Melwiki, Jenna

From: Hunt, Aaron
Sent: Thursday, May 12, 2011 3:11 PM
To: Claude Dion
Cc: Bowman, Matthew; Chwalibog, Adam; Beaver, James
Subject: RE: Lower PAssaic River
Attachments: 2011-05-12 sk1-a.pdf; 2011-05-12 sk1-b.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Claude,

I have attached a sketch showing the tiebacks and master piles. Take a look and see if this answers all the questions.

Thanks,
Aaron

Aaron Hunt | Senior Structural Engineer | aaron.hunt@arcadis-us.com

ARCADIS U.S., Inc. | One SeaGate, Suite 700 | Toledo, Ohio 43604
T. 419.473.1121 | Direct Line 419.213.1627 | F. 419.473.2108
www.arcadis-us.com

Professional Engineer -OH, MI, NY, FL, NJ
Structural Engineer -IL, HI

ARCADIS, Imagine the result

From: Claude Dion [mailto:cldion@WeeksMarine.Com]
Sent: Thursday, May 12, 2011 1:34 PM
To: Hunt, Aaron
Subject: RE: Lower PAssaic River

Thanks Aaron.

Could you give me the exact location of the first and last tie back in relation with the existing king piles? Thanks Claude

---

From: Hunt, Aaron [mailto:Aaron.Hunt@arcadis-us.com]
Sent: Thursday, May 12, 2011 1:31 PM
To: Claude Dion
Cc: Bowman, Matthew; Beaver, James; Chwalibog, Adam
Subject: RE: Lower PAssaic River

Hi Claude,
Yes, just. Sorry for the delay. I'm asking Matt Bowman and Jamie Beaver to accept the changes attached. I expect Matt and Jamie will give it the official "go", but you can use this attachment for now.

Thanks Claude,

Aaron

Aaron Hunt | Senior Structural Engineer | aaron.hunt@arcadis-us.com

ARCADIS U.S., Inc. | One SeaGate, Suite 700 | Toledo, Ohio 43604
T. 419.473.1121 | Direct Line 419.213.1627 | F. 419.473.2108
www.arcadis-us.com

Professional Engineer -OH, MI, NY, FL, NJ
Structural Engineer -IL, HI

ARCADIS, Imagine the result
Please consider the environment before printing this email.

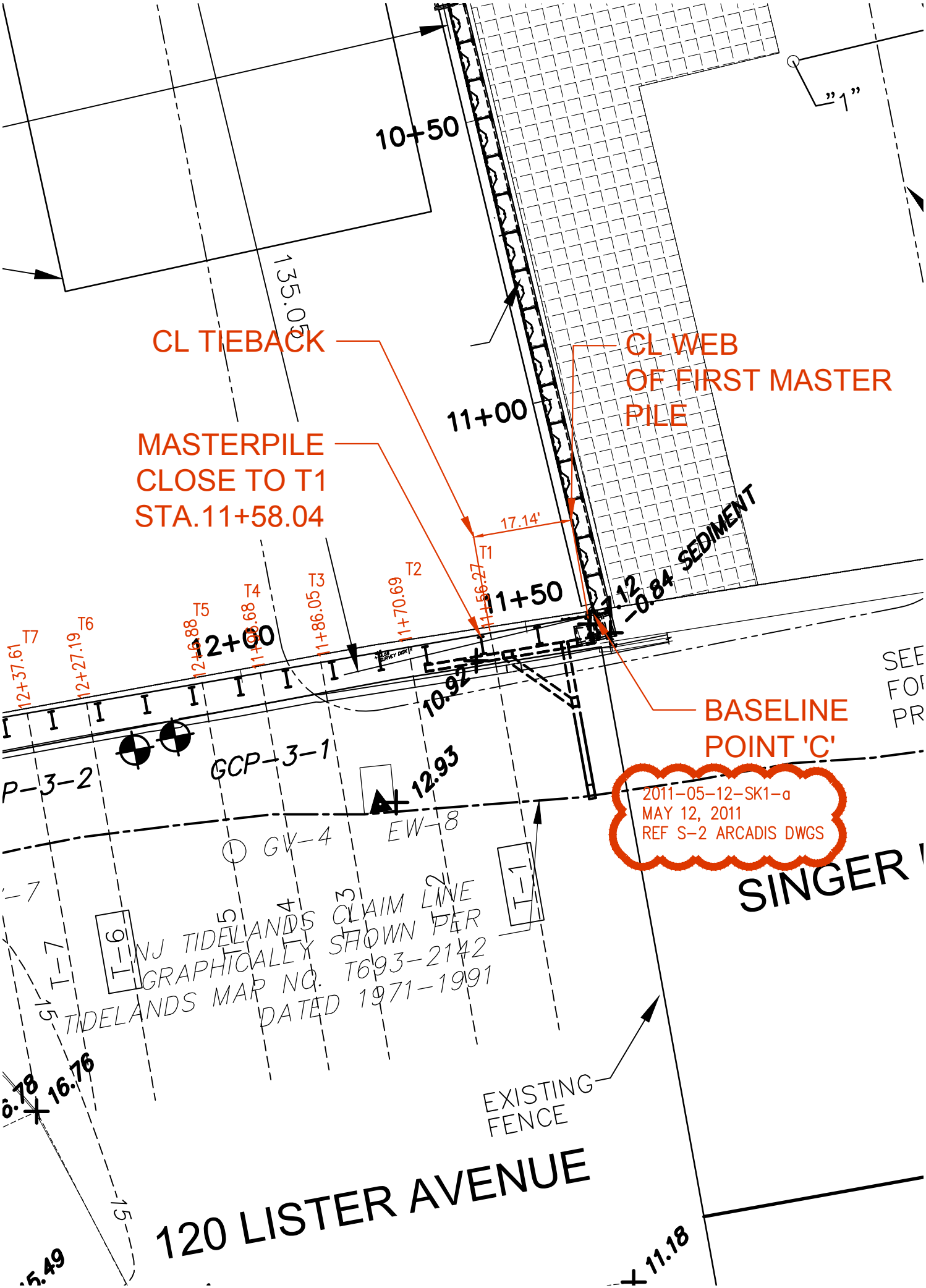
From: Claude Dion [mailto:cldion@WeeksMarine.Com]
Sent: Thursday, May 12, 2011 11:36 AM
To: Hunt, Aaron
Subject: Lower PAssaic River

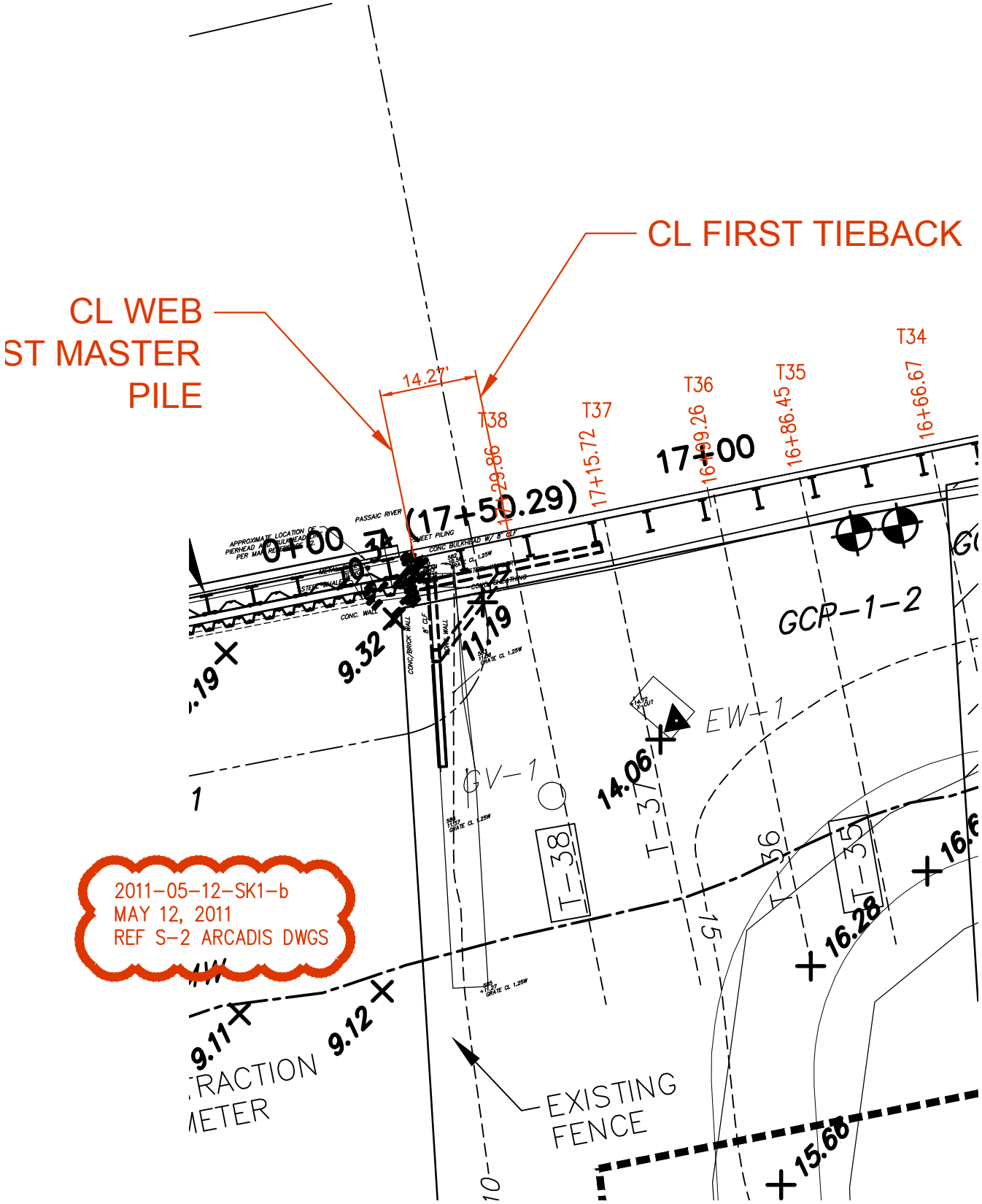
Aaron,

I am just looking if you have finished your analysis to relocate the tie back anchors at the Lower Passaic River Project.

Thanks

Claude Dion
Weeks Marine Inc.
4 Commerce Drive
Cranford, NJ 07016
Office: 908-272-4010
Cell.: 908-230-5279


CL TIEBACK
CL WEB OF FIRST MASTER PILE
MASTERPILE CLOSE TO T1 STA.11+58.04
BASELINE POINT 'C'
2011-05-12-SK1-a
MAY 12, 2011
REF S-2 ARCADIS DWGS
10+50
11+00
11+50
12+00
135.05
17.14'
T1
T2
T3
T4
T5
T6
T7
11+56.27
11+70.69
11+86.05
12+06.68
12+16.88
12+27.19
12+37.61
SEDIMENT
-0.84
10.92
12.93
GCP-3-1
P-3-2
GW-4
EW-8
T-1
T-2
T-3
T-4
T-5
T-6
T-7
NJ TIDELANDS CLAIM LINE GRAPHICALLY SHOWN PER TIDELANDS MAP NO. T693-2142 DATED 1971-1991
EXISTING FENCE
120 LISTER AVENUE
SINGER
16.76
11.18


CL FIRST TIEBACK
CL WEB
ST MASTER
PILE
14.27'
T38
T37
T36
T35
T34
16+29.86
17+15.72
16+99.26
16+86.45
16+66.67
17+00
0+00
(17+50.29)
PASSAIC RIVER
SHEET PILING
CONC. BULKHEAD W/ 8" CLF
CONC. WALL
CONC/BRICK WALL
8" CLF
GCP-1-2
EW-1
GV-1
T-38
T-37
T-36
T-35
9.32
11.19
14.06
16.28
15.68
9.11
9.12
EXISTING
FENCE
2011-05-12-SK1-b
MAY 12, 2011
REF S-2 ARCADIS DWGS

REQUEST FOR INFORMATION (RFI) NO. □□1

CONTRACT NO. B000964.001

Friday, May 06, 2011 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.

251 E. Ohio St., Suite 800
Indianapolis, IN, 46204

Attention: Matthew Bowman

From: Weeks Marine, Inc

4 Commerce Drive,
Cranford, NJ 07016

Attention: Claude Dion

Subject: W16X77 Wale OU-1 Floodwall Tie-Back Location

Reference: S-13 to S-15 and S-17

Description:

T□□ □□□□□□□d A□□C□d dr□□ □□□ □□□□□ □ □□□ □□□□□□□□ □□□□□ □□□□□□□ □□□□ □□□ □□ □□□ □r□□□□□□d □□□ □□□□. S□□□r□□□□□ □□□□□□ □r□ □□□r □r □□ □□□ □□□□□□□□ □□□ □□□□. P□□□□□ r□□□□□□□ □□□ □□□ □□□□□□ □□ □□□d □□□ □□□□ □□□□□ d□r□□ dr□□□□□. T□□□□ d□□ □□□□□□□ □r□ r□□□□□□r □□□ □ □d□□□ □□□□□ □□□□□□□r □□□d□ □□□ W 1□□77. A□□□□r□□d□ d□□ □□□□□□ □□□□ □□□ □r□□ □□□□ □□□□ □□d □□□ □□□□ □□d d□□ □□□□□□ □□□□ □□□ □□□ □□□□□□□ □□□□ □□d □□□□ □□□ □□□□ □□ dr□□ □□□ □□□ □□□d□d □r□□.

Date Reply Required: 5/10/2011

Owner Use Only:

Melwiki, Jenna

From: Beaver, James
Sent: Tuesday, May 17, 2011 12:57 PM
To: Claude Dion; Melwiki, Jenna; Denkenberger, Erika
Cc: Bowman, Matthew; steve@magtechconstruction.com; Dave A. Vosseller
Subject: RE: Lower Passaic River: Submittal 010000-01-A Temp. Access Road Stone

Claude, upon further consider we request a NJDOT #3 crushed stone, 1.5" minus, for the OU-1 temporary road aggregate.

Please let me know if there are further questions.

Thanks,
-Jamie

From: Claude Dion [mailto:cldion@WeeksMarine.Com]
Sent: Monday, May 16, 2011 8:50 AM
To: Melwiki, Jenna; Denkenberger, Erika
Cc: Bowman, Matthew; Beaver, James; steve@magtechconstruction.com; Dave A. Vosseller
Subject: Lower Passaic River: Submittal 010000-01-A Temp. Access Road Stone

Ladies,

Find attached Submittal 010000-01-A Temp. Access Road Stone. We have submitted 2 type of gradation stone in this submittal. Please confirm the prefer stone.

Regards,

Claude Dion
Weeks Marine Inc.
4 Commerce Drive
Cranford, NJ 07016
Office: 908-272-4010
Cell.: 908-230-5279

ARCADIS US, INC
SUBMITTAL FORM

To Mr. Matthew Bowman, Construction Manager
Arcadis Us, Inc
251 E. Ohio Street, Suite 800
Indianapolis, IN 46204

Submittal No. 010000-01-A
Date of Submittal: May 16, 2011
Contractor: Weeks
Contract No.: B0009964.001
Subject of Submittal: Stone (Temp. Access)

Specification No. N/A Par. No. N/A
Drawing No. C-5 Detail 9

WE ARE SENDING YOU ATTACHED THE FOLLOWING: (Indicate All Applicable Items)

☐ Shop Drawings ☐ Progress Schedules ☐ Testing Procedure ☒ First Submission ☐ Third Submission

☐ Sample ☐ O&M Manual ☐ Schedule of Values ☐ Second Submission ☐ _____ Submission

DESCRIPTION (Itemize All Components)	NO. OF COPIES
DGA for temporary Access Road (NJDOT Item 302) and (Crushes Stone) Gradation	1

Complete either (a) or (b) and ©, in the case of technical Submittals or Progress Schedule Submittals:

a (X) The Contractor verified that the material, equipment, or other item contained in this Submittal meets all the requirements specified, shown,, or indicated in the Contract Documents with no exceptions.

b ( ) The Contractor has verified that the material, equipment, or other item contained in this Submittal meets all requirements specified, shown, or indicated in the Contract Documents except for variances identified in the following attached documents:

THIS SUBMITTAL IS PROVIDING 2 TYPE OF GRADATION STONE.

PLEASE CONFIRM YOUR PREFERENCE.

c ( ) The Contractor has stamped or written its approval on each Shop Drawing sheet, or cover sheet in the case of other Submittals, certifying that the Contractor has satisfied its responsibilities with respect to the review of the submission including, but not limited to, the requirements of Article 6 of the General Conditions.

Signed (By the Contractor): _____

Claude Dion

203.03.02.D. If constructing aggregate base course or HMA on the subbase, the ME will measure compaction using the control fill method as specified in 203.03.02.B.

Correct damage to the subbase caused by construction activities, and maintain the corrected subbase until the subsequent course is placed. Do not allow traffic on the subbase. Remove all standing storm water and obtain the RE's approval before constructing subsequent courses.

The RE will check elevations of the roadbed subbase as specified in 202.03.03.C to ensure that subbase elevations are within a tolerance of ±1/2 inch.

301.04 MEASUREMENT AND PAYMENT

The Department will measure and make payment for Items as follows:

Item	Pay Unit
SUBBASE	CUBIC YARD

Additional Reference Material

Item Number List

SECTION 302 – AGGREGATE BASE COURSE

302.01 DESCRIPTION

This Section describes the requirements for constructing aggregate base courses.

302.02 MATERIALS

302.02.01 Materials

Provide materials as specified:

DGA	901.10
Soil Aggregate (I-5)	901.11

Where I-5 soil aggregate is specified, the Contractor may substitute DGA with the approval of the RE.

302.02.02 Equipment

Provide equipment as specified:

Pneumatic-Tired Compactor	1002.01
Dynamic Compactor	1002.02
Steel Wheel Roller	1002.03
Padfoot Roller	1002.04

302.03 CONSTRUCTION

302.03.01 Aggregate Base Course

A. **Preparing Subgrade or Subbase**. Before placing base course on subgrade or subbase, prepare surfaces as specified in 301.03.01.

B. **Density Control Strip**. Obtain RE approval of the underlying surface before constructing the density control strip. Before constructing the aggregate base course, construct a density control strip using the same type of material from the same source as the aggregate base course. Construct additional density control strips if a change is made in the type or source of material, if a significant change occurs in the composition of the material from the same source, or if a change is made in the type of compaction equipment used, as determined by the ME. Provide at least 400 square yards for each density control strip. Construct a density control strip for each thickness specified for the aggregate base course. Ensure that the moisture content for the test strip material is within 2 percent of its optimum moisture content according to AASHTO T 99, Method C, including replacement option.

Place and spread aggregate base course as specified in 301.03.01.B. Place the base course and compact within a tolerance of ±1/2 inch of the required elevation. Ensure that no compacted lift exceeds a thickness of 8 inches. For base courses greater than 8 inches thick, construct the base course in 2 or more lifts of approximately equal thickness.

Compact the density control strip using the same type and weight of equipment that will be used for compaction of the aggregate base course. Compact the density control strip with a minimum of 2 passes of the compaction equipment. A pass is defined as 1 passage of each compacting element in use of the compaction equipment over the entire surface of the course. After each pass of the compaction equipment transverses the density control strip, the ME will make 3 density determinations according to AASHTO T 310. Continue compacting until no appreciable increase in density is obtained by additional passes.

After the Contractor completes compaction of the control strip, the ME will take at least 10 density tests at random locations to determine the average in-place dry density of the density control strip. If the average density of the material in the density control strip is equal to or greater than 95 percent of its maximum density, as determined according to AASHTO T 99, Method C, including replacement option, then use the value of this average as the reference maximum density for courses of the same materials and thickness. Establish a density control strip satisfying the 95 percent density requirement, according to AASHTO T 99, Method C, before constructing additional base courses. If this density level in the density control strip is not achieved, the RE will reject the compaction equipment, its method of use, or both. If approved by the RE, the density control strips may remain in place and become a portion of the completed base course.

The RE will check elevations, as specified in 202.03.03.C, of the roadbed base course to ensure that base course elevations are within ±1/2 inch.

C. **Aggregate Base Course Placement**. Construct the aggregate base course in the same manner as the approved density control strip.

If less than 500 contiguous square yards of aggregate base course is being constructed, place and spread the aggregate base course as specified in 301.03.01.B. Place the base course and compact within a tolerance of ±1/2 inch of the required elevation. Compact the base course areas as specified in 203.03.02.D and ensure that no compacted lift exceeds a thickness of 8 inches. For base courses greater than 8 inches thick, construct the base course in 2 or more lifts of approximately equal thickness.

D. **Thickness Requirements**. The RE will measure thickness, by test holes or by calculating the difference in elevations between the base course and the underlying layer. Refill test holes with base course material and recompact using the directed method as specified in 203.03.02.C.

If the total thickness of base course differs from specified thickness by more than 1/2 inch, correct deficient areas as follows:

1. Scarify the base course to a depth of 3 to 4 inches.
2. Ensure that remaining material is contaminant free.
3. Add or remove base course material to obtain the required grade while the existing surface is in a loose, scarified condition.
4. Compact using the same method used for the density control strip.

E. **Compaction Acceptance Testing**. The ME will divide the base course into lots of approximately 5000 square yards or 1000 cubic yards. The ME will test each lot of completed base course for compliance. The ME will determine the 5 locations for density tests using a table of random numbers. The ME will

Use grit for spreading over the epoxy waterproofing that is a subangular, natural, 98 percent silica sand. Ensure that 90 percent of the total sample by weight falls between the No. 4 and No. 30 sieves, with 0 percent passing the No. 30 sieve.

901.08 RIPRAP STONES

Use riprap stones that consist of a uniformly graded mixture of rock conforming to 901.03.01, such that 50 percent of the mixture by weight is equal to or larger than the designated median stone size (d_{50}). Ensure that the stones are a well-graded mixture composed primarily of the larger stone sizes, but with a sufficient quantity of other sizes to fill the progressively smaller voids between the stones. Ensure that the diameter of the largest stone size is less than 1.5 times d_{50}.

901.09 GABION BASKET STONE

To fill gabion baskets, use crushed stone consisting of trap rock, granite, or gneiss and conforming to the requirements of 901.03.01. To prevent breakdown after placement, use aggregate that is free of cracks due to jointing, faulting, or other causes. Ensure that the aggregate conforms to the size requirements specified in Table 901.09-1.

Table 901.09-1 Gabion Basket Stone Size Requirements

Basket Height	Minimum	Maximum
Less than 24 inches	3 inch	5 inch
Greater than or equal to 24 inches	4 inch	8 inch

901.10 DENSE-GRADED AGGREGATE (DGA)

Use a DGA that is listed on the QPL. For gradation acceptance, the ME will sample DGA according to AASHTO T 2 for each 500 cubic yards. The ME will apply the gradation requirements to the material after it has been placed and compacted on the Project.

901.10.01 Virgin

Produce virgin DGA from broken stone conforming to 901.03.01, crushed gravel conforming to 901.03.02, or blast furnace slag conforming to 901.04, except that at least 90 percent of all fragments shall contain at least 1 fractured face. Ensure that the DGA conforms to the following requirements and gradation:

1. **Moisture Content.** Ensure that the moisture content of DGA immediately before placement is 6 ± 2 percent based on dry weight. If dense-graded aggregate is to be paid for on a weight basis, do not deliver DGA to the Project with the moisture content exceeding 8 percent.
2. **Plasticity and Gradation.** When tested according to AASHTO T 90, ensure that the portion passing the No. 40 sieve is non-plastic. Ensure that the gradation conforms to the requirements specified in Table 901.10.01-1.

Table 901.10.01-1 Gradation Requirements for DGA

Sieve Size	Percent Passing
1-1/2"	100
3/4"	55 - 90
No. 4	25 - 50
No. 50	5 - 20
No. 200	3 - 10

901.10.02 Recycled Concrete Aggregate (RCA)

The Contractor may produce DGA from recycled concrete aggregate that conforms to the gradation and plasticity requirements specified in 901.10.01 and to the following:

1. **Composition.** Ensure that the composition, as determined according to NJDOT A-3, conforms to the requirements specified in Table 901.10.02-1.

Table 901.10.02-1 Composition Requirements for RCA

Aggregate Property	Minimum Percent	Maximum Percent
Concrete[1]	90	
HMA		10
Brick, cinder block, schist, concrete washout, and other friable material		4
Reactive material		0
Wood		0.1

[1] To meet the minimum requirement for concrete, the Contractor may add broken stone, vitreous china, or crushed gravel. Use broken stone conforming to 901.03.01 or crushed gravel conforming to 901.03.02, except that it need not be washed

2. **Percentage of Wear.** Ensure that the loss does not exceed 50 percent when tested according to AASHTO T 96.
3. **Reporting of Recycled Materials Usage.** Report the tonnage of concrete aggregate being recycled to the Solid Waste Management District of origin, according to N.J.A.C 7:26A.

901.10.03 Virgin and RAP Mixture

The Contractor may also produce DGA by mixing a maximum of 50 percent RAP conforming to 901.05.04 with previously approved virgin DGA.

Use a method of mixing that will ensure that the blended mixture is homogeneous with regard to particle size and composition. Ensure that the blended mixture meets the following requirements:

1. **Composition.** Ensure that the composition, as determined according to NJDOT A-3, conforms to the requirements specified in Table 901.10.03-1.

Table 901.10.03-1 Composition Requirements for Virgin DGA and RAP Mixture

Aggregate Property	Percent by Weight Maximum
RAP	50
Concrete	5
Brick, schist, and other friable material	4
Reactive material	0
Wood	0.1

2. **Plasticity and Gradation.** Use a blended material that is non-plastic when the portion passing the No. 40 sieve is tested according to AASHTO T 90. Ensure that the DGA containing RAP conforms to the gradation for DGA as specified in 901.10.01, except that the percent passing the No. 200 sieve is 0 to 10 percent when tested according to NJDOT A-6.

Sieve Size	STONE PRODUCTS GRADATION								
	Soft #10	Hard #10	#8	#7	5/8 D	#56	#57	2"	Base
2"	100	100	100	100	100	100	100	100	100
11/2"	100	100	100	100	100	100	100	89.7	100
11/4"	100	100	100	100	100	100	100	62.9	99.5
1"	100	100	100	100	100	98.6	100	30.4	95.1
3/4"	100	100	100	100	100	71.3	92.8	7.5	87.2
5/8"	100	100	100	100	100	36.7	50.5	5.2	85.1
1/2"	100	100	100	91.7	91.2	7.5	37	4.9	75.6
3/8"	100	100	99.5	66.7	59.6	1.9	16.4	4.0	67.8
No. 4	93.3	88.9	20.1	10.9	4.6	1.3	2.5	3.6	50.5
No. 8	70.0	57.1	2.5	4.8	2.4	1.3	1.5	3.4	47.3
No. 16	49.2	37.3	1.2	3.9	2.3	1.3	1.0	3.1	27.5
No. 30	35.5	25.8	1.0	3.6	2.2	1.2	0.6	3.0	19.7
No. 50	25.8	19.3	0.7	3.4	2.1	1.2	0.2	2.9	15.3
No. 100	19.2	15.1	0.5	3.2	2.0	1.1	0.2	1.8	10.1
No. 200	15.6	12.1	0.2	3.0	1.6	1.0	0.1	1.0	8.9
	PRECENT PASSING								

NOTE: Gradation will vary from load to load. This is an average

EXAMPLE: The #7 Stone has 100 precent passing the 5/8" Seive. This Means that The #7 stone has nothing larger than a 1/2" Stone.
The #7 Stone has 66.7 precent passing the 3/8" Seive. This means 33.3 precent (100-66.7=33.3) of the #7 stone will be 3/8" stone or larger.
To break it down father #7 Stone Has 0% of 5/8" , 8.3% (100-91.2=8.3) of 1/2", and 25% (33.3-8.3=25) of 3/8" ect. ect..

If you need a price quote or have a question about any of our products or services please contact us.

By E-mail

Denkenberger, Erika

From: Melwiki, Jenna
Sent: Friday, May 27, 2011 9:13 AM
To: Claude Dion
Cc: Bowman, Matthew; Hunt, Aaron; Denkenberger, Erika; Dave A. Vosseller; Dustin Norris; Jeff Martin; Beaver, James; Chwalibog, Adam
Subject: RE: Lower Passaic River RFI 2
Attachments: ARCADIS No-RFI-003 Weeks RFI No 002 Tiebacks OU-1.pdf

Good morning Claude,

Please find the response to this RFI attached.

Thank you,
Jenna

Privileged and Confidential Work Product Prepared at the Request of Legal Counsel
for or in Anticipation of Litigation and in Connection with Rendering Legal Advice

Jenna Melwiki, EIT | Environmental Engineer | Sediment and Waterfront Group | jenna.melwiki@arcadis-us.com

ARCADIS U.S., Inc. | 6723 Towpath Road | Syracuse, NY, 13214
T. 315.671.9570 | M. 269.370.2449 | F. 315.445.9161
www.arcadis-us.com

Professional Affiliate/ ARCADIS of New York, Inc.

