I-80 & I-215 Renewed

Salt Lake East

Five Million Pound Utah Bridge Slide

Presented By:

Cheryl Hersh Simmons — UDOT Keeping Utah Moving

Logan Julander — Michael Baker International

Jim Deschenes — Ralph L. Wadsworth Contractors Engineers Since 1975

Presentation Outline

- Utah's ABC History
- Project Overview
- Design Considerations
- Construction Details
- Lessons Learned
- Questions

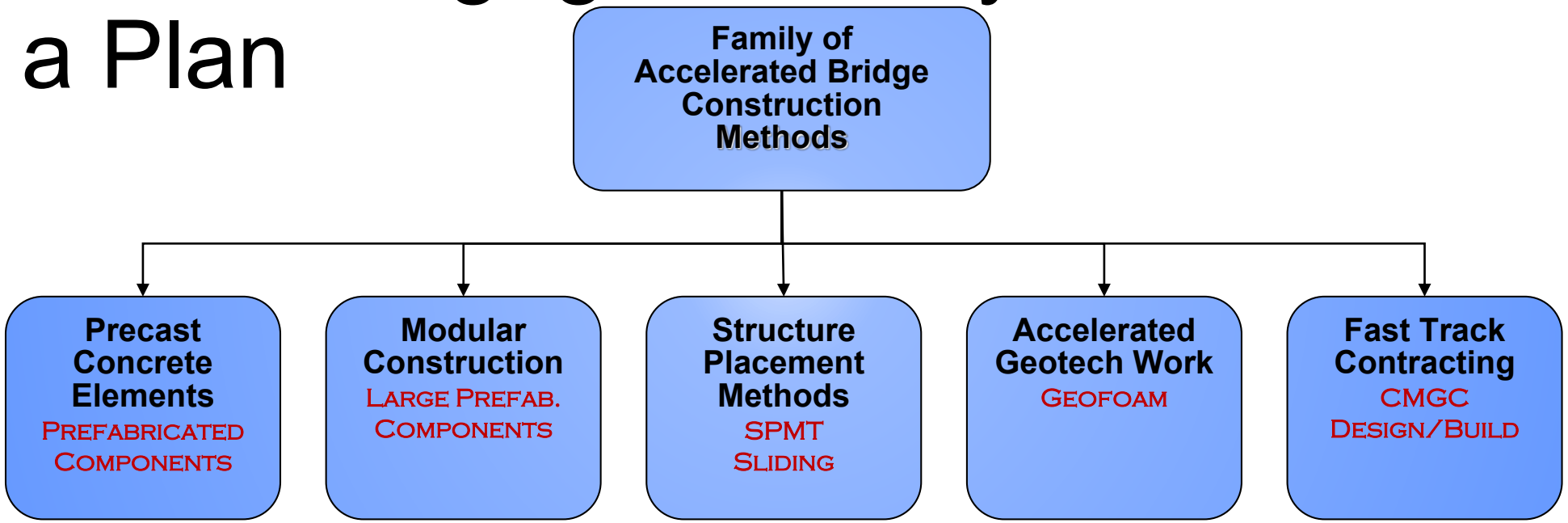
UDOT's ABC History and Project Overview

Cheryl Hersh Simmons, SE

Chief Structural Engineer

Utah's ABC History
Early Implementation

- 2002 Winter Olympics
- Research
- Educate and Engage Industry
- Have a Plan



Utah's ABC History

2003 - Prefabricated Bridge Elements and Systems (PBES)

Hoytsville Road over I-80 (Wanship)
Deck Replacement

Design-Bid-Build

Utah's ABC History

2007 – Self Propelled Modular Transport (SPMT)

4500 South over I-215
Bridge Replacement
CMGC

Utah's ABC History

2009 – Slide-In Bridge (Lateral Slide)

SR-66 over Weber River
Bridge Replacement

Design-Bid- Build

Utah's ABC History

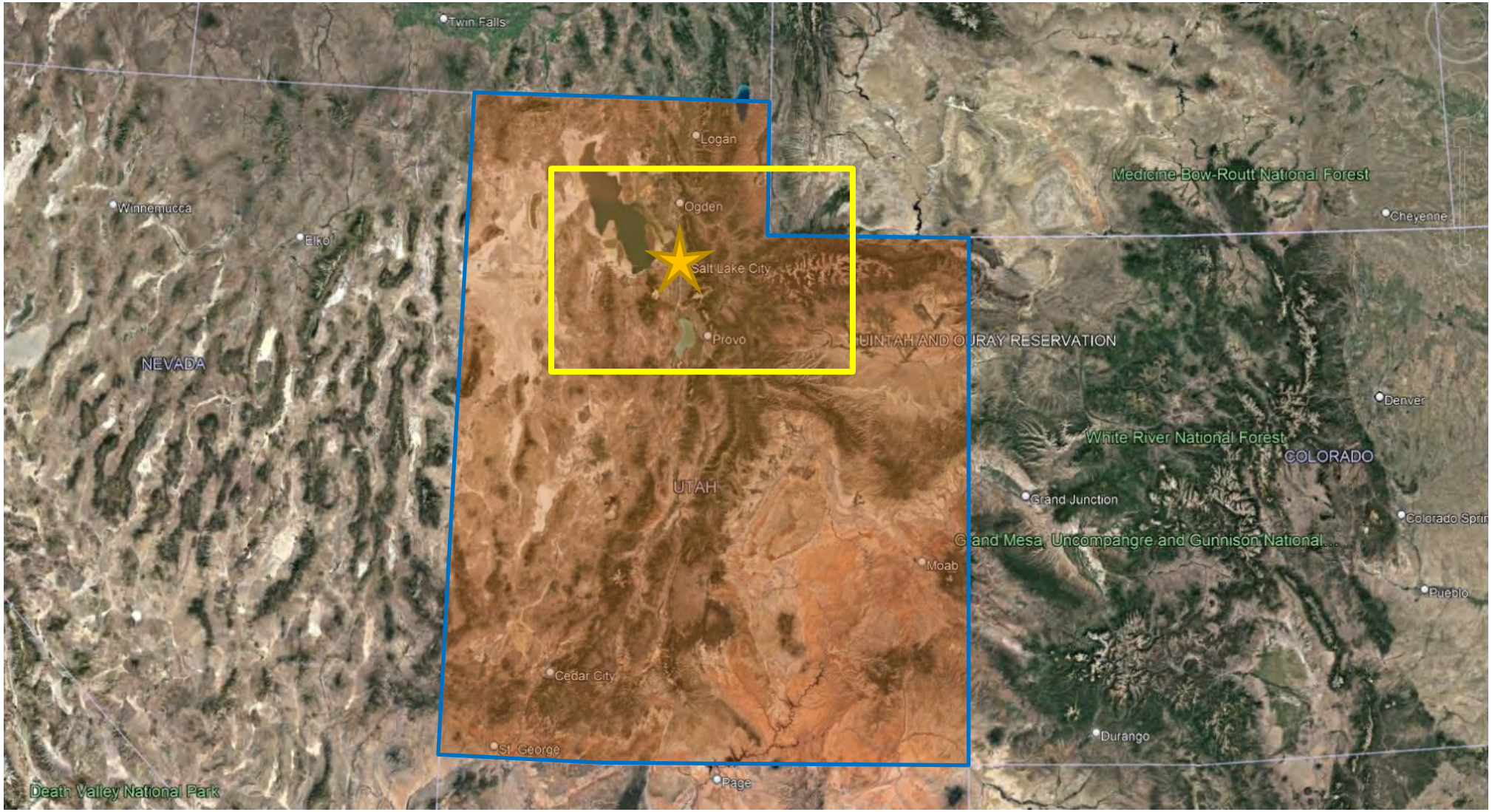
By the Number

ABC Method / Element	Number of Bridges
Slide-in	25
Self Propelled Modular Transporters (SPMT)	20
Bridge Launch	2
Heavy Lift Cranes	2
Full Depth Precast Deck Panels	41
Precast Voided Slabs	7
Approach Slab Panels	20
Precast Sleeper Slabs*	19
Precast Abutments	7
Precast Bent Caps	4
Precast Columns	1
Prefabricated Pedestrian Bridge*	19
Precast Box Culvert*	70

