

LOCATION MAP

**STATE OF OHIO  
 DEPARTMENT OF TRANSPORTATION**

**CRA/WAY MICRO VAR FY2027**

CITY OF BUCYRUS  
 POLK TOWNSHIP  
 WHETSTONE TOWNSHIP  
 CRAWFORD COUNTY  
 VILLAGE OF SMITHVILLE  
 WOOSTER TOWNSHIP  
 WAYNE COUNTY

**FEDERAL PROJECT NUMBER**

E260271

**RAILROAD INVOLVEMENT**

NONE

**PROJECT DESCRIPTION**

THIS PROJECT WILL INCLUDE PAVEMENT REPAIRS, CRACK SEALING, MICROSURFACING, RPMS, AND PAVEMENT MARKINGS ON SECTIONS OF THREE ROUTES IN CRAWFORD AND WAYNE COUNTIES.

**EARTH DISTURBED AREAS**

PROJECT EARTH DISTURBED AREA: N/A ACRES\*  
 ESTIMATED CONTRACTOR EARTH DISTURBED AREA: N/A ACRES\*  
 NOTICE OF INTENT EARTH DISTURBED AREA: N/A ACRES\*  
 \*MAINTENANCE PROJECT

**2023 SPECIFICATIONS**

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS AND CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

**MAINTENANCE OF TRAFFIC ENDORSEMENT**

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

*Robert Weaver*  
 Robert Weaver  
 District Deputy Director

*Pamela Boratyn*  
 Pamela Boratyn  
 Director, Department of Transportation

**DESIGN DESIGNATION**

SEE SHEET 2

**DESIGN EXCEPTIONS**

NONE REQUIRED

**ADA DESIGN WAIVERS**

NONE REQUIRED

**INDEX OF SHEETS:**

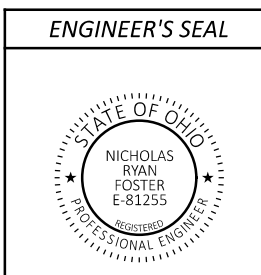
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**UNDERGROUND UTILITIES**  
 Contact Two Working Days  
 Before You Dig

**OHIO811.org**  
 Before You Dig

OHIO811, 8-1-1, or 1-800-362-2764  
 (Non members must be called directly)

PLANS PREPARED BY:  
 OHIO DEPARTMENT OF TRANSPORTATION  
 DISTRICT THREE ENGINEERING



STANDARD CONSTRUCTION DRAWINGS				SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS
BP-3.1	1/19/24	TC-41.20	10/18/13	800-2023 7/18/25	
		TC-42.10	10/18/13	814 7/15/16	
DM-4.3	1/15/16	TC-52.10	10/18/13	830 7/19/19	
DM-4.4	1/15/16	TC-65.10	1/17/14	832 7/18/25	
		TC-65.11	1/17/25	897 1/16/15	
MT-95.30	7/18/25	TC-71.10	7/18/25		
MT-97.10	7/18/25				
MT-97.12	7/18/25				
MT-99.20	4/19/19				
MT-101.90	7/17/20				
MT-104.10	1/19/24				
MT-105.10	1/17/20				

TITLE SHEET

DESIGN AGENCY  
 DISTRICT 3

ENGINEERING TEAM TWO

DESIGNER  
 CMH

REVIEWER  
 NRF 02/26

PROJECT ID  
 114684

SHEET TOTAL  
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**PROPOSED LEGEND:**

- ① ITEM 421 - MICROSURFACING, SURFACE COURSE (FR)  
ITEM 421 - MICROSURFACING, SURFACE COURSE, AS PER PLAN E-FLEX \*
- ② ITEM 421 MICROSURFACING, LEVELING COURSE  
ITEM 421 MICROSURFACING, LEVELING COURSE, AS PER PLAN E-FLEX \*\*
- ③ ITEM 423 CRACK SEALING, TYPE II OR TYPE III  
(INCIDENTAL TO ITEM 421)

