

Appendix B

Independent Quality Firm

Minimum Sampling Guide Schedule

SCDOT Quality Acceptance Sampling & Testing Guide											
Amendment to Figure 106B & 106C of the SCDOT Construction Manual (Rev. 3/1/2020)											
Product	Material Description	SiteManager Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Aggregate, Coarse (non asphalt)	Aggregate, # 1 Stone	Agg1	(1) per 500 Tons ^F	(1) 40 Lbs.	SC-T-1	QPL 2	RCE	-	-	S: 501, 701, 802 Appendix: A-2, A-3, A-4, A-6 STS: SC-M-203-5 (7/17) SC-M-205-2 (7/17)	Sample requirement waived for: 1) Temporary applications used in CMRB Curing Methods B & C 2) Use in Non-structural Class 2500 concrete <i>*Small Quantity Acceptance</i>
	Aggregate, # 4 Stone	Agg4									
	Aggregate, # 5 Stone	Agg5									
	Aggregate, # 56 Stone	Agg56									
	Aggregate, # 57 Stone	Agg57									
	Aggregate, # 67 Stone	Agg67									
	Aggregate, # 6M Stone	Agg6M									
	Aggregate, # 7 Stone	Agg7									
	Aggregate, # 78 Stone	Agg78									
	Aggregate, # 789 Stone	Agg789									
	Aggregate, # 89M Stone	Agg89M									
	Aggregate, # 8M Stone	Agg8M									
	Aggregate, Light Weight Stone	AggLighWeight									
	Aggregate, CR-14 Stone Crusher Run	AggCR-14									
	Aggregate, Stone Column Backfill	AggStnColmnBack									
Aggregate, Fine (non asphalt)	Aggregate, FA-10	AggFA10	(1) per 500 Tons ^F	(1) 20 Lbs.	SC-T-2	QPL 1	RCE	-	-	S: 501, 701, 802 Appendix: A-2, A-3, A-5, A-6 SS: (5/1/08)	Sample requirement waived for: 2) Use in Non-structural Class 2500 concrete <i>*Small Quantity Acceptance</i>
	Aggregate, FA-10 / Manufactured Sand	AggFA10M-701									
	Aggregate, FA-12	AggFA12									
	Aggregate, FA-13	AggFA13									
	Aggregate, Fine Agg. Blended	AggFABlend-701									
	Aggregate, Natural Sand used in Asphalt	AggNatSand401									
	Aggregate, Regular Screenings	AggScr									
	Aggregate, Washed Screenings	AggWScr									
Asphalt Emulsions (used in Tack Coat Applications)	Asphalt, Emulsified RS-1 (Rapid Set)	AsphLiqRS1-406	Obtain sample only if field application issue exists	(1) 0.5 Gallon	SC-T-61	QPL 38	RCE	Roadway Placement: SC-T-86	(1) Each Application (Form 400.04)	S: 401.4.18	Submit to OMR within 7 days of sampling
	Asphalt, Emulsified HFMS-1	AsphLiqHFMS1-406									
	Asphalt, Emulsified HFMS-1H	AsphLiqHFMS1H406									
	Asphalt, Emulsified HFMS-2	AsphLiqHFMS2-406									
	Asphalt, Emulsified SS-1 (Slow Set)	AsphLiqSS1-406									
	Asphalt, Emulsified CRS-1	AsphLiqCRS1-406									
	Asphalt, Emulsified CRS-2	AsphLiqCRS2-407									
	Asphalt, Emulsified CMS-2	AsphLiqCMS2-406									
	Asphalt, Emulsified CSS-1H	AsphLiqCSS-1H									
Asphalt Emulsions (used in Surface Treatment Applications)	Asphalt, Emulsified Non-Tracking Tack	AsphLiqNTT	(1) per 25,000 Gallons	(1) 0.5 Gallon	SC-T-61	QPL 38	RCE	Roadway Placement: SC-T-86	(1) Each Application (Form 400.04)	S: 406, 407, 408 Appendix: A-2, A-3 SS: (3/1/16)	Sample requirement waived for: Temporary applications used in CMRB Curing Methods B & C Submit to OMR within 7 days of sampling <i>*Small Quantity Acceptance</i>
	Asphalt, Emulsified CRS-1	AsphLiqCRS1-406									
	Asphalt, Emulsified CRS-2	AsphLiqCRS2-407									
	Asphalt, Emulsified CRS-2L (Latex)	AsphLiqCRS2L406									
	Asphalt, Emulsified CRS-2P (Polymer)	AsphLiqCRS2P407									
	Asphalt, Emulsified CSS (FDR)	AsphLiqCSS(FDR)									
	Asphalt, Emulsified CSS-1H	AsphLiqCSS-1H									
	Asphalt, Emulsified EAP Special	AsphLiqEAPS-407									
Asphalt, Micro-Surfacing	Asphalt, Emulsified CQS-Micro	AsphLiqCQSMicro	(1) per 25,000 Gallons	(1) 0.5 Gallon	SC-T-61	QPL 38	RCE	Compute the Daily Average of Residual Asphalt & Mix Rate:	(1) per Days Production	SS: (1/1/19)	Observe test section construction for approval of Mix Design and System Performance
	Aggregate, Micro Surface Screenings	AggMicroScrn	(1) per 50,000 SY Installed	(1) 20 Lbs.	SC-T-2	QPL 1	RCE	(Based on Contractors QC readings)			

