ROCKY MOUNTAIN GROUP

High Forest Ranch
Pavement Condition Report
(Amended)
El Paso County, Colorado

PREPARED FOR:

High Forest Ranch Homeowners Association
3578 Hartsel Dr. Unit E338
Colorado Springs, CO 80920

JOB NO. 170492

Revision 1
August 9, 2019

Respectfully Submitted,

RMG ENGINEERS GROUP

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INTRODUCTION

Purpose:

In accordance with our Proposal dated May 7, 2019, RMG - Rocky Mountain Group (RMG) has completed a visual evaluation and limited evaluation of pavement conditions of the High Forest Ranch Subdivision private street network. This scope of work is intended to provide an update to the 2015 Pavement Condition Evaluation completed for the High Forest Ranch Homeowners Association, RMG Job No. 142304. Our study was completed in order to develop engineering opinions regarding the current conditions of the roadway pavements throughout the subdivision and provide recommendations for further studies and evaluations as may be warranted and immediate repairs, if deemed necessary. This study is intended to aid the High Forest Ranch Homeowners Association (HFR) Board of Directors in their evaluation of reserve fund analyses and evaluation of future pavement management approaches.

Scope:

This pavement management study included:

Phase I

- Review of existing Roadway Network matrix prepared for the 2014/2015 study
- Review available maintenance records for work completed since 2015.
- Prepare base maps/data sets for Pavement Condition Survey (PCS) and assessment for Phase II.

Phase II

- Perform PCS for the Roadway Network
- Perform Pavement Condition Index (PCI) surveys for a total of seven (7) 500 ft. segments to quantify elements such as cracking, rutting, subgrade failures, etc.
- Develop current Pavement Condition Ratings based on observable, qualitative conditions for roads within the network, based on factors such as pavement age, criticality, etc.
- Update 2015 pavement maintenance alternative recommendations such as seal-coat, mill and overlay, chip seal, etc.
- Update recommended "life-cycle" pavement maintenance schedule for current conditions
- Update 2015 PCS "decision matrix" based on current evaluation for use as management tool by RMG and HFRHOA Board.
- Preparation of this pavement condition report.

Project Description:

The HFR road network is a privately owned and maintained residential street system serving the homeowners within the gated, access-controlled subdivision. The development lies within the northerly portion of unincorporated El Paso County, Colorado; the roads within the subdivision are indicated on Figure 1, Road Network. The development is comprised, generally, of large semi-rural residential lots and tracts constructed in the forested portions of the Black Forest. The

terrain is rolling low hills, with overall drainage towards the southwest. The average site elevation varies from approximately 6700 feet above mean sea level.

ROADWAY NETWORK

Streets:

The street system within the study area consists of asphalt paved residential roadways comprising approximately 8.32 total lineal miles. The streets included within this study include:

- High Forest Road
- Winding Trails Road
- Timber Meadow Drive
- Mountain Dance Drive
- Hidden Rock Road
- Forest Light Drive
- Open Sky Way
- Serenity Place
- Pine Air Place
- Waving Branch Way
- Canopy Court
- Secluded Creek Court
- Wildroot Court
- Reflection Place

Access to HFR, from the west, is off of CO Hwy 83, onto High Forest Road, and from the north off of Hodgen Road onto either Timber Meadows Drive or Reflection Point.

Additionally, the paved parking lot at the Community Building, on High Forest Road is included within the responsibility of the HFR HOA.

Street Age & Construction:

Development of the HFR Subdivision began in approximately 2000. We understand that construction and subsequent paving of the roads within HFR occurred in two separate phases. The majority of the "perimeter" roads were paved in 2001 with the remaining "interior" roads paved in approximately 2004/2005. Figure 2, Roadway Construction Phases, presents the roadways constructed within each phase.

No asphalt pavement cores were obtained as part of this study, however based upon visual examination of cracked sections of asphalt (intersection of Hidden Rock Road and Mountain Dance Road) it appears that the roadway pavements consist of hot-mix asphalt (HMA) concrete pavement atop compacted native silty to clayey sand subgrade materials. The roads were constructed consistent with EPC ECM typical cross-sections for "Rural Residential Streets".

Observations performed by RMG personnel in 2016-2017 during various roadway repairs found that the HMA thickness was variable, but would likely meet or exceed EPC ECM typical cross-sections for "Rural Residential Streets."

The exposed HMA sections observed in 2016-2017 were found to vary in thickness from 3¼ inches to 4½ inches, with limited areas exceeding 5 inches in thickness.

The majority of the roads are undivided, two-lane roads with paved widths of approximately 24 feet. Limited portions of High Forest Road, Forest Light Drive and Timber Meadows Drive have divided, two-lane roadways; the portions where divided have landscaped "green ways" between the 12 foot, minimum, paved lanes. Consistent with the semi-rural character of the subdivision, the surface water/storm drainage system consists of drainage ditches and culverts paralleling the roadways.

Table 1, below, presents the roadway information including approximate length and area (based on assumed paved width of 24'), year of construction and current pavement age (as of June, 2019).

Table 1 – Roadway Information

Roadway Name	Total Length, feet (approx.)	Total Area, Sq. Yards	Year Paved	Current Pavement Age, years
High Forest Road	6,860	18,293	2001	18
Winding Trails Road	4,980	13,280	2001	18
Timber Meadow Drive	3,050	8,133	2001/ 2004	18/15
Mountain Dance Drive	5,670	15,120	2001	18
Hidden Rock Road	7,180	19,147	2001	18
Forest Light Drive	3,650	9,733	2004	15
Open Sky Way	7,047	18,792	2001/ 2004	18/15
Serenity Place	700	1,867	2001	18
Pine Air Place	550	1,467	2001	18
Waving Branch Way	1,360	3,627	2001	18
Canopy Court	640	1,707	2001	18
Secluded Creek Court	720	1,920	2001	18
Wildroot Court	560	1,493	2001	18
Reflection Place	580	1,547	2004	15
*Comm. Bldg. Parking Lot	*390 l.f. (width varies)	2,056	2001	18
Totals	**43,937 l.f. (~8.32 mile)**	**118,182 s.y.**		

Prioritization:

A well-managed pavement management program should include an evaluation of the prioritization, or evaluation of the "criticality", of the included streets within the study area. As

such, we recommend evaluating the following aspects of each street when considering the prioritization of the maintenance/rehabilitation plan:

- Primary usage by the homeowners/residents,
- Traffic Volume, and
- Truck Traffic

While development of a formal prioritization plan is beyond the scope of this preliminary study, it is reasonable that a prioritization plan, for the HFR roadways, would be similar to the following:

- **Priority 1** – High Forest Road, Timber Meadow Drive, and Open Sky Way
- **Priority 2** – Winding Trail Road, Mountain Dance Drive, Hidden Rock Road, Reflection Place and Community Building Parking Lot
- **Priority 3** – Forest Light Drive and all remaining dead-end roads/cul-de-sacs

PAVEMENT CONDITION SURVEYS

Methodology:

An essential element of a reliable pavement management study is the objective quantification of existing roadway pavement conditions at the time of the study. The common method of establishing the pavement condition is through physical observation, measurement and recording of field data of randomly selected, discrete sections of the roadway of concern. Distressed pavement conditions are external indicators of pavement deterioration caused by loading, environmental factors, construction deficiencies, or a combination thereof. Typical distresses are cracks, rutting and weathering of the pavement surface.

While the extent of this limited evaluation precluded the development of a comprehensive Pavement Condition Survey with resultant Pavement Condition Indexes (PCI) values, the methodology is presented below for consideration by the HFR Board of Directors.

Street Segments

The total length of each street within the network is established utilizing direct measurement, construction plan values or other suitable means. The percentage of total roadway length to be surveyed in the field to establish discrete pavement condition ratings is generally targeted as approximately 10 percent of the total roadway length. Individual street segments to be evaluated within the field inventory process are then established as 50-foot segments.

In order to develop an unbiased, objective pavement condition rating, individual street segments to be inspected are generated utilizing a random-number methodology. A typical protocol will usually include:

- Generate total street length,
- Divide total length in feet by 50 feet (to generate the total number of discrete "50-foot segments" for a given street,
- Identify desired number of discrete segments to yield approximately 10% coverage of total street (e.g. Street "A" is 1000' long. There are twenty 50-foot segments in Street "A"; therefore, in order to survey 10%, randomly identify 2 selected 50-foot segments.)

- A random-number generating software program is used to select the desired number of street segments to inventory

Field Data Collection

Pavement condition information is usually obtained and recorded in general accordance with ASTM D6433, "Standard Practice of Roads and Parking Lots Pavement Condition Index Surveys". Additionally, digital photographs are taken to provide a visual measure of representative pavement conditions for each surveyed roadway segment.

Data Analysis

The pavement condition data obtained from the field survey is evaluated utilizing protocols promulgated in ASTM D6433 and the Asphalt Pavement Institute (API) guidelines.

The pavement rating information generates the pavement condition (PC) score. For objective evaluation, a range of PC scores from 0 to 100, with 100 indicating "Excellent" pavement conditions, are utilized. The PC score then is utilized in conjunction with the Traffic Volume (TV), Truck Traffic (TT) and Drainage (D) factors to derive a pavement Ranking Factor score. The pavement Ranking Factor score for each roadway segment is then calculated with the following equation:

Ranking Factor Score = (100-PC)*(TV+TT)*D

The calculated Ranking Factor score can then be compared relative to all street segments to establish the maintenance priority for a specific street. The prioritization schedule based on Ranking Factor is established by the highest calculated score indicating the highest priority.

Five roadway segments were utilized for determination of Pavement Condition Indexes (PCI). The results of the PCI determinations are presented in *Appendix I, High Forest Ranch, PCI Ratings, 2019.*

It should be noted that this 2019 study involved five roadway segments throughout the Roadway network for physical determination of PCI "scoring". Seven sections of pavement were selected within the five roadway segments for PCI evaluation.

The measured scores provide a comparative, repeatable "score". This PCI score can then be utilized as a benchmark against future PCI determinations to evaluate roadway durability or degradation.

A low score, such as the PCI value of 38 determined for a section on Open Sky Way, does not necessarily imply that the entire segment is represented by that section. This value, rather, reflects the measured data for that specific section.

CURRENT OBSERVED CONDITIONS

Visual evaluation of existing roadway pavement conditions was performed on May 24, 2019 by Cory Ramsey, P.E. of RMG. Overall, the roadway pavement conditions were "fair to good" with limited areas requiring immediate attention noted. Observations noted evidence of a

comprehensive, on-going crack-sealing program. Typical transverse cracks noted appeared consistent with thermal contraction and shrinkage of the asphaltic concrete pavements. Areas of generally low to moderate alligator cracking was observed. Areas of previously alligator cracked areas that had been saw-cut and patched were observed. Additionally, numerous previously repaired "road cuts" associated with the excavation and connection of residential utility services (gas and electric), were observed.

A detailed Photograph Log of existing roadway conditions is presented as *Appendix II, High Forest Ranch, Roadway Photo Log, 2019*.

The Photo Log is organized into 13 sections. Each section has an "overview" aerial photograph with a numbered "key" for the subsequent individual roadway condition photographs for the respective section. The section organization is as follows:

1a. Hwy 83 Entrance
1b. High Forest Road
2. Winding Trail Road
3a. Hogden Road Entrance
3b. Timber Meadows Drive
4. Mountain Dance Drive
5. Hidden Rock Road
6. Forest Light Road
7a. Open Sky Way
7b. Open Sky Way
8. Waving Branch Way
9. Reflection Place Entrance
10. Community Center Parking Lot

PAVEMENT MAINTENANCE PROGRAM

The current approach to asphalt pavement design is to consider the pavement as having a 20-year life, at a minimum, before requiring significant rehabilitative maintenance. In order to achieve suitable performance throughout the life of the pavement, preventative and restorative maintenance activities are recommended to provide a smooth riding surface and to prevent premature failure of the pavement section. Depending on traffic loads, environmental conditions and diligence of adhering to a regular and appropriate maintenance program, the life-cycle of the original asphalt pavement can often be extended beyond the assumed 20-year period.

Four basic maintenance and pavement rehabilitation options are typically considered for residential pavements. These options include:

1. Crack Sealing
2. Seal Coat/Slurry Seal
3. Mill and Overlay
4. Full-Depth Repair

Crack Sealing:

A flexible rubberized asphalt sealant that bonds to crack walls and moves with the pavement is used to fill cracks to prevent water intrusion into, and beneath, the asphalt pavement mat. Crack sealing is best performed during the Fall/Winter season when cracks are widest due to thermal contraction of the asphalt pavement. Durability of properly-applied crack sealant is approximately 3-5 years.

