



SUM-8-1.75 (PID 91710) Contractor Pre-Bid Meeting

March 22, 2023



Project Team

- ODOT District 4
 - *Laura Beese – Project Manager*
 - *Josh Smith – ODOT Construction Project Manager*
 - *Morgan Hornyak – Area Engineer*
 - *Mike Simpkins – District Construction Engineer*
 - *Rob Lang – Environmental*
 - *Matthew Steele - Utilities*

Project Team

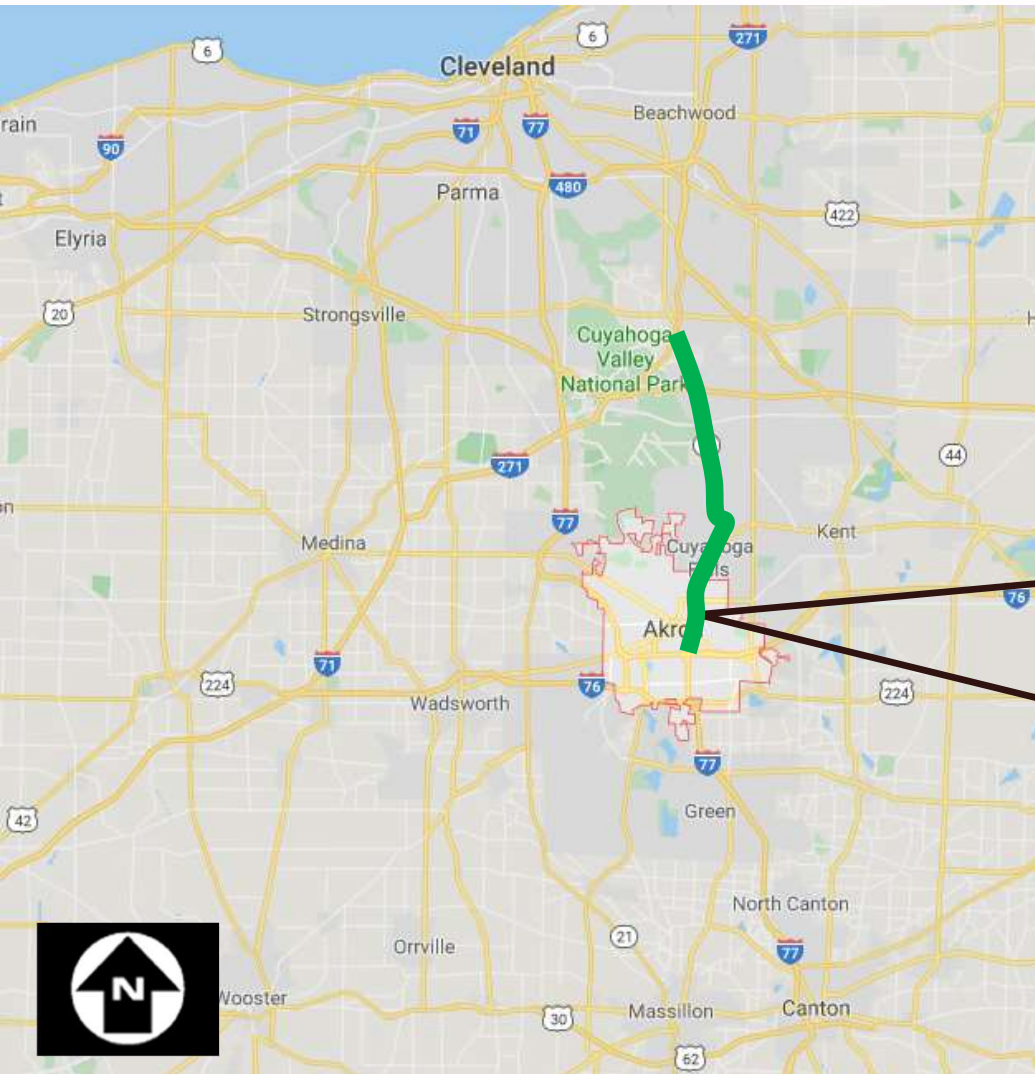
- ms consultants – Prime Consultant
 - *Sean Riffle, PE – Project Manager*
 - *Dale Arnold, PE – Bridge Engineer*
- Compass Infrastructure Group
 - *Gary Gardner, PE – Bridge Specialist*
- HNTB – MOT / Constructability Review
 - *Steve Hague, PE – Launching Investigation/Constructability*
 - *Matt Regan, PE – MOT Engineer*
- Gannett Fleming – Geotechnical Eng. / Pier Design / Noise Walls
 - *Eric Dues, PE – Bridge Piers/Noise Walls*
 - *Thomas Monaco, PE – Geotechnical*

Presentation Outline

- **Project Overview**
- **General MOT**
- **Environmental**
 - Commitments
 - Tree Clearing
 - Unregulated Landfill
- **Site Constraints**
- **Access Roads**
- **Bridge Launching**
- **Bridge Demolition**
- **Construction Camera**
- **Geotechnical**
- **Stakeholder Coordination**
 - Utilities
 - Railroads
 - Paper Plant
 - School Bus Garage
 - City of Akron
- **Aesthetic Features**

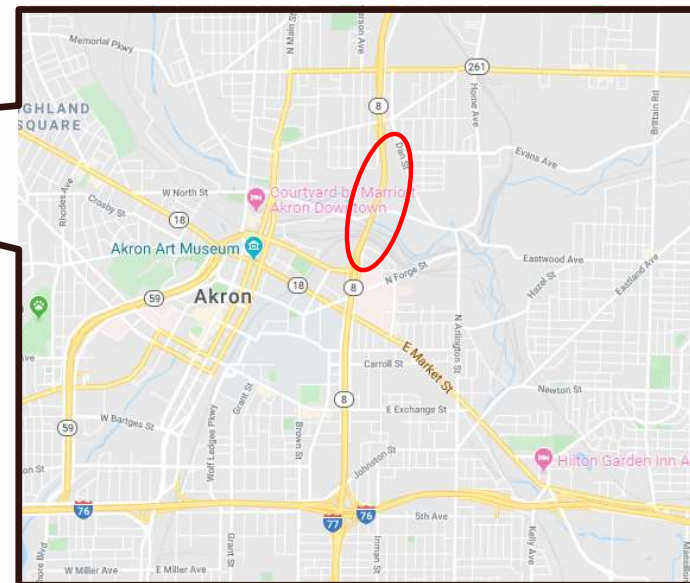


Project Overview



State Route 8

- Links I-76, Downtown Akron and Ohio Turnpike, I-271 to Cleveland suburbs
- Heavily used commuter route from North
- National Highway System Route
- Current ADT = 121,740 Vehicles per Day
- 11,000 Trucks per Day (9%)



Purpose & Need



▪ Replace Bridge

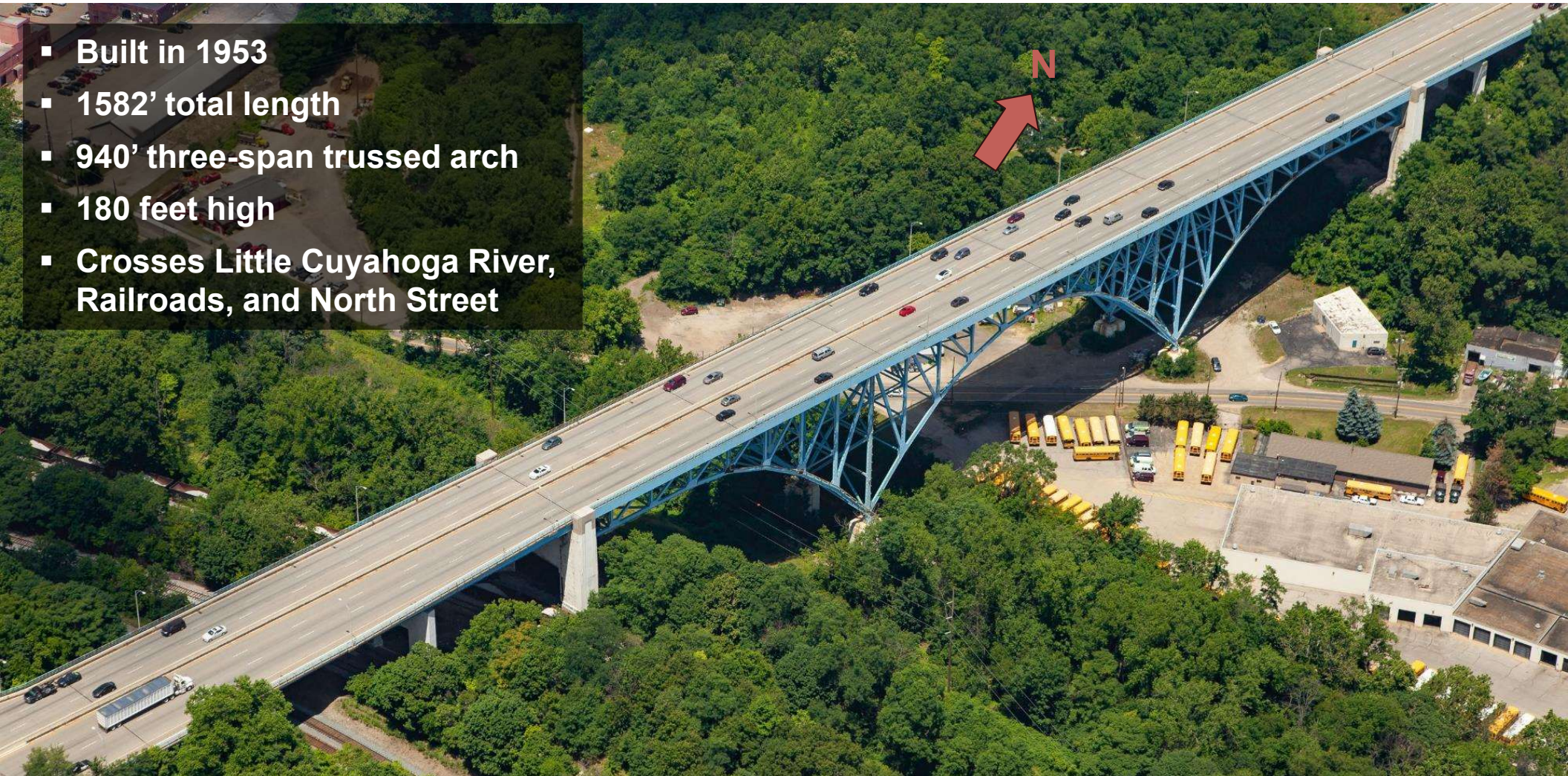
- Fracture critical truss
- Ongoing maintenance costs

▪ Add Auxiliary Lane

- Close Interchange Spacing
- Short Accel/Decel Lengths

Existing Structure

- Built in 1953
- 1582' total length
- 940' three-span trussed arch
- 180 feet high
- Crosses Little Cuyahoga River, Railroads, and North Street



Project Limits



PERKINS

Perkins St.
Interchange

House Demo
459 Blinn St.



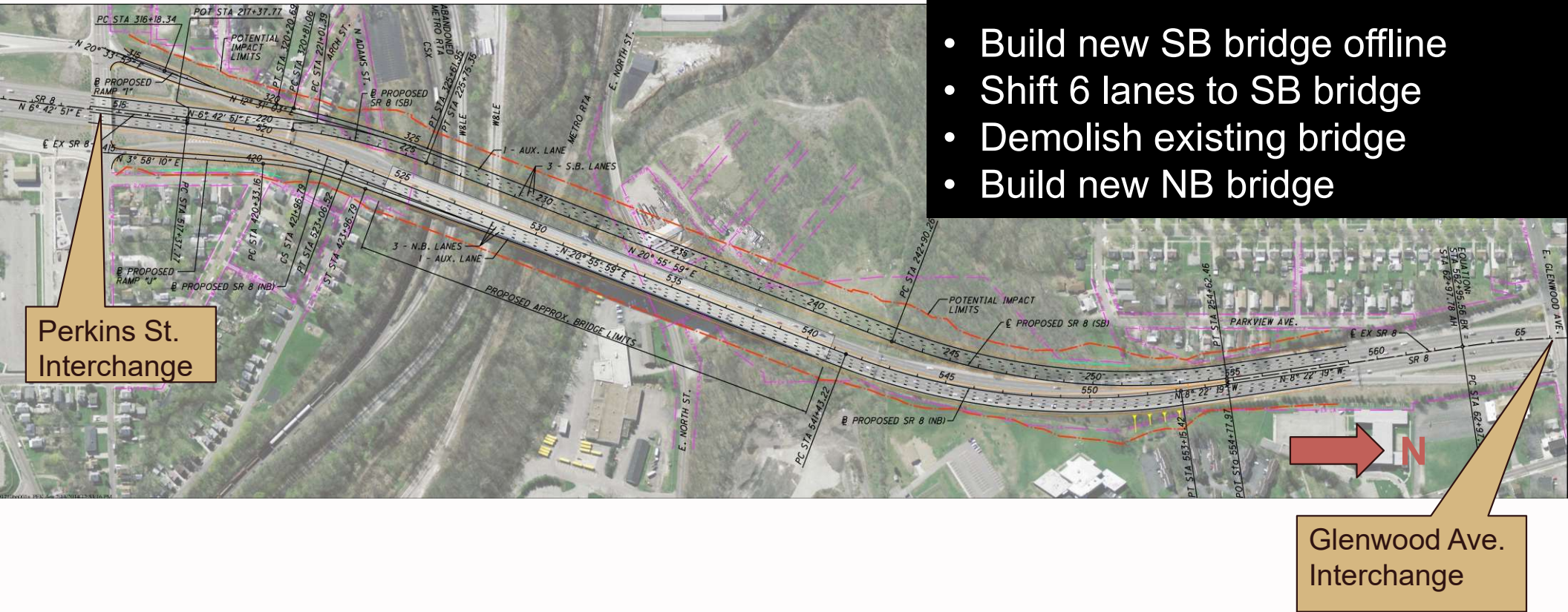
Glenwood Ave.
Interchange

GLENWOOD

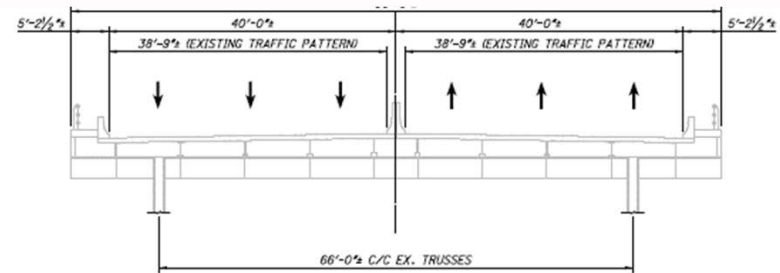
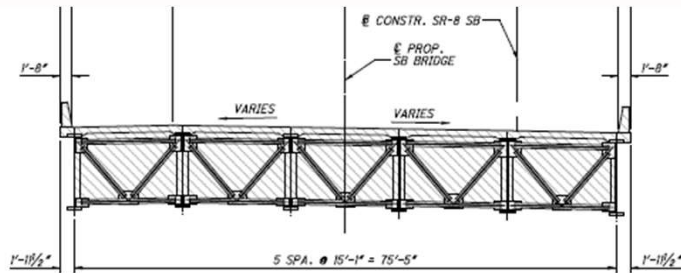
Project Overview

West Alignment –

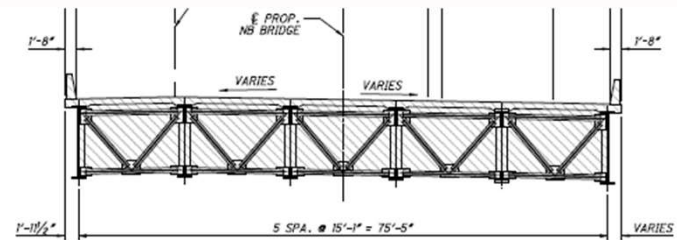
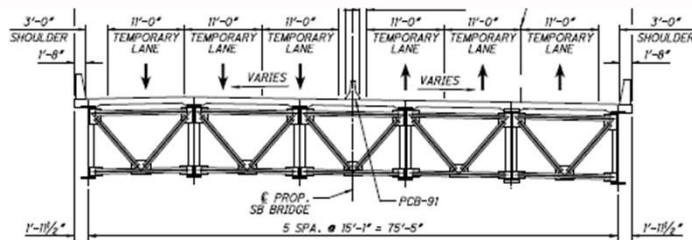
- Build new SB bridge offline
- Shift 6 lanes to SB bridge
- Demolish existing bridge
- Build new NB bridge



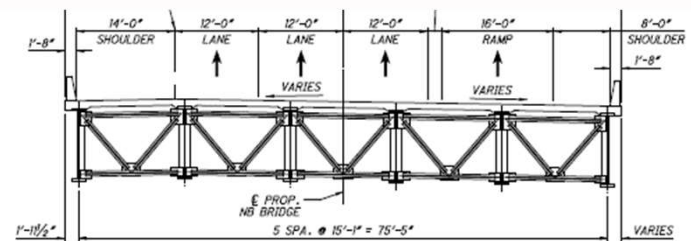
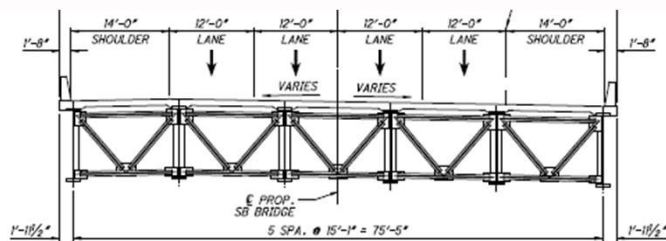
Project Overview



STAGE 1 CONSTRUCTION



STAGE 2 CONSTRUCTION



FINAL STAGE



Maintenance of Traffic

Maintenance of Traffic - General

- 3 Thru lanes of traffic maintained in each direction of SR-8 at all times except as noted in plans per PLCC.
 - Project team submitted MOTEC request for 2 lanes but was not accepted.
- SR-8 Full Closure for Bridge Demolition (3 hour maximum, Sunday Morning 8 a.m. to 11 a.m.) detour route included in plans. **ADVANCED COORDINATION REQUIRED.** See plans.
- Interim Completion Date is September 30, 2027 for northbound lanes
- Final Completion Date is June 30, 2028

Maintenance of Traffic – Ramp Closures

- Perkins Street - Summa Health - Level 1 Trauma Center, Primary access to Downtown Akron, Stark State College, etc. **MAINTAIN ACCESS AT ALL TIMES.**
- Perkins Street SB Exit (Ramp I) – Traffic maintained via part width construction
- Perkins Street NB Entrance (Ramp J) – Traffic maintained via part width construction. 14 Calendar Day Closure Permitted. Detour to Buchtel Avenue.
- Perkins Street SB Entrance (Ramp K) – Traffic maintained via part width construction

Maintenance of Traffic – Ramp Closures

- Glenwood Avenue NB Exit (Ramp A) – Closure with detour to Tallmadge Avenue permitted (730 Days) otherwise traffic maintained.
- Glenwood Avenue SB Entrance (Ramp B) – Closure with detour permitted to Tallmadge Avenue (60 Days) otherwise traffic maintained.