ARCADIS, Imagine the result

From: Claude Dion [mailto:cldion@WeeksMarine.Com]
Sent: Friday, May 20, 2011 2:09 PM
To: Beaver, James
Cc: Bowman, Matthew; Hunt, Aaron; Melwiki, Jenna; Denkenberger, Erika; Dave A. Vosseller; Dustin Norris; Jeff Martin
Subject: Lower Passaic River RFI 2

Jamie,

We have revised our shop drawing based on the detail received earlier for the W16X77 wale at OU-1 Floodwall. Attached is RFI 02 regarding the master pile at each extremity of OU-1 Floodwall.

Please provide final dimension of the W16x77 and how you would like us to proceed at each extremity of OU-1 Floodwall.

Regards,

Claude Dion
Weeks Marine Inc.
4 Commerce Drive
Cranford, NJ 07016
Office: 908-272-4010
Cell.: 908-230-5279

WEEKS MARINE INC. ***WMI Job No. 2010-0148***

REQUEST FOR INFORMATION (RFI) NO. □□2

CONTRACT NO. B000964.001

Friday, May 20, 2011 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.

251 E. Ohio St., Suite 800
Indianapolis, IN, 46204

Attention: Matthew Bowman

From: Weeks Marine, Inc

4 Commerce Drive,
Cranford, NJ 07016

Attention: Claude Dion

Subject: W16X77 Wale OU-1 Floodwall Tie-Back Location

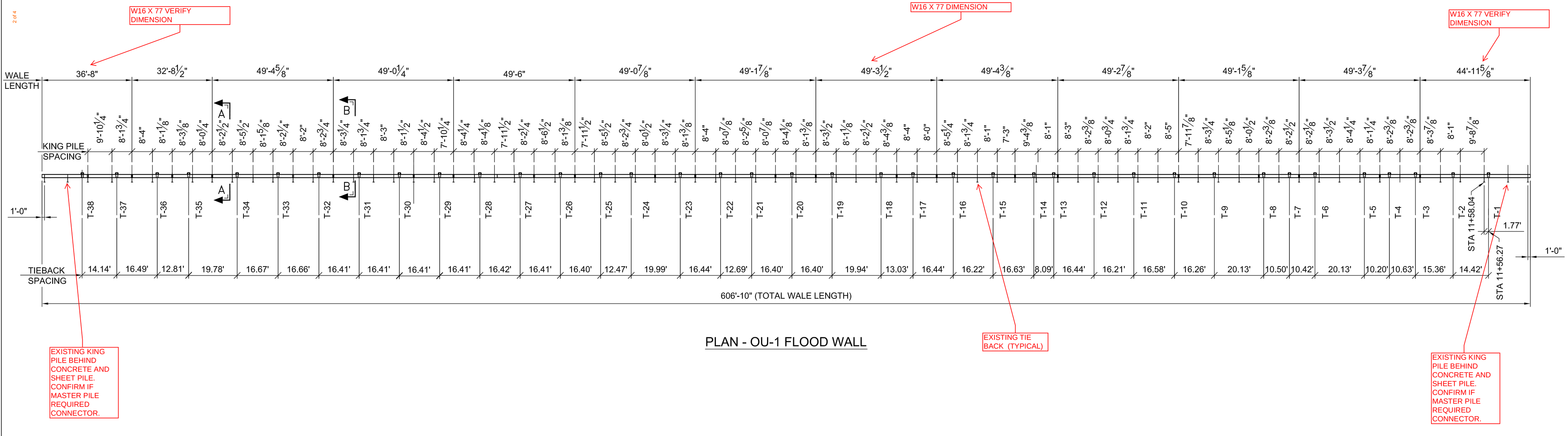
Reference: S-13 to S-15 and S-17

Description:

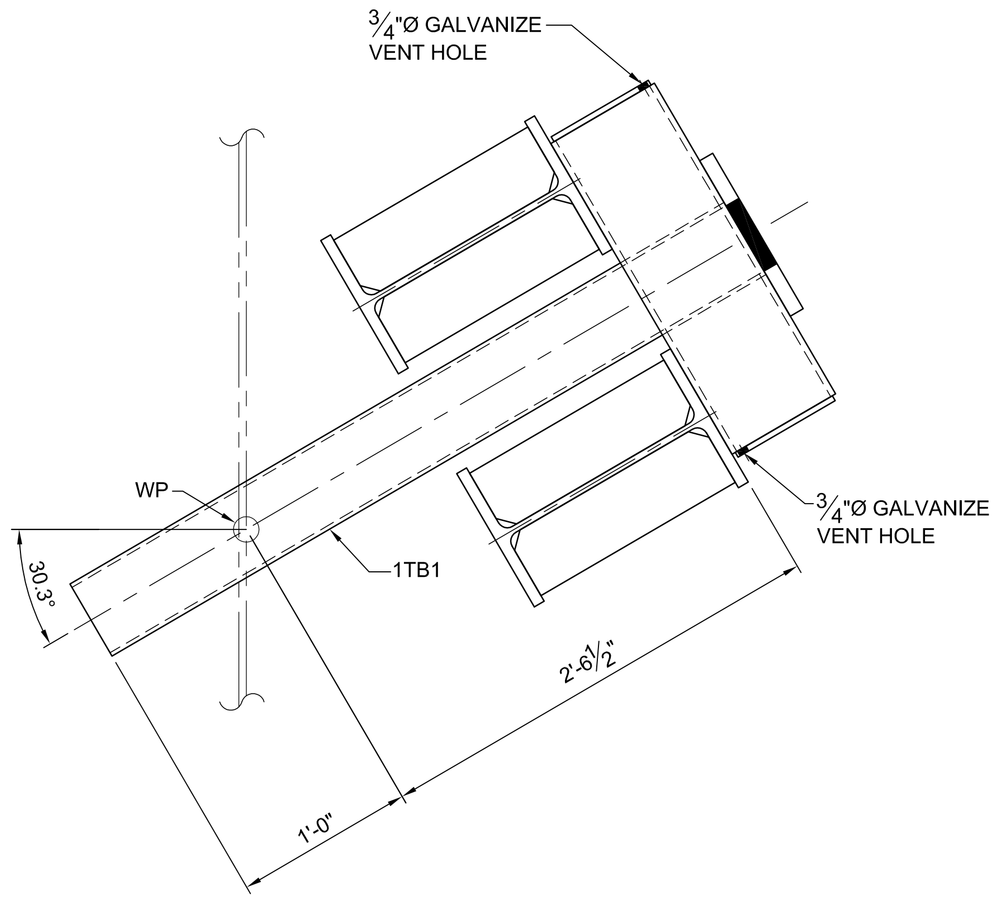
The attached drawing shows the location of the e□isting Tie-Backs and new Tie-Backs. The new Tie backs 1 and 38 are o□tside the e□isting Tie-Backs. The s□bse□□ent master □iles are behind the concrete wall and sheet □ile. Please confirm if the connector, as shown on drawing S-17, can be weld to the sheet □iles since the e□act location of the master □iles cannot be determinate in the field. Also confirm the length of the wale 16 □77 at each e□tremity.

Date Reply Required: 5/24/2011

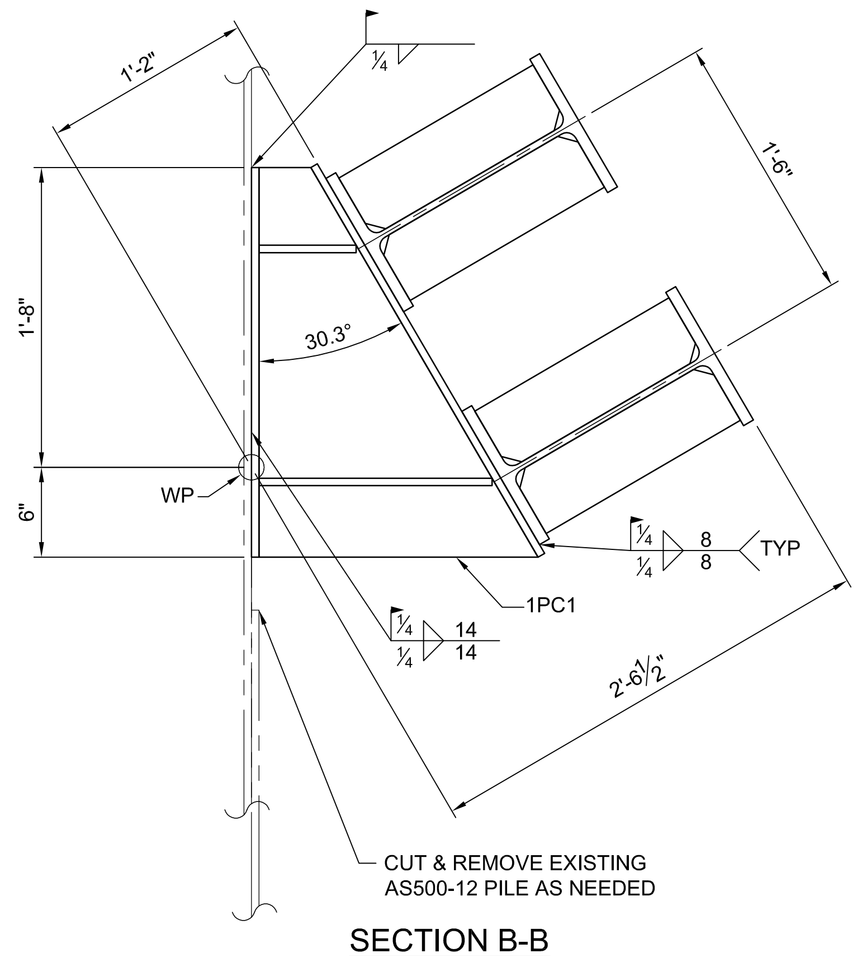
Owner Use Only:



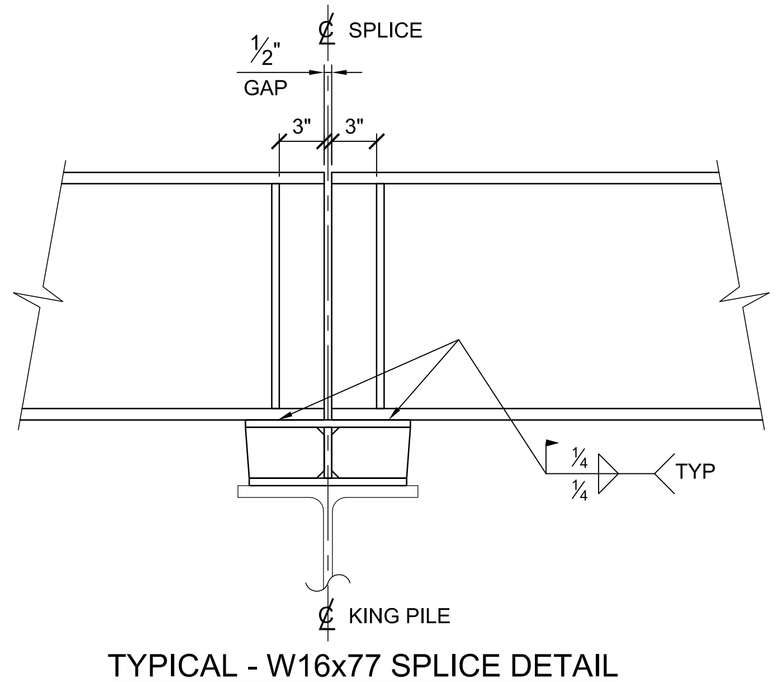
PLAN - OU-1 FLOOD WALL



SECTION A-A TIEBACK



SECTION B-B MASTER PILE CONNECTION



TYPICAL - W16x77 SPLICE DETAIL

FOR APPROVAL
5-20-11

NO.	REVISION	DATE	BY
.	.	.	.
2	REVISED TIEBACK LOCATIONS BY 1.77'	5-19-11	GJH
1	REVISED TIEBACK LOCATIONS & SPLICES	5-18-11	GJH

Dura-Bond Steel
STEEL FABRICATION AND COATING SERVICES FOR THE CONSTRUCTION INDUSTRY
P.O. Drawer 518, 2658 Puckety Street
Export, Pennsylvania 15632
Phone: 724-327-0280 Fax: 724-327-0113
AISC CERTIFICATION

JOB: LOWER PASSAIC RIVER		
LOCATION: NEWARK, NJ		
CUSTOMER: WEEKS MARINE INC	PO# .	
ARCH./ENG: ARCADIS U S, INC		
DESCRIPTION: WALER PLAN		
BOLTS: N/A	HOLES: N/A	
WELD-A.W.S. CODE: D1.1 E7XTX FCAW		
PAINT: HOT DIP GALVENIZE PER ASTM A123 .	DRN: MB/GH 5-2-11	
	CHKD:.	
JOB NO.: 11-12-058	SHT. NO.: E1	

ARCADIS RFI number: 003,
Weeks RFI No 002 May 26, 2011

RFI Response

Contractor's Request reiterated:

The attached drawing shows the location of the existing Tie-Backs and new Tie-Backs. The new Tie backs 1 and 38 are outside the existing Tie-Backs. The subsequent master piles are behind the concrete wall and sheet pile. Please confirm if the connector, as shown on drawing S-17, can be weld to the sheet piles since the exact location of the master piles cannot be determinate in the field. Also confirm the length of the wale 16 x 77 at each extremity.

Engineer's Response:

Tieback T-38 is indicated to be installed near the west end of the OU-1 Floodwall. The supporting W16x77 wales will need to span to Mater Pile number 2, shown in Photo 1 below. Similarly, Tieback T-1 will be located near the east end of the OU-1 Floodwall. The W16x77 wales must span to Master Pile 73 seen in Photo 2 below.

1. There are no existing tie rods to deadmen in these locations. Locating the master piles will have to be completed by using the exposed flanges, not tie rod locations.
2. The steel AS-500 flat sheets in front of the Master Piles have no significant structural attribute to the floodwall, and therefore very little structural attachment. They cannot be used to support the W16x77 built up supports.
3. Existing concrete and AS-500 sheet steel will need to be removed in order to install the supports. Please refer to detail 2 on sheet S-17.
4. As Built information surveyed by French & Parrello Assoc. during construction (7/18/2000) locate the piles in plan and elevation (Ref: Attachment 2 of Appendix K report by BBL).
5. Master Pile 2 is located 9.91 feet to the west of Master Pile 3. Per detail 3, on drawing S-17, the W16x77 wales must extend 1'-0" beyond Master Pile 2.
6. Master Pile 73 is located east of Master Pile 72 by 9.89 feet. Per detail 3, on drawing S-17, the W16x77 wales must extend 1'-0" beyond Master Pile 73.

See next page for photographs.

ARCADIS RFI number: 003,
Weeks RFI No 002 May 26, 2011

Photo 1

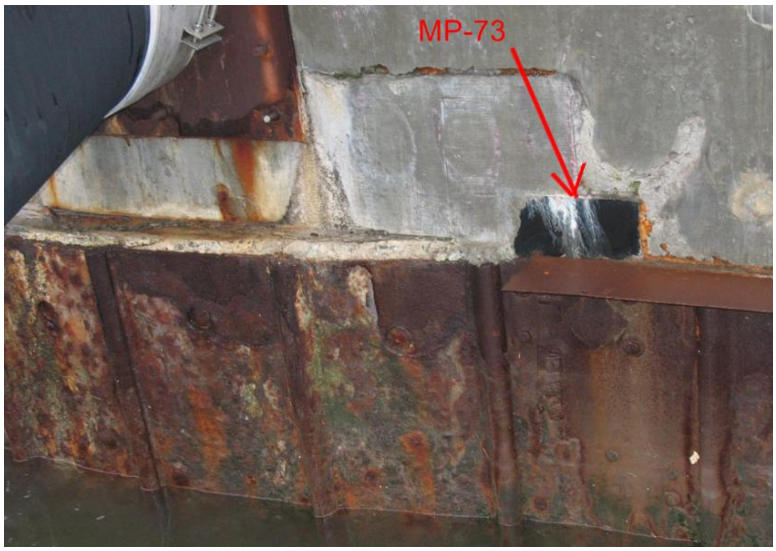


Photo 2

Denkenberger, Erika

From: Melwiki, Jenna
Sent: Friday, May 27, 2011 9:10 AM
To: Claude Dion
Cc: Bowman, Matthew; Beaver, James; Dave A. Vosseller; Jeff Martin; Dustin Norris; Denkenberger, Erika; Hunt, Aaron; Chwalibog, Adam
Subject: RE: Lower Passaic river RFI 03
Attachments: ARCADIS No-RFI-004 Weeks RFI No 003 Splice in Wales.pdf

Good morning Claude,

Please find the response to this RFI attached.

Thank you,
Jenna

Jenna Melwiki, EIT | Environmental Engineer | Sediment and Waterfront Group | jenna.melwiki@arcadis-us.com
T. 315.671.9570 | M. 269.370.2449 | F. 315.445.9161

From: Claude Dion [mailto:cldion@WeeksMarine.Com]
Sent: Wednesday, May 25, 2011 2:45 PM
To: Melwiki, Jenna; Denkenberger, Erika
Cc: Bowman, Matthew; Beaver, James; Dave A. Vosseller; Jeff Martin; Dustin Norris
Subject: Lower Passaic river RFI 03

Matt,

Please review the attached RFI 03 W21x68 Plate Connection.

Thanks

Claude Dion
Weeks Marine Inc.
4 Commerce Drive
Cranford, NJ 07016
Office: 908-272-4010
Cell.: 908-230-5279

WEEKS MARINE INC. ***WMI Job No. 2010-0148***

REQUEST FOR INFORMATION (RFI) NO. □□3

CONTRACT NO. B000964.001

Wednesday, May 25, 2011 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.

251 E. Ohio St., Suite 800
Indianapolis, IN, 46204

Attention: Matthew Bowman

From: Weeks Marine, Inc

4 Commerce Drive,
Cranford, NJ 07016

Attention: Claude Dion

Subject: Splice Plate W21x68

Reference: S-7

Description:

Drawing S-7 Detail N/A shows a 1/4" thick □late to□ and bottom to connect the W21□68. The □late is only 9" wide. Please confirm the □late dimension in reference of the new W21□68 wale.

Date Reply Required: 6/1/2011

Owner Use Only:

ARCADIS RFI number: 004,
Weeks RFI No 003 May 26, 2011

RFI Response

Contractor's Request reiterated:

Drawing S-7 Detail N/A shows a 1/4" thick plate top and bottom to connect the W21x68. The plate is only 9" wide. Please confirm the plate dimension in reference of the new W21x68 wale.

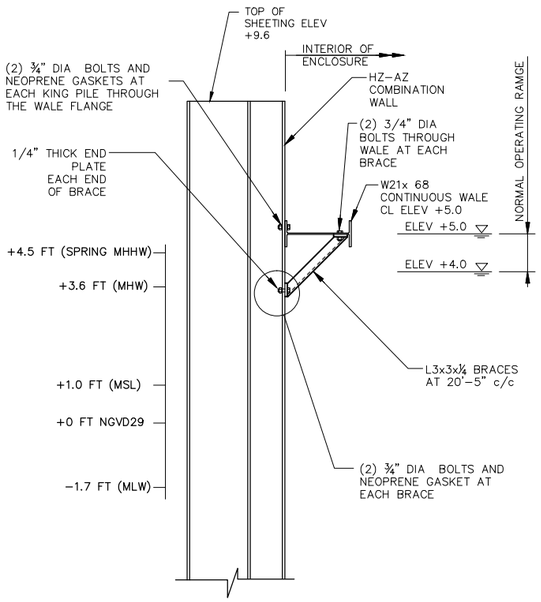
Engineer's Response:

The referenced detail was not been updated to show the proper depth of the W21x68 wale when the final wale was selected. Though this is the case, the gusset dimensions remain the same.

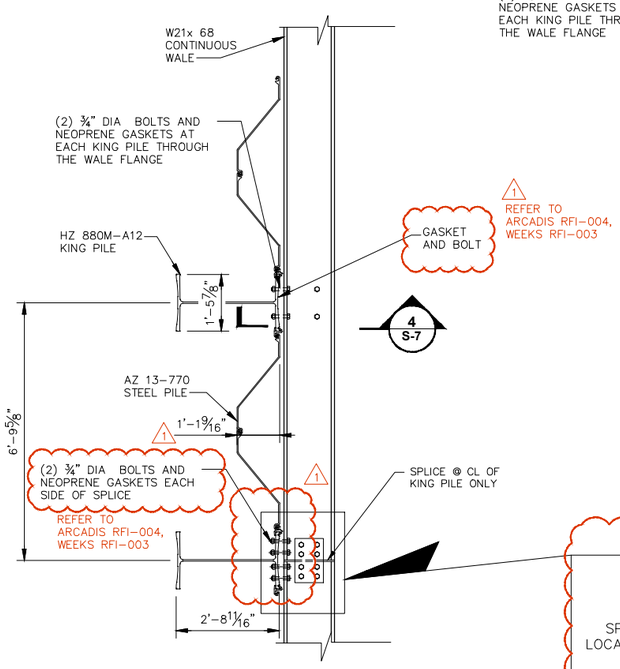
Sheet S-7 has been updated to reflect:

1. the correct wale size in the detail corresponding to the contractor's concern,
2. connections between the wale and king piles as neoprene gaskets, not steel or timber,
3. 2 bolts each side of the splice is required.

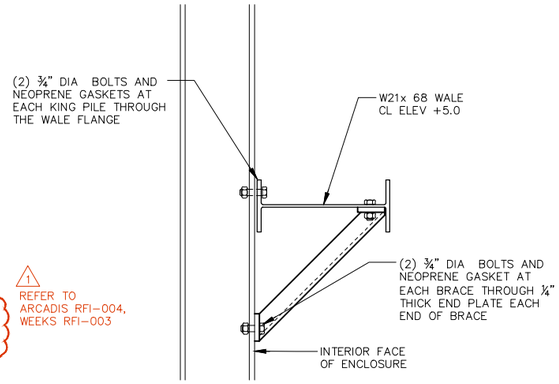
Refer to attached drawing revision 1 – sheet S-7.



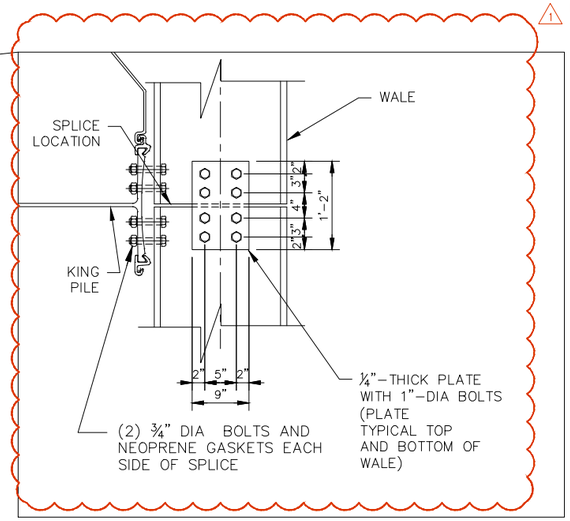
SECTION
TYPICAL RIVERSIDE SECTION 1
1/2"=1'-0"

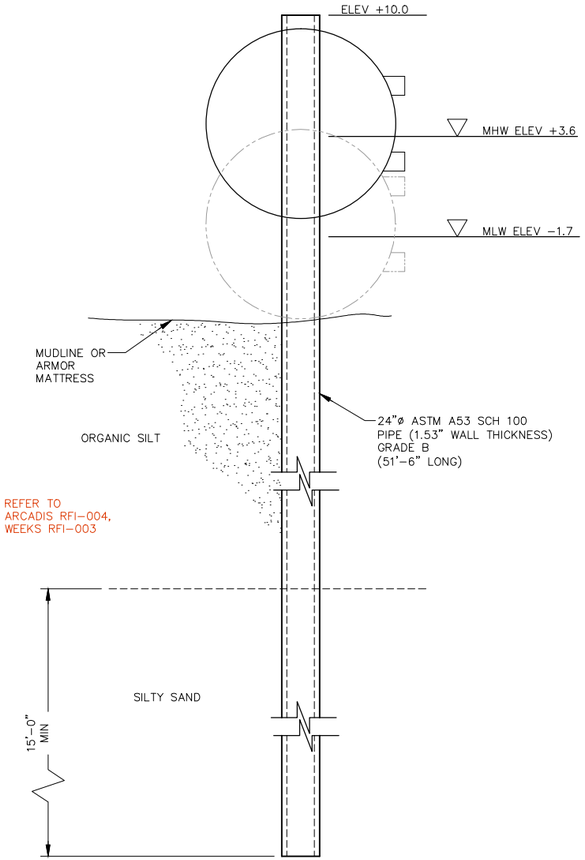


PLAN
TYPICAL WALL CONSTRUCTION 2
1/2"=1'-0"



TYPICAL WALE CONNECTION 4
1"=1'-0"





MONOPILE 3
¼"=1'-0"

NOTE OVER BARRIER MONOPILES:
SUBMITTAL OF ALTERNATE ENCLOSURE PROTECTION DESIGN MAY BE CONSIDERED BY ENGINEER AND MUST INCLUDE PLANS AND DETAILS FOR APPROVAL BY ENGINEER TO MODIFY BARRIER MONOPILE PLAN.

0' 1' 2' 3' 4' 5' 6'
1/2"=1'-0"

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
1	5-26-11	RFI-004 AND WALE SHIM CLARIFICATION	AH	

Professional Engineer's Name: AARON A HUNT
Professional Engineer's No.: 24GE04804300

State	Date Signed	Project Mgr.
NJ	-	-
Designed by	Drawn by	Checked by
AAH	AAH	-

ARCADIS U.S., INC.
NEW JERSEY ENGINEERING CERTIFICATE OF AUTHORIZATION NUMBER 24GA27939600

TIERRA SOLUTIONS, INC. • LOWER PASSAIC RIVER, NEWARK, NJ
PHASE I CERCLA NON-TIME-CRITICAL REMOVAL ACTION

SECTIONS
SHEET 2 OF 3
STRUCTURAL

ARCADIS Project No. B0009964.0001
Date MAY 2011
ARCADIS
6723 TOWPATH ROAD
BOX 66
SYRACUSE, NY 13214
TEL: 315.446.9120

S-7

Denkenberger, Erika

From: Melwiki, Jenna
Sent: Friday, July 01, 2011 3:57 PM
To: Claude Dion
Cc: Bowman, Matthew; Dave A. Vosseller; Nick K. Katzenberger; Chris W. Fenton; Dan L. Mowers; King, Coleman; Denkenberger, Erika; Beaver, James; Kellems, Barry; Hunt, Aaron
Subject: RE: Lower Passaic River Weeks Submittal 051200-03-A Cold Galvanize
Attachments: 051200-03-A Cold Galvanize Repairs.pdf

Claude,

The attached was processed as ARCADIS RFI-005. (Please recall that we have different tracking IDs than Weeks for RFI and Submittal tracking.)

RFI ID: RFI-005
RE: Cold Galvanize
SharePoint Link: RFI-005 (for ARCADIS use)
Response: REVIEWED AND NOTED: Use a minimum of two separate coats.

Thanks,
Jenna

Jenna Melwiki, EIT | Environmental Engineer | Sediment and Waterfront Group | jenna.melwiki@arcadis-us.com

ARCADIS U.S., Inc. | 6723 Towpath Road | Syracuse, NY, 13214
T. 315.671.9570 | M. 269.370.2449 | F. 315.445.9161
www.arcadis-us.com

Professional Affiliate/ ARCADIS of New York, Inc.

From: Claude Dion [mailto:cldion@WeeksMarine.Com]
Sent: Thursday, June 23, 2011 2:53 PM
To: Melwiki, Jenna; Denkenberger, Erika
Cc: Bowman, Matthew; Dave A. Vosseller; Nick K. Katzenberger; Chris W. Fenton; Dan L. Mowers; King, Coleman
Subject: Lower Passaic River Weeks Submittal 051200-03-A Cold Galvanize

Jenna,

This submittal is not in your Submittal Register and is not part of the RAWP or CQAP.

I have use the Specification 05 12 00 since this is structural. Weeks will performed welding onto the wales for the tie back system and the weld will need to be repairs with cold galvanize corrosion inhibitor.

Weeks has used in the pass this product that exceed the following norms:

- MIL-P-21035
- ASTM-A-780

If you have any questions please call.