Seal Coat/Slurry Seal:

Slurry seals are prepared by combining fine aggregates (sand) into an asphalt emulsion. An asphalt emulsion is produced by combining asphalt cement, water and an emulsifying agent through a high-shear device called a colloid mill. When sufficient sand is used with the emulsified asphalt the resultant seal coat aids in sealing the exposed asphalt pavement surface, seals micro-cracks and renews and rejuvenates oxidized surfaces. Average life of single application is approximately 3-6 years.

Mill and Overlay:

"Mill and Overlay" typically refers to use of an asphalt planing/milling machine milling (grinding) the deteriorated pavement surface approximately a minimum of 1-inch deep. The resultant milled surface is subsequently overlaid with a Hot-Mix Asphalt (HMA) pavement. Locally, a CDOT "SX", or ½" nominal maximum aggregate size, mix is utilized for the HMA overlay surface. Average pavement life extension of a "mill and overlay" surfacing mat, assuming there is no underlying subgrade failure or substantial fatigue cracking of the base pavement mat, is anticipated to be 6-10 years.

To further extend the pavement life of a mill and overlay, reduce crack widths, extend the time for reflective cracks to show up, and reduce the frequency of future pavement maintenance activities, we recommend the addition of reinforcing fibers into the asphalt mix, such as Forta-Fi asphalt reinforcement. Additionally, the use of a paving mat interlayer at the interface between the old asphalt and new asphalt will prolong the life of the mill and overlay repair.

Full-Depth Repair:

Areas of full pavement failure (such as at the intersection of Hidden Rock Road and Mountain Dance Drive) require saw-cutting around the failed area, removal of the failed asphalt pavement, localized rehabilitation of underlying subgrade issues (if necessary) and placement of a new full-depth asphalt pavement mat. As this process constitutes "new" pavement, the assumed average life of a full-depth reconstruction is a minimum of 20 years.

To further extend the pavement life of a full-depth repair, reduce crack widths, extend the time for cracks to show up, and reduce the frequency of future pavement maintenance activities, we recommend the addition of reinforcing fibers into the asphalt mix, such as Forta-Fi asphalt reinforcement.

Chip Seals:

Chip sealing is the application of a bituminous binder (asphalt cement) followed by the application of an aggregate (rock chips). The aggregate is then rolled with a smooth-drum compaction roller to embed the aggregate into the binder.

Chip sealing is commonly used on major arterials/roadways with higher travel speeds. Chip sealing is beneficial for increasing friction coefficients between vehicle tires and the roadway surface, however chip sealing does not create a significant structural repair of failed pavements. While this process does have benefits for the right application, some of the disadvantages associated with chip sealing include:

- Extended cure time to reach a stage where they can tolerate traffic
- Damage to windshields and vehicles – the chip sealed surface must be swept to remove excess aggregates (stones). Additionally, excess chips can be undesirably swept/lost into adjacent landscaped areas.
- Noise – chip seals can be noisy to travel on.

Based on the above considerations, RMG does not typically recommend use of chip seals for maintenance of low speed, residential roadways.

RECOMMENDATIONS

Based on the observed conditions of the roadway pavements throughout HRF, it is our opinion that, overall, the pavements are performing fair to well.

The priority area in need of repair is the High Forest Road Entrance off of Hwy 83. The concrete pavements and associated curb and gutter features have experienced some vertical deflection and distress. Visually, it appears that the vertical deflection is the result of some localized settlement of subgrade soils prepared during the original construction of the entrance feature. Remedial construction of the entrance feature is anticipated to include the following:

- Surveying and preparation of Civil Construction Plans to address drainage conditions
- Removal and replacement of concrete pavements
- Removal and replacement of concrete curb and gutter sections
- Improvement of adjacent surface drainage conditions
- Re-establishment of functioning gate “control loops” within the new concrete pavement sections
- Replacement/Repair of asphalt pavements from Hwy 83 to the reconstructed concrete pavements sections at the entrance feature

We understand that High Forest Ranch has retained a Civil Construction company for development and implementation of the repair plan

Areas exhibiting “alligator” and block cracking and subgrade failure (e.g. Intersection of Hidden Rock Road and Mountain Dance Drive and portions of Open Sky Way adjacent to the detention pond) currently require some localized full-depth repairs. Likewise, a significant amount of the pavement in front of the Community Building warrants full-depth repair.

The majority of the remainder of the roadway network appears to be in good condition. The ongoing crack sealing program should be continued regularly. While of limited benefit with respect to structural considerations of asphalt pavements, slurry seals can provide aesthetic benefit by creating a uniform appearance of the pavement surface and filling of micro cracks within the pavement surface. The specific surface treatment procedure should be evaluated and selected based upon a comprehensive and defined Pavement Management Program.

A proposed prioritization schedule is included as *Appendix III, High Forest Ranch, Pavement Management Program, 2019*.

CLOSING

The typical pavement maintenance program that we have outlined in this pavement management study is intended to aid the HFR HOA Board of Directors in evaluating necessary Reserve Funding requirements and should be considered a guideline for preparation and implementation of an on-going pavement maintenance program. Selection of specific street segments, maintenance activity/bid quantities and implementation timing will obviously be a function of Reserve Fund balances and other capital outlay requirements.

The intent of a pavement maintenance program is to raise and maintain the overall street network at a consciously targeted pavement condition rating level (e.g. overall street network pavement condition rating of 65 or better). The phasing and degree of maintenance level implemented will impact the total suitable longevity of the existing pavements throughout the street network as well as the cost. Obviously, if a lower overall street network pavement condition rating is acceptable, recurring maintenance costs will likely be less. However, a reduced pavement maintenance program will result in increased asphalt pavement deterioration and possibly higher total life cycle pavement replacement costs should entire street segments require full-depth repair/reconstruction earlier than proposed.

Additionally, we recommend that Pavement Condition Surveys be performed periodically (approximately 3-5 year intervals) to calibrate an on-going pavement maintenance program and make adjustments to phasing and selection of maintenance activities based on the objective evaluation of the future performance of surveyed street segments.

This report has been prepared for the High Forest Ranch HOA as an aid in the evaluation of pavement maintenance activities and cost alternatives in accordance with generally accepted engineering practices. The recommendations in this report are based in part upon site observations and the information presented in referenced documents. The nature and extent of variations, if existing, may not become evident until some time in the future. If variations then become evident, RMG should be apprised in order to re-evaluate the recommendations of this report, if necessary.

Our professional services were performed using that degree of care and skill ordinarily exercised, under similar circumstances, by professional engineers practicing in this or similar localities. RMG does not warrant the work of regulatory agencies or other third parties supplying information which may have been used during the preparation of this report. No warranty, express or implied is made. Any contractor reviewing this report for bidding purposes must draw his own conclusions regarding site/pavement conditions and specific construction techniques to be used during implementation of his work.

APPENDIX I
High Forest Ranch
PCI Ratings 2019


50
83
Mountain Dance Dr
Reflection Pl
Forest Light Rd
Timber Meadow Dr
Serenity Pl
Winding Trail Rd
Open Sky Way
High Forest Rd
PCI = 64, "FAIR"
PCI = 60, "FAIR"
PCI = 68, "FAIR"
PCI = 38, "VERY POOR"
PCI = 57, "FAIR"
PCI = 89, "SATISFACTORY"
PCI = 64, "FAIR"

APPENDIX II
High Forest Ranch
Roadway Photo Log 2019

1a. High Forest Rd. Entrance

N


E SE S SW
60 90 120 150 180 210
138°SE (T) • 39.06232, -104.761506 ±6m ▲ 2284 m
HIGH FOREST RANCH
170492

1


NW N NE E
300 330 0 30 60 90
11°N (T) • 39.062546, -104.761538 ±5m ▲ 2289 m
170492

2


N NE E SE
0 30 60 90 120
62°NE (T) • 39.062384, -104.761165 ±7m ▲ 2274 m
170492

3


N NE E SE
0 30 60 90 120 150
82°E (T) • 39.062395, -104.761129 ±7m ▲ 2274 m
170492

4


NW 300 330 N 0 NE 30 60 E 90
10°N (T) • 39.062366, -104.760763 ±8m ▲ 2274 m
170492
24 May 2019, 11:26:32

5


SW 210 240 W 270 300 NW 330 N 0
299°W (T) • 39.062319, -104.760536 ±5m ▲ 2258 m
170492
14 May 2019, 11:27:04

6


NW 330 N 0 NE 30 60 E 90 120
42°NE (T) • 39.06236, -104.760334 ±7m ▲ 2278 m
170492
24 May 2019, 11:27:47

7


NE 30 60 E 90 120 SE 150 S 180
112°E (T) • 39.06249, -104.760362 ±9m ▲ 2282 m
24 May 2019, 11:28:27

8


SE
S
SW
W
201°S (T) • 39.062418, -104.760515 ±6m ▲ 2274 m
170492
24 May 2019, 11:28:57

9


NE
E
SE
S
120°E (T) • 39.062379, -104.760491 ±5m ▲ 2283 m
170492
24 May 2019, 11:29:13

10


E
SE
S
SW
163°SE (T) • 39.062434, -104.760769 ±4m ▲ 2271 m
170492
24 May 2019, 11:29:48

11


NE
E
SE
S
118°E (T) • 39.062506, -104.760979 ±7m ▲ 2289 m
170492
24 May 2019, 11:30:58

12


NE
E
SE
S
60
90
120
150
180
210
130°SE (T) • 39.062516, -104.760481 ±6m ▲ 2284 m
170492
24 May 2019, 11:32:02

13


N
NE
E
SE
0
30
60
90
120
150
79°E (T) • 39.062462, -104.760214 ±6m ▲ 2284 m
170492
24 May 2019, 11:32:58

14


NE
E
SE
S
60
90
120
150
180
122°E (T) • 39.062441, -104.759946 ±8m ▲ 2289 m
170492
24 May 2019, 11:34:04

15


E
SE
S
SW
90
120
150
180
210
152°SE (T) • 39.06247, -104.760026 ±7m ▲ 2277 m
170492
24 May 2019, 11:34:20

16


SE
S
SW
W
120
150
180
210
240
270
183°S (T) • 39.062497, -104.759822 ±9m ▲ 2269 m
170492

17


SW
W
NW
N
240
270
330
301°W (T) • 39.062354, -104.760107 ±8m ▲ 2280 m
170492

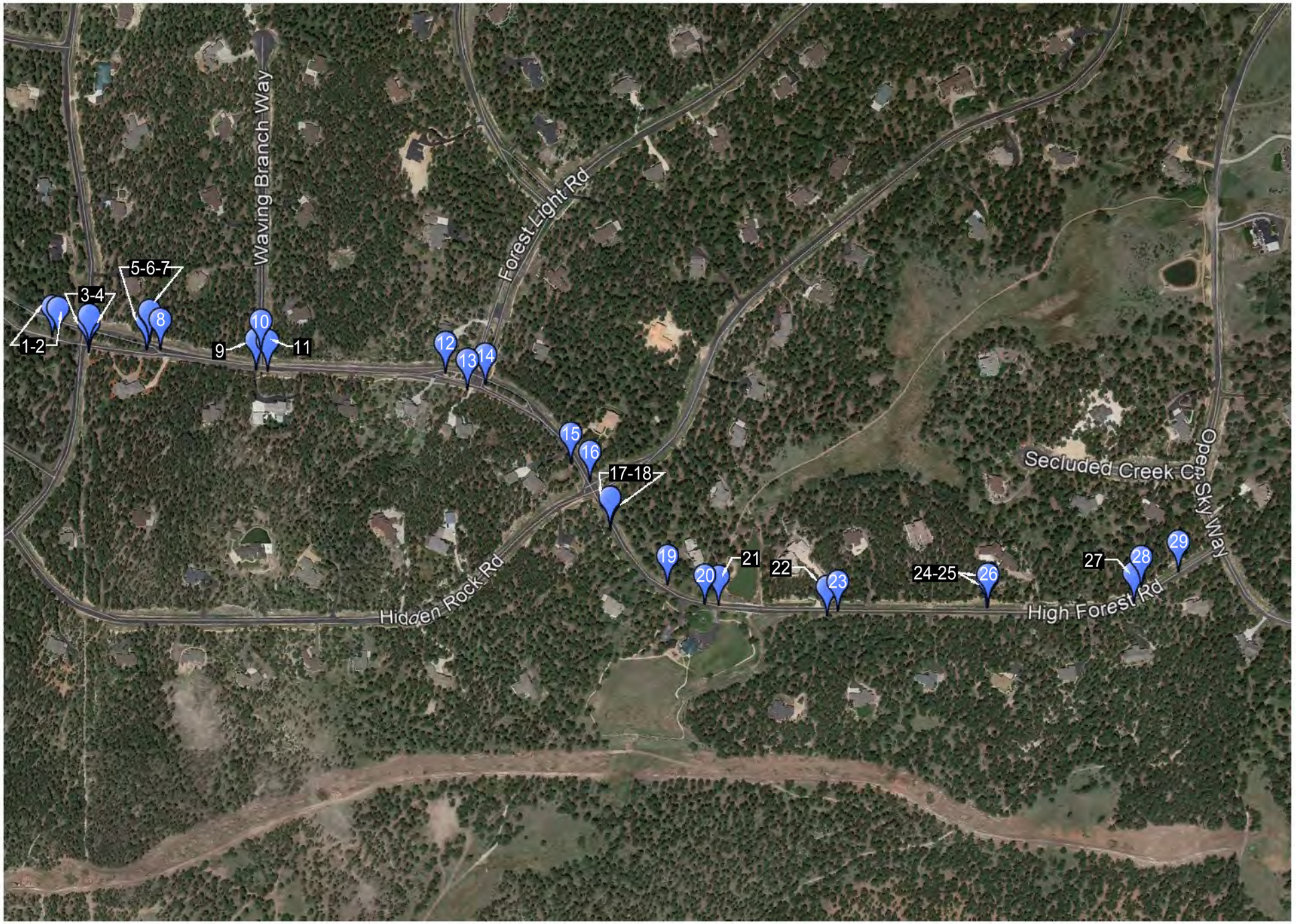
18


SW
W
NW
N
210
240
300
282°W (T) • 39.062288, -104.760083 ±6m ▲ 2290 m
170492

19


NE
E
SE
S
30
60
90
120
150
180
107°E (T) • 39.062313, -104.760067 ±8m ▲ 2291 m
170492

20



1b. High Forest Rd.

