheyenne State WY Zip Code 82009 Phone No. 214-5716
3. USE OF WATER ☒ Domestic ☒ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____
4. LOCATION OF WELL/SPRING SW 1/4 NE 1/4 of Section 3 T, 14 N.,R. 68 W., of the 6th P.M. (or W.R.M.)
   GPS Coordinates UTM Zone _____ Easting _____ Northing _____
   Subdivision Name Silver Sage Estates Lot 46 Block _____
   If surveyed, bearing, distance and reference point _____
   Longitude (degrees, minutes, seconds) 41 12.730 N DIC Latitude (degrees, minutes, seconds) 104 59.346 W
   Datum ☐ 1927 ☐ 1983 Source: ☒ GPS ☐ Map ☐ Survey per LA# 6-1308 RT
5. TYPE OF CONSTRUCTION ☒ Drilled Rotary Combination ☐ Dug ☐ Driven ☐ Other
   (Type of rig, and fluid used, if any)
   Describe _____
6. CONSTRUCTION Total depth of well/spring 520 ft.
   Depth of static water level 160 ft. (below land surface) Casing height 2 ft. above ground
   a. Diameter of borehole (bit size) 7 7/8 inches
   b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☐ Glued ☐ Welded
   5" diameter from 0 ft. to 520 ft. Material _____ Gage _____
   _____ diameter from _____ ft. to _____ ft. Material PVC Gage SDR17
   c. Cemented/grouted interval, from _____ ft. to _____ ft.
   Amount of cement/grout used _____ (example: 10 sacks) type _____ (example: bentonite pellets)
   d. Type of completion ☐ Factory screen ☐ Open hole ☒ Customized perforations
   Type of perforator used Factory
   Size of perforations 0.035 inches by 3.00 inches.
   Number of perforations and depths where perforated
   2400 perforations from 460 ft. to 520 ft.
   _____ perforations from _____ ft. to _____ ft.
   Open hole from _____ ft. to _____ ft.
   Well screen details
   Diameter _____ slot size _____ set from _____ ft. to _____ ft.
   Diameter _____ slot size _____ set from _____ ft. to _____ ft.
   e. Well development method Air How long was well developed? 6 hours
   f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel ~~6 hours~~ .125 to .375 diameter
   Filter/gravel pack installed from 0 ft. to 520 ft.
   g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
   Surface casing installed from _____ ft. to _____ ft.

RECEIVED DEC 4 2006 STATE ENGINEER CHEYENNE, WY

7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling Inc. Cheyenne WY
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 04-12-2005
9. PUMP INFORMATION Manufacturer Grundfos Type submersible
   Source of power electricity Horsepower 1 1/2 Depth of pump setting or intake 460 ft.
   Amount of water being pumped ~~15-20~~ 25 max gal./min. (For springs or flowing wells, see item 10)
   Total volumetric quantity used per calendar year. 1 AF/yr per OWSR
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
    If artesian flow or spring, yield is _____ gal./min. Surface pressure is _____ lb./sq.inch, or _____ feet of water.
    The flow is controlled by: ☐ Valve ☐ Cap ☐ Plug
    Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 165612 Book No. 1210 Page No. 119

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to quality for a water right)_____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☐ No
If so, by whom_____
Yield _____gal./min. with _____ ft. drawdown after _____ hours
Yield _____gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 520 ft.

Depth of completed well 520 ft. Diameter of well 7 7/8 inches
Depth to first water bearing formation 100 ft.
Depth to principal water bearing formation Top 460 ft. to Bottom 520 ft.

Land surface elevation (ft. above mean sea level)_____ Datum ☐ 1929 ☐ 1988
How determined ☐ Map ☐ Altimeter ☐ Survey ☐ Other

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface				
0	220	Pale pink to white blocky claystones + sandstones		
220	460	White claystone interbedded w/ poorly cemented silty sandstones		
460	520	Hard sandstones layers interbedded w/ freshwater limestone		
			Gravel	White River 460520

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).
If not, do you consider the water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Jim [signature] _____ 12-4 ,20 06
Signature of Owner or Authorized Agent — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 165612
Date of Receipt DEC 4 2006 , 20____
Date of Priorty March 3, 2005 , 20____
Date of Approval Sept 3 , 20 08
Cheryl Vanplanche
for State Engineer

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED SEP 17 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 165644 NAME OF WELL (SPRING) SAGE #7

1. NAME OF OWNER LEANING TREE HOMES, INC *
2. ADDRESS 1740 N. Dell Range Blvd. #423
   Please check if address has changed from that shown on permit. ☐
   City Cheyenne State WY Zip Code 82009 Phone No. 778-1856
3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
   One-Single-Family Dwelling
4. LOCATION OF WELL (SPRING): SE 1/4 SE 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Silver Sage Estates Lot 7 Block
   If surveyed, bearing, distance and reference point:
   Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
   Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey
5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary Combination (type of rig, and fluid used if any) Dug ☐ Driven ☐ Other ☐
   Describe:
6. CONSTRUCTION: Total Depth of Well/Spring 520 ft.
   Depth to Static Water Level 160 ft. (Below land surface) Casing Height above ground (ft.) 2'
   a. Diameter of borehole (Bit size) 7 7/8 inches.
   b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☐ glued ☐ welded
   5" diameter from 0 ft. to 520 ft. Material PVC Gage SDR17
   ____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
   c. Grouted interval, from ____ ft. to ____ ft.
   Amount of grout used: ____ (example: 10 sacks) type: ____ (example: bentonite pellets)
   d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
   Perforation: Type of perforator used Factory
   Size of perforations 0.035 inches by 3.00 inches.
   Number of perforations and depths where perforated:
   2400 perforations from 460 ft. to 520 ft.
   ____ perforations from ____ ft. to ____ ft.
   Open hole from ____ ft. to ____ ft.
   Well screen details:
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   e. Well development method Air How long did development last? 6 Hours
   f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel .125 to .375" diameter
   Filter pack installed from 0 ft. to 520 ft.
   g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
   Surface casing installed from ____ ft. to ____ ft.
7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 6-29-05
9. PUMP INFORMATION: Manufacturer Grundfos Type submersible
   Source of power electricity Horsepower 1 1/2 Depth of Pump Setting or intake 460 ft.
   Amount of Water Being Pumped 25 ~~15~~ ~~26~~ Gallons Per Minute. (For Springs or flowing wells, see item 10.)
   Total Volumetric Amount Used Per Calendar Year.
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
    If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
    The flow is controlled by: valve ☐ cap ☐ plug ☐
    Does well leak around casing? Yes ☐ No ☐

RECEIVED JAN 13 2006 STATE ENGINEER CHEYENNE, WY

Permit No. U.W. 165644 Book No. 1211 Page No. 1

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled _____ feet.
Depth of completed well 520 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 520 feet.
Depth to principal water bearing formation. 100 460 feet to Bottom 520 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	Pale pink to white blocky claystones & sandstones			
220	460	White claystones interbedded w/poorly cemented silty sandstones			
460	520	Hard sandstones layers interbedded w/freshwater limestone			
			Gravel	White River	480-520

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Rachel Frauenberg — Signature of Owner or Authorized Agent

1/13 — Date, 2006

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 165644

Date of Receipt JAN 13 2006 3/9/2005, 20____

Date of Priority _____, 20____

Date of Approval Sept. 25, 2006

B. Sebben
for State Engineer

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED SEP 17 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 165645 NAME OF WELL (SPRING) ~~SAGE #25~~

1. NAME OF OWNER ~~LEANING TREE HOMES, INC~~
2. ADDRESS 1740 Dell Range Blvd. #423
   Please check if address has changed from that shown on permit. ☐
   City Cheyenne State WY Zip Code 82009 Phone No. 7781856
3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
   One, Single-Family Dwelling
4. LOCATION OF WELL (SPRING): SE 1/4 NW 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Silver Sage Estates Lot 25 Block
   If surveyed, bearing, distance and reference point:
   Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
   Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey
5. TYPE OF CONSTRUCTION: DRILLED ☒ (type of rig, and fluid used if any) Rotary Combination Dug ☐ Driven ☐ Other ☐
   Describe:
6. CONSTRUCTION: Total Depth of Well/Spring ~~520~~ ft.
   Depth to Static Water Level 160 ft. (Below land surface) Casing Height above ground (ft.) ~~2'~~
   a. Diameter of borehole (Bit size) ~~7 7/8~~ inches.
   b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☐ glued ☐ welded
   ~~5"~~ diameter from ~~0~~ ft. to ~~520~~ ft. Material ~~PVC~~ Gage ~~SDR17~~
   ____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
   c. Grouted interval, from ____ ft. to ____ ft.
   Amount of grout used: ____ (example: 10 sacks) type: ____ (example: bentonite pellets)
   d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
   Perforation: Type of perforator used ~~Factory~~
   Size of perforations ~~0.035~~ inches by ~~3.00~~ inches.
   Number of perforations and depths where perforated:
   ~~2400~~ perforations from ~~460~~ ft. to ~~520~~ ft.
   ____ perforations from ____ ft. to ____ ft.
   Open hole from ____ ft. to ____ ft.
   Well screen details:
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   e. Well development method ~~Air~~ How long did development last? ~~6 Hours~~
   f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel ~~.125 to .375" diameter~~
   Filter pack installed from ~~0~~ ft. to ~~520~~ ft.
   g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
   Surface casing installed from ____ ft. to ____ ft.
7. NAME AND ADDRESS OF DRILLING COMPANY ~~McRady's Well Drilling, Inc., Cheyenne, WY~~
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 6/22/05
9. PUMP INFORMATION: Manufacturer ~~Grundfos~~ Type ~~submersible~~
   Source of power ~~electricity~~ Horsepower ~~1 1/2~~ Depth of Pump Setting or intake ~~460~~ ft.
   Amount of Water Being Pumped ~~15-25~~ Gallons Per Minute. (For Springs or flowing wells, see item 10.)
   Total Volumetric Amount Used Per Calendar Year.
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
    If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
    The flow is controlled by: valve ☐ cap ☐ plug ☐
    Does well leak around casing? Yes ☐ No ☐

RECEIVED JAN 13 2006 STATE ENGINEER CHEYENNE, WY

Permit No. U.W. 165645 Book No. 1211 Page No. 2

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled _____ feet.
Depth of completed well 520 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 520 feet.
Depth to principal water bearing formation. Top 460 feet to Bottom 520 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	Pale pink to white blocky claystones & sandstones			
220	460	White claystones interbedded w/poorly cemented silty sandstones			
460	520	Hard sandstones layers interbedded w/freshwater limestone			
			Gravel	White River	480-520

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Rachel Dawn Lee — Signature of Owner or Authorized Agent

1/13, 2006 — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 165645

Date of Receipt 3/9/2005 JAN 13 2006, 20____

Date of Priority _____, 20____

Date of Approval Sept. 25, 2006

B. Tebben — for State Engineer

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED SEP 24 2014

SCAN-MICRO FEB 03 2006

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 166621 NAME OF WELL (SPRING) **BLUE WILLOW**

1. NAME OF OWNER **DOUBLE T CONSTRUCTION**

2. ADDRESS ~~1435 Blue Willow~~ 2112 O'Neil Avenue
Please check if address has changed from that shown on permit. ☐ 82001
City Cheyenne State Wyo Zip Code ~~82009~~ Phone No. 6313154

3. USE OF WATER ☒ Domestic ☒ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) One Single Family Dwelling

4. LOCATION OF WELL (SPRING): NW 1/4 SW 1/4 of Section 3 ,T. 14 N.,R. 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Silver Sage Lot 41 Block
If surveyed, bearing, distance and reference point:
Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey

5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary Dug ☐ Driven ☐ Other ☐
(type of rig, and fluid used if any)
Describe:

6. CONSTRUCTION: Total Depth of Well/Spring 640 ft.
Depth to Static Water Level 180 ft. (Below land surface) Casing Height above ground (ft.) 1½'
a. Diameter of borehole (Bit size) 8 3/4 inches.
b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☒ glued ☐ welded
5" diameter from 0 ft. to 640 ft. Material PVC. Gage 330
____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
c. Grouted interval, from 97 ft. to 100 ft.
Amount of grout used: 1 (example: 10 sacks) type: Environmental Plug (example: bentonite pellets)
d. Type of completion: ☐ factory screen ☐ open hole ☐ customized perforations
Perforation: Type of perforator used Slot
Size of perforations .032 inches by 3 inches.
Number of perforations and depths where perforated:
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.
Open hole from — ft. to — ft.
Well screen details:
Diameter — slot size: ____ set from ____ ft. to ____ ft.
Diameter — slot size: ____ set from ____ ft. to ____ ft.
e. Well development method Bailing How long did development last? 3 hrs
f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel ¼" -
Filter pack installed from 100 ft. to 640 ft. 0-97'
g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
Surface casing installed from ____ ft. to ____ ft.

RECEIVED
SEP 2 1 2005
STATE ENGINEER
CHEYENNE, WY

7. NAME AND ADDRESS OF DRILLING COMPANY Rock Creek Drilling, Cheyenne, Wy

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 7-17-05

9. PUMP INFORMATION: Manufacturer Goulds Type Submersible
Source of power Electric Horsepower 1½ Depth of Pump Setting or intake 440' ft.
Amount of Water Being Pumped 15 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
Total Volumetric Amount Used Per Calendar Year. 1 Acre-foot Per UW5JR

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
The flow is controlled by: valve ☐ cap ☐ plug ☐
Does well leak around casing? Yes ☐ No ☐

Permit No. U.W. 166621 Book No. 1217 Page No. 77

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☒
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 1040 feet.
Depth of completed well 1040 feet. Diameter of well 5 inches.
Depth to first water bearing formation 194 feet.
Depth to principal water bearing formation. Top 194 feet to Bottom 230 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	4	CLAY			
4	87	SAND & GRAVEL			
87	110	SAND STONE			
110	164	SAND & GRAVEL			
164	194	CLAY & SANDSTONE			
194	230	SAND & SANDSTONE			
230	540	SANDSTONE & CLAY			
540	565	WHITE & BROWN CLAY			
565	602	YELLOW & WHITE CLAY			
602	1040	BROWN & TAN CLAY			

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Patsy Christensen
Signature of Owner or Authorized Agent

9-21, 2005
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 166621

Date of Receipt ~~4/5/2005~~ SEP 21 2005, 20____

Date of Priority April 5, 2005

Date of Approval November 4, 2005

for State Engineer

520
P 7/7/05

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED SEP 29 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 167029 NAME OF WELL (SPRING) SANCHEZ CONSTRUCTION #1

1. NAME OF OWNER SANCHEZ CONSTRUCTION LLC
2. ADDRESS 3721 Butch Cassidy Trail
   Please check if address has changed from that shown on permit. ☐
   City Cheyenne State Wyoming Zip Code 82009 Phone No. 634-2840
3. USE OF WATER ☐ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
4. LOCATION OF WELL (SPRING): NW 1/4 SE 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Silver Sage Estates Lot 33 Block
   If surveyed, bearing, distance and reference point:
   Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
   Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey
5. TYPE OF CONSTRUCTION: DRILLED [X] Rotary Combination Dug ☐ Driven ☐ Other ☐
   (type of rig, and fluid used if any)
   Describe:
6. CONSTRUCTION: Total Depth of Well/Spring 520 ft.
   Depth to Static Water Level 160 ft. (Below land surface) Casing Height above ground (ft.) 2'
   a. Diameter of borehole (Bit size) 7 7/8 inches.
   b Casing Schedule: New [X] Used ☐ Joint type: ☐ threaded ☐ glued ☐ welded
   5" diameter from 0 ft. to 520 ft. Material PVC Gage SDR17
   ____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
   c. Grouted interval, from ____ ft. to ____ ft.
   Amount of grout used: ____ type: ____
   (example: 10 sacks) (example: bentonite pellets)
   d. Type of completion: ☐ factory screen ☐ open hole [X] customized perforations
   Perforation: Type of perforator used Factory
   Size of perforations 0.035 inches by 3.00 inches.
   Number of perforations and depths where perforated:
   2400 perforations from 460 ft. to 520 ft.
   ____ perforations from ____ ft. to ____ ft.
   Open hole from ____ ft. to ____ ft.
   Well screen details:
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   e. Well development method Air How long did development last? 6 Hours
   f. Was a filter pack installed? Yes [X] No ☐ Size of sand/gravel .125 to .375" diameter
   Filter pack installed from 0 ft. to 520 ft.
   g. Was surface casing used: Yes ☐ No [X] Was it cemented in place? Yes ☐ No ☐
   Surface casing installed from ____ ft. to ____ ft.
7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 7/7/05
9. PUMP INFORMATION: Manufacturer Grundfos Type submersible
   Source of power electricity Horsepower 1 1/2 Depth of Pump Setting or intake 460 ft.
   Amount of Water Being Pumped 25 15-26 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
   Total Volumetric Amount Used Per Calendar Year. 8.26 U.W.S
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
    If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
    The flow is controlled by: valve ☐ cap ☐ plug ☐
    Does well leak around casing? Yes ☐ No ☐

RECEIVED SEP 29 2005 STATE ENGINEER CHEYENNE, WY

Permit No. U.W. 167029 Book No. 1220 Page No. 35

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 520 feet.
Depth of completed well 520 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 100 feet.
Depth to principal water bearing formation. Top 460 feet to Bottom 520 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	Pale pink to white blocky claystones & sandstones			
220	460	White claystones interbedded w/poorly cemented silty sandstones			
460	520	Hard sandstones layers interbedded w/freshwater limestone			
			Gravel	White River	480-520

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Frank Amy
Signature of Owner or Authorized Agent

Sept. 28, 2005
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 167029

Date of Receipt ~~4/20/2005~~ SEP 29 2005, 20____

Date of Priority April 20, 20 05

Date of Approval 4/25, 2006

for State Engineer

520
P 7/27/05

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED SEP 29 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W.* 167030 NAME OF WELL (SPRING) SANCHEZ CONSTRUCTION #2

1. NAME OF OWNER* SANCHEZ CONSTRUCTION LLC *
2. ADDRESS 3721 Butch Cassidy Trail
   Please check if address has changed from that shown on permit. ☐
   City Cheyenne State Wyoming Zip Code 82009 Phone No. 634-2840
   per UW5-JR
3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____
4. LOCATION OF WELL (SPRING): NE 1/4 SE 1/4 of Section 3, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Silver Sage Estates Lot 30 Block _____
   If surveyed, bearing, distance and reference point: _____
   Longitude (degrees, minutes, seconds) _____ Latitude (degrees, minutes, seconds) _____
   Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey
5. TYPE OF CONSTRUCTION: DRILLED ☒ Rotary Combination Dug ☐ Driven ☐ Other ☐
   (type of rig, and fluid used if any)
   Describe: _____
6. CONSTRUCTION: Total Depth of Well/Spring 520 ft.
   Depth to Static Water Level 160 ft. (Below land surface) Casing Height above ground (ft.) 2'
   a. Diameter of borehole (Bit size) 7 7/8 inches.
   b Casing Schedule: New ☒ Used ☐ Joint type: ☐ threaded ☐ glued ☐ welded
   5" diameter from 0 ft. to 520 ft. Material PVC Gage SDR17
   ____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
   c. Grouted interval, from ____ ft. to ____ ft.
   Amount of grout used: ____ type: ____
   (example: 10 sacks) (example: bentonite pellets)
   d. Type of completion: ☐ factory screen ☐ open hole ☒ customized perforations
   Perforation: Type of perforator used Factory
   Size of perforations 0.035 inches by 3.00 inches.
   Number of perforations and depths where perforated:
   2400 perforations from 460 ft. to 520 ft.
   ____ perforations from ____ ft. to ____ ft.
   Open hole from ____ ft. to ____ ft.
   Well screen details:
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   e. Well development method Air How long did development last? 6 Hours
   f. Was a filter pack installed? Yes ☒ No ☐ Size of sand/gravel .125 to .375" diameter
   Filter pack installed from 0 ft. to 520 ft.
   g. Was surface casing used: Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐
   Surface casing installed from ____ ft. to ____ ft.
7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 7/27/05
9. PUMP INFORMATION: Manufacturer Grundfos Type submersible
   Source of power electricity Horsepower 1 1/2 Depth of Pump Setting or intake 460 ft.
   Amount of Water Being Pumped 25 ~~15-26~~ Gallons Per Minute. (For Springs or flowing wells, see item 10.)
   Per U.W. 5
   Total Volumetric Amount Used Per Calendar Year. 1 Acre-foot
   Per UW5-JR
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
    If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
    The flow is controlled by: valve ☐ cap ☐ plug ☐
    Does well leak around casing? Yes ☐ No ☐

RECEIVED
SEP 29 2005
STATE ENGINEER
CHEYENNE, WY

Permit No. U.W. 167030 Book No. 1220 Page No. 36

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 520 feet.
Depth of completed well 520 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 100 feet.
Depth to principal water bearing formation. Top 460 feet to Bottom 520 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	220	Pale pink to white blocky claystones & sandstones			
220	460	White claystones interbedded w/poorly cemented silty sandstones			
460	520	Hard sandstones layers interbedded w/freshwater limestone			
			Gravel	White River	480-520

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Frank Hauf
Signature of Owner or Authorized Agent

Sept-28, 2005
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 167030

Date of Receipt ~~4/20/2005~~ SEP 29 2005

Date of Priority April 20, 2005

Date of Approval 3/20, 2007

for State Engineer

520' well only

FORM U.W.6
Rev. 5/05

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED OCT 07 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. **168842** NAME OF WELL/SPRING **BAUMAN #1**

1. NAME OF OWNER **BRETT L BAUMAN**

2. ADDRESS *1507 Rd 215 * *
Please check if address has changed from that shown on permit.
City Cheyenne * State Wyo Zip Code 82009 Phone No. 635-5996

3. USE OF WATER ☒ Domestic ☒ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
Single family dwelling - livestock tank

4. LOCATION OF WELL/SPRING (NW 1/4 NW 1/4 of Section 3, T. 14 N.,R 68 W., of the 6th P.M. (or W.R.M.)
Lot 4 Per UW5-JR
GPS coordinates UTM Zone _____ Easting _____ Northing _____
Subdivision name Fox meadows Lot 20 Block _____ Per UW5-JR
If surveyed, bearing, distance, and reference point _____
Longitude (degrees, minutes, seconds) N 41° 13.063' Latitude (degrees, minutes, seconds) W 104° 59.908'
Datum: ☐ 1927 ☐ 1983 Source: ☒ GPS ☐ Map ☐ Survey

5. TYPE OF CONSTRUCTION Drilled ☒ Rotary Combination (type of rig, and fluid used, if any) ☐ Dug ☐ Driven ☐ Other
Describe _____

6. CONSTRUCTION Total depth of well/spring 520 ft.
Depth to static water level 160 ft. (below land surface) Casing height 2 ft. above ground
a. Diameter of borehole (bit size) 7 7/8 inches
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☐ Glued ☐ Welded
5" diameter from 0 ft. to 520 ft. Material PVC Gage SDR17
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from _____ ft. to _____ ft.
Amount of grout used _____ (example: 10 sacks) type _____ (example: bentonite pellets)
d. Type of completion ☐ Factory screen ☐ Open hole ☒ Customized perforations
Type of perforator used Factory
Size of perforations 0.035 inches by 3.00 inches
Number of perforations and depths where perforated
2400 perforations from 460 ft. to 520 ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method Air How long did development last? 6 Hours
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel .125 to .375" diameter
Filter pack/gravel installed from 0 ft. to 520 ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED OCT 12 2006 STATE ENGINEER CHEYENNE, WY

7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 11-15-05

9. PUMP INFORMATION Manufacturer Grundfost * Type * Submersible
Source of power CIF+P * Horsepower 1½ Depth of pump setting or intake 460 * ft.
Amount of water being pumped 4.5 * gal./min. (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year 325,000 per UW5 2-8-08 PH

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If well yields artesian flow or if spring , yield is _____ gal./min. Surface pressure is _____ lb./sq.inch, or _____ feet of water
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. **168842** Book No. **1232** Page No. **47**

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☐ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 520 ft.
Depth of completed well 520 ft. Diameter of well 7 7/8nches.
Depth to first water bearing formation 100 ft.
Depth to principal water bearing formation top 460 ft. to bottom 520 ft.

Land surface elevation (ft. above mean sea level) _____ Datum ☐ 1929 ☐ 1988
How determined ☐ Map ☐ Altimeter ☐ Survey ☐ Other

DRILL CUTTINGS DESCRIPTION:

From	To Ft.	Rock Type Or Description	Formation	Water Bearing? (Yes or No)
Surface				
0	220	Pale pink to white blocky claystones & sandstones		
220	460	White claystones interbedded w/poorly cemented silty sandstones		
460	520	Hard sandstones layers interbedded w/freshwater limestone		
			White River	Yes

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Brett J Bauer
Signature of Owner or Authorized Agent

11-21
Date, 2005

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 168842

Date of Receipt OCT 12 2005, 20____

Date of Priority 7/5/2005

Date of Approval June 6, 2008

for State Engineer

FORM U.W.6
Rev. 7/05

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

SCANNED OCT 15 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 170164 NAME OF WELL/SPRING KEYSTONE #1

1. NAME OF OWNER KEYSTONE BUILDERS LLC c/o GLENN GRASCHE OR JOHN ALLED

2 ADDRESS 7704 QUARTER CIRCLE DR
☒ Please check if address has changed from that shown on permit

City CHEYENNE State WY Zip Code 82009 Phone No. 307-433-0064

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING NE 1/4 SW 1/4 of Section 3 T, 14 N.,R. 68 W., of the 6th P.M. (or W.R.M.)
GPS Coordinates UTM Zone 13 Easting _____ Northing _____
Subdivision Name SILVER SAGE ESTATES Lot 44 Block _____
If surveyed, bearing, distance and reference point _____
Longitude (degrees, minutes, seconds) 41° 12' 639" N Latitude (degrees, minutes, seconds) 104° 59' 629" W
Datum ☐ 1927 ☐ 1983 Source: ☒ GPS ☐ Map ☐ Survey

5. TYPE OF CONSTRUCTION ☒ Drilled ROTARY ☐ Dug ☐ Driven ☐ Other
(Type of rig, and fluid used, if any)
Describe _____

6. CONSTRUCTION Total depth of well/spring 620 ft.
Depth of static water level 120 ft. (below land surface) Casing height 1 1/2' ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5" diameter from 0 ft. to 620 ft. Material PVC Gage SDR 21 - 330
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from 30 ft. to 42 ft.
Amount of cement/grout used 3 type ENVIRONMENTAL PLUG
(example: 10 sacks) (example: bentonite pellets)
d. Type of completion ☐ Factory screen ☐ Open hole ☒ Customized perforations
Type of perforator used SLOT
Size of perforations .032 inches by 3 inches.
Number of perforations and depths where perforated
4500 perforations from 380 ft. to 400 ft. 500'-520' 600'-620'
_____ perforations from _____ ft. to _____ ft.
Open hole from 620 ft. to 630 ft.
Well screen details
Diameter 5" slot size .032 set from 380 ft. to 400 ft. 600'-620'
Diameter 5" slot size .032 set from 500 ft. to 520 ft.
e. Well development method BAILING How long was well developed? 3 HRS
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 1/4"
Filter/gravel pack installed from 42 ft. to 620 ft. 0'-30'
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED NOV 22 2006 STATE ENGINEER CHEYENNE, WY

7. NAME AND ADDRESS OF DRILLING COMPANY ROCK CREEK DRILLING, CHEYENNE, WY (307) 632-5510

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 11-11-05

9. PUMP INFORMATION Manufacturer GOULDS Type SUBMERSIBLE
Source of power ELECTRIC Horsepower 1.5 Depth of pump setting or intake 380 ft.
Amount of water being pumped 15 gal./min. (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year. 325,000 gal UWS RT

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is _____ gal./min. Surface pressure is _____ lb./sq.inch, or _____ feet of water.
The flow is controlled by: ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 170164 Book No. 1241 Page No. 18

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right) N/A

12. PUMP TEST Was a pump test conducted? ☒ Yes ☐ No
If so, by whom PUMP INSTALLED - DAUGHTER OF ROCK CREEK DRILLING CO.
Yield 15 gal./min. with 10 ft. drawdown after 3 hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 630 ft.

Depth of completed well 620 ft. Diameter of well 5 inches
Depth to first water bearing formation 108 ft.
Depth to principal water bearing formation Top 108 ft. to Bottom 300 ft.

Land surface elevation (ft. above mean sea level) 6588 Datum ☐ 1929 ☐ 1988
How determined ☐ Map ☐ Altimeter ☐ Survey ☒ Other GPS

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface				
0	3	SAND & GRAVEL		
3	13	CLAY		
13	108	SANDSTONE & CLAY		
108	300	LIMESTONE & SANDSTONE		
300	600	CLAY & SANDSTONE		
600	620	CLAY		
620	630	BLACK SHALE		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☒ No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☒ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).
If not, do you consider the water as ☒ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS CHEMICAL & BACTERIOLOGICAL TESTS CAME BACK AS NEGATIVE - OCCUPANCY PERMIT ISSUED.

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

KEYSTONE BUILDERS, LLC
Signature of Owner or Authorized Agent
JOHN D ALLEN

22 NOV ,20 06
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 170164
Date of Receipt NOV 21 2006 , 20____
Date of Priorty October 5, 2005 , 20____

Date of Approval August 26 , 2008
for State Engineer

FORM U.W.6
Rev. 5/05

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

SCANNED NOV 20 2014

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. **173857** NAME OF WELL/SPRING **HEATH #1**

1. NAME OF OWNER **TODD & VONDA HEATH**

2. ADDRESS 1472 SILVERFOX LANE
☐ Please check if address has changed from that shown on permit.
City CHEYENNE State WY Zip Code 82009 Phone No. 307 638-3210

3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) ONE SINGLE FAMILY DWELLING

4. LOCATION OF WELL/SPRING SW 1/4 NE 1/4 of Section 3, T. 14 N.,R 68 W., of the 6th P.M. (or W.R.M.)
GPS coordinates UTM Zone _____ Easting _____ Northing _____
Subdivision name SILVER SAGE ESTATE Lot 27 Block _____
If surveyed, bearing, distance, and reference point
Longitude (degrees, minutes, seconds) 104.987422 Latitude (degrees, minutes, seconds) 41.214582
Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey

5. TYPE OF CONSTRUCTION Drilled ☑ ROTARY (type of rig, and fluid used, if any) ☐ Dug ☐ Driven ☐ Other
Describe _____

6. CONSTRUCTION Total depth of well/spring 700 ft.
Depth to static water level 100 ft. (below land surface) Casing height 3 ft. above ground
a. Diameter of borehole (bit size) _____ inches
b. Casing schedule ☑ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5" diameter from 0 ft. to 700 ft. Material PVC Gage 1330
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from 66 ft. to 78 ft.
Amount of grout used 3 (example: 10 sacks) type ENVIROMENTAL PLUG (example: bentonite pellets)
d. Type of completion ☐ Factory screen ☐ Open hole ☒ Customized perforations
Type of perforator used SLOT
Size of perforations .032 inches by 3 inches
Number of perforations and depths where perforated
4500 perforations from 640 ft. to 700 ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from — ft. to — ft.
Well screen details
Diameter 5" slot size .032 set from 640 ft. to 700 ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method BAILING How long did development last? 3 hrs
f. Was a filter/gravel pack installed? ☑ Yes ☐ No Size of sand/gravel 1/4" - 1
Filter pack/gravel installed from 78 ft. to 700 ft. 0-66'
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from _____ ft. to _____ ft.

~~1080~~ 915

RECEIVED
MAR 3 2008
STATE ENGINEERS
CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY Rock Creek Drilling, Cheyenne, WY

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 7-7-06

9. PUMP INFORMATION Manufacturer Goulds Type Submersible
Source of power Electric Horsepower ~~1~~ 1½ Depth of pump setting or intake 440 ft.
Amount of water being pumped 15 gal./min. (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year 325,000 gallons per year est

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If well yields artesian flow or if spring , yield is _____ gal./min. Surface pressure is _____ lb./sq.inch, or _____ feet of water
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. **173857** Book No. **1265** Page No. **110**

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 700 ft.
Depth of completed well 700 ft. Diameter of well 5 inches.
Depth to first water bearing formation 98 ft.
Depth to principal water bearing formation top 510 ft. to bottom 610 ft.

Land surface elevation (ft. above mean sea level) _____ Datum ☐ 1929 ☐ 1988
How determined ☐ Map ☐ Altimeter ☐ Survey ☐ Other

DRILL CUTTINGS DESCRIPTION:

From	To Ft.	Rock Type Or Description	Formation	Water Bearing? (Yes or No)
Surface	2	Top Soil		
2	64	Clay, Rocks & gravel		
64	87	Clay		
87	98	Clay & Sandstone		
98	117	Sand & Sandstone		
117	201	Sandstone & Limestone		
201	343	Clay & Sandstone		
343	406	Tan Clay		
406	434	Clay & Sandstone		
434	510	Brown & Tan Clay		
510	520	Sandstone		
520	600	Tan Clay		
600	610	Sandstone		
610	630	Tan Clay		
630	640	Sandstone		
640	700	Tan, white & yellow Clay		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☒ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☒ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☒ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Brad A Heath
Signature of Owner or Authorized Agent

~~12/28~~ 12/28, 20 07
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 173857

Date of Receipt ~~FEB 29 2008~~ MAR 3 2008, 20____

Date of Priority 3/24/2006

Date of Approval April 24, 20 12

Benjamin Clayton
for State Engineer

NANCY L. COLGAN NOTARY PUBLIC
COUNTY OF [illegible] STATE OF WYOMING
MY COMMISSION EXPIRES AUG. 16, 2009

Nancy L. Colgan

FORM U.W.6
Rev. 5/05

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

SCANNED OCT 24 2014

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. **177432** NAME OF WELL/SPRING **LITTLE LEAF #34**

1. NAME OF OWNER **DOUBLE T CONSTRUCTION**

2. ADDRESS Po Box 20850
☐ Please check if address has changed from that shown on permit.
City Cheyenne State Wy Zip Code 82003-7018 Phone No. 631-3154

3. USE OF WATER ☒ Domestic ☒ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) one single family dwelling

4. LOCATION OF WELL/SPRING NW 1/4 SE 1/4 of Section 3, T. 14 N.,R 68 W., of the 6th P.M. (or W.R.M.)
GPS coordinates UTM Zone _____ Easting _____ Northing _____
Subdivision name Silver Sage Estates Lot 34 Block _____
If surveyed, bearing, distance, and reference point
Longitude (degrees, minutes, seconds) 41° 12. 602' Latitude (degrees, minutes, seconds) 104° 59. 432'
Datum: ☐ 1927 ☐ 1983 Source: ☒ GPS ☐ Map ☐ Survey
GPS correct zone

5. TYPE OF CONSTRUCTION Drilled ☒ Gardner Denver 1000 (type of rig, and fluid used, if any) ☐ Dug ☐ Driven ☐ Other
Describe Rotary

6. CONSTRUCTION Total depth of well/spring 400 ft.
Depth to static water level 166 ft. (below land surface) Casing height 2' ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☐ Glued ☐ Welded
5" diameter from 0 ft. to ____ ft. Material PVC 200psi Gage SDR-21
____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
c. Cemented/grouted interval, from ____ ft. to ____ ft.
Amount of grout used ____ (example: 10 sacks) type ____ (example: bentonite pellets)
d. Type of completion ☐ Factory screen ☐ Open hole ☒ Customized perforations
Type of perforator used SLOT
Size of perforations .032 inches by 3 inches
Number of perforations and depths where perforated
5280 perforations from 300 ft. to 360 ft.
____ perforations from ____ ft. to ____ ft.
Open hole from ____ ft. to ____ ft.
Well screen details
Diameter ____ slot size ____ set from ____ ft. to ____ ft.
Diameter ____ slot size ____ set from ____ ft. to ____ ft.
e. Well development method ____ How long did development last? ____
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 1/4"
Filter pack/gravel installed from ____ ft. to ____ ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☒ No
Surface casing installed from ____ ft. to ____ ft.

RECEIVED
JAN 26 2007
STATE ENGINEER
CHEYENNE, WY

7. NAME AND ADDRESS OF DRILLING COMPANY Taylor Drilling Inc Douglas Wyo 82633

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 11/22/06

9. PUMP INFORMATION Manufacturer Monarch Type Submersible
Source of power electric Horsepower 1 1/2 Depth of pump setting or intake 340 ft.
Amount of water being pumped 14 gal./min. (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year 1 Acre per U.W.S regs

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If well yields artesian flow or if spring , yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. **177432** Book No. **1288** Page No. **84**

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) N/A

12. PUMP TEST Was a pump test conducted? ☐ Yes ☐ No AIR
If so, by whom driller
Yield 35 gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 400 ft.
Depth of completed well 380 ft. Diameter of well 8 3/4 inches.
Depth to first water bearing formation 250 ft.
Depth to principal water bearing formation top 260 ft. to bottom 360 ft.

Land surface elevation (ft. above mean sea level) _____ Datum ☐ 1929 ☐ 1988
How determined ☐ Map ☐ Altimeter ☐ Survey ☐ Other

DRILL CUTTINGS DESCRIPTION:

From	To Ft.	Rock Type Or Description	Formation	Water Bearing? (Yes or No)
Surface	1	Top Soil		
1	5	decomposed granite		
5	40	Brn Silt		
40	45	decomposed granite		
45	65	Brn Silt		
65	75	decomposed granite		
75	85	Brn Silt		
85	90	decomposed granite		
90	130	LT Brn Silt		
130	145	decomposed granite		
145	160	Brn clay		
160	180	decomposed granite		
180	250	Brn-clay	H2o	
250	260	decomposed granite	"	
260	290	decomposed granite clay mix	"	300-360
290	400	Brn sandstone	"	

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☒ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☒ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Signature of Owner or Authorized Agent

12/18, 2006
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 177432

Date of Receipt JAN 26 2007, 20_____

Date of Priority 9/28/2006

Date of Approval 1/27, 20 12

for State Engineer

FORM U.W.6
Rev. 1/07

SCANNED

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

SCANNED JAN 28 2015

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

SCANNED SEP 28 2015

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 190206 NAME OF WELL/SPRING Bauman #1

1. NAME OF OWNER Brett & Tammy Bauman

2 ADDRESS P.O. Box 2288
☐ Please check if address has changed from that shown on permit

City Cheyenne State Wy Zip Code 82003 Phone No. 307-630-5977

3. USE OF WATER ☒ Domestic ☒ Stock Watering per DWS JN ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
Single Family Dwelling

4. LOCATION OF WELL/SPRING (NW 1/4 NE 1/4) of Section 3 T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.) lot 2 o.s. JN
Subdivision Name Fox Meadow Lot 18 Block
Resurvey Location Tract 18 out JN or Lot Datum ☐ NAD27 ☐ NAD83 per DWS & parcel data
Geographic Coordinates: Latitude N 41° 13003 N Longitude W 104° 59' 3514 W (degrees, minutes, seconds)
UTM: Zone Northing Easting GPS correct ok JN (meters)
State Plane Coordinates: Zone Northing Easting (feet)
Land surface elevation (ft. above mean sea level) Datum ☐ NAVD29 ☐ NAVD88
Source ☐ GPS ☐ Map ☐ Survey ☐ Unkown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled Rotary Combination ☐ Dug ☐ Driven ☐ Other
Describe

6. CONSTRUCTION Total depth of well/spring 520 ft.
Depth of static water level 160 ft. (below land surface) Casing height ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches
b. Casing schedule ☐ New ☐ Used Joint type ☐ Threaded ☐ Glued ☐ Welded
5" diameter from 0 ft. to 520 ft. Material PVC SDR-17 Gage
diameter from ft. to ft. Material Gage
c. Cemented/grouted interval, from ft. to ft.
Amount of cement/grout used (example: 10 sacks) type (example: bentonite pellets)
d. Type of completion ☒ Customized perforations ☐ Open hole ☐ Factory screen
Type of perforator used Factory
Size of perforations .035 inches by 3 00 inches.
Number of perforations and depths where perforated
2400 perforations from 0 ft. to 520 ft.
perforations from ft. to ft.
Open hole from ft. to ft.
Well screen details
Diameter slot size set from ft. to ft.
Diameter slot size set from ft. to ft.

RECEIVED
JUN 2 2010
STATE ENGINEERS
CHEYENNE, WYOMING

e. Well development method Air How long was well developed? 4 HRS
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel .125 to .375" Diameter
Filter/gravel pack installed from 0 ft. to 520 ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from ft. to ft.

7. NAME AND ADDRESS OF DRILLING COMPANY McBride's Well Drilling Inc Cheyenne Wy 82007

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 9-2009

9. PUMP INFORMATION Manufacturer Grundfos Type Submersible
Source of power electricity Horsepower 1.5 Depth of pump setting or intake 460 ft.
Amount of water being pumped 15-20 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* 325,000 per DWS JN
*If these amounts exceed permitted amount an enlargement is required.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is gal./min. *Surface pressure is lb./sq.inch, or feet of water.
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 190206 Book No. 1373 Page No. 106

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right) SUBMERSED

12. PUMP TEST Was a pump test conducted? ☐ Yes ☐ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 520 ft.
Depth of completed well 520 ft. Diameter of well 8 3/4 inches
Depth to first water bearing formation 100 ft.
Depth to principal water bearing formation Top 460 ft. to Bottom 520 ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface	220	Pale Pink to white blocky Sandstone & Claystone		
220	460	White Claystone interbedded w/poorly Cemented Silty Sandstone		
460	520	Hard Sandstone layers interbedded w/ freshwater limestone		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).
If not, do you consider the water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Bill Bare
Signature of Owner or Authorized Agent

June 2, 20 10
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 190206

Date of Receipt JUN - 2 2010, 20

Date of Priorty May 14, 2009, 20

Date of Approval June 7, 20 10

for State Engineer

SCANNED OCT 29 2013

FORM U.W.6
Rev. 2/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED DEC 23 2016

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 197867 NAME OF WELL/SPRING DAVIS WELL

1. **NAME OF OWNER** PATRICK & STACY DAVIS

2. **ADDRESS** 1531 Arctic Willow Court
☒ Please check if address has changed from that shown on permit.
City Cheyenne State WY Zip Code 82009 Phone No. 307-421-5668

3. **USE OF WATER** ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) 1 house
add per lat/long, cf 12/8/16

4. **LOCATION OF WELL/SPRING** SE 1/4 NW 1/4 of Section 3, T. 14 N., R 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name _____ Lot _____ Block _____
Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude 41° 12.684 N Longitude 104° 59.748 W (degrees, minutes, seconds)
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (Feet)
Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. **TYPE OF CONSTRUCTION** ☒ Drilled ROTARY (type of rig, and fluid used, if any) ☐ Dug ☐ Driven ☐ Other
Describe _____

6. **CONSTRUCTION** Total depth of well/spring 460 ft.
Depth to static water level 130 ft. (below land surface) Casing height 1½ ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches 0'-20'-9 3/8"
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5 diameter from 0 ft. to 460 ft. Material PVC Gage 330
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from 7' ft. to 235 ft. 7'-27' 6 SACKS
Amount of grout used 14 (example: 10 sacks) type Bentonite Grout Seal (example: bentonite pellets) Bentonite chips
d. Type of completion ☐ Customized perforations ☐ Open hole ☒ Factory screen
Type of perforator used SLOT
Size of perforations .025 inches by 2 inches
Number of perforations and depths where perforated
1500 perforations from 240 ft. to 260 ft. 1500 - 320' - 340
1500 perforations from 380 ft. to 400 ft. 1500 - 440' - 460'
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter 5" slot size .025 set from 240'-260 ft. to _____ ft.
Diameter 5" slot size .025 set from 330-340 ft. to _____ ft.
Diameter 5" slot size .025 set from 380' 440' ft. to 460 ft.
e. Well development method Air & Bale How long was well developed? 3 hrs
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 8-12 Silica Sand
Filter pack/gravel installed from 235 ft. to 460 ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED OCT 28 2013 STATE ENGINEERS CHEYENNE, WYOMING

7. **NAME AND ADDRESS OF DRILLING COMPANY** Rock Creek Drilling, Cheyenne, Wy

8. **DATE OF COMPLETION OF WELL** (including pump installation) **OR SPRING** (first used) 6-13-12

9. **PUMP INFORMATION** Manufacturer Goulds Type Submersible
Source of power Electric Horsepower 1½ Depth of pump setting or intake 260 ft.
Amount of water being pumped 15 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* 325,000 gal cf 12/8/16 per DWS

10. **FLOWING WELL OR SPRING** (Owner is responsible for control of flowing well)
If well yields artesian flow or if spring, yield is _____ gal./min.* Surface pressure is _____ lb./sq.inch, or _____ feet of water
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No
*If these amounts exceed permitted amount an enlargement is required.

Permit No. U.W. 197867 Book No. 1424 Page No. 117

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☐ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 460 ft.
Depth of completed well 460 ft. Diameter of well 5 inches.
Depth to first water bearing formation 220 ft.
Depth to principal water bearing formation Top _____ ft. to bottom _____ ft.

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Rock Type Or Description	Formation	Water Bearing? (Yes or no)
Surface	2	Top Soil		
2	20	Tan Clay		
20	23	Sand		
23	100	Cemented Gravel		
100	120	Hard Sandstone		
120	200	Tan Clay & Cemented Gravel		
200	220	Tan sticky Clay		
220	235	Rounded Sand		
235	240	Tan Clay		
240	285	Tan Clay Cemented Gravel		
285	380	Tan Clay w/ Sandstone stringers		
380	460	Tan sticky Clay		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS Bentonite chips - 7' to 27' per 6c, cf 12/8/16

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

[signature] 10/28 , 2013
Signature of Owner or Authorized Agent — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 197867
Date of Receipt OCT 28 2013
Date of Priority 4/16/2012
Date of Approval 12/8 , 2016
[signature]
for State Engineer

RECEIVED
APR 04 2013
TSH

FORM U.W.6
Rev. 2/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED APR 15 2013

SCANNED SEP 28 2015

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 198168 NAME OF WELL/SPRING ~~SIVER~~ SILVER per U.W.6 OR SAGE 8

1. NAME OF OWNER GATEWAY CONSTRUCTION, LLC

2. ADDRESS P.O. Box 3244

☐ Please check if address has changed from that shown on permit.

City Cheyenne State WY Zip Code 82003 Phone No. (307) 632-8950

3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING SE 1/4 SE 1/4 of Section 3, T. 14 N., R 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Silver Sage Estates Lot — Block —
Resurvey Location Tract 8 or Lot — Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude 41° 12, 378 N Longitude 104° 59, 156 W (degrees, minutes, seconds)
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (Feet)
Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled Rotary (type of rig, and fluid used, if any) ☐ Dug ☐ Driven ☐ Other
Describe _____

6. CONSTRUCTION Total depth of well/spring 460 ft.
Depth to static water level 195 ft. (below land surface) Casing height 1½ ft. above ground
a. Diameter of borehole (bit size) 8¾ inches 0'-20' - 9⅝"
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5" diameter from 0 ft. to 460 ft. Material PVC Gage 330
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from 27 ft. to 395 ft. 7'-27' 3 sack
Amount of grout used 23 (example: 10 sacks) type Bentonite grout seal (example: bentonite pellets) Bentonite chips
d. Type of completion ☒ Customized perforations ☐ Open hole ☐ Factory screen
Type of perforator used Slot
Size of perforations .025 inches by 2 inches
Number of perforations and depths where perforated
4500 perforations from 400 ft. to 460 ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from — ft. to — ft.
Well screen details
Diameter 5" slot size .025 set from 400 ft. to 460 ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method Bale & Air How long was well developed? 4 hrs
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 8-12 Silica Sand
Filter pack/gravel installed from 395 ft. to 460 ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☒ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED
APR 12 2013
STATE ENGINEERS
CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY Rock Creek Drilling, Cheyenne, Wy

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 9-25-12

9. PUMP INFORMATION Manufacturer Goulds Type Submersible
Source of power Electric Horsepower 1½ Depth of pump setting or intake 400 ft.
Amount of water being pumped 10 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* _____

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If well yields artesian flow or if spring, yield is _____ gal./min.* Surface pressure is _____ lb./sq.inch, or _____ feet of water
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No
*If these amounts exceed permitted amount an enlargement is required.

Permit No. U.W. 198168 Book No. 1426 Page No. 118

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 460 ft.
Depth of completed well 460 ft. Diameter of well 5 inches.
Depth to first water bearing formation 169 ft.
Depth to principal water bearing formation Top 310 ft. to bottom 445 ft.

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Rock Type Or Description	Formation	Water Bearing? (Yes or no)
Surface	1	Top Soil		
1	15	GRAVEL		
15	100	Tan & white CLAY		
100	115	COARSE SAND		
115	165	Cemented GRAVEL		
169	195	COARSE SAND		
195	205	HARD TAN CLAY		
205	260	Soft Sandstone		
260	300	SANDY CLAY		
300	310	Rounded SAND		
310	435	SANDY CLAY		
435	445	Rounded SAND		
445	460	Sticky CLAY		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Signature of Owner or Authorized Agent

4-4-13
Date, 2013

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 198168

Date of Receipt APR 12 2013

Date of Priority 6/4/2012

Date of Approval September 24, 2015

Brandon Reynolds
for State Engineer

SCANNED FEB 19 2013
SCANNED AUG 24 2016

FORM U.W.6
Rev. 2/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 198327 NAME OF WELL/SPRING JJ2

1. NAME OF OWNER JESSIE & DOSSANNE JENKINS

2. ADDRESS Silver Sage Estates, Tract 26 Loc 1548 Arctic Willow Ct
☐ Please check if address has changed from that shown on permit.
City Cheyenne State Wy Zip Code _____ Phone No. _____

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING SW 1/4 NE 1/4 of Section 3, T. 14 N., R 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name _____ Lot _____ Block _____
Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude 41° 12' 54 N Longitude 104° 59' 28 W (degrees, minutes, seconds)
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (Feet)
Land surface elevation (ft. above mean sea level) 6601 Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled Rotary ☐ Dug ☐ Driven ☐ Other
(type of rig, and fluid used, if any)
Describe Polymer Mud

6. CONSTRUCTION Total depth of well/spring 665 ft.
Depth to static water level 480 ft. (below land surface) Casing height 20" ft. above ground
a. Diameter of borehole (bit size) 8 inches
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5 diameter from 0 ft. to 300 ft. Material PVC Gage 200
5 diameter from 300 ft. to 660 ft. Material PVC Gage 250
c. Cemented/grouted interval, from 6 ft. to 600 ft.
Amount of grout used 96 type Bentonite Chips
(example: 10 sacks) (example: bentonite pellets)
d. Type of completion ☐ Customized perforations ☐ Open hole ☐ Factory screen
Type of perforator used slotted
Size of perforations 32000 inches by 2 inches
Number of perforations and depths where perforated
60 perforations from 600 ft. to 660 ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method Air How long was well developed? 4 hours
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 8-12 Silica Sand
Filter pack/gravel installed from 6 ft. to 595 ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☒ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED
FEB 19 2013
STATE ENGINEERS
CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY C F DRILLING 195 E Cole Rd Wheatland Wy 82201

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 20 NOV - 2012

9. PUMP INFORMATION Manufacturer GOULD Type Submersible
Source of power ELECTRIC Horsepower 1½ HP Depth of pump setting or intake 520 ft.
Amount of water being pumped 10 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* 1 Acre

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If well yields artesian flow or if spring, yield is _____ gal./min.* Surface pressure is _____ lb./sq.inch, or _____ feet of water
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No
*If these amounts exceed permitted amount an enlargement is required.

Permit No. U.W. 198327 Book No. 1427 Page No. 127

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 665 ft.
Depth of completed well 650 ft. Diameter of well 8 inches.
Depth to first water bearing formation 480 ft.
Depth to principal water bearing formation Top 480 ft. to bottom 660 ft.

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Rock Type Or Description	Formation	Water Bearing? (Yes or no)
Surface	5	dirt	"	no
5	45	Gravel		no
45	480	Brown	Shell	no
480	660	light brown	sand	yes

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☒ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☒ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☒ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Signature of Owner or Authorized Agent

2/14 Date , 2013

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 198327

Date of Receipt FEB 19 2013

Date of Priority 7/2/2012

Date of Approval 8/9/16

for State Engineer

SCANNED APR 08 2016
SCANNED NOV 19 2012

FORM U.W.6
Rev. 2/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 198417 NAME OF WELL/SPRING GREGG #14 - SILVER SAGE ESTATE

1. NAME OF OWNER GREGG CONST., LLC

2. ADDRESS 1527 BARBERRY RIDGE
☐ Please check if address has changed from that shown on permit.
City CHEYENNE State WY Zip Code 82009 Phone No. 307-634-6188

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING SE 1/4 SW 1/4 of Section 3, T. 14 N., R 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name SILVER SAGE ESTATES Lot 14 Block _____
Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude 41° 12.374 N Longitude 104° 59.734 W (degrees, minutes, seconds)
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (Feet)
Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled ROTARY (type of rig, and fluid used, if any) ☐ Dug ☐ Driven ☐ Other
Describe _____

6. CONSTRUCTION Total depth of well/spring 300 ft.
Depth to static water level 145 ft. (below land surface) Casing height 1 1/2 ft. above ground
a. Diameter of borehole (bit size) _____ inches
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5" diameter from 0 ft. to 300 ft. Material PVC Gage 1330
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from 27 ft. to 195 ft. 1st - 27' - 3 sacks
Amount of grout used 11 (example: 10 sacks) type Bentonite grout SEAL (example: bentonite pellets) Bentonite chips
d. Type of completion ☒ Customized perforations ☐ Open hole ☐ Factory screen
Type of perforator used Slot
Size of perforations .025 inches by 2 inches
Number of perforations and depths where perforated
1500 perforations from 200 ft. to 220 ft. 1500 - 240' - 260
1500 perforations from 280 ft. to 300 ft.
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter 5" slot size .025 set from _____ ft. to _____ ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method AIR & BALE How long was well developed? 4 hrs
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 8-12 SILICA SAND
Filter pack/gravel installed from 195 ft. to 300 ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☒ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED NOV 19 2012 STATE ENGINEERS CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY Rock Creek Drilling, Cheyenne, Wy

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 10-22-12

9. PUMP INFORMATION Manufacturer Goulds Type Submersible
Source of power Electric Horsepower 3/4 Depth of pump setting or intake 280 ft.
Amount of water being pumped 10 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* 325,000 gal per UWS.us

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If well yields artesian flow or if spring, yield is _____ gal./min.* Surface pressure is _____ lb./sq.inch, or _____ feet of water
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No
*If these amounts exceed permitted amount an enlargement is required.

Permit No. U.W. 198417 Book No. 1428 Page No. 67

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 300 ft.
Depth of completed well 300 ft. Diameter of well 5 inches.
Depth to first water bearing formation _____ ft.
Depth to principal water bearing formation Top _____ ft. to bottom _____ ft.

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Rock Type Or Description	Formation	Water Bearing? (Yes or no)
Surface	2	Top Soil		
2	8	CLAY		
8	120	GRAVEL		
120	175	Cemented GRAVEL		
175	200	TAN CLAY		
200	215	COARSE SAND		
215	280	Sticky CLAY		
280	300	HARD BROWN CLAY		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Dan Legg
Signature of Owner or Authorized Agent

11/15
Date, 2012

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 198417

Date of Receipt NOV 19 2012

Date of Priority 7/19/2012

Date of Approval April 1, 2016

Tibeth Bei
for State Engineer

SCANNED JUL 25 2016
SCANNED APR 15 2016

FORM U.W.6
Rev. 1/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 202860 NAME OF WELL/SPRING Silver Sage 16

1. NAME OF OWNER Timothy Sheehan

2 ADDRESS 1507 Barberry Rdg
☐ Please check if address has changed from that shown on permit
City Cheyenne State Wy Zip Code 82009 Phone No. 307 221 0631

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)

4. LOCATION OF WELL/SPRING SW 1/4 SW 1/4 of Section 3 T. 14 N.,R. 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Silver Sage Estates Lot Block
Resurvey Location Tract 16 or Lot Datum ☐ NAD27 ☐ NAD83
Geographic Coordinates: Latitude 41° 13' 21.8 correct gps ce N Longitude 104° 59' 54.3 correct gps ce W (degrees, minutes, seconds)
UTM: Zone Northing Easting (meters)
State Plane Coordinates: Zone Northing Easting (feet)
Land surface elevation (ft. above mean sea level) Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unkown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled Mud Rotary ☐ Dug ☐ Driven ☐ Other
Describe

6. CONSTRUCTION Total depth of well/spring 680 ft.
Depth of static water level 180 ft. (below land surface) Casing height 1.5 ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches 9 3/4 0-30
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5 diameter from +1.5 ft. to 680 ft. Material PVC Gage 330
diameter from ft. to ft. Material Gage
c. Cemented/grouted interval, from 195 ft. to Surface ft.
Amount of cement/grout used 1 yd (example: 10 sacks) type Bentonite grout & Chips (example: bentonite pellets)
d. Type of completion ☒ Customized perforations ☐ Open hole ☐ Factory screen
Type of perforator used Shot
Size of perforations .075 inches by 2 inches.
Number of perforations and depths where perforated
6000 perforations from 600 ft. to 680 ft.
~~600~~ perforations from 700 ft. to 740 ft.
Open hole from ft. to ft.
Well screen details
Diameter slot size set from ft. to ft.
Diameter slot size set from ft. to ft.

RECEIVED
APR 14 2016
STATE ENGINEERS
CHEYENNE, WYOMING

e. Well development method Wash + bail How long was well developed? 6 hrs.
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 3/8" - Aeagravel
Filter/gravel pack installed from 195 ft. to 680 ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from ft. to ft.

7. NAME AND ADDRESS OF DRILLING COMPANY Rock Creek Drilling 5700 Allan Rd. Cheyenne WYO. 82009 63153-10
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 1-17-15
9. PUMP INFORMATION Manufacturer Gould Type Submersible
Source of power Electric Horsepower 1.5 Depth of pump setting or intake 589 ft.
Amount of water being pumped 5 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* 1 ac-ft per U.W.S BR
*If these amounts exceed permitted amount an enlargement is required.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is gal./min. *Surface pressure is lb./sq.inch, or feet of water.
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 202860 Book No. 1458 Page No. 10

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 690 ft.
Depth of completed well 690 ft. Diameter of well 5 inches
Depth to first water bearing formation 235 ft.
Depth to principal water bearing formation Top 600 ft. to Bottom 690 ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface	235	Cemented gravel w/ small amount of sand		
235	600	Tan Clay		
600	690	Tan, gray + yellow clay w/ sand		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).
If not, do you consider the water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

[signature] _____
Signature of Owner or Authorized Agent

March 7 ,20 16
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 202860

Date of Receipt APR 14 2016 , 20 _____

Date of Priorty October 2 , 20 14

Date of Approval July 15 , 20 16

Brandon Reynolds
for State Engineer

State of Wyoming
County of Laramie
Subscribed and sworn before me this 2 day of March ,20 16
By Timothy Sheehan
Viviana Ramos
Notary Public
My commission expires: April 17, 2019

VIVIANA RAMOS - NOTARY PUBLIC
COUNTY OF LARAMIE STATE OF WYOMING
MY COMMISSION EXPIRES APRIL 17, 2019

SCANNED NOV 16 2017

FORM U.W.6
Rev. 1/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 206793 NAME OF WELL/SPRING _____

1. NAME OF OWNER Brandin Blanthorn

2 ADDRESS PO Box 1444
☐ Please check if address has changed from that shown on permit
City Wellington State CO Zip Code 80549 Phone No. 307-223-6861

3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING SW 1/4 SE 1/4 of Section 3 T. 14 N.,R. 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Silver Sage estates Lot 32 Block _____
Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude 41° 12' 26.92 N Longitude 104° 59' 18.90 W (degrees, minutes, seconds)
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (feet)
Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
Source ☐ GPS ☐ Map ☐ Survey ☐ Unkown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☑ Drilled Foam TH60 ☐ Dug ☐ Driven ☐ Other
Describe Rotary Foam

6. CONSTRUCTION Total depth of well/spring 360 ft.
Depth of static water level 140 ft. (below land surface) Casing height 18" ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches
b. Casing schedule ☑ New ☐ Used Joint type ☐ Threaded ☑ Glued ☐ Welded
5 diameter from 0 ft. to 360 ft. Material PVC Gage 21
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from 300 ft. to 0 ft.
Amount of cement/grout used 170 (example: 10 sacks) type Btf20 / Hole plug (example: bentonite pellets)
d. Type of completion ☐ Customized perforations ☐ Open hole ☑ Factory screen
Type of perforator used _____
Size of perforations .025 inches by 3 inches.
Number of perforations and depths where perforated
3 perforations from 300 ft. to 360 ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method Over pump / Air How long was well developed? 2 hr
f. Was a filter/gravel pack installed? ☑ Yes ☐ No Size of sand/gravel 3/8
Filter/gravel pack installed from 300 ft. to 360 ft.
g. Was surface casing used? ☐ Yes ☑ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED
NOV 16 2017
STATE ENGINEERS
CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY All Around Drilling 489 Beckow Canyon Rd Hulett Wy 307 467 5662

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 4/24/17

9. PUMP INFORMATION Manufacturer Sta Rite Type 3 wb
Source of power 230 Horsepower 1 1/2 Depth of pump setting or intake 280 ft.
Amount of water being pumped 15 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* _____
*If these amounts exceed permitted amount an enlargement is required.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is _____ gal./min. *Surface pressure is _____ lb./sq.inch, or _____ feet of water.
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. _____ Book No. _____ Page No. _____

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right)_____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☑ No
If so, by whom_____
Yield _____gal./min. with _____ ft. drawdown after _____ hours
Yield _____gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 360 ft.
Depth of completed well 360 ft. Diameter of well 5 inches
Depth to first water bearing formation 300 ft.
Depth to principal water bearing formation Top 350 ft. to Bottom 360 ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface				
	See Att			

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☑ No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☑ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).
If not, do you consider the water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Signature of Owner or Authorized Agent

13 Oct ,2017
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. _____

NOV 16 2017

Date of Receipt _____, 20____ Date of Approval _____, 20____

Date of Priorty _____, 20____

for State Engineer

PERMIT: 206793

BUFFALO CARPENTRY COMPANY

SITE: Silver Sage Cheyenne, WY

RECEIVED
NOV 16 2017
STATE ENGINEERS
CHEYENNE, WYOMING

SCANNED NOV 16 2017

SCANNED NOV 0 1 2019

FORM U.W.6
Rev. 1/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. P211159 NAME OF WELL/SPRING RYAN #1

1. NAME OF OWNER Ryan Rodekohr

2 ADDRESS 1534 BARBerry Ridge
☐ Please check if address has changed from that shown on permit
City Cheyenne State WY Zip Code 82009 Phone No. 307-631-2023

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
Single Family Dwelling

4. LOCATION OF WELL/SPRING NE 1/4 SW 1/4 of Section 03 T, 014 N.,R. 068 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Silver Sage Estates Lot 37 Block
Resurvey Location Tract or Lot Datum ☐ NAD27 ☐ NAD83
Geographic Coordinates: Latitude 41.207801 N Longitude -104.993092 W (degrees, minutes, seconds) ✓
UTM: Zone Northing Easting (meters)
State Plane Coordinates: Zone Northing Easting (feet)
Land surface elevation (ft. above mean sea level) Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unkown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled ☐ Dug ☐ Driven ☐ Other
Describe Mud rotary

6. CONSTRUCTION Total depth of well/spring 540 ft.
Depth of static water level 198 ft. (below land surface) Casing height 2 ft. above ground
a. Diameter of borehole (bit size) 9" inches
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5 diameter from 0 ft. to 540 ft. Material SDR 17 - PVC Gage SDR 17
diameter from ft. to ft. Material Gage
c. Cemented/grouted interval, from 0 ft. to 220 ft.
Amount of cement/grout used 87 Sacks type Bentonite Chips
(example: 10 sacks) (example: bentonite pellets)
d. Type of completion ☐ Customized perforations ☐ Open hole ☒ Factory screen
Type of perforator used Factory
Size of perforations .030 inches by 3 inches.
Number of perforations and depths where perforated
20' perforations from 540 ft. to 520 ft. 20' 540'-520'
20' perforations from 500 ft. to 480 ft.
Open hole from ft. to ft.
Well screen details
Diameter slot size set from ft. to ft.
Diameter slot size set from ft. to ft.
e. Well development method Surge / Pump How long was well developed? 16 hrs
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 8-12 Silica Sand / 3/8 pea gravel
Filter/gravel pack installed from 540 ft. to 220 ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from ft. to ft.

RECEIVED
OCT 31 2019
State Engineers
Cheyenne
Wyoming

7. NAME AND ADDRESS OF DRILLING COMPANY LG DRILLING, LLC
2644 E. RIDING CLUB RD.
CHEYENNE, WY 82009

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 10/4/19

9. PUMP INFORMATION Manufacturer Goulds - 3 phase Type 5U6
Source of power 230 V Horsepower 2 Depth of pump setting or intake 260' ft.
Amount of water being pumped ___ gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* ___
*If these amounts exceed permitted amount an enlargement is required.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is ___ gal./min. *Surface pressure is ___ lb./sq.inch, or ___ feet of water.
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. Book No. Page No.

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right)_____

12. PUMP TEST Was a pump test conducted? ☑ Yes ☐ No
If so, by whom L G Drilling
Yield 15 gal./min. with 7 ft. drawdown after 8 hours
Yield 15 gal./min. with 7 ft. drawdown after 12 hours

13. LOG OF WELL Total depth drilled 540 ft.
Depth of completed well 540 ft. Diameter of well 9 inches
Depth to first water bearing formation 195 ft.
Depth to principal water bearing formation Top 195 ft. to Bottom 523 ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface	2	Top Soil		
2	16	brown clay		
16	156	cemented gravel		
156	195	brown clay		
195	236	water Sand / small gravel		yes
236	529	clay layers w/s.s		
523	540	Soft brown clay		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☑ No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☑ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).
If not, do you consider the water as ☐ Good ☑ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

_____ 10 20 ,20 19
Signature of Owner or Authorized Agent — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. _____

Date of Receipt OCT 31 2019, 20____ Date of Approval _____, 20____

Date of Priorty _____, 20____

_____
for State Engineer

SCANNED NOV 22 2021

FORM U.W.6
Rev. 1/2021

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 2W
CHEYENNE, WYOMING 82002

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

PERMIT NO. U.W. 215460 NAME OF WELL/SPRING SANCHEZ 38

1. NAME OF OWNER Sanchez Construction LLC
2. ADDRESS 3721 Butch Cassidy Trail
   Please check if address has changed from that shown on permit
   City Cheyenne State Wyoming Zip Code 82009 Phone No. (307) 634-2840
3. USE OF WATER [X] Domestic [ ] Stock Watering [ ] Irrigation [ ] Municipal [ ] Industrial [ ] Miscellaneous
   [ ] Monitor or Test [ ] Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____
4. LOCATION OF WELL/SPRING NE 1/4 NW 1/4 of Section 9 T. 14 N.,R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Silver Sage Estates Lot 38 Block _____
   Resurvey Location Tract _____ or Lot _____ Datum [ ] NAD27 [ ] NAD83
   Geographic Coordinates: Latitude 41.2076 N Longitude -104.9942 W (degrees, minutes, seconds)
   UTM: Zone _____ Northing _____ Easting _____ (meters)
   State Plane Coordinates: Zone ~~WY-E 4901~~ Northing _____ Easting _____ (feet)
   Land surface elevation (ft. above mean sea level) _____ Datum [ ] NAVD29 [ ] NAVD88
   Source [X] GPS [ ] Map [ ] Survey [ ] Unkown [ ] Other [ ] Altimeter (for elevation only)
5. TYPE OF CONSTRUCTION [X] Drilled Air/Foam Rotary [ ] Dug [ ] Driven [ ] Other
   Describe TH60
6. CONSTRUCTION Total depth of well/spring 338 ft.
   Depth of static water level 200 ft. (below land surface) Casing height 2 ft. above ground
   a. Diameter of borehole (bit size) _____ inches
   b. Casing schedule [X] New [ ] Used SDR 17 Joint type [ ] Threaded [ ] Glued [ ] Welded
   5" diameter from 0 ft. to 338 ft. Material PVC Gage SDR 17
   _____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
   c. Cemented/grouted interval, from 0 ft. to 268 ft.
   Amount of cement/grout used 140 Bags (example: 10 sacks) type 3/8" Hole Plug (example: bentonite pellets)
   d. Type of completion [ ] Customized perforations [ ] Open hole [X] Factory screen
   Type of perforator used _____
   Size of perforations _____ inches by _____ inches.
   Number of perforations and depths where perforated
   _____ perforations from _____ ft. to _____ ft.
   _____ perforations from _____ ft. to _____ ft.
   Open hole from _____ ft. to _____ ft.
   Well screen details
   Diameter 5" slot size .032 set from 278 ft. to 298 ft.
   Diameter 5" slot size .032 set from 318 ft. to 338 ft.
   e. Well development method Air/Rig How long was well developed? 1.5 HRS
   f. Was a filter/gravel pack installed? [X] Yes [ ] No Size of sand/gravel 3/8" gravel
   Filter/gravel pack installed from 268 ft. to 338 ft.
   g. Was surface casing used? [ ] Yes [X] No Was it cemented in place? [ ] Yes [ ] No
   Surface casing installed from _____ ft. to _____ ft.
7. NAME AND ADDRESS OF DRILLING COMPANY DMEAT (DBA) All Around Drilling S.E. Laramie, WY 82070 (307) 760-0514 4626 Grizzly Ln
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) Well 9/20/21 Pump 9/29/21
9. PUMP INFORMATION Manufacturer StaRite / Pentek Type Submersible-3 Phase
   Source of power 230 Volt Horsepower 2 Depth of pump setting or intake 300 ft.
   Amount of water being pumped 20 gal./min.* (For springs or flowing wells, see item 10)
   Total volumetric quantity used per calendar year.* _____
   *If these amounts exceed permitted amount an enlargement is required.
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
    If artesian flow or spring, yield is _____ gal./min. *Surface pressure is _____ lb./sq.inch, or _____ feet of water.
    The flow is controlled by [ ] Valve [ ] Cap [ ] Plug
    Does well leak around casing? [ ] Yes [ ] No

RECEIVED
OCT 28 2021
State Engineers
Cheyenne
Wyoming

Permit No. U.W. 215460 Book No. 1542 Page No. 10

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ___ Yes X No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 340 ft.
Depth of completed well 338 ft. Diameter of well 5 inches
Depth to first water bearing formation 220 ft.
Depth to principal water bearing formation Top 300 ft. to Bottom 340 ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface		See ATTACHED		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? Yes X No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ___ Yes X No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).
If not, do you consider the water as ___ Good ___ Acceptable ___ Poor ___ Unusable

REMARKS Drilled with air/foam to 340', Well made 20-30 gpm with air.

