



**i** **HIGH** **STEEL**  
**STRUCTURES** LLC  
*An Affiliate of High Industries Inc.*

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MAKING CONNECTIONS

# SteelDays 2023

October 17-20

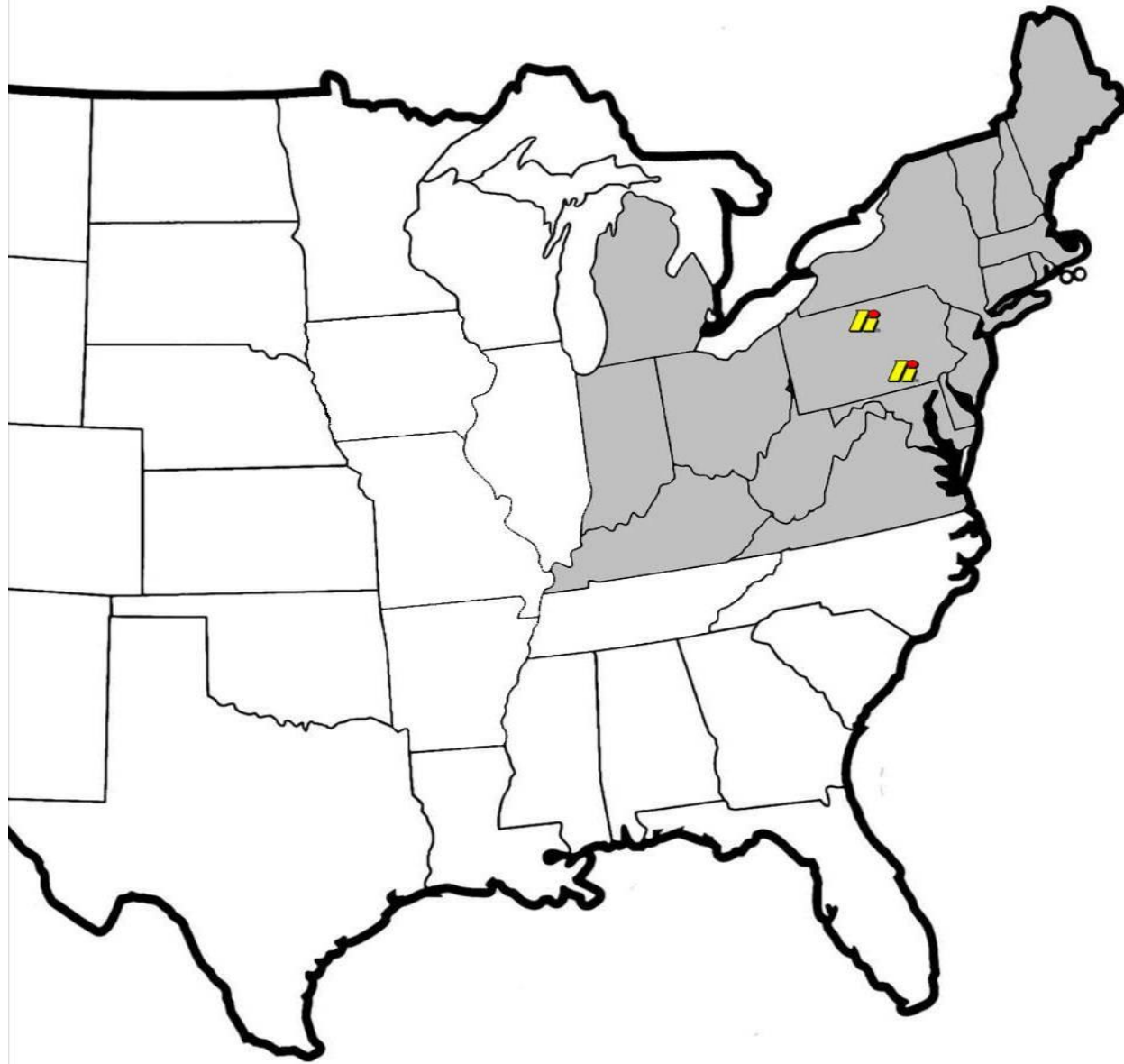


**High Steel Structures LLC**

**Fabricator member with  
Advanced Bridge  
Fabrication Certification.**

