

#### **Appendix D: Floyd County, IA (34-US018-95)**

- ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_171447
- ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_174743
- ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_175636
- ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_181358
- ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_183704
- ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_185855
- ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_193920
- ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_195606
- ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_201226

Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_171447

Project:	Floyd County US18	Date and Time:	9/13/2022 5:14:47 PM	Machine ID:	Ingios01
Description:	US18/US218/IA27 AT FLOYD CO T44	Mapping Duration (hrs):	0.465	Operator:	Ingios
Location:	Floyd County IA	No. of Measurements:	26741	Machine Operator ID:	822
Review Status:	Review Required	Map Type:	Verification Map	State Plane:	1401 IOWA NORTH
		Map Layer:	Subgrade Top	Segment:	Other

Map Summary

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
XMV	No												
Resilient Modulus	No												
k-value	Yes	24.1	36.2	0.3	100.0	35.0	77.2	165.0	35.3	45.8	-65.0	-22.8	65.0
Moisture Content	No												

Mapped Area		Pass Count					Elevation (ft)			Velocity (fps)		
square feet	acres	10th percentile	Median	cov(%)	% >= TV	Target Value	min.	avg.	max.	min.	avg.	max.
26741	0.614	0	0	0.0	0.0	0	1058.46	1060.21	1063.93	4.6	5.1	6.5

Materials

name	id	% of total	area-square ft	area-acres	tl-xmv	tl-Mr	tl-k value	tl-w%
Subgrade_Class 10 (Clay)_IADOT	24005	100.0	26741	0.614	100.0	3000.0	100.0	20.5

Blobs

parameter	min. area(ft^2)	# of blobs	blob area(ft^2)	% of map	lower bound-tv	upper bound-tv	poly-tol.
k-value	1000.0	2	21471	80.3	none	0.0	4.0

Lift Thickness

25th percentile (in.)	Median (in.)	75th percentile (in.)	Target Value (in.)
0.0	0.0	0.0	6.0

Station

Start	End
1398+00	1403+00

Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_171447

Project:	Floyd County US18	Date and Time:	9/13/2022 5:14:47 PM	Machine ID:	Ingios01
Description:	US18/US218/IA27 AT FLOYD CO T44	Mapping Duration (hrs):	0.465	Operator:	Ingios
Location:	Floyd County IA	No. of Measurements:	26741	Machine Operator ID:	822
Review Status:	Review Required	Map Type:	Verification Map	State Plane:	1401 IOWA NORTH
		Map Layer:	Subgrade Top	Segment:	Other

**QUALITY ANALYSIS SUMMARY - k-Value**

Quality Value	Criteria
<b>36.2</b>	CQI > = 95
<b>24.1</b>	80% of k-Value MVs >= 100
<b>45.8</b>	COV <= 30
80.3	% i-Score Blob Area >= 1000 ft <sup>2</sup>
<b>0.0</b>	Lift Thickness Median Value (in.)
<b>0</b>	Pass Count >= 0

Compaction Quality Index(CQI): Relative compaction quality index based on the percentage of the geospatial area that meets the minimum target values and accounts for the uniformity of compaction. The default minimum target CQI is 95% using a uniformity weight factor of 50%.

Percent Passing Target Values: Number of geospatial grid points from the output that meet or exceed the target value (TV) for the selected material. Level I target % Passing TV = 80%. Level II target % Passing TV = 90%.

Coefficient of Variation (COV): Calculated from the ratio of the standard deviation to the mean based on the measurement values (MVs) reported at each grid point of the mapping area. Description of COV ranges: <= 20% = Low Variability; 20 to 40% = Moderate Variability; > 40% = High Variability. The default target COV is <= 30%.

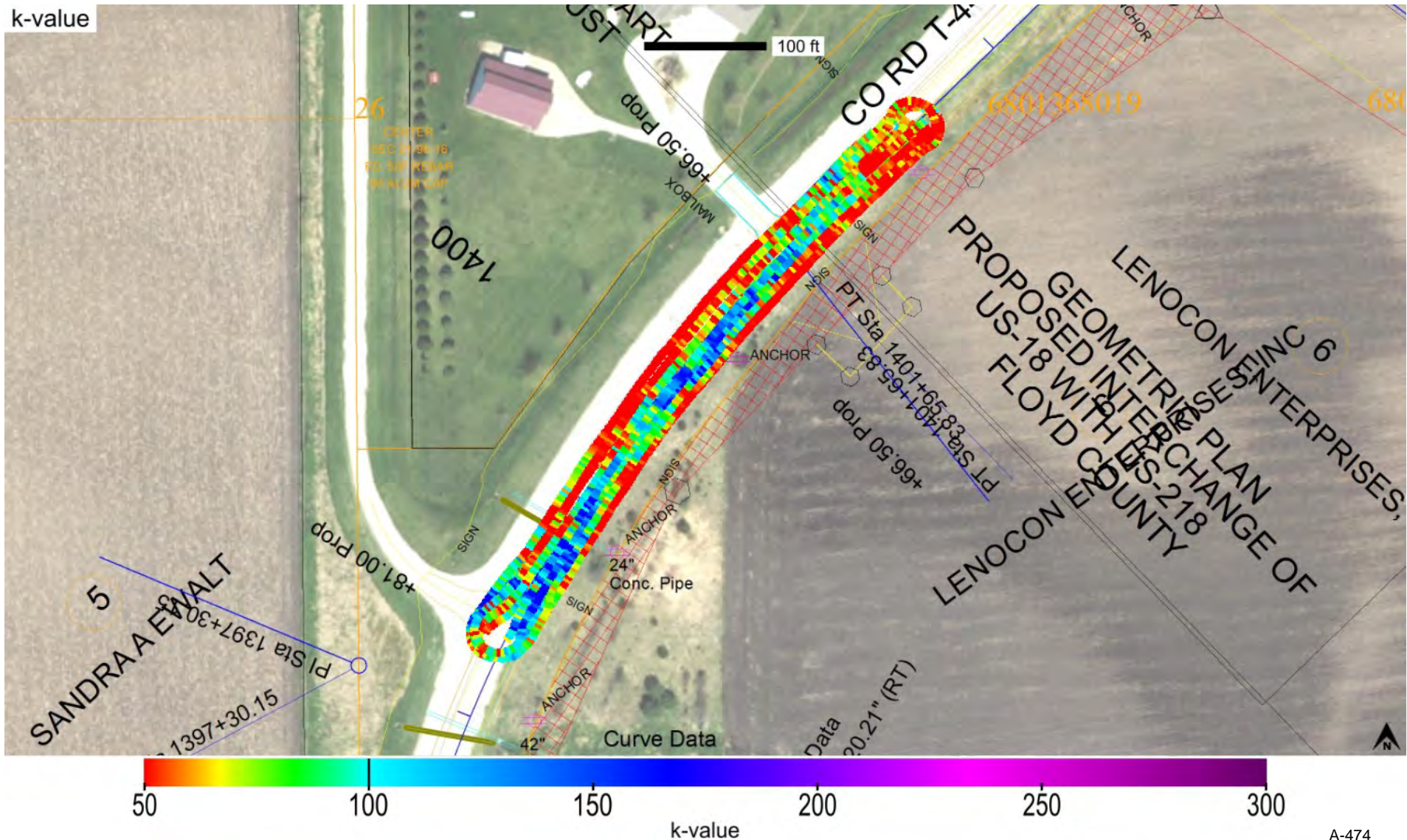
i-Score Blob (%): The percentage of the map area analyzed with contiguous blob areas with MVs < TV. Control Level 1 >= 100 sq. ft.; Control Level 2 >= 200 sq. ft.; Control Level 3 >= 500 sq. ft.; Control Level 4 >= 1,000 sq. ft.; Control Level 5 >= 2,000 sq. ft.

Lift thickness: Green: 75th percentile value <= TV; Yellow: median value <= TV and 75th percentile > TV; Red: median value (50th percentile) > TV.

Pass Count: Green: 10th percentile value >= TV; Yellow: 10th percentile value >= TV and cov% > 50%; Red: 10th percentile value < TV.

Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_171447 Map Type: Verification Map Map Layer: Subgrade Top

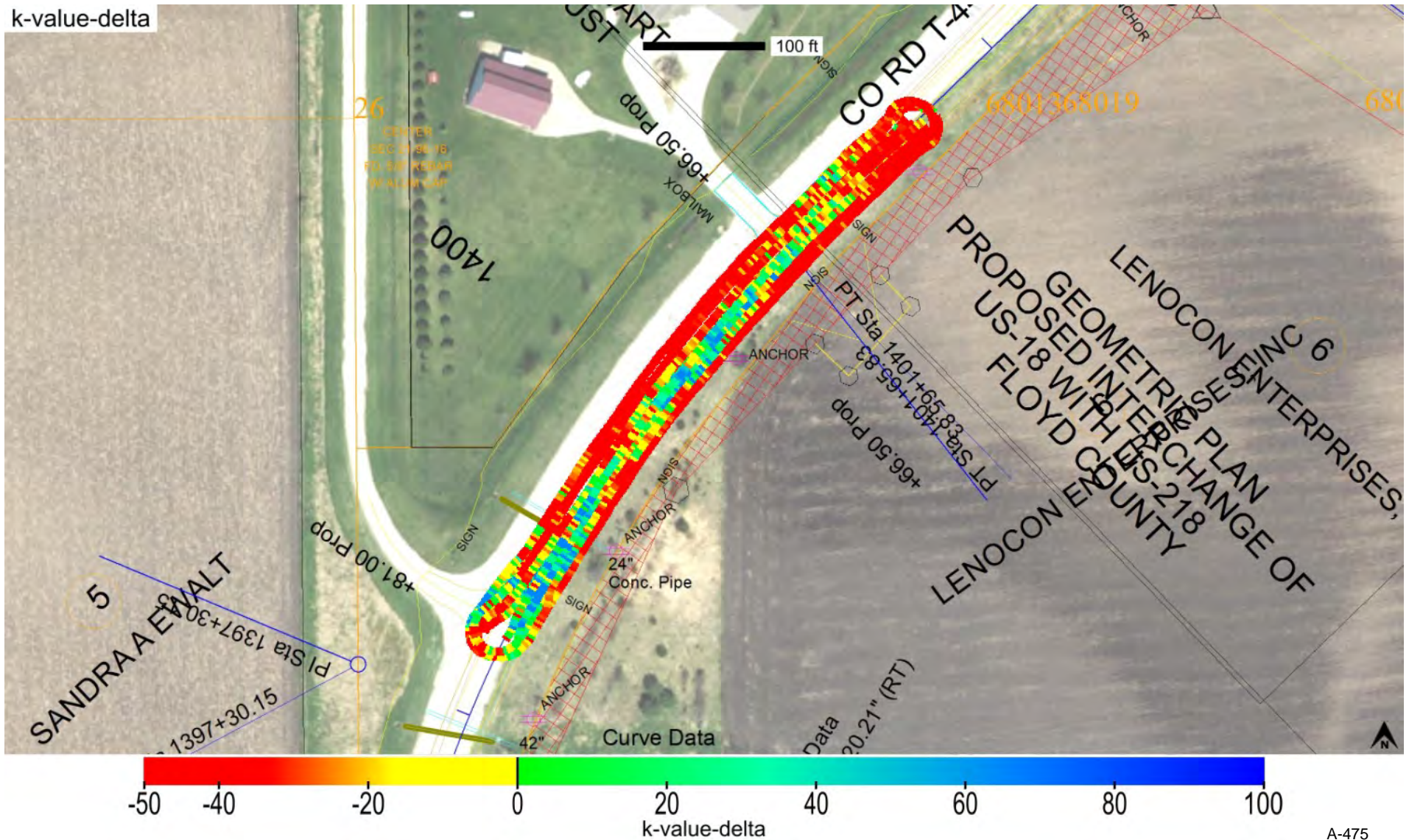
Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
k-value	Yes	24.1	36.2	0.3	100.0	35.0	77.2	165.0	35.3	45.8	-65.0	-22.8	65.0





Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_171447 Map Type: Verification Map Map Layer: Subgrade Top

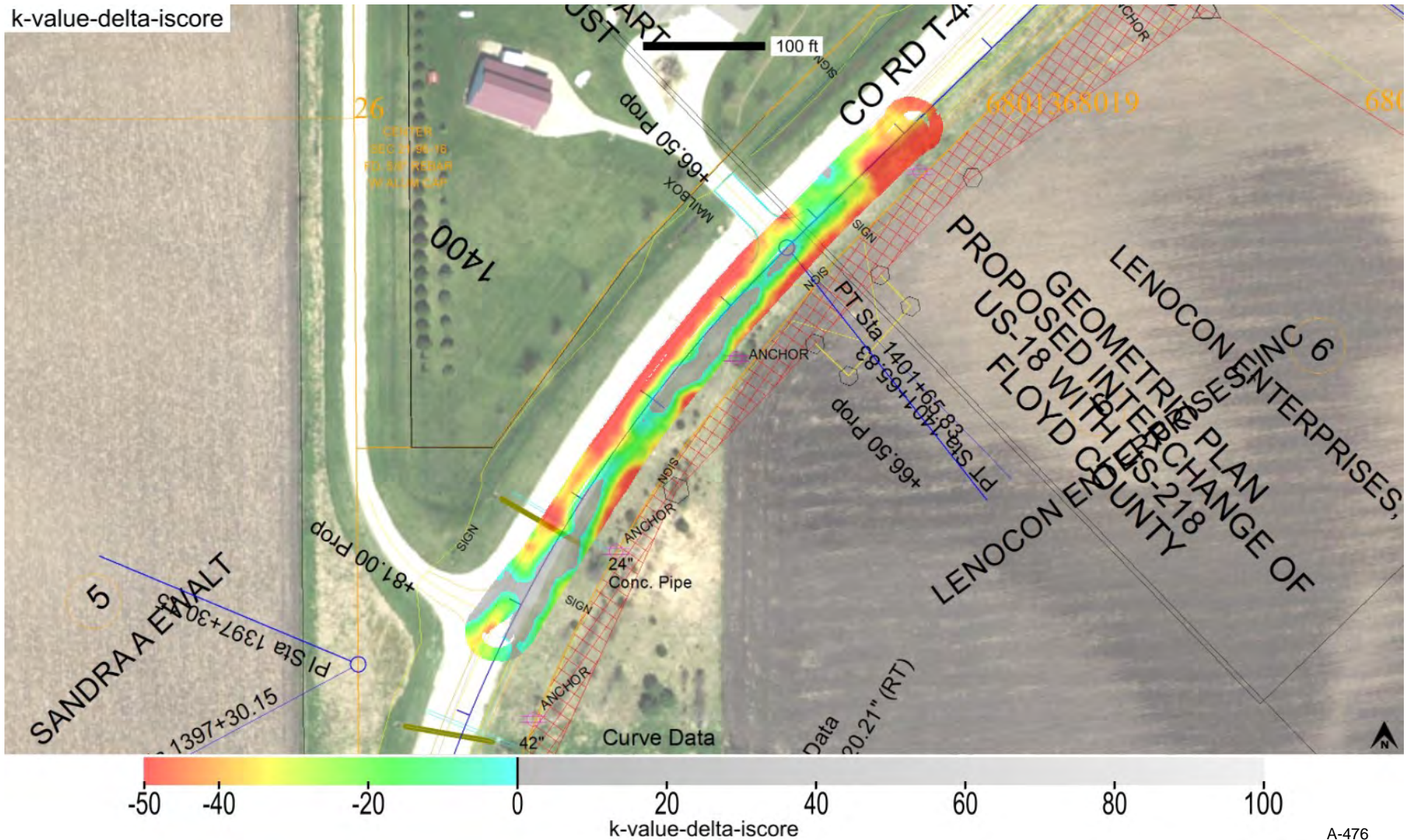
Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
k-value	Yes	24.1	36.2	0.3	100.0	35.0	77.2	165.0	35.3	45.8	-65.0	-22.8	65.0





Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_171447 Map Type: Verification Map Map Layer: Subgrade Top

Parameter	Measured	% Passing	Calc. TV	min.-delta	avg.-delta	max.-delta	min.-delta-iscore	avg.-delta-iscore	max.-delta-iscore
k-value	Yes	24.1	100.0	-65.0	-22.8	65.0	-62.8	-22.4	40.6























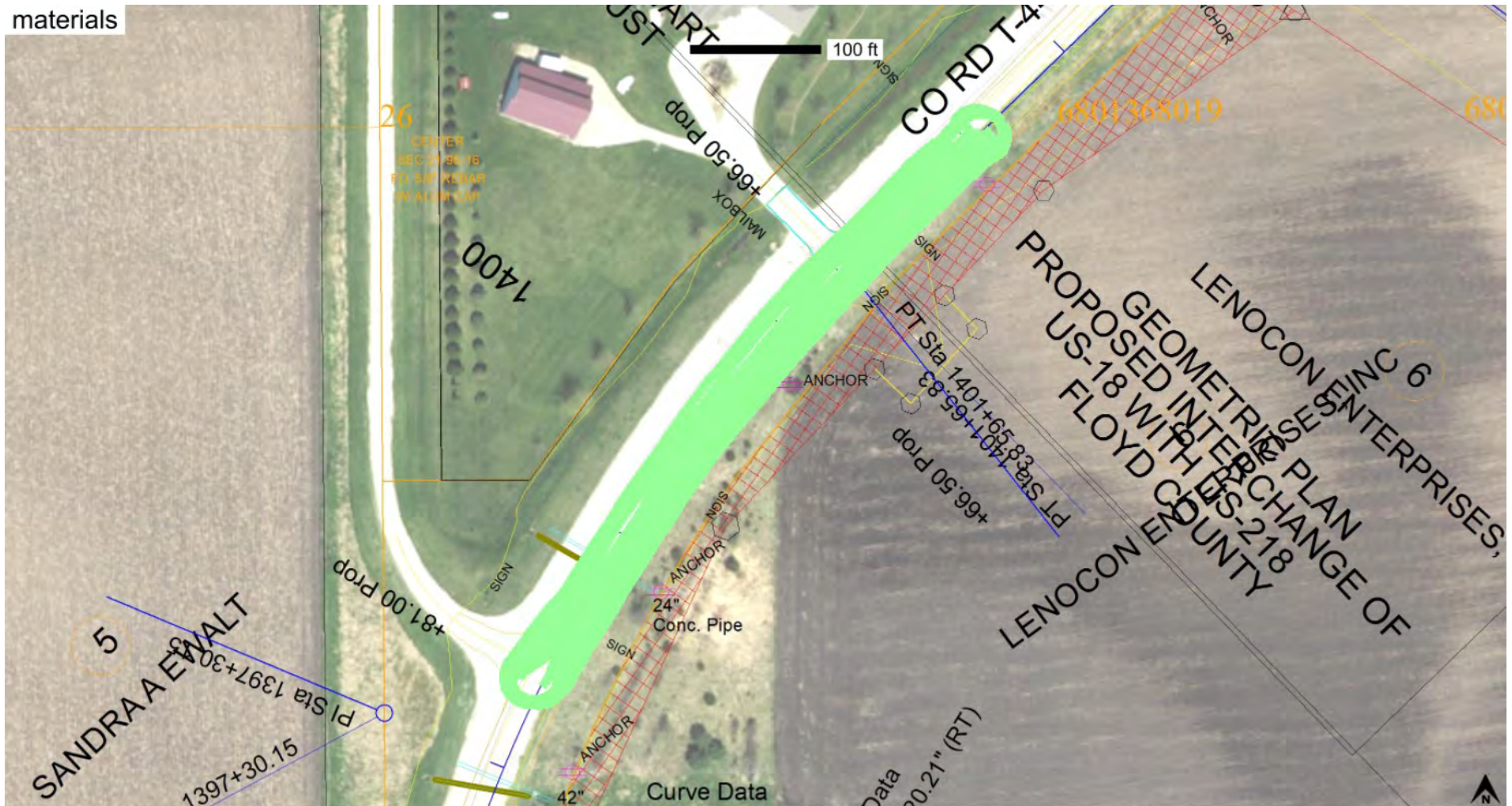






Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_171447 Map Type: Verification Map Map Layer: Subgrade Top

name	id	% of total	area-square ft	area-acres	tl-xmv	tl-Mr	tl-k value	tl-w%
Subgrade_Class 10 (Clay)_IADOT	24005	100.0	26741	0.614	100.0	3000.0	100.0	20.5



Subgrade\_Class 10 (Clay)\_IADOT





Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_174743

Project:	Floyd County US18	Date and Time:	9/13/2022 5:47:43 PM	Machine ID:	Ingios01
Description:	US18/US218/IA27 AT FLOYD CO T44	Mapping Duration (hrs):	0.144	Operator:	Ingios
Location:	Floyd County IA	No. of Measurements:	15649	Machine Operator ID:	822
Review Status:	Review Required	Map Type:	Verification Map	State Plane:	1401 IOWA NORTH
		Map Layer:	Subbase 6 Inches	Segment:	RAMP C

Map Summary

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
XMV	No												
Resilient Modulus	No												
k-value	Yes	14.3	31.9	0.5	150.0	20.0	106.9	189.0	37.0	34.6	-130.0	-43.1	39.0
Moisture Content	No												

Mapped Area

square feet	acres
15649	0.359

Pass Count

10th percentile	Median	cov(%)	% >= TV	Target Value
0	0	0.0	0.0	0

Elevation (ft)

min.	avg.	max.
1051.68	1054.00	1059.42

Velocity (fps)

min.	avg.	max.
4.6	5.1	5.9

Materials

name	id	% of total	area-square ft	area-acres	tl-xmv	tl-Mr	tl-k value	tl-w%
Modified Subbase Recycled PCC_IADOT	41024	100.0	15649	0.359	100.0	10017.0	150.0	20.5

Blobs

parameter	min. area(ft^2)	# of blobs	blob area(ft^2)	% of map	lower bound-tv	upper bound-tv	poly-tol.
k-value	1000.0	1	14462	92.4	none	0.0	4.0

Lift Thickness

25th percentile (in.)	Median (in.)	75th percentile (in.)	Target Value (in.)
0.0	0.0	0.0	6.0

Station

Start	End
6410+00	6418+00



Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_174743

Project:	Floyd County US18	Date and Time:	9/13/2022 5:47:43 PM	Machine ID:	Ingios01
Description:	US18/US218/IA27 AT FLOYD CO T44	Mapping Duration (hrs):	0.144	Operator:	Ingios
Location:	Floyd County IA	No. of Measurements:	15649	Machine Operator ID:	822
Review Status:	Review Required	Map Type:	Verification Map	State Plane:	1401 IOWA NORTH
		Map Layer:	Subbase 6 Inches	Segment:	RAMP C

**QUALITY ANALYSIS SUMMARY - k-Value**

Quality Value	Criteria
<b>31.9</b>	CQI > = 95
<b>14.3</b>	80% of k-Value MVs >= 150
<b>34.6</b>	COV <= 30
92.4	% i-Score Blob Area >= 1000 ft <sup>2</sup>
<b>0.0</b>	Lift Thickness Median Value (in.)
<b>0</b>	Pass Count >= 0

Compaction Quality Index(CQI): Relative compaction quality index based on the percentage of the geospatial area that meets the minimum target values and accounts for the uniformity of compaction. The default minimum target CQI is 95% using a uniformity weight factor of 50%.

Percent Passing Target Values: Number of geospatial grid points from the output that meet or exceed the target value (TV) for the selected material. Level I target % Passing TV = 80%. Level II target % Passing TV = 90%.

Coefficient of Variation (COV): Calculated from the ratio of the standard deviation to the mean based on the measurement values (MVs) reported at each grid point of the mapping area. Description of COV ranges: <= 20% = Low Variability; 20 to 40% = Moderate Variability; > 40% = High Variability. The default target COV is <= 30%.

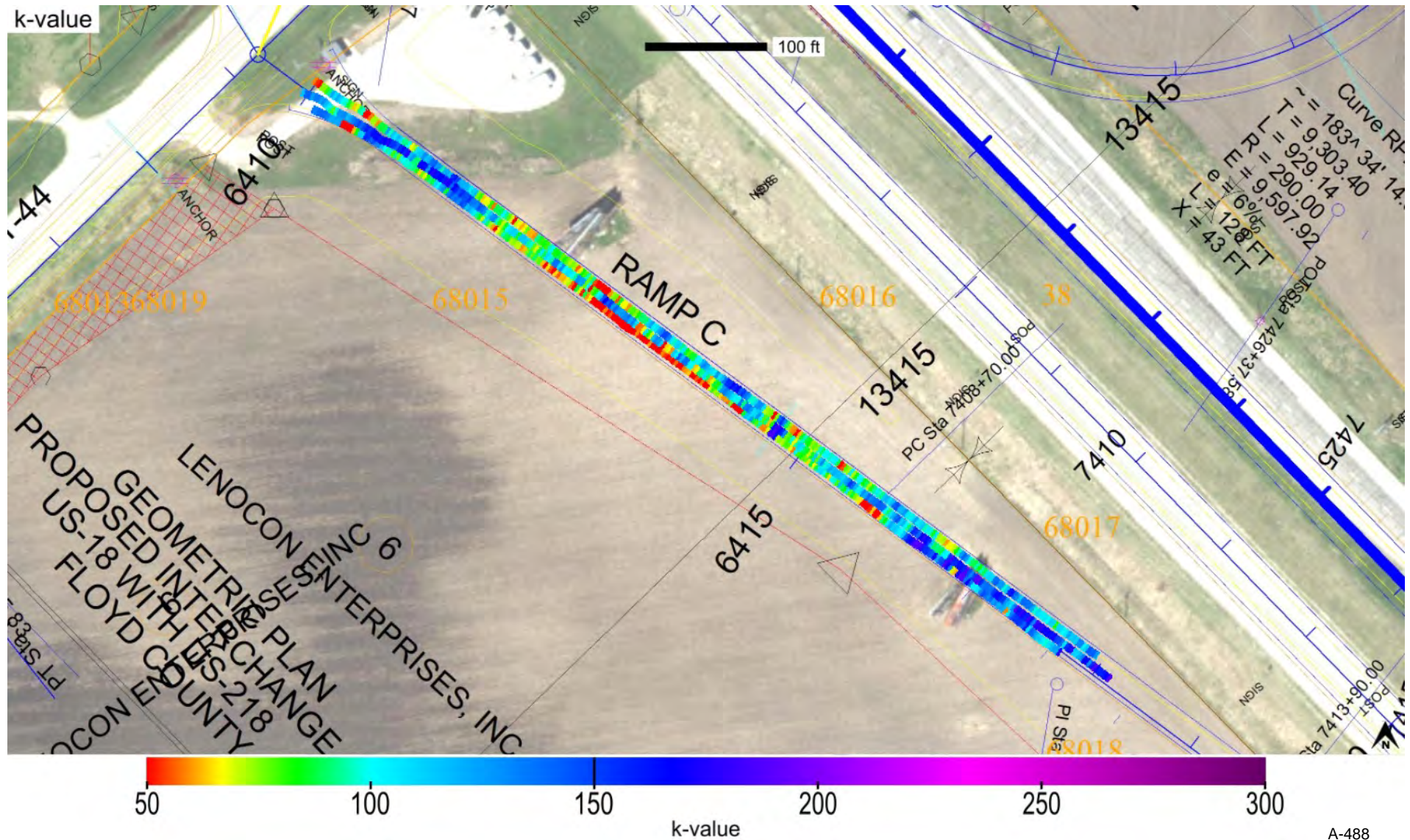
i-Score Blob (%): The percentage of the map area analyzed with contiguous blob areas with MVs < TV. Control Level 1 >= 100 sq. ft.; Control Level 2 >= 200 sq. ft.; Control Level 3 >= 500 sq. ft.; Control Level 4 >= 1,000 sq. ft.; Control Level 5 >= 2,000 sq. ft.

Lift thickness: Green: 75th percentile value <= TV; Yellow: median value <= TV and 75th percentile > TV; Red: median value (50th percentile) > TV.

Pass Count: Green: 10th percentile value >= TV; Yellow: 10th percentile value >= TV and cov% > 50%; Red: 10th percentile value < TV.

Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_174743    Map Type: Verification Map    Map Layer: Subbase 6 Inches

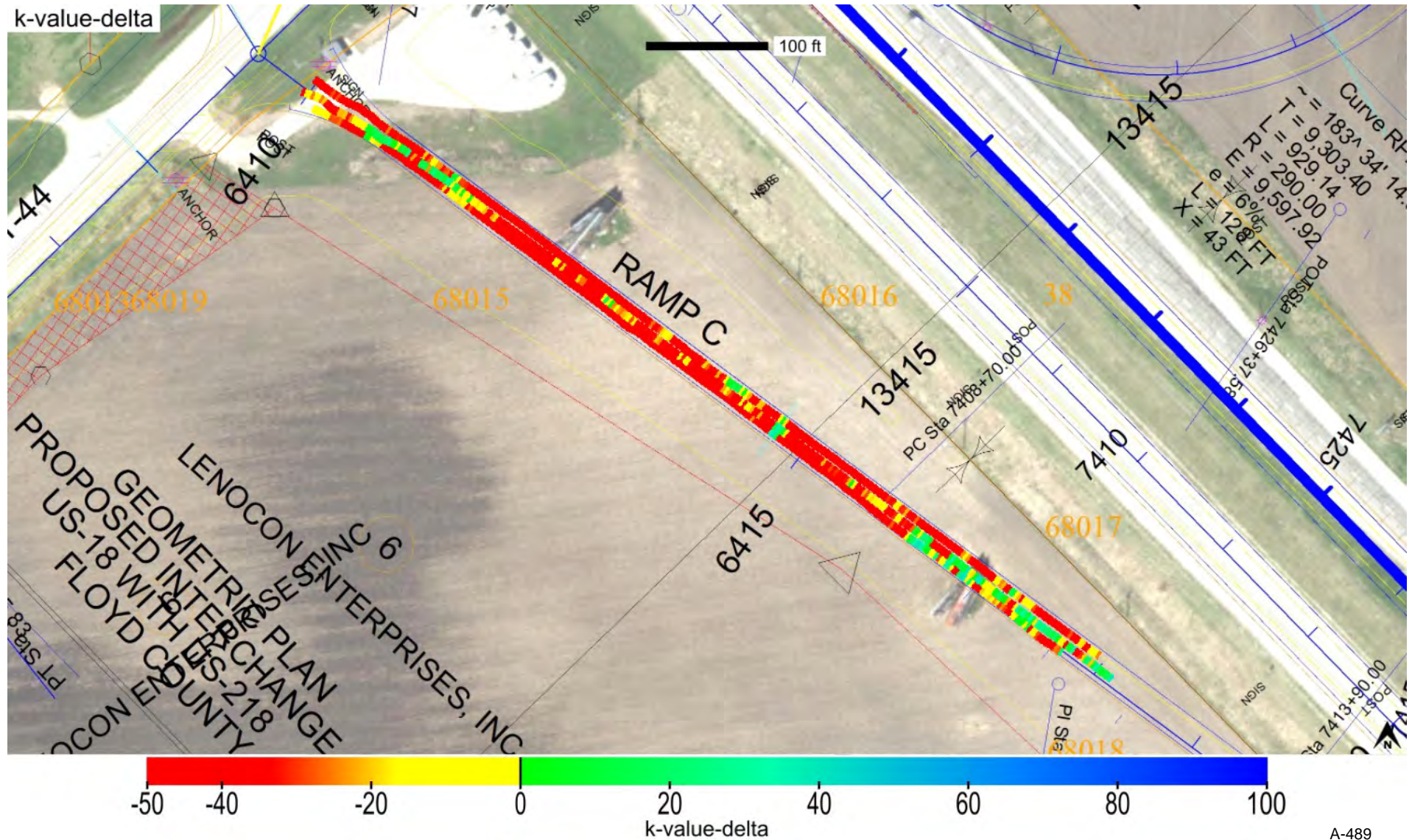
Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
k-value	Yes	14.3	31.9	0.5	150.0	20.0	106.9	189.0	37.0	34.6	-130.0	-43.1	39.0





Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_174743 Map Type: Verification Map Map Layer: Subbase 6 Inches

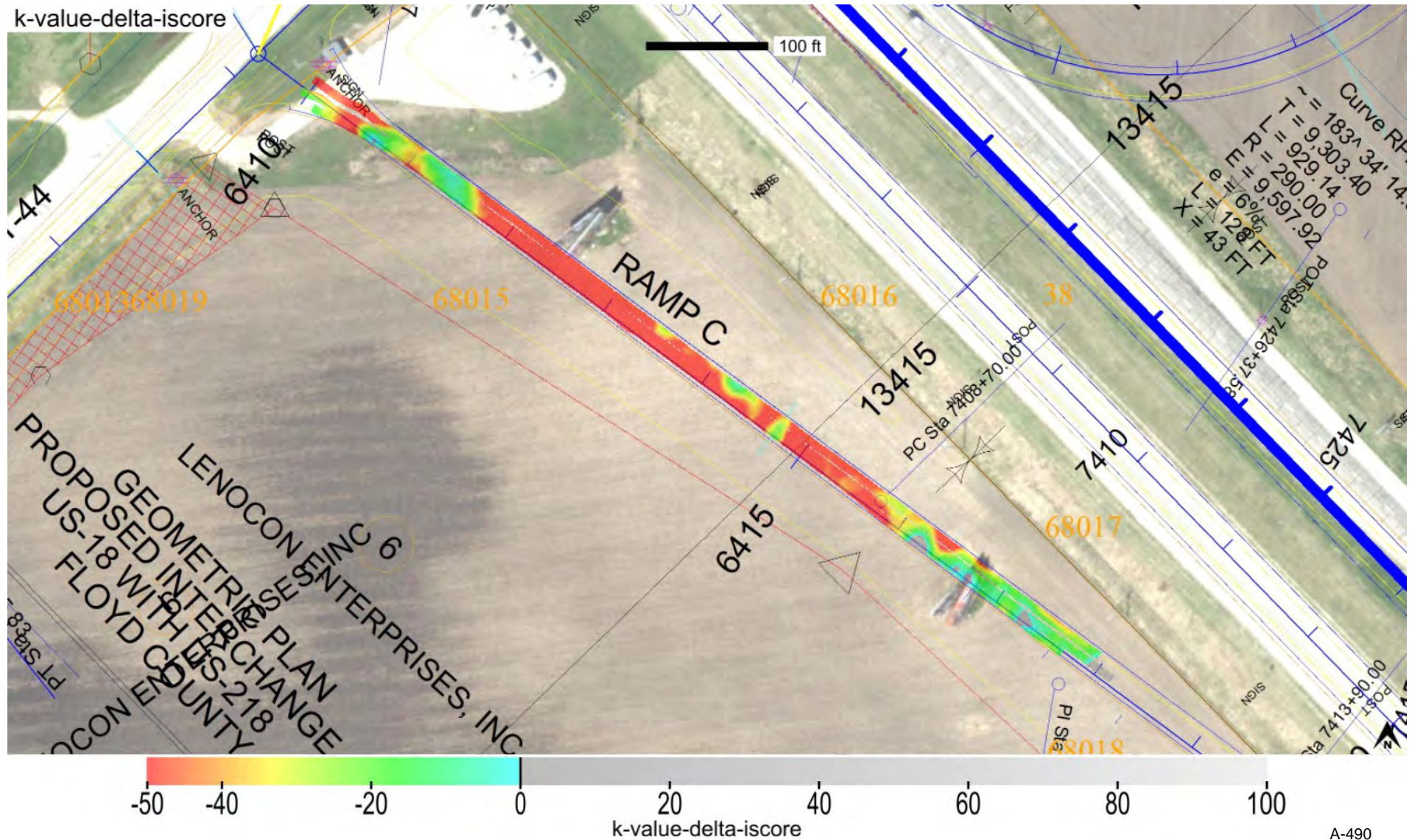
Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
k-value	Yes	14.3	31.9	0.5	150.0	20.0	106.9	189.0	37.0	34.6	-130.0	-43.1	39.0





