

# NORTHERN VIRGINIA STREAM RESTORATION BANK

FAIRFAX COUNTY, VIRGINIA

WSSI BRIDGE ID # 11

RESTON BRIDGE PLAC. - 68

FOUNDATION

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REVISIONS	DATE



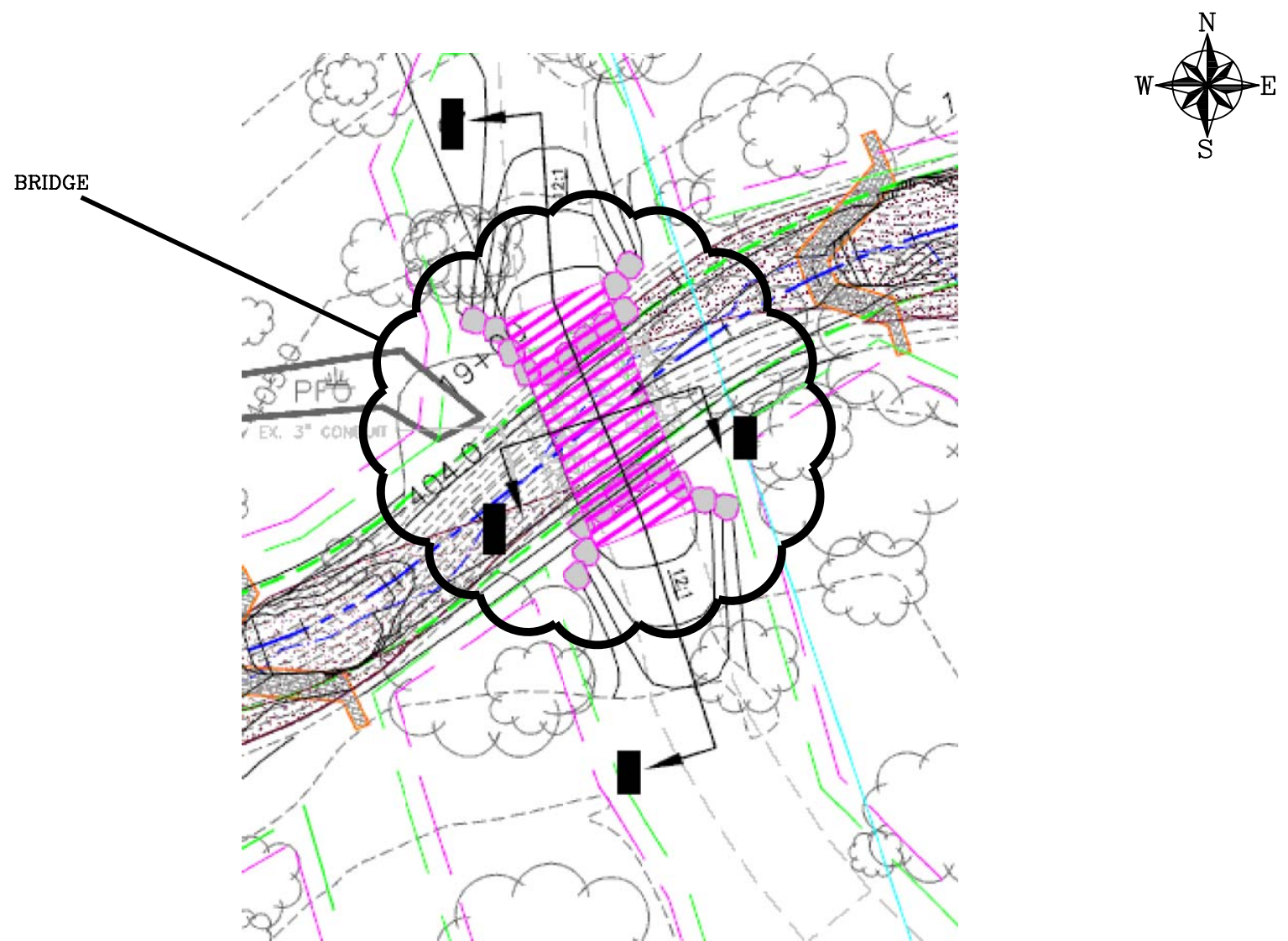
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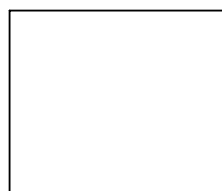
TITLE SHEET

Design by: <i>R. MARISCAL, P.E.</i>	Job Number: 08-10-1893S
Drafted by: <i>R. MARISCAL, P.E.</i>	Scale:
Checked by: <i>S. MOOSA, P.E.</i>	NONE
Sheet 1 of 5	Date: 2.17.09



Excerpt from the "The Glade-Reach 3, Bridge XS-Plan View" Prepared by Wetland Studies and Solutions, Inc., Dated December 2008.

