



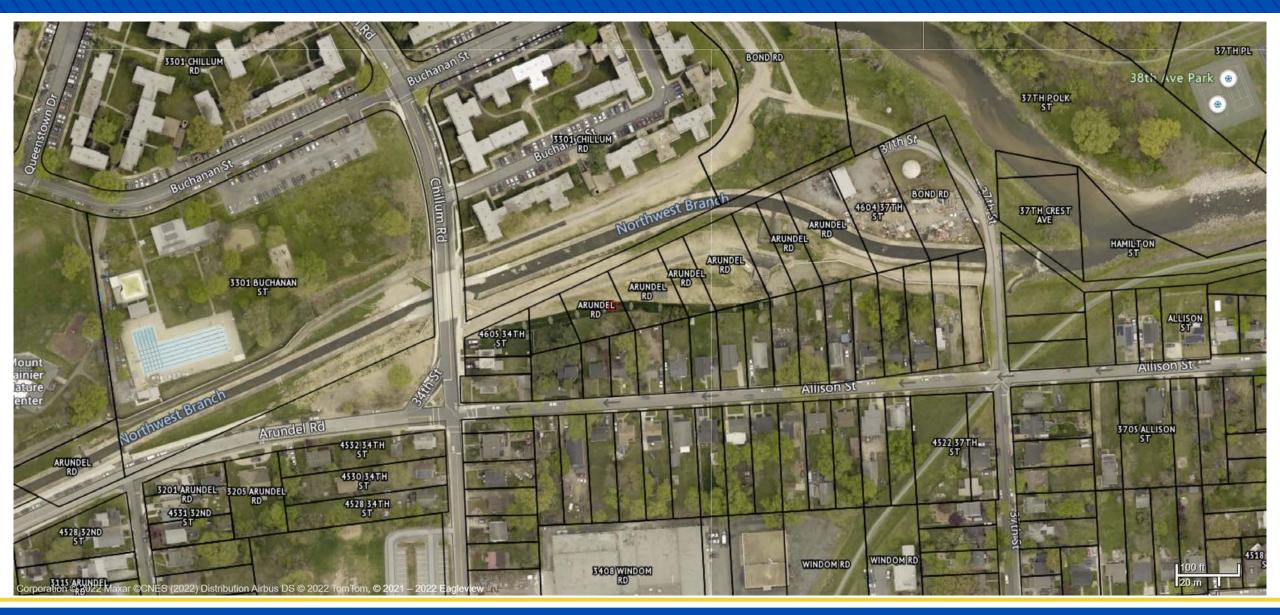






Project Location







Existing Bridge Conditions



The existing bridge consists of two adjacent single-span concrete rigid frame with a total length of about 31 feet.

Downstream View



Upstream View



The substructure consisted of:

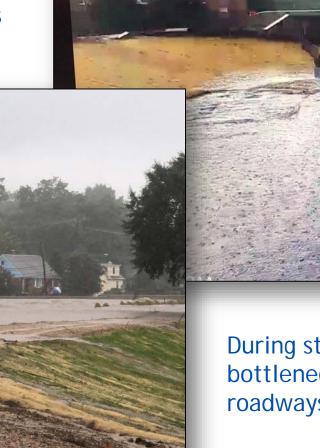
- Concrete rigid frame wall abutments and wing walls
- Solid shaft concrete pier



Existing Bridge Conditions



Prior to the Bridge Replacement Project, the 34th Street Bridge would severely flood during rainfall causing safety issues for commuters and the many residential homes and apartments nearby.