Regards,

Claude Dion
Weeks Marine Inc.
4 Commerce Drive
Cranford, NJ 07016
Office: 908-272-4010
Cell.: 908-230-5279

ARCADIS US□INC
SU□MITTAL □ORM

To Mr. Matthew Bowman, Constr□ction Manager
Arcadis Us, Inc
251 E. Ohio Street, S□ite 800
Indiana□olis, IN 46204

S□bmittal No. 051200-03-A
Date of S□bmittal: J□ne 23, 2011
Contractor: Weeks
Contract No.: B0009964.001
S□bject of S□bmittal: Cold Galvani□ed

S□ecification No. 05 12 00 Par. No. N/A
Drawing No. N/A

WE ARE SENDING YOU ATTACHED THE FOLLOWING: (Indicate All A□□licable Items)

☐ Sho□ Drawings ☐ Progress Sched□les ☐ Testing Proced□re ☒ First S□bmission ☐ Third S□bmission

☐ Sam□le ☐ O□M Man□al ☐ Contact List ☐ Second S□bmission ☐ □□□□□□ S□bmission

DESCRIPTION (Itemi□e All Com□onents)	NO. OF COPIES
C□□d □ □□□□□□□□ C□rr□□□□□ I□□□□□□r	1
NOTE THAT NO PROVISION WAS MADE IN THE SPECI□ICATION	
□OR REPAIR TO THE HOT DIP □ALVANI□ED	
WEE□S HAS USED THIS PRODUCT IN THE PASS TO REPAIR WELDIN□ SUR□ACE HOT DIP □ALVANI□ED	
THIS PRODUCT WILL □E □OU□HT IN □ALLON□	
SUR□ACE WILL □E WIRED □RUSH PRIOR APPLICATION □SEE PROCEDURE WITH CUT SHEET□□	
MSDS	

Com□lete either (a) or (b) and □, in the case of technical S□bmittals or Progress Sched□le S□bmittals:

a ( ) The Contractor verified that the material, e□□i□ment, or other item contained in this S□bmittal meets all the re□□irements s□ecified, shown,, or indicated in the Contract Doc□ments with no e□ce□tions.

b ( ) The Contractor has verified that the material, e□□i□ment, or other item contained in this S□bmittal meets all re□□irements s□ecified, shown, or indicated in the Contract Doc□ments e□ce□t for variances identified in the following attached doc□ments:

c ( ) The Contractor has stam□ed or written its a□□roval on each Sho□ Drawing sheet, or cover sheet in the case of other S□bmittals, certifying that the Contractor has satisfied its res□onsibilities with res□ect to the review of the s□bmission incl□ding, b□t not limited to, the re□□irements of Article 6 of the General Conditions.

Signed (By the Contractor): Claude Dion

Cla□de Dion

LPS WORLDWIDE

Your MRO Solutions Company.

COLD GALVANIZE Corrosion Inhibitor

- 99% pure, zinc-rich, galvanize coating
- Prevents rust and corrosion on all metals
- Performs like a hot dip galvanize to prevent rust and corrosion on all types of metals for up to three years
- Provides a tough, flexible coating that will not crack or peel even in extreme heat or cold
- Up to two years protection
- Dries in 3-5 minutes
- Withstands water temperature up to 212°F (100°C) and continuous dry heat up to 750°F (400°C).
- Works as a paint primer over rust
- Repairs rusted, galvanized and welded surfaces
- Canadian Food Inspection Agency (CFIA) approved

PACKAGES

Net Fill	Part No.	National Stock No.
14 oz. (397grams) aerosol	00516	
1 gal. (3.78 liters)	05128	8010-00-214-7241

APPLICATIONS

- Air Conditioning Parts
- Chain Link Fences
- Ducts
- Heating Parts
- Machine Housing
- Material Handling Equipment
- Newly Welded Surfaces
- Outside Storage Tanks
- Pipes
- Plumbing
- Pulley & Chain Cover
- Structural Steel

TECHNICAL DOWNLOADS

- Technical Data Sheet (TDS)
- Material Safety Data Sheet (MSDS)-Aerosol - US & Canada
- MSDS (Bulk)
- Work Place Hazardous Information System (WHMIS) Bulk
- French WHMIS
- Safety Data Sheet (SDS)
- ??? MSDS
- CFIA Approval Letter

MEETS OR EXCEEDS THESE SPECIFICATIONS

- Mil-P-21035
- ASTM A-780
- Canadian Food Inspection Agency (CFIA) approved

LPS® COLD GALVANIZE

CORROSION INHIBITOR

Conforms to: Mil-P-21035
ASTM A-780-93A

FEATURES

- >99% pure, zinc-rich, galvanize coating
- Performs like a hot dip galvanize to prevent rust and corrosion on all types of metals for up to three years
- Provides a tough, flexible coating that will not crack or peel even in extreme heat or cold
- Dries in 3-5 minutes
- Withstands water temperature up to 212°F (100°C) and continuous dry heat up to 750°F (400°C).
- Works as a paint primer over rust

PACKAGES

Net Fill	Part No.
14 oz. (397 grams) aerosol	00516
1 gal. (3.78 liters)	05128

APPLICATIONS

- Air Conditioning Parts
- Chain Link Fences
- Ducts
- Heating Parts
- Machine Housing
- Material Handling Equipment
- Newly Welded Surfaces
- Outside Storage Tanks
- Pipes
- Plumbing
- Pulley & Chain Cover
- Structural Steel

PROPERTIES

Appearance/Physical State:
Opaque Liquid

Boiling/Condensation Point:
281°F (138°C)

Color:
Gray

Odor:
Solvent

Flammable Limits (estimated):
LEL: 1.2%; UEL: 7.0%

Flash Point:
80°F (26°C) TCC (concentrate)

Temperature Range:
-30°F – 750°F (-34°C – 399°C)

Specific Gravity (water=1):
2.10

Vapor Density (air=1):
>2

VOC:
29.3% aerosol; 21% bulk

MATERIAL SAFETY DATA SHEETS AVAILABLE UPON REQUEST OR VISIT OUR WEB SITE :WWW.LPSLABS.COM

LPS Laboratories • *An Illinois Tool Works Company*
P.O. Box 105052 • 4647 Hugh Howell Road • Tucker, GA 30085-5052 • TEL: (800) 241-8334 or (770) 243-8800 • FAX: (800) 543-1563 or (770) 243-8899
Internet Web Site: www.lpslabs.com

MATERIAL SA□ETY DATA SHEET
LPS□ C□□d □ □□□□□□□□

R□□□□□□□□ 4 R□□□□□□□□ D□□□□□3□□□□ S□□□r□□d□□□3□27□□□

S□□□□□□ 1 □Pr□d□□□□□d C□□ □□□□ Id□□□□□□□□□□□

Pr□d□□□N□□ □□	LPS® Cold Galvanize
P□r□N□□ □□r□	00516, C00516
C□□□ □□□□N□□ □□	Blended Compound
Pr□d□□□U□□□	A zinc rich industrial maintenance primer designed for rust and corrosion protection.
M□□□□□□□□r□r I□□□r□ □□□□□	LPS Laboratories, 4647 Hugh Howell Rd., Tucker, GA, USA 30084
TEL□	1 770-243-8800
E□ □r□□□□□ T□□□□□□□□ N□□ □□r□	1-800-424-9300 Chemtrec; Outside U.S.: (703) 527-3887
□A□□	1 770-243-8899
W□□□□□□	http://www.lpslabs.com

PLAIN LAN□UA□E HA□ARD SUMMARY

Material Safety Data Sheets can be confusing. Federal and State laws require us to include a great deal of technical information that probably won't help the non-professional. LPS includes this "PLAIN LANGUAGE HAZARD SUMMARY" to address the questions and concerns of the average worker. If you have additional health, safety or product questions, don't hesitate to call us at 800/241-8334.

W□r□□r T□□□□□□

LPS® Cold Galvanizer is a zinc rich industrial maintenance primer for rust and corrosion protection. It is gray and opaque in color, and has a solvent odor. It is designed to prevent and repair rust and corrosion on the exterior of metal structures, metal parts, and metal structural components. It contains acetone and zinc metal that can be irritating to skin. We suggest you wear gloves and avoid extended exposure to unprotected skin. Don't get it in your eyes (it stings), or breath large amounts of the vapor, (it will dry out your nasal passages and if you breathe large amounts in poorly ventilated areas it can make you dizzy and even sick). Don't spray LPS® Cold Galvanizer for extended periods without adequate ventilation. If you're going to perform work involving a lot of product in a poorly ventilated area, use of a respirator or self-contained breathing equipment may be required. For more exposure and first aid information, refer to MSDS Sections 2, 8 and 1

□□□□ □ □□□□□□

LPS® Cold Galvanize is extremely flammable exhibiting a flame extension. The dispensed liquid has a flash point less than 20°C and an auto ignition temperature over 465°C. Avoid sparks or open flame. See sections 5 and 9 of the MSDS for additional information.

D□□□□□□□

LPS® Cold Galvanize must be disposed of as hazardous waste. Dispose of in accordance with local, state and federal regulations. See section 13 for more details.

MATERIAL SA□ETY DATA SHEET
LPS□ C□d □ □□□□□□□

R□□□□□□□ 4 R□□□□□□□ D□□□□□3□□□ S□□r□d□□3/27□□

S□□□□□ 2 □H□□rd□ Id□□□□□□□□□

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

E□ □r□□□□ O□□r□□□ □DANGER: Extremely Flammable. Contents under pressure. Harmful or Fatal if Swallowed.

Pr□ □r□r□□□□□□□□□□□**r□□**Skin and Eye contact. Inhalation.

P□□□□□A□□ H□□□ E□□□□□

E□□□ Irritating to eyes

S□□□ Repeated exposure may cause skin dryness or cracking. The solvent portion of this product can also be absorbed through the skin and produce CNS depression effects.

I□□□□□□□ Excessive inhalation of vapors can cause irritation of the respiratory tract, nausea, dizziness or headache. In extreme cases (overexposure in a confined space for example), severe depression of the central nervous system can take place.

I□□□□□□ This product has a low order of acute oral toxicity, but ingestion of large quantities will cause central nervous system depression and gastrointestinal irritation. Symptoms include a burning sensation to the mouth and esophagus, nausea, vomiting, dizziness, staggering gait, drowsiness, loss of consciousness, and other central nervous system effects. May cause injury if aspirated into lungs.

P□□□□□C□r□□□ H□□□ E□□□□□

C□r□□□□□□□ E□□□□□See Section 11

M□□□□□□ E□□□□□None

T□r□□□□□□ E□□□□□None

M□d□□□□□d□□□ □□ □□r□□□d □□ □□□□□r□□Persons with pre-existing central nervous system (CNS) disease, neurological conditions, skin disorders, chronic respiratory diseases, or impaired liver or kidney function should avoid exposure.

S□□□ □□d S□□ □□□ □
Stinging, tearing, redness, and swelling of eyes. Repeated or prolonged skin contact can cause skin dryness or cracking. Repeated or prolonged skin contact can cause redness, irritation, and scaling of the skin (dermatitis). Breathing of high vapor concentrations may cause headaches, stupor, irritation of throat and eyes, and kidney effects. Ingestion of this material may cause nausea, vomiting, and diarrhea. As a result of vomiting, inhalation into the lungs may cause pulmonary injury.

MATERIAL SAFETY DATA SHEET
LPS® Cold [illegible]

Section 3 – Composition / Information on Ingredients

Component	CASRN	Percent by Weight %
Zinc Metallic	7440-66-6	30 – 40
Acetone	67-64-1	30 – 40
Propane/Isobutane blend	68476-85-7	20 – 30
Aliphatic Hydrocarbon	8052-41-3	1 – 5
Zinc Oxide	1314-13-2	1 – 5
Xylene	1330-20-7	.1 – 1
Ethylbenzene	100-41-4	.1 - 1

**All remaining materials are not classified as "hazardous" per 29 CFR 1900.1200 Subpart*

Section 4 – First Aid Measures

Eyes: Check for and remove contact lenses. If irritation or redness develops, flush eyes with cool, clean, low-pressure water for at least 15 minutes. Hold eyelids apart to ensure complete irrigation of the eye and eyelid tissue. Do not use eye ointment. Seek medical attention immediately.

Skin: Remove contaminated shoes and clothing. Clean affected area thoroughly with mild soap and water. Do not use ointments. Seek medical attention if irritation persists.

Inhalation: Immediately move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). Get medical attention. If breathing is difficult, seek medical attention immediately.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. Do not leave victim unattended. Seek medical attention immediately.

Section 5 – Fire Fighting Measures

Products of Combustion: Hydrocarbons

Fire Extinguishing Media:

Small Fire: Use DRY chemical powder.

Large Fire: Foam, dry chemical, carbon dioxide. Avoid water. If aerosols are not yet involved in fire, cool containers with water jet to prevent pressure build-up auto ignition or explosion.

Sensitivity to Impact: None **Sensitivity to Static Discharge:** Yes

Protective Clothing (Fire): Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Evacuate area and fight the fire from a maximum distance or use unmanned hose holders or monitor nozzles.

Special Remarks on Explosion Hazards:
Aerosols may explode upon heating, spread fire and overcome sprinkler systems. Zinc dust in contact with water evolves hydrogen. An explosive condition may develop if this should happen in a confined space.

S□□□□□ □ □A□□d□□□□R□□□□□ M□□□□r□□

C□□□□□□ □□□ Pr□□□d□r□□
Contain and recover spilled liquid when possible.

C□□□-U□ Pr□□□d□r□□

S□ □□□S□□□□□d L□□□□
Eliminate ignition sources. Absorb with an inert material and dispose of properly.

L□r□□ S□□□□□d L□□□□
Eliminate ignition sources. Secure the area and control access. Dike far ahead of a liquid spill to ensure complete collection. Pick up free liquid for disposal using absorbent pads, sand, or other inert non-combustible absorbent materials. Place into appropriate waste containers for later disposal.

E□□□□□□□□ Pr□□□d□r□□
Ventilate area of leak or spill. Keep unnecessary and unprotected people away.

S□□□□□□Pr□□□d□r□□
Remove all sources of ignition. Ventilate area. Wear appropriate protective equipment during cleanup.

S□□□□□ 7 □H□□d□□□ □□d S□□r□□□

H□□d□□□□□DO NOT spray into or around ignition sources. After handling, always wash hands thoroughly with soap and water. Use only with adequate ventilation. DO NOT breathe vapors or spray mists.

S□□r□□□□Keep container in a cool, well-ventilated area. DO NOT store near sources of ignition (spark or flame). Store below 120°F.

Pr□□□□□□□□□ □□ □□ □□□□□ □□ □□□d□□□ □□d □□□r□□□□*Store as Level 3 Aerosol (NFPA 30B).* Store all materials in dry, well-ventilated area. DO NOT breathe vapors.

S□□□□□ □ □E□□□□□r□ C□□r□□□ □P□r□□□□Pr□□□□□□□

E□□□□r□ □ □d□□□□□

C□□ □□□□□□□	CASRN	OSHA		AC□IH		NIOSH
		TWA□PEL	STEL	TWA	STEL	TWA□REL
Acetone	67-64-1	1000 ppm	NE	500 ppm	750 ppm	250 ppm
Zinc Metal	7440-66-6	5 mg/m^{3*}	NE	5 mg/m^{3*}	NE	NE
Propane/Isobutane blend	68476-85-7	1000 ppm	NE	1000 ppm	NE	1000 ppm
Aliphatic Hydrocarbon	8052-41-3	500 ppm	NE	100 ppm	NE	300 mg/m^3
Zinc Oxide	1314-13-2	5 mg/m^{3*}	NE	2 mg/m^{3*}	10	5 mg/m^{3*}
Xylene	1330-20-7	100 ppm	NE	100 ppm	150 ppm	100 ppm
Ethylbenzene	100-41-4	100 ppm	NE	100 ppm	125 ppm	100 ppm

NE- Not Established, * nuisance dust

MATERIAL SA□ETY DATA SHEET
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R□□□□□□□□ 4 R□□□□□□□□ D□□□□□□3□□□□ S□□□r□□d□□□3□27□□□

E□□□□□□r□□□ C□□□r□□□□ Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits.

P□r□□□□□ Pr□□□□□□□□□□

E□□□□ Wear chemical splash glasses/goggles/face shield when eye and/or face contact is possible due to splashing or spraying of material.

R□□□□r□□□r□□ Use appropriate respirator if ventilation is inadequate.

H□□d□: Use solvent resistant gloves.

□ □□□r□□H□□□□□□ C□□□□d□r□□□□□□:
Avoid breathing mist. Avoid eye and skin contact. Have eye-wash facilities immediately available. Wash thoroughly after handling and before eating or drinking.

S□□□□□□□ □ □P□□□□□□□□□□d C□□□ □□□□Pr□□□r□□□□

A□□□□r□□□□□	Light gray opaque liquid	**C□□□r□**	Light gray
Od□r T□□□□□	Mild/sweet	**V□□□r Pr□□□□r□□**	102.8 mmHg
S□□□□□□□□ D□□□r□□□□□□	Insoluble in water	**E□□□□r□□□□□ R□□□□**	9
□ □□□□□ P□□□□□	56 °C/133 °F	**□□□□□ P□□□□□C□□ □d□□□□□□□d □□□□d□**	<20 □C/68 °F
S□□□□□□□ □r□□□□□ □W□□r□1□	1.47	**□□□□□ P□□□□M□□□□d□**	TCC
V□□□r D□□□□□□□□□□r□1□	2	**A□□□ I□□□□□□ T□□ □□r□□□r□ □C□□**	465 °C/ 869 °F
V□O□C□C□□□□□□□ □C□□□□□□□d□	265 g/L	**P□r□□□□□ C□□□□□□□□□□ □□□□□□□□□ □□r□□**	NA*
□□□□ □ □□□□ □□□ □□□□ □□□□□□□ □□□d□	LEL:1.8% UEL: 9.5%	**V□□□□□□□□**	5cps
□H□	NA	**V□□□□□□□**	59%

*NA- Not Applicable

S□□□□□ 1□ □S□□□□□□□ □□d R□□□□□□□□

S□□□□□□□ □□d R□□□□□□□□□ The product is stable.

I□□□□ □□□□□□□□ □ □□□ V□r□□□ S□□□□□□□□□□ Extremely reactive or incompatible with oxidizing agents. Avoid water.

H□□rd□□□ d□□□□ □□□□□□□ □r□d□□□□ These products are hydrocarbons.

H□□rd□□□ □□□□ □r□□□□□□□ None

S□□□□□□ 11 □T□□□□□□□□□□□□□□l□□□r□ □□□□□

A□□□□ □□d C□r□□□□ T□□□□□□□

A□□ □□□r□□Pr□d□□□l□□□r□ □□□□□

An acute toxicity study of this product has not been conducted. Information given in this section relates only to individual constituents contained in this preparation.

Following exposure to vapors, this material can produce central nervous system depression. High atmospheric concentrations can result in eye, nasal and respiratory tract irritation. However, if handled in accordance with good industrial hygiene practice, this product will not present a significant hazard in the workplace.

□□C□□ □□□□□□A□□□□□□

C□□ □□□□□□	CASRN	LC-□□	LD-□□
Acetone	67-64-1	16000 ppm/rat/4H*	5800 mg/kg/oral/rat* 20000 mg/kg/dermal/rabbit
Zinc Metallic	7440-66-6	Not Established	Not Established
Propane/ Isobutane blend	68476-85-7	Not Established	Not Established
Aliphatic Hydrocarbon	8052-41-3	>6.1 mg/L/rat*	>5 g/kg/oral/ rat*
Zinc Oxide	1314-13-2	2500 mg/m^{3}rat	7950 mg/kg/oral/rat
Xylene	1330-20-7	5000 ppm/ rat/4H	2119 mg/kg/oral/rat
Ethylbenzene	100-41-4	35500 mg/m^3 inhalation/2H/rat	3500 mg/kg oral/rat

C□r□□□□□□□□□□□

Ethylbenzene has been shown to cause cancer in laboratory animals. The relevance of this finding to humans is uncertain. The International Agency for Research and Cancer (IARC) has classified Ethylbenzene as a possible carcinogen to humans

S□□□□□□ 12 □E□□□□□□□□□l□□□r□ □□□□□

M□□□□□□□	Semi-volatile. Readily absorbed into soil.	**P□r□□□□□□□□ □□d d□□r□d□□□□□□**	Only slightly biodegradable.
□□□□□□□□ □□□□□□	No bioaccumulation potential	**O□□r □d□□r□□ □□□□□□□**	Highly toxic to the aquatic environment.

C□□ □□□□□□D□□□□A□□□ A□□□□□ T□□□□□□

E□□□□□□□□□□□:

E□□□□□□□ Or□□□□□□ □	C□□ □□□□□□	CASRN	T□□□	S□□□□□□	R□□□□□
Acute Toxicity on Fishes	Acetone	67-64-1	96 h LC_{50}	Albumus Albumus	11,000 mg/L
	Zinc Metallic	7440-66-6	96 h LC_{50}	Cypris Subglobosa	8352 ug/L
	Propane/Isobutane blend	68476-85-7	See below	See below	See below
	Aliphatic Hydrocarbon	8052-41-3	96 h LC_{50}	Fathead Minnow	2200 mg/L
	Xylene	1330-20-7	96 h LC_{50}	Carassius Auratus	36810 ug/L
	Zinc Oxide	1314-13-2	96 h LC_{50}	Oncorhynchus mykiss	1100 ug/L
	Ethylbenzene	100-41-4	96 h LC_{50}	Carassius Auratus	94400 ug/L
Acute Toxicity on Daphnia	No Data Available				
Bacterial inhibition					
Growth inhibition of algae					
Bioaccumulation in fish					

The acute/prolonged toxicity test substances for 68476-85-7 were methane, propane, butane. Significant losses of these test substances by evaporation were likely to occur when these studies were performed. The calculated 96 h LC_{50} value for propane is 13.0 mg/L and for butane 6.0 mg/L. No analytical ecological monitoring test data is available.

S□□□□□□R□□ □r□□ □□ E□□□□□□□□□T□□□□□□□□This product is highly toxic to the aquatic environment.

S□□□□□□ 13 □D□□□□□□□C□□□□d□r□□□□□

W□□□□ S□□□□□□ Aerosol products, if depressurized and emptied to less than 2.5 cm of fluid contents are classified as non-hazardous waste under 40 CFR 261.7 (U.S.). If disposed of in its received form, this item carries waste code D001 and D003. (U.S.)

D□□□□□□□□ Waste must be disposed of in accordance with national, regional, provincial, and local environmental control regulations.

N□□□□ Chemical additions to, processing of, or otherwise altering this material may make this waste management information inaccurate, incomplete, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive than federal laws and regulations.

MATERIAL SA□ETY DATA SHEET
LPS□ C□d □ □□□□□□□

R□□□□□□□ 4 R□□□□□□□ D□□□□□3□□□ S□□□r□□d□□□3□27□□□

S□□□□□ 14 □Tr□□□□□r□l□□□r□ □□□□□

D□O□T□□r□□□d	**S□□□□□□ N□□ □□**	Consumer Commodity	**UN N□□ □□r□**	NA
	H□□□rd C□□□□□	ORM-D	**T□□□□□□□N□□ □□**	NA
	S□□□□□□□	NA	**H□□□rd L□□□□□**	ORM-D Already on box
R□□d□R□□□-ADR□RID	**UN □□□**	1950	**ADR C□□□□□**	2
	P□□□□□□ □r□□□□	NA	**C□□□□□□□□□□ □□d□□**	5F
	N□□ □ □□d D□□□r□□□□□	AEROSOLS, Flammable	**H□□□rd ID □□□**	NA
	L□□□□□□□	2.1		
IMD□-IMO	**UN □□□**	1950	**C□□□□□**	2
	S□□□□□□□ N□□ □□	AEROSOLS	**S□□□d□□r□ R□□□□**	2
	P□□□□□□ I□□r□□□□□□	P003, LP02	**P□□□□□□ □r□□□□**	NA
	M□r□□□ □□□□□□□□	NO	**E□ S□**	F-D, S-U
IATA-ICAO	**UN □□□**	1950	**C□□□□□**	2.1
	S□□□□□□□ N□□ □□	AEROSOLS, Flammable	**S□□□□□□□**	NA
	P□□□□□□ □□□r□□□□□□	203, Y203 (Ltd. Qty)	**P□□□□□□ □r□□□□**	NA
	L□□□□□□□	Flammable Gas		

S□□□□□ 1□ □R□□□□□□□r□ □□□r□ □□□□

U□S□□□d□r□□R□□□□□□□□

RCRA H□□□rd□□□ W□□□□ N□□□D001, D003 (aerosols only)

C□□ □r□□□□□□□ E□□r□□□ □□□□R□□□□□□ □□d L□□□□□□ A□□□□1□□□ □CERCLA□□
Acetone 67-64-1 5000lbs.; Zinc 7440-66-6 1000 lbs.; Xylene 1330-20-7 100lbs.; Ethylbenzene 100-41-4 1000 lbs.

T□□□ S□□□□□□□□ C□□r□□A□□TSCA□□
All components of this product are TSCA inventory listed and/or are exempt.

S□□r□□d A□ □□d□ □□□ □□d R□□□□r□□□ A□□SARA□T□□ III
SARA S□□□□□ 311□312 □4□ C□R 37□□H□□rd C□□□□r□□□
Sudden Release of Pressure (aerosols only), Fire Hazard, Immediate (Acute) Health Hazard

T□□ □r□d□□□□□□□□□ □□ □□□ □□ □□□ □□□ r□□r□□ r□□r□□ □□□ □□SARA S□□□□ 313 □4□ C□R 372□□No individual section 313 component is present at or above 1%

S□□□□ 112 H□□rd□□ A□r P□□□□□□□ □HAP□□□Ethylbenzene 100-41-4; Xylene 1330-20-7;

MATERIAL SA□ETY DATA SHEET
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R□□□□□□□□ 4 **R□□□□□□□□ D□□□□□3□□□□** **S□□□r□□d□□□3□27□□□**

S□□□□ R□□□□□□□□□□

N□□ □□r□□□ RT□:
Acetone 67-64-1 ● Zinc 7440-66-6 ● Propane/Isobutane Blend 68476-85-7 ● Aliphatic Hydrocarbon 8052-41-3 ● Zinc Oxide 1314-13-2 ● Xylene 1330-20-7 ● Ethylbenzene 100-41-4

C□□□□r□□□ This product contains chemical(s) known to the State of California to cause cancer.

C□□□□r□□□ □□d OTC S□□□□□□This product is not regulated by consumer regulations.

I□□□r□□□□□□□R□□□□□□□□□

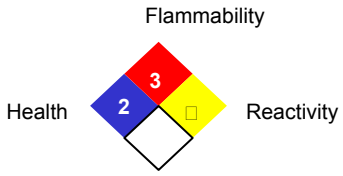
C□□□d□□□ E□□r□□□ □□□□Pr□□□□□□□ A□□□ All of the components of this product are included on the Canadian Domestic Substances list (DSL).

C□□□d□□□ W□r□□□□□□ H□□□rd□□□ M□□□r□□□□ I□□□r□ □□□□□ S□□□□□□ □WHMIS□□

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

WHMIS C□□□□□□□□□□□□□□□□Aerosol
Class A, Class B5, Class D2A, Class D2B

S□□□□□□ 1□ □O□□r I□□r□ □□□□□

	HMIS 1□□□	HMIS III	N□PA
MSDS# 10516 Responsible Name: Clea Johnson Regulatory Affairs Coordinator	Health: 2	Health: [*]2	
	Flammability: 3	Flammability: 3	
	Reactivity: 0	Physical Hazard: 2	

N□□□□□ □□ R□□d□r□
To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Clea L Johnson, Regulatory Affairs Coordinator
LPS Laboratories
A division of Illinois Tool Works

ARCADIS RFI# 006

RFI number: 004,

July 25, 2011

RFI Response

Contractor's Request reiterated:

Arcadis requested that Weeks provide a method to maintain the water elevation in the enclosure at an elevation +5 without having to use submersible pumps during the winter. Following discussions on this matter, it was decided that a one way valve would be installed on the enclosure. Please provide a drawing identifying the location where the one way valve will be installed. The valve will be installed prior to driving the sheet pile, therefore; L&L Fabrication should be contacted by Arcadis.

