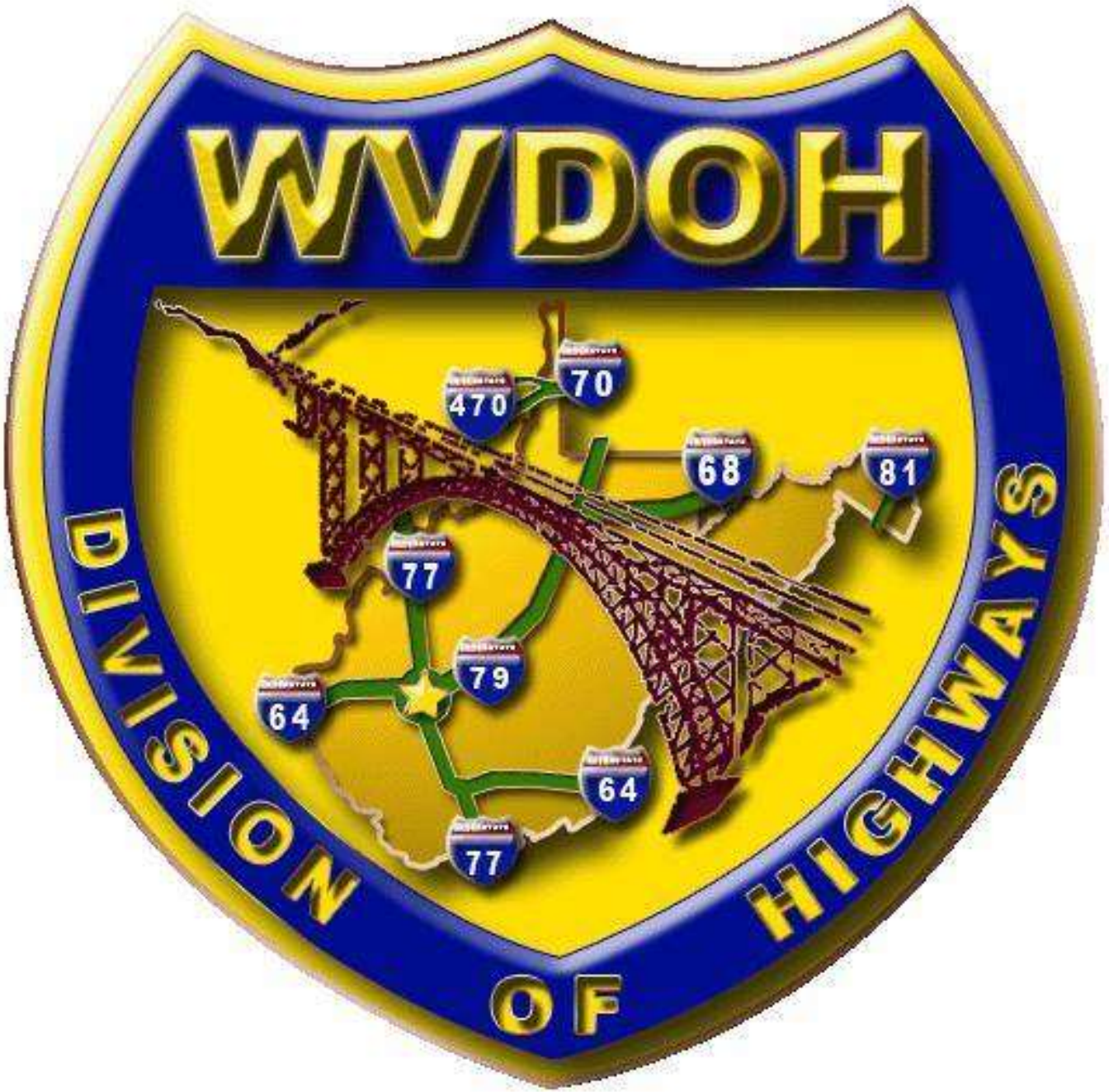
WVDOH
DIVISION OF HIGHWAYS
470
70
68
81
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64
77

WEST VIRGINIA'S ABC PROJECTS

Ahmed Mongi, M.S., P.E.
Engineering Division

Honey Creek Bridge

- Completed in 2006 at a cost of $2.6 Million
- Precast pier caps and abutments.

Honey Creek Bridge

- Bridge closed for 60 days
- Simple span for DL and continuous for LL

16th Street Interchange Bridge

- Completed in 2009 at a cost of $26.0 Million
- Precast pier caps and abutments

16th Street Interchange Bridge

- Staged construction using precast and CIP decks
- CIP deck was selected by the contractor

Robin Hood Bridge

- Completed in 2010 at a cost of $2.5 Million
- Precast pier caps and abutments

Robin Hood Bridge

- Bridge closed to traffic for 70 days
- Simple span for DL & continuous for LL

Dry Branch Bridge

- Completed in 2013 at a cost of $1.7 Million
- Precast abutments

Dry Branch Bridge

- Bridge closed for 2.5 months during summer break
- Prefabricated beams (hybrid composite beams)

Rodney Staton Bridge

- Completed in 2015 at a cost of $5.1 Million
- Precast deck panels

Rodney Staton Bridge

- Staged construction, longitudinal PT deck
- Integral abutments

MLK Jr. Memorial Bridge

- Completed in 2015 at a cost of $7.2 Million
- Precast deck panels, abutments & wingwalls

MLK Jr. Memorial Bridge

- Bridge closed to traffic for 2 months
- Longitudinal PT, integral abutments, 167 ft. span

Old truss bridge moved laterally under traffic

Poca Bridge in West Virginia moved 39 ft to create detour while replacement is built; relocation under traffic is estimated to have saved $100,000

by John E. Brunnell

Poca Bridge on West Virginia Route 62 over the Pocatalico River, just upstream from the point where it joins the Kanawha River, was moved laterally on Feb. 27, 1988, to make way for a new steel girder structure on the same alignment.

The Poca bridge, built in 1922 by Massillon Bridge Company of Massillon, Ohio, is a 180-ft simple span thru truss with an 18-ft roadway consisting of a 6-in. concrete deck. In 1951 a 4-ft 11-in. wood sidewalk was added outside the upstream side of the truss.

Jacking and bridge movement took place under traffic

The Poca truss, which was now scheduled for replacement, had, itself, replaced a wooden covered bridge which was located adjacent to and slightly upstream of the truss' alignment.

A new structure was designed by the consulting firm of Stafford Consultants, Inc., of Princeton, W.Va., for the West Virginia Department of Highways, owner of the truss, on the same alignment as the truss. Because of the new bridge being located on the same alignment and there being no readily available detour route for the approximately 6,000 vpd, a temporary detour with a temporary structure was called for in the contract plans.

This temporary detour route was to be located approximately 40 ft downstream. A temporary structure would be built on a skew such that it would cross a 16-in. D.I. water line in the river bed, which was not to be disturbed. The detour also required approximately 150 ft of approach roadway on the north end and 100 ft on the south end of the project. In June 1987 a contract for the construction of the new structure and demolition of the existing truss was awarded to Orders Construction Company, Inc., of St. Albans, W.Va.

The contractor, after reviewing the detour noted in the plans, proposed to the department that the existing truss be utilized as the temporary bridge by relocating the truss upstream. It would be adjacent to the new construction, in approximately the same location as the original covered bridge which had been replaced 65 years earlier by the truss.

Mr. Brunnell is with the Structures Division, West Virginia Department of Highways. Edited by Frank Raczon. Photos by the author.

Several problems with this plan immediately came up and each had to be resolved prior to the department's giving the contractor the authorization to proceed. The problems included topography at the proposed location, utility lines in the path of the proposed relocation, traffic handling during the relocation of the existing structure, length of the existing truss and the condition of the 65-year-old bridge.

Topography on the north end of the project included a steep bank and a 90° bend in the river, causing it to flow parallel to the roadway. This condition made the crossing longer than the span length of the truss. On the south end of the project no topography problems were encountered. Both the topography and length problems were solved with the addition of a simple span timber deck bridge span to connect the existing road with the north end of the relocated truss.

Utilities encountered included an overhead series of power lines running parallel to the truss, on the same alignment as the relocated detour, and a gas regulator pump housing on the south end of the project. The contractor contacted the utility companies involved and obtained permission to relocate the power lines as well as the regulator station.

Traffic handling during the moving of the truss presented a greater problem. The contractor proposed moving the bridge while under traffic, with only temporary interruptions during the initial jacking and when moving equipment. Traffic would be maintained, one vehicle at a time, during the actual lateral shift of the truss. The department took this plan under advisement and after much discussion agreed to the plan.