**High Structural Erectors LLC**

**Certified Erector**



**Two locations.**

**Lancaster**

**Williamsport**

**18 State market area.**

**50,000 Tons / year**

**500,000 MHs / year**

**The High Steel Market Area**





# Lancaster, PA Plant 1 Facility

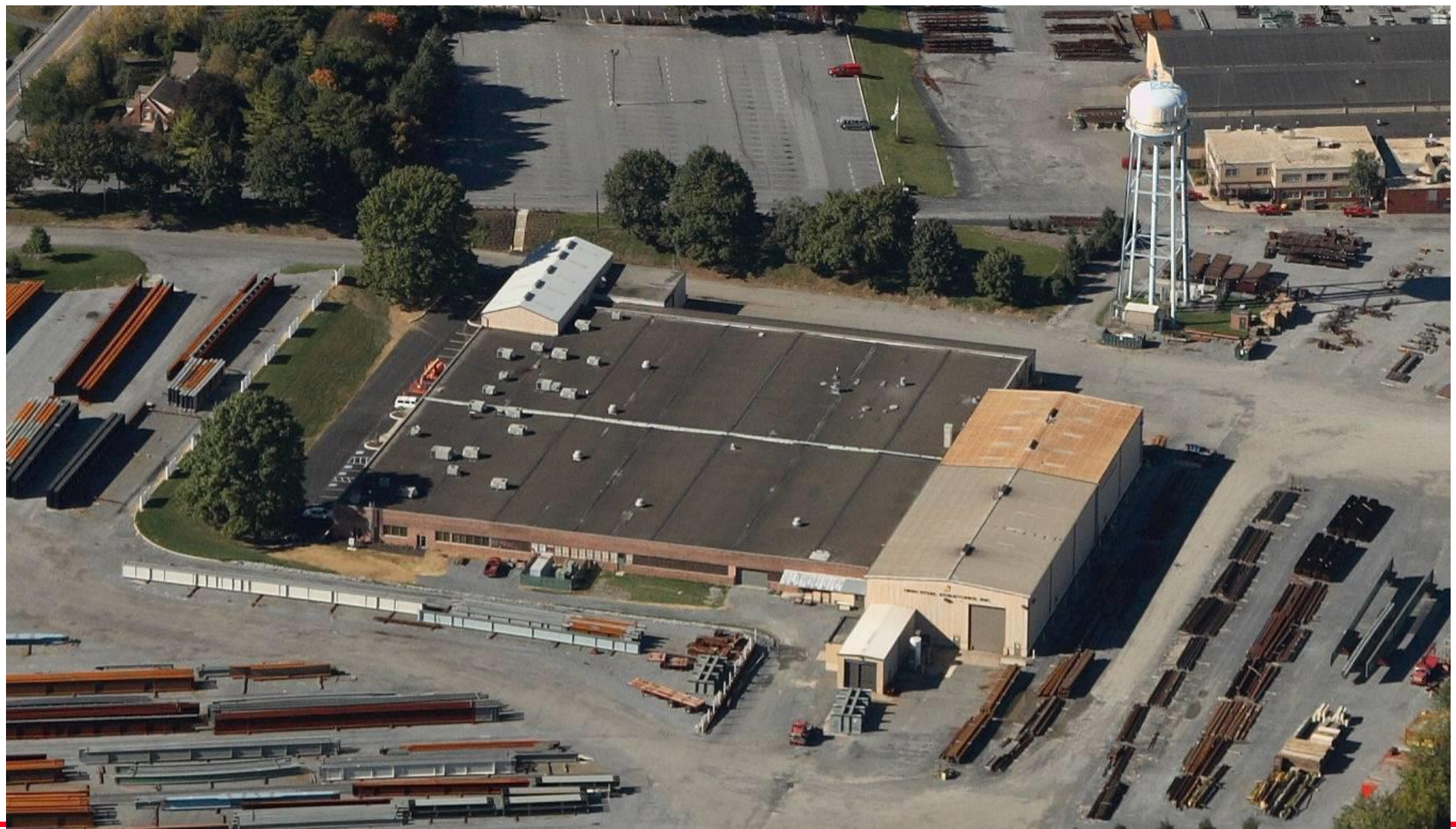


**Lancaster, PA Plant 2 facility**





**Williamsport, PA Plant 3 facility**



Lancaster, PA Plant 4 facility