Maintenance of Traffic

- Various side street restrictions and closures permitted. See plans for more detail.
- Freedom Trail – Traffic maintained at all times except for Two closure periods (180 Days each, non-consecutive) for bridge construction and off-peak closures as defined in plans. Detour route provided in plans.

Maintenance of Traffic

- SR-8 Contractor Access points to be developed by the contractor and approved by ODOT each phase.
- Lump Sum Repair Items
- Adjacent/nearby projects:
 - PID 102329 – Akron Beltway Design/Build



Environmental

Environmental Commitments

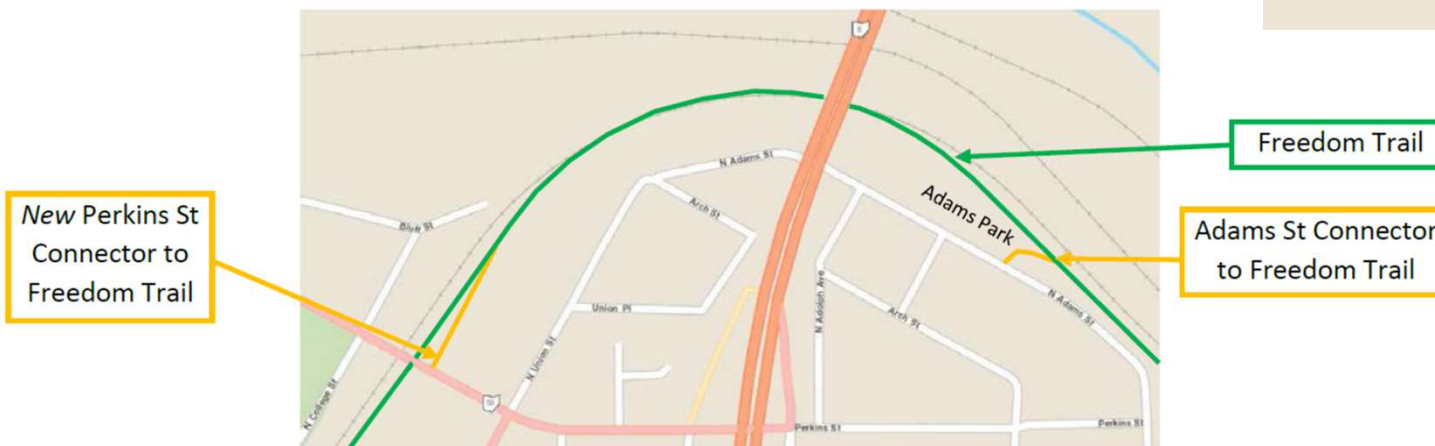
- Sheet 12: Environmental Commitment notes (21)
- Sheet 12: Freedom Trail note
- Sheet 16: Contaminated Soil note
- Environmental Commitments Overview
 - Required to comply with state and federal laws
 - Failure to implement can result in:
 - Loss of previous approvals and permits
 - Project delays
 - Fines
 - Potential criminal charges

Environmental Commitments

- Notification requirements
- Bridge inspection for bats (visual)
- Minimize clearing vegetation near streams
- Remove any debris from streams
- Little Cuyahoga River
 - No new instream fill between April 15 and June 30
 - Explosive demolition debris removed within 72 hours
- Waterway Permit (RGP-A)
 - See waterway permit special provisions for conditions
 - Expires October 24, 2024

Environmental Commitments

- Park protections:
 - Lookout Park
 - Adams Park
 - Freedom Trail
- Limited access restrictions
- Staging restrictions
- Restore disturbed areas

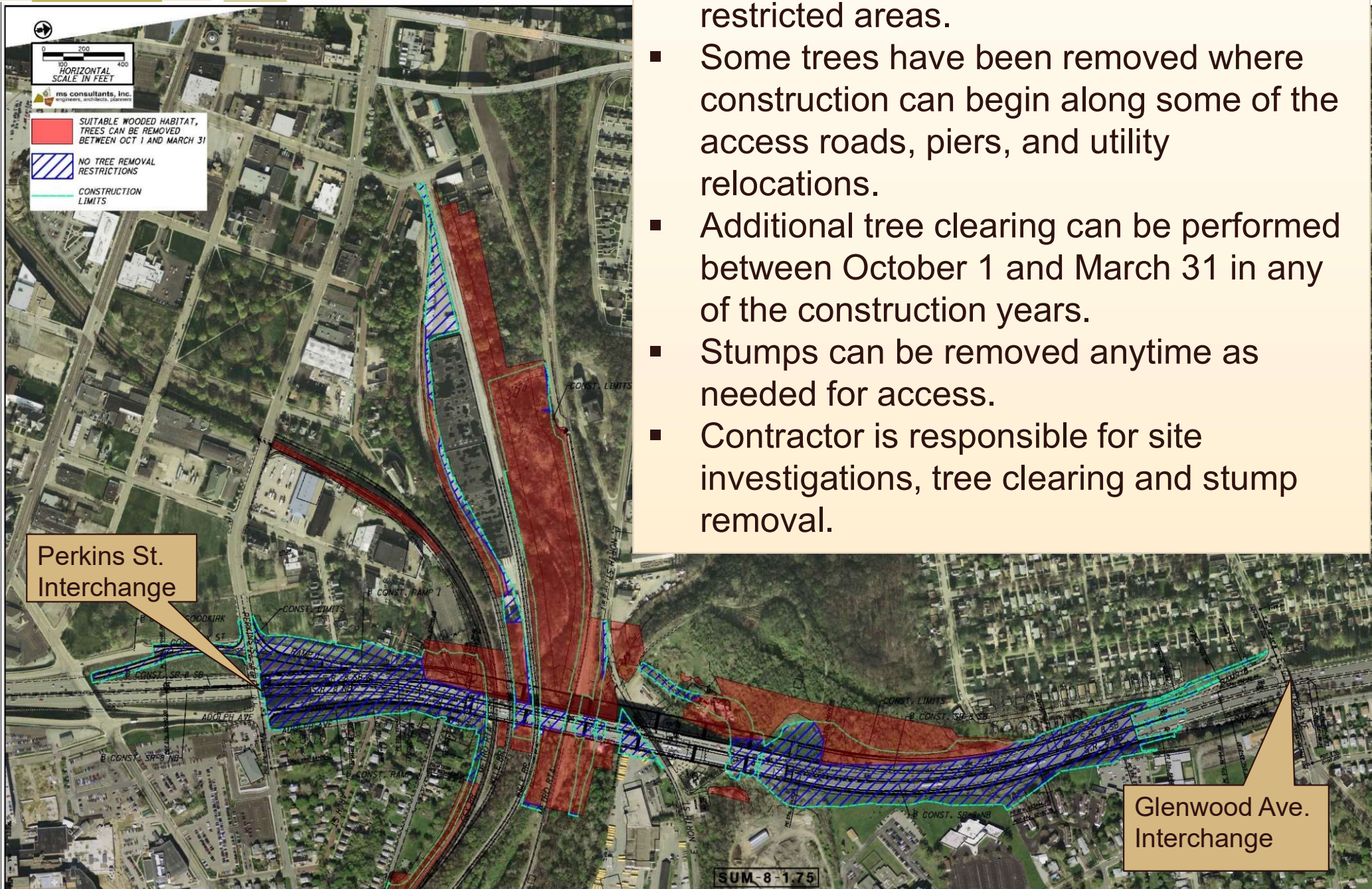


Environmental Commitments

- Landfill Permit
 - Expires October 24, 2024
- Contaminated Soil Note
 - Access Road 5A
 - Southbound Pier 5
- Excavation/borings limited
- Specific waste disposal methods

Tree Clearing

- No tree cutting April 1-September 30 in restricted areas.
- Some trees have been removed where construction can begin along some of the access roads, piers, and utility relocations.
- Additional tree clearing can be performed between October 1 and March 31 in any of the construction years.
- Stumps can be removed anytime as needed for access.
- Contractor is responsible for site investigations, tree clearing and stump removal.

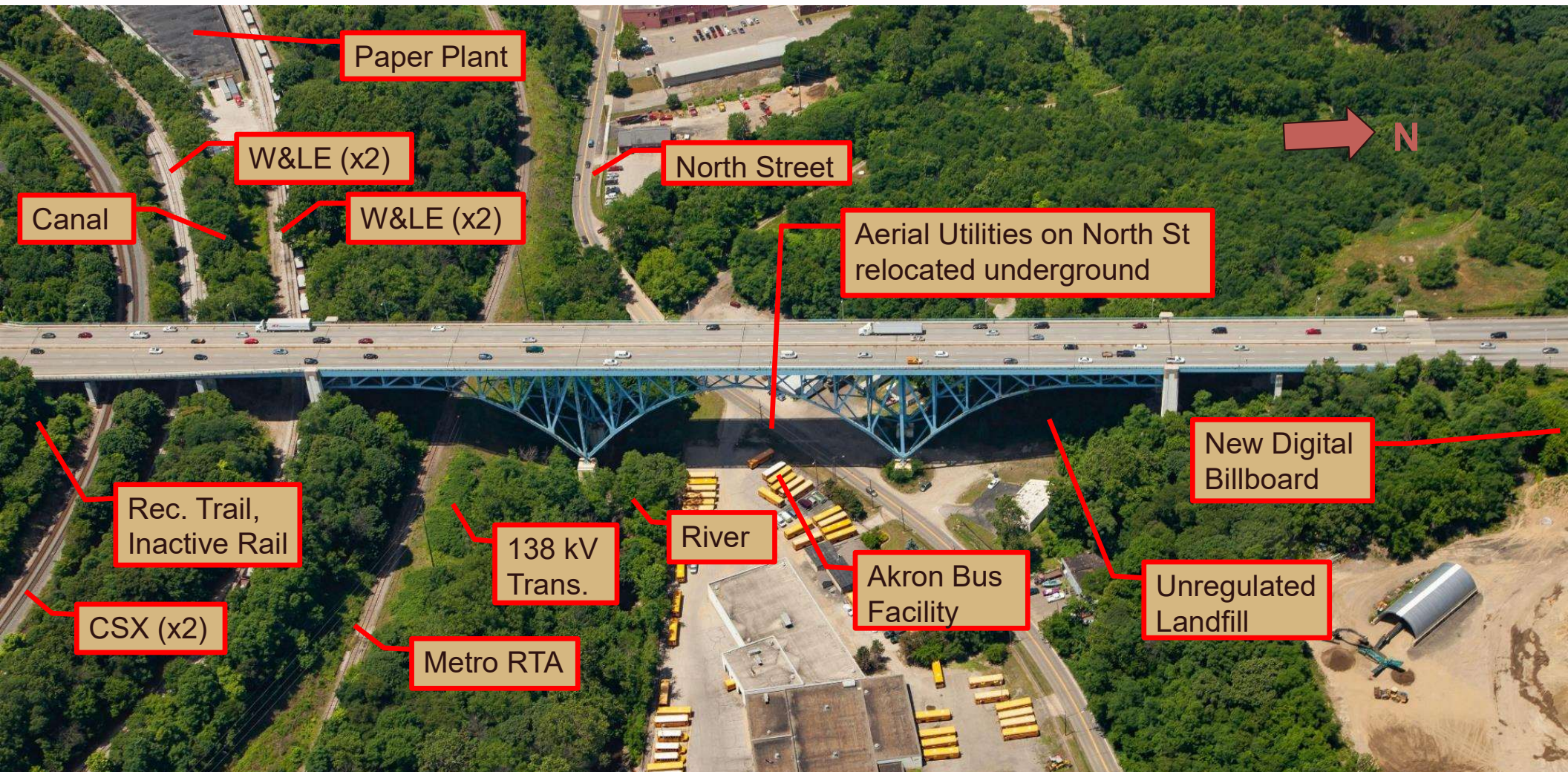




Site Constraints

Site Constraints

- FAA Permits
 - 100 foot maximum height (Plan Sheet 17)

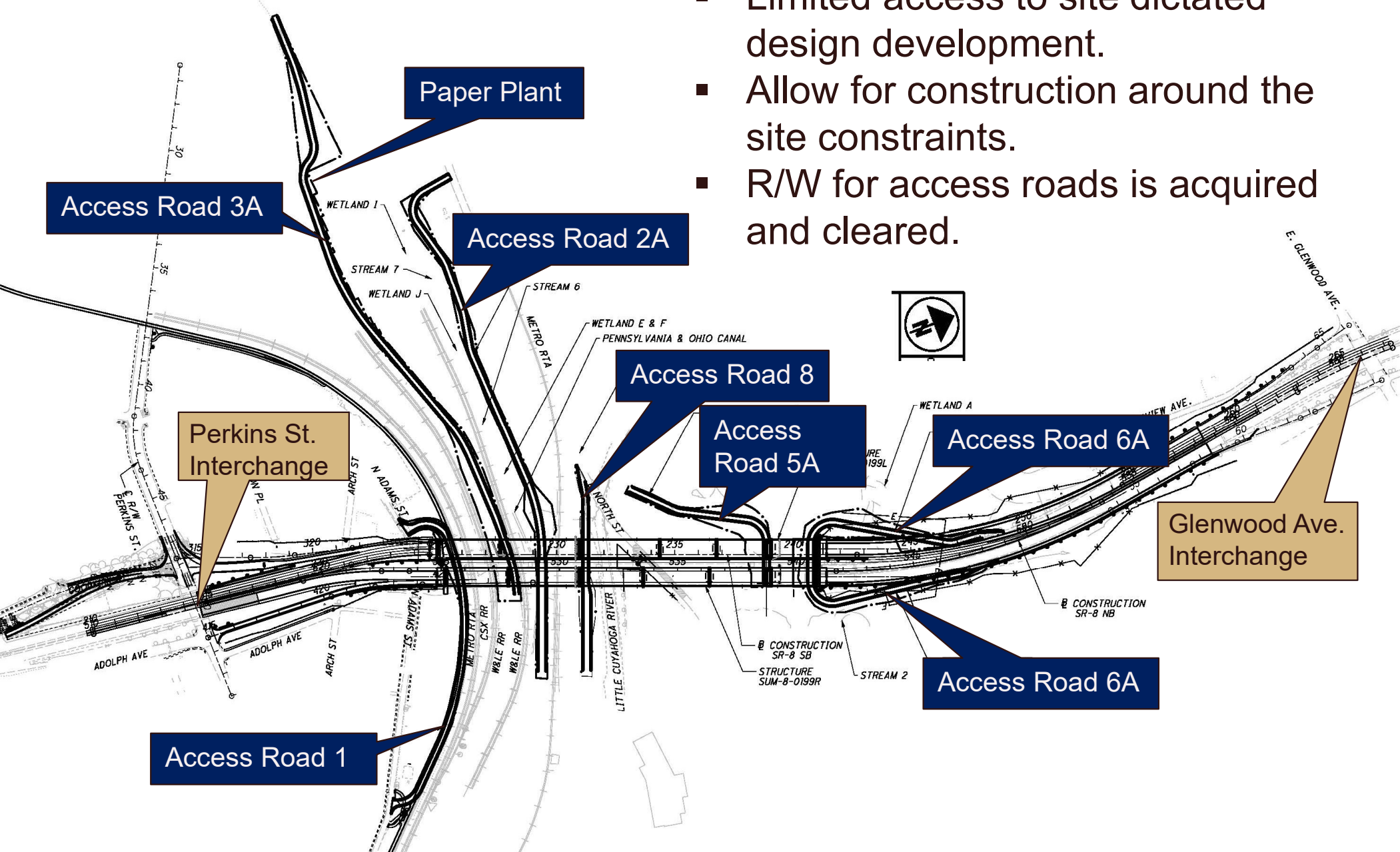




Access Roads

Access Roads

- Limited access to site dictated design development.
- Allow for construction around the site constraints.
- R/W for access roads is acquired and cleared.