The problem of span length on the

Roads and Bridges Nov. 1988

Poca Truss Bridge Replacement

180 ft simple span thru truss built in 1922

Original plans called for temporary 40 ft downstream

Old truss bridge moved laterally under traffic

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This temporary detour route was to be located approximately 40 ft downstream. A temporary structure would be built on a skew such that it would cross a 16-in. D.I. water line in the river bed, which was not to be disturbed. The detour also required approximately 150 ft of approach roadway on the north end and 100 ft on the south end of the project. In June 1987 a contract for the construction of the new structure and demolition of the existing truss was awarded to Orders Construction Company, Inc., of St. Albans, W.Va.

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Roads and Bridges Nov. 1988

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This temporary detour route was to be located approximately 40 ft downstream. A temporary structure would be built on a skew such that it would cross a 16-in. D.I. water line in the river bed, which was not to be disturbed. The detour also required approximately 150 ft of approach roadway on the north end and 100 ft on the south end of the project. In June 1987 a contract for the construction of the new structure and demolition of the existing truss was awarded to Orders Construction Company, Inc., of St. Albans, W.Va.

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The problem of span length on the

Roads and Bridges Nov. 1988

Poca Truss Bridge Replacement

180 ft simple span thru truss built in 1922

Original plans called for temporary 40 ft downstream

existing truss was solved, as noted above, with the addition of the simple span on the north end. The plans, however, called for a temporary structure with a 24-ft clear roadway to be designed for HS20-44 live loading. The truss did not meet either criteria and was posted "Trucks & buses cross one at a time." As such the contractor requested the state waive the requirements, noting that the existing truss was presently carrying the traffic load and should be able to do so during the life of the project. The conditions were waived.

Orders Construction began preparation for the move by hiring Rude and Associates, Inc., of So. Charleston, W.Va., to design a pile bent pier to support the north end of the relocated truss and the south end of the simple span, as well as a temporary concrete abument for the south end of the truss.

The contractor also contracted with the firm of Elgood-Mayo Corp., of Lancaster, Penn., to handle the actual jacking and moving of the truss to its new upstream location.

Work required to prepare the truss included welding a pair of stiffeners on both sides of the gusset plates directly above the jacking points, which were just ahead of the existing shoes, and removal of the backwall on the south end of the existing bridge, as it had failed and was jammed against the expansion dam. The existing anchor bolts also had to be cut so that the bridge could be raised high enough to place the roller arrangement under the shoes for the lateral move.

Approximately three days of preparation time were required for the removal of the backwall and shoring up of the roadway while another six days of preparation time were utilized for welding the stiffeners, placing the roller guide track and miscellaneous work. At this time the contractor built temporary portable ramps so that traffic could get up onto the bridge deck during the move. The deck, as it rolled to its new location, would be approximately 7 in. higher than the adjacent roadway.

On the day of the move the 350-ton bridge was jacked vertically approximately 6 in. using a pair of 50-ton, 6-in. stroke jacks at each corner, with a maximum lift speed of 4 in./min. After raising, the structure anchor bolts were burned off flush with the masonry plate and the bearing and masonry plates were removed. Blocks were placed under the bearing seats, the jacks were blocked up and the process of jacking the bridge 6 in. was repeated.

Blocking under the seats was removed, the guide channel sections were placed on the bridge seat and the roller was positioned under the centerline of bearing. Locking pins were inserted and the roller connection beam was attached.

Traffic, one car at a time, was allowed to cross the bridge, guided by a flagger at each end, during the lifts. Traffic was stopped during the time when jacks were relocated for the second lift.

The bridge was lowered onto the roller assembly and the 5-in. bore with 3½-in. rod × 58-in stroke hydraulic cylinders were attached on the downstream side at each abutment. The anticipated horizontal load to move the bridge in 54-in. strokes was 10% of the vertical load at a maximum of 10 in./min; however, actual gauge readings indicated 20% of the vertical load was required, 10% at each of the two horizontal jacks. During the lateral move traffic was allowed across the bridge, at first one vehicle at a time, then in one direction but with more than one vehicle at a time. The only interruption of traffic was at times when the preconstructed wood ramps or the temporary concrete barriers across the detour route had to be moved.

Temporary wooden ramps were used for traffic during the move

The total lateral move of approximately 39 ft, 4 in. took about nine hours from the first lift to the final placement in the new location. Both hydraulic cylinders were operated in unison by one person on the ground.

When the truss was in its final position the rollers and that portion of the roller guide under the shoes were removed, the original bearing plates and rollers were set under the truss and the bridge was set back down in a repeat of the original lift.

It is estimated the method used to create the detour by utilizing the existing structure in a new location resulted in a project cost savings of $100,000 to $115,000 on a $1.7 million project. □

The Poca Bridge is a truss structure, built in 1922

More information on products and/or services mentioned is available by writing in the appropriate reader service number in this issue.

Consulting engineers
Stafford Consultants, Inc.– 1016
Rude and Associates, Inc.– 1017

Contractor proposed using existing bridge as detour

Constructed temporary pile bent, simple connector span, extended abutment

Existing jacked 39 ft upstream under traffic in 9 hours

Cost savings of $115,000 on a $1.7 million project

existing truss was solved, as noted above, with the addition of the simple span on the north end. The plans, however, called for a temporary structure with a 24-ft clear roadway to be designed for HS20-44 live loading. The truss did not meet either criteria and was posted "Trucks & buses cross one at a time." As such the contractor requested the state waive the requirements, noting that the existing truss was presently carrying the traffic load and should be able to do so during the life of the project. The conditions were waived.

Orders Construction began preparation for the move by hiring Rude and Associates, Inc., of So. Charleston, W.Va., to design a pile bent pier to support the north end of the relocated truss and the south end of the simple span, as well as a temporary concrete abument for the south end of the truss.

The contractor also contracted with the firm of Elgood-Mayo Corp., of Lancaster, Penn., to handle the actual jacking and moving of the truss to its new upstream location.

Work required to prepare the truss included welding a pair of stiffeners on both sides of the gusset plates directly above the jacking points, which were just ahead of the existing shoes, and removal of the backwall on the south end of the existing bridge, as it had failed and was jammed against the expansion dam. The existing anchor bolts also had to be cut so that the bridge could be raised high enough to place the roller arrangement under the shoes for the lateral move.

Approximately three days of preparation time were required for the removal of the backwall and shoring up of the roadway while another six days of preparation time were utilized for welding the stiffeners, placing the roller guide track and miscellaneous work. At this time the contractor built temporary portable ramps so that traffic could get up onto the bridge deck during the move. The deck, as it rolled to its new location, would be approximately 7 in. higher than the adjacent roadway.

On the day of the move the 350-ton bridge was jacked vertically approximately 6 in. using a pair of 50-ton, 6-in. stroke jacks at each corner, with a maximum lift speed of 4 in./min. After raising, the structure anchor bolts were burned off flush with the masonry plate and the bearing and masonry plates were removed. Blocks were placed under the bearing seats, the jacks were blocked up and the process of jacking the bridge 6 in. was repeated.

Blocking under the seats was removed, the guide channel sections were placed on the bridge seat and the roller was positioned under the centerline of bearing. Locking pins were inserted and the roller connection beam was attached.

Traffic, one car at a time, was allowed to cross the bridge, guided by a flagger at each end, during the lifts. Traffic was stopped during the time when jacks were relocated for the second lift.

The bridge was lowered onto the roller assembly and the 5-in. bore with 3½-in. rod × 58-in stroke hydraulic cylinders were attached on the downstream side at each abutment. The

Temporary wooden ramps were used for traffic during the move

anticipated horizontal load to move the bridge in 54-in. strokes was 10% of the vertical load at a maximum of 10 in./min; however, actual gauge readings indicated 20% of the vertical load was required, 10% at each of the two horizontal jacks. During the lateral move traffic was allowed across the bridge, at first one vehicle at a time, then in one direction but with more than one vehicle at a time. The only interruption of traffic was at times when the preconstructed wood ramps or the temporary concrete barriers across the detour route had to be moved.

The total lateral move of approximately 39 ft, 4 in. took about nine hours from the first lift to the final placement in the new location. Both hydraulic cylinders were operated in unison by one person on the ground.

When the truss was in its final position the rollers and that portion of the roller guide under the shoes were removed, the original bearing plates and rollers were set under the truss and the bridge was set back down in a repeat of the original lift.