N


SW W NW N
210 240 270 300 330 0
290°W (T) • 39.061486, -104.757641 ±8m ▲ 2279 m
170492
24 May 2019, 11:40:12

1


SW W NW N
210 240 270 300 330 0
289°W (T) • 39.06152, -104.757597 ±7m ▲ 2278 m
170492

2


NE E SE S
30 60 90 120 150 180
103°E (T) • 39.061366, -104.757136 ±7m ▲ 2280 m
170492
24 May 2019, 11:40:59

3


NW N NE E
300 330 0 30 60
7°N (T) • 39.061364, -104.75705 ±9m ▲ 2278 m
24 May 2019, 11:41:14

4


SW
W
NW
N
297°W (T) • 39.061307, -104.756117 ±10m ▲ 2284 m
170492
24 May 2019, 13:39:58

5


E
SE
S
SW
146°SE (T) • 39.061412, -104.756072 ±8m ▲ 2285 m
170492

6


SW
W
NW
N
298°W (T) • 39.061385, -104.756062 ±9m ▲ 2284 m
170492
24 May 2019, 13:40:16

7


N
NE
E
SE
87°E (T) • 39.061342, -104.75593 ±8m ▲ 2287 m

8


SW W NW N
210 240 270 300 330 0
293°W (T) • 39.06112, -104.754367 ±9m ▲ 2292 m
170492
24 May 2019 13:42:26

9


NW N NE E
300 330 0 30 60 90
10°N (T) • 39.061269, -104.754298 ±5m ▲ 2287 m
170492
24 May 2019 13:42:06

10


NE SE
30 60 120 150
92°E (T) • 39.061037, -104.754202 ±6m ▲ 2294 m
170492
24 May 2019 13:42:46

11


SW W NW
210 240 300 330
270°W (T) • 39.061001, -104.751479 ±8m ▲ 2288 m
170492
24 May 2019 13:47:47

12


SW W NW N
240 270 300 0 30
311°NW (T) • 39.060839, -104.751187 ±8m ▲ 2286 m
170492
24 May 2019, 13:47:10

13


NW N NE E
300 330 0 30 60 90
2°N (T) • 39.060885, -104.750923 ±7m ▲ 2290 m
170492
24 May 2019, 13:46:49

14


E SE S SW
90 120 150 180 210 240
168°SE (T) • 39.059785, -104.749418 ±4m ▲ 2272 m
170492
24 May 2019, 12:06:29

15


NE E SE S
60 90 120 150 180 210
133°SE (T) • 39.05977, -104.749355 ±7m ▲ 2284 m
170492

16


W NW N NE
270 300 330 0 30 60
353°N (T) • 39.059195, -104.749037 ±7m ▲ 2257 m
170492
24 May 2019, 12:08:10

17


E SE S SW
90 120 150 180 210 240
164°SE (T) • 39.059167, -104.749029 ±9m ▲ 2257 m
170492

18


E SE S SW
60 90 120 150 180 210
139°SE (T) • 39.058476, -104.748155 ±6m ▲ 2262 m
170492
24 May 2019, 12:09:20

19


W NW N NE
240 270 300 330 0 30
319°NW (T) • 39.058239, -104.747556 ±6m ▲ 2266 m
170492
24 May 2019, 12:16:26

20


S
SW
W
NW
265°W (T) • 39.05824, -104.747256 ±8m ▲ 2267 m
170492

21


S
SW
W
NW
259°W (T) • 39.058074, -104.745556 ±18m ▲ 2251 m
170492

22


NE
E
SE
S
99°E (T) • 39.058213, -104.745627 ±5m ▲ 2271 m
170492

23


N
NE
E
SE
86°E (T) • 39.05823, -104.743204 ±6m ▲ 2272 m
170492

24


S
SW
W
NW
180
210
240
270
300
330
256°SW (T) ● 39.058232, -104.743211 ±4m ▲ 2270 m
170492
24 May 2019, 12:19:34

25


S
SW
W
NW
180
210
240
300
330
253°SW (T) ● 39.058202, -104.743209 ±6m ▲ 2278 m
170492
24 May 2019, 12:19:26

26


S
SW
W
NW
180
210
240
300
330
267°W (T) ● 39.058303, -104.741045 ±5m ▲ 2281 m
170492

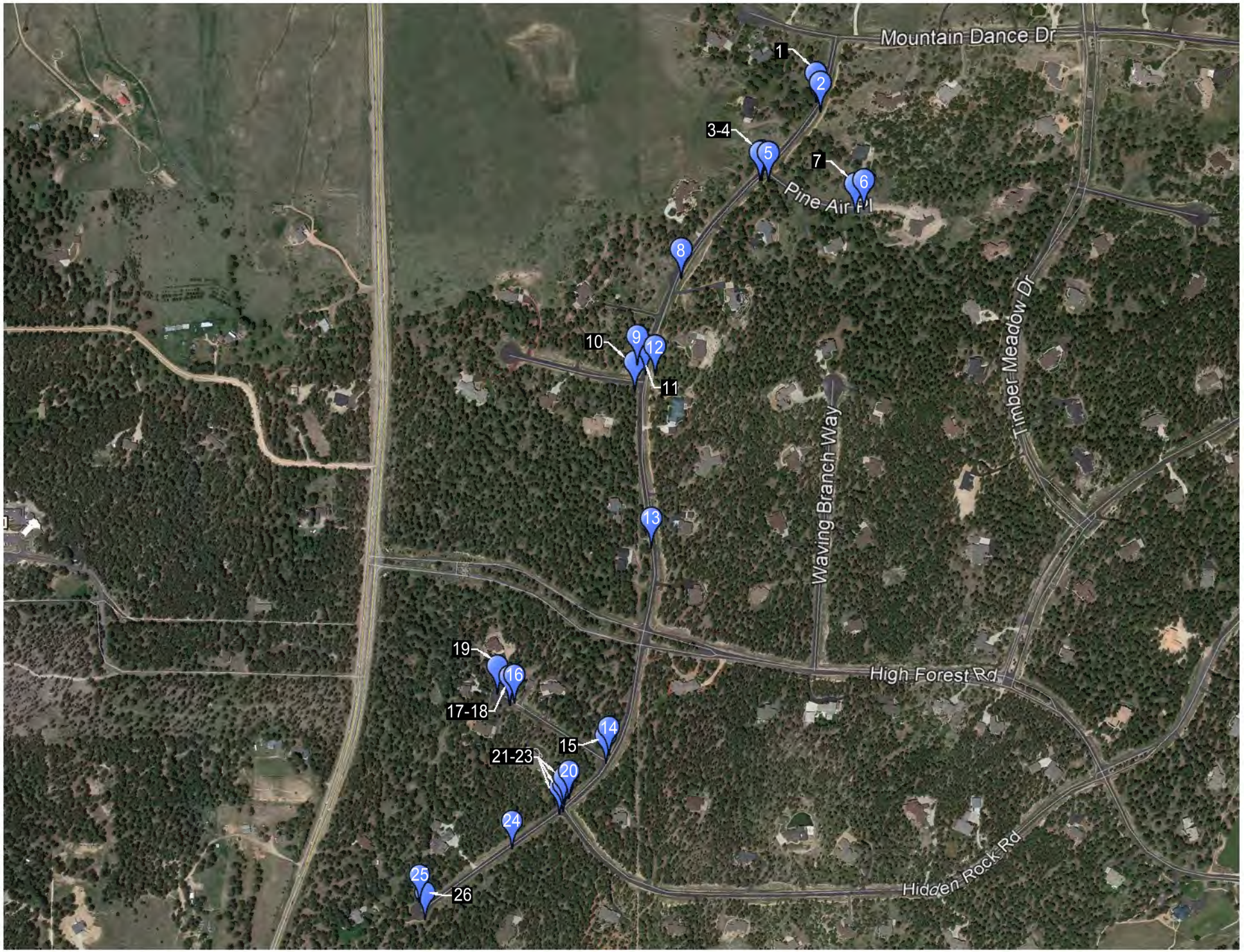
27


N
NE
E
SE
0
30
60
120
150
66°NE (T) ● 39.058491, -104.740943 ±8m ▲ 2285 m
170492

28


N
0
30
NE
60
E
90
120
SE
150
66°NE (T) 39.05865, -104.740449 ±5m ▲ 2283 m
170492
24 May 2019, 12:22:09

29



2. Winding Trails Rd.


NW 300 330 N 0 30 NE 60 E 90
2°N (T) • 39.068385, -104.754304 ±5m ▲ 2298 m
170492
24 May 2019, 13:29:19

1


S 180 210 SW 240 W 270 300 NW 330
247°SW (T) • 39.068287, -104.7542 ±7m ▲ 2298 m
170492
24 May 2019, 13:29:33

2


NW 300 330 N 0 30 NE 60 E 90
14°N (T) • 39.067389, -104.755074 ±7m ▲ 2292 m
170492
24 May 2019, 13:30:40

3


S 180 210 SW 240 W 270 300 NW 330
241°SW (T) • 39.067369, -104.755181 ±8m ▲ 2291 m
170492
24 May 2019, 13:30:56

4


NE 60 E 90 120 SE 150 S 180 21
120°E (T) • 39.067397, -104.755188 ±7m ▲ 2295 m
170492
24 May 2019, 13:31:18

5


SW 210 240 W 270 300 NW 330 N 0
290°W (T) • 39.067145, -104.753602 ±7m ▲ 2295 m
170492

6


SW 210 240 W 270 300 NW 330 N 0
298°W (T) • 39.067006, -104.753594 ±9m ▲ 2307 m
170492

7


S 150 180 210 W 270 300 NW
228°SW (T) • 39.066112, -104.756516 ±9m ▲ 2302 m
170492
24 May 2019, 13:34:04

8


SE S SW W
120 150 180 210 240 270
202°S (T) • 39.065019, -104.75712 ±7m ▲ 2294 m
170492
24 May 2019 13:34:52

9


SE S SW W
120 150 180 210 240 270
186°S (T) • 39.064696, -104.757288 ±12m ▲ 2297 m
170492
24 May 2019 13:35:26

10


SW W NW N
210 240 270 300 330 0
287°W (T) • 39.064744, -104.75712 ±8m ▲ 2293 m
170492

11


N NE E SE
0 30 60 90 120 150
71°NE (T) • 39.064901, -104.757109 ±9m ▲ 2293 m
170492

12


E SE S SW
90 120 150 180 210 240
156°SE (T) • 39.062683, -104.757009 ±5m ▲ 2295 m
170492

13


S SW W
150 180 210 240 270 300
225°SW (T) • 39.059911, -104.757676 ±5m ▲ 2272 m
170492

14


SW W NW N
240 270 300 330 0
298°W (T) • 39.059774, -104.757774 ±7m ▲ 2269 m
170492

15


SW W NW N
210 240 270 300 330 0
290°W (T) • 39.060627, -104.759398 ±6m ▲ 2274 m
170492

16


SE
S
SW
W
210°S (T) • 39.06056, -104.759411 ±8m ▲ 2266 m
170492
24 May 2019 11:46:34

17


SE
S
SW
W
220°SW (T) • 39.060548, -104.759419 ±6m ▲ 2265 m
170492

18


NE
E
SE
S
132°SE (T) • 39.060767, -104.759615 ±8m ▲ 2261 m
170492
24 May 2019 11:48:16

19


E
SE
S
SW
141°SE (T) • 39.059194, -104.758502 ±3m ▲ 2264 m
170492
24 May 2019 11:49:48

