Huntley's
Sub-Aqua Construction

Wedge Point Wharf Inspection

Prepared for:

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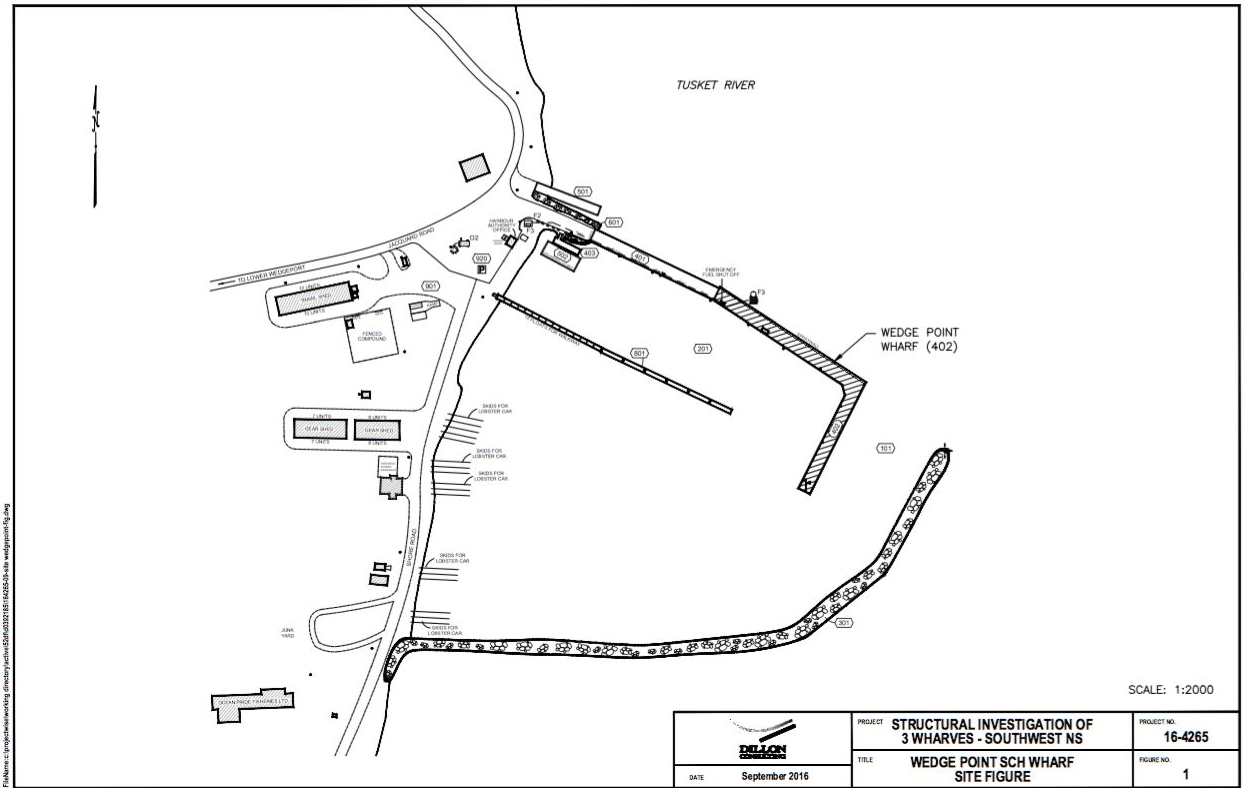
General Information

Task:	Underwater Inspection of the wharf at Wedge Point	
Reference:	Ben Allard	
Personnel:	Diving Supervisor	Nick Palfrey
	Diver #1	Garet Hickey
	Diver #2	Justin Taylor
	Tender	Nick Perry
Date/Time Commenced:	October 2018	
Date/Time Completed:	October 2018	
Location:	Wedge Point, NS	
Weather:	Overcast and Rain	
Sea Conditions:	Calm	
Visibility- Surface:	Unlimited	
Visibility- Underwater:	4’ to 5’	

Introduction

As instructed by Public Services and Procurement Canada (PSPC), on behalf of Department of Fisheries and Oceans (DFO), Huntley's Sub-Aqua Construction conducted an in-water inspection of the pre-existing steel H-piles located on the Wedge Point Wharf, 23 km southeast of Yarmouth, in Yarmouth County, NS.
The purpose of the inspection was to assist PWGSC in determining the condition of the steel H-piles, and the remaining steel thickness on 50 selected H-piles on this wharf, which has approximately 220 steel H-piles.
Huntley's Sub-Aqua Construction was directed on site by an engineer from Dillon Consulting Limited, a consultant of PWGSC.
Both a visual inspection of all steel H-piles, and Ultrasonic Testing (UT) of 50 steel H-piles was completed.

