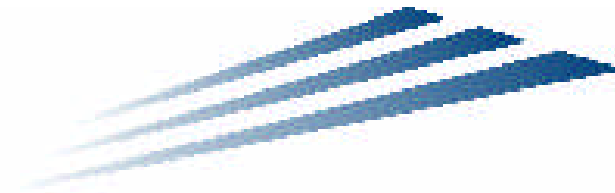


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**EXPERIMENTAL MAINTENANCE PAINTING  
ON VARIOUS BRIDGE PAINTING PROJECTS  
Kentucky Highway Investigative Task No. 31**





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**RESEARCH REPORT  
KTC-02-17/KH31-96-1F**

**FOR**

**EXPERIMENTAL MAINTENANCE PAINTING  
ON VARIOUS BRIDGE PAINTING PROJECTS  
Kentucky Highway Investigative Task No: 31**

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In cooperation with  
Kentucky Transportation Cabinet  
Commonwealth of Kentucky

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September 2002

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## EXECUTIVE SUMMARY

The Kentucky Transportation Center (KTC) at the University of Kentucky conducted a research study with the Kentucky Transportation Cabinet (KYTC) to monitor various experimental bridge painting projects. The research study Kentucky Highways Investigative Task (KHIT) No: 31 “Experimental Maintenance Painting on Various Bridge Projects During 1997-1998” covered experimental bridge projects completed through the FY 1997 and FY 1998 painting seasons (April 1 through November 15) were monitored and reported. The objectives of the research study were to:

- assess the condition of the existing paint on bridge prior to maintenance painting,
- monitor the project throughout completion,
- note problems and their resolution,
- assess the condition of the final product, and
- report on observations of the experimental projects.

The experimental projects included in this study are 1) KY 89 over Red River on the Estill-Clark Co. Line, 2) US 25 over Southern Railroad in Grant Co., 3) KY 55 over Beech Fork River on the Washington-Nelson Co. Line, 4) US 68 over Stoner Creek in Bourbon Co., 5) US 150 over Norfolk Southern Railroad in Boyle Co., 6) I-64 (23 various steel bridges and over 1000 steel rockers on 57 various concrete bridges) in Fayette, Clark, Montgomery, Bath, Carter, Rowan, and Boyd Co.’s, and 7) I-75 (14 various steel bridges and over 1000 steel rockers on 43 various concrete bridges) in Madison, Rockcastle, Laurel, and Whitley Co.’s. KTC personnel monitored the above projects frequently and thoroughly as part of the study.

The various experimental features incorporated into the specification are 1) use of proprietary and Kentucky Standard Specification coatings systems, 2) new mechanical surface preparation techniques incorporating vacuum-shrouded tools and visual inspection standards, 3) higher washing pressures (than past projects), and the use of spinner pressure washing nozzles, 4) collection of paint debris during washing and cleaning operations along with procedures for handling and disposing of industrial and hazardous wastes, 5) use of full prime coat applications in lieu of spot priming, and 6) quality control/quality assurance (QC/QA) provisions. Field monitoring during the maintenance painting of these bridges focused on KYTC inspection to: 1) determine training needs, 2) assess quality of inspection, 3) identify inspection elements requiring improvement and 4) provide recommendations for specific steps to improve inspection. KTC researchers also monitored the contractors’ processing of hazardous wastes.

The other projects that were randomly monitored were 1) US 62 Bridge Located over KY River at the Tyrone-Woodford Co. Line in Anderson Co., 2) KY 1856 over Chaplin River South of Webster Road in Boyle Co., 3) KY 974 over Dry Fork Creek near the Intersection of Kidd’s Road in Clark Co., 4) KY 3369 over Log Lick Creek 0.837 miles East of KY 974 in Clark Co., 5) KY 29 over Marrowbone Creek 0.30 mile Southwest of KY 90 in Cumberland Co., 6) US 60B Eastbound and Westbound Lane over US 431 near Owensboro in Daviess Co., 7) Main Street at North City Limits of Brownsville (KY 70) over Green River at Brownsville in Edmonson Co., 8) KY 89 over Station Camp Creek 0.40 mile South of KY 52 in Estill Co., 9) New Circle Road (KY 4) over Richmond Road (US 25) in Lexington in Fayette Co., 10) KY 1426 over Beaver Creek 6.0 miles from Jct. US 23 at Allen in Floyd Co., 11) KY 1426 over Rt. Fork of Beaver

Creek 6.10 miles from Jct. US 23 at Allen in Floyd Co., 12) US 62 over Slough of Rolling Fork 0.10 miles West of Nelson Co. in Hardin Co., 13) US 62 over Rolling fork on the Nelson-Hardin Co. Line, 14) KY 1985 over Tates Creek 0.029 mile West of KY 169 in Madison Co., 15) KY 1274 over Licking River at the Menifee Co. Line in Rowan Co., 16) KY 1685 over Glenn's Creek near Intersection with KY 1659 in Woodford Co., and 17) KY 8 Bridge over Kinniconnick Creek (MP 27.124) in Lewis Co. KTC researchers were involved in those projects at the request of KYTC personnel with an understanding that no reporting would be done for these projects. The above listed bridges were let and finished by the end of fiscal year 1996 before KHIT 31 was approved.

# INTRODUCTION

## Background

The Kentucky Transportation Center (KTC) at the University of Kentucky conducted a research study with the Kentucky Transportation Cabinet (KYTC) to monitor various experimental bridge painting projects. The Kentucky Highways Investigative Task (KHIT) No: 31 research study “Experimental Maintenance Painting on Various Bridge Projects During 1997-1998” addressed experimental bridge projects completed through the FY 1997 and FY 1998 painting seasons (April 1 through November 15) were monitored and reported. The objectives of the research study were to:

- assess the condition of the existing paint on bridge prior to maintenance painting,
- monitor the project throughout completion,
- note problems and their resolution,
- assess the condition of the final product, and
- report on observations of the experimental projects.

The work done under KHIT 31 covers projects performed through the FY 1997 and FY 1998 painting seasons (April 1 through November 15). The experimental projects included under this study are summarized in Appendices A-G (below). They include single structure projects incorporating experimental coatings systems (enumerated in the specific appendices) and multiple structure projects on two interstate routes incorporating the Kentucky Standard Maintenance Painting System.

The experimental projects included in this study are 1) KY 89 over Red River on the Estill-Clark Co. Line, 2) US 25 over Southern Railroad in Grant Co., 3) KY 55 over Beech Fork River on the Washington-Nelson Co. Line, 4) US 68 over Stoner Creek in Bourbon Co., 5) US 150 over Norfolk Southern Railroad in Boyle Co., 6) I-64 (23 various steel bridges and over 1000 steel rockers on 57 various concrete bridges) in Fayette, Clark, Montgomery, Bath, Carter, Rowan, and Boyd Co.’s, and 7) I-75 (14 various steel bridges and over 1000 steel rockers on 43 various concrete bridges) in Madison, Rockcastle, Laurel, and Whitley Co.’s. KTC personnel monitored the above projects frequently and thoroughly as part of the study.

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### **Improvements in Overcoating Practice**

Prior to KHIT 31, KYTC officials formed the Project Design Team to include key personnel with special and necessary expertise to address the complex issues being encountered as KYTC overcoating practices evolved. Representatives from the Divisions of Construction, Materials and Operations formed the initial Project Design Team along with KTC researchers. Early overcoating projects had produced good results, and opportunities for improvement were identified to be acted upon in a series of experimental projects (1, 2). A Kentucky Standard Specification for Maintenance Coatings was formulated by the Division of Materials in conjunction with technical assistance from the Bayer Corporation of Pittsburgh, PA in 1995. The specification evolved over the period of 1995-96. It incorporated the use an aluminum-pigmented single-component moisture cure polyurethane coating used as a primer and intermediate coating along with a high-gloss aliphatic two-component top coat. After this coating was adopted, KYTC officials sought to employ it to the greatest extent possible while investigating other coatings systems that exhibited good laboratory or field test patch performance (on beams at the KYTC steel bridge yard in Frankfort). Several vendors were found to provide the Kentucky Standard coatings.

KYTC Project Design Team members began to re-think the overcoating practices they had employed previously. Prior to KHIT 31, the KYTC emphasis had been on obtaining low-cost projects with appearance and durability being reduced priorities. To achieve the overall cost objective, previous projects had employed noninvasive painting practices which were aimed at minimum disturbance of existing coatings and rust. The existing paint on most bridges contained lead and efforts to remove loose paint and rust would inevitably create hazardous waste. To address that situation, low washing pressures were used and mechanical surface preparation was eliminated. Painters were instructed to thoroughly work new paint into exposed edges of existing paint and into rust by brushing. The painters were not allowed to remove the existing loose paint

with scrapers. The “paint cheap – paint often” philosophy worked very well on bridges in excellent condition. However, on bridges having existing paint in relatively poor condition, the newly applied coatings failed rapidly especially when painted over stratified rust.

The new Kentucky Standard coatings system showed promise for very durable overcoating projects if properly applied over reasonable sound substrates. Previous projects had shown that those coatings could be applied over weakly bonded existing coatings and would not cause disbonding. Prior experimental overcoating projects had indicated that contractor quality was a concern. Also, oversight of painting projects by regulatory agencies had become more commonplace. Even the noninvasive coatings projects produced a limited amount of paint debris. Efforts would be needed to collect the debris and properly dispose of it if hazardous.

New approaches were needed to provide better substrates for more durable overcoating projects. This meant more aggressive pressure washing which entailed the use of higher washing pressures and rotating columnar spraying nozzles or “spinner tips” to better remove weakly bonded existing paint and more rapidly purge surfaces of soils. Mechanical surface preparation was needed to remove loose and stratified rust. Better controls were needed to ensure proper cleaning and application of coatings. The number of coats of new paint required to effectively overcoat existing paint and other substrates needed to be determined. Additionally, new requirements were necessary to ensure that contractors effectively captured paint and rust debris and disposed of them in a regulatory compliant manner. Regulatory compliance was to be a major concern as KYTC painting operations were beginning to receive increased scrutiny by government resource agencies. The experimental projects investigated under KHIT 31 entailed the Project Design Team’s initial attempts to address those issues.

While seeking better painting projects, the Project Design Team realized that low initial costs were also very important. A major factor in evaluating the success of these projects would be the project cost. The new forms of overcoating had to prove more economical than total removal/containment projects on a life-cycle cost basis and reasonably close in initial costs to the previous “non-invasive” overcoating approach.

The Project Design Team was confident in that the methods selected would provide good projects and, as a consequence, two of the projects – one on I 64 between Lexington and the Kentucky/West Virginia State Line and the other on I 75 between Lexington and the Kentucky/Tennessee State Line included multiple bridges and were the largest projects let to date.

## **EXISTING COATING/BRIDGE CONDITIONS**

The existing coating conditions and the extent of corrosion encountered on most of the bridges did not vary significantly from those on previous bridge overcoating projects. Most of the structures overcoated were overpass or main line deck girder bridges on primary, secondary and interstate routes. Several bridges carried rail traffic and one was over a railroad. One of the projects was a truss bridge in a rural area.

The existing coatings on most of the experimental bridges were alkyds with the majority being multi-coat red lead primers with lead-pigmented topcoats. Some of those may have had a field applied intermediate coat of type 615 D basic lead silico-chromate (BLSC) primer. Some of the mainline bridges on I 64 and the KY 55 bridge had the BLSC primer with a leafing aluminum pigmented alkyd intermediate coats and a non-leafing aluminum top coats. The KY 89 Bridge, the only truss being experimentally painted, had an inorganic zinc primer and a vinyl top coat.

The condition of the existing coatings varied with the age of the structures. As could best be determined, none of the bridges had been recoated previously and the existing coating thicknesses were not excessive. The US 25 and the US 150 bridges were older riveted girder structures and their existing coatings were disbonding from the mill scale. The coatings on the US 150 bridge, a rail marshalling yard overpass, were covered with diesel exhaust soot. On the other bridges, there was little disbonding. However, some of the existing coatings were severely chalked and weathered and the bridges had corrosion. Chalking was especially evident on the vinyl topcoat of the KY 89 bridge.

Most of the corrosion on the girder bridges was locations under deck joints (i.e., beam ends and bearing areas). The lower flanges of some roadway overpass bridges also exhibited spot corrosion. Some of the bridges had freckle rusting throughout with the worst corrosion on the outer faces of the fascia girders.

The KY 89 truss bridge had some corrosion on the guardrail and the lower chords. Otherwise, it was in relatively good condition.

## **EXPERIMENTAL FEATURES**

The use of previously listed experimental features on specific experimental projects is shown in the table below. Some of the experimental features, such as the Kentucky Standard Specification coatings system, had been used on previous projects. What was different in these experimental projects were changes in material specifications and contractor requirements, which combined to provide significantly better paint jobs and take advantage of the high performance offered by the polyurethane coatings. Compliance was an attendant issue, both for contractor conformation with specification requirements and the cost impacts of added work such as waste collection and disposal. An overview of each experimental feature is provided below.

