



# AMERICAN SOCIETY OF HIGHWAY ENGINEERS

## National Project of the Year Award

### OFFICIAL ENTRY FORM

**AWARD CATEGORY** (Check One):  Under \$20 Million  Over \$20 Million

**SPONSORING REGION** (Check One):

- |                                       |  |   |
|---------------------------------------|--|---|
| <input type="checkbox"/> Northeast    | <input type="checkbox"/> Great Lakes   | <input type="checkbox"/> Northwest      |
| <input type="checkbox"/> Mid-Atlantic | <input type="checkbox"/> North Central | <input type="checkbox"/> Rocky Mountain |
| <input type="checkbox"/> Southeast    | <input type="checkbox"/> South Central | <input type="checkbox"/> Southwest      |

### **CONTACT INFORMATION FOR SUBMITTING REGION:**

Contact Name: Scott R. Eshenaur ASHE Region Position: NPY Chairperson  
 Phone (Office): 717-790-9565 Phone (Mobile): 717-580-8426 E-Mail Address: sreshenaur@modjeski.com

### **PROJECT INFORMATION:**

ENTERING AGENCY/COMPANY'S NAME: \_\_\_\_\_  
 PROJECT NAME: \_\_\_\_\_ TYPE: \_\_\_\_\_  
 PROJECT LOCATION: \_\_\_\_\_  
 CITY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ STATE: \_\_\_\_\_  
 FINAL CONSTRUCTION COST: \_\_\_\_\_ BUDGETED CONSTRUCTION COST: \_\_\_\_\_  
 PROJECT COMPLETION DATE: \_\_\_\_\_  
 PROJECT ASHE SECTION: \_\_\_\_\_ ASHE SECTION CONTACT NAME: \_\_\_\_\_  
 PHONE (OFFICE): \_\_\_\_\_ PHONE (MOBILE): \_\_\_\_\_ E-MAIL: \_\_\_\_\_

### **PROJECT TEAM:**

PROJECT OWNER: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_  
 CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_  
 CONTACT PERSON: \_\_\_\_\_ PHONE: \_\_\_\_\_  
 E-MAIL ADDRESS: \_\_\_\_\_

PROJECT DESIGN FIRM: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_  
 CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_  
 CONTACT PERSON: \_\_\_\_\_ PHONE: \_\_\_\_\_  
 E-MAIL ADDRESS: \_\_\_\_\_

PRIME CONTRACTOR: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_  
 CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_  
 CONTACT PERSON: \_\_\_\_\_ PHONE: \_\_\_\_\_  
 E-MAIL ADDRESS: \_\_\_\_\_

**Entry Form Completed By:** \_\_\_\_\_ **Date:** \_\_\_\_\_



**Criteria Description No. 1 – Project Complexity:**

This 8.3 mile interstate reconstruction project involved full depth pavement replacement on the existing alignment with widening of the inside and outside shoulders, 3.5 miles of new truck climbing lanes in both the eastbound and westbound directions, upgrading drainage facilities with new stormwater management facilities, and improved safety features. The existing concrete pavement was replaced with long life concrete pavement while maintaining two temporary lanes in each direction using three primary stages of construction. Six at grade single span bridges were replaced, four culverts were widened, and five sound barriers were constructed.

SR 0078 is a divided four lane interstate with a current ADT of 48,127 (2018) and 35% truck traffic. Design year projections indicate a substantial increase in ADT to 71,964 (2038) with 35% truck traffic. The corridor is characterized by rolling terrain and long, steep roadway profiles with grades up to 5%. The roadway serves as an important commercial corridor, connecting New Jersey ports and numerous large-scale distribution centers within Pennsylvania and points west, resulting in heavy volumes of truck traffic. Steep grades cause noticeable speed reductions for trucks resulting in congestion behind them.

The original concrete pavement with bituminous overlays was severely deteriorated exhibiting uneven joints and frequent potholes resulting in a poor riding surface. The existing outside shoulders were substandard in width (typically 4 to 8 feet) with insufficient room for disabled vehicles and access for emergency services. Existing 1.5:1 cut slopes were unprotected, near the edge of the pavement and located within the clear zone. The existing drainage system was compromised by severe deterioration and obstructions. The poor riding surface together with an inadequate drainage system was causing hazardous conditions for motorists.

**Project Needs - Summary of Improvements:**

- Replace deteriorated pavement with 14” thick long life concrete pavement.
- Upgrade roadway design features for 70 mph design speed.
- Add truck climbing lanes.
- Provide adequate clear zones and MASH compliant safety features.
- Provide 16’-6” underclearance at overpasses.
- Maintain 2 temporary lanes in the EB and WB directions at all times during construction.
- Replace roadway drainage system.
- Manage increase in stormwater volumes and rates.
- Mitigate noise, wetland and stream impacts.
- Replace 6 at-grade single span bridges.

SR 78 12M - MAJOR WORK ITEMS		
1,073,513	CY	EXCAVATION
381,900	SY	LONG LIFE CONCRETE PAVEMENT
690	EA	INLETS
57,759	LF	DRAINAGE PIPE
81,383	LF	TEMPORARY BARRIER
226,100	LF	RESET TEMPORARY BARRIER
85,941	SF	SOUND BARRIER
49,847	SF	BRIDGE REPLACEMENT
884	TON	REINFORCING BARS, BRIDGES
START PROJECT: 40°34'30.78"N, 75°52'57.08"W		
END PROJECT: 40°34'44.55"N, 75°44'9.83"W		

The project was let on 10/04/2018 with NTP issued on 12/08/2018. Project is substantially complete; a semi-final inspection conducted on 11/3/2023 with a pending completion date of 3/24/2024.

**Criteria Description No. 2 – New Application of Existing Techniques/ Originality / Innovation:**

A Real-Time Work Zone Traffic Monitoring System (RTWZTMS) was implemented by the Contractor to monitor the EB and WB traffic approaching the work zone, and at the SR 737 overpass of the Krumsville Interchange. The RTWZTMS was a portable, real-time, automated, solar powered system that calculates and displays queuing information through the work



zones. The Department was given secure access and control of the RTWZTMS to view and control the cameras and download traffic data via the internet.

For stormwater management and water quality requirements, the environmentally sensitive design made extensive use of both structural and non-structural BMPs. At basin locations where the surrounding soils did not meet infiltration requirements, slow release subsurface drains were provided at the bottom of the basins with amended soils.

A life cycle cost analysis was undertaken to evaluate both bituminous and reinforced concrete pavements. Long life concrete had a higher present worth analysis when compared to bituminous. However, the expected future increase in ADT and heavy truck traffic suggested the concrete would be the best value with the least maintenance over the service life of the pavement.

ENVIRONMENTAL IMPROVEMENTS		
2.2	AC	DETENTION BASINS (9)
1.1	AC	INFILTRATION BASINS (2)
4,630	SF	BIORETENSION AREAS
2,500	SF	INFILTRATION BERMS
15.0	AC	LANDSCAPE RESTORATION AREAS
62	EA	SUMP INLETS
21.0	AC	PRESERVATION AREAS
2.4	AC	RIPARIAN BUFFERS
3.5	AC	REVEGETATION AREAS
24,400	SF	VEGETATED SWALES

**Criteria Description No. 3 – Social / Economic Considerations:**

Given the high traffic volumes and heavy truck traffic the primary social consideration is improved mobility. With truck climbing lanes there is improved mobility where both commuters and commercial vehicles will benefit from the reduced congestion and travel time. Upgrading roadway design elements for a 70 mph design speed will also reduce travel time if a future change is made by the owner to revise the current 55 mph posting. Response times for emergency service providers is significantly improved with both wider shoulders and auxiliary truck climbing lanes. Improved mobility will also bring economic development and opportunities to the local communities.