20


SE 120 150 S 180 210 SW 240 W 270
206°S (T) • 39.059279, -104.758407 ±7m ▲ 2263 m
170492
24 May 2019 11:50:19

21


E 60 90 120 SE 150 S 180 210 SW
142°SE (T) • 39.059057, -104.758573 ±9m ▲ 2254 m
170492
24 May 2019, 11:51:25

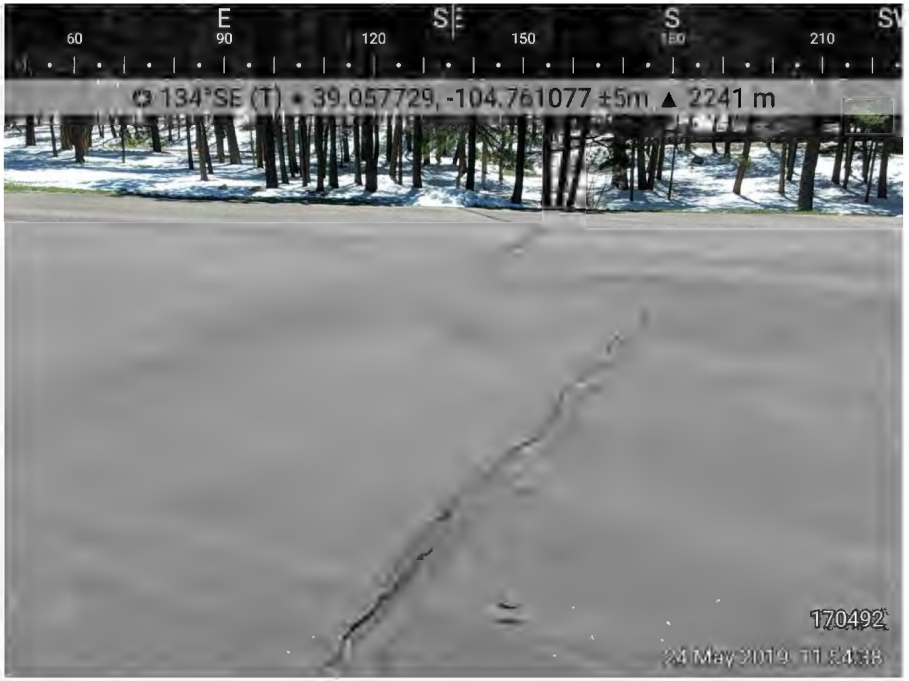
22


E 90 120 SE 150 S 180 210 SW 240
160°SE (T) • 39.059087, -104.758502 ±9m ▲ 2251 m
170492
24 May 2019, 11:52:00

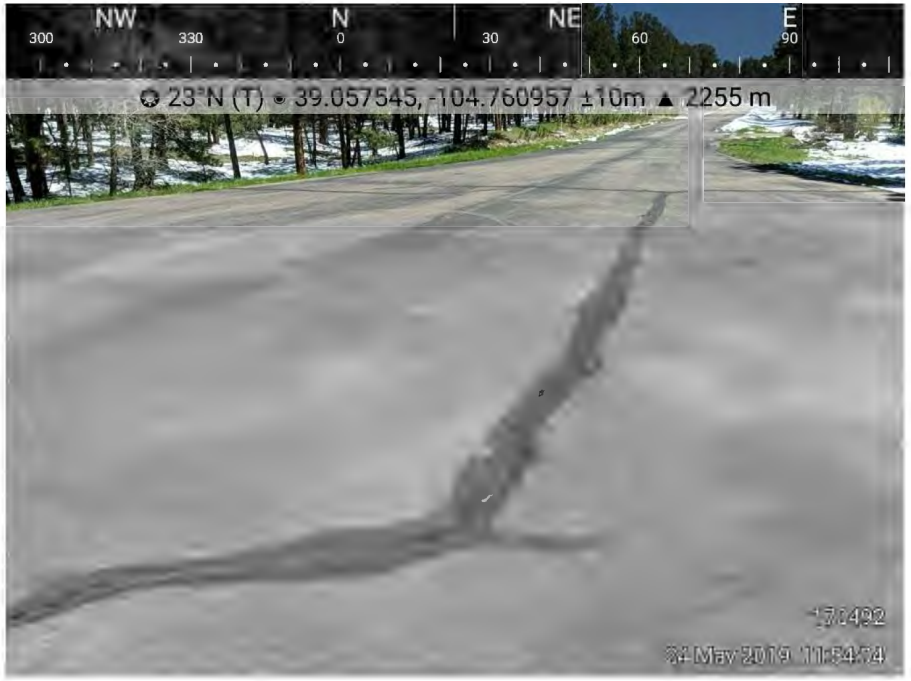
23


S 180 210 SW 240 W 270 300 NW
242°SW (T) • 39.058576, -104.759402 ±8m ▲ 2248 m
170492
24 May 2019, 11:52:45

24


E
SE
S
60
90
120
150
180
210
134°SE (T) • 39.057729, -104.761077 ±5m ▲ 2241 m
170492

25


NW
N
NE
E
300
330
0
30
60
90
23°N (T) • 39.057545, -104.760957 ±10m ▲ 2255 m

26

3a. Timber Meadows Dr.

N


NE
E
SE
S
30
60
90
120
150
180
98°E (T) • 39.069109, -104.749737 ±5m ▲ 2314 m
170492
24 May 2019, 13:16:20

1


SW
W
NW
210
240
270
300
330
271°W (T) • 39.069105, -104.749689 ±5m ▲ 2314 m
170492
24 May 2019, 13:16:34

2


NW
N
NE
E
300
330
0
30
60
90
2°N (T) • 39.068959, -104.749925 ±6m ▲ 2310 m
170492
24 May 2019, 13:17:00

3


NW
N
NE
E
300
330
0
30
60
90
3°N (T) • 39.069051, -104.750058 ±4m ▲ 2313 m
170492
24 May 2019, 13:17:19

4


SW
210
240
NW
300
330
272°W (T) • 39.069066, -104.750274 ±7m ▲ 2316 m
170492
24 May 2019 13:17:43

5


NW
300
330
N
0
NE
30
60
E
90
7°N (T) • 39.06967, -104.750014 ±9m ▲ 2315 m
170492
24 May 2019, 13:18:45

6


NW
300
330
NE
30
60
0°N (T) • 39.069828, -104.750023 ±7m ▲ 2311 m
170492

7


E
90
SE
120
150
S
180
210
SW
240
167°SE (T) • 39.069971, -104.750119 ±7m ▲ 2306 m
170492

8


W NW N NE
270 300 330 0 30 60
354°N (T) • 39.070007, -104.75019 ±8m ▲ 2303 m
170492
24 May 2019, 13:20:11

9


NW N NE E
300 330 0 30 60 90
2°N (T) • 39.070235, -104.750104 ±5m ▲ 2310 m
170492

10


NE E SE S
30 60 90 120 150 180
102°E (T) • 39.070468, -104.750131 ±7m ▲ 2310 m
HIGH FOREST RANCH

11


SW W NW N
210 240 270 300 330 0
291°W (T) • 39.070627, -104.750158 ±4m ▲ 2305 m
170492
24 May 2019, 13:21:42

12


E SE S SW
90 120 150 180 210 240
172°S (T) • 39.070572, -104.74994 ±5m ▲ 2308 m
170492
24 May 2019, 13:22:04

13


W NW N NE
270 300 330 0 30 60
337°NW (T) • 39.070409, -104.749879 ±6m ▲ 2314 m
170492

14


NW NE
300 330 30 60
358°N (T) • 39.070149, -104.749932 ±6m ▲ 2306 m
170492
24 May 2019, 13:22:53

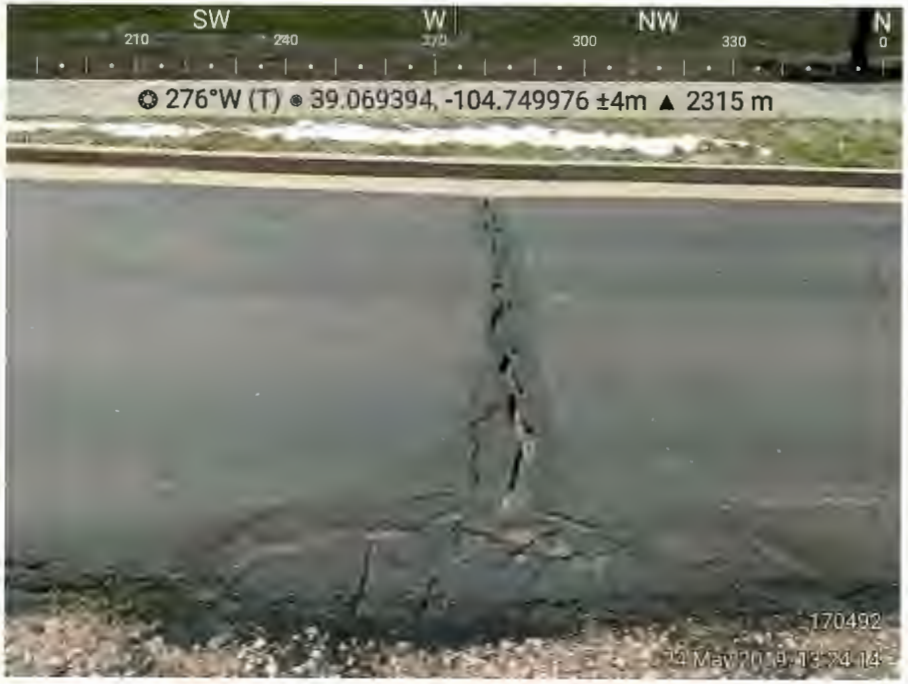
15


E SE S SW
90 120 150 180 210 240
171°S (T) • 39.069989, -104.749916 ±11m ▲ 2315 m
170492

16


NW
300
N
0
30
NE
60
E
90
10°N (T) • 39.069894, -104.749954 ±10m ▲ 2312 m
170492
24 May 2019 13:23:34

17


SW
210
240
W
270
300
NW
330
N
0
276°W (T) • 39.069394, -104.749976 ±4m ▲ 2315 m
170492

18


SE
150
S
180
210
SW
240
W
270
300
221°SW (T) • 39.069263, -104.749883 ±5m ▲ 2309 m
170492
24 May 2019 13:24:43

19

3b. Timber Meadows Dr.

N


E
SE
S
SW
178°S (T) • 39.068246, -104.749965 ±7m ▲ 2311 m
170492
24 May 2019, 14:11:17

1


NE
E
SE
S
93°E (T) • 39.068225, -104.750126 ±6m ▲ 2312 m
30
170492
24 May 2019, 14:11:34

2


W
NW
N
NE
341°NW (T) • 39.067155, -104.75001 ±5m ▲ 2300 m
170492
24 May 2019, 14:12:26

3


N
NE
E
SE
93°E (T) • 39.067175, -104.750012 ±5m ▲ 2300 m
170492
24 May 2019, 14:12:36

4


NW N NE E
300 330 0 30 60 90
18°N (T) • 39.067011, -104.75005 ±7m ▲ 2297 m
170492
24 May 2019, 14:13:59

5


SE S SW W
120 150 180 210 240 270
198°S (T) • 39.066892, -104.748392 ±3m ▲ 2315 m
170492
24 May 2019, 14:14:04

6


E SE S SW
120 150 180 210 240
172°S (T) • 39.066725, -104.748197 ±6m ▲ 2317 m
170492
24 May 2019, 14:14:35

7


NW N NE E
300 330 0 30 60 90
18°N (T) • 39.066168, -104.750755 ±9m ▲ 2328 m
170492
24 May 2019, 14:15:41

8


NE
SE
89°E (T) • 39.064968, -104.751235 ±9m ▲ 2316 m
170492

9


SE
SW
178°S (T) • 39.064658, -104.751185 ±6m ▲ 2299 m
170492
24 May 2019, 14:17:00

10


137°SE (T) • 39.063793, -104.750899 ±8m ▲ 2300 m
170492

11


NW
N
NE
32°N (T) • 39.06342, -104.750828 ±20m ▲ 2283 m
170492

12


E SE S SW
60 90 120 150 180 210
146°SE (T) • 39.063467, -104.750628 ±7m ▲ 2303 m
170492
24 May 2019, 14:21:38

13


SE S SW W
120 150 180 210 240 270
185°S (T) • 39.063007, -104.749988 ±6m ▲ 2294 m
170492
24 May 2019, 14:20:29

