

ASHE – District 9 Workshop

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July 13, 2020

What's New for 2020?

What's New for 2020?

Publication 408/2020

- Effective for all projects let after April 10, 2020

ECMS Automated Force Account

- Mandated for all projects let after April 10, 2020
- Requirements for industry partners within ECMS

ECMS Material Certification Pilots

- D-9 Piloting 2 projects in 2020
- Goal is statewide implementation in late 2020

NPDES Permits – Contractor Accountability

- Submission of Preparedness, Prevention, & Contingency (PPC) Plan
- Designation of licensed professional
- As-Built PCSM Plans

District Construction Quality Reminders

COVID-19

COVID-19 Impacts & Restart Guidance

COVID-19 Construction Work Suspensions

COVID-19 Work Suspensions

- All Department Projects issued suspension letter March 16, 2020
- Impacted on-going construction as well as start-up efforts on upcoming projects
 - 12 projects where physical work had started
 - 19 projects where start of physical work was delayed
- Impacts:
 - Completion and contract milestones
 - Utility relocations
 - Potential additional suspension costs/ delay claims
 - Contractor resources

COVID-19 Construction Restart Guidance

COVID-19 Construction Restart Guidance

- Issued March 30, 2020 (revised 4/24/20 and 6/12/20)
- Collaborative effort between PennDOT, PA Turnpike, FHWA, APC, ACEC
 - Follow-up meetings with APC (next one scheduled July 15th)
- Phased-in restart process
 - 3/31/20 ~ 3 projects in D-9
 - 4/17/20 ~ 4 projects
 - 4/24/20 ~ 6 projects
 - All other projects resumed 5/1/20
- Guidance for:
 - Safety Guidelines & COVID Safety Plans
 - Fabrication, Materials, Testing, and Labor Compliance Guidance
 - Risk-based inspection
 - Adjustments and Claim Avoidance
 - Facility occupation guidance

District Construction Initiatives

District Construction Quality Reminders

District Construction Quality Reminders

- Issuing one per month to address QA findings or complacency issues
- To date, we have issued DCQRs addressing:
 - Dowel Bar Anchoring in Concrete Patching
 - Epoxy Surface Treatment/ HFST Surface Prep
 - Thermoplastic Pavement Marking Application
 - Beam Seat Elevation Checks (reference new DSP)
 - Scour Protection
 - Work Zone Traffic Control Issues
 - Recessed Pavement Markings
 - Type D Delineators for Guiderail
- Upcoming DCQRs:
 - Establishing Subgrade Best Practices

District Construction Quality Reminders

Beam Seat Elevations

Issue

Bridges where beam seats poured at incorrect elevations

Root cause of issues normally construction survey related

- PA 36 Brush Run ~ surveyor error (beams 9 & 10 poured to elevations for beams 12 & 13)
 - Not caught until after beams were placed
- Defiance Six Mile Run Bridge ~ survey benchmark error (temporary benchmark used was off by 0.6')
 - Everything was built 0.6' high from foundation up
 - Error discovered while performing the as-set beam survey
- Evitts Creek Bridge ~ surveyor error (at Abutment 1, beams 1 & 3 poured with elevations reversed ~ set from R-L instead of L-R)
 - Not caught until forms were stripped and contractor's surveyor was setting beam seats for Abutment 2

District Construction Quality Reminders

Beam Seat Elevations

Action

New District special provision being implemented for all projects beginning with 12/12/19 letting

DCQR issued 11/21/19

This is not what we want for a new, 100-year design life bridge



District Construction Quality Reminders

Beam Seat Elevations

Draft District Special Provision (modified from D-10)

BEAM SEAT (BEARING SEAT) ELEVATIONS

At least one (1) day prior to pouring the abutments or piers, survey and submit drawing(s) and/or spreadsheet(s) of the as-formed beam seat plan elevations and top of rebar elevations to the Representative for review. Provide elevations on the Department provided form in the Project Development Checklist stamped by a Professional Land Surveyor currently registered in the Commonwealth of Pennsylvania. Provide the as-formed elevations for beam seat plan for both faces of the substructure units at the same locations shown on the structure sheets. The survey must provide a closed loop check utilizing two independent benchmarks. Do not pour the substructure stem/cap until the Representative reviews the submission. The cost of this work is incidental to the cost of the concrete placed in the substructure unit.

As soon as practical, but at least seven (7) days prior to setting beams, submit to the Representative for review as built beam seat elevations. Provide elevations on the Department provided form in the Project Development Checklist stamped by a Professional Land Surveyor currently registered in the Commonwealth of Pennsylvania. Provide as-built elevations for all locations that match the same beam seat locations shown on the structure sheets. The survey must provide a closed loop check utilizing two independent benchmarks. Do not set beams until the Representative reviews the as-built elevations. For all beam seat elevations that do not meet the Pub. 408 Section 1001.3(k)9 criteria, submit a remediation procedure to the Structure Control Engineer (SCE) for review and approval. Do not set beams until the remediation work is approved by the SCE. The cost of this work is incidental to the cost of the concrete placed in the beam seats.

