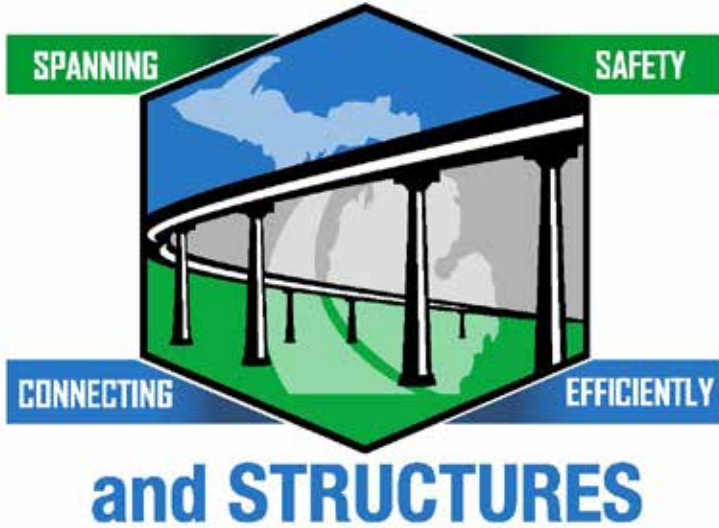


# BUREAU of BRIDGES



**Statewide Bridge Support Unit  
Bridge Preservation  
Bureau of Bridges and Structures**

## Two Case Studies: STR# 4834 – Abutment Crack Repair STR #1607 - Culvert Repair



2024 Michigan Bridge Week Conference – Maintenance Track



# Agenda

## § STR # 4834 -Kent Trail Abutment Crack Repair

- § Extent of the crack in the abutment
- § Show what equipment we used
- § Explain how we fixed it

## § STR# 1607 - Munuscung River Culvert Crack Repair

- § Extent of the crack in the culvert
- § Show what equipment we used
- § Explain how we fixed it

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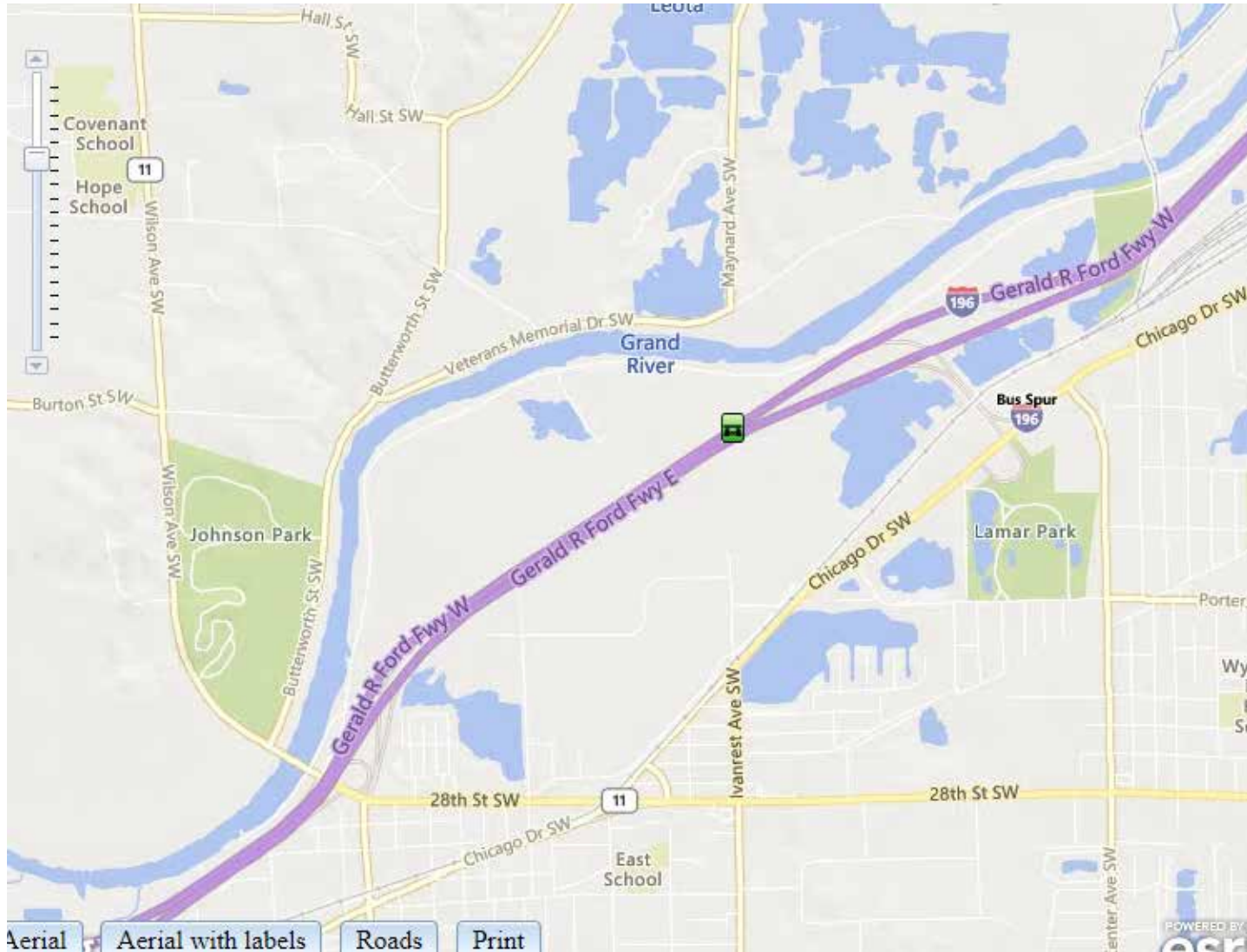
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# Kent Trail Abutment Crack Repair