With two temporary SR 78 lanes in each direction and full access to all on/off ramps of the Krumsville interchange there were no adverse impacts to the traveling public, residents and local businesses. All three overpass structures of the early action contracts remained open with detours on the low ADT roads under SR 78 at Hausman Road, Long Lane and Gensinger Roads. One temporary lane was maintained in each direction on Old 22 since it is the SR 78 emergency detour connecting the Krumsville and Lenhartsville Interchanges. Traffic on Stump Road, located at the eastern end of the project, remained open with one lane and temporary signals.

**Criteria No. 4 – Safety.**

Truck climbing lanes. Provided in both the EB and WB directions along steep (5%) upgrade sections (approximately 5 miles total length) to facilitate traffic flow by permitting slower moving trucks to occupy the right lane. An added benefit of truck climbing lanes was accommodation of the two temporary lanes in each direction during construction without having to over widen the mainline for maintenance of traffic.

Widening shoulders. The median shoulder width increased to 10 feet. Outside shoulder width was increased to 12 feet.

Roadway Design. Substandard cross slopes, sight distances, superelevations and horizontal and vertical curves were upgraded for a 70 MPH design speed.

Vertical Clearance. Overpass structures were replaced in advance of the mainline reconstruction project to provide a vertical clearance of 16'-6". Local cross-roads under the mainline were upgraded to 14'-6".



ITS equipment. Dynamic Message Signs were installed to provide motorists with up-to-the-minute information on traffic conditions.

Sound Barriers. Mitigation of increased noise levels with mainline widening and moving traffic closer to receptors.

**Criteria No. 5 – Aesthetics and Sustainable Features:**

On-site mitigation of wetland impacts was considered but no suitable locations were available. Off-site mitigation was constructed at the Kernsville Dam Recreation Area. (40°33'46.15"N, 75°59'35.86"W). A separate construction contract (SR 78, Section WET) was let for 2.0 acres of wetland construction. Walking trail and parking lot improvements, and turtle basking structures were also included. Construction cost = \$ 195,000.

Stream impacts of the SR 78 12M project were also mitigated off-site under the Tulepehocken Stream restoration project in Berks County on the Zartman Farm property (40°22'17.60"N, 76°12'3.50"W). The SR 78 12M design team plans and specifications were forwarded to the Berks County Conservation District for letting and construction oversight. A 1.5-acre riparian forest buffer was installed using 265 native trees and shrubs to create a 35' to 50' wide buffer. A livestock crossing, channel cross-vane, channel bank protection, rock/log tip deflectors and mudsills were also provided. Construction Cost = \$ 250,000. More detailed information on this project can be viewed at: <https://pacd.org/?p=21106>

Within the SR 78 12M limit of disturbance 15 acres of landscape was restored using a meadow vegetation seed mix. Outside of the limit of disturbance, 21 acres of existing wooded vegetation and 3.5 acres of revegetated land were acquired and preserved by the owner.

**Criteria No. 6 – Meeting and Exceeding Owner's/Client's Needs.**

The following metrics summarize the goals and expectations of the client and how these goals were achieved.

Low Maintenance. Use of long life concrete pavement, prestressed concrete bridges without backwalls to eliminate deck joints, epoxy coated reinforcement, epoxy deck overlays and protective coating of substructures were employed to reduce future maintenance costs.

Safety. Updated roadway and bridge designs to meet current standards, single face continuous concrete barrier installed at the base of all cut slopes within the clear zone, guide rail and end treatments updated to MASH standards, added truck climbing lanes for improved mobility and added dynamic message signs for communication with motorists.

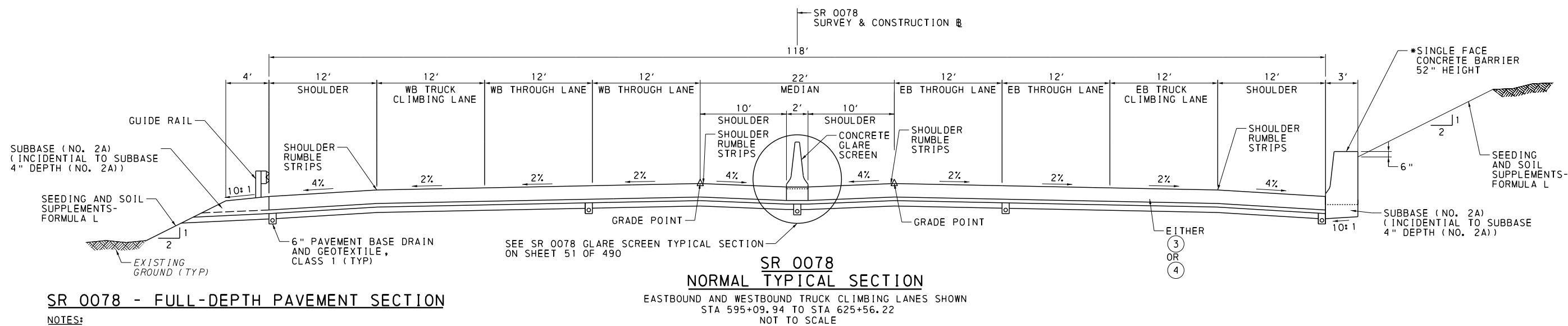
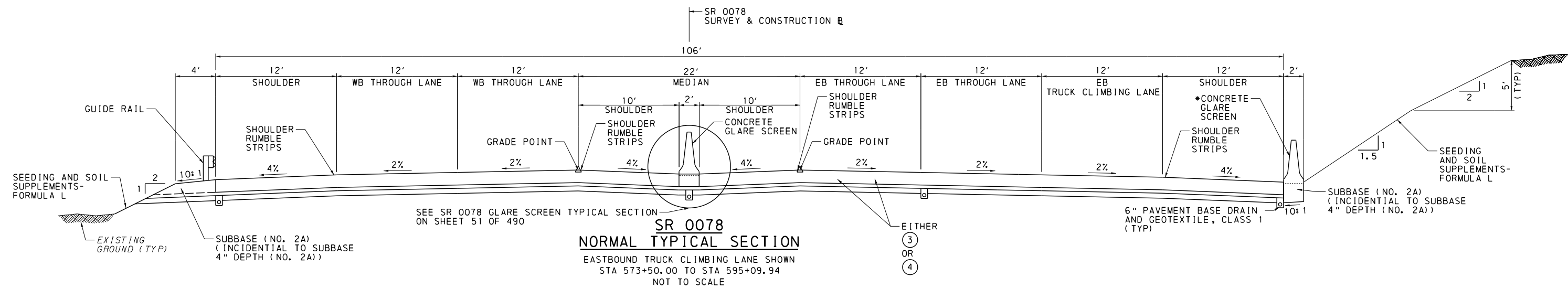
Schedule. The original completion date was 5/29/2023. Due to COVID 19 mandatory shutdowns and the associated supply chain issues, and unforeseen cut slope instability issues that required additional work to install rock pinning and netting, the pending completion date is 3/24/2024. The contractor did an excellent job addressing these unanticipated issues and has been working expeditiously to complete the project.

