

# District 9-ASHE Joint Workshop

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**Assistant District Executive - Construction**

**June 2, 2021**

# 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  $60\%$

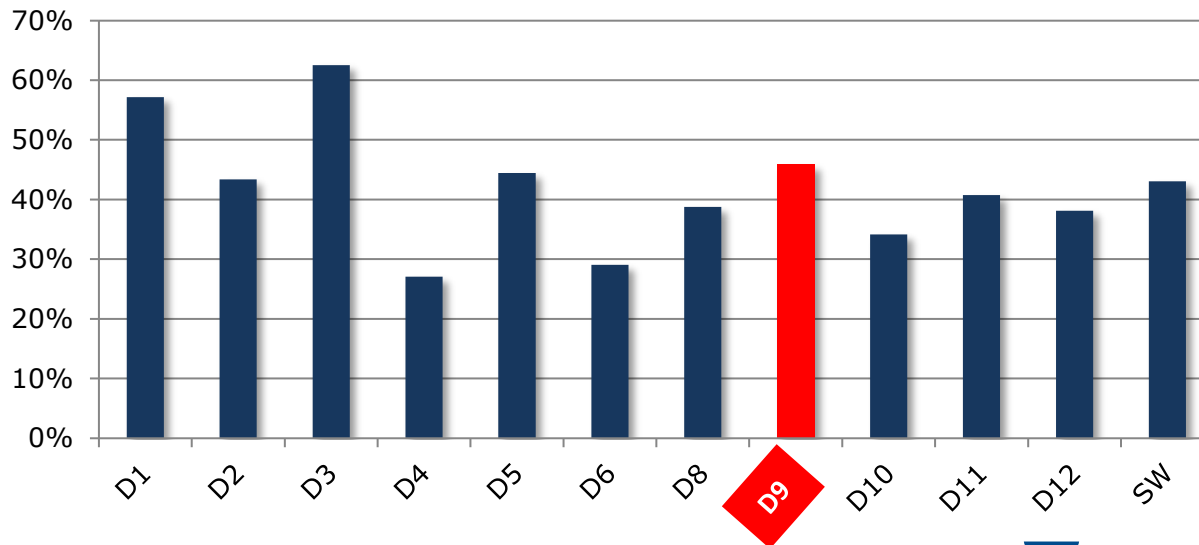
Red:  $< 60\%$

# 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)**



# On-Time Project Closeout

## District Goals

95% of projects closed within 365 days of PWC

Average closeout time <200 days of PWC

## Thresholds

Green:  $\geq 95\%$

Yellow: <95% to 90%

Red: <90%

Green: <200 days

Yellow: 200 to 225 days

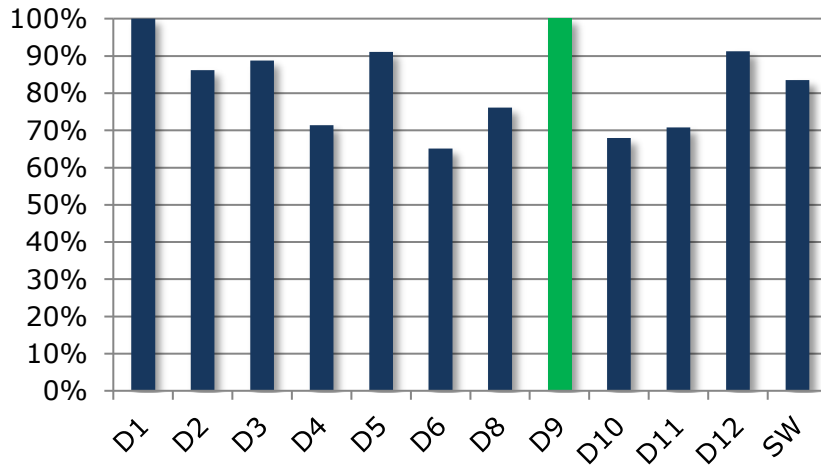
Red: >225 days

# On-Time Project Closeout

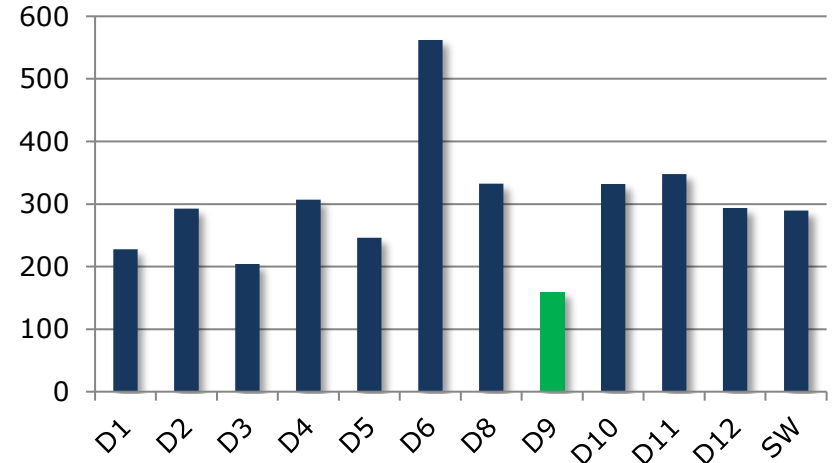
## Performance

In FY 2019/20, D-9 closed 100% of our projects within 365 days with an average closeout time of 160 days