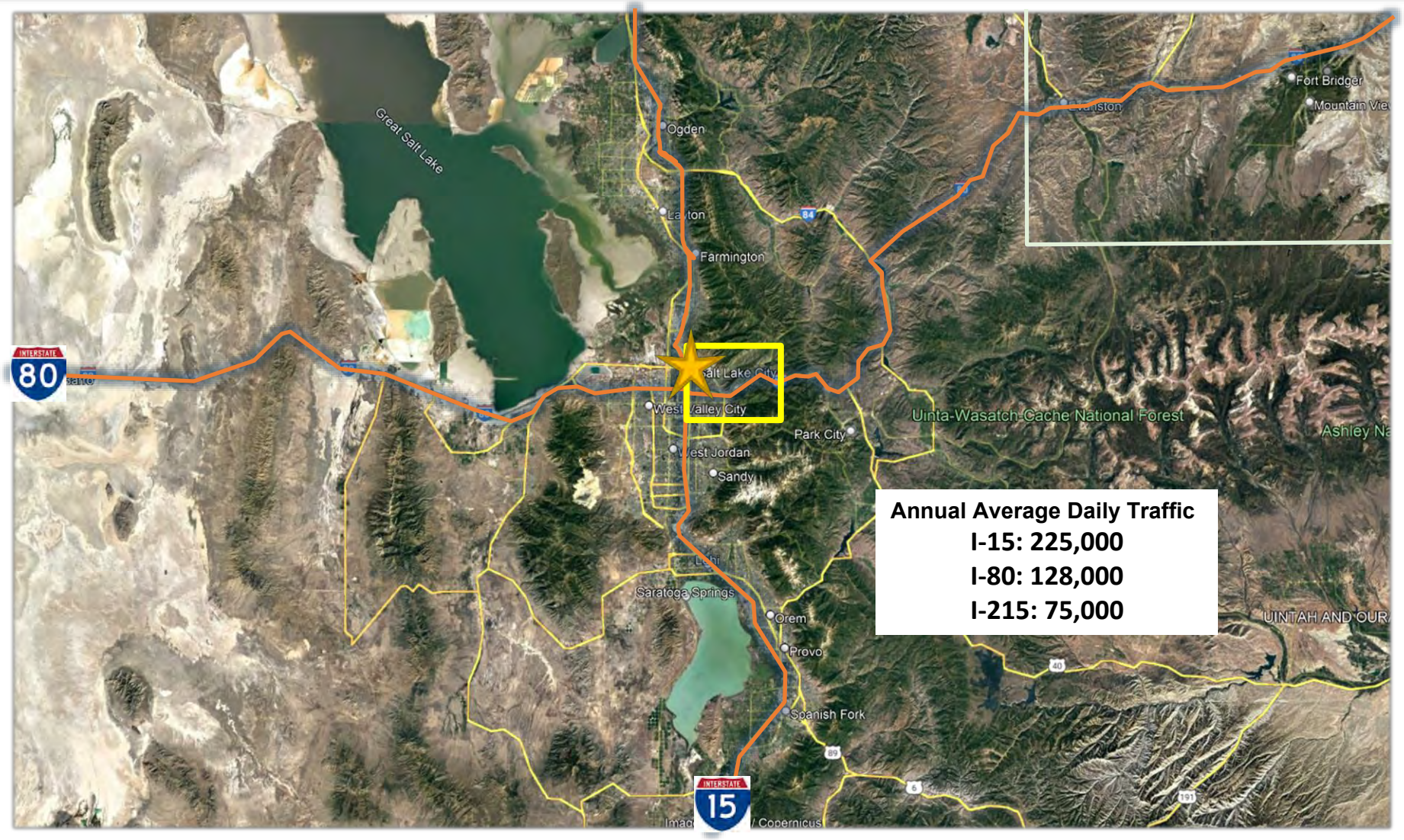
*not tracked beyond 2013

ABC History
I-80 Corridor

Utah's ABC History
I-80 Corridor

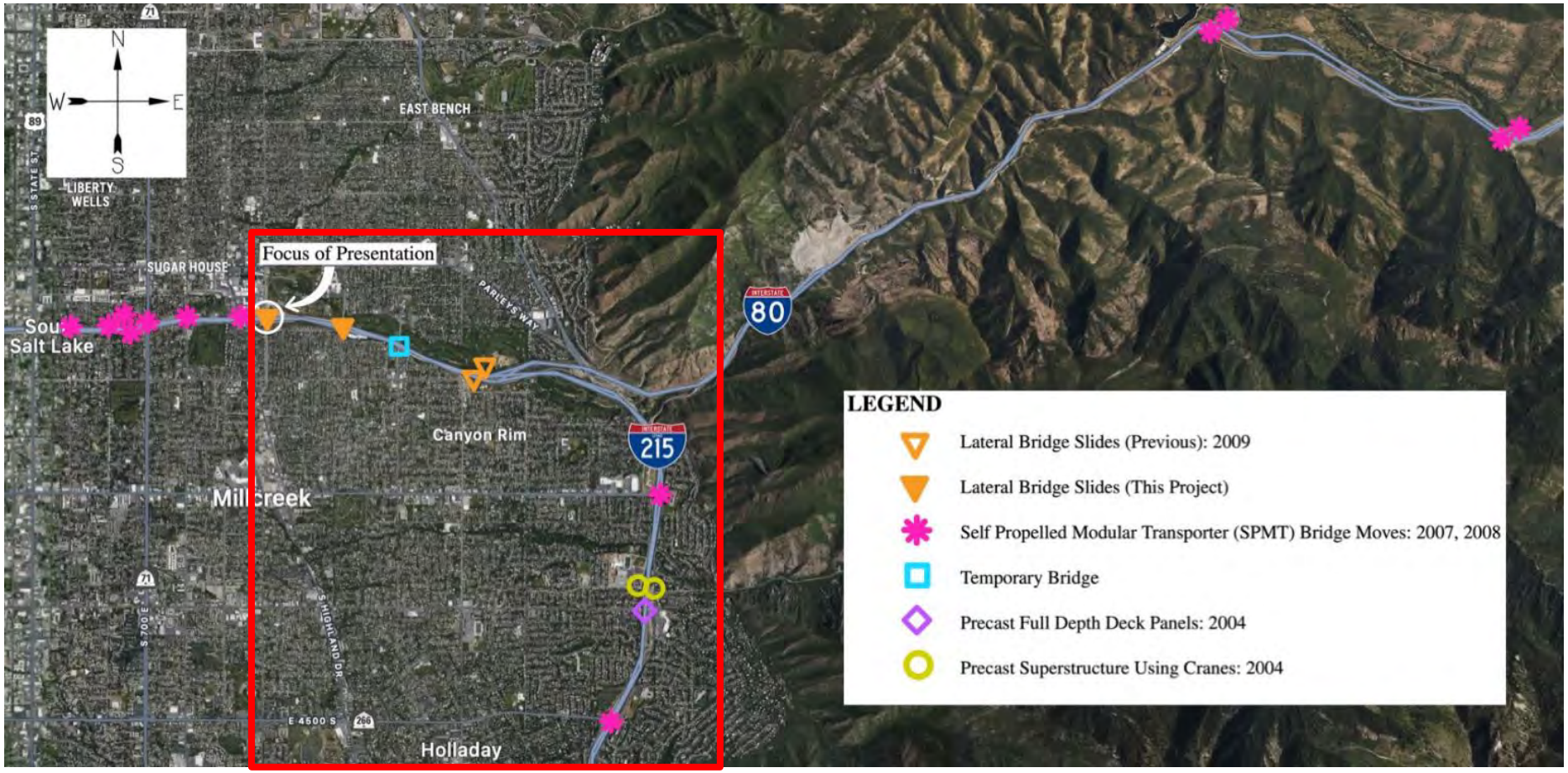


Utah's ABC History
I-80 Corridor



Utah's ABC History
I-80 Corridor

Project Overview
I-80 & I-215 Renewed



Project Overview
I-80 & I-215 Renewed

- **Project Value:** $120M
- **Contract Method:** Design-Build
- **Project Goal:** Maximize mobility during construction

