

APPENDIX B

| PAG RDC 2015 LiDAR Absolute Vertical Accuracy Assessment |            |            |          |          |        |        |         |
|--|------------|------------|----------|----------|--------|--------|---------|
| Raw LAS NVA Check  |            |            |          |          |        |        |         |
| RMSE :   | 0.10       | m          |          |          |        |        |         |
| Z Bias :   | 0.08       |            |          |          |        |        |         |
| Point Count:   | 134        |            |          |          |        |        |         |
|  |            |            | Measured | Surface  |        |        |         |
| ID   | Y (M)      | X (M)      | Z1       | Z2       | DZ     | Square | Counter |
| 101  | 106187.574 | 289211.291 | 1142.921 | 1143.096 | 0.175  | 0.031  | 1       |
| 102  | 106196.669 | 293884.310 | 1036.101 | 1036.244 | 0.143  | 0.020  | 1       |
| 103  | 106240.049 | 297349.822 | 958.968  | 959.082  | 0.114  | 0.013  | 1       |
| 104  | 106509.025 | 300474.967 | 882.908  | 882.957  | 0.049  | 0.002  | 1       |
| 105  | 102522.781 | 300500.378 | 890.501  | 890.666  | 0.165  | 0.027  | 1       |
| 106  | 103554.337 | 298424.380 | 973.300  | 973.382  | 0.083  | 0.007  | 1       |
| 107  | 103348.460 | 296306.824 | 994.081  | 994.279  | 0.199  | 0.039  | 1       |
| 108  | 103473.413 | 292477.799 | 1095.396 | 1095.488 | 0.092  | 0.008  | 1       |
| 109  | 103578.495 | 289219.276 | 1166.656 | 1166.741 | 0.085  | 0.007  | 1       |
| 110  | 99914.860  | 284581.866 | 1336.542 | 1336.713 | 0.171  | 0.029  | 1       |
| 112  | 100661.477 | 292495.727 | 1095.259 | 1095.381 | 0.122  | 0.015  | 1       |
| 113  | 100711.858 | 295517.517 | 1025.061 | 1025.177 | 0.116  | 0.013  | 1       |
| 114  | 100834.024 | 298530.203 | 974.994  | 975.041  | 0.047  | 0.002  | 1       |
| 115  | 99523.607  | 300412.349 | 893.463  | 893.539  | 0.075  | 0.006  | 1       |
| 116  | 98682.658  | 293700.236 | 1119.552 | 1119.605 | 0.053  | 0.003  | 1       |
| 117  | 98813.188  | 287777.737 | 1209.053 | 1209.099 | 0.046  | 0.002  | 1       |
| 119  | 97486.964  | 290916.412 | 1115.775 | 1115.790 | 0.015  | 0.000  | 1       |
| 120  | 97377.568  | 294830.775 | 1039.560 | 1039.751 | 0.191  | 0.037  | 1       |
| 121  | 97536.369  | 298814.011 | 936.507  | 936.576  | 0.069  | 0.005  | 1       |
| 123  | 93417.192  | 294187.279 | 1016.523 | 1016.507 | -0.017 | 0.000  | 1       |
| 130  | 90333.165  | 293579.961 | 998.857  | 998.953  | 0.096  | 0.009  | 1       |
| 131  | 90342.449  | 297383.463 | 934.666  | 934.962  | 0.296  | 0.088  | 1       |
| 132  | 92340.495  | 298715.238 | 928.067  | 928.121  | 0.054  | 0.003  | 1       |
| 133  | 95093.028  | 299814.865 | 903.089  | 903.155  | 0.066  | 0.004  | 1       |
| 134  | 96914.424  | 300544.257 | 886.770  | 886.904  | 0.134  | 0.018  | 1       |
| 135  | 95681.094  | 304099.003 | 894.692  | 894.786  | 0.094  | 0.009  | 1       |
| 136  | 88876.099  | 301313.246 | 906.198  | 906.195  | -0.003 | 0.000  | 1       |
| 137  | 83970.574  | 294704.881 | 955.426  | 955.399  | -0.027 | 0.001  | 1       |
