WOOLPERT



# South Platte NE QL2 LiDAR

## USGS/NGTOC /Southwest Nebraska Panhandle

2/15/2017

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# Section 1: Survey Report

## Introduction

| | |
|---|---|
| Report Date: | 6/27/2016 |
| Project Name: | SOUTH PLATTE NE QL2 LiDAR |
| Client Information: | USGS / NGTOC |
| Contract Number: | G10PC00057 |
| Requisition/Reference Number: | G15PD01037 |
| Date of Contract: | 9/16/2015 |
| Delivery Date: | 2/15/2017 |
| Prepared By: | David Kuxhausen, PLS |
| Woolpert Project Number: | 75955 |

This report contains a comprehensive outline of the LiDAR Ground Control Survey that supported the South Platte NE QL2 LiDAR. All surveys were performed in such a way as to achieve ground control accuracies that meet or exceed the National Mapping Accuracy Standards.

## Project Area

The project area consists of approximately 4,841 square miles encompassing Banner, Kimball, Cheyenne, Deuel, Keith, and Lincoln counties

## Purpose

The purpose of this survey was to establish three-dimensional coordinates for 92 ground control points (GCPs) and 427 quality control (QC) points spread over 2 land cover classifications Vegetated Vertical Accuracies (VVA) and Non-Vegetated Vertical Accuracies (NVA).
The QC points were collected uniformly dispersed over the project area in the appropriate land cover categories to verify fundamental, supplemental, and consolidated vertical accuracies throughout the task order AOI.

# Date of Survey

Ground control field operations took place on February 17th 2015 thru February 28th 2015.

# Monumentation

Prior to aerial imagery acquisition, Woolpert field crews performed a field reconnaissance to verify the existence and suitability of pre-selected existing National Geodetic Survey (NGS) control stations. These existing bench marks were utilized as checks to ensure that quality x, y, and z coordinate values were computed for each of the newly established photogrammetric control stations. Recovery information sheets for the existing NGS control stations can be found in Section 5 of this report. A control diagram showing the ground control stations used to support this LiDAR mapping project can be found in Section 6 of this report.

# Accuracy Standards

The data collected under this task order shall meet the National Standard for spatial Database Accuracy (NSSDA) standards. The NSSDA standards specify that vertical accuracy be reported at the 95 percent confidence level for data tested by an independent source of higher accuracy.
The Fundamental Vertical Accuracy (FVA): 19.6 cm at a 95% confidence level, derived according to NSSDA, i.e., based on RMSEZ of 10.0 cm in the “open terrain” land cover category.

The Supplemental Vertical Accuracy (SVA): The SVA will be reported for each of the land cover classes within the task order AOI. The target SVA is 29.4 cm at a 95th percentile level, derived according to ASPRS Guidelines, Vertical Accuracy Reporting for Lidar Data, i.e., based on the 95th percentile error for vegetated land cover categories.

The Consolidated Vertical Accuracy (CVA): 29.4 cm at a 95th percentile level, derived according to ASPRS Guidelines, Vertical Accuracy Reporting for Lidar Data, i.e., based on the 95th percentile error in all land cover categories combined.

Automated and manual filtering for Lidar products shall use the following minimum performance for artifact/feature removal from the bare earth model: The bare earth surface model shall have a minimum of 95% of surface canopy artifacts, including buildings, vegetation, bridges or overpass structures removed.

# GPS Equipment

Woolpert utilized 2 Trimble Navigation R8 Model 4 GNSS dual-frequency GPS receivers, 2 Trimble Navigation Model R10 GNSS dual-frequency GPS receivers, and 2 TSC3 data collectors for this project.

# Methodology

## Real-Time Kinematic (RTK) GPS

The field crew utilized Real-Time Kinematic (RTK) GPS surveying throughout most of the ground control data collection process. Using RTK GPS techniques, observations were performed on a total of 92 LiDAR control points and 427 ground control quality check points. The survey was conducted using a 1-second epoch rate, in a fixed solution RTK mode, with each observation lasting between 60 to 180 seconds. Each station was occupied twice to insure the necessary horizontal and vertical accuracies were being met for this photogrammetric project.

## VRS Virtual Reference System or RTN Real Time Network.

The "Virtual Reference Station" (VRS) concept is based on having a network (spaced at 50-60kms) of GNSS (GPS or GPS/GLONASS) reference stations permanently connected to the control center via the Internet. The networked stations collectively and precisely, model ionospheric errors for the individual GNSS rover in the network coverage area. The rover interprets and uses the VRS network-correction data as if it is operating with a single physical base station on a very short baseline which increases the RTK performance. Corrections (vectors) are from the closest base, but because the ionospheric error (which is traditionally baseline dependent) is practically negated, the rover's degradation in accuracy due to baseline length starts when the rover is first initialized, that is, at the work site. Thus accuracies are increased and more consistent throughout the working region

## GPS Data Analysis and Processing

The field crew chief processed all session baselines each day using Trimble Navigation's Trimble Business Center (TBC) Version 3.40 baseline processor with the accompanying broadcast ephemeris. Daily processing ensured the integrity of the network as it was constructed, and allowed the field crews to immediately reschedule observations of poor baselines.

## Datum Reference and Final Coordinates

The spatial reference system for the South Platte NE AOI is UTM 13N, NAD83 (2011), Meter, horizontal and NAVD88 Meter vertical using the geoid model of 2012 (GEOID12A). Units for both the horizontal and vertical datums will be expressed in Meters to two (2) decimal places.

## Quality Assurance

Existing NGS published bench marks were surveyed to assure that there were no discrepancies in the field observation data. Close examinations of the residuals showed no distortions in orientation or scale.
The ground control data meets positional accuracies necessary to support 1.0 point per 0.3 meters squared (1' GSD) data at 95% confidence level as outlined in the Geospatial Positioning Accuracy Standards, Part 3: National Standard for Spatial Data Accuracy (NSSDA), published by the Federal Geographic Data Committee (FGDC-STD-007.3-1998).

# Section 2: Ground/Geodetic Control Coordinate Listings

## Coordinate System: Grid

HORIZONTAL DATUM: NAD83 2011 UTM13N & UTM14N
VERTICAL DATUM: NAVD88
GEOID MODEL: GEOID 12A
UNITS: METER

### LiDAR Ground Control

| UTM 13 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 1 | 4697800.056 | 579903.026 | 1460.934 | LIDAR CTL |
| 2 | 4695255.442 | 580239.812 | 1442.679 | LIDAR CTL |
| 3 | 4690768.348 | 580533.572 | 1418.860 | LIDAR CTL |
| 4 | 4686224.971 | 579695.514 | 1399.928 | LIDAR CTL |
| 5 | 4681445.920 | 578860.389 | 1357.434 | LIDAR CTL |
| 6 | 4674364.287 | 599684.774 | 1520.995 | LIDAR CTL |
| 7 | 4668724.468 | 609115.614 | 1422.413 | LIDAR CTL |
| 8 | 4662669.407 | 609207.226 | 1422.225 | LIDAR CTL |
| 9 | 4658465.752 | 597973.271 | 1282.840 | LIDAR CTL |
| 10 | 4653991.324 | 609313.254 | 1294.538 | LIDAR CTL |
| 11 | 4651055.588 | 609410.921 | 1325.780 | LIDAR CTL |
| 12 | 4668707.010 | 598567.675 | 1460.520 | LIDAR CTL |
| 13 | 4559817.005 | 579343.034 | 1534.456 | LIDAR CTL |
| 14 | 4610295.012 | 585217.445 | 1388.579 | LIDAR CTL |
| 15 | 4539466.757 | 588109.073 | 1622.977 | LIDAR CTL |
| 16 | 4564796.111 | 592789.877 | 1481.783 | LIDAR CTL |
| 17 | 4586285.220 | 595906.966 | 1540.013 | LIDAR CTL |
| 18 | 4579614.746 | 600820.203 | 1538.493 | LIDAR CTL |
| 19 | 4561928.793 | 605977.566 | 1509.784 | LIDAR CTL |
| 20 | 4610787.874 | 607840.034 | 1301.803 | LIDAR CTL |
| 21 | 4604372.028 | 615155.593 | 1349.805 | LIDAR CTL |
| 22 | 4580195.879 | 619761.532 | 1468.657 | LIDAR CTL |
| 23 | 4543512.509 | 625767.406 | 1471.242 | LIDAR CTL |

| UTM 13 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 24 | 4564561.971 | 636208.957 | 1356.994 | LIDAR CTL |
| 25 | 4604693.862 | 629186.041 | 1259.932 | LIDAR CTL |
| 26 | 4589393.411 | 668494.523 | 1301.841 | LIDAR CTL |
| 27 | 4583987.262 | 645395.296 | 1374.936 | LIDAR CTL |
| 28 | 4580413.246 | 655010.658 | 1346.015 | LIDAR CTL |
| 29 | 4576258.708 | 669612.186 | 1305.763 | LIDAR CTL |
| 30 | 4572207.813 | 687257.853 | 1246.467 | LIDAR CTL |
| 31 | 4567696.815 | 698658.721 | 1196.105 | LIDAR CTL |
| 32 | 4556840.424 | 701596.417 | 1159.818 | LIDAR CTL |
| 33 | 4585261.930 | 695064.610 | 1219.437 | LIDAR CTL |
| 34 | 4546867.729 | 701490.590 | 1221.074 | LIDAR CTL |
| 35 | 4552762.236 | 682084.791 | 1263.221 | LIDAR CTL |
| 36 | 4561363.582 | 657682.944 | 1285.863 | LIDAR CTL |
| 37 | 4555094.129 | 641140.638 | 1399.191 | LIDAR CTL |
| 38 | 4548924.133 | 655732.825 | 1353.284 | LIDAR CTL |
| 39 | 4545438.049 | 642946.270 | 1353.633 | LIDAR CTL |
| 40 | 4541142.625 | 668016.480 | 1334.047 | LIDAR CTL |
| 41 | 4542747.120 | 732779.561 | 1051.566 | LIDAR CTL |
| 42 | 4544538.513 | 719087.245 | 1096.052 | LIDAR CTL |
| 43 | 4550939.593 | 712310.116 | 1125.800 | LIDAR CTL |
| 44 | 4555179.141 | 723138.354 | 1152.022 | LIDAR CTL |
| 45 | 4563181.702 | 708421.457 | 1198.995 | LIDAR CTL |
| 46 | 4561103.376 | 727804.183 | 1148.320 | LIDAR CTL |
| 47 | 4550885.183 | 736919.482 | 1103.511 | LIDAR CTL |
| 48 | 4569174.359 | 748360.190 | 1154.954 | LIDAR CTL |
| 49 | 4564714.706 | 759752.243 | 1123.654 | LIDAR CTL |
| 50 | 4562376.361 | 768977.380 | 1101.836 | LIDAR CTL |
| 51 | 4561504.109 | 743813.452 | 1109.931 | LIDAR CTL |
| 52 | 4558290.701 | 759986.940 | 1101.285 | LIDAR CTL |
| 53 | 4554793.959 | 752050.768 | 1084.206 | LIDAR CTL |
| 54 | 4549312.917 | 745854.050 | 1026.861 | LIDAR CTL |
| 56 | 4549100.174 | 772358.814 | 1051.540 | LIDAR CTL |
| 57 | 4544274.111 | 775154.491 | 1046.527 | LIDAR CTL |
| 58 | 4553052.431 | 781141.008 | 1030.041 | LIDAR CTL |
| 59 | 4551610.432 | 795696.407 | 1011.850 | LIDAR CTL |
| 60 | 4547337.103 | 787978.140 | 1015.941 | LIDAR CTL |
| 61 | 4547183.867 | 805701.147 | 989.881 | LIDAR CTL |
| 62 | 4555254.993 | 806033.627 | 954.601 | LIDAR CTL |
| 63 | 4552441.372 | 815417.280 | 958.364 | LIDAR CTL |
| 64 | 4526610.406 | 819709.661 | 964.231 | LIDAR CTL |

| UTM 13 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 65 | 4513987.440 | 825156.857 | 977.036 | LIDAR CTL |
| 66 | 4523936.204 | 829425.461 | 936.666 | LIDAR CTL |
| 67 | 4541889.406 | 832672.574 | 958.750 | LIDAR CTL |
| 68 | 4554515.536 | 826218.398 | 949.214 | LIDAR CTL |
| 69 | 4556785.661 | 841885.345 | 912.961 | LIDAR CTL |
| 70 | 4537920.714 | 852596.708 | 931.866 | LIDAR CTL |
| 71 | 4528557.288 | 845844.739 | 909.659 | LIDAR CTL |
| 72 | 4551793.222 | 837634.242 | 941.367 | LIDAR CTL |
| 73 | 4550601.672 | 848141.928 | 939.816 | LIDAR CTL |
| 74 | 4535635.637 | 836851.137 | 958.811 | LIDAR CTL |
| 75 | 4539661.241 | 820904.275 | 971.682 | LIDAR CTL |
| 76 | 4535340.792 | 830891.071 | 958.658 | LIDAR CTL |
| 77 | 4527642.075 | 837151.333 | 950.601 | LIDAR CTL |
| 78 | 4521074.953 | 835961.867 | 935.967 | LIDAR CTL |
| 79 | 4513283.551 | 840868.307 | 924.511 | LIDAR CTL |
| 80 | 4546026.558 | 845953.668 | 936.715 | LIDAR CTL |
| 81 | 4546337.155 | 823670.503 | 962.845 | LIDAR CTL |
| 82 | 4546527.690 | 812161.430 | 999.825 | LIDAR CTL |
| 83 | 4555110.639 | 766969.131 | 995.442 | LIDAR CTL |
| 84 | 4567261.495 | 676294.621 | 1276.781 | LIDAR CTL |
| 85 | 4573887.666 | 645428.923 | 1375.265 | LIDAR CTL |
| 86 | 4595807.302 | 584594.431 | 1592.983 | LIDAR CTL |
| 87 | 4552991.767 | 615108.728 | 1497.222 | LIDAR CTL |
| 88 | 4549423.139 | 596193.664 | 1575.384 | LIDAR CTL |
| 89 | 4579526.472 | 589440.337 | 1569.361 | LIDAR CTL |
| 90 | 4600876.766 | 601134.157 | 1415.331 | LIDAR CTL |
| 91 | 4592938.766 | 612046.476 | 1507.012 | LIDAR CTL |
| 92 | 4666154.949 | 579985.567 | 1319.335 | LIDAR CTL |
| 124 | 4556750.315 | 809991.413 | 956.629 | LIDAR CTL |

| UTM 14 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 1 | 4709608.045 | 86295.728 | 1460.934 | LIDAR CTL |
| 2 | 4707040.800 | 86452.184 | 1442.679 | LIDAR CTL |
| 3 | 4702535.053 | 86428.292 | 1418.860 | LIDAR CTL |
| 4 | 4698053.045 | 85269.373 | 1399.928 | LIDAR CTL |
| 5 | 4693335.137 | 84096.972 | 1357.434 | LIDAR CTL |

| UTM 14 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 6 | 4684787.999 | 104409.999 | 1520.995 | LIDAR CTL |
| 7 | 4678487.777 | 113436.524 | 1422.413 | LIDAR CTL |
| 8 | 4672430.998 | 113101.874 | 1422.225 | LIDAR CTL |
| 9 | 4669020.420 | 101580.197 | 1282.840 | LIDAR CTL |
| 10 | 4663752.156 | 112597.783 | 1294.538 | LIDAR CTL |
| 11 | 4660811.803 | 112489.212 | 1325.780 | LIDAR CTL |
| 12 | 4679213.230 | 102894.966 | 1460.520 | LIDAR CTL |
| 13 | 4571714.502 | 76079.655 | 1534.456 | LIDAR CTL |
| 14 | 4621768.011 | 85457.500 | 1388.579 | LIDAR CTL |
| 15 | 4550765.255 | 83438.874 | 1622.977 | LIDAR CTL |
| 16 | 4575761.967 | 89866.285 | 1481.783 | LIDAR CTL |
| 17 | 4597025.122 | 94471.297 | 1540.013 | LIDAR CTL |
| 18 | 4590017.189 | 98919.087 | 1538.493 | LIDAR CTL |
| 19 | 4571984.165 | 102849.046 | 1509.784 | LIDAR CTL |
| 20 | 4620683.053 | 108102.184 | 1301.803 | LIDAR CTL |
| 21 | 4613762.127 | 114965.449 | 1349.805 | LIDAR CTL |
| 22 | 4589284.604 | 117888.132 | 1468.657 | LIDAR CTL |
| 23 | 4552215.240 | 121354.593 | 1471.242 | LIDAR CTL |
| 24 | 4572525.850 | 133239.103 | 1356.994 | LIDAR CTL |
| 25 | 4613106.878 | 129006.419 | 1259.932 | LIDAR CTL |
| 26 | 4595092.684 | 167205.975 | 1301.841 | LIDAR CTL |
| 27 | 4591295.228 | 143760.630 | 1374.936 | LIDAR CTL |
| 28 | 4587058.952 | 153117.162 | 1346.015 | LIDAR CTL |
| 29 | 4581898.801 | 167412.034 | 1305.763 | LIDAR CTL |
| 30 | 4576633.452 | 184751.165 | 1246.467 | LIDAR CTL |
| 31 | 4571342.233 | 195821.357 | 1196.105 | LIDAR CTL |
| 32 | 4560302.098 | 198004.951 | 1159.818 | LIDAR CTL |
| 33 | 4589125.690 | 193448.402 | 1219.437 | LIDAR CTL |
| 34 | 4550354.109 | 197212.593 | 1221.074 | LIDAR CTL |
| 35 | 4557575.095 | 178244.123 | 1263.221 | LIDAR CTL |
| 36 | 4567847.658 | 154468.769 | 1285.863 | LIDAR CTL |
| 37 | 4562726.798 | 137512.208 | 1399.191 | LIDAR CTL |
| 38 | 4555557.603 | 151663.123 | 1353.284 | LIDAR CTL |
| 39 | 4552956.022 | 138650.476 | 1353.633 | LIDAR CTL |
| 40 | 4546940.307 | 163395.843 | 1334.047 | LIDAR CTL |
| 41 | 4544090.281 | 228157.894 | 1051.566 | LIDAR CTL |
| 42 | 4546819.038 | 214616.577 | 1096.052 | LIDAR CTL |
| 43 | 4553674.052 | 208292.759 | 1125.800 | LIDAR CTL |
| 44 | 4557159.790 | 219391.810 | 1152.022 | LIDAR CTL |
| 45 | 4566161.335 | 205254.969 | 1198.995 | LIDAR CTL |

| UTM 14 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 46 | 4562750.381 | 224456.284 | 1148.320 | LIDAR CTL |
| 47 | 4551926.209 | 232848.427 | 1103.511 | LIDAR CTL |
| 48 | 4569385.651 | 245523.464 | 1154.954 | LIDAR CTL |
| 49 | 4564150.980 | 256580.413 | 1123.654 | LIDAR CTL |
| 50 | 4561182.756 | 265620.993 | 1101.836 | LIDAR CTL |
| 51 | 4562046.717 | 240458.251 | 1109.931 | LIDAR CTL |
| 52 | 4557726.722 | 256371.903 | 1101.285 | LIDAR CTL |
| 53 | 4554784.829 | 248214.235 | 1084.206 | LIDAR CTL |
| 54 | 4549742.895 | 241654.873 | 1026.861 | LIDAR CTL |
| 56 | 4547708.437 | 268079.992 | 1051.540 | LIDAR CTL |
| 57 | 4542703.002 | 270536.755 | 1046.527 | LIDAR CTL |
| 58 | 4551046.334 | 277110.437 | 1030.041 | LIDAR CTL |
| 59 | 4548607.666 | 291525.670 | 1011.850 | LIDAR CTL |
| 60 | 4544876.900 | 283535.818 | 1015.941 | LIDAR CTL |
| 61 | 4543506.882 | 301196.615 | 989.881 | LIDAR CTL |
| 62 | 4551530.686 | 302082.725 | 954.601 | LIDAR CTL |
| 63 | 4548080.691 | 311243.909 | 958.364 | LIDAR CTL |
| 64 | 4522037.139 | 313751.726 | 964.231 | LIDAR CTL |
| 65 | 4509082.441 | 318319.120 | 977.036 | LIDAR CTL |
| 66 | 4518707.253 | 323253.262 | 936.666 | LIDAR CTL |
| 67 | 4536378.505 | 327718.725 | 958.750 | LIDAR CTL |
| 68 | 4549405.826 | 322152.810 | 949.214 | LIDAR CTL |
| 69 | 4550591.309 | 337922.775 | 912.961 | LIDAR CTL |
| 70 | 4531058.062 | 347301.658 | 931.866 | LIDAR CTL |
| 71 | 4522190.001 | 339932.740 | 909.659 | LIDAR CTL |
| 72 | 4545908.239 | 333343.286 | 941.367 | LIDAR CTL |
| 73 | 4543999.222 | 343732.481 | 939.816 | LIDAR CTL |
| 74 | 4529859.477 | 331454.607 | 958.811 | LIDAR CTL |
| 75 | 4534964.544 | 315836.232 | 971.682 | LIDAR CTL |
| 76 | 4529973.839 | 325494.371 | 958.658 | LIDAR CTL |
| 77 | 4521872.501 | 331206.697 | 950.601 | LIDAR CTL |
| 78 | 4515408.880 | 329572.381 | 935.967 | LIDAR CTL |
| 79 | 4507309.018 | 333930.319 | 924.511 | LiDAR CTL |
| 80 | 4539590.482 | 341237.946 | 936.715 | LIDAR CTL |
| 81 | 4541429.168 | 319051.492 | 962.845 | LIDAR CTL |
| 82 | 4542409.145 | 307592.044 | 999.825 | LIDAR CTL |
| 83 | 4554074.022 | 263117.613 | 995.442 | LIDAR CTL |
| 84 | 4572452.330 | 173462.857 | 1276.781 | LIDAR CTL |
| 85 | 4581204.352 | 143094.597 | 1375.265 | LIDAR CTL |
| 86 | 4607329.330 | 83825.514 | 1592.983 | LIDAR CTL |

| UTM 14 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 87 | 4562422.194 | 111357.235 | 1497.222 | LIDAR CTL |
| 88 | 4560160.539 | 92206.618 | 1575.384 | LIDAR CTL |
| 89 | 4590718.220 | 87538.531 | 1569.361 | LIDAR CTL |
| 90 | 4611245.370 | 100710.106 | 1415.331 | LIDAR CTL |
| 91 | 4602553.524 | 111063.294 | 1507.012 | LIDAR CTL |
| 92 | 4677971.435 | 84143.185 | 1319.335 | LIDAR CTL |
| 124 | 4552749.228 | 306131.224 | 956.629 | LIDAR CTL |

## Quality Control Points

| UTM 13 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 2001 | 4697814.933 | 579901.735 | 1460.90 | NVA |
| 2001A | 4697832.225 | 579899.314 | 1460.67 | NVA |
| 2002 | 4694855.289 | 580388.401 | 1440.95 | NVA |
| 2002A | 4694867.025 | 580384.377 | 1440.94 | NVA |
| 2003 | 4690784.479 | 580547.252 | 1418.42 | NVA |
| 2003A | 4690748.049 | 580533.551 | 1417.97 | NVA |
| 2004 | 4685747.479 | 579700.398 | 1394.74 | NVA |
| 2004A | 4685761.831 | 579700.260 | 1394.81 | NVA |
| 2005 | 4681792.760 | 578905.654 | 1358.38 | NVA |
| 2005A | 4681812.233 | 578908.866 | 1358.43 | NVA |
| 2006 | 4674349.562 | 599682.714 | 1520.87 | NVA |
| 2006A | 4674350.135 | 599689.753 | 1520.84 | NVA |
| 2007 | 4668709.073 | 609113.907 | 1422.44 | NVA |
| 2007A | 4668708.838 | 609106.772 | 1422.45 | NVA |
| 2008 | 4662644.853 | 609193.469 | 1422.32 | NVA |
| 2008A | 4662644.075 | 609205.586 | 1422.52 | NVA |
| 2009 | 4658442.856 | 597979.619 | 1282.71 | NVA |
| 2009A | 4658444.799 | 597986.118 | 1282.71 | NVA |
| 2010 | 4653730.450 | 609328.815 | 1293.97 | NVA |
| 2010A | 4653730.675 | 609321.683 | 1293.99 | NVA |
| 2011 | 4651070.368 | 609414.121 | 1326.11 | NVA |

| UTM 13 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 2011A | 4651077.210 | 609403.242 | 1326.39 | NVA |
| 2012 | 4668685.984 | 598559.329 | 1460.27 | NVA |
| 2012A | 4668683.262 | 598565.559 | 1460.24 | NVA |
| 2013 | 4559842.324 | 579500.630 | 1534.57 | NVA |
| 2013A | 4559850.001 | 579500.836 | 1534.42 | NVA |
| 2014 | 4610310.751 | 585625.153 | 1387.28 | NVA |
| 2014A | 4610303.913 | 585623.551 | 1387.28 | NVA |
| 2015 | 4539675.332 | 587999.637 | 1620.21 | NVA |
| 2015 B | 4539659.220 | 587999.593 | 1620.61 | NVA |
| 2016 | 4564947.990 | 593095.418 | 1483.62 | NVA |
| 2016A | 4564954.276 | 593092.176 | 1483.61 | NVA |
| 2017 | 4586288.845 | 596040.918 | 1540.51 | NVA |
| 2017A | 4586304.087 | 596040.179 | 1540.62 | NVA |
| 2018 | 4579611.563 | 600604.806 | 1538.46 | NVA |
| 2018A | 4579611.328 | 600623.026 | 1538.32 | NVA |
| 2019 | 4562053.713 | 606311.845 | 1508.50 | NVA |
| 2019A | 4562039.962 | 606274.920 | 1508.54 | NVA |
| 2020 | 4610803.618 | 608423.145 | 1295.62 | NVA |
| 2020A | 4610810.446 | 608421.117 | 1295.60 | NVA |
| 2021 | 4604371.088 | 614940.527 | 1348.66 | NVA |
| 2021A | 4604378.357 | 614939.978 | 1348.73 | NVA |
| 2022 | 4580205.639 | 620428.074 | 1465.92 | NVA |
| 2022A | 4580204.076 | 620351.954 | 1467.36 | NVA |
| 2023 | 4543514.765 | 626149.977 | 1466.50 | NVA |
| 2023 B | 4543514.420 | 626158.000 | 1466.47 | NVA |
| 2024 | 4564463.944 | 636655.570 | 1355.60 | NVA |
| 2024A | 4564472.565 | 636650.038 | 1355.61 | NVA |
| 2025 | 4604690.331 | 628797.379 | 1261.70 | NVA |
| 2025A | 4604697.644 | 628798.391 | 1261.66 | NVA |
| 2026 | 4588838.736 | 668503.520 | 1295.93 | NVA |
| 2026A | 4588849.418 | 668493.005 | 1296.02 | NVA |
| 2027 | 4584000.236 | 645800.038 | 1379.48 | NVA |
| 2027A | 4584021.383 | 645801.704 | 1379.34 | NVA |
| 2028 | 4580085.926 | 655016.034 | 1350.49 | NVA |
| 2028A | 4580151.394 | 655014.918 | 1348.96 | NVA |
| 2029 | 4576694.299 | 669604.839 | 1305.54 | NVA |
| 2029A | 4576679.158 | 669614.837 | 1305.58 | NVA |
| 2030 | 4572203.274 | 686862.930 | 1248.03 | NVA |
| 2030A | 4572203.855 | 686921.467 | 1247.83 | NVA |
| 2031 | 4568066.048 | 698647.442 | 1199.40 | NVA |
| 2031 B | 4568079.495 | 698646.825 | 1199.42 | NVA |

| UTM 13 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 2032 | 4556668.121 | 702172.888 | 1156.48 | NVA |
| 2032 B | 4556674.200 | 702159.935 | 1156.64 | NVA |
| 2033 | 4585282.819 | 695921.032 | 1215.39 | NVA |
| 2033A | 4585281.345 | 695884.119 | 1215.56 | NVA |
| 2034 | 4546859.531 | 701213.433 | 1222.47 | NVA |
| 2034 B | 4546859.828 | 701223.673 | 1222.42 | NVA |
| 2035 | 4552772.314 | 682528.379 | 1258.61 | NVA |
| 2036 | 4561038.864 | 657425.593 | 1286.70 | NVA |
| 2036A | 4561049.542 | 657407.474 | 1286.39 | NVA |
| 2037 | 4555082.653 | 640229.034 | 1408.39 | NVA |
| 2037 B | 4555082.951 | 640244.156 | 1407.95 | NVA |
| 2038 | 4548932.337 | 656538.894 | 1350.28 | NVA |
| 2038 B | 4548932.427 | 656524.685 | 1350.25 | NVA |
| 2039 | 4545446.533 | 643382.647 | 1350.90 | NVA |
| 2039 B | 4545446.842 | 643398.361 | 1351.01 | NVA |
| 2040 | 4541484.389 | 668008.214 | 1335.32 | NVA |
| 2040 B | 4541498.802 | 668008.205 | 1335.33 | NVA |
| 2041 | 4543226.873 | 733377.588 | 1050.14 | NVA |
| 2041 B | 4543237.654 | 733369.873 | 1049.26 | NVA |
| 2042 | 4544276.211 | 719235.382 | 1095.60 | NVA |
| 2042 B | 4544283.469 | 719230.200 | 1095.68 | NVA |
| 2043 | 4551132.869 | 712375.651 | 1121.63 | NVA |
| 2043 B | 4551126.290 | 712372.722 | 1121.68 | NVA |
| 2044 | 4555512.961 | 723139.141 | 1152.27 | NVA |
| 2044A | 4555511.758 | 723120.828 | 1152.33 | NVA |
| 2045 | 4563158.160 | 707627.154 | 1200.94 | NVA |
| 2045 B | 4563158.010 | 707637.450 | 1200.87 | NVA |
| 2046 | 4561506.561 | 727793.756 | 1152.29 | NVA |
| 2046A | 4561525.326 | 727792.967 | 1152.41 | NVA |
| 2047 | 4551103.389 | 736912.527 | 1103.77 | NVA |
| 2047 B | 4551094.867 | 736912.200 | 1103.67 | NVA |
| 2048 | 4569175.649 | 748342.500 | 1154.83 | NVA |
| 2048A | 4569187.294 | 748395.855 | 1155.59 | NVA |
| 2049 | 4564749.537 | 760552.467 | 1128.12 | NVA |
| 2049A | 4564739.237 | 760539.254 | 1128.14 | NVA |
| 2050 | 4562400.589 | 768936.949 | 1102.46 | NVA |
| 2050A | 4562417.315 | 768918.823 | 1102.75 | NVA |
| 2051 | 4561005.289 | 743830.670 | 1111.10 | NVA |
| 2051A | 4561029.922 | 743829.502 | 1110.53 | NVA |
| 2052 | 4558653.102 | 759976.981 | 1103.62 | NVA |
| 2052A | 4558667.702 | 759972.264 | 1103.73 | NVA |

| UTM 13 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 2053 | 4554779.962 | 751661.828 | 1085.52 | NVA |
| 2053A | 4554782.397 | 751721.117 | 1085.38 | NVA |
| 2054 | 4549577.151 | 745826.892 | 1026.84 | NVA |
| 2054 B | 4549588.991 | 745826.313 | 1026.90 | NVA |
| 2055 | 4544471.277 | 757492.536 | 1082.93 | NVA |
| 2055 B | 4544464.261 | 757493.028 | 1082.94 | NVA |
| 2056 | 4549117.944 | 772846.335 | 1053.13 | NVA |
| 2056 B | 4549118.049 | 772855.733 | 1053.14 | NVA |
| 2057 | 4544648.254 | 775143.398 | 1043.84 | NVA |
| 2057 B | 4544658.530 | 775143.442 | 1043.77 | NVA |
| 2058 | 4553394.331 | 781128.571 | 1022.01 | NVA |
| 2058 B | 4553401.368 | 781128.630 | 1021.90 | NVA |
| 2059 | 4551632.324 | 796286.887 | 1007.56 | NVA |
| 2059 B | 4551632.103 | 796294.899 | 1007.27 | NVA |
| 2060 | 4547956.493 | 787961.590 | 1018.26 | NVA |
| 2060 B | 4547961.103 | 787961.321 | 1018.22 | NVA |
| 2061 | 4547187.039 | 806044.540 | 989.53 | NVA |
| 2061 B | 4547187.070 | 806054.952 | 989.36 | NVA |
| 2062 | 4554942.500 | 806046.030 | 953.77 | NVA |
| 2062A | 4554918.621 | 806046.886 | 953.65 | NVA |
| 2063 | 4552425.520 | 815014.294 | 965.10 | NVA |
| 2063A | 4552453.543 | 815012.391 | 964.35 | NVA |
| 2064 | 4526632.281 | 820262.039 | 957.99 | NVA |
| 2064 A | 4526632.246 | 820268.758 | 957.84 | NVA |
| 2065 | 4514261.970 | 825042.475 | 981.06 | NVA |
| 2065 B | 4514260.892 | 825034.616 | 980.55 | NVA |
| 2066 | 4523980.712 | 830313.994 | 933.45 | NVA |
| 2066 B | 4523979.951 | 830305.416 | 933.66 | NVA |
| 2067 | 4541852.161 | 831819.220 | 967.72 | NVA |
| 2067A | 4541851.465 | 831797.038 | 968.93 | NVA |
| 2068 | 4554530.398 | 826603.922 | 946.08 | NVA |
| 2068A | 4554532.179 | 826638.421 | 945.79 | NVA |
| 2069 | 4556795.105 | 842218.021 | 910.30 | NVA |
| 2069A | 4556793.797 | 842196.375 | 910.11 | NVA |
| 2070 | 4537881.408 | 851840.628 | 931.68 | NVA |
| 2070 B | 4537880.219 | 851826.319 | 932.39 | NVA |
| 2071 | 4528682.278 | 846290.886 | 904.06 | NVA |
| 2072 | 4551759.949 | 836924.787 | 940.32 | NVA |
| 2072A | 4551758.627 | 836904.223 | 940.03 | NVA |
| 2073 | 4550574.931 | 847690.850 | 923.10 | NVA |
| 2073A | 4550581.151 | 847670.504 | 922.79 | NVA |

| UTM 13 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 2074 | 4535600.488 | 836858.525 | 959.80 | NVA |
| 2075 | 4539681.142 | 821305.249 | 969.63 | NVA |
| 2075A | 4539678.964 | 821271.220 | 968.88 | NVA |
| 2076 | 4535368.888 | 831433.580 | 959.97 | NVA |
| 2076 B | 4535359.207 | 831431.047 | 959.88 | NVA |
| 2077 | 4527663.741 | 837640.323 | 956.55 | NVA |
| 2077 A | 4527664.336 | 837646.225 | 956.56 | NVA |
| 2078 | 4520671.330 | 835980.834 | 929.99 | NVA |
| 2078 B | 4520678.690 | 835980.610 | 930.08 | NVA |
| 2079 | 4513552.161 | 841123.588 | 923.18 | NVA |
| 2079 B | 4513561.273 | 841123.060 | 923.00 | NVA |
| 2080 | 4546070.110 | 845951.917 | 937.11 | NVA |
| 2080A | 4546047.479 | 845953.475 | 937.19 | NVA |
| 2081 | 4546639.783 | 823649.902 | 962.27 | NVA |
| 2081A | 4546658.662 | 823656.300 | 962.10 | NVA |
| 2082 | 4546221.131 | 812174.416 | 997.68 | NVA |
| 2082 B | 4546210.946 | 812174.914 | 997.75 | NVA |
| 2083 | 4555056.479 | 766781.425 | 995.81 | NVA |
| 2083A | 4555050.085 | 766787.086 | 995.85 | NVA |
| 2084 | 4566997.448 | 676299.931 | 1277.00 | NVA |
| 2084A | 4567017.993 | 676299.310 | 1276.75 | NVA |
| 2085 | 4574167.635 | 645518.655 | 1374.29 | NVA |
| 2085A | 4574140.428 | 645509.575 | 1374.60 | NVA |
| 2086 | 4595827.608 | 585376.257 | 1587.60 | NVA |
| 2086A | 4595827.098 | 585358.787 | 1587.77 | NVA |
| 2087 | 4552998.963 | 615331.583 | 1496.35 | NVA |
| 2087A | 4552997.637 | 615283.551 | 1496.67 | NVA |
| 2088 | 4549428.691 | 596393.960 | 1574.90 | NVA |
| 2088 B | 4549428.706 | 596406.729 | 1574.91 | NVA |
| 2089 | 4579744.142 | 589437.429 | 1571.99 | NVA |
| 2089A | 4579746.284 | 589453.072 | 1571.31 | NVA |
| 2090 | 4600878.758 | 601496.357 | 1406.94 | NVA |
| 2090A | 4600878.627 | 601477.485 | 1407.99 | NVA |
| 2091 | 4593571.032 | 611991.327 | 1509.36 | NVA |
| 2091A | 4593570.301 | 611974.953 | 1509.22 | NVA |
| 2092 | 4666394.955 | 579984.094 | 1319.22 | NVA |
| 2092A | 4666380.810 | 579983.841 | 1319.25 | NVA |
| 2093 | 4573124.873 | 658416.562 | 1330.42 | NVA |
| 2093A | 4573125.513 | 658435.433 | 1330.60 | NVA |
| 2094 | 4583298.349 | 682233.776 | 1263.63 | NVA |
| 2094A | 4583326.273 | 682233.827 | 1263.57 | NVA |

| UTM 13 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 2095 | 4593359.254 | 628180.755 | 1423.95 | NVA |
| 2095A | 4593372.505 | 628180.274 | 1423.70 | NVA |
| 2096 | 4655648.035 | 622528.324 | 1397.37 | NVA |
| 2096A | 4655660.941 | 622534.554 | 1397.23 | NVA |
| 2097 | 4564252.003 | 690753.418 | 1222.00 | NVA |
| 2097 B | 4564265.855 | 690752.263 | 1221.79 | NVA |
| 2098 | 4558524.289 | 714977.936 | 1183.77 | NVA |
| 2098A | 4558543.870 | 714976.985 | 1183.02 | NVA |
| 2099 | 4559114.983 | 735886.440 | 1137.37 | NVA |
| 2099A | 4559116.242 | 735908.137 | 1137.64 | NVA |
| 2100 | 4552603.274 | 761405.482 | 1003.42 | NVA |
| 2100A | 4552570.124 | 761416.729 | 1003.43 | NVA |
| 2101 | 4549444.769 | 781452.251 | 1030.31 | NVA |
| 2101 B | 4549433.108 | 781453.029 | 1030.40 | NVA |
| 2102 | 4545211.710 | 799281.236 | 1005.28 | NVA |
| 2102 B | 4545211.586 | 799289.399 | 1005.28 | NVA |
| 2103 | 4552201.385 | 810186.130 | 979.83 | NVA |
| 2103A | 4552225.443 | 810184.437 | 979.96 | NVA |
| 2104 | 4551576.216 | 832827.613 | 944.98 | NVA |
| 2104A | 4551575.222 | 832807.233 | 945.41 | NVA |
| 2105 | 4520216.751 | 818268.350 | 1007.11 | NVA |
| 2105 A | 4520217.667 | 818256.965 | 1006.54 | NVA |
| 2106 | 4514485.574 | 833828.780 | 945.16 | NVA |
| 2106 B | 4514483.873 | 833815.305 | 945.65 | NVA |
| 2107 | 4523100.599 | 843870.140 | 938.42 | NVA |
| 2107 B | 4523100.640 | 843861.174 | 938.35 | NVA |
| 2108 | 4545262.793 | 836405.586 | 956.68 | NVA |
| 2108A | 4545261.480 | 836385.982 | 955.78 | NVA |
| 2109 | 4553715.783 | 787559.737 | 1008.44 | NVA |
| 2109 B | 4553726.892 | 787559.359 | 1008.76 | NVA |
| 2110 | 4550258.910 | 802373.496 | 1006.01 | NVA |
| 2110 B | 4550247.469 | 802374.235 | 1005.63 | NVA |
| 2111 | 4566789.584 | 722797.347 | 1158.44 | NVA |
| 2111A | 4566787.571 | 722779.363 | 1158.49 | NVA |
| 2112 | 4546393.628 | 684741.819 | 1270.55 | NVA |
| 2112 B | 4546404.284 | 684741.976 | 1270.33 | NVA |
| 2113 | 4559465.090 | 671545.545 | 1277.25 | NVA |
| 2113A | 4559475.518 | 671558.877 | 1278.10 | NVA |
| 2114 | 4546483.403 | 612301.689 | 1507.36 | NVA |
| 2114 B | 4546483.048 | 612313.574 | 1507.03 | NVA |
| 2115 | 4565955.973 | 623333.406 | 1399.57 | NVA |

| UTM 13 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 2115A | 4565969.411 | 623334.107 | 1399.44 | NVA |
| 2116 | 4574896.826 | 583104.317 | 1583.45 | NVA |
| 2116A | 4574885.546 | 583104.466 | 1583.05 | NVA |
| 2117 | 4557362.992 | 589677.142 | 1570.04 | NVA |
| 2117A | 4557363.149 | 589705.340 | 1570.17 | NVA |
| 2118 | 4572252.142 | 611886.972 | 1483.89 | NVA |
| 2118A | 4572250.396 | 611865.110 | 1484.09 | NVA |
| 2119 | 4651301.987 | 622599.543 | 1316.31 | NVA |
| 2119A | 4651313.343 | 622599.546 | 1316.57 | NVA |
| 2120 | 4676696.293 | 589536.558 | 1472.19 | NVA |
| 2120A | 4676683.952 | 589536.733 | 1471.84 | NVA |
| 2121 | 4673672.188 | 589563.104 | 1442.50 | NVA |
| 2121A | 4673682.464 | 589562.674 | 1442.65 | NVA |
| 2122 | 4664561.337 | 591237.699 | 1352.99 | NVA |
| 2122A | 4664575.645 | 591237.806 | 1352.78 | NVA |
| 2123 | 4671970.497 | 579486.918 | 1312.20 | NVA |
| 2123A | 4671960.130 | 579486.828 | 1312.29 | NVA |
| 3001 | 4697799.297 | 579896.811 | 1461.05 | VVA |
| 3001A | 4697799.658 | 579912.553 | 1462.10 | VVA |
| 3002 | 4695260.015 | 580247.213 | 1442.90 | VVA |
| 3002A | 4695253.221 | 580231.029 | 1441.94 | VVA |
| 3003 | 4690779.054 | 580529.366 | 1418.79 | VVA |
| 3003A | 4690773.835 | 580549.863 | 1418.56 | VVA |
| 3004 | 4686226.339 | 579687.740 | 1399.92 | VVA |
| 3004A | 4686226.823 | 579702.778 | 1400.16 | VVA |
| 3005 | 4681452.278 | 578869.345 | 1357.16 | VVA |
| 3005A | 4681456.677 | 578854.234 | 1357.03 | VVA |
| 3006 | 4674359.522 | 599675.240 | 1519.15 | VVA |
| 3006A | 4674351.072 | 599695.304 | 1519.96 | VVA |
| 3007 | 4668729.101 | 609124.984 | 1421.91 | VVA |
| 3007A | 4668719.892 | 609125.034 | 1421.63 | VVA |
| 3008 | 4662665.458 | 609191.356 | 1421.59 | VVA |
| 3008A | 4662645.716 | 609213.435 | 1421.56 | VVA |
| 3009 | 4658463.734 | 597965.583 | 1281.37 | VVA |
| 3009A | 4658468.580 | 597986.712 | 1281.17 | VVA |
| 3010 | 4653993.698 | 609327.911 | 1293.96 | VVA |
| 3010A | 4653977.224 | 609302.623 | 1293.52 | VVA |
| 3011 | 4651054.887 | 609419.067 | 1325.62 | VVA |
| 3011A | 4651055.452 | 609397.418 | 1324.52 | VVA |
| 3012 | 4668703.912 | 598560.190 | 1459.99 | VVA |
| 3012A | 4668697.653 | 598577.128 | 1459.82 | VVA |

| UTM 13 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 3013 | 4559833.528 | 579337.554 | 1533.43 | VVA |
| 3013A | 4559839.367 | 579360.848 | 1533.27 | VVA |
| 3014 | 4610310.368 | 585225.671 | 1387.24 | VVA |
| 3014A | 4610287.945 | 585224.459 | 1387.77 | VVA |
| 3015 | 4539483.924 | 588106.246 | 1622.34 | VVA |
| 3015 B | 4539485.097 | 588089.775 | 1622.40 | VVA |
| 3016 | 4564792.345 | 592804.803 | 1481.39 | VVA |
| 3016A | 4564805.400 | 592833.261 | 1481.40 | VVA |
| 3017 | 4586276.394 | 595902.379 | 1539.47 | VVA |
| 3017A | 4586294.956 | 595901.257 | 1539.39 | VVA |
| 3018 | 4579596.449 | 600816.321 | 1537.82 | VVA |
| 3018A | 4579624.403 | 600810.386 | 1537.91 | VVA |
| 3019 | 4561944.084 | 605982.694 | 1508.39 | VVA |
| 3019A | 4561919.701 | 605988.130 | 1508.51 | VVA |
| 3020 | 4610795.255 | 607871.215 | 1301.01 | VVA |
| 3020A | 4610770.689 | 607864.956 | 1300.28 | VVA |
| 3021 | 4604368.752 | 615143.230 | 1349.07 | VVA |
| 3021A | 4604391.633 | 615145.222 | 1348.73 | VVA |
| 3022 | 4580182.576 | 619774.700 | 1468.16 | VVA |
| 3022A | 4580207.489 | 619786.207 | 1467.91 | VVA |
| 3023 | 4543501.759 | 625766.308 | 1470.99 | VVA |
| 3023 B | 4543485.924 | 625771.323 | 1470.72 | VVA |
| 3024 | 4564547.886 | 636203.540 | 1356.37 | VVA |
| 3024A | 4564572.157 | 636207.533 | 1356.67 | VVA |
| 3025 | 4604691.027 | 629174.122 | 1259.84 | VVA |
| 3025A | 4604713.035 | 629184.520 | 1259.32 | VVA |
| 3026 | 4589390.556 | 668476.868 | 1301.52 | VVA |
| 3026A | 4589383.996 | 668501.736 | 1301.22 | VVA |
| 3027 | 4583967.346 | 645407.318 | 1374.34 | VVA |
| 3027A | 4583998.354 | 645398.243 | 1375.01 | VVA |
| 3028 | 4580400.317 | 655018.503 | 1345.41 | VVA |
| 3028A | 4580410.492 | 655002.922 | 1345.69 | VVA |
| 3029 | 4576275.689 | 669604.662 | 1305.38 | VVA |
| 3029A | 4576255.976 | 669606.485 | 1305.40 | VVA |
| 3030 | 4572215.331 | 687260.085 | 1245.92 | VVA |
| 3030A | 4572198.620 | 687261.660 | 1245.66 | VVA |
| 3031 | 4567704.031 | 698671.413 | 1195.47 | VVA |
| 3031 B | 4567713.392 | 698667.862 | 1195.66 | VVA |
| 3032 | 4556825.602 | 701613.812 | 1159.45 | VVA |
| 3032 B | 4556821.553 | 701626.957 | 1159.36 | VVA |
| 3033 | 4585275.336 | 695062.545 | 1219.00 | VVA |

| UTM 13 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 3033A | 4585242.584 | 695078.228 | 1218.69 | VVA |
| 3034 | 4546881.882 | 701484.319 | 1220.41 | VVA |
| 3034 B | 4546880.691 | 701470.328 | 1220.39 | VVA |
| 3035 | 4552751.142 | 682078.882 | 1262.07 | VVA |
| 3035 B | 4552750.836 | 682070.040 | 1262.07 | VVA |
| 3036 | 4561373.690 | 657654.381 | 1285.69 | VVA |
| 3036A | 4561356.060 | 657650.673 | 1283.59 | VVA |
| 3037 | 4555088.289 | 641154.428 | 1399.93 | VVA |
| 3037 B | 4555071.524 | 641155.222 | 1399.90 | VVA |
| 3038 | 4548942.068 | 655743.438 | 1352.81 | VVA |
| 3038 B | 4548949.983 | 655750.899 | 1352.68 | VVA |
| 3039 | 4545457.507 | 642964.961 | 1351.99 | VVA |
| 3039 B | 4545457.081 | 642980.111 | 1351.71 | VVA |
| 3040 | 4541139.607 | 668030.735 | 1333.59 | VVA |
| 3040 B | 4541152.925 | 668030.526 | 1333.65 | VVA |
| 3041 | 4542753.257 | 732798.570 | 1051.20 | VVN |
| 3041 B | 4542760.035 | 732809.456 | 1051.03 | VVN |
| 3042 | 4544542.892 | 719073.038 | 1095.79 | VVA |
| 3042 B | 4544553.673 | 719070.965 | 1095.72 | VVA |
| 3043 | 4550923.551 | 712295.441 | 1124.40 | VVA |
| 3043 B | 4550913.600 | 712296.866 | 1123.71 | VVA |
| 3044 | 4555178.303 | 723125.702 | 1150.55 | VVA |
| 3044A | 4555178.684 | 723150.345 | 1150.36 | VVA |
| 3045 | 4563160.221 | 708448.185 | 1198.48 | VVA |
| 3045 B | 4563160.507 | 708457.431 | 1198.46 | VVA |
| 3046 | 4561108.574 | 727791.688 | 1147.90 | VVA |
| 3046A | 4561110.851 | 727816.836 | 1147.51 | VVA |
| 3047 | 4550884.250 | 736926.797 | 1102.73 | VVA |
| 3047 B | 4550893.023 | 736926.448 | 1102.75 | VVA |
| 3048 | 4569169.596 | 748351.006 | 1154.59 | VVA |
| 3048A | 4569189.825 | 748359.889 | 1154.84 | VVA |
| 3049 | 4564724.876 | 759765.177 | 1122.07 | VVA |
| 3049A | 4564695.752 | 759760.595 | 1123.76 | VVA |
| 3050 | 4562384.622 | 768983.298 | 1101.21 | VVA |
| 3050A | 4562410.034 | 768952.733 | 1101.59 | VVA |
| 3051 | 4561505.338 | 743822.013 | 1109.23 | VVA |
| 3051A | 4561504.752 | 743804.693 | 1109.45 | VVA |
| 3052 | 4558299.305 | 759995.383 | 1101.01 | VVA |
| 3052A | 4558280.063 | 759972.596 | 1100.81 | VVA |
| 3053 | 4554785.889 | 752053.599 | 1083.92 | VVA |
| 3053A | 4554808.952 | 752034.325 | 1083.92 | VVA |

| UTM 13 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 3054 | 4549311.939 | 745835.180 | 1026.50 | VVA |
| 3054 B | 4549297.440 | 745840.428 | 1026.31 | VVA |
| 3055 | 4544967.000 | 757488.803 | 1084.48 | VVA |
| 3055 B | 4544974.242 | 757487.447 | 1084.49 | VVA |
| 3055 C | 4544971.283 | 757472.858 | 1084.72 | VVA |
| 3056 | 4549107.702 | 772360.207 | 1050.87 | VVA |
| 3056 B | 4549108.989 | 772348.191 | 1050.83 | VVA |
| 3057 | 4544259.023 | 775136.458 | 1045.82 | VVA |
| 3057 B | 4544248.804 | 775136.686 | 1045.76 | VVA |
| 3058 | 4553059.341 | 781134.518 | 1029.16 | VVA |
| 3058 B | 4553068.219 | 781134.234 | 1029.19 | VVA |
| 3059 | 4551626.869 | 795714.566 | 1011.44 | VVA |
| 3059 B | 4551634.710 | 795715.383 | 1011.14 | VVA |
| 3060 | 4547330.745 | 787990.830 | 1015.55 | VVA |
| 3060 B | 4547342.010 | 787990.726 | 1015.45 | VVA |
| 3061 | 4547194.167 | 805707.467 | 989.43 | VVA |
| 3061 B | 4547198.871 | 805695.168 | 989.46 | VVA |
| 3062 | 4554945.601 | 806037.418 | 952.80 | VVA |
| 3062A | 4554918.629 | 806038.022 | 952.71 | VVA |
| 3063 | 4552448.081 | 815401.712 | 958.20 | VVA |
| 3063A | 4552433.379 | 815402.168 | 957.99 | VVA |
| 3064 | 4526613.320 | 819689.676 | 963.04 | VVA |
| 3064 A | 4526619.598 | 819692.233 | 963.18 | VVA |
| 3065 | 4513975.279 | 825171.121 | 976.17 | VVA |
| 3066 | 4523923.573 | 829434.173 | 936.22 | VVA |
| 3066 B | 4523923.429 | 829441.533 | 937.11 | VVA |
| 3067 | 4541895.504 | 832660.842 | 958.00 | VVA |
| 3067 B | 4513982.383 | 825170.731 | 976.59 | VVA |
| 3067A | 4541881.682 | 832665.462 | 958.97 | VVA |
| 3068 | 4554503.212 | 826228.555 | 949.00 | VVA |
| 3068A | 4554526.193 | 826227.431 | 950.24 | VVA |
| 3069 | 4556777.081 | 841872.553 | 913.28 | VVA |
| 3069A | 4556802.505 | 841877.180 | 912.82 | VVA |
| 3070 | 4537948.177 | 852612.313 | 932.06 | VVA |
| 3070 B | 4537950.790 | 852603.971 | 931.83 | VVA |
| 3071 | 4528566.180 | 845870.680 | 910.95 | VVA |
| 3071 B | 4528563.546 | 845862.268 | 910.58 | VVA |
| 3072 | 4551785.086 | 837635.223 | 942.13 | VVA |
| 3072A | 4551804.637 | 837642.056 | 941.26 | VVA |
| 3073 | 4550608.023 | 848128.531 | 939.19 | VVA |
| 3073A | 4550592.687 | 848129.729 | 940.22 | VVA |

| UTM 13 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 3074 | 4535617.810 | 836849.565 | 958.46 | VVA |
| 3074 B | 4535606.040 | 836848.025 | 958.86 | VVA |
| 3075 | 4539682.754 | 820891.928 | 971.93 | VVA |
| 3075A | 4539651.201 | 820899.432 | 971.54 | VVA |
| 3076 | 4535368.117 | 830883.414 | 957.80 | VVA |
| 3077 | 4527617.925 | 837151.586 | 949.02 | VVA |
| 3077 A | 4527618.495 | 837157.663 | 949.27 | VVA |
| 3078 | 4521074.613 | 835982.108 | 937.95 | VVA |
| 3078 B | 4521084.388 | 835982.075 | 938.07 | VVA |
| 3079 | 4513303.639 | 840865.269 | 923.77 | VVA |
| 3079 B | 4513298.419 | 840857.321 | 923.82 | VVA |
| 3080 | 4546068.946 | 845943.897 | 938.94 | VVA |
| 3080A | 4546047.069 | 845946.947 | 937.98 | VVA |
| 3081 | 4546337.358 | 823683.355 | 961.99 | VVA |
| 3081A | 4546325.019 | 823657.783 | 961.92 | VVA |
| 3082 | 4546540.024 | 812140.972 | 999.74 | VVA |
| 3082 B | 4546540.521 | 812133.876 | 999.85 | VVA |
| 3083 | 4555113.573 | 766957.984 | 994.49 | VVA |
| 3083A | 4555118.012 | 766977.634 | 994.46 | VVA |
| 3084 | 4567260.215 | 676300.686 | 1276.20 | VVA |
| 3084A | 4567260.851 | 676285.958 | 1276.17 | VVA |
| 3085 | 4573888.427 | 645437.528 | 1374.82 | VVA |
| 3085A | 4573892.957 | 645421.643 | 1374.68 | VVA |
| 3086 | 4595801.389 | 584607.213 | 1592.39 | VVA |
| 3086A | 4595818.281 | 584600.132 | 1592.30 | VVA |
| 3087 | 4552980.382 | 615107.064 | 1496.55 | VVA |
| 3087A | 4553004.590 | 615110.856 | 1496.45 | VVA |
| 3088 | 4549439.649 | 596203.355 | 1574.05 | VVA |
| 3088 B | 4549452.536 | 596215.603 | 1574.06 | VVA |
| 3089 | 4579527.301 | 589430.464 | 1568.20 | VVA |
| 3089A | 4579529.174 | 589448.478 | 1568.76 | VVA |
| 3090 | 4600885.448 | 601134.220 | 1414.88 | VVA |
| 3090A | 4600865.417 | 601145.786 | 1415.59 | VVA |
| 3091 | 4592931.490 | 612056.320 | 1506.77 | VVA |
| 3091A | 4592950.693 | 612054.420 | 1506.73 | VVA |
| 3092 | 4666156.518 | 579994.178 | 1319.94 | VVA |
| 3092A | 4666157.195 | 579977.273 | 1319.22 | VVA |

| UTM 14 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 2001 | 4709623.006 | 86295.492 | 1460.90 | NVA |
| 2001A | 4709640.461 | 86294.296 | 1460.67 | NVA |
| 2002 | 4706630.320 | 86572.377 | 1440.95 | NVA |
| 2002A | 4706642.335 | 86569.185 | 1440.94 | NVA |
| 2003 | 4702550.208 | 86443.106 | 1418.42 | NVA |
| 2003A | 4702514.765 | 86426.835 | 1417.97 | NVA |
| 2004 | 4697575.426 | 85240.508 | 1394.74 | NVA |
| 2004A | 4697589.781 | 85241.384 | 1394.81 | NVA |
| 2005 | 4693678.628 | 84166.713 | 1358.38 | NVA |
| 2005A | 4693697.865 | 84171.299 | 1358.43 | NVA |
| 2006 | 4684773.429 | 104406.902 | 1520.87 | NVA |
| 2006A | 4684773.505 | 104413.976 | 1520.84 | NVA |
| 2007 | 4678472.514 | 113433.735 | 1422.44 | NVA |
| 2007A | 4678472.782 | 113426.589 | 1422.45 | NVA |
| 2008 | 4672407.432 | 113086.400 | 1422.32 | NVA |
| 2008A | 4672405.802 | 113098.454 | 1422.52 | NVA |
| 2009 | 4668997.092 | 101584.931 | 1282.71 | NVA |
| 2009A | 4668998.576 | 101591.563 | 1282.71 | NVA |
| 2010 | 4663490.389 | 112595.008 | 1293.97 | NVA |
| 2010A | 4663491.115 | 112587.898 | 1293.99 | NVA |
| 2011 | 4660826.347 | 112493.447 | 1326.11 | NVA |
| 2011A | 4660833.948 | 112483.057 | 1326.39 | NVA |
| 2012 | 4679192.805 | 102885.145 | 1460.27 | NVA |
| 2012A | 4679189.646 | 102891.179 | 1460.24 | NVA |
| 2013 | 4571728.919 | 76238.962 | 1534.57 | NVA |
| 2013A | 4571736.580 | 76239.699 | 1534.42 | NVA |
| 2014 | 4621755.308 | 85866.139 | 1387.28 | NVA |
| 2014A | 4621748.584 | 85864.062 | 1387.28 | NVA |
| 2015 | 4550981.299 | 83343.839 | 1620.21 | NVA |
| 2015 B | 4550965.195 | 83342.685 | 1620.61 | NVA |
| 2016 | 4575892.644 | 90182.203 | 1483.62 | NVA |
| 2016A | 4575899.151 | 90179.397 | 1483.61 | NVA |
| 2017 | 4597019.443 | 94605.434 | 1540.51 | NVA |
| 2017A | 4597034.729 | 94605.753 | 1540.62 | NVA |
| 2018 | 4590028.946 | 98703.587 | 1538.46 | NVA |
| 2018A | 4590027.447 | 98721.781 | 1538.32 | NVA |
| 2019 | 4572085.905 | 103191.764 | 1508.50 | NVA |
| 2019A | 4572074.715 | 103153.910 | 1508.54 | NVA |
| 2020 | 4620658.133 | 108685.993 | 1295.62 | NVA |
| 2020A | 4620665.097 | 108684.443 | 1295.60 | NVA |

| UTM 14 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 2021 | 4613776.164 | 114750.481 | 1348.66 | NVA |
| 2021A | 4613783.465 | 114750.438 | 1348.73 | NVA |
| 2022 | 4589248.149 | 118554.827 | 1465.92 | NVA |
| 2022A | 4589251.864 | 118478.659 | 1467.36 | NVA |
| 2023 | 4552191.148 | 121737.013 | 1466.50 | NVA |
| 2023 B | 4552190.251 | 121745.006 | 1466.47 | NVA |
| 2024 | 4572397.053 | 133678.512 | 1355.60 | NVA |
| 2024A | 4572406.048 | 133673.581 | 1355.61 | NVA |
| 2025 | 4613130.406 | 128617.873 | 1261.70 | NVA |
| 2025A | 4613137.642 | 128619.392 | 1261.66 | NVA |
| 2026 | 4594538.158 | 167176.485 | 1295.93 | NVA |
| 2026A | 4594549.555 | 167166.726 | 1296.02 | NVA |
| 2027 | 4591280.125 | 144165.824 | 1379.48 | NVA |
| 2027A | 4591301.133 | 144168.955 | 1379.34 | NVA |
| 2028 | 4586731.657 | 153099.856 | 1350.49 | NVA |
| 2028A | 4586797.123 | 153103.277 | 1348.96 | NVA |
| 2029 | 4582334.295 | 167434.843 | 1305.54 | NVA |
| 2029A | 4582318.483 | 167443.779 | 1305.58 | NVA |
| 2030 | 4576656.222 | 184356.558 | 1248.03 | NVA |
| 2030A | 4576652.755 | 184415.042 | 1247.83 | NVA |
| 2031 | 4571711.605 | 195835.598 | 1199.40 | NVA |
| 2031 B | 4571725.071 | 195835.910 | 1199.42 | NVA |
| 2032 | 4560090.368 | 198568.533 | 1156.48 | NVA |
| 2032 B | 4560097.329 | 198556.023 | 1156.64 | NVA |
| 2033 | 4589087.211 | 194304.800 | 1215.39 | NVA |
| 2033A | 4589088.298 | 194267.849 | 1215.56 | NVA |
| 2034 | 4550364.993 | 196935.353 | 1222.47 | NVA |
| 2034 B | 4550364.585 | 196945.596 | 1222.42 | NVA |
| 2035 | 4557554.596 | 178687.736 | 1258.61 | NVA |
| 2036 | 4567541.102 | 154189.313 | 1286.70 | NVA |
| 2036A | 4567553.018 | 154171.954 | 1286.39 | NVA |
| 2037 | 4562778.220 | 136600.724 | 1408.39 | NVA |
| 2037 B | 4562777.475 | 136615.852 | 1407.95 | NVA |
| 2038 | 4555510.270 | 152468.804 | 1350.28 | NVA |
| 2038 B | 4555511.339 | 152454.618 | 1350.25 | NVA |
| 2039 | 4552934.448 | 139086.993 | 1350.90 | NVA |
| 2039 B | 4552933.675 | 139102.713 | 1351.01 | NVA |
| 2040 | 4547282.190 | 163411.093 | 1335.32 | NVA |
| 2040 B | 4547296.584 | 163412.075 | 1335.33 | NVA |
| 2041 | 4544527.926 | 228787.614 | 1050.14 | NVA |
| 2041 B | 4544539.214 | 228780.656 | 1049.26 | NVA |

| UTM 14 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 2042 | 4546547.065 | 214746.393 | 1095.60 | NVA |
| 2042 B | 4546554.665 | 214741.720 | 1095.68 | NVA |
| 2043 | 4553862.454 | 208371.475 | 1121.63 | NVA |
| 2043 B | 4553856.089 | 208368.099 | 1121.68 | NVA |
| 2044 | 4557492.882 | 219415.587 | 1152.27 | NVA |
| 2044A | 4557492.943 | 219397.228 | 1152.33 | NVA |
| 2045 | 4566192.636 | 204460.504 | 1200.94 | NVA |
| 2045 B | 4566191.776 | 204470.771 | 1200.87 | NVA |
| 2046 | 4563153.446 | 224473.674 | 1152.29 | NVA |
| 2046A | 4563172.226 | 224474.180 | 1152.41 | NVA |
| 2047 | 4552144.418 | 232856.501 | 1103.77 | NVA |
| 2047 B | 4552135.937 | 232855.588 | 1103.67 | NVA |
| 2048 | 4569388.158 | 245505.904 | 1154.83 | NVA |
| 2048A | 4569396.094 | 245559.937 | 1155.59 | NVA |
| 2049 | 4564130.556 | 257381.049 | 1128.12 | NVA |
| 2049A | 4564121.192 | 257367.159 | 1128.14 | NVA |
| 2050 | 4561209.707 | 265582.337 | 1102.46 | NVA |
| 2050A | 4561227.639 | 265565.410 | 1102.75 | NVA |
| 2051 | 4561547.847 | 240441.052 | 1111.10 | NVA |
| 2051A | 4561572.504 | 240441.584 | 1110.53 | NVA |
| 2052 | 4558088.912 | 256386.925 | 1103.62 | NVA |
| 2052A | 4558103.800 | 256383.225 | 1103.73 | NVA |
| 2053 | 4554797.635 | 247825.254 | 1085.52 | NVA |
| 2053A | 4554795.984 | 247884.570 | 1085.38 | NVA |
| 2054 | 4550008.392 | 241645.948 | 1026.84 | NVA |
| 2054 B | 4550020.245 | 241646.186 | 1026.90 | NVA |
| 2055 | 4544112.735 | 252933.134 | 1082.93 | NVA |
| 2055 B | 4544105.703 | 252933.142 | 1082.94 | NVA |
| 2056 | 4547692.651 | 268567.457 | 1053.13 | NVA |
| 2056 B | 4547692.111 | 268576.837 | 1053.14 | NVA |
| 2057 | 4543076.917 | 270551.385 | 1043.84 | NVA |
| 2057 B | 4543087.163 | 270552.135 | 1043.77 | NVA |
| 2058 | 4551388.157 | 277121.548 | 1022.01 | NVA |
| 2058 B | 4551395.170 | 277122.091 | 1021.90 | NVA |
| 2059 | 4548588.907 | 292115.936 | 1007.56 | NVA |
| 2059 B | 4548588.136 | 292123.909 | 1007.27 | NVA |
| 2060 | 4545495.688 | 283561.864 | 1018.26 | NVA |
| 2060 B | 4545500.303 | 283561.912 | 1018.22 | NVA |
| 2061 | 4543486.463 | 301539.187 | 989.53 | NVA |
| 2061 B | 4543485.780 | 301549.569 | 989.36 | NVA |
| 2062 | 4551218.290 | 302073.602 | 953.77 | NVA |

| UTM 14 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 2062A | 4551194.424 | 302072.813 | 953.65 | NVA |
| 2063 | 4548092.583 | 310841.102 | 965.10 | NVA |
| 2063A | 4548120.648 | 310841.131 | 964.35 | NVA |
| 2064 | 4522021.163 | 314303.845 | 957.99 | NVA |
| 2064 A | 4522020.668 | 314310.540 | 957.84 | NVA |
| 2065 | 4509363.890 | 318223.841 | 981.06 | NVA |
| 2065 B | 4509363.352 | 318215.933 | 980.55 | NVA |
| 2066 | 4518690.879 | 324141.908 | 933.45 | NVA |
| 2066 B | 4518690.706 | 324133.306 | 933.66 | NVA |
| 2067 | 4536399.902 | 326865.672 | 967.72 | NVA |
| 2067A | 4536400.730 | 326843.518 | 968.93 | NVA |
| 2068 | 4549394.140 | 322538.087 | 946.08 | NVA |
| 2068A | 4549393.544 | 322572.595 | 945.79 | NVA |
| 2069 | 4550577.851 | 338254.940 | 910.30 | NVA |
| 2069A | 4550578.035 | 338233.280 | 910.11 | NVA |
| 2070 | 4531070.690 | 346545.599 | 931.68 | NVA |
| 2070 B | 4531070.485 | 346531.260 | 932.39 | NVA |
| 2071 | 4522284.039 | 340385.874 | 904.06 | NVA |
| 2072 | 4545923.812 | 332633.973 | 940.32 | NVA |
| 2072A | 4545923.906 | 332613.388 | 940.03 | NVA |
| 2073 | 4544003.548 | 343281.168 | 923.10 | NVA |
| 2073A | 4544011.143 | 343261.322 | 922.79 | NVA |
| 2074 | 4529823.942 | 331459.562 | 959.80 | NVA |
| 2075 | 4534956.891 | 316237.283 | 969.63 | NVA |
| 2075A | 4534957.053 | 316203.215 | 968.88 | NVA |
| 2076 | 4529964.684 | 326037.000 | 959.97 | NVA |
| 2076 B | 4529955.209 | 326033.812 | 959.88 | NVA |
| 2077 | 4521860.651 | 331695.510 | 956.55 | NVA |
| 2077 A | 4521860.840 | 331701.432 | 956.56 | NVA |
| 2078 | 4515005.321 | 329563.714 | 929.99 | NVA |
| 2078 B | 4515012.672 | 329563.993 | 930.08 | NVA |
| 2079 | 4507559.295 | 334203.049 | 923.18 | NVA |
| 2079 B | 4507568.413 | 334203.143 | 923.00 | NVA |
| 2080 | 4539634.001 | 341239.189 | 937.11 | NVA |
| 2080A | 4539611.343 | 341239.188 | 937.19 | NVA |
| 2081 | 4541732.228 | 319051.730 | 962.27 | NVA |
| 2081A | 4541750.606 | 319059.404 | 962.10 | NVA |
| 2082 | 4542102.646 | 307583.944 | 997.68 | NVA |
| 2082 B | 4542092.458 | 307583.741 | 997.75 | NVA |
| 2083 | 4554032.917 | 262926.661 | 995.81 | NVA |
| 2083A | 4554026.150 | 262931.867 | 995.85 | NVA |

| UTM 14 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 2084 | 4572188.301 | 173449.918 | 1277.00 | NVA |
| 2084A | 4572208.859 | 173450.717 | 1276.75 | NVA |
| 2085 | 4581477.805 | 143203.609 | 1374.29 | NVA |
| 2085A | 4581451.257 | 143192.656 | 1374.60 | NVA |
| 2086 | 4607295.237 | 84608.457 | 1587.60 | NVA |
| 2086A | 4607295.942 | 84590.959 | 1587.77 | NVA |
| 2087 | 4562414.009 | 111580.434 | 1496.35 | NVA |
| 2087A | 4562415.998 | 111532.343 | 1496.67 | NVA |
| 2088 | 4560152.272 | 92407.209 | 1574.90 | NVA |
| 2088 B | 4560151.406 | 92419.974 | 1574.91 | NVA |
| 2089 | 4590936.003 | 87550.722 | 1571.99 | NVA |
| 2089A | 4590937.059 | 87566.508 | 1571.31 | NVA |
| 2090 | 4611222.149 | 101072.233 | 1406.94 | NVA |
| 2090A | 4611223.332 | 101053.363 | 1407.99 | NVA |
| 2091 | 4603189.177 | 111052.125 | 1509.36 | NVA |
| 2091A | 4603189.584 | 111035.712 | 1509.22 | NVA |
| 2092 | 4678211.442 | 84158.618 | 1319.22 | NVA |
| 2092A | 4678197.321 | 84157.368 | 1319.25 | NVA |
| 2093 | 4579543.753 | 156014.309 | 1330.42 | NVA |
| 2093A | 4579543.087 | 156033.200 | 1330.60 | NVA |
| 2094 | 4588054.189 | 180502.487 | 1263.63 | NVA |
| 2094A | 4588082.065 | 180504.472 | 1263.57 | NVA |
| 2095 | 4601852.593 | 127213.807 | 1423.95 | NVA |
| 2095A | 4601865.865 | 127214.247 | 1423.70 | NVA |
| 2096 | 4664479.191 | 125918.035 | 1397.37 | NVA |
| 2096A | 4664491.647 | 125925.165 | 1397.23 | NVA |
| 2097 | 4568449.020 | 187691.509 | 1222.00 | NVA |
| 2097 B | 4568462.929 | 187691.312 | 1221.79 | NVA |
| 2098 | 4561060.584 | 211477.935 | 1183.77 | NVA |
| 2098A | 4561080.193 | 211478.336 | 1183.02 | NVA |
| 2099 | 4560209.191 | 232384.275 | 1137.37 | NVA |
| 2099A | 4560208.952 | 232406.012 | 1137.64 | NVA |
| 2100 | 4551955.771 | 257395.482 | 1003.42 | NVA |
| 2100A | 4551921.929 | 257404.421 | 1003.43 | NVA |
| 2101 | 4547427.121 | 277172.808 | 1030.31 | NVA |
| 2101 B | 4547415.439 | 277172.783 | 1030.40 | NVA |
| 2102 | 4541981.407 | 294660.457 | 1005.28 | NVA |
| 2102 B | 4541980.723 | 294668.586 | 1005.28 | NVA |
| 2103 | 4548200.959 | 306012.583 | 979.83 | NVA |
| 2103A | 4548225.059 | 306012.548 | 979.96 | NVA |
| 2104 | 4546022.138 | 328538.069 | 944.98 | NVA |

| UTM 14 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 2104A | 4546022.548 | 328517.690 | 945.41 | NVA |
| 2105 | 4515762.228 | 311877.903 | 1007.11 | NVA |
| 2105 A | 4515763.918 | 311866.617 | 1006.54 | NVA |
| 2106 | 4508987.221 | 326996.577 | 945.16 | NVA |
| 2106 B | 4508986.445 | 326983.031 | 945.65 | NVA |
| 2107 | 4516887.311 | 337592.003 | 938.42 | NVA |
| 2107 B | 4516887.965 | 337583.071 | 938.35 | NVA |
| 2108 | 4539484.447 | 331670.513 | 956.68 | NVA |
| 2108A | 4539484.485 | 331650.887 | 955.78 | NVA |
| 2109 | 4551266.424 | 283557.009 | 1008.44 | NVA |
| 2109 B | 4551277.528 | 283557.396 | 1008.76 | NVA |
| 2110 | 4546801.256 | 298090.195 | 1006.01 | NVA |
| 2110 B | 4546789.798 | 298090.146 | 1005.63 | NVA |
| 2111 | 4568770.257 | 219851.955 | 1158.44 | NVA |
| 2111A | 4568769.488 | 219833.869 | 1158.49 | NVA |
| 2112 | 4551033.212 | 180458.592 | 1270.55 | NVA |
| 2112 B | 4551043.841 | 180459.483 | 1270.33 | NVA |
| 2113 | 4564994.889 | 168182.273 | 1277.25 | NVA |
| 2113A | 4565004.382 | 168196.306 | 1278.10 | NVA |
| 2114 | 4556111.701 | 108103.232 | 1507.36 | NVA |
| 2114 B | 4556110.527 | 108115.084 | 1507.03 | NVA |
| 2115 | 4574808.675 | 120471.266 | 1399.57 | NVA |
| 2115A | 4574822.055 | 120472.895 | 1399.44 | NVA |
| 2116 | 4586529.608 | 80883.798 | 1583.45 | NVA |
| 2116A | 4586518.321 | 80883.165 | 1583.05 | NVA |
| 2117 | 4568547.023 | 86240.911 | 1570.04 | NVA |
| 2117A | 4568545.231 | 86269.110 | 1570.17 | NVA |
| 2118 | 4581892.212 | 109468.925 | 1483.89 | NVA |
| 2118A | 4581891.982 | 109446.957 | 1484.09 | NVA |
| 2119 | 4660132.164 | 125684.021 | 1316.31 | NVA |
| 2119A | 4660143.511 | 125684.821 | 1316.57 | NVA |
| 2120 | 4687834.287 | 94432.547 | 1472.19 | NVA |
| 2120A | 4687821.941 | 94431.851 | 1471.84 | NVA |
| 2121 | 4684809.998 | 94245.784 | 1442.50 | NVA |
| 2121A | 4684820.299 | 94246.079 | 1442.65 | NVA |
| 2122 | 4675586.256 | 95277.526 | 1352.99 | NVA |
| 2122A | 4675600.548 | 95278.640 | 1352.78 | NVA |
| 2123 | 4683819.625 | 84054.587 | 1312.20 | NVA |
| 2123A | 4683809.269 | 84053.765 | 1312.29 | NVA |
| 3001 | 4709607.727 | 86289.463 | 1461.05 | VVA |
| 3001A | 4709606.972 | 86305.222 | 1462.10 | VVA |

| UTM 14 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 3002 | 4707044.846 | 86459.905 | 1442.90 | VVA |
| 3002A | 4707039.201 | 86443.248 | 1441.94 | VVA |
| 3003 | 4702546.051 | 86424.845 | 1418.79 | VVA |
| 3003A | 4702539.385 | 86444.963 | 1418.56 | VVA |
| 3004 | 4698054.962 | 85261.700 | 1399.92 | VVA |
| 3004A | 4698054.383 | 85276.765 | 1400.16 | VVA |
| 3005 | 4693340.859 | 84106.373 | 1357.16 | VVA |
| 3005A | 4693346.324 | 84091.580 | 1357.03 | VVA |
| 3006 | 4684783.910 | 104400.135 | 1519.15 | VVA |
| 3006A | 4684774.050 | 104419.590 | 1519.96 | VVA |
| 3007 | 4678491.746 | 113446.213 | 1421.91 | VVA |
| 3007A | 4678482.541 | 113445.615 | 1421.63 | VVA |
| 3008 | 4672428.170 | 113085.739 | 1421.59 | VVA |
| 3008A | 4672406.889 | 113106.411 | 1421.56 | VVA |
| 3009 | 4669018.944 | 101572.372 | 1281.37 | VVA |
| 3009A | 4669022.300 | 101593.829 | 1281.17 | VVA |
| 3010 | 4663753.499 | 112612.596 | 1293.96 | VVA |
| 3010A | 4663738.813 | 112586.170 | 1293.52 | VVA |
| 3011 | 4660810.531 | 112497.302 | 1325.62 | VVA |
| 3011A | 4660812.616 | 112475.710 | 1324.52 | VVA |
| 3012 | 4679210.660 | 102887.268 | 1459.99 | VVA |
| 3012A | 4679203.212 | 102903.754 | 1459.82 | VVA |
| 3013 | 4571731.400 | 76075.319 | 1533.43 | VVA |
| 3013A | 4571735.627 | 76099.011 | 1533.27 | VVA |
| 3014 | 4621782.788 | 85466.793 | 1387.24 | VVA |
| 3014A | 4621760.459 | 85464.018 | 1387.77 | VVA |
| 3015 | 4550782.611 | 83437.231 | 1622.34 | VVA |
| 3015 B | 4550784.918 | 83420.845 | 1622.40 | VVA |
| 3016 | 4575757.170 | 89880.945 | 1481.39 | VVA |
| 3016A | 4575768.250 | 89910.294 | 1481.40 | VVA |
| 3017 | 4597016.618 | 94466.099 | 1539.47 | VVA |
| 3017A | 4597035.249 | 94466.267 | 1539.39 | VVA |
| 3018 | 4589999.172 | 98913.938 | 1537.82 | VVA |
| 3018A | 4590027.522 | 98909.946 | 1537.91 | VVA |
| 3019 | 4571999.092 | 102855.228 | 1508.39 | VVA |
| 3019A | 4571974.348 | 102858.975 | 1508.51 | VVA |
| 3020 | 4620688.255 | 108133.859 | 1301.01 | VVA |
| 3020A | 4620664.142 | 108125.891 | 1300.28 | VVA |
| 3021 | 4613759.715 | 114952.867 | 1349.07 | VVA |
| 3021A | 4613782.440 | 114956.451 | 1348.73 | VVA |
| 3022 | 4589270.399 | 117900.368 | 1468.16 | VVA |

| UTM 14 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 3022A | 4589294.495 | 117913.592 | 1467.91 | VVA |
| 3023 | 4552204.574 | 121352.756 | 1470.99 | VVA |
| 3023 B | 4552188.406 | 121356.677 | 1470.72 | VVA |
| 3024 | 4572512.153 | 133232.718 | 1356.37 | VVA |
| 3024A | 4572536.125 | 133238.385 | 1356.67 | VVA |
| 3025 | 4613104.876 | 128994.313 | 1259.84 | VVA |
| 3025A | 4613126.139 | 129006.234 | 1259.32 | VVA |
| 3026 | 4595091.058 | 167188.146 | 1301.52 | VVA |
| 3026A | 4595082.782 | 167212.525 | 1301.22 | VVA |
| 3027 | 4591274.500 | 143771.258 | 1374.34 | VVA |
| 3027A | 4591306.103 | 143764.343 | 1375.01 | VVA |
| 3028 | 4587045.495 | 153124.102 | 1345.41 | VVA |
| 3028A | 4587056.738 | 153109.244 | 1345.69 | VVA |
| 3029 | 4581916.279 | 167405.695 | 1305.38 | VVA |
| 3029A | 4581896.467 | 167406.152 | 1305.40 | VVA |
| 3030 | 4576640.804 | 184753.912 | 1245.92 | VVA |
| 3030A | 4576624.012 | 184754.330 | 1245.66 | VVA |
| 3031 | 4571348.561 | 195834.526 | 1195.47 | VVA |
| 3031 B | 4571358.150 | 195831.627 | 1195.66 | VVA |
| 3032 | 4560286.103 | 198021.293 | 1159.45 | VVA |
| 3032 B | 4560281.155 | 198034.136 | 1159.36 | VVA |
| 3033 | 4589139.217 | 193447.269 | 1219.00 | VVA |
| 3033A | 4589105.434 | 193460.656 | 1218.69 | VVA |
| 3034 | 4550368.668 | 197207.306 | 1220.41 | VVA |
| 3034 B | 4550368.442 | 197193.257 | 1220.39 | VVA |
| 3035 | 4557564.424 | 178237.459 | 1262.07 | VVA |
| 3035 B | 4557564.728 | 178228.609 | 1262.07 | VVA |
| 3036 | 4567859.726 | 154440.938 | 1285.69 | VVA |
| 3036A | 4567842.373 | 154436.018 | 1283.59 | VVA |
| 3037 | 4562720.012 | 137525.581 | 1399.93 | VVA |
| 3037 B | 4562703.208 | 137525.218 | 1399.90 | VVA |
| 3038 | 4555574.787 | 151674.958 | 1352.81 | VVA |
| 3038 B | 4555582.178 | 151682.957 | 1352.68 | VVA |
| 3039 | 4552974.173 | 138670.488 | 1351.99 | VVA |
| 3039 B | 4552972.705 | 138685.592 | 1351.71 | VVA |
| 3040 | 4546936.313 | 163409.872 | 1333.59 | VVA |
| 3040 B | 4546949.628 | 163410.579 | 1333.65 | VVA |
| 3041 | 4544095.099 | 228177.285 | 1051.20 | VVN |
| 3041 B | 4544101.114 | 228188.614 | 1051.03 | VVN |
| 3042 | 4546824.385 | 214602.699 | 1095.79 | VVA |
| 3042 B | 4546835.287 | 214601.371 | 1095.72 | VVA |

| UTM 14 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 3043 | 4553659.050 | 208277.008 | 1124.40 | VVA |
| 3043 B | 4553649.020 | 208277.745 | 1123.71 | VVA |
| 3044 | 4557159.825 | 219379.126 | 1150.55 | VVA |
| 3044A | 4557158.509 | 219403.746 | 1150.36 | VVA |
| 3045 | 4566138.050 | 205280.165 | 1198.48 | VVA |
| 3045 B | 4566137.698 | 205289.413 | 1198.46 | VVA |
| 3046 | 4562756.430 | 224444.173 | 1147.90 | VVA |
| 3046A | 4562756.969 | 224469.425 | 1147.51 | VVA |
| 3047 | 4551924.775 | 232855.662 | 1102.73 | VVA |
| 3047 B | 4551933.553 | 232855.918 | 1102.75 | VVA |
| 3048 | 4569381.533 | 245513.972 | 1154.59 | VVA |
| 3048A | 4569401.101 | 245524.231 | 1154.84 | VVA |
| 3049 | 4564160.232 | 256594.016 | 1122.07 | VVA |
| 3049A | 4564131.497 | 256587.438 | 1123.76 | VVA |
| 3050 | 4561190.588 | 265627.466 | 1101.21 | VVA |
| 3050A | 4561218.040 | 265598.730 | 1101.59 | VVA |
| 3051 | 4562047.353 | 240466.878 | 1109.23 | VVA |
| 3051A | 4562047.962 | 240449.556 | 1109.45 | VVA |
| 3052 | 4557734.723 | 256380.917 | 1101.01 | VVA |
| 3052A | 4557717.098 | 256356.862 | 1100.81 | VVA |
| 3053 | 4554776.583 | 248216.504 | 1083.92 | VVA |
| 3053A | 4554800.917 | 248198.863 | 1083.92 | VVA |
| 3054 | 4549743.217 | 241635.979 | 1026.50 | VVA |
| 3054 B | 4549728.390 | 241640.217 | 1026.31 | VVA |
| 3055 | 4544607.511 | 252963.464 | 1084.48 | VVA |
| 3055 B | 4544614.829 | 252962.610 | 1084.49 | VVA |
| 3055 C | 4544612.879 | 252947.853 | 1084.72 | VVA |
| 3056 | 4547715.850 | 268081.899 | 1050.87 | VVA |
| 3056 B | 4547717.959 | 268070.003 | 1050.83 | VVA |
| 3057 | 4542689.192 | 270517.734 | 1045.82 | VVA |
| 3057 B | 4542678.985 | 270517.259 | 1045.76 | VVA |
| 3058 | 4551053.671 | 277104.440 | 1029.16 | VVA |
| 3058 B | 4551062.545 | 277104.768 | 1029.19 | VVA |
| 3059 | 4548622.807 | 291544.906 | 1011.44 | VVA |
| 3059 B | 4548630.569 | 291546.259 | 1011.14 | VVA |
| 3060 | 4544869.688 | 283548.035 | 1015.55 | VVA |
| 3060 B | 4544880.928 | 283548.706 | 1015.45 | VVA |
| 3061 | 4543516.717 | 301203.623 | 989.43 | VVA |
| 3061 B | 4543522.251 | 301191.685 | 989.46 | VVA |
| 3062 | 4551221.974 | 302065.229 | 952.80 | VVA |
| 3062A | 4551195.042 | 302063.976 | 952.71 | VVA |

| UTM 14 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 3063 | 4548088.448 | 311228.851 | 958.20 | VVA |
| 3063A | 4548073.762 | 311228.295 | 957.99 | VVA |
| 3064 | 4522041.411 | 313732.003 | 963.04 | VVA |
| 3064 A | 4522047.494 | 313734.982 | 963.18 | VVA |
| 3065 | 4509069.346 | 318332.509 | 976.17 | VVA |
| 3066 | 4518694.068 | 323261.082 | 936.22 | VVA |
| 3066 B | 4518693.421 | 323268.407 | 937.11 | VVA |
| 3067 | 4536385.387 | 327707.450 | 958.00 | VVA |
| 3067 B | 4509076.454 | 318332.605 | 976.59 | VVA |
| 3067A | 4536371.295 | 327711.107 | 958.97 | VVA |
| 3068 | 4549392.844 | 322162.086 | 949.00 | VVA |
| 3068A | 4549415.827 | 322162.546 | 950.24 | VVA |
| 3069 | 4550583.639 | 337909.437 | 913.28 | VVA |
| 3069A | 4550608.656 | 337915.796 | 912.82 | VVA |
| 3070 | 4531084.357 | 347319.088 | 932.06 | VVA |
| 3070 B | 4531087.533 | 347310.956 | 931.83 | VVA |
| 3071 | 4522197.087 | 339959.199 | 910.95 | VVA |
| 3071 B | 4522195.038 | 339950.637 | 910.58 | VVA |
| 3072 | 4545900.063 | 333343.705 | 942.13 | VVA |
| 3072A | 4545919.078 | 333351.857 | 941.26 | VVA |
| 3073 | 4544006.470 | 343719.568 | 939.19 | VVA |
| 3073A | 4543991.106 | 343719.708 | 940.22 | VVA |
| 3074 | 4529841.818 | 331451.820 | 958.46 | VVA |
| 3074 B | 4529830.194 | 331449.478 | 958.86 | VVA |
| 3075 | 4534986.835 | 315825.399 | 971.93 | VVA |
| 3075A | 4534954.868 | 315830.715 | 971.54 | VVA |
| 3076 | 4530001.599 | 325488.611 | 957.80 | VVA |
| 3077 | 4521848.416 | 331205.299 | 949.02 | VVA |
| 3077 A | 4521848.568 | 331211.393 | 949.27 | VVA |
| 3078 | 4515407.159 | 329592.531 | 937.95 | VVA |
| 3078 B | 4515416.903 | 329593.166 | 938.07 | VVA |
| 3079 | 4507329.244 | 333928.662 | 923.77 | VVA |
| 3079 B | 4507324.584 | 333920.385 | 923.82 | VVA |
| 3080 | 4539633.391 | 341231.117 | 938.94 | VVA |
| 3080A | 4539611.382 | 341232.655 | 937.98 | VVA |
| 3081 | 4541428.488 | 319064.316 | 961.99 | VVA |
| 3081A | 4541417.944 | 319037.980 | 961.92 | VVA |
| 3082 | 4542422.844 | 307572.496 | 999.74 | VVA |
| 3082 B | 4542423.827 | 307565.457 | 999.85 | VVA |
| 3083 | 4554077.715 | 263106.697 | 994.49 | VVA |
| 3083A | 4554080.792 | 263126.602 | 994.46 | VVA |

| UTM 14 North NAVD 88 | | | | |
|---|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) | Code |
| 3084 | 4572450.632 | 173468.825 | 1276.20 | VVA |
| 3084A | 4572452.286 | 173454.162 | 1276.17 | VVA |
| 3085 | 4581204.516 | 143103.245 | 1374.82 | VVA |
| 3085A | 4581210.140 | 143087.691 | 1374.68 | VVA |
| 3086 | 4607322.530 | 83837.880 | 1592.39 | VVA |
| 3086A | 4607339.909 | 83831.977 | 1592.30 | VVA |
| 3087 | 4562410.932 | 111354.787 | 1496.55 | VVA |
| 3087A | 4562434.862 | 111360.246 | 1496.45 | VVA |
| 3088 | 4560176.374 | 92217.444 | 1574.05 | VVA |
| 3088 B | 4560188.410 | 92230.576 | 1574.06 | VVA |
| 3089 | 4590719.733 | 87528.719 | 1568.20 | VVA |
| 3089A | 4590720.356 | 87546.856 | 1568.76 | VVA |
| 3090 | 4611254.043 | 100710.773 | 1414.88 | VVA |
| 3090A | 4611233.219 | 100720.938 | 1415.59 | VVA |
| 3091 | 4602545.569 | 111072.625 | 1506.77 | VVA |
| 3091A | 4602564.891 | 111072.061 | 1506.73 | VVA |
| 3092 | 4677972.396 | 84151.902 | 1319.94 | VVA |
| 3092A | 4677974.263 | 84135.053 | 1319.22 | VVA |

| NGS Values | | | |
|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) |
| B 76 | 4561249.988 | 585955.443 | 1507.71 |
| C 424 | 4558960.637 | 808525.161 | 928.52 |
| CLINCH RESET | 4562438.051 | 860224.465 | 847.70 |
| CUB | 4539426.585 | 725530.334 | 1073.10 |
| F 422 | 4548563.706 | 743441.952 | 1031.20 |
| G 424 | 4562730.116 | 820698.283 | 911.14 |
| KIMBALL | 4565576.437 | 612205.119 | 1438.51 |
| M 424 | 4564715.601 | 839821.769 | 877.71 |
| NORTHEAST CORNER COLORADO RESET | 4543206.126 | 747974.450 | 1101.67 |
| OGA A | 4556831.041 | 771173.778 | 990.89 |
| T 76 | 4564455.741 | 636882.641 | 1353.26 |
| T 422 | 4557132.643 | 772668.211 | 988.90 |
| U 58 | 4662283.242 | 596984.633 | 1323.45 |
| Z 418 | 4552354.680 | 666918.255 | 1314.36 |

| NGS Values UTM 14 North NAVD 88 | | | |
|---|---|---|---|
| Point Name | Northing (M) | Easting (M) | Elevation (M) |
| B 76 | 4572689.873 | 82789.198 | 1507.71 |
| C 424 | 4555053.611 | 304821.553 | 928.52 |
| CLINCH RESET | 4554962.167 | 356584.610 | 847.70 |
| CUB | 4541274.576 | 220695.607 | 1073.10 |
| F 422 | 4549161.259 | 239196.740 | 1031.20 |
| G 424 | 4557973.369 | 317215.755 | 911.14 |
| KIMBALL | 4575198.957 | 109324.907 | 1438.51 |
| M 424 | 4558635.662 | 336411.915 | 877.71 |
| NORTHEAST CORNER COLORADO RESET | 4543504.407 | 243350.676 | 1101.67 |
| OGA A | 4555500.605 | 267429.796 | 990.89 |
| T 76 | 4572373.166 | 133904.797 | 1353.26 |
| T 422 | 4555698.554 | 268941.072 | 988.90 |
| U 58 | 4672905.040 | 100860.703 | 1323.45 |
| Z 418 | 4558213.179 | 163070.951 | 1314.36 |

## NGS Base Station Check Points

| Point Name | Differences | | |
|---|---|---|---|
| | Northing (M) | Easting (M) | Elevation (M) |
| B 76 | N/A | N/A | 0.09 |
| C 424 | N/A | N/A | 0.01 |
| CLINCH RESET | 0.007 | 0.014 | 0.00 |
| CUB | 0.001 | 0.013 | -0.03 |
| F 422 | N/A | N/A | -0.05 |
| G 424 | N/A | N/A | -0.03 |
| KIMBALL | N/A | N/A | 0.02 |
| M 424 | -0.026 | 0.017 | 0.01 |
| NORTHEAST CORNER COLORADO RESET | 0.007 | -0.029 | 0.03 |
| OGA A | 0.000 | 0.002 | -0.01 |
| T 76 | 0.015 | 0.005 | 0.01 |
| T 422 | N/A | N/A | -0.02 |
| U 58 | 0.001 | 0.011 | 0.04 |
| Z 418 | -0.004 | -0.005 | -0.03 |

# Coordinate System: Geodetic

HORIZONTAL DATUM: NAD83 (2011) Epoch 2010.00
VERTICAL DATUM: NAVD88
UNITS: US Meters
DATE: 6/27/2016

## LiDAR GROUND CONTROL

| GEOGRAPHIC | | | | |
|---|---|---|---|---|
| Point ID | Latitude | Longitude | Ellipsoid Height | Code |
| 1 | N42°25'42.25001" | W104°01'43.15707" | 1444.309 | LIDAR CTL |
| 2 | N42°24'19.63628" | W104°01'29.69848" | 1425.958 | LIDAR CTL |
| 3 | N42°21'54.06829" | W104°01'19.10768" | 1401.974 | LIDAR CTL |
| 4 | N42°19'27.09463" | W104°01'58.00071" | 1382.906 | LIDAR CTL |
| 5 | N42°16'52.47467" | W104°02'36.82927" | 1340.259 | LIDAR CTL |
| 6 | N42°12'54.33799" | W103°47'32.16049" | 1503.161 | LIDAR CTL |
| 7 | N42°09'46.99208" | W103°40'44.73568" | 1404.311 | LIDAR CTL |
| 8 | N42°06'30.67374" | W103°40'44.82522" | 1403.983 | LIDAR CTL |
| 9 | N42°04'19.74653" | W103°48'56.41065" | 1264.572 | LIDAR CTL |
| 10 | N42°01'49.32077" | W103°40'46.04453" | 1276.056 | LIDAR CTL |
| 11 | N42°00'14.10924" | W103°40'43.76855" | 1307.224 | LIDAR CTL |
| 12 | N42°09'51.46247" | W103°48'24.32438" | 1442.546 | LIDAR CTL |
| 13 | N41°11'08.96644" | W104°03'14.12675" | 1516.207 | LIDAR CTL |
| 14 | N41°38'23.42576" | W103°58'36.40371" | 1370.221 | LIDAR CTL |
| 15 | N41°00'05.87490" | W103°57'08.39220" | 1604.509 | LIDAR CTL |
| 16 | N41°13'45.25836" | W103°53'34.28354" | 1463.416 | LIDAR CTL |
| 17 | N41°25'20.65480" | W103°51'08.20770" | 1521.441 | LIDAR CTL |
| 18 | N41°21'42.23095" | W103°47'40.58042" | 1519.94 | LIDAR CTL |
| 19 | N41°12'06.46553" | W103°44'09.73058" | 1491.175 | LIDAR CTL |
| 20 | N41°38'29.54454" | W103°42'18.41834" | 1282.77 | LIDAR CTL |
| 21 | N41°34'57.88099" | W103°37'06.71598" | 1330.595 | LIDAR CTL |
| 22 | N41°21'51.72991" | W103°34'05.13528" | 1449.769 | LIDAR CTL |
| 23 | N41°01'59.25348" | W103°30'13.86360" | 1452.2 | LIDAR CTL |
| 24 | N41°13'15.54621" | W103°22'30.04278" | 1337.727 | LIDAR CTL |
| 25 | N41°35'00.59021" | W103°27'00.72789" | 1240.491 | LIDAR CTL |
| 26 | N41°26'18.39754" | W102°58'59.38522" | 1282.108 | LIDAR CTL |
| 27 | N41°23'39.42391" | W103°15'38.95821" | 1355.492 | LIDAR CTL |

| GEOGRAPHIC | | | | |
|---|---|---|---|---|
| Point ID | Latitude | Longitude | Ellipsoid Height | Code |
| 28 | N41°21'37.12417" | W103°08'48.39102" | 1326.413 | LIDAR CTL |
| 29 | N41°19'11.89223" | W102°58'24.48359" | 1285.97 | LIDAR CTL |
| 30 | N41°16'46.57626" | W102°45'50.50675" | 1226.526 | LIDAR CTL |
| 31 | N41°14'10.61299" | W102°37'46.10720" | 1176.072 | LIDAR CTL |
| 32 | N41°08'16.24935" | W102°35'52.88798" | 1139.785 | LIDAR CTL |
| 33 | N41°23'42.88921" | W102°40'00.09551" | 1199.523 | LIDAR CTL |
| 34 | N41°02'53.22215" | W102°36'09.18516" | 1201.155 | LIDAR CTL |
| 35 | N41°06'20.69616" | W102°49'53.55260" | 1243.347 | LIDAR CTL |
| 36 | N41°11'17.84596" | W103°07'11.18163" | 1266.196 | LIDAR CTL |
| 37 | N41°08'05.60697" | W103°19'06.17751" | 1379.871 | LIDAR CTL |
| 38 | N41°04'36.01809" | W103°08'46.21506" | 1333.725 | LIDAR CTL |
| 39 | N41°02'51.46937" | W103°17'56.84256" | 1334.307 | LIDAR CTL |
| 40 | N41°00'15.02128" | W103°00'07.73871" | 1314.357 | LIDAR CTL |
| 41 | N41°00'09.71724" | W102°13'55.91664" | 1031.074 | LIDAR CTL |
| 42 | N41°01'21.40661" | W102°23'39.12875" | 1075.84 | LIDAR CTL |
| 43 | N41°04'55.24455" | W102°28'21.09952" | 1105.701 | LIDAR CTL |
| 44 | N41°07'02.14646" | W102°20'31.96437" | 1131.765 | LIDAR CTL |
| 45 | N41°11'35.48983" | W102°30'52.63510" | 1178.876 | LIDAR CTL |
| 46 | N41°10'09.38459" | W102°17'04.19032" | 1128.027 | LIDAR CTL |
| 47 | N41°04'29.01897" | W102°10'47.65780" | 1083.02 | LIDAR CTL |
| 48 | N41°14'09.03981" | W102°02'11.35187" | 1134.474 | LIDAR CTL |
| 49 | N41°11'31.75482" | W101°54'09.48133" | 1103.028 | LIDAR CTL |
| 50 | N41°10'05.21049" | W101°47'37.74930" | 1081.082 | LIDAR CTL |
| 51 | N41°10'05.60475" | W102°05'37.42515" | 1089.437 | LIDAR CTL |
| 52 | N41°08'03.46672" | W101°54'09.22895" | 1080.578 | LIDAR CTL |
| 53 | N41°06'19.23584" | W101°59'54.32025" | 1063.544 | LIDAR CTL |
| 54 | N41°03'28.55574" | W102°04'27.52633" | 1006.215 | LIDAR CTL |
| 56 | N41°02'51.30504" | W101°45'34.04254" | 1030.526 | LIDAR CTL |
| 57 | N41°00'11.67122" | W101°43'42.22495" | 1025.379 | LIDAR CTL |
| 58 | N41°04'48.51319" | W101°39'11.98556" | 1008.924 | LIDAR CTL |
| 59 | N41°03'43.26521" | W101°28'51.81774" | 990.399 | LIDAR CTL |
| 60 | N41°01'34.89246" | W101°34'29.09328" | 994.596 | LIDAR CTL |
| 61 | N41°01'06.70264" | W101°21'51.90395" | 968.194 | LIDAR CTL |
| 62 | N41°05'27.46544" | W101°21'23.27289" | 932.941 | LIDAR CTL |
| 63 | N41°03'43.51417" | W101°14'47.08650" | 936.532 | LIDAR CTL |
| 64 | N40°49'41.63379" | W101°12'31.53513" | 941.995 | LIDAR CTL |
| 65 | N40°42'45.48446" | W101°09'03.11537" | 954.532 | LIDAR CTL |
| 66 | N40°48'01.28239" | W101°05'42.75235" | 914.164 | LIDAR CTL |
| 67 | N40°57'37.41728" | W101°02'49.93595" | 936.564 | LIDAR CTL |
| 68 | N41°04'35.30399" | W101°07'01.39654" | 927.253 | LIDAR CTL |

| GEOGRAPHIC | | | | |
|---|---|---|---|---|
| Point ID | Latitude | Longitude | Ellipsoid Height | Code |
| 69 | N41°05'25.59029" | W100°55'47.10486" | 890.872 | LIDAR CTL |
| 70 | N40°54'58.99000" | W100°48'47.91437" | 909.309 | LIDAR CTL |
| 71 | N40°50'06.48188" | W100°53'54.55778" | 886.976 | LIDAR CTL |
| 72 | N41°02'50.47970" | W100°58'58.72102" | 919.272 | LIDAR CTL |
| 73 | N41°01'56.02149" | W100°51'32.19064" | 917.552 | LIDAR CTL |
| 74 | N40°54'08.94068" | W101°00'03.83465" | 936.406 | LIDAR CTL |
| 75 | N40°56'42.26155" | W101°11'16.39531" | 949.648 | LIDAR CTL |
| 76 | N40°54'08.14971" | W101°04'18.54191" | 936.361 | LIDAR CTL |
| 77 | N40°49'49.89437" | W101°00'06.62188" | 928.02 | LIDAR CTL |
| 78 | N40°46'19.18832" | W101°01'10.00319" | 913.296 | LIDAR CTL |
| 79 | N40°41'59.86650" | W100°57'56.47606" | 901.694 | LIDAR CTL |
| 80 | N40°59'31.38917" | W100°53'14.88382" | 914.4 | LIDAR CTL |
| 81 | N41°00'14.34599" | W101°09'05.78375" | 940.864 | LIDAR CTL |
| 82 | N41°00'36.65739" | W101°17'17.05987" | 978.027 | LIDAR CTL |
| 83 | N41°06'12.34370" | W101°49'15.17452" | 974.588 | LIDAR CTL |
| 84 | N41°14'15.16806" | W102°53'46.60718" | 1256.904 | LIDAR CTL |
| 85 | N41°18'12.04649" | W103°15'46.22096" | 1355.803 | LIDAR CTL |
| 86 | N41°30'33.95395" | W103°59'10.68208" | 1574.688 | LIDAR CTL |
| 87 | N41°07'12.24437" | W103°37'43.82036" | 1478.366 | LIDAR CTL |
| 88 | N41°05'25.40055" | W103°51'16.79128" | 1556.839 | LIDAR CTL |
| 89 | N41°21'44.20943" | W103°55'50.34299" | 1551.03 | LIDAR CTL |
| 90 | N41°33'11.40004" | W103°47'14.24723" | 1396.489 | LIDAR CTL |
| 91 | N41°28'48.83204" | W103°39'28.62293" | 1488.05 | LIDAR CTL |
| 92 | N42°08'36.35701" | W104°01'55.28683" | 1301.679 | LIDAR CTL |
| 124 | N41°06'10.46133" | W101°18'31.26236" | 934.904 | LIDAR CTL |

