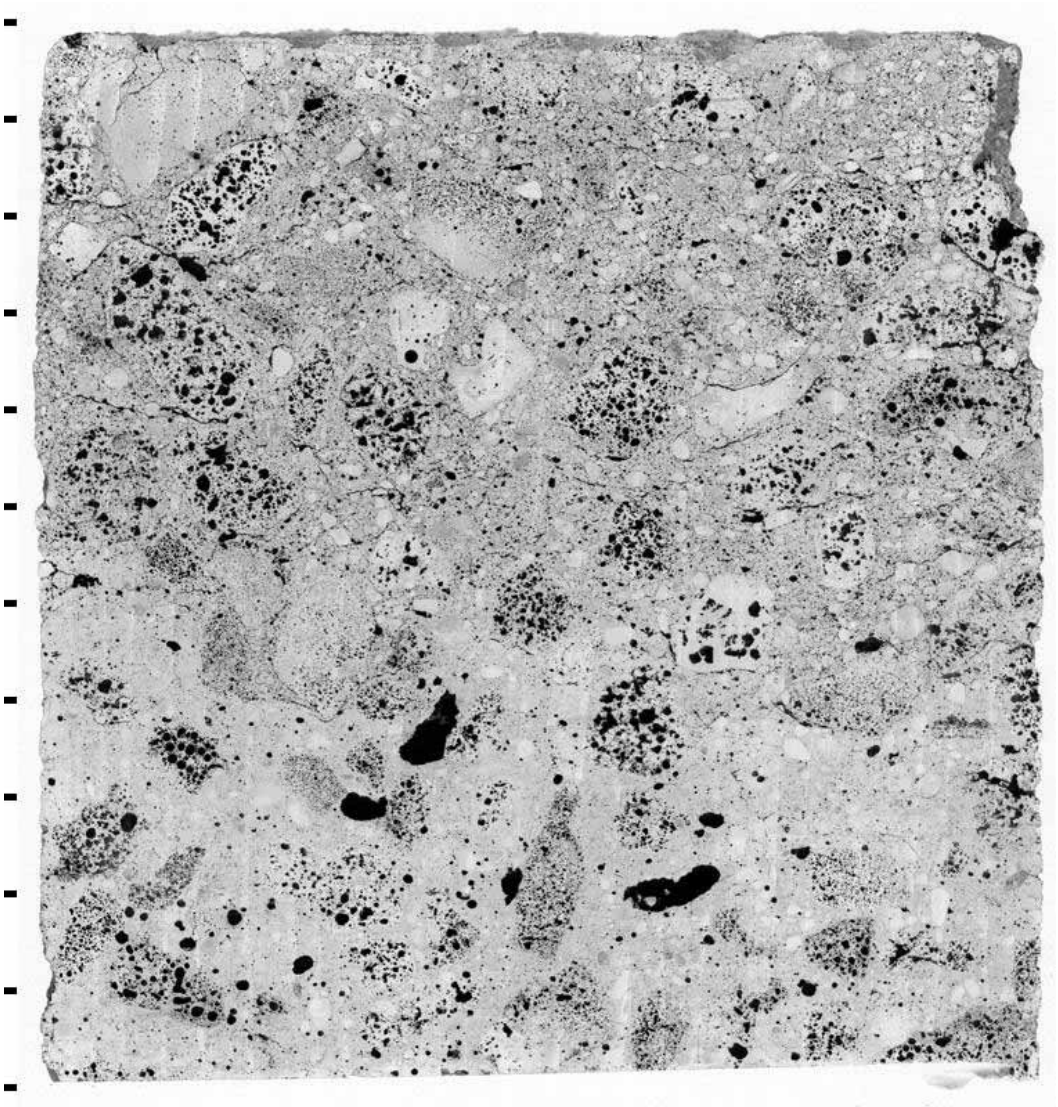
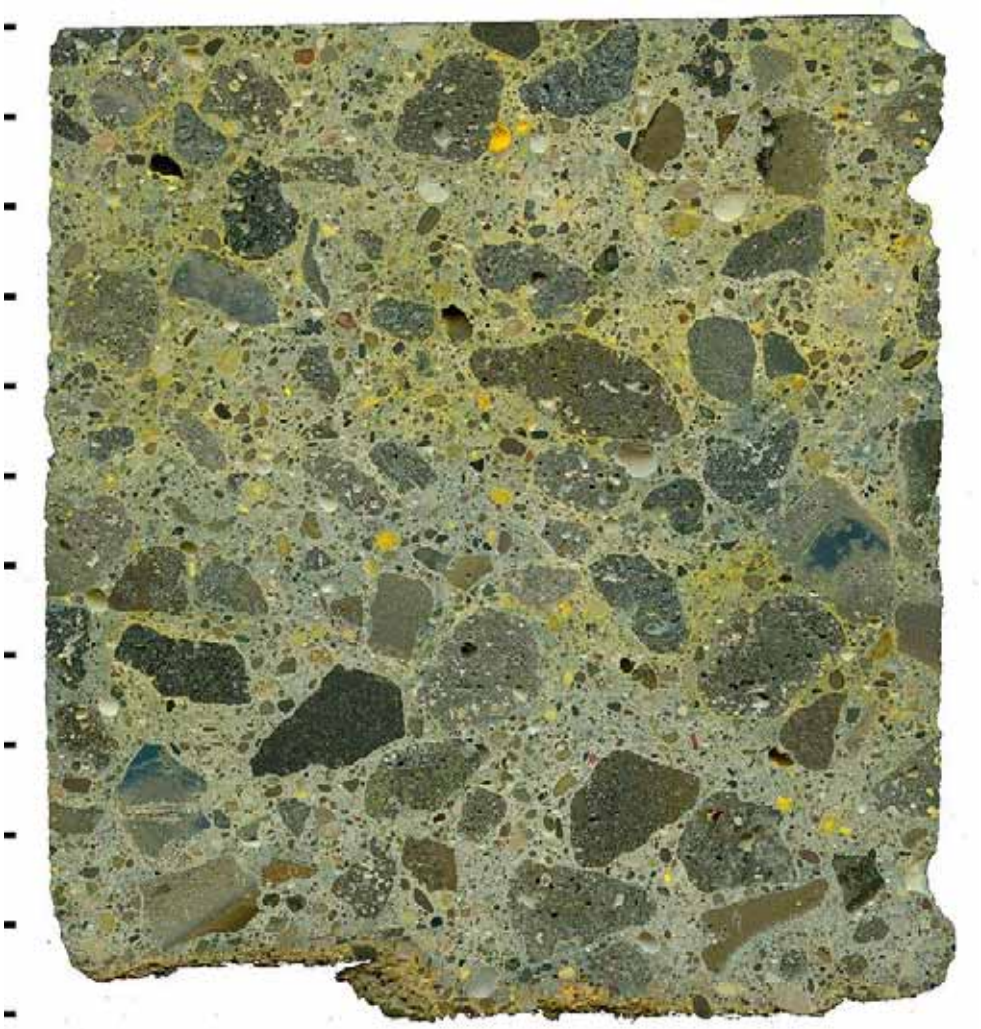
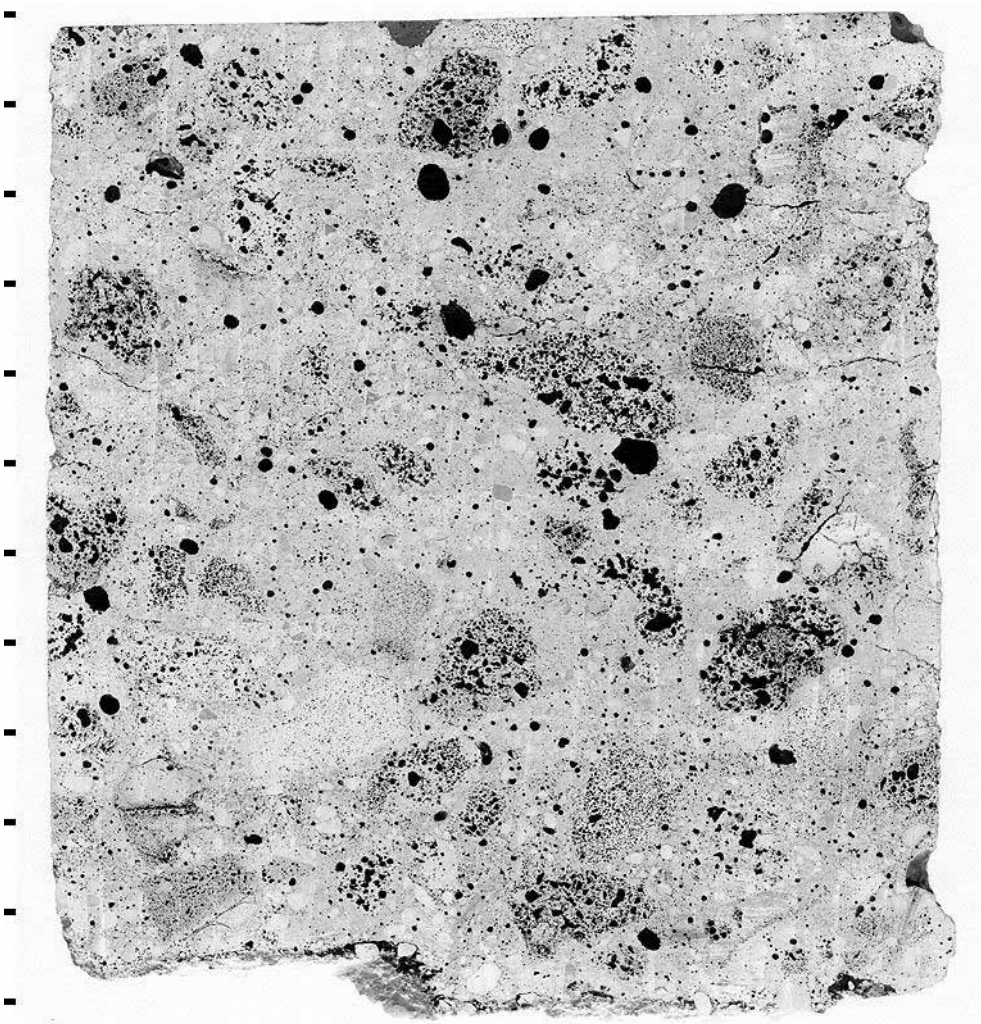


Slab representing cross section through top half of pavement, after treatment to enhance air voids and cracks, WB I-696, constructed 1995, away from transverse joint, core C, MTU ID 696-11, tic marks every half inch.

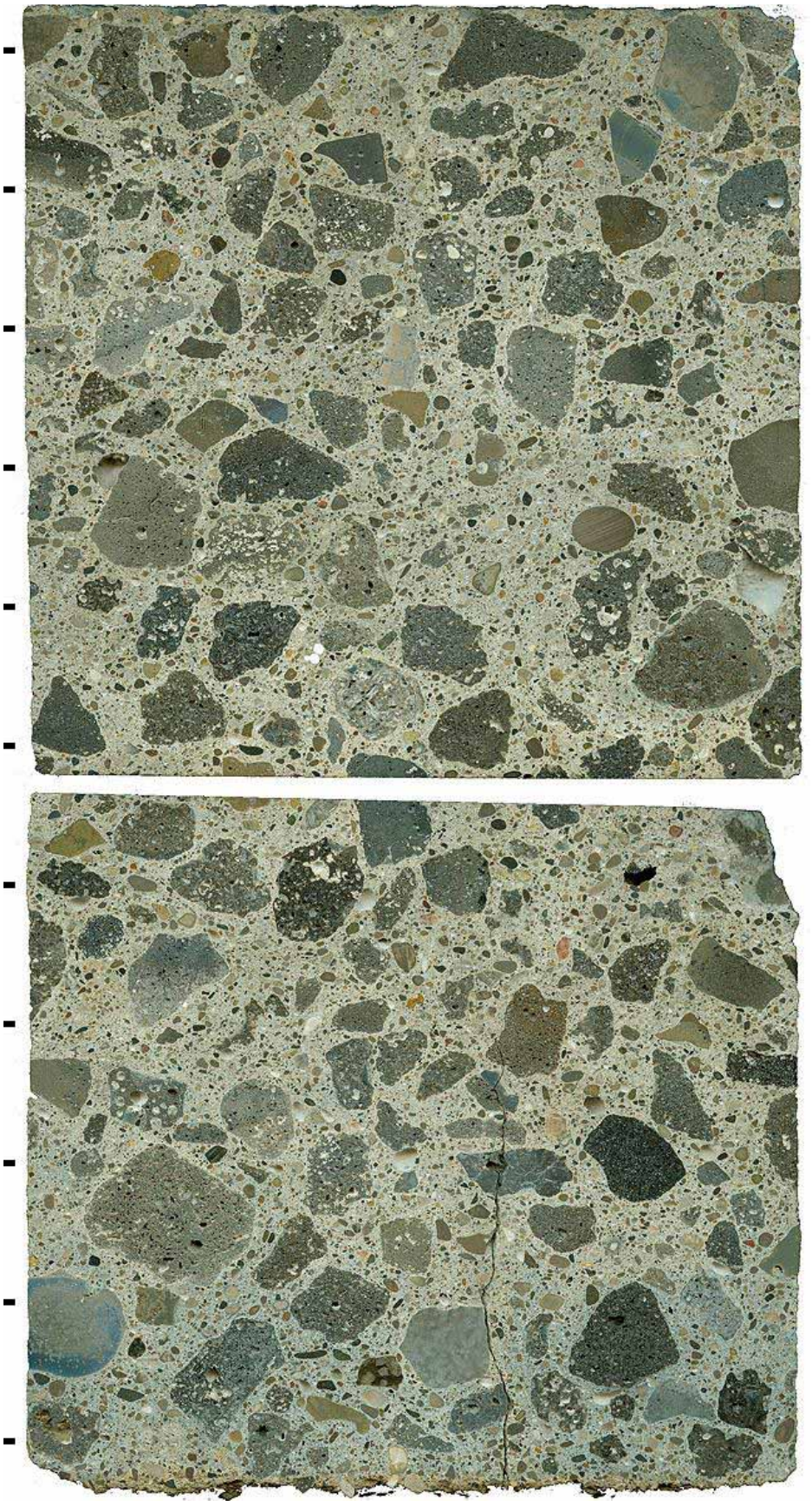
Slab representing cross section through bottom half of pavement, as polished, WB I-696, constructed 1995, away from transverse joint, core C, MTU ID 696-11, tic marks every half inch.



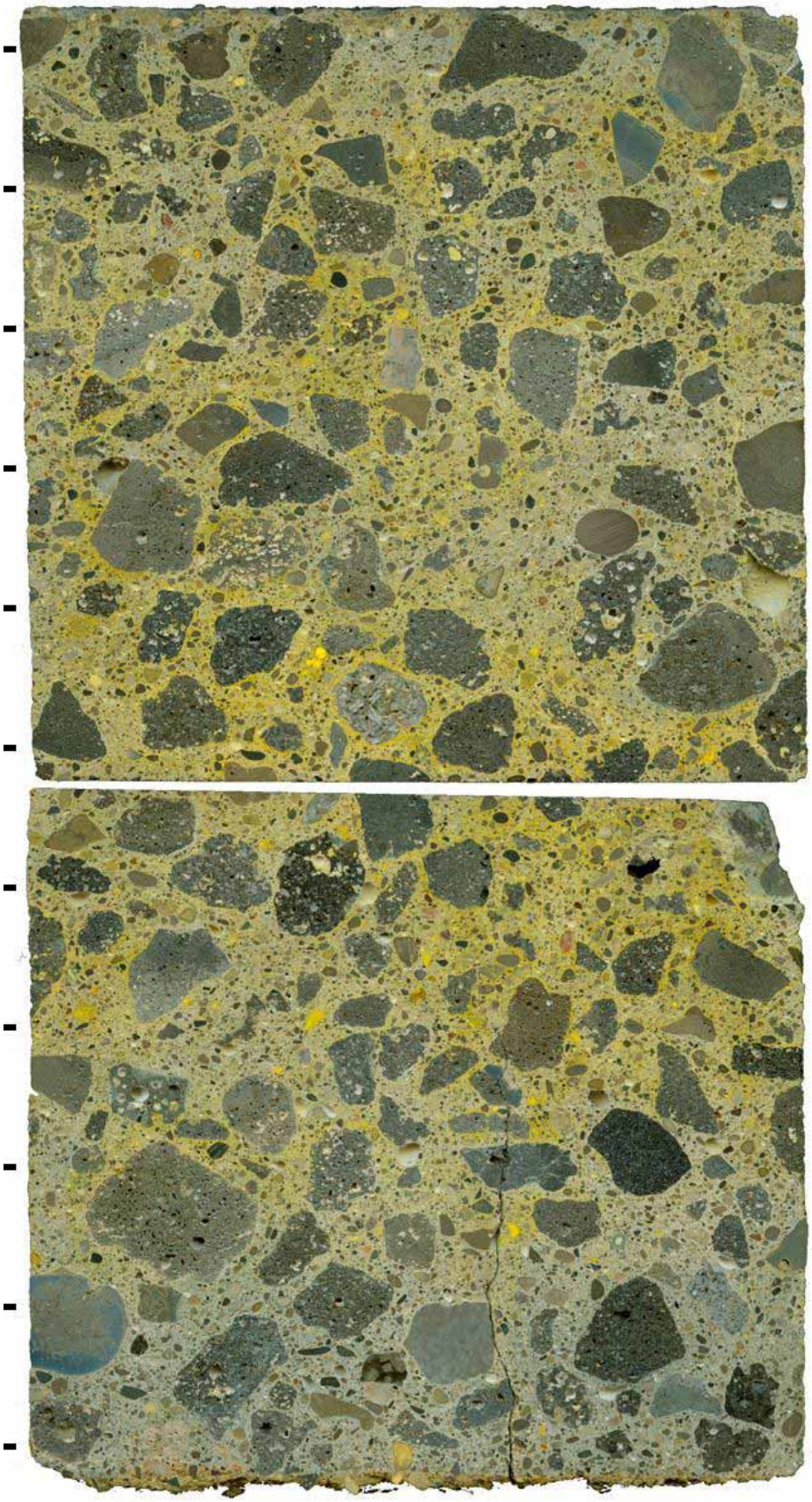
Slab representing cross section through bottom half of pavement, after sodium cobaltinitrite stain, WB I-696, constructed 1995, away from transverse joint, core C, MTU ID 696-11, tic marks every half inch.



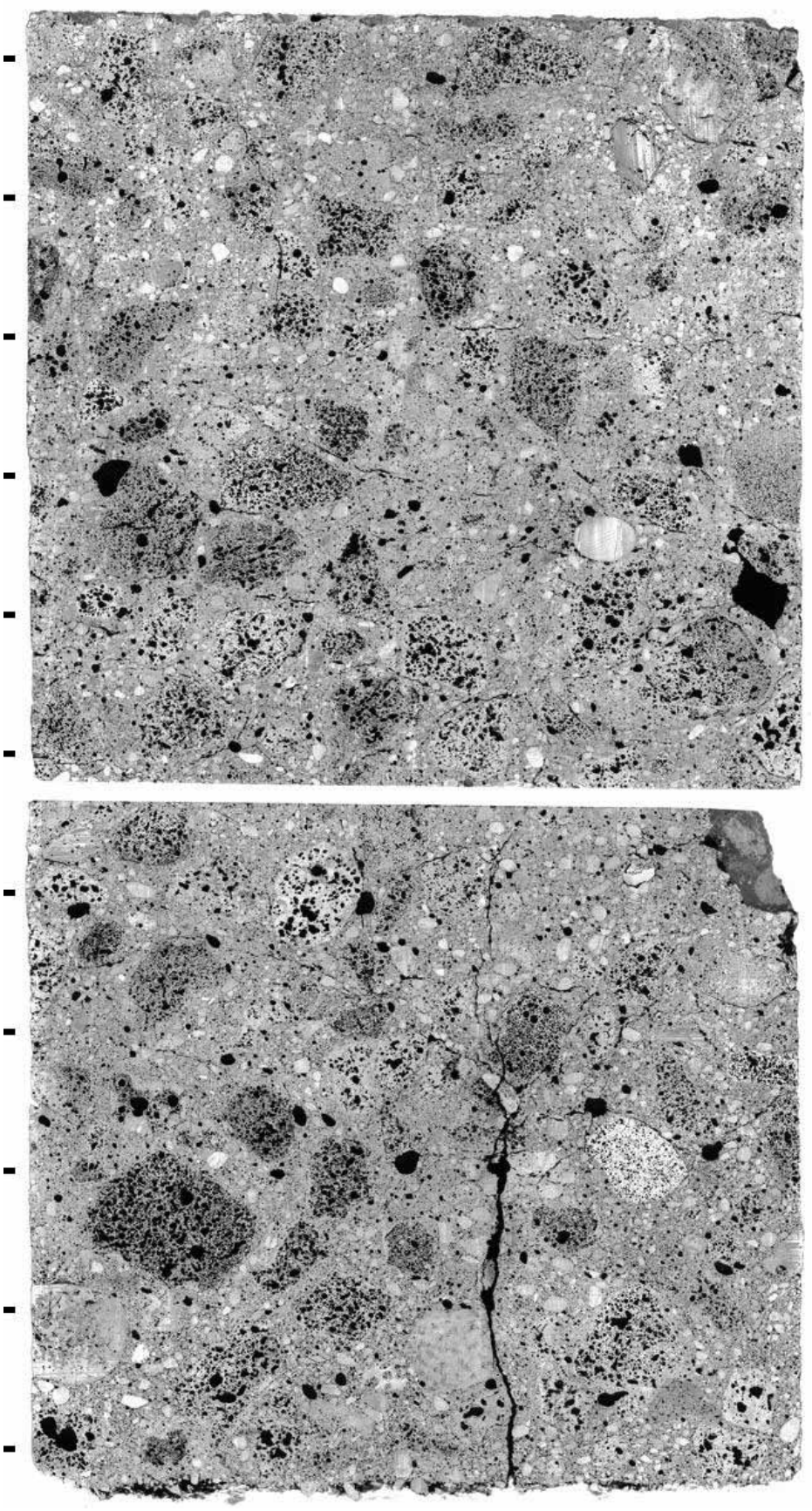
Slab representing cross section through bottom half of pavement, after treatment to enhance air voids and cracks, WB I-696, constructed 1995, away from transverse joint, core C, MTU ID 696-11, tic marks every half inch.



Slabs representing full cross section through pavement, as polished, WB I-696, constructed 1995, away from transverse joint, core C, MTU ID 696-12, tic marks every inch.

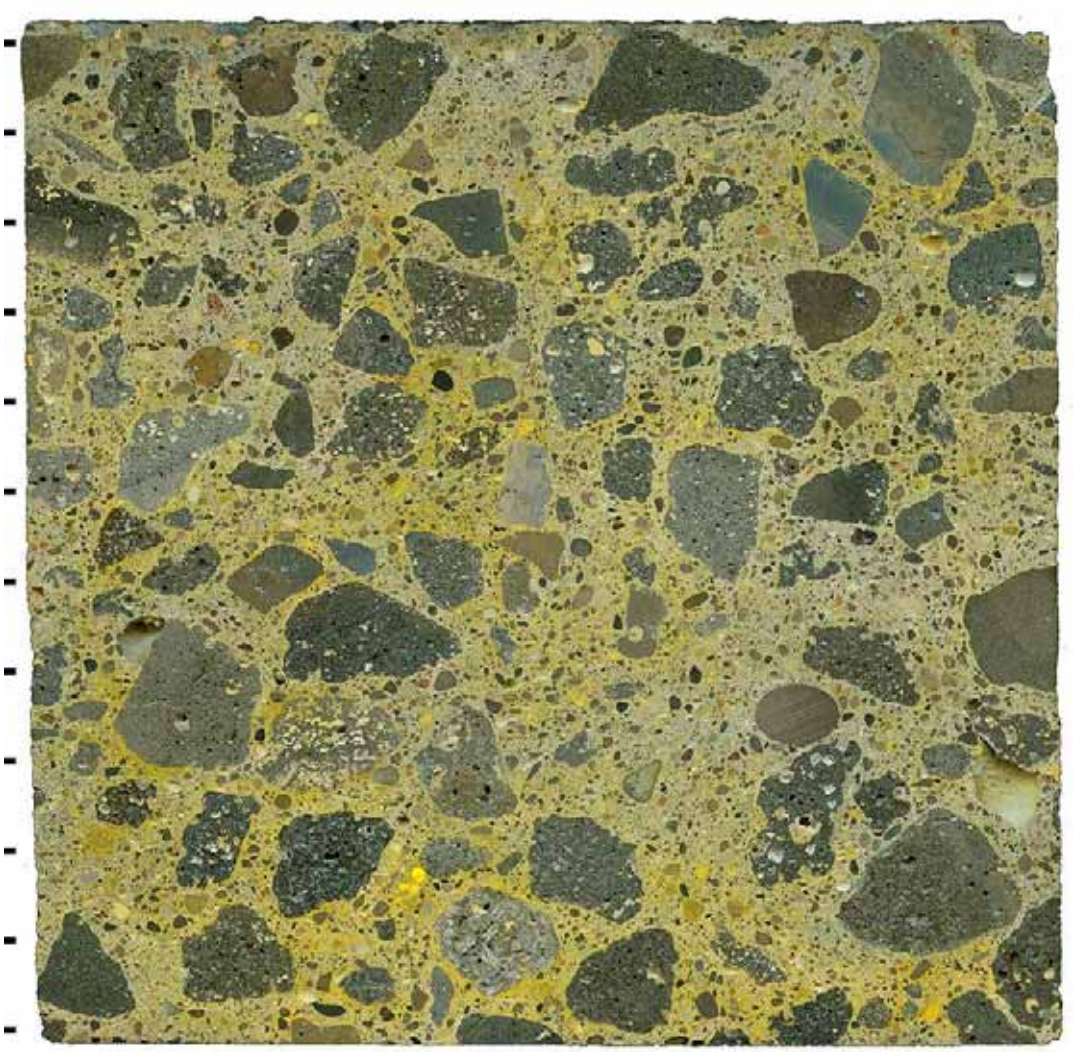


Slabs representing full cross section through pavement, after sodium cobaltinitrite stain, WB I-696, constructed 1995, away from transverse joint, core C, MTU ID 696-12, tic marks every inch.

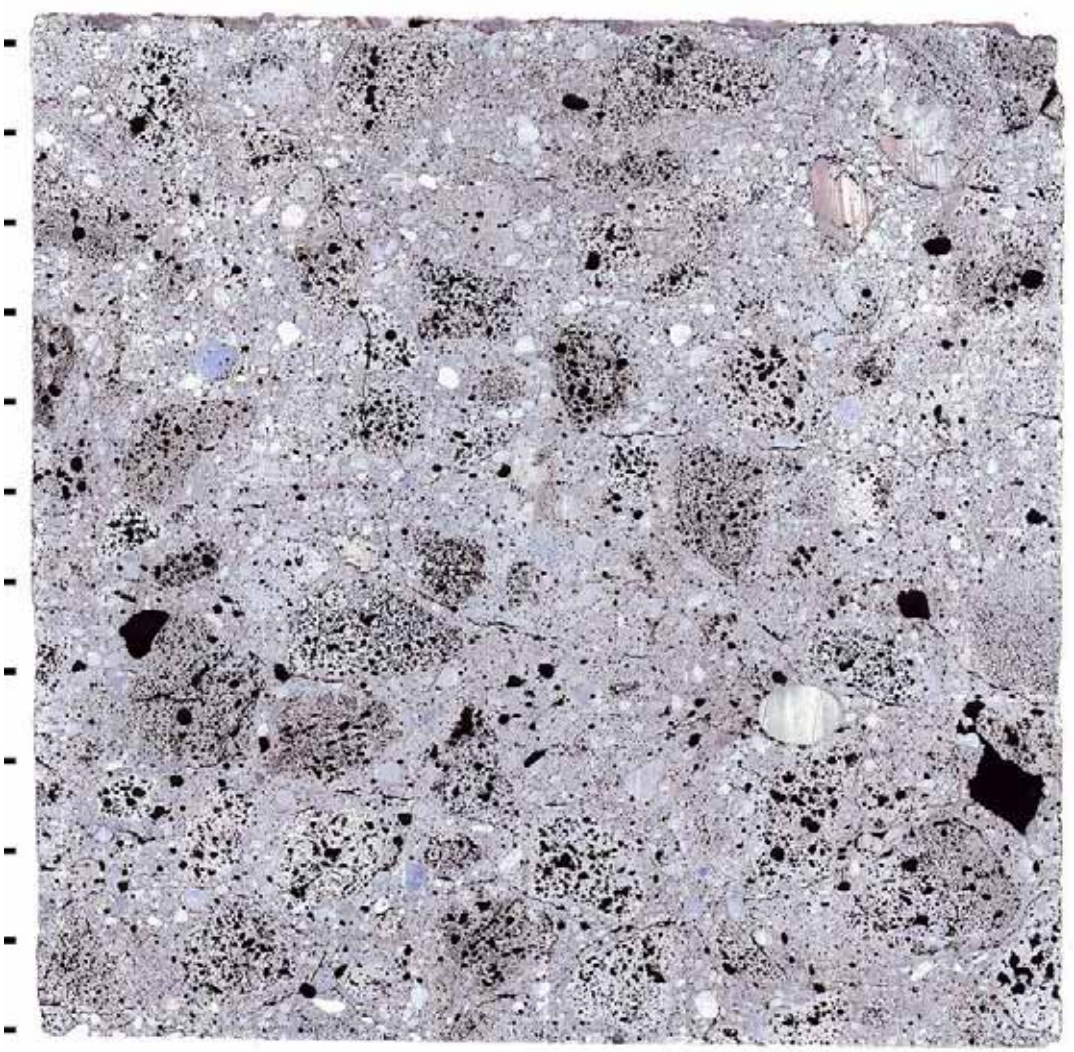


Slabs representing full cross section through pavement, after treatment to enhance air voids and cracks, WB I-696, constructed 1995, away from transverse joint, core C, MTU ID 696-12, tic marks every inch.

Slab representing cross section through top half of pavement, as polished, WB I-696, constructed 1995, away from transverse joint, core C, MTU ID 696-12, tic marks every half inch.



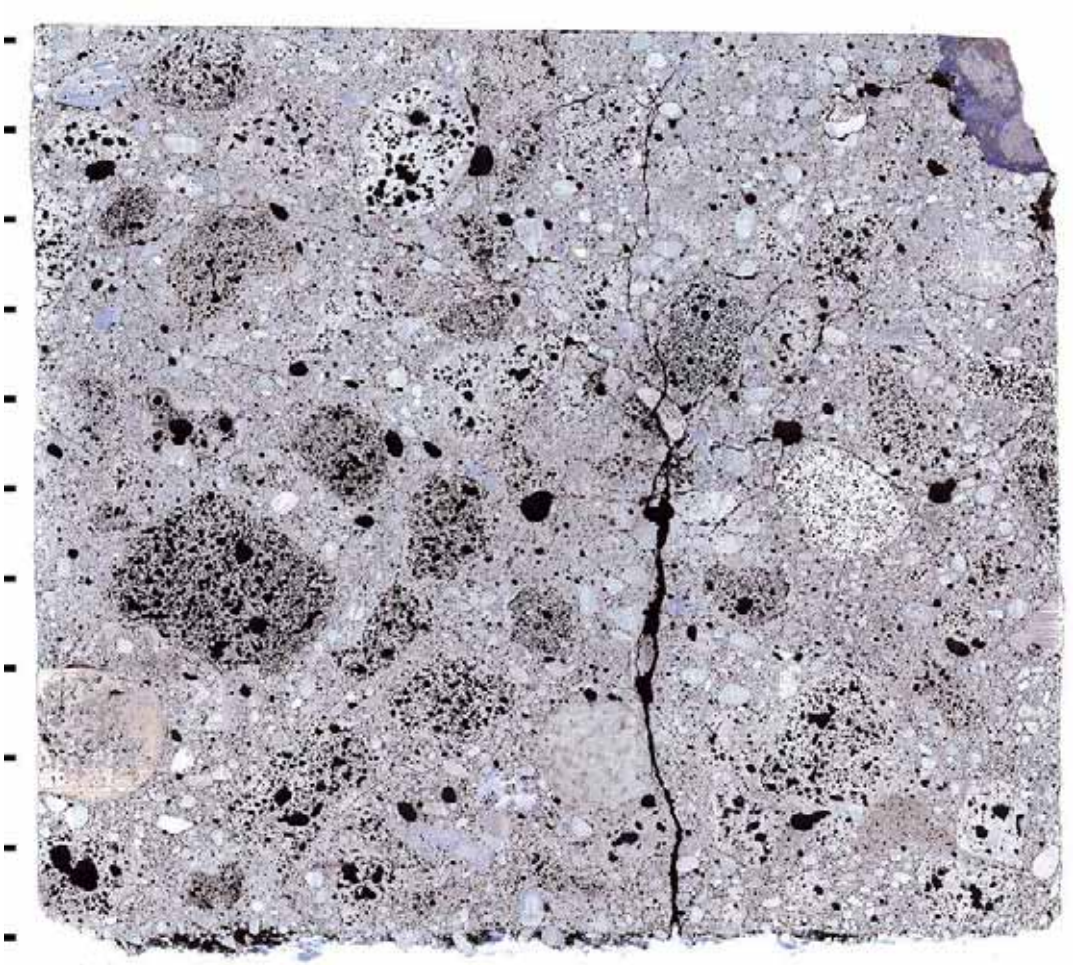
Slab representing cross section through top half of pavement, after sodium cobaltinitrite stain, WB I-696, constructed 1995, away from transverse joint, core C, MTU ID 696-12, tic marks every half inch.



Slab representing cross section through top half of pavement, after treatment to enhance air voids and cracks, WB I-696, constructed 1995, away from transverse joint, core C, MTU ID 696-12, tic marks every half inch.

Slab representing cross section through bottom half of pavement, as polished, WB I-696, constructed 1995, away from transverse joint, core C, MTU ID 696-12, tic marks every half inch.

Slab representing cross section through bottom half of pavement, after sodium cobaltinitrite stain, WB I-696, constructed 1995, away from transverse joint, core C, MTU ID 696-12, tic marks every half inch.



Slab representing cross section through bottom half of pavement, after treatment to enhance air voids and cracks, WB I-696, constructed 1995, away from transverse joint, core C, MTU ID 696-12, tic marks every half inch.