Wedge Point Site Plan



Procedure

Nova Scotia Occupation Diving Regulations states a dive team of three members needs to be present, we opted to have a fourth member dressing a standby diver for this work site.

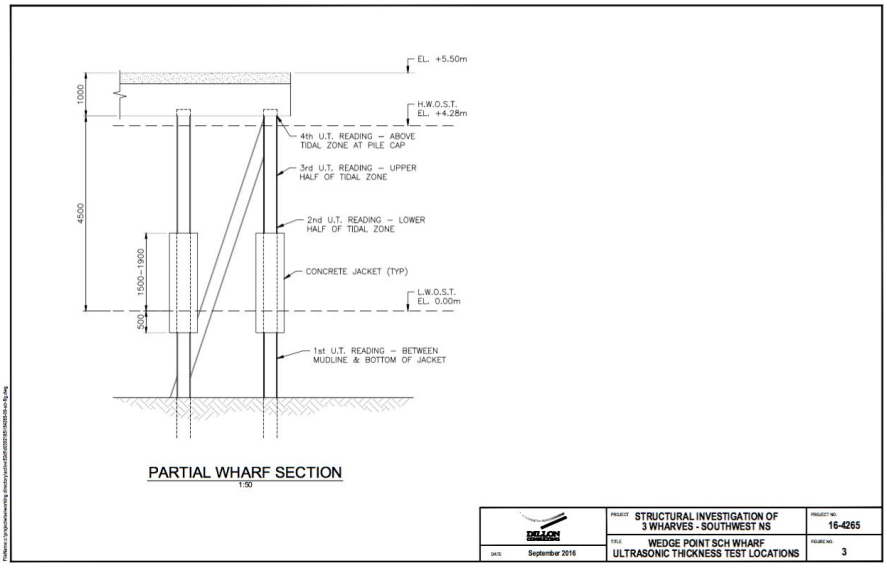
A hazard assessment was immediately conducted upon arriving to site. The dive team, prior to beginning any work reviewed the assessment, along with a safe job plan. In addition, the scope of the work, blueprints, and procedures were discussed.

Divers used surface supplied diving equipment (SSDE) and closed circuit T.V. (CCTV). This gives the supervisor and client representative a real-time look at what the diver is experiencing. This ability also allows questions to be asked during the dive, eliminating the chance of missing valuable data.

Prior to conducting this inspection, divers located safe points of entry as the tide levels in the area create a reasonably large climb for the divers. Diver recovery procedures were reviewed and discussed; a hoist was erected on the wharf if a diver required an emergency or secondary exit from the water.

The focus of the survey is to evaluate the overall condition of the steel H-piles of the wharf, to help determine the extent of repairs required.

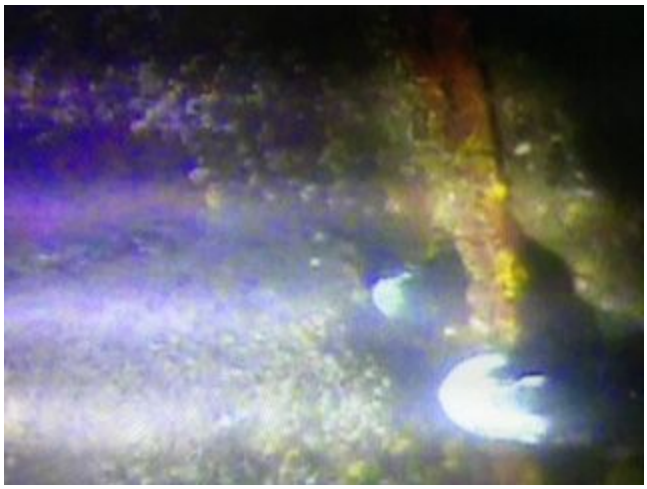
The findings of this inspection are detailed in the following report and accompanying DVD video. The results of the visual inspection can be found in Table 1: Visual Inspection of the Steel H-Piles, and the results of the Ultrasonic Testing can be found in Table 2:Ultrasonic Testing (UT) of 50 H-Piles and Table 3: Ultrasonic Testing (UT) of 50 H-Piles- Extra Tests of Between Mudline and Below Bottom of Jacket.



Conclusion

The vast majority of H-piles in Wedgeport Wharf have severe deterioration at the top near the pile cap and where the flanges are bolted to the wooden sheathing/ timbers. There is also heavy corrosion and deterioration at the tops of many concrete jackets. In many areas, rebar is exposed and some spalling is occuring.
The H-piles that had the thinnest metal when tested were near the end of the wharf.