**This is *How It's Made*.**





**Fabrication – Receipt of plate material from Mill**



**Fabrication – Handling of plate material**



**Fabrication – Stacking of plates**



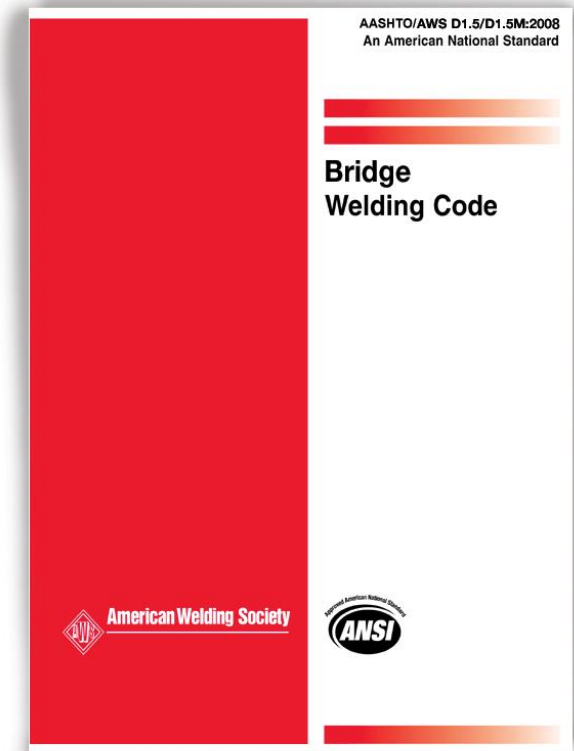
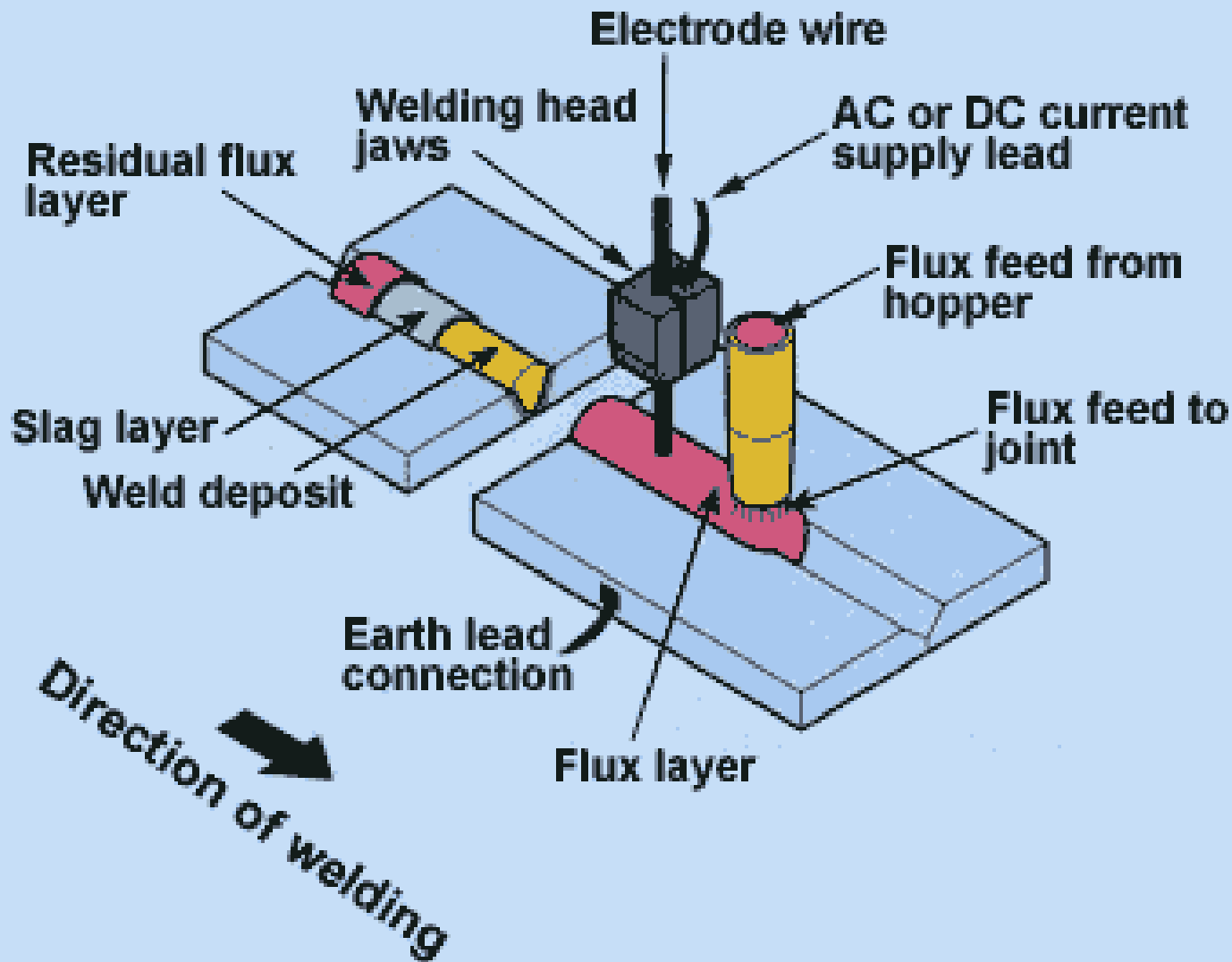
**Fabrication – Hauling Plate into production bay**