## Quality Control Points

| GEOGRAPHIC | | | | |
|---|---|---|---|---|
| Point ID | Latitude | Longitude | Ellipsoid Height | Code |
| 2001 | N42°25'42.73274" | W104°01'43.20611" | 1444.27 | NVA |
| 2001A | N42°25'43.29420" | W104°01'43.30340" | 1444.04 | NVA |
| 2002 | N42°24'06.60918" | W104°01'23.40022" | 1424.22 | NVA |
| 2002A | N42°24'06.99114" | W104°01'23.57033" | 1424.20 | NVA |
| 2003 | N42°21'54.58610" | W104°01'18.50157" | 1401.53 | NVA |
| 2003A | N42°21'53.41025" | W104°01'19.11881" | 1401.08 | NVA |

| GEOGRAPHIC | | | | |
|---|---|---|---|---|
| Point ID | Latitude | Longitude | Ellipsoid Height | Code |
| 2004 | N42°19'11.61370" | W104°01'58.02444" | 1377.70 | NVA |
| 2004A | N42°19'12.07901" | W104°01'58.02334" | 1377.77 | NVA |
| 2005 | N42°17'03.70200" | W104°02'34.68301" | 1341.21 | NVA |
| 2005A | N42°17'04.33208" | W104°02'34.53323" | 1341.26 | NVA |
| 2006 | N42°12'53.86160" | W103°47'32.25943" | 1503.04 | NVA |
| 2006A | N42°12'53.87693" | W103°47'31.95212" | 1503.00 | NVA |
| 2007 | N42°09'46.49391" | W103°40'44.82043" | 1404.33 | NVA |
| 2007A | N42°09'46.48988" | W103°40'45.13145" | 1404.34 | NVA |
| 2008 | N42°06'29.88475" | W103°40'45.44064" | 1404.08 | NVA |
| 2008A | N42°06'29.85344" | W103°40'44.91366" | 1404.27 | NVA |
| 2009 | N42°04'19.00146" | W103°48'56.14824" | 1264.44 | NVA |
| 2009A | N42°04'19.06151" | W103°48'55.86431" | 1264.44 | NVA |
| 2010 | N42°01'40.85673" | W103°40'45.54303" | 1275.48 | NVA |
| 2010A | N42°01'40.86759" | W103°40'45.85294" | 1275.50 | NVA |
| 2011 | N42°00'14.58674" | W103°40'43.61957" | 1307.55 | NVA |
| 2011A | N42°00'14.81396" | W103°40'44.08777" | 1307.83 | NVA |
| 2012 | N42°09'50.78466" | W103°48'24.70081" | 1442.29 | NVA |
| 2012A | N42°09'50.69360" | W103°48'24.43101" | 1442.27 | NVA |
| 2013 | N41°11'09.73178" | W104°03'07.35082" | 1516.32 | NVA |
| 2013A | N41°11'09.98061" | W104°03'07.33839" | 1516.17 | NVA |
| 2014 | N41°38'23.77882" | W103°58'18.77482" | 1368.91 | NVA |
| 2014A | N41°38'23.55773" | W103°58'18.84755" | 1368.91 | NVA |
| 2015 | N41°00'12.68032" | W103°57'12.96902" | 1601.74 | NVA |
| 2015 B | N41°00'12.15792" | W103°57'12.97918" | 1602.14 | NVA |
| 2016 | N41°13'50.05624" | W103°53'21.07828" | 1465.24 | NVA |
| 2016A | N41°13'50.26136" | W103°53'21.21404" | 1465.24 | NVA |
| 2017 | N41°25'20.71470" | W103°51'02.43591" | 1521.93 | NVA |
| 2017A | N41°25'21.20918" | W103°51'02.45905" | 1522.04 | NVA |
| 2018 | N41°21'42.22476" | W103°47'49.85132" | 1519.91 | NVA |
| 2018A | N41°21'42.20895" | W103°47'49.06739" | 1519.77 | NVA |
| 2019 | N41°12'10.35773" | W103°43'55.30310" | 1489.89 | NVA |
| 2019A | N41°12'09.92939" | W103°43'56.89681" | 1489.92 | NVA |
| 2020 | N41°38'29.77027" | W103°41'53.20830" | 1276.57 | NVA |
| 2020A | N41°38'29.99258" | W103°41'53.29147" | 1276.55 | NVA |
| 2021 | N41°34'57.96203" | W103°37'16.00222" | 1329.46 | NVA |
| 2021A | N41°34'58.19794" | W103°37'16.02091" | 1329.52 | NVA |
| 2022 | N41°21'51.68839" | W103°33'36.44720" | 1447.01 | NVA |
| 2022A | N41°21'51.67869" | W103°33'39.72371" | 1448.46 | NVA |
| 2023 | N41°01'59.11363" | W103°29'57.48322" | 1447.46 | NVA |
| 2023 B | N41°01'59.09799" | W103°29'57.14002" | 1447.43 | NVA |
| 2024 | N41°13'12.09757" | W103°22'10.94782" | 1336.32 | NVA |

| GEOGRAPHIC | | | | |
|---|---|---|---|---|
| Point ID | Latitude | Longitude | Ellipsoid Height | Code |
| 2024A | N41°13'12.38040" | W103°22'11.17839" | 1336.34 | NVA |
| 2025 | N41°35'00.70164" | W103°27'17.51023" | 1242.26 | NVA |
| 2025A | N41°35'00.93810" | W103°27'17.46090" | 1242.23 | NVA |
| 2026 | N41°26'00.41536" | W102°58'59.55445" | 1276.20 | NVA |
| 2026A | N41°26'00.76949" | W102°58'59.99650" | 1276.28 | NVA |
| 2027 | N41°23'39.58067" | W103°15'21.52564" | 1360.03 | NVA |
| 2027A | N41°23'40.26501" | W103°15'21.43558" | 1359.89 | NVA |
| 2028 | N41°21'26.51180" | W103°08'48.46082" | 1330.89 | NVA |
| 2028A | N41°21'28.63444" | W103°08'48.44861" | 1329.36 | NVA |
| 2029 | N41°19'26.01419" | W102°58'24.36192" | 1285.75 | NVA |
| 2029A | N41°19'25.51594" | W102°58'23.94731" | 1285.79 | NVA |
| 2030 | N41°16'46.75849" | W102°46'07.47565" | 1228.10 | NVA |
| 2030A | N41°16'46.72855" | W102°46'04.96055" | 1227.89 | NVA |
| 2031 | N41°14'22.58630" | W102°37'46.15884" | 1179.37 | NVA |
| 2031 B | N41°14'23.02253" | W102°37'46.16958" | 1179.39 | NVA |
| 2032 | N41°08'10.15054" | W102°35'28.38656" | 1136.45 | NVA |
| 2032 B | N41°08'10.35912" | W102°35'28.93443" | 1136.60 | NVA |
| 2033 | N41°23'42.81673" | W102°39'23.22131" | 1195.47 | NVA |
| 2033A | N41°23'42.80137" | W102°39'24.81132" | 1195.65 | NVA |
| 2034 | N41°02'53.20324" | W102°36'21.05689" | 1202.56 | NVA |
| 2034 B | N41°02'53.20376" | W102°36'20.61826" | 1202.50 | NVA |
| 2035 | N41°06'20.66447" | W102°49'34.53710" | 1238.74 | NVA |
| 2036 | N41°11'07.50165" | W103°07'22.52388" | 1267.04 | NVA |
| 2036A | N41°11'07.86040" | W103°07'23.29135" | 1266.73 | NVA |
| 2037 | N41°08'05.80380" | W103°19'45.27164" | 1389.09 | NVA |
| 2037 B | N41°08'05.80407" | W103°19'44.62302" | 1388.65 | NVA |
| 2038 | N41°04'35.72692" | W103°08'11.68162" | 1330.71 | NVA |
| 2038 B | N41°04'35.73969" | W103°08'12.29014" | 1330.67 | NVA |
| 2039 | N41°02'51.46815" | W103°17'38.15098" | 1331.56 | NVA |
| 2039 B | N41°02'51.46821" | W103°17'37.47789" | 1331.68 | NVA |
| 2040 | N41°00'26.10396" | W103°00'07.75768" | 1315.63 | NVA |
| 2040 B | N41°00'26.57107" | W103°00'07.74396" | 1315.64 | NVA |
| 2041 | N41°00'24.64196" | W102°13'29.69445" | 1029.64 | NVA |
| 2041 B | N41°00'24.99912" | W102°13'30.00966" | 1028.76 | NVA |
| 2042 | N41°01'12.76570" | W102°23'33.12747" | 1075.38 | NVA |
| 2042 B | N41°01'13.00585" | W102°23'33.33984" | 1075.47 | NVA |
| 2043 | N41°05'01.44462" | W102°28'18.05340" | 1101.53 | NVA |
| 2043 B | N41°05'01.23424" | W102°28'18.18699" | 1101.58 | NVA |
| 2044 | N41°07'12.95945" | W102°20'31.49411" | 1132.01 | NVA |
| 2044A | N41°07'12.93859" | W102°20'32.28017" | 1132.07 | NVA |
| 2045 | N41°11'35.46136" | W102°31'26.73212" | 1180.83 | NVA |

| GEOGRAPHIC | | | | |
|---|---|---|---|---|
| Point ID | Latitude | Longitude | Ellipsoid Height | Code |
| 2045 B | N41°11'35.44700" | W102°31'26.29070" | 1180.76 | NVA |
| 2046 | N41°10'22.45520" | W102°17'04.09766" | 1132.00 | NVA |
| 2046A | N41°10'23.06382" | W102°17'04.10638" | 1132.12 | NVA |
| 2047 | N41°04'36.09393" | W102°10'47.65318" | 1083.28 | NVA |
| 2047 B | N41°04'35.81824" | W102°10'47.67899" | 1083.18 | NVA |
| 2048 | N41°14'09.10111" | W102°02'12.10893" | 1134.35 | NVA |
| 2048A | N41°14'09.41928" | W102°02'09.80288" | 1135.11 | NVA |
| 2049 | N41°11'31.95782" | W101°53'35.12462" | 1107.49 | NVA |
| 2049A | N41°11'31.63958" | W101°53'35.70680" | 1107.51 | NVA |
| 2050 | N41°10'06.04320" | W101°47'39.44337" | 1081.70 | NVA |
| 2050A | N41°10'06.60640" | W101°47'40.19362" | 1081.99 | NVA |
| 2051 | N41°09'49.43087" | W102°05'37.40162" | 1090.60 | NVA |
| 2051A | N41°09'50.22992" | W102°05'37.41643" | 1090.03 | NVA |
| 2052 | N41°08'15.21328" | W101°54'09.10293" | 1082.92 | NVA |
| 2052A | N41°08'15.69146" | W101°54'09.28273" | 1083.02 | NVA |
| 2053 | N41°06'19.21643" | W102°00'10.99330" | 1064.86 | NVA |
| 2053A | N41°06'19.22919" | W102°00'08.45124" | 1064.72 | NVA |
| 2054 | N41°03'37.14302" | W102°04'28.30887" | 1006.20 | NVA |
| 2054 B | N41°03'37.52712" | W102°04'28.31660" | 1006.26 | NVA |
| 2055 | N41°00'38.81714" | W101°56'16.86906" | 1062.10 | NVA |
| 2055 B | N41°00'38.58939" | W101°56'16.85857" | 1062.11 | NVA |
| 2056 | N41°02'51.29295" | W101°45'13.16424" | 1032.11 | NVA |
| 2056 B | N41°02'51.28504" | W101°45'12.76215" | 1032.12 | NVA |
| 2057 | N41°00'23.79821" | W101°43'42.09934" | 1022.70 | NVA |
| 2057 B | N41°00'24.13084" | W101°43'42.08096" | 1022.63 | NVA |
| 2058 | N41°04'59.59728" | W101°39'11.95553" | 1000.90 | NVA |
| 2058 B | N41°04'59.82501" | W101°39'11.94144" | 1000.79 | NVA |
| 2059 | N41°03'43.20097" | W101°28'26.52831" | 986.10 | NVA |
| 2059 B | N41°03'43.18334" | W101°28'26.18608" | 985.80 | NVA |
| 2060 | N41°01'54.96405" | W101°34'28.76042" | 996.93 | NVA |
| 2060 B | N41°01'55.11363" | W101°34'28.76418" | 996.88 | NVA |
| 2061 | N41°01'06.34158" | W101°21'37.22479" | 967.84 | NVA |
| 2061 B | N41°01'06.32852" | W101°21'36.77984" | 967.66 | NVA |
| 2062 | N41°05'17.33529" | W101°21'23.30177" | 932.11 | NVA |
| 2062A | N41°05'16.56132" | W101°21'23.30791" | 931.99 | NVA |
| 2063 | N41°03'43.56284" | W101°15'04.34483" | 943.28 | NVA |
| 2063A | N41°03'44.47228" | W101°15'04.37462" | 942.52 | NVA |
| 2064 | N40°49'41.56657" | W101°12'07.96287" | 935.74 | NVA |
| 2064 A | N40°49'41.55602" | W101°12'07.67673" | 935.59 | NVA |
| 2065 | N40°42'54.53009" | W101°09'07.46722" | 958.56 | NVA |
| 2065 B | N40°42'54.50638" | W101°09'07.80345" | 958.05 | NVA |

| GEOGRAPHIC | | | | |
|---|---|---|---|---|
| Point ID | Latitude | Longitude | Ellipsoid Height | Code |
| 2066 | N40°48'01.43849" | W101°05'04.83634" | 910.93 | NVA |
| 2066 B | N40°48'01.42625" | W101°05'05.20300" | 911.14 | NVA |
| 2067 | N40°57'37.46130" | W101°03'26.42739" | 945.55 | NVA |
| 2067A | N40°57'37.47121" | W101°03'27.37539" | 946.76 | NVA |
| 2068 | N41°04'35.22822" | W101°06'44.88462" | 924.11 | NVA |
| 2068A | N41°04'35.23601" | W101°06'43.40619" | 923.83 | NVA |
| 2069 | N41°05'25.39226" | W100°55'32.86224" | 888.21 | NVA |
| 2069A | N41°05'25.38271" | W100°55'33.79032" | 888.01 | NVA |
| 2070 | N40°54'58.88989" | W100°49'20.23187" | 909.13 | NVA |
| 2070 B | N40°54'58.87358" | W100°49'20.84441" | 909.84 | NVA |
| 2071 | N40°50'09.84782" | W100°53'35.30668" | 881.37 | NVA |
| 2072 | N41°02'50.46062" | W100°59'29.10209" | 918.24 | NVA |
| 2072A | N41°02'50.44845" | W100°59'29.98341" | 917.94 | NVA |
| 2073 | N41°01'55.84958" | W100°51'51.51240" | 900.85 | NVA |
| 2073A | N41°01'56.08201" | W100°51'52.36882" | 900.54 | NVA |
| 2074 | N40°54'07.79264" | W101°00'03.58827" | 937.39 | NVA |
| 2075 | N40°56'42.33858" | W101°10'59.24668" | 947.59 | NVA |
| 2075A | N40°56'42.31625" | W101°11'00.70289" | 946.84 | NVA |
| 2076 | N40°54'08.26890" | W101°03'55.35457" | 937.66 | NVA |
| 2076 B | N40°54'07.95938" | W101°03'55.48118" | 937.57 | NVA |
| 2077 | N40°49'49.87184" | W100°59'45.75263" | 933.96 | NVA |
| 2077 A | N40°49'49.88233" | W100°59'45.50010" | 933.97 | NVA |
| 2078 | N40°46'06.10220" | W101°01'09.97655" | 907.31 | NVA |
| 2078 B | N40°46'06.34065" | W101°01'09.97186" | 907.40 | NVA |
| 2079 | N40°42'08.17623" | W100°57'45.09932" | 900.37 | NVA |
| 2079 B | N40°42'08.47181" | W100°57'45.10397" | 900.18 | NVA |
| 2080 | N40°59'32.80058" | W100°53'14.87090" | 914.80 | NVA |
| 2080A | N40°59'32.06618" | W100°53'14.84995" | 914.88 | NVA |
| 2081 | N41°00'24.16736" | W101°09'06.09316" | 940.29 | NVA |
| 2081A | N41°00'24.76906" | W101°09'05.78427" | 940.12 | NVA |
| 2082 | N41°00'26.71882" | W101°17'17.06261" | 975.88 | NVA |
| 2082 B | N41°00'26.38852" | W101°17'17.05987" | 975.95 | NVA |
| 2083 | N41°06'10.81188" | W101°49'23.29412" | 974.95 | NVA |
| 2083A | N41°06'10.59818" | W101°49'23.06180" | 975.00 | NVA |
| 2084 | N41°14'06.60708" | W102°53'46.65370" | 1257.12 | NVA |
| 2084A | N41°14'07.27335" | W102°53'46.65902" | 1256.88 | NVA |
| 2085 | N41°18'21.06287" | W103°15'42.12291" | 1354.83 | NVA |
| 2085A | N41°18'20.18694" | W103°15'42.53662" | 1355.14 | NVA |
| 2086 | N41°30'34.31370" | W103°58'36.94968" | 1569.29 | NVA |
| 2086A | N41°30'34.30388" | W103°58'37.70344" | 1569.45 | NVA |
| 2087 | N41°07'12.36384" | W103°37'34.26150" | 1477.49 | NVA |

| GEOGRAPHIC | | | | |
|---|---|---|---|---|
| Point ID | Latitude | Longitude | Ellipsoid Height | Code |
| 2087A | N41°07'12.34541" | W103°37'36.32158" | 1477.81 | NVA |
| 2088 | N41°05'25.49515" | W103°51'08.20434" | 1556.35 | NVA |
| 2088 B | N41°05'25.49017" | W103°51'07.65711" | 1556.36 | NVA |
| 2089 | N41°21'51.26786" | W103°55'50.35261" | 1553.66 | NVA |
| 2089A | N41°21'51.33108" | W103°55'49.67824" | 1552.98 | NVA |
| 2090 | N41°33'11.29944" | W103°46'58.61398" | 1388.08 | NVA |
| 2090A | N41°33'11.30384" | W103°46'59.42855" | 1389.14 | NVA |
| 2091 | N41°29'09.35659" | W103°39'30.57750" | 1490.39 | NVA |
| 2091A | N41°29'09.34113" | W103°39'31.28391" | 1490.24 | NVA |
| 2092 | N42°08'44.13821" | W104°01'55.23249" | 1301.57 | NVA |
| 2092A | N42°08'43.67974" | W104°01'55.25051" | 1301.60 | NVA |
| 2093 | N41°17'38.52137" | W103°06'28.71721" | 1310.75 | NVA |
| 2093A | N41°17'38.52876" | W103°06'27.90569" | 1310.92 | NVA |
| 2094 | N41°22'50.09500" | W102°49'14.34789" | 1243.77 | NVA |
| 2094A | N41°22'50.99978" | W102°49'14.31548" | 1243.72 | NVA |
| 2095 | N41°28'53.76216" | W103°27'52.82552" | 1404.68 | NVA |
| 2095A | N41°28'54.19195" | W103°27'52.83611" | 1404.43 | NVA |
| 2096 | N42°02'36.00899" | W103°31'10.25953" | 1378.78 | NVA |
| 2096A | N42°02'36.42383" | W103°31'09.97894" | 1378.64 | NVA |
| 2097 | N41°12'25.84214" | W102°43'29.30932" | 1202.02 | NVA |
| 2097 B | N41°12'26.29196" | W102°43'29.34332" | 1201.81 | NVA |
| 2098 | N41°08'58.43980" | W102°26'17.31957" | 1163.60 | NVA |
| 2098A | N41°08'59.07506" | W102°26'17.33562" | 1162.86 | NVA |
| 2099 | N41°08'56.66253" | W102°11'20.50162" | 1116.97 | NVA |
| 2099A | N41°08'56.68063" | W102°11'19.57013" | 1117.23 | NVA |
| 2100 | N41°04'57.66206" | W101°53'17.18083" | 982.60 | NVA |
| 2100A | N41°04'56.57561" | W101°53'16.75018" | 982.61 | NVA |
| 2101 | N41°02'51.33215" | W101°39'04.60215" | 1009.13 | NVA |
| 2101 B | N41°02'50.95367" | W101°39'04.58802" | 1009.22 | NVA |
| 2102 | N41°00'11.44385" | W101°26'29.68930" | 983.69 | NVA |
| 2102 B | N41°00'11.42905" | W101°26'29.34078" | 983.69 | NVA |
| 2103 | N41°03'42.98273" | W101°18'31.18280" | 958.09 | NVA |
| 2103A | N41°03'43.76361" | W101°18'31.21163" | 958.22 | NVA |
| 2104 | N41°02'50.57917" | W101°02'24.54303" | 922.94 | NVA |
| 2104A | N41°02'50.57699" | W101°02'25.41584" | 923.37 | NVA |
| 2105 | N40°46'16.74900" | W101°13'44.66845" | 984.82 | NVA |
| 2105 A | N40°46'16.79448" | W101°13'45.15137" | 984.25 | NVA |
| 2106 | N40°42'49.12333" | W101°02'53.42400" | 922.47 | NVA |
| 2106 B | N40°42'49.08794" | W101°02'54.00023" | 922.96 | NVA |
| 2107 | N40°47'12.95270" | W100°55'29.47877" | 915.67 | NVA |
| 2107 B | N40°47'12.96752" | W100°55'29.86029" | 915.60 | NVA |

| GEOGRAPHIC | | | | |
|---|---|---|---|---|
| Point ID | Latitude | Longitude | Ellipsoid Height | Code |
| 2108 | N40°59'21.04759" | W101°00'04.02629" | 934.50 | NVA |
| 2108A | N40°59'21.03423" | W101°00'04.86581" | 933.60 | NVA |
| 2109 | N41°05'01.91107" | W101°34'36.26591" | 987.19 | NVA |
| 2109 B | N41°05'02.27117" | W101°34'36.26339" | 987.51 | NVA |
| 2110 | N41°02'50.69451" | W101°24'08.67836" | 984.41 | NVA |
| 2110 B | N41°02'50.32322" | W101°24'08.66698" | 984.03 | NVA |
| 2111 | N41°13'18.58974" | W102°20'31.37284" | 1138.24 | NVA |
| 2111A | N41°13'18.54233" | W102°20'32.14706" | 1138.29 | NVA |
| 2112 | N41°02'52.16045" | W102°48'06.60001" | 1250.74 | NVA |
| 2112 B | N41°02'52.50565" | W102°48'06.58179" | 1250.51 | NVA |
| 2113 | N41°10'06.18024" | W102°57'18.36788" | 1257.43 | NVA |
| 2113A | N41°10'06.50802" | W102°57'17.78560" | 1258.27 | NVA |
| 2114 | N41°03'42.65634" | W103°39'48.44093" | 1488.54 | NVA |
| 2114 B | N41°03'42.63891" | W103°39'47.93208" | 1488.20 | NVA |
| 2115 | N41°14'08.17040" | W103°31'41.82990" | 1380.62 | NVA |
| 2115A | N41°14'08.60565" | W103°31'41.79005" | 1380.49 | NVA |
| 2116 | N41°19'16.54728" | W104°00'25.29585" | 1565.27 | NVA |
| 2116A | N41°19'16.18151" | W104°00'25.29499" | 1564.88 | NVA |
| 2117 | N41°09'45.51904" | W103°55'51.88900" | 1551.65 | NVA |
| 2117A | N41°09'45.51288" | W103°55'50.67912" | 1551.78 | NVA |
| 2118 | N41°17'38.28063" | W103°39'49.25227" | 1465.23 | NVA |
| 2118A | N41°17'38.23494" | W103°39'50.19316" | 1465.43 | NVA |
| 2119 | N42°00'15.10050" | W103°31'10.43229" | 1297.59 | NVA |
| 2119A | N42°00'15.46860" | W103°31'10.42363" | 1297.85 | NVA |
| 2120 | N42°14'14.35715" | W103°54'53.40804" | 1454.62 | NVA |
| 2120A | N42°14'13.95703" | W103°54'53.40728" | 1454.27 | NVA |
| 2121 | N42°12'36.31405" | W103°54'53.92909" | 1424.84 | NVA |
| 2121A | N42°12'36.64734" | W103°54'53.94214" | 1424.99 | NVA |
| 2122 | N42°07'40.27031" | W103°53'46.04776" | 1335.02 | NVA |
| 2122A | N42°07'40.73410" | W103°53'46.03504" | 1334.80 | NVA |
| 2123 | N42°11'45.07082" | W104°02'14.15048" | 1294.71 | NVA |
| 2123A | N42°11'44.73478" | W104°02'14.15954" | 1294.81 | NVA |
| 3001 | N42°25'42.22772" | W104°01'43.42940" | 1444.42 | VVA |
| 3001A | N42°25'42.23357" | W104°01'42.74041" | 1445.48 | VVA |
| 3002 | N42°24'19.78176" | W104°01'29.37246" | 1426.18 | VVA |
| 3002A | N42°24'19.56754" | W104°01'30.08375" | 1425.22 | VVA |
| 3003 | N42°21'54.41692" | W104°01'19.28617" | 1401.90 | VVA |
| 3003A | N42°21'54.24008" | W104°01'18.39279" | 1401.68 | VVA |
| 3004 | N42°19'27.14184" | W104°01'58.33961" | 1382.90 | VVA |
| 3004A | N42°19'27.15200" | W104°01'57.68246" | 1383.14 | VVA |
| 3005 | N42°16'52.67750" | W104°02'36.43517" | 1339.99 | VVA |

| GEOGRAPHIC | | | | |
|---|---|---|---|---|
| Point ID | Latitude | Longitude | Ellipsoid Height | Code |
| 3005A | N42°16'52.82561" | W104°02'37.09269" | 1339.85 | VVA |
| 3006 | N42°12'54.18791" | W103°47'32.57920" | 1501.32 | VVA |
| 3006A | N42°12'53.90476" | W103°47'31.70947" | 1502.13 | VVA |
| 3007 | N42°09'47.13754" | W103°40'44.32431" | 1403.81 | VVA |
| 3007A | N42°09'46.83903" | W103°40'44.32835" | 1403.53 | VVA |
| 3008 | N42°06'30.55371" | W103°40'45.51874" | 1403.35 | VVA |
| 3008A | N42°06'29.90269" | W103°40'44.57090" | 1403.31 | VVA |
| 3009 | N42°04'19.68456" | W103°48'56.74636" | 1263.10 | VVA |
| 3009A | N42°04'19.83214" | W103°48'55.82412" | 1262.91 | VVA |
| 3010 | N42°01'49.39041" | W103°40'45.40567" | 1275.48 | VVA |
| 3010A | N42°01'48.86904" | W103°40'46.51619" | 1275.04 | VVA |
| 3011 | N42°00'14.08244" | W103°40'43.41501" | 1307.06 | VVA |
| 3011A | N42°00'14.11160" | W103°40'44.35549" | 1305.97 | VVA |
| 3012 | N42°09'51.36541" | W103°48'24.65239" | 1442.02 | VVA |
| 3012A | N42°09'51.15485" | W103°48'23.91818" | 1441.85 | VVA |
| 3013 | N41°11'09.50412" | W104°03'14.35424" | 1515.18 | VVA |
| 3013A | N41°11'09.68524" | W104°03'13.35172" | 1515.02 | VVA |
| 3014 | N41°38'23.92047" | W103°58'36.04032" | 1368.89 | VVA |
| 3014A | N41°38'23.19398" | W103°58'36.10419" | 1369.41 | VVA |
| 3015 | N41°00'06.43262" | W103°57'08.50437" | 1603.88 | VVA |
| 3015 B | N41°00'06.47706" | W103°57'09.20875" | 1603.93 | VVA |
| 3016 | N41°13'45.13009" | W103°53'33.64457" | 1463.03 | VVA |
| 3016A | N41°13'45.54159" | W103°53'32.41524" | 1463.03 | VVA |
| 3017 | N41°25'20.37060" | W103°51'08.41032" | 1520.90 | VVA |
| 3017A | N41°25'20.97291" | W103°51'08.44805" | 1520.82 | VVA |
| 3018 | N41°21'41.63952" | W103°47'40.75843" | 1519.27 | VVA |
| 3018A | N41°21'42.54846" | W103°47'40.99707" | 1519.36 | VVA |
| 3019 | N41°12'06.95885" | W103°44'09.50091" | 1489.78 | VVA |
| 3019A | N41°12'06.16577" | W103°44'09.28281" | 1489.90 | VVA |
| 3020 | N41°38'29.76863" | W103°42'17.06603" | 1281.97 | VVA |
| 3020A | N41°38'28.97532" | W103°42'17.35247" | 1281.25 | VVA |
| 3021 | N41°34'57.78124" | W103°37'07.25203" | 1329.86 | VVA |
| 3021A | N41°34'58.52193" | W103°37'07.15020" | 1329.52 | VVA |
| 3022 | N41°21'51.29163" | W103°34'04.57811" | 1449.27 | VVA |
| 3022A | N41°21'52.09306" | W103°34'04.06528" | 1449.02 | VVA |
| 3023 | N41°01'58.90559" | W103°30'13.91848" | 1451.95 | VVA |
| 3023 B | N41°01'58.38946" | W103°30'13.71540" | 1451.68 | VVA |
| 3024 | N41°13'15.09292" | W103°22'30.28666" | 1337.10 | VVA |
| 3024A | N41°13'15.87728" | W103°22'30.09573" | 1337.40 | VVA |
| 3025 | N41°35'00.50528" | W103°27'01.24468" | 1240.40 | VVA |
| 3025A | N41°35'01.21258" | W103°27'00.77870" | 1239.88 | VVA |

| GEOGRAPHIC | | | | |
|---|---|---|---|---|
| Point ID | Latitude | Longitude | Ellipsoid Height | Code |
| 3026 | N41°26'18.31835" | W102°59'00.14842" | 1281.78 | VVA |
| 3026A | N41°26'18.08698" | W102°58'59.08405" | 1281.48 | VVA |
| 3027 | N41°23'38.77056" | W103°15'38.45798" | 1354.89 | VVA |
| 3027A | N41°23'39.78149" | W103°15'38.82178" | 1355.56 | VVA |
| 3028 | N41°21'36.69969" | W103°08'48.06544" | 1325.81 | VVA |
| 3028A | N41°21'37.04029" | W103°08'48.72635" | 1326.09 | VVA |
| 3029 | N41°19'12.44823" | W102°58'24.78997" | 1285.59 | VVA |
| 3029A | N41°19'11.80801" | W102°58'24.73138" | 1285.60 | VVA |
| 3030 | N41°16'46.81801" | W102°45'50.40259" | 1225.98 | VVA |
| 3030A | N41°16'46.27523" | W102°45'50.35342" | 1225.72 | VVA |
| 3031 | N41°14'10.83559" | W102°37'45.55398" | 1175.44 | VVA |
| 3031 B | N41°14'11.14201" | W102°37'45.69545" | 1175.62 | VVA |
| 3032 | N41°08'15.75354" | W102°35'52.16005" | 1139.42 | VVA |
| 3032 B | N41°08'15.61061" | W102°35'51.60147" | 1139.33 | VVA |
| 3033 | N41°23'43.32539" | W102°40'00.16883" | 1199.08 | VVA |
| 3033A | N41°23'42.25050" | W102°39'59.53198" | 1198.77 | VVA |
| 3034 | N41°02'53.68629" | W102°36'09.43693" | 1200.49 | VVA |
| 3034 B | N41°02'53.66017" | W102°36'10.03713" | 1200.48 | VVA |
| 3035 | N41°06'20.34141" | W102°49'53.81760" | 1242.19 | VVA |
| 3035 B | N41°06'20.33862" | W102°49'54.19675" | 1242.20 | VVA |
| 3036 | N41°11'18.19360" | W103°07'12.39776" | 1266.03 | VVA |
| 3036A | N41°11'17.62478" | W103°07'12.57317" | 1263.92 | VVA |
| 3037 | N41°08'05.40904" | W103°19'05.59109" | 1380.61 | VVA |
| 3037 B | N41°08'04.86508" | W103°19'05.57095" | 1380.58 | VVA |
| 3038 | N41°04'36.59210" | W103°08'45.74415" | 1333.25 | VVA |
| 3038 B | N41°04'36.84349" | W103°08'45.41733" | 1333.12 | VVA |
| 3039 | N41°02'52.08829" | W103°17'56.02602" | 1332.66 | VVA |
| 3039 B | N41°02'52.06491" | W103°17'55.37771" | 1332.38 | VVA |
| 3040 | N41°00'14.91289" | W103°00'07.13179" | 1313.90 | VVA |
| 3040 B | N41°00'15.34471" | W103°00'07.12769" | 1313.96 | VVA |
| 3041 | N41°00'09.89651" | W102°13'55.09552" | 1030.71 | VVA |
| 3041 B | N41°00'10.10485" | W102°13'54.62086" | 1030.54 | VVA |
| 3042 | N41°01'21.56222" | W102°23'39.73086" | 1075.58 | VVA |
| 3042 B | N41°01'21.91346" | W102°23'39.80576" | 1075.51 | VVA |
| 3043 | N41°04'54.73861" | W102°28'21.74778" | 1104.30 | VVA |
| 3043 B | N41°04'54.41488" | W102°28'21.69912" | 1103.61 | VVA |
| 3044 | N41°07'02.13181" | W102°20'32.50744" | 1130.29 | VVA |
| 3044A | N41°07'02.11981" | W102°20'31.45132" | 1130.11 | VVA |
| 3045 | N41°11'34.76915" | W102°30'51.51506" | 1178.36 | VVA |
| 3045 B | N41°11'34.76985" | W102°30'51.11818" | 1178.34 | VVA |
| 3046 | N41°10'09.56561" | W102°17'04.71900" | 1127.61 | VVA |

| GEOGRAPHIC | | | | |
|---|---|---|---|---|
| Point ID | Latitude | Longitude | Ellipsoid Height | Code |
| 3046A | N41°10'09.61393" | W102°17'03.63794" | 1127.22 | VVA |
| 3047 | N41°04'28.98107" | W102°10'47.34601" | 1082.24 | VVA |
| 3047 B | N41°04'29.26559" | W102°10'47.34877" | 1082.26 | VVA |
| 3048 | N41°14'08.89571" | W102°02'11.75287" | 1134.11 | VVA |
| 3048A | N41°14'09.54100" | W102°02'11.34214" | 1134.36 | VVA |
| 3049 | N41°11'32.06919" | W101°54'08.91137" | 1101.44 | VVA |
| 3049A | N41°11'31.13143" | W101°54'09.15226" | 1103.13 | VVA |
| 3050 | N41°10'05.47091" | W101°47'37.48266" | 1080.45 | VVA |
| 3050A | N41°10'06.33016" | W101°47'38.75217" | 1080.84 | VVA |
| 3051 | N41°10'05.63529" | W102°05'37.05647" | 1088.73 | VVA |
| 3051A | N41°10'05.63506" | W102°05'37.79965" | 1088.96 | VVA |
| 3052 | N41°08'03.73560" | W101°54'08.85421" | 1080.31 | VVA |
| 3052A | N41°08'03.13878" | W101°54'09.85950" | 1080.11 | VVA |
| 3053 | N41°06'18.97133" | W101°59'54.21094" | 1063.26 | VVA |
| 3053A | N41°06'19.73971" | W101°59'55.00210" | 1063.26 | VVA |
| 3054 | N41°03'28.54460" | W102°04'28.33513" | 1005.85 | VVA |
| 3054 B | N41°03'28.06931" | W102°04'28.13142" | 1005.66 | VVA |
| 3055 | N41°00'54.87446" | W101°56'16.28470" | 1063.66 | VVA |
| 3055 B | N41°00'55.11054" | W101°56'16.33177" | 1063.66 | VVA |
| 3055 C | N41°00'55.03129" | W101°56'16.95994" | 1063.90 | VVA |
| 3056 | N41°02'51.54710" | W101°45'33.97100" | 1029.86 | VVA |
| 3056 B | N41°02'51.60322" | W101°45'34.48284" | 1029.81 | VVA |
| 3057 | N41°00'11.20463" | W101°43'43.01982" | 1024.67 | VVA |
| 3057 B | N41°00'10.87350" | W101°43'43.02647" | 1024.61 | VVA |
| 3058 | N41°04'48.74496" | W101°39'12.25188" | 1008.05 | VVA |
| 3058 B | N41°04'49.03274" | W101°39'12.24940" | 1008.08 | VVA |
| 3059 | N41°03'43.77350" | W101°28'51.01277" | 989.99 | VVA |
| 3059 B | N41°03'44.02622" | W101°28'50.96429" | 989.69 | VVA |
| 3060 | N41°01'34.67051" | W101°34'28.56153" | 994.21 | VVA |
| 3060 B | N41°01'35.03530" | W101°34'28.54703" | 994.11 | VVA |
| 3061 | N41°01'07.02745" | W101°21'51.61554" | 967.74 | VVA |
| 3061 B | N41°01'07.19629" | W101°21'52.13269" | 967.77 | VVA |
| 3062 | N41°05'17.44731" | W101°21'23.66462" | 931.14 | VVA |
| 3062A | N41°05'16.57358" | W101°21'23.68705" | 931.05 | VVA |
| 3063 | N41°03'43.75296" | W101°14'47.73974" | 936.37 | VVA |
| 3063A | N41°03'43.27659" | W101°14'47.74733" | 936.16 | VVA |
| 3064 | N40°49'41.75612" | W101°12'32.38113" | 940.80 | VVA |
| 3064 A | N40°49'41.95568" | W101°12'32.26062" | 940.94 | VVA |
| 3065 | N40°42'45.07071" | W101°09'02.53149" | 953.67 | VVA |
| 3066 | N40°48'00.86114" | W101°05'42.40541" | 913.72 | VVA |
| 3066 B | N40°48'00.84586" | W101°05'42.09233" | 914.61 | VVA |

| GEOGRAPHIC | | | | |
|---|---|---|---|---|
| Point ID | Latitude | Longitude | Ellipsoid Height | Code |
| 3067 | N40°57'37.63177" | W101°02'50.42485" | 935.81 | VVA |
| 3067 B | N40°42'45.30113" | W101°09'02.53482" | 954.09 | VVA |
| 3067A | N40°57'37.17783" | W101°02'50.25439" | 936.79 | VVA |
| 3068 | N41°04'34.89060" | W101°07'00.98578" | 927.04 | VVA |
| 3068A | N41°04'35.63577" | W101°07'00.99001" | 928.28 | VVA |
| 3069 | N41°05'25.33211" | W100°55'47.66897" | 891.19 | VVA |
| 3069A | N41°05'26.14751" | W100°55'47.42027" | 890.73 | VVA |
| 3070 | N40°54'59.85403" | W100°48'47.19290" | 909.50 | VVA |
| 3070 B | N40°54'59.95151" | W100°48'47.54322" | 909.27 | VVA |
| 3071 | N40°50'06.73016" | W100°53'53.43518" | 888.26 | VVA |
| 3071 B | N40°50'06.65773" | W100°53'53.79870" | 887.90 | VVA |
| 3072 | N41°02'50.21503" | W100°58'58.69510" | 920.04 | VVA |
| 3072A | N41°02'50.83732" | W100°58'58.36462" | 919.16 | VVA |
| 3073 | N41°01'56.24749" | W100°51'32.74998" | 916.92 | VVA |
| 3073A | N41°01'55.74961" | W100°51'32.72995" | 917.96 | VVA |
| 3074 | N40°54'08.36628" | W101°00'03.93646" | 936.05 | VVA |
| 3074 B | N40°54'07.98779" | W101°00'04.02511" | 936.45 | VVA |
| 3075 | N40°56'42.97512" | W101°11'16.88213" | 949.90 | VVA |
| 3075A | N40°56'41.94352" | W101°11'16.62071" | 949.51 | VVA |
| 3076 | N40°54'09.04494" | W101°04'18.81602" | 935.50 | VVA |
| 3077 | N40°49'49.11272" | W101°00'06.65808" | 926.44 | VVA |
| 3077 A | N40°49'49.12216" | W101°00'06.39817" | 926.69 | VVA |
| 3078 | N40°46'19.14756" | W101°01'09.14247" | 915.28 | VVA |
| 3078 B | N40°46'19.46384" | W101°01'09.12497" | 915.40 | VVA |
| 3079 | N40°42'00.52086" | W100°57'56.56592" | 900.95 | VVA |
| 3079 B | N40°42'00.36382" | W100°57'56.91399" | 901.01 | VVA |
| 3080 | N40°59'32.77516" | W100°53'15.21562" | 916.63 | VVA |
| 3080A | N40°59'32.06287" | W100°53'15.12945" | 915.67 | VVA |
| 3081 | N41°00'14.33420" | W101°09'05.23446" | 940.01 | VVA |
| 3081A | N41°00'13.97148" | W101°09'06.34993" | 939.94 | VVA |
| 3082 | N41°00'37.08470" | W101°17'17.91145" | 977.94 | VVA |
| 3082 B | N41°00'37.11056" | W101°17'18.21368" | 978.05 | VVA |
| 3083 | N41°06'12.45187" | W101°49'15.64708" | 973.64 | VVA |
| 3083A | N41°06'12.57239" | W101°49'14.79901" | 973.61 | VVA |
| 3084 | N41°14'15.12181" | W102°53'46.34814" | 1256.32 | VVA |
| 3084A | N41°14'15.15400" | W102°53'46.97976" | 1256.30 | VVA |
| 3085 | N41°18'12.06557" | W103°15'45.85044" | 1355.36 | VVA |
| 3085A | N41°18'12.22271" | W103°15'46.52931" | 1355.21 | VVA |
| 3086 | N41°30'33.75738" | W103°59'10.13374" | 1574.09 | VVA |
| 3086A | N41°30'34.30775" | W103°59'10.43064" | 1574.01 | VVA |
| 3087 | N41°07'11.87612" | W103°37'43.89937" | 1477.69 | VVA |

| GEOGRAPHIC | | | | |
|---|---|---|---|---|
| Point ID | Latitude | Longitude | Ellipsoid Height | Code |
| 3087A | N41°07'12.65900" | W103°37'43.72049" | 1477.59 | VVA |
| 3088 | N41°05'25.93174" | W103°51'16.36666" | 1555.51 | VVA |
| 3088 B | N41°05'26.34433" | W103°51'15.83449" | 1555.51 | VVA |
| 3089 | N41°21'44.24024" | W103°55'50.76743" | 1549.86 | VVA |
| 3089A | N41°21'44.29377" | W103°55'49.99122" | 1550.42 | VVA |
| 3090 | N41°33'11.68147" | W103°47'14.23927" | 1396.04 | VVA |
| 3090A | N41°33'11.02683" | W103°47'13.75224" | 1396.74 | VVA |
| 3091 | N41°28'48.59121" | W103°39'28.20345" | 1487.81 | VVA |
| 3091A | N41°28'49.21470" | W103°39'28.27252" | 1487.77 | VVA |
| 3092 | N42°08'36.40471" | W104°01'54.91098" | 1302.29 | VVA |
| 3092A | N42°08'36.43286" | W104°01'55.64703" | 1301.56 | VVA |

| NGS Values | | | |
|---|---|---|---|
| Point Name | Latitude (M) | Longitude (M) | Ellipsoid Height (M) |
| CUB | N40°58'29.48382" | W102°19'10.24893" | 1052.719 |
| F 422 | N41°03'06.90000" | W102°06'11.80000" | 1010.584 |
| G 424 | N41°09'09.00000" | W101°10'42.00000" | 889.341 |
| KIMBALL | N41°14'01.70000" | W103°39'40.00000" | 1419.809 |
| M 424 | N41°09'45.21954" | W100°56'59.54571" | 855.745 |
| NORTHEAST CORNER COLORADO RESET | N41°00'08.46340" | W102°03'05.63653" | 1080.961 |
| OGA A | N41°07'03.03562" | W101°46'12.46279" | 970.006 |
| T 76 | N41°13'11.69352" | W103°22'01.20602" | 1333.985 |
| T 422 | N41°07'11.00000" | W101°45'08.00000" | 967.997 |
| U 58 | N42°06'23.93863" | W103°49'37.14569" | 1305.306 |
| Z 418 | N41°06'19.21398" | W103°00'43.78862" | 1294.642 |

# Section 3: Ground/Geodetic Control Logs and Photos

This section contains the station recovery information sheets and photographs for the ground control, geodetic control and checkpoint stations established for the project. The stations appear as they are ordered in the final coordinate listing of Section 2.

The data is assembled on the following pages.

# Geodetic Control Logs

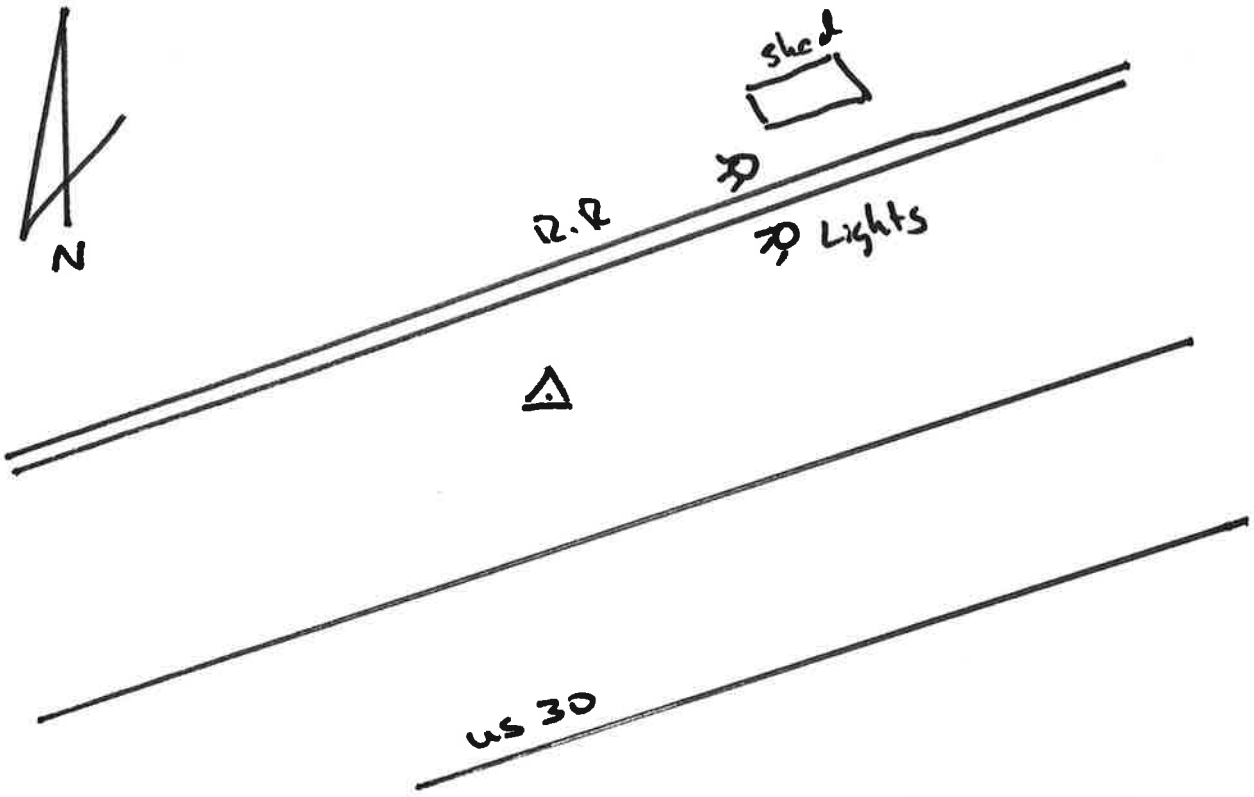
# 75955 South Platte Basin QL2 LiDAR
# Station Recovery Log

WOOLPERT

| Station Designation | PID | Location | Date |
|---|---|---|---|
| B 76 | MW0229 | Pine Bluffs WY | 4/25/16 |

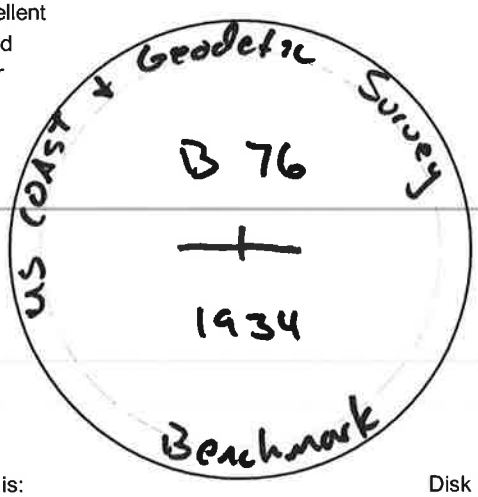
| | | | |
|---|---|---|---|
| ○ PACS ○ SACS ○ TACS ● BM<br>○ FBN ○ CBN ○ Other _____ | Observer: Dan Kuxhausen | Organization: **Woolpert** | |

Sketch




Disk Detail — Photos Available ☒

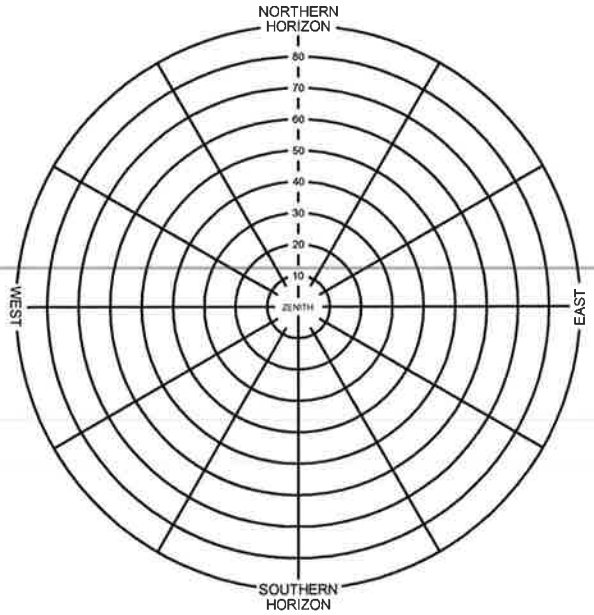
Monument is:
- ○ A. Most stable
- ○ B. Excellent
- ● C. Good
- ○ D. Poor




Monument is:
- ○ Recessed ____cm
- ● Flush with ground
- ○ Projecting ____cm

Disk is set:
- ○ in bedrock.
- ● in concrete.
- ○ in structure.

Visibility Diagram — Photos Available ☒




● No Obstructions above 10°

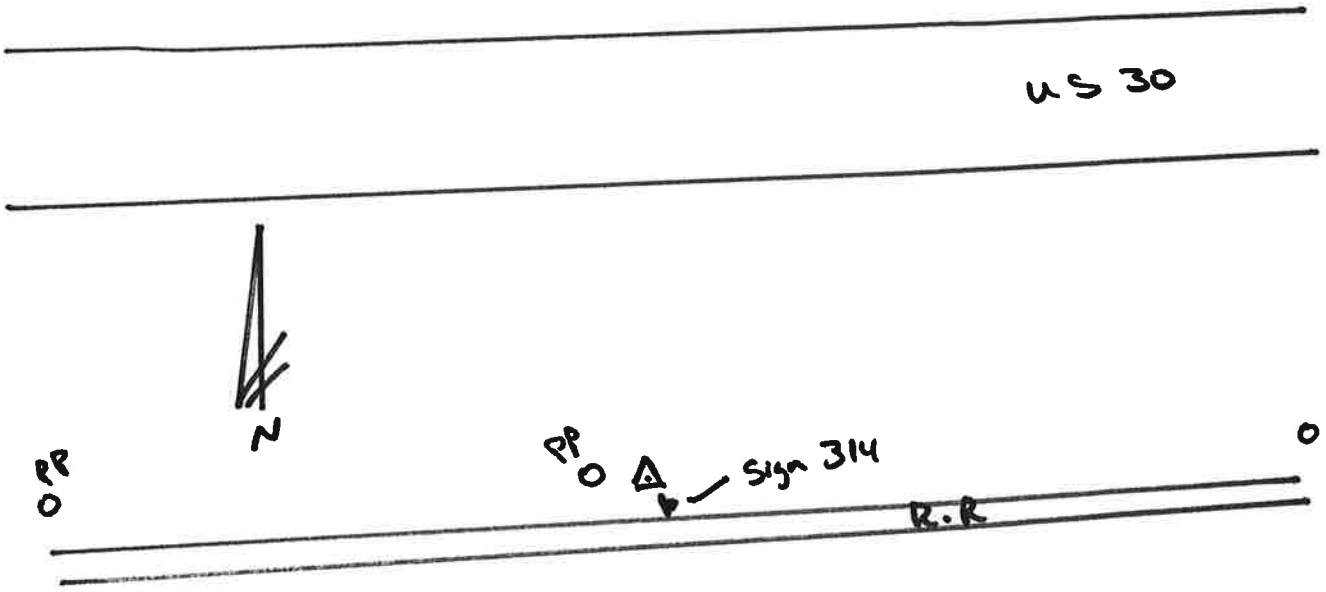
# 75955 South Platte Basin QL2 LiDAR
# Station Recovery Log

WOOLPERT

| Station Designation | PID | Location | Date |
|---|---|---|---|
| C 424 | MM0321 | Paxton NE | 4/19/16 |

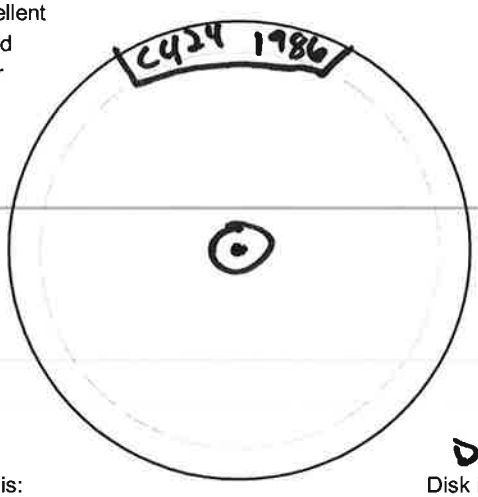
| | Observer | Organization |
|---|---|---|
| O PACS O SACS O TACS ● BM<br>O FBN O CBN O Other _____ | Dan Kuxhausen | Woolpert |

Sketch




Disk Detail — ☒ Photos Available

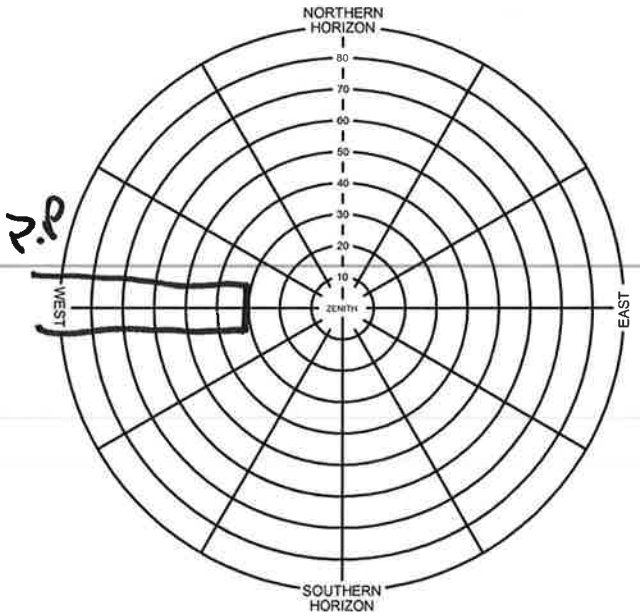
Monument is:
- O A. Most stable
- O B. Excellent
- ● C. Good
- O D. Poor




Monument is:
- O Recessed ____cm
- ● Flush with ground
- O Projecting ____cm

Disk is set:
- O in bedrock.
- O in concrete.
- O in structure.

Visibility Diagram — ☒ Photos Available




● No Obstructions above 10°

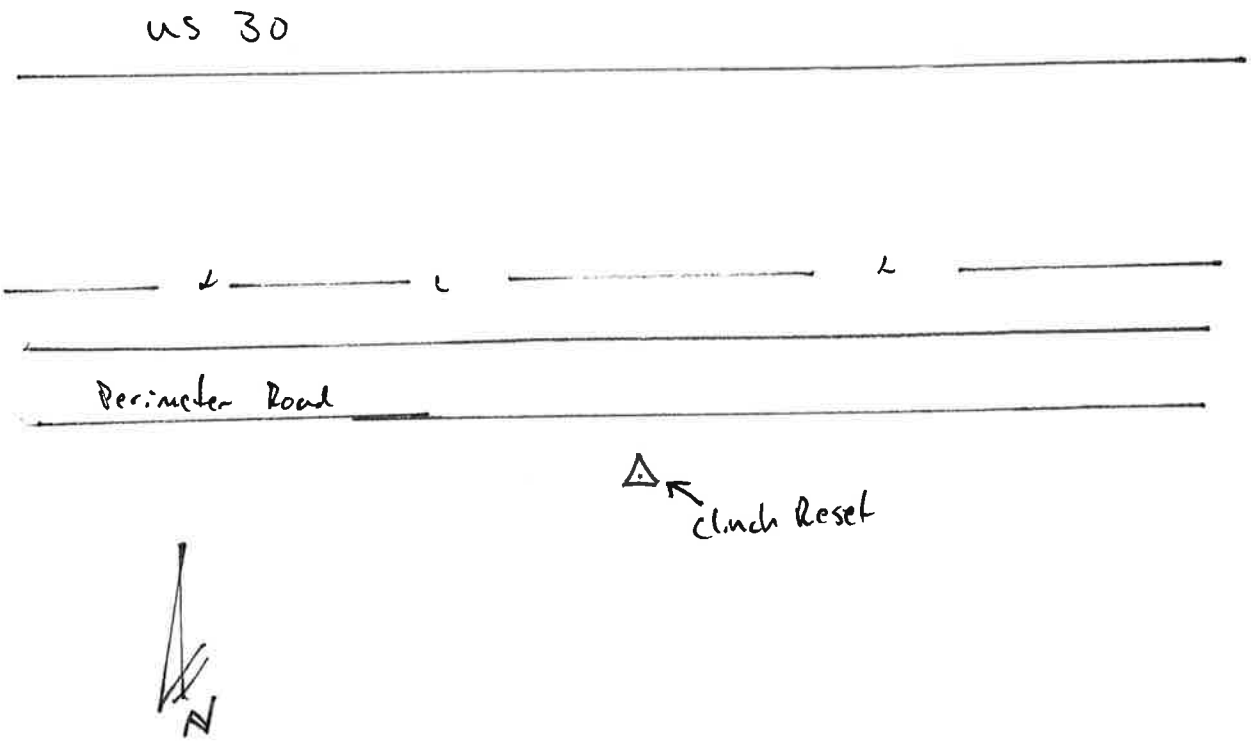
# 75955 South Platte Basin QL2 LiDAR
# Station Recovery Log

WOOLPERT

| Station Designation | PID | Location | Date |
|---|---|---|---|
| Clinch Reset | MM0352 | North Platte, NE | 4/19/16 |

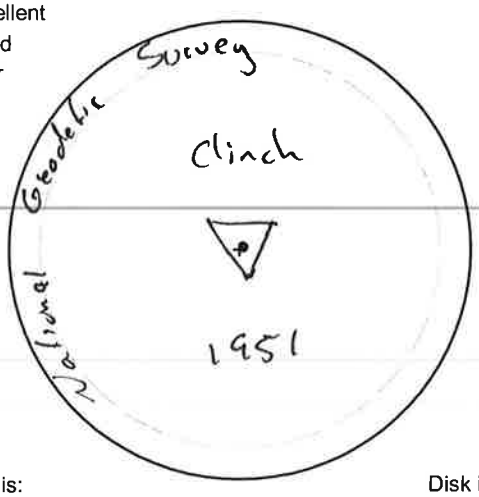
| | Observer | Organization |
|---|---|---|
| ○ PACS ○ SACS ○ TACS ● BM ○ FBN ○ CBN ○ Other _____ | Dan Kuxhausen | **Woolpert** |

Sketch




Disk Detail — Photos Available

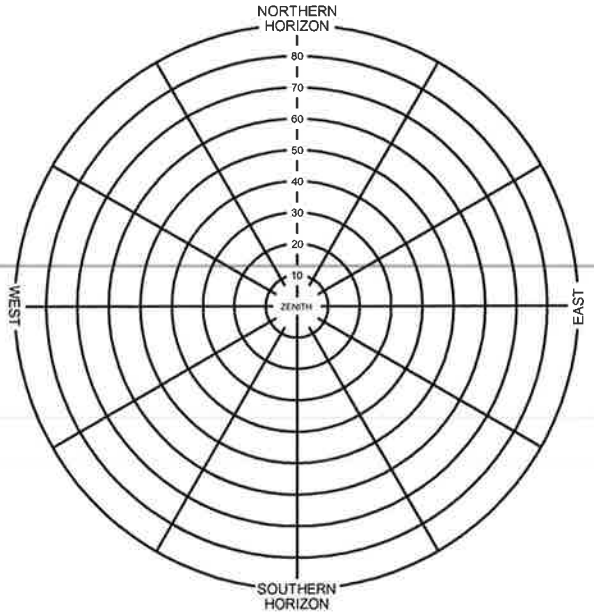
Monument is:
- ○ A. Most stable
- ○ B. Excellent
- ● C. Good
- ○ D. Poor




Monument is:
- ○ Recessed ____cm
- ◐ Flush with ground
- ○ Projecting ____cm

Disk is set:
- ○ in bedrock.
- ◐ in concrete.
- ○ in structure.

Visibility Diagram — Photos Available




◐ No Obstructions above 10°

# 75955 South Platte Basin QL2 LiDAR
# Station Recovery Log

WOOLPERT

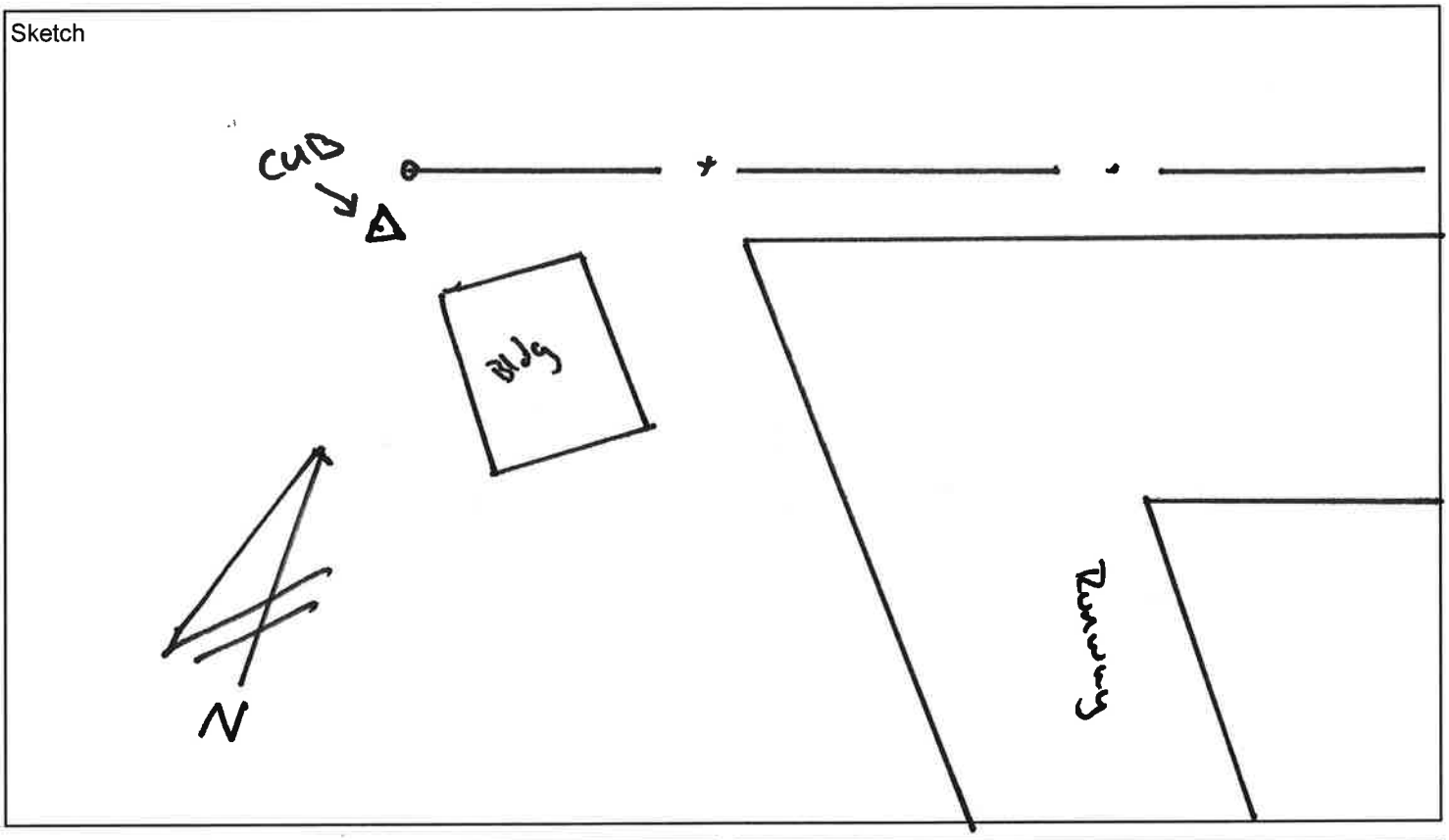
| Station Designation | PID | Location | Date |
|---|---|---|---|
| CUB | LK0437 | Julesburg, CO | 9/20/16 |

O PACS O SACS O TACS ● BM
O FBN O CBN O Other _____

Observer: Dan Kuxhausen

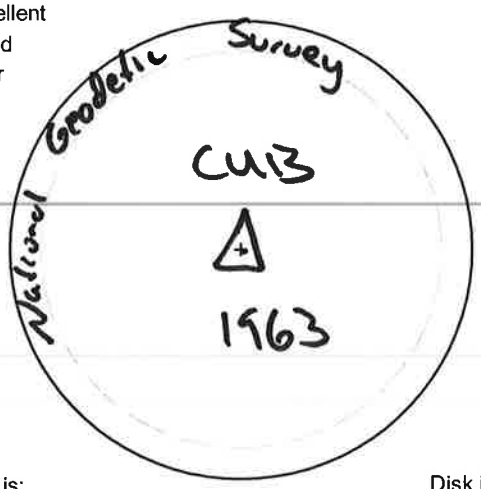
Organization: **Woolpert**

Sketch




Disk Detail — ☒ Photos Available

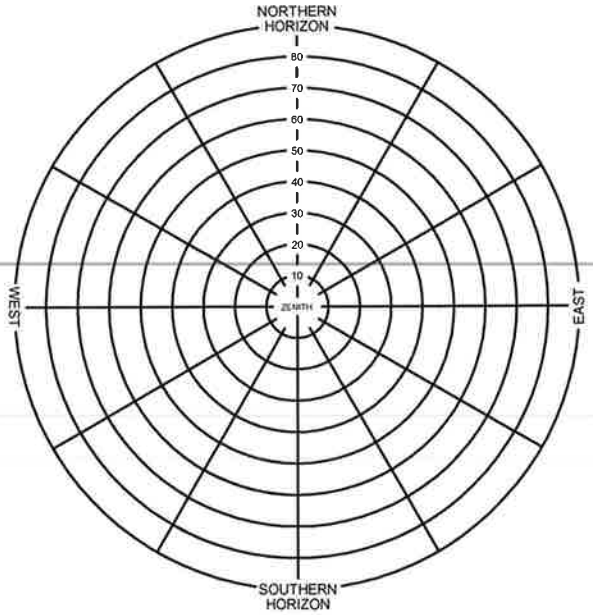
Monument is:
- O A. Most stable
- O B. Excellent
- ● C. Good
- O D. Poor




Monument is:
- ● Recessed 4 cm
- O Flush with ground
- O Projecting ____cm

Disk is set:
- O in bedrock.
- ● in concrete.
- O in structure.

Visibility Diagram — ☒ Photos Available




● No Obstructions above 10°

# 75955 South Platte Basin QL2 LiDAR
# Station Recovery Log

WOOLPERT

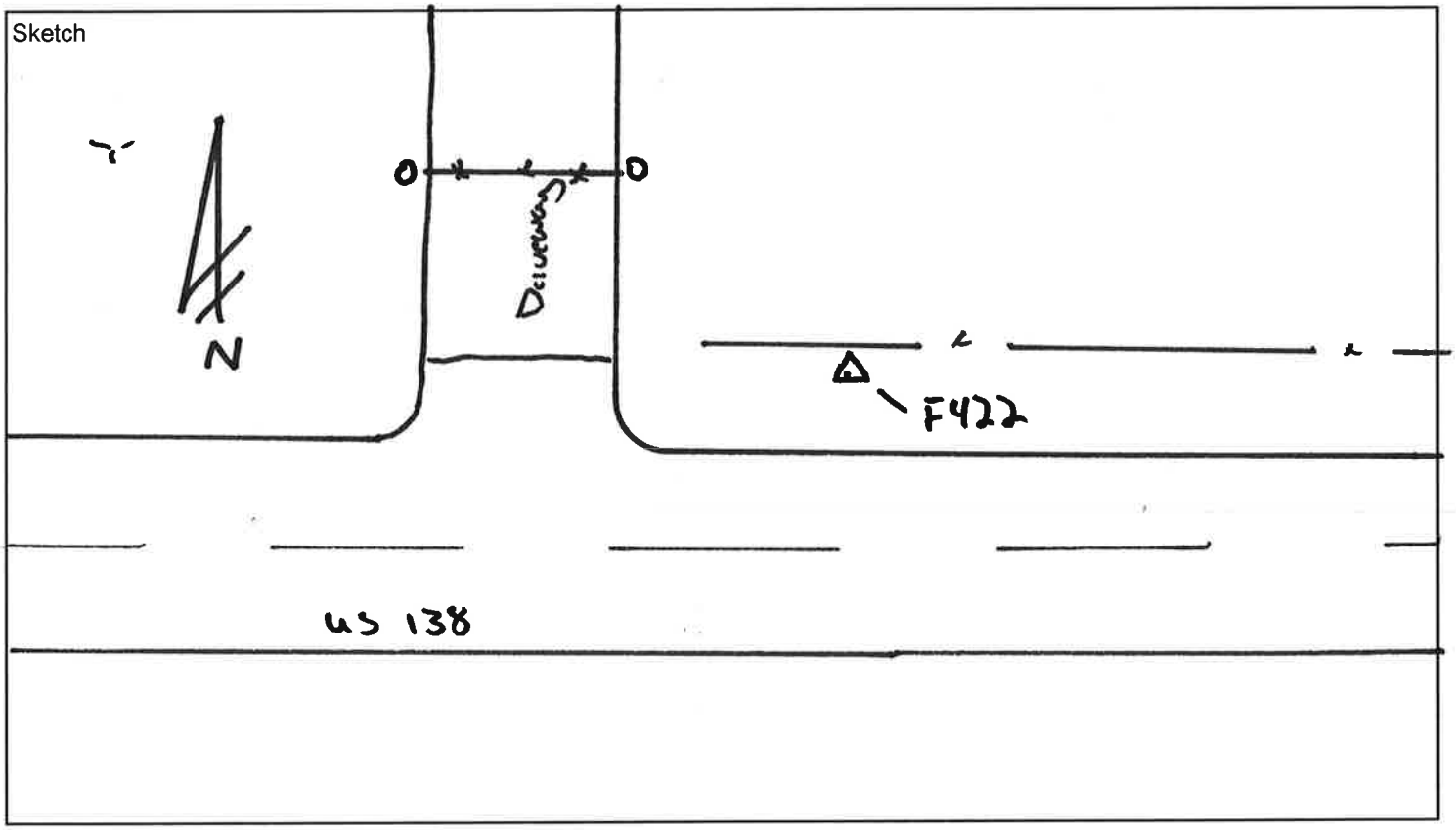
| Station Designation | PID | Location | Date |
|---|---|---|---|
| F422 | MN0395 | Big Springs, NE | 4/20/16 |

O PACS O SACS O TACS ● BM
O FBN O CBN O Other _____

Observer: Dan Kuxhausen

Organization: Woolpert

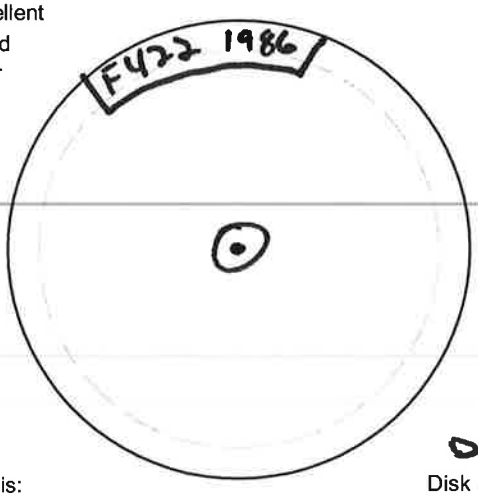
Sketch




Disk Detail

Photos Available

Monument is:
- O A. Most stable
- O B. Excellent
- ● C. Good
- O D. Poor

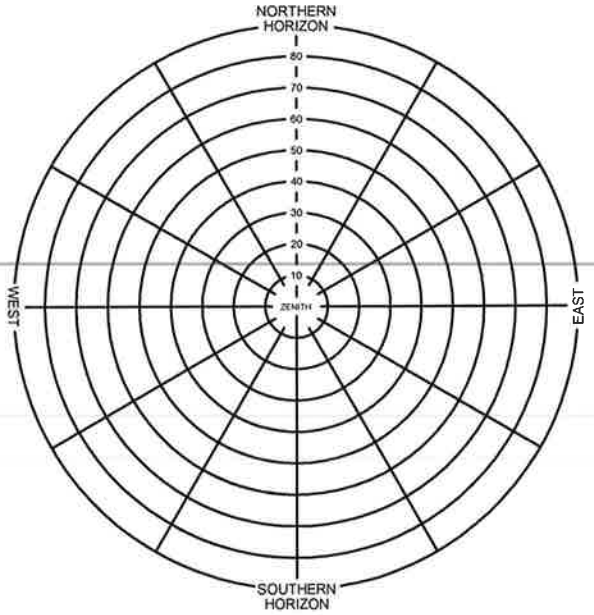



Monument is:
- O Recessed ____cm
- ● Flush with ground
- O Projecting ____cm

Disk is set:
- O in bedrock.
- O in concrete.
- O in structure.

Visibility Diagram

Photos Available




● No Obstructions above 10°

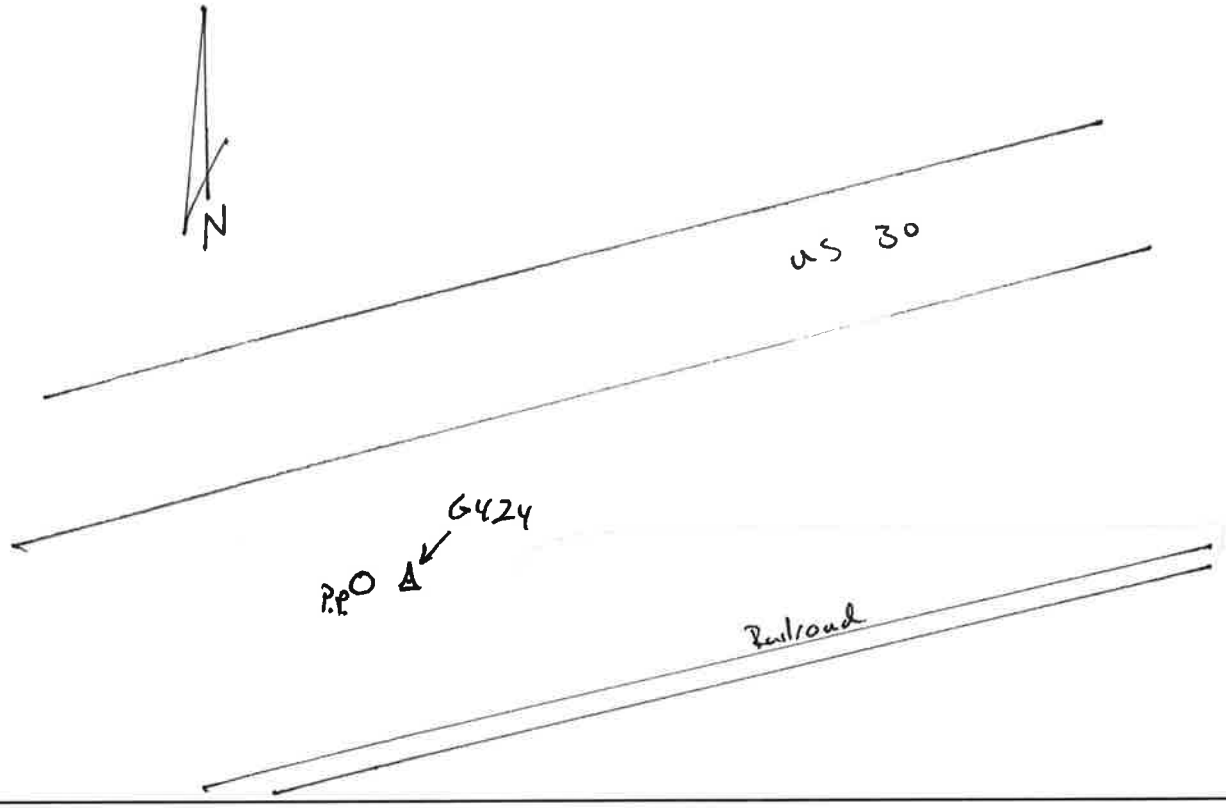
# 75955 South Platte Basin QL2 LiDAR
# Station Recovery Log

WOOLPERT

| Station Designation | PID | Location | Date |
|---|---|---|---|
| G424 | MM0317 | Sutherland NE | 4/19/16 |

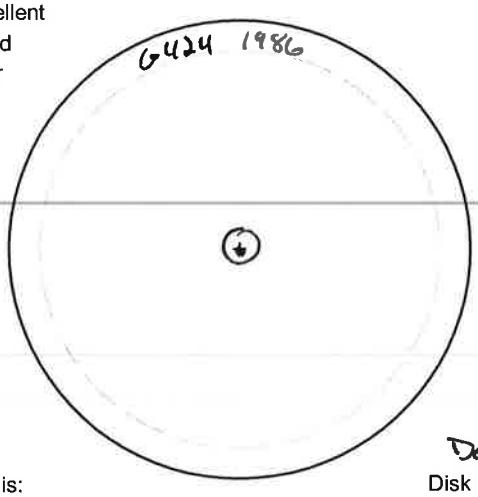
| | Observer | Organization |
|---|---|---|
| O PACS O SACS O TACS ● BM<br>O FBN O CBN O Other _____ | Dan Kuxhausen | **Woolpert** |

Sketch




Disk Detail — X Photos Available

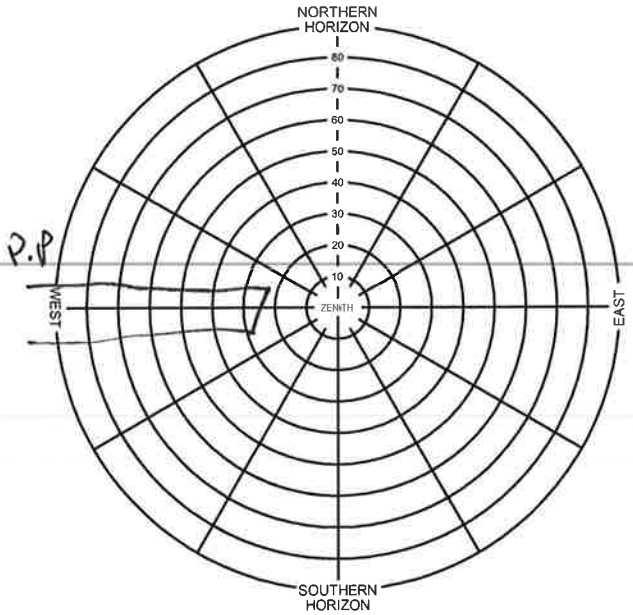
Monument is:
- O A. Most stable
- O B. Excellent
- ● C. Good
- O D. Poor




Monument is:
- O Recessed ____cm
- ● Flush with ground
- O Projecting ____cm

Disk is set:
- O in bedrock.
- O in concrete.
- O in structure.

Visibility Diagram — X Photos Available




O No Obstructions above 10°

# 75955 South Platte Basin QL2 LiDAR
# Station Recovery Log

WOOLPERT

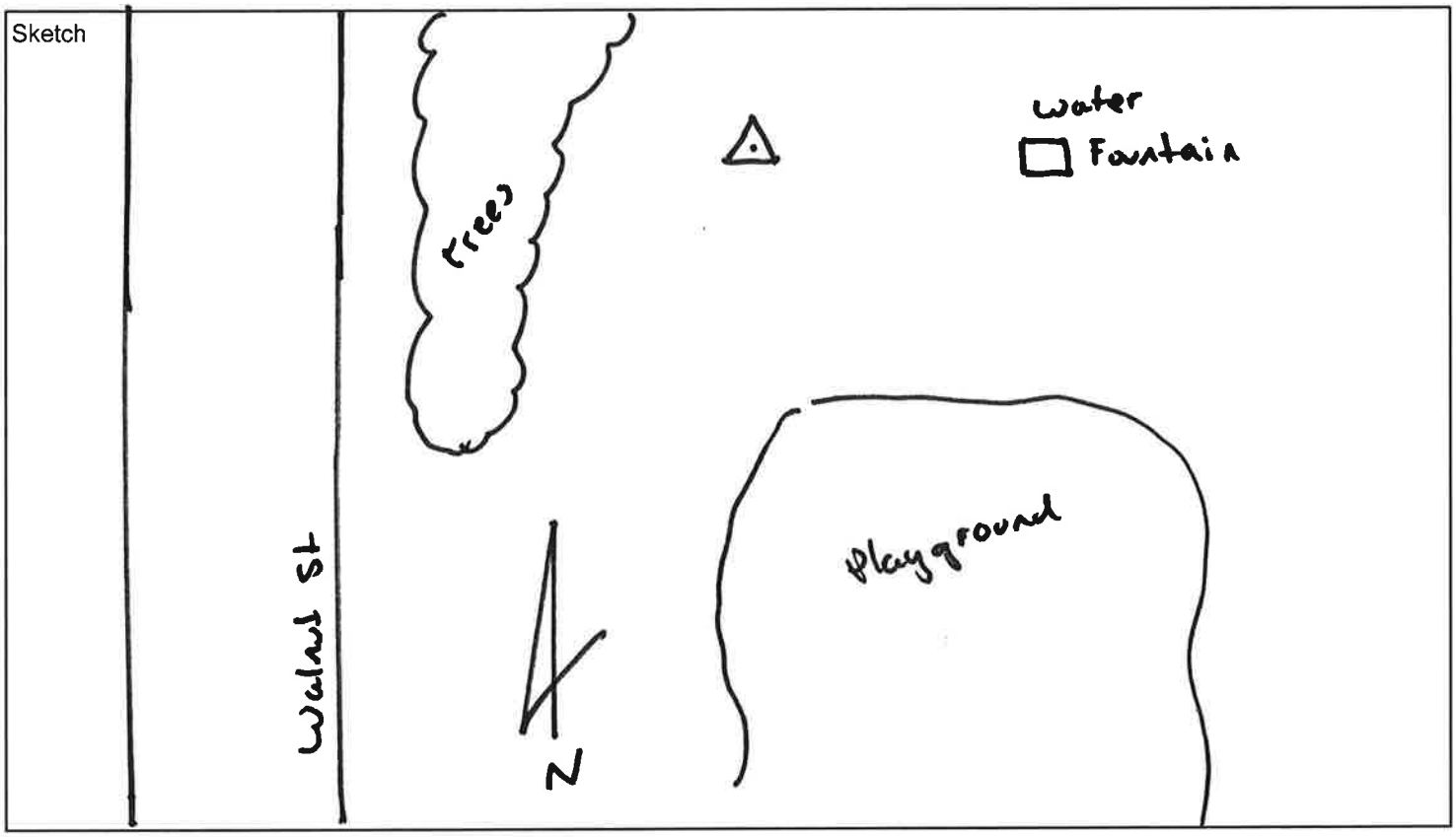
| Station Designation | PID | Location | Date |
|---|---|---|---|
| Kimball | MN0244 | Kimball, NE | 4/22/16 |

○ PACS ○ SACS ○ TACS ● BM
○ FBN ○ CBN ○ Other _____

Observer: Dan Kuxhausen

Organization: **Woolpert**

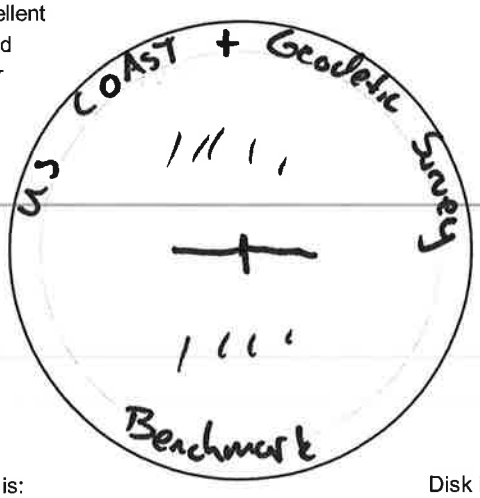
Sketch




Disk Detail — ☒ Photos Available

Monument is:
- ○ A. Most stable
- ○ B. Excellent
- ● C. Good
- ○ D. Poor

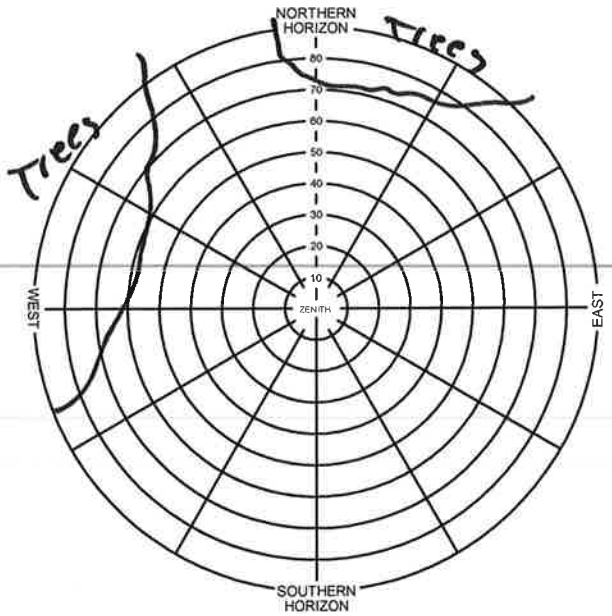
Markings worn off




Monument is:
- ○ Recessed ____cm
- ● Flush with ground
- ○ Projecting ____cm

Disk is set:
- ○ in bedrock.
- ● in concrete.
- ○ in structure.

Visibility Diagram — ☒ Photos Available




○ No Obstructions above 10°

# 75955 South Platte Basin QL2 LiDAR
# Station Recovery Log

WOOLPERT

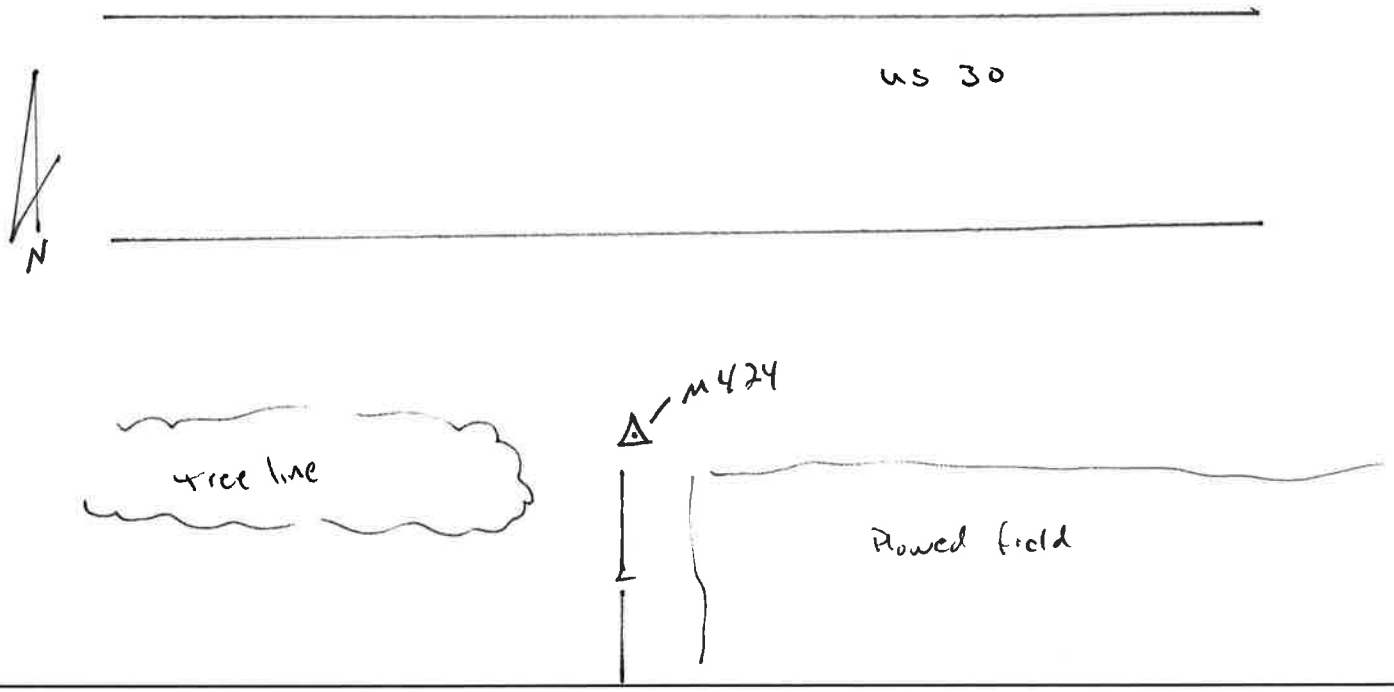
| Station Designation | PID | Location | Date |
|---|---|---|---|
| M 424 | MM0311 | North Platte NE | 4/19/16 |

O PACS O SACS O TACS ● BM
O FBN O CBN O Other _____

Observer: Dan Kozlowski

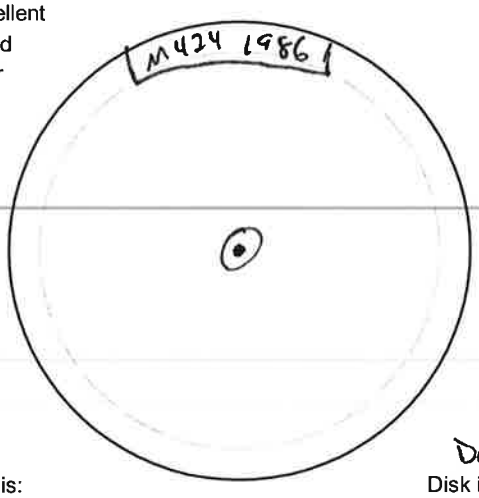
Organization: **Woolpert**

Sketch




Disk Detail — ☒ Photos Available

Monument is:
- O A. Most stable
- O B. Excellent
- ☒ C. Good
- O D. Poor

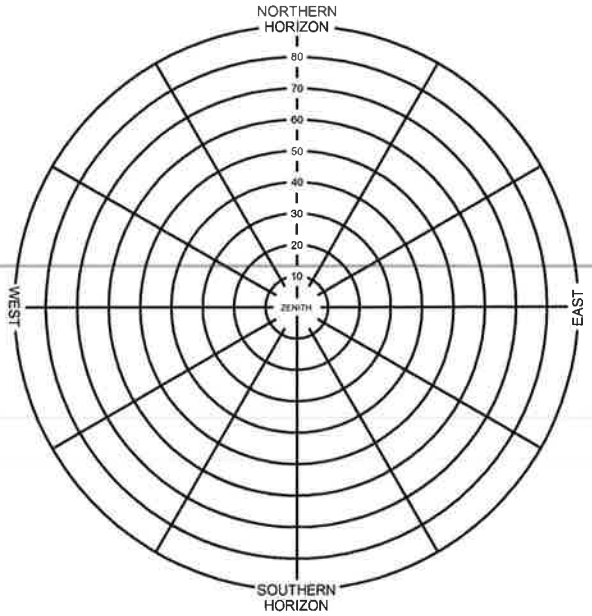



Deep Rod

Monument is:
- O Recessed ____cm
- ● Flush with ground
- O Projecting ____cm

Disk is set:
- O in bedrock.
- O in concrete.
- O in structure.

Visibility Diagram — ☒ Photos Available




● No Obstructions above 10°

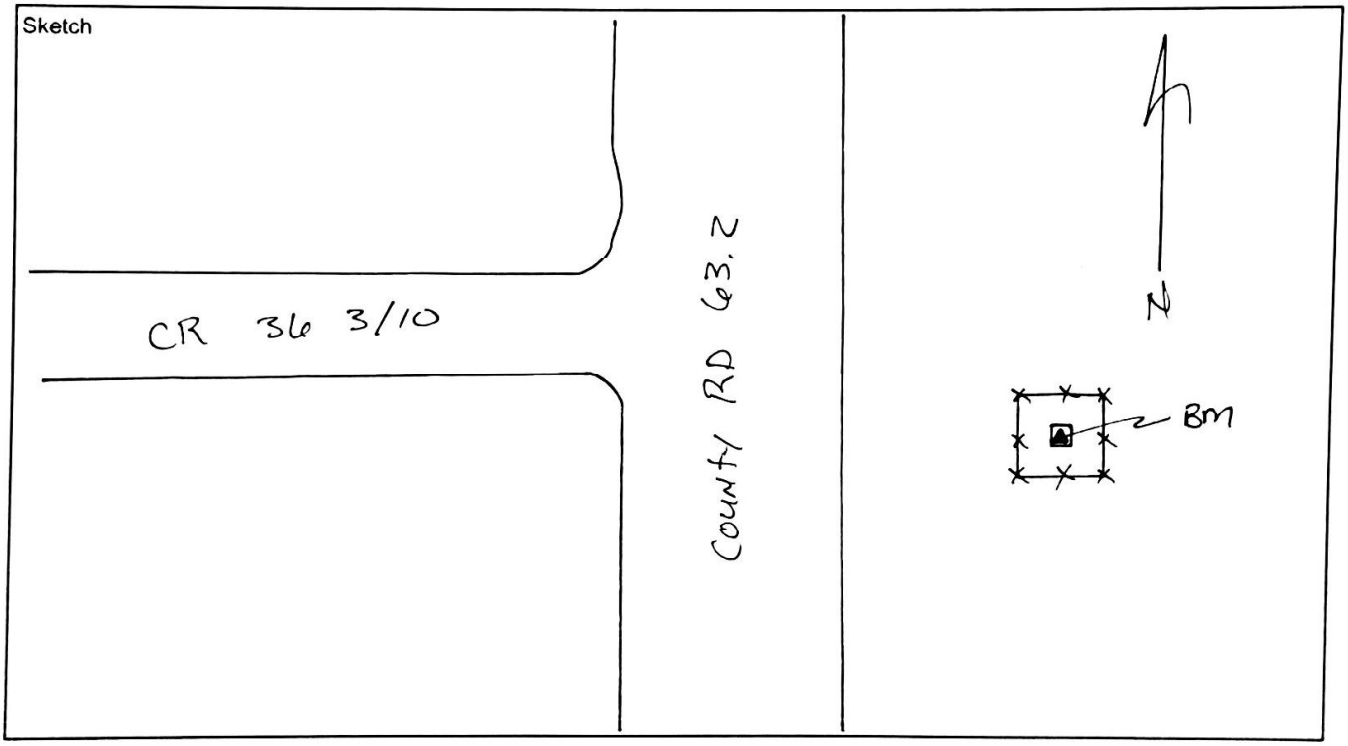
# Station Recovery Log

WOOLPERT

| Station Designation | PID | Location | Date |
|---|---|---|---|
| Northeast Corner Colo Reset | MN0401 | South Platte Basin | 4/20/16 |

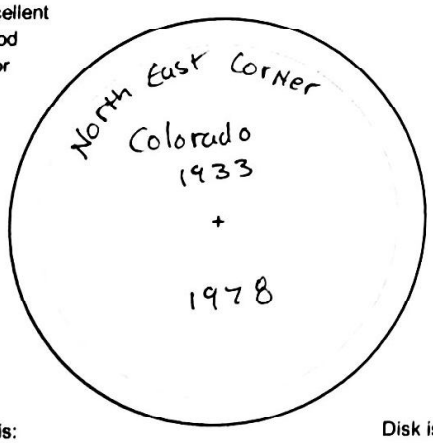
| | Observer | Organization |
|---|---|---|
| O PACS O SACS O TACS ⊗ BM<br>O FBN O CBN O Other _____ | Jack Hearp | Woolpert |

Sketch




Disk Detail ⊗ Photos Available

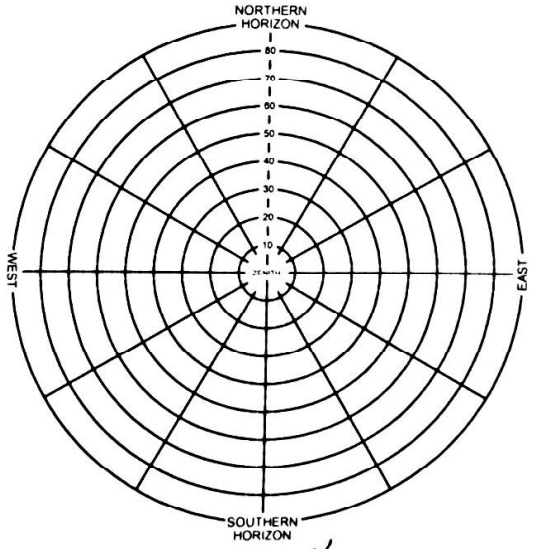
Monument is:
- O A. Most stable
- O B. Excellent
- ⊗ C. Good
- O D. Poor




Monument is:
- O Recessed ____cm
- O Flush with ground
- ⊗ Projecting ____cm

Disk is set:
- O in bedrock.
- O in concrete.
- O in structure.