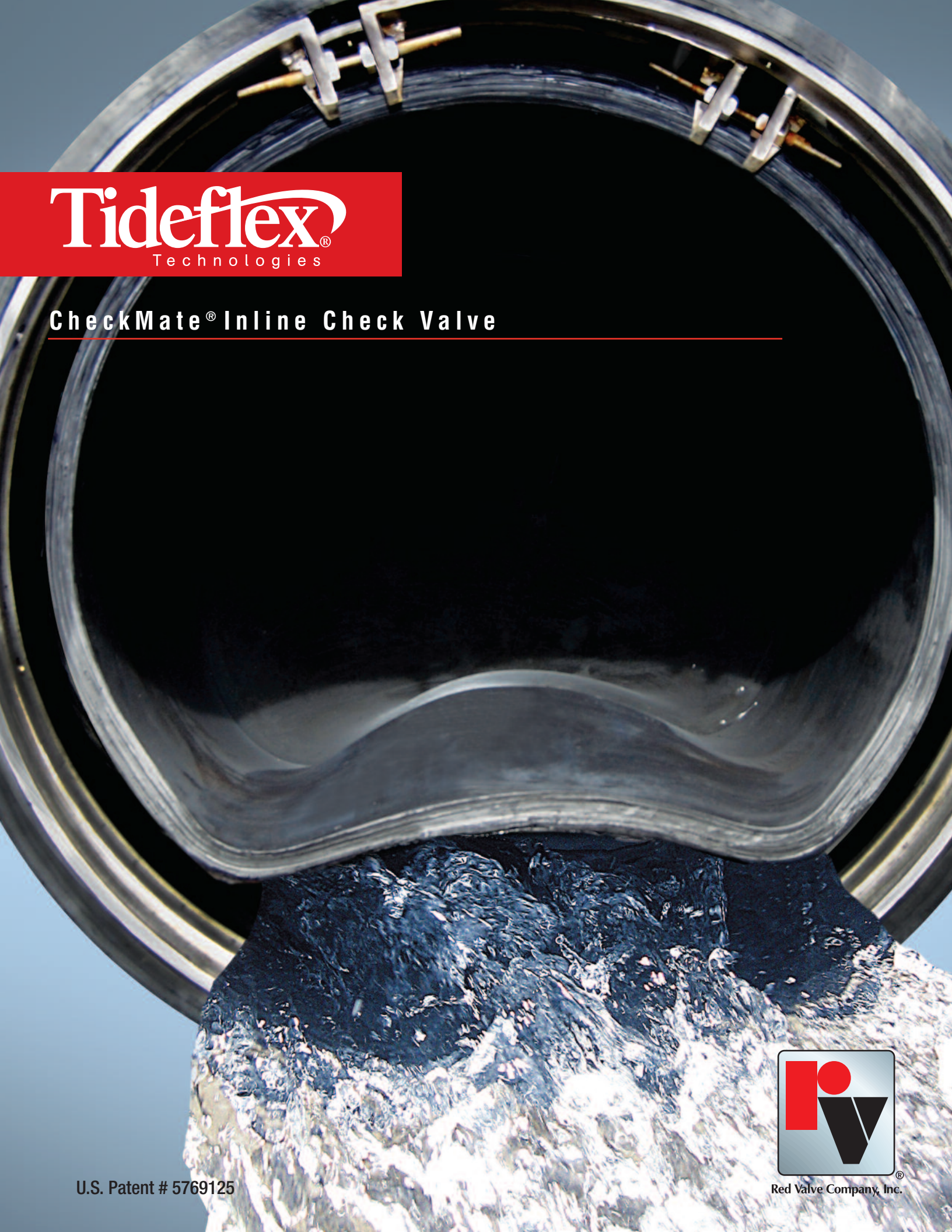
Engineer's Response:

Regarding RFI-006, please find attached vendor information and sketches for one-way valve. The valve is a 24-inch diameter clamp style inline check-valve by Tideflex. Modifications to the detailing shown in sketches may be possible to better facilitate construction (coordinate with ARCADIS to finalize detailing).

Weeks Marine to please provide the following to ARCADIS within one week of this transmittal:

- Pricing for purchase of necessary materials, fabrication, and installation:
  - ARCADIS has a verbal quote from the supplier indicating the price of the valve with freight to New Jersey is $4,700. This price does not include the steel pipe with flange, blind flange, or fabrication of the sheet pile to pipe with sealing of the sheet pile pair common interlock. The contact information for the one-way valve is: Keith Thompson – keith@tascoassociates.com - 973-476-1852.
  - Note that the Johnson fish screen should be acquired for the valve (recall the Johnson fish screen is already covered in Weeks costs). Provide necessary materials to accomplish the connection of fish screen to the pipe housing the one-way valve. Provide the pneumatic device that can unclog the fish screen if necessary during the winter period.
- Schedule for purchase, fabrication, and delivery.
- Upon approval of pricing and schedule by Matt Bowman, procure materials and coordinate necessary fabrication with L&L Welding.

Additionally, coordinate with ARCADIS to select the location for the one-way valve on the north wall of the enclosure, which is out of the way of Weeks operations and associated vessel traffic.



Tideflex® Technologies

CheckMate® Inline Check Valve

U.S. Patent # 5769125

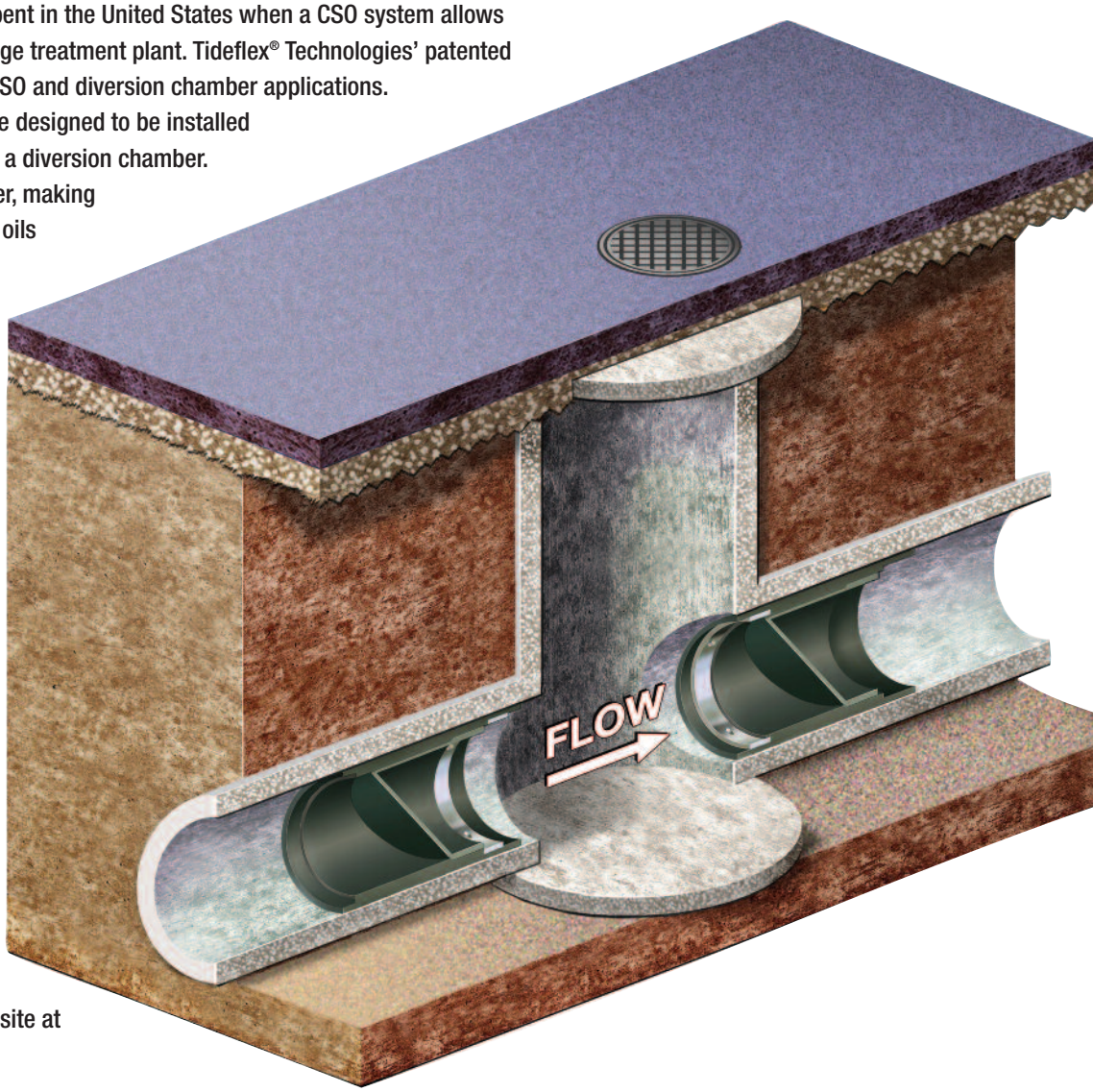
Red Valve Company, Inc.®

CheckMate®: Your Final Move to Eliminate Backflow!

CheckMate®: It's A Winning Move!

The Ideal CSO Application

Year afer year, millions of dollars are spent in the United States when a CSO system allows receiving waters to enter into the sewage treatment plant. Tideflex® Technologies' patented CheckMate® Valve was developed for CSO and diversion chamber applications. The CheckMate® is an inline check valve designed to be installed at the upstream or downstream side of a diversion chamber. The entire valve is constructed of rubber, making it rust-free and resistant to grease and oils typically found in wastewater. Additionally, with seven elastomers to select from, the CheckMate® can be manufactured to resist chemicals found in industrial wastewater applications.



The CheckMate® Valve boasts extremely low headloss, and its inherent design makes it the most user-friendly inline check valve on the market today. The CheckMate® Inline Check Valve can be specified and used in CSO, SSO, odor control, and municipal and industrial cross-connection.

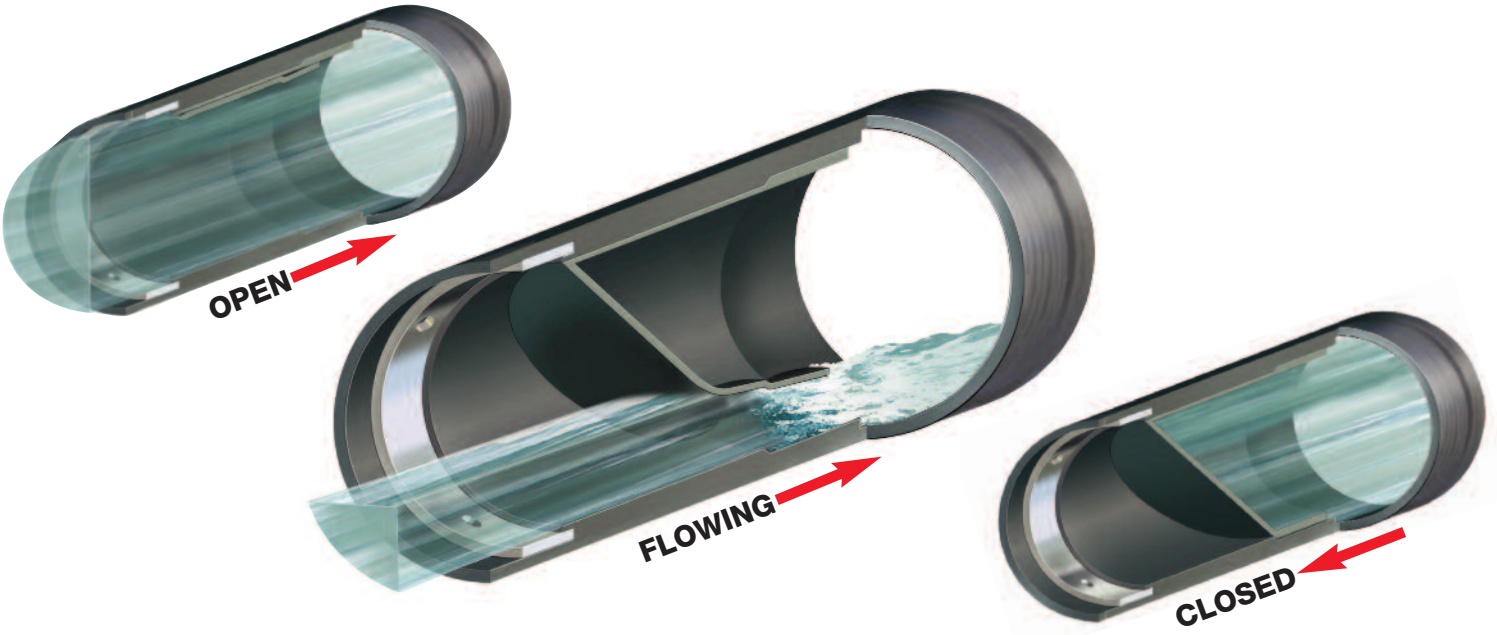
For an animated demonstration of the CheckMate® Valve in operation, please vist Tideflex® Technologies' website at http://www.tideflex.com/checkmate.

CheckMate® Engineered Features

- Extremely Low Headloss
- No Moving Mechanical Parts
- Operates on Differential Pressure
- 4" (100 mm) - 60" (1,500 mm) Size
- 100% Elastomer Durable Construction, Similar to Truck Tire
- Virtually No Maintenance, Except for Periodic Inspection
- 25-Year Life
- Self-draining
- Simple Installation
- Silent, Non-slamming
- Extensive Independent Hydraulic Testing
- Less than 1" of Head Pressure Opens the Valve, Eliminating Standing Water

CHECKMATE® VALVE

Designed for Inline Service

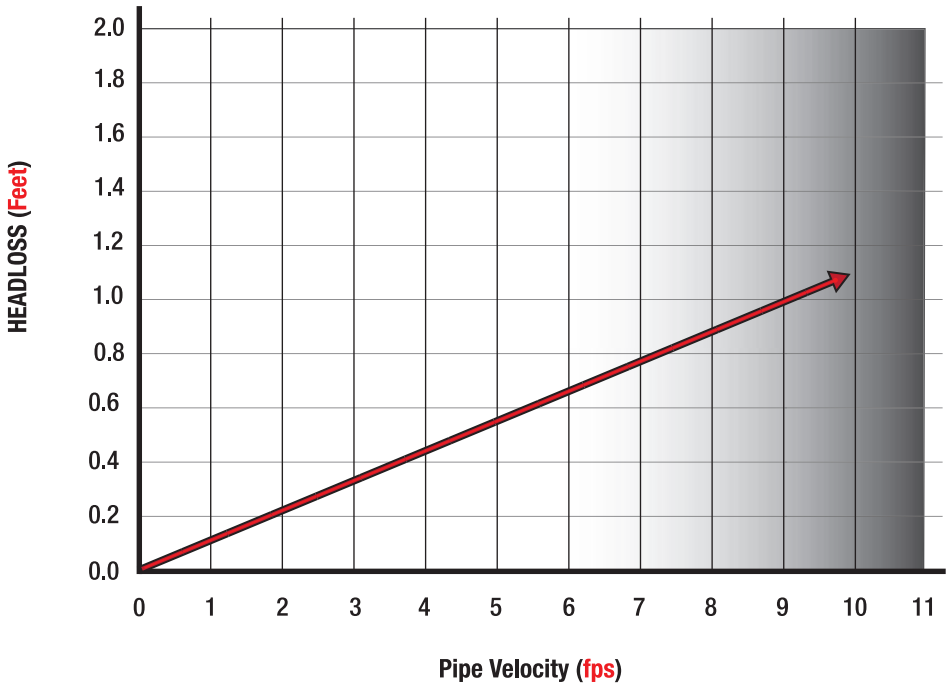


The CheckMate® Valve's unique design allows for near 100% flow, or a tight close to elminate backflow problems completely.

The CheckMate® is easy to install. Simply insert the valve inside any size pipe and clamp from the upstream or downstream end. No modification to the pipe or structure is required to install the CheckMate®, resulting in large savings. Because the CheckMate® is recessed in the pipe, another benefit is environmental permitting for outfall may not be required as the valve does not extend out into the water body.

Tideflex CheckMate® Check Valve

Headloss vs. Pipe Velocity



CheckMate®: The Lowest Headloss of Any Check Valve!

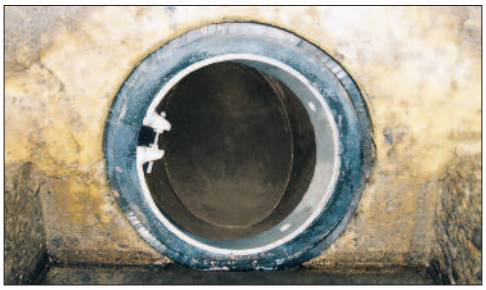
A major advantage of the CheckMate® Inline Check Valve is its extremely low headloss. This is particularly beneficial in low-lying areas. CheckMate® Valves drain with very low head pressure and are sensitive enough to open with as little as 1 inch of water.

**Red Valve* will provide headloss flowcharts for your specific application requirements.*

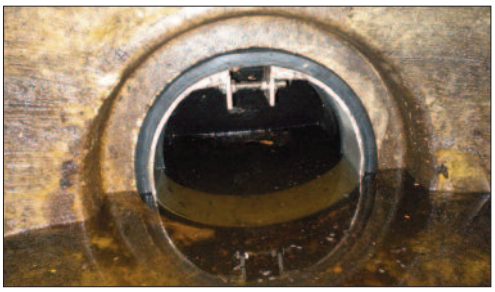
CheckMate® Applications: Simply Versatile!

Odor Control

Lightweight CheckMate® Inline Check Valves prevent sewer systems' offending odors from escaping, while still allowing water to discharge when needed. The CheckMate® Valve is designed to eliminate the backflow of unwanted methane and hydrogen sulfide gases that typically result in complaints about odor from the general public.



Drainage and Outfall Lines



CheckMate® Inline Check Valves have become a frequently specified solution for commercial and residential areas where complete, dependable backflow prevention is necessary. The CheckMate® Valve's maintenance-free, passive operation provides years of trouble-free service—even when the valve is partially buried.

Interceptor and Manhole Installations

CheckMate® Inline Check Valves are used for interceptor and manhole installations because they are ideal for preventing water from backflowing into a sewage treatment plant. The CheckMate® Valve's innovative inline design allows it to be installed without modifications to structures such as interceptors, manholes and vaults.

Stormwater Runoff

The CheckMate® Inline Check Valve is the valve of choice for both municipalities and commercial property owners in stormwater and general drainage applications. Because the CheckMate® Valve utilizes dissimilar elastomers and fabric in the hinge area, there are no mechanical parts to warp or corrode. It is maintenance-free!

CHECKMATE® VALVE

Designed for Inline Service

60” CheckMate®
Valve being shipped to Australia for inline application.

18” CheckMate®
Valve installed at county park in Seattle for parking lot drainage. This simple installation took a total of 20 minutes from start to finish.

Maintenance-Free, Totally Passive Operation

Flapgate valves are mechanical and have moving parts with inherent problems of corrosion, faulty function and wear. Replacing traditional flapgate valves with the CheckMate® Inline Check Valve eliminates these issues.

Like the Tideflex® Check Valve, the CheckMate® has a 100% fabric and elastomer unibody construction that eliminates corrosion problems. Because the CheckMate® is made with a unibody construction, there are no one-piece mechanical components to catch debris, corrode or fail. The result is savings—both in time and costs.

Testing

CheckMate® Inline Check Valves are tested using the same strenuous methods as the Tideflex® Check Valve. The CheckMate® Valve is proven to operate maintenance-free.

The valve can successfully withstand severe winter freezes, typhoons, hurricanes and flooding. The CheckMate® also minimizes damage to wetlands, beaches and residential areas, eliminates hydraulic surges to wastewater treatment plants and saves municipalities millions of dollars in maintenance and treatment costs.

Sample Specification

PART 1: GENERAL

1.01 SUBMITTALS

A. Submit product literature that includes information on the performance and operation of the valve, materials of construction, dimensions and weights, elastomer characteristics, headloss, flow data and pressure ratings.

B. Upon request, provide shop drawings that clearly identify the valve materials of construction and dimensions.

1.02 QUALITY ASSURANCE

A. Supplier shall have at least twelve (12) years experience in the design and manufacture of "CheckMate®" style elastomeric check valves.

B. Manufacturer shall have conducted independent hydraulic testing to determine headloss, jet velocity and vertical opening height characteristics on multiple sizes of CheckMate® valves ranging from 4" through 72". The testing must have been conducted for free discharge (discharge to atmosphere) and submerged conditions.

PART 2: PRODUCTS

2.01 "CHECKMATE®" ELASTOMERIC CHECK VALVES

A. Check Valves are to be all rubber and the flow operated check type with slip-in cuff or flange connection. The entire CheckMate® Valve shall be ply reinforced throughout the body, disc and bill, which is cured and vulcanized into a one-piece unibody construction. A separate valve body or pipe used as the housing is not acceptable. The valve shall be manufactured with no metal, mechanical hinges or fasteners, which would be used to secure the disc or bill to the valve housing. The port area of the disc shall contour down, which shall allow passage of flow in one direction while preventing reverse flow. The entire valve shall fit within the pipe I.D. Once installed, the CheckMate® Valve shall not protrude beyond the face of the structure or end of the pipe.

B. The downstream end of the valve must be circumferentially in contact with the pipe while in the closed positions.

C. Slip-in style CheckMate® Valves will be furnished with a set of stainless steel expansion clamps. The clamps, which will secure the valve in place, shall be installed inside the cuff portion of the valve, based on installation orientation, and shall expand outwards by means of a turnbuckle. Each clamp shall be pre-drilled allowing for the valve to be pinned and secured into position in accordance with the manufacturer's installation instructions. Flange style CheckMate® Valves will be furnished with a stainless steel, ANSI 125/150 drilled, retaining ring unless specified otherwise.

D. Manufacturer must have flow test data from an accredited hydraulics laboratory to confirm pressure drop and hydraulic data. Company name, plant location, valve size patent number, and serial number shall be bonded to the check valve.

2.02 FUNCTION

A. When line pressure exceeds the backpressure, the line pressure forces the bill and disc of the valve open, allowing flow to pass. When the backpressure exceeds the line pressure, the bill and disc of the valve is forced closed, preventing backflow.

2.03 MANUFACTURER

A. All valves shall be of the slip-in or flanged CheckMate® as manufactured by Tideflex Technologies®, A Division of Red Valve Company, Carnegie, PA 15106. All valves shall be manufactured in the U.S.A.

PART 3: EXECUTION

3.01 INSTALLATION

A. Valve shall be installed in accordance with manufacturer's written Installation and Operation Manual and approved submittals.

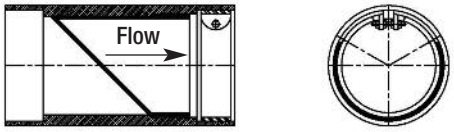
3.02 MANUFACTURER'S CUSTOMER SERVICE

A. Manufacturer's authorized representative shall be available for customer service during installation and start-up, and to train personnel in the operation, maintenance and troubleshooting of the valve.

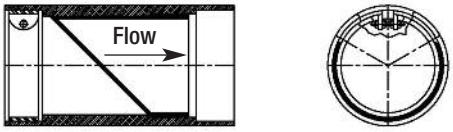
B. If specified, the manufacturer shall also make customer service available directly from the factory in addition to authorized representatives for assistance during installation and start-up, and to train personnel in the operation, maintenance and troubleshooting of the valve.

Mounting Styles and Configurations

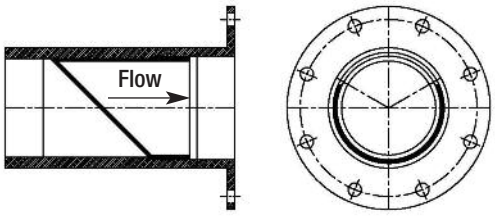
Downstream Clamp



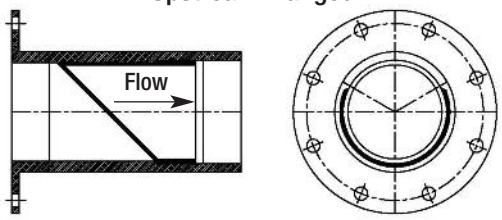
Upstream Clamp



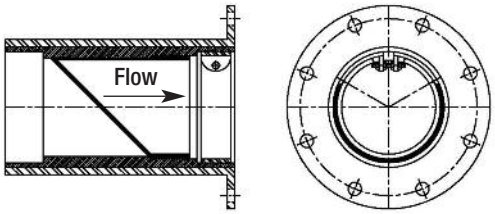
Downstream Flanged



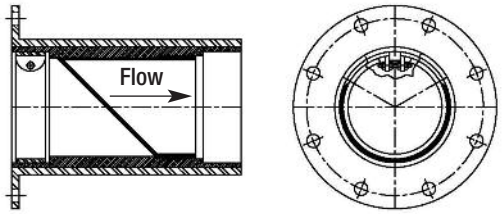
Upstream Flanged



Downstream Flanged Thimble Insert



Upstream Flanged Thimble Insert



Flange shape and bolt pattern can be customized.
Flangeless thimble inserts are available.

CHECKMATE® VALVE								
NOMINAL PIPE SIZE I.D.*		OVERALL LENGTH**		NUMBER OF CLAMPS	CUFF DEPTH		BACK PRESSURE RATING	
Inches	Millimeters	Inches	Millimeters		Inches	Millimeters	Feet	Meters
4	100	7.86	200	1	1.5	38	40	12
6	150	9	229	1	2	51	40	12
8	200	15.23	387	1	2	51	40	12
9	225	15.38	391	1	2	51	40	12
10	250	16.12	409	1	2	51	40	12
12	300	23	584	1	2	51	40	12
14	350	25.75	654	1	4	102	20	6
16	400	28.61	727	1	4	102	20	6
18	450	31	787	1	4	102	20	6
20	500	42.14	1070	2	8	203	20	6
24	600	47.5	1207	2	8	203	20	6
30	750	54.87	1394	2	8	203	20	6
36	900	62.25	1581	2	8	203	20	6
42	1050	70.62	1794	2	8	203	10	3
48	1200	79	2007	2	8	203	10	3
54	1350	86.37	2194	2	8	203	10	3
60	1500	102.5	2604	2	12	305	10	3

*Larger sizes available upon request. **Shorter lengths available.

The best choice for the toughest applications.

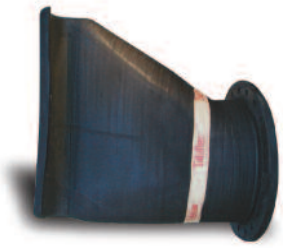
In addition to the Checkmate® Inline Check Valve, Tideflex® Technologies offers a complete line of check valves.

TF-1 CHECK VALVES

The Tideflex® TF-1 Curved Bill Check Valve is designed with enhanced sealing to improve headloss. The improved TF-1 design allows the valve to handle long-term water weight while maintaining structural integrity. The spine is at a greater vertical angle, making it able to withstand the cantilever effect when water is flowing through the valve. The TF-1 is contructed of rubber, making it immune to rust, corrosion and weathering.

SERIES 35-1 CHECK VALVES

The flat-bottom Series 35-1 features an integral rubber flange, allowing them to be mounted to flanged outfall pipes or directly to headwalls where the pipe is flush. The flange size drilling conforms to ANSI B16.10, Class 150#, or can be constructed with DIN, 2632 and other standards. The Series 35-1 Check Valve is furnished complete with steel or stainless steel backup rings for installation.



SERIES 39 CHECK VALVES

The Tideflex® Series 39 Inline Check Valve features a fabric-reinforced elastomer check sleeve housed in a cast iron body with ANSI 125/150 flanges, allowing for easy installation into any piping system. The valve's operation is silent, non-slamming and maintenance free. Sliding, rotating, swinging and plunging parts are completely eliminated. The body is equipped with flush ports and a clean-out port and can be epoxy coated.

