



**Perimeter Wall Stabilization (PWS) Segment 1A Test Parcel No. 9 (TP9)
Completion Concurrence and Acceptance
Kingston Perimeter Containment – Segment 1 (RDP-0113-E)**

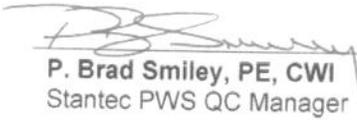
Stantec has reviewed the supporting QC documentation for the referenced Test Parcel with regards to the QC criteria of horizontal alignment, vertical alignment, rock embedment, uniformity to full depth, and unconfined compressive strength. The following table is a summary of the evaluation for each of these criteria and supporting documentation.

Test Parcel No. 9 (TP9)			
QC Criteria	Referenced Specification	Documentation of Evaluation	Meets QC Criteria
Horizontal Alignment	Section 02650, Paragraph 4.4.2 "Maximum horizontal deviation of any Soil-Cement Panel shall not exceed 6 inches from the center location shown on the approved shop drawings."	Approved Shop Drawings – Recommendation for Acceptance	Yes
		KRP Form 105 (latest revision)	Yes
Vertical Alignment	Section 02650, Paragraph 4.4.3 "Soil-Cement Panels shall be constructed to within +/- 1% of vertical (plumb)."	KRP Form 105 (latest revision) – initial alignment	Yes
		Geo-Con Daily QC Report – maximum deviation	Yes
Rock Embedment	Section 02650, Paragraph 2.3.4 The Rock Embedment shall not be less than the minimum required depth of rock embedment along the full length of each Soil-Cement Panel. The minimum Rock Embedment is defined for each segment on the Profile Drawing. Note: For Segment 1, minimum rock embedment for a 3-foot wall is 2.7 feet, and for a 4-foot wall is 3.1 feet. Note: For Segment 1 between Baseline "A" Stations 175+00 and 179+50, minimum rock embedment for a 4-foot wall is 1.7-feet; based on field conditions, the QC Manager may require embedment of 3.1 feet when in a softer bedrock formation (FCN 37).	KRP Form 105 (latest revision)	Yes
Uniformity to Full Depth	Section 02650, Paragraph 2.2.1 Absence of unmixed or unfixated ash, soil, and rock inclusions discovered by coring the completed wall. Any length of unrecovered core run shall be interpreted as indicating unmixed or unfixated inclusions. Walls shall have no continuous, unmixed or unfixated ash or soil fragments, or other discontinuity or deformity with any dimension exceeding half the effective thickness of the wall.	S&ME Drafted Core Logs	Yes
		S&ME Core Photographs	Yes
Unconfined Compressive Strength (UCS) Results	Section 02650, Paragraph 2.2.3 For acceptance based on wet-grab specimens, Soil Cement Strength shall be either of the following: (1) "the Adjusted Mean Strength shall be \geq 280 psi, and the Adjusted Exceedence Fraction of tests above 185 psi shall be \geq 90%," OR (2) "the Adjusted Mean Strength shall be \geq 340 psi, and the Adjusted Exceedence Fraction of tests above 165 psi shall be \geq 90%."	S&ME Wet-Grab Test Results	Yes
		QC Manager Calculations – Adjusted Mean Strength	Yes



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Acceptance Concurrence:


11/2/2011
P. Brad Smiley, PE, CWI
Stantec PWS QC Manager


11/4/2011
John Miller
TVA Technical Contract Manager


11-10-2011
Diane Odom
KRP Quality Officer, Operations, Engineering & Construction


12/14/11
Craig Zeller
US EPA Representative

Enclosures:

- Exhibit 1 - Test Parcel Acceptance
- Exhibit 2 - Test Parcel Location
- Exhibit 3 - Adjusted Strength Calculations



Perimeter Wall Stabilization (PWS) Segment 1A Test Parcel No. 9 (TP9)
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Kingston Perimeter Containment – Segment 1 (RDP-0113-E)