Product	Material Description	SiteManager Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Asphalt, PMTLS	Preventative Maintenance Thin Surf. WMA	Surf-PrevMa_WMA	(1) per 5,000 Tons	(1) 15-50 Lbs.	SC-T-62		SCDOT DAM	Ambient Temperature: SC-T-84	(1) Before paving starts, then (2) per LOT (Form 400.04)	SS: (11/1/13)	
	Preventative Maintenance Thin Surface	Surf-PrevMaint						Mix/Mat Temperature: SC-T-84	(4) per LOT (Form 400.04)		
								Depth Check:	(1) Each 200 ft		
Asphalt Binder	Asphalt, Liquid PG 64-22	AsphLiqPG64-401	(1) per 10,000 Tons of Mix Produced	(1) Quart	SC-T-61	QPL 37	SCDOT DAM			SS: 401 SS: (1/1/19)	<i>*Small Quantity Acceptance</i>
	Asphalt, Liquid PG 76-22	AsphLiqPG76-401									
Asphalt, OGFC	Open Graded Friction Course	OGFC-403	(1) per 5,000 Tons	(1) 1500-1700 gram Sample	QAST Guide SC-T-110		SCDOT DAM	Ambient Temperature: SC-T-84	(1) Before paving starts, then (2) per LOT (Form 400.04)	S: 409 SS: (1/1/19) SS (Table): (4/1/16) SC-M-403 (4/16)	Establish and document the roller pattern required to seat the mix
	Maintenance Open Graded Friction Course	Surf-Maint-OGFC						Mix/Mat Temperature: SC-T-84	(4) per LOT (Form 400.04)		
Asphalt, Surface	Asphalt SMA Surface 9.5mm	AsphSMASurf95	(1) per 5,000 Tons	(1) 35-50 Lbs.	SC-T-62		SCDOT DAM	Calculate & Mark Core Locations for SMA, STA & STB Mixes: SC-T-101 Ambient Temperature: SC-T-84 Mix/Mat Temperature: SC-T-84 Lay Down Rate: SC-T-85 Calculate & Mark Density Gauge for STC & STD Mixes: (SC-T-101)	(1) per 1,500ft paved (1) Before paving starts, then (2) per LOT (Form 400.04) (4) per LOT (Form 400.04) (1) per 200 Tons (Form 400.04) (1) per 500 ft. paved	Contract Special Provision	Document Control Strip Density Test (Form 400.02) Observe and document the in-place density test procedures being performed: SC-T-87 SC-T-65 No in-place density performed on STE Mixes
	Asphalt SMA Surface 12.5mm	AsphSMASurf125									
	Surface Type A	Surf-T-A									
	Surface Type B	Surf-T-B									
	Surface Type B Warm Mix Asphalt	Surf-T-B_WMA									
	Surface Type C	Surf-T-C									
	Surface Type C Warm Mix Asphalt	Surf-T-C_WMA									
	Surface Type D	Surf-T-D									
	Surface Type D Warm Mix Asphalt	Surf-T-D_WMA									
	Surface Type E (Sand Seal)	Surf-T-E									
	Surface Type E Warm Mix Asphalt	Surf-T-E_WMA									

Product	Material Description	SiteManager Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Asphalt, Intermediate	Intermediate Type A	Inter-T-A	(1) per 5,000 Tons	(1) 35-50 Lbs.	SC-T-62	-	SCDOT DAM	Ambient Temperature: SC-T-84	(1) Before paving starts, then (2) per LOT (Form 400.04)	<u>S:</u> 401, 403 <u>STS:</u> SC-M-400 (1/18)	Document Control Strip Density Test (Form 400.02) Observe and document the in-place density test procedures being performed: SC-T-87 *ITB-Special Acceptance, Placement rate: < = 300 #, Cores > 300 #, Gauge
	Intermediate Type B	Inter-T-B						Mix/Mat Temperature: SC-T-84	(4) per LOT (Form 400.04)		
	Intermediate Type B Special	Inter-T-B(Spec)						Lay Down Rate: SC-T-85	(1) per 200 Tons (Form 400.04)		
	Intermediate Type Warm Mix Asphalt	Inter-T-B_WMA						Calculate&Mark Core Locations for ITA, ITB, & *ITB-Special Mixes: SC-T-101	(1) per 1500 ft. paved		
	Intermediate Type C	Inter-T-C						Calculate&Mark Density Gauge Locations for ITC Mixes: SC-T-101	(1) per 500 ft. paved		
	Intermediate Type C Warm Mix Asphalt	Inter-T-C_WMA									
Asphalt, Base	Base Type A	Base-T-A	(1) per 5,000 Tons	(1) 25-50 Lbs.	SC-T-62	-	SCDOT DAM	Ambient Temperature: SC-T-84	(1) Before paving starts, then (2) per LOT (Form 400.04)	<u>S:</u> 401, 309, 310 <u>STS:</u> SC-M-400 (1/18)	Document Control Strip Density Test (Form 400.02) Observe and document the in-place density test procedures being performed: SC-T-65
	Base Type A Warm Mix Asphalt	Base-T-A_WMA						Mix/Mat Temperature: SC-T-84	(4) per LOT (Form 400.04)		
	Base Type B	Base-T-B						Lay Down Rate: SC-T-85	(1) per 200 Tons (Form 400.04)		
	Base Type B Warm Mix Asphalt	Base-T-B_WMA							(1) per 500 ft. paved		
	Base Type C (Surface Sand Base)	Base-T-C						Calculate&Mark Density Gauge Locations: SC-T-101			
	Base Type C Warm Mix Asphalt	Base-T-C_WMA									
	Base Type D (Surface Sand Base)	Base-T-D									
	Base Type D Warm Mix Asphalt	Base-T-D_WMA									
Asphalt, Shoulder Widening	HMA Shoulder Widening Course	Shoulder-HMA	(1) per 5,000 Tons	(1) 25-50 Lbs.	SC-T-62	-	SCDOT DAM	Ambient Temperature: SC-T-84	(1) Before paving starts then (2) per LOT (Form 400.04)	<u>S:</u> 401 <u>SS:</u> (4/3/09) <u>STS:</u> SC-M-400 (1/18)	-
								Mix/Mat Temperature: SC-T-84	(4) per LOT (Form 400.04)		
								Lay Down Rate: SC-T-85	(1) per 200 Tons (Form 400.04)		