It is estimated the method used to create the detour by utilizing the existing structure in a new location resulted in a project cost savings of $100,000 to $115,000 on a $1.7 million project. □

The Poca Bridge is a truss structure, built in 1922

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Consulting engineers
Stafford Consultants, Inc.– 1016
Rude and Associates, Inc.– 1017

Contractor proposed using existing bridge as detour

Constructed temporary pile bent, simple connector span, extended abutment

Existing jacked 39 ft upstream under traffic in 9 hours

Cost savings of $115,000 on a $1.7 million project

existing truss was solved, as noted above, with the addition of the simple span on the north end. The plans, however, called for a temporary structure with a 24-ft clear roadway to be designed for HS20-44 live loading. The truss did not meet either criteria and was posted "Trucks & buses cross one at a time." As such the contractor requested the state waive the requirements, noting that the existing truss was presently carrying the traffic load and should be able to do so during the life of the project. The conditions were waived.

Orders Construction began preparation for the move by hiring Rude and Associates, Inc., of So. Charleston, W.Va., to design a pile bent pier to support the north end of the relocated truss and the south end of the simple span, as well as a temporary concrete abument for the south end of the truss.

The contractor also contracted with the firm of Elgood-Mayo Corp., of Lancaster, Penn., to handle the actual jacking and moving of the truss to its new upstream location.

Work required to prepare the truss included welding a pair of stiffeners on both sides of the gusset plates directly above the jacking points, which were just ahead of the existing shoes, and removal of the backwall on the south end of the existing bridge, as it had failed and was jammed against the expansion dam. The existing anchor bolts also had to be cut so that the bridge could be raised high enough to place the roller arrangement under the shoes for the lateral move.

Approximately three days of preparation time were required for the removal of the backwall and shoring up of the roadway while another six days of preparation time were utilized for welding the stiffeners, placing the roller guide track and miscellaneous work. At this time the contractor built temporary portable ramps so that traffic could get up onto the bridge deck during the move. The deck, as it rolled to its new location, would be approximately 7 in. higher than the adjacent roadway.

On the day of the move the 350-ton bridge was jacked vertically approximately 6 in. using a pair of 50-ton, 6-in. stroke jacks at each corner, with a maximum lift speed of 4 in./min. After raising, the structure anchor bolts were burned off flush with the masonry plate and the bearing and masonry plates were removed. Blocks were placed under the bearing seats, the jacks were blocked up and the process of jacking the bridge 6 in. was repeated.

Blocking under the seats was removed, the guide channel sections were placed on the bridge seat and the roller was positioned under the centerline of bearing. Locking pins were inserted and the roller connection beam was attached.

Traffic, one car at a time, was allowed to cross the bridge, guided by a flagger at each end, during the lifts. Traffic was stopped during the time when jacks were relocated for the second lift.

The bridge was lowered onto the roller assembly and the 5-in. bore with 3½-in. rod × 58-in stroke hydraulic cylinders were attached on the downstream side at each abutment. The anticipated horizontal load to move the bridge in 54-in. strokes was 10% of the vertical load at a maximum of 10 in./min; however, actual gauge readings indicated 20% of the vertical load was required, 10% at each of the two horizontal jacks. During the lateral move traffic was allowed across the bridge, at first one vehicle at a time, then in one direction but with more than one vehicle at a time. The only interruption of traffic was at times when the preconstructed wood ramps or the temporary concrete barriers across the detour route had to be moved.

Temporary wooden ramps were used for traffic during the move

The total lateral move of approximately 39 ft, 4 in. took about nine hours from the first lift to the final placement in the new location. Both hydraulic cylinders were operated in unison by one person on the ground.

When the truss was in its final position the rollers and that portion of the roller guide under the shoes were removed, the original bearing plates and rollers were set under the truss and the bridge was set back down in a repeat of the original lift.

It is estimated the method used to create the detour by utilizing the existing structure in a new location resulted in a project cost savings of $100,000 to $115,000 on a $1.7 million project. □

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Consulting engineers
Stafford Consultants, Inc.– 1016
Rude and Associates, Inc.– 1017

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Constructed temporary pile bent, simple connector span, extended abutment

Existing jacked 39 ft upstream under traffic in 9 hours

Cost savings of $115,000 on a $1.7 million project

existing truss was solved, as noted above, with the addition of the simple span on the north end. The plans, however, called for a temporary structure with a 24-ft clear roadway to be designed for HS20-44 live loading. The truss did not meet either criteria and was posted "Trucks & buses cross one at a time." As such the contractor requested the state waive the requirements, noting that the existing truss was presently carrying the traffic load and should be able to do so during the life of the project. The conditions were waived.

Orders Construction began preparation for the move by hiring Rude and Associates, Inc., of So. Charleston, W.Va., to design a pile bent pier to support the north end of the relocated truss and the south end of the simple span, as well as a temporary concrete abument for the south end of the truss.

The contractor also contracted with the firm of Elgood-Mayo Corp., of Lancaster, Penn., to handle the actual jacking and moving of the truss to its new upstream location.

Work required to prepare the truss included welding a pair of stiffeners on both sides of the gusset plates directly above the jacking points, which were just ahead of the existing shoes, and removal of the backwall on the south end of the existing bridge, as it had failed and was jammed against the expansion dam. The existing anchor bolts also had to be cut so that the bridge could be raised high enough to place the roller arrangement under the shoes for the lateral move.

Approximately three days of preparation time were required for the removal of the backwall and shoring up of the roadway while another six days of preparation time were utilized for welding the stiffeners, placing the roller guide track and miscellaneous work. At this time the contractor built temporary portable ramps so that traffic could get up onto the bridge deck during the move. The deck, as it rolled to its new location, would be approximately 7 in. higher than the adjacent roadway.

On the day of the move the 350-ton bridge was jacked vertically approximately 6 in. using a pair of 50-ton, 6-in. stroke jacks at each corner, with a maximum lift speed of 4 in./min. After raising, the structure anchor bolts were burned off flush with the masonry plate and the bearing and masonry plates were removed. Blocks were placed under the bearing seats, the jacks were blocked up and the process of jacking the bridge 6 in. was repeated.

Blocking under the seats was removed, the guide channel sections were placed on the bridge seat and the roller was positioned under the centerline of bearing. Locking pins were inserted and the roller connection beam was attached.

Traffic, one car at a time, was allowed to cross the bridge, guided by a flagger at each end, during the lifts. Traffic was stopped during the time when jacks were relocated for the second lift.

The bridge was lowered onto the roller assembly and the 5-in. bore with 3½-in. rod × 58-in stroke hydraulic cylinders were attached on the downstream side at each abutment. The anticipated horizontal load to move the bridge in 54-in. strokes was 10% of the vertical load at a maximum of 10 in./min; however, actual gauge readings indicated 20% of the vertical load was required, 10% at each of the two horizontal jacks. During the lateral move traffic was allowed across the bridge, at first one vehicle at a time, then in one direction but with more than one vehicle at a time. The only interruption of traffic was at times when the preconstructed wood ramps or the temporary concrete barriers across the detour route had to be moved.

Temporary wooden ramps were used for traffic during the move

The total lateral move of approximately 39 ft, 4 in. took about nine hours from the first lift to the final placement in the new location. Both hydraulic cylinders were operated in unison by one person on the ground.

When the truss was in its final position the rollers and that portion of the roller guide under the shoes were removed, the original bearing plates and rollers were set under the truss and the bridge was set back down in a repeat of the original lift.

It is estimated the method used to create the detour by utilizing the existing structure in a new location resulted in a project cost savings of $100,000 to $115,000 on a $1.7 million project. □

The Poca Bridge is a truss structure, built in 1922

More information on products and/or services mentioned is available by writing in the appropriate reader service number in this issue.