**% Projects Closed Within 365 days  
(FY 19-20)**



**Average Project Closeout Time (Days)  
(FY 19-20)**



# Fiscal Management

## District Goal

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

## Thresholds

Green:  $\leq 3\%$

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

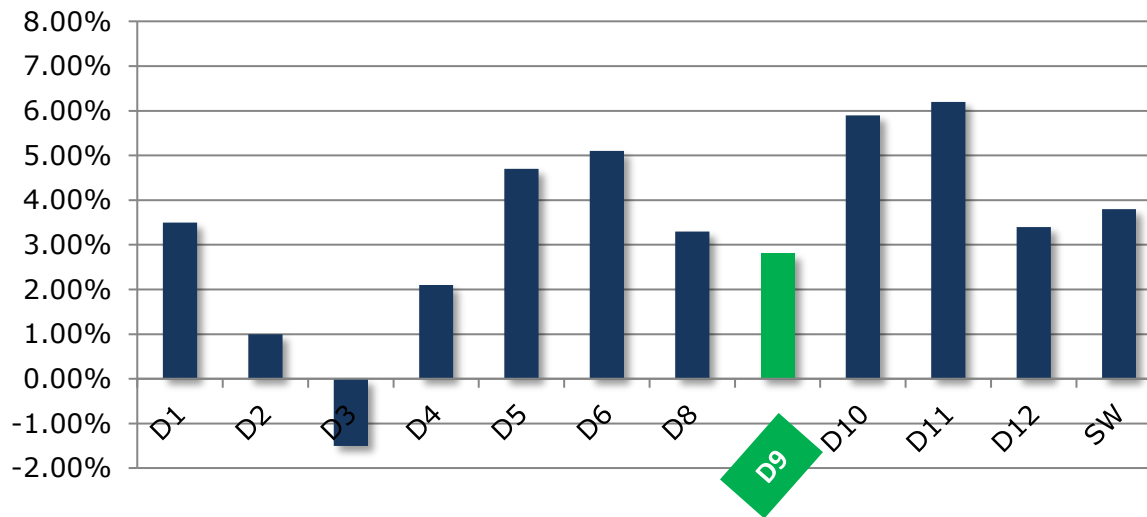
Red:  $\geq 5\%$

# 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)



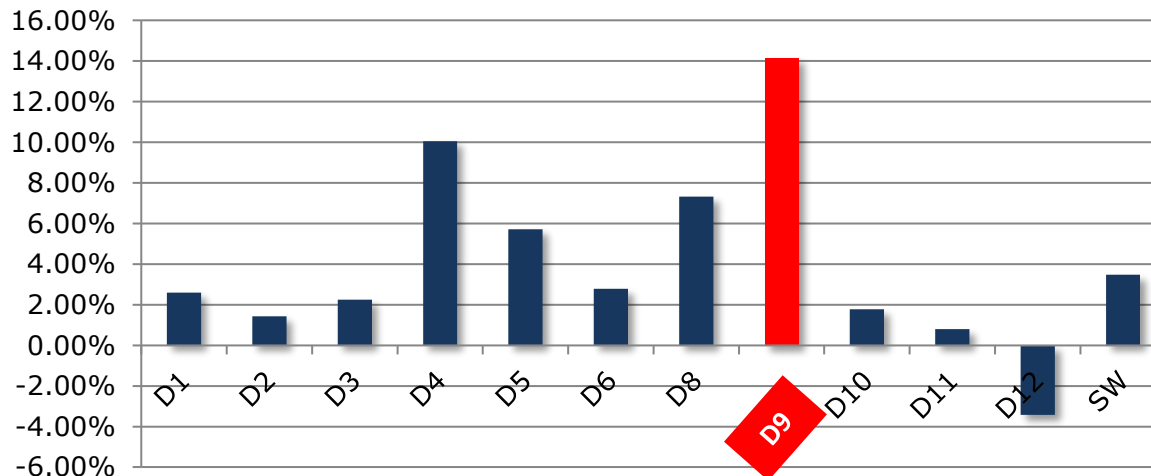


# Fiscal Management

## Performance

In FY 2020/21 (to date), D-9 is 14.16% of cumulative original contract amount (Red)

Final Contract Amount vs Original Contract Amount  
(FY 2020/21)



# Changes & Initiatives

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- **Field Inspection Turnover**

- 18 TCI/ET Field Inspection Positions
  - 3 current vacancies
  - 11 TCIs < 2 years experience
- 29 IIC Field Inspection Positions (TCIS, TCM, CES, SCES)
  - 2 current vacancies
  - 13 IICs promoted to positions over the last year (10 in last six months)
- TCI Mentoring Program ~ Effective for all TCI/ET staff hired after 3/4/21
- Statewide Construction Workforce Development Team
  - Modified to be D-9 specific
- Program Highlights
  - Training requirements/ schedule
  - District Construction rotations
  - Year-1 field inspection rotation ~ exposure to paving and bridge operations

## **IIC Council**

- Established November 2020, led by Tim Baker
- Forum for sharing best practices
- Conduit with management to raise concerns/ questions
- Forum for management to vet policies prior to issuance
- Liaison with Design to identify opportunities for quality improvements

# Changes & Initiatives

## **District Construction Quality Reminders**

- Address quality/ complacency issues observed through CQAS findings, FHWA reviews, work orders, etc.
- Reinforcement of current specifications, policies, and best practices
- Also distributed to construction industry partners (consultants and contractors) and design staff

## **PennDOT/ ACEC Quality Team**

- Statewide initiative/ partnership between Department and ACEC to identify and improve the final design deliverables

# District Construction Quality Reminders

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## District Construction Quality Reminders

- Issuing periodically to address QA findings or complacency issues
- To date, we have issued DCQRs addressing:
  - Thermoplastic Pavement Marking Application
  - Dowel Bar Anchoring in Concrete Patching
  - Epoxy Surface Treatment/ HFST Surface Prep
  - Beam Seat Elevation Checks (reference new DSP)
  - Placement of Scour Protection
  - WZTC Issues
  - Eliminating Scaling – Proper Concrete Finishing and Curing
  - Recessed Pavement Markings
  - Establishing Subgrade
  - Temporary Traffic Control Signals

# District Construction Quality Reminders

## Eliminating Scaling - Proper Concrete Finishing & Curing

### Issue

- Scaling of finished concrete surfaces (premature, rapid failure only at surface)
- Over-finishing the surface works water into the top layer of concrete
- Poor curing practices