- **Project Awarded:** 2021
- **Project Completion:** 2023

Project Overview
1300 East Over I-80

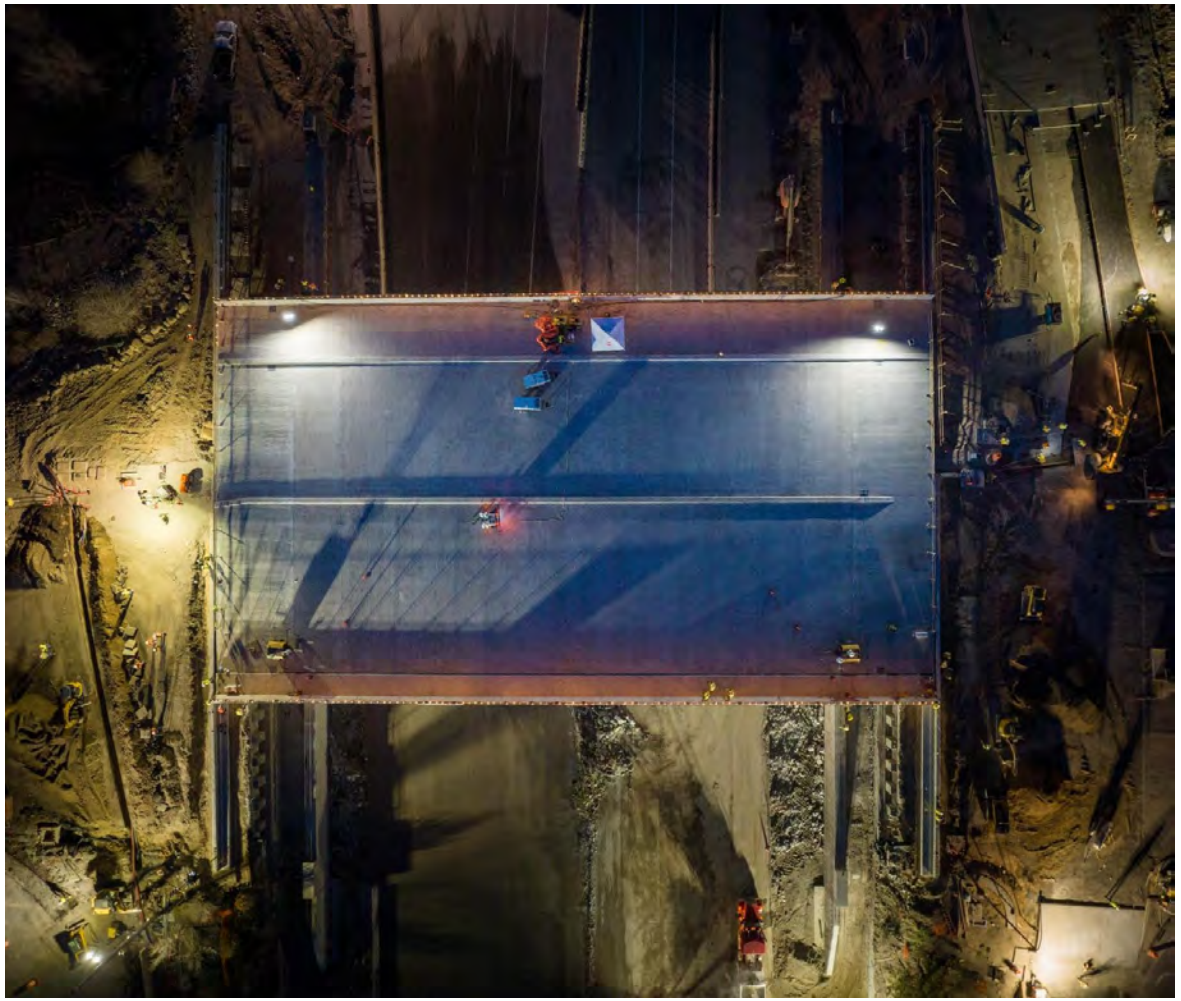
Design Considerations