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Derrick R. Davis — Signature of Owner or Authorized Agent
10/10 ,20 21 — Date

FOR STATE ENGINEER'S USE ONLY

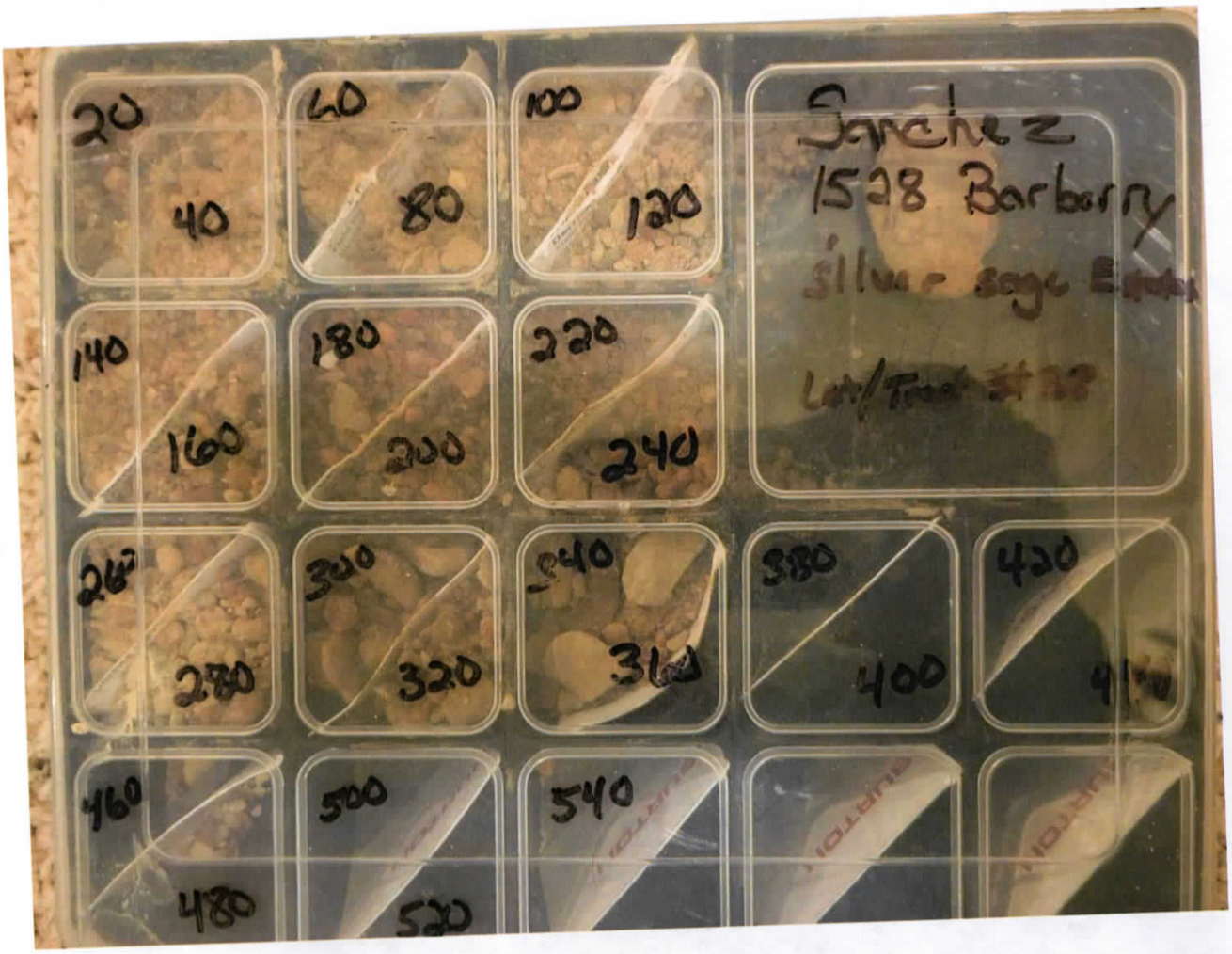
Permit No. U.W. 215460
Date of Receipt OCT 28 2021 ,20____ Date of Approval _____ ,20____
Date of Priority August 30 ,20 21
_____ for State Engineer

RECEIVED
OCT 28 2021
WATER DIVISION
STATE ENGINEER'S OFFICE

UW215460
1 of 2 pages
front + Back

RECEIVED
OCT 28 2021
State Engineers
Cheyenne
Wyoming

UW 215460
2 of 2 pgs.



RECEIVED
OCT 28 2021
State Engineers
Cheyenne
Wyoming

FORM U.W.6
Rev. 7/05

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 217374 NAME OF WELL/SPRING O CONNOR

1. NAME OF OWNER CLINT O CONNOR

2. ADDRESS 1442 LITTLE LEAF COURT

☐ Please check if address has changed from that shown on permit

City CHEYENNE State Wyoming Zip Code 82009 Phone No 307-399-1280

3. USE OF WATER ☒ Domestic ☒ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous

☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) 2 Houses

2 Tanks

4. LOCATION OF WELL/SPRING NE 1/4 NE 1/4 of Section 03 T, 014N ., R. 068W ., of the 6th P.M. (or W.R.M.)

GPS Coordinates UTM Zone _____ Easting _____ Northing _____

Subdivision Name Fox Meadows Lot 17 Block _____ If surveyed, bearing, distance and reference point _____

Longitude (degrees, minutes, seconds) 104° 59' 1.8" Latitude (degrees, minutes, seconds) 41° 13' 4.92"

Datum ☐ 1927 ☒ 1983 Source: ☐ GPS ☐ Map ☐ Survey

5. TYPE OF CONSTRUCTION ☒ Drilled Mud Rotary ☐ Dug ☐ Driven ☐ Other
(Type of rig, and fluid used, if any)
Describe _____

6. CONSTRUCTION Total depth of well/spring 660.00 ft.

Depth of static water level 206.00 ft. (below land surface) Casing height 1.50 ft. above ground

a. Diameter of borehole (bit size) 8.75 inches

b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded

5.00 diameter from 0.000 ft. to 660.000 ft. Material PVC Other Gage 0.330

_____ diameter from _____ ft. to _____ ft Material _____ Gage _____

c. Cemented/grouted interval, from 0.00 ft. to 195.00 ft.

Amount of cement/grout used 25 (example: 10 sacks) type Bentonite Chips and grout (example: bentonite pellets)

d. Type of completion ☒ Factory screen ☐ Open hole ☐ Customized perforations

Type of perforator used _____

Size of perforations _____ inches by _____ inches.

Number of perforations and depths where perforated

0 perforations from 0.000 ft. to 0.000 ft.

_____ perforations from _____ ft. to _____ ft.

Open hole from _____ ft. to _____ ft.

Well screen details

Diameter 5.000 slot size 0.025 set from 200.000 ft. to 660.000 ft.

Diameter _____ slot size _____ set from _____ ft. to _____ ft.

e. Well development method Other How long was well developed 20.00

f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 8-16 Silica sand

Filter/gravel pack installed from _____ ft. to _____ ft.

g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☒ No

Surface casing installed from _____ ft. to _____ ft.

7. NAME OF DRILLING COMPANY ROCK CREEK DRILLING

ADDRESS 5200 ALLAN ROAD

City CHEYENNE State Wyoming Zip Code 82009 Phone No. 307-214-7995

8 DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 11/30/21

9. PUMP INFORMATION Manufacturer GOULDS Type Submersible

Source of power Electricity Horsepower 1.5 Depth of pump setting or intake 635 ft.

Amount of water being pumped' 7 gal./min. (For springs or flowing wells, see item 10)

Total volumetric quantity used per calendar year. 2 acre-feet

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)

If artesian flow or spring, yield is _____ gal./min. Surface pressure is _____ b./sq.inch, or _____ feet of water.

The flow is controlled by: ☐ Valve ☐ Cap ☐ Plug

Does well leak around casing? ☐ Yes ☒ No

Permit No. U.W. 217374 Book No. 1554 Page No. 116

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to quality for a water right) _____

12. PUMP TEST Was a pump test conducted? ☒ Yes ☐ No

If so, by whom CLINT O'CONNOR

Yield 5 gal./min. with 16 ft. drawdown after 24 hours

Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 660.00 ft.

Depth of completed well 660.00 ft. Diameter of well 5.00 inches

Depth to first water bearing formation 180.00 ft.

Depth to principal water bearing formation Top 620.00 ft. to Bottom 660.00 ft.

Land surface elevation (ft. above mean sea level)_____ Datum ☐ 1929 ☐ 1988

How determined ☐ Map ☐ Altimeter ☐ Survey ☐ Other

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
		See scanned SC in application package		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☒ No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☒ No

It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).

If not, do you consider the water as ☒ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS Well development method: Wash-bailer pump

(See Continuation Sheet for remaining remarks.)

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

CLINT O CONNOR
Signature of Owner or Authorized Agent

July 6 ,20 22
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 217374

Date of Receipt July 6 ,20 22

Date of Priorty July 12 ,20 22

Date of Approval August 1 ,20 22

Jeremy T Manley
JEREMY MANLEY For State Engineer

REMARKS CONTINUATION SHEET 1

T.F. No. 46-9-157W

Well development method: Wash-bailer pump

FORM U.W.6
Rev. 7/05

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 217924 NAME OF WELL/SPRING SILVER SAGE EST T18

1. NAME OF OWNER CHRISTOPHER COULSON

2. ADDRESS 1412 BLUE WILLOW

☐ Please check if address has changed from that shown on permit

City CHEYENNE State Wyoming Zip Code 82009 Phone No 303-353-9191

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous

☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) 1 Houses

4. LOCATION OF WELL/SPRING NW 1/4 SW 1/4 of Section 03 T, 014N ., R. 068W ., of the 6th P.M. (or W.R.M.)

GPS Coordinates UTM Zone _____ Easting _____ Northing _____

Subdivision Name SILVER SAGE ESTATE Lot 18 Block _____ If surveyed, bearing, distance and reference point _____

Longitude (degrees, minutes, seconds) 105° 0' 2.23" Latitude (degrees, minutes, seconds) 41° 12' 28.19"

Datum ☐ 1927 ☒ 1983 Source: ☐ GPS ☐ Map ☐ Survey

5. TYPE OF CONSTRUCTION ☒ Drilled Mud Rotary ☐ Dug ☐ Driven ☐ Other
(Type of rig, and fluid used, if any)
Describe _____

6. CONSTRUCTION Total depth of well/spring 680.00 ft.

Depth of static water level 264.00 ft. (below land surface) Casing height 2.00 ft. above ground

a. Diameter of borehole (bit size) 9.88 inches

b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☐ Glued ☐ Welded

5.00 diameter from 0.000 ft. to 680.000 ft. Material _____ Gage _____

_____ diameter from _____ ft. to _____ ft Material _____ Gage _____

c. Cemented/grouted interval, from 0.00 ft. to 560.00 ft.

Amount of cement/grout used 224 bags (example: 10 sacks) type HOLE PLUG (example: bentonite pellets)

d. Type of completion ☒ Factory screen ☐ Open hole ☐ Customized perforations

Type of perforator used FACTORY

Size of perforations 0.03 inches by 3.00 inches.

Number of perforations and depths where perforated

80 perforations from 560.000 ft. to 640.000 ft.

20 perforations from 660.000 ft. to 680.000 ft.

Open hole from _____ ft. to _____ ft.

Well screen details

Diameter _____ slot size _____ set from _____ ft. to _____ ft.

Diameter _____ slot size _____ set from _____ ft. to _____ ft.

e. Well development method Air Developed How long was well developed 7.00

f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel pea gravel

Filter/gravel pack installed from 560.00 ft. to 680.00 ft.

g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☒ No

Surface casing installed from _____ ft. to _____ ft.

7. NAME OF DRILLING COMPANY LG DRILLING LLC

ADDRESS 2644 E RIDING CLUB RD

City CHEYENNE State Wyoming Zip Code 82009 Phone No. 307-214-9972

8 DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 04/19/23

9. PUMP INFORMATION Manufacturer FRANKLIN Type Submersible

Source of power Electricity Horsepower 1.5 Depth of pump setting or intake 420 ft.

Amount of water being pumped' 12 gal./min. (For springs or flowing wells, see item 10)

Total volumetric quantity used per calendar year. 1 acre-feet

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)

If artesian flow or spring, yield is _____ gal./min. Surface pressure is _____ b./sq.inch, or _____ feet of water.

The flow is controlled by: ☐ Valve ☐ Cap ☐ Plug

Does well leak around casing? ☐ Yes ☒ No

Permit No. U.W. 217924 Book No. _____ Page No. _____

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to quality for a water right) _____

_____

_____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ No

If so, by whom _____

Yield _____ gal./min. with _____ ft. drawdown after _____hours

Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled _____ ft.

Depth of completed well _____ ft. Diameter of well _____inches

Depth to first water bearing formation _____ft.

Depth to principal water bearing formation Top_____ft. to Bottom_____ft.

Land surface elevation (ft. above mean sea level)_____ Datum ☐ 1929 ☐ 1988

How determined ☐ Map ☐ Altimeter ☐ Survey ☐ Other

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☒ No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☒ No

It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).

If not, do you consider the water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS BOREHOLE: 0 TO 20FT 9.88, 20 TO 680FT 8.75

(See Continuation Sheet for remaining remarks.)

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

For LG DRILLING LLC
Signature of Owner or Authorized Agent

June 25 ,20 23
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 217924

Date of Receipt June 25 ,20 23

Date of Priorty October 20 ,20 22

Date of Approval _____ ,20 _____

Brandon Gebhart, State Engineer

REMARKS CONTINUATION SHEET 1

T.F. No. 46-10-220W

BOREHOLE: 0 TO 20FT 9.88, 20 TO 680FT 8.75

PERMIT NO. P217924.0W

PAGE NO.

FORM U.W.6
Rev. 7/05

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 219385 NAME OF WELL/SPRING SILVER SAGE 04

1. NAME OF OWNER WILLIAM AND JENNIFER LOVERING

2. ADDRESS 1439 SILVER FOX LANE

☐ Please check if address has changed from that shown on permit

City CHEYENNE State Wyoming Zip Code 82009 Phone No 774-392-4766

3. USE OF WATER ☒ Domestic ☒ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous

☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) 1 Houses

2 Tanks

4. LOCATION OF WELL/SPRING NE 1/4 SE 1/4 of Section 03 T, 014N ,R. 068W , of the 6th P.M. (or W.R.M.)

GPS Coordinates UTM Zone _____ Easting _____ Northing _____

Subdivision Name Silver Sage Estates Lot 4 Block _____ If surveyed, bearing, distance and reference point _____

Longitude (degrees, minutes, seconds) 104° 59' 2.1" Latitude (degrees, minutes, seconds) 41° 12' 40.03"

Datum ☐ 1927 ☒ 1983 Source: ☐ GPS ☐ Map ☐ Survey

5. TYPE OF CONSTRUCTION ☒ Drilled Rotary Combination ☐ Dug ☐ Driven ☐ Other
(Type of rig, and fluid used, if any)
Describe _____

6. CONSTRUCTION Total depth of well/spring 520.00 ft.

Depth of static water level 160.00 ft. (below land surface) Casing height 2.00 ft. above ground

a. Diameter of borehole (bit size) 8.75 inches

b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded

5.00 diameter from 0.000 ft. to 520.000 ft. Material PVC Other Gage SDR 17

_____ diameter from _____ ft. to _____ ft Material _____ Gage _____

c. Cemented/grouted interval, from _____ ft. to _____ ft.

Amount of cement/grout used _____ (example: 10 sacks) type _____ (example: bentonite pellets)

d. Type of completion ☐ Factory screen ☐ Open hole ☒ Customized perforations

Type of perforator used Factory

Size of perforations 0.35 inches by 3.00 inches.

Number of perforations and depths where perforated

2400 perforations from 460.000 ft. to 520.000 ft.

_____ perforations from _____ ft. to _____ ft.

Open hole from _____ ft. to _____ ft.

Well screen details

Diameter _____ slot size _____ set from _____ ft. to _____ ft.

Diameter _____ slot size _____ set from _____ ft. to _____ ft.

e. Well development method Air Developed How long was well developed 4.00

f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel .125 to .375" diamet

Filter/gravel pack installed from 0.00 ft. to 520.00 ft.

g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☒ No

Surface casing installed from _____ ft. to _____ ft.

7. NAME OF DRILLING COMPANY MCRADYS WELL DRILLING INC

ADDRESS 741 MORNING GLORY TRAIL

City CHEYENNE State Wyoming Zip Code 82007 Phone No. 307-631-3457

8 DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 09/30/07

9. PUMP INFORMATION Manufacturer GRUNDFOS Type Submersible

Source of power Electricity Horsepower 1.5 Depth of pump setting or intake 460 ft.

Amount of water being pumped' 5 gal./min. (For springs or flowing wells, see item 10)

Total volumetric quantity used per calendar year. 1 acre-feet

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)

If artesian flow or spring, yield is _____ gal./min. Surface pressure is _____ b./sq.inch, or _____ feet of water.

The flow is controlled by: ☐ Valve ☐ Cap ☐ Plug

Does well leak around casing? ☐ Yes ☒ No

Permit No. U.W. 219385 Book No. 1568 Page No. 24

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to quality for a water right) _____

_____

_____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ No

If so, by whom _____

Yield _____ gal./min. with _____ ft. drawdown after _____ hours

Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 520.00 ft.

Depth of completed well 520.00 ft. Diameter of well 8.75 inches

Depth to first water bearing formation 100.00 ft.

Depth to principal water bearing formation Top 460.00 ft. to Bottom 520.00 ft.

Land surface elevation (ft. above mean sea level)_____ Datum ☐ 1929 ☐ 1988

How determined ☐ Map ☐ Altimeter ☐ Survey ☐ Other

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
		See Scanned Statement of Completion		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☒ No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☒ No

It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).

If not, do you consider the water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

_____

_____

_____

_____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

TRENILLE YOUNG
Signature of Owner or Authorized Agent

August 20 ,20 23
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 219385

Date of Receipt September 13 ,20 23

Date of Priorty August 28 ,20 23

Date of Approval September 25 ,20 23

MARKUS MALESSA For State Engineer

FORM U.W.6
Rev. 7/05

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 219752 NAME OF WELL/SPRING FOX MEADOWS T17

1. NAME OF OWNER CLINT O CONNOR

2. ADDRESS 1442 LITTLE LEAF COURT

☐ Please check if address has changed from that shown on permit

City CHEYENNE State Wyoming Zip Code 82009 Phone No 307-399-1280

3. USE OF WATER ☒ Domestic ☒ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous

☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) 2 Houses

2 Tanks

4. LOCATION OF WELL/SPRING _____ 1/4 _____ 1/4 of Section 03 T, 014N ., R. 068W ., of the 6th P.M. (or W.R.M.)

GPS Coordinates UTM Zone _____ Easting _____ Northing _____

Subdivision Name FOX MEADOWS Lot 17 Block _____ If surveyed, bearing, distance and reference point _____

Longitude (degrees, minutes, seconds) 104° 59' 1.72" Latitude (degrees, minutes, seconds) 41° 13' 5.2"

Datum ☐ 1927 ☒ 1983 Source: ☐ GPS ☐ Map ☐ Survey

5. TYPE OF CONSTRUCTION ☒ Drilled MUD ROTARY ☐ Dug ☐ Driven ☐ Other
(Type of rig, and fluid used, if any)
Describe _____

6. CONSTRUCTION Total depth of well/spring 640.00 ft.

Depth of static water level 160.00 ft. (below land surface) Casing height 2.00 ft. above ground

a. Diameter of borehole (bit size) 9.88 inches

b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded

5.00 diameter from 0.000 ft. to 640.000 ft. Material PVC Other Gage 17

_____ diameter from _____ ft. to _____ ft Material _____ Gage _____

c. Cemented/grouted interval, from 0.00 ft. to 160.00 ft.

Amount of cement/grout used 66 BAGS (example: 10 sacks) type HOLE PLUG (example: bentonite pellets)

d. Type of completion ☒ Factory screen ☐ Open hole ☐ Customized perforations

Type of perforator used FACTORY

Size of perforations 0.03 inches by 3.00 inches.

Number of perforations and depths where perforated

100 perforations from 160.000 ft. to 260.000 ft.

40 perforations from 600.000 ft. to 640.000 ft.

Open hole from _____ ft. to _____ ft.

Well screen details

Diameter _____ slot size _____ set from _____ ft. to _____ ft.

Diameter _____ slot size _____ set from _____ ft. to _____ ft.

e. Well development method Air Developed How long was well developed 12.00

f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel PEA GRAVEL

Filter/gravel pack installed from 160.00 ft. to 640.00 ft.

g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☒ No

Surface casing installed from _____ ft. to _____ ft.

7. NAME OF DRILLING COMPANY LG DRILLING LLC

ADDRESS 2644 E RIDING CLUB RD

City CHEYENNE State Wyoming Zip Code 82009 Phone No. 307-214-9972

8 DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 01/18/24

9. PUMP INFORMATION Manufacturer FRANKLIN Type Submersible

Source of power Electricity Horsepower 2 Depth of pump setting or intake 400 ft.

Amount of water being pumped' 16 gal./min. (For springs or flowing wells, see item 10)

Total volumetric quantity used per calendar year. 2 acre-feet

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)

If artesian flow or spring, yield is _____ gal./min. Surface pressure is _____ b./sq.inch, or _____ feet of water.

The flow is controlled by: ☐ Valve ☐ Cap ☐ Plug

Does well leak around casing? ☐ Yes ☒ No

Permit No. U.W. 219752 Book No. _____ Page No. _____

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to quality for a water right) _____

_____

_____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ No

If so, by whom _____

Yield _____ gal./min. with _____ ft. drawdown after _____ hours

Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 640.00 ft.

Depth of completed well 640.00 ft. Diameter of well 8.75 inches

Depth to first water bearing formation 160.00 ft.

Depth to principal water bearing formation Top 600.00 ft. to Bottom 640.00 ft.

Land surface elevation (ft. above mean sea level)_____ Datum ☐ 1929 ☐ 1988

How determined ☐ Map ☐ Altimeter ☐ Survey ☐ Other

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
0.00	160.00	CLAY CEMENTED GRAVEL		
160.00	220.00	GRAVEL & SAND		Yes
220.00	600.00	HARD BROWN CLAY W/SANDSTONE LAYER		
600.00	625.00	SAND		Yes
625.00	640.00	BROWN CLAY		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☒ No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☒ No

It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).

If not, do you consider the water as ☒ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS Borehole 0' to 20' 9.88" & 20' TO 640' 8.75", e-Permit map is not saving well location, well located at Lat/Long 41.21811 104.98381

(See Continuation Sheet for remaining remarks.)

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

For LG DRILLING LLC
Signature of Owner or Authorized Agent

January 18 ,20 24
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 219752

Date of Receipt January 18 ,20 24

Date of Priorty January 2 ,20 24

Date of Approval _____ ,20 _____

Brandon Gebhart, State Engineer

REMARKS CONTINUATION SHEET 1

T.F. No. 46-9-409W

at Lat/Long 41.21811 104.98381

PERMIT NO. P219752.0W

PAGE NO.

R&R HEIGHTS SUBDIVISION
CHAPTER 23 REPORT

Appendix A

SEO Statement of Completions

T14N, R68W, Section 10

FORM U.W.6
Rev. 1/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

SCANNED JAN 04 2016

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

SCANNED JUN 29 2016

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 202891 NAME OF WELL/SPRING Polo-10 Airplane Monument Well

1. NAME OF OWNER **Polo Ranch Company**

2. ADDRESS **308 W 7th Ave**
☐ Please check if address has changed from that shown on permit.
City **Cheyenne** State **WY** Zip Code **82001** Phone No. 307-634-7561

3. USE OF WATER ☐ Domestic ☒ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)

OK 4. LOCATION OF WELL/SPRING SE 1/4 NE 1/4 of Section 10, T. 14 N., R 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Lot Block
Resurvey Location Tract or Lot Datum ☐ NAD27 ☐ NAD83
Geographic Coordinates: Latitude 41° 11' 51.7" N Longitude -104° 59' 6.2" W (degrees, minutes, seconds)
UTM: Zone Northing Easting (meters)
State Plane Coordinates: Zone Northing Easting (feet)
Land surface elevation (ft. above mean sea level) 6511' Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled **Rotary Combination** ☐ Dug ☐ Driven ☐ Other
Describe

6. CONSTRUCTION Total depth of well/spring **560** ft.
Depth of static water level **160** ft. (below land surface) Casing height **2** ft. above ground
a. Diameter of borehole (bit size) **9 7/8** inches
b. Casing schedule ☒ New ☐ Used Joint Type ☐ Threaded ☒ Glued ☐ Welded
5" diameter from **0** ft. to **560** ft. Material **PVC** Gage **SDR17**
diameter from ft. to ft. Material Gage
c. Cemented/grouted interval, from **0** ft. to **495** ft.
Amount of cement/grout used **30 bags** (example: 10 sacks) type **Barotherm Gold** (example: bentonite pellets)
d. Type of completion ☒ Customized perforations ☐ Open hole ☐ Factory Screen
Type of perforator used **Factory**
Size of perforations **.035** inches by **3.00** inches
Number of perforations and depths where perforated
2400 perforations from **500** ft. to **560** ft.
perforations from ft. to ft.
Open hole from ft. to ft.
Well screen details
Diameter slot size set from ft. to ft.
Diameter slot size set from ft. to ft.
e. Well development method **Air** How long was well developed? **6 Hours**
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel **.125 to .375" diameter**
Filter/gravel pack installed from **495** ft. to **560** ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☒ Yes ☐ No
Surface casing installed from ft. to ft.

RECEIVED
DEC 31 2015
STATE ENGINEERS
CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY **McRady's Well Drilling Inc Cheyenne, WY**

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) **8/15/15**

9. PUMP INFORMATION Manufacturer **Grunfos** Type **submersible**
Source of power **Solar** Horsepower **1.5** Depth of pump setting or intake **500** ft.
Amount of water being pumped [redacted] 10 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year* / acre-foot (per Form U.W.5) UNL
* If these amounts exceed permitted amount an enlargement is required.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is gal./min. *Surface pressure is lb./sq. inch, or feet of water.
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 202891 Book No. 1458 Page No. 41

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☐ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled **560** ft.
Depth of completed well **560** ft. Diameter of well **9 7/8** inches
Depth to first water bearing formation **480** ft.
Depth to principal water bearing formation Top **480** ft. to Bottom **540** ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface	160	Clay/Gravel		
160	480	Clay		
480	540	Sand Gravel		
540	560	Clay		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☒ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☒ No
It is recommended that chemical and bacteriological water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☒ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Timothy W Jaeweather agent PRCo — 30 Dec, 2015
Signature of Owner or Authorized Agent — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 202891
Date of Receipt DEC 31 2015, 20 ____
Date of Priority October 6, 20 14

Date of Approval June 9, 20 16
for State Engineer

R&R HEIGHTS SUBDIVISION
CHAPTER 23 REPORT

Appendix A

SEO Statement of Completions

T14N, R68W, Section 11

FORM U.W.6
Rev. 7/05

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

SCANNED OCT 28 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 179172 NAME OF WELL/SPRING Section No.11 Well

1. NAME OF OWNER Polo Ranch Company

2 ADDRESS 308 West 7th. Ave.
☐ Please check if address has changed from that shown on permit
City Cheyenne State Wyoming Zip Code 82001 Phone No. 307-634-7561

3. USE OF WATER ☒ Domestic ☒ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
One single family dwelling 2-Stock Tanks

4. LOCATION OF WELL/SPRING SE 1/4 SE 1/4 of Section 11 T, 14 N.,R. 68 W., of the 6th P.M. (or W.R.M.)
GPS Coordinates UTM Zone — Easting — Northing —
Subdivision Name — Lot — Block —
If surveyed, bearing, distance and reference point —
Longitude (degrees, minutes, seconds) 104°57'57.00139"W Latitude (degrees, minutes, seconds) 41°11'27.65423"W
Datum ☐ 1927 ☐ 1983 Source: ☒ GPS ☐ Map ☐ Survey

5. TYPE OF CONSTRUCTION ☒ Drilled — (Type of rig, and fluid used, if any) ☐ Dug ☐ Driven ☐ Other
Describe —

6. CONSTRUCTION Total depth of well/spring 1000.0 ft. Bi phone Call 02/05/07 JR
Depth of static water level 480' ft. (below land surface) Casing height — ft. above ground
a. Diameter of borehole (bit size) — inches
b. Casing schedule ☐ New ☐ Used Joint type ☐ Threaded ☐ Glued ☐ Welded
— diameter from — ft. to — ft. Material — Gage —
— diameter from — ft. to — ft. Material — Gage —
c. Cemented/grouted interval, from — ft. to — ft.
Amount of cement/grout used — (example: 10 sacks) type — (example: bentonite pellets)
d. Type of completion ☐ Factory screen ☐ Open hole ☐ Customized perforations
Type of perforator used —
Size of perforations — inches by — inches.
Number of perforations and depths where perforated
— perforations from — ft. to — ft.
— perforations from — ft. to — ft.
Open hole from — ft. to — ft.
Well screen details
Diameter — slot size — set from — ft. to — ft.
Diameter — slot size — set from — ft. to — ft.
e. Well development method — How long was well developed? —
f. Was a filter/gravel pack installed? ☐ Yes ☐ No Size of sand/gravel —
Filter/gravel pack installed from — ft. to — ft.
g. Was surface casing used? ☒ Yes ☐ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from — ft. to — ft.

RECEIVED
JAN 9 2007
STATE ENGINEER
CHEYENNE, WY

7. NAME AND ADDRESS OF DRILLING COMPANY —

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 1969

9. PUMP INFORMATION Manufacturer — Type Electrict
Source of power — Horsepower 5.0 Depth of pump setting or intake 675' ft.
Amount of water being pumped 25.0 gal./min. (For springs or flowing wells, see item 10) Bi Phone Call 02/05/07 JR
Total volumetric quantity used per calendar year. 2.0 Acre-Feet

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is — gal./min. Surface pressure is — lb./sq.inch, or — feet of water.
The flow is controlled by: ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☒ No

Permit No. U.W. 179172 Book No. 1300 Page No. 24

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to quality for a water right) N/A

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ No
If so, by whom ———
Yield ——— gal./min. with ——— ft. drawdown after ——— hours
Yield ——— gal./min. with ——— ft. drawdown after ——— hours

13. LOG OF WELL Total depth drilled 1000.0 ft.

Depth of completed well ——— ft. Diameter of well ——— inches
Depth to first water bearing formation ——— ft.
Depth to principal water bearing formation Top ——— ft. to Bottom ——— ft.

Land surface elevation (ft. above mean sea level) 6309.2 Datum ☐ 1929 ☐ 1988
How determined ☐ Map ☐ Altimeter ☐ Survey ☒ Other - GPS

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface		Nothing available		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☒ No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).
If not, do you consider the water as ☒ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS ———

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Francis — ~~Signature of Owner~~ or Authorized Agent

January 9, 2007 — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 179172

Date of Receipt JAN 9 2007, 20——

Date of Priorty Oct. 5, 2006

Date of Approval 2-6, 2007

Cheryl Vierlandre
for State Engineer

R&R HEIGHTS SUBDIVISION
CHAPTER 23 REPORT

Appendix A

SEO Statement of Completions

T14N, R68W, Section 12

SCANNED APR 08 2013
SCANNED

FORM U.W.6
REV. 5-93

STATEMENT OF COMPLETION FOR RELOCATED WELL. RELOCATED PER B.O.C. DOCKET NO. I-U-2000-2-11.

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BUILDING
CHEYENNE, WYOMING 82002
(307) 777-5959

MICRO FILMED MAY 17 2002

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 45 NAME OF WELL (SPRING) NORTH BELL WELLFIELD CHEYENNE BOARD OF PUBLIC UTILITIES #25

1. NAME OF OWNER POLO RANCH COMPANY

2. ADDRESS P.O. BOX 1469 10401 EXPERIMENTAL FARM ROAD
Please check if address has changed from that shown on permit. ☐
City CHEYENNE State WY Zip Code 82003 82009 Phone No. 637-6471

3. USE OF WATER: Domestic ☒ Stock Watering ☒ Irrigation ☒ Municipal ☒ Industrial ☐ Miscellaneous ☐
Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL (SPRING): NW ¼ SE ¼ of Section 12, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.),
Subdivision Name _____ Lot _____ Block _____
If surveyed, bearing, distance and reference point: N. 54° 44' 22" W, 2777.83 ft. from SE Cor, Sec. 12

5. TYPE OF CONSTRUCTION: Drilled ☒ MIDWAY 900 ROTARY (Type of Rig) Dug ☐ Driven ☐ Other ☐
Describe: _____

6. CONSTRUCTION: Total Depth of Well/Spring 278 ft. Depth to Static Water Level 97.5 ft. (Below land surface)
a. Diameter of borehole (Bit size) 16 inches.

b. Casing Schedule New ☒ Used ☐ * see attached as-built
18" diameter from 0 ft. to 30 ft. Material STEEL Gage 0.25"
10" diameter from +1.5 ft. to * ft. Material STEEL Gage 0.365"

c. Was casing cemented: Yes ☒ No ☐ Cemented Interval, From 0 feet to 115 feet.

d. Number of sacks of cement used 93 type of cement PORTLAND 1/11

e. Perforations: Type of perforator used _____
Size of perforations _____ inches by _____ inches.

Number of perforations and depths where perforated:
_____ perforations from _____ ft. to _____ feet.
_____ perforations from _____ ft. to _____ feet.

f. Was well screen installed? Yes ☒ No ☐
Diameter: 10 slot size: 0.050 set from 136 feet to 141
Diameter: 10 slot size: 0.050 set from 206 feet to 227
10 0.050 249 264

g. Was well gravel packed? Yes ☒ No ☐ Size of gravel 8 X 12

h. Was surface casing used: Yes ☒ No ☐ Was it cemented in place? Yes ☒ No ☐

RECEIVED MAY 11 2000 STATE ENGINEER CHEYENNE, WYO.

7. NAME & ADDRESS OF DRILLING COMPANY DC DRILLING, P.O. BOX 749, LUSK, WY

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) OCTORER, 1999

9. PUMP INFORMATION: Manufacturer GOULDS Type SUBMERSIBLE
Source of power CLF&P * Horsepower 40 Depth of Pump Setting or intake 247
Amount of Water Being Pumped 425 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
Total Volumetric Gallons Used Per Calendar Year. _____
* CHEYENNE LIGHT, FUEL + POWER

10. FLOWING WELL (Owner is responsible for control of flowing well).
If well yields artesian flow, yield is _____ gal./min. Surface pressure is _____ lb./sq. inch, or _____ feet of water.
The flow is controlled by: valve ☐ cap ☐ plug ☐
Does well leak around casing? Yes ☐ No ☐

Permit No. U.W. 45 Book No. 1 Page No. 45

COMP. U.W. NO. 45

SCANNED

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12. PUMP TEST: Was a pump test made? Yes ☒ No ☐
If so, by whom WESTON ENGINEERING Address P.O. BOX 6037, LARAMIE, WY 82073
Yield: 500 gal./min. with 113.2 foot drawdown after 125 hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 278 feet.
Depth of completed well 272 feet. Diameter of well 10 inches.
Depth to first water bearing formation 136 feet.
Depth to principal water bearing formation. Top 206 feet to Bottom 264 feet.

Ground Elevation, if known 6,380 FT

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
		see attached lith log			

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☒ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☒ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Richard Allan
Signature of Owner or Authorized Agent

May 10, 2000
Date

FOR STATE ENGINEER'S USE ONLY

Date of Receipt MAY 11 2000, 19____

Date of Priority June 2, 1958

Date of Approval June 5, 2001

Carol Lacy
for State Engineer

SCANNED

SCANNED

MICRO FILMED MAY 17 2002.

RECEIVED MAY 11 2000 STATE ENGINEER CHEYENNE, WYO.

ATTACHMENT SHEET FOR STATEMENT OF COMPLETION

PERMIT No. U.W. 45

LITHOLOGIC LOG

BELL NO. 25 REPLACEMENT WELL

Depth	Principal Lithology	Description	Comments
0-20	Silty Conglomerate	Variegated pink, white, and clear, medium gray, silty gravel, sub–rounded to angular, coarse to very coarse sand.	
20-30	Silty Sandstone	Grayish orange, silty, very fine grained, poorly cemented, calcareous sandstone.	
30-80	Clayey Siltstone and Clayey Conglomerate	Pale yellowish brown, poorly cemented, very fine (0.0625 mm) grained clayey siltstone; interbedded variegated pink, clear, white and red, medium to coarse (0.25 mm to 2 mm) grained, clayey conglomerate.	Choppy drilling 68 – 70'.
80-100	Clayey Conglomerate	Moderate yellowish brown to pale yellowish brown, moderately cemented, sandy siltstone; minor amount of coarse (1 mm to 2 mm) gravel.	
100-136	Sandy Siltstone	Pale yellowish brown, very fine to fine (0.0625 mm to 0.125 mm) grained, slightly silty, poorly sorted, poorly cemented, siltstone; minor amounts of medium to coarse (0.25 mm to 2 mm) gravel.	
136-143	Conglomerate	Variegated pink, white, clear, and red, medium to coarse (0.25 mm to 2 mm) grained, sub–angular to sub–rounded, poorly cemented, conglomerate.	
143-207	Claystone	Moderate yellowish brown, poorly cemented, slightly silty claystone.	
207-225	Conglomerate and Claystone	Variegated pink, white, clear, and red, medium to coarse (0.25 mm to 2 mm) grained, sub–rounded, poorly cemented conglomerate; moderate amount of claystone.	
225-246	Claystone	Moderate yellowish brown, poorly cemented, slightly silty claystone.	
246-264	Conglomerate	Variegated pink, white, clear, black, and red, medium to very coarse (0.25 mm to > 2 mm) grained, angular to sub–angular, poorly cemented conglomerate.	
264-278	Claystone	Moderate yellowish brown, poorly cemented, slightly silty claystone.	

TD of Test Well = 400 feet; TD of Drilled Well = 278 feet; TD of Completed Well = 272 feet.

Note: For all logs reported, colors were determined using the GSA Rock Color Chart in wet samples.

FORM U.W.6
Rev. 12/99

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BUILDING
CHEYENNE, WYOMING 82002
(307) 777-5959

SCANNED MAR 13 2014
MICRO FILMED DEC 22 2000

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 125640 NAME OF WELL (SPRING) BELL NO. 25 OBS

1. NAME OF OWNER CHEYENNE BOARD OF PUBLIC UTILITIES

2. ADDRESS P.O. Box 1469
Please check if address has changed from that shown on permit. ☐
City Laramie State Wyoming Zip Code 82003 Phone No. 637-6471

3. USE OF WATER: Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous ☐
☒ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL (SPRING): NW ¼ SE ¼ of Section 12, T. 14 N., R. 68 W., of the 6th P.M. (or W.R.M.),
Subdivision Name _____ Lot _____ Block _____
If surveyed, bearing, distance and reference point: _____

5. TYPE OF CONSTRUCTION: Drilled ☒ _____ Dug ☐ Driven ☐ Other ☐
(Type of Rig)
Describe: _____

6. CONSTRUCTION: Total Depth of Well/Spring 314 ft.
Depth to Static Water Level 88 ft. (Below land surface)
a. Diameter of borehole (Bit size) _____ inches.
b. Casing Schedule New ☐ Used ☐
12" diameter from +1.5 ft. to 314 ft. Material Steel Gage _____
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Was casing cemented: Yes ☐ No ☐ Cemented Interval, From _____ feet to _____ feet.
d. Number of sacks of cement used _____ type of cement _____
e. Perforations: Type of perforator used _____
Size of perforations _____ inches by _____ inches.
Number of perforations and depths where perforated:
_____ perforations from _____ ft. to _____ feet.
_____ perforations from _____ ft. to _____ feet.
f. Was well screen installed? Yes ☐ No ☐
Diameter: _____ slot size: _____ set from _____ feet to _____.
Diameter: _____ slot size: _____ set from _____ feet to _____.
g. Was well gravel packed? Yes ☐ No ☐ Size of gravel _____
h. Was surface casing used: Yes ☐ No ☐ Was it cemented in place? Yes ☐ No ☐

RECEIVED JUN 28 2000 STATE ENGINEER CHEYENNE, WYO.

7. NAME & ADDRESS OF DRILLING COMPANY Oliver Drilling Company

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 1958

9. PUMP INFORMATION: Manufacturer _____ Type _____
Source of power _____ Horsepower _____ Depth of Pump Setting or intake _____
Amount of Water Being Pumped _____ Gallons Per Minute. (For Springs or flowing wells, see item 10.)
Total Volumetric Gallons Used Per Calendar Year. _____

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
If well yields artesian flow or if spring, yield is _____ gal./min. Surface pressure is _____ lb./sq. inch, or _____ feet of water.
The flow is controlled by: valve ☐ cap ☐ plug ☐
Does well leak around casing? Yes ☐ No ☐

Permit No. U.W. 125640 Book No. 944 Page No. 41

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12. PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____ Address _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled _____ feet.
Depth of completed well _____ feet. Diameter of well _____ inches.
Depth to first water bearing formation _____ feet.
Depth to principal water bearing formation. Top _____ feet to Bottom _____ feet.

Ground Elevation, if known _____

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	10	Clay and silt, light brown			
10	25	Gravel, very fine to fine, sandy			
25	56	Clay and silt, light brown			
56	63	Gravel, very fine silty			
63	74	Silt and clay, light brown			
74	95	Gravel, very fine, coarse sand			
95	148	Silt and caly, sandy, light brown			
148	159	gravel, and sand, very fine to fine, loose			
159	219	Silt and clay, light brown			
219	221	Gravel, very fine to fine			
221	228	Silt and Clay, light brown			
228	234	Gravel, very fine to fine			
234	241	Clay and silt, light brown			
241	263	Gravel very fine to medium loose			
263	314	Clay and silt, light brown			

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☒
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Richard Allen
Signature of Owner or Authorized Agent

June 21, 2000
Date

U.W. 125640

FOR STATE ENGINEER'S USE ONLY

Date of Receipt JUN 28 2000, 20 _____

Date of Priority 5/30/2000, 20 _____

Date of Approval 11/3, 20 00

Jeremy T Manley
for State Engineer

FORM U.W.6
Rev. 7/05

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

SCANNED OCT 28 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 179173 NAME OF WELL/SPRING Homestead Section 12 Well

1. NAME OF OWNER Polo Ranch Co. 10401 Polo Ranch Rd.
2. ADDRESS 308 West 7th. Ave., Cheyenne, WY 82009
☐ Please check if address has changed from that shown on permit

City Cheyenne State Wyoming Zip Code 82001 Phone No. 307-634-7561

3. USE OF WATER ☒ Domestic ☒ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
One single family dwelling - 3 Stock tanks

4. LOCATION OF WELL/SPRING SE 1/4 SW 1/4 of Section 12 T. 14 N.,R. 68 W., of the 6th P.M. (or W.R.M.)
GPS Coordinates UTM Zone — Easting — Northing —
Subdivision Name — Lot — Block —
If surveyed, bearing, distance and reference point —
Longitude (degrees, minutes, seconds) 104°57'18.63117" Latitude (degrees, minutes, seconds) 41°11"29.5205'N
Datum ☐ 1927 ☐ 1983 Source: ☒ GPS ☐ Map ☐ Survey

5. TYPE OF CONSTRUCTION ☒ Drilled — (Type of rig, and fluid used, if any) ☐ Dug ☐ Driven ☐ Other
Describe —

6. CONSTRUCTION Total depth of well/spring 250.0 ft.
Depth of static water level 40.0 ft. (below land surface) Casing height — ft. above ground
a. Diameter of borehole (bit size) — inches
b. Casing schedule ☐ New ☐ Used Joint type ☐ Threaded ☐ Glued ☐ Welded
— diameter from — ft. to — ft. Material — Gage —
— diameter from — ft. to — ft. Material — Gage —
c. Cemented/grouted interval, from — ft. to — ft.
Amount of cement/grout used — (example: 10 sacks) type — (example: bentonite pellets)
d. Type of completion ☐ Factory screen ☐ Open hole ☐ Customized perforations
Type of perforator used —
Size of perforations — inches by — inches.
Number of perforations and depths where perforated
— perforations from — ft. to — ft.
— perforations from — ft. to — ft.
Open hole from — ft. to — ft.
Well screen details
Diameter — slot size — set from — ft. to — ft.
Diameter — slot size — set from — ft. to — ft.
e. Well development method — How long was well developed? —
f. Was a filter/gravel pack installed? ☐ Yes ☐ No Size of sand/gravel —
Filter/gravel pack installed from — ft. to — ft.
g. Was surface casing used? ☐ Yes ☐ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from — ft. to — ft.

RECEIVED FEB 3 2005 STATE ENGINEERS CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY —
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 1912
9. PUMP INFORMATION Manufacturer — Type —
Source of power Electrict Horsepower 5.0 Depth of pump setting or intake 65.0 ft.
Amount of water being pumped 25.0 gal./min. (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year. 2.0 A/F Year
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is — gal./min. Surface pressure is — lb./sq.inch, or — feet of water.
The flow is controlled by: ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 179173 Book No. 1300 Page No. 25

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to quality for a water right) N/A

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled _____ ft.

Depth of completed well _____ ft. Diameter of well _____ inches
Depth to first water bearing formation _____ ft.
Depth to principal water bearing formation Top _____ ft. to Bottom _____ ft.

Land surface elevation (ft. above mean sea level) _____ Datum ☐ 1929 ☐ 1988
How determined ☐ Map ☐ Altimeter ☐ Survey ☐ Other

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface				
		Unknown		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☒ No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☒ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).
If not, do you consider the water as ☒ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS

This well was drilled in 1912.

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

The foregoing instrument was acknowledged before me by John Morris this 30 day of January 2009

Witness my hand and official seal: Shannon Ward
Notary Public

Shannon Ward - Notary Public
County of Goshen
State of Wyoming
My Commission Expires: 11/27/2011

John R. Morris - Pres.
Signature of Owner or Authorized Agent

30 JAN ,2009
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 179173

Date of Receipt FEB 03 2009, 20____

Date of Priorty October 5, 2006

Date of Approval 2/22, 2012

for State Engineer

R&R HEIGHTS SUBDIVISION
CHAPTER 23 REPORT

Appendix A

SEO Statement of Completions

T15N, R68W, Section 34

Relocate and Deepen

FORM U.W.6
Rev. 1/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 200758 NAME OF WELL/SPRING Smith 2427

1. NAME OF OWNER Nathan Smith

2 ADDRESS 1554 Horse Creek Rd
☐ Please check if address has changed from that shown on permit
City Cheyenne State Wy Zip Code 82009 Phone No. 307-286-2403

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) Single family Dwelling

4. LOCATION OF WELL/SPRING SE 1/4 NW 1/4 of Section 34 T. 015 N.,R. 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name _____ Lot _____ Block _____
Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude 41.226838 N Longitude 104.994551 W (degrees, minutes, seconds)
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (feet)
Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unkown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled _____ ☐ Dug ☐ Driven ☐ Other
Describe Mud Rotary

6. CONSTRUCTION Total depth of well/spring 680 ft.
Depth of static water level 280 ft. (below land surface) Casing height 2 ft. above ground
a. Diameter of borehole (bit size) 8.75 inches
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5" diameter from 0 ft. to 680 ft. Material PVC Gage 17
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from 0 ft. to 180 ft.
Amount of cement/grout used 72 (example: 10 sacks) type hole plug (example: bentonite pellets)
d. Type of completion ☐ Customized perforations ☐ Open hole ☒ Factory screen
Type of perforator used Factory
Size of perforations .032 inches by 3 inches.
Number of perforations and depths where perforated
460 perforations from 180 ft. to 640 ft.
20 perforations from 660 ft. to 680 ft.
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method air How long was well developed? 6 hours
f. Was a filter/gravel pack installed? ☑ Yes ☐ No Size of sand/gravel pea
Filter/gravel pack installed from 180 ft. to 680 ft.
g. Was surface casing used? ☐ Yes ☐ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED
JUN 30 2021
State Engineers
Cheyenne
Wyoming

7. NAME AND ADDRESS OF DRILLING COMPANY 307-214-9969
LG DRILLING, LLC
2644 E. RIDING CLUB RD.
CHEYENNE, WY 82009

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 6/29/21

9. PUMP INFORMATION Manufacturer Franklin Type Sub
Source of power 230V Horsepower 3 Depth of pump setting or intake 660 ft.
Amount of water being pumped 3 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* 1 Acre ft / year
*If these amounts exceed permitted amount an enlargement is required.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is _____ gal./min. *Surface pressure is _____ lb./sq.inch, or _____ feet of water.
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 200758 Book No. 1444 Page No. 8

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right)

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ ~~No~~
If so, by whom
Yield gal./min. with ft. drawdown after hours
Yield gal./min. with ft. drawdown after hours

13. LOG OF WELL Total depth drilled 680 ft.
Depth of completed well 680 ft. Diameter of well 8.75 inches
Depth to first water bearing formation 560 ft.
Depth to principal water bearing formation Top 560 ft. to Bottom 680 ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface	215	Cemented gravel Small Clay Layes		
215	530	Soft Sandy Brow Clay		
530	560	Brown Clay / Small Water Sand Layers		
560	670	Fine Water Sand		
670	680	Soft orange Clay		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☒ ~~No~~

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☒ ~~No~~
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).
If not, do you consider the water as ☐ Good ☒ ~~Acceptable~~ ☐ Poor ☐ Unusable

REMARKS Deepened & Relocate

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Pamela A Straw
Signature of Owner or Authorized Agent

6/29 PAS
6/29, 20 21
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 200758

Date of Receipt JUN 30 2021, 20

Date of Priorty July 30, 20 13

Date of Approval , 20

for State Engineer

FORM U.W.6
Rev. 6/00

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BUILDING
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED AUG 08 2014

MICRO FILMED FEB 24 2005

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 157789 NAME OF WELL (SPRING) ~~KENNEDY #1~~

1. NAME OF OWNER DALMAC CONSTRUCTION INC

2. ADDRESS P.O. Box 21594
Please check if address has changed from that shown on permit
City Cheyenne State WY Zip Code 82003 Phone No. 635-2575

3. USE OF WATER: Domestic [X] Stock Watering [ ] Irrigation [ ] Municipal [ ] Industrial [ ] Miscellaneous [ ]
Monitor or Test [ ] Coal Bed Methane [ ] Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL (SPRING): SW ¼ SW ¼ of Section 34, T. 15N N., R. 68 W., of the 6th P.M. (or W.R.M.),
Subdivision Name Fox Meadow Estates Lot 13 Block _____
If surveyed, bearing, distance and reference point: _____

5. TYPE OF CONSTRUCTION: Drilled [XX] Mud-Air Rotary Dug [ ] Driven [ ] Other [ ]
(Type of Rig)
Describe: _____

6. CONSTRUCTION: Total Depth of Well/Spring 600 ft.
Depth to Static Water Level 273 ft. (Below land surface) per letter need 7-19-04 KA
a. Diameter of borehole (Bit size) 8 3/4 inches.
b. Casing Schedule New [XX] Used [ ]
5" diameter from 0 ft. to 400 ft. Material PVC-200 PSI Gage SDR-21
5" diameter from 400 ft. to 600 ft. Material PVC-250 PSI Gage SDR-17
c. Was casing cemented: Yes [ ] No [X] Cemented Interval, From _____ feet to _____ feet.
d. Number of sacks of cement used N/A type of cement _____
e. Perforations: Type of perforator used Sectory Slot
Size of perforations .032 inches by 3 inches.
Number of perforations and depths where perforated:
5280 perforations from 520 ft. to 580 feet.
_____ perforations from _____ ft. to _____ feet.

RECEIVED JUL 13 2004 STATE ENGINEER CHEYENNE, WY

f. Was well screen installed? Yes [ ] No [X]
Diameter: _____ slot size: _____ set from _____ feet to _____.
Diameter: _____ slot size: _____ set from _____ feet to _____.
g. Was well gravel packed? Yes [XX] No [ ] Size of gravel 1/4"
h. Was surface casing used: Yes [ ] No [XX] Was it cemented in place? Yes [ ] No [ ]

7. NAME & ADDRESS OF DRILLING COMPANY K.E. Taylor Drilling Inc. Douglas, WY

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 5-12-04

9. PUMP INFORMATION: Manufacturer Gould Type Submersible
Source of power Electric Horsepower 2 Depth of Pump Setting or intake 460
Amount of Water Being Pumped 7 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
Total Volumetric Gallons Used Per Calendar Year. _____

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
If well yields artesian flow or if spring, yield is _____ gal./min. Surface pressure is _____ lb./sq. inch, or _____ feet of water.
The flow is controlled by: valve [ ] cap [ ] plug [ ]
Does well leak around casing? Yes [ ] No [ ]

Permit No. U.W. 157789 Book No. 1158 Page No. 109

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12. PUMP TEST: Was a pump test made? Yes ☐ No ☐ Air
If so, by whom Driller B.L. Address _____
Yield: 15 gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 710 feet.
Depth of completed well 600 feet. Diameter of well 8 3/4" inches.
Depth to first water bearing formation 245 feet.
Depth to principal water bearing formation. Top 560 feet to Bottom 580 feet.

Ground Elevation, if known _____

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	1	top soil			
1	70	brn clay			
70	90	decomposed granite			
90	105	brn clay			
105	180	decomposed granite			
180	200	brn clay			
200	210	decomposed granite			
210	225	brn clay			
225	245	decomposed granite		H2O	
245	540	brn clay			
540	580	brn sandy clay		H2O	520'-580
580	620	white clay			
620	710	semi white clay			

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☒ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

_____ 7-8-2004 , 20 ____
Signature of Owner or Authorized Agent Date

U.W.#157789 FOR STATE ENGINEER'S USE ONLY

Date of Receipt JUL 13 2004 , 20 ____ Date of Approval 2/15 , 20 05

Date of Priority APRIL 19, 2004 , 20 ____ Cheryl Vanplanck
for State Engineer

1551 Horse Creek Rd

FORM U.W.6
Rev. 12/2002

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED AUG 13 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 159455 NAME OF WELL (SPRING) HARMON 1551

1. NAME OF OWNER ~~HAYES CONSTRUCTION, INC~~ Lance T. and Amy Harmon
2. ADDRESS ~~5711 Osage Ave~~ 1551 Horse Creek Road
   Please check if address has changed from that shown on permit. ☐
   City Cheyenne State WY Zip Code 82009 Phone No. ~~307-632-1528~~
3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
4. LOCATION OF WELL (SPRING): NE 1/4 SW 1/4 of Section 34, T. 15 N., R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Fox Meadows ~~Lot~~ Tract 3 Block
   If surveyed, bearing, distance and reference point:
   Longitude (degrees, minutes, seconds) Latitude (degrees, minutes, seconds)
   Datum: ☐ 1927 ☐ 1983 Source: ☐ GPS ☐ Map ☐ Survey
5. TYPE OF CONSTRUCTION: DRILLED ☑ Rotary (type of rig, and fluid used if any) Dug ☐ Driven ☐ Other ☐
   Describe:
6. CONSTRUCTION: Total Depth of Well/Spring 640 ft.
   Depth to Static Water Level 280 ft. (Below land surface) Casing Height above ground (ft.) 2'
   a. Diameter of borehole (Bit size) 7 7/8 inches.
   b Casing Schedule: New ☑ Used ☐ Joint type: ☐ threaded ☑ glued ☐ welded
   5" diameter from 0 ft. to 640 ft. Material PVC Gage SDR 21
   ____ diameter from ____ ft. to ____ ft. Material ____ Gage ____
   c. Grouted interval, from 0 ft. to 30 ft.
   Amount of grout used: 2 bags (example: 10 sacks) type: Bentonite Chips (example: bentonite pellets)
   d. Type of completion: ☐ factory screen ☐ open hole ☑ customized perforations
   Perforation: Type of perforator used Saw
   Size of perforations .032 inches by 2 inches.
   Number of perforations and depths where perforated:
   2400 perforations from 300 ft. to 340 ft.
   16000 perforations from 440 ft. to 640 ft.
   Open hole from ____ ft. to ____ ft.
   Well screen details:
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   Diameter ____ slot size: ____ set from ____ ft. to ____ ft.
   e. Well development method Bailer How long did development last? 2 hrs
   f. Was a filter pack installed? Yes ☑ No ☐ Size of sand/gravel 1/8 x 1/4"
   Filter pack installed from 30 ft. to 640 ft.
   g. Was surface casing used: Yes ☐ No ☑ Was it cemented in place? Yes ☐ No ☑
   Surface casing installed from ____ ft. to ____ ft.
7. NAME AND ADDRESS OF DRILLING COMPANY Stewart Drilling Co Inc - Cheyenne, wy
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) Oct 12-04
9. PUMP INFORMATION: Manufacturer Goulds Type Submersible
   Source of power electric Horsepower 1½ Depth of Pump Setting or intake 600 ft.
   Amount of Water Being Pumped ½ Gallons Per Minute. (For Springs or flowing wells, see item 10.)
   Total Volumetric Amount Used Per Calendar Year. 1 acre ft
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well).
    If well yields artesian flow or if spring, yield is ____ gal./min. Surface pressure is ____ lb./sq.inch, or ____ feet of water.
    The flow is controlled by: valve ☐ cap ☐ plug ☐
    Does well leak around casing? Yes ☐ No ☐

RECEIVED
OCT 25 2005
STATE ENGINEER
CHEYENNE, WY

159455 1169 122

Permit No. U.W. ____ Book No. ____ Page No. ____

SEE REVERSE SIDE

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12 PUMP TEST: Was a pump test made? Yes ☐ No ☑
If so, by whom _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 640 feet.
Depth of completed well 640 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 315 feet.
Depth to principal water bearing formation. Top 315 feet to Bottom 640 feet.

Land surface elevation (ft. above mean sea level) _____ Datum: ☐ 1929 ☐ 1988
How determined: ☐ map ☐ altimeter ☐ survey ☐ other

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	315	Tan To L.T. Brown Sandy Clay + Sandstone			
315	340'	Brown Clay w/ Streaks			
		fine Sand		WB	perf.
340	445	Brown Clay			
445	640	Tan To white fine Sand w/ Clay mix (Very fast Drilling)		? WB	Perf

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

B. Stewart (Agent) — Signature of Owner or Authorized Agent

Oct 1, 20 05 — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 159455

Date of Receipt OCT 25 2005, 20____

Date of Priority JUNE 4, 2004, 20____

Date of Approval Sept. 8, 20 06

for State Engineer

FORM U.W.6
Rev. 7/05

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

SCANNED OCT 15 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 170186 NAME OF WELL/SPRING Goodwater 1 1564

1. NAME OF OWNER Goodwater Group, LLC

2 ADDRESS 1526 Horse Creek Road
☐ Please check if address has changed from that shown on permit
City Cheyenne, State WY Zip Code 82009 Phone No. 307-630-9271

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING SW 1/4 SE 1/4 of Section 34 T. 15 N.,R. 68 W., of the 6th P.M. (or W.R.M.)
GPS Coordinates UTM Zone _____ Easting _____ Northing _____
Subdivision Name Fox Meadows Lot 15 Block _____
If surveyed, bearing, distance and reference point _____
Longitude (degrees, minutes, seconds) N 41° 13.145 Latitude (degrees, minutes, seconds) W 104° 52.375
Datum ☐ 1927 ☐ 1983 Source: ☒ GPS ☐ Map ☐ Survey
gps correct 7/14

5. TYPE OF CONSTRUCTION ☒ Drilled Rotary (Type of rig, and fluid used, if any) ☐ Dug ☐ Driven ☐ Other
Describe _____

6. CONSTRUCTION Total depth of well/spring 460 ft.
Depth of static water level 210 ft. (below land surface) Casing height 2 ft. above ground
a. Diameter of borehole (bit size) 7 7/8 inches
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5" diameter from 0 ft. to 460 ft. Material PVC Gage SDR 21
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. ~~Cemented~~/grouted interval, from 0 ft. to 30 ft.
Amount of cement/grout used 2 Bags (example: 20 sacks) type Bentonite Chips (example: bentonite pellets)
d. Type of completion ☐ Factory screen ☐ Open hole ☒ Customized perforations
Type of perforator used Saw
Size of perforations .032 inches by 2 inches.
Number of perforations and depths where perforated
3200 perforations from 380 ft. to 460 ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method Air How long was well developed? 2 hrs
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 1/8 x 1/4"
Filter/gravel pack installed from 30 ft. to 460 ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☒ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED
DEC 15 2006
STATE ENGINEER
CHEYENNE, WY

7. NAME AND ADDRESS OF DRILLING COMPANY Ken Taylor - Douglas, WY.

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) Mar 15-06

9. PUMP INFORMATION Manufacturer Gowlds Type Submersible
Source of power electric Horsepower 1 1/2 Depth of pump setting or intake 367' ft.
Amount of water being pumped 15 gal./min. (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year. 1 acre ft

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is _____ gal./min. Surface pressure is _____ lb./sq.inch, or _____ feet of water.
The flow is controlled by: ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 170186 Book No. 1241 Page No. 40

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to quality for a water right)_____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☑ No
If so, by whom_____
Yield _____gal./min. with _____ ft. drawdown after _____ hours
Yield _____gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 460 ft.
Depth of completed well 460' ft. Diameter of well 7 7/8" inches
Depth to first water bearing formation _____ ft.
Depth to principal water bearing formation Top_____ ft. to Bottom_____ft.

Land surface elevation (ft. above mean sea level)_____ Datum ☐ 1929 ☐ 1988
How determined ☐ Map ☐ Altimeter ☐ Survey ☐ Other

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface				
		Drillers Log Not available		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).
If not, do you consider the water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

R D Stewart (Agent)
Signature of Owner or Authorized Agent

Nov 20 ,20 06
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 170186

Date of Receipt DEC 15 2006 , 20____

Date of Priorty October 24, , 20 05

Date of Approval Nov 13 , 2008

for State Engineer

FORM U.W.6
Rev. 1/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

SCANNED DEC 12 2014

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 182175 NAME OF WELL/SPRING Kim Jim 1

1. NAME OF OWNER ~~Jimmy & Kimberly Siter~~ Good Water Group

2 ADDRESS ~~1546~~ 1526 Horse Creek Rd
☐ Please check if address has changed from that shown on permit
City Cheyenne State WY Zip Code 82009 Phone No. ~~307-630-8832~~ 307-630-9271

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING NW 1/4 SE 1/4 of Section 34 T. 15 N.,R. 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Fox Meadows Lot 2 Block _____
Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude 41° 13.420 N Longitude 104° 59.42 W (degrees, minutes, seconds)
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (feet)
Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88 gps correct zm
Source ☐ GPS ☐ Map ☐ Survey ☐ Unkown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled Rotary ☐ Dug ☐ Driven ☐ Other
Describe _____

6. CONSTRUCTION Total depth of well/spring 600 ft.
Depth of static water level 225 ft. (below land surface) Casing height 1½ ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5" diameter from 0 ft. to 600 ft. Material PVC Gage 1330
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from 17 ft. to 27 ft.
Amount of cement/grout used 3 (example: 10 sacks) type Environmental Plug (example: bentonite pellets)
d. Type of completion ☐ Customized perforations ☐ Open hole ☒ Factory screen
Type of perforator used Slot
Size of perforations 1032 inches by 2 inches.
Number of perforations and depths where perforated
4500 perforations from 540 ft. to 600 ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from — ft. to — ft.
Well screen details
Diameter 5" slot size 1032 set from 540 ft. to 600 ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method Air How long was well developed? 2 hrs
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 1/4" - 0-7'
Filter/gravel pack installed from 27 ft. to 600 ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED NOV -5 2009 STATE ENGINEER CHEYENNE, WY

7. NAME AND ADDRESS OF DRILLING COMPANY Rock Creek Drilling, Cheyenne, Wy
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 10-17-07
9. PUMP INFORMATION Manufacturer Goulds Type Submersible
Source of power Electric Horsepower 1½ Depth of pump setting or intake 560 ft.
Amount of water being pumped 15 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* _____
*If these amounts exceed permitted amount an enlargement is required.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is _____ gal./min. *Surface pressure is _____ lb./sq.inch, or _____ feet of water.
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 182175 Book No. 1320 Page No. 25

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 600 ft.
Depth of completed well 600 ft. Diameter of well 5 inches
Depth to first water bearing formation 210 ft.
Depth to principal water bearing formation Top 210 ft. to Bottom 360 ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface	6	CLAY & GRAVEL		
6	80	GRAVEL		
80	107	GRAVEL & CLAY		
107	132	TAN & white CLAY w/ SOME GRAVEL		
132	210	TAN SANDY CLAY		
210	360	Soft SANDstone w/ SOME CLAY		
360	380	TAN & BROWN SANDY CLAY		
380	480	TAN CLAY		
480	530	TAN CLAY w/ SANDstone STRINGERS		
530	580	Sticky TAN CLAY		
580	600	BROWN CLAY		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☒ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).
If not, do you consider the water as ☒ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS 3 Bags PortLAND Type II from 7-17'

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Signature of Owner or Authorized Agent

8 Nov ,20 09
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 182175

Date of Receipt NOV 5 2009 , 20____

Date of Priorty July 24 , 20 07

Date of Approval 8/29 , 20 12

Jerry T Manley
for State Engineer

ACKNOWLEDGMENT

RECEIVED
NOV - 5 2009
STATE ENGINEER
CHEYENNE, WY

State of Wyoming
County of Laramie

On this 5th day of November, 2009, Jimmy Siler personally appeared before me,
X who is personally known to me,
____ whose identity I verified on the basis of _____,
____ whose identity I verified on the oath/affirmation of _____,
a credible witness,
to be the signer of the foregoing document, and he/she acknowledged that he/she signed it.

RENAE KRAKOW - NOTARY PUBLIC
COUNTY OF LARAMIE STATE OF WYOMING
MY COMMISSION EXPIRES 2/12/12

Renae Krakow
Notary Public

My Commission Expires: 2/12/12

Attribution Clause: This Certificate is prepared for, and exclusively belongs to, the accompanying document entitled Completion and Description of Well, *which consists of* 1 *page(s) and is dated* Nov 5th 2009.
If this Certificate is appropriated to any document other than the one described herein, it shall be deemed null and void.

Copyright 2001 by the Notary Law Institute. Unauthorized reproduction of any kind of this form is strictly prohibited.

#0421

FORM U.W.6
Rev. 2/07

RECEIVED
DEC 9 2008
STATE ENGINEERS
CHEYENNE, WYOMING

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED NOV 28 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. **182822** NAME OF WELL/SPRING **SKY TOP**

1. NAME OF OWNER **THOMAS COWAN**

2. ADDRESS 305 North Star Loop
☐ Please check if address has changed from that shown on permit.
City Cheyenne State WY Zip Code 82009 Phone No. (307) 634-3147

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
One Single Family Dwelling

4. LOCATION OF WELL/SPRING NE 1/4 NE 1/4 of Section 34, T. 15 N., R 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Rocking Star Ranch Lot 6 Block
Resurvey Location Tract 6 or Lot Datum ☐ NAD27 ☐ NAD83
Geographic Coordinates: Latitude 41° 13.842' N Longitude -104° 59.163' (degrees, minutes, seconds)
UTM: Zone Northing Easting (meters)
State Plane Coordinates: Zone Northing Easting (Feet)
Land surface elevation (ft. above mean sea level) Datum ☐ NAVD29 ☐ NAVD88 gps correct
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only) 29m

5. TYPE OF CONSTRUCTION ☒ Drilled Rotary (type of rig, and fluid used, if any) ☐ Dug ☐ Driven ☐ Other
Describe

6. CONSTRUCTION Total depth of well/spring 580 600 ft. Per log data
Depth to static water level 198 ft. (below land surface) Casing height 1½ ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5" diameter from 0 ft. to 580 ft. Material PVC Gage 1330
diameter from ft. to ft. Material Gage
c. Cemented/grouted interval, from 27 ft. to 34 ft.
Amount of grout used 2 (example: 10 sacks) type Environmental Plug (example: bentonite pellets)
d. Type of completion ☐ Customized perforations ☐ Open hole ☒ Factory screen
Type of perforator used Slot
Size of perforations .032 inches by 3 inches
Number of perforations and depths where perforated
1500 perforations from 180 ft. to 200 ft. 1500 from 240'-260', 1500 from 420'-440'
1500 perforations from 460 ft. to 480 ft. 1500 from 500'-520', 1500 from 540'-580'
Open hole from 580 ft. to 600 ft.
Well screen details
Diameter 5" slot size .032 set from ↑ ft. to ft.
Diameter slot size set from ft. to ft.
e. Well development method Air How long was well developed? 3 hrs
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 1/4" -
Filter pack/gravel installed from 34 ft. to 580 ft. 0-27'
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from 34 ft. to ~~580~~ ft. ~~0-27'~~

7. NAME AND ADDRESS OF DRILLING COMPANY Rock Creek Drilling, Cheyenne, Wy

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 9/11/2007

9. PUMP INFORMATION Manufacturer Grundfos Type Submersible
Source of power electric Horsepower 1½ Depth of pump setting or intake 560 ft.
Amount of water being pumped 7 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* ~~11.29~~ af 325,000 gallons

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If well yields artesian flow or if spring, yield is gal./min.* Surface pressure is lb./sq.inch, or feet of water
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No
*If these amounts exceed permitted amount an enlargement is required.

Permit No. U.W. **182822** Book No. **1324** Page No. **72**

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 600 ft.
Depth of completed well 580 ft. Diameter of well 5 inches.
Depth to first water bearing formation 80 ft.
Depth to principal water bearing formation Top 185 ft. to bottom 237 ft.