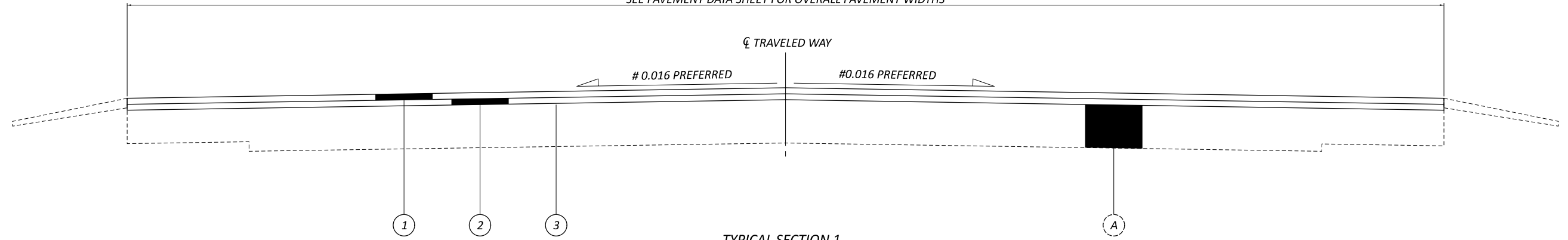
\*: PERFORM SURFACE COURSE, AS PER PLAN E-FLEX ON SR-19 FROM SLM 5.50 TO 11.63 IN THE EASTBOUND DIRECTION ONLY (CENTERLINE TO EDGE OF PAVEMENT). ALL OTHER ROUTES/ SECTIONS ARE TO BE SURFACE COURSE (FR).

\*\* : PERFORM LEVELING COURSE, AS PER PLAN E-FLEX ON SR-19 FROM SLM 5.50 TO 11.63 IN THE EASTBOUND DIRECTION ONLY (CENTERLINE TO EDGE OF PAVEMENT) AND ON SR-585 FROM SLM 2.74 TO 3.99 IN NORTHBOUND DIRECTION ONLY (CENTERLINE TO EDGE OF PAVEMENT). ALL OTHER ROUTES/ SECTIONS ARE TO BE LEVELING COURSE.

**EXISTING LEGEND:**

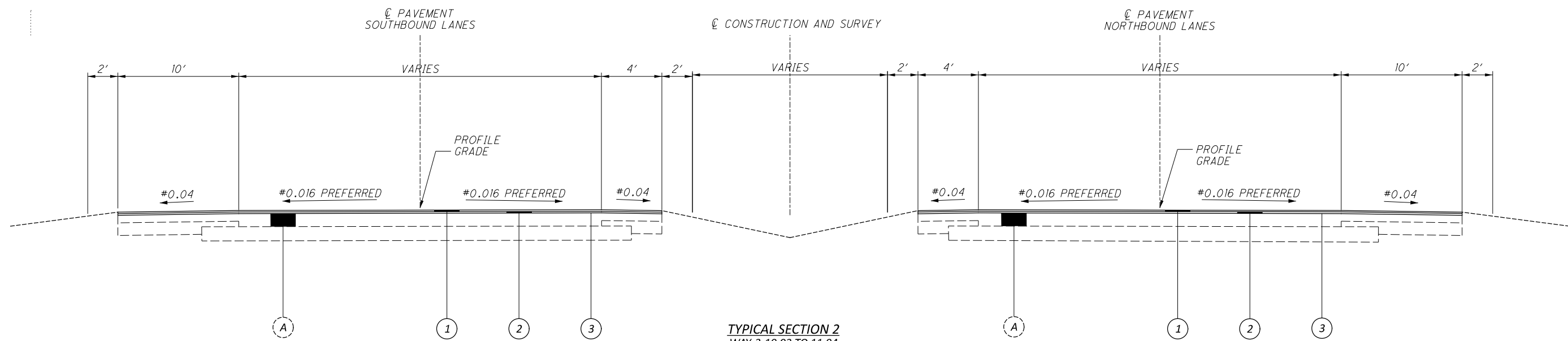
- (A) EXISTING ASPHALT CONCRETE, DEPTH VAIRES  
(BASED ON EXISTING PLANS)

SEE PAVEMENT DATA SHEET FOR OVERALL PAVEMENT WIDTHS



**TYPICAL SECTION 1**  
CRA-19-4.21 TO 12.26  
WAY-585-2.74 TO 4.78

# MATCH EXISTING PAVEMENT GRADE



**TYPICAL SECTION 2**  
WAY-3-10.03 TO 11.94

# MATCH EXISTING PAVEMENT GRADE

TYPICAL SECTIONS

DESIGN AGENCY	DISTRICT 3
ENGINEERING TEAM TWO	
DESIGNER	CMH
REVIEWER	NRF 02/26
PROJECT ID	114684
SHEET	P.4
TOTAL	10

**ITEM 421 – MICROSURFACING, SURFACE COURSE, AS PER PLAN E-FLEX**  
**ITEM 421 – MICROSURFACING, LEVELING COURSE, AS PER PLAN E-FLEX**

FOLLOW REQUIREMENTS OF 421 EXCEPT AS FOLLOWS:

REPLACE THE 702.16 TYPE C EMULSIFIED ASPHALT (BINDER) WITH ERGON ASPHALT & EMULSION'S E-FLEX (CSS-1EP) EMULSIFIED ASPHALT (BINDER) MEETING THE REQUIREMENTS BELOW.