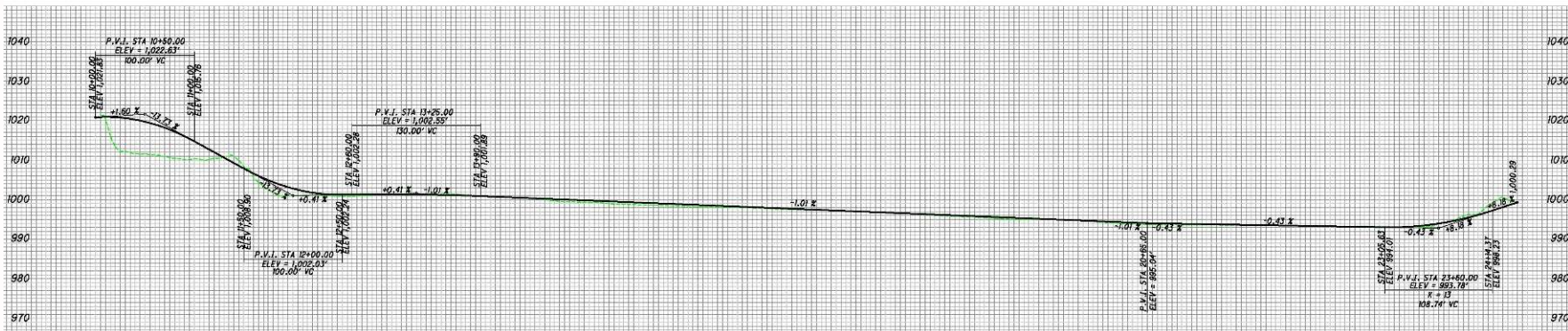
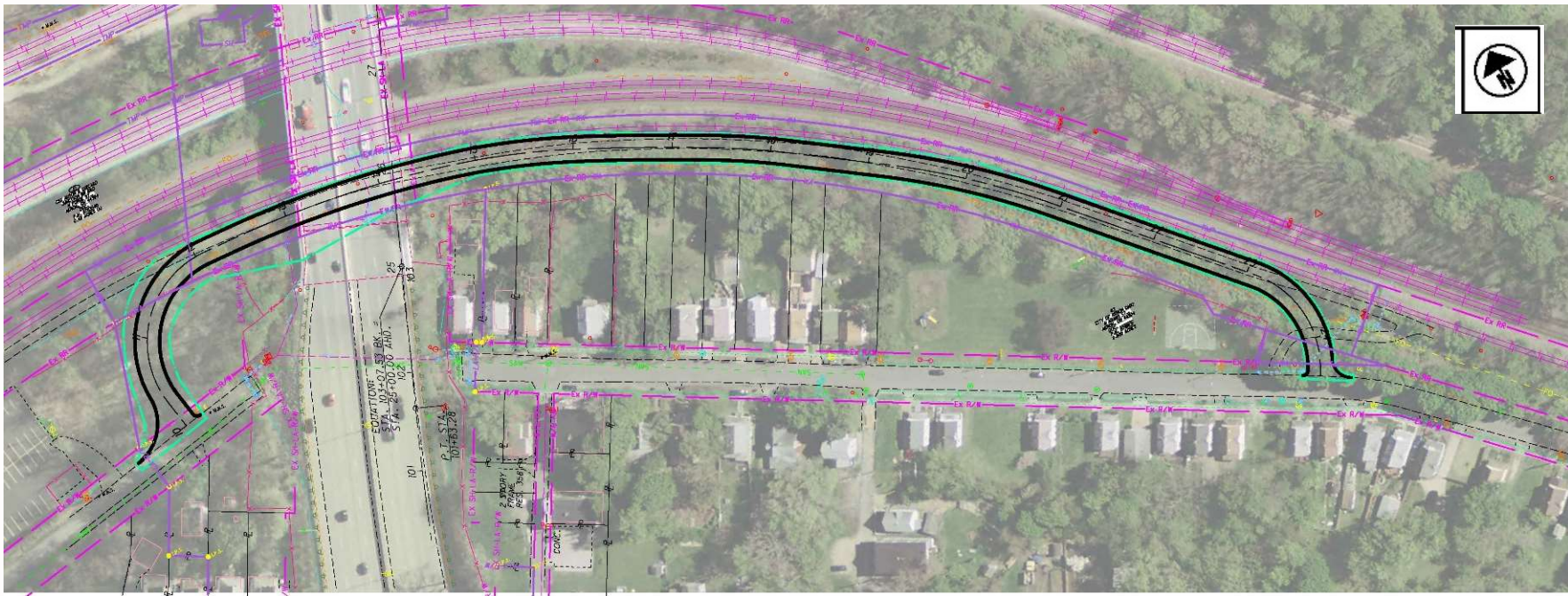


Design Considerations:

- Size of Equipment
 - Size of Crane Pads for Traditional Erection
 - Smaller Equipment for Demo and Launching
- Slope Stability
- Retaining Walls

Access Road 1

- Rear Abutment and Existing Pier 1 (Akron Metro RTA RR track)
- Utilizes existing Freedom Trail

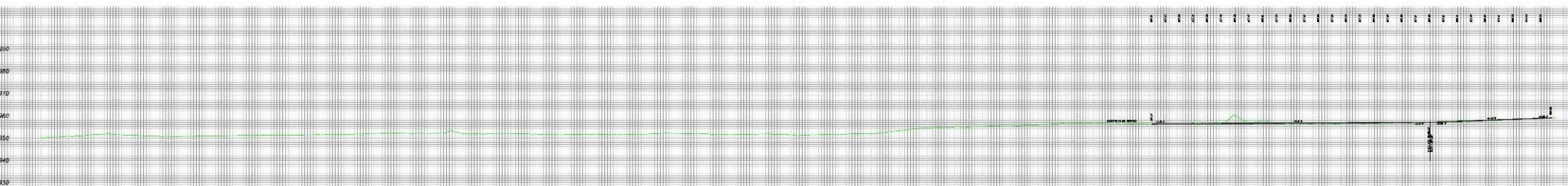
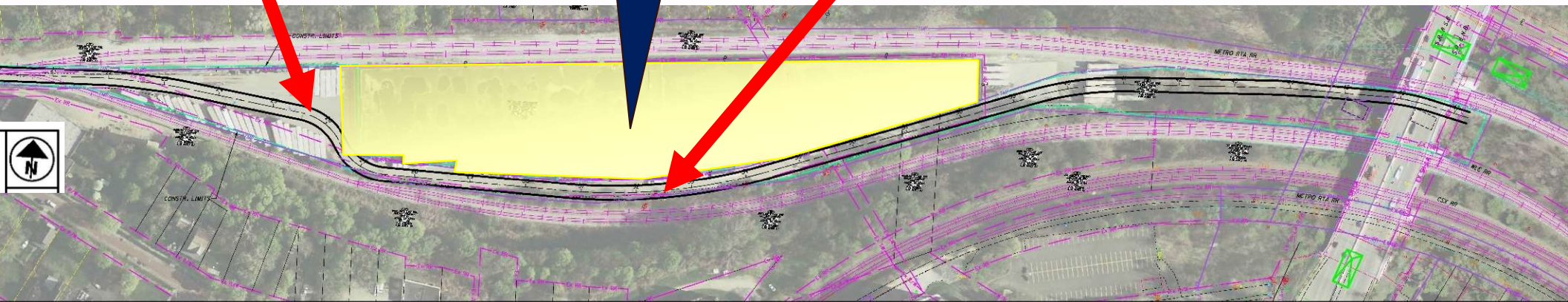


Access Road 3A

- Proposed Pier 1 and Existing Pier 2 between W&LE RR tracks
- Utilizes Paper Plant parking and area to south of building.



Paper Plant



Slide 30

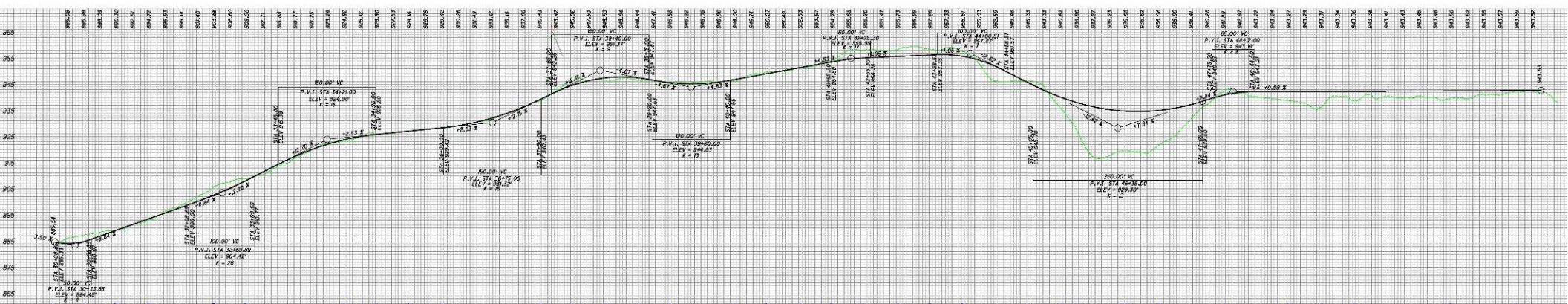
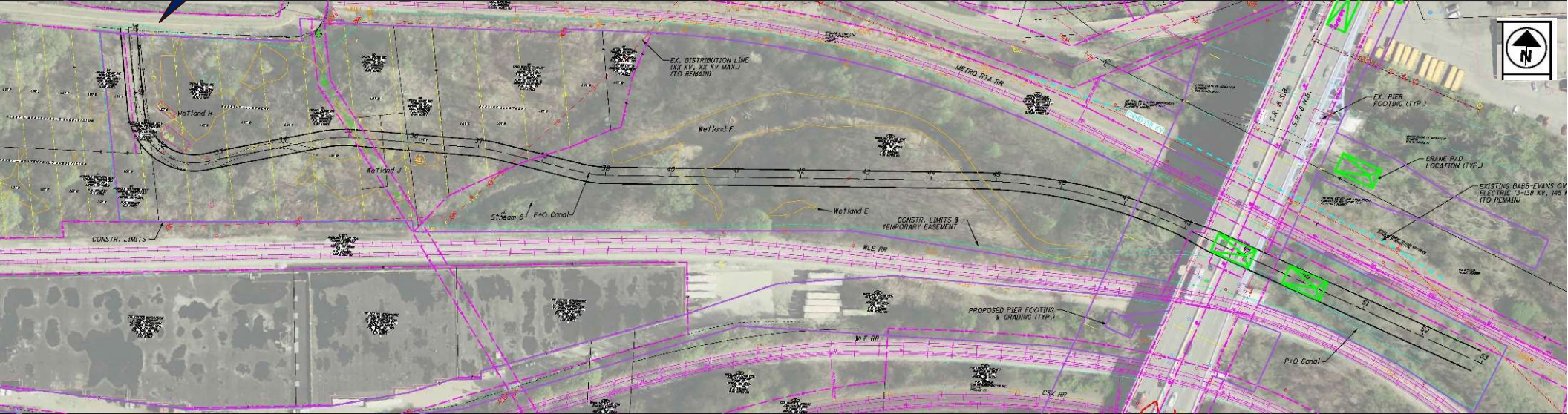
RS1

Riffle, Sean, 2/15/2023

Access Road 2A

- Existing Pier 3 between W&L and Akron Metro RTA RR tracks

Furnace St.



Access Road 8

School Bus
Garage Parking

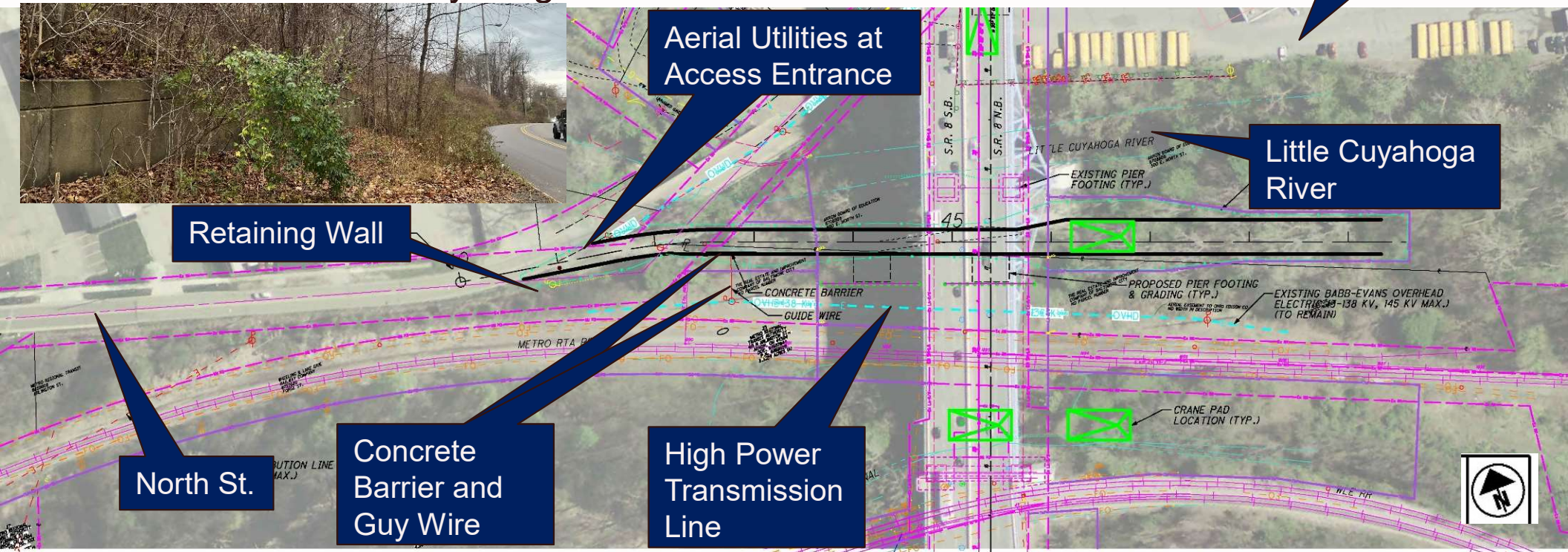
- Proposed Pier 2 and Existing Pier 4 between Akron Metro RTA RR track and Little Cuyahoga River



Retaining Wall

Aerial Utilities at
Access Entrance

Little Cuyahoga
River



North St.