<b>Features / Projects</b>	<b>Proprietary Vs KYTC Standard Specification Coating System</b>	<b>Surface Preparation</b>	<b>Washing Pressures (psi)</b>	<b>Containment Screens</b>	<b>Handling of Industrial &amp; Hazardous waste</b>	<b>Full vs. Spot Prime Coat</b>	<b>QC / QA Provisions</b>
KY 89 over Red River on the Estill-Clark Co. Line	*Standard		4,000	85 %	Collect and Transport Waste	1 Spot Prime 1 Full Primer	QA & QC Required
US 25 over Southern Railroad in Grant Co.	Proprietary	Hand and/or Power tool cleaning	4,000	85 %	Collect and Transport Waste	1 Spot Prime 1 Full Primer	QA & QC Required
KY 55 over Beech Fork River on the Washington-Nelson Co.	Proprietary	Hand and/or Power tool cleaning	4,000 (with 0° spinner tip on wand)	85 %	Collect and Transport Waste	1 Spot Prime 1 Full Primer	QA & QC Required
US 68 over Stoner Creek in Bourbon Co.	Proprietary	Hand and/or Power tool cleaning	4,000 (with 0° spinner tip on wand)	85 %	Collect and Transport Waste	1 Spot Prime 1 Full Primer	QA & QC Required
US 150 over Norfolk Southern Railroad in Boyle Co.	*Standard	Hand and/or Power tool cleaning	4,000 (with 0° spinner tip on wand)	85 %	Collect and Transport Waste	1 Spot Prime 1 Full Primer	QA & QC Required
I-64 E From Fayette Co. to West Virginia Border	Standard	Hand and/or Power tool cleaning	4,000 (with 0° spinner tip on wand)	85 %	Collect and Transport Waste	1 Full Primer 1 Intermediate Primer	QA & QC Required
I-75 From Madison Co. to the Tennessee State Line	Standard	Hand and/or Power tool cleaning	5,000 (with 0° spinner tip on wand)	85 %	Collect and Transport Waste	1 Full Primer 1 Intermediate Primer	QA & QC Required

US 62 Bridge over KY River near Tyrone- in Anderson Co.	Proprietary	Removal of dirt and surface cleaning with wet rags	2500			Vacuum Waste	1 Spot Prime 1 Full Primer	QA & QC Required
KY 29 over Marrowbone Creek 0.30 mile Southwest of KY 90 in Cumberland Co.	Standard	Removal of dirt and surface cleaning with wet rags	3500			Vacuum Waste	1 Spot Prime 1 Full Primer	QA & QC Required
US 60B Eastbound and Westbound Lane over US 431 near Owensboro in Daviess Co.	Standard	Removal of dirt and surface cleaning with wet rags	3500			Vacuum Waste	1 Spot Prime 1 Full Primer	QA & QC Required
Main Street at North City Limits of Brownsville(KY 70) over Green River at Brownsville in Edmonson Co.	Standard	Removal of dirt and surface cleaning with wet rags	3500			Vacuum Waste	1 Spot Prime 1 Full Primer	QA & QC Required
KY 89 over Station Camp Creek 0.40 mile South of KY 52 in Estill Co.	Standard	Removal of dirt and surface cleaning with wet rags	3500			Vacuum Waste	1 Spot Prime 1 Full Primer	QA & QC Required
New Circle Rd (KY 4) over Richmond Road (US 25)in Lexington in Fayette Co.	Standard	Removal of dirt and surface cleaning with wet rags	4000	85%		Collect and Transport Waste	1 Spot Prime 1 Full Primer	QA & QC Required
KY 1426 over Rt. Fork of	Standard	Removal of dirt and	2500			Vacuum Waste	1 Spot Prime	QA & QC



Beaver Creek 6.10 miles from Jct. US 23 at Allen in Floyd Co.		surface cleaning with wet rags				1 Full Primer	Required
KY 1426 over Beaver Creek 6.0 miles from Jct. US 23 at Allen in Floyd Co.	Standard	Removal of dirt and surface cleaning with wet rags	2500			Vacuum Waste	1 Spot Prime 1 Full Primer QA & QC Required
US 62 over Slough of Rolling Fork 0.10 miles West of Nelson Co. in Hardin Co.	Standard	Hand and/or Power tool cleaning	4000	85%		Collect and Transport Waste	1 Spot Prime 1 Full Primer QA & QC Required
US 62 over Rolling fork on the Nelson- Hardin Co. Line	Standard	Hand and/or Power tool cleaning	4000	85%		Collect and Transport Waste	1 Spot Prime 1 Full Primer QA & QC Required
KY 1985 over Tates Creek 0.029 mile West of KY 169 in Madison Co.	Standard	Removal of dirt and surface cleaning with wet rags	3500			Vacuum Waste	1 Spot Prime 1 Full Primer QA & QC Required
KY 1274 over Licking River at the Menifee Co. Line in Rowan Co.	Standard	Removal of dirt and surface cleaning with wet rags	3500			Vacuum Waste	1 Spot Prime 1 Full Primer QA & QC Required
KY 1685 over Glenn's Creek near Intersection with KY 1659 in Woodford Co.	Standard	Hand and/or Power tool cleaning	5000 (with 0° spinner tip on wand)	85%		Collect and Transport Waste	1 Primer 1 Interm ediate Primer QA & QC Required
KY 8 Bridge	Standard	Hand	7000	85%		Collect and	1 Full QA &

over Kinniconnick Creek(MP 27.124) in Lewis Co.		and/or Power tool cleaning – SSPC VIS-3	(with 0° spinner tip on wand)		Transport Waste	Primer 1 Intermediate Primer	QC Required
KY 1856 over Chaplin River South of Webster Road in Boyle Co.	Standard	Removal of dirt and surface cleaning with wet rags	3500		Vacuum waste	1 Spot Prime 1 Full Primer	QA & QC Required

‘\*’ - Proprietary systems were replaced by KY Standard system.

### Coatings Systems

The primary coatings system used on the experimental projects was the Kentucky Standard Specification coatings system (previously described above). Experimental coatings systems were used on the US 25, US 68 and US 150 bridges. The US 25 bridge used a calcium sulfonate alkyd. The US 68 bridge used a high-build epoxy system. The US 150 bridge used a proprietary polyurethane system similar to the Kentucky Standard Specification coating system. Several other experimental coatings were scheduled to be employed on the KY 89 and KY 55 bridges, but due to coating manufacturer problems, satisfactory coatings could not be provided and the Kentucky Standard Specification coatings were employed.

### Mechanical Surface Preparation

To address the need for better surfaces to apply the Kentucky Standard Specification coatings, the requirement for both hand-and power-tool cleaning were added to the specifications. Pack/stratified rust was to be removed prior to mechanical surface preparation and all surfaces were to be pressure washed. All surfaces that did not possess sound, adherent paint were to be subject to mechanical surface preparation.

The standard requirements for those operations were to Steel Structures Painting Council specifications SP 2 (hand tool cleaning) and SP 3 (power tool cleaning). Power tool cleaning was the more desirable method and SP 2 cleaning was limited to areas where SP 3 cleaning could not be applied. To provide a measure of worker safety and environmental compliance, the specifications required that the tools be equipped with vacuum shrouds and that the vacuum units have HEPA filters on the outlets. Prior to the onset of the study, the SSPC published a visual standard SSPC VIS 3 Visual Standard for Hand and Power Tool Cleaning. This visual standard was incorporated into some experimental projects for cleaning rusted substrates to SSPC VIS 3 SP3 for the appropriate initial surface condition. Both contractor QC and KYTC QA inspectors were to be provided with the VIS 3 standards (in booklet form with color reference pictures for both initial and prepared substrate conditions).

## **Pressure Washing**

Pressure washing was to be employed after removal of pack/stratified rust. The purposes of this operation were to remove surface contamination (soils, bird droppings chalked or peeling paint) and weakly bonded existing paint. Several washing pressures were specified under this investigative task from 2500 psi to 7000 psi. The washing pressures were significantly higher than those used on most prior projects. The washing pressures were limited to the maximum provided by commonly available low-cost pressure washers. In addition, the use of rotating columnar nozzles was incorporated on several experimental projects to promote more aggressive cleaning and loose paint removal. Areas pressure washed were to be inspected visually and by wiping with a clean rag to identify residue. Surfaces contaminated with diesel fumes or tar was to solvent cleaned. Other methods including steam cleaning were specified to be used if necessary to provide suitably clean substrates for painting. Typically, washed surfaces had to remain unpainted for at least 24 hours to allow for proper drying of the existing substrates.

## **Collection, Handling and Disposal of Paint Debris**

The collection of wastes was to be accomplished under these projects by draping a bib under the portions of the bridge being pressure washed. The bib consisted of 85 % containment tarps supported by cables to filter out paint chips from the waste water which fell onto the ground or into receiving waters. The paint debris captured on the bib was to be removed daily. Solid wastes generated by tool cleaning were to be collected from the vacuum systems. As all alkyd coatings on Kentucky bridges contained lead, the decision was made to declare all wastes from those overcoating projects to be hazardous (to remove a bidding variable). The project was to be assigned a hazardous waste number and the waste removal and disposal were to be performed by licensed transporting firms and treatment/disposal facilities. Besides effective collection, another Project Design Team concern was the proper temporary on-site storage of hazardous wastes. The contractor was allowed to use the Interstate/highway system to transport wastes from dispersed project sites to a central temporary storage site. The storage facility was to be fenced and have a lockable gate. The contractor was responsible for having the wastes transported and disposed of properly and was also required to maintain the manifest forms required by law.

## **Full Prime Coat Applications**

Past projects had indicated that it was difficult to ensure that all areas needing spot priming were properly painted. Typically, the spot prime and full prime were identical coatings making it difficult to separate the two coats. Also, many bridges had extensive freckle rusting and it was difficult for the contractor to properly coat individual rust spots. Those circumstances typically resulted in many missed or uncoated areas.

To address this issue, the Project Design Team elected to employ full priming on some experimental projects along with a full intermediate coat of primer. As both coats of paint used the same coating under the Kentucky Standard Specification for coatings, the decision was made to add a tint to one coat of paint, typically the prime coat to allow the painters and inspectors to properly identify each coat of paint. The Standard Specifications for coatings was modified to

allow minor additions of ferrous oxide into the aluminum pigmented moisture cure primer and to specify its use in one coat of paint (primer or intermediate at the option of the contractor).

On all projects, the primer was applied by brushing. If a spot-priming was performed, the intermediate coat was also to be applied by brushing.

### **Quality Control/Quality Assurance Provisions**

The need for additional contractor quality was identified in many prior projects. Initial efforts to install a full set of quality measures had resulted in high quotes. Prior to these projects, and during them, a set of quality provisions was gradually introduced to promote better contractor quality.

The experimental special notes for these projects required that the contractor employ a QC inspector who could have other duties. He was to break the project up into limited control areas (approved by the KYTC QA inspector) and conduct phased work (washing, mechanical surface preparation, priming, intermediate coat painting and top coating). When a phase of work was completed in a control area, the QC inspector was to conduct 100 percent arms-length inspection. If additional work was needed, the QC inspector was to see that it was properly completed. Then, he was to inform the KYTC QA inspector who would review work in the control area, assess that it was satisfactory and then approve the work and allow the contractor to proceed to the next phase of work. The QC inspector was to keep a log book recording each control area and phase of work/date of completion. When the QA inspector approved the work, he would provide his initials in the appropriate place within the log book. The resident engineer was to handle all disputes between the inspectors. At this time, there were no specific training/education requirements for either inspector.

A key element in the QC/QA process was the requirement that a contractor apply a test patch on an area of about 20 ft<sup>2</sup> which had to be properly washed and mechanically prepared. Then, each successive coat of paint was to be applied using the methods delineated in the special notes, and where contractor options were allowed, using the method employed by the contractor on the project. That area was to be covered in plastic sheet and retained until the end of the project as a reference in addressing disputes.

### **Assessment of Experimental Features**

All of the experimental coatings systems were applied without problems. The Kentucky Standard Specification coating also worked satisfactorily on all projects. One problem identified on the I-64 project was improper mixing of the topcoat (on a railroad overpass at Lexington). The workers on that project were also found using rollers to apply the primer rather than by brushing as was specified. Rolling typically results in thin coating application and doesn't work the paint into crevices as well as brushing. Some problems were encountered on several projects most notably the I-64 project in achieving consistent specified coatings thicknesses. Excessively thick coatings were as common as thin coatings. In part, that was due to inexperienced painters or painters who were not checking the thicknesses of the coatings they applied.

The use of vacuum shrouded power tools provided good cleaning where employed. On the I-64 project, wider use of power tools was needed, but was not always enforced by the KYTC QA inspectors. On other projects, the mechanical surface preparation was properly performed in most instances and appeared to be providing good substrates for painting. Effective QA inspectors felt that the SSPC visual standards for mechanical surface preparation were useful for settling disputes about the quality of the cleaning and coatings applications.

The use of higher washing pressures was effective on most projects. It removed significant amounts of weakly bonded paint on some of the experimental projects and provided good removal of surface grime. The spinner tips were especially effective in enhancing the cleaning action of the pressure washing and a capable operator could readily strip off weakly bonded paint. In some cases, the washing operators moved the spinner nozzles too rapidly across painted surfaces leaving swirl marks and improperly cleaned substrates. A severely weathered vinyl topcoat was encountered on the KY 89 project. After washing, the vinyl would begin to chalk within a matter of minutes. It could be gradually eroded by light rubbing with a cloth. A decision was made to eliminate the cloth wiping test on this structure and paint over the chalked vinyl after it was washed. That decision facilitated the contractor's work and did not result in any problems in completing the project or in the project's performance.

The collection of paint debris was relatively successful with a few exceptions. On the I-64 project, the contractor typically draped the 85 % tarps under the areas being washed to capture paint debris. In some cases, he used grounded tarps to accomplish this. However, on some overpass bridges in the Lexington area, tarps were not used around roadways and the contractor was satisfied with brooming up lead paint debris and collecting it for disposal. That was not acceptable and the contractor was subsequently informed to cease that practice. However, after the project was completed lead paint debris was observed on the ground around several bridges. Paint chips were also found on the ground in the US 25 project in Grant Co.

Typically, the paint wastes were collected without incident and properly disposed. The contractor that performed both the I-64 and the I-75 projects did not always employ hazardous waste temporary storage enclosures as specified in the special notes. He sometimes used highway guardrails as one wall of his enclosures. In one instance on the I-75 project, several barrels of hazardous waste were stolen from his enclosure. All manifesting and waste removal was performed in a timely manner and no regulatory violations were encountered other than the contractor on the I -64 project burning cured paint off of his equipment.

The use of full prime and intermediate prime coats worked well. The tinted aluminum primer could be distinguished from the non-tinted intermediate primer even in low lighting conditions. The color difference also could be visually discerned in Tooke (scratch gage) tests of coating thicknesses allowing inspectors to differentiate the thickness of the two prime coats. There were occasional problems in differentiating the aluminum primer from the gray top coat specified on most experimental projects.

On most projects, the QC/QA provisions provided improvements over previous projects. The I-64 project was an exception to this. Both the KYTC district overseeing the project and the contractor did not pay sufficient attention to the specifications often resulting in workmanship

and results outside the specifications and special notes. Those parties were not present at the scheduled test patch application and, once the project began, variances began to occur in the contractors work. Some of those issues were previously noted. This project was spread out over about 100 miles of interstate/highways and involved many structures. The contractor moved his work about the project in a somewhat random manner and communication between the resident engineer and the contractor were inadequate to promote proper inspections. On one occasion the contractor's personnel were observed painting in conditions outside of those permitted in the project special notes (i.e., painting in the rain).

As the I-64 contractor had also been awarded the I-75 project, Project Design Team members met with the district overseeing that work. They discussed the problems on the other project and received a commitment from the district to properly enforce the specifications (that were almost identical to the I-64 project). The work on that project progressed better and on completion, the Project Design Team members were satisfied with quality obtained on that project.

Follow-on audits of the I-64 project conducted both by KTC researchers and the Project Design Team revealed many coating defects on that project including: 1) inadequate coating thickness, 2) missing coats of paint, 3) painting over stratified rust, 4) areas not completely top coated, 5) improperly prepared surfaces, and 6) improperly mixed paint. Those problems were observed on a significant number of structures along the project.