PROPERTY	AASHTO TEST PROCEDURE	Specification
<b>ASPHALT BASE PROPERTIES</b>		
ODSR, KPA (G*/SIN DELTA, 10 RAD/SEC), 76 DEG C	T 315	MIN OF 1.00
<b>TESTS ON EMULSION</b>		
SAYBOLT FULROL VISCOSITY, 50 DEG C, SECONDS	T 59	15 TO 150
SIEVE TEST, %	T 59	MAX OF 0.1
RESIDUE BY EVAPORATION, %	T 59	MIN OF 62
<b>RESIDUE PROPERTIES (1)</b>		
<b>R 78, PROCEDURE B</b>		
MSCR, 70 DEG C, REC AT 3.2 KPA, %	T 350	MIN OF 80
MSCR, 70 DEG C, JNR AT 3.2 KPA	T 350	MAX OF 0.50

- (1) RESIDUE PROPERTIES FROM LOW TEMPERATURE EVAPORATION FOLLOWING AASHTO R 78, PROCEDURE B. AFTER RECOVERING THE RESIDUE, THE SAMPLE MAY BE ANNEALED PRIOR TO TESTING TO REMOVE EXCESS MOISTURE AND PROVIDE FOR A CONSTANT SAMPLE. THE ANNEALING CAN BE ACCOMPLISHED BY PLACING 20 GRAMS OF RESIDUE IN A 6 OZ METAL CONTAINER (APPROXIMATELY 3-INCH DIAMETER) AND HEATING TO 163 DEG C FOR NO MORE THAN 15 MINUTES. THE SAMPLE SHOULD BE STIRRED WITH A SPATULA EVERY 5 MINUTES. THE SAMPLE CAN THEN BE PORED DIRECTLY INTO A 25 MM DSR SILICON MOLD FOR EVALUATION.

PROVIDE CERTIFIED TEST DATA OF EACH TANK SHIPPED TO THE PROJECT SHOWING THE MATERIAL MEETS THE REQUIREMENTS ABOVE. MATERIAL DOES NOT NEED TO BE ON THE SUPPLEMENT 1032 LIST.

FOLLOW 421.03 EXCEPT AS FOLLOWS:


REPLACE THE FOLLOWING MIX DESIGN REQUIREMENTS WITH THE BELOW.

TEST	MIXTURE CONTROL	SPECIFICATION
RANGE OF RESIDUAL ASPHALT, %	SEE 421.12	6.5 TO 9.0
RANGE OF MINERAL FILLER, %	+/- 0.5%	0.5 TO 3.0
TEST	ISSA METHOD	SPECIFICATION
WET TRACK ABRASION LOSS, 1 HR SOAK, G/FT <sup>2</sup>	TB 100	MAX OF 38
WET TRACK ABRASION LOSS, 6 DAY SOAK, G/FT <sup>2</sup>	TB 100	MAX OF 60
LATERAL DISPLACEMENT, %	TB 147	MAX OF 5
EXCESS ASPHALT BY LWT, G/FT <sup>2</sup>	TB 109	MAX OF 50
SYSTEM COMPATIBILITY, MIN GRADE	TB 144	11 POINTS
MIXING TIME, SECONDS, 77 DEG F	TB 113	MIN OF 120
SET TIME, 30 MINUTES, KG-CM	TB 139	MIN OF 12
EARLY ROLLING TRAFFIC TIME, 60 MINUTES, KG-CM	TB 139	MIN OF 20
WATER RESISTANCE, 30 MINUTES	TB 102	NO DISCOLORATION
WET STRIPPING TEST, % COATING	TB 114	MIN OF 90
SYSTEM COMPATIBILITY	TB 115	PASS
TO BE CONDUCTED AT RECOMMENDED JOB MIX FORMULA		
CANTABRO MASS LOSS, % (1)	TX 245-F	MAX OF 2.0
BULK SPECIFIC GRAVITY (1)	AASHTO T 166	2.100 TO 2.400
IDEAL CT, PEAK LOAD (2)	ASTM D8225	MIN OF 2,000
IDEAL CT, CT INDEX (2)	ASTM D8225	MIN OF 100
MSCR, 70 DEG C, JNR AT 3.2 KPA	T 350	MAX OF 0.50