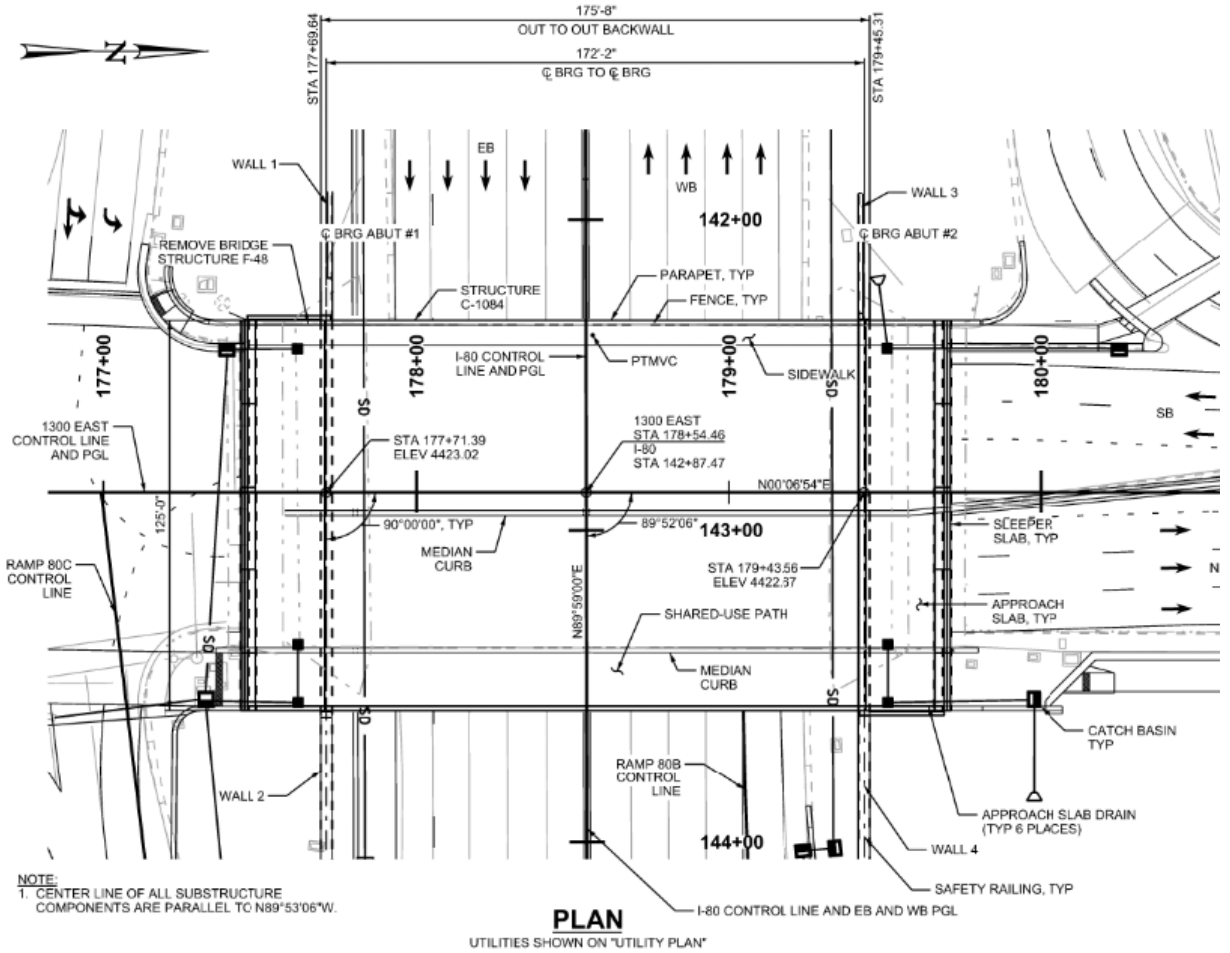
Logan Julander, PE

Structures Manager

Michael Baker INTERNATIONAL

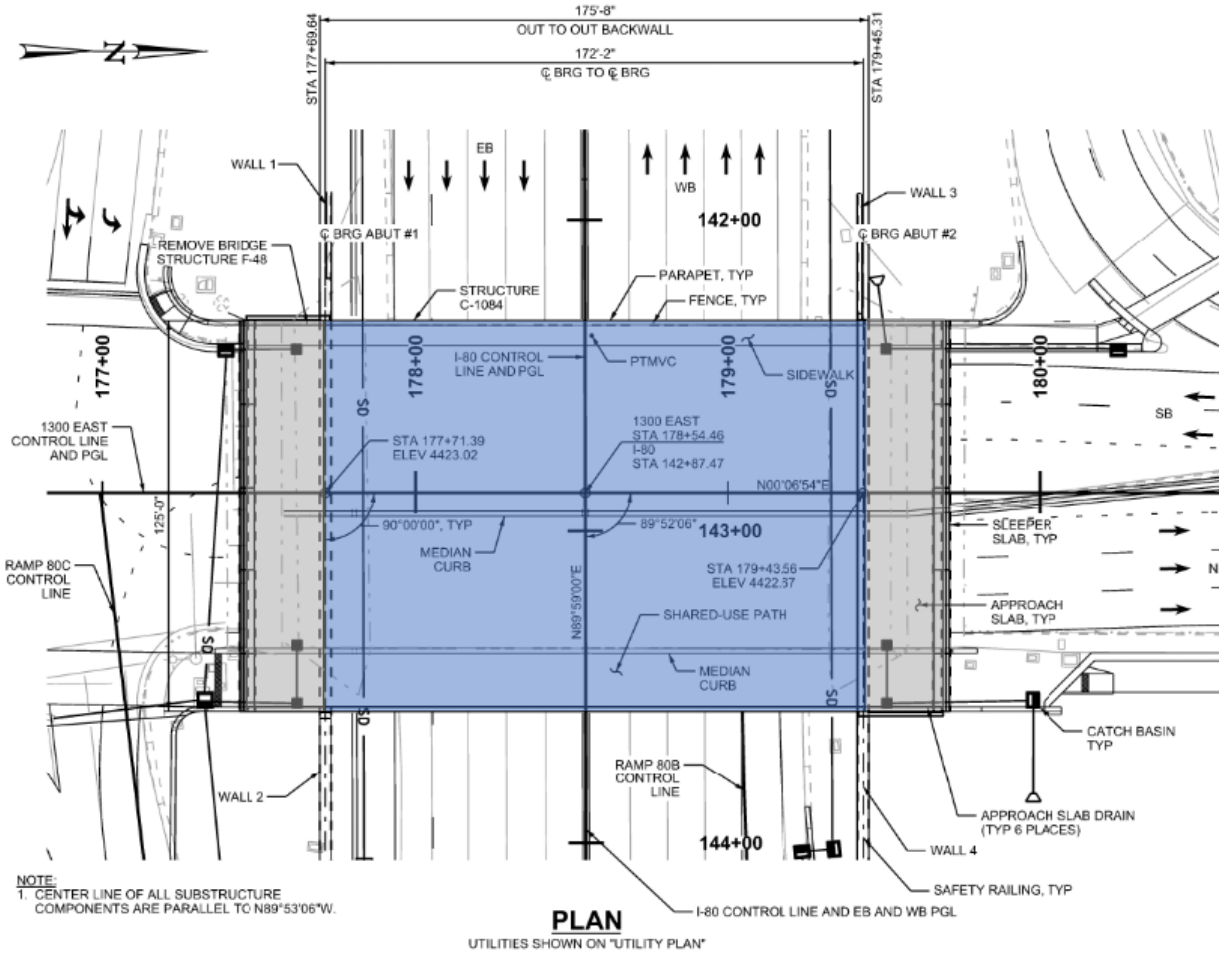
Design Considerations
1300 East Over I-80