Visibility Diagram ⊗ Photos Available




⊗ No Obstructions above 10°

# 75955 South Platte Basin QL2 LiDAR
# Station Recovery Log

WOOLPERT

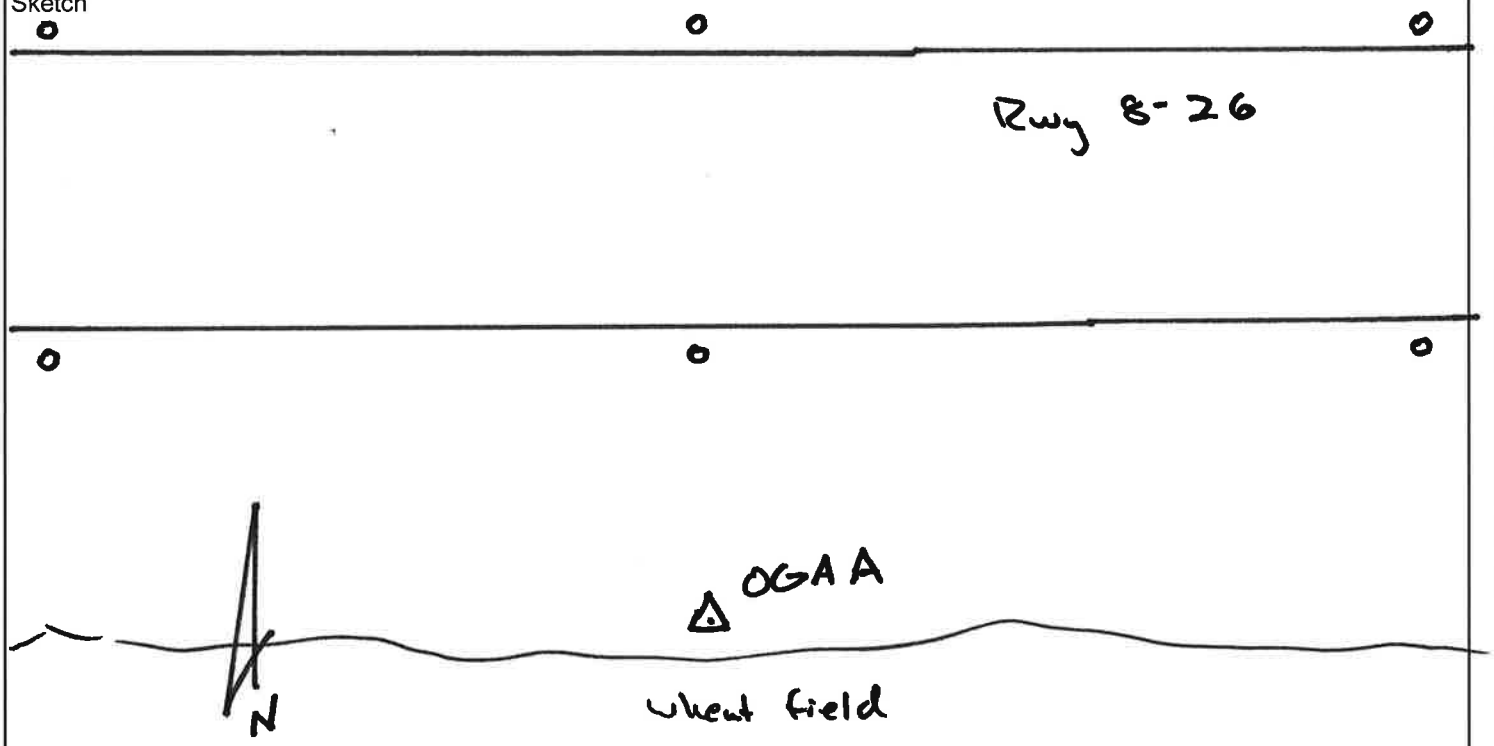
| Station Designation | PID | Location | Date |
|---|---|---|---|
| OGA A | AB4116 | Ogallala, NE | 4/20/16 |

● PACS ○ SACS ○ TACS ○ BM
○ FBN ○ CBN ○ Other _____

Observer: Dan Kuxhausen

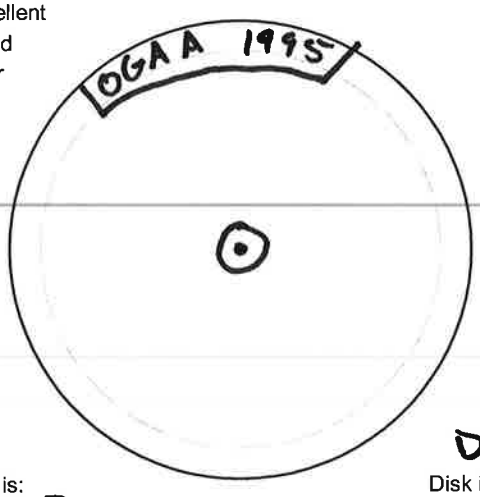
Organization: **Woolpert**

Sketch




Disk Detail — ☒ Photos Available

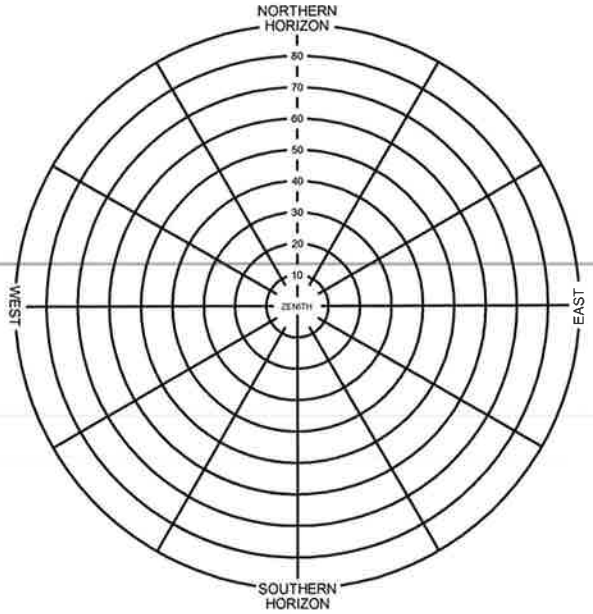
Monument is:
- ○ A. Most stable
- ○ B. Excellent
- ● C. Good
- ○ D. Poor




Monument is:
- ● Recessed 3 cm
- ○ Flush with ground
- ○ Projecting ____cm

Disk is set:
- ○ in bedrock.
- ○ in concrete.
- ○ in structure.

Visibility Diagram — ☒ Photos Available




● No Obstructions above 10°

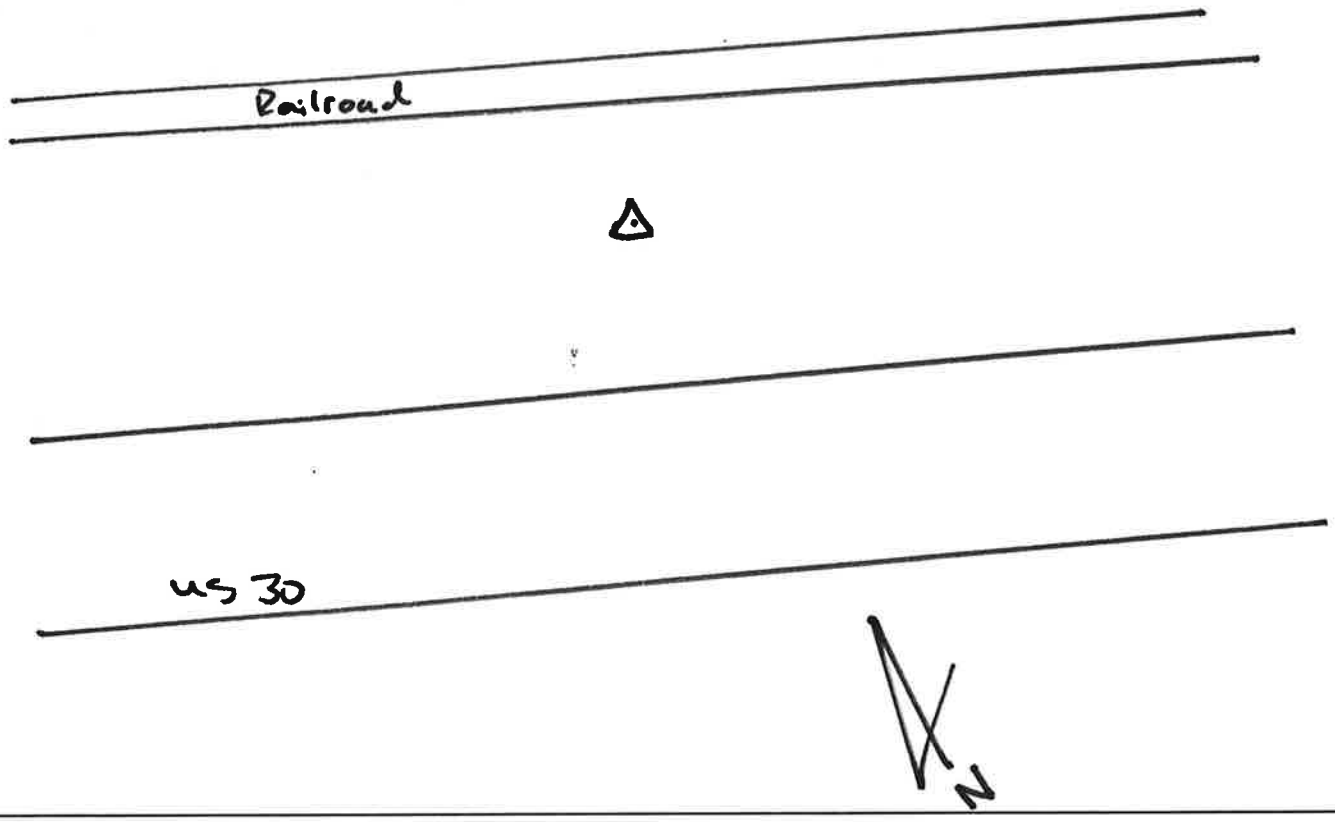
# 75955 South Platte Basin QL2 LiDAR
# Station Recovery Log

WOOLPERT

| Station Designation | PID | Location | Date |
|---|---|---|---|
| T 76 | MN0216 | Kimball, NE | 4/22/16 |

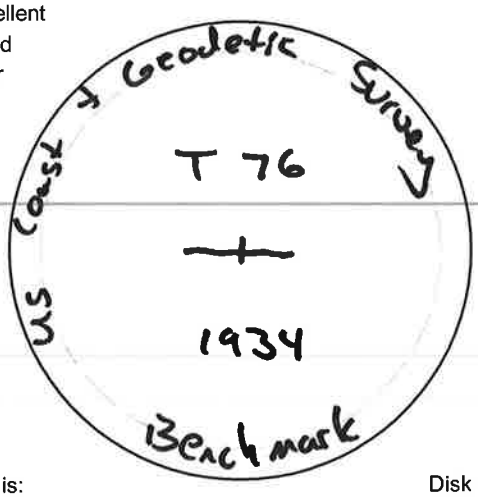
| | Observer | Organization |
|---|---|---|
| ○ PACS ○ SACS ○ TACS ○ BM<br>● FBN ○ CBN ○ Other _____ | Dan Kuxhausen | Woolpert |

Sketch




Disk Detail — Photos Available

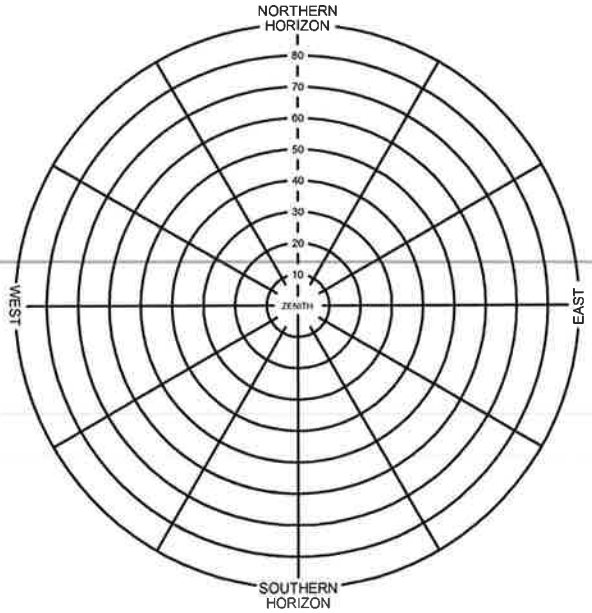
Monument is:
- ○ A. Most stable
- ○ B. Excellent
- ● C. Good
- ○ D. Poor




Monument is:
- ○ Recessed ____cm
- ● Flush with ground
- ○ Projecting ____cm

Disk is set:
- ○ in bedrock.
- ● in concrete.
- ○ in structure.

Visibility Diagram — Photos Available




● No Obstructions above 10°

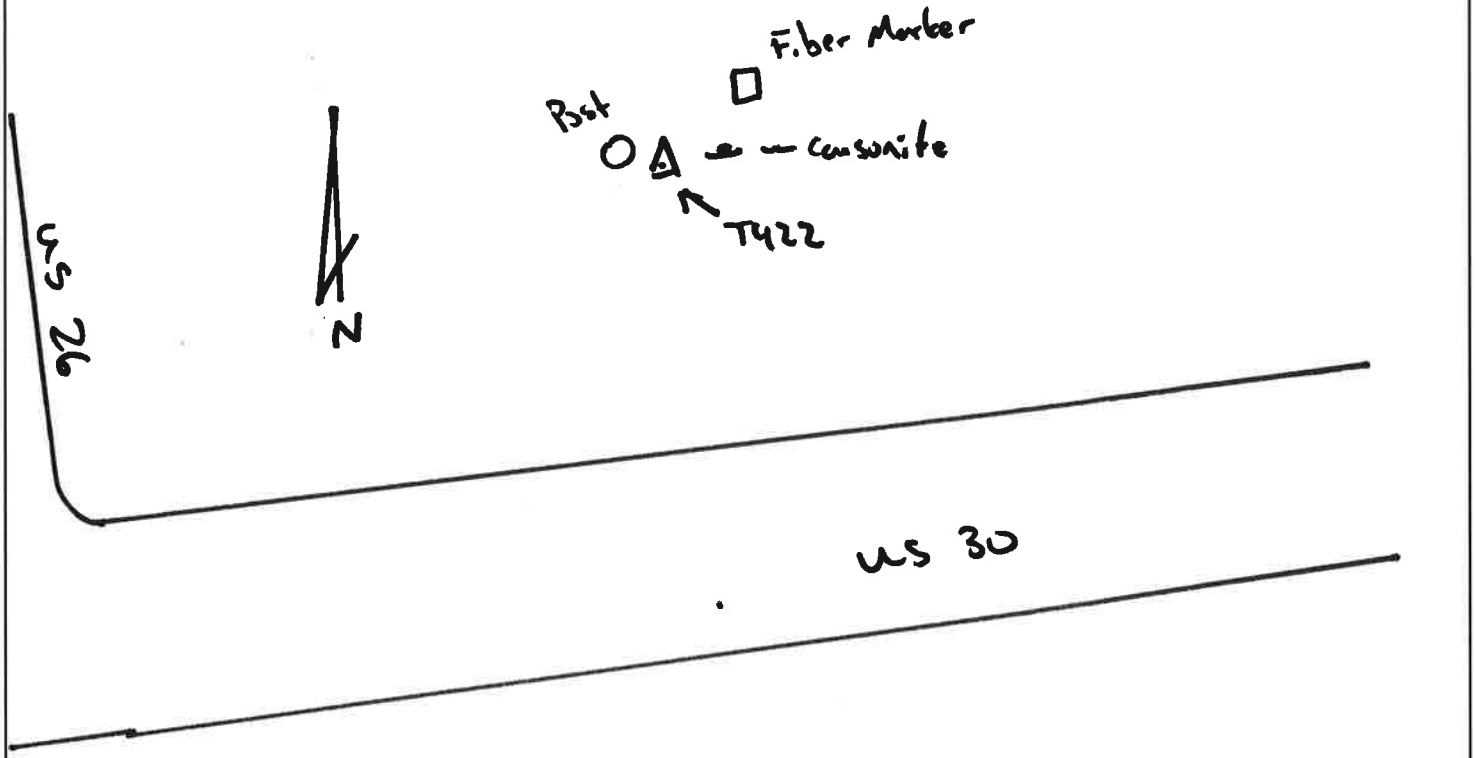
# 75955 South Platte Basin QL2 LiDAR
# Station Recovery Log

WOOLPERT

| Station Designation | PID | Location | Date |
|---|---|---|---|
| T 422 | MM0332 | Ogallala, NE | 4/20/16 |

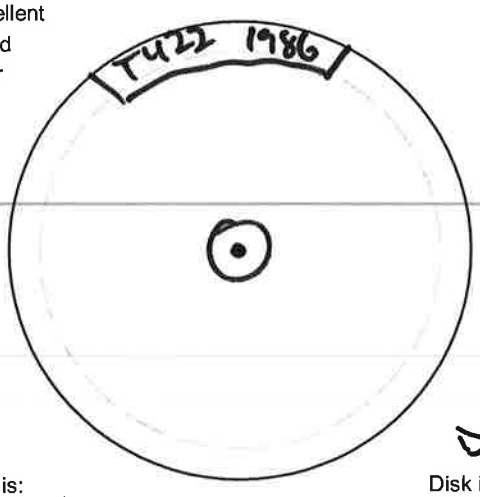
| | Observer | Organization |
|---|---|---|
| ○ PACS ○ SACS ○ TACS ● BM ○ FBN ○ CBN ○ Other _____ | Dan Kuxhausen | Woolpert |

Sketch




Disk Detail — ☒ Photos Available

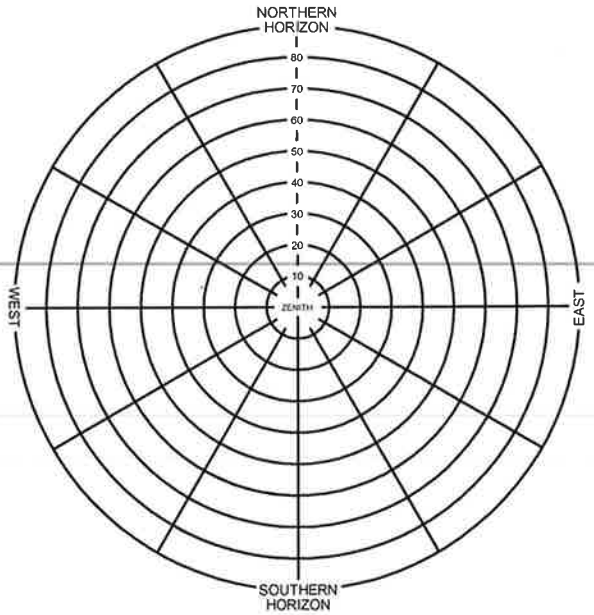
Monument is:
- ○ A. Most stable
- ○ B. Excellent
- ● C. Good
- ○ D. Poor




Monument is:
- ● Recessed 4 cm
- ○ Flush with ground
- ○ Projecting ____cm

Disk is set:
- ○ in bedrock.
- ○ in concrete.
- ○ in structure.

Visibility Diagram — ☒ Photos Available




● No Obstructions above 10°

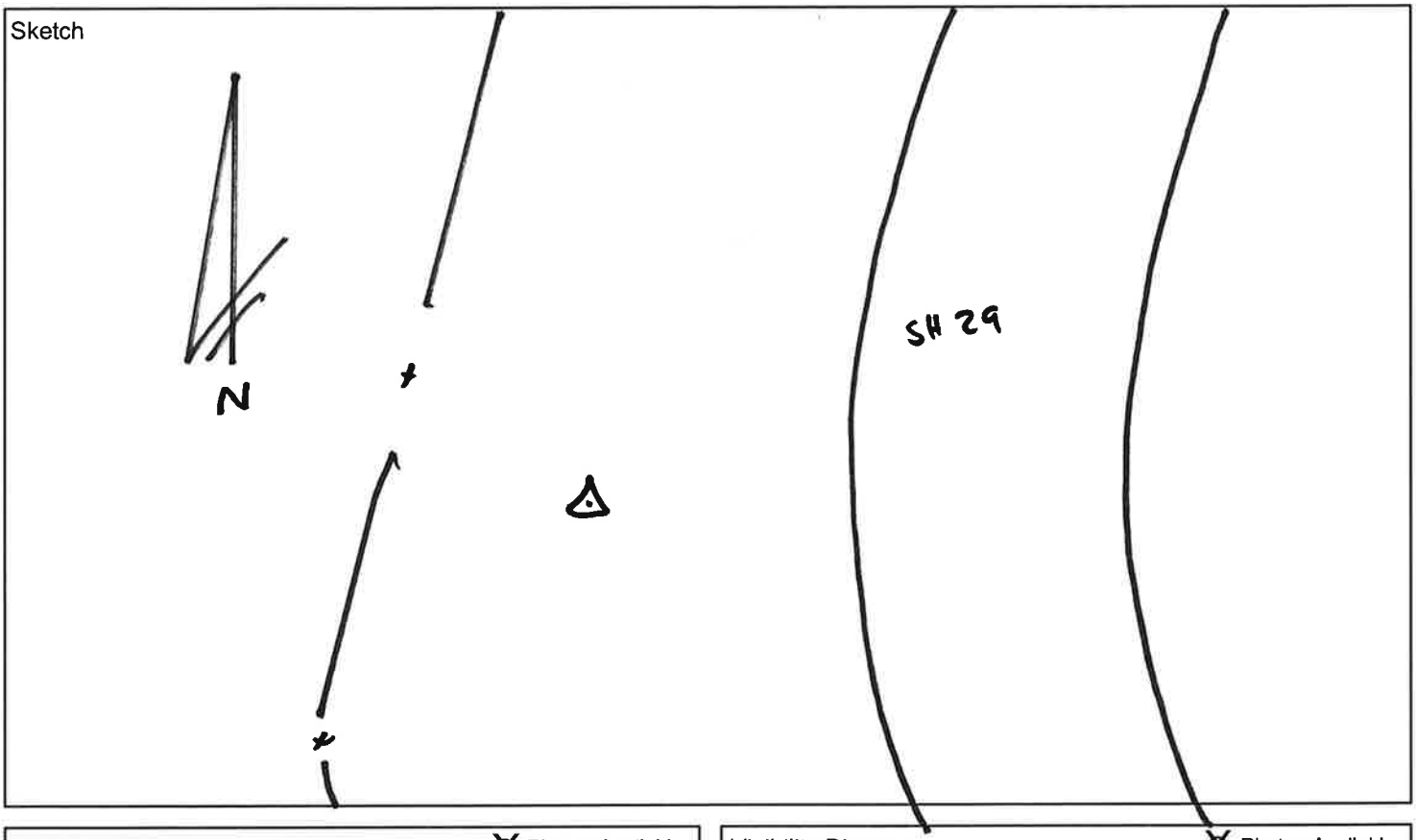
# 75955 South Platte Basin QL2 LiDAR
# Station Recovery Log

WOOLPERT

| Station Designation | PID | Location | Date |
|---|---|---|---|
| U 58 | WP0422 | Mitchell, NE | 4/27/16 |

| | Observer | Organization |
|---|---|---|
| O PACS O SACS O TACS O BM O FBN ● CBN O Other _____ | Dan Kuxhausen | Woolpert |

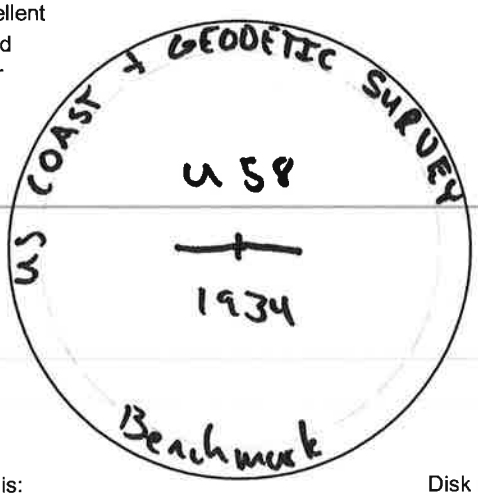
Sketch




Disk Detail

Photos Available

Monument is:
- O A. Most stable
- O B. Excellent
- ● C. Good
- O D. Poor

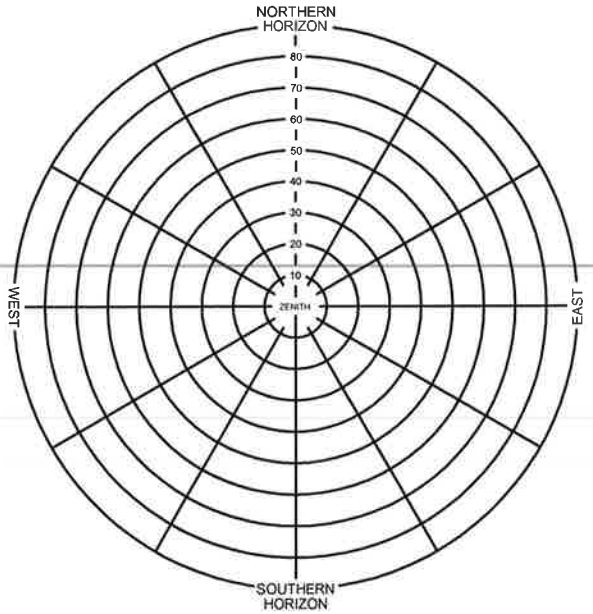



Monument is:
- O Recessed ____cm
- O Flush with ground
- ● Projecting 6 cm

Disk is set:
- O in bedrock.
- ● in concrete.
- O in structure.

Visibility Diagram

Photos Available




● No Obstructions above 10°

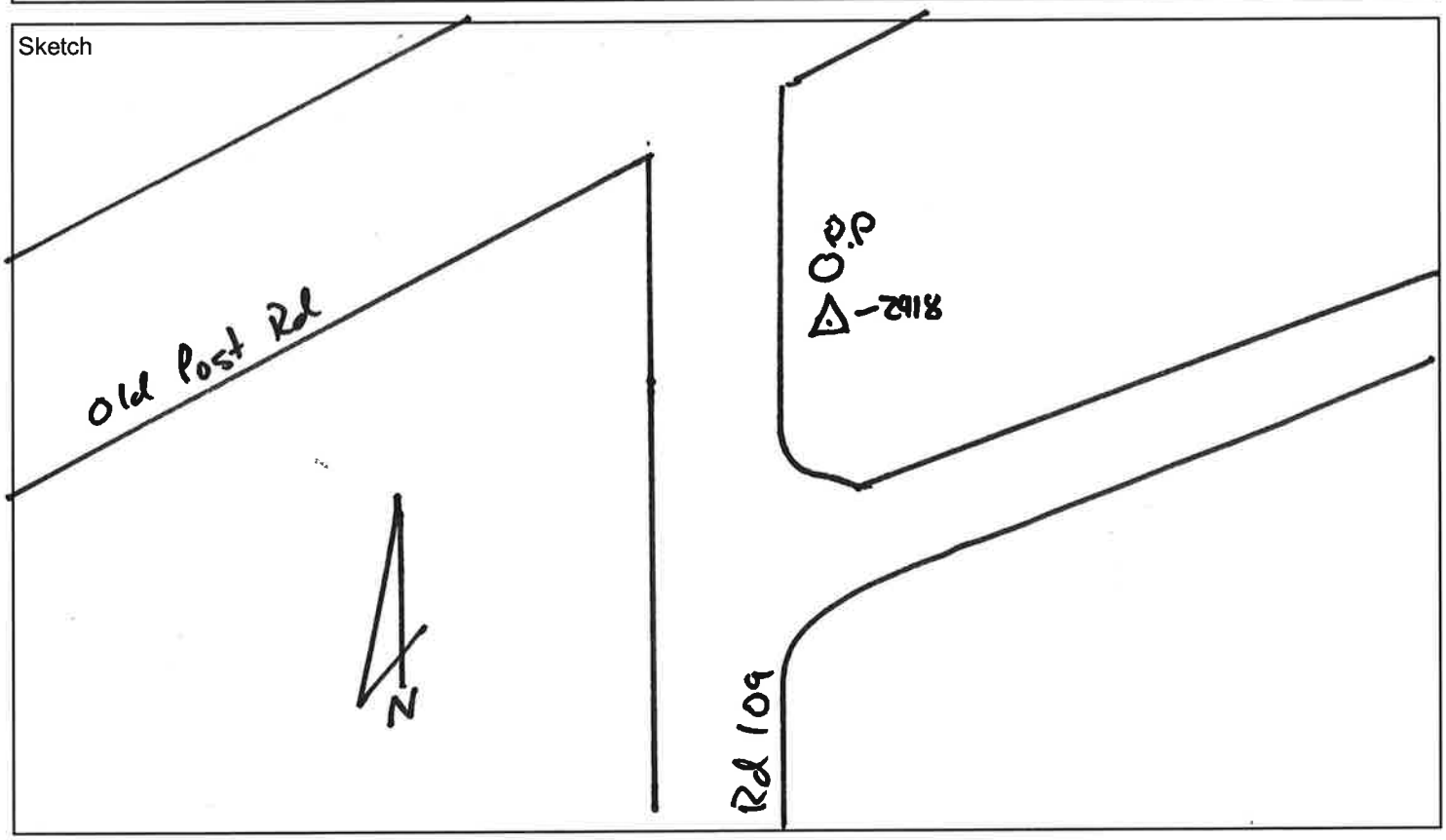
# 75955 South Platte Basin QL2 LiDAR
# Station Recovery Log

WOOLPERT

| Station Designation | PID | Location | Date |
|---|---|---|---|
| Z 418 | MN0384 | Sidney, NE | 4/22/16 |

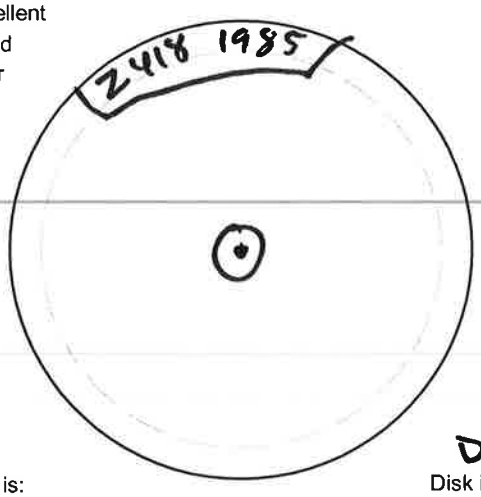
| | Observer | Organization |
|---|---|---|
| ○ PACS ○ SACS ○ TACS ● BM ○ FBN ○ CBN ○ Other _____ | Dan Kuxhausen | Woolpert |

Sketch




Disk Detail — ☒ Photos Available

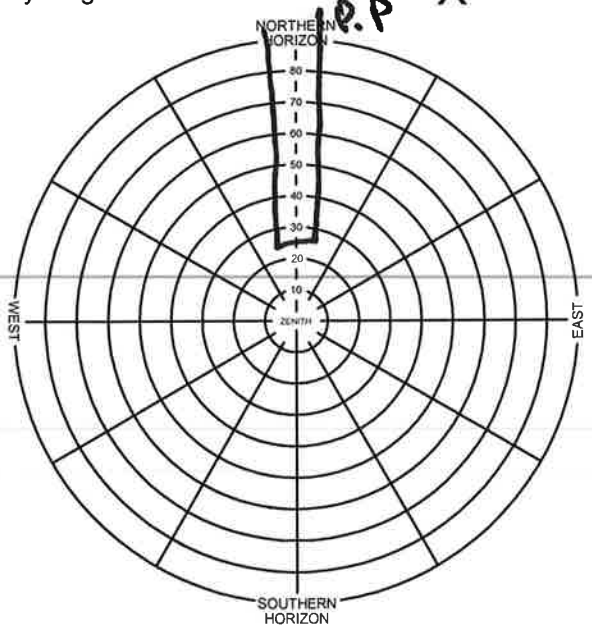
Monument is:
- ○ A. Most stable
- ● B. Excellent
- ⊙ C. Good
- ○ D. Poor




Monument is:
- ○ Recessed ____cm
- ● Flush with ground
- ○ Projecting ____cm

Disk is set:
- ○ in bedrock.
- ○ in concrete.
- ○ in structure.

Visibility Diagram — ☒ Photos Available




○ No Obstructions above 10°

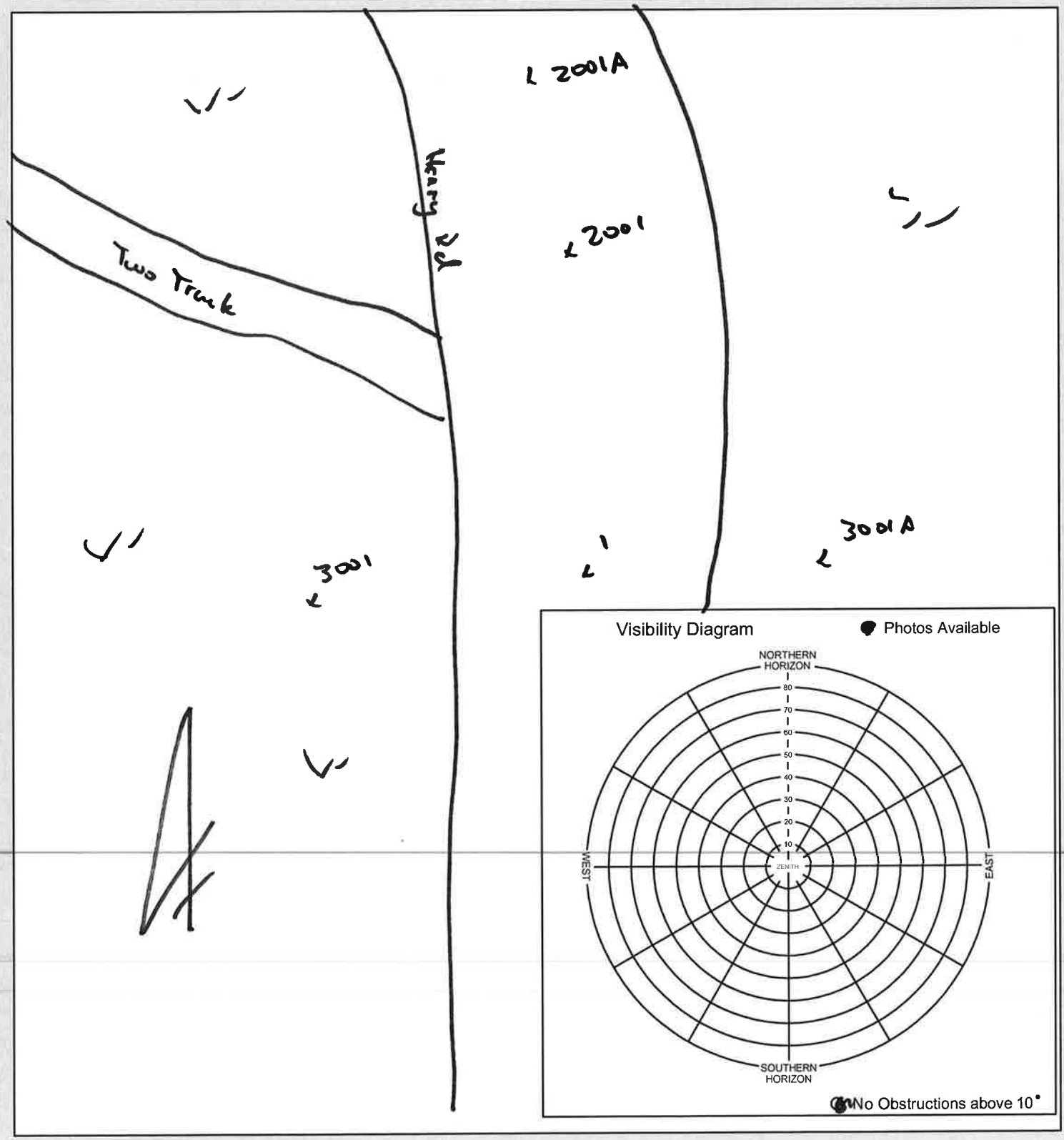
# Ground Control Logs

# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 1 / 2001 / 3001 | South Platte River Basin | 75955 |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N42 °25' 42 " | W 104° 01' 43 " | 4 /28/16 | DJK |




Visibility Diagram

Photos Available



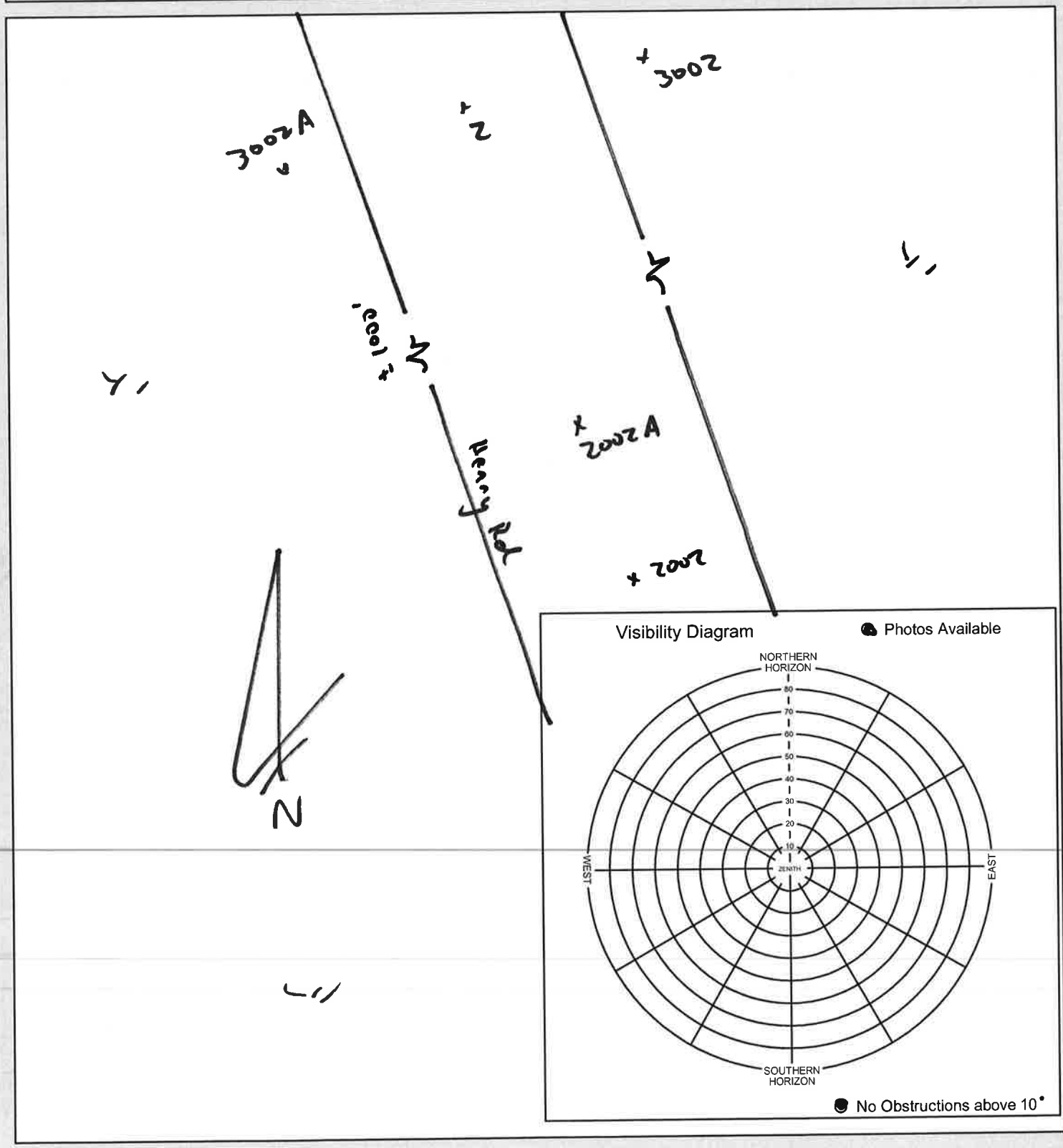

No Obstructions above 10°

# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 2 / 2002 / 3002 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N42 ° 24 ' 19 " | W104 ° 01 ' 29 " | 4 / 25/16 | **DJK** |

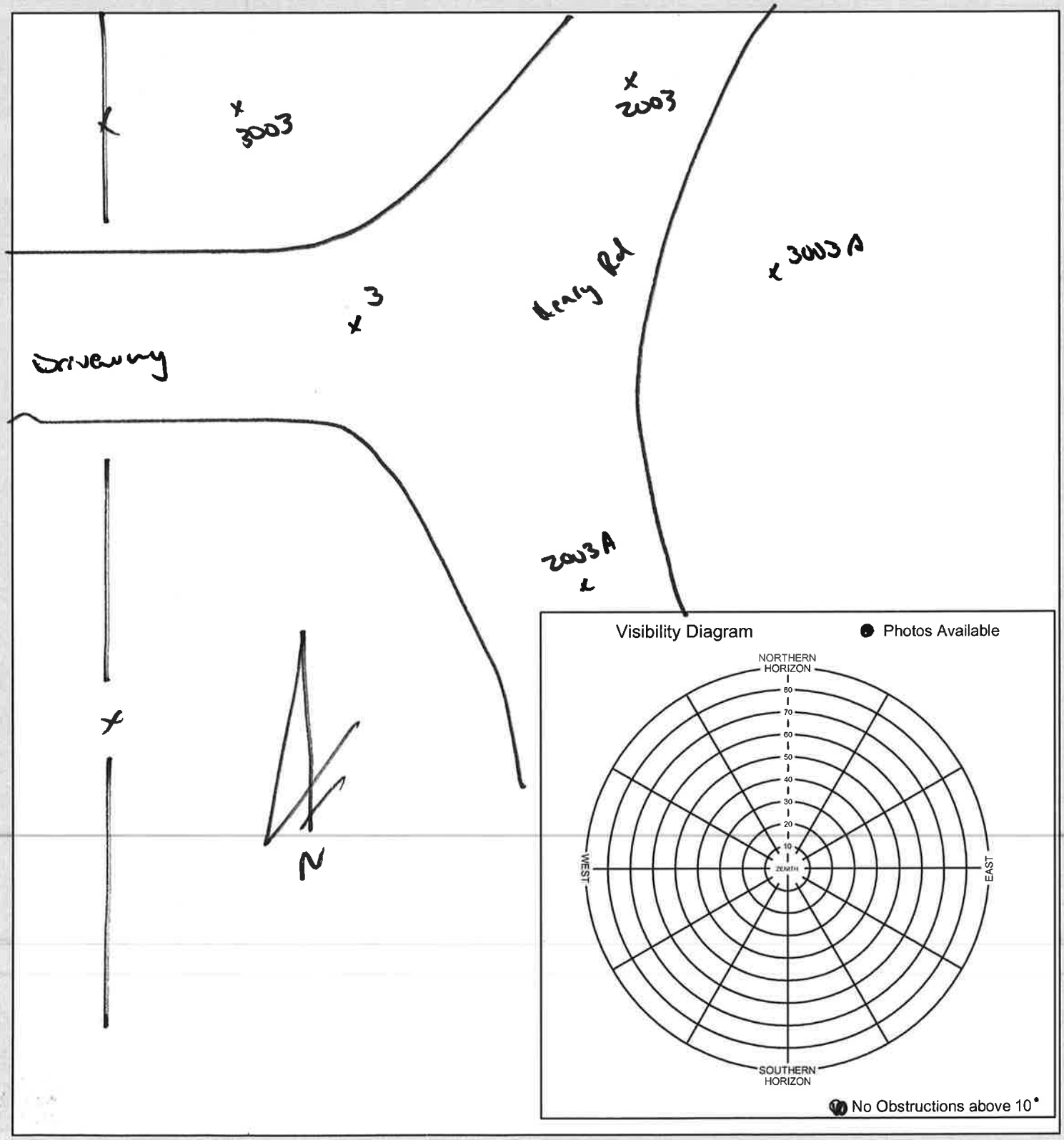


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 3 / 2003 / 3003 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 42 ° 21 ' 53 " | W 104 ° 01 ' 19 " | 4 /28/16 | **DJK** |

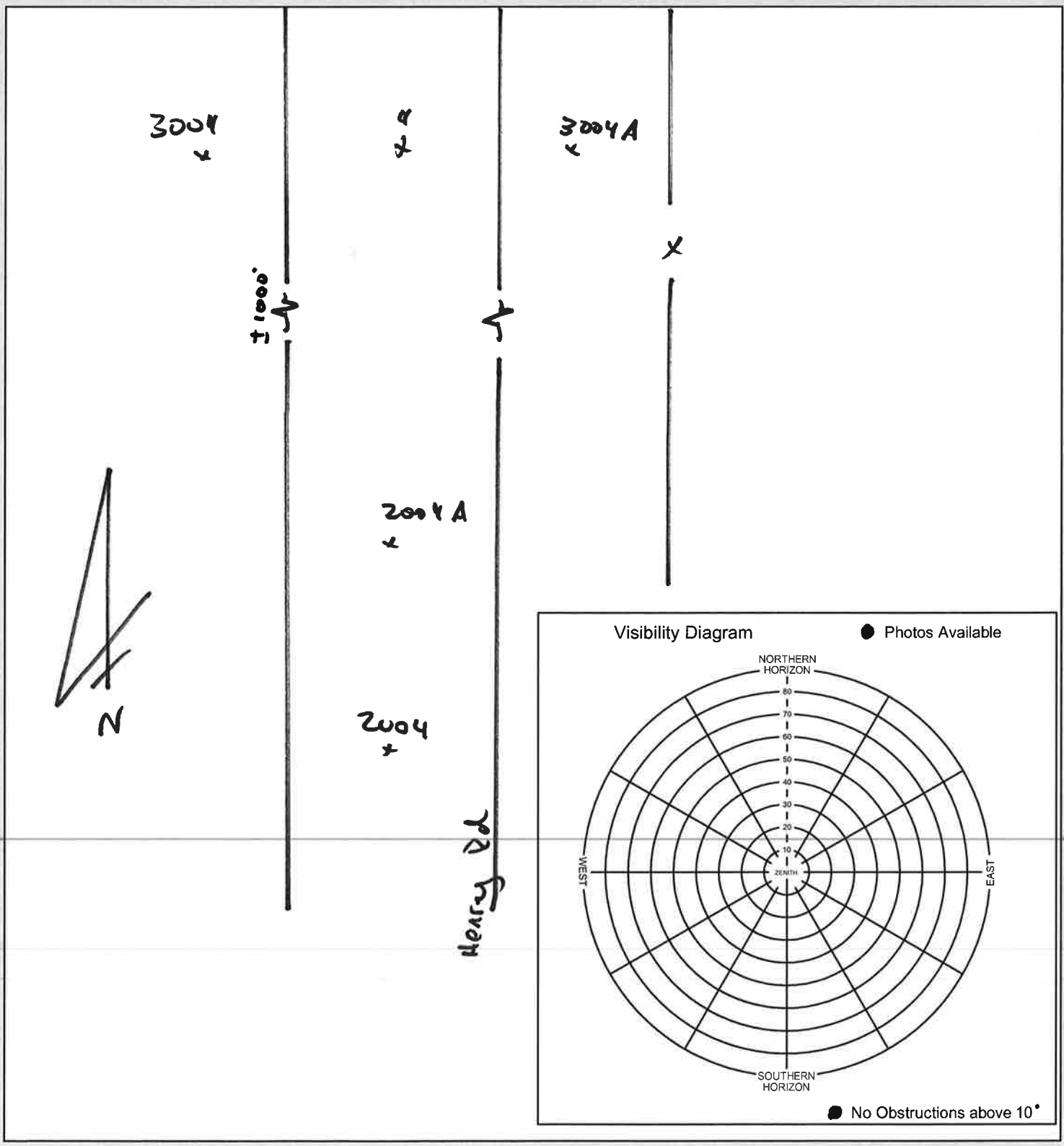


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 4/2004/3004 | South Platte River Basin | 75955 |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 42 ° 19 ' 27 " | W 104 ° 01 ' 58 " | 4/28/16 | DJK |

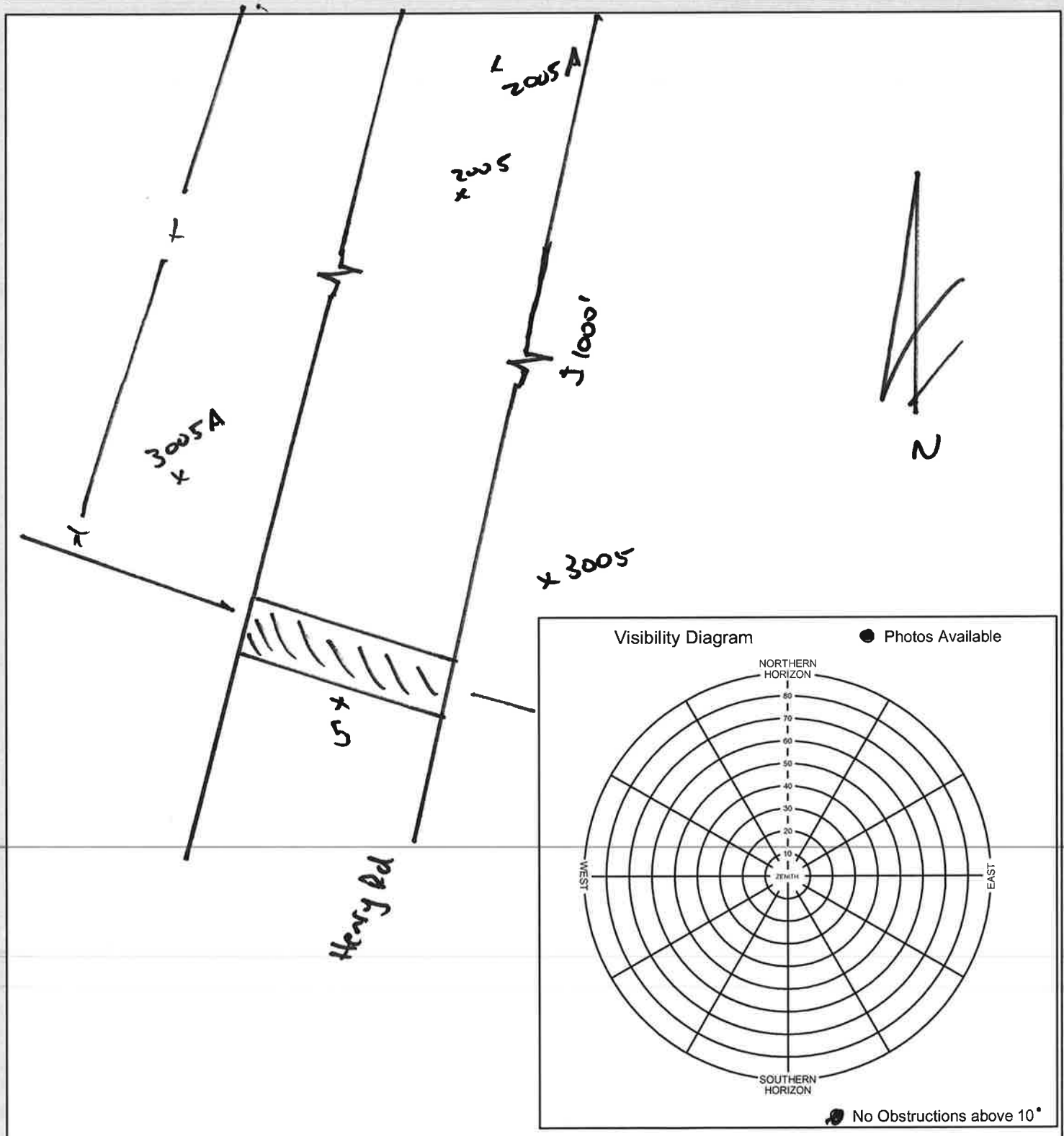


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 5 / 2005 / 3005 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 42 ° 16 ' 52 " | W 104 ° 02 ' 37 " | 4 / 28 / 16 | **DJK** |

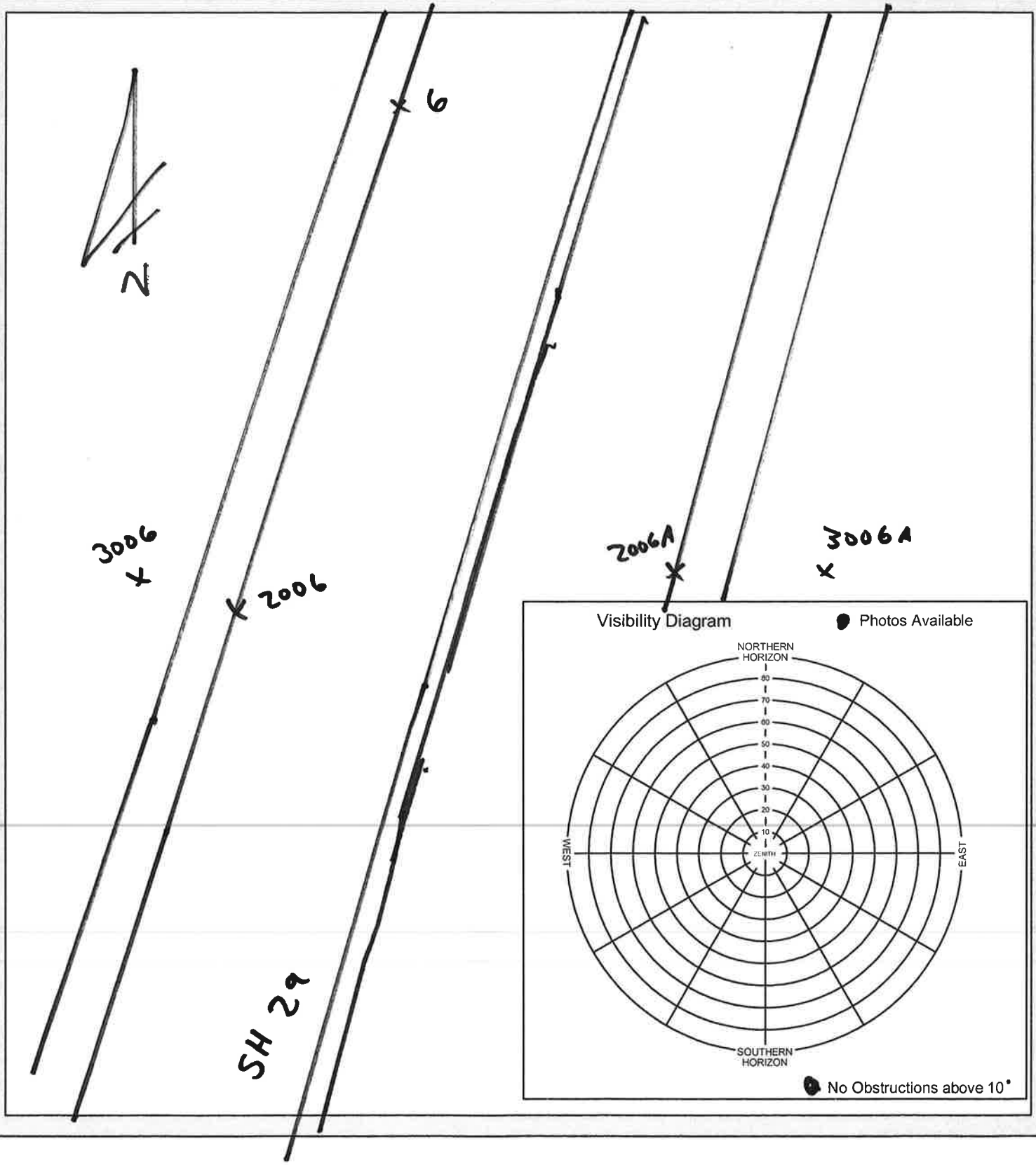


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 6 / 2006 / 3006 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 42 ° 12 ' 54 " | W 103 ° 47 ' 32 " | 4 /27/16 | **DJK** |

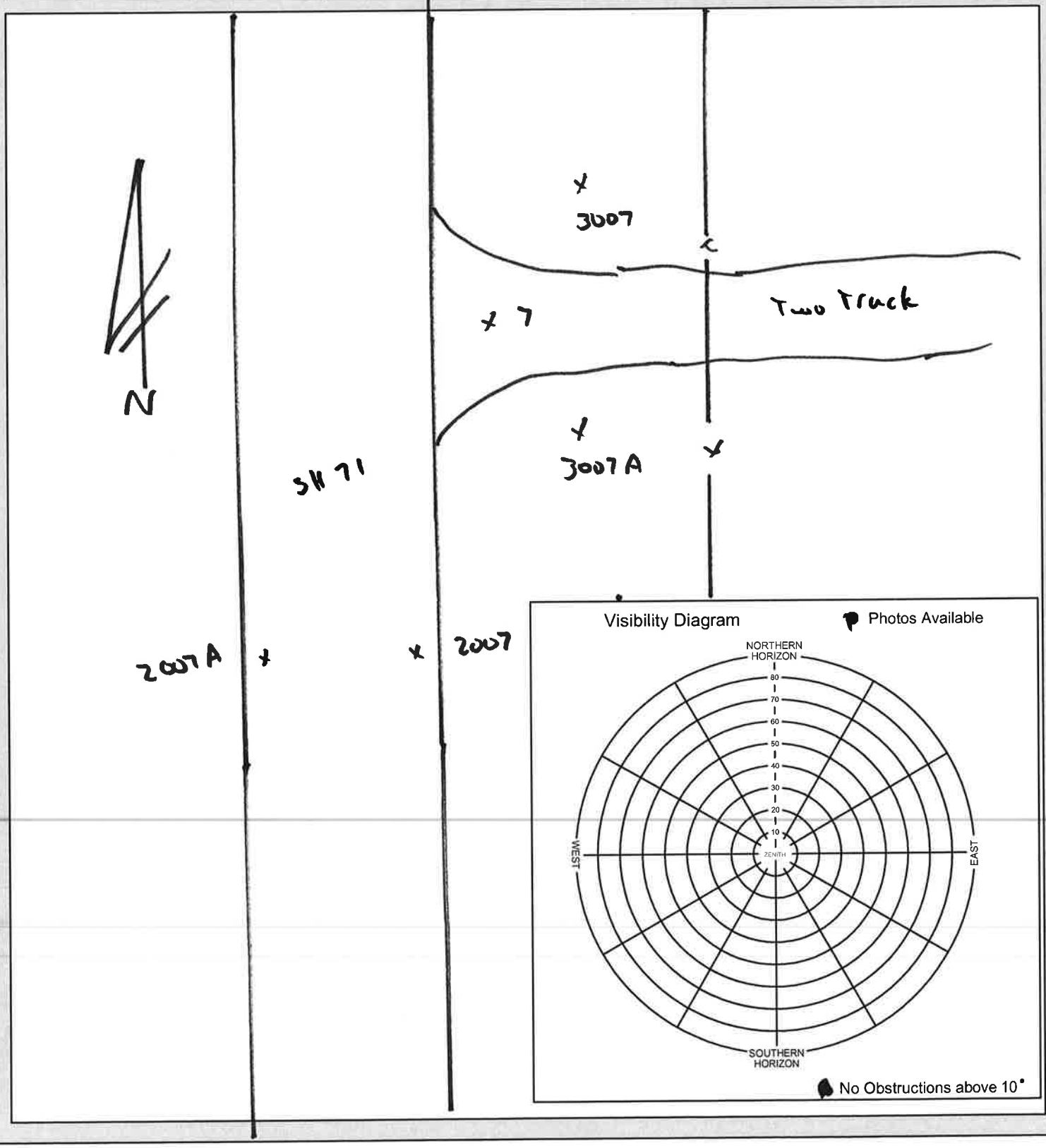


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 7 / 2007 / 3007 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 42 ° 09 ' 47 " | W 103 ° 40 ' 44 " | 4 / 27 / 16 | **DJK** |

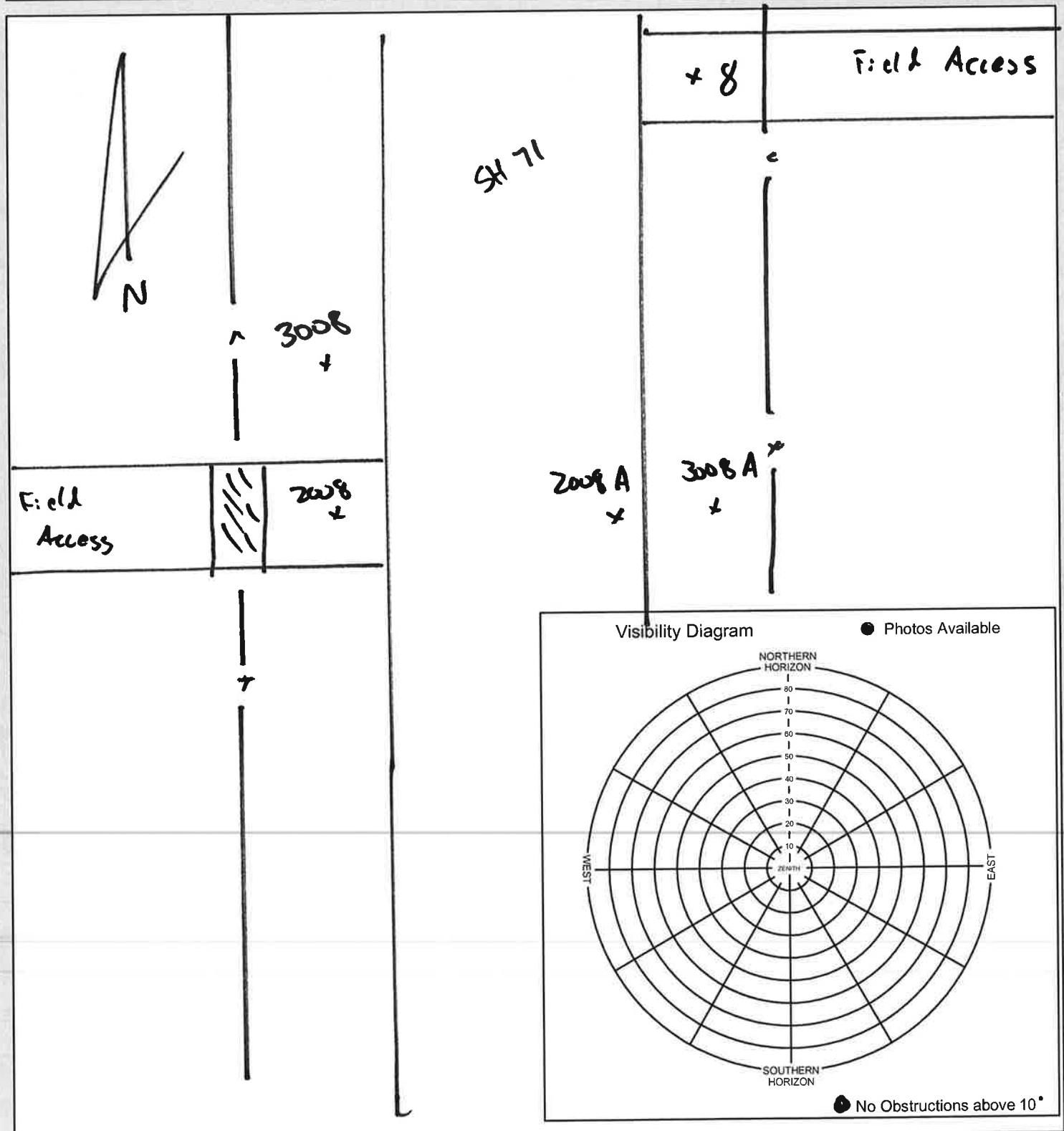


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 8 / 2008 / 3008 | **South Platte River Basin** | **75955** |

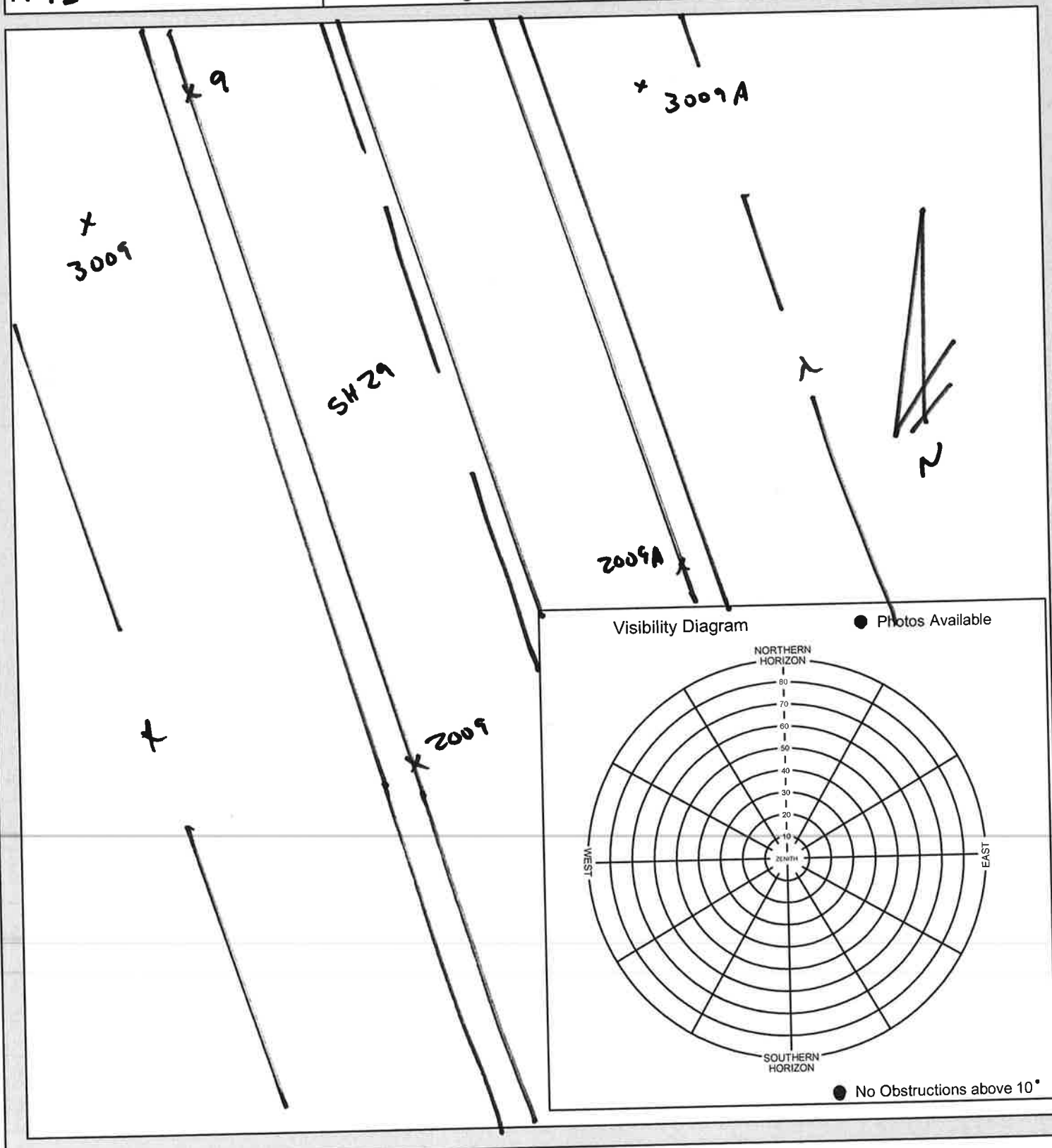
| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 42 ° 06 ' 30 " | W 103 ° 40 ' 44 " | 4 /27/16 | **DJK** |



# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 9 / 2004 / 3009 | South Platte River Basin | 75955 |
| **Latitude** | **Longitude** | **Calendar Date** / **Observer Initials** |
| N 42 ° 04 ' 19 " | W 103 ° 48 ' 56 " | 4 / 27 / 16 — DJK |

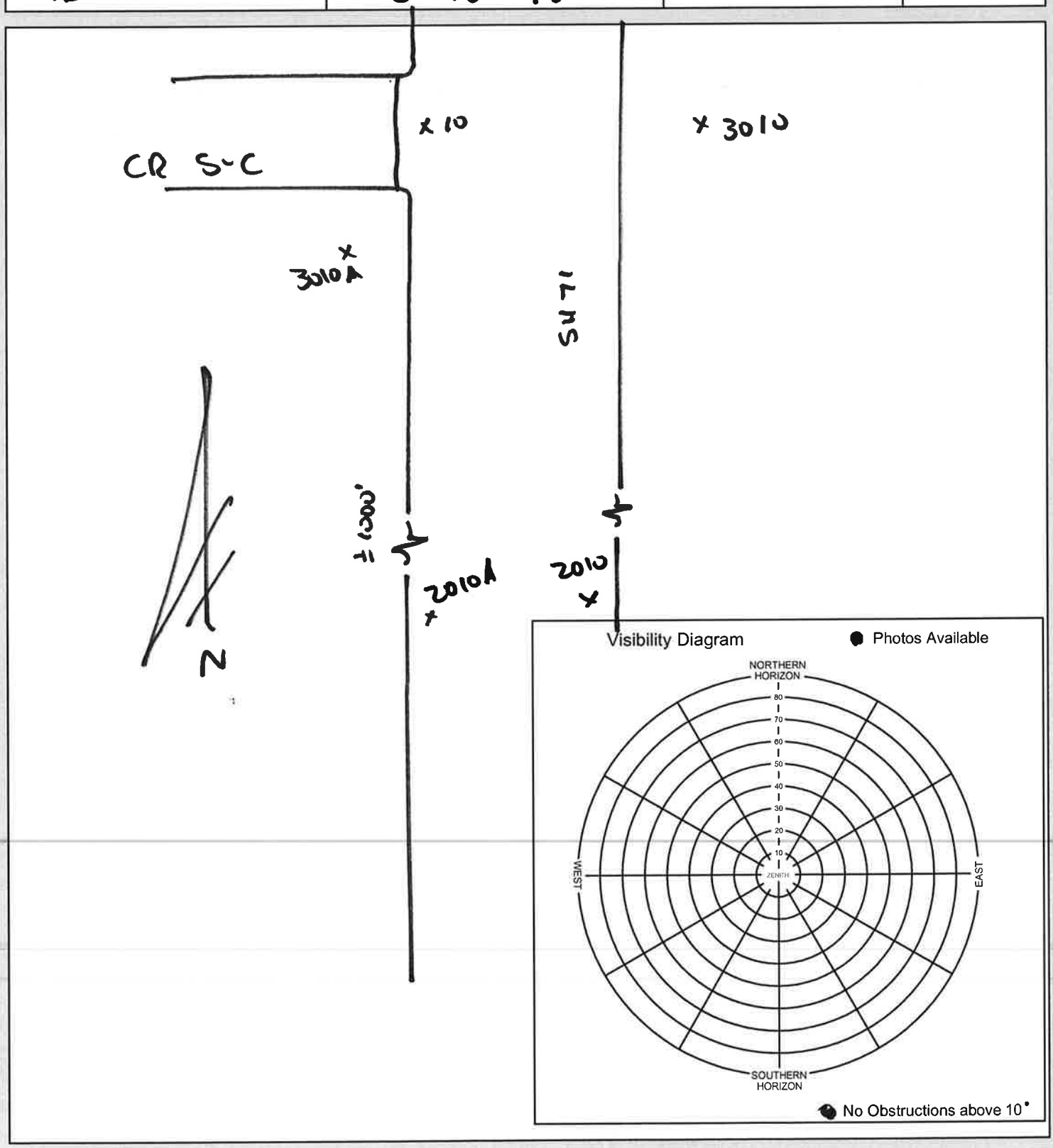


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 10 / 2010 / 3010 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 42 ° 01 ' 49 " | W 103 ° 40 ' 45 " | 4 /27/16 | **DJK** |

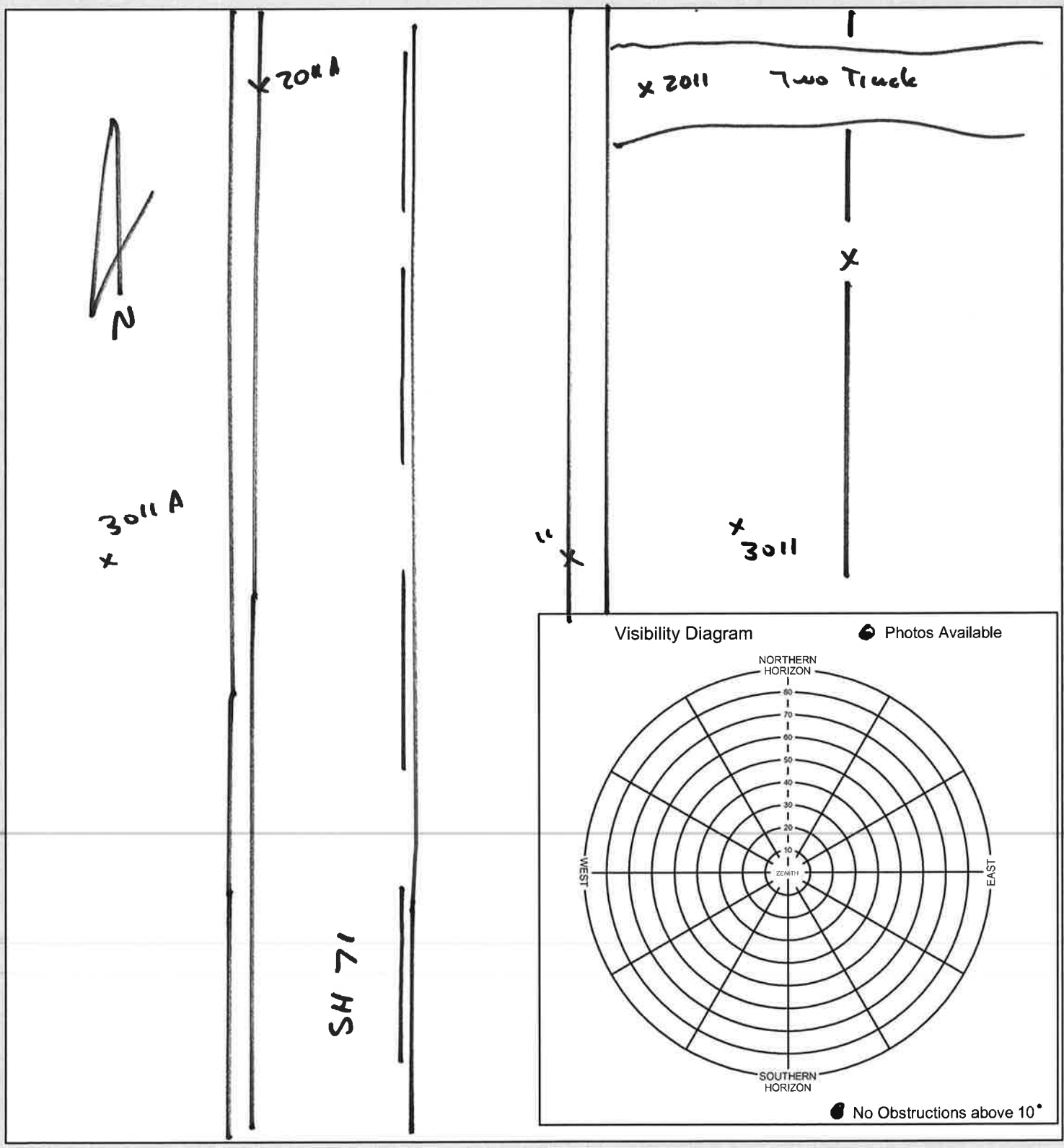


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 11 / 2011 / 3011 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 42 ° 00 ' 14 " | W 103 ° 40 ' 43 " | 4 / 27 / 16 | **DJK** |

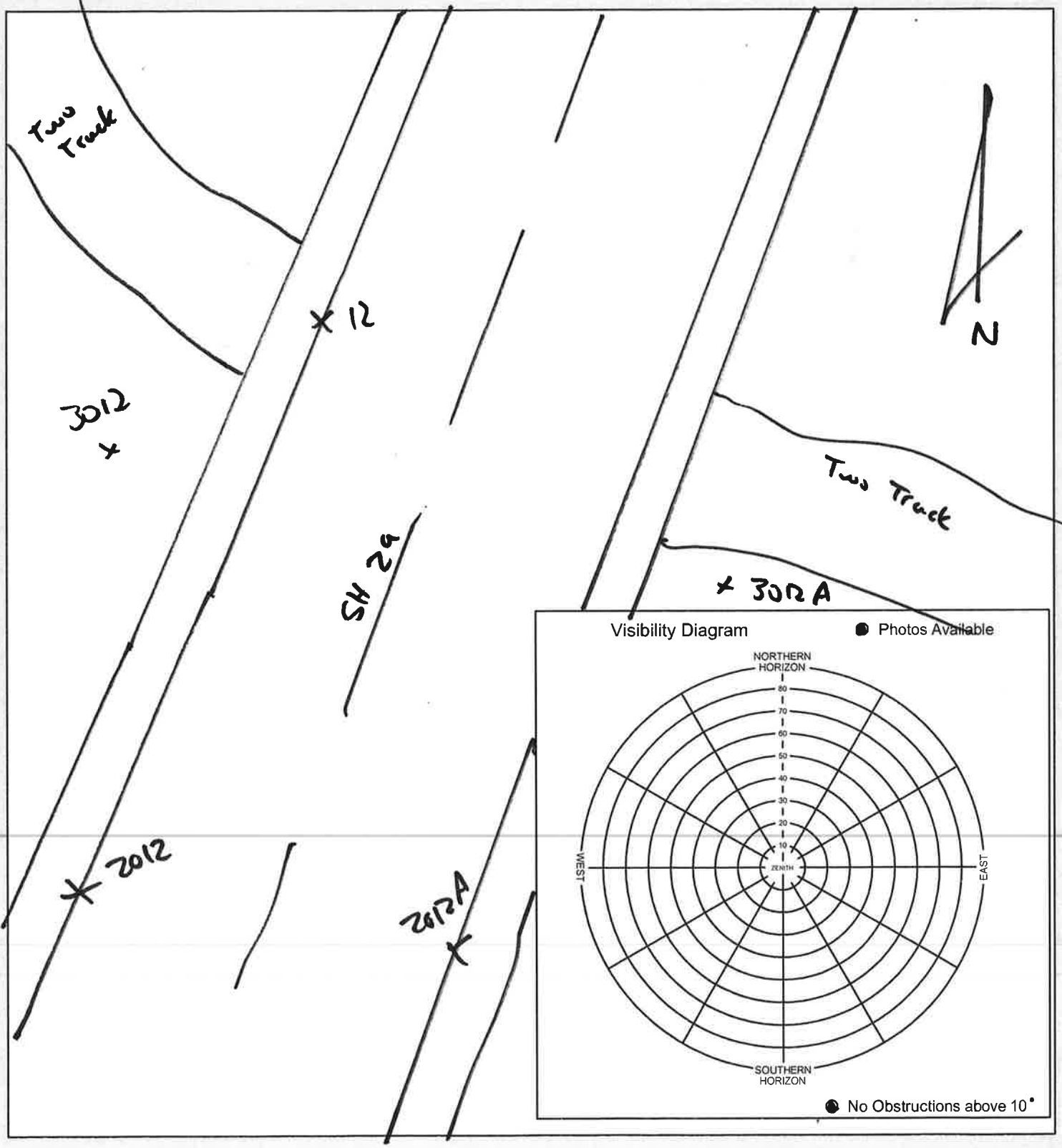


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 12 / 2012 / 3012 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 42 ° 09 ' 51 " | W103 ° 48 ' 24 " | 4 /27/16 | **DJK** |

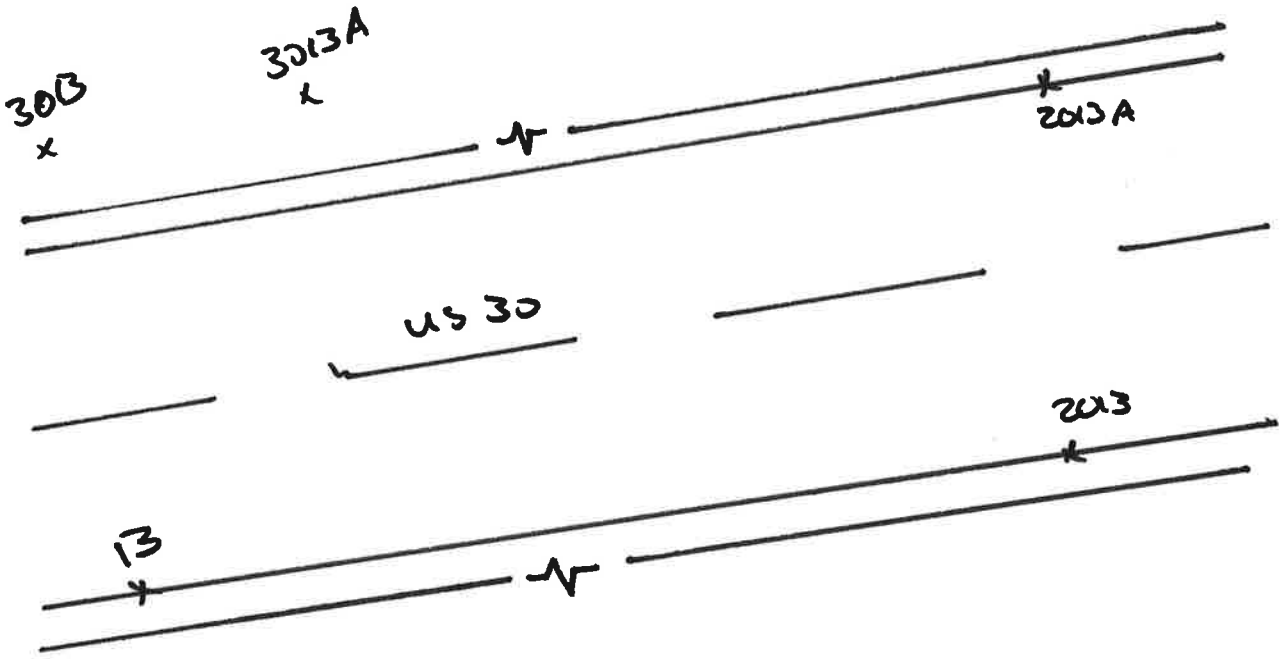


# South Platte Basin QL2 LiDAR

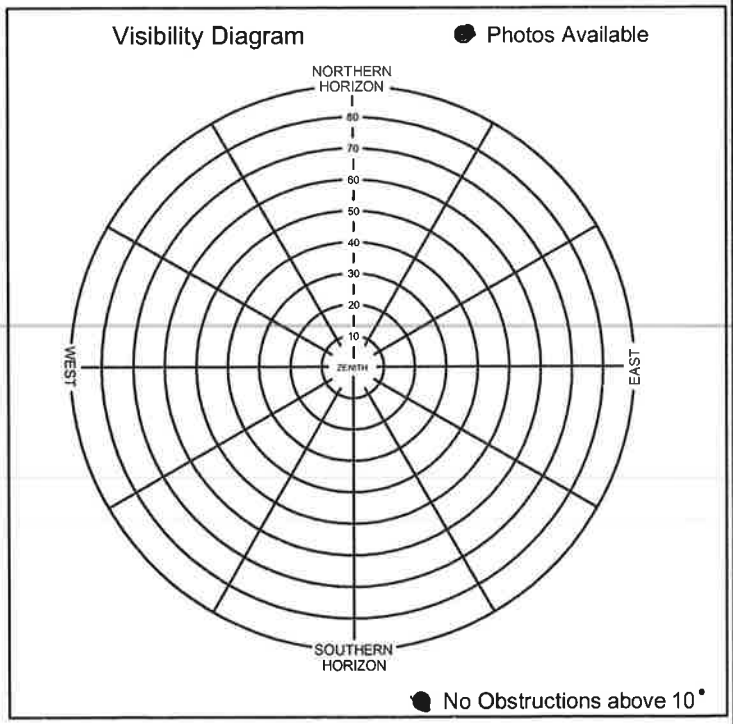
WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 13 / 2013 / 3013 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 11 ' 08 " | W 104 ° 03 ' 14 " | 4/25/16 | **DJK** |





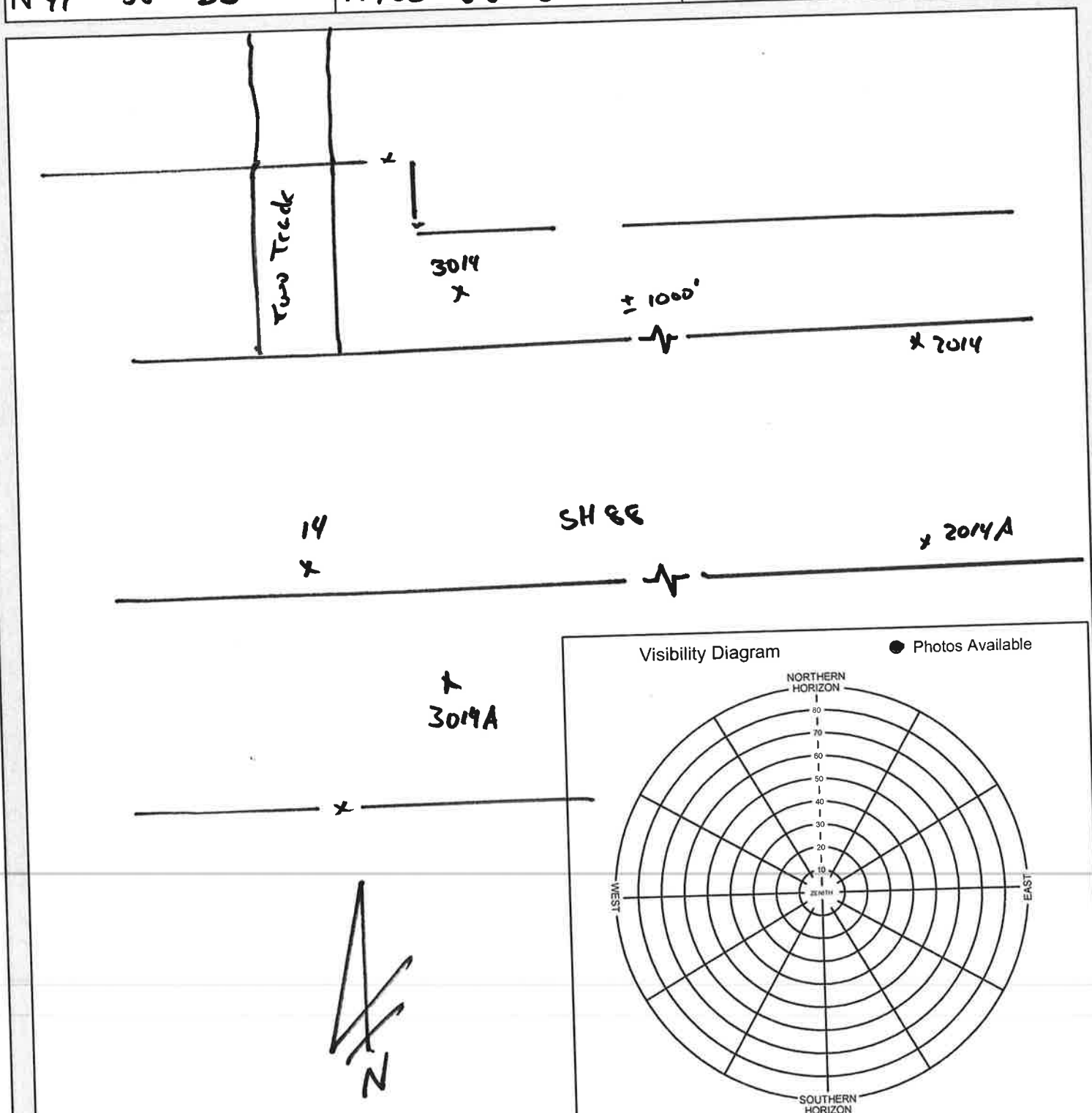


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 14 / 2014 / 3014 | South Platte River Basin | 75955 |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 36 ' 23 " | W 103 ° 58 ' 36 " | 4 / 26 / 16 | DJK |

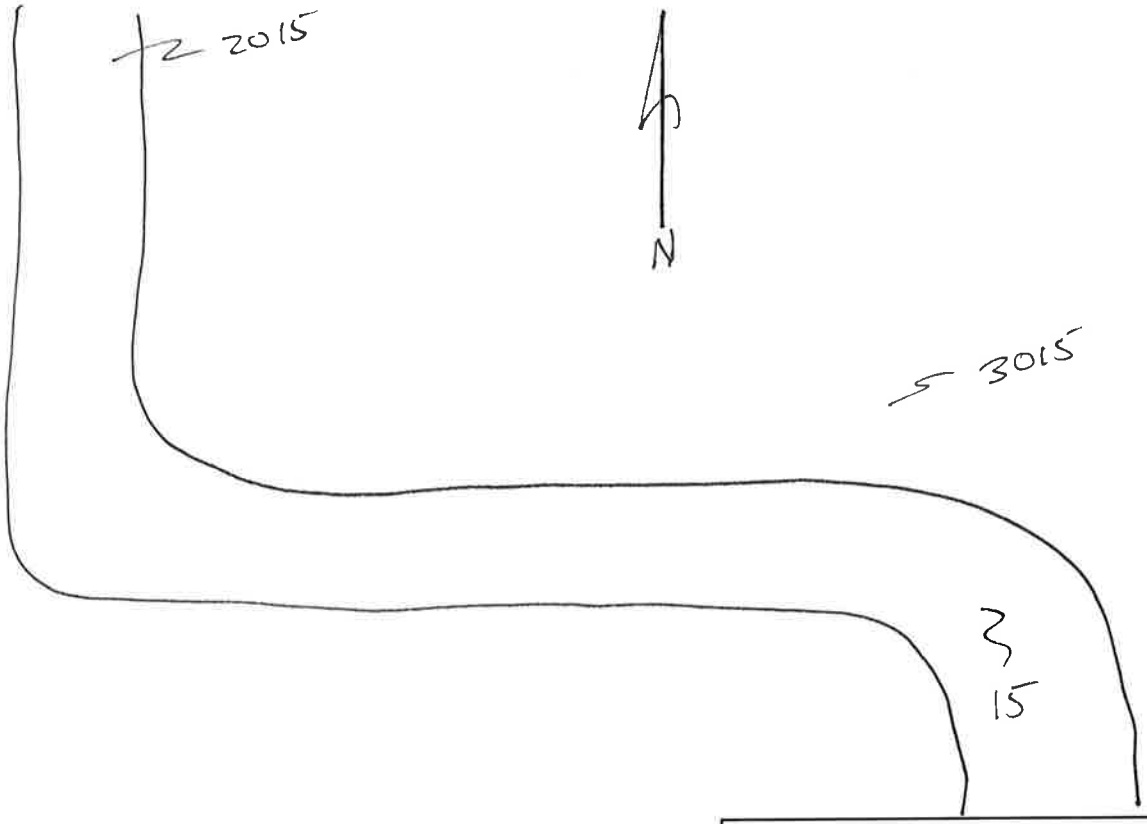


# South Platte Basin QL2 LiDAR

WOOLPERT

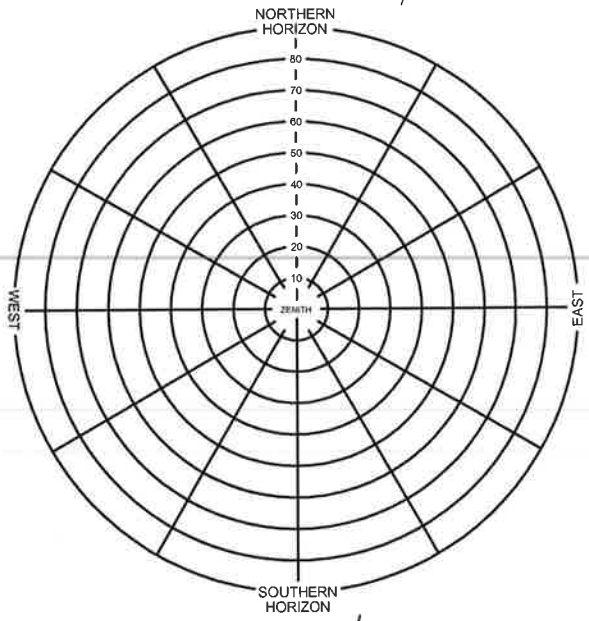
| Photo Control point # | General location | Job Number |
|---|---|---|
| 15, 2015, 3015 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 0 ' 5 " | W103 ° 57 ' 8 " | 4/21/16 | **DJK** |




Visibility Diagram

Photos Available



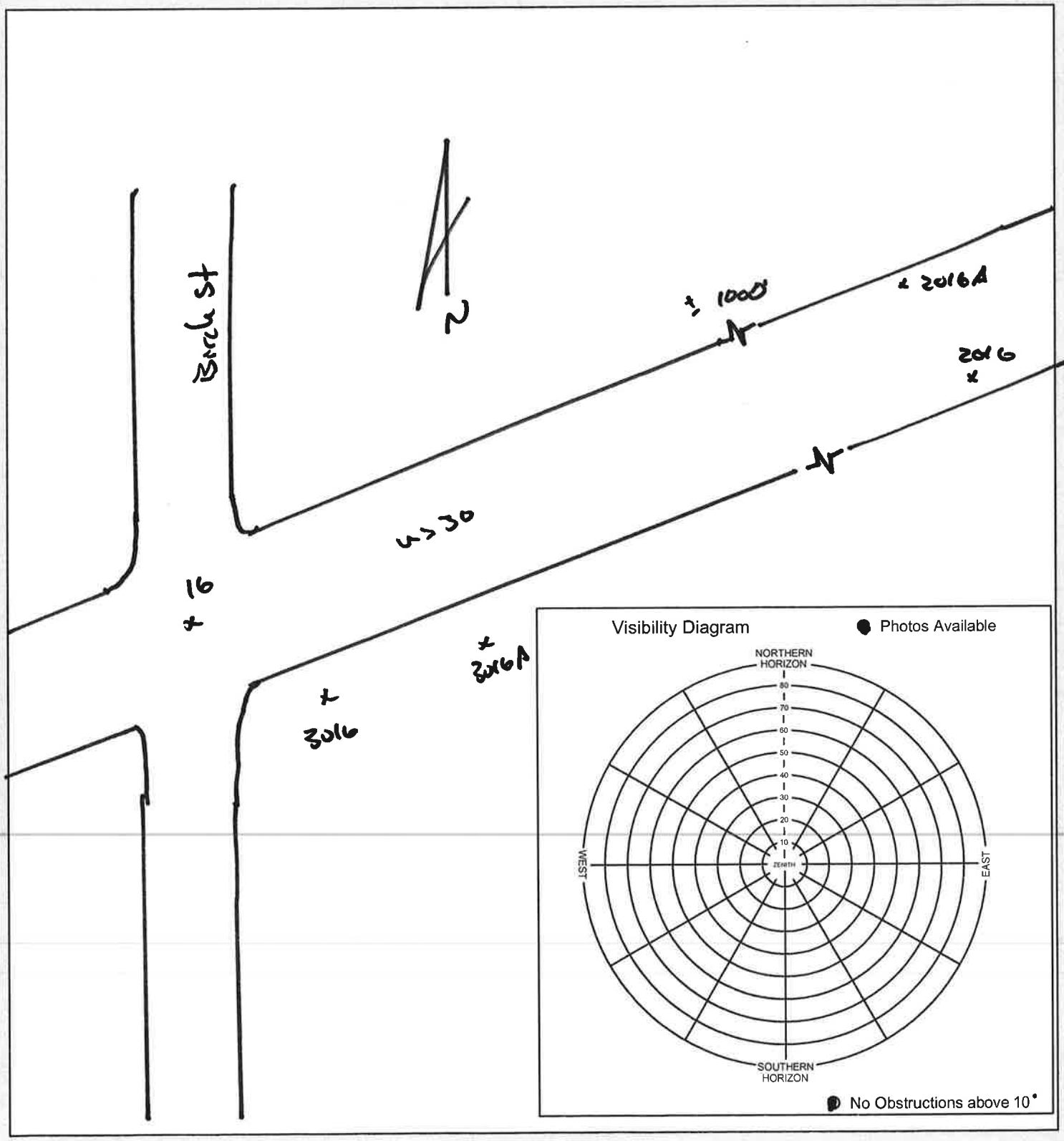

No Obstructions above 10°

# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 16 / 2016 / 3016 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 13' 45 " | W103 ° 53' 33 " | 4 /25/16 | **DJK** |

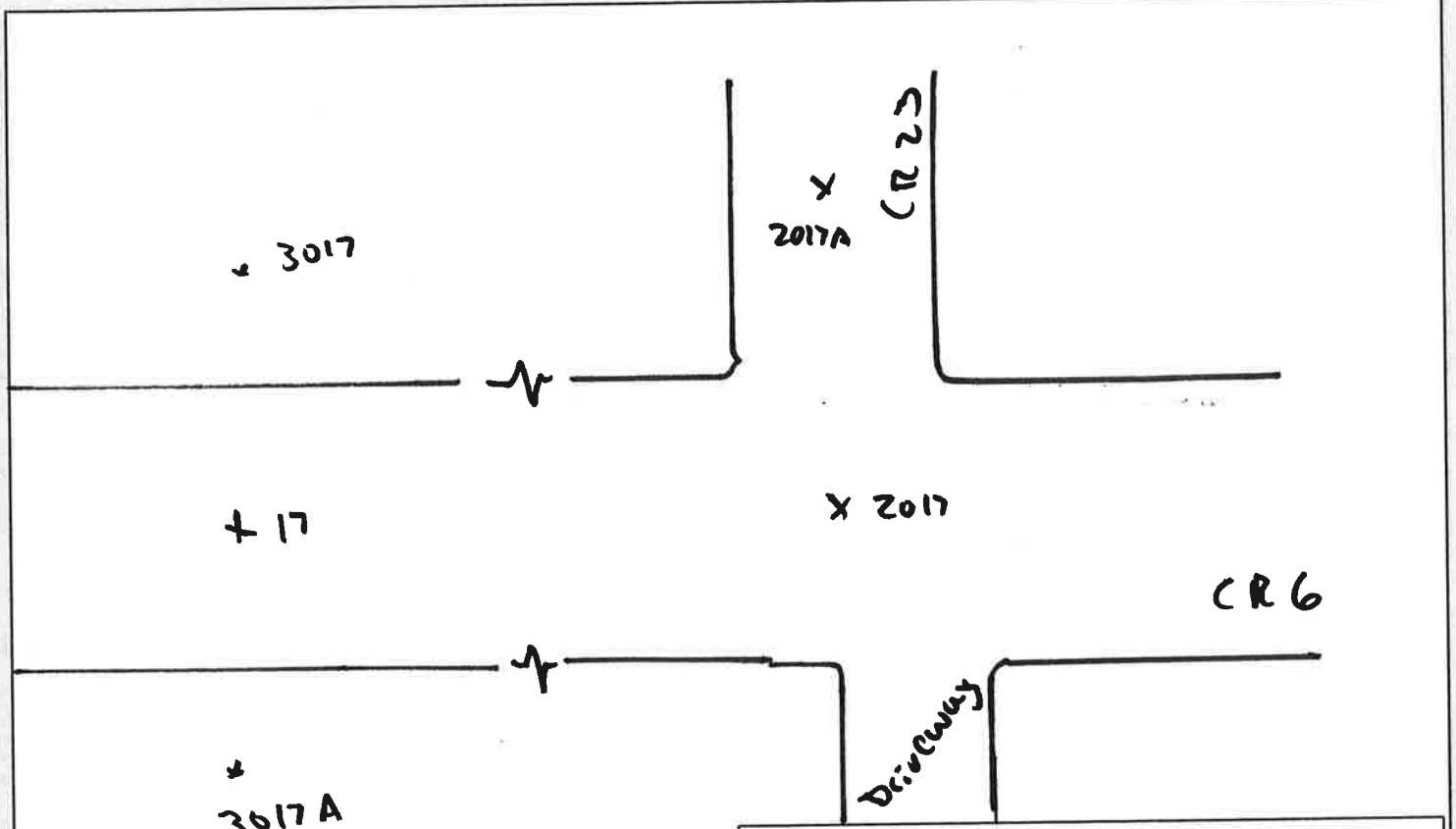


# South Platte Basin QL2 LiDAR

WOOLPERT

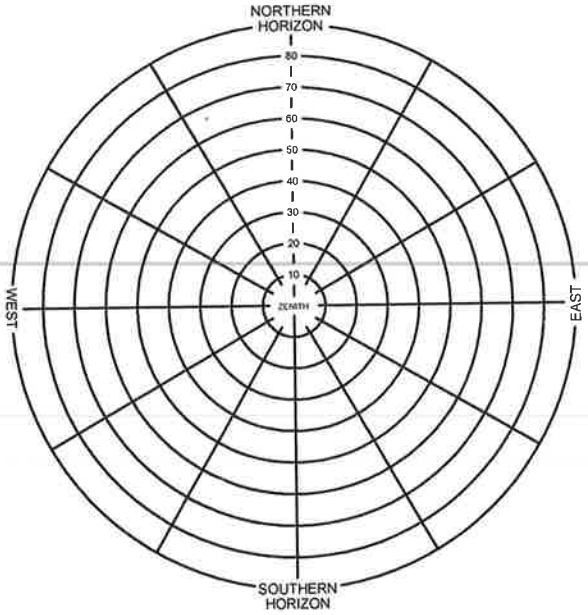
| Photo Control point # | General location | Job Number |
|---|---|---|
| 17 / 2017 / 3017 | South Platte River Basin | 75955 |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 25 ' 20 " | W103 ° 51 ' 08 " | 4 /25/16 | DJK |