The Following pictures are taken from video obtained during the inspection:



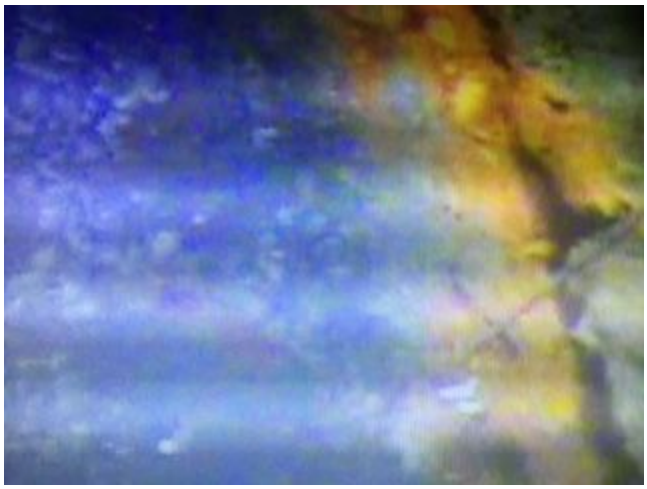


Table 1: Visual Inspection of the Steel H-Piles

Please Note: * Indicates Major Deterioration

Bent	Pile				
	A	B	C	D	E
1	- Flaking - ⅛- ¼” remaining wood and inshore flonge _____ - Batter pile flaking	- Flaking - Steel cable ¼” remaining at wood and inshore side	- Flaking - ⅜” remaining at wood -Minor rebar	- Flaking ¼- ⅜” remaining at wood - Exposed rebar	- Thin at wood ⅛” - Minor exposed rebar - Flaking okay
2*	- Flaking - Thin at wood - ⅛” remaining	- Flaking	- Flaking - Exposed rebar	-Flaking * - Hole on Web, 6” to good steel	-Flaking - ¼ - ⅜” remaining at wood _____ -Batter pile flaking
3	-Batter pile flaking _____ - Flaking - ⅛ -¼” remaining at wood	- Flaking	- Flaking	- Flaking	- Flaking -⅛” at wood remaining
4*	- Flaking - Thin at wood - ⅛- ¼” remaining	- Flaking	- Flaking	- Flaking	- Batter Pile Flaking _____ - Flaking - major deterioration near jacket -⅛” remaining
5*	- Batter Pile flaking _____ - Flaking* - Major deterioration at wood - 12” to good steel	- Flaking	- Flaking - Tjin at HW	- Flaking - Thin at HW	- Flaking - Thin at HW
6	- Flaking - Thin at HW	- Flaking	- High tide - Rough jacket	- Flaking - Jacket	- Batter pile Flaking

	- Exposed rebar ⅛-1/4 “ remaining at wood		(in webbing) - Flaking	deterioration - High tide	_____ - Flaking - ⅛- ⅜” remaining at wood
7	- Batter pile Flaking _____ - ½” at HW - ¼ at wood - Exposed rebar	- Flaking	- Major Flaking	- Flaking okay	- Flaking - ¼” at HW and at wood
8*	- Flaking - 1/2 “ at HW* - ⅛” at wood - 20” to good steel	- Flaking	- Flaking	- Flaking	- Batter pile Flaking _____ - Flaking - ⅜” at HW* - ⅛-⅜” at wood
9*	- Batter pile Flaking okay _____ - Flaking okay - Thin at wood 20” to good steel*	- Flaking okay	- Flaking okay	- Flaking okay	- Flaking - Thin above jacket
10*	- Flaking* - Thin at wood - 20” to good steel -Majo r Deterioration	- Flaking okay	- Flaking	- Flaking	- Flaking _____ - Batter pile Flaking - ½” at HW
11*	- Batter pile Flaking - Exposed rebar _____ - Flaking* - Minor Deterioration - ⅜” remaining at HW - 20” to good steel	- Flaking	- Flaking	- Flaking - ½” remaining at HW	- Flaking
12*	- Flaking okay - Deterioration* - 30” to good steel	- Flaking okay	- Flaking okay	- Flaking okay	- Batter pile Flaking okay _____ - Thin above jacket - 17” to good steel

13*	- Flaking HW - 30” flange pet. above jacket* both sides _____ - Batter pile flaking okay	- Flaking okay	- Flaking okay	- Flaking okay	- Flaking - ⅛” Flange - 13” to good steel
14	- Flaking* - Deterioration - 23” to good steel above jacket	- Flaking	- Flaking	- Flaking - Exposed rebar	- Batter pile flaking - Exposed rebar _____ - Flaking - 14” to good steel
15*	- Batter pile flaking _____ - Flaking* - Deterioration above concrete - 30” to good steel	- Flaking	- Flaking	- Flaking	- Flaking* - Deterioration - 24” to good steel
16*	- Flaking* - Major deterioration - 22” to good steel	- Flaking	- Flaking	- Flaking	- Batter pile flaking _____ - Flaking* - Hold in Web - 14” to good steel
D1/2*	**D1-** Flaking - Major deterioration - 30” to good steel above jacket	**D2-** Flaking - Major Deterioration - 24” to good steel* - 8” Flange width			
17*	- Exposed Rebar - Major Deterioration - Flaking HW*	- Flaking HW - Exposed Rebar	- Flaking - Exposed Rebar	**D-** Flaking HW _____ **E-** Flaking - Rebar Exposed	**F-** Flaking - Exposed Rebar _____ **G-** Flaking - Thin above jacket - 10” to good steel*
18*	- Batter pile flaking HW	- Flaking HW - Holes*	- Flaking HW - 25” to good	- Flaking HW - Holes*	- Batter pile flaking HW