## Fabrication – Burn Table

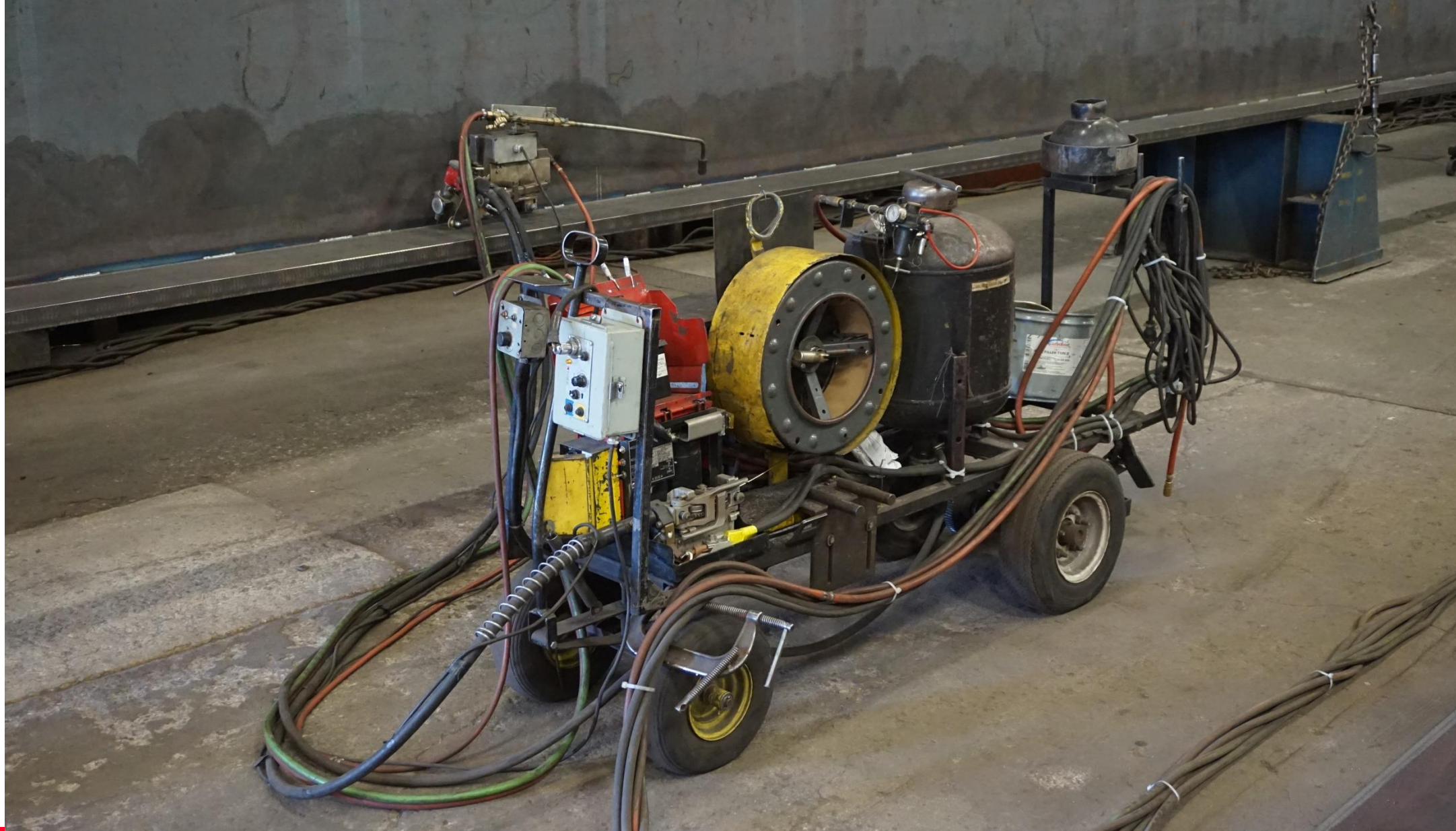


**Fabrication – Moving Slabs to Build Area**



**AASHTO/AWS  
D1.5**

**Fabrication – Submerged Arc Welding (SAW)**



## Fabrication – Submerged Arc Welding (SAW)





## Fabrication – Welding of Girder (Semi-Automated)