Visibility Diagram

● Photos Available



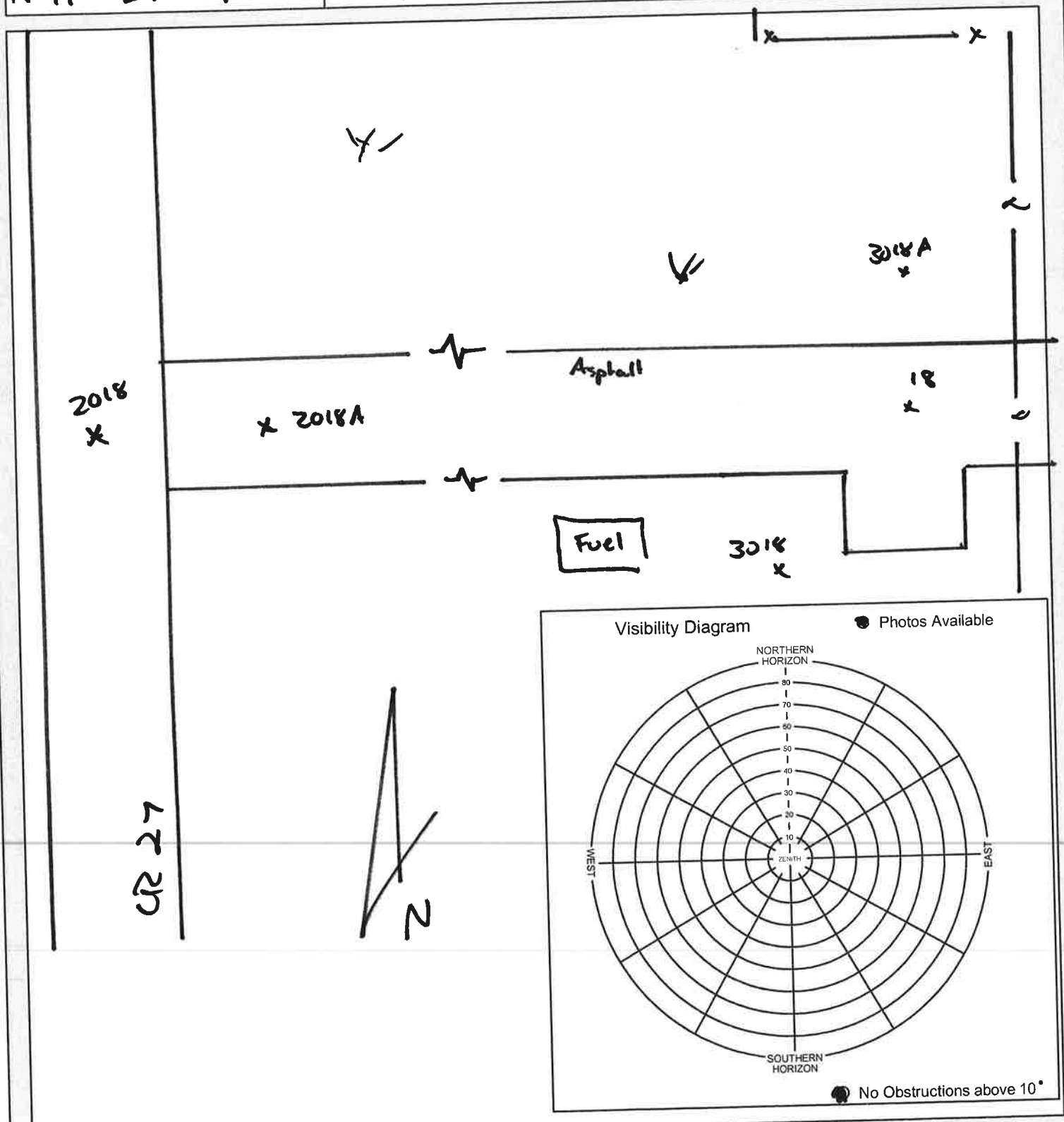

● No Obstructions above 10°

# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 18 / 2018 / 3018 | South Platte River Basin | 75955 |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 21 ' 41 " | W103 ° 47 ' 40 " | 4 /25/16 | DJK |

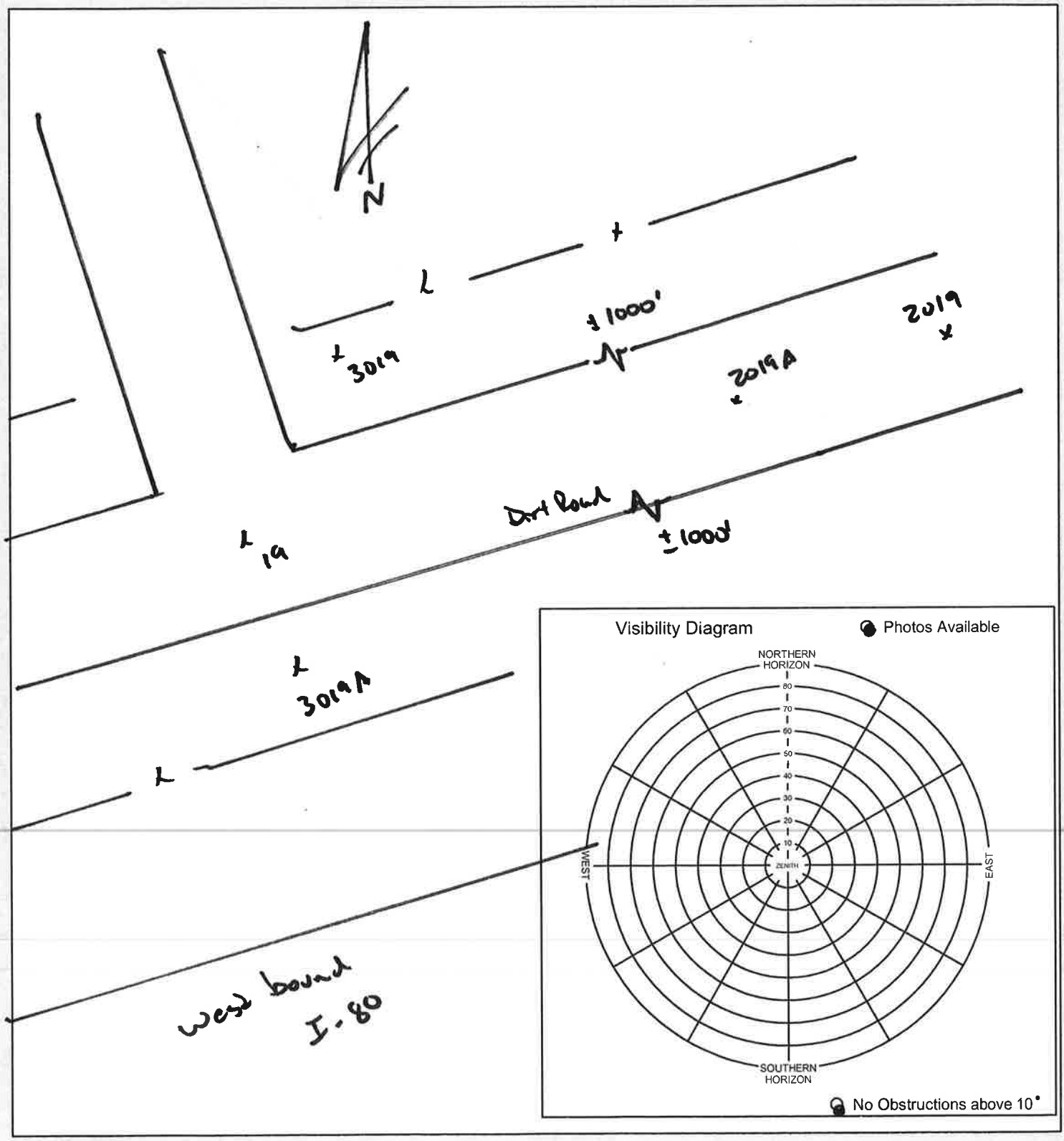


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 19 / 2019 / 3019 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 12 '06 " | W103 °44 ' 09 " | 9 /25/16 | **DJK** |




Visibility Diagram

Photos Available



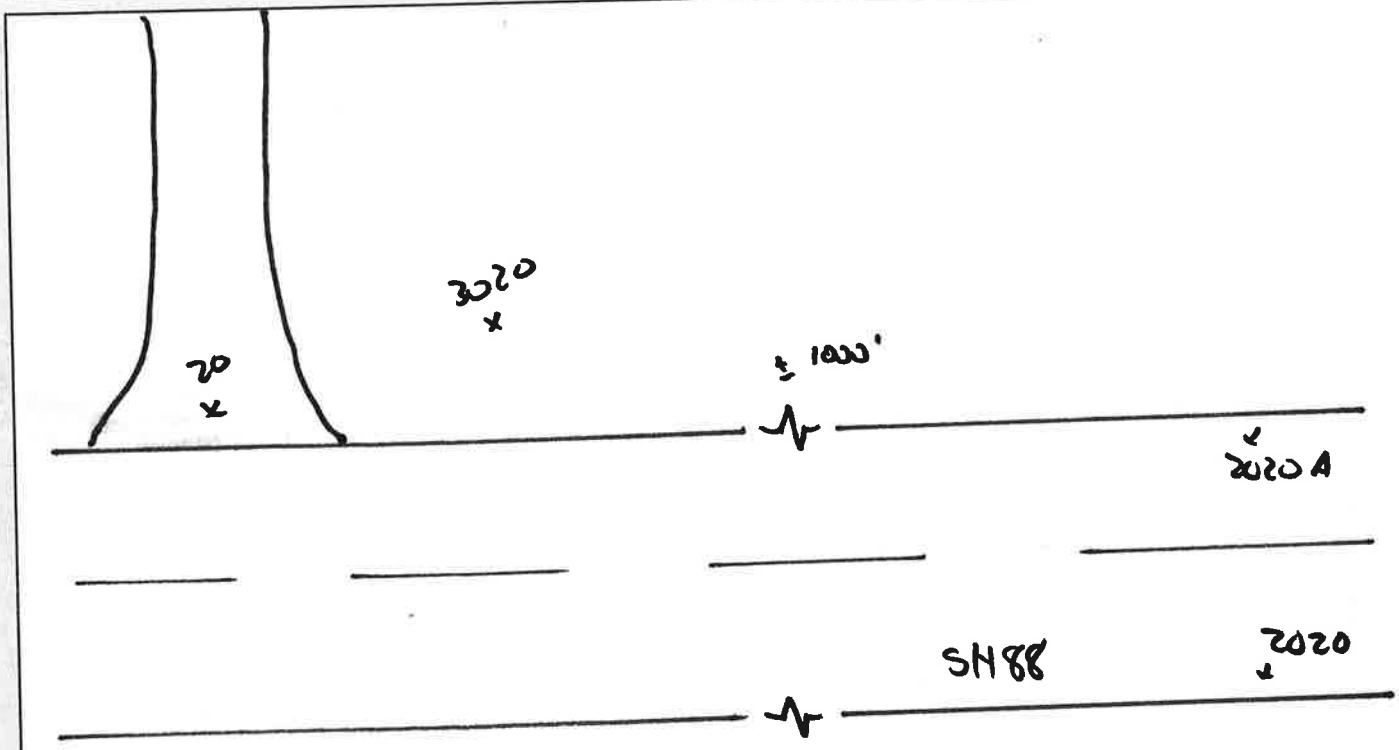

No Obstructions above 10°

# South Platte Basin QL2 LiDAR

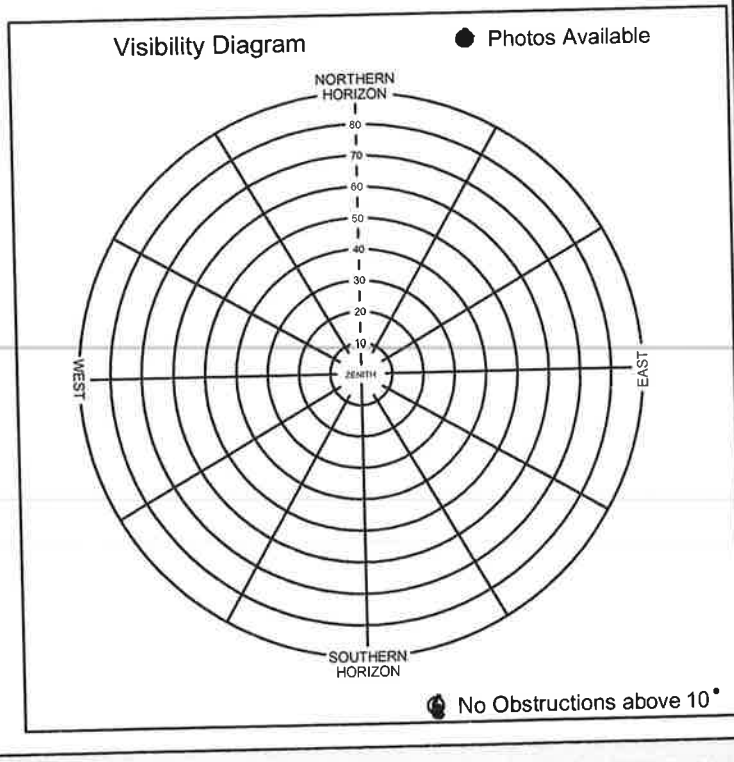
WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 20 / 2020 / 3020 | South Platte River Basin | 75955 |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N41 ° 38 ' 29 " | W103 ° 42 ' 17 " | 4 /26/16 | DJK |





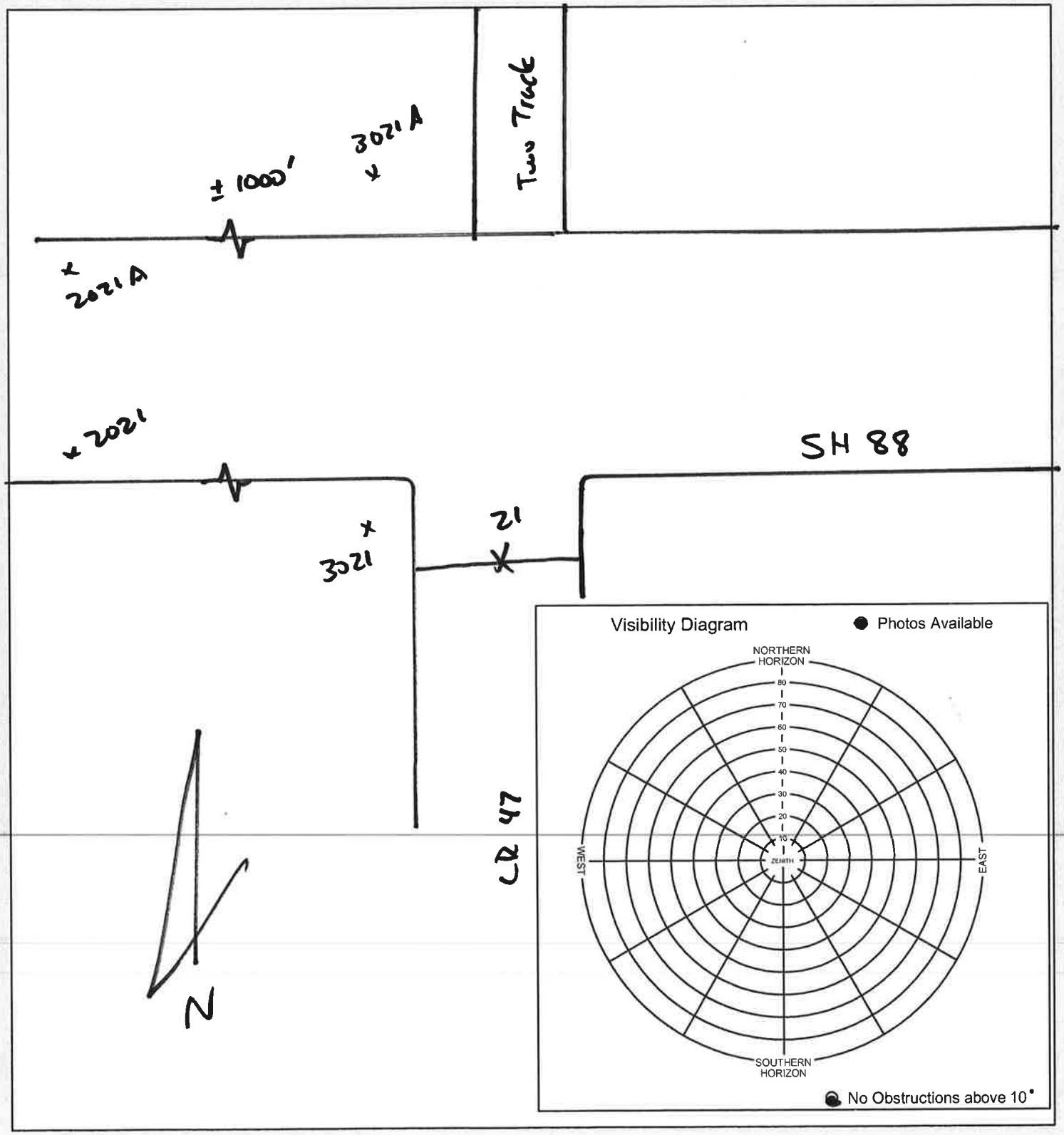


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 21 / 2021 / 3021 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 °34 ' 58 " | W 103 °37 ' 06 " | 4 /26/16 | **DJK** |

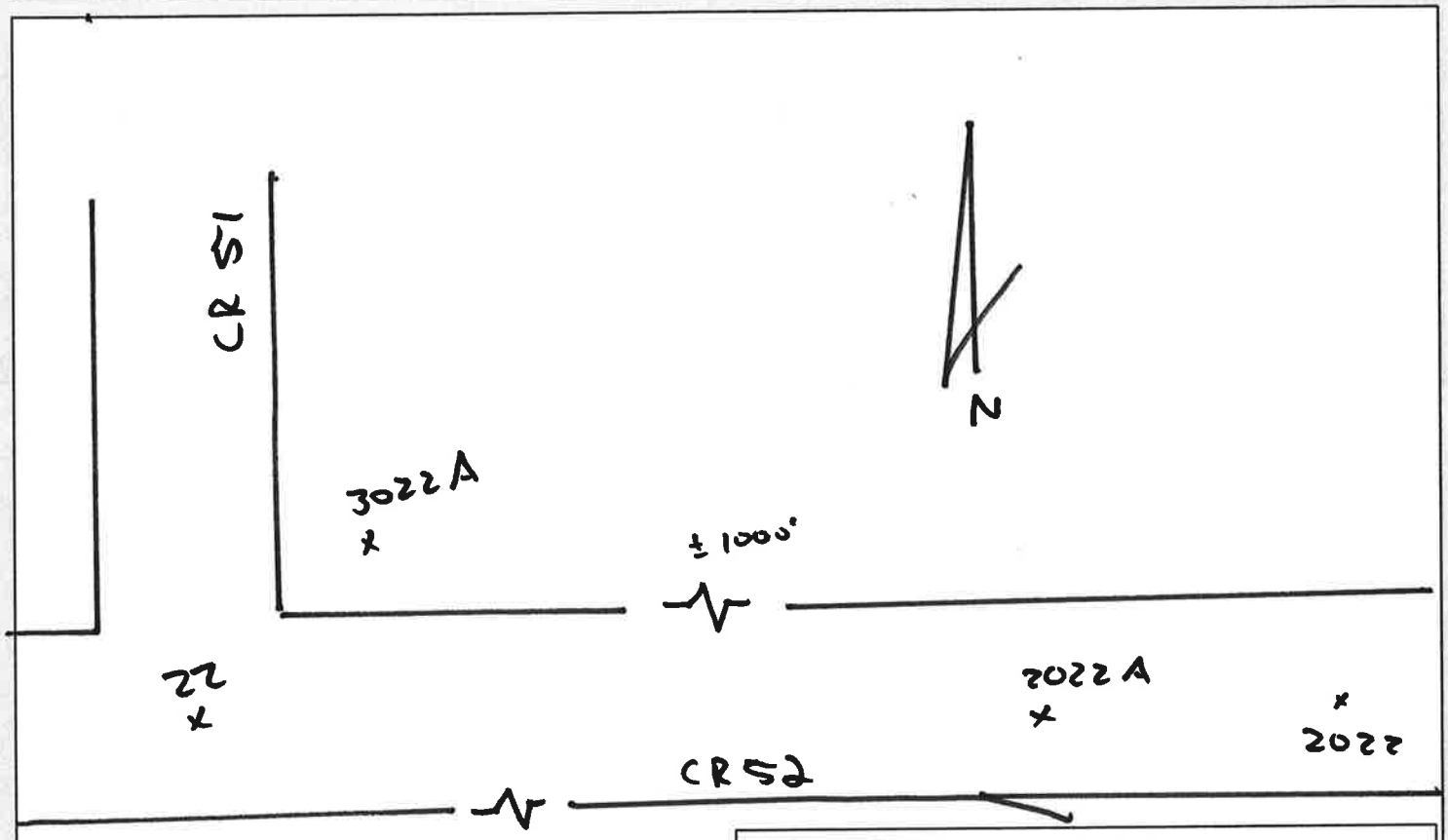


# South Platte Basin QL2 LiDAR

WOOLPERT

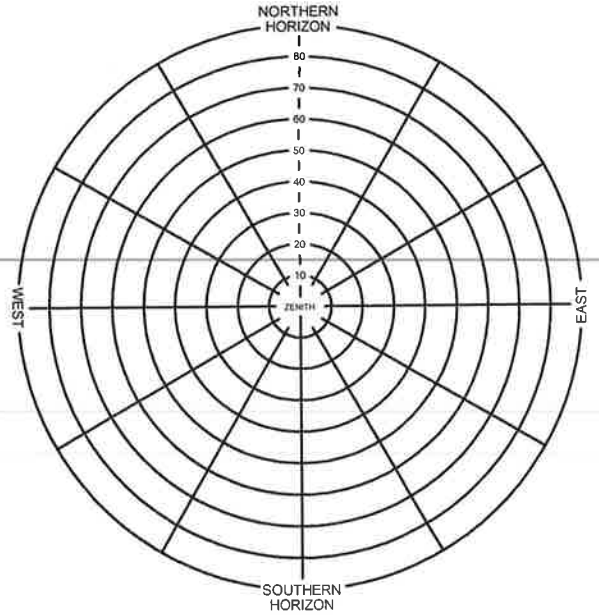
| Photo Control point # | General location | Job Number |
|---|---|---|
| 22 / 2022 / 3022 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 21 ' 51 " | W103 ° 34 ' 04 " | 4 / 21 / 16 | **DJK** |




Visibility Diagram

Photos Available




No Obstructions above 10°

# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 23, 2023, 3023 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 1 ' 59 " | W 103 ° 30 ' 14 " | 4 / 21 / 16 | **DJK** |

~23

Dirt road

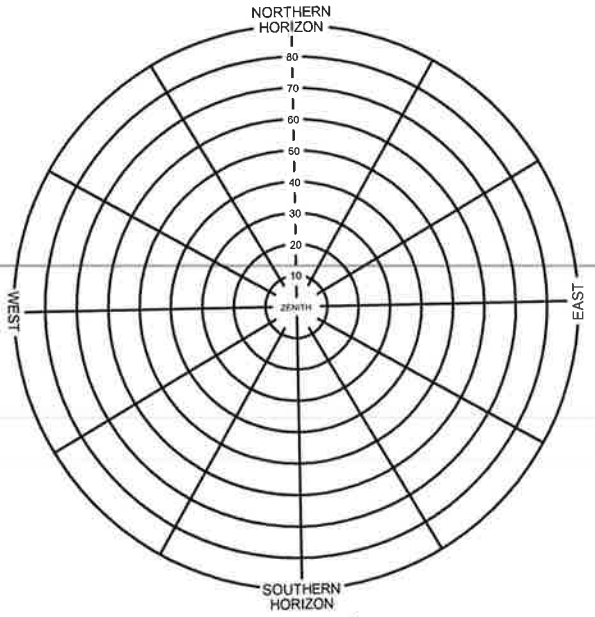
S
2023

S
3023

N

Visibility Diagram

Photos Available



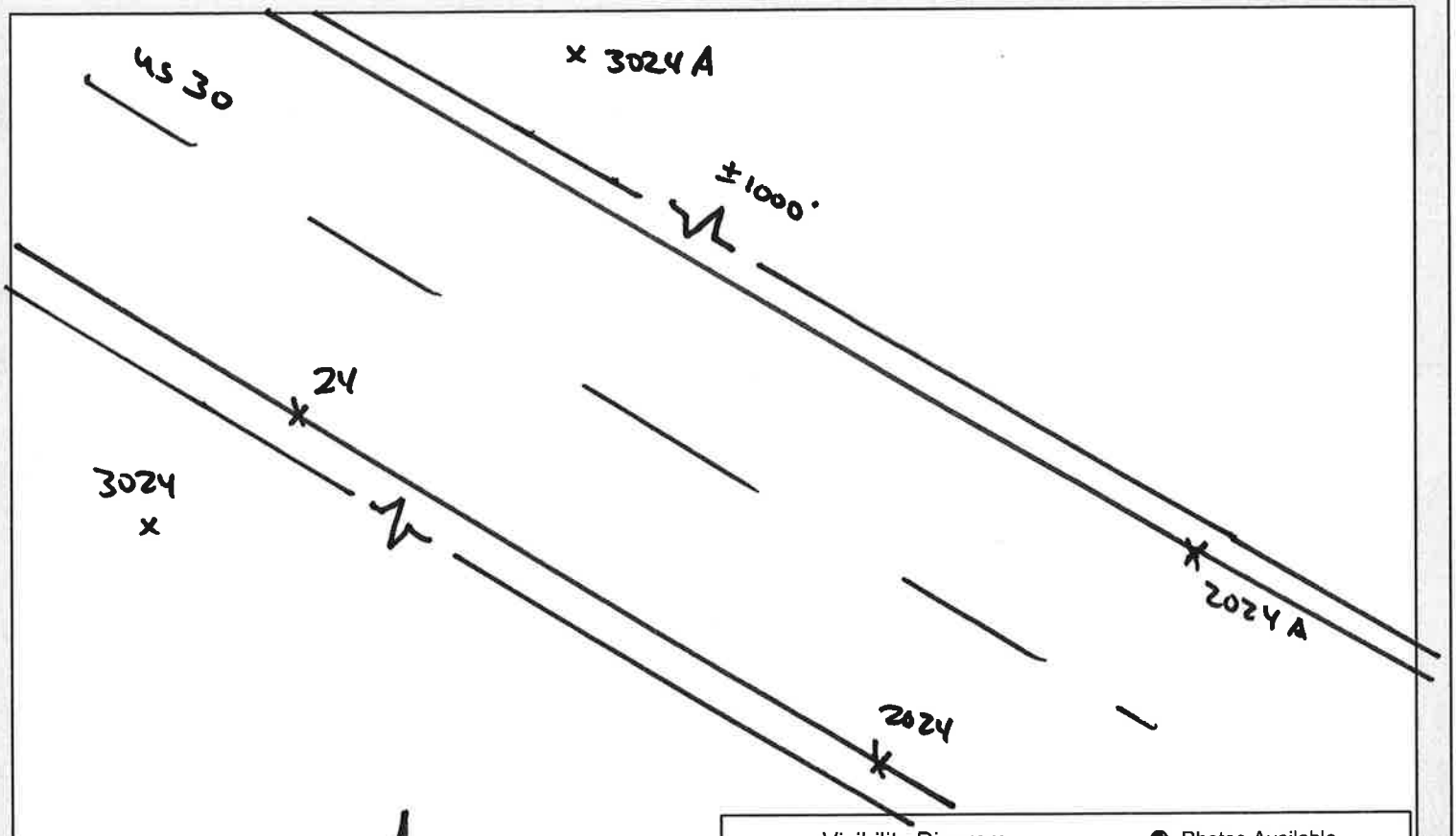

No Obstructions above 10°

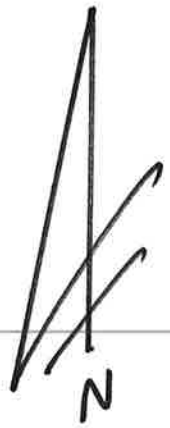
# South Platte Basin QL2 LiDAR

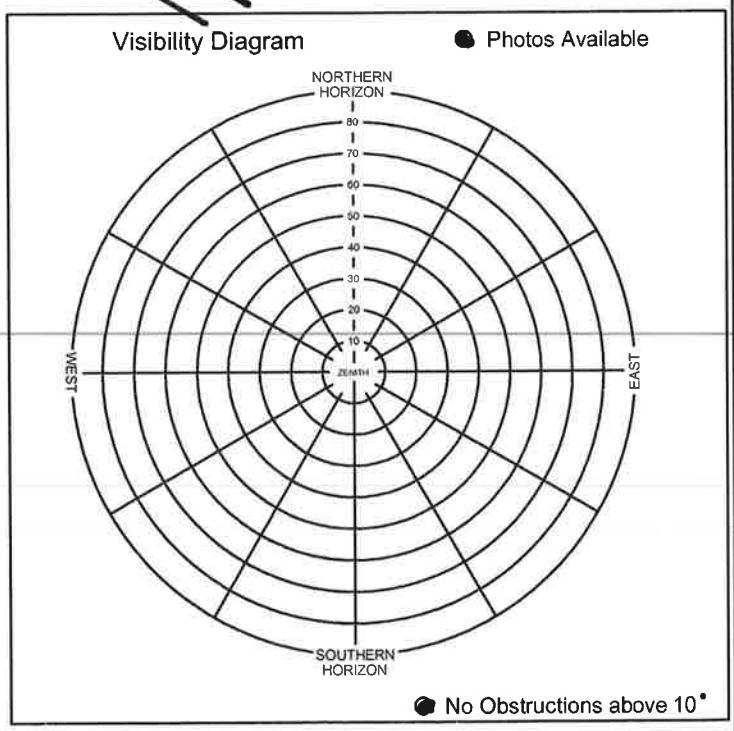
WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 24 / 2024 / 3024 | South Platte River Basin | 75955 |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 13 ' 15 " | W103 °22 '30 " | 4 /21/16 | DJK |



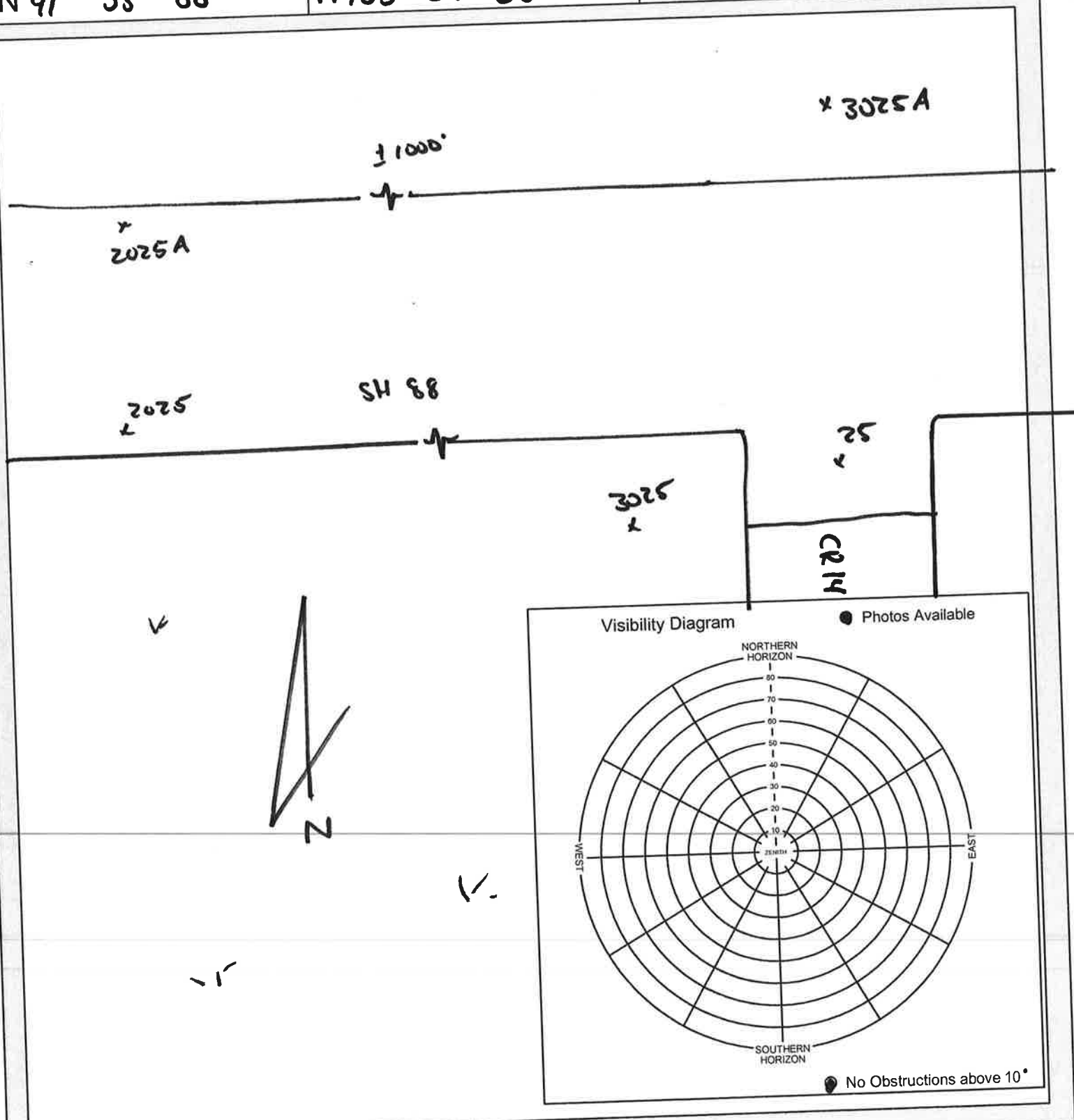



# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 25 / 2025 / 3025 | South Platte River Basin | 75955 |
| **Latitude** | **Longitude** | **Calendar Date** / **Observer Initials** |
| N 41 ° 35 ' 00 " | W 103 ° 27 ' 00 " | 4 /26/16 / DJK |

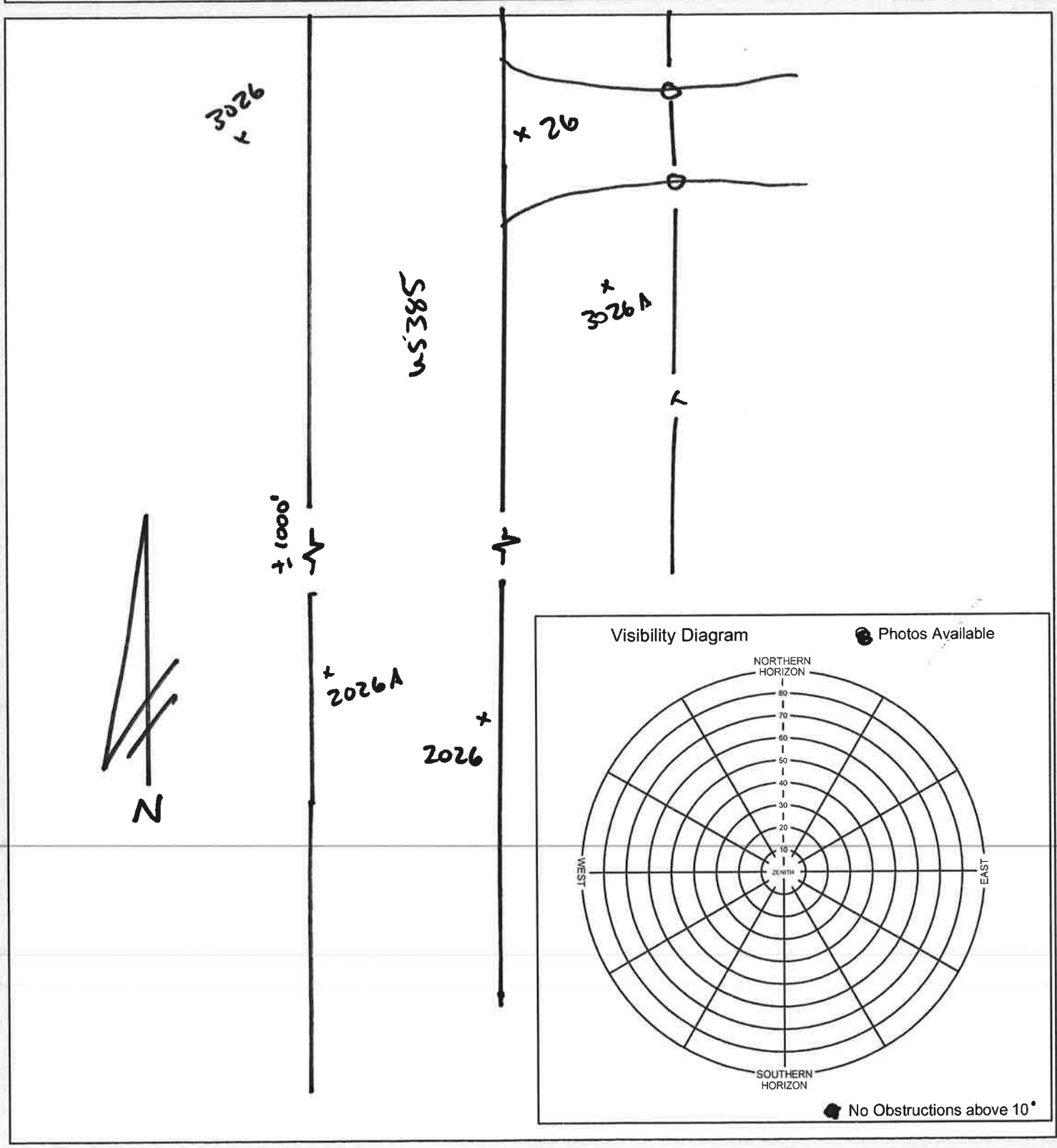


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 26 / 2026 / 3026 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 °26 ' 18 " | W 102 °58 ' 59 " | 4 /21/16 | **DJK** |

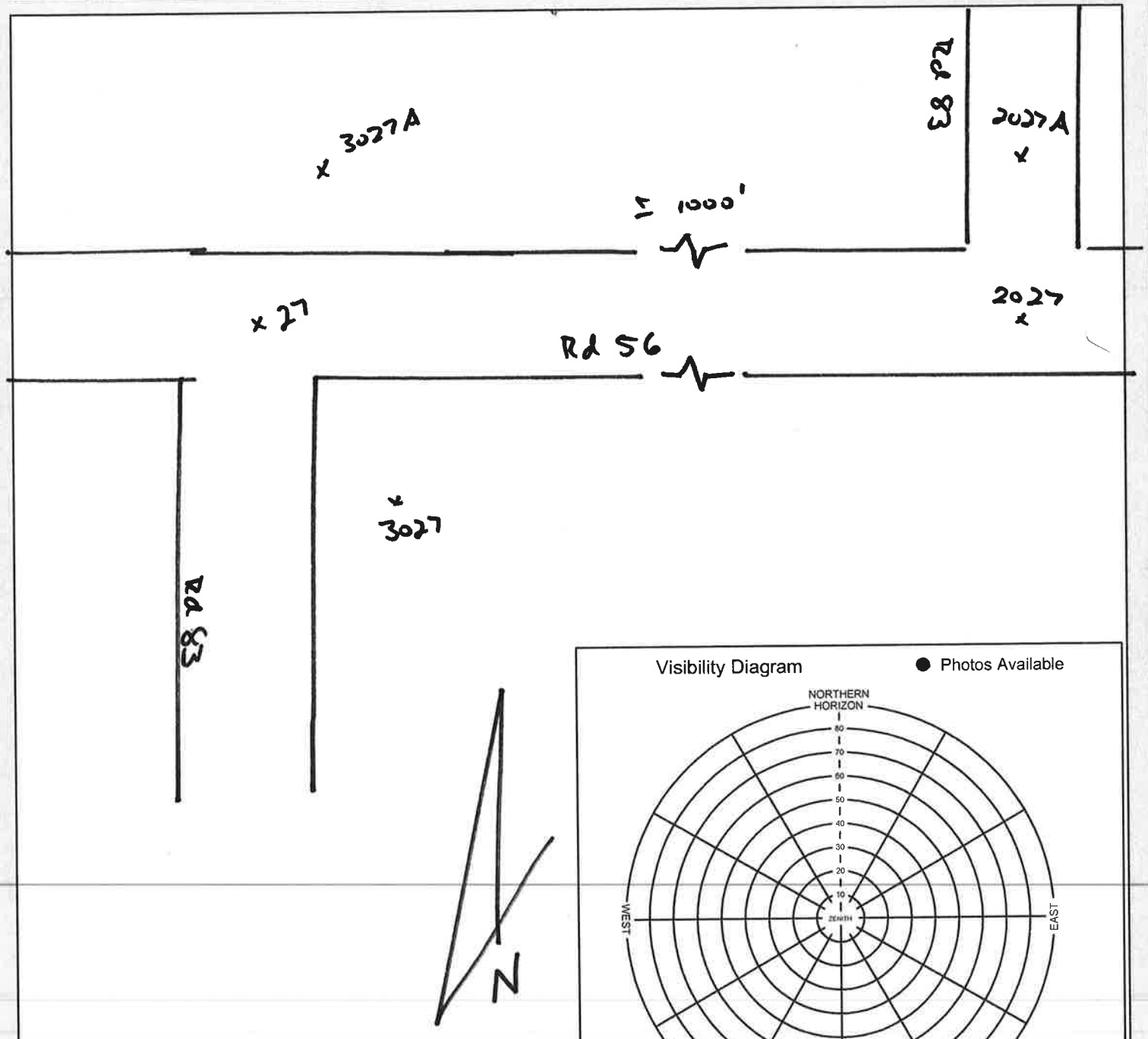


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 27 / 2027 / 3027 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 23 ' 38 " | W103 ° 15 ' 38 " | 4 / 21 / 16 | **DJK** |




Visibility Diagram ● Photos Available



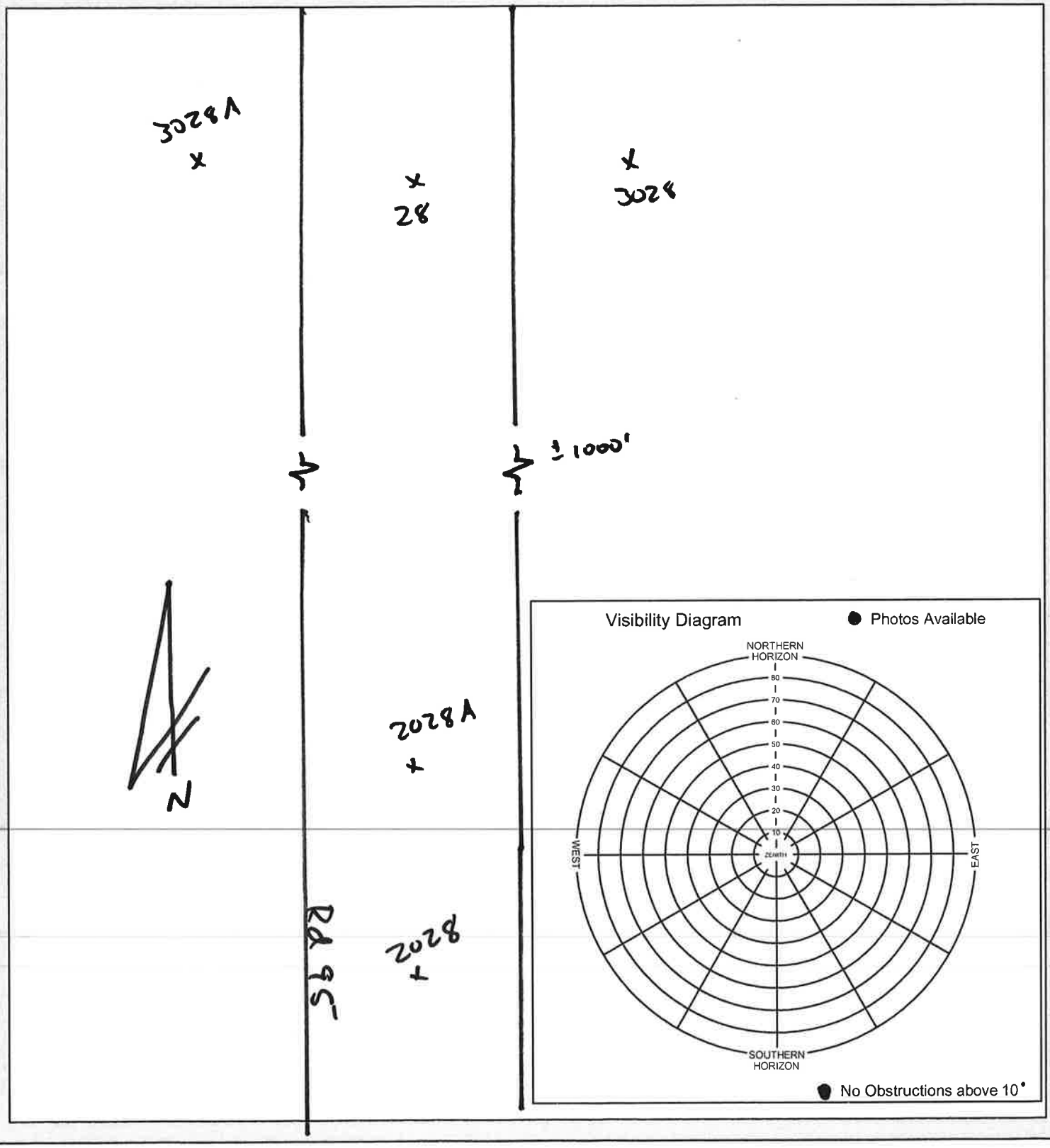

● No Obstructions above 10°

# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 28 / 2028 / 3028 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 21 ' 37 " | W103 ° 08 ' 48 " | 4 /21/16 | **DJK** |

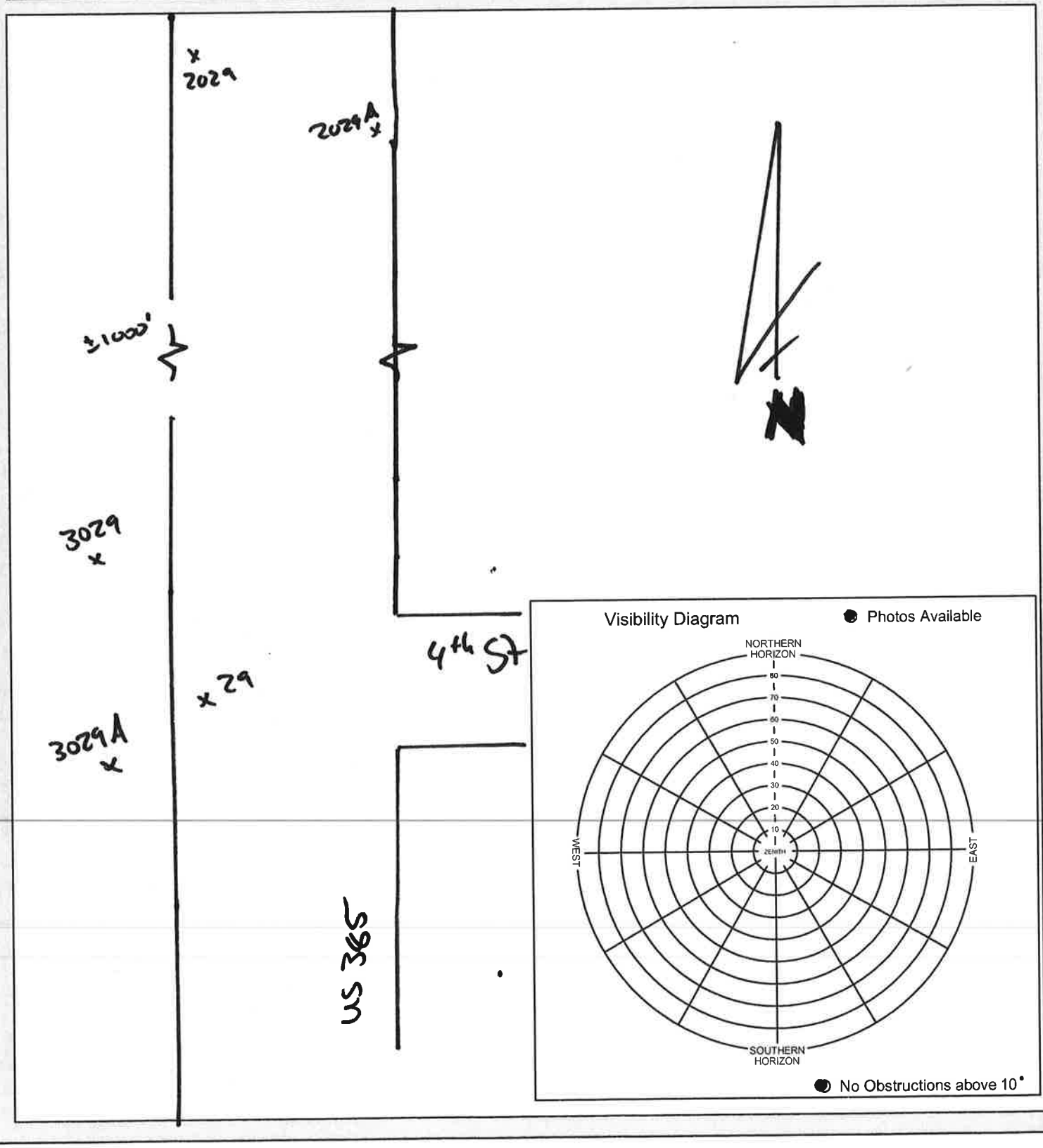


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 29 / 2029 / 3029 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 19 ' 11 " | W 102° 58' 24 " | 4 /21/ 16 | **DJK** |




Visibility Diagram

Photos Available

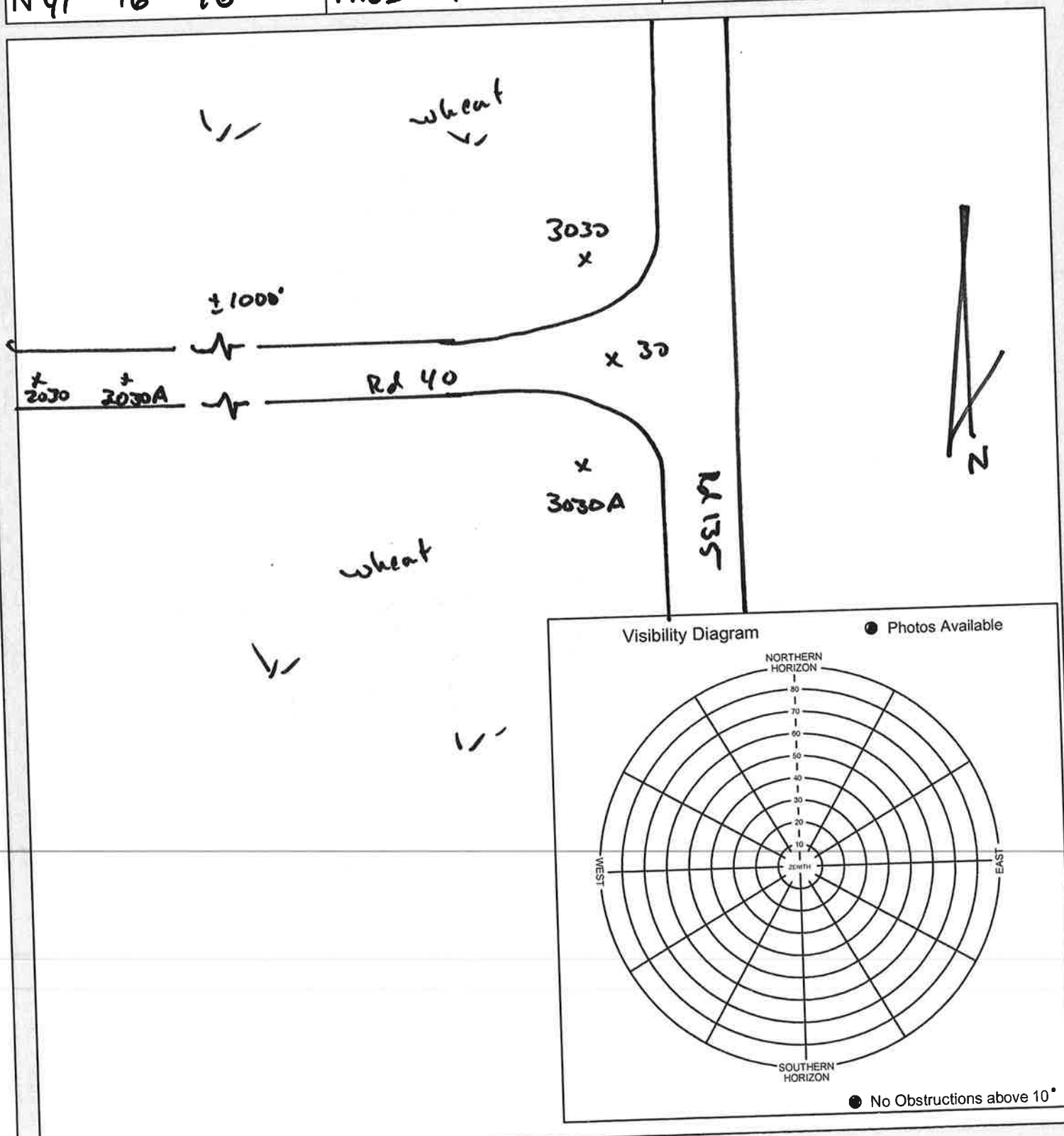



No Obstructions above 10°

# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 30/2030/3030 | South Platte River Basin | 75955 |
| **Latitude** | **Longitude** | **Calendar Date** / **Observer Initials** |
| N 41 °16 '46 " | W102 °45 '58 " | 4/21/16 / DJK |




Visibility Diagram

● Photos Available



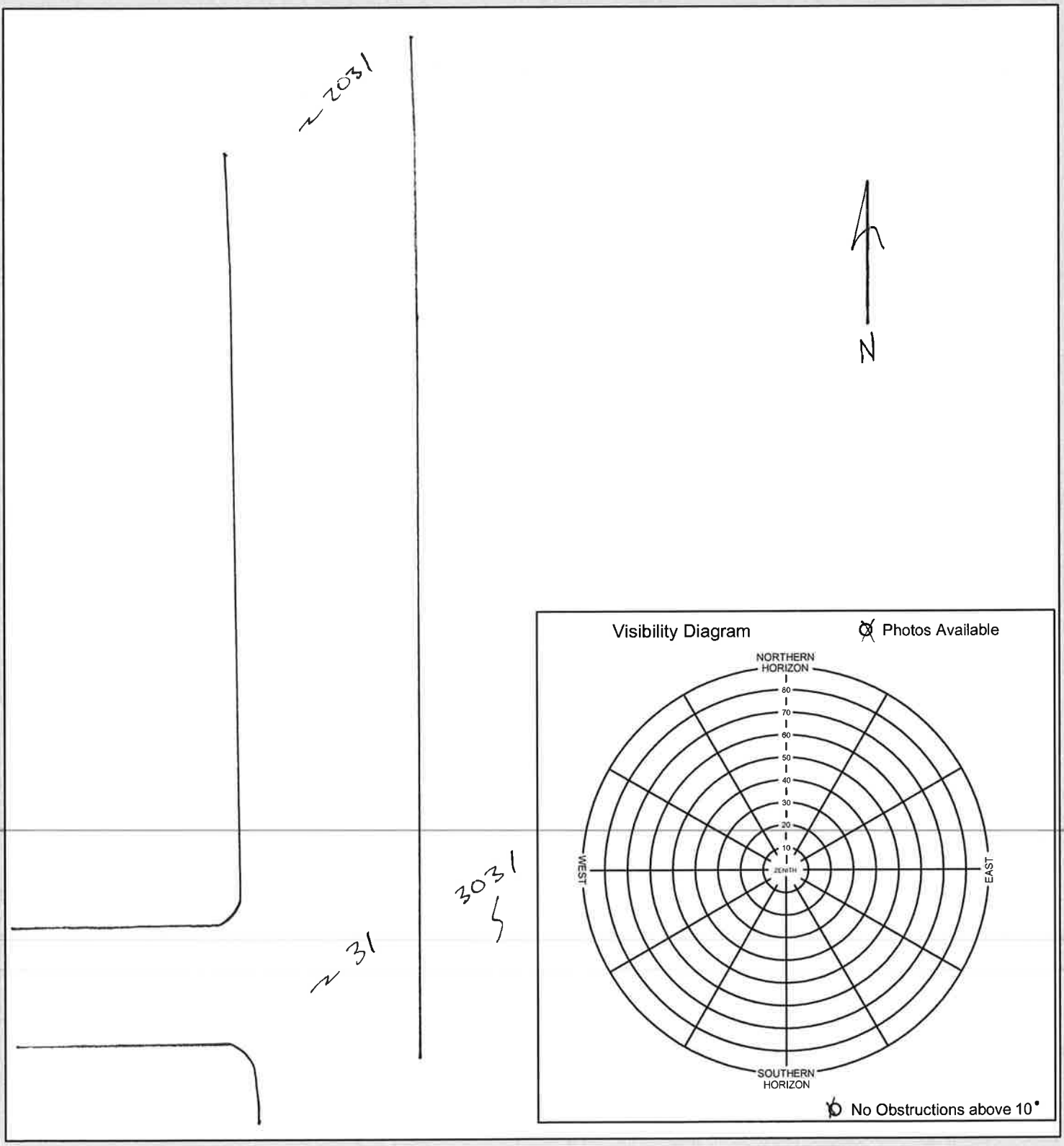

● No Obstructions above 10°

# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 31, 2031, 3031 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 14 ' 10 " | W 102 ° 37 ' 45 " | 4/20/16 | **DJK** |

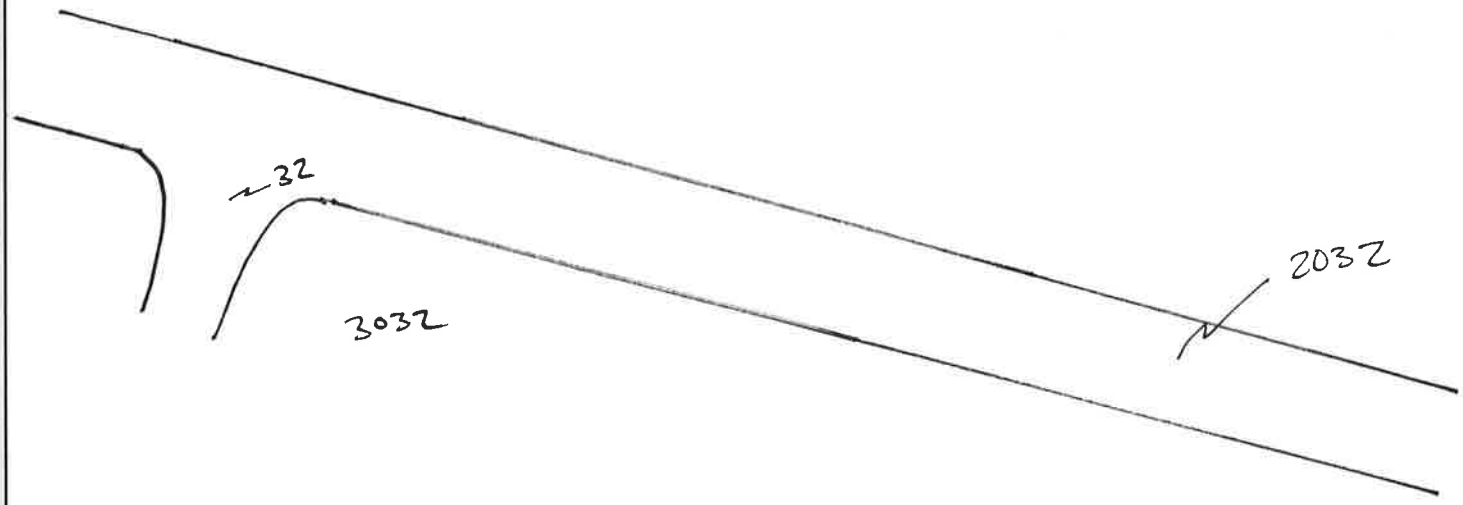


# South Platte Basin QL2 LiDAR

WOOLPERT

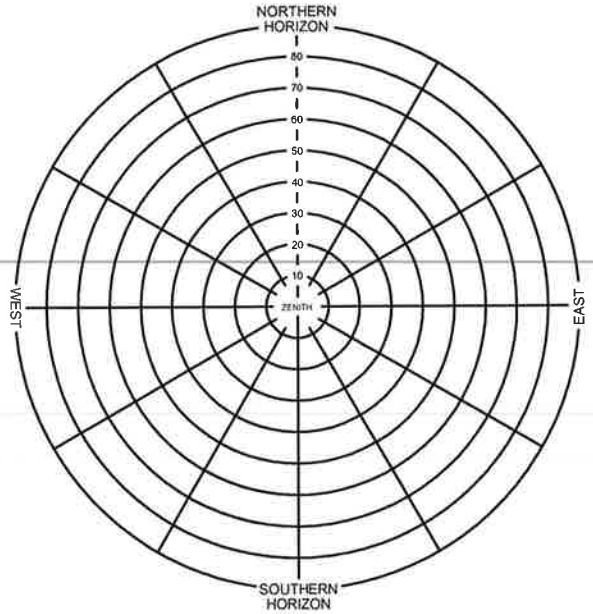
| Photo Control point # | General location | Job Number |
|---|---|---|
| 32, 2032, 3032 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 8 ' 16 " | W102 ° 35 ' 52 " | 4/20/16 | **DJK** |





Visibility Diagram  O Photos Available



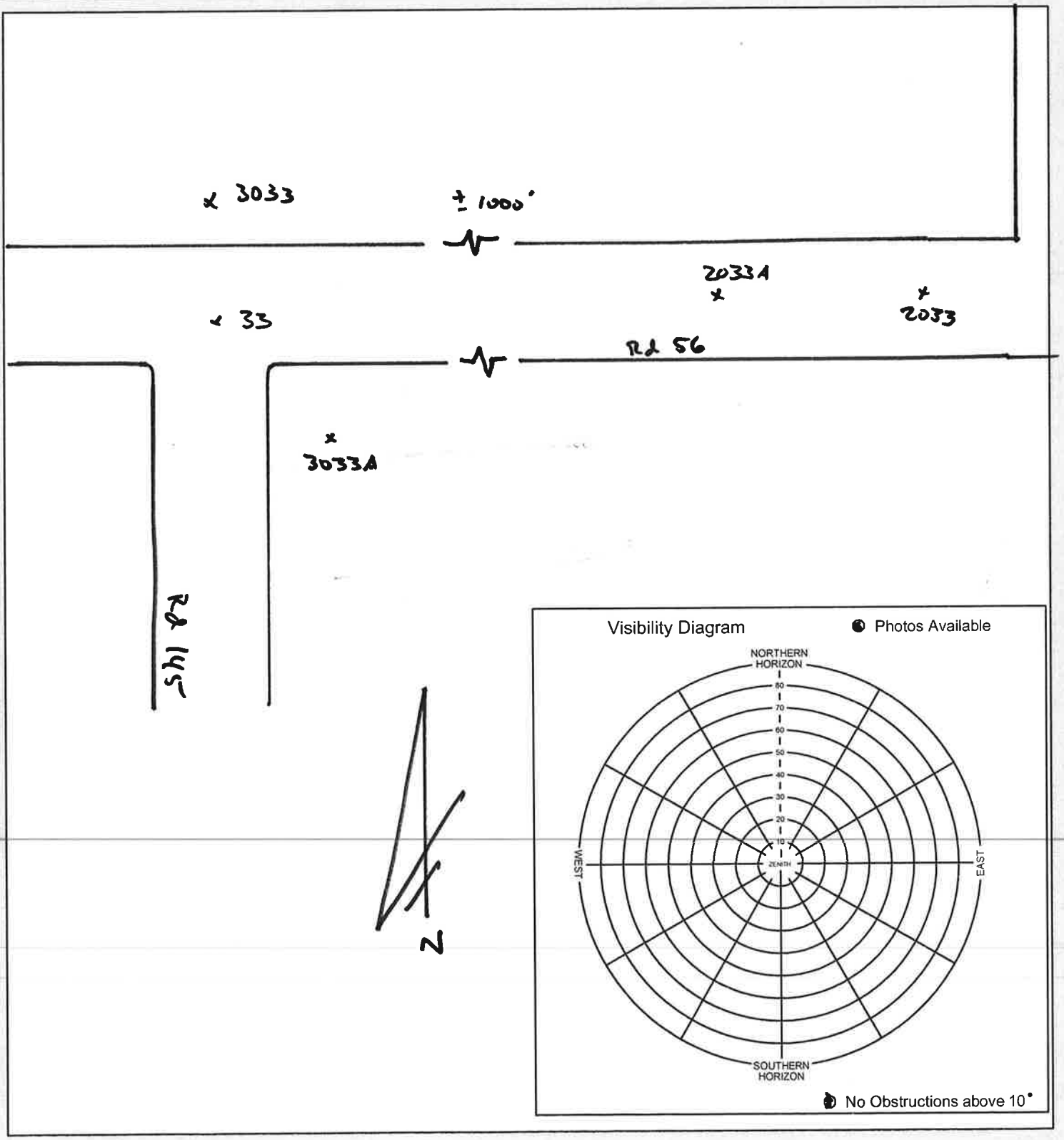

No Obstructions above 10°

# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 33 / 2033 / 3033 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 23 ' 42" | W102 ° 39 ' 59 " | 4 / 21 / 16 | **DJK** |

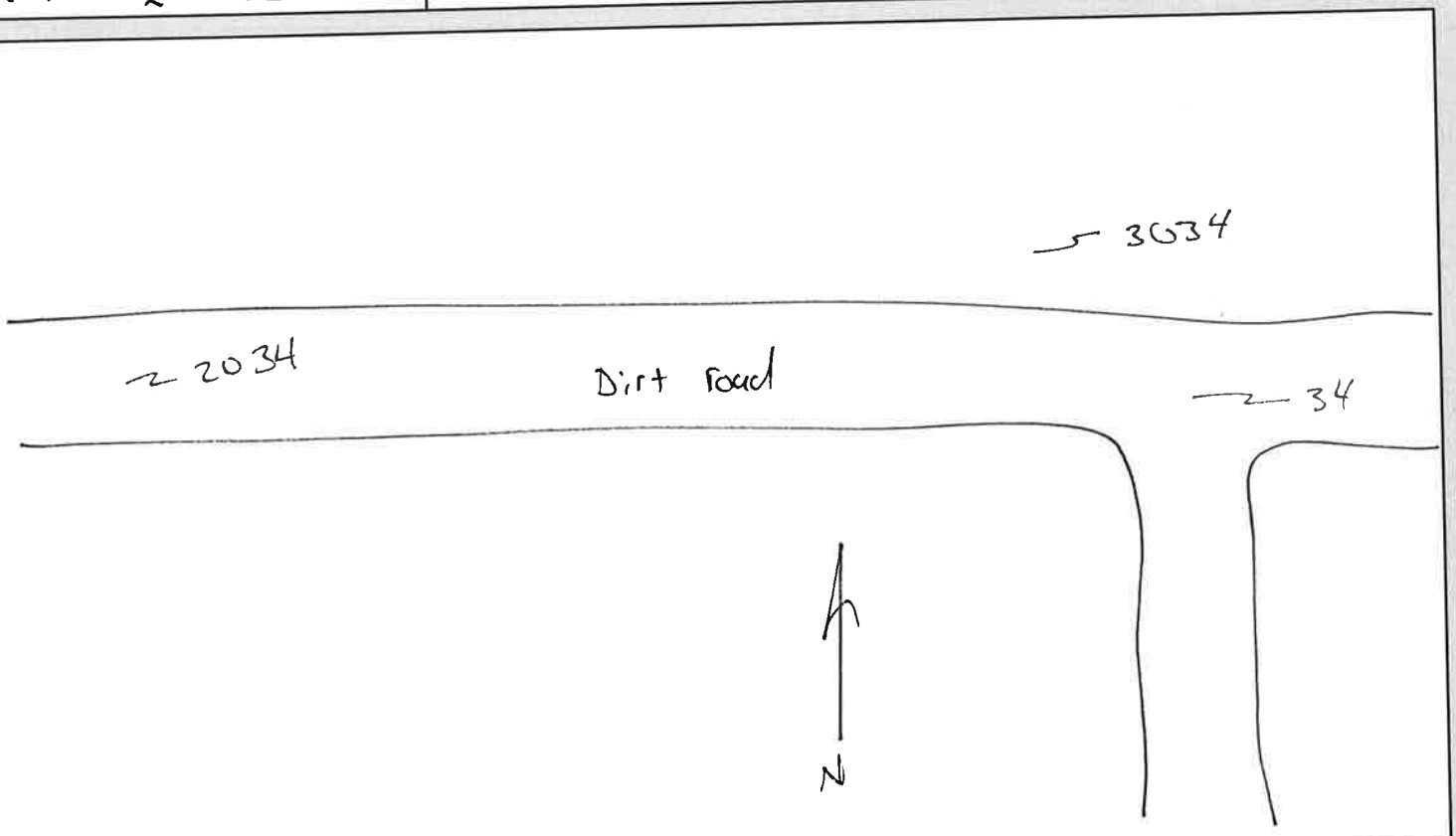


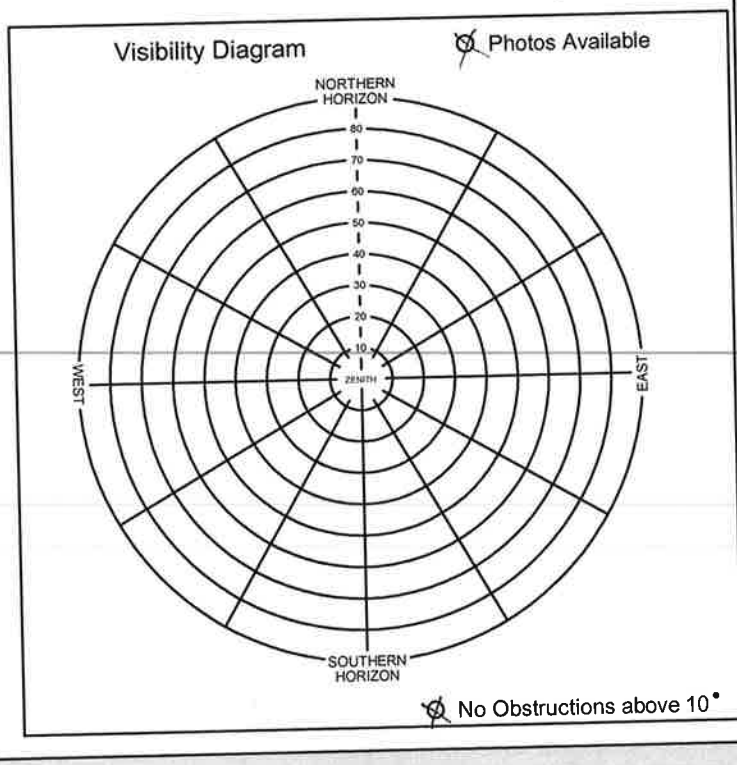
# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 34, 2034, 3034 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 2 ' 53 " | W 102 ° 36 ' 21 " | 4 /20/16 | **DJK** |



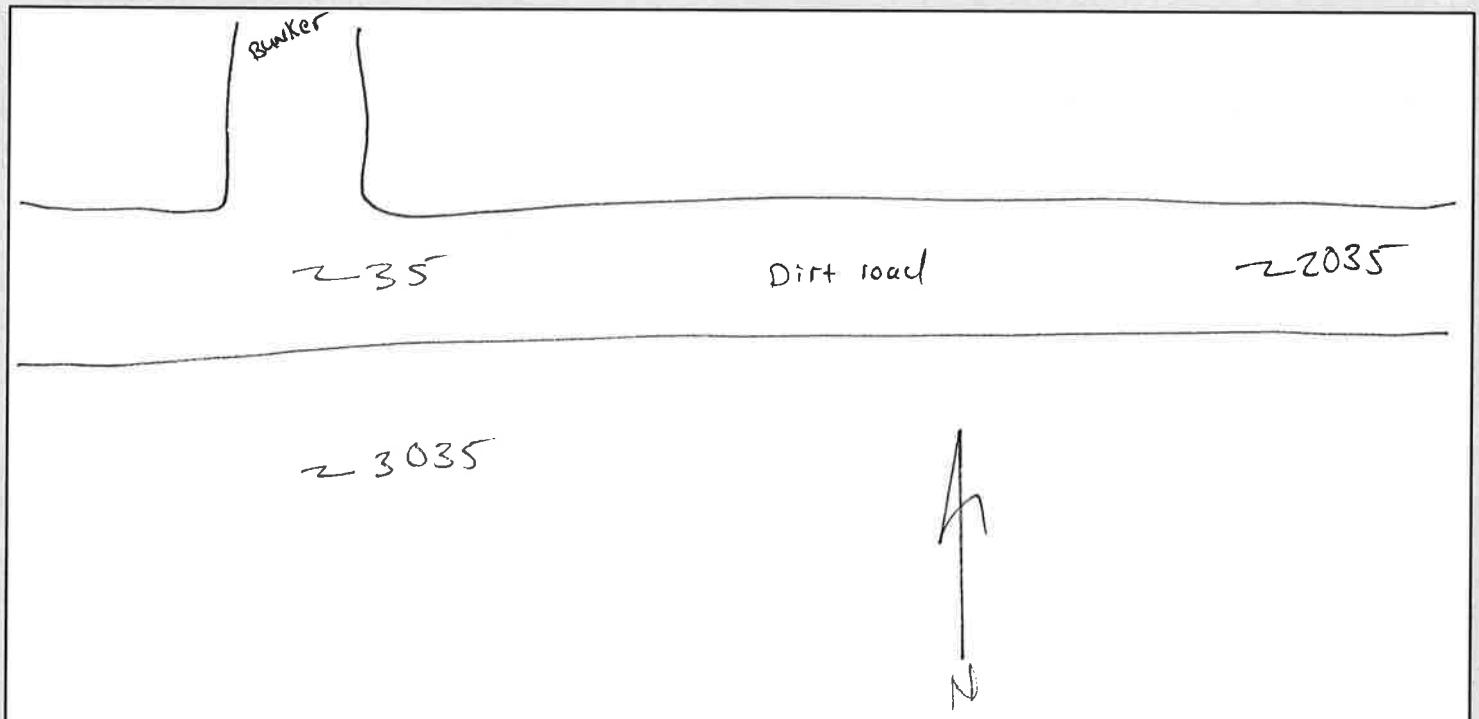



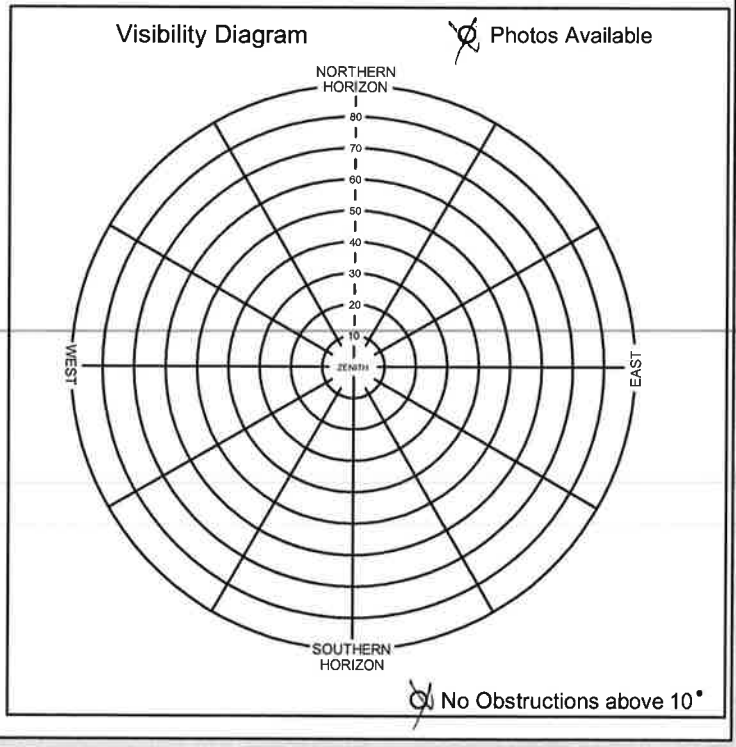
# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 35, 3035, 2035 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 6 ' 20 " | W 102 ° 49 ' 54 " | 4/21/16 | **DJK** |



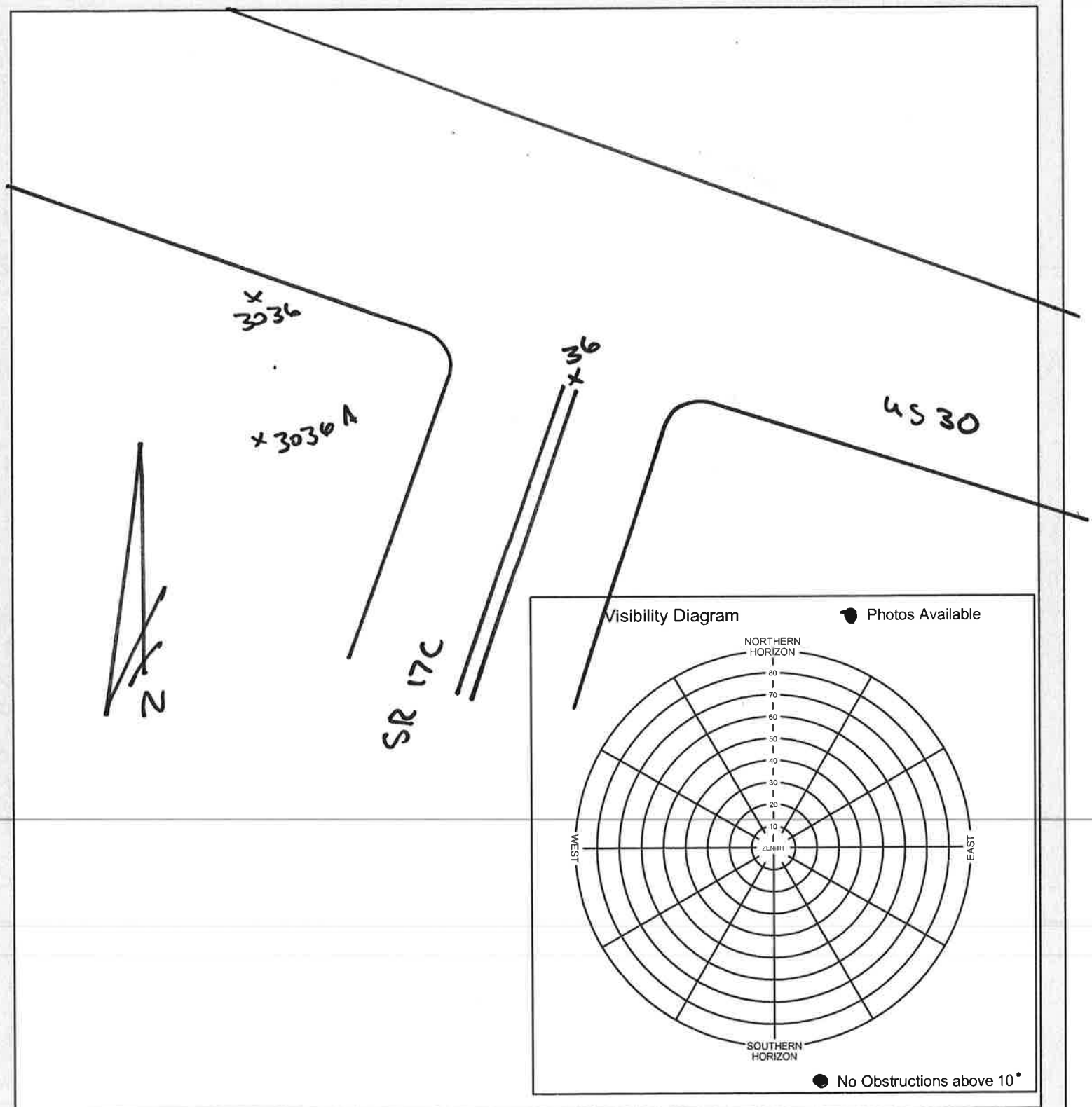



# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 36 / 3036 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 11 ' 18 " | W 103° 07' 12 " | 4 /21/ 16 | **DJK** |

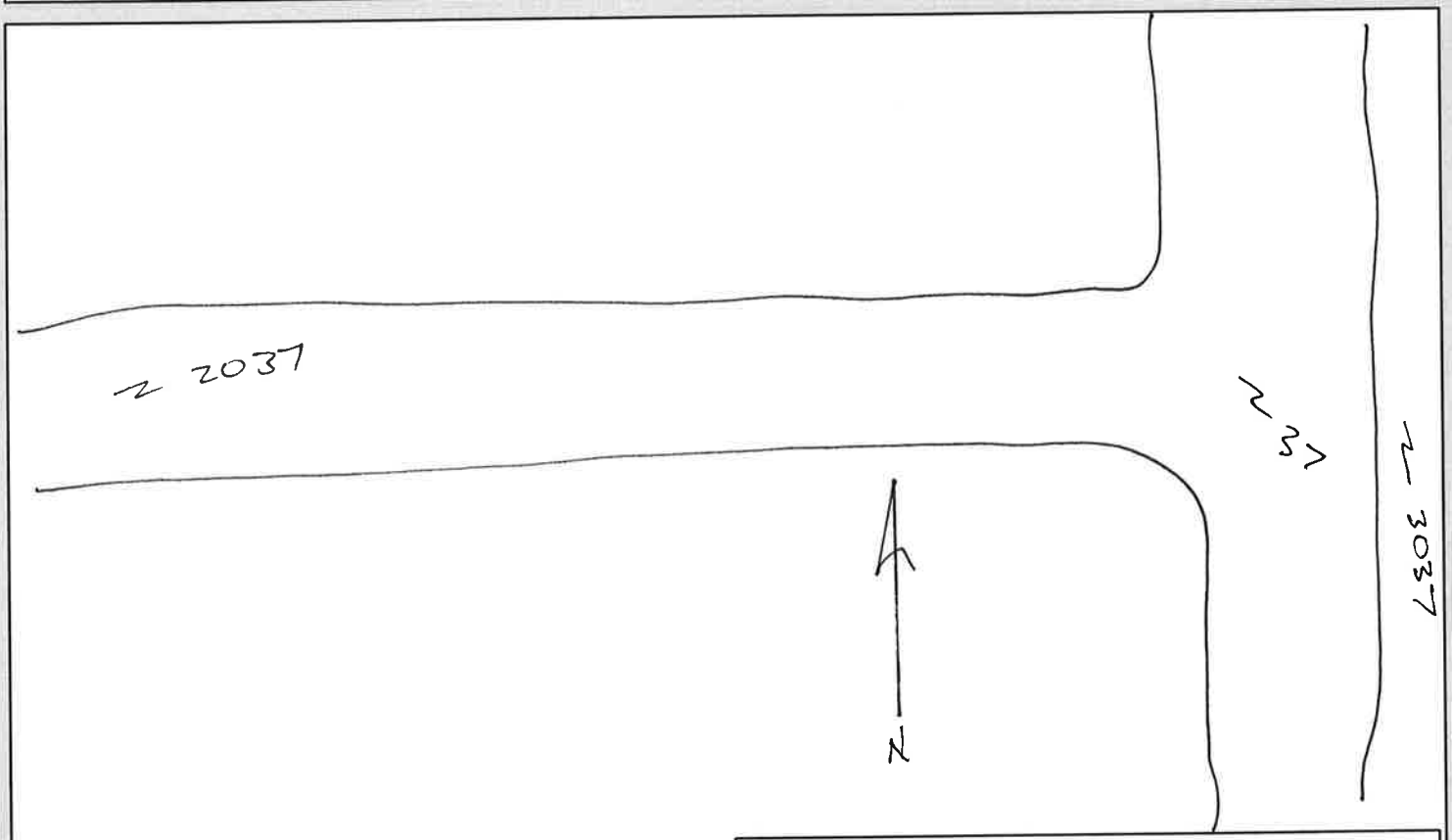


# South Platte Basin QL2 LiDAR

WOOLPERT

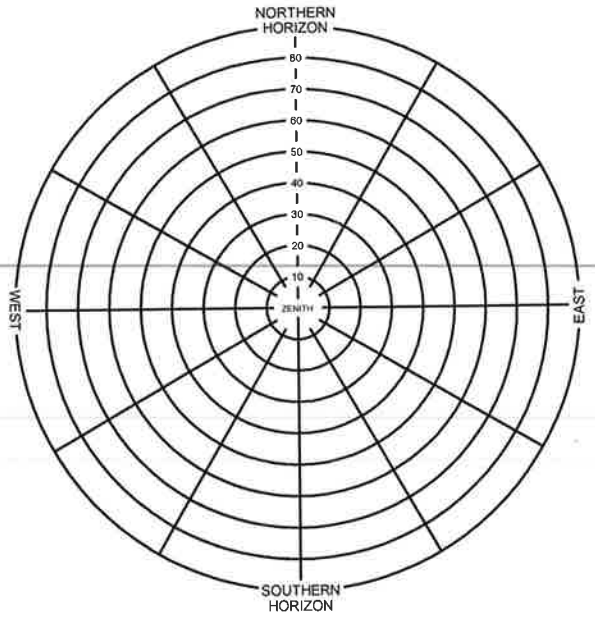
| Photo Control point # | General location | Job Number |
|---|---|---|
| 37, 2037, 3037 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 8 ' 5 " | W 103 ° 19 ' 6 " | 4/21/16 | **DJK** |




Visibility Diagram

Photos Available



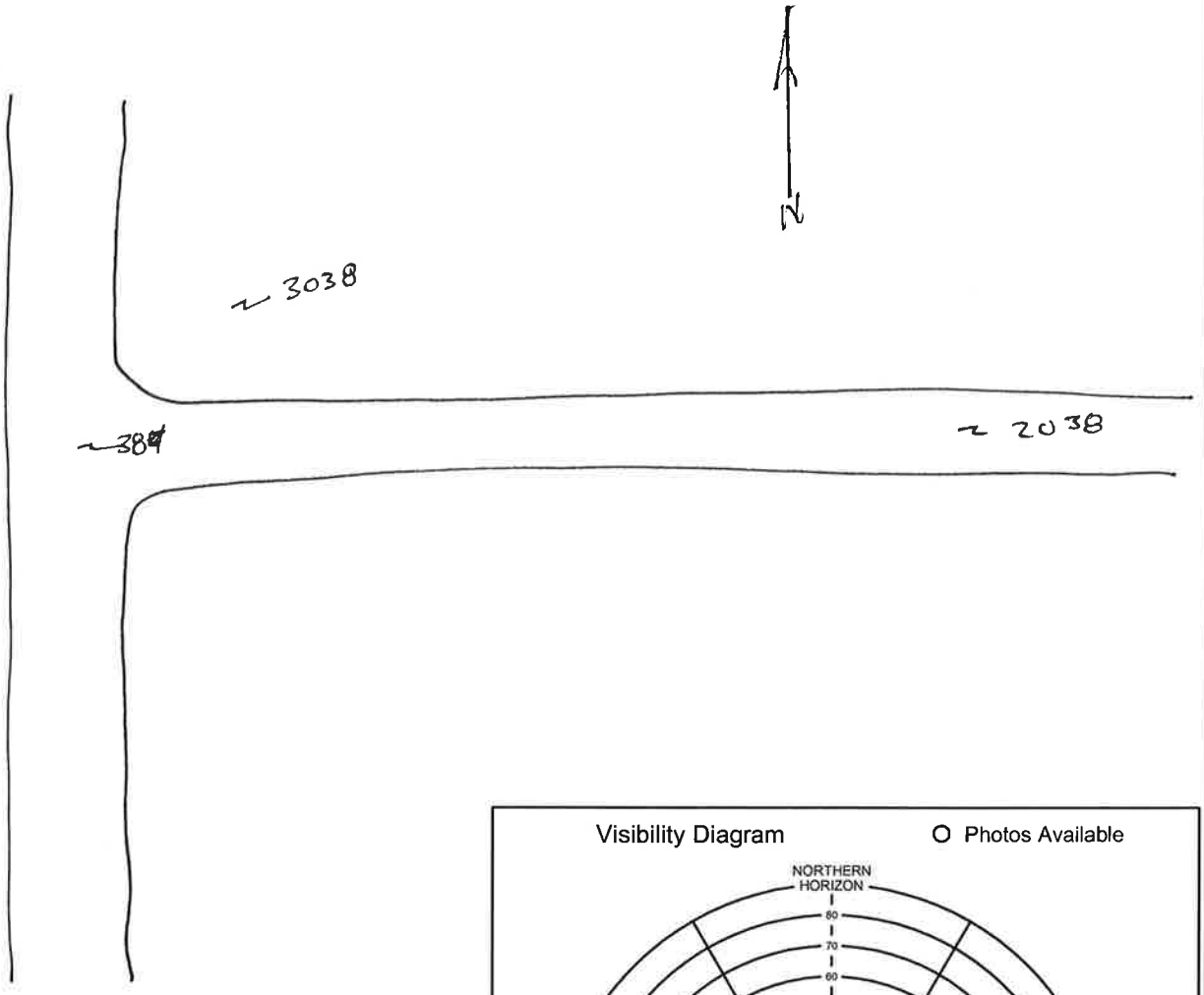

No Obstructions above 10°

# South Platte Basin QL2 LiDAR

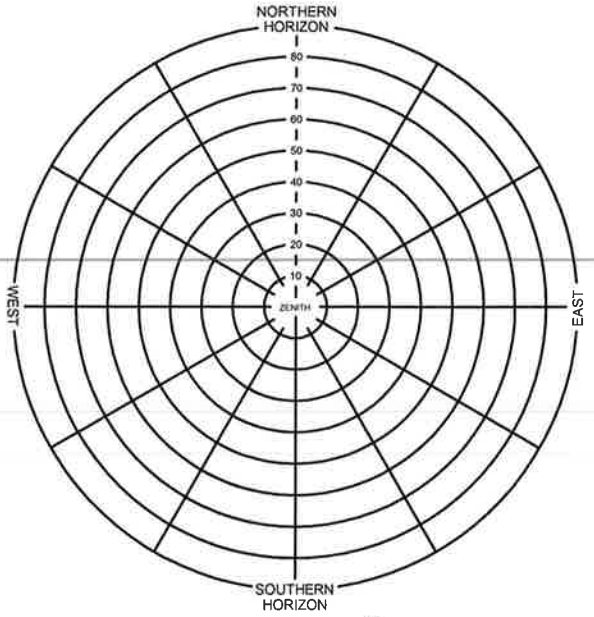
WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 38, 2038, 3038 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 4 ' 35 " | W 103 ° 8 ' 45 " | 4 / 21 / 16 | **DJK** |




Visibility Diagram  O Photos Available



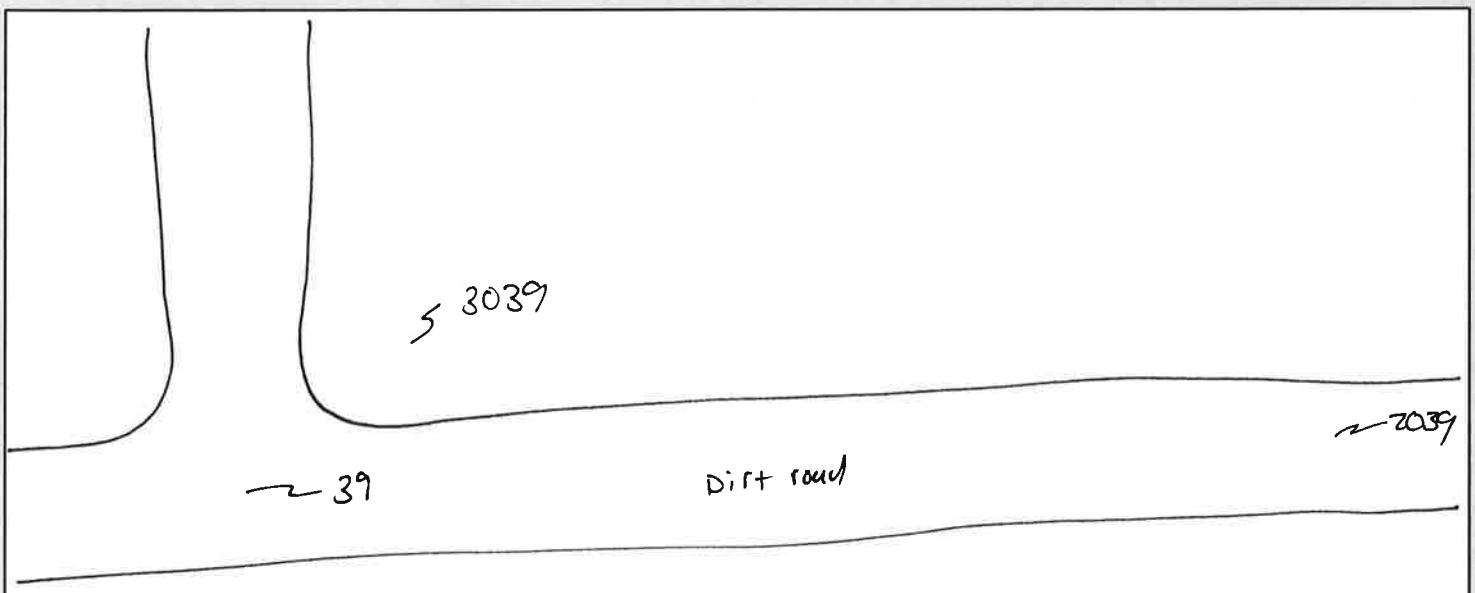

No Obstructions above 10°

# South Platte Basin QL2 LiDAR

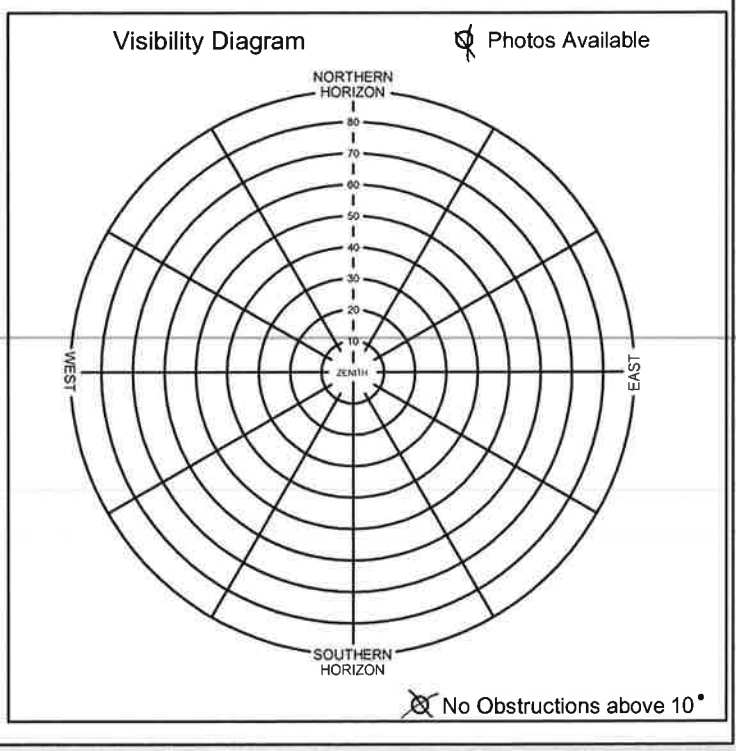
WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 39, 2039, 3039 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 2 ' 51 " | W 103 ° 17 ' 56 " | 4/21/16 | **DJK** |





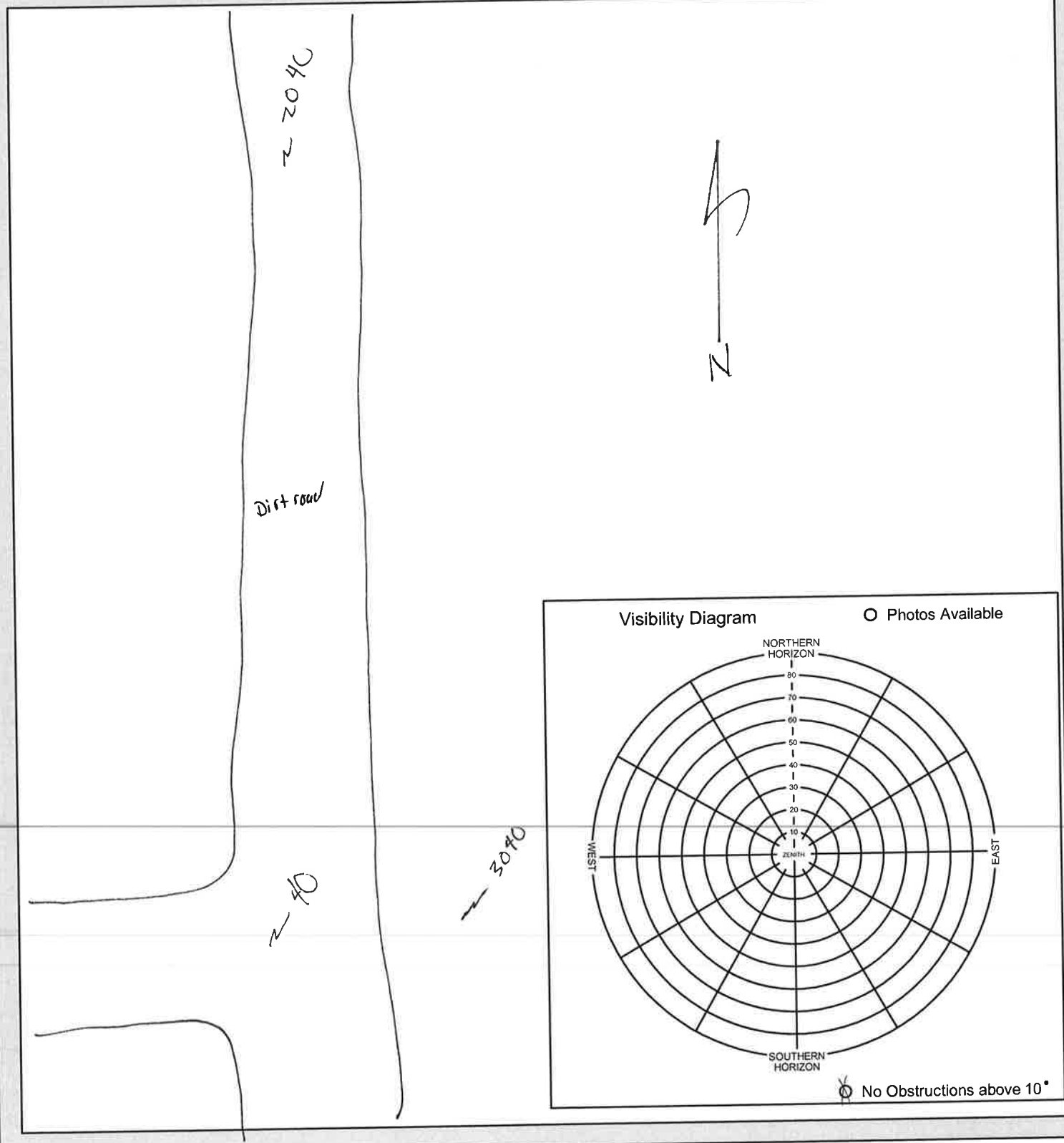


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 40, 2040, 3040 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 0 ' 14 " | W 103 ° 0 ' 7 " | 4/21/16 | **DJK** |