Consulting engineers
Stafford Consultants, Inc.– 1016
Rude and Associates, Inc.– 1017

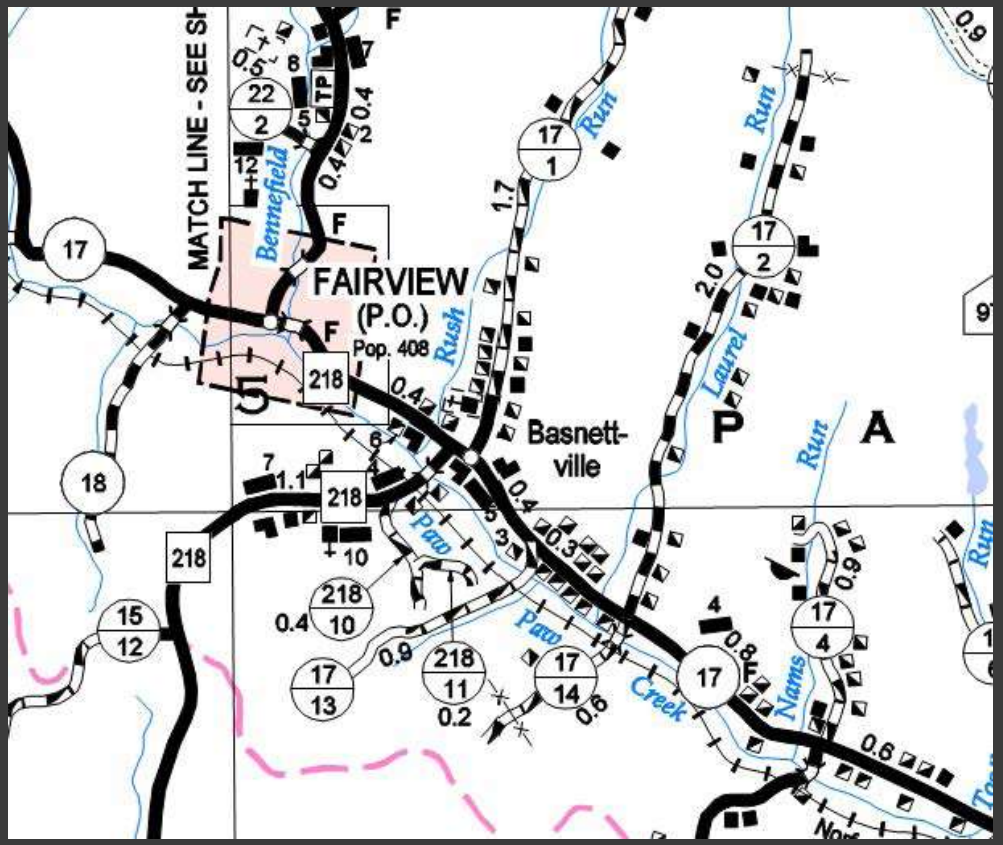
Contractor proposed using existing bridge as detour

Constructed temporary pile bent, simple connector span, extended abutment

Existing jacked 39 ft upstream under traffic in 9 hours

Cost savings of $115,000 on a $1.7 million project

Basnettville Bridge



Carries WV 218 over Paw Paw Creek in Marion County – ADT is 2400

Existing 93 ft three span built in 1954

Y – intersection with CR 17 30 ft north from end of bridge

Norfolk Southern crossing 65 ft south

Basnettville Bridge

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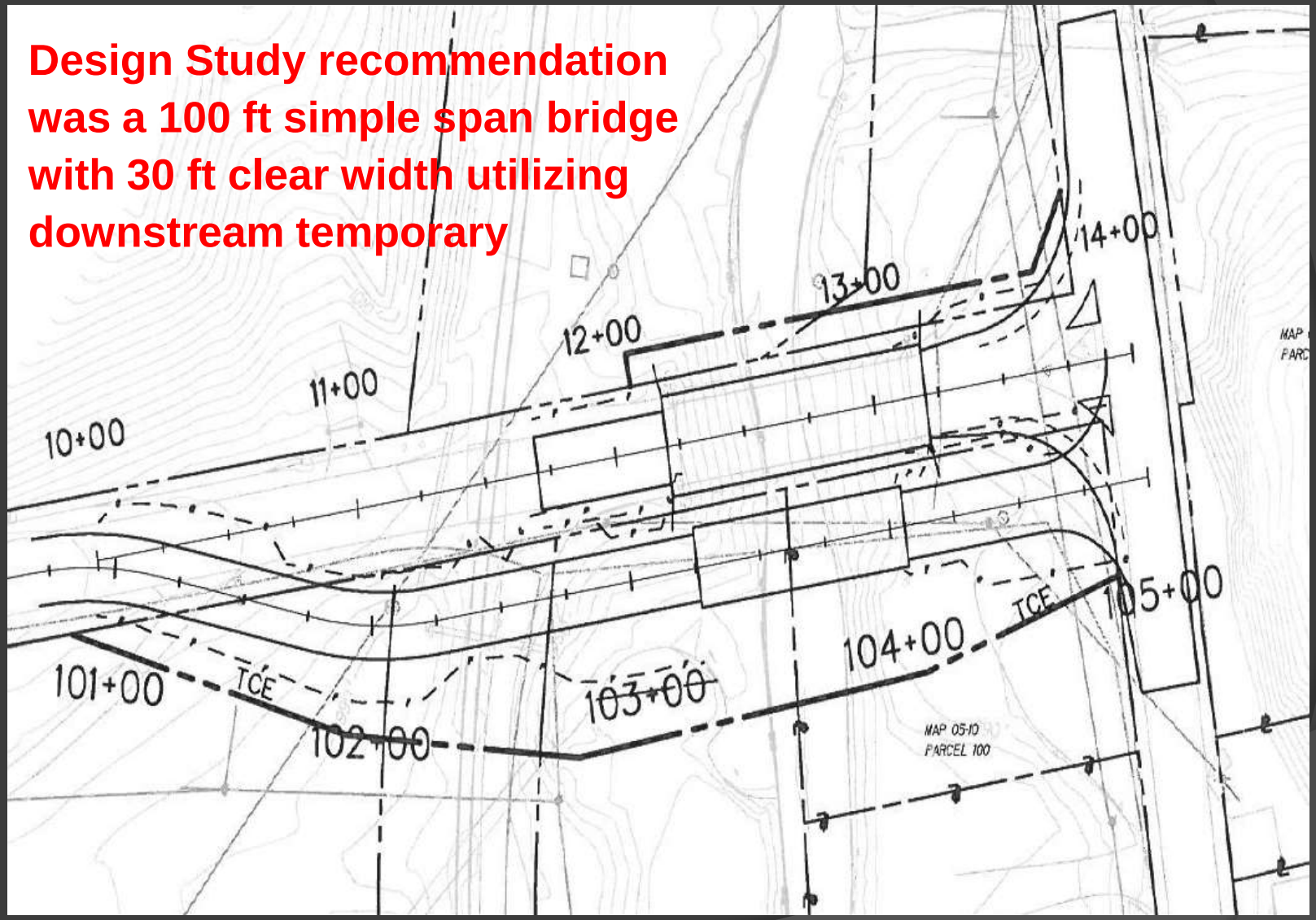
Basnettville Bridge



Basnettville Bridge

Alternate 1 Detour and Temporary Bridge

- Install temporary railroad crossing
  - Warning lights
  - Impact to 60” and two 24” culverts
- Relocate utilities
  - Waterline
  - Overhead electric/telephone/cable

Basnettville Bridge

Alternate 1 Detour and Temporary Bridge

- Set up traffic control
- Install detour road and temporary bridge
- Demolish existing bridge

Basnettville Bridge

Alternate 1 Detour and Temporary Bridge

- Construct new bridge and approaches
- Return traffic to new bridge
- Remove detour
  - Roadway
  - Temporary bridge
  - Temporary RR crossing and signal

Basnettville Bridge

Alternate 1 Detour and Temporary Bridge

- Duration of construction
  - Approximately 8 months
- Total Project Cost
  - $2.4 million

Basnettville Bridge

Accelerated Bridge Construction (ABC) Lateral Slide

- Relocate utilities
  - Waterline
  - Overhead electric/telephone/cable
- Install temporary pile bents
  - Serves as abutments for new bridge
  - Platform for new bridge to slide/roll into final position
- Install steel pile jacking structure upstream of existing
  - In line with centerline of bearing of new bridge
  - Anchor point to push/pull new bridge