WB I-696, constructed 1978, at transverse joint, core A, MTU ID 696-05

Data Analysed - 9/19/ 6 at 12:16			
Operator Name - Matt			
Sample ID - 696-5			
Raw Data			
	bottom half	top half	summary
Total Traverse Length (mm)	2123.755	2123.755	4247.51
Total Area Analyzed (cm^2)	41.6	41.6	83.2
Air Stops	57	63	120
Paste Stops	216	250	466
Aggregate Stops	540	499	1039
Secondary Phase Stops	0	1	1
Total Stops	813	813	1626
# of Air Void Intercepts	771	1080	1851
# of Filled Void Intercepts	7	3	10
Results			
Air vol%	7.0	7.8	7.4
Paste vol%	26.6	30.8	28.7
Aggregate vol%	66.4	61.4	63.9
Secondary Phase vol%	0.0	0.1	0.1
Spacing Factor (mm)	0.183	0.152	0.164
Paste/Air ratio	3.79	3.98	3.88
Specific Surface (mm^2/mm^3)	20.7	26.3	23.6
Void Frequency (voids/m)	363	509	436
Average Chord Length (mm)	0.193	0.152	0.169

WB I-696, constructed 1978, at transverse joint, core B, MTU ID 696-07

Data Analysed - 9/18/ 6 at 14:34			
Operator Name - Matt			
Sample ID - 696-7			
Raw Data			
	bottom half	top half	summary
Total Traverse Length (mm)	2123.755	2123.755	4247.51
Total Area Analyzed (cm^2)	41.6	41.6	83.2
Air Stops	59	46	105
Paste Stops	206	228	434
Aggregate Stops	547	539	1086
Secondary Phase Stops	1	0	1
Total Stops	813	813	1626
# of Air Void Intercepts	749	776	1525
# of Filled Void Intercepts	10	4	14
Results			
Air vol%	7.3	5.7	6.5
Paste vol%	25.3	28.0	26.7
Aggregate vol%	67.3	66.3	66.8
Secondary Phase vol%	0.1	0.0	0.1
Spacing Factor (mm)	0.180	0.179	0.186
Paste/Air ratio	3.51	4.96	4.13
Specific Surface (mm^2/mm^3)	19.4	25.8	22.2
Void Frequency (voids/m)	353	365	359
Average Chord Length (mm)	0.206	0.155	0.180

WB I-696, constructed 1978, away from transverse joint, core C, MTU ID 696-02

Data Analysed - 8/21/ 6 at 17:42			
Operator Name - Matt			
Sample ID - 696-2			
Raw Data			
	bottom half	top half	summary
Total Traverse Length (mm)	2123.755	2123.755	4247.51
Total Area Analyzed (cm^2)	41.6	41.6	83.2
Air Stops	65	41	106
Paste Stops	217	242	459
Aggregate Stops	531	530	1061
Secondary Phase Stops	0	0	0
Total Stops	813	813	1626
# of Air Void Intercepts	661	708	1369
# of Filled Void Intercepts	13	0	13
Results			
Air vol%	8.0	5.0	6.5
Paste vol%	26.7	29.8	28.2
Aggregate vol%	65.3	65.2	65.3
Secondary Phase vol%	0.0	0.0	0.0
Spacing Factor (mm)	0.214	0.189	0.219
Paste/Air ratio	3.34	5.90	4.33
Specific Surface (mm^2/mm^3)	15.6	26.4	19.8
Void Frequency (voids/m)	311	333	322
Average Chord Length (mm)	0.257	0.151	0.202

WB I-696, constructed 1978, away from transverse joint, core D, MTU ID 696-01

Data Analysed - 8/14/ 6 at 16:26			
Operator Name - Matt			
Sample ID - 696_1			
Raw Data			
	bottom half	top half	summary
Total Traverse Length (mm)	2123.755	2256.98	4380.735
Total Area Analyzed (cm^2)	41.6	41.6	83.2
Air Stops	80	66	146
Paste Stops	212	238	450
Aggregate Stops	520	509	1029
Secondary Phase Stops	1	0	1
Total Stops	813	813	1626
# of Air Void Intercepts	672	830	1502
# of Filled Void Intercepts	10	0	10
Results			
Air vol%	9.8	8.1	9.0
Paste vol%	26.1	29.3	27.7
Aggregate vol%	64.0	62.6	63.3
Secondary Phase vol%	0.1	0.0	0.1
Spacing Factor (mm)	0.207	0.199	0.202
Paste/Air ratio	2.66	3.61	3.08
Specific Surface (mm^2/mm^3)	12.9	19.3	15.3
Void Frequency (voids/m)	316	368	343
Average Chord Length (mm)	0.311	0.208	0.262

I-696, constructed 1995, at transverse joint, core A, MTU ID 696-06

Data Analysed - 9/11/ 6 at 12:21			
Operator Name - Matt			
Sample ID - 696-6			
Raw Data			
	bottom half	top half	summary
Total Traverse Length (mm)	2168.163	2220.408	4388.571
Total Area Analyzed (cm^2)	41.6	41.6	83.2
Air Stops	45	40	85
Paste Stops	232	261	493
Aggregate Stops	536	512	1048
Secondary Phase Stops	0	0	0
Total Stops	813	813	1626
# of Air Void Intercepts	774	802	1576
# of Filled Void Intercepts	2	1	3
Results			
Air vol%	5.5	4.9	5.2
Paste vol%	28.5	32.1	30.3
Aggregate vol%	65.9	63.0	64.5
Secondary Phase vol%	0.0	0.0	0.0
Spacing Factor (mm)	0.178	0.170	0.180
Paste/Air ratio	5.16	6.53	5.80
Specific Surface (mm^2/mm^3)	26.3	30.7	27.5
Void Frequency (voids/m)	357	361	359
Average Chord Length (mm)	0.152	0.130	0.146

WB I-696, constructed 1995, at transverse joint, core B, MTU ID 696-08

Data Analysed - 9/12/ 6 at 17:31			
Operator Name - Matt			
Sample ID - 696-8			
Raw Data			
	bottom half	top half	summary
Total Traverse Length (mm)	2131.592	2262.204	4393.796
Total Area Analyzed (cm^2)	41.8	41.6	83.4
Air Stops	85	18	103
Paste Stops	246	252	498
Aggregate Stops	485	543	1028
Secondary Phase Stops	0	0	0
Total Stops	816	813	1629
# of Air Void Intercepts	1176	693	1869
# of Filled Void Intercepts	2	0	2
Results			
Air vol%	10.4	2.2	6.3
Paste vol%	30.2	31.0	30.6
Aggregate vol%	59.4	66.8	63.1
Secondary Phase vol%	0.0	0.0	0.0
Spacing Factor (mm)	0.137	0.125	0.170
Paste/Air ratio	2.89	14.00	4.83
Specific Surface (mm^2/mm^3)	21.2	59.0	26.9
Void Frequency (voids/m)	552	306	425
Average Chord Length (mm)	0.189	0.068	0.149

WB I-696, constructed 1995, away from transverse joint, core C, MTU ID 696-04

Data Analysed - 9/ 6/ 6 at 15: 3			
Operator Name - Matt			
Sample ID - 696-4			
Raw Data			
	bottom half	top half	summary
Total Traverse Length (mm)	2123.755	2123.755	4247.51
Total Area Analyzed (cm^2)	41.6	41.6	83.2
Air Stops	43	54	97
Paste Stops	262	281	543
Aggregate Stops	508	478	986
Secondary Phase Stops	0	0	0
Total Stops	813	813	1626
# of Air Void Intercepts	483	643	1126
# of Filled Void Intercepts	3	2	5
Results			
Air vol%	5.3	6.6	6.0
Paste vol%	32.2	34.6	33.4
Aggregate vol%	62.5	58.8	60.6
Secondary Phase vol%	0.0	0.0	0.0
Spacing Factor (mm)	0.295	0.259	0.274
Paste/Air ratio	6.09	5.20	5.60
Specific Surface (mm^2/mm^3)	17.2	18.2	17.8
Void Frequency (voids/m)	227	303	265
Average Chord Length (mm)	0.233	0.219	0.225

I-696, constructed 1995, away from transverse joint, core D, MTU ID 696-03

Data Analysed - 8/22/ 6 at 12: 9			
Operator Name - Matt			
Sample ID - 696-3			
Raw Data			
	bottom half	top half	summary
Total Traverse Length (mm)	2149.878	2131.592	4281.47
Total Area Analyzed (cm^2)	41.6	41.6	83.2
Air Stops	47	21	68
Paste Stops	223	283	506
Aggregate Stops	543	509	1052
Secondary Phase Stops	0	0	0
Total Stops	813	813	1626
# of Air Void Intercepts	550	536	1086
# of Filled Void Intercepts	0	1	1
Results			
Air vol%	5.8	2.6	4.2
Paste vol%	27.4	34.8	31.1
Aggregate vol%	66.8	62.6	64.7
Secondary Phase vol%	0.0	0.0	0.0
Spacing Factor (mm)	0.252	0.185	0.229
Paste/Air ratio	4.74	13.48	7.44
Specific Surface (mm^2/mm^3)	17.9	39.1	24.3
Void Frequency (voids/m)	256	251	254
Average Chord Length (mm)	0.223	0.102	0.165

I-696, constructed 1995, at transverse joint, core A, MTU ID 696-09

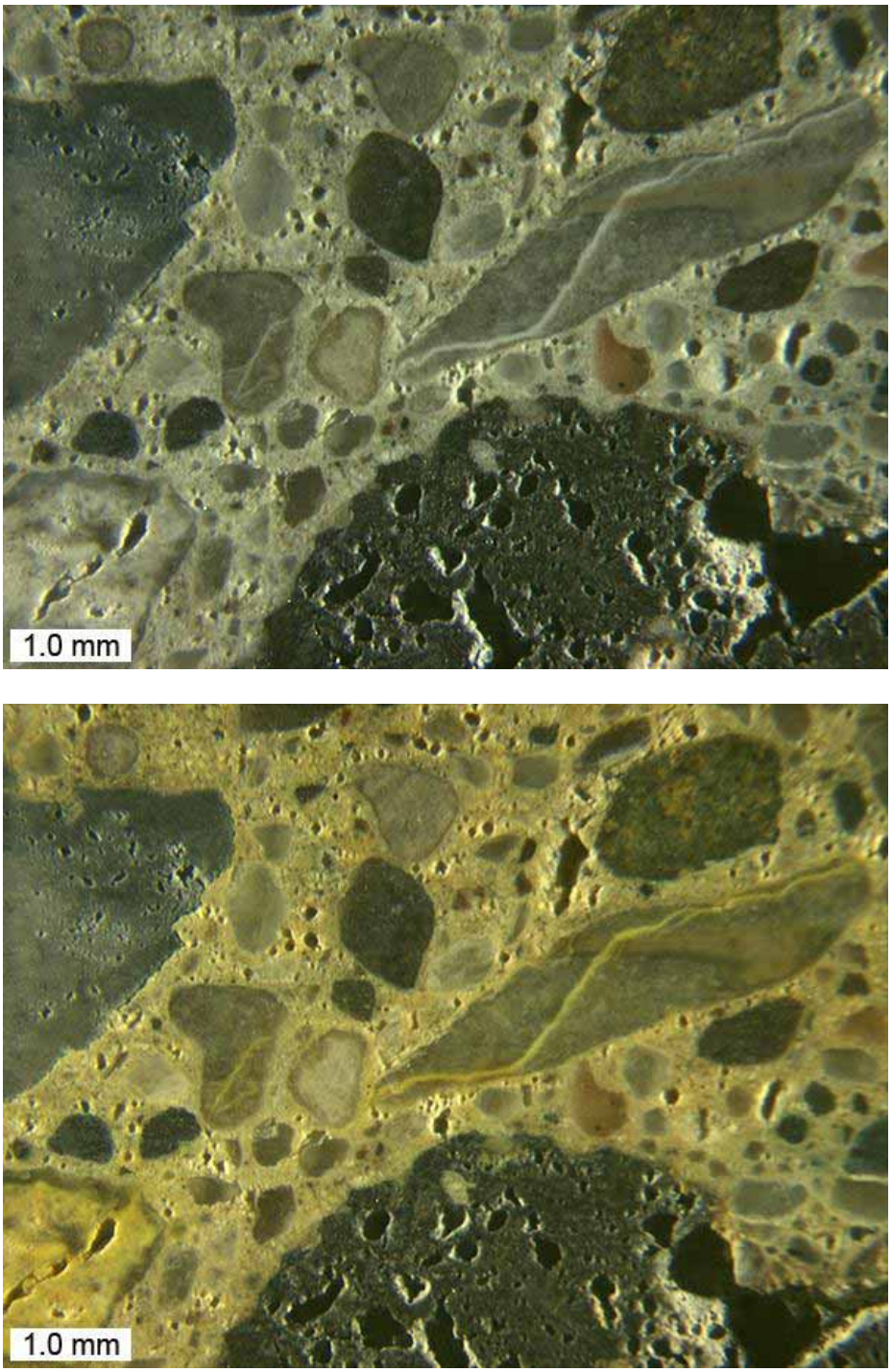
Data Analysed - 6/ 5/ 7 at 16:21			
Operator Name - Matt			
Sample ID - 696-9			
Raw Data			
	bottom half	top half	summary
Total Traverse Length (mm)	1886.041	1886.041	3772.082
Total Area Analyzed (cm^2)	37.0	36.9	73.9
Air Stops	23	31	54
Paste Stops	242	259	501
Aggregate Stops	453	431	884
Secondary Phase Stops	4	0	4
Total Stops	722	721	1443
# of Air Void Intercepts	210	759	969
# of Filled Void Intercepts	22	4	26
Results			
Air vol%	3.2	4.3	3.7
Paste vol%	33.5	35.9	34.7
Aggregate vol%	62.7	59.8	61.3
Secondary Phase vol%	0.6	0.0	0.3
Spacing Factor (mm)	0.467	0.156	0.223
Paste/Air ratio	10.70	8.35	9.28
Specific Surface (mm^2/mm^3)	14.0	37.5	27.5
Void Frequency (voids/m)	111	402	257
Average Chord Length (mm)	0.286	0.107	0.146

WB I-696, constructed 1995, away from transverse joint, core C, MTU ID 696-11

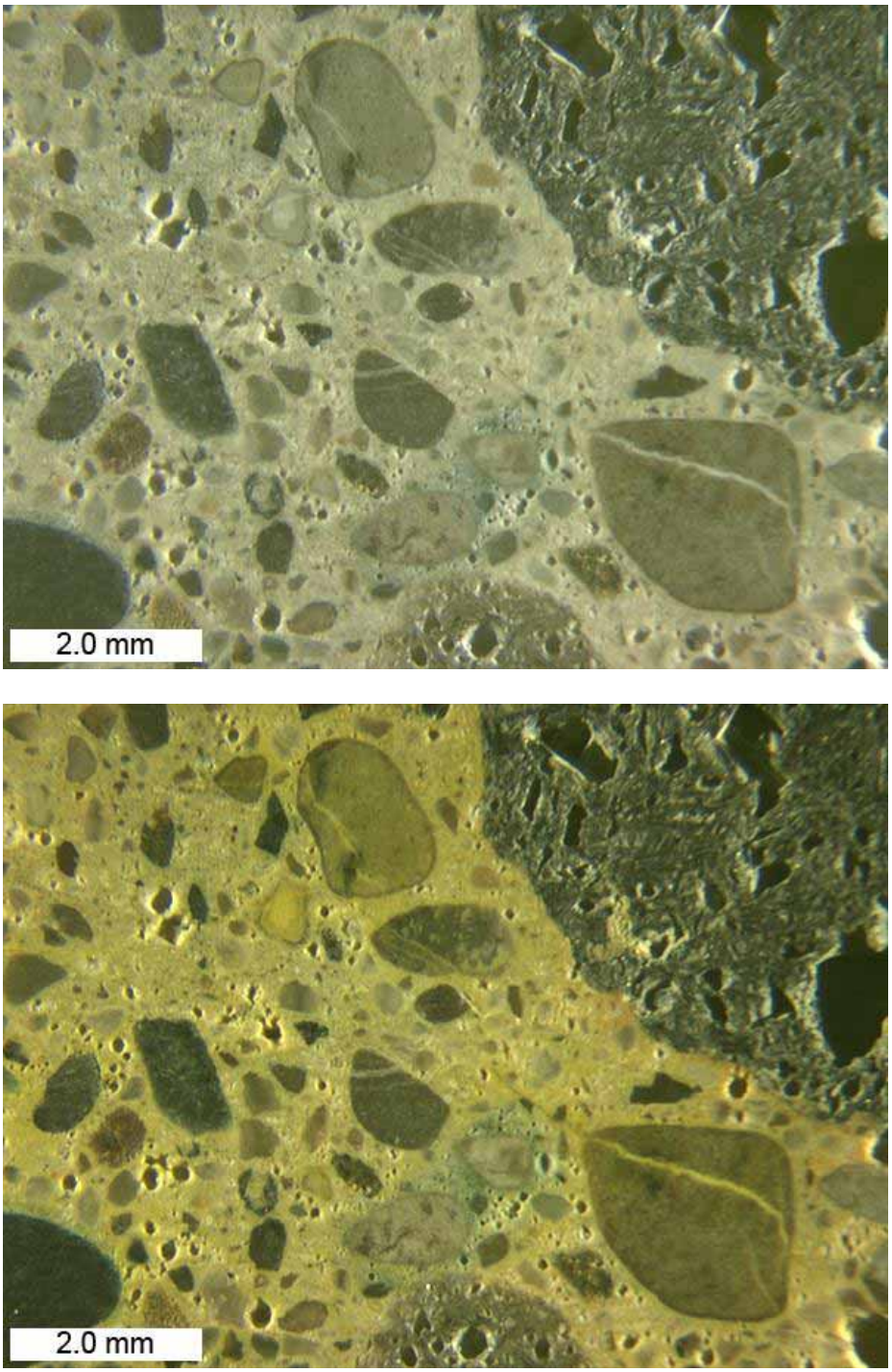
Data Analysed - 5/21/ 7 at 15:21			
Operator Name - Matt			
Sample ID - 696-11			
Raw Data			
	bottom half	top half	summary
Total Traverse Length (mm)	1886.041	1886.041	3772.082
Total Area Analyzed (cm^2)	37.0	37.0	73.9
Air Stops	30	47	77
Paste Stops	245	248	493
Aggregate Stops	446	427	873
Secondary Phase Stops	1	0	1
Total Stops	722	722	1444
# of Air Void Intercepts	456	1044	1500
# of Filled Void Intercepts	6	0	6
Results			
Air vol%	4.2	6.5	5.3
Paste vol%	33.9	34.4	34.1
Aggregate vol%	61.8	59.1	60.5
Secondary Phase vol%	0.1	0.0	0.1
Spacing Factor (mm)	0.249	0.140	0.174
Paste/Air ratio	8.20	5.28	6.40
Specific Surface (mm^2/mm^3)	23.3	34.0	29.8
Void Frequency (voids/m)	242	554	398
Average Chord Length (mm)	0.172	0.118	0.134

I-696, constructed 1995, away from transverse joint, core D, MTU ID 696-12

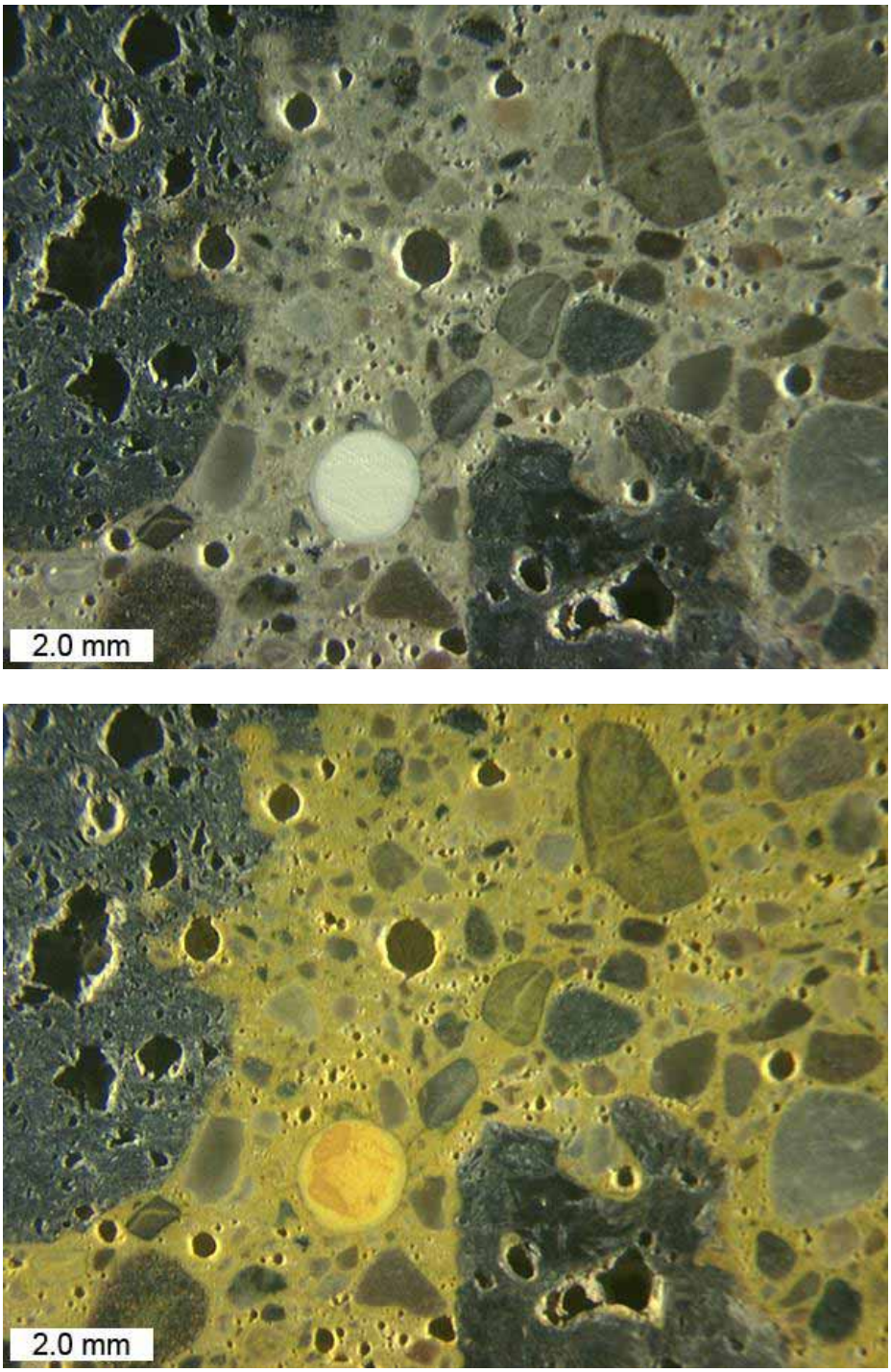
Data Analysed - 5/14/ 7 at 16:55			
Operator Name - Matt			
Sample ID - 696-12			
Raw Data			
	bottom half	top half	summary
Total Traverse Length (mm)	1886.041	1886.041	3772.082
Total Area Analyzed (cm^2)	36.3	37.0	73.3
Air Stops	43	41	84
Paste Stops	219	247	466
Aggregate Stops	448	434	882
Secondary Phase Stops	0	0	0
Total Stops	710	722	1432
# of Air Void Intercepts	1090	860	1950
# of Filled Void Intercepts	0	1	1
Results			
Air vol%	6.1	5.7	5.9
Paste vol%	30.9	34.2	32.5
Aggregate vol%	63.1	60.1	61.6
Secondary Phase vol%	0.0	0.0	0.0
Spacing Factor (mm)	0.120	0.157	0.138
Paste/Air ratio	5.09	6.02	5.55
Specific Surface (mm^2/mm^3)	38.8	32.1	35.3
Void Frequency (voids/m)	578	456	517
Average Chord Length (mm)	0.103	0.125	0.113



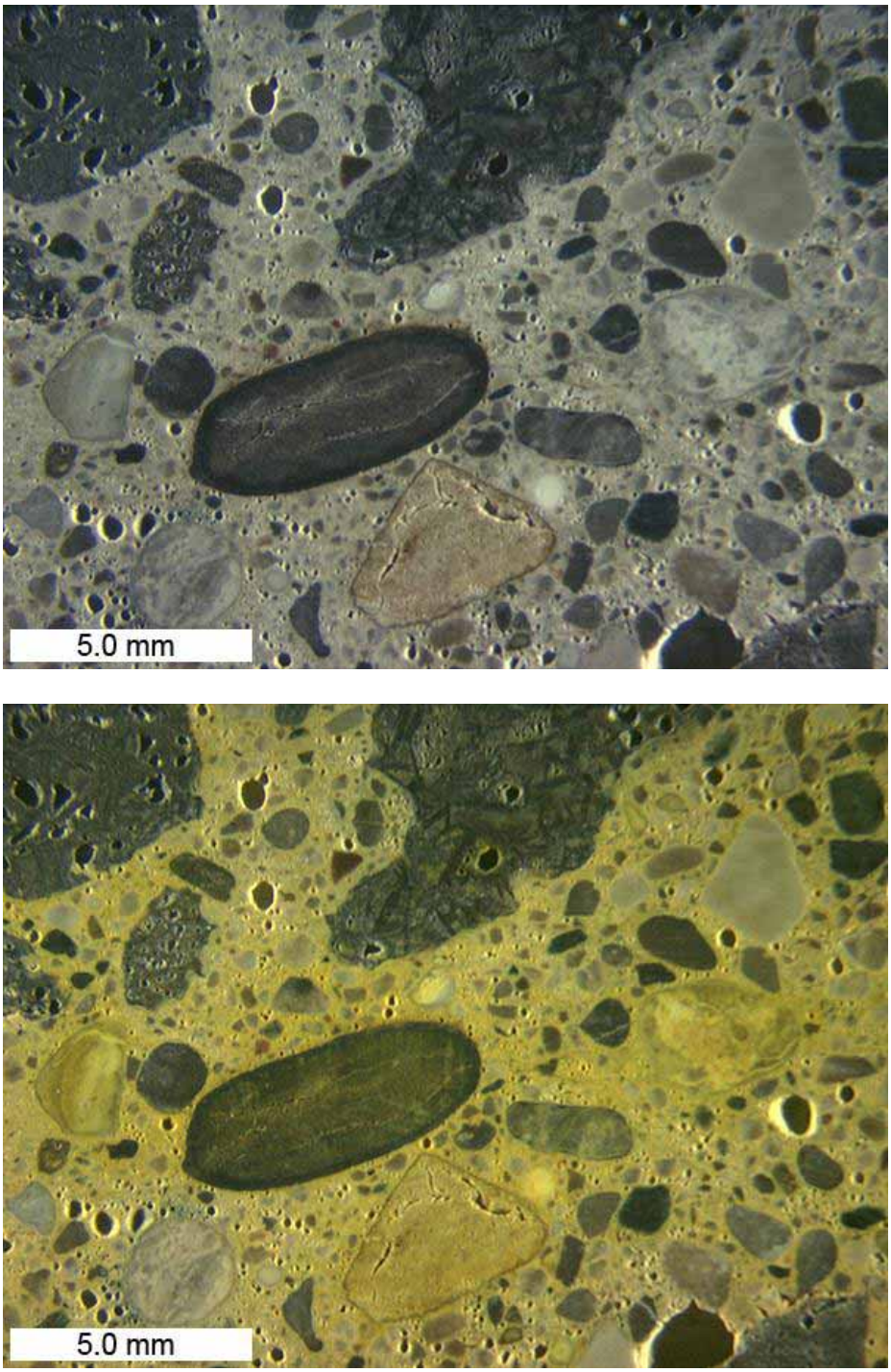
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, top half of core A, MTU ID 696-06.



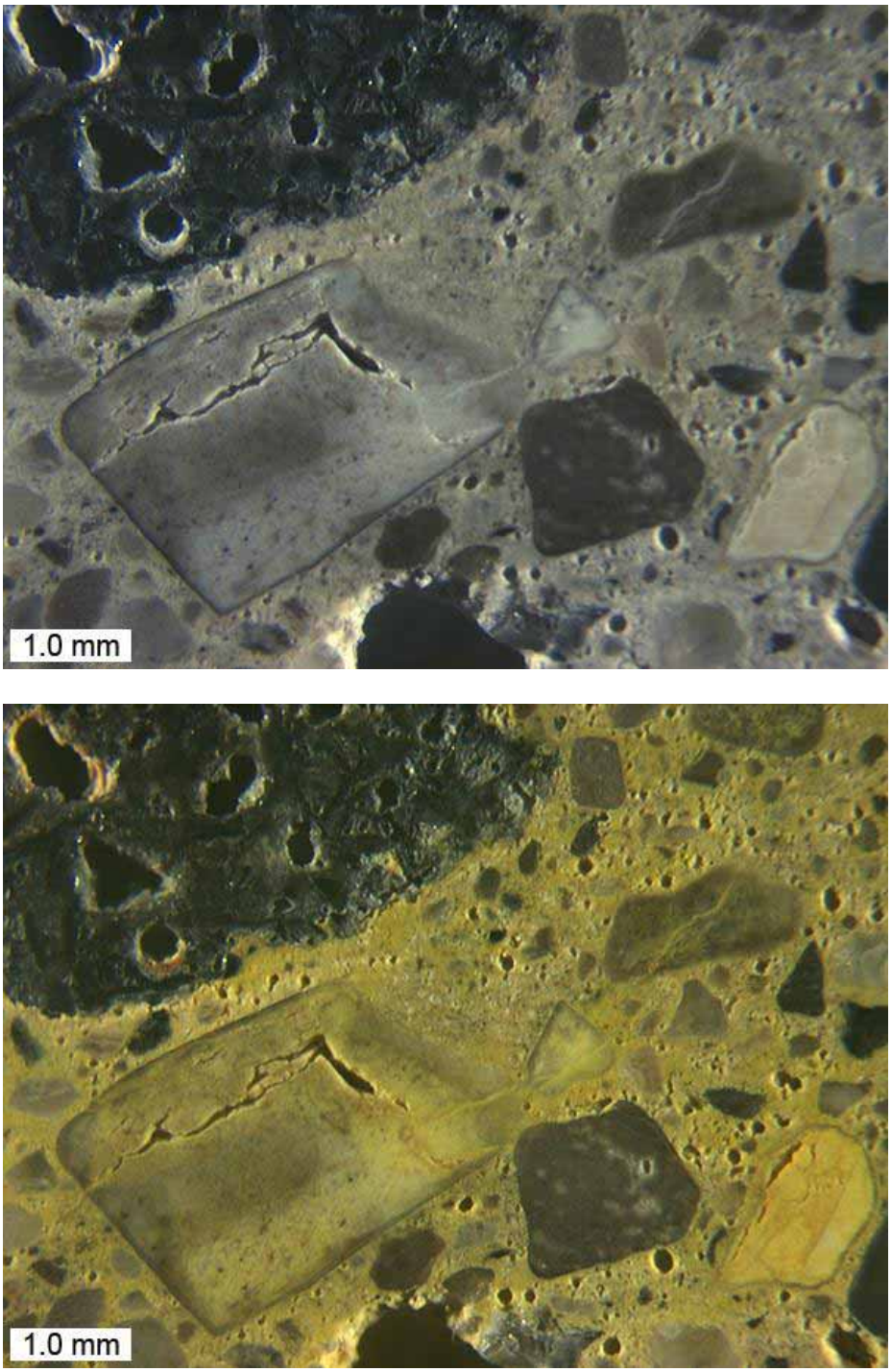
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, top half of core A, MTU ID 696-06.



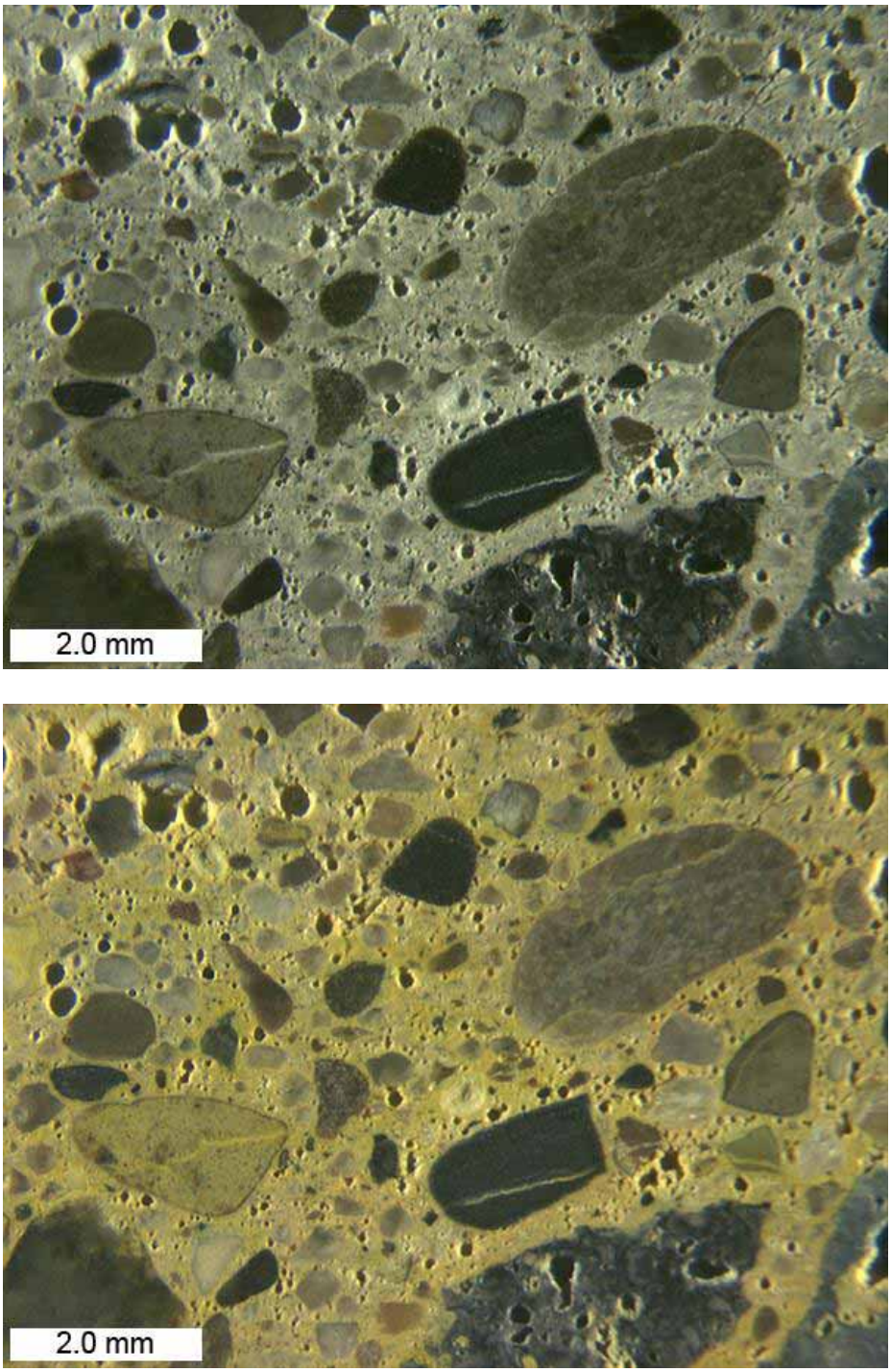
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, top half of core A, MTU ID 696-06.



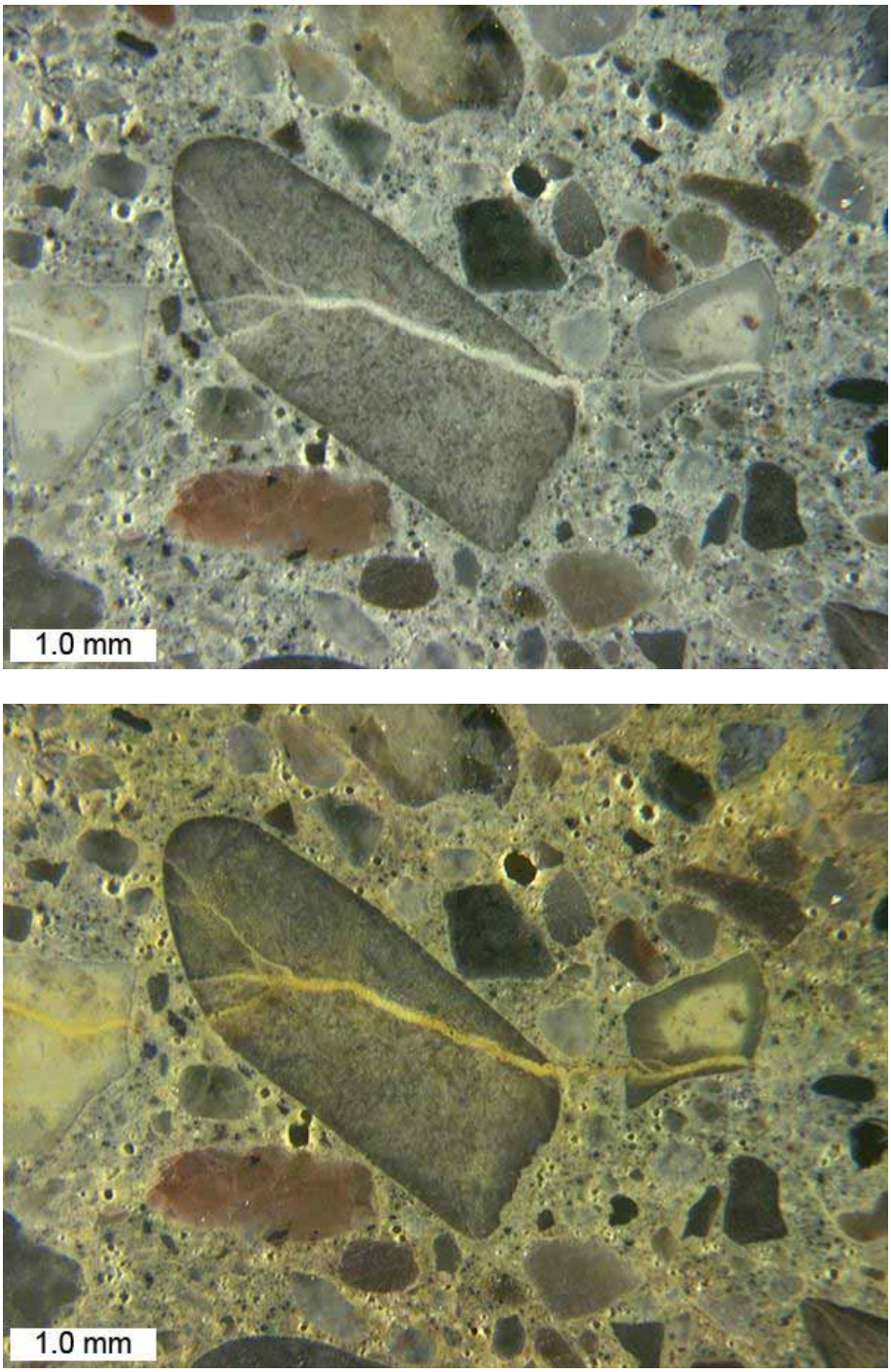
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, top half of core A, MTU ID 696-06.



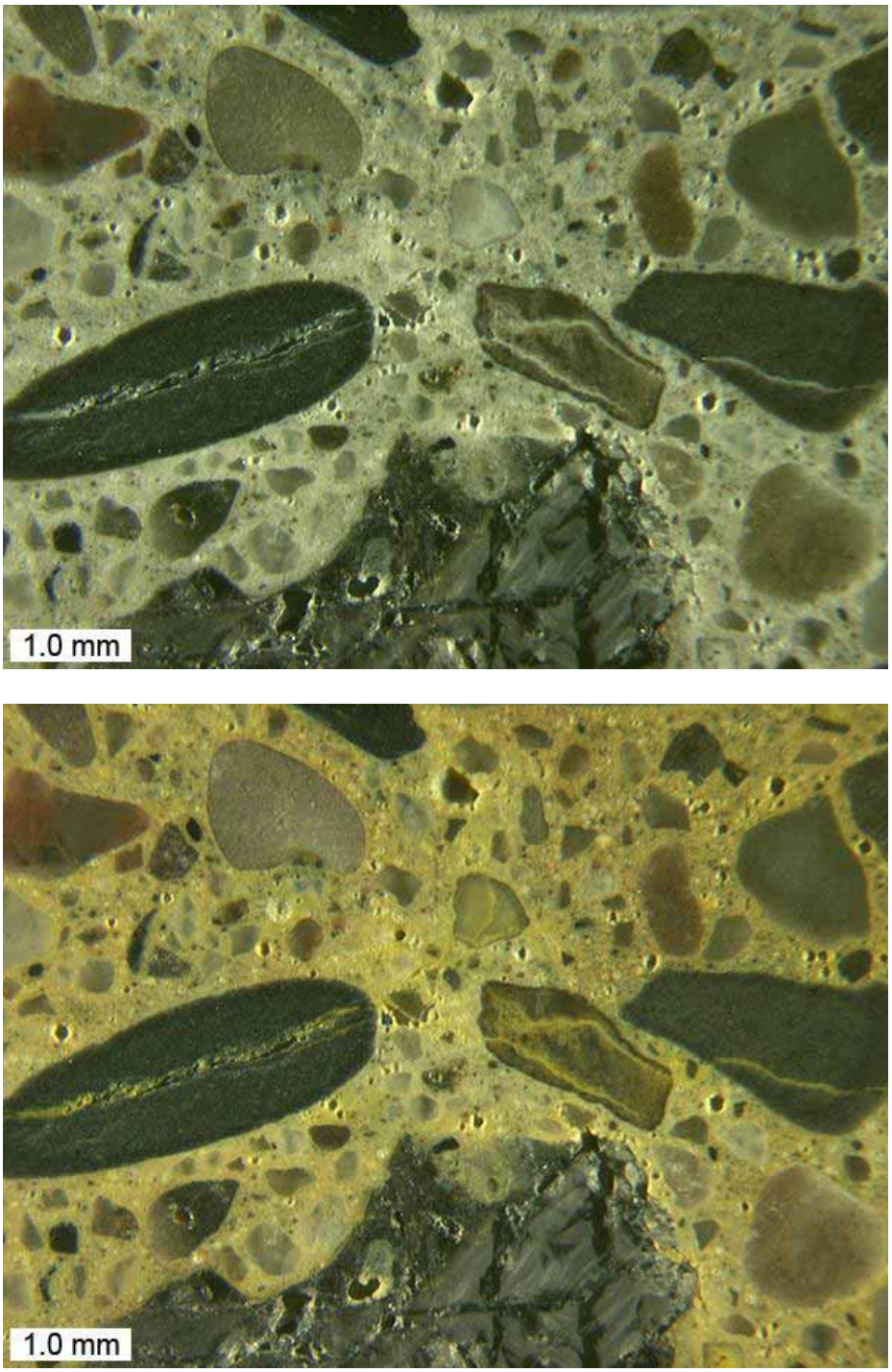
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, bottom half of core A, MTU ID 696-06.