- (1) SAMPLES TO BE PREPARED BY ISSA TB 148 MARSHALL COMPACTION ONLY (30 BLOWS PER SIDE) AND TESTED IN DRY CONDITION AT 25 DEG C.
- A COMPACTION TEMPERATURE OF 154 DEG C HAS BEEN FOUND TO BE SUFFICIENT.
  - FOUR HOURS OF TOTAL HEATING +/- 5 MINUTES HAS BEEN FOUND TO BE SUFFICIENT TO REACH COMPACTION TEMPERATURE.
  - ALLOW TO COOL AND MEASURE BULK SPECIFIC GRAVITY.
  - PERFORM TEX T245-F ONCE THE SAMPLES HAVE DRIED TO CONSTANT MASS IN FRONT OF A FAN AT ROOM TEMPERATURE.
- (2) PREPARE SAMPLES FOR ASTM D8225:
- MIX COMPONENT MATERIALS AND SPREAD THEM APPROXIMATELY TWO INCHES THICK ON RELEASE PAPER. ALLOW THE MIXTURE TO CURE AT 60 DEG C FOR 16 HOURS.
  - PROPORTION THE MATERIAL TO YIELD PROPER DIMENSIONS FOR THE TEST.
  - HEAT THE MIXTURE TO 154 DEG C FOR FOUR HOUR +/- 5 MINUTES AND COMPACT TO A MINIMUM OF 2.200 G/ML WITH A SUPERPAVE GYRATORY COMPACTOR AT 30 GYRATIONS.
  - ALLOW TO COOL AND MEASURE BULK SPECIFIC GRAVITY.
  - PERFORM ASTM D8225 AT LEAST 16 HOURS AFTER TESTING BULK DENSITY.