Visibility Diagram

O Photos Available



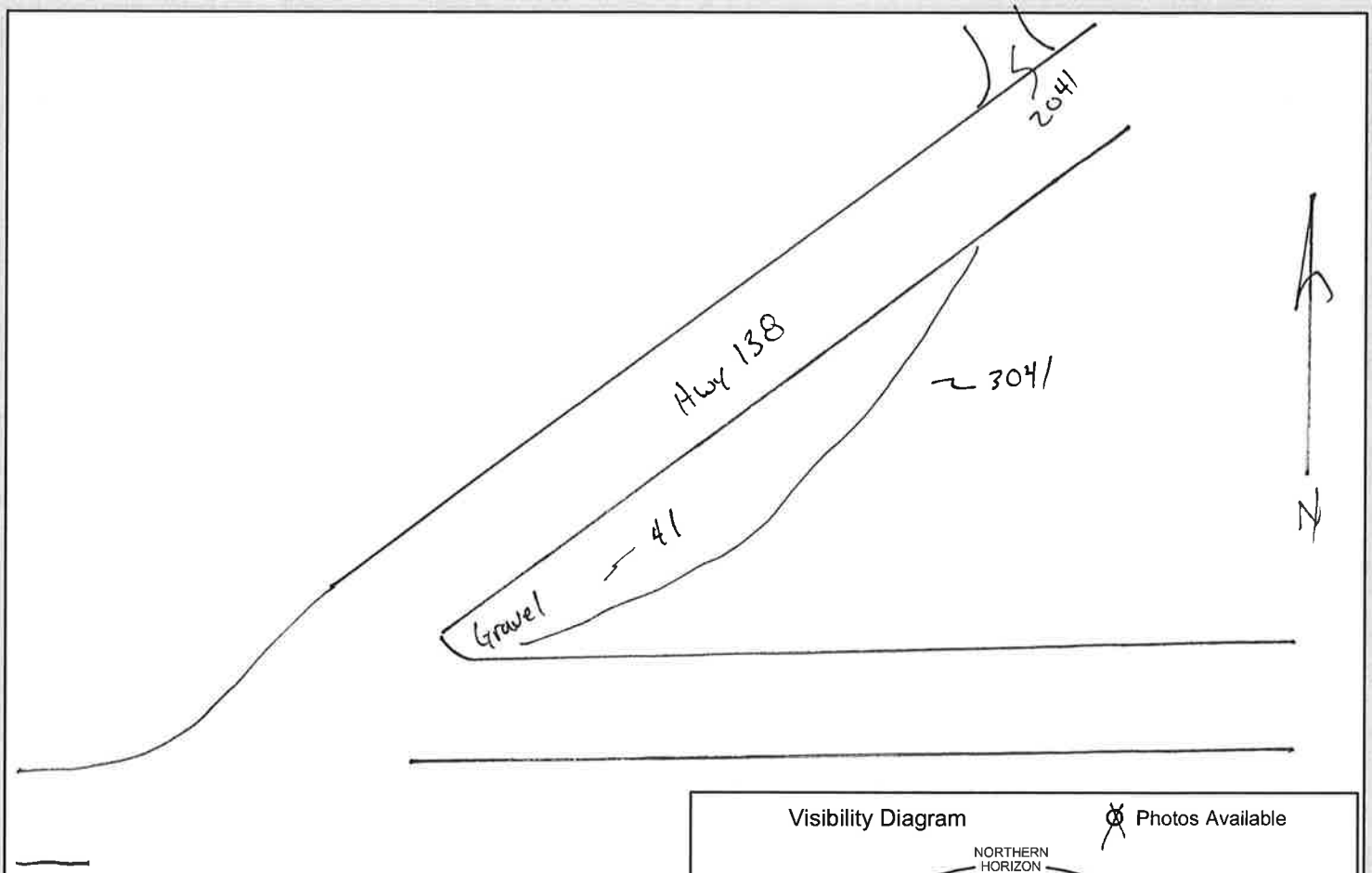

No Obstructions above 10°

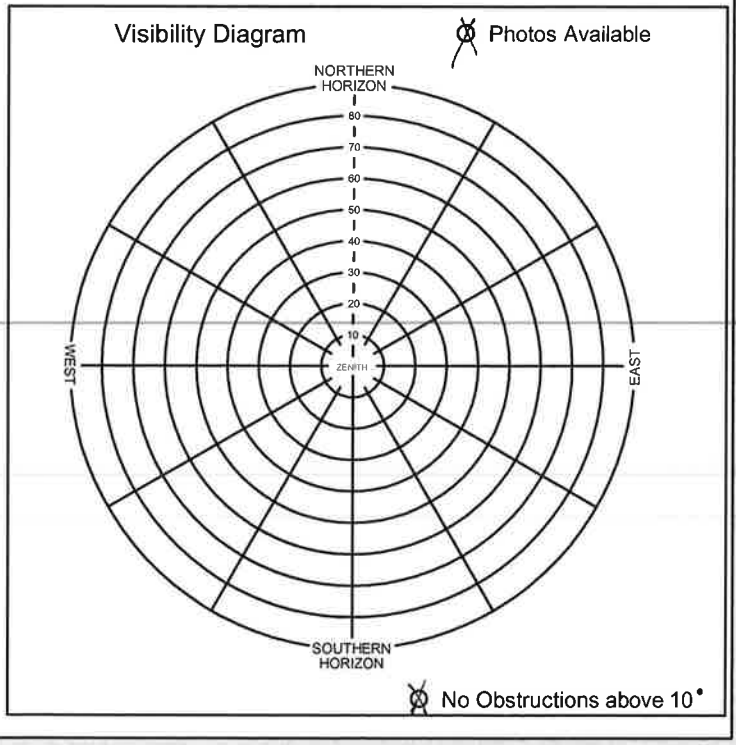
# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 41, 2041, 3041 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 0 ' 9 " | W 102 ° 13 ' 55 " | 4 / 20 / 16 | **DJK** |



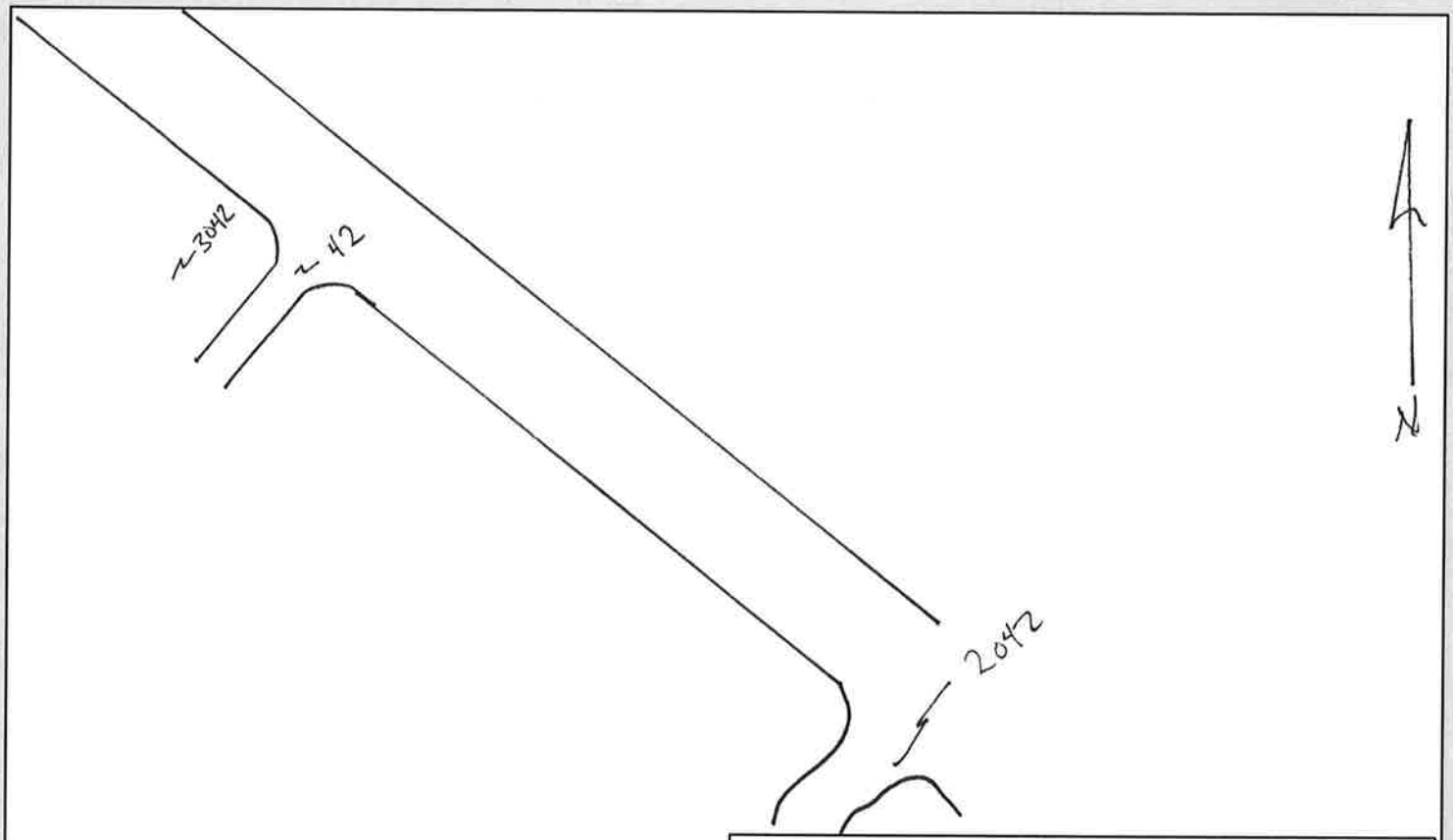



# South Platte Basin QL2 LiDAR

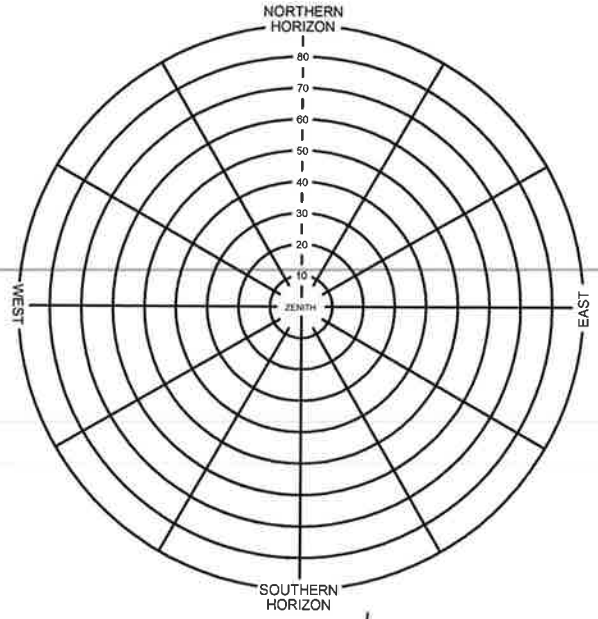
WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 42, 2042, 3042 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 1 ' 21 " | W 102 ° 23 ' 39 " | 4/20/16 | **DJK** |




Visibility Diagram  O Photos Available



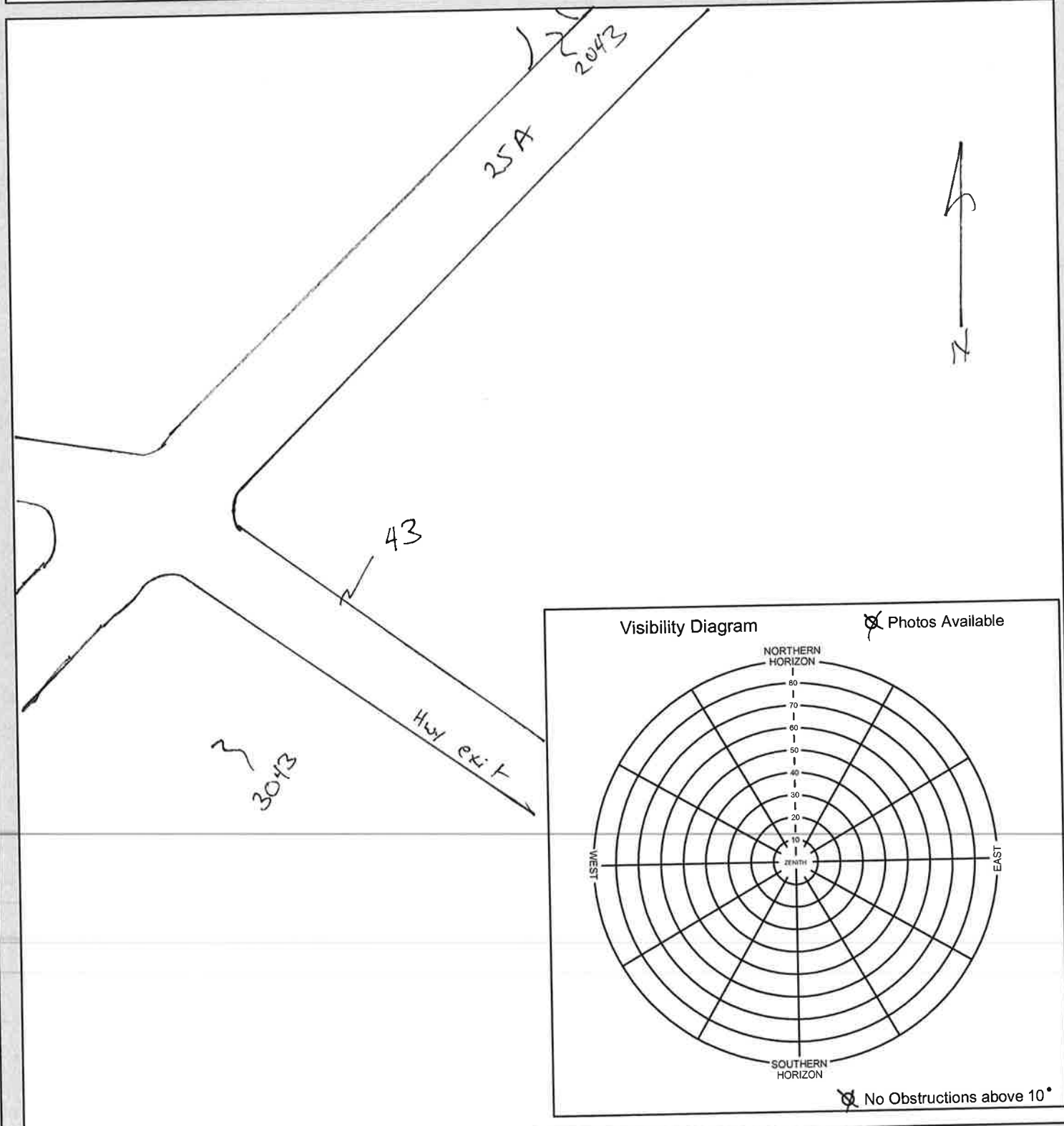

No Obstructions above 10°

# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 43, 2043, 3043 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 4 ' 55 " | W 102 ° 28 ' 21 " | 4/20/16 | **DJK** |

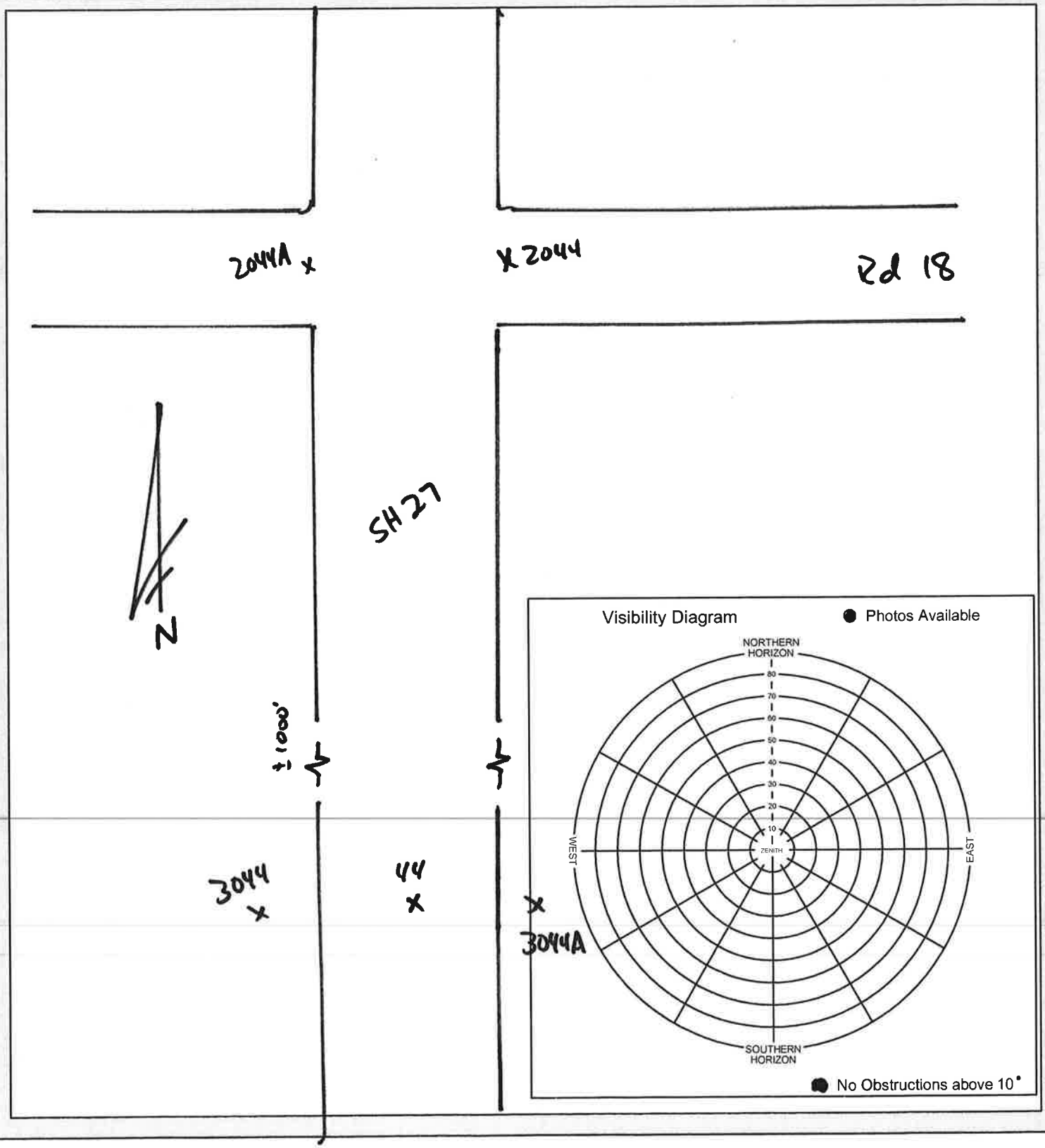


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 44 / 2044 / 3044 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 10 ' 22 " | W 102 ° 17 ' 04 " | 4 /20/16 | **DJK** |

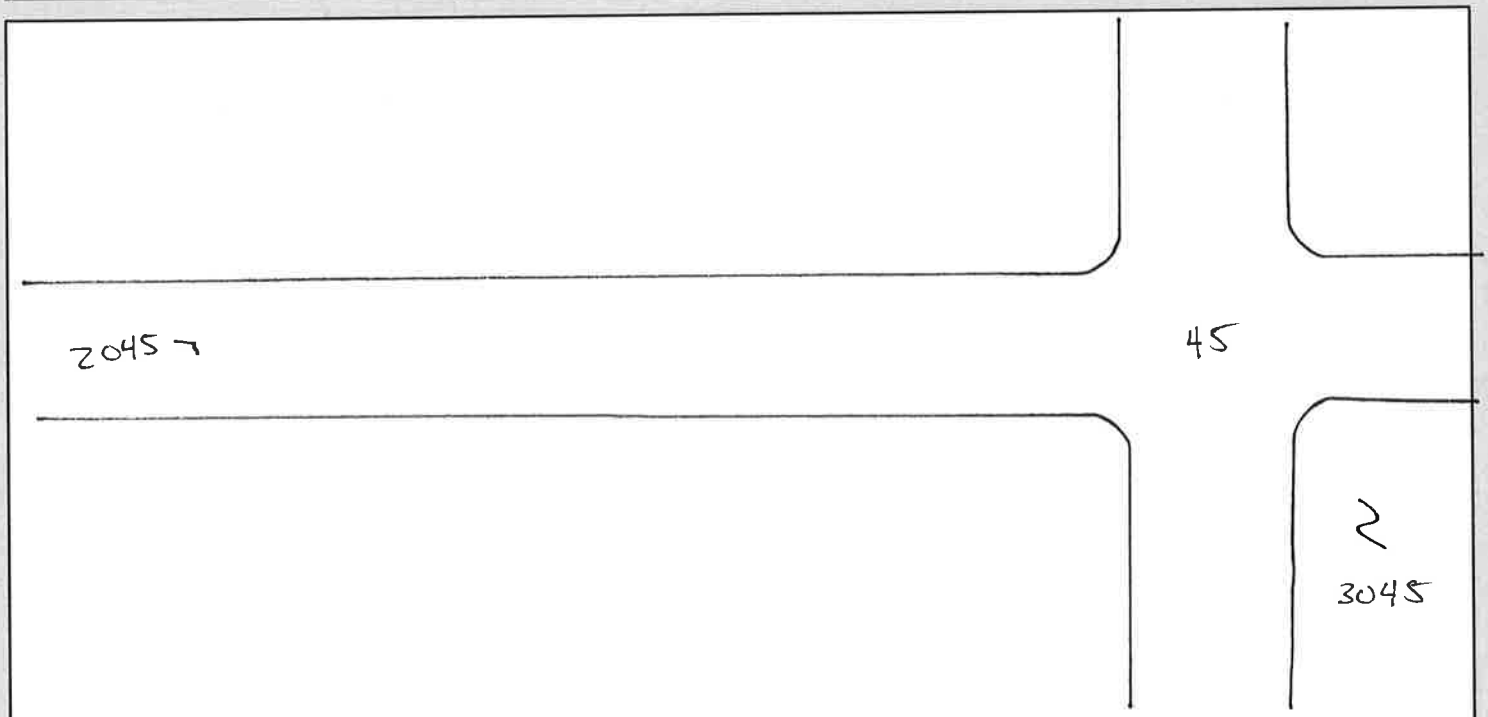


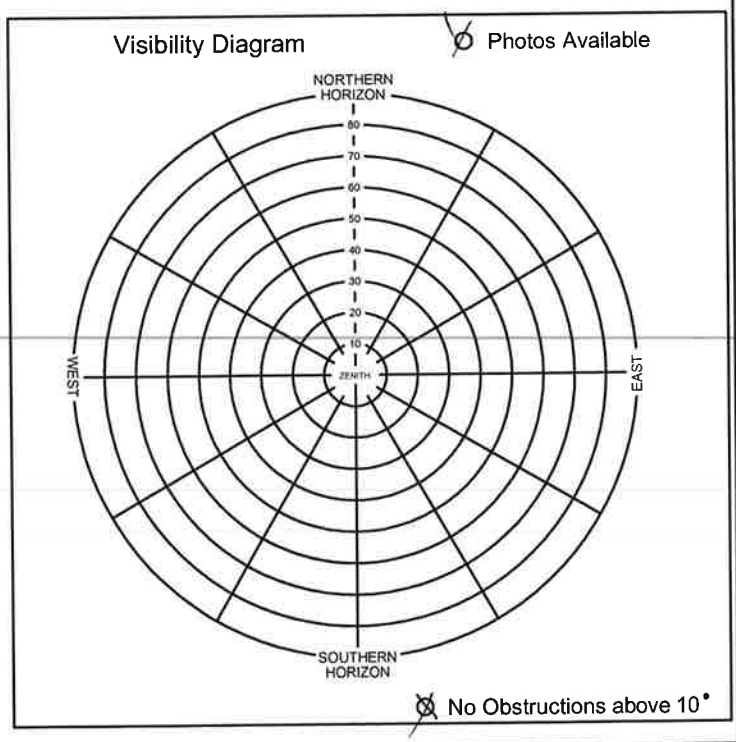
# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 45, 2045, 3045 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 11 ' 35 " | W 102 ° 31 ' 27 " | 4 / 20 / 16 | **DJK** |



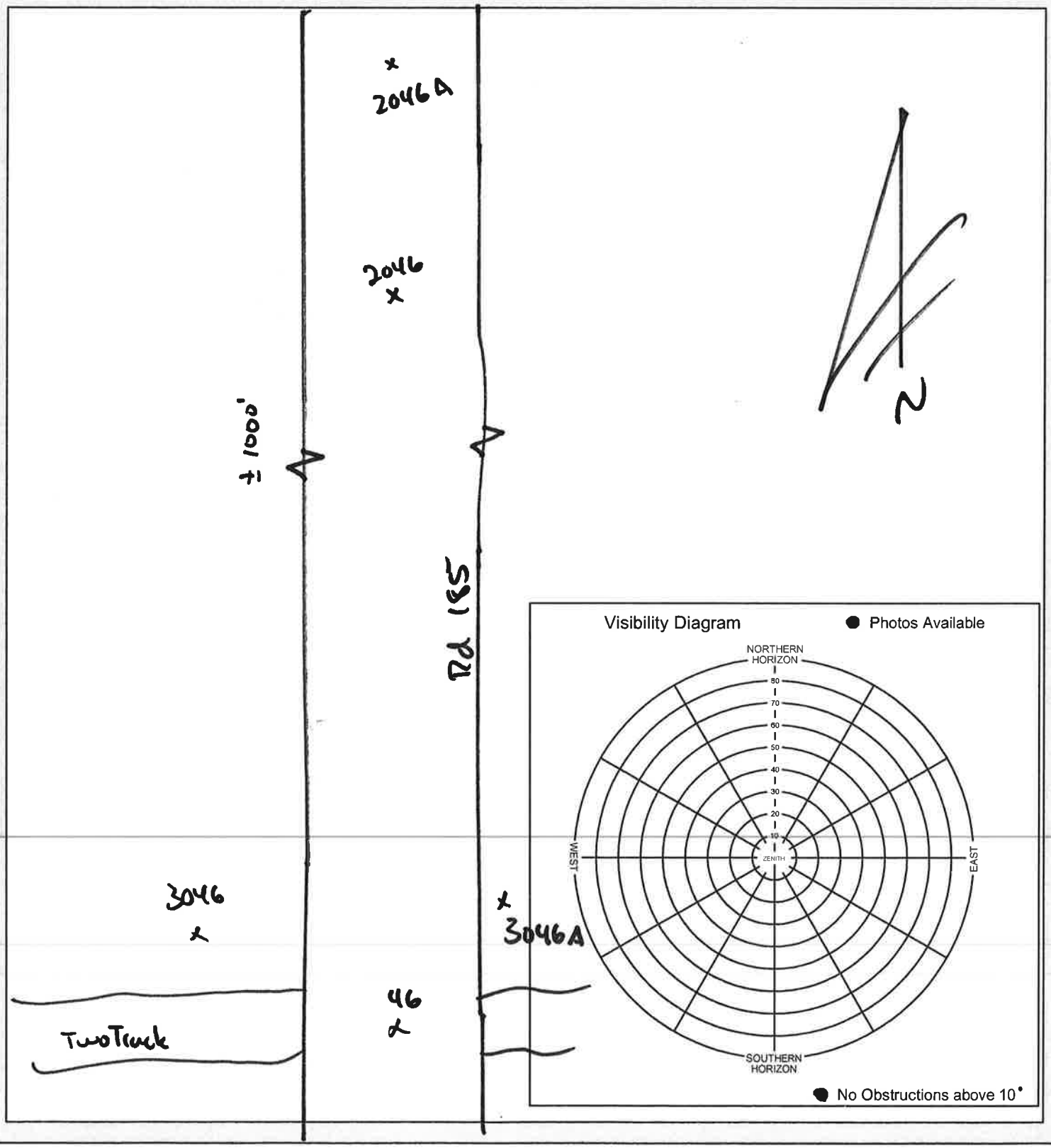



# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 46 / 2046 / 3046 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 10 ' 09 " | W 102 ° 17 ' 04 " | 4 /20/16 | **DJK** |

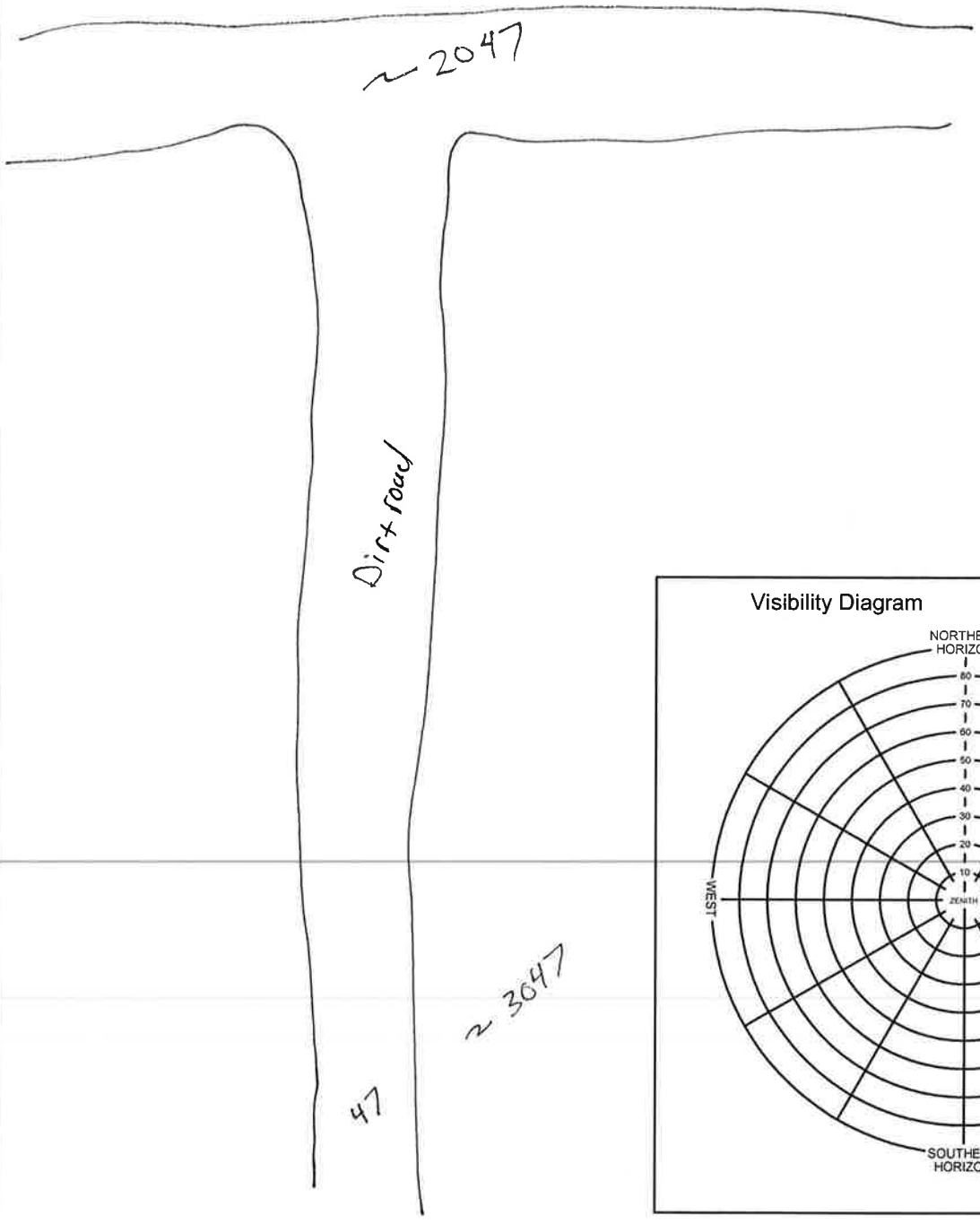


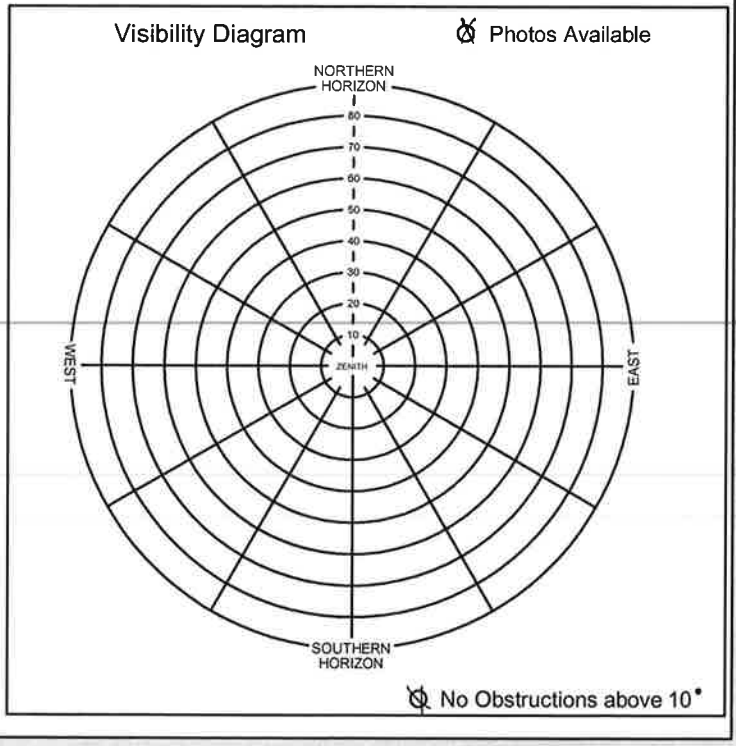
# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 47, 3047, 2047 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 4 ' 29 " | W 102 ° 10 ' 47 " | 4 / 20/16 | **DJK** |

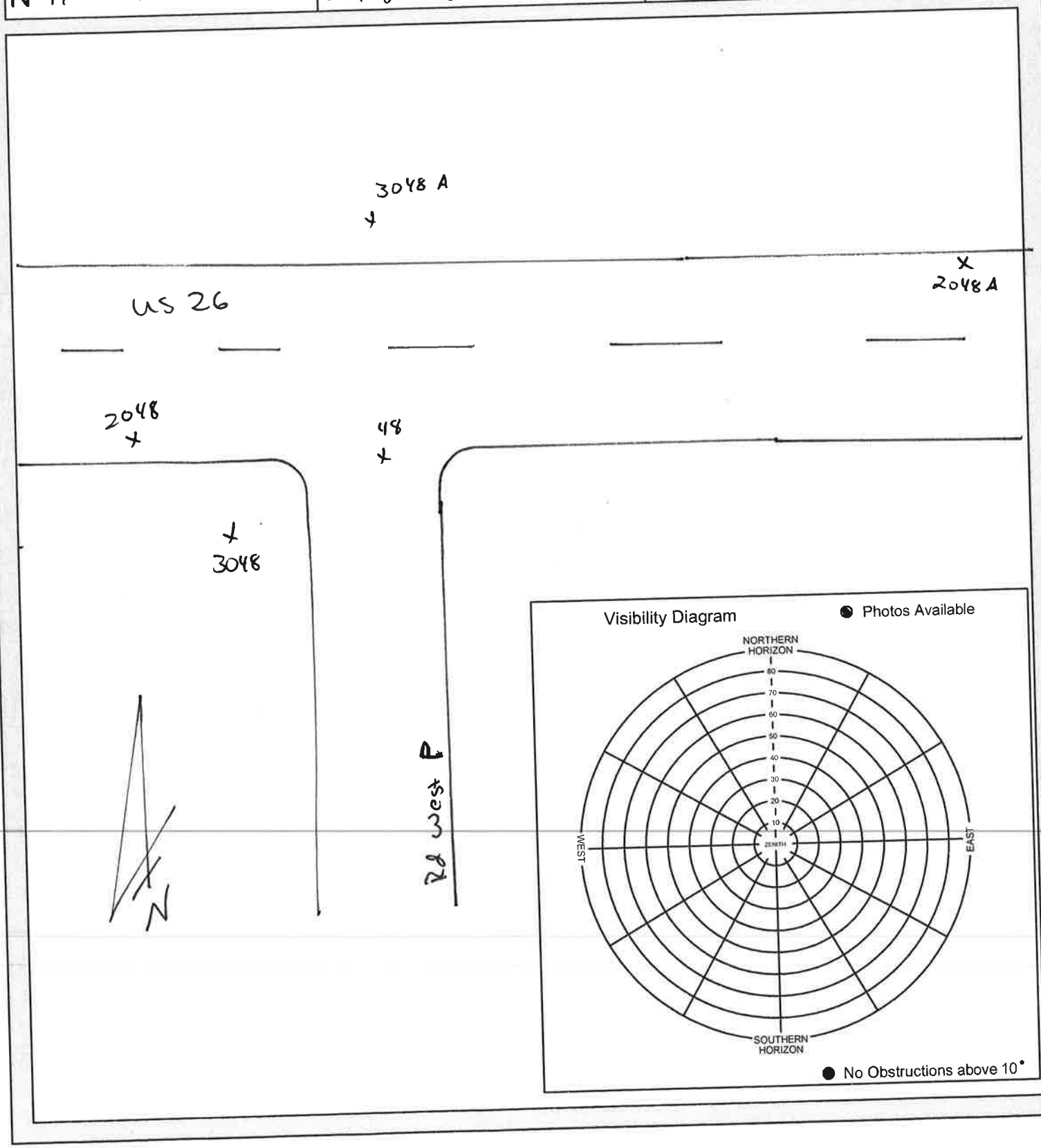


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 48 / 2048 / 3048 | **South Platte River Basin** | **75955** |
| **Latitude** | **Longitude** | **Calendar Date** / **Observer Initials** |
| N 41 ° 14 ' 08 " | W 102 ° 02 ' 12 " | 4 / 20 / 16 — **DJK** |

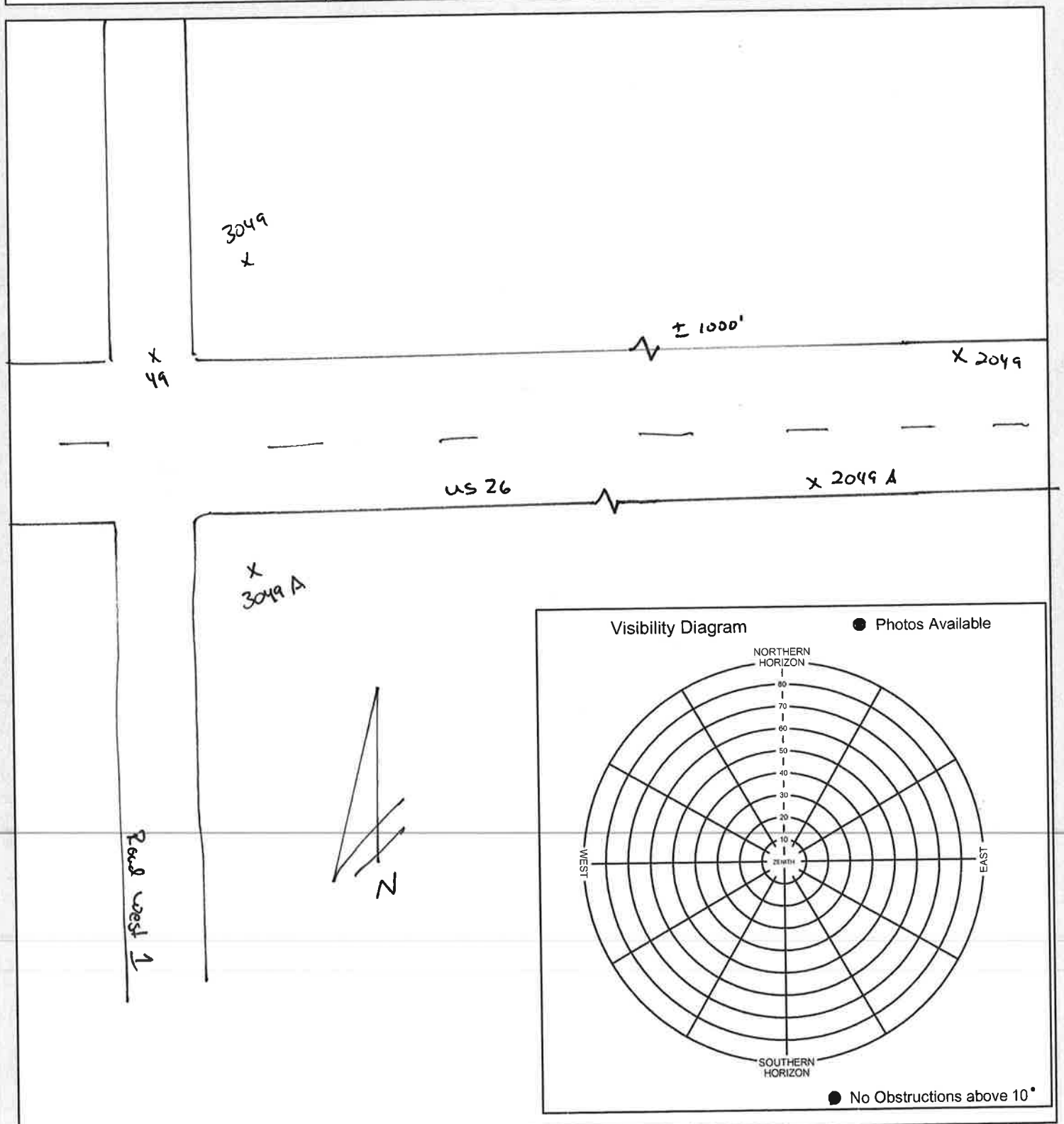


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 49 / 2049 / 3049 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 11 ' 32 " | W 101 ° 54 ' 10 " | 4 / 20 / 16 | **DJK** |

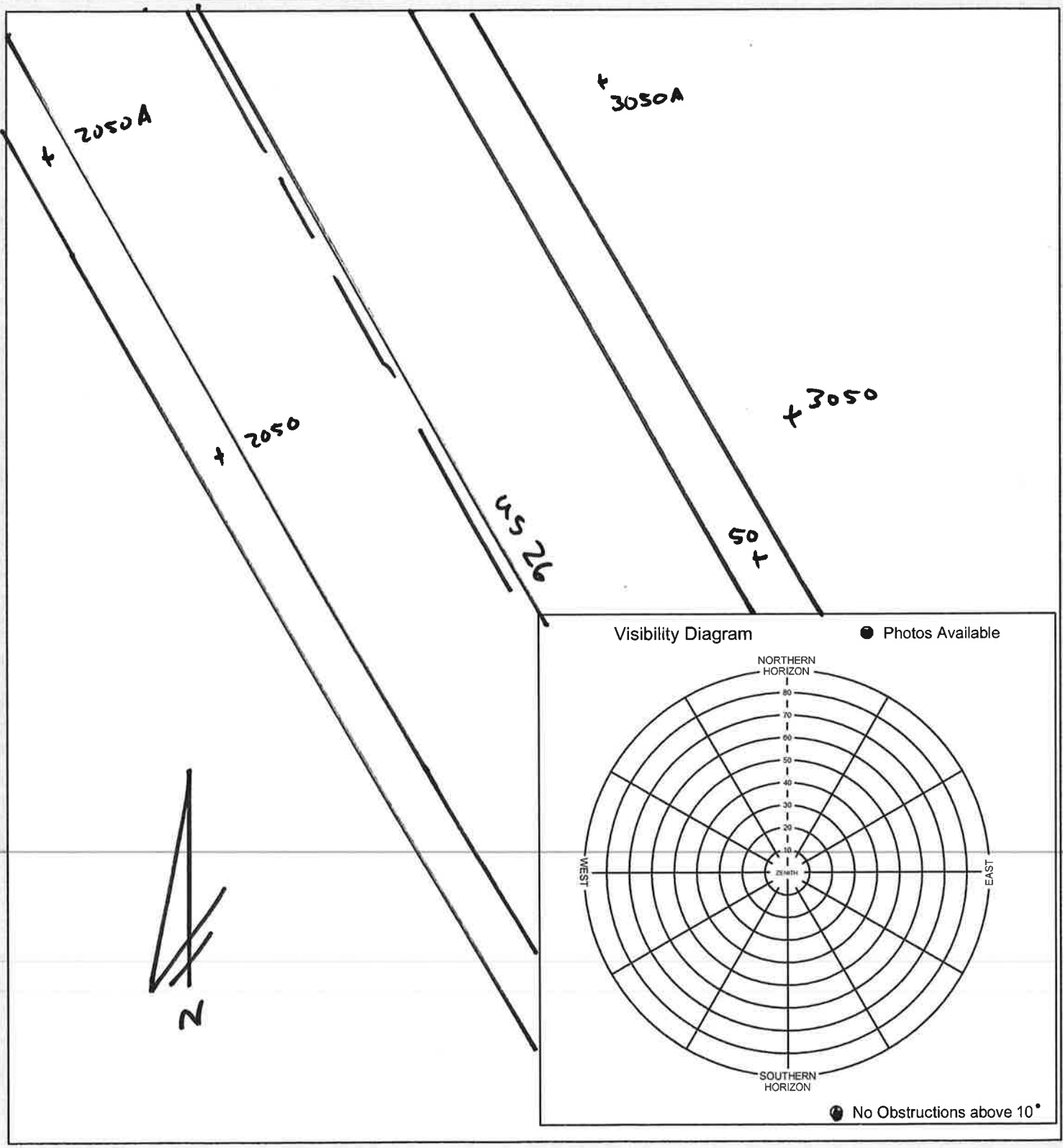


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 50 / 2050 / 3050 | **South Platte River Basin** | **75955** |

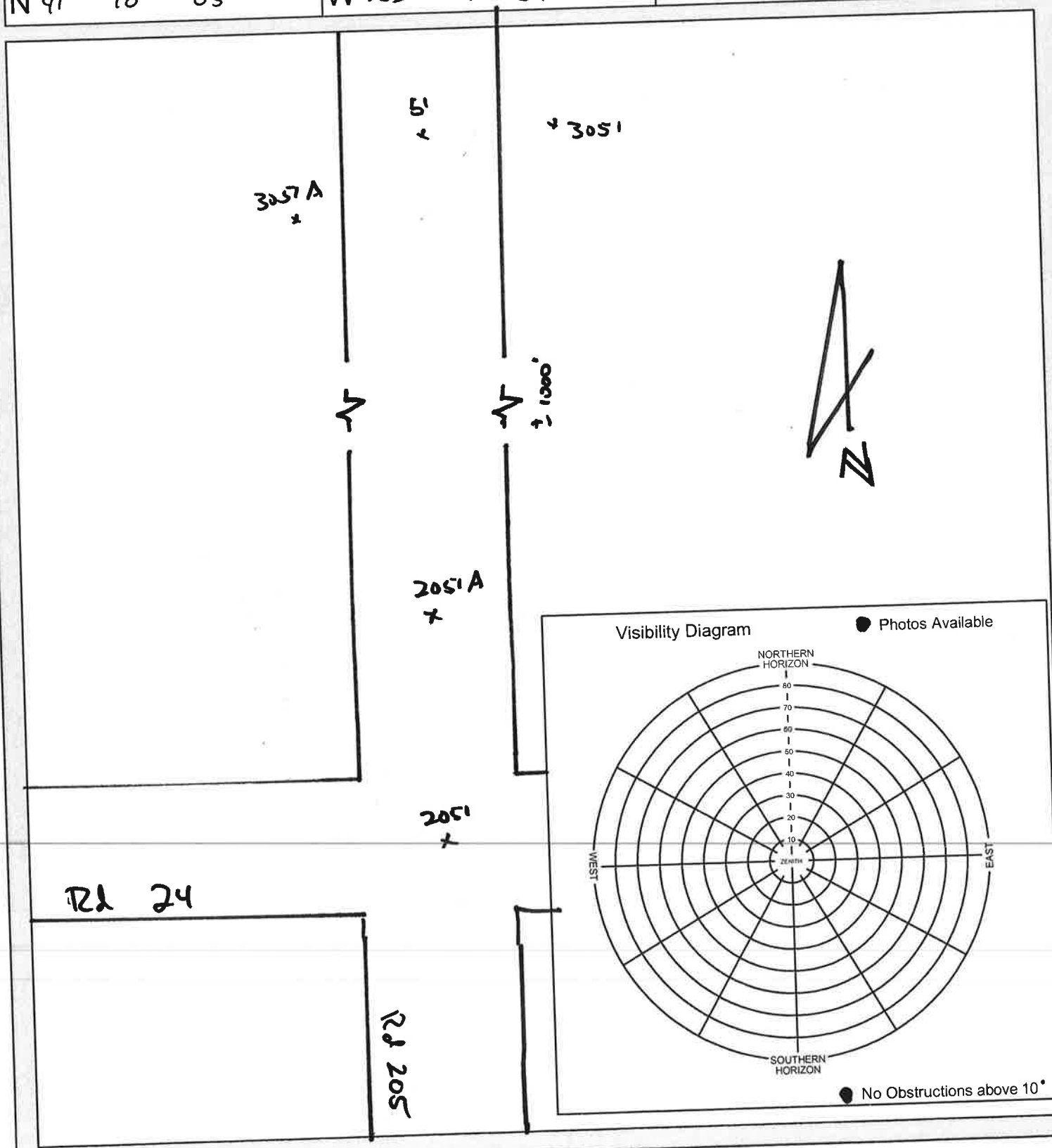
| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 10 ' 05 " | W 101 ° 47 ' 37 " | 9 / 20 / 16 | **DJK** |



# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 51 / 2051 / 3051 | South Platte River Basin | 75955 |
| **Latitude** | **Longitude** | **Calendar Date** / **Observer Initials** |
| N 41 ° 10 ' 05 " | W 102 ° 05 ' 37 " | 4 / 20/16 / DJK |

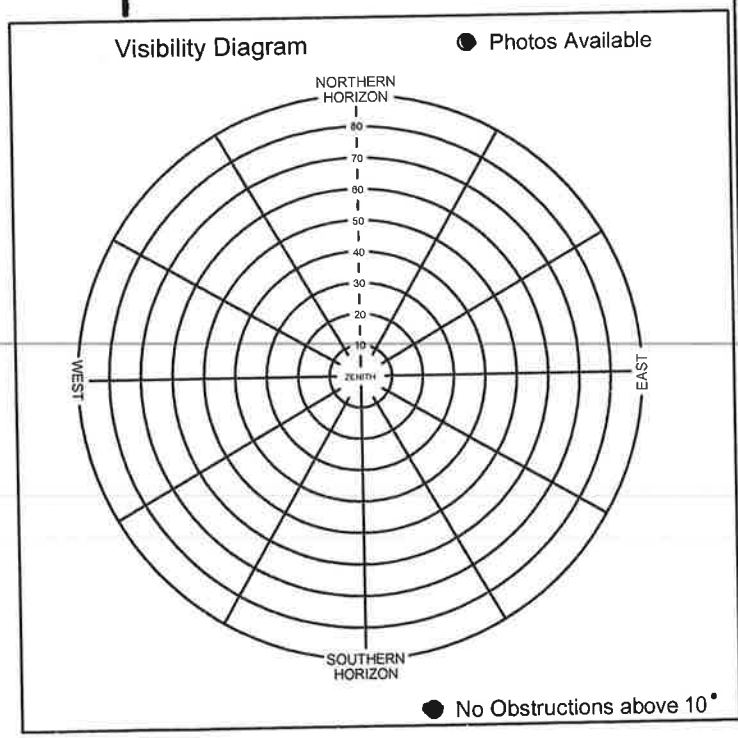


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 52 / 2052 / 3052 | South Platte River Basin | 75955 |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 08 ' 03 " | W 101 ° 54 ' 09 " | 4 / 20 / 16 | DJK |

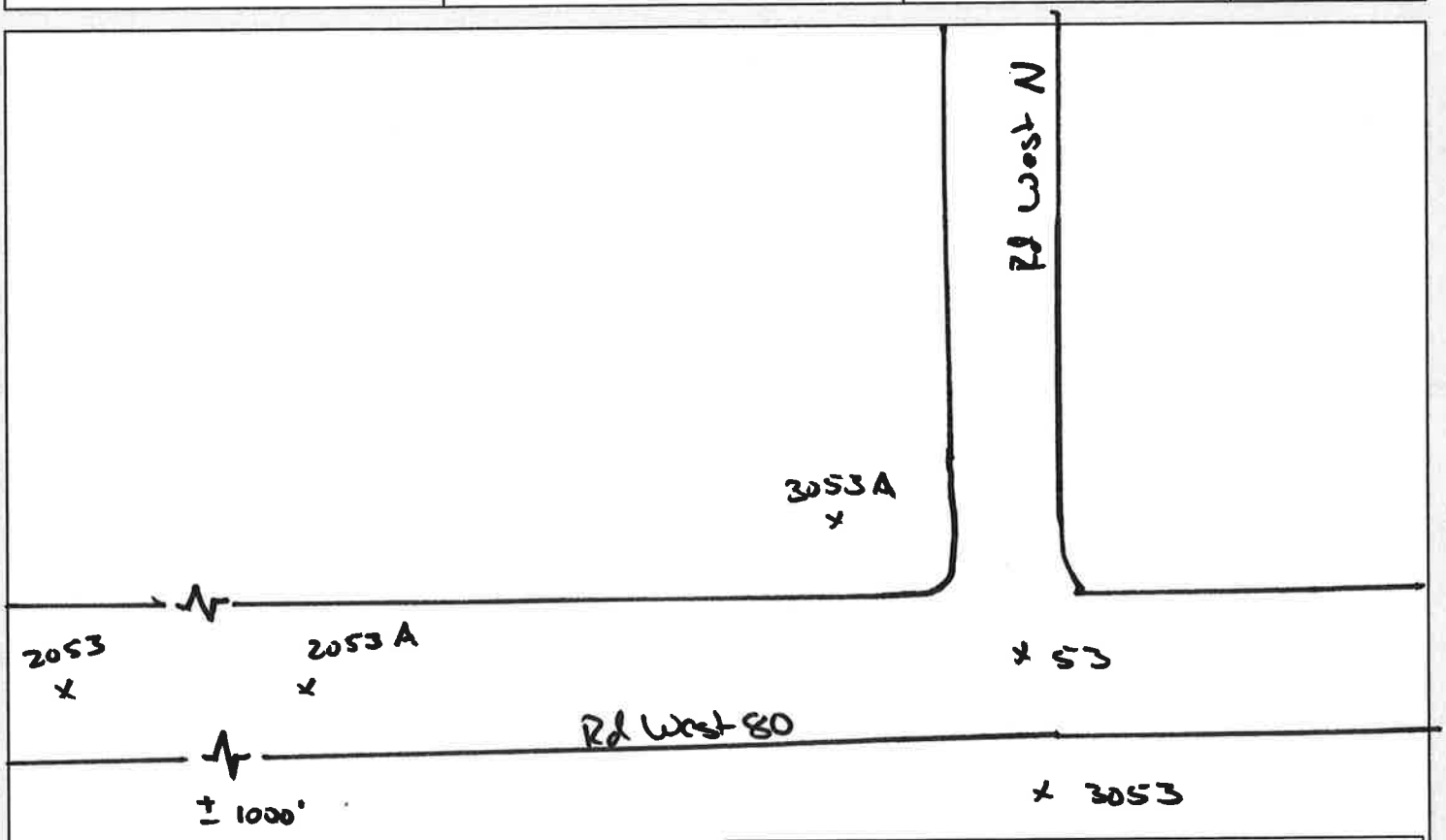



# South Platte Basin QL2 LiDAR

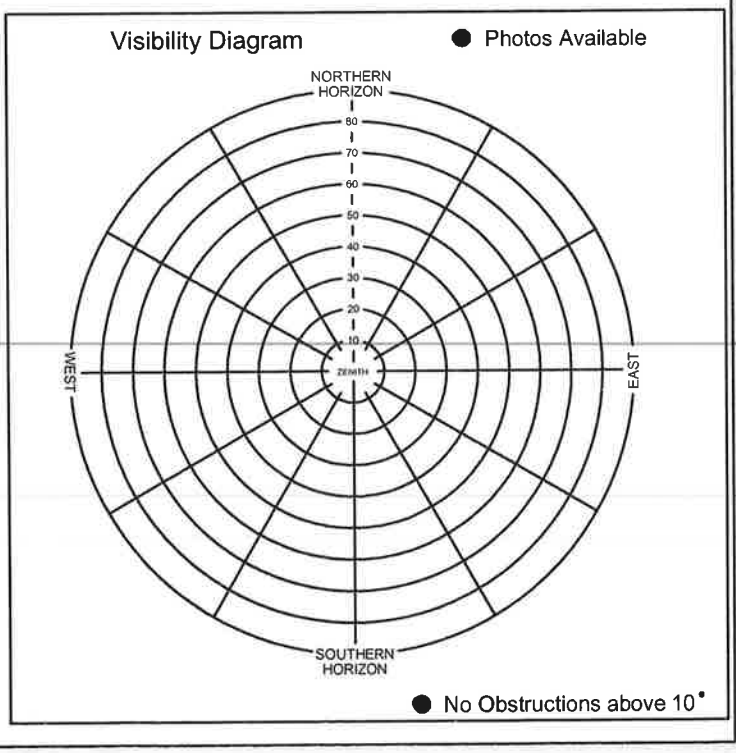
WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 53 / 2053 / 3053 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 06 ' 19 " | W 101 ° 59 ' 55 " | 4 / 20 / 16 | **DJK** |



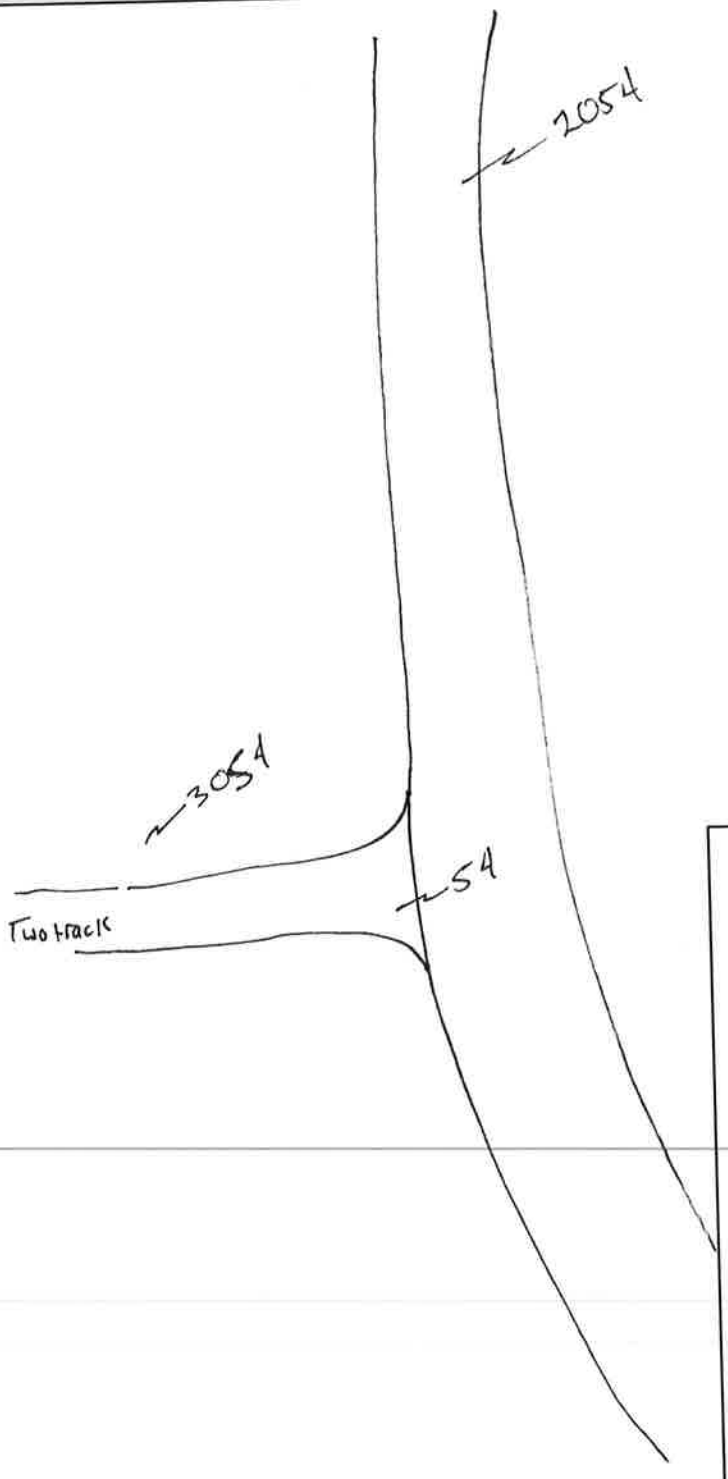




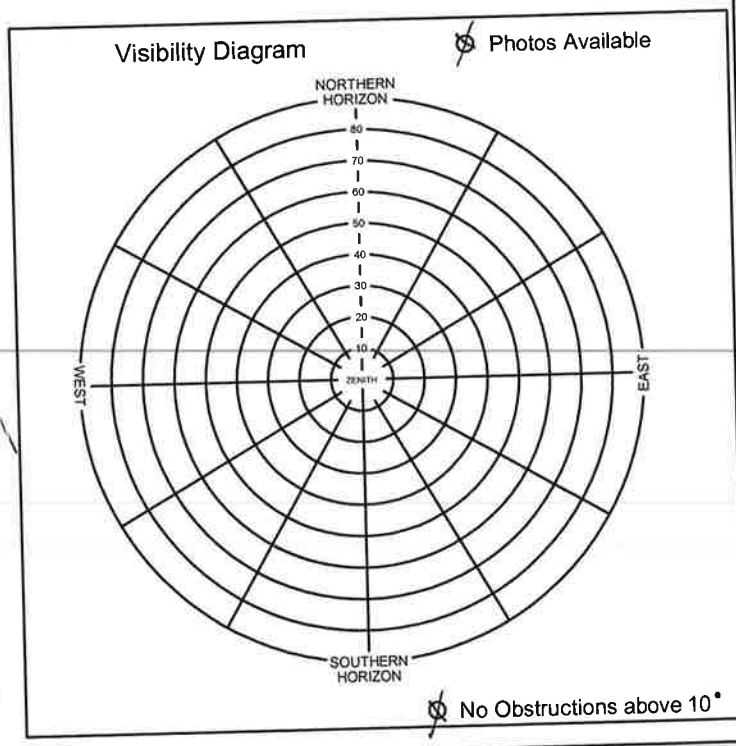
# South Platte Basin QL2 LiDAR

| Photo Control point # | General location | Job Number |
|---|---|---|
| 54, 3054, 2054 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 3 ' 28 " | W 102 ° 4 ' 27 " | 4/20/16 | **DJK** |





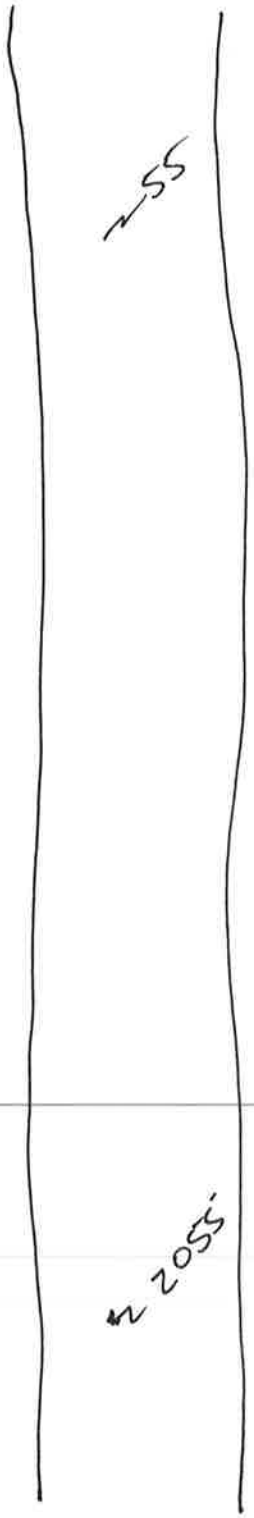


# South Platte Basin QL2 LiDAR

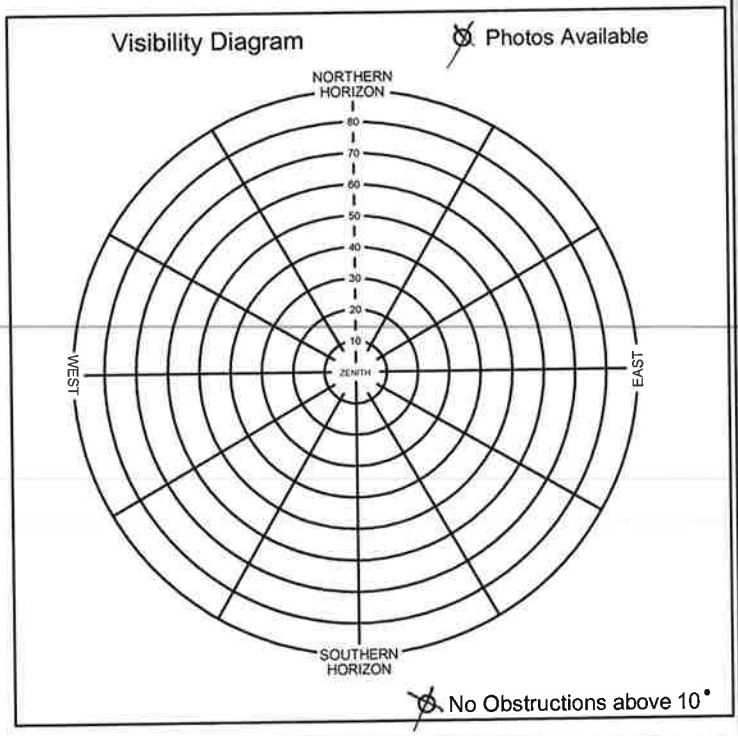
WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 55, 2055, 3055 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 0 ' 54 " | W 101 ° 56 ' 16 " | 4/20/16 | **DJK** |





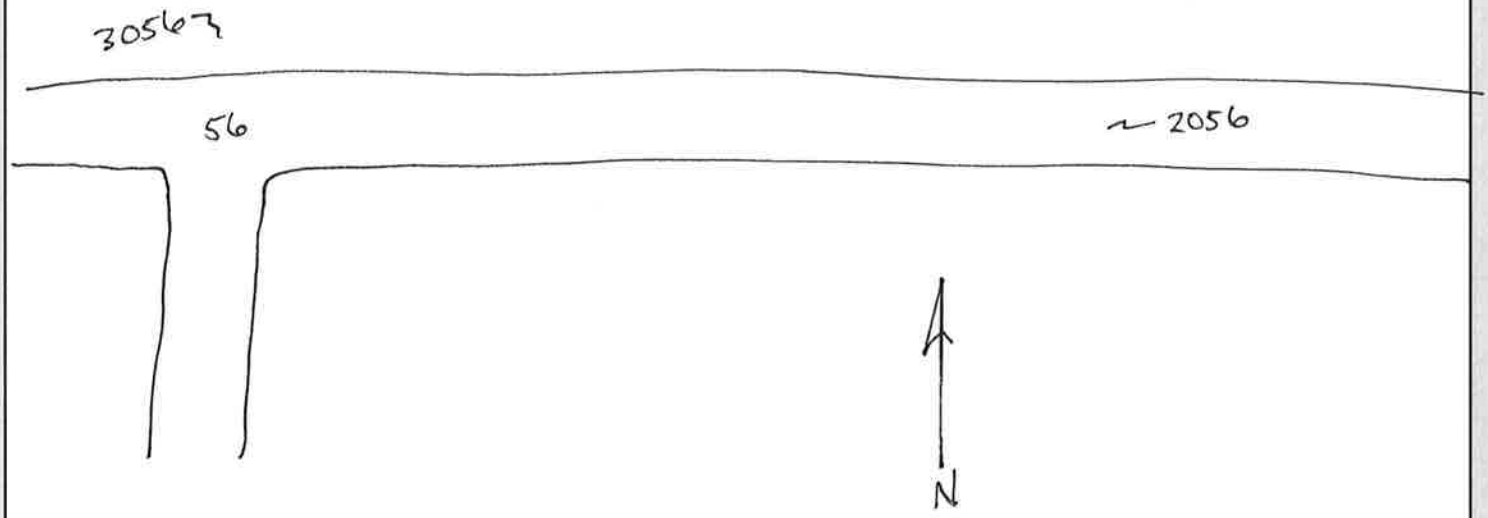


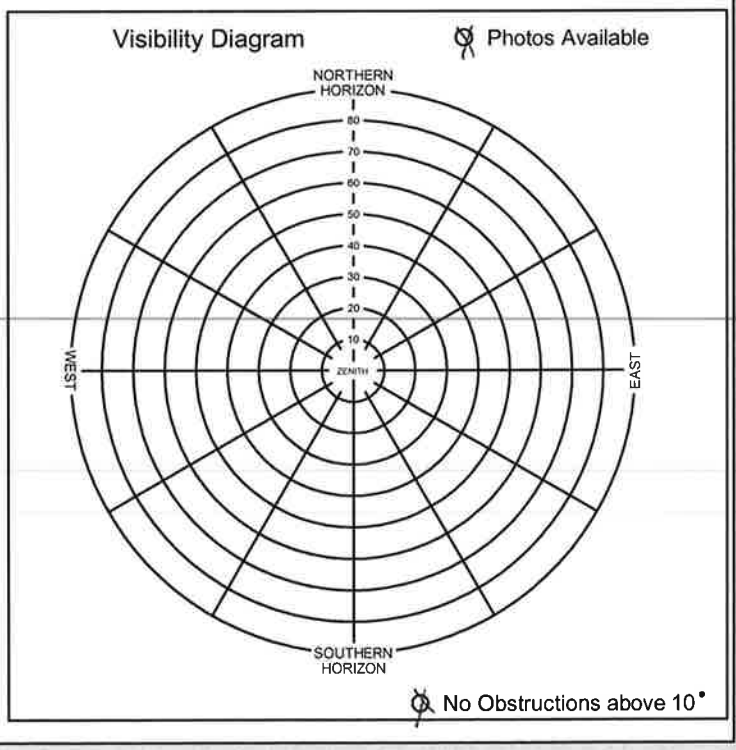
# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 56, 2056, 3056 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 2 ' 51 " | W 101 ° 45 ' 34 " | 4/20/16 | **DJK** |



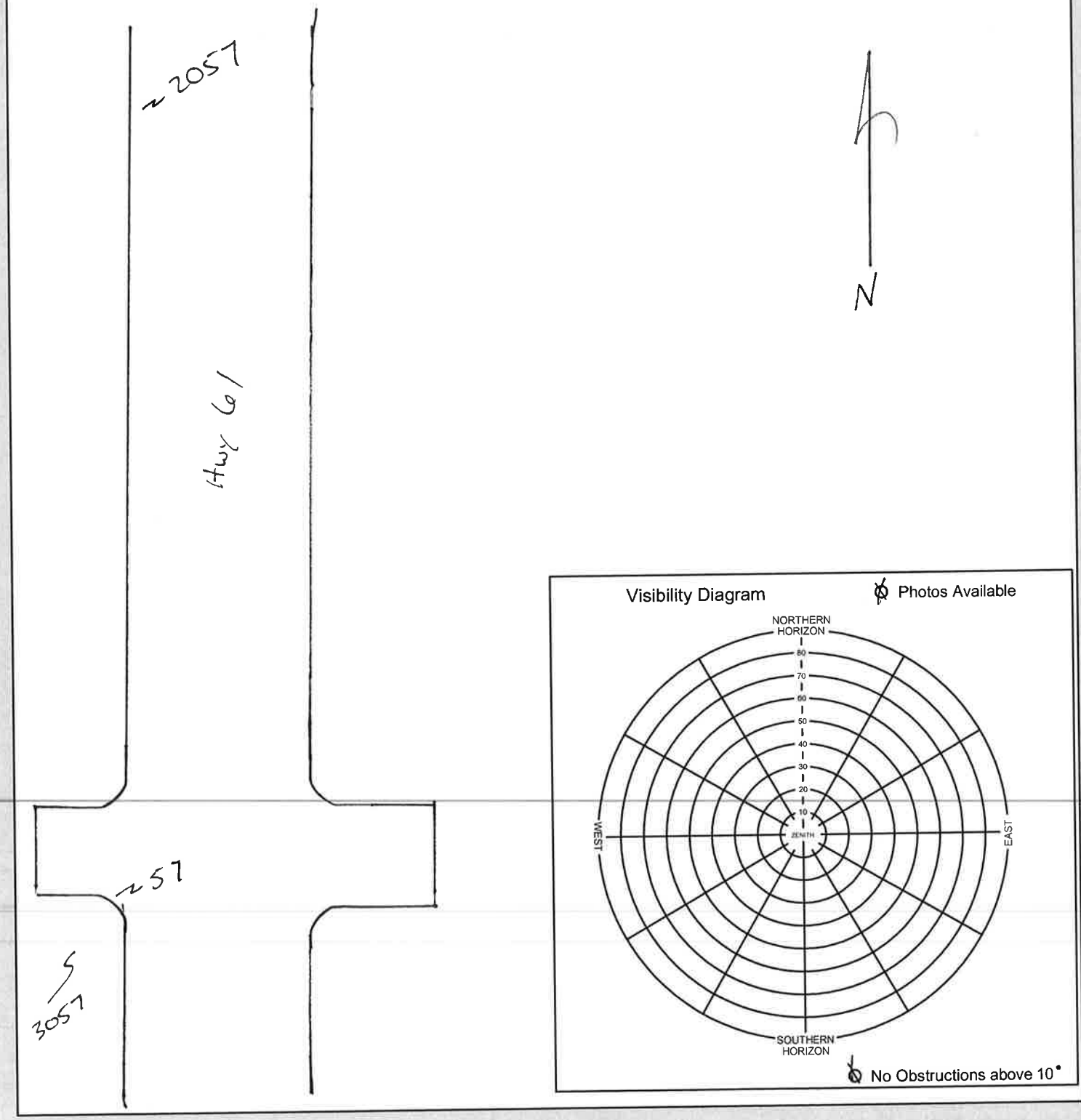



# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 57, 2057, 3057 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 0 ' 11 " | W 101 ° 43 ' 42 " | 4/20/16 | **DJK** |

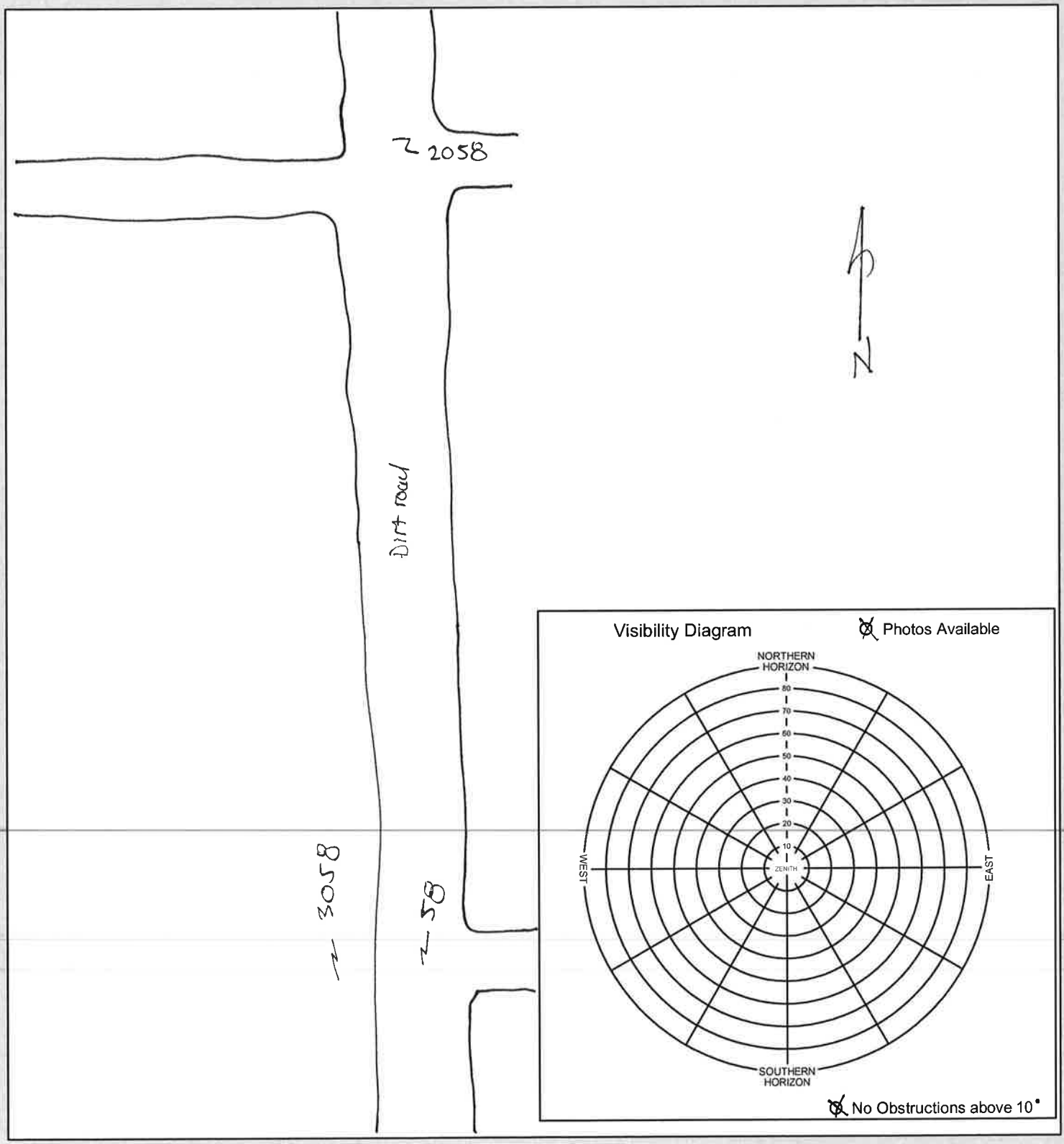


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 58, 2058, 3058 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 4 ' 59 " | W 101 ° 39 ' 12 " | 4/20/16 | **DJK** |




Visibility Diagram

Photos Available



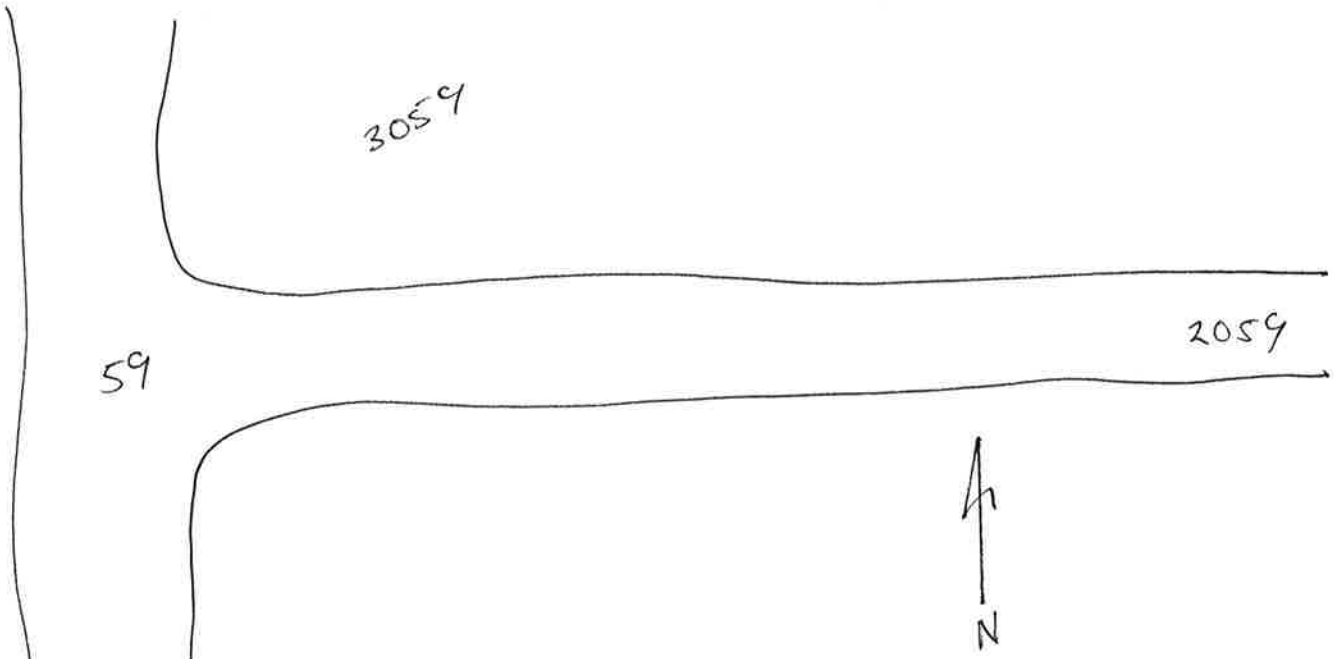

No Obstructions above 10°

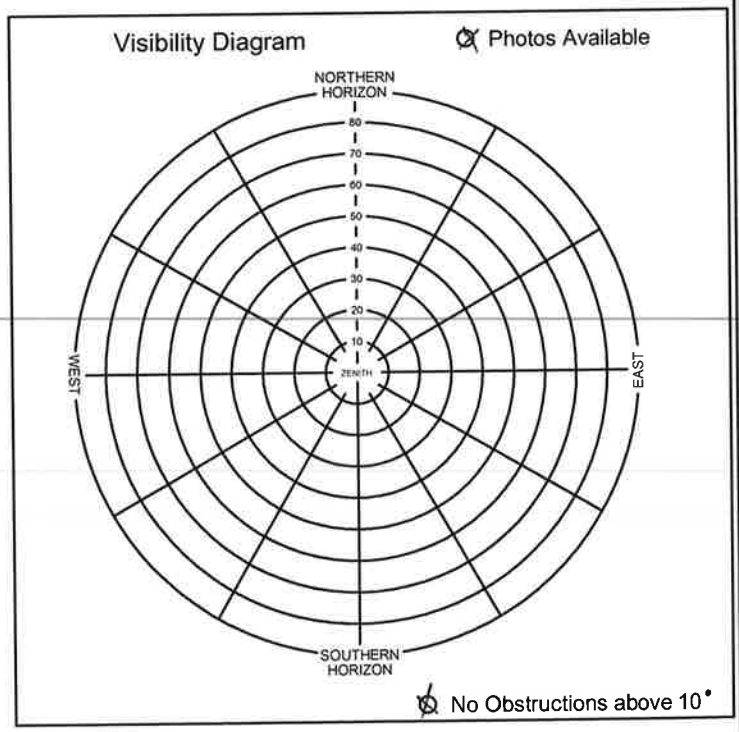
# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 59, 2059, 3059 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 3 ' 43 " | W 101 ° 28 ' 51 " | 4/19/16 | **DJK** |



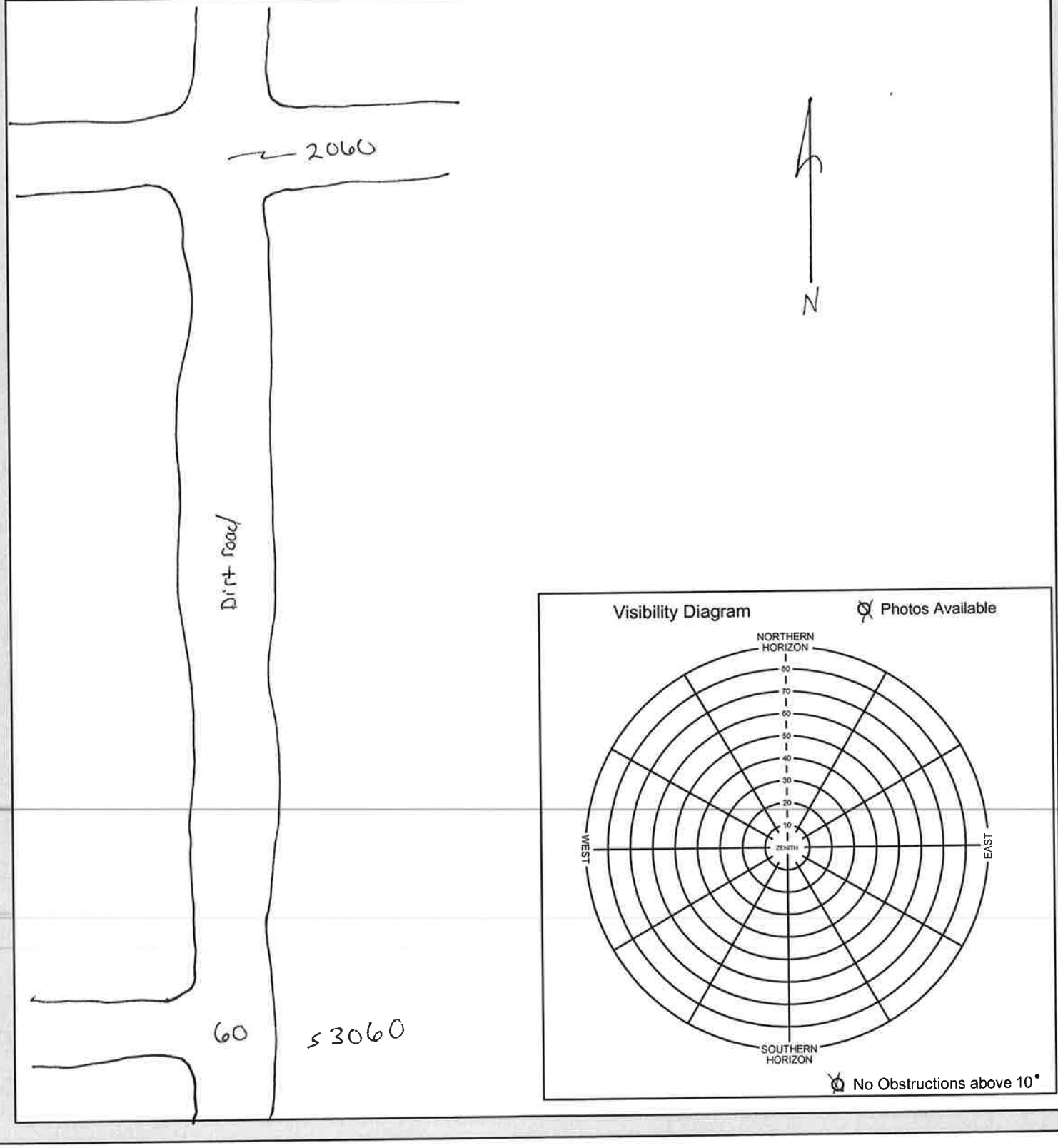



# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 60, 2060, 3060 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 1 ' 34 " | W 101 ° 34 ' 29 " | 4/20/16 | **DJK** |

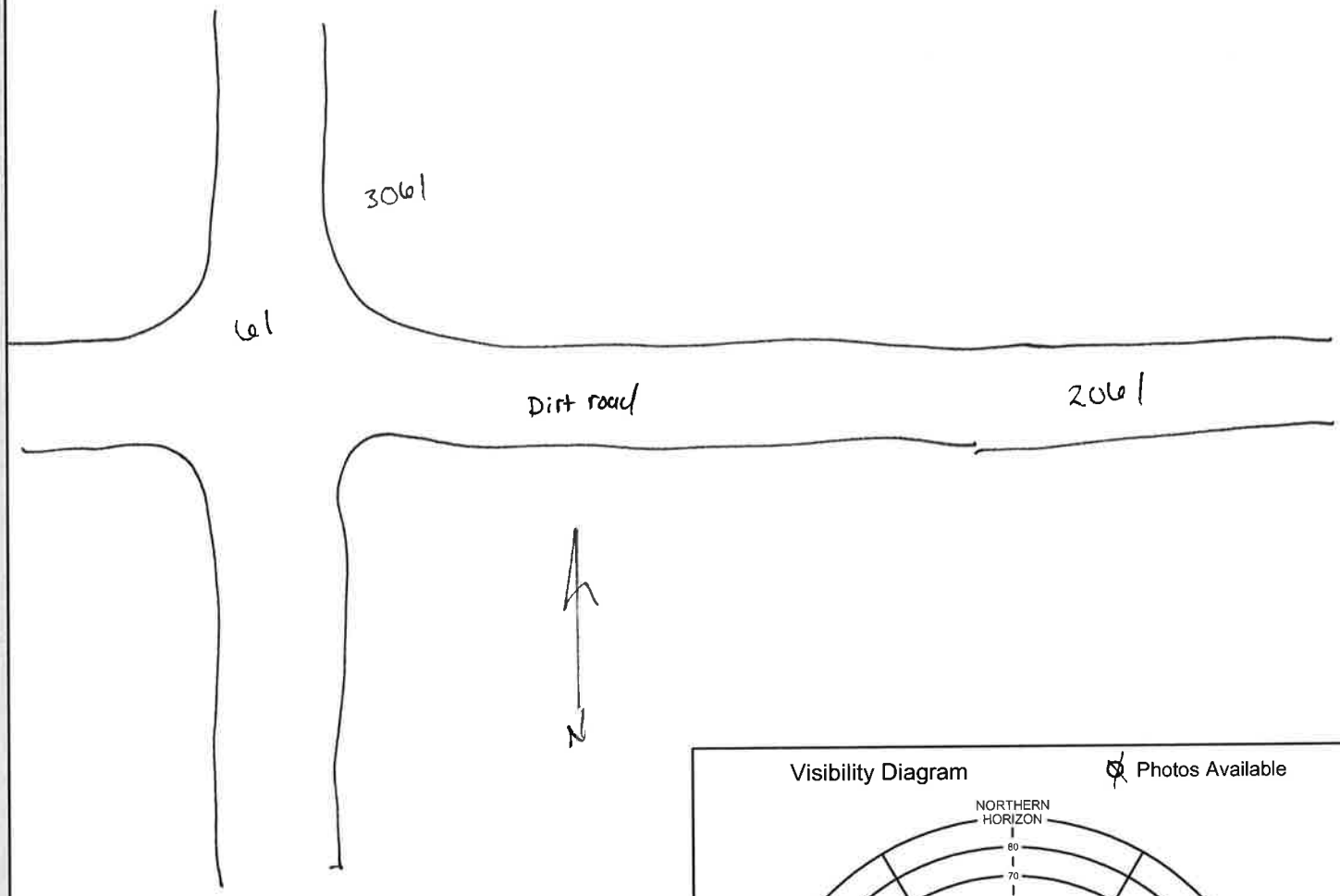


# South Platte Basin QL2 LiDAR

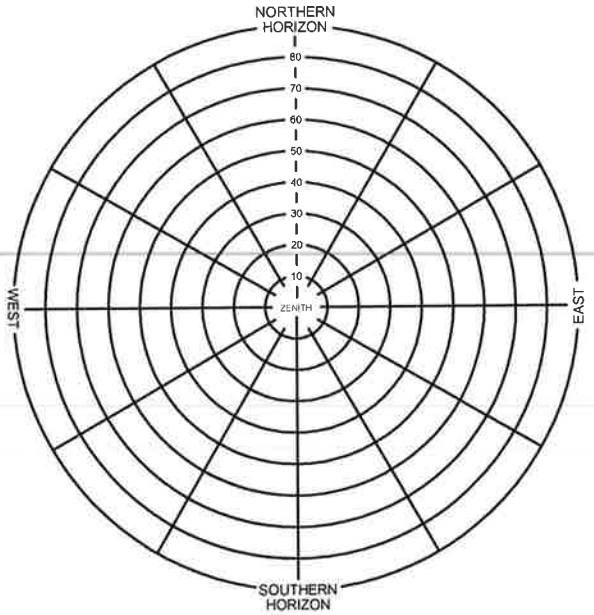
WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 61, 2061, 3061 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 1 ' 6 " | W 101 ° 21 ' 51 " | 4/19/16 | **DJK** |




Visibility Diagram — Photos Available



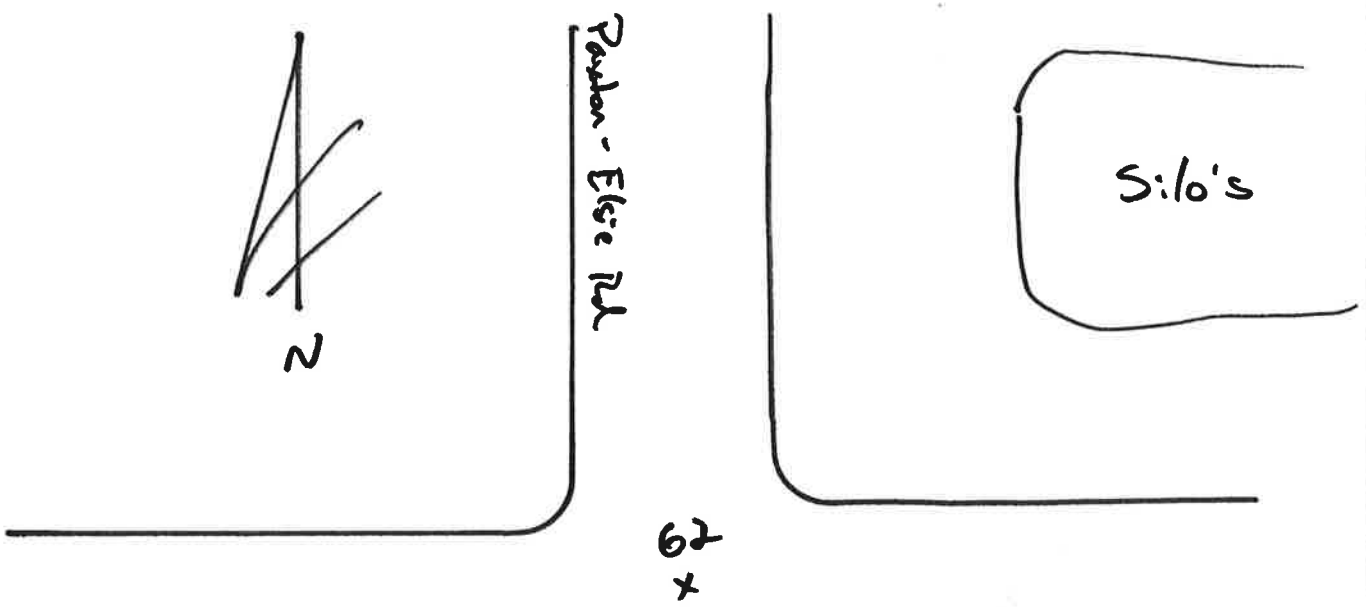

No Obstructions above 10°

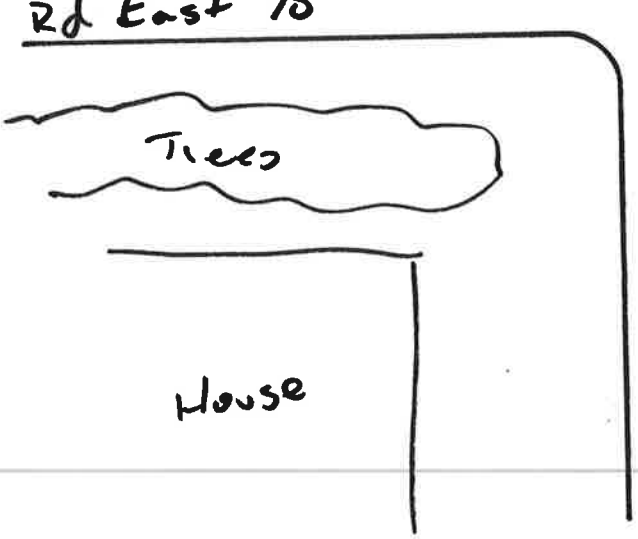
# South Platte Basin QL2 LiDAR

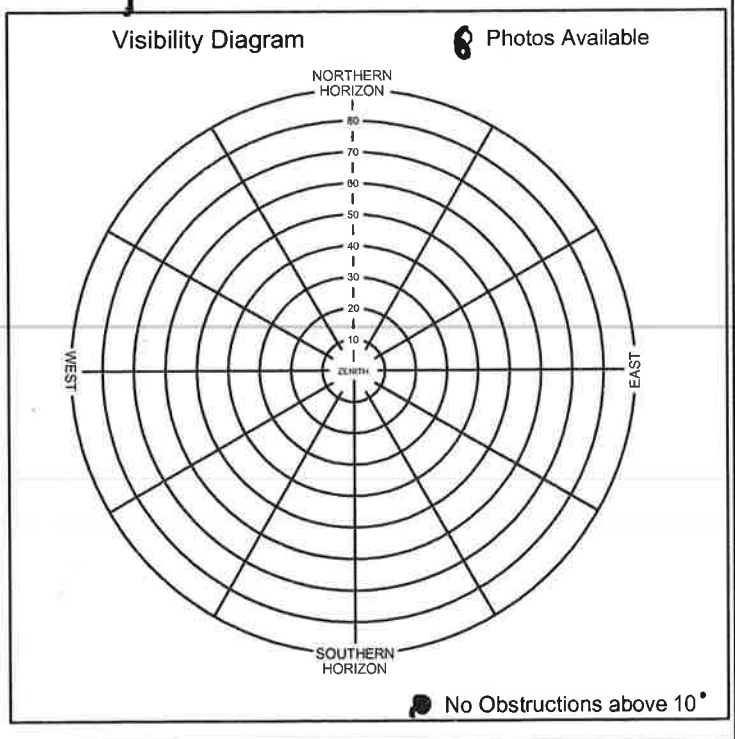
WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 62 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 05 ' 27 " | W101 ° 21 ' 23 " | 4/19/16 | **DJK** |



# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 63 / 3063 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 03 ' 43 " | W101 ° 14 ' 47 " | 4 /18/16 | **DJK** |

x 3063

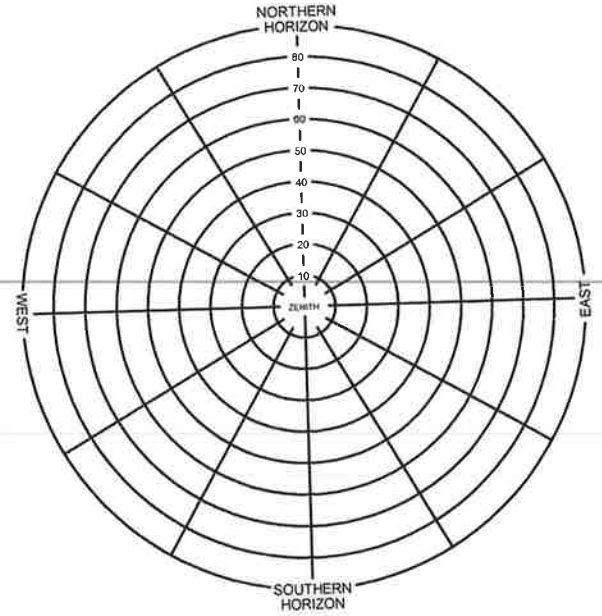
x 63

W Goodlett - White Rd

x 3063A

Visibility Diagram

● Photos Available




● No Obstructions above 10°

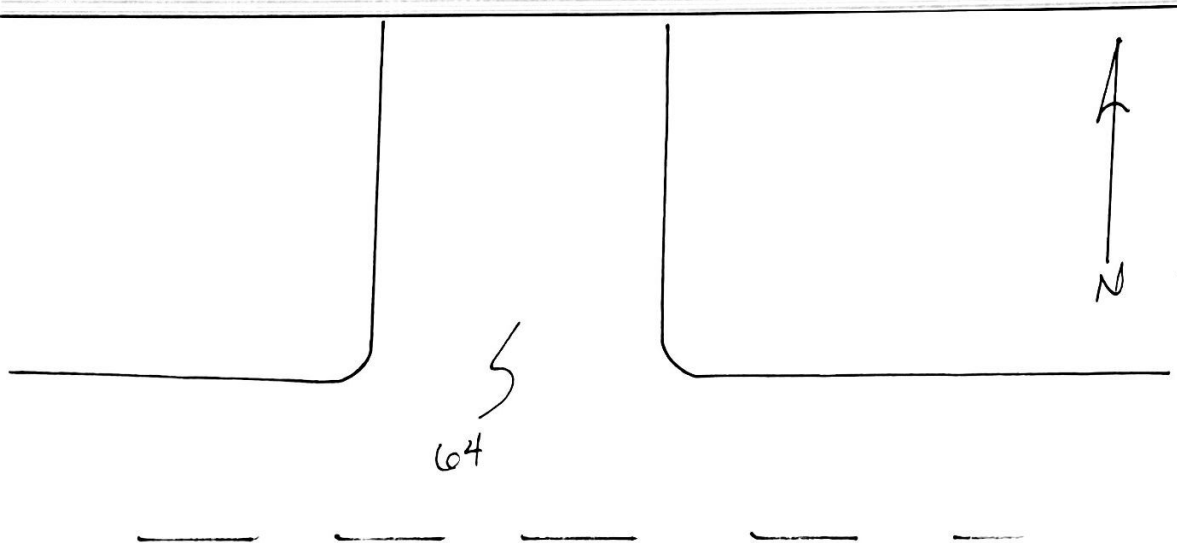
N

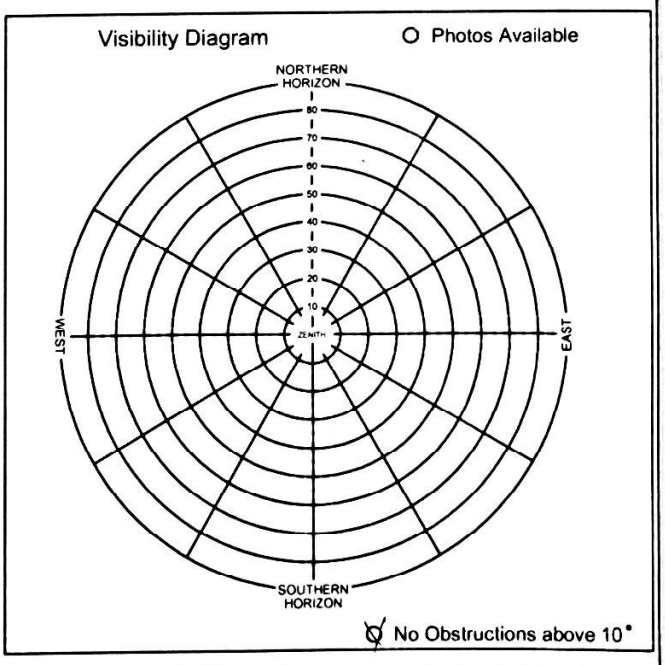
# LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 64 | South Platte | |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 40 ° 49 ' 41 " | W 101 ° 12 ' 29 " | 4/20/16 | ZJH |