14

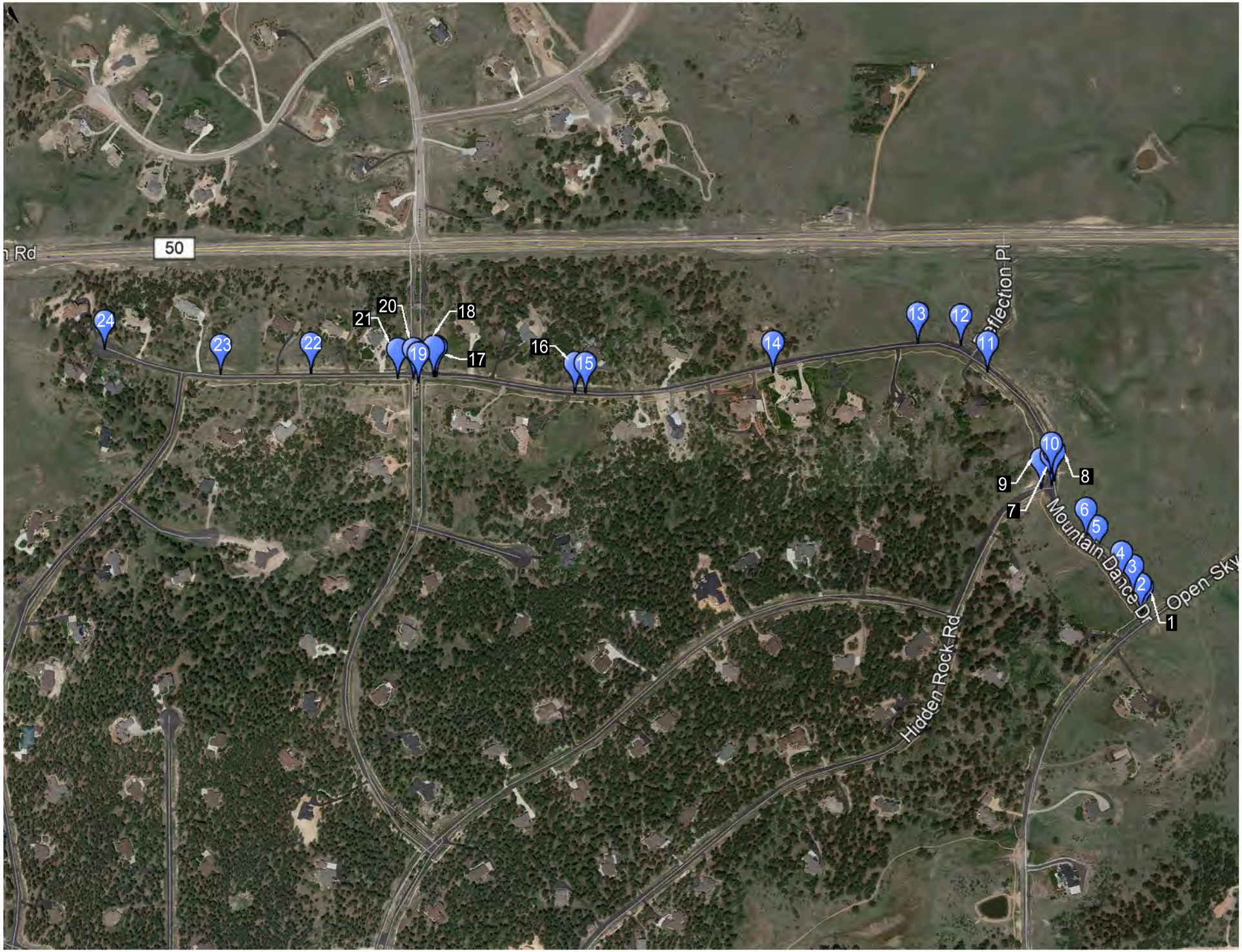

NW NE
330 0 60
0°N (T) • 39.062972, -104.749901 ±9m ▲ 2290 m
170492

15


W NW N NE
240 270 300 330 0 30
323°NW (T) • 39.062997, -104.749729 ±6m ▲ 2292 m
170492

16


E
SE
S
SW
60
90
120
150
180
210
141°SE (T) 39.062837, -104.749811 ±20m ▲ 2305 m
STOP



4. Mountain Dance Dr.


W NW N NE
240 270 300 330 0 30
321°NW (T) • 39.066093, -104.7381 ±5m ▲ 2298 m
170492
24 May 2019, 12:57:38

1


E SE S SW
60 90 120 150 180 210
138°SE (T) • 39.066237, -104.738326 ±8m ▲ 2318 m
170492
24 May 2019, 12:58:00

2


E E SE S
60 90 120 150 180 210
135°SE (T) • 39.066335, -104.738322 ±7m ▲ 2324 m
170492
24 May 2019, 12:58:17

3


E SE S SW
60 90 120 150 180 210
138°SE (T) • 39.066516, -104.738541 ±5m ▲ 2310 m
170492
24 May 2019, 12:58:44

4


NE E SE S
60 90 120 150 180 210
129°SE (T) • 39.066835, -104.738966 ±4m ▲ 2320 m
170492
24 May 2019, 13:00:34

5


SW W NW N
210 240 270 300 330 0
295°W (T) • 39.067043, -104.739122 ±6m ▲ 2312 m
170492
24 May 2019, 13:01:05

6


S SW W NW
180 210 240 270 300 330
248°SW (T) • 39.067733, -104.739789 ±5m ▲ 2331 m
170492
24 May 2019, 13:02:16

7


S SW W NW
180 210 240 270 300 330
242°SW (T) • 39.067685, -104.739943 ±9m ▲ 2332 m
170492
24 May 2019, 13:02:32

8


SE 120 150 S 180 210 SW 240 W 270
184°S (T) • 39.06776, -104.739758 ±4m ▲ 2326 m
170492
24 May 2019, 13:02:50

9


W 270 300 NW 330 N 0 30 NE 60
350°N (T) • 39.067877, -104.739801 ±6m ▲ 2305 m
170492
24 May 2019, 13:03:09

10


240 W 270 300 NW 330 N 0 30 NE
320°NW (T) • 39.069118, -104.740781 ±6m ▲ 2323 m
170492
24 May 2019, 13:06:47

11


210 SW 240 W 270 300 NW 330 N 0
273°W (T) • 39.069458, -104.741224 ±4m ▲ 2327 m
170492
24 May 2019, 13:11:03

12


S SW W NW
180 210 240 270 300 330
258°SW (T) • 39.069509, -104.741924 ±3m ▲ 2325 m
170492
24 May 2019, 13:12:48

13


S SW W NW
180 210 240 270 300 330
257°SW (T) • 39.069211, -104.744238 ±4m ▲ 2330 m
170492
24 May 2019, 13:13:41

14


N NE E SE
0 30 60 90 120 150
83°E (T) • 39.068899, -104.747233 ±7m ▲ 2327 m
170492
24 May 2019, 13:15:01

15


SW W NW N
210 240 270 300 330 0
279°W (T) • 39.068881, -104.747429 ±4m ▲ 2321 m
170492
24 May 2019, 13:15:20

16


NE 30 60 E 90 120 SE 150 S 180
98°E (T) • 39.069109, -104.749737 ±5m ▲ 2314 m
170492
24 May 2019, 13:16:20

17


SW 210 240 W 270 300 NW 330 N
271°W (T) • 39.069105, -104.749689 ±5m ▲ 2314 m
170492
24 May 2019, 13:16:34

18


NW 300 330 N 0 30 NE 60 E 90
2°N (T) • 39.068959, -104.749925 ±6m ▲ 2310 m
170492
24 May 2019, 13:17:00

19


NW 300 330 N 0 30 NE 60 E 90
3°N (T) • 39.069051, -104.750058 ±4m ▲ 2313 m
170492
24 May 2019, 13:17:19

20


SW
NW
272°W (T) • 39.069066, -104.750274 ±7m ▲ 2316 m
170492
24 May 2019, 13:1

21


SW
NW
267°W (T) • 39.069167, -104.751771 ±4m ▲ 2311 m
170492
24 May 2019, 13:25:50

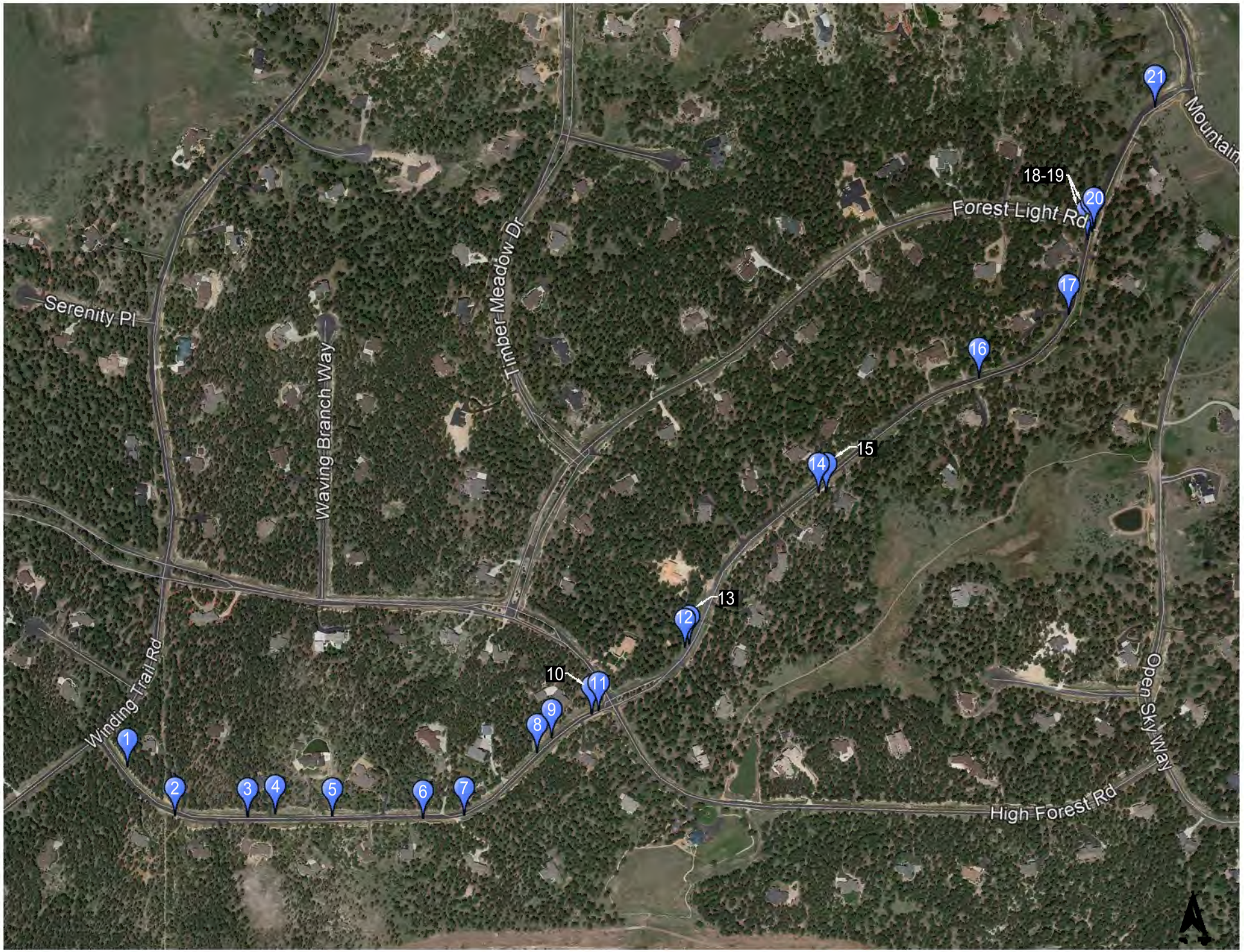
22


E
SE
S
SW
172°S (T) • 39.069147, -104.753278 ±8m ▲ 2304 m
170492
24 May 2019, 13:26:44

23


NE
E
SE
S
108°E (T) • 39.069535, -104.75537 ±8m ▲ 2290 m
170492
24 May 2019, 13:28:10

24



5. Hidden Rock Rd.


SW
240
W
270
300
NW
330
N
0
30
311°NW (T) 39.058733, -104.75797 ±9m ▲ 2254 m
170492
24 May 2019, 11:56:28

1


SW
210
240
W
270
300
NW
330
N
0
279°W (T) 39.058124, -104.757022 ±4m ▲ 2264 m
170492

2


SW
210
240
W
270
300
NW
330
N
0
277°W (T) 39.058113, -104.755701 ±6m ▲ 2274 m
170492

3


NE
30
60
E
90
120
SE
150
S
180
97°E (T) 39.058162, -104.755341 ±9m ▲ 2264 m

4


NE
E
SE
S
106°E (T) • 39.058089, -104.754254 ±3m ▲ 2271 m
170492
24 May 2019, 12:00:33