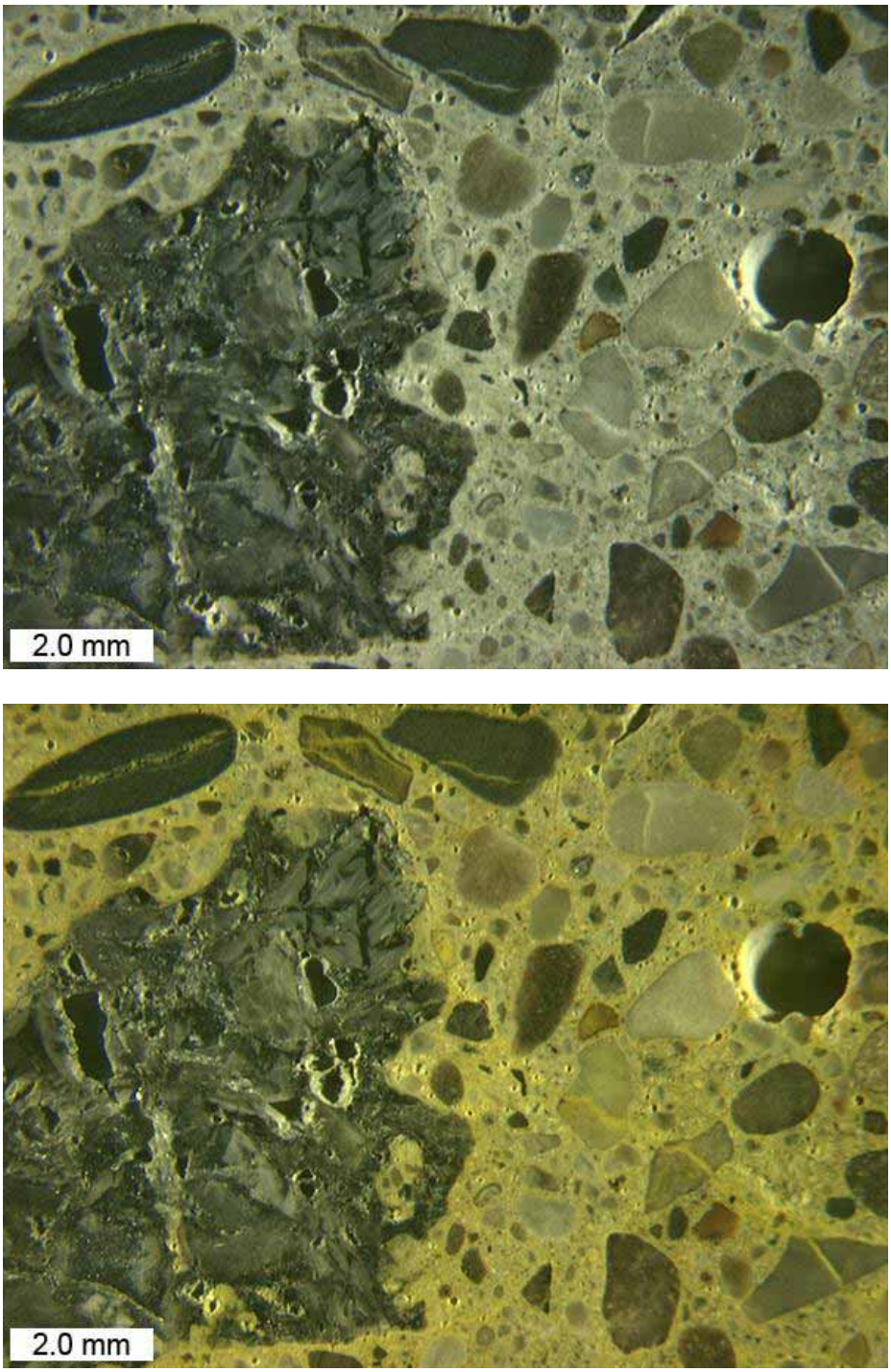
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, bottom half of core A, MTU ID 696-06.



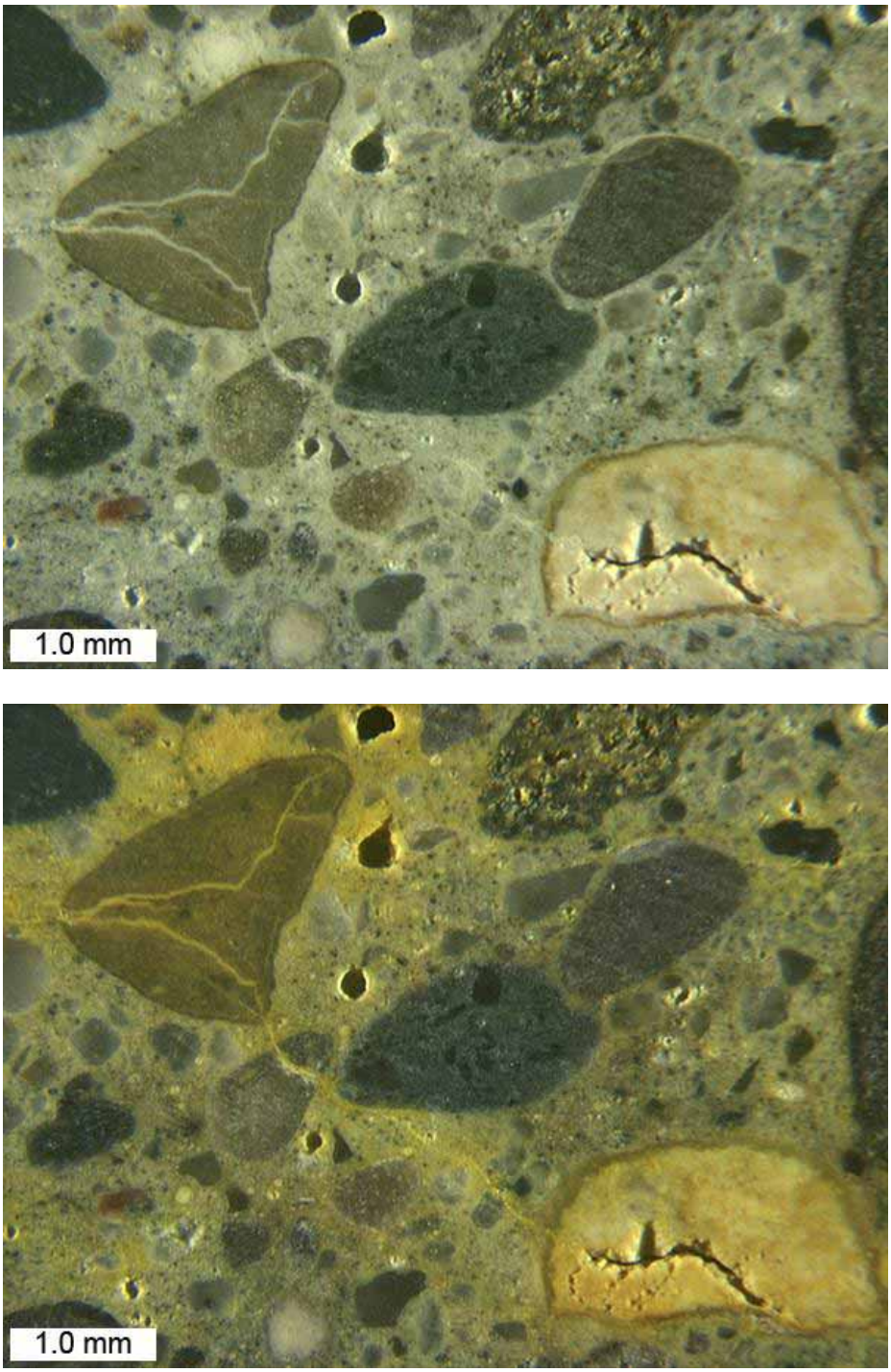
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, top half of core D, MTU ID 696-03.



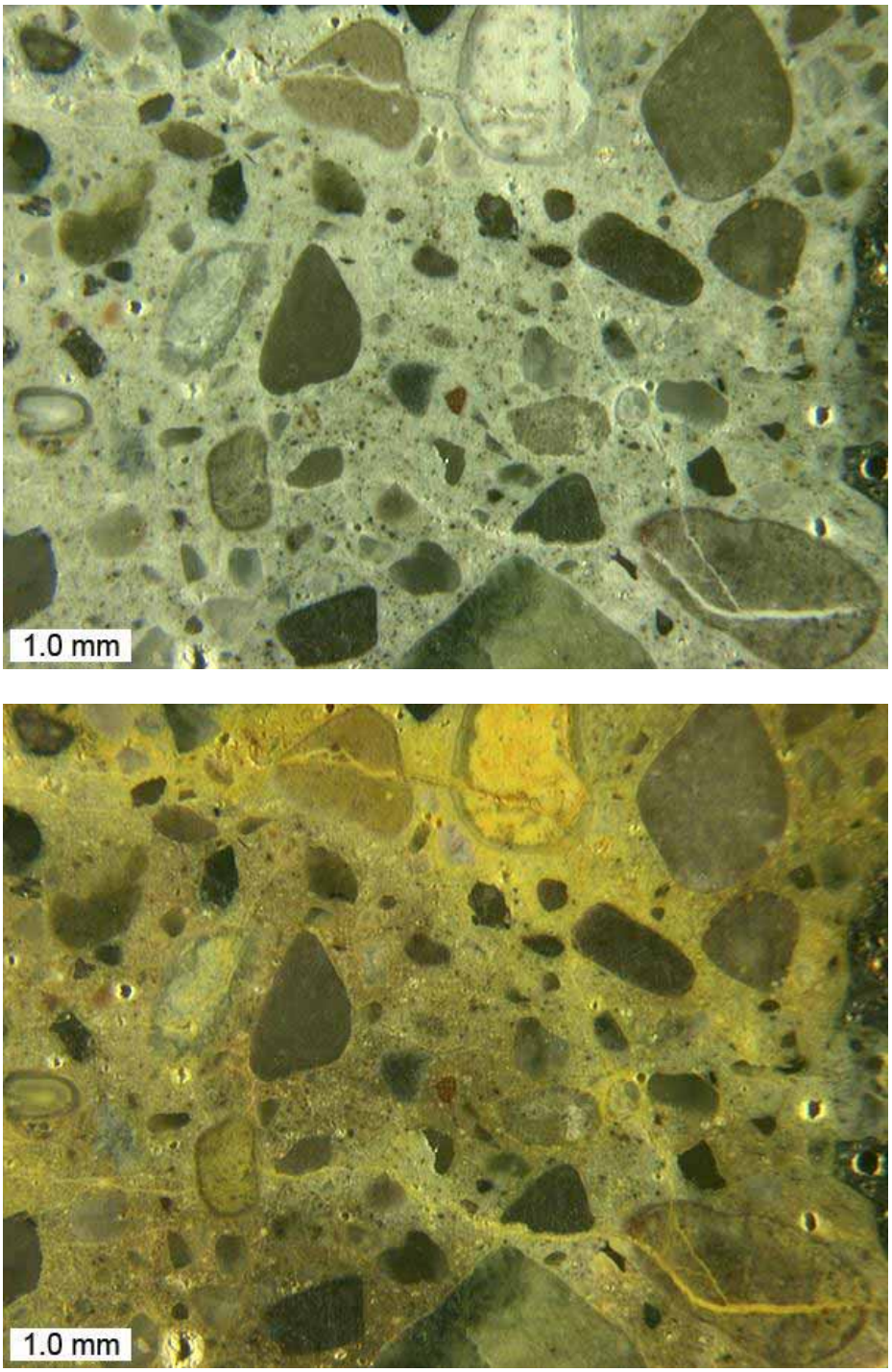
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, top half of core D, MTU ID 696-03.



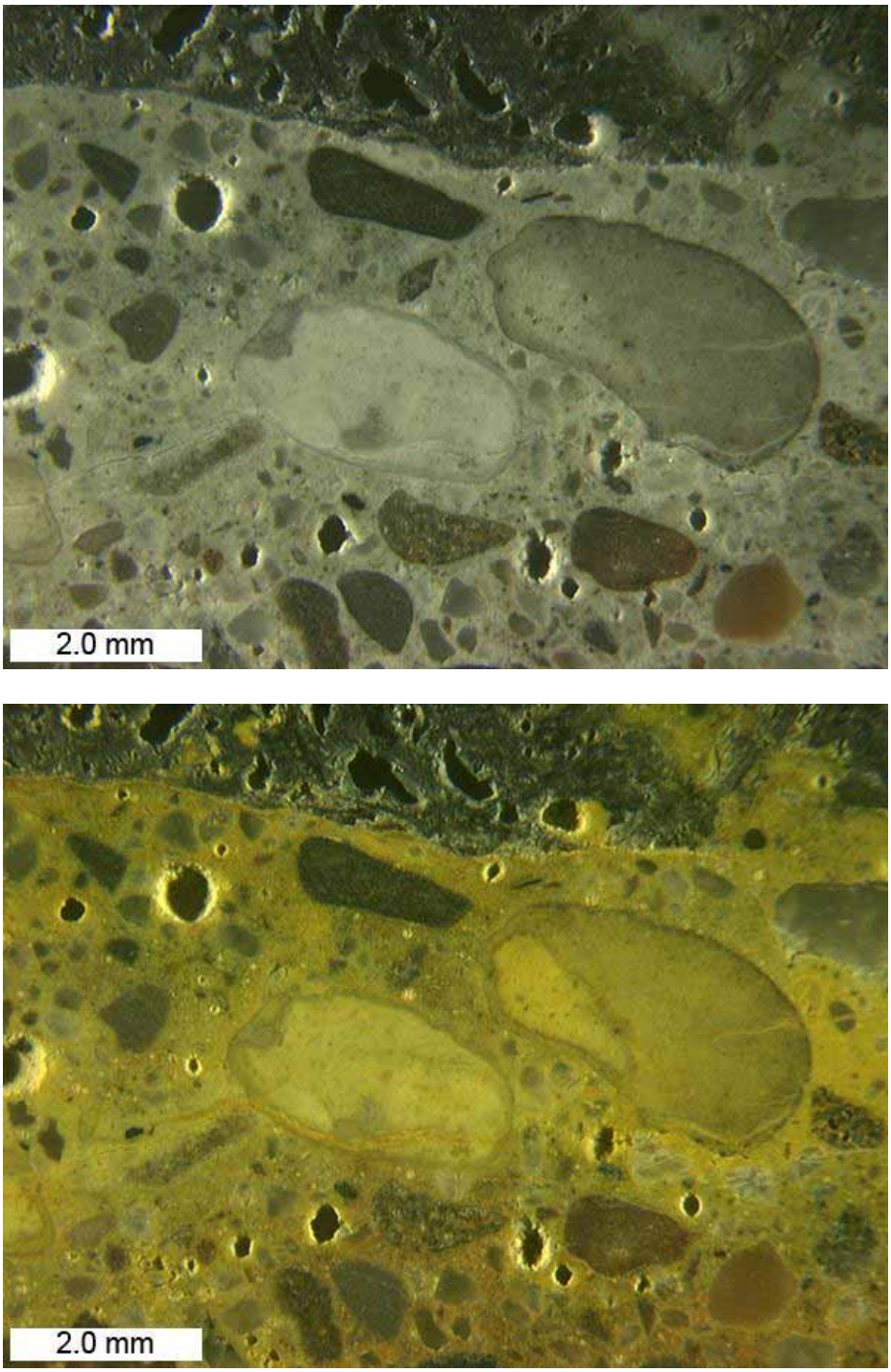
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, top half of core D, MTU ID 696-03.



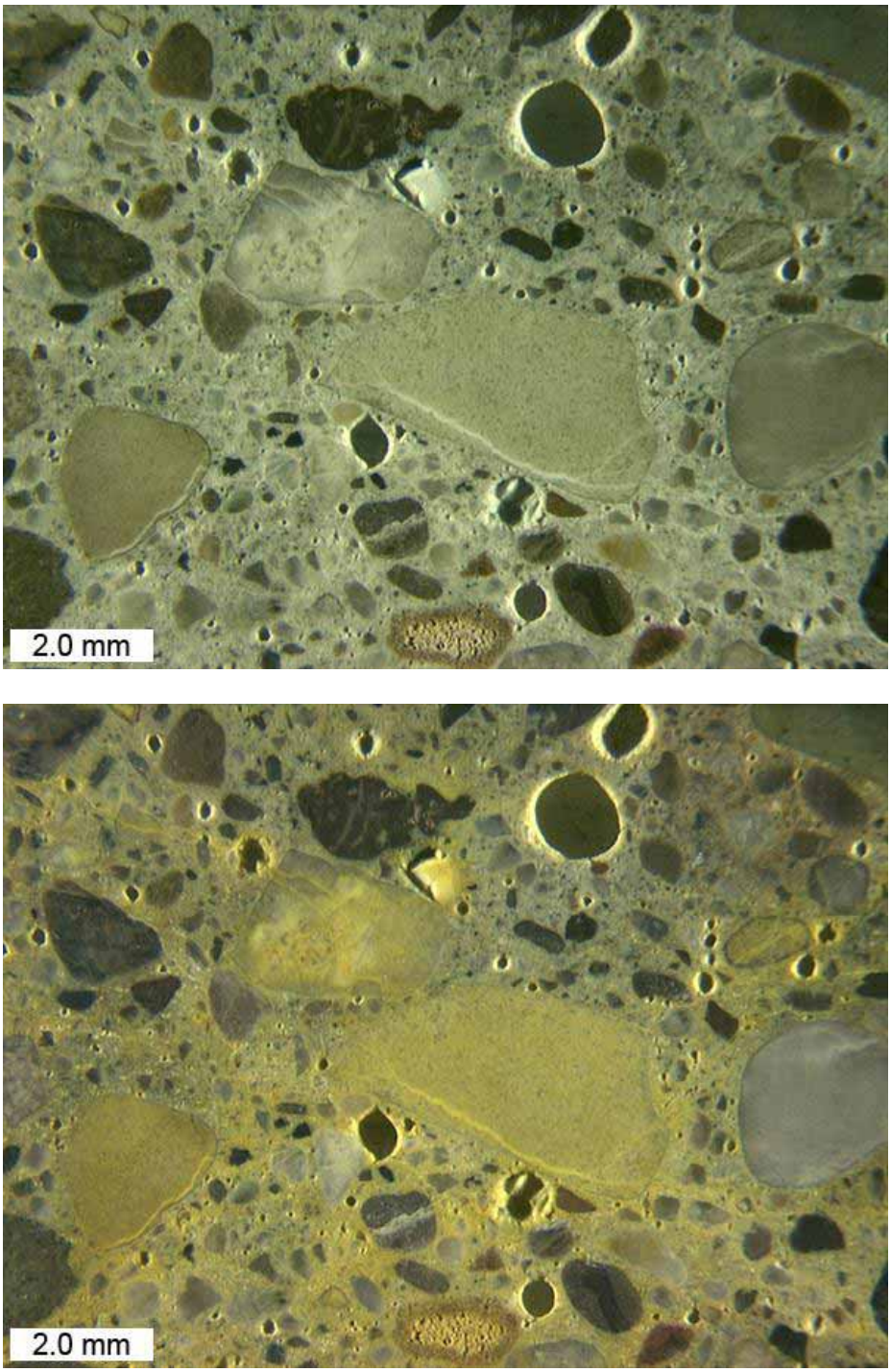
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, bottom half of core D, MTU ID 696-03.



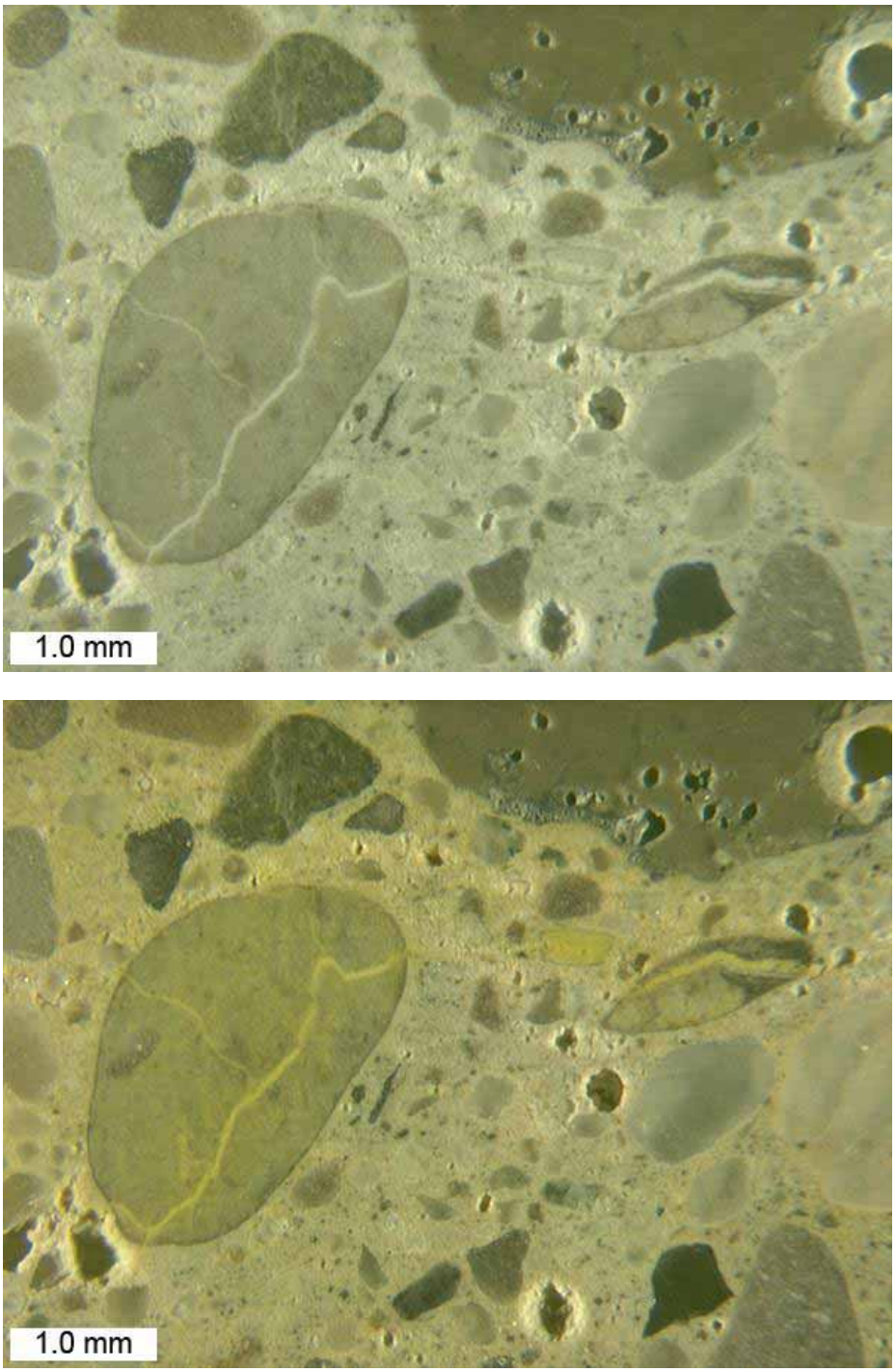
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, bottom half of core D, MTU ID 696-03.



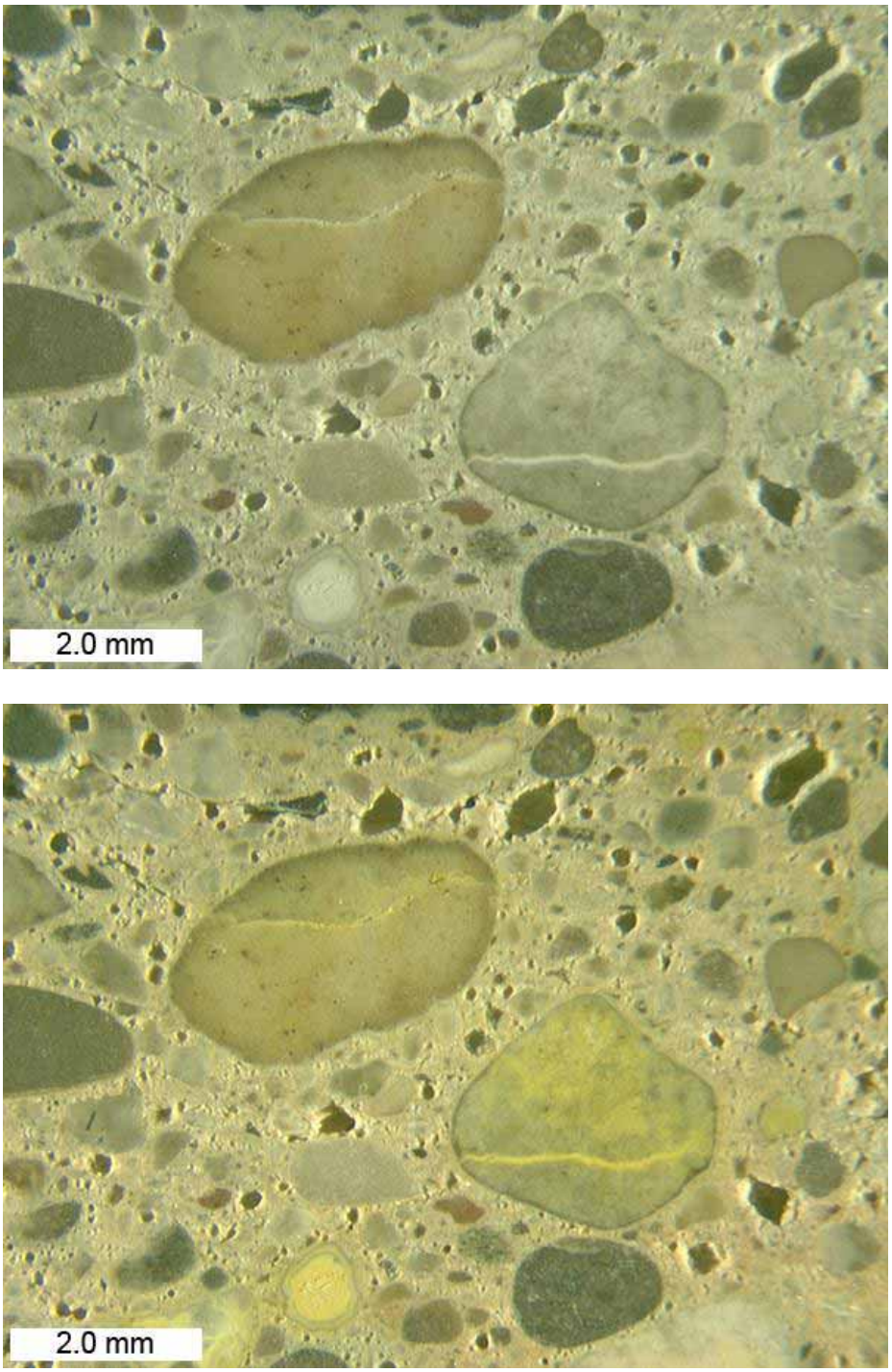
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, bottom half of core D, MTU ID 696-03.



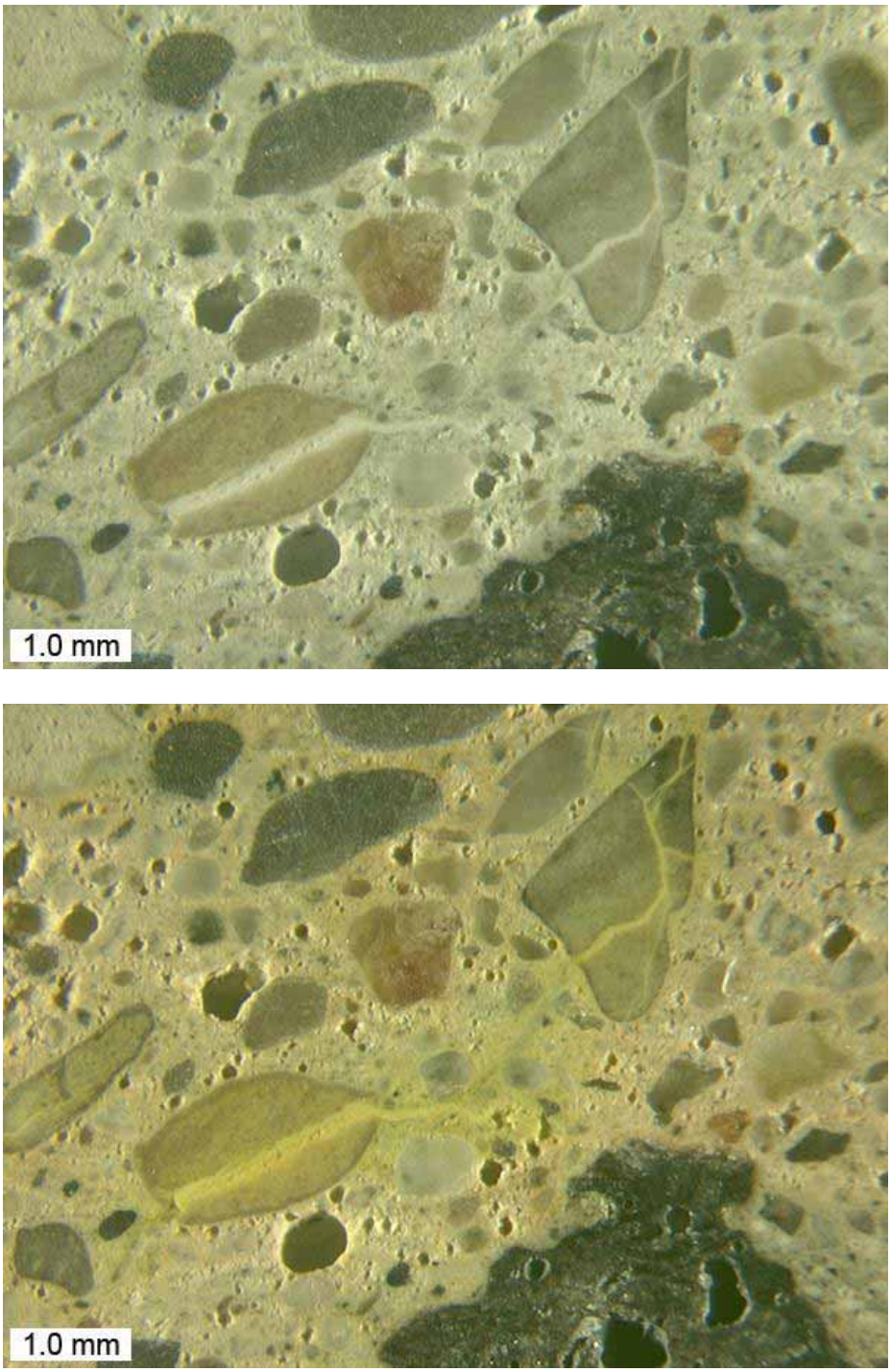
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, bottom half of core D, MTU ID 696-03.



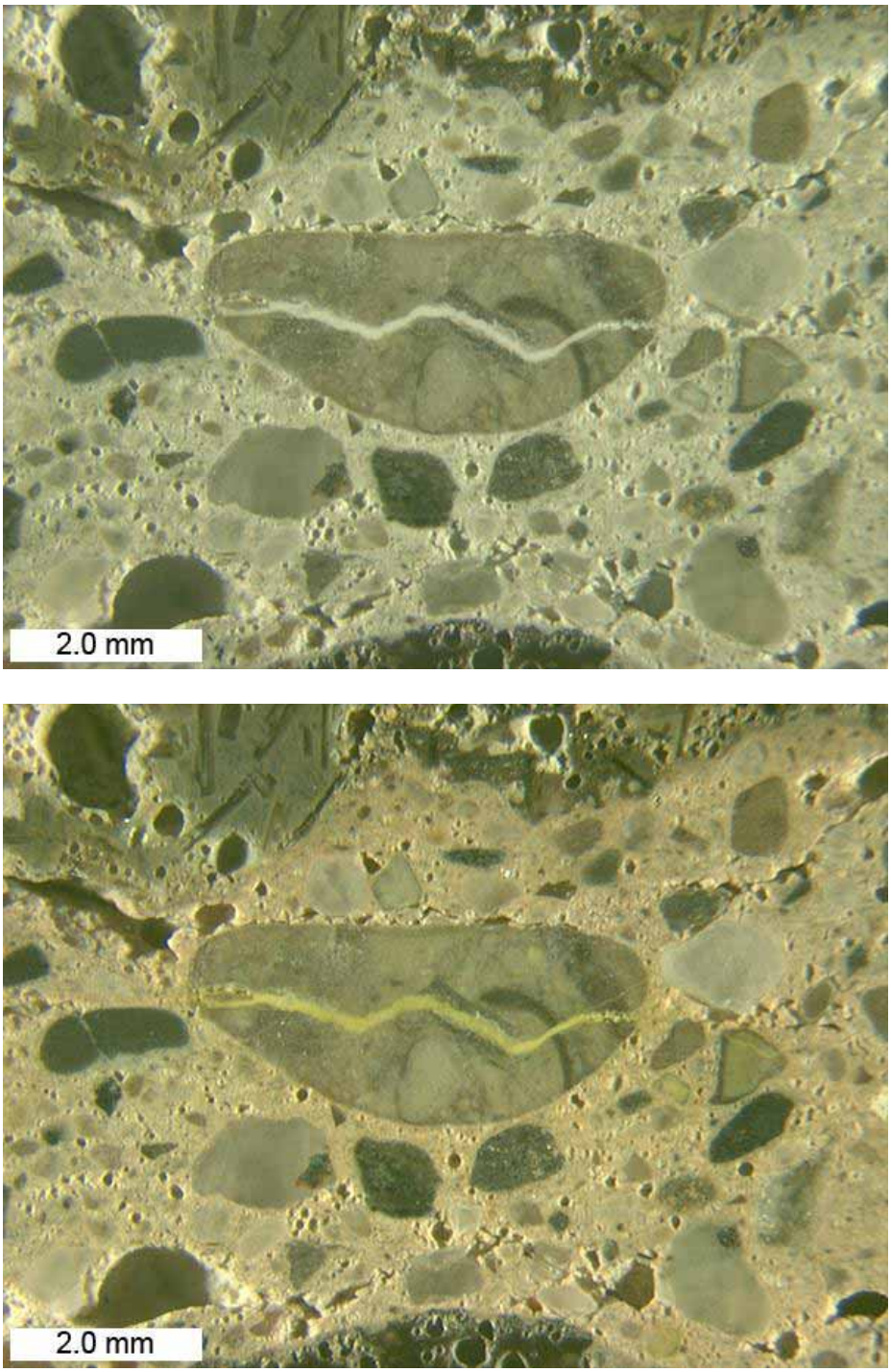
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, top half of core A, MTU ID 696-09.



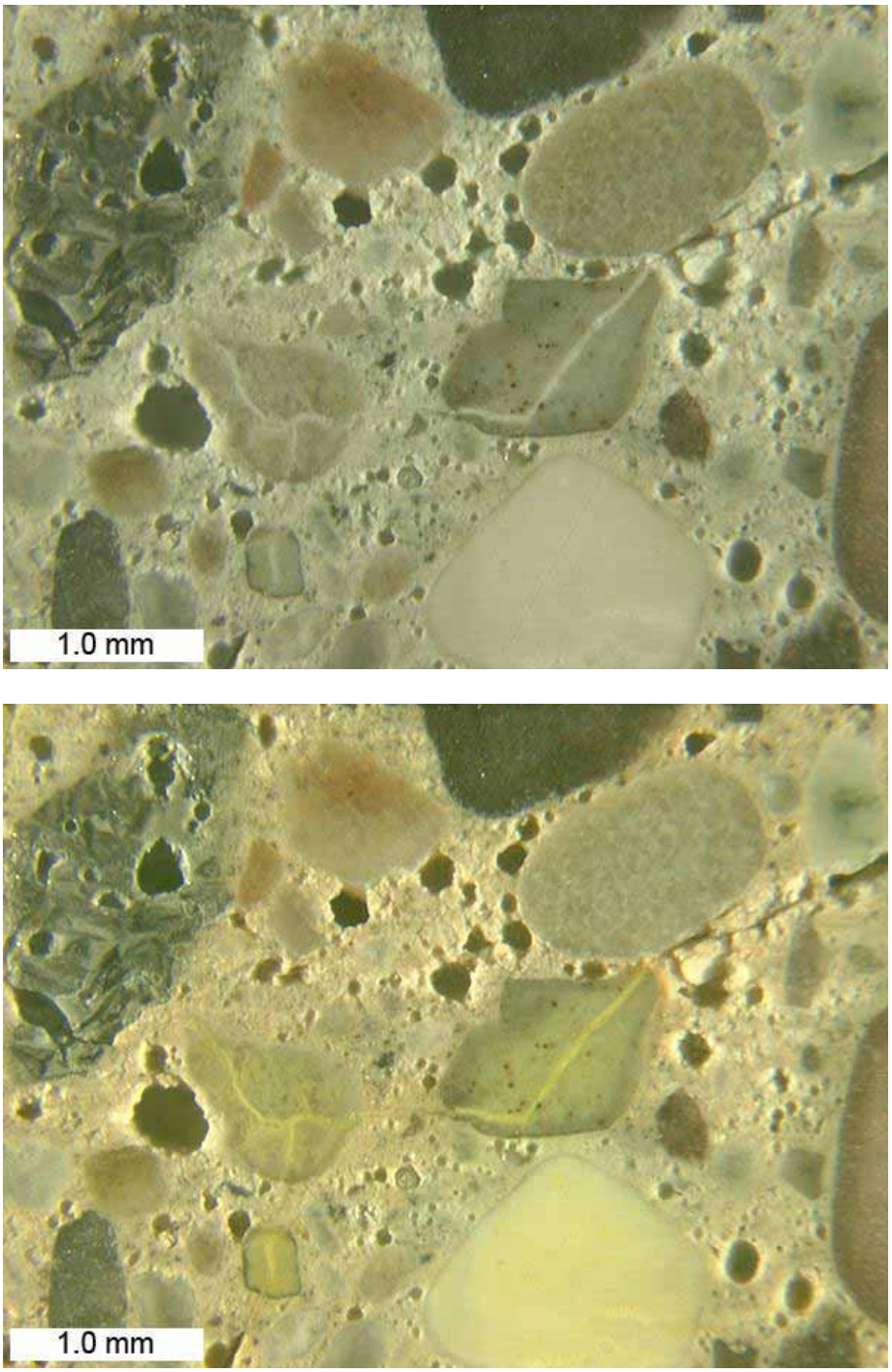
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, top half of core A, MTU ID 696-09.



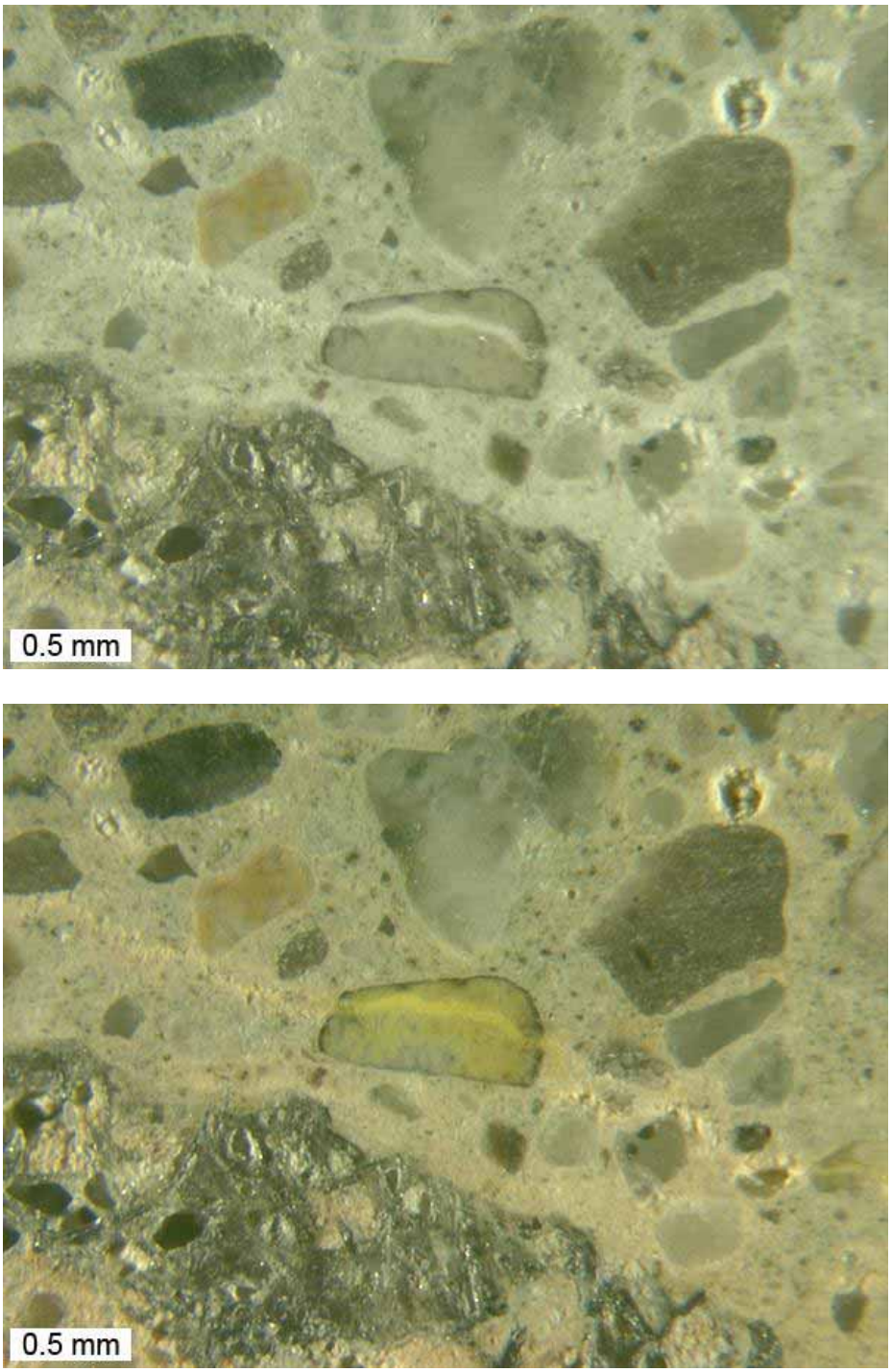
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, top half of core A, MTU ID 696-09.



