

100 North Street Bridge Over Logan River Project

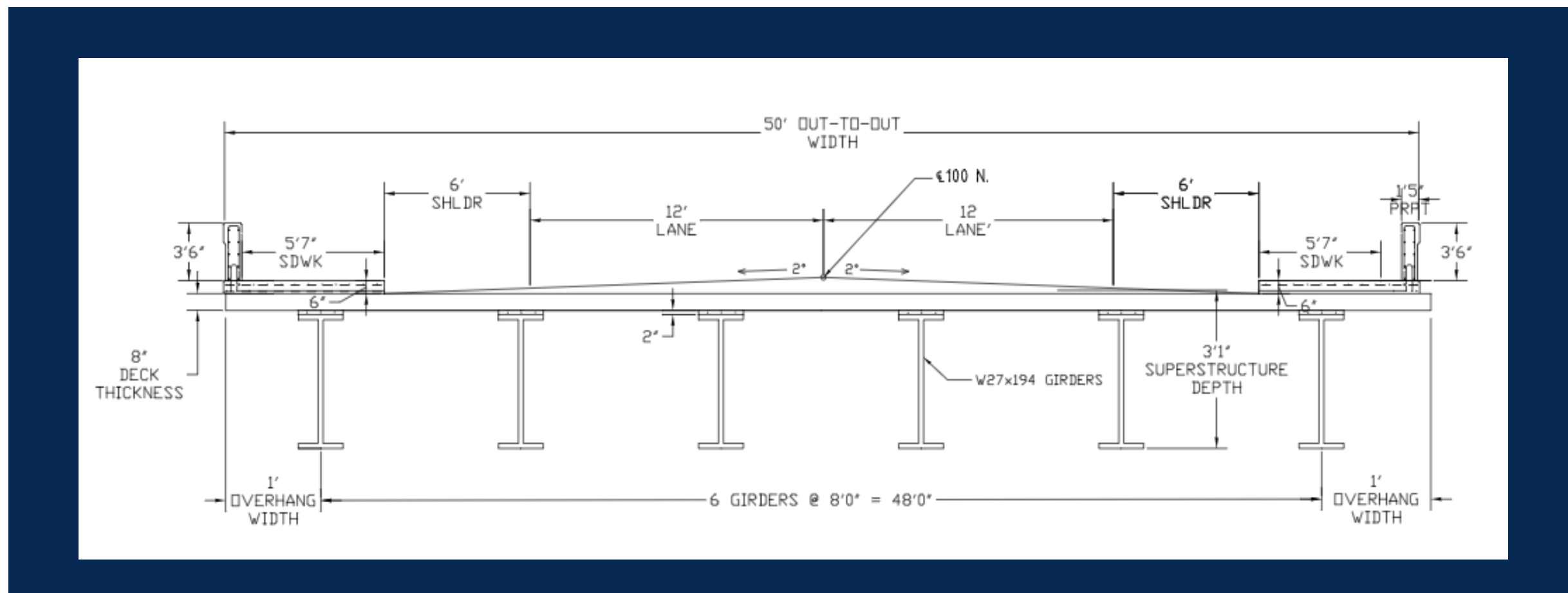
Rubber Bridge Engineering

Rubber Bridge Engineering's Team
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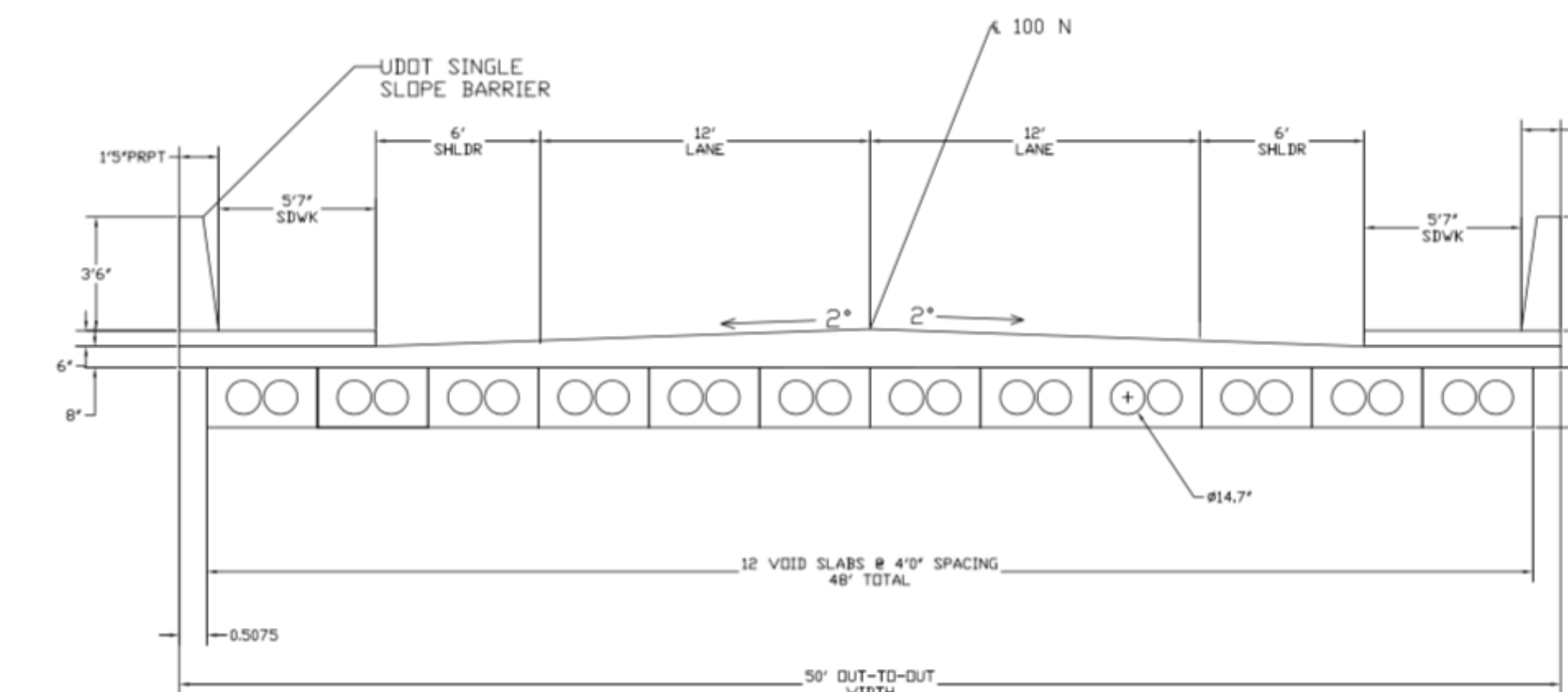
Superstructure Final Design