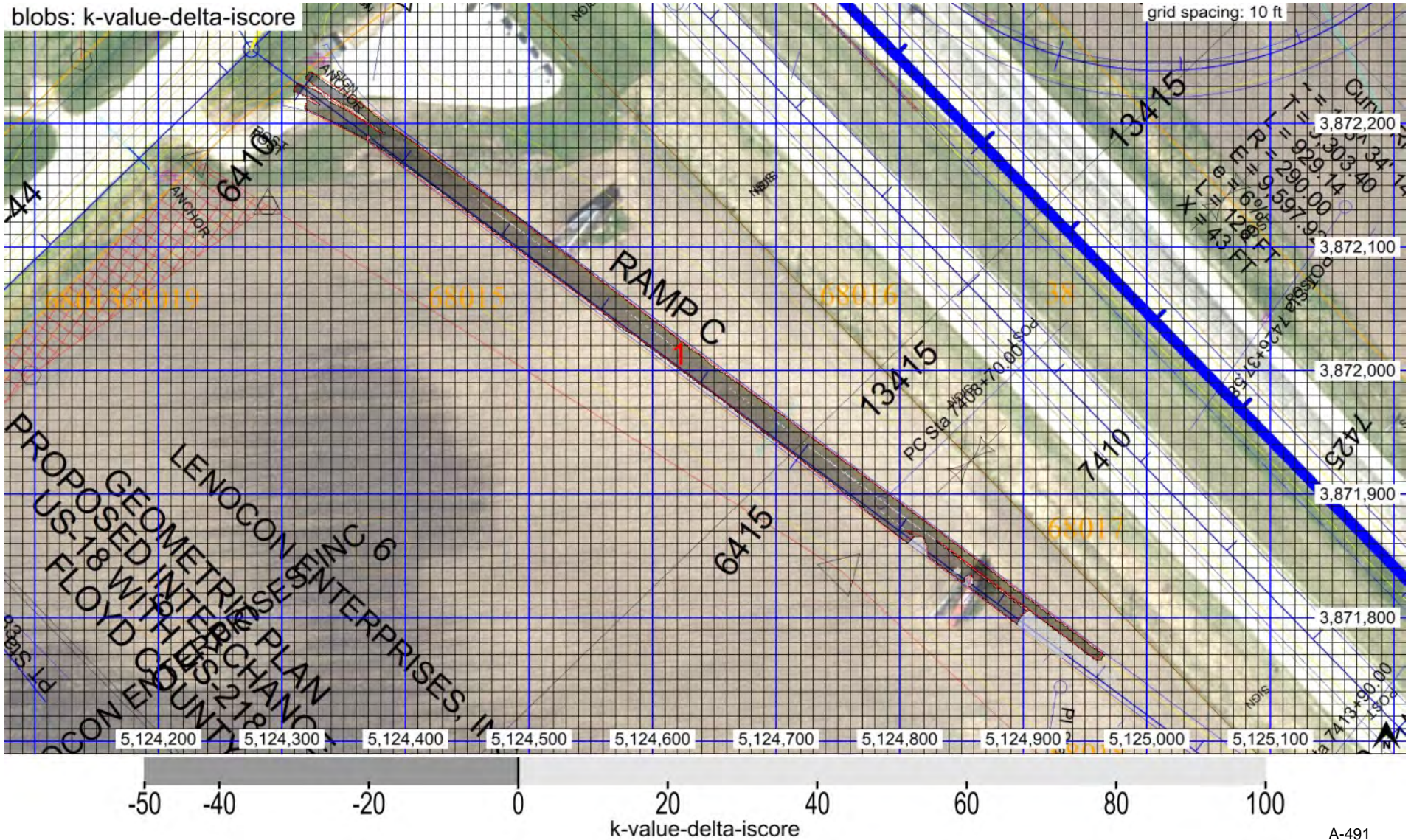
Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_174743    Map Type: Verification Map    Map Layer: Subbase 6 Inches

Parameter	Measured	% Passing	Calc. TV	min.-delta	avg.-delta	max.-delta	min.-delta-iscore	avg.-delta-iscore	max.-delta-iscore
k-value	Yes	14.3	150.0	-130.0	-43.1	39.0	-95.5	-41.4	22.0





min. area(ft^2)	# of blobs	blob area(ft^2)	% of map	lower bound-tv	upper bound-tv	poly-tol.
1000	1	14462	92.4	none	0.0	4.0

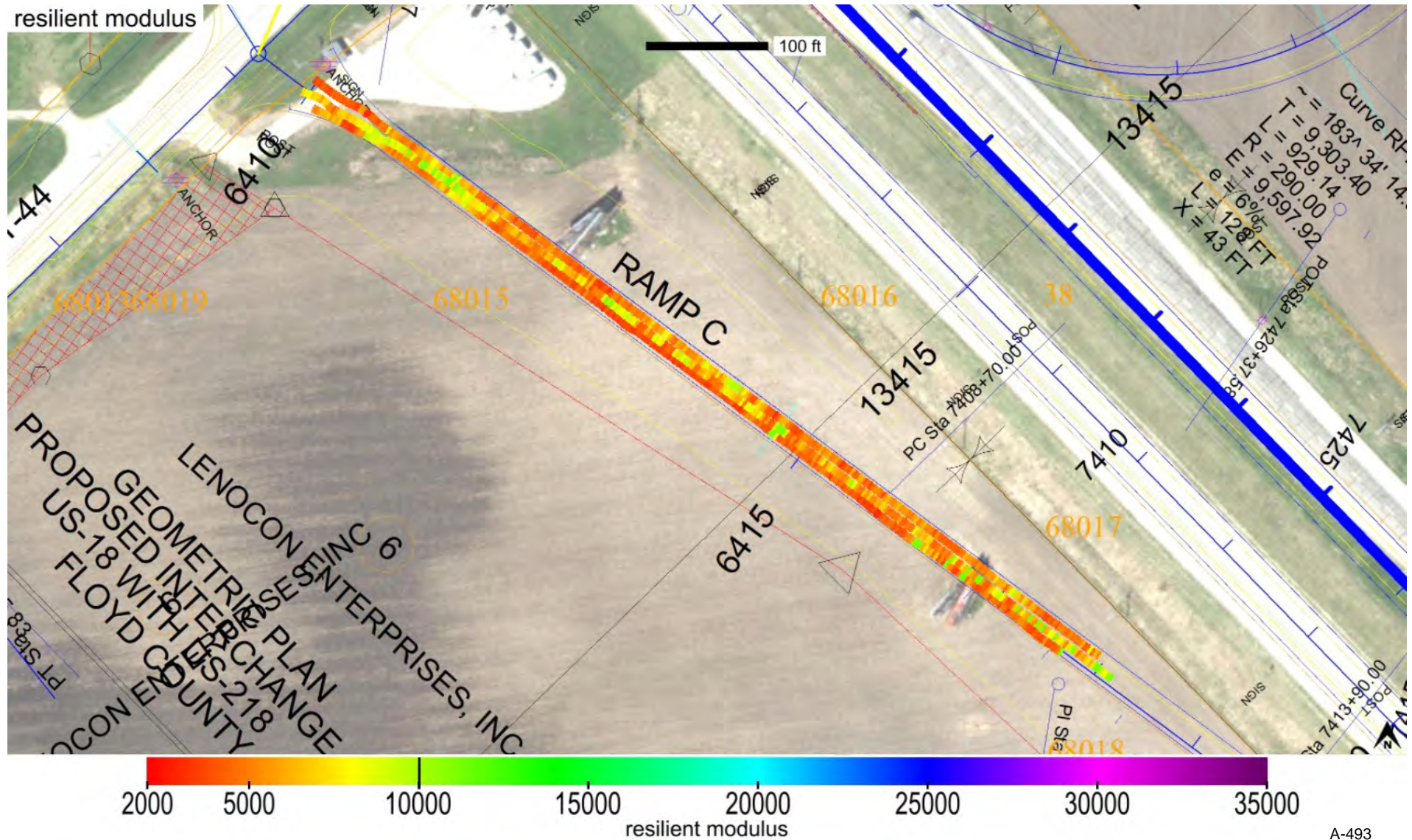






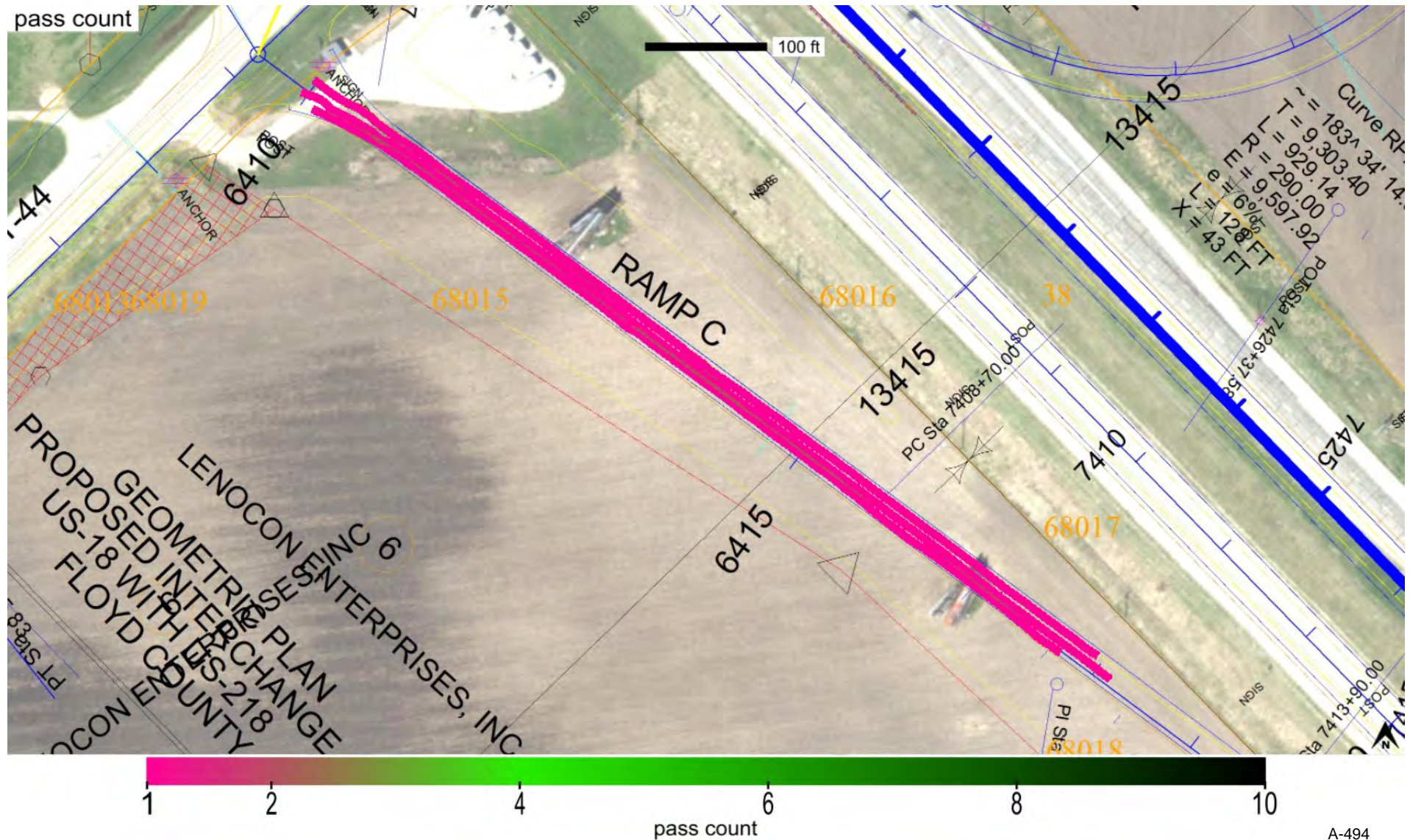
Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_174743    Map Type: Verification Map    Map Layer: Subbase 6 Inches

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
resilient modulus	Yes	4.8	23.6	0.7	10017.0	3019.4	5816.9	11000.0	1885.6	32.4	-6997.6	-4200.1	983.0



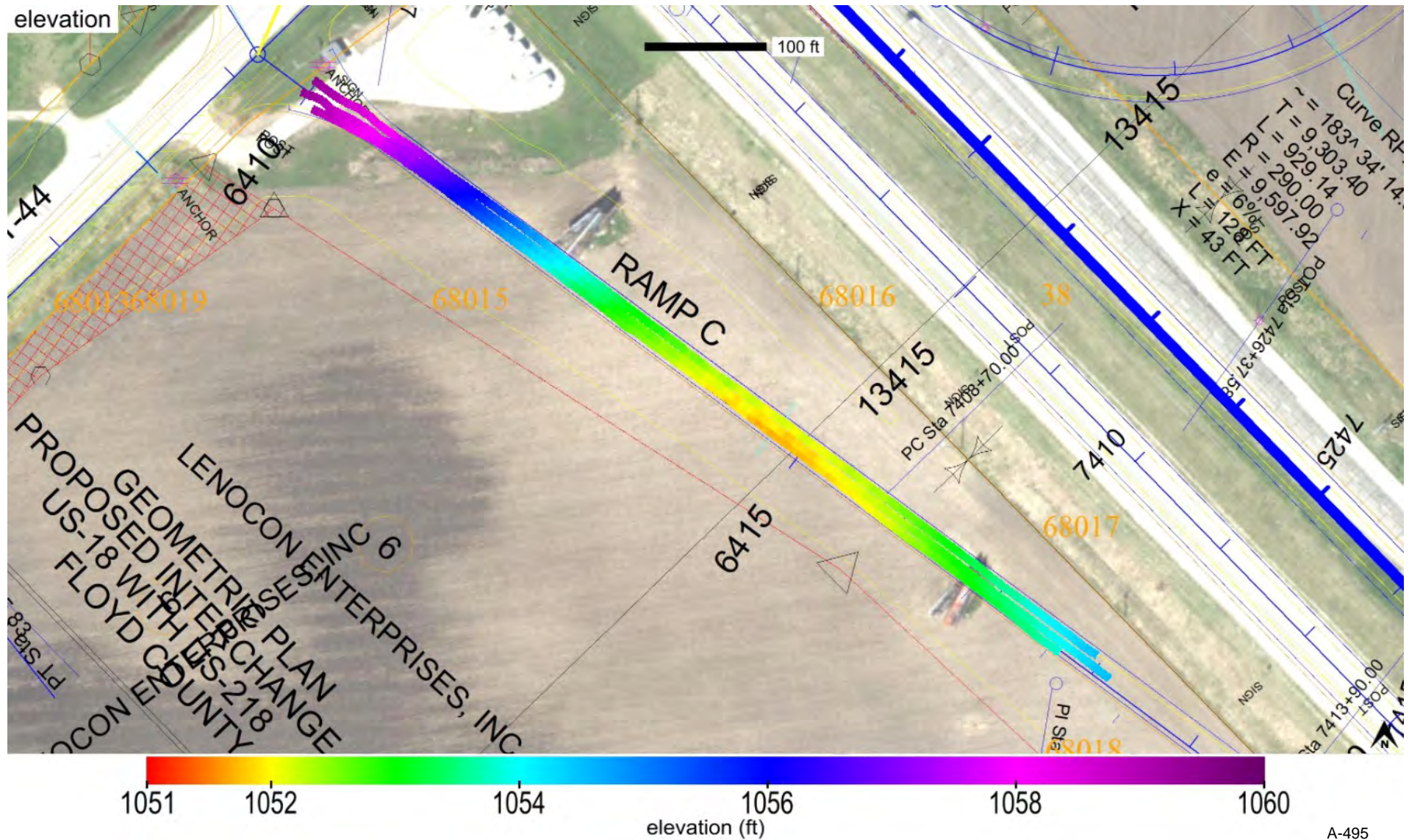


10th percentile	Median	cov(%)	% >= TV	Target Value
0	0	0.0	0.0	0



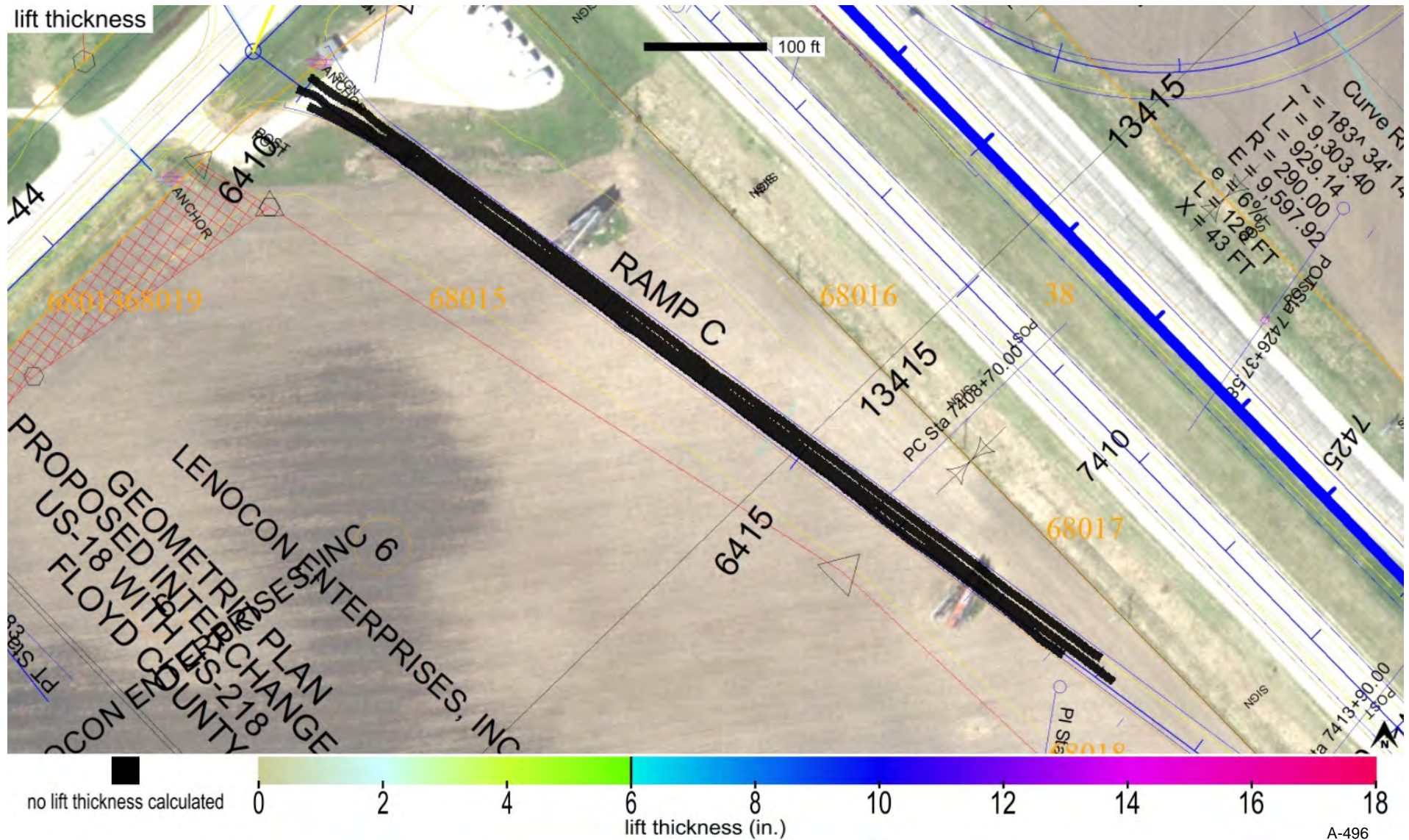


minimum	average	maximum
1051.68	1054.00	1059.42





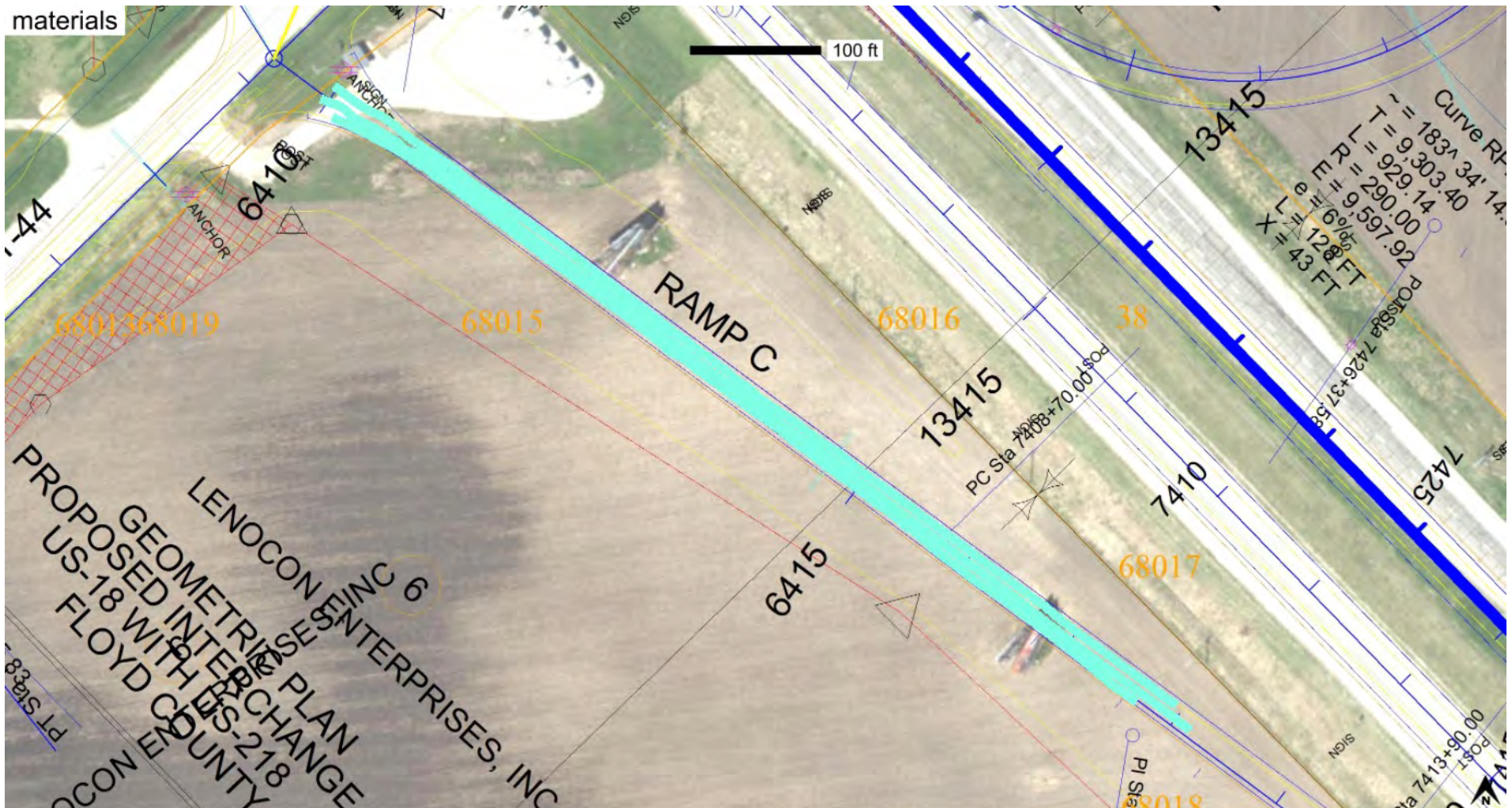
25th percentile (in.)	Median (in.)	75th percentile (in.)	Target Value (in.)
0.0	0.0	0.0	6.0





Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_174743 Map Type: Verification Map Map Layer: Subbase 6 Inches

name	id	% of total	area-square ft	area-acres	tl-xmv	tl-Mr	tl-k value	tl-w%
Modified Subbase Recycled PCC_IADOT	41024	100.0	15649	0.359	100.0	10017.0	150.0	20.5



Modified Subbase Recycled PCC\_IADOT







Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_175636

Project:	Floyd County US18	Date and Time:	9/13/2022 5:56:36 PM	Machine ID:	Ingios01
Description:	US18/US218/IA27 AT FLOYD CO T44	Mapping Duration (hrs):	0.158	Operator:	Ingios
Location:	Floyd County IA	No. of Measurements:	16607	Machine Operator ID:	822
Review Status:	Review Required	Map Type:	Verification Map	State Plane:	1401 IOWA NORTH
		Map Layer:	Subbase 6 Inches	Segment:	RAMP C

Map Summary

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
XMV	No												
Resilient Modulus	No												
k-value	Yes	21.9	45.3	0.9	150.0	20.0	128.8	189.0	29.7	23.1	-130.0	-21.2	39.0
Moisture Content	No												

Mapped Area		Pass Count					Elevation (ft)			Velocity (fps)		
square feet	acres	10th percentile	Median	cov(%)	% >= TV	Target Value	min.	avg.	max.	min.	avg.	max.
16607	0.381	0	0	0.0	0.0	0	1044.40	1051.98	1055.68	4.6	5.1	6.5

Materials

name	id	% of total	area-square ft	area-acres	tl-xmv	tl-Mr	tl-k value	tl-w%
Modified Subbase Recycled PCC_IADOT	41024	100.0	16607	0.381	100.0	10017.0	150.0	20.5

Blobs

parameter	min. area(ft^2)	# of blobs	blob area(ft^2)	% of map	lower bound-tv	upper bound-tv	poly-tol.
k-value	1000.0	2	15038	90.6	none	0.0	4.0

Lift Thickness

25th percentile (in.)	Median (in.)	75th percentile (in.)	Target Value (in.)
0.0	0.0	0.0	6.0

Station

Start	End
6418+00	6426+50

Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_175636

Project:	Floyd County US18	Date and Time:	9/13/2022 5:56:36 PM	Machine ID:	Ingios01
Description:	US18/US218/IA27 AT FLOYD CO T44	Mapping Duration (hrs):	0.158	Operator:	Ingios
Location:	Floyd County IA	No. of Measurements:	16607	Machine Operator ID:	822
Review Status:	Review Required	Map Type:	Verification Map	State Plane:	1401 IOWA NORTH
		Map Layer:	Subbase 6 Inches	Segment:	RAMP C

**QUALITY ANALYSIS SUMMARY - k-Value**

Quality Value	Criteria
<b>45.3</b>	CQI > = 95
<b>21.9</b>	80% of k-Value MVs >= 150
<b>23.1</b>	COV <= 30
90.6	% i-Score Blob Area >= 1000 ft <sup>2</sup>
<b>0.0</b>	Lift Thickness Median Value (in.)
<b>0</b>	Pass Count >= 0

Compaction Quality Index(CQI): Relative compaction quality index based on the percentage of the geospatial area that meets the minimum target values and accounts for the uniformity of compaction. The default minimum target CQI is 95% using a uniformity weight factor of 50%.

Percent Passing Target Values: Number of geospatial grid points from the output that meet or exceed the target value (TV) for the selected material. Level I target % Passing TV = 80%. Level II target % Passing TV = 90%.

Coefficient of Variation (COV): Calculated from the ratio of the standard deviation to the mean based on the measurement values (MVs) reported at each grid point of the mapping area. Description of COV ranges: <= 20% = Low Variability; 20 to 40% = Moderate Variability; > 40% = High Variability. The default target COV is <= 30%.

i-Score Blob (%): The percentage of the map area analyzed with contiguous blob areas with MVs < TV. Control Level 1 >= 100 sq. ft.; Control Level 2 >= 200 sq. ft.; Control Level 3 >= 500 sq. ft.; Control Level 4 >= 1,000 sq. ft.; Control Level 5 >= 2,000 sq. ft.

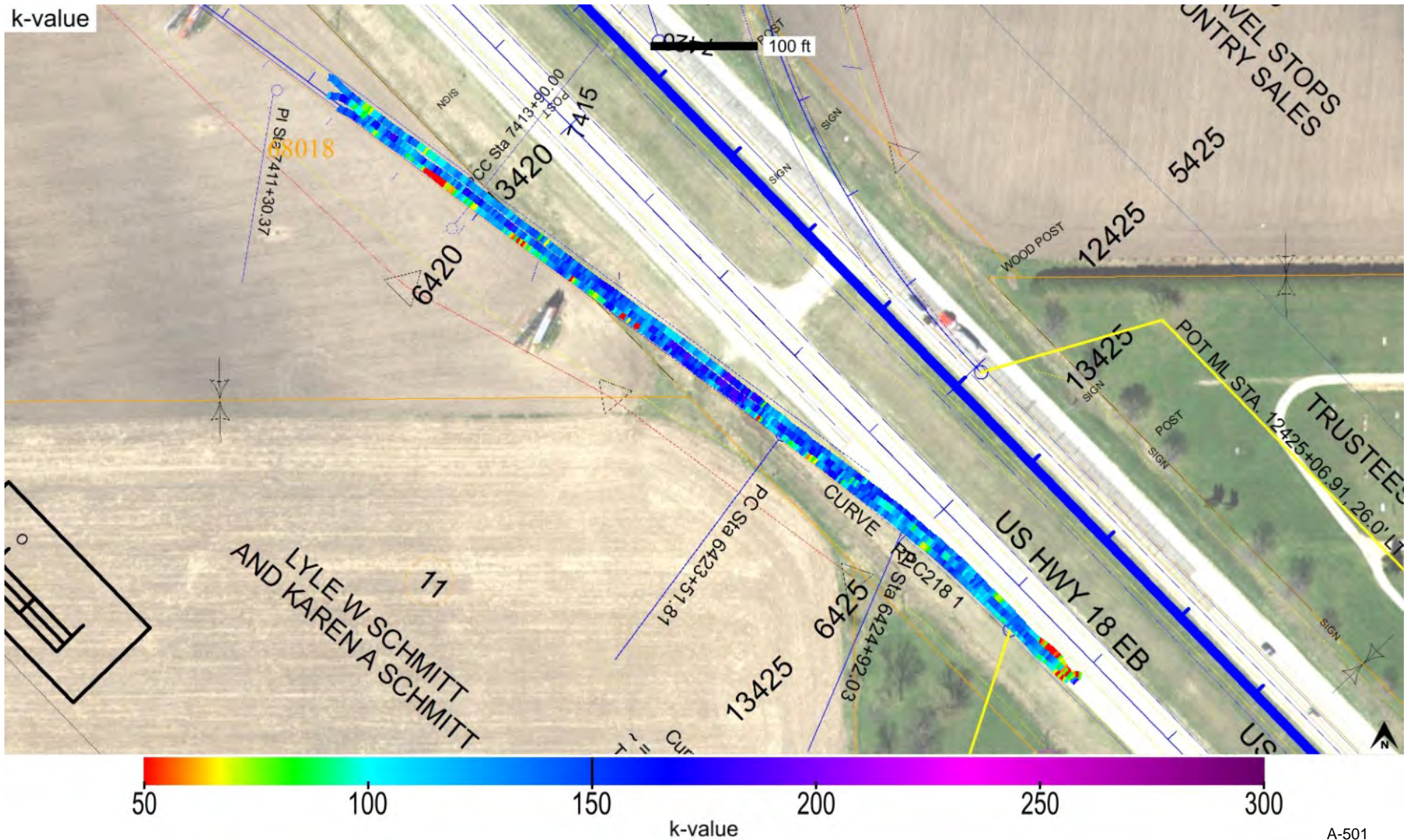
Lift thickness: Green: 75th percentile value <= TV; Yellow: median value <= TV and 75th percentile > TV; Red: median value (50th percentile) > TV.

Pass Count: Green: 10th percentile value >= TV; Yellow: 10th percentile value >= TV and cov% > 50%; Red: 10th percentile value < TV.



Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_175636 Map Type: Verification Map Map Layer: Subbase 6 Inches

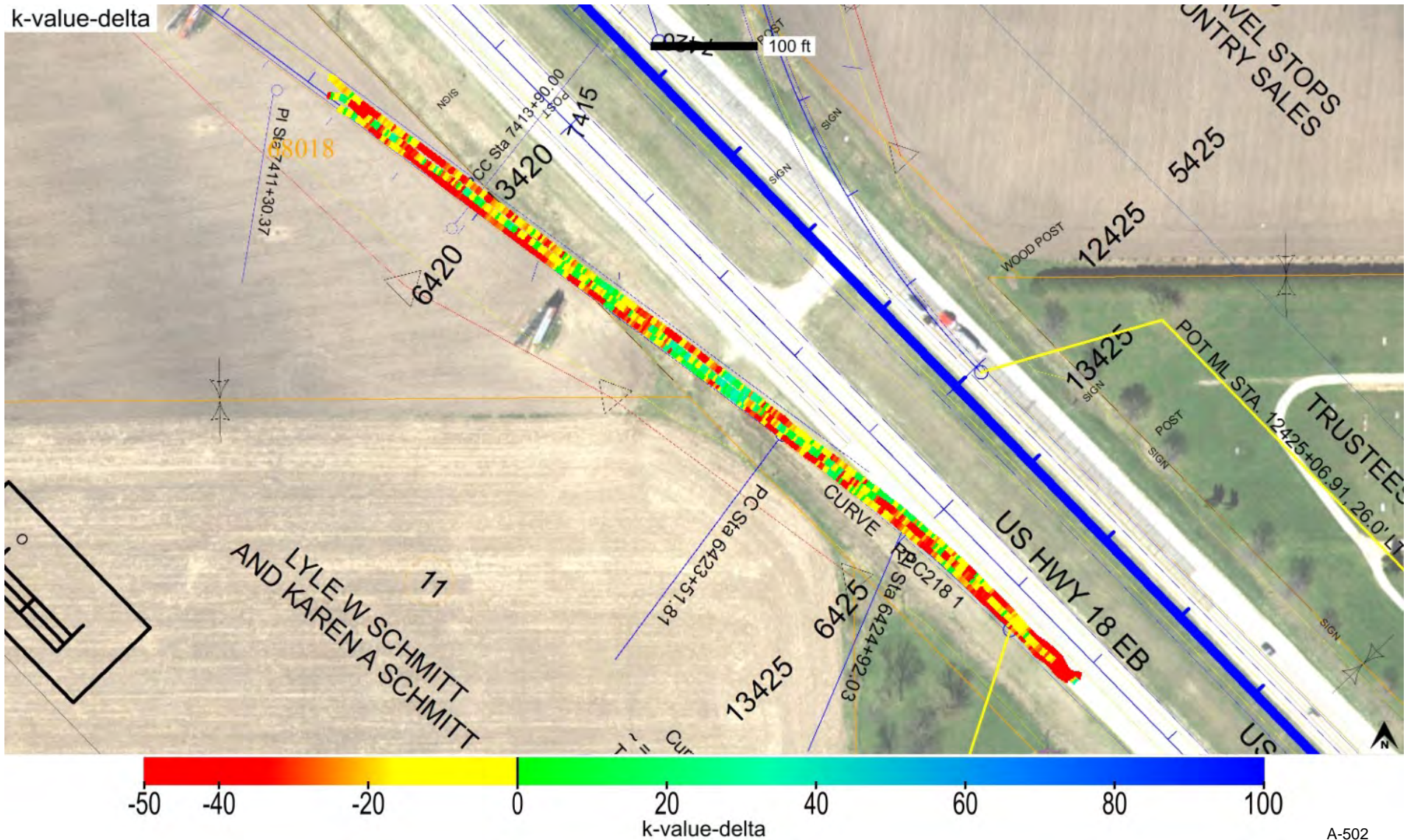
Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
k-value	Yes	21.9	45.3	0.9	150.0	20.0	128.8	189.0	29.7	23.1	-130.0	-21.2	39.0





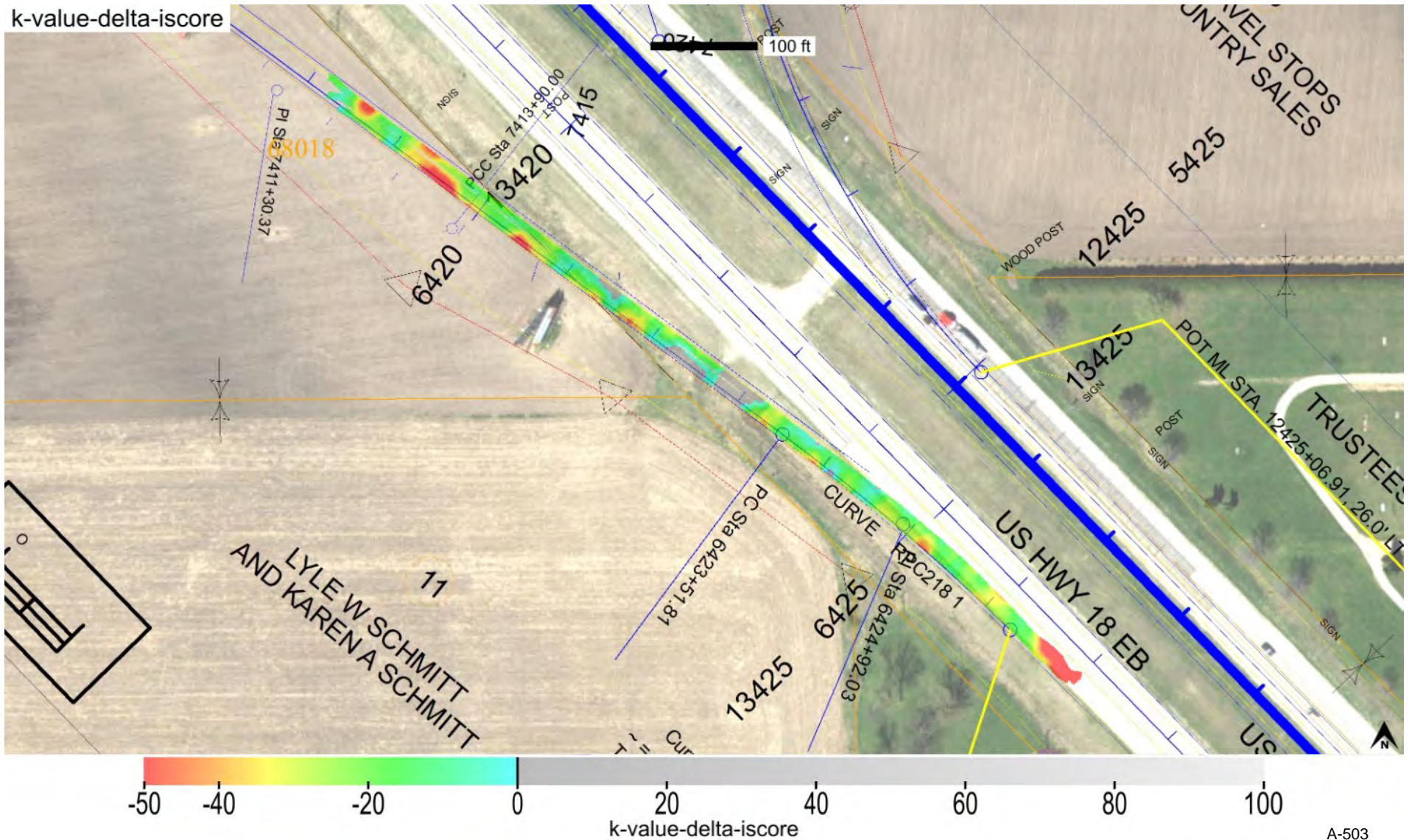
Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_175636 Map Type: Verification Map Map Layer: Subbase 6 Inches

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
k-value	Yes	21.9	45.3	0.9	150.0	20.0	128.8	189.0	29.7	23.1	-130.0	-21.2	39.0



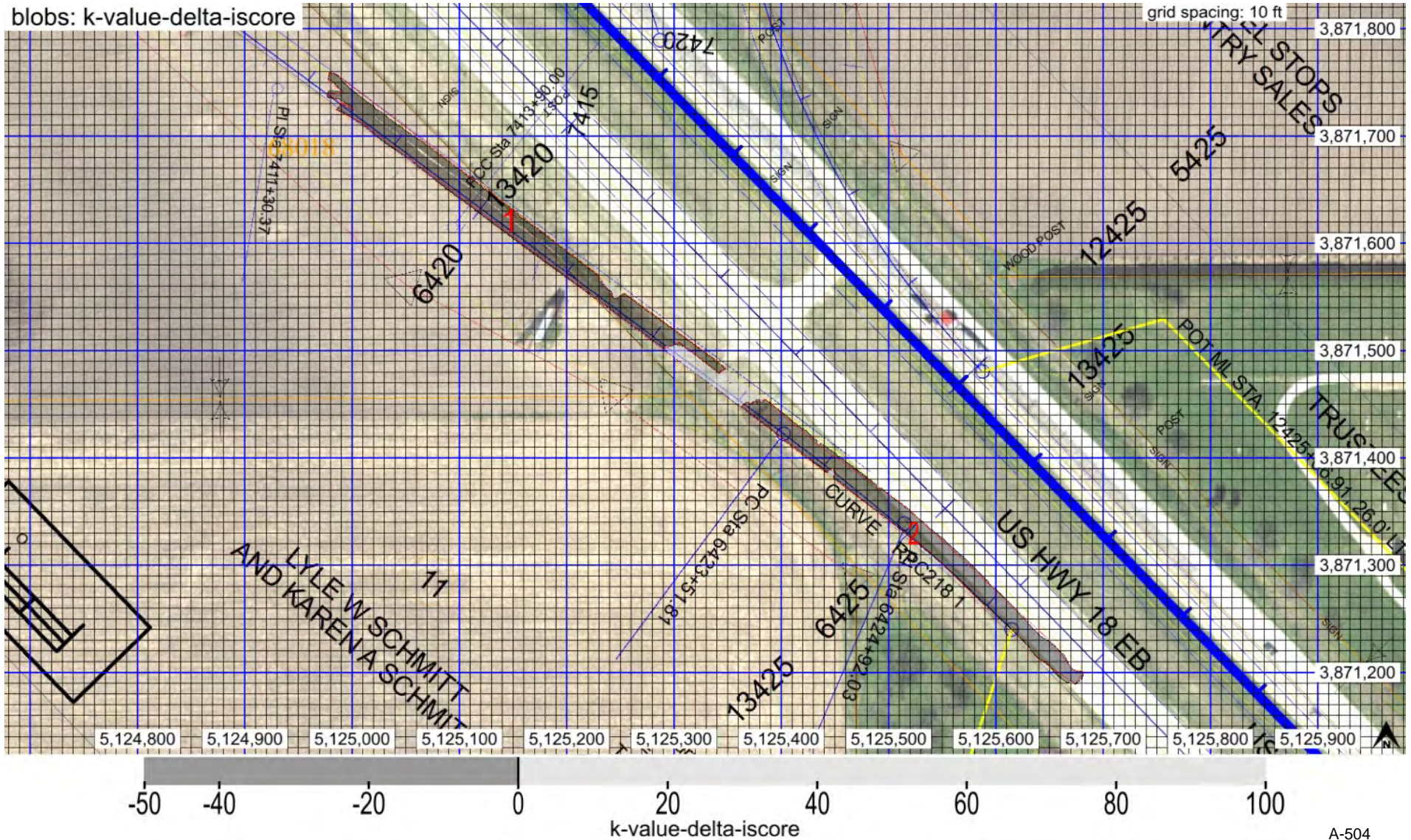


Parameter	Measured	% Passing	Calc. TV	min.-delta	avg.-delta	max.-delta	min.-delta-iscore	avg.-delta-iscore	max.-delta-iscore
k-value	Yes	21.9	150.0	-130.0	-21.2	39.0	-83.8	-20.3	24.6





min. area(ft^2)	# of blobs	blob area(ft^2)	% of map	lower bound-tv	upper bound-tv	poly-tol.
1000	2	15038	90.6	none	0.0	4.0





Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_175636    Map Type: Verification Map    Map Layer: Subbase 6 Inches

blob: k-value-delta-iscore

Blob #	Area (ft^2)	% of blobs area	# b.p.	min.-delta-iscore	avg.-delta-iscore	max.-delta-iscore
1	7957	52.9	18	-83.8	-22.7	-0.1

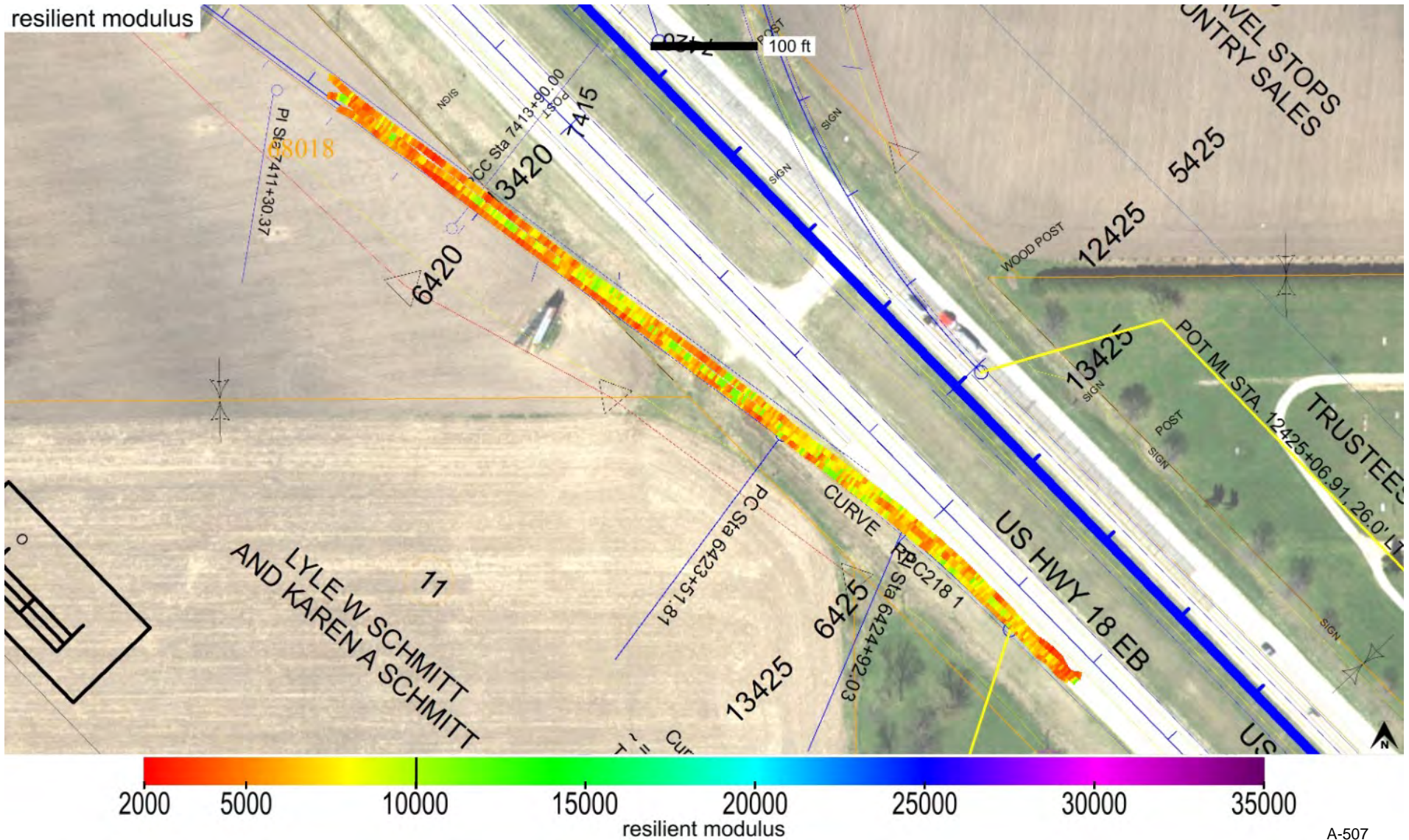
Point	Easting (ft)	Northing (ft)
1	5125342	<b>3871478</b>
2	<b>5125348</b>	3871484
3	5125334	3871494
4	5125256	3871552
5	5125244	3871548
6	5125228	3871572
7	5124986	3871758
8	5124978	<b>3871760</b>
9	5124978	3871752
10	5124992	3871740
11	<b>5124976</b>	3871738
12	5125002	3871726
13	5124990	3871730
14	5124986	3871724
15	5125008	3871712
16	5125290	3871502
17	5125306	3871508
18	5125342	3871480





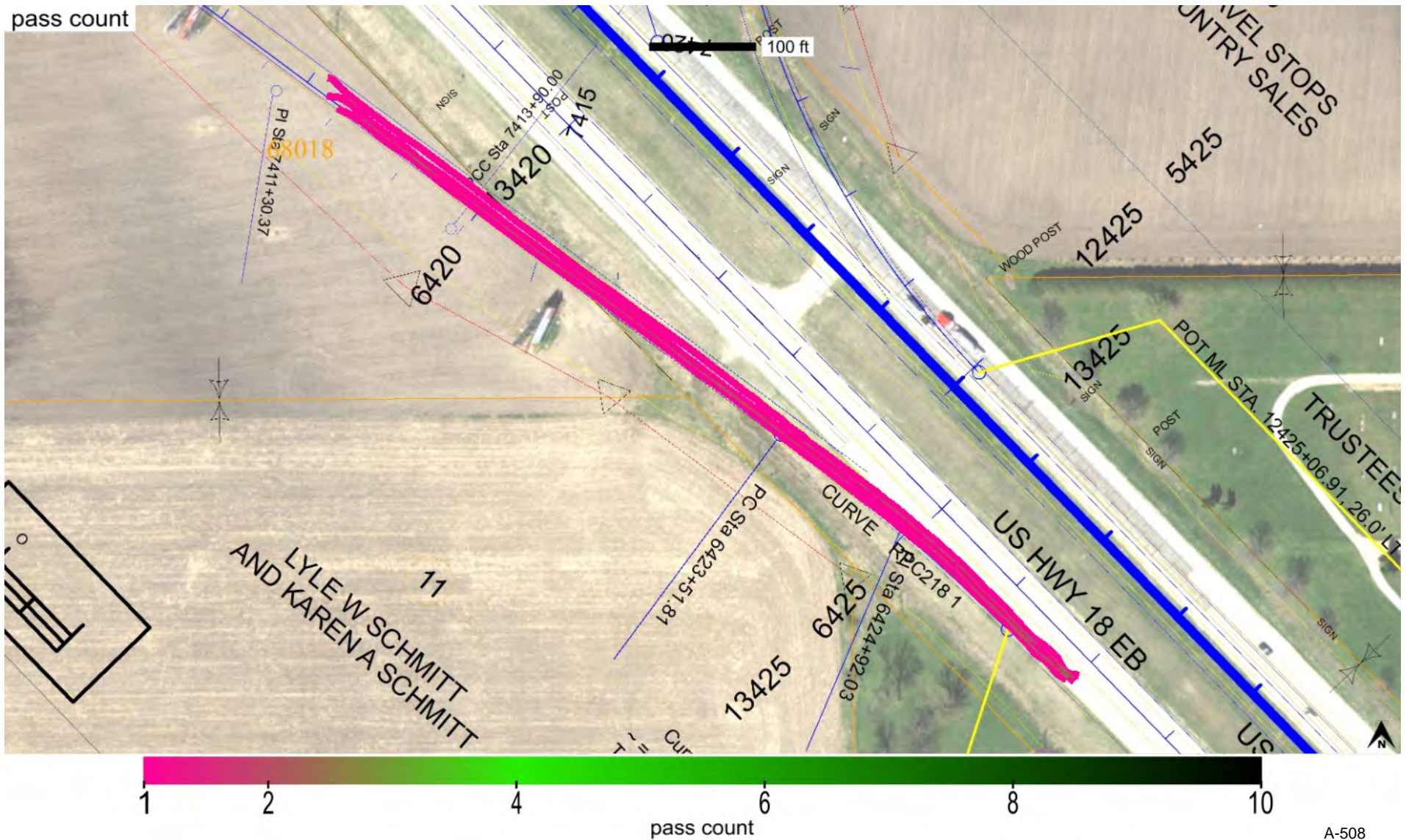
Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_175636 Map Type: Verification Map Map Layer: Subbase 6 Inches

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
resilient modulus	Yes	6.1	26.2	0.8	10017.0	2660.5	6483.2	11000.0	1931.3	29.8	-7356.5	-3533.8	983.0



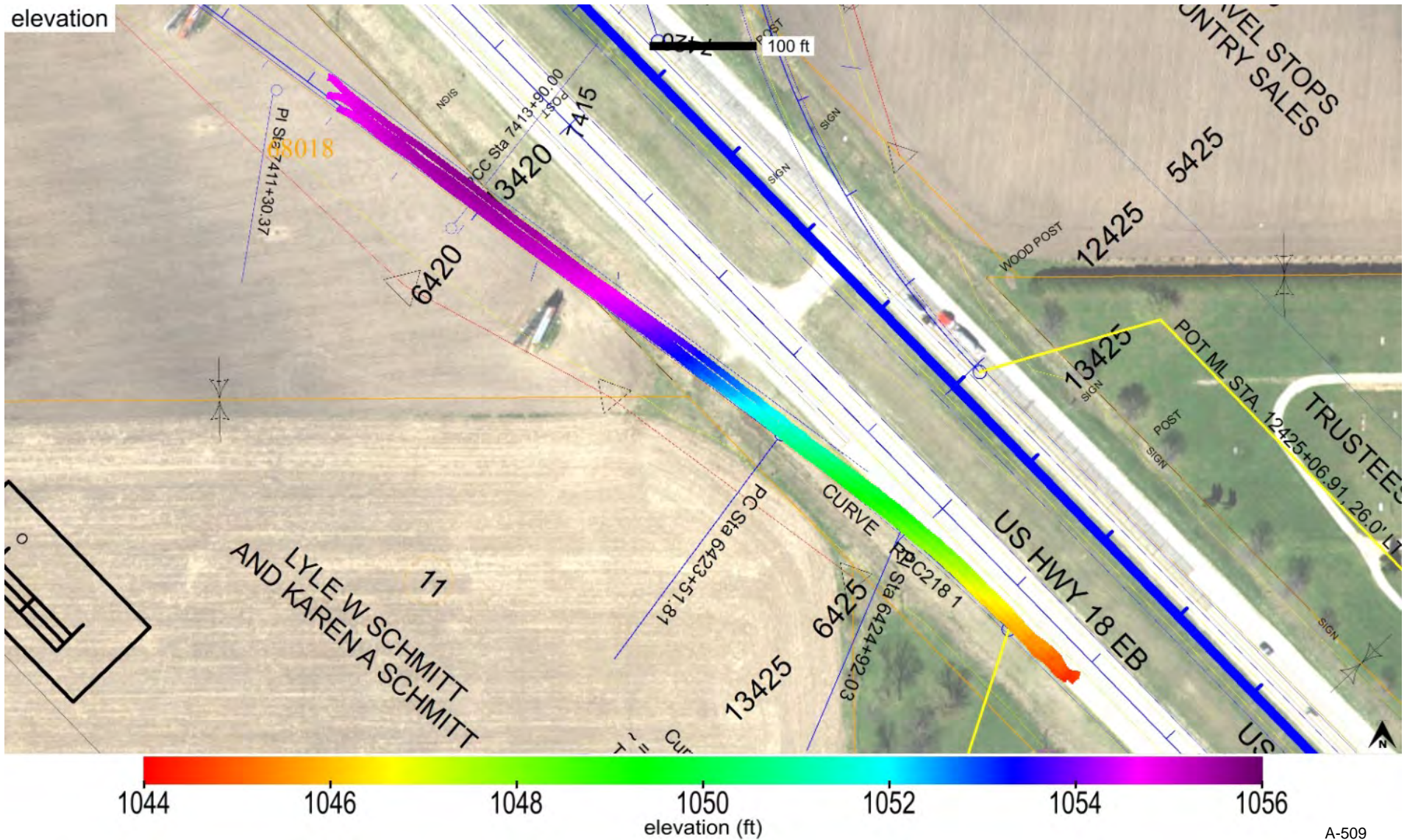


10th percentile	Median	cov(%)	% >= TV	Target Value
0	0	0.0	0.0	0



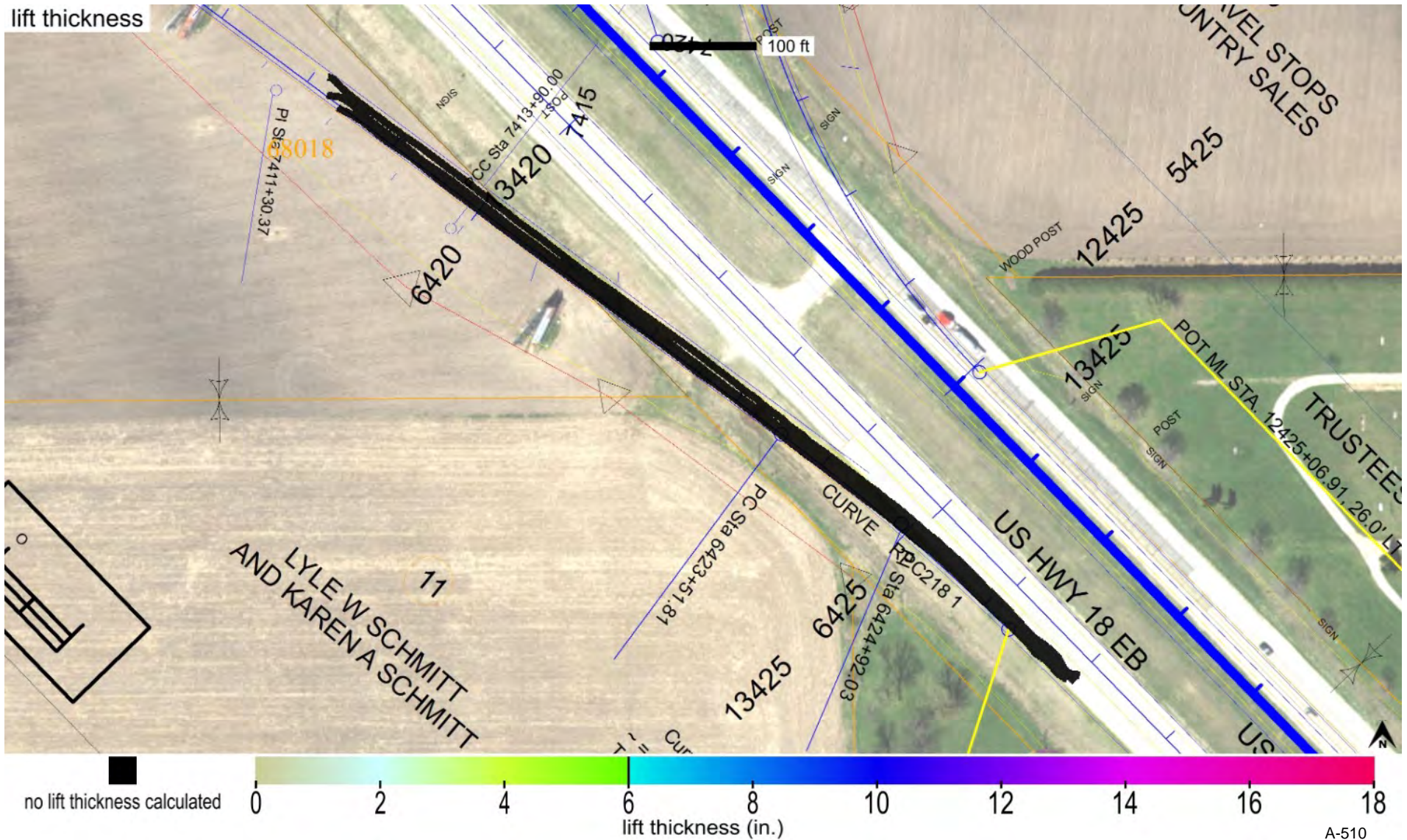


minimum	average	maximum
1044.40	1051.98	1055.68





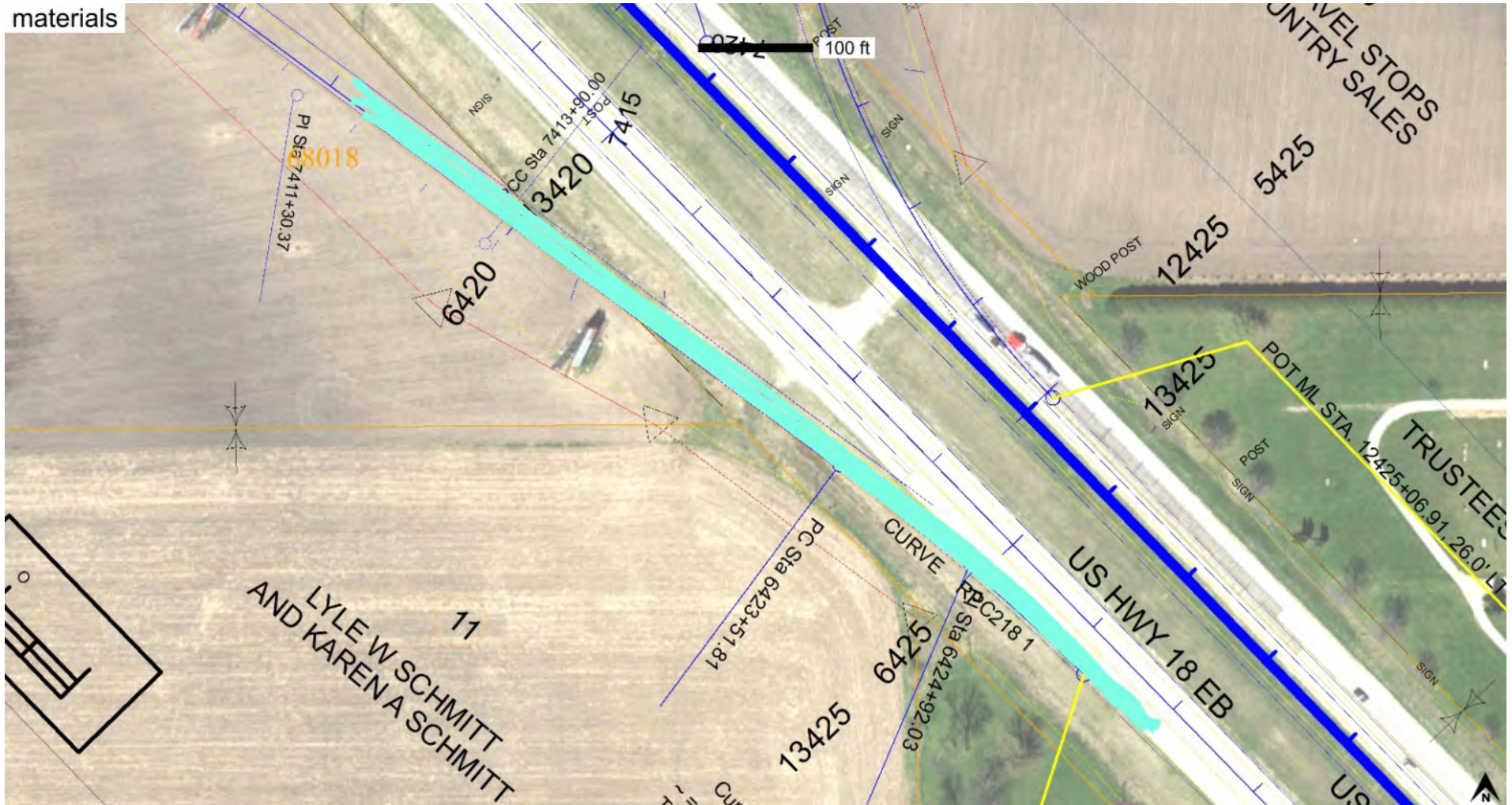
25th percentile (in.)	Median (in.)	75th percentile (in.)	Target Value (in.)
0.0	0.0	0.0	6.0





Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_175636 Map Type: Verification Map Map Layer: Subbase 6 Inches

name	id	% of total	area-square ft	area-acres	tl-xmv	tl-Mr	tl-k value	tl-w%
Modified Subbase Recycled PCC_IADOT	41024	100.0	16607	0.381	100.0	10017.0	150.0	20.5



Modified Subbase Recycled PCC\_IADOT







Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_181358

Project:	Floyd County US18	Date and Time:	9/13/2022 6:13:58 PM	Machine ID:	Ingios01
Description:	US18/US218/IA27 AT FLOYD CO T44	Mapping Duration (hrs):	0.284	Operator:	Ingios
Location:	Floyd County IA	No. of Measurements:	24582	Machine Operator ID:	822
Review Status:	Review Required	Map Type:	Verification Map	State Plane:	1401 IOWA NORTH
		Map Layer:	Subbase 12 Inches	Segment:	US 18 EB

Map Summary

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
XMV	No												
Resilient Modulus	No												
k-value	Yes	60.6	85.1	1.1	150.0	20.0	152.5	189.0	32.1	21.0	-130.0	2.5	39.0
Moisture Content	No												

Mapped Area

square feet	acres
24582	0.564

Pass Count

10th percentile	Median	cov(%)	% >= TV	Target Value
0	0	0.0	0.0	0

Elevation (ft)

min.	avg.	max.
1025.76	1029.19	1032.70

Velocity (fps)

min.	avg.	max.
4.6	5.1	7.0

Materials

name	id	% of total	area-square ft	area-acres	tl-xmv	tl-Mr	tl-k value	tl-w%
Modified Subbase Recycled PCC_IADOT	41024	100.0	24582	0.564	100.0	10017.0	150.0	20.5

Blobs

parameter	min. area(ft^2)	# of blobs	blob area(ft^2)	% of map	lower bound-tv	upper bound-tv	poly-tol.
k-value	1000.0	1	5918	24.1	none	0.0	4.0

Lift Thickness

25th percentile (in.)	Median (in.)	75th percentile (in.)	Target Value (in.)
0.0	0.0	0.0	6.0

Station

Start	End
13449+50	13457+00

Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_181358

Project:	Floyd County US18	Date and Time:	9/13/2022 6:13:58 PM	Machine ID:	Ingios01
Description:	US18/US218/IA27 AT FLOYD CO T44	Mapping Duration (hrs):	0.284	Operator:	Ingios
Location:	Floyd County IA	No. of Measurements:	24582	Machine Operator ID:	822
Review Status:	Review Required	Map Type:	Verification Map	State Plane:	1401 IOWA NORTH
		Map Layer:	Subbase 12 Inches	Segment:	US 18 EB

**QUALITY ANALYSIS SUMMARY - k-Value**

Quality Value	Criteria
<b>85.1</b>	CQI > = 95
<b>60.6</b>	80% of k-Value MVs >= 150
<b>21.0</b>	COV <= 30
24.1	% i-Score Blob Area >= 1000 ft <sup>2</sup>
<b>0.0</b>	Lift Thickness Median Value (in.)
<b>0</b>	Pass Count >= 0

Compaction Quality Index(CQI): Relative compaction quality index based on the percentage of the geospatial area that meets the minimum target values and accounts for the uniformity of compaction. The default minimum target CQI is 95% using a uniformity weight factor of 50%.

Percent Passing Target Values: Number of geospatial grid points from the output that meet or exceed the target value (TV) for the selected material. Level I target % Passing TV = 80%. Level II target % Passing TV = 90%.

Coefficient of Variation (COV): Calculated from the ratio of the standard deviation to the mean based on the measurement values (MVs) reported at each grid point of the mapping area. Description of COV ranges: <= 20% = Low Variability; 20 to 40% = Moderate Variability; > 40% = High Variability. The default target COV is <= 30%.

i-Score Blob (%): The percentage of the map area analyzed with contiguous blob areas with MVs < TV. Control Level 1 >= 100 sq. ft.; Control Level 2 >= 200 sq. ft.; Control Level 3 >= 500 sq. ft.; Control Level 4 >= 1,000 sq. ft.; Control Level 5 >= 2,000 sq. ft.

Lift thickness: Green: 75th percentile value <= TV; Yellow: median value <= TV and 75th percentile > TV; Red: median value (50th percentile) > TV.

Pass Count: Green: 10th percentile value >= TV; Yellow: 10th percentile value >= TV and cov% > 50%; Red: 10th percentile value < TV.