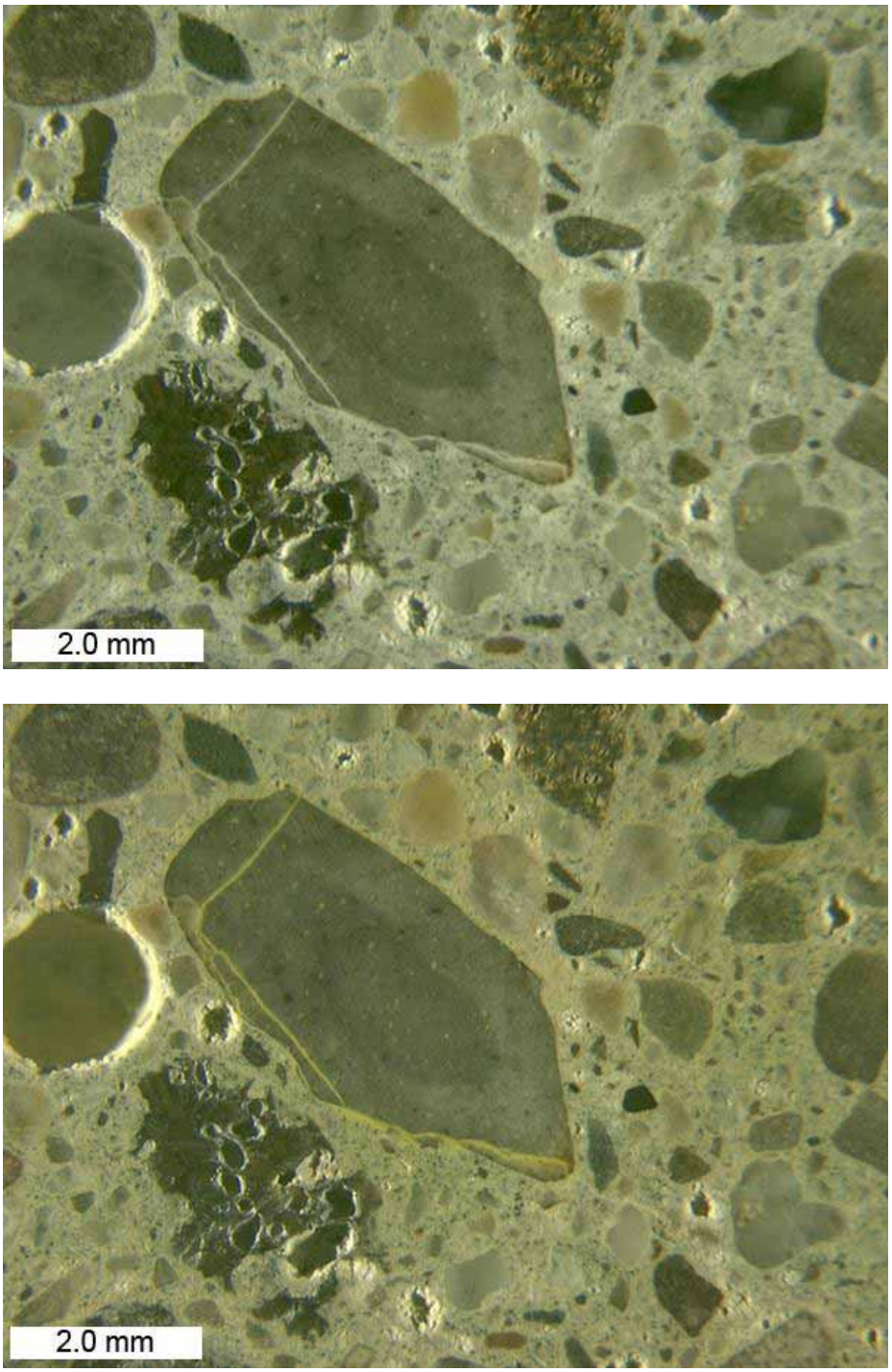
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, top half of core A, MTU ID 696-09.



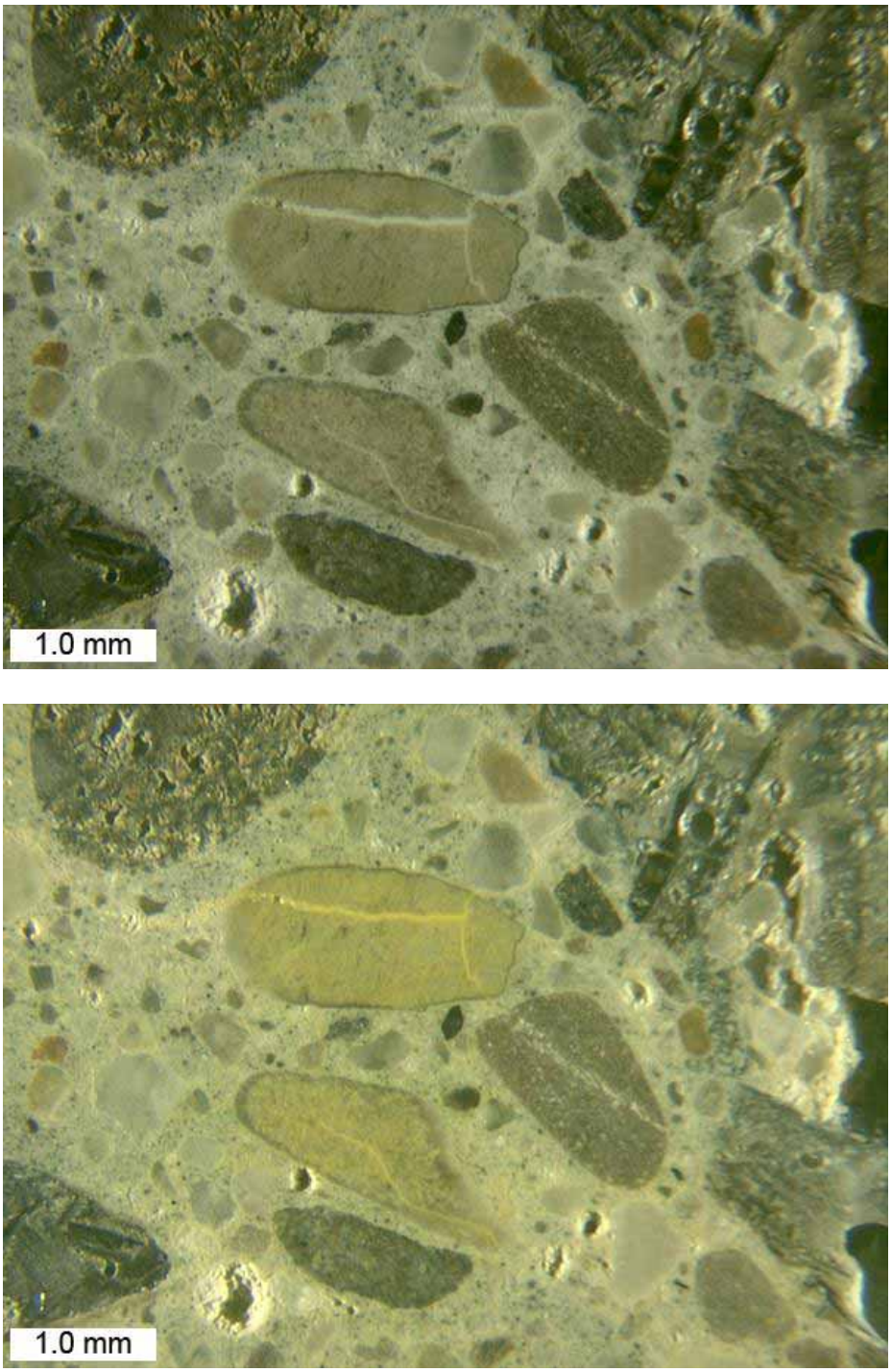
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, top half of core A, MTU ID 696-09.



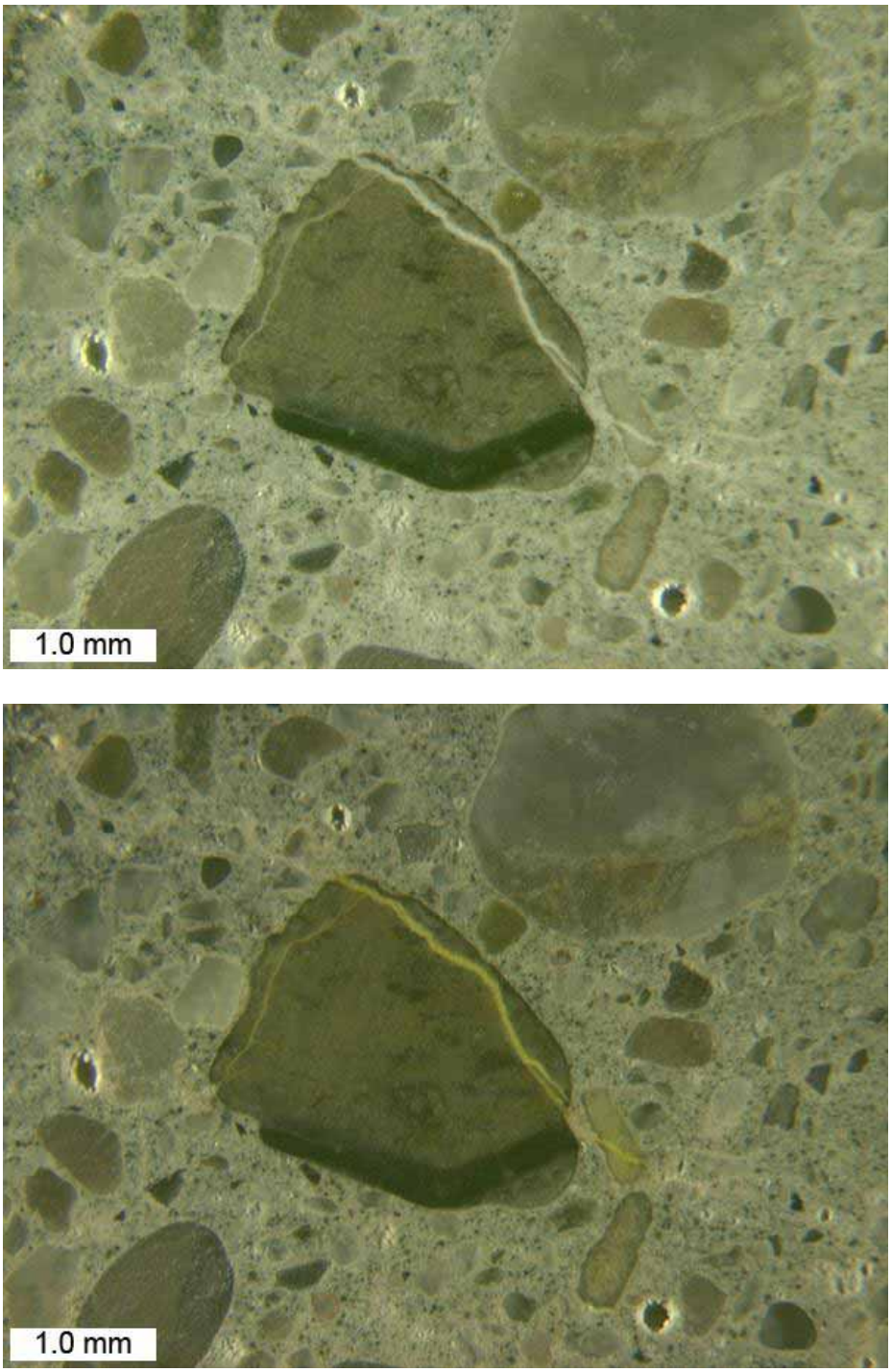
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, top half of core A, MTU ID 696-09.



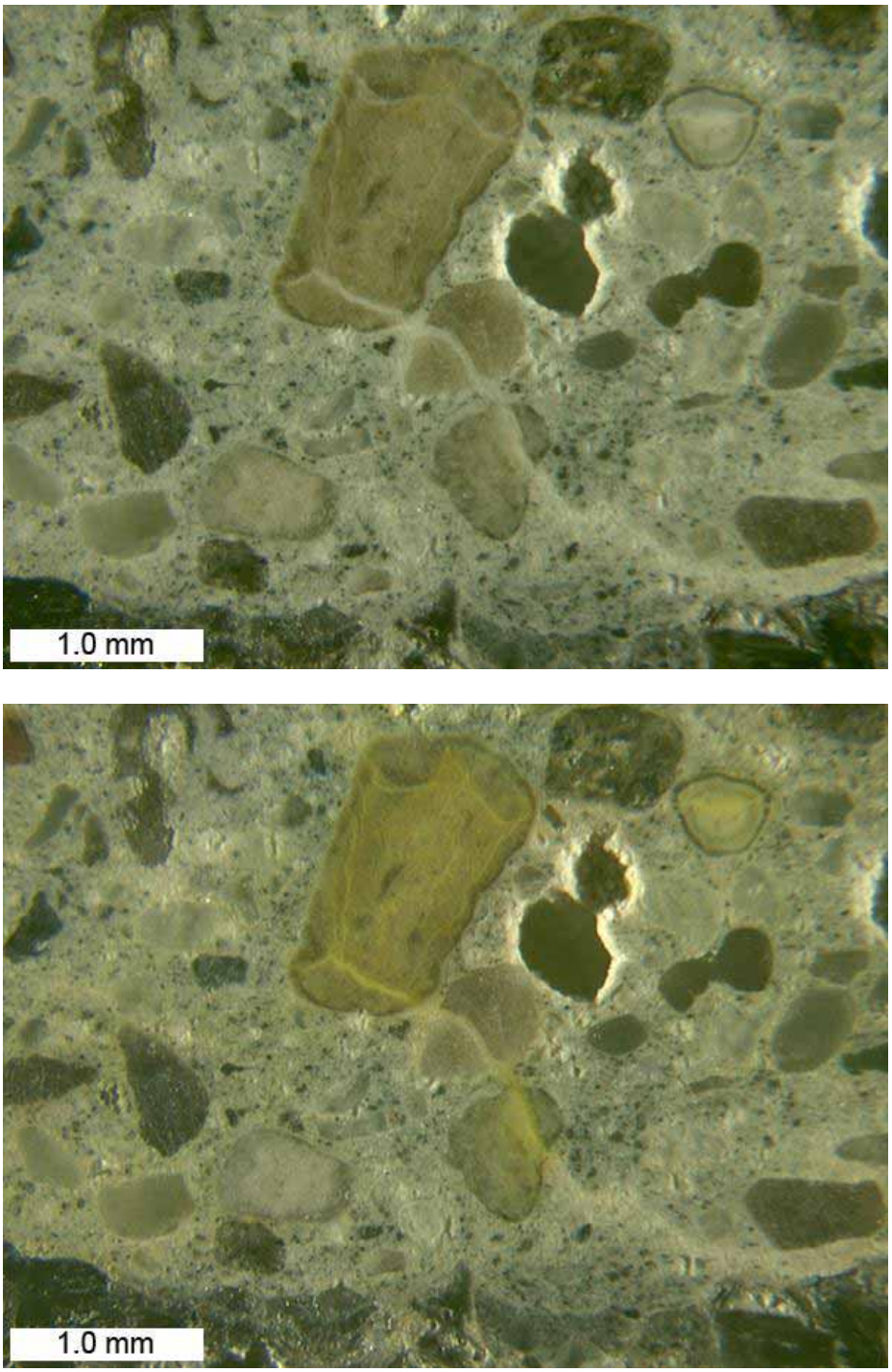
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, bottom half of core A, MTU ID 696-09.



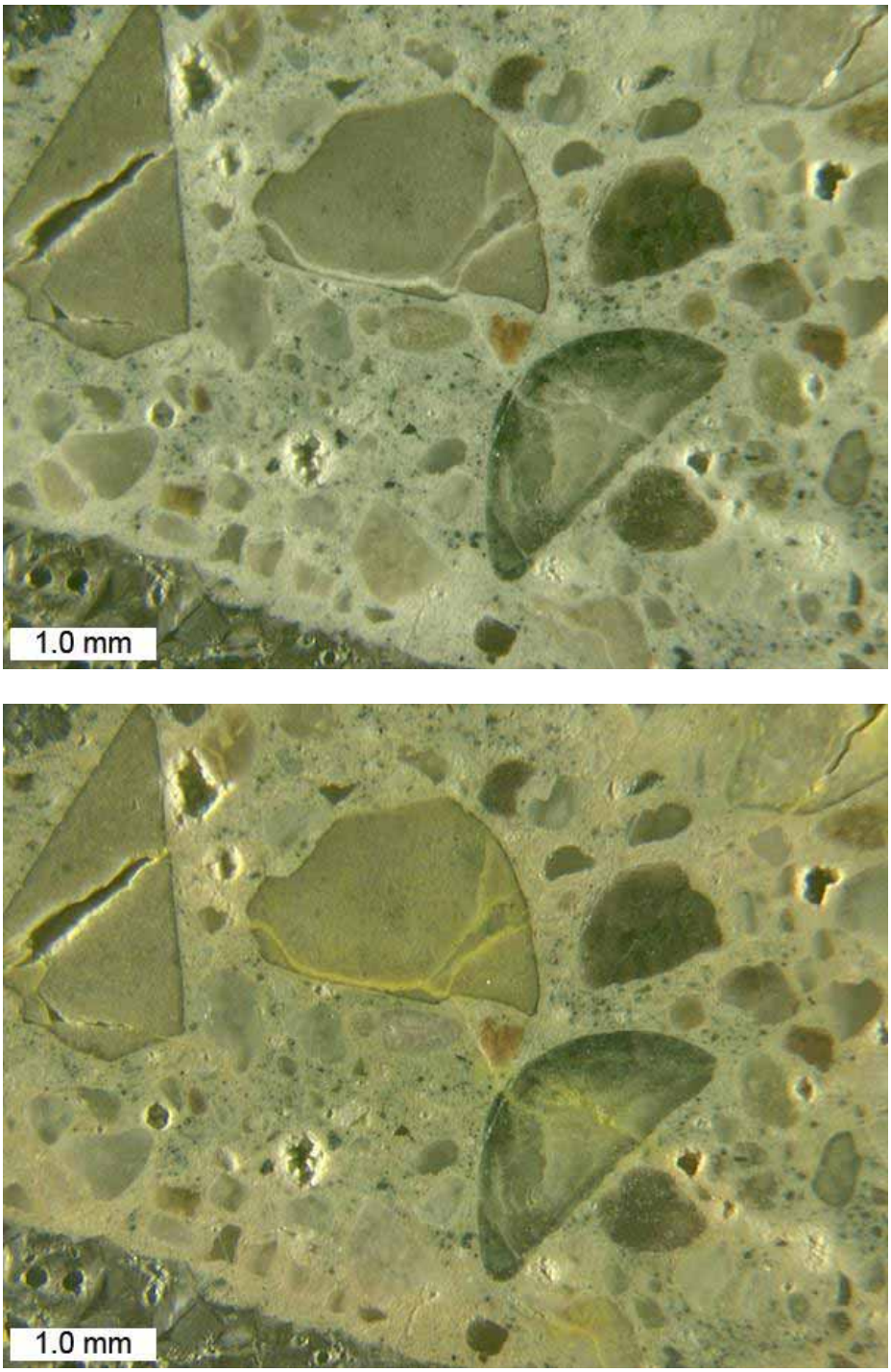
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, bottom half of core A, MTU ID 696-09.



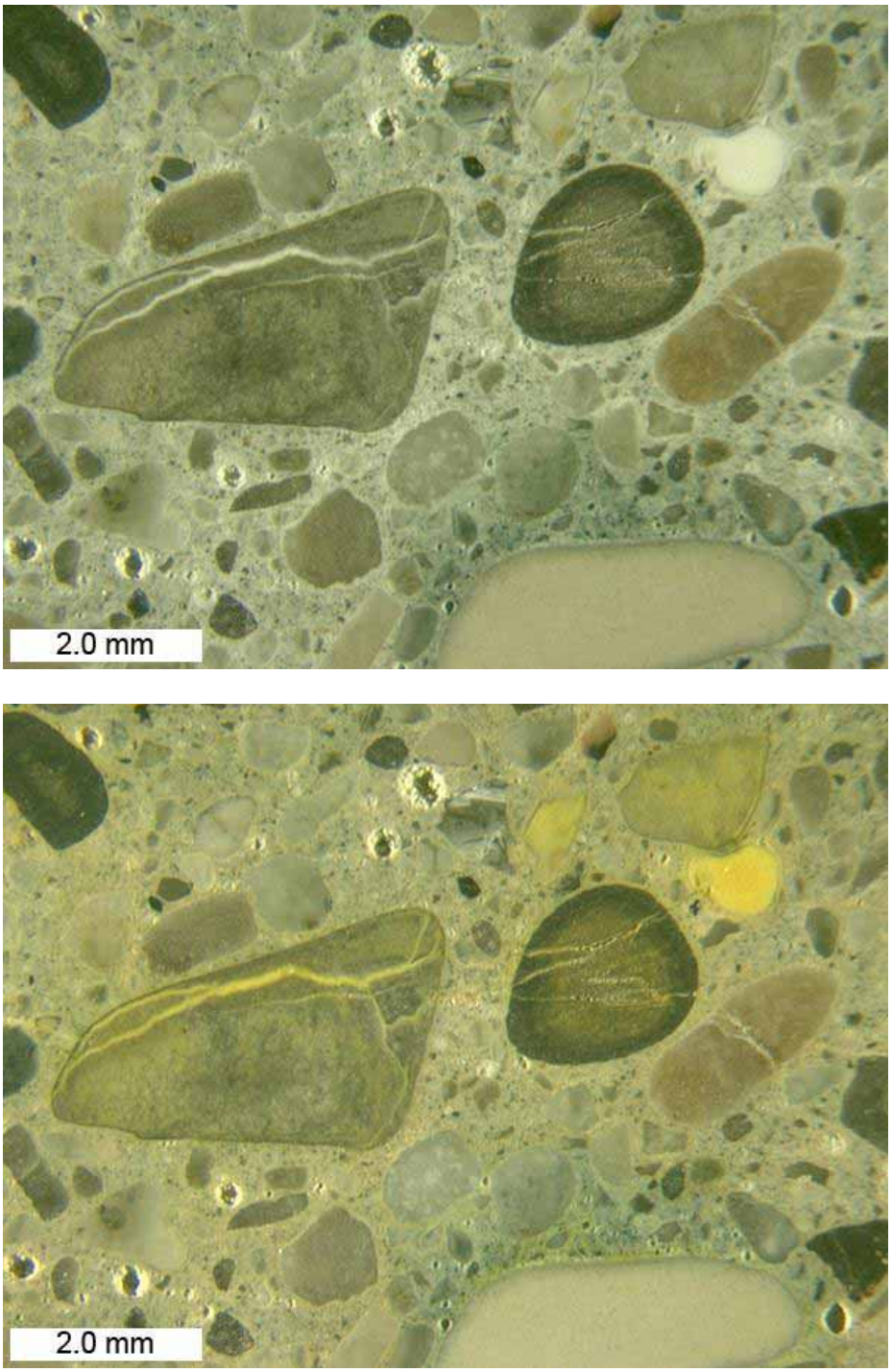
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, bottom half of core A, MTU ID 696-09.



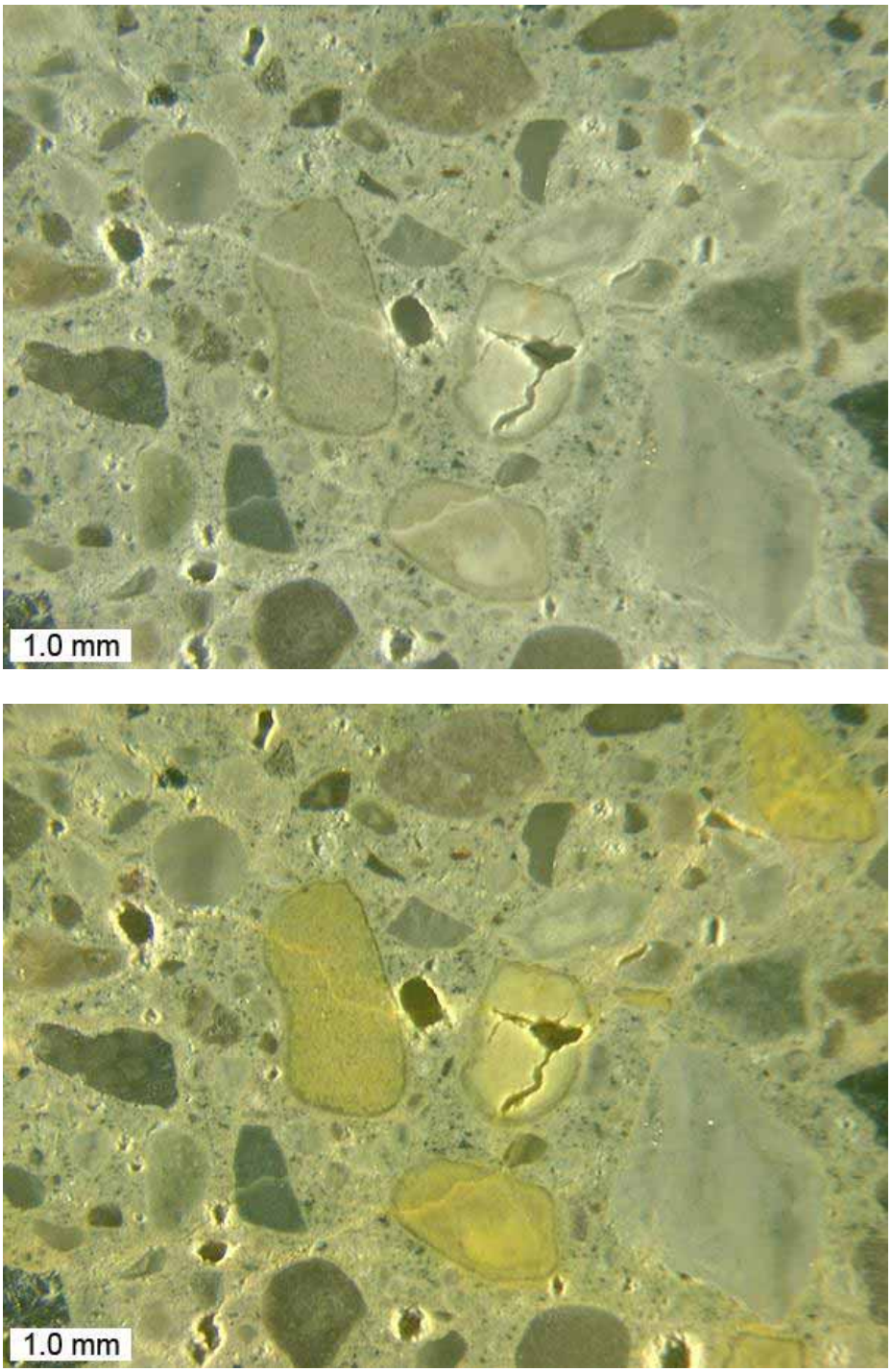
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, bottom half of core A, MTU ID 696-09.



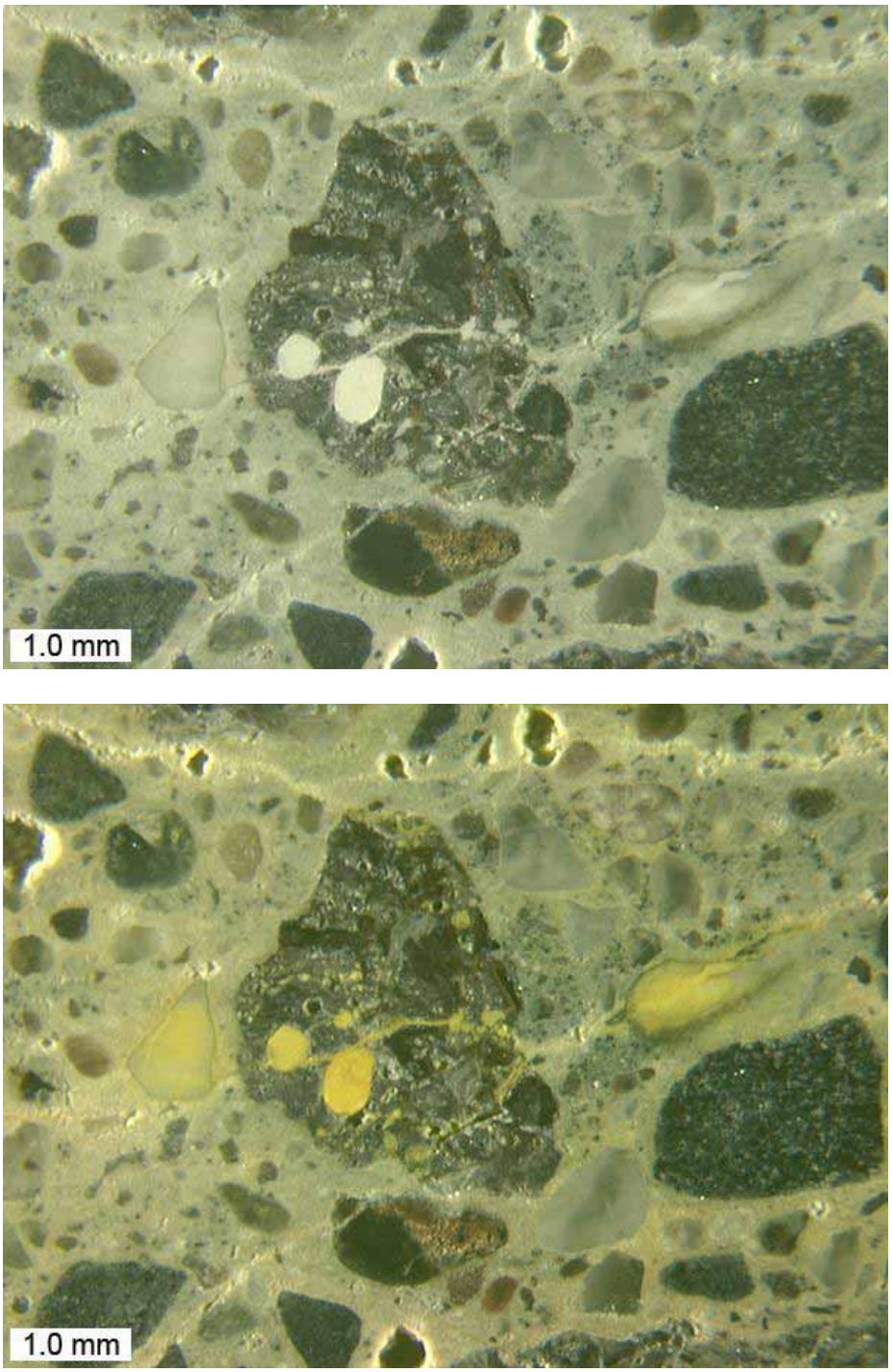
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, bottom half of core A, MTU ID 696-09.



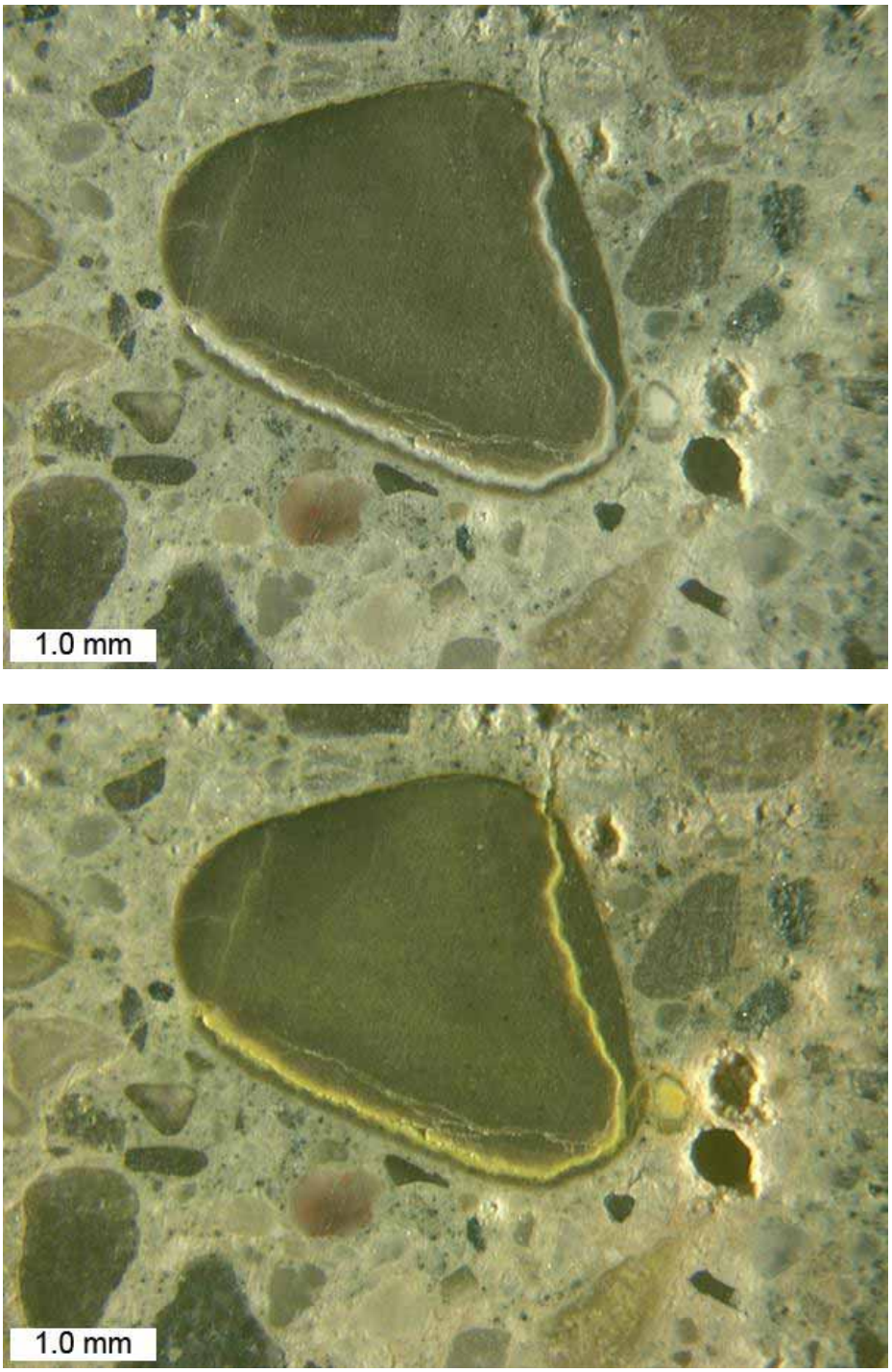
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, bottom half of core A, MTU ID 696-09.



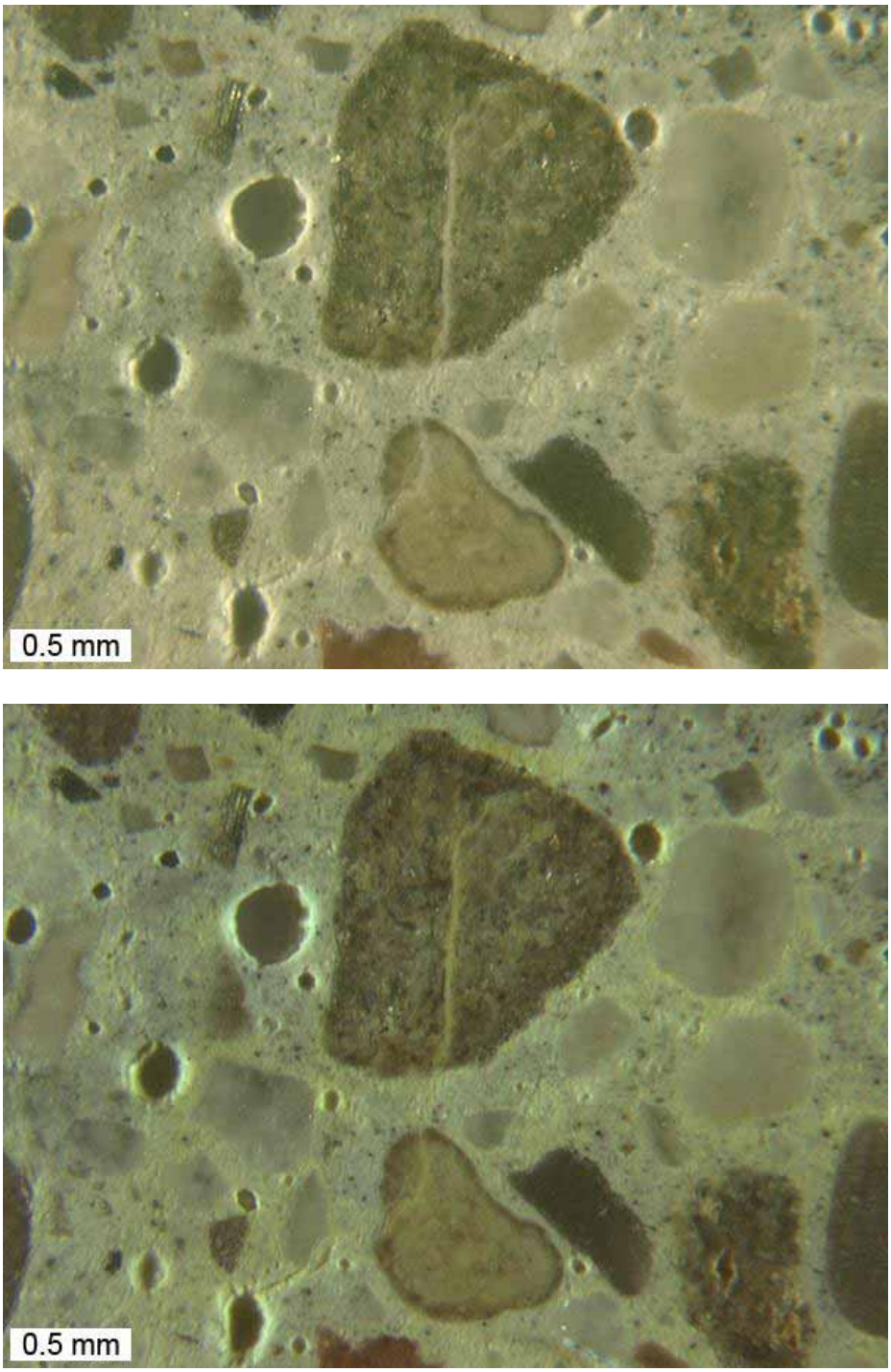
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, bottom half of core A, MTU ID 696-09.