Product	Material Description	SiteManager Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Backfill	Backfill Materials, MSEW	Backfill-713.08	(1) Initial Source Evaluation Sample	Stone: (5) 70 Lb. bags Granular: (2) 70 Lb. bags	SC-T-1 SC-T-2	QPL 1 QPL2	RCE	Compaction: SC-T-29 SC-T-30 SC-T-31 SC-T-32 (Not required for stone)	(1) per every 2 Lifts for every: (Form 200.03) 25ft of wall for any portion of wall within 150ft of bridge 100ft of wall for any portion of the wall greater than 150ft away from bridge	<u>S:</u> 713 <u>STS:</u> SC-M-713 (5/1/14)	Specify what level of testing is required when submitting the sample (Initial Source, Short, Full) <u>Short Test</u> : completed in-house <u>Full Test</u> : sent out for internal friction angle test
			(1) per 2,000 CY (Short Test)	Stone: (1) 70 Lb. bags Granular: (1) 20 Lb. bag							
			(1) per 15, 000 CY (Full Test)	Stone: (5) 70 Lb. bags Granular: (2) 70 Lb. bags							
	Reinforced Soil Slope	Backfill-RSS	(1) per 4,000 CY (Short Test) (1) per 20,000 CY (Full Test)	Soil: (1) 20 Lb. bag	SC-T-1 SC-T-2	QPL 1 QPL2	RCE	Compaction: SC-T-29 SC-T-30 SC-T-31 SC-T-32	(1) per every lift for every: (Form 200.03) 25ft of wall for any portion of wall within 150ft ft of bridge 75ft of wall for any portion of the wall greater than 150ft away from bridge	<u>STS:</u> SC-M-206 (04/16)	Specify what level of testing is required when submitting the sample (Initial Source, Short, Full) <u>Short Test</u> : completed in-house <u>Full Test</u> : sent out for internal friction angle test
	Pipe, Culvert Backfill (bed for Pipe)	BackfillPipeCul	(1) Verification Sample at start of operations & (1) per 1000 LF of production	Fine: (1) 20 Lbs. Course: (1) 40 Lbs. Base: (1) 70 Lbs.	SC-T-1 SC-T-2	QPL 1 QPL2	RCE	Compaction: SC-T-29 SC-T-30 SC-T-31 SC-T-32	See <u>STS</u> (08/09) (Form 200.07 & 200.08)	<u>S:</u> 714 <u>STS:</u> SC-M-714 (08/09)	Specify if Project has approved Pipe Backfill Material Waiver
Embankment	Unclassified Excavation used in Embankment	BorrEmb-203	Below Top 5' – none required* Top 5' – Weekly Sample (or if material changes) Top 18" – Sample Daily	-	Obtain a representative sample from entire width of roadway	-	RCE	Compaction: SC-T-29 SC-T-30 SC-T-31 SC-T-32	Below 18": (1) Each 2,000 CY min. of (1) per Lift Top 18" (1) Each 1,000 ft per 2 lanes	<u>S:</u> 205	Specify if the sample is Below 5' of Finished Grade – *If material placed below top 5' is questionable as muck, it can be sampled as needed.
	Borrow, Embankment*	BorrEmb-203	(1) Each day of work from each source used For Screenings or other consistent manufactured materials – sample daily for 1st 10 days per source and if consistent, then weekly		Obtain a representative sample from entire width of roadway	-	RCE	Compaction: SC-T-29 SC-T-30 SC-T-31 SC-T-32	(1) Each 2,000 CY min. of (1) per Lift	<u>S:</u> 205	Specify if the sample is Below 5' of Finished Grade For Screenings or other consistent manufactured materials – Use AASHTO T99 in lieu of SC-T-29 for compaction testing.
	Borrow Embankment Subgrade Top 18 inches	BorrSubgrade203	(1) Each 1,000 ft per 2 lanes		Obtain a representative sample from entire width of roadway	-	RCE	Compaction: SC-T-29 SC-T-30 SC-T-31 SC-T-32	(1) Each 1,000 ft per 2 lanes	<u>S:</u> 205	

Product	Material Description	SiteManager Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Base	Base, Sand Clay	BaseSanClay-303	(1) Each 1,000 ft per 2 lanes	10 Lbs.	Obtain a representative sample from entire width of roadway	-	RCE	Compaction: SC-T-29 SC-T-30 SC-T-31 SC-T-32 Depth Check:	(1) Each 2,000 CY min. of (1) per Lift 1) Each 250ft per 2 lanes (Form 300.01)	<u>S:</u> 303	-
	Base, Coquina Shell Course	BaseCoq-304	(1) Initial Theoretical Density Sample (1) Each 1000 ft per 2 lanes each layer	(5) 70 Lb. bags 25 Lbs.	SC-T-1	QPL 4	RCE	Compaction: SC-T-30 SC-T-31 SC-T-32	(1) Each 2,000 CY min. of (1) per Lift (Form 300.03) Each 250ft per 2 lanes (Form 300.01)	<u>S:</u> 304	-
Graded Aggregate Base	Base, Macadam Course	BaseMac-305	(1) Initial Theoretical Density Sample	(5) 70 Lb. bags	SC-T-1	QPL 2	RCE	Compaction: SC-T-30 SC-T-31 SC-T-32 Depth Check:	(1) Each 1,000ft per 2 lanes each layer (Form 300.03)	<u>S:</u> 305	-
	Base, Marine Limestone	BaseMarLime-305		(1) Each 1000 ft per 2 lanes each layer	70 Lbs.				SC-T-100	Each 250ft per 2 lanes (Form 300.01)	
	Base, Recycled PC Concrete	BaseRecyConc305									
Cement Treated Base	Earth Base, Cement Stabilized	-	(1) Initial Mix Design & Theoretical Density Sample	(2) 70 Lb. bags	Obtain a representative sample	-	RCE	Compaction: SC-T-30 SC-T-31 SC-T-32 Depth Check: Cement Application Rate: SC-T-141	(1) Each 1,000ft per 2 lanes (Form 300.03) Each 250ft per 2 lanes (Form 300.01) Daily Average & Spot Checks	<u>S:</u> 306	Submit material for Mix Design to OMR 30 days prior to construction
	Recycled Base, Cement Modified	-	-	-	-	-	RCE	Compaction: SC-T-30 SC-T-31 SC-T-32 SC-T-33 Depth Check: Cement App Rate: SC-T-141	(1) Each 1,000ft per 2 lanes (Form 300.06) Each 500ft per 2 lanes (Form 300.01) (1) per Tanker Load	<u>S:</u> 306 <u>STS:</u> SC-M-306 (1/18)	Submit Contractor's Mix Design to OMR for approval 2 weeks prior to construction
	Aggregate Base, Cement Stabilized	-	Sample & submit aggregate samples according to GAB guidelines	-	If a Pugmill is used, sample the virgin aggregate from the stockpile (1) Each 1,000 Tons SC-T-1	-	RCE	Compaction: SC-T-33 Depth Check: Cement Application Rate: SC-T-141	(1) Each 1,000ft per 2 lanes (Form 300.03) Each 250ft per 2 lanes (Form 300.01) Daily Average & Spot Checks	<u>S:</u> 308 <u>STS:</u> SC-M-308 (10/15)	Submit Contractor's Mix Design to OMR for approval 2 weeks prior to construction Observe & document QC compressive strength specimen sampling & testing
	Subbase, Cement Modified	SubCemMod-301	(1) Initial Mix Design & Theoretical Density Sample (1) per Day	(2) 70 Lb. bags (2) 4" diameter Cores	Obtain a representative sample Construction Manual 301.3.3.5	-	RCE	Compaction: SC-T-30 SC-T-31 SC-T-32 Depth Check: Cement App Rate: SC-T-141	(1) Each 1,000ft per 2 lanes (Form 300.06) Each 500ft per 2 lanes (Form 300.01) Daily Average & Spot Checks	<u>S:</u> 301	Submit material for Mix Design to OMR 30 days prior to construction