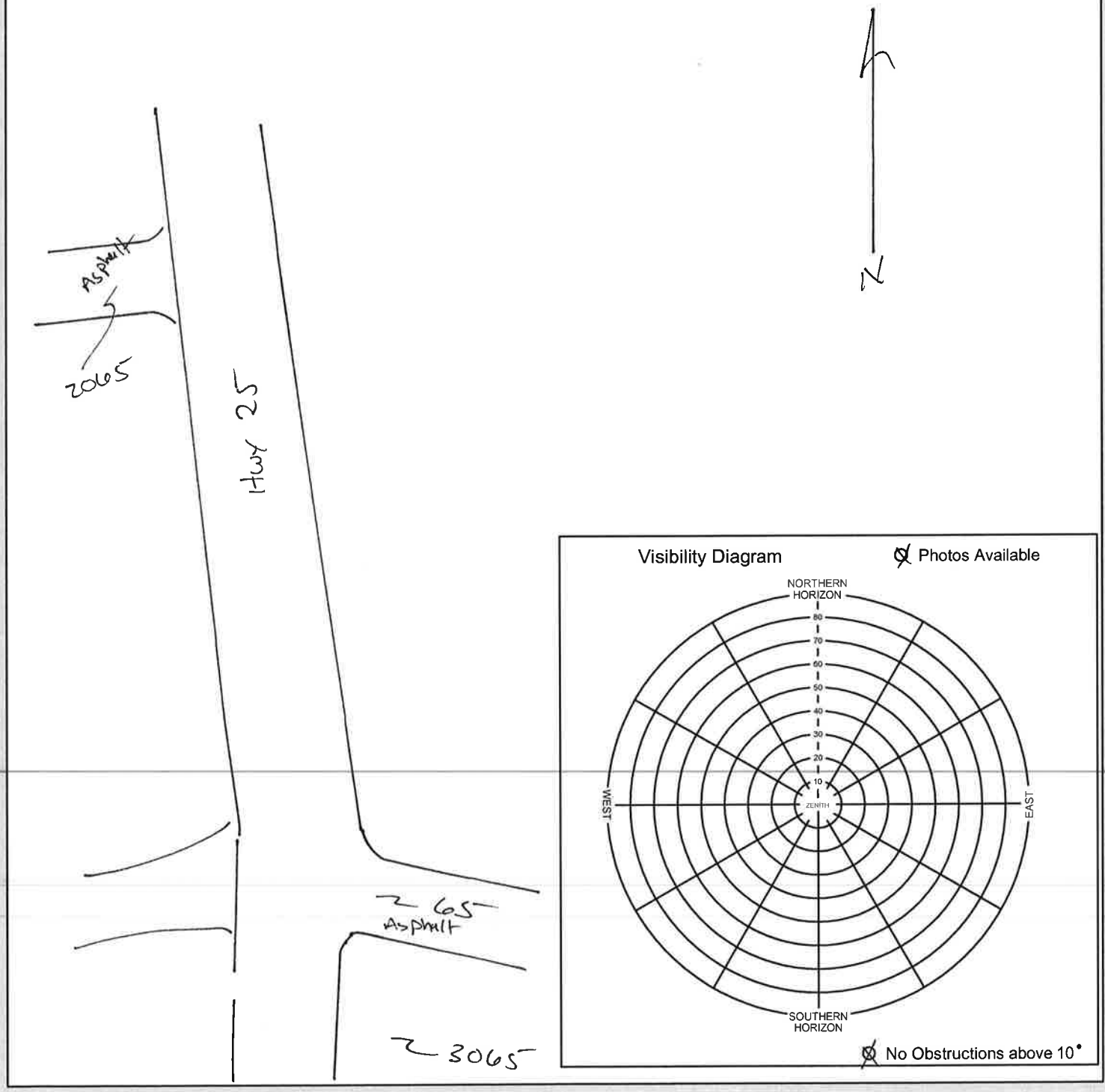



# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 2065, 3065, 65 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 40 ° 42 ' 45 " | W 101 ° 9 ' 3 " | 4/19/16 | **DJK** |

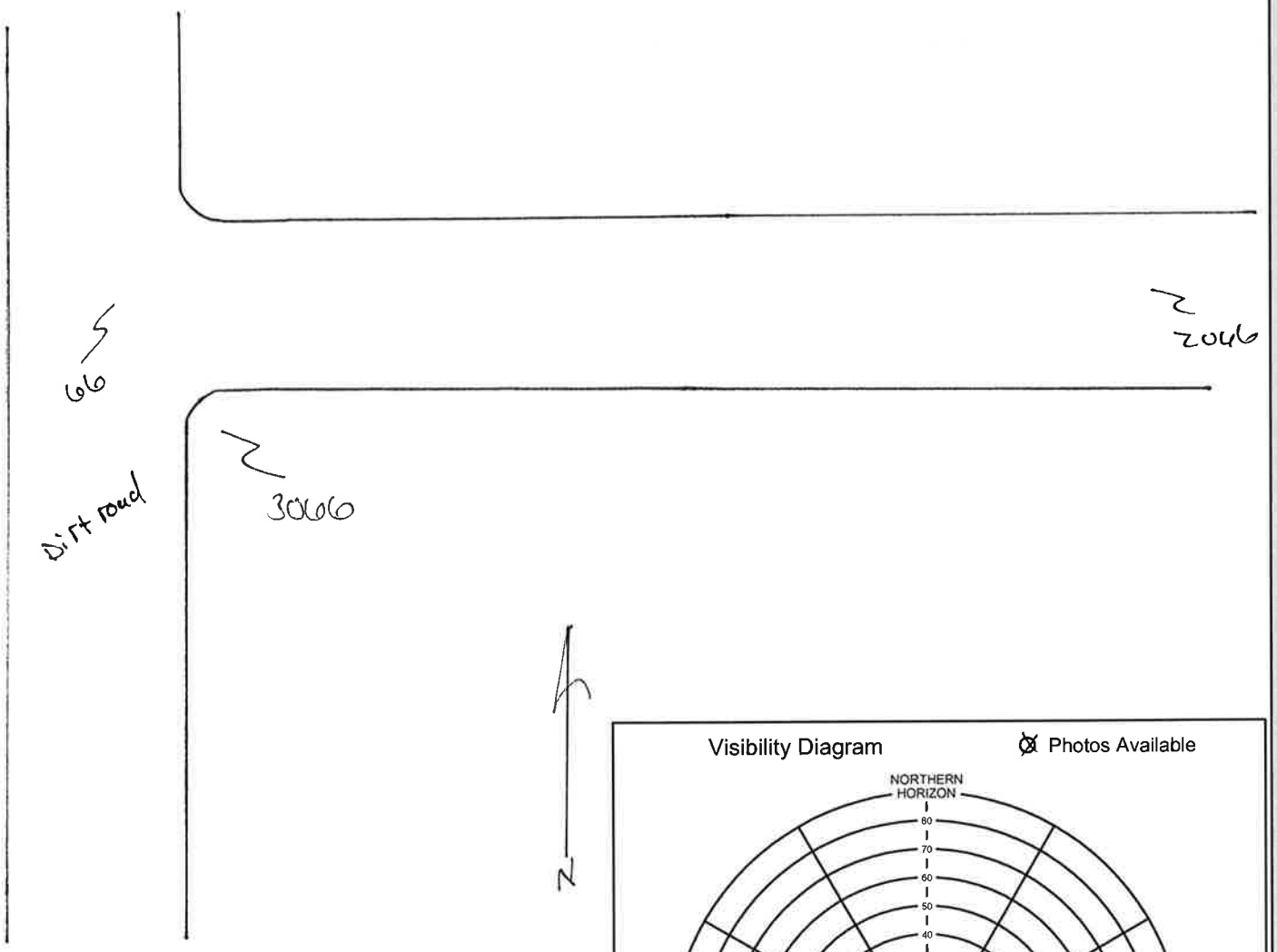


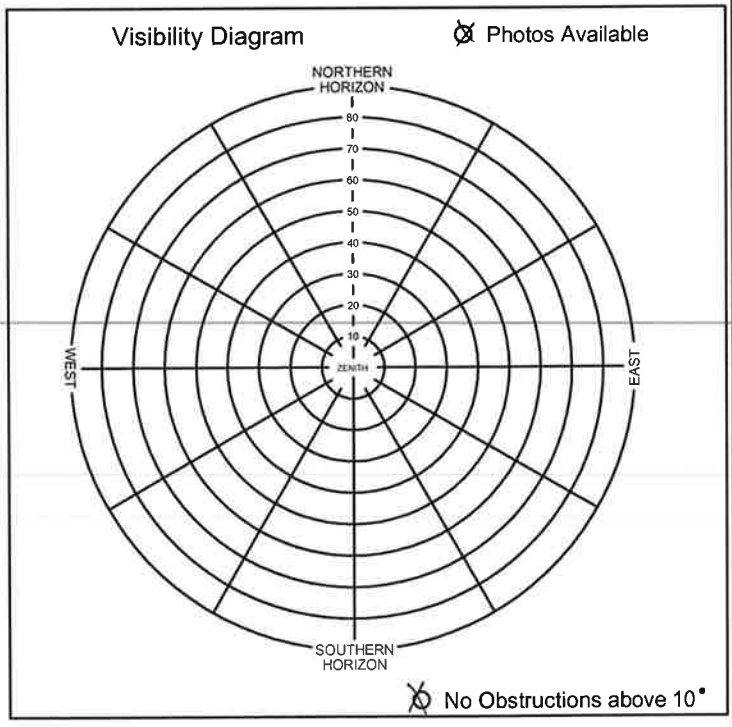
# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 66, 30606, 20606 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 40 ° 48 ' 1 " | W 101 ° 5 ' 42 " | 4 / 19 / 16 | **DJK** |



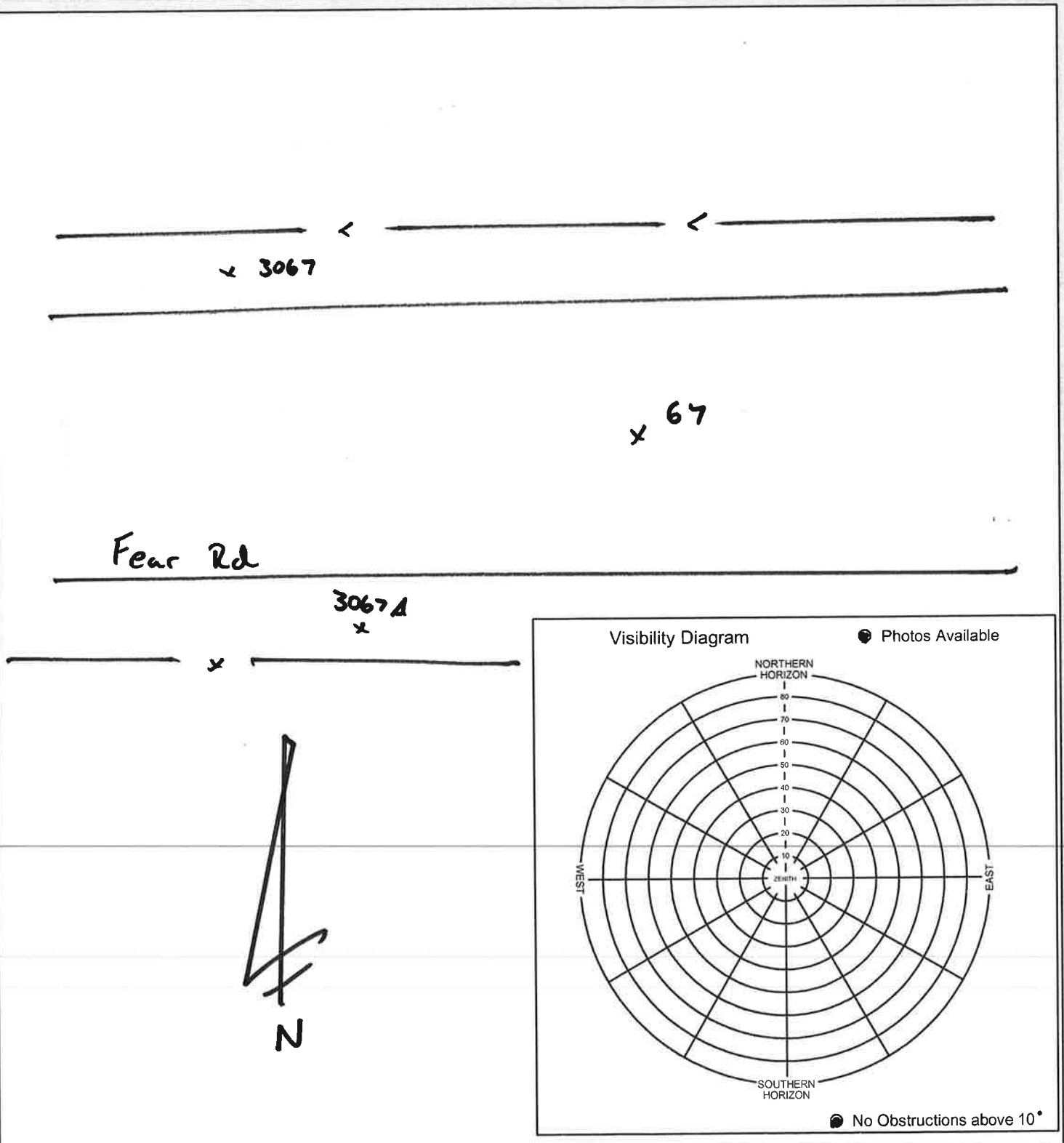



# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 67 / 3067 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 40 ° 57 ' 37 " | W 101 ° 02 ' 49 " | 4 / 19 / 16 | **DJK** |




Visibility Diagram ● Photos Available



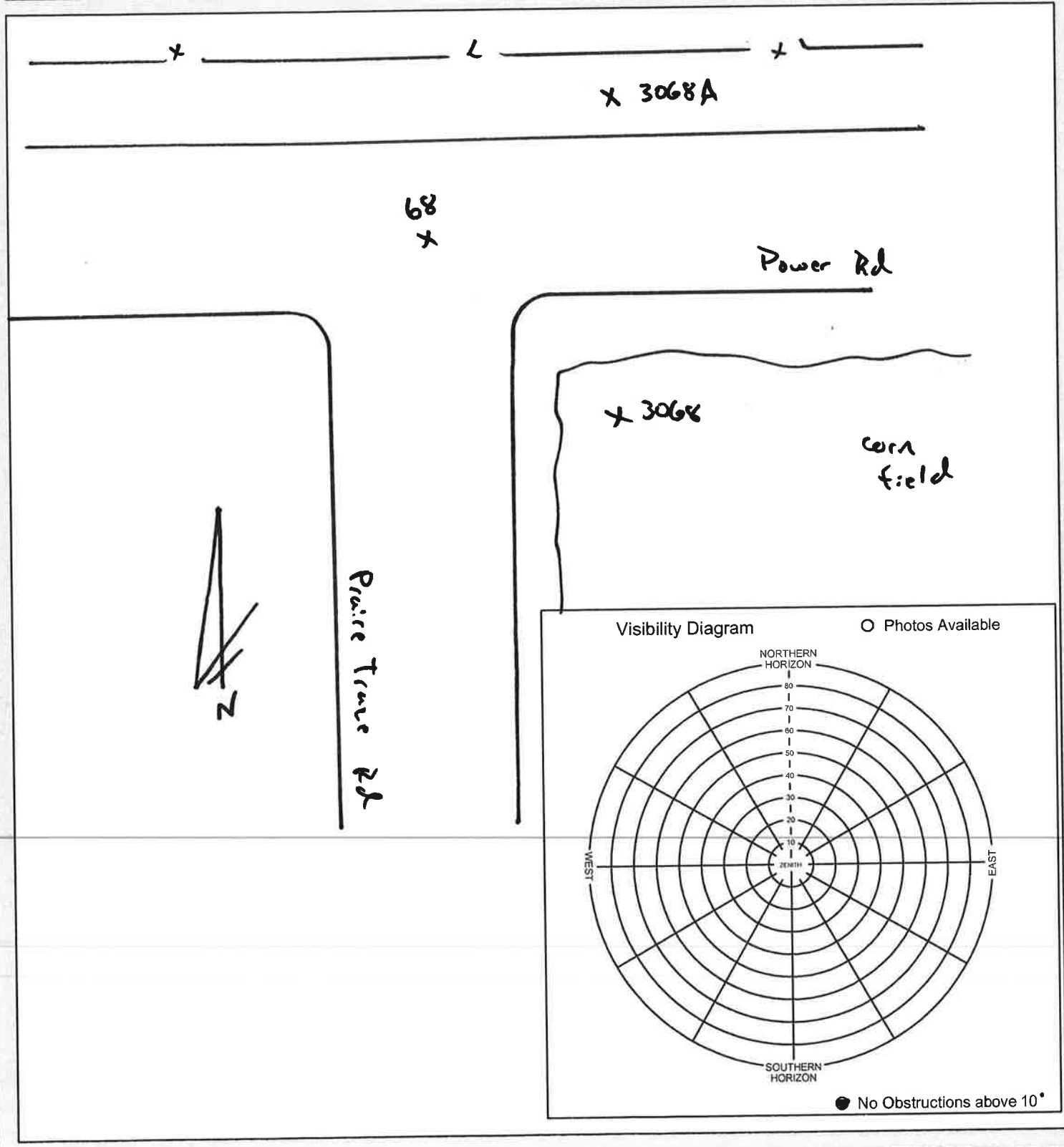

● No Obstructions above 10°

# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 68 /3068 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 04 ' 35 " | W 101 ° 07 ' 00 " | 4 / 19 / 16 | **DJK** |

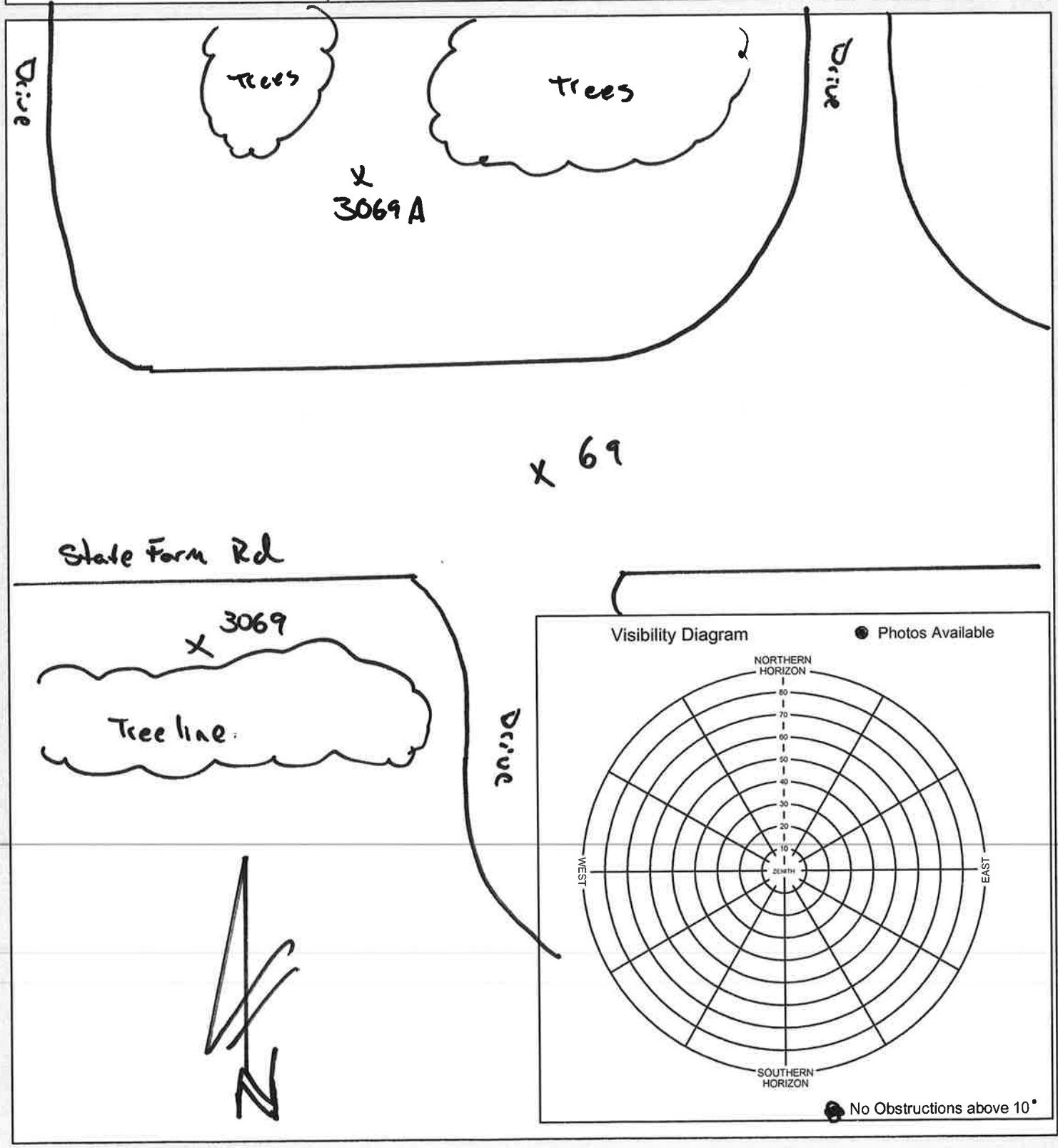


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 69 / 3069 | South Platte River Basin | 75955 |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 °05 '25 " | W 100° 55 '47 " | 4 /19/16 | DJK |



# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 70, 2070, 3070 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 40 ° 54 ' 59 " | W 100 ° 48 ' 47 " | 4/19/16 | **DJK** |

~3070

~2070

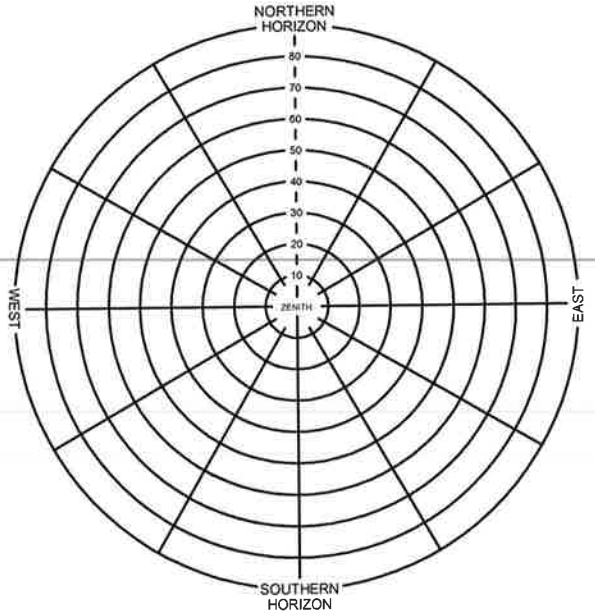
Dirt road

2 70

N

Visibility Diagram

Photos Available



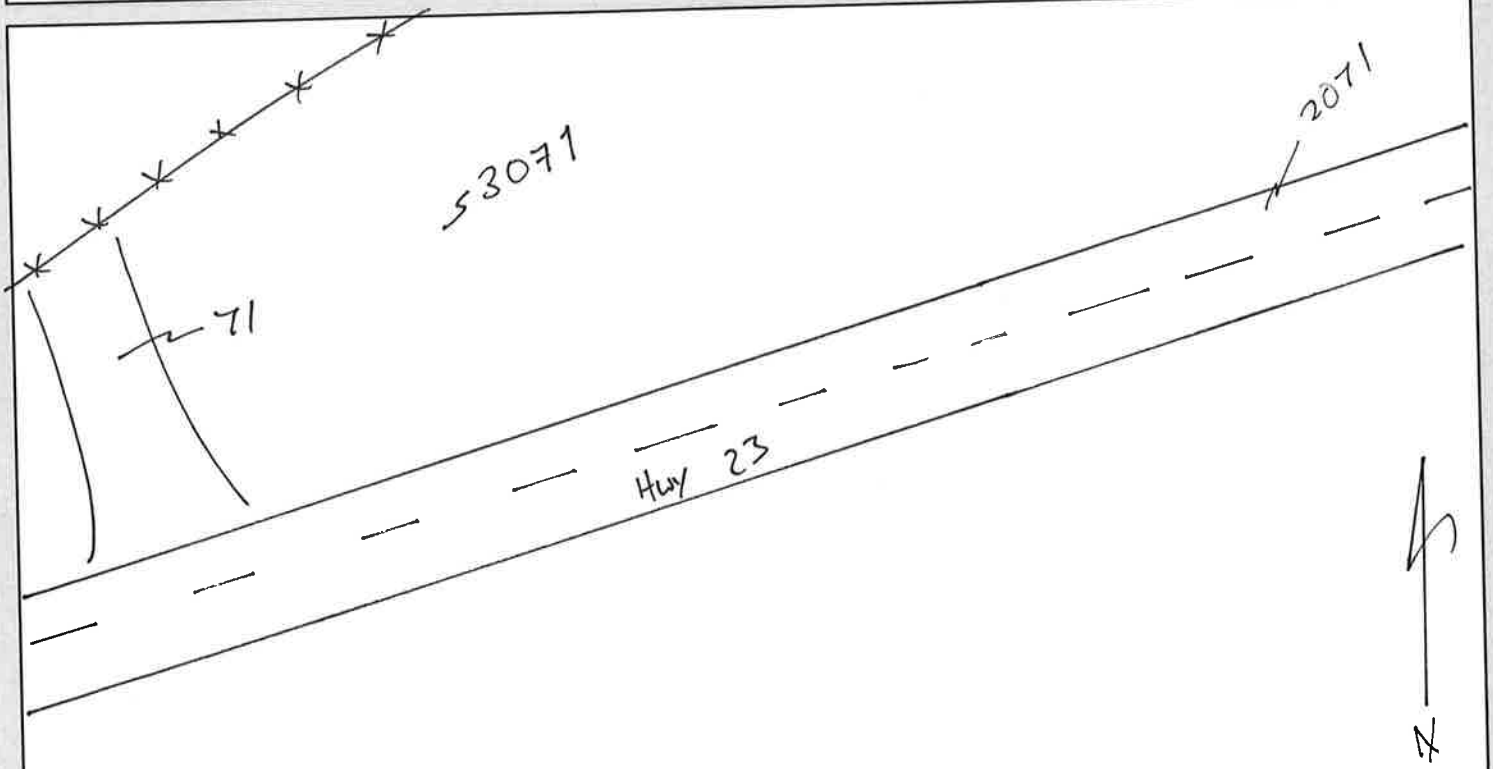

No Obstructions above 10°

# South Platte Basin QL2 LiDAR

WOOLPERT

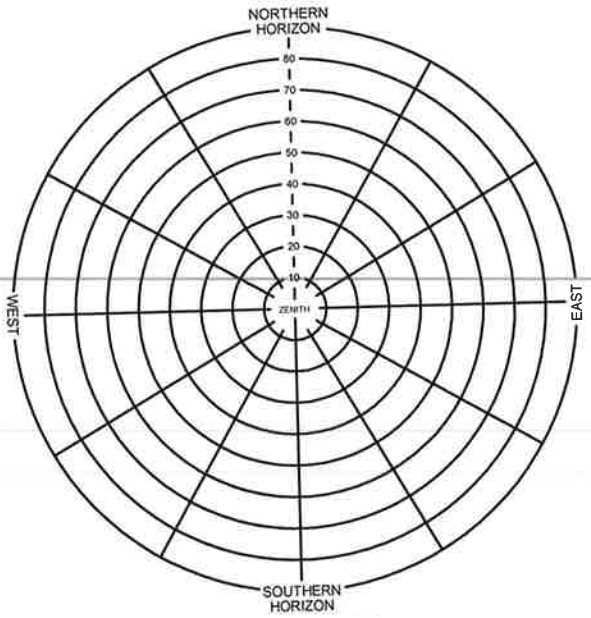
| Photo Control point # | General location | Job Number |
|---|---|---|
| 2071, 3071, 71 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 40 ° 50 ' 9 " | W 100 ° 53 ' 35 " | 4/19/16 | **DJK** |




Visibility Diagram

Photos Available



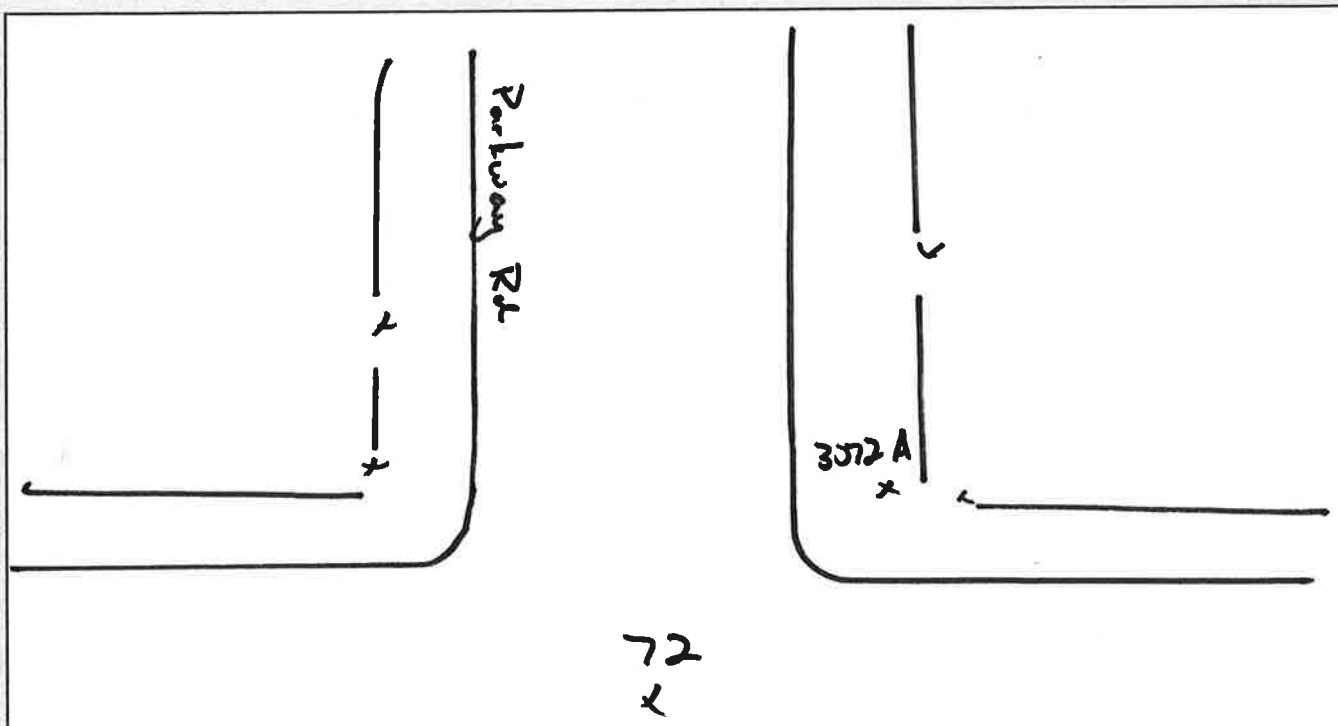

No Obstructions above 10°

# South Platte Basin QL2 LiDAR

WOOLPERT

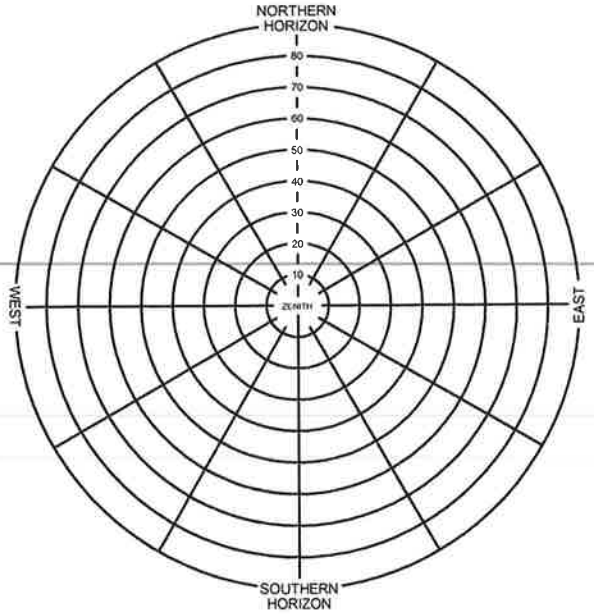
| Photo Control point # | General location | Job Number |
|---|---|---|
| 72 \| 3072 | South Platte River Basin | 75955 |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 02 ' 50 " | W 100 ° 58 ' 59 " | 4 /19 /16 | DJK |




Visibility Diagram

● Photos Available



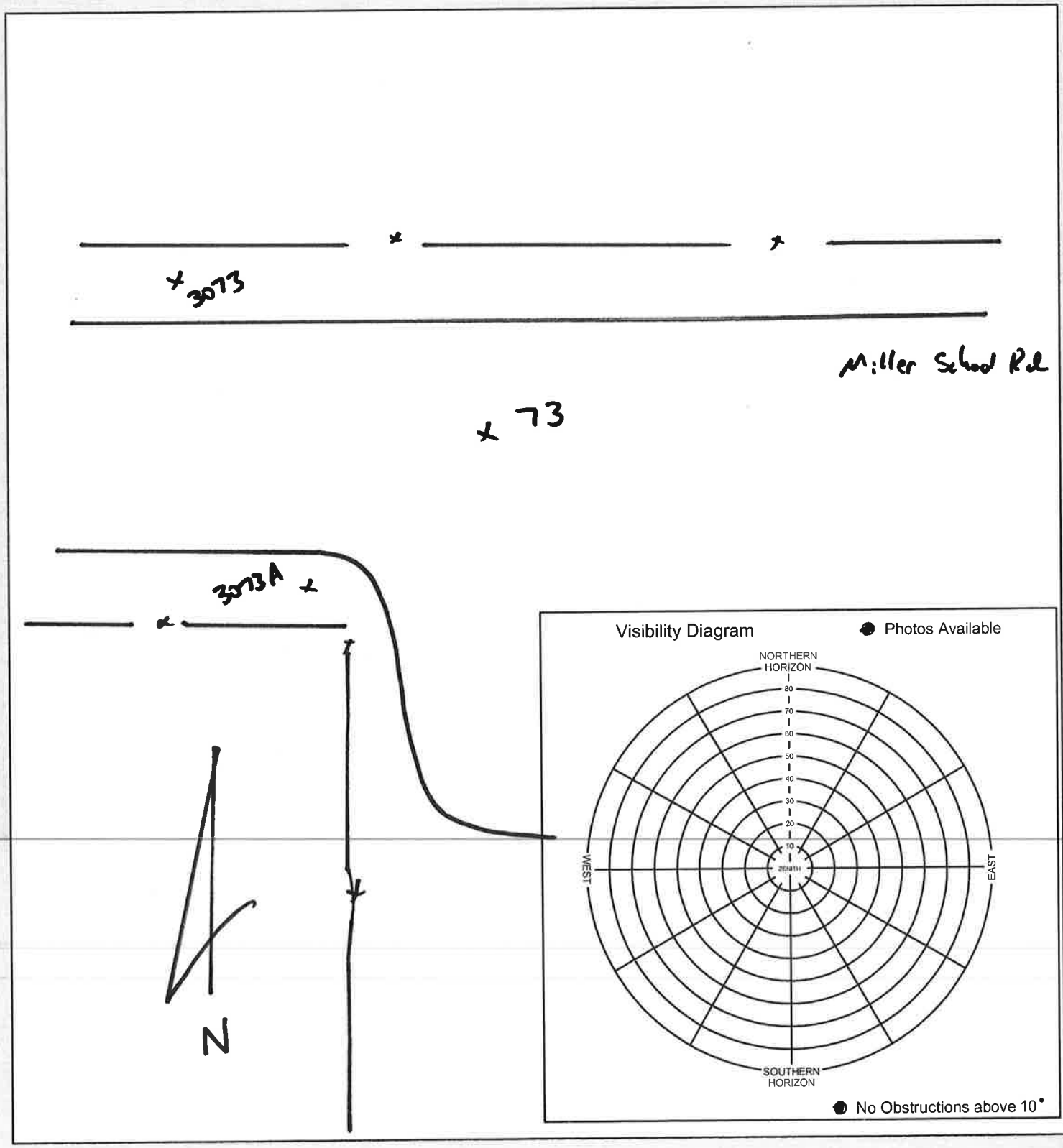

● No Obstructions above 10°

# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 73 / 3073 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 01 ' 55 " | W 100 ° 51 ' 32 " | 4 / 19 / 16 | **DJK** |

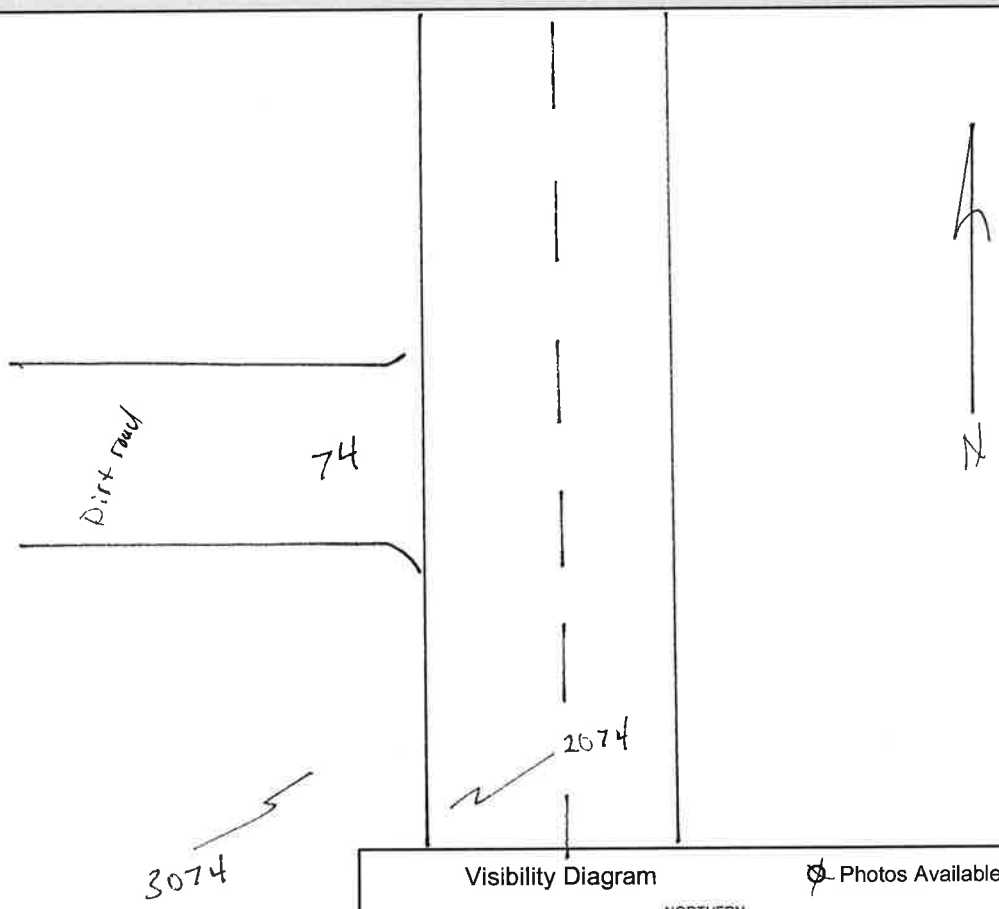


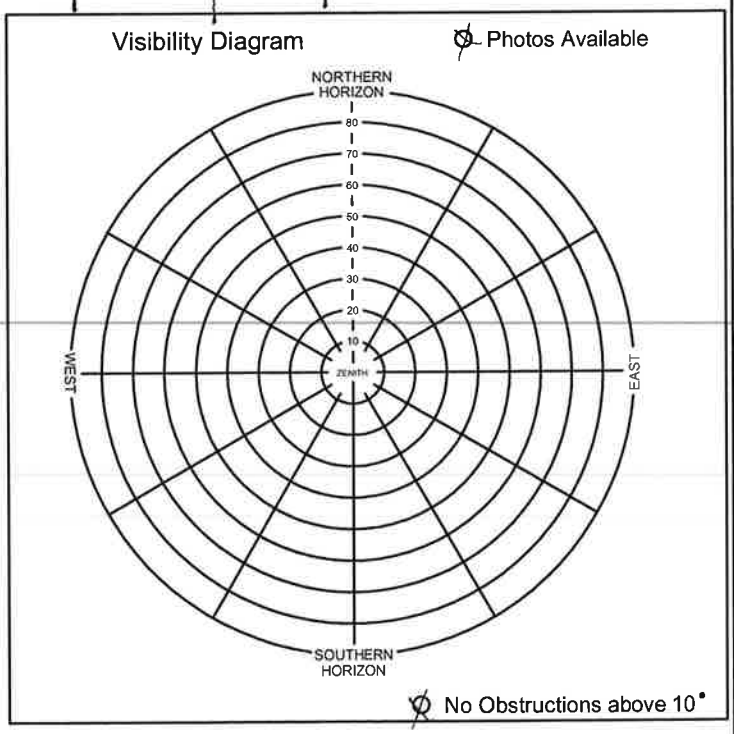
# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 74, 2074, 3074 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 40 ° 54 ' 9 " | W 101 ° 0 ' 4 " | 4/19/16 | **DJK** |



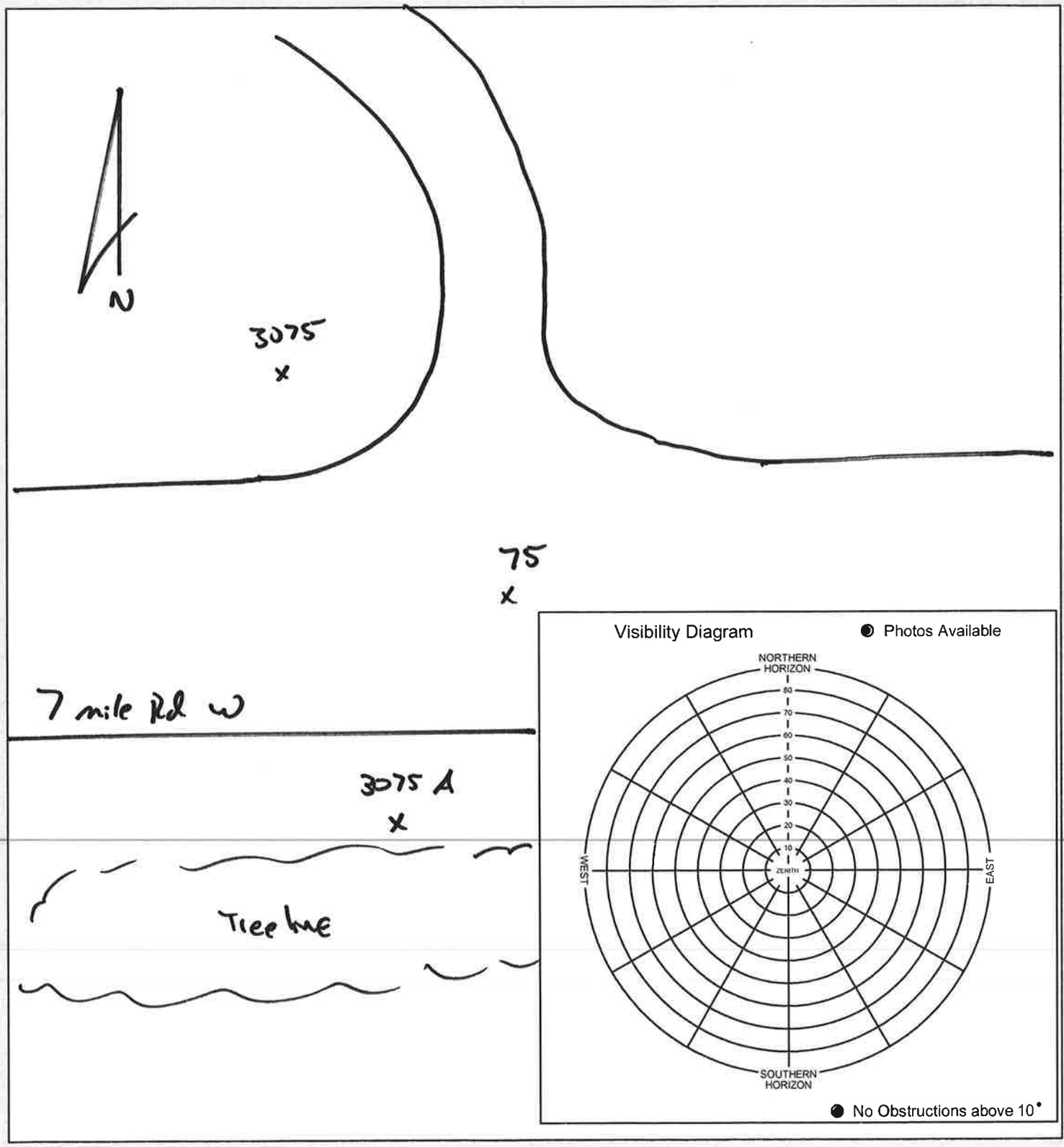



# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 75 / 3075 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 40 ° 56 ' 42 " | W 101 ° 11 ' 15 " | 4 / 19/16 | **DJK** |

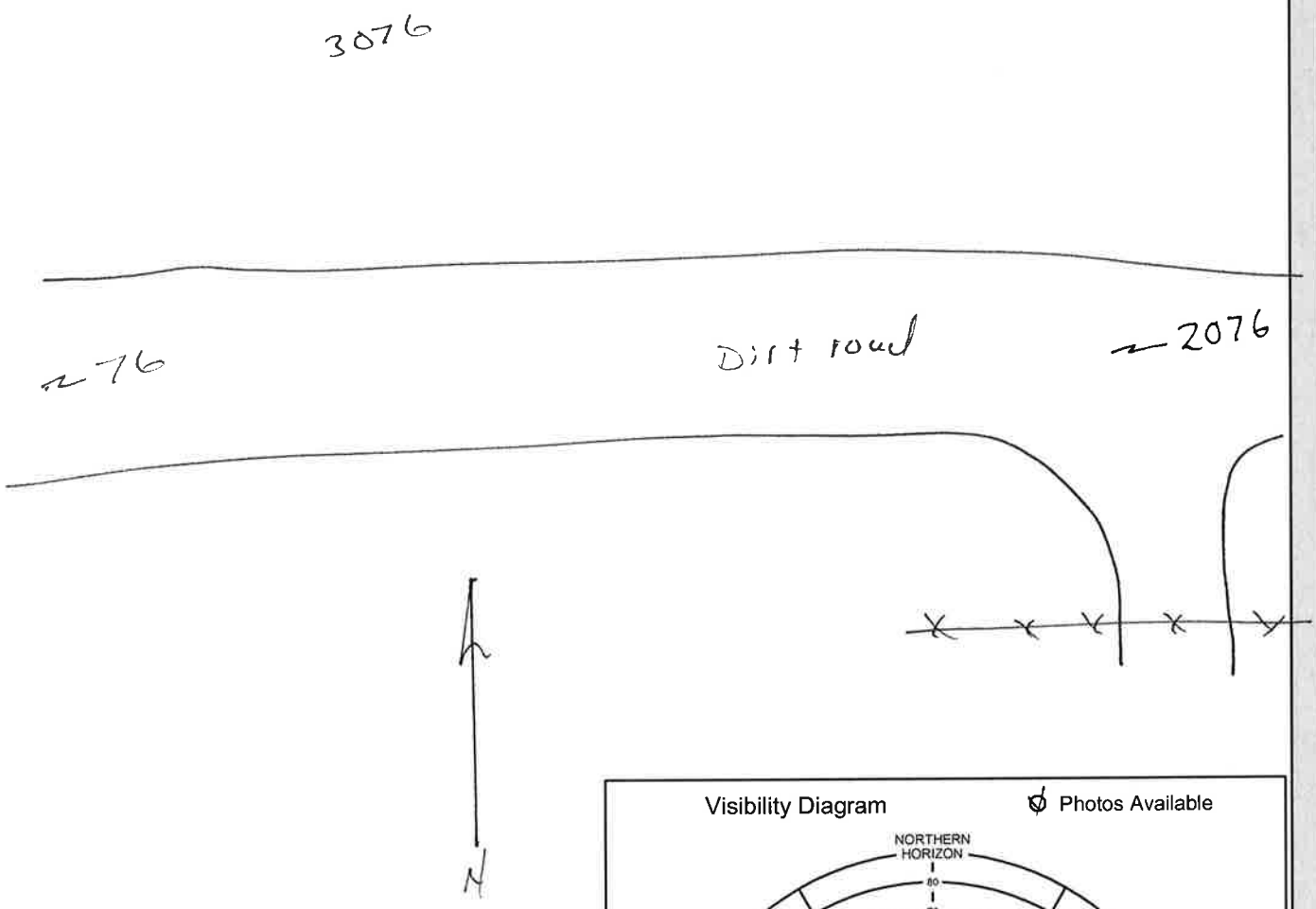


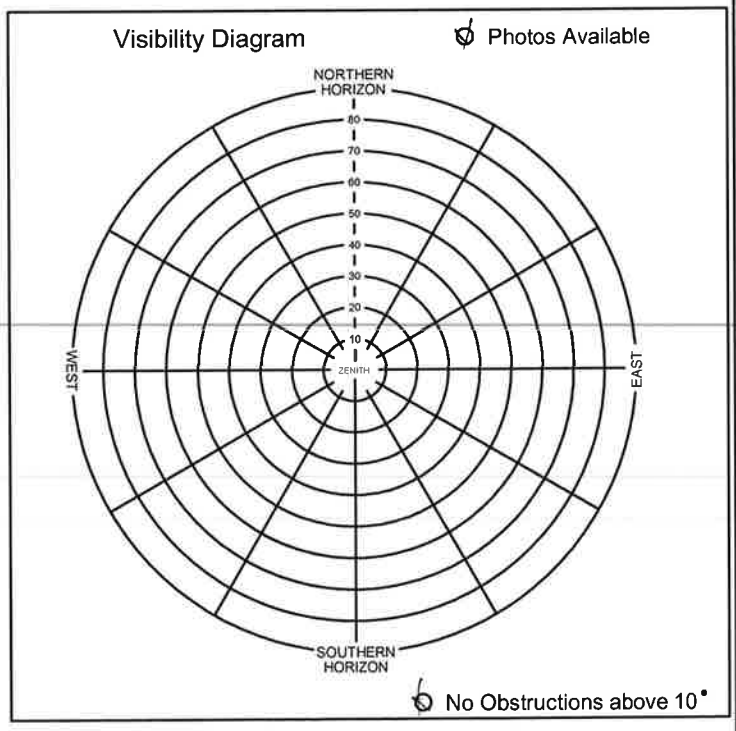
# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 76, 2076, 3076 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 40 ° 54 ' 8 " | W 101 ° 4 ' 19 " | 4/19/16 | **DJK** |



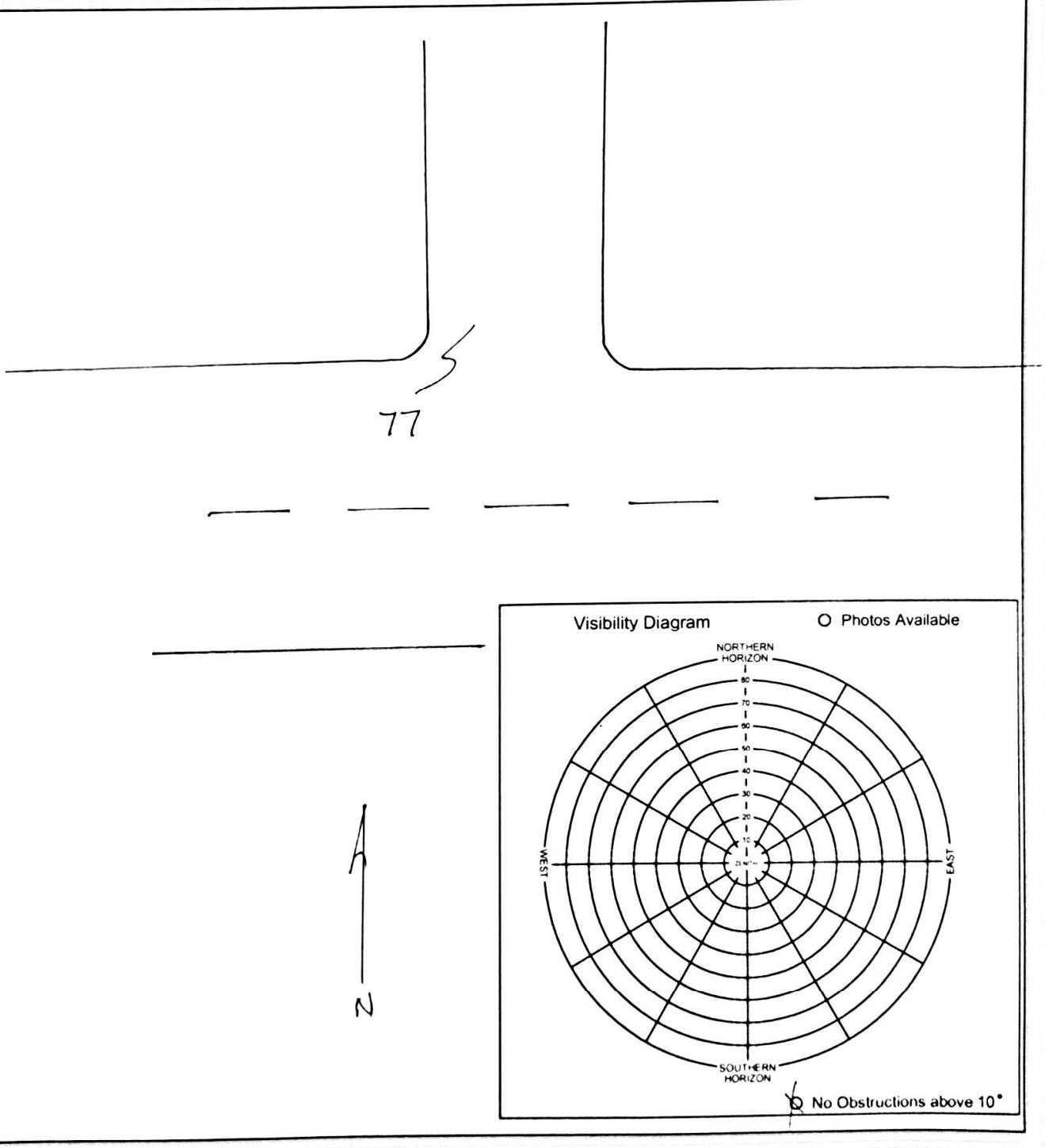



# LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 77 | South PLATTE | |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 40 ° 49 ' 50 " | W 161 ° 0 ' 55 " | 4/20/16 | ZJH |



# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 78, 3078, 2078 | **South Platte River Basin** | **75955** |
| **Latitude** | **Longitude** | **Calendar Date** / **Observer Initials** |
| N 40 ° 46 ' 18 " | W 101 ° 1 ' 10 " | 4/19/16 / **DJK** |

N

78

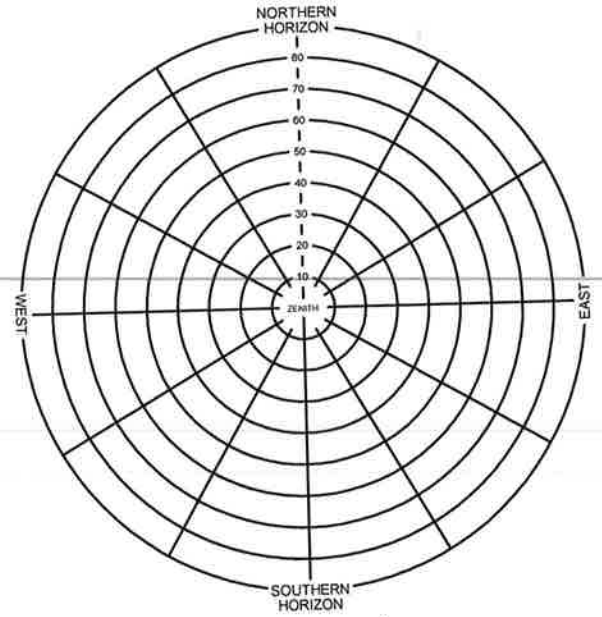
3078

Road Head to be Flipped

2078

Visibility Diagram

Photos Available



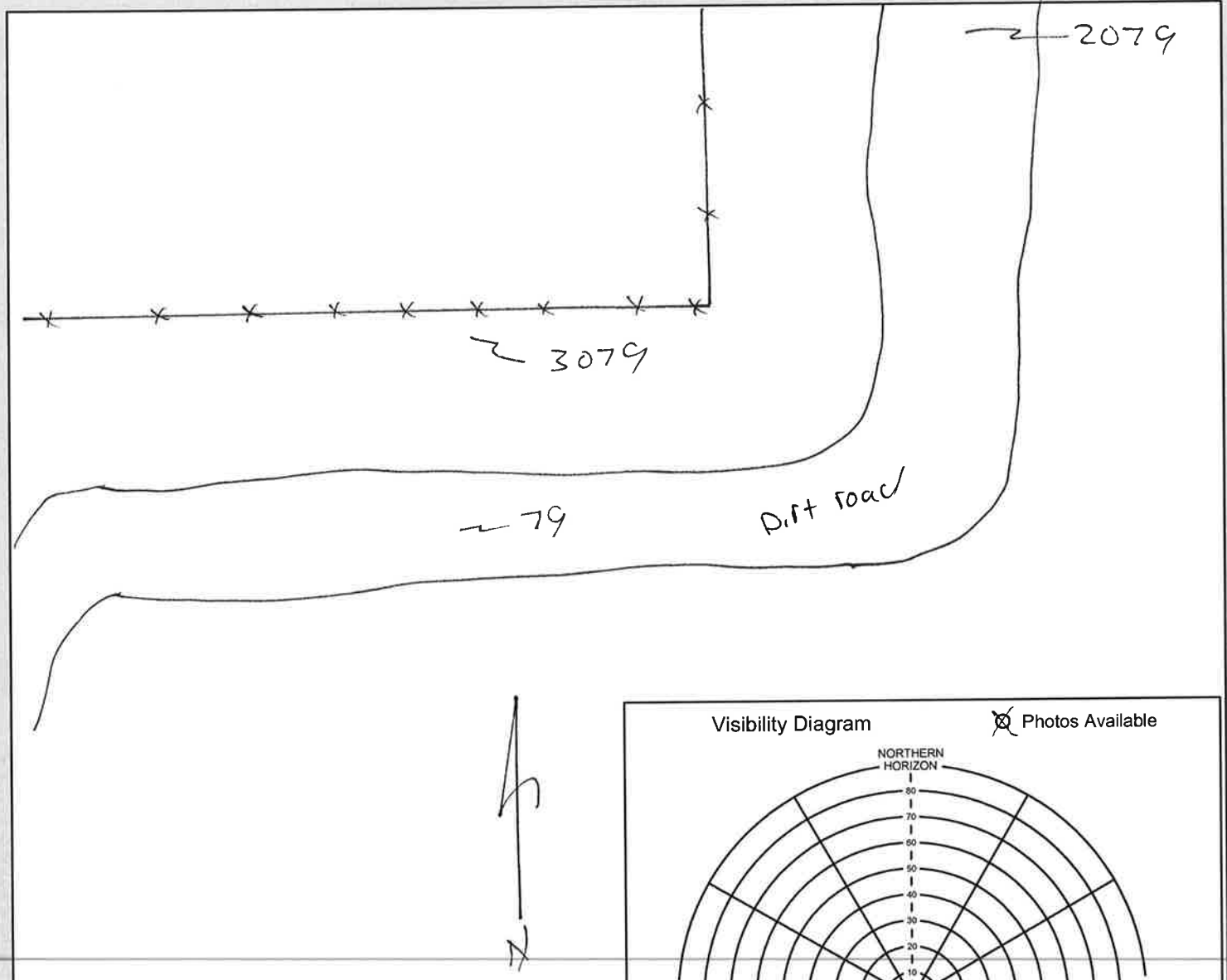

No Obstructions above 10°

# South Platte Basin QL2 LiDAR

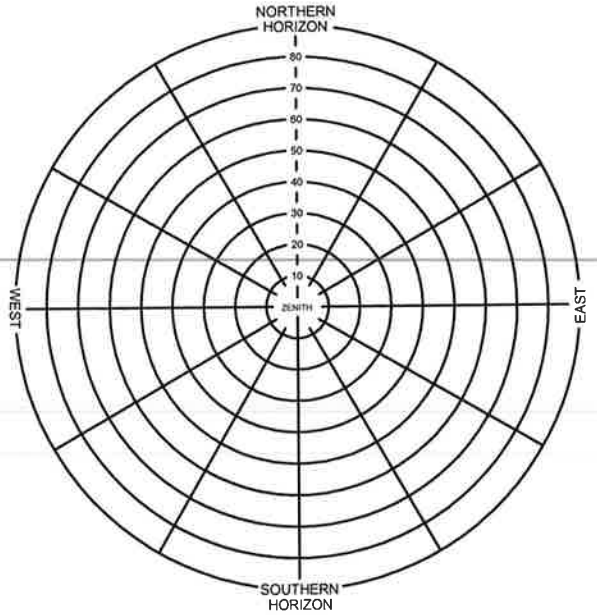
WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 79, 2079, 3079 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 40 ° 42 ' 0 " | W 100 ° 57 ' 56 " | 4/19/16 | **DJK** |




Visibility Diagram — Photos Available



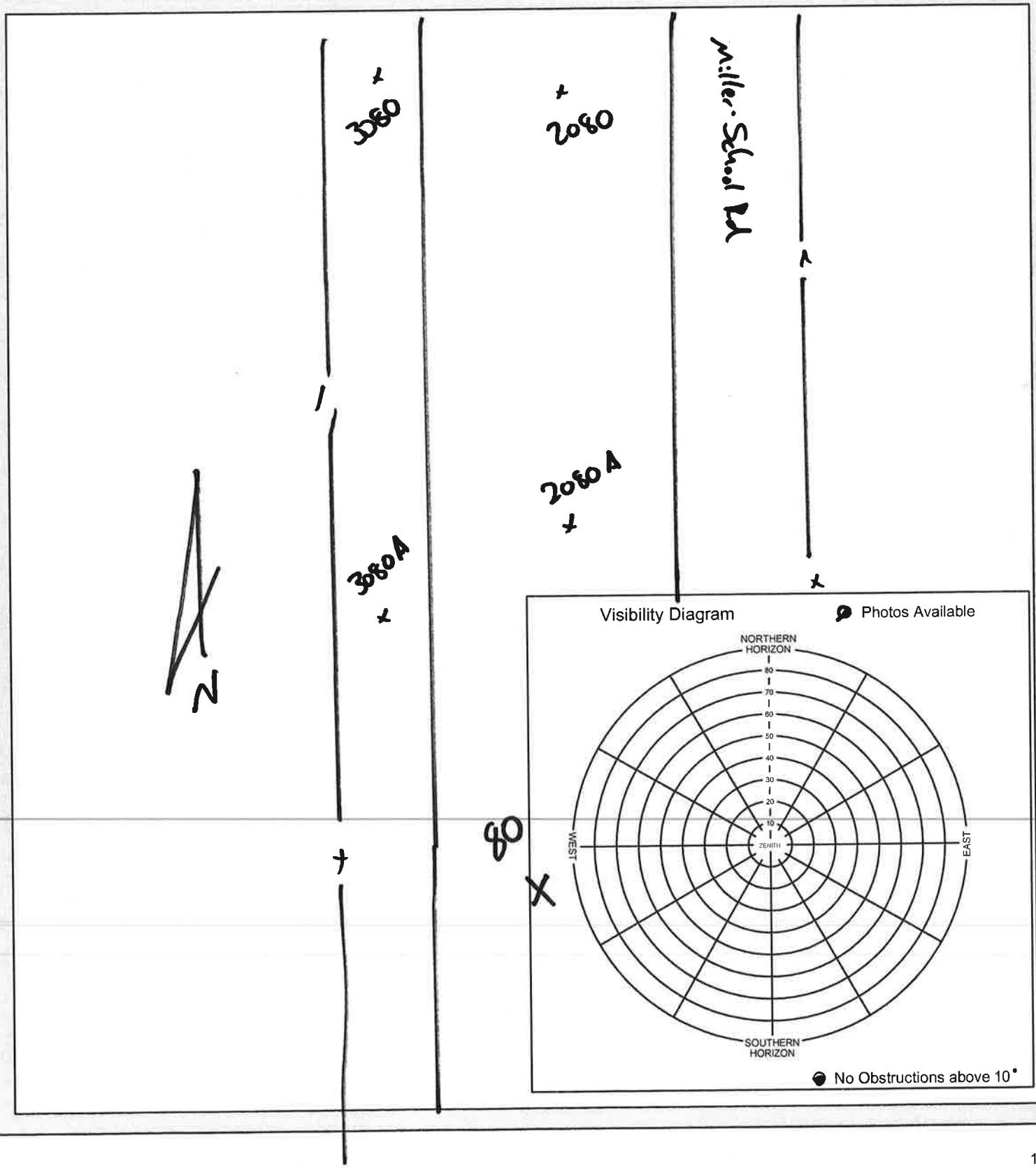

No Obstructions above 10°

# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 80 / 3080 / 2080 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 40 ° 59 ' 31 " | W 100 ° 53 ' 14 " | 4 /19/16 | **DJK** |

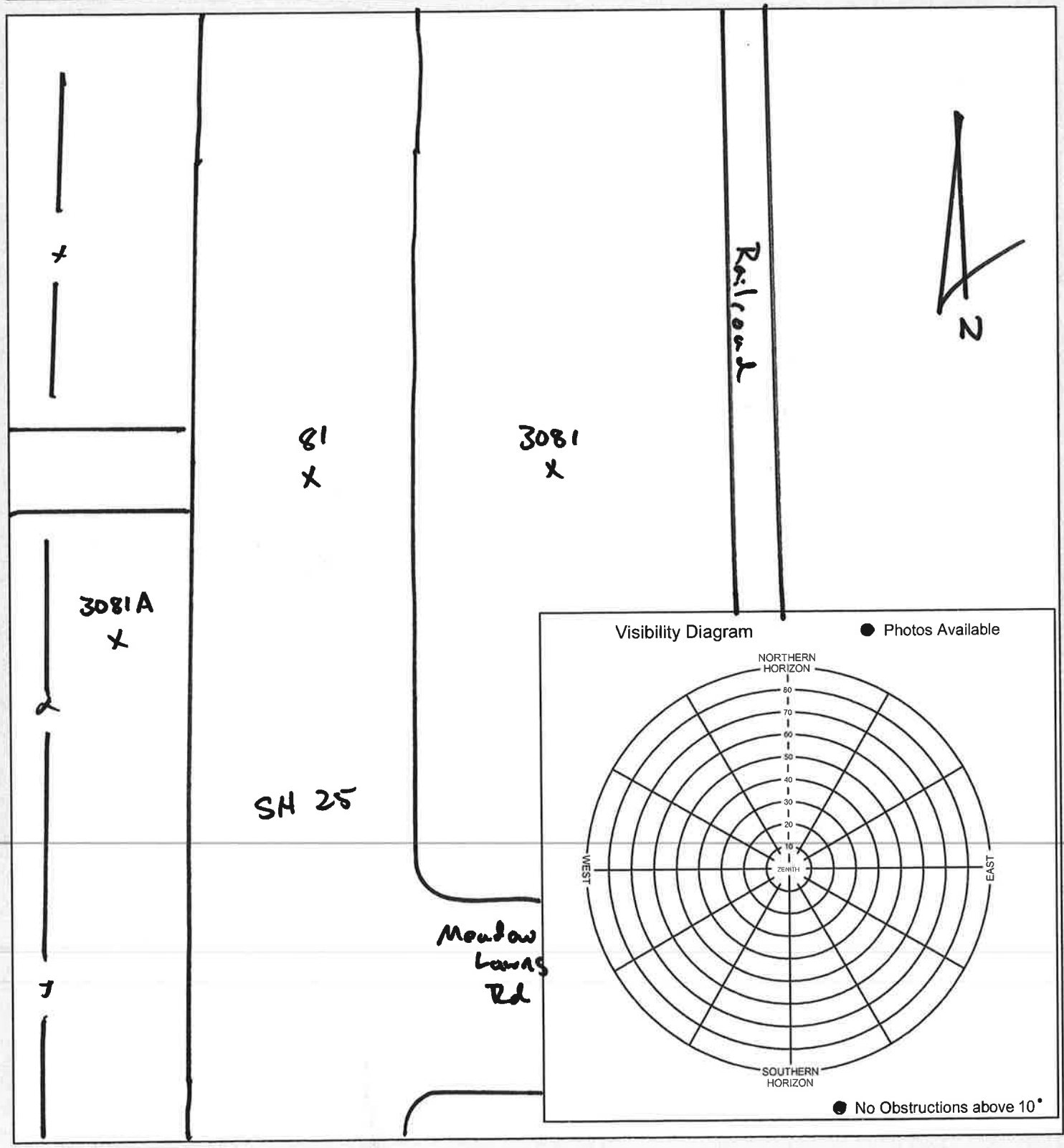


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 81 / 3081 | South Platte River Basin | 75955 |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 00 ' 14 " | W 101 ° 09 ' 06 " | 4 / 19 / 16 | DJK |

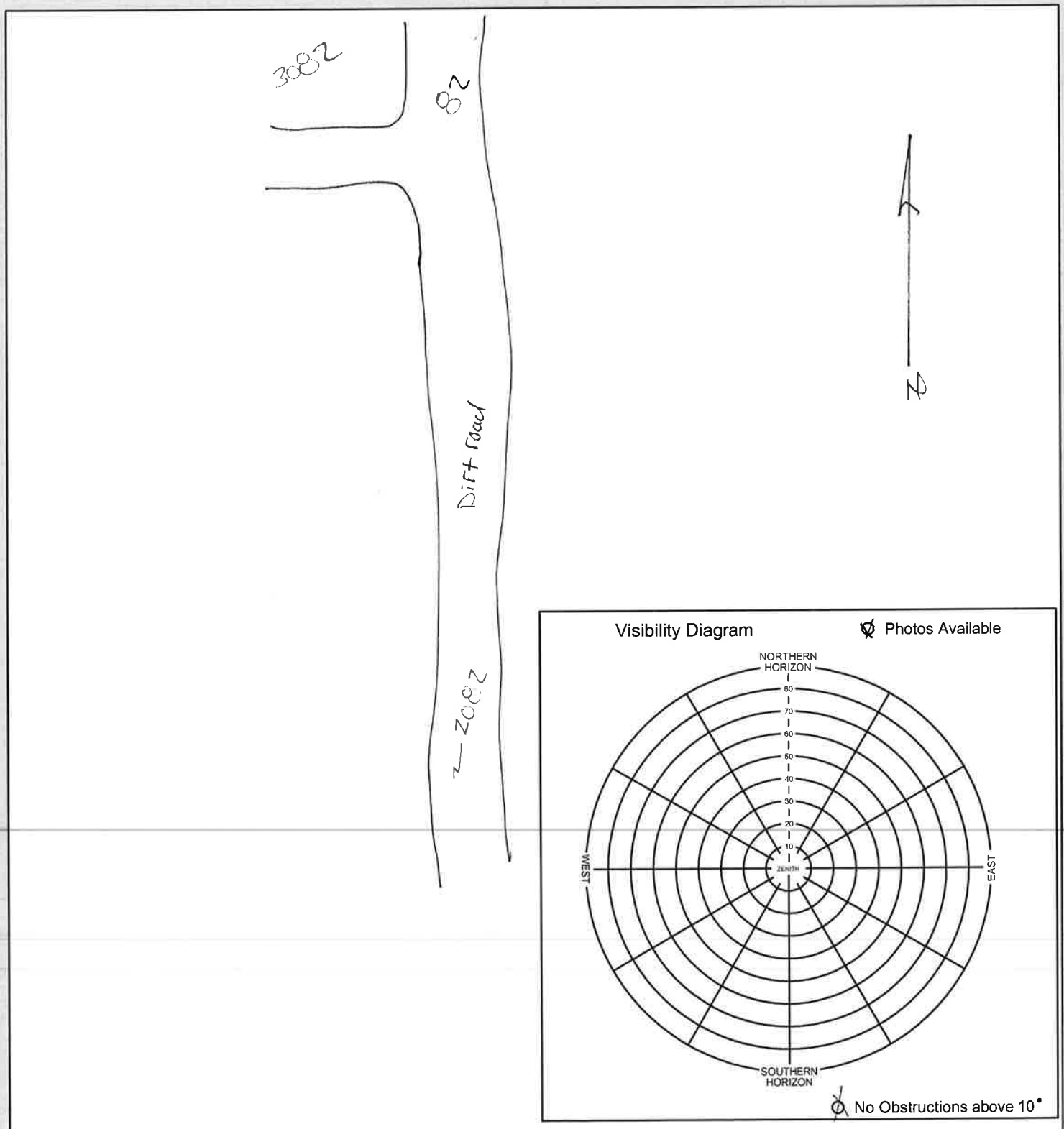


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 8, 2082, 3082 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 0 ' 37 " | W 101 ° 17 ' 16 " | 4/19/16 | **DJK** |




Visibility Diagram — Photos Available



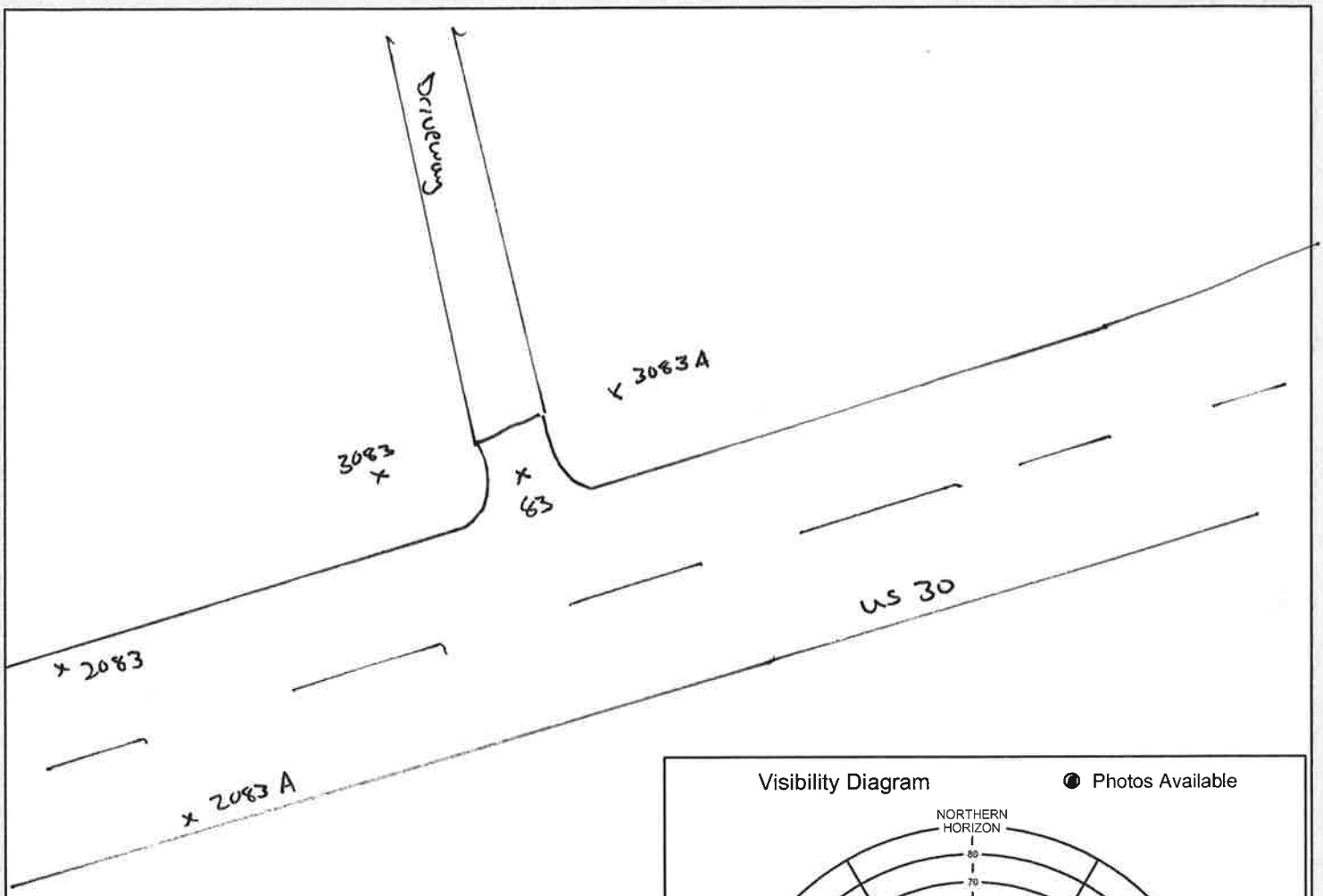

No Obstructions above 10°

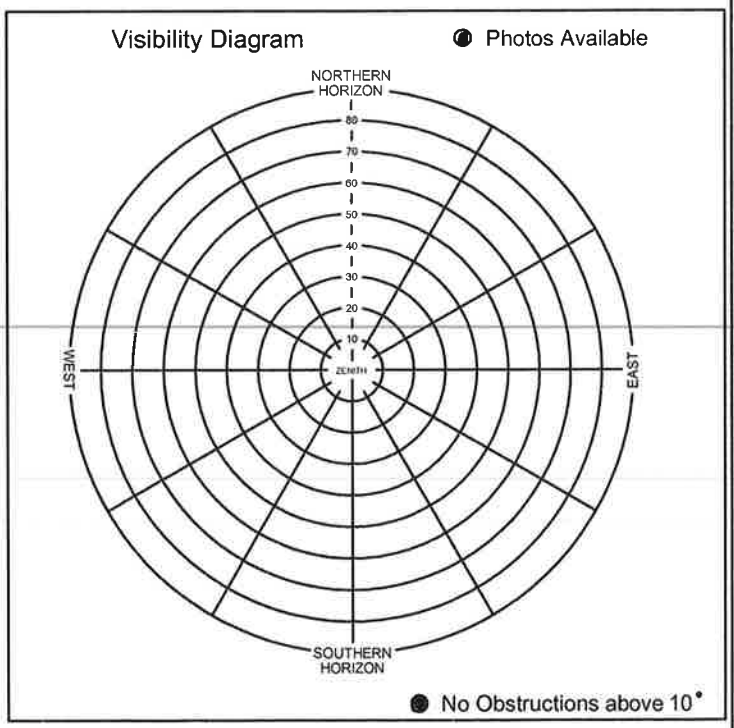
# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 83 / 2083 / 3083 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 06 ' 12 " | W 101 ° 49 ' 15 " | 4 /20/16 | **DJK** |



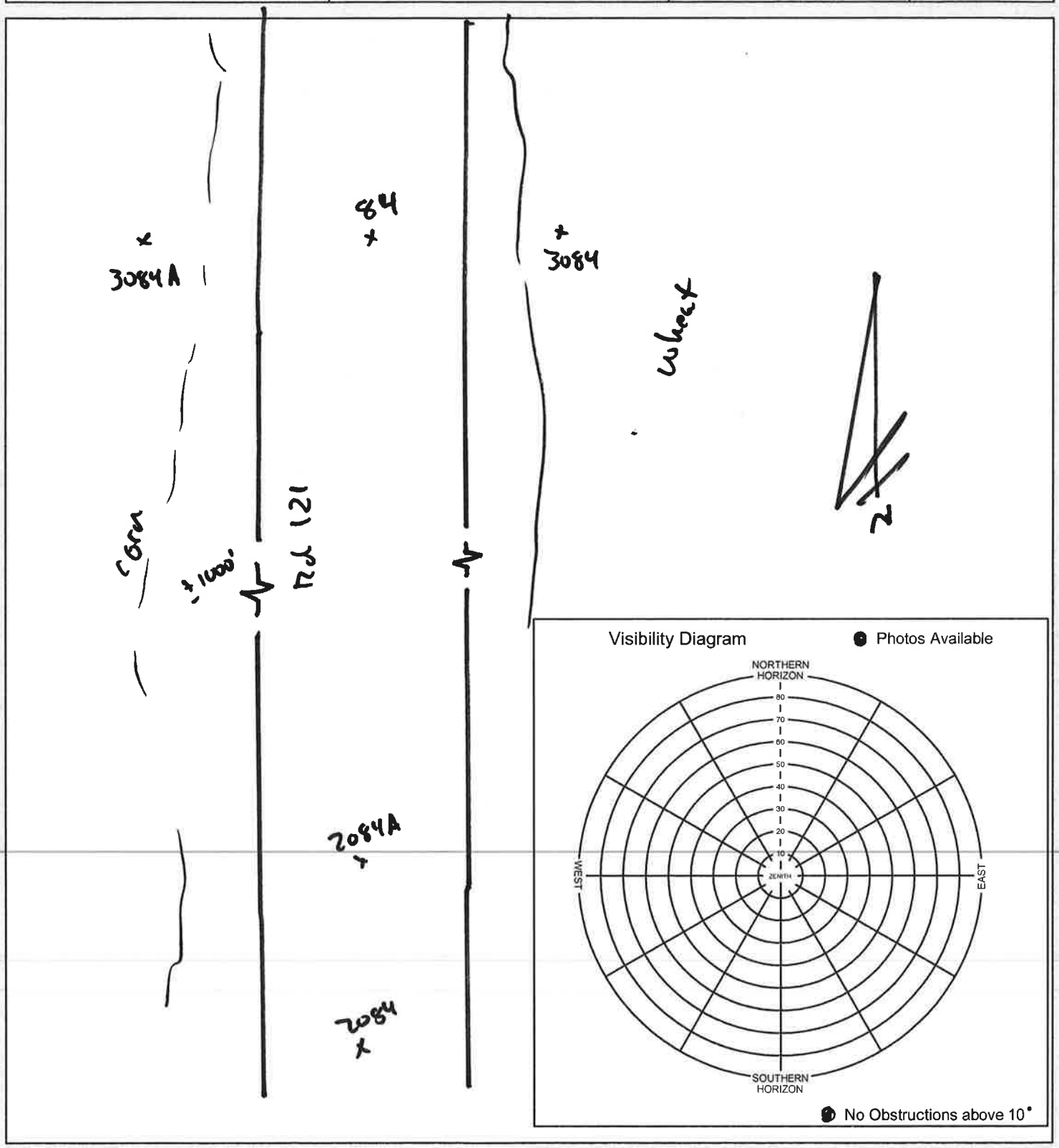



# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 84 / 2084 / 3084 | South Platte River Basin | 75955 |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 14 ' 14 " | W 102 ° 53 ' 46 " | 4 / 21 / 16 | DJK |

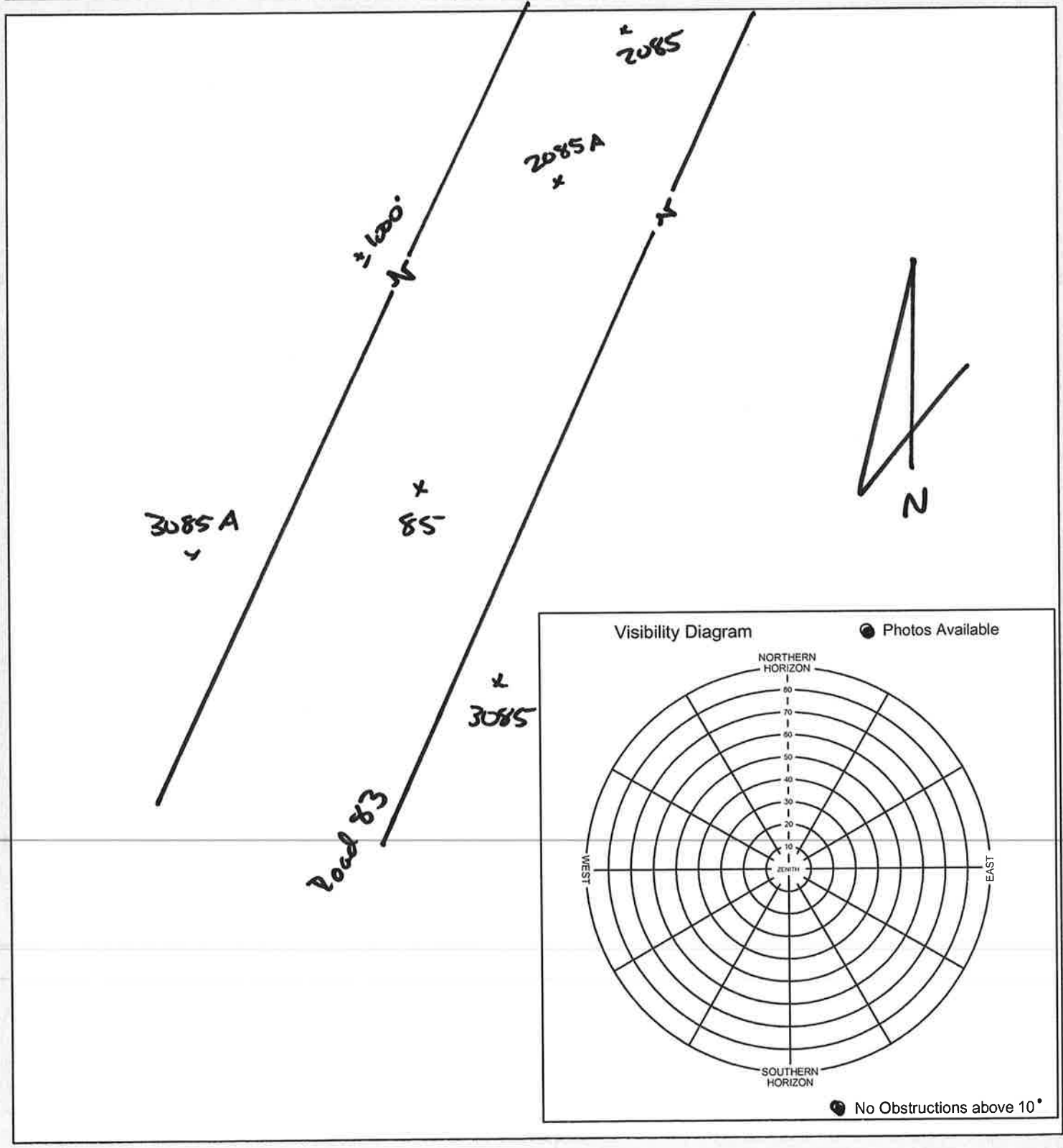


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 85 / 2085 / 3085 | South Platte River Basin | 75955 |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 18 ' 11 " | W 103 ° 15 ' 46 " | 4 / 21 / 16 | DJK |

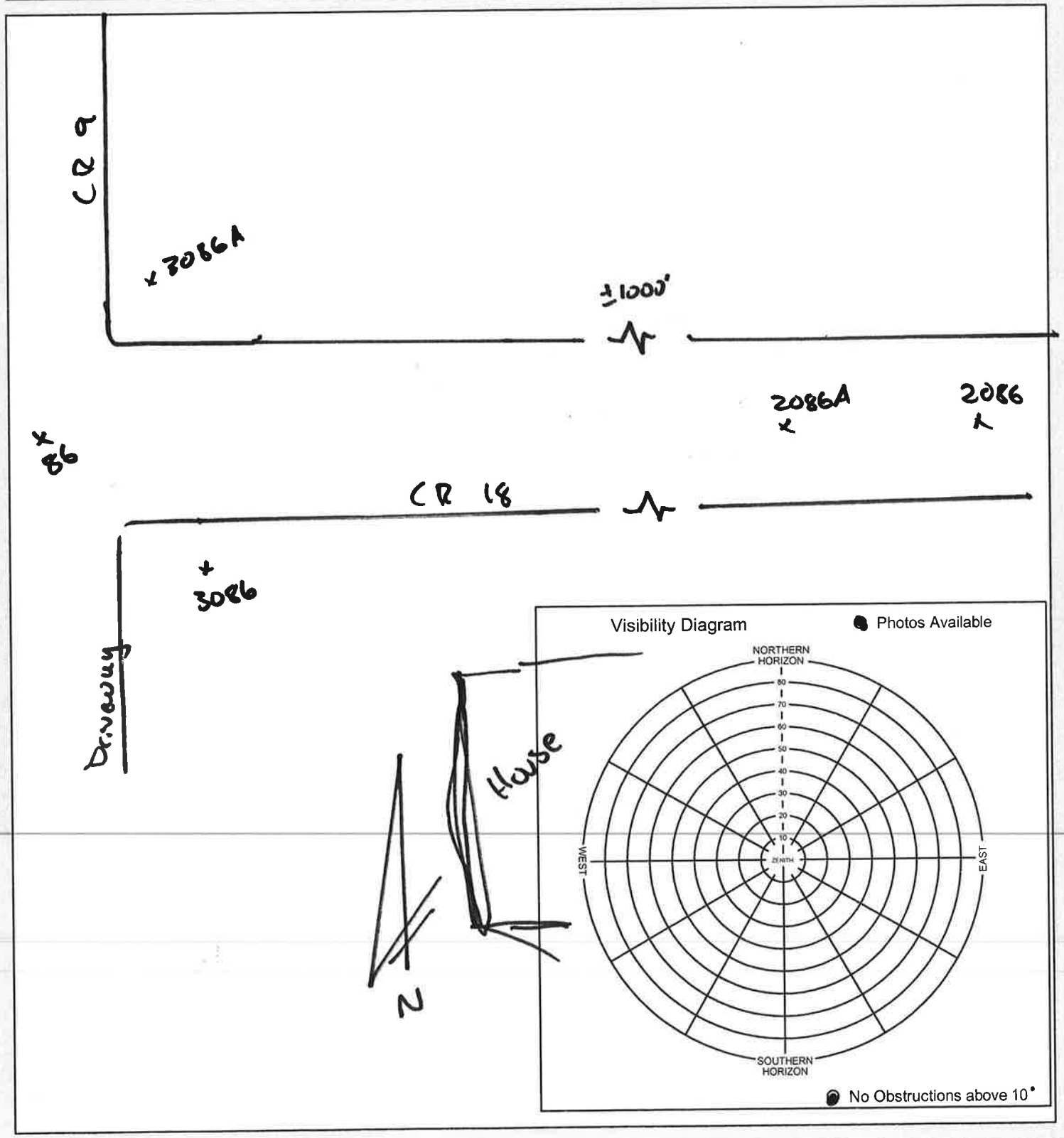


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 86 / 2086 / 3086 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 30 ' 34 " | W 103 ° 59 ' 10 " | 4 /26/ 16 | **DJK** |

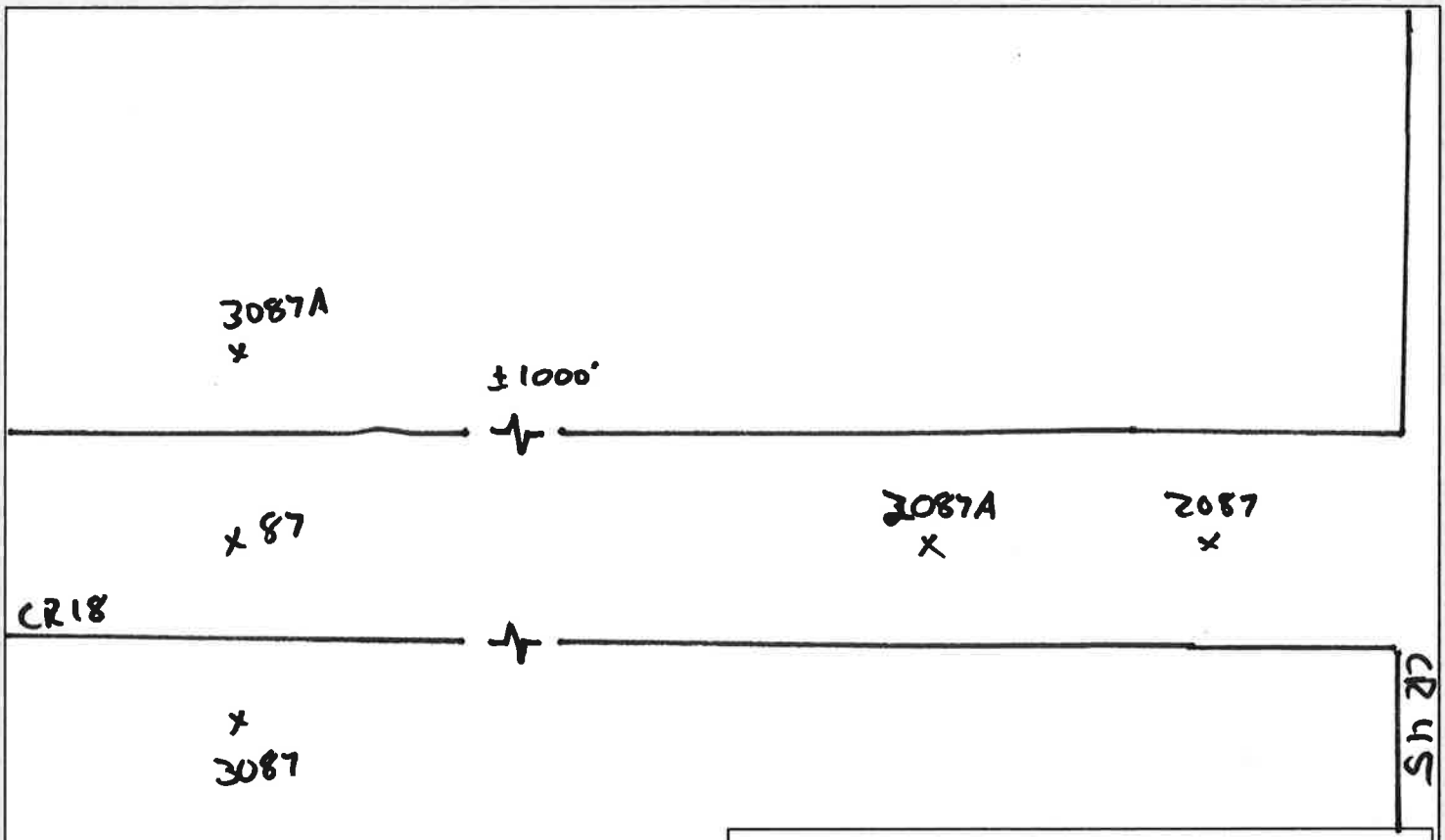


# South Platte Basin QL2 LiDAR

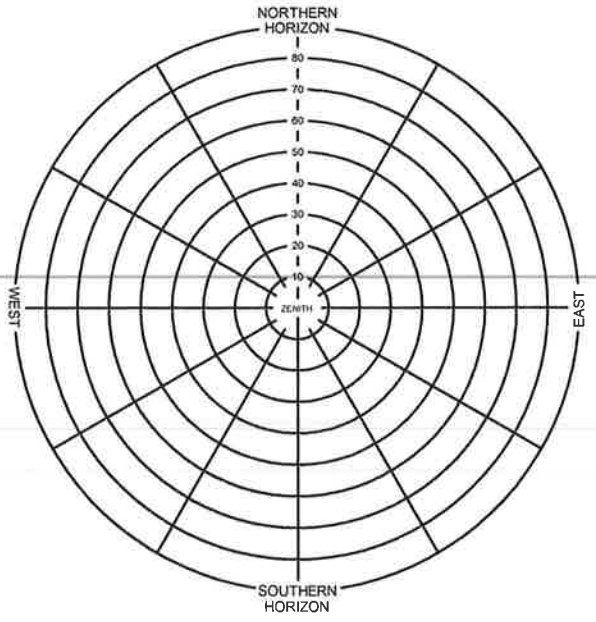
WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 87 / 2087 / 3087 | South Platte River Basin | 75955 |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 07' 12 " | W 103 ° 37' 43 " | 4 /22/16 | DJK |




Visibility Diagram ● Photos Available



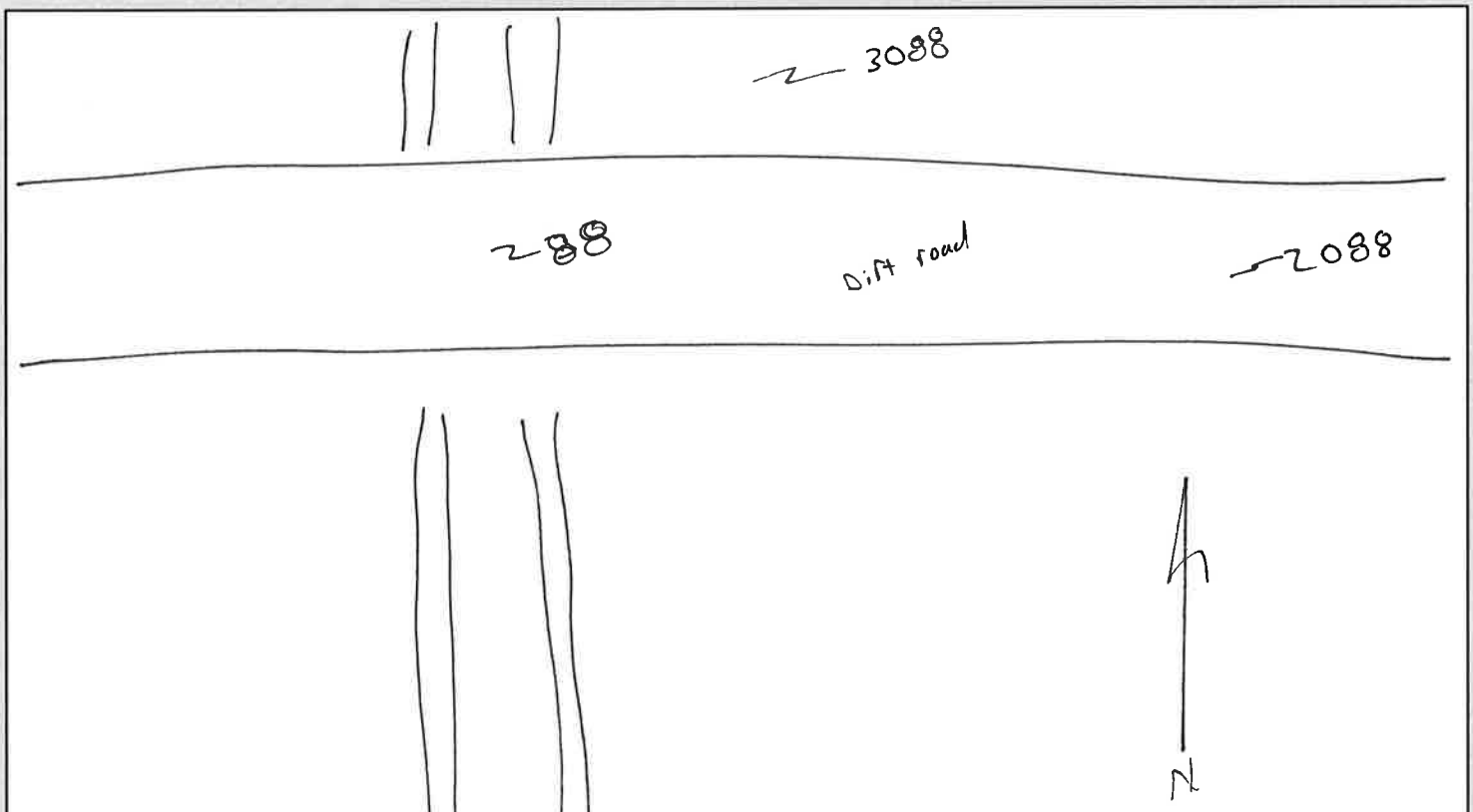

● No Obstructions above 10°

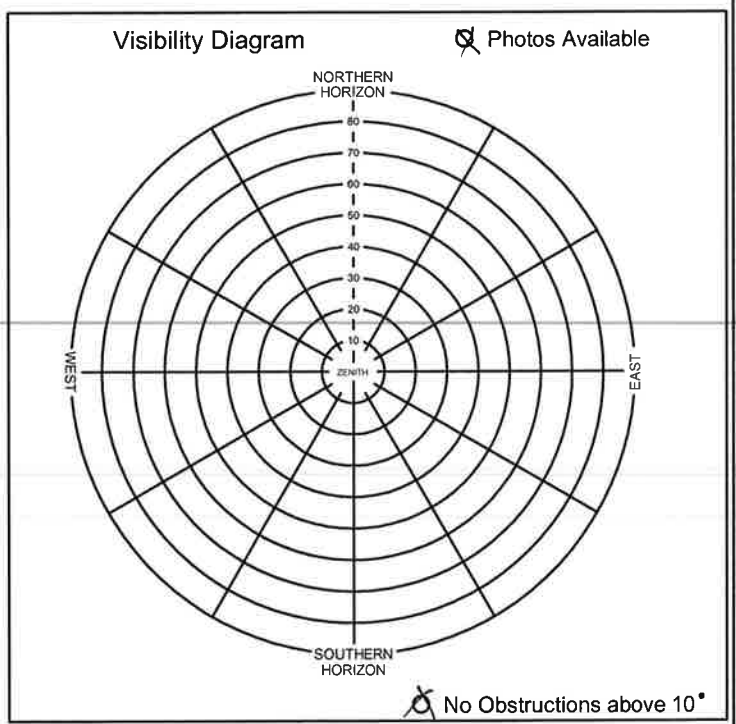
# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 88, 2088, 3088 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 5 ' 25 " | W 103 ° 51 ' 17 " | 4/21/16 | **DJK** |



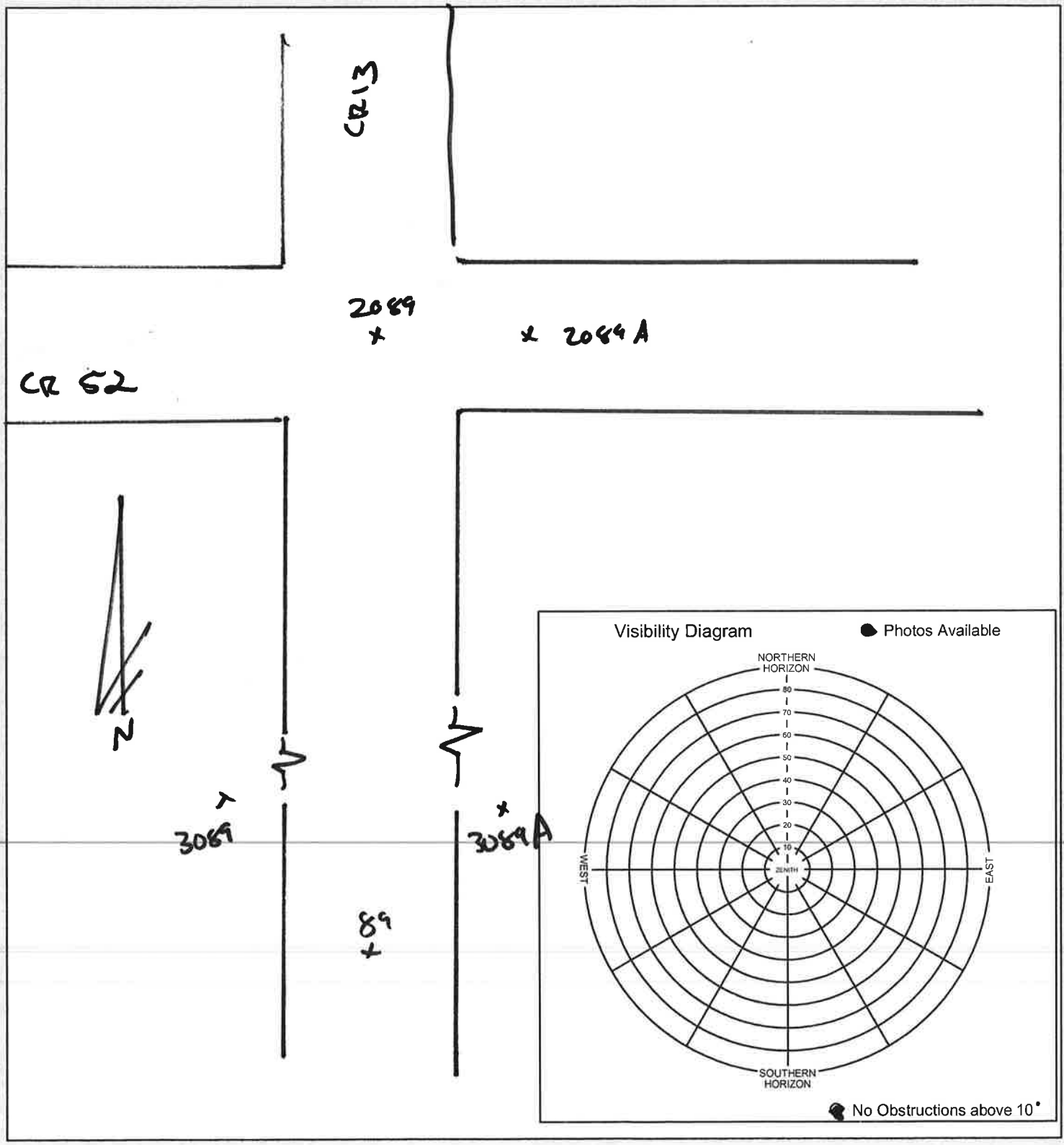



# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 89 \| 2089 \| 3089 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 21 ' 44 " | W 103 ° 55 ' 50 " | 9 /25/16 | **DJK** |