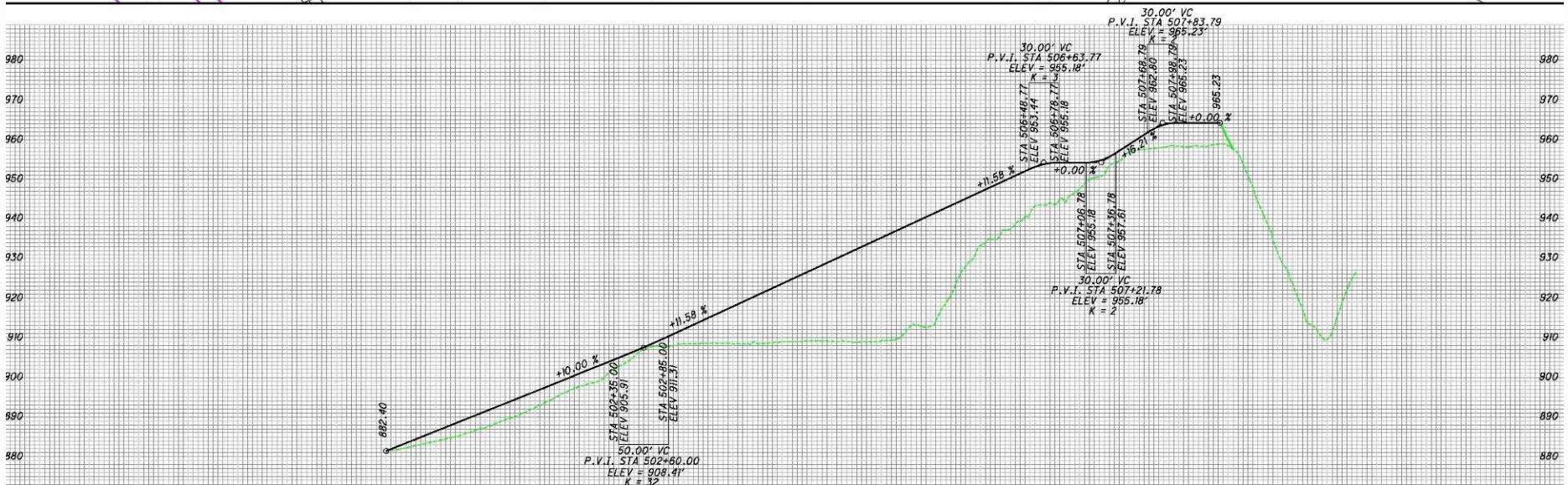
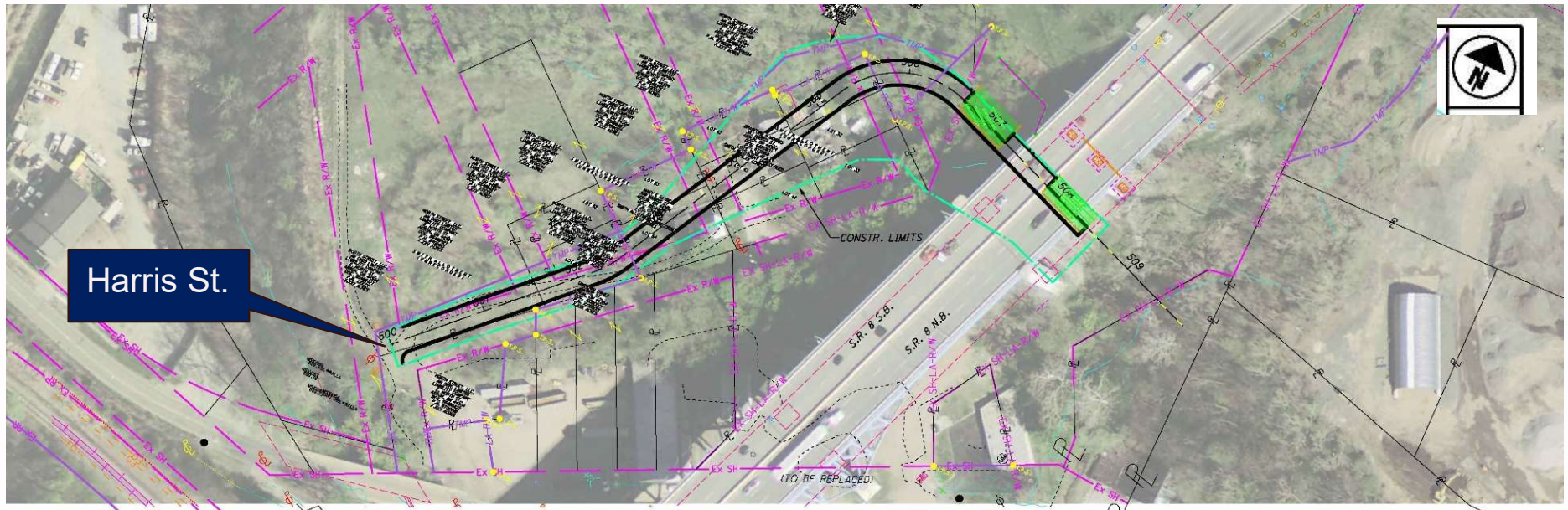
Concrete
Barrier and
Guy Wire

High Power
Transmission
Line



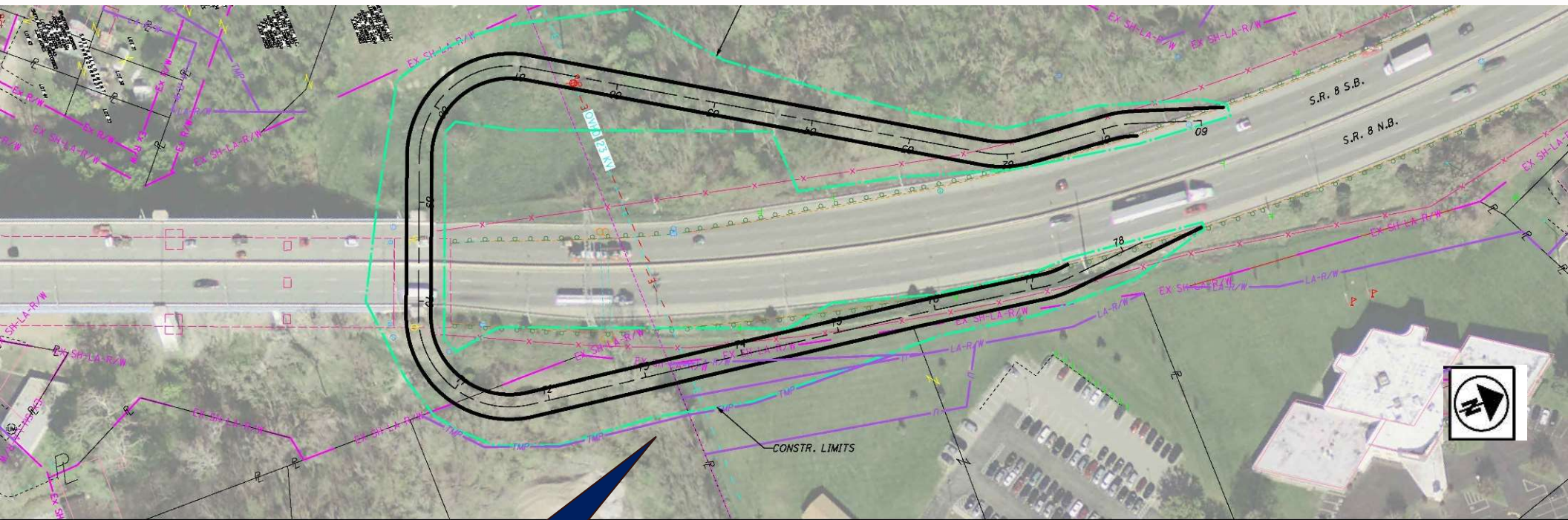
Access Road 5A

- Proposed Pier 5 and Existing Piers 6 & 7

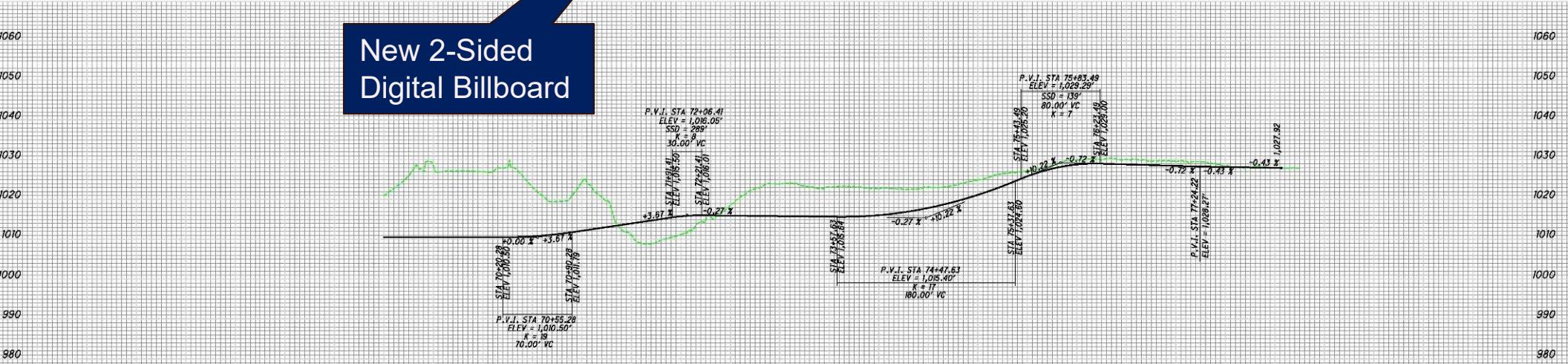


Access Roads 6A & 6B

- Forward Abutment



New 2-Sided Digital Billboard

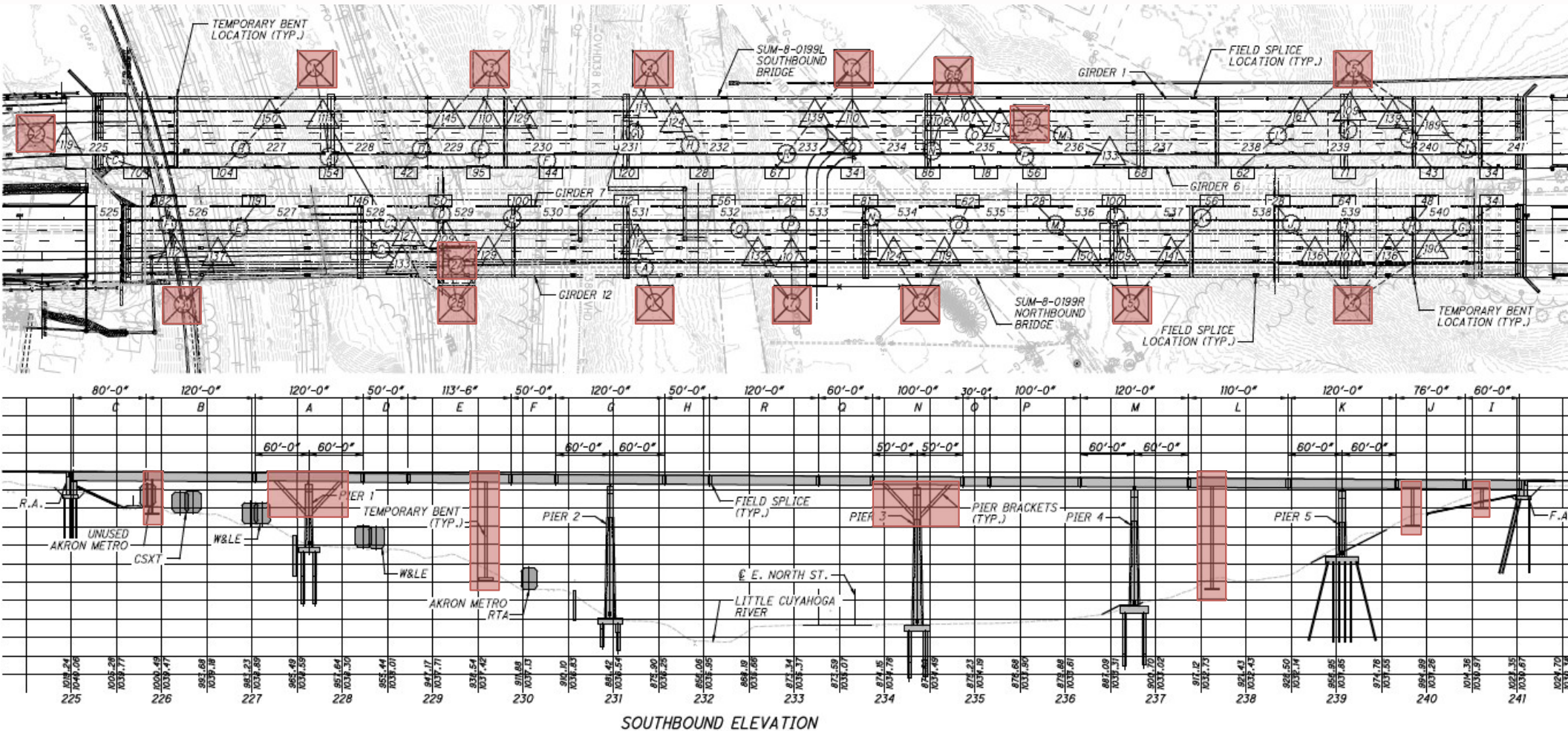




Bridge Launching

Incremental Launching

Conventional Steel Erection



Incremental Launching

Conventional Steel Erection

750 Ton crane – largest crane without external

CW



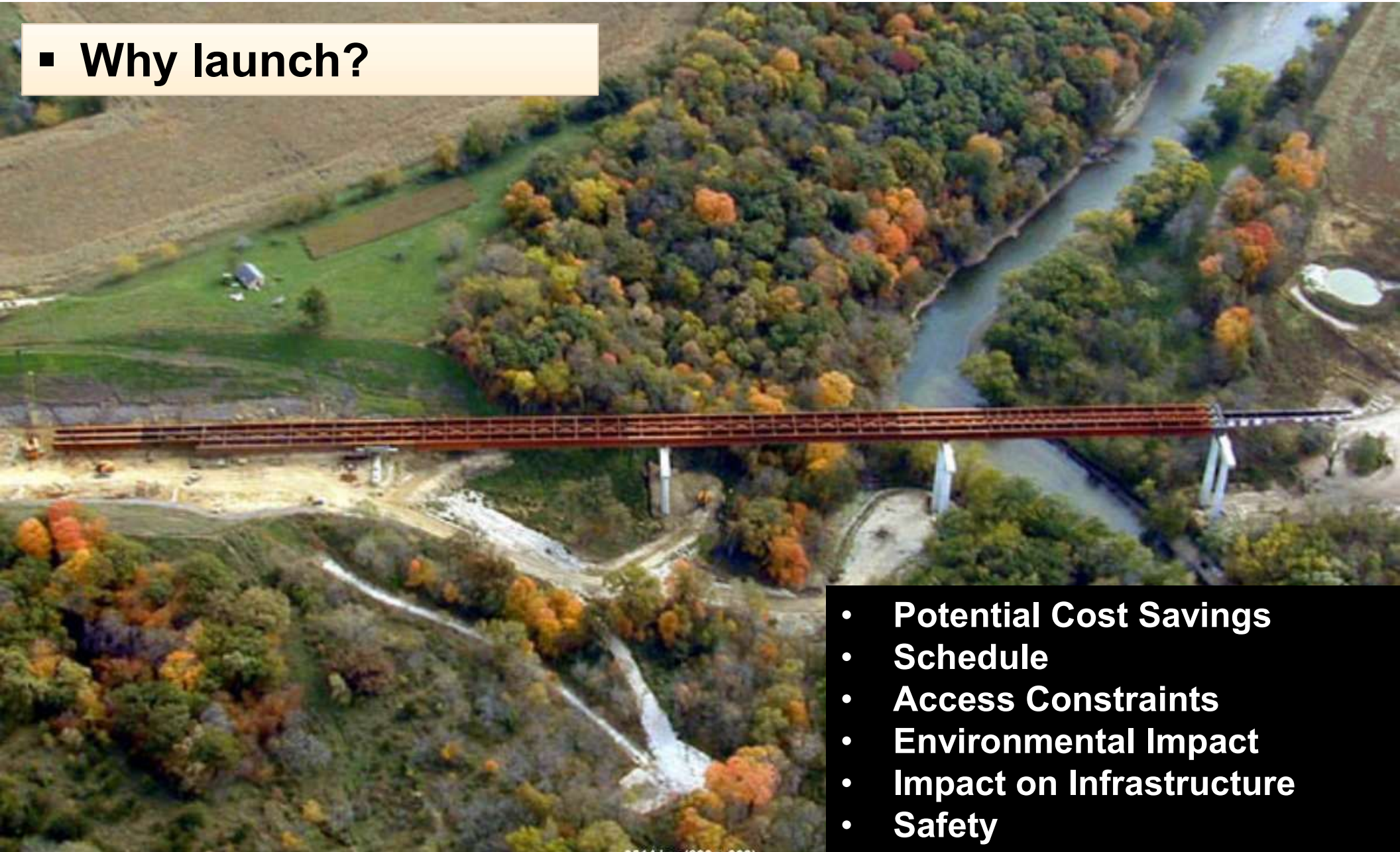
Erection Issues:

- **Multiple expensive crane mobilizations**
- **Many temporary supports**
- **Wider access routes**
- **Larger laydown areas for assembly**
- **Large leveling pads**
- **Anchored shoring walls**
- **Potential slope stability concerns**
- **Extensive railroad impacts**

Incremental Launching

▪ Why launch?