	_____ - Flaking HW - Major deterioration - 10” Flange width - 23” up to good steel - Holes in web*	- 20” to good steel above jacket - Thin above jacket	steel from jacket - Thin Flange	- Major Deterioration - 22” to good steel	_____ - Major Deterioration - Holes* - 25” to good steel
19*	- Flaking HW* - Major Deterioration - Thin above jacket	- Flaking HW	- Flaking HW	- Flaking HW	- Batter pile flaking HW _____ - Flaking HW
20	- Batter pile flaking HW - Exposed Rebar _____ - Flaking and thin at HW - Thin at wood - Exposed Rebar	- Flaking HW	- Flaking HW	- Flaking HW	- Flaking HW
21*	- Flaking HW - Thin at wood	- Flaking HW	- Flaking HW - Exposed rebar	- Flaking HW - Exposed rebar	- Batter pile flaking HW _____ - Flaking HW
22	- Batter pile ¼” at HW flaking _____ - Thin above jacket ⅛” - ⅜” at HW	- Flaking HW - ½” remaining	- Flaking HW	- Flaking HW	- Flaking HW - ¼- ½” remaining at wood - ⅜” remaining at HW
23	- Flaking HW - Thin at wood ⅛”	- Flaking HW	- Flaking HW	- Flaking HW	- Batter pile flaking HW _____ - Flaking HW - Thin above jacket ¼”
24	- Batter pile flaking HW _____ - Flaking HW - Thin at wood	- Flaking HW	- Flaking HW - ⅜” at HW	- Flaking HW - ¼” at HW	- Flaking HW - Thin above jacket ⅜”

25	- Flaking HW - Thin at wood ⅛” - ⅜” at HW	- Flaking HW	- Flaking HW	- Flaking HW	- Batter pile flaking HW _____ - Flaking HW - Thin at wood - ⅜” remaining
26*	- Batter pile flaking HW _____ - Flaking HW - Thin at wood ⅜”	- Flaking HW	- Flaking HW	- Flaking HW	- Flaking HW* - Holes above jacket - 20” repair area - ¼-⅜” remaining at HW
27	- Flaking HW - ⅛” remaining at HW - Thin at wood ⅛”	- Flaking HW - Thin at HW - ¼-⅜” remaining	- Flaking HW	- Flaking HW	- Batter pile flaking HW _____ - Flaking HW - Whalers loose
28	- Batter pile flaking HW - Thin at HW ¼” _____ - Flaking HW - Thin at wood ⅛-¼” - Minor exposed rebar	- Flaking HW - Thin at Top ¼”	- Flaking HW	- Flaking HW	- Flaking HW - Thin at wood ⅜”
29*	- Flaking HW - Thin at wood	- Flaking HW	- Flaking HW	- Flaking HW	- Batter pile flaking HW _____ - Flaking HW - Thin at wood ⅛” - Hole in web* - 16” to good steel
30	- Batter pile flaking HW - Missing concrete _____ - Flaking HW - Thin at wood ¼ inch	- Flaking HW	- Flaking HW - Exposed rebar	- Flaking HW - Exposed rebar	- Flaking HW
31*	- Thin at wood above jacket - 5” length, 2” width	- Flaking HW - Top flaking - Thin ¼”	- Flaking HW	- Flaking HW	- Batter pile flaking HW - Minor exposed

