ATLEE ROAD EXTENDED

Hanover County, VA

STV 100 Years

VDOT

HANOVER COUNTY Birthplace of Patrick Henry Formed in 1720 VIRGINIA

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

TODAY'S AGENDA

1) PROJECT TEAM
2) LOCATION/SCOPE
3) ROADWAY DESIGN CHALLENGES
4) REVIEW OF STRUCTURES
5) CONSTRUCTION PHOTOS
6) QUESTIONS

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

PROJECT TEAM

PROJECT SCOPE

TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.

PROJECT TEAM

DEPARTMENT OF PUBLIC WORKS

LOCALITY PROJ. MANAGER: JOE VIDUNAS, PE

CONSTRUCTION ADMIN.: RANDY HARDMAN, PE

PROJECT SPONSOR/OWNER

PROJECT COORDINATOR:
MICHELE PICCOLOMINI

PROJECT MANAGER: BRIAN COPELAND, PE

ROADWAY ENGINEER OF RECORD

SURVEY, ROADWAY ENGINEERING, ENVIRONMENTAL, GEOTECH, TRAFFIC, UTILITY COORDINATION, UTILITY DESIGN & LANDSCAPE DESIGN

STRUCTURAL PM: DEREK OVERSTREET, PE

STRUCTURAL ENGINEER OF RECORD

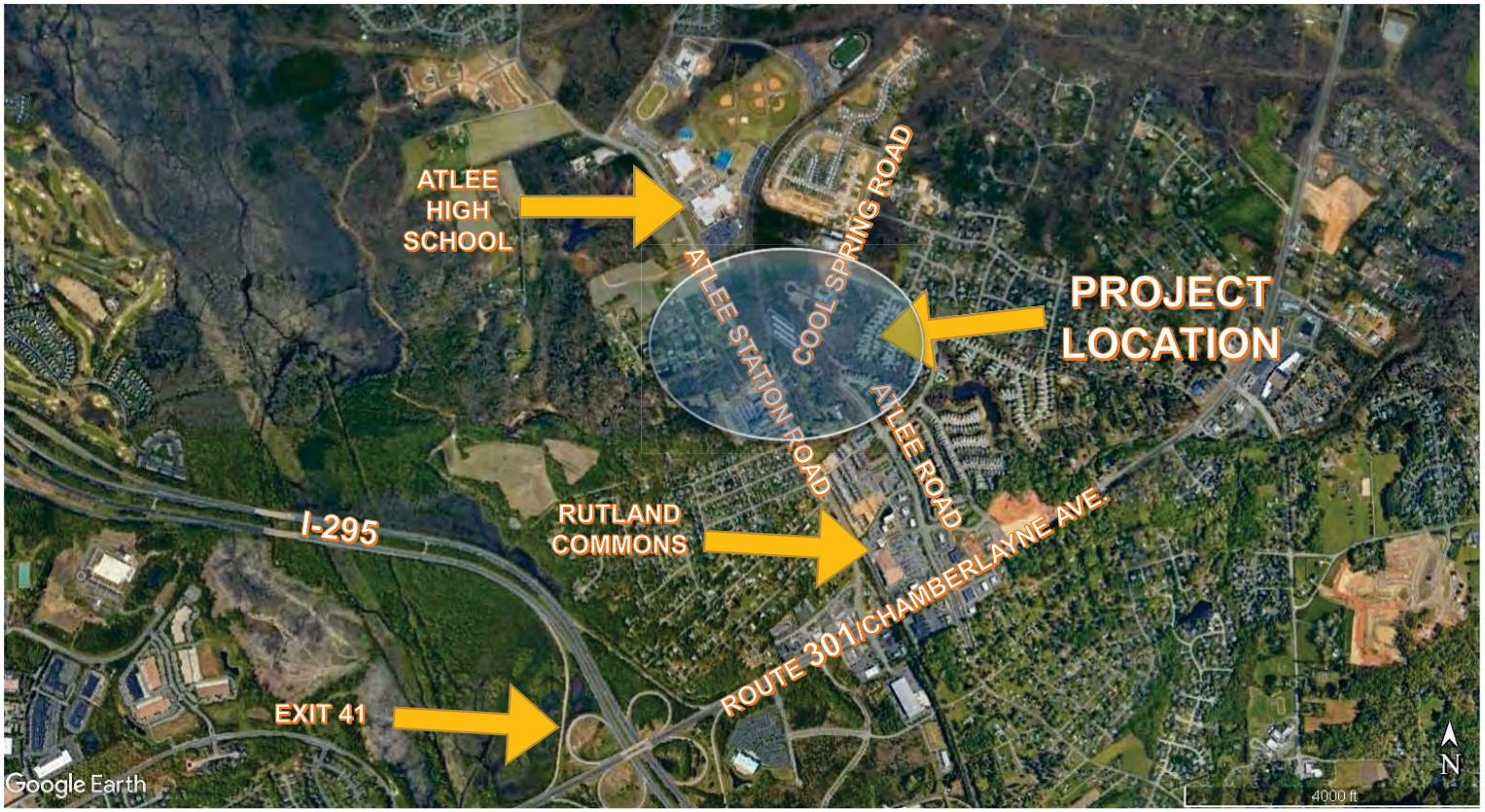
RIGHT-OF-WAY SERVICES

PROJECT MANAGER – JEFF DYKES, SR/WA, R/W-EC

NOISE STUDIES

CHRISTOPHER MENGE, PRINCIPAL

PROJECT LOCATION



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PROJECT OBJECTIVES

- PURPOSE: TO INCREASE SAFETY AND CAPACITY
- TO ACCOMDATE CURRENT AND EXPECTED FUTURE RESIDENTIAL GROWTH
- TO DISTRIBUTE TRAFFIC DEMAND ONTO ATLEE ROAD & ATLEE STATION ROAD
- ATLEE STATION ROAD
  - 11,000 ADT (2011 – VDOT)
  - 13,000 ADT (2018 - VDOT)
  - 29,000 ADT (2035)
  - 14,500 DESIGN ADT (50%)
- ATLEE ROAD
  - 14,500 DESIGN ADT (50%)

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INITIAL DESIGN

BUCKINGHAM BRANCH RAILROAD MEETING #1:

- AT-GRADE ROADWAY EXTENSION
- RELOCATE EXISTING AT-GRADE RAILROAD CROSSING
- BBRR REQUIRES GRADE SEPARATED CROSSING

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PROJECT SCOPE

- URBAN COLLECTOR (GS-7)
- 40 MPH DESIGN SPEED
- 3-LANE ROADWAY
- COMBINATION URBAN & RURAL SECTION
- FUTURE 4-LANE DIVIDED URBAN ROADWAY

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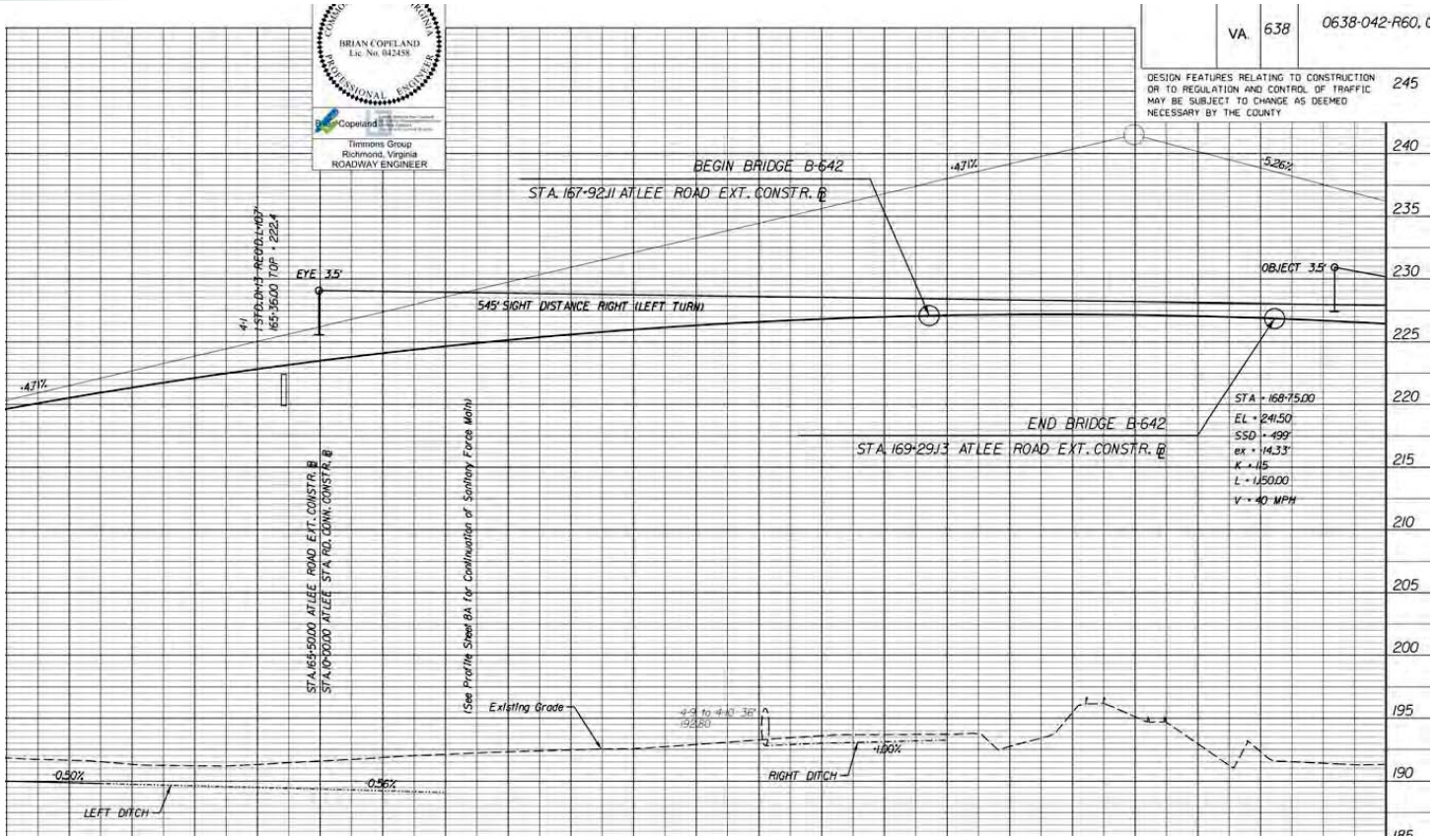
PROJECT SCOPE