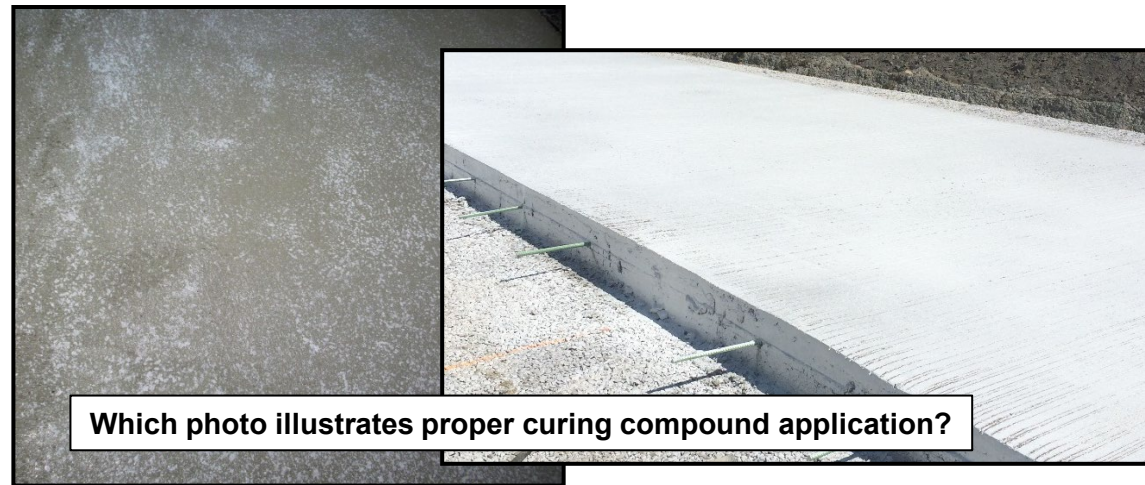


# District Construction Quality Reminders

## Eliminating Scaling - Proper Concrete Finishing & Curing

### Reminders

- No extra water added to the concrete surface; no “blessing the concrete”
- Minimal finishing is best at proper time (over-finishing will trap bleed water from the mix into the surface)
- No steel floats, fresnos or trials (exception latex overlay)
- Intermediate curing agents not be used as finishing aid
- Ensure curing materials fully cover the concrete and remain intact, allowing no moisture loss from the concrete





# District Construction Quality Reminders

## Epoxy Surface Treatment/ HFST Prep

### Issue

Delamination of epoxy based and high-friction surface treatments over concrete where lack of sufficient surface prep was root cause