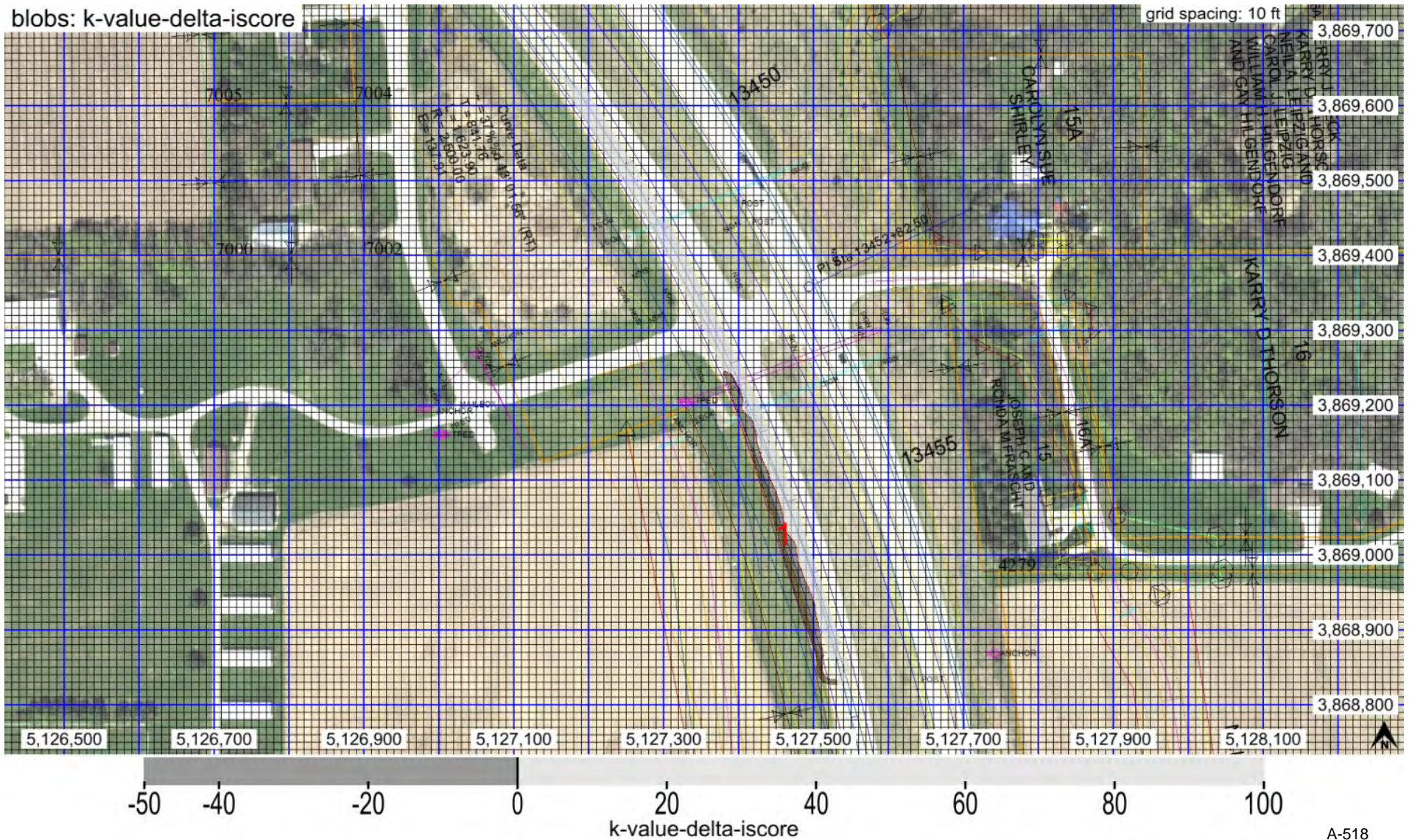








min. area(ft^2)	# of blobs	blob area(ft^2)	% of map	lower bound-tv	upper bound-tv	poly-tol.
1000	1	5918	24.1	none	0.0	4.0





Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_181358    Map Type: Verification Map    Map Layer: Subbase 12 Inches

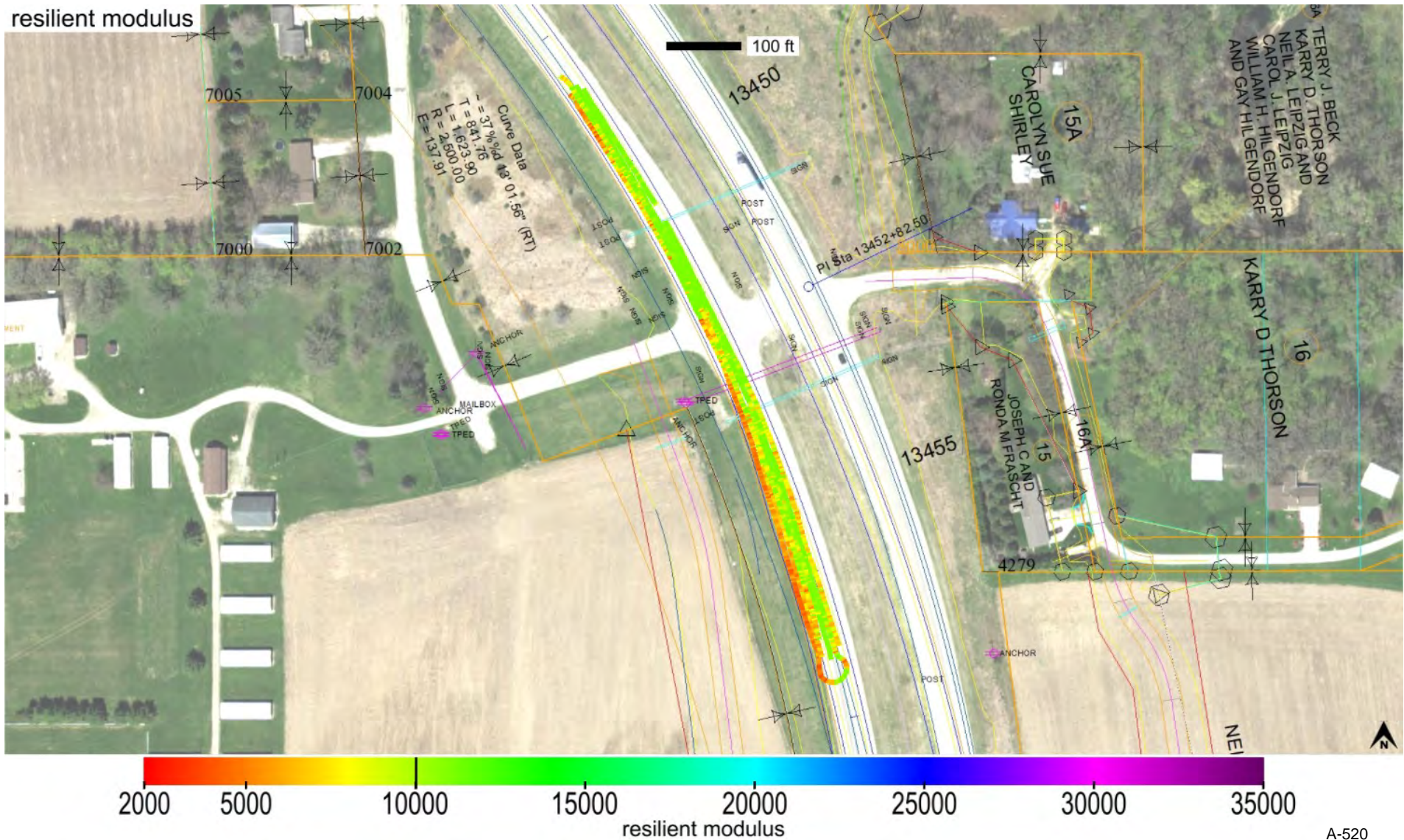
blob: k-value-delta-iscore

Blob #	Area (ft^2)	% of blobs area	# b.p.	min.-delta-iscore	avg.-delta-iscore	max.-delta-iscore
1	5918	100.0	20	-81.0	-26.3	0.0

Point	Easting (ft)	Northing (ft)
1	5127522	<b>3868826</b>
2	<b>5127532</b>	3868826
3	5127530	3868834
4	5127518	3868836
5	5127512	3868844
6	5127514	3868866
7	5127502	3868936
8	5127478	3868992
9	5127476	3869014
10	5127460	3869034
11	5127458	3869060
12	5127428	3869138
13	5127420	3869178
14	5127404	3869194
15	5127404	3869218
16	5127390	3869242
17	<b>5127380</b>	<b>3869244</b>
18	5127502	3868872
19	5127506	3868838
20	5127522	3868828

Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_181358 Map Type: Verification Map Map Layer: Subbase 12 Inches

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
resilient modulus	Yes	48.3	70.5	0.9	10017.0	3675.4	8918.2	11000.0	2280.5	25.6	-6341.6	-1098.8	983.0

























Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_183704

Project:	Floyd County US18	Date and Time:	9/13/2022 6:37:04 PM	Machine ID:	Ingios01
Description:	US18/US218/IA27 AT FLOYD CO T44	Mapping Duration (hrs):	0.333	Operator:	Ingios
Location:	Floyd County IA	No. of Measurements:	34058	Machine Operator ID:	822
Review Status:	Review Required	Map Type:	Verification Map	State Plane:	1401 IOWA NORTH
		Map Layer:	Subbase 12 Inches	Segment:	US 18 EB

Map Summary

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
XMV	No												
Resilient Modulus	No												
k-value	Yes	91.9	121.9	2.2	150.0	78.2	180.0	189.0	18.1	10.1	-71.8	30.0	39.0
Moisture Content	No												

Mapped Area

square feet	acres
34058	0.782

Pass Count

10th percentile	Median	cov(%)	% >= TV	Target Value
0	0	0.0	0.0	0

Elevation (ft)

min.	avg.	max.
1025.01	1027.62	1032.38

Velocity (fps)

min.	avg.	max.
4.5	5.0	6.2

Materials

name	id	% of total	area-square ft	area-acres	tl-xmv	tl-Mr	tl-k value	tl-w%
Modified Subbase Recycled PCC_IADOT	41024	100.0	34058	0.782	100.0	10017.0	150.0	20.5

Blobs

parameter	min. area(ft^2)	# of blobs	blob area(ft^2)	% of map	lower bound-tv	upper bound-tv	poly-tol.
k-value	1000.0	0	0	0.0	none	0.0	4.0

Lift Thickness

25th percentile (in.)	Median (in.)	75th percentile (in.)	Target Value (in.)
-1.3	0.3	1.7	6.0

Station

Start	End
13435+00	13449+00



Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_183704

Project:	Floyd County US18	Date and Time:	9/13/2022 6:37:04 PM	Machine ID:	Ingios01
Description:	US18/US218/IA27 AT FLOYD CO T44	Mapping Duration (hrs):	0.333	Operator:	Ingios
Location:	Floyd County IA	No. of Measurements:	34058	Machine Operator ID:	822
Review Status:	Review Required	Map Type:	Verification Map	State Plane:	1401 IOWA NORTH
		Map Layer:	Subbase 12 Inches	Segment:	US 18 EB

**QUALITY ANALYSIS SUMMARY - k-Value**

Quality Value	Criteria
<b>121.9</b>	CQI >= 95
<b>91.9</b>	80% of k-Value MVs >= 150
<b>10.1</b>	COV <= 30
0.0	% i-Score Blob Area >= 1000 ft <sup>2</sup>
<b>0.3</b>	Lift Thickness Median Value (in.)
<b>0</b>	Pass Count >= 0

Compaction Quality Index(CQI): Relative compaction quality index based on the percentage of the geospatial area that meets the minimum target values and accounts for the uniformity of compaction. The default minimum target CQI is 95% using a uniformity weight factor of 50%.

Percent Passing Target Values: Number of geospatial grid points from the output that meet or exceed the target value (TV) for the selected material. Level I target % Passing TV = 80%. Level II target % Passing TV = 90%.

Coefficient of Variation (COV): Calculated from the ratio of the standard deviation to the mean based on the measurement values (MVs) reported at each grid point of the mapping area. Description of COV ranges: <= 20% = Low Variability; 20 to 40% = Moderate Variability; > 40% = High Variability. The default target COV is <= 30%.

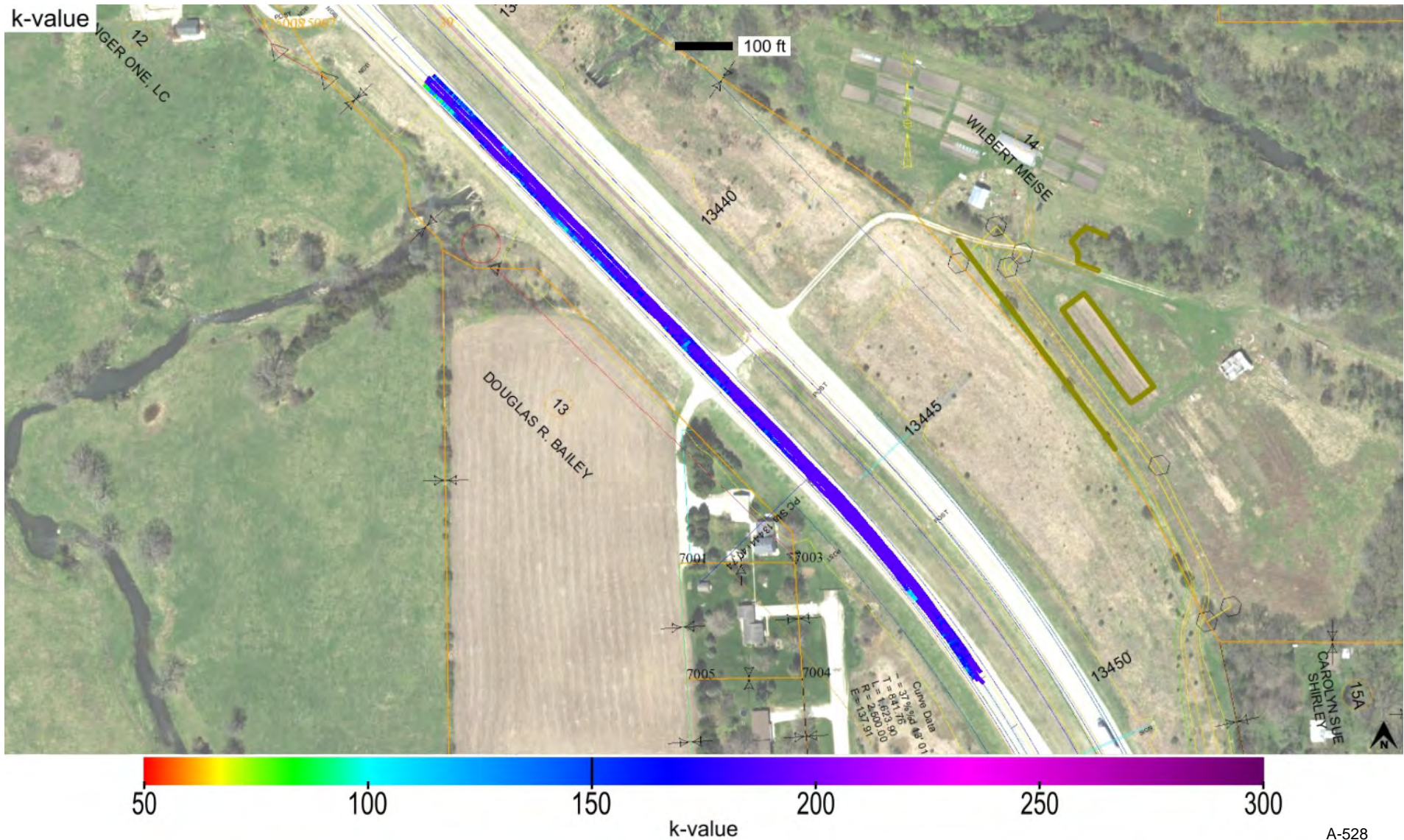
i-Score Blob (%): The percentage of the map area analyzed with contiguous blob areas with MVs < TV. Control Level 1 >= 100 sq. ft.; Control Level 2 >= 200 sq. ft.; Control Level 3 >= 500 sq. ft.; Control Level 4 >= 1,000 sq. ft.; Control Level 5 >= 2,000 sq. ft.

Lift thickness: Green: 75th percentile value <= TV; Yellow: median value <= TV and 75th percentile > TV; Red: median value (50th percentile) > TV.

Pass Count: Green: 10th percentile value >= TV; Yellow: 10th percentile value >= TV and cov% > 50%; Red: 10th percentile value < TV.

Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_183704    Map Type: Verification Map    Map Layer: Subbase 12 Inches

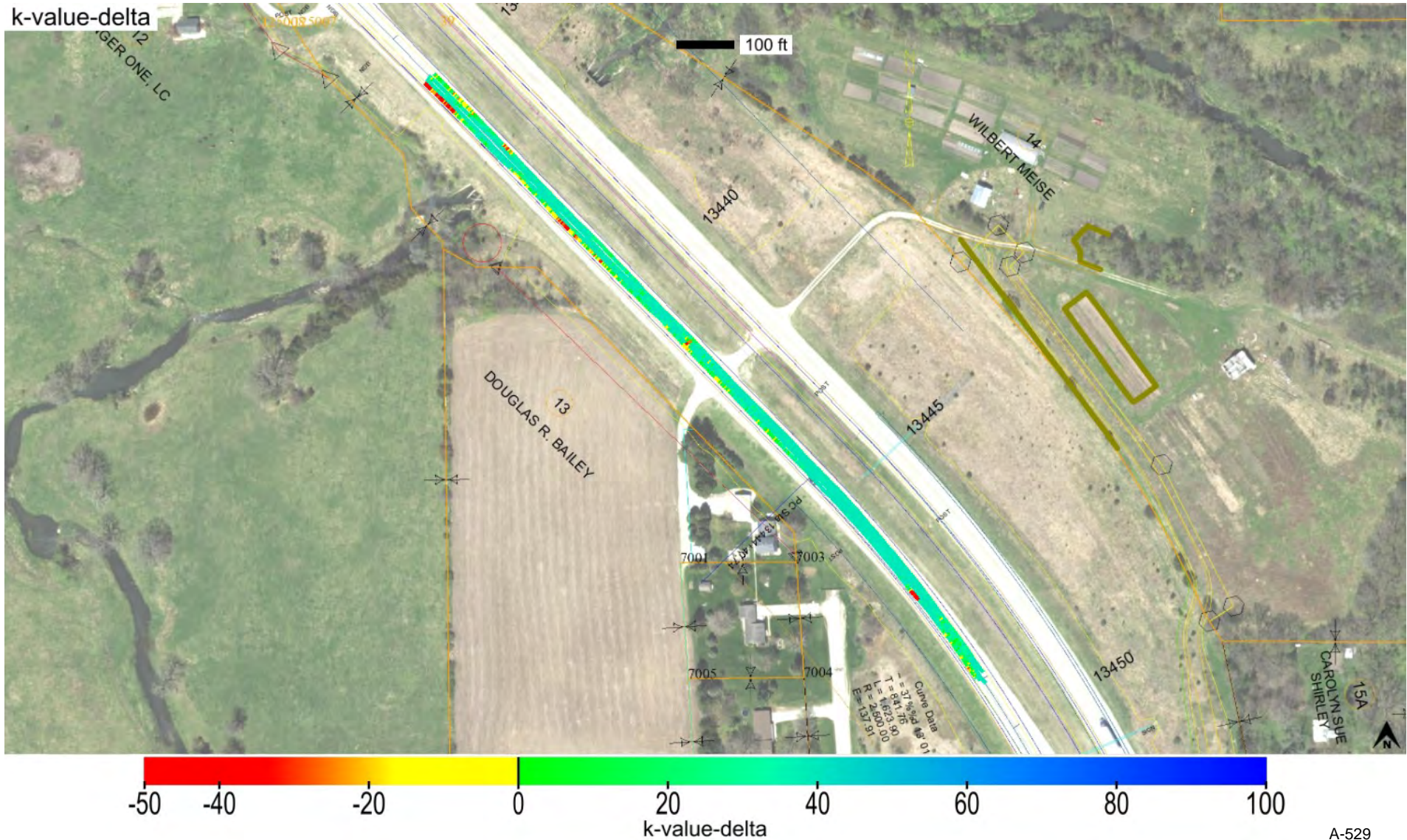
Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
k-value	Yes	91.9	121.9	2.2	150.0	78.2	180.0	189.0	18.1	10.1	-71.8	30.0	39.0





Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_183704    Map Type: Verification Map    Map Layer: Subbase 12 Inches

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
k-value	Yes	91.9	121.9	2.2	150.0	78.2	180.0	189.0	18.1	10.1	-71.8	30.0	39.0





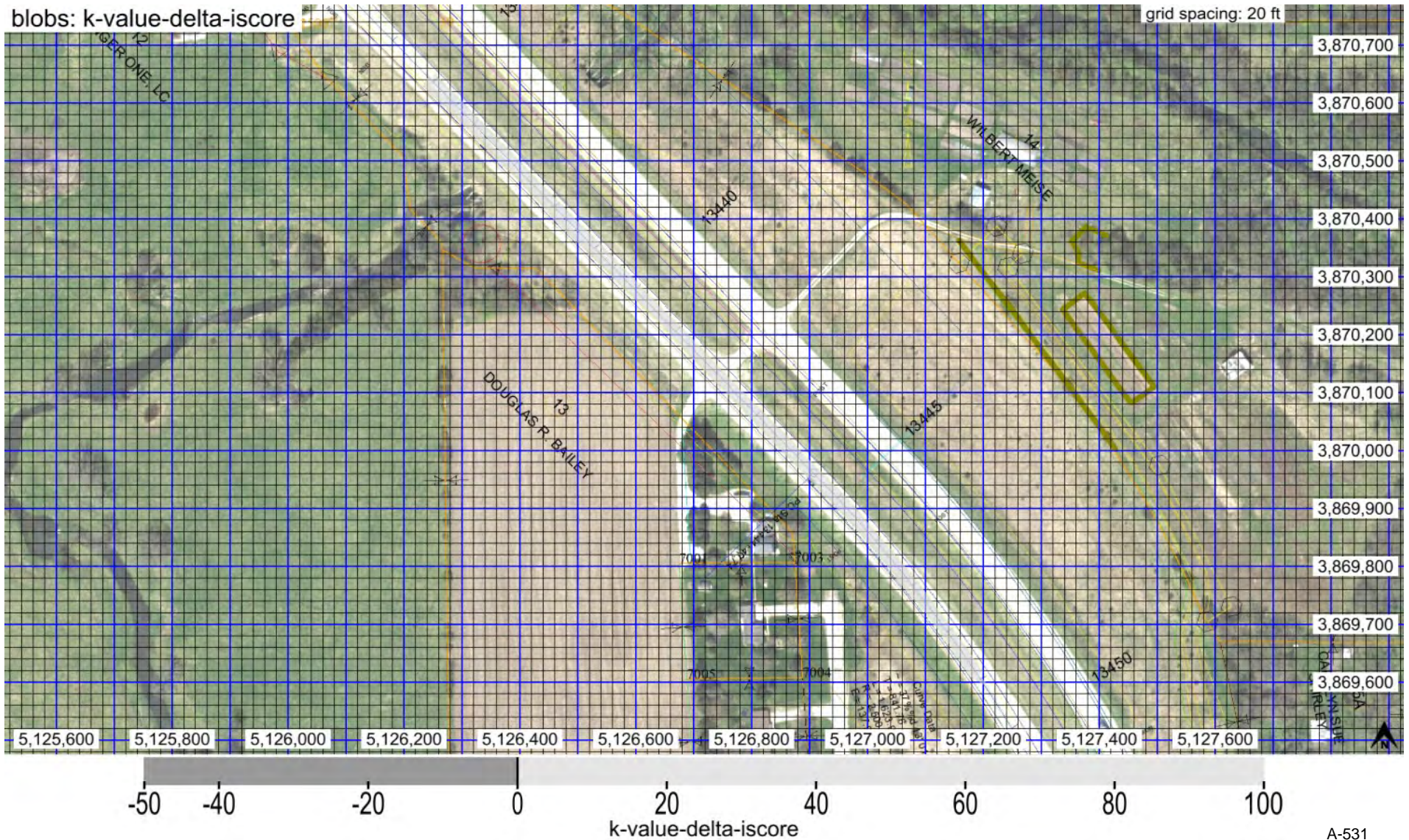
Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_183704    Map Type: Verification Map    Map Layer: Subbase 12 Inches

Parameter	Measured	% Passing	Calc. TV	min.-delta	avg.-delta	max.-delta	min.-delta-iscore	avg.-delta-iscore	max.-delta-iscore
k-value	Yes	91.9	150.0	-71.8	30.0	39.0	-37.0	30.6	39.0





min. area(ft^2)	# of blobs	blob area(ft^2)	% of map	lower bound-tv	upper bound-tv	poly-tol.
1000.0	0	0	0	none	0	4.0





Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_183704    Map Type: Verification Map    Map Layer: Subbase 12 Inches

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
resilient modulus	Yes	79.6	108.1	1.1	10017.0	4180.4	10355.4	11000.0	1353.3	13.1	-5836.6	338.4	983.0



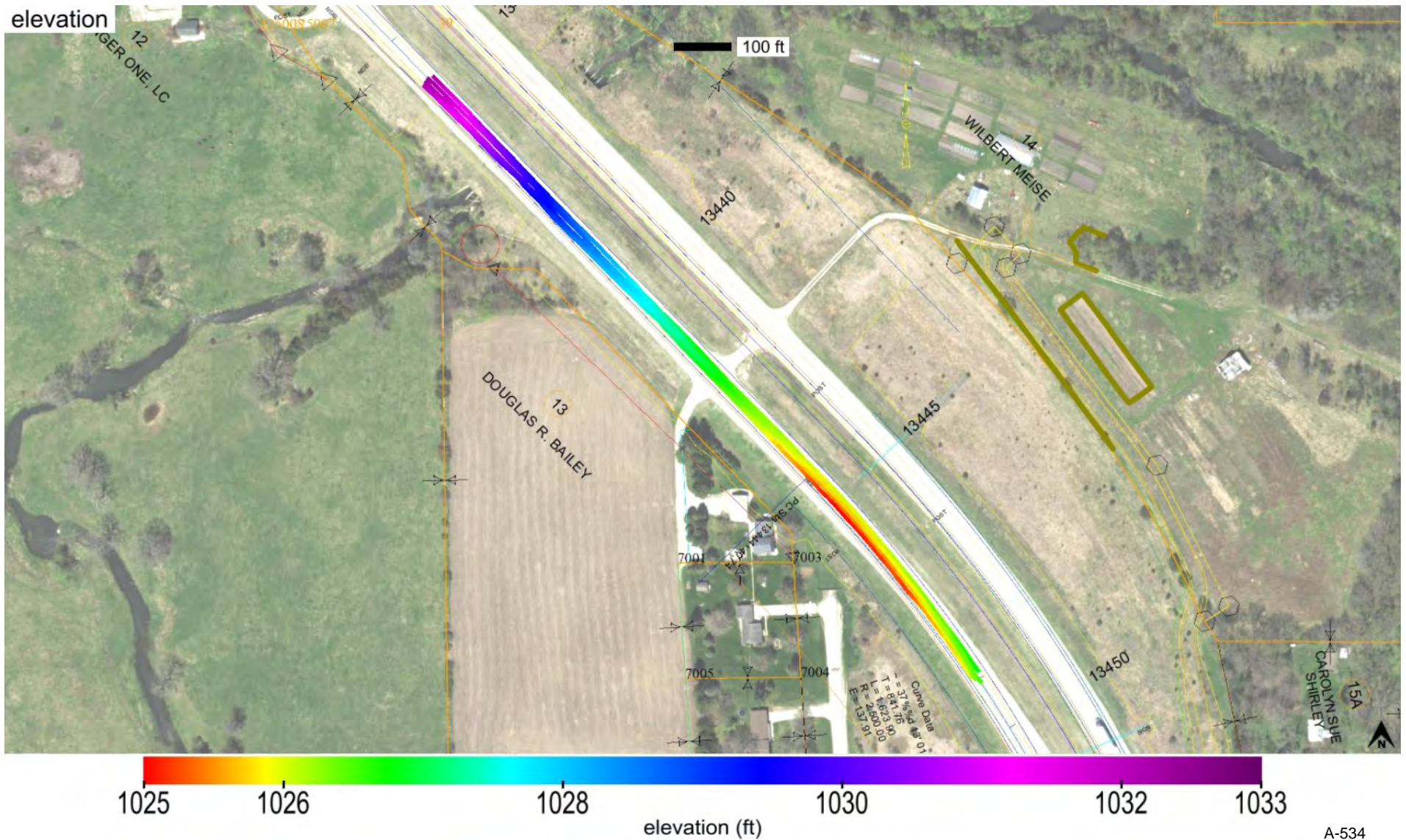


10th percentile	Median	cov(%)	% >= TV	Target Value
0	0	0.0	0.0	0



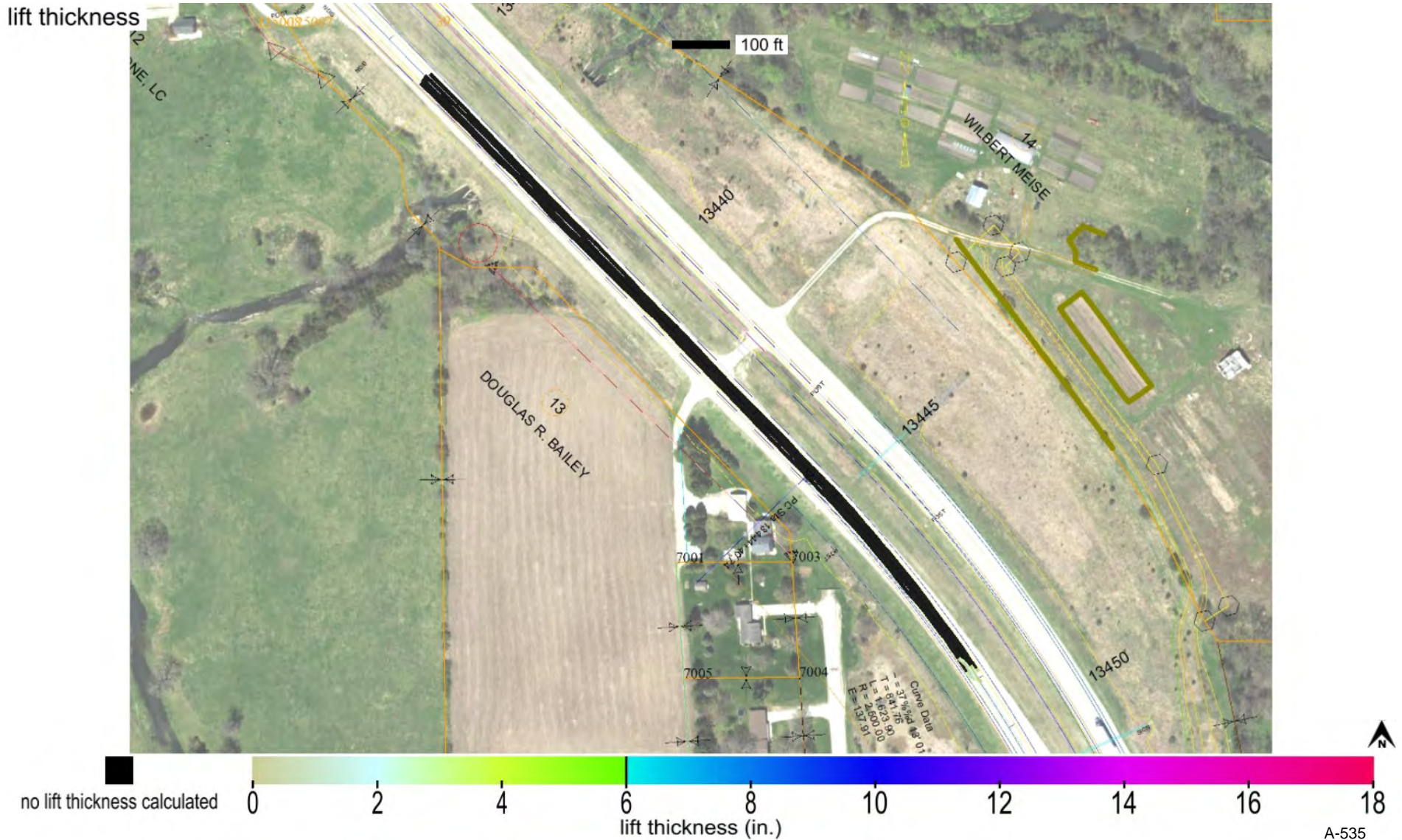


minimum	average	maximum
1025.01	1027.62	1032.38





25th percentile (in.)	Median (in.)	75th percentile (in.)	Target Value (in.)
-1.3	0.3	1.7	6.0





Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_183704    Map Type: Verification Map    Map Layer: Subbase 12 Inches

name	id	% of total	area-square ft	area-acres	tl-xmv	tl-Mr	tl-k value	tl-w%
Modified Subbase Recycled PCC_IADOT	41024	100.0	34058	0.782	100.0	10017.0	150.0	20.5



Modified Subbase Recycled PCC\_IADOT





A-537



Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_185855

Project:	Floyd County US18	Date and Time:	9/13/2022 6:58:55 PM	Machine ID:	Ingios01
Description:	US18/US218/IA27 AT FLOYD CO T44	Mapping Duration (hrs):	0.574	Operator:	Ingios
Location:	Floyd County IA	No. of Measurements:	59877	Machine Operator ID:	822
Review Status:	Review Required	Map Type:	Verification Map	State Plane:	1401 IOWA NORTH
		Map Layer:	Subbase 12 Inches	Segment:	US 18 EB

Map Summary

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
XMV	No												
Resilient Modulus	No												
k-value	Yes	55.0	81.1	1.3	150.0	51.7	152.3	189.0	26.9	17.6	-98.3	2.3	39.0
Moisture Content	No												

Mapped Area		Pass Count			Elevation (ft)			Velocity (fps)		
square feet	acres	min.	avg.	max.	min.	avg.	max.	min.	avg.	max.
59877	1.375	1	1.2	3	1032.02	1050.10	1075.57	4.4	5.1	6.7

Materials

name	id	% of total	area-square ft	area-acres	tl-xmv	tl-Mr	tl-k value	tl-w%
Modified Subbase Recycled PCC_IADOT	41024	100.0	59877	1.375	100.0	10017.0	150.0	20.5

Blobs

parameter	min. area(ft^2)	# of blobs	blob area(ft^2)	% of map	lower bound-tv	upper bound-tv	poly-tol.
k-value	1000.0	5	20825	34.8	none	0.0	4.0

Lift Thickness

25th percentile (in.)	Median (in.)	75th percentile (in.)	Target Value (in.)
-1.3	-0.7	0.1	6.0

Station

Start	End
13413+50	13435+00



Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_185855

Project:	Floyd County US18	Date and Time:	9/13/2022 6:58:55 PM	Machine ID:	Ingios01
Description:	US18/US218/IA27 AT FLOYD CO T44	Mapping Duration (hrs):	0.574	Operator:	Ingios
Location:	Floyd County IA	No. of Measurements:	59877	Machine Operator ID:	822
Review Status:	Review Required	Map Type:	Verification Map	State Plane:	1401 IOWA NORTH
		Map Layer:	Subbase 12 Inches	Segment:	US 18 EB

**QUALITY ANALYSIS SUMMARY - k-Value**

Quality Value	Criteria
<b>81.1</b>	CQI > = 95
<b>55.0</b>	80% of k-Value MVs >= 150
<b>17.6</b>	COV <= 30
<b>34.8</b>	% i-Score Blob Area >= 1000 ft <sup>2</sup>
<b>-0.7</b>	Lift Thickness Median Value (in.)

Compaction Quality Index(CQI): Relative compaction quality index based on the percentage of the geospatial area that meets the minimum target values and accounts for the uniformity of compaction. The default minimum target CQI is 95% using a uniformity weight factor of 50%.

Percent Passing Target Values: Number of geospatial grid points from the output that meet or exceed the target value (TV) for the selected material. Level I target % Passing TV = 80%. Level II target % Passing TV = 90%.

Coefficient of Variation (COV): Calculated from the ratio of the standard deviation to the mean based on the measurement values (MV) reported at each grid point of the mapping area. Description of COV ranges: <= 20% = Low Variability; 20 to 40% = Moderate Variability; > 40% = High Variability. The default target COV is <= 30%.

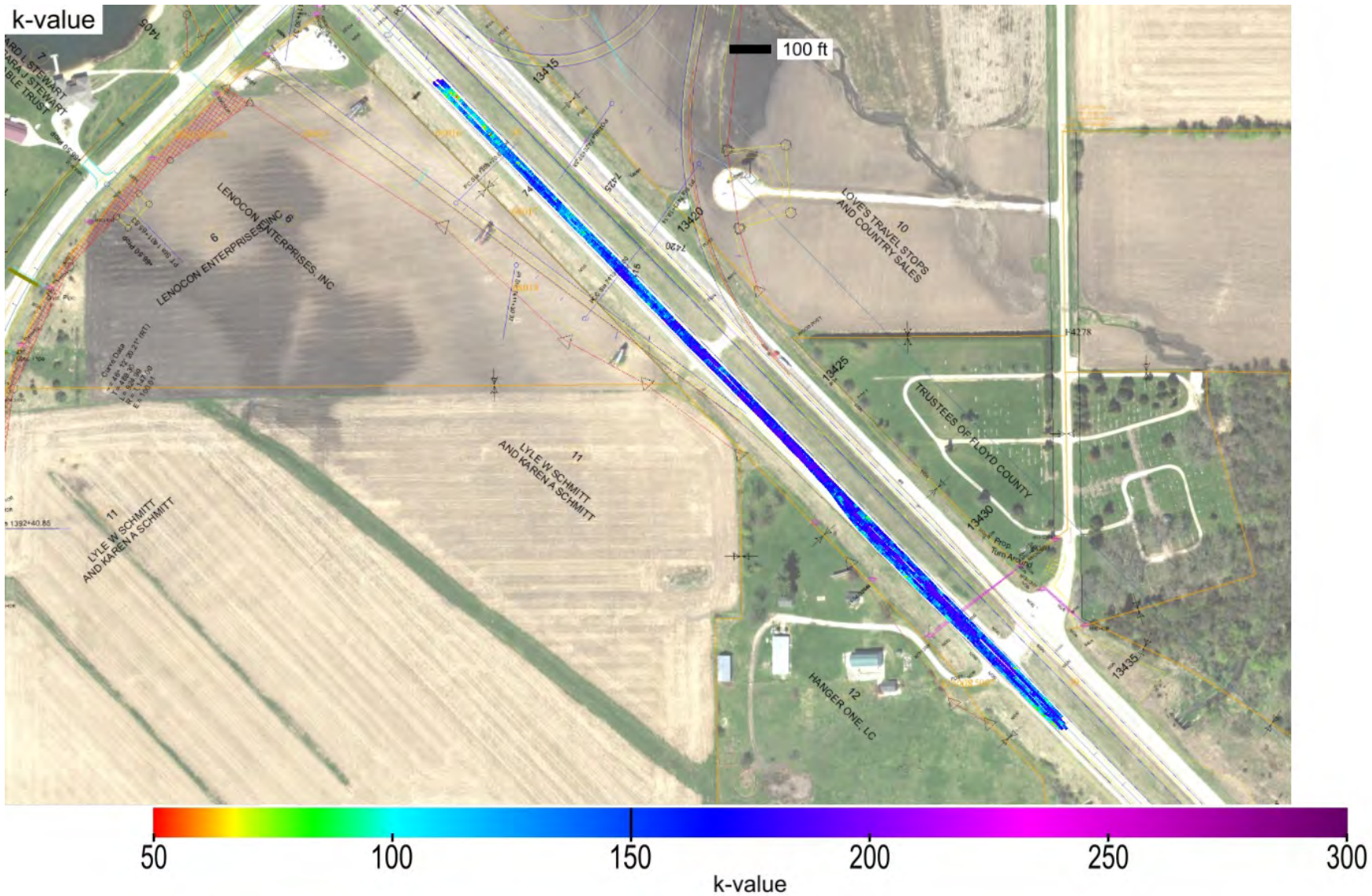
i-Score Blob (%): The percentage of the map area analyzed with contiguous blob areas with MVs < TV. Control Level 1 >= 100 sq. ft.; Control Level 2 >= 200 sq. ft.; Control Level 3 >= 500 sq. ft.; Control Level 4 >= 1,000 sq. ft.; Control Level 5 >= 2,000 sq. ft.