REVISIONS	DATE



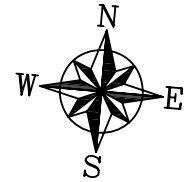
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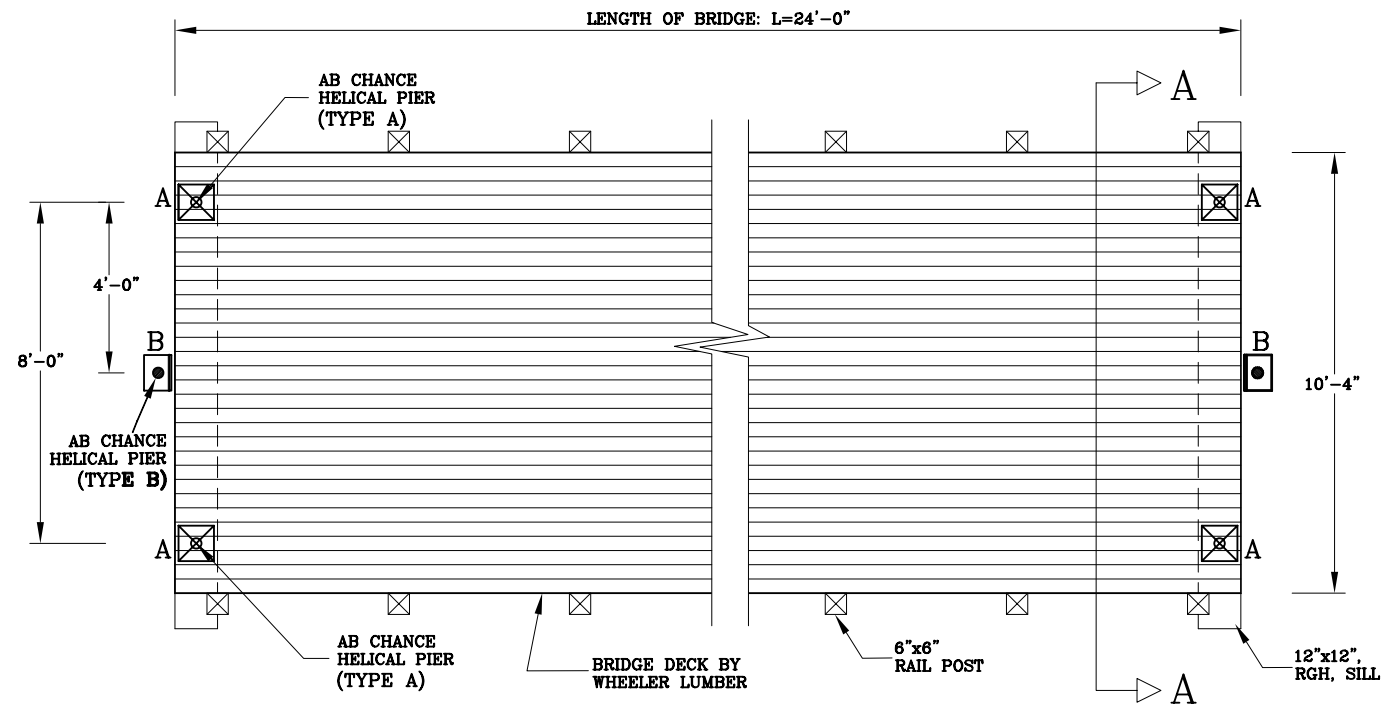
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**GENERAL LOCATION  
PLAN**