On other projects, the QC/QA provisions worked reasonably well, noting that they were all single-structure projects. In one case, the contractor did not complete the log book properly, but his work was acceptable.

### **Long-Term Performance of Projects**

This study extended some time after its official completion date due to the need to conduct extensive auditing on the quality of the I-64 project. A similar effort was undertaken on the I-75 project, but was not completed until after sometime later. That time lapse permitted KTC researchers to monitor the long-term performance of the projects and assess the impacts of contractor quality and the performance of the experimental specifications employed. Follow-on inspections were performed in 2001 on some of the projects, a portion of the I-64 and the I-75 projects were inspected at that time to gather additional information.

The proprietary polyurethane system used on the US 150 bridge at Danville was performing very well. The modified epoxy coating used on the US 68 project was also observed to be performing well, although it could not be closely inspected. The calcium sulfonates alkyd used on the US 25 bridge was not performing well in areas under deck joints. Apparently, those (poured asphalt) joints leaked water onto the steel below it causing corrosion. Many of the areas where corrosion occurred were relatively sheltered and probably remained wet for long periods promoting rusting. That joint design is poor and should have been replaced as part of the bridge painting work.

The Kentucky Standard Specification coatings were performing well with the exception of some lower flange corrosion on overpass bridges on the I-64 project and corrosion of steel under joints

on that and other projects. Some of the main line bridges on I-75 had rust staining on areas running under expansion joints that could not be properly painted. As a result, the coatings appeared to have prematurely failed.

One bridge on I-64 had an overlay after the overcoating project was completed. The overlay contractor had allowed a significant amount of deck concrete, removed during cleaning to fall onto the painted steel and damage the paint. A similar situation had occurred previously on the I-64 bridges over the Kentucky River at Frankfort in 1996. Better sequencing of work and additional efforts to prevent debris and concrete slobber from impacting the paint would prevent premature failures of the overcoat system.

### **Follow-on Actions by the KYTC Project Design Team**

During the work on these projects, it became evident to the Project Design Team that the QC inspectors needed more formal training. Before developing an in-house training course, the Project Design Team sought to require National Association of Corrosion Engineers (NACE) Level I certified coating inspectors on follow-on projects. More effort would be placed in training KYTC QA inspectors.

Other elements of the QC/QA process needed to be enhanced. More emphasis would be placed on the test patch application and on the QC inspector's log book. Mandatory pre-bid meetings would be required on more painting projects. The Project Design Team would begin to focus on the quality provided by the QA inspectors. Few major changes were considered necessary for the special notes.

## **REFERENCES**

1. Hopwood, T. and Oberst, C.M., "Environmentally Safe Protective Coatings for Steel Structures – New Construction and Maintenance Painting", Kentucky Transportation Center, Lexington, KY, Report No. KTC-96-7, March 1996.
2. Hopwood, T. and Meade, B.W., "Experimental Maintenance Painting by Overcoating on the I-64, I-71 and KY-22 Bridges", Kentucky Transportation Center, Lexington, KY, Report No. KTC-99-51, July 1999.

**Appendix A: KY 89 Bridge Over Red River On The Estill – Clark County Line In**

Clark County

FEO2 025-0089-000.001 (B21)



# KY 89 Bridge Over Red River On The Estill-Clark County Line

## **Background**

On July 26, 1996 a contract was awarded for the experimental cleaning and painting of the KY 89 Bridge (B21) over Red River on the Estill-Clark County Line. The bridge was steel thru truss with one 130 ft. and 180 ft. spans in Clark County in District 7. The contract award was for a lump sum of \$75,900.00.

## **Special Notes**

The Contract for this project included Special Notes for;

- Washing, and Painting,
- Quality Control,
- Experimental Paint and,
- Maintaining and Controlling Traffic.

In addition to the listed Special Notes the contract required that all work be done in accordance with the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, Section 727 Maintenance Cleaning and Painting Steel Bridges.

The Special Note for washing, and painting required all areas being power washed or steam cleaned be draped with 85 % containment screens to trap all loose, solid debris generated during those operations. Also if the paint was sprayed then total containment was required to contain over-spray.

## **Washing Specifications**

The contract required that all structural steel be cleaned by pressure washing. The steel was to be washed at a minimum of 3,000 psi. The wand nozzle was to be held a maximum of twelve (12) inches from the surface being pressure washed. Additional cleaning (i.e., solvent, steam, or hand cleaning) were required if pressure washing did not sufficiently clean the steel. Areas subjected to additional cleaning procedures were to be power washed.

## **Painting Specifications**

Painting of the bridge consisted of three coats. All structural steel and/or rockers cleaned were to be painted with one brushed-on full primer coat of Moisture Cure Aluminum Polyurethane Primer. One full intermediate primer coat of Moisture Cure Aluminum Polyurethane Primer was to be applied by brushing, rolling or spraying (at the option of the contractor) over all structural steel and/or rockers. At locations where the existing coating was distressed, additional paint thickness was necessary to properly seal crevices and coat irregular surfaces. A full finish coat of Gray Acrylic Polyurethane paint was to be applied by brushing, rolling or spraying (at the option of the contractor). The experimental coatings system designated for this bridge proved unacceptable on delivery due to settling and solidification of the primer pigment in the containers. As a consequence, the Kentucky Standard Specification coating system was substituted.

## Contractor Painting Operations

The contractor moved on to the site on September 12, 1996. The inspectors prepared a list of requirements for the contractor to address work. These included but were not limited to; proper hazardous waste storage area, traffic control, line pressure loss charts, visual standards, and log book. The bridge painting was completed on November 1, 1996.

### Summary

The Special Notes and Standard Specifications were followed throughout the cleaning and painting of bridge. The existing coat of Inorganic Zinc Vinyl was chalking continuously and hence it was decided not to insist on a clean rag that was completely free of paint.

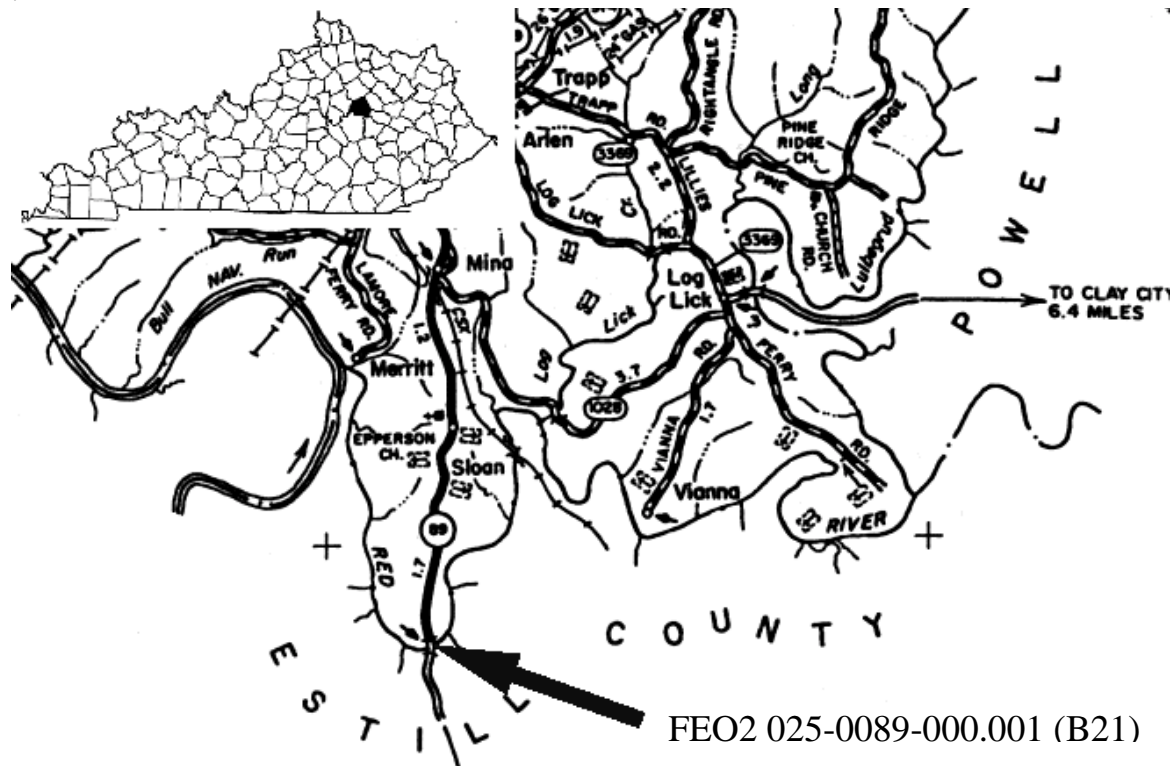


Figure 1. Location map of KY 89 Bridge Over Red River On The Estill – Clark County Line In Clark County.



Figure 2. Painting of KY 89 bridge over Red River in Clark County.



Figure 3. KTC researcher performing a rag test.



Figure 4. Painting the guard rail steel.



Figure 5. Rusting and separation of welds on the cross bracing.



Figure 6. Side view of the cross bracing.



Figure 7. Current status of the Clark County Bridge during follow-up inspection in 2001.



Figure 8. Current condition of truss of the bridge on June 6, 2001.

**Appendix B: US 25 Bridge Over Southern Railroad And Park Drive In Grant**

County

FEO2 041-0025-010.740 (B35)

## US 25 Bridge Over Southern Railroad In Grant County

### **Background**

On September 10, 1996 a contract was awarded for the experimental cleaning and painting of the US 25 Bridge (B35) over Southern Railroad and Park Drive 0.4 mile South of South Jct. KY 22 in Grant County (District 6). This bridge is a steel plate girder span with one 106-ft. R.C.D.G spans with two 57 ft., three 53 ft., one 37 ft. and one 29 ft. steel spans. The bridge possessed (approximately) 126 tons of steel to be painted. The contract award was for a lump sum of \$82,500.

### **Special Notes**

The Contract for this project included Special Notes for;

- Washing, and Painting,
- Quality Control,
- Experimental Paint and,
- Maintaining and Controlling Traffic.

In addition to the listed Special Notes the contract required that all work be done in accordance with the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, Section 727 Maintenance Cleaning and Painting Steel Bridges.

The Special Note for washing, and painting required all areas being power washed or steam cleaned be draped with new 85 % containment screens to trap all loose, solid debris generated during those operations. Also if the paint was sprayed then total containment was required to contain over-spray.

### **Washing Specifications**

The contract required that all structural steel to be cleaned by power washing with clean potable water. The steel was to be washed at a minimum of 3,000 psi. The wand nozzle was to be held a maximum of twelve (12) inches from the surface being pressure washed and approximately normal to the working surface. Additional cleaning (i.e., solvent, steam, or hand cleaning) were required if pressure washing did not sufficiently clean the steel.

### **Cleaning Specifications**

The contractor was required to perform mechanical surface preparation by hand or power-tool cleaning on all surfaces not possessing clean, adherent paint and mill scale. All hand or power-tools were to be equipped with vacuum shrouds for containing and collecting all loose material generated.



## Painting Specifications

Painting of the bridge consisted of three coats. All areas hand or power tool cleaned were to be spot painted with one brushed-on coat of Experimental Oxi-Bloc series 8000 paint. One full primer coat of Experimental Oxi-Bloc series 8000 paint was to be brushed-on over all structural steel, including previously spot-painted areas. A finish coat of Experimental Oxi-Bloc series 8000 paint was to be applied by brushing, rolling or spraying (at the option of the contractor).

## Contractor Painting Operations

The painting contractor moved on to the site on September 10, 1996. The inspectors prepared a list of requirements for the contractor to address work. These included but were not limited to; proper hazardous waste storage area, traffic control, line pressure loss charts, visual standards, and log book. Since this bridge was over a heavily traveled railroad, accessibility was of great concern for the contractor. The bridge painting was completed on September 25, 1996.

## Summary

The Special Notes and Standard Specifications were followed throughout the cleaning and painting of bridge. Since the deck had lot of joints, it permitted the water to seep through the joints and cause staining on the steel surface and eventually rusting.

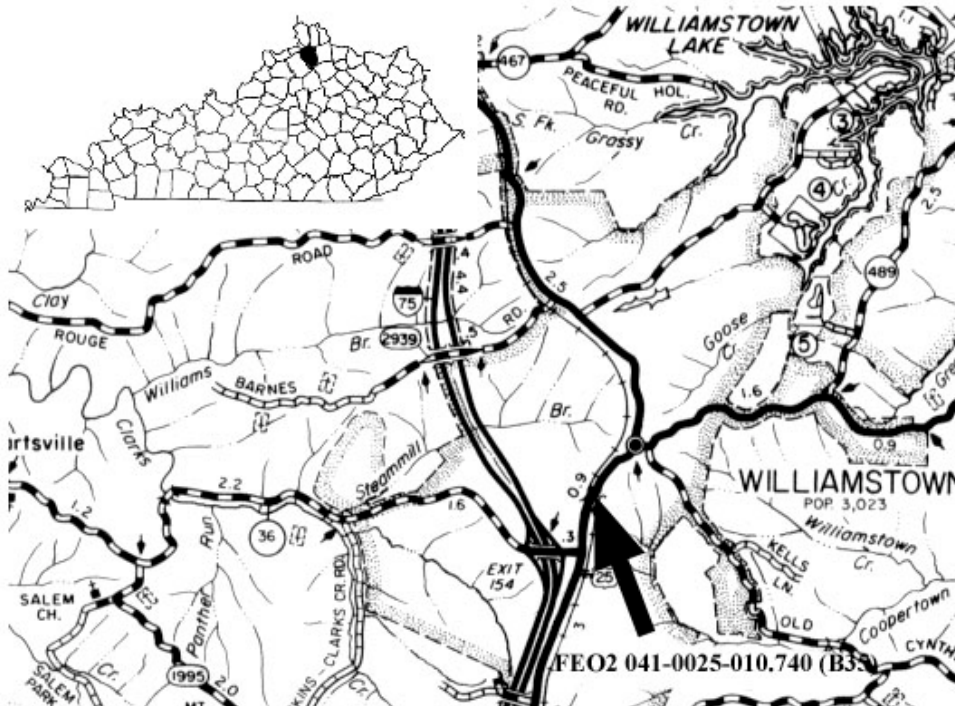


Figure 9. US 25 Bridge Over Southern Railroad And Park Drive In Grant County.



Figure 10. Looking at US 25 bridge over Southern Railroad in Grant County.



Figure 11. The condition of bridge coating under a construction joint in 2001.