| 138  | 82450.652  | 298184.127 | 942.091  | 942.140  | 0.049  | 0.002  | 1       |
| 228  | 82552.276  | 345679.304 | 1505.712 | 1505.750 | 0.038  | 0.001  | 1       |
| 229  | 84118.140  | 345653.438 | 1508.797 | 1508.906 | 0.109  | 0.012  | 1       |
| 230  | 82684.660  | 348948.948 | 1525.018 | 1525.127 | 0.108  | 0.012  | 1       |
| 231  | 84028.791  | 348746.668 | 1555.160 | 1555.464 | 0.304  | 0.093  | 1       |
| 232  | 85638.443  | 348894.953 | 1589.556 | 1589.731 | 0.174  | 0.030  | 1       |
| 233  | 86863.910  | 349496.875 | 1626.553 | 1626.692 | 0.139  | 0.019  | 1       |
| 234  | 87541.148  | 349327.866 | 1621.149 | 1621.318 | 0.169  | 0.029  | 1       |
| 301  | 87179.371  | 334193.309 | 1410.316 | 1410.484 | 0.168  | 0.028  | 1       |
| 302  | 88289.898  | 335002.184 | 1390.647 | 1390.740 | 0.093  | 0.009  | 1       |

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|------|------------|------------|----------|----------|--------|-------|---|
| 303  | 88986.826  | 336242.037 | 1373.706 | 1373.793 | 0.087  | 0.008 | 1 |
| 304  | 90071.777  | 337176.661 | 1356.744 | 1356.921 | 0.177  | 0.031 | 1 |
| 305  | 91274.399  | 338243.445 | 1342.568 | 1342.752 | 0.184  | 0.034 | 1 |
| 306  | 93521.635  | 340278.025 | 1310.555 | 1310.725 | 0.170  | 0.029 | 1 |
| 307  | 92245.379  | 339254.415 | 1311.838 | 1312.058 | 0.220  | 0.048 | 1 |
| 4001 | 143183.506 | 298508.779 | 694.115  | 694.138  | 0.023  | 0.001 | 1 |
| 4002 | 146605.075 | 296601.176 | 681.130  | 681.139  | 0.008  | 0.000 | 1 |
| 4003 | 146631.236 | 296542.928 | 680.902  | 680.898  | -0.004 | 0.000 | 1 |
| 4004 | 144659.756 | 293483.974 | 709.023  | 709.091  | 0.068  | 0.005 | 1 |
| 4005 | 142028.522 | 294635.255 | 725.528  | 725.577  | 0.050  | 0.002 | 1 |
| 4006 | 135875.576 | 290218.368 | 964.390  | 964.457  | 0.067  | 0.004 | 1 |
| 4007 | 138946.021 | 296908.996 | 733.523  | 733.595  | 0.073  | 0.005 | 1 |
| 4008 | 137837.156 | 301541.941 | 715.110  | 715.090  | -0.020 | 0.000 | 1 |
| 4009 | 137328.676 | 302478.555 | 726.515  | 726.571  | 0.056  | 0.003 | 1 |
| 4010 | 137158.013 | 306093.187 | 753.536  | 753.655  | 0.119  | 0.014 | 1 |
| 4011 | 134415.812 | 303351.642 | 738.052  | 738.093  | 0.041  | 0.002 | 1 |
| 4012 | 129303.039 | 303202.196 | 758.909  | 758.956  | 0.046  | 0.002 | 1 |
| 4013 | 128554.670 | 297640.309 | 762.677  | 762.734  | 0.058  | 0.003 | 1 |
| 4014 | 128563.342 | 297592.846 | 763.106  | 763.238  | 0.131  | 0.017 | 1 |
| 4017 | 145694.571 | 316313.774 | 832.186  | 832.292  | 0.106  | 0.011 | 1 |
| 4018 | 146983.728 | 313712.187 | 885.142  | 885.221  | 0.078  | 0.006 | 1 |
| 4019 | 143810.709 | 310068.252 | 804.081  | 804.145  | 0.064  | 0.004 | 1 |
| 4020 | 140234.149 | 309146.387 | 740.582  | 740.659  | 0.077  | 0.006 | 1 |
| 4021 | 140034.694 | 311595.233 | 750.585  | 750.629  | 0.044  | 0.002 | 1 |
| 4022 | 144083.072 | 316050.403 | 804.169  | 804.222  | 0.053  | 0.003 | 1 |
| 4024 | 138935.134 | 315124.051 | 774.549  | 774.631  | 0.083  | 0.007 | 1 |
| 4025 | 139052.735 | 315119.214 | 773.454  | 773.541  | 0.087  | 0.008 | 1 |