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Rock Type Or Description	Formation	Water Bearing? (Yes or no)
Surface	1	Top Soil		
1	65	TAN CLAY		
65	75	SAND & GRAVEL		
75	80	TAN CLAY		
80	90	WATER SAND		
90	100	SANDY TAN CLAY		
100	185	White CLAY & GRAVEL		
185	192	WATER SAND		
192	230	TAN CLAY & GRAVEL		
230	237	WATER SAND		
237	285	BROWN CLAY		
285	290	HARD SANDSTONE		
290	500	TAN & BROWN CLAY		
500	580	BROWN & White sticky CLAY		
580	600	GRAY & YELLOW CLAY		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS Bentonite Grout seal from 580'-600'
Cement seal from 15'-18'

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Thomas Cox
Signature of Owner or Authorized Agent

12-9-08
Date, 2008

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 182822

Date of Receipt DEC 9 2008

Date of Priority 7/27/2007

Date ~~of Approval~~ May 11, 2012

B. Tibbett
for State Engineer

FORM U.W.6
Rev. 2/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED DEC 09 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. **183320** NAME OF WELL/SPRING **FOX MEADOWS TRACT 4**

1. NAME OF OWNER **JAMES E GERINGER**

2. ADDRESS *1507 ROAD 215*

☒ Please check if address has changed from that shown on permit.

City CHEYENNE State WY Zip Code 82009 Phone No. _____

3. USE OF WATER ☒ Domestic ☒ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
ONE SINGLE FAMILY DWELLING WITH STOCK TANKS

4. LOCATION OF WELL/SPRING NW 1/4 SW 1/4 of Section 34, T. 15 N., R 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name FOX MEADOWS ~~Lot~~ TRACT 4 Block _____
Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☒ NAD83 _____
Geographic Coordinates: Latitude 41° 13' 24.7" N Longitude 105° 00' 00.7" W (degrees, minutes, seconds)
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (Feet)
Land surface elevation (ft. above mean sea level) 6692 Datum ☐ NAVD29 ☒ NAVD88
Source ☐ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

gps correct I am

5. TYPE OF CONSTRUCTION ☐ Drilled X Rotary Combination ☐ Dug ☐ Driven ☐ Other
(type of rig, and fluid used, if any)
Describe _____

6. CONSTRUCTION Total depth of well/spring 540 ft.
Depth to static water level 100 ft. (below land surface) Casing height 2 ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5" diameter from 0 ft. to 540 ft. Material PVC Gage SDR17
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from _____ ft. to _____ ft.
Amount of grout used _____ (example: 10 sacks) type _____ (example: bentonite pellets)
d. Type of completion ☐ Customized perforations ☐ Open hole ☐ Factory screen
Type of perforator used X Factory
Size of perforations 0.035 inches by 3.00 inches
Number of perforations and depths where perforated
2400 perforations from 480 ft. to 540 ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method Air How long was well developed? 4 Hours
f. Was a filter/gravel pack installed? X ☐ Yes ☐ No Size of sand/gravel .125 to .375" diameter
Filter pack/gravel installed from 0 ft. to 540 ft.
g. Was surface casing used? ☐ Yes ☐ No X Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED
JAN 9 2009
STATE ENGINEERS
CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY McRady's Well Drilling, Inc., Cheyenne, WY

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) * 12/10/08

9. PUMP INFORMATION Manufacturer * GRUNDFOS * Type * SUBMERSIBLE
Source of power * ELECTRIC Horsepower * 1.5 Depth of pump setting or intake * 460 ft.
Amount of water being pumped * 2 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* _____

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If well yields artesian flow or if spring, yield is _____ gal./min.* Surface pressure is _____ lb./sq.inch, or _____ feet of water
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No
*If these amounts exceed permitted amount an enlargement is required.

Permit No. U.W. **183320** Book No. **1327** Page No. **120**

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☑ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 540 ft.
Depth of completed well 540 ft. Diameter of well 8 3/4 inches.
Depth to first water bearing formation 100 ft.
Depth to principal water bearing formation Top 480 ft. to bottom 540 ft.

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Rock Type Or Description	Formation	Water Bearing? (Yes or no)
Surface	340	Pale Pink to white blocky claystone &sandstones		
340	480	White claystones interbedded w/poorly cemented silty sandstones		
480	540	Hard sandstone layers interbedded w/freshwater limestone		
			White River	Yes

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☑ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Robert Geringer
Signature of Owner or Authorized Agent

12/31
Date , 20 08

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 183320

Date of Receipt JAN 09 2009

Date of Priority 7/18/2007

~~**Date of Approval**~~ 7-10 , 20 12

for **State Engineer**

THE STATE OF WYOMING)
County of Laramie)

I hereby certify that the foregoing statement was signed in my presence and sworn to before me by Robert Geringer this 9th day of January , 20 09

SHERI R. CULVER - NOTARY PUBLIC COUNTY OF LARAMIE STATE OF WYOMING MY COMMISSION EXPIRES JUN. 1, 2011

Sheri R. Culver
NOTARY PUBLIC

My Commission expires June 1, 2011

FORM U.W.6
Rev. 1/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

SCANNED SCANNED DEC 3 1 2014

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. **189716** NAME OF WELL/SPRING **Christian #1**

1. NAME OF OWNER **Leaning Tree Homes, Inc**

2. ADDRESS **1740 H Dell Range Blvd. #423**
☐ Please check if address has changed from that shown on permit.
City **Cheyenne** State **WY** Zip Code **82009** Phone No. **307-778-1856**

3. USE OF WATER ☒ Domestic ~~☒ Stock Watering~~ Out per UWS JN ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
Single Family dwelling

4. LOCATION OF WELL/SPRING **NE** 1/4 **NE** 1/4 of Section **34**, T. **15** N., R **68** W., of the 6th P.M. (or W.R.M.)
Subdivision Name **Rocking Star Ranch** Lot **9** Block
Resurvey Location Tract or Lot Datum ☐ NAD27 ☐ NAD83
Geographic Coordinates: Latitude **45 64 603** 41° 13 58.2 N Longitude **50 13 03** 104° 59 4 W (degrees, minutes, seconds) OK JN
UTM: Zone **13** Northing Easting (meters)
State Plane Coordinates: Zone Northing Easting (feet)
Land surface elevation (ft. above mean sea level) **6610** Datum ☐ NAVD29 ☐ NAVD88
Source ☐ GPS ☒ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled **Rotary combination** ☐ Dug ☐ Driven ☐ Other
Describe

6. CONSTRUCTION Total depth of well/spring **660** ft.
Depth of static water level **160** ft. (below land surface) Casing height **2** ft. above ground
a. Diameter of borehole (bit size) **8 3/4** inches
b. Casing schedule ☒ New ☐ Used Joint Type ☐ Threaded ☒ Glued ☐ Welded
5" diameter from **0** ft. to **660** ft. Material **PVC SDR 17** Gage
diameter from ft. to ft. Material Gage
c. Cemented/grouted interval, from **0** ft. to **20** ft.
Amount of cement/grout used **6 bags** (example: 10 sacks) type **bentonite chip** (example: bentonite pellets)
d. Type of completion ☒ Customized perforations ☐ Open hole ☐ Factory Screen
Type of perforator used **Factory**
Size of perforations **.035** inches by **3.00** inches
Number of perforations and depths where perforated
2400 perforations from **600** ft. to **660** ft.
perforations from ft. to ft.
Open hole from ft. to ft.
Well screen details
Diameter slot size set from ft. to ft.
Diameter slot size set from ft. to ft.
e. Well development method **Air** How long was well developed? **4 hrs**
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel **.125 to .375" diameter**
Filter/gravel pack installed from **20** ft. to **660** ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from ft. to ft.

RECEIVED DEC 13 2010 STATE ENGINEERS CHEYENNE, WYOMING

RECEIVED DEC 1 2010 STATE ENGINEERS CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY **McRady's Well Drilling, Inc Cheyenne, WY**

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) **06/19/09**

9. PUMP INFORMATION Manufacturer **Grundfos** Type **submersible**
Source of power **electricity** Horsepower **1.5** Depth of pump setting or intake **600** ft.
Amount of water being pumped **15-21** 21 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year* 325,000 per UWS JN
* If these amounts exceed permitted amount an enlargement is required.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is gal./min. *Surface pressure is lb./sq. inch, or feet of water.
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 189716 Book No. 1370 Page No. 66

SEE REVERSE SIDE

SCANNED

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☐ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled **660** ft.
Depth of completed well **660** ft. Diameter of well **8 3/4** inches
Depth to first water bearing formation **60** ft.
Depth to principal water bearing formation Top **600** ft. to Bottom **660** ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface	340	Pale Pink to white blocky claystones & sandstones		
340	600	White claystone interbeded w/poorly cemented silty sandstones	White River	yes
600	660	Hard sandstone layers interbedded w/freshwater limestone		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriological water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Rachel Brauenfeld — Signature of Owner or Authorized Agent

12/3, 20 10 — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 189716

Date of Receipt ~~DEC 7 2010~~, 20 DEC 13 2010

Date of Priority March 11, 2009, 20 ____

Date of Approval January 12, 20 11

for State Engineer

STATE OF WYOMING
COUNTY OF LARAMIE

Subscribed and sworn to before me this 3RD day of DECEMBER, 20 10.

Donna M. Wells
NOTARY PUBLIC

My Commission Expires: 3-21-, 20 14.

SCANNED DEC 3 1 2010

FORM U.W.6
Rev. 2/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED JAN 23 2015

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 190323 NAME OF WELL/SPRING ROCKING STAR WELL 13

1. NAME OF OWNER FRAUENDIENST QUALITY HOMES

2. ADDRESS [redacted] P.O. Box 20061

☐ Please check if address has changed from that shown on permit.

City Cheyenne State Wyoming Zip Code 82003 Phone No. 630 0690

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING NW 1/4 NE 1/4 of Section 34, T. 15 N., R 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Rocking Star Ranch Lot _____ Block _____
PER GCDB O.S. PARCEL
Resurvey Location Tract 13 or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude 41° 14.551 N Longitude ~~105 00.667~~ W (degrees, minutes, seconds)
UTM: Zone 13' 529" Northing 104° 59' 21.38" Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (Feet)
Land surface elevation (ft. above mean sea level) 6369 Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled Rotary ☐ Dug ☐ Driven ☐ Other
(type of rig, and fluid used, if any)
Describe _____

6. CONSTRUCTION Total depth of well/spring 650 ft.
Depth to static water level 180 ft. (below land surface) Casing height 1½ ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5" diameter from 0 ft. to 580 ft. Material PVC Gage 1332.
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from 25 ft. to 35 ft.
Amount of grout used 2 (example: 10 sacks) type Environmental Plug (example: bentonite pellets)
d. Type of completion ☐ Customized perforations ☐ Open hole ☒ Factory screen
Type of perforator used Slot
Size of perforations .032 inches by 3 inches
Number of perforations and depths where perforated
4500 perforations from 520 ft. to 580 ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from — ft. to — ft.
Well screen details
Diameter 5" slot size .032 set from 520 ft. to 580 ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method Air How long was well developed? 8 hrs
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel ¼" –
Filter pack/gravel installed from 35 ft. to 580 ft. 0-25
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED SEP 28 2009 STATE ENGINEERS CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY Rock Creek Drilling, Cheyenne, Wy

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 7-14-09

9. PUMP INFORMATION Manufacturer Goulds Type Submersible
Source of power Electric Horsepower 1½ Depth of pump setting or intake 340 ft.
Amount of water being pumped 10 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* 325,000 Gallons

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If well yields artesian flow or if spring, yield is ____ gal./min.* Surface pressure is _____ lb./sq.inch, or _____ feet of water
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No
*If these amounts exceed permitted amount an enlargement is required.

Permit No. U.W. 190323 Book No. 1374 Page No. 73

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 650 ft.
Depth of completed well 580 ft. Diameter of well 5 inches.
Depth to first water bearing formation _____ ft.
Depth to principal water bearing formation Top _____ ft. to bottom _____ ft.

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Rock Type Or Description	Formation	Water Bearing? (Yes or no)
Surface	1	Top Soil		
1	3	CLAY		
3	25	GRAVEL w/some CLAY		
25	140	Sandy CLAY w/thin SANDstone stringers		
140	175	Soft SANDstone		
175	180	CLAY		
180	220	Soft SANDstone		
220	240	CLAY		
240	440	Sandy CLAY w/thin SANDstone stringers		
440	520	CLAY w/some SAND		
520	540	SANDy CLAY		
540	590	CLAY		
590	650	gray sticky shale w/some yellow SANDy CLAY		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS Bentonite grout from 580' to 650' SEAL

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Signature of Owner or Authorized Agent

9/25/ Date, 2009

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 190323

Date of Receipt SEP 28 2009

Date of Priority 5/5/2009

Date of ~~Approval~~ Accepted August 27, 20 13

Bret Bergt
for State Engineer

FORM U.W.6
Rev. 2/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED
SCANNED JAN 14 2015

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 192236 NAME OF WELL/SPRING ROCKING STAR RANCH 11

1. NAME OF OWNER FRAUEUDIEUST QUALITY HOMES

2. ADDRESS P.O. BOX 20061
☐ Please check if address has changed from that shown on permit.
City Cheyenne State Wy Zip Code 82003 Phone No. 433-0280

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING NE 1/4 NE 1/4 of Section 34, T. 15 N., R 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Rocking Star Ranch Lot _____ Block _____
Resurvey Location Tract 11 or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude 41° 13.897 N Longitude 104° 59.173 W (degrees, minutes, seconds) gps ok d
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (Feet)
Land surface elevation (ft. above mean sea level) 6457 Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled Rotary (type of rig, and fluid used, if any) ☐ Dug ☐ Driven ☐ Other
Describe _____

6. CONSTRUCTION Total depth of well/spring 650 ft.
Depth to static water level 190 ft. (below land surface) Casing height 1 1/2 ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5" diameter from 0 ft. to 540 ft. Material PVC Gage 1330
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from 27 ft. to 37 ft. Cement 7-27' (3 Bags)
Amount of grout used 3 (example: 10 sacks) type Environmental Plug (example: bentonite pellets)
d. Type of completion ☐ Customized perforations ☐ Open hole ☒ Factory screen
Type of perforator used Slot
Size of perforations 1032 inches by 3 inches
Number of perforations and depths where perforated
22,500 perforations from 240 ft. to 540 ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter 5" slot size 1032 set from 240 ft. to 540 ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method Air & Water How long was well developed? 12 hrs
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 1/4" -
Filter pack/gravel installed from 37 ft. to 560 ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED
JUL 16 2010
STATE ENGINEERS
CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY Rock Creek Drilling, Cheyenne, Wy

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 5-3-10

9. PUMP INFORMATION Manufacturer Goulds Type Submersible
Source of power Electric Horsepower 1 1/2 Depth of pump setting or intake 500 ft.
Amount of water being pumped 5 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* 325,000 gpy per U.W.15

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If well yields artesian flow or if spring, yield is _____ gal./min.* Surface pressure is _____ lb./sq.inch, or _____ feet of water
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No
*If these amounts exceed permitted amount an enlargement is required.

Permit No. U.W. 192236 Book No. 1387 Page No. 36

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☐ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 650 ft.
Depth of completed well 540 ft. Diameter of well 5 inches.
Depth to first water bearing formation 80 ft.
Depth to principal water bearing formation Top 80 ft. to bottom 560 ft.

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Rock Type Or Description	Formation	Water Bearing? (Yes or no)
Surface	2	Top Soil		
2	80	GRAVEL & BROWN CLAY		
80	180	TAN CLAY & SMALL GRAVEL		
180	200	ROUNDED SAND & TAN CLAY		
200	520	TAN CLAY & HARD BROWN CLAY		
520	560	STICKY TAN CLAY		
560	650	YELLOW CLAY & GRAY SHALE		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☒ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS WELL WAS drilled in MARCH
560 - 650' Bentonite grout

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Signature of Owner or Authorized Agent

7/12 Date, 2010

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 192236

Date of Receipt JUL 16 2010

Date of Priority 2/19/2010

Date of Approval 5/29, 2012

for State Engineer

SCANNED

FORM U.W.6
Rev. 2/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED
SCANNED JAN 2 1 2015

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 193890 NAME OF WELL/SPRING ROCKING STAR RANCH #17

1. NAME OF OWNER FRAUENDIEST QUALITY HOMES

2. ADDRESS P.O. Box 20061

☐ Please check if address has changed from that shown on permit.

City Cheyenne State Wy Zip Code 82003 Phone No. 630 0690

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING NW 1/4 NE 1/4 of Section 34, T. 15 N., R 68 W., of the 6th P.M. (or W.R.M.) per GPS & UWS JN
Subdivision Name Rocking Star Ranch Lot 14 Block _____
Resurvey Location Tract Tract or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude 41° 13.786 N Longitude 104° 59.299 W (degrees, minutes, seconds) OK JN
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (Feet)
Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled Rotary ☐ Dug ☐ Driven ☐ Other
(type of rig, and fluid used, if any)
Describe _____

6. CONSTRUCTION Total depth of well/spring ~~580~~ 620 ft. per call JN
Depth to static water level 195 ft. (below land surface) Casing height 1 1/2 ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5" diameter from 0 ft. to ~~580~~ ft. Material PVC Gage 1330
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
per call JN c. Cemented/grouted interval, from ~~335~~ 300 ft. to ~~580~~ 30 ft. 3 Bags Portland Type II Cement 31-30
Amount of grout used 16 type Bentonite Grout Seal
(example: 10 sacks) (example: bentonite pellets)
d. Type of completion ☐ Customized perforations ☐ Open hole ☒ Factory screen
Type of perforator used slot
Size of perforations .032 inches by 3 inches
Number of perforations and depths where perforated
21000 perforations from ~~300 ft. to 580 ft.~~ 360 to 620 per call JN
_____ perforations from _____ ft. to _____ ft.
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter 5" slot size .032 set from 300 ft. to ~~580~~ ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method Air How long was well developed? 20 hrs
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 1/4" - pea gravel
Filter pack/gravel installed from ~~335~~ 300 ft. to ~~580~~ 620 ft. per call JN
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED
JAN 24 2011
STATE ENGINEERS
CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY Rock Creek Drilling, Cheyenne, Wy

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 12-2-10

9. PUMP INFORMATION Manufacturer Goulds Type Submersible
Source of power Electric Horsepower 1 1/2 Depth of pump setting or intake 500 ft.
Amount of water being pumped 5 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* 325,000 per UWS JN

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If well yields artesian flow or if spring, yield is ~~0~~ gal./min.* Surface pressure is _____ lb./sq.inch, or _____ feet of water
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No
*If these amounts exceed permitted amount an enlargement is required.

Permit No. U.W. 193890 Book No. 1398 Page No. 40

SEE REVERSE SIDE

SCANNED

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 650 ft.
per call SN Depth of completed well ~~580~~ 620 ft. Diameter of well 5 inches.
Depth to first water bearing formation 200 ft.
Depth to principal water bearing formation Top 300 ft. to bottom 580 ft.

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Rock Type Or Description	Formation	Water Bearing? (Yes or no)
Surface	2	Top Soil		
2	60	Tan clay w/ some gravel		
60	80	Cemented gravel		
80	100	Sand		
100	180	Cemented gravel		
180	200	Sand		
200	210	Cemented gravel		
210	240	Tan clay w/ cemented gravel		
240	520	Tan clay w/ Hard clay stringers		
520	540	Tan clay w/ rock stringers		
540	580	Tan clay & Hard Brown clay		
580	600	Grey & Tan clay		
600	650	Yellow & Grey clay		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable, ☐ Poor ☐ Unusable

REMARKS Bentonite grout seal ~~580'~~ 620' - 650' per call SN

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

_____ 1/24/ , 20 11
Signature of Owner or Authorized Agent Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 193890
Date of Receipt JAN 24 2011
Date of Priority 9/13/2010

Date of Approval August 19, 2011
_____
for State Engineer

SCANNED AUG 16 2012

FORM U.W.6
Rev. 2/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED MAR 17 2016

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 197557 NAME OF WELL/SPRING VANVOAST #1

1. NAME OF OWNER DOUBLE T CONSTRUCTION, INC

2. ADDRESS 1531 Horsecreek Road
☐ Please check if address has changed from that shown on permit.
City Cheyenne State Wyoming Zip Code 82009 Phone No. 631-3154

3. USE OF WATER ☒ Domestic ☒ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) Single Family Home And Horses (1 Domestic, 1 Stock, Per UWS, EB)

4. LOCATION OF WELL/SPRING NE 1/4 SE 1/4 of Section 34, T. 15 N., R 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Foxmeadows Lot 1 Block
Resurvey Location Tract or Lot Datum ☐ NAD27 ☐ NAD83
Geographic Coordinates: Latitude 41°13.511 N Longitude 104°59.034 W (degrees, minutes, seconds)
UTM: Zone Northing Easting (meters)
State Plane Coordinates: Zone Northing Easting (Feet)
Land surface elevation (ft. above mean sea level) Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)
41° 13.512' -104° 59

5. TYPE OF CONSTRUCTION ☒ Drilled Rotary ☐ Dug ☐ Driven ☐ Other
(type of rig, and fluid used, if any)
Describe

6. CONSTRUCTION Total depth of well/spring 640 ft.
Depth to static water level 235 ft. (below land surface) Casing height 1½ ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches 0-20-9⅞"
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5" diameter from 0 ft. to 640 ft. Material PVC Gage 1330
diameter from ft. to ft. Material Gage
c. Cemented/grouted interval, from 235 ft. to 5 ft. 8 SAcks Bentowite
Amount of grout used 14 type Bentowite grout SEAL Chips
(example: 10 sacks) GB (example: bentonite pellets)
d. Type of completion ☒ Customized perforations ☐ Open hole ☒ Factory screen
Type of perforator used Slot
Size of perforations .025 inches by 2 inches
Number of perforations and depths where perforated
15000 perforations from 240 ft. to 640 ft. Every other 20'
perforations from ft. to ft.
Open hole from ft. to ft.
Well screen details
Diameter 5" slot size .025 set from 640 ft. to 235 ft.
Diameter slot size set from ft. to ft.
e. Well development method How long was well developed?
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel ¼" pea gravel
Filter pack/gravel installed from 640 ft. to 235 ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from ft. to ft.

RECEIVED
AUG 16 2012
STATE ENGINEERS
CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY Rock Creek Drilling, Inc. Cheyenne, Wy

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 6/18/12

9. PUMP INFORMATION Manufacturer Goulds Type Submersible
Source of power Electric Horsepower 2 Depth of pump setting or intake 505 ft.
Amount of water being pumped 15 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* 1 AF, per UWS, EB

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If well yields artesian flow or if spring, yield is gal./min.* Surface pressure is lb./sq.inch, or feet of water
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No
*If these amounts exceed permitted amount an enlargement is required.

Permit No. U.W. 197557 Book No. 1422 Page No. 107

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 1060 ft.
Depth of completed well 640 ft. Diameter of well 5 inches.
Depth to first water bearing formation 225 ft.
Depth to principal water bearing formation Top 225 ft. to bottom 640 ft.

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Rock Type Or Description	Formation	Water Bearing? (Yes or no)
Surface	1	Top Soil		
1	10	TAN CLAY		
10	30	SAND & GRAVEL		
30	40	BROWN CLAY		
40	225	CEMENTED GRAVEL W/THIN LAYERS OF CLAY & SAND		
225	240	COARSE SAND		
240	640	HARD BROWN CLAY W/ LAYERS OF TAN SANDY CLAY		
640	1060	TAN & GREY CLAY		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Patsy K. Christensen
Signature of Owner or Authorized Agent

8-15, 2012
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 197557

Date of Receipt AUG 16 2012

Date of Priority 3/2/2012

Date of Approval 3/8, 2016

for State Engineer

SCANNED OCT - 1 2012

SCANNED MAR 17 2016

FORM U.W.6
Rev. 2/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 197890 NAME OF WELL/SPRING ROCKING STAR RANCH 20

1. **NAME OF OWNER** FRAUEUDIEUST QUALITY HOMES

2. **ADDRESS** P.O. Box 20061

☐ Please check if address has changed from that shown on permit.

City Cheyenne State Wy Zip Code 82003 Phone No. 630 0690

3. **USE OF WATER** ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
per UW5 pd.
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

per GPS pd.

4. **LOCATION OF WELL/SPRING** SW 1/4 NE 1/4 of Section 34, T. 15 N., R 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Rocking Star Ranch Lot 20 Block _____
Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude 41° 13.622 N Longitude 104° 59.457 W (degrees, minutes, seconds)
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (Feet)
Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. **TYPE OF CONSTRUCTION** ☒ Drilled Rotary (type of rig, and fluid used, if any) ☐ Dug ☐ Driven ☐ Other
Describe _____

6. **CONSTRUCTION** Total depth of well/spring 650 ft.
Depth to static water level 225 ft. (below land surface) Casing height 1 1/2 ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches 0'-20' - 9 5/8"
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5" diameter from 0 ft. to 640 ft. Material PVC Gage 1330
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from 27 ft. to 215 ft. 7-27' 3 sacks Bentonite chips
Amount of grout used 13 (example: 10 sacks) type Bentonite grout SEAL (example: bentonite pellets) 640-650 Bentonite SEAL
d. Type of completion ☒ Customized perforations ☐ Open hole ☐ Factory screen
Type of perforator used Slot
Size of perforations .025 inches by 2 inches
Number of perforations and depths where perforated
_____ perforations from 220 ft. to 640 ft. Perforated every other one from 220' to 640'
_____ perforations from _____ ft. to _____ ft.
Open hole from 640 ft. to 650 ft.
Well screen details
Diameter 5" slot size .025 set from every other one 220 ft. to 640 ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method AIR & BALE How long was well developed? 6 hrs
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 1/4" - per gravel
Filter pack/gravel installed from 215 ft. to 640 ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☒ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED
SEP 27 2012
STATE ENGINEERS
CHEYENNE, WYOMING

7. **NAME AND ADDRESS OF DRILLING COMPANY** Rock Creek Drilling, Cheyenne, Wy

8. **DATE OF COMPLETION OF WELL** (including pump installation) **OR SPRING** (first used) 6-26-12

9. **PUMP INFORMATION** Manufacturer Goulds Type ~~50~~ submersible
Source of power Electric Horsepower 2 Depth of pump setting or intake 320 ft.
Amount of water being pumped 10 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* 325,000 per UW5 pd.

10. **FLOWING WELL OR SPRING** (Owner is responsible for control of flowing well)
If well yields artesian flow or if spring, yield is 5 gal./min.* Surface pressure is _____ lb./sq.inch, or _____ feet of water
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No
*If these amounts exceed permitted amount an enlargement is required.

Permit No. U.W. 197890 Book No. 1424 Page No. 140

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some **method of artificial** diversion, i.e., springbox, cribbing, etc., is **necessary to qualify** for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. **drawdown after** _____ hours
Yield _____ gal./min. with _____ ft. **drawdown after** _____ hours

13. LOG OF WELL Total depth drilled 650 ft.
Depth of completed well 640 ft. Diameter **of well** 5 inches.
Depth to first water bearing formation 280 ft.
Depth to principal water bearing formation Top 280 ft. to bottom 640 ft.

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Rock Type Or Description	Formation	Water Bearing? (Yes or no)
Surface	2	fill Dirt		
2	4	clay		
4	12	Sand		
12	20	clay stone		
20	50	gravel & Sand		
50	225	cemented gravel		
225	240	Hard Brown clay		
240	260	cemented gravel		
260	280	Hard Brown clay		
280	300	Sand stone		
300	500	Hard Brown clay & sticky clay		
500	530	Cemented gravel		
530	560	sticky clay		
560	640	Hard Brown clay w/ Sandstone stringers		
640	650	Signs of Lance		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis **accompany** this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water **quality analyses** be performed and that the report(s) be filed **with the records of** this well. (Contact Department of Agriculture, **Analytical** Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ **Acceptable** ☐ Poor ☐ Unusable

REMARKS Not adequate annular spacing.

Under penalties of perjury, I declare that I have examined this **form and** to the best of my knowledge and belief it is **true, correct, and** complete.

_____ 9/27 , 2012
Signature of Owner or Authorized Agent — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 197890
Date of Receipt SEP 27 2012
Date of Priority 4/19/2012

Date of Approval 2-23 , 2016
_____
for State Engineer

FORM U.W.6
Rev. 2/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED OCT 21 2016
SCANNED JUL 24 2013

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 199961 NAME OF WELL/SPRING ROCKING STAR RANCH #8

1. NAME OF OWNER FRAUENDIENST QUALITY HOMES

2. ADDRESS P.O. Box 20061 ☐ Please check if address has changed from that shown on permit.

City Cheyenne State Wy Zip Code 82003 Phone No. 630 0690

3. USE OF WATER: ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING NE 1/4 NE 1/4 of Section 34, T. 15 N., R 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name _____ Lot _____ Block _____
Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude 41° 14.665 N Longitude 105° 00.586 W (degrees, minutes, seconds)
UTM: Zone 41°13.9084 Northing 104°59.0194 Easting per parcel data (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (Feet)
Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled Mud Rotary (type of rig, and fluid used, if any) ☐ Dug ☐ Driven ☐ Other
Describe DrisPac & Alcomer

6. CONSTRUCTION Total depth of well/spring 670 ft.
Depth to static water level 235 ft. (below land surface) Casing height 1.5 ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5 diameter from 0 ft. to 670 ft. Material PVC Gage .330
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from 235 ft. to Surface ft.
Amount of grout used 19 (example: 10 sacks) type Bentonite grout & 3/8" chips (example: bentonite pellets)
d. Type of completion ☒ Customized perforations ☐ Open hole ☐ Factory screen
Type of perforator used SLOT
Size of perforations .035 inches by 3 inches
Number of perforations and depths where perforated
15,000 perforations from 340 ft. to 670 ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method Washed & Bailed How long was well developed? 16 hrs.
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 1/4" - Pea gravel
Filter pack/gravel installed from 670 ft. to 235 ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED JUL 23 2013 STATE ENGINEERS CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY Rock Creek Drilling, Cheyenne, Wy.

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 6-12-13

9. PUMP INFORMATION Manufacturer Gould Type Submersible
Source of power Electric Horsepower 1.5 Depth of pump setting or intake 568 ft.
Amount of water being pumped 5 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* 1 Acre ft

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If well yields artesian flow or if spring, yield is _____ gal./min.* Surface pressure is _____ lb./sq.inch, or _____ feet of water
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No
*If these amounts exceed permitted amount an enlargement is required.

Permit No. U.W. 199961 Book No. 1438 Page No. 111

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 650 ft.
Depth of completed well 630 ft. Diameter of well 5 inches.
Depth to first water bearing formation _____ ft.
Depth to principal water bearing formation Top 500 ft. to bottom 630 ft.

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Rock Type Or Description	Formation	Water Bearing? (Yes or no)
Surface	1	Top Soil		
1	40	Clay		
40	240	Cemented gravel w/ Thin Layers Clay		
240	500	Clay		
500	610	Sandy Clay w/ Sand Stringers		Yes
610	630	Clay - Tan		
630	650	Tan, gray & yellow Clay		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

_____ 7/22/13
Signature of Owner or Authorized Agent Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 199961

Date of Receipt JUL 23 2013

Date of Priority 3/12/2013

Date of Approval 9/20, 2016

_____
for State Engineer

FORM U.W.6
Rev. 2/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

SCANNED OCT 21 2016
SCANNED JUL 24 2013

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 199962 NAME OF WELL/SPRING ROCKING STAR RANCH #10

1. NAME OF OWNER FRAUENDIENST QUALITY HOMES

2. ADDRESS P.O. Box 70061

☐ Please check if address has changed from that shown on permit.

City Cheyenne State Wy Zip Code 82003 Phone No. 630 0690

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) 1 house

4. LOCATION OF WELL/SPRING NE 1/4 NE 1/4 of Section 34, T. 15 N., R 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name _____ Lot _____ Block _____
Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude 41° 10.142 N Longitude 104° 58.076 W (degrees, minutes, seconds)
UTM: Zone 41° 13.9688 Northing 104° 59.1182 Easting per parcel data (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (Feet) 4M
Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled Mud Rotary (type of rig, and fluid used, if any) ☐ Dug ☐ Driven ☐ Other
Describe DrisPac & Alcomer

6. CONSTRUCTION Total depth of well/spring 640 ft.
Depth to static water level 145 ft. (below land surface) Casing height 18 Inches ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5 diameter from 0 ft. to 640 ft. Material PVC Gage .330
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from 255' ft. to Surface ft.
Amount of grout used 15 (example: 10 sacks) type Bentonite grout & Chips (example: bentonite pellets)
d. Type of completion ☒ Customized perforations ☐ Open hole ☐ Factory screen
Type of perforator used Slot
Size of perforations .035 inches by 1 inches
Number of perforations and depths where perforated
15,000 perforations from 260 ft. to 640 ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method Washed & bailed How long was well developed? 16 Hrs
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 1/4" - Pea gravel
Filter pack/gravel installed from 640 ft. to 255 ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED JUL 23 2013 STATE ENGINEERS CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY Rock Creek Drilling - Cheyenne, Wy.

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 6-7-13

9. PUMP INFORMATION Manufacturer Gould Type Submersible
Source of power Elec. Horsepower 1 1/2 Depth of pump setting or intake 568 ft.
Amount of water being pumped 5 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* 1 Acre ft.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If well yields artesian flow or if spring, yield is ___ gal./min.* Surface pressure is _____ lb./sq.inch, or _____ feet of water
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No
*If these amounts exceed permitted amount an enlargement is required.

Permit No. U.W. 199962 Book No. 1438 Page No. 112

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☒ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 650 ft.
Depth of completed well 640 ft. Diameter of well 5 inches.
Depth to first water bearing formation _____ ft.
Depth to principal water bearing formation Top 760 ft. to bottom 640 ft.

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Rock Type Or Description	Formation	Water Bearing? (Yes or no)
Surface	1	Top Soil		
1	60	Sandy Clay		
60	240	Cemented gravel w/ thin layers Clay		
240	760	very sandy Clay		Yes
760	640	Clay w/ thin layers of sand		
640	650	Sticky gray & Tan Clay		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

_____ 7/22 , 2013
Signature of Owner or Authorized Agent — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 199962

Date of Receipt JUL 23 2013

Date of Priority 3/12/2013

Date of Approval 9/20 , 2013

_____
for State Engineer

SCANNED APR 28 2014

FORM U.W.6
Rev. 2/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

SCANNED FEB 11 2015

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 201563 NAME OF WELL/SPRING 1571 STAR PASS

1. NAME OF OWNER GB BUILDERS

2. ADDRESS 1637 Morning Star
☐ Please check if address has changed from that shown on permit.
City Cheyenne State WY Zip Code 82009 Phone No. 307-421-5223

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING SE 1/4 NE 1/4 of Section 34 T. 15 N., R 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Rocking Star Ranch Lot 4 Block _____
Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude 41° 13.729 N Longitude 104° 59.182 W (degrees, minutes, seconds)
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (Feet)
Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled Mud Rotary ☐ Dug ☐ Driven ☐ Other
(type of rig, and fluid used, if any)
Describe _____

6. CONSTRUCTION Total depth of well/spring 660 ft.
Depth to static water level 208 ft. (below land surface) Casing height 1½ ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches 0' - 20' 9 3/4"
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5" diameter from 0 ft. to 660 ft. Material PVC Gage 13.30
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from 235 ft. to Surface ft.
Amount of grout used 23 type Bentonite grout + chips
(example: 10 sacks) (example: bentonite pellets)
d. Type of completion ☒ Customized perforations ☐ Open hole ☐ Factory screen
Type of perforator used Slot
Size of perforations .025 inches by 2 inches
Number of perforations and depths where perforated
2000 perforations from 660 ft. to 240 ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from — ft. to — ft.
Well screen details
Diameter 5" slot size .025 set from 660 ft. to 240 ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method AIR How long was well developed? 9 hrs
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel ¼" - pea gravel
Filter pack/gravel installed from 235 ft. to 660 ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☒ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED APR 28 2014 State Engineer's Cheyenne, WY

7. NAME AND ADDRESS OF DRILLING COMPANY Rock Creek Drilling, Cheyenne, Wy

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) March 2014

9. PUMP INFORMATION Manufacturer Goulds Type VFD
Source of power 230 Horsepower 2 Depth of pump setting or intake 400 ft.
Amount of water being pumped 7-10-5 gal./min.* (For springs or flowing wells, see item 10) 5gpm choke
Total volumetric quantity used per calendar year.* 325,000 gallons per UWJ 5-30-2014 GM

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If well yields artesian flow or if spring, yield is _____ gal./min.* Surface pressure is _____ lb./sq.inch, or _____ feet of water
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No
*If these amounts exceed permitted amount an enlargement is required.

Permit No. U.W. 201563 Book No. 1449 Page No. 63

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☑ Yes ☐ No
If so, by whom Clays Well Service
Yield 7-10 gal./min. with 30 ft. drawdown after 4 hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 6060 ft.
Depth of completed well 6060 ft. Diameter of well 5 inches.
Depth to first water bearing formation _____ ft.
Depth to principal water bearing formation Top _____ ft. to bottom _____ ft.

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Rock Type Or Description	Formation	Water Bearing? (Yes or no)
Surface	3	Top Soil		
3	5	CLAY		
5	225	Cemented GRAVEL		
225	260	Sticky TAN CLAY		
260	540	HARD BROWN CLAY		
540	600	Sticky TAN CLAY		
600	6060	TAN GREY CLAY w/ SOME YELLOW		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Joe Sackett
Signature of Owner or Authorized Agent

4-28
Date, 20 14

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 201563

Date of Receipt APR 28 20

Date of Priority 2/14/2014

Date of Approval 30th of May, 20 14

George Moser
for State Engineer

SCANNED JUN 11 2015

SCANNED MAR 30 2015

FORM U.W.6
Rev. 2/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002
(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 203263 NAME OF WELL/SPRING STAR PASS TRACT 5

1. NAME OF OWNER GB BUILDERS

2. ADDRESS 1579 STARPASS

☐ Please check if address has changed from that shown on permit

City Cheyenne State WY Zip Code 82009 Phone No. 307-421-5223

3. USE OF WATER ☒ Domestic ☒ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING NE 1/4 NE 1/4 of Section 34, T. 15 N., R 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Rocking Star Ranch Lot 5 Block _____
Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude 41° 13, 773 N Longitude 104° 59.171 W (degrees, minutes, seconds)
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (Feet)
Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled Mud Rotary ☐ Dug ☐ Driven ☐ Other
(type of rig, and fluid used, if any)
Describe _____

6. CONSTRUCTION Total depth of well/spring 660 ft.
Depth to static water level 194 ft. (below land surface) Casing height 1.5 ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches 9 3/4" 0-30'
b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☒ Glued ☐ Welded
5 diameter from +1.5 ft. to 600 ft. Material PVC Gage .330
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from 355 ft. to Surface ft.
Amount of grout used 19 Sacks (example: 10 sacks) type Bentonite grout + chips (example: bentonite pellets)
d. Type of completion ☒ Customized perforations ☐ Open hole ☐ Factory screen
Type of perforator used Slot
Size of perforations .025 inches by 1 inches
Number of perforations and depths where perforated
4500 perforations from 600 ft. to 660 ft.
4500 perforations from 360 ft. to 330 ft.
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method Wash + bail How long was well developed? 7 hrs
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 1/4"-
Filter pack/gravel installed from 660 ft. to 355 ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED APR 24 2015

RECEIVED MAR 27 2015 STATE ENGINEERS CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY Rock Creek Drilling, Cheyenne

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) June 09th ~~2015~~ 2014 per PM 5.19.15 TC

9. PUMP INFORMATION Manufacturer Goulds Type Submersible
Source of power 230 V single Horsepower 2 hp Depth of pump setting or intake 605 ft.
Amount of water being pumped 3 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.* 80,000 gallons

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If well yields artesian flow or if spring, yield is _____ gal./min.* Surface pressure is _____ lb./sq.inch, or _____ feet of water
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No
*If these amounts exceed permitted amount an enlargement is required.

Permit No. U.W. 203263 Book No. 1460 Page No. 113

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) N/A

12. PUMP TEST Was a pump test conducted? ☐ Yes ☑ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 660 ft.
Depth of completed well 660 ft. Diameter of well 5 inches.
Depth to first water bearing formation 360 ft.
Depth to principal water bearing formation Top 580 ft. to bottom 660 ft.

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Rock Type Or Description	Formation	Water Bearing? (Yes or no)
Surface				
0	1	Top Soil		
1	15	Brown Clay		
15	360	Cemented gravel		
360	370	Cemented gravel w/ thin layers	Sand	
370	580	Tan Clay		
580	660	Tan, grey & yellow Clay w/ Sand		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☑ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Clapswell
Signature of Owner or Authorized Agent

3-5, 2015
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 203263

Date of Receipt MAR 27 2015

Date of Priority 12/30/2014

Date of Approval 6/4, 20 15

for State Engineer

FORM U.W.6
Rev. 1/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

SCANNED NOV 1 2017

(307) 777-6163

SCANNED MAY 23 2018

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. **207227** NAME OF WELL/SPRING **Tract 15 Rocking Star Ranch**

1. NAME OF OWNER **Leaning Tree Homes Inc**
2. ADDRESS **1740 Del Range Blvd #423**
   ☐ Please check if address has changed from that shown on permit.
   City **Cheyenne** State **WY** Zip Code **82009** Phone No. **307-778-1856**
3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____
4. LOCATION OF WELL/SPRING NW 1/4 NE 1/4 of Section 34, T. 15 N., R 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name **Rocking Star Ranch** Lot _____ Block _____
   Resurvey Location Tract **15** or Lot 12.29.17 per Driller. LB Datum ☐ NAD27 ☐ NAD83
   Geographic Coordinates: Latitude **41° 13' ~~58"~~** 48.72" N Longitude **104° 59' ~~30"~~** 31.8" W (degrees, minutes, seconds)
   UTM: Zone _____ Northing _____ Easting _____ (meters)
   State Plane Coordinates: Zone _____ Northing _____ Easting _____ (feet)
   Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
   Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)
5. TYPE OF CONSTRUCTION ☒ Drilled **Rotary Combination** ☐ Dug ☐ Driven ☐ Other
   Describe _____
6. CONSTRUCTION Total depth of well/spring **960** ft.
   Depth of static water level 320 ft. (below land surface) Casing height **2** ft. above ground
   a. Diameter of borehole (bit size) **9 5/8** inches
   b. Casing schedule ☒ New ☐ Used Joint Type ☐ Threaded ☐ Glued ☐ Welded
   5" diameter from **0** ft. to **960** ft. Material **PVC** Gage **SDR 17**
   _____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
   c. Cemented/grouted interval, from **0** ft. to **895** ft.
   Amount of cement/grout used **100 bags** (example: 10 sacks) type **barotherm gold** (example: bentonite pellets)
   d. Type of completion ☐ Customized perforations ☐ Open hole ☒ Factory Screen
   Type of perforator used **Factory**
   Size of perforations **.035** inches by **3.00** inches
   Number of perforations and depths where perforated
   2400 perforations from **900** ft. to **960** ft.
   _____ perforations from _____ ft. to _____ ft.
   Open hole from _____ ft. to _____ ft.
   Well screen details
   Diameter _____ slot size _____ set from _____ ft. to _____ ft.
   Diameter _____ slot size _____ set from _____ ft. to _____ ft.
   e. Well development method **Air** How long was well developed? **12 Hours**
   f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel **.125 to .375 " in diameter**
   Filter/gravel pack installed from **895** ft. to **960** ft.
   g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☒ No
   Surface casing installed from _____ ft. to _____ ft.

RECEIVED
OCT 31 2017
STATE ENGINEERS
CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY **McRady's Well Drilling, Inc Cheyenne, WY**
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) **September 1, 2017**
9. PUMP INFORMATION Manufacturer **Grundfos** Type **Submersible**
   Source of power **electricity** Horsepower **3** Depth of pump setting or intake **900** ft.
   Amount of water being pumped **10** gal./min.* (For springs or flowing wells, see item 10)
   Total volumetric quantity used per calendar year* 325,000 gal per UW5. LB
   * If these amounts exceed permitted amount an enlargement is required.
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
    If artesian flow or spring, yield is _____ gal./min. *Surface pressure is _____ lb./sq. inch, or _____ feet of water.
    The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
    Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 207227 Book No. 1487 Page No. 27

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☐ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled **960** ft.
Depth of completed well **960** ft. Diameter of well **9 5/8** inches
Depth to first water bearing formation **820** ft.
Depth to principal water bearing formation Top **880** ft. to Bottom **940** ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface	20	Topsoil		
20	80	Gravel		
80	100	Clay		
100	160	Clay & Sand		
160	180	Gravel		
180	520	Clay		
520	640	Sand & Clay		
640	820	Clay		
820	940	Sand & Clay		
940	960	Clay		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriological water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Jack McClary
Signature of Owner or Authorized Agent

Oct 31, 20 17
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 207227

Date of Receipt OCT 31 2017, 20 ____

Date of Priority May 8, 20 17

Date of Approval December 29, 20 17

Tibby Bei
for State Engineer

FORM U.W.6
Rev. 1/07

SCANNED OCT 11 2018

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. **208693** NAME OF WELL/SPRING **Rocking Star 12**

1. NAME OF OWNER **Leaning Tree Homes Inc**
2. ADDRESS **1740 Del Range Blvd #423**
   ☐ Please check if address has changed from that shown on permit.
   City **Cheyenne** State **WY** Zip Code **82009** Phone No. **307-778-1856**
3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane - Explain proposed use (Example: One single family dwelling)
4. LOCATION OF WELL/SPRING **NW** 1/4 **NE** 1/4 of Section **34**, T. **15** N., R **68** W., of the 6th P.M. (or W.R.M.)
   Subdivision Name **Rocking Star Ranch** Lot **12** Block
   Resurvey Location Tract or Lot Datum ☐ NAD27 ☐ NAD83
   Geographic Coordinates: Latitude **41° 13' 53"** N Longitude **104° 59' 15"** W (degrees, minutes, seconds) ✓
   UTM: Zone Northing Easting (meters)
   State Plane Coordinates: Zone Northing Easting (feet)
   Land surface elevation (ft. above mean sea level) Datum ☐ NAVD29 ☐ NAVD88
   Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)
5. TYPE OF CONSTRUCTION ☒ Drilled **Rotary Combination** ☐ Dug ☐ Driven ☐ Other
   Describe
6. CONSTRUCTION Total depth of well/spring **700** ft.
   Depth of static water level **240** ft. (below land surface) Casing height **2** ft. above ground
   a. Diameter of borehole (bit size) **9 5/8** inches
   b. Casing schedule ☒ New ☐ Used Joint Type ☐ Threaded ☐ Glued ☐ Welded
   5" diameter from **0** ft. to **700** ft. Material **PVC** Gage **SDR 17**
   diameter from ft. to ft. Material Gage
   c. Cemented/grouted interval, from **0** ft. to **635** ft.
   Amount of cement/grout used **100 bags** (example: 10 sacks) type **barotherm gold** (example: bentonite pellets)
   d. Type of completion ☐ Customized perforations ☐ Open hole ☒ Factory Screen
   Type of perforator used **Factory**
   Size of perforations **.035** inches by **3.00** inches
   Number of perforations and depths where perforated
   2400 perforations from **640** ft. to **700** ft.
   perforations from ft. to ft.
   Open hole from ft. to ft.
   Well screen details
   Diameter slot size set from ft. to ft.
   Diameter slot size set from ft. to ft.
   e. Well development method **Air** How long was well developed? **12 Hours**
   f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel **.125 to .375 " in diameter**
   Filter/gravel pack installed from **635** ft. to **700** ft.
   g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☒ No
   Surface casing installed from ft. to ft.

RECEIVED
OCT 10 2018
STATE ENGINEERS
CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY **McRady's Well Drilling, Inc Cheyenne, WY**
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) **July 31, 2018**
9. PUMP INFORMATION Manufacturer **Grundfos** Type **Submersible**
   Source of power **electricity** Horsepower **1 1/2** Depth of pump setting or intake **700** ft.
   Amount of water being pumped **7** gal./min.* (For springs or flowing wells, see item 10)
   Total volumetric quantity used per calendar year*
   * If these amounts exceed permitted amount an enlargement is required.
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
    If artesian flow or spring, yield is gal./min. *Surface pressure is lb./sq. inch, or feet of water.
    The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
    Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 208693 Book No. 1496 Page No. 143

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☐ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled **700** ft.
Depth of completed well **700** ft. Diameter of well **9 5/8** inches
Depth to first water bearing formation **620** ft.
Depth to principal water bearing formation Top **640** ft. to Bottom **700** ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface	**20**	**Topsoil**		
20	**200**	**Gravel**		
200	**560**	**Clay**		
560	**580**	**Gravel**		
580	**620**	**Clay**		
620	**520**	**Clay**		
520	**680**	**Sandstone & Clay**		
680	**700**	**Clay**		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriological water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Rachel Brandon — 10/10, 20 18
Signature of Owner or Authorized Agent — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 208693
Date of Receipt OCT 10 2018, 20 ____ Date of Approval _____, 20 ____
Date of Priority March 19, 20 18
for State Engineer

FORM U.W.6
Rev. 1/07

SCANNED OCT 11 2018

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. **208694** NAME OF WELL/SPRING **Rocking Star #16**

1. NAME OF OWNER **Leaning Tree Homes Inc**

2. ADDRESS **1740 Del Range Blvd #423**
☐ Please check if address has changed from that shown on permit.
City **Cheyenne** State **WY** Zip Code **82009** Phone No. **307-778-1856**

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING **NW** 1/4 **NE** 1/4 of Section **34**, T. **15** N., R **68** W., of the 6th P.M. (or W.R.M.)
Subdivision Name **Rocking Star Ranch** Lot **16** Block _____
Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude **41° 13' 49"** N Longitude **104° 59' 22"** W (degrees, minutes, seconds) ✓
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (feet)
Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled **Rotary Combination** ☐ Dug ☐ Driven ☐ Other
Describe _____

6. CONSTRUCTION Total depth of well/spring **700** ft.
Depth of static water level **240** ft. (below land surface) Casing height **2** ft. above ground
a. Diameter of borehole (bit size) **9 5/8** inches
b. Casing schedule ☒ New ☐ Used Joint Type ☐ Threaded ☐ Glued ☐ Welded
5" diameter from **0** ft. to **700** ft. Material **PVC** Gage **SDR 17**
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from **0** ft. to **635** ft.
Amount of cement/grout used **100 bags** (example: 10 sacks) type **barotherm gold** (example: bentonite pellets)
d. Type of completion ☐ Customized perforations ☐ Open hole ☒ Factory Screen
Type of perforator used **Factory**
Size of perforations **.035** inches by **3.00** inches
Number of perforations and depths where perforated
2400 perforations from **640** ft. to **700** ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method **Air** How long was well developed? **12 Hours**
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel **.125 to .375 " in diameter**
Filter/gravel pack installed from **635** ft. to **700** ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☒ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED
OCT 10 2018
STATE ENGINEERS
CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY **McRady's Well Drilling, Inc Cheyenne, WY**

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 7-31-18

9. PUMP INFORMATION Manufacturer **Grundfos** Type **Submersible**
Source of power **electricity** Horsepower **1 1/2** Depth of pump setting or intake **700** ft.
Amount of water being pumped **7** gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year* _____
* If these amounts exceed permitted amount an enlargement is required.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is _____ gal./min. *Surface pressure is _____ lb./sq. inch, or _____ feet of water.
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 208694 Book No. 1496 Page No. 144

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☐ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled **700** ft.
Depth of completed well **700** ft. Diameter of well **9 5/8** inches
Depth to first water bearing formation **620** ft.
Depth to principal water bearing formation Top **640** ft. to Bottom **700** ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface	**20**	**Topsoil**		
20	**200**	**Gravel**		
200	**560**	**Clay**		
560	**580**	**Gravel**		
580	**620**	**Clay**		
620	**520**	**Clay**		
520	**680**	**Sandstone & Clay**		
680	**700**	**Clay**		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriological water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Rachel Braendiens — 10/10, 20 18
Signature of Owner or Authorized Agent — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 208694
Date of Receipt OCT 10 2018, 20 ____
Date of Priority March 19, 20 18
Date of Approval _____, 20 ____
for State Engineer

FORM U.W.6
Rev. 1/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

SCANNED OCT 11 2018

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. **208695** NAME OF WELL/SPRING **Rocking Star #2**

1. NAME OF OWNER **Leaning Tree Homes Inc**

2. ADDRESS **1740 Del Range Blvd #423**
☐ Please check if address has changed from that shown on permit.
City **Cheyenne** State **WY** Zip Code **82009** Phone No. **307-778-1856**

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING **NW** 1/4 **NE** 1/4 of Section **34**, T. **15** N., R **68** W., of the 6th P.M. (or W.R.M.)
Subdivision Name **Rocking Star Ranch** Lot **2** Block _____
Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude **41° 13' 39"** N Longitude **104° 59' 20"** W (degrees, minutes, seconds)
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (feet)
Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled **Rotary Combination** ☐ Dug ☐ Driven ☐ Other
Describe _____

6. CONSTRUCTION Total depth of well/spring **700** ft.
Depth of static water level **260** ft. (below land surface) Casing height **2** ft. above ground
a. Diameter of borehole (bit size) **9 5/8** inches
b. Casing schedule ☒ New ☐ Used Joint Type ☐ Threaded ☐ Glued ☐ Welded
5" diameter from **0** ft. to **700** ft. Material **PVC** Gage **SDR 17**
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from **0** ft. to **635** ft.
Amount of cement/grout used **100 bags** (example: 10 sacks) type **barotherm gold** (example: bentonite pellets)
d. Type of completion ☐ Customized perforations ☐ Open hole ☒ Factory Screen
Type of perforator used **Factory**
Size of perforations **.035** inches by **3.00** inches
Number of perforations and depths where perforated
2400 perforations from **640** ft. to **700** ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method **Air** How long was well developed? **12 Hours**
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel **.125 to .375 " in diameter**
Filter/gravel pack installed from **635** ft. to **700** ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☒ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED
OCT 10 2018
STATE ENGINEERS
CHEYENNE, WYOMING

7. NAME AND ADDRESS OF DRILLING COMPANY **McRady's Well Drilling, Inc Cheyenne, WY**

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) **July 31, 2018**

9. PUMP INFORMATION Manufacturer **Grundfos** Type **Submersible**
Source of power **electricity** Horsepower **1 1/2** Depth of pump setting or intake **700** ft.
Amount of water being pumped **7** gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year* _____
* If these amounts exceed permitted amount an enlargement is required.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is _____ gal./min. *Surface pressure is _____ lb./sq. inch, or _____ feet of water.
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 208695 Book No. 1490 Page No. 145

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☐ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled **700** ft.
Depth of completed well **700** ft. Diameter of well **9 5/8** inches
Depth to first water bearing formation **560** ft.
Depth to principal water bearing formation Top **640** ft. to Bottom **700** ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface	**20**	**Topsoil**		
20	**200**	**Gravel**		
200	**560**	**Clay**		
560	**580**	**Gravel**		
580	**620**	**Clay**		
620	**520**	**Clay**		
520	**680**	**Sandstone & Clay**		
680	**700**	**Clay**		

RECEIVED

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriological water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Rachel Traverdiens — 10/10, 20 18
Signature of Owner or Authorized Agent — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 208695

Date of Receipt OCT 10 2018, 20 _____ Date of Approval _____, 20 _____

Date of Priority March 19, 20 18

for State Engineer

SCANNED FEB 2 1 2019

FORM U.W.6
Rev. 1/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 209442 NAME OF WELL/SPRING Sky Top 14 Per UWS DC

1. NAME OF OWNER Double T (Tony)
2. ADDRESS 10957 Red Sky Loop ☐ Please check if address has changed from that shown on permit
   City Cheyenne State Wy Zip Code 82009 Phone No. 307 631 3154
3. USE OF WATER ☑ Domestic ☑ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
   Per UWS DC
4. LOCATION OF WELL/SPRING NW 1/4 NE 1/4 of Section 34 T, 15 N.,R. 68 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name Rocking Star Lot 14 Block
   Resurvey Location Tract or Lot Datum ☐ NAD27 ☐ NAD83 ✓
   Geographic Coordinates: Latitude 41.2315214 N Longitude 104.9909979 W (degrees, minutes, seconds)
   UTM: Zone Northing Easting (meters)
   State Plane Coordinates: Zone Northing Easting (feet)
   Land surface elevation (ft. above mean sea level) Datum ☐ NAVD29 ☐ NAVD88
   Source ☐ GPS ☐ Map ☐ Survey ☐ Unkown ☐ Other ☐ Altimeter (for elevation only)
5. TYPE OF CONSTRUCTION ☑ Drilled Air/Foam Rotary ☐ Dug ☐ Driven ☐ Other
   Describe T3W
6. CONSTRUCTION Total depth of well/spring 1660 (drilled) / 540 (cased) ft.
   Depth of static water level 140 ft. (below land surface) Casing height 2 ft. above ground
   a. Diameter of borehole (bit size) 8 3/4 inches
   b. Casing schedule ☑ New ☐ Used Joint type ☐ Threaded ☑ Glued ☐ Welded
   5 diameter from 0 ft. to 540 ft. Material PVC Gage 17
   diameter from ft. to ft. Material Gage
   c. Cemented/grouted interval, from 0 ft. to 140 ft.
   Amount of cement/grout used 70 (example: 10 sacks) type Hole plug (example: bentonite pellets)
   d. Type of completion ☐ Customized perforations ☐ Open hole ☑ Factory screen
   Type of perforator used
   Size of perforations inches by inches.
   Number of perforations and depths where perforated
   perforations from ft. to ft.
   perforations from ft. to ft.
   Open hole from ft. to ft.
   Well screen details
   Diameter 5 slot size .025 x 3 set from 140 ft. to 160 ft. 320-340
   Diameter slot size set from ft. to ft. 520-540
   e. Well development method Air How long was well developed? 1 hr
   f. Was a filter/gravel pack installed? ☑ Yes ☐ No Size of sand/gravel 3/8-
   Filter/gravel pack installed from 140 ft. to 540 ft.
   g. Was surface casing used? ☐ Yes ☑ No Was it cemented in place? ☐ Yes ☐ No
   Surface casing installed from ft. to ft.

RECEIVED
FEB 21 2019
State Engineers
Cheyenne
Wyoming

7. NAME AND ADDRESS OF DRILLING COMPANY All Around Drilling 489 Barlow Canyon Rd. Hulett, WY 82720 307 467 5660
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 5 Oct 2018 pump installed by Rock Creek
9. PUMP INFORMATION Manufacturer Goulds Type Sub
   Source of power 230 Horsepower 1 1/2 Depth of pump setting or intake 480 ft.
   Amount of water being pumped 10 gal./min.* (For springs or flowing wells, see item 10)
   Total volumetric quantity used per calendar year.*
   *If these amounts exceed permitted amount an enlargement is required.
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
    If artesian flow or spring, yield is gal./min. *Surface pressure is lb./sq.inch, or feet of water.
    The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
    Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 209442 Book No. 1501 Page No. 142

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right)

12. PUMP TEST Was a pump test conducted? ☐ Yes ☑ No
If so, by whom
Yield gal./min. with ft. drawdown after hours
Yield gal./min. with ft. drawdown after hours

13. LOG OF WELL Total depth drilled 660 ft.
Depth of completed well 540 ft. Diameter of well 5 inches
Depth to first water bearing formation 140 ft.
Depth to principal water bearing formation Top 300 ft. to Bottom 540 ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface		See Att		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).
If not, do you consider the water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS loosing water below 540-660 - plugged w/ bentonite

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Wesley Moody
Signature of Owner or Authorized Agent

6 Dec ,20 18
Date

FOR STATE ENGINEER'S USE ONLY

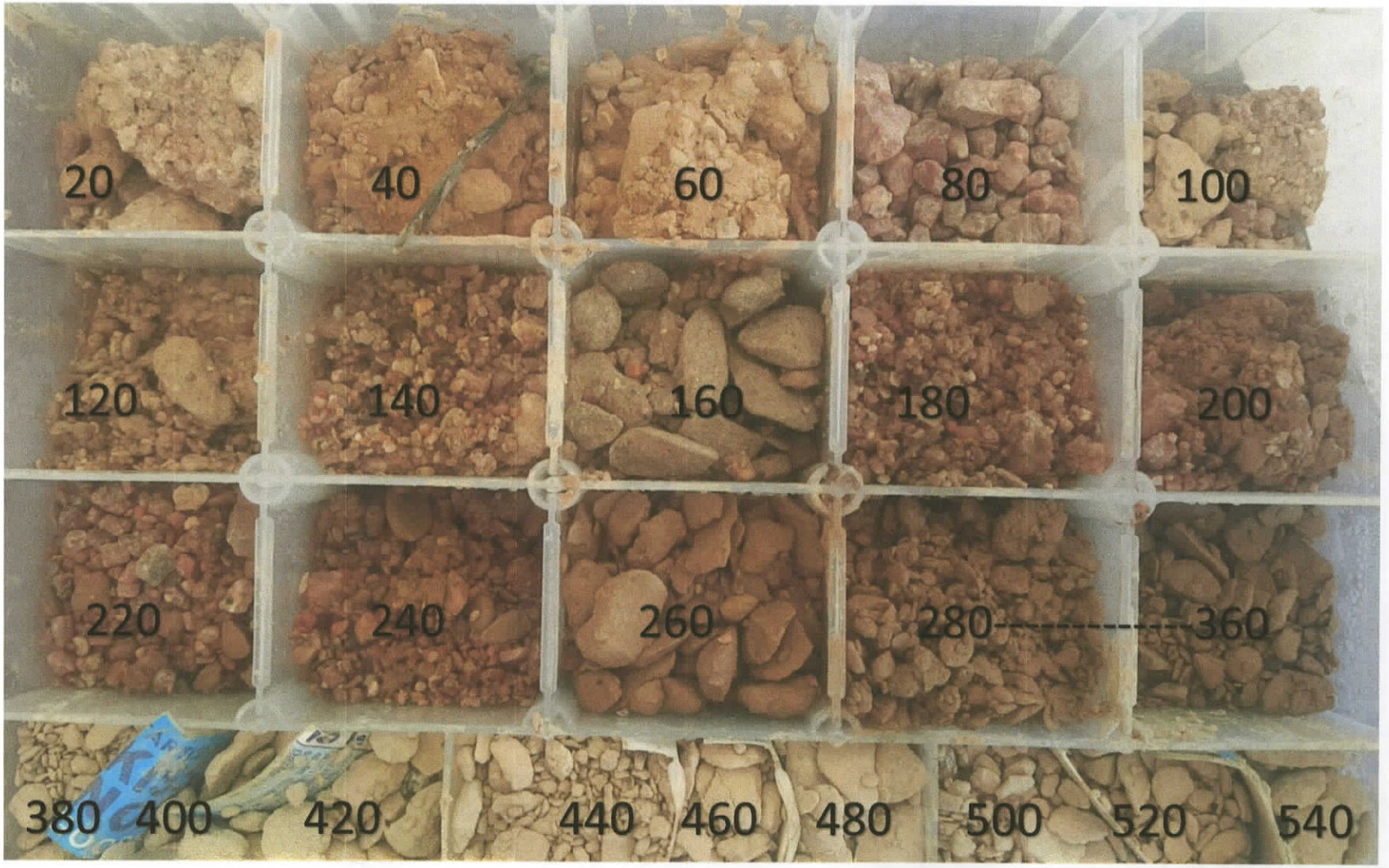
Permit No. U.W. 209442

Date of Receipt FEB 2 1 2019 , 20

Date of Approval , 20

Date of Priorty July 23 , 20 18

for State Engineer



PERMIT: 209442
DOUBLE T CONSTRUCTION
SITE: LOT 14 Rocking Star CHEY, WY

ATTACHMENT SHEET FOR
STATEMENT OF COMPLETION
PERMIT NO. U.W. 209442

SCANNED NOV 18 2019

FORM U.W.6
Rev. 1/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. **210443** NAME OF WELL/SPRING **Rocking Star #1**

1. NAME OF OWNER **Leaning Tree Homes Inc**

2. ADDRESS **1740 Del Range Blvd #423**
☐ Please check if address has changed from that shown on permit.
City **Cheyenne** State **WY** Zip Code **82009** Phone No. **307-778-1856**

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING SW 1/4 NE 1/4 of Section 34, T. 15 N., R 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name **Rocking Star Ranch** Lot 1 Block _____
Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude **41° 13' 37.3"** N Longitude **104° 59' 24.5"** W (degrees, minutes, seconds)
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (feet)
Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled **Rotary Combination** ☐ Dug ☐ Driven ☐ Other
Describe _____

6. CONSTRUCTION Total depth of well/spring **660** ft.
Depth of static water level **280** ft. (below land surface) Casing height **2** ft. above ground
a. Diameter of borehole (bit size) **9 5/8** inches
b. Casing schedule ☒ New ☐ Used Joint Type ☐ Threaded ☐ Glued ☐ Welded
5" diameter from **0** ft. to **660** ft. Material **PVC** Gage **SDR 17**
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from **0** ft. to **595** ft.
Amount of cement/grout used **100 bags** (example: 10 sacks) type **barotherm gold** (example: bentonite pellets)
d. Type of completion ☐ Customized perforations ☐ Open hole ☒ Factory Screen
Type of perforator used **Factory**
Size of perforations **.035** inches by **3.00** inches
Number of perforations and depths where perforated
2400 perforations from **600** ft. to **660** ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method **Air** How long was well developed? **12 Hours**
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel **.125 to .375 " in diameter**
Filter/gravel pack installed from **595** ft. to **660** ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☒ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED
NOV 15 2019
State Engineers
Cheyenne
Wyoming

7. NAME AND ADDRESS OF DRILLING COMPANY **McRady's Well Drilling, Inc Cheyenne, WY** 307-630-4198
741 Morning Glory Trail, Cheyenne, WY 82007

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) **September 11, 2019**

9. PUMP INFORMATION Manufacturer **Grundfos** Type **Submersible**
Source of power **electricity** Horsepower **3** Depth of pump setting or intake **660** ft.
Amount of water being pumped **7** gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year* _____
* If these amounts exceed permitted amount an enlargement is required.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is _____ gal./min. *Surface pressure is _____ lb./sq. inch, or _____ feet of water.
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 210443 Book No. 1508 Page No. 93

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☐ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled **660** ft.
Depth of completed well **660** ft. Diameter of well **9 5/8** inches
Depth to first water bearing formation **560** ft.
Depth to principal water bearing formation Top **600** ft. to Bottom **660** ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface	**20**	**Topsoil**		
20	**200**	**Gravel**		
200	**360**	**Clay**		
360	**380**	**Gravel**		
380	**420**	**Clay**		
420	**520**	**Clay**		
520	**640**	**Sandstone & Clay**		
640	**660**	**Clay**		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriological water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

_____ 11-15 , 2019
Signature of Owner or Authorized Agent — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 210443

Date of Receipt NOV 15 2019 , 20 ____ Date of Approval _____ , 20 ____

Date of Priority March 19 , 20 19

_____
for State Engineer

SCANNED JAN 16 2020

FORM U.W.6
Rev. 1/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. **210444** NAME OF WELL/SPRING **Rocking Star #3**

1. NAME OF OWNER **Leaning Tree Homes Inc**

2. ADDRESS **1740 Del Range Blvd #423**
☐ Please check if address has changed from that shown on permit.
City **Cheyenne** State **WY** Zip Code **82009** Phone No. **307-778-1856**

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING SW 1/4 NE 1/4 of Section 34, T. 15 N., R 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name **Rocking Star Ranch** Lot _____ Block _____
Resurvey Location Tract **3** or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude **41° 13' 41.5"** N Longitude **104° 59' 15.9"** W (degrees, minutes, seconds)
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (feet)
Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled **Rotary Combination** ☐ Dug ☐ Driven ☐ Other
Describe _____

6. CONSTRUCTION Total depth of well/spring **660** ft.
Depth of static water level **260** ft. (below land surface) Casing height **2** ft. above ground
a. Diameter of borehole (bit size) **9 5/8** inches
b. Casing schedule ☒ New ☐ Used Joint Type ☐ Threaded ☐ Glued ☐ Welded
5" diameter from **0** ft. to **660** ft. Material **PVC** Gage **SDR 17**
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from **0** ft. to **595** ft.
Amount of cement/grout used **100 bags** (example: 10 sacks) type **barotherm gold** (example: bentonite pellets)
d. Type of completion ☐ Customized perforations ☐ Open hole ☒ Factory Screen
Type of perforator used **Factory**
Size of perforations **.035** inches by **3.00** inches
Number of perforations and depths where perforated
2400 perforations from **600** ft. to **660** ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.

RECEIVED
JAN 15 2020
State Engineers
Cheyenne
Wyoming

e. Well development method **Air** How long was well developed? **12 Hours**
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel **.125 to .375 " in diameter**
Filter/gravel pack installed from **655** ft. to **700** ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☒ No
Surface casing installed from _____ ft. to _____ ft.