	- Hole in web* top of jacket - 10” to repair	- ⅛” outside - 8” spch of ⅛			rebar* _____ - Flaking HW - Deterioration - Thin at wood, outside
32*	- Batter pile flaking HW _____ - Flaking HW - Thin at wood	- Flaking HW	- Flaking HW	- Flaking HW	- Flaking HW - Thin at wood - Deterioration above jacket*
33*	- Thin at wood and above jacket	- Flaking HW	- Flaking HW	- Flaking HW - 30” Flaking	- Batter pile flaking HW _____ - Flaking HW - Deterioration above jacket - Thin at wood
34	- Batter pile flaking HW - Exposed rebar _____ - Flaking HW - Thin at wood	- Flaking HW - Minor exposed rebar	- Flaking HW	- Flaking HW	- Thin at wood - Flaking HW
35*	- Thin at wood - Flaking HW	- Flaking HW - Minor exposed rebar	- Flaking HW	- Flaking HW	- Thin at wood - Flaking HW - Wear above concrete _____ - Batter pile flaking HW*
36	- Batter pile flaking HW _____ - Flaking HW - Exposed rebar - Thin at wood	- Flaking HW - Exposed rebar	- Flaking HW - Exposed rebar	- Flaking HW	- Flaking HW/Wood - Thin at wood
37*	- Flaking HW - Thin at wood - Erosion of Flange below concrete	- Flaking HW	- Exposed rebar - Flaking HW - Possible hole HW*	- Flaking HW	- Holes above jacket - 27” of repair* - Flaking HW _____

					- Batter pile flaking HW
38*	- Batter pile flaking HW and on webbing _____ - Flaking HW - Thin at wood - Exposed rebar - Holes 1 meter repair*	- Flaking HW	- Flaking HW - Web flaking	- Flaking HW - Erosion on flange LW	- Thin at wood - Flaking HW
39*	- Thin at wood - Flaking HW	- Flaking HW - Exposed rebar	- Flaking HW - Exposed rebar	- Flaking HW	- Thin at wood* - Flaking HW - Erosion at bottom _____ - Batter pile flaking HW
40	- Thin flange at wood - Flaking HW _____ - Batter pile flaking HW - Exposed rebar	- Flaking HW - Exposed rebar and flange	- Flaking HW	- Flaking HW	- Thin Flange at wood - Flaking HW
41*	- Thin flange at wood - Flaking HW and at bottom	- Flaking HW - Exposed rebar	- Flaking HW - Exposed rebar on jacket	- Flaking HW	- Thin Flange at wood* - Corrosion above and below concrete - Flaking HW _____ - Batter pile flaking HW
42	- High water flaking batter pile _____ - Thin Flange LW - Flaking HW	- Flaking HW	- Flaking HW	- Flaking HW - Minor Corrosion	- Thin Flange at wood - Flaking HW
43	- Minor High water erosion below jacket	- Flaking HW	- Flaking HW	- Flaking HW	- Flaking below jacket and HW mark

Table 2: Ultrasonic Testing (UT) of 50 H-Piles

Please Note: All Readings in Millimeters

Pile Ultrasonic Thickness Testing Report									
Bent	**Pile**	**Location of Readings**	**Location of Readings**						**Comments**
No.	**No.**		**Flange 1**		**Web**		**Flange 2**		
			1	**2**	**3**	**4**	**5**	**6**	
1	**A**	**Btw Mudline and Btm of Jacket**	9.8	11.1	13.8	11.3	5.9	5.4	
		Lower Half of Tidal Zone	9.7	13.5	15.1	14.2	6.3	X	← One Side Inaccessible
		Above Tidal Zone at Pile Cap	9.1	11.3	6.3	10.3	8.3	8.5	
1	**D**	**Btw Mudline and Btm of Jacket**	7.0	9.1	10.2	9.5	12.7	9.2	
		Lower Half of Tidal Zone	15.2	15.4	14.0	14.4	4.8	5.1	
		Above Tidal Zone at Pile Cap	7.2	4.9	13.5	12.9	5.4	3.8	
2	**C**	**Btw Mudline and Btm of Jacket**							In Mud
		Lower Half of Tidal Zone	15.7	15.3	15.7	15.6	16.0	15.1	
		Above Tidal Zone at Pile Cap	3.8	7.8	11.1	10.1	5.1	8.8	
2	**E**	**Btw Mudline and Btm of Jacket**	13.3	11.8	12.3	10.6	5.9	8.7	
		Lower Half of Tidal Zone	4.6	7.7	15.4	15.2	15.2	15.1	
		Above Tidal Zone at Pile Cap	1.9	6.0	11	8.8	7.6	5.1	
4	**C**	**Btw Mudline and Btm of Jacket**							In Mud