Exhibit 1 - Test Parcel Acceptance

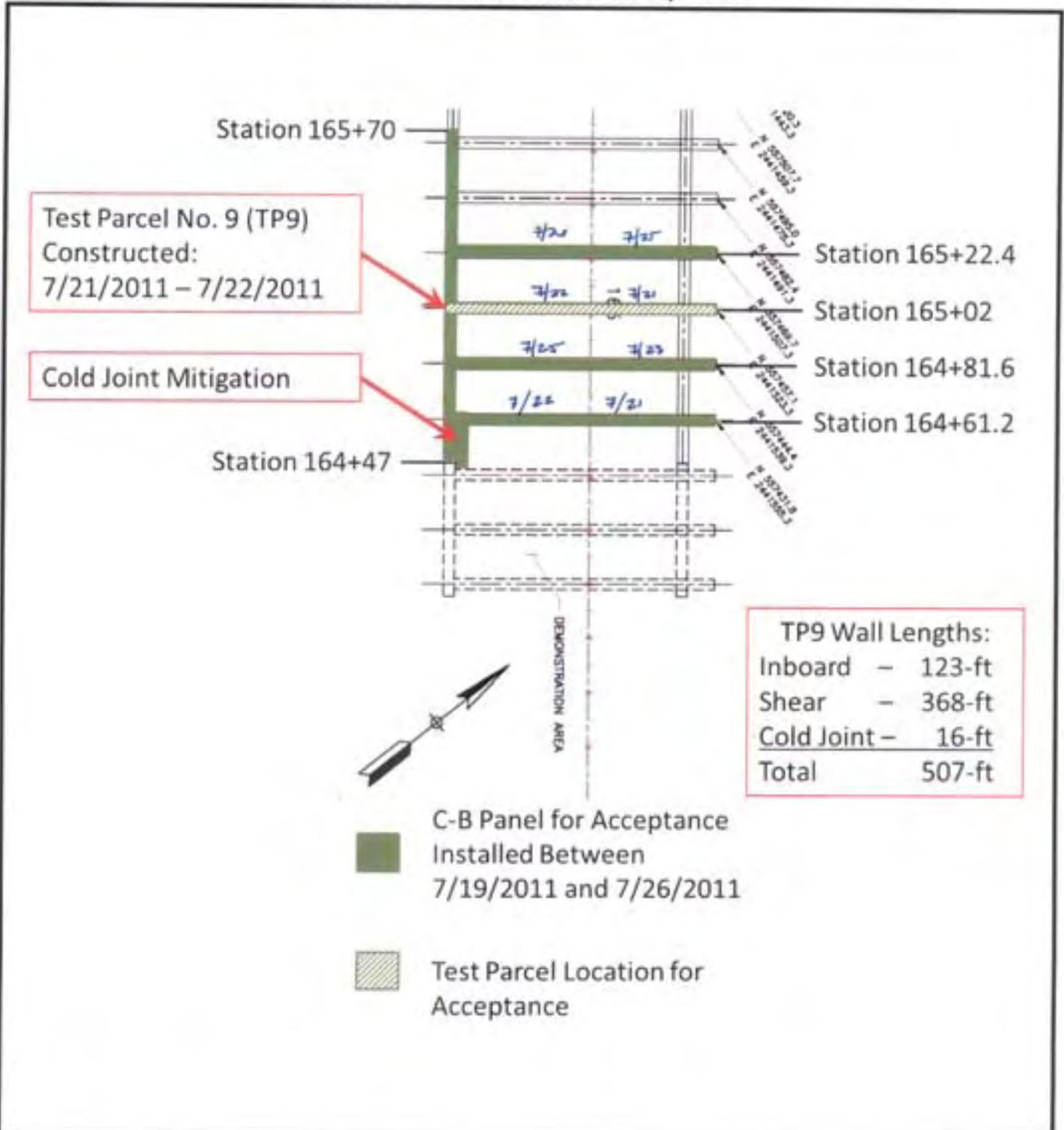


Exhibit 3 - Adjusted Strength Calculations

	<h2>Test Parcel Adjusted Strength Calculations</h2>																																		
Stantec	Test Parcel No. 9 (TP9)																																		
1)	The number of wet-grab cylinders which were tested for unconfined compressive strength, cured at an age of <u>56</u> days from Test Parcel <u>TP9</u> . 25 samples																																		
2)	The mean UCS value of this data set was determined to be the following: 351.2 psi																																		
3)	Fraction Exceeding <u>185</u> psi: <u>25</u> tests = 100.0% Fraction Exceeding <u>165</u> psi: <u>25</u> tests = 100.0%																																		
4)	To compute the Inclusion Adjustment Fraction, the first 5-feet of the core hole and the penetration into rock are ignored, per Section 02650, Paragraph 1.4.39 of the Specifications. Total Length of Core for Assessment = 157.9 -ft																																		
5)	In <u>0</u> 5-foot core runs in the soil cement (each below a depth of 5-feet), the core recovery was less than 90% (core loss greater than 6-inches in each case). The total length of unrecovered core in these runs was computed to be: 0.0 -ft																																		
6)	<u>0</u> unmixed or unflaked soil inclusions, each one being more than half of the diameter of the core and longer than 6-inches, were discovered in the recovered core. The total length of these inclusions was computed to be: 0.0 -ft																																		
7)	The Inclusion Adjustment Fraction, as defined in the Section 02650, Paragraph 1.4.40 of the Specifications, is computed as follows: Inclusion Adjustment Fraction = $\frac{\text{Total Core Loss (Step 5)} + \text{Total Length of Inclusions (Step 6)}}{\text{Total Length of Core (Step 4)}}$ Inclusion Adjustment Fraction = $\frac{0.0 + 0.0}{157.9} = 0.0000$																																		
8)	The Presumed Inclusion Strength is 10 psi, per Section 02650, Paragraph 1.4.41 of the Specifications.																																		
9)	The Adjusted Mean Strength, as defined in Section 02650, Paragraph 1.4.42, is computed as follows: Adjusted Mean Strength = $(10 \text{ psi}) \times 0.0000 + 351.2 \times (1 - 0.0000) = 351.2 \text{ psi}$																																		
10)	The Adjusted Exceedance Fraction as defined in Section 02650, Paragraph 1.4.43 of the Specifications is computed as follows: Adjusted Exceedance Fraction (185psi) = $100.0\% \times (1.0 - 0.0000) = 100.0\%$ Adjusted Exceedance Fraction (165psi) = $100.0\% \times (1.0 - 0.0000) = 100.0\%$																																		