7. NAME AND ADDRESS OF DRILLING COMPANY **McRady's Well Drilling, Inc Cheyenne, WY** 741 Morning Glory Trail 82007 307-634-5239

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) **September 11, 2019**

9. PUMP INFORMATION Manufacturer **Grundfos** Type **Submersible**
Source of power **electricity** Horsepower **3** Depth of pump setting or intake **600** ft.
Amount of water being pumped **10** gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year* _____
* If these amounts exceed permitted amount an enlargement is required.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is _____ gal./min. *Surface pressure is _____ lb./sq. inch, or _____ feet of water.
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 210444 Book No. 1508 Page No. 94

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☐ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled **660** ft.
Depth of completed well **660** ft. Diameter of well **9 5/8** inches
Depth to first water bearing formation **580** ft.
Depth to principal water bearing formation Top **580** ft. to Bottom **66** ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface	**20**	**Topsoil**		
20	**240**	**Gravel**		
240	**480**	**Clay**		
480	**560**	**Clay/Sand**		
560	**580**	**Clay**		
580	**640**	**Clay & Sand**		
640	**660**	**Clay**		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriological water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

_____ 1-15 , 20 20
Signature of Owner or Authorized Agent — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 216444
Date of Receipt JAN 15 2020 , 20 _____
Date of Approval _____ , 20 _____
Date of Priority March 19 , 20 19
for State Engineer

SCANNED JAN 17 2020

SCANNED FEB 14 2020

FORM U.W.6
Rev. 1/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 211223 NAME OF WELL/SPRING Rocking Star Ranch 18 Per UW 5 DC

1. NAME OF OWNER Gateway Const
2. ADDRESS PO Box 3244
☐ Please check if address has changed from that shown on permit
City Cheyenne State WY Zip Code 82009 Phone No. 307 632 8950
3. USE OF WATER ☑ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) Per UW 5 DC
4. LOCATION OF WELL/SPRING SW 1/4 SNE 1/4 of Section 34 T, 15 N.,R. 68 W., of the 6th P.M. (or W.R.M.)
Subdivision Name Rocking Star Ranch Lot 18 Block
Resurvey Location Tract or Lot Datum ☐ NAD27 ☐ NAD83
Geographic Coordinates: Latitude 41.228709 N Longitude -104.988637 W (degrees, minutes, seconds) ✓
UTM: Zone Northing Easting (meters)
State Plane Coordinates: Zone Northing Easting (feet)
Land surface elevation (ft. above mean sea level) Datum ☐ NAVD29 ☐ NAVD88
Source ☐ GPS ☐ Map ☐ Survey ☐ Unkown ☐ Other ☐ Altimeter (for elevation only)
5. TYPE OF CONSTRUCTION ☑ Drilled T3W ☐ Dug ☐ Driven ☐ Other
Describe Foam
6. CONSTRUCTION Total depth of well/spring 650 ft.
Depth of static water level 220 ft. (below land surface) Casing height 2' ft. above ground
a. Diameter of borehole (bit size) 8 3/4 inches
b. Casing schedule ☑ New ☐ Used Joint type ☐ Threaded ☑ Glued ☐ Welded
5 diameter from 0 ft. to 540 ft. Material PVC Gage 17
diameter from ft. to ft. Material Gage
c. Cemented/grouted interval, from 0 ft. to 220 ft.
Amount of cement/grout used 100 (example: 10 sacks) type BH20/ Holeplug (example: bentonite pellets)
d. Type of completion ☐ Customized perforations ☐ Open hole ☑ Factory screen
Type of perforator used
Size of perforations inches by inches.
Number of perforations and depths where perforated
perforations from ft. to ft.
perforations from ft. to ft.
Open hole from ft. to ft.
Well screen details
Diameter 5 slot size .025 set from 220 ft. to 240 ft. 1 @ 520-540
Diameter 5 slot size .025 set from 320 ft. to 340 ft.
e. Well development method Air How long was well developed? 1 1/2 hrs
f. Was a filter/gravel pack installed? ☑ Yes ☐ No Size of sand/gravel 3/8 minus
Filter/gravel pack installed from 220 ft. to 540 ft.
g. Was surface casing used? ☐ Yes ☑ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from ft. to ft.

RECEIVED
FEB 12 2020
State Engineers
Cheyenne
Wyoming

7. NAME AND ADDRESS OF DRILLING COMPANY 307-467-5660 All Around Drilling 489 Barlow Canyon Rd. Hulett, WY 82720
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) January 30, 2020 Per phone call w/driller 2-13-20 DC
9. PUMP INFORMATION Manufacturer Sta Rite Type Sub
Source of power 240 Horsepower 1 1/2 Depth of pump setting or intake 500 ft.
Amount of water being pumped 10 gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year.*
*If these amounts exceed permitted amount an enlargement is required.
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is gal./min. *Surface pressure is lb./sq.inch, or feet of water.
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 211223 Book No. 1513 Page No. 123

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right)_____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☑ No
If so, by whom_____
Yield _____gal./min. with _____ ft. drawdown after _____ hours
Yield _____gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled 650 ft.
Depth of completed well 540 ft. Diameter of well 5 inches
Depth to first water bearing formation 220 ft.
Depth to principal water bearing formation Top 520 ft. to Bottom 540 ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface				
		See Att		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☑ No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☑ No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).
If not, do you consider the water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete. hit Lance fm / Sealed bottom of well

Wesley Newby
Signature of Owner or Authorized Agent

2-6 ,20 20
Date

FOR STATE ENGINEER'S USE ONLY

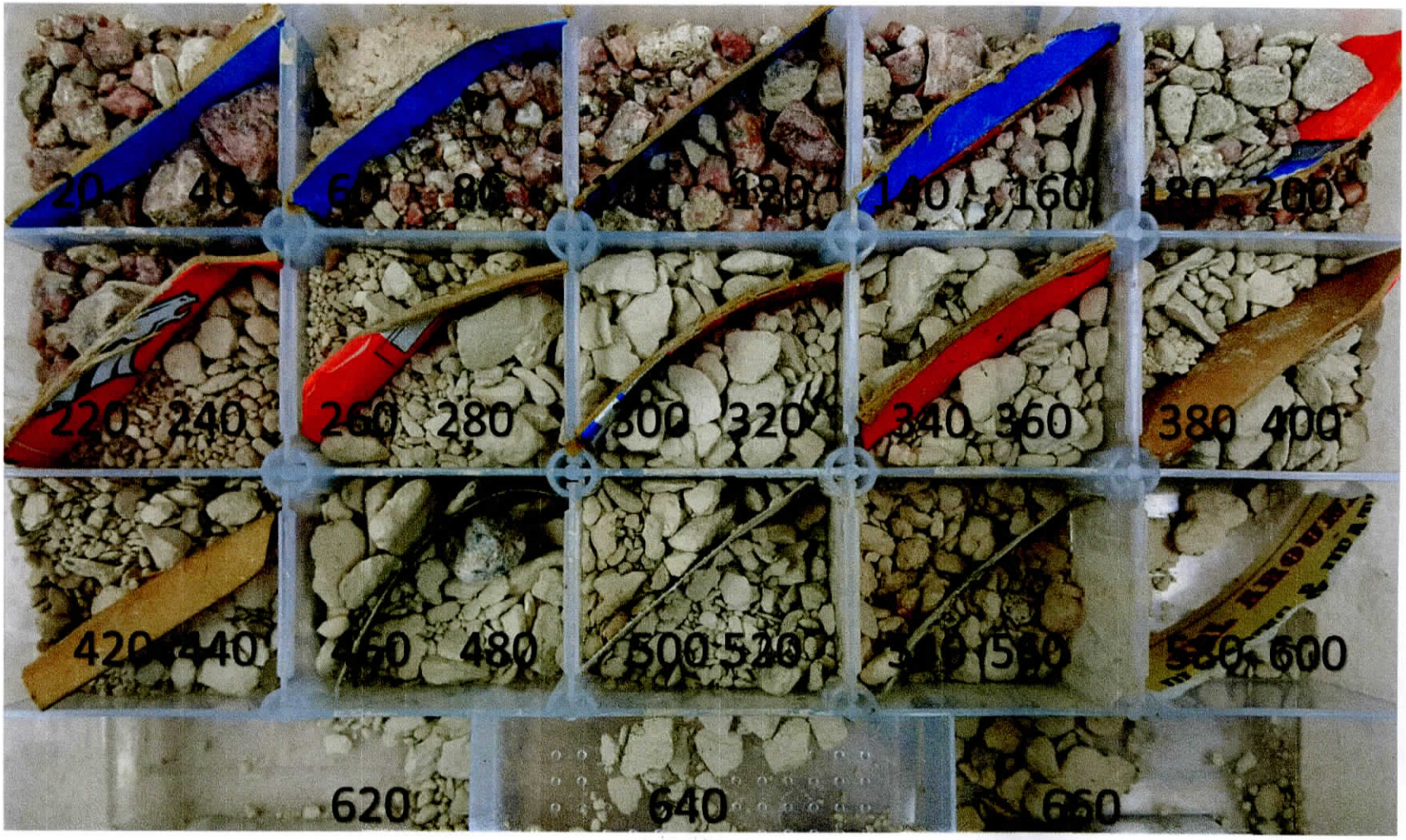
Permit No. U.W. 211223

Date of Receipt FEB 12 2020 , 20____

Date of Priorty August 6 , 20 19

Date of Approval_____ , 20____

_____
for State Engineer



PERMIT: 211223
GATEWAY CONSTRUCTION
SITE: Tract 18 Rocking Star CHEY, WY

RECEIVED
FEB 12 2020
State Engineers
Cheyenne
Wyoming

R&R HEIGHTS SUBDIVISION
CHAPTER 23 REPORT

Appendix A

SEO Statement of Completions

T15N, R68W, Section 35

RECEIVED
OCT 6 1977
STATE ENGINEER
CHEYENNE, WYOMING

MICRO-FILMED JAN 17 '79

SCANNED JUL 2 2012

MICRO-FILMED MAR 8 '78

Form U.W. 6

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

IF WELL IS TO BE ABANDONED, SEE ITEM 15, PAGE 4

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL

PERMIT NO. U.W. 39530 NAME OF WELL Thiel #1

1. NAME OF OWNER Michael, Daniel and Amy Thiel

2. ADDRESS Iron Mountain Route Box 138, Cheyenne, Wyoming Zip Code 82001

3. USE OF WATER: Domestic ☒ Stock Watering ☒ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous ☐
To be used for a single family dwelling- horses for a non-commercial use

4. LOCATION OF WELL: SW ¼ SW ¼ of Section 35, T. 15 N., R. 68 W., of the 6th P.M. (or W.R.M.), Wyoming, being specifically
(Bearing and Distance)
or ____ ft. North South and ____ ft. East West from the ____ corner of Section ____, T. ____ N., R. ____ W.
(Strike out words not needed).

5. TYPE OF CONSTRUCTION: Drilled ☒ Rotary (Type of Rig) Dug ☐ Driven ☐ Jetted ☐
Other ____

6. CONSTRUCTION: Total Depth 370 ft. Depth to Water Level 220 ft.

a. Casing Schedule New ☒ Used ☐

5" diameter from 0 ft. to 370 ft. Material Steel Gage ____

____ diameter from ____ ft. to ____ ft. Material ____ Gage ____

____ diameter from ____ ft. to ____ ft. Material ____ Gage ____

b. Perforations: Type of perforator used Slot

Size of perforations 3½ inches by ¼ inches.

Number of perforations and depths where perforated:

877 perforations from 220 ft. to 370 feet.

____ perforations from ____ ft. to ____ feet.

c. Was well screen installed? Yes ☐ No ☐

Diameter: ____ slot size: ____ set from ____ feet to ____ feet.

Diameter: ____ slot size: ____ set from ____ feet to ____ feet.

d. Was well gravel packed? Yes ☒ No ☐ Size of gravel 3/8"

e. Was surface casing used Yes ☐ No ☐ Was it cemented in place? Yes ☐ No ☐

7. NAME & ADDRESS OF DRILLER Alpine Drilling/ 3315 McCann Ave/ Cheyenne, Wyoming 82001

8. DATE OF COMPLETION OF WELL (including pump installation) September 2, 1977

9. PUMP INFORMATION: Manufacturer Gould Type Submersible

Source of power Electric Horsepower 1½ Depth of Pump Setting 340'

Amount of Water Being Pumped 25 Gallons Per Minute.

Permit No. U.W. 39530 Book No. 208 Page No. 117

UW. 39530

10. **PUMP TEST:** Was a pump test made? Yes ☐ No ☐

If so, by whom_____ Address_____

Yield: _____gal./min. with_____foot drawdown after_____hours.

Yield: _____gal./min. with_____foot drawdown after_____hours.

11. **FLOWING WELL** (Owner is responsible for control of flowing well).

If well yields artesian flow, yield is_____gal./min. Surface pressure is_____lb./sq. inch, or_____feet of water.

The flow is controlled by: valve ☐ cap ☐ plug ☐

Does well leak around casing? Yes ☐ No ☐

12. **LOG OF WELL:** Total depth drilled 370 feet.

Depth of completed well 370 feet. Diameter of well 5 inches.

Depth to first water bearing formation 220 feet.

Depth to principal water bearing formation Top 220 feet to Bottom 370 feet.

Ground Elevation, if known_____

From Feet	To Feet	Material Type, Texture, Color	REMARKS (Cementing, Shutoff, Packing, etc.)	Indicate Water Bearing Formation	Indicate Perforated Casing Location
0	10	rock and sand			
10	20	clay			
20	30	rock and sand			
30	40	clay and sand			
40	50	rock and sand			
50	100	sand and rock			
100	140	rock and sand			
140	150	sand and rock			
150	190	rock and sand			
190	210	sand and rock			
210	230	gravel			
230	240	sand and rock			
240	260	rock and sand			
260	290	sand and rock			
290	300	sand and clay			
300	320	sand and rock			
320	350	sand			
350	370	clay			

QUALITY OF WATER INFORMATION:

Was a chemical analysis made? Yes ☐ No ☒X

If so, please include a copy of the analysis with this form.

If not, do you consider the water as: Good ☒ Acceptable ☐ Poor ☐ Unusable ☐

U.W. 39530

13. TABULATION

a. If for irrigation, the land proposed to be irrigated should be described in the following tabulation. Describe in the "Remarks" section, under Item 14, the means of conveying the water to the lands and the method of irrigation.

(Give irrigable acreage in each legal subdivision. If proposed use is for supplemental supply for lands with a right from another source, indicate in the tabulation the priority or permit number, the source of supply and the name of the ditch or other well.)

b. If not used for irrigation, show the area and point(s) of use and location of well in the tabulation below. Also describe the method of conveyance in the "Remarks" section under Item 14.

Township	Range	Sec.	NE¼				NW¼				SW¼				SE¼				TOTALS
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
15	68	35										X pt. of use.					~~SW~~ out		

TOTAL NUMBER OF ACRES TO BE IRRIGATED_____

Original Supply_____acres

Supplemental Supply_____acres

14. PLAT

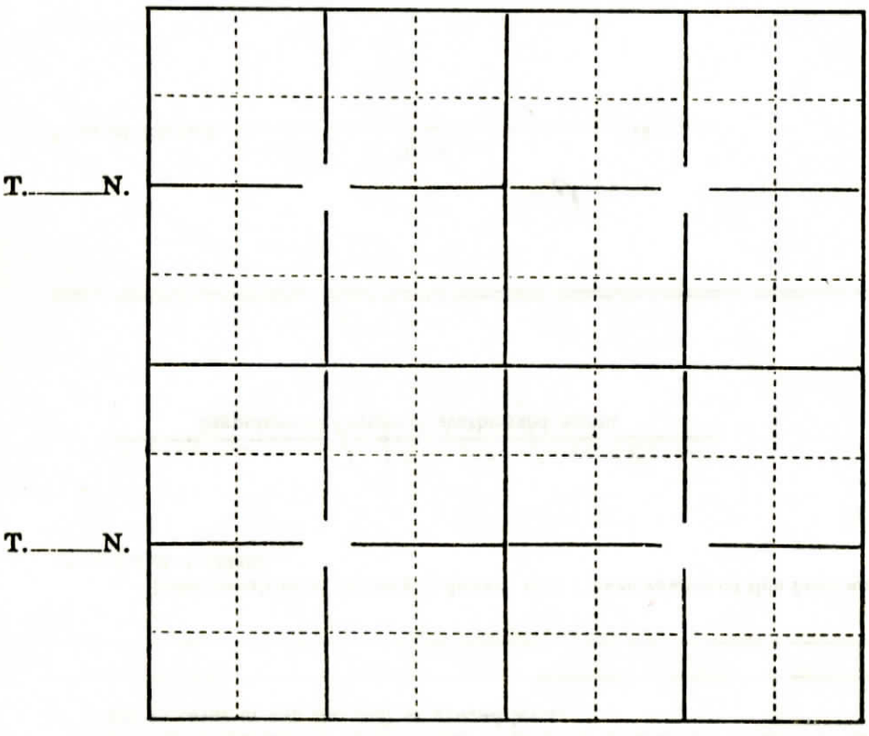
a. If the well is to be used for irrigation, industrial, miscellaneous or municipal use, show the location of the well on the plat below. For such uses, a plat certified by a licensed engineer or land surveyor is required to be submitted at the time the Proof of Appropriation and Beneficial Use of Ground Water is submitted.

b. For other uses, accurately show the well location, point of use or uses and describe method of conveyance of water to points of use on plat and in "Remarks" section below. Make certain location on plat agrees with written description.

c. A separate map may be submitted if the information required cannot be shown on this plat.

R._____W. R._____W.

Scale: 2" = 1 Mile



REMARKS: _____

U.W. 39530

15. **IF WELL IS TO BE ABANDONED, complete Items 1 through 8, Item 12 (Log of Well) and state reason for abandonment below.**

It is the responsibility of the owner to properly plug or fill in the well in order to prevent contamination of ground water and to cover or cap the well at ground level.

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Alpine Drilling Jo Jorgensen
Signature of Owner or Authorized Agent

September 28, 19 77
Date

Date of Receipt OCT 6 1977, 19____.

Date of Priority August 8, 19 77

Date of Approval Feb. 28, 1978

for State Engineer

SCANNED OCT 30 2012

MICRO-FILMED APR 7 '82

RECEIVED MAR 9 1982 STATE ENGINEER Cheyenne, Wyo.

Form U.W. 6
Rev. 12-80

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

IF WELL IS TO BE ABANDONED, SEE ITEM 15, PAGE 4

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 57080 NAME OF WELL Thompson #1

1. NAME OF OWNER Chas. D. Thompson

2. ADDRESS 1526 Horse Creek Road Cheyenne, WY Zip Code 82009

3. USE OF WATER: Domestic ☒ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous ☐
one single-family dwelling

4. LOCATION OF WELL: SW ¼ SW¼ of Section 35, T. 15 N., R. 68 W., of the 6th P.M. (or W.R.M.),
Wyoming, being specifically _____ (Bearing and Distance)
or _____ ft. North South and _____ ft. East West from the _____ corner of Section _____, T. _____ N., R. _____ W.
(Strike out words not needed).

5. TYPE OF CONSTRUCTION: Drilled ☒ rotary (Type of Rig) Dug ☐ Driven ☐ Jetted ☐
Other _____

6. CONSTRUCTION: Total Depth of Well 415 ft. Depth to Static Water Level 150 ft.

a. Casing Schedule New ☒ Used ☐

5"	diameter from	0	ft. to	415	ft.	Material PVC Gage 200
	diameter from		ft. to		ft.	Material Gage
	diameter from		ft. to		ft.	Material Gage

b. Perforations: Type of perforator used skilsaw

Size of perforations 1/8 inches by 12 inches.

Number of perforations and depths where perforated:

4 to the foot perforations from 315 ft. to 415 feet.

_____ perforations from _____ ft. to _____ feet.

c. Was well screen installed? Yes ☐ No ☒

Diameter: _____ slot size: _____ set from _____ feet to _____ feet.

Diameter: _____ slot size: _____ set from _____ feet to _____ feet.

d. Was well gravel packed? Yes ☒ No ☐ Size of gravel ¼"

e. Was surface casing used? Yes ☐ No ☒ Was it cemented in place? Yes ☐ No ☐

7. NAME & ADDRESS OF DRILLER M & B Drilling & Constr.Co. Inc.
218 So. Greeley Hwy. Cheyenne, WY 82007

8. DATE OF COMPLETION OF WELL (including pump installation) July 9, 1981

9. PUMP INFORMATION: Manufacturer Gould Type submersible

Source of power electricity Horsepower 1½ Depth of Pump Setting 360'

Amount of Water Being Pumped 10 Gallons Per Minute. (For springs or flowing wells, see item 11.)

Permit No. U.W. 57080 Book No. 351 Page No. 12

U.W. 57080

10. PUMP TEST: Was a pump test made? Yes ☐ No ☒

If so, by whom _____ Address _____

Yield: _____gal./min. with _____ foot drawdown after _____ hours.

Yield: _____gal./min. with _____ foot drawdown after _____ hours.

11. FLOWING WELL (Owner is responsible for control of flowing well).

If well yields artesian flow, yield is _____ gal./min. Surface pressure is _____ lb./sq. inch, or _____ feet of water.

The flow is controlled by: value ☐ cap ☐ plug ☐

Does well leak around casing? Yes ☐ No ☐

12. LOG OF WELL: Total depth drilled 415 feet.

Depth of completed well 415 feet. Diameter of well 7 7/8 inches.

Depth to first water bearing formation 140 feet.

Depth to principal water bearing formation. Top 300 feet to Bottom 410 feet.

Ground Elevation, if known _____

From Feet	To Feet	Material Type, Texture, Color	REMARKS (Cementing, Shutoff, Packing, etc.)	Indicate Water Bearing Formation	Indicate Perforated Casing Location
0	120	sand & clay			
120	240	sand, sandstone & clay			
240	260	clay			
260	280	clay, sandstone & sand			
280	300	sand & clay			
300	415	sandy, chunky clay			315-415

QUALITY OF WATER INFORMATION:

Was a chemical analysis made? Yes ☐ No ☒

If so, please include a copy of the analysis with this form.

If not, do you consider the water as: Good ☒ Acceptable ☐ Poor ☐ Unusable ☐

U.W. 57080

13. TABULATION

a. If for irrigation, the land proposed to be irrigated should be described in the following tabulation. Describe in the "Remarks" section, under Item 14, the means of conveying the water to the lands and the method of irrigation.

(Give irrigable acreage in each legal subdivision. If proposed use is for additional supply for lands with a right from another source, indicate in the tabulation the priority or permit number, the source of supply and the name of the ditch or other well.)

b. If not used for irrigation, show the area and point(s) of use and location of well in the tabulation below. Also describe the method of conveyance in the "Remarks" section under Item 14.

Town-Ship	Range	Sec.	NE¼				NW¼				SW¼				SE¼				TOTALS
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	

TOTAL NUMBER OF ACRES TO BE IRRIGATED_____

Original Supply _____ acres

Additional Supply _____ acres

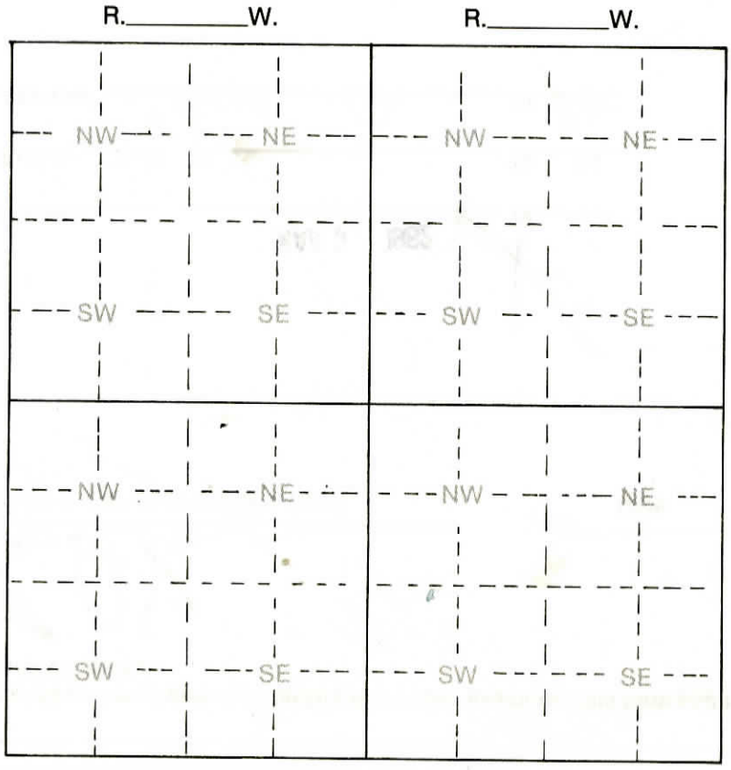
14. PLAT

a. If the well is to be used for irrigation, industrial, miscellaneous or municipal use, show the location of the well on the plat below. For such uses, a plat certified by a licensed engineer or land surveyor is required to be submitted at the time the Proof of Appropriation and Beneficial Use of Ground Water is submitted.

b. For other uses, accurately show the well location, point of use or uses and describe method of conveyance of water to points of use on plat and in "Remarks" section below. Make certain location on plat agrees with written description.

c. A separate map may be submitted if the information required cannot be shown on this plat.

R._____W. R._____W.



Scale: 2" = 1 Mile

T._____N.

T._____N.

REMARKS: _____

U.W. 57080

15. IF WELL IS TO BE ABANDONED, complete Items 1 through 8, Item 12 (Log of Well) and state reason for abandonment below.

It is the responsibility of the owner to properly plug or fill in the well in order to prevent contamination of ground water and to cover or cap the well at ground level.

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Signature of Owner or Authorized Agent

March 8 ,19 82
Date

Date of Receipt MAR 9 1982, 19

Date of Priority June 10, 19 81

Date of Approval March 12, 19 82

for State Engineer

FORM U.W.6
REV. 5-93

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BUILDING
CHEYENNE, WYOMING 82002
(307) 777-5959

SCANNED JAN 21 2014

MICRO FILMED FEB 24 1999

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 110208 NAME OF WELL (SPRING) KIRKWOOD #1

1. NAME OF OWNER JUDY WHITLEY AND ROBERT KIRKWOOD

2. ADDRESS 1517 HORSE CREEK RD.
Please check if address has changed from that shown on permit. ☐
City CHEYENNE State WYOMING Zip Code 82009-9337 Phone No. 632-1943

3. USE OF WATER: Domestic ☒ Stock Watering ☒ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous ☐
Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL (SPRING): SW ¼ SW ¼ of Section 35, T. 15 N., R. 68 W., of the 6th P.M. (or W.R.M.),
Subdivision Name _____ Lot _____ Block _____
If surveyed, bearing, distance and reference point: _____

5. TYPE OF CONSTRUCTION: Drilled ☒ Rotary (Type of Rig) Dug ☐ Driven ☐ Other ☐
Describe: _____

6. CONSTRUCTION: Total Depth of Well/Spring 460 ft. Depth to Static Water Level 210 ft. (Below land surface)
a. Diameter of borehole (Bit size) 7 7/8 inches.

b. Casing Schedule New ☑ Used ☐
5" diameter from 0 ft. to 460 ft. Material PVC Gage sch 40
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____

c. Was casing cemented: Yes ☐ No ☑ Cemented Interval, From _____ feet to _____ feet.

d. Number of sacks of cement used _____ type of cement _____

e. Perforations: Type of perforator used Saw
Size of perforations 1/16 inches by 5 inches.
Number of perforations and depths where perforated:
400 perforations from 380 ft. to 460 feet.
_____ perforations from _____ ft. to _____ feet.

f. Was well screen installed? Yes ☐ No ☑
Diameter: _____ slot size: _____ set from _____ feet to _____.
Diameter: _____ slot size: _____ set from _____ feet to _____.

g. Was well gravel packed? Yes ☑ No ☐ Size of gravel 1/8 x 1/4 "

h. Was surface casing used: Yes ☐ No ☑ Was it cemented in place? Yes ☐ No ☑

RECEIVED OCT 23 1998 STATE ENGINEER Cheyenne, Wyo.

7. NAME & ADDRESS OF DRILLING COMPANY Stewart Drilling Co. Inc. Cheyenne, Wy

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) July 20-98

9. PUMP INFORMATION: Manufacturer Goulds Type Submersible
Source of power electric Horsepower 2 Depth of Pump Setting or intake 260
Amount of Water Being Pumped 25 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
Total Volumetric Gallons Used Per Calendar Year. _____

10. FLOWING WELL (Owner is responsible for control of flowing well).
If well yields artesian flow, yield is _____ gal./min. Surface pressure is _____ lb./sq. inch, or _____ feet of water.
The flow is controlled by: valve ☐ cap ☐ plug ☐
Does well leak around casing? Yes ☐ No ☐

Permit No. U.W. 110208 Book No. 841 Page No. 59

11. If spring, how was it constructed? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right.) _____

12. PUMP TEST: Was a pump test made? Yes ☐ No ☑
If so, by whom _____ Address _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 460 feet.
Depth of completed well 460 feet. Diameter of well 7 7/8 inches.
Depth to first water bearing formation 390 feet.
Depth to principal water bearing formation. Top 390 feet to Bottom 450 feet.

Ground Elevation, if known _____

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	390	Brown Sandy Clay + Sandstone			
390	450	Coarse sand w/ Thin layers Brown Clay		WB	perf.
450	460	Brown Clay			

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☒ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Wm Stewart (Agent)
Signature of Owner or Authorized Agent

Aug 26, 19 98
Date

UW 110208

FOR STATE ENGINEER'S USE ONLY

Date of Receipt OCT 23 1998, 19 ____

Date of Priority ~~MAY 28, 1998~~, 19 ____

Date of Approval Nov. 10, 19 98

John R. Hayes
for State Engineer

FORM U.W.6
Rev. 1/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

SCANNED NOV 18 2019

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. **209370** NAME OF WELL/SPRING **We Are #1**

1. NAME OF OWNER **Leaning Tree Homes Inc**

2. ADDRESS **1740 Del Range Blvd #423**
☐ Please check if address has changed from that shown on permit.
City **Cheyenne** State **WY** Zip Code **82009** Phone No. **307-778-1856**

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING **SE** 1/4 **SW** 1/4 of Section **35**, T. **15** N., R **68** W., of the 6th P.M. (or W.R.M.)
Subdivision Name _____ Lot **2** Block _____
Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude **41° 13' 18"** N Longitude **104° 58' 23"** W (degrees, minutes, seconds)
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (feet)
Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled **Rotary Combination** ☐ Dug ☐ Driven ☐ Other
Describe _____

6. CONSTRUCTION Total depth of well/spring **660** ft.
Depth of static water level **210** ft. (below land surface) Casing height **2** ft. above ground
a. Diameter of borehole (bit size) **9 5/8** inches
b. Casing schedule ☒ New ☐ Used Joint Type ☐ Threaded ☐ Glued ☐ Welded
5" diameter from **0** ft. to **660** ft. Material **PVC** Gage **SDR 17**
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from **0** ft. to **595** ft.
Amount of cement/grout used **95 bags** (example: 10 sacks) type **barotherm gold** (example: bentonite pellets)
d. Type of completion ☐ Customized perforations ☐ Open hole ☒ Factory Screen
Type of perforator used **Factory**
Size of perforations **.035** inches by **3.00** inches
Number of perforations and depths where perforated
2400 perforations from **600** ft. to **660** ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
e. Well development method **Air** How long was well developed? **12 Hours**
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel **.125 to .375 " in diameter**
Filter/gravel pack installed from **595** ft. to **660** ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☒ No
Surface casing installed from _____ ft. to _____ ft.

RECEIVED
NOV 15 2019
State Engineers
Cheyenne
Wyoming

7. NAME AND ADDRESS OF DRILLING COMPANY **McRady's Well Drilling, Inc Cheyenne, WY** 307 630-4198
741 Morning Glory Trail, Cheyenne, WY 82007

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) **10/31/18**

9. PUMP INFORMATION Manufacturer **Grundfos** Type **Submersible**
Source of power **electricity** Horsepower **3** Depth of pump setting or intake **600** ft.
Amount of water being pumped **7** gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year* _____
* If these amounts exceed permitted amount an enlargement is required.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is _____ gal./min. *Surface pressure is _____ lb./sq. inch, or _____ feet of water.
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 209370 Book No. 1501 Page No. 70

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☐ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled **660** ft.
Depth of completed well **660** ft. Diameter of well **9 5/8** inches
Depth to first water bearing formation **560** ft.
Depth to principal water bearing formation Top **600** ft. to Bottom **660** ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface	20	**Topsoil**		
20	200	**Gravel**		
200	560	**Clay**		
560	580	**Gravel/clay**		
580	600	**Clay**		
600	650	**Sand**		
650	660	**Clay**		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriological water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Joe McKinley
Signature of Owner or Authorized Agent

Nov 15, 2019
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 209370
Date of Receipt NOV 15 2019, 20 _____
Date of Approval _____, 20 _____
Date of Priority July 9, 20 19
for State Engineer

SCANNED DEC 19 2019

FORM U.W.6
Rev. 1/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. **210348** NAME OF WELL/SPRING **Carpenter West**

1. NAME OF OWNER **Warren Livestock LLC**
2. ADDRESS **1961 Torrington Hwy**
   ☐ Please check if address has changed from that shown on permit.
   City **Cheyenne** State **WY** Zip Code **82009** Phone No.
3. USE OF WATER ☐ Domestic ☒ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
   ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
   Per UW 5 DC
4. LOCATION OF WELL/SPRING ____ 1/4 NE 1/4 of Section 35, T. 15 N., R 68 W., of the 6th P.M. (or W.R.M.)
   Per UW 5 DC
   Subdivision Name Lot Block
   Resurvey Location Tract or Lot Datum ☐ NAD27 ☐ NAD83
   Geographic Coordinates: Latitude **41°13'35.1"** N Longitude **104° 57' 54.4"** W (degrees, minutes, seconds) ✓
   UTM: Zone Northing Easting (meters)
   State Plane Coordinates: Zone Northing Easting (feet)
   Land surface elevation (ft. above mean sea level) Datum ☐ NAVD29 ☐ NAVD88
   Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)
5. TYPE OF CONSTRUCTION ☒ Drilled **Rotary Combination** ☐ Dug ☐ Driven ☐ Other
   Describe
6. CONSTRUCTION Total depth of well/spring **640** ft.
   Depth of static water level **110** ft. (below land surface) Casing height **2** ft. above ground
   a. Diameter of borehole (bit size) **9 7/8** inches
   b. Casing schedule ☒ New ☐ Used Joint Type ☐ Threaded ☐ Glued ☐ Welded
   5.00 diameter from **0** ft. to **640** ft. Material **PVC** Gage **SDR17**
   ____ diameter from ____ ft. to ____ ft. Material Gage
   c. Cemented/grouted interval, from **0** ft. to **575** ft.
   Amount of cement/grout used **20 bags** (example: 10 sacks) type **Barotherm Gold** (example: bentonite pellets)
   d. Type of completion ☐ Customized perforations ☐ Open hole ☒ Factory Screen
   Type of perforator used
   Size of perforations **.035** inches by **3.00** inches
   Number of perforations and depths where perforated
   2400 perforations from **580** ft. to **640** ft.
   ____ perforations from ____ ft. to ____ ft.
   Open hole from ____ ft. to ____ ft.
   Well screen details
   Diameter ____ slot size ____ set from ____ ft. to ____ ft.
   Diameter ____ slot size ____ set from ____ ft. to ____ ft.
   e. Well development method **Air** How long was well developed? **6 Hours**
   f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel **.125 to .375" diameter**
   Filter/gravel pack installed from **575** ft. to **640** ft.
   g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
   Surface casing installed from ____ ft. to ____ ft.

RECEIVED DEC 19 2019 State Engineers Cheyenne Wyoming

7. NAME AND ADDRESS OF DRILLING COMPANY **McRady's Well Drilling Inc, Cheyenne, WY** 82007 — 741 Morning Glory Trail — 307-634-5239
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) **08-08-2019**
9. PUMP INFORMATION Manufacturer **Grundfos** Type **Solar**
   Source of power **Solar** Horsepower **11SQF** Depth of pump setting or intake **480** ft.
   Amount of water being pumped **11** gal./min.* (For springs or flowing wells, see item 10)
   Total volumetric quantity used per calendar year*
   * If these amounts exceed permitted amount an enlargement is required.
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
    If artesian flow or spring, yield is ____ gal./min. *Surface pressure is ____ lb./sq. inch, or ____ feet of water.
    The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
    Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 210348 Book No. 1507 Page No. 148

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☐ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled **640** ft.
Depth of completed well **640** ft. Diameter of well **9 7/8** inches
Depth to first water bearing formation **580** ft.
Depth to principal water bearing formation Top **580** ft. to Bottom **620** ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface	**20**	**Top Soil**		
20	**80**	**Clay**		
80	**120**	**Clay/Gravel**		
120	**580**	**Clay**		
580	**620**	**Sandstone interbedded w/gravel**		
620	**640**	**Clay**		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriological water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

_____ Dec 19, 20 19
Signature of Owner or Authorized Agent — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 210348
Date of Receipt DEC 19 2019, 20 ____ Date of Approval _____, 20 ____
Date of Priority Feb 14, 20 19
_____ for State Engineer

SCANNED SEP 23 2021

FORM U.W.6
Rev. 1/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. **212952** NAME OF WELL/SPRING **Locked and Loaded No 28**

1. NAME OF OWNER **Leaning Tree Homes Inc**

2. ADDRESS **1740H Dell Range Blvd #423**
☐ Please check if address has changed from that shown on permit.
City **Cheyenne** State **WY** Zip Code **82009** Phone No. **307-778-1856**

3. USE OF WATER ☒ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous
☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) _____

4. LOCATION OF WELL/SPRING **NE** 1/4 **SW** 1/4 of Section **35**, T. **15** N., R **068** W., of the 6th P.M. (or W.R.M.)
Subdivision Name _____ Lot _____ Block _____
Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____
Geographic Coordinates: Latitude **41°13' 20.8"** N Longitude **104° 58' 33.1"** W (degrees, minutes, seconds)
UTM: Zone _____ Northing _____ Easting _____ (meters)
State Plane Coordinates: Zone _____ Northing _____ Easting _____ (feet)
Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88
Source ☒ GPS ☐ Map ☐ Survey ☐ Unknown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled _____ ☐ Dug ☐ Driven ☐ Other
Describe **Rotary Combination**

6. CONSTRUCTION Total depth of well/spring **580** ft.
Depth of static water level **147** ft. (below land surface) Casing height **2** ft. above ground
a. Diameter of borehole (bit size) **9 7/8** inches
b. Casing schedule ☒ New ☐ Used Joint Type ☐ Threaded ☒ Glued ☐ Welded
5.00 diameter from **0** ft. to **580** ft. Material **PVC** Gage **SDR17**
_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
c. Cemented/grouted interval, from **0** ft. to **515** ft.
Amount of cement/grout used **16 bags** (example: 10 sacks) type **barotherm gold** (example: bentonite pellets)
d. Type of completion ☒ Customized perforations ☐ Open hole ☐ Factory Screen
Type of perforator used **factory**
Size of perforations **.035** inches by **3.00** inches
Number of perforations and depths where perforated
2400 perforations from **520** ft. to **580** ft.
_____ perforations from _____ ft. to _____ ft.
Open hole from _____ ft. to _____ ft.
Well screen details
Diameter _____ slot size _____ set from _____ ft. to _____ ft.
Diameter _____ slot size _____ set from _____ ft. to _____ ft.

RECEIVED
SEP - 9 2021
State Engineers
Cheyenne
Wyoming

e. Well development method **Air** How long was well developed? **8 Hours**
f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel **.125 to .375" in diameter**
Filter/gravel pack installed from **515** ft. to **580** ft.
g. Was surface casing used? ☐ Yes ☒ No Was it cemented in place? ☐ Yes ☐ No
Surface casing installed from _____ ft. to _____ ft.

7. NAME AND ADDRESS OF DRILLING COMPANY **McRady's Well Drilling, Inc 741 Morning Glory trl Cheyenne WY 82007 307-634-5239** cmcrady@aol.com

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) **8-10-2021**

9. PUMP INFORMATION Manufacturer **Grundfos** Type **Submersible**
Source of power **Electricity** Horsepower **2** Depth of pump setting or intake **520** ft.
Amount of water being pumped **16** gal./min.* (For springs or flowing wells, see item 10)
Total volumetric quantity used per calendar year* _____
* If these amounts exceed permitted amount an enlargement is required.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
If artesian flow or spring, yield is _____ gal./min. *Surface pressure is _____ lb./sq. inch, or _____ feet of water.
The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
Does well leak around casing? ☐ Yes ☐ No

Permit No. U.W. 212952 Book No. 1525 Page No. 52

SEE REVERSE SIDE

11. IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., springbox, cribbing, etc., is necessary to qualify for a water right) _____

12. PUMP TEST Was a pump test conducted? ☐ Yes ☐ No
If so, by whom _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hours
Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled **580** ft.
Depth of completed well **580** ft. Diameter of well **9 7/8** inches
Depth to first water bearing formation **500** ft.
Depth to principal water bearing formation Top **500** ft. to Bottom **560** ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface	20	**Top Soil Sand**		
20	60	**Gravel**		
60	220	**Clay**		
220	280	**Gravel**		
280	500	**Clay**		
500	560	**Sand/Gravel/Clay**		
560	580	**Clay**		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION
Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☐ No
It is recommended that chemical and bacteriological water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the quality of water as ☐ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

Joe M. Ruy
Signature of Owner or Authorized Agent

9-10, 2021
Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 212952

Date of Receipt SEP 09 2021, 20 ____

Date of Priority August 19, 20 20

Date of Approval _____, 20 ____

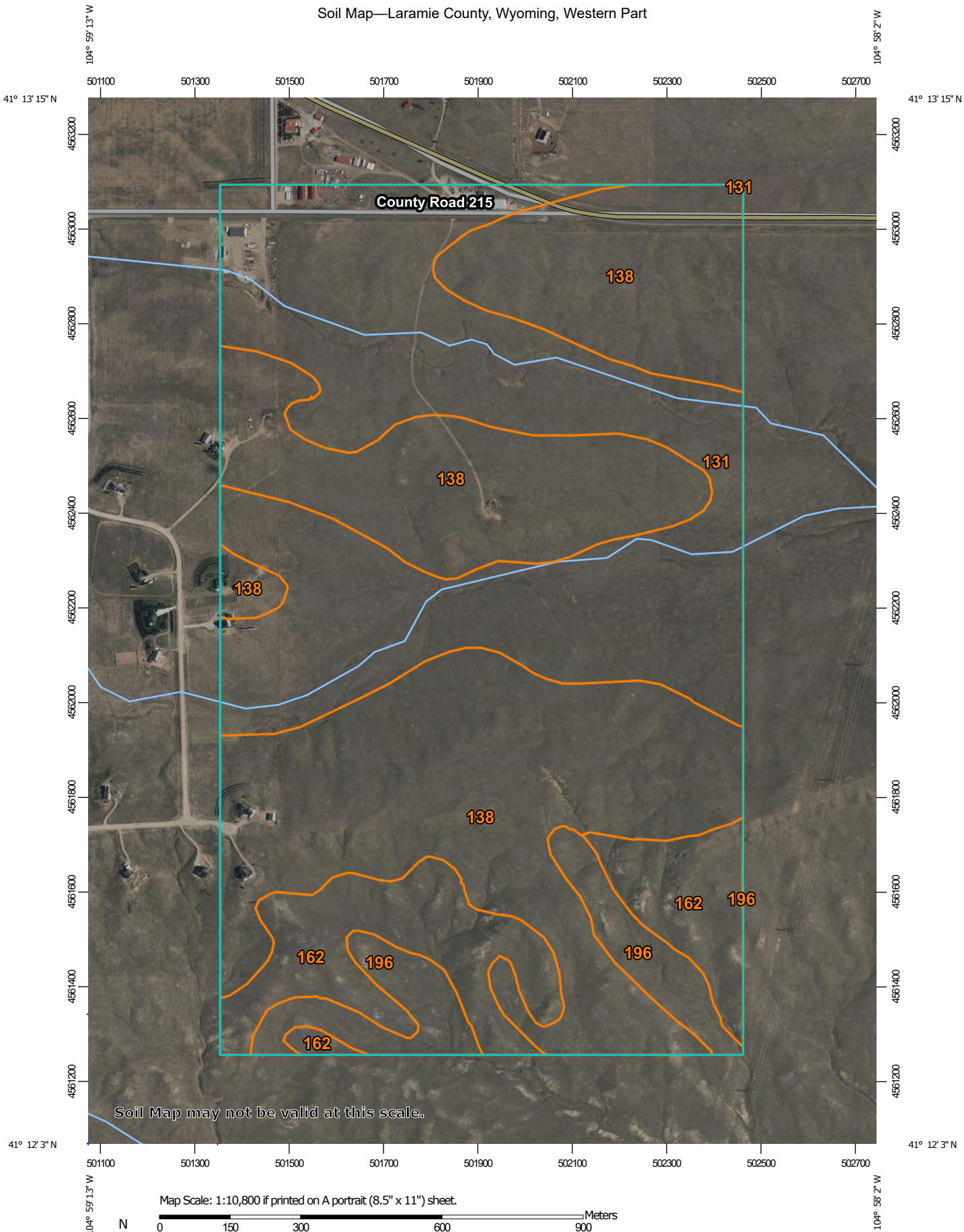
for State Engineer

R&R HEIGHTS SUBDIVISION
CHAPTER 23 REPORT

Appendix B

NRCS Soils Report

Soil Map—Laramie County, Wyoming, Western Part



Map Scale: 1:10,800 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 150 300 600 900

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N 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: Laramie County, Wyoming, Western Part
Survey Area Data: Version 18, Sep 4, 2025

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

Date(s) aerial images were photographed: Jul 2, 2022—Aug 8, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
131	Evanston loam, 0 to 6 percent slopes	178.4	35.3%
138	Ipson-Evanston complex, 6 to 30 percent slopes	241.4	47.8%
162	Poposhia-Trimad complex, 3 to 15 percent slopes	58.1	11.5%
196	Weed loam, 0 to 6 percent slopes	27.3	5.4%
Totals for Area of Interest		**505.3**	**100.0%**

R&R HEIGHTS SUBDIVISION
CHAPTER 23 REPORT

Appendix C&D

Nitrate Loading Calculations

Ch. 23 Appendix A, Cumulative Nitrate Loading Analysis

WEHRMANN MODEL FORMULA

$$C_o = \frac{(V_b C_b + V_i C_i + V_s C_s - V_p C_p)}{(V_b + V_i + V_s - V_p)}$$

Where:

- C_o= Nitrate concentration leaving the property line (mg/L)
- V_b= Volume of groundwater entering the subdivision from upgradient (ft3/day)
- C_b= Ambient concentration of nitrate (mg/L)
- V_i= Recharge volume beneath subdivision (ft3/day)
- C_i= Nitrate concentration of rain/recharge (mg/L)
- V_s= Volume of septic effluent introduced beneath the subdivision (ft3/day)
- C_s= Concentration of nitrate in wastewater (mg/L)
- V_p= Volume of water pumped beneath property (ft3/day) (irrigation)
- C_p= Nitrate concentration in pumped groundwater (mg/L)

INSTRUCTIONS:
Data in blue highlighted cells are locked and calculated.
Enter data in yellow highlighted cells only.
Do the proposed houses have an unfinished basement? - if yes, add two additional bedrooms to the residential design flow rates per bedroom.

Will enhanced systems be required (Yes/No)?	No	Default is No
Thickness of Aquifer if less than 30 ft:	No	

RESIDENTIAL DESIGN FLOW RATES per BEDROOM (GPD) (AVERAGE)	
1 Bedroom	100
2 Bedrooms	200
3 Bedrooms	300
4 Bedrooms	400
5 Bedrooms	500
6 Bedrooms	600

SITE INFROMATION:					**INFORMATION SOURCE:**
Property Size:	319.48	acres	13,916,549	ft2	Wheeler Subdivision Platte
Number of Lots:	55				Wheeler Subdivision Platte
Nitrate Concentration:	2.85	mg/L			Water Sample - Nearby Well
Number of Bedrooms per lot	3		300	GPD	Estimate based on large lot and ability to install basement
% of the subdivision to be irrigated	0			Default=10%	Surface irrigation rights - no groundwater use
Average Annual Rainfall:	15.92	inches/yr			Web site "US Climate Data"
Recharge %:	3.1	unitless		Default=10%	Recharge reports - Tertiary Aquifers in Wyoming
Hydraulic Conductivity:	9.8	ft/day			SEO Well Pump Test and Aquifer Thickness
GW Gradient:	0.014	ft/ft			Ogallala Potentiometric Water Gradient - hand
Upgradient Length of Subdivision:	5311	ft			Calculated from subdivision layout and first depth to water equipotential map
Aquifer Thickness	30	ft			Assumed
Average Annual Recharge:	0.4935	inches/yr	0.0411267	ft/yr	Average annual recharge

INPUT VALUES:					**INFORMATION SOURCE:**
V_b=	21860.1	ft3/day	163524.7357	gal/day	Calculated, assumes subdivision is a square
C_b=	2.85	mg/L			Nitrate concentration from sample
V_i=	1,568.06	ft3/day	11,729.89	gal/day	Calculated
*C_i=	0.05	mg/L			Rainwater Chemistry Across the United States, 2004. (Average between CO Springs, CO and Greybull, WY)
V_s=	16,500	gal/day	2205.72	ft3/day	
C_s=	40	mg/L			Assumed, Chapter 23 Appendix A
*V_p=	0.0	ft3/day	0	gal/day	
C_p=	2.4	mg/L			Water sample - nearby well

C_o= 5.88 mg/L

*V_p= (0.006592 * 0.05 * (% * Property Size ft2))

Chapter 23 APPENDIX B CALCULATIONS

Vertical Time of Travel

Formula: $t_1 = d * \Theta / 0.5 * \alpha$

t_1 = vertical travel time, years

d = depth to groundwater, ft = 187 Enter from Permit

Θ = volumetric soil moisture, unitless = 0.284 Enter from Θ Table at right

α = total recharge (effluent + precipitation), ft/yr

0.5 = assumed infiltration factor (assumes 50% of precipitation will infiltrate)

To Calculate α:

Calculate Average Yearly Effluent Discharge: From Chapter 23

Number of Bedrms	X	Average Daily Flow (gpd)	=	Average Yearly Discharge (ft^3)	
3	X	300	=	14,639	ft^3
4	X	400	=	19,519	ft^3
5	X	500	=	24,398	ft^3

Calculate Required Soil Absorption Area:

Enter Percolation Rate From Permit: 5.9 min/in

Enter Loading Rate From Ch.25 Table 5 (at right): 0.75 gpd/sq ft

Absorption Area = (Design Flow Rate)/(Loading Rate)

3 Br	520	ft^2	Based on	390	Ch. 25 Design Flow Rate (gpd)
4 Br	627	ft^2	Based on	470	Ch. 25 Design Flow Rate (gpd)
5 Br	733	ft^2	Based on	550	Ch. 25 Design Flow Rate (gpd)

Calculate Prorated Effluent Recharge to Aquifer:

Prorated Effluent Recharge = (Avg Yearly Effluent Discharge)/(Soil Absorption Area)

3 Br	28.15	ft/year
4 Br	31.15	ft/year
5 Br	33.27	ft/year

Calculate α: = (Average Precipitation Per Month) + (Prorated Effluent)

α: 3 Br =	29.48	ft
α: 4 Br =	32.47	ft
α: 5 Br =	34.60	ft

Calculate Vertical Time of Travel: $t_1 = d * \Theta / 0.5 * \alpha$

t_1 3 Br =	3.60	years	1,315.1	days
t_1 4 Br =	3.27	years	1,193.9	days
t_1 5 Br =	3.07	years	1,120.6	days

Reference Tables

Θ Table: Volumetric Soil Moisture Content at Field Capacity

Cobble Sand	0.045	
Sand	0.062	
Sandy Loam	0.19	
Loam	0.232	
Silty Loam	0.284	
Sandy Clay Loam	0.244	
Clay Loam	0.31	
Silty Clay Loam	0.342	
Sandy Clay	0.321	(default)
Silty Clay	0.371	
Clay	0.378	

Average Flow Rates (gpd)

1 bedroom	100
2 bedrooms	200
3 bedrooms	300
4 bedrooms	400
5 bedroom	500
6 bedrooms	600

Ch. 25 Design Flow Rates (gpd)

1 bedroom	150
2 bedrooms	280
3 bedrooms	390
4 bedrooms	470
5 bedroom	550
6 bedrooms	630

Chapter 25, Table 5

Soil Perc Rate (mpi)	Loading Rate (gpd/ft^2)
5	0.8
6	0.75
7	0.71
8	0.68
9	0.65
10	0.62
11	0.6
12	0.58
13	0.56
14	0.54
15	0.52
16	0.5
17	0.49
18	0.48
19	0.47
20	0.46
21	0.45
22	0.44
23-24	0.43
25	0.42
26-27	0.41
28-29	0.4
30-31	0.39
32-33	0.38
34-35	0.37
36-37	0.36
38-40	0.35
41-43	0.34
44-46	0.33
47-50	0.32
51-55	0.31
56-60	0.3

Horizontal Time of Travel and Horizontal Travel Distance

Horizontal Time of Travel: t_2 $t_2 = 2 \text{ years} - t_1$

If t_1 is greater than 2 years, Horizontal Time of Travel is not required to be calculated.

t_2 3 Br =	-1.60	years
t_2 4 Br =	-1.27	years
t_2 5 Br =	-1.07	years

Horizontal Travel Distance: $x = t_2 * v$

v = Horizontal Linear Velocity = ki/n

k = hydraulic conductivity of aquifer, ft/day 9.8 Per permit application

i = hydraulic gradient, ft/ft 0.014 Per permit application

n = effective porosity 0.25 Enter from permit application

Calculate v: 0.5488 ft/day

Calculate Horizontal Travel Distance: $x = t_2 * v$

x 3 Br =	-321	ft	Per permit application
x 4 Br =	-255	ft	per Chapter 23
x 5 Br =	-214	ft	

R&R HEIGHTS SUBDIVISION
CHAPTER 23 REPORT

Appendix E

Geotech Report

JB ENGINEERS

GEOTECHNICAL ENGINEERING REPORT

Chapter 23, 50+ Lot Subdivision
S2-T14N-R68W
Laramie County, Wyoming

July 7, 2026

Prepared For:

Jean M Wheeler Revocable Trust, Dated August 18, 1996
c/o Ryan and Rashell Rodekohr
3626 Foxcroft Road
Cheyenne, Wyoming 82001

Prepared by:

JB Engineers
205 County Road 128A, Suite 400
Cheyenne, Wyoming 82007

July 7, 2026

Jean M Wheeler Revocable Trust, Dated August 18, 1996
c/o Ryan and Rashell Rodekohr
3626 Foxcroft Road
Cheyenne, Wyoming 82001

RE: **Geotechnical Engineering Report** (Project No. 01-25185)
Chapter 23, 50+ Lot Subdivision in S2-T14N-R68W
Laramie County, Wyoming

Greetings,

JB Engineers has completed the geotechnical engineering study for the proposed 50+ lot subdivision located in Laramie County, Wyoming. The study included subsurface exploration along the proposed gravel roadways, laboratory testing of selected soil samples, percolation testing at 18 locations, and collection of a water sample from an existing on-site well.

This report presents the results of the field exploration and laboratory testing and provides geotechnical opinions and recommendations for design and construction of the proposed gravel roadways. The report also presents the percolation testing results and laboratory analytical data for the on-site well sample.

We appreciate the opportunity to provide geotechnical engineering services for this project. Please contact us if you have any questions regarding the information presented in this report.

Sincerely,

JB Engineers

Jarron Mortimore
Field Engineer
205 Co. Rd. 128A, Suite 400
Cheyenne, WY 82007
O. 307-275.8706 / C. 307.921.8822
E. jarron.mortimore@jb-engineers.com

Jared J, Jung, P.E.
Principal Geotechnical Engineer
205 Co. Rd. 128A, Suite 400
Cheyenne, WY 82007
O. 307.275.8706 / C. 307.259.4302
E. jared.jung@jb-engineers.com

TABLE OF CONTENTS

PURPOSE AND SCOPE OF STUDY 1
PROJECT SUMMARY 1
PROJECT INFORMATION 2
EXISTING SITE CONDITIONS 2
FIELD EXPLORATION 3
LABORATORY TESTING 4
SUBSURFACE CONDITIONS 4
- **TOPSOIL** 4
- **SILTY SAND AND CLAYEY SAND (SM AND SC)** 4
- **LEAN CLAY AND SANDY LEAN CLAY (CL)** 5
- **GROUNDWATER** 5

GEOTECHNICAL ENGINEERING OPINIONS AND RECOMMENDATIONS 5
- **EARTHWORK RECOMMENDATIONS** 5
  - *Site/Subgrade Preparation* 5
  - *Excavations* 6
  - *Fill Material Requirements* 6
  - *Compaction Requirements* 6
- **PAVEMENT DESIGN** 7
  - *Recommended Aggregate Pavement Section* 7
  - *Maintenance Considerations* 7
- **PERCOLATION TESTING** 8
- **ON-SITE WELL SAMPLING** 8

LIMITATIONS 8

Appendix A: Field Exploration

Appendix B: Laboratory Results

Appendix C: Percolation Test Results

Appendix D: On-Site Well Water Analytical Results

PURPOSE AND SCOPE OF STUDY

This report presents the results of the geotechnical engineering study for the proposed 50+ lot subdivision located in Laramie County, Wyoming. The study was performed to evaluate subsurface conditions along the proposed gravel roadways and provide geotechnical opinions and recommendations to support roadway design and construction. The study also included percolation testing and sampling of an existing on-site well.

The field exploration program consisted of six exploratory borings advanced along the proposed roadways, percolation testing at 18 locations, and collection of one water sample from the existing on-site well. Selected soil samples obtained from the roadway borings were tested in the laboratory to evaluate physical and engineering properties relevant to the proposed roadway construction.

This report summarizes the field exploration and laboratory testing, describes the subsurface conditions encountered, and provides geotechnical opinions and recommendations for earthwork and construction of the proposed gravel roadways. The report also presents the percolation test results and laboratory analytical data for the on-site well sample. JB Engineers' scope related to the percolation testing and well sampling was limited to performing the testing and sampling and presenting the resulting data**.**

PROJECT SUMMARY

Project Information	
Project	Chapter 23, 50+ Lot Subdivision in S2-T14N-R68W
Location	Laramie County, Wyoming
Roadway Exploration Date	June 12, 2026
Proposed Development	Residential Subdivision with new gravel-surfaced roadways
Field Exploration	Six roadway borings and 18 percolation test locations
Roadway Borings	Advanced to approximately 11.5 feet below existing grade
General Subsurface Conditions	Variable silty sand, clayey sand, sandy lean clay, and lean clay
Groundwater	Not encountered in the roadway borings at the time of exploration
Percolation testing	Testing completed at 18 locations; results provided in **Appendix C**
On-Site Well Sampling	One water sample collected from the existing on-site well; laboratory analytical results presented in **Appendix D**
Gravel Roadways	Earthwork and gravel surfacing recommendations provided herein.

Design Recommendations	
Parameter	**Value**
California Bearing Ratio	2.8
Earthwork Compaction	95% of ASTM D698
Aggregate Pavement Section	8 inches
Moisture Conditioning	See **Compaction Requirements**
Construction Considerations	
Parameter	**Value**
Proof Rolling	Entire Roadway Subgrade
Groundwater	Not encountered in roadway borings
Soft/Unstable Areas	Remediate as required
Imported Fill	See **Fill Material Requirements**
Drainage	Maintain positive roadway drainage

The **Project Summary** is intended as a quick reference only. The recommendations and design parameters summarized herein should be used in conjunction with the complete report. In the event of any discrepancy, the narrative recommendations contained within this report shall govern.

PROJECT INFORMATION

The project consists of the proposed development of an approximately 320-acre residential subdivision located in Section 2, Township 14 North, Range 68 West in Laramie County, Wyoming. The proposed development is anticipated to include more than 50 residential lots, new gravel-surfaced roadways, and individual on-site wastewater systems. An existing on-site well is also being evaluated as part of the subdivision planning process.

The following sections summarize the existing site conditions and proposed construction information available to JB Engineers at the time of this study.

EXISTING SITE CONDITIONS

The project site is located in Laramie County, Wyoming, within Section 2, Township 14 North, Range 68 West. At the time of the field exploration, the site was generally undeveloped and vegetated with native grasses. The site terrain generally consists of rolling topography with elevations ranging from approximately 6,550 to 6,580 feet in the areas explored.

Existing improvements generally consist of an on-site water well and unimproved two-track roads. No other significant improvements were observed within the areas of the proposed roadway alignments.

A photograph of the site is provided below:

Photograph 1. View of Site

FIELD EXPLORATION

JB Engineers conducted the field exploration for the proposed roadways on June 12, 2026. The exploration program consisted of six exploratory borings, designated BH-1 through BH-6, advanced at selected locations along the proposed roadway alignments. The approximate boring locations are shown on the Boring and Percolation Test Location Diagram in **Appendix A**.

The borings were advanced to depths of approximately 11.5 feet below existing grade using a truck-mounted drill rig equipped with 4-inch-diameter solid-stem augers. A representative of JB Engineers logged the borings and visually classified the subsurface materials encountered.

Samples of the subsurface soils were obtained using a 1⅜-inch inside-diameter split-barrel sampler. The sampler was driven into the subsurface materials using a 140-pound hammer falling 30 inches. The number of blows required to advance the sampler through each 6-inch increment was recorded. The Standard Penetration Test resistance, or SPT N-value, is the sum of the blows required for the second and third 6-inch increments of the 18-inch sampling interval. Sampling was performed in general accordance with ASTM D1586.

Groundwater conditions were observed during drilling. Groundwater was not encountered in the exploratory borings at the time of the field exploration. Upon completion, the borings were backfilled with auger cuttings.

On April 15, 2026, JB Engineers also conducted percolation testing at 18 locations selected for the proposed subdivision. Percolation test holes were excavated to depths of approximately 30 inches below existing grade and prepared for testing. The approximate percolation test locations are shown on the Boring and Percolation Test Location Diagram in **Appendix A**. The testing procedures and results are presented in the Percolation Testing section of this report.

LABORATORY TESTING

Soil samples obtained during the field exploration were returned to the JB Engineers laboratory for further examination and testing. The project geotechnical engineer reviewed the field descriptions and selected representative samples for laboratory testing to evaluate the physical and engineering properties of the subsurface soils relevant to the proposed gravel roadway construction.

Laboratory testing included natural water content, particle-size analysis, Atterberg limits, Standard Proctor compaction, and California Bearing Ratio (CBR) testing. The laboratory tests were performed in general accordance with the applicable ASTM procedures summarized below.

Laboratory Test	ASTM DESIGNATION
Natural Water Content	D2216
Particle-Size Analysis	D6913 / D7928
Atterberg Limits	D4318
Standard Proctor	D698
California Bearing Ratio	D1883

The laboratory test results are presented in **Appendix B** and were used, together with the field exploration data, to characterize the subsurface conditions and develop the geotechnical opinions and recommendations presented in this report.

SUBSURFACE CONDITIONS

The subsurface conditions encountered in the exploratory borings generally consisted of a thin layer of topsoil underlain by variable granular and fine-grained soils. The subsurface soils generally consisted of silty sand, clayey sand, sandy lean clay, and lean clay extending to the maximum depths explored. The distribution and thickness of these materials varied across the proposed roadway alignments.

The boring logs in **Appendix A** should be referenced for detailed descriptions of the subsurface conditions encountered at individual boring locations, including soil classifications, stratum depths, Standard Penetration Test resistance values, and laboratory test results. The following sections provide a general description of the primary soil types encountered during the field exploration.

TOPSOIL

Topsoil was encountered at the ground surface in each of the exploratory borings and generally extended to depths of approximately 3 to 4 inches below existing grade. The topsoil consisted primarily of soils containing roots and organic matter. The topsoil thickness may vary between boring locations, and the Contractor should verify topsoil depths during site preparation.

SILTY SAND AND CLAYEY SAND (SM AND SC)

Silty sand and clayey sand were encountered in the exploratory borings at varying depths. The granular soils were generally brown and dry and ranged from medium dense to dense based on the Standard Penetration Test resistance values.

Laboratory testing of selected samples indicated fines contents ranging from approximately 22 to 48 percent. The silty sand tested was non-plastic, while the clayey sand samples exhibited plasticity indices ranging from approximately 14 to 20.

LEAN CLAY AND SANDY LEAN CLAY (CL)

Lean clay and sandy lean clay were encountered at several boring locations. The clay soils were generally brown, dry, and stiff to hard based on field observations and Standard Penetration Test resistance values.

Laboratory testing of selected clay samples indicated fines contents ranging from approximately 60 to 77 percent and plasticity indices ranging from approximately 16 to 18.

GROUNDWATER

Groundwater was not encountered in the exploratory borings at the time of drilling. Groundwater levels can fluctuate due to seasonal variations, precipitation, irrigation, development activities, and other factors. Evaluation of long-term groundwater conditions was beyond the scope of this study.

GEOTECHNICAL ENGINEERING OPINIONS AND RECOMMENDATIONS

Based on the results of the field exploration and laboratory testing, the proposed gravel roadways are considered feasible from a geotechnical standpoint provided the recommendations presented in this report are incorporated into the design and construction.

The primary geotechnical considerations for the proposed roadway construction include the variable subgrade conditions encountered across the site, moisture-sensitive clayey soils, and the need to provide positive surface drainage and ongoing roadway maintenance. The subsurface soils encountered along the proposed roadway alignments included silty sand, clayey sand, sandy lean clay, and lean clay, with fines contents and plasticity varying significantly across the site.

The following sections provide recommendations for earthwork, subgrade preparation, and construction of the proposed gravel-surfaced roadways.

EARTHWORK RECOMMENDATIONS

The following recommendations are provided for earthwork associated with construction of the proposed gravel roadways. Earthwork should be performed in accordance with the project plans and specifications and the recommendations presented in this report. Variations in subsurface conditions should be anticipated across the site due to the variable granular and fine-grained soils encountered during the field exploration.

Site/Subgrade Preparation

The proposed roadway areas should be stripped of vegetation, topsoil, organic matter, and other unsuitable materials. Based on the exploratory borings, topsoil was generally encountered to depths of approximately 3 to 4 inches; however, actual stripping depths should be based on conditions encountered during construction.

Following stripping and completion of required cuts, the exposed roadway subgrade should be scarified to a minimum depth of 8 inches, moisture-conditioned, and compacted in accordance with the **Compaction Requirements** section of this report. The prepared subgrade should be proof-rolled with a loaded dump truck or other approved heavy pneumatic-tired vehicle to identify soft, loose, or yielding areas.

Soft or yielding areas identified during proof-rolling should be evaluated and remediated prior to placement of fill or aggregate surfacing. Remediation may include moisture conditioning and recompacting, over-excavation and replacement with suitable compacted material, or stabilization using aggregate and geosynthetics, depending on the conditions encountered.

The prepared subgrade should be protected from excessive drying, precipitation, freezing, construction traffic, and other disturbance. Areas that become disturbed or unstable should be reworked and recompacted before placement of overlying materials.

Excavations

The subsurface soils encountered in the exploratory borings generally consisted of silty sand, clayey sand, sandy lean clay, and lean clay. Excavation of these materials is generally expected to be achievable using conventional heavy earthmoving equipment. Intermittent cemented soil lenses were encountered in some borings. These materials may be difficult to excavate using scrapers and may require ripping or excavation with heavier equipment.

Excavations should be performed in accordance with applicable federal, state, and local safety requirements. The contractor is responsible for evaluating actual excavation conditions and providing appropriate sloping, benching, shoring, or other protective systems in accordance with applicable OSHA requirements.

Excavations should be protected from surface-water inflow and precipitation. Water that accumulates in excavations should be removed before placement and compaction of fill or roadway materials. Disturbed, softened, or saturated soils should be removed or reworked and recompacted prior to continued construction.

Fill Material Requirements

On-site soils that are free of vegetation, organic matter, debris, frozen material, and other deleterious materials may generally be used as fill within the proposed roadway areas. The suitability of excavated on-site soils for reuse should be evaluated based on the conditions encountered during construction and the intended location of the fill.

Imported fill placed within the roadway areas should consist of approved, relatively uniform soil or aggregate materials free of organic matter, debris, frozen material, and other deleterious materials. Imported fill should meet the following requirements.

Property	Requirement
Maximum Particle Size	3 inches
Percent Passing No. 200 Sieve	40 percent maximum
Liquid Limit	40 maximum
Plasticity Index	15 maximum

Materials that do not meet these requirements may be acceptable for use in deeper fill areas but should be evaluated based on the material properties, intended location, and anticipated performance**.**

Compaction Requirements

Fill, backfill, and roadway subgrade should be placed and compacted in accordance with the applicable requirements of the Wyoming Public Works Standard Specifications (WPSS) and the recommendations presented in this report.

Fill should be placed in relatively uniform horizontal lifts of approximately 8 inches or less in loose thickness. Lift thickness may require adjustment based on the material type and compaction equipment used. Each lift should be moisture-conditioned as necessary and compacted before placement of the succeeding lift.

Earth fill and the upper 12 inches of roadway subgrade should be compacted to at least 95 percent of the maximum dry density determined in accordance with ASTM D698. Soil moisture contents should be maintained within the ranges presented below at the time of compaction:

Material	Minimum Compaction Requirement	Moisture Content
Granular Soils (SM and SC)	95% of ASTM D698	-4% to +2% of optimum
Fine-Grained Soils (CL)	95% of ASTM D698	-2% to +3% of optimum

Aggregate surfacing materials should be placed and compacted in accordance with the applicable WPSS requirements and the **Recommended Aggregate Pavement Section** of this report.

Compaction should be verified by field density testing during construction. Materials that do not meet the specified compaction and moisture requirements should be reworked, moisture-conditioned as necessary, and recompacted.

PAVEMENT DESIGN

The pavement design recommendations presented herein are based on the subsurface conditions encountered during the field exploration, laboratory test results, anticipated traffic conditions, and project information available at the time of this study. The proposed roadways are anticipated to consist of aggregate-surfaced residential roadways.

The following sections present the design parameters and recommended aggregate surfacing section for the proposed roadways.

Recommended Aggregate Pavement Section

Based on the anticipated low-volume residential roadway traffic and a laboratory-determined soaked CBR value of 2.8, we recommend the following aggregate pavement section.

Area	Aggregate Surfacing (in.)
Low-Volume Residential Roadways	8

The aggregate surfacing should consist of crushed aggregate meeting the applicable requirements of Laramie County and the Wyoming Public Works Standard Specifications (WPSS). The aggregate should be placed and compacted in accordance with the applicable WPSS requirements.

Maintenance Considerations

Aggregate-surfaced roadways require routine maintenance to maintain acceptable performance. The frequency and extent of maintenance will depend on traffic, weather conditions, drainage, and the quality of the aggregate surfacing material.

Routine maintenance should include periodic grading to restore the roadway crown and remove ruts, corrugations, and other surface irregularities. Additional aggregate should be placed as needed to replace material lost through traffic, grading, erosion, and displacement. Drainage ditches, culverts, and other drainage features should be maintained to prevent ponding and prolonged saturation of the roadway section and subgrade.

Localized areas of rutting, pumping, or persistent softening should be repaired promptly. Repairs may require removal of unsuitable material, stabilization of the affected subgrade, and replacement of aggregate surfacing.