**Construction Cost.**

Engineers Estimate = 152 M  
Original Contract = 168 M  
Current Contract = 172 M

The current construction cost of 172 M, 2.4% increase above the original contract amount, is justified and reasonable given the unforeseen issues outlined above.

DISTRICT	COUNTY	ROUTE	SECTION	SHEET	
5-0	BERKS	0078	12M	46 OF 490	
GREENWICH TOWNSHIP					
REVISION NUMBER	REVISIONS			DATE	BY



**SR 0078 - FULL-DEPTH PAVEMENT SECTION**

**NOTES:**

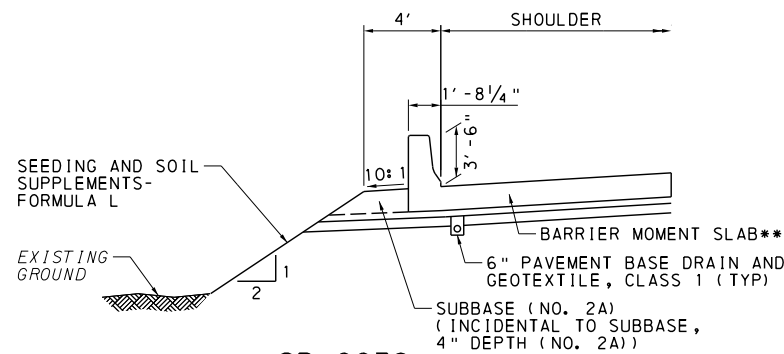
- ③ EITHER:
  - LONG-LIFE CONCRETE PAVEMENT, 14" DEPTH ON ASPHALT TREATED PERMEABLE BASE COURSE, 4" DEPTH ON SUBBASE 4" DEPTH (NO. 2A) ON GEOTEXTILE, CLASS 4, TYPE A
  - CONCRETE PAVEMENT CORES, (LLCP), 14" DEPTH
  - PROTECTIVE COATING FOR CEMENT CONCRETE PAVEMENTS AND SHOULDERS
  - CONCRETE SHOULDER RUMBLE STRIPS
- ④ OR:
  - LONG-LIFE CONCRETE PAVEMENT, 14" DEPTH ON CEMENT TREATED PERMEABLE BASE COURSE, 4" DEPTH ON SUBBASE 4" DEPTH (NO. 2A) ON GEOTEXTILE, CLASS 4, TYPE A
  - CONCRETE PAVEMENT CORES, (LLCP), 14" DEPTH
  - PROTECTIVE COATING FOR CEMENT CONCRETE PAVEMENTS AND SHOULDERS
  - CONCRETE SHOULDER RUMBLE STRIPS

\* SEE SHEETS 50 TO 53 FOR LOCATIONS OF BARRIER AND GLARE SCREEN.



1/2/2018  
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 PICKERING, CURTIS & SUMNERSON, INC. CAD DATA

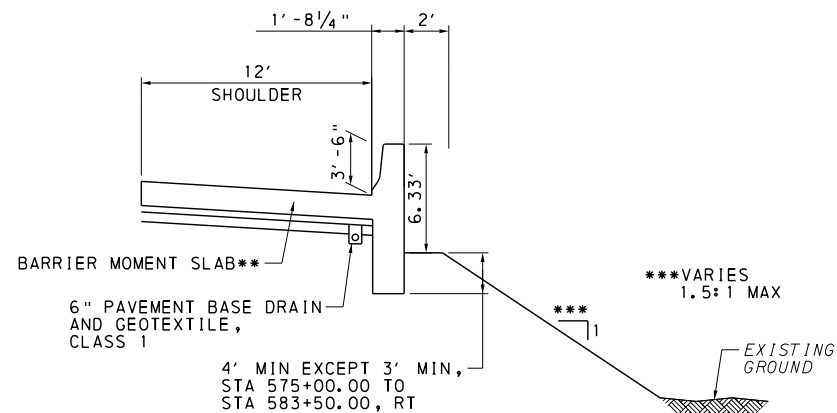
DISTRICT	COUNTY	ROUTE	SECTION	SHEET
5-0	BERKS	0078	12M	52 OF 490
GREENWICH & MAXATAWNY TOWNSHIPS				
REVISION NUMBER	REVISIONS	DATE	BY	



**SR 0078**  
**2:1 FILL SLOPE**  
**WITH BARRIER MOMENT SLAB**  
**TYPICAL SECTION**

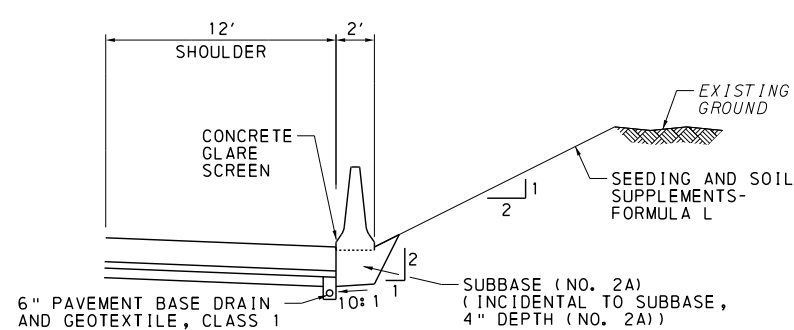
STA 425+00.00 TO STA 430+31.02, RT  
 STA 511+49.06 TO STA 512+60.00, RT  
 STA 694+95.34 TO STA 695+20.00, LT  
 STA 642+05.00 TO STA 643+40.00, RT  
 STA 695+28.45 TO STA 695+55.00, RT  
 NOT TO SCALE

\* SEE SHEET 64 FOR DETAIL.  
 \*\* SEE SHEETS 91 TO 129 FOR DETAILS.



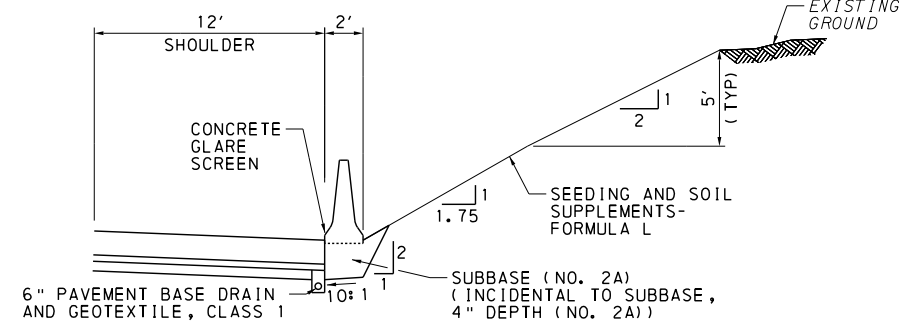
**SR 0078**  
**BARRIER MOMENT SLAB W/ TOE WALL AND**  
**STEEPENED ROCK EMBANKMENT (1.5:1 FILL)**  
**TYPICAL SECTION**

STA 420+93.03 TO STA 422+50.00, LT  
 STA 425+75.00 TO STA 429+50.00, RT  
 STA 575+00.00 TO STA 583+50.00, RT  
 NOT TO SCALE