| 4026 | 137426.273 | 310204.610 | 763.792  | 763.969  | 0.177  | 0.031 | 1 |
| 4027 | 133974.550 | 312735.090 | 796.726  | 796.793  | 0.067  | 0.005 | 1 |
| 4028 | 132061.473 | 316879.047 | 822.478  | 822.555  | 0.076  | 0.006 | 1 |
| 4029 | 132576.744 | 320999.818 | 871.094  | 871.216  | 0.122  | 0.015 | 1 |
| 4030 | 133725.456 | 324480.558 | 885.109  | 885.127  | 0.018  | 0.000 | 1 |
| 4031 | 135988.565 | 326048.141 | 841.864  | 841.905  | 0.041  | 0.002 | 1 |
| 4034 | 135241.561 | 315689.776 | 798.829  | 798.909  | 0.080  | 0.006 | 1 |
| 4035 | 135202.952 | 315780.673 | 798.878  | 798.914  | 0.037  | 0.001 | 1 |
| 4036 | 137666.690 | 318164.983 | 791.681  | 791.768  | 0.087  | 0.008 | 1 |
| 4037 | 139210.972 | 322795.992 | 798.271  | 798.340  | 0.069  | 0.005 | 1 |
| 4038 | 139223.170 | 322849.951 | 798.140  | 798.190  | 0.050  | 0.002 | 1 |
| 4039 | 140002.348 | 328099.040 | 858.990  | 858.983  | -0.007 | 0.000 | 1 |
| 4040 | 142732.177 | 325207.872 | 839.587  | 839.673  | 0.086  | 0.007 | 1 |
| 4041 | 142624.311 | 325164.206 | 838.109  | 838.190  | 0.082  | 0.007 | 1 |
| 4042 | 146231.214 | 326835.144 | 1143.796 | 1143.903 | 0.108  | 0.012 | 1 |
| 4043 | 144930.702 | 321080.374 | 850.672  | 850.776  | 0.103  | 0.011 | 1 |
| 4044 | 145477.638 | 319422.280 | 855.842  | 855.970  | 0.128  | 0.016 | 1 |
| 4045 | 142607.742 | 319668.824 | 797.649  | 797.731  | 0.081  | 0.007 | 1 |
| 4046 | 142750.962 | 319732.335 | 796.628  | 796.723  | 0.095  | 0.009 | 1 |
| 4047 | 142647.223 | 319842.167 | 801.459  | 801.604  | 0.144  | 0.021 | 1 |

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| 4048 | 134330.158 | 309626.633 | 775.530  | 775.523  | -0.007 | 0.000 | 1 |
| 4049 | 136375.259 | 307405.613 | 762.896  | 762.965  | 0.069  | 0.005 | 1 |
| 4050 | 141464.916 | 307564.219 | 725.759  | 725.769  | 0.010  | 0.000 | 1 |
| 4052 | 118667.351 | 313253.899 | 863.761  | 863.813  | 0.052  | 0.003 | 1 |
| 4053 | 115320.876 | 319798.114 | 927.095  | 927.103  | 0.008  | 0.000 | 1 |
| 4054 | 115856.144 | 320725.925 | 932.907  | 932.968  | 0.060  | 0.004 | 1 |
| 4055 | 115604.291 | 321008.926 | 935.693  | 935.719  | 0.026  | 0.001 | 1 |
| 4058 | 117916.498 | 325997.916 | 972.525  | 972.594  | 0.069  | 0.005 | 1 |
| 4059 | 118066.142 | 325944.342 | 971.861  | 971.978  | 0.117  | 0.014 | 1 |
| 4060 | 118091.499 | 325932.491 | 971.995  | 972.028  | 0.033  | 0.001 | 1 |
| 4061 | 120329.703 | 322982.841 | 937.611  | 937.701  | 0.091  | 0.008 | 1 |
| 4062 | 112795.367 | 329657.684 | 1040.285 | 1040.409 | 0.123  | 0.015 | 1 |
| 4063 | 113074.018 | 333227.547 | 1046.339 | 1046.488 | 0.149  | 0.022 | 1 |
| 4064 | 102632.037 | 332480.043 | 1214.070 | 1214.145 | 0.075  | 0.006 | 1 |
| 4065 | 107449.440 | 329516.195 | 1118.229 | 1118.321 | 0.092  | 0.008 | 1 |
| 4066 | 105574.917 | 322824.741 | 1073.475 | 1073.538 | 0.063  | 0.004 | 1 |
| 4067 | 103766.155 | 323116.261 | 1140.741 | 1140.502 | -0.240 | 0.057 | 1 |
| 4068 | 106730.188 | 315262.964 | 914.982  | 915.036  | 0.054  | 0.003 | 1 |
| 4069 | 104188.169 | 308525.598 | 860.194  | 860.264  | 0.069  | 0.005 | 1 |