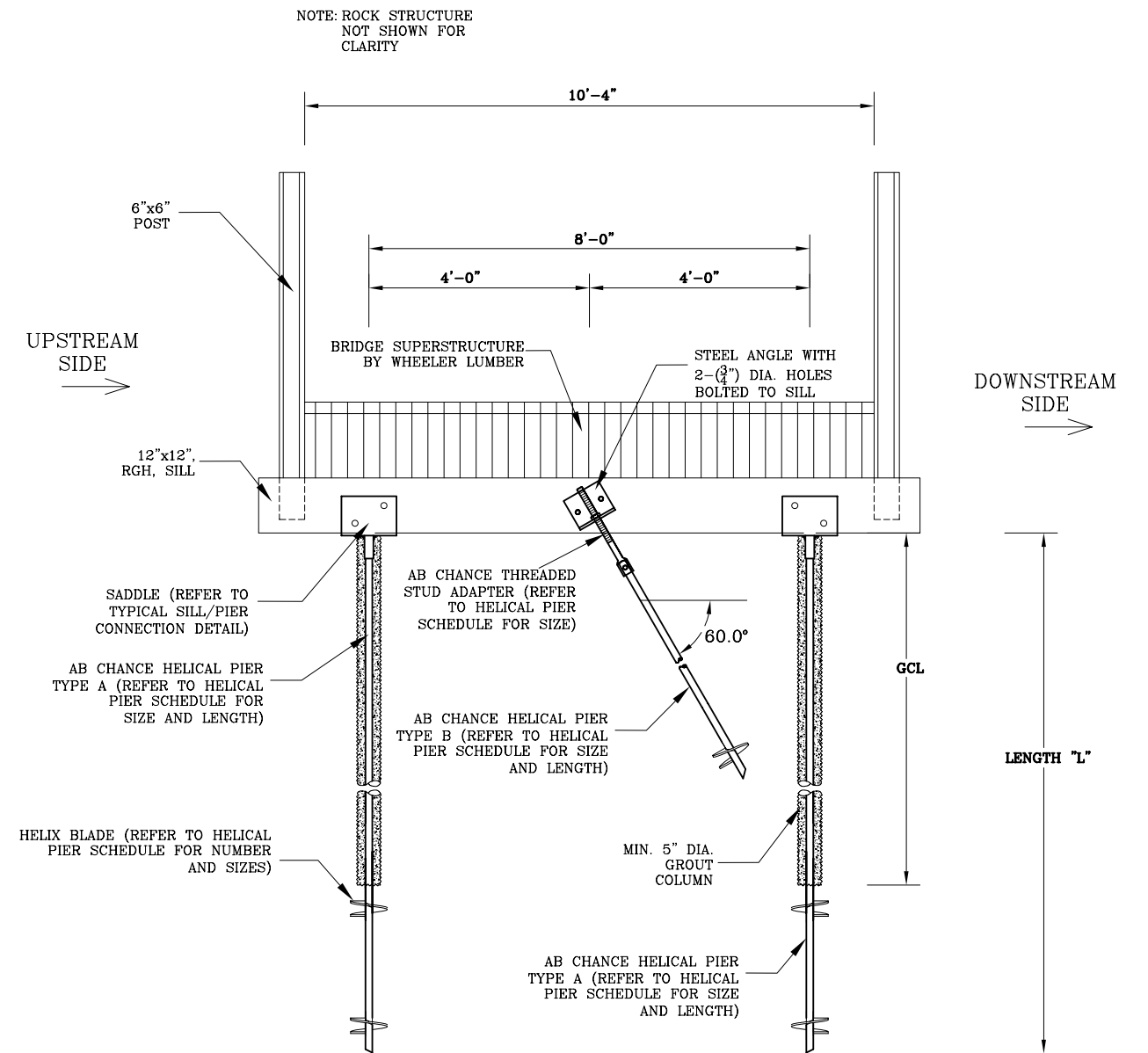
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Sheet 2 of 5	