- 30+ FEET HEIGHT ABOVE RAIL
- 5% APPROACH GRADES
- CONTROLLING VERTICAL DESIGNCRITERIA:
  - INTERSECTION SIGHT DISTANCE OVER CREST

TIMMONS GROUP
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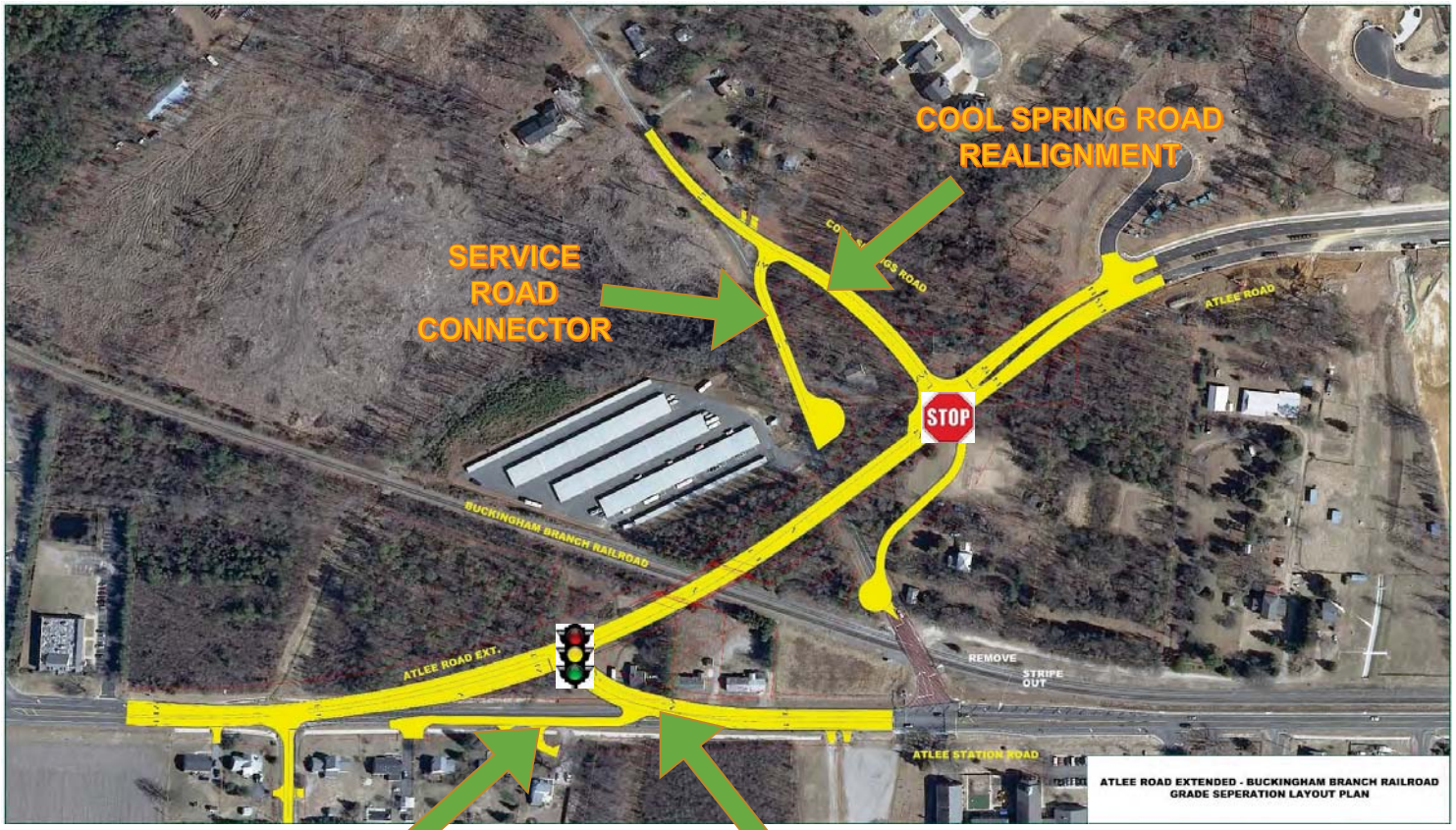
PROJECT SCOPE



- ROADWAY CONNECTIONS UP TO NEW GRADE OF ATLEE ROAD

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UNIQUE ROADWAY DESIGN CHALLENGES

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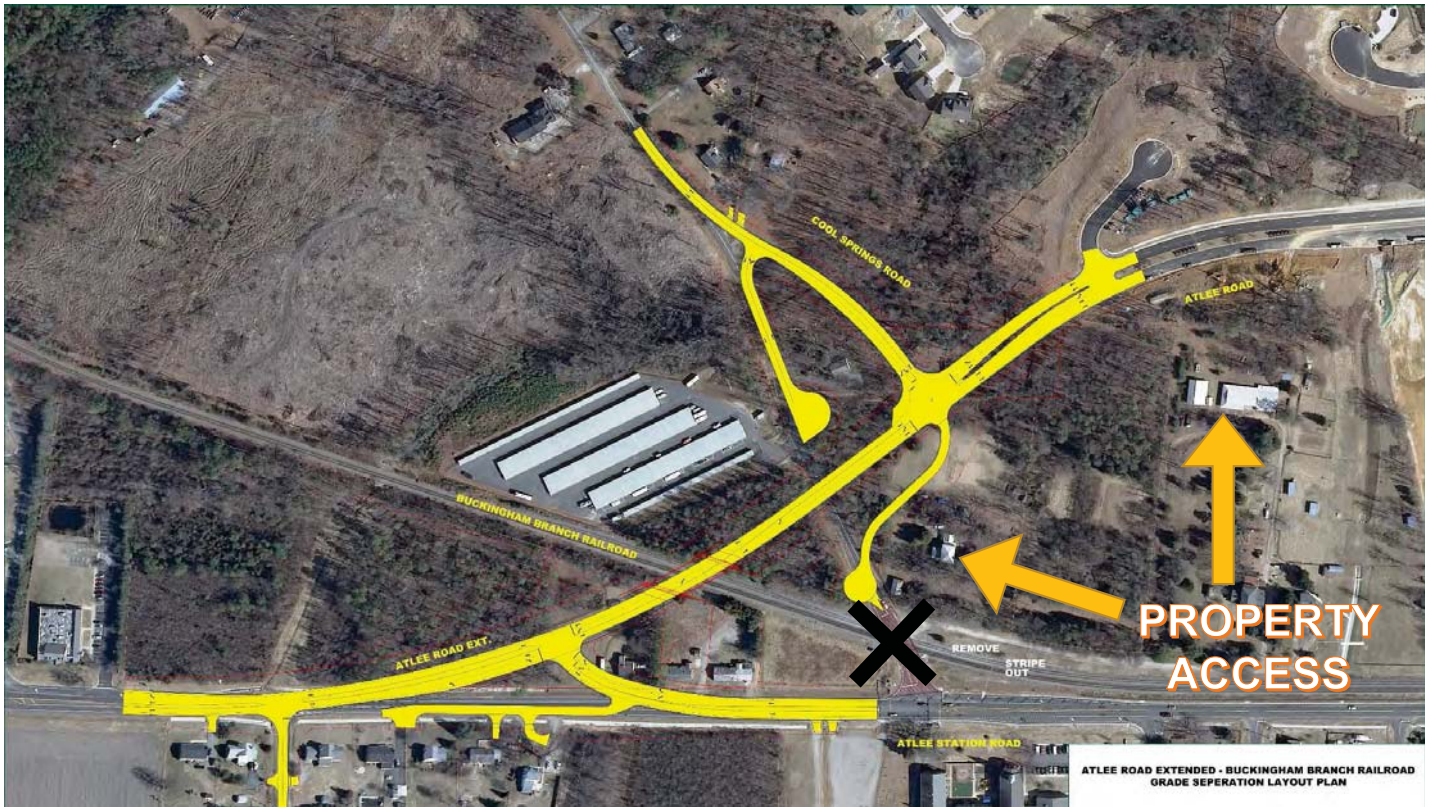
PROPERTY ACCESS WITH CLOSED AT-GRADE CROSSING



BUCKINGHAM BRANCH RAILROAD MEETING #2:

- AT-GRADE CROSSING CLOSED
- SHARED USE DRIVEWAY TO RESTORE ACCESS
- DISCUSS FEDERAL-AID POLICY REQUIRING RR COST PARTICIPATION
- BBRR UNABLE TO PARTICIPATE IN COST, SO DISCUSSED OTHER OPTIONS

TIMMONS GROUP
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PROPERTY ACCESS WITH CLOSED AT-GRADE CROSSING

BUCKINGHAM BRANCH RAILROAD MEETING #2:

- AT-GRADE CROSSING CLOSED
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- BBRR UNABLE TO PARTICIPATE IN COST, SO DISCUSSED OTHER OPTIONS

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

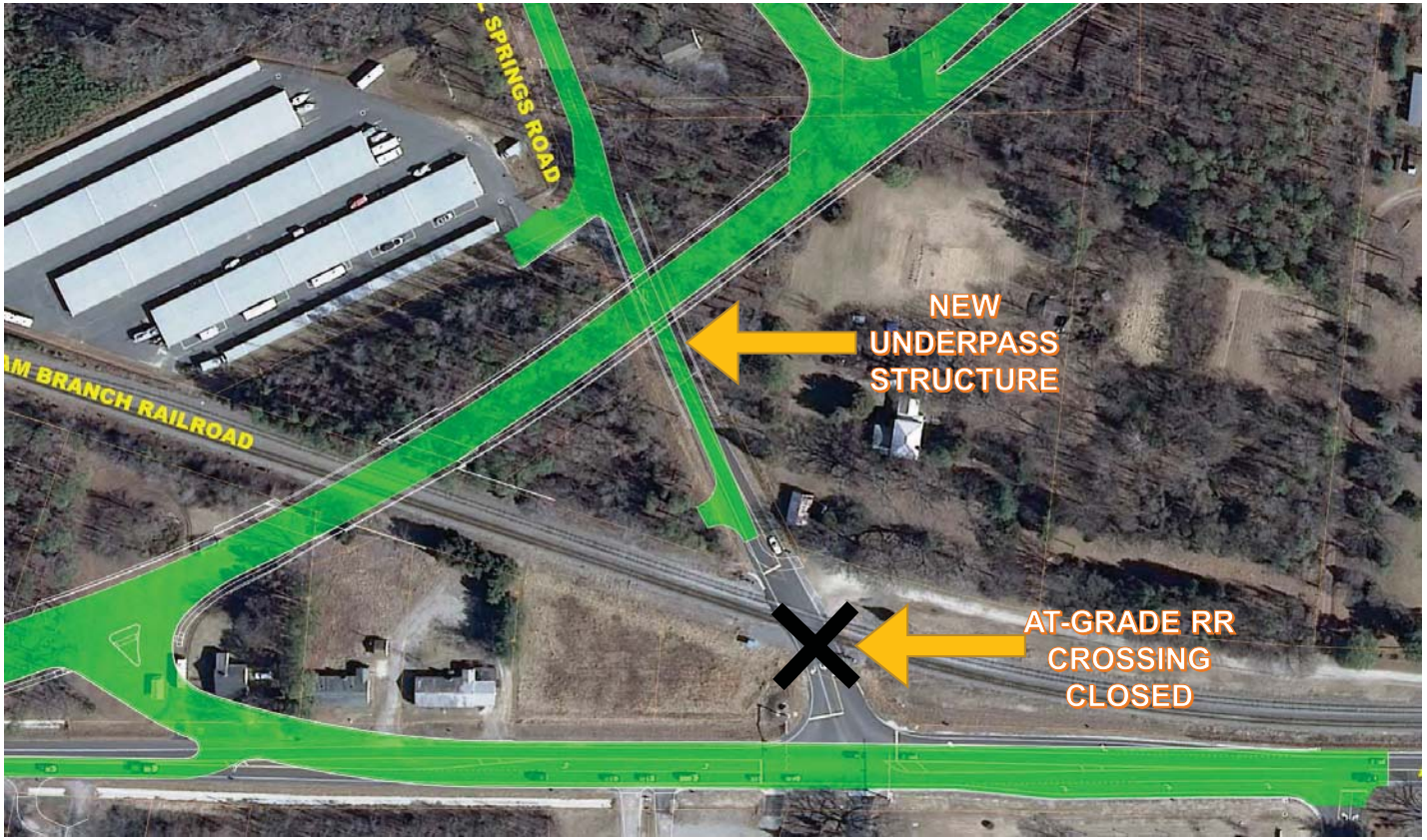
PROPERTY ACCESS WITH CLOSED AT-GRADE CROSSING

BUCKINGHAM BRANCH RAILROAD MEETING #2:

- BBRR AGREED TO KEEP CROSSING OPEN WITH RESTRICTED USE ON A-1 ZONED PROPERTIES
- CUL-DE-SAC COOL SPRING ROAD
- VE STUDY VALIDATED LEAST COST APPROACH
- PROCEEDED W/ CLEARING ENV., PUBLIC HEARING & BEGAN R/W ACQUISTION

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

PROPERTY ACCESS WITH CLOSED AT-GRADE CROSSING



- FOLLOWING R/W NTP, VDOT ADVISES OF STATE CODE REQUIRING CLOSURE OF CROSSING
- MEET & DISCUSS SEVERAL OPTIONS W/ VDOT
- AGREE UNDERPASS STRUCTURE BEST OPTION
  - NO ADDITONAL R/W REQUIRED; MINIMIZES DAMAGES TO OWNERS
  - NO ADDITIONAL ENVIRONMENTAL
  - LEAST COST OF OTHER OPTIONS, INCLUDING PURCHASE OF PROPERTIES
  - PROVIDES PUBLIC SECONDARY ACCESS FOR FUTURE LAND USE
  - LEAST IMPACT TO RAILROAD

TIMMONS GROUP
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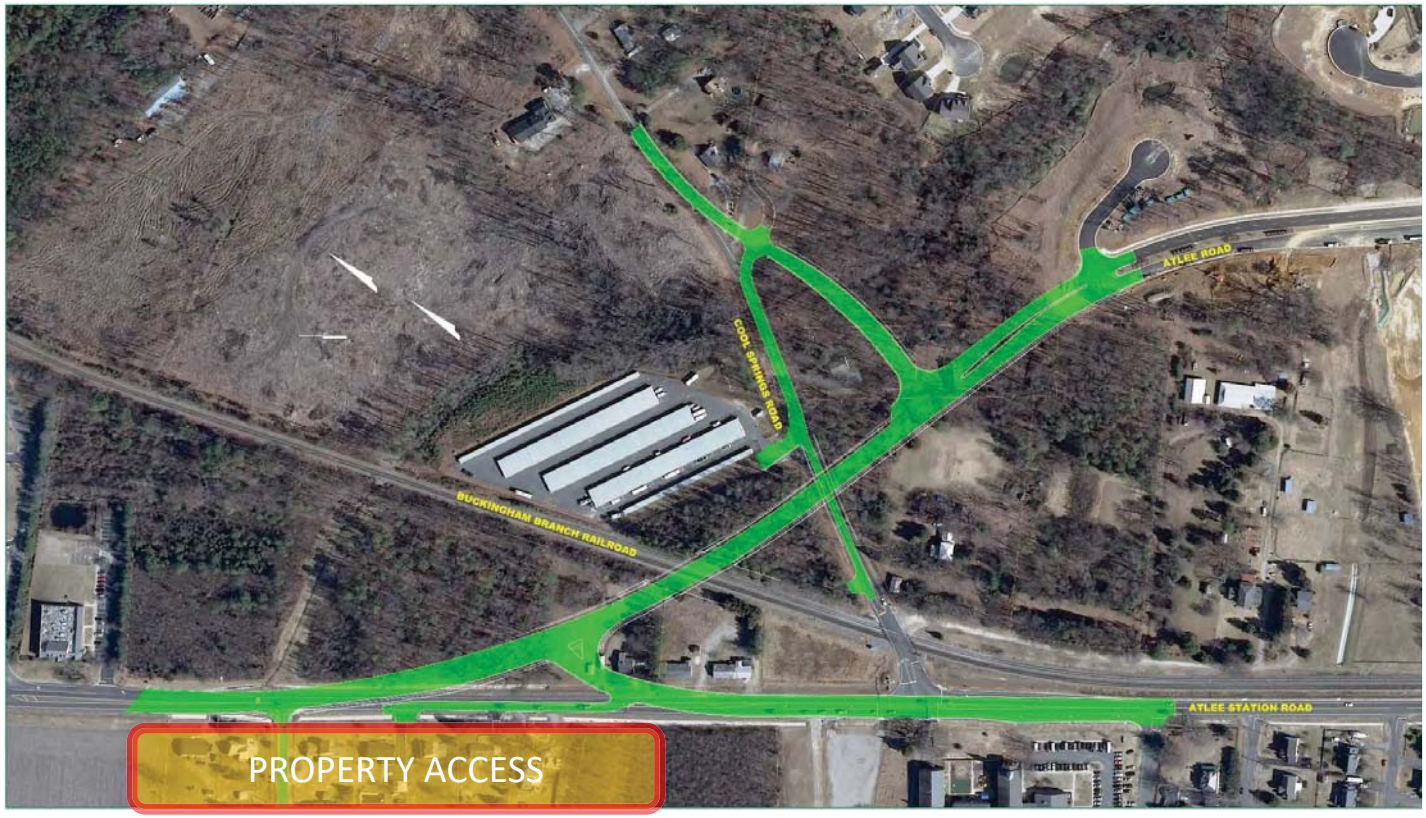
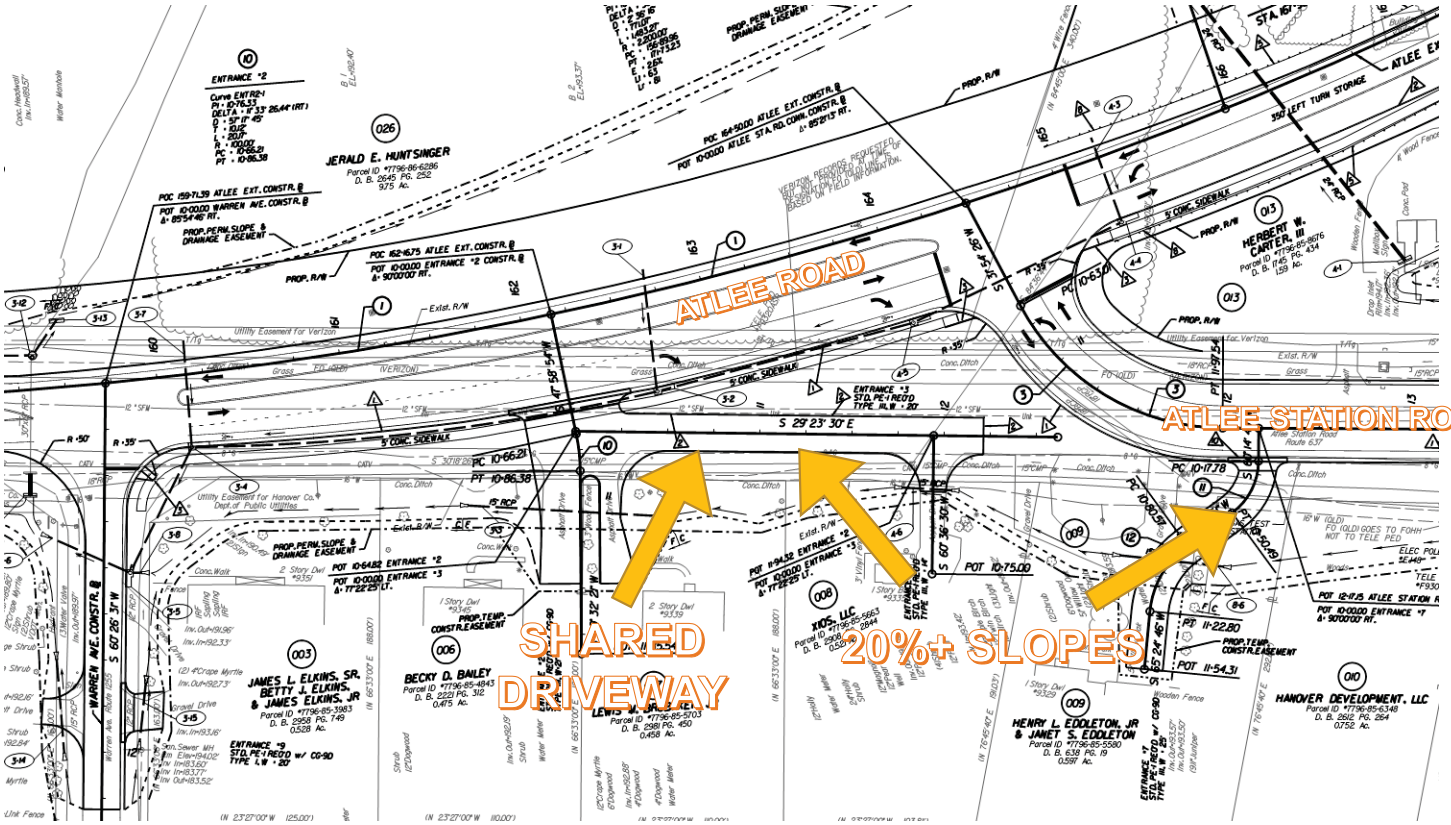
PROPERTY ACCESS ALONG ATLEE STATION ROAD



TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

PROPERTY ACCESS ALONG ATLEE STATION ROAD



- 10’-20’ GRADE DIFFERENCE
- 20% DRIVEWAY SLOPES

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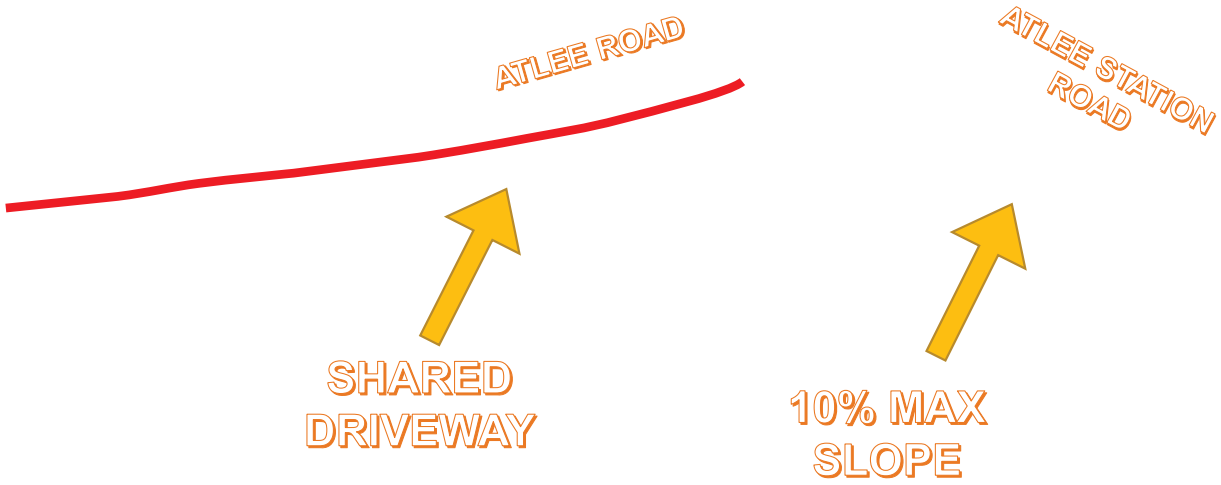
PROPERTY ACCESS ALONG ATLEE STATION ROAD

- MSE RETAINING WALL PARALLEL W/ ATLEE ROAD
- DRIVEWAY SLOPE REDUCED TO MAXIMUM 10% SLOPE



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PROPERTY ACCESS ALONG ATLEE STATION ROAD

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PROPERTY ACCESS ALONG ATLEE STATION ROAD

TIMMONS GROUP
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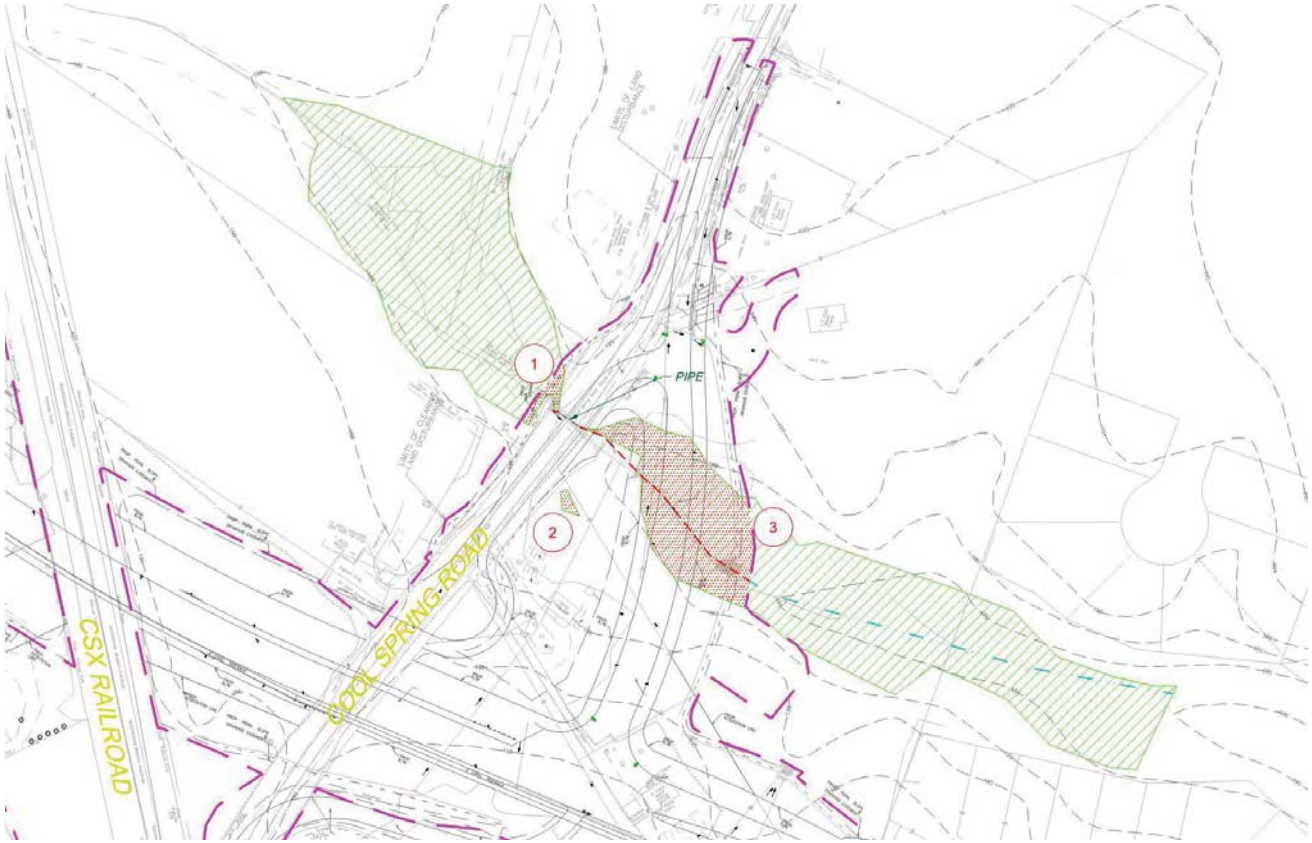
ENVIRONMENTAL – WETLAND PERMITTING