Tideflex Technologies

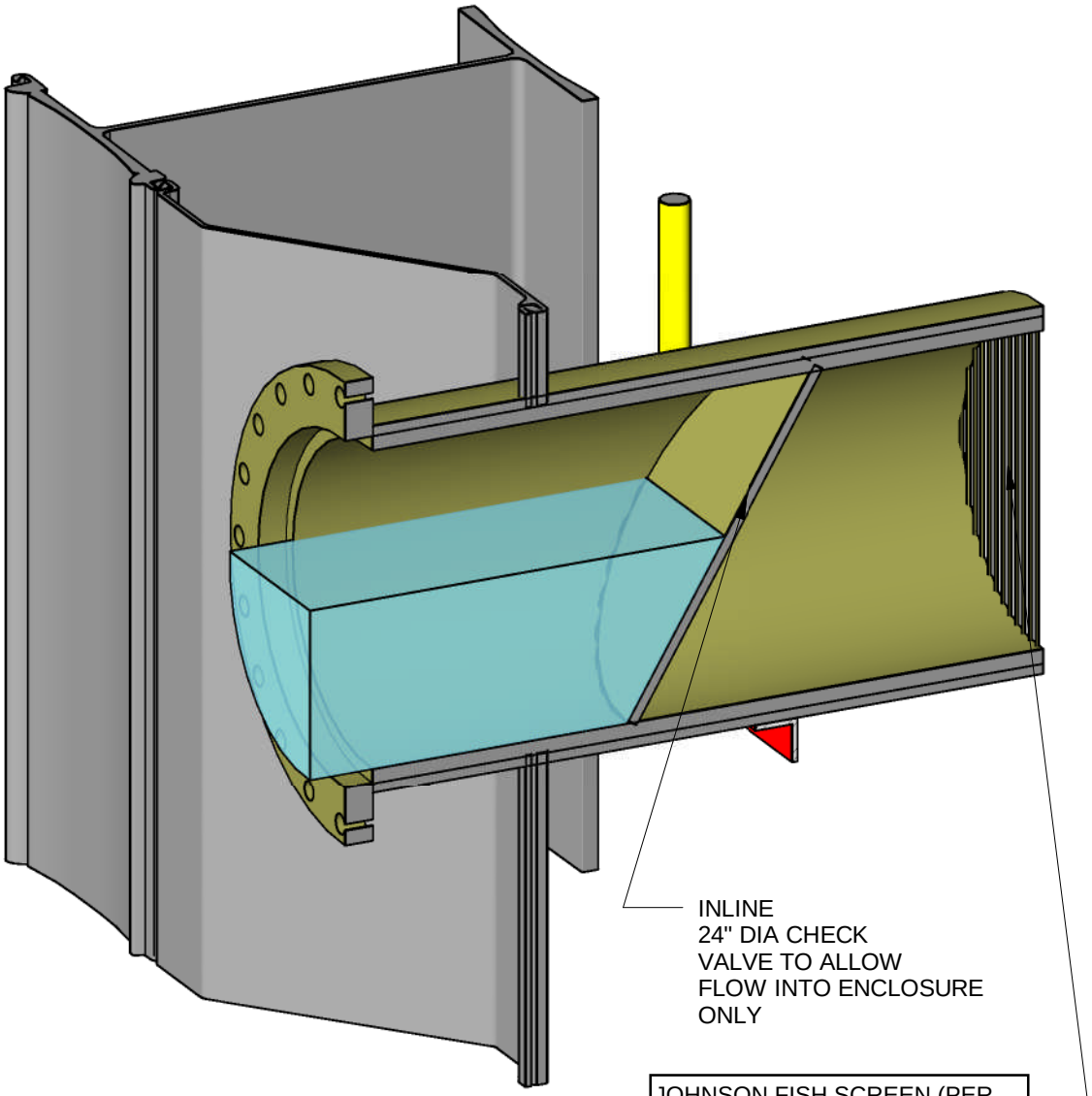
600 N. Bell Ave.
Carnegie, PA 15106

PHONE:
412/279-0044

FAX:
412/279-7878

www.tideflex.com

CMCV 12/10



PIPE SECTION

DRAFT

PRIVILEGED AND CONFIDENTIAL WORK PRODUCT
PREPARED AT THE REQUEST OF LEGAL COUNSEL
FOR OR IN ANTICIPATION OF LITIGATION
AND IN CONNECTION WITH RENDERING LEGAL ADVICE

PHASE I LOWER PASSAIC RIVER

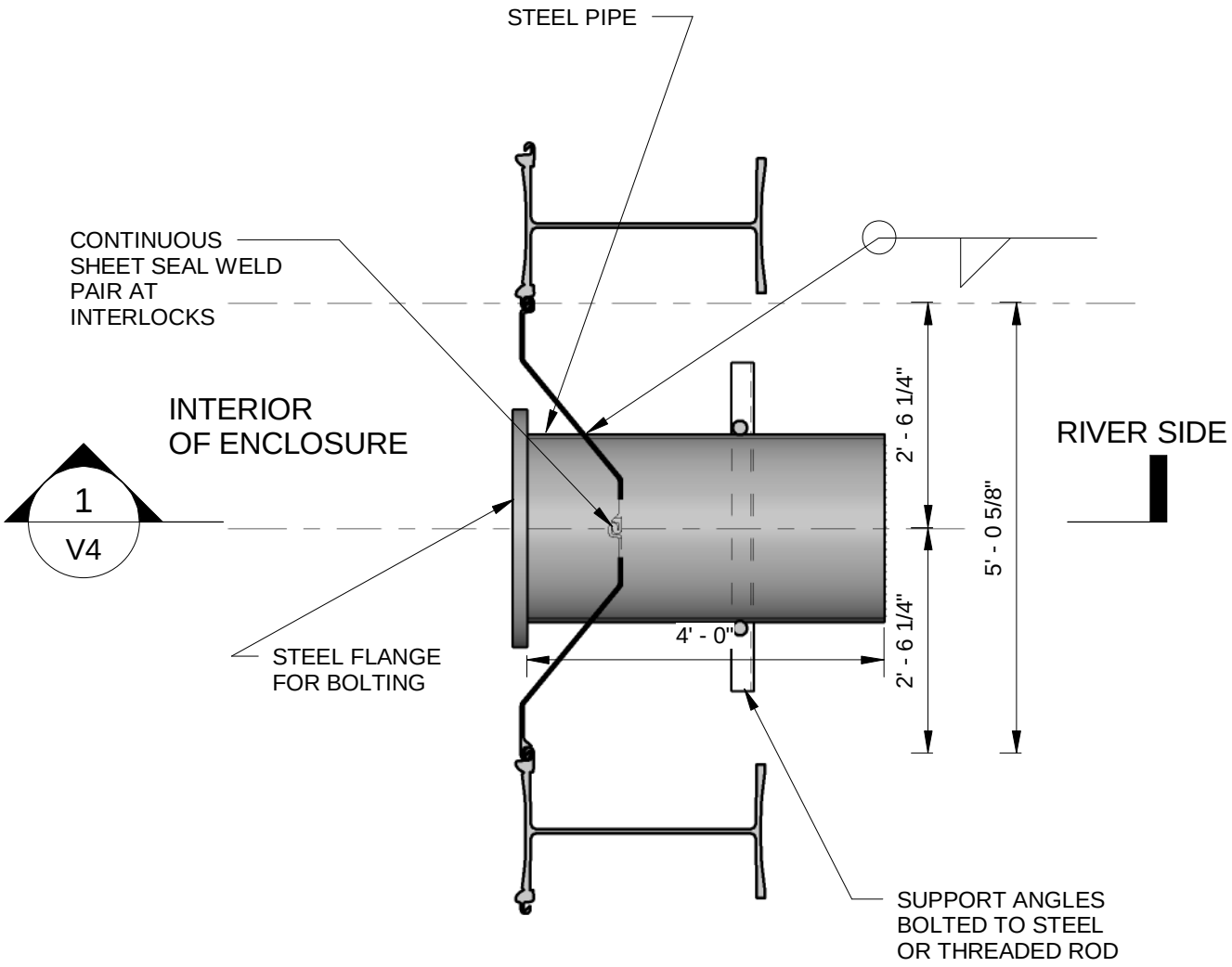
SEDIMENTATION ENCLOSURE

PIPE SECTION

JULY 2011

FIGURE
V3

7/21/2011 7:49:38 PM
C:\Users\ahunt\Documents\0-Projects\Passaic Items\Riverside Wall Valve-2.rvt



PLAN AT OPENING

DRAFT

PRIVILEGED AND CONFIDENTIAL WORK PRODUCT
PREPARED AT THE REQUEST OF LEGAL COUNSEL
FOR OR IN ANTICIPATION OF LITIGATION
AND IN CONNECTION WITH RENDERING LEGAL ADVICE

PHASE I LOWER PASSAIC RIVER

SEDIMENTATION ENCLOSURE

RIVERSIDE WALL CHECK VALVE SUPPORT AND WALL PENITRATION

JULY 2011

FIGURE
V2

7/21/2011 7:57:04 PM
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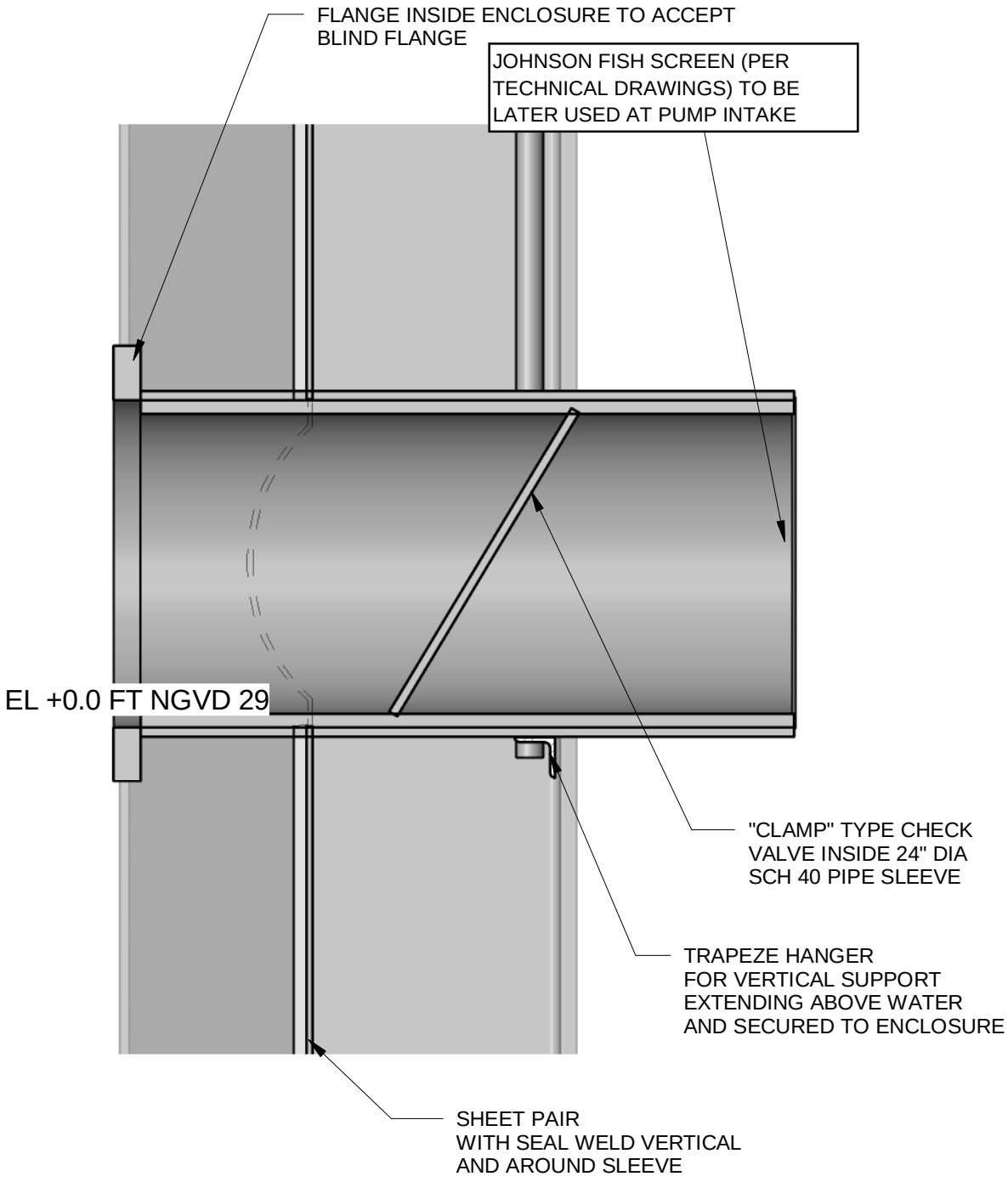


SECTION

DRAFT

PRIVILEGED AND CONFIDENTIAL WORK PRODUCT
PREPARED AT THE REQUEST OF LEGAL COUNSEL
FOR OR IN ANTICIPATION OF LITIGATION
AND IN CONNECTION WITH RENDERING LEGAL ADVICE

PHASE I LOWER PASSAIC RIVER

SEDIMENTATION ENCLOSURE

SECTION

JULY 2011

FIGURE
V4

7/21/2011 7:57:07 PM
C:\Users\ahunt\Documents\0-Projects\Passaic Items\Riverside Wall Valve-2.rvt

REQUEST FOR INFORMATION (RFI) NO. □□4

CONTRACT NO. B000964.001

Tuesday, June 28, 2011 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.

251 E. Ohio St., Suite 800
Indianapolis, IN, 46204

Attention: Matthew Bowman

From: Weeks Marine, Inc

4 Commerce Drive,
Cranford, NJ 07016

Attention: Claude Dion

Subject: One Way Check Valve

Reference: N/A

Description:

Arcadis re□□ested Weeks to □rovide a method to maintain the water elevation in the enclos□re at elevation □5 witho□t having to □se s□bmersible □□m□s d□ring the winter □eriod. After few s□ggestions it was agreed that the best way was to install a one way valve on the enclos□re. Please □rovide drawing showing location of the one way valve. The valve will be installed □rior driving the sheet □ile. Therefore L□L Fabrication sho□ld be contacted by Arcadis.

Date Reply Required: 7/15/2011

Owner Use Only:

REQUEST FOR INFORMATION (RFI) NO. □□□

CONTRACT NO. B000964.001

Wednesday, June 29, 2011 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.

251 E. Ohio St., Suite 800
Indianapolis, IN, 46204

Attention: Matthew Bowman

From: Weeks Marine, Inc

4 Commerce Drive,
Cranford, NJ 07016

Attention: Claude Dion

Subject: Tie back Cable Strand Termination

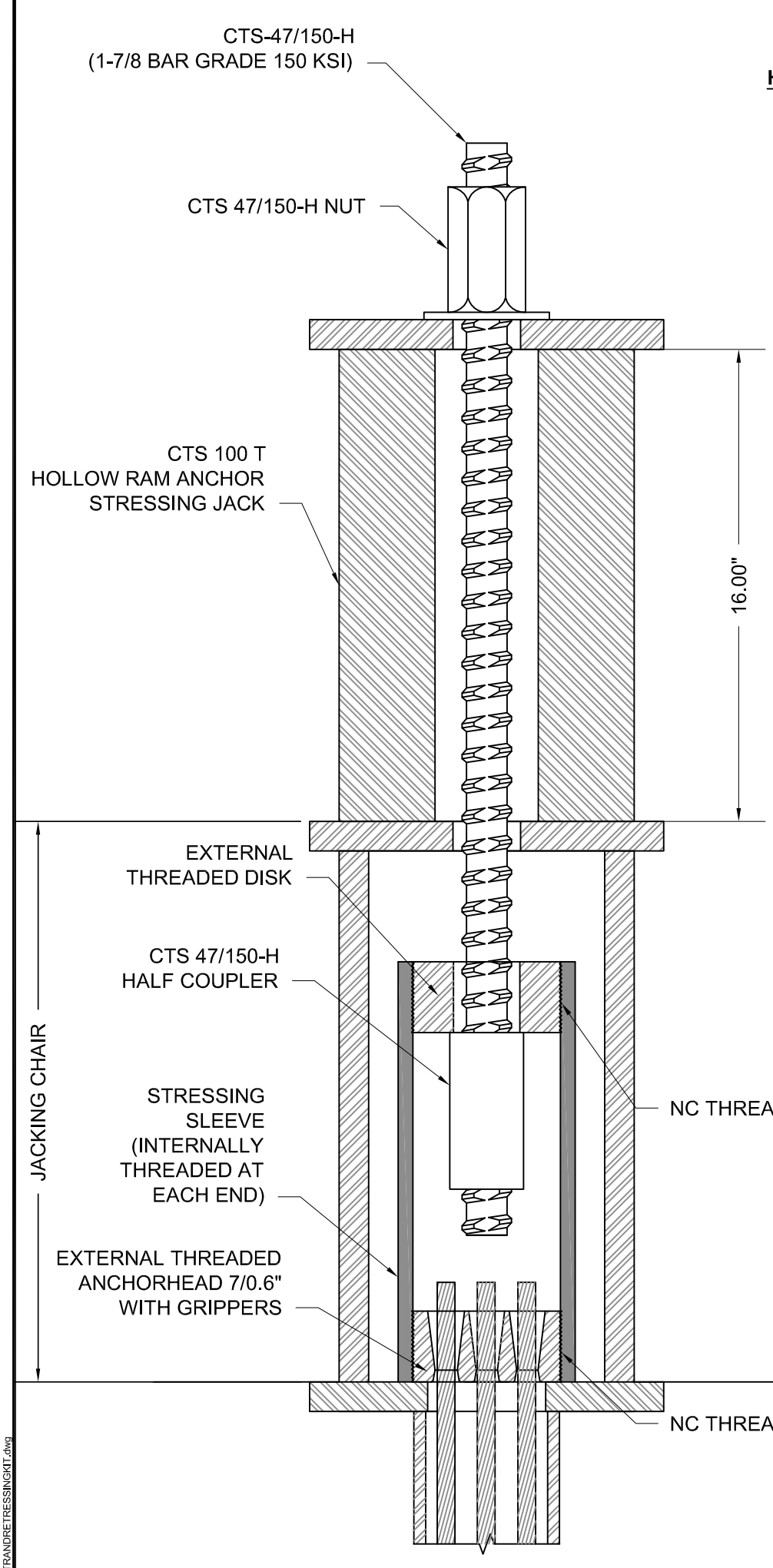
Reference: S-17 Detail 4

Description:

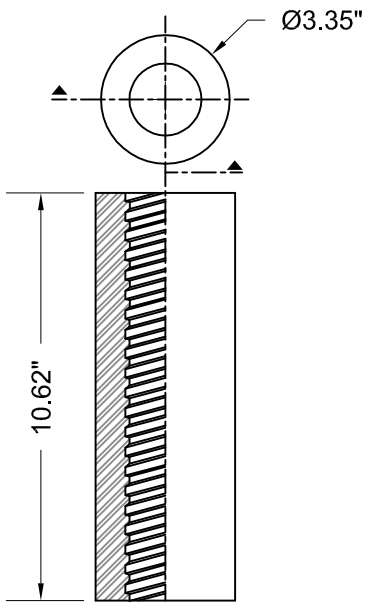
Detail for the termination of the strands on the contract drawing shows to be final. Nicholson will terminate all strands as shown in the contract drawing □nless directed otherwise. Note that if ca□□ed as c□rrent drawing details strands can be released to □ero load b□t not either increased or red□ced by selected amo□nts in res□onse to either □ile or load cell readings. Please □rovide additional information on how Arcadis intent to tem□orarily ca□ the installed strands if necessary and when stressing will be com□leted.

Date Reply Required: 7/15/2011

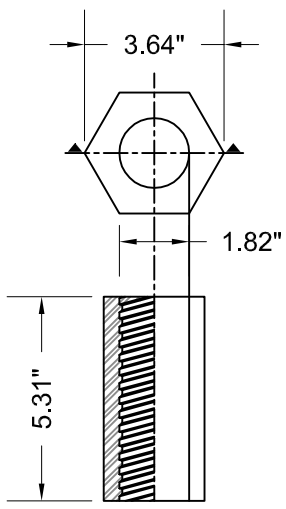
Owner Use Only:

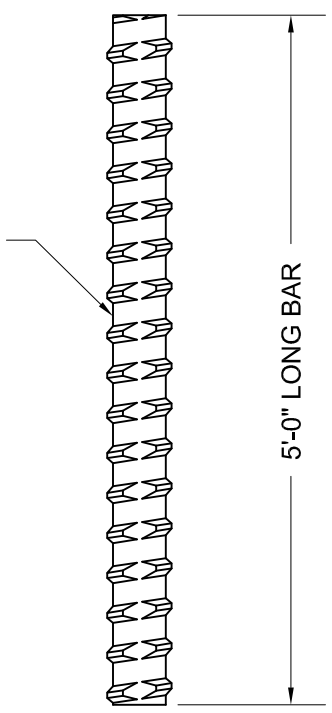


HALF COUPLER FOR 1-7/8" BAR GRADE 150 KSI

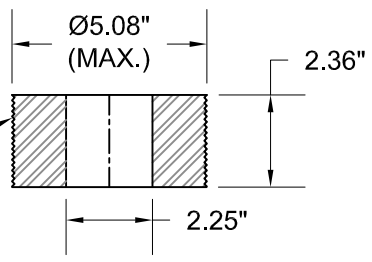


HEX NUT FOR 1-7/8" BAR GRADE 150 KSI

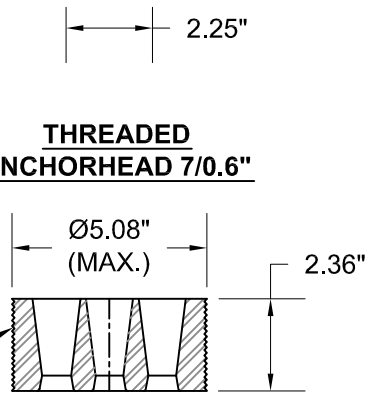




THREADED DISK (4140 STEEL)



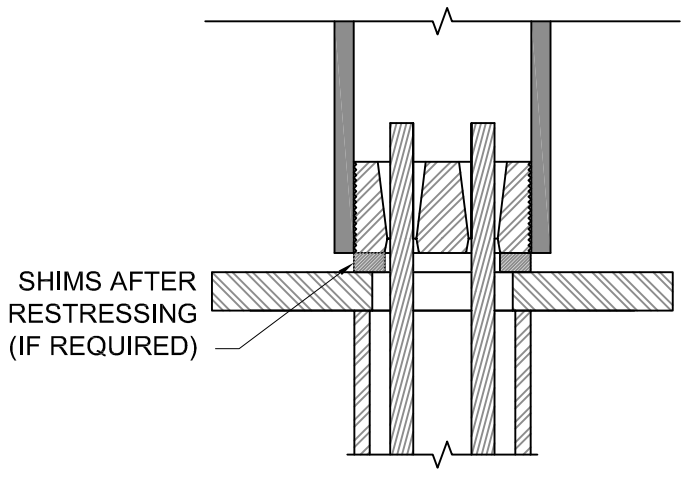
THREADED ANCHORHEAD 7/0.6"



SINGLE BAR TECH DATA:

min.GUTS = 409.2 KIPS
min YIELD LOAD = 371 KIPS
max. ANCHOR TEST LOAD < 371 KIPS

SHIM DETAIL



Con-Tech Systems Ltd.®
Pioneering Geo-Support Solutions
8150 River Road
Delta, BC
Canada V4G 1B5
www.contechsystems.com
Tel. 604.946.5571
Fax. 604.946.5548

CTS RESTRESSING SYSTEM

RE-STRESSING SYSTEM FOR ANCHORHEAD 7/0.6"

DATE	REV.	DRAWN BY	DRAWING NO.:	SCALE:
09AUG'11	A	SC	1	1"=5"

Denkenberger, Erika

From: Chwalibog, Adam
Sent: Tuesday, September 13, 2011 12:26 PM
To: Claude Dion; King, Coleman
Cc: Beaver, James; Bowman, Matthew; Denkenberger, Erika
Subject: FW: Tieback Terminations Interim/Final
Attachments: 7STRANDRESTRESSINGKIT.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Claude/Coleman, as mentioned yesterday, ARCADIS has reviewed and is good with the attached details for tieback termination. Please let me know if there are any questions/comments.

Thanks,
Adam

From: Claude Dion [mailto:cldion@WeeksMarine.Com]
Sent: Wednesday, August 10, 2011 6:44 AM
To: Beaver, James; Chwalibog, Adam
Cc: King, Coleman; Bowman, Matthew
Subject: FW: Tieback Terminations Interim/Final

Jamie,

Please see below Nicholson comments.

Thanks

Claude

From: Jaime Picorelli [mailto:Jaime.Picorelli@NicholsonConstruction.com]
Sent: Tuesday, August 09, 2011 2:55 PM
To: Richard Crockford; Claude Dion
Subject: RE: Tieback Terminations Interim/Final

Claude;
Please find attached drawing in relation to the e-mail below from Richard.
I will provide an official transmittal form on a separate e-mail.

On a separate subject I would like to visit the job site.
Please advise if Tuesday next week is ok with you.

Thanks,

Jaime R. Picorelli, P.E.
Senior Project Manager
Nicholson Construction Company
a subsidiary of SOLETANCHE BACHY

New York District Office
15 Wilson Drive, Suite A
Sparta, NJ 07871

973-383-8884, Ext 6109 Direct
201-978-1003 Mobile
973-383-8856 Fax
www.nicholsonconstruction.com

From: Richard Crockford
Sent: Tuesday, August 02, 2011 1:28 PM
To: Claude Dion
Cc: Jaime Picorelli
Subject: RE: Tieback Terminations Interim/Final

Yes

We will use a threaded re-stressable head which will enable us to have just one anchor cap size of around 6 inches.
The method will need to be discussed so that everyone knows what we will do.
We'll get some sketches from the supplier and put them in as a suubmittall.

Richard Crockford
District Manager

Nicholson Construction Company
a subsidiary of SOLETANCHE BACHY

New York District Office
15 Wilson Drive, Suite A
Sparta, NJ 07871
973 383 8884 Phone
973 600 0343 Mobile
973 383 8856 Fax

www.nicholsonconstruction.com

From: Claude Dion [mailto:cldion@WeeksMarine.Com]
Sent: Tuesday, August 02, 2011 12:05 PM
To: Richard Crockford
Subject: FW: Tieback Terminations Interim/Final

Richard,

Did you have any change to look at the comment below.

Thanks

Claude

From: Beaver, James [mailto:James.Beaver@arcadis-us.com]
Sent: Monday, August 01, 2011 12:18 PM
To: Claude Dion
Cc: Bowman, Matthew
Subject: Tieback Terminations Interim/Final

Claude,

Has Nicholson completed their evaluation of completing cable strands for restressing interim/final?

Thanks,
-Jamie

RFI number: 006,

July 1, 2011

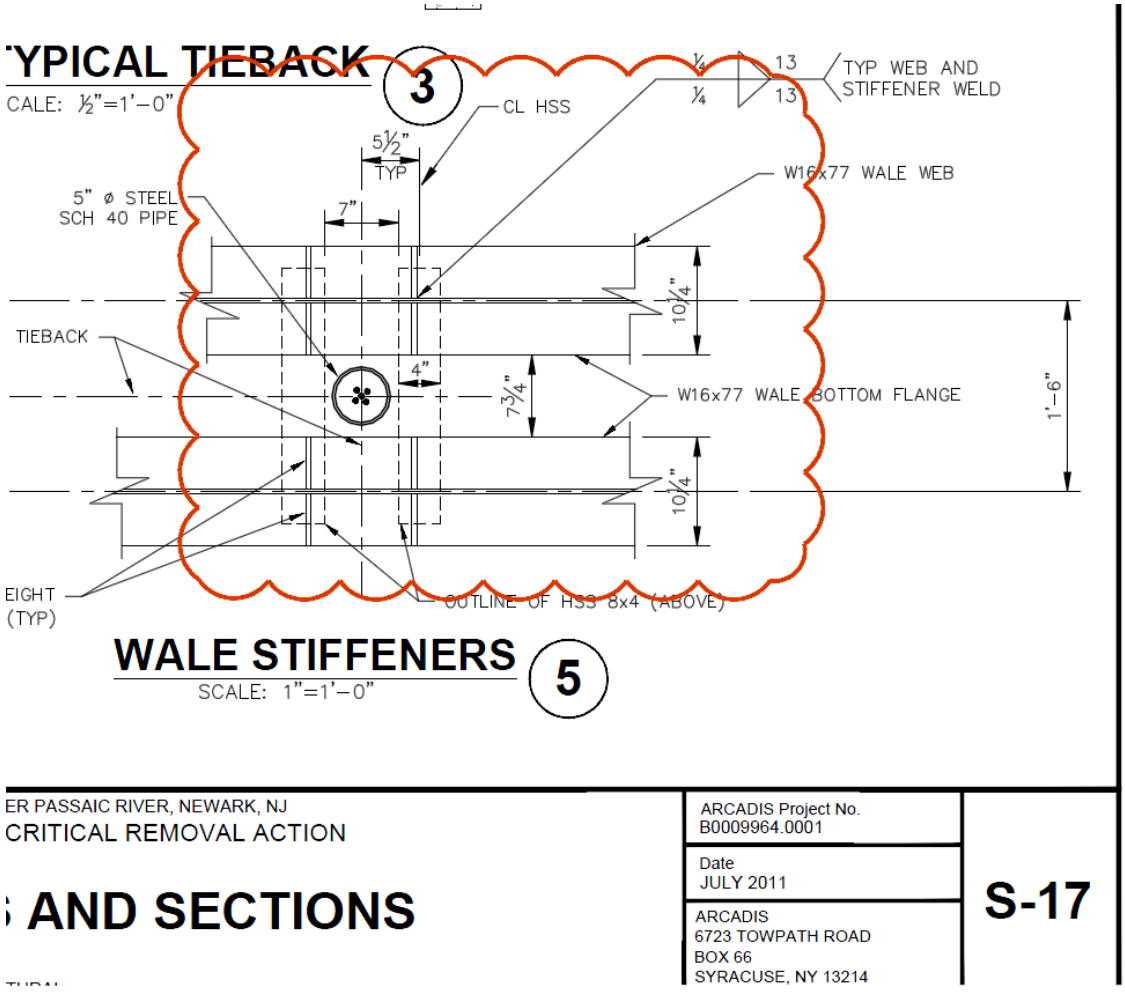
RFI Response

Contractor's Request reiterated:

The detail 5 shows the 2 HSS 8x4xx3/8 being 6" apart. Since the HSS will be installed prior the drilling occurs the spacing between the HSS must be at a minimum of 7" to allow the drill (6-1/2" dia.) to get between the HSS. Please confirm that the HSS could be moved accordingly.