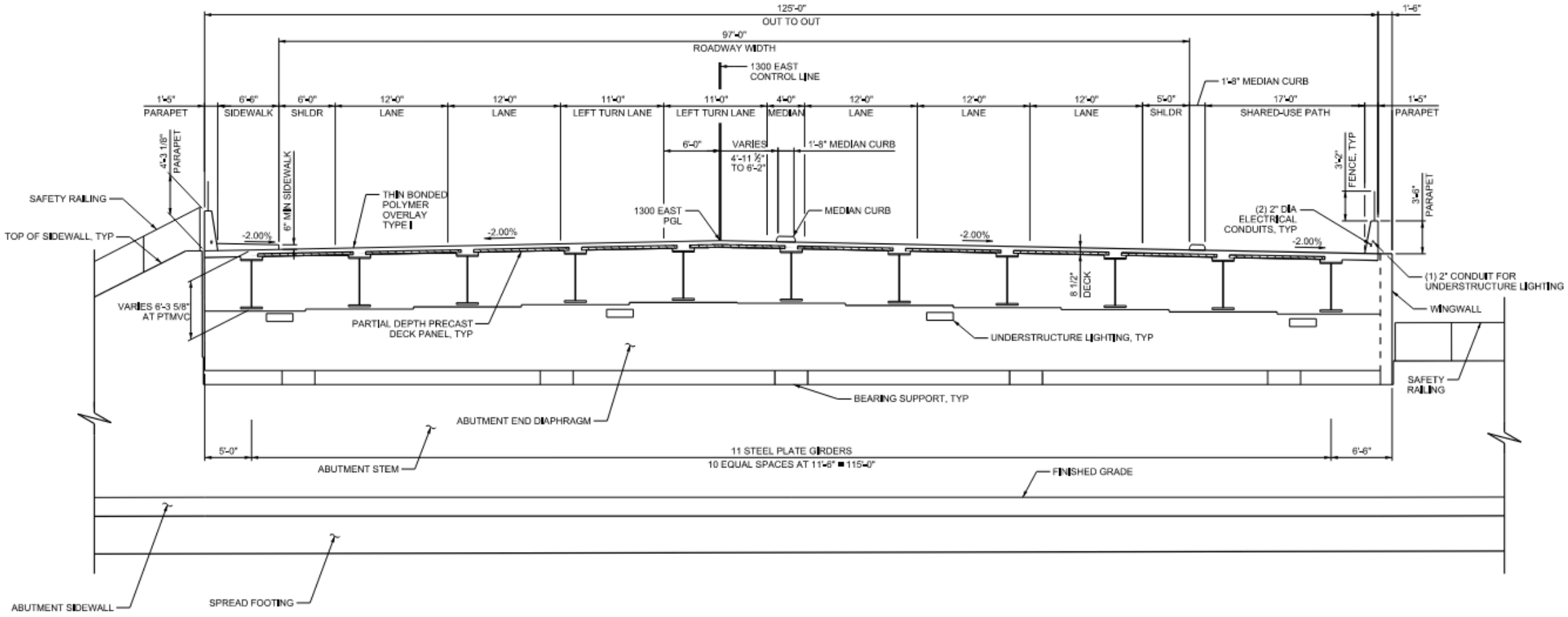


Bridge Characteristics
1300 East Over I-80

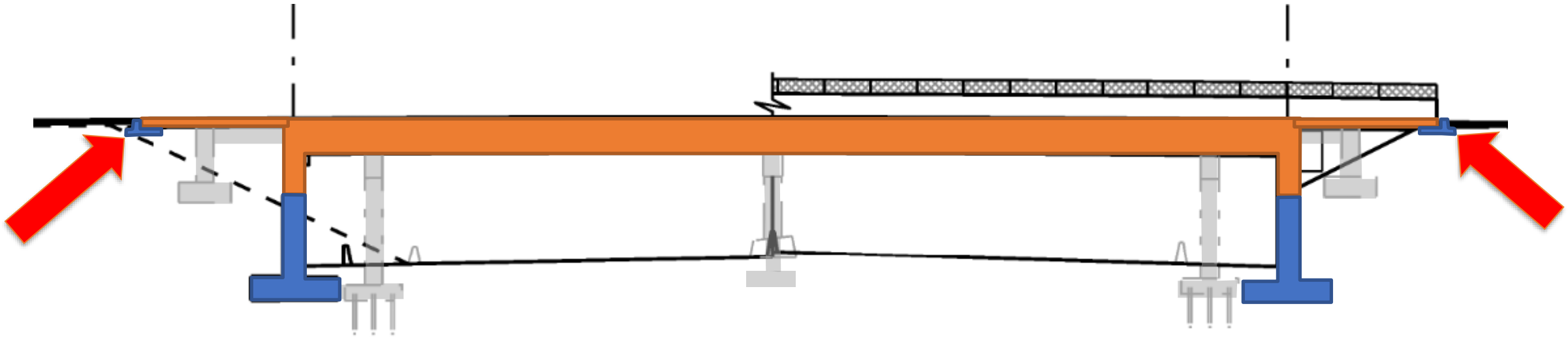
- 125 ft Wide
- 173 ft Long
- 25 ft Approach Slabs
- Steel Plate Girder
- Lightweight Concrete Deck, Sidewalk, Curbs, Approach Slabs, and End Diaphragms
- Full-height Spread Footing Abutments



Bridge Characteristics
Typical Section

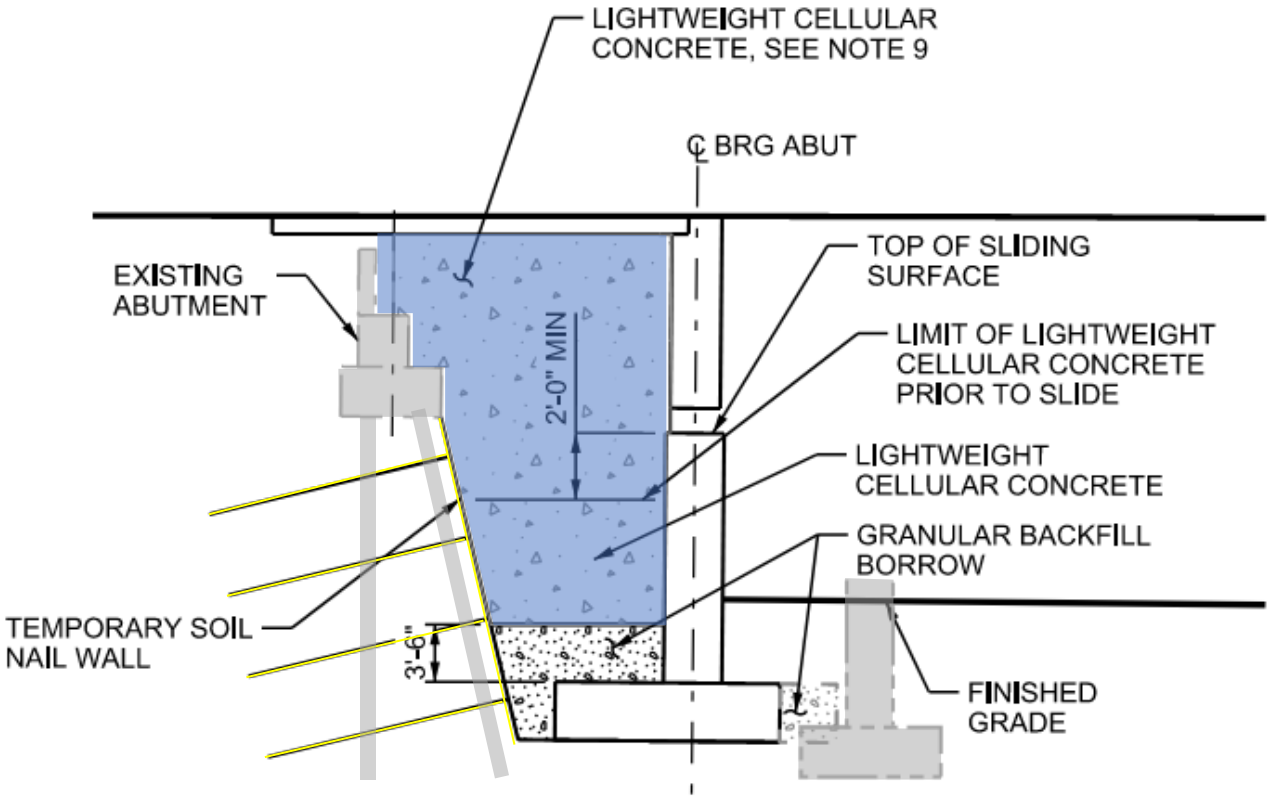


Bridge Profile



Spread Footing Abutment

- Tight clearance between existing abutment and bent
- Lightweight cellular concrete backfill
- Tall concrete end diaphragm