Product	Material Description	SiteManager Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks	
Cement	Portland Cement Type I	CementTypeI	(1) Each 100 Tons for Concrete use	(1) Gallon	SC-T-47	QPL 6	RCE	-	-	S: 701 SS: (5/5/14) SS: (5/5/14) S: 701.4.9 SS: (5/5/14) S: 701.4.9 SS: (5/5/14)	Sample requirement waived for use in non-structural Class 2500 concrete Mill Test Report is required. Submit to OMR along with sample.	
	Portland Cement Type II	CementTypeII	(1) Each 400 Tons for Base use									
	Portland Cement Type III	CementTypeIII										
	Cement Type I (Slag Modified)	CementTypeI	(1) Each 100 Tons									QPL 18
	Fly Ash, PC Concrete	FlyAshPCC-701	(1) Each 50 Tons									QPL 3
	Slag, Granulated	SlagPCC-701	(1) Each 50 Tons									QPL 6
Masonry	Clay Brick	ClayBrick	(1) Each 50, 000 Bricks	(6) Bricks	-	-	RCE	-	-	S: 718	-	
	Concrete Block	ConBlock-718	(1) Each Source	(6) Blocks								
	Concrete Brick	ConcBrick	(1) Each 50,000 Bricks	(6) Bricks								
	Grout	Grout	(1) per 10 CY	(1) Set of 3 Cubes (2")						ASTM C109		S: 704 SS: (1/2/13)
Concrete	Concrete Cylinder, Class 2500	ConcCyl. 2500	Non-structural Class 2500: (1) per 50 CY Structural: (1) per 50 CY on small pours & min. of 1/structure if <50 CY or (1) per 100 CY on large pours* *exceeds 100 CY Pavement: (1) per 1500 CY & a min. of 1 per production day	Non-structural Class 2500: (1) Set of 3 Cylinders (4" x 8") Structural: (1) Set of 3 Cylinders (4" x 8") Pavement: (1) Set of 6 Cylinders (6" x 12") 3 Cylinders will be tested at 72 hrs 3 Cylinders will be tested at 28 days	ASTM C172 ASTM C31	QPL 28	RCE	Slump: (AASHTO T-119, ASTM C143) Air Content: (AASHTO T-196, ASTM C231 or ASTM C173) Temperature: (ASTM C1064) Thickness Verification:	Structural: (1) each time test specimens are made Pavement: (4) each days production, and each time test specimens are made Pavement: See STS SC-M-503 (03/08)	Structural: S: 701, 702, 704 SS: (2/1/2015) (8/1/2014) (5/5/2014) (8/2/2013) Pavement: S: 501 SS: (8/2/2013) STS: SC-M-501 (03/08)	Report field test results on Ready Mix Concrete Report (Form 700.04) Not Required for Non-structural Class 2500 concrete *Small Quantity Acceptance Air Content & Temperature field testing is waived for High Early Strength Mix	
	Concrete Cylinder, Class 3000	ConcCyl. 3000										
	Concrete Cylinder, Class 4000	ConcCyl. 4000										
	Concrete Cylinder, Class 4500	ConcCyl. 4500										
	Concrete Cylinder, Class 5000	ConcCyl. 5000										
	Concrete Cylinder, Class 5500	ConcCyl. 5500										
	Concrete Cylinder, Class 6000	ConcCyl. 6000										
	Concrete Cylinder, Class 6500	ConcCyl. 6500										
	Concrete Cylinder, Class 7000	ConcCyl.7000										
	Concrete Cylinder, Class 7500	ConcCyl. 7500										
	Concrete Cylinder, Class 8000	ConcCyl. 8000										
	Concrete Cylinder, Class 8500	ConcCyl. 8500										
	Concrete Cylinder, Class 9000	ConcCyl. 9000										
	Concrete Cylinder, Class 9500	ConcCyl 9500										
	Concrete Cylinder, Class 10,000	ConcCyl.										
	Water	Water-701	(1) Each Source	(1) Gallon	Obtain a representative sample	-	RCE	-	-	-	S: 701.2.11	
Roller Compacted Concrete	Roller Compacted Portland Cement	CementTypeI	According to Cement Guidelines			-	RCE	Compaction: SC-T-33	(1) Each 1,000 ft per 2 lanes (Form 300.03)	Contract Special Provision	Observe & document QC compressive strength specimen sampling & testing	
	Roller Compacted Concrete Aggregate	AggCompConcPvmt	(1) per 500 Tons Agg	(1) 40 Lbs.	SC-T-1	QPL 2		Paver Compaction Verification: SC-T-33	(1) per Project, & as determined necessary			
High Friction Surface Treatment	High Friction Surface Treatment Binder	HFST-PolyRes	(1) per 2,000 SY of Treatment & (1) Each Batch	(1) 1/2 - 1 Gallon, Each component	Obtain each component of the binder in a separate tightly sealed container.	QPL 87	RCE	Depth Check:	(1) per 100 SY	SS: (9/1/15)	Compare manual depth checks to equipment output readings to verify calibration	
	High Friction Surface Treatment Agg.	AggHighFriction	(1) per 2,000 SY of Treatment &	(1) 10 Lbs.	SC-T-2	-	RCE	-	-	SS: (9/1/15)	Verify adequate rate/coverage	