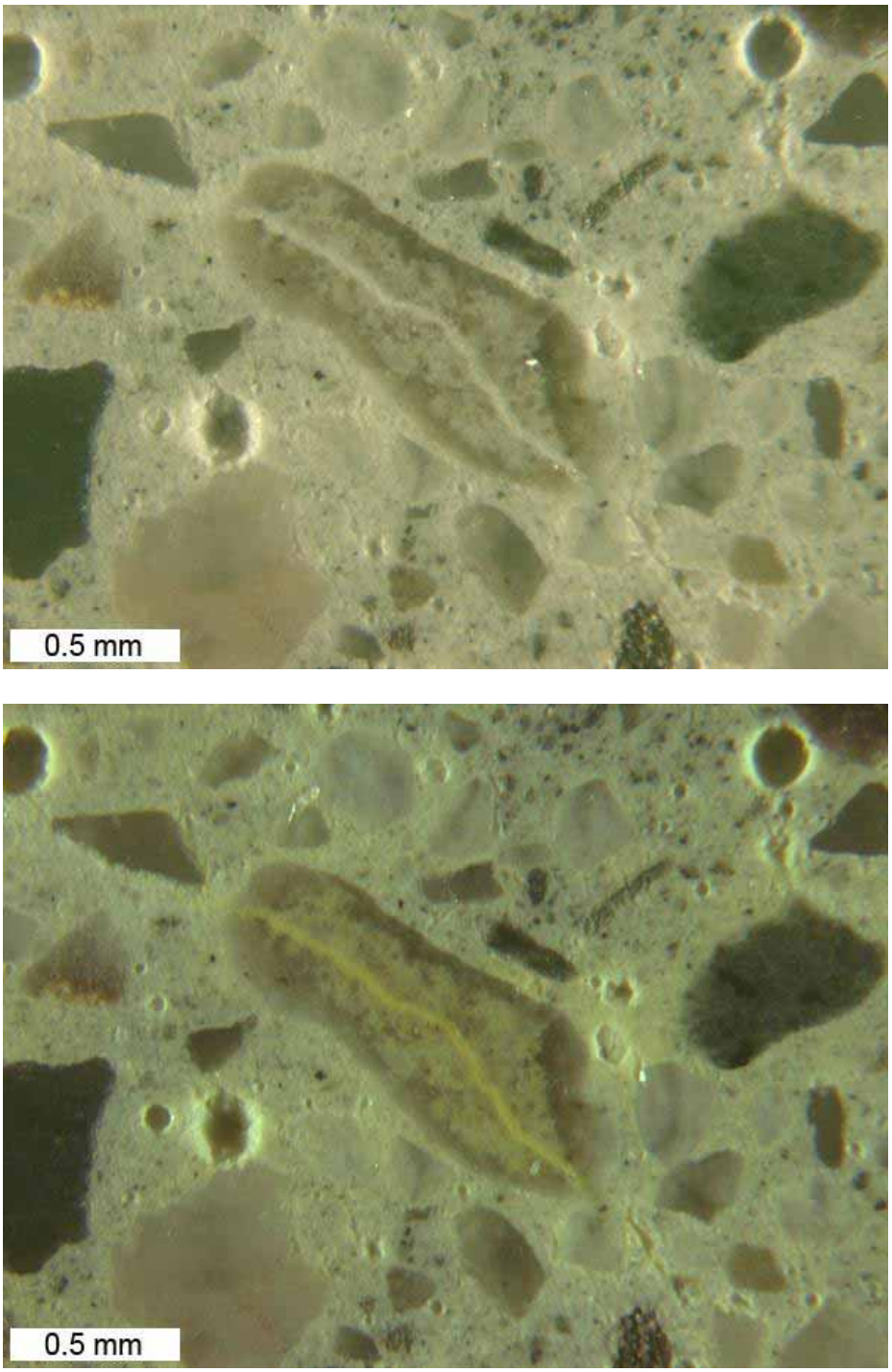
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, bottom half of core A, MTU ID 696-09. Note voids in slag aggregate particle filled with alkali-silica reaction product.



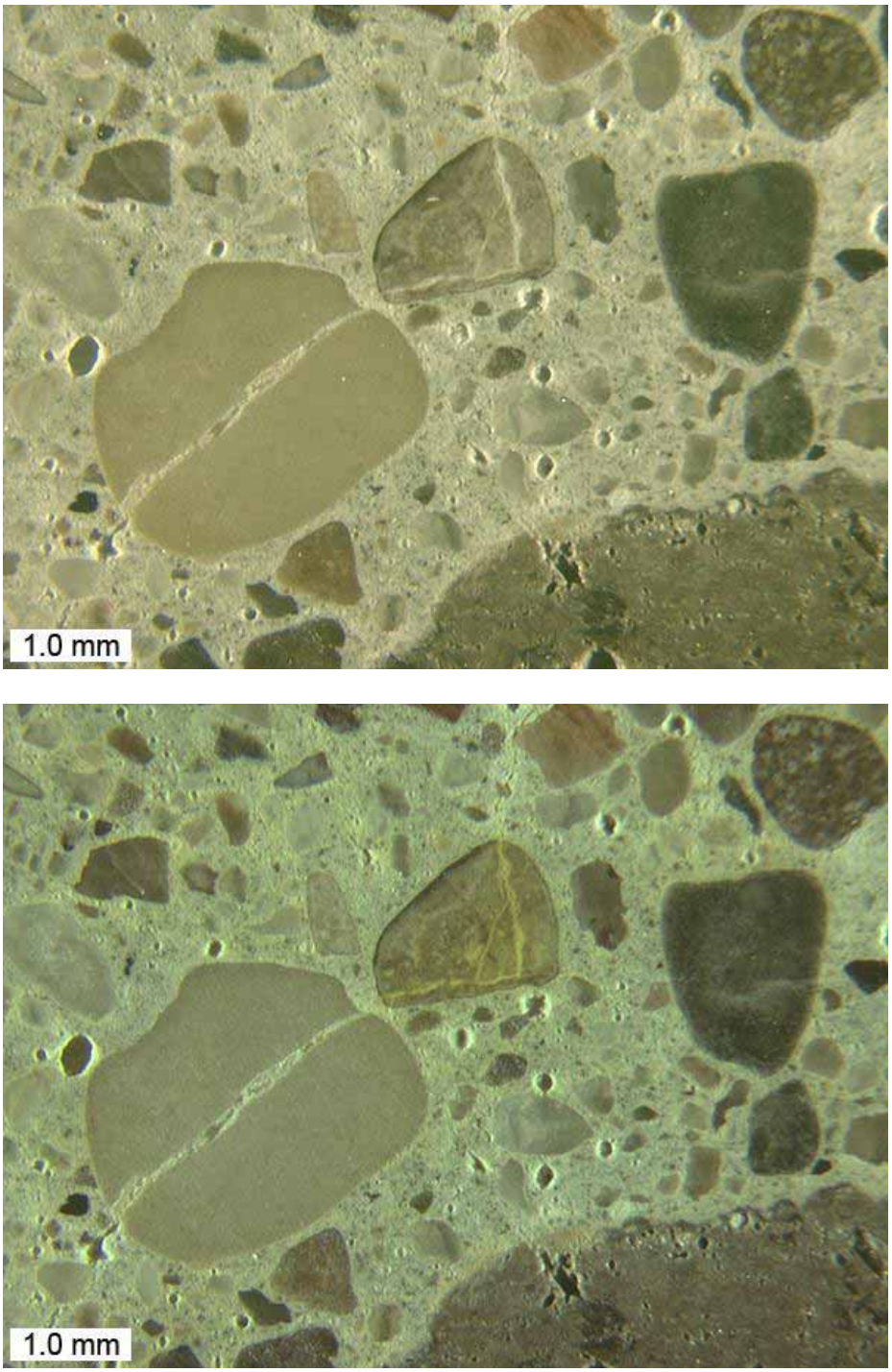
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, at transverse joint, bottom half of core A, MTU ID 696-09.



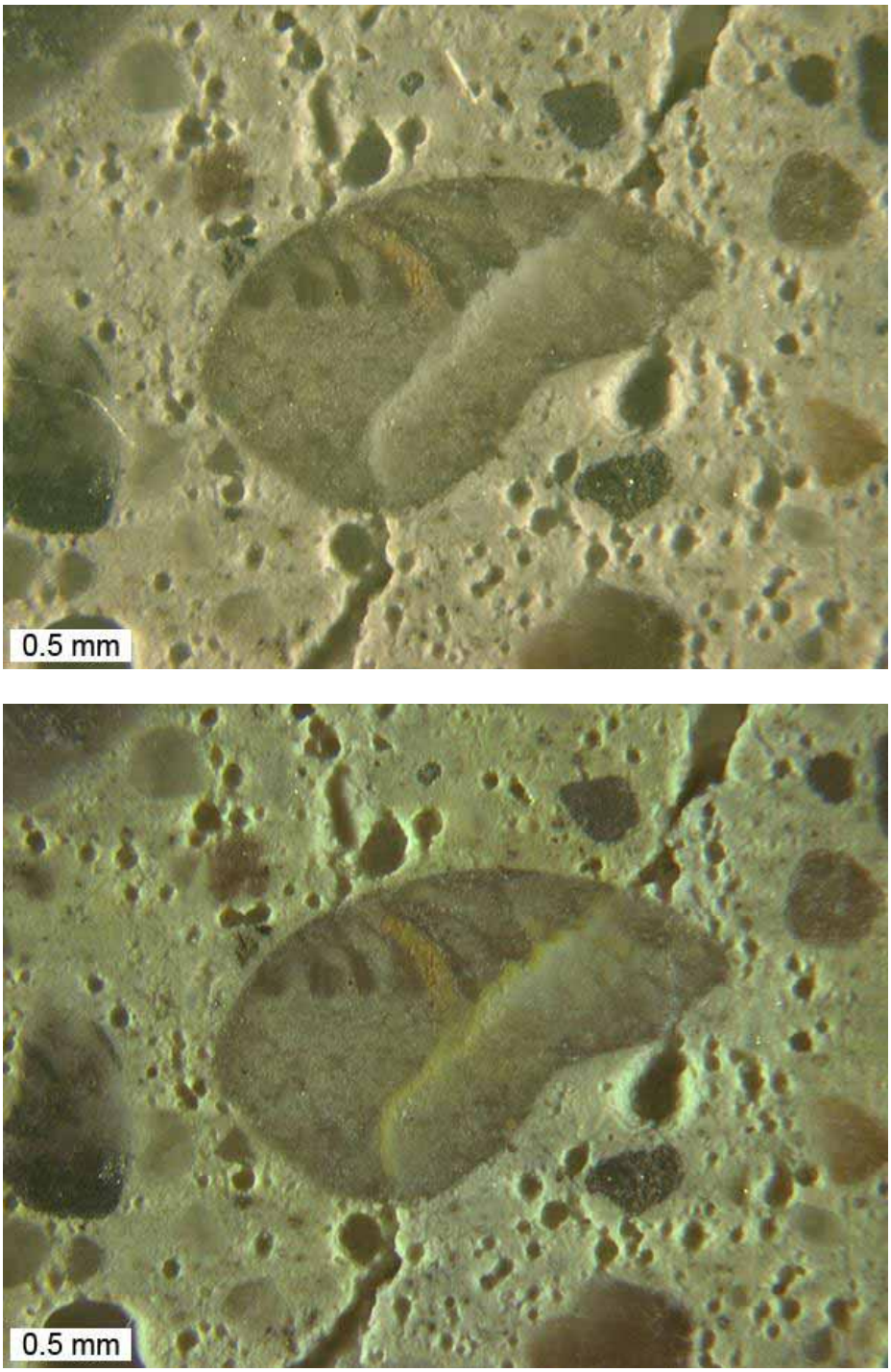
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, top half of core C, MTU ID 696-11.



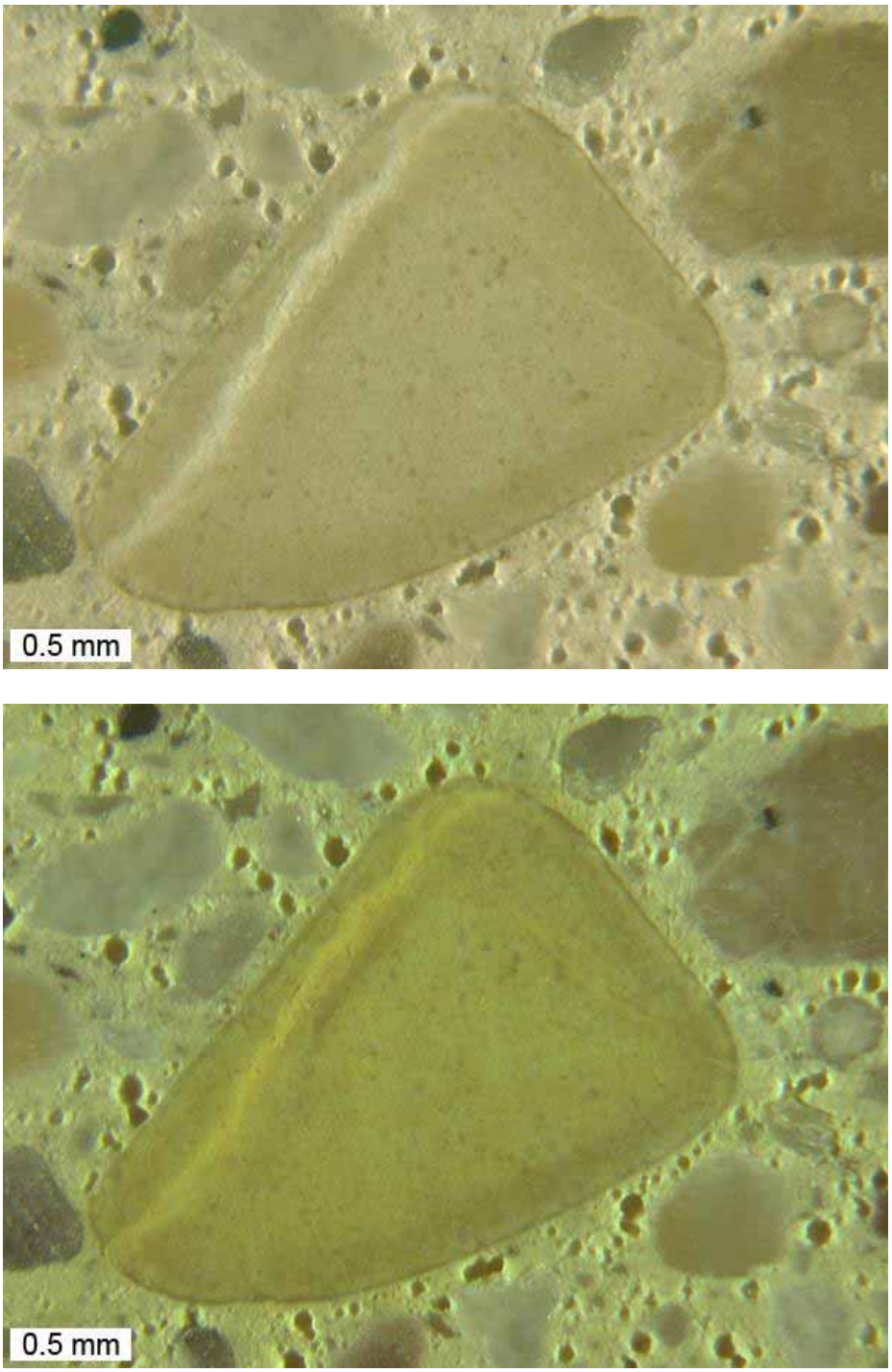
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, top half of core C, MTU ID 696-11.



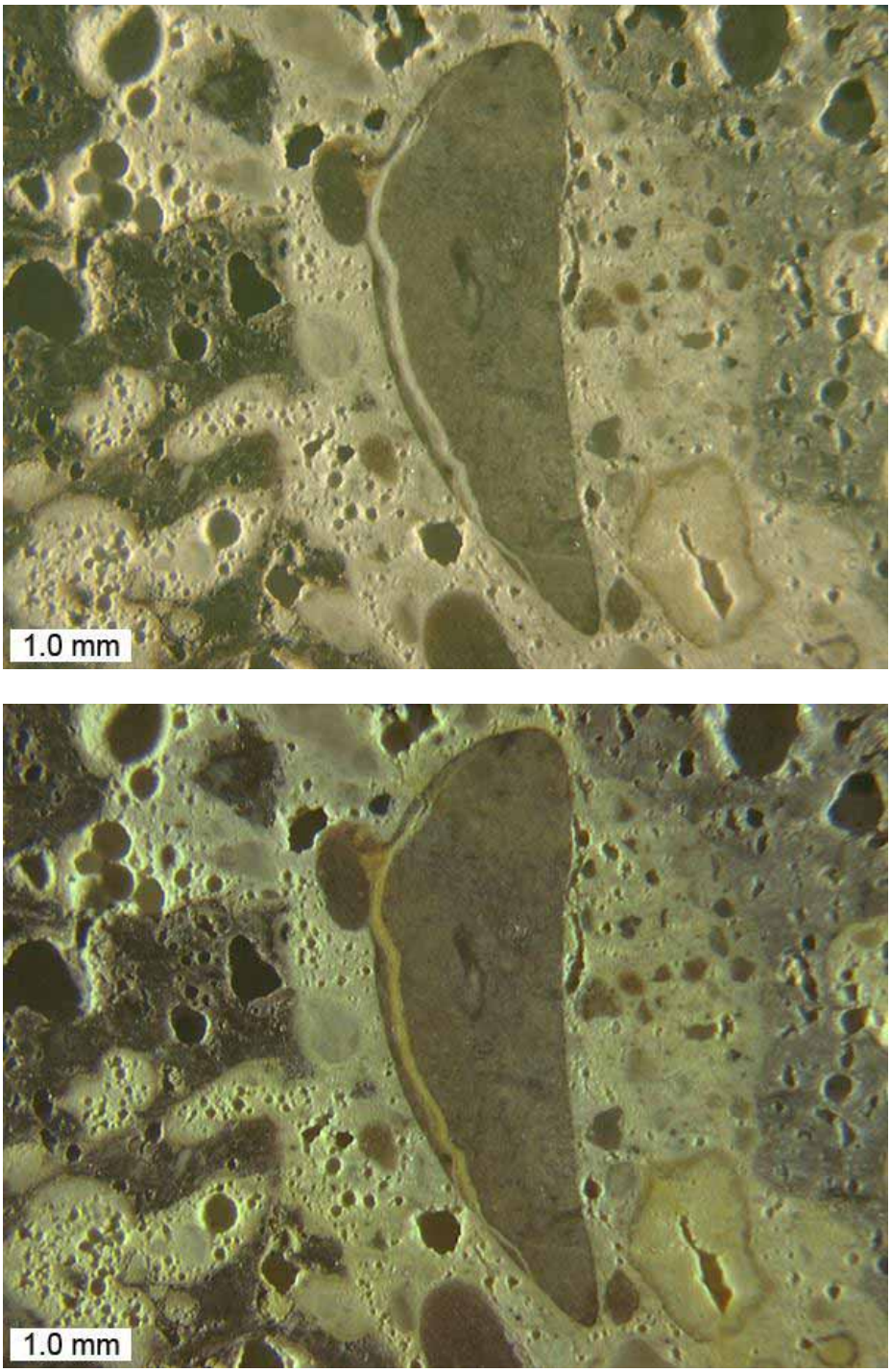
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, top half of core C, MTU ID 696-11.



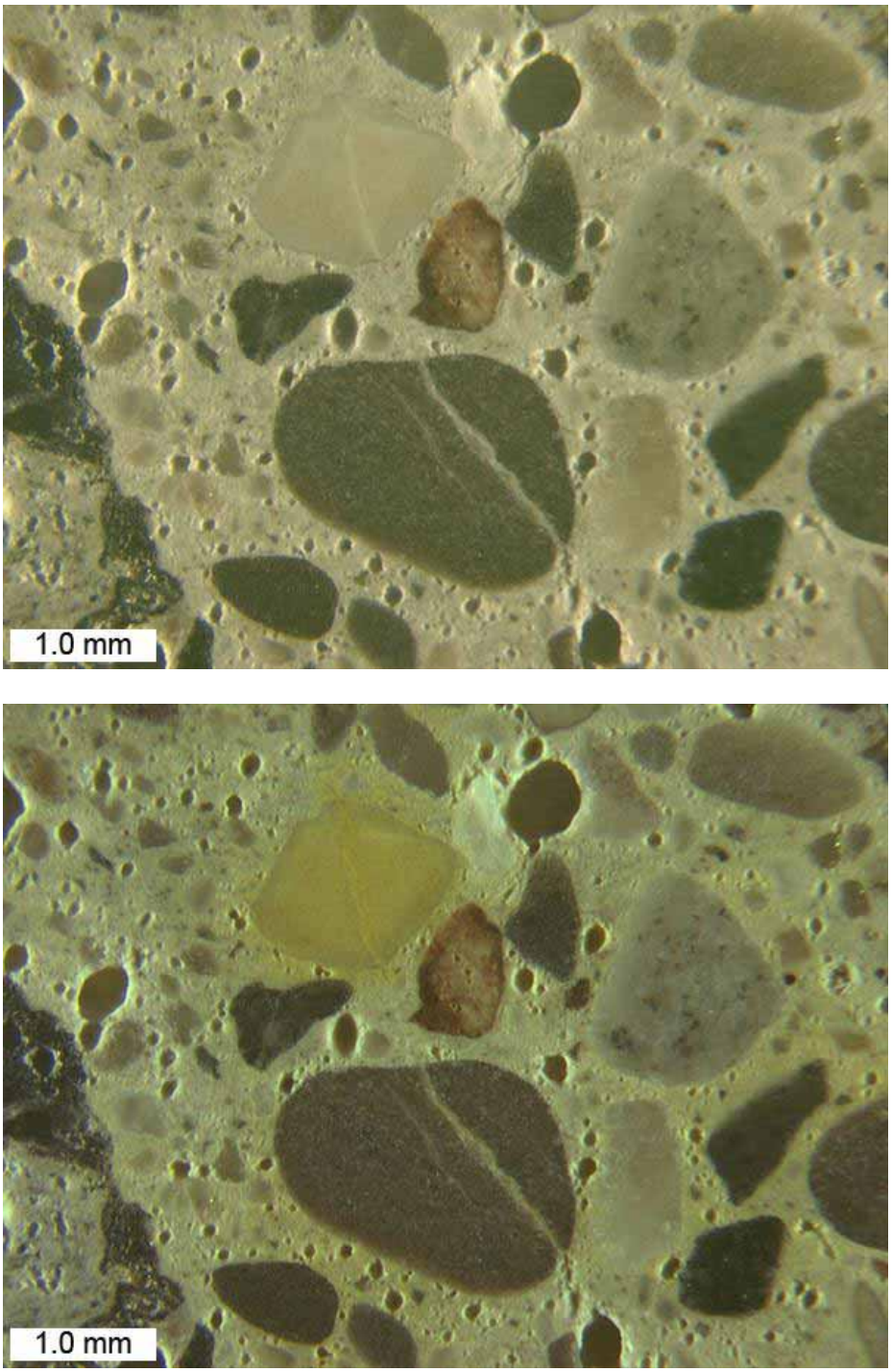
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, top half of core C, MTU ID 696-11.



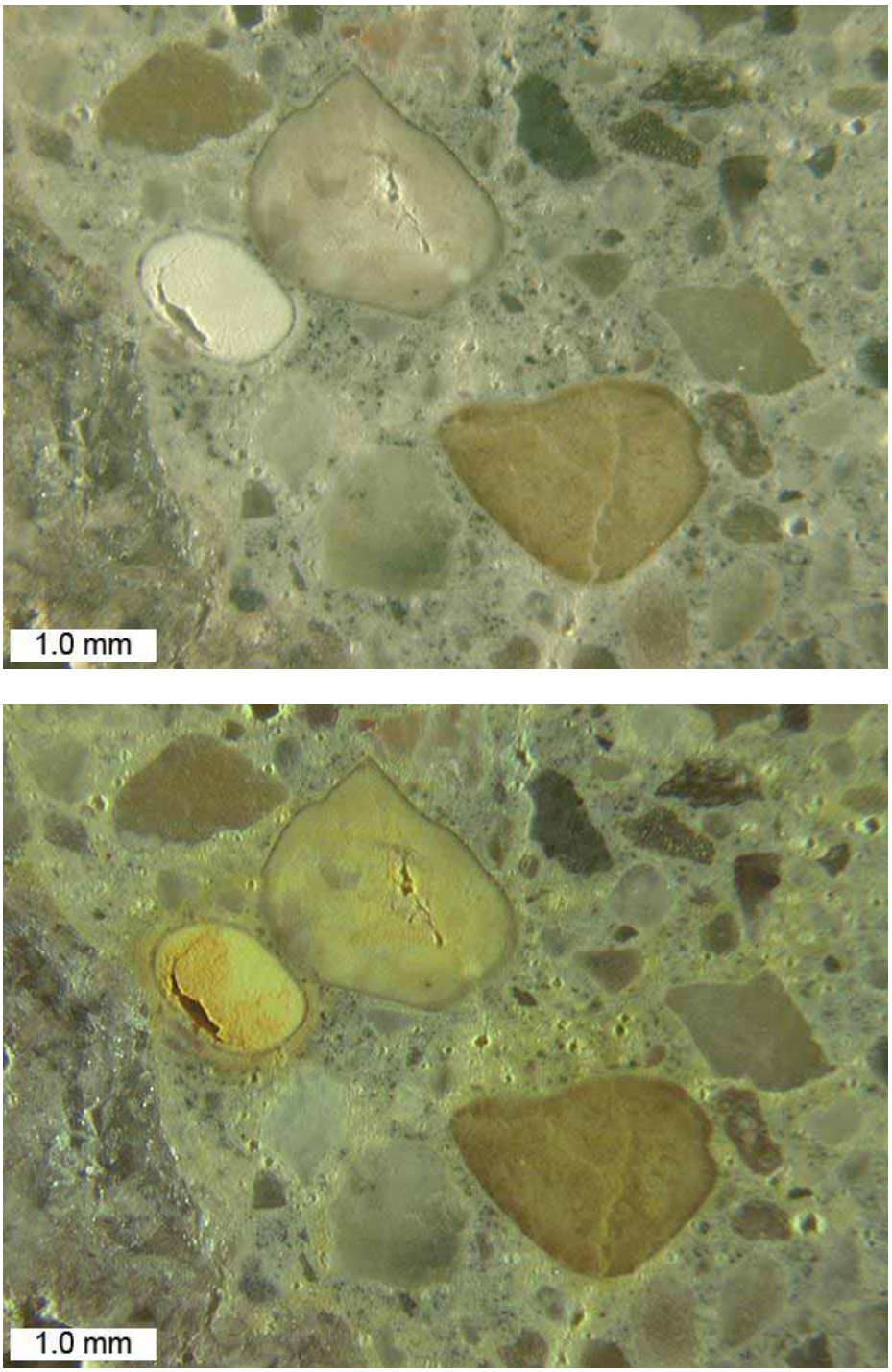
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, top half of core C, MTU ID 696-11.



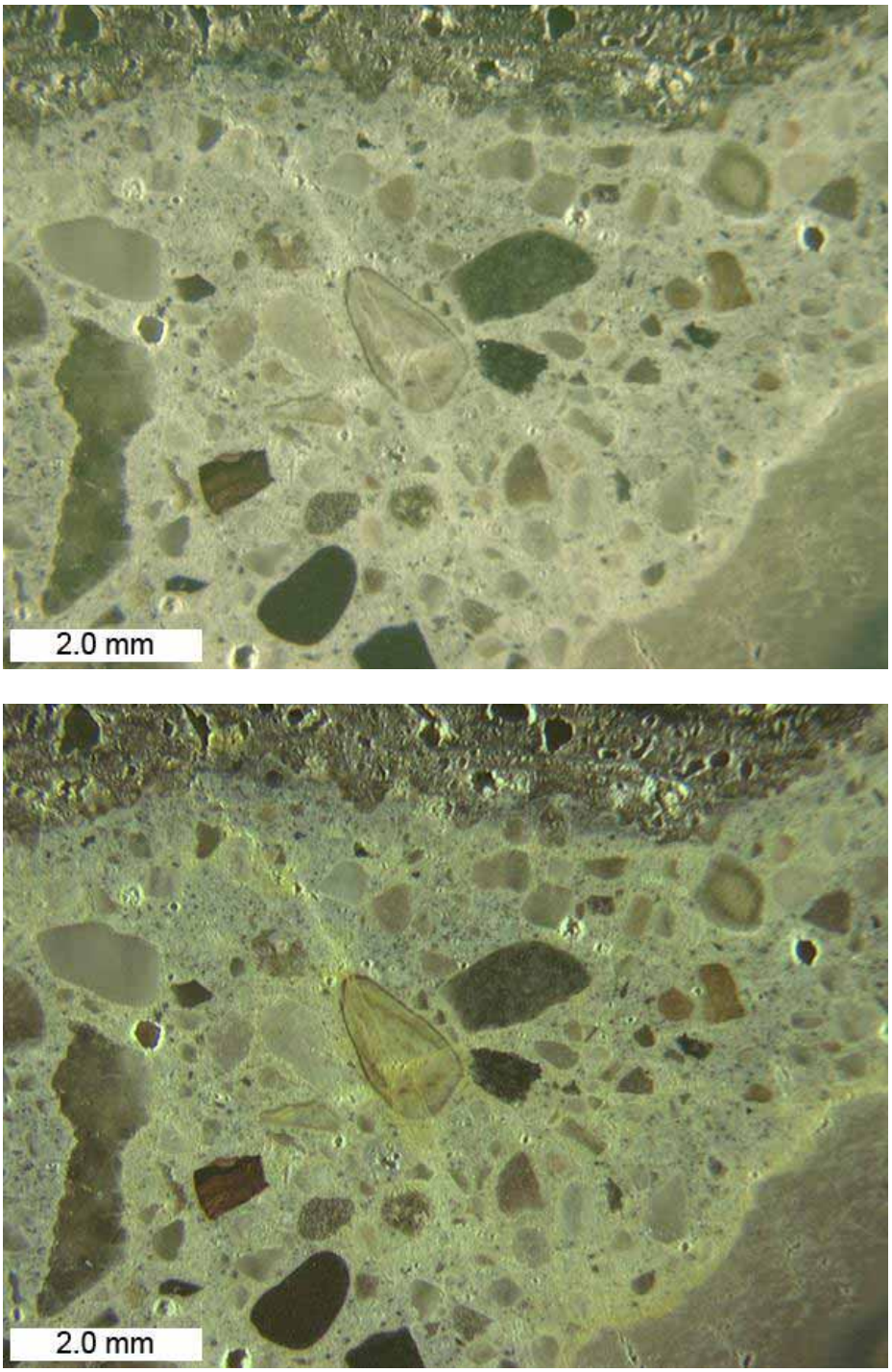
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, top half of core C, MTU ID 696-11.



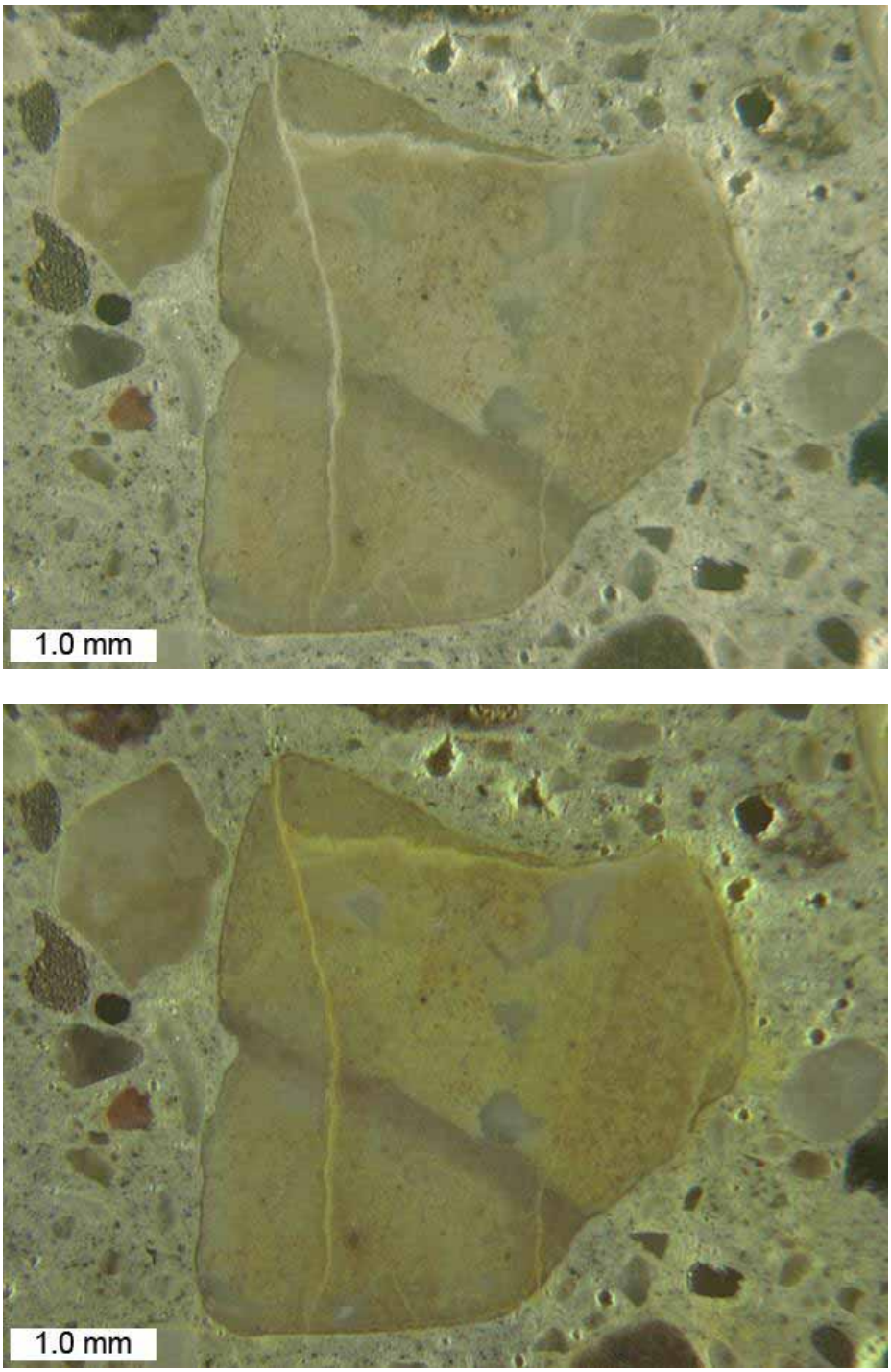
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, top half of core C, MTU ID 696-11.



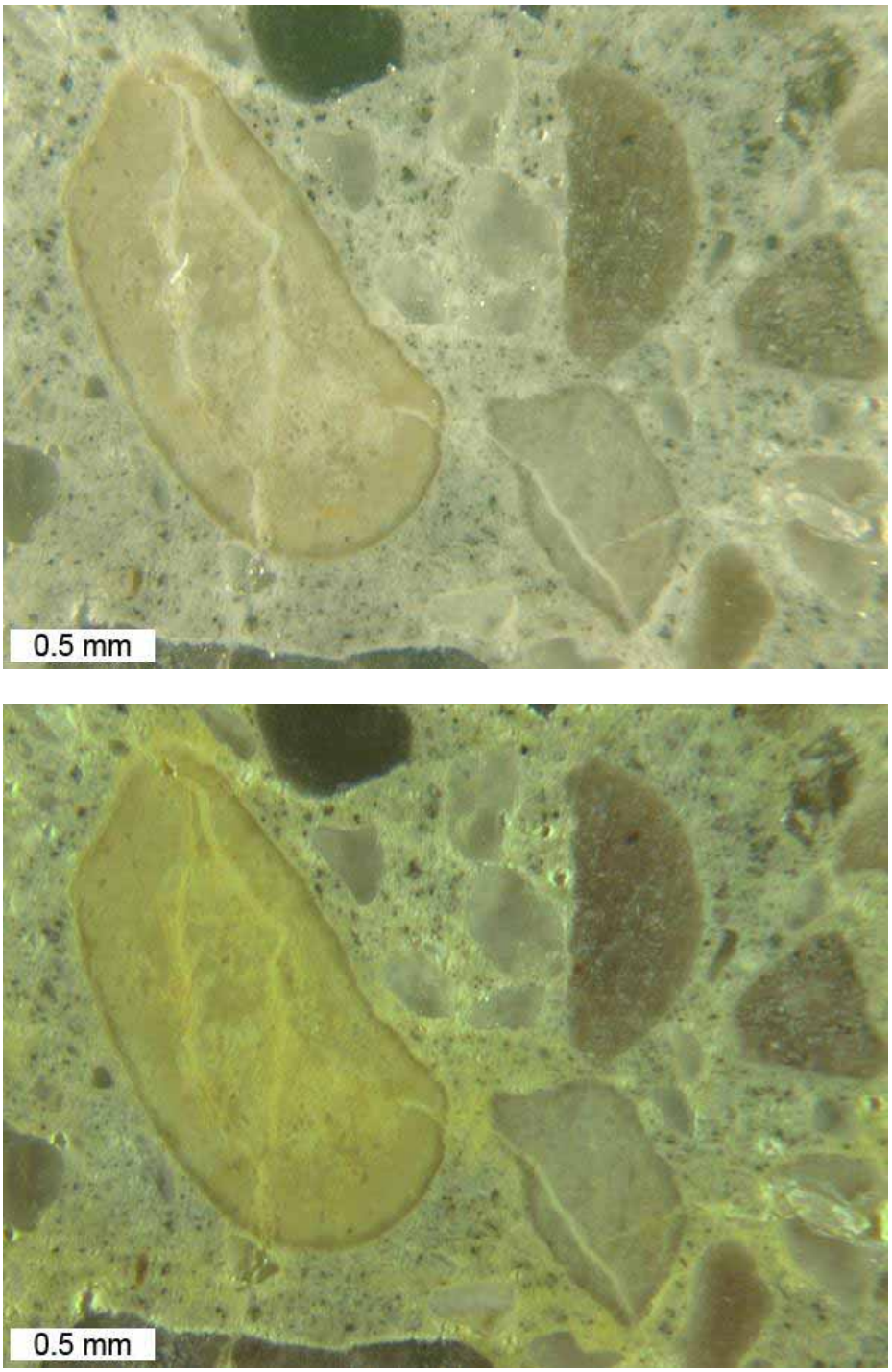
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, bottom half of core C, MTU ID 696-11.



