



November 4, 2010

Mr. Taylor Davis  
Chatelaine Townhomes Association  
Post Office Box 5539  
Greenville, South Carolina 29606

Reference: **SUMMARY OF PAVEMENT REMOVAL AND  
REPLACEMENT OBSERVATIONS**  
Chatelaine Townhomes Pavement Rehabilitation  
Castellan Drive  
Greenville, South Carolina  
S&ME Project No. 1263-09-457B

Dear Mr. Davis:

This letter presents a summary of construction observations made by our Representative on the project site between the dates of October 12 and 14, 2010. Our services consisted of observing and performing necessary testing as King Asphalt Paving completed recommendations provided to the Chatelaine Townhomes Association (CTA) by S&ME in our Pavement Assessment Report dated January 13, 2010. The work was performed in general accordance with our Proposal No. 10313, dated April 12, 2010.

### **PROJECT HISTORY**

Our recommendations, as stated in the Pavement Assessment Report, included milling and removing four inches of existing pavement on Castellan Drive. After removal of the existing pavement, our recommendation included preparation of the existing subgrade soils for placement of 220 lbs/sy of asphalt binder and 220 lbs/sy of asphalt surface. Prior to placement of new pavement we recommended the exposed subgrade be proofrolled to help identify potential unstable areas of subgrade soils present. Undercut areas encountered should be backfilled with either crushed stone or asphalt binder as needed. In addition to our recommendation, CTA requested King Asphalt Paving remove four inches of subgrade soil and place four inches of stone base in the divided entrance prior to asphalt placement.

### **TESTING AND OBSERVATIONS**

#### **OCTOBER 12, 2010**

Our representative observed as the paving contractor began milling of the existing asphalt pavement along with grading of the associated subgrade soils. After subgrade soils were graded, we observed a proofroll of the exposed soils beneath a loaded tandem axle dump truck. Our proofroll observation revealed low consistency subgrade soils over utility crossings. The areas of low consistency soils were identified to the contractor by our representative. The contractor undercut each locations and backfilled with crushed stone.

**OCTOBER 13, 2010**

Our representative returned on this date to continue our observations. On this date the contractor continued milling existing asphalt and grading of exposed subgrade soils. Additional proofrolls were performed to help identify unstable subgrade soils. The additional areas of unstable subgrade soils were undercut and backfilled with asphalt binder. Asphalt binder was used as backfill materials to help expedite the backfill and binder placement. Milling of existing asphalt and undercut and backfill were completed on this date.

While on-site on this date the contractor also placed asphalt binder for Castellan Drive. During asphalt placement our representative monitored temperature and thickness of the asphalt binder as well as performed nuclear gauge density testing to determine in place relative density. Nuclear gauge tests were also used to help determine the optimum roller pattern to achieve suitable compaction. Density testing resulted in compaction percentages in general accordance with project specifications. A summary of test results is attached.

**OCTOBER 14, 2010**

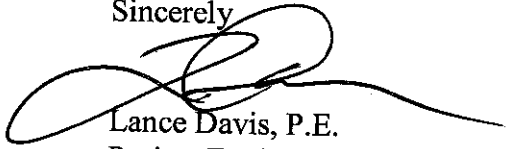
Our representative returned to complete our observations. On this date the contractor completed placement of asphalt surface for Castellan Drive. Our representative monitored temperature and thickness of asphalt surface and performed nuclear density testing. A roller pattern was established to help achieve suitable compaction. Density testing resulted in compaction percentages in general accordance with project specifications. A summary of test results is attached.

Attached to this letter is a Quantity and Bid Sheet including the pay quantities recorded during daily activities in the format used to obtain the original bid, a Quantity Sheet with the overall quantities for the project, and summaries of daily asphalt testing results. We have also included stone and asphalt tickets collected during the course of the project.

**CLOSURE**

We appreciate the opportunity to of service to the Chatelaine Townhomes Association on this project. Please let us know if we can be of any further assistance.