Product	Material Description	SiteManager Material Code	Minimum Sample Frequency	Sample Size	Sampling Procedure	QPL	Office to Obtain Sample	RCE to Test (Test-Minimum Frequency)		Spec Reference	Remarks
Bridge Lift	Stone Bridge Lift Material	StoneBridgeLift	(1) per 500 Tons	(1) 100 Lbs.	SC-T-1	QPL 2	RCE	-	-	<u>SS:</u> (3/8/16)	
	Granular Bridge Lift Material	GranBridgeLift	(1) Each day of work from each source used	Base: (1) 70 Lbs. Granular: (1) 20 Lbs.	SC-T-1 SC-T-2	-	RCE	-	-	<u>SS:</u> (3/8/16)	
	Borrow Bridge Lift Material	BorrBridgeLift	(1) Each day of work from each source used	10 Lbs.	Obtain a representative sample	-	RCE	-	-	<u>SS:</u> (3/8/16)	
Reinforcing Steel	Reinforcing Steel # 3 Bar / 10mm	SteelReinf-#3	(1) per month, each size, each shipment Exemption shown in Section 703.2.1.3 of <u>SS:</u> (7/1/19)	(1) 30"	Encompass the entire mill marking in the sampled section	QPL 60	RCE	-	-	<u>S:</u> 703 <u>SS:</u> (7/1/19)	Mill Test Report is required. Submit to OMR along with sample. No reinforcing steel samples are required for Catch Basins. <u>RCE</u> should obtain mill test report for file.
	Reinforcing Steel # 4 Bar / 13mm	SteelReinf-#4									
	Reinforcing Steel # 5 Bar / 16mm	SteelReinf-#5									
	Reinforcing Steel # 6 Bar / 19mm	SteelReinf-#6									
	Reinforcing Steel # 7 Bar / 22mm	SteelReinf-#7									
	Reinforcing Steel # 8 Bar / 25mm	SteelReinf-#8									
	Reinforcing Steel # 9 Bar / 29mm	SteelReinf-#9									
	Reinforcing Steel # 10 Bar / 32mm	SteelReinf-#10									
	Reinforcing Steel # 11 Bar / 36mm	SteelReinf-#11									
	Reinforcing Steel # 14 Bar / 43mm	SteelReinf-#14									
	Reinforcing Steel # 18 Bar / 57.3mm	SteelReinf-#18									
	Steel Reinforcing Wire, Spiral	SteelWireSpiral	(1) Each Size Each Shipment	(1) 40"	-	-	RCE			<u>S:</u> 703	-
	Seven-Wire Strand Reinforcing Cable	Cable704	(1) Each 5 reels per heat number	(1) 30" & (1) 12"	Sample at Prestressed YD	-	OMR			<u>S:</u> 703	-
	Steel, Butt-Welded Splice, Welded Hoop	SteelButtWeld	(1) Each Size Each Shipment	(1) Spliced sample, 30"	Splice located at mid-point of assembled sample	-	RCE			<u>S:</u> 704	-
	Mechanical Couplers for Reinf. Steel	SteelCoupler	(1) Each Lot, Each Size	(1) Assembled sample, 30" (2) Assembled Check Samples: 12" of rebar from each end of coupler		QPL 73	RCE	-	-	<u>S:</u> 703 <u>SS:</u> (7/1/19)	Mill Test Report is required. Submit to OMR along with sample. 30" rebar control bar from heat used in coupler assembly required with check samples. Submit to OMR along with sample.
	Structural Steel Fasteners High Strength	StlStrucFast709	(1) Each possible combo. of bolt lot, nut lot, washer lot, & DTI lot	(3) Assemblies of Bolt, Nut, Washer, & DTI	-	-	RCE	-	-	<u>S:</u> 709	Certification is required. Submit to OMR along with sample. <i>No sample required for bolt assemblies through prestressed girders attaching steel diaphragms.</i>

Summary Of Revisions	
<i>Revision Date:</i>	<i>Summary:</i>
3/1/2020	Updated CMRB reference and curing methods to comply with SC-M-306 (1/2018)
3/1/2020	Added new SM material code for Stone Column Backfill
1/1/2020	Removed sample requirements for Reinforcing Steel (Wire Mesh 4x4, 6x6, & Deformed Wire)
1/1/2020	Revised sample requirements for Concrete Brick- decreased sample size to 6 bricks
1/1/2020	Revised sample requirements for Concrete Block - increased sample size to 6 blocks
6/25/2019	Revised Structural Steel Fasteners to include DTI lot & Remark for bolt assemblies req.
6/19/2019	Revised sampling frequency for Structural Concrete to include small & large pours
6/19/2019	Added Spec Ref SCM 403 to Asphalt OGFC & Surface
6/19/2019	Added Asphalt SMA Surface 9.5mm & 12.5mm
4/1/2019	Added Roller Compacted Concrete sampling of Portland Cement (for clarification)
4/1/2019	Removed sample requirement for Preformed Joint Filler for Concrete (cert only)
4/1/2019	Removed sample requirement for PipePVC (Perf & Solid - Underdrain, Slope Drain)
1/1/2019	Editorial updates to some form numbers and notes
11/1/2018	Revised sample requirements for Reinforcing Steel per updated SS (7/1/18)
11/1/2018	Added note in Reinforcing Steel eliminating the sample requirements for steel in catch basins - material code SteelReinf - CB (mill test report required for RCE file)
11/1/2018	Added sample requirements and new SM material code for Reinforced Soil Slopes
11/1/2018	Removed sample requirements for fence materials
2/7/2018	Revised Micro Surfacing screenings minimum sampling frequency
1/23/2018	Added new Asphalt and CMRB specifications, clarified cement sampling frequencies based on use
10/27/2017	Added Slag, Granulated
9/18/2017	Added Unclassified Excavation used in Embankment to clarify field testing requirements

* Small Quantity Acceptance		
RCE must submit Form 100.25 to report acceptance of small quantity materials to OMR		
Material	Criteria	Maximum Small Quantity
Aggregates	Other than in critical concrete work or asphalt mixes	500 Tons each type
Asphalt PG Binder	-	2500 Tons of Asphalt Mix produced
Asphalt Emulsions	-	5000 Gallons
Portland Cement Concrete	Including component materials for use in structural non-critical items such as sidewalks, curb & gutter, catch basins, signs, fence posts, & guardrail anchoring	50 Cubic Yards

E = Sampling Frequencies may be modified on large projects, as approved by the Materials & Research Engineer.