- Potential Cost Savings
- Schedule
- Access Constraints
- Environmental Impact
- Impact on Infrastructure
- Safety



Incremental Launching

- Girders assembled in launching pit



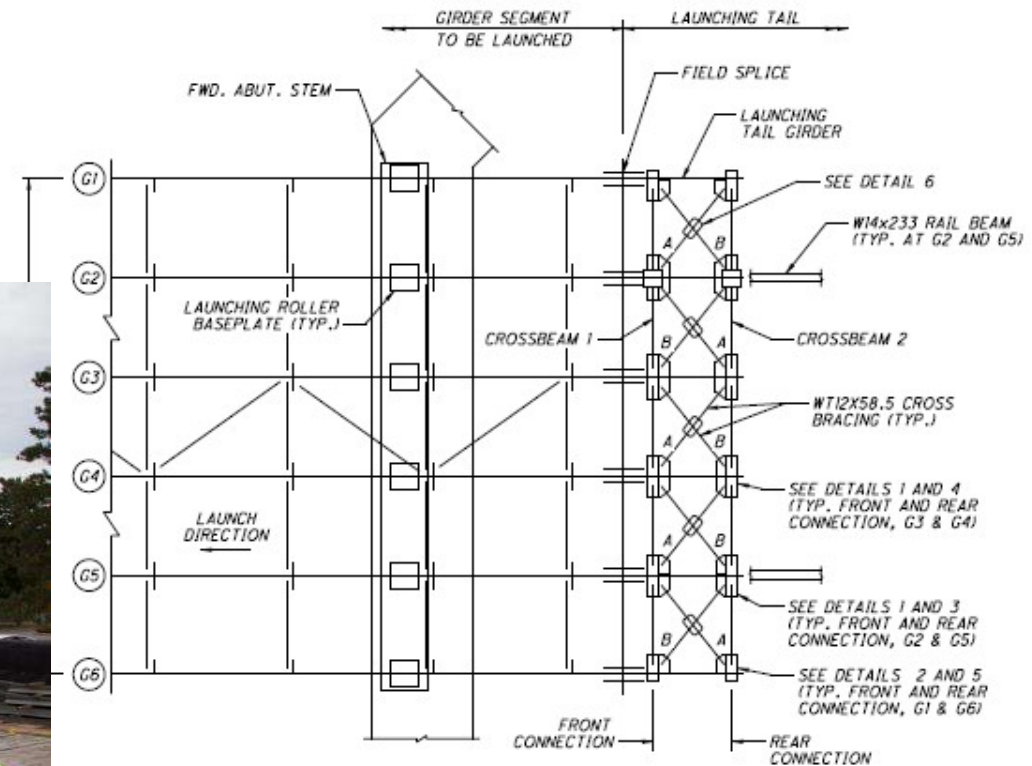
Incremental Launching

- Jacking system used for launching



▪ Jacking System and Launching Tail

- Geometric Control
- Overcoming Friction and Grade
- Retractable



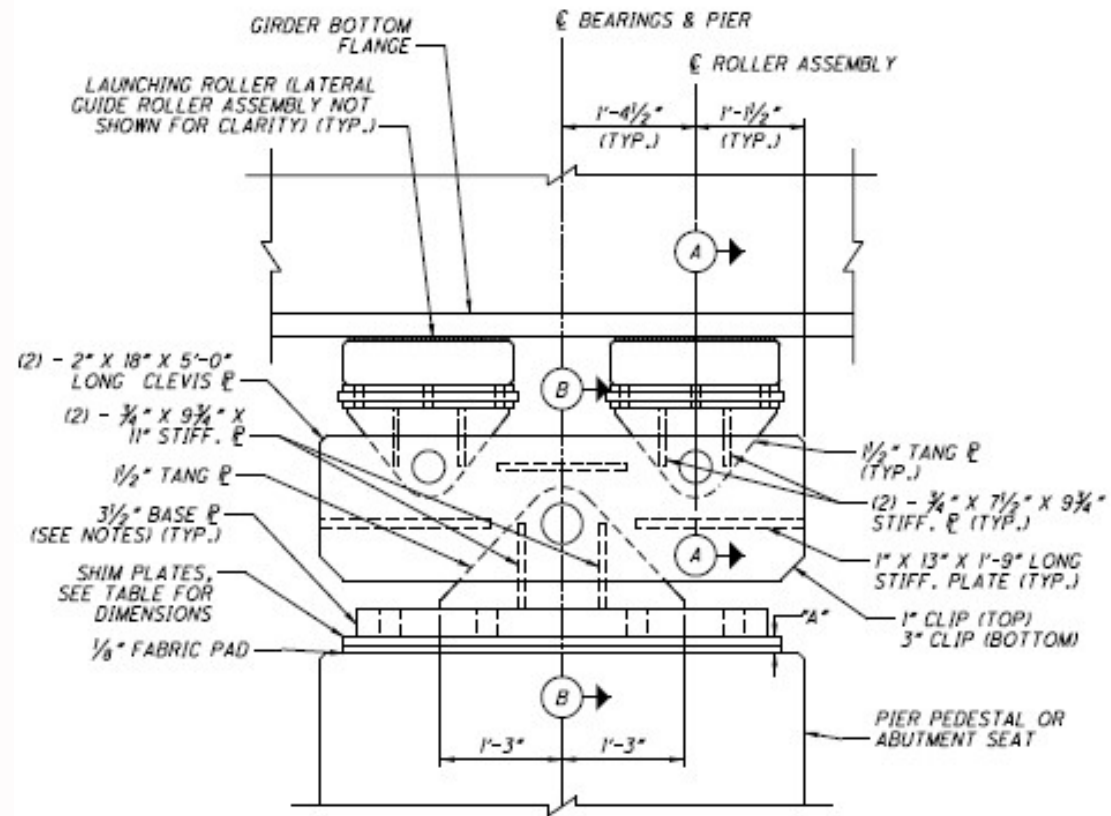
Incremental Launching

- Girders supported and guided by rollers



- Rotations
- Wheel Path
- Bearing Pressure
- Lateral Guidance

▪ Articulating Rollers



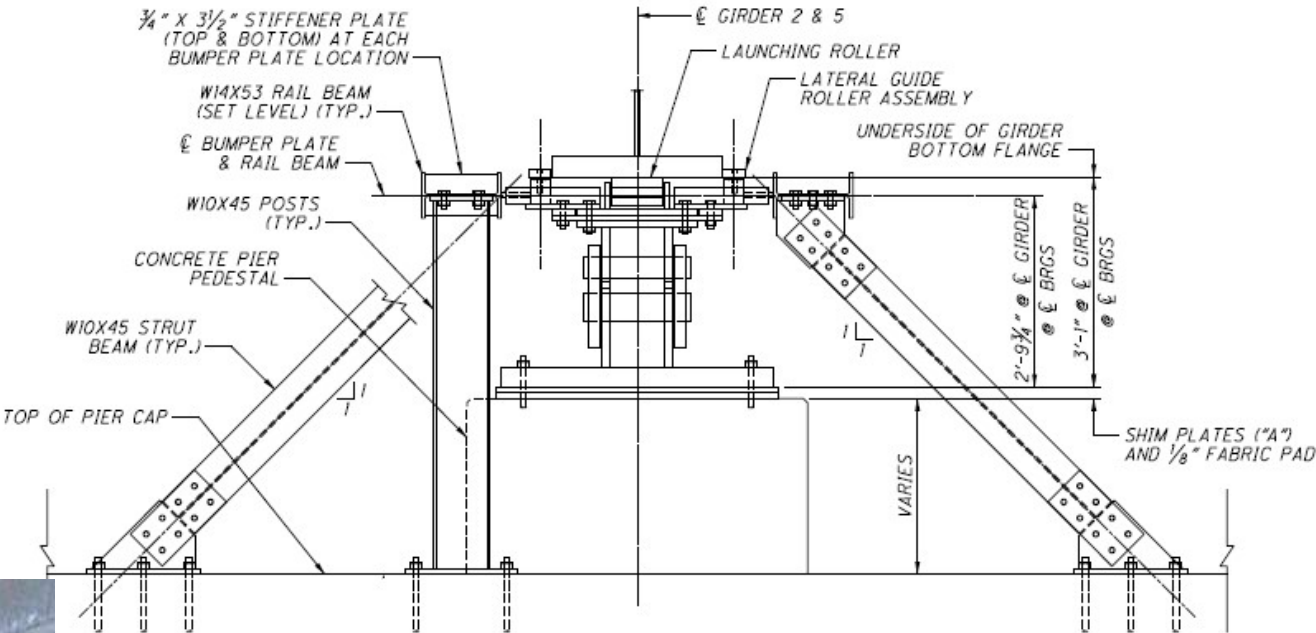
ROLLER ELEVATION

Must Accommodate:

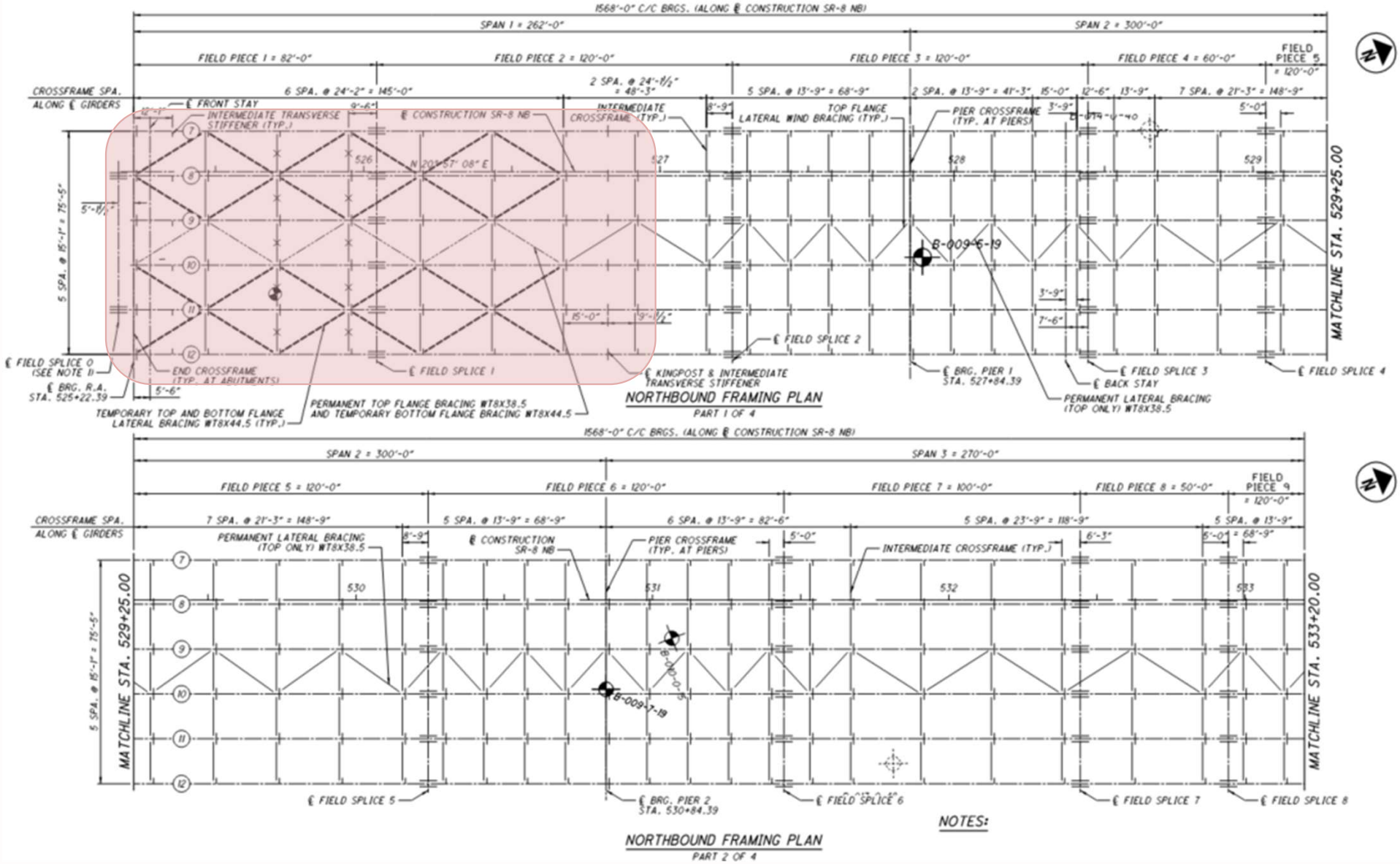
- Longitudinal Grade
- Vertical Height Transitions
- Girder Rotations during Launch

▪ Lateral Guides

Must Accommodate:
• Lateral Wind Loads

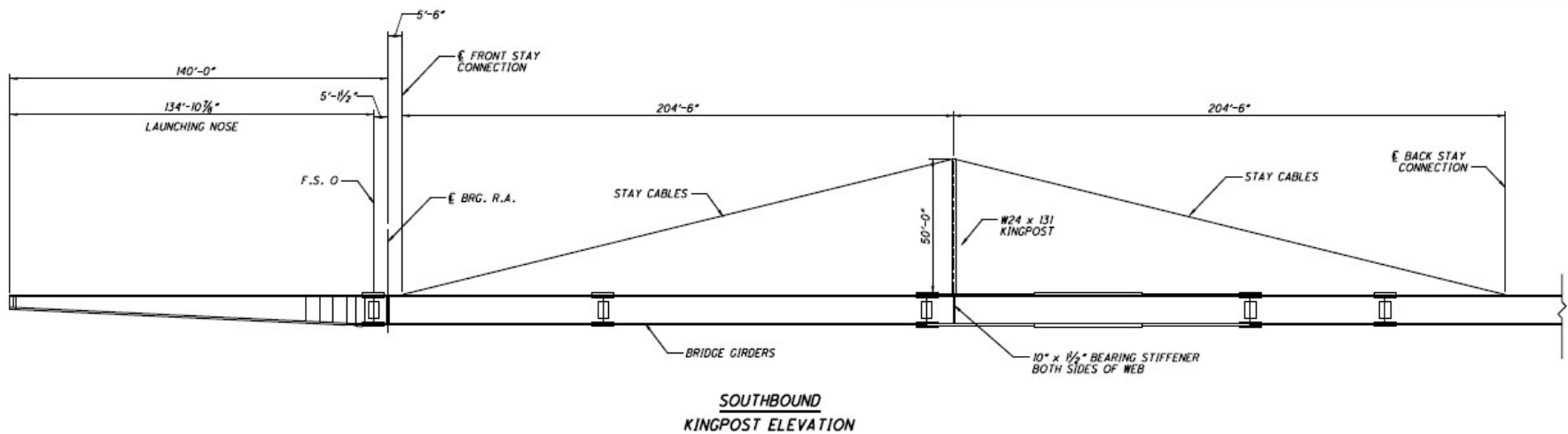
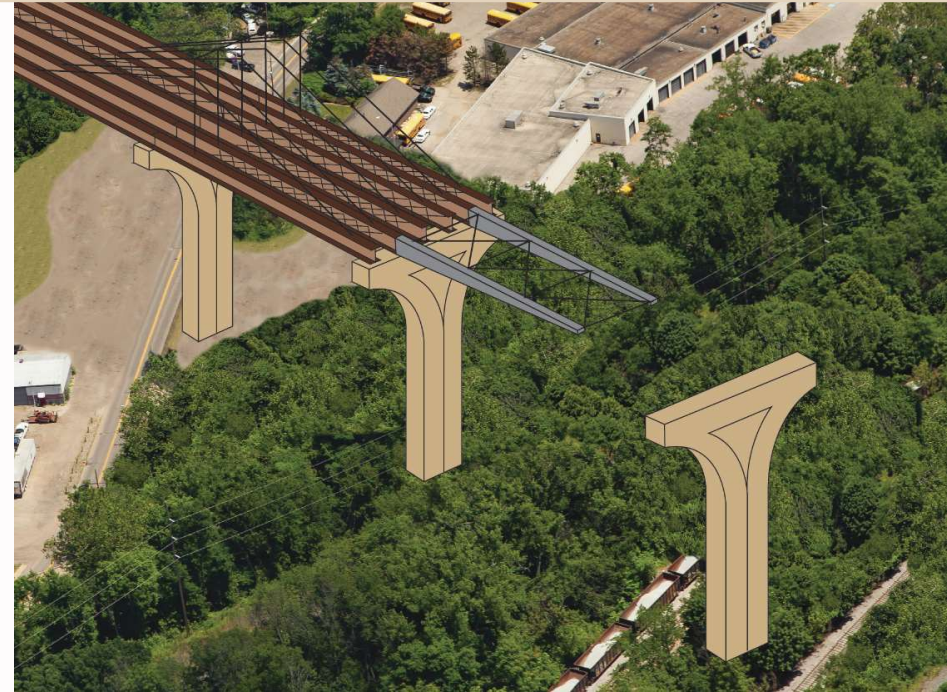
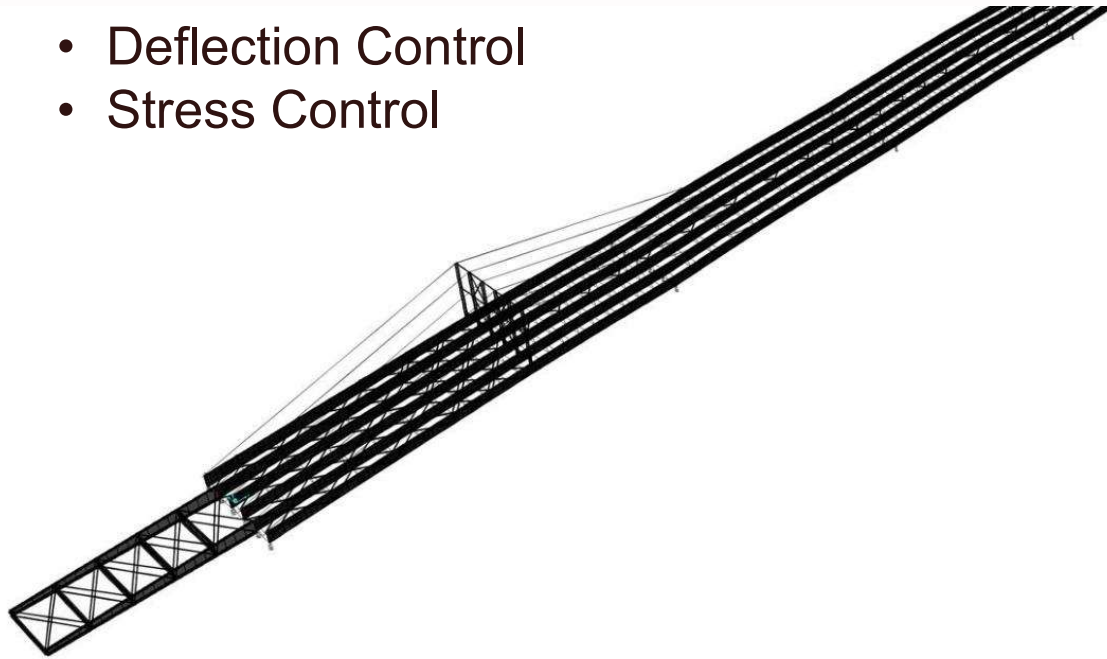