Lift thickness: Green: 75th percentile value <= TV; Yellow: median value <= TV and 75th percentile > TV; Red: median value (50th percentile) > TV.



Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_185855    Map Type: Verification Map    Map Layer: Subbase 12 Inches

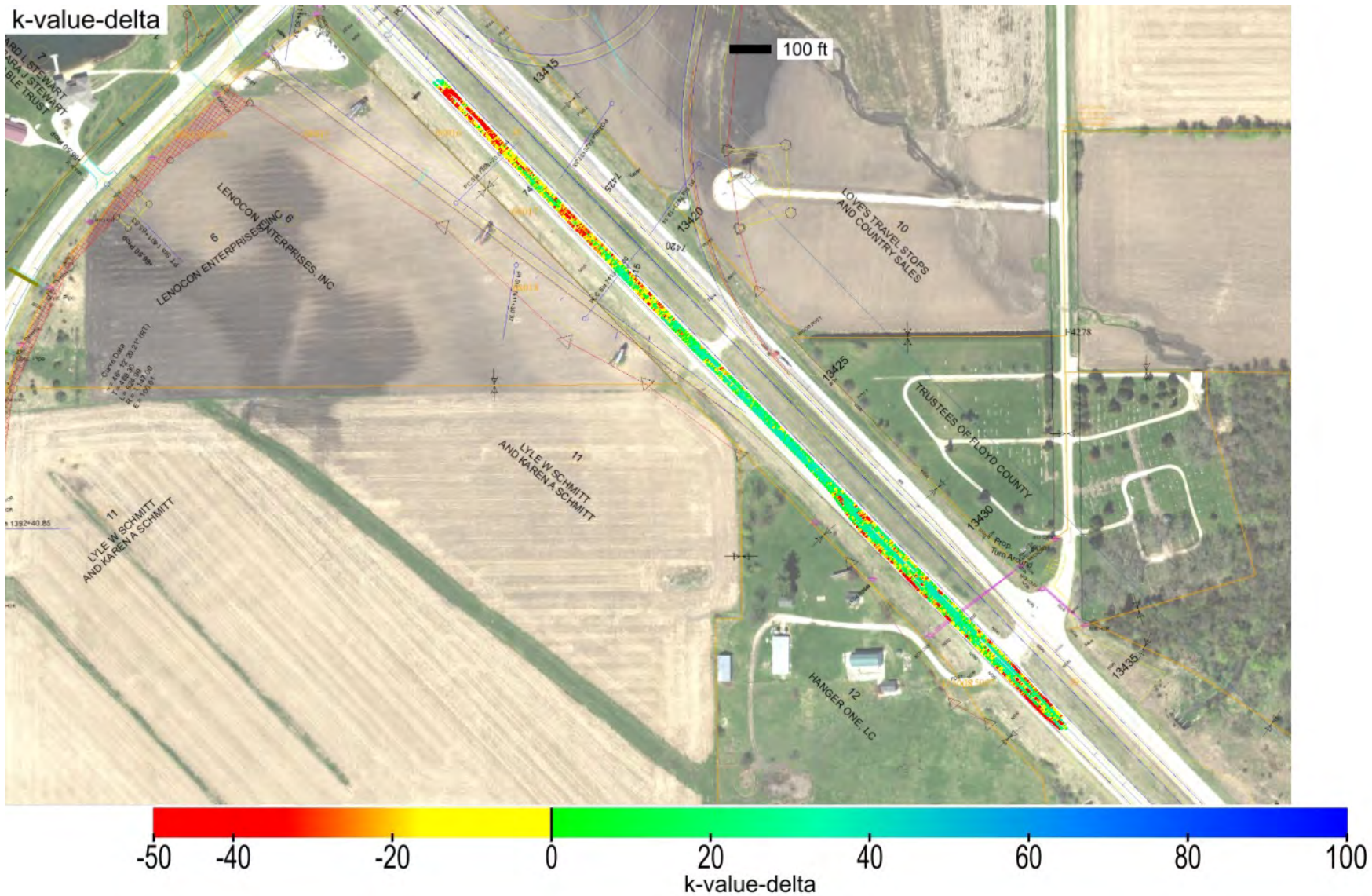
Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
k-value	Yes	55.0	81.1	1.3	150.0	51.7	152.3	189.0	26.9	17.6	-98.3	2.3	39.0





Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_185855    Map Type: Verification Map    Map Layer: Subbase 12 Inches

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
k-value	Yes	55.0	81.1	1.3	150.0	51.7	152.3	189.0	26.9	17.6	-98.3	2.3	39.0

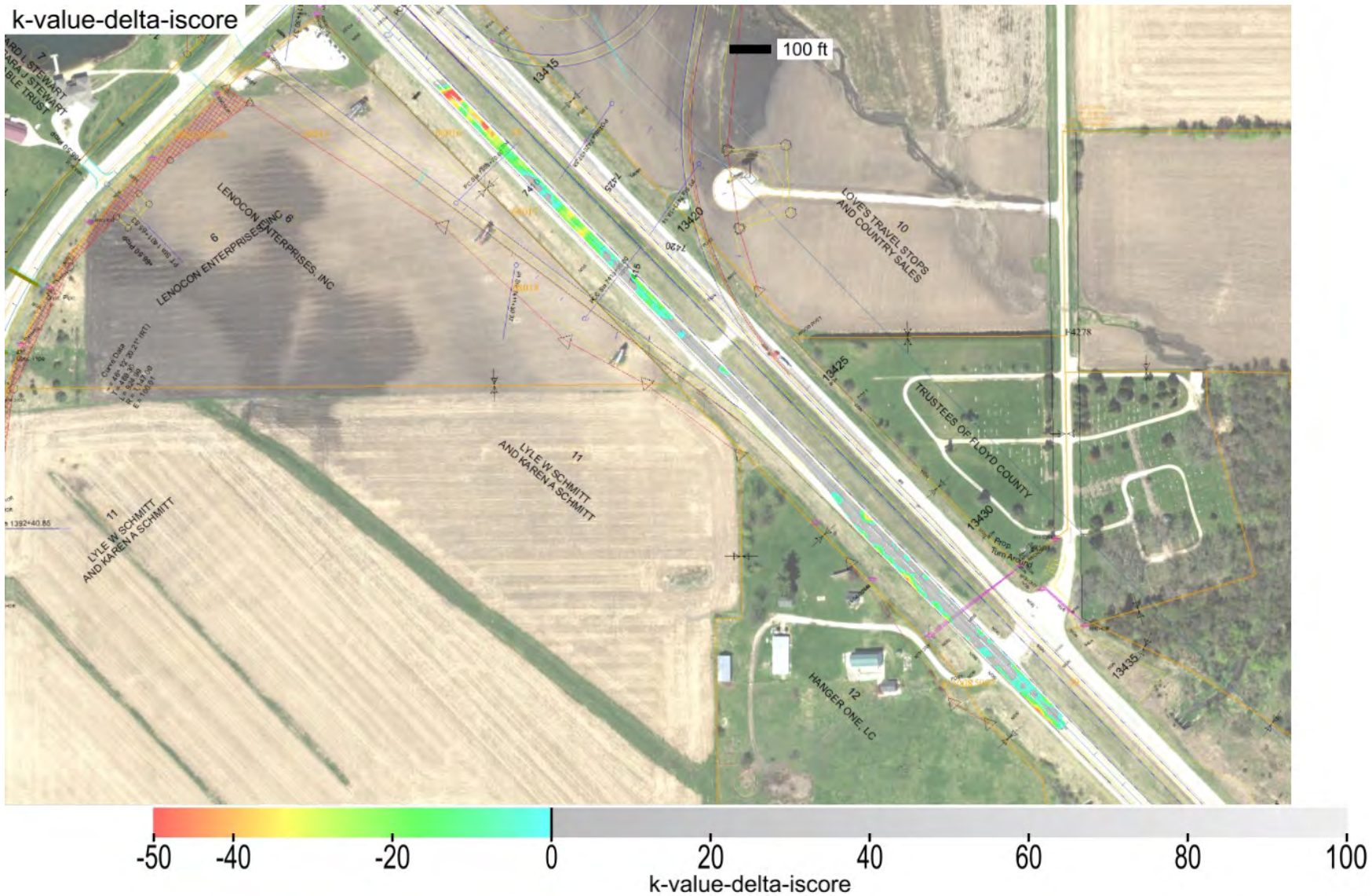


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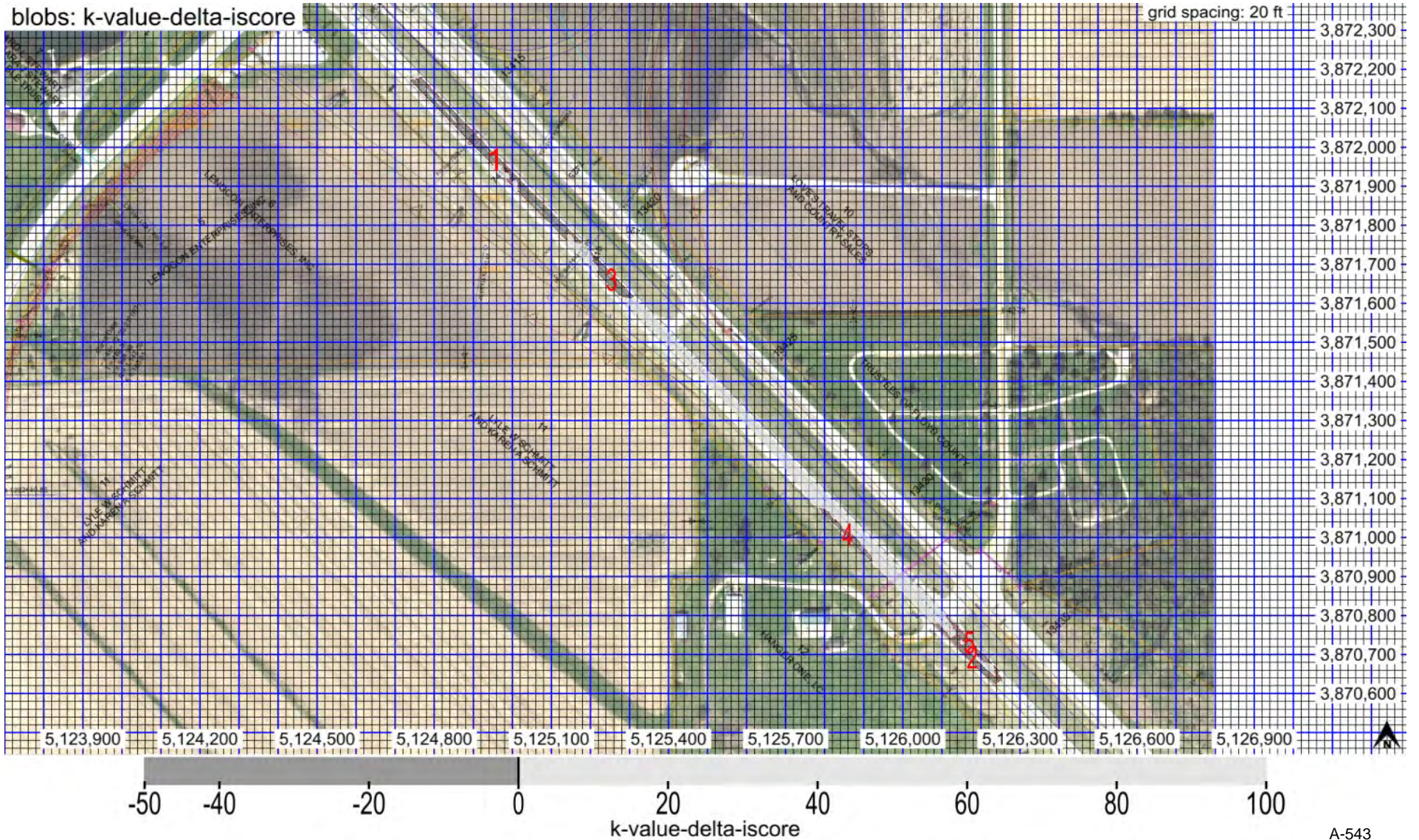
Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_185855    Map Type: Verification Map    Map Layer: Subbase 12 Inches

Parameter	Measured	% Passing	Calc. TV	min.-delta	avg.-delta	max.-delta	min.-delta-iscore	avg.-delta-iscore	max.-delta-iscore
k-value	Yes	55.0	150.0	-98.3	2.3	39.0	-74.4	2.9	39.0





min. area(ft^2)	# of blobs	blob area(ft^2)	% of map	lower bound-tv	upper bound-tv	poly-tol.
1000	5	20825	34.8	none	0.0	4.0









Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_185855    Map Type: Verification Map    Map Layer: Subbase 12 Inches

blob: k-value-delta-iscore

Blob #	Area (ft^2)	% of blobs area	# b.p.	min.-delta-iscore	avg.-delta-iscore	max.-delta-iscore
2	2975	14.3	24	-48.4	-13.2	0.0

Point	Easting (ft)	Northing (ft)
1	5126238	<b>3870624</b>
2	5126246	3870630
3	5126240	3870638
4	<b>5126254</b>	3870634
5	5126238	3870656
6	5126244	3870652
7	5126248	3870658
8	5126234	3870672
9	5126240	3870644
10	5126232	3870644
11	5126168	3870704
12	5126168	3870720
13	5126160	3870728
14	5126148	3870724
15	5126148	3870740
16	5126138	3870752
17	5126132	3870748
18	5126138	3870740
19	5126132	3870746
20	5126122	3870742
21	5126094	<b>3870778</b>
22	<b>5126082</b>	3870778
23	5126204	3870652
24	5126238	3870626





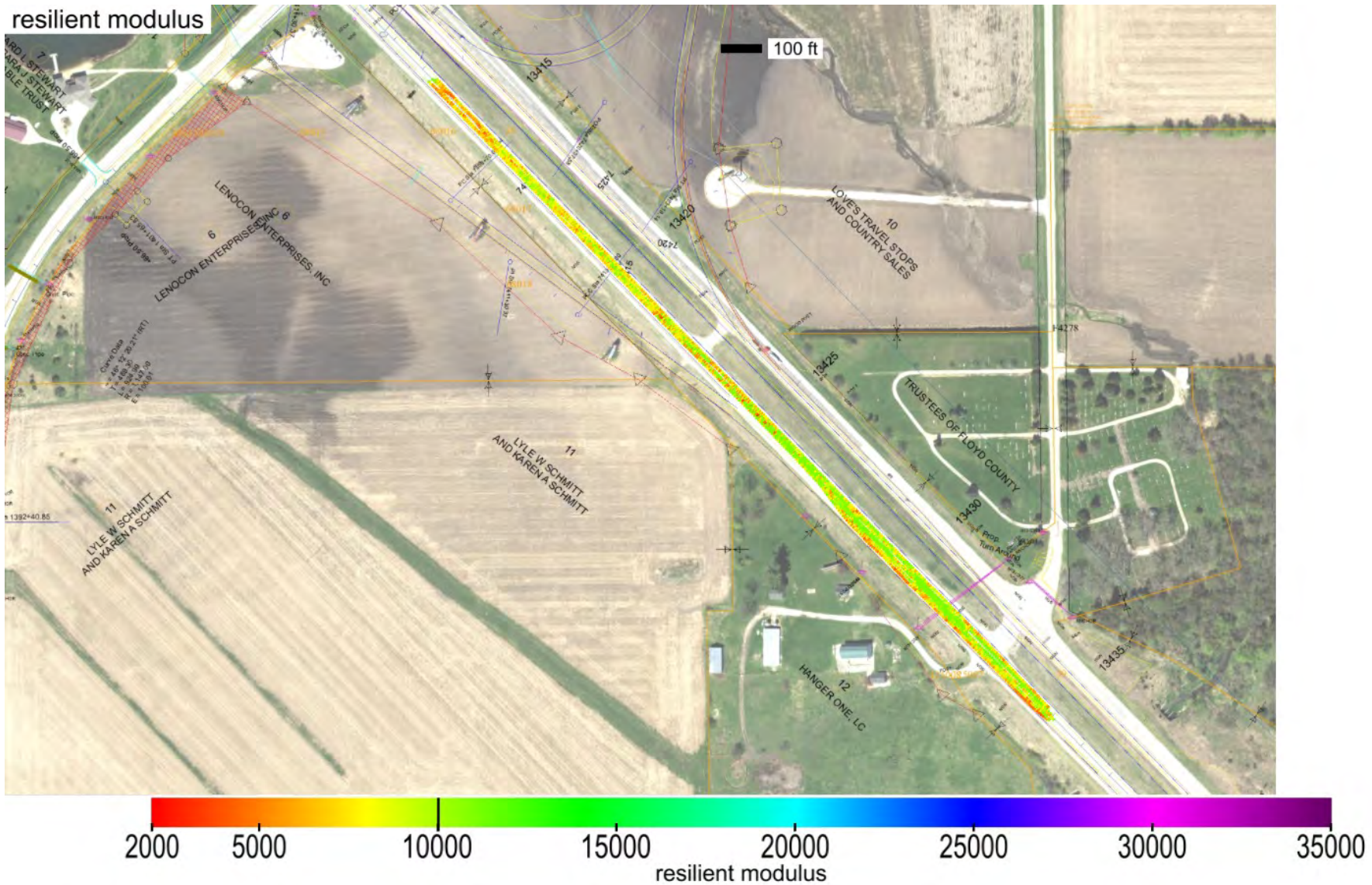






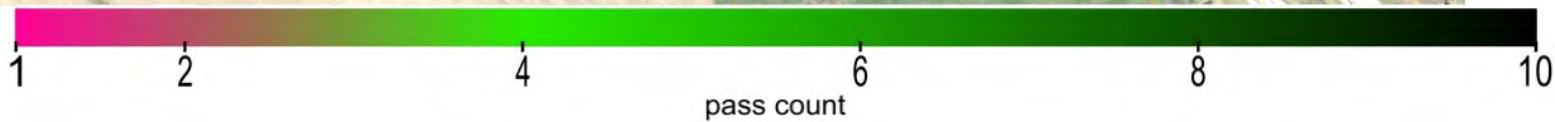
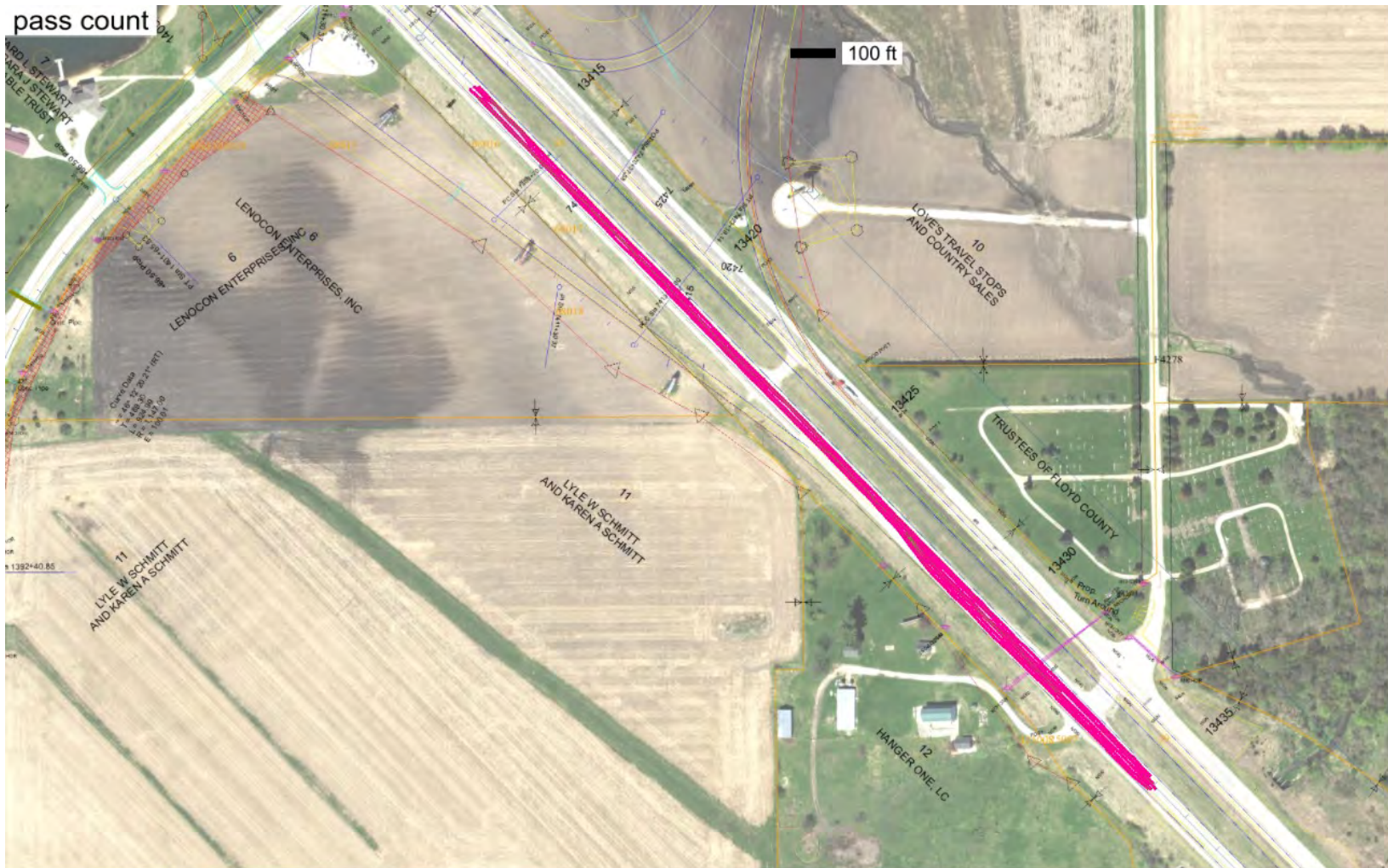


Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
resilient modulus	Yes	33.3	56.6	1.1	10017.0	3105.9	8576.2	11000.0	2010.9	23.5	-6911.1	-1440.8	983.0



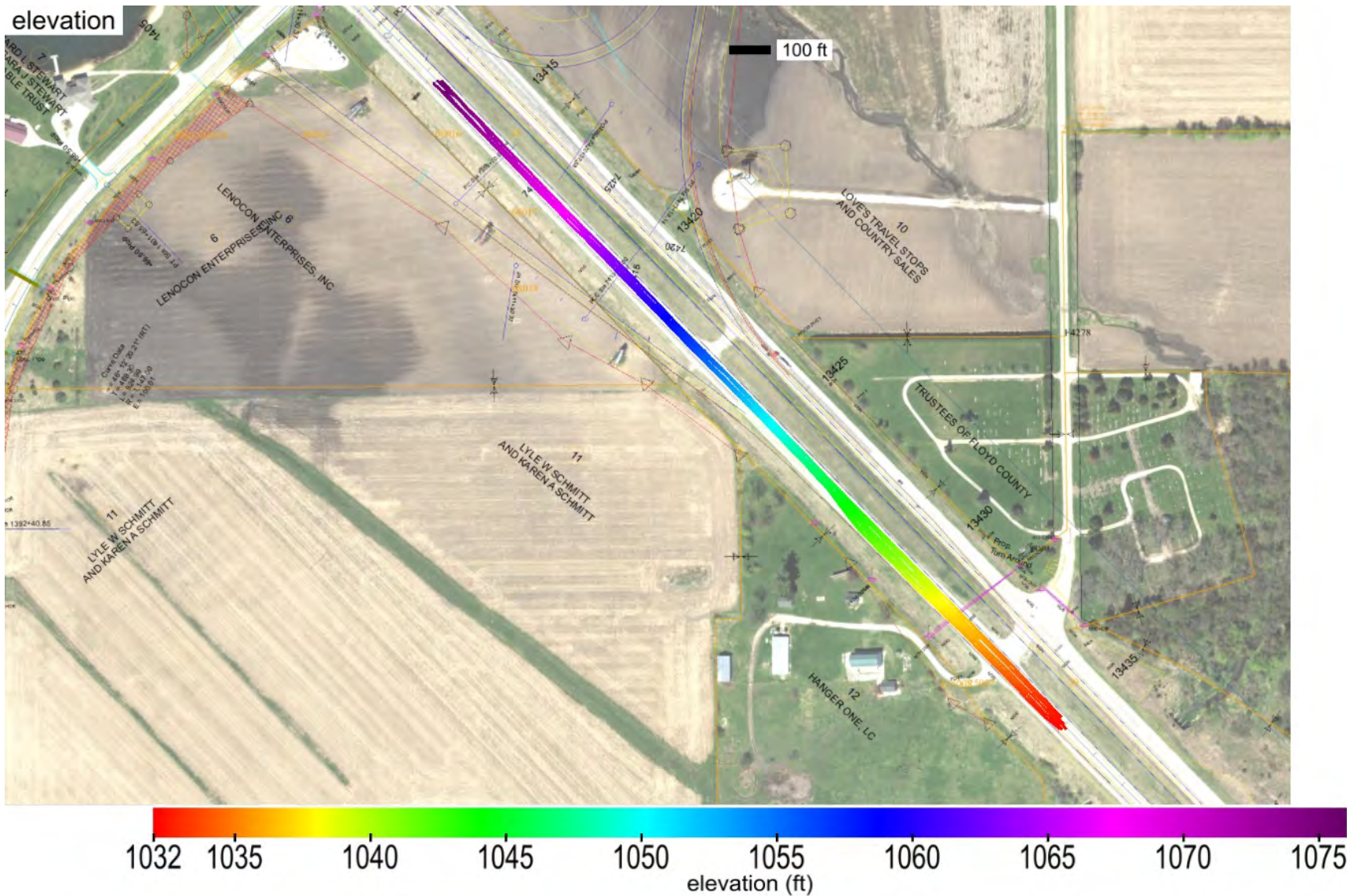


minimum	average	maximum
1	1.2	3





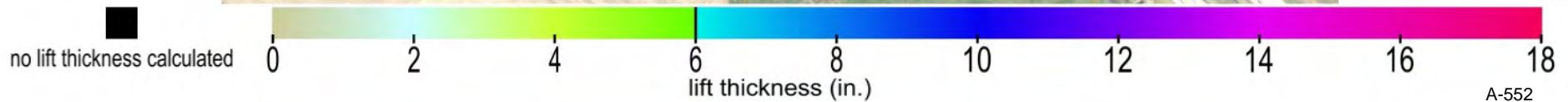
minimum	average	maximum
1032.02	1050.10	1075.57





25th percentile (in.)	Median (in.)	75th percentile (in.)	Target Value (in.)
-1.3	-0.7	0.1	6.0

lift thickness



A-552



Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_185855    Map Type: Verification Map    Map Layer: Subbase 12 Inches

name	id	% of total	area-square ft	area-acres	tl-xmv	tl-Mr	tl-k value	tl-w%
Modified Subbase Recycled PCC_IADOT	41024	100.0	59877	1.375	100.0	10017.0	150.0	20.5



Modified Subbase Recycled PCC\_IADOT



Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_193920

Project:	Floyd County US18	Date and Time:	9/13/2022 7:39:20 PM	Machine ID:	Ingios01
Description:	US18/US218/IA27 AT FLOYD CO T44	Mapping Duration (hrs):	0.137	Operator:	Ingios
Location:	Floyd County IA	No. of Measurements:	10494	Machine Operator ID:	822
Review Status:	Review Required	Map Type:	Verification Map	State Plane:	1401 IOWA NORTH
		Map Layer:	Subgrade Top	Segment:	RAMP A

Map Summary

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
XMV	No												
Resilient Modulus	No												
k-value	Yes	19.2	30.1	0.2	100.0	35.0	72.3	165.0	34.9	48.3	-65.0	-27.7	65.0
Moisture Content	No												

Mapped Area

Pass Count

Elevation (ft)

Velocity (fps)

square feet	acres	10th percentile	Median	cov(%)	% >= TV	Target Value	min.	avg.	max.	min.	avg.	max.
10494	0.241	0	0	0.0	0.0	0	1058.44	1059.71	1062.49	4.3	5.2	7.4

Materials

name	id	% of total	area-square ft	area-acres	tl-xmv	tl-Mr	tl-k value	tl-w%
Subgrade_Class 10 (Clay)_IADOT	24005	100.0	10494	0.241	100.0	3000.0	100.0	20.5

Blobs

parameter	min. area(ft^2)	# of blobs	blob area(ft^2)	% of map	lower bound-tv	upper bound-tv	poly-tol.
k-value	1000.0	2	9054	86.3	none	0.0	4.0

Lift Thickness

25th percentile (in.)	Median (in.)	75th percentile (in.)	Target Value (in.)
0.0	0.0	0.0	6.0

Station

Start	End
4405+00	4409+00



Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_193920

Project:	Floyd County US18	Date and Time:	9/13/2022 7:39:20 PM	Machine ID:	Ingios01
Description:	US18/US218/IA27 AT FLOYD CO T44	Mapping Duration (hrs):	0.137	Operator:	Ingios
Location:	Floyd County IA	No. of Measurements:	10494	Machine Operator ID:	822
Review Status:	Review Required	Map Type:	Verification Map	State Plane:	1401 IOWA NORTH
		Map Layer:	Subgrade Top	Segment:	RAMP A

**QUALITY ANALYSIS SUMMARY - k-Value**

Quality Value	Criteria
30.1	CQI >= 95
19.2	80% of k-Value MVs >= 100
48.3	COV <= 30
86.3	% i-Score Blob Area >= 1000 ft <sup>2</sup>
0.0	Lift Thickness Median Value (in.)
0	Pass Count >= 0

Compaction Quality Index(CQI): Relative compaction quality index based on the percentage of the geospatial area that meets the minimum target values and accounts for the uniformity of compaction. The default minimum target CQI is 95% using a uniformity weight factor of 50%.

Percent Passing Target Values: Number of geospatial grid points from the output that meet or exceed the target value (TV) for the selected material. Level I target % Passing TV = 80%. Level II target % Passing TV = 90%.

Coefficient of Variation (COV): Calculated from the ratio of the standard deviation to the mean based on the measurement values (MVs) reported at each grid point of the mapping area. Description of COV ranges: <= 20% = Low Variability; 20 to 40% = Moderate Variability; > 40% = High Variability. The default target COV is <= 30%.

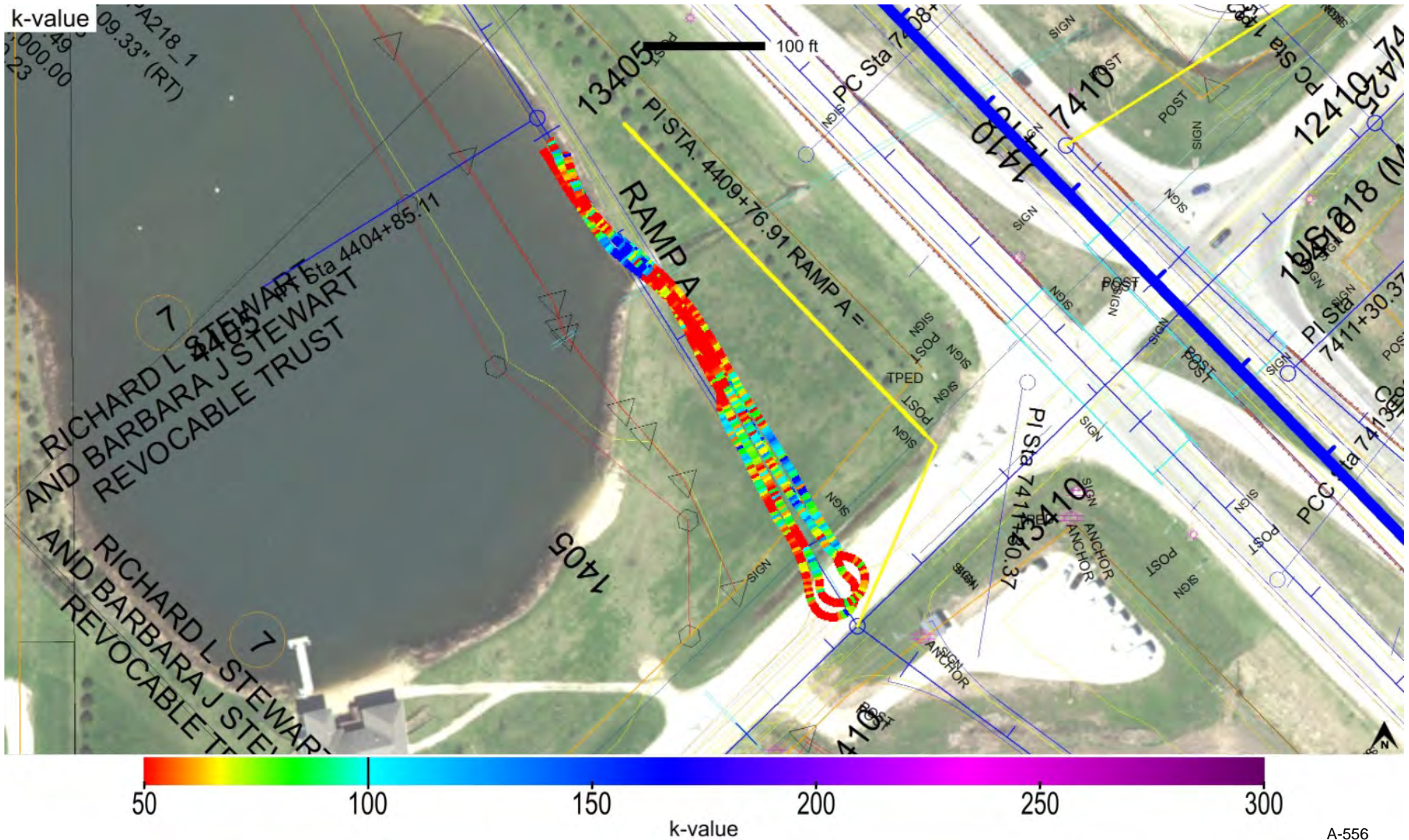
i-Score Blob (%): The percentage of the map area analyzed with contiguous blob areas with MVs < TV. Control Level 1 >= 100 sq. ft.; Control Level 2 >= 200 sq. ft.; Control Level 3 >= 500 sq. ft.; Control Level 4 >= 1,000 sq. ft.; Control Level 5 >= 2,000 sq. ft.

Lift thickness: Green: 75th percentile value <= TV; Yellow: median value <= TV and 75th percentile > TV; Red: median value (50th percentile) > TV.

Pass Count: Green: 10th percentile value >= TV; Yellow: 10th percentile value >= TV and cov% > 50%; Red: 10th percentile value < TV.

Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_193920    Map Type: Verification Map    Map Layer: Subgrade Top

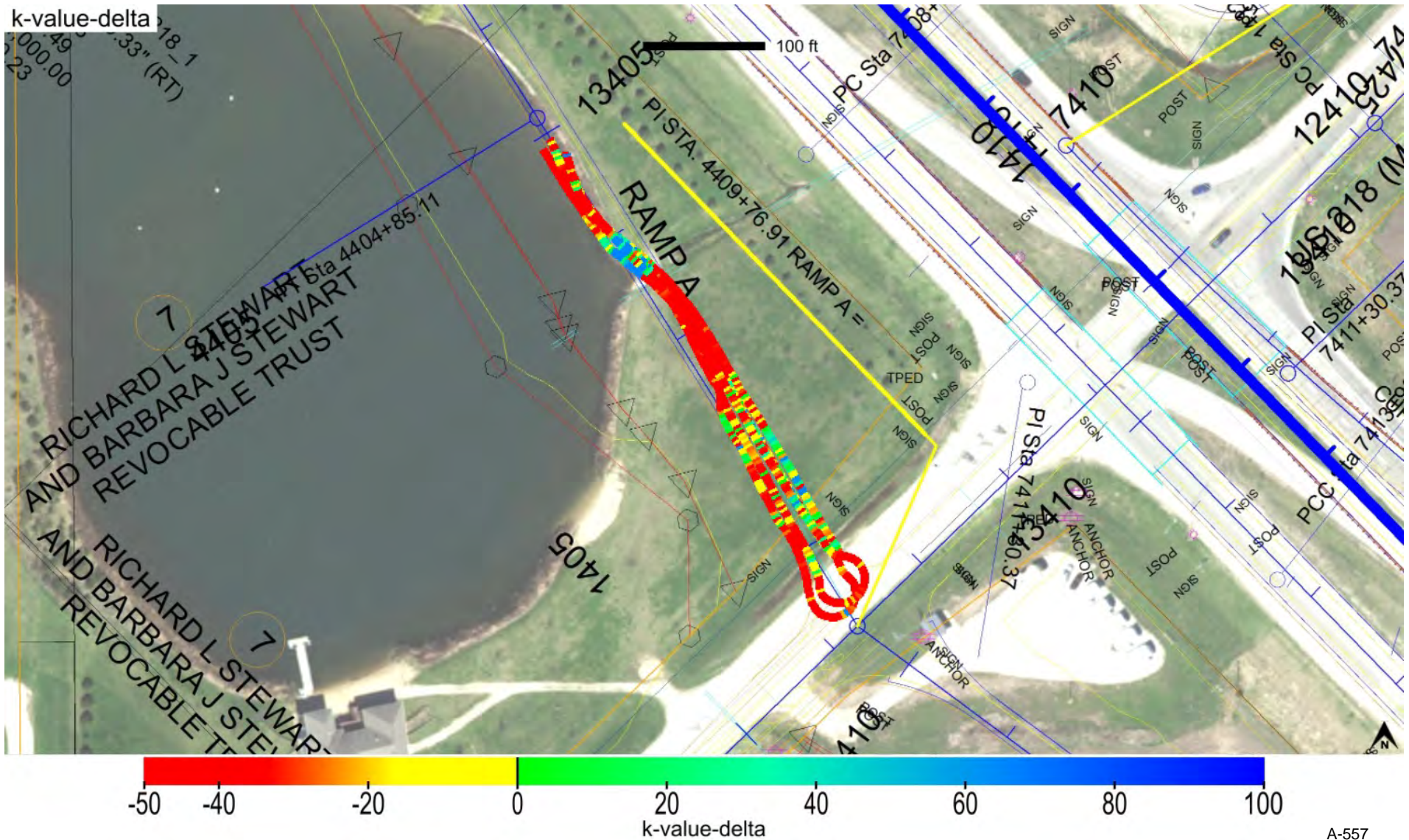
Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
k-value	Yes	19.2	30.1	0.2	100.0	35.0	72.3	165.0	34.9	48.3	-65.0	-27.7	65.0





Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_193920    Map Type: Verification Map    Map Layer: Subgrade Top

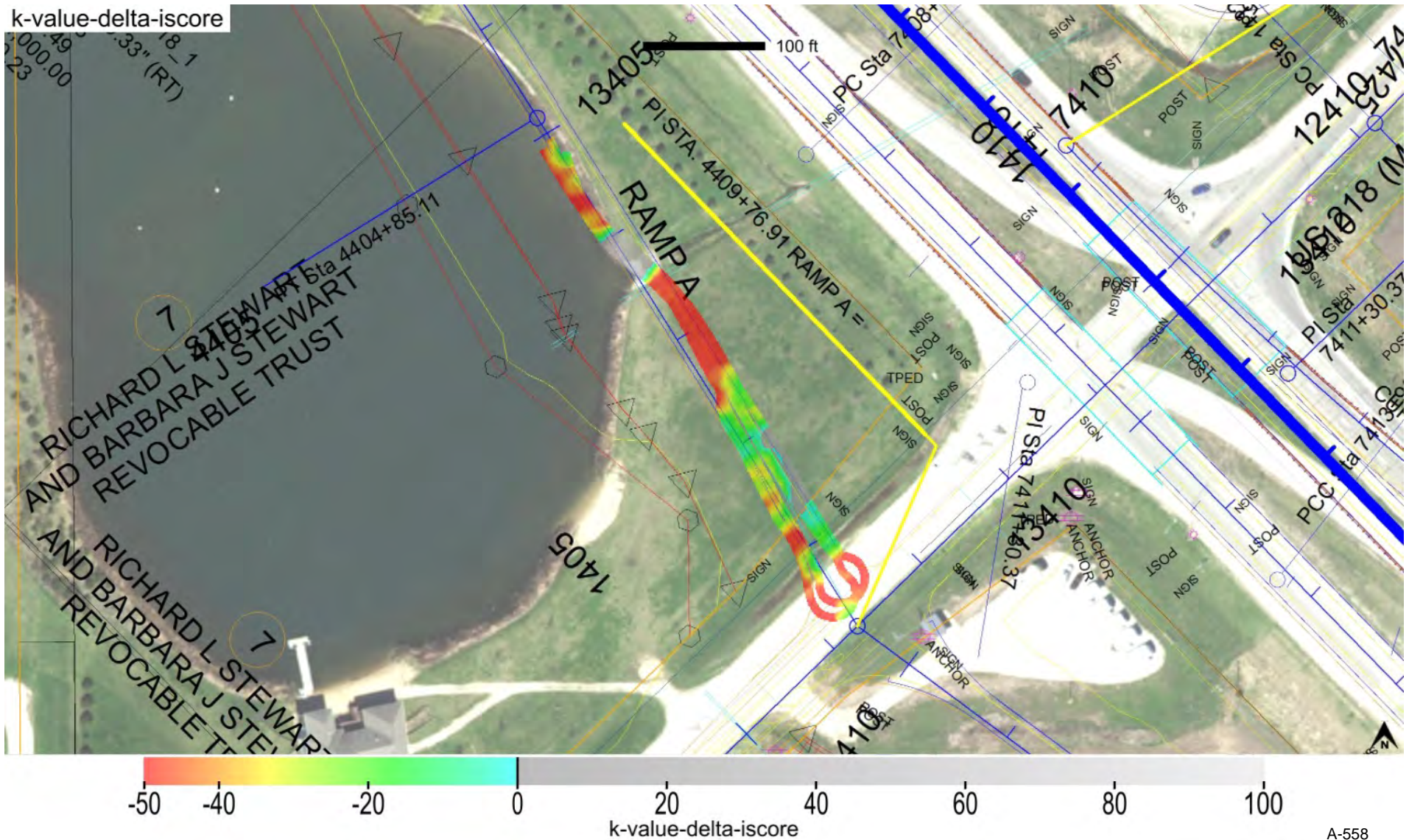
Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
k-value	Yes	19.2	30.1	0.2	100.0	35.0	72.3	165.0	34.9	48.3	-65.0	-27.7	65.0





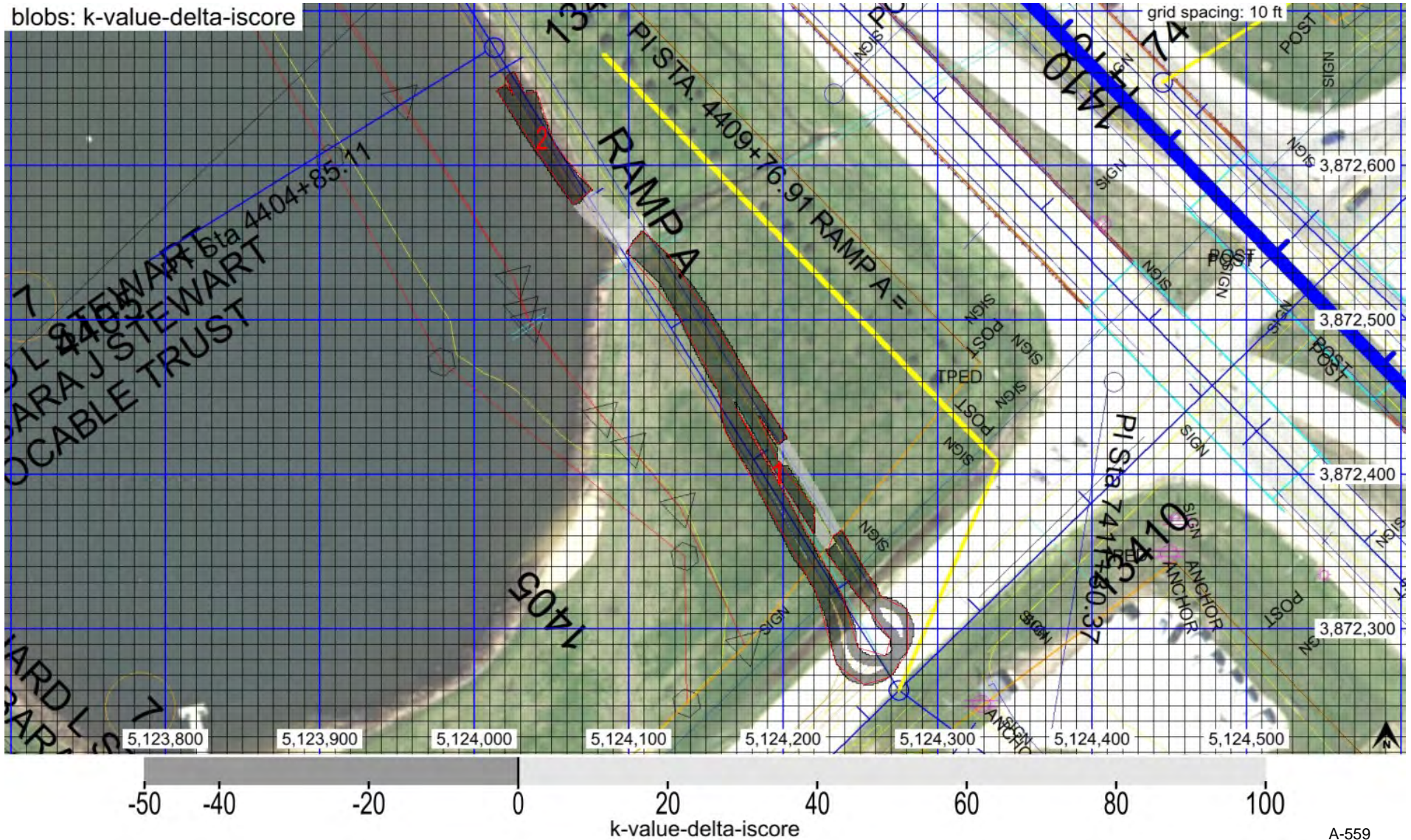
Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_193920    Map Type: Verification Map    Map Layer: Subgrade Top

Parameter	Measured	% Passing	Calc. TV	min.-delta	avg.-delta	max.-delta	min.-delta-iscore	avg.-delta-iscore	max.-delta-iscore
k-value	Yes	19.2	100.0	-65.0	-27.7	65.0	-64.2	-27.9	52.2





min. area(ft^2)	# of blobs	blob area(ft^2)	% of map	lower bound-tv	upper bound-tv	poly-tol.
1000	2	9054	86.3	none	0.0	4.0



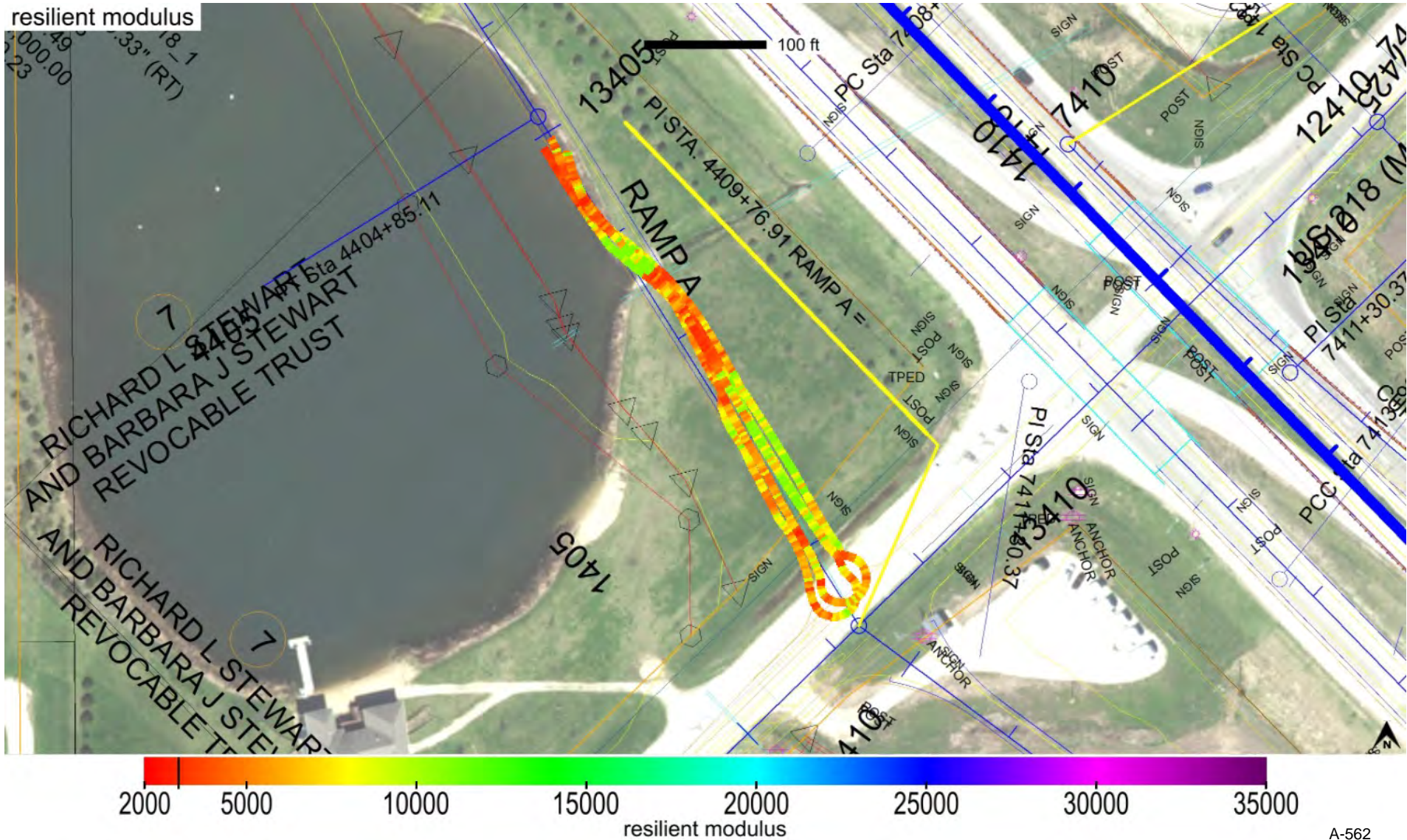






Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_193920    Map Type: Verification Map    Map Layer: Subgrade Top

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
resilient modulus	Yes	98.8	115.5	0.6	3000.0	2780.8	6746.7	11000.0	2460.3	36.5	-219.2	3746.7	8000.0



A-562

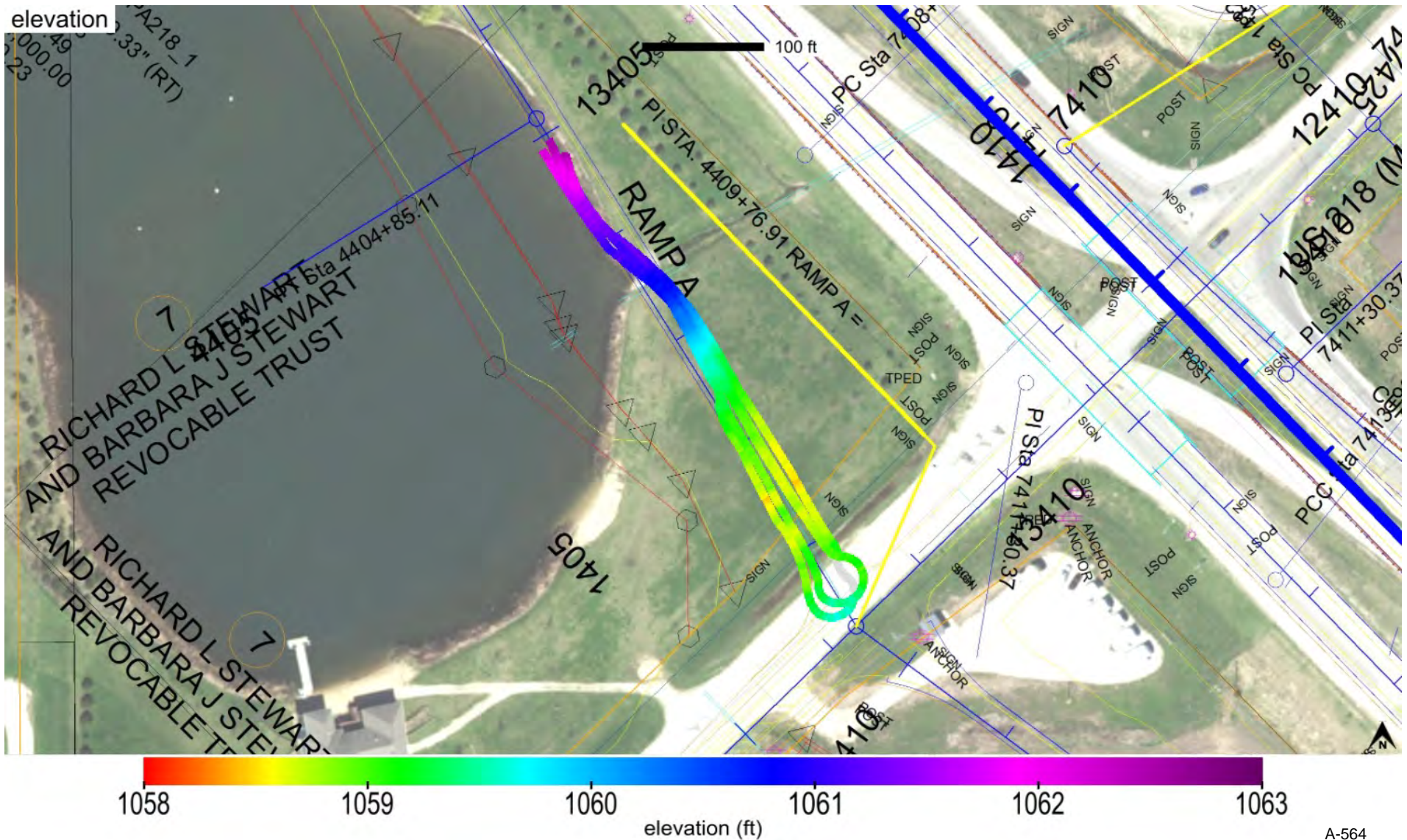
This report is only for use of the client named and it cannot be relied upon by any other person or entity.





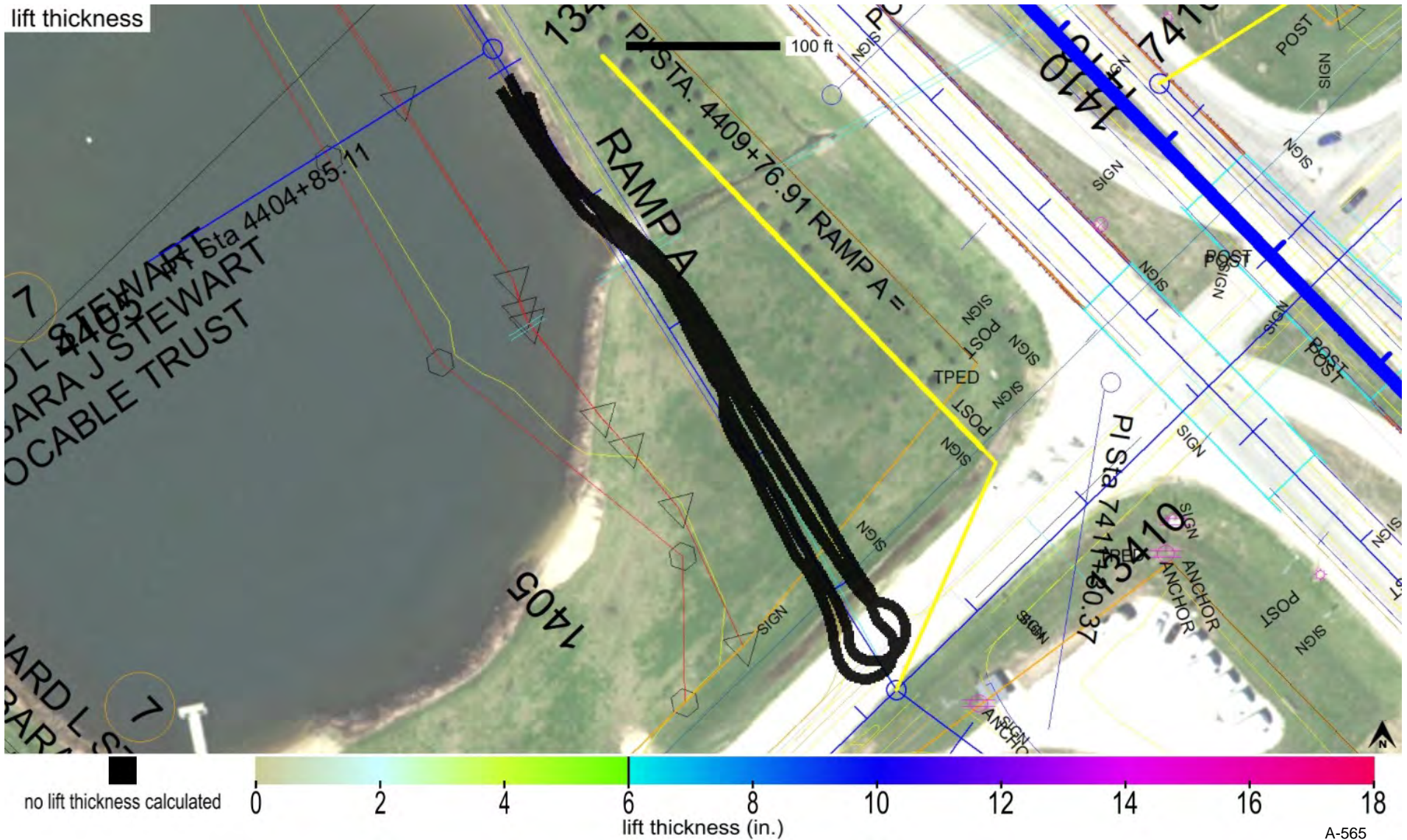


minimum	average	maximum
1058.44	1059.71	1062.49





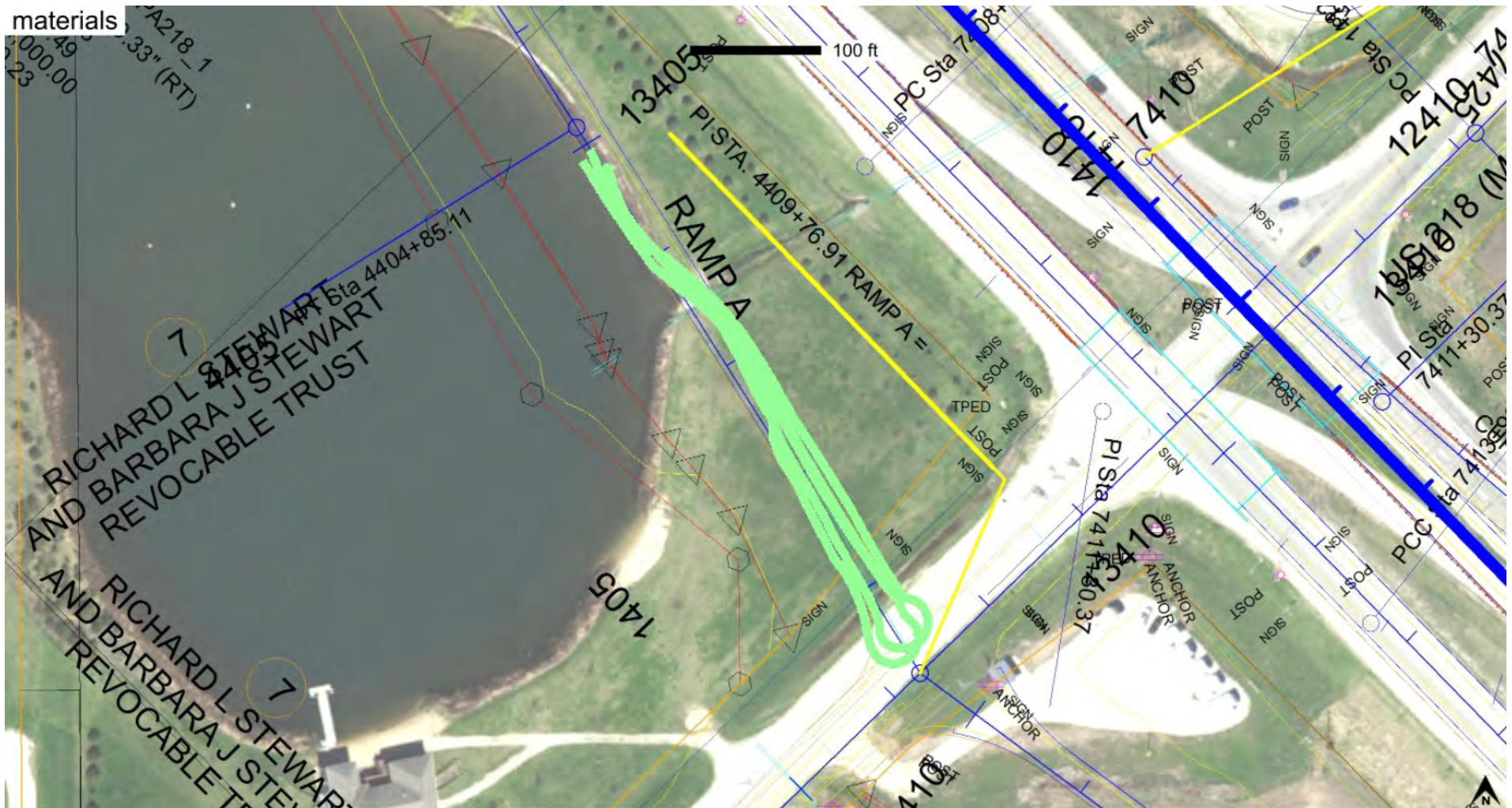
25th percentile (in.)	Median (in.)	75th percentile (in.)	Target Value (in.)
0.0	0.0	0.0	6.0





Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_193920    Map Type: Verification Map    Map Layer: Subgrade Top

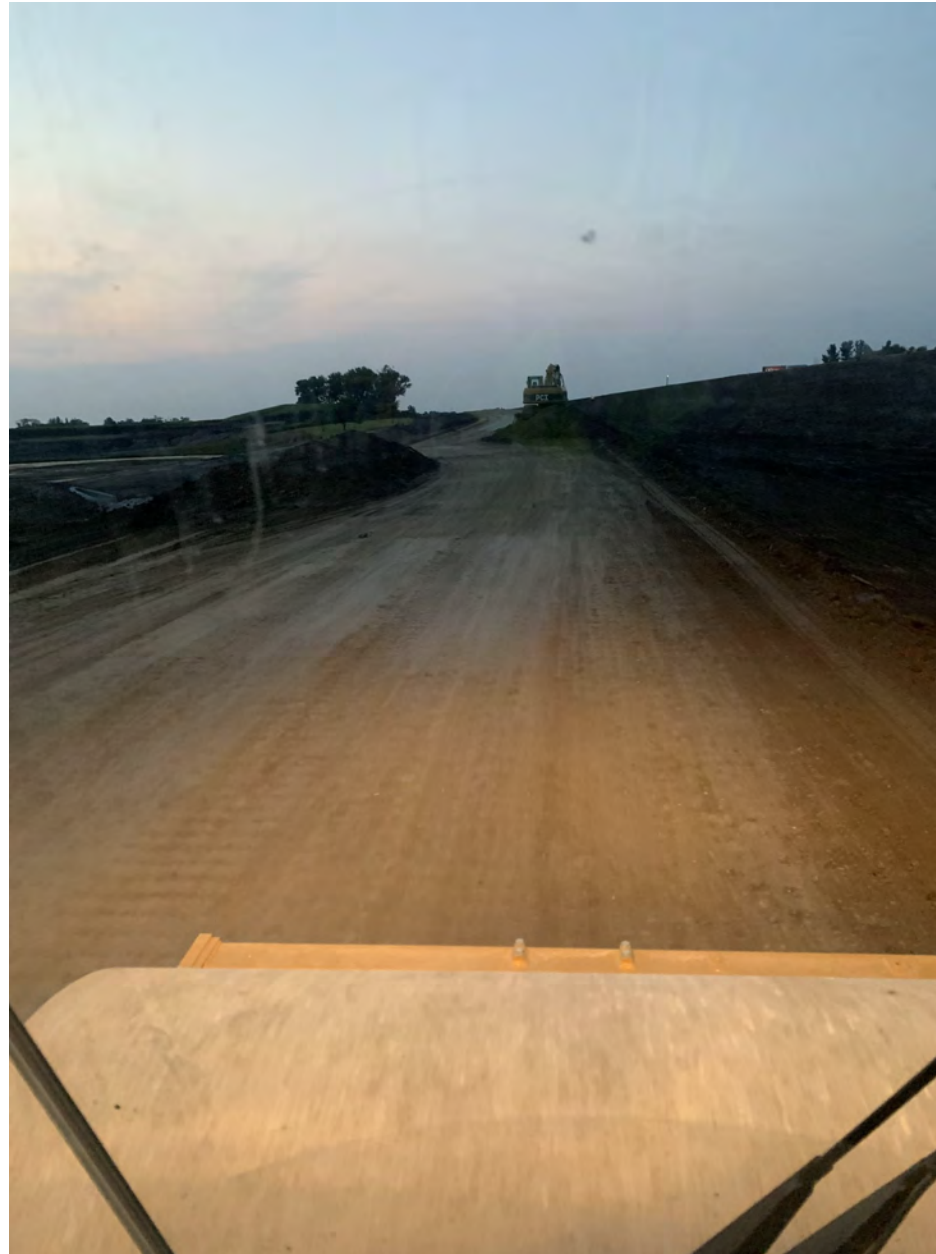
name	id	% of total	area-square ft	area-acres	tl-xmv	tl-Mr	tl-k value	tl-w%
Subgrade_Class 10 (Clay)_IADOT	24005	100.0	10494	0.241	100.0	3000.0	100.0	20.5



Subgrade\_Class 10 (Clay)\_IADOT



ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_193920\_20221101T141732\_Ramp-A-Subgrade-Looking-North.JPG



Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_195606

Project:	Floyd County US18	Date and Time:	9/13/2022 7:56:06 PM	Machine ID:	Ingios01
Description:	US18/US218/IA27 AT FLOYD CO T44	Mapping Duration (hrs):	0.232	Operator:	Ingios
Location:	Floyd County IA	No. of Measurements:	18468	Machine Operator ID:	822
Review Status:	Review Required	Map Type:	Verification Map	State Plane:	1401 IOWA NORTH
		Map Layer:	Subbase 6 Inches	Segment:	RAMP A

Map Summary

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
XMV	No												
Resilient Modulus	No												
k-value	Yes	14.1	33.8	0.6	150.0	20.0	111.6	189.0	34.0	30.5	-130.0	-38.4	39.0
Moisture Content	No												

Mapped Area		Pass Count					Elevation (ft)			Velocity (fps)		
square feet	acres	10th percentile	Median	cov(%)	% >= TV	Target Value	min.	avg.	max.	min.	avg.	max.
18468	0.424	0	0	0.0	0.0	0	1066.03	1071.49	1073.92	4.8	5.2	7.1

Materials

name	id	% of total	area-square ft	area-acres	tl-xmv	tl-Mr	tl-k value	tl-w%
Modified Subbase Recycled PCC_IADOT	41024	100.0	18468	0.424	100.0	10017.0	150.0	20.5

Blobs

parameter	min. area(ft^2)	# of blobs	blob area(ft^2)	% of map	lower bound-tv	upper bound-tv	poly-tol.
k-value	1000.0	3	16356	88.6	none	0.0	4.0

Lift Thickness

25th percentile (in.)	Median (in.)	75th percentile (in.)	Target Value (in.)
0.0	0.0	0.0	6.0

Station

Start	End
4392+00	4403+00



Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_195606

Project:	Floyd County US18	Date and Time:	9/13/2022 7:56:06 PM	Machine ID:	Ingios01
Description:	US18/US218/IA27 AT FLOYD CO T44	Mapping Duration (hrs):	0.232	Operator:	Ingios
Location:	Floyd County IA	No. of Measurements:	18468	Machine Operator ID:	822
Review Status:	Review Required	Map Type:	Verification Map	State Plane:	1401 IOWA NORTH
		Map Layer:	Subbase 6 Inches	Segment:	RAMP A

**QUALITY ANALYSIS SUMMARY - k-Value**

Quality Value	Criteria
<b>33.8</b>	CQI > = 95
<b>14.1</b>	80% of k-Value MVs >= 150
<b>30.5</b>	COV <= 30
88.6	% i-Score Blob Area >= 1000 ft <sup>2</sup>
<b>0.0</b>	Lift Thickness Median Value (in.)
<b>0</b>	Pass Count >= 0

Compaction Quality Index(CQI): Relative compaction quality index based on the percentage of the geospatial area that meets the minimum target values and accounts for the uniformity of compaction. The default minimum target CQI is 95% using a uniformity weight factor of 50%.

Percent Passing Target Values: Number of geospatial grid points from the output that meet or exceed the target value (TV) for the selected material. Level I target % Passing TV = 80%. Level II target % Passing TV = 90%.

Coefficient of Variation (COV): Calculated from the ratio of the standard deviation to the mean based on the measurement values (MVs) reported at each grid point of the mapping area. Description of COV ranges: <= 20% = Low Variability; 20 to 40% = Moderate Variability; > 40% = High Variability. The default target COV is <= 30%.

i-Score Blob (%): The percentage of the map area analyzed with contiguous blob areas with MVs < TV. Control Level 1 >= 100 sq. ft.; Control Level 2 >= 200 sq. ft.; Control Level 3 >= 500 sq. ft.; Control Level 4 >= 1,000 sq. ft.; Control Level 5 >= 2,000 sq. ft.

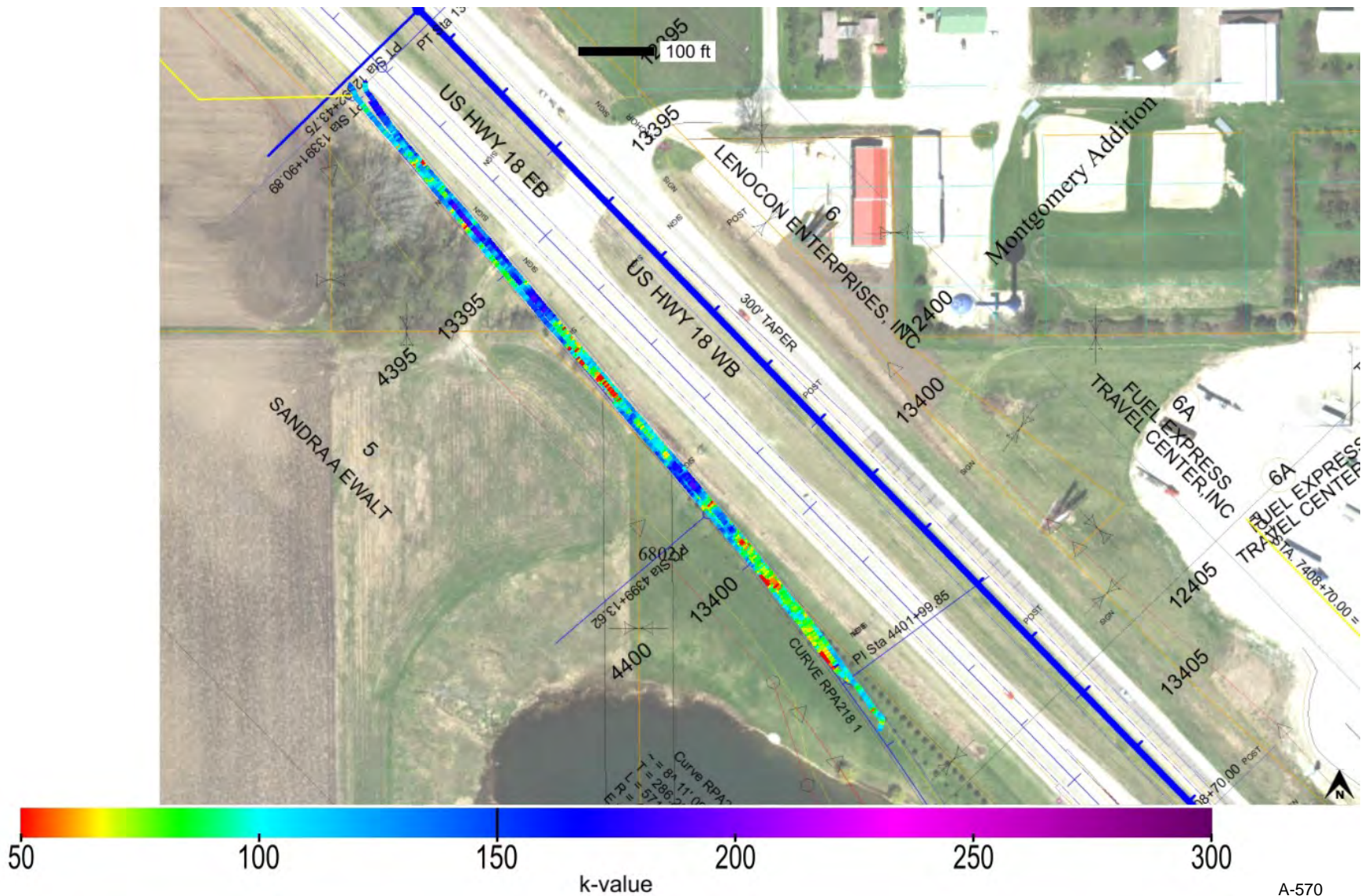
Lift thickness: Green: 75th percentile value <= TV; Yellow: median value <= TV and 75th percentile > TV; Red: median value (50th percentile) > TV.