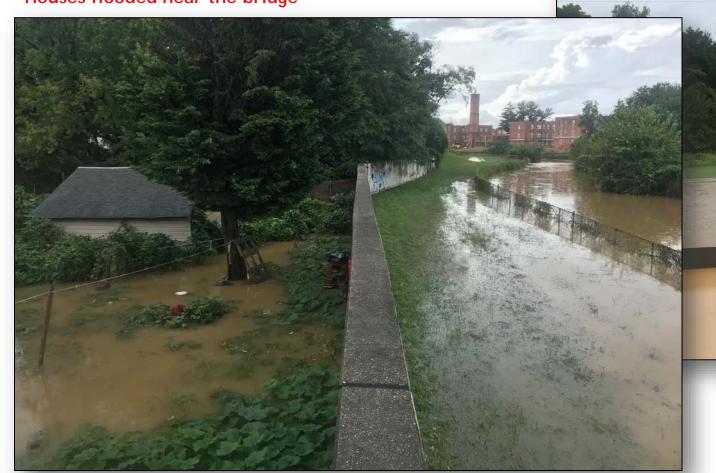
During storm events, the bridge created a bottleneck effect, flooding the surrounding roadways and residential properties.



Existing Bridge Conditions









Playground flooded near the bridge



Project Team



Prince George's County DPW&T created a fast track project utilizing the following team:





Design of the Bridge



Overall Project Limits and scope



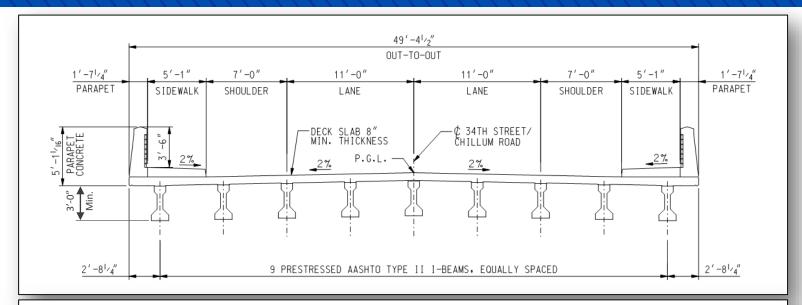


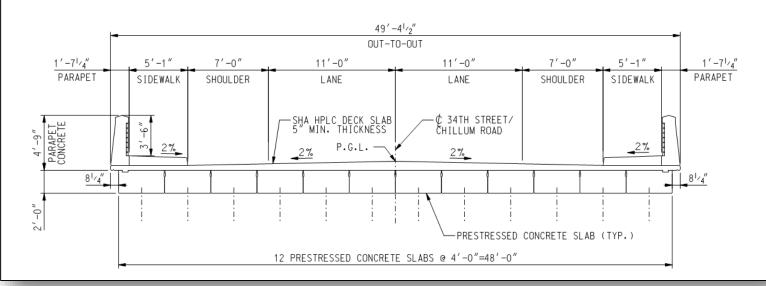
Bridge Superstructure Alternatives



 Concrete slab on precast prestressed AASHTO Type II girders

 Twelve 4-feet wide precast prestressed concrete adjacent slab beams



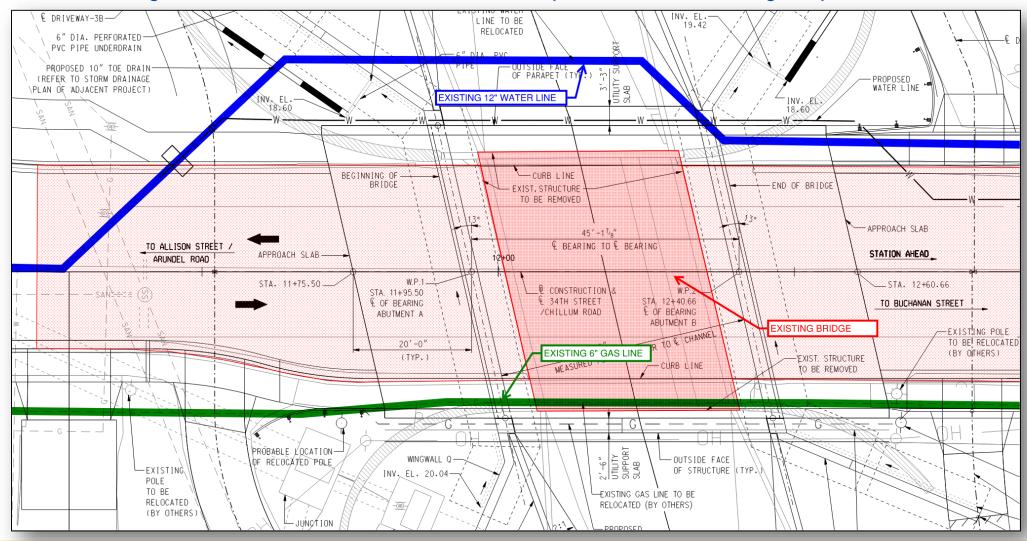




Bridge Plan



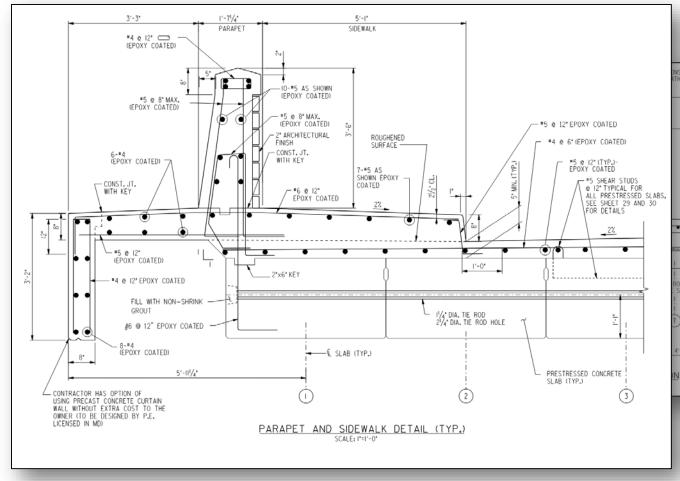
Existing Water ad Gas lines were to be incorporated in new bridge superstructure

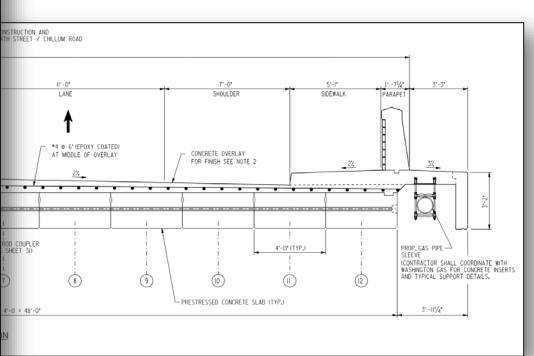




Bridge Superstructure Typical Section







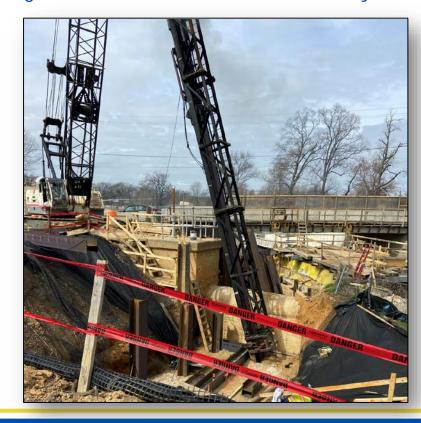


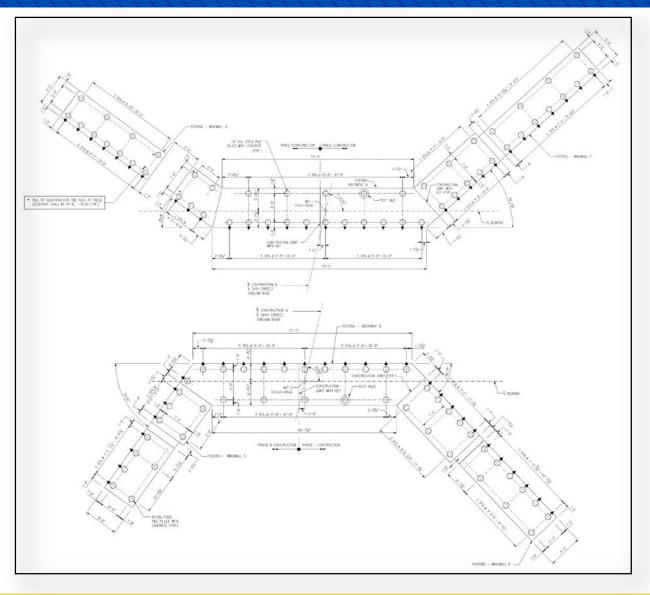
Bridge Foundation



Steel H Piles were utilized

- 30 to 50 feet deep & up to 140 tons of allowable capacity
- Combination of Plumb and Battered piles utilized on both wingwalls as wall as abutments
- Extensive coordination of support of excavation and pile driving activities with relocation of utility lines