■ Lateral Bracing in Cantilever Span



▪ Launching Nose and Kingpost

- Deflection Control
- Stress Control



- **Launching nose and Kingpost**



Incremental Launching

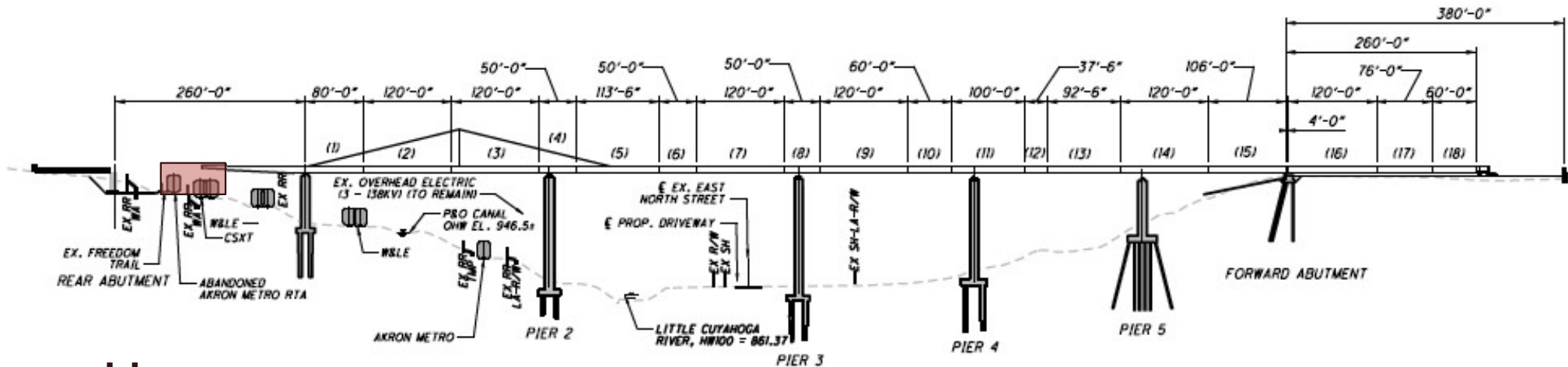
- **Remove Rollers and Lower to Bearings**



- Limited Increment Between Adjacent Substructures



■ Launching Design Criteria



Launching

- Within Elastic Stress Range
- Strength per LRFD Strength Combinations
- 5% Friction
- Short-term wind loading design per FHWA-NHI-15-044 – *Engineering for Structural Stability in Bridge Construction*.
- Shear-Axial-Moment Interaction - FHWA-TS-80-205
- Launch North to South
- CSX Criteria – 23'-0" Vertical Clearance, 1.5 Safety Factor

Launching Information – Plans and Special Provisions

- Suggested Launching Sequence and Details – *Plan Sheets 690 - 709*
- Launching & Receiving Pits – *Plan Sheets 529 - 542*
- *Special Provisions for Structural Steel Erection*
- *Special Provisions for Structure Monitoring During Incremental Launching*

What's Prescribed?

- Launching – Not Conventional Erection!
- Permanent Bridge Details (ie. Rear Abutment to Forward Abutment) –
 - *Unless Erection Scheme Requires Revisions*

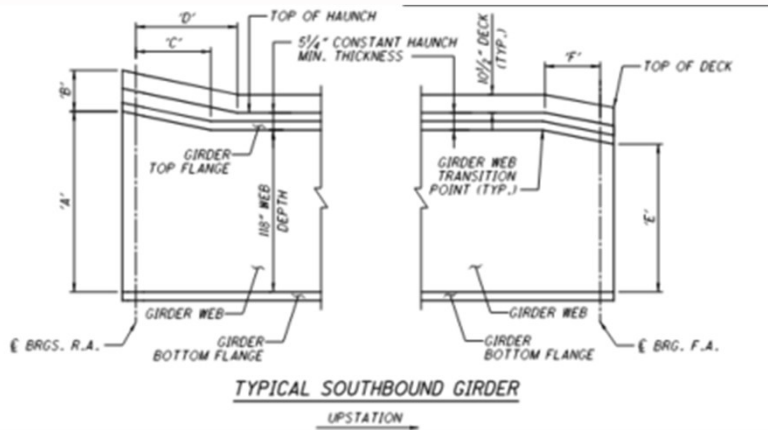
Contractor Design (In Accordance with Plan Requirements and SP's):

- Launching Equipment, Sequence, etc.
- Structure Monitoring – Minimum Requirements Provided in SP
- Temporary Structures – e.g. Shoring Walls, Structures for Launching Only

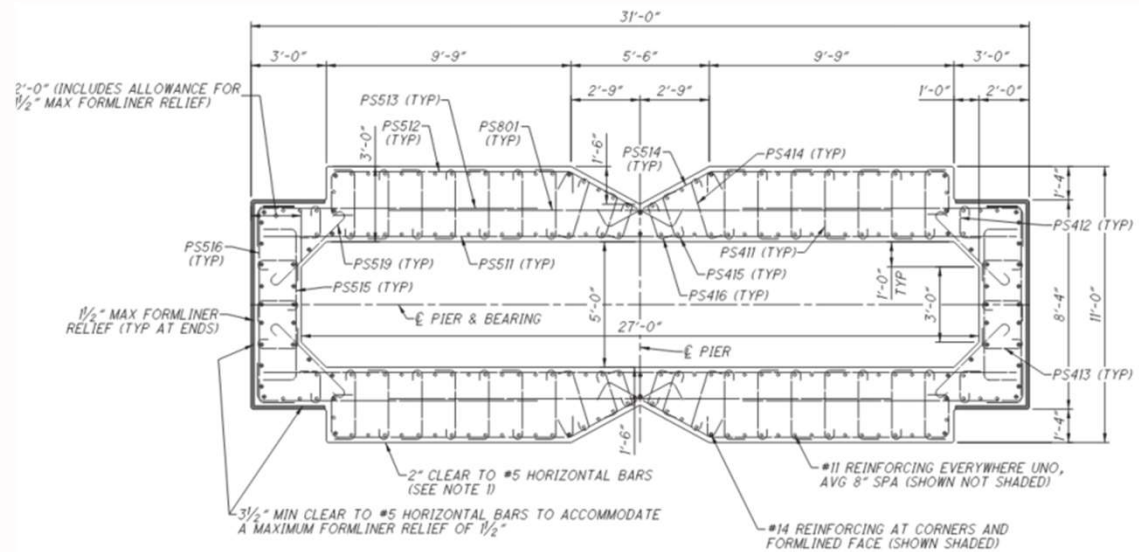
Structure Monitoring During Incremental Launching (See SP)

- Must be an independent firm, hired by Contractor, with monitoring experience per the SP
- At a minimum, monitor the following:
 - *Temperature and Wind*
 - *Launching Nose Tip Elevation*
 - *End of Girder Elevation (at Launch Nose Connection)*
 - *Girder Elevations at Fixed Intervals per SP*
 - *Girder T/B Flange Stresses Under Kingpost Connection (Strain Gage)*
 - *Girder T/B Flange Stresses at Back Stay Anchor (Strain Gage)*
 - *Compressive Stress in Kingpost (Strain Gage)*
 - *Rotation Near Top of Pier (Inclinometer)*
 - *Pier Top Deflection*
 - *Jacking Force Applied (Load Cell)*
- Provide continuous monitoring during launches
- Predetermined threshold values will result in stopping launch to diagnose and correct issues

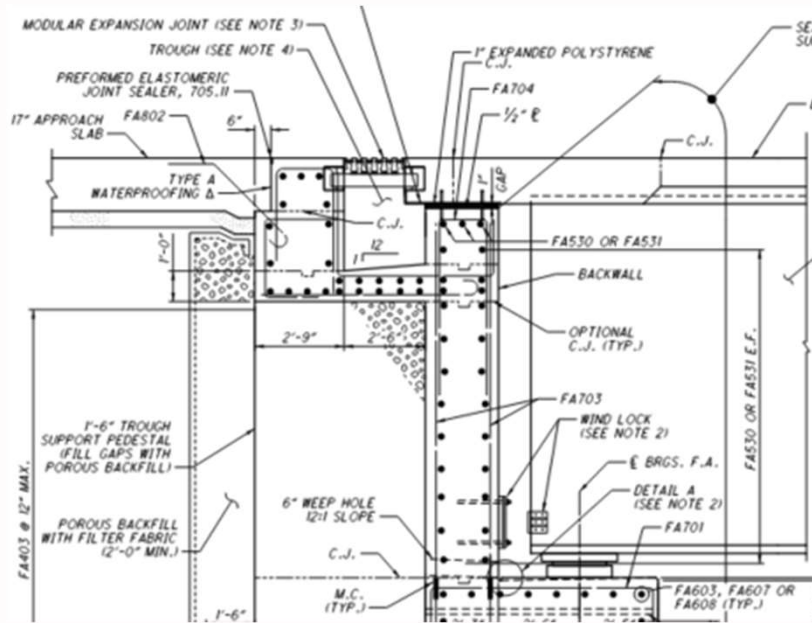
Notable Bridge Details



Variable Haunch and Web to Facilitate Launchable Profile



Hollow Pier Columns

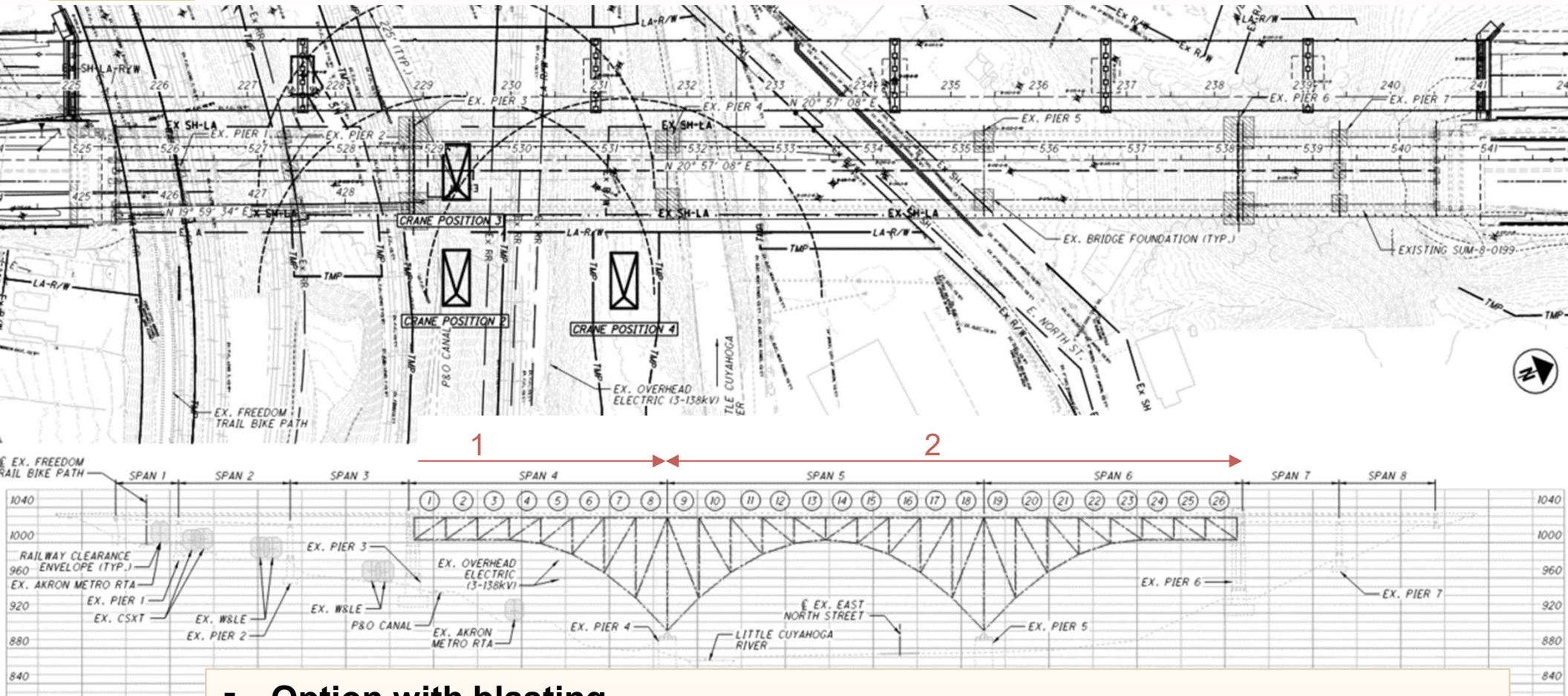


Modular Expansion Joint with Drain Trough



Bridge Demolition

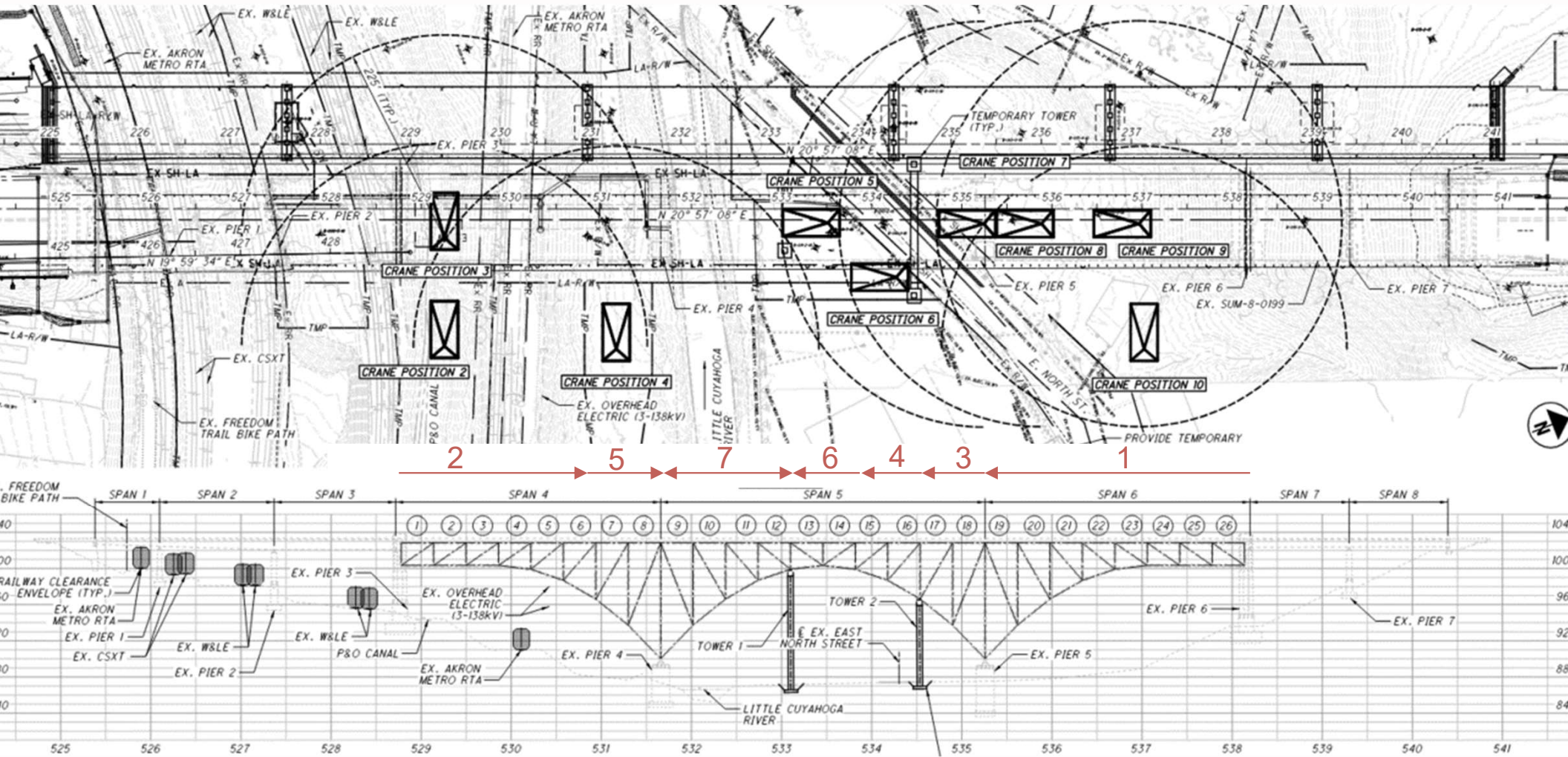
Bridge Demolition Option 1



▪ Option with blasting

- SR-8 may be closed for 3 hours, Sunday 8 am to 11 am
- No blasting over railroad
- Waterway – 4/15-6/30 restricted, 72 hours to remove debris
- Protection of North Street/Utilities
- Water line replacement on North St before Demo (Note on Sheet 547)