PERCOLATION TESTING

JB Engineers conducted percolation testing at 18 locations across the proposed subdivision on April 15, 2026. The approximate test locations are shown on the Boring and Percolation Test Location Diagram in **Appendix A**. The test holes were excavated to depths of approximately 30 inches below existing grade and presoaked overnight prior to testing.

Measured percolation rates at the individual test locations ranged from approximately 0.8 to 10.0 minutes per inch. Complete percolation test results and field records are provided in **Appendix C.**

ON-SITE WELL SAMPLING

JB Engineers collected a water sample from the existing on-site well on May 22, 2026. Prior to sample collection, the well was operated in accordance with applicable Wyoming Department of Environmental Quality sampling requirements. The water sample was submitted to an independent analytical laboratory for the requested analyses.

The complete laboratory analytical results are provided in **Appendix D.**

LIMITATIONS

This report has been prepared exclusively for the use of the Client for planning, design, and construction of the proposed 50+ lot subdivision. The recommendations presented herein are based on the project information provided, the subsurface conditions encountered at the exploratory boring locations, laboratory testing performed, and generally accepted geotechnical engineering practices.

The subsurface exploration consisted of a limited number of exploratory borings advanced at discrete locations. Consequently, subsurface conditions may vary between and beyond the boring locations. If conditions encountered during construction differ significantly from those presented herein, or if changes are made to the proposed project, JB Engineers should be provided the opportunity to review the conditions and determine whether modifications to the recommendations are warranted.

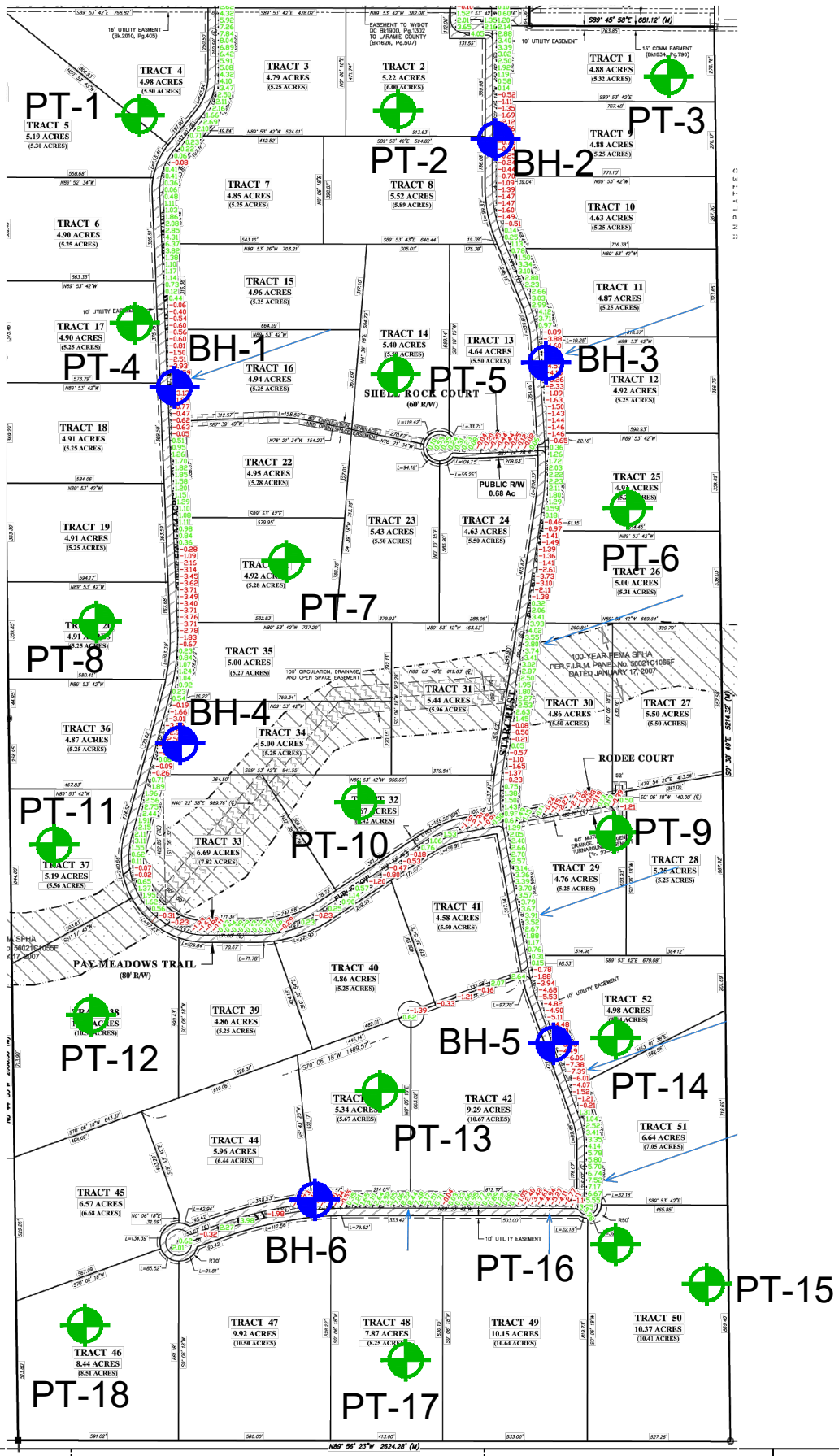
The recommendations contained in this report should be considered as a whole and should not be relied upon independently of one another.

The percolation testing and on-site well sampling results are limited to the locations, conditions, and dates of testing and sampling. JB Engineers has presented the resulting data for use by the appropriate designers and reviewing agencies. Design of individual wastewater systems, evaluation of water treatment requirements, and regulatory approval are beyond the scope of this study.

This report has been prepared in accordance with generally accepted geotechnical engineering practices. No warranty, either expressed or implied, is made.

Appendix A – Field Exploration

Boring and Percolation Test Location Diagram
Key to Symbols
Subsurface Diagram
Boring Logs (BH-1 through BH-6)



BORING LOCATION DIAGRAM
Chapter 23, 50+ Lot Subdivision
Horse Creek Road
Laramie County, Wyoming

Project No. 01-25185

Legend

BORING LOCATION

PERC TEST LOCATION

N

NOT TO SCALE

KEY TO SYMBOLS

JB ENGINEERS

CLIENT Jean M Wheeler Revocable Trust, Dated August 18, 1996 **PROJECT NAME** Chapter 23, 50+ Lot Subdivision in S2-T14N-R68W

PROJECT NUMBER 01-25185 **PROJECT LOCATION** Laramie County, WY

LITHOLOGIC SYMBOLS
(Unified Soil Classification System)

CL: USCS Low Plasticity Clay

CLS: USCS Low Plasticity Sandy Clay

SC: USCS Clayey Sand

SM: USCS Silty Sand

TOPSOIL: Topsoil

SAMPLER SYMBOLS

BK Bulk Sample

Split Spoon

WELL CONSTRUCTION SYMBOLS

ABBREVIATIONS

LL - LIQUID LIMIT (%)
PI - PLASTIC INDEX (%)
W - MOISTURE CONTENT (%)
DD - DRY DENSITY (PCF)
NP - NON PLASTIC
-200 - PERCENT PASSING NO. 200 SIEVE
PP - POCKET PENETROMETER (TSF)

TV - TORVANE
PID - PHOTOIONIZATION DETECTOR
UC - UNCONFINED COMPRESSION
ppm - PARTS PER MILLION

Water Level at Time Drilling, or as Shown

Water Level at End of Drilling, or as Shown

Water Level After 24 Hours, or as Shown

JB ENGINEERS

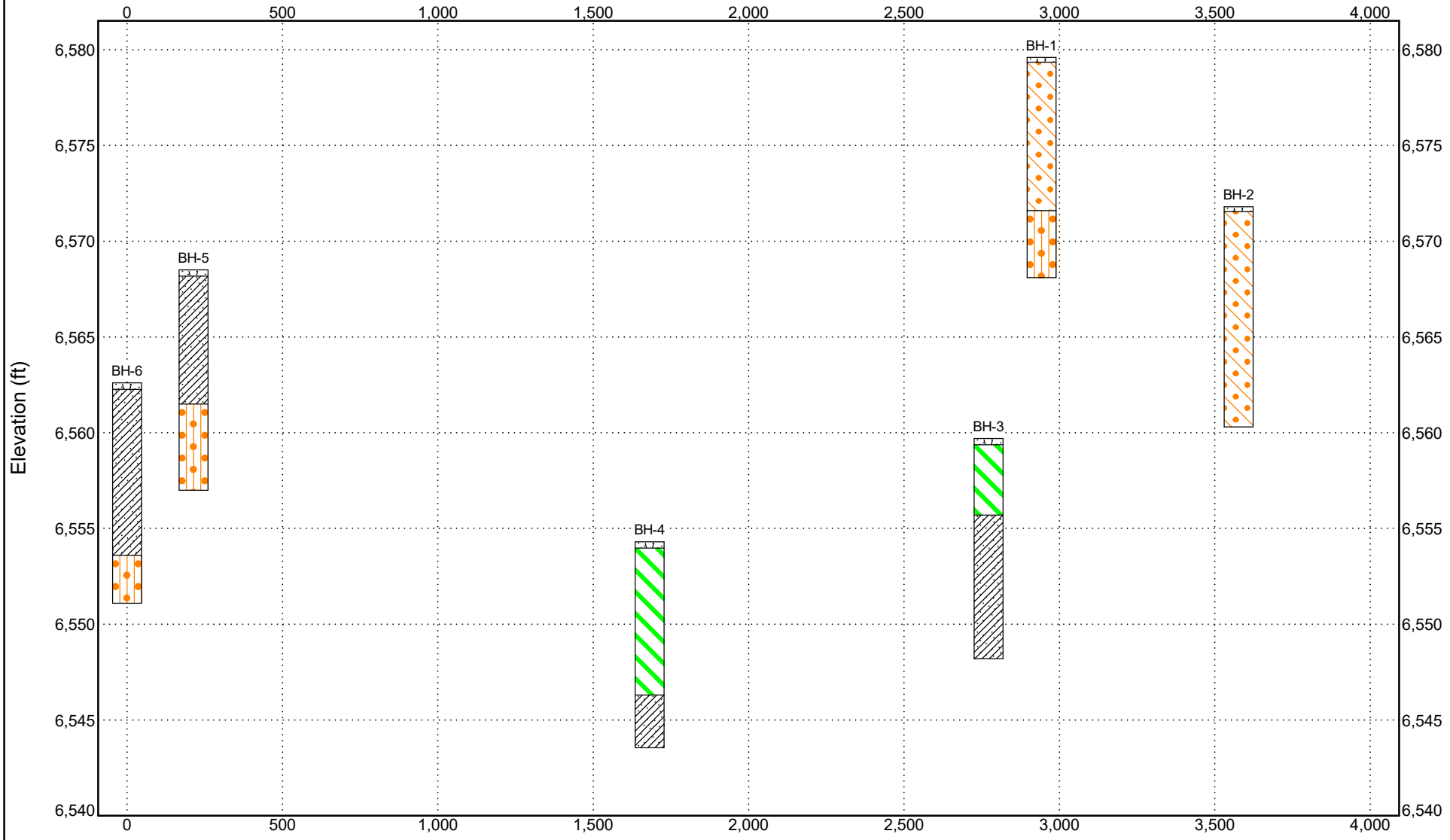
SUBSURFACE DIAGRAM
Pavement Borings

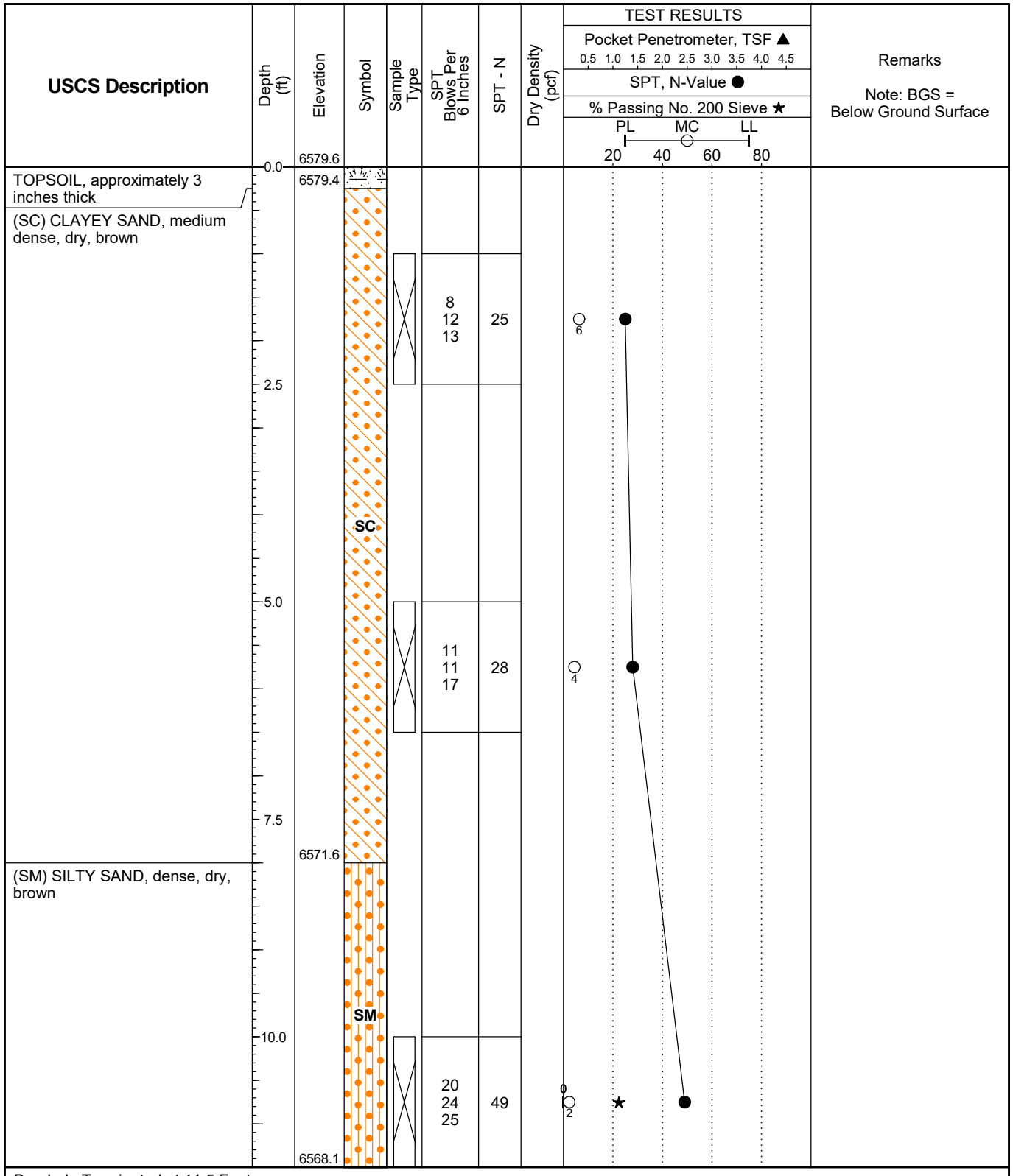
CLIENT Jean M Wheeler Revocable Trust, Dated August 18, 1996

PROJECT NAME Chapter 23, 50+ Lot Subdivision in S2-T14N-R68W

PROJECT NUMBER 01-25185

PROJECT LOCATION Laramie County, WY





Project Name: Chapter 23, 50+ Lot Subdivision in S2-T14N-R68W, Laramie County, WY		
Project Number: 01-25185	**Client:** Jean M Wheeler Revocable Trust, Dated August 18, 1996	
Date Drilled: 6/12/2026	**Drill Rig:** CME-45	**Borehole Dia.:** 4"
Groundwater Depth: N.E.	**Drilled By:** JB Drilling	**Logged By:** M. Smethers

JB ENGINEERS

BORING LOG BH-1

Sheet 1 Of 1

USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT - N	Dry Density (pcf)	TEST RESULTS	Remarks
								Pocket Penetrometer, TSF ▲ 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 SPT, N-Value ● % Passing No. 200 Sieve ★ PL MC LL 20 40 60 80	Note: BGS = Below Ground Surface
		6571.8							
TOPSOIL, approximately 3 inches thick	0.0	6571.6							
(SC) CLAYEY SAND, dense, dry, brown					19 22 11	33		5	
	2.5								
becomes medium dense at approximately 5 feet	5.0		SC		6 10 13	23		7 17 31 ★	
	7.5								
becomes very dense at approximately 10 feet	10.0				7 26 31	57		4	
		6560.3							

Borehole Terminated at 11.5 Feet.

Project Name: Chapter 23, 50+ Lot Subdivision in S2-T14N-R68W, Laramie County, WY		
Project Number: 01-25185	**Client:** Jean M Wheeler Revocable Trust, Dated August 18, 1996	
Date Drilled: 6/12/2026	**Drill Rig:** CME-45	**Borehole Dia.:** 4"
Groundwater Depth: N.E.	**Drilled By:** JB Drilling	**Logged By:** M. Smethers

JB ENGINEERS

BORING LOG BH-2

Sheet 1 Of 1

USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT - N	Dry Density (pcf)	TEST RESULTS	Remarks
								Pocket Penetrometer, TSF ▲ 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 SPT, N-Value ● % Passing No. 200 Sieve ★ PL MC LL 20 40 60 80	Note: BGS = Below Ground Surface
TOPSOIL, approximately 3 to 4 inches thick	0.0	6559.7							
(CL) LEAN CLAY with SAND, very stiff, dry, brown		6559.4	CL		9 10 12	22		5	
	2.5								
(CLS) SANDY LEAN CLAY, very stiff, dry, brown interminttent cemented lenses approximalty 8 inches thick		6555.7	CLS		7 21 31	52		8 17 33 ★	
	5.0								
	7.5								
	10.0				14 20 23	43		4	
		6548.2							

Borehole Terminated at 11.5 Feet.

Project Name: Chapter 23, 50+ Lot Subdivision in S2-T14N-R68W, Laramie County, WY		
Project Number: 01-25185	**Client:** Jean M Wheeler Revocable Trust, Dated August 18, 1996	
Date Drilled: 6/12/2026	**Drill Rig:** CME-45	**Borehole Dia.:** 4"
Groundwater Depth: N.E.	**Drilled By:** JB Drilling	**Logged By:** M. Smethers

JB ENGINEERS

BORING LOG BH-3

USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT - N	Dry Density (pcf)	TEST RESULTS	Remarks
		6554.3						Pocket Penetrometer, TSF ▲ 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 SPT, N-Value ● % Passing No. 200 Sieve ★ PL MC LL 20 40 60 80	Note: BGS = Below Ground Surface
TOPSOIL, approximately 4 inches thick	0.0	6554.0							
(CL) LEAN CLAY with SAND, very stiff, dry, brown			CL		7 9 7	16		○ 4 ●	
	2.5								
	5.0				5 13 11	24		○ 10 ●	
	7.5	6546.3							
(CLS) SANDY LEAN CLAY, very stiff, dry, brown interminttent cemented lenses approximalty 8 inches thick			CLS						
	10.0	6543.6			14 50/3.0"	100+		○ 11 ● 16 34 ★ 50+	

Borehole Terminated at 10.8 Feet.

Project Name: Chapter 23, 50+ Lot Subdivision in S2-T14N-R68W, Laramie County, WY

Project Number: 01-25185 **Client:** Jean M Wheeler Revocable Trust, Dated August 18, 1996

Date Drilled: 6/12/2026 **Drill Rig:** CME-45 **Borehole Dia.:** 4"

Groundwater Depth: N.E. **Drilled By:** JB Drilling **Logged By:** M. Smethers

JB ENGINEERS

BORING LOG BH-4

Sheet 1 Of 1

USCS Description	Depth (ft)	Elevation	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT - N	Dry Density (pcf)	TEST RESULTS	Remarks
								Pocket Penetrometer, TSF ▲ 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 SPT, N-Value ● % Passing No. 200 Sieve ★ PL MC LL 20 40 60 80	Note: BGS = Below Ground Surface
		6568.5							
TOPSOIL, approximately 4 inches thick	0.0	6568.2							
(CLS) SANDY LEAN CLAY, stiff to hard, dry, dark brown			CLS		5 6 8	14		20 38 11 ★	
	2.5								
interminttent cemented lenses approximalty 8 inches thick	5.0				12 19 19	38		4	
		6561.5							
(SM) SILTY SAND, dense, dry, light brown	7.5		SM						
	10.0				9 16 20	36		3	
		6557.0							

Borehole Terminated at 11.5 Feet.

Project Name: Chapter 23, 50+ Lot Subdivision in S2-T14N-R68W, Laramie County, WY

Project Number: 01-25185 **Client:** Jean M Wheeler Revocable Trust, Dated August 18, 1996

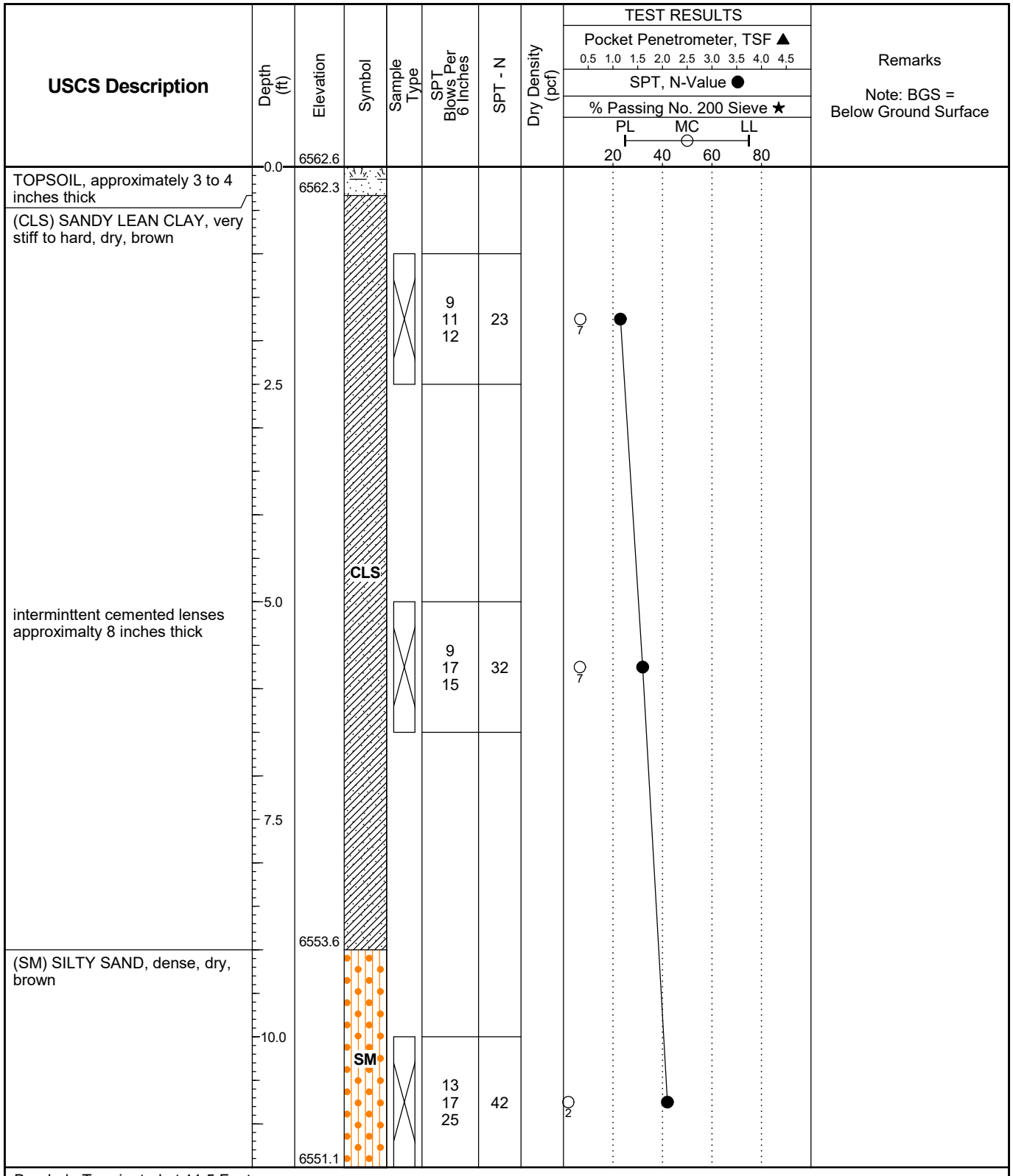
Date Drilled: 6/12/2026 **Drill Rig:** CME-45 **Borehole Dia.:** 4"

Groundwater Depth: N.E. **Drilled By:** JB Drilling **Logged By:** M. Smethers

JB ENGINEERS

BORING LOG BH-5

Sheet 1 Of 1



Borehole Terminated at 11.5 Feet.

Project Name: Chapter 23, 50+ Lot Subdivision in S2-T14N-R68W, Laramie County, WY		
Project Number: 01-25185	**Client:** Jean M Wheeler Revocable Trust, Dated August 18, 1996	
Date Drilled: 6/12/2026	**Drill Rig:** CME-45	**Borehole Dia.:** 4"
Groundwater Depth: N.E.	**Drilled By:** JB Drilling	**Logged By:** M. Smethers

JB ENGINEERS

BORING LOG BH-6

Sheet 1 Of 1

Appendix B – Laboratory Test Data

SUMMARY OF LABORATORY RESULTS

CLIENT Jean M Wheeler Revocable Trust, Dated August 18, 1996 **PROJECT NAME** Chapter 23, 50+ Lot Subdivision in S2-T14N-R68W

PROJECT NUMBER 01-25185 **PROJECT LOCATION** Laramie County, WY

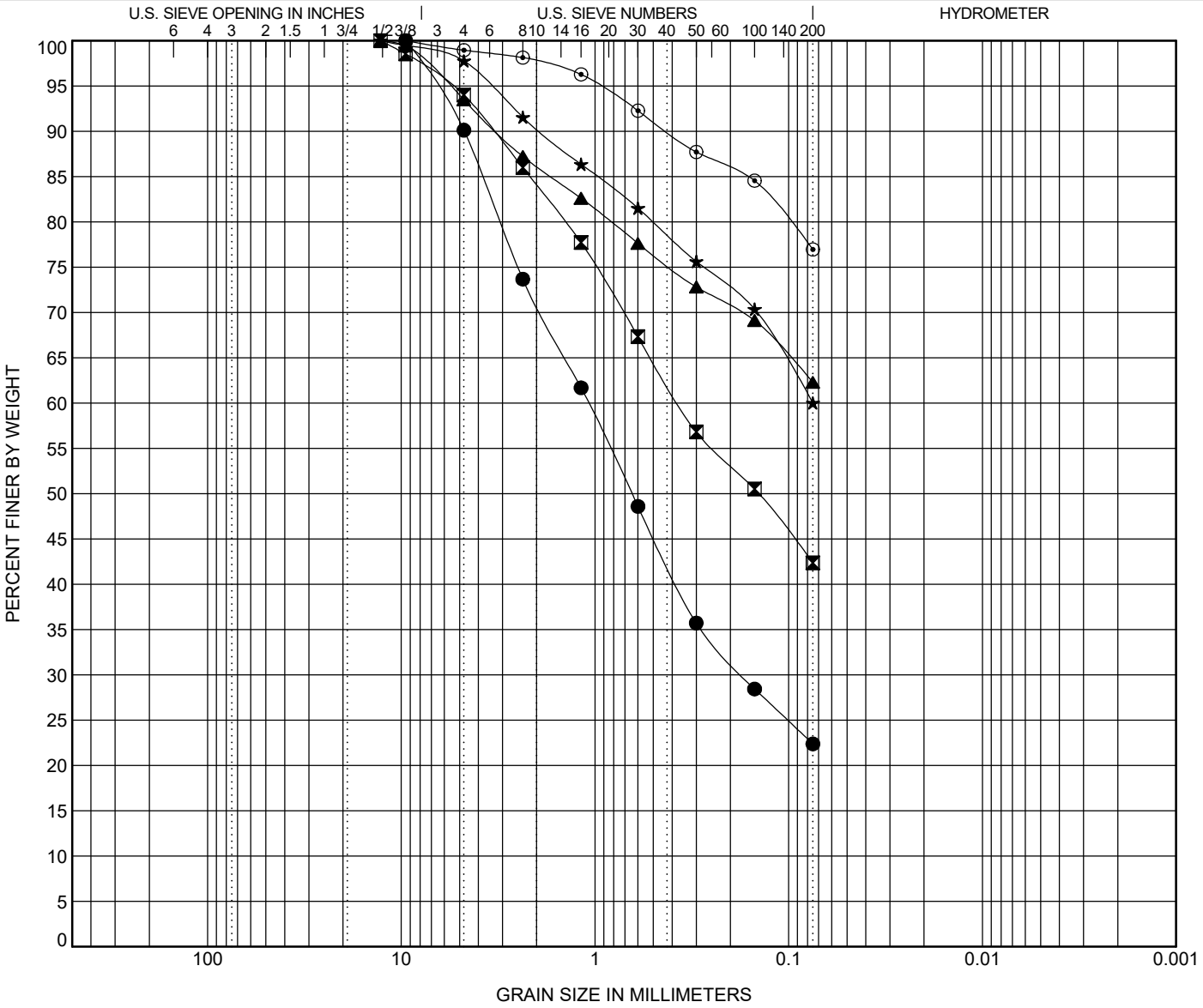
Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	Maximum Size (mm)	%<#200 Sieve	Class-ification	Water Content (%)	Dry Density (pcf)	Satur-ation (%)	Void Ratio
BH-1	1.0							6.4			
BH-1	5.0							4.4			
BH-1	10.0	NP	NP	NP	9.5	22	SM	2.4			
BH-2	1.0							5.1			
BH-2	5.0	31	17	14	12.8	42	SC	7.2			
BH-2	10.0							3.6			
BH-3	1.0							5.2			
BH-3	5.0	33	17	16	12.8	62	CL	8.1			
BH-3	10.0							4.2			
BH-4	1.0							4.1			
BH-4	5.0							10.1			
BH-4	10.0	34	16	18	12.8	60	CL	10.6			
BH-5	1.0	38	20	18	9.5	77	CL	10.8			
BH-5	5.0							3.5			
BH-5	10.0							3.4			
BH-6	1.0							6.8			
BH-6	5.0							6.6			
BH-6	10.0							2.0			
BULK BH1-BH6	1.0	35	15	20	25	48	SC	5.8			

GRAIN SIZE DISTRIBUTION

JB ENGINEERS

CLIENT Jean M Wheeler Revocable Trust, Dated August 18, 1996 **PROJECT NAME** Chapter 23, 50+ Lot Subdivision in S2-T14N-R68W

PROJECT NUMBER 01-25185 **PROJECT LOCATION** Laramie County, WY



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

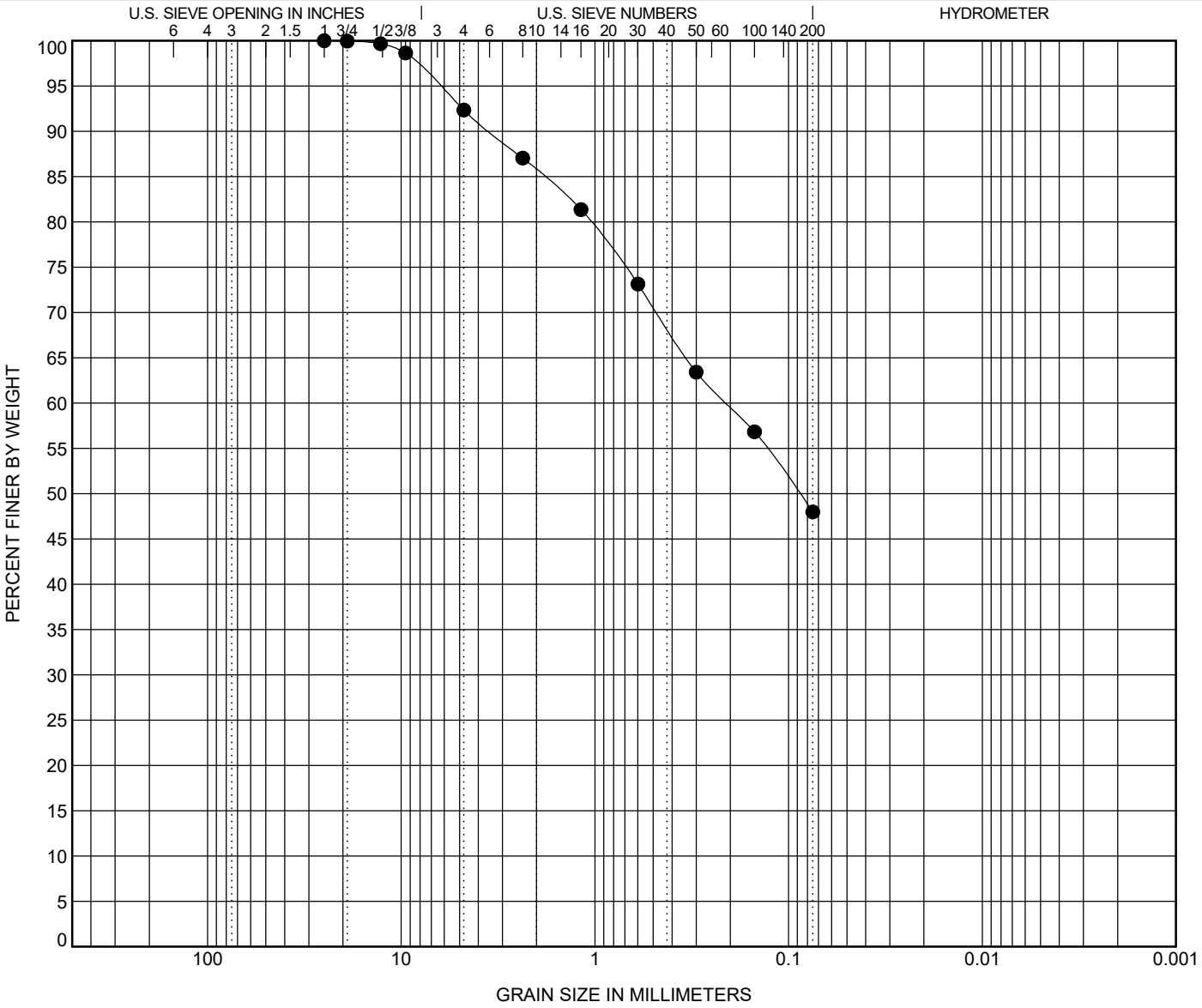
	BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	**BH-1**	**10.0**	**SILTY SAND(SM)**	**NP**	**NP**	**NP**		
⊠	**BH-2**	**5.0**	**CLAYEY SAND(SC)**	**31**	**17**	**14**		
▲	**BH-3**	**5.0**	**SANDY LEAN CLAY(CL)**	**33**	**17**	**16**		
★	**BH-4**	**10.0**	**SANDY LEAN CLAY(CL)**	**34**	**16**	**18**		
⊙	**BH-5**	**1.0**	**LEAN CLAY with SAND(CL)**	**38**	**20**	**18**		

	BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH-1**	**10.0**	**9.5**	**1.082**	**0.174**		**9.9**	**67.7**	**22.4**	
⊠	**BH-2**	**5.0**	**12.8**	**0.37**			**6.0**	**51.6**	**42.4**	
▲	**BH-3**	**5.0**	**12.8**				**6.5**	**31.2**	**62.3**	
★	**BH-4**	**10.0**	**12.8**				**2.2**	**37.7**	**60.0**	
⊙	**BH-5**	**1.0**	**9.5**				**1.0**	**22.0**	**77.0**	

GRAIN SIZE DISTRIBUTION

CLIENT Jean M Wheeler Revocable Trust, Dated August 18, 1996 **PROJECT NAME** Chapter 23, 50+ Lot Subdivision in S2-T14N-R68W

PROJECT NUMBER 01-25185 **PROJECT LOCATION** Laramie County, WY



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

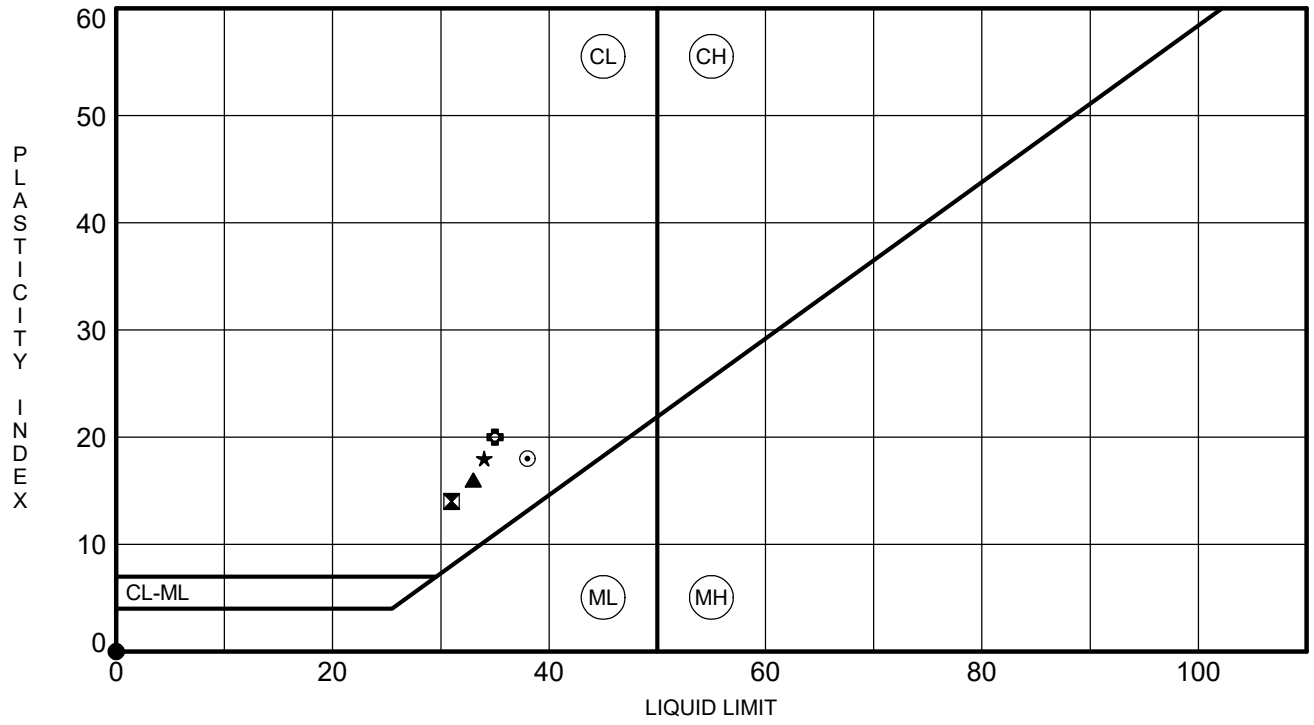
	BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	**BULK BH1-BH6**	**1.0**	**CLAYEY SAND(SC)**	**35**	**15**	**20**		

	BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BULK BH1-BH6**	**1.0**	**25**	**0.209**			**7.7**	**44.4**	**48.0**	

ATTERBERG LIMITS' RESULTS

CLIENT Jean M Wheeler Revocable Trust, Dated August 18, 1996 **PROJECT NAME** Chapter 23, 50+ Lot Subdivision in S2-T14N-R68W

PROJECT NUMBER 01-25185 **PROJECT LOCATION** Laramie County, WY



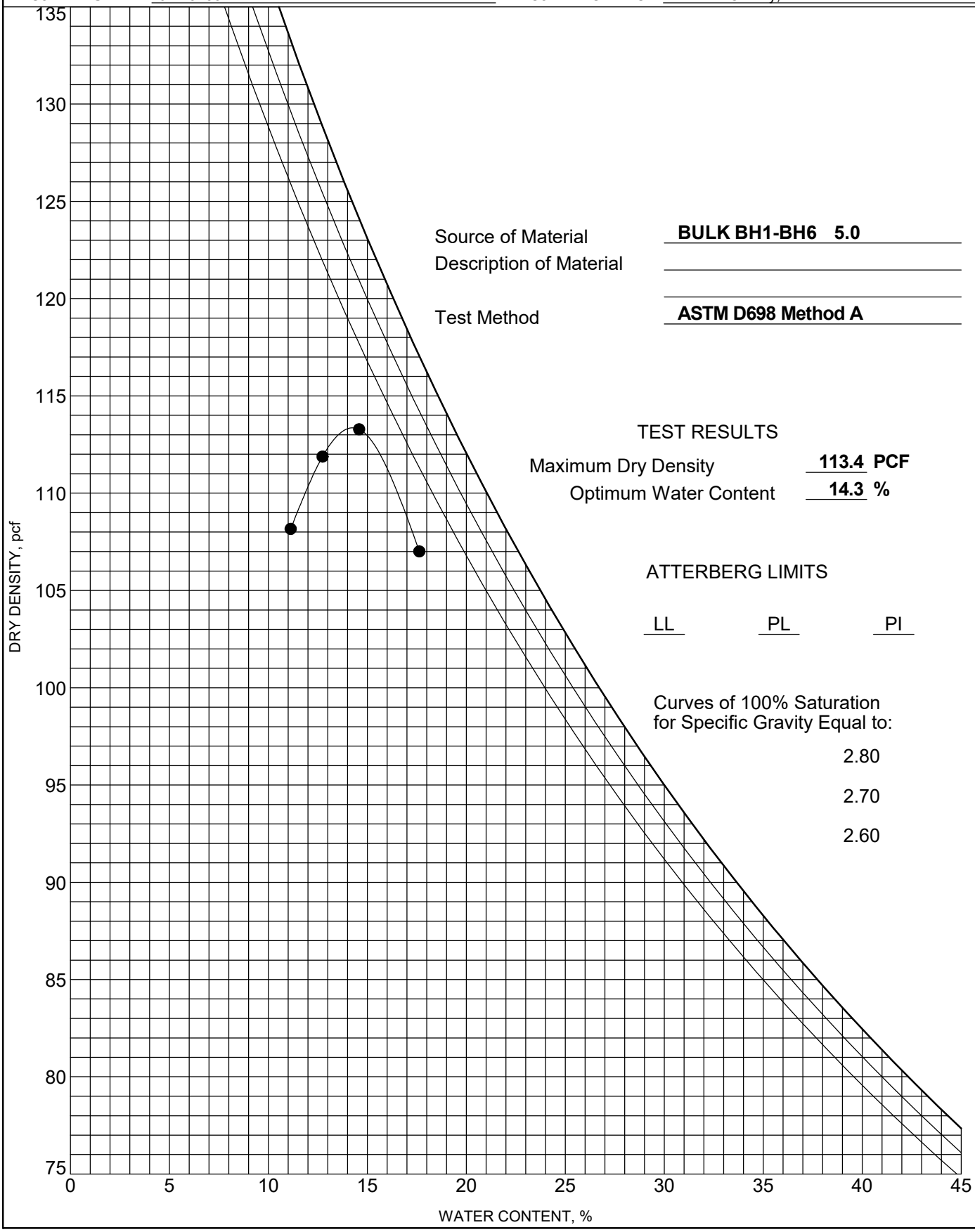
	BOREHOLE	DEPTH	LL	PL	PI	Fines	Classification
●	**BH-1**	**10.0**	**NP**	**NP**	**NP**	**22**	**SILTY SAND(SM)**
⊠	**BH-2**	**5.0**	**31**	**17**	**14**	**42**	**CLAYEY SAND(SC)**
▲	**BH-3**	**5.0**	**33**	**17**	**16**	**62**	**SANDY LEAN CLAY(CL)**
★	**BH-4**	**10.0**	**34**	**16**	**18**	**60**	**SANDY LEAN CLAY(CL)**
⊙	**BH-5**	**1.0**	**38**	**20**	**18**	**77**	**LEAN CLAY with SAND(CL)**
✿	**BULK BH1-BH6**	**1.0**	**35**	**15**	**20**	**48**	**CLAYEY SAND(SC)**

MOISTURE-DENSITY RELATIONSHIP

JB ENGINEERS

CLIENT Jean M Wheeler Revocable Trust, Dated August 18, 1996 **PROJECT NAME** Chapter 23, 50+ Lot Subdivision in S2-T14N-R68W

PROJECT NUMBER 01-25185 **PROJECT LOCATION** Laramie County, WY



Source of Material **BULK BH1-BH6 5.0**

Description of Material

Test Method **ASTM D698 Method A**

TEST RESULTS

Maximum Dry Density **113.4** **PCF**

Optimum Water Content **14.3** **%**

ATTERBERG LIMITS

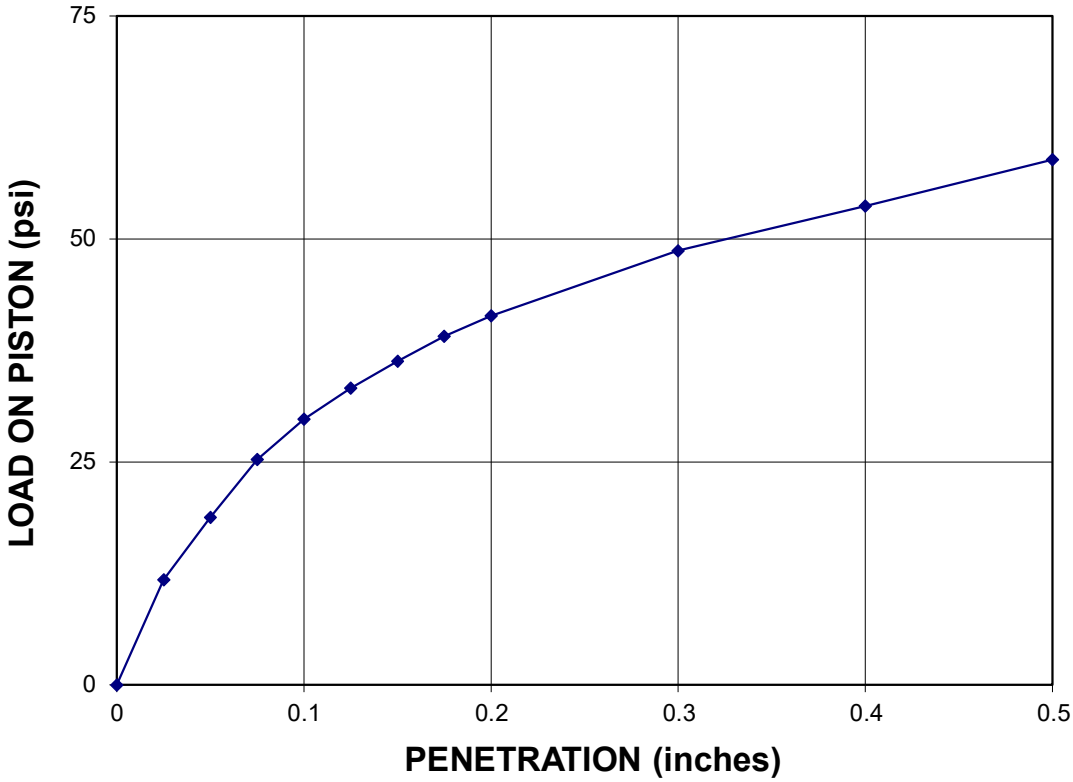
LL PL PI

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60



MAXIMUM DRY DENSITY: 113.4 pcf OPTIMUM MOISTURE CONTENT: 14.3%

PROPERTIES BEFORE SOAKING

Remolded Dry Density:	111.0	Compaction Required:	95%	Remolded Moisture Content:	11.21%

PROPERTIES BEFORE TESTING

Remolded Dry Density:	105.6	Swell:	1.09%	Remolded Moisture Content:	Top 25.45%	Avg. 22.05%

CALIFORNIA BEARING RATIO: 2.8

SAMPLE IDENTIFICATION:
Composite Bulk BH-1 through BH-6

SOIL CLASSIFICATION:
Clayey Sand (SC)

50+ Lot Subdivision
Laramie County, Wyoming

01-25185	JB ENGINEERS	**CALIFORNIA BEARING RATIO**	

Appendix C - Percolation Test Results

PERCOLATION TEST RESULTS

1. Performed by: Mikey S Test date (s): 4/15/26
Credentials or status of tester: _____(Owner Contractor Installer engineer geologist ,sanitarian, soil scientist, or other)
2. The **time interval** between water level measurements was: 10 minutes.
3. TEST DATA: The test holes were **PRESOAKED** for: ____Hours, or X overnight.

Do not perform percolation test if ground is frozen or if groundwater is present in holes. Holes must be 12 inches in diameter and evenly spaced over the leach field area. Roughen sides and bottoms of holes and place 2 inches of gravel in each hole.

		Hole #1 (Required)		Hole #2 (Required)		Hole #3 (Required)		Hole #4 (Optional)		Hole #5 (Optional)		Hole #6 (Optional)	
Depth of Hole:		30"		30"		30"		30"		30"		30"	
Time of Day	Time (Min)	Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch	
		Water Level	Drop	Water Level	Drop	Water Level	Drop	Water Level	Drop	Water Level	Drop	Water Level	Drop
	0	12"	—	12"	—	12"	—	12"	—	12"	—	12"	—
	10	10 3/4"	1 1/4"	9"	3"	10 1/2"	1 1/2"	11"	1"	10"	2"	9 1/2"	2 1/2"
	20	9 5/8"	1 1/8"	6"	3"	8 1/2"	2"	10"	1"	8"	2"	7 1/2"	2"
	30	8 1/2"	1 1/8"	3"	3"	6 1/2"	2"	9"	1"	7"	1"	5 1/2"	2"
	40					4 1/2"	2"			6"	1"	3 1/2"	2"
	50									5"	1"		
Time Interval (minutes)		10		10		10		10		10		10	
Final Interval Drop (inches)		1 1/8"		3"		2"		1"		1"		2"	
Perc Rate (min/inch)		8.9		3.3		5.0		10.0		10.0		5.0	
								Design Perc Rate (min/inch) 6.8					

A. If 6 or more holes were tested, the average perc rate was: 6.8 mpi or
B. If 3 to 5 holes were tested, the slowest perc rate (largest number) was: _____ mpi

PERCOLATION TEST RESULTS

1. Performed by: Mikey S Test date (s): 4/15/26
Credentials or status of tester: _____(Owner Contractor Installer engineer geologist ,sanitarian, soil scientist, or other)
2. The **time interval** between water level measurements was: 10 minutes.
3. TEST DATA: The test holes were **PRESOAKED** for: ____Hours, or X overnight.

Do not perform percolation test if ground is frozen or if groundwater is present in holes. Holes must be 12 inches in diameter and evenly spaced over the leach field area. Roughen sides and bottoms of holes and place 2 inches of gravel in each hole.

		Hole #7 (Required)		Hole #8 (Required)		Hole #9 (Required)		Hole #10 (Optional)		Hole #11 (Optional)		Hole #12 (Optional)	
Depth of Hole:		30"		30"		30"		30"		30"		30"	
Time of Day	Time (Min)	Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch	
		Water Level	Drop	Water Level	Drop	Water Level	Drop	Water Level	Drop	Water Level	Drop	Water Level	Drop
	0	18"	—	12"	—	12"	—	12"	—	12"	—	12"	—
	10	0"	18"	10"	2"	9"	3"	8"	4"	8"	4"	8 1/2"	3 1/2"
	20	18"	14 1/2"	8"	2"	7"	2"	4"	4"	4"	4"	5"	3 1/2"
	30	18"	14 1/2"	6"	2"	5"	2"	0"	4"	2"	2"	3"	2"
	40	18"	14 1/2"			3"	2"			0"	2"	1"	2"
	50									0"	2"	0"	2"
Time Interval (minutes)		10		10		10		10		10		10	
Final Interval Drop (inches)		12"		2"		2"		4"		2"		2"	
Perc Rate (min/inch)		0.8		5.0		5.0		2.5		5.0		5.0	
								Design Perc Rate (min/inch) 6.8					

A. If 6 or more holes were tested, the average perc rate was: 6.8 mpi or
B. If 3 to 5 holes were tested, the slowest perc rate (largest number) was: _____ mpi

PERCOLATION TEST RESULTS

1. Performed by: Mikey S Test date (s): 4/15/26
Credentials or status of tester: _____(Owner Contractor Installer engineer geologist ,sanitarian, soil scientist, or other)
2. The **time interval** between water level measurements was: 10 minutes.
3. TEST DATA: The test holes were **PRESOAKED** for: ____Hours, or X overnight.

Do not perform percolation test if ground is frozen or if groundwater is present in holes. Holes must be 12 inches in diameter and evenly spaced over the leach field area. Roughen sides and bottoms of holes and place 2 inches of gravel in each hole.

		Hole #13 (Required)		Hole #14 (Required)		Hole #15 (Required)		Hole #16 (Optional)		Hole #17 (Optional)		Hole #18 (Optional)	
Depth of Hole:		30"		30"		30"		30"		30"		30"	
Time of Day	Time (Min)	Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch	
		Water Level	Drop	Water Level	Drop	Water Level	Drop	Water Level	Drop	Water Level	Drop	Water Level	Drop
	0	12"	—	12"	—	14"	—	12"	—	12"	—	12"	—
	10	10 1/2"	1 1/2"	7"	5"	7"	7"	10"	2"	11"	1"	10"	2"
	20	9"	1 1/2"	6"	1"	2"	5"	9"	1"	10"	1"	9"	1"
	30	7 1/2"	1 1/2"	5"	1"	6"	1"	8"	1"	9"	1"	8"	1"
	40			4"	1"	5"	1"	7"	1"			7"	1"
	50					4"	1"						
Time Interval (minutes)		10		10		10		10		10		10	
Final Interval Drop (inches)		1 1/2"		1"		1"		1"		1"		1"	
Perc Rate (min/inch)		6.7		10.0		10.0		10.0		10.0		10.0	
								Design Perc Rate (min/inch) 6.8					

A. If 6 or more holes were tested, the average perc rate was: 6.8 mpi or
B. If 3 to 5 holes were tested, the slowest perc rate (largest number) was: _____ mpi

Appendix D - On-Site Well Water Analytical Results

ANALYTICAL SUMMARY REPORT

June 22, 2026

JB Engineers
PO Box 703
Cheyenne, WY -0703

Work Order: C26050726

Project Name: Not Indicated

Energy Laboratories, Inc. Casper WY received the following 1 sample for JB Engineers on 5/22/2026 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C26050726-001	Well #1	05/22/26 12:00	05/22/26	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Recoverable Alkalinity to pH 4.5 Anion - Cation Balance Cyanide, Total Manual Distillation Mercury, Total Recoverable E1664A Oil & Grease Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrite Nitrogen, Nitrate + Nitrite Nitrogen, Nitrate as N Phenolics, Total Recoverable (Distilled) pH Metals Preparation by EPA 200.2 Sample Filtering, Dissolved Analytes Digestion, Mercury by CVAA Gross Alpha minus Radon and Uranium, Total Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total Strontium 90, Total Residual Sodium Carbonate Sodium Adsorption Ratio Solids, Total Dissolved Sulfide, Methylene Blue Colorimetric

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy, Casper, WY 82601-9601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Energy Laboratories, Inc. verifies the reported results for the analysis has been technically reviewed and approved for release.

If you have any questions regarding these test results, please contact your Project Manager.

CLIENT: JB Engineers
Project: Not Indicated
Work Order: C26050726

Report Date: 06/22/26

CASE NARRATIVE

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

Tests associated with analyst identified as ELI-G were subcontracted to Energy Laboratories, 400 W. Boxelder Rd., Gillette, WY, EPA Number WY00006.

Samples for Strontium 90, Total by method E905.0 were subcontracted to Eurofins TA-St Louis in Earth City, MO. The associated report is attached.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: JB Engineers
Project: Not Indicated
Lab ID: C26050726-001
Client Sample ID: Well #1

Report Date: 06/22/26
Collection Date: 05/22/26 12:00
DateReceived: 05/22/26
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	139	mg/L		5		A2320 B	05/26/26 14:36 / lmy
Carbonate as CO3	ND	mg/L		3		A2320 B	05/26/26 14:36 / lmy
Bicarbonate as HCO3	170	mg/L		6		A2320 B	05/26/26 14:36 / lmy
Chloride	13	mg/L		1		E300.0	06/08/26 22:34 / dmb
Fluoride	0.5	mg/L		0.1		E300.0	06/08/26 22:34 / dmb
Sulfate	15	mg/L		1		E300.0	06/08/26 22:34 / dmb
Calcium	56	mg/L		1		E200.7	05/28/26 16:53 / eli-b
Magnesium	9	mg/L		1		E200.7	05/28/26 16:53 / eli-b
Sodium	5	mg/L		1		E200.7	05/28/26 16:53 / eli-b
NON-METALS							
Cyanide, Total	ND	mg/L		0.005		Kelada-01	05/29/26 13:31 / eli-b
INORGANICS							
Sulfide	ND	mg/L		0.04		A4500-S D	05/29/26 13:02 / slf
Sulfide as Hydrogen Sulfide (H2S)	ND	mg/L		0.04		A4500-S D	05/29/26 13:02 / slf
AGGREGATE ORGANICS							
Phenolics, Total Recoverable (Distilled)	ND	mg/L		0.01		E420.4	06/01/26 12:43 / eli-b
PHYSICAL PROPERTIES							
pH	8.1	s.u.	H	0.1		A4500-H B	06/03/26 12:10 / dmb
pH Measurement Temp	14.8	°C				A4500-H B	06/03/26 12:10 / dmb
Residual Sodium Carbonate	ND	meq/L				A1030 E	06/17/26 15:28 / dmb
Solids, Total Dissolved TDS @ 180 C	232	mg/L		20		A2540 C	05/27/26 14:20 / ajs
Sodium Adsorption Ratio (SAR)	0.2	unitless		0.1		USDA20B	05/28/26 16:53 / dmb
NUTRIENTS							
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/02/26 13:01 / slf
Nitrogen, Nitrite as N	ND	mg/L		0.01		A4500-NO2 B	05/22/26 17:18 / dmb
Nitrogen, Nitrate as N	2.85	mg/L		0.05	10	E353.2	06/04/26 15:56 / dmb
Nitrogen, Nitrate+Nitrite as N	2.85	mg/L		0.05		E353.2	06/01/26 13:16 / slf
METALS, TOTAL RECOVERABLE							
Mercury	ND	mg/L		0.0001		E245.1	06/03/26 13:16 / eli-b
METALS, TOTAL RECOVERABLE							
Aluminum	ND	mg/L		0.03		E200.8	06/03/26 01:34 / eli-b
Arsenic	0.001	mg/L		0.001		E200.8	06/03/26 01:34 / eli-b
Barium	0.08	mg/L		0.05		E200.8	06/03/26 01:34 / eli-b
Beryllium	ND	mg/L		0.001		E200.7	06/02/26 17:39 / eli-b
Boron	ND	mg/L		0.05		E200.7	06/02/26 17:39 / eli-b
Cadmium	ND	mg/L		0.001		E200.8	06/03/26 01:34 / eli-b
Chromium	ND	mg/L		0.005		E200.8	06/03/26 01:34 / eli-b
Cobalt	ND	mg/L		0.005		E200.8	06/03/26 01:34 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
H - Analysis performed past the method holding time
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: JB Engineers
Project: Not Indicated
Lab ID: C26050726-001
Client Sample ID: Well #1

Report Date: 06/22/26
Collection Date: 05/22/26 12:00
DateReceived: 05/22/26
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL RECOVERABLE							
Copper	0.006	mg/L		0.005		E200.8	06/03/26 01:34 / eli-b
Iron	0.31	mg/L		0.02		E200.8	06/03/26 01:34 / eli-b
Lead	ND	mg/L		0.001		E200.8	06/03/26 01:34 / eli-b
Lithium	ND	mg/L		0.1		E200.7	06/02/26 17:39 / eli-b
Manganese	0.004	mg/L		0.001		E200.8	06/03/26 01:34 / eli-b
Nickel	ND	mg/L		0.005		E200.8	06/03/26 01:34 / eli-b
Selenium	0.003	mg/L		0.001		E200.8	06/03/26 01:34 / eli-b
Silver	ND	mg/L		0.001		E200.8	06/03/26 01:34 / eli-b
Vanadium	ND	mg/L		0.01		E200.7	06/02/26 17:39 / eli-b
Zinc	0.25	mg/L		0.01		E200.7	06/02/26 17:39 / eli-b
DATA QUALITY							
A/C Balance	1.49	%				A1030 E	06/17/26 15:21 / dmb
Anions	3.70	meq/L				A1030 E	06/17/26 15:21 / dmb
Cations	3.81	meq/L				A1030 E	06/17/26 15:21 / dmb
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	-0.3	pCi/L	U			E900.1	06/08/26 09:36 / jls1
Gross Alpha minus Rn & U Precision (±)	0.5	pCi/L				E900.1	06/08/26 09:36 / jls1
Gross Alpha minus Rn & U MDC	0.8	pCi/L				E900.1	06/08/26 09:36 / jls1
Radium 226	0.1	pCi/L	U			E903.0	06/09/26 10:01 / dmr
Radium 226 precision (±)	0.1	pCi/L				E903.0	06/09/26 10:01 / dmr
Radium 226 MDC	0.1	pCi/L				E903.0	06/09/26 10:01 / dmr
Radium 228	1.4	pCi/L				RA-05	06/04/26 11:53 / jls1
Radium 228 precision (±)	0.7	pCi/L				RA-05	06/04/26 11:53 / jls1
Radium 228 MDC	0.9	pCi/L				RA-05	06/04/26 11:53 / jls1
Radium 226 + Radium 228	1.4	pCi/L				A7500-RA	06/10/26 09:38 / dmf
Radium 226 + Radium 228 precision (±)	0.8	pCi/L				A7500-RA	06/10/26 09:38 / dmf
Radium 226 + Radium 228 MDC	0.9	pCi/L				A7500-RA	06/10/26 09:38 / dmf
ORGANIC CHARACTERISTICS							
Oil & Grease (HEM)	ND	mg/L		4.0		E1664A	06/13/26 09:41 / mas

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Casper Reporting
Energy Laboratories, Inc.
2393 Salt Creek Highway
Casper, Wyoming 82601

Generated 6/17/2026 2:36:56 PM

JOB DESCRIPTION

Radiochemistry
C26050726

JOB NUMBER

160-62259-1

Eurofins St. Louis
13715 Rider Trail North
Earth City MO 63045

See page two for job notes and contact information.

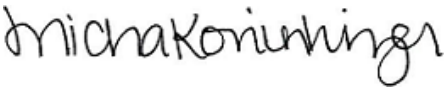
my EOL

Job Notes

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins TestAmerica Project Manager.

Authorization



Generated
6/17/2026 2:36:56 PM

Authorized for release by
Micha Korrinhizer, Project Manager
Micha.Korrinhizer@et.eurofinsus.com
Designee for
Casey Robertson, Project Manager
Casey.Robertson@et.eurofinsus.com
(314)298-8566

Table of Contents

Cover Page 1
Table of Contents 3
Case Narrative 4
Chain of Custody 5
Receipt Checklists 7
Definitions/Glossary 8
Method Summary 9
Sample Summary 10
Client Sample Results 11
QC Sample Results 12
QC Association Summary 13
Tracer Carrier Summary 14

Job Narrative
160-62259-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition, all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method.

Eurofins Environment Testing attests to the validity of the laboratory data generated by Eurofins facilities reported herein. All analyses performed by Eurofins Environment Testing facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins Environment Testing's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Proper preservation was noted for the methods performed on these samples, unless otherwise detailed below.

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

This laboratory report is confidential and is intended for the sole use of Eurofins Environment Testing and its client.

Receipt
The sample was received on 5/28/2026 9:45 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved. The temperature of the cooler at receipt time was 1.0°C.

Method SR-03-RC - Strontium-90 (GFPC)
Sample C26050726-001J (160-62259-1) was analyzed for Strontium-90 (GFPC). The sample was prepared on 6/5/2026 and analyzed on 6/15/2026.

Energy Laboratories, Inc.
2393 Salt Creek Hwy
Casper, WY 82601-9601
307.235.0515

[redacted]
PO: C26050726

CHAIN-OF-CUSTODY RECORD

22-May-26

Earliest HT Expires: Wed, 11/18/2026
Test Codes: RAD-SR90-W

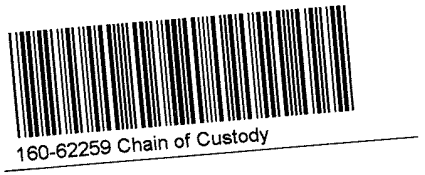
Earliest Due Date: 6/22/2026
 # Bus. Days Until Due: 20

Subcontractor:
Eurofins TA-St Louis
13715 Rider Trail North
Earth Citv. MO 63045
TEL: 3142988566
FAX:
Acct #: 3142988566

Subcontractor's Client:

QC Level: Level II

Rush	Sample ID	Matrix	Collection Date	Bottle Type	Requested Tests: RAD-SR90-W
☐	C26050726-001J	Aqueous	05/22/26 12:00 P	1 - 1GAL-P-NF-HNO3	1
	Sample Name:	Well #1			



Comments:

	Date/Time		Date/Time
Relinquished by: Dakota R. Sawyer	5/22/2026 4:55	**Received by:** M. Pinette Meadow Pinette	MAY 28 2026 0945
Relinquished by:		**Received by:**	

Shipped By:	Custody Seal Y N	Intact Y N	Receipt Temp: °C	Temp Blank Y N	On Ice Y N

Test	Sample ID	Analyte	PQL	Units
[illegible]	[illegible]	Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
		Zinc	0.01	mg/L
[illegible]	[illegible]	Phenolics, Total Recoverable (Distilled)	[illegible]	[illegible]
Strontium 90, Total RAD-SR90-W	C26050726-001J	Strontium 90	-1000	pCi/L
		Strontium 90 MDC	0	pCi/L
		Strontium 90 precision (±)	0	pCi/L

Login Sample Receipt Checklist

Client: Energy Laboratories, Inc.