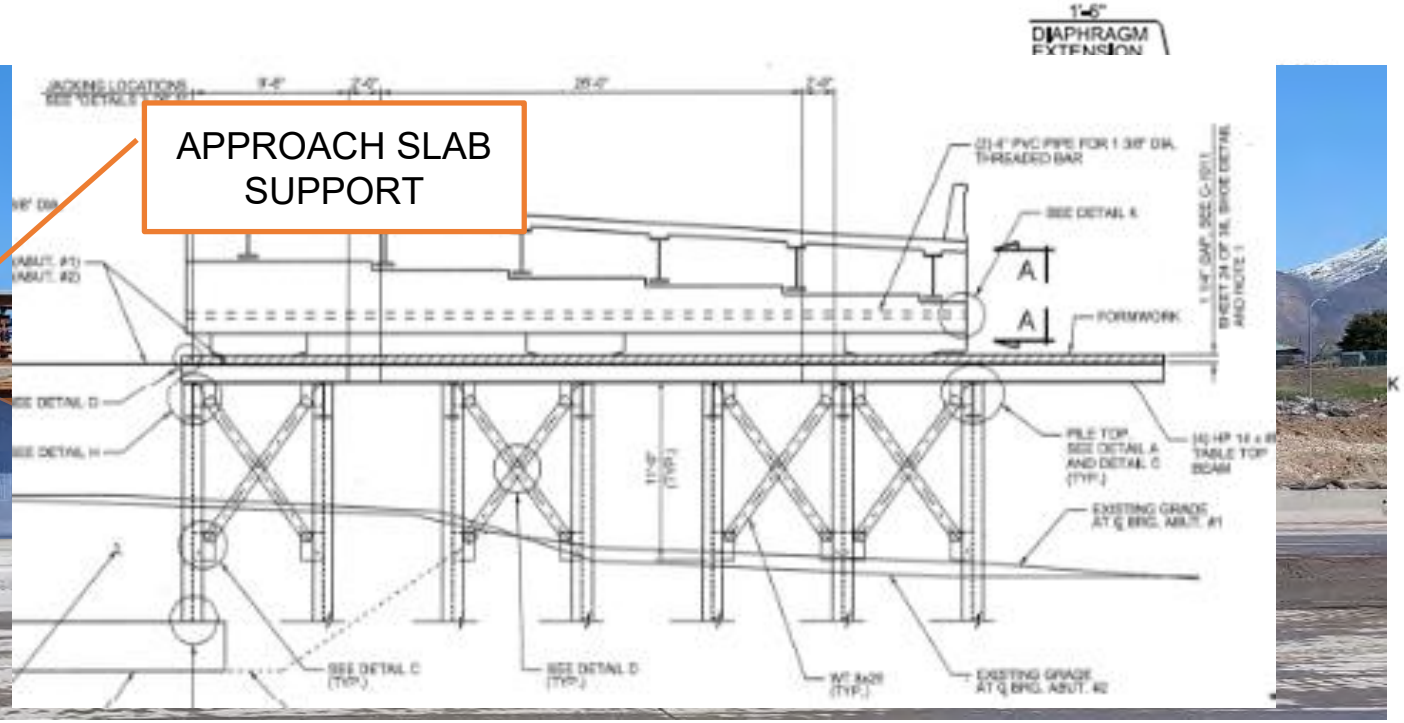


ABUTMENT BACKFILL SECTION

PERFORATED HDPE NOT SHOWN FOR CLARITY

Temporary Supports

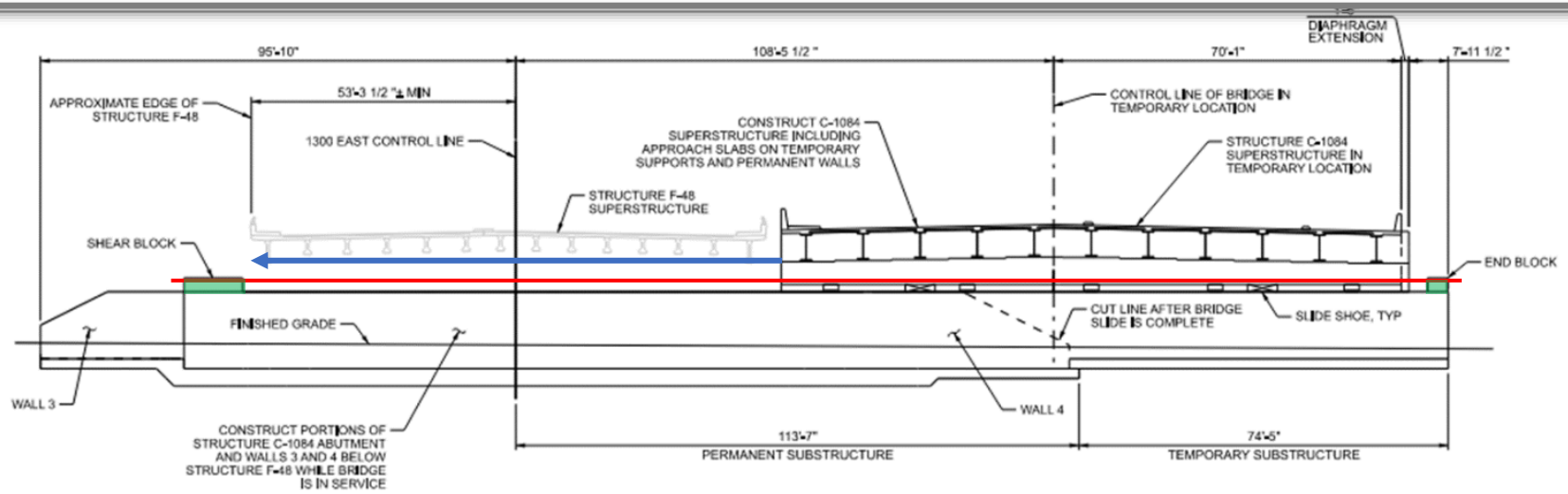
APPROACH SLAB SUPPORT



ELEVATION - STRUCTURE F-48 IN SERVICE

ABUTMENT #2, WALL 3 AND WALL 4 SHOWN, ABUTMENT #1, WALL 1 AND WALL 2 ELEVATION SIMILAR