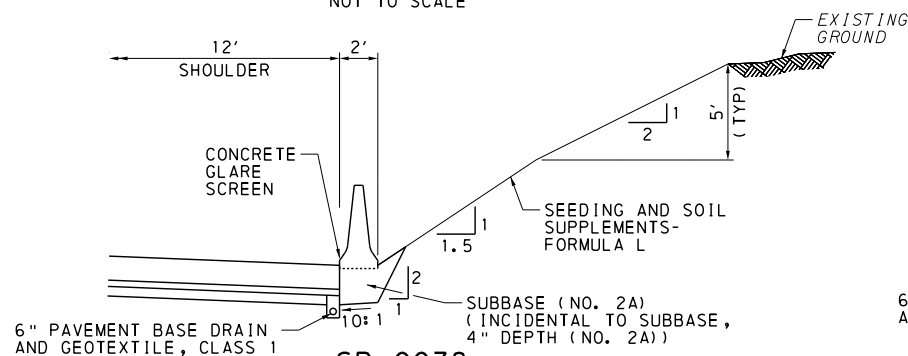
**SR 0078**  
**2:1 CUT SLOPE WITH**  
**CONCRETE GLARE SCREEN**  
**TYPICAL SECTION**

STA 623+00.00 TO STA 623+85.00, LT  
 STA 642+35.00 TO STA 658+50.00, LT  
 STA 673+00.00 TO STA 675+00.00, LT  
 STA 643+40.00 TO STA 646+50.00, RT  
 NOT TO SCALE



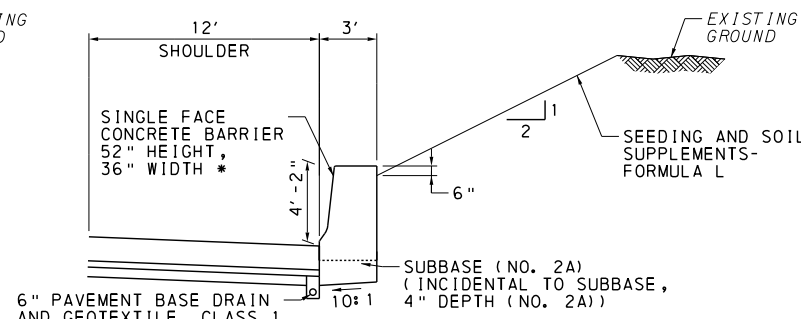
**SR 0078**  
**1.75:1 CUT SLOPE WITH**  
**CONCRETE GLARE SCREEN**  
**TYPICAL SECTION**

STA 616+00.00 TO STA 623+00.00, LT  
 STA 658+50.00 TO STA 663+00.00, LT  
 STA 663+00.00 TO STA 668+00.00, RT  
 NOT TO SCALE



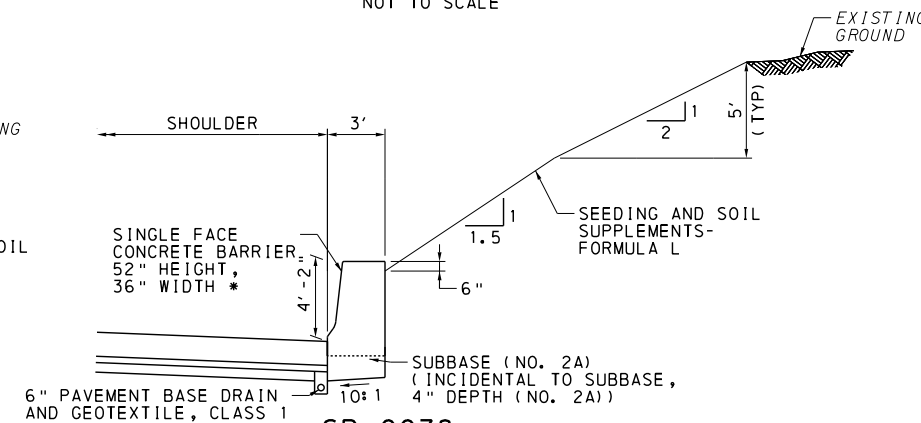
**SR 0078**  
**1.5:1 CUT SLOPE WITH**  
**CONCRETE GLARE SCREEN**  
**TYPICAL SECTION**

STA 302+10.00 TO STA 309+50.00, LT  
 STA 434+50.00 TO STA 441+50.00, LT  
 STA 481+50.00 TO STA 487+00.00, LT  
 STA 498+25.00 TO STA 508+00.00, LT  
 STA 668+50.00 TO STA 673+00.00, LT  
 STA 694+55.00 TO STA 718+00.00, LT  
 STA 583+50.00 TO STA 589+06.00, RT  
 STA 646+50.00 TO STA 651+00.00, RT  
 STA 668+00.00 TO STA 671+00.00, RT  
 NOT TO SCALE



**SR 0078**  
**2:1 CUT SLOPE WITH**  
**SINGLE FACE CONCRETE BARRIER,**  
**52" HEIGHT, 36" WIDTH**  
**TYPICAL SECTION**

STA 592+50.00 TO STA 600+53.00, LT  
 STA 606+25.00 TO STA 616+00.00, LT  
 STA 663+00.00 TO STA 668+50.00, LT  
 STA 593+00.00 TO STA 623+85.00, RT  
 STA 651+00.00 TO STA 663+00.00, RT  
 STA 675+00.00 TO STA 680+00.00, RT  
 STA 695+55.00 TO STA 716+00.00, RT  
 NOT TO SCALE



**SR 0078**  
**1.5:1 CUT SLOPE WITH**  
**SINGLE FACE CONCRETE BARRIER,**  
**52" HEIGHT, 36" WIDTH**  
**TYPICAL SECTION**

STA 309+50.00 TO STA 311+13.00, LT  
 STA 313+06.00 TO STA 329+94.00, LT  
 STA 337+62.00 TO STA 338+75.00, RT  
 STA 343+25.00 TO STA 347+00.00, RT  
 STA 429+00.00 TO STA 434+50.00, LT  
 STA 441+50.00 TO STA 453+94.00, LT  
 STA 473+38.00 TO STA 481+50.00, LT  
 STA 487+00.00 TO STA 493+00.00, LT  
 STA 474+25.00 TO STA 489+50.00, RT  
 STA 511+32.09 TO STA 517+50.00, RT  
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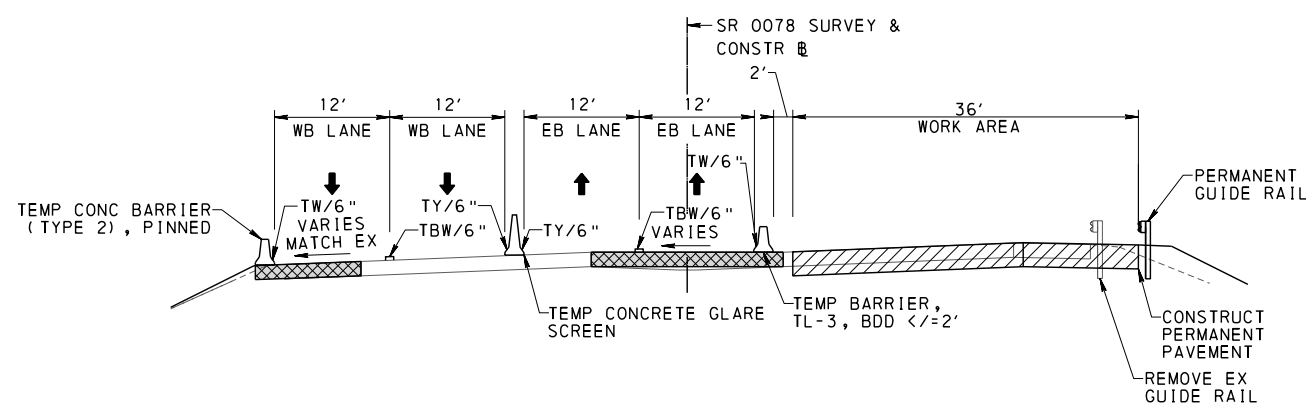
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SR 0078 (12M) (12M) (12M) (12M) (12M)