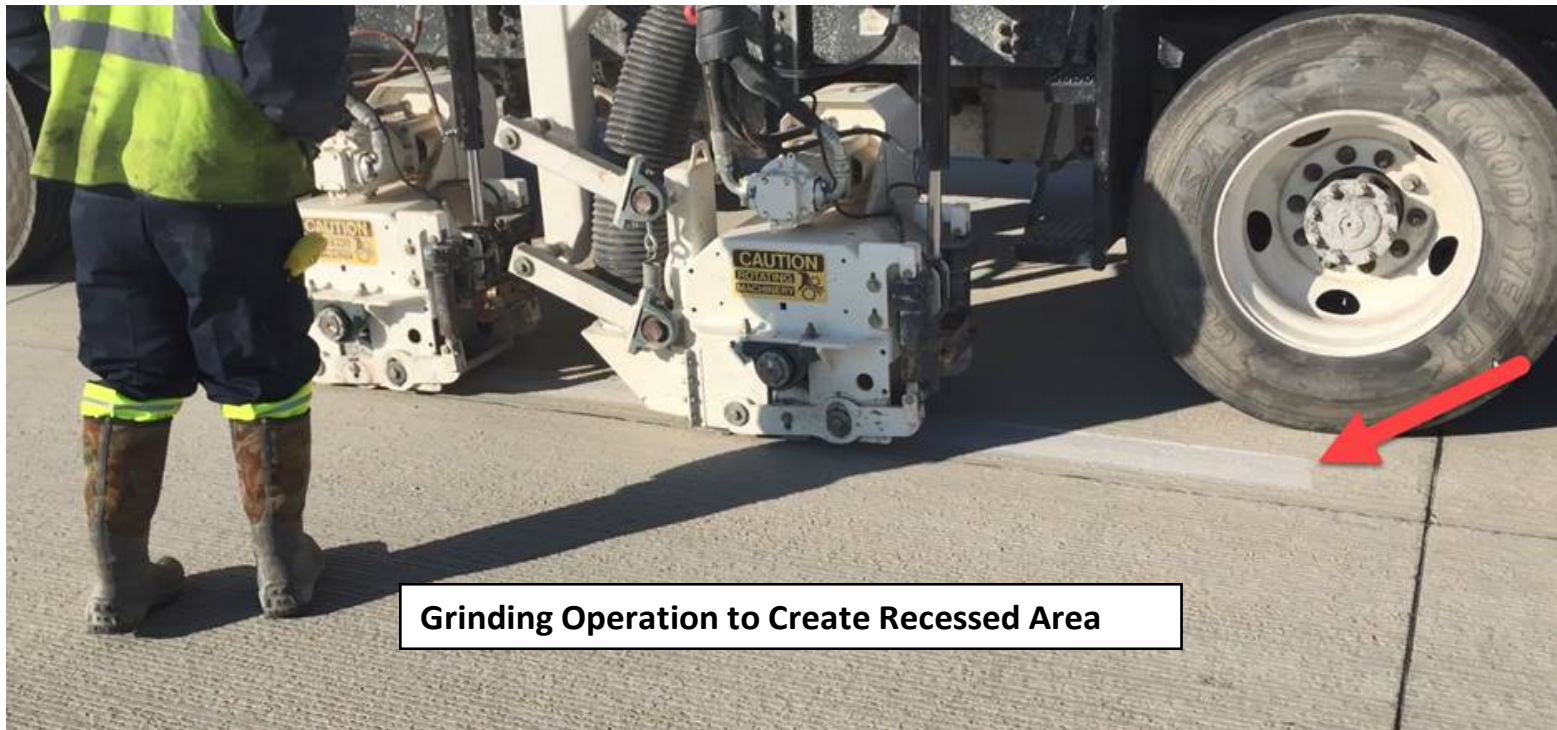
District Construction Quality Reminders

Recessed Pavement Markings

9-0 moving to reflective tape

Issues

- Poor performance in wet weather
- Improper depths of recessed areas



Grinding Operation to Create Recessed Area

District Construction Quality Reminders

Recessed Pavement Markings

Reminders

- Frequently check for proper depth and texture of recess
- Weather - temps not to drop below 40F
- Surface Prep: fully clean and apply adhesive properly
- Tamp the tape to ensure full contact with adhesive (most important step)



Recessed Slot Depth (150 mils or 0.150 inches required)

District Construction Quality Reminders

DCQR Industry Distribution

- Email request to Garth Bridenbaugh (gbridenbau@pa.gov)
- Maximum 2 individuals per contractor/ consultant
- DCQRs are currently distributed to any prime consultants with active inspection agreements in D-9

ADE-D copied of DCQRs to distribute to Design Staff as applicable

- DCQRs are specific to construction issues, but this general knowledge can be beneficial to Design Staff as well

District Construction Dashboard

On-Time Construction Completion

District Goal

80% of projects completed by original contract completion date.