5


NE
E
SE
S
110°E (T) • 39.057999, -104.752622 ±9m ▲ 2269 m
170492

6


S
SW
W
NW
257°SW (T) • 39.058086, -104.751937 ±4m ▲ 2278 m
170492

7


N
NE
E
SE
51°NE (T) • 39.058965, -104.75063 ±9m ▲ 2277 m
170492
24 May 2019, 12:03:27

8


SW
W
NW
N
296°W (T) • 39.059185, -104.750362 ±6m ▲ 2264 m
170492

9


S
SW
W
NW
245°SW (T) • 39.059488, -104.749637 ±4m ▲ 2273 m
170492

10


N
NE
E
SE
70°NE (T) • 39.059518, -104.749619 ±5m ▲ 2271 m
STOP
170492
24 May 2019, 12:05:19

11


NW
N
NE
E
170492

12


SE
S
SW
W
120
150
180
210
240
270
206°S (T) • 39.060465, -104.747946 ±17m ▲ 2264 m
170492
24 May 2019, 13:50:25

13


N
NE
E
SE
0
30
60
90
120
150
78°NE (T) • 39.062549, -104.745738 ±19m ▲ 2280 m
170493
24 May 2019, 13:52:00

14


SE
S
SW
W
120
150
180
210
240
270
204°S (T) • 39.062551, -104.745598 ±8m ▲ 2275 m
170492
24 May 2019, 13:52:19

15


SE
S
SW
W
150
180
210
240
270
300
221°SW (T) • 39.064079, -104.743009 ±12m ▲ 2290 m
170492
24 May 2019, 13:53:39

16


E
SE
S
SW
140°SE (T) • 39.064815, -104.741465 ±11m ▲ 2312 m
170492

17


E
SE
S
SW
153°SE (T) • 39.065853, -104.741316 ±7m ▲ 2318 m
170492

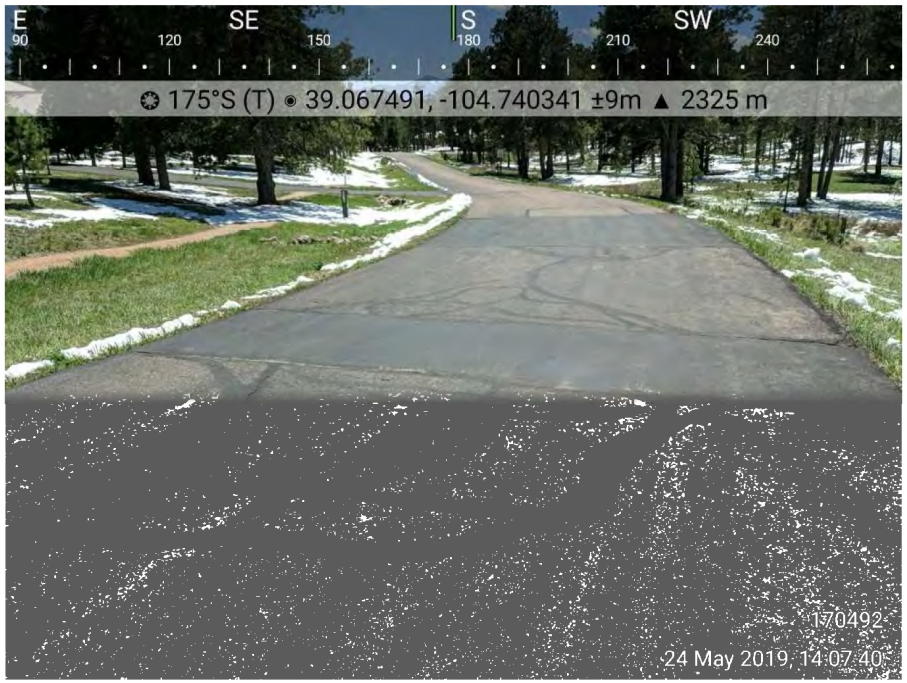
18

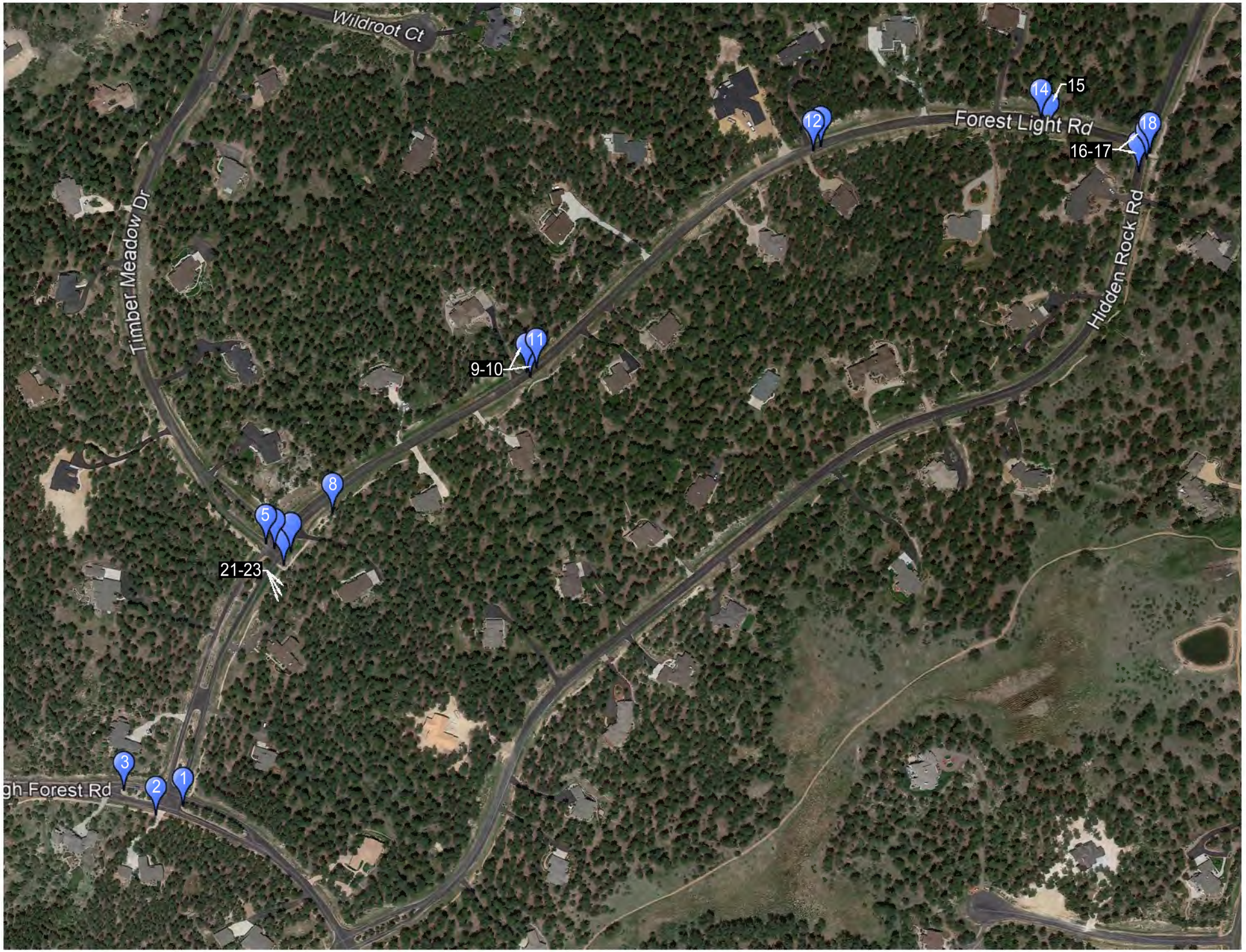

NW
N
NE
E
23°N (T) • 39.06595, -104.741243 ±10m ▲ 2310 m
170492
24 May 2019, 13:55:53

19


NE
E
SE
S
115°E (T) • 39.065985, -104.741235 ±8m ▲ 2310 m

20


E
90
SE
120
150
S
180
SW
210
240
175°S (T) 39.067491, -104.740341 ±9m ▲ 2325 m
170492
24 May 2019, 14:07:40



6. Forest Light Rd.


NW
N
NE
E
300
330
0
30
60
90
2°N (T) • 39.060885, -104.750923 ±7m ▲ 2290 m
170492
24 May 2019, 13:46:49

1


SW
W
NW
N
240
270
300
0
30
311°NW (T) • 39.060839, -104.751187 ±8m ▲ 2286 m
170492
24 May 2019, 13:47:10

2


SW
NW
210
240
300
270°W (T) • 39.061001, -104.751479 ±8m ▲ 2288 m
170492
24 May 2019, 13:47:47

3


E
SE
S
SW
60
90
120
150
180
210
141°SE (T) • 39.062837, -104.749811 ±20m ▲ 2305 m
170492
24 May 2019, 14:22:31

4


SE
S
SW
W
185°S (T) • 39.063007, -104.749988 ±6m ▲ 2294 m
170492
24 May 2019, 14:20:29

5


NW
NE
0°N (T) • 39.062972, -104.749901 ±9m ▲ 2290 m
170492

6


W
NW
N
NE
323°NW (T) • 39.062997, -104.749729 ±6m ▲ 2292 m
170492

7


NW
N
NE
E
25°N (T) • 39.06323, -104.74924 ±9m ▲ 2298 m
170492

8


SE S SW W
120 150 180 210 240 270
186°S (T) • 39.064303, -104.747335 ±8m ▲ 2302 m
170492
24 May 2019 14:24:52

9


SE S SW W
150 180 210 240 270
211°S (T) • 39.064367, -104.747413 ±8m ▲ 2287 m
170492
24 May 2019 14:25:09

10


NE E SE S
60 90 120 150 180 210
123°E (T) • 39.064389, -104.747235 ±12m ▲ 2300 m
170492
24 May 2019 14:25:24

11


E SE S SW
90 120 150 180 210 240
176°S (T) • 39.065998, -104.744294 ±6m ▲ 2316 m
170492
24 May 2019 14:26:29

12


NW
N
NE
300
330
0
30
60
0°N (T) ● 39.066063, -104.744413 ±9m ▲ 2309 m
170492
24 May 2019 14:26:52

13


N
NE
E
SE
0
30
90
120
59°NE (T) ● 39.066265, -104.742253 ±6m ▲ 2310 m
170492
24 May 2019, 14:27:49

14


SW
W
NW
N
210
240
270
300
330
0
273°W (T) ● 39.066225, -104.742271 ±8m ▲ 2309 m
170492
24 May 2019, 14:28:01

15


E
SE
S
SW
120
150
180
210
153°SE (T) ● 39.065853, -104.741316 ±7m ▲ 2318 m
170492

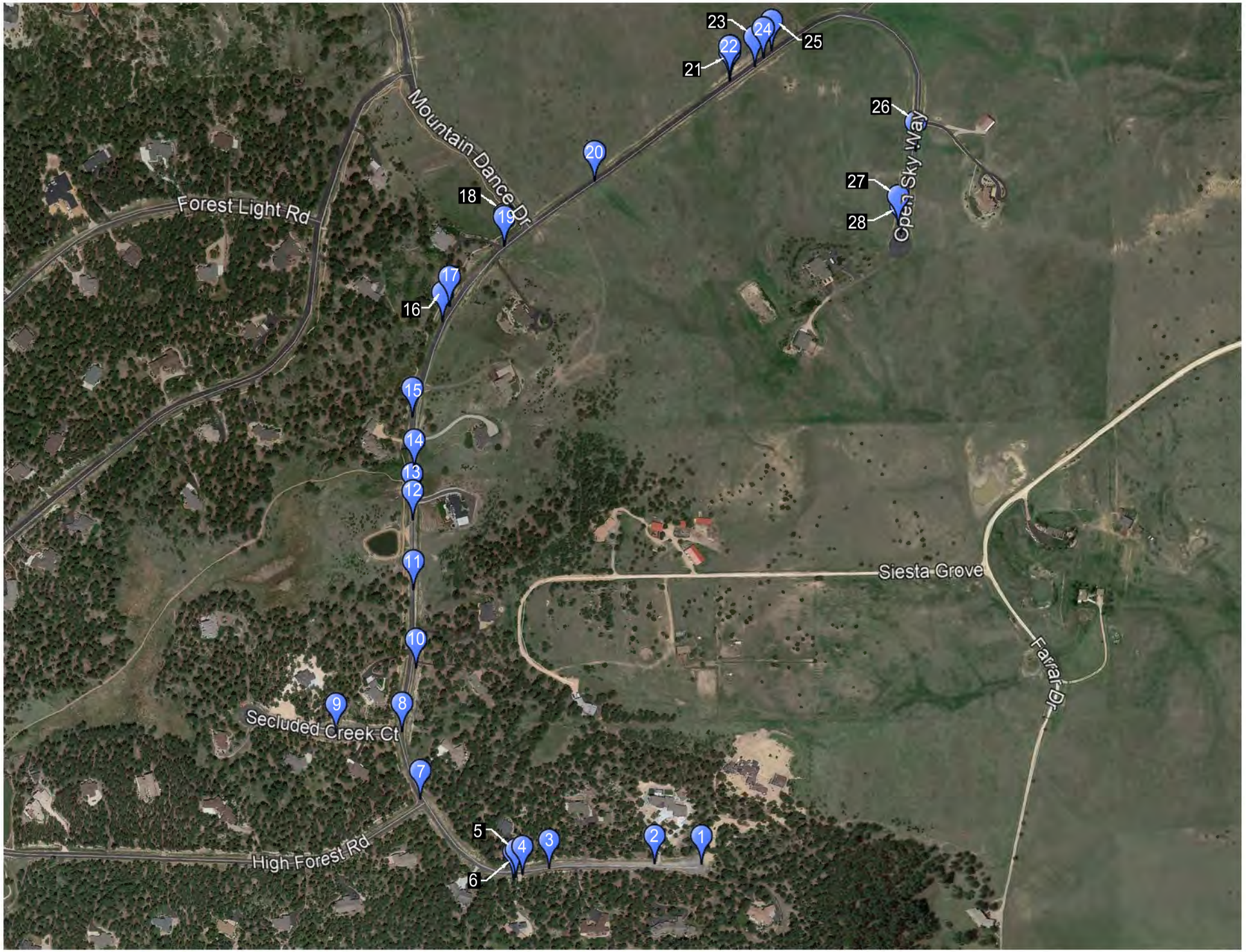
16


NW
N
NE
E
300
330
0
30
60
90
23°N (T) 39.06595, -104.741243 ±10m ▲ 2310 m
170492

17


NE
E
SE
S
30
60
90
120
150
180
115°E (T) 39.065985, -104.741235 ±8m ▲ 2310 m
170492