Bridge Demolition Option 2



- **Option without blasting**
 - Temporary Bents
 - Piece-by-Piece Disassembly



Construction Camera

General Notes on Plan Sheet 17

- Remote and live viewing
- Online interface managed and supported by system vendor
- Time-lapse video at end of project



Geotechnical

Geotechnical Overview

Site Reconnaissance

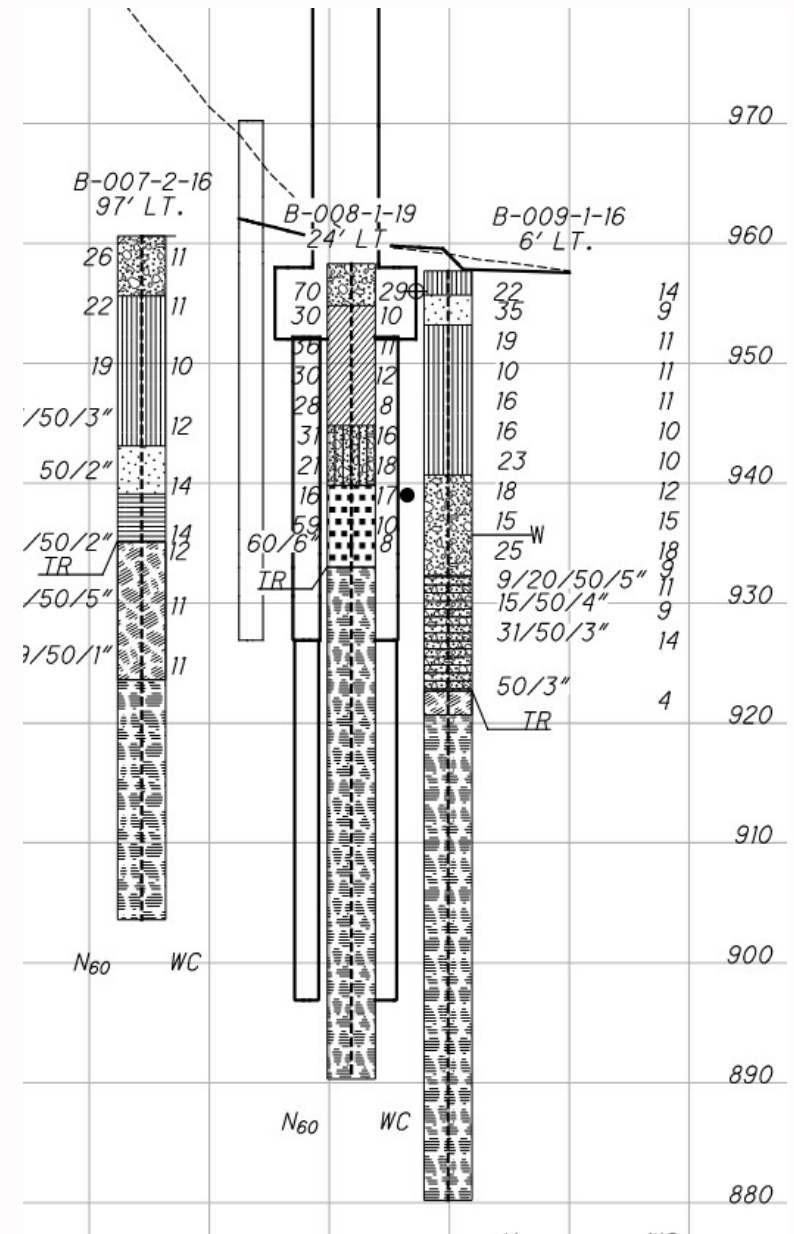
- 98 Borings
- Geophysical

Rock Prevalence

- Siltstone
- Sandstone
- Shale
- Limestone

Soil Prevalence

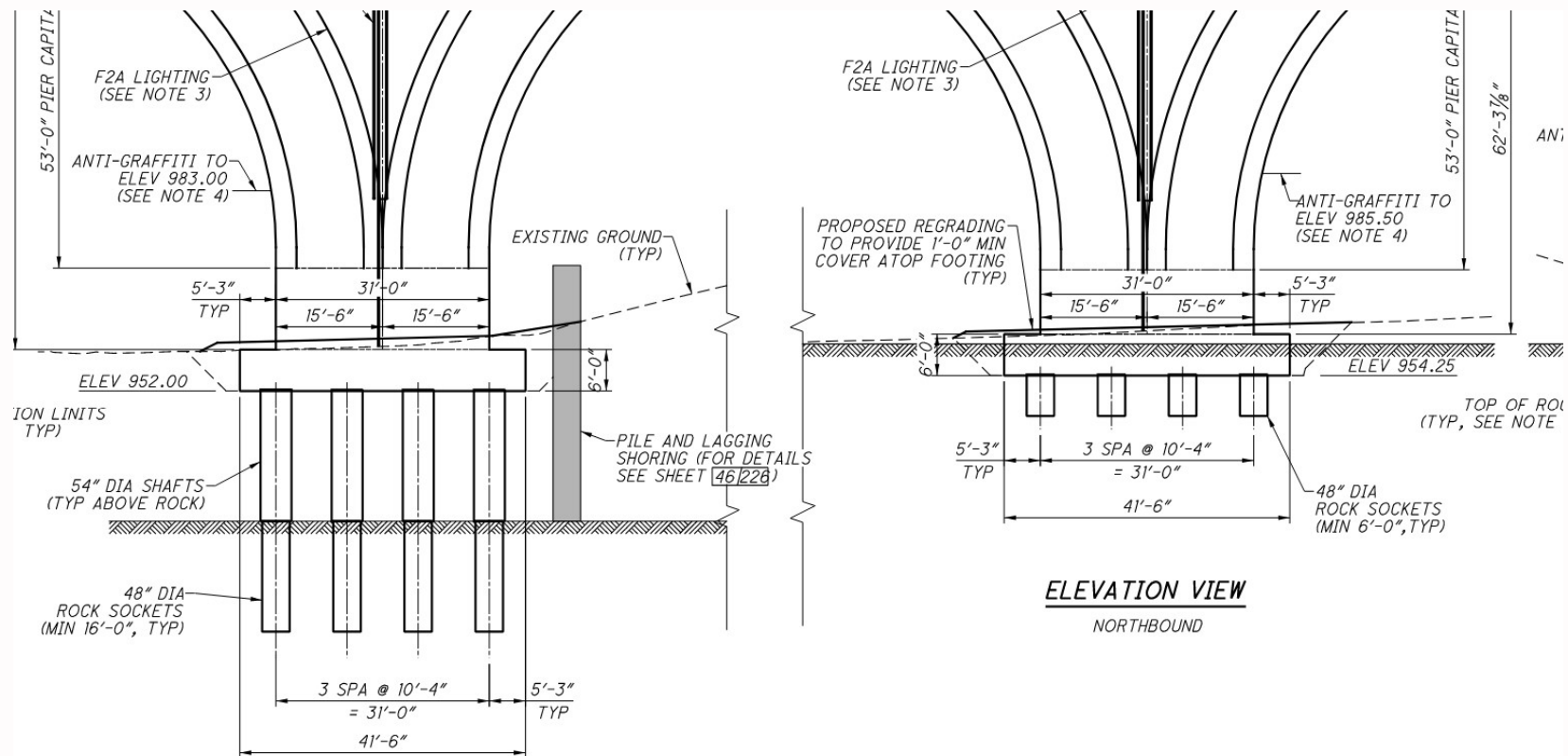
- A-1, A-2, A-3 (granular)
- Undocumented Landfill near Pier 5



Geotechnical Overview

■ Pier 1

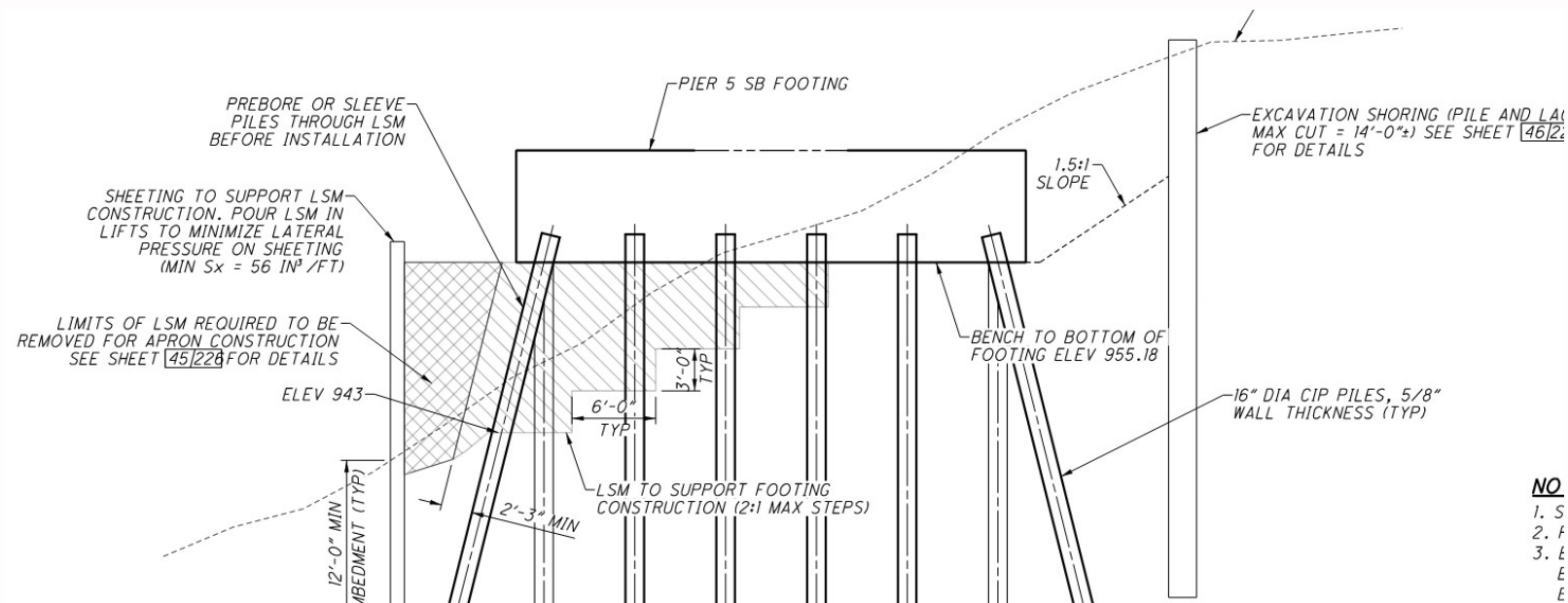
- Top of rock encountered has a large variation between NB and SB bridges.
- Both piers on Shafts;




Geotechnical Overview

■ Pier 5

- Platform for perched footing included to mitigate extensive shoring required for buried footing.
- LSM installed in shallow lifts recommended to be of higher strength than ODOT typical LSM
- Larger thickness piles to account for degradation (potentially corrosive landfill soils / materials)





Stakeholder Coordination

Utility Relocation's South of the Bridge

- Aerial utilities south of the structure/along the side streets will be relocated or removed by July 1, 2023.

First Energy Transmission

- Dates discussed with First Energy for Transmission de-energizing
 - **The Company requests a One-year notification for the work to be scheduled and performed.**
 - The contractor will contact Ryan Grady for outage requests. Additional guidelines are in the utility note.

- March 2025 - Launching of SB Bridge (5) Days.

- November 2025- December 2025 - Demolition of existing truss (Two separate timeframes)
 - Timeframe #1 (Cuyahoga River to the south abutment) - (30) calendar days for conventional demolition
 - Timeframe #2 (Cuyahoga River to north abutment) - (5) calendar days for explosive demo.
 - If the contractor does not choose to use explosive demolition to remove this portion of the structure, then the work will be conventional demolition and an electric outage will not be needed.

- March 2027 – Launching of NB Bridge (5) days.



North Street

- **Aerial – relocated underground**
 - Electric
 - Telecommunication
 - Fiber optic
- **Underground**
 - Water
 - Sanitary Sewer
 - Gas

■ **Akron Water Supply**

- The State's Highway Contractor shall perform all work as described and detailed in the plans and contract documents.
- North Street
 - Water Line Relocation
 - Needs completed prior to demolition (Sheet 547)
 - Impacts from Demolition

■ **City of Akron Sewer**

- The State's Highway Contractor shall perform all work as described and detailed in the plans and contract documents.

■ **Access Road 8**

- Aerial lines at the entrance will be relocated by July 1, 2023.

■ **Access Road 5A Area**

- Aerial lines and poles along Access Road 5 / Harris St. have been removed.

- **North of the North Abutment**

- Ohio Edison's relocated aerial lines shown on sheet 188/801
- Work expected to be completed by July 1, 2023.