Pass Count: Green: 10th percentile value >= TV; Yellow: 10th percentile value >= TV and cov% > 50%; Red: 10th percentile value < TV.

Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_195606 Map Type: Verification Map Map Layer: Subbase 6 Inches

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
k-value	Yes	14.1	33.8	0.6	150.0	20.0	111.6	189.0	34.0	30.5	-130.0	-38.4	39.0

k-value

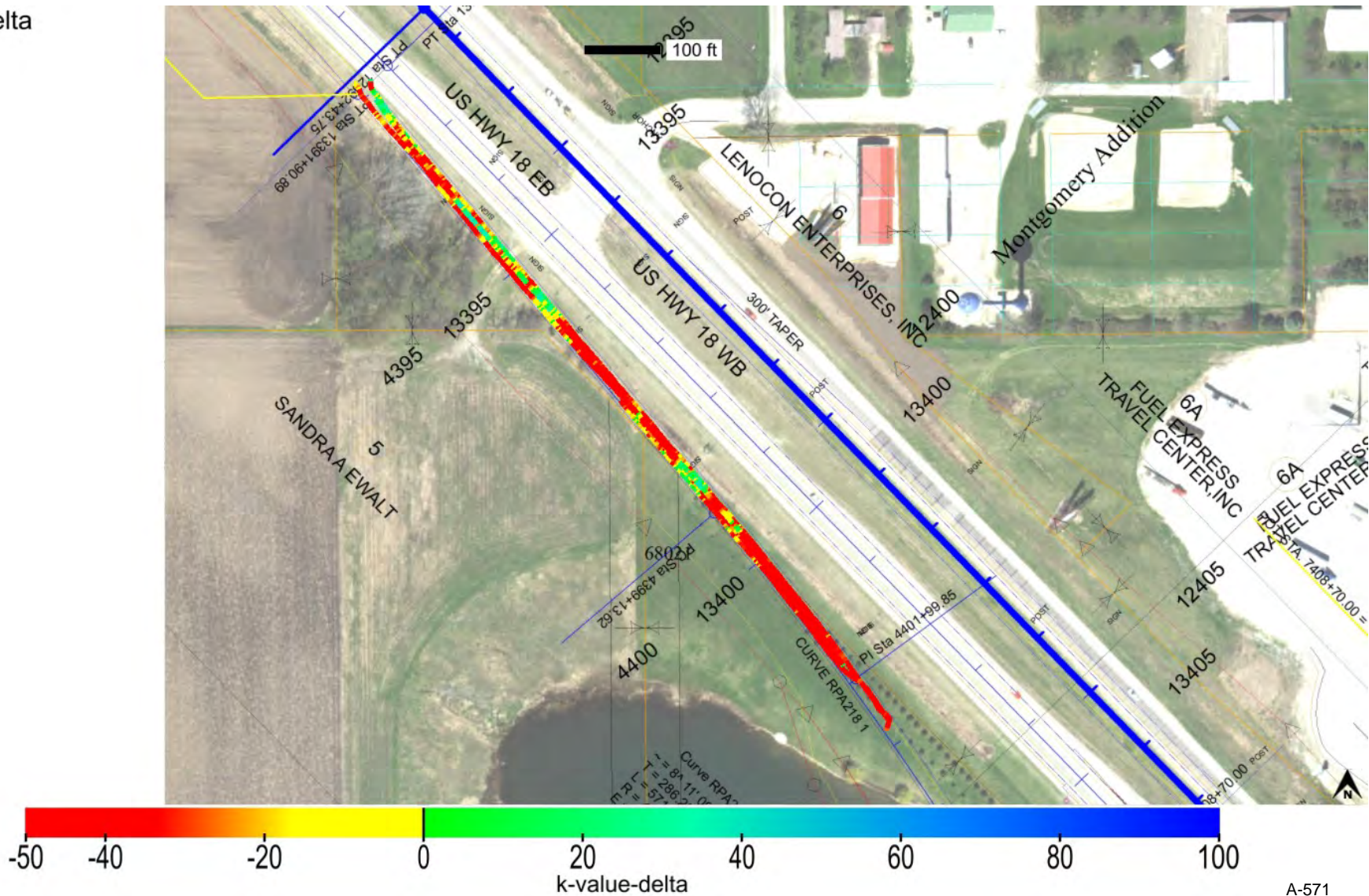




Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_195606    Map Type: Verification Map    Map Layer: Subbase 6 Inches

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
k-value	Yes	14.1	33.8	0.6	150.0	20.0	111.6	189.0	34.0	30.5	-130.0	-38.4	39.0

k-value-delta

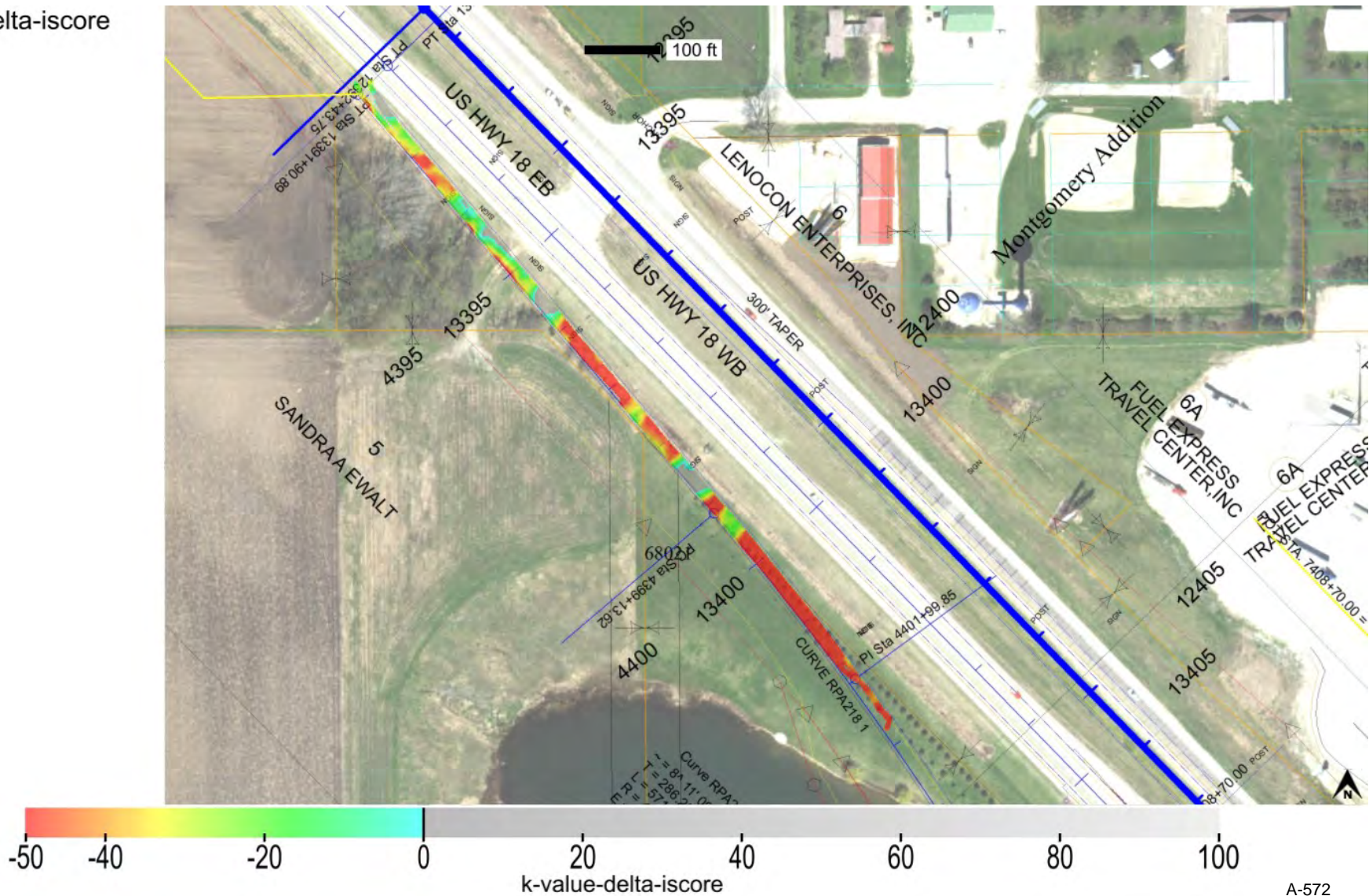




Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_195606 Map Type: Verification Map Map Layer: Subbase 6 Inches

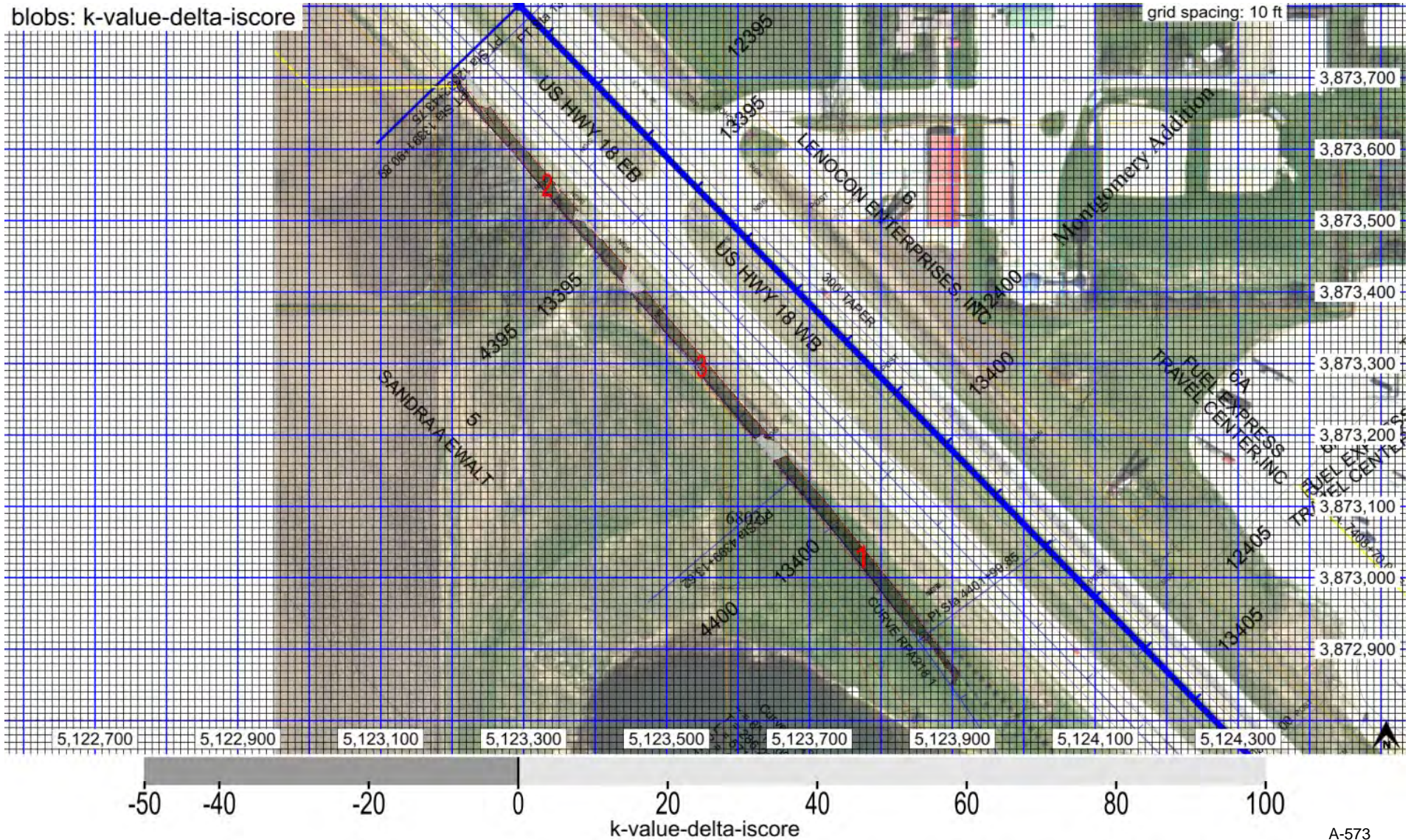
Parameter	Measured	% Passing	Calc. TV	min.-delta	avg.-delta	max.-delta	min.-delta-iscore	avg.-delta-iscore	max.-delta-iscore
k-value	Yes	14.1	150.0	-130.0	-38.4	39.0	-101.5	-38.4	23.9

k-value-delta-iscore





min. area(ft^2)	# of blobs	blob area(ft^2)	% of map	lower bound-tv	upper bound-tv	poly-tol.
1000	3	16356	88.6	none	0.0	4.0











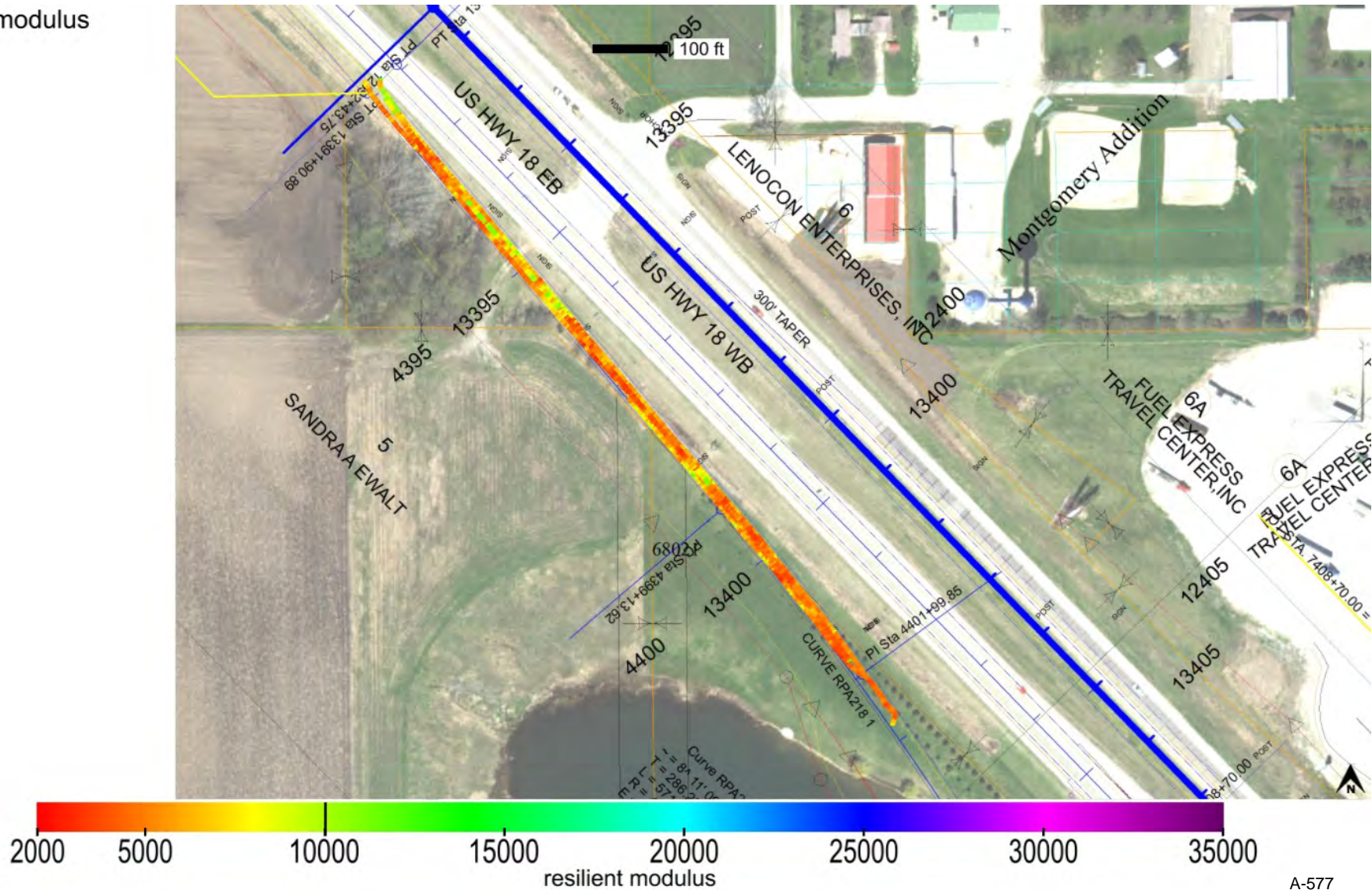




Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_195606    Map Type: Verification Map    Map Layer: Subbase 6 Inches

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
resilient modulus	Yes	4.4	23.9	0.7	10017.0	2877.9	5701.5	11000.0	1763.5	30.9	-7139.1	-4315.5	983.0

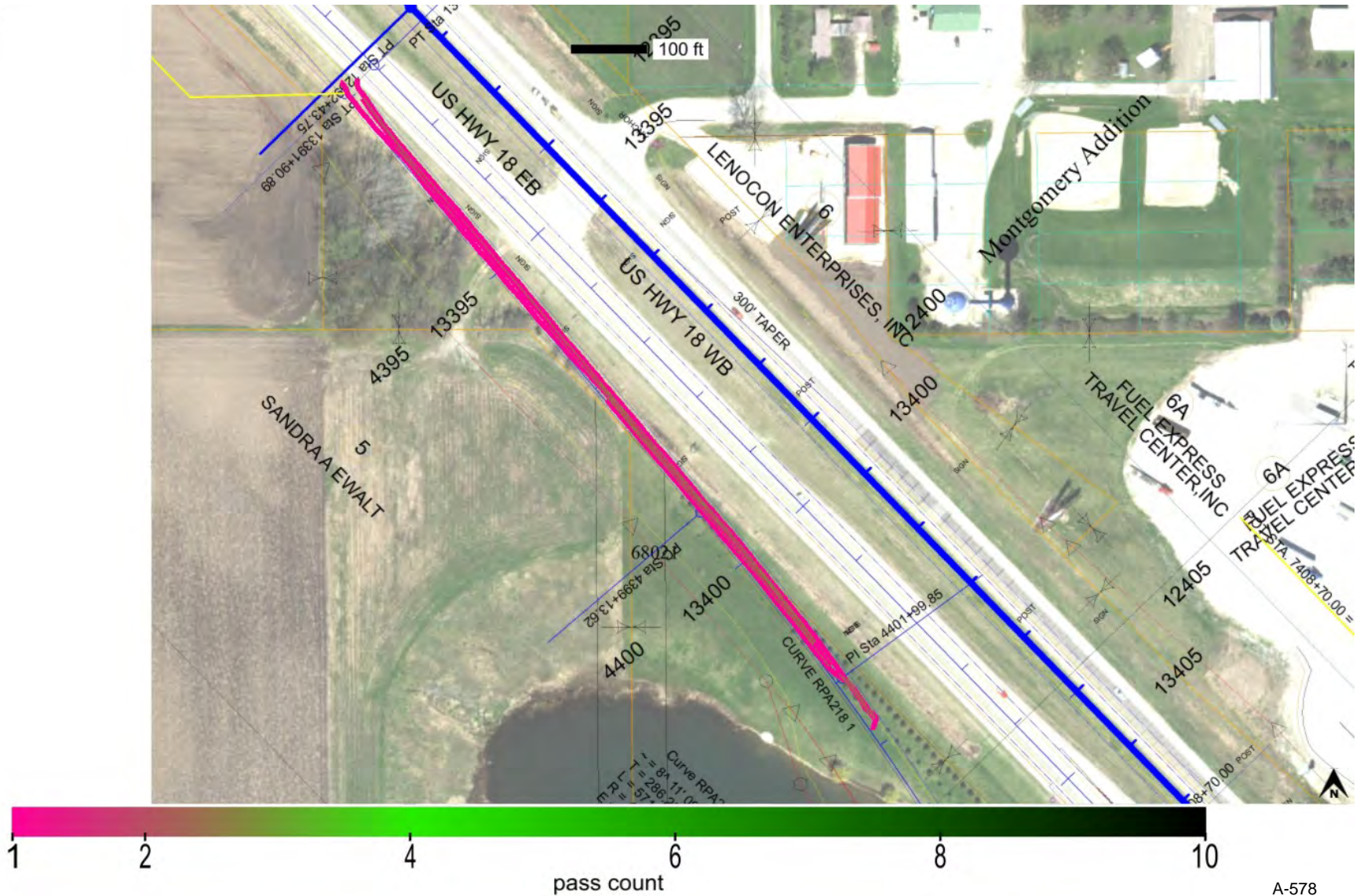
resilient modulus





10th percentile	Median	cov(%)	% >= TV	Target Value
0	0	0.0	0.0	0

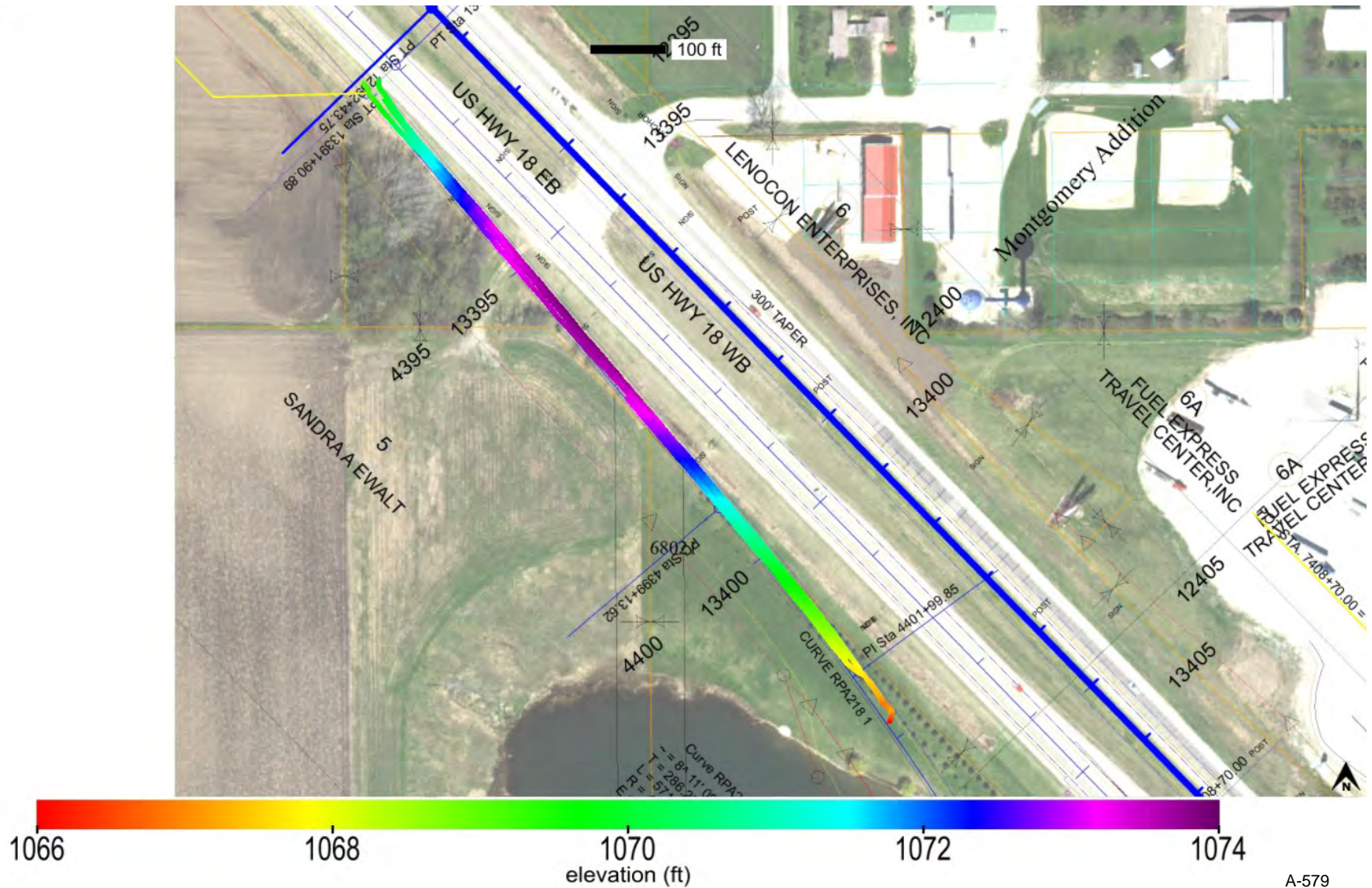
pass count





minimum	average	maximum
1066.03	1071.49	1073.92

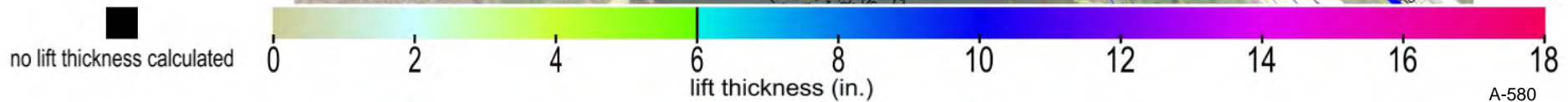
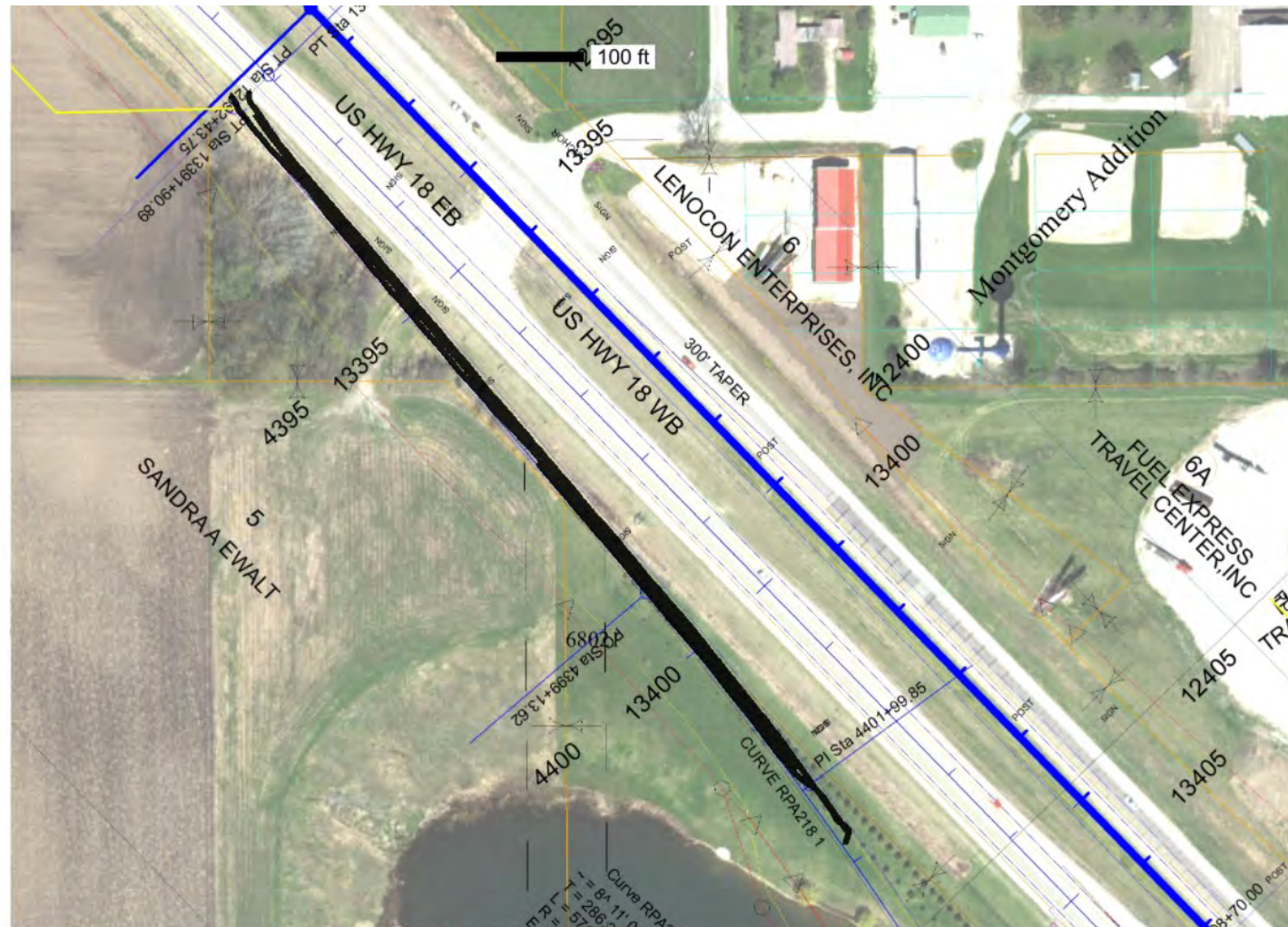
elevation





25th percentile (in.)	Median (in.)	75th percentile (in.)	Target Value (in.)
0.0	0.0	0.0	6.0

lift thickness



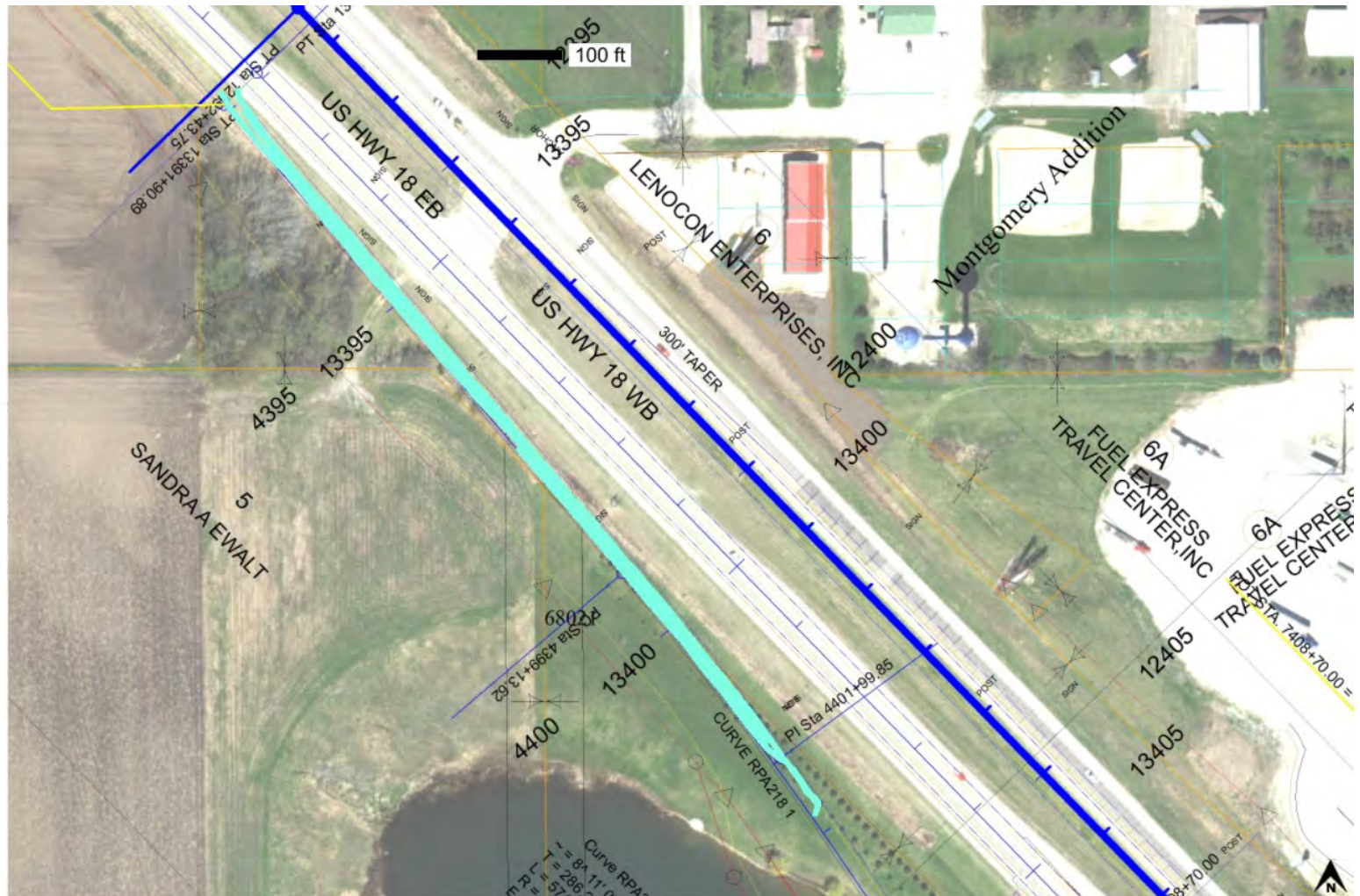
A-580




Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_195606 Map Type: Verification Map Map Layer: Subbase 6 Inches

name	id	% of total	area-square ft	area-acres	tl-xmv	tl-Mr	tl-k value	tl-w%
Modified Subbase Recycled PCC_IADOT	41024	100.0	18468	0.424	100.0	10017.0	150.0	20.5

materials



 Modified Subbase Recycled PCC\_IADOT





A-582



Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_201226

Project:	Floyd County US18	Date and Time:	9/13/2022 8:12:26 PM	Machine ID:	Ingios01
Description:	US18/US218/IA27 AT FLOYD CO T44	Mapping Duration (hrs):	0.249	Operator:	Ingios
Location:	Floyd County IA	No. of Measurements:	24136	Machine Operator ID:	822
Review Status:	Review Required	Map Type:	Verification Map	State Plane:	1401 IOWA NORTH
		Map Layer:	Subbase 12 Inches	Segment:	US 18 EB

Map Summary

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
XMV	No												
Resilient Modulus	No												
k-value	Yes	26.2	52.9	1.3	150.0	71.5	134.2	189.0	22.2	16.5	-78.5	-15.8	39.0
Moisture Content	No												

Mapped Area		Pass Count					Elevation (ft)			Velocity (fps)		
square feet	acres	10th percentile	Median	cov(%)	% >= TV	Target Value	min.	avg.	max.	min.	avg.	max.
24136	0.554	0	0	0.0	0.0	0	1069.25	1074.47	1078.88	4.7	5.1	6.2

Materials

name	id	% of total	area-square ft	area-acres	tl-xmv	tl-Mr	tl-k value	tl-w%
Modified Subbase Recycled PCC_IADOT	41024	100.0	24136	0.554	100.0	10017.0	150.0	20.5

Blobs

parameter	min. area(ft^2)	# of blobs	blob area(ft^2)	% of map	lower bound-tv	upper bound-tv	poly-tol.
k-value	1000.0	3	18903	78.3	none	0.0	4.0

Lift Thickness

25th percentile (in.)	Median (in.)	75th percentile (in.)	Target Value (in.)
0.0	0.0	0.0	6.0

Station

Start	End
13390+50	13401+00

Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_201226

Project:	Floyd County US18	Date and Time:	9/13/2022 8:12:26 PM	Machine ID:	Ingios01
Description:	US18/US218/IA27 AT FLOYD CO T44	Mapping Duration (hrs):	0.249	Operator:	Ingios
Location:	Floyd County IA	No. of Measurements:	24136	Machine Operator ID:	822
Review Status:	Review Required	Map Type:	Verification Map	State Plane:	1401 IOWA NORTH
		Map Layer:	Subbase 12 Inches	Segment:	US 18 EB

**QUALITY ANALYSIS SUMMARY - k-Value**

Quality Value	Criteria
<b>52.9</b>	CQI > = 95
<b>26.2</b>	80% of k-Value MVs >= 150
<b>16.5</b>	COV <= 30
<b>78.3</b>	% i-Score Blob Area >= 1000 ft <sup>2</sup>
<b>0.0</b>	Lift Thickness Median Value (in.)
<b>0</b>	Pass Count >= 0

Compaction Quality Index(CQI): Relative compaction quality index based on the percentage of the geospatial area that meets the minimum target values and accounts for the uniformity of compaction. The default minimum target CQI is 95% using a uniformity weight factor of 50%.