NOTE: HAND RAIL NOT SHOWN FOR CLARITY



PLAN VIEW



SECTION A-A

GCL = Grout Column Length  
L = Helical Pier Length

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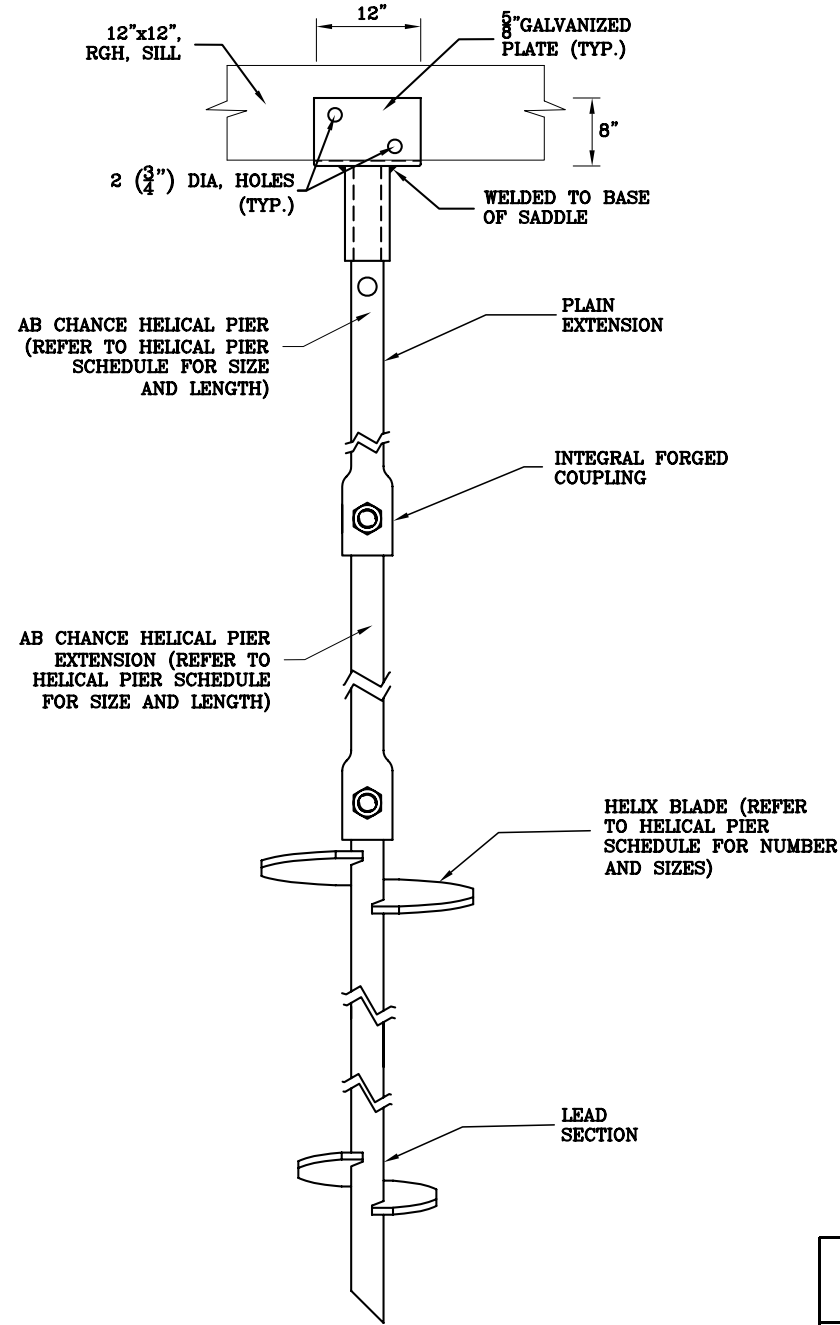
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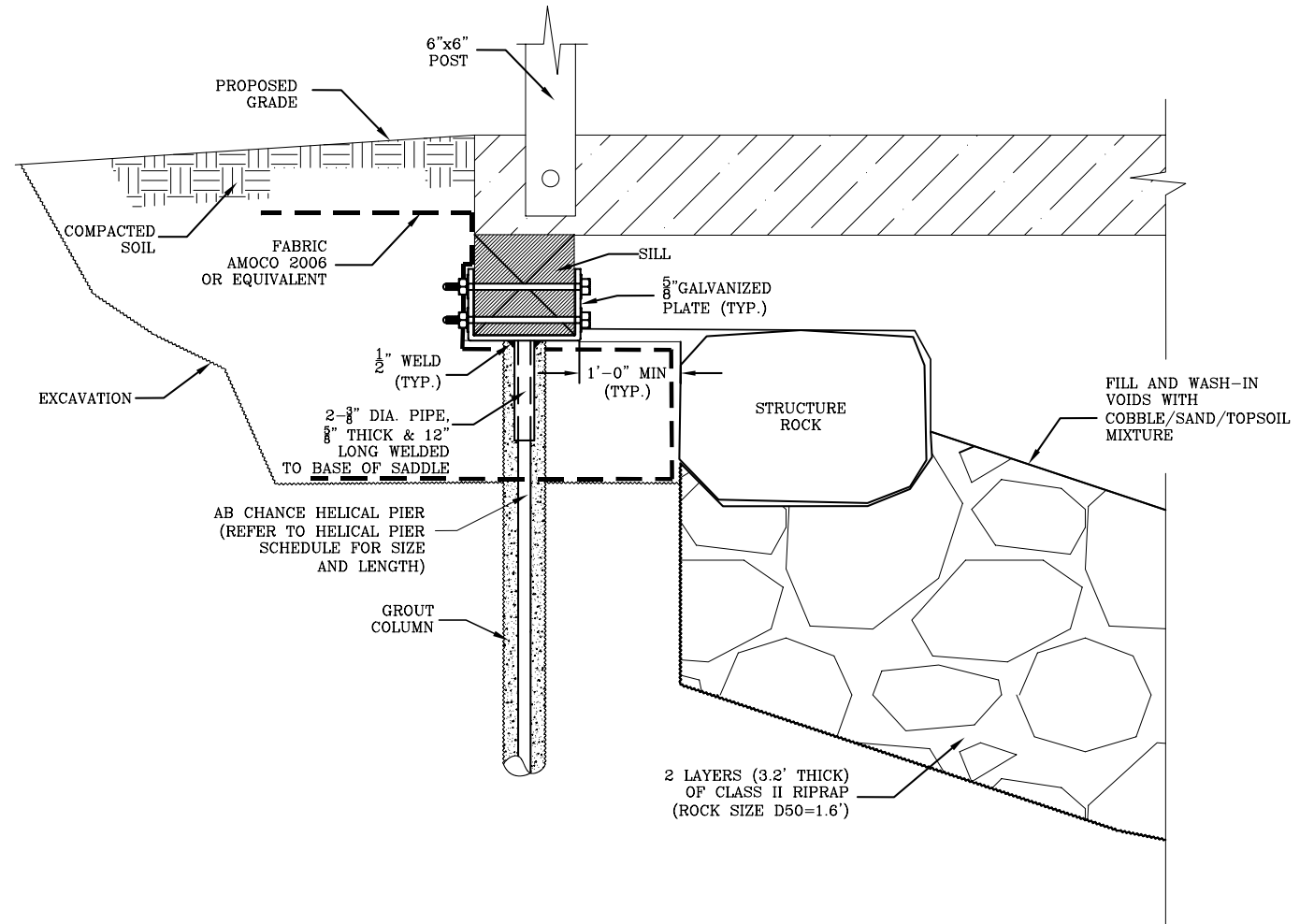
**PLAN VIEW & TYPICAL  
CROSS-SECTION**