18



7a, 7b. Open Sky Way


SW
240
W
270
NW
300
330
N
0
30
303°W (T) • 39.05822, -104.735308 ±6m ▲ 2289 m
170492
24 May 2019, 12:27:41

1


S
180
SW
210
240
W
270
300
NW
330
266°W (T) • 39.058201, -104.736087 ±5m ▲ 2283 m
170492
24 May 2019, 12:28:27

2


N
0
30
NE
60
E
90
120
SE
150
79°E (T) • 39.058122, -104.737741 ±4m ▲ 2286 m
170492
24 May 2019, 12:25:45

3


NW
300
330
NE
30
60
0°N (T) • 39.058032, -104.738207 ±6m ▲ 2278 m
170492
24 May 2019, 12:25:13

4


NE 60 E 90 120 SE 150 S 180 210
127°SE (T) • 39.058846, -104.739646 ±5m ▲ 2283 m
170492
24 May 2019, 12:23:59

5


SW 240 W 270 300 NW 330 N 0
298°W (T) • 39.057995, -104.738315 ±5m ▲ 2278 m
170492
24 May 2019, 12:24:47

6


W 270 300 NW 330 N 0 30 NE 60
337°NW (T) • 39.059026, -104.739822 ±5m ▲ 2293 m
170492
24 May 2019, 12:29:47

7


SW 210 240 W 270 300 NW 330
270°W (T) • 39.059879, -104.740082 ±7m ▲ 2291 m
170492

8


SW 210 240 W 270 300 NW 330 N 0
286°W (T) • 39.059861, -104.741136 ±5m ▲ 2287 m
170492
24 May 2019 12:31:45

9


330 N 0 30 NE 60 E 90 120 S
46°NE (T) • 39.060674, -104.739839 ±7m ▲ 2306 m
170492
24 May 2019, 12:33:40

10


NW 300 330 N 0 30 NE 60 E 90
5°N (T) • 39.061602, -104.739864 ±7m ▲ 2291 m
170492
24 May 2019, 12:34:25

11


E 90 120 SE 150 S 180 210 SW 240
165°SE (T) • 39.062483, -104.739906 ±6m ▲ 2299 m
170492
24 May 2019, 12:35:14

12


NW
N
NE
E
300
330
0
30
60
90
13°N (T) • 39.062695, -104.73992 ±5m ▲ 2301 m
170492
24 May 2019, 12:35:38

13


NW
NE
300
330
30
60
359°N (T) • 39.063109, -104.739897 ±5m ▲ 2294 m
170492

14


SE
S
SW
120
150
180
210
240
178°S (T) • 39.063723, -104.739908 ±4m ▲ 2290 m
170492
24 May 2019, 12:37:32

15


SE
S
SW
W
120
150
180
210
240
270
205°S (T) • 39.06488, -104.739389 ±6m ▲ 2300 m
24 May 2019, 12:38:42

16


NW 330 N 0 30 NE 60 E 90 120
33°N (T) • 39.065063, -104.739276 ±8m ▲ 2306 m
170492
24 May 2019, 12:39:11

17


N 330 0 30 NE 60 E 90 120 SE
56°NE (T) • 39.065782, -104.738411 ±4m ▲ 2303 m
170492
24 May 2019, 12:40:30

18


S 150 180 SW 210 240 W 270 300 NW
229°SW (T) • 39.065757, -104.738435 ±4m ▲ 2312 m
170492
24 May 2019, 12:40:47

19


N 330 0 30 NE 60 E 90 120 SE
58°NE (T) • 39.066542, -104.737026 ±4m ▲ 2311 m
170492
24 May 2019, 12:47:59

20


S SW W NW
180 210 270 300
239°SW (T) 39.067723, -104.734964 ±5m 2315 m
170492
24 May 2019, 12:50:00

21


W NW N NE
240 270 300 330 0 30
326°NW (T) 39.067765, -104.73496 ±6m 2325 m
170492
24 May 2019, 12:50:15

22


N NE E SE
330 0 30 60 90 120
57°NE (T) 39.067867, -104.734568 ±8m 2317 m
170492
24 May 2019, 12:50:48

23


N NE E SE
330 0 30 60 90 120
51°NE (T) 39.067976, -104.73445 ±5m 2313 m
170492
24 May 2019, 12:51:07

24


S
SW
W
NW
150
180
210
240
270
300
224°SW (T) • 39.068074, -104.734324 ±5m ▲ 2310 m
170492
24 May 2019, 12:51:34

25


NW
N
NE
E
300
330
0
30
60
90
0°N (T) • 39.06692, -104.732054 ±6m ▲ 2311 m
170492
24 May 2019, 12:55:41

26


NE
E
SE
S
30
60
90
120
150
180
95°E (T) • 39.066045, -104.732361 ±7m ▲ 2310 m
170492
24 May 2019, 12:54:16

27


E
SE
S
SW
90
120
150
180
210
240
154°SE (T) • 39.065931, -104.732273 ±4m ▲ 2310 m
170492
24 May 2019, 12:53:56

28

8. Waving Branch Way

N


NW
300
330
N
0
30
NE
60
E
90
10°N (T) 39.061269, -104.754298 ±5m ▲ 2287 m
170492
24 May 2019, 13:42:06

1


SW
210
240
W
270
300
NW
330
N
0
293°W (T) 39.06112, -104.754367 ±9m ▲ 2292 m
170492
24 May 2019, 13:42:26

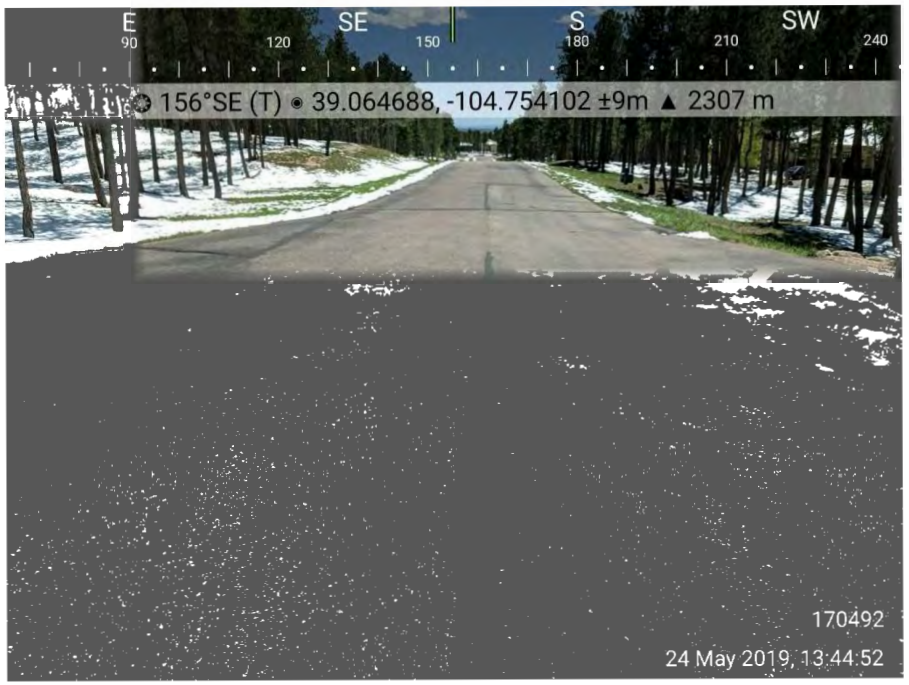
2


NE
30
60
SE
120
150
92°E (T) 39.061037, -104.754202 ±6m ▲ 2294 m
170492
24 May 2019, 13:42:46

3


NW
300
330
N
0
NE
30
60
E
90
12°N (T) 39.061065, -104.75417 ±8m ▲ 2291 m
170492
24 May 2019, 13:43:51

4


E
90
120
SE
150
S
180
210
SW
240
156°SE (T) ◉ 39.064688, -104.754102 ±9m ▲ 2307 m
170492
24 May 2019, 13:44:52

5

9. Reflection Pl.


W NW N NE
240 270 300 330 0 30
320°NW (T) 39.069118, -104.740781 ±6m ▲ 2323 m
170492
24 May 2019, 13:06:47

1


NW N NE E
330 0 30 60 90 120
38°NE (T) 39.069255, -104.741008 ±6m ▲ 2319 m
170492
24 May 2019, 13:07:12

2


NW N NE E
0 60 90
31°N (T) 39.069345, -104.741053 ±4m ▲ 2323 m
170492
24 May 2019, 13:07:30

3


NW N NE E
300 330 0 30 60 90
10°N (T) 39.069639, -104.740637 ±4m ▲ 2323 m
170492
24 May 2019, 13:08:36

4


W NW N NE
240 270 300 330 0 30
320°NW (T) • 39.069719, -104.740539 ±4m ▲ 2324 m
170492
24 May 2019, 13:08:45

5


NW N NE E
300 330 0 30 60 90
6°N (T) • 39.069948, -104.740421 ±4m ▲ 2319 m
170492
24 May 2019, 13:09:11

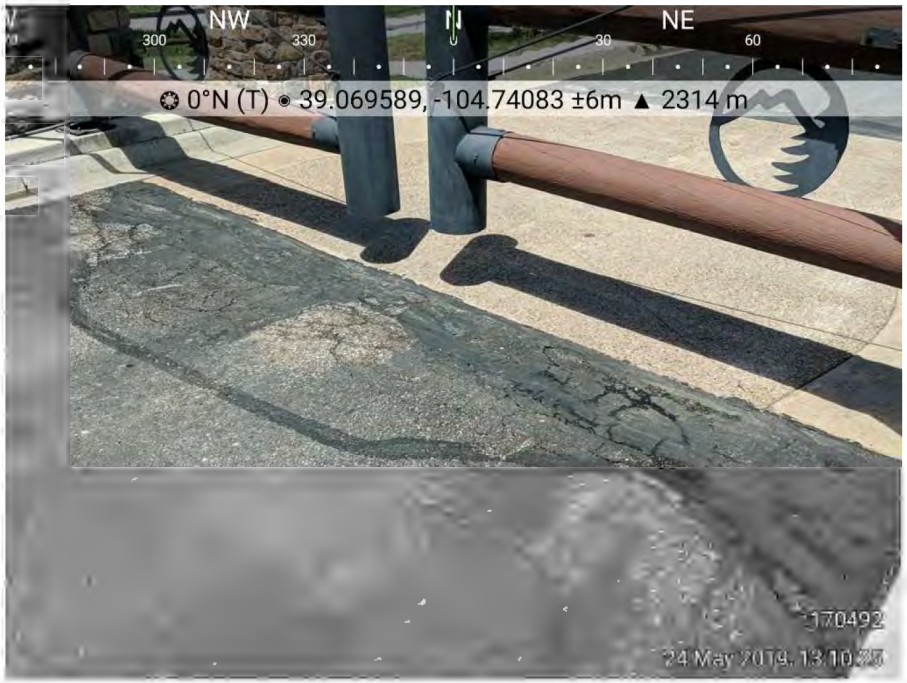
6


SE S SW W
150 180 210 240 270
209°S (T) • 39.069893, -104.740449 ±4m ▲ 2314 m
170492
24 May 2019, 13:09:28