This guide serves an amendment to Figure 106B & 106C of the SCDOT Construction Manual. It should be used in conjunction with the Materials Certification Requirements List, Qualified Products Policies & Listings, Pretested Materials Policies & Listings, and all other applicable guidance for quality acceptance of materials to be incorporated into the work of SCDOT projects.

Specification Reference Abbreviations:

S = [SCDOT 2007 Standard Specifications for Highway Construction](#)

SS = [Supplemental Specification](#)

STS = [Supplemental Technical Specification](#)

CCR Laboratory Testing Guide

03/01/2020

Product	Material Description	SiteManager Material Code	Lab Testing	Remarks
Aggregate, Coarse (non asphalt)	Aggregate, # 1 Stone	Agg1	AASHTO T 27, Gradation	
	Aggregate, # 4 Stone	Agg4		
	Aggregate, # 5 Stone	Agg5		
	Aggregate, # 56 Stone	Agg56		
	Aggregate, # 57 Stone	Agg57		
	Aggregate, # 67 Stone	Agg67		
	Aggregate, # 6M Stone	Agg6M		
	Aggregate, # 7 Stone	Agg7		
	Aggregate, # 78 Stone	Agg78		
	Aggregate, # 789 Stone	Agg789		
	Aggregate, # 89M Stone	Agg89M		
	Aggregate, # 8M Stone	Agg8M		
	Aggregate, CR-14 Stone Crusher Run	AggCR-14		
	Aggregate, Light Weight Stone	AggLighWeight	AASHTO T 27, Gradation AASHTO T 267, Organic Content	
Aggregate, Fine (non asphalt)	Aggregate, FA-10	AggFA10	AASHTO T 27, Gradation	
	Aggregate, FA-10 / Manufactured Sand	AggFA10M-701		
	Aggregate, FA-12	AggFA12		
	Aggregate, FA-13	AggFA13		
	Aggregate, Fine Agg. Blended	AggFABlend-701		
	Aggregate, Natural Sand used in Asphalt	AggNatSand401		
	Aggregate, Regular Screenings	AggScr		
	Aggregate, Washed Screenings	AggWScr		
Asphalt Emulsions (used in Tack Coat Applications)	Asphalt, Emulsified RS-1 (Rapid Set)	AsphLiqRS1-406	AASHTO T 59, Saybolt Viscosity (25° C or 50°C) AASHTO T 59, % Residue by Evaporation AASHTO T 49, Penetration (1H Only)	Sample only if field application issues exist.
	Asphalt, Emulsified HFMS-1	AspLiqHFMS1-406		
	Asphalt, Emulsified HFMS-1H	AspLiqHFMS1H406		
	Asphalt, Emulsified HFMS-2	AspLiqHFMS2-406		
	Asphalt, Emulsified SS-1 (Slow Set)	AsphLiqSS1-406		
	Asphalt, Emulsified CRS-1	AsphLiqCRS1-406		
	Asphalt, Emulsified CRS-2	AsphLiqCRS2-407		
	Asphalt, Emulsified CMS-2	AsphLiqCMS2-406		
	Asphalt, Emulsified CSS-1H	AsphLiqCSS-1H		
	Asphalt, Emulsified Non-Tracking Tack	AsphLiqNTT		

Product	Material Description	SiteManager Material Code	Lab Testing	Remarks
Asphalt Emulsions (used in Surface Treatment Applications)	Asphalt, Emulsified CRS-1	AsphLiqCRS1-406	AASHTO T 59, Saybolt Viscosity (25° C or 50° C) AASHTO T 59, % Residue by Evaporation AASHTO T 49, Penetration (1H Only)	
	Asphalt, Emulsified CRS-2	AsphLiqCRS2-407		
	Asphalt, Emulsified CRS-2L (Latex)	AsphLiqCRS2L406		
	Asphalt, Emulsified CRS-2P (Polymer)	AsphLiqCRS2P407		
	Asphalt, Emulsified CSS (FDR)	AsphLiqCSS(FDR)		
	Asphalt, Emulsified CSS-1H	AsphLiqCSS-1H		
	Asphalt, Emulsified EAP Special	AsphLiqEAPS-407		
	Poly Mod Emulsified Asph Fog Seal - OGFC	AsphLiqFogSeal		
Asphalt, Micro-Surfacing	Asphalt, Emulsified CQS-Micro	AsphLiqCQSMicro	AASHTO T 59, Saybolt Viscosity (25° C) AASHTO T 59, % Residue by Evaporation	
	Aggregate, Micro Surface Screenings	AggMicroScrn	AASHTO T 27, Gradation AASHTO T 176, Sand Equivalent	
Asphalt, PMTLS	Preventative Maintenance Thin Surf. WMA	Surf-PrevMa_WMA	SCT 75, Ignition Oven SCT 102, Extracted Aggregate Dry Gradation	
	Preventative Maintenance Thin Surface	Surf-PrevMaint		
Asphalt Binder	Asphalt, Liquid PG 64-22	AsphLiqPG64-401	AASHTO T315, DSR AASHTO T316, Rotational Viscometer	Unaged
	Asphalt, Liquid PG 76-22	AsphLiqPG76-401		
Asphalt, OGFC	Open Graded Friction Course	OGFC-403	SCT 75, Ignition Oven SCT 90, Drain Down of Uncompacted Mixture SCT 102, Extracted Aggregate Dry Gradation	Acceptance based on SCM400
	Maintenance Open Graded Friction Course	Surf-Maint-OGFC		
Asphalt, SMA Surface	Stone Matrix Asphalt Course	AspSurf12.5-403	SCT 68, Percent Voids SCT 71, Percent Lime SCT 75, Ignition Oven SCT 83, Maximum Specific Gravity SCT 90, Drain Down of Uncompacted Mixture SCT 102, Extracted Aggregate Dry Gradation	Acceptance based on SCM400
		(SMA 9.5)		
Asphalt, Surface	Surface Type A	Surf-T-A	SCT 68, Percent Voids SCT 71, Percent Lime SCT 75, Ignition Oven SCT 83, Maximum Specific Gravity SCT 90, Drain Down of Uncompacted Mixture SCT 102, Extracted Aggregate Dry Gradation SCT 96, Stability of Asphalt Mixtures by Gyratory*	*SCT 96 for Type E only. Acceptance based on SCM400
	Surface Type B	Surf-T-B		
	Surface Type B Warm Mix Asphalt	Surf-T-B_WMA		
	Surface Type C	Surf-T-C		
	Surface Type C Warm Mix Asphalt	Surf-T-C_WMA		
	Surface Type D	Surf-T-D		
	Surface Type D Warm Mix Asphalt	Surf-T-D_WMA		
	Surface Type E (Sand Seal)	Surf-T-E		
	Surface Type E Warm Mix Asphalt	Surf-T-E_WMA		