Limited Depth Plan Cross-Section View with W27x194 Girders



Superstructure Alternative

Void Slab Section View with Biaxial Voided Slab 4' x 2'2"

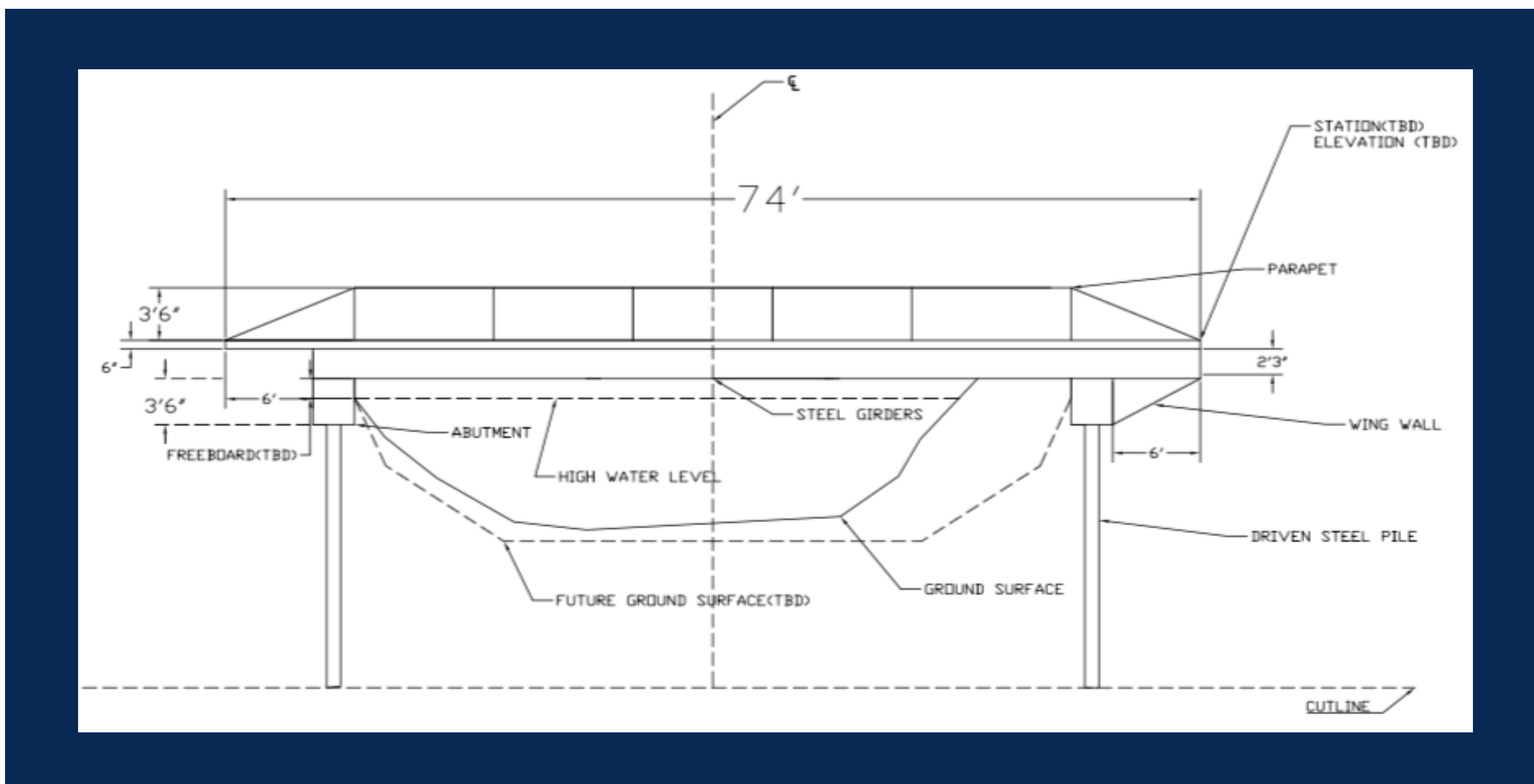


Decision Matrix

Table 1: Alternatives Decision Matrix		
Superstructure		
Decision Factors (Score 1-3)	Concrete Voided Slab	Pre-Engineered Steel Design
1 Cost	2	3
2 Development Time	2	3
3 Aesthetics	1	3
4 Depth	2	2
Total Score	7	11
Substructure		
Decision Factors (Score 1-3)	Steel Piles	Spread Footing
1 Cost	3	2
2 Development Time	2	2
3 Aesthetics	3	1
4 Depth	3	2
Total Score	11	7
Transportation		
Decision Factors (Score 1-3)	Conifer Place to Pointe Place Detour	Mountain Road Detour
1 Cost	2	1
2 Development Time	3	2
3 Slope	3	1
4 Site Reconstruction	1	2
Total Score	9	6

Substructure Final Design

Bridge Profile View



100 North Street Bridge Proposal Summary

Rubber Bridge Engineering is over the 100 North Bridge Project used in the Logan River Restoration Project. The 100 North Street Bridge is being replaced and the implementation of the proposed new bridge will improve the safety and aesthetics of the surrounding area. The new bridge will also accommodate a new and improved floodplain for the Logan River. Rubber Bridge Engineering designed a pre-engineered steel girder for the superstructure of the bridge and steel reinforced concrete piles for the foundation of the bridge. The transportation detour for the project uses the Conifer Place to Pointe Place detour route and roadway improvements. Funding this proposal will benefit Logan, Utah with a safer river system and an improvement towards the aesthetics and safety of the bridge.