		Lower Half of Tidal Zone	15.3	15.9	16.4	15.3	15.3	15.3	
		Above Tidal Zone at Pile Cap	4.1	2.5	5.7	4.7	8.3	7.0	
5	**E**	**Btw Mudline and Btm of Jacket**	11.3	12.2	10.1	10.1	9.5	9.8	
		Lower Half of Tidal Zone	9.4	9.5	14.7	15.6	14.3	15.3	
		Above Tidal Zone at Pile Cap	9.8	7.0	12.3	10.9	8.2	7.3	
6	**D**	**Btw Mudline and Btm of Jacket**							In Mud
		Lower Half of Tidal Zone	15.1	15.2	16	16.3	14.9	15.6	
		Above Tidal Zone at Pile Cap	8.0	8.9	14.4	14.3	8.9	9.3	
7	**B**	**Above Tidal Zone at Pile Cap**	9.6	9.0	11.5	10.8	7.2	6.3	
		Lower Half of Tidal Zone	15.0	16.0	15.7	16.1	16.7	16.1	
		Btw Mudline and Btm of Jacket							In Mud
8	**B**	**Btw Mudline and Btm of Jacket**							In Mud
		Lower Half of Tidal Zone	15.0	14.4	16.1	15.5	14.1	15.4	
		Above Tidal Zone at Pile Cap	8.9	7.2	11.3	12.7	9.2	6.8	
8	**E**	**Btw Mudline and Btm of Jacket**	10.0	8.7	8.5	4.0	8.9	11.1	
		Lower Half of Tidal Zone	9.0	4.9	16.3	14.5	15.7	15.1	
		Above Tidal Zone at Pile Cap	10.1	4.9	10.5	11.7	9.8	8.1	
9	**E**	**Above Tidal Zone at Pile Cap**	7.9	7.5	11.1	11.4	9.9	10.5	
		Lower Half of Tidal Zone	11.1	13.3	6.2	7.2	10.5	13.7	

		Btw Mudline and Btm of Jacket							In Mud
10	**B**	**Btw Mudline and Btm of Jacket**	8.7	8.0	13.2	13.3	9.3	8.9	
		Lower Half of Tidal Zone	15.2	16.2	15.4	15.9	15.8	14.7	
		Above Tidal Zone at Pile Cap							
10	**D**	**Btw Mudline and Btm of Jacket**							In Mud
		Lower Half of Tidal Zone	15.7	15.5	15.0	15.9	15.0	15.9	
		Above Tidal Zone at Pile Cap	7.1	10.3	9.3	13.2	8.2	8.7	
11	**D**	**Btw Mudline and Btm of Jacket**							In Mud
		Lower Half of Tidal Zone	15.5	15.4	15.8	15.4	15.5	15.7	
		Above Tidal Zone at Pile Cap	9.7	9.1	6.8	9.4	9.3	10.0	
12	**C**	**Btw Mudline and Btm of Jacket**							In Mud
		Lower Half of Tidal Zone	15.9	15.1	15.2	15.1	15.7	15.2	
		Above Tidal Zone at Pile Cap	9.2	9.8	13.7	12.9	10.8	7.7	
13	**A**	**Btw Mudline and Btm of Jacket**							In Mud
		Lower Half of Tidal Zone	13.3	10.9	8.1	9.1	8.3	6.2	
		Above Tidal Zone at Pile Cap	9.4	9.4	12.7	15.1	7.8	8.7	
13	**E**	**Btw Mudline and Btm of Jacket**	11.5	9.0	10.3	12.5	12.1	11.5	
		Lower Half of Tidal Zone	11.8	8.9	9.0	8.5	11.3	12.5	
		Above Tidal Zone at Pile Cap	9.8	9.2	13.3	13.2	8.6	10.1	

14	**B**	**Btw Mudline and Btm of Jacket**							Old Form Still Attached
		Lower Half of Tidal Zone	10.8	14.5	11.0	9.4	12.1	12.2	
		Above Tidal Zone at Pile Cap	8.8	8.0	6.4	6.8	8.9	10.1	
15	**E**	**Btw Mudline and Btm of Jacket**	14.6	14.7	15.8	15.3	14.4	14.8	
		Lower Half of Tidal Zone	5.8	5.3	5.6	3.9	8.8	6.0	
		Above Tidal Zone at Pile Cap	9.9	9.1	7.9	4.8	8.7	8.6	
16	**B**	**Btw Mudline and Btm of Jacket**	12.4	12.6	15.3	14.6	9.9	11.0	
	B	**Lower Half of Tidal Zone**	15.2	15.1	15.3	15.1	13.8	14.9	
	A	**Above Tidal Zone at Pile Cap**	8.9	9.8	6.9	6.2	8.1	7.2	
17	**E**	**Btw Mudline and Btm of Jacket**							In Mud
		Lower Half of Tidal Zone	9.0	10.8	9.3	12.2	15.5	14.2	
		Above Tidal Zone at Pile Cap	8.5	10.0	10.5	13.2	9.8	9.8	
18	**B**	**Btw Mudline and Btm of Jacket**	11.2	11.6	7.2	6.8	12.5	6.0	
		Lower Half of Tidal Zone	7.5	5.4	4.8	5.6	7.0	7.2	
		Above Tidal Zone at Pile Cap	4.9	7.8	6.7	6.4	8.3	5.9	
19	**A**	**Btw Mudline and Btm of Jacket**	12.9	12.4	13.8	13.0	13.9	X	
		Lower Half of Tidal Zone	8.0	6.7	5.4	5.4	7.9	9.9	
		Above Tidal Zone at Pile Cap	14.5	13.2	6.3	6.0	10.5	11.1	
19	**E**	**Btw Mudline and Btm of Jacket**							In Mud/ Limited Space