Visibility Diagram

Photos Available



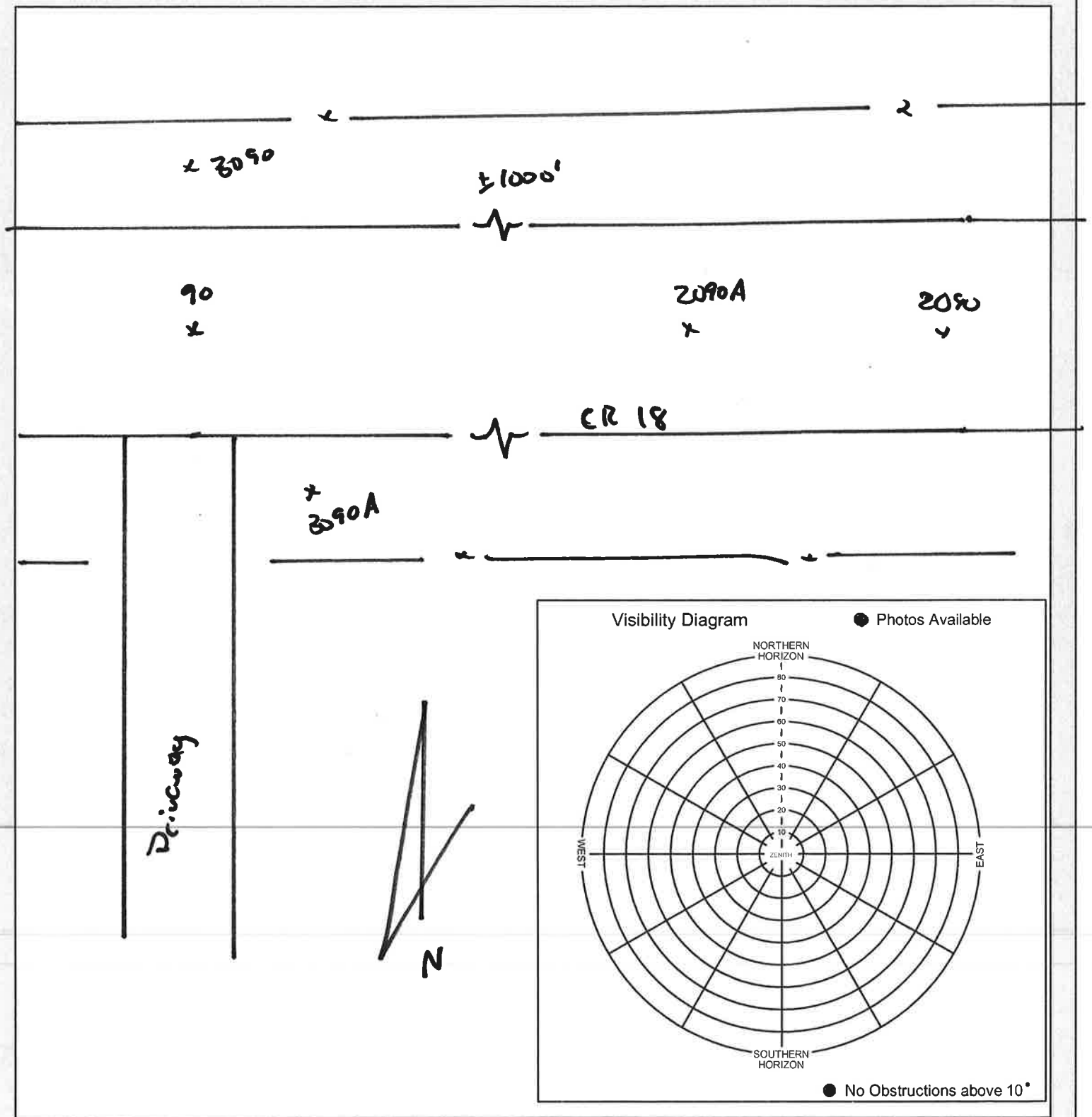

No Obstructions above 10°

# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 90 / 2090 / 3090 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 33 ' 11 " | W 103 ° 47 ' 12 " | 4 / 26 / 16 | **DJK** |

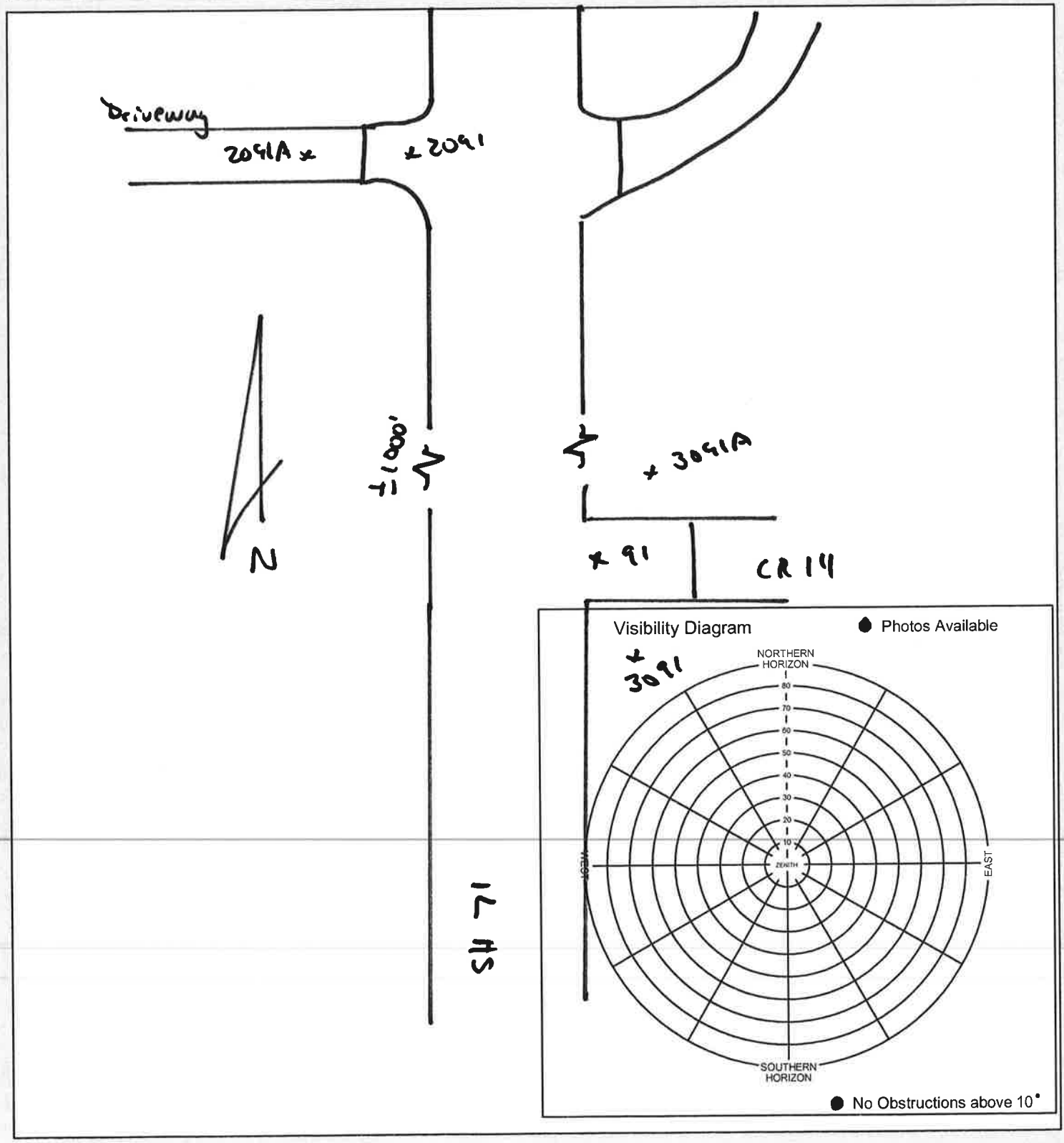


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 91 / 2091 / 3091 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 28 ' 48 " | W 103 ° 39 ' 27 " | 4 /26/16 | **DJK** |

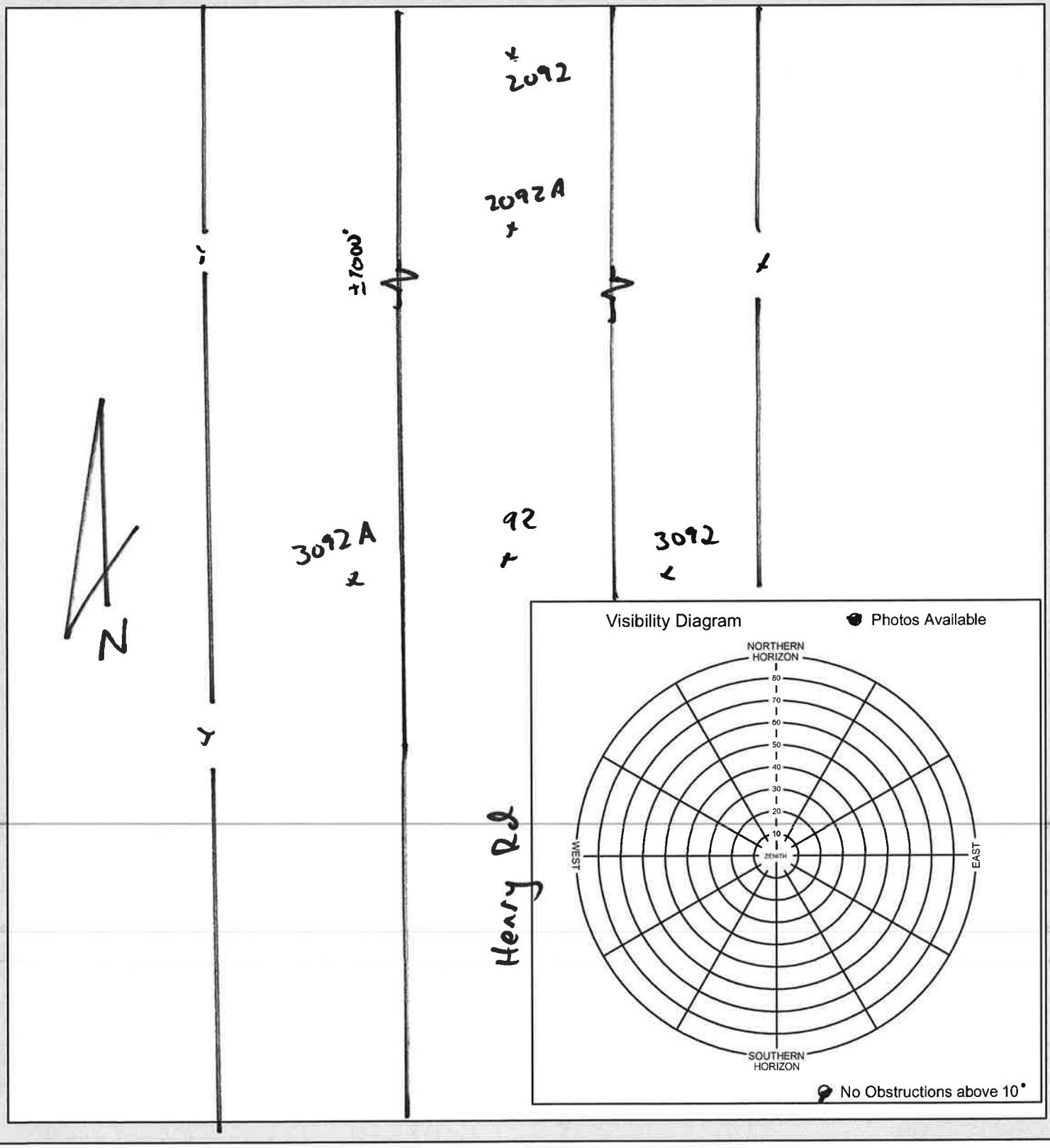


# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 92 / 2092 / 3092 | **South Platte River Basin** | **75955** |

| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N42 ° 08' 36 " | W 104° 01' 55 " | 4 / 28 / 16 | **DJK** |




Visibility Diagram — Photos Available



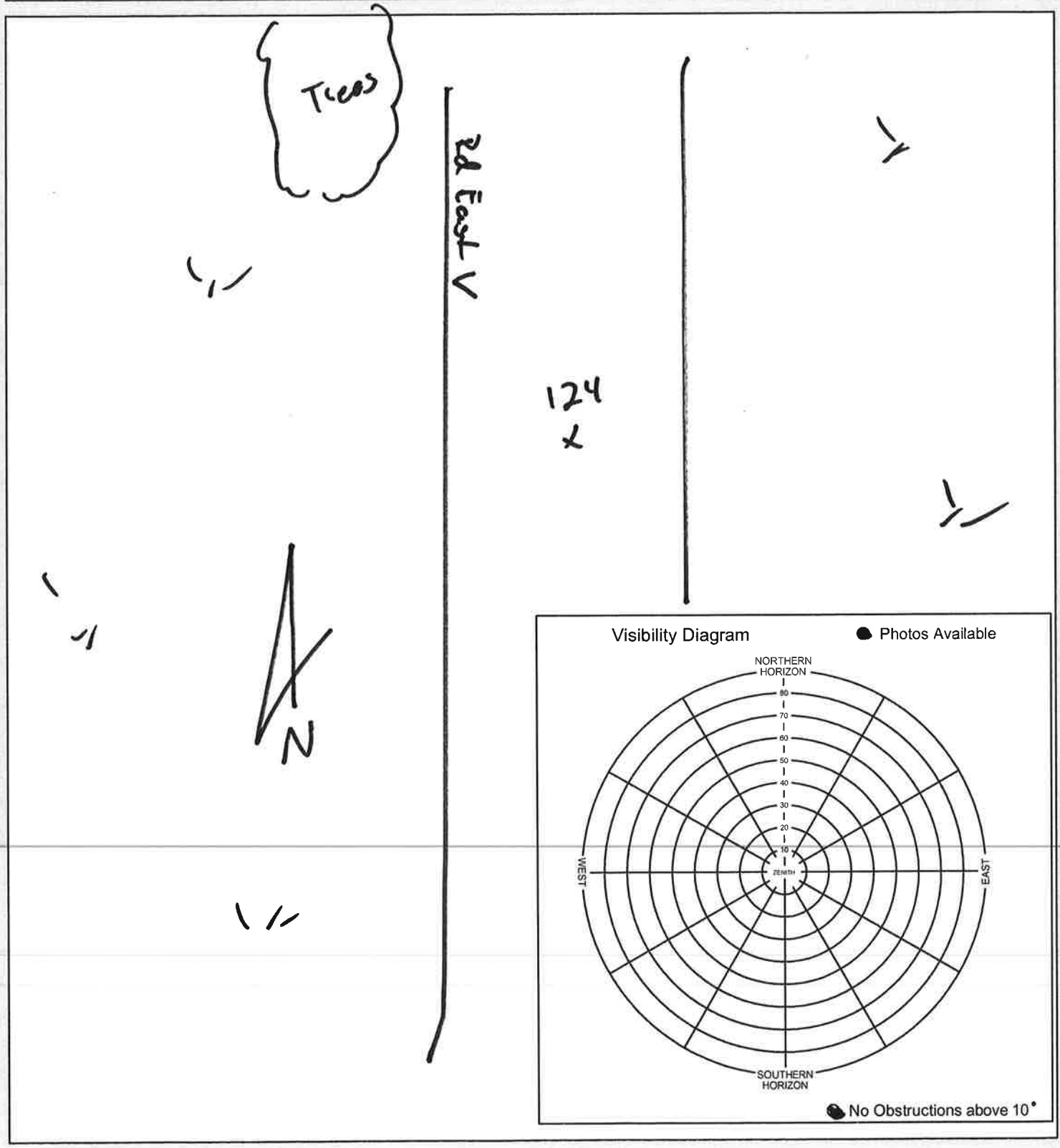

No Obstructions above 10°

# South Platte Basin QL2 LiDAR

WOOLPERT

| Photo Control point # | General location | Job Number |
|---|---|---|
| 124 | **South Platte River Basin** | **75955** |

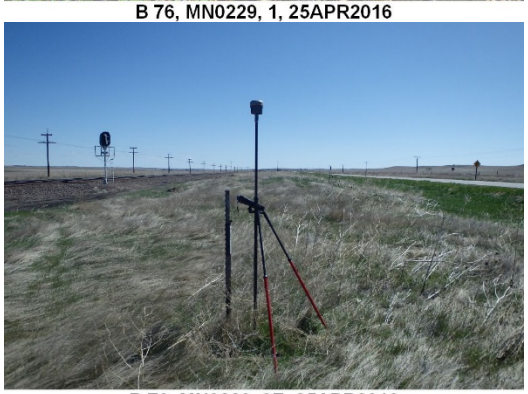
| Latitude | Longitude | Calendar Date | Observer Initials |
|---|---|---|---|
| N 41 ° 06 ' 10 " | W 101 ° 18 ' 31 " | 4 / 19 / 16 | **DJK** |



# Geodetic Control Photos

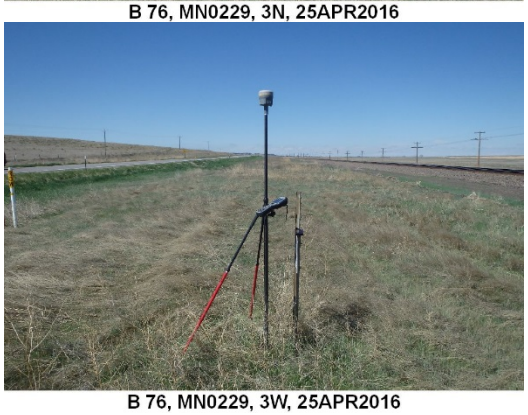
B 76, MN0229, 1, 25APR2016


B 76, MN0229, 2, 25APR2016


B 76, MN0229, 3E, 25APR2016


B 76, MN0229, 3N, 25APR2016


B 76, MN0229, 3S, 25APR2016


B 76, MN0229, 3W, 25APR2016

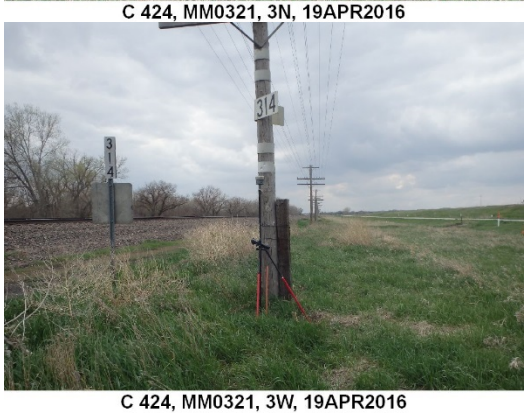

C 424, MM0321, 1, 19APR2016


C 424, MM0321, 2, 19APR2016


C 424, MM0321, 3E, 19APR2016


C 424, MM0321, 3N, 19APR2016


C 424, MM0321, 3S, 19APR2016



C 424, MM0321, 3W, 19APR2016

CLINCH RESET, MM0352, 1, 19APR2016


CLINCH RESET, MM0352, 2, 19APR2016

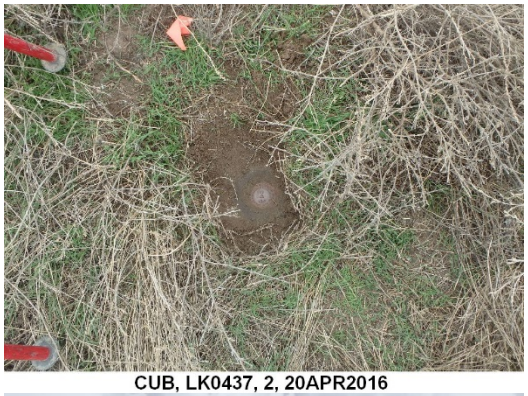

CLINCH RESET, MM0352, 3E, 19APR2016


CLINCH RESET, MM0352, 3N, 19APR2016


CLINCH RESET, MM0352, 3S, 19APR2016

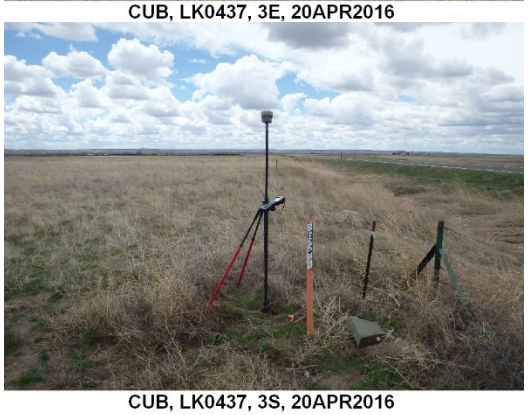

CLINCH RESET, MM0352, 3W, 19APR2016

CUB, LK0437, 1, 20APR2016


CUB, LK0437, 2, 20APR2016


CUB, LK0437, 3E, 20APR2016


CUB, LK0437, 3N, 20APR2016


CUB, LK0437, 3S, 20APR2016


CUB, LK0437, 3W, 20APR2016

F 422, MN0395, 1, 20APR2016

G 424, MM0317, 2, 19APR2016

F 422, MN0395, 3E, 20APR2016

F 422, MN0395, 3N, 20APR2016

F 422, MN0395, 3S, 20APR2016

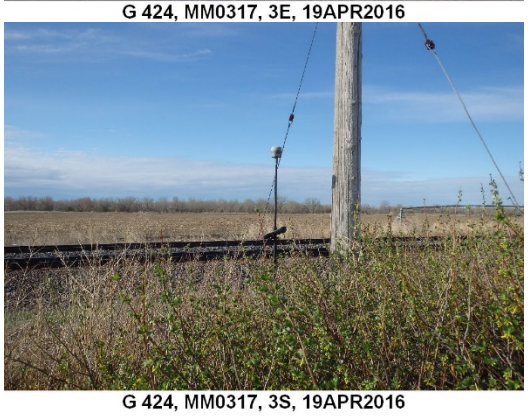
F 422, MN0395, 3W, 20APR2016

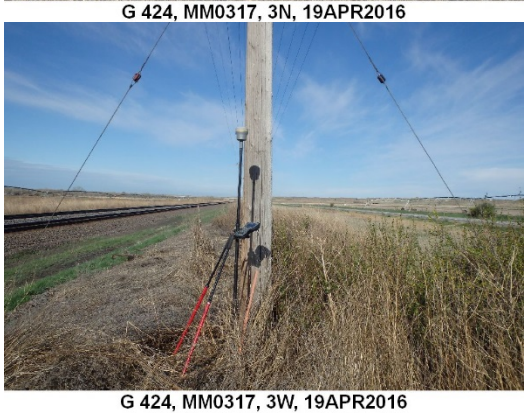

G 424, MM0317, 1, 19APR2016


G 424, MM0317, 2, 19APR2016


G 424, MM0317, 3E, 19APR2016


G 424, MM0317, 3N, 19APR2016


G 424, MM0317, 3S, 19APR2016


G 424, MM0317, 3W, 19APR2016

KIMBALL, MN0244, 1, 22APR2016

KIMBALL, MN0244, 2, 22APR2016

KIMBALL, MN0244, 3E, 22APR2016

KIMBALL, MN0244, 3N, 22APR2016

KIMBALL, MN0244, 3S, 22APR2016

KIMBALL, MN0244, 3W, 22APR2016


M 424, MM0311, 1, 19APR2016


M 424, MM0311, 2, 19APR2016


M 424, MM0311, 3E, 19APR2016


M 424, MM0311, 3N, 19APR2016


M 424, MM0311, 3S, 19APR2016


M 424, MM0311, 3W, 19APR2016

NORTH EAST CORNER RESET, MN0401, 1, 20APR2016


NORTH EAST CORNER RESET, MN0401, 2, 20APR2016


NORTH EAST CORNER RESET, MN0401, 3E, 20APR2016


NORTH EAST CORNER RESET, MN0401, 3N, 20APR2016


NORTH EAST CORNER RESET, MN0401, 3S, 20APR2016

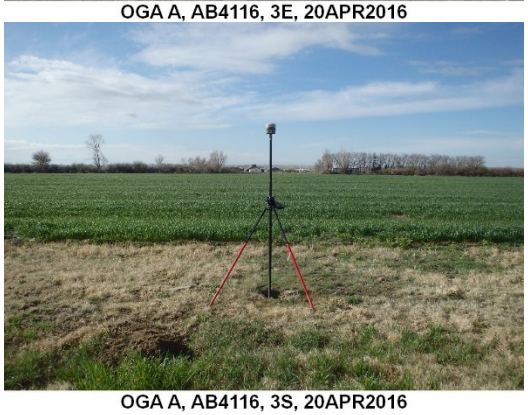

NORTH EAST CORNER RESET, MN0401, 3W, 20APR2016

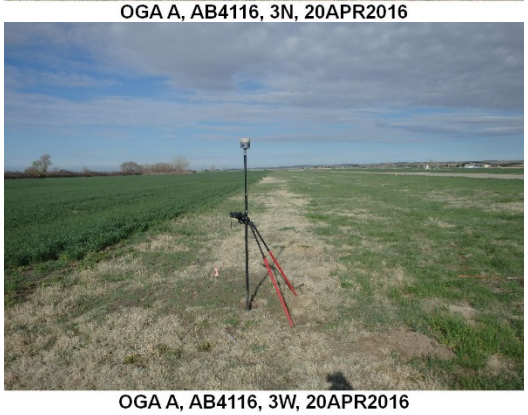
OGA A, AB4116, 1, 20APR2016


OGA A, AB4116, 2, 20APR2016


OGA A, AB4116, 3E, 20APR2016

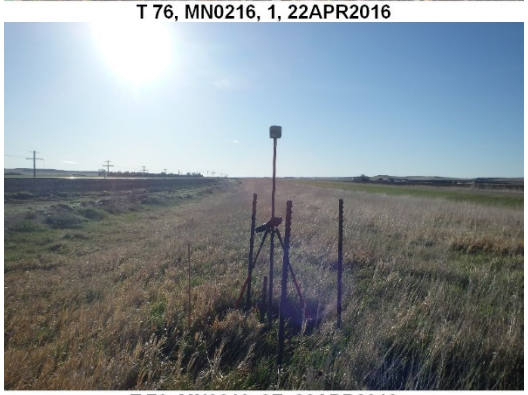

OGA A, AB4116, 3N, 20APR2016


OGA A, AB4116, 3S, 20APR2016


OGA A, AB4116, 3W, 20APR2016

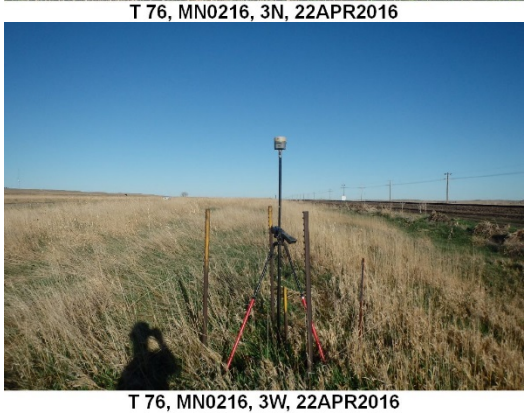
T 76, MN0216, 1, 22APR2016


T 76, MN0216, 2, 22APR2016


T 76, MN0216, 3E, 22APR2016


T 76, MN0216, 3N, 22APR2016


T 76, MN0216, 3S, 22APR2016


T 76, MN0216, 3W, 22APR2016

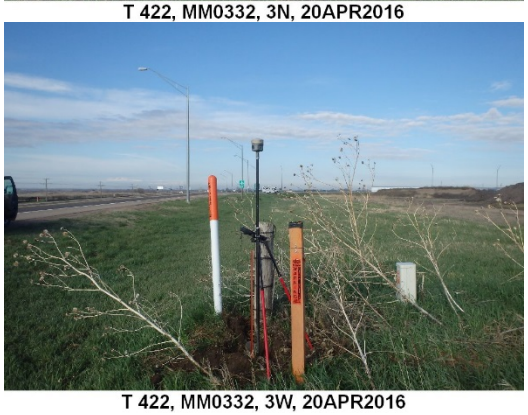
T 422, MM0332, 1, 20APR2016


T 422, MM0332, 2, 20APR2016


T 422, MM0332, 3E, 20APR2016


T 422, MM0332, 3N, 20APR2016


T 422, MM0332, 3S, 20APR2016

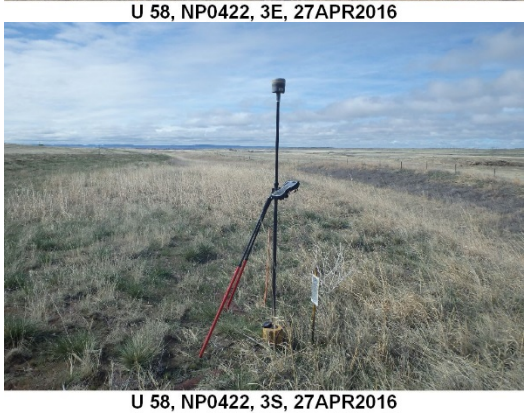

T 422, MM0332, 3W, 20APR2016

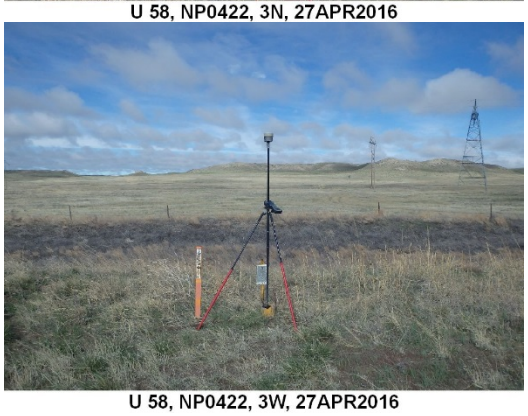
U 58, NP0422, 1, 27APR2016


U 58, NP0422, 2, 27APR2016


U 58, NP0422, 3E, 27APR2016


U 58, NP0422, 3N, 27APR2016


U 58, NP0422, 3S, 27APR2016


U 58, NP0422, 3W, 27APR2016

Z 418, MN0384, 1, 22APR2016


Z 418, MN0384, 2, 22APR2016


Z 418, MN0384, 3E, 22APR2016


Z 418, MN0384, 3N, 22APR2016


Z 418, MN0384, 3S, 22APR2016


Z 418, MN0384, 3W, 22APR2016

# Ground Control Photos


1, LiDAR CTL, 3N, 27APR2016


2, LiDAR CTL, 3N, 27APR2016


3, LiDAR CTL, 3N, 27APR2016


4, LiDAR CTL, 3N, 27APR2016


5, LiDAR CTL, 3W, 27APR2016


6, LiDAR CTL, 3N, 27APR2016


7, LiDAR CTL, 3N, 27APR2016


8, LiDAR CTL, 3N, 27APR2016


9, LiDAR CTL, 3N, 27APR2016


10, LiDAR CTL, 3W, 27APR2016


11, LiDAR CTL, 3N, 27APR2016


12, LiDAR CTL, 3W, 27APR2016


13, LiDAR CTL, 3W, 25APR2016


14, LiDAR CTL, 3N, 26APR2016


15, LiDAR CTL, 3E, 22APR2016


16, LiDAR CTL, 3N, 25APR2016


17, LiDAR CTL, 3W, 25APR2016


18, LiDAR CTL, 3E, 25APR2016

19, LiDAR CTL, 3N, 25APR2016

20, LiDAR CTL, 3N, 26APR2016

21, LiDAR CTL, 3W, 26APR2016

22, LiDAR CTL, 3N, 21APR2016

23, LiDAR CTL, 3E, 22APR2016

24, LiDAR CTL, 3W, 22APR2016

25, LiDAR CTL, 3W, 26APR2016

26, LiDAR CTL, 3E, 21APR2016

27, LiDAR CTL, 3N, 21APR2016

28, LiDAR CTL, 3N, 21APR2016

29, LiDAR CTL, 3E, 21APR2016

30, LiDAR CTL, 3E, 21APR2016


31, LiDAR CTL, 3N, 20APR2016


32, LiDAR CTL, 3S, 20APR2016


33, LiDAR CTL, 3N, 21APR2016


34, LiDAR CTL, 3N, 20APR2016


35, LiDAR CTL, 3E, 22APR2016


36, LiDAR CTL, 3W, 22APR2016

37, LiDAR CTL, 3N, 22APR2016

38, LiDAR CTL, 3N, 22APR2016

39, LiDAR CTL, 3E, 22APR2016

40, LiDAR CTL, 3N, 22APR2016

41, LiDAR CTL, 3E, 20APR2016

42, LiDAR CTL, 3N, 20APR2016

43, LiDAR CTL, 3N, 20APR2016

44, LiDAR CTL, 3N, 20APR2016

45, LiDAR CTL, 3N, 20APR2016

46, LiDAR CTL, 3N, 20APR2016

47, LiDAR CTL, 3N, 20APR2016

48, LiDAR CTL, 3W, 20APR2016


49, LiDAR CTL, 3N, 20APR2016


50, LiDAR CTL, 3W, 20APR2016


51, LiDAR CTL, 3N, 20APR2016


52, LiDAR CTL, 3N, 20APR2016


53, LiDAR CTL, 3N, 20APR2016


54, LiDAR CTL, 3N, 20APR2016


55, LiDAR CTL, 3N, 20APR2016


56, LiDAR CTL, 3E, 20APR2016


57, LiDAR CTL, 3N, 20APR2016


58, LiDAR CTL, 3N, 20APR2016


59, LiDAR CTL, 3W, 19APR2016


60, LiDAR CTL, 3N, 20APR2016


61, LiDAR CTL, 3W, 19APR2016


62, LiDAR CTL, 3E, 19APR2016


63, LiDAR CTL, 3W, 19APR2016


64, LiDAR CTL, 3N, 19APR2016


65, LiDAR CTL, 3E, 19APR2016


66, LiDAR CTL, 3E, 19APR2016


67, LiDAR CTL, 3W, 19APR2016


68, LiDAR CTL, 3N, 19APR2016


69, LiDAR CTL, 3N, 19APR2016


70, LiDAR CTL, 3N, 19APR2016


71, LiDAR CTL, 3E, 19APR2016


72, LiDAR CTL, 3W, 19APR2016

73, LiDAR CTL, 3W, 19APR2016

74, LiDAR CTL, 3N, 19APR2016

75, LiDAR CTL, 3N, 19APR2016

76, LiDAR CTL, 3E, 19APR2016

77, LiDAR CTL, 3N, 19APR2016

78, LiDAR CTL, 3N, 19APR2016


79, LiDAR CTL, 3E, 19APR2016


80, LiDAR CTL, 3N, 19APR2016


81, LiDAR CTL, 3W, 19APR2016


82, LiDAR CTL, 3N, 19APR2016


83, LiDAR CTL, 3E, 20APR2016


84, LiDAR CTL, 3N, 21APR2016

85, LiDAR CTL, 3N, 21APR2016

86, LiDAR CTL, 3N, 26APR2016

87, LiDAR CTL, 3W, 22APR2016

88, LiDAR CTL, 3E, 22APR2016

89, LiDAR CTL, 3N, 25APR2016

90, LiDAR CTL, 3S, 26APR2016

91, LiDAR CTL, 3N, 26APR2016

92, LiDAR CTL, 3N, 27APR2016

124, LiDAR CTL, 3N, 19APR2016

# The NGS Data Sheet

*See file dsdata.txt for more information about the datasheet.*

```
PROGRAM = datasheet95, VERSION = 8.9
1        National Geodetic Survey,   Retrieval Date = JUNE 28, 2016
 MN0229 ***********************************************************************
 MN0229  DESIGNATION -  B 76
 MN0229  PID         -  MN0229
 MN0229  STATE/COUNTY-  NE/KIMBALL
 MN0229  COUNTRY     -  US
 MN0229  USGS QUAD   -  BUSHNELL (1972)
 MN0229
 MN0229                         *CURRENT SURVEY CONTROL
 MN0229  ______________________________________________________________________
 MN0229* NAD 83(1986) POSITION- 41 11 53.0    (N) 103 58 29.6    (W)   HD_HELD2
 MN0229* NAVD 88 ORTHO HEIGHT -  1507.714 (meters)     4946.56  (feet) ADJUSTED
 MN0229  ______________________________________________________________________
 MN0229  GEOID HEIGHT    -        -18.302 (meters)                     GEOID12B
 MN0229  DYNAMIC HEIGHT  -       1506.563 (meters)     4942.78  (feet) COMP
 MN0229  MODELED GRAVITY -    979,807.5   (mgal)                       NAVD 88
 MN0229
 MN0229  VERT ORDER      -  SECOND    CLASS 0
 MN0229
 MN0229.The horizontal coordinates were established by autonomous hand held GPS
 MN0229.observations and have an estimated accuracy of +/- 10 meters.
 MN0229.
 MN0229.The orthometric height was determined by differential leveling and
 MN0229.adjusted by the NATIONAL GEODETIC SURVEY
 MN0229.in June 1991.
 MN0229
 MN0229.Significant digits in the geoid height do not necessarily reflect accuracy.
 MN0229.GEOID12B height accuracy estimate available here.
 MN0229
 MN0229.The dynamic height is computed by dividing the NAVD 88
 MN0229.geopotential number by the normal gravity value computed on the
 MN0229.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 MN0229.degrees latitude (g = 980.6199 gals.).
 MN0229
 MN0229.The modeled gravity was interpolated from observed gravity values.
 MN0229
 MN0229;                   North         East    Units  Estimated Accuracy
 MN0229;SPC NE       -   159,180.      166,802.      MT  (+/- 10 meters HH2 GPS)
 MN0229
 MN0229                          SUPERSEDED SURVEY CONTROL
 MN0229
 MN0229  NGVD 29 (??/??/92) 1506.943  (m)         4944.03   (f) ADJ UNCH    2 0
 MN0229
 MN0229.Superseded values are not recommended for survey control.
 MN0229
 MN0229.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 MN0229.See file dsdata.txt to determine how the superseded data were derived.
 MN0229
 MN0229_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TEF8595561249(NAD 83)
```

```
 MN0229
 MN0229_MARKER: DB = BENCH MARK DISK
 MN0229_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 MN0229_STAMPING: B 76 1934
 MN0229_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 MN0229+STABILITY: SURFACE MOTION
 MN0229
 MN0229  HISTORY     - Date     Condition        Report By
 MN0229  HISTORY     - 1934     MONUMENTED       CGS
 MN0229  HISTORY     - 1941     GOOD             CGS
 MN0229
 MN0229                          STATION DESCRIPTION
 MN0229
 MN0229'DESCRIBED BY COAST AND GEODETIC SURVEY 1934
 MN0229'4.9 MI E FROM PINE BLUFFS.
 MN0229'IN KIMBALL COUNTY, NEBRASKA, 4.9 MILES EAST ALONG THE UNION
 MN0229'PACIFIC RAILROAD FROM THE STATION AT PINE BLUFFS, LARAMIE COUNTY,
 MN0229'WYOMING, 24 POLES WEST OF MILEPOST 461, 63.9 FEET SOUTHEAST OF
 MN0229'THE SOUTHEAST RAIL, 25 FEET WEST OF A POLE, 15.7 FEET NORTHWEST
 MN0229'OF A FENCE, AND ABOUT 1 FOOT LOWER THAN THE TRACK.  A STANDARD
 MN0229'DISK, STAMPED B 76 1934 AND SET IN THE TOP OF A CONCRETE POST.
 MN0229
 MN0229                          STATION RECOVERY (1941)
 MN0229
 MN0229'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1941
 MN0229'RECOVERED IN GOOD CONDITION.
1        National Geodetic Survey,   Retrieval Date = JUNE 28, 2016
 MM0321 ***********************************************************************
 MM0321  DESIGNATION -  C 424
 MM0321  PID         -  MM0321
 MM0321  STATE/COUNTY-  NE/KEITH
 MM0321  COUNTRY     -  US
 MM0321  USGS QUAD   -  PAXTON SOUTH (1971)
 MM0321
 MM0321                        *CURRENT SURVEY CONTROL
 MM0321  ______________________________________________________________________
 MM0321* NAD 83(1986) POSITION- 41 07 24.     (N) 101 19 30.     (W)   SCALED
 MM0321* NAVD 88 ORTHO HEIGHT -   928.521 (meters)     3046.32  (feet) ADJUSTED
 MM0321  ______________________________________________________________________
 MM0321  GEOID HEIGHT    -        -21.680 (meters)                     GEOID12B
 MM0321  DYNAMIC HEIGHT  -        927.946 (meters)     3044.44  (feet) COMP
 MM0321  MODELED GRAVITY -    979,973.3   (mgal)                       NAVD 88
 MM0321
 MM0321  VERT ORDER      -  FIRST     CLASS II
 MM0321
 MM0321.The horizontal coordinates were scaled from a topographic map and have
 MM0321.an estimated accuracy of +/- 6 seconds.
 MM0321.
 MM0321.The orthometric height was determined by differential leveling and
 MM0321.adjusted by the NATIONAL GEODETIC SURVEY
 MM0321.in June 1991.
 MM0321
 MM0321.Significant digits in the geoid height do not necessarily reflect accuracy.
 MM0321.GEOID12B height accuracy estimate available here.
 MM0321
 MM0321.The dynamic height is computed by dividing the NAVD 88
```

```
 MM0321.geopotential number by the normal gravity value computed on the
 MM0321.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 MM0321.degrees latitude (g = 980.6199 gals.).
 MM0321
 MM0321.The modeled gravity was interpolated from observed gravity values.
 MM0321
 MM0321;                    North         East    Units  Estimated Accuracy
 MM0321;SPC NE       -   144,080.      388,770.      MT  (+/- 180 meters Scaled)
 MM0321
 MM0321                          SUPERSEDED SURVEY CONTROL
 MM0321
 MM0321  NGVD 29 (02/14/92)  928.107  (m)         3044.96   (f) ADJUSTED    1 2
 MM0321
 MM0321.Superseded values are not recommended for survey control.
 MM0321
 MM0321.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 MM0321.See file dsdata.txt to determine how the superseded data were derived.
 MM0321
 MM0321_U.S. NATIONAL GRID SPATIAL ADDRESS: 14TLL048550(NAD 83)
 MM0321
 MM0321_MARKER: I = METAL ROD
 MM0321_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)
 MM0321_STAMPING: C 424 1986
 MM0321_MARK LOGO: NGS
 MM0321_PROJECTION: FLUSH
 MM0321_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
 MM0321_ROD/PIPE-DEPTH: 17.0 meters
 MM0321
 MM0321  HISTORY     - Date     Condition        Report By
 MM0321  HISTORY     - 1986     MONUMENTED       NGS
 MM0321
 MM0321                           STATION DESCRIPTION
 MM0321
 MM0321'DESCRIBED BY NATIONAL GEODETIC SURVEY 1986
 MM0321'2.6 KM (1.6 MI) EAST FROM PAXTON.
 MM0321'2.60 KM (1.63 MI) EAST ALONG US HIGHWAY 30 FROM THE T JUNCTION OF
 MM0321'STATE ROUTE 51 C AT PAXTON, 0.4 METER (1.5 FT) EAST OF THE UNION
 MM0321'PACIFIC RAILROAD MILEPOLE 314, 30.3 METERS (99.5 FT) SOUTH OF THE
 MM0321'HIGHWAY CENTERLINE, 45.8 METERS (150.5 FT) EAST OF THE NORTH END OF A
 MM0321'CULVERT PIPE 31404 UNDER THE RAILROAD, 35.3 METERS (116 FT) SOUTHEAST
 MM0321'OF MILEPOST 147 AND 11.4 METERS (37.5 FT) NORTH OF THE NORTH RAIL.
 MM0321'NOTE--ACCESS TO DATUM POINT IS HAD THROUGH A 5-INCH LOGO CAP.
 MM0321'THE MARK IS 0.3 METERS  W FROM  A WITNESS POST
 MM0321'THE MARK IS 0.5 M BELOW THE HIGHWAY.
1        National Geodetic Survey,   Retrieval Date = JUNE 28, 2016
 MM0352 ***********************************************************************
 MM0352  DESIGNATION -  CLINCH RESET
 MM0352  PID         -  MM0352
 MM0352  STATE/COUNTY-  NE/LINCOLN
 MM0352  COUNTRY     -  US
 MM0352  USGS QUAD   -  NORTH PLATTE EAST (1983)
 MM0352
 MM0352                          *CURRENT SURVEY CONTROL
 MM0352 ______________________________________________________________________
 MM0352* NAD 83(2011) POSITION- 41 07 59.89396(N) 100 42 31.23925(W)   ADJUSTED
 MM0352* NAD 83(2011) ELLIP HT-   825.471 (meters)        (06/27/12)   ADJUSTED
```

MM0352* NAD 83(2011) EPOCH - 2010.00
MM0352* NAVD 88 ORTHO HEIGHT - 847.702 (meters) 2781.17 (feet) ADJUSTED
MM0352
MM0352 NAD 83(2011) X - -894,048.610 (meters) COMP
MM0352 NAD 83(2011) Y - -4,727,693.739 (meters) COMP
MM0352 NAD 83(2011) Z - 4,174,127.685 (meters) COMP
MM0352 LAPLACE CORR - -1.85 (seconds) DEFLEC12B
MM0352 GEOID HEIGHT - -22.238 (meters) GEOID12B
MM0352 DYNAMIC HEIGHT - 847.209 (meters) 2779.55 (feet) COMP
MM0352 MODELED GRAVITY - 980,012.8 (mgal) NAVD 88
MM0352
MM0352 VERT ORDER - FIRST CLASS II
MM0352
MM0352 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
MM0352 Standards:

| | FGDC (95% conf, cm) | | Standard deviation (cm) | | | CorrNE |
|---|---|---|---|---|---|---|
| | Horiz | Ellip | SD_N | SD_E | SD_h | (unitless) |
| NETWORK | 0.87 | 2.43 | 0.40 | 0.28 | 1.24 | 0.26364730 |