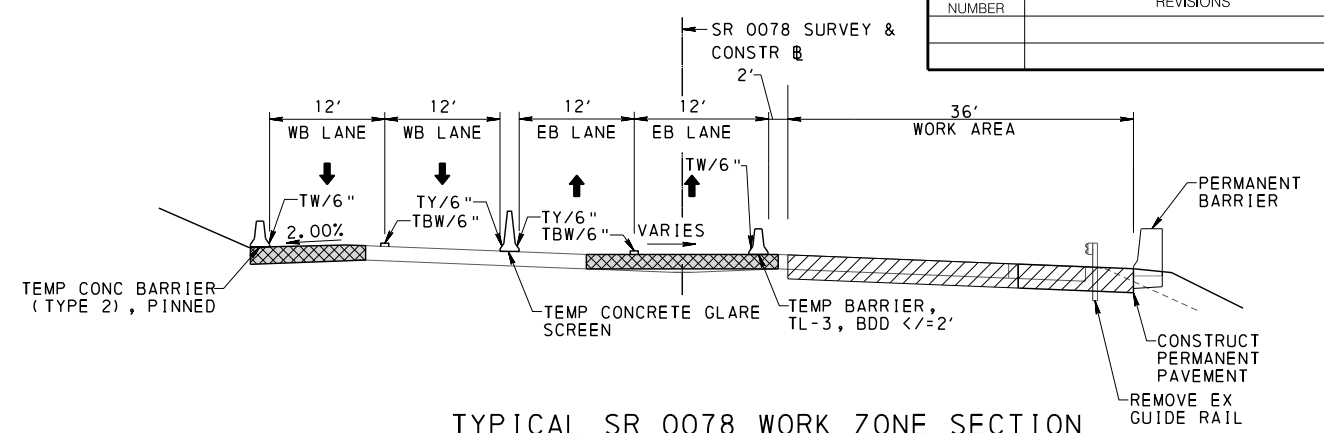
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PICKERING, CURTIS & SUMNERSON, INC. CAD DATA

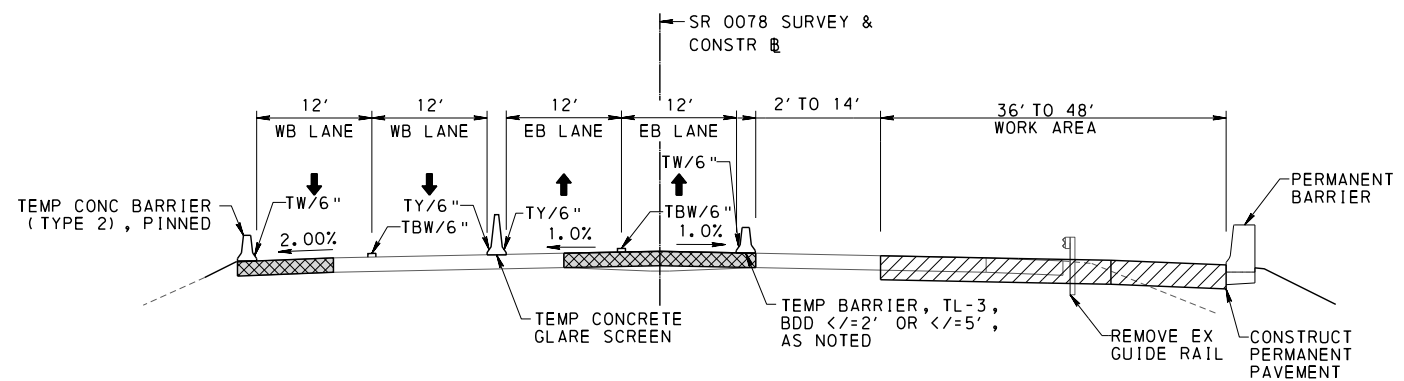
DISTRICT	COUNTY	ROUTE	SECTION	SHEET
5-0	BERKSLEHIGH	0078	12M	31 OF 267
GREENWICH, MAXATAWNY, AND WEISENBERG TOWNSHIPS				
REVISION NUMBER	REVISIONS			DATE



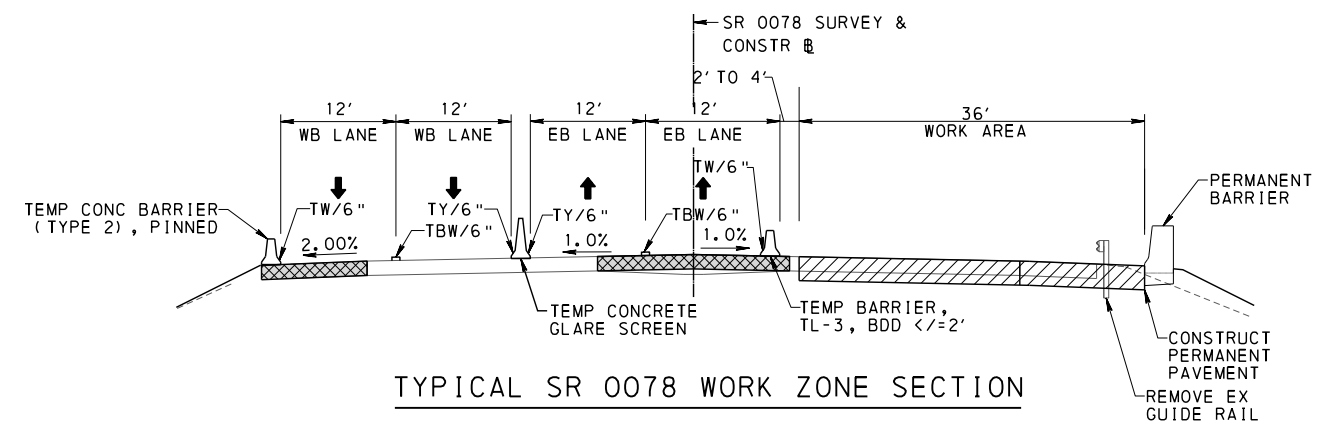
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**STAGE 2 EAST**  
 STA 627+06 TO STA 653+80  
 NOT TO SCALE