Engineer's Response:

The HSS 8x4 members may be moved apart to provide 7" clearance between the faces of the tubes. This shift may occur without moving the Full Height Stiffeners.



Aaron Hunt
7/1/2011

REQUEST FOR INFORMATION (RFI) NO. □□□

CONTRACT NO. B000964.001

Wednesday, June 29, 2011 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.

251 E. Ohio St., Suite 800
Indianapolis, IN, 46204

Attention: Matthew Bowman

From: Weeks Marine, Inc

4 Commerce Drive,
Cranford, NJ 07016

Attention: Claude Dion

Subject: HSS 8x4x3/8

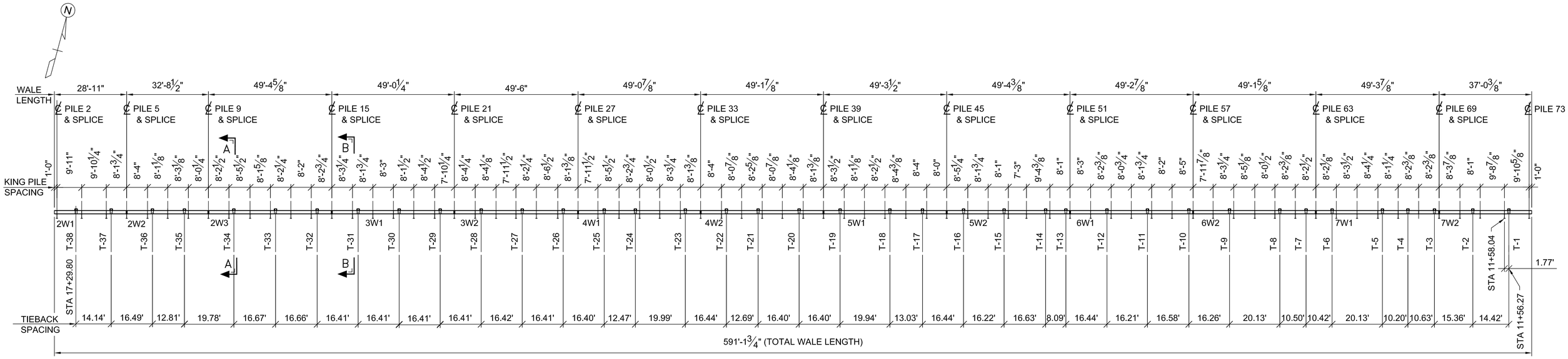
Reference: S-17 Details 5

Description:

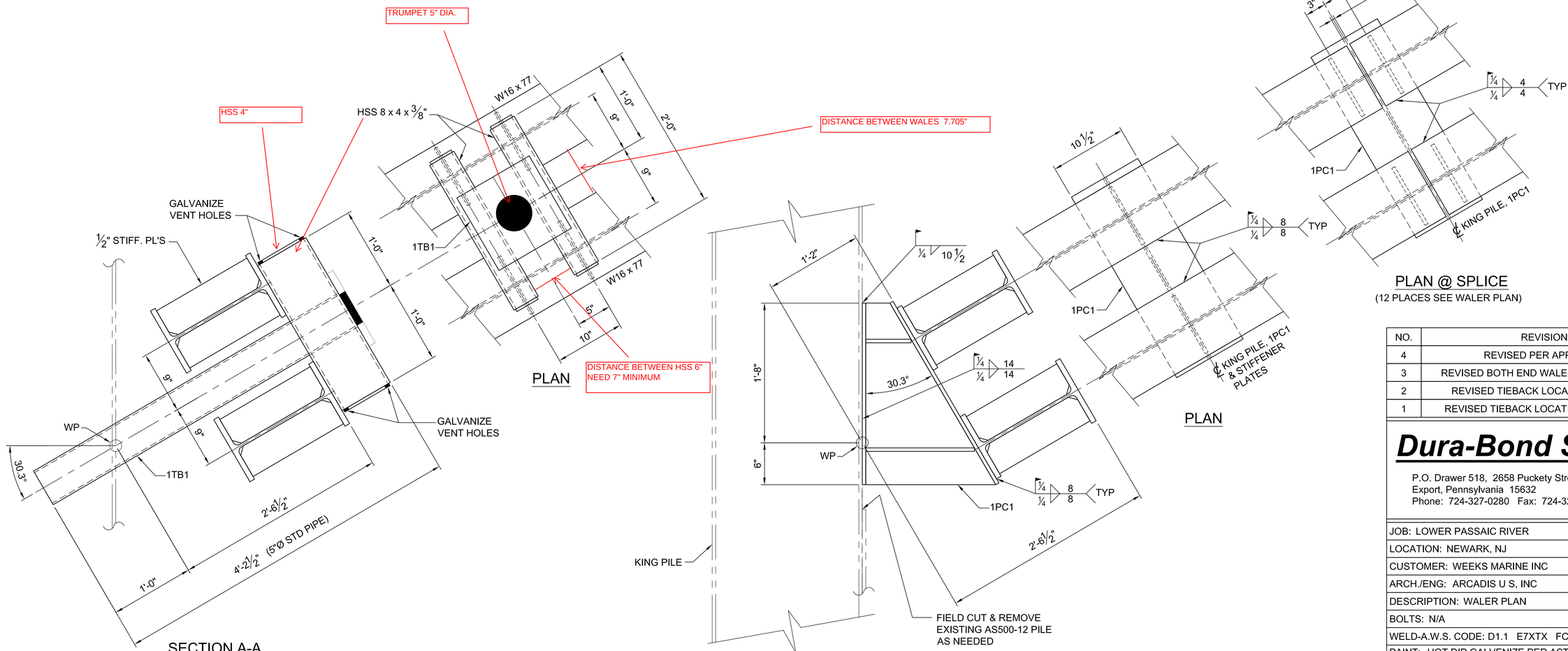
The detail 5 shows the 2 HSS 8□4□□3/8 being 6" a□art. Since the HSS will be installed □rior the drilling occ□rs the s□acing between the HSS m□st be at a minim□m of 7□to allow the drill (6-1/2" dia.) to get between the HSS. Please confirm that the HSS co□ld be moved accordingly.

Date Reply Required: 7/1/2011

Owner Use Only:



WALER PLAN - OU-1 FLOOD WALL



FOR APPROVAL
6-13-11

NO.	REVISION	DATE	BY
4	REVISED PER APPROVAL	6-13-11	GJH
3	REVISED BOTH END WALES PER FIELD DIM	6-3-11	GJH/MB
2	REVISED TIEBACK LOCATIONS BY 1.77'	5-19-11	GJH
1	REVISED TIEBACK LOCATIONS & SPLICES	5-18-11	GJH

Dura-Bond Steel
STEEL FABRICATION AND COATING SERVICES FOR THE CONSTRUCTION INDUSTRY
P.O. Drawer 518, 2658 Puckety Street
Export, Pennsylvania 15632
Phone: 724-327-0280 Fax: 724-327-0113
AISC CERTIFICATION

JOB: LOWER PASSAIC RIVER		
LOCATION: NEWARK, NJ		
CUSTOMER: WEEKS MARINE INC	PO# .	
ARCH./ENG: ARCADIS U S, INC		
DESCRIPTION: WALER PLAN		
BOLTS: N/A	HOLES: N/A	
WELD-A.W.S. CODE: D1.1 E7XTX FCAW		
PAINT: HOT DIP GALVENIZE PER ASTM A123 .	DRN: MB/GH 5-2-11	
	CHKD:.	
JOB NO.: 11-12-058	SHT. NO.: E1	

RFI number: 007

ARCADIS RFI #009

July 1, 2011

RFI Response

Contractor's Request reiterated:

1.The steel post connection shown on drawing S-5 Detail 6 is welded to the 3x3 angle and 6x4x3/8 angle.
2.The grating connection shown on drawing S-5 Detail 6 is welded to the 6x4x3/8 angle.
These connections need to be done prior the galvanization and installation. As you are aware the handrail and other parts of the walkway will bend during the galvanization process and damages will occur during transport and installation.

Dura-Bond and Weeks are suggesting the following connection for the steel post and grating.
1.Steel posts will be welded to a plate (6-1/2"x3")
2.The plate will be bolted to the 6x4x3/8 angle in the field.
3.The grating will be bolted to the 6x4x3/8 angle using SS tek screw, which is standard practice for grating.

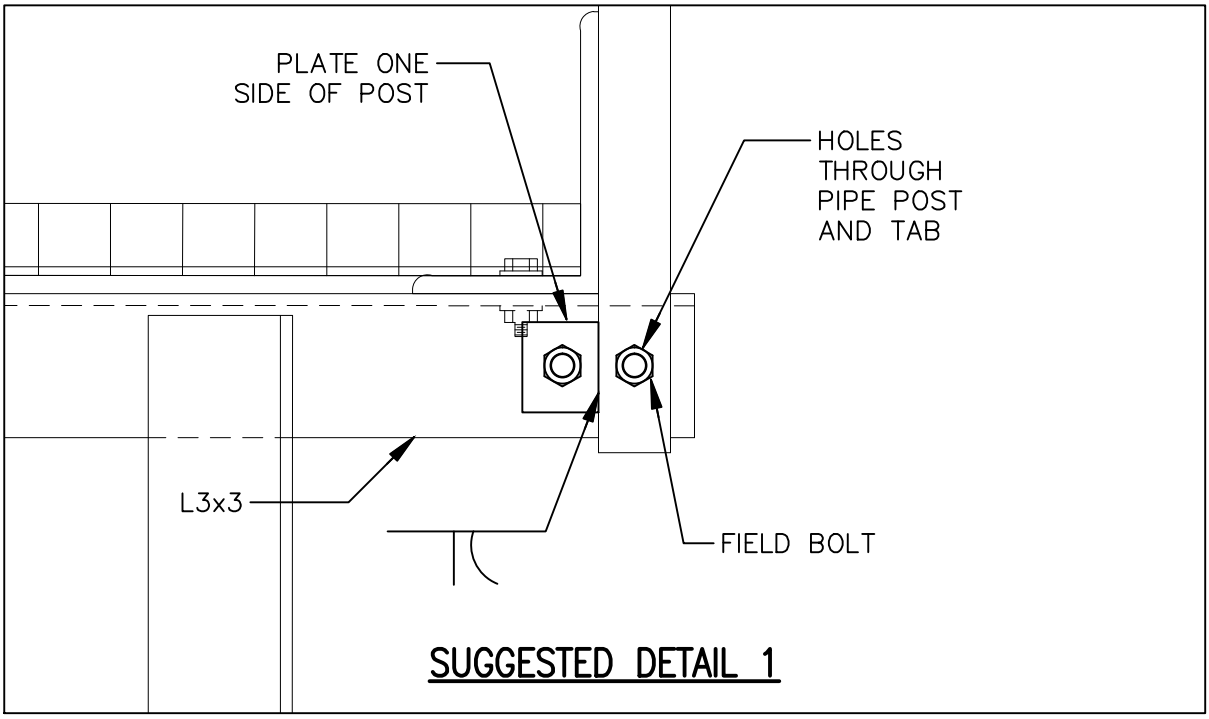
These suggestions will give you a better product for future storage. Please confirm if these connections are acceptable.

Engineer's Response:

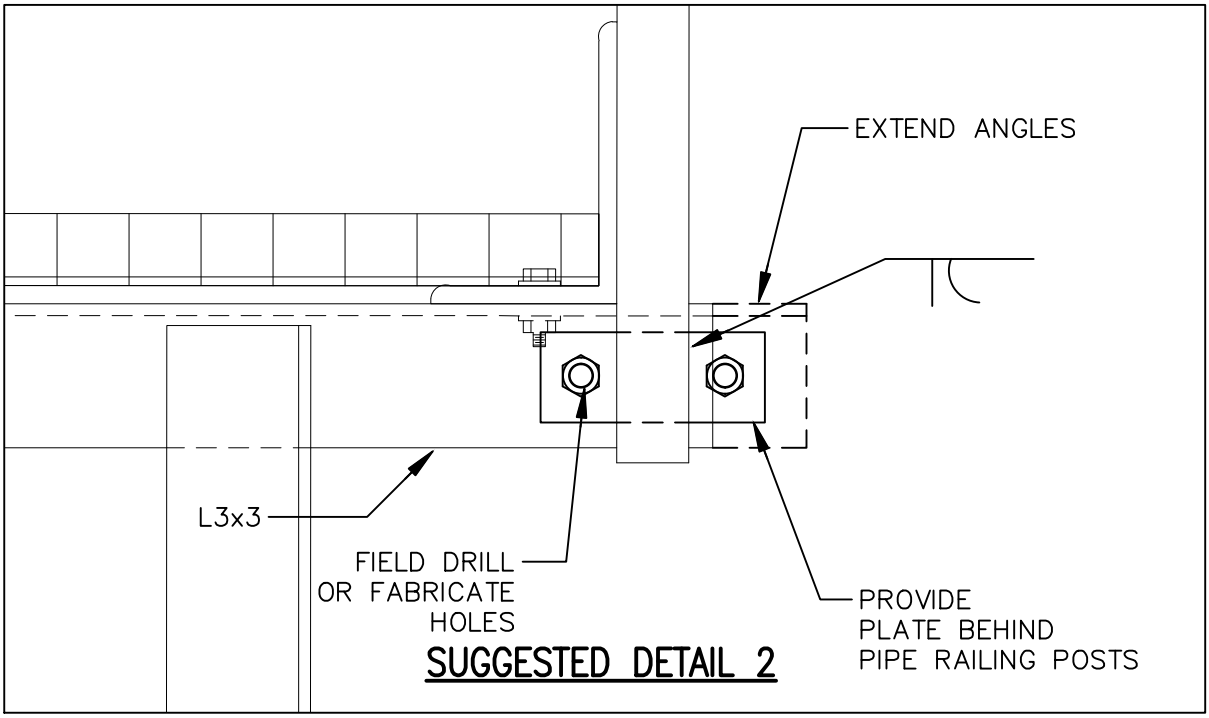
- A minimum of two bolts must connect the railing posts and L3x3 walkway supports. A sketch is attached suggesting 2 different options that are suitable.

- The grating may be fastened as proposed by Contractor.

Aaron Hunt
7/1/2011



SUGGESTED DETAIL 1



SUGGESTED DETAIL 2

ARCADIS
www.arcadis-us.com

PROJECT MANAGER	DEPARTMENT MANAGER	LEAD DESIGN PROF.	CHECKED BY
-		A.HUNT	-
SHEET TITLE: RFI 007 RESPONSE JULY 1, 2011		TASK/PHASE NUMBER	DRAWN BY: A.HUNT
		PROJECT NUMBER: -	DRAWING NUMBER: 1

REQUEST FOR INFORMATION (RFI) NO. □□7

CONTRACT NO. B000964.001

Thursday, June 30, 2011 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.

251 E. Ohio St., Suite 800
Indianapolis, IN, 46204

Attention: Matthew Bowman

From: Weeks Marine, Inc

4 Commerce Drive,
Cranford, NJ 07016

Attention: Claude Dion

Subject: Steel Post connection to walkway and Grating coonection to frame

Reference: S-5 Detail 6

Description:

1.The steel □ost connection shown on drawing S-5 Detail 6 is welded to the 3□3 angle and 6□4□3/8 angle.
2.The grating connection shown on drawing S-5 Detail 6 is welded to the 6□4□3/8 angle.

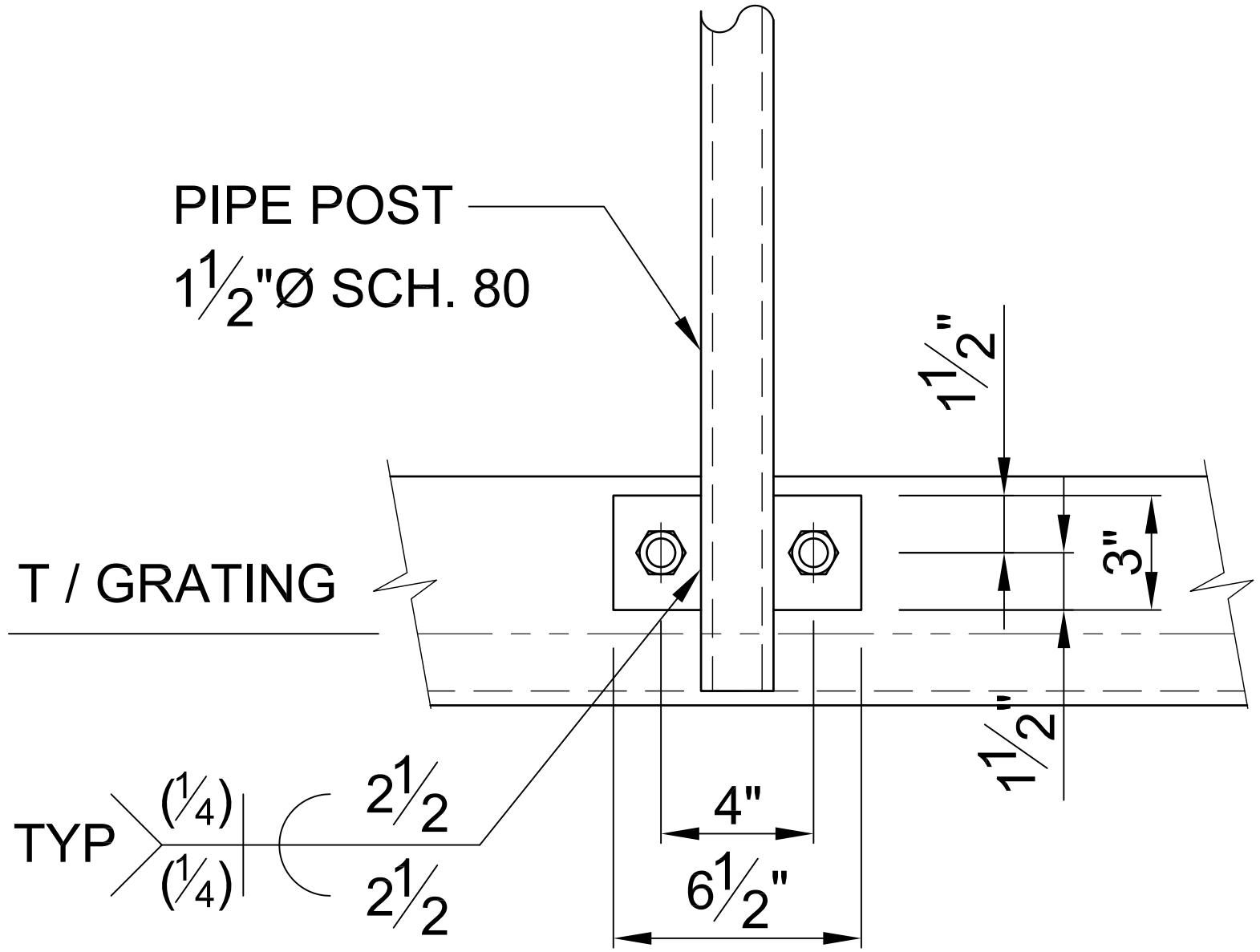
These connections need to be done □rior the galvani□ation and installation. As yo□ are aware the handrail and other □arts of the walkway will bend d□ring the galvani□ation □rocess and damages will occ□r d□ring trans□ort and installation.

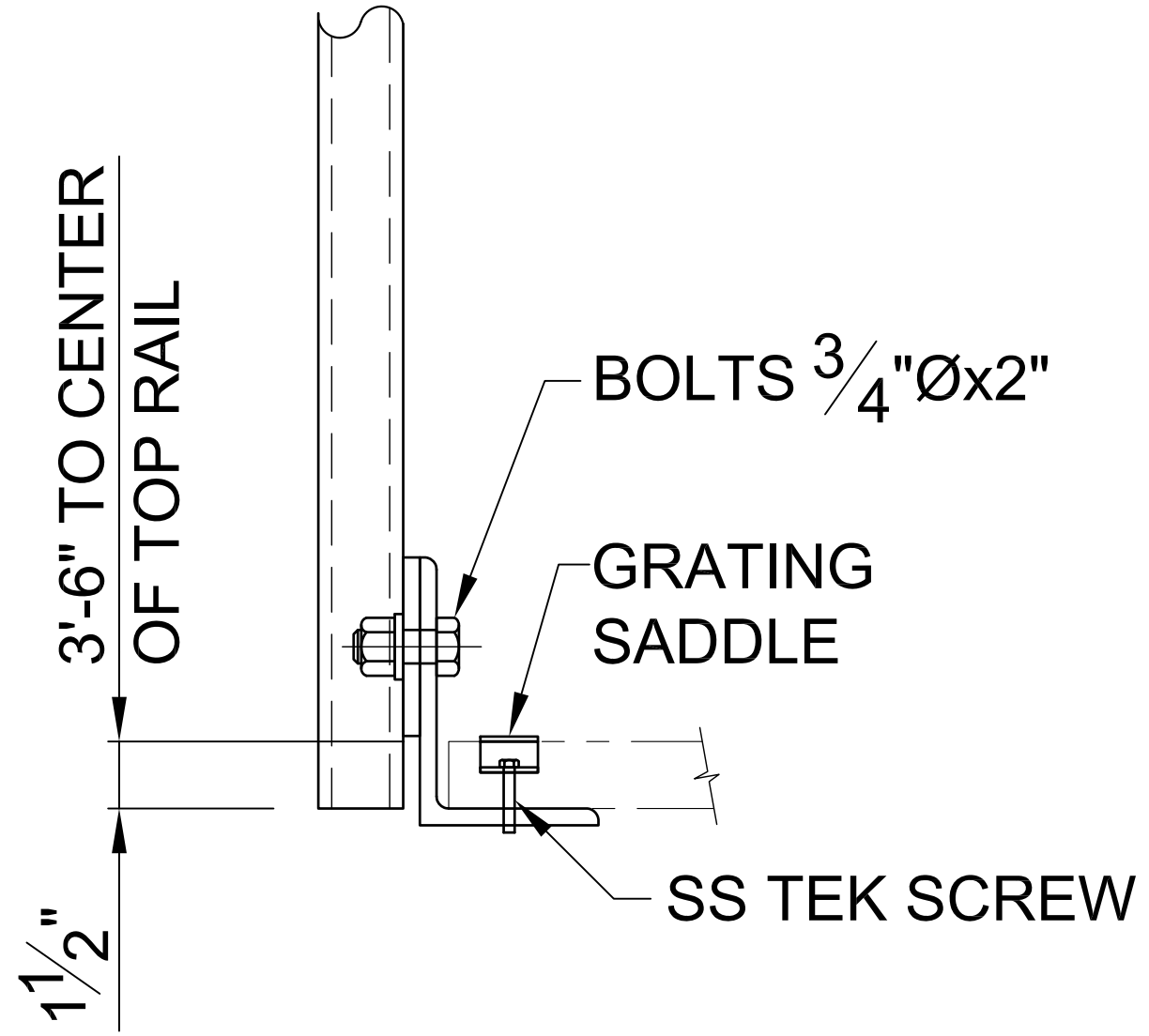
D□ra-Bond and Weeks are s□ggesting the following connection for the steel □ost and grating.
1.Steel □osts will be welded to a □late (6-1/2□□3□)
2.The □late will be bolted to the 6□4□3/8 angle in the field.
3.The grating will be bolted to the 6□4□3/8 angle □sing SS tek screw, which is standard □ractice for grating.

These s□ggestions will give yo□ a better □rod□ct for f□t□re storage. Please confirm if these connections are acce□table.

Date Reply Required: 7/6/2011

Owner Use Only:


PIPE POST
1½"Ø SCH. 80
1½"
3"
T / GRATING
1½"
TYP
(¼)
(¼)
2½
2½
4"
6½"


3'-6" TO CENTER
OF TOP RAIL
BOLTS ¾"Øx2"
GRATING
SADDLE
SS TEK SCREW
1½"

Denkenberger, Erika

From: Chwalibog, Adam
Sent: Thursday, August 11, 2011 11:31 AM
To: Claude Dion
Cc: Denkenberger, Erika; Melwiki, Jenna; King, Coleman; Beaver, James
Subject: RFI-010 from Weeks Marine
Attachments: Inclinometer hole grout-backfill.pdf

Claude,

Please find attached the inclinometer manufacturer's recommendations for the grout to be used for inclinometer installation. The manufacturer's recommended grout mix can be found in the attached document, under Table 2 for "medium to hard soils".

The proposal by Weeks to use similar mix designs for the tieback and inclinometer grout is not acceptable because the inclinometer grout mix requires a much higher w/c ratio and inclusion of bentonite filler. Please let me know if you have questions.

Thanks,
Adam

PRIVILEGED AND CONFIDENTIAL WORK PRODUCT PREPARED AT THE REQUEST OF LEGAL COUNSEL FOR OR IN ANTICIPATION OF LITIGATION AND IN CONNECTION WITH RENDERING LEGAL ADVICE

Adam Chwalibog | Project Geotechnical Engineer | Adam.Chwalibog@arcadis-us.com

ARCADIS U.S., Inc. | 6723 Towpath Rd, PO Box 66 | Syracuse, NY, 13214-0066
T. 315.671.9688 | M. 315.396.4728 | F. 315.671.9450
www.arcadis-us.com

Professional Affiliate/ ARCADIS of New York, Inc.

REQUEST FOR INFORMATION (RFI) NO. □□□

CONTRACT NO. B000964.001

Thursday, July 21, 2011 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.

251 E. Ohio St., Suite 800
Indianapolis, IN, 46204

Attention: Matthew Bowman

From: Weeks Marine, Inc

4 Commerce Drive,
Cranford, NJ 07016

Attention: Claude Dion

Subject: Grout Mix for Inclinometer

Reference: S-17 S-19

Description:

The attached doc□ments contain the □ro□osed s□ecifications for the inclinometer gro□t mi□. Please confirm these s□ecifications or an acce□table gro□t mi□.

Date Reply Required: 7/28/2011

Owner Use Only:

Grout Mix Re-Submittal

06/17/11

1. We confirm that the grout mix will have only Portland cement (Type II or III) and water at a ratio of 0.45 water to cement by weight. There will be no admixtures or reagents in the mix.
2. We don't have any current bleed test data as it is something that really was proven long ago for this high cement content mix. We attach a chart from a rather old document showing rough bleed expectations for various water to cement ratio grouts. From this you will see that the bleed expected for a 0.45 w/c grout is between 0 and 1%.

Cement-Bentonite Grout Backfill for Borehole Instruments

P. Erik Mikkelsen

The backfill for a borehole instrument is often an item that receives a disproportionate lack of attention. The behavior of the backfill, the material that is in the most intimate contact with both the formation and the instrument, is critical for obtaining correct measurements. In many situations, instrument observations may just reflect unstable backfill, lack of backfill or backfill that is too stiff or too soft. Sand, gravel and various bentonite products have proven to be both too difficult to place and often entirely inappropriate. Experience has shown the author that cement-bentonite grout is the most universally applicable material for successfully backfilling a borehole instrument. Single-component bentonite grouts have been used in related industries a long time, and have been adopted for borehole instrumentation with mixed success. Their uses are more involved and, as explained below, should be avoided. The use of fly ash as a substitute for cement promises to be a good way for reducing grout stiffness when required.

Current Use of Bentonite

Materials and Technology

Although this article advocates the use of cement-bentonite grout it is appropriate to review current bentonite backfill and sealing products to illustrate why their use should be limited. To the uninitiated, there is a confusing array of various pellets, chips, granulated and powder-forms of sodium bentonite commercially available in North America and elsewhere. Calcium type montmorillonite and opalite are also used. The proper use of these products is a mature and complex technology employed by the environmental, water-well and petroleum industries. Basic research has been done and their properties are known. For example, Baroid Industrial Products (1994), a manufacturer of about two-dozen drilling-products gives a five-day workshop in Houston, Texas including a hands-on laboratory day. Here, the user learns about the difference between drilling muds and bentonite used for sealing (single-component grouts) and how to place the materials. However, drillers and geo-professionals who install piezometers and other borehole instruments for the geotechnical industry generally do not have this background and often have limited understanding of bentonite products outside of powder used to make mud and dropping chips down the hole. Going "high-tech" requires more knowledge, better equipment, and a higher level of quality control, which appears to be unrealistic for borehole instrumentation.