		Lower Half of Tidal Zone	15.6	15.9	12.6	15.1	14.8	15.2	
		Above Tidal Zone at Pile Cap	10.9	11.1	5.6	8.0	11.9	8.1	
20	**B**	**Btw Mudline and Btm of Jacket**							In Mud
		Lower Half of Tidal Zone	15.0	15.2	16.1	14.0	15.6	13.8	
		Above Tidal Zone at Pile Cap	9.3	9.7	4.8	7.1	10.0	10.1	
21	**A**	**Btw Mudline and Btm of Jacket**	5.3	6.5	13.1	14.2	9.8	10.8	
		Lower Half of Tidal Zone	6.0	9.1	5.1	8.6	14.6	10.6	
		Above Tidal Zone at Pile Cap	10.4	10.2	6.1	11.9	9.1	9.0	
21	**D**	**Btw Mudline and Btm of Jacket**	13.2						Too Small of Space/In Mud
		Lower Half of Tidal Zone	14.8	6.4	14.2	13.2	15.9	15.2	
		Above Tidal Zone at Pile Cap	9.8	8.5	6.0	6.4	8.1	8.9	
22	**E**	**Btw Mudline and Btm of Jacket**							In Mud
		Lower Half of Tidal Zone	6.3	5.5	6.8	5.5	8.2	7.6	
		Above Tidal Zone at Pile Cap	8.7	5.9	5.1	5.2	8.1	4.8	
23	**C**	**Btw Mudline and Btm of Jacket**							In Mud
		Lower Half of Tidal Zone	15.5	15.2	15.7	15.2	15.5	15.3	
		Above Tidal Zone at Pile Cap	15.2	9.8	11.3	16.8	10.4	6.8	
24	**A**	**Btw Mudline and Btm of Jacket**	10.6	10.5	17.5	11.5	12.5	13.4	
		Lower Half of Tidal Zone	5.5	9.2	6.1	13.7	12.3	15.5	

		Above Tidal Zone at Pile Cap	5.8	5.1	9.5	10.3	8.2	9.8	
25	**A**	**Btw Mudline and Btm of Jacket**							
		Lower Half of Tidal Zone							
		Above Tidal Zone at Pile Cap	9.8	5.8	12.5	13.8	7.6	10.3	
25	**E**	**Btw Mudline and Btm of Jacket**							In Mud
		Lower Half of Tidal Zone	12.5	5.7	8.2	9.0	12.6	8.3	
		Above Tidal Zone at Pile Cap	8.3	6.1	6.2	6.2	7.4	7.9	
26	**C**	**Btw Mudline and Btm of Jacket**							In Mud
		Lower Half of Tidal Zone	15.3	19.4	7.2	9.4	17.3	15.4	
		Above Tidal Zone at Pile Cap	5.9	6.2	5.7	4.9	6.8	8.3	
27	**A**	**Btw Mudline and Btm of Jacket**	17.1	10.2	6.6	9.1	16.0	13.8	
		Lower Half of Tidal Zone	14.5	14.4	5.8	9.9	5.1	6.0	
		Above Tidal Zone at Pile Cap	4.8	5.1	7.6	6.7	1.2	4.8	
28	**D**	**Btw Mudline and Btm of Jacket**	7.6	14.7	11.5	12.0	13.9	10.5	
		Lower Half of Tidal Zone	12.1	16.9	15.5	16.0	16.0	17.1	
		Above Tidal Zone at Pile Cap	16	7.6	11.2	12.9	11	11.6	
29	**A**	**Btw Mudline and Btm of Jacket**	13.6	13.0	15.0	10.6	14.0	14.2	
		Lower Half of Tidal Zone	12.6	12.0	14.9	14.2	17.3	17.3	
		Above Tidal Zone at Pile Cap	9.2	9	11.1	8.9	11.1	8	