Figure 12. Deteriorated concrete on the abutment.



Figure 13. Side view of the bridge being painted in 1996.



Figure 14. Follow up inspection of the bridge in 2001.

**Appendix C: KY 55 Over Beech Fork River On The Washington – Nelson County**

Line In Nelson County

FEO2 090-0055-000.001 (B22)

## KY 55 Over Beech Fork River In Nelson County

### **Background**

On July 26, 1996, a contract was awarded for the experimental cleaning and painting of the KY 55 Bridge (Bridge no. 22) over Beech Fork River in Nelson County (District 4). This bridge was a typical deck-girder bridge possessing four-85 ft. spans. It incorporated four steel plate girder spans and had approximately 140 tons of steel. The contract award was for a lump sum of \$38,500.

### **Special Notes**

The Contract for this project included Special Notes for;

- Washing, and Painting,
- Quality Control,
- Experimental Paint and,
- Maintaining and Controlling Traffic.

In addition to the listed Special Notes the contract required that all work be done in accordance with the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, Section 727 Maintenance Cleaning and Painting Steel Bridges.

The Special Note for washing, and painting required all areas being power washed or steam cleaned be draped with new 85 % containment screens to trap all loose, solid debris generated during those operations. Also if the paint was sprayed then total containment was required to contain over-spray.

### **Washing Specifications**

The contract required that all structural steel to be cleaned by pressure washing. The steel was washed at a minimum of 3,000 psi with 0° spinner tip nozzles. The wand nozzle was to be held a maximum of twelve (12) inches from the surface being pressure washed and approximately normal to the working surface. Additional cleaning (i.e., solvent, steam, or hand cleaning) were required if pressure washing did not sufficiently clean the steel.

### **Cleaning Specifications**

The contractor was required to perform mechanical surface preparation by hand or power-tool cleaning on all surfaces not possessing clean, adherent paint and mill scale. All hand or power-tools were to be equipped with vacuum shrouds for containing and collecting all loose material generated.

### **Painting Specifications**

Painting of the bridge consisted of three coats. All structural steel and/or rockers cleaned were to be painted with one brushed-on full primer coat of Moisture Cure Aluminum

Polyurethane Primer. One full intermediate primer coat of Moisture Cure Aluminum Polyurethane Primer was to be applied by brushing, rolling or spraying (at the option of the contractor) over all structural steel and/or rockers. At locations where the existing coating was distressed, additional paint thickness was necessary to properly seal crevices and coat irregular surfaces. A full finish coat of Gray Acrylic Polyurethane paint was to be applied by brushing, rolling or spraying (at the option of the contractor). The experimental coatings system designated for this bridge could not be provided by the coating manufacturer and the Kentucky Standard Specification coating system was substituted.

### **Contractor Painting Operations**

The painting contractor moved on site on May 12, 1997. KYDOH and Kentucky Transportation Center (KTC) personnel periodically monitored the progress of work on the structure due to its experimental nature. They inspected accessible portions of the contractor's work in progress and made photographic records of their findings. The contractor completed the project on June 17, 1997.

### **Summary**

The Special Notes and Standard Specifications were followed throughout the cleaning and painting of bridges. All three coats of paint were applied to meet the specifications of this project. All work inspected was completed within conformance of the Standard Specifications and Special Notes applicable to this project.

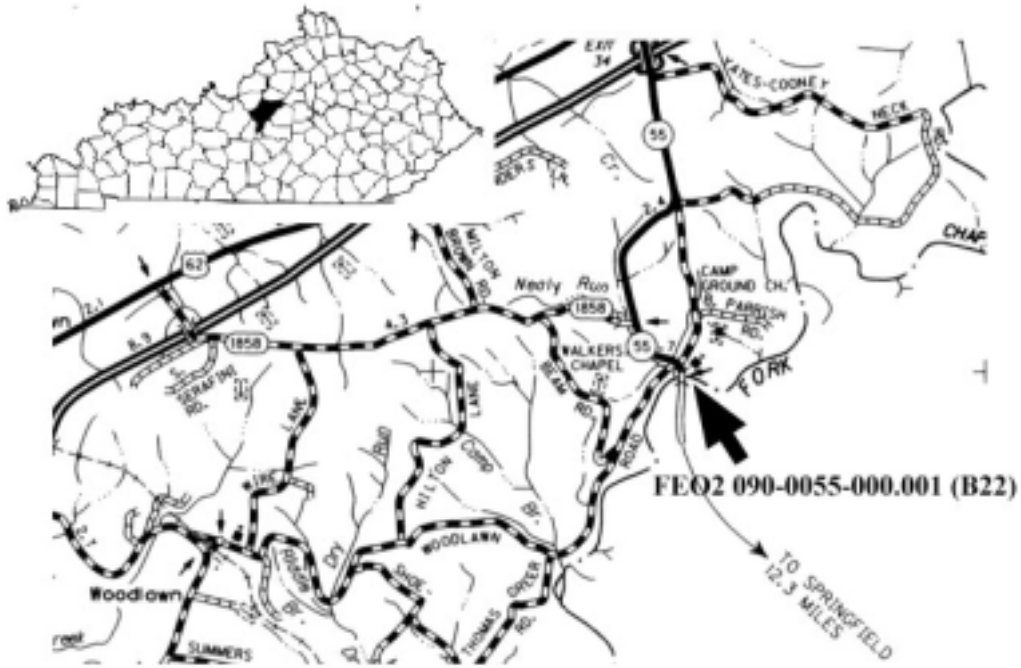


Figure 15. Location map of KY 55 Over Beech Fork River On The Washington – Nelson County Line In Nelson County.



Figure 16. Looking at the KY 55 bridge over Beech Fork River in Nelson County during follow up in 2001.





Figure 17. View of abutment and rockers in 2001.



Figure 18. Current condition of the bridge during follow up inspection in 2001.



Figure 19. Rust on rocker during follow up inspection in 2001.



Figure 20. Current condition of the bridge in 2001.

**Appendix D: US 68 Over Stoner Creek North City Limits In Paris In**  
Bourbon County  
FEO2 009-068X-000.410 (B45)

## US 68 Over Stoner Creek In Bourbon County

### **Background**

On July 19 1996, a contract was awarded for the experimental cleaning and painting of the US 68 over Stoner Creek in Bourbon County in District 7. The bridge is a continuous steel I-Beam structure with two 69-foot spans. There is approximately 133 tons of steel. The contract award was for a lump sum of \$33,000.

### **Special Notes**

The Contract for this project included Special Notes for;

- Washing, and Painting,
- Quality Control,
- Experimental Paint and,
- Maintaining and Controlling Traffic.

In addition to the listed Special Notes the contract required that all work be done in accordance with the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, Section 727 Maintenance Cleaning and Painting Steel Bridges.

The Special Note for washing, and painting required all areas being power washed or steam cleaned be draped with new 85 % containment screens to trap all loose, solid debris generated during those operations. Also if the paint was sprayed then total containment was required to contain over-spray.

### **Washing Specifications**

The contract required that all structural steel to be cleaned by pressure washing. The steel was washed at a minimum of 3,000 psi with 0° spinner nozzles. The wand nozzle was to be held a maximum of twelve (12) inches from the surface being pressure washed and approximately normal to the working surface. Additional cleaning (i.e., solvent, steam, or hand cleaning) were required if pressure washing did not sufficiently clean the steel.

### **Cleaning Specifications**

The contractor was required to perform mechanical surface preparation by hand or power-tool cleaning on all surfaces not possessing clean, adherent paint and mill scale. All hand or power-tools were to be equipped with vacuum shrouds for containing and collecting all loose material generated.

### **Painting Specifications**

Painting of the bridge consisted of three coats. All areas hand or power tool cleaned were to be spot painted with one brushed-on coat of Experimental Hempel Hempadur 4515-5063 Red Primer Paint. One full primer coat of Experimental Hempel Hempadur 4515-5063 Red Primer paint was to be brushed-on over all structural steel, including previously spot-painted areas. A finish coat of Experimental Hempel Hempadur 4515-1987 Gray paint was to be applied by brushing, rolling or spraying (at the option of the contractor).

### **Contractor Painting Operations**

The painting contractor moved on site on October 24, 1996. The project was completed on May 21, 1997

### **Summary**

The Special Notes and Standard Specifications were followed throughout the cleaning and painting of bridges. All three coats of paint were applied to meet the specifications of this project. All work inspected was completed within conformance of the Standard Specifications and Special Notes applicable to this project.

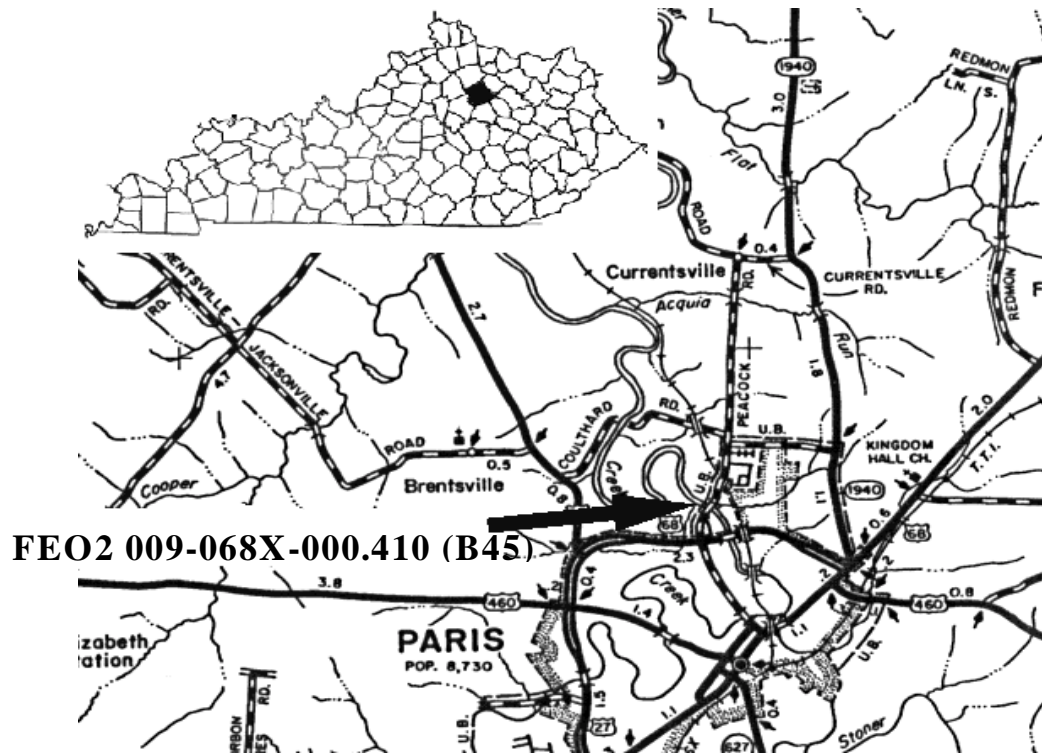


Figure 21. Location map of US 68 Over Stoner Creek North City Limits In Paris In Bourbon County.



Figure 22. Photo taken during the follow up inspection in 2001.



Figure 23. Condition of the bridge in 2001.

**Appendix E: US 150 Over Norfolk Southern Railroad Yard In Boyle**

County

FEO2 011-0150-013.533 (B43)



## US 150 Over Norfolk Southern Railroad Yard In Boyle County

### **Background**

On July 26, 1996, a contract was awarded for the experimental cleaning and painting of US 150 over Norfolk Southern Railroad Yard in Boyle County (District 7). The contract award was for a lump sum of \$55,770.

### **Special Notes**

The Contract for this project included Special Notes for;

- Washing, and Painting,
- Quality Control,
- Experimental Paint and,
- Maintaining and Controlling Traffic.

In addition to the listed Special Notes the contract required that all work be done in accordance with the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, Section 727 Maintenance Cleaning and Painting Steel Bridges.

The Special Note for washing, and painting required all areas being power washed or steam cleaned be draped with new 85 % containment screens to trap all loose, solid debris generated during those operations. Also if the paint was sprayed then total containment was required to contain over-spray.

### **Washing Specifications**

The contract required that all structural steel to be cleaned by pressure washing. The steel was to be washed at a minimum of 3,000 psi with 0° spinner nozzles. The wand nozzle was to be held a maximum of twelve (12) inches from the surface being pressure washed and approximately normal to the working surface. Additional cleaning (i.e., solvent, steam, or hand cleaning) were required if pressure washing did not sufficiently clean the steel.

### **Cleaning Specifications**

The contractor was required to perform mechanical surface preparation by hand or power-tool cleaning on all surfaces not possessing clean, adherent paint and mill scale. All hand or power-tools were to be equipped with vacuum shrouds for containing and collecting all loose material generated.

### **Painting Specifications**

Painting of the bridge consisted of three coats. All areas hand or power tool cleaned were to be spot painted with one brushed-on coat of Experimental Rust Grip Primer Paint. One

full primer coat of Experimental Rust Grip (HS) Primer paint was to be brushed-on over all structural steel, including previously spot-painted areas. A finish coat of Experimental Enamo Grip Polyurethane Enamel paint was to be applied by brushing, rolling or spraying (at the option of the contractor).

### **Contractor Painting Operations**

The painting contractor moved onto the site on October 28, 1996. The heavily traveled railroad was a problem in painting the spans right above it. Especially with the containment structure in place and the use of railroad flagman, the contractor encountered numerous delays in completing the bridge painting operation. The bridge painting was completed on August 15, 1997.

### **Summary**

The Special Notes and Standard Specifications were followed throughout the cleaning and painting of bridges. All three coats of paint were applied to meet the specifications of this project. All work inspected was completed within conformance of the Standard Specifications and Special Notes applicable to this project.



Figure 24. Location map of US 150 Over Norfolk Southern Railroad Yard In Boyle County.



Figure 25. Condition of Bridge prior to painting.



Figure 26. Oil and grease soot on the steel over the railroad tracks in 2001.



Figure 27. Condition of the bridge after it was painted.



Figure 28. Condition of the rocker in 2001.



Figure 29. Condition of bridge in 2001.

**Appendix F: Experimental Washing, Cleaning And Painting of I-64 Bridges**

From Fayette Co. To West Virginia State Line

## Experimental Washing, Cleaning And Painting of I-64 Bridges From Fayette Co. To West Virginia State Line

### **Background**

On August 15, 1996 a contract was awarded for the experimental washing, cleaning and painting of all steel bridges and steel rockers on Interstate 64 from Fayette County to West Virginia State Line. The contract award was for a lump sum of \$1,164,450. There were 23 Steel Bridges and 57 Bridges with rockers to be painted.