Thresholds

Green: $\geq 80\%$

Yellow: $< 80\%$ to 60%

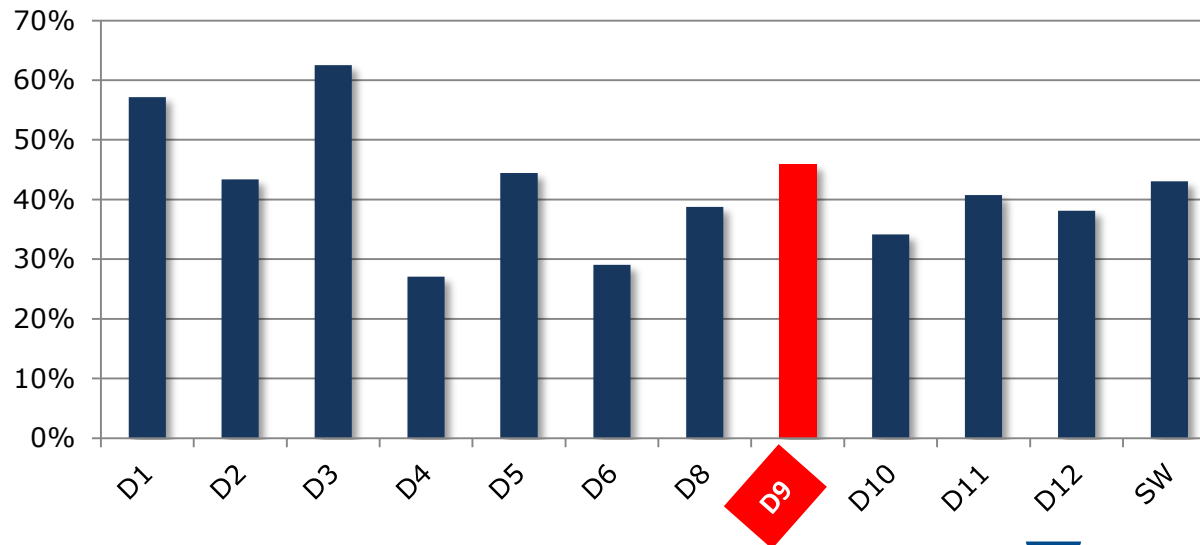
Red: $< 60\%$

Contract Completion

Performance

In FY 2019/20, D-9 completed 46% (22 of 48 of our projects within original contract timeframes) (red)

**% Projects Completed by Original Completion Date
(FY 2019/20)**



Time Extensions

Non-Preventable vs Preventable Factors

- Non-Preventable

- Unforeseen field conditions are encountered
- Additional funds thru low bids, deobligations, etc. become available allowing work that was originally excluded for cost reasons
- Non-related emergency work added to project
- Utility delays (non-incorporated or coordinated work)

- Preventable

- Constructability issues
- Discrepancies in contract milestones
- Design revisions
- Design error remediation

Time Extensions

Non-Preventable Factors (8)

- COVID-19 (4)
- Utility Infrastructure and Utility Adjustment delay (2)
- Addition of emergency work outside project limits (1)
- Severe weather (1)

Time Extensions

Preventable Factors (40)

- Work added near end of contract, at final inspection, or for material with excessive lead time (33)
 - *Drainage additions (9 of 33)*
 - *Guiderail additions (5 of 33)*
 - *Structural repair additions (5 of 33)*
 - *Signage additions (4 of 33)*
- Department force crews did not have site ready by contract box set date (3)
- Sawing and sealing added to the project (2)
- Out of season planting (1)
- Municipal request to delay project (1)