# District Construction Quality Reminders

## Epoxy Surface Treatment/ HFST Prep

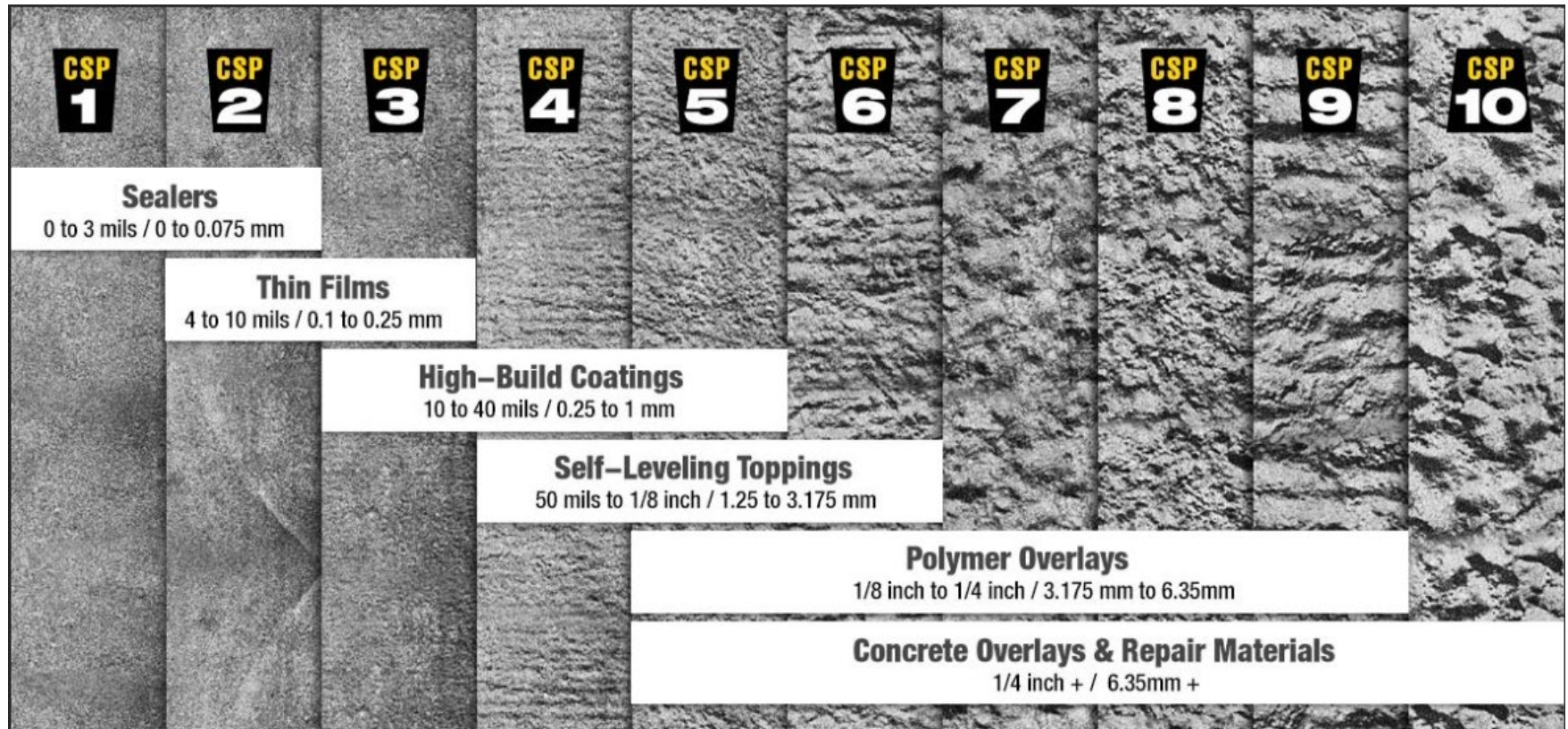
### Reminders

- HFST
  - Pub 408, Section 659.3(e) requires shot blasting of concrete surfaces to a CSP5 surface roughness
- Epoxy Surface Treatments (Decks)
  - Currently, governed by project special provision
  - Soon to be incorporated into Pub 408, 2020 edition
  - Section 1046 specifies CSP range of 5 to 7
  - Bottom line is we will only be able to enforce more lenient surface tolerance if given a range, so designers need to specify a minimum