### **Special Notes**

The Contract for this project included Special Notes for;

- Washing, and Painting,
- Quality Control,
- Environmental and Work Safety Regulations,
- Experimental Paint and,
- Maintaining and Controlling Traffic.

In addition to the listed Special Notes the contract required that all work be done in accordance with the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, Section 727 Maintenance Cleaning and Painting Steel Bridges.

The Special Note for washing, and painting required all areas being power washed or steam cleaned be draped with new 85 % containment screens to trap all loose, solid debris generated during those operations. Also if the paint was sprayed then total containment was required to contain over-spray.

### **Washing Specifications**

The contract required that all structural steel to be cleaned by pressure washing using only clean potable water. The steel was to be washed at a minimum of 4,000 psi with 0° spinner nozzles. The wand nozzle was to be held a maximum of twelve (12) inches from the surface being pressure washed and approximately normal to the working surface. Additional cleaning (i.e., solvent, steam, or hand cleaning) were required if pressure washing did not sufficiently clean the steel.

### **Cleaning Specifications**

The contractor was required to perform mechanical surface preparation by hand or power-tool cleaning on all surfaces not possessing clean, adherent paint and mill scale. All hand or power-tools were to be equipped with vacuum shrouds fitted with HEPA filters for containing and collecting all loose material generated.

## **Painting Specifications**

Painting of the bridge consisted of three coats. All structural steel and/or rockers cleaned were to be painted with one brushed-on full primer coat of Moisture Cure Aluminum Polyurethane Primer. One full intermediate primer coat of Moisture Cure Aluminum Polyurethane Primer was to be applied by brushing, rolling or spraying (at the option of the contractor) over all structural steel and/or rockers. At locations where the existing coating was distressed, additional paint thickness was necessary to properly seal crevices and coat irregular surfaces. A full finish coat of Gray Acrylic Polyurethane paint was to be applied by brushing, rolling or spraying (at the option of the contractor).

## **Contractor Painting Operations**

The painting contractor moved onto the site on September 25, 1996. Quality Control and Quality Analysis on this project was lax and hence it led to problems. The various problems encountered were improper scheduling, improper application of paint (contrary to what was specified, exceeding the thickness of the paint system), and humidity readings taken at wrong places. The bridge painting was completed on July 31, 1997.

## **Summary**

While much of the work completed was within conformance of the Standard Specifications and Special Notes applicable to this project, some variances and shortfalls were noted and documented after the project was completed and accepted.



## Fayette County

1. **FE02 034-0064-074.36(B86) District No. 7**

Louisville – Lexington - Catlettsburg  
NS (CNO & TP) Railroad system over I-64 300ft Ft West of I-75 Northwest Interchange

**Geographic Coordinates**

Latitude – 38 07.1'

Longitude - 084 31.8'

**Description:**

1 – 45ft. ; 2 – 60ft. ; & 2 - 80ft Simple Welded Steel Plate Girder Spans

2. **FE02 034-0075-117.67(B85) District No. 7**

Louisville – Lexington - Catlettsburg  
I-75 Southbound lane over I-64

**Geographic Coordinates**

Latitude – 38 07.0'

Longitude - 084 31.6'

**Description:**

1 – 42ft. ; 2 – 86ft. ; & 1 - 67ft Simple Welded Steel Plate Girder Spans

3. **FE02 034-0064-074.49(B84) District No. 7**

Louisville – Lexington - Catlettsburg  
Eastbound I-64 Ramp to Northbound I-75 over I-64

**Geographic Coordinates**

Latitude – 38 06.9'

Longitude - 084 31.5'

**Description:**

1 – 70ft. ; 2 – 88ft. ; & 1 - 62ft Welded Steel Plate Girder Spans

4. **FE02 034-0025-117.45(B2) District No. 7**

Lexington – Georgetown Road  
US 25 over I-64 and I-75

**Geographic Coordinates**

Latitude – 38 06.8'

Longitude - 084 31.3'

**Description:**

1 – 70ft. ; 2 – 88ft. ; & 1 - 62ft Welded Steel Plate Girder Spans

5. **FE02 034-0075-115.23(B89) District No. 7**

Louisville – Lexington - Catlettsburg  
I-75 Northbound lane over KY 922 (Newtown Road)

**Geographic Coordinates**

Latitude – 38 05.90’

Longitude - 084 29.2’

**Description:**

1 – 37ft. ; 2 – 58ft. ; & 1 - 64ft Cont. R.C.D.G. Spans. (40 Steel Rockers)

**6. FE02 034-0075-115.23(B89P) District No. 7**

Louisville – Lexington - Catlettsburg  
I-75 Southbound lane over KY 922 (Newtown Road)

**Geographic Coordinates**

Latitude – 38 05.90’

Longitude - 084 29.2’

**Description:**

1 – 37ft. ; 2 – 58ft. ; & 1 - 64ft Cont. R.C.D.G. Spans. (32 Steel Rockers)

**7. FE02 034-0353-113.95(B51) District No. 7**

Russell Cave Pike  
KY 353 over I-64 and I-75

**Geographic Coordinates**

Latitude – 38 05.4’

Longitude - 084 27.8’

**Description:**

2 – 54ft. ; & 2 - 81ft Cont. R.C.D.G. Spans. (20 Steel Rockers)

**8. FE02 034-0075-112.83(B83) District No. 7**

Louisville – Lexington – Catlettsburg  
I-75 Northbound lane over CSX Railroad and US 27

**Geographic Coordinates**

Latitude – 38 04.6’

Longitude - 084 27.3’

**Description:**

2 – 67ft. ; 2 - 94ft ;2 - 50ft ;& 1 - 70ft Cont. Steel Beam Spans.

**9. FE02 034-0075-112.83(B83P) District No. 7**

Louisville – Lexington – Catlettsburg  
I-75 Northbound lane over CSX Railroad and US 27

**Geographic Coordinates**

Latitude – 38 04.6’

Longitude - 084 27.3’

**Description:**

2 – 67ft. ; 2 - 94ft ;2 - 50ft ;& 1 - 70ft Cont. Steel Beam Spans.

**10. FE02 034-0057-112.01(B48) District No. 7**

Bryan Station Road  
KY 57 over I-75 and I-64

**Geographic Coordinates**

Latitude – 38 04.0’

Longitude - 084 26.8’

**Description:**

2 – 55ft. ; 2 - 77ft ; Cont. R.C.D.G. Spans. (20 Steel Rockers).

**11. FE02 034-0064-081.56(B129) District No. 7**

Hume Road  
Hume Road over Westbound I-64 and Ramp B

**Geographic Coordinates**

Latitude – 38 03.3’

Longitude - 084 25.7’

**Description:**

1 – 58ft. ; 1 – 166ft. ; 1 - 78ft Cont. Steel Girder. Spans. & 2 – 62ft. and 1- 81ft  
Cont. R.C.D.G. Spans (16 Steel Rockers).

**12. FE02 034-0064-081.59(B130) District No. 7**

Hume Road  
Hume Road over Eastbound I-64 and Ramp D

**Geographic Coordinates**

Latitude – 38 03.3’

Longitude - 084 25.7’

**Description:**

2 – 62ft. ; 1 – 81ft. ; 1 - 78ft Cont. R.C.D.G. Spans. & 1 – 81ft. and 1- 41ft Cont.  
PCIB Spans (24 Steel Rockers).

**13. FE02 034-0075-83.05(B87) District No. 7**

Louisville – Lexington - Catlettsburg  
I-64 Eastbound lane over Royster Road

**Geographic Coordinates**

Latitude – 38 03.8’

Longitude - 084 24.1’

**Description:**

2 – 49ft. ; 1 - 68ft ; Cont. R.C.D.G. Spans. (16 Steel Rockers).

**14. FE02 034-0075-83.05(B87P) District No. 7**

Louisville – Lexington - Catlettsburg  
I-64 Westbound lane over Royster Road

**Geographic Coordinates**

Latitude – 38 03.8’

Longitude - 084 24.1’

**Description:**

2 – 49ft. ; 1 - 68ft ; Cont. R.C.D.G. Spans. (16 Steel Rockers).

**15. FE02 034-0064.085.73(B60) District No. 7**

Cleveland Pike – Muir Station Road

KY 1973 over I - 64

**Geographic Coordinates**

Latitude – 38 03.2’

Longitude - 084 21.2’

**Description:**

2 – 50ft. ; 2 - 75ft ; Cont. R.C.D.G. Spans. (20 Steel Rockers).

**16. FE02 034-0064-087.49(B19) District No. 7**

Haley – Avon Road

KY 859 over I-64

**Geographic Coordinates**

Latitude – 38 02.7’

Longitude - 084 19.4’

**Description:**

2 – 50ft. ; 2 - 70ft ; Cont. R.C.D.G. Spans. (20 Steel Rockers).

**Clark County**

**17. FE02 025-0064-090.29(B71) District No. 7**

Old Pine Grove – Clintonville Road

KY 1678 over I-64

**Geographic Coordinates**

Latitude – 38 02.1’

Longitude - 084 16.4’

**Description:**

2 – 50ft. ; 2 - 75ft ; Cont. R.C.D.G. Spans. (20 Steel Rockers).

**18. FE02 025-0064-094.23(B62) District No. 7**

Van Meter Road

KY 1958 over I-64

**Geographic Coordinates**

Latitude – 38 00.6’

Longitude - 084 12.5’

**Description:**

2 – 49ft. ; 2 - 70ft ; Cont. R.C.D.G. Spans. (20 Steel Rockers).

**19. FE02 025-0064-095.38(B47) District No. 7**

Louisville – Lexington – Catlettsburg  
CSX Railroad over I-64

**Geographic Coordinates**

Latitude – 38 00.4’

Longitude - 084 11.4’

**Description:**

2 – 48ft. ; 1 - 96ft Deck Plate Girders Spans.

**20. FE02 025-0064-095.66(B48) District No. 7**

Louisville – Lexington – Catlettsburg  
CSX Railroad over I-64

**Geographic Coordinates**

Latitude – 38 00.5’

Longitude - 084 11.1’

**Description:**

1 – 27ft. ; 1 – 30ft. ; 2 - 67ft Deck Plate Girders Spans.

**21. FE02 025-0627-096.24(B1) District No. 7**

Winchester – Paris Road  
KY 627 over I-64

**Geographic Coordinates**

Latitude – 38 00.7’

Longitude - 084 10.5’

**Description:**

2 – 57ft. ; 2 – 78ft. ; Cont. R.C.D.G. Spans (20 Steel Rockers)

**22. FE02 025-0627-096.24(B1P) District No. 7**

Winchester – Paris Road  
KY 627 over I-64

**Geographic Coordinates**

Latitude – 38 00.7’

Longitude - 084 10.5’

**Description:**

2 – 57ft. ; 2 – 78ft. ; Cont. R.C.D.G. Spans (20 Steel Rockers)

**23. FE02 025-0060-097.22(B8) District No. 7**

Winchester – Mt. Sterling Road  
US 60 over I-64

**Geographic Coordinates**

Latitude – 38 01.0’

Longitude - 084 09.4’

**Description:**

2 – 72ft. ; 2– 93ft. ; Cont. R.C.D.G. Spans (25 Steel Rockers)

**24. FE02 025-9000-097.68(B55) District No. 7**

Mountain Parkway

Mountain Parkway over I-64

**Geographic Coordinates**

Latitude – 38 01.0’

Longitude - 084 09.0’

**Description:**

1 – 64ft. ; 2 – 87ft. ; 1 - 98ft Cont. Welded Steel Plate Girder Spans.

**25. FE02 025-0064-099.28(B51) District No. 7**

Cabin Creek Road

Cabin Creek Road over I-64

**Geographic Coordinates**

Latitude – 38 01.4’

Longitude - 084 07.3’

**Description:**

2 – 62ft. ; 2 – 93ft. Cont. R.C.D.G. Spans (20 Steel Rockers)

**26. FE02 025-0060-101.73(B9) District No. 7**

Winchester – Mt. Sterling Road

US 60 over I-64 1.3 miles West of Montgomery County Line

**Geographic Coordinates**

Latitude – 38 02.1’

Longitude - 084 04.8’

**Description:**

3 – 84ft. R.C. Box Girders & 1 – 42ft. Cont R.C.D.G. spans (18 Steel Rockers).

**27. FE02 025-0064-102.59(B49) District No. 7**

Louisville – Lexington – Catlettsburg

I-64 over Stoner Creek

**Geographic Coordinates**

Latitude – 38 02.7’

Longitude - 084 04.2’

**Description:**

2 – 80ft. & 1 – 104ft. Cont. R.C.D.G. Spans. (16 Steel Rockers)

**28. FE02 025-0064-102.59(B49) District No. 7**

Louisville – Lexington – Catlettsburg  
I-64 over Stoner Creek

**Geographic Coordinates**

Latitude – 38 02.7’

Longitude - 084 04.2’

**Description:**

2 – 80ft. & 1 – 104ft. Cont. R.C.D.G. Spans. (16 Steel Rockers)

**29. FE02 025-0064-103.98(B60) District No. 7**

Wade Mill – Sewell Shop – Stoner Road  
Wade Mill Road over I-64

**Geographic Coordinates**

Latitude – 38 03.4’

Longitude - 084 02.9’

**Description:**

2 – 48ft & 2 – 68ft Cont. R.C.D.G. Spans. (20 Steel Rockers)

**Montgomery County**

**30. FE02 087-0713-107.25(B22) District No. 7**

Grassy Lick – Mt. Sterling Road  
KY 713 over I-64

**Geographic Coordinates**

Latitude – 38 04.4’

Longitude - 083 59.5’

**Description:**

2 – 63ft. & 2 – 83ft. Cont. R.C.D.G. Spans. (20 Steel Rockers).

**31. FE02 087-0460-109.62(B1) District No. 7**

Maysville Road  
US 460 over I-64

**Geographic Coordinates**

Latitude – 38 04.7’

Longitude - 083 57.0’

**Description:**

2 – 87ft. Cont. R.C.D.G. Spans. (12 Steel Rockers)..

**32. FE02 087-1991-111.00(B30) District No. 7**

Hinkston Road  
KY 1991 over I-64

**Geographic Coordinates**

Latitude – 38 05.1’

Longitude - 083 55.6’

**Description:**

2 – 91ft. Cont. R.C.D.G. Spans. (12 Steel Rockers)..