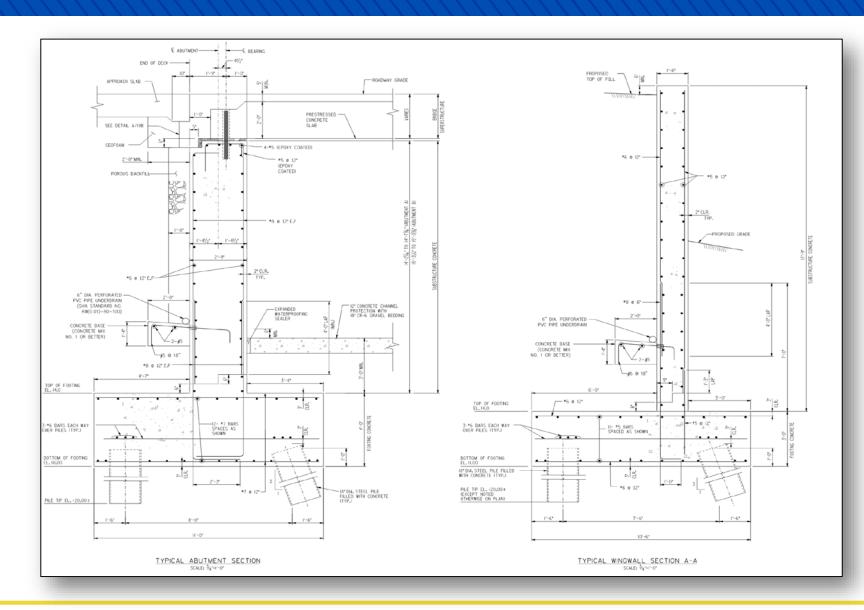


Bridge Substructure



Semi-integral Abutments

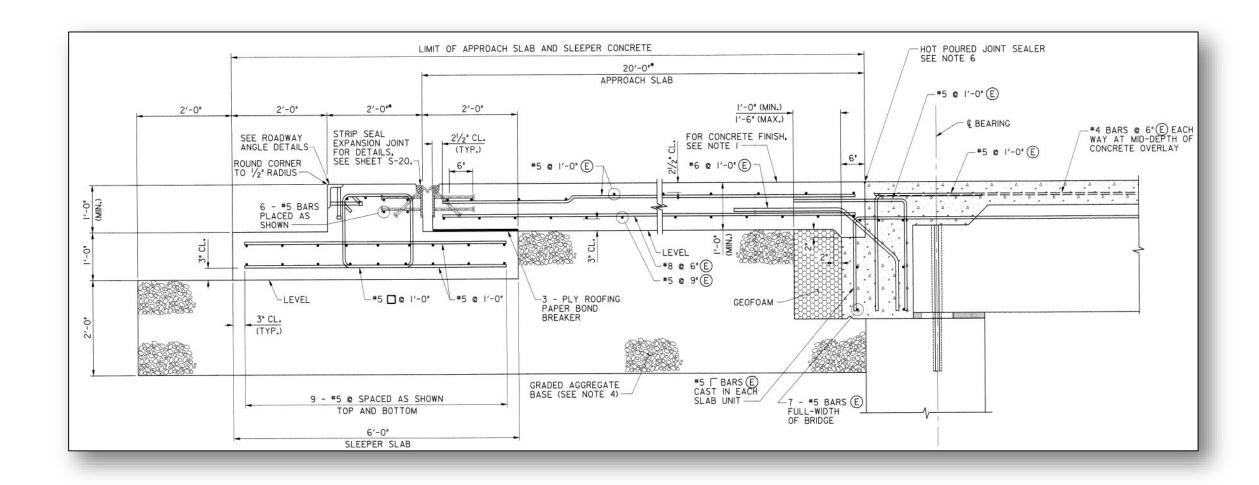
- No backwalls & no bearing assemblies
- Approach slabs on each side with sleeper pads
- Expansion joints away from the abutments
- No abutment seats to collect debris
- No damage caused by leaking expansion joints