GENERAL NOTES

DESIGN AGENCY  
 DISTRICT 3



ENGINEERING TEAM TWO

DESIGNER  
 CMH

REVIEWER  
 NRF 02/26


PROJECT ID  
 114684

SHEET TOTAL  
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SHEET NUM.					PART.		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
5	6	7	9	10	01/S5K	02/STR						
											<b>EROSION CONTROL</b>	
					250	250	832	30000	500	EACH	EROSION CONTROL	
											<b>PAVEMENT</b>	
628			194,633		280	348	251	01042	628	CY	PARTIAL DEPTH PAVEMENT REPAIR (ASPHALT CONCRETE BASE)	
			48,549		122,995	71,640	421	10000	194,633	SY	MICROSURFACING, SURFACE COURSE (FR)	5A
			183,088			48,549	421	10011	48,549	SY	MICROSURFACING, SURFACE COURSE, AS PER PLAN E-FLEX	
			60,095		122,995	60,095	421	10010	83,088	SY	MICROSURFACING, LEVELING COURSE	
						60,095	421	10021	60,095	SY	MICROSURFACING, LEVELING COURSE, AS PER PLAN E-FLEX	5A
			7.4		7.4		618	40600	7.4	MILE	RUMBLE STRIPS, SHOULDER (ASPHALT CONCRETE)	
			20.02		5.42	14.6	618	41000	20.02	MILE	RUMBLE STRIPES, EDGE LINE (ASPHALT CONCRETE)	
			1,120		977	143	897	01010	1,120	SY	PAVEMENT PLANING, ASPHALT CONCRETE, CLASS A (BUTT JOINTS 0" TO 0.5")	
			10		9	1	897	02000	10	SY	PATCHING PLANED SURFACE	
											<b>TRAFFIC CONTROL</b>	
				977	460	517	621	00100	977	EACH	RPM	
				977	460	517	621	54000	977	EACH	RAISED PAVEMENT MARKER REMOVED	
				24.15	9.24	14.91	642	00104	24.15	MILE	EDGE LINE, 6", TYPE 1 (WHITE)	
				3.89	3.82	0.07	642	00104	3.89	MILE	EDGE LINE, 6", TYPE 1 (YELLOW)	
				3.82	3.82		642	00204	3.82	MILE	LANE LINE, 6", TYPE 1	
				10.08	2.71	7.37	642	00300	10.08	MILE	CENTER LINE, TYPE 1	
				10.08	2.71	7.37	642	30030	10.08	MILE	REMOVAL OF PAVEMENT MARKING (CENTER LINE)	
				28.04	13.06	14.98	642	30030	28.04	MILE	REMOVAL OF PAVEMENT MARKING (EDGE LINE)	
				3.82	3.82		642	30030	3.82	MILE	REMOVAL OF PAVEMENT MARKING (LANE LINE)	
				1,951	1,951		644	30000	1,951	FT	REMOVAL OF PAVEMENT MARKING (CHANNELIZING LINE)	
				500	500		644	30000	500	FT	REMOVAL OF PAVEMENT MARKING (DOTTED LINE)	
				189	189		644	30000	189	FT	REMOVAL OF PAVEMENT MARKING (STOP LINE)	
				308	276	32	644	30000	308	FT	REMOVAL OF PAVEMENT MARKING (TRANSVERSE/DIAGONAL LINE)	
				8	8		644	30020	8	EACH	REMOVAL OF PAVEMENT MARKING (LANE ARROW)	
				2	2		644	30020	2	EACH	REMOVAL OF PAVEMENT MARKING (LANE DROP)	
				1,951	1,951		646	10300	1,951	FT	CHANNELIZING LINE, 8"	
				189	189		646	10400	189	FT	STOP LINE	
				159	159		646	10600	159	FT	TRANSVERSE/DIAGONAL LINE (WHITE)	
				149	117	32	646	10600	149	FT	TRANSVERSE/DIAGONAL LINE (YELLOW)	
				170	170		646	10620	170	FT	CHEVRON MARKING	
				8	8		646	20300	8	EACH	LANE ARROW	
				2	2		646	20350	2	EACH	LANE REDUCTION ARROW	
				500	500		646	20502	500	FT	DOTTED LINE, 4"	
											<b>MAINTENANCE OF TRAFFIC</b>	
	92	250			250		614	11110	250	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
					32	60	614	12460	92	EACH	WORK ZONE MARKING SIGN	
				11.46	11.46		614	20560	11.46	MILE	WORK ZONE LANE LINE, CLASS III, 6", 642 PAINT	
				30.27	8.13	22.14	614	21550	30.27	MILE	WORK ZONE CENTER LINE, CLASS III, 642 PAINT	
				22.92	22.92		614	22360	22.92	MILE	WORK ZONE EDGE LINE, CLASS III, 6", 642 PAINT	
				5,853	5,853		614	23680	5,853	FT	WORK ZONE CHANNELIZING LINE, CLASS III, 8", 642 PAINT	
				303	303		614	26610	303	FT	WORK ZONE STOP LINE, CLASS III, 642 PAINT	
		12			12		808	18700	12	SNMT	DIGITAL SPEED LIMIT (DSL) SIGN ASSEMBLY	
											<b>INCIDENTALS</b>	
					LS	LS	614	11000	LS		MAINTAINING TRAFFIC	
					3	3	619	16010	6	MNTH	FIELD OFFICE, TYPE B	
					LS	LS	623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
					LS	LS	624	10000	LS		MOBILIZATION	