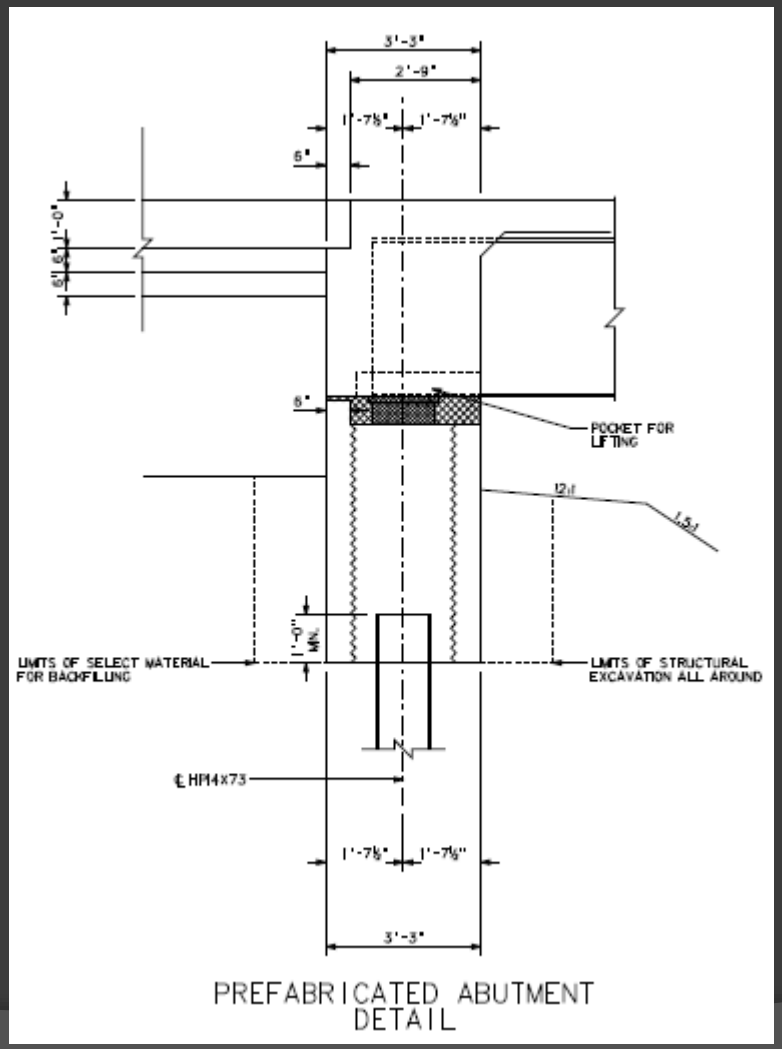
Basnettville Bridge

Accelerated Bridge Construction (ABC) Lateral Slide

- Install permanent predrilled H-piles behind existing abutments
  - Lane at a time
  - Backfilled with stone till bridge move
- Construct new bridge at parallel location
  - Precast Elements (potentially on-site)
    - Abutments
    - Wingwalls
    - Approach slab
  - Utilize steel beams to minimize weight
  - Cast deck, parapets and semi-integral closure pour

Basnettville Bridge

Accelerated Bridge Construction (ABC) Lateral Slide



Basnettville Bridge

Accelerated Bridge Construction (ABC) Lateral Slide

- Prepare for existing bridge closure
  - Public meetings, media releases
  - Necessary traffic signs
  - Install and test slide equipment
    - Raise new structure , place slide/rollers

- Close existing bridge
  - Demolition
  - Excavation of pre-installed piles and abutments to grade
    - Set precast abutments
    - Fill abutment cavities with high-early strength concrete
  - Jack new structure into position
    - Replace slide/rollers with elastomeric bearings

Basnettville Bridge

Accelerated Bridge Construction (ABC) Lateral Slide

Basnettville Bridge

Accelerated Bridge Construction (ABC) Lateral Slide

Basnettville Bridge

Comparison Between Convential Construction vs. ABC Construction

Alternative No. 1 From Design Study Dated Sept. 2010 Constructed Detour/Temporary Bridge Downstream		ABC Construction Constructed Bridge Downstream on Temporary Support & Slide Onto New Permanent Supports	
100 - Foot Bridge (Single Span)	$674,800	$674,800	100 - Foot Bridge (Single Span)
250 Feet of Roadway	$308,500	$308,500	250 Feet of Roadway
Detour	$295,400	$269,900	**ABC Additional Items
E & C (19%)	$243,000	$243,000	E & C (19%)
Total Construction	$1,521,700	$1,496,200	Total Construction
Future Value	$1,724,000	$1,698,500	Future Value
Preliminary Engineering	$300,000	$300,000	Preliminary Engineering
Right-of-Way	$55,000	$55,000	Right-of-Way
Railroad / Utility*	$345,000	$100,000	*Railroad / Utility
Total Project Cost	$2,424,000	$2,153,500	Total Project Cost

Basnettville Bridge

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Total Project Cost	$2,424,000	$2,153,500	Total Project Cost

Basnettville Bridge

Accelerated Bridge Construction (ABC) Lateral Slide

- Duration of construction
  - Approximately 5-6 months
    - 5 day road closure
- Total Project Cost
  - $2.1 million

Basnettville Bridge

Project Overview

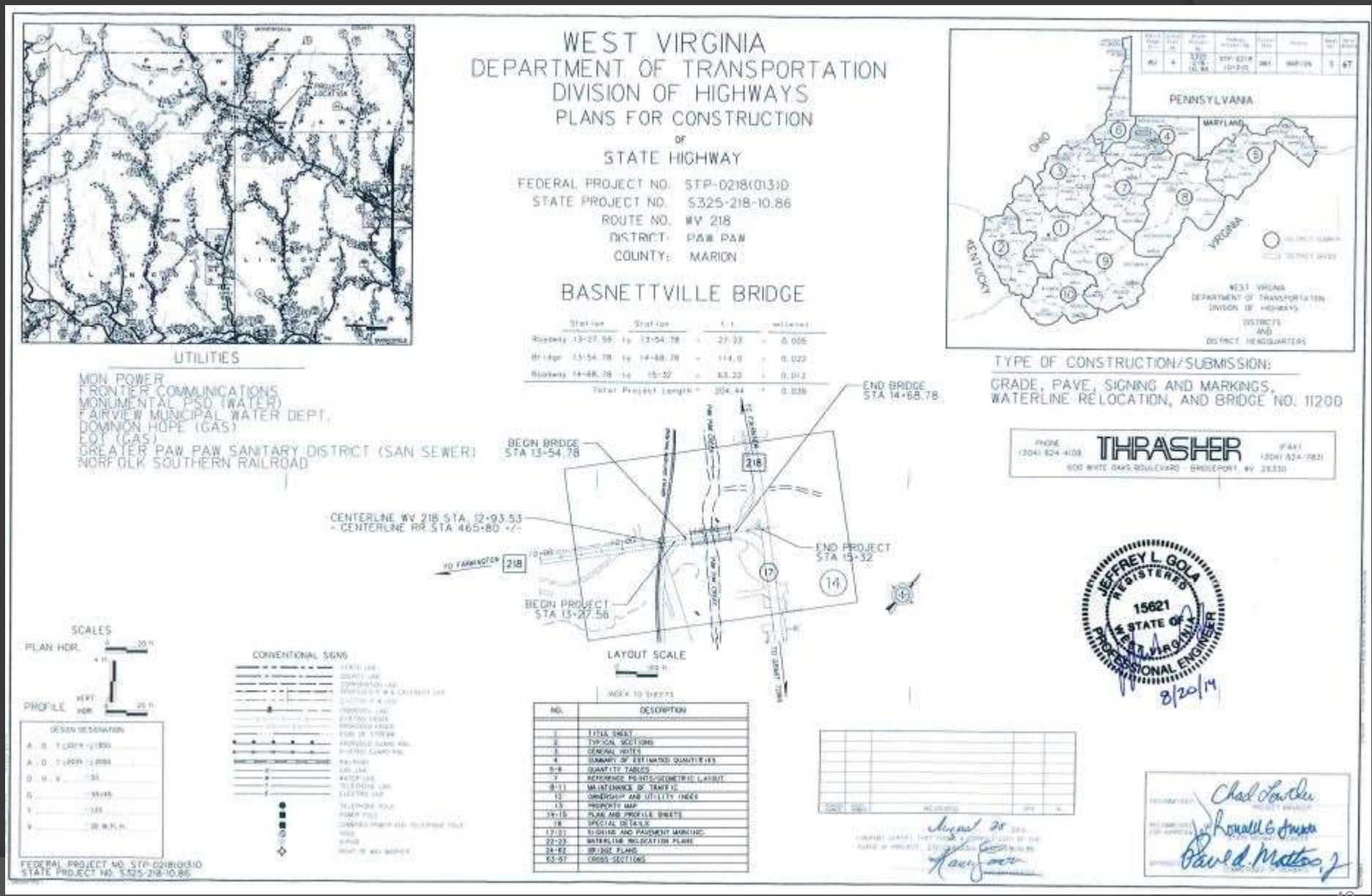
- Designer: Thrasher
- Contractor: Kokosing Construction Co.
- Bid Amount: $1,496,839.80
  - Three bidders
  - Span of bids < $200,000