- 0.48 AC. WETLAND IMPACTS
- 275 L.F. WATERS OF THE US
- SUBMIT JPA TO DEQ, COE & VMRC FOR COVERAGE UNDER THE STATE PROGRAMATIC GENERAL PERMIT (SPGP)
- COE RESPONDED PROJECT REQUIRES AN IP BASED ON CUMULATIVE IMPACTS TAKEN BY HANOVER COUNTY IN THE WATERSHED WITH OTHER PROJECTS

TIMMONS GROUP
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ENVIRONMENTAL – NOISE STUDY

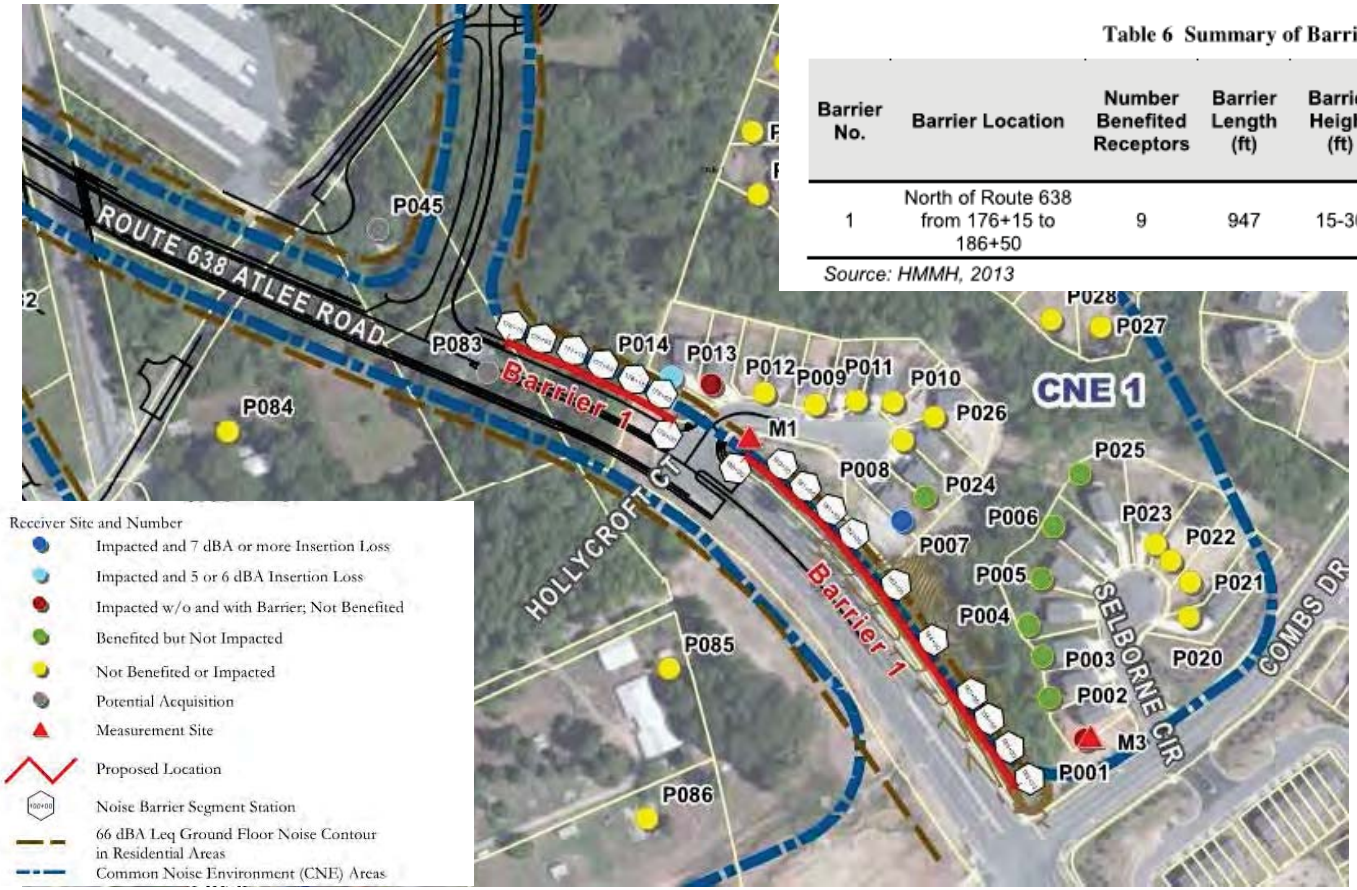

Table 6 Summary of Barrier Characteristics

Barrier No.	Barrier Location	Number Benefited Receptors	Barrier Length (ft)	Barrier Height (ft)	Surface Area (sq ft)	Total Cost at $48/sq ft	Barrier Surface Area/ Benefited Receptor	Reason-able? (Surface Area <1600)
1	North of Route 638 from 176+15 to 186+50	9	947	15-30	23,873	$1,145,904	2,653	No

Source: HMMH, 2013

- DETERMINED QUANTIATIVE NOISE STUDY REQUIRED – PRELIMINARY & FINAL REPORTS BY HMMH
- 17 PROPERTIES IMPACTED; MOST NOT BENEFITED BY BARRIER DUE TO BREAKS IN DRIVEWAYS
- PRELIMINARY STUDY FOUND A BARRIER AT HOLYCROFT COURT TO BE FEASIBLE AND REASONABLE
- FEASIBLE - 50% OF HOMES EXPERIENCE 5 dBa OR MORE REDUCTION
- REASONABLE – (COST EFFECTIVENESS) 1,600 SF OR LESS OF BARRIER SURFACE PER BENEFITED HOME)
- DETAILED ANALYSIS IN FINAL REPORT FOUND FEASIBLITY MAINTAINED, HOWEVER REASONABLENESS FAILED (2,653 SF/BENEFITTED REC.)

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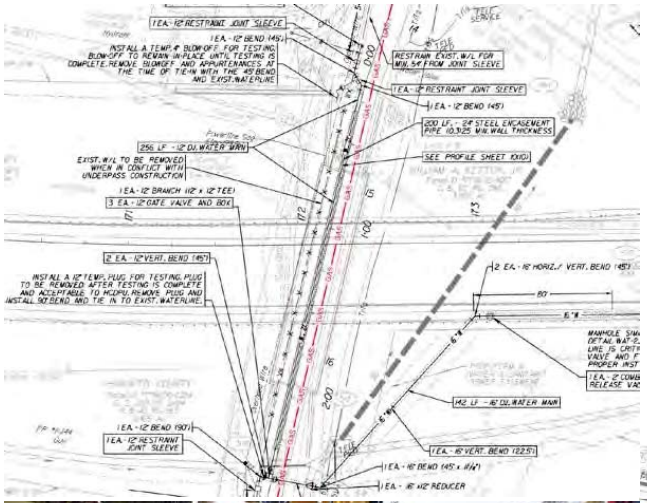
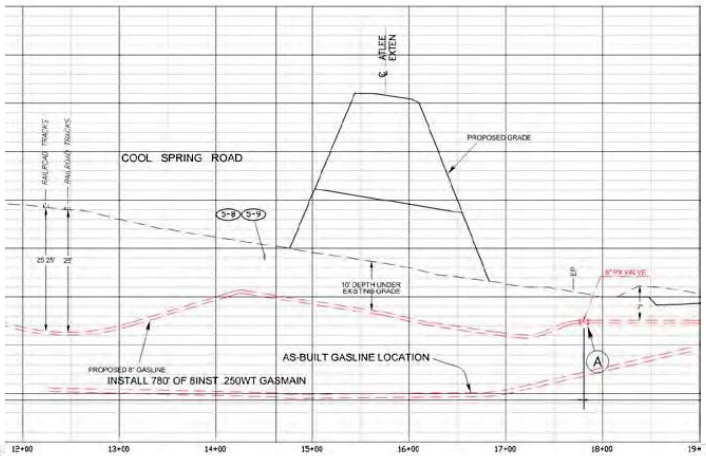
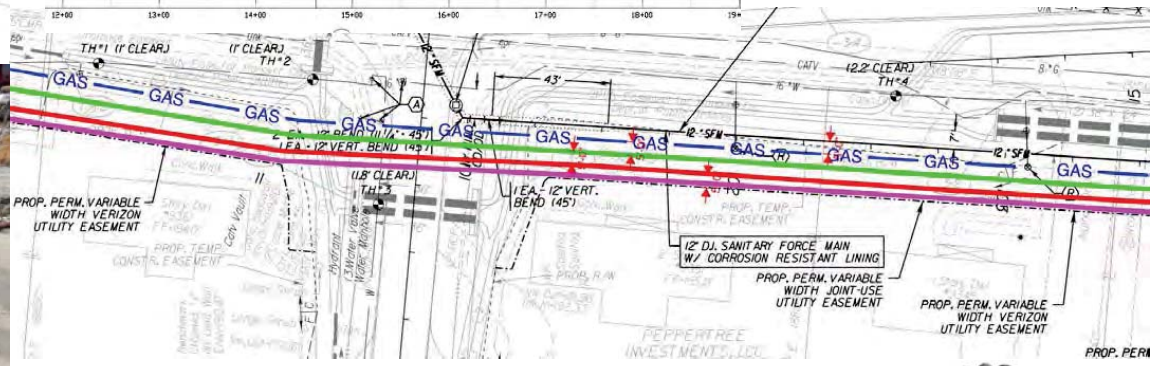
UTILITY IMPACTS