**CNC Drilling – Holes for field splices**

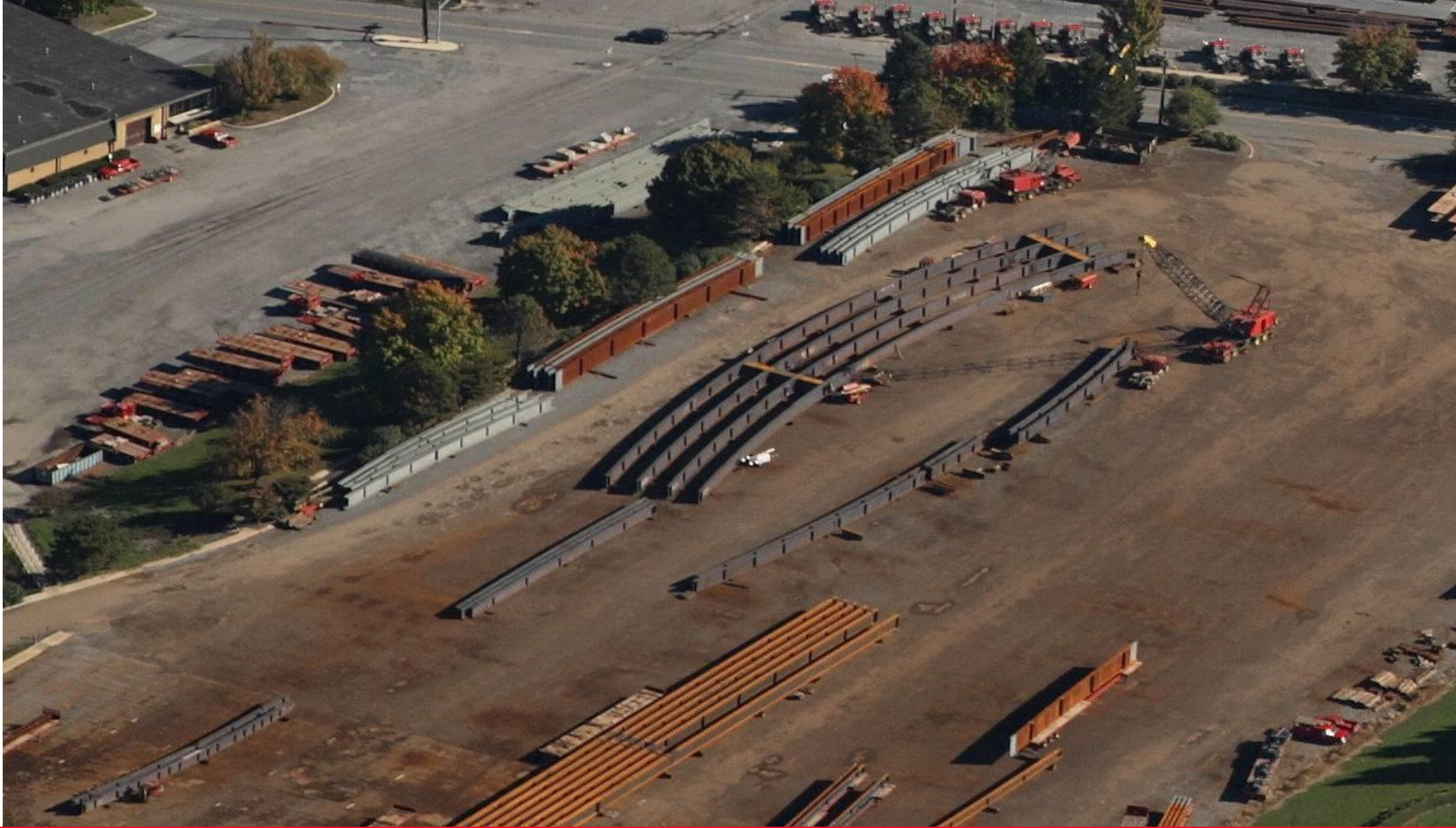


**CNC Drilling**

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**Fabrication – Finishing**



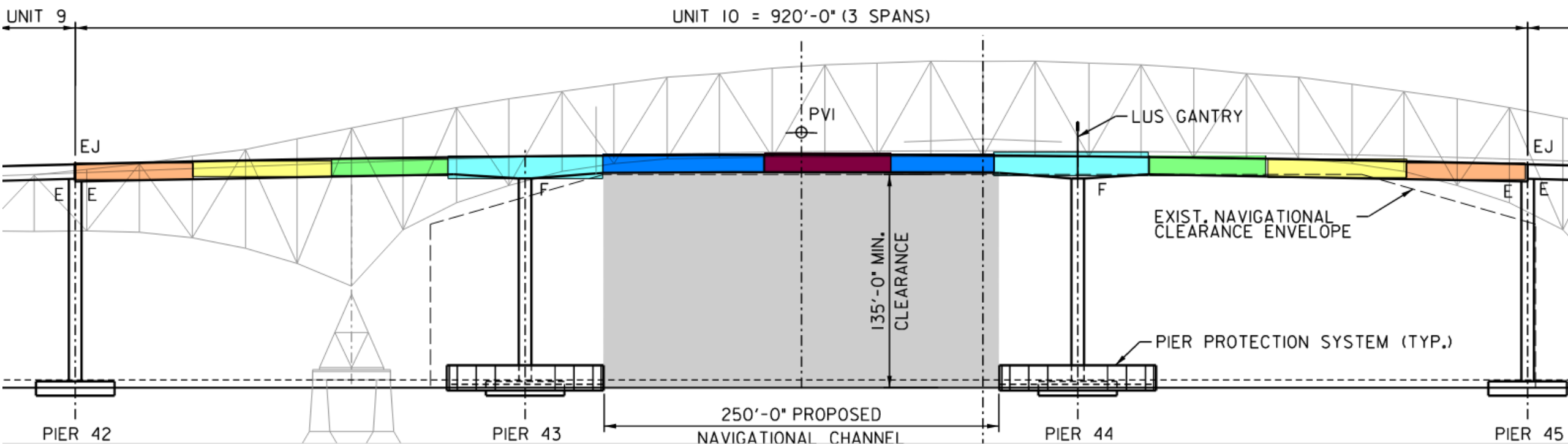
**Shop Assembly: Girder-to-Girder connection**