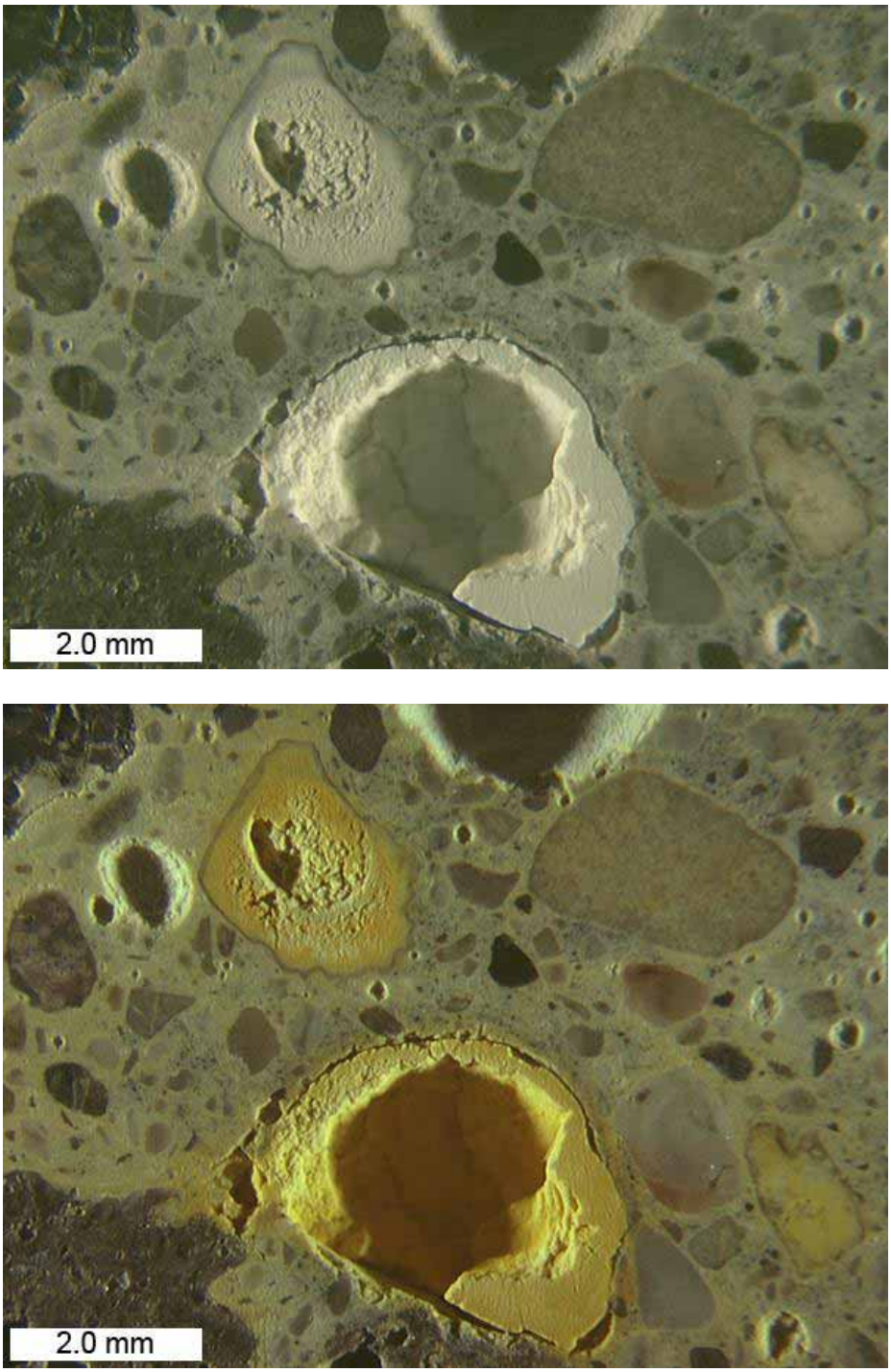
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, bottom half of core C, MTU ID 696-11.



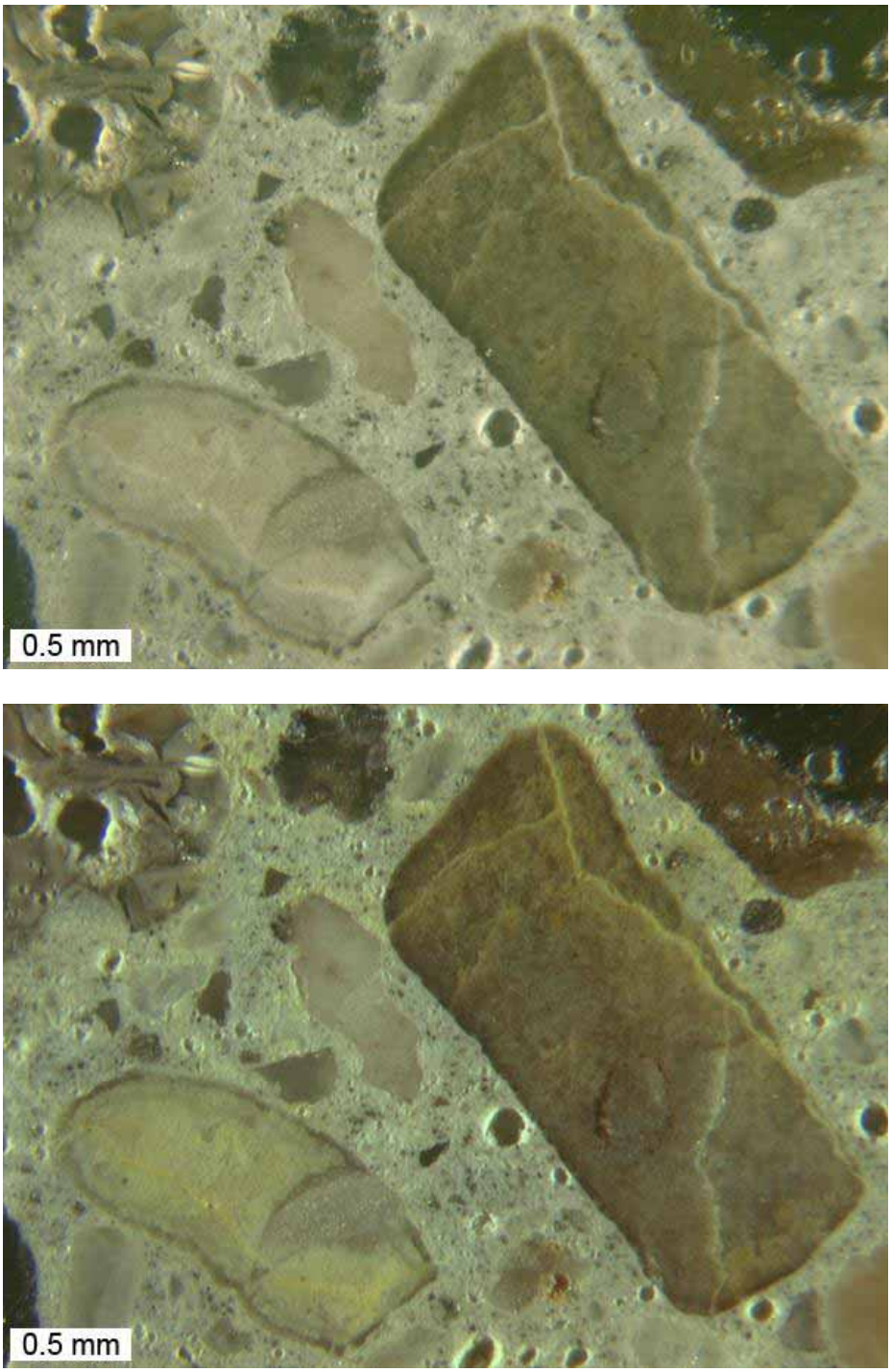
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, bottom half of core C, MTU ID 696-11.



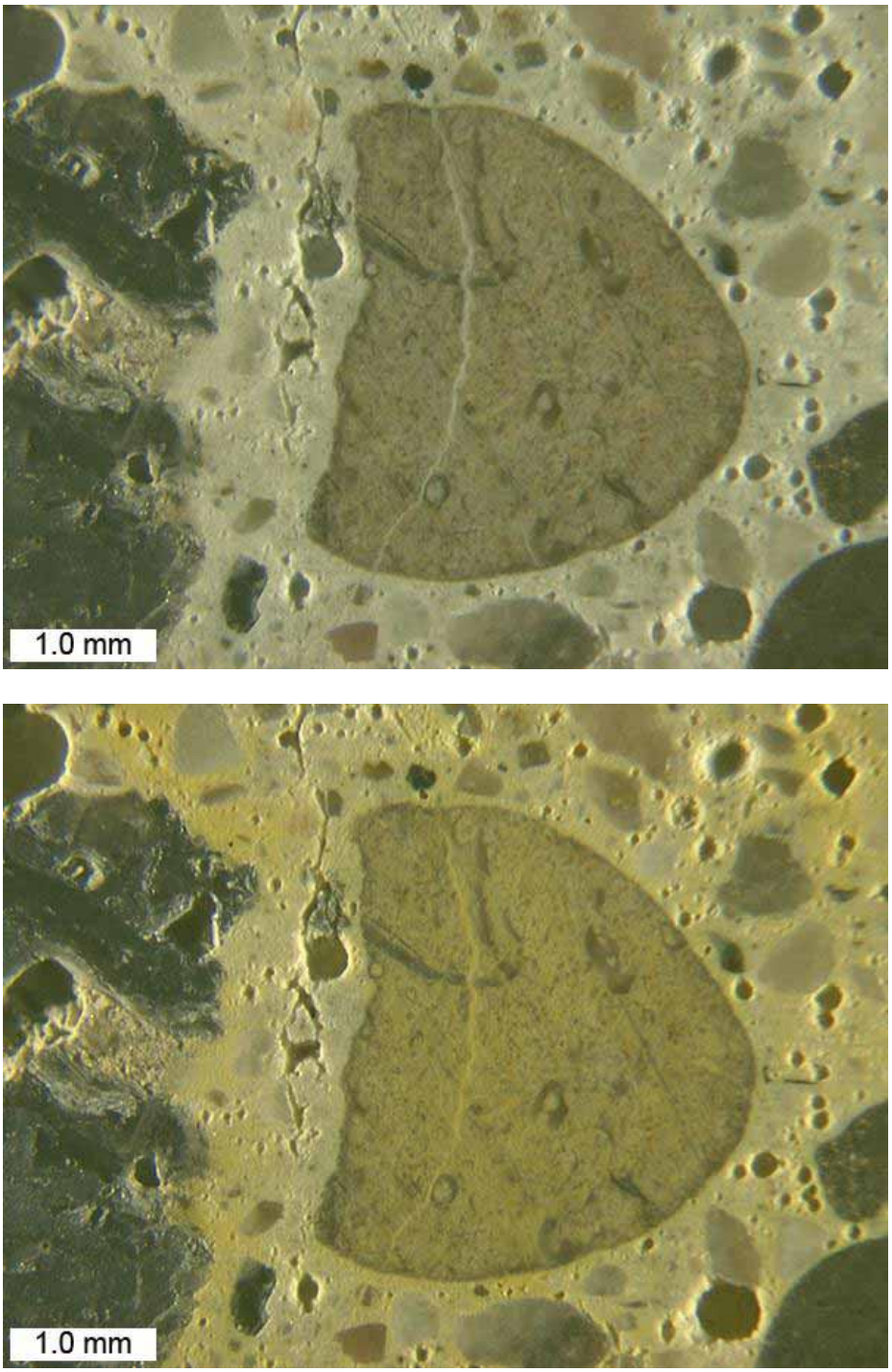
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, bottom half of core C, MTU ID 696-11.



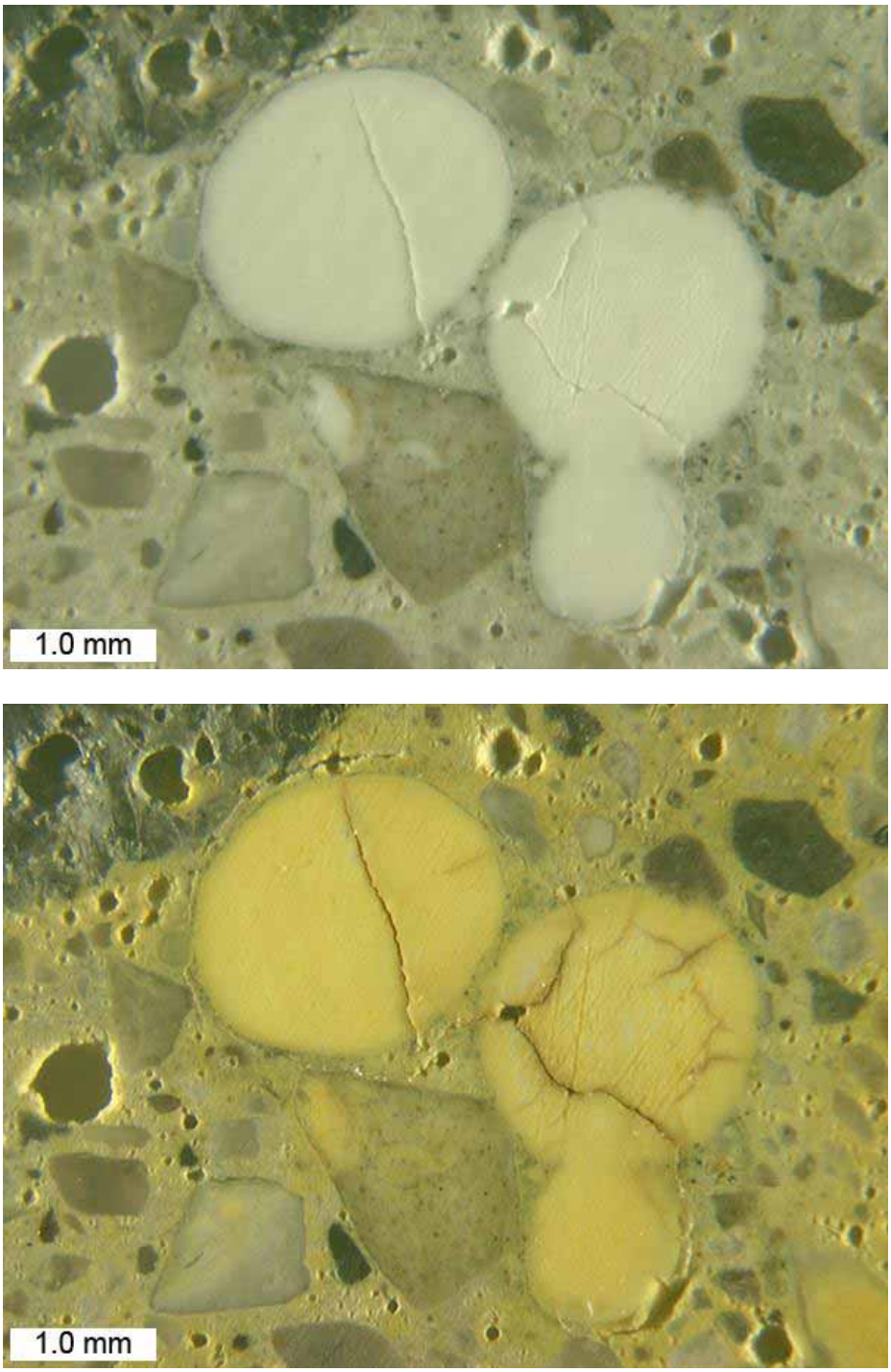
Alkali silica reaction in fine aggregate and nearby air void filled with reaction product, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, bottom half of core C, MTU ID 696-11.



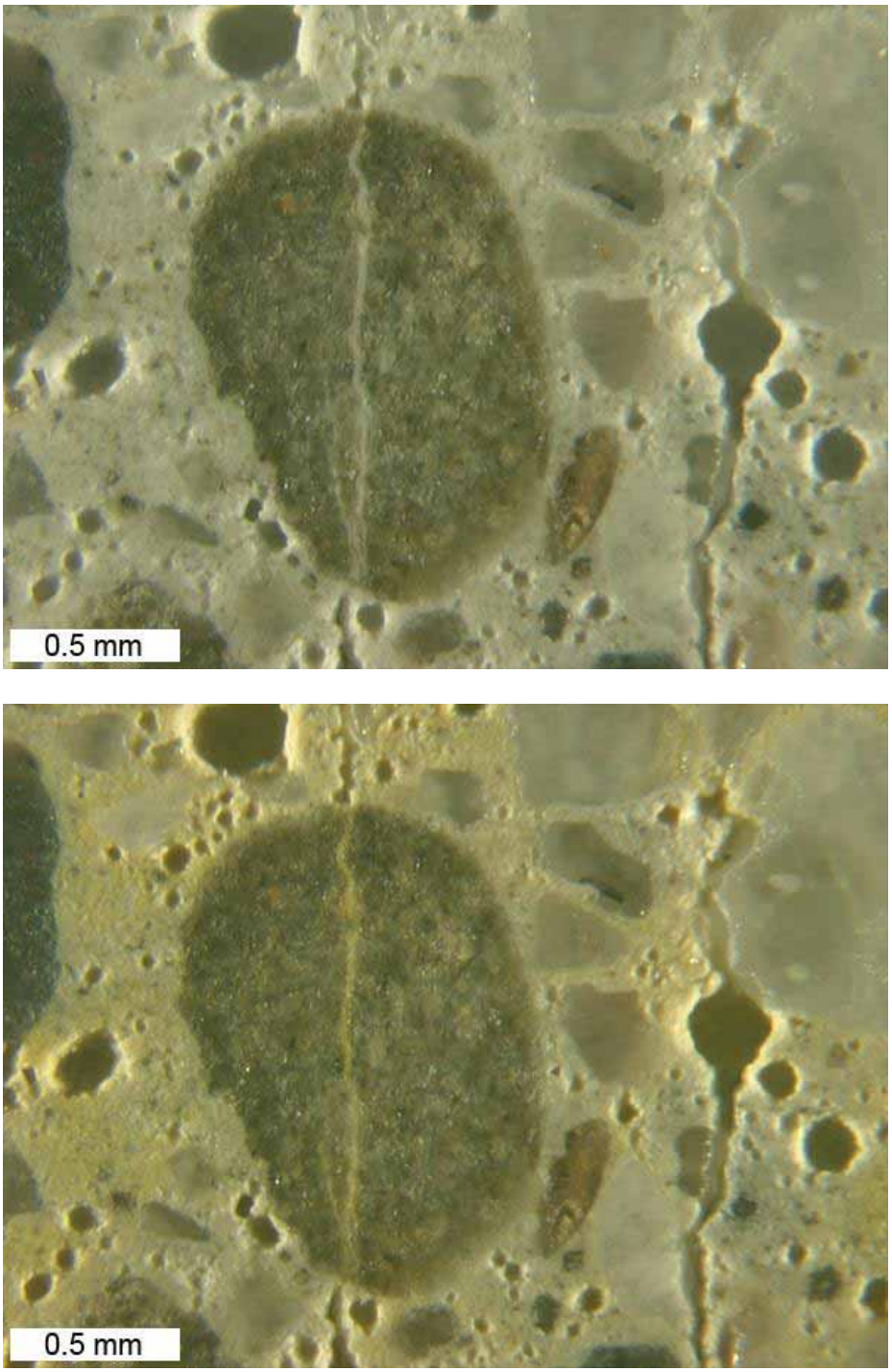
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, bottom half of core C, MTU ID 696-11.



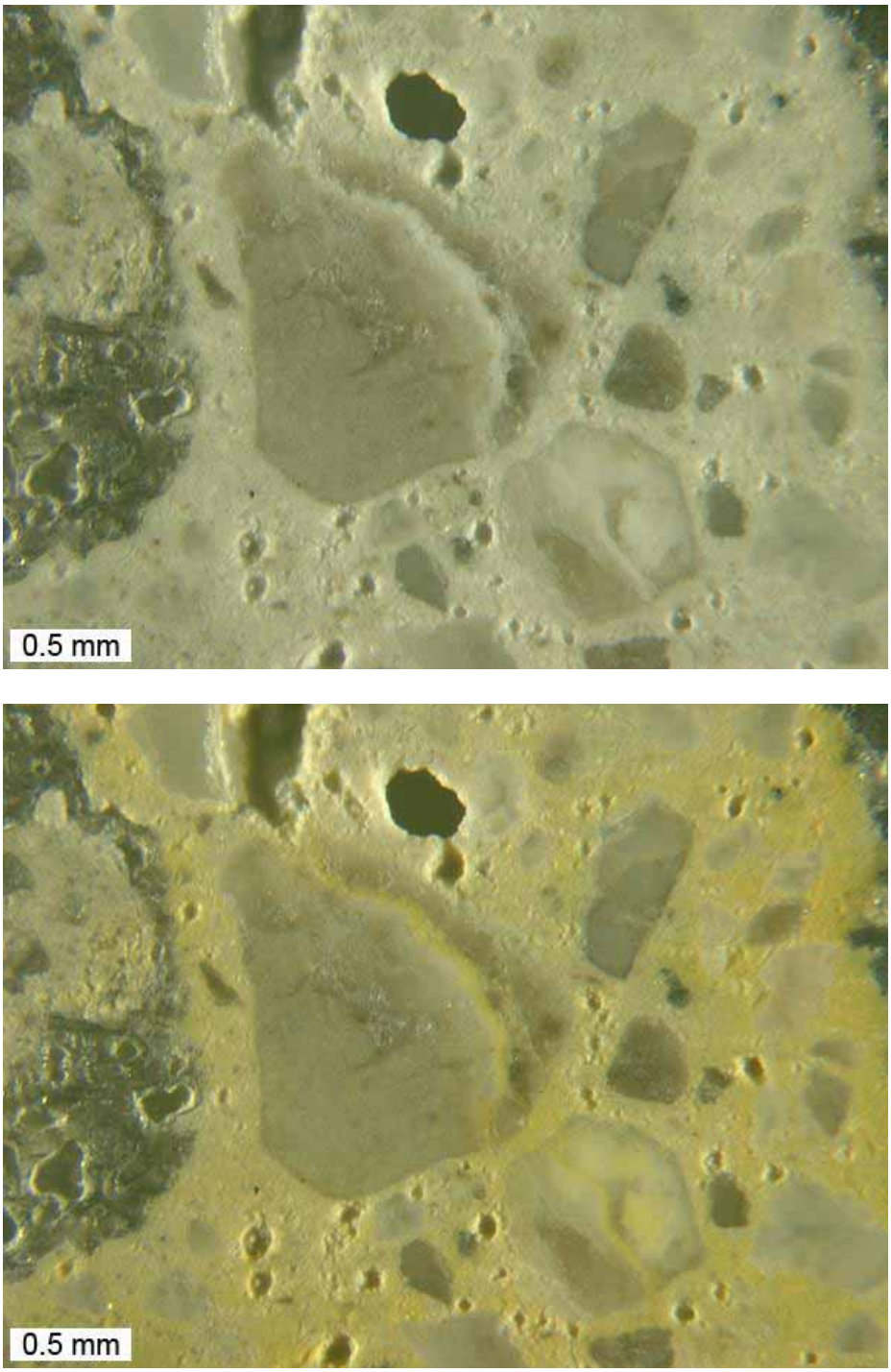
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, top half of core D, MTU ID 696-12.



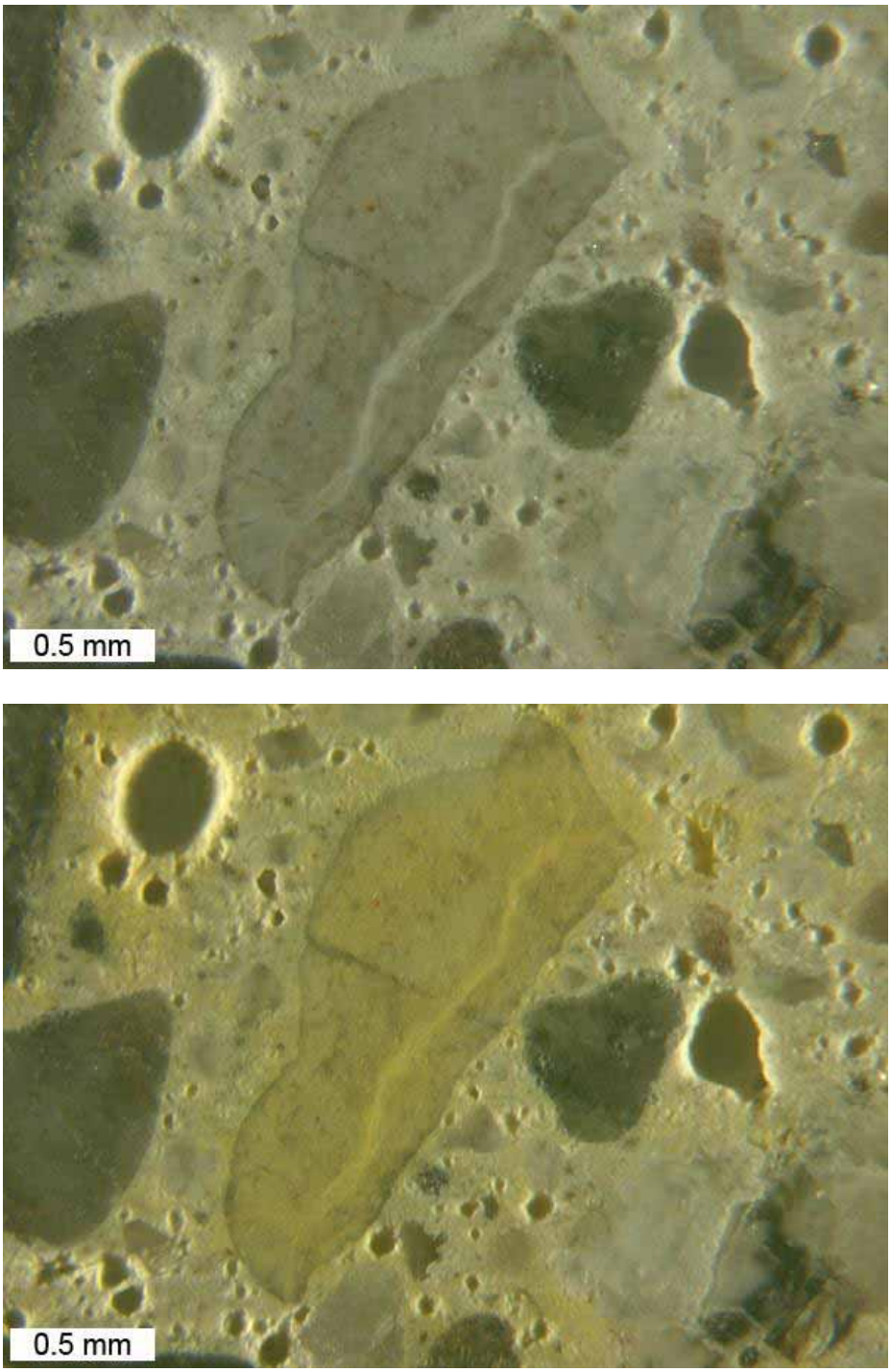
Alkali silica reaction in fine aggregate and adjacent voids filled with reaction product, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, top half of core D, MTU ID 696-12.



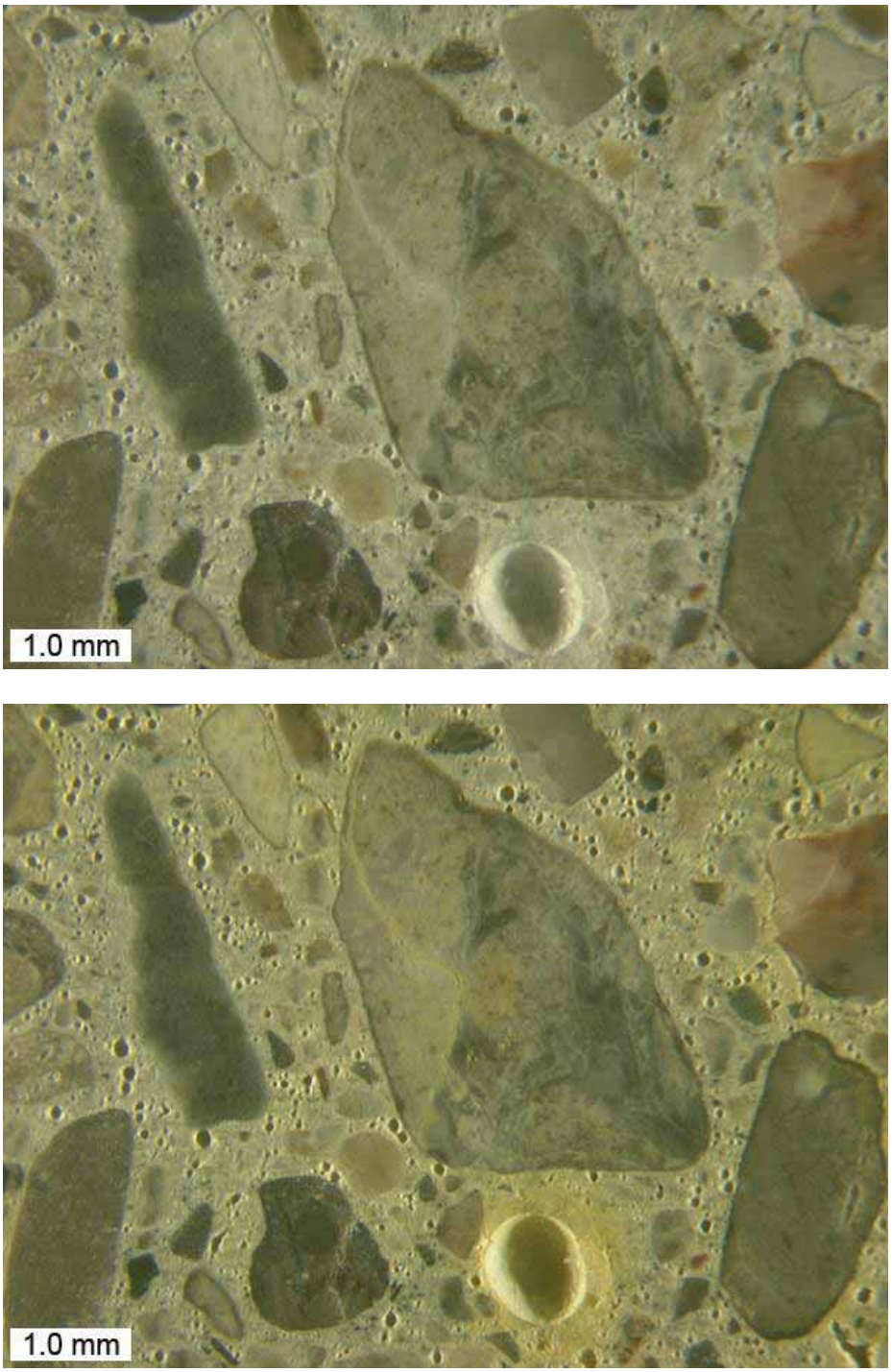
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, top half of core D, MTU ID 696-12.



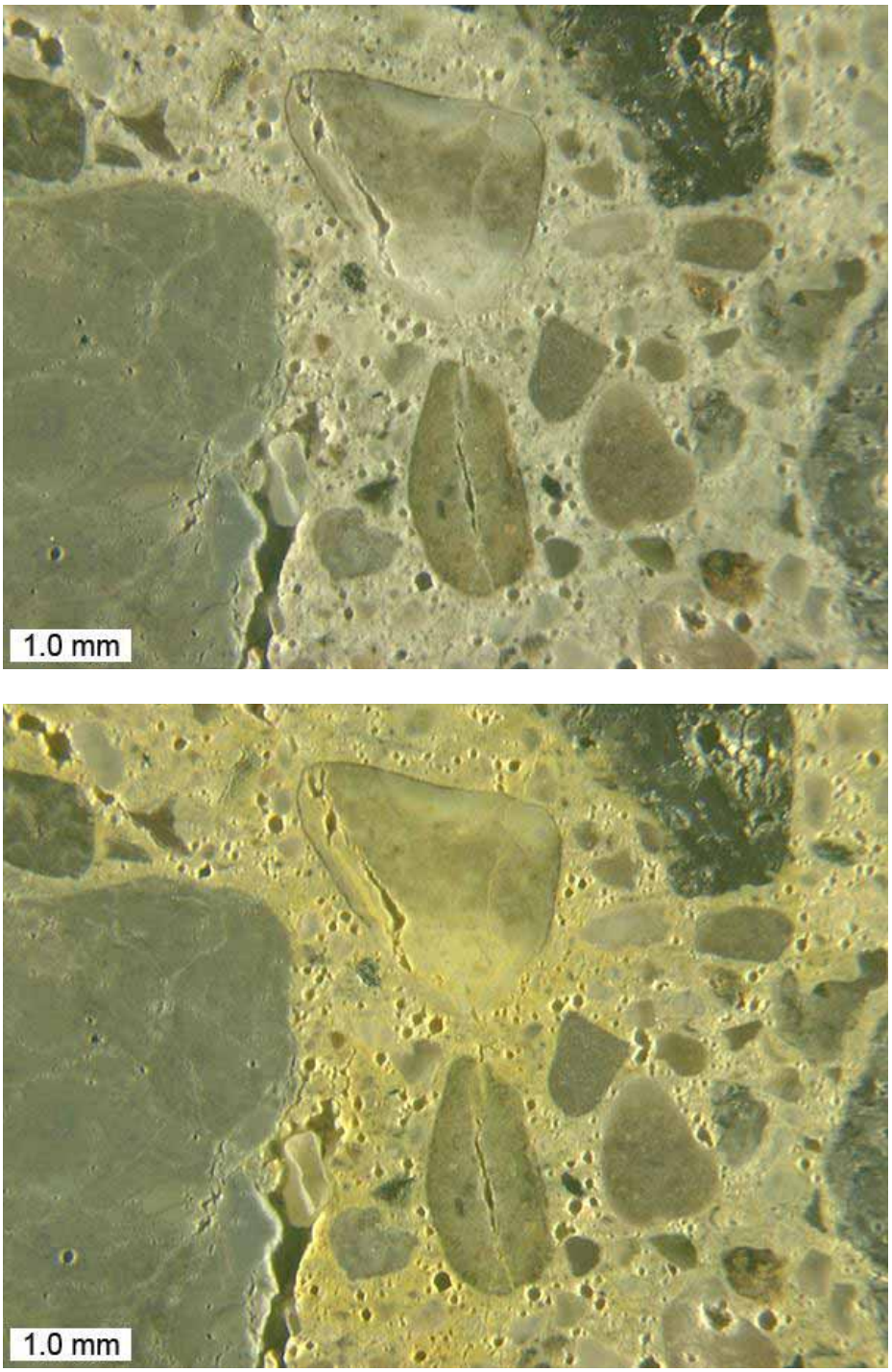
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, top half of core D, MTU ID 696-12.



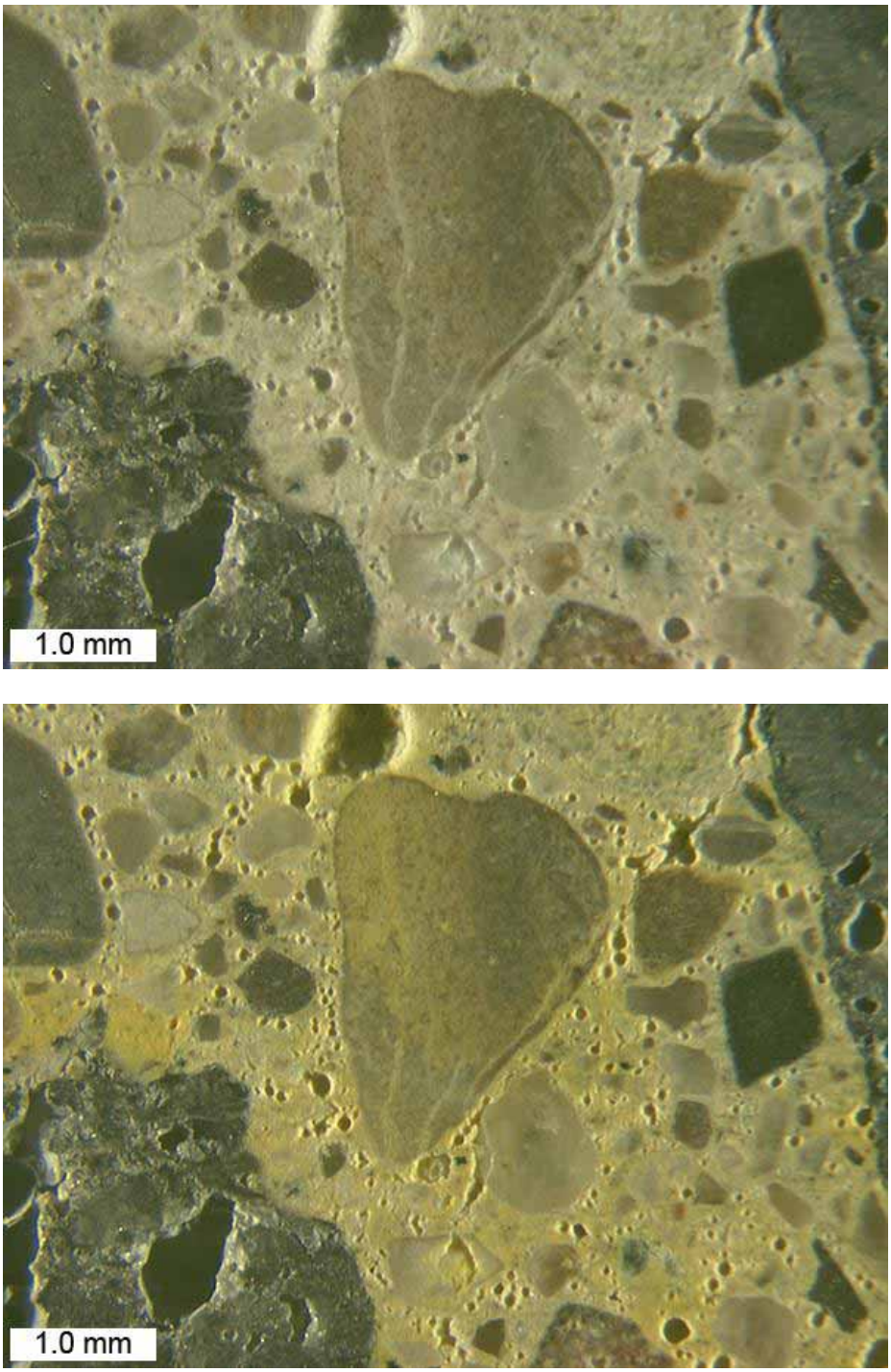
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, top half of core D, MTU ID 696-12.