Solid Bentonite Seals

Installation of bentonite balls, pellets or chips as seals above a sand pocket have dominated piezometer installation procedures over the last 50 years. It is classic procedure for open standpipe piezometers. Installation is usually very time consuming, particularly on deeper boreholes or when caving occurs. When you manage to get such seals installed without bridging the hole, there is usually no question about their permeability being adequately low. These seals have a very low permeability, often lower than many in-situ clays. Establishment of proper procedures for placement of such materials has been important not only because sealing is important, but also because the installation conditions are often difficult and the procedures cumbersome. Many installations end up less than satisfactory. Over the last decade, experience has shown that bentonite chips (as opposed to balls and pellets) are the easiest to place. These chips look like crushed gravel and hydrate very slowly. However, the fine clay-dust unavoidably mixed in with the chips can make conditions increasingly sticky as filling proceeds, leading to bridging and blockage higher in the borehole. For relatively simple installations where the seal heights and volumes are not too extensive, this material usually does not bridge and is often the seal of choice for environmental observation wells and open standpipe piezometers.

Pellets, chips and polymer-suspended granules can also be tremied to the desired location in the boring. The potential for clogging is always a hazard, but at least a clogged tremie-pipe can be withdrawn and discarded. If clogging or bridging occurs while dropping the ma-

terials directly into the borehole, there is no recourse except to start over.

Bentonite Grouts

These products are the least desirable for sealing or backfilling. They are made from water and powdered bentonite mixed into slurry-like drilling mud, but to a higher density with the aid of additives and specialized grout mixing units. The higher the bentonite solids-content is, the lower the permeability is. The water-content of such slurry is extremely high and it never really sets up to anything more than thick paste, not a solid like the chip-seals. A number of bentonite sealing grouts are available, but none appear to set up to a solid form. They are sensitive to over-mixing (leading to a flash set) and can be difficult to pump down the small diameter grout pipes (3/4 inch) often used for piezometers and other geotechnical borehole instruments where space is at a premium. Their working time tends to be too short, and mix dilution to circumvent mixing and pumping problems will lead to a permanently soupy backfill.

Cement-Bentonite Grouts

Basics

A bentonite grout backfill consisting of just bentonite and water may not be volumetrically stable and introduces uncertainty about locally introduced pore water pressures caused by the hydration process. Introducing cement, even a small amount, reduces the expansive properties of the bentonite component once the cement-bentonite grout takes an initial set. The strength of the set grout can be designed to be similar to the surrounding ground by controlling the cement content and adjusting the mix proportions. Controlling the compressibility (modulus) and the permeability is not so easy. Weaker cementitious grouts tend to remain much stiffer than normally consolidated clays of similar strengths. The bentonite solids content has the greatest influence on the permeability of cement-bentonite grout, not the cement content.

Cement-bentonite grouts are easier to use than bentonite grouts, provide a long working time before set and are more forgiving should the user deviate from the design recipe or mixing equipment and method. It is easier to adjust the grout mix for variations in temperature, pH and cleanliness of the water. Pure bentonite grouts must be mixed and deployed by strictly following measured quantities and procedures that are not common practice among drillers doing test borings.

Strength and Deformation

The general rule for grouting any kind of instrument in a borehole is to mimic the strength and deformation characteristics of the surrounding soil rather than the permeability. However, while it is feasible to match strengths, it is unfeasible with the same mix design to match the deformation modulus of cement-bentonite to that of a clay for example. The practical thing to do is to approximate the strength and minimize the area of the grouted annulus. In this way the grout column would only contribute a weak force in the situation where it might be an issue.

Strength data collected informally from various sources by the author over the years are summarized in Figure 1. A trend line drawn through the data points illustrates the decrease in strength with increasing water-cement ratio. The water-cement ratio controls the strength of the set grout (Marsland, 1973). Marsland's rule-of-thumb is to make the 7-day strength of the grout to match one quarter that of the surrounding soil.

Water and cement in proportions greater than about 0.7 to1.0 by weight will segregate without the addition of bentonite or some other type of filler material (clay or lime) to suspend the cement uniformly. In all cases sufficient filler is added to suspend the cement and to provide a thick-creamy-but-pumpable grout consistency. The bentonite does not add significant strength to the grout. The background data for Figure 1 also suggests the amount and type of bentonite or hydrated lime does not influence strength as long as the grout is non-bleeding and pumpable. If the grout bleeds the water-cement ratio decreases and strength increases. If fly ash were to be used as a substitute for cement the strength and modulus would be expected to drop. Fly ash contains less cementing agents (calcium and gypsum).

Grout Permeability

Permeability of the grout is mainly an issue that is limited to piezometer installations, and is the subject of a paper to be published in the near future. It is general practice to grout the borehole above a bentonite seal placed above the piezometer "intake zone" (sand that surrounds the piezometer), but the pa-

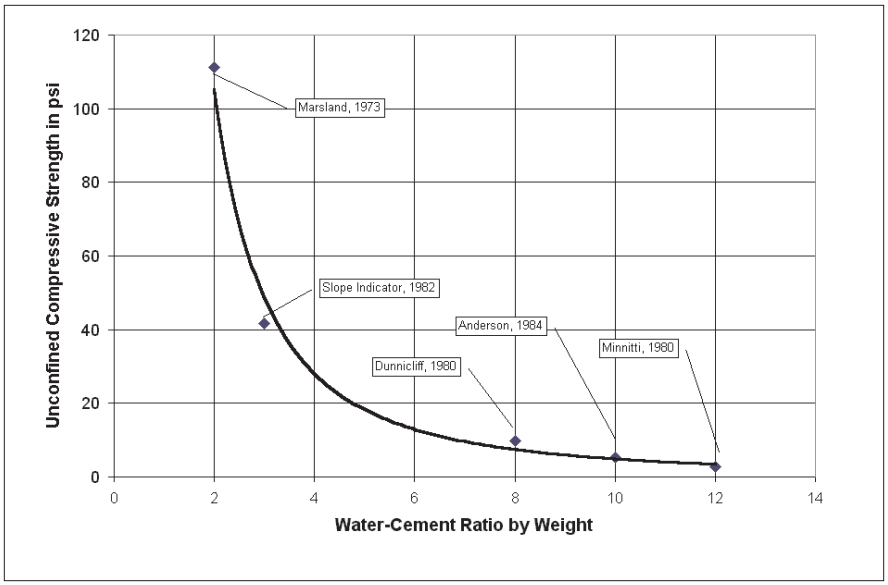


Figure 1. 28-day cement-bentonite grout strength vs. water-cement ratio. Data from author's personal files.

Table 1. Permeability, k, of some grouts

Grout Type	Characteristics	k (cm/sec)	Source
Neat cement	w/c ratio = 0.89 to 0.53	10^{-5} to 10^{-7}	Baroid
Bentonite chips	hydrated	10^{-8}	Baroid
Bentonite slurry	6 % solids	10^{-5}	Baroid
Bentonite slurry	20 % solids	10^{-8}	Baroid
Cement-bentonite	water/solids = 4 to 1	10^{-6}	Vaughan, 1969
Cement-bentonite	w : c : b = 4 : 1 : 1	5 x 10^{-8}	Vaughan, 1973

per argues that boreholes may be fully-grouted for diaphragm piezometers, omitting both the sand and the bentonite seal. Two articles by Vaughan (1969 and 1973) make the point clear in theory and practice. This procedure not only simplifies difficult installation situations, but also improves the quality of the installation. It is really not a question of whether or not diaphragm piezometers work when fully surrounded with grout, but rather it is a question of making a grout with a suitable permeability. Cement-bentonite grout is generally well suited to accomplish this task.

The cement-bentonite fabric when set is an irregular honeycomb structure held together with both cured cement and colloidal bonds. It is a highly porous solid with a low permeability that lies somewhere in the cement and bentonite range, from $1x10^{-5}$ to $1x10^{-9}$ cm/sec. Typical published values of permeability are listed in Table 1. Vaughan (1973) quotes a coefficient of permeability for a pumpable cement-bentonite grout mix on the order of $5x10^{-8}$ cm/sec. For low bentonite solid contents the permeability can be expected to be close to $1x10^{-6}$ cm/sec and for higher bentonite solids content it would be close to $1x10^{-8}$ cm/sec. This is an area for further testing and research where the water-cement ratio, bentonite solids content and permeability should be established.

Typically used Bentonite

Drilling contractors in the US who do test borings in soil usually carry a high yielding sodium bentonite such as Supergel or Quik-Gel brands on their rigs. This is a finely ground, powered form of bentonite that yields as much drilling mud per sack as possible without additives. Other bentonite powder products have additives to enhance certain mud characteristics such as viscosity, density and filtration. Such additives are probably not detrimental to making a suitable cement-bentonite grout, but are not really relevant or cost effective in such a context. What seems not to be well understood is the feasibility of using coarser grains of bentonite to increase solids content for lowering the permeability in cement-bentonite grout. Would polymer additives be needed for mixing stability, for example?

As a side-note, sodium bentonite absorbs more water than calcium bentonite. According to clay mineralogists (Papp, 1996) the presence of sodium as the dominant exchangeable ion facilitates many interlamellar water layers to be absorbed into the crystalline structure, a phenomenon which does not occur with calcium or magnesium as dominant ions. Sodium bentonite is characterized as capable of absorbing at least five times its weight in water and expands when fully saturated with water to a volume 12 to 15 times its original dry size.

Sodium bentonite powder appears to be the most practicable and efficient to use in this context, but this does not mean that other fillers of different grain sizes and composition could not be used. It is matter of availability and convenience of a good product for this application. For example, in a 50-gallon batch of cement-lime grout, 150 pounds of hydrated lime can be replaced by using about 25 pounds of bentonite powder.

Mix Design Rules

In order to keep field procedures simple the emphasis should be on controlling the water-cement ratio. This is accomplished by mixing the cement with the water first. This is contrary to procedures used at more sophisticated grout plants for compaction grouting and sealing purposes. When water and cement are mixed first, the water-cement ratio stays fixed and the strength/modulus of the set grout is more predictable. If bentonite slurry is mixed first, the water-cement ratio cannot be controlled because the addition of cement must stop when the slurry thickens to a consistency that is still pumpable.

Making cement-bentonite grout in the field is a straightforward process. The most effective mixing is done in a barrel or tub with the drill-rig pump, cir-

Table 2. Cement-bentonite grout mixes

Application	Grout for Medium to Hard Soils		Grout for Soft Soils	
Materials	Weight	Ratio by Weight	Weight	Ratio by Weight
Water	30 gallons	2.5	75 gallons	6.6
Portland Cement	94 lbs. (1 sack)	1	94 lbs. (1sack)	1
Bentonite	25 lbs. (as required)	0.3	39 lbs. (as required)	0.4
Notes	The 28-day compressive strength of this mix is about 50 psi, similar to very stiff to hard clay. The modulus is about 10,000 psi.		The 28-day strength of this mix is about 4 psi, similar to very soft clay.	

culating the batch through the pump in 50 to 200 gallon quantities. The rig pump provides the kind of jet-mixing required for getting the job done quickly. Any kind of bentonite powder used to make drilling mud combined with Type 1 Portland cement and water can be used, but the appropriate quantity of bentonite will vary somewhat depending on grade of bentonite, mixing sequence, mixing effort (agitation), water pH and temperature.

Grout mixes should be controlled by weight and proportioned to give the desired strength of the set grout. The conversion factors contained in Appendix H.10. in Dunnicliff (1988, 1993) are very helpful in mix design. Two mixes are given in Table 2 that varies in 28-day strength from 50 psi to 4 psi for water-cement ratios of 2.5 to 6.6 respectively.

The amount of bentonite that is required for the above mixing procedure would vary due to factors mentioned earlier. The amount of bentonite shown in Table 2 should only be used as a guide, but is also handy for estimating material quantities to be shipped to the site. With this method **more** bentonite is required than if water and bentonite were mixed first. This is an advantage from the standpoint of wanting a low permeability. When the bentonite solids content increases, the density increases and the permeability is lowered. A lower permeability is generally preferred since cement-bentonite grouts have a higher permeability than high-density bentonite grout or chip seals. Thus, another good reason for mixing water and cement before adding bentonite.

Old habits die hard, so that some users will insist on mixing water and bentonite powder first. This is normally the way drilling mud is mixed and it yields more slurry per sack of bentonite than the above method. Also, use of hydrated bentonite with cement added last is common practice in grouting technology for ground improvement. Such mixes are highly thixotropic and rely on industrial type mixing plants and methods. The cement content is difficult to control under ordinary borehole installation circumstances.

Mixing Procedure

A rig pump with one suction hose and a return hose fitted with a jet nozzle and a 50-gallon barrel, shown in Figure 2, are the minimum requirements for circulation batch mixing of grout. Paddle or high shear mixers can also be used. A measured quantity of clean water goes into the mixing tub/barrel first and the pumping and circulation starts. Then the cement is gradually added to the water and mixed thoroughly. At this stage the mix is like gray water. Next, bentonite powder is slowly added into the jetting area of the barrel, slowly enough so clumps of bentonite do not form. This should be constantly checked by scraping the bottom with a shovel. When clumps form, slow down and do not add any more powder until they are dissolved. Keep adding bentonite until the watery mix transitions to an oily/slimy consistency. Observe the consistency while mixing and let the grout thicken for another five to ten minutes. Generally, the mix thickens some more with added mixing time. Add more bentonite as required. When it is smooth and like thick cream or pancake batter, it is as heavy as is it feasible to pump. Drips of the grout should then barely come off a dipped finger and should form "craters" in the fluid surface. That is the correct consistency for pumping the grout batch down the tremie-pipe. When possible, withdraw the tremie after each batch an amount corresponding to the grout level in the boring to keep the pumping pressures as low as possible. When mixing grout 100 feet or more from the borehole, thinner consistency would be required, but at the risk of some bleeding.

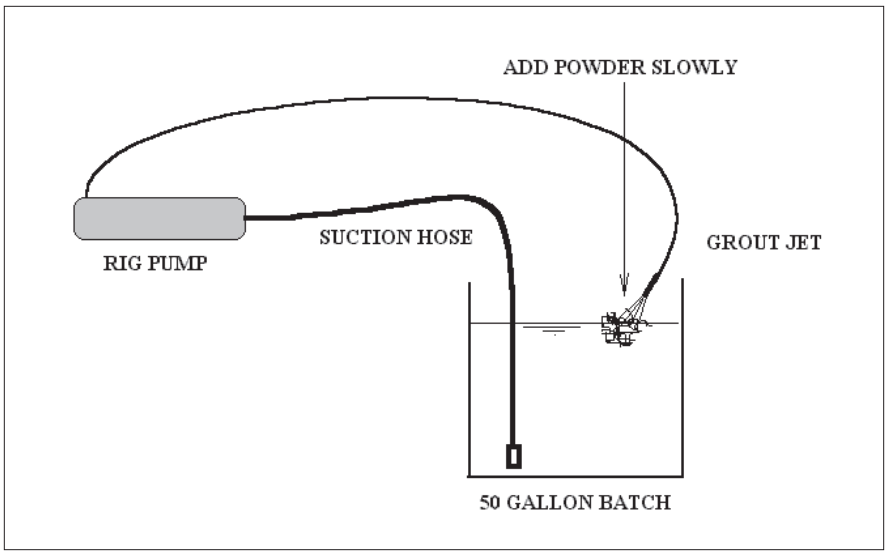


Figure 2. Circulation batch mixing of grout (minimum configuration). After mixing grout is tremied to bottom of the borehole.

Additional Considerations

Strength is often used to characterize a grout for deformation-type instruments, but modulus of deformation should ideally be the basis for judging compatibility with ground conditions. The grout column in a borehole will carry a total axial force smaller or greater than the material it replaced, according to its stiffness. When there is too much stiffness or force, displacements will be diminished and axial measurements can be less than displacements of the surrounding ground. Thus extra grout stiffness for extensometers is much more undesirable than for inclinometers, for example. More care should be taken in making a grout for axial borehole deformation measurements than for lateral deformation measurements.

Instrumentation installations often encounter the combination of both soft and hard ground in the same borehole. Obviously, staged grouting to match the required properties would be the ideal

procedure, but this is seldom warranted or practicable. Most of the design and installation challenge lies with deformation measurements in the axial direction of the borehole where large volumes of grout backfill must be placed. So, for extensometers, it is better to err on the softer side of the spectrum.

Lateral displacements of an inclinometer casing are generally unaffected by added grout stiffness. Where the grout column is too stiff the displacements will be distributed over a greater depth interval, but not be diminished in overall magnitude. The same is probably true if the grout is too soft, but there is the additional concern for lack of lateral confinement. Since inclinometer casings generally are under compression, lack of backfill or confinement can produce localized shifts in the borehole, masking smaller actual displacements. So, for inclinometers, it is better to err on the stiffer side of the spectrum.

It may not be possible to achieve a suitable grout with cement for softer clays. Fly ash promises to be a good substitute for reducing the modulus, but more testing is needed in this regard.

Conclusions

Grout backfill should ideally be selected according to the field instrument type being used and the given ground conditions. The reality however is that grouting practices will remain relatively crude and, at best, with only marginal control over the grout properties. Drillers, geologists and engineers alike still have a lot to learn about what is appropriate. We cannot just borrow ideas from drilling mud and grouting technology that have no relevance to what is needed for instrumentation functionality.

1. Avoid using a bentonite alone for a borehole grout. It is not a volumetrically stable material and can influence both piezometer and displacement measurements when it keeps hydrating or desiccating. It is often very difficult to place successfully.
2. A stable grout can be made using cement or fly ash with bentonite. Relatively small amounts of cement or fly ash are used as compared to grouts used for other geotechnical purposes such as compaction grouting and sealing of seepage. Grouting for instrumentation has different property priorities.
3. Grouting for field instrumentation should remain a relatively simple endeavor, using materials commonly available to drillers. However, when working in soils like normally consolidated clay, more attention should be paid to the mix design. Since little information is available on softer grouts, particularly those mixed with fly ash, a few trial batches in the laboratory are appropriate to determine basic characteristics for use on such projects.
4. Grout mixing should start with water and cement (or fly ash) first. Strength and modulus are more predictable that way. Also, and just as important, is that more bentonite solids can be added to the mix to lower permeability where required for sealing.
5. Grout permeability is an issue for piezometers installed in clay. The grout should have permeability no greater than one (possibly two) orders of magnitude above the clay to get representative readings.
6. Grout stability is very important during both the liquid and set conditions. The liquid grout consistency should be as thick as possible, yet liquid enough to be pumpable. This is a property that requires field experience. Field crews tend to err to the more liquid end of the spectrum, resulting in bleeding and possibly cracking when set.
7. Strength is often used to characterize a grout for deformation-type instruments, but modulus of deformation should ideally be the basis for judging compatibility with ground conditions. There is very little in the literature to help us select a grout mix for sealing piezometers in boreholes. Further testing and research is needed (see editor's note below).

Acknowledgements

The author acknowledges the technical contributions of Gordon E. Green and the editorial contributions by John Dunnicliff. They both gave a significant amount of their time to make this a more valuable and readable product.

References

Bariod Industrial Products (1994), "Drilling and Boring Fluids Workshop", Houston, TX.

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Vaughan, P. R. (1973), "Discussion, Principles of Measurement", in Field Instrumentation in Geotechnical Engineering, British Geotechnical Society, Halsted Press, a Division of John Wiley, pp. 542-543.

P. Erik Mikkelsen, Consulting Engineer,
Geometron, 16483 SE 57th Place,
Bellevue, WA 98006
Tel: (425) 746-9577
e-mail: mikkelsen.pe@attbi.com

***Editor's Note**:*
John Dunnicliff, Erik Mikkelsen,and Allen Marr have decided to plan and conduct a test program to mix various proportions of cement and bentonite, also fly ash and bentonite, and test for strength, permeability, compressibility and volume stability. The results will be published in GIN as soon as they are available.

4.5 FIELD MEASUREMENTS OF BLEED

For guidance only in the absence of test results on the actual grout for the contract using the proposed constituent materials, Tables 4.2, 4.3, 4.4 and 4.5 may be used for neat cement, bentonite/cement, flyash/cement and flyash/cement/seawater grouts, respectively.

W/C	Bleed %
0.3	0
0.5	1
1.0	18
2.0	48
5.0	75
10.0	88+
20.0	94+

Table 4.2 Approximate Relationship between Bleed and W/c Ratio for neat cement grout.

+ In practice, due to formation of cement sediment, bleed may be limited to 85%.

Extract from a document entitled 'Cement Based Grouts', a publication made for Concrete Engineers in the UK by their Technical Director, Prof G.S. Littlejohn. circa 1980

D□□□□□□□r□□r□Er□□□

□r□□ □	Bonkoski, Brooke
S□□□□	Friday, J□ly 22, 2011 7:07 PM
T□□	Cla□de Dion; Melwiki, Jenna; Denkenberger, Erika
C□□	King, Coleman; Bowman, Matthew; Beaver, James; Nick K. Kat□enberger; Dave A. Vosseller; Chris W. Fenton; Kellems, Barry; Orchard, Barbara
S□□□□□□□	RE: Lower Passaic River RFI 09
□□□□□ **U□** □□□□□	Follow □□
□□□□ **S**□□□□□□	Flagged

Claude:

Thanks for your response. This approach looks fine, as long as we find a solution for secondary containment around the flexible section. I understand from Matt Bowman that you will be working through that solution once you guys get some of the more time-critical items off your plate.

Thanks—
Brooke

From: Claude Dion [mailto:cldion@WeeksMarine.Com]
Sent: Friday, July 22, 2011 1:30 PM
To: Bonkoski, Brooke; Melwiki, Jenna; Denkenberger, Erika
Cc: King, Coleman; Bowman, Matthew; Beaver, James; Nick K. Katzenberger; Dave A. Vosseller; Chris W. Fenton; Kellems, Barry; Orchard, Barbara
Subject: RE: Lower Passaic River RFI 09

Brooke,

I have contacted the manufacturer. They will send me a cut sheet but for today I have attached a sketch trying to show the connection. I believe that we can use flanges of end connection. I will have more detail next week.

Thanks

Claude

From: Bonkoski, Brooke [mailto:Brooke.Bonkoski@arcadis-us.com]
Sent: Friday, July 22, 2011 3:56 PM
To: Claude Dion; Melwiki, Jenna; Denkenberger, Erika
Cc: King, Coleman; Bowman, Matthew; Beaver, James; Nick K. Katzenberger; Dave A. Vosseller; Chris W. Fenton; Kellems, Barry; Orchard, Barbara
Subject: RE: Lower Passaic River RFI 09

Hi Claude—
I had a follow-up question regarding this RFI. I'm a bit unclear about your description below. Will the flexible section only be the 8" carrier pipe without any additional containment pipe around it? I can't envision what you're describing in your email below.
Thanks--
Brooke

From: Claude Dion [mailto:cldion@WeeksMarine.Com]
Sent: Thursday, July 21, 2011 2:01 PM

To: Melwiki, Jenna; Denkenberger, Erika
Cc: King, Coleman; Bowman, Matthew; Beaver, James; Nick K. Katzenberger; Dave A. Vosseller; Chris W. Fenton
Subject: Lower Passaic River RFI 09

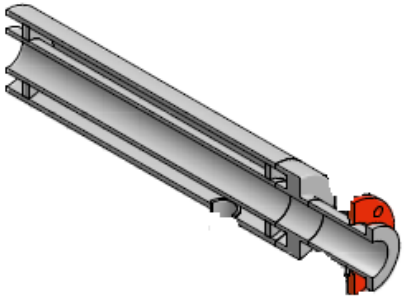
Jenna,

This RFI is critical.

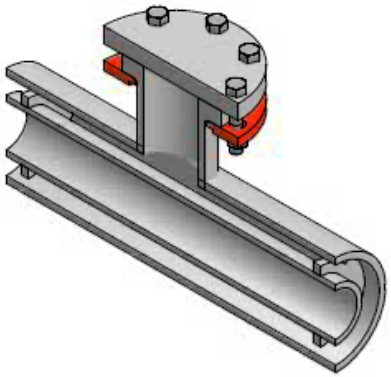
The flexible connection required in the contract drawings are manufacturer for the carrier pipe only not for the containment pipe. The 8" pipe will be cut and flexible connection will be welded to a flange against the 12" dia. pipe.

If you have any questions please call.

Claude Dion
Weeks Marine Inc.
4 Commerce Drive
Cranford, NJ 07016
Office: 908-272-4010
Cell.: 908-230-5279



The 12" pipe stop where the vacuum breaker and flexible joint will be installed.



This section shows a typical connection to the 12" dia. pipe only. It doesn't reach the 8" dia.

REQUEST FOR INFORMATION (RFI) NO. □□□

CONTRACT NO. B000964.001

Thursday, July 21, 2011 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.

251 E. Ohio St., Suite 800
Indianapolis, IN, 46204

Attention: Matthew Bowman

From: Weeks Marine, Inc

4 Commerce Drive,
Cranford, NJ 07016

Attention: Claude Dion

Subject: Flexible Connection for Double Containment Pipe

Reference: M-12, M-22

Description:

The contract drawings re□□ired fle□ible connection at the enclos□re and the UPF area. Weeks has disc□ssed with Isco to □rovide a fle□ible connection with do□ble containment □i□e. The man□fact□rer has stated that the fle□ible connection is only for the carrier □i□e (8" dia. □i□e) and has not for the containment □i□e (12" dia. □i□e) Attached is the c□t sheet of the 8" dia. fle□ible connection. Please confirm that Weeks will install the fle□ible connection as shown.