Approach Slabs





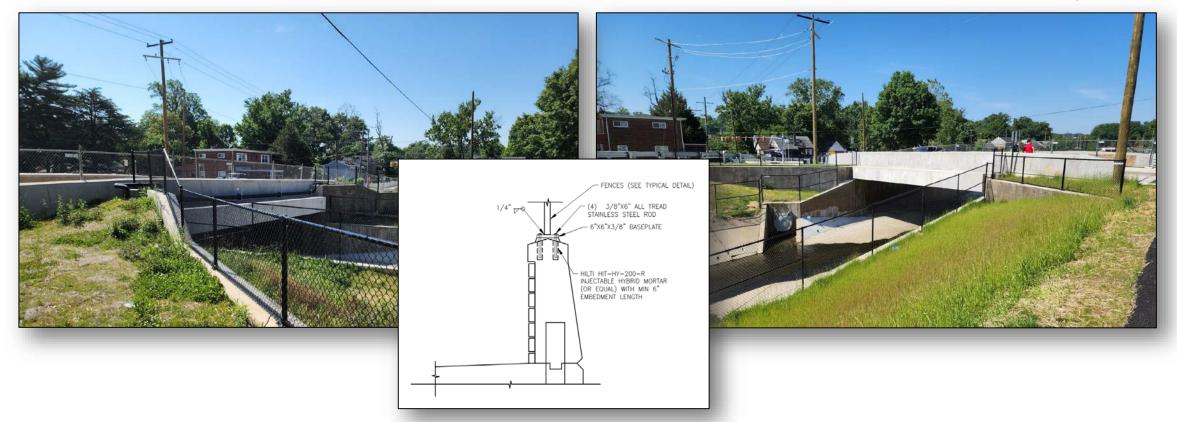


Additional Safety Feature



An anti-climb safety fence was added to the bridge to address the community's concerns regarding
potential for children to play and walk on surfaces beyond bridge parapets over the utility line
concrete covers on both sides.

Downstream Upstream

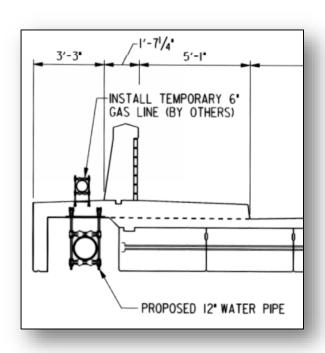




Utility Coordination Concerns



- The 12" Water and 6" gas lines were buried on the sides of the existing bridge and new construction involved driving new H piles in the vicinity of the pipes.
- Water and gas lines had to be temporarily relocated to maintain continuous services for residents.
- WSSC required the 12" Water line to be enclosed in the bridge structure.







Maintenance of Traffic Concerns

Phase



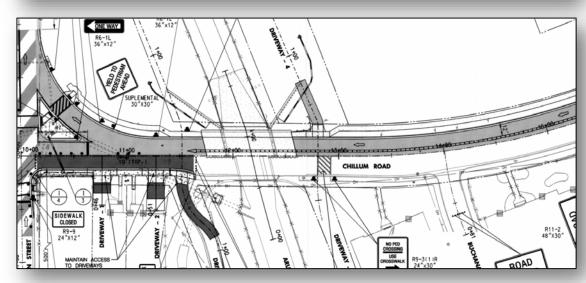
- Maintained southbound traffic throughout the construction
- Facilitated consistent access to school buses, emergency vehicles and pedestrians



TRAFFIC DRIANS
SPACED AT 10" (TVP)