# Kent Trail Abutment Crack Repair





# Kent Trail Abutment Crack Repair



# Kent Trail Abutment Crack Repair (Widening Section)





# Kent Trail Abutment Crack Repair



# Kent Trail Abutment Crack Repair





# Kent Trail Abutment Crack Repair

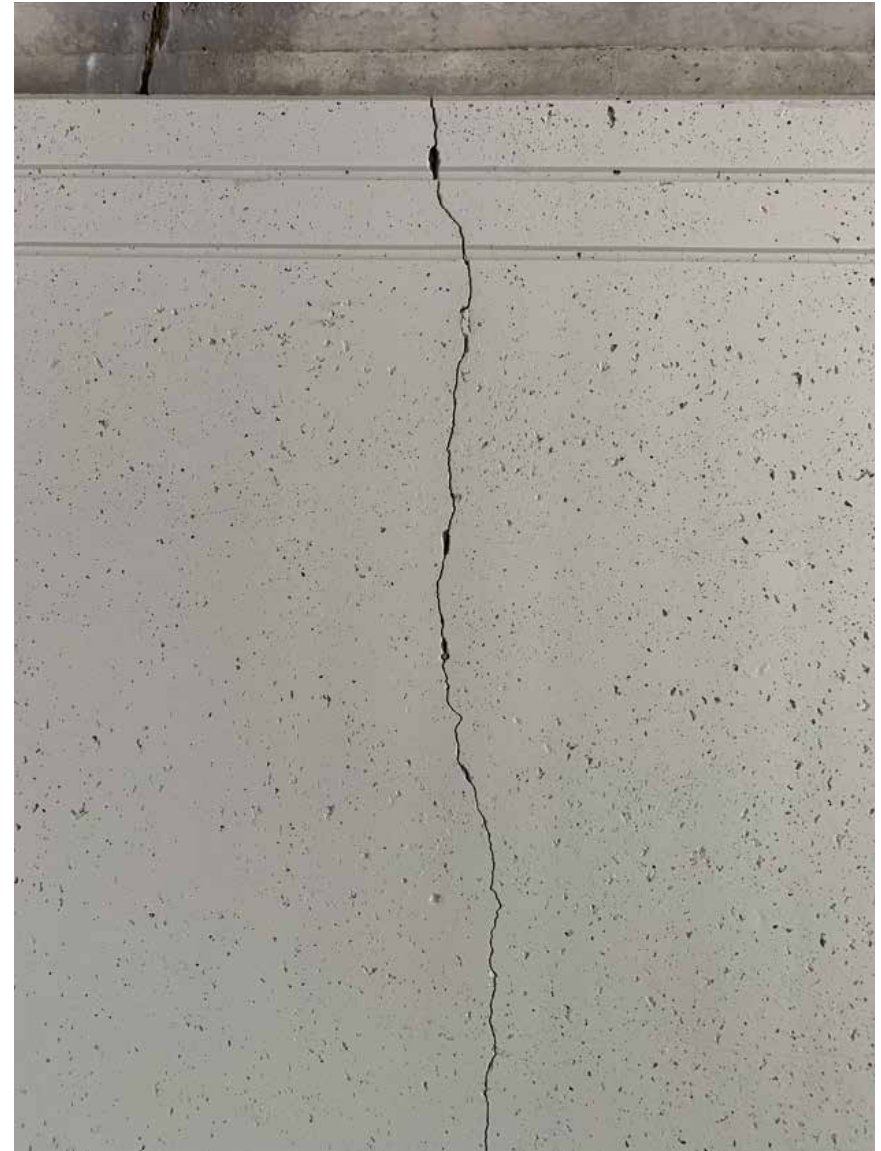


# Kent Trail Abutment Crack Repair





# Kent Trail Abutment Crack Repair





# Equipment Used

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# Specifications

<b>Physical Properties</b>				
		Akabond 818 Resin Part A	Akabond 818 Hardener Part B	Mixed
Composition		Epoxy	Amine	
Mix Ratio, by weight		100	43	
By volume		100	50	
Appearance		Liquid	Liquid	Liquid
Color		Yellow	Blue	Green
Viscosity @ 77°F (25°C) (cPs)	ASTM D-2393	700	35	200
Density @ 77°F (25°C) g/cc (lb/gal)	ASTM D-792	1.13 (9.4)	0.96 (8.05)	
Pot life @ 77°F (25°C) 229g (min)	ASTM D-2471			20