Product	Material Description	SiteManager Material Code	Lab Testing	Remarks
Asphalt, Intermediate	Intermediate Type A	Inter-T-A	SCT 68, Percent Voids SCT 75, Ignition Oven SCT 83, Maximum Specific Gravity SCT 102, Extracted Aggregate Dry Gradation	Acceptance based on SCM400
	Intermediate Type B	Inter-T-B		
	Intermediate Type B Special	Inter-T-B(Spec)		
	Intermediate Type Warm Mix Asphalt	Inter-T-B_WMA		
	Intermediate Type C	Inter-T-C		
	Intermediate Type C Warm Mix Asphalt	Inter-T-C_WMA		
Asphalt, Base	Base Type A	Base-T-A	SCT 75, Ignition Oven SCT 102, Extracted Aggregate Dry Gradation SCT 75, Ignition Oven SCT 96, Stability of Asphalt Mixtures by Gyratory* SCT 102, Extracted Aggregate Dry Gradation	Acceptance based on SCM400
	Base Type A Warm Mix Asphalt	Base-T-A_WMA		
	Base Type B	Base-T-B		
	Base Type B Warm Mix Asphalt	Base-T-B_WMA		*Type C & D only Acceptance based on SCM400
	Base Type C (Surface Sand Base)	Base-T-C		
	Base Type C Warm Mix Asphalt	Base-T-C_WMA		
	Base Type D (Surface Sand Base)	Base-T-D		
	Base Type D Warm Mix Asphalt	Base-T-D_WMA		
Asphalt, Shoulder Widening	HMA Shoulder Widening Course	Shoulder-HMA	SCT 75, Ignition Oven SCT 102, Extracted Aggregate Dry Gradation	Acceptance based on SCM400
Backfill	Backfill Materials, MSEW	Backfill-713.08	AASHTO T 27, Gradation AASHTO T 289, pH AASHTO T89 & T 90, Atterburg Limits Cu Calculation from T 27 results	Initial Sample and every 2000CY
			AASHTO T 236, Direct Shear or ASTM D4767, Triaxial Compression AASHTO T 267, Organic Content AASHTO T 288, Resistivity	Initial Sample and every 15000CY
	Reinforced Soil Slope	Backfill-RSS	AASHTO T 27, Gradation AASHTO T 289, pH AASHTO T89 & T 90, Atterberg Limits AASHTO T 267, Organic Content	Initial Sample and every 4000CY
			AASHTO T 236, Direct Shear <u>or</u> ASTM D4767, Triaxial Compression	Initial Sample and every 20000CY
	Pipe, Culvert Backfill (bed for Pipe)	BackfillPipeCul	AASHTO T 27, Gradation (or SCT 34, Elutriation) AASHTO M 145, Classification	

Product	Material Description	SiteManager Material Code	Lab Testing	Remarks
Embankment	Unclassified Excavation used in Embankment	BorrEmb-203	SCT 34, Gradation/Elutriation Method* AASHTO T89 & T90, Atterberg Limits AASHTO T267, Loss on Ignition *AASHTO T27/T11 may be used in lieu of SCT 34 for screenings or other consistent manufactured materials (A-1 to A-3)	Max Dry Density & Optimum Moisture Content in the field will be determined by SCT 29 or SCT 25. For Screenings or other consistent manufactured materials – Use AASHTO T99 in lieu of SC-T-29 for compaction testing. AASHTO T267, Loss on Ignition not required on below 5' samples and is optional for manufactured materials. Max LOI 4% per CR 21
	Borrow, Embankment	BorrEmb-203		
	Borrow Embankment Subgrade Top 18 inches	BorrSubgrade203		
Base	Base, Sand Clay	BaseSanClay-303	SCT 34, Gradation, % Silt, % Clay AASHTO T89 & T90, Atterberg Limits	
	Base, Coquina Shell Course	BaseCoq-304	AASHTO T 27, Gradation AASHTO T 89 & T 90, Atterberg Limits AASHTO T 193, CBR SCT 6, Calcium Carbonate	
Graded Aggregate Base	Base, Macadam Course	BaseMac-305	AASHTO T 27, Gradation AASHTO T 89 & T 90, Atterberg Limits SCT 140, Max Dry Dens. & Opt. Moisture*	*SCT 140 to be run minimum once per source per year or material change
	Base, Marine Limestone	BaseMarLime-306		
	Base, Recycled PC Concrete	BaseRecyConc306		
Cement Treated Base	Aggregate Base, Cement Stabilized	-	AASHTO T 27, Gradation	Sample and submit aggregate according to GAB guidelines.
Cement	Portland Cement Type I	CementTypeI	ASTM C114 ASTM C150 ASTM C204 ASTM C187 ASTM C151 ASTM C191 ASTM C109	
	Portland Cement Type II	CementTypeII		
	Portland Cement Type III	CementTypeIII		
	Cement Type I (Slag Modified)	CementTypeI		
	Fly Ash, PC Concrete	FlyAshPCC-701	ASTM C311 ASTM C430	
	Slag, Granulated	SlagPCC-701	ASTM C989 ASTM C109 ASTM C430 ASTM C1437	
Masonry	Clay Brick	ClayBrick	ASTM C67, Compressive Strength & Absorption	
	Concrete Block	ConBlock-718	ASTM C140, Compressive Strength & Absorption	
	Concrete Brick	ConcBrick		
	Grout	Grout	ASTM C109	