Basnettville Bridge

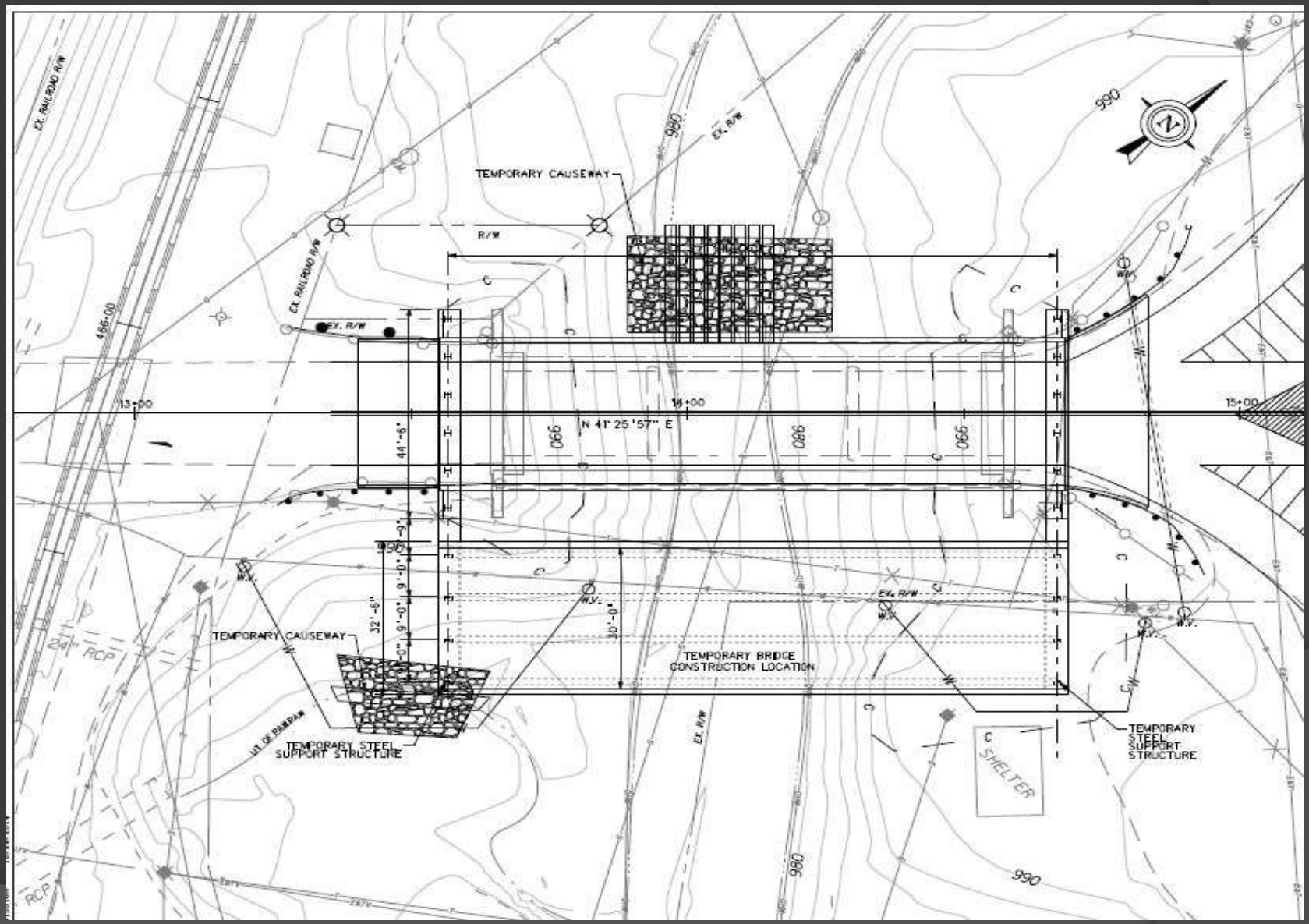
Contract Timeline

- Pre-Bid Meeting: April 28, 2015
- Let: May 19, 2015
- Award: June 2, 2015
- Notice to Proceed: June 16, 2015
- PCC: June 17, 2015
- Actual Start: January 4, 2016
- Plan Completion: November 20, 2015
- Revised Completion: September 3, 2016
- Substantial Completion: August 19, 2016

Basnettville Bridge



Basnettville Bridge



Basnettville Bridge

Plan ABC Concept

- Pre-drilled and driven piles behind existing abutments while under traffic
- Precast abutment units
- Precast approach and sleeper slabs
- Five day closure with I/D clause
- Existing bridge demo
- New bridge slide
- Place approaches

Basnettville Bridge

I/D Clause

- Day 5 (D5) established in writing
- No Excuses Incentive Payment
  - Incentive of $12,000/day prior to D5 (max of $60,000)
  - 108.6.2 shall not apply
- Disincentive Payment
  - Penalty of $5,000/day after D5 (no max)
  - 108.6.2 shall apply
- Contractor substantially completed the project on D4, so received a $12,000 incentive.

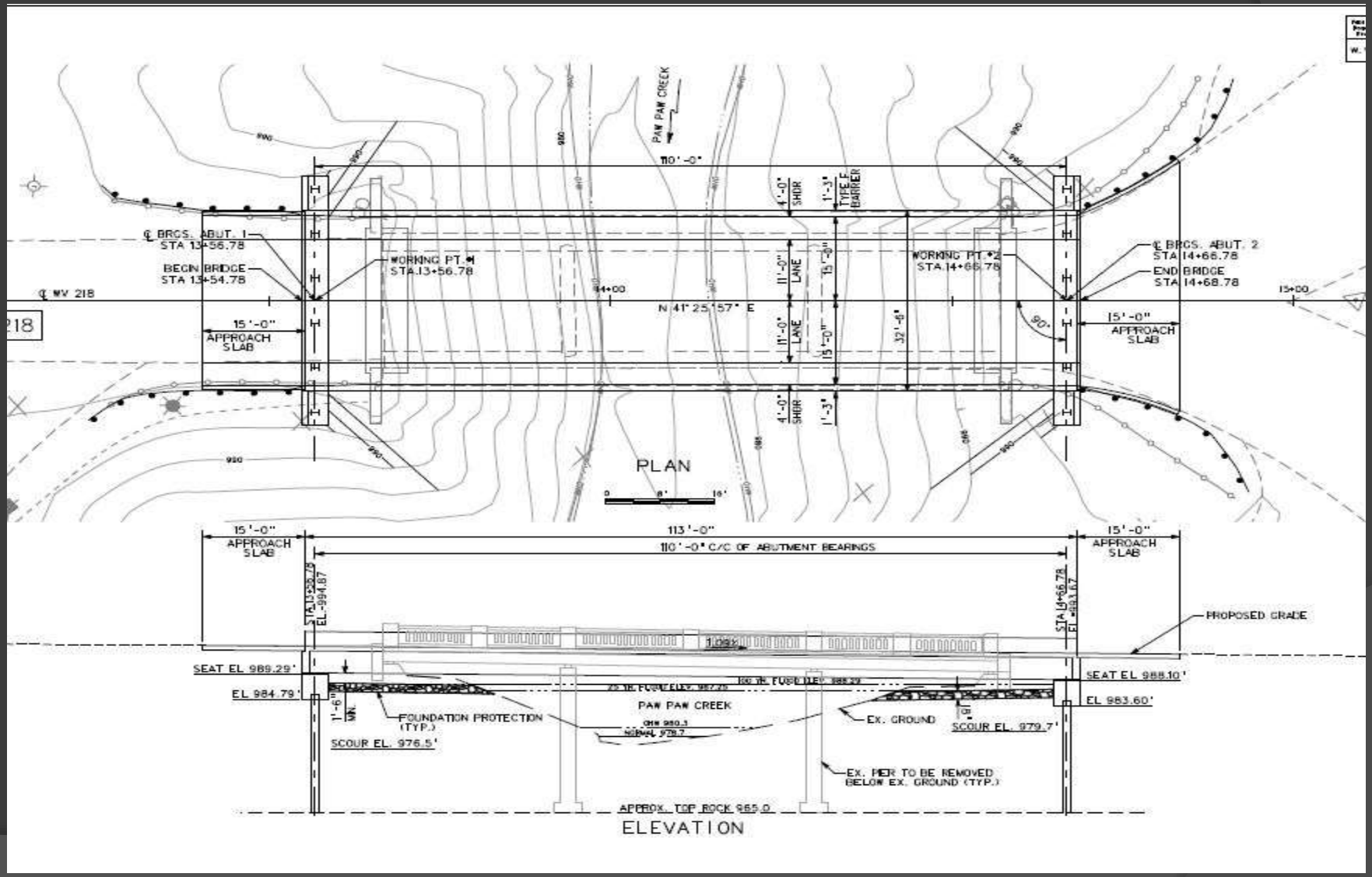
Basnettville Bridge

Value Engineering Change Proposal modifications

- Bridge shortened from 110’ to 75’.
- Four-HP14X102 bearing piles replaced 6-HP14X73 piles
- Abutment - cast in place
- Approach/Sleeper slabs – cast in place, high early concrete
  - WVDOH Class B modified concrete, 3000 psi in 4 hr.
- Plate girders to rolled beams
- Existing abutments eliminated need for reinforced fill at approaches
- Shortened bridge eliminated need for waterline relocation
- Shared savings of $170,547.42