Fiscal Management

District Goal

Final Project Amount/ Original Contract Amount $\leq 3\%$

Thresholds

Green: $\leq 3\%$

Yellow: $> 3\%$ to $< 5\%$

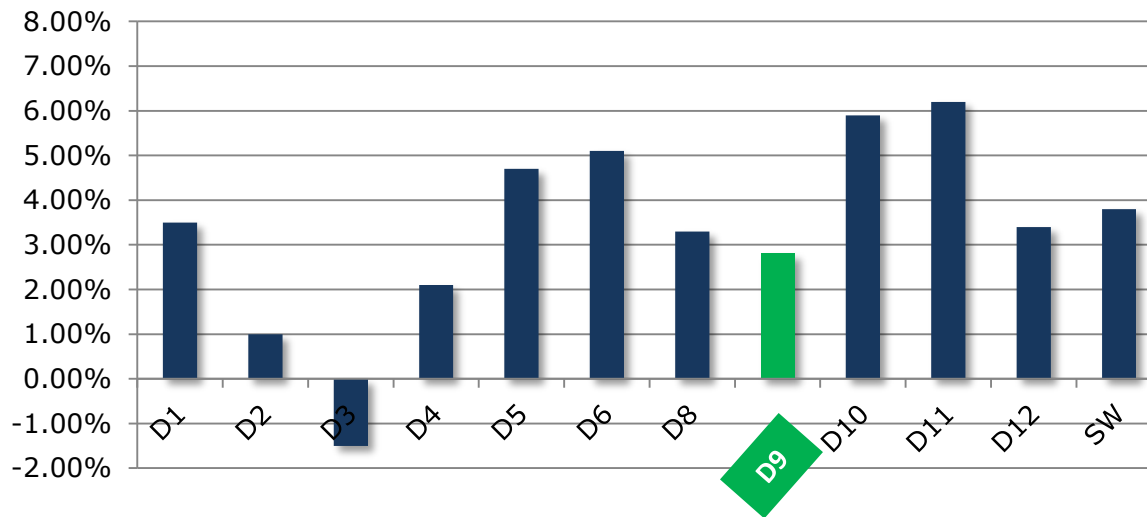
Red: $\geq 5\%$

Fiscal Management

Performance

In FY 2019/20, D-9 was 2.79% of cumulative original contract amount (green)

Final Contract Amount vs Original Contract Amount
(FY 2019/20)



Design Items

Opportunities for Improvement:

- Grade issues at tie-ins to existing pavement
 - Has roadway been paved since design survey was performed?
- Slip lining specified but not feasible due to field condition of existing pipe (deformation or pipe alignment)
- Temporary pavement marking underruns
 - Need to account for all phase changes
- Longitudinal & Transverse Joint Cleaning & Sealing not included
- Items shown on plans and details, but missed in tabs
- Guiderail radii at drives – evaluate turning movements based on appropriate design vehicle/ drive usage
- Include sufficient undercutting quantities where unstable subgrade is anticipated

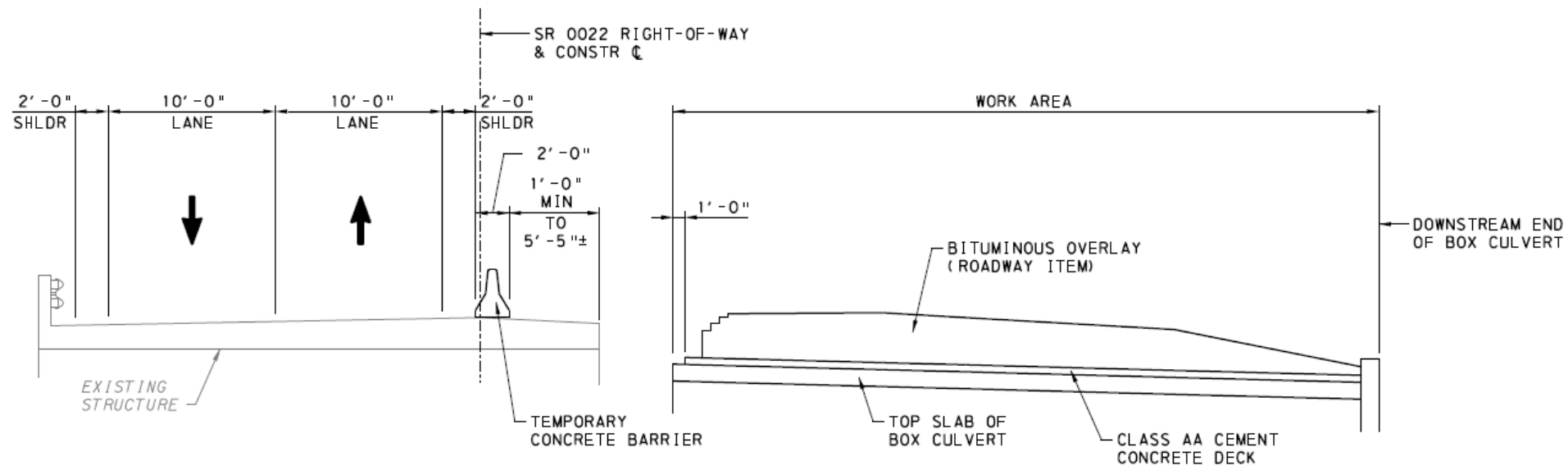
Design Items

Opportunities for Improvement:

- Phase line issues for bridge construction
- Ensure correct bridge demolition special in contract for existing steel structures
- Lack of existing bridge detail on plans when structures overlap
- Include quantity for over excavation under substructure where anticipated
- Lack of core boring information (or depth) at temporary shoring location

Phase Line Shoring

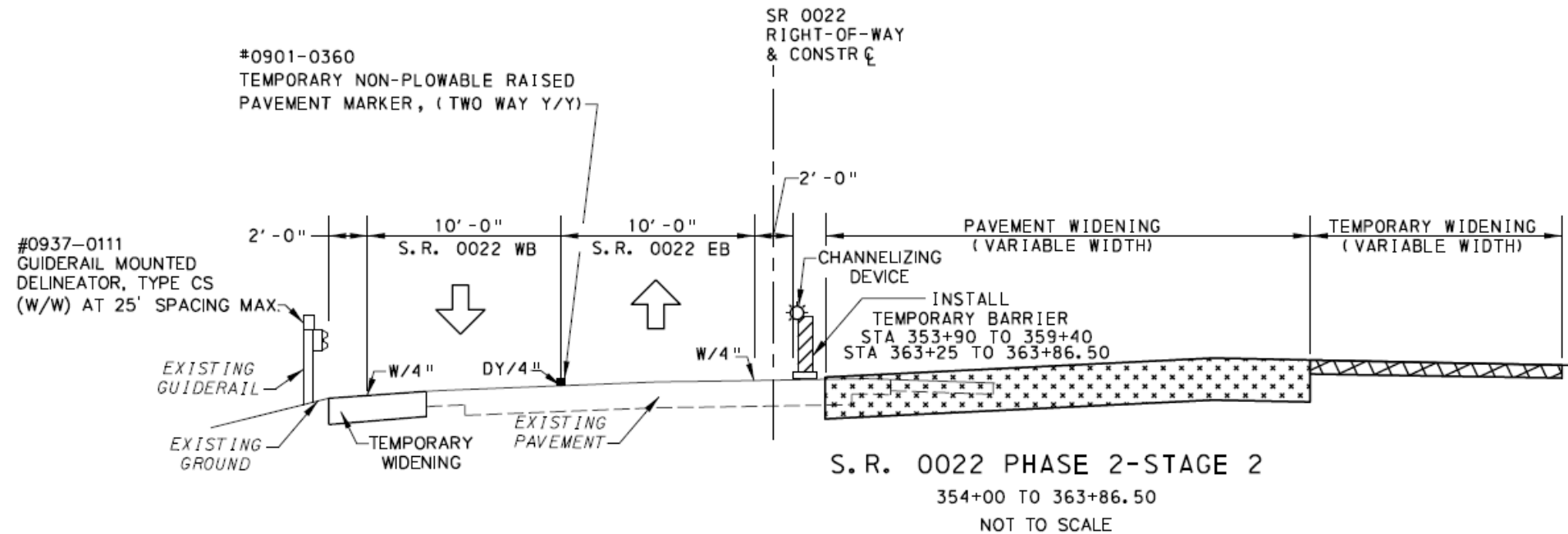
Bridge Plan



Typical section from Bridge Plan

- Note location of barrier relative to centerline
- Note location of 2' shoulder relative to centerline