Bridge Slide Schematic



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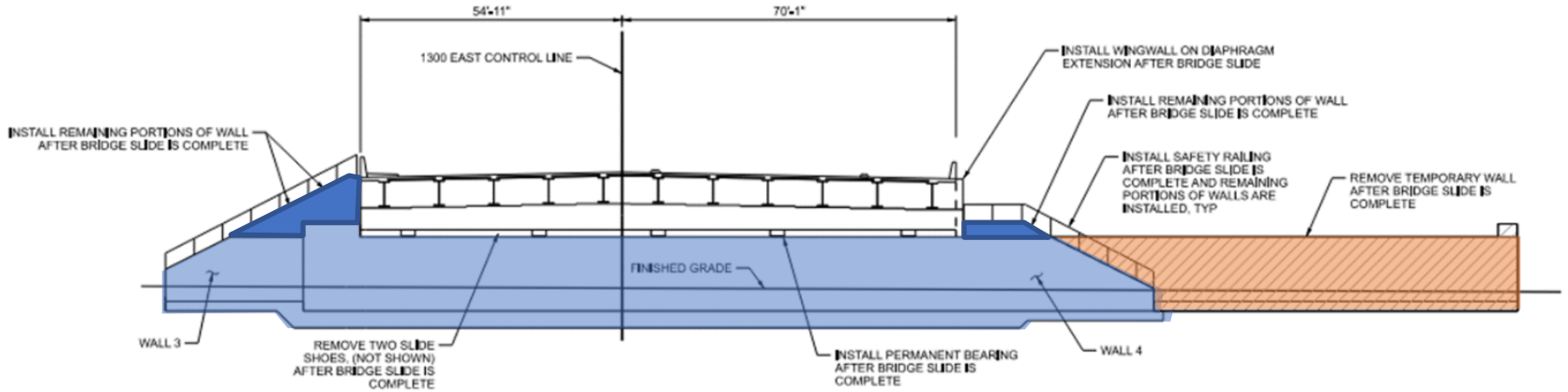
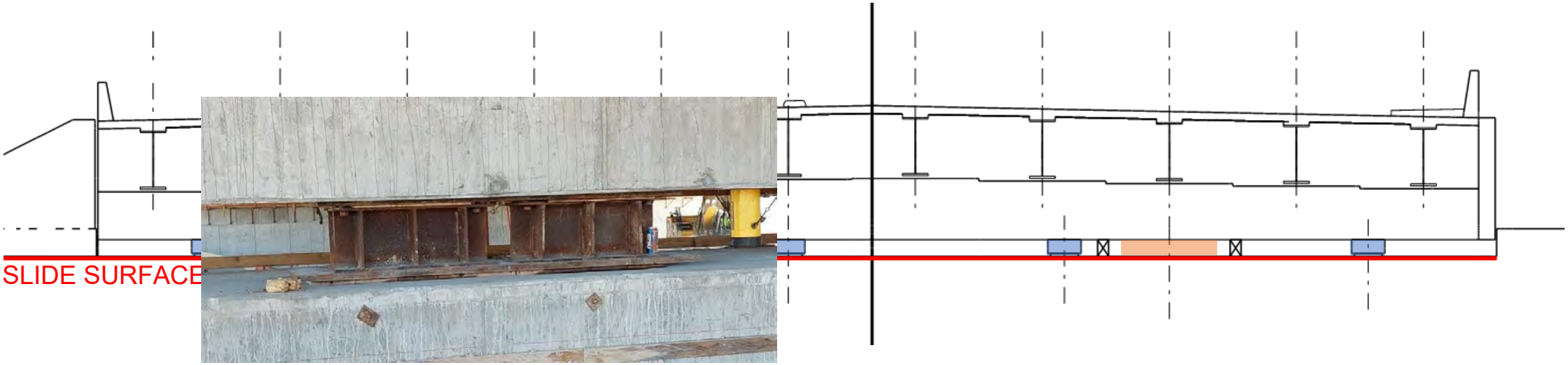


ELEVATION - STRUCTURE C-1084 AFTER SLIDE IS COMPLETE

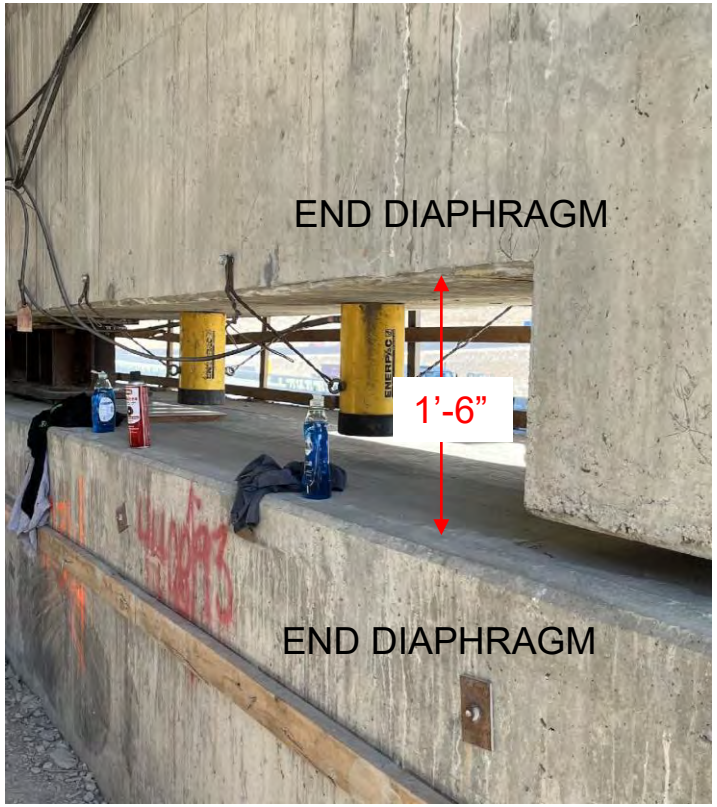
ABUTMENT #2, WALL 3 AND WALL 4 SHOWN, ABUTMENT #1, WALL 1 AND WALL 2 ELEVATION SIMILAR