Sincerely



Lance Davis, P.E.  
Project Engineer  
[ldavis@smeinc.com](mailto:ldavis@smeinc.com)

Mike Revis, P.E.  
Senior Engineer  
[mrevis@smeinc.com](mailto:mrevis@smeinc.com)

LD/MR/con09/6309457B/Summary Letter

- Attachments: Quantity and Bid Sheet  
Daily Asphalt Compaction Report  
Field Determination and Target Density for Asphalt



**QUANTITY AND BID SHEET  
CHATELAINE TOWNHOMES ASSOCIATION  
CASTELLAN DRIVE  
S&ME PROJECT NO. 1263-09-457B**

**MILLING AND REMOVAL**

Road Name	Approximate Length (ft)	Estimate Milling Area (sy)	Activity	Total Units	Unit Cost	Cost
Castellan Drive	1825	4696	Milling and Removal (sy)	4696	\$2.70	\$12,679.20
			Asphalt Exceeding 4" (cy)	0	\$15.00	\$0.00
			<b>Total Cost</b>			

\*\* Include milling at the tie-in to the main loop road.

**SUBGRADE REPAIR (UNDERCUT AND BACKFILL)**

Road Name	Estimate Undercut Area (sy)	Estimated Average Undercut Depth (ft)	Activity	Total Units	Unit Cost	Cost
Castellan Drive	724	1.5	Undercut (cy)	115	\$18.50	\$2,127.50
			Crushed Stone (cy)	40	\$25.00	\$1,000.00
			Asphalt Binder (cy)	75	\$75.00	\$5,625.00
			<b>Total Cost</b>			

**ASPHALT BINDER/SURFACE**

Road Name	Approximate Length (ft)	Estimate Pavement Area (sy)	Activity	Total Units	Unit Cost	Cost
Castellan Drive	1825	4696	Asphalt Binder (ton)	540.28	\$61.10	\$33,011.11
			Asphalt Surface (ton)	493.72	\$68.30	\$33,721.08
			<b>Total Cost</b>			

TOTAL      \$88,163.88



301 Zima Park Drive  
 Spartanburg, SC 29301  
 PHONE(864) 574-2360  
 FAX (864) 576-8730

### DAILY ASPHALT COMPACTION REPORT

DATE:	<u>10/13/2010</u>	LOCATION OF PAVING:	<u>Castellan Drive</u>
JOB NAME	<u>Chatelaine Townhomes</u>	TYPE MIX	<u>Binder</u>
JOB NUMBER	<u>1263-09-457B</u>	LIFT THICKNESS	<u>2"</u>
TECHNICIAN	<u>Clay Hendricks</u>	N. GAUGE TARGET DENSITY*	<u>135.6</u>

TEST LOCATION		STATION REPRESENTED ( STA. TO STA.)	NUCLEAR GAUGE TEST	
ROAD	Test Number		NUCLEAR GAUGE DENSITY	PERCENT OF TARGET DENSITY
Castellan Drive	1		132.9	98.01%
Castellan Drive	2		133.0	98.08%
Castellan Drive	3		138.4	102.06%
Castellan Drive	4		136.0	100.29%
Castellan Drive	5		138.6	102.21%
Castellan Drive	6		135.6	100.00%
Castellan Drive	7		136.9	100.96%
Castellan Drive	8		137.5	101.40%
Castellan Drive	9		132.9	98.01%
Castellan Drive	10		133.0	98.08%
		<b>AVERAGES</b>	<b>135.48</b>	<b>99.9%</b>

NOTES: \*Nuclear Gauge Target Density obtained in general accordance with SC-T-65 (SCDOT test method).



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### DAILY ASPHALT COMPACTION REPORT

DATE:	10/14/2010	LOCATION OF PAVING:	Castellan Drive
JOB NAME	Chatelaine Townhomes	TYPE MIX	Surface
JOB NUMBER	1263-09-457B	LIFT THICKNESS	2"
TECHNICIAN	Clay Hendricks	N. GAUGE TARGET DENSITY*	136.1

TEST LOCATION		STATION REPRESENTED ( STA. TO STA.)	NUCLEAR GAUGE TEST	
ROAD	Test Number		NUCLEAR GAUGE DENSITY	PERCENT OF TARGET DENSITY
Castellan Drive	1		135.2	99.34%
Castellan Drive	2		136.1	100.00%
Castellan Drive	3		141.0	103.60%
Castellan Drive	4		135.2	99.34%
Castellan Drive	5		139.2	102.28%
Castellan Drive	6		139.0	102.13%
Castellan Drive	7		138.1	101.47%
Castellan Drive	8		136.7	100.44%
Castellan Drive	9		140.3	103.09%
Castellan Drive	10		133.0	97.72%
		<b>AVERAGES</b>	<b>137.38</b>	<b>100.9%</b>

NOTES: \*Nuclear Gauge Target Density obtained in general accordance with SC-T-65 (SCDOT test method).