Job Number: 160-62259-1
SDG Number: C26050726

Login Number: 62259
List Number: 1
Creator: Pinette, Meadow L

List Source: Eurofins St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Energy Laboratories, Inc.
Project/Site: Radiochemistry

Job ID: 160-62259-1
SDG: C26050726

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Method Summary

Client: Energy Laboratories, Inc.
Project/Site: Radiochemistry

Job ID: 160-62259-1
SDG: C26050726

Method	Method Description	Protocol	Laboratory
SR-03-RC	Strontium-90 (GFPC)	DOE	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy

None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Energy Laboratories, Inc.
Project/Site: Radiochemistry

Job ID: 160-62259-1
SDG: C26050726

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Sample Origin
160-62259-1	C26050726-001J	Water	05/22/26 12:00	05/28/26 09:45	Wyoming

Client Sample Results

Client: Energy Laboratories, Inc.
Project/Site: Radiochemistry

Job ID: 160-62259-1
SDG: C26050726

Client Sample ID: C26050726-001J
Date Collected: 05/22/26 12:00
Date Received: 05/28/26 09:45

Lab Sample ID: 160-62259-1
Matrix: Water

Method: DOE SR-03-RC - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.0922	U	0.825	0.825	3.00	1.48	pCi/L	06/05/26 09:38	06/15/26 14:30	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*63.1*		*30 - 110*	*06/05/26 09:38*	*06/15/26 14:30*	*1*
Y Carrier	*92.0*		*30 - 110*	*06/05/26 09:38*	*06/15/26 14:30*	*1*

Method: SR-03-RC - Strontium-90 (GFPC)

Lab Sample ID: MB 160-774636/1-A
Matrix: Water
Analysis Batch: 776061

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 774636

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.01067	U	0.187	0.187	3.00	0.332	pCi/L	06/05/26 09:38	06/15/26 14:26	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*88.4*		*30 - 110*	*06/05/26 09:38*	*06/15/26 14:26*	*1*
Y Carrier	*93.5*		*30 - 110*	*06/05/26 09:38*	*06/15/26 14:26*	*1*

Lab Sample ID: LCS 160-774636/2-A
Matrix: Water
Analysis Batch: 776039

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 774636

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Strontium-90			6.80	6.667		0.739	3.00	0.252	pCi/L	98	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Sr Carrier	*85.9*		*30 - 110*
Y Carrier	*92.0*		*30 - 110*

Lab Sample ID: 280-226826-E-3-C DU
Matrix: Water
Analysis Batch: 776062

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 774636

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Strontium-90	-0.138	U		0.1798	U	0.440	3.00	0.757	pCi/L			0.40	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Sr Carrier	*79.6*		*30 - 110*
Y Carrier	*92.7*		*30 - 110*

QC Association Summary

Client: Energy Laboratories, Inc.
Project/Site: Radiochemistry

Job ID: 160-62259-1
SDG: C26050726

Rad

Prep Batch: 774636

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-62259-1	C26050726-001J	Total/NA	Water	PrecSep-7	
MB 160-774636/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-774636/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
280-226826-E-3-C DU	Duplicate	Total/NA	Water	PrecSep-7	

Tracer/Carrier Summary

Client: Energy Laboratories, Inc.
Project/Site: Radiochemistry

Job ID: 160-62259-1
SDG: C26050726

Method: SR-03-RC - Strontium-90 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
		Sr	Y
Lab Sample ID	Client Sample ID	(30-110)	(30-110)
160-62259-1	C26050726-001J	63.1	92.0
280-226826-E-3-C DU	Duplicate	79.6	92.7
LCS 160-774636/2-A	Lab Control Sample	85.9	92.0
MB 160-774636/1-A	Method Blank	88.4	93.5

Tracer/Carrier Legend

Sr = Sr Carrier
Y = Y Carrier

QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C26050726 **Report Date:** 06/17/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B									Analytical Run: MAN401_260526B	
Lab ID: ICV		Initial Calibration Verification Standard							05/26/26 11:56	
pH		7.99	mg/L	0.10	100	98	102			
Lab ID: CCV		Continuing Calibration Verification Standard							05/26/26 14:44	
pH		6.99	mg/L	0.10	100	98	102			
Method: A2320 B									Batch: R328027	
Lab ID: MBLK		Method Blank				Run: MAN401_260526B			05/26/26 12:04	
Alkalinity, Total as CaCO3		ND	mg/L	2						
Lab ID: LCS		Laboratory Control Sample				Run: MAN401_260526B			05/26/26 12:08	
Alkalinity, Total as CaCO3		240	mg/L	5.0	96	90	110			
Lab ID: C26050725-003ADUP		Sample Duplicate				Run: MAN401_260526B			05/26/26 14:29	
Alkalinity, Total as CaCO3		77.9	mg/L	5.0				0.4	10	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C26050726 **Report Date:** 06/17/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A2540 C**										Batch: TDS20260527A
Lab ID: **MBLK_20260527-1**		Method Blank				Run: BAL-111_260527A				05/27/26 14:18
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: **LCS_20260527-1**		Laboratory Control Sample				Run: BAL-111_260527A				05/27/26 14:18
Solids, Total Dissolved TDS @ 180 C		1010	mg/L	25	101	90	110			
Lab ID: **C26050695-001ADUP**		Sample Duplicate				Run: BAL-111_260527A				05/27/26 14:18
Solids, Total Dissolved TDS @ 180 C		2840	mg/L	100				0.4	10	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C26050726 **Report Date:** 06/17/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B									Analytical Run: PHSC_101-C_260604A	
Lab ID: 8.0	2	Initial Calibration Verification Standard							06/03/26 09:32	
pH		8.0	s.u.	0.1	100	98	102			
pH Measurement Temp		22.2	°C			0	0			
Lab ID: CCV - pH 7	2	Continuing Calibration Verification Standard							06/03/26 12:18	
pH		7.0	s.u.	0.1	100	98	102			
pH Measurement Temp		19.1	°C			0	0			
Method: A4500-H B									Batch: R328228	
Lab ID: C26050695-001ADUP	2	Sample Duplicate				Run: PHSC_101-C_260604A			06/03/26 11:35	
pH		7.3	s.u.	0.1				0.1	3	H
pH Measurement Temp		12.9	°C							

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

H - Analysis performed past the method holding time

QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C26050726 **Report Date:** 06/17/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-NO2 B									Analytical Run: SPECC-101_260522C	
Lab ID: CCV		Continuing Calibration Verification Standard							05/22/26 17:18	
Nitrogen, Nitrite as N		0.0450	mg/L	0.010	90	90	110			
Method: A4500-NO2 B									Batch: R327971	
Lab ID: MBLK		Method Blank				Run: SPECC-101_260522C			05/22/26 17:18	
Nitrogen, Nitrite as N		ND	mg/L	0.005						
Lab ID: LCS		Laboratory Control Sample				Run: SPECC-101_260522C			05/22/26 17:18	
Nitrogen, Nitrite as N		0.0465	mg/L	0.010	93	90	110			
Lab ID: C26050726-001AMS		Sample Matrix Spike				Run: SPECC-101_260522C			05/22/26 17:18	
Nitrogen, Nitrite as N		0.0466	mg/L	0.011	88	90	110			S
Lab ID: C26050726-001AMSD		Sample Matrix Spike Duplicate				Run: SPECC-101_260522C			05/22/26 17:18	
Nitrogen, Nitrite as N		0.0486	mg/L	0.011	92	90	110	4.3	10	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits

QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C26050726 **Report Date:** 06/17/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-S D**									Analytical Run: SPECC-101_260529B	
Lab ID: **CCV**		Continuing Calibration Verification Standard							05/29/26 13:02	
Sulfide		0.522	mg/L	0.040	104	90	110			
Method: **A4500-S D**									Batch: R328076	
Lab ID: **MBLK**		Method Blank				Run: SPECC-101_260529B			05/29/26 13:02	
Sulfide		ND	mg/L	0.006						
Lab ID: **LCS**		Laboratory Control Sample				Run: SPECC-101_260529B			05/29/26 13:02	
Sulfide		0.267	mg/L	0.040	108	70	130			
Lab ID: **C26050726-001FMS**		Sample Matrix Spike				Run: SPECC-101_260529B			05/29/26 13:02	
Sulfide		0.204	mg/L	0.040	83	70	130			
Lab ID: **C26050726-001FMSD**		Sample Matrix Spike Duplicate				Run: SPECC-101_260529B			05/29/26 13:02	
Sulfide		0.190	mg/L	0.040	77	70	130	7.1	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C26050726 **Report Date:** 06/17/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0									Analytical Run: IC3-C_260608A	
Lab ID: ICV	3	Initial Calibration Verification Standard							06/08/26 10:58	
Chloride		10.1	mg/L	1.0	101	90	110			
Fluoride		4.99	mg/L	0.10	100	90	110			
Sulfate		37.7	mg/L	1.0	94	90	110			
Lab ID: CCV	3	Continuing Calibration Verification Standard							06/08/26 19:57	
Chloride		21.5	mg/L	1.0	108	90	110			
Fluoride		5.05	mg/L	0.10	101	90	110			
Sulfate		84.3	mg/L	1.0	105	90	110			
Method: E300.0									Batch: R328353	
Lab ID: ICB	3	Method Blank				Run: IC3-C_260608A			06/08/26 10:41	
Chloride		ND	mg/L	0.06						
Fluoride		ND	mg/L	0.01						
Sulfate		ND	mg/L	0.2						
Lab ID: LFB	3	Laboratory Fortified Blank				Run: IC3-C_260608A			06/08/26 11:19	
Chloride		9.66	mg/L	1.0	100	90	110			
Fluoride		4.81	mg/L	0.10	100	90	110			
Sulfate		36.7	mg/L	1.0	95	90	110			
Lab ID: C26050722-003AMS	3	Sample Matrix Spike				Run: IC3-C_260608A			06/08/26 20:49	
Chloride		19.9	mg/L	1.0	108	80	120			
Fluoride		4.98	mg/L	0.10	99	80	120			
Sulfate		60.1	mg/L	1.0	105	80	120			
Lab ID: C26050722-003AMSD	3	Sample Matrix Spike Duplicate				Run: IC3-C_260608A			06/08/26 21:06	
Chloride		21.0	mg/L	1.0	118	80	120	5.1	20	
Fluoride		5.24	mg/L	0.10	104	80	120	5.0	20	
Sulfate		63.7	mg/L	1.0	114	80	120	5.8	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C26050726 **Report Date:** 06/17/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E350.1									Analytical Run: FIA201-C_260602A	
Lab ID: ICV		Initial Calibration Verification Standard							06/02/26 12:45	
Nitrogen, Ammonia as N		1.01	mg/L	0.050	101	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard							06/02/26 13:02	
Nitrogen, Ammonia as N		0.966	mg/L	0.050	97	90	110			
Method: E350.1									Batch: R328141	
Lab ID: MBLK		Method Blank				Run: FIA201-C_260602A			06/02/26 12:44	
Nitrogen, Ammonia as N		ND	mg/L	0.02						
Lab ID: LFB		Laboratory Fortified Blank				Run: FIA201-C_260602A			06/02/26 12:47	
Nitrogen, Ammonia as N		0.953	mg/L	0.050	95	90	110			
Lab ID: C26050695-001DMS		Sample Matrix Spike				Run: FIA201-C_260602A			06/02/26 12:49	
Nitrogen, Ammonia as N		0.797	mg/L	0.050	75	90	110			S
Lab ID: C26050695-001DMSD		Sample Matrix Spike Duplicate				Run: FIA201-C_260602A			06/02/26 12:50	
Nitrogen, Ammonia as N		0.816	mg/L	0.050	77	90	110	2.4	10	S

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits

QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C26050726 **Report Date:** 06/17/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E353.2**										Analytical Run: FIA201-C_260601A
Lab ID: **ICV**		Initial Calibration Verification Standard								06/01/26 11:56
Nitrogen, Nitrate+Nitrite as N		0.952	mg/L	0.050	95	90	110			
Lab ID: **CCV**		Continuing Calibration Verification Standard								06/01/26 13:08
Nitrogen, Nitrate+Nitrite as N		0.945	mg/L	0.050	95	90	110			
Method: **E353.2**										Batch: R328118
Lab ID: **MBLK**		Method Blank				Run: FIA201-C_260601A				06/01/26 11:57
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.02						
Lab ID: **LFB**		Laboratory Fortified Blank				Run: FIA201-C_260601A				06/01/26 11:58
Nitrogen, Nitrate+Nitrite as N		0.950	mg/L	0.050	96	90	110			
Lab ID: **C26050725-001CMS**		Sample Matrix Spike				Run: FIA201-C_260601A				06/01/26 13:11
Nitrogen, Nitrate+Nitrite as N		1.48	mg/L	0.050	100	90	110			
Lab ID: **C26050725-001CMSD**		Sample Matrix Spike Duplicate				Run: FIA201-C_260601A				06/01/26 13:12
Nitrogen, Nitrate+Nitrite as N		1.46	mg/L	0.050	98	90	110	1.4	10	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C26050726 **Report Date:** 06/12/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.1										Batch: GA-1551
Lab ID: LCS-GA-1551	3	Laboratory Control Sample				Run: TENNELEC-4_260605A				06/08/26 09:36
Gross Alpha minus Rn & U		34	pCi/L		99	70	130			
Gross Alpha minus Rn & U Precision (±)		10	pCi/L							
Gross Alpha minus Rn & U MDC		0.84	pCi/L							
Lab ID: MB-GA-1551	3	Method Blank				Run: TENNELEC-4_260605A				06/08/26 09:36
Gross Alpha minus Rn & U		-0.1	pCi/L							U
Gross Alpha minus Rn & U Precision (±)		0.5	pCi/L							
Gross Alpha minus Rn & U MDC		0.8	pCi/L							
Lab ID: C26050726-001IDUP	3	Sample Duplicate				Run: TENNELEC-4_260605A				06/08/26 09:36
Gross Alpha minus Rn & U		-0.0066	pCi/L					190	30	UR
Gross Alpha minus Rn & U Precision (±)		0.48	pCi/L							
Gross Alpha minus Rn & U MDC		0.83	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than or equal to the limit of 3. The RER result is 0.44.

Qualifiers:

RL - Analyte Reporting Limit
ND - Not detected at the Reporting Limit (RL)
R - Relative Percent Difference (RPD) exceeds advisory limit
U - Not detected

QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C26050726 **Report Date:** 06/12/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-12133
Lab ID: LCS-RA226-12133	3	Laboratory Control Sample				Run: TENNELEC-5_260529C				06/09/26 10:01
Radium 226		9.2	pCi/L		88	70	130			
Radium 226 precision (±)		1.7	pCi/L							
Radium 226 MDC		0.14	pCi/L							
Lab ID: MB-RA226-12133	3	Method Blank				Run: TENNELEC-5_260529C				06/09/26 10:01
Radium 226		-0.005	pCi/L							U
Radium 226 precision (±)		0.08	pCi/L							
Radium 226 MDC		0.1	pCi/L							
Lab ID: C26050725-002DDUP	3	Sample Duplicate				Run: TENNELEC-5_260529C				06/09/26 10:01
Radium 226		23	pCi/L					6.5	30	
Radium 226 precision (±)		4.1	pCi/L							
Radium 226 MDC		0.15	pCi/L							

- The RER result is 0.25.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected

QA/QC Summary Report

Prepared by Casper, WY Branch

Work Order: C26050726 **Report Date:** 06/12/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-7997
Lab ID: LCS-228-RA226-12133	3	Laboratory Control Sample				Run: TENNELEC-5_260529B				06/04/26 11:53
Radium 228		8.5	pCi/L		104	70	130			
Radium 228 precision (±)		2.6	pCi/L							
Radium 228 MDC		0.91	pCi/L							
Lab ID: MB-RA226-12133	3	Method Blank				Run: TENNELEC-5_260529B				06/04/26 11:53
Radium 228		0.7	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C26050725-002DDUP	3	Sample Duplicate				Run: TENNELEC-5_260529B				06/04/26 11:53
Radium 228		4.6	pCi/L					7.8	30	
Radium 228 precision (±)		1.5	pCi/L							
Radium 228 MDC		0.99	pCi/L							

- The RER result is 0.16.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected

QA/QC Summary Report

Prepared by Billings, MT Branch

Work Order: C26050726 **Report Date:** 06/17/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP205-B_260528A	
Lab ID: ICV	3	Continuing Calibration Verification Standard							05/28/26 12:33	
Calcium		25.2	mg/L	1.0	101	95	105			
Magnesium		25.2	mg/L	1.0	101	95	105			
Sodium		24.8	mg/L	1.0	99	95	105			
Lab ID: CCV	3	Continuing Calibration Verification Standard							05/28/26 16:40	
Calcium		25.2	mg/L	1.0	101	90	110			
Magnesium		25.3	mg/L	1.0	101	90	110			
Sodium		24.7	mg/L	1.0	99	90	110			
Method: E200.7									Batch: R464220	
Lab ID: MB-5900DIS260528A	3	Method Blank				Run: ICP205-B_260528A			05/28/26 12:47	
Calcium		ND	mg/L	0.05						
Magnesium		ND	mg/L	0.03						
Sodium		ND	mg/L	0.05						
Lab ID: LFB-5900DIS260528A	3	Laboratory Fortified Blank				Run: ICP205-B_260528A			05/28/26 12:48	
Calcium		51.1	mg/L	1.0	102	85	115			
Magnesium		51.5	mg/L	1.0	103	85	115			
Sodium		50.9	mg/L	1.0	102	85	115			
Lab ID: MB-209594	3	Method Blank				Run: ICP205-B_260528A			05/28/26 12:57	
Calcium		ND	mg/L	0.05						
Magnesium		ND	mg/L	0.03						
Sodium		ND	mg/L	0.05						
Lab ID: B26051917-001BMS2	3	Sample Matrix Spike				Run: ICP205-B_260528A			05/28/26 16:51	
Calcium		60.1	mg/L	1.0	104	70	130			
Magnesium		55.3	mg/L	1.0	107	70	130			
Sodium		705	mg/L	1.0		70	130			A
Lab ID: B26051917-001BMSD2	3	Sample Matrix Spike Duplicate				Run: ICP205-B_260528A			05/28/26 16:52	
Calcium		60.4	mg/L	1.0	104	70	130	0.5	20	
Magnesium		55.5	mg/L	1.0	107	70	130	0.4	20	
Sodium		701	mg/L	1.0		70	130	0.5	20	A

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

A - Analyte level was greater than four times the spike level - in accordance with the method, percent recovery is not calculated

QA/QC Summary Report

Prepared by Billings, MT Branch

Work Order: C26050726 **Report Date:** 06/17/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP205-B_260602A	
Lab ID: ICV	5	Continuing Calibration Verification Standard							06/02/26 14:48	
Beryllium		1.23	mg/L	0.010	98	95	105			
Boron		2.48	mg/L	0.10	99	95	105			
Lithium		1.24	mg/L	0.10	99	95	105			
Vanadium		2.45	mg/L	0.10	98	95	105			
Zinc		2.37	mg/L	0.010	95	95	105			
Lab ID: CCV	5	Continuing Calibration Verification Standard							06/02/26 17:29	
Beryllium		1.24	mg/L	0.010	100	90	110			
Boron		2.53	mg/L	0.10	101	90	110			
Lithium		1.22	mg/L	0.10	97	90	110			
Vanadium		2.48	mg/L	0.10	99	90	110			
Zinc		2.39	mg/L	0.010	95	90	110			
Method: E200.7									Batch: 210670	
Lab ID: MB-210670	5	Method Blank				Run: ICP205-B_260602A			06/02/26 17:09	
Beryllium		ND	mg/L	0.00005						
Boron		ND	mg/L	0.006						
Lithium		ND	mg/L	0.002						
Vanadium		ND	mg/L	0.001						
Zinc		ND	mg/L	0.002						
Lab ID: LCS3-210670	5	Laboratory Control Sample				Run: ICP205-B_260602A			06/02/26 17:10	
Beryllium		0.477	mg/L	0.010	95	85	115			
Boron		1.01	mg/L	0.10	101	85	115			
Lithium		1.01	mg/L	0.10	101	85	115			
Vanadium		0.999	mg/L	0.10	100	85	115			
Zinc		0.935	mg/L	0.010	93	85	115			
Lab ID: B26051729-001DMS3	5	Sample Matrix Spike				Run: ICP205-B_260602A			06/02/26 17:34	
Beryllium		0.468	mg/L	0.0010	94	70	130			
Boron		1.03	mg/L	0.050	99	70	130			
Lithium		0.990	mg/L	0.10	98	70	130			
Vanadium		0.992	mg/L	0.010	98	70	130			
Zinc		0.994	mg/L	0.010	90	70	130			
Lab ID: B26051729-001DMSD3	5	Sample Matrix Spike Duplicate				Run: ICP205-B_260602A			06/02/26 17:35	
Beryllium		0.478	mg/L	0.0010	96	70	130	2.1	20	
Boron		1.05	mg/L	0.050	102	70	130	2.0	20	
Lithium		0.995	mg/L	0.10	99	70	130	0.5	20	
Vanadium		1.01	mg/L	0.010	100	70	130	1.9	20	
Zinc		1.02	mg/L	0.010	92	70	130	2.2	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Billings, MT Branch

Work Order: C26050726 **Report Date:** 06/17/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Analytical Run: ICPMS207-B_260601A
Lab ID: QCS	13	Initial Calibration Verification Standard								06/02/26 22:15
Aluminum		0.204	mg/L	0.020	102	90	110			
Arsenic		0.0385	mg/L	0.0050	96	90	110			
Barium		0.0387	mg/L	0.010	97	90	110			
Cadmium		0.0198	mg/L	0.0010	99	90	110			
Chromium		0.0386	mg/L	0.010	97	90	110			
Cobalt		0.0373	mg/L	0.010	93	90	110			
Copper		0.0378	mg/L	0.010	94	90	110			
Iron		0.198	mg/L	0.020	99	90	110			
Lead		0.0376	mg/L	0.0010	94	90	110			
Manganese		0.194	mg/L	0.0050	97	90	110			
Nickel		0.0383	mg/L	0.0050	96	90	110			
Selenium		0.0428	mg/L	0.0050	107	90	110			
Silver		0.0189	mg/L	0.0050	95	90	110			
Lab ID: CCV	13	Continuing Calibration Verification Standard								06/03/26 01:10
Aluminum		0.0485	mg/L	0.020	97	90	110			
Arsenic		0.0484	mg/L	0.0050	97	90	110			
Barium		0.0483	mg/L	0.010	97	90	110			
Cadmium		0.0486	mg/L	0.0010	97	90	110			
Chromium		0.0483	mg/L	0.010	97	90	110			
Cobalt		0.0467	mg/L	0.010	93	90	110			
Copper		0.0466	mg/L	0.010	93	90	110			
Iron		1.24	mg/L	0.020	96	90	110			
Lead		0.0488	mg/L	0.0010	98	90	110			
Manganese		0.0484	mg/L	0.0050	97	90	110			
Nickel		0.0474	mg/L	0.0050	95	90	110			
Selenium		0.0541	mg/L	0.0050	108	90	110			
Silver		0.0191	mg/L	0.0050	96	90	110			
Method: E200.8										Batch: 210670
Lab ID: MB-210670	13	Method Blank				Run: ICPMS207-B_260601A				06/02/26 23:14
Aluminum		ND	mg/L	0.004						
Arsenic		ND	mg/L	0.00008						
Barium		ND	mg/L	0.0004						
Cadmium		ND	mg/L	0.00002						
Chromium		ND	mg/L	0.0005						
Cobalt		ND	mg/L	0.00005						
Copper		ND	mg/L	0.0002						
Iron		ND	mg/L	0.008						
Lead		ND	mg/L	0.00003						
Manganese		ND	mg/L	0.0003						
Nickel		ND	mg/L	0.0003						
Selenium		ND	mg/L	0.00007						
Silver		ND	mg/L	0.00002						

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Billings, MT Branch

Work Order: C26050726 **Report Date:** 06/17/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 210670
Lab ID: LCS-210670		Laboratory Control Sample				Run: ICPMS207-B_260601A				06/02/26 23:20
Silver		0.00854	mg/L	0.0050	85	85	115			
Lab ID: LCS4-210670	12	Laboratory Control Sample				Run: ICPMS207-B_260601A				06/02/26 23:26
Aluminum		0.496	mg/L	0.010	99	85	115			
Arsenic		0.0962	mg/L	0.0010	96	85	115			
Barium		0.0957	mg/L	0.010	96	85	115			
Cadmium		0.0492	mg/L	0.0010	98	85	115			
Chromium		0.0962	mg/L	0.0010	96	85	115			
Cobalt		0.0906	mg/L	0.0010	91	85	115			
Copper		0.111	mg/L	0.0010	111	85	115			
Iron		0.451	mg/L	0.010	90	85	115			
Lead		0.0954	mg/L	0.0010	95	85	115			
Manganese		0.481	mg/L	0.0010	96	85	115			
Nickel		0.0931	mg/L	0.0010	93	85	115			
Selenium		0.101	mg/L	0.0050	101	85	115			
Lab ID: B26051730-001BMS		Sample Matrix Spike				Run: ICPMS207-B_260601A				06/03/26 01:39
Silver		0.00933	mg/L	0.0010	93	70	130			
Lab ID: B26051730-001BMSD		Sample Matrix Spike Duplicate				Run: ICPMS207-B_260601A				06/03/26 01:45
Silver		0.00867	mg/L	0.0010	87	70	130	7.3	20	
Lab ID: B26051730-001CMS4	12	Sample Matrix Spike				Run: ICPMS207-B_260601A				06/03/26 01:51
Aluminum		2.61	mg/L	0.030	102	70	130			
Arsenic		0.564	mg/L	0.0010	89	70	130			
Barium		0.506	mg/L	0.050	98	70	130			
Cadmium		0.242	mg/L	0.0010	97	70	130			
Chromium		0.466	mg/L	0.0050	93	70	130			
Cobalt		0.471	mg/L	0.0050	94	70	130			
Copper		0.468	mg/L	0.0050	91	70	130			
Iron		264	mg/L	0.050		70	130			A
Lead		1.93	mg/L	0.0010	104	70	130			
Manganese		2.65	mg/L	0.0025	93	70	130			
Nickel		0.465	mg/L	0.0050	93	70	130			
Selenium		0.125	mg/L	0.0010	25	70	130			S
Lab ID: B26051730-001CMSD4	12	Sample Matrix Spike Duplicate				Run: ICPMS207-B_260601A				06/03/26 01:57
Aluminum		2.40	mg/L	0.030	94	70	130	8.3	20	
Arsenic		0.553	mg/L	0.0010	87	70	130	2.0	20	
Barium		0.493	mg/L	0.050	95	70	130	2.6	20	
Cadmium		0.237	mg/L	0.0010	95	70	130	2.4	20	
Chromium		0.462	mg/L	0.0050	92	70	130	0.9	20	
Cobalt		0.444	mg/L	0.0050	89	70	130	5.9	20	
Copper		0.724	mg/L	0.0050	142	70	130	43	20	SR
Iron		236	mg/L	0.050		70	130	11	20	A
Lead		1.77	mg/L	0.0010	71	70	130	8.9	20	
Manganese		2.62	mg/L	0.0025	91	70	130	1.3	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits

A - Analyte level was greater than four times the spike level - in accordance with the method, percent recovery is not calculated

R - Relative Percent Difference (RPD) exceeds advisory limit

QA/QC Summary Report

Prepared by Billings, MT Branch

Work Order: C26050726 **Report Date:** 06/17/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**									Batch: 210670	
Lab ID: **B26051730-001CMSD4**	12	Sample Matrix Spike Duplicate				Run: ICPMS207-B_260601A			06/03/26 01:57	
Nickel		0.464	mg/L	0.0050	92	70	130	0.2	20	
Selenium		0.122	mg/L	0.0010	24	70	130	1.9	20	S

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits

QA/QC Summary Report

Prepared by Billings, MT Branch

Work Order: C26050726 **Report Date:** 06/17/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E245.1**									Analytical Run: HGCV205-B_260603A	
Lab ID: **ICV-210716**		Initial Calibration Verification Standard							06/03/26 12:49	
Mercury		0.00199	mg/L	0.00010	99	90	110			
Lab ID: **CCV1**		Continuing Calibration Verification Standard							06/03/26 12:50	
Mercury		0.00252	mg/L	0.00010	101	95	105			
Method: **E245.1**									Batch: 210716	
Lab ID: **MB-210716**		Method Blank				Run: HGCV205-B_260603A			06/03/26 12:57	
Mercury		ND	mg/L	0.00005						
Lab ID: **LCS-210716**		Laboratory Control Sample				Run: HGCV205-B_260603A			06/03/26 12:59	
Mercury		0.00198	mg/L	0.00010	99	85	115			
Lab ID: **B26051920-001CMS**		Sample Matrix Spike				Run: HGCV205-B_260603A			06/03/26 13:21	
Mercury		0.00203	mg/L	0.00010	102	70	130			
Lab ID: **B26051920-001CMSD**		Sample Matrix Spike Duplicate				Run: HGCV205-B_260603A			06/03/26 13:23	
Mercury		0.00193	mg/L	0.00010	96	70	130	5.1	30	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Billings, MT Branch

Work Order: C26050726 **Report Date:** 06/17/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E420.4**									Analytical Run: SFA-201-B_260601A	
Lab ID: **ICV**		Initial Calibration Verification Standard							06/01/26 11:02	
Phenolics, Total Recoverable (Distilled)		0.109	mg/L	0.010	109	90	110			
Lab ID: **CCV**		Continuing Calibration Verification Standard							06/01/26 12:11	
Phenolics, Total Recoverable (Distilled)		0.106	mg/L	0.010	106	90	110			
Method: **E420.4**									Batch: R464243	
Lab ID: **ICB**		Method Blank				Run: SFA-201-B_260601A			06/01/26 11:05	
Phenolics, Total Recoverable (Distilled)		ND	mg/L	0.006						
Lab ID: **LFB**		Laboratory Fortified Blank				Run: SFA-201-B_260601A			06/01/26 11:07	
Phenolics, Total Recoverable (Distilled)		0.110	mg/L	0.010	110	90	110			
Lab ID: **B26051915-001GMS**		Sample Matrix Spike				Run: SFA-201-B_260601A			06/01/26 12:27	
Phenolics, Total Recoverable (Distilled)		0.112	mg/L	0.010	112	90	110			S
Lab ID: **B26051915-001GMSD**		Sample Matrix Spike Duplicate				Run: SFA-201-B_260601A			06/01/26 12:33	
Phenolics, Total Recoverable (Distilled)		0.114	mg/L	0.010	114	90	110	1.9	10	S

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits

QA/QC Summary Report

Prepared by Billings, MT Branch

Work Order: C26050726 **Report Date:** 06/17/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: Kelada-01									Analytical Run: SFA-201-B_260529A	
Lab ID: ICV		Initial Calibration Verification Standard							05/29/26 12:54	
Cyanide, Total		0.0958	mg/L	0.0050	96	90	110			
Method: Kelada-01									Batch: R464183	
Lab ID: ICB		Method Blank				Run: SFA-201-B_260529A			05/29/26 12:56	
Cyanide, Total		ND	mg/L	0.003						
Lab ID: LFB		Laboratory Fortified Blank				Run: SFA-201-B_260529A			05/29/26 12:59	
Cyanide, Total		0.102	mg/L	0.0050	102	90	110			
Lab ID: LCS1-K4Fe(CN)6		Laboratory Control Sample				Run: SFA-201-B_260529A			05/29/26 13:01	
Cyanide, Total		0.199	mg/L	0.0050	100	90	110			
Lab ID: B26051915-001EMS		Sample Matrix Spike				Run: SFA-201-B_260529A			05/29/26 13:17	
Cyanide, Total		0.101	mg/L	0.0050	101	90	110			
Lab ID: B26051915-001EMSD		Sample Matrix Spike Duplicate				Run: SFA-201-B_260529A			05/29/26 13:20	
Cyanide, Total		0.104	mg/L	0.0050	104	90	110	2.8	10	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Gillette, WY Branch

Work Order: C26050726 **Report Date:** 06/15/26

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E1664A										Batch: 260613A
Lab ID: MBLK2606130000		Method Blank				Run: BAL-ACCU-124_260613A				06/13/26 09:24
Oil & Grease (HEM)		ND	mg/L	0.6						
Lab ID: LCS2606130000		Laboratory Control Sample				Run: BAL-ACCU-124_260613A				06/13/26 09:26
Oil & Grease (HEM)		35	mg/L	4.0	88	78	114			
Lab ID: LCSD2606130000		Laboratory Control Sample Duplicate				Run: BAL-ACCU-124_260613A				06/13/26 09:33
Oil & Grease (HEM)		35	mg/L	4.0	88	78	114	0.6	18	
Lab ID: G26050384-001BMS		Sample Matrix Spike				Run: BAL-ACCU-124_260613A				06/13/26 09:51
Oil & Grease (HEM), Sulfur Corrected		30	mg/L	4.0	71	78	114			S

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits

Work Order Receipt Checklist

JB Engineers

C26050726

Login completed by:	Dakota R. Sawyer	Date Received:	5/22/2026
Reviewed by:	srichins	Received by:	DRS
Reviewed Date:	6/4/2026	Carrier name:	Hand Deliver

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	2.1°C On Ice - From Field		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☑	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

Contact and Corrective Action Comments:

The sample for dissolved metals/hardness analysis was subsampled, filtered, and preserved to pH <2 with 2 mL of nitric acid in the laboratory. According to 40CFR136, samples for Dissolved Metals should be filtered and preserved

Work Order Receipt Checklist - Continued

JB Engineers C26050726

within 15 minutes of collection. DRS 05/22/26

Laboratory Certifications and Accreditations

Current certificates are available at www.energylab.com website:

	Agency	Number
Billings, MT	Alaska	17-023
	California	3087
	Colorado	MT00005
	Department of Defense (DoD)/ISO17025	ADE-2588
	Florida (Primary NELAP)	E87668
	Idaho	MT00005
	Louisiana	05079
	Montana	CERT0044
	Nebraska	NE-OS-13-04
	Nevada	NV-C24-00250
	North Dakota	R-007
	National Radon Proficiency	109383-RMP
	Oregon	4184
	South Dakota	ARSD 74:04:07
	Texas	TX-C24-00302
	US EPA Region VIII	Reciprocal
	USDA Soil Permit	P330-20-00170
	Washington	C1039
Casper, WY	Alaska	20-006
	California	3021
	Colorado	WY00002
	Florida (Primary NELAP)	E87641
	Idaho	WY00002
	Louisiana	05083
	Montana	CERT0002
	Nebraska	NE-OS-08-04
	Nevada	NV-C24-00245
	North Dakota	R-125
	Oregon	WY200001
	South Dakota	WY00002
	Texas	T104704181-23-21
	US EPA Region VIII	WY00002
	USNRC License	49-26846-01
	Washington	C1012
Gillette, WY	US EPA Region VIII	WY00006
Helena, MT	Colorado	MT00945
	Montana	CERT0079
	Nevada	NV-C24-00119
	US EPA Region VIII	Reciprocal
	USDA Soil Permit	P330-20-00090

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Page _____ of _____

Account Information *(Billing information)*

Company/Name	JB Engineers
Contact	Jarron Mortimore
Phone	307-921-8822
Mailing Address	205 CR 178 A #466
City, State, Zip	Cheyenne WY 82007
Email	JarronMortimore@JB-Engineers.com
Receive Invoice	☐Hard Copy ☑Email
Receive Report	☐Hard Copy ☑Email
Purchase Order	
Quote	
Bottle Order	86462

Report Information *(if different than Account Information)*

Company/Name	JB Engineers
Contact	Jarron Mortimore
Phone	307-921-8822
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐Hard Copy ☐Email

Special Report/Formats:
☐ LEVEL IV ☐NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____

Comments

Project Information

Project Name, PWSID, Permit, etc.	
Sampler Name	Sampler Phone
Sample Origin State	EPA/State Compliance ☐ Yes ☐ No

URANIUM MINING CLIENTS MUST indicate sample type
☐ Unprocessed Ore
☐ Processed Ore (Ground or Refined) **CALL BEFORE SENDING
☐ 11(e)2 Byproduct Material (Can ONLY be Submitted to ELI Casper Location)

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Oil
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification *(Name, Location, Interval, etc.)*	Collection Date	Collection Time	Number of Containers	Matrix *(See Codes Above)*	See Attached	RUSH TAT	ELI LAB ID *Laboratory Use Only*
1	Well #1	5/22	12:00pm			✓		C26050726
2								
3								
4								
5								
6								
7								
8								
9								

ELI is REQUIRED to provide preservative traceability. If the preservatives supplied with the bottle order were **NOT** used, please attach your preservative information with this COC.

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Loren Rinkwalter	5/20/26 4:15pm			1615	
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Dakota Sawyer	05/22/26	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number *(cash/check only)*

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

BOTTLE ORDER 86462

SHIPPED TO: **JB Engineers**

To report an issue with this order, view Safety Data Sheets, or let us know how we are doing, scan here or go to energylab.com/contact-us

Contact: Jared Jung
205 County Rd 128 A
Suite 400
Cheyenne WY 82007
Phone: (307) 259-4302
Project: DEQ Chapter 8 Table 1

Order Created by: Dakota R. Sawyer
Shipped From: Casper, WY

Ship Date: 4/9/2026
VIA: Ground

Bottle Size/Type	Bottles Per Samp	Method	Tests	Critical Hold Time	Preservative	Notes	Num of Samp
DEQ Chapter 8 Table 1							
1 Liter Plastic	1	A2320 B	Alkalinity to pH 4.5				1
		E300.0	Anions by Ion Chromatography				
		A4500-NO2 B	Nitrogen, Nitrite	48.00 hrs			
		A4500-H B	pH	0.25 hrs			
		A1030 E	Residual Sodium Carbonate				
		A2540 C	Solids, Total Dissolved				
250 mL Plastic	1	E200.7_8	Metals by ICP/ICPMS, Dissolved		HNO3	Filter before preservation	1
		MCAWW	Sample Filtering, Dissolved Analytes				
		USDA20B	Sodium Adsorption Ratio				
250 mL Plastic	1	E200.7_8	Metals by ICP/ICPMS, Total Recoverable		HNO3		1
		E245.1	Mercury, Total Recoverable				
		E200.2	Metals Preparation by EPA 200.2				
		E245.1	Digestion, Mercury by CVAA				

250 mL Plastic	1	E350.1 E353.2 E353.2	Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Nitrate as N		H2SO4		1
500 mL Amber Plastic	1	Kelada-01	Cyanide, Total Manual Distillation		NaOH		1
250 mL Plastic	1	A4500-S D	Sulfide, Methylene Blue Colorimetric		ZnAc NaOH	Zero Headspace	1
250 mL Narrow Mouth Clear Glass	1	E420.4	Phenolics, Total Recoverable (Distilled)		H2SO4		1
1 Liter Clear Glass Narrow Mouth	2	E1664A	E1664A Oil & Grease		H2SO4		1
1 Gallon Plastic	1	E900.1 A7500-RA E903.0 RA-05	Gross Alpha minus Radon and Uranium, Total Radium 226 + Radium 228, Total Radium 226, Total Radium 228, Total		HNO3		1
1 Gallon Plastic	1	E905.0	Strontium 90, Total		HNO3		1

Comments

HNO3 - Nitric Acid H2SO4 - Sulfuric Acid NaOH - Sodium Hydroxide

ZnAc - Zinc Acetate HCl - Hydrochloric Acid H3PO4 - Phosphoric Acid

We strongly suggest that the samples are shipped the same day as they are collected.

Material Safety Data Sheets(MSDS) Available @ EnergyLab.com ->Services -> MSDS Sheets

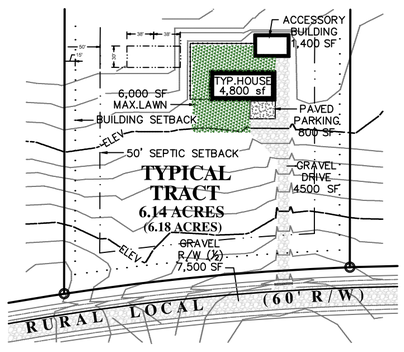
Corrosive Chemicals: Nitric, Sulfuric, Phosphoric, Hydrochloric Acids and Sodium Hydroxide. Zinc Acetate is a skin irritant.

Subcontracting of sample analyses to an outside laboratory may be required. If so, Energy Laboratories will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

R&R HEIGHTS SUBDIVISION
CHAPTER 23 REPORT

Appendix F

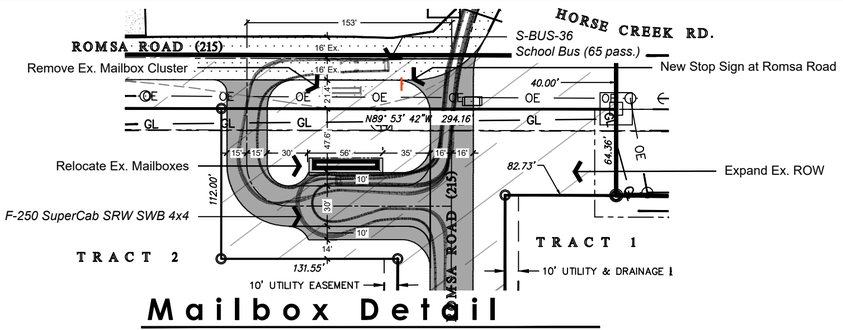
Subdivision Layout



Typical Tract

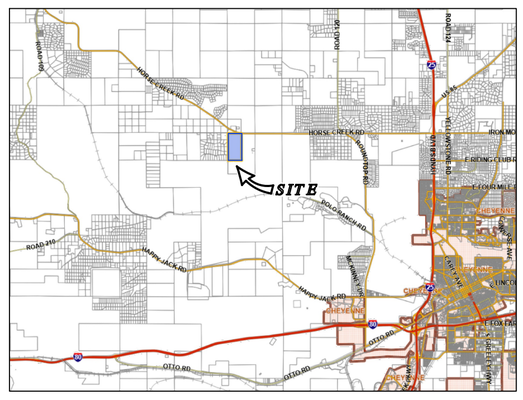
Development Assumption

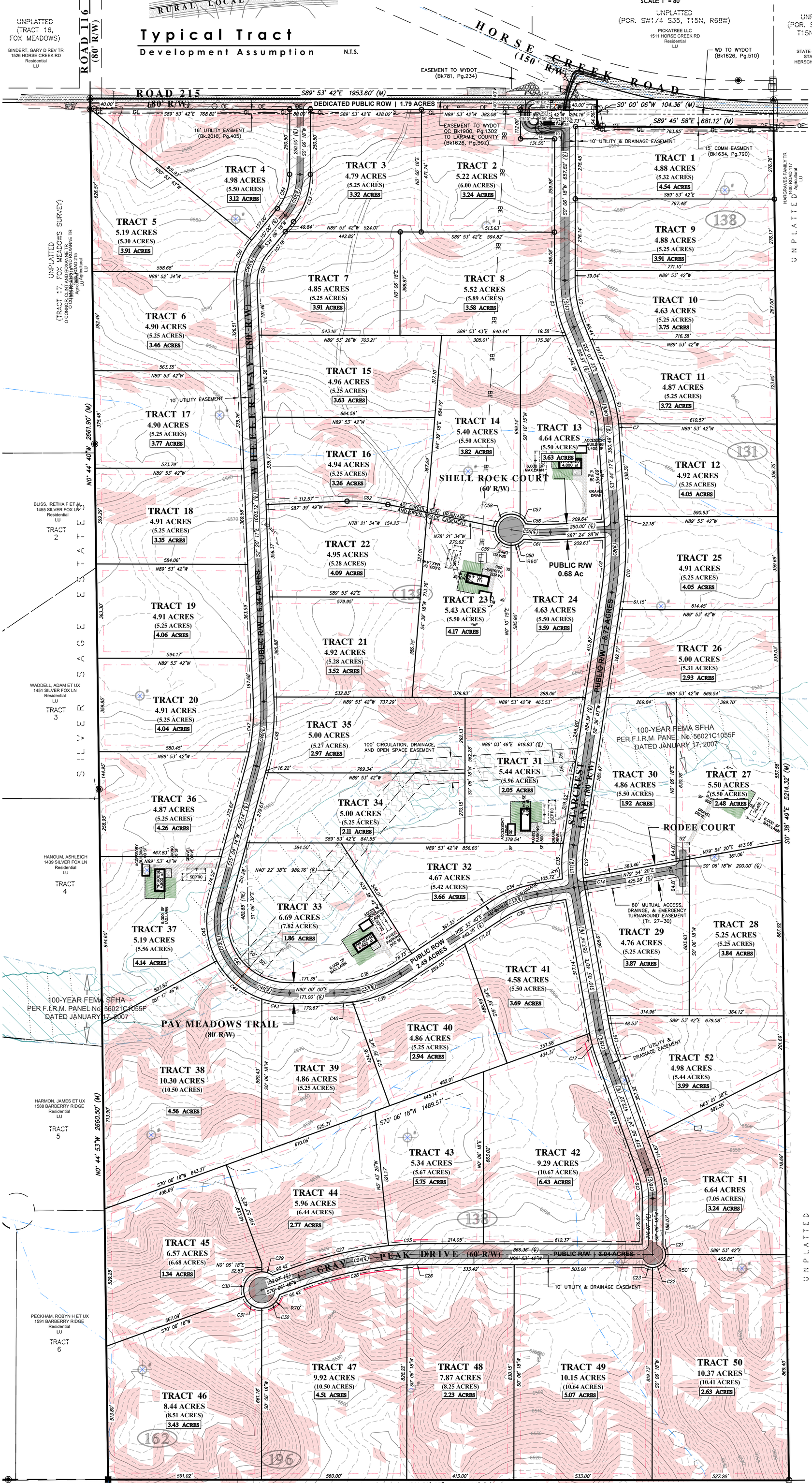
N.T.S.



Mailbox Detail

SCALE: 1" = 80'





LEGEND

◎	SET 1½" ALUMINUM SURVEY CAP STAMPED "SSS PLS 5910" ON ⅝" x 24" REBAR
◉	FOUND 1½" ALUMINUM CAP STAMPED "SSS P.L.S. 2500"
■	FOUND GLO STONE
▲	FOUND 3¼"ALUMINUM SURVEY CAP STAMPED "PLS 2617"
(M)	DENOTES MEASURED DATA THIS SURVEY
(R)	DENOTES RECORD DATA
	DENOTES MUTUAL EASEMENT AREAS
	DENOTES PUBLIC R/W DEDICATED HEREWITH
	MAJOR TOPOGRAPHIC CONTOUR
	MINOR TOPOGRAPHIC CONTOUR
x—x	EXISTING FENCE
—OE—	EXIST OVERHEAD POWER & POLE
BE	EXIST UNDERGROUND POWER
_.__ ACRES	NET ACREAGE OF TRACT
(_.__ ACRES)	GROSS ACREAGE OF TRACT (TO ℄ OF AJACENT ROAD R/W)
_.__ ACRES	BUILDABLE AREA OF TRACT PER LCLUR§ 6-1-101 & 4-4-101
	EXISTING SLOPE IN EXCESS OF 10%
	SETBACK LINE PER LCLUR§2-4-104
	PROPOSED ROADWAY
	FEMA 100-YEAR SFHA w/FLOODPLAIN MODELING AND ESTABLISHED BFEs
	PERCOLATION TEST LOCATION AND #
102	NRCS SOIL TYPE(S)

ROAD CENTERLINES CURVE TABLE

#	DELTA	RADIUS	CHORD BEARING	CHORD LENGTH	ARC LENGTH
C1(℄)	22° 13' 51"	475.00'	S11° 00' 37"E	183.15'	184.30'
C4(℄)	18° 23' 16"	475.00'	S12° 55' 55"E	151.79'	152.44'
C8(℄)	12° 20' 20"	1250.00'	S2° 25' 53"W	268.67'	269.19'
C11(℄)	18° 41' 43"	504.00'	S0° 44' 49"E	163.72'	164.45'
C12(℄)	64° 41' 37"	275.00'	S17° 16' 34"E	294.27'	310.51'
C15(℄)	9° 44' 44"	575.00'	S14° 58' 02"E	97.69'	97.80'
C18(℄)	20° 00' 00"	325.00'	S9° 53' 42"E	112.87'	113.45'
C24(℄)	19° 59' 39"	1450.00'	S80° 06' 28"W	503.44'	506.00'
C33(℄)	23° 21' 02"	425.00'	N68° 13' 49"E	172.01'	173.21'
C37(℄)	32° 38' 42"	475.00'	N73° 40' 39"E	266.99'	270.64'
C41(℄)	41° 21' 57"	275.00'	S70° 18' 21"E	194.26'	198.54'
C46(℄)	17° 24' 25"	825.00'	S6° 22' 02"W	249.68'	250.64'
C49(℄)	41° 26' 29"	225.00'	S18° 23' 04"W	159.22'	162.74'
C52(℄)	39° 00' 00"	250.00'	S19° 36' 18"W	166.90'	170.17'
C55(℄)	12° 03' 12"	720.00'	N86° 33' 56"W	151.19'	151.47'

Development Summary

Legal Description: The West Half (W½) of Section 2, Township 14 North, Range 68 West of the 6th P.M. in Laramie County, Wyoming, LESS AND EXCEPT that portion granted to The Transportation Commission of Wyoming by Warranty Deed dated November 21, 2001, and recorded on December 20, 2001, in Book 1626 at Page 580 of the records of Laramie County, Wyoming.

Property Address: TBD Horse Creek Road, 82009
AMEC Zone: #2
Existing Use: Vacant Agricultural
Proposed Use: (52) Single-Family Residential
Existing Zoning: LU - Land Use (Unincorporated County) to remain
Required Building Setbacks: 25' on all sides for any structure >200 SF
Maximum Impervious Coverage: 30%
Maximum Building Height: 40'
Minimum Tract Size: 5.25 Acres
Max # Residential Tracts: 61

Total Property Area: 319.48 Acres (321.55 Gross Acres)
Total Buildable Area: 185.14 Acres

Total # Residential Tracts: 52
Average Tract Size: ±6.16 Acres

Public R/W:

ROAD NAME	CL LENGTH	ACREAGE
Starcrest Lane (80' R/W)	4,495 LF	± 8.72 Ac
Shell Rock Court (60' R/W)	401 LF	± 0.68 Ac
Wheeler Way (80' R/W)	3,452 LF	± 6.34 Ac
Pay Meadows Trail (80' R/W)	1,398 LF	± 2.49 Ac
Gray Peak Drive (60' R/W)	1,525 LF	± 3.04 Ac
Total:	11,271 LF	±21.27 Ac

Shared Access Easements:

ROAD NAME	CL LENGTH	ACREAGE
Rodee Court (60' Esmt.)	385 LF	± 0.72 Ac
Total:	385 LF	± 0.72 Ac

Drainage and Open Space Easements:

EASMENT NAME / AREA	ACREAGE
Shell Court Extension (40'W)	± 0.82 Ac
Floodplain Trail (100'W)	± 3.76 Ac
Tracts 27-28	± 0.35 Ac
Total:	± 4.93 Ac

Notes

1. BASIS OF BEARINGS: WYOMING STATE PLANE COORDINATES, EAST ZONE, NAD83-2011, US SURVEY FEET. GRID DISTANCES. ELEVATIONS: NAVD88, BASED ON BENCHMARK C-90.
2. ALL UNMONUMENTED TRACT CORNERS, ANGLE POINTS, AND POINTS OF CURVATURE TO BE MONUMENTED WITH 1½" ALUMINUM CAP STAMPED "SSS P.L.S. 5910" ON ⅝"x24" REBAR.
3. A PORTION OF THE PROPOSED SUBDIVISION AS SHOWN FALLS WITHIN A FEMA 100-YEAR SFHA PER F.I.R.M PANEL NO.56021C1055F; DATED JANUARY 17, 2007.
4. NO CENTRALIZED SEWER OR WATER SYSTEM(S) ARE PROPOSED. WATER SERVICE & WASTEWATER DISPOSAL TO BE PROVIDED BY INDIVIDUAL WELL & SEPTIC LEACH FIELDS FOR EACH TRACT. ALL SYSTEMS SHALL BE PROPERLY PERMITTED AND SHALL COMPLY WITH ALL APPLICABLE STATE AND LOCAL RULES AND REGULATIONS.
5. EASEMENT NOTES:
   A. "UTILITY EASEMENT(S)" SHOWN ARE HEREBY GRANTED TO LARAMIE COUNTY FRANCHISED UTILITIES PROVIDES, THEIR LEGAL SUCCESSORS AND/OR ASSIGNS, UNLESS OTHERWISE SPECIFIED HEREON, FOR THE INSTALLATION OF UNDERGROUND UTILITY(IES) AND COMMUNICATION(S) FACILITIES FOR LOCAL SERVICES.
   B. "DRAINAGE EASEMENT(S)" CREATED HEREWITH ARE HEREBY GRANTED TO ALL OWNER(S) OF FEE-SIMPLE TRACTS HEREON FOR MUTUAL STORMWATER DRAINAGE AND ASSOCIATED FACILITIES.
   C. "OPEN SPACE EASEMENT(S)" CREATED HEREWITH ARE HEREBY GRANTED TO ALL OWNER(S) OF FEE-SIMPLE TRACTS HEREON FOR MUTUAL NON-MOTORIZED CIRCULATION AND RECREATION.
6. ALL TRACTS ARE TO BE ACCESSED OFF INTERNAL ROADWAYS/ACCESS EASEMENTS. NO DIRECT LOT ACCESS WILL BE ALLOWED TO/FROM ROAD 215 OR HORSE CREEK ROAD.
7. GRADING & DRAINAGE: SEE DRAINAGE DESIGN & EROSION CONTROL REPORT PREPARED BY CIVILWORX, LLC.

N

0 100' 200' 400'

SCALE: 1" = 200'

ALL SURVEY DATA © COPYRIGHT 2026 STEIL SURVEYING SERVICES, LLC ALL RIGHTS RESERVED

STEIL SURVEYING SERVICES, LLC
PROFESSIONAL LAND SURVEYORS
PLANNING & DEVELOPMENT SPECIALISTS
1102 WEST 19th ST. CHEYENNE, WY. 82001 ○ (307) 634-7273
756 GILCHRIST ST. WHEATLAND, WY. 82201 ○ (307) 322-9789
www.SteilSurvey.com ○ Info@SteilSurvey.com

SSS26148- 25026-PDP-Rev2FINAL.dwg, 08/04/2026, trout

Date: 8/4/2026
Sheet No. 1 / 1
Project No.: 25026
Sheet Title: Preliminary Subdivision Plan
Drawn By: CLP
Rev. Date:

Prepared For:
Jean M Wheeler Revocable Trust
(August 8, 1996)
3626 Foxcroft Road
Cheyenne, WY 82001

PRELIMINARY SUBDIVISION PLAN & LAND ANALYSIS MAP
R&R Heights - A Rural Residential Neighborhood
Situated in the W1/2 of Section 2, T.14 N., R.68 W of the 6th P.M., Laramie County, WY

PALMA Land Planning
SITE DESIGN | LAND DEVELOPMENT
LANDSCAPE ARCHITECTURE | ZONING
1775 Goodnight Trail, Suite 210 | Cheyenne, WY 82007
307-996-8281 | info@PlanDesignWY.com

THIS DOCUMENT IS AN INSTRUMENT OF PROFESSIONAL SERVICE PREPARED FOR THIS PROJECT. PALMA LAND PLANNING, LLC, SHALL BE HELD HARMLESS AND RELEASED OF ALL DAMAGE, COST, AND/OR LIABILITY ARISING FROM MODIFICATION AND/OR REUSE BY OTHERS. DO NOT BID OR BUILD FROM DRAWINGS NOT STAMPED AND SIGNED BY A LICENSED LANDSCAPE ARCHITECT.

KELLAR ENGINEERING

www.kellarengineering.com

April 3, 2026

Jean M. Wheeler Revocable Trust, Dated August 8, 1996
3626 Foxcroft Road
Cheyenne, WY 82001
C/O Ryan and Rashell Rodekohr

RE: R&R Heights – Traffic Narrative

The proposed project consists of approximately 52 single-family dwelling units (homes) located in the West Half (W½) of Section 2, Township 14 North, Range 68 West of the 6th P.M. in Laramie County, Wyoming. Kellar Engineering LLC (KE) is the traffic engineering consultant that will be preparing the Traffic Impact Study (TIS) for the project. Per the ITE, the proposed project is anticipated to generate approximately 473 daily weekday trips, 36 AM total peak hour trips, and 48 PM total peak hour trips. See Table 1: Trip Generation.

If there are any questions, please do not hesitate to contact me at (970) 219-1602 or skellar@kellarengineering.com.

Respectfully,

Kellar Engineering LLC

Sean Kellar, PE, PTOE

Transportation Assessment Worksheet
The following transportation assessment worksheet shall be completed in association with 5-6-103

Project:	R&R Heights	By:	Sean Kellar, PE
Date:	4/3/2026	Contact:	Casey Palma
Owner/Developer:	Wheeler, Jean M Rev TR	Phone:	(307) 996-8281
Property Address or Legal Description (lot, block, subdivision):			SE Corner of Rd 116 215 (S. of Horse Creek Rd)
Legal Description:	West Half (W½) of Section 2, Township 14 North, Range 68 West of the 6th P.M		
Existing Zoning:	LU - Land Use	Change to:	N/A
Existing Land Use:	Vacant Agricultural	Proposed:	(52) Single-Family Residential
			Above changes if applicable.
Applicant email:	Casey@PlanDesignWY.com		

All Developments

Provide the following information, to the best of your knowledge, for all projects:

1. Provide existing Land Use and Proposed Land Use for this site.
   a. Traffic counts need to be included in here… if not existing developer must provide current traffic counts on adjacent public roadways.
   b. Description of existing Land Use: (If none, use Vacant) If using Peak Hours, multiply by a Rate of 7.44

Type	ITE Code	Land Use	Unit	Time Period	Rate	Size	Trips/Day
		N/A					
						Total:	

   c. Description of proposed Land Use: (If none, use Vacant) If using Peak Hours, multiply by a Rate of 7.44

Type	ITE Code	Land Use	Unit	Time Period	Rate	Size	Trips/Day
	210	Single Family Homes				52 DU	473
						Total:	
						New Land Use:	Trips/Day
						Increase (+)/Decrease (-):	473

1. Traffic Impact Study - Criteria I	
2. Traffic Impact Study - Criteria II	
3. Traffic Impact Study - Criteria III	
4. Traffic Impact Study - Criteria IV	
5. No Traffic Impact Study Required	

b. *Standards for TIS*

Traffic impact studies shall utilize the Institute of Transportation Engineers (ITE) trip generation rates unless better information is available and approved by the County. If there is no available current data regarding existing traffic counts on existing roadways, traffic counts will be required to be obtained when a TIS is required.

Table 1: Trip Generation (ITE 12th Edition)

ITE Code	Land Use		Average Daily Trips		AM Peak Hour Trips						PM Peak Hour Trips					
		Size	Rate	Total	Rate	% In	In	% Out	Out	Total	Rate	% In	In	% Out	Out	Total
210	Single Family Detached Housing	52 DU	9.09	473	0.70	27%	10	73%	26	36	0.93	62%	30	38%	18	48
Total		**52 DU**		**473**			**10**		**26**	**36**			**30**		**18**	**48**

DU = Dwelling Units

R&R Heights – Rural Residential Subdivision

West Half (W½) of Section 2, Township 14 North, Range 68 West of the 6th P.M. in Laramie County, Wyoming

Traffic Impact Study

KE Job #2026-028

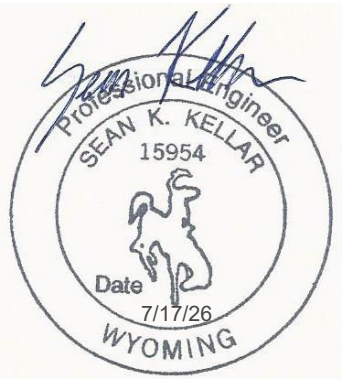
Prepared for:

Jean M. Wheeler Revocable Trust, Dated August 8, 1996
3626 Foxcroft Road
Cheyenne, WY 82001
C/O Ryan and Rashell Rodekohr

Prepared by:

KELLAR ENGINEERING

skellar@kellarengineering.com
www.kellarengineering.com
970.219.1602 phone



July 17, 2026

Sean K. Kellar, PE, PTOE

This document, together with the concepts and recommendations presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization from Kellar Engineering LLC shall be without liability to Kellar Engineering LLC.

TABLE OF CONTENTS

		Page
1.0	Introduction	3
2.0	Existing Conditions and Roadway Network	3
2.1	Recent Traffic Volumes	3
3.0	Proposed Development	6
4.1	Trip Generation	6
4.2	Trip Distribution	8
4.3	Traffic Assignment	8
4.4	Short Range and Long Range Total Peak Hour Traffic	8
5.0	Traffic Operation Analysis	18
5.1	Analysis Methodology	18
5.2	Intersection Operational Analysis	18
5.3	Crash Data	18
5.4	Sight Distance	19
5.5	Auxiliary Lane Requirements	19
6.0	Findings	24

List of Figures:

		Page
Figure 1:	Vicinity Map	4
Figure 2:	Site Plan	5
Figure 3:	Recent Peak Hour Traffic	9
Figure 4:	2030 Background Peak Hour Traffic	10
Figure 5:	2050 Background Peak Hour Traffic	11
Figure 6:	Trip Distribution	12
Figure 7:	Site Generated Traffic - Full Build Out	13
Figure 7b:	Site Generated Traffic – Phase 1	14
Figure 8:	2030 Short Range Total Peak Hour Traffic – Full Build Out	15
Figure 8b:	2030 Short Range Total Peak Hour Traffic – Phase 1	16
Figure 9:	2050 Long Range Total Peak Hour Traffic	17

TABLE OF CONTENTS (continued)

List of Tables:		Page
Table 1:	Trip Generation – Full Build Out	7
Table 1b:	Trip Generation – Phase 1	7
Table 2:	2030 Short Range Total Peak Hour Operations – Build Out	20
Table 3:	2050 Long Range Total Peak Hour Operations – Build Out	22

Appendices:		Page
Appendix A:	Traffic Counts	26
Appendix B:	Level of Service (LOS) Table	30
Appendix C:	Aerial Photo	31
Appendix D:	WYDOT Crash Data	32
Appendix E:	Excerpts from AASHTO's Policy on Geometric design	34
Appendix F:	HCM Calculations (Synchro)	36

1.0 Introduction

The purpose of this Traffic Impact Study (TIS) is to identify project traffic generation characteristics, to identify potential traffic related impacts on the adjacent street system, and to develop mitigation measures required for identified traffic impacts. This TIS is for the proposed R&R Heights rural residential subdivision project located south of the Horse Creek Road/Romsa Road intersection in Laramie County, Wyoming. See Figure 1: Vicinity Map.

Kellar Engineering LLC (KE) has prepared the TIS to document the results of the project's anticipated traffic conditions in accordance with Laramie County and WYDOT requirements and to identify projected impacts to the local and regional traffic system.

2.0 Existing Conditions and Roadway Network

The project site is located south of the intersection of Horse Creek Road and Romsa Road in Laramie County, WY. See Figure 1: Vicinity Map. Horse Creek Road (WY 211) has a two-lane section, paved shoulders, and a posted speed of 65 mph. Romsa Road (CR 215) is a two-lane paved low volume rural roadway. The intersection of Horse Creek Road and Romsa Road has stop-control with the stop sign facing the Romsa Road approach.

2.1 Recent Traffic Volumes

Recent peak hour traffic volume counts were conducted using data collection cameras on Wednesday, April 22, 2026. The traffic counts were conducted during the peak hours of adjacent street traffic in 15-minute intervals. These traffic counts are shown in Figure 3 with the count sheets provided in Appendix A.

Figure 1: Vicinity Map

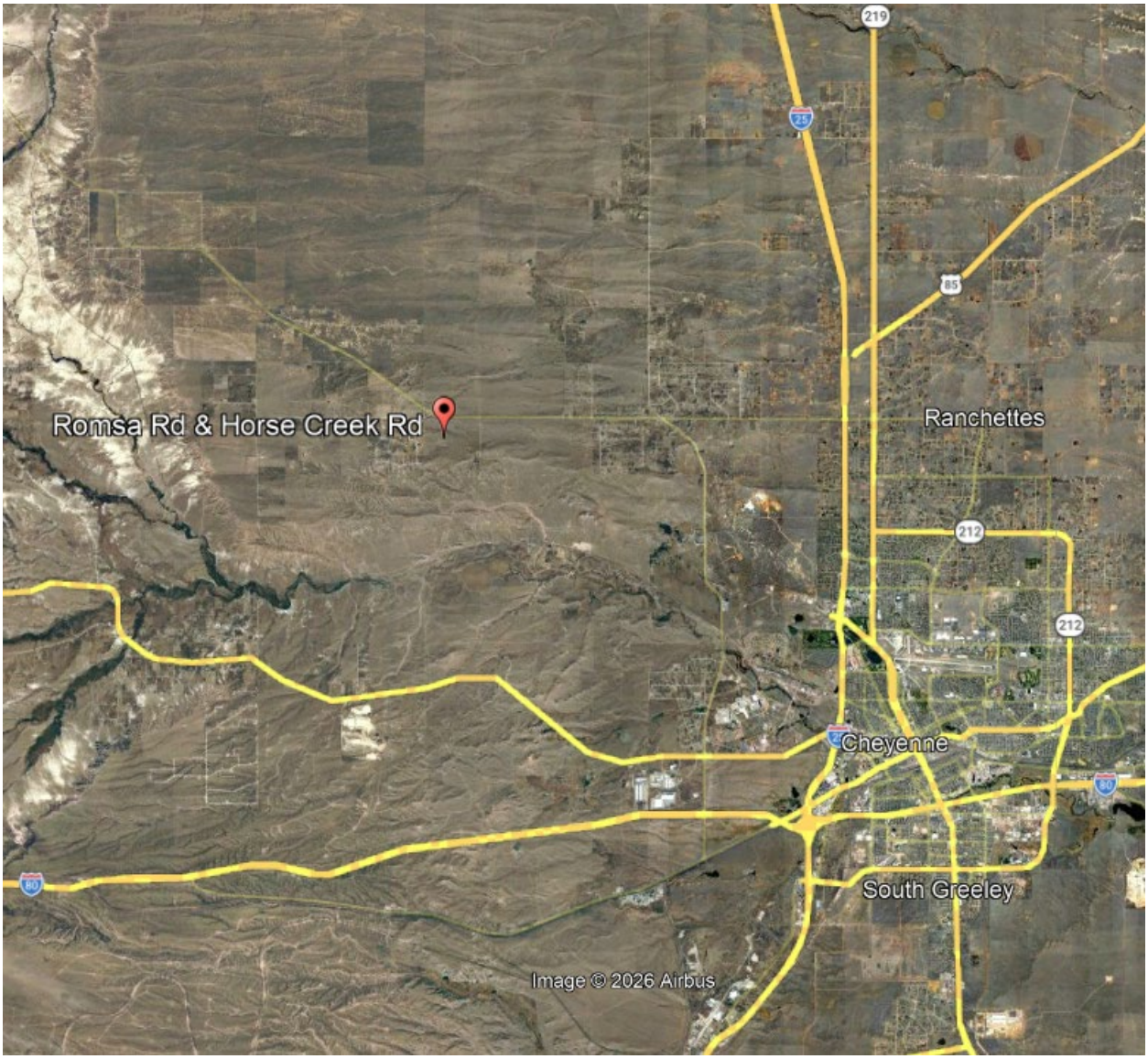
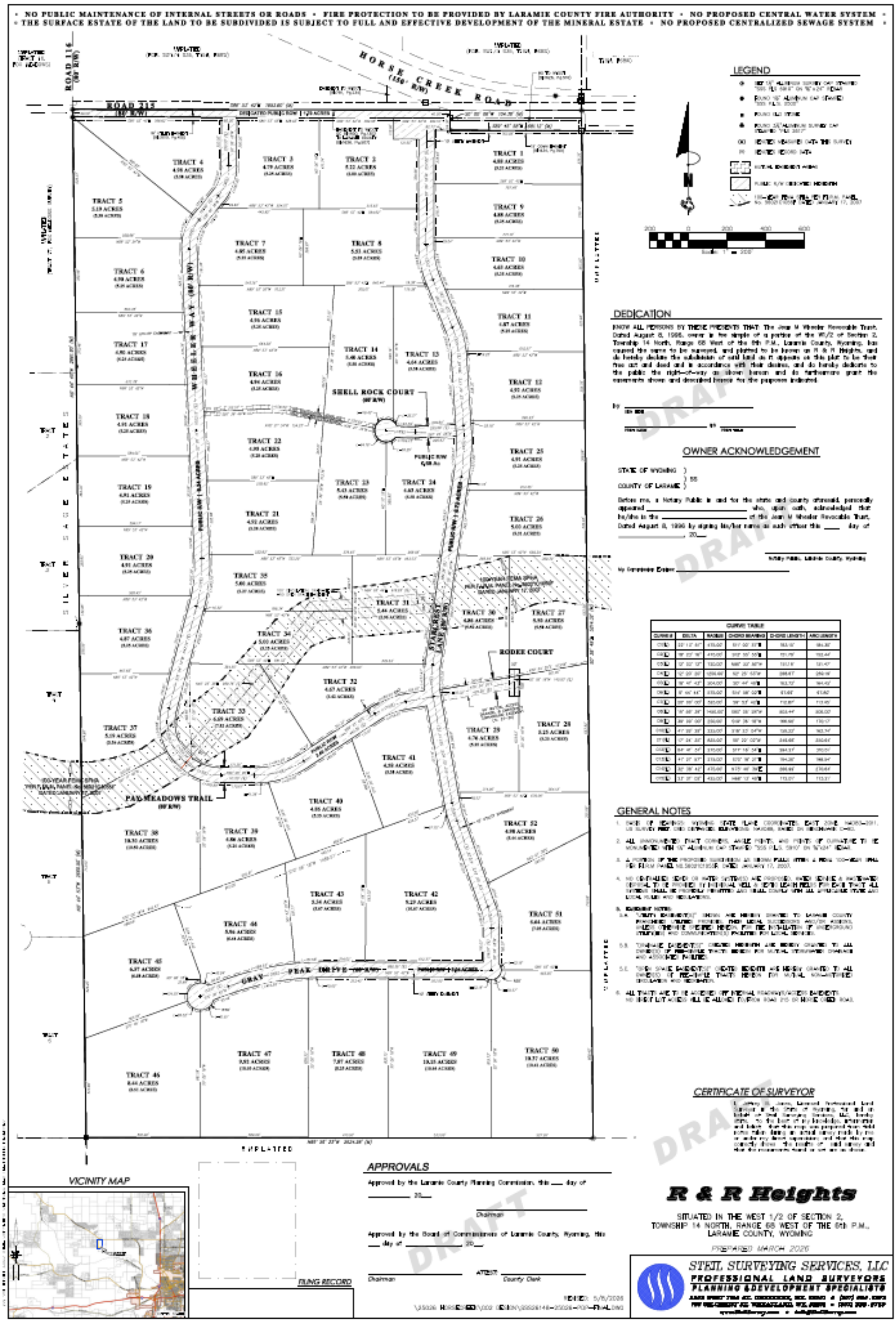


Figure 2: Site Plan (For reference only. See Planning Drawings for more information)



3.0 Proposed Development

The project consists of a maximum of 55 single-family homes. See Table 1: Trip Generation and Figure 2: Site Plan. Phase 1 of the project could consist of a maximum of 22 single-family homes. See Table 1b.

4.1 Trip Generation

Site generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the *Trip Generation Manual* published by the Institute of Transportation Engineers (ITE). ITE has established trip generation rates in nationwide studies of similar land uses. For this study, KE used the *ITE 12th Edition Trip Generation Manual* average trip rates. Per the ITE, full project build-out of the project is anticipated to generate a total of approximately: 500 daily weekday trips, 39 AM total peak hour trips, and 51 PM total peak hour trips. Table 1 summarizes the ITE Trip Generation for the proposed development.

Table 1: Trip Generation (ITE 12th Edition) – Full Build Out

ITE Code	Land Use		Average Daily Trips		AM Peak Hour Trips						PM Peak Hour Trips					
		Size	Rate	Total	Rate	% In	In	% Out	Out	Total	Rate	% In	In	% Out	Out	Total
210	Single Family Detached Housing	55 DU	9.09	500	0.70	27%	10	73%	29	39	0.93	62%	32	38%	19	51
Total		**55 DU**		**500**			**10**		**29**	**39**			**32**		**19**	**51**

DU = Dwelling Units

Table 1b: Trip Generation (ITE 12th Edition) – Phase 1

ITE Code	Land Use		Average Daily Trips		AM Peak Hour Trips						PM Peak Hour Trips					
		Size	Rate	Total	Rate	% In	In	% Out	Out	Total	Rate	% In	In	% Out	Out	Total
210	Single Family Detached Housing	22 DU	9.09	200	0.70	27%	4	73%	11	15	0.93	62%	13	38%	7	20
Total		**22 DU**		**200**			**4**		**11**	**15**			**13**		**7**	**20**

DU = Dwelling Units

4.2 Trip Distribution

Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns and volumes, anticipated surrounding development areas, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site generated traffic that approaches the site from a given direction and departs the site back to the original source. Figure 6 illustrates the trip distribution used for the project's analysis.

4.3 Traffic Assignment

Traffic assignment was obtained by applying the trip distributions to the estimated trip generation of the development. Figure 7 shows the peak site generated peak hour traffic assignment.

4.4 Short Range and Long Range Total Peak Hour Traffic

Site generated peak hour traffic volumes were added to the background traffic volumes to represent the estimated traffic conditions for the short range (2030) and long range (2050) horizons. The background (2030) and short range (2030) total traffic volumes are shown in Figure 4 and Figure 8 respectively. Additionally, the background (2050) and long range (2050) total traffic volumes are shown in Figure 5 and Figure 9 respectively The traffic analysis in this study includes the traffic generated from the proposed development plus the increase in background traffic of 2% per year.