| 4070 | 107772.522 | 306658.890 | 828.340  | 828.485  | 0.146  | 0.021 | 1 |
| 4071 | 107682.658 | 306668.372 | 828.392  | 828.380  | -0.012 | 0.000 | 1 |
| 4073 | 118644.686 | 304998.663 | 806.876  | 807.020  | 0.144  | 0.021 | 1 |
| 4074 | 131175.036 | 299273.107 | 740.557  | 740.608  | 0.051  | 0.003 | 1 |
| 4075 | 131262.300 | 299408.408 | 736.281  | 736.375  | 0.094  | 0.009 | 1 |
| 4076 | 129615.944 | 291611.746 | 776.182  | 776.245  | 0.063  | 0.004 | 1 |
| 4077 | 135037.885 | 287432.956 | 804.766  | 804.781  | 0.014  | 0.000 | 1 |
| 4078 | 127517.109 | 299382.902 | 747.193  | 747.225  | 0.033  | 0.001 | 1 |
| 4079 | 127511.196 | 299454.128 | 747.104  | 747.119  | 0.015  | 0.000 | 1 |
| 4080 | 131906.802 | 306181.381 | 766.468  | 766.591  | 0.122  | 0.015 | 1 |
| 4081 | 131892.782 | 306297.827 | 766.654  | 766.762  | 0.107  | 0.012 | 1 |
| 4082 | 135004.567 | 306744.533 | 754.517  | 754.633  | 0.115  | 0.013 | 1 |
| 4083 | 140115.603 | 306207.143 | 733.059  | 733.177  | 0.118  | 0.014 | 1 |
| 4084 | 140073.068 | 305686.105 | 731.319  | 731.284  | -0.035 | 0.001 | 1 |
| 4085 | 143731.415 | 303439.022 | 708.148  | 708.199  | 0.052  | 0.003 | 1 |
| 4086 | 143367.246 | 302343.961 | 707.115  | 707.173  | 0.059  | 0.003 | 1 |
| 4087 | 140989.102 | 300762.586 | 705.770  | 705.837  | 0.066  | 0.004 | 1 |
| 4088 | 140873.266 | 300697.938 | 705.642  | 705.710  | 0.068  | 0.005 | 1 |
| 4089 | 133709.173 | 299438.352 | 733.897  | 733.951  | 0.054  | 0.003 | 1 |
| 4090 | 125958.321 | 283425.121 | 738.722  | 738.784  | 0.062  | 0.004 | 1 |
| 4091 | 120298.305 | 271802.595 | 772.499  | 772.527  | 0.028  | 0.001 | 1 |
| 4093 | 133532.887 | 279282.024 | 694.707  | 694.794  | 0.087  | 0.008 | 1 |
| 4094 | 139072.600 | 278389.352 | 697.293  | 697.366  | 0.073  | 0.005 | 1 |
| 4095 | 145448.737 | 283166.452 | 771.687  | 771.686  | 0.000  | 0.000 | 1 |
| 4096 | 148554.374 | 279368.491 | 665.344  | 665.425  | 0.081  | 0.006 | 1 |
| 4097 | 155728.169 | 277565.118 | 610.639  | 610.776  | 0.137  | 0.019 | 1 |
| 4098 | 158362.378 | 284292.297 | 621.491  | 621.611  | 0.120  | 0.014 | 1 |
| 4100 | 158131.456 | 294226.588 | 809.920  | 809.944  | 0.024  | 0.001 | 1 |

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|      |            |            |         |         |       |       |     |
|------|------------|------------|---------|---------|-------|-------|-----|
| 4101 | 158265.565 | 303062.932 | 847.739 | 847.789 | 0.050 | 0.003 | 1   |
| 4102 | 168024.098 | 306427.405 | 968.128 | 968.170 | 0.041 | 0.002 | 1   |
|      |            |            |         |         |       |       |     |
|      |            |            |         |         |       | 1.416 | 134 |
|      |            |            |         | Mean    | 0.082 |       |     |
|      |            |            |         | Sdev    | 0.066 |       |     |
|      |            |            |         |         |       |       |     |
|      |            |            |         | RMSE    | 0.103 |       |     |
|      |            |            |         |         |       |       |     |
|      |            |            |         |         |       |       | 134 |