The 100 North bridge provides the only access to over 250 homes as well as local businesses. These homes are enveloped by Logan River along the North side and a steep grade along the South side. This posed a significant problem for construction of the new bridge. To mitigate this problem Rubber Bridge Engineering designed a new road to be temporary placed in an acquired easement connecting Conifer Place to Pointe Place. This road will be deconstructed after the new bridge becomes operational.

Detour Route Design



Foundations: Driven Piles

Piles are required for 100 North Bridge due to Logan City standards for local scour event from the Logan River.

Piles were designed to be driven 42 feet into underlying gravel layer.
 "Driven Pile are Tested Pile" - PCDA

Nominal Soil Profile

Layer	Soil Type	Thickness	Setup Factor	Unit Weight	Strength	Nominal Curve
1	Cohesionless	10.00 ft	1.000	125.00 pcf	34.0/34.0	Nordlund
2	Cohesive	23.00 ft	1.000	97.00 pcf	1985.00 psf	T-79 Steel
3	Cohesionless	17.00 ft	1.000	125.00 pcf	32.0/32.0	Nordlund

Pile Information

Pile Type	H Pile
Top of Pile (ft)	8.00
Diameter of Pile (in)	14.70

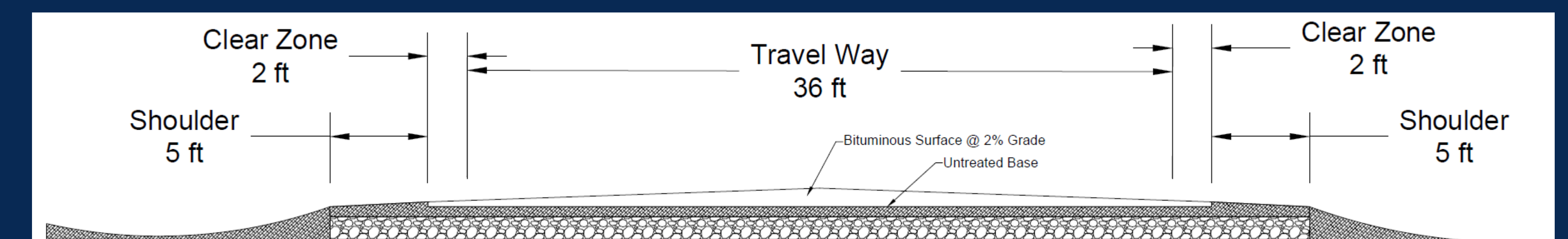
Nominal Considerations

Water Table Depth At Time Of	
Drilling (ft)	10.00
Driving/Restrike (ft)	10.00
Nominal (ft)	10.00

Nominal Considerations

Local Scour (ft)	15.00
Long Term Scour (ft)	0.00
Soft Soil (ft)	0.00

Typical Section for Detour Route



Our team would like to thank:

- Kyle Dana S.E. with Forsgren Associates
- Ziqi Song Ph. D. with Utah State University
- Austin Ball with Utah State University