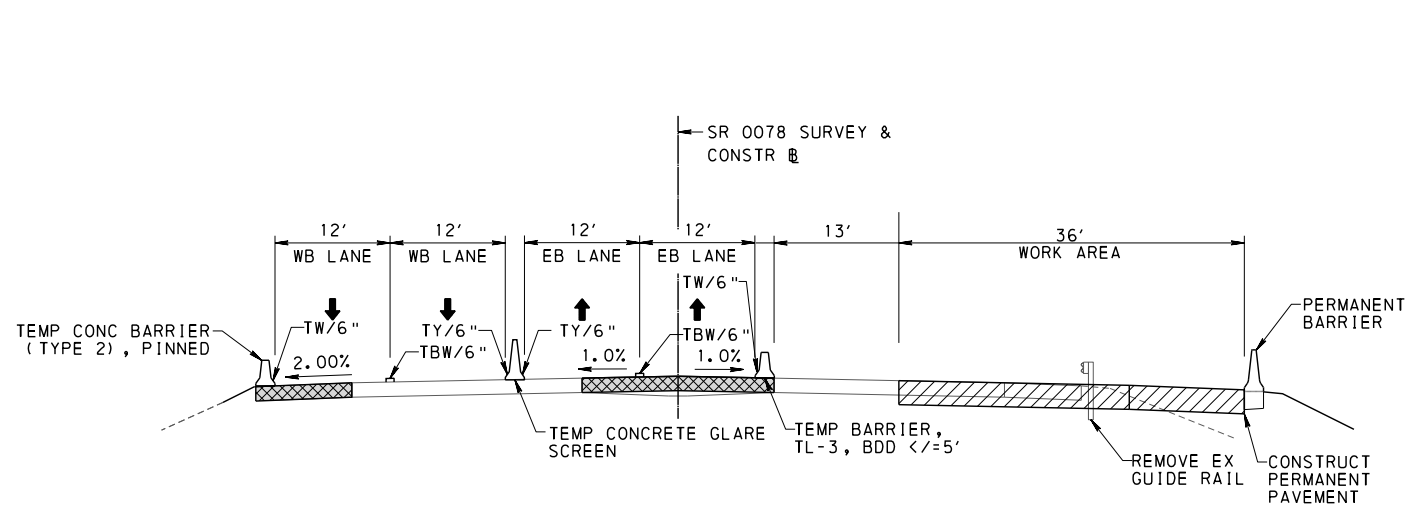
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**STAGE 2 EAST**  
 STA 700+84 TO STA 708+21  
 NOT TO SCALE



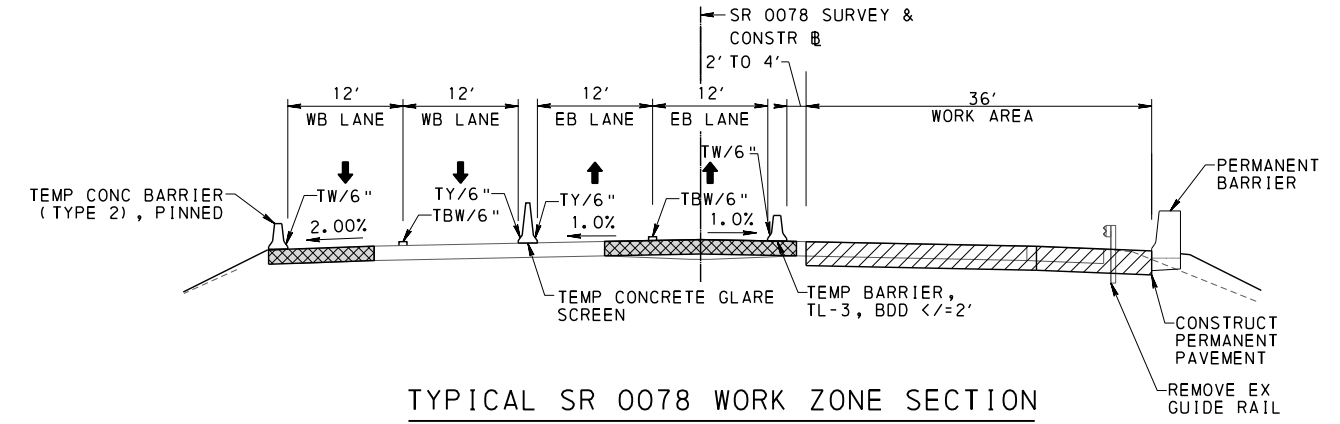
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**STAGE 2 EAST**  
 STA 603+50 TO STA 627+06  
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**TYPICAL SR 0078 WORK ZONE SECTION**  
**STAGE 2 EAST**  
 STA 684+50 TO STA 700+84  
 STA 708+21 TO STA 722+00  
 NOT TO SCALE



**TYPICAL SR 0078 WORK ZONE SECTION**  
**STAGE 2 EAST**  
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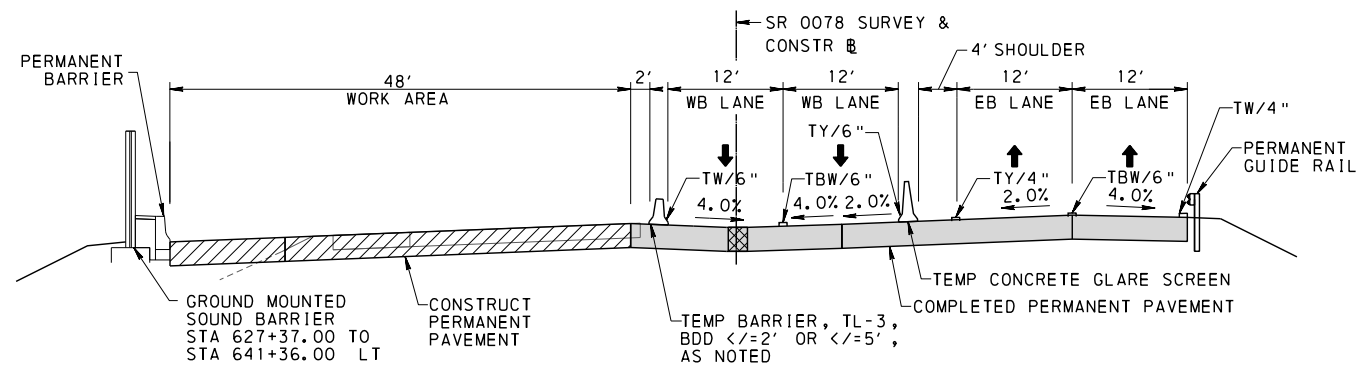


**TYPICAL SR 0078 WORK ZONE SECTION**  
**STAGE 2 EAST**  
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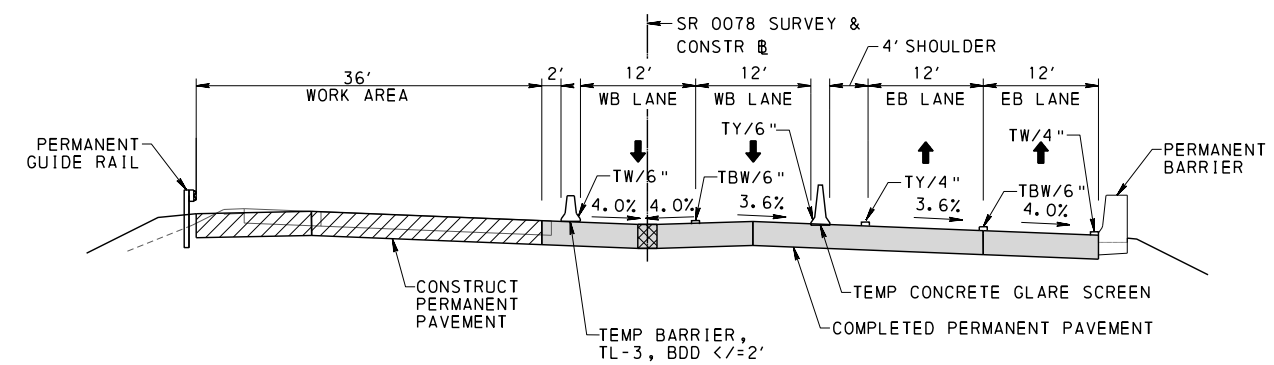
TRAFFIC CONTROL PLAN  
 TYPICAL SECTIONS