GENERAL SUMMARY

DESIGN AGENCY  
DISTRICT 3



ENGINEERING TEAM TWO

DESIGNER  
CMH

REVIEWER  
NRF 02/26

PROJECT ID  
114684

SHEET TOTAL  
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PLAN SPLIT	COUNTY	ROUTE	LOG POINT TO LOG POINT		LENGTH		AVERAGE WIDTH	AVERAGE PAVED SHOULDER WIDTH		TYPICAL	PAVEMENT AREA	421				423	618		897		
					MILE	FEET		SL	SR			MICROSURFACING, SURFACE COURSE (FR)	MICROSURFACING, LEVELING COURSE	MICROSURFACING, SURFACE COURSE, AS PER PLAN E-FLEX	MICROSURFACING, LEVELING COURSE, AS PER PLAN E-FLEX	CRACK SEALING, MISC.: TYPE II (INCIDENTAL TO ITEM 421)	QUANTITIES FOR ITEM 423 CRACK SEALING ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY. ITEM 423 CRACK SEALING IS CONSIDERED INCIDENTAL TO THE COST OF ITEM 421 MICROSURFACING ACCORDING TO C&MS 421.16.	RUMBLE STRIPS, SHOULDER (ASPHALT CONCRETE)	RUMBLE STRIPS, EDGE LINE (ASPHALT CONCRETE)	PAVEMENT PLANING, ASPHALT CONCRETE, CLASS A (BUTT JOINTS) (TAPER 0.0" TO 0.5")	PATCHING PLANED SURFACE
			STRAIGHT LINE MILEAGE		FT	FT	FT	SY	SY	SY	SY	SY	SY	MILE	MILE	SY	SY				
01/S5K	CRA	19	4.21	5.50	1.29	6,811	27.0			1	20,433	20,433	20,433				2.58	120	1		
02/STR	CRA	19	5.50	11.63	6.13	32,366	27.0			1	97,098	48,549	48,549	48,549	48,549	97,098	12.26				
01/S5K	CRA	19	11.63	12.26	0.63	3,326	27.0			1	9,978	9,978	9,978			9,978	1.26	120	1		
01/S5K	WAY	3, NB	10.03	10.10	0.07	370	30.4	4.0	10.0	2	1,825	1,825	1,825			1,825	0.14	136	1		
01/S5K	WAY	3, NB	10.10	10.23	0.13	686	15.1	4.0	10.0	2	2,218	2,218	2,218			2,218	0.26				
01/S5K	WAY	3, NB	10.23	10.27	0.04	211	28.7	4.0	10.0	2	1,001	1,001	1,001			1,001	0.08				
01/S5K	WAY	3, NB	10.27	10.70	0.43	2,270	22.0	4.0	10.0	2	9,080	9,080	9,080			9,080	0.86				
01/S5K	WAY	3, NB	10.70	10.76	0.06	317	33.2	4.0	10.0	2	1,662	1,662	1,662			1,662	0.12				
01/S5K	WAY	3, NB	10.76	10.82	0.06	317	45.3		10.0	2	1,948	1,948	1,948			1,948	0.12				
01/S5K	WAY	3, NB	10.82	11.65	0.83	4,382	22.0	4.0	10.0	2	17,528	17,528	17,528			17,528	1.66	98	1		
SUSPEND & RESUME @ STRUCTURE WAY-3-11.63R							30.0														
01/S5K	WAY	3, NB	11.71	11.94	0.23	1,214	22.0	4.0	10.0	2	4,856	4,856	4,856			4,856	0.46	98	1		
01/S5K	WAY	3, SB	10.03	10.13	0.10	528	20.4	10.0	4.0	2	2,018	2,018	2,018			2,018	0.20	91	1		
01/S5K	WAY	3, SB	10.13	10.76	0.63	3,326	22.0	10.0	4.0	2	13,304	13,304	13,304			13,304	1.26				
01/S5K	WAY	3, SB	10.76	10.82	0.06	317	45.4	10.0		2	1,951	1,951	1,951			1,951	0.12				
01/S5K	WAY	3, SB	10.82	10.89	0.07	370	34.7	10.0	4.0	2	2,002	2,002	2,002			2,002	0.14				
01/S5K	WAY	3, SB	10.89	11.65	0.76	4,013	22.0	10.0	4.0	2	16,052	16,052	16,052			16,052	1.52	98	1		
SUSPEND & RESUME @ STRUCTURE WAY-3-11.63L							30.0														
01/S5K	WAY	3, SB	11.71	11.94	0.23	1,214	22.0	10.0	4.0	2	4,856	4,856	4,856			4,856	0.46	98	1		
02/STR	WAY	585	2.74	2.82	0.08	422	32.0			1	1,500	1,500	750		750	1,500		143	1		
02/STR	WAY	585	2.82	3.43	0.61	3,221	36.0			1	12,884	12,884	6,442		6,442	12,884	1.22				
02/STR	WAY	585	3.43	3.99	0.56	2,957	26.5			1	8,707	8,707	4,354		4,354	8,707	1.12				
01/S5K	WAY	585	3.99	4.78	0.79	4,171	26.5			1	12,281	12,281	12,281			12,281	1.58	118	1		
SUBTOTALS (01/S5K)												122,993	122,993			122,993	7.40	5.42	977	9	
SUBTOTALS (02/STR)												71,640	60,095	48,549	60,095	120,189			14.60	143	1
<b>TOTALS CARRIED TO THE GENERAL SUMMARY</b>												<b>194,633</b>	<b>183,088</b>	<b>48,549</b>	<b>60,095</b>	<b>243,182</b>	<b>7.40</b>	<b>20.02</b>	<b>1,120</b>	<b>10</b>	

PAVEMENT AND SHOULDER DATA

DESIGN AGENCY	DISTRICT 3
ENGINEERING TEAM TWO	
DESIGNER	CMH
REVIEWER	NRF 02/26
PROJECT ID	114684
SHEET TOTAL	P.9   10