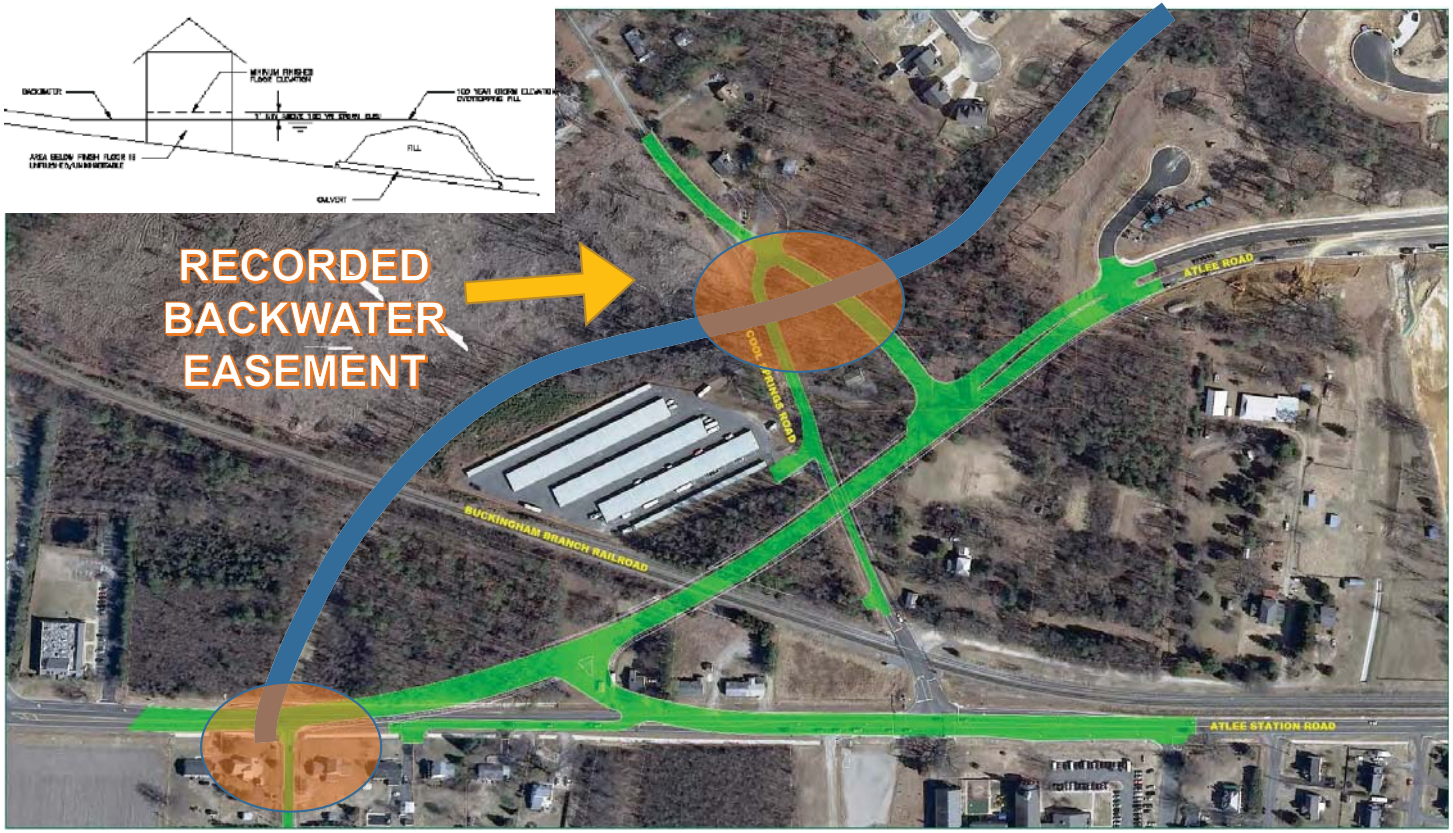




- ADVANCE RELOCATON: DOMINION, VERIZON, VIRGINIA NATURAL GAS AND COMCAST
- IN-PLAN RELOCATION: 12" WATERLINE (INCL. BETTERMENT) AND 12" SANITARY FORCEMAIN
- AFTER R/W WAS CLEARED;
  - LUMOS INSTALLS NEW LINE ALONG ASR, THEN RELOCATES
  - VNG PROPOSED NEW GAS LINE ON CSR THROUGH UNDERPASS
- 5 UTILITIES IN 20' AREA OUTSIDE R/W
- OVERLAPPING EASEMENTS

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

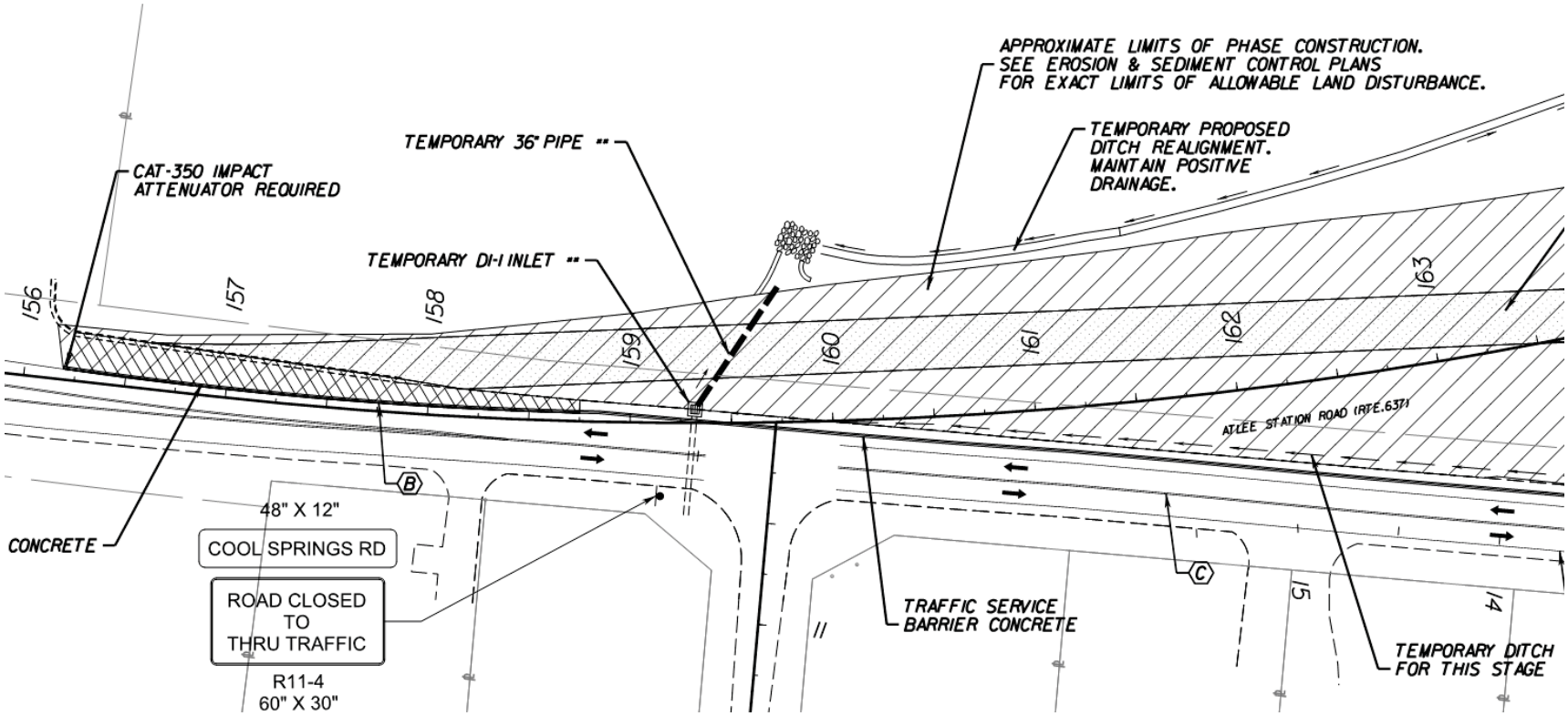
DRAINAGE EXCEPTIONS



- HANOVER FLOODPLAIN MANAGEMENT: IN CASES WHERE NEW EMBANKMENT IS PROPOSED DOWNSTREAM OF STRUCTURES, A MIN. 1' ABOVE THE LOW POINT MUST BE MAINTAINED.
- PROVIDED MULTIPLE CULVERTS FOR REDUNDANCY WHERE EACH INDIVIDUAL CULVERT WOULD PROVIDE A 100-YR HEADWATER BELOW THE TARGET BACKWATER.