Product	Material Description	SiteManager Material Code	Lab Testing	Remarks
Concrete	Concrete Cylinder, Class 2500	ConcCyl. 2500	SCT 50, Process for Compressive Strength Testing of Portland Cement Concrete Cylinders ASTM C39, Compressive Strength	
	Concrete Cylinder, Class 3000	ConcCyl. 3000		
	Concrete Cylinder, Class 4000	ConcCyl. 4000		
	Concrete Cylinder, Class 4500	ConcCyl. 4500		
	Concrete Cylinder, Class 5000	ConcCyl. 5000		
	Concrete Cylinder, Class 5500	ConcCyl. 5500		
	Concrete Cylinder, Class 6000	ConcCyl. 6000		
	Concrete Cylinder, Class 6500	ConcCyl. 6500		
	Concrete Cylinder, Class 7000	ConcCyl. 7000		
	Concrete Cylinder, Class 7500	ConcCyl. 7500		
	Concrete Cylinder, Class 8000	ConcCyl. 8000		
	Concrete Cylinder, Class 8500	ConcCyl. 8500		
	Concrete Cylinder, Class 9000	ConcCyl. 9000		
	Concrete Cylinder, Class 9500	ConcCyl. 9500		
	Concrete Cylinder, Class 10,000	ConcCyl.		
	Water	Water-701	ASTM C109, Compressive Strength at 7 days ASTM C191, Time of Set ASTM C151, Autoclave Expansion/Soundness AASHTO T-26, pH	Only test non-public water sources
Roller Compacted Concrete	Roller Compacted Concrete Aggregate	AggCompConcPvmt	AASHTO T 27, Gradation	
	Portland Cement	Sample and test according to the applicable Portland Cement guidelines.		
Bridge Lift	Stone Bridge Lift Material	StoneBridgeLift	AASHTO T 27, Gradation AASHTO T 19, Unit Weight	
	Granular Bridge Lift Material	GranBridgeLift	SCT 34, Gradation/Elutriation Method* AASHTO T89 & T90, Atterberg Limits AASHTO M145, Classification AASHTO T 99, Max Dry Density & Optimum Moisture Content AASHTO T 267, Organic Content *AASHTO T27/T11 may be used in lieu of SCT 34 for screenings or other consistent manufactured materials (A-1 to A-3)	AASHTO T267, Loss on Ignition not required on below 5' samples. AASHTO T267 is optional for manufactured materials. Max LOI 4% per CR 21
	Borrow Bridge Lift Material	BorrBridgeLift	SCT 34, Gradation/Elutriation Method* AASHTO T89 & T90, Atterberg Limits AASHTO M 145, Classification AASHTO T 99, Max Dry Density & Optimum Moisture Content AASHTO T 267, Organic Content *AASHTO T27/T11 may be used in lieu of SCT 34 for screenings or other consistent manufactured materials (A-1 to A-3)	AASHTO T267, Loss on Ignition not required on below 5' samples. AASHTO T267 is optional for manufactured materials. Max LOI 4% per CR 21

Product	Material Description	SiteManager Material Code	Lab Testing	Remarks
Reinforcing Steel	Reinforcing Steel # 3 Bar / 10 Metric	SteelReinf-#3	AASHTO T 244, AASHTO M 31 (Yield, Ultimate, Elongation, % Theoretical Weight, Gap Width, Deformation Height)	Gap width and deformation height are not generally failure criteria, however, should be reported with each sample.
	Reinforcing Steel # 4 Bar / 13mm	SteelReinf-#4		
	Reinforcing Steel # 5 Bar / 16mm	SteelReinf-#5		
	Reinforcing Steel # 6 Bar / 19mm	SteelReinf-#6		
	Reinforcing Steel # 7 Bar / 22mm	SteelReinf-#7		
	Reinforcing Steel # 8 Bar / 25mm	SteelReinf-#8		
	Reinforcing Steel # 9 Bar / 29mm	SteelReinf-#9		
	Reinforcing Steel # 10 Bar / 32mm	SteelReinf-#10		
	Reinforcing Steel # 11 Bar / 36mm	SteelReinf-#11		
	Reinforcing Steel # 14 Bar / 43mm	SteelReinf-#14		
	Reinforcing Steel # 18 Bar / 57.3mm	SteelReinf-#18		
	Steel Reinforcing Wire, Spiral	SteelWireSpiral	AASHTO M336, T244 Wire Diameter, Reduction in Area, and Ultimate Stress	
	Steel, Butt-Welded Splice, Welded Hoop	SteelButtWeld	AASHTO T244 Tensile Strength	
	Mechanical Couplers for Reinf. Steel	SteelCoupler	AASHTO T244 Tensile Strength	Coupler model and manufacturer should be compared with QPL 73 to determine eligibility for usage as ultimate or service couplers, and noted on report.
	Structural Steel Fasteners High Strength	StlStrucFast709	ASTM E18 Bolt, Nut and Washer Hardness SC-T-150 or 151 Bolt Assembly Rotational Capacity SC-T-152 DTI Verification	Three assemblies of every heat and lot combination of every component should be sampled and submitted for testing. Certification packets should be submitted and reviewed with each sample of assemblies as shown in <u>S:709.2.4.6.8</u> . Heat and lot numbers should be shown for each component with results on test reports.