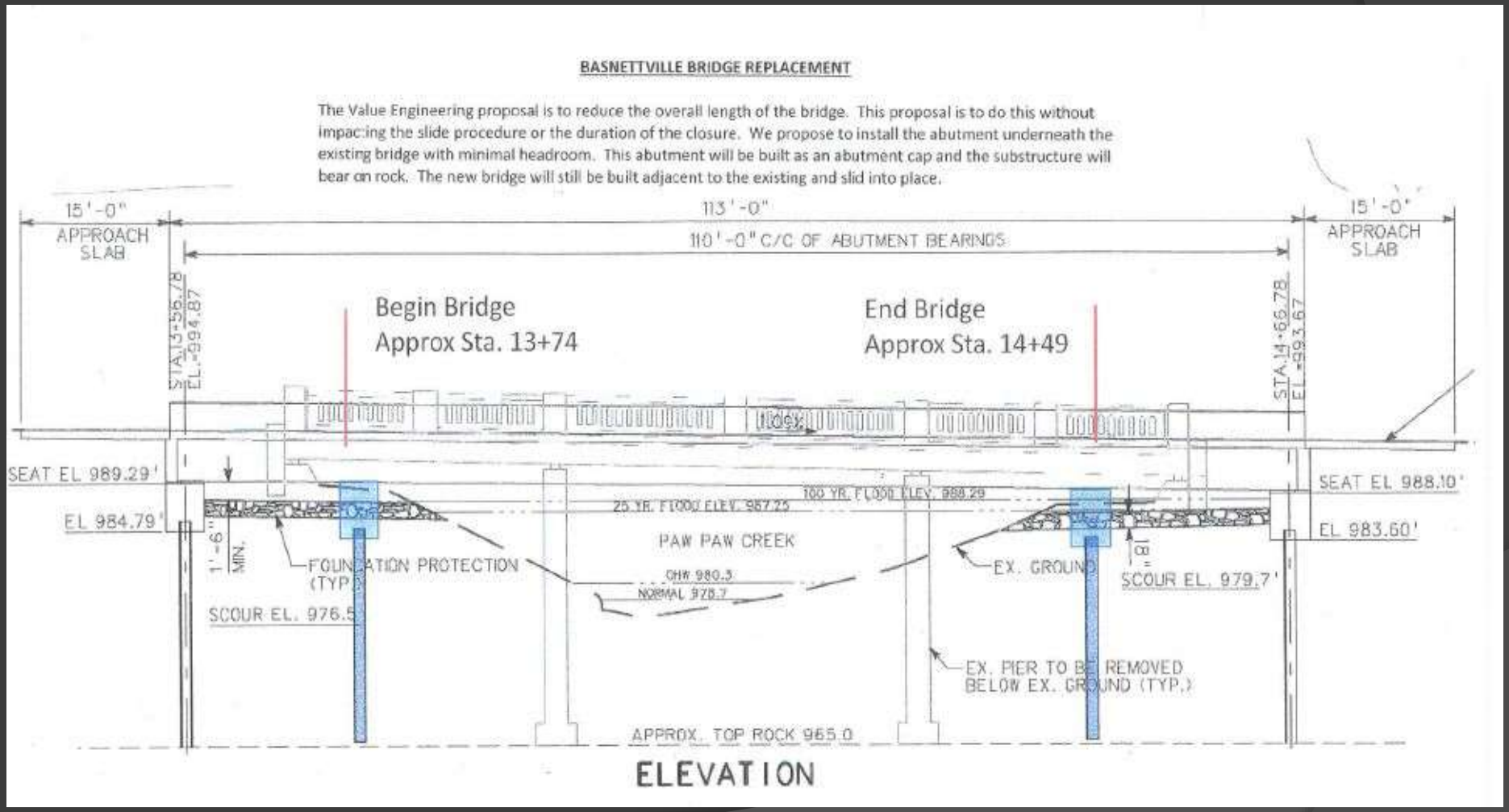
Basnettville Bridge

Plan profile



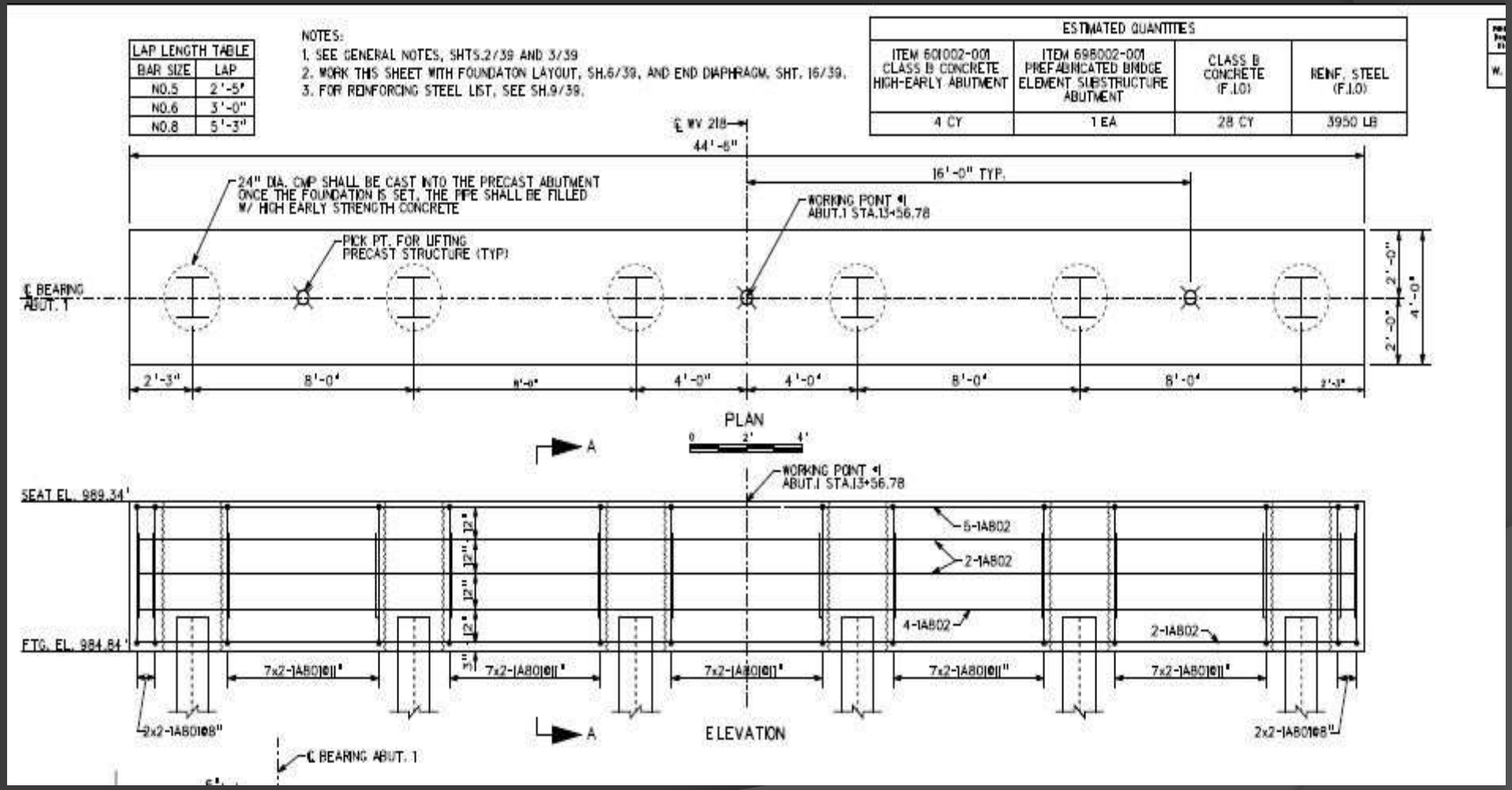
Basnettville Bridge

VECP profile



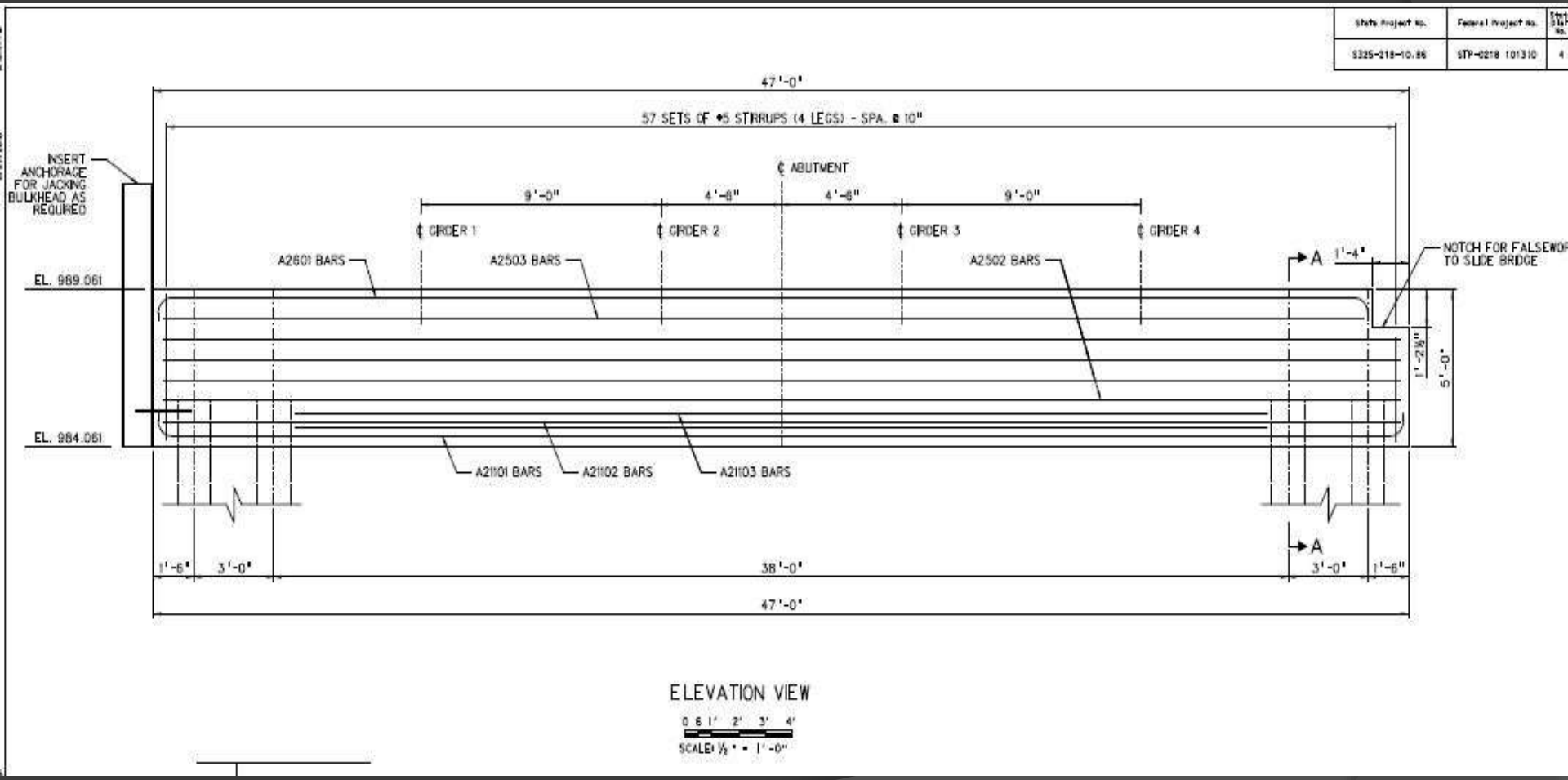
Basnettville Bridge

Plan abutment



Basnettville Bridge

VECP abutment



Basnettville Bridge

Existing bridge / abutments

Basnettville Bridge

Existing bridge / abutments

Basnettville Bridge

Temporary Supports

Basnettville Bridge

Temporary beam seats / girders

Basnettville Bridge