30	**D**	**Btw Mudline and Btm of Jacket**							In Mud
		Lower Half of Tidal Zone	17.2	15.4	16.6	16.6	17.8	15.6	
		Above Tidal Zone at Pile Cap	11.3	10	11.4	15.6	10	14.0	
31	**E**	**Btw Mudline and Btm of Jacket**	14.1	10.2	13.6	7.2	12.0	12.2	
		Lower Half of Tidal Zone	13.8	10.3	9.9	11.5	10.3	10.4	
		Above Tidal Zone at Pile Cap	14	17.2	16.3	17	3	6	
32	**C**	**Btw Mudline and Btm of Jacket**							
		Lower Half of Tidal Zone	15.5	15.5	15.2	15.2	15.7	14.8	
		Above Tidal Zone at Pile Cap	6	11.1	16	14.7	5	11	
33	**A**	**Btw Mudline and Btm of Jacket**							In Mud
		Lower Half of Tidal Zone	14.4	10	9	9	5	5.4	
		Above Tidal Zone at Pile Cap	9.2	9	9	7.8	8	6	
35	**A**	**Lower Half of Tidal Zone**	10.9	14.6	11.4	15	6	0	
		Btw Mudline and Btm of Jacket	15.4	15	10.4	13	10	5	
		Above Tidal Zone at Pile Cap	4.4	4.5	6.0	8.0	6.0	4.7	
37	**A**	**Btw Mudline and Btm of Jacket**							
		Lower Half of Tidal Zone	15.9	11.6	9.8	8.6	0	3	
		Above Tidal Zone at Pile Cap	6.9	6.3	6.4	6.7	5.7	4.6	
38	**D**	**Btw Mudline and Btm of Jacket**							

		Lower Half of Tidal Zone	15.4	15.8	15.2	15.2	15.8	14.7	
		Above Tidal Zone at Pile Cap	8.0	7.7	4.9	4.7	4.8	4.6	
39	**A**	**Btw Mudline and Btm of Jacket**							
		Lower Half of Tidal Zone	10	10	10.1	10	5.7	6.3	
		Above Tidal Zone at Pile Cap	4.1	4.2	5.8	5.8	5.7	4.8	
39	**E**	**Btw Mudline and Btm of Jacket**							
		Lower Half of Tidal Zone	11	15	14	14	6	7	
		Above Tidal Zone at Pile Cap	4.5	4.7	5.4	4.6	4.7	4.5	
40	**E**	**Btw Mudline and Btm of Jacket**							
		Lower Half of Tidal Zone	8	7.9	12	10	0	0	
		Above Tidal Zone at Pile Cap	5.2	5.9	5.7	5.8	5.6	5.3	
42	**A**	**Btw Mudline and Btm of Jacket**							
		Lower Half of Tidal Zone	15.2	15.1	13.0	10.8	3	5	
		Above Tidal Zone at Pile Cap	4.6	5.7	6.3	6.3	5.8	5.9	
43	**E**	**Btw Mudline and Btm of Jacket**							
		Lower Half of Tidal Zone	15	15.7	15.5	15.6	15.6	16	
		Above Tidal Zone at Pile Cap	5.7	5.7	5.7	5.7	7.1	8.4	

Table3: Ultrasonic Testing (UT) of 50 H-Piles- Extra Tests of Between Mudline and Below Bottom of Jacket

Please Note: All Readings in Millimeters

Pile Ultrasonic Thickness Testing Report									
Bent	**Pile**	**Location of Readings**	**Location of Readings**						**Comments**
No.	**No.**		**Flange 1**		**Web**		**Flange 2**		
			1	**2**	**3**	**4**	**5**	**6**	
1	**C**	**Btw Mudline and Btm of Jacket**	15.1	10.7	13.5	13.0	10.5	11	
1	**E**	**Btw Mudline and Btm of Jacket**	11.0	10.5	11.2	11.5	10.6	8.2	
2	**D**	**Btw Mudline and Btm of Jacket**	5.5	7.0	11.0	11	10.2	10.8	
3	**E**	**Btw Mudline and Btm of Jacket**	12.7	10.2	12.8	11.3	12.7	11.3	
4	**E**	**Btw Mudline and Btm of Jacket**	11.7	11.0	9.7	10.4	12.5	11.9	
5	**E**	**Btw Mudline and Btm of Jacket**	11.3	12.2	10.1	10.1	9.5	9.8	
6	**E**	**Btw Mudline and Btm of Jacket**	9.5	12.0	14.0	14.0	12.9	11.0	
7	**E**	**Btw Mudline and Btm of Jacket**	11.0	11.9	12.9	13.9	12.9	12.0	
12	**A**	**Btw Mudline and Btm of Jacket**	14.5	14.2	12.8	12.9	13.8	13.6	
15	**B**	**Btw Mudline and Btm of Jacket**	9.0	13.5	6.6	14.0	13.0	11.5	
15	**E**	**Btw Mudline and Btm of Jacket**	14.2	15.6	15.3	14.2	12.1	13.6	
16	**B**	**Btw Mudline and Btm of Jacket**	6.8	9.8	10.5	11.0	6.8	9.0	
17	A	Btw Mudline and Btm of Jacket	10.8	8.2	10.8	14.1	3.4	9.0	
17	E	Btw Mudline and Btm of Jacket	12.0	12.8	13.2	13.1	12.2	12.4	
18	E	Btw Mudline and Btm of Jacket	7.6	9.9	11.4	11.1	11.6	10.5	