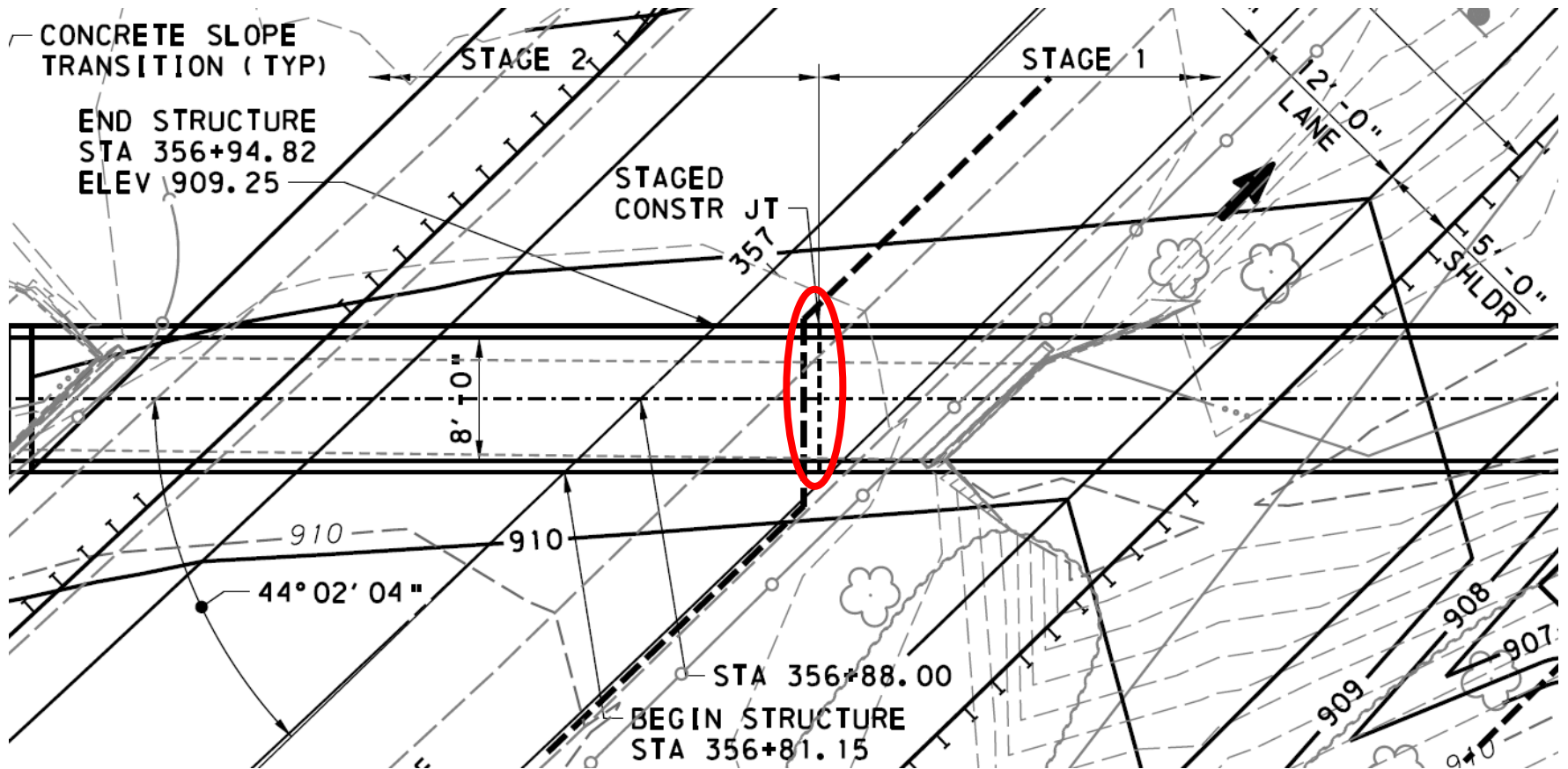
TCP Plan



Typical section from Traffic Control Plan

- Note location of barrier/channelizers relative to centerline
- Note location of 2' shoulder relative to centerline