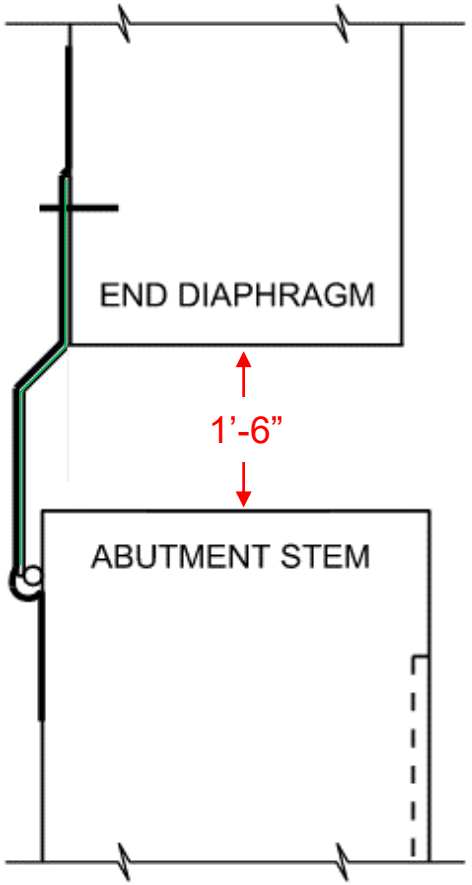
Abutment Diaphragm

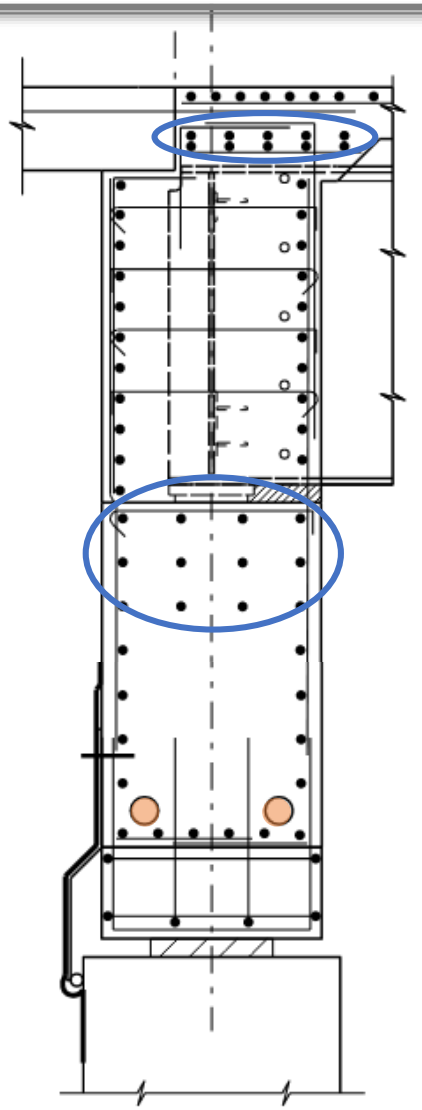


Abutment Diaphragm

Back Plate and Waterproofing Membrane

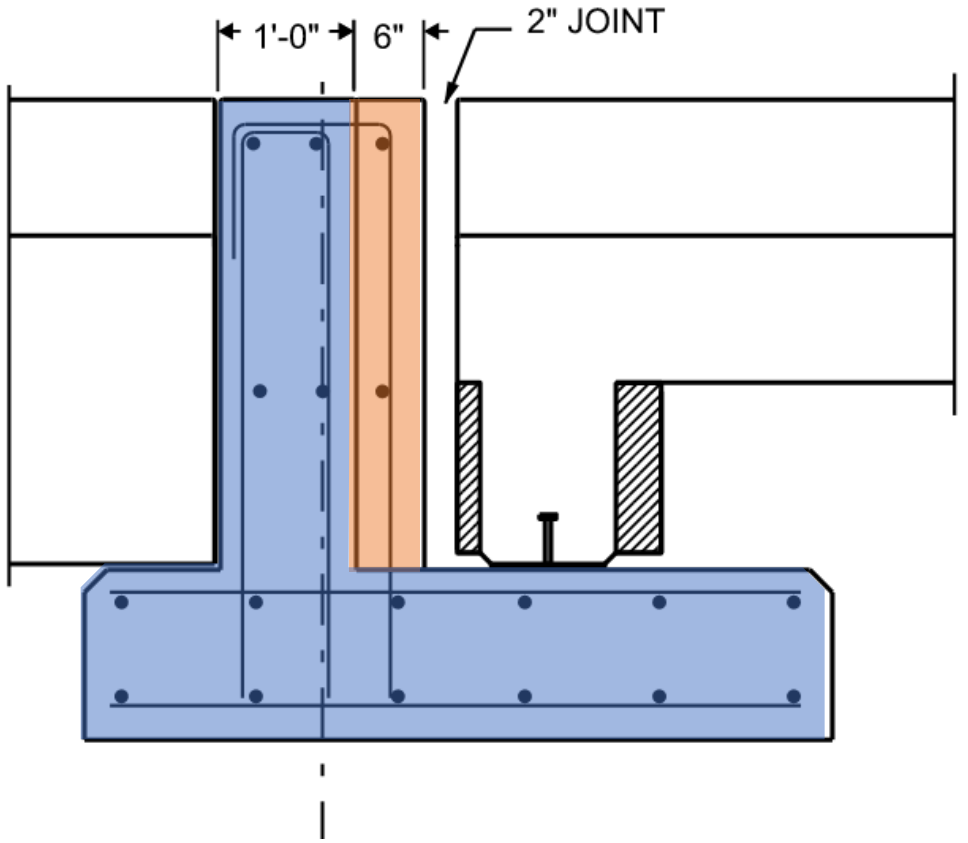






Tolerances

- 6” Post-slide Sleeper Slab Stem Section
- Additional concrete cover for reinforcing



Aesthetic Considerations

Construction Details

Jim Deschenes, SE

Director of Alternative Delivery

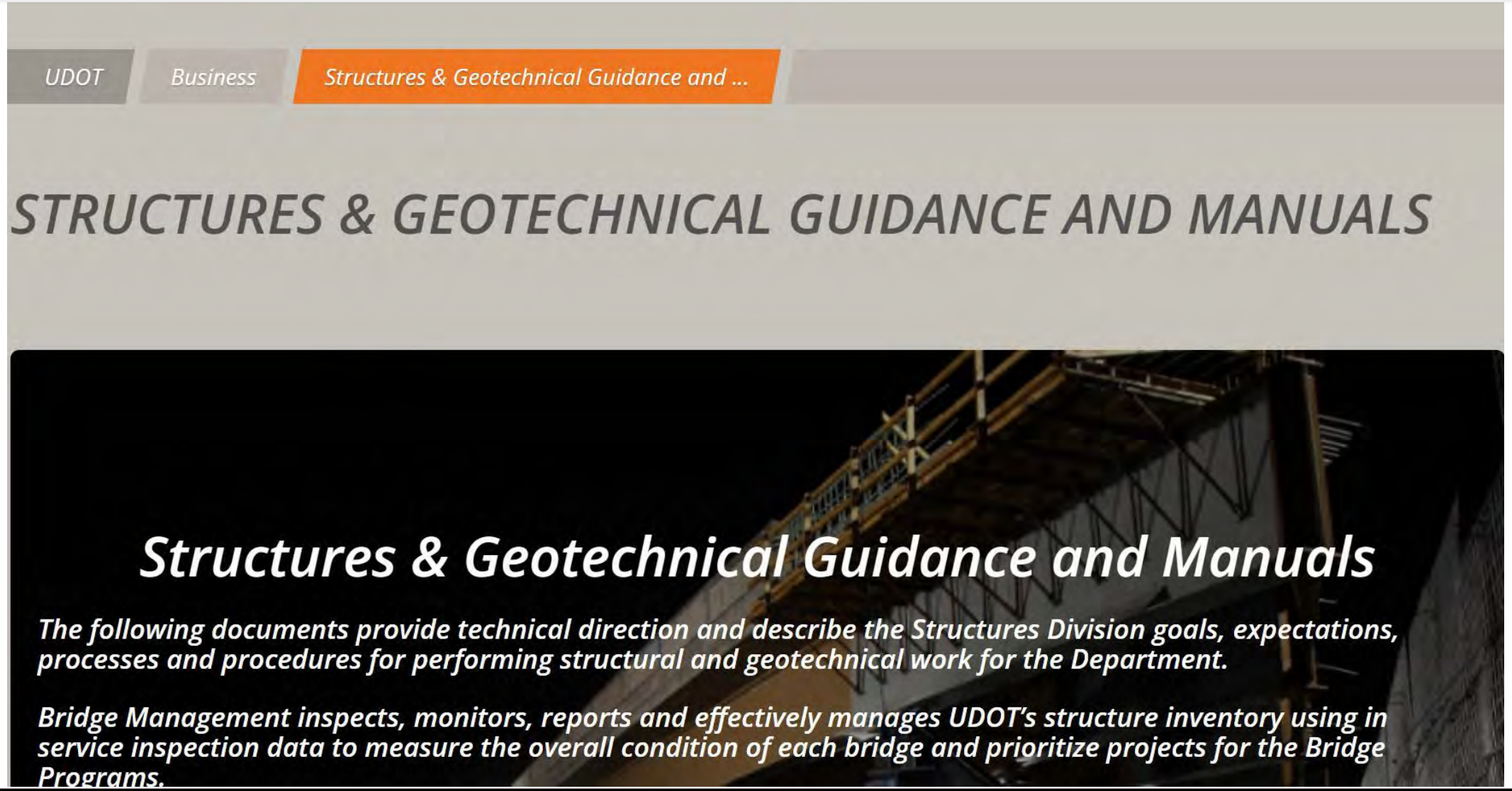
Michael Baker INTERNATIONAL

Lessons Learned

- Design and Construction Coordination
- Bearings
- Approach Slab
- Survey and Monitoring
- Clear and Consistent Expectations

https://www.udot.utah.gov/connect/business/structures-geotechnical-guidance-manuals/

Lessons Learned
Guidance



Questions??

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