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

MAINTENANCE OF TRAFFIC (MSE WALL CONSTRUCTION)



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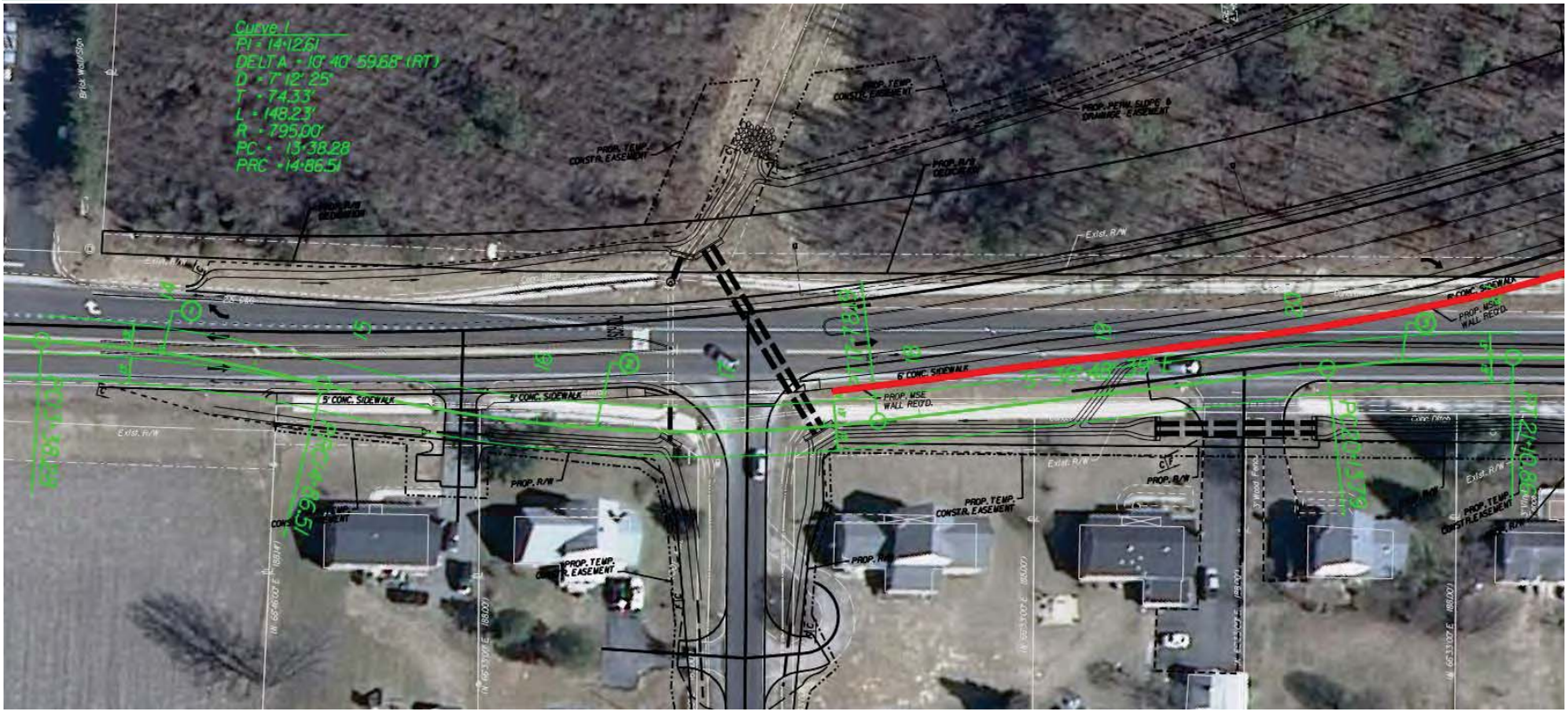


TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.

MAINTENANCE OF TRAFFIC (MSE WALL & WARREN AVE)

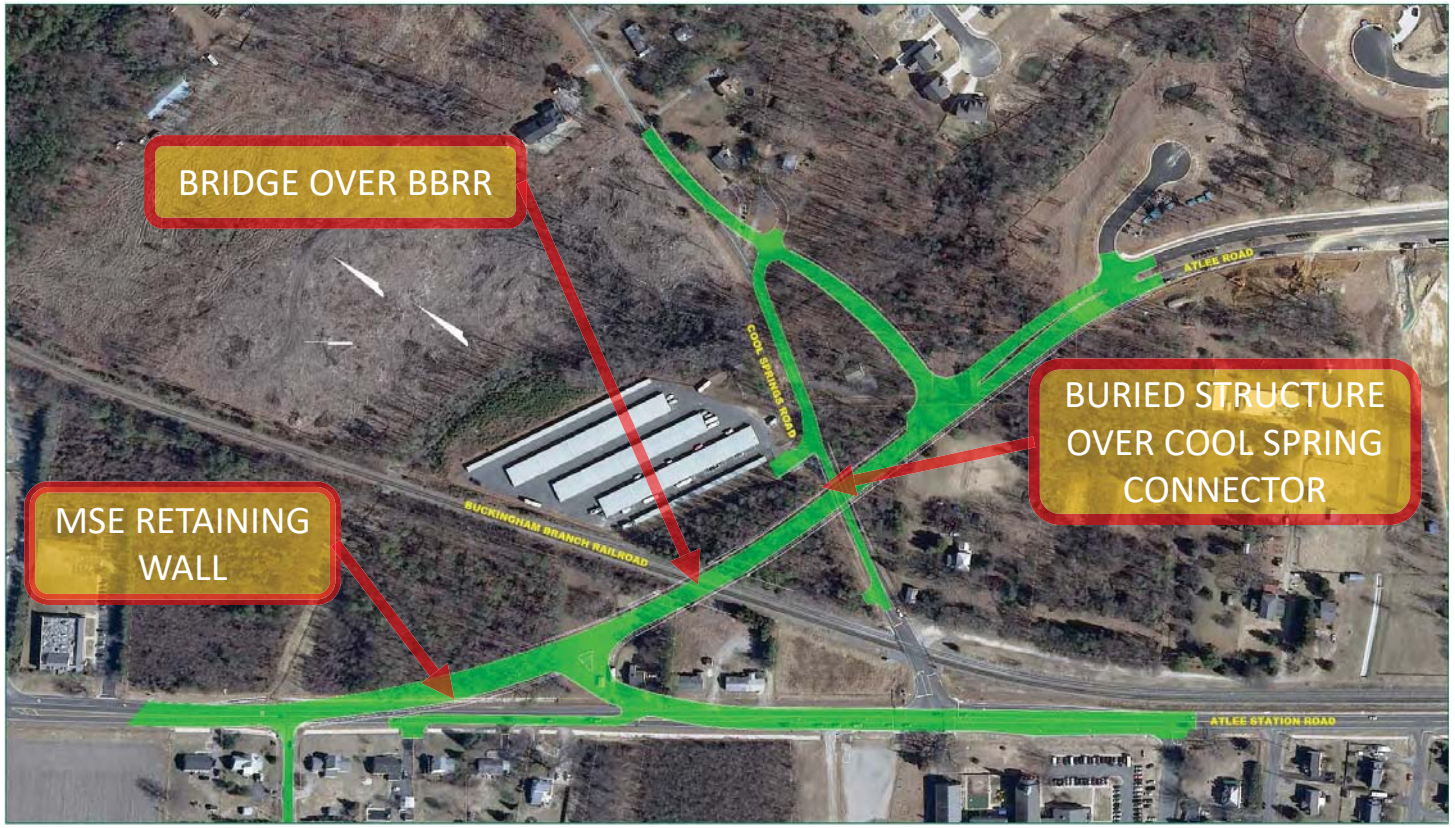
TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

MAINTENANCE OF TRAFFIC (MSE WALL & WARREN AVE)

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

UNIQUE STRUCTURAL DESIGN CHALLENGES

NEW BRIDGES AND STRUCTURES ALONG ATLEE ROAD



TIMMONS GROUP
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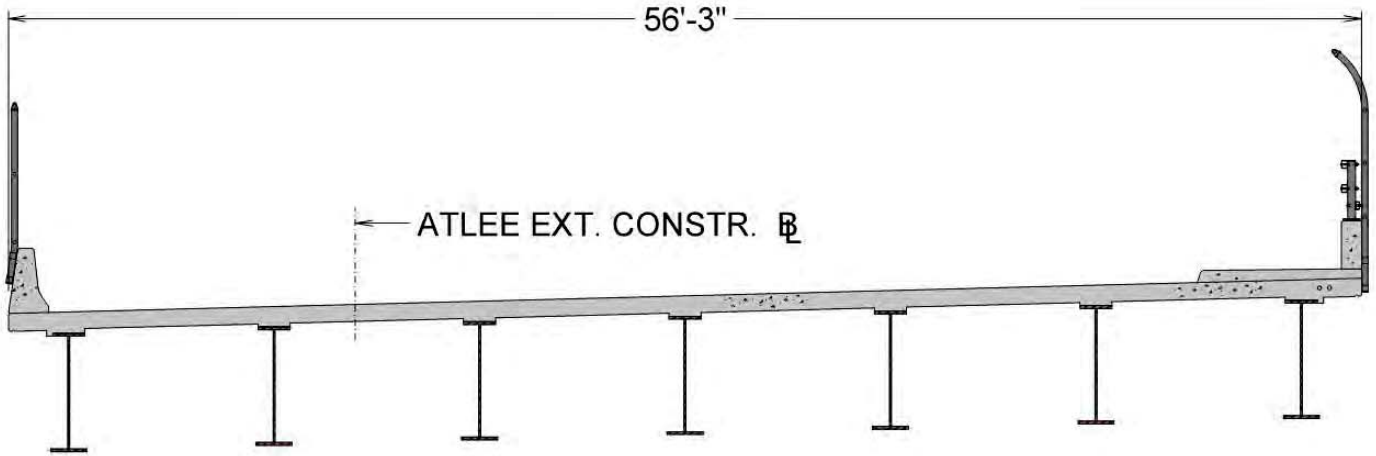
ATLEE ROAD OVER BUCKINGHAM BRANCH RAILROAD

- 137-FT. SINGLE SPAN
- 56’-3” OUT-TO-OUT
- HORIZONTALLY CURVED ALIGNMENT
- 45 DEGREE SKEW
- DESIGNED TO ACCOMMODATE A FUTURE WIDENING
- RAILROAD COORDINATION