Percent Passing Target Values: Number of geospatial grid points from the output that meet or exceed the target value (TV) for the selected material. Level I target % Passing TV = 80%. Level II target % Passing TV = 90%.

Coefficient of Variation (COV): Calculated from the ratio of the standard deviation to the mean based on the measurement values (MVs) reported at each grid point of the mapping area. Description of COV ranges: <= 20% = Low Variability; 20 to 40% = Moderate Variability; > 40% = High Variability. The default target COV is <= 30%.

i-Score Blob (%): The percentage of the map area analyzed with contiguous blob areas with MVs < TV. Control Level 1 >= 100 sq. ft.; Control Level 2 >= 200 sq. ft.; Control Level 3 >= 500 sq. ft.; Control Level 4 >= 1,000 sq. ft.; Control Level 5 >= 2,000 sq. ft.

Lift thickness: Green: 75th percentile value <= TV; Yellow: median value <= TV and 75th percentile > TV; Red: median value (50th percentile) > TV.

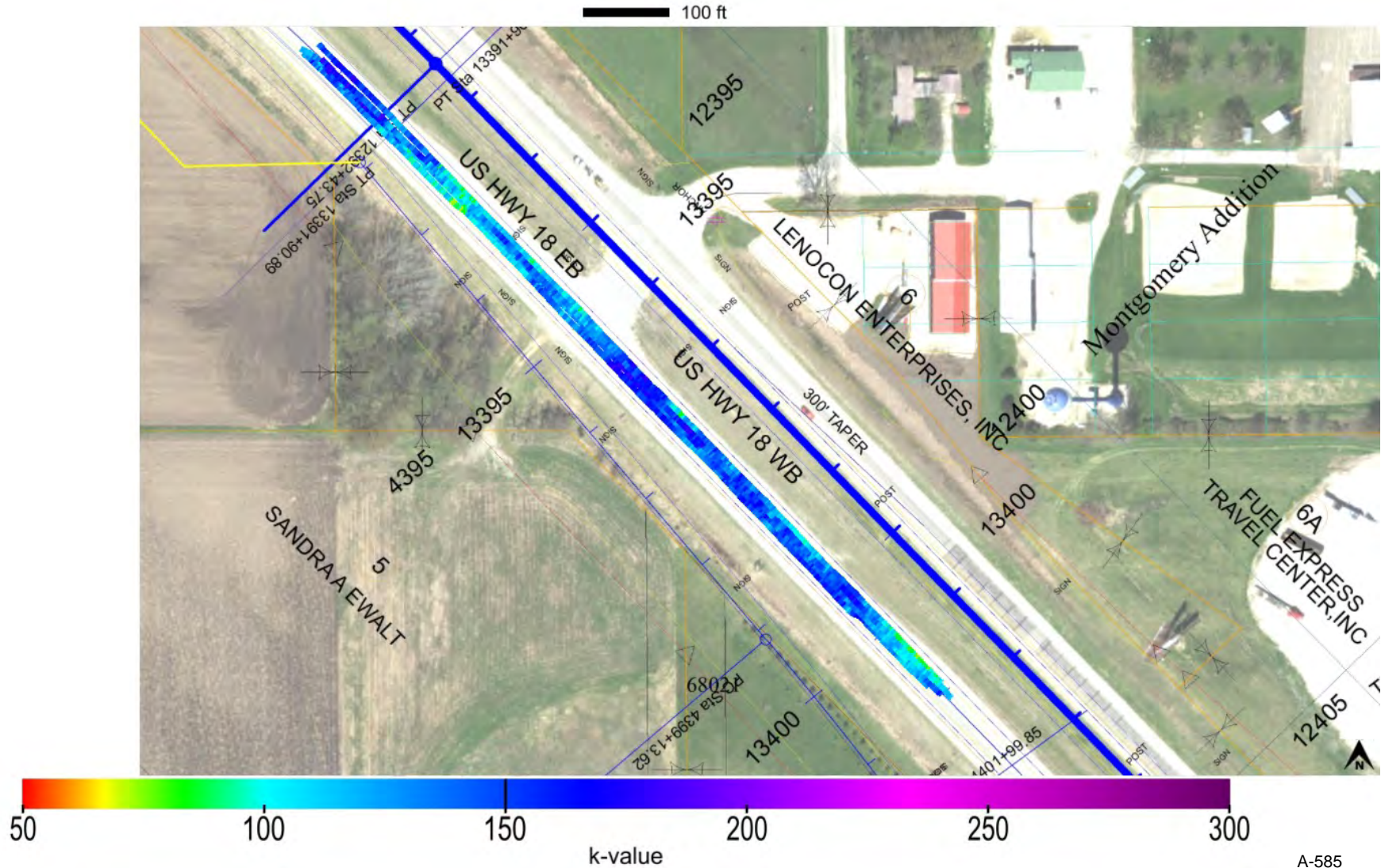
Pass Count: Green: 10th percentile value >= TV; Yellow: 10th percentile value >= TV and cov% > 50%; Red: 10th percentile value < TV.



Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_201226 Map Type: Verification Map Map Layer: Subbase 12 Inches

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
k-value	Yes	26.2	52.9	1.3	150.0	71.5	134.2	189.0	22.2	16.5	-78.5	-15.8	39.0

k-value

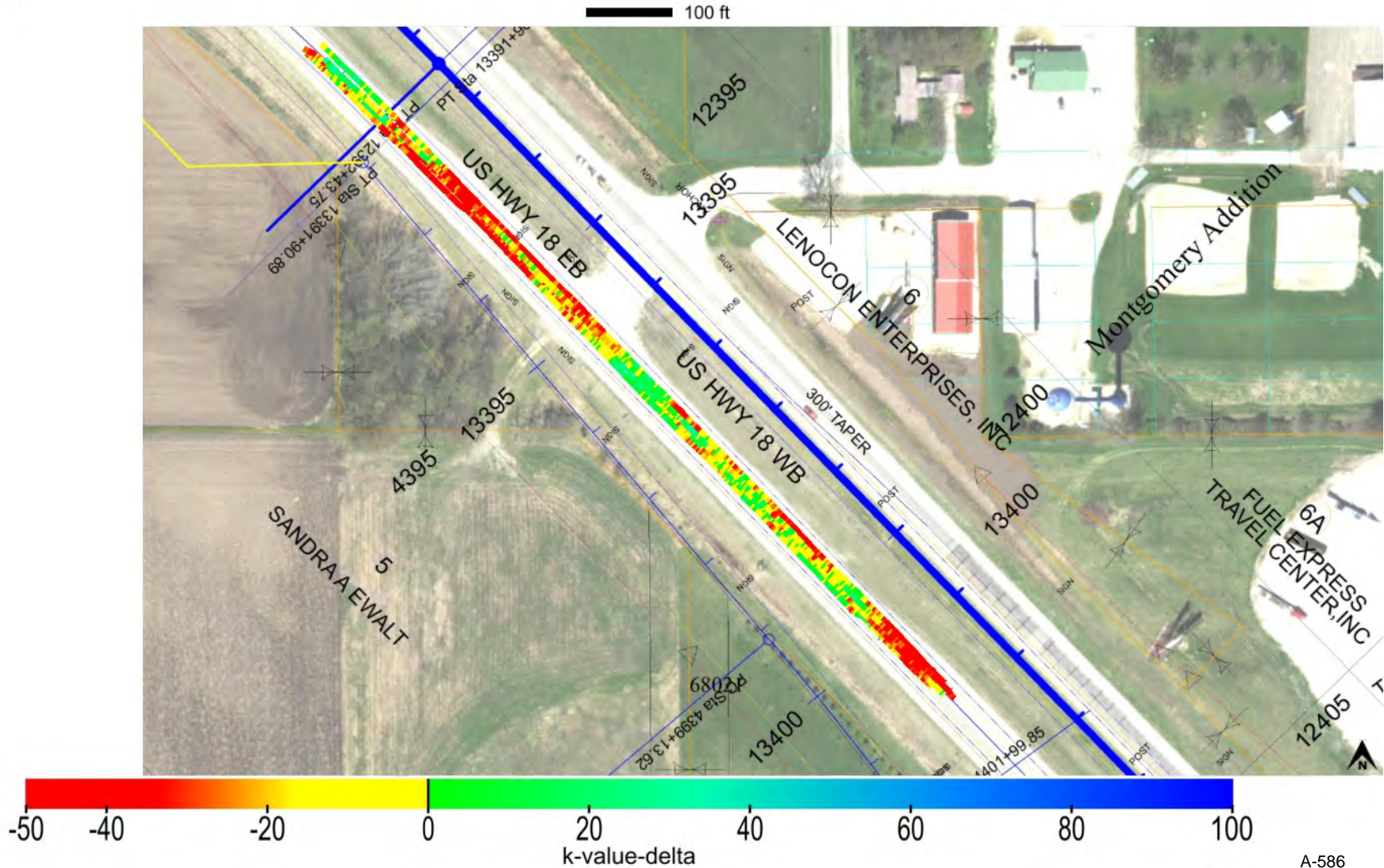




Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_201226 Map Type: Verification Map Map Layer: Subbase 12 Inches

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
k-value	Yes	26.2	52.9	1.3	150.0	71.5	134.2	189.0	22.2	16.5	-78.5	-15.8	39.0

k-value-delta

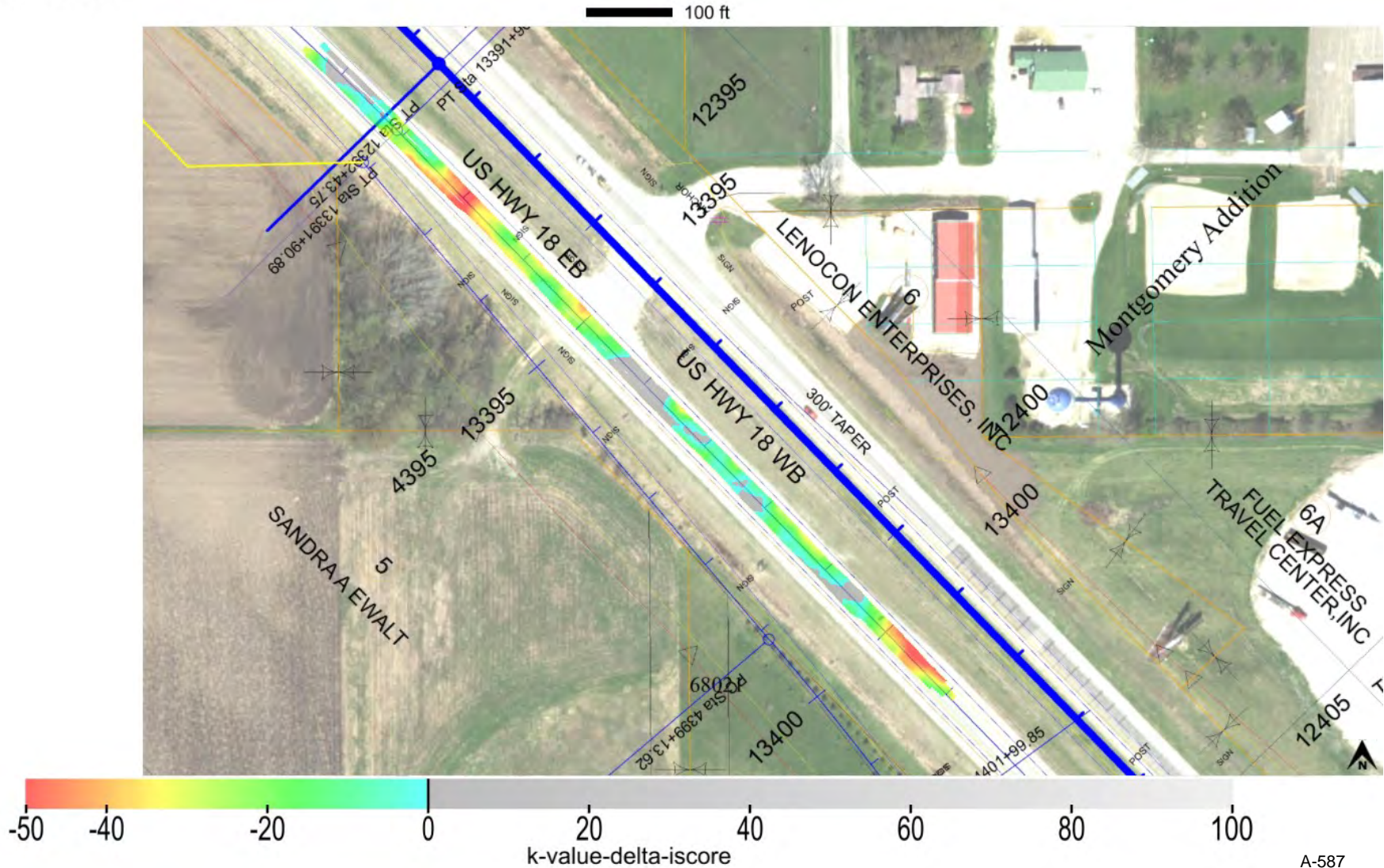




Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_201226    Map Type: Verification Map    Map Layer: Subbase 12 Inches

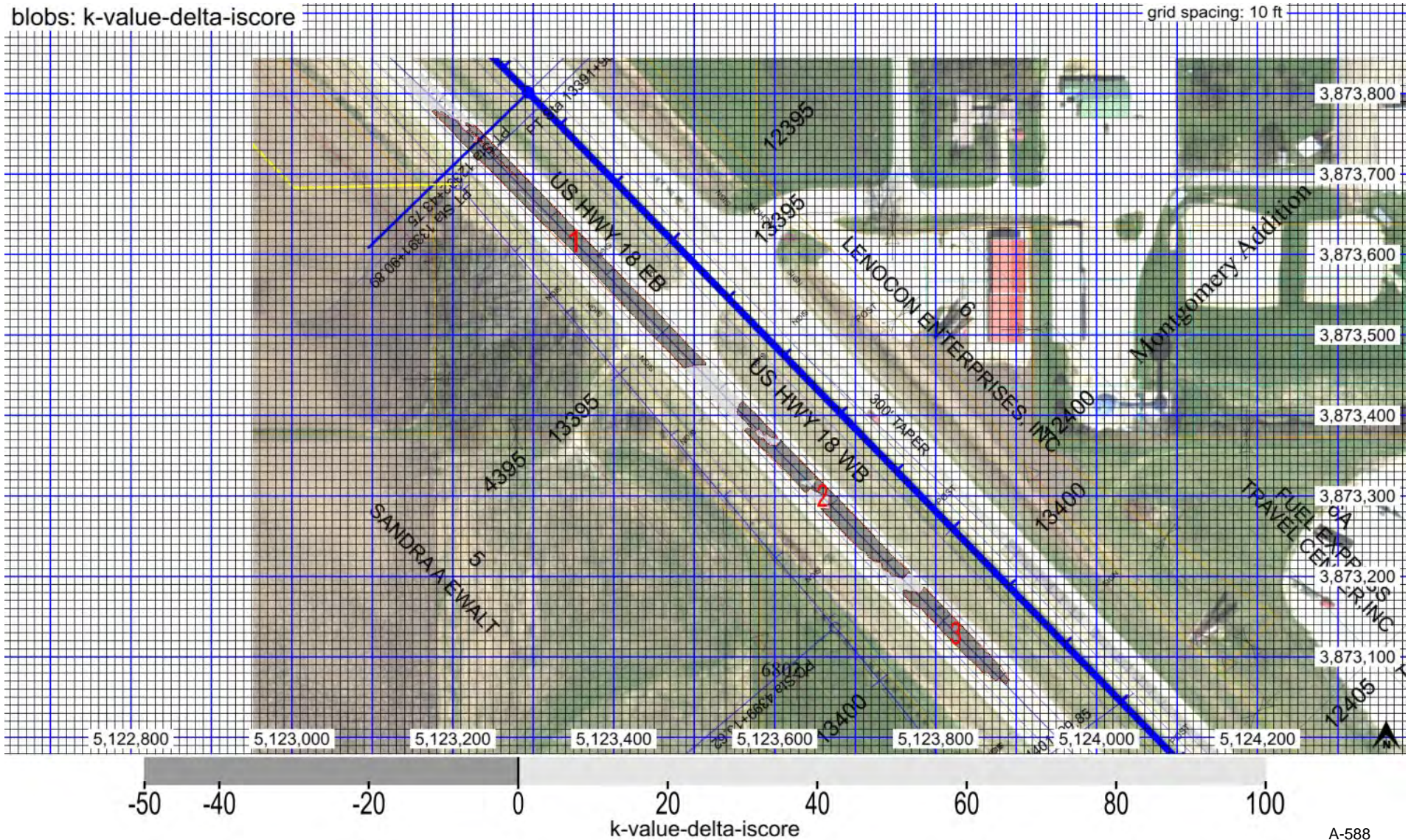
Parameter	Measured	% Passing	Calc. TV	min.-delta	avg.-delta	max.-delta	min.-delta-iscore	avg.-delta-iscore	max.-delta-iscore
k-value	Yes	26.2	150.0	-78.5	-15.8	39.0	-63.0	-15.3	24.1

k-value-delta-iscore





min. area(ft^2)	# of blobs	blob area(ft^2)	% of map	lower bound-tv	upper bound-tv	poly-tol.
1000	3	18903	78.3	none	0.0	4.0







blob: k-value-delta-iscore

Blob #	Area (ft^2)	% of blobs area	# b.p.	min.-delta-iscore	avg.-delta-iscore	max.-delta-iscore
2	5690	30.1	25	-38.2	-10.2	0.0

Point	Easting (ft)	Northing (ft)
1	5123758	<b>3873198</b>
2	<b>5123768</b>	3873206
3	5123608	3873370
4	5123602	3873362
5	5123594	3873364
6	5123578	3873376
7	5123576	3873382
8	5123582	3873382
9	5123586	3873376
10	5123604	3873372
11	5123578	3873400
12	5123562	<b>3873418</b>
13	<b>5123552</b>	3873404
14	5123572	3873386
15	5123562	3873380
16	5123638	3873304
17	5123646	3873310
18	5123668	3873300
19	5123668	3873284
20	5123658	3873284
21	5123688	3873250
22	5123718	3873222
23	5123732	3873218
24	5123734	3873208
25	5123758	3873198

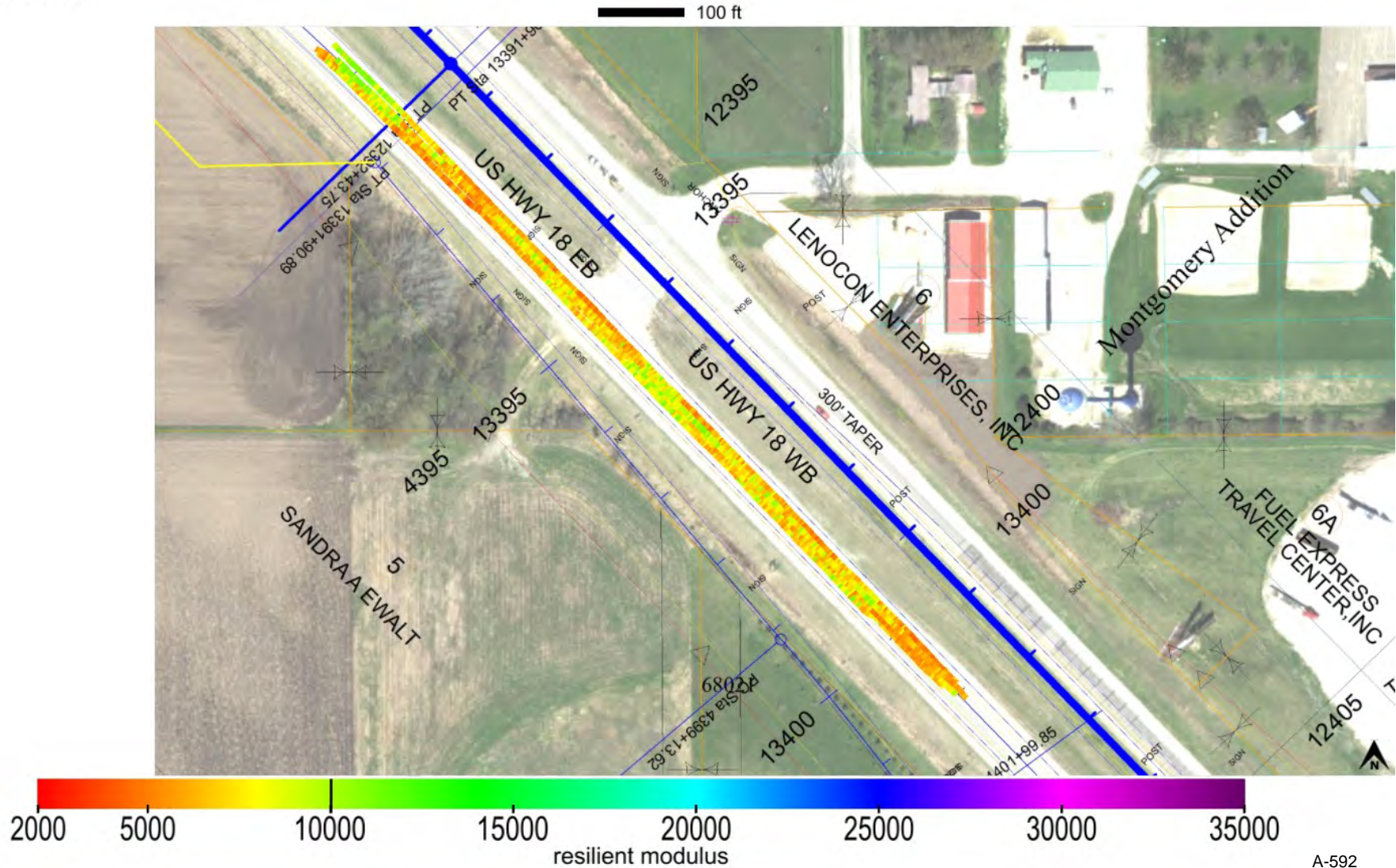




Map ID: ing\_34-us018-95\_cs56b-ingios01\_2022\_09\_13\_201226 Map Type: Verification Map Map Layer: Subbase 12 Inches

Parameter	Measured	% Passing	CQI	CI	Calc. TV	min.	avg.	max.	std. dev.	cov(%)	min.-delta	avg.-delta	max.-delta
resilient modulus	Yes	8.8	32.2	1.0	10017.0	3920.5	7231.1	11000.0	1675.5	23.2	-6096.5	-2785.9	983.0

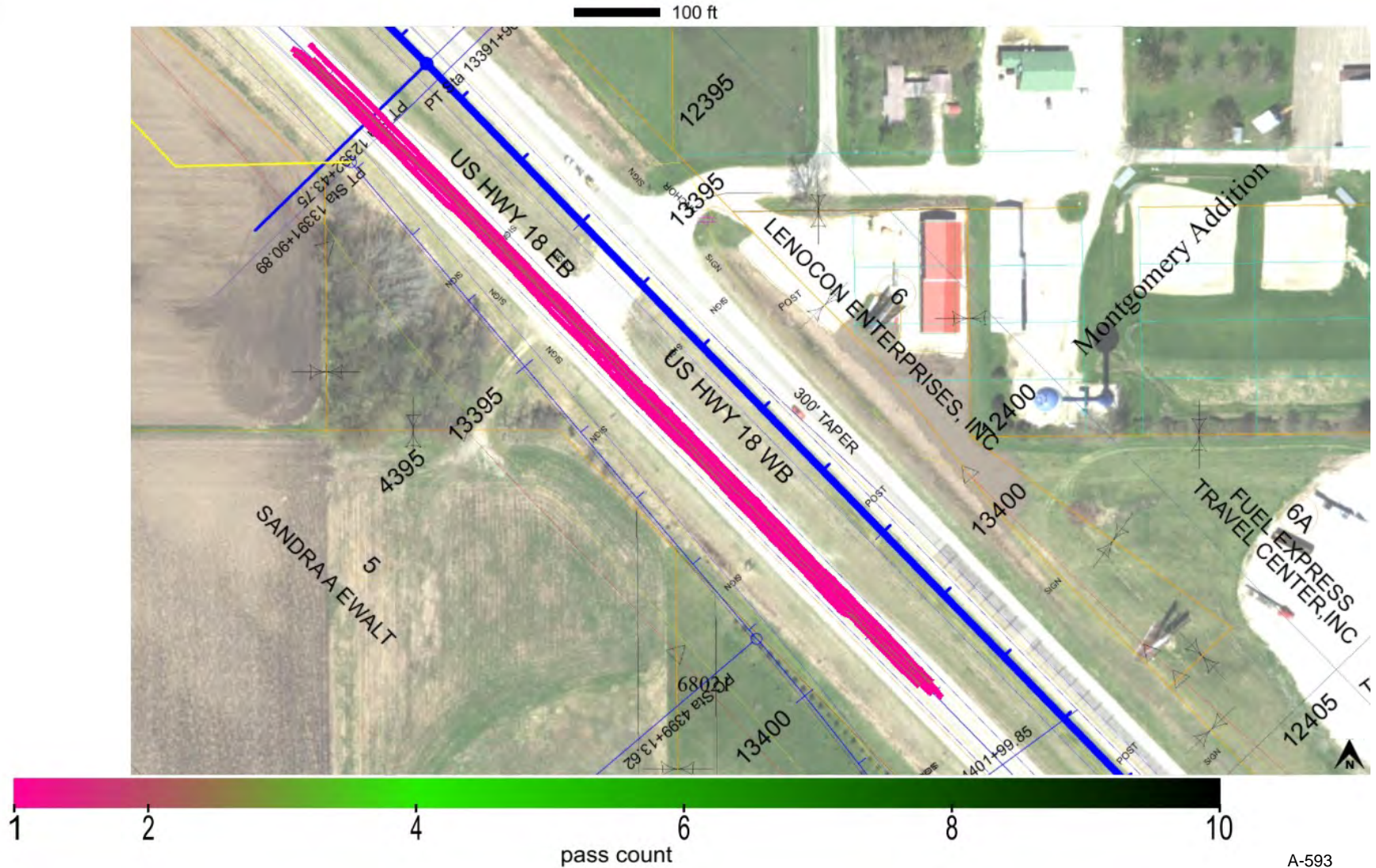
resilient modulus





10th percentile	Median	cov(%)	% >= TV	Target Value
0	0	0.0	0.0	0

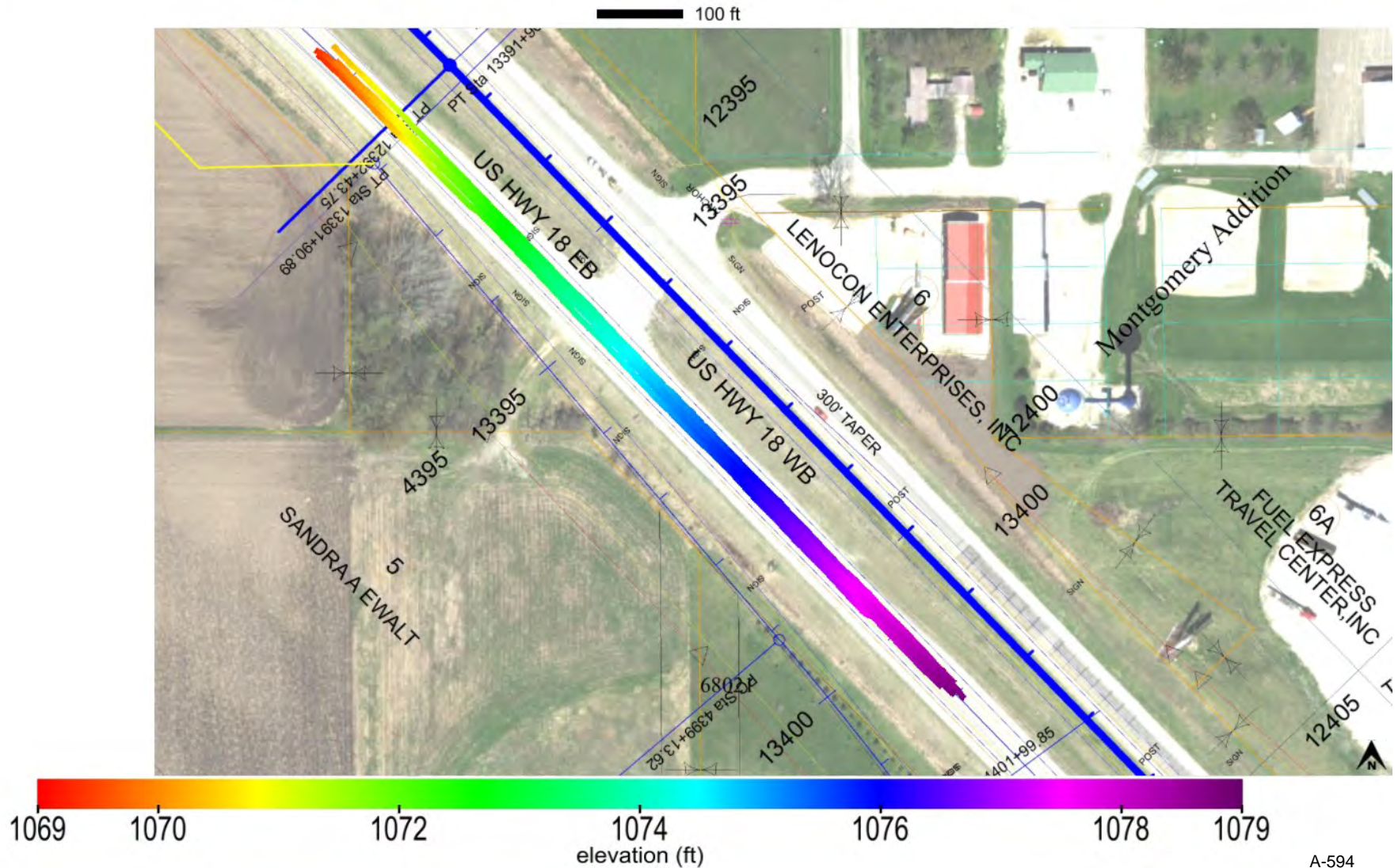
pass count





minimum	average	maximum
1069.25	1074.47	1078.88

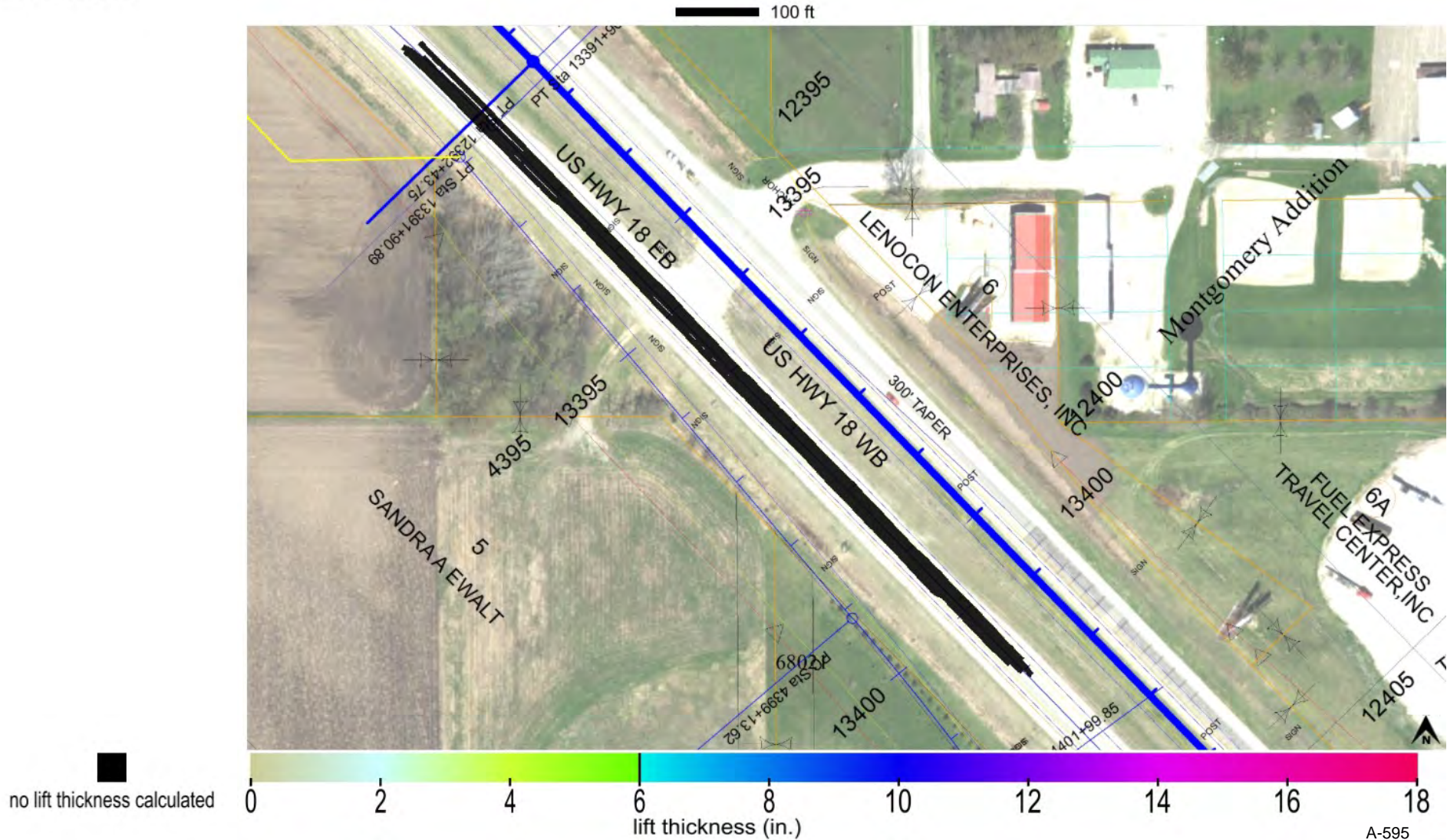
elevation





25th percentile (in.)	Median (in.)	75th percentile (in.)	Target Value (in.)
0.0	0.0	0.0	6.0

lift thickness





name	id	% of total	area-square ft	area-acres	tl-xmv	tl-Mr	tl-k value	tl-w%
Modified Subbase Recycled PCC_IADOT	41024	100.0	24136	0.554	100.0	10017.0	150.0	20.5

materials



Modified Subbase Recycled PCC\_IADOT