**Shop Assembly: Girder-to-Girder connection**

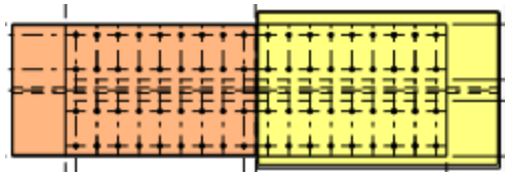




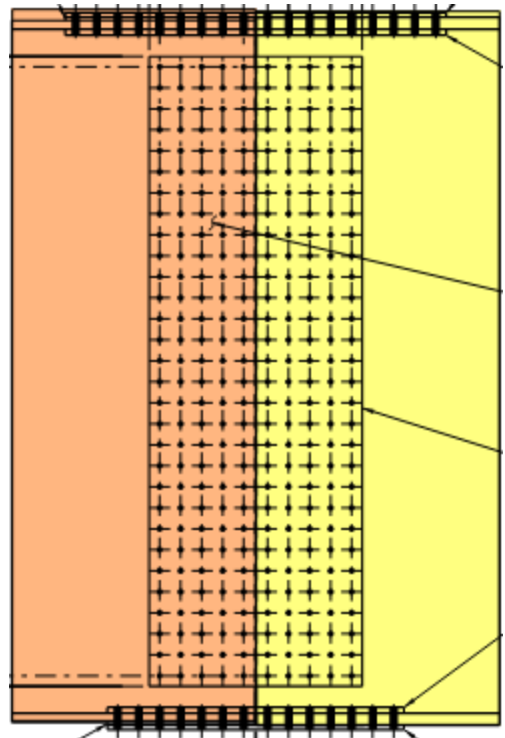
**Nice-Mid. bridge has 66 steel girders total. 5,520 LF of girders.**

**Average girder length = 84'. Heaviest girder weight = 110,000 Lbs.**

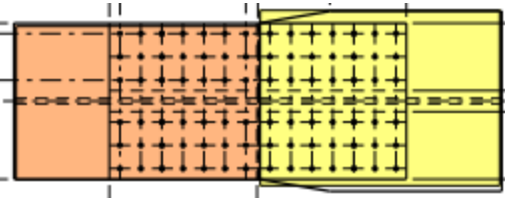
**Shop Assembly: Nice-Mid. Bridge**



**Top Flange – 72 holes**



**Web – 150 holes**



**Bottom Flange – 84 holes**

**Over 300  
holes to  
check fit per  
bolted  
splice**

**Bolted Splice (60 Total)**





**Why Check Fit Holes?**

**Use of *Numerically Controlled Drilling* (NCD) for holes at girder splices. We still have to check hole location accuracy.**

***Standard (Spec)* Check-fit 100% of girders (60 bolted splices). Lots of time at shop to load, move outside, assemble and check fit ~ 18,000 holes.**

***Proposed* Limited Check fit 18% of girders (8 bolted splices) using NCD. Saved 2 months at shop.**

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**Schedule Improvement!!**



**It fits!!**

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**Blasting** (Prior to Painting)



**Blasting (After Blast Cleaning)**



**Z – Zinc**


**E – Epoxy**

**U – Urethane**

**Painting – Standard 3 Coat ZEU system.**




AASHTO/NSBA Steel Bridge Collaboration  
S 8.1—2014  
SSPC-PA Guide 13



Guide Specification for Application of Coating Systems  
with Zinc-Rich Primers to Steel Bridges

AASHTO/NSBA Steel Bridge Collaboration  
SSPC: The Society for Protective Coatings



**AASHTO / NSBA Collaboration  
S8.1 Guide Specification for  
Application of Coating Systems**

**Painting – 2<sup>nd</sup> Coat of Epoxy**

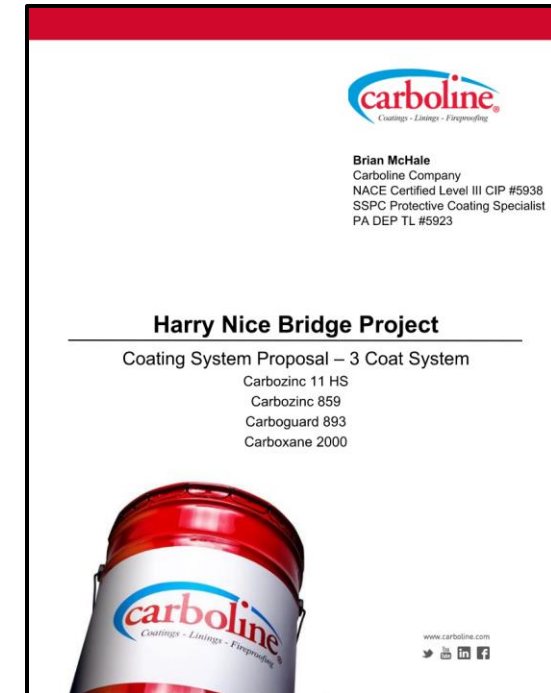
**MDTA required DB Team to achieve at least a 33 year minimum service life for coatings.**