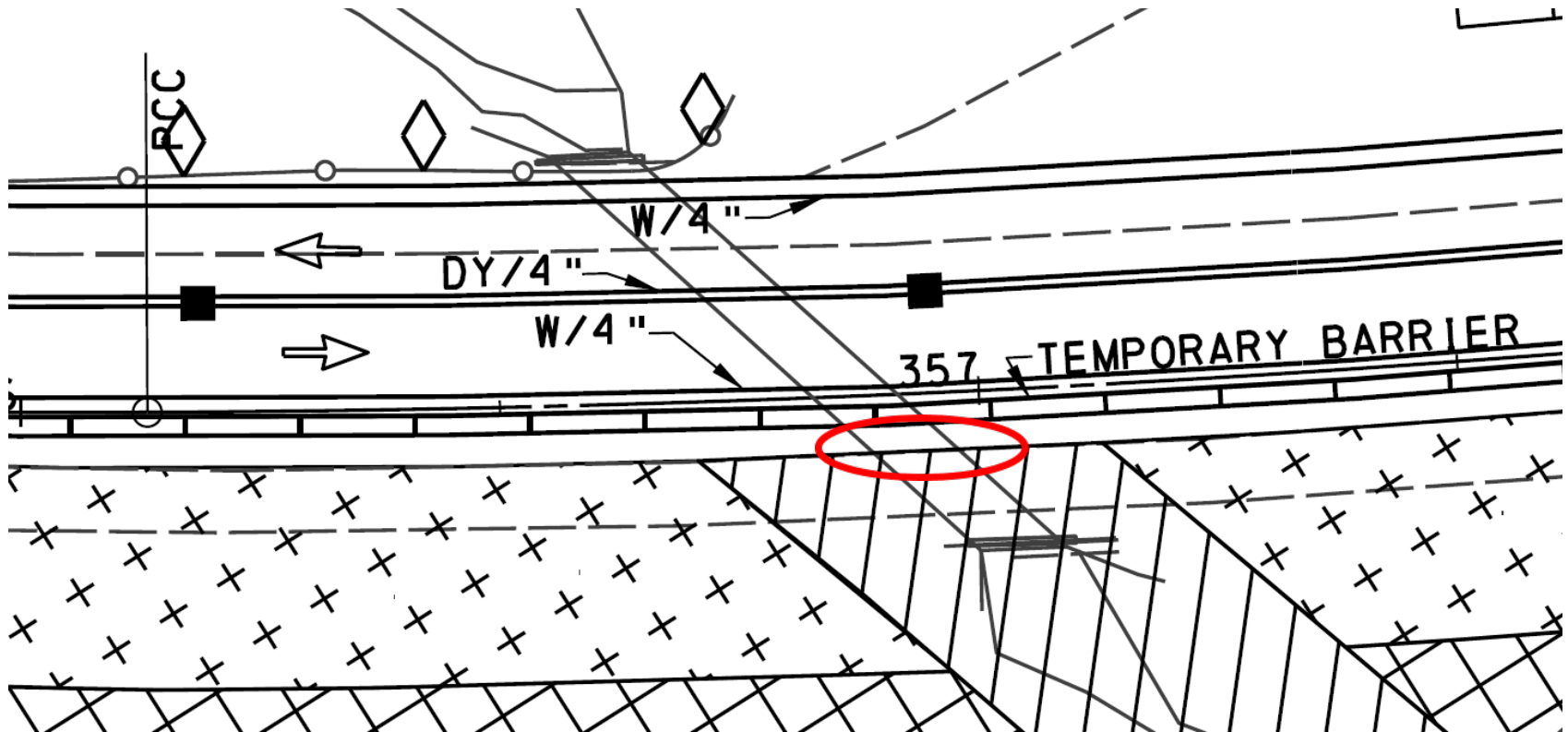
Bridge Plan



Plan view from Structure Plan

- Phase line is perpendicular to structure alignment

TCP Plan



Plan view from Traffic Control Plan

- Phase line is parallel to roadway centerline
- Suggestion ~ overlay shoring on TCP and use minimum 2' width for shoring

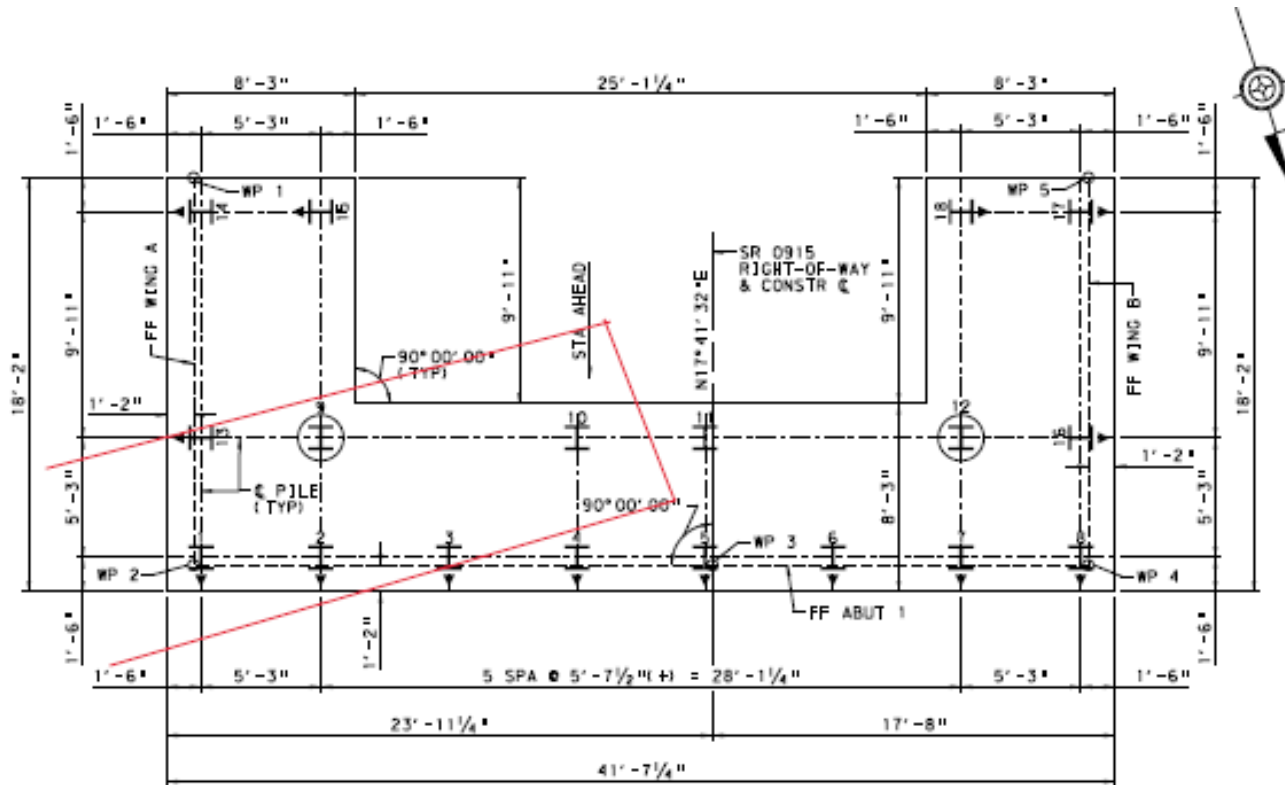


Barrier had to be shifted 2 feet away from phase line to accommodate shoring



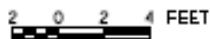
Closer view. Approximate Phase line from structure plan shown in red.