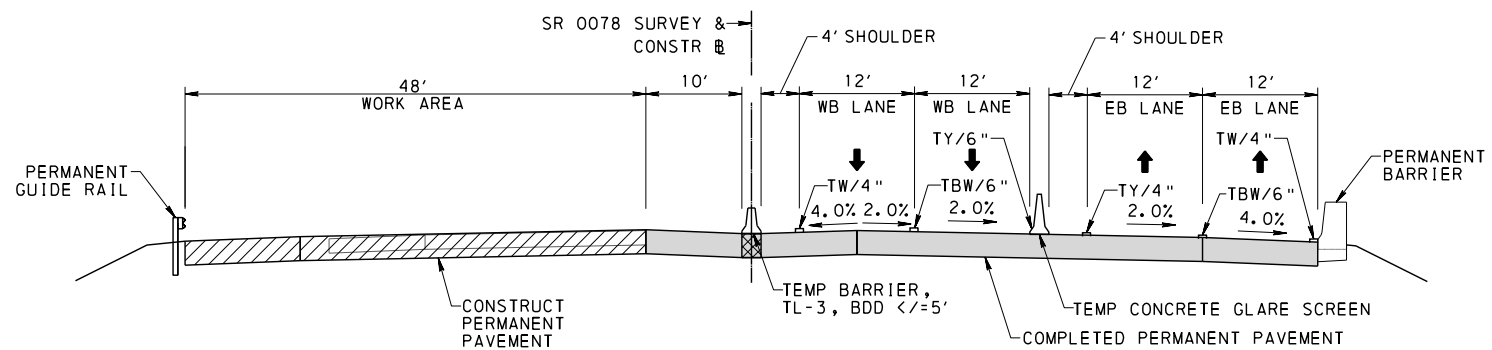
DISTRICT	COUNTY	ROUTE	SECTION	SHEET
5-0	BERKSLHIGH	0078	12M	37 OF 267
GREENWICH, MAXATAWNY, AND WEISENBERG TOWNSHIPS				
REVISION NUMBER	REVISIONS			DATE
				BY



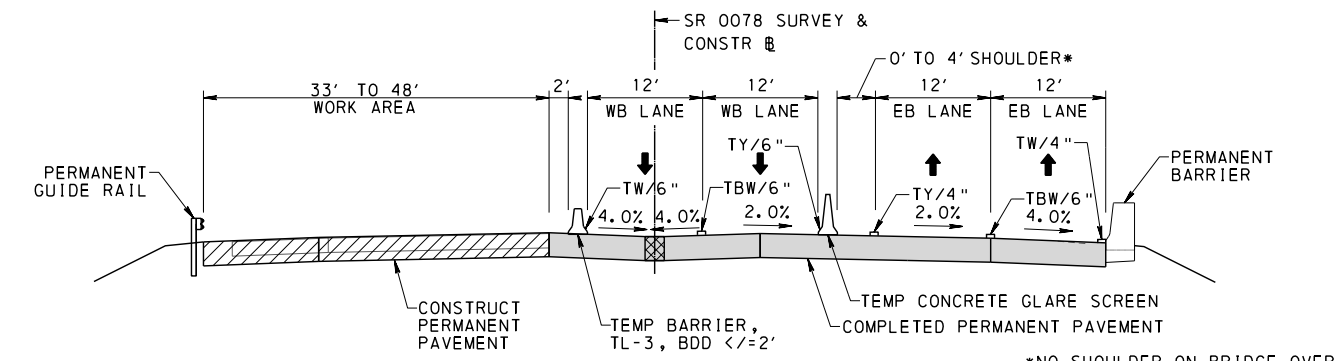
**TYPICAL SR 0078 WORK ZONE SUPERELEVATED SECTION**  
**STAGE 4 EAST**  
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**TYPICAL SR 0078 WORK ZONE SECTION**  
**STAGE 4 EAST**  
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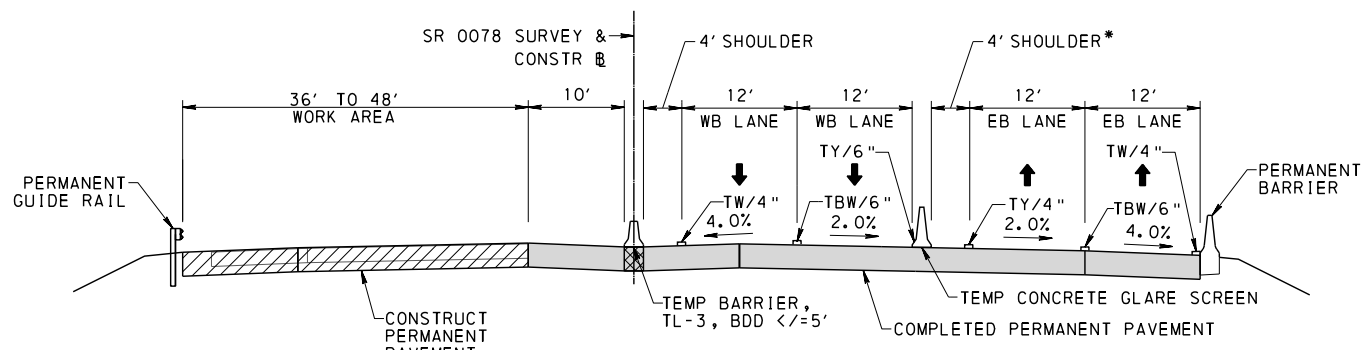


**TYPICAL SR 0078 WORK ZONE SECTION**  
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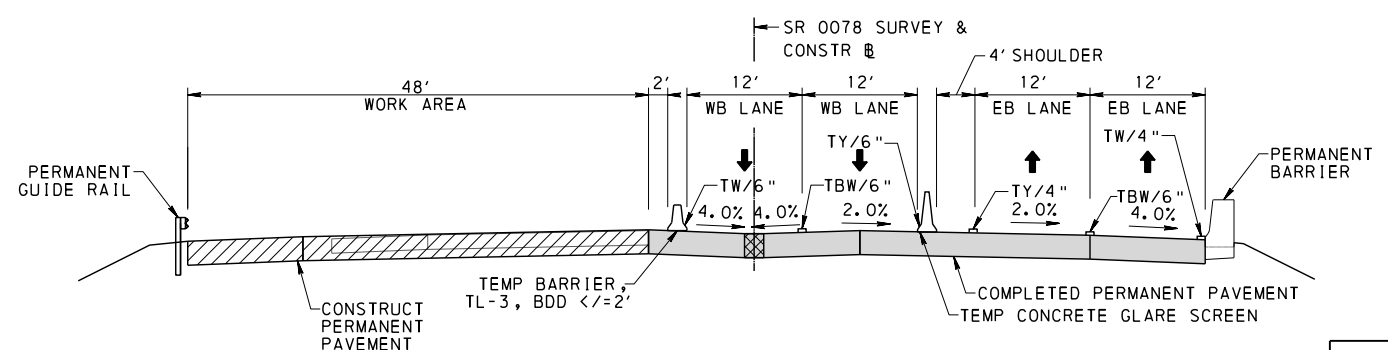
**TYPICAL SR 0078 WORK ZONE SECTION**  
**STAGE 4 EAST**  
 STA 684+50 TO STA 700+84  
 STA 708+21 TO STA 722+00  
 NOT TO SCALE

\*NO SHOULDER ON BRIDGE OVER STUMP ROAD.