<b>Cured Properties at 74°F (23°C) <sup>1</sup></b>			
		Shore D	
Hardness	ASTM D-2240		82
Tensile Strength	ASTM D-638	psi (MPa)	10,100 (70)
Tensile Modulus	ASTM D-638	psi (MPa)	472,000 (3,250)
Flexural Strength	ASTM D-790	psi (MPa)	14,500 (100)
Flexural Modulus	ASTM D-790	psi (MPa)	511,000 (3,520)
Compressive Strength	ASTM D-695	psi (MPa)	14,700 (101)
Compressive Modulus	ASTM D-695	psi (MPa)	353,000 (2,430)
Glass Transition Temperature (T <sub>g</sub> )	DMA	°F (°C)	141 (61)
Application temperature		°F (°C)	>40 (4)
Final cure		days	7
Water absorption	24 hour immersion	%	0.27

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# Abutment Crack Repair







# Abutment Crack Repair





# Abutment Crack Repair





# Abutment Crack Repair





# Abutment Crack Repair





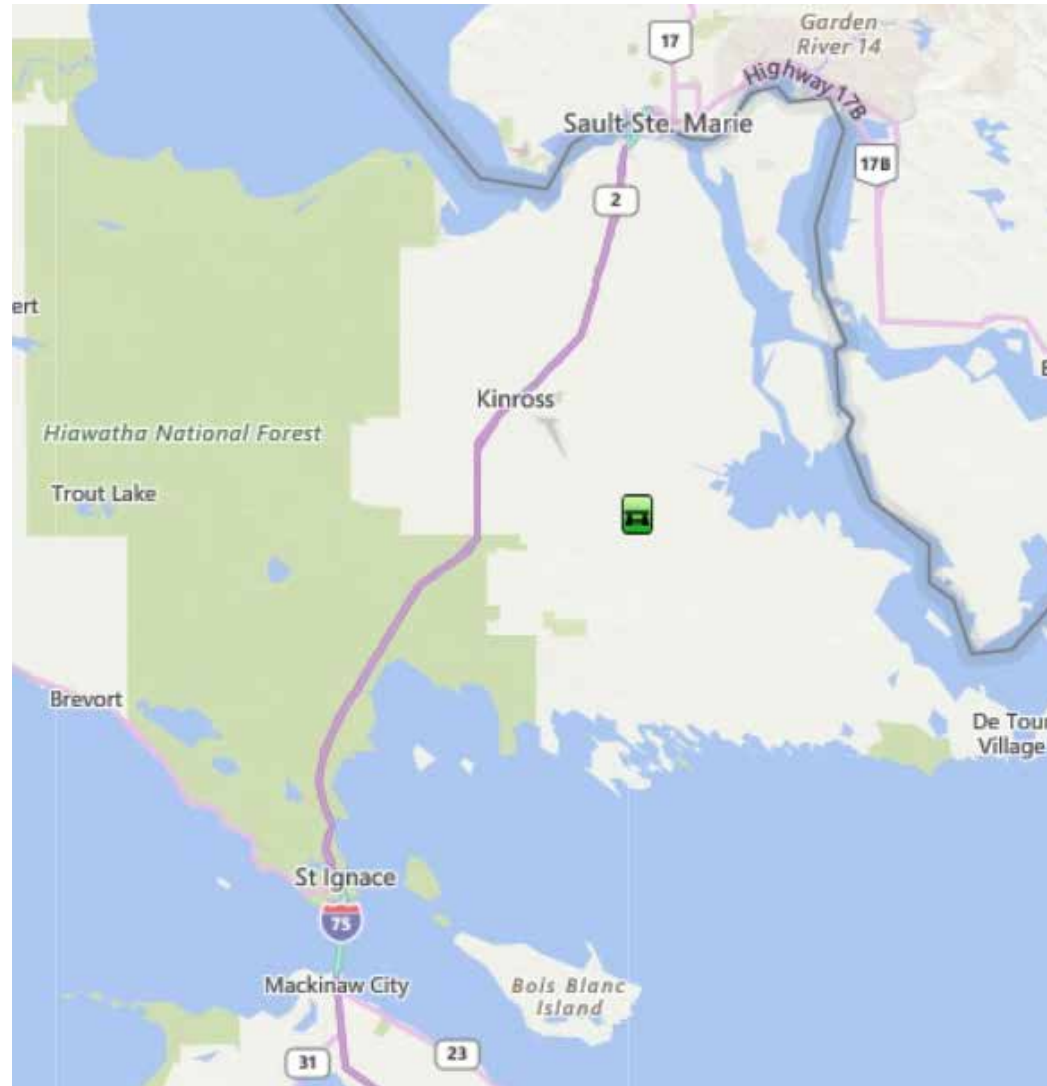
# Munuscong River Culvert Repair

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# BUREAU of BRIDGES

SPANNING SAFETY



CONNECTING EFFICIENTLY

and STRUCTURES



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# Equipment



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# Munuscong River Culvert Repair

Figure 1: Drilling

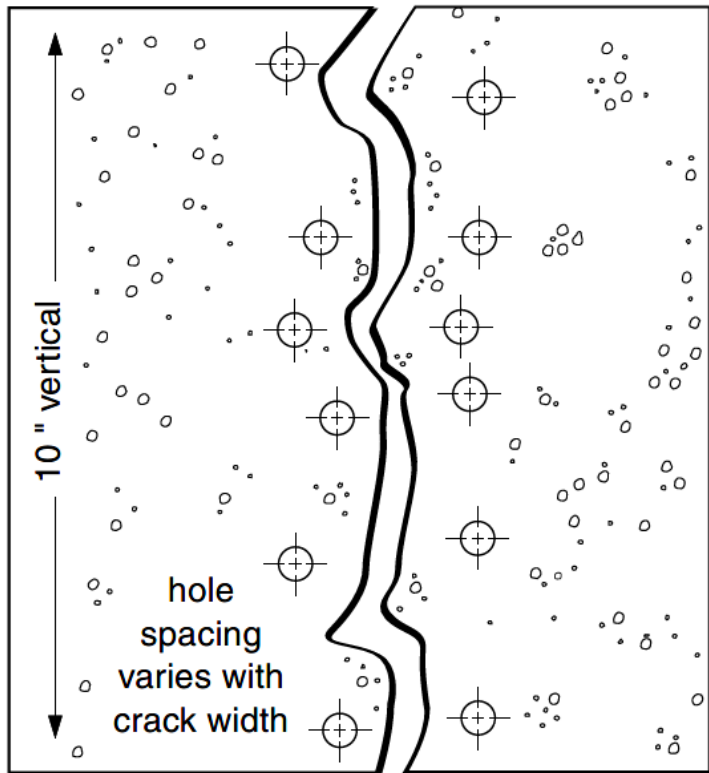
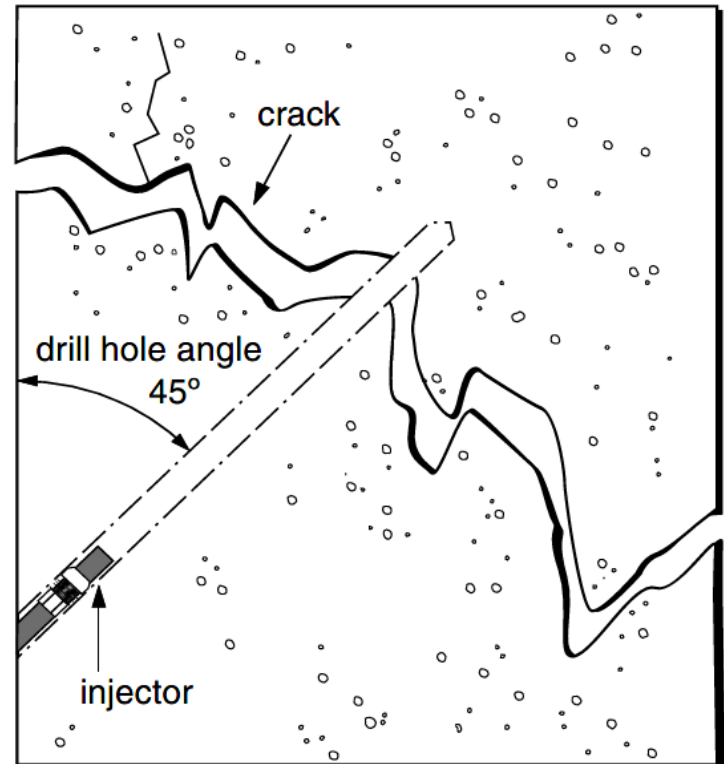


Figure 2: Injecting materials





# Munuscong River Culvert Repair







# Munuscong River Culvert Repairs

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# Questions????



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