11)	Compare Results to Criteria in Section 02650, Paragraph 2.2.3 of the Specifications for Wet Grab samples. <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th rowspan="2"></th> <th rowspan="2">Achieved</th> <th colspan="2">Criteria Set 1</th> <th colspan="2">Criteria Set 2</th> </tr> <tr> <th>Limit</th> <th>Pass?</th> <th>Limit</th> <th>Pass?</th> </tr> </thead> <tbody> <tr> <td>Adjusted Mean Strength (psi):</td> <td style="text-align: center;">351.2</td> <td style="text-align: center;">280</td> <td style="text-align: center;">TRUE</td> <td style="text-align: center;">340</td> <td style="text-align: center;">TRUE</td> </tr> <tr> <td>Adjusted Exceedance Fraction for <u>185</u> psi:</td> <td style="text-align: center;">100.0%</td> <td style="text-align: center;">90%</td> <td style="text-align: center;">TRUE</td> <td style="text-align: center;">90%</td> <td style="text-align: center;">TRUE</td> </tr> <tr> <td>Adjusted Exceedance Fraction for <u>165</u> psi:</td> <td style="text-align: center;">100.0%</td> <td style="text-align: center;">90%</td> <td style="text-align: center;">TRUE</td> <td style="text-align: center;">90%</td> <td style="text-align: center;">TRUE</td> </tr> <tr> <td>The Test Parcel passes this set of criteria:</td> <td></td> <td></td> <td style="text-align: center;">TRUE</td> <td></td> <td style="text-align: center;">TRUE</td> </tr> </tbody> </table> Overall Criteria Pass: TRUE		Achieved	Criteria Set 1		Criteria Set 2		Limit	Pass?	Limit	Pass?	Adjusted Mean Strength (psi):	351.2	280	TRUE	340	TRUE	Adjusted Exceedance Fraction for <u>185</u> psi:	100.0%	90%	TRUE	90%	TRUE	Adjusted Exceedance Fraction for <u>165</u> psi:	100.0%	90%	TRUE	90%	TRUE	The Test Parcel passes this set of criteria:			TRUE		TRUE
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12)	From visual observations of retrieved core, are the requirements of Section 02650 Paragraph 2.2.1 of the Specifications met? <u>TRUE</u>																																		
Conclusion																																			
The Adjusted Mean Strength and Adjusted Exceedance Fraction of the wet grab samples exceeds the limits provided in Section 02650, Paragraph 2.2.3 of the Specifications; therefore, the strength of this particular test parcel is found to meet the specified requirements.																																			

Prepared By: P. Brad Smiley, PE - PWS OC Manager