Design by: <b>R. MARISCAL, P.E.</b>	Job Number: 08-10-1893S
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Sheet 3 of 5	

NOTE: SUPERSTRUCTURE AND GROUT COLUMN NOT SHOWN



TYPICAL ANCHOR/PIER ASSEMBLY

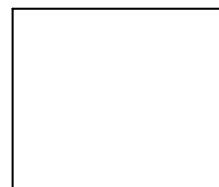


TYPICAL SILL/PIER CONNECTION DETAIL

HELICAL PIER SCHEDULE

PIER TYPE	BATTER	TYPE SERIES	REQUIRED LOAD PER PIER (Kips)	MINIMUM LENGTH (ft)	DIMENSIONS		ULTIMATE LOAD (Kips)	REQUIRED TORQUE (Kip-ft)	GROUT COLUMN MIN. DIMENSIONS		ADDITIONAL NOTES
					SHAFT SIZE (In)	HELIX (Dia.)			Dia. (In.)	Length (ft)	
A	90°	AB CHANCE SS175	27.35	40.0	1.75	8"/10"/12"	52.5	10.0	5.0	35.0	
B	60°	AB CHANCE SS175	7.7 T	25.0	1.75	10"/12"	16.4 T	10.0	5.0	20.0	T = Tension

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**TYPICAL DETAILS &  
HELICAL PIER SCHEDULE**

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GENERAL:

Refer to the Civil drawings and the applicable Local Codes for additional information not shown on the Structural drawings.