**33. FE02 087-0060-112.50(B2) District No. 7**

Mt. Sterling – Owingsville Road

US 60 over I-64

**Geographic Coordinates**

Latitude – 38 05.3’

Longitude - 083 53.9’

**Description:**

2 – 98ft. Cont. R.C.D.G. Spans. (12 Steel Rockers)

**Bath County**

**34. FE02 006-0064-116.43(B49) District No. 9**

Stepstone Road

Stepstone Road over I-64

**Geographic Coordinates**

Latitude – 38 06.3’

Longitude - 083 49.8’

**Description:**

1 – 30ft Simple 1 – 35ft Simple & 2-65ft Cont. R.C.D.G. Spans. (12 Steel Rockers)

**35. FE02 006-0064-117.83(B52) District No. 9**

Louisville – Lexington – Catlettsburg

I-64 over Salt Well Creek

**Geographic Coordinates**

Latitude – 38 06.8’

Longitude - 083 48.3’

**Description:**

2 – 60ft & 1 – 84ft Cont. R.C.D.G. Spans. (20 Steel Rockers)

**36. FE02 006-0064-117.83(B52P) District No. 9**

Louisville – Lexington – Catlettsburg

I-64 over Salt Well Creek

**Geographic Coordinates**

Latitude – 38 06.8’

Longitude - 083 48.3’



**Description:**

2 – 60ft & 1 – 84ft Cont. R.C.D.G. Spans. (20 Steel Rockers)

**37. FE02 006-0064-117.83(B53) District No. 9**

Louisville – Lexington – Catlettsburg  
I-64 over Slate Creek

**Geographic Coordinates**

Latitude – 38 07.1’

Longitude - 083 47.9’

**Description:**

2 – 100ft & 1 – 140ft Cont. Steel Welded Plate Girder Spans

**38. FE02 006-0064-117.83(B53P) District No. 9**

Louisville – Lexington – Catlettsburg  
I-64 over Slate Creek

**Geographic Coordinates**

Latitude – 38 07.1’

Longitude - 083 47.9’

**Description:**

2 – 100ft & 1 – 140ft Cont. Steel Welded Plate Girder Spans

**39. FE02 006-0064-120.02(B48) District No. 9**

Louisville – Lexington – Catlettsburg  
I-64 over Kendall Springs Road & Slate Creek

**Geographic Coordinates**

Latitude – 38 07.4’

Longitude - 083 46.3’

**Description:**

1 – 50ft I-Beam Span, 2 – 100ft & 1 140ft. Cont. Steel Welded Plate Girder Spans

**40. FE02 006-0064-120.02(B48P) District No. 9**

Louisville – Lexington – Catlettsburg  
I-64 over Kendall Springs Road & Slate Creek

**Geographic Coordinates**

Latitude – 38 07.4’

Longitude - 083 46.3’

**Description:**

1 – 50ft I-Beam Span, 2 – 100ft & 1 140ft. Cont. Steel Welded Plate Girder Spans

**41. FE02 006-0064-121.23(B17) District No. 9**

Owingsville – Frenchburg Road

KY 104 over I-64

**Geographic Coordinates**

Latitude – 38 07.6’

Longitude - 083 45.1’

**Description:**

2 – 61ft & 2 – 73ft Cont R.C.D.G. Spans (20 Steel Rockers)

**42. FE02 006-0064-121.79(B54) District No. 9**

Louisville – Lexington – Catlettsburg  
I-64 over Slate Creek

**Geographic Coordinates**

Latitude – 38 07.9’

Longitude - 083 44.5’

**Description:**

2 – 43ft ; 2 – 65ft & 1 – 91ft Cont R.C.D.G. Spans (16 Steel Rockers)

**43. FE02 006-0064-121.79(B54P) District No. 9**

Louisville – Lexington – Catlettsburg  
I-64 over Slate Creek

**Geographic Coordinates**

Latitude – 38 07.9’

Longitude - 083 44.5’

**Description:**

2 – 43ft ; 2 – 65ft & 1 – 91ft Cont R.C.D.G. Spans (16 Steel Rockers)

**44. FE02 006-0064-123.02(B50) District No. 9**

Louisville – Lexington – Catlettsburg  
I-64 over US 60

**Geographic Coordinates**

Latitude – 38 08.4’

Longitude - 083 43.3’

**Description:**

2 – 42ft & 1 – 68ft Cont R.C.D.G. Spans (20 Steel Rockers)

**45. FE02 006-0064-123.02(B50P) District No. 9**

Louisville – Lexington – Catlettsburg  
I-64 over US 60

**Geographic Coordinates**

Latitude – 38 08.4’

Longitude - 083 43.3’

**Description:**

2 – 42ft & 1 – 68ft Cont R.C.D.G. Spans (20 Steel Rockers)

**46. FE02 006-0064-124.90(B51) District No. 9**

Fearing Road  
KY 404 over I-64

**Geographic Coordinates**

Latitude – 38 09.2’

Longitude - 083 41.5’

**Description:**

2 – 55ft & 2 – 74ft Cont R.C.D.G. Spans (20 Steel Rockers)

**47. FE02 006-0211-128.58(B42) District No. 9**

Salt Lick – Moores Ferry Road  
KY 221 over I-64

**Geographic Coordinates**

Latitude – 38 09.3’

Longitude - 083 37.5’

**Description:**

2 – 73ft & 2 – 91ft Cont R.C.D.G. Spans (20 Steel Rockers)

**48. FE02 006-0064-128.93(B56) District No. 9**

Louisville – Lexington - Catlettsburg  
I-64 over Licking River

**Geographic Coordinates**

Latitude – 38 09.2’

Longitude - 083 37.0’

**Description:**

2 – 90ft & 1 – 120ft Cont Steel Welded Plate Girder Spans

**49. FE02 006-0064-128.93(B56P) District No. 9**

Louisville – Lexington - Catlettsburg  
I-64 over Licking River

**Geographic Coordinates**

Latitude – 38 09.2’

Longitude - 083 37.0’

**Description:**

2 – 90ft & 1 – 120ft Cont Steel Welded Plate Girder Spans

**Carter County**

**50. FE02 022-0064-150.12(B84) District No. 9**

Louisville – Lexington - Catlettsburg

I-64 over Fleming Fork and Fleming Fork Creek.

**Geographic Coordinates**

Latitude – 38 17.7’

Longitude - 083 18.8’

**Description:**

2 – 60ft & 1 – 100ft Cont R.C.D.G. Spans (20 Steel Rockers)

**51. FE02 022-0064-150.12(B84P) District No. 9**

Louisville – Lexington - Catlettsburg

I-64 over Fleming Fork and Fleming Fork Creek.

**Geographic Coordinates**

Latitude – 38 17.7’

Longitude - 083 18.8’

**Description:**

2 – 60ft & 1 – 100ft Cont R.C.D.G. Spans (20 Steel Rockers)

**52. FE02 022-0064-151.62(B89) District No. 9**

Louisville – Lexington - Catlettsburg

I-64 over KY 1662 and Flat Fork Road.

**Geographic Coordinates**

Latitude – 38 18.3’

Longitude - 083 17.0’

**Description:**

2 – 85ft & 1 – 100ft Cont R.C.D.G. Spans (16 Steel Rockers)

**53. FE02 022-0064-151.62(B89P) District No. 9**

Louisville – Lexington - Catlettsburg

I-64 over KY 1662 and Flat Fork Road.

**Geographic Coordinates**

Latitude – 38 18.3’

Longitude - 083 17.0’

**Description:**

2 – 85ft & 1 – 100ft Cont R.C.D.G. Spans (16 Steel Rockers)

**54. FE02 022-0064-156.27(B67) District No. 9**

Olive Hill – Carter City Road

KY 2 over I-64

**Geographic Coordinates**

Latitude – 38 19.9’

Longitude - 083 12.5’

**Description:**

2 – 50ft & 2 – 70ft Cont R.C.D.G. Spans (20 Steel Rockers)

**55. FE02 022-0064-158.11(B91) District No. 9**

Louisville – Lexington - Catlettsburg  
I-64 over KY 1704

**Geographic Coordinates**

Latitude – 38 19.5'

Longitude - 083 10.5'

**Description:**

2 – 75ft Cont R.C.D.G. Spans (18 Steel Rockers)

**56. FE02 022-0064-158.11(B91P) District No. 9**

Louisville – Lexington - Catlettsburg  
I-64 over KY 1704

**Geographic Coordinates**

Latitude – 38 19.5'

Longitude - 083 10.5'

**Description:**

2 – 75ft Cont R.C.D.G. Spans (18 Steel Rockers)

**57. FE02 022-0064-159.25(B92) District No. 9**

Louisville – Lexington - Catlettsburg  
I-64 over KY 1025

**Geographic Coordinates**

Latitude – 38 19.4'

Longitude - 083 09.5'

**Description:**

2 – 35ft & 1 – 53ft Cont R.C.D.G. Spans (20 Steel Rockers)

**58. FE02 022-0064-159.25(B92P) District No. 9**

Louisville – Lexington - Catlettsburg  
I-64 over KY 1025

**Geographic Coordinates**

Latitude – 38 19.4'

Longitude - 083 09.5'

**Description:**

2 – 35ft & 1 – 53ft Cont R.C.D.G. Spans (20 Steel Rockers)

**59. FE02 022-0064-160.86(B95) District No. 9**

Louisville – Lexington - Catlettsburg  
I-64 over Tygarts Creek.

**Geographic Coordinates**

Latitude – 38 19.5’

Longitude - 083 07.6’

**Description:**

2 – 55ft Simple Steel I-beam Span, 2 - 100ft & 1 – 158ft Cont. Comp Steel Beam Spans

**60. FE02 022-0064-160.86(B95P) District No. 9**

Louisville – Lexington - Catlettsburg  
I-64 over Tygarts Creek.

**Geographic Coordinates**

Latitude – 38 19.5’

Longitude - 083 07.6’

**Description:**

2 – 55ft Simple Steel I-beam Span, 2 - 100ft & 1 – 158ft Cont. Comp Steel Beam Spans

**61. FE02 022-0064-161.55(B87) District No. 9**

Louisville – Lexington - Catlettsburg  
I-64 over US 60

**Geographic Coordinates**

Latitude – 38 19.6’

Longitude - 083 07.0’

**Description:**

2 – 46ft & 1 – 53ft Cont R.C.D.G. Spans (20 Steel Rockers)

**62. FE02 022-0064-161.55(B87P) District No. 9**

Louisville – Lexington - Catlettsburg  
I-64 over US 60

**Geographic Coordinates**

Latitude – 38 19.6’

Longitude - 083 07.0’

**Description:**

2 – 46ft & 1 – 53ft Cont R.C.D.G. Spans (20 Steel Rockers)

**63. FE02 022-0064-168.51(B77) District No. 9**

Morehead – Grayson Road  
Morehead – Grayson Road over I-64

**Geographic Coordinates**

Latitude – 38 19.8’

Longitude - 082 59.3’

**Description:**

2 – 131ft Steel Comp. Plate Girder Spans

**64. FE02 022-0001-171.61(B104) District No. 9**

Grayson – Pactolus Road  
KY 1 over I-64

**Geographic Coordinates**

Latitude – 38 20.8’

Longitude - 082 56.5’

**Description:**

2 – 100ft Steel Comp. Plate Girder Spans

**65. FE02 022-0064-172.59(B83) District No. 9**

Louisville – Lexington - Catlettsburg  
I-64 over Little Sandy River

**Geographic Coordinates**

Latitude – 38 20.9’

Longitude - 082 55.5’

**Description:**

2 – 106ft & 1-140ff Cont. Welded Steel Plate Girder Spans

**66. FE02 022-0064-172.59(B83P) District No. 9**

Louisville – Lexington - Catlettsburg  
I-64 over Little Sandy River

**Geographic Coordinates**

Latitude – 38 20.9’

Longitude - 082 55.5’

**Description:**

2 – 106ft & 1-140ff Cont. Welded Steel Plate Girder Spans

**Rowan County**

**67. FE02 103-1722-130.31(B29) District No. 9**

Farmers – Colfax – Grange City Road  
KY 1722 over I-64

**Geographic Coordinates**

Latitude – 38 09.7’

Longitude - 083 35.9’

**Description:**

2 – 73ft and 1 – 94 ft Cont R.C.D.G. Spans (20 Steel Rockers)

**68. FE02 103-0064-134.75(B54) District No. 9**

Louisville – Lexington - Catlettsburg

I-64 over Bull Fork Creek and Bull Fork Road

**Geographic Coordinates**

Latitude – 38 11.1’

Longitude - 083 31.5’

**Description:**

3 – 140ft Cont. Welded Steel Plate Girder Spans

**69. FE02 103-0064-134.75(B54P) District No. 9**

Louisville – Lexington - Catlettsburg

I-64 over Bull Fork Creek and Bull Fork Road

**Geographic Coordinates**

Latitude – 38 11.1’

Longitude - 083 31.5’

**Description:**

3 – 140ft Cont. Welded Steel Plate Girder Spans

**70. FE02 103-0064-136.30(B55) District No. 9**

Louisville – Lexington - Catlettsburg

I-64 over North Fork Triplett Creek

**Geographic Coordinates**

Latitude – 38 11.2’

Longitude - 083 29.7’

**Description:**

2 – 50ft ; 1 – 150ft Simple R.C.D.G. Spans, 2- 70ft &1 – 100 ft cont R.C.D.G. Spans (16 Steel Rockers)

**71. FE02 103-0064-136.30(B55P) District No. 9**

Louisville – Lexington - Catlettsburg

I-64 over North Fork Triplett Creek

**Geographic Coordinates**

Latitude – 38 11.2’

Longitude - 083 29.7’

**Description:**

2 – 50ft ; 1 – 150ft Simple R.C.D.G. Spans, 2- 70ft &1 – 100 ft cont R.C.D.G. Spans (16 Steel Rockers)

**72. FE02 103-0799-145.92(B32) District No. 9**

Eadston – Triplett Road

KY 799 over I-64



**Geographic Coordinates**

Latitude – 38 16.4’

Longitude - 083 22.6’

**Description:**

2 – 45ft ; 1 – 36ft Simple R.C.D.G. Spans, 2- 80ft Cont. R.C.D.G. Spans (12 Steel Rockers)

**Boyd County**

**73. FE02 010-0064-181.37(B9) District No. 9**

Louisville – Lexington - Catlettsburg  
I-64 over CSX Railroad, US 60 and Williams Creek

**Geographic Coordinates**

Latitude – 38 21.9’

Longitude - 082 46.3’

**Description:**

2 – 65ft, 2 – 87ft & 1 – 90 ft Cont R.C.D.G. Spans (36 Steel Rockers)

**74. FE02 010-0064-181.37(B9P) District No. 9**

Louisville – Lexington - Catlettsburg  
I-64 over CSX Railroad, US 60 and Williams Creek