**NACE guide – Standard 3-coat systems offer 20 years of protection.**

**Carbozinc 11-HS – Inorganic **Zinc Coat****

**Carboguard 893 – Epoxy Intermediate Coat**

**Carboxane 2000 – Ultra Durable **Urethane Top Coat****



**Nice-Mid. Bridge Painting**





# Metalizing - Thermal Spray Coating



Specification for Application of  
Thermal Spray Coating Systems to  
Steel Bridges

S8.2-2017 / SSPC-PA 18



AMERICAN ASSOCIATION  
OF STATE HIGHWAY AND  
TRANSPORTATION OFFICIALS  
**AASHTO**

AASHTO/NSBA Steel Bridge Collaboration



**AASHTO/NSBA  
Collaboration**

**S8.2 - "Specification for  
Application of Thermal Spray  
Coating Systems"**

**Metalizing**

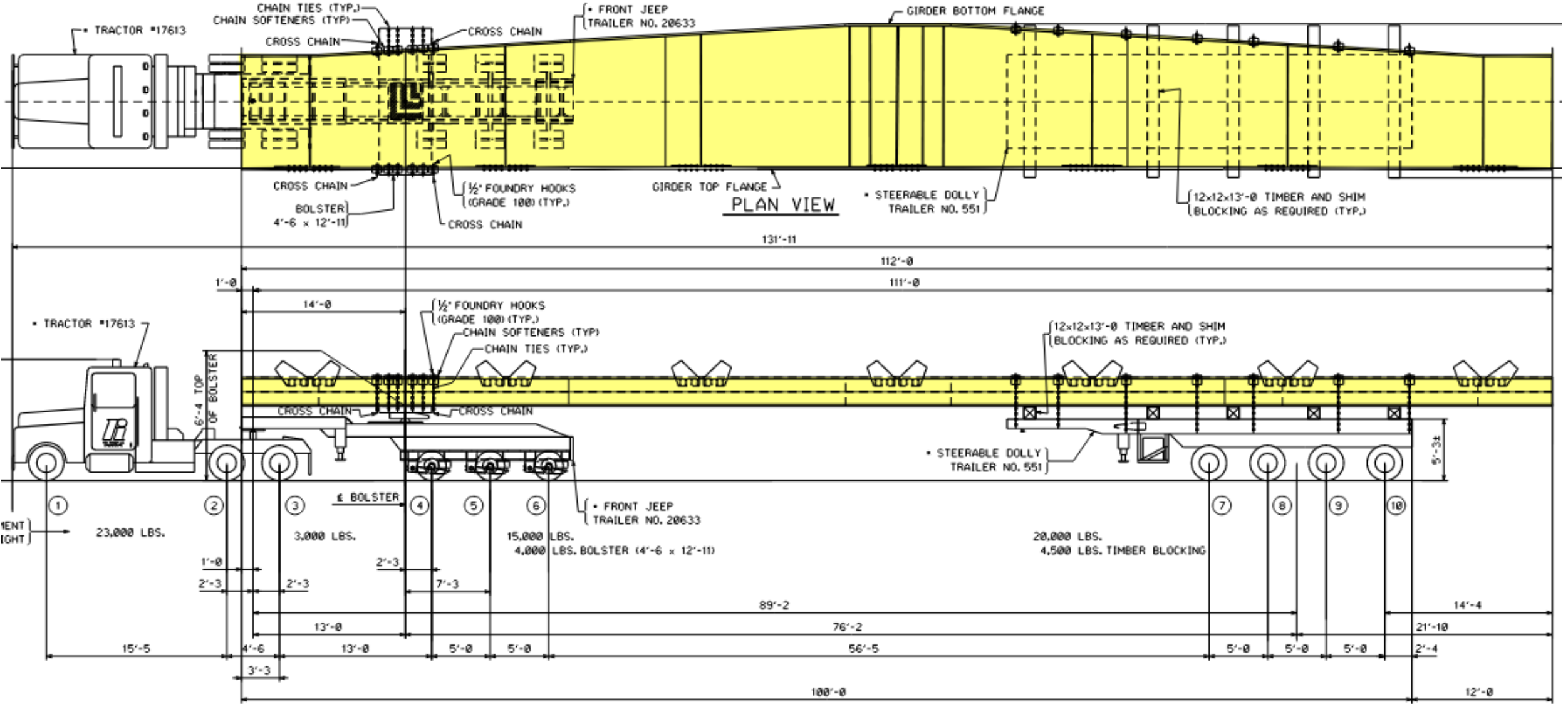
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**Common to out source Hot Dip galvanizing.  
Limitations in size of girders that can be dipped.**

**Hot Dip Galvanizing**

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Girder: 110,000 Lbs, 112' long. Overall length = 132'.