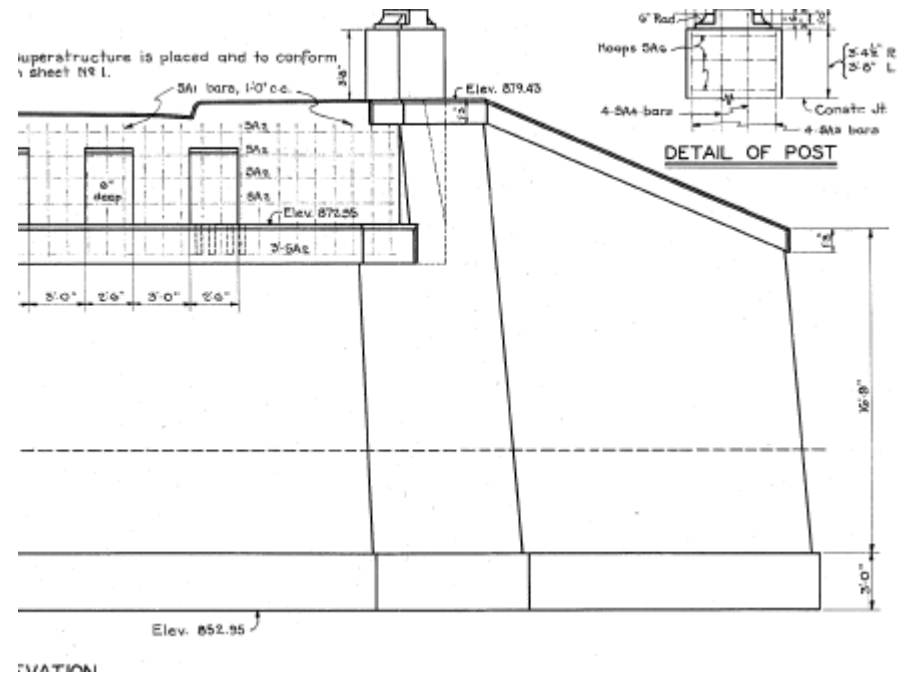
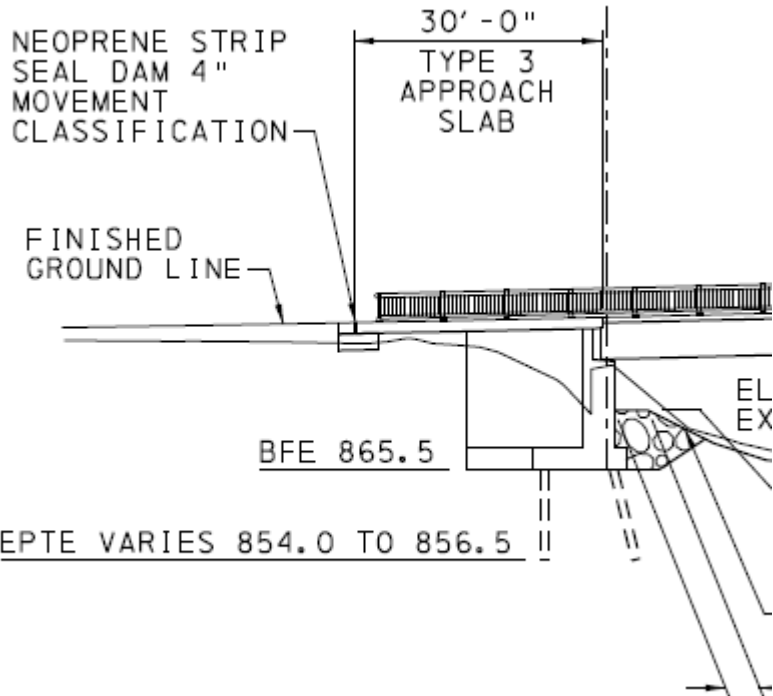
Existing Abutment vs Proposed Piles Conflict



Should show approximate existing footing on proposed plan.

ABUTMENT 1 - PILE LAYOUT PLAN





Should account for depth of existing footing when determining pile tip elevations.



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Questions???