NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
H-PILE
WELDING PROCEDURE SPECIFICATION (WPS) AWS D1.5

Specifications & Codes: **NCDOT Standard Specifications/AASHTO/AWS D1.5, Section 2, 5 and 12**

Material Specifications: **ASTM A-36, A572, (A709-36, 50), (M270-GR250, 345) Unlimited Thickness**

Welding Process: **SMAW** Manual or Semi- Automatic or Automatic: **Manual**

Filler Metal Specification: **AWS A5.1** Classification: **E-7018**

Manufacturer: **NCDOT Approved Electrodes** Single or Multiple Pass: **both** Position of Weld: **Flat, Horizontal, Vertical, Overhead**

Welding Current: **DC** Polarity: **Positive** Progression: **Vertical – up**

Root Treatment: **Back Gouge with a grinder to sound metal prior to applying the back weld.**

Preheat Temp: **100° minimum** Interpass: **450° maximum** Post Heat: **N/A**

Pass Num.	Electrode Size	Welding Current Amperes	Welding Current Volts	Travel Speed		Joint Details
All	**1/8”** **5/32"**	**90-150** **120-200**	**20-23** **21-24**	**6-9 ipm** **6-10 ipm**		SEE ATTACHMENT

PREHEAT	
Thickness	**Min. Temp.**
Up to 3/4"	100°
Over 3/4" to 1 1/2"	100°
Over 1 1/2" to 2 1/2"	150°
Over 2 1/2"	225°

COMMENTS:

Any distorted material in the web or flanges that was damaged by the pile driving process shall be removed.

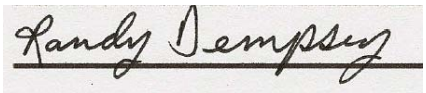
Remove all coating, rust, dirt and mill scale within one inch of the area to be welded prior to fit-up.

The theoretical alignment of the pieces joined shall be within 10% of the thickness of the material, as required by the AWS D1.5 Bridge Welding Code.

Remove all slag, spatter and weld discontinuities between passes. Clean the completed weld of all debris, slag and spatter.

WPS Description: **H-PILE**

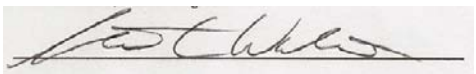
Written By: **Randy Dempsey, CWI/CWE, TT IV**

Signature: 

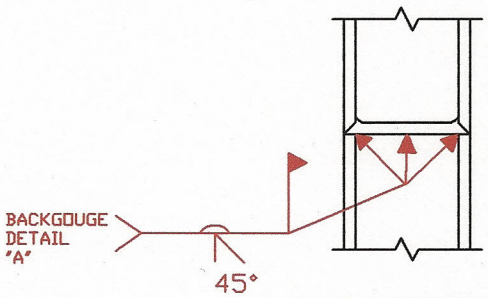
WPS #: **080508001**

Authorized By: **Steve Walton, Metals Engineer**

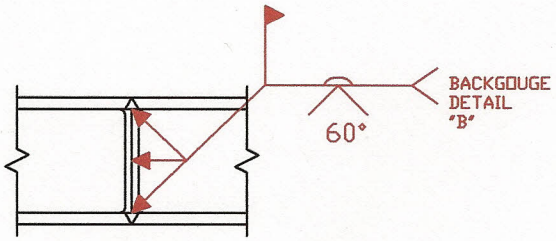
Revision #: **4**

Signature: 

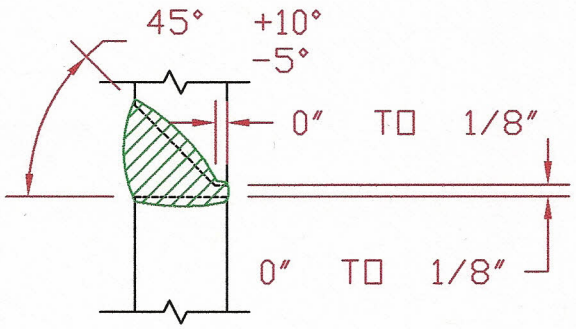
WPS H-PILE 080508001 R4 JOINT DETAIL ATTACHMENT



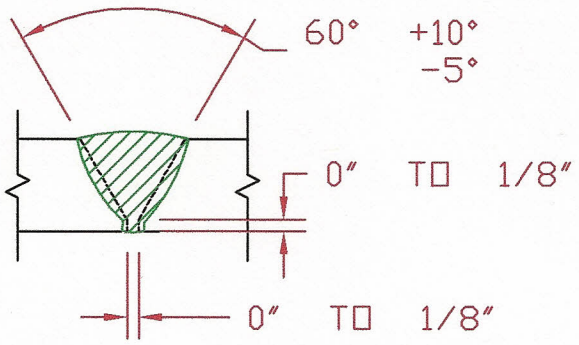
△ PILE VERTICAL



△ PILE HORIZONTAL
OR VERTICAL



DETAIL "A"



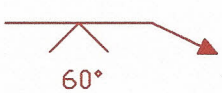
DETAIL "B"

△ POSITION OF PILE DURING WELDING

H-PILE SPLICE DETAILS

Weld Symbol definitions per AWS A2.4:2007

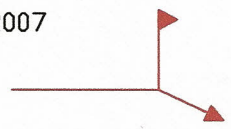
BACK
WELD,
OTHER
SIDE



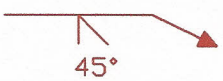
V WELD,
ARROW
SIDE with
BEVEL
ANGLE

Back
Gouge

Back
Gouge
Required
before
welding
side two



FIELD
WELD
SYMBOL



BEVEL
WELD,
ARROW
SIDE with
BEVEL
ANGLE

Illustrations for H-Pile Fit-Up

45 degree bevel on inside of flange and right side of web, inspection of the bevel angle.

Runoff tabs are recommended but not required. The tabs make it easier to fill the groove at the end of the flanges.

Illustrations for H-Pile Welding

Unacceptable Weld (material was not beveled before fit-up, mis-alignment is greater than the allowable 10%, incomplete weld, incomplete fusion)

Acceptable (filled to full cross section, run-off tabs removed and edge was finished with a grinder)