# Nice-Mid. Bridge Shipping Configuration



1911  
PLANT OVERSIZED  
HUMAN RESOURCES

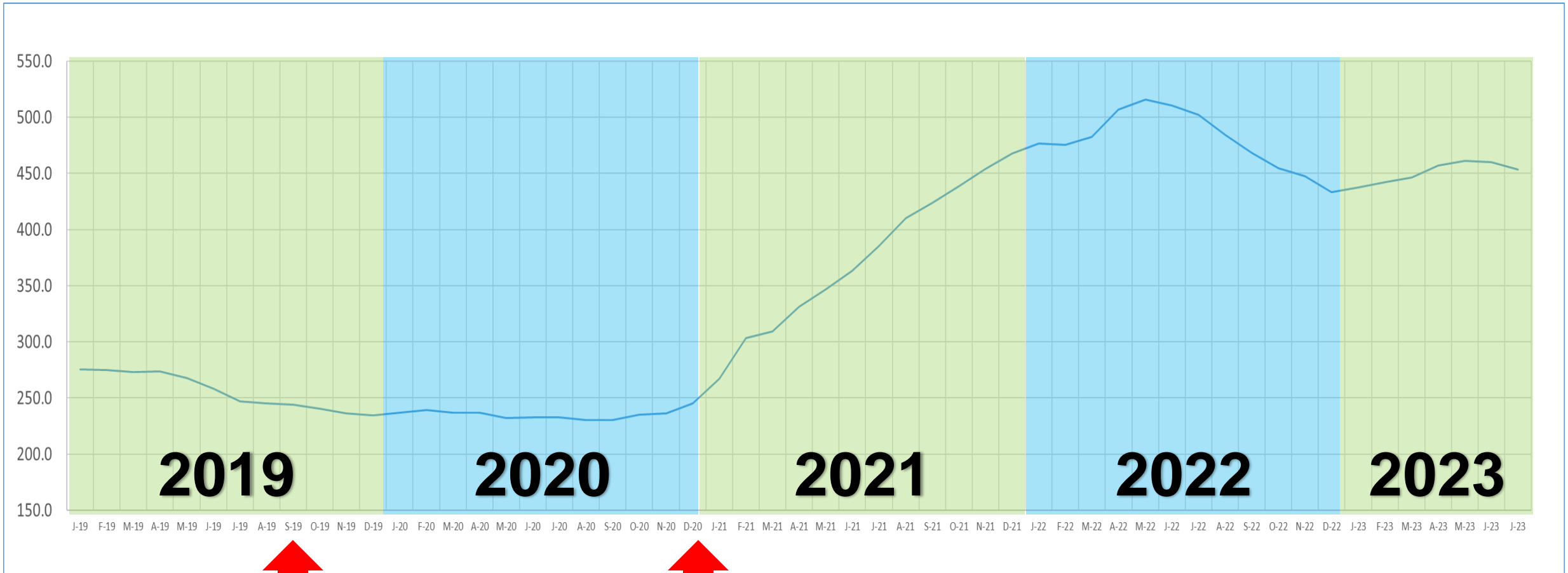
**HIGH** STRUCTURES  
1915 Old Philadelphia Pike  
VISITOR PARKING

# What's going on with steel prices?

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**Steel Material Market Condition**

# US BLS (Index 101702) – 2019 thru 2023



## Steel Raw Material Market Condition

A wide-angle photograph of a large steel truss bridge under construction over a body of water. The bridge's steel framework is visible, supported by several concrete piers. The sky is clear and blue, and the water is calm. The text 'INNOVATIVE LEADERS IN STRUCTURAL STEEL FABRICATION' is overlaid in white, bold, sans-serif capital letters across the center of the image.

# INNOVATIVE LEADERS IN STRUCTURAL STEEL FABRICATION

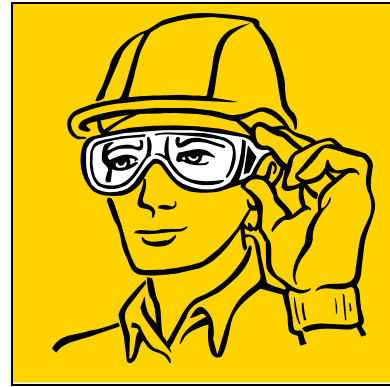
Photo: MdTA

[www.highsteel.com](http://www.highsteel.com)



## During the shop tour you must wear:

1. Hard Hats
2. Safety Glasses
3. Ear Plugs



- ❑ ALWAYS FOLLOW YOUR TOUR GUIDE !
- ❑ DO NOT TOUCH MATERIAL OR EQUIPMENT !
- ❑ USE MAN DOORS IN LIEU OF OVERHEAD DOORS !
- ❑ NO PHOTOS INSIDE FACILITIES PLEASE !
- ❑ NO SMOKING ON PROPERTY.

# Safety

**Next:**

**Lunch and Shop Tours**

# Where do we go from here?



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## Look for White Tent

**Thank you!**