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

ATLEE ROAD OVER BUCKINGHAM BRANCH RAILROAD



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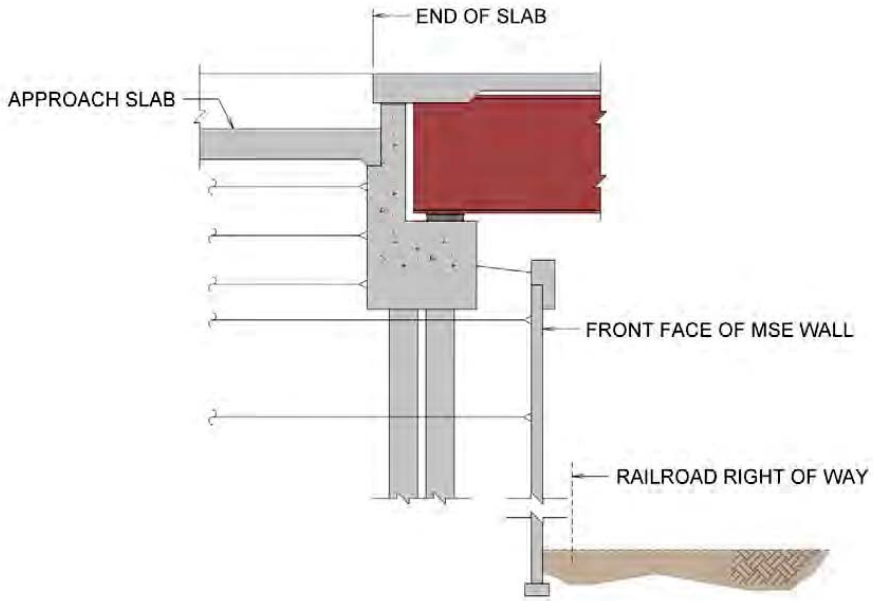
ATLEE ROAD OVER BUCKINGHAM BRANCH RAILROAD

- WEATHERING STEEL PLATE GIRDERS
- DECK SLAB EXTENSION
- UTILIZED MSE WALLS TO REDUCE BRIDGE LENGTH
- MSE WALL SETTLEMENTS



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ATLEE ROAD OVER BUCKINGHAM BRANCH RAILROAD – MSE WALL SETTLEMENT

- 5 INCHES OF TOTAL ESTIMATED SETTLEMENT
- ISOLATED PILES FROM MSE WALL FILL WITH 2-FT. DIA. CMP'S TO MINIMIZE DOWNDRAG FORCES
- 90-DAY WAITING PERIOD
- SETTLEMENT MONITORING
- VERTICAL SLIP JOINTS IN MSE WALL PANELS

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ATLEE ROAD OVER COOL SPRING CONNECTOR

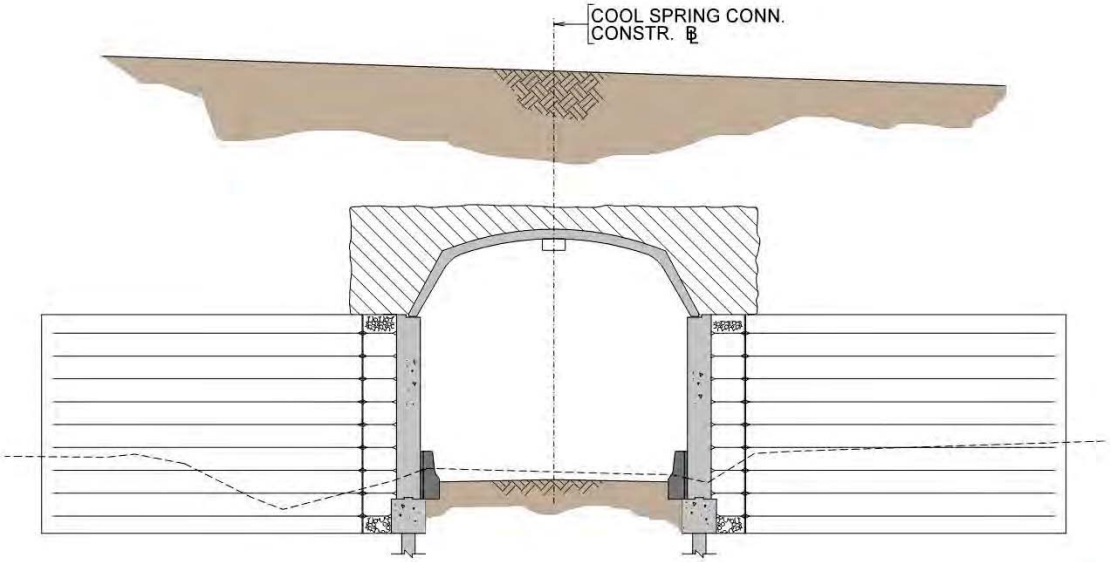
- 131-FT. LONG BURIED STRUCTURE
- 24-FT. ARCH SPAN
- 20-FT. CLEAR ROADWAY WIDTH
- 14’-6” VERTICAL CLEARANCE
- UTILIZED CON/SPAN O-SERIES ARCH
- CAST-IN-PLACE PEDESTAL WALL TIED BACK WITH MSE REINFORCING STRIPS
- MSE WINGWALLS
- LIGHTING

TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.

ATLEE ROAD OVER COOL SPRING CONNECTOR

- UTILIZED CON/SPAN O-SERIES ARCH
- CAST-IN-PLACE PEDESTAL WALL TIED BACK WITH MSE REINFORCING STRIPS
- MSE WINGWALLS
- MSE WALL SETTLEMENTS
- LIGHTING



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MSE RETAINING WALL ALONG ATLEE ROAD

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

CONSTRUCTION

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

START OF CONSTRUCTION – NTP MARCH 7, 2017

- CONTRACTOR: ABERNATHY CONSTRUCTION CORP.
- LOW BID: $14.6M
- UNIT PRICE CONTRACT

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

START OF CONSTRUCTION – NTP MARCH 7, 2017

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

START OF CONSTRUCTION

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START OF CONSTRUCTION

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START OF CONSTRUCTION

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

BUILDING DEMOLISION

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

BORROW EXCAVATION - #10 SCREENINGS

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

BORROW EXCAVATION - #10 SCREENINGS

TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.

DRAINAGE INSTALLATION

TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.

DRAINAGE INSTALLATION

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

DRAINAGE INSTALLATION

TIMMONS GROUP

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PILE DRIVING – ATLEE ROAD OVER BBRR

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

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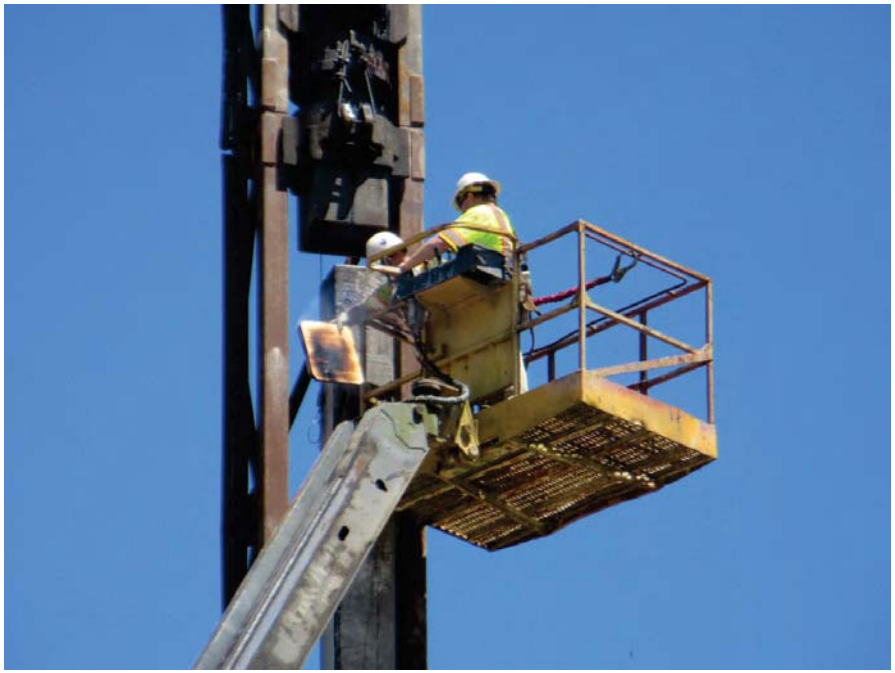
PILE DRIVING – ATLEE ROAD OVER BBRR



TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

PILE DRIVING – ATLEE ROAD OVER BBRR

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PILE DRIVING – ATLEE ROAD OVER BBRR

TIMMONS GROUP
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MSE WALL CONSTRUCTION – ATLEE ROAD OVER BBRR

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

MSE WALL CONSTRUCTION – ATLEE ROAD OVER BBRR

TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.

MSE WALL CONSTRUCTION – ATLEE ROAD OVER BBRR

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

DECK POUR - ATLEE ROAD OVER BBRR

TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.

ATLEE ROAD OVER BBRR

TIMMONS GROUP

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PILE DRIVING – ATLEE ROAD OVER COOL SPRING CONNECTOR

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

PILE DRIVING – ATLEE ROAD OVER COOL SPRING CONNECTOR

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

MSE WALL CONSTRUCTION – ATLEE ROAD OVER COOL SPRING CONNECTOR

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

ARCH INSTALLATION – ATLEE ROAD OVER COOL SPRING CONNECTOR

TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.

ATLEE ROAD OVER COOL SPRING CONNECTOR

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MSE WALL CONSTRUCTION

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MSE WALL CONSTRUCTION

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QUESTIONS

TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.