VERIFY ALL DIMENSIONS WITH THE CIVIL DRAWINGS PRIOR TO CONSTRUCTION. DO NOT SCALE THESE DRAWINGS, THEY ARE TO SHOW DETAILS AND ARE NOT TO BE USED AS PLANS. NOTIFY THE STRUCTURAL ENGINEER IMMEDIATELY OF ANY NOTED DISCREPANCY. ALL EXCAVATIONS MADE IN RELATION TO THIS CONSTRUCTION SHALL CONFORM TO OSHA AND VOSH SAFETY STANDARDS.

BRIDGE SHALL HAVE SIGNS SHOWING THE LOAD CAPACITY AS WELL AS THE MAXIMUM SPEED LIMIT FOR POWERED VEHICLES.

DESIGN PARAMETERS:

The helical piers have been designed based on the the loading reactions provided by Wheeler Lumber, LLC. Design is for one sill for each end of the bridge and a total of 3 helical piers per sill are considered. The following loads were used in the analysis:

DEAD LOAD	20,300 lbs
LIVE LOAD	64,000 lbs
TOTAL LOAD	84,300 lbs
LOAD PER SILL	54,000 lbs
WIND LOAD	3,800 lbs
WIND LOAD PER SILL	1,900 lbs

SUBSURFACE CONDITIONS:

The subsurface conditions were estimated based on the geotechnical information and recommendations provided in the "Revised Geotechnical Engineering Report; The Glade Bridges, Reston, Fairfax County, Virginia (Our28080)" prepared by Geoconcepts Engineering, Inc. and dated July 16, 2008.

LUMBER:

All lumber for the superstructure is provided by Wheeler Lumber, LLC. A pre-fabricated Panel-Lam timber recreation bridge is to be constructed at the proposed location. All lumber shall conform to the local and project grade requirements and corresponding allowable unit stresses.

HELICAL PIERS AND ANCHORS

Helical pier foundation system by AB Chance (or equivalent) having the maximum load capacity shown on the drawings. The piers shall be installed per the manufacturer's guidelines and under the direct supervision of a geotechnical engineer.

The helical piers shall be installed to a minimum torque of not less than 4000 foot-pounds and shall be extended to at least 20 feet below grade or to refusal, bearing on compact soils (Stratum B2) as defined in the geotechnical report prepared by GeoConcepts Engineering, Inc., dated July 16, 2008.

GROUT COLUMN

A grout column is required as per the helical pier schedule. Grout shall have 28-day compressive strength of 3000 psi. Refer to manufacturer's recommendations for installation details.

BACKFILL

Soils to be used as backfill around the helical shafts shall be free of organic matter, debris, and any other deleterious material. The soils shall conform to the Unified Soil Classification system requirements for types GW, GP, SW, SP, and SM. Soils classified as ML may be used as backfill if the liquid limit and the plasticity index of the soils are less than 40 and 15, respectively.

Backfill shall be performed with light compaction equipment so that the structural members would not be over stressed and damaged. The backfill shall be compacted per the project requirements and under the supervision of a geotechnical engineer.

INSTALLATION

Construction shall be performed in a manner that minimizes disturbance to the site. See CIVIL plans for additional requirements regarding silt collection and disturbance/restoration of irrigation ditch banks.

The helical pier installation shall be performed in accordance with the manufacturer's installation guidelines and recommendations.

The field operations shall be monitored on a full time basis by a qualified technician, acting under the guidance of the Project Geotechnical Engineer who is a Professional Engineer registered in the Commonwealth of Virginia.

TOLERANCES

The construction tolerances for the abutment piers are as follows:

Helical pier plumbness from design alignment	± 2"
Location of helical piers (as per design location)	± 1"
Top of helical Piers (as per design elevation)	± 1"

SUBMITTALS:

The contractor shall submit shop drawings and grout mix design for approval prior to construction.

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**CONSTRUCTION  
NOTES**

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