Figure 3: Recent Peak Hour Traffic

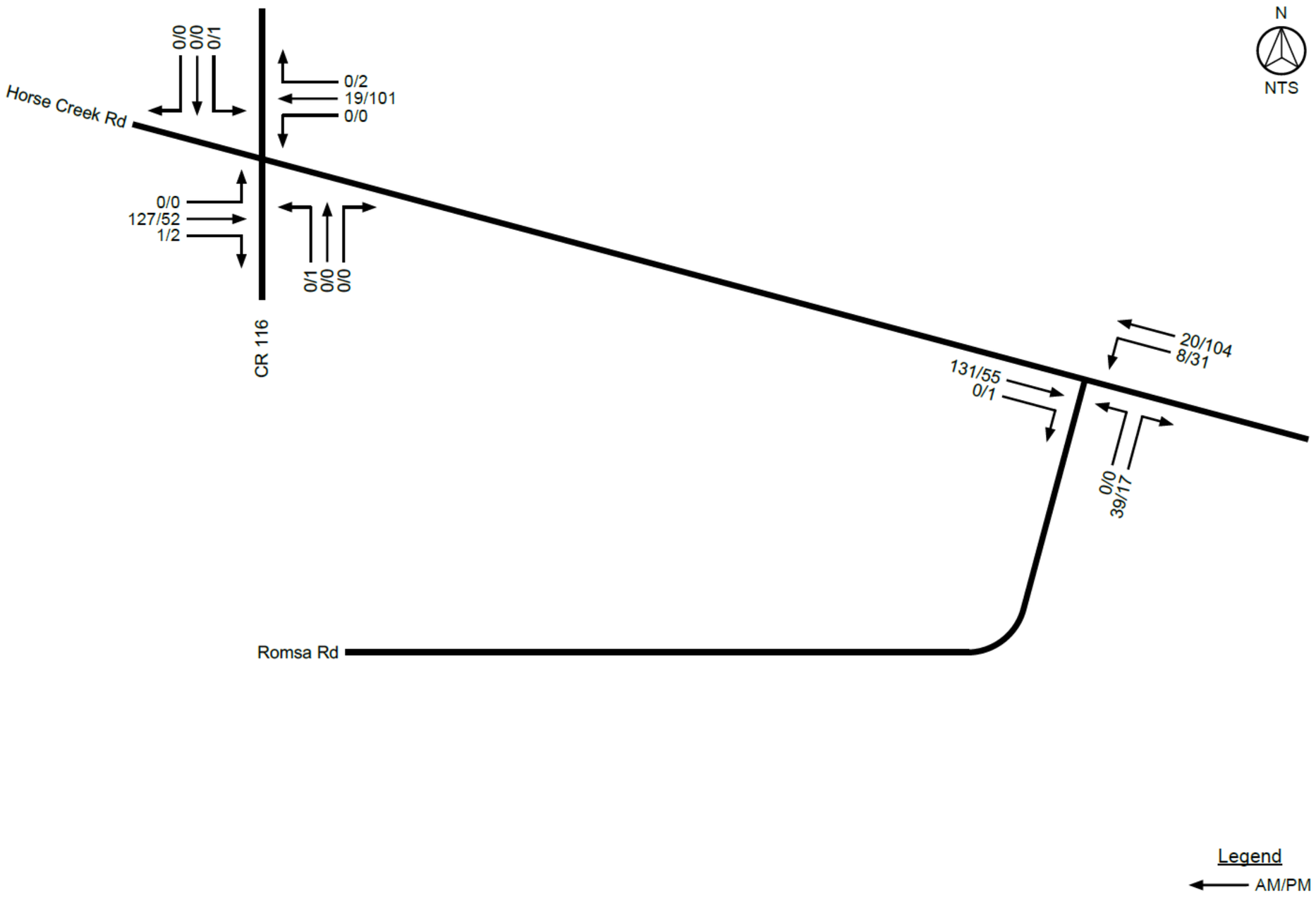


Figure 4: 2030 Background Traffic

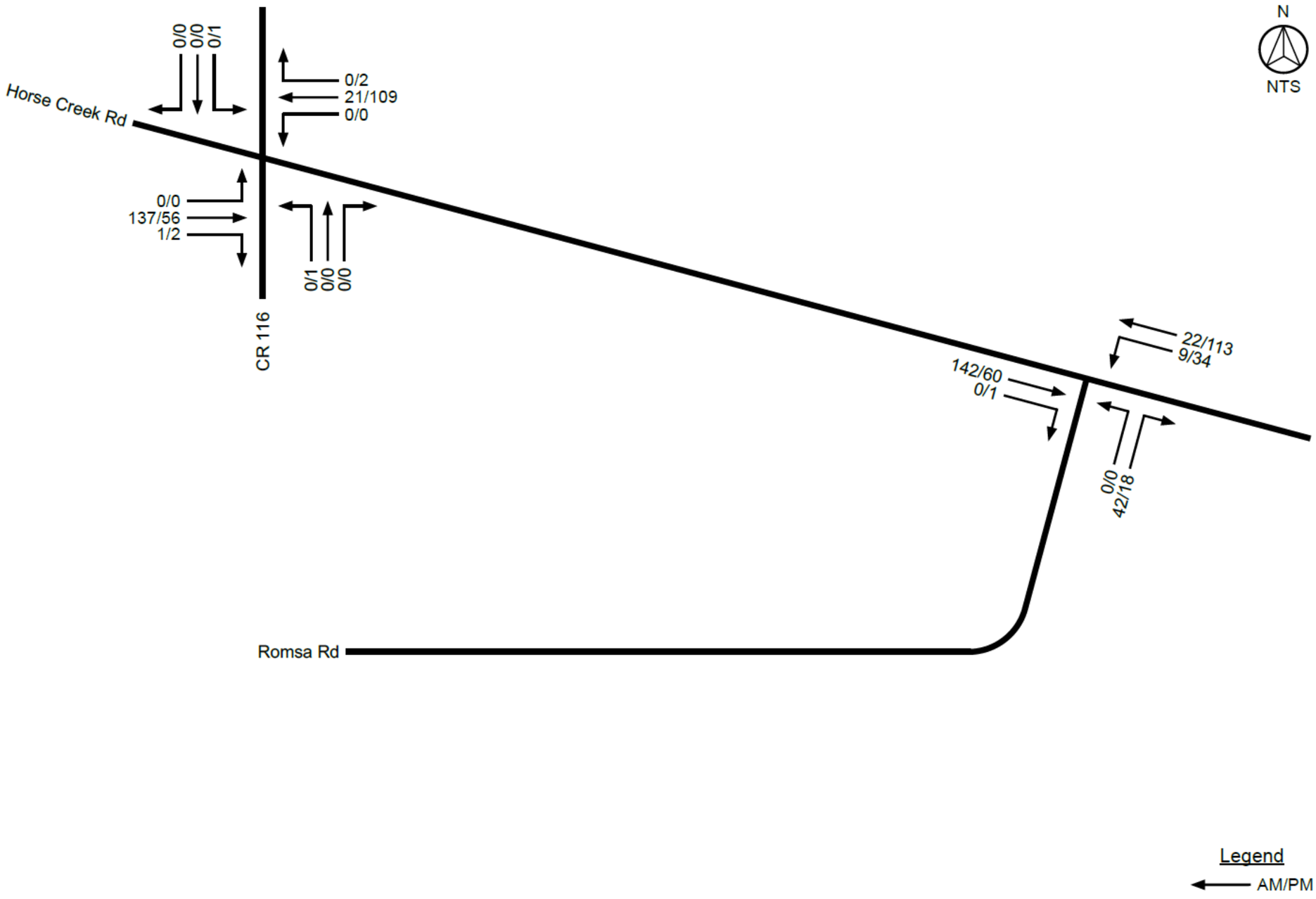


Figure 5: 2050 Background Traffic

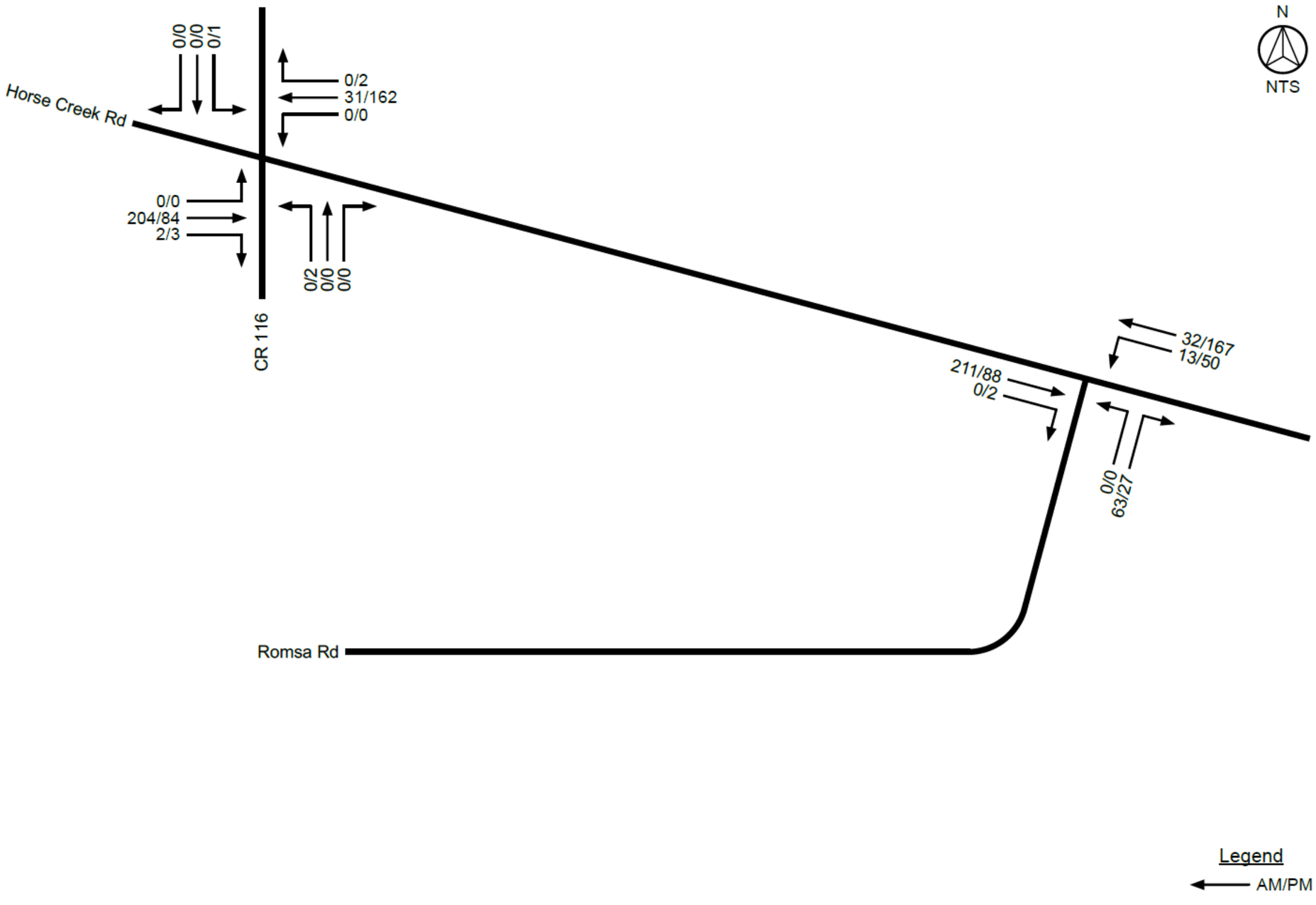


Figure 6: Trip Distribution

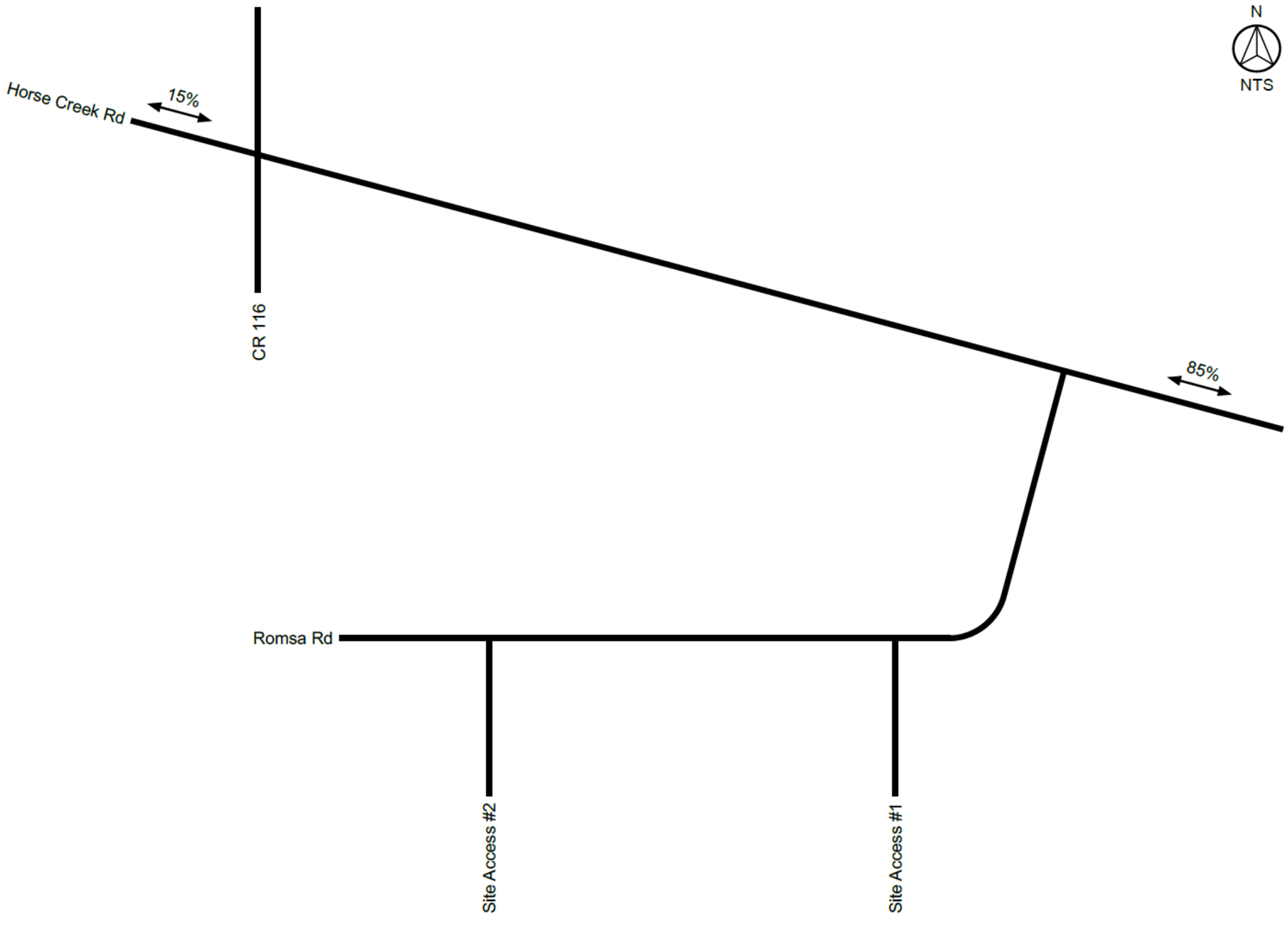


Figure 7: Site Generated Traffic – Full Build Out

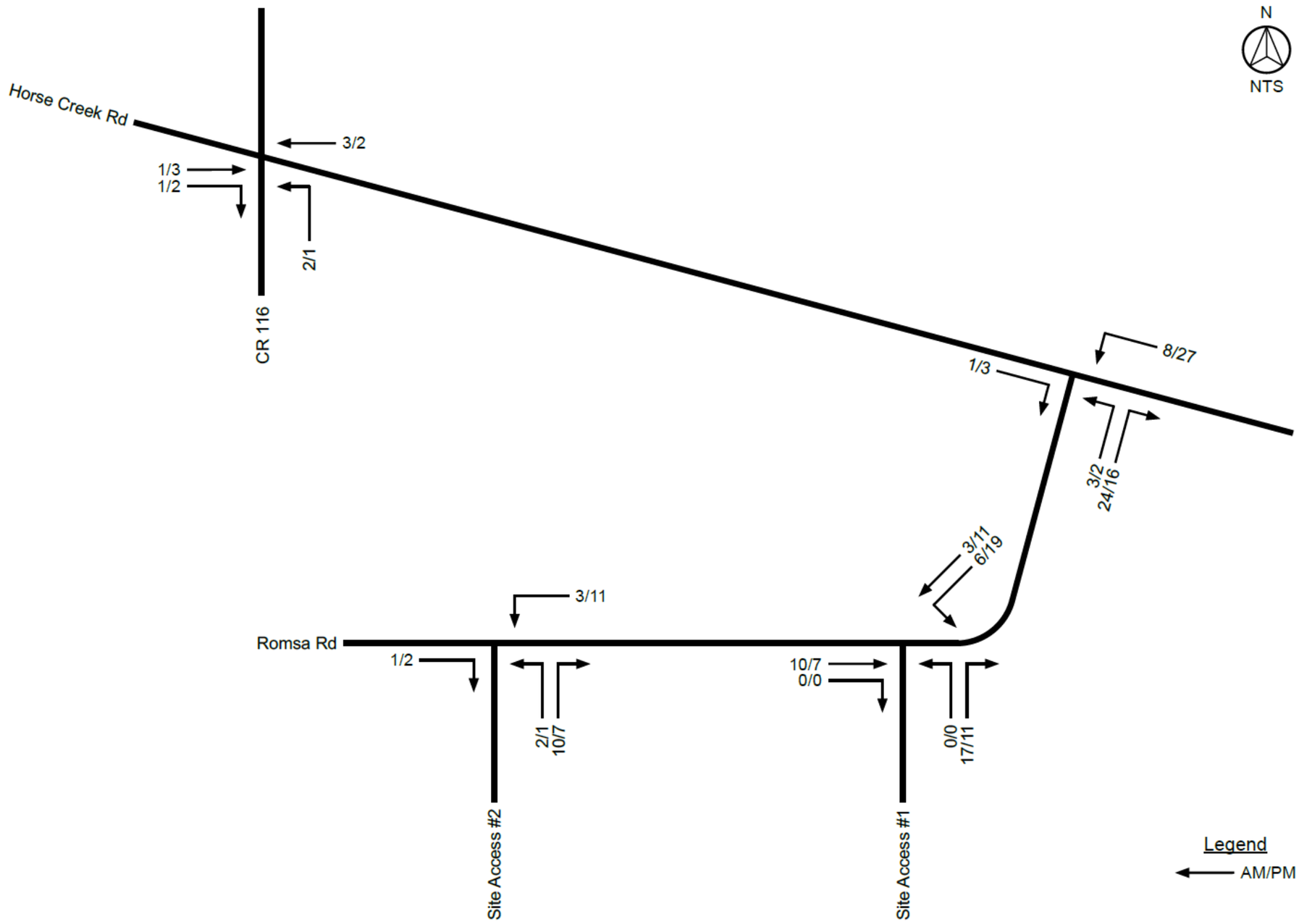


Figure 7b: Site Generated Traffic – Phase 1

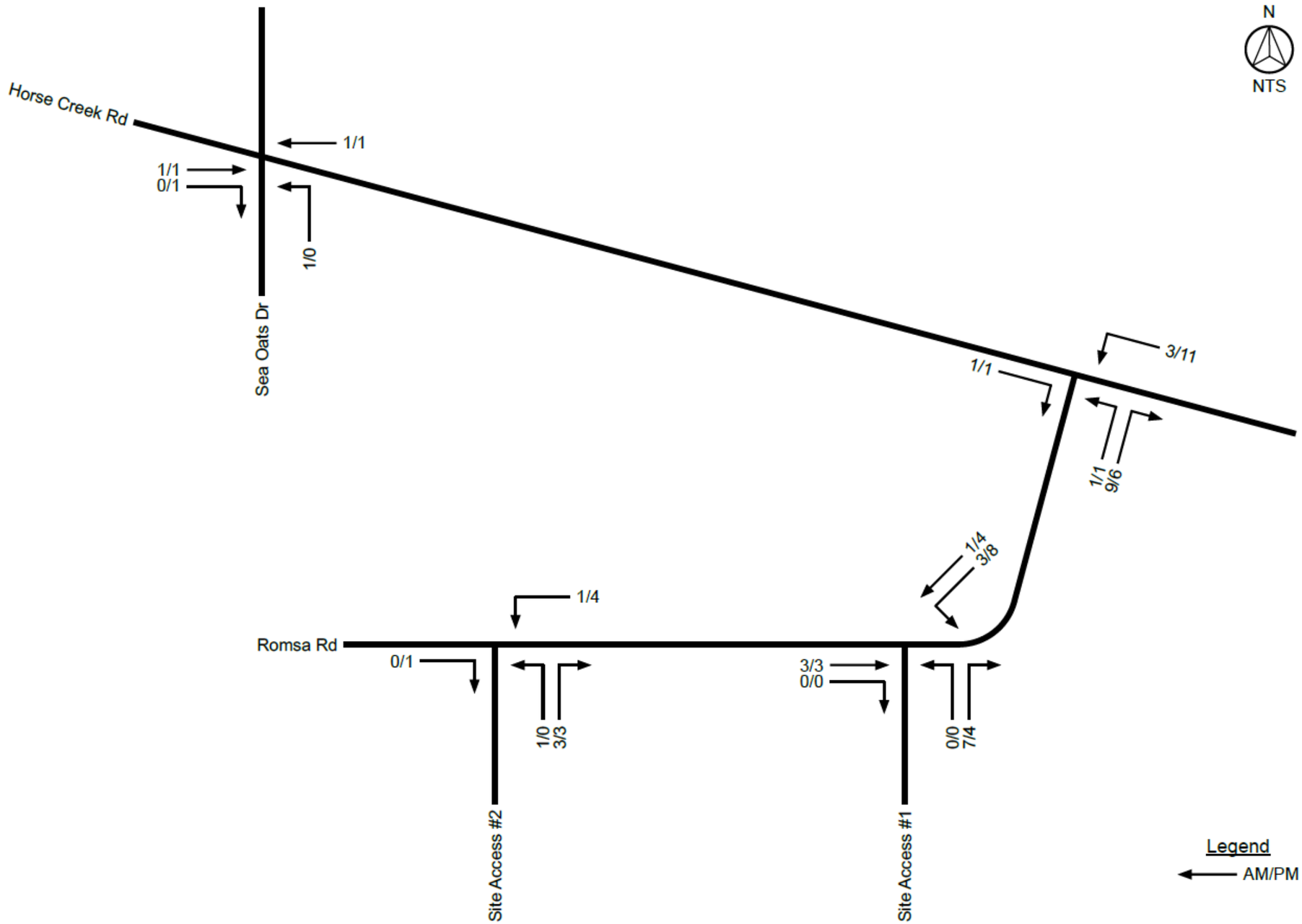


Figure 8: 2030 Short Range Total – Full Build Out

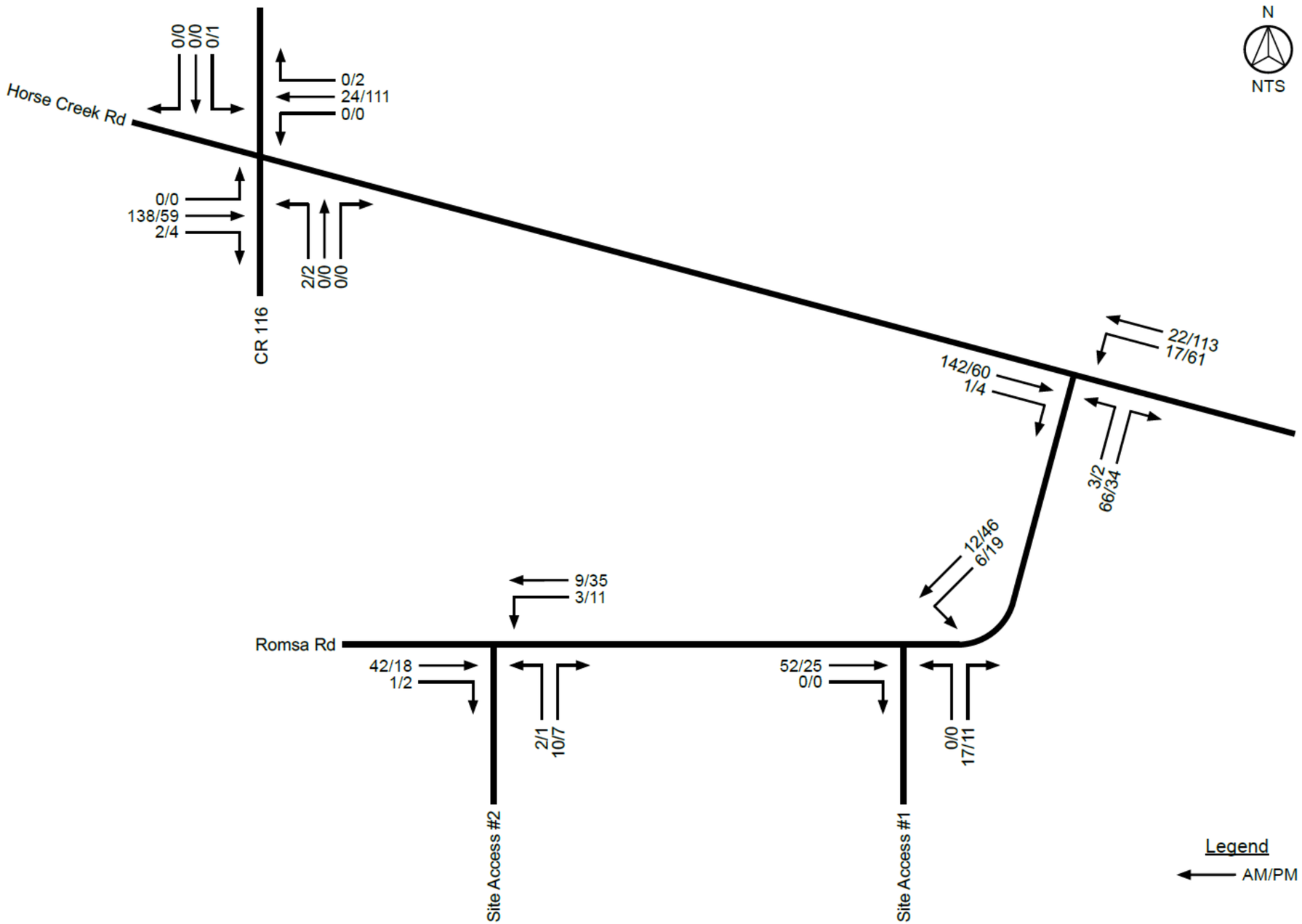


Figure 8: 2030 Short Range Total – Phase 1

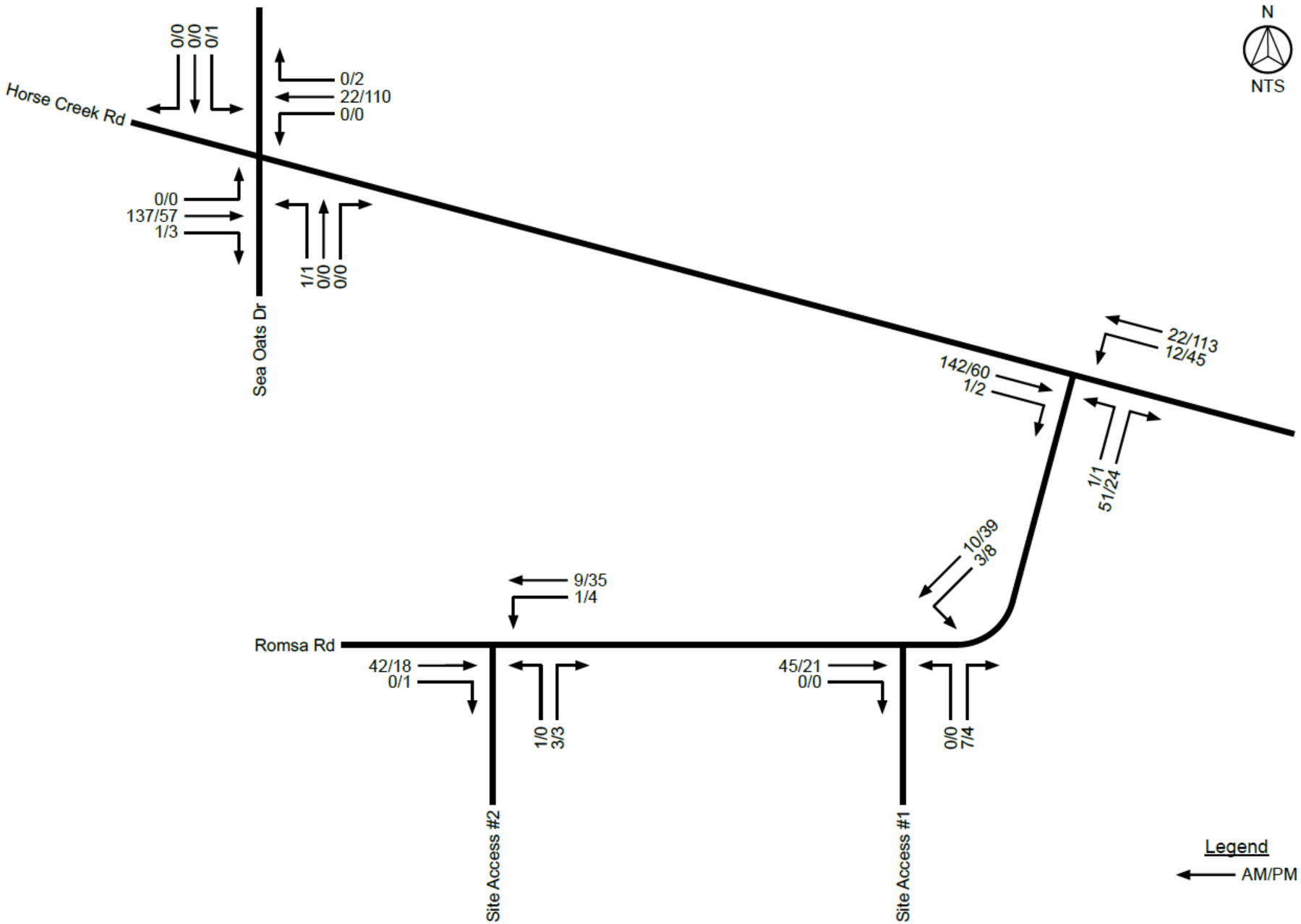
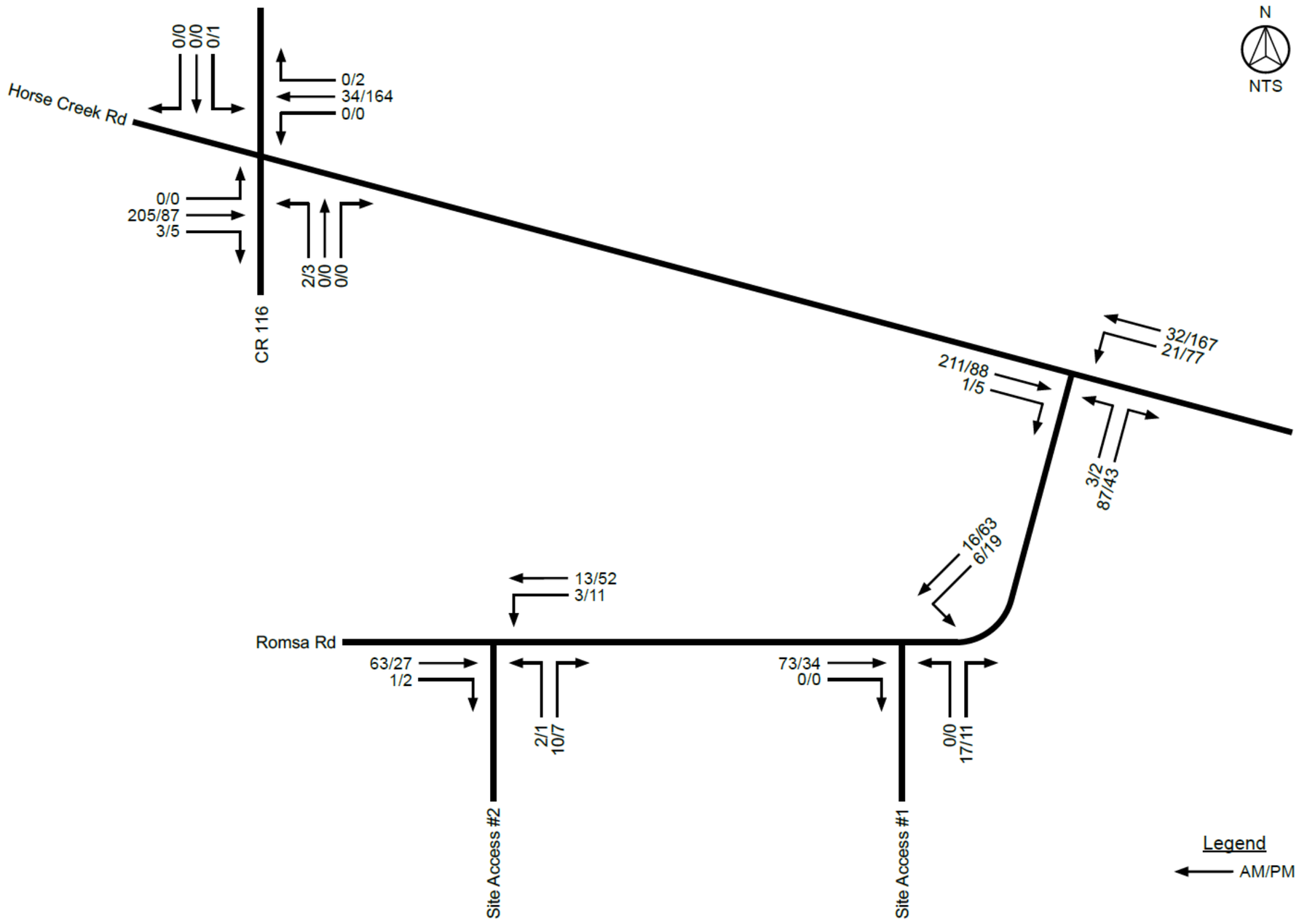


Figure 9: 2050 Long Range Total – Full Build Out



5.0 Traffic Operation Analysis

KE's analysis of traffic operations in the site vicinity was conducted to determine the capacity at the identified intersection. The acknowledged source for determining overall capacity is the Highway Capacity Manual.

5.1 Analysis Methodology

Capacity analysis results are listed in terms of level of service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. LOS ranges from an A (very little delay) to an F (long delays). A description of the level of service (LOS) for signalized and unsignalized intersections from the Highway Capacity Manual are provided in Appendix C.

5.2 Intersection Operational Analysis

Operational analysis was performed for the short range 2030 horizon and the long range 2050 horizon. The access operates acceptably at LOS A and LOS B with the addition of the project's traffic. The calculations for this analysis are provided in Appendix F. See Table 2: 2030 Short Range Total Peak Hour Operation and Table 3: 2050 Long Range Total Peak Hour Operation.

5.3 Crash Data

Crash data for the last five years was obtained from WYDOT for the Horse Creek Road/Romsa Road intersection. There were no reported crashes in the last five years at the Horse Creek Road/CR 116 intersection. The reported crashes at the Horse Creek Road/Romsa Road intersection resulted in 2 total crashes (0 fatal crashes, 2 injury crashes, and 0 property damage only crashes). Reviewing the provided crash data, it appears that driver behavior was the cause for the crashes. See Appendix D for crash data.

5.4 Sight Distance

Per Table 6-3 *Stopping Sight Distance* in *WYDOT Traffic Studies Manual*, a design speed of 70 mph requires a stopping sight distance of 730 feet. Based upon review of available data (topography, aerial photography, street view photos), it appears that the intersections of Horse Creek Rd/CR 116 and Horse Creek Rd/Romsa Rd meets this criterion.

5.5 Auxiilary Lane Requirements

Per Section 18.3(4)(c)(f), page 149 of the *WYDOT Traffic Studies Manual*, right-turn lanes are not required at the Horse Creek Road/CR 116 and Horse Creek Road/Romsa Road intersections.

Per Section 18.2, page 147 of the *WYDOT Traffic Studies Manual and* Section 9.7 *of AASHTO's Policy on Geometric design of Highways and Streets*, a westbound left-turn lane at the Horse Creek Road/Romsa Road intersection is warranted at full project build-out due to the projected peak hour left-turning volumes. See Figure 9. This left-turn lane should have a minimum travel width of 12'; minimum storage length of 75'; deceleration length of approximately 700', and a 15:1 bay taper. The bay taper is included in the deceleration length. Phase 1 of the project (up to 22 single family homes) could develop without needing this westbound left-turn lane. However, any development greater than 22 single family homes would require this westbound left-turn lane at the Horse Creek Road/Romsa Road intersection.

Table 2: 2030 Short Range Total Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Horse Creek Rd/CR 116			
	EB Left/Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru/Right	A	A
	WB Approach	A	A
	NB Left/Thru/Right	A	A
	NB Approach	A	A
	SB Left/Thru/Right	A	A
	SB Approach	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Horse Creek Rd/Romsa Rd			
	EB Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru	A	A
	WB Approach	A	A
	NB Left/Right	A	A
	NB Approach	A	A

Table 2: 2030 Short Range Total Peak Hour Operations (Continued…)

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Romsa Rd/Site Access #1			
	EB Left/Right	A	A
	EB Approach	A	A
	NB Left/Thru	A	A
	NB Approach	A	A
	SB Thru/Right	A	A
	SB Approach	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Romsa Rd/Site Access #2			
	EB Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru	A	A
	WB Approach	A	A
	NB Left/Right	A	A
	NB Approach	A	A

Table 3: 2050 Long Range Total Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Horse Creek Rd/CR 116			
	EB Left/Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru/Right	A	A
	WB Approach	A	A
	NB Left/Thru/Right	B	B
	NB Approach	B	B
	SB Left/Thru/Right	A	B
	SB Approach	A	B

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Horse Creek Rd/Romsa Rd			
	EB Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru	A	A
	WB Approach	A	A
	NB Left/Right	B	A
	NB Approach	B	A

Table 3: 2050 Long Range Total Peak Hour Operations (Continued…)

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Romsa Rd/Site Access #1			
	EB Left/Right	A	A
	EB Approach	A	A
	NB Left/Thru	A	A
	NB Approach	A	A
	SB Thru/Right	A	A
	SB Approach	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Romsa Rd/Site Access #2			
	EB Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru	A	A
	WB Approach	A	A
	NB Left/Right	A	A
	NB Approach	A	A

6.0 Findings

Based upon the analysis in this study, the proposed R&R Heights project demonstrates compliance with Laramie County, Wyoming and WYDOT's criteria for traffic with the below considerations.

The findings of the Transportation Impact Study (TIS) are summarized below:

- The project's traffic is anticipated to generate a total of approximately 500 daily weekday trips, 39 AM total weekday peak hour trips, and 51 PM total weekday peak hour trips. See Table 1: Trip Generation.
- The project complies with WYDOT's criteria for traffic.
- The existing intersections of Horse Creek Road/CR 116 and Horse Creek Road/Romsa Road have appropriate intersection spacing.
- The project's study intersections will operate appropriately (LOS A and LOS B) with the addition of the project's traffic. See Table 2 and Table 3.
- Per Section 18.2 of the *WYDOT Traffic Studies Manual* and Section 9.7 of *AASHTO's Policy on Geometric design of Highways and Streets*, a westbound left-turn deceleration lane at the Horse Creek Road/Romsa Road intersection is warranted at full-project build out due to the projected peak hour left-turning volumes. This left-turn lane should have a minimum travel width of 12'; minimum storage length of 75'; deceleration length of approximately 700', and a 15:1 bay taper. The bay taper is included in the deceleration length. Phase 1 of the project could develop without this left-turn lane. See Section 5.5.

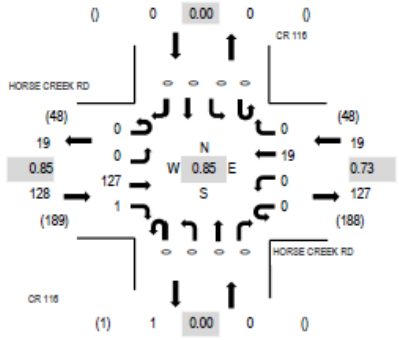
APPENDICES:

Appendix A: Traffic Counts

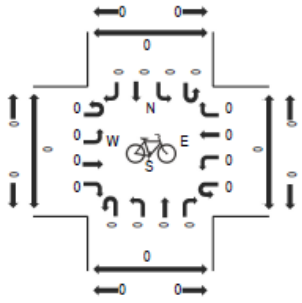
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 CR 116 & HORSE CREEK RD AM
Date: Wednesday, April 22, 2026
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

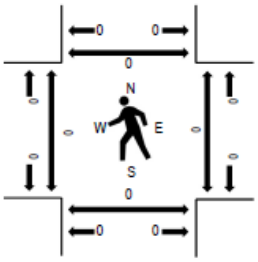
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

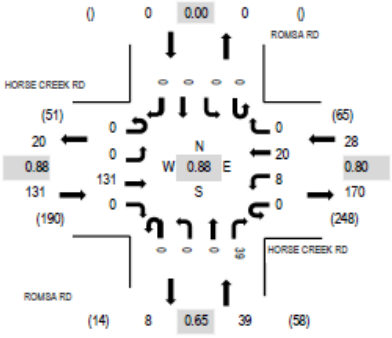
Traffic Counts - Motorized Vehicles

Interval Start Time	HORSE CREEK RD Eastbound				HORSE CREEK RD Westbound				CR 116 Northbound				CR 116 Southbound				Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	27	0	0	0	1	0	0	0	0	0	0	0	0	0	28	146	0	0	0	0
7:15 AM	0	0	33	1	0	0	3	0	0	0	0	0	0	0	0	0	37	147	0	0	0	0
7:30 AM	0	0	39	0	0	0	4	0	0	0	0	0	0	0	0	0	43	135	0	0	0	0
7:45 AM	0	0	33	0	0	0	5	0	0	0	0	0	0	0	0	0	38	115	0	0	0	0
8:00 AM	0	0	22	0	0	0	7	0	0	0	0	0	0	0	0	0	29	91	0	0	0	0
8:15 AM	0	0	13	0	0	0	12	0	0	0	0	0	0	0	0	0	25		0	0	0	0
8:30 AM	0	0	12	0	0	0	11	0	0	0	0	0	0	0	0	0	23		0	0	0	0
8:45 AM	0	0	9	0	0	0	5	0	0	0	0	0	0	0	0	0	14		0	0	0	0
Count Total	0	0	188	1	0	0	48	0	0	0	0	0	0	0	0	0	237		0	0	0	0
Peak Hour	0	0	127	1	0	0	19	0	0	0	0	0	0	0	0	0	147		0	0	0	0

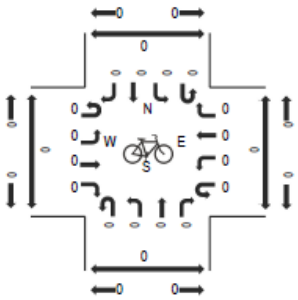
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 ROMSA RD & HORSE CREEK RD AM
Date: Wednesday, April 22, 2026
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:15 AM - 07:30 AM

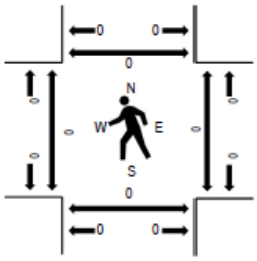
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

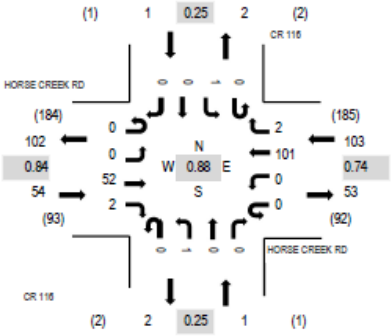
Traffic Counts - Motorized Vehicles

Interval Start Time	HORSE CREEK RD Eastbound				HORSE CREEK RD Westbound				ROMSA RD Northbound				ROMSA RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	24	0	0	1	1	0	0	0	0	7	0	0	0	0	33	192	0	0	0	0
7:15 AM	0	0	37	0	0	2	2	0	0	0	0	15	0	0	0	0	56	198	0	0	0	0
7:30 AM	0	0	38	0	0	2	5	0	0	0	0	9	0	0	0	0	54	178	0	0	0	0
7:45 AM	0	0	34	0	0	2	5	0	0	0	0	8	0	0	0	0	49	152	0	0	0	0
8:00 AM	0	0	22	0	0	2	8	0	0	0	0	7	0	0	0	0	39	121	0	0	0	0
8:15 AM	0	0	13	0	0	2	12	0	0	0	0	9	0	0	0	0	36		0	0	0	0
8:30 AM	0	0	14	0	0	2	11	0	0	0	0	1	0	0	0	0	28		0	0	0	0
8:45 AM	0	0	8	0	0	1	7	0	0	0	0	2	0	0	0	0	18		0	0	0	0
Count Total	0	0	190	0	0	14	51	0	0	0	0	58	0	0	0	0	313		0	0	0	0
Peak Hour	0	0	131	0	0	8	20	0	0	0	0	39	0	0	0	0	198		0	0	0	0

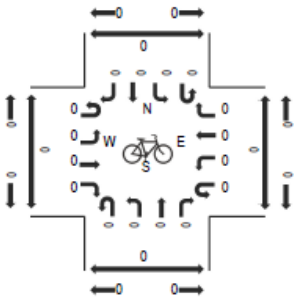
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 CR 116 & HORSE CREEK RD PM
Date: Wednesday, April 22, 2026
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

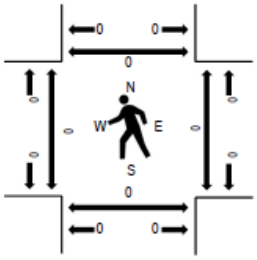
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

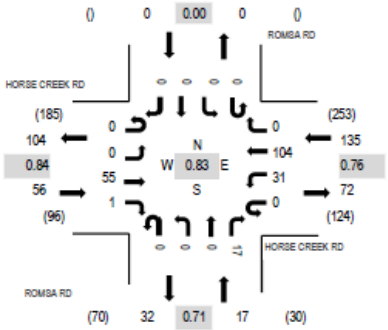
Traffic Counts - Motorized Vehicles

Interval Start Time	HORSE CREEK RD Eastbound				HORSE CREEK RD Westbound				CR 116 Northbound				CR 116 Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	13	0	0	0	23	0	0	0	0	0	0	0	0	0	36	144	0	0	0	0
4:15 PM	0	0	11	0	0	0	18	0	0	0	0	0	0	0	0	0	29	143	0	0	0	0
4:30 PM	0	0	15	0	0	0	23	0	0	0	0	0	0	0	0	0	38	159	0	0	0	0
4:45 PM	0	0	17	0	0	0	24	0	0	0	0	0	0	0	0	0	41	152	0	0	0	0
5:00 PM	0	0	13	1	0	0	20	1	0	0	0	0	0	0	0	0	35	136	0	0	0	0
5:15 PM	0	0	7	1	0	0	34	1	0	1	0	0	0	1	0	0	45		0	0	0	0
5:30 PM	0	0	8	0	0	0	23	0	0	0	0	0	0	0	0	0	31		0	0	0	0
5:45 PM	0	0	7	0	0	0	18	0	0	0	0	0	0	0	0	0	25		0	0	0	0
Count Total	0	0	91	2	0	0	183	2	0	1	0	0	0	1	0	0	280		0	0	0	0
Peak Hour	0	0	52	2	0	0	101	2	0	1	0	0	0	1	0	0	159		0	0	0	0

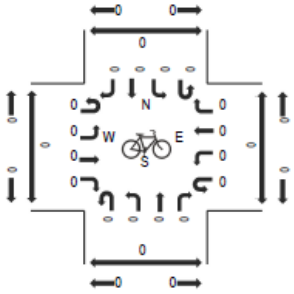
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 ROMSA RD & HORSE CREEK RD PM
Date: Wednesday, April 22, 2026
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

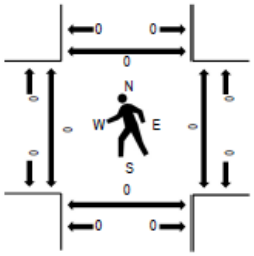
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	HORSE CREEK RD Eastbound				HORSE CREEK RD Westbound				ROMSA RD Northbound				ROMSA RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	12	1	0	10	25	0	0	0	0	6	0	0	0	0	54	197	0	0	0	0
4:15 PM	0	0	12	0	0	8	16	0	0	0	0	2	0	0	0	0	38	183	0	0	0	0
4:30 PM	0	0	15	0	0	4	23	0	0	0	0	5	0	0	0	0	47	208	0	0	0	0
4:45 PM	0	0	17	0	0	12	25	0	0	0	0	4	0	0	0	0	58	205	0	0	0	0
5:00 PM	0	0	13	0	0	4	20	0	0	0	0	3	0	0	0	0	40	182	0	0	0	0
5:15 PM	0	0	10	1	0	11	36	0	0	0	0	5	0	0	0	0	63		0	0	0	0
5:30 PM	0	0	8	0	0	12	22	0	0	0	0	2	0	0	0	0	44		0	0	0	0
5:45 PM	0	0	7	0	0	7	18	0	0	0	0	3	0	0	0	0	35		0	0	0	0
Count Total	0	0	94	2	0	68	185	0	0	0	0	30	0	0	0	0	379		0	0	0	0
Peak Hour	0	0	55	1	0	31	104	0	0	0	0	17	0	0	0	0	208		0	0	0	0

Appendix B: Level of Service (LOS) Table

Level of Service Definitions

Level of Service (LOS)	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Appendix C: Aerial Photo

Appendix D: Crash Data

Sean Kellar

From: Kari Fictum <kari.fictum1@wyo.gov>
Sent: Wednesday, May 27, 2026 8:19 AM
To: skellar@kellarengineering.com
Cc: baylor.beers1@wyo.gov
Subject: Re: Highway Safety Data Requests-Select One If Available
Attachments: Intersection Crash History Report - Horse Creek Rd & Romsa Rd (12052) - 2020-2024.pdf

Hi Sean,

Your report for Horse Creek Road/Romsa Rd is attached. There were no crashes in the last five years at the CR 116 intersection (12048).

Sincerely,

Kari Fictum

Records and Data Management Manager

WYDOT HIGHWAY SAFETY

P (307) 777-4258 | F (307) 777-3853
5300 Bishop Blvd. Cheyenne, WY 82009-3340
www.dot.state.wy.us

On Tue, May 26, 2026 at 4:55 PM <DoNotReply@wyo.gov> wrote:

> A comment has been sent from the following:
>
> **NAME:** Sean Kellar
> **EMAIL:** skellar@kellarengineering.com
> **COMMENT:** Please provide crash data for the last five years for the following two (2) intersections in Laramie County, WY. 1. Horse Creek Road/Romsa Road 2. Horse Creek Road/CR 116

E-Mail to and from me, in connection with the transaction of public business, is subject to the Wyoming Public Records Act and may be disclosed to third parties.

INTERSECTION CRASH HISTORY REPORT FOR HORSE CREEK RD & ROMSA RD (ID 12052) FOR THE YEARS 2020 - 2024

DATE	TIME	ID #	CRASH STREET	CROSS STREET	JUNCTION RELATION	INTERSECTION TYPE	MANNER OF COLLISION	CRASH SEVERITY	FATAL INJURY	FIRST HARMFUL EVENT (FHE)	FHE LOCATION	#	VEHICLE DIRECTION	VEHICLE MANEUVER	DRIVER ACTION	PERSON TYPE	SAFETY EQUIPMENT USED	INJURY STATUS	LIGHTING	WEATHER CONDITION	ROAD CONDITION	ALCOHOL INVOLVED	DRUGS INVOLVED	LATITUDE	LONGITUDE	CRASH CASE #
2022																										
03/19/2022	330	12052	WY 211		Intersection Related	T Intersection	Not a Collision w/2 Vehicles in Transport	SUSPECTED MINOR INJURY	0	1 Overturn/Rollover	Off Roadway	1	North	Negotiating a Curve	1 Failed to Keep Proper Lane 1 Ran Off Road	1	Driver	Unknown	Suspected Minor Injury	Darkness Unlighted	Clear	Dry	Y	Y	41.218912	-104.975505	22-0002690
2023																										
03/01/2023	1550	12052	WY 211		Non-Junction	Not an Intersection	Angle (Front to Side), Opposing Direction	SUSPECTED MINOR INJURY	0	2 Motor Vehicle in Transport on Roadway	On Roadway	1	West	Negotiating a Curve	1 Drove too Fast for Conditions	1	Driver	Shoulder and Lap Belt	Suspected Minor Injury	Daylight	Snowing	Ice/Frost	N	N	41.218671	-104.974517	23-0001922
												2	East	Negotiating a Curve	1 Failed to Keep Proper Lane 2 No Improper Driving	2	Driver	Shoulder and Lap Belt	Suspected Minor Injury							

REPORT SUMMARY

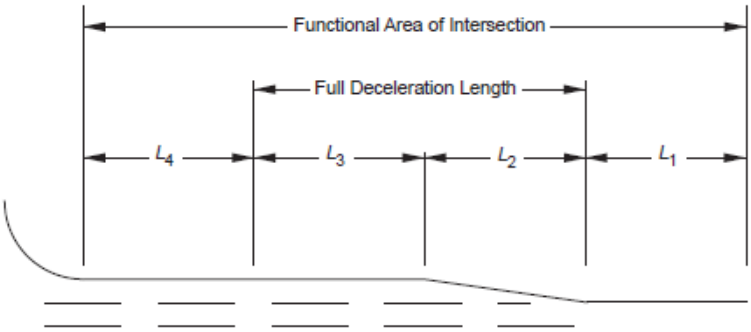
TOTAL CRASHES:	2		
FATAL CRASHES:	0	TOTAL FATALITIES:	0
INJURY CRASHES:	2	TOTAL INJURIES:	3
PDO CRASHES:	0		

	CRASH COUNTS				SEVERITY COUNTS			INJURY COUNTS				
YEAR	FATAL CRASHES	INJURY CRASHES	PDO CRASHES	TOTAL CRASHES	CRITICAL CRASHES*	SERIOUS CRASHES*	DAMAGE CRASHES*	FATAL INJURIES	SERIOUS INJURIES	MINOR INJURIES	POSSIBLE INJURIES	NO INJURIES
2022	0	1	0	1	0	1	0	0	0	1	0	0
2023	0	1	0	1	0	1	0	0	0	2	0	0
	0	2	0	2	0	2	0	0	0	3	0	0

* PDO = Property Damage Only Crashes
* Critical Crashes = Fatal & Suspected Serious Injury Crashes
* Serious Crashes = Suspected Minor Injury & Possible Injury Crashes
* Damage Crashes = No Apparent Injury & Unknown Injury Crashes

Created by: WYDOT Highway Safety Crash Data Analysis | http://www.dot.state.wy.us/home/dot_safety/crash-data.html **Date of Data:** 5/27/2026

Appendix E: Excerpts from AASHTO's Policy on Geometric design of Highways and Streets



Notes: L_1 = Distance traveled during perception-reaction time
L_2 = Taper distance to begin deceleration and complete lateral movement
L_3 = Distance traveled to complete deceleration to a stop
L_4 = Storage length

Figure 9-48. Functional Area Upstream of an Intersection Illustrating Components of Deceleration Lane Length

Deceleration Length

Provision for deceleration clear of the through-traffic lanes is a desirable objective on arterial roads and streets and should be incorporated into design, whenever practical. Table 9-22 presents the estimated distances needed by drivers to maneuver from the through lane into a turn bay and brake to a stop (*6*).

Table 9-22. Desirable Full Deceleration Lengths

Metric		U.S. Customary	
Speed, km/h	Distance,[a] m	Speed [mph]	Distance[a] [ft]
30	20	[20]	[70]
50	45	[30]	[160]
65	85	[40]	[275]
80	130	[50]	[425]
95	185	[60]	[605]
110	245	[70]	[820]

[a] Rounded to 5 m [5 ft]

Notes:

1. The above full deceleration lengths are $L_2 = L_3$ in Figure 9-48.
2. Assumes a turning vehicle has "cleared the through lane" when it has moved laterally approximately 3 m [9 ft] so that a following through vehicle can pass without encroaching upon the adjacent traffic lane.
3. The speed differential between the turning vehicle and following through vehicles is 15 km/h [10 mph] when the turning vehicle "clears the through traffic lane."
4. 1.8 m/s^2 [5.8 ft/s^2] deceleration while moving from the through lane into the turn lane; 2.0 m/s^2 [6.5 ft/s^2] average deceleration after completing lateral shift into the turn lane.

© 2011 by the American Association of State Highway and Transportation Officials.
All rights reserved. Duplication is a violation of applicable law.

Table 9-23. Guide for Left-Turn Lanes on Two-Lane Highways (*10*)

Metric					U.S. Customary				
	Advancing Volume (veh/h)					Advancing Volume (veh/h)			
Opposing Volume (veh/h)	5% Left Turns	10% Left Turns	20% Left Turns	30% Left Turns	Opposing Volume (veh/h)	5% Left Turns	10% Left Turns	20% Left Turns	30% Left Turns
60-km/h Operating Speed					40-mph Operating Speed				
800	330	240	180	160	800	330	240	180	160
600	410	305	225	200	600	410	305	225	200
400	510	380	275	245	400	510	380	275	245
200	640	470	350	305	200	640	470	350	305
100	720	515	390	340	100	720	515	390	340
80-km/h Operating Speed					50-mph Operating Speed				
800	280	210	165	135	800	280	210	165	135
600	350	260	195	170	600	350	260	195	170
400	430	320	240	210	400	430	320	240	210
200	550	400	300	270	200	550	400	300	270
100	615	445	335	295	100	615	445	335	295
100-km/h Operating Speed					60-mph Operating Speed				
800	230	170	125	115	800	230	170	125	115
600	290	210	160	140	600	290	210	160	140
400	365	270	200	175	400	365	270	200	175
200	450	330	250	215	200	450	330	250	215
100	505	370	275	240	100	505	370	275	240

Additional information on left-turn lanes, including their suggested lengths, can be found in *Highway Research Record 211*, NCHRP Report 225, and NCHRP Report 279 (*10*, *19*, *17*). In the case of double left-turn lanes, a capacity analysis of the intersection should be performed to determine what traffic controls are needed in order for it to function properly.

Local conditions and the cost of right-of-way often influence the type of intersection selected as well as many of the design details. Limited sight distance, for example, may make it desirable to control traffic by yield signs, stop signs, or traffic signals when the traffic densities are less than those ordinarily considered appropriate for such control. The alignment and grade of the intersecting roads and the angle of intersection may make it advisable to channelize or use auxiliary pavement areas, regardless of the traffic densities. In general, traffic service, highway design designation, physical conditions, and cost of right-of-way are considered jointly in choosing the type of intersection.

For the general benefit of through-traffic movements, the number of crossroads, intersecting roads, or intersecting streets should be minimized. Where intersections are closely spaced on a two-way facility, it is seldom practical to provide signals for completely coordinated traffic movements at reasonable speeds in opposing directions on that facility. At the same time, the resultant road or street patterns should permit travel on roadways other than the predominant highway without too much inconvenience. Traffic analysis

© 2011 by the American Association of State Highway and Transportation Officials.
All rights reserved. Duplication is a violation of applicable law.

Appendix F: HCM Calculations (Synchro)

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	127	1	0	19	0	0	0	0	0	0	0
Future Vol, veh/h	0	127	1	0	19	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	138	1	0	21	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	21	0	0	139	0	0	160	160	139	160	160	21
Stage 1	-	-	-	-	-	-	139	139	-	21	21	-
Stage 2	-	-	-	-	-	-	21	21	-	139	139	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1595	-	-	1445	-	-	806	732	909	806	732	1056
Stage 1	-	-	-	-	-	-	864	782	-	998	878	-
Stage 2	-	-	-	-	-	-	998	878	-	864	782	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1595	-	-	1445	-	-	806	732	909	806	732	1056
Mov Cap-2 Maneuver	-	-	-	-	-	-	806	732	-	806	732	-
Stage 1	-	-	-	-	-	-	864	782	-	998	878	-
Stage 2	-	-	-	-	-	-	998	878	-	864	782	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	0	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1595	-	-	1445	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	131	0	8	20	0	39
Future Vol, veh/h	131	0	8	20	0	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	142	0	9	22	0	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	142	0	182	142
Stage 1	-	-	-	-	142	-
Stage 2	-	-	-	-	40	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1441	-	807	906
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	982	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1441	-	802	906
Mov Cap-2 Maneuver	-	-	-	-	802	-
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	976	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	906	-	-	1441	-
HCM Lane V/C Ratio	0.047	-	-	0.006	-
HCM Control Delay (s)	9.2	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	52	2	0	101	2	1	0	0	1	0	0
Future Vol, veh/h	0	52	2	0	101	2	1	0	0	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	57	2	0	110	2	1	0	0	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	112	0	0	59	0	0	169	170	58	169	170	111
Stage 1	-	-	-	-	-	-	58	58	-	111	111	-
Stage 2	-	-	-	-	-	-	111	112	-	58	59	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1478	-	-	1545	-	-	795	723	1008	795	723	942
Stage 1	-	-	-	-	-	-	954	847	-	894	804	-
Stage 2	-	-	-	-	-	-	894	803	-	954	846	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1478	-	-	1545	-	-	795	723	1008	795	723	942
Mov Cap-2 Maneuver	-	-	-	-	-	-	795	723	-	795	723	-
Stage 1	-	-	-	-	-	-	954	847	-	894	804	-
Stage 2	-	-	-	-	-	-	894	803	-	954	846	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	9.5	9.5
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	795	1478	-	-	1545	-	-	795
HCM Lane V/C Ratio	0.001	-	-	-	-	-	-	0.001
HCM Control Delay (s)	9.5	0	-	-	0	-	-	9.5
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	55	1	31	104	0	17
Future Vol, veh/h	55	1	31	104	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	60	1	34	113	0	18

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	61	0	242	61
Stage 1	-	-	-	-	61	-
Stage 2	-	-	-	-	181	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1542	-	746	1004
Stage 1	-	-	-	-	962	-
Stage 2	-	-	-	-	850	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1542	-	728	1004
Mov Cap-2 Maneuver	-	-	-	-	728	-
Stage 1	-	-	-	-	962	-
Stage 2	-	-	-	-	830	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1004	-	-	1542	-
HCM Lane V/C Ratio	0.018	-	-	0.022	-
HCM Control Delay (s)	8.7	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	137	1	0	21	0	0	0	0	0	0	0
Future Vol, veh/h	0	137	1	0	21	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	149	1	0	23	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	23	0	0	150	0	0	173	173	150	173	173	23
Stage 1	-	-	-	-	-	-	150	150	-	23	23	-
Stage 2	-	-	-	-	-	-	23	23	-	150	150	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1592	-	-	1431	-	-	790	720	896	790	720	1054
Stage 1	-	-	-	-	-	-	853	773	-	995	876	-
Stage 2	-	-	-	-	-	-	995	876	-	853	773	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1592	-	-	1431	-	-	790	720	896	790	720	1054
Mov Cap-2 Maneuver	-	-	-	-	-	-	790	720	-	790	720	-
Stage 1	-	-	-	-	-	-	853	773	-	995	876	-
Stage 2	-	-	-	-	-	-	995	876	-	853	773	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	0	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1592	-	-	1431	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	142	0	9	22	0	42
Future Vol, veh/h	142	0	9	22	0	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	154	0	10	24	0	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	154	0	198	154
Stage 1	-	-	-	-	154	-
Stage 2	-	-	-	-	44	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1426	-	791	892
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	978	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1426	-	785	892
Mov Cap-2 Maneuver	-	-	-	-	785	-
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	971	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	892	-	-	1426	-
HCM Lane V/C Ratio	0.051	-	-	0.007	-
HCM Control Delay (s)	9.3	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	56	2	0	109	2	1	0	0	1	0	0
Future Vol, veh/h	0	56	2	0	109	2	1	0	0	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	61	2	0	118	2	1	0	0	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	120	0	0	63	0	0	181	182	62	181	182	119
Stage 1	-	-	-	-	-	-	62	62	-	119	119	-
Stage 2	-	-	-	-	-	-	119	120	-	62	63	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1468	-	-	1540	-	-	781	712	1003	781	712	933
Stage 1	-	-	-	-	-	-	949	843	-	885	797	-
Stage 2	-	-	-	-	-	-	885	796	-	949	842	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1468	-	-	1540	-	-	781	712	1003	781	712	933
Mov Cap-2 Maneuver	-	-	-	-	-	-	781	712	-	781	712	-
Stage 1	-	-	-	-	-	-	949	843	-	885	797	-
Stage 2	-	-	-	-	-	-	885	796	-	949	842	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	9.6	9.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	781	1468	-	-	1540	-	-	781
HCM Lane V/C Ratio	0.001	-	-	-	-	-	-	0.001
HCM Control Delay (s)	9.6	0	-	-	0	-	-	9.6
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	60	1	34	113	0	18
Future Vol, veh/h	60	1	34	113	0	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	1	37	123	0	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	66	0	263	66
Stage 1	-	-	-	-	66	-
Stage 2	-	-	-	-	197	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1536	-	726	998
Stage 1	-	-	-	-	957	-
Stage 2	-	-	-	-	836	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1536	-	707	998
Mov Cap-2 Maneuver	-	-	-	-	707	-
Stage 1	-	-	-	-	957	-
Stage 2	-	-	-	-	814	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	998	-	-	1536	-
HCM Lane V/C Ratio	0.02	-	-	0.024	-
HCM Control Delay (s)	8.7	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	52	0	0	17	6	12
Future Vol, veh/h	52	0	0	17	6	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	57	0	0	18	7	13

Major/Minor	Minor2		Major2	
Conflicting Flow All	14	14	-	0
Stage 1	14	14	-	-
Stage 2	0	0	-	-
Critical Hdwy	6.42	6.52	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	-
Pot Cap-1 Maneuver	1005	880	-	-
Stage 1	1009	884	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	1005	0	-	-
Mov Cap-2 Maneuver	1005	0	-	-
Stage 1	1009	0	-	-
Stage 2	-	0	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	138	2	0	24	0	2	0	0	0	0	0
Future Vol, veh/h	0	138	2	0	24	0	2	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	150	2	0	26	0	2	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	26	0	0	152	0	0	177	177	151	177	178	26
Stage 1	-	-	-	-	-	-	151	151	-	26	26	-
Stage 2	-	-	-	-	-	-	26	26	-	151	152	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1588	-	-	1429	-	-	785	717	895	785	716	1050
Stage 1	-	-	-	-	-	-	851	772	-	992	874	-
Stage 2	-	-	-	-	-	-	992	874	-	851	772	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1588	-	-	1429	-	-	785	717	895	785	716	1050
Mov Cap-2 Maneuver	-	-	-	-	-	-	785	717	-	785	716	-
Stage 1	-	-	-	-	-	-	851	772	-	992	874	-
Stage 2	-	-	-	-	-	-	992	874	-	851	772	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	9.6	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	785	1588	-	-	1429	-	-	-
HCM Lane V/C Ratio	0.003	-	-	-	-	-	-	-
HCM Control Delay (s)	9.6	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	142	1	17	22	3	66
Future Vol, veh/h	142	1	17	22	3	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	154	1	18	24	3	72

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	155	0	215	155
Stage 1	-	-	-	-	155	-
Stage 2	-	-	-	-	60	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1425	-	773	891
Stage 1	-	-	-	-	873	-
Stage 2	-	-	-	-	963	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1425	-	763	891
Mov Cap-2 Maneuver	-	-	-	-	763	-
Stage 1	-	-	-	-	873	-
Stage 2	-	-	-	-	950	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.3	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	885	-	-	1425	-
HCM Lane V/C Ratio	0.085	-	-	0.013	-
HCM Control Delay (s)	9.4	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	42	1	3	9	2	10
Future Vol, veh/h	42	1	3	9	2	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	1	3	10	2	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	47	0	63	47
Stage 1	-	-	-	-	47	-
Stage 2	-	-	-	-	16	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1560	-	943	1022
Stage 1	-	-	-	-	975	-
Stage 2	-	-	-	-	1007	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1560	-	941	1022
Mov Cap-2 Maneuver	-	-	-	-	941	-
Stage 1	-	-	-	-	975	-
Stage 2	-	-	-	-	1005	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1008	-	-	1560	-
HCM Lane V/C Ratio	0.013	-	-	0.002	-
HCM Control Delay (s)	8.6	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	0	0	11	19	46
Future Vol, veh/h	25	0	0	11	19	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	0	0	12	21	50

Major/Minor	Minor2		Major2	
Conflicting Flow All	46	46	-	0
Stage 1	46	46	-	-
Stage 2	0	0	-	-
Critical Hdwy	6.42	6.52	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	-
Pot Cap-1 Maneuver	964	846	-	-
Stage 1	976	857	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	964	0	-	-
Mov Cap-2 Maneuver	964	0	-	-
Stage 1	976	0	-	-
Stage 2	-	0	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	59	4	0	111	2	2	0	0	1	0	0
Future Vol, veh/h	0	59	4	0	111	2	2	0	0	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	64	4	0	121	2	2	0	0	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	123	0	0	68	0	0	188	189	66	188	190	122
Stage 1	-	-	-	-	-	-	66	66	-	122	122	-
Stage 2	-	-	-	-	-	-	122	123	-	66	68	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1464	-	-	1533	-	-	772	706	998	772	705	929
Stage 1	-	-	-	-	-	-	945	840	-	882	795	-
Stage 2	-	-	-	-	-	-	882	794	-	945	838	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1464	-	-	1533	-	-	772	706	998	772	705	929
Mov Cap-2 Maneuver	-	-	-	-	-	-	772	706	-	772	705	-
Stage 1	-	-	-	-	-	-	945	840	-	882	795	-
Stage 2	-	-	-	-	-	-	882	794	-	945	838	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	9.7	9.7
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	772	1464	-	-	1533	-	-	772
HCM Lane V/C Ratio	0.003	-	-	-	-	-	-	0.001
HCM Control Delay (s)	9.7	0	-	-	0	-	-	9.7
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	60	4	61	113	2	34
Future Vol, veh/h	60	4	61	113	2	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	4	66	123	2	37