**Geographic Coordinates**

Latitude – 38 21.9’

Longitude - 082 46.3’

**Description:**

2 – 65ft, 2 – 87ft & 1 – 90 ft Cont R.C.D.G. Spans (36 Steel Rockers)

**75. FE02 010-0064-181.99(B11) District No. 9**

Louisville – Lexington - Catlettsburg  
I-64 over KY 966

**Geographic Coordinates**

Latitude – 38 22.0’

Longitude - 082 45.8’

**Description:**

2 – 63ft & 1 – 82ft Cont R.C.D.G. Spans (16 Steel Rockers)

**76. FE02 010-0064-181.99(B11P) District No. 9**

Louisville – Lexington - Catlettsburg  
I-64 over KY 966

**Geographic Coordinates**

Latitude – 38 22.0’

Longitude - 082 45.8’

**Description:**

2 – 63ft & 1 – 82ft Cont R.C.D.G. Spans (16 Steel Rockers)

**77. FE02 010-0064-185.18(B12) District No. 9**

Louisville – Lexington - Catlettsburg  
I-64 over East Fork of Little Sandy River

**Geographic Coordinates**

Latitude – 38 22.0'

Longitude - 082 42.2'

**Description:**

2 – 47ft ; 2 – 100ft & 1 – 130ft Cont R.C.D.G. Spans (16 Steel Rockers)

**78. FE02 010-0064-185.18(B12P) District No. 9**

Louisville – Lexington - Catlettsburg  
I-64 over East Fork of Little Sandy River

**Geographic Coordinates**

Latitude – 38 22.0'

Longitude - 082 42.2'

**Description:**

2 – 47ft ; 2 – 100ft & 1 – 130ft Cont R.C.D.G. Spans (16 Steel Rockers)

**79. FE02 010-0023-190.72(B3) District No. 9**

Catlettsburg – Kavanaugh – Louisa Road  
US 23 over I-64

**Geographic Coordinates**

Latitude – 38 22.8'

Longitude - 082 36.4'

**Description:**

2 – 55ft & 2 – 69ft Cont R.C.D.G. Spans (25 Steel Rockers)

**80. FE02 010-0023-190.72(B3P) District No. 9**

Catlettsburg – Kavanaugh – Louisa Road  
US 23 over I-64

**Geographic Coordinates**

Latitude – 38 22.8'

Longitude - 082 36.4'

**Description:**

2 – 55ft & 2 – 69ft Cont R.C.D.G. Spans (25 Steel Rockers)



Figure 30. Bridge over I-64 after pressure washing.



Figure 31. Bridge over I-64 after surface preparation.



Figure 32. Bridge over I-64 during painting operation.



Figure 33. Containment of an overpass bridge on I-64.



Figure 34. Improper storage of hazardous waste (Using guard rail).



Figure 35. Contractor painting the Mountain Parkway overpass on I-64.



Figure 36. Excessive build up of primer.



Figure 37. Early rust failure over an overpass bridge on I-64



Figure 38. Improperly mixed top coat.



Figure 39. Railroad Bridge in Lexington showing Diesel fumes.



Figure 40. Line pressure gauge used to measure the washing pressure.



Figure 41. Paint chips trapped in 85% containment screens.





Figure 42. Paint over stratified rust on the bearing.



Figure 43. Varying paint thickness in the primer.



Figure 44. Water tanks and pressure washers used in painting an I-64 bridge.



Figure 45. Beam on an overpass bridge damaged due to collision.



Figure 46. US 25 bridge over I-64 & I-75.



Figure 47. CSX Railroad bridge over I-64.

**Appendix G: Experimental Washing, Cleaning And Painting of I-75**

Bridges From Fayette Co. To Tennessee State Line

## Experimental Washing, Cleaning And Painting of I-75 Bridges From Fayette Co. To Tennessee State Line

### **Background**

On February 10, 1997 a contract was awarded for the experimental washing, cleaning and painting of all I-75 Steel Bridges and Rockers from Fayette Co. to Tennessee State Line. The contract award was for a lump sum of \$936,607. There were 14 Steel Bridges and 43 Bridges with rockers to be painted.

### **Special Notes**

The Contract for this project included Special Notes for;

- Washing, and Painting,
- Quality Control,
- Environmental and Work Safety Regulations,
- Experimental Paint and,
- Maintaining and Controlling Traffic.

In addition to the listed Special Notes the contract required that all work be done in accordance with the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, Section 727 Maintenance Cleaning and Painting Steel Bridges.

The Special Note for washing, and painting required all areas being power washed or steam cleaned be draped with new 85 % containment screens to trap all loose, solid debris generated during those operations. Also if the paint was sprayed then total containment was required to contain over-spray.

### **Washing Specifications**

The contract required that all structural steel to be cleaned by pressure washing. The steel was to be washed at a minimum of 5,000 psi with 0<sup>0</sup> spinner nozzles. The wand nozzle was to be held a maximum of twelve (12) inches from the surface being pressure washed and approximately normal to the working surface. Additional cleaning (i.e., solvent, steam, or hand cleaning) were required if pressure washing did not sufficiently clean the steel.

### **Cleaning Specifications**

The contractor was required to perform mechanical surface preparation by hand or power-tool cleaning on all surfaces not possessing clean, adherent paint and mill scale. All hand or power-tools were to be equipped with vacuum shrouds fitted with HEPA filters for containing and collecting all loose material generated.

## **Painting Specifications**

Painting of the bridge consisted of three coats. All structural steel and/or rockers cleaned were to be painted with one brushed-on full primer coat of Moisture Cure Aluminum Polyurethane Primer. One full intermediate primer coat of Moisture Cure Aluminum Polyurethane Primer was to be applied by brushing, rolling or spraying (at the option of the contractor) over all structural steel and/or rockers. At locations where the existing coating was distressed, additional paint thickness was necessary to properly seal crevices and coat irregular surfaces. A full finish coat of Gray Acrylic Polyurethane paint was to be applied by brushing, rolling or spraying (at the option of the contractor).

## **Contractor Painting Operations**

The painting contractor moved onto the site on March 5, 1997. Quality Control and Analysis on this project was better compared to I-64 project. The various problems encountered were improper scheduling, putting on too thick of paint, and humidity readings taken at wrong places were somewhat rectified on this project due to better Quality Analysis. The bridge painting was completed on December 29, 1997.

## **Summary**

The Special Notes and Standard Specifications were followed throughout the cleaning and painting of bridges. All three coats of paint were applied to meet the specifications of this project. All work inspected was completed within conformance of the Standard Specifications and Special Notes applicable to this project.

## Madison County

1. **FE02 076-0075-084.64(B42) District No. 7**

Covington – Lexington – Tennessee State  
Northbound I-75 over KY 52 2.5miles South of KY 876 NTR

**Geographic Coordinates**

Latitude – 37 42.0’

Longitude - 084 19.1’

**Description:**

2 – 59ft. & 1 - 77ft R.C.D.G. Spans (16 Steel Rockers)

2. **FE02 076-0075-084.64(B42P) District No. 7**

Covington – Lexington – Tennessee State  
Southbound I-75 over KY 52 2.5miles South of KY 876 NTR

**Geographic Coordinates**

Latitude – 37 42.0’

Longitude - 084 19.1’

**Description:**

2 – 59ft. & 1 - 77ft R.C.D.G. Spans (16 Steel Rockers)

3. **FE02 076-0075-082.93(B72) District No. 7**

Covington – Lexington – Tennessee State  
KY 2872 (Duncanon Road) over I-75 4.7 miles South of KY 876 NTRCH

**Geographic Coordinates**

Latitude – 37 40.5’

Longitude - 084 18.7’

**Description:**

1 – 35ft. 1 - 45ft and 2 – 70 ft R.C.D.G. Spans (16 Steel Rockers)

4. **FE02 076-0075-080.87(B44) District No. 7**

Covington – Lexington – Tennessee State  
Northbound I-75 over Silver Creek and Menelaus Road .3 mile North of KY 2881

**Geographic Coordinates**

Latitude – 37 38.8’

Longitude - 084 18.9’

**Description:**

2 – 70ft. 1 - 92ft Cont. and 1 – 35 ft Simple R.C.D.G. Spans (20 Steel Rockers)

5. **FE02 076-0075-080.87(B44P) District No. 7**

Covington – Lexington – Tennessee State  
Southbound I-75 over Silver Creek and Menelaus Road .3 mile North of KY 2881

**Geographic Coordinates**

Latitude – 37 38.8’

Longitude - 084 18.9’

**Description:**

2 – 70ft. 1 - 92ft Cont. and 1 – 35 ft Simple R.C.D.G. Spans (20 Steel Rockers)

**6. FE02 076-0075-080.70(B59) District No. 7**

Covington – Lexington – Tennessee State

KY 2881 (Caleast – US 25) over I-75 0.7 miles West of KY 1983

**Geographic Coordinates**

Latitude – 37 38.5’

Longitude - 084 18.9’

**Description:**

1 – 35ft. 2 - 80ft and 2 – 53 ft R.C.D.G. Spans (12 Steel Rockers)

**7. FE02 076-0075-075.52(B73) District No. 7**

Covington – Lexington – Tennessee State

KY 21 (Chestnut Street – Lancaster Road) over I-75 .5 mile West of US 25

**Geographic Coordinates**

Latitude – 37 34.2’

Longitude - 084 18.9’

**Description:**

2 - 49ft and 2 – 70 ft R.C.D.G. Spans (20 Steel Rockers)

**Rockcastle County**

**8. FE02 102-0075-068.31(B20) District No. 8**

Covington – Lexington – Tennessee State

KY 1505 (Brodhead – Conway Road) over I-75 .2 mile West of US 25

**Geographic Coordinates**

Latitude – 37 28.0’

Longitude - 084 20.1’

**Description:**

2 - 37ft and 2 – 68 ft R.C.D.G. Spans (20 Steel Rockers)

**9. FE02 102-0075-066.08(B35) District No. 8**

Covington – Lexington – Tennessee State

KY 3275 (Hurricane School Road) over I-75 .7 mile Northwest of US 25

**Geographic Coordinates**

Latitude – 37 26.0’

Longitude - 084 20.6’

**Description:**



2 - 52ft and 2 – 70 ft R.C.D.G. Spans (20 Steel Rockers)

10. **FE02 102-0075-062.65(B36) District No. 8**

Covington – Lexington – Tennessee State

Northbound I-75 over Green Hill Road .4 mile North of US 25

**Geographic Coordinates**

Latitude – 37 23.2’

Longitude - 084 20.2’

**Description:**

1 – 70ft Simple Welded Plate Girder Span

11. **FE02 102-0075-062.65(B36P) District No. 8**

Covington – Lexington – Tennessee State

Southbound I-75 over Green Hill Road .4 mile North of US 25

**Geographic Coordinates**

Latitude – 37 23.2’

Longitude - 084 20.2’

**Description:**

1 – 70ft Simple Welded Plate Girder Span

12. **FE02 102-0075-062.01(B37) District No. 8**

Covington – Lexington – Tennessee State

Northbound I-75 over US 25

**Geographic Coordinates**

Latitude – 37 22.7’

Longitude - 084 19.8’

**Description:**

1 – 42ft 1 – 85ft and 1-72ft Simple Comp. Steel Spans

13. **FE02 102-0075-062.01(B37P) District No. 8**

Covington – Lexington – Tennessee State

Southbound I-75 over US 25

**Geographic Coordinates**

Latitude – 37 22.7’

Longitude - 084 19.8’

**Description:**

1 – 42ft 1 – 85ft and 1-72ft Simple Comp. Steel Spans

14. **FE02 102-0075-058.95(B38) District No. 8**

Covington – Lexington – Tennessee State

Northbound I-75 over US 25

**Geographic Coordinates**

Latitude – 37 20.5’

Longitude - 084 18.5’

**Description:**

2 – 56ft and 1–84ft Cont R.C.D.G. Spans (20 Steel Rockers)

**15. FE02 102-0075-058.95(B38P) District No. 8**

Covington – Lexington – Tennessee State  
Southbound I-75 over US 25

**Geographic Coordinates**

Latitude – 37 20.5’

Longitude - 084 18.5’

**Description:**

2 – 56ft and 1–84ft Cont R.C.D.G. Spans (20 Steel Rockers)

**16. FE02 102-0075-054.48(B39) District No. 8**

Covington – Lexington – Tennessee State  
Sand Hill Road over I-75. 3.5 miles North of Laurel County Line

**Geographic Coordinates**

Latitude – 37 17.3’

Longitude - 084 16.0’

**Description:**

2 – 100ft Cont Comp. Welded Plate Girder Spans

**Laurel County**

**17. FE02 063-0075-050.71(B40) District No. 11**

Covington – Lexington – Tennessee State  
Northbound I-75 over Rockcastle River at the Rockcastle County Line

**Geographic Coordinates**

Latitude – 37 14.4’

Longitude - 084 14.4’

**Description:**

4 – 160ft and 1 – 200ft Cont Steel Plate Girder Spans

**18. FE02 063-0075-050.71(B40P) District No. 11**

Covington – Lexington – Tennessee State  
Southbound I-75 over Rockcastle River at the Rockcastle County Line

**Geographic Coordinates**

Latitude – 37 14.4’

Longitude - 084 14.4’

**Description:**

4 – 160ft and 1 – 200ft Cont Steel Plate Girder Spans

19. **FE02 063-0075-049.10(B36) District No. 11**

Covington – Lexington – Tennessee State  
KY 909 over I-75 .60 mile Southwest of Jct. US 25

**Geographic Coordinates**

Latitude – 37 13.5'

Longitude - 084 12.9'

**Description:**

2 – 50ft and 2 – 86ft Cont Steel Plate Girder Spans

20. **FE02 063-0075-045.90(B49) District No. 11**

Covington – Lexington – Tennessee State  
US 25 over I-75 2 miles Northwest of Jct. KY 30

**Geographic Coordinates**

Latitude – 37 12.3'

Longitude - 084 09.8'

**Description:**

2 – 70ft and 2–100ft Cont R.C.D.G. Spans (20 Steel Rockers)

21. **FE02 063-0075-044.27(B48) District No. 11**

Covington – Lexington – Tennessee State  
US 25 over I-75 .3 mile Northwest of Jct. KY 30

**Geographic Coordinates**

Latitude – 37 11.4'

Longitude - 084 08.6'

**Description:**

2 – 70ft and 2–100ft Cont R.C.D.G. Spans (20 Steel Rockers)

22. **FE02 063-0075-042.35(B37) District No. 11**

Covington – Lexington – Tennessee State  
Northbound I-75 over KY 2041 1.6miles North of KY 80 Interchange