Existing bridge demolition

Basnettville Bridge

Prior to slide

Basnettville Bridge

During slide

Basnettville Bridge

Post slide

Basnettville Bridge

Day 4 confusion

Basnettville Bridge

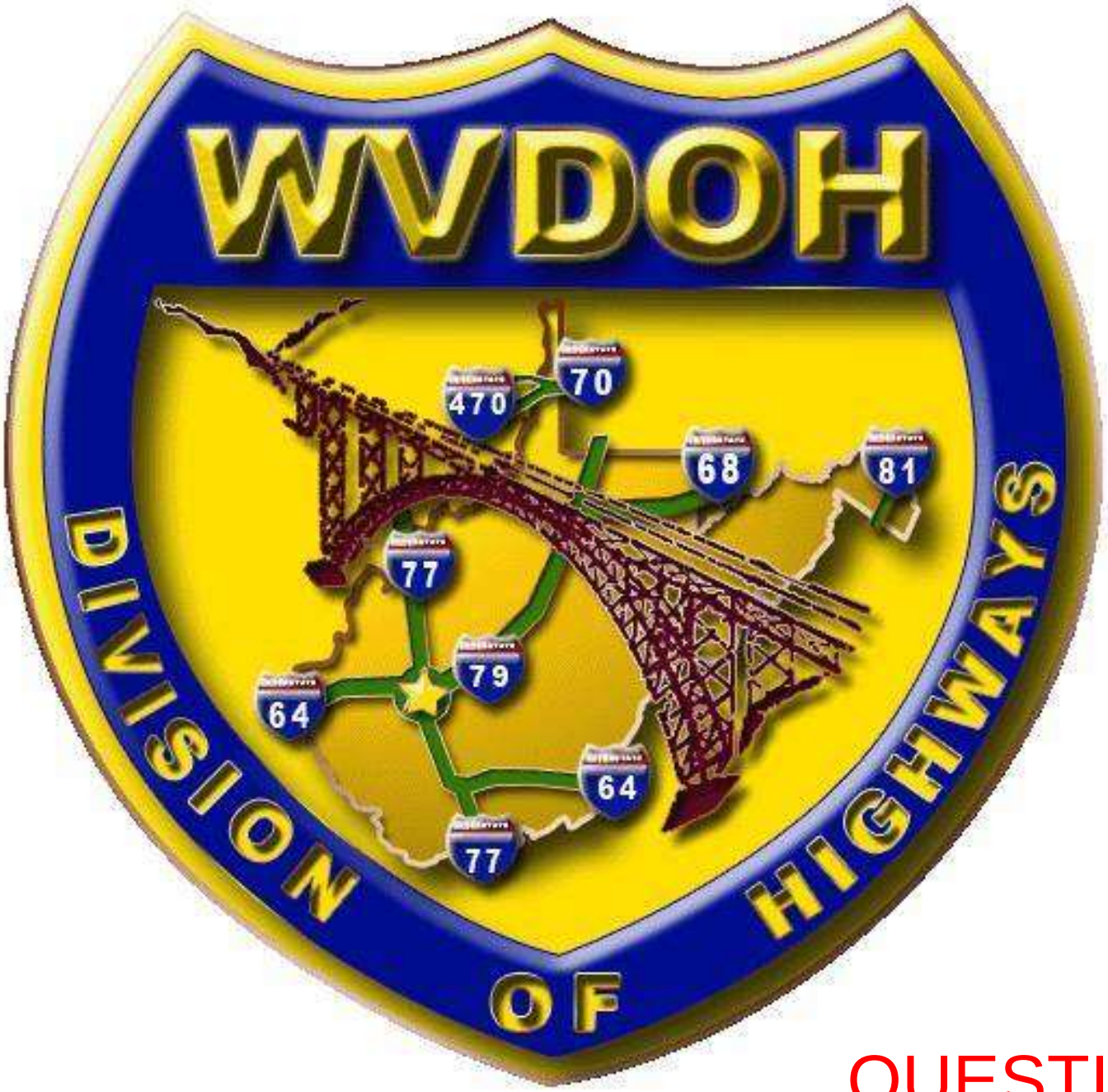
Finished product

Basnettville Bridge

Basnettville Bridge

Lessons Learned

- Be open to new techniques
- Be prepared to “sell” the concept to management
- Be aware of consequences of material choices
- Advance planning – utility relocations!



QUESTIONS?