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	69	0	322	67
Stage 1	-	-	-	-	67	-
Stage 2	-	-	-	-	255	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1532	-	672	997
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	788	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1532	-	641	997
Mov Cap-2 Maneuver	-	-	-	-	641	-
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	752	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.6	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	967	-	-	1532	-
HCM Lane V/C Ratio	0.04	-	-	0.043	-
HCM Control Delay (s)	8.9	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	18	2	11	35	1	7
Future Vol, veh/h	18	2	11	35	1	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	2	12	38	1	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	22	0	83	21
Stage 1	-	-	-	-	21	-
Stage 2	-	-	-	-	62	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1593	-	919	1056
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	961	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1593	-	912	1056
Mov Cap-2 Maneuver	-	-	-	-	912	-
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	953	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1036	-	-	1593	-
HCM Lane V/C Ratio	0.008	-	-	0.008	-
HCM Control Delay (s)	8.5	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	204	2	0	31	0	0	0	0	0	0	0
Future Vol, veh/h	0	204	2	0	31	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	215	2	0	33	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	33	0	0	217	0	0	249	249	216	249	250	33
Stage 1	-	-	-	-	-	-	216	216	-	33	33	-
Stage 2	-	-	-	-	-	-	33	33	-	216	217	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1579	-	-	1353	-	-	705	654	824	705	653	1041
Stage 1	-	-	-	-	-	-	786	724	-	983	868	-
Stage 2	-	-	-	-	-	-	983	868	-	786	723	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1579	-	-	1353	-	-	705	654	824	705	653	1041
Mov Cap-2 Maneuver	-	-	-	-	-	-	705	654	-	705	653	-
Stage 1	-	-	-	-	-	-	786	724	-	983	868	-
Stage 2	-	-	-	-	-	-	983	868	-	786	723	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	0	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1579	-	-	1353	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	211	0	13	32	0	63
Future Vol, veh/h	211	0	13	32	0	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	222	0	14	34	0	66

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	222	0	284	222
Stage 1	-	-	-	-	222	-
Stage 2	-	-	-	-	62	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1347	-	706	818
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	961	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1347	-	698	818
Mov Cap-2 Maneuver	-	-	-	-	698	-
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	950	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	818	-	-	1347	-
HCM Lane V/C Ratio	0.081	-	-	0.01	-
HCM Control Delay (s)	9.8	-	-	7.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	84	3	0	162	2	2	0	0	1	0	0
Future Vol, veh/h	0	84	3	0	162	2	2	0	0	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	88	3	0	171	2	2	0	0	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	173	0	0	91	0	0	262	263	90	262	263	172
Stage 1	-	-	-	-	-	-	90	90	-	172	172	-
Stage 2	-	-	-	-	-	-	172	173	-	90	91	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1404	-	-	1504	-	-	691	642	968	691	642	872
Stage 1	-	-	-	-	-	-	917	820	-	830	756	-
Stage 2	-	-	-	-	-	-	830	756	-	917	820	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1404	-	-	1504	-	-	691	642	968	691	642	872
Mov Cap-2 Maneuver	-	-	-	-	-	-	691	642	-	691	642	-
Stage 1	-	-	-	-	-	-	917	820	-	830	756	-
Stage 2	-	-	-	-	-	-	830	756	-	917	820	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	10.2	10.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	691	1404	-	-	1504	-	-	691
HCM Lane V/C Ratio	0.003	-	-	-	-	-	-	0.002
HCM Control Delay (s)	10.2	0	-	-	0	-	-	10.2
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	88	2	50	167	0	27
Future Vol, veh/h	88	2	50	167	0	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	93	2	53	176	0	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	95	0	376	94
Stage 1	-	-	-	-	94	-
Stage 2	-	-	-	-	282	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1499	-	625	963
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	766	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1499	-	601	963
Mov Cap-2 Maneuver	-	-	-	-	601	-
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	736	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	963	-	-	1499	-
HCM Lane V/C Ratio	0.03	-	-	0.035	-
HCM Control Delay (s)	8.9	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	73	0	0	17	6	16
Future Vol, veh/h	73	0	0	17	6	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	77	0	0	18	6	17

Major/Minor	Minor2		Major2	
Conflicting Flow All	15	15	-	0
Stage 1	15	15	-	-
Stage 2	0	0	-	-
Critical Hdwy	6.42	6.52	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	-
Pot Cap-1 Maneuver	1004	879	-	-
Stage 1	1008	883	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	1004	0	-	-
Mov Cap-2 Maneuver	1004	0	-	-
Stage 1	1008	0	-	-
Stage 2	-	0	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	205	3	0	34	0	2	0	0	0	0	0
Future Vol, veh/h	0	205	3	0	34	0	2	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	216	3	0	36	0	2	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	36	0	0	219	0	0	254	254	218	254	255	36
Stage 1	-	-	-	-	-	-	218	218	-	36	36	-
Stage 2	-	-	-	-	-	-	36	36	-	218	219	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1575	-	-	1350	-	-	699	650	822	699	649	1037
Stage 1	-	-	-	-	-	-	784	723	-	980	865	-
Stage 2	-	-	-	-	-	-	980	865	-	784	722	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1575	-	-	1350	-	-	699	650	822	699	649	1037
Mov Cap-2 Maneuver	-	-	-	-	-	-	699	650	-	699	649	-
Stage 1	-	-	-	-	-	-	784	723	-	980	865	-
Stage 2	-	-	-	-	-	-	980	865	-	784	722	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	10.2	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	699	1575	-	-	1350	-	-	-
HCM Lane V/C Ratio	0.003	-	-	-	-	-	-	-
HCM Control Delay (s)	10.2	0	-	-	0	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	211	1	21	32	3	87
Future Vol, veh/h	211	1	21	32	3	87
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	222	1	22	34	3	92

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	223	0	301	223
Stage 1	-	-	-	-	223	-
Stage 2	-	-	-	-	78	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1346	-	691	817
Stage 1	-	-	-	-	814	-
Stage 2	-	-	-	-	945	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1346	-	679	817
Mov Cap-2 Maneuver	-	-	-	-	679	-
Stage 1	-	-	-	-	814	-
Stage 2	-	-	-	-	929	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.1	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	812	-	-	1346	-
HCM Lane V/C Ratio	0.117	-	-	0.016	-
HCM Control Delay (s)	10	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	63	1	3	13	2	10
Future Vol, veh/h	63	1	3	13	2	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	66	1	3	14	2	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	67	0	87	67
Stage 1	-	-	-	-	67	-
Stage 2	-	-	-	-	20	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1535	-	914	997
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	1003	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1535	-	912	997
Mov Cap-2 Maneuver	-	-	-	-	912	-
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	1001	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	982	-	-	1535	-
HCM Lane V/C Ratio	0.013	-	-	0.002	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	34	0	0	11	19	63
Future Vol, veh/h	34	0	0	11	19	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	0	0	12	20	66

Major/Minor	Minor2		Major2	
Conflicting Flow All	53	53	-	0
Stage 1	53	53	-	-
Stage 2	0	0	-	-
Critical Hdwy	6.42	6.52	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	-
Pot Cap-1 Maneuver	955	838	-	-
Stage 1	970	851	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	955	0	-	-
Mov Cap-2 Maneuver	955	0	-	-
Stage 1	970	0	-	-
Stage 2	-	0	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	87	5	0	164	2	3	0	0	1	0	0
Future Vol, veh/h	0	87	5	0	164	2	3	0	0	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	92	5	0	173	2	3	0	0	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	175	0	0	97	0	0	269	270	95	269	271	174
Stage 1	-	-	-	-	-	-	95	95	-	174	174	-
Stage 2	-	-	-	-	-	-	174	175	-	95	97	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1401	-	-	1496	-	-	684	636	962	684	636	869
Stage 1	-	-	-	-	-	-	912	816	-	828	755	-
Stage 2	-	-	-	-	-	-	828	754	-	912	815	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1401	-	-	1496	-	-	684	636	962	684	636	869
Mov Cap-2 Maneuver	-	-	-	-	-	-	684	636	-	684	636	-
Stage 1	-	-	-	-	-	-	912	816	-	828	755	-
Stage 2	-	-	-	-	-	-	828	754	-	912	815	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	10.3	10.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	684	1401	-	-	1496	-	-	684
HCM Lane V/C Ratio	0.005	-	-	-	-	-	-	0.002
HCM Control Delay (s)	10.3	0	-	-	0	-	-	10.3
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	88	5	77	167	2	43
Future Vol, veh/h	88	5	77	167	2	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	93	5	81	176	2	45

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	98	0	434	96
Stage 1	-	-	-	-	96	-
Stage 2	-	-	-	-	338	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1495	-	579	960
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	722	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1495	-	544	960
Mov Cap-2 Maneuver	-	-	-	-	544	-
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	679	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	928	-	-	1495	-
HCM Lane V/C Ratio	0.051	-	-	0.054	-
HCM Control Delay (s)	9.1	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	27	2	11	52	1	7
Future Vol, veh/h	27	2	11	52	1	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	2	12	55	1	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	30	0	108	29
Stage 1	-	-	-	-	29	-
Stage 2	-	-	-	-	79	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1583	-	889	1046
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	944	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1583	-	882	1046
Mov Cap-2 Maneuver	-	-	-	-	882	-
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	936	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1022	-	-	1583	-
HCM Lane V/C Ratio	0.008	-	-	0.007	-
HCM Control Delay (s)	8.6	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	45	0	0	7	3	10
Future Vol, veh/h	45	0	0	7	3	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	0	0	8	3	11

Major/Minor	Minor2		Major2	
Conflicting Flow All	9	9	-	0
Stage 1	9	9	-	-
Stage 2	0	0	-	-
Critical Hdwy	6.42	6.52	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	-
Pot Cap-1 Maneuver	1011	886	-	-
Stage 1	1014	888	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	1011	0	-	-
Mov Cap-2 Maneuver	1011	0	-	-
Stage 1	1014	0	-	-
Stage 2	-	0	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	137	1	0	22	0	1	0	0	0	0	0
Future Vol, veh/h	0	137	1	0	22	0	1	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	149	1	0	24	0	1	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	24	0	0	150	0	0	174	174	150	174	174	24
Stage 1	-	-	-	-	-	-	150	150	-	24	24	-
Stage 2	-	-	-	-	-	-	24	24	-	150	150	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1591	-	-	1431	-	-	789	719	896	789	719	1052
Stage 1	-	-	-	-	-	-	853	773	-	994	875	-
Stage 2	-	-	-	-	-	-	994	875	-	853	773	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1591	-	-	1431	-	-	789	719	896	789	719	1052
Mov Cap-2 Maneuver	-	-	-	-	-	-	789	719	-	789	719	-
Stage 1	-	-	-	-	-	-	853	773	-	994	875	-
Stage 2	-	-	-	-	-	-	994	875	-	853	773	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	9.6	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	789	1591	-	-	1431	-	-	-
HCM Lane V/C Ratio	0.001	-	-	-	-	-	-	-
HCM Control Delay (s)	9.6	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	142	1	12	22	1	51
Future Vol, veh/h	142	1	12	22	1	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	154	1	13	24	1	55

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	155	0	205	155
Stage 1	-	-	-	-	155	-
Stage 2	-	-	-	-	50	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1425	-	783	891
Stage 1	-	-	-	-	873	-
Stage 2	-	-	-	-	972	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1425	-	776	891
Mov Cap-2 Maneuver	-	-	-	-	776	-
Stage 1	-	-	-	-	873	-
Stage 2	-	-	-	-	963	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	888	-	-	1425	-
HCM Lane V/C Ratio	0.064	-	-	0.009	-
HCM Control Delay (s)	9.3	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	42	0	1	9	1	3
Future Vol, veh/h	42	0	1	9	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	0	1	10	1	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	46	0	58	46
Stage 1	-	-	-	-	46	-
Stage 2	-	-	-	-	12	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1562	-	949	1023
Stage 1	-	-	-	-	976	-
Stage 2	-	-	-	-	1011	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1562	-	948	1023
Mov Cap-2 Maneuver	-	-	-	-	948	-
Stage 1	-	-	-	-	976	-
Stage 2	-	-	-	-	1010	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1003	-	-	1562	-
HCM Lane V/C Ratio	0.004	-	-	0.001	-
HCM Control Delay (s)	8.6	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	21	0	0	4	8	39
Future Vol, veh/h	21	0	0	4	8	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	0	0	4	9	42

Major/Minor	Minor2		Major2	
Conflicting Flow All	30	30	-	0
Stage 1	30	30	-	-
Stage 2	0	0	-	-
Critical Hdwy	6.42	6.52	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	-
Pot Cap-1 Maneuver	984	863	-	-
Stage 1	993	870	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	984	0	-	-
Mov Cap-2 Maneuver	984	0	-	-
Stage 1	993	0	-	-
Stage 2	-	0	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	57	3	0	110	2	1	0	0	1	0	0
Future Vol, veh/h	0	57	3	0	110	2	1	0	0	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	62	3	0	120	2	1	0	0	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	122	0	0	65	0	0	185	186	64	185	186	121
Stage 1	-	-	-	-	-	-	64	64	-	121	121	-
Stage 2	-	-	-	-	-	-	121	122	-	64	65	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1465	-	-	1537	-	-	776	708	1000	776	708	930
Stage 1	-	-	-	-	-	-	947	842	-	883	796	-
Stage 2	-	-	-	-	-	-	883	795	-	947	841	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1465	-	-	1537	-	-	776	708	1000	776	708	930
Mov Cap-2 Maneuver	-	-	-	-	-	-	776	708	-	776	708	-
Stage 1	-	-	-	-	-	-	947	842	-	883	796	-
Stage 2	-	-	-	-	-	-	883	795	-	947	841	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	9.6	9.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	776	1465	-	-	1537	-	-	776
HCM Lane V/C Ratio	0.001	-	-	-	-	-	-	0.001
HCM Control Delay (s)	9.6	0	-	-	0	-	-	9.6
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	60	2	45	113	1	24
Future Vol, veh/h	60	2	45	113	1	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	2	49	123	1	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	67	0	287	66
Stage 1	-	-	-	-	66	-
Stage 2	-	-	-	-	221	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1535	-	703	998
Stage 1	-	-	-	-	957	-
Stage 2	-	-	-	-	816	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1535	-	679	998
Mov Cap-2 Maneuver	-	-	-	-	679	-
Stage 1	-	-	-	-	957	-
Stage 2	-	-	-	-	788	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	980	-	-	1535	-
HCM Lane V/C Ratio	0.028	-	-	0.032	-
HCM Control Delay (s)	8.8	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	18	1	4	35	0	3
Future Vol, veh/h	18	1	4	35	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	1	4	38	0	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	21	0	67	21
Stage 1	-	-	-	-	21	-
Stage 2	-	-	-	-	46	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1595	-	938	1056
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	976	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1595	-	935	1056
Mov Cap-2 Maneuver	-	-	-	-	935	-
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	973	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	8.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1056	-	-	1595	-
HCM Lane V/C Ratio	0.003	-	-	0.003	-
HCM Control Delay (s)	8.4	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

KELLAR ENGINEERING

Sean Kellar, PE, PTOE

Principal Engineer

Education
B.S., Civil Engineering, Arizona State University – Tempe, AZ

Registration
Colorado, Professional Engineer (PE)
Wyoming, Professional Engineer (PE)
Idaho, Professional Engineer (PE)
Arizona, Professional Engineer (PE)
Kansas, Professional Engineer (PE)
Missouri, Professional Engineer (PE)
Professional Traffic Operations Engineer (PTOE)

Professional Memberships
Institute of Transportation Engineers (ITE)

Industry Tenure
Over 25 Years

Sean's wide range of expertise includes: transportation planning, traffic modeling roadway design, bike and pedestrian facilities, traffic impact studies, traffic signal warrant analysis, parking studies, corridor planning and access management. Sean's experience in both the private and public sectors; passion for safety and excellence; and strong communication and collaboration skills can bring great value to any project. Prior to starting Kellar Engineering, Sean was employed at the Missouri Department of Transportation (MoDOT) as the District Traffic Engineer for the Kansas City District. Sean also worked for the City of Loveland, CO for over 10 years as a Senior Civil Engineer supervising a division of transportation/traffic engineers. While at the City of Loveland, Sean managed several capital improvement projects, presented several projects to the City Council and Planning Commission in public hearings, and managed the revisions to the City's Street Standards. Sean is also proficient in Highway Capacity Software, Synchro, PT Vissim, Rodel, GIS, and AutoCAD.

WORK EXPERIENCE:

Kellar Engineering, Principal Engineer/President – January 2016 – Present

Missouri Department of Transportation, District Traffic Engineer, Kansas City District – June 2015 – January 2016

City of Loveland, Colorado, Senior Civil Engineer, Public Works Department – February 2005 – June 2015

Kirkham Michael Consulting Engineers, Project Manager - February 2004 – February 2005

Dibble and Associates Consulting Engineers, Project Engineer – August 1999 – February 2004

Community Services and Environmental Impact Report

for

R&R Heights

Preliminary Subdivision Plan

West Half (W½) of Section 2, Township 14 North, Range 68 West of the 6th P.M.

Laramie County, Wyoming

Prepared by:

PALMA Land Planning LLC
SITE DESIGN | LAND DEVELOPMENT
LANDSCAPE ARCHITECTURE | ZONING
1775 Goodnight Trail, Suite 210 | Cheyenne, WY 82007
307-996-8281 | Info@PlanDesignWY.com

April 2026

for: Jean M. Wheeler Revocable Trust, Dated August 8, 1996

Introduction

The purpose of this Community Services and Environmental Impact Report (SEIR) is to ensure that developers, decision makers, and the public at large are at least moderately aware of the potential impacts of the proposed project. The International Association for Impact Assessment (IAIA) defines an environmental impact assessment as "the process of identifying, predicting, evaluating, and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made."

This document does not require adherence to a predetermined outcome, but rather accounts for environmental values and variables in the design and decision-making process, allowing for analysis and appropriate justification of those decisions in thoughtful consideration of the potential impacts. This report is submitted in support of the Preliminary Subdivision Plan (PSP) application for R&R Heights.

1. Project Overview

1.1 Project Information

Project Name	R&R Heights
File No.	25026
Application Type	Preliminary Subdivision Plan (PSP)
Applicant / Agent	Casey L. Palma, AICP — Palma Land Planning, LLC
Owner	Jean M. Wheeler Revocable Trust, Dated August 8, 1996
Date Prepared	April 2026

1.2 Location & Legal Description

Property Address	TBD South of Road 215 / Romsa Road & Horse Creek Road, 82009
State Pidn	00014006802021
Legal Description	West Half (W½) of Section 2, Township 14 North, Range 68 West of the 6th P.M., Laramie County, Wyoming, LESS AND EXCEPT that portion granted to the Transportation Commission of Wyoming (Bk.1626, Pg.580)
AMEC Zone	Zone 2

1.3 Development Program

Parcel / Project Area	±319.48 acres (±321.55 acres gross)
Existing Zoning to Remain	LU – Land Use District
Existing Land Use	Vacant / Agricultural
Proposed Land Use	Single-Family Detached Residential
Total Residential Lots	52 (56 possible with resubdivision; 61 lots maximum)
Minimum Lot Size	5.25 acres
Average Lot Size	±6.18 acres (gross)

2. Existing Conditions

2.1 Current Use & Character

The subject property is currently vacant and used for agricultural purposes. The site is located on the southern side of Horse Creek Road (State Highway 211), at the southeast corner of Road 116 and Road 215 (Romsa Road), approximately seven miles west of Interstate 25 in unincorporated Laramie County.

2.2 Surrounding Land Uses

Adjacent land uses are as follows:

- **North:** Commercial uses and detached residential along Horse Creek Road
- **East:** Agricultural / vacant land
- **South:** Agricultural / vacant land
- **West:** Detached single-family residential properties

The surrounding pattern of large-lot rural residential development and agricultural lands is compatible with the proposed subdivision. The site is not situated within an identified wildlife corridor, and no neighboring land uses present significant incompatibility concerns.

2.3 Access & Roadway Frontage

The property has frontage on Road 215 (Romsa Road) and Horse Creek Road (State Highway 211) along its northern boundary. Two new access points are proposed onto Romsa Road, which connects to Horse Creek Road and Road 116. No direct access onto the State Highway is proposed, however the existing right-of-way configuration and USPS mail kiosk location present challenges to the access scenario. It is the intent of this project to improve and rectify this intersection. Road 116 runs along or near the northwest corner of the parcel and historical evidence shows that a reasonably high percentage of traffic from the west accesses the highway directly from Road 116 instead of Romsa Road. Laramie County Land Use Regulations (LCLUR) access spacing standards have been considered in the placement of access points.

2.4 Topography & Vegetation

The site is characteristic of the high plains desert of southeastern Wyoming, consisting of gently rolling terrain with native grassland vegetation. Contour information provided by Steil Surveying Services (March 30, 2026) indicates moderate topographic variation across the parcel with some severe landforms. Two natural drainageways cross the property from east to west; one of which contains a FEMA 100-year Special Flood Hazard Area (SFHA) as further described below.

2.5 Environmental Constraints

A portion of the proposed subdivision falls within a FEMA 100-year SFHA per Flood Insurance Rate Map (FIRM) Panel No. 56021C1055F, dated January 17, 2007. The affected area corresponds to an upstream drainageway, and historical observation indicates that actual flooding at this location has been extremely infrequent. No significant historic structures, cultural features, threatened or endangered wildlife, or noxious plant species have been identified on or in the vicinity of the property. No known hazardous materials, underground storage tanks, or contaminated soils exist on the site, and there is no record or evidence of any such conditions historically.

3. Utilities and Basic Services

3.1 Water Supply

Individual on-lot wells are proposed for each residential tract. Wells will access the High Plains Aquifer, which underlies this portion of Laramie County. Given the large lot sizes (minimum 5.25 acres), each lot provides sufficient area to accommodate both a well and a septic system meeting all applicable separation distance requirements.

A subdivision application is currently being prepared for review by the Wyoming Department of Environmental Quality (WDEQ), Groundwater Division which will include an analysis of the existing on-site miscellaneous use well to be converted to domestic use. A letter of non-adverse impact will be provided to the Laramie County Planning and Development Office upon receipt. No centralized water distribution system is proposed.

3.2 Wastewater / Sanitary Sewer

Individual on-lot septic systems with leach fields are proposed for each tract. All systems will be designed to comply with applicable Laramie County Environmental Health Department requirements and WDEQ regulations, including separation distances from wells, property lines, and drainage features. The large lot sizes and rural density of this project provide ample area for siting compliant septic systems. No centralized wastewater treatment or collection system is proposed.

3.3 Stormwater Management

Grading, erosion, and sediment control, stormwater management, drainage design, floodplain analysis, and Base Flood Elevation determinations for the proposed subdivision are addressed in the Preliminary Drainage Design & Erosion Control Report prepared by CivilWorx, LLC (Kelly W. Hafner, PE; CivilWorx Project No. C26010; April 2, 2026), submitted concurrently with this application. That report was prepared in compliance with the technical criteria set forth in the Laramie County Land Use Code and addresses GESC/WyPDES requirements, stormwater runoff modeling (USACE HEC-RAS), culvert and road crossing design, SFHA delineation, and downstream impacts.

A Floodplain Development Permit will be obtained for required roadway crossings of the SFHA in accordance with that report's findings. Further drainage detail will be provided with civil improvement documents. See the attached CivilWorx report for complete analysis.

3.4 Electric & Natural Gas

Electrical service will be provided by Black Hills Energy (BHE) from existing adjacent overhead and underground infrastructure. Natural gas service will be provided by Black Hills Wyoming Gas, LLC. Discussions regarding preferred main alignment(s) and service extensions are anticipated to occur in conjunction with civil improvement plan preparation. Communication utilities (telephone, broadband) will be extended through the new public rights-of-way, potentially joint-trenched with BHE and coordinated within the civil improvement plans.

3.5 Solid Waste

Solid waste collection services are available to rural properties in Laramie County through private haulers. Each property owner will contract individually for solid waste removal, consistent with existing rural residential properties in the area. No dedicated transfer station or communal collection point is proposed.

4. Transportation

4.1 Internal Road Network

Five internal public rights-of-way are proposed, with all roadways to be publicly dedicated and privately maintained by a homeowners association or equivalent mechanism consistent with LCLUR requirements for rural residential subdivisions:

- Rodekohr Road (80' R/W) — ±4,534 LF
- Shell Rock Court (60' R/W) — ±401 LF
- Wheeler Way (80' R/W) — ±3,374 LF
- Pay Meadows Trail (80' R/W) — ±1,484 LF
- Gray Peak Drive (80' R/W) — ±1,525 LF

Total internal right-of-way: ±9,793 linear feet. All roads are intended to be constructed in a single phase. Roadway design and construction standards will comply with LCLUR requirements, and final alignments are subject to adjustment through the civil construction plan and platting processes.

4.2 External Access

Two (2) access points are proposed onto Romsa Road (Road 215), an existing constructed county road. New access permits will be required from Laramie County for these connections. No direct access onto Horse Creek Road (State Highway 211) is proposed. The project does not trigger WYDOT access permitting requirements, as the access points are onto a county road rather than a state highway.

4.3 Trip Generation Estimates

Trip generation estimates were prepared by Kellar Engineering LLC (Sean Kellar, PE, PTOE) using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 12th Edition, Land Use Code 210 (Single-Family Detached Housing). The Transportation Assessment Worksheet was completed by Sean Kellar, PE, in accordance with LCLUR Section 5-6-103 and is submitted as an attachment to the PSP application.

Time Period	ITE Rate	Units	Trip Ends
Weekday ADT	9.09 / DU (ITE 12th Ed.)	52	473 ADT
AM Peak (7–9 a.m.)	0.70 / DU; 27% in / 73% out	52	36 trips (10 in / 26 out)
PM Peak (4–6 p.m.)	0.93 / DU; 62% in / 38% out	52	48 trips (30 in / 18 out)

Source: ITE Trip Generation Manual, 12th Edition (LUC 210). Trip generation rates and directional distributions per Kellar Engineering LLC (Sean Kellar, PE, PTOE), Traffic Narrative for R&R Heights, April 3, 2026. Given the very rural character of this location, actual trip generation is expected to be lower than ITE-estimated values.

Based on the Transportation Assessment Worksheet completed pursuant to LCLUR Section 5-6-103, the project generates 473 average daily trips, 36 AM peak hour trips, and 48 PM peak hour trips. All traffic generated by the project will be distributed to the county road network via the two proposed Romsa Road access points.

5. Fire Protection

Fire protection services are provided by the Laramie County Fire Authority (LCFA). The nearest LCFA stations serving this area are:

- LCFA Station 72, 410 Horse Creek Road
- LCFA Station 75, 1705 Treadway Trail

No centralized water supply system is proposed. Water supply for fire protection will be addressed through coordination with LCFA during the civil improvement plan review process; due to proximity to cisterns and stations, no on-site storage is anticipated to be required. Public Safety fees will be paid at the rate established in LCLUR§4-5-113 ($1,000/tract x 52 tracts = $52,000.

The proposed road network provides loop circulation within the subdivision, and all internal roads are designed to meet or exceed the minimum right-of-way widths and geometric configurations established in the LCLUR and will support emergency vehicle access. The proposed development will not create an excessive additional demand on existing fire protection services given the low density of the project (0.16 Dwelling Units per Acre).

6. Schools and Basic Services

6.1 School District

The subject property falls within Laramie County School District No. 1 (LCSD#1). The proposed 52 single-family residential lots will generate a modest number of additional school-age children commensurate with the rural residential density. LCSD#1 is the primary provider of K-12 education services throughout unincorporated Laramie County.

6.2 Law Enforcement

The subject property is within the jurisdiction of the Laramie County Sheriff's Office (LCSO). There is no known criminal presence or incident history in the immediate area, and the proposed rural residential development is not anticipated to generate any disproportionate increase in demand for law enforcement services. Current LCSO staffing levels are anticipated to be sufficient to accommodate any marginal increase in service calls associated with this development.

6.3 Emergency Medical Services

Emergency medical services are provided by Laramie County EMS, which serves rural areas of the county in coordination with local fire resources. The low-density nature of the proposed development will not create a significant additional burden on regional EMS response capacity.

6.4 Healthcare

Residents will have access to healthcare facilities in the Cheyenne metropolitan area, which is within close proximity to the project site. Urgent care and hospital services are available via Horse Creek Road and Interstate 25.

7. Land Use Compatibility

The proposed single-family residential subdivision is consistent with the existing LU – Land Use Zoning District designation applicable to the property. The LU District is the appropriate designation for large-lot rural residential development in unincorporated Laramie County, and the proposed lot configuration (minimum 5.25 acres, average ±6.16 acres) is consistent with the density standards of the district and with surrounding rural residential land use patterns.

The proposed development is compatible with adjacent residential uses to the north and west, and its large lot sizes and low impervious coverage provide adequate buffering from the agricultural lands to the east and south. The project does not propose any commercial, industrial, or higher-density residential uses that could conflict with the rural character of the area.

The Preliminary Subdivision Plan is designed to minimize disturbance to natural drainageways and avoids direct conflicts with the FEMA SFHA through road crossing design and sufficient area on encumbered lots to avoid placement of structures in the SFHA. The overall development footprint (impervious area), relative to the gross acreage of 321.55 acres, is modest.

8. Floodplain Considerations

Floodplain analysis, Base Flood Elevation delineation, and floodplain development requirements for the proposed subdivision are addressed in full in the Preliminary Drainage Design & Erosion Control Report by CivilWorx, LLC (April 2, 2026), submitted concurrently with this application. Per that report, a portion of the site falls within a FEMA Zone A SFHA associated with an unnamed tributary of Lodgepole Creek. CivilWorx prepared site-specific runoff modeling using USACE HEC-RAS and established true floodplain and Base Flood Elevation (BFE) delineations for this site. The report confirms that the development design conveys runoff without increasing upstream or downstream floodplain depths. Residential lots are sited outside the SFHA; floodplain impacts are limited to necessary roadway crossings. A Floodplain Development Permit will be obtained for each crossing consistent with the CivilWorx findings and Laramie County Floodplain Management regulations. See the attached CivilWorx report for complete analysis, figures, and BFE delineations.

9. Proposed Changes to Site

Development of the subject property will require the following primary site improvements:

- Construction of approximately 9,793 linear feet of public rights-of-way for Rodekohr Road, Wheeler Way, Pay Meadows Trail, Gray Peak Drive, and Shell Rock Court.
- Roadway crossings of the two east-to-west drainageways, including culverts or bridges designed to pass the 100-year design flow
- Individual well and septic system installations on each lot following final plat recordation
- Extension of electric and gas infrastructure through new rights-of-way
- Grading, erosion, and sediment control measures during construction consistent with GESC permit requirements

The construction of roadways and perimeter fencing may present minor obstacles to wildlife movement; however, these impacts are not anticipated to be in excess of existing barriers or obstacles in the area, and the site is not situated within an identified wildlife corridor. The scope of single-family residential development at this density does not significantly alter the natural landscape or create a significant pollution or hazard to the human or natural environment.

10. Summary and Findings

Based on the analysis contained in this Community Services and Environmental Impact Report, the following findings are submitted in support of the R&R Heights Preliminary Subdivision Plan:

- The proposed 52-lot single-family residential subdivision is consistent with the LU – Land Use Zoning District designation and the large-lot rural residential character of the surrounding area.

- Water supply and wastewater disposal will be provided by individual on-lot wells and septic systems, which are appropriate and feasible given the large lot sizes and low density of the project.
- Stormwater management, drainage, grading, and erosion control are addressed in the Preliminary Drainage Design & Erosion Control Report by CivilWorx, LLC (April 2, 2026), submitted concurrently with this application.
- Floodplain analysis and Base Flood Elevation delineation are addressed in the CivilWorx Preliminary Drainage Design & Erosion Control Report. Roadway crossings of the SFHA will be designed per that report's findings. A Floodplain Development Permit will be obtained.
- Trip generation from 52 single-family residential units results in approximately 473 average daily trips, 36 AM peak hour trips, and 48 PM peak hour trips per Kellar Engineering LLC (Sean Kellar, PE, PTOE; April 3, 2026). A Traffic Impact Study is being prepared by Kellar Engineering LLC and will be submitted concurrently with the subdivision permit application. All traffic will access the county road network via two access points onto Romsa Road (Road 215).
- Fire protection is provided by the Laramie County Fire Authority, with Stations 72 and 75 serving the area. Fire suppression water supply provisions will be coordinated with LCFA.
- Educational services are provided by Laramie County School District No. 1. Law enforcement is provided by the Laramie County Sheriff's Office. Neither agency is expected to experience a disproportionate increase in demand from this development.
- No known environmental hazards, historic structures, threatened or endangered species, or noxious plants have been identified on or in the vicinity of the property.

In conclusion, this Community Services and Environmental Impact Report provides sufficient base data to conclude that the proposed R&R Heights subdivision will not contribute to any significant level of negative impact on the area, and that several benefits will be realized for future residents, the jurisdiction, and the public at large. The proposed development is consistent with applicable Laramie County Land Use Regulations and the rural residential character of the surrounding area.

Attachments

- Preliminary Development Plan (PDP) — R&R Heights, Palma Land Planning, LLC (April 3, 2026)
- Transportation Assessment Worksheet — LCLUR Section 5-6-103 (April 3, 2026)
- Traffic Narrative & Trip Generation/ Kellar Engineering LLC (Sean Kellar, PE, PTOE; 4/3/266)
- Project Narrative and Request for Waiver/Deferral Requirements (April 3, 2026)
- FIRM Panel No. 56021C1055F (January 17, 2007) — Laramie County, Wyoming
- Preliminary Drainage Design & Erosion Control Report — R&R Heights, CivilWorx, LLC (Kelly W. Hafner, PE; Project No. C26010; April 2, 2026)

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988 (NAVD 88). These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. An average offset between NAVD 88 and the National Geodetic Vertical Datum of 1929 (NGVD 29) has been computed for each Laramie County flooding source. This offset was then applied to the NGVD 29 flood elevations that were not revised during the creation of this countywide format FIRM. The offsets for each flooding source shown on this firm are shown in the Laramie County Vertical Datum Offset Table below. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey Website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services, NOAA, N/NGS12
National Geodetic Survey SSMC-2, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov

Base map information shown on this FIRM was provided by the Laramie County GIS Department and the City of Cheyenne GIS Department. These data are current as of 2004

This map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. Also, the road to floodplain relationships for unrevised streams may differ from what is shown on previous maps.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov.

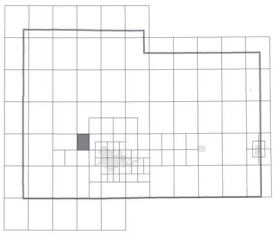
If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA Map** (1-877-338-2627) or visit the FEMA website at http://www.fema.gov.

Laramie County Vertical Datum Offset Table

Flooding Source	Vertical Datum Offset (ft)
Allison Draw	3.33
Allison Draw Split Flow Path	3.33
Clear Creek	3.33
Crow Creek	3.33
Dry Creek	3.33
South Fork Allison Draw	3.33
Western Hills Draw (North Fork Dry Creek)	3.33
Wyoming Hereford Ranch Reservoir No. 1 - Emergency Spillway	3.33

Example: To convert Clear Creek elevations to NAVD 88, 3.33 feet were added to the NGVD 29 elevations.

Panel Location Map



This digital Flood Insurance Rate Map (FIRM) was produced through a cooperative partnership between Laramie County, the City of Cheyenne, and the Federal Emergency Management Agency (FEMA). Laramie County and the City of Cheyenne have implemented a long-term approach of floodplain management to reduce the costs associated with flooding. As part of this effort, Laramie County has joined in a Cooperating Technical Partner agreement with FEMA to produce this digital FIRM. Additional flood hazard information and resources are available from local communities, Laramie County and the City of Cheyenne.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

Floodplain boundary
Floodway boundary
Zone D boundary
Boundary dividing Special Flood Hazard Area zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513 — Base Flood Elevation line and value; elevation in feet*
(EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*
*Referenced to the North American Vertical Datum of 1988
A — A — Cross section line
104° 50' 37.5" , 39° 30' 00" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
4276000 M — 1000-meter Universal Transverse Mercator grid ticks, zone 13
3180000 FT — 5000-foot ticks: Wyoming State Plane coordinate system, east zone (FIPSZONE 4901), Lambert Conformal Conic projection
MO0079 — National Geodetic Survey bench mark (see explanation in Notes to Users section of this FIRM panel

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
JANUARY 17, 2007

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1055F

FIRM
FLOOD INSURANCE RATE MAP
LARAMIE COUNTY, WYOMING AND INCORPORATED AREAS

PANEL 1055 OF 1650
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS

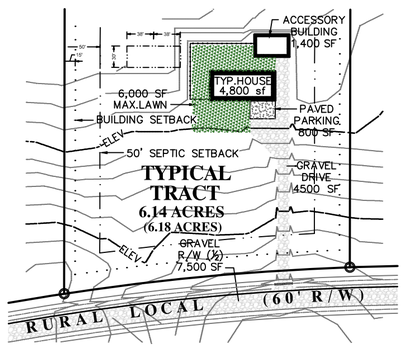
COMMUNITY	NUMBER	PANEL	SUFFIX
LARAMIE COUNTY	560029	1055	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
56021C1055F

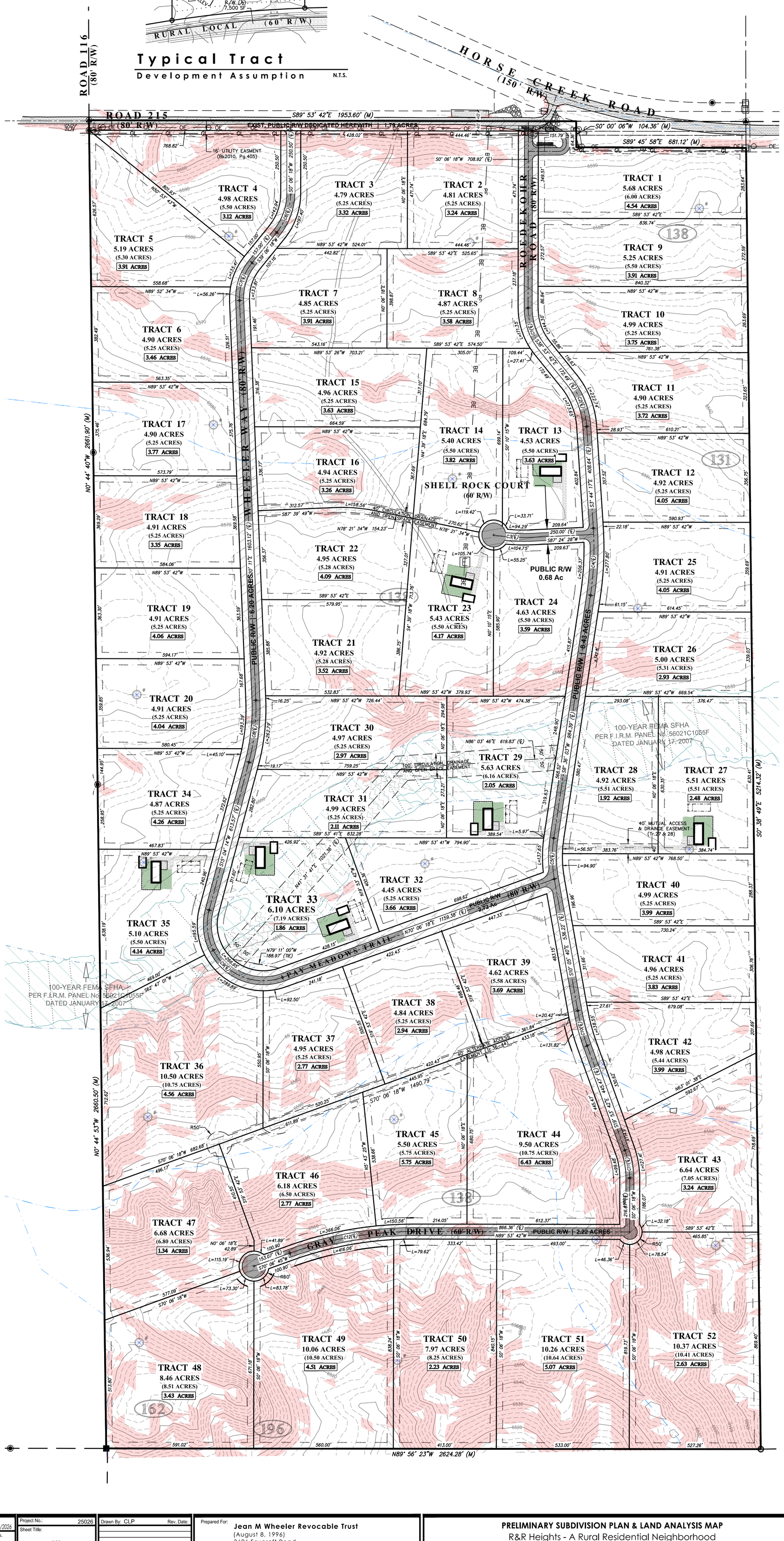
EFFECTIVE DATE
JANUARY 17, 2007

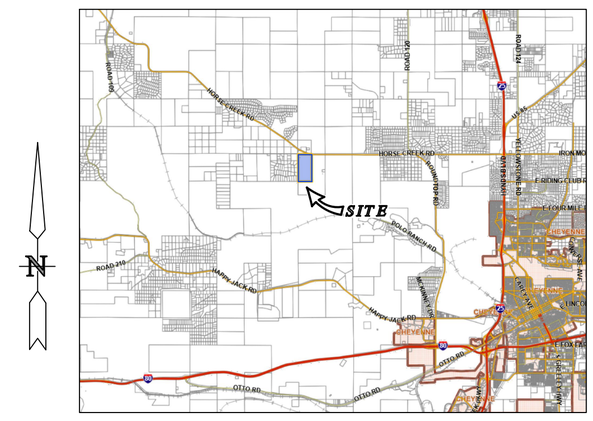
Federal Emergency Management Agency



Typical Tract

Development Assumption N.T.S.





LEGEND

- SET 1½" ALUMINUM SURVEY CAP STAMPED "SSS PLS 5910" ON ⅝" x 24" REBAR
- FOUND 1½" ALUMINUM CAP STAMPED "SSS P.L.S. 2500"
- FOUND GLO STONE
- FOUND 3¼"ALUMINUM SURVEY CAP STAMPED "PLS 2617"
- (M) DENOTES MEASURED DATA THIS SURVEY
- (R) DENOTES RECORD DATA
- DENOTES MUTUAL EASEMENT AREAS
- DENOTES PUBLIC R/W DEDICATED HEREWITH
- MAJOR TOPOGRAPHIC CONTOUR
- MINOR TOPOGRAPHIC CONTOUR
- EXISTING FENCE
- OE EXIST OVERHEAD POWER & POLE
- BE EXIST UNDERGROUND POWER
- _.__ ACRES NET ACREAGE OF TRACT
- (_.__ ACRES) GROSS ACREAGE OF TRACT (TO ℄ OF AJACENT ROAD R/W)
- _.__ ACRES BUILDABLE AREA OF TRACT PER LCLUR§ 6-1-101 & 4-4-101
- EXISTING SLOPE IN EXCESS OF 10%
- SETBACK LINE PER LCLUR§2-4-104
- PROPOSED ROADWAY
- FEMA 100-YEAR SFHA w/FLOODPLAIN MODELING AND ESTABLISHED BFEs
- PERCOLATION TEST LOCATION AND #
- 102 NRCS SOIL TYPE(S)

CURVE TABLE

CURVE #	DELTA	RADIUS	CHORD BEARING	CHORD LENGTH	ARC LENGTH
C1(℄)	39° 00' 00"	252.00'	S19° 23' 42"E	168.24'	171.53'
C2(℄)	35° 09' 25"	323.00'	S21° 19' 00"E	195.10'	198.19'
C3(℄)	12° 03' 12"	720.00'	N86° 33' 56"W	151.19'	151.47'
C4(℄)	12° 20' 20"	1250.00'	S2° 25' 53"W	268.67'	269.19'
C5(℄)	18° 41' 43"	504.00'	S0° 44' 49"E	163.72'	164.45'
C6(℄)	39° 00' 00"	250.00'	S19° 36' 18"W	166.90'	170.17'
C7(℄)	41° 26' 29"	225.00'	S18° 23' 04"W	159.22'	162.74'
C8(℄)	17° 24' 25"	825.00'	S6° 22' 02"W	249.68'	250.64'
C9(℄)	124° 57' 56"	225.00'	S47° 24' 44"E	399.09'	490.74'
C10(℄)	9° 48' 02"	850.00'	S14° 59' 41"E	145.22'	145.39'
C11(℄)	20° 00' 00"	325.00'	S9° 53' 42"E	112.87'	113.45'
C12(℄)	19° 59' 39"	1450.00'	S80° 06' 28"W	503.44'	506.00'

Development Summary

Legal Description: The West Half (W½) of Section 2, Township 14 North, Range 68 West of the 6th P.M. in Laramie County, Wyoming, LESS AND EXCEPT that portion granted to The Transportation Commission of Wyoming by Warranty Deed dated November 21, 2001, and recorded on December 20, 2001, in Book 1626 at Page 580 of the records of Laramie County, Wyoming.

Property Address: TBD Horse Creek Road, 82009
AMEC Zone: #2
Existing Use: Vacant Agricultural
Proposed Use: (52) Single-Family Residential
Existing Zoning: LU - Land Use (Unincorporated County) to remain
Required Building Setbacks: 25' on all sides for any structure >200 SF
Maximum Impervious Coverage: 30%
Maximum Building Height: 40'
Minimum Tract Size: 5.25 Acres
Max # Residential Tracts: 61

Total Property Area: 319.48 Acres (321.55 Gross Acres)
Total Buildable Area: 185.14 Acres

Total # Residential Tracts: 52
Average Tract Size: ±6.16 Acres

Proposed Public R/W:

ROAD NAME	CL LENGTH	ACREAGE
ROEDEKOHR Road (80' R/W)	4,534 LF	± 8.43 Ac
Shell Rock Court (60' R/W)	401 LF	± 0.68 Ac
Wheeler Way (80' R/W)	3,374 LF	± 6.02 Ac
Pay Meadows Trail (80' R/W)	1,484 LF	± 2.72 Ac
Gray Peak Drive (60' R/W)	1,525 LF	± 2.22 Ac
Total:	9,793 LF	±20.07 Ac

Proposed Drainage and Open Space Easements:

EASMENT NAME / AREA	ACREAGE
Shell Rock Extension (40'W)	± 0.82 Ac
Floodplain Trail (100'W)	± 3.76 Ac
Tracts 27-28	± 0.35 Ac
Total:	± 4.93 Ac

Notes

1) BASIS OF BEARINGS: WYOMING STATE PLANE COORDINATES, EAST ZONE, NAD83-2011, US SURVEY FEET. GRID DISTANCES. ELEVATIONS: NAVD88, BASED ON BENCHMARK C-90.

2) ALL UNMONUMENTED TRACT CORNERS, ANGLE POINTS, AND POINTS OF CURVATURE TO BE MONUMENTED WITH 1½" ALUMINUM CAP STAMPED "SSS P.L.S. 5910" ON ⅝"x24" REBAR.

3) A PORTION OF THE PROPOSED SUBDIVISION AS SHOWN FALLS WITHIN A FEMA 100-YEAR SFHA PER F.I.R.M PANEL NO.56021C1055F; DATED JANUARY 17, 2007.

4) BOUNDARY, TOPOGRAPHIC, AND EXISTING CONDITIONS INFORMATION PER STEIL SURVEYING SERVICES (3/30/26).

5) NO CENTRALIZED SEWER OR WATER SYSTEM(S) ARE PROPOSED. WATER SERVICE & WASTEWATER DISPOSAL TO BE PROVIDED BY INDIVIDUAL WELL & SEPTIC LEACH FIELDS FOR EACH TRACT. ALL SYSTEMS SHALL BE PROPERLY PERMITTED AND SHALL COMPLY WITH ALL APPLICABLE STATE AND LOCAL RULES AND REGULATIONS.

6) PROPOSED PROPERTY LINES, ACCESS PINTS, ROADWAYS, AND RIGHT OF WAY EASEMENT / DEDICATIONS, ETC., ARE PRELIMINARY, TO BE ADJUSTED AND UPDATED VIA CIVIL FINAL PLAT, & ENTITLEMENT PROCESSES.

7) ALL ROADWAYS AND FACILITIES SHOWN ARE INTENDED TO BE CONSTRUCTED IN A SINGLE PHASE.

8) GRADING & DRAINAGE: SEE PRELIMINARY DRAINAGE DESIGN & EROSION CONTROL REPORT PREPARED BY CIVILWORX, LLC, APRIL 2026,

9) EASEMENT NOTES:
   - A. "UTILITY EASEMENT(S)" SHOWN ARE HEREBY GRANTED TO LARAMIE COUNTY FRANCHISED UTILITIES PROVIDES, THEIR LEGAL SUCCESSORS AND/OR ASSIGNS, UNLESS OTHERWISE SPECIFIED HEREON, FOR THE INSTALLATION OF UNDERGROUND UTILITY(IES) AND COMMUNICATION(S) FACILITIES.
   - B. "DRAINAGE EASEMENT(S)" CREATED HEREWITH ARE HEREBY GRANTED TO ALL OWNER(S) OF FEE-SIMPLE TRACTS HEREON FOR MUTUAL STORMWATER DRAINAGE AND ASSOCIATED FACILITIES.
   - C. "OPEN SPACE EASEMENT(S)" CREATED HEREWITH ARE HEREBY GRANTED TO ALL OWNER(S) OF FEE-SIMPLE TRACTS HEREON FOR MUTUAL NON-MOTORIZED CIRCULATION AND RECREATION.
   - D. "ALTERNATE ACCESS EASEMENT(S) CREATED HEREWITH ARE HEREBY GRANTED TO ALL OWNER(S) OF FEE-SIMPLE TRACTS 36 THROUGH 44 HEREON FOR POTENTIAL ALTERNATE (HIGH-SIDE) ACCESS TO THE PARCEL(S).

ALL SURVEY DATA © COPYRIGHT 2026 STEIL SURVEYING SERVICES, LLC ALL RIGHTS RESERVED

STEIL SURVEYING SERVICES, LLC
PROFESSIONAL LAND SURVEYORS
PLANNING & DEVELOPMENT SPECIALISTS
1102 WEST 19th ST. CHEYENNE, WY. 82001 ○ (307) 634-7273
756 GILCHRIST ST. WHEATLAND, WY. 82201 ○ (307) 332-9739
www.SteilSurvey.com ○ info@SteilSurvey.com

Date: 4/6/2026 | Sheet No. 1 / 1 | Project No.: 25026 | Sheet Title: PSP | Drawn By: CLP | Rev. Date:

Prepared For: **Jean M Wheeler Revocable Trust** (August 8, 1996), 3626 Foxcroft Road, Cheyenne, WY 82001

PRELIMINARY SUBDIVISION PLAN & LAND ANALYSIS MAP
R&R Heights - A Rural Residential Neighborhood
Situated in the W1/2 of Section 2, T.14 N., R.68 W of the 6th P.M., Laramie County, WY

PALMA Land Planning
SITE DESIGN | LAND DEVELOPMENT
LANDSCAPE ARCHITECTURE | ZONING
1775 Goodnight Trail, Suite 210 | Cheyenne, WY 82007
307-996-8281 | info@PlanDesignWY.com

THIS DOCUMENT IS AN INSTRUMENT OF PROFESSIONAL SERVICE PREPARED FOR THIS PROJECT. PALMA LAND PLANNING, LLC, SHALL BE HELD HARMLESS AND RELEASED OF ALL DAMAGE, COST, AND/OR LIABILITY ARISING FROM MODIFICATION AND/OR REUSE BY OTHERS. DO NOT BID OR BUILD FROM DRAWINGS NOT STAMPED AND SIGNED BY A LICENSED LANDSCAPE ARCHITECT.

SSS26148- 25026-PDP-FINAL.dwg, 04/06/2026, trout

RESOLUTION NO. _____

A RESOLUTION TO APPROVE MAJOR SUBDIVISION PERMIT AND PLAT FOR A PORTION OF LAND SITUATED IN THE W ½ OF SECTION 2, T14N, R68W, OF THE 6TH P.M., LARAMIE COUNTY, WY, TO BE PLATTED AND KNOWN AS "R & R HEIGHTS."

WHEREAS, Wyoming State Statutes §18-5-301 to 18-5-306; §18-5-301 to 18-5-315 authorize Laramie County, in promoting the public health, safety, morals and general welfare of the county, to regulate the use of land through zoning in unincorporated Laramie County; and

WHEREAS, the Laramie County Board of Commissioners adopted the 2025 Laramie County Land Use Regulations; and

WHEREAS, the proposed Major Subdivision Permit and Plat is in accordance with section 4-4-101(iii) of the Laramie County Land Use Regulations; and

WHEREAS, the application is in conformance with the LU – Land Use zone district; and

WHEREAS, this resolution is the Major Subdivision Permit and Plat for R & R Heights.

NOW THEREFORE BE IT RESOLVED BY THE GOVERNING BODY OF LARAMIE COUNTY, WYOMING, as follows:

The Laramie County Board of Commissioners finds that:

- **a.** This application is in conformance with section 4-4-101(iii) of the Laramie County Land Use Regulations.
- **b.** This application is in conformance with section 2-4-104 governing the LU – Land Use zone district.

And the Board approves the Major Subdivision Permit and Plat for R & R Heights, Laramie County, WY, with the following conditions:

1) **All agency comments must be addressed and/or corrected on the plat prior to recordation.**
2) **A Chapter 23 Non-Adverse Action letter must be received from DEQ prior to recordation.**

PRESENTED, READ AND ADOPTED THIS _____ DAY OF

_____, 2026.

LARAMIE COUNTY BOARD OF COMMISSIONERS

_____
Gunnar Malm, Chairman

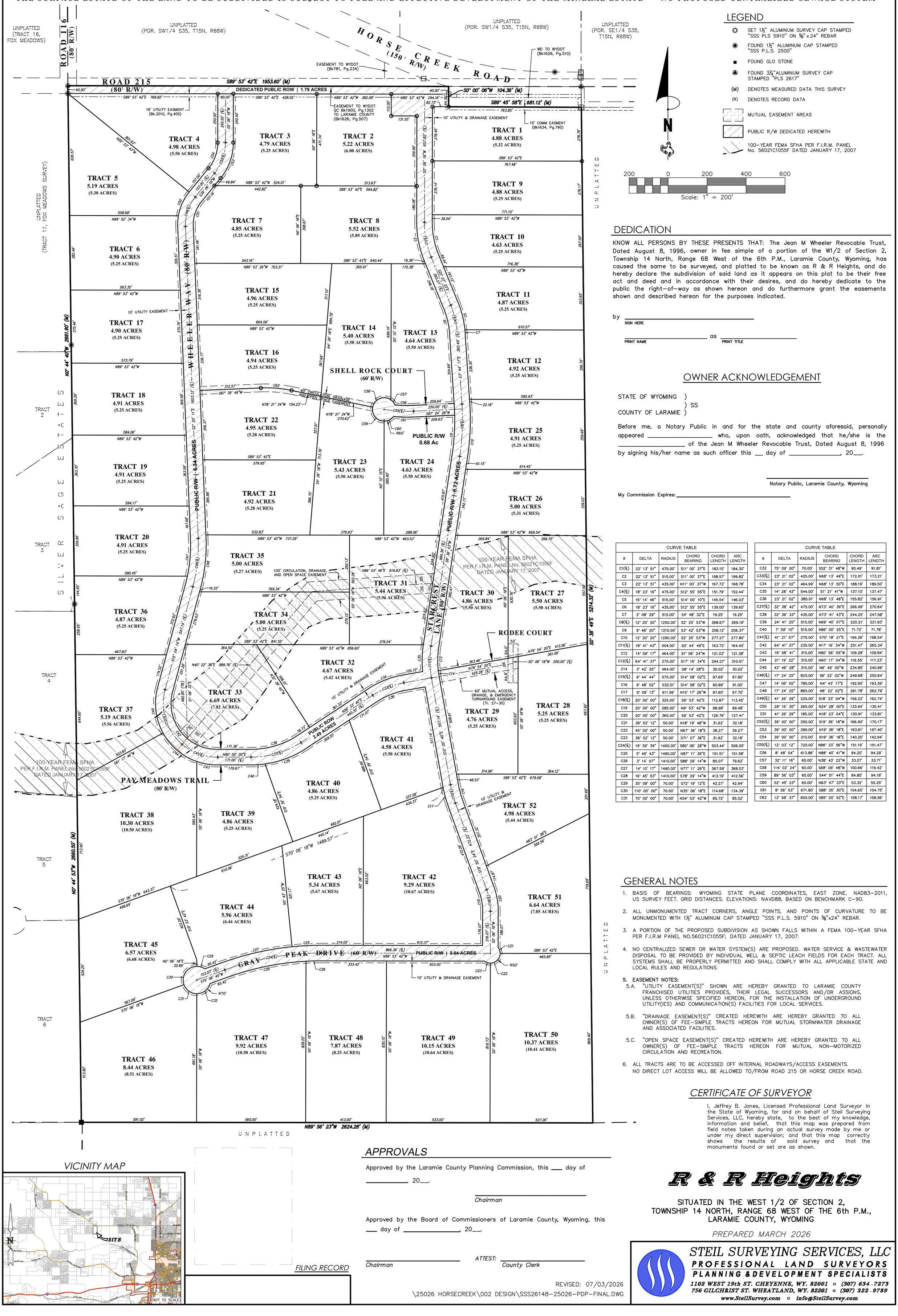
ATTEST:

_____
Debra Lee, Laramie County Clerk

Reviewed and approved as to form:

_____
Laramie County Attorney's Office

▫ NO PUBLIC MAINTENANCE OF INTERNAL STREETS OR ROADS ▫ FIRE PROTECTION TO BE PROVIDED BY LARAMIE COUNTY FIRE AUTHORITY ▫ NO PROPOSED CENTRAL WATER SYSTEM ▫
▫ THE SURFACE ESTATE OF THE LAND TO BE SUBDIVIDED IS SUBJECT TO FULL AND EFFECTIVE DEVELOPMENT OF THE MINERAL ESTATE ▫ NO PROPOSED CENTRALIZED SEWAGE SYSTEM ▫



LEGEND

- SET 1½" ALUMINUM SURVEY CAP STAMPED "SSS PLS 5910" ON ⅝" x 24" REBAR
- FOUND 1½" ALUMINUM CAP STAMPED "SSS P.L.S. 2500"
- FOUND GLO STONE
- FOUND 3¼"ALUMINUM SURVEY CAP STAMPED "PLS 2617"
- (M) DENOTES MEASURED DATA THIS SURVEY
- (R) DENOTES RECORD DATA
- MUTUAL EASEMENT AREAS
- PUBLIC R/W DEDICATED HEREWITH
- 100-YEAR FEMA SFHA PER F.I.R.M. PANEL No. 56021C1055F DATED JANUARY 17, 2007

DEDICATION

KNOW ALL PERSONS BY THESE PRESENTS THAT: The Jean M Wheeler Revocable Trust, Dated August 8, 1996, owner in fee simple of a portion of the W1/2 of Section 2, Township 14 North, Range 68 West of the 6th P.M., Laramie County, Wyoming, has caused the same to be surveyed, and platted to be known as R & R Heights, and do hereby declare the subdivision of said land as it appears on this plat to be their free act and deed and in accordance with their desires, and do hereby dedicate to the public the right-of-way as shown hereon and do furthermore grant the easements shown and described hereon for the purposes indicated.

by _____
SIGN HERE

_____ as _____
PRINT NAME PRINT TITLE

OWNER ACKNOWLEDGEMENT

STATE OF WYOMING)
) SS
COUNTY OF LARAMIE)

Before me, a Notary Public in and for the state and county aforesaid, personally appeared _____ who, upon oath, acknowledged that he/she is the _____ of the Jean M Wheeler Revocable Trust, Dated August 8, 1996 by signing his/her name as such officer this __ day of _____, 20__.

_____
Notary Public, Laramie County, Wyoming

My Commission Expires: _____

CURVE TABLE					
#	DELTA	RADIUS	CHORD BEARING	CHORD LENGTH	ARC LENGTH
C1(℄)	22° 13' 51"	475.00'	S11° 00' 37"E	183.15'	184.30'
C2	22° 13' 51"	515.00'	S11° 00' 37"E	198.57'	199.82'
C3	22° 13' 51"	435.00'	N11° 00' 37"W	167.72'	168.78'
C4(℄)	18° 23' 16"	475.00'	S12° 55' 55"E	151.79'	152.44'
C5	16° 14' 46"	515.00'	S14° 00' 10"E	145.54'	146.03'
C6	18° 23' 16"	435.00'	S12° 55' 55"E	139.00'	139.60'
C7	2° 08' 29"	515.00'	S4° 48' 32"E	19.25'	19.25'
C8(℄)	12° 20' 20"	1250.00'	S2° 25' 53"W	268.67'	269.19'
C9	9° 46' 20"	1210.00'	S3° 42' 53"W	206.12'	206.37'
C10	12° 20' 20"	1290.00'	S2° 25' 53"W	277.27'	277.80'
C11(℄)	18° 41' 43"	504.00'	S0° 44' 49"E	163.72'	164.45'
C12	14° 59' 17"	464.00'	S1° 06' 24"W	121.03'	121.38'
C12(℄)	64° 41' 37"	275.00'	S17° 16' 34"E	294.27'	310.51'
C14	3° 42' 25"	464.00'	S8° 14' 28"E	30.02'	30.02'
C15(℄)	9° 44' 44"	575.00'	S14° 58' 02"E	97.69'	97.80'
C16	9° 48' 02"	532.01'	S14° 58' 02"E	90.89'	91.00'
C17	9° 09' 13"	611.56'	N15° 17' 26"W	97.60'	97.70'
C18(℄)	20° 00' 00"	325.00'	S9° 53' 42"E	112.87'	113.45'
C19	20° 00' 00"	285.00'	N9° 53' 42"W	98.98'	99.48'
C20	20° 00' 00"	365.00'	S9° 53' 42"E	126.76'	127.41'
C21	36° 52' 12"	50.00'	N18° 19' 48"W	31.62'	32.18'
C22	45° 00' 00"	50.00'	N67° 36' 18"E	38.27'	39.27'
C23	36° 52' 12"	50.00'	S71° 27' 36"E	31.62'	32.18'
C24(℄)	19° 59' 39"	1450.00'	S80° 06' 28"W	503.44'	506.00'
C25	5° 49' 43"	1490.00'	N87° 11' 26"E	151.51'	151.58'
C26	3° 14' 07"	1410.00'	S88° 29' 14"W	85.07'	79.62'
C27	14° 10' 17"	1490.00'	N77° 11' 26"E	367.59'	368.53'
C28	16° 45' 53"	1410.00'	S78° 29' 14"W	412.19'	412.56'
C29	35° 09' 00"	70.00'	S72° 19' 12"E	42.27'	42.94'
C30	110° 00' 00"	70.00'	N35° 06' 18"E	114.68'	134.39'
C31	70° 00' 00"	70.00'	N54° 53' 42"W	85.72'	85.52'

CURVE TABLE					
#	DELTA	RADIUS	CHORD BEARING	CHORD LENGTH	ARC LENGTH
C32	75° 09' 00"	70.00'	S52° 31' 48"W	90.49'	91.81'
C33(℄)	23° 21' 02"	425.00'	N68° 13' 49"E	172.01'	173.21'
C34	23° 21' 02"	464.99'	N68° 13' 50"E	188.19'	189.50'
C35	14° 28' 43"	544.00'	S1° 21' 41"W	137.10'	137.47'
C36	23° 21' 02"	385.01'	N68° 13' 48"E	155.82'	156.91'
C37(℄)	32° 38' 42"	475.00'	N73° 40' 39"E	266.99'	270.64'
C38	32° 36' 33"	435.00'	N73° 41' 43"E	244.25'	247.58'
C39	24° 41' 25"	515.00'	N69° 40' 07"E	220.21'	221.93'
C40	7° 59' 10"	515.00'	N86° 00' 25"E	71.72'	71.78'
C41(℄)	41° 21' 57"	275.00'	S70° 18' 21"E	194.26'	198.54'
C42	64° 41' 37"	235.00'	N17° 16' 34"W	251.47'	265.34'
C43	19° 58' 41"	315.00'	N80° 56' 05"W	109.28'	109.84'
C44	21° 19' 22"	315.00'	N60° 17' 04"W	116.55'	117.23'
C45	43° 46' 28"	315.00'	N6° 49' 00"W	234.85'	240.66'
C46(℄)	17° 24' 25"	825.00'	S6° 22' 02"W	249.68'	250.64'
C47	14° 06' 55"	785.00'	N4° 43' 17"E	192.90'	193.39'
C48	17° 24' 25"	865.00'	N6° 22' 02"E	261.78'	262.79'
C49(℄)	41° 26' 29"	225.00'	S18° 23' 04"W	159.22'	162.74'
C50	29° 16' 35"	265.00'	N24° 28' 00"E	133.94'	135.41'
C51	41° 26' 29"	185.00'	N18° 23' 04"E	130.91'	133.81'
C52(℄)	39° 00' 00"	250.00'	S19° 36' 18"W	166.90'	170.17'
C53	39° 00' 00"	290.00'	N19° 36' 18"E	193.61'	197.40'
C54	39° 00' 00"	210.00'	N19° 36' 18"E	140.20'	142.94'
C55(℄)	12° 03' 12"	720.00'	N86° 33' 56"W	151.19'	151.47'
C56	8° 48' 04"	613.86'	N88° 40' 41"W	94.20'	94.29'
C57	32° 11' 16"	60.00'	N38° 43' 22"W	33.27'	33.71'
C58	114° 02' 24"	60.00'	S68° 09' 48"W	100.66'	119.42'
C59	89° 56' 03"	60.00'	S44° 51' 44"E	84.80'	94.18'
C60	52° 45' 23"	60.00'	N63° 47' 33"E	53.32'	55.25'
C61	8° 56' 03"	671.80'	S88° 35' 30"E	104.65'	104.75'
C62	13° 58' 37"	650.00'	S85° 20' 52"E	158.17'	158.56'

GENERAL NOTES

1. BASIS OF BEARINGS: WYOMING STATE PLANE COORDINATES, EAST ZONE, NAD83-2011, US SURVEY FEET. GRID DISTANCES. ELEVATIONS: NAVD88, BASED ON BENCHMARK C-90.
2. ALL UNMONUMENTED TRACT CORNERS, ANGLE POINTS, AND POINTS OF CURVATURE TO BE MONUMENTED WITH 1½" ALUMINUM CAP STAMPED "SSS P.L.S. 5910" ON ⅝"x24" REBAR.
3. A PORTION OF THE PROPOSED SUBDIVISION AS SHOWN FALLS WITHIN A FEMA 100-YEAR SFHA PER F.I.R.M PANEL NO.56021C1055F; DATED JANUARY 17, 2007.
4. NO CENTRALIZED SEWER OR WATER SYSTEM(S) ARE PROPOSED. WATER SERVICE & WASTEWATER DISPOSAL TO BE PROVIDED BY INDIVIDUAL WELL & SEPTIC LEACH FIELDS FOR EACH TRACT. ALL SYSTEMS SHALL BE PROPERLY PERMITTED AND SHALL COMPLY WITH ALL APPLICABLE STATE AND LOCAL RULES AND REGULATIONS.
5. EASEMENT NOTES:
   - 5.A. "UTILITY EASEMENT(S)" SHOWN ARE HEREBY GRANTED TO LARAMIE COUNTY FRANCHISED UTILITIES PROVIDES, THEIR LEGAL SUCCESSORS AND/OR ASSIGNS, UNLESS OTHERWISE SPECIFIED HEREON, FOR THE INSTALLATION OF UNDERGROUND UTILITY(IES) AND COMMUNICATION(S) FACILITIES FOR LOCAL SERVICES.
   - 5.B. "DRAINAGE EASEMENT(S)" CREATED HEREWITH ARE HEREBY GRANTED TO ALL OWNER(S) OF FEE-SIMPLE TRACTS HEREON FOR MUTUAL STORMWATER DRAINAGE AND ASSOCIATED FACILITIES.
   - 5.C. "OPEN SPACE EASEMENT(S)" CREATED HEREWITH ARE HEREBY GRANTED TO ALL OWNER(S) OF FEE-SIMPLE TRACTS HEREON FOR MUTUAL NON-MOTORIZED CIRCULATION AND RECREATION.
6. ALL TRACTS ARE TO BE ACCESSED OFF INTERNAL ROADWAYS/ACCESS EASEMENTS. NO DIRECT LOT ACCESS WILL BE ALLOWED TO/FROM ROAD 215 OR HORSE CREEK ROAD.

CERTIFICATE OF SURVEYOR

I, Jeffrey B. Jones, Licensed Professional Land Surveyor in the State of Wyoming, for and on behalf of Steil Surveying Services, LLC, hereby state, to the best of my knowledge, information and belief, that this map was prepared from field notes taken during an actual survey made by me or under my direct supervision; and that this map correctly shows the results of said survey and that the monuments found or set are as shown.

VICINITY MAP

FILING RECORD

APPROVALS

Approved by the Laramie County Planning Commission, this ___ day of _____, 20__.

_____
Chairman

Approved by the Board of Commissioners of Laramie County, Wyoming, this ___ day of _____, 20__.

_____ ATTEST: _____
Chairman County Clerk

REVISED: 07/03/2026

\25026 HORSECREEK\002 DESIGN\SSS26148-25026-PDP-FINAL.DWG

R & R Heights

SITUATED IN THE WEST 1/2 OF SECTION 2,
TOWNSHIP 14 NORTH, RANGE 68 WEST OF THE 6th P.M.,
LARAMIE COUNTY, WYOMING

PREPARED MARCH 2026

STEIL SURVEYING SERVICES, LLC
PROFESSIONAL LAND SURVEYORS
PLANNING & DEVELOPMENT SPECIALISTS
1102 WEST 19th ST. CHEYENNE, WY. 82001 ○ (307) 634-7273
756 GILCHRIST ST. WHEATLAND, WY. 82201 ○ (307) 322-9789
www.SteilSurvey.com ○ info@SteilSurvey.com