**FIELD DETERMINATION OF  
TARGET DENSITY FOR ASPHALT**

301 Zima Park Drive  
Spartanburg SC 29301  
Ph: 864-574-2360  
Fax: 864-576-8730

**S&ME Project No:** 1263-09-457B **Project:** Chatelaine Townhomes Pavement Rehab.  
**Location:** Castellan Drive **Date:** 10/13/2010  
**Total Length:** 1825' **Weather:** Partly Cloudy  
**Type Mix:** Binder **Asphalt Plant:** King  
**Thickness:** 2"

Density									
			Site 1		Site 2		Site 3		
Roller	Mode	Passes	Density	Temp	Density	Temp	Density	Temp	Average Density
Steel Wheel	Static	1	120.9	210	126.9	210	127.8	210	125.2
Steel Wheel	Static	2	130.1	207	126.9	207	127.7	207	128.2
Steel Wheel	Static	3	130.6	204	129.6	204	131.1	204	130.4
Steel Wheel	Static	4	137.0	202	131.3	202	130.9	202	133.1
Steel Wheel	Static	5	132.3	202	131.9	202	132.5	202	132.2
Pneumatic	NA	1	134.1	193	130.6	193	130.0	193	131.6
Pneumatic	NA	2	134.8	190	133.8	190	130.7	190	133.1
Pneumatic	NA	3	135.3	188	133.8	188	133.3	188	134.1
Pneumatic	NA	4	134.2	185	131.8	185	132.1	185	132.7
Steel Wheel	Static	1	139.1	165	136.0	165	132.2	165	135.8
Steel Wheel	Static	2	137.3	163	133.2	163	132.6	163	134.4

**Twelve Random Readings**

1.	135.6
2.	133.1
3.	133.2
4.	136.9

5.	138.2
6.	137.5
7.	135.6
8.	133.6

9.	135.0
10.	134.6
11.	139.9
12.	135.8

**Established Target Density:** 135.6

**Roller Pattern:** 4-3-1

**Contractor:** King Asphalt

**Inspector:** Clay Hendricks

**Subcontractor:** King Asphalt



**FIELD DETERMINATION OF  
TARGET DENSITY FOR ASPHALT**

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Ph: 864-574-2360  
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**S&ME Project No:** 1263-09-457B      **Project:** Chatelaine Townhomes Pavement Rehab.  
**Location:** Castellan Drive      **Date:** 10/14/2010  
**Total Length:** 1825'      **Weather:** Partly Cloudy  
**Type Mix:** Surface      **Asphalt Plant:** King  
**Thickness:** 2"

Density									
			Site 1		Site 2		Site 3		
Roller	Mode	Passes	Density	Temp	Density	Temp	Density	Temp	Average Density
Steel Wheel	Static	1	130.0	210	127.8	210	130.1	210	129.3
Steel Wheel	Static	2	130.9	208	130.7	208	130.5	208	130.7
Steel Wheel	Static	3	132.4	208	134.7	208	133.6	208	133.6
Steel Wheel	Static	4	135.0	202	132.9	202	132.5	202	133.5
Pneumatic	NA	1	140.0	182	136.4	182	138.1	182	138.2
Pneumatic	NA	2	138.4	180	138.6	180	139.1	180	138.7
Pneumatic	NA	3	140.5	175	138.4	175	137.5	175	138.8
Pneumatic	NA	4	138.9	169	133.8	169	133.3	169	135.3
Steel Wheel	Static	1	138.9	150	138.2	150	140.9	150	139.3
Steel Wheel	Static	2	139.4	146	140.4	146	138.7	146	139.5
Steel Wheel	Static	3	140.9	144	137.2	144	140.4	144	139.5

**Twelve Random Readings**

1.	136.4	5.	124.8	9.	137.7
2.	136.9	6.	132.9	10.	140.9
3.	130.7	7.	134.2	11.	135.7
4.	135.9	8.	140.6	12.	140.1

**Established Target Density:** 136.1

**Roller Pattern:** 3-3-2

**Contractor:** King Asphalt

**Inspector:** Clay Hendricks

**Subcontractor:** King Asphalt