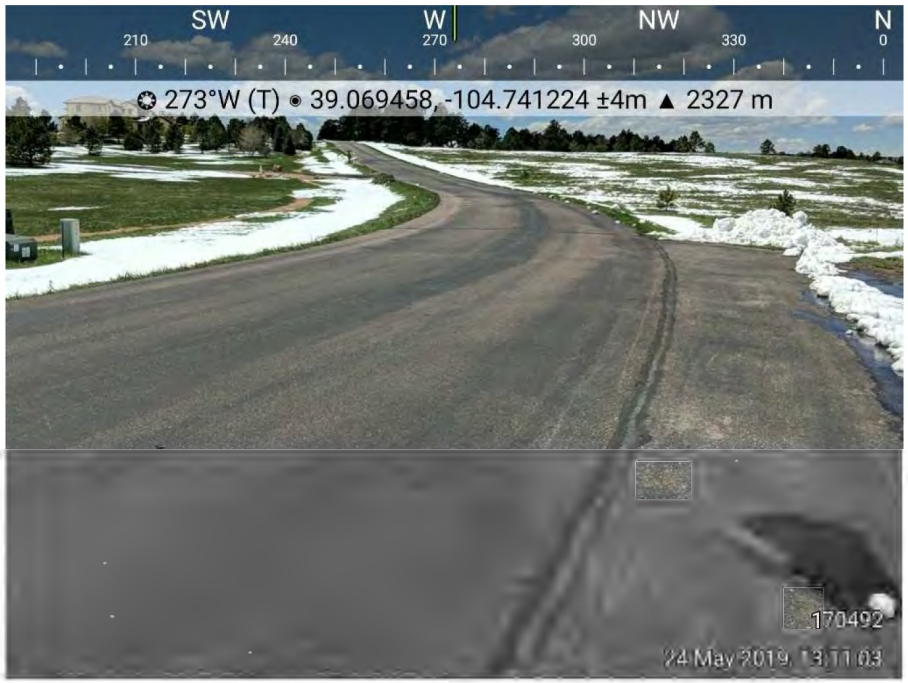
7


SE S SW W
120 150 180 210 240 270
203°S (T) • 39.06966, -104.740735 ±7m ▲ 2313 m
HIGH FOREST RANCH
170492
24 May 2019, 13:10:01

8


NW
N
NE
300
330
0
30
60
0°N (T) 39.069589, -104.74083 ±6m ▲ 2314 m
170492
24 May 2019, 13:10:25

9


SW
W
NW
N
210
240
270
300
330
0
273°W (T) 39.069458, -104.741224 ±4m ▲ 2327 m
170492
24 May 2019, 13:11:03

10

10. Community Building

N


E
60
E
90
120
SE
150
S
180
210
134°SE (T) • 39.058323, -104.747898 ±6m ▲ 2267 m
24 May 2019, 12:09:50

1


E
90
120
SE
150
S
180
210
SW
240
135°SE (T) • 39.058092, -104.7478 ±8m ▲ 2268 m
170492

2


NE
60
E
90
SE
150
S
180
122°E (T) • 39.057966, -104.747709 ±7m ▲ 2251 m
170492
24 May 2019, 12:10:56

3


E
SE
S
SW
210
147°SE (T) • 39.057925, -104.747692 ±6m ▲ 2250 m
24 May 2019, 12:11:08

4


NW 300 330 N 0 NE 30 60 E 90
5°N (T) • 39.057893, -104.747488 ±6m ▲ 2261 m
170492
24 May 2019, 12:11:42

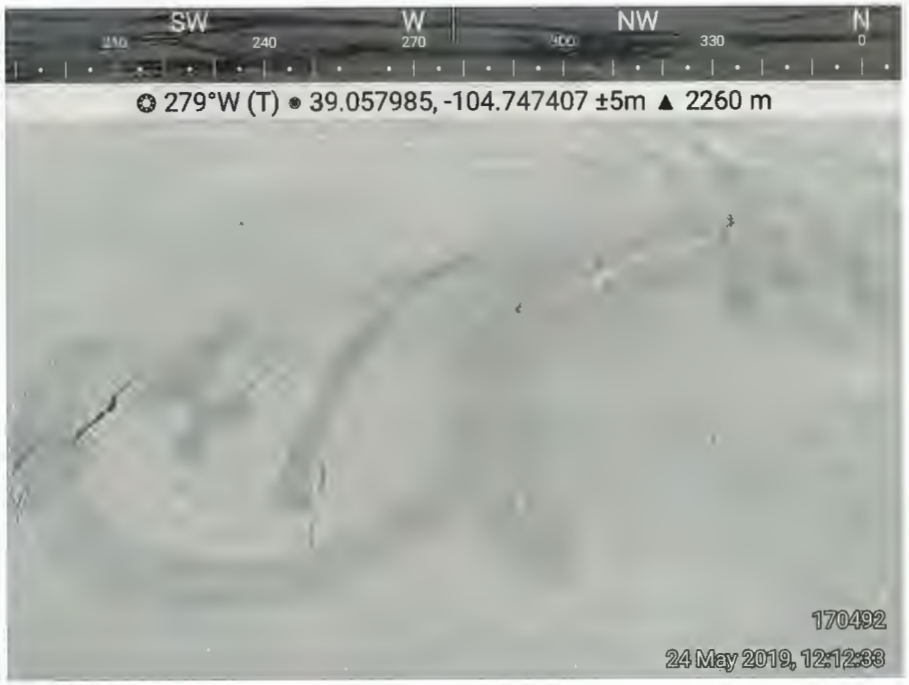
5


SE 120 150 S 180 210 SW 240 W 270
200°S (T) • 39.058006, -104.74737 ±4m ▲ 2264 m
170492
24 May 2019, 12:12:03

6


S 150 180 210 SW 240 W 270 300 NW
232°SW (T) • 39.058004, -104.7474 ±5m ▲ 2260 m
170492
24 May 2019, 12:12:19

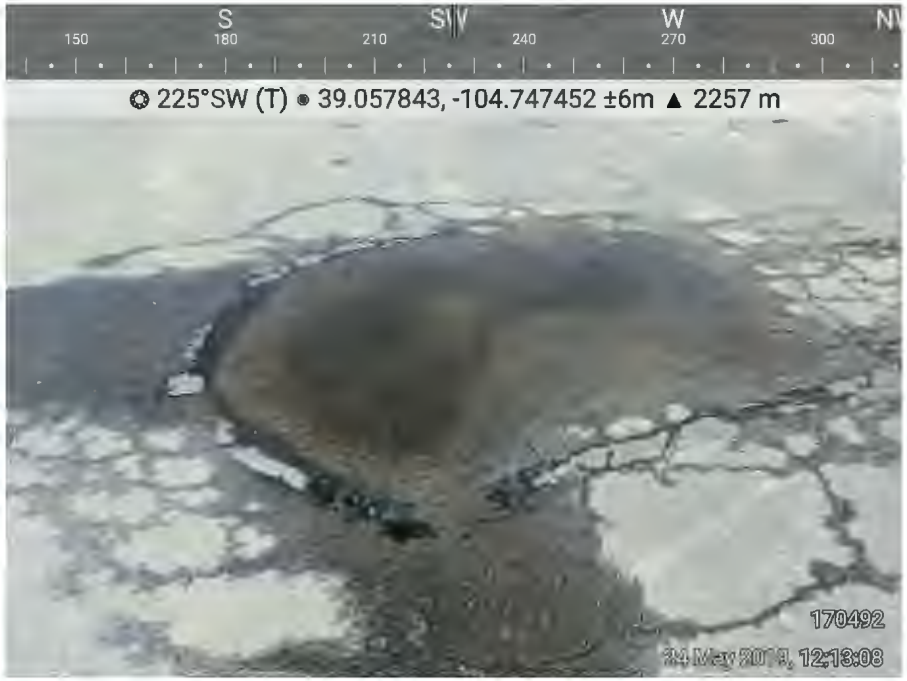
7


SW 240 W 270 300 NW 330 N 0
279°W (T) • 39.057985, -104.747407 ±5m ▲ 2260 m
170492
24 May 2019, 12:12:33

8


W NW N NE
270 300 330 0 30 60
335°NW (T) • 39.057989, -104.747403 ±7m ▲ 2260 m
170492
24 May 2019, 12:12:43

9


S SW W
150 180 210 240 270 300
225°SW (T) • 39.057843, -104.747452 ±6m ▲ 2257 m
170492

10


W NW N NE
270 300 330 0 30 60
354°N (T) • 39.057685, -104.74754 ±9m ▲ 2259 m
170492

11


SW W NW N
210 240 270 300 330 0
286°W (T) • 39.057829, -104.747654 ±9m ▲ 2259 m
170492

12

APPENDIX III
High Forest Ranch
Pavement Management Program 2019

HIGH FOREST RANCH
PAVEMENT MANAGEMENT PROGRAM - 2019

Roadway Segment No.	Street Name	Street Length (ft)	Pavement Width, nominal (ft)	Pavement Area (s.f.)	Construction Year	Expected Useful Life (design)	Years-in-Service	Remaining Useful Life (Design)	Pavement Condition Rating - Adjusted	Current Maintenance Priority	Current Est. Remaining Pvmt Life, years	Mill & Overlay		"Overlay" w ltd. Full-depth repairs		Anticipated Life after "Mill & Overlay" or "Overlay", years	Comments
												0-2 years	5-7 years	9-12 years	12-15 years		
1a	High Forest Road, Entrance (Hwy 83 to Gate)	830	24	17,982	2001	20	18	2	75	1	< 5	Y	N/A	Y	N/A	15	*drainage improvements being completed by others
1b	High Forest Road (Gate to Open Sky Way)	6,412	24	176,971	2001	20	18	2	82	2	5 - 8	Y	N/A	N/A	N/A	20	
2	Winding Trails Road	4,995	24	127,880	2001	20	18	2	86	2	5 - 8	N	Y	N	Y	20	
3a	Timber Meadow Drive, Entrance (Hodgen Rd. to Gate)	540	24	15,270	2001	20	18	2	78	1	< 5	Y	N/A	Y	N/A	15	
3b	Timber Meadow Drive (Gate to Forest Light Drive)	2,850	24	78,660	2004	20	15	5	80	1	< 5	Y	N/A	Y	N/A	20	Consider drainage improvements near the instersection of Forest Light Dr., and along landscape islands between lanes.
4	Mountain Dance Drive	5,715	24	137,160	2001	20	18	2	88	3	7 - 10	N	Y	N/A	N/A	20	
5	Hidden Rock Road	7,176	24	177,224	2004	20	15	5	90	3	7 - 10	N	Y	N/A	N/A	20	
6	Forest Light Drive	3,640	24	94,348	2004	20	15	5	88	3	7 - 10	N	Y	N/A	N/A	20	
7a	Open Sky Way - Detention Pond Area (~16007 to 15823)	780	24	17,500	2001	20	18	2	75	1	< 5	Y	N/A	Y	N/A	20	
7b	Open Sky Way - Remainder (less 7a)	6,340	24	164,160	2001	20	18	2	84	2	5 - 8	N	Y	N	N	20	
8	Serenity Place	667	24	24,980	2001	20	18	2	94	3	10 +	N	N	Y	N/A	25	
9	Pine Air Place	539	24	21,470	2001	20	18	2	94	3	10 +	N	N	Y	N/A	25	
10	Waving Branch Way	1,370	24	43,830	2001	20	18	2	94	3	10 +	N	N	Y	N/A	25	
11	Canopy Court	649	24	24,160	2001	20	18	2	94	3	10 +	N	N	Y	N/A	25	
12	Secluded Creek Court	745	24	28,604	2001	20	18	2	83	2	5 - 8	Y	N	N	N	25	
13	Wildroot Court	551	24	20,860	2004	20	15	5	94	3	10 +	N	N	Y	N/A	25	
14	Reflection Place	566	24	23,380	2004	20	15	5	92	3	10 +	N	N	Y	N/A	25	
15	*Comm. Bldg Parking Lot	400	24	16,180	2001	20	18	2	70	1	< 5	Y	N/A	Y	N/A	20	

(1) Recommendations for performance of pavement maintenance items identified as being "0-2 years, "5-8 years", etc. are assumed to be performed at the recommended interval based on the current timeframe
(2) Applications of "Seal Coat/Slurry Seal" are anticipated to be applied to new pavements within approximetly 3-4 years following paving
(3) We assume that the entire roadway system will receive a "Seal Coat/Slurry Seal" on an approximately 7 year recurring frequency. Additionally, we anticipate that the seal coat process may be completed in a "phased" approach considering potential pavement overlay processes on some streets
(4) Linear street distances and area calculations obtained by graphical measurement from aerial photographs from Google Earth©

GREEN = PCI>90 | YELLOW = PCI between 80-90 | RED = PCI < 80