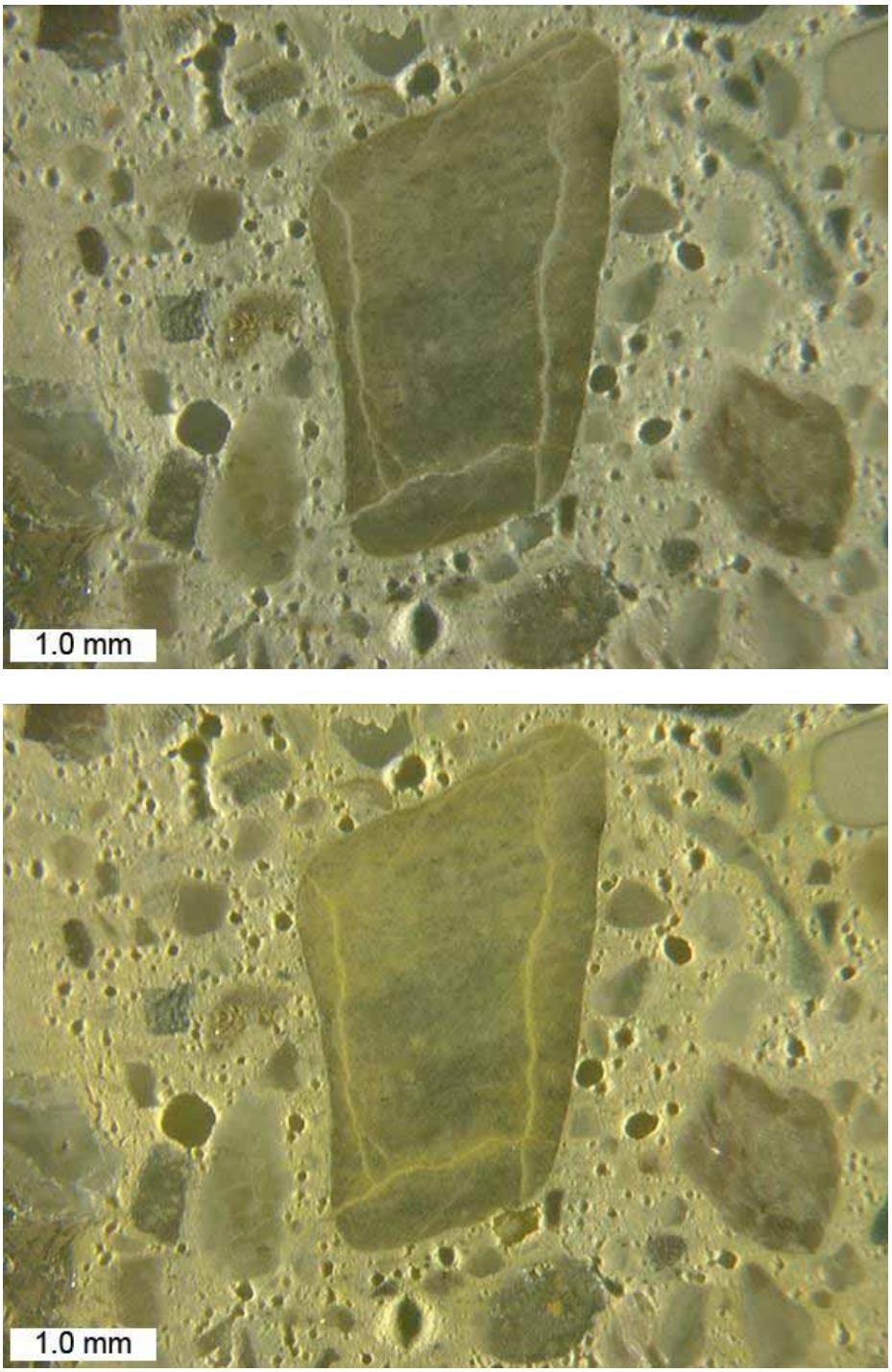
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, top half of core D, MTU ID 696-12.



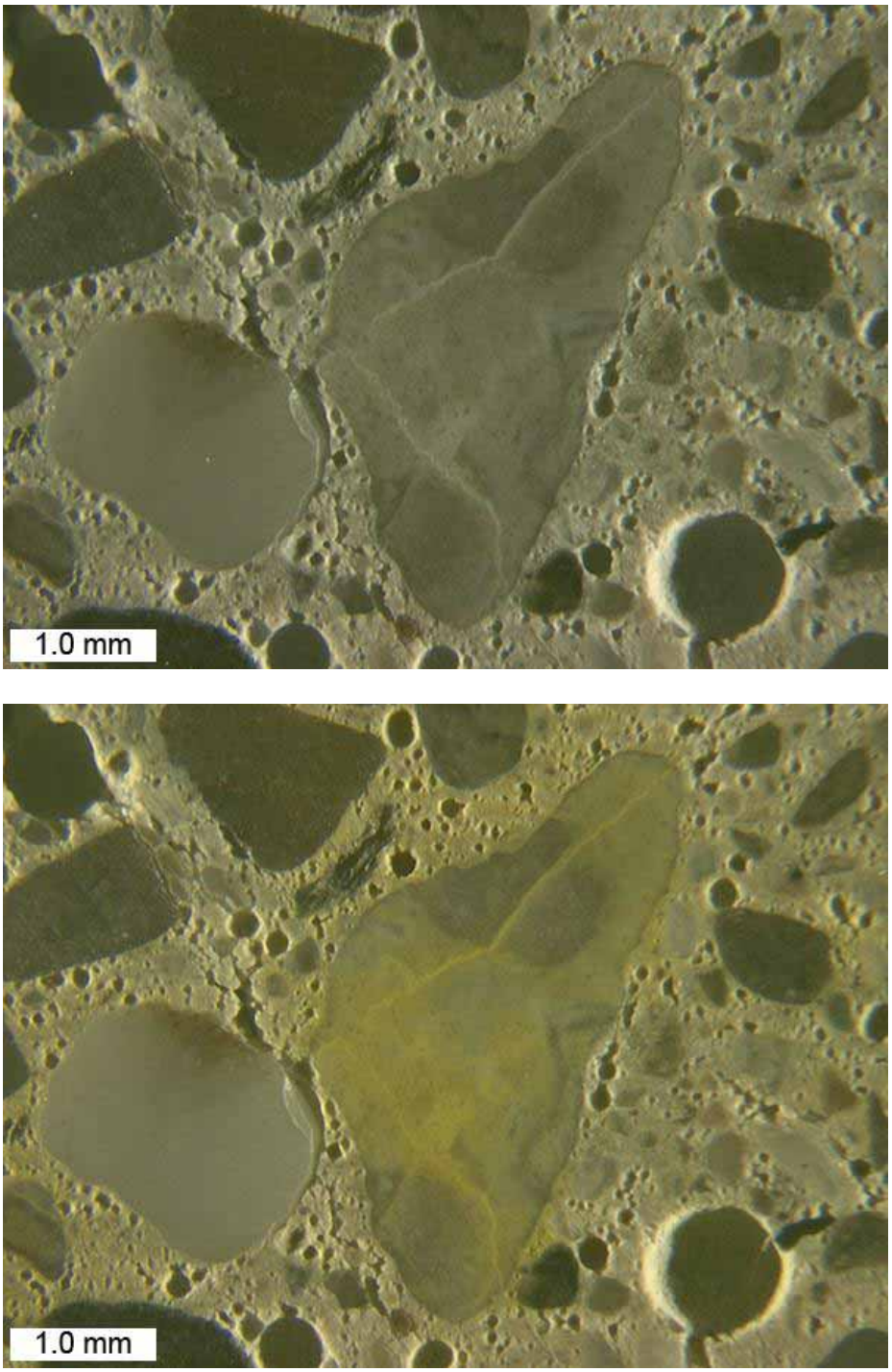
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, top half of core D, MTU ID 696-12.



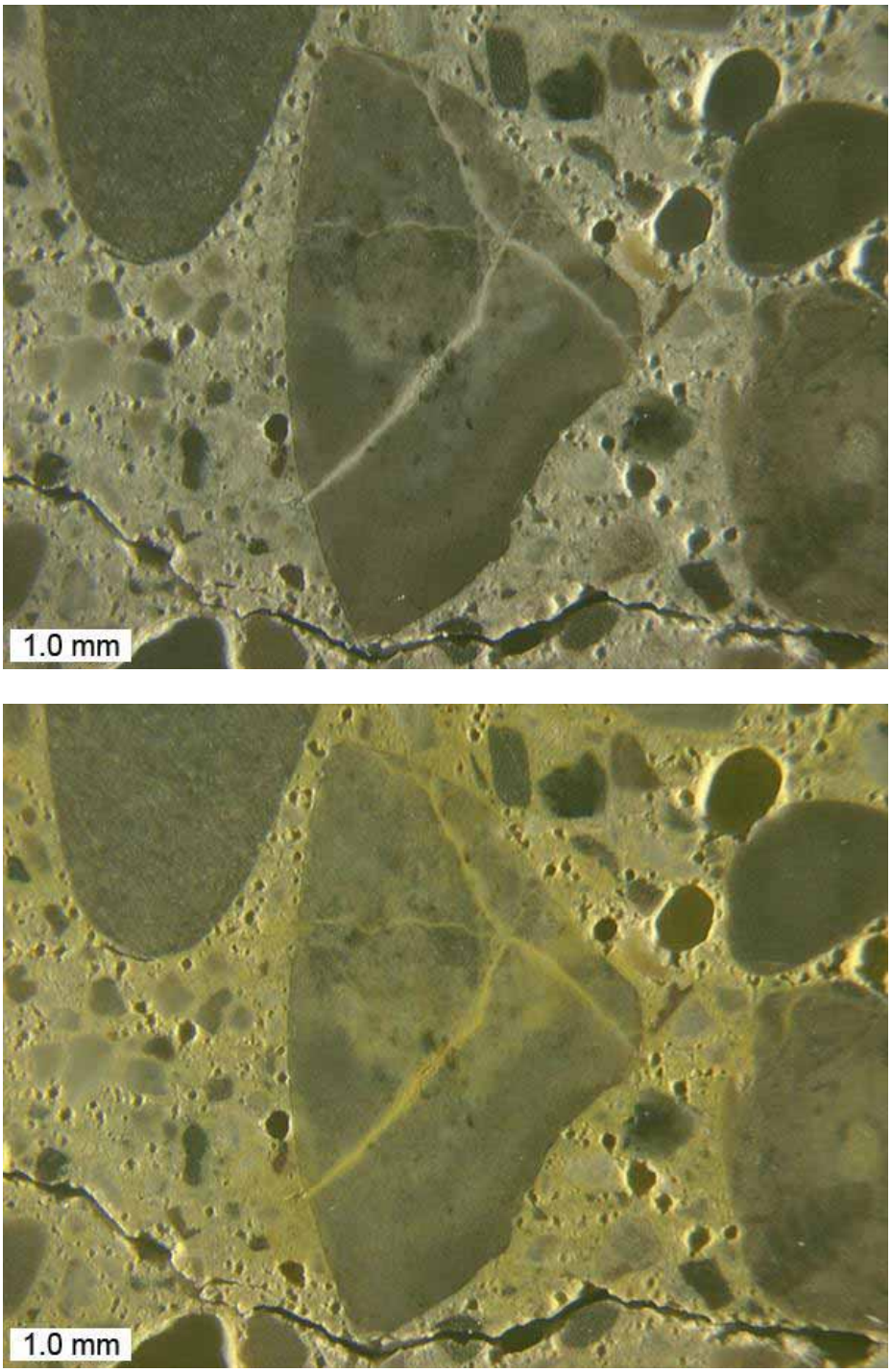
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, top half of core D, MTU ID 696-12.



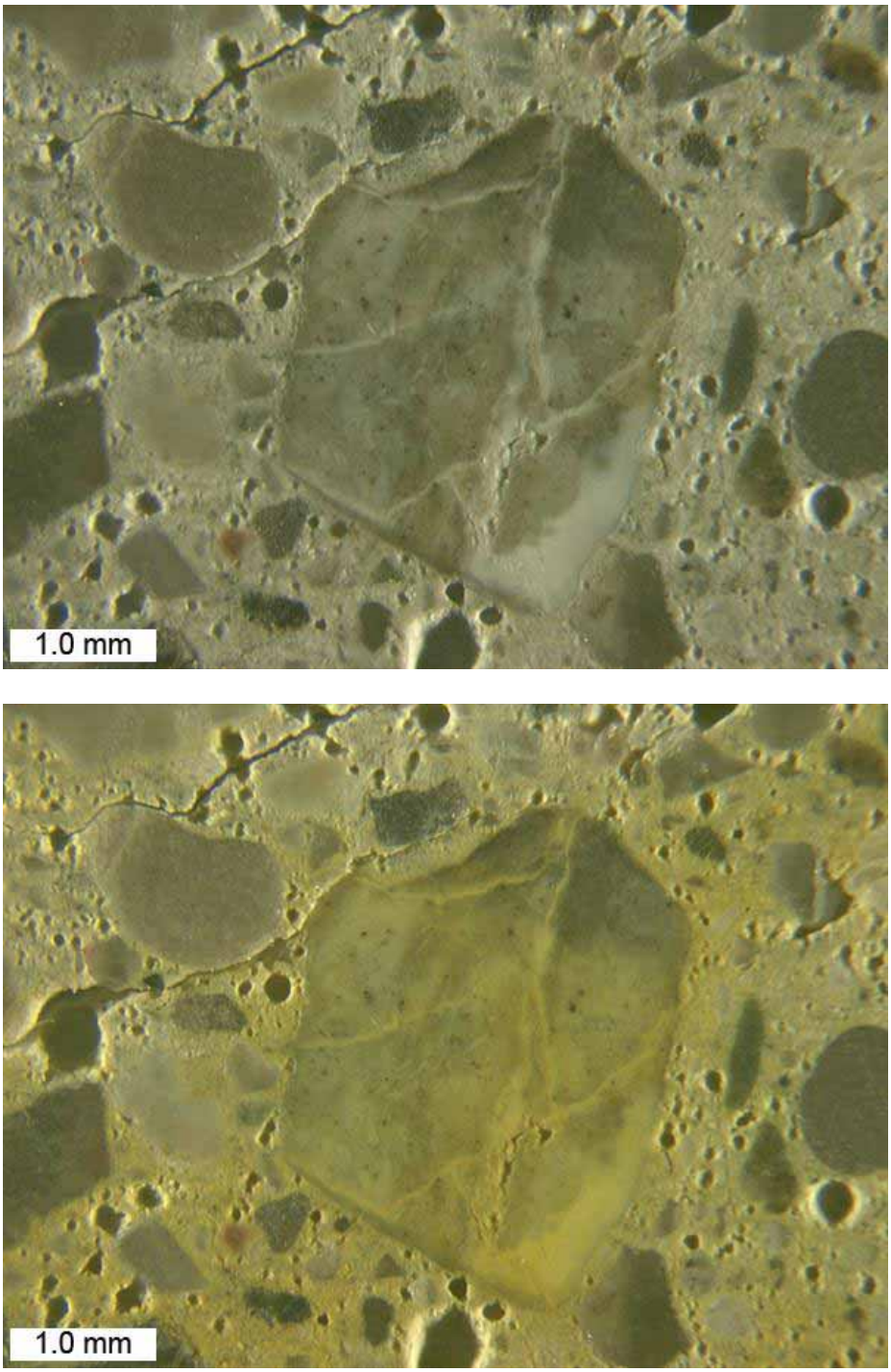
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, bottom half of core D, MTU ID 696-12.



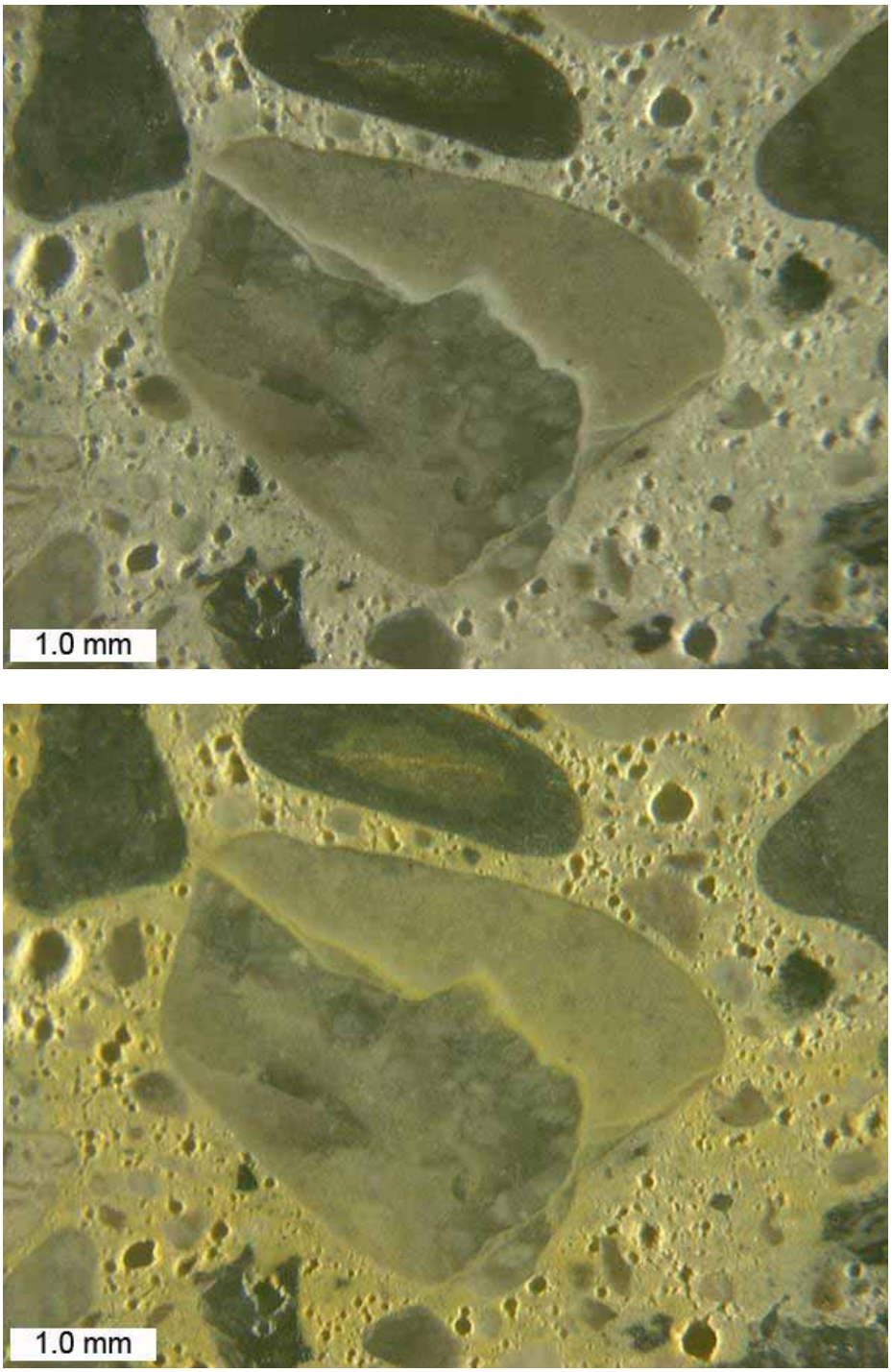
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, bottom half of core D, MTU ID 696-12.



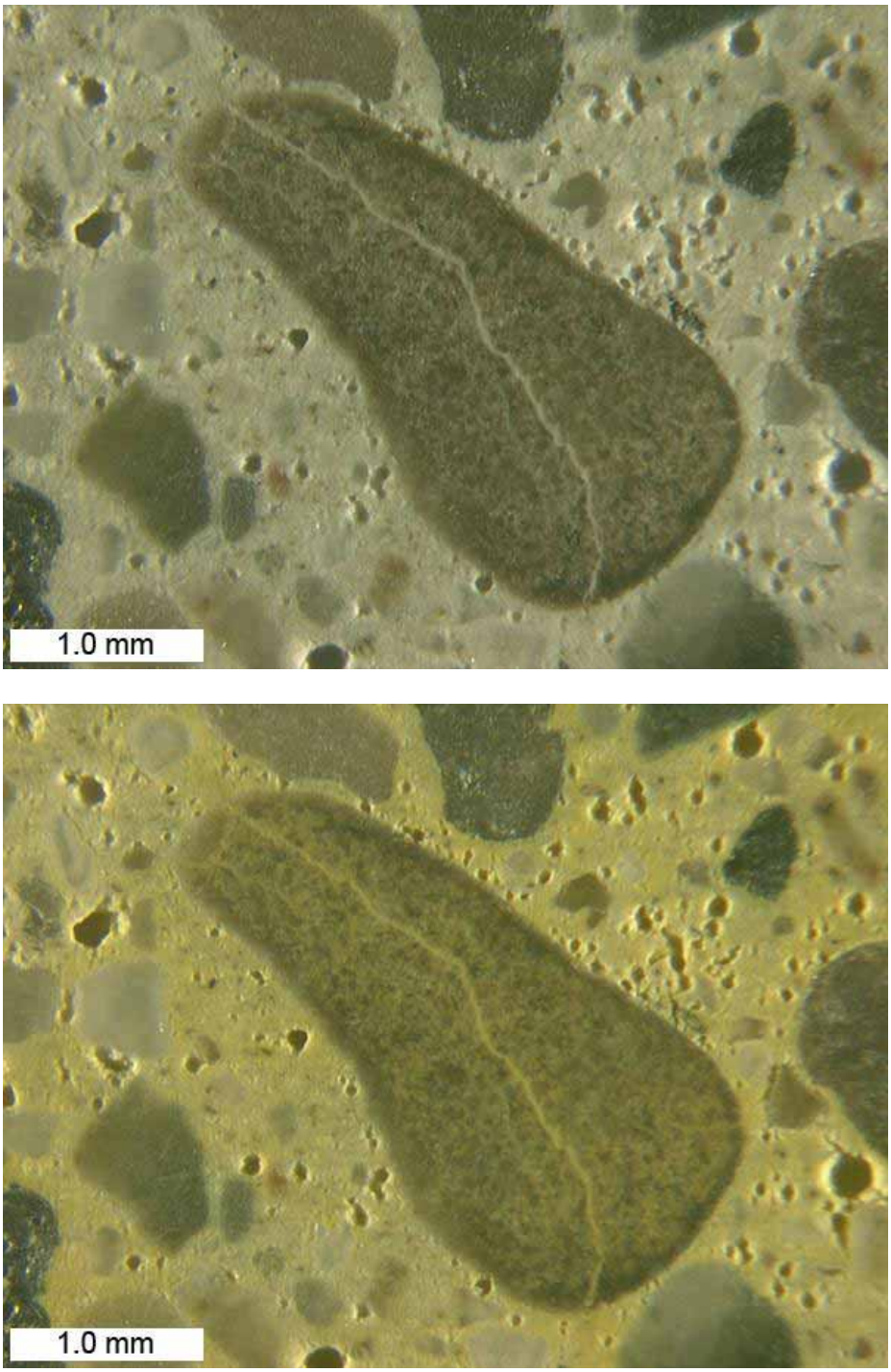
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, bottom half of core D, MTU ID 696-12.



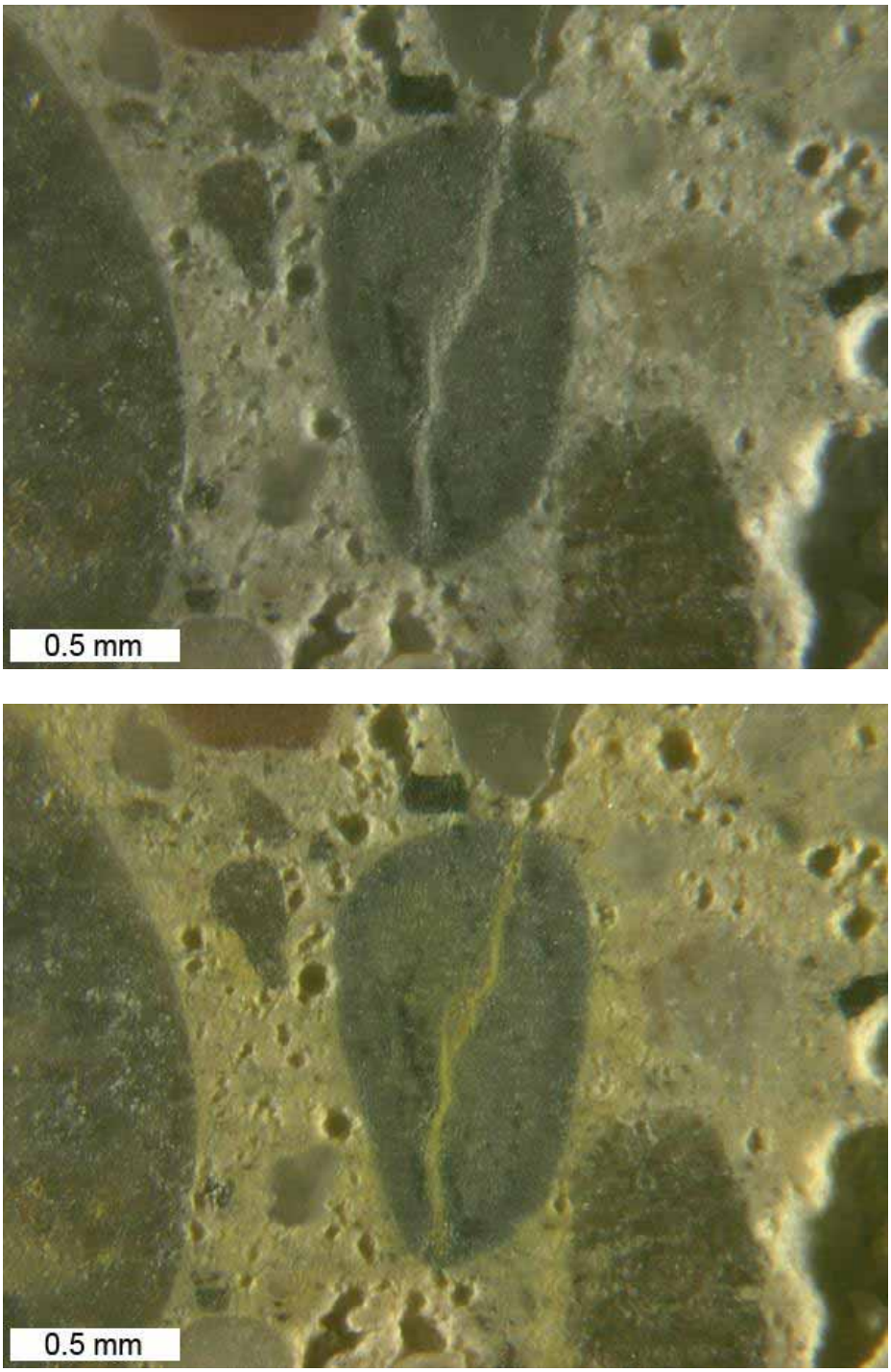
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, bottom half of core D, MTU ID 696-12.



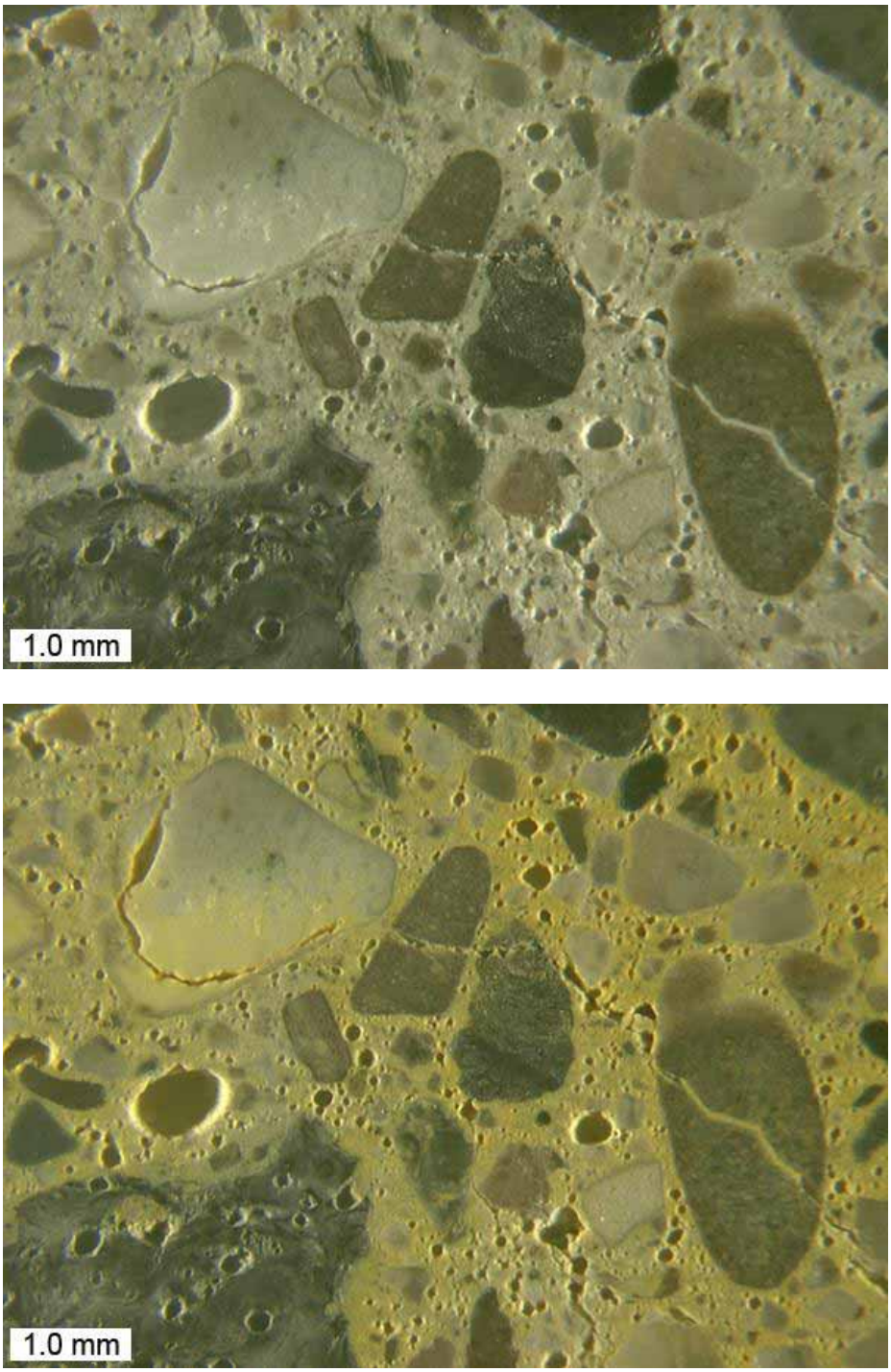
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, bottom half of core D, MTU ID 696-12.



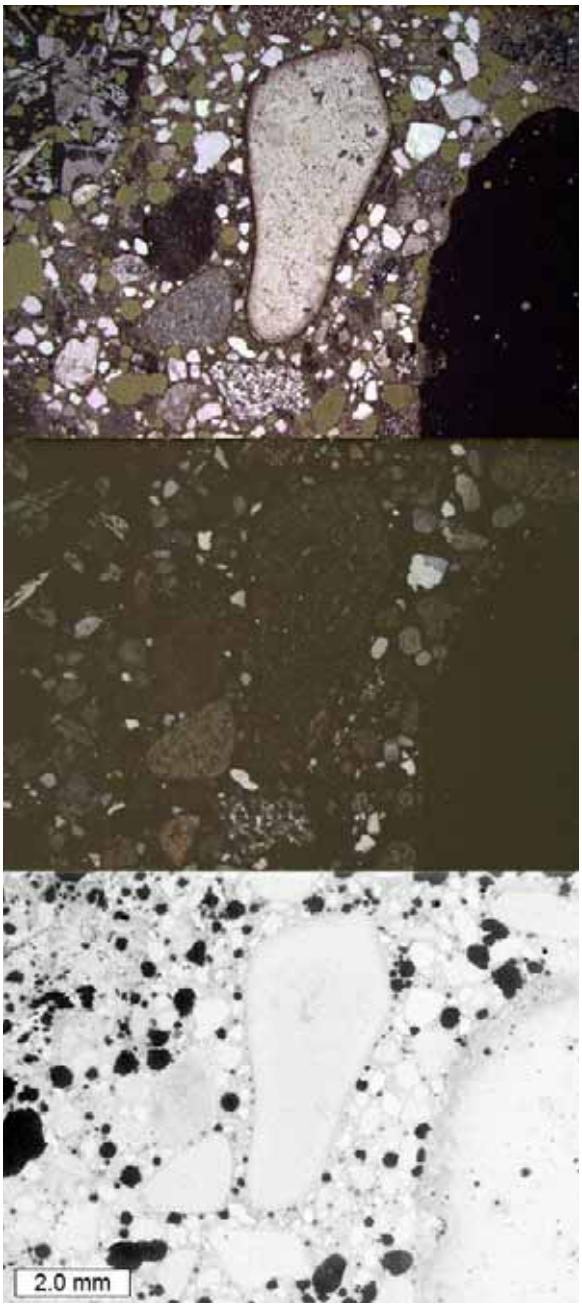
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, bottom half of core D, MTU ID 696-12.



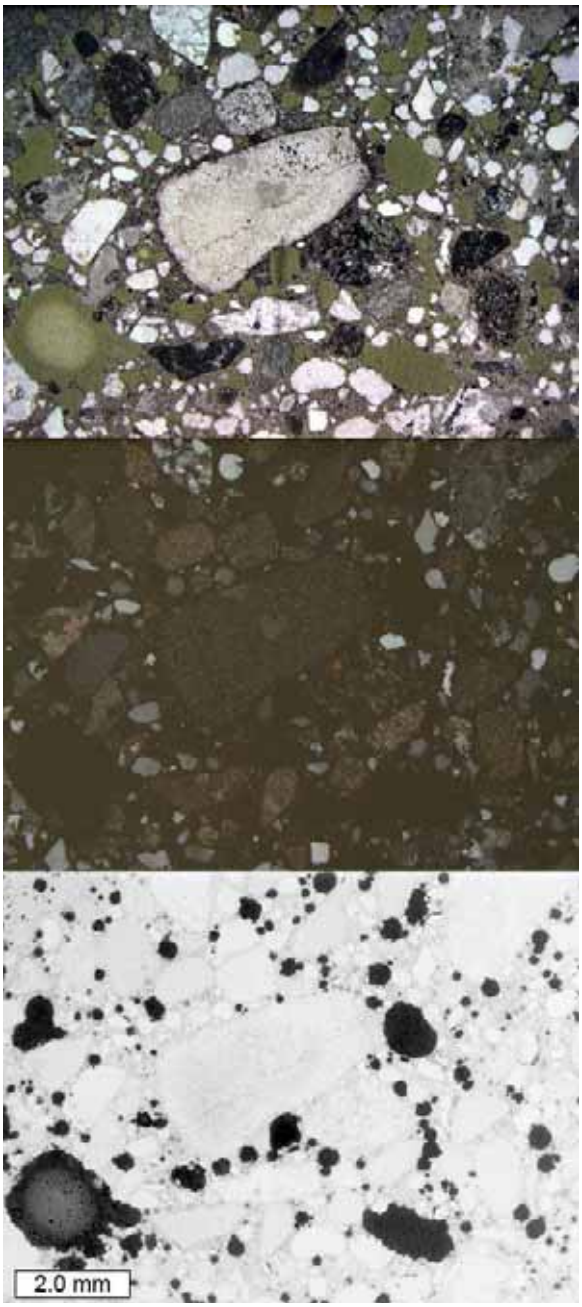
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, bottom half of core D, MTU ID 696-12.



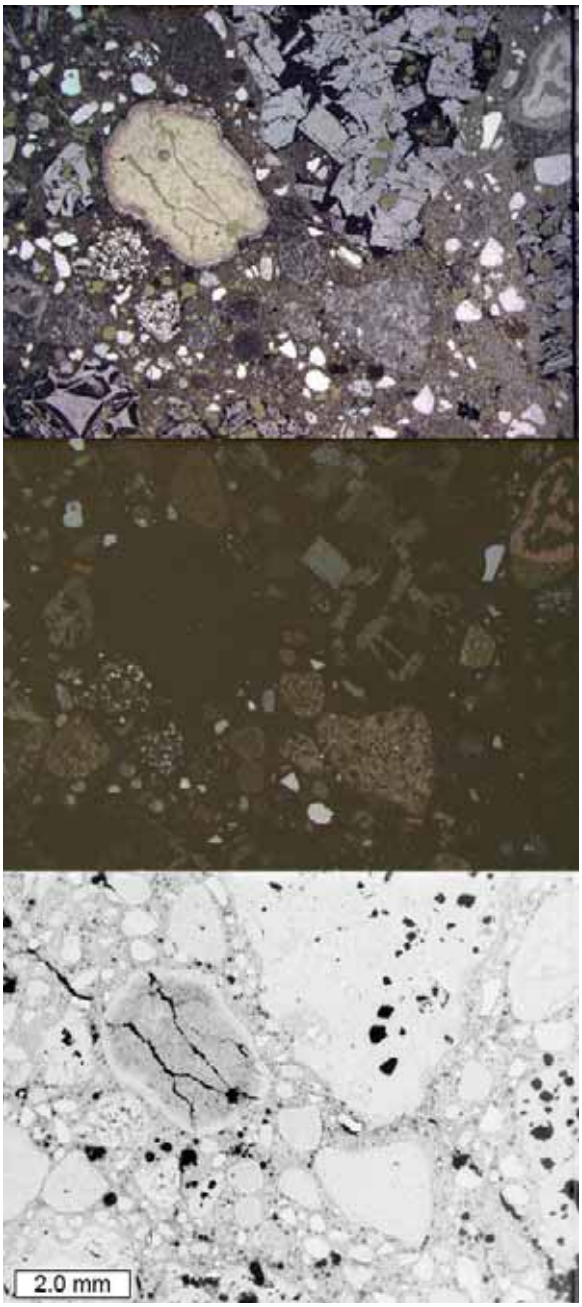
Alkali silica reaction in fine aggregate and associated cracking, before and after sodium cobaltinitrite stain, polished slab from I-696, constructed 1995, away from transverse joint, bottom half of core D, MTU ID 696-12.



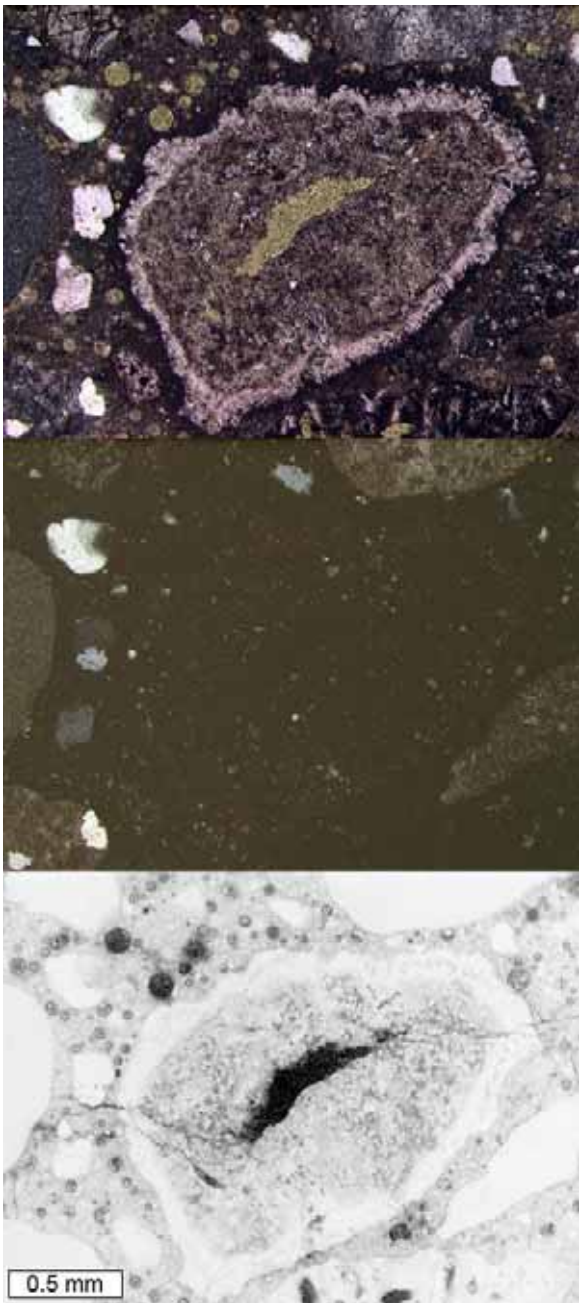
Example of chert particle exhibiting alkali-silica reaction without any associated cracking, from thin section prepared from core from I-696, constructed 1978, at transverse joint, MTU ID 696-07. From top to bottom: transmitted light, crossed-polars, and epifluorescent mode images.