  - Would request designers review special accordingly (for older decks, may want to consider specifying CSP 7 minimum)



# District Construction Quality Reminders

## International Concrete Repair Institute (ICRI) Profile Scale



# DCQR Industry Distribution

- Email request to Garth Bridenbaugh ([gbridenbau@pa.gov](mailto:gbridenbau@pa.gov))
- Maximum 2 individuals per contractor/consultant

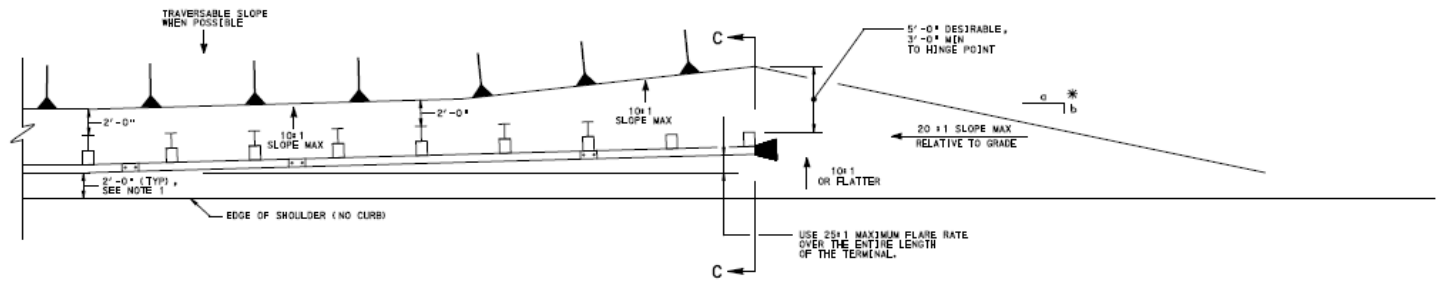
# **PennDOT / ACEC Quality Team**

# PennDOT/ ACEC Quality Team

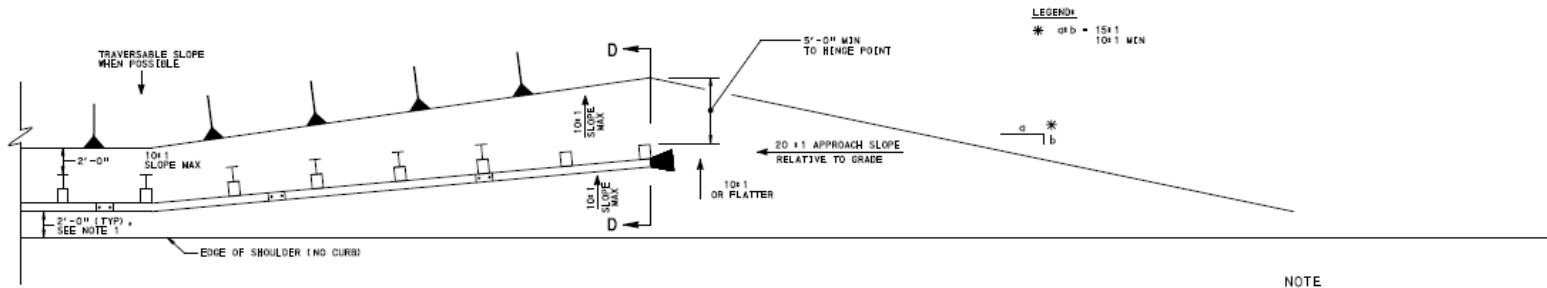
## Recent Request for Input from Districts