TRAFFIC DRIANS
SPACED AT 10" (TVP)

Phase II

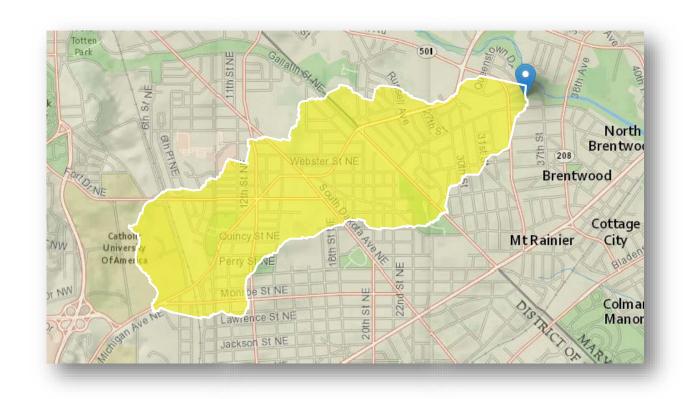




Environmental Permits



- USACE, MDE, NPDES, and M-NCPPC Permits
- Maryland Historical Trust
- As a highly flood-prone area, a stream diversion plan was developed for stage construction to occur.
- 5' tall temporary walls were built near the bridge foundations to divert the flooding and protect the contractors while bridge abutments and footing were constructed.





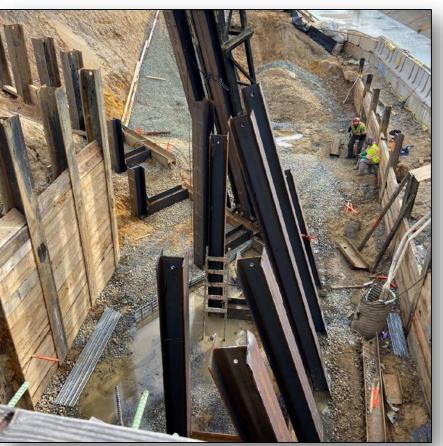
Construction Challenges Foundation



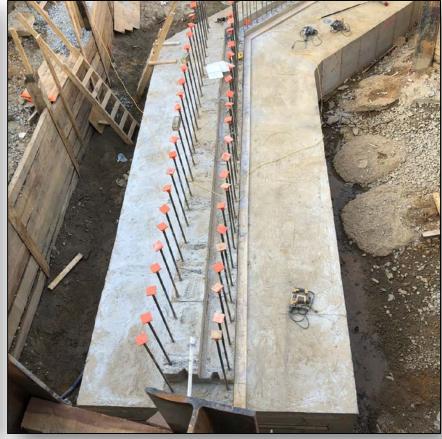
H Pile Driving & Hammer



Abutment Plumb & Battered Piles



Completed Abutment & Wingwall Pile Caps

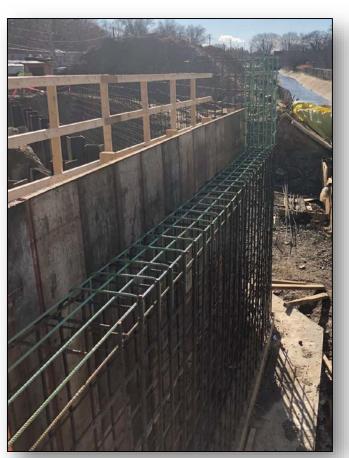




Construction Challenges Abutments & Wingwalls



Abutment Reinforcement



Completed Abutment



Completed Wingwall & Drainage Pipe





Construction Challenges Superstructure Beams



Placement of Prestressed Beams



Positioning Beams with Abutment Supports



Grouted Shear keys





Construction Challenges Utility Curtain Walls



Precast Curtain Wall Being Lifted



Positioning of Precast Curtain Wall



Precast Curtain Wall Placement





Construction Challenges Cast-In-Place Concrete Pours



Bridge Deck Concrete Placement



Parapet Reinforcement & Concrete Placement



Canal Concrete Placement





Completed Project



Total Project Cost: \$4.7M





Thank You!



Questions?

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