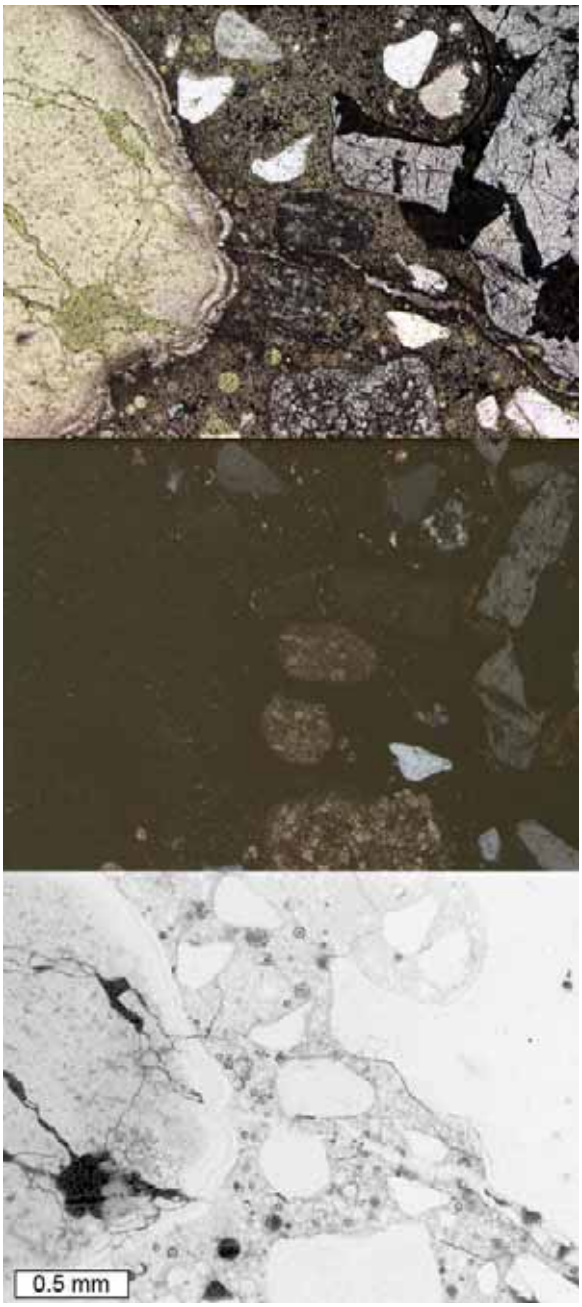
Example of chert particle exhibiting alkali-silica reaction with minor cracking within particle, from thin section prepared from core from I-696, constructed 1978, at transverse joint, MTU ID 696-07. From top to bottom: transmitted light, crossed-polars, and epifluorescent mode images.



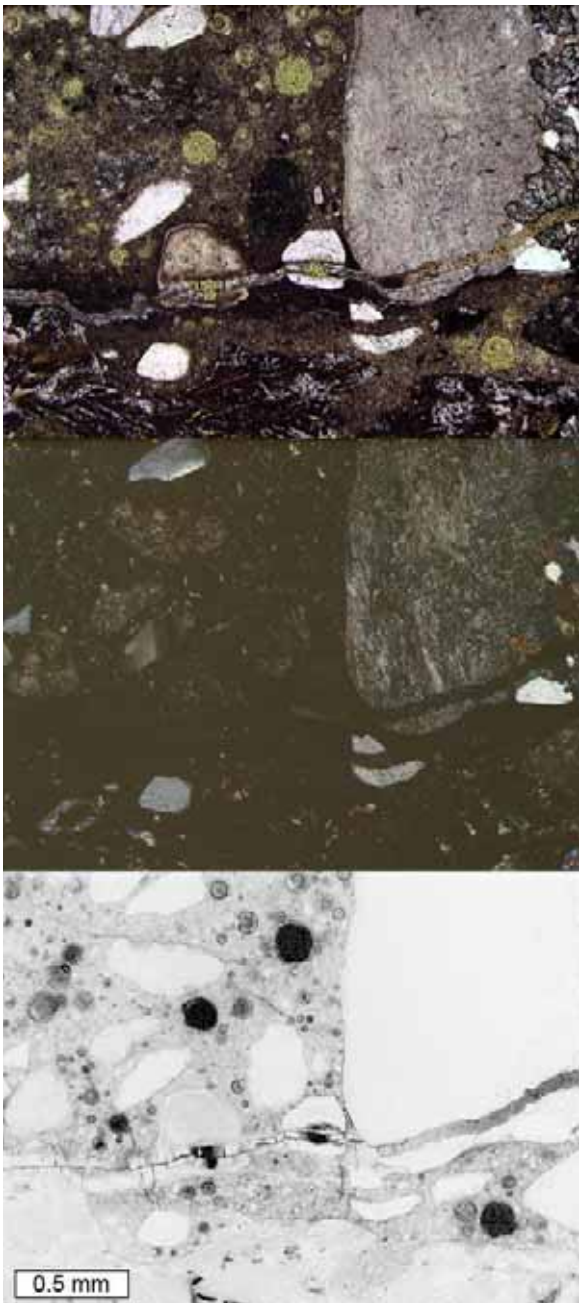
Example of chert particle exhibiting deleterious alkali-silica reaction, from thin section prepared from core from I-696, constructed 1995, away from transverse joint, MTU ID 696-03. From top to bottom: transmitted light, crossed-polars, and epifluorescent mode images.



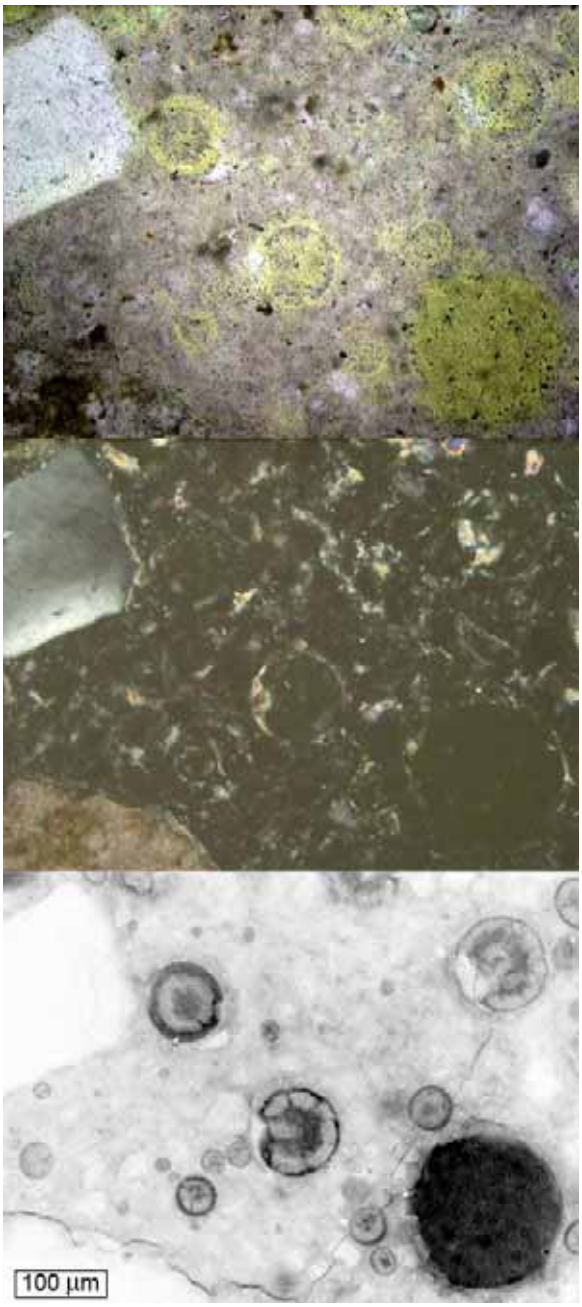
Example of chert particle exhibiting deleterious alkali-silica reaction, from thin section prepared from core from I-696, constructed 1995, away from transverse joint, MTU ID 696-03. From top to bottom: transmitted light, crossed-polars, and epifluorescent mode images.



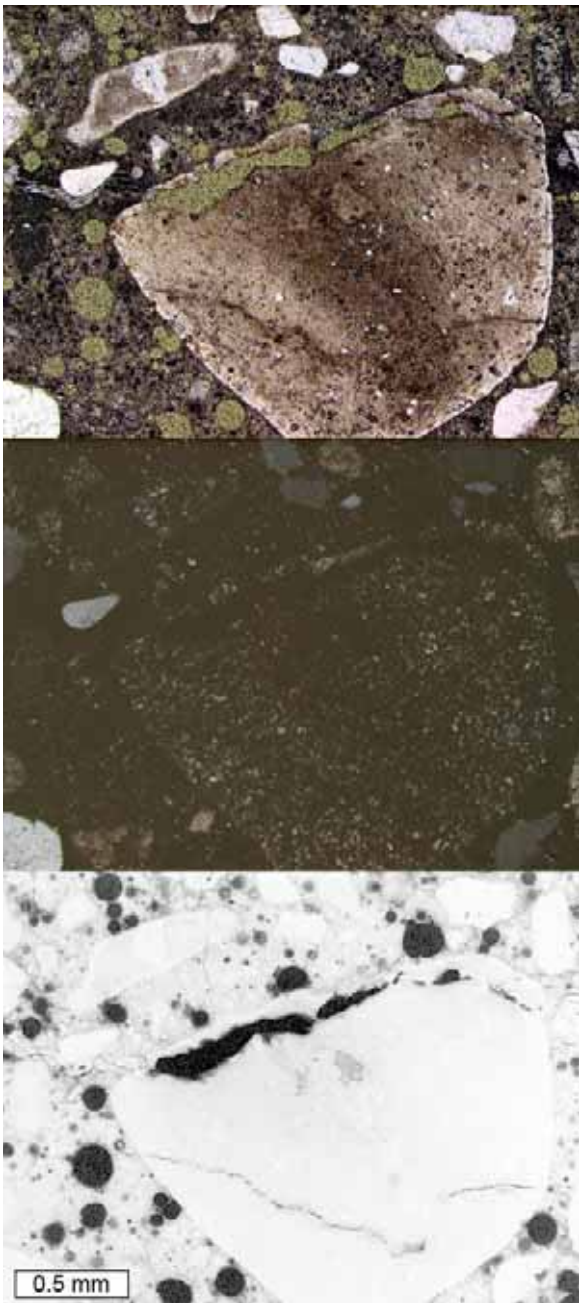
Example of chert particle exhibiting deleterious alkali-silica reaction, from thin section prepared from core from I-696, constructed 1995, away from transverse joint, MTU ID 696-03. From top to bottom: transmitted light, crossed-polars, and epifluorescent mode images.



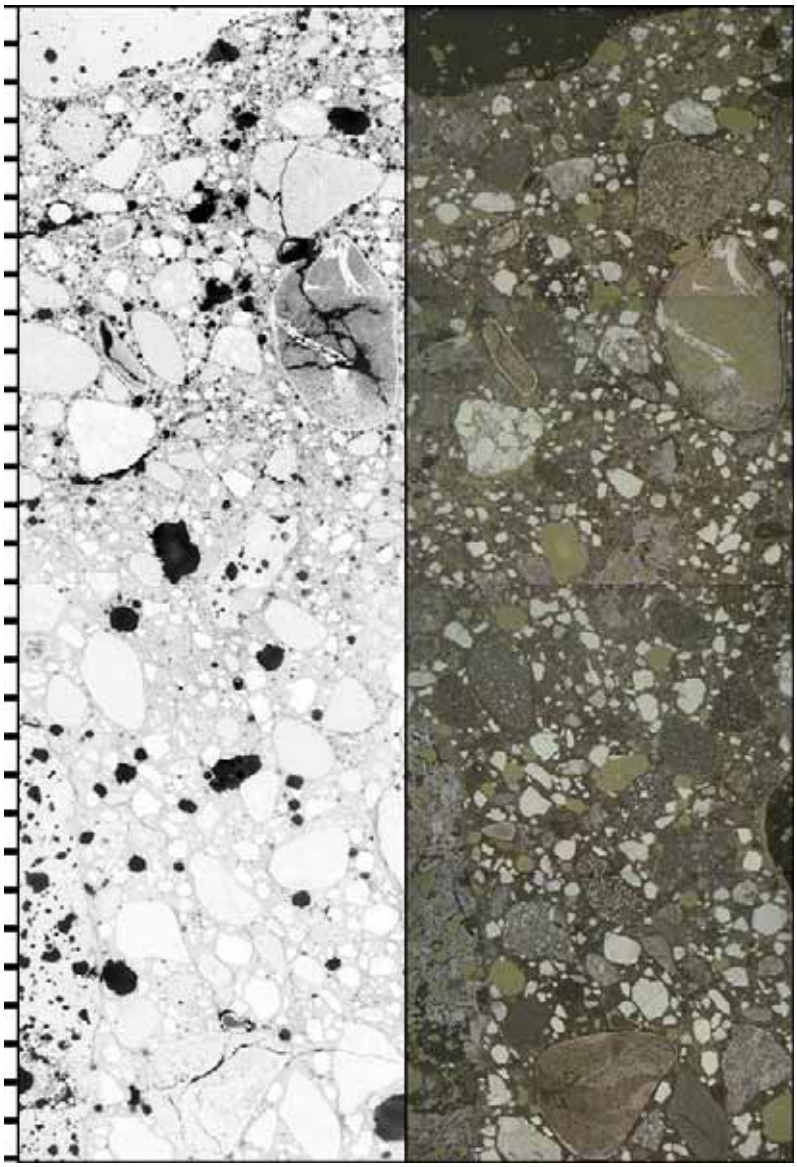
Example of chert particle exhibiting deleterious alkali-silica reaction, from thin section prepared from core from I-696, constructed 1995, away from transverse joint, MTU ID 696-03. From top to bottom: transmitted light, crossed-polars, and epifluorescent mode images.



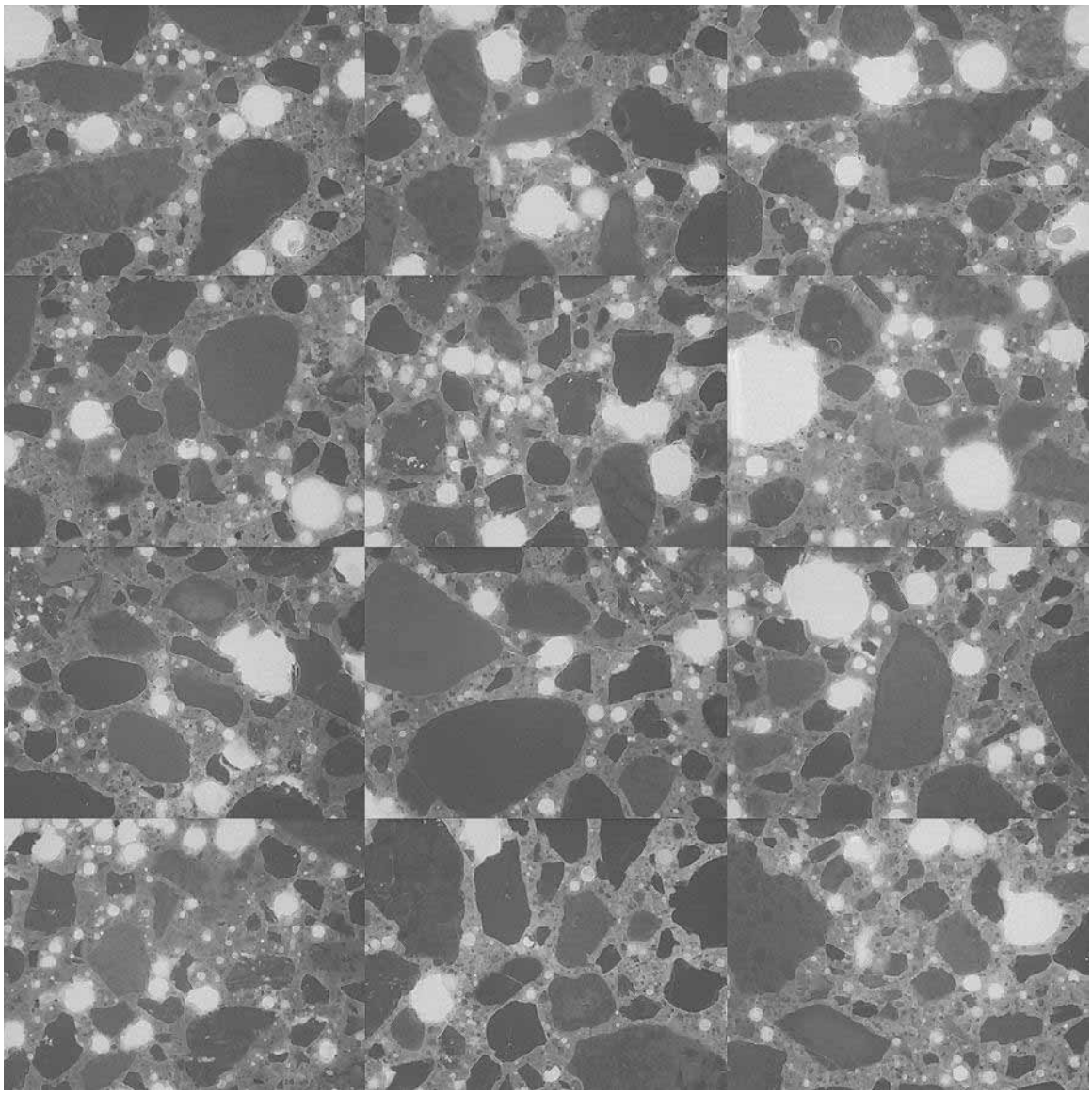
Example secondary ettringite in entrained air voids, from thin section prepared from core from I-696, constructed 1995, away from transverse joint, MTU ID 696-03. From top to bottom: transmitted light, crossed-polars, and epifluorescent mode images.



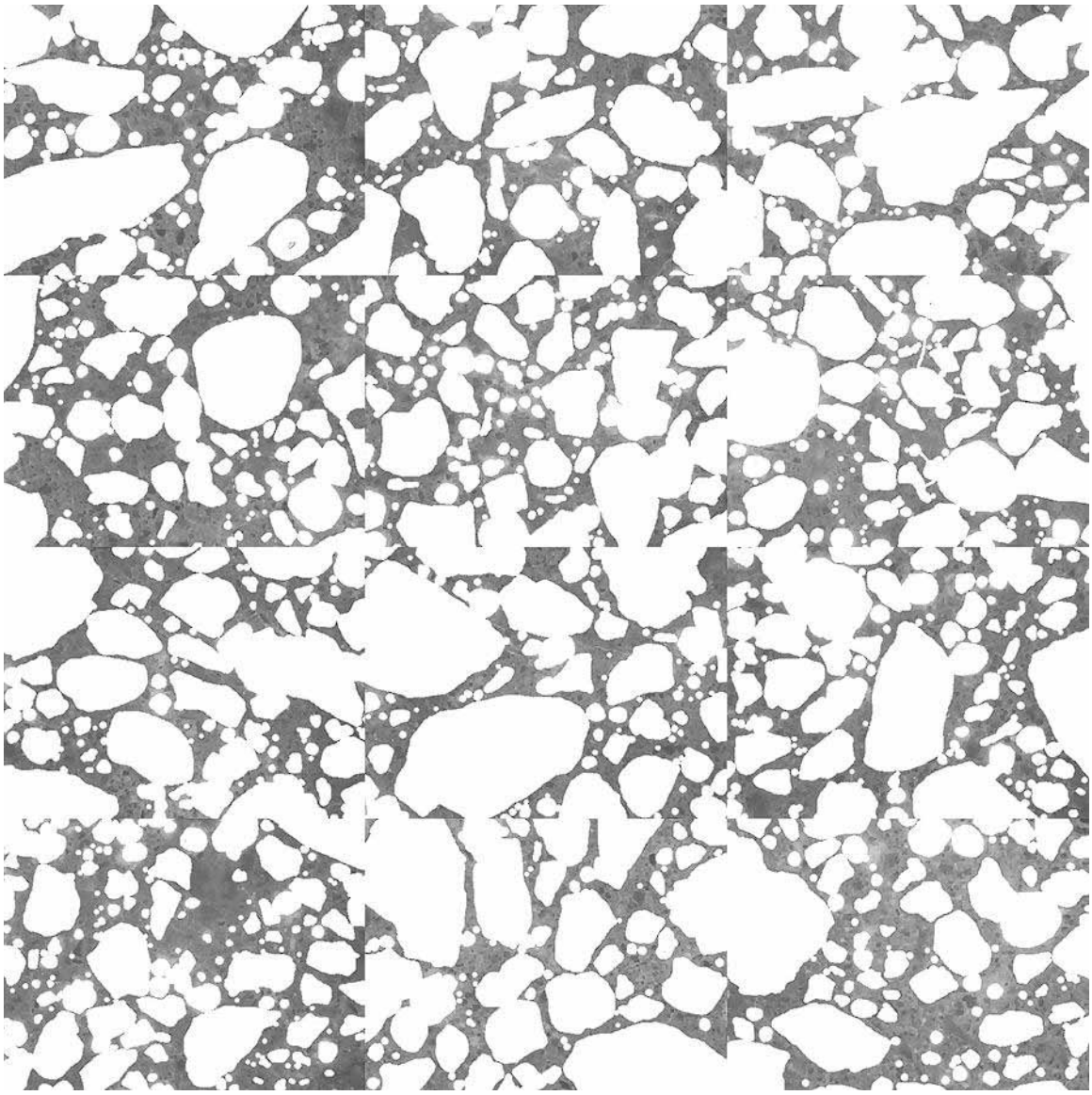
Example of chert particle exhibiting deleterious alkali-silica reaction, from thin section prepared from core from I-696, constructed 1995, away from transverse joint, MTU ID 696-12. From top to bottom: transmitted light, crossed-polars, and epifluorescent mode images.



Epifluorescent mode (left) and transmitted light (right) images at transition between zone of abundant entrained air and zone without entrained air at a depth of approximately 3 inches (75 mm). Example from thin section prepared from core taken from I-696, outside lane, away from joint, MTU ID 696-03.



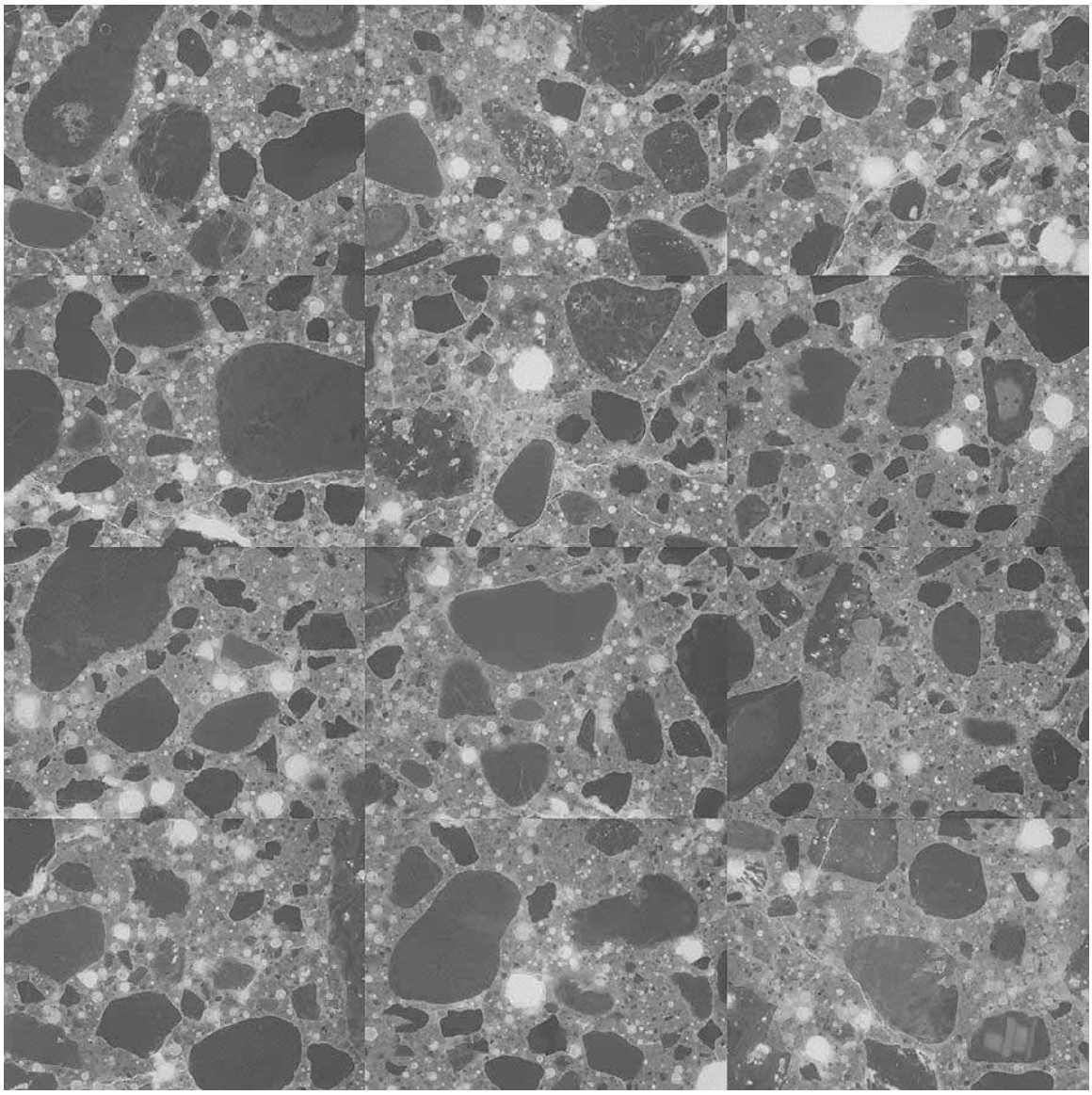
Mosaic of 12 epifluorescent mode images collected from thin sections prepared from core from I-696, constructed 1978, away from transverse joint, MTU ID 696-01 (each individual frame measures 2.612 x 1.959 mm).



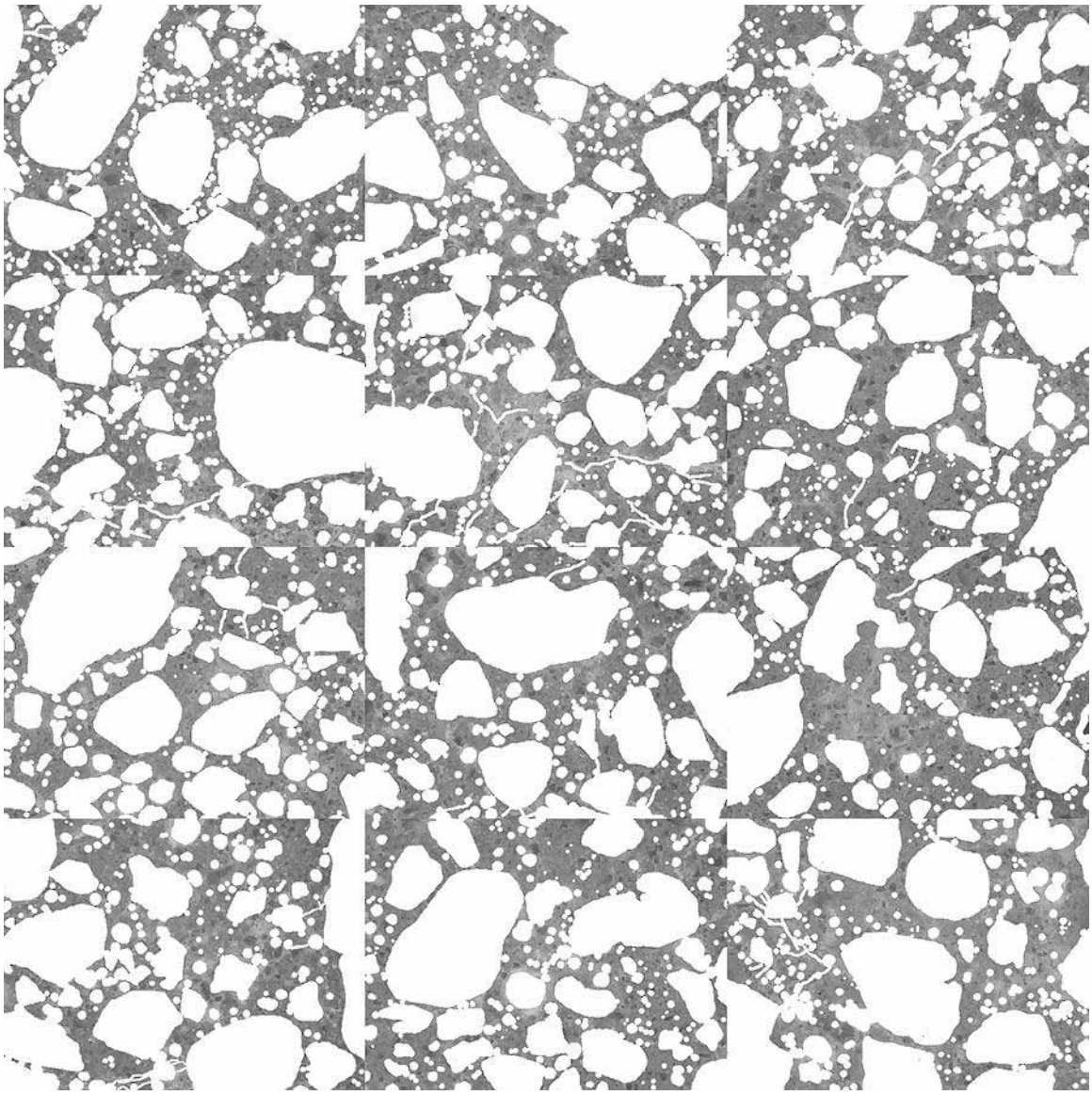
Mosaic of 12 epifluorescent mode images collected from thin sections prepared from core from I-696, constructed 1978, away from transverse joint, MTU ID 696-01, after masking out air voids and fine aggregate to isolate cement paste (each individual frame measures 2.612 x 1.959 mm).

Average cement paste pixel intensities per frame, and equivalent w/c values (as compared to 28-day moist cured mortar samples) from thin section prepared from core from I-696, constructed 1978, away from transverse joint, MTU ID 696-01.

cement paste pixel fluorescence measurements (average intensity per frame)			
67	72	80	68
78	83	66	68
70	70	81	86
equivalent w/c (y = 0.0044x + 0.0329)			
0.36	0.32	0.35	0.38
0.33	0.37	0.39	0.32
0.33	0.34	0.34	0.38



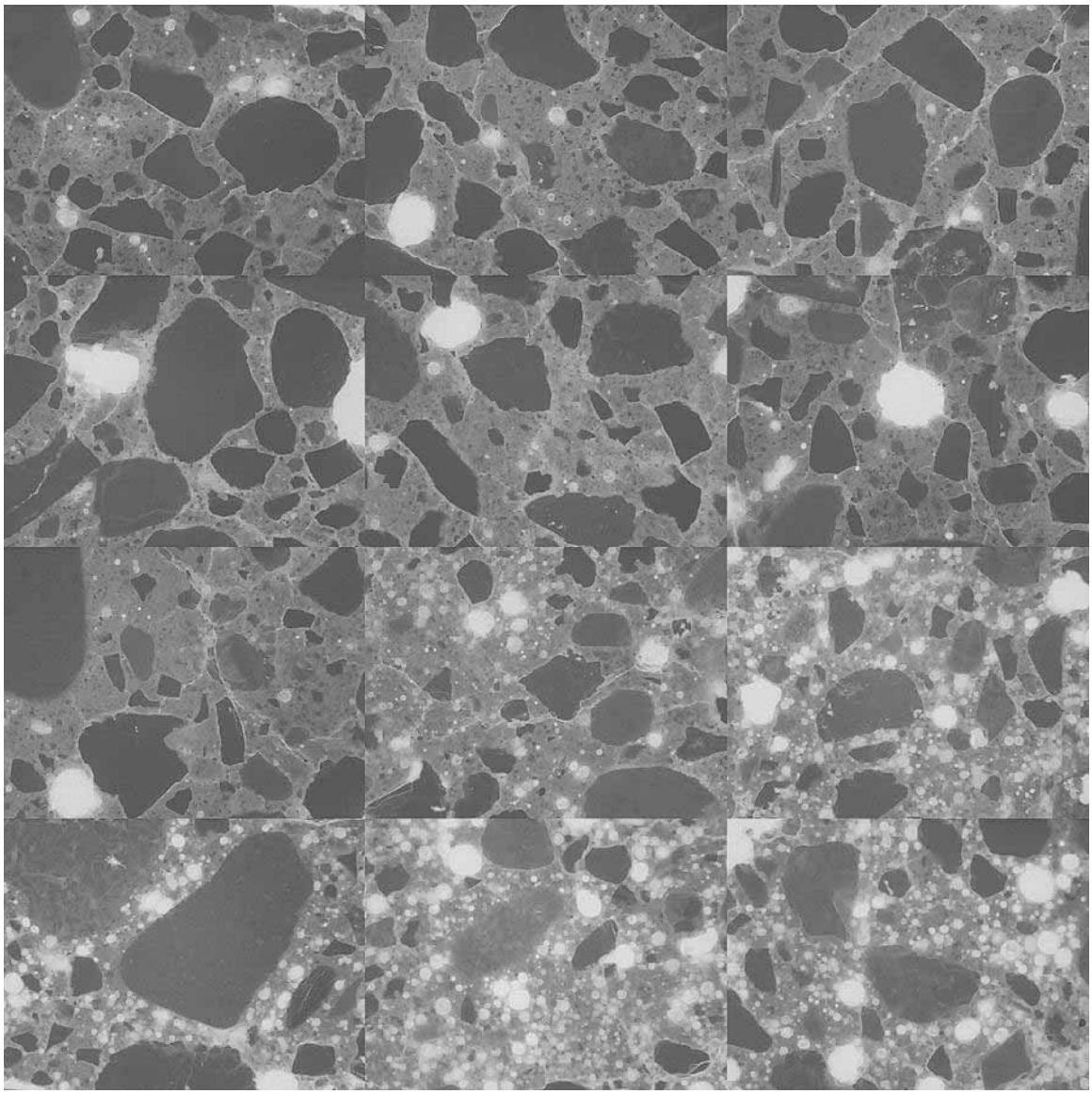
Mosaic of 12 epifluorescent mode images collected from thin sections prepared from core from I-696, constructed 1995, away from transverse joint, MTU ID 696-08 (each individual frame measures 2.612 x 1.959 mm).



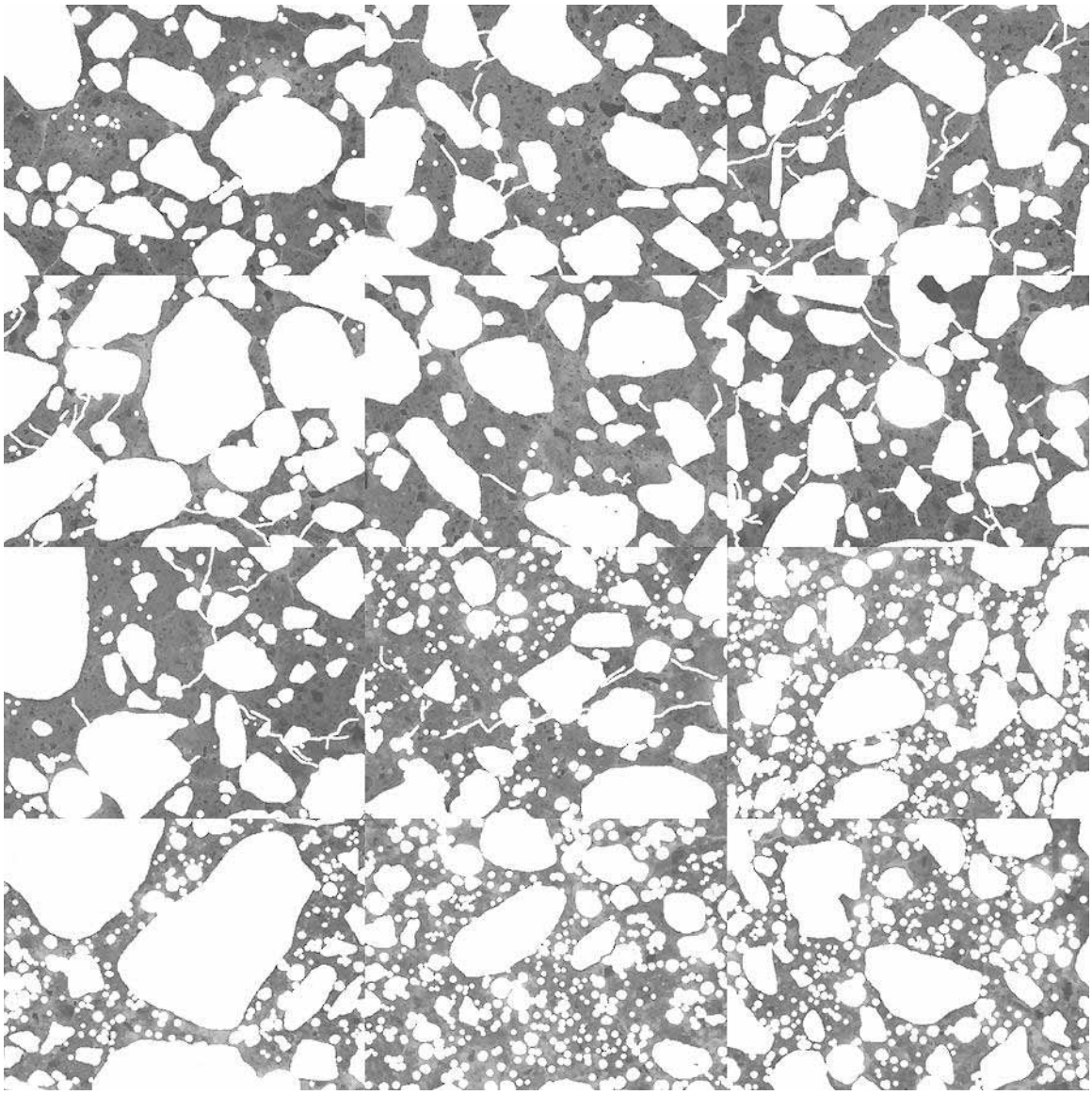
Mosaic of 12 epifluorescent mode images collected from thin sections prepared from core from I-696, constructed 1995, away from transverse joint, MTU ID 696-08, after masking out air voids and fine aggregate to isolate cement paste (each individual frame measures 2.612 x 1.959 mm).

Average cement paste pixel intensities per frame, and equivalent w/c values (as compared to 28-day moist cured mortar samples) from thin section prepared from core from I-696, constructed 1995, away from transverse joint, MTU ID 696-08.

cement paste pixel fluorescence measurements (average intensity per frame)			
75	83	80	78
81	75	82	75
73	75	75	84
equivalent w/c (y = 0.0044x + 0.0329)			
0.37	0.36	0.39	0.38
0.37	0.39	0.36	0.39
0.36	0.35	0.36	0.36



Mosaic of 12 epifluorescent mode images collected from thin sections prepared from core from I-696, constructed 1995, away from transverse joint, MTU ID 696-11 (each individual frame measures 2.612 x 1.959 mm).



Mosaic of 12 epifluorescent mode images collected from thin sections prepared from core from I-696, constructed 1995, away from transverse joint, MTU ID 696-11, after masking out air voids and fine aggregate to isolate cement paste (each individual frame measures 2.612 x 1.959 mm).

Average cement paste pixel intensities per frame, and equivalent w/c values (as compared to 28-day moist cured mortar samples) from thin section prepared from core from I-696, constructed 1995, away from transverse joint, MTU ID 696-11.

cement paste pixel fluorescence measurements (average intensity per frame)			
63	68	71	75
76	65	68	78
92	85	93	87
equivalent w/c ($y = 0.0044x + 0.0329$)			
0.37	0.31	0.33	0.34
0.36	0.36	0.31	0.33
0.38	0.43	0.40	0.44