**TYPICAL SR 0078 WORK ZONE SECTION**  
**STAGE 4 EAST**  
 STA 573+50 TO STA 603+50  
 NOT TO SCALE

\* NO SHOULDER ON BRIDGE OVER SR 1024 FROM STA 589+36 TO 592+36



**TYPICAL SR 0078 WORK ZONE SECTION**  
**STAGE 4 EAST**  
 STA 653+80 TO STA 684+50  
 NOT TO SCALE

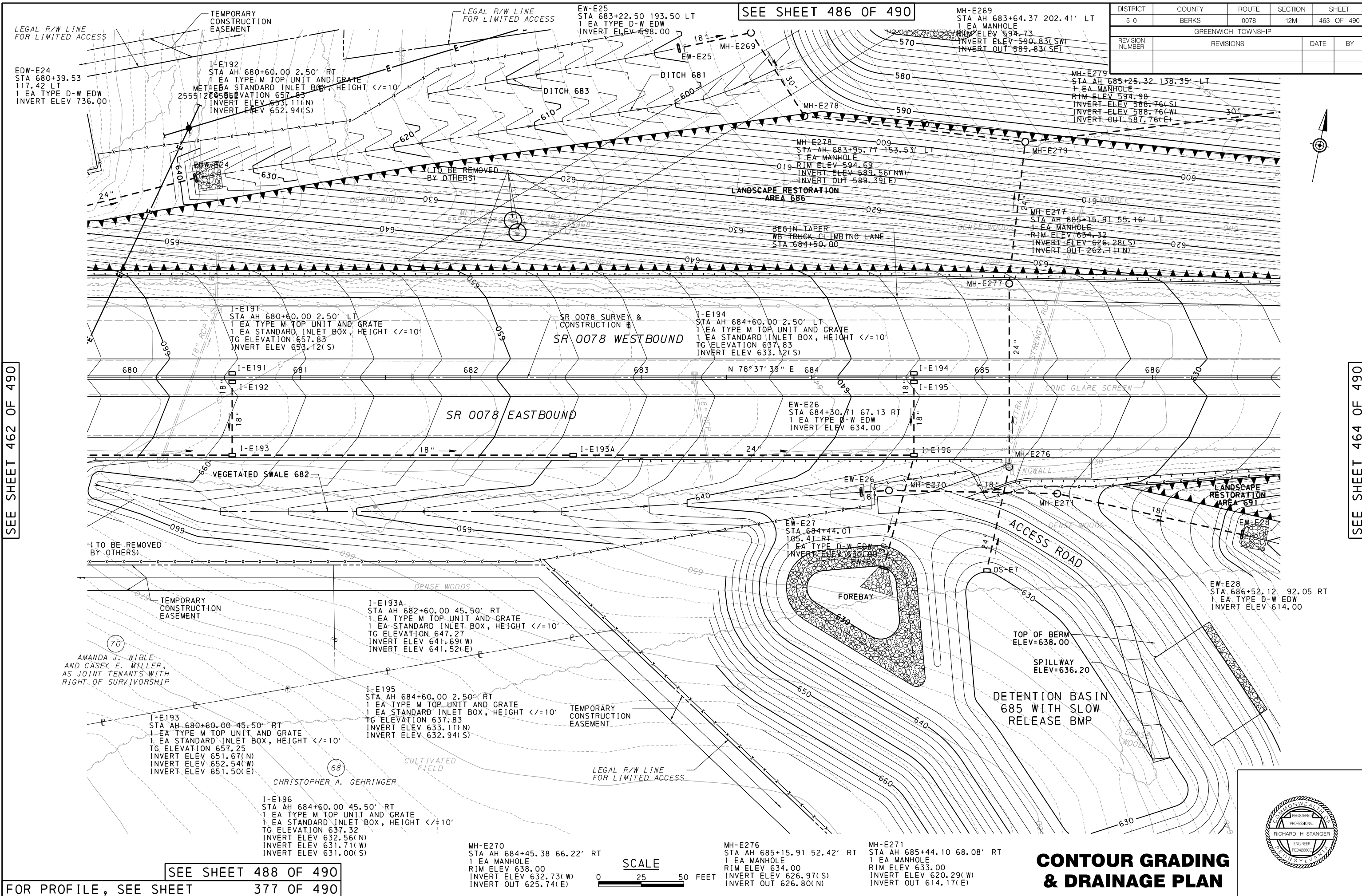
PRINTED: 7/5/2018  
 MCMANON ASSOCIATES, INC.



TRAFFIC CONTROL PLAN  
 TYPICAL SECTIONS



DISTRICT	COUNTY	ROUTE	SECTION	SHEET	
5-0	BERKS	0078	12M	463 OF 490	
GREENWICH TOWNSHIP					
REVISION NUMBER	REVISIONS			DATE	BY



SEE SHEET 462 OF 490

SEE SHEET 464 OF 490

PICKERING, COITTS & SUMMERSON, INC. CAD DATA

SEE SHEET 488 OF 490  
FOR PROFILE, SEE SHEET 377 OF 490

**CONTOUR GRADING & DRAINAGE PLAN**













**VERIFICATION OF SUBSTANTIAL COMPLETION**

A semi-final inspection was conducted on November 3, 2023. For the entire length of the project, all final paving, striping and roadside safety features have been installed. Project is open to traffic with no restrictions. See attached email from the owner's representative.

**STATEMENT OF COMMITMENT**

At least one representative from the project team will attend the awards luncheon.

A handwritten signature in black ink, appearing to read "Richard H. Stanger". The signature is written in a cursive, flowing style.

Richard H. Stanger, PE

## Rick Stanger

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**Subject:** FW: SR 78-12M, Semi-final Inspection  
**Location:** 8 Rhoades Rd (8 Rhoades Rd, Lenhartsville, Pennsylvania 19534)

**Start:** Fri 11/3/2023 9:30 AM  
**End:** Fri 11/3/2023 12:00 PM

**Recurrence:** (none)

**Meeting Status:** Accepted

**Organizer:** Pandya, Bharat

All:  
See the invite below.

-----Original Appointment-----

**From:** Pandya, Bharat  
**Sent:** Friday, October 20, 2023 9:08 AM  
**To:** Pandya, Bharat; Jen Heller; Farabaugh, Gary A; 'Frale, Brad'; Guidon, Michael A; Walutes, Leonard J; Janis, Brian; Trela, Andrzej; Feryo, Michael J; 'Feliciano, Veronica (FHWA)'  
**Cc:** Bohman, John D; Seibert, Devin; Moser, Suzanne  
**Subject:** SR 78-12M, Semi-final Inspection  
**When:** Friday, November 3, 2023 9:30 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada).  
**Where:** 8 Rhoades Rd (8 Rhoades Rd, Lenhartsville, Pennsylvania 19534)

All:  
A semi-final inspection of substantially completed construction project, SR 78-12M, ECMS # 10466 is scheduled on November 3, 2023. All interested will meet at the project field office located at 8 Rhoades Road, Lenhartsville, PA. Please forward this invite to anyone who needs to attend but may have been inadvertently omitted.

**Bharat A. Pandya** | Senior Construction Engineer Manager  
PA Department of Transportation  
Engineering District 5-0  
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