**Geographic Coordinates**

Latitude – 37 10.0'

Longitude - 084 07.3'

**Description:**

2 – 35ft and 1–46ft Cont R.C.D.G. Spans (20 Steel Rockers)

23. **FE02 063-0075-042.35(B37P) District No. 11**

Covington – Lexington – Tennessee State  
Southbound I-75 over KY 2041 1.6miles North of KY 80 Interchange

**Geographic Coordinates**

Latitude – 37 10.0’

Longitude - 084 07.3’

**Description:**

2 – 35ft and 1–46ft Cont R.C.D.G. Spans (20 Steel Rockers)

**24. FE02 063-0075-041.90(B41) District No. 11**

Covington – Lexington – Tennessee State

Northbound I-75 over Wood Creek 1.2miles North of KY 80 Interchange

**Geographic Coordinates**

Latitude – 37 09.7’

Longitude - 084 06.9’

**Description:**

2 – 36.5ft and 1–52ft Cont R.C.D.G. Spans (16 Steel Rockers)

**25. FE02 063-0075-041.90(B41P) District No. 11**

Covington – Lexington – Tennessee State

Southbound I-75 over Wood Creek 1.2miles North of KY 80 Interchange

**Geographic Coordinates**

Latitude – 37 09.7’

Longitude - 084 06.9’

**Description:**

2 – 36.5ft and 1–52ft Cont R.C.D.G. Spans (16 Steel Rockers)

**26. FE02 063-0075-040.70(B44) District No. 11**

Covington – Lexington – Tennessee State

KY 80 over I-75 .5 mile West of Jct. US 25

**Geographic Coordinates**

Latitude – 37 08.8’

Longitude - 084 06.7’

**Description:**

2 – 58.5ft and 2–82ft Cont R.C.D.G. Spans (50 Steel Rockers)

**27. FE02 063-0075-038.19(B66) District No. 11**

Covington – Lexington – Tennessee State

KY 192 over I-75 .20 mile West of Jct. KY 1006

**Geographic Coordinates**

Latitude – 37 06.6’

Longitude - 084 06.1’

**Description:**

2 – 50ft and 2–70ft Cont R.C.D.G. Spans (20 Steel Rockers)

28. **FE02 063-0075-036.68(B32) District No. 11**  
 Covington – Lexington – Tennessee State  
 KY 363 over I-75 1.1 mile Southwest of Jct. KY 1006
- Geographic Coordinates**  
 Latitude – 37 05.4’ Longitude - 084 05.9’
- Description:**  
 2–58ft and 2–92.67ft Cont R.C.D.G. Spans (20 Steel Rockers)
29. **FE02 063-0075-033.15(B42) District No. 11**  
 Covington – Lexington – Tennessee State  
 Northbound I-75 over Little Laurel River 4 miles North of US 25 Interchange
- Geographic Coordinates**  
 Latitude – 37 02.3’ Longitude - 084 05.9’
- Description:**  
 1–52.5ft, 1–100ft and 1–72.5ft Cont R.C.D.G. Spans (20 Steel Rockers)
30. **FE02 063-0075-033.15(B42P) District No. 11**  
 Covington – Lexington – Tennessee State  
 Southbound I-75 over Little Laurel River 4 miles North of US 25 Interchange
- Geographic Coordinates**  
 Latitude – 37 09.7’ Longitude - 084 06.9’
- Description:**  
 2–36.5ft, and 1–52ft Cont R.C.D.G. Spans (20 Steel Rockers)
31. **FE02 063-0075-031.85(B29) District No. 11**  
 Covington – Lexington – Tennessee State  
 KY 552 over I-75 2.3 miles Southwest of Jct. US 25
- Geographic Coordinates**  
 Latitude – 37 01.2’ Longitude - 084 06.0’
- Description:**  
 2–52.29ft and 2–70.71ft Cont R.C.D.G. Spans (20 Steel Rockers)
32. **FE02 063-0075-030.56(B43) District No. 11**  
 Covington – Lexington – Tennessee State  
 Northbound I-75 over Laurel River 1.5miles North of US 25 interchange
- Geographic Coordinates**  
 Latitude – 37 00.1’ Longitude - 084 06.4’

**Description:**

2-140ft and 1-200ft Cont Welded Plate Girder Spans

**33. FE02 063-0075-030.56(B43P) District No. 11**

Covington – Lexington – Tennessee State

Southbound I-75 over Laurel River 1.5miles North of US 25 interchange

**Geographic Coordinates**

Latitude – 37 00.1’

Longitude - 084 06.4’

**Description:**

2-140ft and 1-200ft Cont Welded Plate Girder Spans

**Whitley County**

**34. FE02 118-0075-027.90(B63) District No. 11**

Covington – Lexington – Tennessee State

Northbound I-75 over Lynn Camp Creek on Laurel – Whitley County Line

**Geographic Coordinates**

Latitude – 36 57.9’

Longitude - 084 06.9’

**Description:**

2-140ft and 1-200ft Cont Welded Plate Girder Spans

**35. FE02 118-0075-027.90(B63P) District No. 11**

Covington – Lexington – Tennessee State

Southbound I-75 over Lynn Camp Creek on Laurel – Whitley County Line

**Geographic Coordinates**

Latitude – 36 57.9’

Longitude - 084 06.9’

**Description:**

2-160ft and 1-200ft Cont Welded Plate Girder Spans

**36. FE02 118-0075-027.4(B91) District No. 11**

Covington – Lexington – Tennessee State

KY 312 over I-75 1.2 miles West of Jct. US 25W

**Geographic Coordinates**

Latitude – 36 57.4’

Longitude - 084 07.1’

**Description:**

1-53ft, 2-67.5ft and 1-57ft Cont R.C.D.G. Spans (20 Steel Rockers)

**37. FE02 118-0075-026.56(B15) District No. 11**

Covington – Lexington – Tennessee State  
KY 1259 over I-75 0.5 miles West of Jct. KY 2384

**Geographic Coordinates**

Latitude – 36 56.6’

Longitude - 084 07.4’

**Description:**

2-50ft, and 2–70ft Cont R.C.D.G. Spans (20 Steel Rockers)

**38. FE02 118-0075-025.90(B51) District No. 11**

Covington – Lexington – Tennessee State

Northbound I-75 over KY 727- Barton Road. 1.25 miles North of Jct. US 25W

**Geographic Coordinates**

Latitude – 36 56.1’

Longitude - 084 07.6’

**Description:**

2-60ft, and 1–80ft Cont R.C.D.G. Spans (20 Steel Rockers)

**39. FE02 118-0075-025.90(B51P) District No. 11**

Covington – Lexington – Tennessee State

Southbound I-75 over KY 727- Barton Road. 1.25 miles North of Jct. US 25W

**Geographic Coordinates**

Latitude – 36 56.1’

Longitude - 084 07.6’

**Description:**

2-65ft, and 1–90ft Cont R.C.D.G. Spans (20 Steel Rockers)

**40. FE02 118-0075-024.65(B50) District No. 11**

Covington – Lexington – Tennessee State

Northbound I-75 over US 25W Interchange

**Geographic Coordinates**

Latitude – 36 55.0’

Longitude - 084 07.8’

**Description:**

2-53ft, and 1–75ft Cont R.C.D.G. Spans (20 Steel Rockers)

**41. FE02 118-0075-024.65(B50P) District No. 11**

Covington – Lexington – Tennessee State

Southbound I-75 over US 25W Interchange

**Geographic Coordinates**

Latitude – 36 55.0’

Longitude - 084 07.8’

**Description:**

2-53ft, and 1-75ft Cont R.C.D.G. Spans (20 Steel Rockers)

**42. FE02 118-0075-022.87(B48) District No. 11**

Covington – Lexington – Tennessee State  
KY 3001 Over I-75 1.5 miles West of Jct. KY 26

**Geographic Coordinates**

Latitude – 36 53.7'

Longitude - 084 08.4'

**Description:**

2-70ft, and 2-100ft Cont R.C.D.G. Spans (20 Steel Rockers)

**43. FE02 118-0075-018.04(B10) District No. 11**

Covington – Lexington – Tennessee State  
KY 511 Over I-75 0.8 miles West of Jct. KY 836

**Geographic Coordinates**

Latitude – 36 50.6'

Longitude - 084 09.7'

**Description:**

2-53ft, and 1-73ft Cont R.C.D.G. Spans (20 Steel Rockers)

**44. FE02 118-0075-015.46(B30) District No. 11**

Covington – Lexington – Tennessee State  
KY 25W over I-75 1.4 miles Northwest of Jct. KY 26

**Geographic Coordinates**

Latitude – 36 47.6'

Longitude - 084 10.1'

**Description:**

2-45ft, and 2-70ft Cont R.C.D.G. Spans (20 Steel Rockers)

**45. FE02 118-0075-014.51(B45) District No. 11**

Covington – Lexington – Tennessee State  
Northbound I-75 over Cumberland River and Croley Road 1 mile South of US 25  
Interchange

**Geographic Coordinates**

Latitude – 36 46.8'

Longitude - 084 10.1'

**Description:**

2-90ft Simple Steel Spans, 2-140ft and 1-200ft Cont Welded Plate Girder Spans

**46. FE02 118-0075-014.51(B45P) District No. 11**

Covington – Lexington – Tennessee State



Southbound I-75 over Cumberland River and Croley Road 1 mile South of US 25 Interchange

**Geographic Coordinates**

Latitude – 36 46.8’

Longitude - 084 10.1’

**Description:**

2-90ft Simple Steel Spans, 2-140ft and 1–200ft Cont Welded Plate Girder Spans

**47. FE02 118-0075-011.24(B89) District No. 11**

Covington – Lexington – Tennessee State  
KY 296 over I-75 .6 miles Northeast of Jct. KY 92

**Geographic Coordinates**

Latitude – 36 46.8’

Longitude - 084 10.1’

**Description:**

2-45ft, and 2–72ft Cont R.C.D.G. Spans (20 Steel Rockers)

**48. FE02 118-0075-010.55(B20) District No. 11**

Covington – Lexington – Tennessee State  
KY 92 over I-75 .3 miles West of Jct. US 25W

**Geographic Coordinates**

Latitude – 36 43.5’

Longitude - 084 10.2’

**Description:**

2-51ft, and 2–66ft Cont R.C.D.G. Spans (25 Steel Rockers)

**49. FE02 118-0075-006.42(B85) District No. 11**

Covington – Lexington – Tennessee State  
KY 628 over I-75 .3 miles West of Jct. US 25W

**Geographic Coordinates**

Latitude – 36 40.3’

Longitude - 084 08.02’

**Description:**

2-64ft, and 2-93ft Cont R.C.D.G. Spans (25 Steel Rockers)

**50. FE02 118-0075-005.56(B60) District No. 11**

Covington – Lexington – Tennessee State  
Northbound I-75 over Wolf Creek .8 miles South of KY 628

**Geographic Coordinates**

Latitude – 36 39.8’

Longitude - 084 08.2’

**Description:**

2-60ft, and 1-90ft Cont R.C.D.G. Spans (16 Steel Rockers)

**51. FE02 118-0075-005.56(B60P) District No. 11**

Covington – Lexington – Tennessee State  
Southbound I-75 over Wolf Creek .8 miles South of KY 628

**Geographic Coordinates**

Latitude – 36 39.8’

Longitude - 084 08.2’

**Description:**

2-60ft, and 1-90ft Cont R.C.D.G. Spans (16 Steel Rockers)

**52. FE02 118-0075-003.17(B55) District No. 11**

Covington – Lexington – Tennessee State  
Northbound I-75 over US 25W 3.2 miles North of Tenn. State Line

**Geographic Coordinates**

Latitude – 36 38.0’

Longitude - 084 07.1’

**Description:**

2-60ft, and 1-88ft Cont R.C.D.G. Spans (16 Steel Rockers)

**53. FE02 118-0075-003.17(B55P) District No. 11**

Covington – Lexington – Tennessee State  
Southbound I-75 over US 25W 3.2 miles North of Tenn. State Line

**Geographic Coordinates**

Latitude – 36 38.0’

Longitude - 084 07.1’

**Description:**

2-60ft, and 1-88ft Cont R.C.D.G. Spans (16 Steel Rockers)

**54. FE02 118-0075-02.46(B59) District No. 11**

Covington – Lexington – Tennessee State  
Northbound I-75 over Clear Fork River 2.5 miles North of Tenn. State Line

**Geographic Coordinates**

Latitude – 36 37.6’

Longitude - 084 06.7’

**Description:**

3-52ft Simple R.C.D.G., 1-100ft and 2-70ft Cont R.C.D.G. Spans (16 Steel Rockers)

**55. FE02 118-0075-02.46(B59P) District No. 11**

Covington – Lexington – Tennessee State

Southbound I-75 over Clear Fork River 2.5 miles North of Tenn. State Line

**Geographic Coordinates**

Latitude – 36 37.6’

Longitude - 084 06.7’

**Description:**

3-52ft Simple R.C.D.G., 1-100ft and 2-70ft Cont R.C.D.G. Spans (16 Steel Rockers)

**56. FE02 118-0075-001.30(B58) District No. 11**

Covington – Lexington – Tennessee State

Northbound I-75 over Clear Fork River 1.3 miles North of Tenn. State Line

**Geographic Coordinates**

Latitude – 36 36.6’

Longitude - 084 06.4’

**Description:**

2-52ft Simple RCDG , 2-70ft and 1-100ft Cont R.C.D.G. Spans (16 Steel Rockers)

**57. FE02 118-0075-001.30(B58P) District No. 11**

Covington – Lexington – Tennessee State

Southbound I-75 over Clear Fork River 1.3 miles North of Tenn. State Line

**Geographic Coordinates**

Latitude – 36 36.6’

Longitude - 084 06.4’

**Description:**

2-52ft Simple RCDG , 2-70ft and 1-100ft Cont R.C.D.G. Spans (16 Steel Rockers)



Figure 48. Coating thickness measurement using a tooke gauge.



Figure 49. Transition zone of coatings over an overpass on I-75.



Figure 50. Improper cleaning of the bearing plate.



Figure 51. The painted steel rockers of a concrete bridge on an overpass on I-75.



Figure 52. I-75 over Cumberland River and Croley Road in Whitley County.



Figure 53. I-75 over Lynn Camp Creek on Laurel-Whitley County.



Figure 54. Containment structure during painting operation on I-75.



Figure 55. I-75 over Laurel River in Laurel County.



Figure 56. KY 909 over I-75 in laurel County.



Figure 57. I-75 over US 25 in Rockcastle County.





Figure 58. I-75 over Green Hill Road in Rockcastle County.