**Upon finalization utility note will be revised*

Railroads



Access Road 2A

Active RR

In-active RR

Prop. Storm Sewer Beneath RR

Akron Metro RTA

N

Access Road 3A

W&LE

W&LE

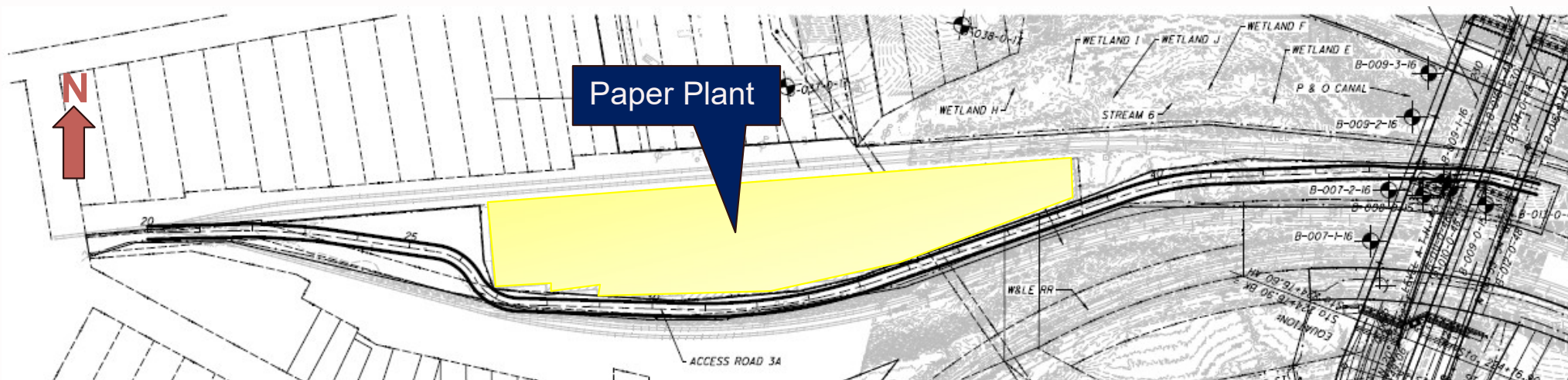
CSXT

Freedom Trail
Access Road 1

Akron Metro RTA

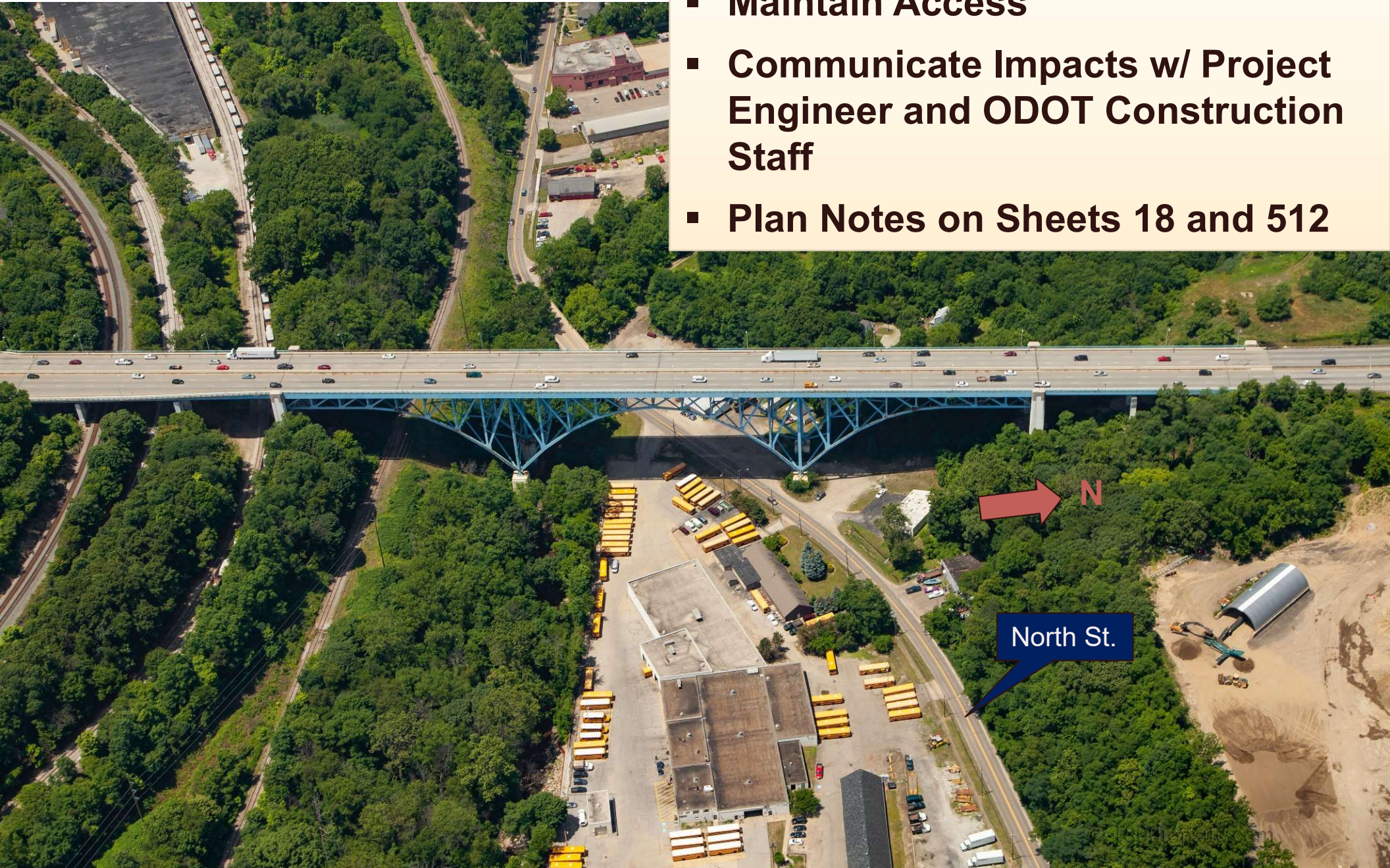
Paper Plant

- Temporary Right of Way.
- ODOT Construction Staff will be main point of contact for any needed coordination.
- See Sheet 330 for plan notes.



Akron School Bus Garage

- **Maintain Access**
- **Communicate Impacts w/ Project Engineer and ODOT Construction Staff**
- **Plan Notes on Sheets 18 and 512**



City of Akron

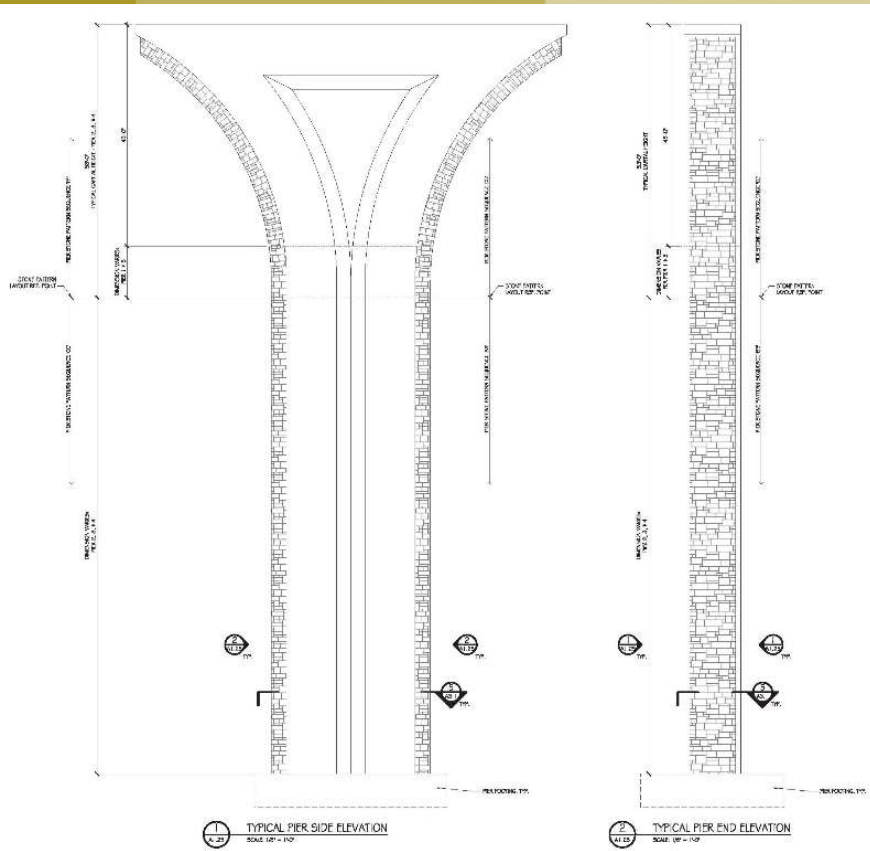
- Perkins Street Traffic Signals
 - Owned by Akron
 - Coordinate Signal Impacts / Re-timing
- Coordinate Road Closures



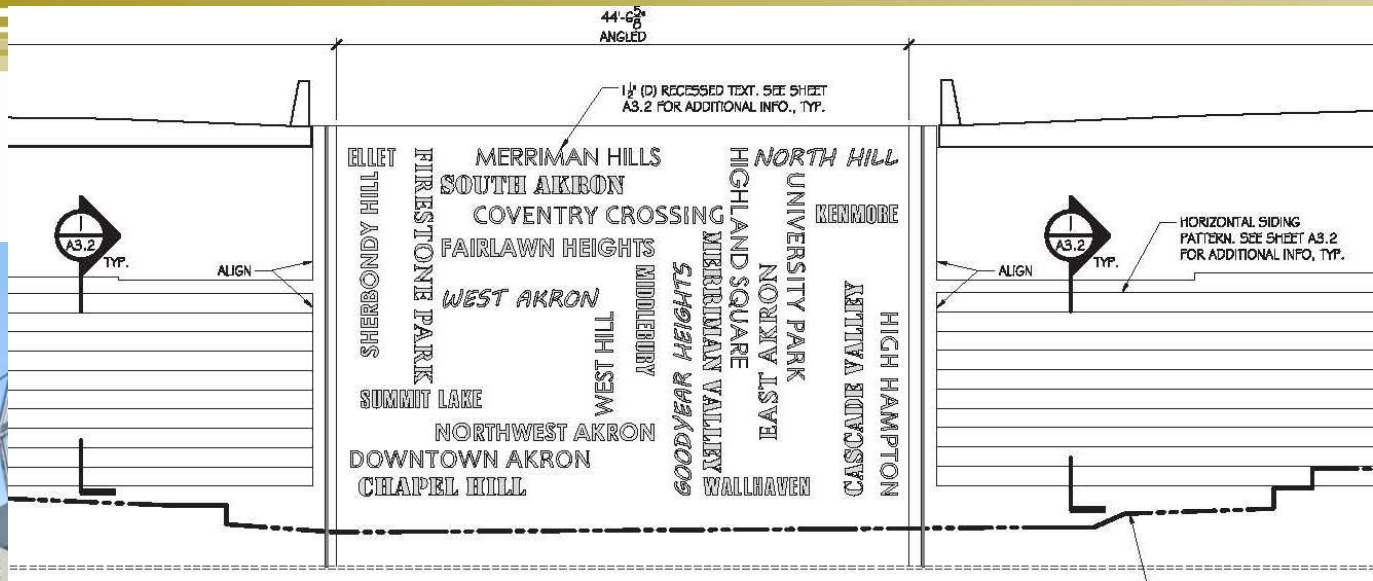


Aesthetic Features

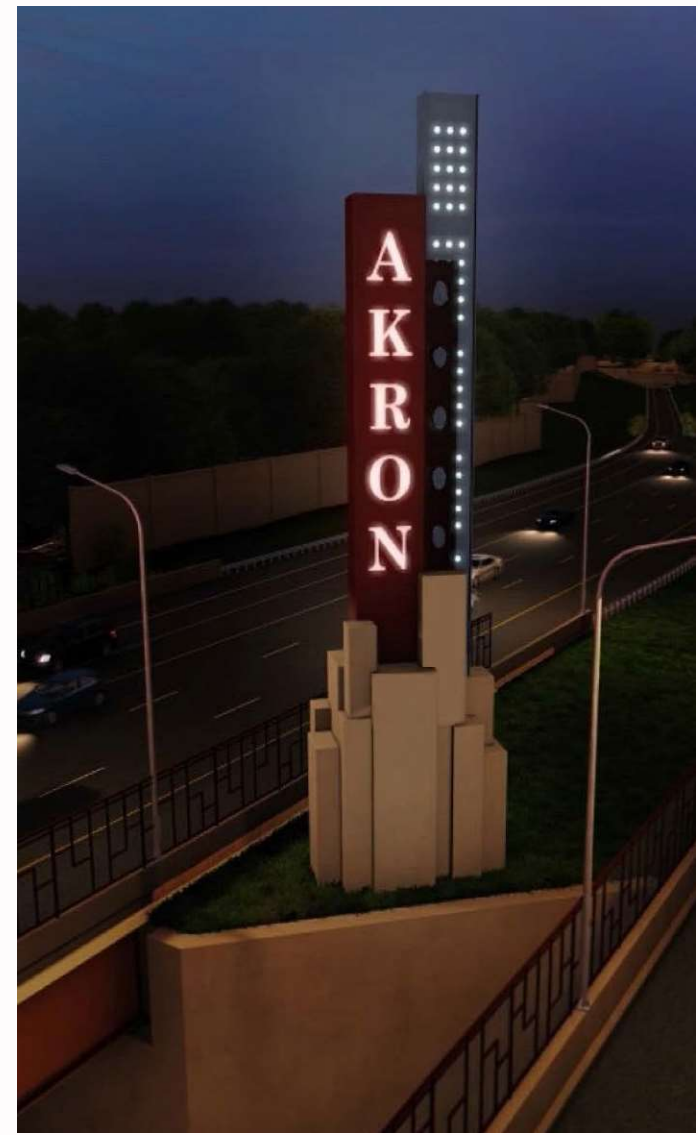
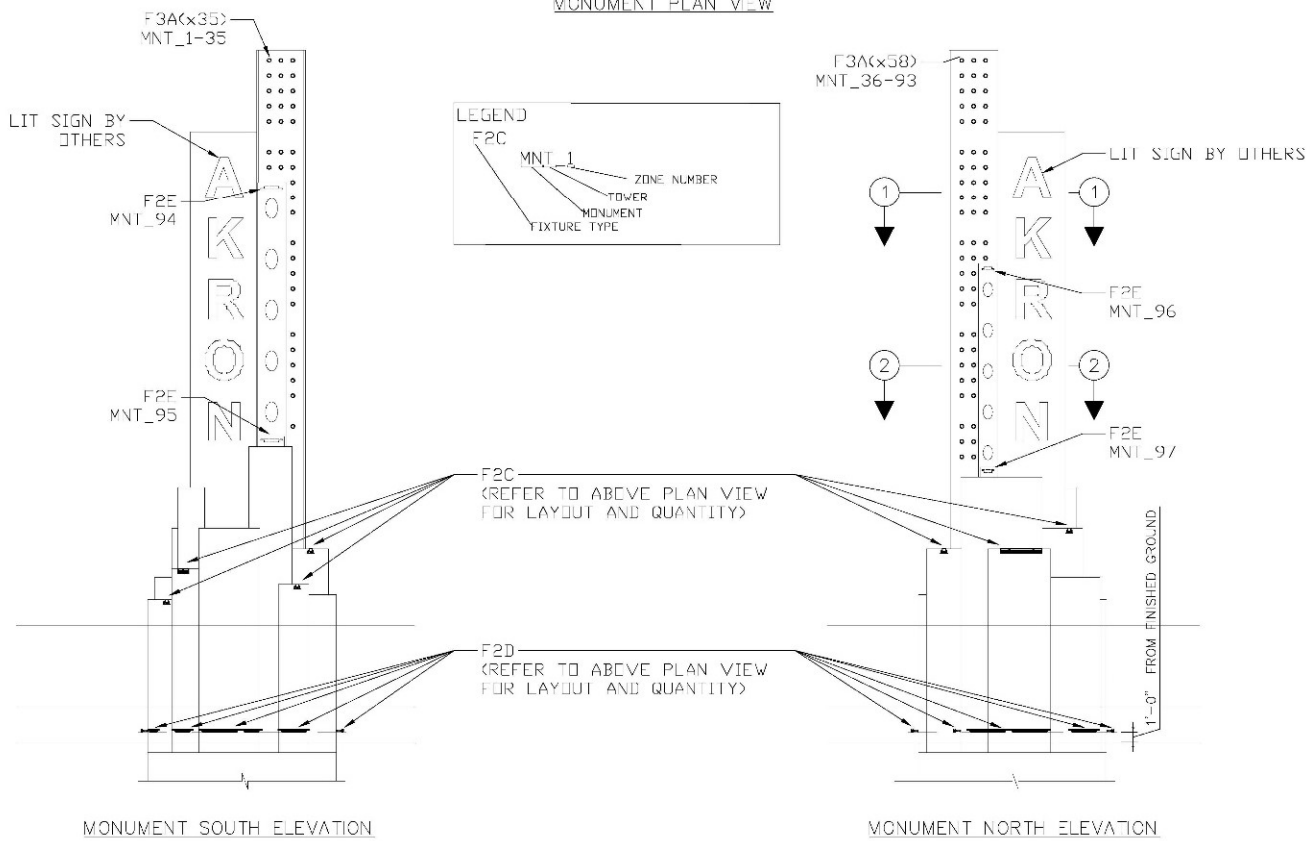
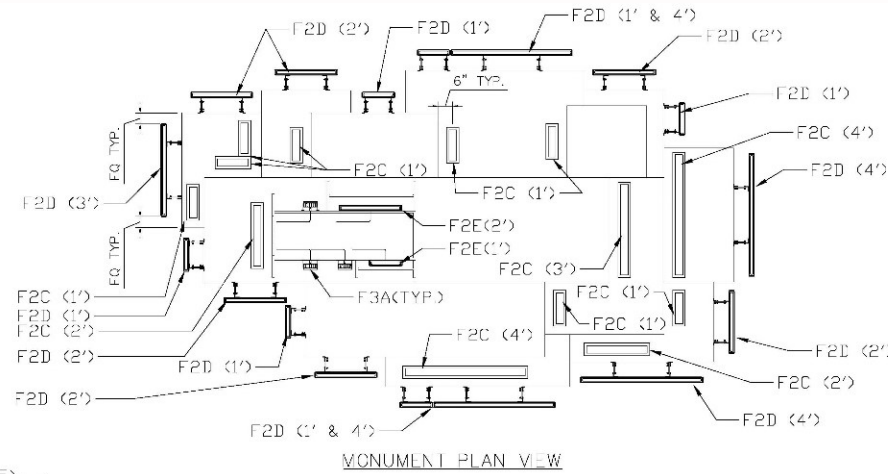
Piers



South Abutment Pattern and Plaza



Monument Feature





Questions?