What are one to three design related issues that present the most problems during construction?

- Lack of adequate inventory/ condition assessment of existing drainage conditions during design
  - Insufficient quantities for pipe cleaning
  - Pipe conditions warranting replacement (and calling for extensions to substandard pipes)
  - Insufficient quantities for inlet adjustments and inlet top replacements
  - Inlet conditions warranting new inlets
  - Conventional pipe lining tabbed but condition or geometry of pipe makes infeasible
- Guiderail designs not completed recognizing field conditions/ constraints
  - Not accounting for proper end treatment grading per RC-54M (lack of ROW, environmental impacts)
  - Insufficient quantities for extra length posts (lack of 2' back-up)
  - Placement conflicts (utilities)
- Under-estimation of patching quantities on pavement preservation projects
  - Elapsed time between design layout and actual construction ~ additional deterioration
  - Design/ construction not on same page
- Schedule time for utility relocations missed or underestimated
  - D-9 has been fairly good here, but in those instances where issues occur they are significant to cost and schedule



GRADING DETAIL FOR TANGENT TERMINALS

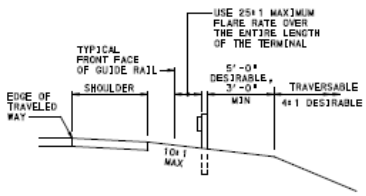


GRADING DETAIL FOR FLARED TERMINALS

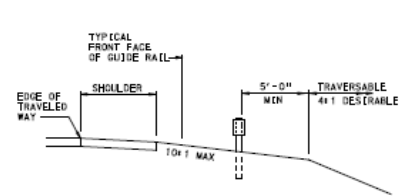
LEGEND  
\* at b = 15:1  
10:1 MEN

NOTE

1. THE DISTANCE FROM THE EDGE OF SHOULDER TO THE FRONT FACE OF THE W-BEAM RAIL ELEMENT MAY VARY. BASE THE ACTUAL PLACEMENT OF THE GUIDE RAIL SYSTEM SELECTED ON FIELD CONDITIONS. LOCATE THE SYSTEM SELECTED AS FAR FROM THE EDGE OF SHOULDER AS POSSIBLE AND STILL MAINTAIN MINIMUM UNOBSTRUCTED DISTANCES FROM TABLE 1. NOTE THAT ALTHOUGH EMBANKMENTS MAY REQUIRE PROTECTION, THE EMBANKMENT ITSELF IS NOT CONSIDERED AN OBSTRUCTION WHEN DETERMINING THE "UNOBSTRUCTED DISTANCE".



SECTION C-C



SECTION D-D

TABLE 1

TYPE OF GUIDE RAIL	MINIMUM UNOBSTRUCTED DISTANCE †
31-SCC (NESTED)	1'-0"
31-SCC	1'-6"
31-SC	3'-0"
31-S	4'-0"
2-MCC	5'-6"
2-MC	5'-6"
2-W	9'-0"

† FROM BACK OF GUIDE RAIL POST TO AREA OF CONCERN (FACE OF OBSTRUCTION).

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF PROJECT DELIVERY

BARRIER PLACEMENT  
AT OBSTRUCTIONS

GRADING DETAILS

RECOMMENDED DEC. 17, 2018  
*John J. Capell*  
CHIEF, HWY. DELIVERY DIVISION

RECOMMENDED DEC. 17, 2018  
*Alison D. Smith*  
DIRECTOR, BUREAU OF PROJECT DELIVERY

SHT. 5 OF 12  
RC-54M

**Questions???**