MM0352 Click here for local accuracies and other accuracy information.
MM0352
MM0352
MM0352.This mark is at North Platte Regional Airport (LBF)
MM0352
MM0352.The horizontal coordinates were established by GPS observations
MM0352.and adjusted by the National Geodetic Survey in June 2012.
MM0352
MM0352.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
MM0352.been affixed to the stable North American tectonic plate. See
MM0352.NA2011 for more information.
MM0352
MM0352.The horizontal coordinates are valid at the epoch date displayed above
MM0352.which is a decimal equivalence of Year/Month/Day.
MM0352
MM0352.The orthometric height was determined by differential leveling and
MM0352.adjusted by the NATIONAL GEODETIC SURVEY
MM0352.in June 1994.
MM0352
MM0352.Significant digits in the geoid height do not necessarily reflect accuracy.
MM0352.GEOID12B height accuracy estimate available here.
MM0352
MM0352.The X, Y, and Z were computed from the position and the ellipsoidal ht.
MM0352
MM0352.The Laplace correction was computed from DEFLEC12B derived deflections.
MM0352
MM0352.The ellipsoidal height was determined by GPS observations
MM0352.and is referenced to NAD 83.
MM0352
MM0352.The dynamic height is computed by dividing the NAVD 88
MM0352.geopotential number by the normal gravity value computed on the
MM0352.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
MM0352.degrees latitude (g = 980.6199 gals.).
MM0352
MM0352.The modeled gravity was interpolated from observed gravity values.
MM0352

```
MM0352. The following values were computed from the NAD 83(2011) position.
MM0352
MM0352;                    North         East     Units Scale Factor Converg.
MM0352;SPC NE       -   144,574.177   440,515.303   MT  0.99967961   -0 28 10.7
MM0352;SPC NE       -   474,323.78  1,445,257.29   sFT  0.99967961   -0 28 10.7
MM0352;UTM  14      - 4,554,962.167   356,584.610   MT  0.99985314   -1 07 27.1
MM0352
MM0352!             -  Elev Factor  x  Scale Factor =   Combined Factor
MM0352!SPC NE       -   0.99987054  x   0.99967961  =   0.99955019
MM0352!UTM  14      -   0.99987054  x   0.99985314  =   0.99972369
MM0352
MM0352:                Primary Azimuth Mark                    Grid Az
MM0352:SPC NE       -  CLINCH AZ MK                            089 10 25.6
MM0352:UTM  14      -  CLINCH AZ MK                            089 49 42.0
MM0352
MM0352|---------------------------------------------------------------------|
MM0352| PID    Reference Object                    Distance      Geod. Az  |
MM0352|                                                          dddmmss.s |
MM0352| CN8128 CLINCH RM 3                          26.146 METERS 05039     |
MM0352| CN8125 CLINCH AZ MK                                       0884214.9 |
MM0352| MM0404 NORTH PLATTE MUN AIRPORT BCN        APPROX. 0.6 KM 1565410.4 |
MM0352| CN8126 CLINCH RM 1                          10.789 METERS 20642     |
MM0352| CN8127 CLINCH RM 2                           9.177 METERS 27101     |
MM0352| CN8129 CLINCH RM 4                          18.611 METERS 33449     |
MM0352|---------------------------------------------------------------------|
MM0352
MM0352                          SUPERSEDED SURVEY CONTROL
MM0352
MM0352  NAD 83(2007)-  41 07 59.89381(N)    100 42 31.24018(W) AD(2002.00) 0
MM0352  ELLIP H (02/10/07)  825.497  (m)                       GP(2002.00)
MM0352  ELLIP H (01/04/02)  825.492  (m)                       GP(       ) 4 2
MM0352  NAD 83(1995)-  41 07 59.89334(N)    100 42 31.23989(W) AD(       ) 3
MM0352  ELLIP H (09/17/98)  825.528  (m)                       GP(       ) 4 2
MM0352  NAD 83(1995)-  41 07 59.89981(N)    100 42 31.23917(W) AD(       ) 3
MM0352  NAD 83(1986)-  41 07 59.90472(N)    100 42 31.24666(W) AD(       ) 3
MM0352  NAD 27      -  41 07 59.90558(N)    100 42 29.73653(W) AD(       ) 3
MM0352  NAVD 88 (09/17/98)  847.76   (m)         2781.4    (f) LEVELING    3
MM0352  NAVD 88 (06/15/91)  847.706  (m)         2781.18   (f) SUPERSEDED  1 2
MM0352  NGVD 29 (02/14/92)  847.358  (m)         2780.04   (f) ADJUSTED    1 2
MM0352
MM0352.Superseded values are not recommended for survey control.
MM0352
MM0352.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
MM0352.See file dsdata.txt to determine how the superseded data were derived.
MM0352
MM0352_U.S. NATIONAL GRID SPATIAL ADDRESS: 14TLL5658454962(NAD 83)
MM0352
MM0352_MARKER: DS = TRIANGULATION STATION DISK
MM0352_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
MM0352_STAMPING: CLINCH 1951
MM0352_MARK LOGO: CGS
MM0352_PROJECTION: FLUSH
MM0352_MAGNETIC: N = NO MAGNETIC MATERIAL
MM0352_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
MM0352+STABILITY: SURFACE MOTION
MM0352_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
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MM0352+SATELLITE: SATELLITE OBSERVATIONS - August 05, 1997
MM0352
MM0352  HISTORY     - Date     Condition        Report By
MM0352  HISTORY     - 1951     MONUMENTED       CGS
MM0352  HISTORY     - 1963     SEE DESCRIPTION  CGS
MM0352  HISTORY     - 1967     GOOD             CGS
MM0352  HISTORY     - 1968     GOOD             CGS
MM0352  HISTORY     - 1974     GOOD             NGS
MM0352  HISTORY     - 1977     GOOD             NGS
MM0352  HISTORY     - 1986     GOOD             NGS
MM0352  HISTORY     - 19970805 GOOD             NGS
MM0352
MM0352                          STATION DESCRIPTION
MM0352
MM0352'DESCRIBED BY COAST AND GEODETIC SURVEY 1951 (RLE)
MM0352'THE STATION IS LOCATED AT THE NORTHWEST CORNER OF THE NORTH
MM0352'PLATTE MUNICIPAL AIRPORT WHICH IS JUST EAST OF THE CITY OF NORTH
MM0352'PLATTE AND JUST SOUTH OF U.S. HIGHWAY 30.  IT IS 132.0 FEET
MM0352'NORTHEAST OF THE NORTHWEST CORNER OF THE UNITED AIR LINES
MM0352'OFFICE BUILDING, 40.0 FEET SOUTH OF THE CENTER OF U.S. HIGHWAY
MM0352'30 AND 4.0 FEET WEST OF A FENCE CORNER AT THE NORTHWEST CORNER
MM0352'OF THE AIRFIELD.  IT IS SET FLUSH AND STAMPED CLINCH 1951.
MM0352'
MM0352'REFERENCE MARK NO. 1 IS 97.0 FEET NORTHEAST OF THE NORTHWEST
MM0352'CORNER OF THE UNITED AIR LINES OFFICE BUILDING AND 0.5 FOOT
MM0352'WEST OF A RAIL AT THE WEST EDGE OF THE AIRFIELD.  IT IS SET
MM0352'FLUSH AND STAMPED CLINCH NO 1 1951.
MM0352'
MM0352'REFERENCE MARK NO. 2 IS 40.0 FEET SOUTH OF THE CENTER OF
MM0352'U.S. HIGHWAY 30.  IT IS SET FLUSH AND STAMPED CLINCH NO 2 1951.
MM0352'
MM0352'THE DISTANCE BETWEEN REFERENCE MARKS IS 35.1 FEET.
MM0352'
MM0352'THE AZIMUTH MARK IS 0.7 MILE EAST OF THE STATION AND ON THE
MM0352'NORTH RIGHT-OF-WAY OF U.S. HIGHWAY 30.  IT IS 55.0 FEET NORTH
MM0352'OF THE CENTER OF U.S. HIGHWAY 30, 23.0 FEET EAST OF THE CENTER
MM0352'OF A NORTH-SOUTH GRAVELED ROAD, 1.5 FEET SOUTH OF A TELEPHONE
MM0352'POLE AND 1.5 FEET SOUTH OF A WITNESS POST.  IT PROJECTS 3 INCHES
MM0352'AND IS STAMPED CLINCH 1951.
MM0352'
MM0352'HEIGHT OF LIGHT ABOVE STATION MARK 1 METERS.
MM0352
MM0352                          STATION RECOVERY (1963)
MM0352
MM0352'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1963 (JVT)
MM0352'THE SURFACE STATION MARK AND REFERENCE MARKS 1 AND 2 WERE FOUND
MM0352'TO BE LEANING.  THE AZIMUTH MARK WAS RECOVERED IN GOOD CONDITION.
MM0352'THE UNDERGROUND STATION MARK WAS RECOVERED AND THE SURFACE
MM0352'MARK WAS RE-PLUMBED OVER THE UNDERGROUND MARK.  NO ATTEMPT
MM0352'WAS MADE TO CORRECT THE REFERENCE MARKS NOR WERE THEY OBSERVED
MM0352'UPON AT THIS TIME.  THIS STATION WAS USED FOR AIRPORT SURVEY
MM0352'CONTROL.
MM0352
MM0352                          STATION RECOVERY (1967)
MM0352
MM0352'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1967 (JVT)
MM0352'THE STATION AND AZIMUTH MARK WERE RECOVERED AS DESCRIBED AND
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MM0352'FOUND TO BE IN GOOD CONDITION.  REFERENCE MARKS 1 AND 2 WERE
MM0352'RECOVERED AND BOTH MARKS HAVE BEEN HIT BY A ROAD GRADER AND TILTED
MM0352'OVER.
MM0352'
MM0352'THE STATION IS LOCATED AT THE NORTH PLATTE AIRPORT (LEE BIRD
MM0352'FIELD) NEAR THE PHYSICAL END OF RUNWAY 12, 40.0 FEET SOUTH OF THE
MM0352'CENTER LINE OF OLD HIGHWAY 30.  A ROUND WOODEN WITNESS POST WITH
MM0352'SIGN STANDS ADJACENT TO THE STATION MARK.
MM0352'
MM0352'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN--ABOUT 2.8 MILES
MM0352'EAST OF NORTH PLATTE
MM0352
MM0352                          STATION RECOVERY (1968)
MM0352
MM0352'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1968 (LFS)
MM0352'THE STATION MARK AND THE AZIMUTH MARK WERE RECOVERED AND FOUND
MM0352'IN GOOD CONDITION.  REFERENCE MARK NO. 1 AND REFERENCE MARK
MM0352'NO. 2 WERE FOUND DESTROYED.
MM0352'
MM0352'REFERENCE MARK NO. 3 AND REFERENCE MARK NO. 4 WERE SET.
MM0352'
MM0352'FOLLOWING IS A NEW DESCRIPTION.
MM0352'
MM0352'TO REACH THE STATION FROM THE ADMINISTRATION BUILDING AT THE
MM0352'NORTH PLATTE, AIRPORT (LEEBIRD FIELD) WHICH IS ABOUT 2.8 MILES
MM0352'EAST OF NORTH PLATTE ALONG U.S. HIGHWAY 30, GO WEST ON OLD
MM0352'U.S. HIGHWAY 30 FOR 0.6 MILE TO THE STATION ON THE LEFT.
MM0352'
MM0352'STATION MARK, A STANDARD DISK STAMPED CLINCH 1951, IS SET IN
MM0352'THE TOP OF A SQUARE CONCRETE POST WHICH PROJECTS 1 INCH.  IT IS
MM0352'262 FEET WEST-NORTHWEST OF THE NORTH POINT OF NORTHWEST-SOUTHEAST
MM0352'RUNWAY, 109 FEET SOUTHWEST OF A JOG IN A EAST-WEST FENCELINE,
MM0352'40 FEET SOUTH OF THE CENTER OF OLD U.S. HIGHWAY 30, AND 1.5
MM0352'FEET EAST OF A LARGE WOODEN POST WITH A WITNESS SIGN.  THE
MM0352'UNDERGROUND MARK WAS NOT INSPECTED.
MM0352'
MM0352'REFERENCE MARK NO. 3, A STANDARD DISK STAMPED CLINCH 1951 NO. 3
MM0352'1968, IS SET IN THE TOP OF A ROUND CONCRETE POST WHICH IS FLUSH
MM0352'WITH THE SURFACE OF THE GROUND.  IT IS 23 FEET SOUTHWEST OF
MM0352'THE JOG IN THE FENCE, 16 FEET NORTH OF THE CENTER OF OLD U.S.
MM0352'HIGHWAY 30, AND 15 FEET SOUTH OF THE FENCE.
MM0352'
MM0352'REFERENCE MARK NO. 4, A STANDARD DISK STAMPED CLINCH 1951 NO. 4
MM0352'1968, IS SET IN THE TOP OF A ROUND CONCRETE POST WHICH IS
MM0352'FLUSH WITH THE SURFACE OF THE GROUND.  IT IS 109.5 FEET
MM0352'WEST-SOUTHWEST OF THE JOG IN THE FENCE, 15.5 FEET NORTH OF THE
MM0352'CENTER OF OLD U.S. HIGHWAY 30, AND 1 FOOT SOUTH OF THE FENCE.
MM0352'
MM0352'AZIMUTH MARK, A STANDARD DISK STAMPED CLINCH 1951, IS SET IN THE
MM0352'TOP OF A SQUARE CONCRETE POST WHICH PROJECTS 2 INCHES.  IT IS
MM0352'55 FEET NORTH OF THE CENTER OF OLD U.S. HIGHWAY 30, 23 FEET
MM0352'EAST OF THE CENTER OF A ROAD, 2 FEET SOUTH OF A TELEPHONE POLE,
MM0352'1.5 FEET WEST OF A FENCE, AND 1.5 FEET SOUTH OF AN UNDERGROUND
MM0352'REPAIR STATION FOR TELEPHONE COMPANY.
MM0352'
MM0352'TO REACH THE AZIMUTH MARK FROM THE STATION, GO EAST ON OLD
MM0352'U.S. HIGHWAY 30 FOR 0.7 MILE TO A SIDE ROAD ON THE LEFT AND THE

MM0352'AZIMUTH MARK.  (ABOUT 0.05 MILE EAST-NORTHEAST OF THE
MM0352'ADMINISTRATION BUILDING.)
MM0352'
MM0352'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN--ABOUT 2.8
MM0352'MILES EAST OF NORTH PLATTE.
MM0352
MM0352                          STATION RECOVERY (1974)
MM0352
MM0352'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1974 (EP)
MM0352'RECOVERED IN GOOD CONDITION, NO DESCRIPTION FURNISHED.
MM0352'
MM0352'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN--3 MILES
MM0352'EAST OF NORTH PLATTE, ON LEE BIRD AIRPORT.
MM0352
MM0352                          STATION RECOVERY (1977)
MM0352
MM0352'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1977 (DAH)
MM0352'THE STATION MARK WAS RECOVERED AS DESCRIBED IN GOOD CONDITION, THE
MM0352'OTHER MARKS WERE NOT SEARCHED FOR.
MM0352'
MM0352'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN--ABOUT 2.8 MILES
MM0352'EAST OF NORTH PLATTE.
MM0352
MM0352                          STATION RECOVERY (1986)
MM0352
MM0352'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1986
MM0352'4.6 KM (2.85 MI) EAST FROM NORTH PLATTE.
MM0352'4.65 KM (2.9 MI) EAST ALONG US HIGHWAY 30 FROM THE JUNCTION OF US
MM0352'HIGHWAY 83 AT NORTH PLATTE, ON THE NORTHWEST PROPERTY CORNER OF THE
MM0352'LEE BIRD AIRFIELD, 0.35 KM (0.2 MI) EAST OF THE EAST END OF THE BRIDGE
MM0352'OVER THE NORTH PLATTE RIVER, 44.2 METERS (145 FT) SOUTH OF THE HIGHWAY
MM0352'CENTERLINE, 79.2 METERS (260 FT) WEST-NORTHWEST OF THE WEST CORNER OF
MM0352'THE NORTHWEST-SOUTHEAST CONCRETE RUNWAY AND 12.2 METERS (40 FT) SOUTH
MM0352'OF THE CENTER OF THE OLD HIGHWAY.
MM0352'THE MARK IS 0.6 METERS  E FROM  A WITNESS POST
MM0352'THE MARK IS 1.5 M BELOW THE HIGHWAY.
MM0352
MM0352                          STATION RECOVERY (1997)
MM0352
MM0352'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1997 (AJL)
MM0352'THE STATION IS LOCATED ABOUT 12.9 KM (8.00 MI) NORTHWEST OF MAXWELL,
MM0352'4.8 KM (3.00 MI) EAST OF NORTH PLATTE, AT THE NORTH PLATTE REGIONAL
MM0352'AIRPORT AND NEAR THE EXTREME NORTHWEST END OF RUNWAY 12R.
MM0352'OWNERSHIP--NORTH PLATTE AIRPORT AUTHORITY, PO BOX 1517, NORTH PLATTE,
MM0352'NE 69103.  AIRPORT MANAGER IS KENT PENNEY, PHONE (308) 532-1900.  TO
MM0352'REACH THE STATION FROM THE JUNCTION OF INTERSTATE HIGHWAY 80 AND STATE
MM0352'HIGHWAY 56 G LINK (2.3 MI SOUTHEAST OF NORTH PLATTE) EXIT 179, GO
MM0352'NORTH ON STATE HIGHWAY 56 G LINK FOR 2.98 KM (1.85 MI) TO A
MM0352'T-JUNCTION, TURN RIGHT AND GO EAST ON US HIGHWAY 30 FOR 2.4 KM (1.50
MM0352'MI) TO A PAVED ROAD RIGHT, TURN RIGHT AND GO SOUTH ON THE AIRPORT
MM0352'ENTRANCE ROAD FOR 0.2 KM (0.10 MI) TO A INTERSECTION AND THE AIRPORT
MM0352'OFFICE AHEAD, TURN RIGHT AND GO WEST ON A PAVED ROAD FOR 0.3 KM (0.20
MM0352'MI) TO A LOCKED GATE, PASS THROUGH GATE, CONTINUE AHEAD AND GO WEST ON
MM0352'PAVED THEN GRAVEL ROAD FOR 0.5 KM (0.30 MI) TO THE STATION ON THE LEFT
MM0352'JUST PAST THE EXTENDED CENTERLINE OF RUNWAY 12R.  THE STATION IS ABOUT
MM0352'.35 KM (0.20 MI) EAST OF THE EAST END OF THE BRIDGE OVER THE NORTH
MM0352'PLATTE RIVER, 79.2 M (259.8 FT) WEST-NORTHWEST OF THE WEST CORNER OF

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 MM0352'THE RUNWAY 30L OVERUN, 44.2 M (145.0 FT) SOUTH OF THE HIGHWAY
 MM0352'CENTERLINE, 12.2 M (40.0 FT) SOUTH OF THE CENTER OF A GRAVEL AIRPORT
 MM0352'PERIMETER ROAD, 1.5 M (4.9 FT) BELOW THE LEVEL OF THE HIGHWAY, AND 0.6
 MM0352'M (2.0 FT) EAST OF A WITNESS POST.
1        National Geodetic Survey,   Retrieval Date = JUNE 28, 2016
 LK0437 ***********************************************************************
 LK0437  DESIGNATION -  CUB
 LK0437  PID         -  LK0437
 LK0437  STATE/COUNTY-  CO/SEDGWICK
 LK0437  COUNTRY     -  US
 LK0437  USGS QUAD   -  JULESBURG (1984)
 LK0437
 LK0437                        *CURRENT SURVEY CONTROL
 LK0437  ______________________________________________________________________
 LK0437* NAD 83(2011) POSITION- 40 58 29.48382(N) 102 19 10.24893(W)   ADJUSTED
 LK0437* NAD 83(2011) ELLIP HT-  1052.719 (meters)        (06/27/12)   ADJUSTED
 LK0437* NAD 83(2011) EPOCH   -  2010.00
 LK0437* NAVD 88 ORTHO HEIGHT -  1073.095 (meters)     3520.65  (feet) ADJUSTED
 LK0437  ______________________________________________________________________
 LK0437  NAD 83(2011) X  - -1,029,096.740 (meters)                     COMP
 LK0437  NAD 83(2011) Y  - -4,712,152.850 (meters)                     COMP
 LK0437  NAD 83(2011) Z  -  4,161,005.747 (meters)                     COMP
 LK0437  LAPLACE CORR    -         -3.56  (seconds)                    DEFLEC12B
 LK0437  GEOID HEIGHT    -        -20.376 (meters)                     GEOID12B
 LK0437  DYNAMIC HEIGHT  -       1072.391 (meters)     3518.34  (feet) COMP
 LK0437  MODELED GRAVITY -    979,931.0   (mgal)                       NAVD 88
 LK0437
 LK0437  VERT ORDER      -  FIRST     CLASS II
 LK0437
 LK0437  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 LK0437  Standards:
 LK0437         FGDC (95% conf, cm)     Standard deviation (cm)     CorrNE
 LK0437            Horiz  Ellip           SD_N   SD_E   SD_h      (unitless)
 LK0437  ------------------------------------------------------------------
 LK0437  NETWORK    0.46   0.78           0.20   0.17   0.40      0.08839005
 LK0437  ------------------------------------------------------------------
 LK0437  Click here for local accuracies and other accuracy information.
 LK0437
 LK0437
 LK0437.The horizontal coordinates were established by GPS observations
 LK0437.and adjusted by the National Geodetic Survey in June 2012.
 LK0437
 LK0437.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
 LK0437.been affixed to the stable North American tectonic plate. See
 LK0437.NA2011 for more information.
 LK0437
 LK0437.The horizontal coordinates are valid at the epoch date displayed above
 LK0437.which is a decimal equivalence of Year/Month/Day.
 LK0437
 LK0437.The orthometric height was determined by differential leveling and
 LK0437.adjusted by the NATIONAL GEODETIC SURVEY
 LK0437.in June 1991.
 LK0437
 LK0437.Significant digits in the geoid height do not necessarily reflect accuracy.
 LK0437.GEOID12B height accuracy estimate available here.
 LK0437
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LK0437.The X, Y, and Z were computed from the position and the ellipsoidal ht.
LK0437
LK0437.The Laplace correction was computed from DEFLEC12B derived deflections.
LK0437
LK0437.The ellipsoidal height was determined by GPS observations
LK0437.and is referenced to NAD 83.
LK0437
LK0437.The dynamic height is computed by dividing the NAVD 88
LK0437.geopotential number by the normal gravity value computed on the
LK0437.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
LK0437.degrees latitude (g = 980.6199 gals.).
LK0437
LK0437.The modeled gravity was interpolated from observed gravity values.
LK0437
LK0437. The following values were computed from the NAD 83(2011) position.
LK0437
LK0437;                    North         East     Units Scale Factor Converg.
LK0437;SPC CO N     -   491,870.326 1,182,046.734   MT  1.00003669   +2 03 18.1
LK0437;SPC CO N     - 1,613,744.56  3,878,098.33   sFT  1.00003669   +2 03 18.1
LK0437;SPC NE       -   129,357.330   304,854.887   MT  0.99970125   -1 32 13.7
LK0437;SPC NE       -   424,399.84  1,000,178.08   sFT  0.99970125   -1 32 13.7
LK0437;UTM  13      - 4,539,426.585   725,530.334   MT  1.00022607   +1 45 30.3
LK0437
LK0437!             -  Elev Factor  x  Scale Factor =   Combined Factor
LK0437!SPC CO N     -   0.99983490  x   1.00003669  =   0.99987158
LK0437!SPC NE       -   0.99983490  x   0.99970125  =   0.99953620
LK0437!UTM  13      -   0.99983490  x   1.00022607  =   1.00006093
LK0437
LK0437:                Primary Azimuth Mark                    Grid Az
LK0437:SPC CO N     -  CUB AZ MK                               313 46 12.5
LK0437:SPC NE       -  CUB AZ MK                               317 21 44.3
LK0437:UTM  13      -  CUB AZ MK                               314 04 00.3
LK0437
LK0437|-----------------------------------------------------------------------|
LK0437| PID    Reference Object                    Distance      Geod. Az  |
LK0437|                                                          dddmmss.s |
LK0437| CP6929 CUB RM 1                             7.323 METERS 02820     |
LK0437| CP6930 CUB RM 2                             6.430 METERS 15434     |
LK0437| LK0516 OVID MUNICIPAL TANK                APPROX. 5.5 KM 2580352.9 |
LK0437| CP6925 CUB AZ MK                                         3154930.6 |
LK0437|-----------------------------------------------------------------------|
LK0437
LK0437                          SUPERSEDED SURVEY CONTROL
LK0437
LK0437  NAD 83(2007)-  40 58 29.48369(N)    102 19 10.24959(W) AD(2002.00) 0
LK0437  ELLIP H (02/10/07) 1052.748  (m)                       GP(2002.00)
LK0437  ELLIP H (12/03/02) 1052.740  (m)                       GP(       ) 4 2
LK0437  ELLIP H (10/08/96) 1052.767  (m)                       GP(       ) 1 1
LK0437  NAD 83(1992)-  40 58 29.48328(N)    102 19 10.24902(W) AD(       ) 1
LK0437  ELLIP H (07/08/96) 1053.003  (m)                       GP(       ) 1 1
LK0437  NAD 83(1992)-  40 58 29.47958(N)    102 19 10.25005(W) AD(       ) 3
LK0437  NAD 83(1986)-  40 58 29.47878(N)    102 19 10.24989(W) AD(       ) 3
LK0437  NAD 27      -  40 58 29.50560(N)    102 19 08.58150(W) AD(       ) 3
LK0437  NAVD 88 (07/08/96) 1073.10   (m)         3520.7    (f) LEVELING    3
LK0437  NGVD 29 (02/14/92) 1072.632  (m)         3519.13   (f) ADJUSTED    1 2
LK0437  NGVD 29 (07/19/86) 1072.9    (m)         3520.     (f) VERT ANG
LK0437
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LK0437.Superseded values are not recommended for survey control.
LK0437
LK0437.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
LK0437.See file dsdata.txt to determine how the superseded data were derived.
LK0437
LK0437_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TGF2553039426(NAD 83)
LK0437
LK0437_MARKER: DS = TRIANGULATION STATION DISK
LK0437_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
LK0437_STAMPING: CUB 1963
LK0437_MARK LOGO: CGS
LK0437_PROJECTION: FLUSH
LK0437_MAGNETIC: N = NO MAGNETIC MATERIAL
LK0437_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
LK0437+STABILITY: SURFACE MOTION
LK0437_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
LK0437+SATELLITE: SATELLITE OBSERVATIONS - February 22, 1999
LK0437
LK0437  HISTORY     - Date     Condition        Report By
LK0437  HISTORY     - 1963     MONUMENTED       CGS
LK0437  HISTORY     - 1971     GOOD             USGS
LK0437  HISTORY     - 19810415 GOOD             NGS
LK0437  HISTORY     - 1986     GOOD             NGS
LK0437  HISTORY     - 19950629 GOOD             NGS
LK0437  HISTORY     - 19990222 GOOD             NGS
LK0437
LK0437                          STATION DESCRIPTION
LK0437
LK0437'DESCRIBED BY COAST AND GEODETIC SURVEY 1963 (DJF)
LK0437'THE STATION IS LOCATED 4 MILES EAST-NORTHEAST OF OVID, 3
LK0437'MILES WEST-SOUTHWEST OF JULESBURG, 100 FEET SOUTHWEST OF THE
LK0437'NORTHWEST CORNER OF THE RUNWAY OF THE JULESBURG MUNICIPAL
LK0437'AIRPORT.
LK0437'
LK0437'TO REACH THE STATION FROM THE JUNCTION OF U.S. HIGHWAY 138
LK0437'AND 385 IN JULESBURG, GO WESTERLY ON U.S. HIGHWAY 138 AND
LK0437'385 FOR 3.3 MILES TO WHERE THE TWO HIGHWAYS DIVIDE.  CONTINUE
LK0437'STRAIGHT AHEAD AND GO SOUTHWEST ON U.S. HIGHWAY 138 FOR
LK0437'0.15 MILE TO THE STATION ON THE LEFT AS DESCRIBED.
LK0437'
LK0437'TO REACH THE AZIMUTH MARK FROM THE STATION GO NORTHEAST ON
LK0437'U.S. HIGHWAY 138 FOR 0.15 MILE TO THE JUNCTION OF U.S. HIGHWAY
LK0437'385.  TURN LEFT AND GO WESTERLY ON U.S. HIGHWAY 385 FOR 0.3
LK0437'MILE TO THE MARK ON THE LEFT AS DESCRIBED.
LK0437'
LK0437'THE STATION MARK IS A STANDARD DISK SET IN THE TOP OF A 12-INCH
LK0437'CONCRETE CYLINDER WHICH IS SET FLUSH AND IS STAMPED CUB 1963.
LK0437'IT IS 98 FEET SOUTHWEST OF THE NORTHWEST CORNER OF THE AIRPORT
LK0437'RUNWAY, 55 FEET SOUTHEAST OF THE CENTER OF U.S. HIGHWAY 138,
LK0437'46 FEET WEST-SOUTHWEST OF THE SOUTHWEST CORNER OF A SMALL
LK0437'BUILDING, 6 FEET NORTHEAST OF A FENCE CORNER AND 3.3 FEET
LK0437'SOUTHEAST OF A METAL WITNESS POST.
LK0437'
LK0437'REFERENCE MARK NO. 1 IS A STANDARD DISK SET IN THE TOP OF
LK0437'A 12-INCH CONCRETE CYLINDER WHICH IS SET FLUSH AND IS STAMPED
LK0437'CUB NO 1 1963.  IT IS 52 FEET SOUTHEAST OF THE CENTER OF U.S.
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LK0437'HIGHWAY 138, 19-1/2 FEET WEST OF THE NORTHWEST CORNER OF A
LK0437'SMALL BUILDING AND 1 FOOT SOUTHEAST OF A FENCE LINE.
LK0437'
LK0437'REFERENCE MARK NO. 2 IS A STANDARD DISK SET IN THE TOP OF A
LK0437'12-INCH CONCRETE CYLINDER WHICH IS SET FLUSH AND IS STAMPED
LK0437'CUB NO 2 1963.  IT IS 96 FEET SOUTHWEST OF THE SOUTHWEST
LK0437'EDGE OF THE RUNWAY, 61 FEET SOUTH-SOUTHWEST OF THE SOUTHWEST
LK0437'CORNER OF A SMALL BUILDING AND 42-1/2 FEET SOUTHEAST OF A
LK0437'FENCE CORNER.
LK0437'
LK0437'THE AZIMUTH MARK IS A STANDARD DISK SET IN THE TOP OF A 12-INCH
LK0437'CONCRETE CYLINDER WHICH PROJECTS 6 INCHES AND IS STAMPED
LK0437'CUB 1963.  IT IS 41 FEET SOUTH-SOUTHWEST OF THE CENTER OF
LK0437'U.S. HIGHWAY 385, 21 FEET EAST OF THE CENTER OF A GRAVELED
LK0437'ROAD, 3.4 FEET WEST-NORTHWEST OF A METAL WITNESS POST AND 1
LK0437'FOOT NORTH-NORTHEAST OF A FENCE LINE.
LK0437
LK0437                          STATION RECOVERY (1971)
LK0437
LK0437'RECOVERY NOTE BY US GEOLOGICAL SURVEY 1971 (EEM)
LK0437'THIS STATION WAS NOT OCCUPIED, THUS DISTANCES AND DIRECTIONS
LK0437'TO THE REFERENCE MARKS WERE NOT REMEASURED.
LK0437'
LK0437'STATION AND REFERENCE MARKS WERE RECOVERED AS DESCRIBED, WITH
LK0437'THE FOLLOWING EXCEPTION--THE SMALL BUILDING REFERRED TO HAS
LK0437'BEEN REMOVED, HOWEVER, THE FOUNDATION STILL REMAINS.
LK0437'
LK0437'THE STATION AND REFERENCE MARKS ARE STANDARD USC AND GS
LK0437'BRONZE DISKS SET IN CONCRETE POSTS.
LK0437'
LK0437'STATION MARK--DISK IS FLUSH WITH THE GROUND, AND STAMPED
LK0437'CUB 1963.
LK0437'
LK0437'REFERENCE MARK NO. 1--DISK SET 0.2 FEET BELOW GROUND LEVEL,
LK0437'AND STAMPED CUB NO. 1 1963.
LK0437'
LK0437'REFERENCE MARK NO. 2--DISK SET 0.1 FEET BELOW GROUND LEVEL,
LK0437'AND STAMPED CUB NO. 2 1963.
LK0437
LK0437                          STATION RECOVERY (1981)
LK0437
LK0437'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1981 (CLN)
LK0437'STATION RECOVERED AND ALL MARKS ARE IN GOOD CONDITION.  STATION MARK,
LK0437'REFERENCE MARKS 1 AND 2 ARE NOW BELOW GROUND SURFACE.  THE AZIMUTH
LK0437'MARK WAS BLOCKED TO STATION BY VERY LARGE JOHN DEER EQUIPEMENT AT TIME
LK0437'OF RECOVERY.  DISTANCE AND DIRECTION TO REFERENCE MARKS COMPARED
LK0437'FAVORABLY PREVIOUS DATA.  STATION IS REACHED FROM THE JUNCTION OF U.S.
LK0437'HIGHWAYS 385 AND 138 IN JULESBURG.  GO WESTERLY AND SOUTHWEST ON
LK0437'COMBINATION OF HIGHWAYS FOR 3.3 MILES (5.3 KM) TO THE JUNCTION OF THE
LK0437'TWO HIGHWAYS.  CONTINUE STRAIGHT AHEAD, SOUTHWEST ON HIGHWAY 138 FOR
LK0437'0.15 MILE (0.24 KM) TO AN OLD FENCE CORNER AND STATION ON LEFT, AS
LK0437'DESCRIBED.  AZIMUTH MARK IS REACHED FROM THE STATION, GO NORTHEAST ON
LK0437'HIGHWAY 138 FOR 0.15 TO THE JUNCTION WITH HIGHWAY 385.  TURN LEFT AND
LK0437'GO WEST, ON HIGHWAY 385 FOR 0.3 MILES (0.5 KM) TO A GRAVELED ROAD AND
LK0437'MARK ON LEFT.
LK0437'
LK0437'STATION IS A STANDARD DISK STAMPED--CUB 1963--, SET IN TOP OF A ROUND

LK0437'CONCRETE MONUMENT 3 INCHES BELOW SURFACE, 48 FEET (14.6 M) SOUTHWEST
LK0437'OF NORTHWEST CORNER OF JULESBURG NORTH-SOUTH AIR PORT RUNWAY, 55 FEET
LK0437'(16.8 M) SOUTHEAST OF CENTER OF 45 HIGHWAY 138, 5.5 FEET (1.7 M)
LK0437'NORTH-NORTHEAST OF A ROUND WOOD FENCE CORNER POST, 3.3 FEET (1.0 M)
LK0437'SOUTHEAST OF A HURRICANE FENCE LINE AND METAL WITNESS POST, 1.5 FEET
LK0437'(0.5 M) NORTHEAST OF A METAL WITNESS POST.
LK0437'
LK0437'REFERENCE MARK 1 IS A STANDARD DISK STAMPED--CUB NO 1 1963--, SET IN
LK0437'TOP OF A ROUND CONCRETE MONUMENT 6 INCHES BELOW GROUND, 52 FEET (15.8
LK0437'M) SOUTHEAST OF THE HIGHWAY, 1.2 FEET (0.4 M) SOUTH OF A LARGE ROUND
LK0437'FENCE POST, 1 FOOT (0.3 M) SOUTHEAST OF THE HURRICANE FENCE LINE.
LK0437'
LK0437'REFERENCE MARK 2 IS A STANDARD DISK STAMPED--CUB NO 2 1963--, SET IN
LK0437'TOP OF A ROUND CONCRETE MONUMENT 6 INCHES BELOW GROUND, 4 INCHES
LK0437'NORTHEAST OF AN OLD FENCE LINE.
LK0437'
LK0437'AZIMUTH MARK IS A STANDARD DISK STAMPED--CUB 1963--, SET IN TOP OF
LK0437'AROUND CONCRETE MONUMENT PROJECTING 6 INCHES, 40 FEET (12.2 M)
LK0437'SOUTH-SOUTHWEST OF CENTER OF U.S. HIGHWAY 385, 21 FEET (6.4 M) NORTH
LK0437'OF GRAVELED ROAD, 3.4 FEET (1.0 M) WEST-NORTHWEST OF A METAL WITNESS
LK0437'POST.
LK0437
LK0437 STATION RECOVERY (1986)
LK0437
LK0437'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1986
LK0437'5.5 KM (3.4 MI) WEST FROM JULESBURG.
LK0437'5.5 KM (3.4 MI) WEST ALONG US HIGHWAY 138 FROM THE JUNCTION OF MAIN
LK0437'STREET (US HIGHWAY 385) IN JULESBURG, 0.24 KM (0.15 MI) SOUTHWEST OF A
LK0437'FORK IN THE HIGHWAY (US HIGHWAY 385 LEADING NORTHWEST), AT THE CORNER
LK0437'OF THE AIRPORT RUNWAY, 16.8 METERS (55 FT) SOUTHEAST OF THE CENTERLINE
LK0437'OF THE HIGHWAY (US HIGHWAY 138), 29.3 METERS (96 FT) SOUTHEAST OF THE
LK0437'SOUTHWEST CORNER OF THE ASPHALT RUNWAY, 0.91 METER (3 FT) EAST OF A
LK0437'RIGHT OF WAY FENCE LINE AND 0.30 METER (1 FT) WEST OF A SNOW FENCE
LK0437'LINE.
LK0437'THE MARK IS 0.61 METERS  NE FROM  A WITNESS POST
LK0437'THE MARK IS 0.3 M BELOW THE HIGHWAY.
LK0437
LK0437 STATION RECOVERY (1995)
LK0437
LK0437'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1995 (RSC)
LK0437'THE STATION IS LOCATED ABOUT 3.8 MI (6.1 KM) EAST-NORTHEAST OF OVID, 3
LK0437'MI (4.8 KM) WEST-SOUTHWEST OF JULESBURG AND 0.1 MI (0.2 KM) SOUTHWEST
LK0437'OF THE U.  S.  HIGHWAY 385 AND U.  S.  HIGHWAY 138 INTERSECTION, IN
LK0437'THE SOUTHWEST 1/4 OF SECTION 36, T 12 N, R 45 W, AT U.  S.  HIGHWAY
LK0437'138 MILEPOST 54.65.  OWNERSHIP--JULESBURG MUNICIPAL AIRPORT.  TO REACH
LK0437'THE STATION FROM THE INTERSECTION OF U.  S.  HIGHWAY 385 AND U.  S.
LK0437'HIGHWAY 138 WEST OF JULESBURG, GO SOUTHWEST ON U.  S. HIGHWAY 138 FOR
LK0437'0.1 MI (0.2 KM) TO THE STATION ON THE LEFT, AT THE END OF THE RUNWAY.
LK0437'THE STATION IS A STANDARD DISK SET IN A SQUARE CONCRETE POST RECESSED
LK0437'3 CM BELOW THE GROUND.  IT IS 37.8 M (124.0 FT) WEST OF THE CENTER OF
LK0437'THE END OF THE RUNWAY END WITH A LINE OF LIGHTS, 16.7 M (54.8 FT)
LK0437'SOUTH-SOUTHEAST OF THE CENTER LINE OF U.  S.  HIGHWAY 138, 1.1 M (3.6
LK0437'FT) SOUTH-SOUTHEAST OF THE RIGHT-OF-WAY FENCE, 0.9 M (3.0 FT)
LK0437'SOUTHWEST OF A PLASTIC RIGHT-OF-WAY FENCE, 0.5 M (1.6 FT)
LK0437'EAST-NORTHEAST OF A METAL WITNESS POST AND ABOUT 0.6 M (2.0 FT) BELOW
LK0437'THE HIGHWAY.
LK0437

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 LK0437                          STATION RECOVERY (1999)
 LK0437
 LK0437'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1999 (RSC)
 LK0437'RECOVERED AS DESCRIBED.
1        National Geodetic Survey,   Retrieval Date = JUNE 28, 2016
 MN0395 ***********************************************************************
 MN0395  DESIGNATION -  F 422
 MN0395  PID         -  MN0395
 MN0395  STATE/COUNTY-  NE/DEUEL
 MN0395  COUNTRY     -  US
 MN0395  USGS QUAD   -  BIG SPRINGS (1961)
 MN0395
 MN0395                         *CURRENT SURVEY CONTROL
 MN0395  ______________________________________________________________________
 MN0395* NAD 83(1986) POSITION- 41 03 06.9    (N) 102 06 11.8    (W)   HD_HELD2
 MN0395* NAVD 88 ORTHO HEIGHT -  1031.203 (meters)     3383.21  (feet) ADJUSTED
 MN0395  ______________________________________________________________________
 MN0395  GEOID HEIGHT    -        -20.619 (meters)                     GEOID12B
 MN0395  DYNAMIC HEIGHT  -       1030.538 (meters)     3381.02  (feet) COMP
 MN0395  MODELED GRAVITY -    979,944.4   (mgal)                       NAVD 88
 MN0395
 MN0395  VERT ORDER      -  FIRST     CLASS II
 MN0395
 MN0395.The horizontal coordinates were established by autonomous hand held GPS
 MN0395.observations and have an estimated accuracy of +/- 10 meters.
 MN0395.
 MN0395.The orthometric height was determined by differential leveling and
 MN0395.adjusted by the NATIONAL GEODETIC SURVEY
 MN0395.in June 1991.
 MN0395
 MN0395.Significant digits in the geoid height do not necessarily reflect accuracy.
 MN0395.GEOID12B height accuracy estimate available here.
 MN0395
 MN0395.The dynamic height is computed by dividing the NAVD 88
 MN0395.geopotential number by the normal gravity value computed on the
 MN0395.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 MN0395.degrees latitude (g = 980.6199 gals.).
 MN0395
 MN0395.The modeled gravity was interpolated from observed gravity values.
 MN0395
 MN0395;                    North         East     Units  Estimated Accuracy
 MN0395;SPC NE       -   137,445.      323,252.      MT  (+/- 10 meters HH2 GPS)
 MN0395
 MN0395                         SUPERSEDED SURVEY CONTROL
 MN0395
 MN0395  NGVD 29 (02/14/92) 1030.743  (m)         3381.70   (f) ADJUSTED    1 2
 MN0395
 MN0395.Superseded values are not recommended for survey control.
 MN0395
 MN0395.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 MN0395.See file dsdata.txt to determine how the superseded data were derived.
 MN0395
 MN0395_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TGF4344148563(NAD 83)
 MN0395
 MN0395_MARKER: I = METAL ROD
 MN0395_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)
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 MN0395_STAMPING: F 422 1986
 MN0395_MARK LOGO: NGS
 MN0395_PROJECTION: FLUSH
 MN0395_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
 MN0395_ROD/PIPE-DEPTH: 9.6  meters
 MN0395
 MN0395  HISTORY     - Date     Condition        Report By
 MN0395  HISTORY     - 1986     MONUMENTED       NGS
 MN0395
 MN0395                          STATION DESCRIPTION
 MN0395
 MN0395'DESCRIBED BY NATIONAL GEODETIC SURVEY 1986
 MN0395'2.8 KM (1.75 MI) SW FROM BIG SPRINGS.
 MN0395'2.8 KM (1.75 MI) SOUTHWEST ALONG US HIGHWAY 138 FROM THE JUNCTION OF
 MN0395'STATE ROUTE 25 B IN BIG SPRINGS, AT A PRIVATE ENTRANCE ROAD LEADING
 MN0395'NORTH, 10.4 METERS (34 FT) NORTH OF THE HIGHWAY CENTERLINE, 0.3 METERS
 MN0395'(1 FT) SOUTH OF THE RIGHT OF WAY FENCE, 17.1 METERS (56 FT) EAST OF
 MN0395'THE CENTER OF THE PRIVATE ROAD ENTRANCE, 8.7 METERS (28.6 FT) EAST OF
 MN0395'A TELEPHONE JUNCTION BOX AND 10.4 METERS (34 FT) EAST OF A CORNER
 MN0395'FENCE POST.  NOTE--ACCESS TO DATUM POINT IS HAD THROUGH A 5-INCH LOGO
 MN0395'CAP.
 MN0395'THE MARK IS 0.3 METERS  W FROM  A WITNESS POST
 MN0395'THE MARK IS 0.61 M BELOW THE HIGHWAY.
1        National Geodetic Survey,   Retrieval Date = JUNE 28, 2016
 MM0317 ***********************************************************************
 MM0317  DESIGNATION -  G 424
 MM0317  PID         -  MM0317
 MM0317  STATE/COUNTY-  NE/LINCOLN
 MM0317  COUNTRY     -  US
 MM0317  USGS QUAD   -  SUTHERLAND RESERVOIR NW (1971)
 MM0317
 MM0317                        *CURRENT SURVEY CONTROL
 MM0317  ______________________________________________________________________
 MM0317* NAD 83(1986) POSITION- 41 09 09.     (N) 101 10 42.     (W)   SCALED
 MM0317* NAVD 88 ORTHO HEIGHT -   911.139 (meters)     2989.30  (feet) ADJUSTED
 MM0317  ______________________________________________________________________
 MM0317  GEOID HEIGHT    -        -21.798 (meters)                     GEOID12B
 MM0317  DYNAMIC HEIGHT  -        910.586 (meters)     2987.48  (feet) COMP
 MM0317  MODELED GRAVITY -    979,986.0   (mgal)                       NAVD 88
 MM0317
 MM0317  VERT ORDER      -  FIRST     CLASS II
 MM0317
 MM0317.The horizontal coordinates were scaled from a topographic map and have
 MM0317.an estimated accuracy of +/- 6 seconds.
 MM0317.
 MM0317.The orthometric height was determined by differential leveling and
 MM0317.adjusted by the NATIONAL GEODETIC SURVEY
 MM0317.in June 1991.
 MM0317
 MM0317.Significant digits in the geoid height do not necessarily reflect accuracy.
 MM0317.GEOID12B height accuracy estimate available here.
 MM0317
 MM0317.The dynamic height is computed by dividing the NAVD 88
 MM0317.geopotential number by the normal gravity value computed on the
 MM0317.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 MM0317.degrees latitude (g = 980.6199 gals.).
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 MM0317
 MM0317.The modeled gravity was interpolated from observed gravity values.
 MM0317
 MM0317;                     North         East     Units  Estimated Accuracy
 MM0317;SPC NE       -   147,140.      401,130.      MT  (+/- 180 meters Scaled)
 MM0317
 MM0317                          SUPERSEDED SURVEY CONTROL
 MM0317
 MM0317  NGVD 29 (02/14/92)  910.740  (m)         2987.99   (f) ADJUSTED    1 2
 MM0317
 MM0317.Superseded values are not recommended for survey control.
 MM0317
 MM0317.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 MM0317.See file dsdata.txt to determine how the superseded data were derived.
 MM0317
 MM0317_U.S. NATIONAL GRID SPATIAL ADDRESS: 14TLL172579(NAD 83)
 MM0317
 MM0317_MARKER: I = METAL ROD
 MM0317_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)
 MM0317_STAMPING: G 424 1986
 MM0317_MARK LOGO: NGS
 MM0317_PROJECTION: FLUSH
 MM0317_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
 MM0317_ROD/PIPE-DEPTH: 15.5 meters
 MM0317
 MM0317  HISTORY     - Date     Condition        Report By
 MM0317  HISTORY     - 1986     MONUMENTED       NGS
 MM0317
 MM0317                          STATION DESCRIPTION
 MM0317
 MM0317'DESCRIBED BY NATIONAL GEODETIC SURVEY 1986
 MM0317'4.2 KM (2.6 MI) WEST FROM SUTHERLAND.
 MM0317'4.20 KM (2.63 MI) WEST ALONG US HIGHWAY 30 FROM THE JUNCTION OF STATE
 MM0317'HIGHWAY 25 SOUTH AT SUTHERLAND, 30.5 METERS (100 FT) SOUTH OF THE
 MM0317'HIGHWAY CENTERLINE, 55.2 METERS (181 FT) WEST OF A 36-INCH PIPE
 MM0317'CULVERT, 33.5 METERS (110 FT) SOUTHWEST OF MILEPOST 155, 10.9 METERS
 MM0317'(36 FT) NORTH OF THE NORTH RAIL AND 0.60 METER (2 FT) EAST OF A POWER
 MM0317'POLE.  NOTE--ACCESS TO DATUM POINT IS HAD THROUGH A 5-INCH LOGO CAP.
 MM0317'THE MARK IS 0.3 METERS  E FROM  A WITNESS POST
 MM0317'THE MARK IS ABOVE LEVEL WITH THE HIGHWAY.
1        National Geodetic Survey,   Retrieval Date = JUNE 28, 2016
 MN0244 ***********************************************************************
 MN0244  DESIGNATION -  KIMBALL
 MN0244  PID         -  MN0244
 MN0244  STATE/COUNTY-  NE/KIMBALL
 MN0244  COUNTRY     -  US
 MN0244  USGS QUAD   -  KIMBALL (1972)
 MN0244
 MN0244                          *CURRENT SURVEY CONTROL
 MN0244  ______________________________________________________________________
 MN0244* NAD 83(1986) POSITION- 41 14 01.7    (N) 103 39 40.0    (W)   HD_HELD2
 MN0244* NAVD 88 ORTHO HEIGHT -  1438.507 (meters)     4719.50  (feet) ADJUSTED
 MN0244  ______________________________________________________________________
 MN0244  GEOID HEIGHT    -        -18.698 (meters)                     GEOID12B
 MN0244  DYNAMIC HEIGHT  -       1437.463 (meters)     4716.08  (feet) COMP
 MN0244  MODELED GRAVITY -    979,847.3   (mgal)                       NAVD 88
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MN0244
MN0244  VERT ORDER      -  SECOND    CLASS 0
MN0244
MN0244.The horizontal coordinates were established by autonomous hand held GPS
MN0244.observations and have an estimated accuracy of +/- 10 meters.
MN0244.
MN0244.The orthometric height was determined by differential leveling and
MN0244.adjusted by the NATIONAL GEODETIC SURVEY
MN0244.in June 1991.
MN0244
MN0244.Significant digits in the geoid height do not necessarily reflect accuracy.
MN0244.GEOID12B height accuracy estimate available here.
MN0244
MN0244.Photographs are available for this station.
MN0244
MN0244.The dynamic height is computed by dividing the NAVD 88
MN0244.geopotential number by the normal gravity value computed on the
MN0244.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
MN0244.degrees latitude (g = 980.6199 gals.).
MN0244
MN0244.The modeled gravity was interpolated from observed gravity values.
MN0244
MN0244;                     North         East     Units  Estimated Accuracy
MN0244;SPC NE       -   161,984.      193,256.      MT  (+/- 10 meters HH2 GPS)
MN0244
MN0244                           SUPERSEDED SURVEY CONTROL
MN0244
MN0244  NGVD 29 (??/??/92) 1437.815  (m)         4717.23   (f) ADJ UNCH    2 0
MN0244
MN0244.Superseded values are not recommended for survey control.
MN0244
MN0244.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
MN0244.See file dsdata.txt to determine how the superseded data were derived.
MN0244
MN0244_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TFF1220565576(NAD 83)
MN0244
MN0244_MARKER: DB = BENCH MARK DISK
MN0244_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
MN0244_STAMPING: KIMBALL 1934
MN0244_MARK LOGO: CGS
MN0244_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
MN0244+STABILITY: SURFACE MOTION
MN0244
MN0244  HISTORY     - Date     Condition        Report By
MN0244  HISTORY     - 1934     MONUMENTED       CGS
MN0244  HISTORY     - 1960     GOOD             CGS
MN0244
MN0244                            STATION DESCRIPTION
MN0244
MN0244'DESCRIBED BY COAST AND GEODETIC SURVEY 1934
MN0244'AT KIMBALL.
MN0244'AT KIMBALL, KIMBALL COUNTY, AT THE CITY PARK, ABOUT 173 FEET SOUTH
MN0244'OF EAST FOURTH STREET, ABOUT 149 FEET NORTHWEST OF THE NORTHWEST
MN0244'CORNER OF A BANDSTAND, AND ABOUT 133 FEET EAST OF THE CENTER LINE
MN0244'OF SOUTH WALNUT STREET.  A STANDARD DISK, STAMPED KIMBALL 1934 AND
MN0244'SET IN THE TOP OF A CONCRETE POST.
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 MN0244
 MN0244                            STATION RECOVERY (1960)
 MN0244
 MN0244'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1960
 MN0244'RECOVERED IN GOOD CONDITION.
1        National Geodetic Survey,   Retrieval Date = JUNE 28, 2016
 MM0311 ***********************************************************************
 MM0311  DESIGNATION -  M 424
 MM0311  PID         -  MM0311
 MM0311  STATE/COUNTY-  NE/LINCOLN
 MM0311  COUNTRY     -  US
 MM0311  USGS QUAD   -  HERSHEY EAST (1970)
 MM0311
 MM0311                          *CURRENT SURVEY CONTROL
 MM0311  ______________________________________________________________________
 MM0311* NAD 83(1995) POSITION- 41 09 45.21954(N) 100 56 59.54571(W)   ADJUSTED
 MM0311* NAD 83(1995) ELLIP HT-   855.745 (meters)        (06/27/02)   ADJUSTED
 MM0311* NAVD 88 ORTHO HEIGHT -   877.711 (meters)     2879.62  (feet) ADJUSTED
 MM0311  ______________________________________________________________________
 MM0311  NAD 83(1995) X  -   -913,540.818 (meters)                     COMP
 MM0311  NAD 83(1995) Y  - -4,721,811.249 (meters)                     COMP
 MM0311  NAD 83(1995) Z  -  4,176,594.619 (meters)                     COMP
 MM0311  LAPLACE CORR    -         -2.00  (seconds)                    DEFLEC12B
 MM0311  GEOID HEIGHT    -        -22.008 (meters)                     GEOID12B
 MM0311  DYNAMIC HEIGHT  -        877.185 (meters)     2877.90  (feet) COMP
 MM0311  MODELED GRAVITY -    979,995.2   (mgal)                       NAVD 88
 MM0311
 MM0311  HORZ ORDER      -  FIRST
 MM0311  VERT ORDER      -  FIRST     CLASS II
 MM0311  ELLP ORDER      -  FOURTH    CLASS I
 MM0311
 MM0311.The horizontal coordinates were established by GPS observations
 MM0311.and adjusted by the National Geodetic Survey in August 1997.
 MM0311
 MM0311.The orthometric height was determined by differential leveling and
 MM0311.adjusted by the NATIONAL GEODETIC SURVEY
 MM0311.in June 1991.
 MM0311
 MM0311.Significant digits in the geoid height do not necessarily reflect accuracy.
 MM0311.GEOID12B height accuracy estimate available here.
 MM0311
 MM0311.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 MM0311
 MM0311.The Laplace correction was computed from DEFLEC12B derived deflections.
 MM0311
 MM0311.The ellipsoidal height was determined by GPS observations
 MM0311.and is referenced to NAD 83.
 MM0311
 MM0311.The dynamic height is computed by dividing the NAVD 88
 MM0311.geopotential number by the normal gravity value computed on the
 MM0311.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 MM0311.degrees latitude (g = 980.6199 gals.).
 MM0311
 MM0311.The modeled gravity was interpolated from observed gravity values.
 MM0311
 MM0311. The following values were computed from the NAD 83(1995) position.
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MM0311
MM0311;                    North         East     Units Scale Factor Converg.
MM0311;SPC NE       -   148,016.320   420,306.264   MT  0.99967644   -0 37 46.1
MM0311;SPC NE       -   485,616.88  1,378,954.80   sFT  0.99967644   -0 37 46.1
MM0311;UTM  14      - 4,558,635.662   336,411.915   MT  0.99992936   -1 17 01.3
MM0311
MM0311!             -  Elev Factor  x  Scale Factor =   Combined Factor
MM0311!SPC NE       -   0.99986579  x   0.99967644  =   0.99954227
MM0311!UTM  14      -   0.99986579  x   0.99992936  =   0.99979516
MM0311
MM0311                          SUPERSEDED SURVEY CONTROL
MM0311
MM0311  ELLIP H (08/18/97)  855.777  (m)                      GP(       ) 4 1
MM0311  ELLIP H (01/07/93)  855.583  (m)                      GP(       ) 4 2
MM0311  NAD 83(1986)-  41 09 45.21991(N)    100 56 59.54680(W) AD(       ) 1
MM0311  NGVD 29 (02/14/92)  877.331  (m)         2878.38   (f) ADJUSTED    1 2
MM0311  NGVD 29 (02/23/90)  877.39   (m)         2878.6    (f) LEVELING    3
MM0311
MM0311.Superseded values are not recommended for survey control.
MM0311
MM0311.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
MM0311.See file dsdata.txt to determine how the superseded data were derived.
MM0311
MM0311_U.S. NATIONAL GRID SPATIAL ADDRESS: 14TLL3641158635(NAD 83)
MM0311
MM0311_MARKER: I = METAL ROD
MM0311_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)
MM0311_STAMPING: M 424 1986
MM0311_MARK LOGO: NGS
MM0311_PROJECTION: FLUSH
MM0311_MAGNETIC: I = MARKER IS A STEEL ROD
MM0311_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
MM0311_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
MM0311+SATELLITE: SATELLITE OBSERVATIONS - July 22, 2008
MM0311_ROD/PIPE-DEPTH: 8.5  meters
MM0311
MM0311  HISTORY     - Date     Condition        Report By
MM0311  HISTORY     - 1986     MONUMENTED       NGS
MM0311  HISTORY     - 19890713 GOOD             NGS
MM0311  HISTORY     - 20080722 GOOD             INDIV
MM0311
MM0311                          STATION DESCRIPTION
MM0311
MM0311'DESCRIBED BY NATIONAL GEODETIC SURVEY 1986
MM0311'4.3 KM (2.7 MI) EAST FROM HERSHEY.
MM0311'4.36 KM (2.73 MI) EAST ALONG US HIGHWAY 30 FROM THE JUNCTION OF STATE
MM0311'HIGHWAY 56 C AT HERSHEY, AT THE T JUNCTION AND AN OFFSET IN THE RIGHT
MM0311'OF WAY FENCE, 22.2 METERS (73 FT) SOUTH OF THE HIGHWAY CENTERLINE,
MM0311'65.8 METERS (216 FT) EAST OF THE CENTER OF A PRIVATE DRIVEWAY,
MM0311'46.9 METERS (154 FT) WEST-SOUTHWEST OF MILEPOST 167, 0.6 METER (2 FT)
MM0311'NORTH OF A METAL BRACED T JUNCTION FENCE POST,  AND 0.6 METER (2 FT)
MM0311'WEST OF THE SOUTH 1 OF 2 CONCRETE RIGHT OF WAY MARKERS.  NOTE--ACCESS
MM0311'TO DATUM POINT IS HAD THROUGH A 5-INCH LOGO CAP.
MM0311'THE MARK IS 0.3 METERS  E FROM  A WITNESS POST
MM0311'THE MARK IS 0.5 M BELOW THE HIGHWAY.
MM0311
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 MM0311                          STATION RECOVERY (1989)
 MM0311
 MM0311'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1989
 MM0311'THE STATION IS LOCATED ABOUT 16.1 KM (10.00 MI) WEST OF NORTH PLATTE,
 MM0311'4.4 KM (2.75 MI) EAST OF HERSHEY, ALONG THE RIGHT-OF-WAY OF U.S.
 MM0311'HIGHWAY 30.  OWNERSHIP--NE DEPT OF ROADS.
 MM0311'TO REACH THE STATION FROM THE JUNCTION OF U.S. HIGHWAY 83 AND U.S.
 MM0311'HIGHWAY 30 ON THE NORTH SIDE OF NORTH PLATTE, GO WEST ON U.S. HIGHWAY
 MM0311'30 FOR 16.6 KM (10.30 MI) TO THE STATION ON THE LEFT AT A SLIGHT
 MM0311'OFFSET IN THE RIGHT-OF-WAY FENCELINE.
 MM0311'THE STATION MARK IS A NGS DATUM CAP CRIMPED TO THE TOP OF A STAINLESS
 MM0311'STEEL ROD INSIDE A 25 CM NGS LOGO COVER STAMPED ---M 424 1986--- AND
 MM0311'SET 45.7 M (149.9 FT) SOUTHWEST OF HIGHWAY MILEPOST NUMBER --167--,
 MM0311'22.4 M (73.5 FT) SOUTH OF THE CENTERLINE OF THE HIGHWAY, 0.31 M
 MM0311'(1.0 FT) NORTH OF A FENCELINE, 0.31 M (1.0 FT) WEST OF THE FENCELINE
 MM0311'OFFSET, 0.31 M (1.0 FT) EAST OF A WITNESS POST AND O.61 M BELOW THE
 MM0311'LEVEL OF THE HIGHWAY.
 MM0311'DESCRIBED BY G.F.SMITH, EDITED BY R.D.BALL AND E.A.RICE.
 MM0311
 MM0311                          STATION RECOVERY (2008)
 MM0311
 MM0311'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2008 (DRR)
 MM0311'RECOVERED IN GOOD CONDITION.
1        National Geodetic Survey,   Retrieval Date = JUNE 28, 2016
 MN0401 ***********************************************************************
 MN0401  DESIGNATION -  NORTHEAST CORNER COLORADO RESET
 MN0401  PID         -  MN0401
 MN0401  STATE/COUNTY-  CO/SEDGWICK
 MN0401  COUNTRY     -  US
 MN0401  USGS QUAD   -  BIG SPRINGS (1961)
 MN0401
 MN0401                        *CURRENT SURVEY CONTROL
 MN0401  ______________________________________________________________________
 MN0401* NAD 83(2011) POSITION- 41 00 08.46340(N) 102 03 05.63653(W)   ADJUSTED
 MN0401* NAD 83(2011) ELLIP HT-  1080.961 (meters)        (06/27/12)   ADJUSTED
 MN0401* NAD 83(2011) EPOCH   -  2010.00
 MN0401* NAVD 88 ORTHO HEIGHT -  1101.7   (meters)     3614.    (feet) GPS OBS
 MN0401  ______________________________________________________________________
 MN0401  NAVD 88 orthometric height was determined with geoid model    GEOID93
 MN0401  GEOID HEIGHT    -        -20.447 (meters)                     GEOID93
 MN0401  GEOID HEIGHT    -        -20.707 (meters)                     GEOID12B
 MN0401  NAD 83(2011) X  - -1,006,635.071 (meters)                     COMP
 MN0401  NAD 83(2011) Y  - -4,714,975.893 (meters)                     COMP
 MN0401  NAD 83(2011) Z  -  4,163,329.446 (meters)                     COMP
 MN0401  LAPLACE CORR    -         -2.35  (seconds)                    DEFLEC12B
 MN0401
 MN0401  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 MN0401  Standards:
 MN0401         FGDC (95% conf, cm)     Standard deviation (cm)     CorrNE
 MN0401            Horiz  Ellip          SD_N   SD_E   SD_h      (unitless)
 MN0401  ------------------------------------------------------------------
 MN0401  NETWORK    0.35   0.73           0.16   0.12   0.37      0.02977362
 MN0401  ------------------------------------------------------------------
 MN0401  Click here for local accuracies and other accuracy information.
 MN0401
 MN0401
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MN0401.The horizontal coordinates were established by GPS observations
MN0401.and adjusted by the National Geodetic Survey in June 2012.
MN0401
MN0401.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
MN0401.been affixed to the stable North American tectonic plate. See
MN0401.NA2011 for more information.
MN0401
MN0401.The horizontal coordinates are valid at the epoch date displayed above
MN0401.which is a decimal equivalence of Year/Month/Day.
MN0401
MN0401.The orthometric height was determined by GPS observations and a
MN0401.high-resolution geoid model.
MN0401
MN0401.Significant digits in the geoid height do not necessarily reflect accuracy.
MN0401.GEOID12B height accuracy estimate available here.
MN0401
MN0401.Photographs are available for this station.
MN0401
MN0401.The X, Y, and Z were computed from the position and the ellipsoidal ht.
MN0401
MN0401.The Laplace correction was computed from DEFLEC12B derived deflections.
MN0401
MN0401.The ellipsoidal height was determined by GPS observations
MN0401.and is referenced to NAD 83.
MN0401
MN0401. The following values were computed from the NAD 83(2011) position.
MN0401

| | | North | East | Units | Scale Factor | Converg. |
|---|---|---|---|---|---|---|
| SPC CO N | - | 495,764.277 | 1,204,465.495 | MT | 1.00004289 | +2 13 41.3 |
| SPC CO N | - | 1,626,519.97 | 3,951,650.54 | sFT | 1.00004289 | +2 13 41.3 |
| SPC NE | - | 131,839.039 | 327,465.772 | MT | 0.99969695 | -1 21 34.4 |
| SPC NE | - | 432,541.91 | 1,074,360.62 | sFT | 0.99969695 | -1 21 34.4 |
| UTM 13 | - | 4,543,206.126 | 747,974.450 | MT | 1.00035689 | +1 56 07.5 |
| UTM 14 | - | 4,543,504.407 | 243,350.676 | MT | 1.00041078 | -2 00 11.5 |

MN0401

| | | Elev Factor | x | Scale Factor | = | Combined Factor |
|---|---|---|---|---|---|---|
| SPC CO N | - | 0.99983047 | x | 1.00004289 | = | 0.99987335 |
| SPC NE | - | 0.99983047 | x | 0.99969695 | = | 0.99952747 |
| UTM 13 | - | 0.99983047 | x | 1.00035689 | = | 1.00018730 |
| UTM 14 | - | 0.99983047 | x | 1.00041078 | = | 1.00024118 |

MN0401

| | | Primary Azimuth Mark | Grid Az |
|---|---|---|---|
| SPC CO N | - | NE CORNER COLORADO AZ MK 2 | 269 00 40.2 |
| SPC NE | - | NE CORNER COLORADO AZ MK 2 | 272 35 55.9 |
| UTM 13 | - | NE CORNER COLORADO AZ MK 2 | 269 18 14.0 |
| UTM 14 | - | NE CORNER COLORADO AZ MK 2 | 273 14 33.0 |

MN0401

| PID | Reference Object | Distance | Geod. Az dddmmss.s |
|---|---|---|---|
| MN0707 | NE CORNER COLORADO RM 1 | 59.436 METERS | 00826 |
| MN0705 | NE CORNER COLORADO RM 2 | 49.695 METERS | 20156 |
| CP7819 | NE CORNER COLORADO RM 3 | | 27109 |
| MN0706 | NE CORNER COLORADO AZ MK 2 | | 2711421.5 |
| MN0686 | NE CORNER COLORADO AZ MK 3 | 472.803 METERS | 2712246.1 |
| MN0424 | BIG SPRINGS MUNICIPAL TANK | APPROX. 7.2 KM | 3462133.3 |

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MN0401|----------------------------------------------------------------------|
MN0401
MN0401                          SUPERSEDED SURVEY CONTROL
MN0401
MN0401  NAD 83(2007)-  41 00 08.46328(N)    102 03 05.63723(W) AD(2002.00) 0
MN0401  ELLIP H (02/10/07) 1080.990  (m)                       GP(2002.00)
MN0401  ELLIP H (10/21/02) 1080.963  (m)                       GP(       ) 4 2
MN0401  NAD 83(1992)-  41 00 08.46298(N)    102 03 05.63660(W) AD(       ) B
MN0401  ELLIP H (05/26/92) 1080.985  (m)                       GP(       ) 4 1
MN0401  NAD 83(1986)-  41 00 08.46182(N)    102 03 05.64382(W) AD(       ) 2
MN0401  NAD 27      -  41 00 08.47800(N)    102 03 04.00500(W) AD(       ) 2
MN0401  NAVD 88 (05/26/92) 1101.8    (m)  UNKNOWN model used   GPS OBS
MN0401  NGVD 29 (06/11/92) 1101.2    (m)  UNKNOWN model used   GPS OBS
MN0401
MN0401.Superseded values are not recommended for survey control.
MN0401
MN0401.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
MN0401.See file dsdata.txt to determine how the superseded data were derived.
MN0401
MN0401_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TGF4797443206(NAD 83)
MN0401
MN0401_MARKER: DH = HORIZONTAL CONTROL DISK
MN0401_SETTING: 80 = SET IN A BOULDER
MN0401_STAMPING: NORTHEAST CORNER COLORADO 1933 1978
MN0401_MARK LOGO: NGS
MN0401_MAGNETIC: O = OTHER; SEE DESCRIPTION
MN0401_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
MN0401+STABILITY: SURFACE MOTION
MN0401_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
MN0401+SATELLITE: SATELLITE OBSERVATIONS - April 17, 2015
MN0401
MN0401  HISTORY     - Date     Condition        Report By
MN0401  HISTORY     - 1978     MONUMENTED       NGS
MN0401  HISTORY     - 1976     GOOD             NGS
MN0401  HISTORY     - 19781107 GOOD             NGS
MN0401  HISTORY     - 19910501 GOOD             NGS
MN0401  HISTORY     - 19950629 GOOD             NGS
MN0401  HISTORY     - 19951003 GOOD             CODOT
MN0401  HISTORY     - 20040729 GOOD             INDIV
MN0401  HISTORY     - 20110727 GOOD             GEOCAC
MN0401  HISTORY     - 20150417 GOOD             INDIV
MN0401
MN0401                          STATION DESCRIPTION
MN0401
MN0401'DESCRIBED BY NATIONAL GEODETIC SURVEY 1978 (CLN)
MN0401'STATION MARK DISK WAS NOT RECOVERED.  THE TOP PART OF THE CORNER
MN0401'STONE WAS FOUND LYING ON THE GROUND AT STATION SITE, DISK HAD BEEN
MN0401'REMOVED.  THE BOTTOM OR REMAINING PART OF THE STONE WAS STILL IN
MN0401'THE GROUND WAS LEANING DECIDEDLY TO THE EAST.  REFERENCE MARKS 1
MN0401'AND 2 WERE FOUND AND ARE IN GOOD CONDITION.  THE AZIMUTH MARK WAS
MN0401'FOUND BUT HAD BEEN HIT AND WAS OUT OF POSITION TO THE SOUTH.
MN0401'
MN0401'THE BOTTOM HALF OF THE STONE WAS REMOVED FROM THE GROUND AT THIS
MN0401'TIME.  A POSITION WAS THAN REDETERMINED USING THE DISTANCE AND
MN0401'DIRECTIONS TO THE REFERENCE MARKS AND THE BIG SPRINGS WATER TANK.
MN0401'A SUB-SURFACE STATION MARK WAS SET, TOP PART OF STONE WAS PLACED
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MN0401'HORIZONTALLY ACROSS THE MARK, REMAINING PART OF STONE WITH A
MN0401'STATION MARK DISK IN TOP WAS THAN MOVED INTO POSITION,
MN0401'VERTICALLY RESTING ON THE HORIZONTAL PART OF STONE, HELD IN
MN0401'POSITION, CONCRETE POURED IN A HOLE MEASURING ABOUT 2 FEET
MN0401'SQUARE AND ABOUT 3 FEET DEEP AROUND STONE AND ALLOWED TO SETUP.
MN0401'
MN0401'MR. JAMES STRETESKY, A COUNTY COMMISSIONER OF SEDGWICK COUNTY,
MN0401'COLORADO WHO IS IN CHARGE OF THE REPLACEMENT OF THE CORNER STONE IS
MN0401'WORKING WITH ORGANIZATIONS FROM SEDGWICK COUNTY, COLORADO,
MN0401'PERKINS AND DUELL COUNTIES, NEBRASKA AND HISTORICAL SOCIETYS FROM
MN0401'BOTH STATES.  THEY PLAN ON PLACING PLAQUES IN A 14 FOOT X 14 FOOT
MN0401'CONCRETE MATT SURROUNDING STONE.  A CHAIN LINK FENCE WILL ALSO
MN0401'SURROUND THE STONE AND THERE WILL BE A SMALL PARKING LOT.
MN0401'
MN0401'MR. STRETESKY ALSO ASSISTED IN THE POSITIONING OF THE STONE.
MN0401'
MN0401'STATION IS LOCATED ABOUT 4 MILES SOUTH AND 1 MILE EAST OF BIG
MN0401'SPRINGS, NEBRASKA, ON LAND ADJOINING LAND OWNED AND OCCUPIED BY
MN0401'MR. RANDY SCHLAKE.
MN0401'
MN0401'STATION IS REACHED FROM THE POST OFFICE IN BIG SPRINGS, NEBRASKA.
MN0401'GO SOUTH ON A SURFACED ROAD FOR 0.8 MILE TO AN OVERPASS OVER
MN0401'INTERSTATE HIGHWAY 80.  CONTINUE SOUTH AND EAST ON ROAD WHICH
MN0401'BECOMES GRAVELED FOR 2.95 MILES TO THE AZIMUTH MARK ON THE LEFT,
MN0401'NORTH SIDE OF ROAD.  CONTINUE EAST ON THE GRAVELED ROAD FOR 0.3
MN0401'MILE TO A NORTH-SOUTH GRAVELED ROAD.  STATION IS ABOUT 38 FEET
MN0401'EAST OR STRAIGHT AHEAD FROM THIS POINT, AS DESCRIBED.
MN0401'
MN0401'STATION IS A STANDARD STATION MARK DISK, STAMPED NORTHEAST CORNER
MN0401'COLORADO 1933 1976, CEMENTED IN A DRILL HOLE, IN THE TOP OF A
MN0401'12 INCH X 12 INCH STONE POST WHICH PROJECTS ABOUT 16 INCHES.  MARK
MN0401'IS 38 FEET EAST OF A NORTH-SOUTH AND AN EAST-WEST ROADS JUNCTION.
MN0401'
MN0401'REFERENCE MARK NUMBER 1 DISK IS STAMPED NE CORNER COLORADO NO 1
MN0401'1933, SET IN THE TOP OF A SQUARE CONCRETE MONUMENT PROJECTING 4
MN0401'INCHES.  MARK IS 76 FEET EAST OF A NORTH-SOUTH GRAVELED ROAD,
MN0401'45 FEET EAST OF A NORTH-SOUTH FENCELINE.
MN0401'
MN0401'REFERENCE MARK NUMBER 2 DISK IS STAMPED NE CORNER COLORADO NO 2
MN0401'1933, SET IN THE TOP OF A SQUARE CONCRETE MONUMENT PROJECTING 6
MN0401'INCHES.  MARK IS 31 FEET WEST OF THE APPROXIMATE CENTER OF THE
MN0401'NORTH-SOUTH GRAVELED ROAD AND 1 FOOT WEST OF A NORTH-SOUTH
MN0401'FENCELINE.
MN0401'
MN0401'AZIMUTH MARK IS A REFERENCE MARK DISK, STAMPED NE CORNER COLORADO
MN0401'1933 AZ 2 1976, SET IN THE TOP OF A ROUND CONCRETE MONUMENT
MN0401'PROJECTING 3 INCHES.  MARK IS 25 FEET NORTH OF THE APPROXIMATE
MN0401'CENTER OF THE EAST-WEST GRAVELED ROAD, 1.5 FEET EAST-NORTHEAST
MN0401'OF A METAL WITNESS POST WITH SIGN ATTACHED AND 5 INCHES NORTH OF
MN0401'AN EAST-WEST FENCELINE.
MN0401'
MN0401'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN--4 MILES SSE
MN0401'OF BIG SPRINGS, NEBRASKA.
MN0401
MN0401                          STATION RECOVERY (1976)
MN0401
MN0401'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1976

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MN0401'RECOVERED IN GOOD CONDITION.
MN0401
MN0401                          STATION RECOVERY (1978)
MN0401
MN0401'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1978
MN0401'THE STATION WAS VISITED IN MARCH 1978 TO SET A NEW AZIMUTH MARK, IN
MN0401'MAY 1978 FOR ADDITIONAL OBSERVATIONS AND IN NOVEMBER 1978 TO CEMENT
MN0401'A NEW DISK INTO THE SURFACE STATION MONUMENT.
MN0401'THE STATION WAS RECOVERED IN GOOD CONDITION, THE STEM OF THE 1976 DISK
MN0401'STILL BEING PLACE.  THE STEM WAS REMOVED AND A NEW DISK SET INTO THE
MN0401'DRILLED HOLE.  THE MONUMENT PROJECTS ABOUT 16 IN ABOVE THE GROUND.
MN0401'THE ROUTING AND REFERENCE MEASUREMENTS ARE STILL ADEQUATE IN
MN0401'PREVIOUS DESCRIPTIONS.
MN0401
MN0401                          STATION RECOVERY (1991)
MN0401
MN0401'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1991
MN0401'STATION MARK IS LOCATED ABOUT 7 KM (4.3 MI) SOUTH-SOUTHEAST OF BIG
MN0401'SPRINGS, NEBRASKA, 18 KM (11.2 MI) EAST-NORTHEAST OF JULESBURG,
MN0401'COLORADO, IN TOP OF THE GRANITE MONUMENT MARKING THE NORTHEAST CORNER
MN0401'OF COLORADO, IN THE EAST ANGLE OF A T-ROAD INTERSECTION.  OWNERSHIP--
MN0401'STATES OF COLORADO AND NEBRASKA.
MN0401'TO REACH FROM THE JUNCTION OF INTERSTATE HIGHWAY 80 AND STATE HIGHWAY
MN0401'25 B (EXIT 107) JUST SOUTH OF BIG SPRINGS, GO SOUTH ON PAVED ROAD FOR
MN0401'1.56 KM (0.97 MI) TO A CROSSROAD AT END OF PAVEMENT.  CONTINUE SOUTH
MN0401'ON GRAVEL ROAD FOR 3.39 KM (2.11 MI) TO A ROAD CURVE LEFT.  CONTINUE
MN0401'AROUND CURVE, EAST, ON COUNTY ROAD 36.3 FOR 1.61 KM (1.00 MI) TO THE
MN0401'T-INTERSECTION AND STATION.
MN0401'STATION MARK IS SET IN A DRILL HOLE IN THE TOP OF THE CHIPPED 30-CM
MN0401'SQUARE GRANITE POST WITH REINFORCED ANGLE IRON CORNERS THAT PROJECTS
MN0401'0.5 M (1.6 FT) ABOVE A CONCRETE PAD.  IT IS SET IN THE CENTER OF A
MN0401'4.3 M (14.1 FT) SQUARE STEPPED CONCRETE PAD SURROUNDED BY AN IRON
MN0401'RAILING.  THE PAD HAS VARIOUS PLAQUES SET INTO THE CONCRETE.  IT IS
MN0401'12.0 M (39.4 FT) EAST OF THE CENTER OF ROAD 63.2 AND ON THE EXTENDED
MN0401'CENTER OF ROAD 36.3.
MN0401'DESCRIBED BY G.R.HEID
MN0401
MN0401                          STATION RECOVERY (1995)
MN0401
MN0401'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1995 (RSC)
MN0401'RECOVERED AS DESCRIBED.
MN0401
MN0401                          STATION RECOVERY (1995)
MN0401
MN0401'RECOVERY NOTE BY COLORADO DEPARTMENT OF TRANSPORTATION 1995 (JS)
MN0401'RECOVERED AS DESCRIBED.
MN0401
MN0401                          STATION RECOVERY (2004)
MN0401
MN0401'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2004
MN0401'ACCORDING TO LOCAL NEWSPAPER REPORT, WITH PHOTOGRAPH, THE CONCRETE
MN0401'AREA SURROUNDING THE MARK WAS REPLACED WITH METAL PLATE, ABOUT 4'
MN0401'ACROSS.  SURROUNDING FENCE WAS REPLACED.
MN0401
MN0401                          STATION RECOVERY (2011)
MN0401
MN0401'RECOVERY NOTE BY GEOCACHING 2011 (JMJ)
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 MN0401'RECOVERED IN GOOD CONDITION.
 MN0401
 MN0401                          STATION RECOVERY (2015)
 MN0401
 MN0401'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2015 (ERR)
 MN0401'FOUND STONE WITH BRASS DISK, SOME ORIGINAL SCRIBING ON STONE. TOOK
 MN0401'PICTURES.
1        National Geodetic Survey,   Retrieval Date = JUNE 28, 2016
 AB4116 ***********************************************************************
 AB4116  CBN         -  This is a Cooperative Base Network Control Station.
 AB4116  PACS        -  This is a Primary Airport Control Station.
 AB4116  DESIGNATION -  OGA A
 AB4116  PID         -  AB4116
 AB4116  STATE/COUNTY-  NE/KEITH
 AB4116  COUNTRY     -  US
 AB4116  USGS QUAD   -  BRULE SE (1961)
 AB4116
 AB4116                         *CURRENT SURVEY CONTROL
 AB4116  ______________________________________________________________________
 AB4116* NAD 83(2011) POSITION- 41 07 03.03562(N) 101 46 12.46279(W)   ADJUSTED
 AB4116* NAD 83(2011) ELLIP HT-   970.006 (meters)        (06/27/12)   ADJUSTED
 AB4116* NAD 83(2011) EPOCH   -  2010.00
 AB4116* NAVD 88 ORTHO HEIGHT -   990.89  (meters)     3250.9   (feet) RESET
 AB4116  ______________________________________________________________________
 AB4116  NAD 83(2011) X  -   -981,732.128 (meters)                     COMP
 AB4116  NAD 83(2011) Y  - -4,711,556.569 (meters)                     COMP
 AB4116  NAD 83(2011) Z  -  4,172,901.305 (meters)                     COMP
 AB4116  LAPLACE CORR    -         -2.70  (seconds)                    DEFLEC12B
 AB4116  GEOID HEIGHT    -        -20.882 (meters)                     GEOID12B
 AB4116  VERT ORDER      -  THIRD
 AB4116
 AB4116  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 AB4116  Standards:
 AB4116         FGDC (95% conf, cm)     Standard deviation (cm)     CorrNE
 AB4116            Horiz  Ellip           SD_N   SD_E   SD_h      (unitless)
 AB4116  ----------------------------------------------------------------------
 AB4116  NETWORK    0.46   1.25           0.22   0.13   0.64     -0.03392752
 AB4116  ----------------------------------------------------------------------
 AB4116  Click here for local accuracies and other accuracy information.
 AB4116
 AB4116
 AB4116.This mark is at Searle Field Airport (OGA)
 AB4116
 AB4116.The horizontal coordinates were established by GPS observations
 AB4116.and adjusted by the National Geodetic Survey in June 2012.
 AB4116
 AB4116.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
 AB4116.been affixed to the stable North American tectonic plate. See
 AB4116.NA2011 for more information.
 AB4116
 AB4116.The horizontal coordinates are valid at the epoch date displayed above
 AB4116.which is a decimal equivalence of Year/Month/Day.
 AB4116
 AB4116.The orthometric height was computed from unverified reset data.
 AB4116
 AB4116.No vertical observational check was made to the station.
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AB4116
AB4116.Significant digits in the geoid height do not necessarily reflect accuracy.
AB4116.GEOID12B height accuracy estimate available here.
AB4116
AB4116.The X, Y, and Z were computed from the position and the ellipsoidal ht.
AB4116
AB4116.The Laplace correction was computed from DEFLEC12B derived deflections.
AB4116
AB4116.The ellipsoidal height was determined by GPS observations
AB4116.and is referenced to NAD 83.
AB4116
AB4116. The following values were computed from the NAD 83(2011) position.
AB4116
AB4116;                     North         East     Units Scale Factor Converg.
AB4116;SPC NE       -   144,098.253   351,392.469   MT  0.99968143   -1 10 23.0
AB4116;SPC NE       -   472,762.35  1,152,860.13   sFT  0.99968143   -1 10 23.0
AB4116;UTM  14      - 4,555,500.605   267,429.796   MT  1.00026575   -1 49 20.9
AB4116
AB4116!             -  Elev Factor  x  Scale Factor =   Combined Factor
AB4116!SPC NE       -   0.99984787  x   0.99968143  =   0.99952935
AB4116!UTM  14      -   0.99984787  x   1.00026575  =   1.00011358
AB4116
AB4116                          SUPERSEDED SURVEY CONTROL
AB4116
AB4116  NAD 83(2007)-  41 07 03.03549(N)    101 46 12.46361(W) AD(2002.00) 0
AB4116  ELLIP H (02/10/07)  970.031  (m)                       GP(2002.00)
AB4116  ELLIP H (09/24/01)  970.017  (m)                       GP(       ) 4 1
AB4116  NAD 83(1995)-  41 07 03.03501(N)    101 46 12.46329(W) AD(       ) B
AB4116  ELLIP H (06/25/96)  970.063  (m)                       GP(       ) 1 1
AB4116  NAVD 88 (06/25/96)  990.95   (m)  GEOID93 model used   GPS OBS
AB4116
AB4116.Superseded values are not recommended for survey control.
AB4116
AB4116.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AB4116.See file dsdata.txt to determine how the superseded data were derived.
AB4116
AB4116_U.S. NATIONAL GRID SPATIAL ADDRESS: 14TKL6742955500(NAD 83)
AB4116
AB4116_MARKER: I = METAL ROD
AB4116_SETTING: 59 = STAINLESS STEEL ROD IN SLEEVE (10 FT.+)
AB4116_STAMPING: OGA A 1995
AB4116_MARK LOGO: NGS
AB4116_PROJECTION: FLUSH
AB4116_MAGNETIC: N = NO MAGNETIC MATERIAL
AB4116_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
AB4116_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AB4116+SATELLITE: SATELLITE OBSERVATIONS - August 03, 1997
AB4116_ROD/PIPE-DEPTH: 19.2 meters
AB4116_SLEEVE-DEPTH  : 1 meters
AB4116
AB4116  HISTORY     - Date     Condition        Report By
AB4116  HISTORY     - 1995     MONUMENTED       NGS
AB4116  HISTORY     - 19970803 GOOD             NGS
AB4116
AB4116                          STATION DESCRIPTION
AB4116
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 AB4116'DESCRIBED BY NATIONAL GEODETIC SURVEY 1995 (CFS)
 AB4116'THE STATION IS LOCATED ABOUT 6.6 MI (10.6 KM) EAST-NORTHEAST OF BRULE,
 AB4116'2.4 MI (3.9 KM) WEST OF OGALLALA, AT THE OGALLALA/SEARLE FIELD AND
 AB4116'NEAR THE MIDPOINT OF RUNWAY 08/26.  OWNERSHIP--CITY OF OGALLALA, 411
 AB4116'EAST 2ND STREET, OGALLALA NE 69153.  AIRPORT MANAGER IS KARL
 AB4116'ELMSHAEUSER, PHONE (308) 284-4644.  TO REACH THE STATION FROM THE
 AB4116'JUNCTION OF U.S. HIGHWAY 30 AND STATE HIGHWAY 61 IN OGALLALA, GO
 AB4116'WESTERLY ON U.S. HIGHWAY 30 FOR 1.8 MI (2.9 KM) TO THE ROAD FORK
 AB4116'RIGHT, BEAR RIGHT AND GO WEST ON THE AIRPORT ENTRANCE ROAD FOR 0.4 MI
 AB4116'(0.6 KM) TO A AIRPORT BEACON JUST AHEAD AND A GATE LEFT, TURN LEFT
 AB4116'PASS THROUGH GATE AND GO SOUTH ON A PAVED HANGAR APRON FOR 0.05 MI
 AB4116'(0.08 KM) TO THE SOUTH END OF A HANGAR, TURN RIGHT AND GO WEST ON A
 AB4116'APRON EDGE TAXIWAY FOR 0.15 MI (0.24 KM) TO A TAXIWAY FORK, BEAR LEFT
 AB4116'AND GO SOUTH ON A TAXIWAY 0.1 MI (0.2 KM) TO RUNWAY ENDS 31 AND 26,
 AB4116'TURN RIGHT AND GO WEST ON RUNWAY 08/26 FOR 0.4 MI (0.6 KM) TO THE
 AB4116'STATION ON THE LEFT JUST BEFORE REACHING THE ONLY SET OF CLEAR RUNWAY
 AB4116'LIGHTS.  THE STATION IS 127.6 FT (38.9 M) WEST-SOUTHWEST OF A RUNWAY
 AB4116'LIGHT (34), 109.5 FT (33.4 M) SOUTH OF THE RUNWAY CENTER, 106.0 FT
 AB4116'(32.3 M) SOUTHEAST OF A RUNWAY LIGHT (32), 18.0 FT (5.5 M) NORTH OF
 AB4116'THE APPROXIMATE EDGE OF A CULTIVATED FIELD, 1.1 FT (0.3 M) EAST OF A
 AB4116'WITNESS POST AND 1.1 FT (0.3 M) WEST OF A WITNESS POST.  NOTE--THIS
 AB4116'STATION WAS USED AS AN AREA NAVIGATION APPROACH PRIMARY AIRPORT
 AB4116'CONTROL STATION.
 AB4116
 AB4116                          STATION RECOVERY (1997)
 AB4116
 AB4116'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1997 (AJL)
 AB4116'RECOVERED AS DESCRIBED.
1        National Geodetic Survey,   Retrieval Date = JUNE 28, 2016
 MN0216 ***********************************************************************
 MN0216  FBN         -  This is a Federal Base Network Control Station.
 MN0216  DESIGNATION -  T 76
 MN0216  PID         -  MN0216
 MN0216  STATE/COUNTY-  NE/CHEYENNE
 MN0216  COUNTRY     -  US
 MN0216  USGS QUAD   -  POTTER (1972)
 MN0216
 MN0216                         *CURRENT SURVEY CONTROL
 MN0216  ______________________________________________________________________
 MN0216* NAD 83(2011) POSITION- 41 13 11.69352(N) 103 22 01.20602(W)   ADJUSTED
 MN0216* NAD 83(2011) ELLIP HT-  1333.985 (meters)        (06/27/12)   ADJUSTED
 MN0216* NAD 83(2011) EPOCH   -  2010.00
 MN0216* NAVD 88 ORTHO HEIGHT -  1353.259 (meters)     4439.82  (feet) ADJUSTED
 MN0216  ______________________________________________________________________
 MN0216  NAD 83(2011) X  - -1,110,980.461 (meters)                     COMP
 MN0216  NAD 83(2011) Y  - -4,675,350.358 (meters)                     COMP
 MN0216  NAD 83(2011) Z  -  4,181,703.612 (meters)                     COMP
 MN0216  LAPLACE CORR    -         -3.60  (seconds)                    DEFLEC12B
 MN0216  GEOID HEIGHT    -        -19.279 (meters)                     GEOID12B
 MN0216  DYNAMIC HEIGHT  -       1352.280 (meters)     4436.61  (feet) COMP
 MN0216  MODELED GRAVITY -    979,853.8   (mgal)                       NAVD 88
 MN0216
 MN0216  VERT ORDER      -  SECOND    CLASS 0
 MN0216
 MN0216  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 MN0216  Standards:
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MN0216         FGDC (95% conf, cm)     Standard deviation (cm)     CorrNE
MN0216            Horiz  Ellip           SD_N   SD_E   SD_h      (unitless)
MN0216  ------------------------------------------------------------------
MN0216  NETWORK    0.37   0.90           0.17   0.12   0.46      0.01055545
MN0216  ------------------------------------------------------------------
MN0216  Click here for local accuracies and other accuracy information.
MN0216
MN0216
MN0216.The horizontal coordinates were established by GPS observations
MN0216.and adjusted by the National Geodetic Survey in June 2012.
MN0216
MN0216.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
MN0216.been affixed to the stable North American tectonic plate. See
MN0216.NA2011 for more information.
MN0216
MN0216.The horizontal coordinates are valid at the epoch date displayed above
MN0216.which is a decimal equivalence of Year/Month/Day.
MN0216
MN0216.The orthometric height was determined by differential leveling and
MN0216.adjusted by the NATIONAL GEODETIC SURVEY
MN0216.in June 1991.
MN0216
MN0216.Significant digits in the geoid height do not necessarily reflect accuracy.
MN0216.GEOID12B height accuracy estimate available here.
MN0216
MN0216.Photographs are available for this station.
MN0216
MN0216.The X, Y, and Z were computed from the position and the ellipsoidal ht.
MN0216
MN0216.The Laplace correction was computed from DEFLEC12B derived deflections.
MN0216
MN0216.The ellipsoidal height was determined by GPS observations
MN0216.and is referenced to NAD 83.
MN0216
MN0216.The dynamic height is computed by dividing the NAVD 88
MN0216.geopotential number by the normal gravity value computed on the
MN0216.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
MN0216.degrees latitude (g = 980.6199 gals.).
MN0216
MN0216.The modeled gravity was interpolated from observed gravity values.
MN0216
MN0216. The following values were computed from the NAD 83(2011) position.
MN0216
MN0216;                    North         East     Units Scale Factor Converg.
MN0216;SPC NE       -   159,441.197   217,824.587   MT  0.99967098   -2 13 52.7
MN0216;SPC NE       -   523,099.99    714,646.17   sFT  0.99967098   -2 13 52.7
MN0216;UTM  13      - 4,564,455.741   636,882.641   MT  0.99983060   +1 04 34.4
MN0216
MN0216!             -  Elev Factor  x  Scale Factor =   Combined Factor
MN0216!SPC NE       -   0.99979080  x   0.99967098  =   0.99946185
MN0216!UTM  13      -   0.99979080  x   0.99983060  =   0.99962144
MN0216
MN0216                          SUPERSEDED SURVEY CONTROL
MN0216
MN0216  NAD 83(2007)-  41 13 11.69334(N)    103 22 01.20678(W) AD(2002.00) 0
MN0216  ELLIP H (02/10/07) 1334.011  (m)                       GP(2002.00)
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MN0216  ELLIP H (07/10/01) 1333.987  (m)                        GP(       ) 4 1
MN0216  NAD 83(1995)-  41 13 11.69280(N)    103 22 01.20661(W) AD(       ) B
MN0216  ELLIP H (06/25/96) 1334.033  (m)                        GP(       ) 1 1
MN0216  ELLIP H (01/07/93) 1334.264  (m)                        GP(       ) 4 2
MN0216  NAD 83(1986)-  41 13 11.68453(N)    103 22 01.20886(W) AD(       ) 1
MN0216  NAVD 88 (06/25/96) 1353.26   (m)         4439.8    (f) LEVELING    3
MN0216  NGVD 29 (??/??/92) 1352.606  (m)         4437.67   (f) ADJ UNCH    2 0
MN0216  NGVD 29 (02/23/90) 1353.     (m)  RAPSU86 model used   GPS OBS
MN0216
MN0216.Superseded values are not recommended for survey control.
MN0216
MN0216.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
MN0216.See file dsdata.txt to determine how the superseded data were derived.
MN0216
MN0216_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TFF3688264455(NAD 83)
MN0216
MN0216_MARKER: DB = BENCH MARK DISK
MN0216_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
MN0216_STAMPING: T 76 1934
MN0216_MARK LOGO: CGS
MN0216_MAGNETIC: A = STEEL ROD ADJACENT TO MONUMENT
MN0216_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
MN0216+STABILITY: SURFACE MOTION
MN0216_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
MN0216+SATELLITE: SATELLITE OBSERVATIONS - November 02, 2010
MN0216
MN0216  HISTORY     - Date     Condition        Report By
MN0216  HISTORY     - 1934     MONUMENTED       CGS
MN0216  HISTORY     - 19890707 GOOD             NGS
MN0216  HISTORY     - 19950515 GOOD             NGS
MN0216  HISTORY     - 20000510 GOOD             NGS
MN0216  HISTORY     - 20101102 GOOD             NEGS
MN0216
MN0216                          STATION DESCRIPTION
MN0216
MN0216'DESCRIBED BY COAST AND GEODETIC SURVEY 1934
MN0216'2.7 MI W FROM POTTER.
MN0216'2.7 MILES WEST ALONG THE UNION PACIFIC RAILROAD FROM THE STATION
MN0216'AT POTTER, CHEYENNE COUNTY, 136 FEET WEST OF MILEPOST 429, 72.8
MN0216'FEET SOUTH OF THE SOUTH RAIL, 25.4 FEET NORTH OF A FENCE, AND
MN0216'ABOUT 2 FEET LOWER THAN THE TRACK.  A STANDARD DISK, STAMPED
MN0216'T 76 1934 AND SET IN THE TOP OF A CONCRETE POST.
MN0216
MN0216                          STATION RECOVERY (1989)
MN0216
MN0216'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1989
MN0216'THE STATION IS LOCATED ABOUT 10.5 KM (6.50 MI) EAST OF DIX, 4 KM
MN0216'(2.50 MI) WEST OF POTTER, 0.76 KM (0.45 MI) EAST OF THE
MN0216'CHEYENNE-KIMBALL COUNTY LINE, IN A WIDE GRASSY MEDIAN SEPERATING A
MN0216'RAILROAD TRACK AND U. S. HIGHWAY 30.  OWNERSHIP--NE DEPT OF RAODS.
MN0216'TO REACH THE STATION FROM THE JUNCTION U.S. HIGHWAY 30 AND STATE ROUTE
MN0216'17B LINK IN POTTER, GO WEST ON U.S. HIGHWAY 30 FOR 3.46 KM (2.15 MI)
MN0216'TO A GRAVEL CROSSROAD.  CONTINUE WEST ON HIGHWAY 30 FOR 0.88 KM
MN0216'(0.55 MI) TO THE STATION ON THE RIGHT.
MN0216'THE STATION MARK IS SET 38.7 M (127.0 FT) EAST OF A US TELECON
MN0216'UNDERGROUND CABLE WARNING POST --NE 01 6938--, 33.5 M (109.9 FT) NORTH
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 MN0216'OF THE HIGHWAY CENTERLINE, 22.2 M (72.8 FT) SOUTH OF THE SOUTH RAIL OF
 MN0216'THE SOUTH SET OF RAILROAD TRACKS, 0.1 M (0.3 FT) SOUTHEAST OF A
 MN0216'WITNESS POST AND LEVEL WITH THE HIGHWAY.
 MN0216'DESCRIBED BY G.R.HEID, VERIFIED BY R.D. BALL, TYPED BY E.A.RICE.
 MN0216
 MN0216                          STATION RECOVERY (1995)
 MN0216
 MN0216'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1995 (JAO)
 MN0216'THE MARK IS LOCATED ABOUT 6.5 MI (10.5 KM) EAST OF DIX, 2.75 MI (4.43
 MN0216'KM) WEST OF POTTER, 0.15 MI (0.24 KM) NORTH OF INTERSTATE HIGHWAY 80,
 MN0216'BETWEEN U.S. HIGHWAY 30 AND THE UNION PACIFIC RAILROAD, ON THE NORTH
 MN0216'RIGHT-OF-WAY OF U.S. HIGHWAY 30, ABOUT 150 FT (45.7 M) SOUTHWEST OF
 MN0216'RAILROAD MILEPOST 429 AND NEAR THE NORTH 1/4 CORNER OF SEC2, T14N,
 MN0216'R53W.  TO REACH THE MARK FROM THE JUNCTION OF STATE ROAD 17B LINK AND
 MN0216'U.S. HIGHWAY 30 AT POTTER, GO WEST ON HIGHWAY 30 FOR 2.2 MI (3.5 KM)
 MN0216'TO A GRAVELED CROSSROAD, COUNTY ROAD 73.  CONTINUE WEST ON THE HIGHWAY
 MN0216'FOR 0.55 MI (0.89 KM) TO THE MARK ON THE RIGHT. THE DISK IS SET INTO
 MN0216'THE TOP OF A SQUARE CONCRETE MONUMENT THAT IS FLUSH WITH THE GROUND.
 MN0216'IT IS 126.6 FT (38.6 M) EAST OF A U.S. SPRINT BURIED CABLE WARNING
 MN0216'POST NUMBERED NE 01 8726, 110.0 FT (33.5 M) NORTH FROM THE CENTERLINE
 MN0216'OF THE HIGHWAY, 72.6 FT (22.1 M) SOUTH OF THE SOUTH RAIL OF A DOUBLE
 MN0216'SET OF TRACKS, 2.5 FT (0.8 M) SOUTH OF A WITNESS POST AND SURROUNDED
 MN0216'BY 3 METAL POSTS THAT PROJECT 5.0 FT (1.5 M) ABOVE THE GROUND.  REBAR
 MN0216'WAS DRIVEN ALONG THE EAST SIDE OF THE MARK.
 MN0216
 MN0216                          STATION RECOVERY (2000)
 MN0216
 MN0216'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2000 (JBW)
 MN0216'RECOVERED AS DESCRIBED.
 MN0216
 MN0216                          STATION RECOVERY (2010)
 MN0216
 MN0216'RECOVERY NOTE BY NEBRASKA GEODETIC SURVEY 2010 (DM)
 MN0216'MARK RECOVERED AS DESCRIBED.
1        National Geodetic Survey,   Retrieval Date = JUNE 28, 2016
 MM0332 ***********************************************************************
 MM0332  DESIGNATION -  T 422
 MM0332  PID         -  MM0332
 MM0332  STATE/COUNTY-  NE/KEITH
 MM0332  COUNTRY     -  US
 MM0332  USGS QUAD   -  BRULE SE (1961)
 MM0332
 MM0332                        *CURRENT SURVEY CONTROL
 MM0332 ______________________________________________________________________
 MM0332* NAD 83(1986) POSITION- 41 07 11.     (N) 101 45 08.     (W)   SCALED
 MM0332* NAVD 88 ORTHO HEIGHT -   988.896 (meters)     3244.40  (feet) ADJUSTED
 MM0332 ______________________________________________________________________
 MM0332  GEOID HEIGHT    -        -20.899 (meters)                     GEOID12B
 MM0332  DYNAMIC HEIGHT  -        988.279 (meters)     3242.38  (feet) COMP
 MM0332  MODELED GRAVITY -    979,967.1   (mgal)                       NAVD 88
 MM0332
 MM0332  VERT ORDER      -  FIRST     CLASS II
 MM0332
 MM0332.The horizontal coordinates were scaled from a topographic map and have
 MM0332.an estimated accuracy of +/- 6 seconds.
 MM0332.
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MM0332.The orthometric height was determined by differential leveling and
MM0332.adjusted by the NATIONAL GEODETIC SURVEY
MM0332.in June 1991.
MM0332
MM0332.Significant digits in the geoid height do not necessarily reflect accuracy.
MM0332.GEOID12B height accuracy estimate available here.
MM0332
MM0332.The dynamic height is computed by dividing the NAVD 88
MM0332.geopotential number by the normal gravity value computed on the
MM0332.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
MM0332.degrees latitude (g = 980.6199 gals.).
MM0332
MM0332.The modeled gravity was interpolated from observed gravity values.
MM0332
MM0332;                    North         East     Units  Estimated Accuracy
MM0332;SPC NE       -   144,310.      352,900.      MT  (+/- 180 meters Scaled)
MM0332
MM0332                          SUPERSEDED SURVEY CONTROL
MM0332
MM0332  NGVD 29 (02/14/92)  988.461  (m)         3242.98   (f) ADJUSTED    1 2
MM0332
MM0332.Superseded values are not recommended for survey control.
MM0332
MM0332.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
MM0332.See file dsdata.txt to determine how the superseded data were derived.
MM0332
MM0332_U.S. NATIONAL GRID SPATIAL ADDRESS: 14TKL689556(NAD 83)
MM0332
MM0332_MARKER: F = FLANGE-ENCASED ROD
MM0332_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)
MM0332_STAMPING: T 422 1986
MM0332_MARK LOGO: NGS
MM0332_PROJECTION: FLUSH
MM0332_MAGNETIC: N = NO MAGNETIC MATERIAL
MM0332_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
MM0332_ROD/PIPE-DEPTH: 25.6 meters
MM0332
MM0332  HISTORY     - Date     Condition        Report By
MM0332  HISTORY     - 1986     MONUMENTED       NGS
MM0332  HISTORY     - 19980710 GOOD             USPSQD
MM0332  HISTORY     - 20040831 GOOD             NEDR
MM0332
MM0332                          STATION DESCRIPTION
MM0332
MM0332'DESCRIBED BY NATIONAL GEODETIC SURVEY 1986
MM0332'2.9 KM (1.8 MI) WEST FROM OGALLALA.
MM0332'2.91 KM (1.82 MI) WEST ALONG US HIGHWAY 30 FROM THE JUNCTION OF US
MM0332'HIGHWAY 26 AND STATE HIGHWAY 61 AT OGALLALA, 0.65 KM (0.40 MI) EAST OF
MM0332'MILEPOST 124, IN THE V OF THE Y JUNCTION OF THE ROAD LEADING TO THE
MM0332'OGALLALA MUNICIPAL AIRPORT, 16.6 METERS (54.5 FT) NORTH OF THE HIGHWAY
MM0332'CENTERLINE, 39.0 METERS (128 FT) SOUTH OF THE CENTER OF THE ROAD,
MM0332'13.8 METERS (45.5 FT) SOUTH OF THE SOUTH 1 OF 5 LEGS OF AN AIRPORT
MM0332'SIGN AND 0.4 METER (1.5 FT) EAST OF A FENCE CORNER.  NOTE--ACCESS TO
MM0332'DATUM POINT IS HAD THROUGH A 5-INCH LOGO CAP.
MM0332'THE MARK IS 0.3 METERS  W FROM  A WITNESS POST
MM0332'THE MARK IS ABOVE LEVEL WITH THE HIGHWAY.

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 MM0332
 MM0332                            STATION RECOVERY (1998)
 MM0332
 MM0332'RECOVERY NOTE BY US POWER SQUADRON 1998
 MM0332'RECOVERED IN GOOD CONDITION.
 MM0332
 MM0332                            STATION RECOVERY (2004)
 MM0332
 MM0332'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 2004 (JA)
 MM0332'FROM THE JUNCTION OF US HIGHWAY 26 AND US HOGHWAY 61 WEST OF OGAILALA,
 MM0332'GO EAST ON HIGHWAY 30 FOR APPROXIMATELY 0.13 MILES (0.21 KM) TO POINT
 MM0332'NORTH OF HIGHWAY 30.  .40 MILES (0.64 KM) EAST OF MILEPOST 124 ON
 MM0332'HIGHWAY 30.  54.5 FEET (16.6 M) NORTH OF HIGHWAY 30 CENTERLINE, 1.5
 MM0332'FEET (0.5 M) EAST OF A FENCE CORNER, MARK IS ABOVE LEVEL WITH THE
 MM0332'HIGHWAY.
1        National Geodetic Survey,   Retrieval Date = JUNE 28, 2016
 NP0422 ***********************************************************************
 NP0422  CBN         -  This is a Cooperative Base Network Control Station.
 NP0422  DESIGNATION -  U 58
 NP0422  PID         -  NP0422
 NP0422  STATE/COUNTY-  NE/SIOUX
 NP0422  COUNTRY     -  US
 NP0422  USGS QUAD   -  ERDMAN RANCH (1963)
 NP0422
 NP0422                          *CURRENT SURVEY CONTROL
 NP0422  ______________________________________________________________________
 NP0422* NAD 83(2011) POSITION- 42 06 23.93863(N) 103 49 37.14569(W)   ADJUSTED
 NP0422* NAD 83(2011) ELLIP HT-  1305.306 (meters)        (06/27/12)   ADJUSTED
 NP0422* NAD 83(2011) EPOCH   -  2010.00
 NP0422* NAVD 88 ORTHO HEIGHT -  1323.454 (meters)     4342.03  (feet) POSTED
 NP0422  ______________________________________________________________________
 NP0422  NAD 83(2011) X  - -1,132,824.248 (meters)                    COMP
 NP0422  NAD 83(2011) Y  - -4,602,675.162 (meters)                    COMP
 NP0422  NAD 83(2011) Z  -  4,255,274.997 (meters)                    COMP
 NP0422  LAPLACE CORR    -         -2.30  (seconds)                   DEFLEC12B
 NP0422  GEOID HEIGHT    -        -18.145 (meters)                    GEOID12B
 NP0422  DYNAMIC HEIGHT  -       1322.60  (meters)     4339.2   (feet) COMP
 NP0422  MODELED GRAVITY -    979,929.8   (mgal)                      NAVD 88
 NP0422
 NP0422  VERT ORDER      -  * POSTED, SEE BELOW
 NP0422
 NP0422  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 NP0422  Standards:
 NP0422         FGDC (95% conf, cm)     Standard deviation (cm)     CorrNE
 NP0422            Horiz  Ellip           SD_N   SD_E   SD_h      (unitless)
 NP0422  ----------------------------------------------------------------------
 NP0422  NETWORK    0.45   1.14           0.21   0.15   0.58     -0.02968810
 NP0422  ----------------------------------------------------------------------
 NP0422  Click here for local accuracies and other accuracy information.
 NP0422
 NP0422
 NP0422.The horizontal coordinates were established by GPS observations
 NP0422.and adjusted by the National Geodetic Survey in June 2012.
 NP0422
 NP0422.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
 NP0422.been affixed to the stable North American tectonic plate. See
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NP0422.NA2011 for more information.
NP0422
NP0422.The horizontal coordinates are valid at the epoch date displayed above
NP0422.which is a decimal equivalence of Year/Month/Day.
NP0422
NP0422.The orthometric height was determined by differential leveling
NP0422.and adjusted by the NATIONAL GEODETIC SURVEY in 1992.
NP0422
NP0422.* This is a POSTED BENCH MARK height.
NP0422
NP0422.Significant digits in the geoid height do not necessarily reflect accuracy.
NP0422.GEOID12B height accuracy estimate available here.
NP0422
NP0422.Photographs are available for this station.
NP0422
NP0422.The X, Y, and Z were computed from the position and the ellipsoidal ht.
NP0422
NP0422.The Laplace correction was computed from DEFLEC12B derived deflections.
NP0422
NP0422.The ellipsoidal height was determined by GPS observations
NP0422.and is referenced to NAD 83.
NP0422
NP0422.The dynamic height is computed by dividing the NAVD 88
NP0422.geopotential number by the normal gravity value computed on the
NP0422.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
NP0422.degrees latitude (g = 980.6199 gals.).
NP0422
NP0422.The modeled gravity was interpolated from observed gravity values.
NP0422
NP0422. The following values were computed from the NAD 83(2011) position.
NP0422

| | | North | East | Units | Scale Factor | Converg. |
|---|---|---|---|---|---|---|
| SPC NE | - | 259,402.979 | 183,655.382 | MT | 0.99971352 | -2 32 10.1 |
| SPC NE | - | 851,057.94 | 602,542.70 | sFT | 0.99971352 | -2 32 10.1 |
| UTM 13 | - | 4,662,283.242 | 596,984.633 | MT | 0.99971574 | +0 47 11.7 |

| | | Elev Factor | x | Scale Factor | = | Combined Factor |
|---|---|---|---|---|---|---|
| SPC NE | - | 0.99979532 | x | 0.99971352 | = | 0.99950890 |
| UTM 13 | - | 0.99979532 | x | 0.99971574 | = | 0.99951112 |

NP0422
NP0422 SUPERSEDED SURVEY CONTROL
NP0422

| | | | | | |
|---|---|---|---|---|---|
| NAD 83(2007)- | 42 06 23.93841(N) | 103 49 37.14668(W) | AD(2002.00) | 0 | |
| ELLIP H (02/10/07) | 1305.334 (m) | | GP(2002.00) | | |
| ELLIP H (07/10/01) | 1305.308 (m) | | GP( ) | 4 | 1 |
| NAD 83(1995)- | 42 06 23.93765(N) | 103 49 37.14658(W) | AD( ) | B | |
| ELLIP H (06/25/96) | 1305.368 (m) | | GP( ) | 1 | 1 |
| NAVD 88 (06/25/96) | 1323.45 (m) | 4342.0 (f) | LEVELING | 3 | |
| NGVD 29 (??/??/92) | 1322.729 (m) | 4339.65 (f) | ADJ UNCH | 2 | 0 |

NP0422
NP0422.Superseded values are not recommended for survey control.
NP0422
NP0422.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
NP0422.See file dsdata.txt to determine how the superseded data were derived.
NP0422
NP0422_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TEG9698462283(NAD 83)

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 NP0422
 NP0422_MARKER: DB = BENCH MARK DISK
 NP0422_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 NP0422_STAMPING: U 58 1934
 NP0422_MARK LOGO: CGS
 NP0422_MAGNETIC: A = STEEL ROD ADJACENT TO MONUMENT
 NP0422_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 NP0422+STABILITY: SURFACE MOTION
 NP0422_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 NP0422+SATELLITE: SATELLITE OBSERVATIONS - May 04, 1995
 NP0422
 NP0422  HISTORY     - Date     Condition        Report By
 NP0422  HISTORY     - 1934     MONUMENTED       CGS
 NP0422  HISTORY     - 1939     GOOD             CGS
 NP0422  HISTORY     - 19950504 GOOD             NGS
 NP0422
 NP0422                          STATION DESCRIPTION
 NP0422
 NP0422'DESCRIBED BY COAST AND GEODETIC SURVEY 1934
 NP0422'10.9 MI N FROM MITCHELL.
 NP0422'IN SIOUX COUNTY, 10.9 MILES NORTH ALONG STATE HIGHWAY 29 FROM THE
 NP0422'HIGH SCHOOL AT MITCHELL, SCOTTS BLUFF COUNTY, 0.5 MILE WEST OF
 NP0422'A RANCH AND A WINDMILL, ON A SMALL KNOLL, AND 39.5 FEET EAST OF
 NP0422'THE CENTERLINE OF THE HIGHWAY.  A STANDARD DISK, STAMPED U 58
 NP0422'1934 AND SET IN THE TOP OF A CONCRETE POST.
 NP0422
 NP0422                          STATION RECOVERY (1939)
 NP0422
 NP0422'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1939
 NP0422'RECOVERED IN GOOD CONDITION.
 NP0422
 NP0422                          STATION RECOVERY (1995)
 NP0422
 NP0422'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1995 (JAO)
 NP0422'THE MARK IS LOCATED ABOUT 11.5 MI (18.5 KM) NORTH OF MITCHELL, 0.35 MI
 NP0422'(0.56 KM) SOUTH OF WHERE A LARGE POWER TRANSMISSION LINE CROSSES STATE
 NP0422'HIGHWAY 29, AT AN ENTRANCE INTO A PASTURE, ON THE WEST RIGHT-OF-WAY OF
 NP0422'STATE HIGHWAY 29 AND NEAR THE CENTER OF SEC26, T25N, R56W.  TO REACH
 NP0422'THE MARK FROM THE JUNCTION OF U.S. HIGHWAY 26 AND STATE HIGHWAY 29 AT
 NP0422'MITCHELL, GO NORTH ON HIGHWAY 29 FOR 4.0 MI (6.4 KM) TO THE SCOTTS
 NP0422'BLUFF/SIOUX COUNTY LINE.  CONTINUE NORTH ON THE HIGHWAY FOR 7.45 MI
 NP0422'(11.99 KM) TO THE MARK ON THE LEFT, ABOUT MIDWAY THROUGH A CURVE TO
 NP0422'THE RIGHT IN THE HIGHWAY.  THE DISK IS SET INTO THE TOP OF A SQUARE
 NP0422'CONCRETE MONUMENT THAT PROJECTS 0.7 FT (21.3 CM) ABOVE THE GROUND
 NP0422'SURFACE.  IT IS 72.0 FT (21.9 M) SOUTHWEST FROM THE CENTERLINE OF THE
 NP0422'HIGHWAY, 116.9 FT (35.6 M) SOUTH-SOUTHEAST FROM THE SOUTH GATEPOST OF
 NP0422'A WIRE GATE, 105.0 FT (32.0 M) SOUTH OF THE CENTERLINE OF THE ENTRANCE
 NP0422'DRIVE, 72.7 FT (22.2 M) NORTHEAST FROM THE WEST RIGHT-OF-WAY FENCE,
 NP0422'3.0 FT (0.9 M) NORTH FROM A FIBERGLASS WITNESS POST, 1.3 FT (0.4 M)
 NP0422'EAST FROM A METAL WITNESS POST AND IS ABOUT 4 FT (1.2 M) LOWER THAN
 NP0422'THE HIGHWAY.  A LENGTH OF REBAR WAS DRIVEN ALONG THE NORTH SIDE OF THE
 NP0422'MARK.
1        National Geodetic Survey,   Retrieval Date = JUNE 28, 2016
 MN0384 ***********************************************************************
 MN0384  DESIGNATION -  Z 418
 MN0384  PID         -  MN0384
 MN0384  STATE/COUNTY-  NE/CHEYENNE
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MN0384  COUNTRY     -  US
MN0384  USGS QUAD   -  LORENZO (1972)
MN0384
MN0384                        *CURRENT SURVEY CONTROL
MN0384  ______________________________________________________________________________
MN0384* NAD 83(2011) POSITION- 41 06 19.21398(N) 103 00 43.78862(W)   ADJUSTED
MN0384* NAD 83(2011) ELLIP HT-  1294.642 (meters)        (06/27/12)   ADJUSTED
MN0384* NAD 83(2011) EPOCH   -  2010.00
MN0384* NAVD 88 ORTHO HEIGHT -  1314.363 (meters)     4312.21  (feet) ADJUSTED
MN0384  ______________________________________________________________________________
MN0384  NAD 83(2011) X  - -1,083,883.951 (meters)                     COMP
MN0384  NAD 83(2011) Y  - -4,690,274.176 (meters)                     COMP
MN0384  NAD 83(2011) Z  -  4,172,096.053 (meters)                     COMP
MN0384  LAPLACE CORR    -         -1.78  (seconds)                    DEFLEC12B
MN0384  GEOID HEIGHT    -        -19.735 (meters)                     GEOID12B
MN0384  DYNAMIC HEIGHT  -       1313.424 (meters)     4309.13  (feet) COMP
MN0384  MODELED GRAVITY -    979,863.8   (mgal)                       NAVD 88
MN0384
MN0384  VERT ORDER      -  FIRST     CLASS II
MN0384
MN0384  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
MN0384  Standards:
MN0384         FGDC (95% conf, cm)     Standard deviation (cm)     CorrNE
MN0384            Horiz  Ellip          SD_N   SD_E   SD_h      (unitless)
MN0384  ------------------------------------------------------------------
MN0384  NETWORK    1.76   1.35          0.80   0.61   0.69     -0.03498205
MN0384  ------------------------------------------------------------------
MN0384  Click here for local accuracies and other accuracy information.
MN0384
MN0384
MN0384.The horizontal coordinates were established by GPS observations
MN0384.and adjusted by the National Geodetic Survey in June 2012.
MN0384
MN0384.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
MN0384.been affixed to the stable North American tectonic plate. See
MN0384.NA2011 for more information.
MN0384
MN0384.The horizontal coordinates are valid at the epoch date displayed above
MN0384.which is a decimal equivalence of Year/Month/Day.
MN0384
MN0384.The orthometric height was determined by differential leveling and
MN0384.adjusted by the NATIONAL GEODETIC SURVEY
MN0384.in June 1991.
MN0384
MN0384.Significant digits in the geoid height do not necessarily reflect accuracy.
MN0384.GEOID12B height accuracy estimate available here.
MN0384
MN0384.The X, Y, and Z were computed from the position and the ellipsoidal ht.
MN0384
MN0384.The Laplace correction was computed from DEFLEC12B derived deflections.
MN0384
MN0384.The ellipsoidal height was determined by GPS observations
MN0384.and is referenced to NAD 83.
MN0384
MN0384.The dynamic height is computed by dividing the NAVD 88
MN0384.geopotential number by the normal gravity value computed on the
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MN0384.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
MN0384.degrees latitude (g = 980.6199 gals.).
MN0384
MN0384.The modeled gravity was interpolated from observed gravity values.
MN0384
MN0384. The following values were computed from the NAD 83(2011) position.
MN0384
MN0384;                    North         East     Units Scale Factor Converg.
MN0384;SPC NE       -   145,631.283   247,106.375   MT  0.99968288   -1 59 46.1
MN0384;SPC NE       -   477,791.97    810,714.83   sFT  0.99968288   -1 59 46.1
MN0384;UTM  13      - 4,552,354.680   666,918.255   MT  0.99994292   +1 18 25.9
MN0384
MN0384!             -  Elev Factor  x  Scale Factor =   Combined Factor
MN0384!SPC NE       -   0.99979697  x   0.99968288  =   0.99947991
MN0384!UTM  13      -   0.99979697  x   0.99994292  =   0.99973990
MN0384
MN0384                          SUPERSEDED SURVEY CONTROL
MN0384
MN0384  NAD 83(2007)-  41 06 19.21382(N)    103 00 43.78936(W) AD(2002.00) 0
MN0384  ELLIP H (02/10/07) 1294.672  (m)                       GP(2002.00)
MN0384  ELLIP H (12/18/01) 1294.645  (m)                       GP(       ) 4 2
MN0384  NAD 83(1995)-  41 06 19.21331(N)    103 00 43.78912(W) AD(       ) 3
MN0384  ELLIP H (08/21/98) 1294.684  (m)                       GP(       ) 4 2
MN0384  NAVD 88 (08/21/98) 1314.36   (m)         4312.2    (f) LEVELING    3
MN0384
MN0384.Superseded values are not recommended for survey control.
MN0384
MN0384.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
MN0384.See file dsdata.txt to determine how the superseded data were derived.
MN0384
MN0384_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TFF6691852354(NAD 83)
MN0384
MN0384_MARKER: I = METAL ROD
MN0384_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)
MN0384_STAMPING: Z 418 1985
MN0384_MARK LOGO: NGS
MN0384_PROJECTION: FLUSH
MN0384_MAGNETIC: N = NO MAGNETIC MATERIAL
MN0384_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
MN0384_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
MN0384+SATELLITE: SATELLITE OBSERVATIONS - June 13, 2010
MN0384_ROD/PIPE-DEPTH: 11.0 meters
MN0384
MN0384  HISTORY     - Date     Condition        Report By
MN0384  HISTORY     - 1985     MONUMENTED       NGS
MN0384  HISTORY     - 19970728 GOOD             NGS
MN0384  HISTORY     - 20100604 GOOD             WOOLPT
MN0384  HISTORY     - 20100613 GOOD             WOOLPT
MN0384
MN0384                          STATION DESCRIPTION
MN0384
MN0384'DESCRIBED BY NATIONAL GEODETIC SURVEY 1985
MN0384'7.5 KM (4.65 MI) SW FROM SIDNEY.
MN0384'0.08 KM (0.05 MI) WEST ALONG US HIGHWAY 30 FROM THE POST OFFICE IN
MN0384'SIDNEY, THENCE 3.7 KM (2.3 MI) SOUTH ALONG 10TH AVENUE, THENCE 3.7 KM
MN0384'(2.3 MI) SOUTHWEST ALONG STATE ROUTE 19, AT A DIRT ROAD LEADING SOUTH
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MN0384'AND A TRACK ROAD FIELD ROAD LEADING NORTH, 32.0 METERS (105 FT)
MN0384'SOUTH-SOUTHEAST OF THE HIGHWAY CENTERLINE, 10.1 METERS (33 FT) EAST OF
MN0384'THE CENTER OF THE DIRT ROAD LEADING SOUTH, 1.2 METERS (4 FT) SOUTH OF
MN0384'A GUYED POWER POLE AND 13.0 METERS (43 FT) NORTH OF THE CENTER OF A
MN0384'DIRT ROAD LEADING EAST.  NOTE--ACCESS TO DATUM POINT IS HAD THROUGH A
MN0384'5-INCH LOGO CAP.
MN0384'THE MARK IS 0.3 METERS  N FROM  A WITNESS POST
MN0384'THE MARK IS 0.6 M BELOW THE HIGHWAY.
MN0384
MN0384                          STATION RECOVERY (1997)
MN0384
MN0384'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1997 (AJL)
MN0384'THE STATION IS LOCATED ABOUT 3.0 MI (4.8 KM) SOUTH-SOUTHWEST OF SIDNEY
MN0384'IN THE SOUTHEAST QUADRANT OF A ROAD INTERSECTION.  TO REACH THE
MN0384'STATION FROM THE JUNCTION OF U S INTERSTATE HIGHWAY 80 AND U S HIGHWAY
MN0384'385 ON THE SOUTHEAST SIDE OF SIDNEY, GO NORTH FOR 0.25 MI (0.40 KM) ON
MN0384'THE U S HIGHWAY TO THE INTERSECTION OF OLD POST ROAD ON THE LEFT, TURN
MN0384'LEFT AND GO WESTERLY FOR 3.6 MI (5.8 KM) ON OLD POST ROAD AND COUNTY
MN0384'ROAD 19A TO THE INTERSECTION OF COUNTY ROAD 109 ON THE LEFT, TURN LEFT
MN0384'AND GO SOUTH FOR 30 METERS (98.4 FT) ON COUNTY ROAD 109 TO AN
MN0384'ABANDONED PAVED ROAD ON THE LEFT AND THE STATION ON THE LEFT.  THE
MN0384'STATION IS LOCATED 105.0 FT (32.0 M) SOUTH-SOUTHEAST OF THE CENTER OF
MN0384'COUNTY HIGHWAY 19A, 43.0 FT (13.1 M) NORTH OF THE CENTER OF THE
MN0384'ABANDONED PAVED ROAD, 33.0 FT (10.1 M) EAST OF THE CENTER OF COUNTY
MN0384'ROAD 109, 4.0 FT (1.2 M) SOUTH OF A POWER POLE, 0.1 FT (3.0 CM) NORTH
MN0384'OF A WITNESS POST, AND THE MONUMENT IS RECESSED 0.1 FT (3.0 CM) BELOW
MN0384'THE GROUND SURFACE.
MN0384
MN0384                          STATION RECOVERY (2010)
MN0384
MN0384'RECOVERY NOTE BY WOOLPERT CONSULTANTS 2010 (BRC)
MN0384'RECOVERED AS DESCRIBED
MN0384
MN0384                          STATION RECOVERY (2010)
MN0384
MN0384'RECOVERY NOTE BY WOOLPERT CONSULTANTS 2010 (BRC)
MN0384'RECOVERED AS DESCRIBED

*** retrieval complete.
Elapsed Time = 00:00:09
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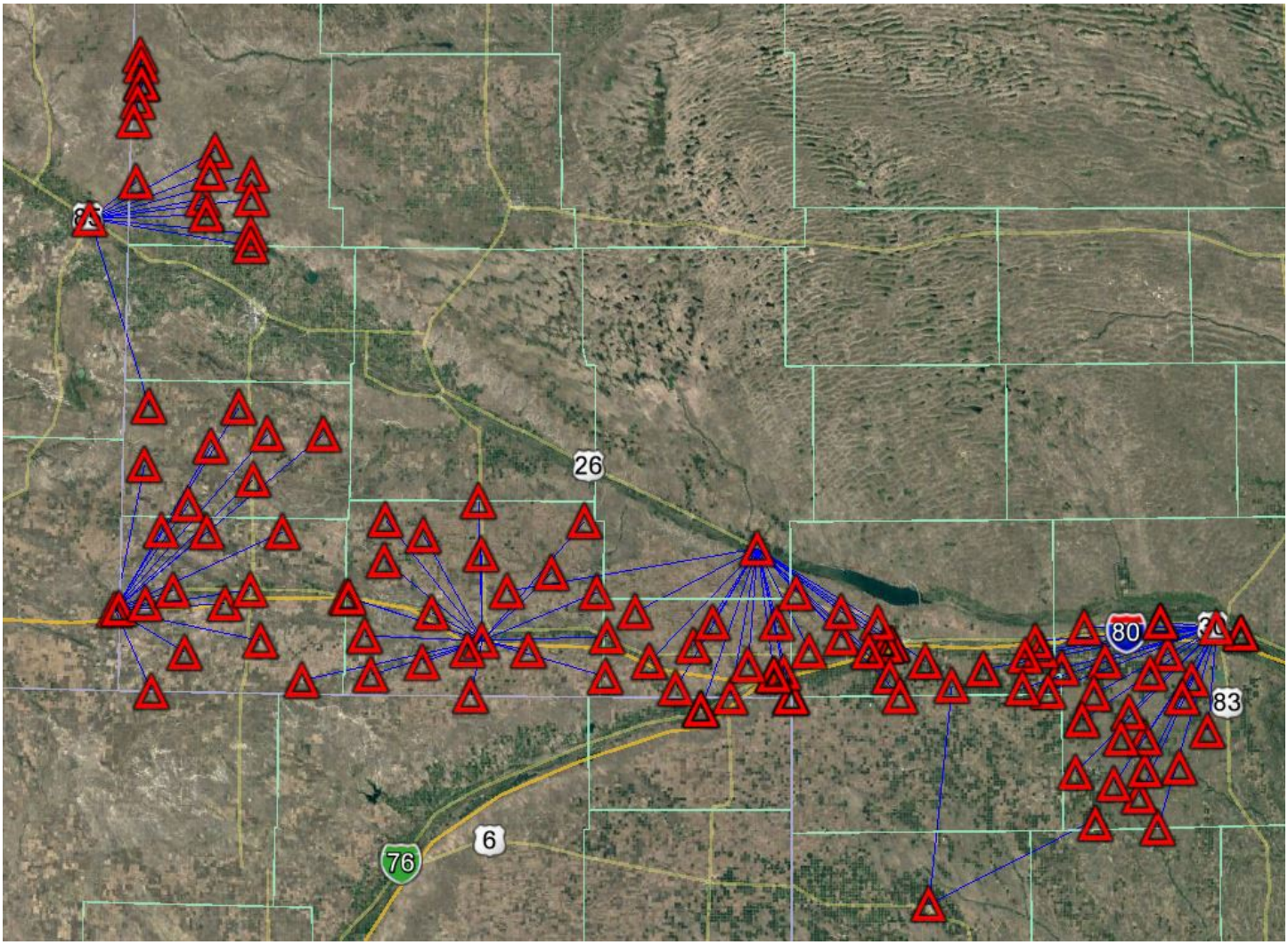
# Section 5: GPS Control Diagram

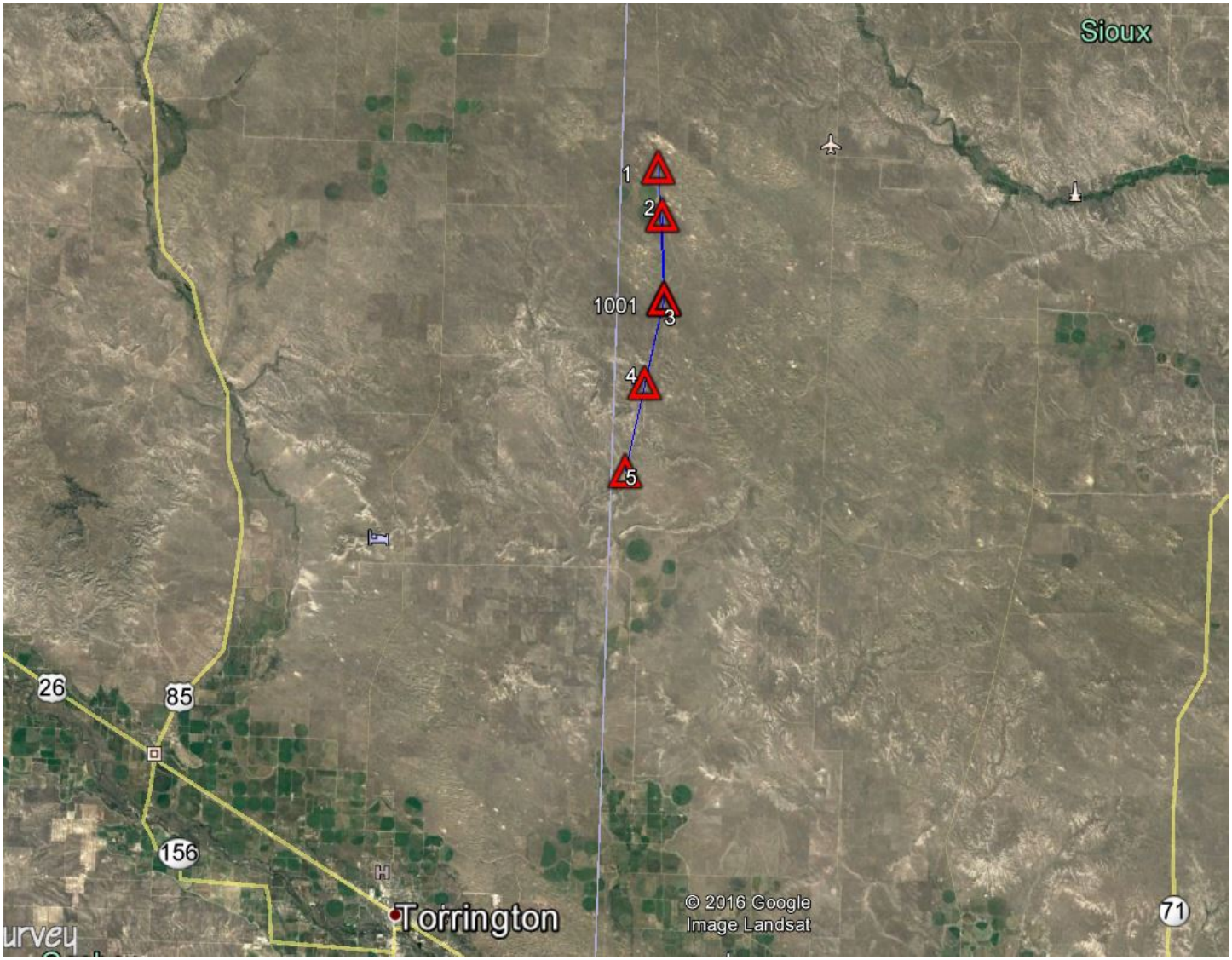
This section contains a graphical representation of the new and existing control stations used for the project.

Overview of Control Network:



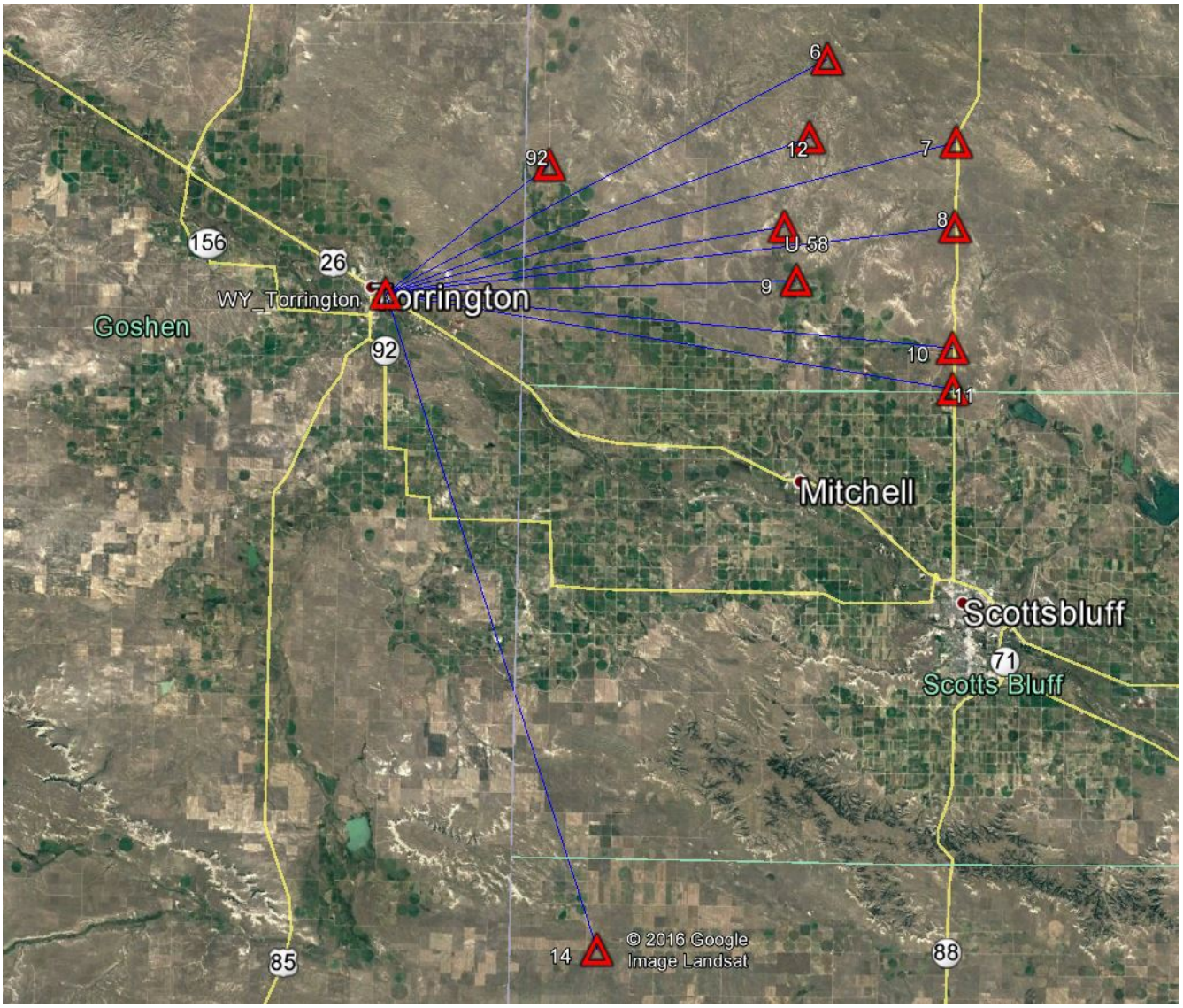

N

Not to Scale



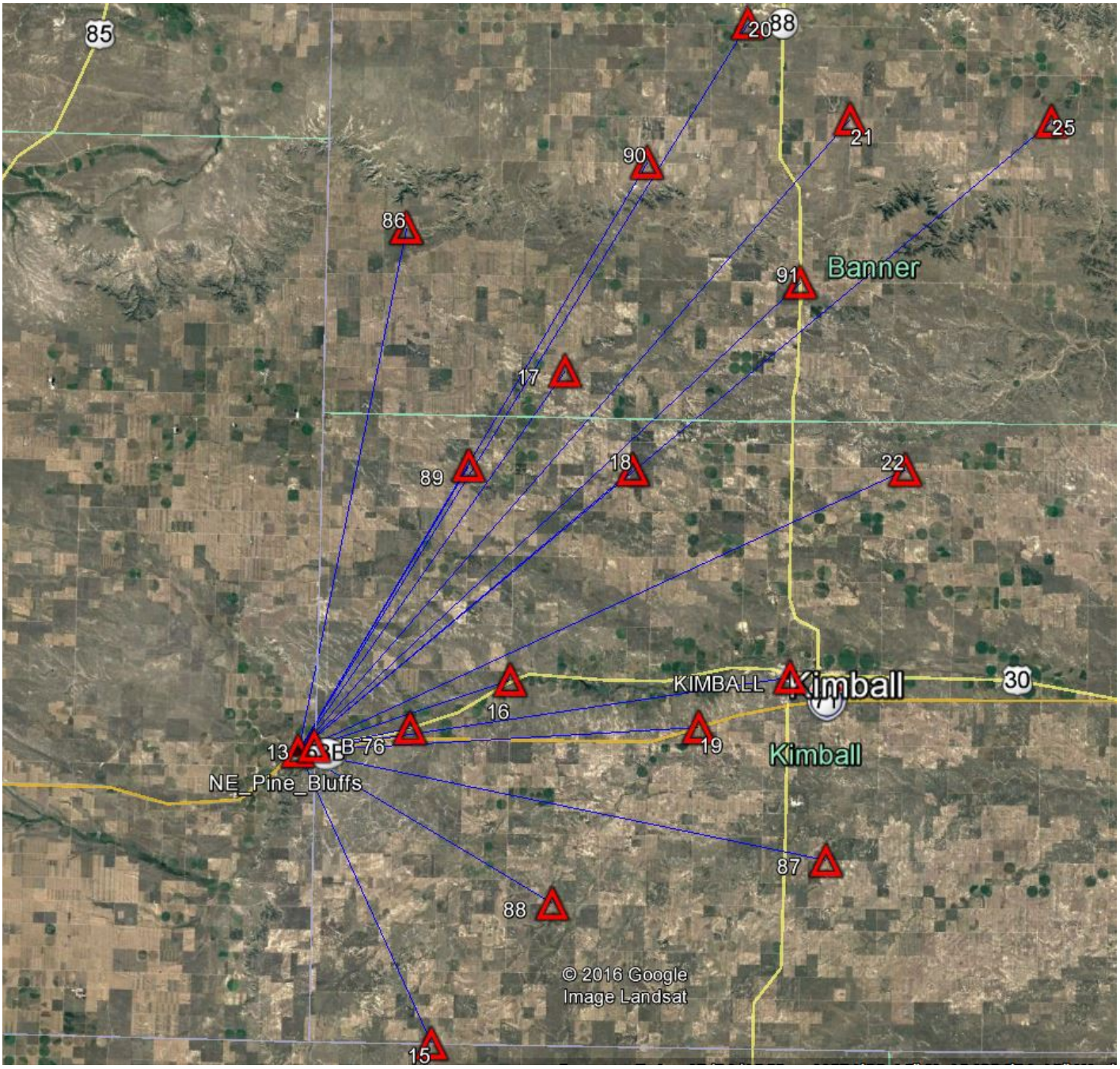

N

Not to Scale



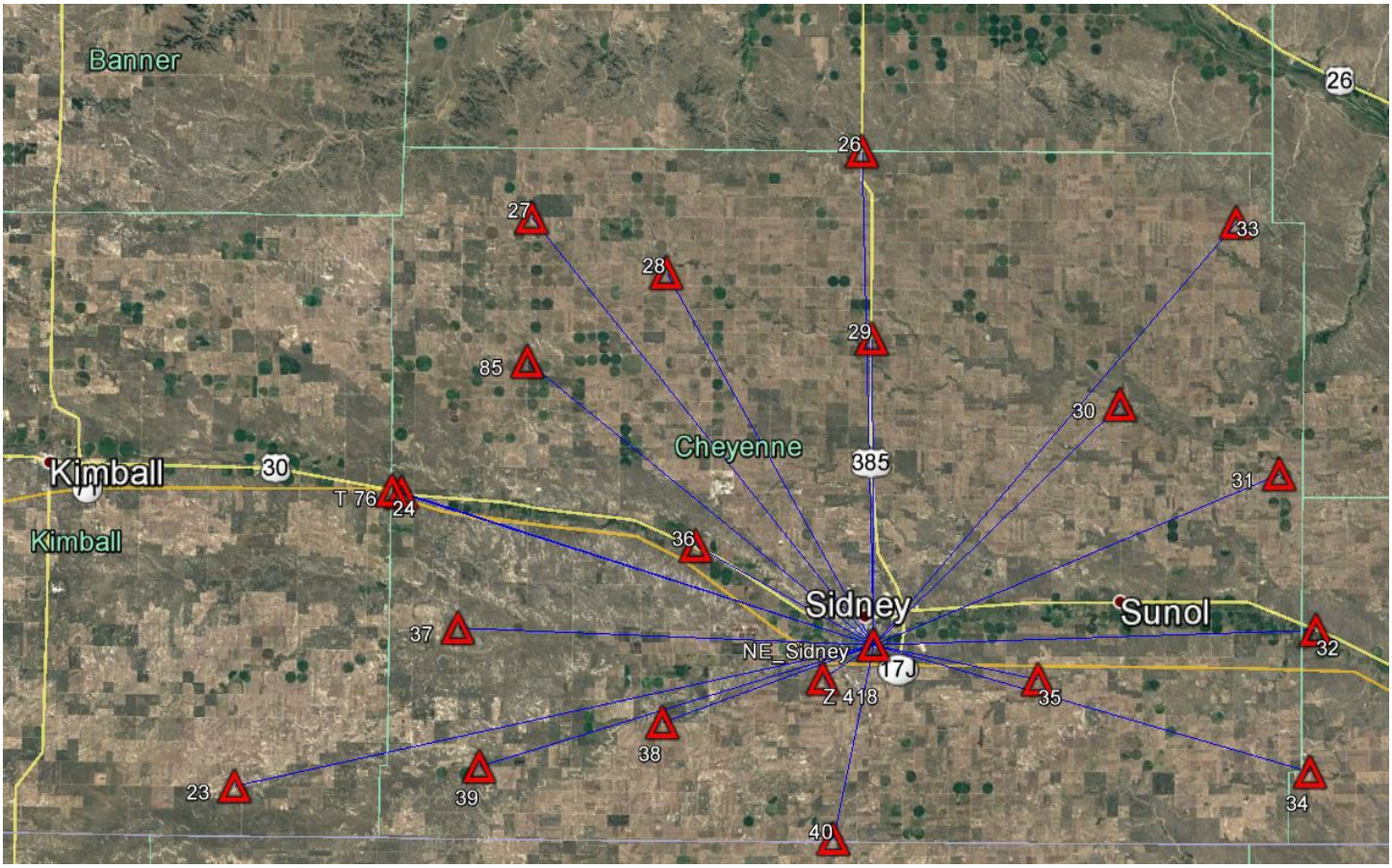

N

Not to Scale



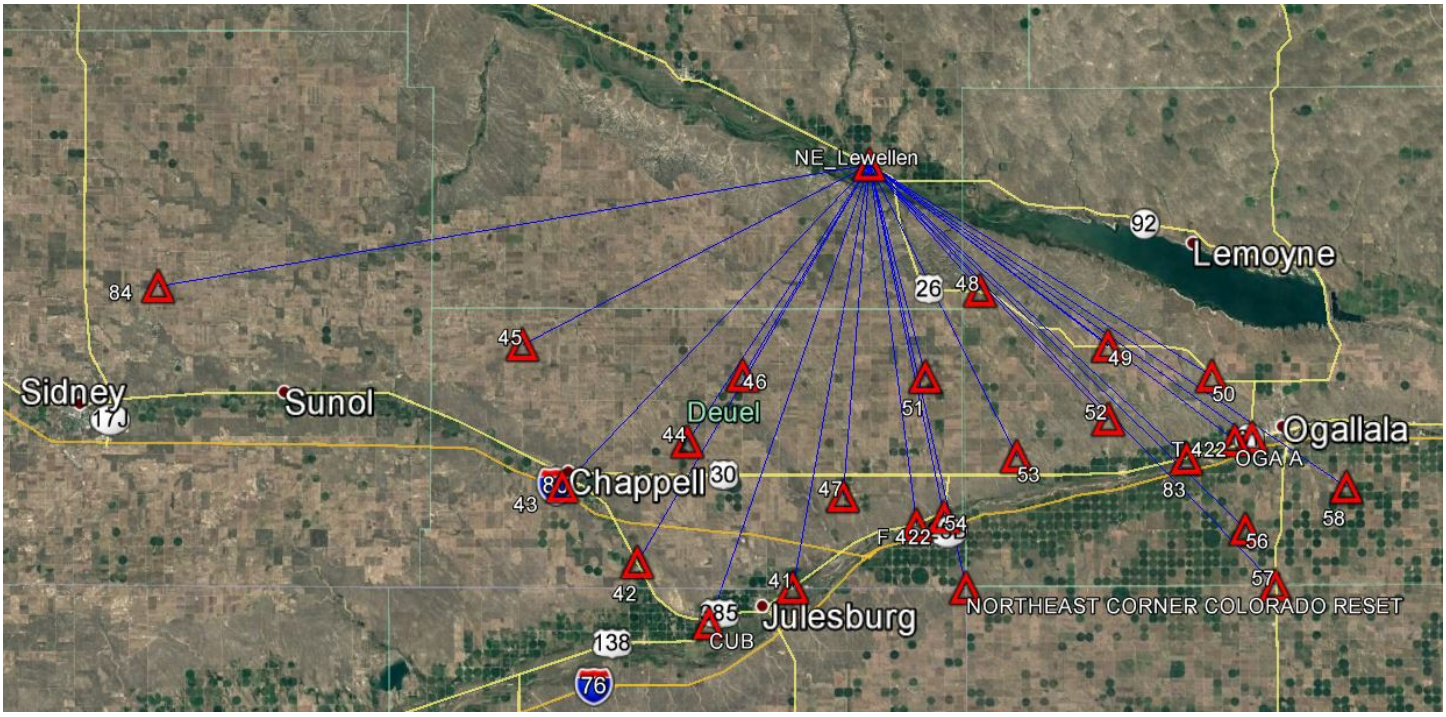

N

Not to Scale



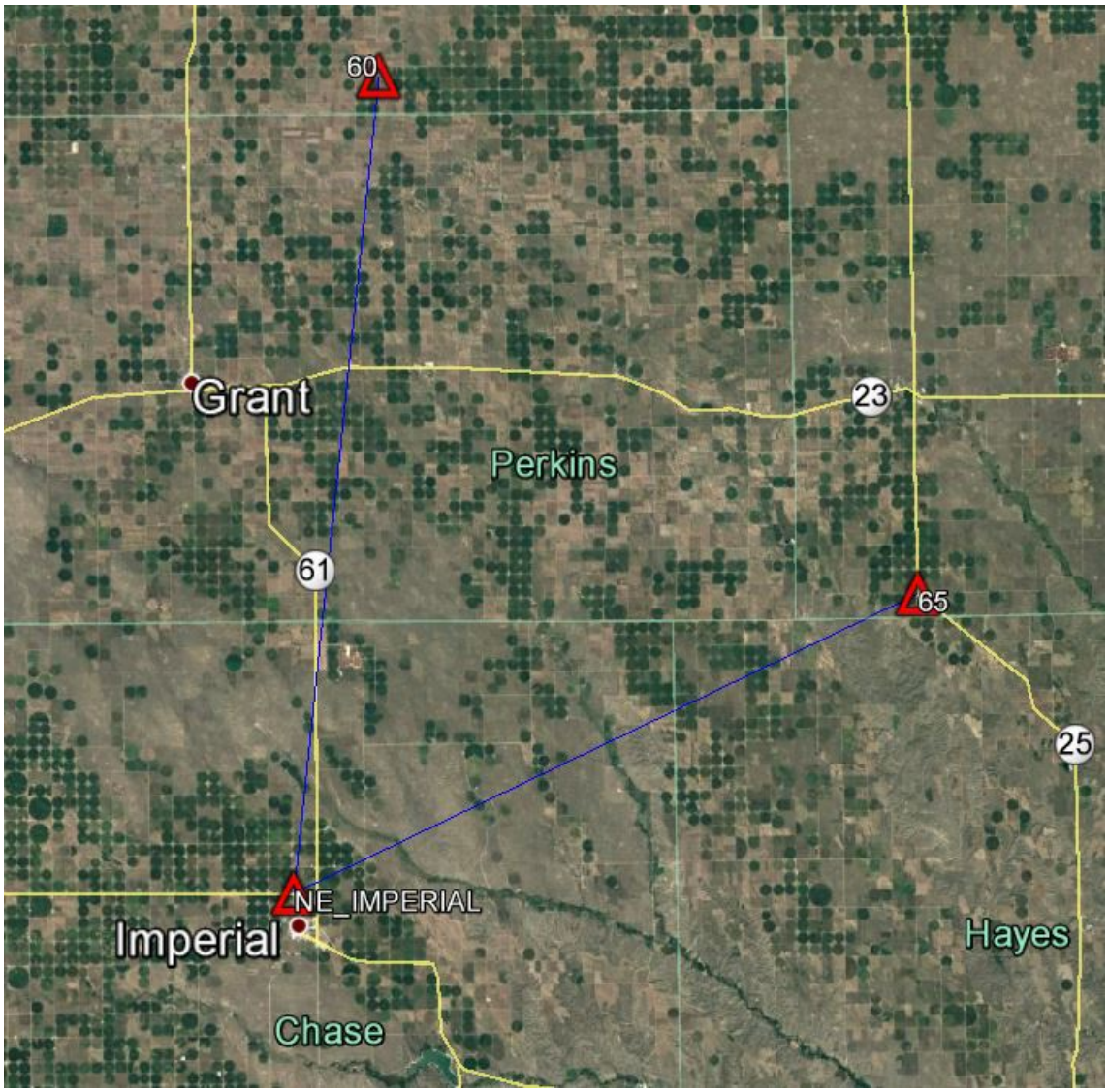

N

Not to Scale



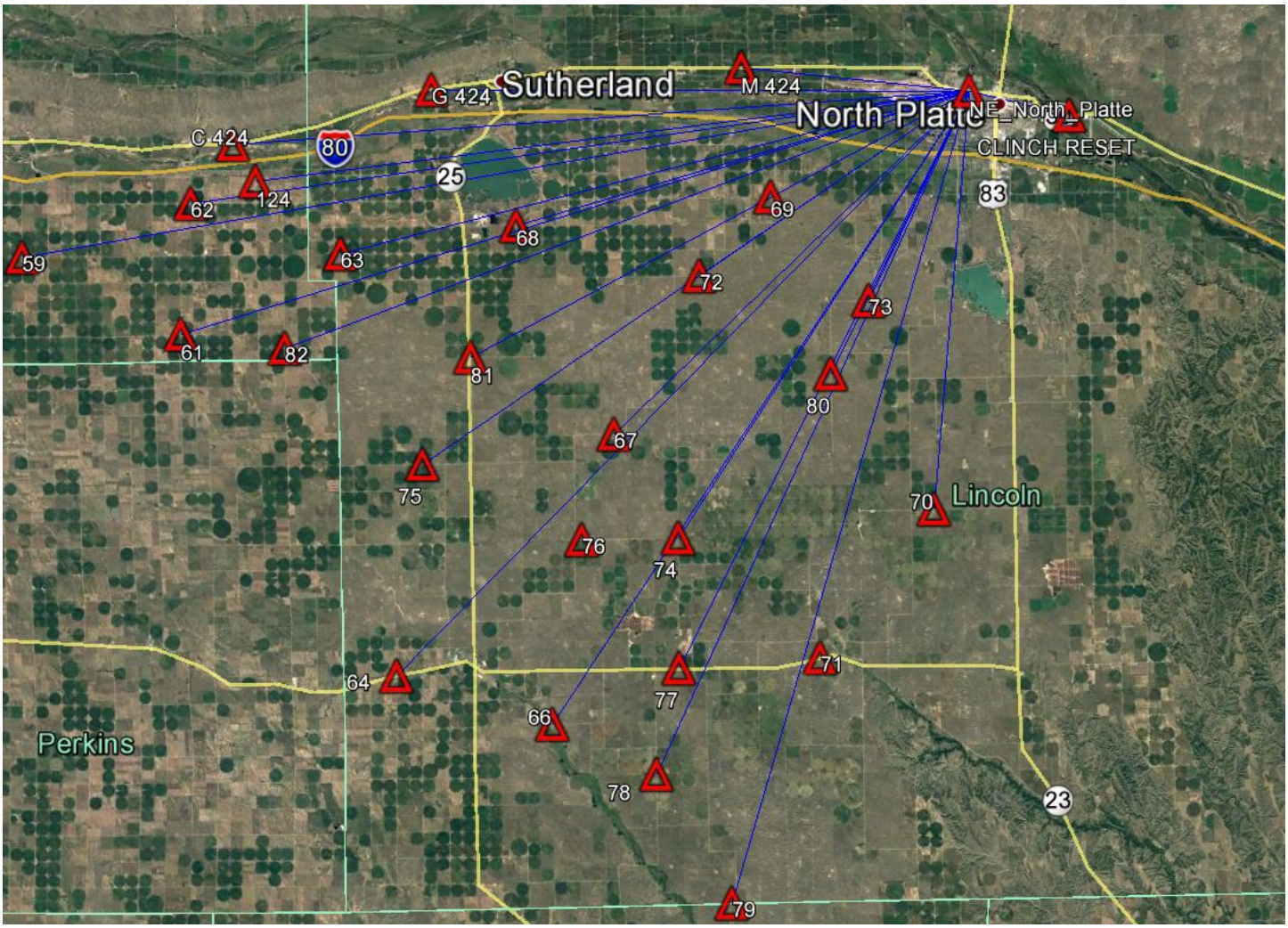

N

Not to Scale




N

Not to Scale




N

Not to Scale