Date Reply Required: 7/28/2011

Owner Use Only:

Style 242 Twin Sphere Performance Data

Table 3: Sizes • Movements • Pressures • Flange Standards • Weights

NOMINAL Pipe Size I.D.	Neutral Length	PROCO Style Number [1]	242 Movement Capability: From Neutral Position [2]					Pressure [4]		Standard Flange Drilling Dimensions [8]					Weight in lbs	
			Axial Compression Inches	Axial Extension Inches	Lateral Deflection Inches	Angular Deflection Degrees	Thrust Factor [3]	Positive PSIG [5]	Vacuum [6] Inches of Hg	Flange O.D. Inches	Bolt Circle Inches	Number of Holes	Size of Holes Inches	Bolt Hole [7] Thread	Exp. Joint & Flanges	Control Unit Set (2 Rod)
1 (25)	10.00	242-C	2.000	1.188	1.750	45	4.43	225	26	4.25	3.13	4	0.625	—	5.2	3.6
1.25 (32)	7.0	**242-A**	2.000	1.188	1.750	45	6.34	225	26	4.63	3.5	4	0.625	1/2-13 UNC	5.3	3.5
	7.0	242-HA						300					0.625	—	6.5	3.5
	10.00	242-C						225					0.625	—	6.2	3.6
1.5 (40)	6.00	242-B	2.000	1.188	1.750	45	6.49	225	26	5.0	3.88	4	0.625	—	6.1	4.6
	6.00	242-HB						300					0.625	—	7.6	4.6
	7.00	**242-A**						225					0.625	1/2-13 UNC	6.8	4.8
	7.00	242-HA						300					0.625	—	8.3	4.8
	10.00	242-C						225					0.625	—	7.7	5.1
2 (50)	6.00	242-B	2.000	1.188	1.750	45	7.07	225	26	6.0	4.75	4	0.750	—	9.0	6.6
	7.00	**242-A**						225		6.0	4.75	4	0.750	—	9.0	7.0
	10.00	242-C						235		6.0	4.75	4	0.750	5/8-11 UNC	10.2	7.3
	6.00	Q-242-HB						300		6.0	4.75	4	0.750	—	10.5	6.6
	7.00	Q-242-HA						300		6.5	5.00	8	0.750	—	10.5	7.0
2.5 (65)	6.00	242-B	2.000	1.188	1.750	43	11.05	225	26	7.0	5.5	4	0.750	—	12.9	7.6
	7.00	**242-A**						225					0.750	—	13.3	8.0
	10.00	242-C						225					0.750	5/8-11 UNC	14.5	8.4
	6.00	Q-242-HB						300					0.750	—	15.3	7.6
	7.00	Q-242-HA						300					0.750	—	15.8	8.0
3 (80)	7.00	**242-A**	2.000	1.188	1.750	38	13.36	225	26	7.5	6.0	4	0.750	5/8-11 UNC	14.3	8.6
	9.00	242-B						225		7.5	6.0	4	0.750	—	15.2	9.0
	10.00	242-C						225		7.5	6.0	4	0.750	—	15.8	9.1
	12.00	242-C						300		7.5	6.0	4	0.750	—	16.0	9.9
	7.00	Q-242-HA						300		8.25	6.62	8	0.875	—	18.2	8.6
3.5 (90)	10.00	242-C	2.000	1.188	1.750	34	18.67	225	26	8.5	7.0	8	0.750	—	20.6	8.1
4 (100)	9.00	**242-A**	2.000	1.375	1.562	34	22.69	225	26	9.0	7.5	8	0.750	5/8-11 UNC	20.3	8.0
	10.00	242-C						225		9.0	7.5	8	0.750	—	21.3	8.2
	12.00	242-C						225		9.0	7.5	8	0.750	—	22.0	8.2
	9.00	Q-242-HA						300		10.0	7.88	8	0.750	3/4-10 UNC	26.4	8.0
5 (125)	9.00	**242-A**	2.000	1.375	1.562	29	30.02	225	26	10.0	8.5	8	0.875	—	24.5	8.3
	10.00	242-C						225		10.0	8.5	8	0.875	—	25.5	9.1
	12.00	242-C						225		10.0	8.5	8	0.875	—	26.0	9.1
	9.00	Q-242-HA						300		11.0	9.25	8	0.875	—	31.4	8.3
6 (150)	9.00	**242-A**	2.000	1.375	1.562	25	41.28	225	26	11.0	9.5	8	0.875	3/4-10 UNC	29.5	11.7
	10.00	242-C						225		11.0	9.5	8	0.875	—	30.5	11.9
	12.00	242-C						225		11.0	9.5	8	0.875	—	31.0	12.0
	14.00	242-C						225		11.0	9.5	8	0.875	—	32.0	12.0
	9.00	Q-242-HA						300		12.5	10.62	12	0.875	—	38.6	11.7
8 (200)	9.00	242-B	2.375	1.375	1.375	19	63.62	225	26	13.5	11.75	8	0.875	—	42.3	14.5
	10.00	242-C						225		13.5	11.75	8	0.875	—	43.4	15.0
	12.00	242-C						225		13.5	11.75	8	0.875	—	44.0	15.2
	13.00	**242-A**						225		13.5	11.75	8	0.875	—	43.8	15.4
	14.00	242-C						225		13.5	11.75	8	0.875	3/4-10 UNC	46.0	16.0
	9.00	Q-242-HB						300		15.0	13.0	12	1.000	—	55.4	14.5
	13.00	Q-242-HA						300		15.0	13.0	12	1.000	—	57.5	15.4

See Notes Page 6

Style 242 Twin Sphere Performance Data

Table 3: Sizes • Movements • Pressures • Flange Standards • Weights

NOMINAL Pipe Size I.D.	Neutral Length	PROCO Style Number [1]	242 Movement Capability: From Neutral Position [2]					Pressure [4]		Standard Flange Drilling Dimensions [8]					Weight in lbs	
			Axial Compression Inches	Axial Extension Inches	Lateral Deflection Inches	Angular Deflection Degrees	Thrust Factor [3]	Positive PSIG [5]	Vacuum [6] Inches of Hg	Flange O.D. Inches	Bolt Circle Inches	Number of Holes	Size of Holes Inches	Bolt Hole [7] Thread	Exp. Joint & Flanges	Control Unit Set (2 Rod)
10 (250)	12.00	242-B	2.375	1.375	1.375	15	103.87	225	26	16.0	14.25	12	1.000	—	64.1	23.5
	13.00	**242-A**						225		16.0	14.25	12	1.000	—	65.5	24.5
	14.00	242-C						225		16.0	14.25	12	1.000	7/8-9 UNC	66.7	24.5
	12.00	Q-242-HB						275		17.5	15.25	16	1.125	—	86.5	23.5
	13.00	Q-242-HA						275		17.5	15.25	16	1.125	—	88.4	24.5
12 (300)	12.00	242-B	2.375	1.375	1.375	13	137.89	225	26	19.0	17.00	12	1.000	—	94.0	30.0
	13.00	**242-A**						225		19.0	17.00	12	1.000	—	95.0	31.0
	14.00	242-C						225		19.0	17.00	12	1.000	7/8-9 UNC	99.1	31.0
	12.00	Q-242-HB						275		20.5	17.75	16	1.250	—	110.0	30.0
	13.00	Q-242-HA						275		20.5	17.75	16	1.250	—	110.0	31.0
14 (350)	13.75	**242-A**	1.750	1.118	1.118	9	182.65	150	26	19.0	18.75	12	1.125	—	112.0	32.0
16 (400)	12.00	242-C	1.750	1.118	1.118	8	240.53	125	26	23.5	21.25	16	1.125	—	124.0	28.8
	12.00	242-HC						175					1.125	—	160.0	28.8
	13.75	**242-A**						125					1.125	—	132.0	30.8
	13.75	242-HA						175					1.125	—	170.2	30.8
18 (450)	12.00	242-C	1.750	1.118	1.118	7	298.65	125	26	25.0	22.75	16	1.250	—	138.0	35.1
	13.75	**242-A**						125					1.250	—	146.0	36.1
	13.75	242-HA						175					1.250	—	181.2	36.1
20 (500)	12.00	242-C	1.750	1.118	1.118	7	363.05	125	26	27.5	25.0	20	1.250	—	172.0	35.0
	13.75	**242-A**						125					1.250	—	182.0	35.5
	13.75	242-HA						175					1.250	—	182.0	35.5
24 (600)	12.00	242-C	1.750	1.118	1.118	5	510.70	110	26	32.5	29.5	20	1.375	—	190.0	47.0
	13.75	**242-A**						110					1.375	—	220.0	48.0
	13.75	242-HA						160					1.375	—	266.2	48.0
30 (750)	12.00	242-C	1.750	1.118	1.118	4	779.31	110	26	38.75	36.0	28	1.375	—	270.0	62.0

NOTES:

Standard Proco Style 242-A Expansion Joints shown in Bold Type are considered Standards and are inventoried in large quantities.

1. *"HW" denotes Heavy Weight Construction. For sizes 2" I.D. thru 12" I.D., Proco will only offer these items with 300 lb. drilling and are denoted by Q-242-HW. All Q-240-HW units will only be sold with control units.*

2. *Movements shown in the above tables are non-concurrent.*

3. *Calculation of Thrust (Thrust Factor). When expansion joints are installed in the pipeline, the static portion of the thrust is calculated as a product of the area of the I.D. of the arch of the expansion joint times the maximum pressure (design, test or surge) that will occur in the line. The result is a force expressed in pounds.*
Take design, surge or test pressure X thrust factor to calculate end thrust.

"Effective Area"

Thrust Factor=

$T = \frac{\pi}{4} (D)^2, (P)$

T= Thrust
P= PSI (Design, Test or Surge)
D= Arch I.D.

4. *Pressure rating is based on 170°F operating temperature. The pressure rating is reduced at higher temperatures.*

5. *Pressures shown at maximum "operating pressure". Test pressure is 1.5 times "operating pressure". Burst pressure is 4 times "operating pressure". If factory hydro-test is required, an additional joint per size must be purchased and tested. Once hydro-tested this joint may not be sent to field for installation as the beaded end will have taken a (compressed) set and can not be reused.*

6. *Vacuum rating is based on neutral installed length, without external load. Products should not be installed in extension for vacuum applications. Flattening of the arch in extended mode will cause the arch to collapse.*

7. *Style 242A/NN (neoprene elastomer only) expansion joints 1.0" I.D. thru 12" I.D. are available with tapped (threaded) holes and must be specified at time of order.*

8. *In addition to standard 150 lb. drilled flanges, Proco can provide expansion joints listed above in 300 lb. drilling, BS-10 (British) drilling, Metric PN10 and PN16 drilling and JIS 10kg/cm drilling.*

Denkenberger, Erika

From: Bonkoski, Brooke
Sent: Wednesday, August 10, 2011 4:24 PM
To: Claude Dion
Cc: Reed, Rob; Kellems, Barry; Denkenberger, Erika; Melwiki, Jenna
Subject: FW: RFI-012 from Weeks Marine
Attachments: RFI-012.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Claude—
Apologies for the delay on this RFI. This approach is acceptable for the vacuum breakers.
Thanks—
Brooke

From: Denkenberger, Erika
Sent: Monday, July 25, 2011 6:23 AM
To: Bonkoski, Brooke; Kellems, Barry
Cc: Bowman, Matthew; King, Coleman; Pelenski, Michael; Reed, Rob; Romagnoli, Bob
Subject: RFI-012 from Weeks Marine

Brooke and Barry,

The following Request for Information from Weeks Marine Inc. has been filed to SharePoint:

RFI ID: RFI-012
RE: Vacuum Breaker Process Pipeline
SharePoint Link: RFI-012

Please provide Weeks Marine with a response for this RFI and please copy Jenna and I. Let me know if you have any questions.

Thank you,
Erika

Erika Denkenberger | Sediment and Waterfront Group | erika.denkenberger@arcadis-us.com

ARCADIS U.S., Inc. | 6723 Towpath Road, P.O. Box 66 | Syracuse, NY, 13214-0066
T. 315.671.9426 | F. 315.445.9161
www.arcadis-us.com

REQUEST FOR INFORMATION (RFI) NO. □1□

CONTRACT NO. B000964.001

Friday, July 22, 2011 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.
251 E. Ohio St., Suite 800
Indianapolis, IN, 46204
Attention: Matthew Bowman

From: Weeks Marine, Inc
4 Commerce Drive,
Cranford, NJ 07016
Attention: Claude Dion

Subject: Vacuum Breaker Process Pipeline

Reference: M-12, M-22

Description:

The vac□□m breaker shown on contract drawing M-12 is connected to the 12□dia. containment □i□e. After disc□ssion with the Man□fact□rer the vac□□m breaker needs to be connected to the 8□dia. carrier □i□e. The 12□dia. containment □i□e will ca□ at each e□tremity of the saddle clam□ that contain the air vent (vac□□m breaker) to be installed on the 8□ dia. carrier □i□e. 1 vac□□m breaker will be installed at the enclos□re and a second at the UPF area. This is ind□stries □ractice. Please confirm that this is acce□table.

Date Reply Required: 7/29/2011

Owner Use Only:

Denkenberger, Erika

From: Chwalibog, Adam
Sent: Wednesday, August 10, 2011 3:19 PM
To: Denkenberger, Erika
Cc: Reed, Rob
Subject: RE: Status on RFI-010 and RFI-013 (PC-007-R1)

Follow Up Flag: Follow up
Flag Status: Flagged

RFI-013 is closed. I talked to Claude on-site today. We resolved the remaining comments. We are finalizing RFI-010. I hope to get that to Jamie tomorrow.

Thanks,
Adam

From: Denkenberger, Erika
Sent: Monday, August 08, 2011 4:20 PM
To: Chwalibog, Adam
Cc: Reed, Rob
Subject: Status on RFI-010 and RFI-013 (PC-007-R1)

Adam - can you please provide me with an update on whether these RFIs have been finalized? The attached emails are the last correspondence that I received pertaining to these items.

Thanks,
Erika

Privileged and Confidential Work Product Prepared at the Request of Legal Counsel
for or in Anticipation of Litigation and in Connection with Rendering Legal Advice

ARCADIS US□INC
SU□MITTAL □ORM

To Mr. Matthew Bowman, Constr□ction Manager
Arcadis Us, Inc
251 E. Ohio Street, S□ite 800
Indiana□olis, IN 46204

S□bmittal No. 013300-01-A
Date of S□bmittal: May 31, 2011
Contractor: WEEKS
Contract No.: B0009964.001
S□bject of S□bmittal: S□bmittal Proced□res

S□ecification No. 01 33 00 Par. No. 1.4
Drawing No.

WE ARE SENDING YOU ATTACHED THE FOLLOWING: (Indicate All A□□licable Items)

☐ Sho□ Drawings ☐ Progress Sched□les ☐ Testing Proced□re ☒ First S□bmission ☐ Third S□bmission

☐ Sam□le ☐ O□M Man□al ☐ Contact List ☐ Second S□bmission ☐ □□□□□□□ S□bmission

DESCRIPTION (Itemi□e All Com□onents)	NO. OF COPIES
T□□ □□□□□□□□d S□r□□d□□□□□□□□ □□ □□□□□r□ □□□ S□□□ □□□□□r□□□□r□d □□ □□ □□□□ □□□□d □□ W□□□□ M□r□□□□l□□□	1
P□□□□□ □□r□□□ □□d □□□□□r□ □□□ S□□□ □□□□□r□□□□r□d □□ W□□□□	

Com□lete either (a) or (b) and □, in the case of technical S□bmittals or Progress Sched□le S□bmittals:

a ( ) The Contractor verified that the material, e□□i□ment, or other item contained in this S□bmittal meets all the re□□irements s□ecified, shown,, or indicated in the Contract Doc□ments with no e□ce□tions.

b ( ) The Contractor has verified that the material, e□□i□ment, or other item contained in this S□bmittal meets all re□□irements s□ecified, shown, or indicated in the Contract Doc□ments e□ce□t for variances identified in the following attached doc□ments:

c ( ) The Contractor has stam□ed or written its a□□roval on each Sho□ Drawing sheet, or cover sheet in the case of other S□bmittals, certifying that the Contractor has satisfied its res□onsibilities with res□ect to the review of the s□bmission incl□ding, b□t not limited to, the re□□irements of Article 6 of the General Conditions.

Signed (By the Contractor): Claude Dion

Cla□de Dion

WEE□S MARINE□S SU□MITTAL RE□ISTER

S□ecification Section N□mber	Paragra□h N□mber	Descri□tion of Item S□bmitted	Ty□e of S□bmittal	Weeks S□bmitttal	E or FIO	Contractor S□bmittal Date	Engineer Review Needed By	Engineer Review Com□leted	Remarks
01 11 00	NA	NONE	NA		NA		GLOBAL -		
01 14 00	NA	NONE	NA		NA				
01 33 00	1.4	Removal Action Work Plan	Removal Action Work Plan	Not in Weeks Sco□e of Work	E	Within 45 days of the USEPA's a□□roval of the Phase I Removal Action Design	Part of the RAWP for dredging/enclosure/backfilling/OU-1 to be provided by Weeks.		
01 33 00	1.8	As-B□ilt Records	Constr□ction	LATER	FIO	After constr□ction			
01 35 43.14	1.4.1	Environmental Protection Program	Removal Action Work	Part of the RAWP	E	Removal Action Work Plan			
01 35 43.14	1.4.2	S□ill and Contamination Prevention	Removal Action Work	Part of the RAWP	E	Removal Action Work Plan	Submitals identified as "LATER" are Weeks responsibility		
01 35 43.14	1.4.4	Weekly Ins□ection Res□lts	Constr□ction	Part of the RAWP	FIO	D□ring constr□ction			
01 35 43.18	NA	NA	NA		NA	NA			
01 42 13	NA	NONE	NA		NA	NA			
01 50 00	1.4.1	Sediment Processing Tem□orary Cover Sho□ Drawings	Removal Action Work	Not in Weeks Sco□e of Work	E	Removal Action Work Plan			
01 50 00	1.4.2	Tem□oray Facilities Plan	Removal Action Work	Not in Weeks Sco□e of Work	E	Removal Action Work Plan	Temp. Facilities plan. This is for OU-1. I think that goes to Weeks for submital		
01 58 13	1.3	Signage Lang□age and Layo□t	Pre-Constr□ction	Not in Weeks Sco□e of Work	E	60 Days □rior to mobili□ation			
01 71 13	1.4.1.1	Constr□ction Health and Safety Plan	Pre-Constr□ction	WEEKS	E	Prior to mobili□ation			
01 71 13	1.4.1.2	Contractor □□ality Management Plan	Pre-Constr□ction	Not in Weeks Sco□e of Work	E	Prior to mobili□ation			
01 74 23	1.3.1.1	Pre-Constr□ction E□□i□ment Decontamination Doc□mentation	Pre-Constr□ction	□□□□□	E	Pre-Constr□ction	Decon submittals should be provided by Weeks. Documentation is provided saying equipment is decon prior to arriving on-site		
01 74 23	1.3.1.2	Decontamination Plan	Removal Action Work	LATER	FIO	Pre-constr□ction			
01 74 23	1.3.2	Environmental Decontamination Doc□mentation	Constr□ction	LATER	E	D□ring and after constr□ction			
01 75 00	1.3.1.1	Start□□and Testing Plan	Pre-Constr□ction	Not in Weeks Sco□e of Work	E	Pre-constr□ction			
01 75 00	1.3.2.1	Doc□mentation of Start□□ Testing	Constr□ction	Not in Weeks Sco□e of Work	FIO	D□ring constr□ction			
01 75 00	1.3.2.2	Deficiency Re□ort	Constr□ction	Not in Weeks Sco□e of Work	FIO	D□ring constr□ction			
01 76 00	1.4.1	Utility Location Plan	Removal Action Work	NOTIFY UTILILTY	E	Removal Action Work Plan			
01 76 00	1.4.2	Vessel Fender Plan	Removal Action Work	WEEKS, Part of the RAWP	E	Removal Action Work Plan			
01 76 00	1.4.3	Ice Management Plan	Removal Action Work	WEEKS, Part of the RAWP	E	Removal Action Work Plan			
01 76 00	1.4.4	Tieback Installation Plan	Removal Action Work	WEEKS, Part of the RAWP	E	Removal Action Work Plan			
01 76 00	1.4.5	Fender Sho□ Drawings	Sho□ Drawing	COMPLETED	E	Prior to mobili□ation			
01 76 00	1.4.5	Fender Man□fact□rer Technical Data	Man□fact□rer's Literat□re and Re□orts	COMPLETED	E	Prior to mobili□ation			
02 21 00	1.4.1	Pre-Constr□ction S□rvey Plan	Pre-Constr□ction	WEEKS	E	Pre-Constr□ction			
02 21 00	1.4.2	Constr□ction S□rvey Plan	Constr□ction	LATER	E	Bi-Monthly, Prior to s□rvey work			
02 21 00	1.4.3	S□rvey Crew □□alifications	Pre-Constr□ction	WEEKS	E	Prior to s□rvey work			
02 21 00	1.4.4	Field Notes, Com□□tations, Records, and S□rvey □□antities	Constr□ction Doc□mentation	LATER	FIO	D□ring constr□ction, and for settlement monitoring, no later thn the end of the workday following a monitoring event			
02 61 31	1.4.1	Pro□osed Tr□ck Ro□tes	Removal Action Work	Not in Weeks Sco□e of Work	E	Removal Action Work Plan			
02 61 31	1.4.2	Waste Manifests	Constr□ction	Not in Weeks Sco□e of Work	E	Prior to trans□ort of waste off site			
02 61 31	1.4.3	Daily Re□orts	Constr□ction	Not in Weeks Sco□e of Work	FIO	Daily			
02 61 31	1.4.4	Waste Dis□osal Certifications	Constr□ction	Not in Weeks Sco□e of Work	FIO	Within 25 days after date of dis□osal			
02 61 32	1.4.1	Waste Management Plan	Removal Action Work	Not in Weeks Sco□e of Work	E	Removal Action Work Plan			
02 61 32	1.4.2	Pro□osed Tr□ck Ro□tes	Removal Action Work	Not in Weeks Sco□e of Work	E	Removal Action Work Plan			
02 61 32	1.4.3	Waste Manifests	Constr□ction	Not in Weeks Sco□e of Work	E	Prior to trans□ort off site			
02 61 32	1.4.4	Daily Re□orts	Constr□ction	Not in Weeks Sco□e of Work	FIO	Daily			
02 61 32	1.4.5	Waste Dis□osal Certifications	Constr□ction	Not in Weeks Sco□e of Work	FIO	Within 25 days after date of dis□osal			
03 10 00	NA	None	NA		NA	NA			
03 20 00	1.4	Concrete Reinforcement Sho□ Drawings	Sho□ Drawing	Not in Weeks Sco□e of Work	E	None s□ecified			
03 30 00	1.5.1	Concrete Materials and Mi□ Design Test Laboratory Test Re□orts	Constr□ction	Not in Weeks Sco□e of Work	E	None s□ecified			
03 30 00	1.5.2	Material Certificates	Man□fact□rer's Literat□re and Re□orts	Not in Weeks Sco□e of Work	E	None s□ecified			
03 39 00	1.3	Method of C□ring	Pre-Constr□ction	Not in Weeks Sco□e of Work	E	As needed, if different than s□ecified			
05 12 00	1.4	Str□ct□ral Steel Framing Sho□ Drawing	Sho□ Drawing	WEEKS	E	None s□ecified			
05 50 00	1.4	Metal Fabrications Sho□ Drawings	Sho□ Drawing	WEEKS	E	None s□ecified			
13 50 00	1.4.1	S□ecial Instr□mentation Plan	Pre-Constr□ction	WEEKS	E	Pre-constr□ction			
13 50 00	1.4.2	Pre-Constr□ction Pro□erty	Pre-Constr□ction	Not in Weeks Sco□e of Work	E	Pre-constr□ction			
26 05 19	NA	NONE	NA		NA	NA			
26 05 23	NA	NONE	NA		NA	NA			
26 05 33	NA	NONE	NA		NA	NA			
31 10 00	NA	NONE	NA		NA	NA			

31 23 00	1.4.1 -1.4.3	Fill Material Laboratory Test Res□lts and Certifications	Constr□ction	Not in Weeks Sco□e of Work	E	3 Weels □rior to bringing material on site			
31 23 00	1.4.4	Name, Location, and So□rce of Each Fill Material	Constr□ction	Not in Weeks Sco□e of Work	E	None s□ecified			
31 23 00	1.4.5	Grain Si□e Laboratory Re□orts	Constr□ction	Not in Weeks Sco□e of Work	E	None s□ecified			
31 25 00	1.4.1	Stormwater Poll□tion Prevention Plan	Pre-Constr□ction	Not in Weeks Sco□e of Work	E	Removal Action Work Plan			
31 25 00	1.4.2	Sedimentation and Erosion Control Sho□	Sho□ Drawing	Not in Weeks Sco□e of Work	E	None s□ecified			
31 25 00	1.4.3	Erosion Control Prod□ct Sheets	Man□fact□rer's Literat□re and Re□orts	Not in Weeks Sco□e of Work	E	Prior to ordering			
31 51 00	1.4.1	Mill Test Re□orts	Man□fact□rer's Literat□re and Re□orts	WEEKS	E	None s□ecified			
31 51 00	1.4.2	Tieback Installation Plan	Pre-Constr□ction	WEEKS	E	None s□ecified			
31 51 00	1.4.2.1	N□mber of years contin□o□sly engaged in tieback installation	Pre-Constr□ction	WEEKS	E	None s□ecified			
31 51 00	1.4.2.2	Res□mes for key Contractor/S□bcontractor □ersonnel	Pre-Constr□ction	WEEKS	E	None s□ecified			
31 51 00	1.4.2.3	Antici□ated a□□roach for installing the tiebacks to the design config□ration	Pre-Constr□ction	WEEKS	E	None s□ecified			
31 51 00	1.4.2.4	List of materials com□rising □ermanent tiebacks and confirmation they are □rotected in accordance with acce□ted standards for □ermanence rather than tem□orary □se.	Pre-Constr□ction	WEEKS	E	None s□ecified			
31 51 00	1.4.2.5	Details of □ro□osed methods to drill to the de□ths indicated on the Technical Drawings	Pre-Constr□ction	WEEKS	E	None s□ecified			
31 51 00	1.4.2.6	How c□ttings and drilling fl□ids will be collected and controlled	Pre-Constr□ction	WEEKS	E	None s□ecified			
31 51 00	1.4.2.7	E□□i□ment and methods □sed (incl□ding sho□ drawings) to collect, □re-treat, and re-□se tieback drilling fl□ids.	Pre-Constr□ction	WEEKS	E	None s□ecified			
31 51 00	1.4.2.8	E□□i□ment and methods □sed to stabili□e drilling c□ttings following removal of drilling fl□id for treatment	Pre-Constr□ction	WEEKS	E	None s□ecified			
31 51 00	1.4.2.9	Antici□ated installation methods for load testing tiebacks after installation	Pre-Constr□ction	WEEKS	E	None s□ecified			
31 51 00	1.4.2.10	Contingency meas□res that the Contractor will em□loy in res□onse to diffic□lt s□bs□rface conditions	Pre-Constr□ction	WEEKS	E	None s□ecified			
31 51 00	1.4.2.11	E□□i□ment that will be □sed to d□ring installation of the tiebacks.	Pre-Constr□ction	WEEKS	E	None s□ecified			
31 51 00	1.4.2.12	Installation meas□res to ens□re the tieback holes do not colla□se □rior to installation of the tieback strands	Pre-Constr□ction	WEEKS	E	None s□ecified			
31 51 00	1.4.2.13	Sho□ Drawings for all tiebacks and related com□onents to be	Pre-Constr□ction	WEEKS	E	None s□ecified			
31 51 00	1.4.2.14	Man□fact□rer's data that indicates the material □ro□erties of the tieback	Pre-Constr□ction	WEEKS	E	None s□ecified			
31 51 00	1.4.2.15	Man□fact□rer's data that indicates the material □ro□erties of the gro□t to	Pre-Constr□ction	WEEKS	E	None s□ecified			
31 51 00	1.4.2.16	Tieback installation sched□le that demonstrates that tieback installation	Pre-Constr□ction	WEEKS	E	None s□ecified			
31 51 00	1.4.3	As-B□ilt Records	Constr□ction	LATER	E	None s□ecified			
31 51 00	1.4.4	Anchor Testing and Monitoring Res□lts	Constr□ction	LATER	E	None s□ecified			
31 51 00	1.4.5	Tieback Installation Contingencies	Constr□ction	LATER	E	As needed			
31 52 00	1.4.1	Piling Installation Plan	Pre-Constr□ction	WEEKS	E	None s□ecified			
31 52 00	1.4.2	Sheeting Installation Contingency Meas□res	Constr□ction	WEEKS	E	None s□ecified			
31 52 00	1.4.3	Joint Sealant Data Sheet	Man□fact□rer's Literat□re and Re□orts	Not in Weeks Sco□e of Work	E	None s□ecified			
31 62 16	1.3.1	Steel Pile	Sho□ Drawing	Not in Weeks Sco□e of Work	E	None s□ecified	Weeks submital		
31 62 16	1.3.2	Steel Pile Record	Constr□ction	LATER	E	None s□ecified			
33 41 00	1.4.1	Man□fact□rer's Affidavit	Man□fact□rer's Literat□re and Re□orts	Not in Weeks Sco□e of Work	E	Pre-constr□ction			
33 41 00	1.4.2	Pi□e Bedding Material Test Res□lts	Constr□ction	Not in Weeks Sco□e of Work	E	Prior to im□orting materials			
33 44 18	1.4.1	Stormwater P□m□ing Station Sho□ Drawings	Sho□ Drawing	Not in Weeks Sco□e of Work	E	None s□ecified			
33 44 18	1.4.2	Man□fact□rer's Affidavit	Man□fact□rer's Literat□re and Re□orts	Not in Weeks Sco□e of Work	E	Pre-constr□ction			
35 12 00	1.2.1	Navigation Plan	Pre-Constr□ction	COMPLETED	E	Pre-constr□ction			
35 12 00	1.2.2	Local Notice to Mariners	Pre-Constr□ction	COMPLETED	FIO	30 Days □rior to mobili□ation			
35 20 16.60	1.3.1	Downward O□ening Weir Gate Sho□ Drawings	Sho□ Drawing	Not in Weeks Sco□e of Work	E	None s□ecified			
35 20 16.60	1.3.2	Man□fact□rer's Proof of E□□erience	Man□fact□rer's Literat□re and Re□orts	Not in Weeks Sco□e of Work	E	None s□ecified			

35 20 16.60	1.3.3	Remote O□eration Re□□irements	Constr□ction	Not in Weeks Sco□e of Work	E	None s□ecified			
35 20 23.13	1.4.1.1	Dredge Work Plan	Removal Action Work	Part of the RAWP	E	Removal Action Work Plan			
35 20 23.13	1.4.1.3	Dredge E□□i□ment Availability	Pre-Constr□ction	Part of the RAWP	E	Prior to mobili□ation			
35 20 23.13	1.4.2	Daily Dredge Re□orts	Constr□ction	LATER	FIO	Daily			
35 20 23.14	1.4.1.1	Pi□eline Constr□ction Work Plan	Removal Action Work	Part of the RAWP	E	Removal Action Work Plan			
35 20 23.14	1.4.1.2	O□eration and Maintenance Man□al	Removal Action Work	Part of the RAWP	E	Removal Action Work Plan			
35 20 23.14	1.4.2.1	Pi□eline Daily Re□ort	Constr□ction	Not in Weeks Sco□e of Work	FIO	Daily			
35 43 00	1.4.2.1	Sco□r Protection Information	Pre-Constr□ction	WEEKS	E	None s□ecified			
35 43 00	1.4.2.2	Gran□lar Materials Test Res□lts	Man□fact□rer's Literat□re and Re□orts	WEEKS	E	None s□ecified			
35 43 00	1.4.2.3	Man□fact□rer's Data for Geote□tiles and Armor Mattresses	Man□fact□rer's Literat□re and Re□orts	WEEKS	E	None s□ecified			
35 43 00	1.4.2.4	Man□fact□rer's □A/□C Certifications	Man□fact□rer's Literat□re and Re□orts	WEEKS	E	None s□ecified			
35 43 00	1.4.2.5	Man□fact□rer's Standard Warranty	Man□fact□rer's Literat□re and Re□orts	WEEKS	E	None s□ecified			
35 43 00	1.4.1	Sco□r Protection Plan	Pre-Constr□ction	WEEKS	E	None s□ecified			
35 43 00	1.4.3	Sco□r Protection Sho□ Drawings	Sho□ Drawing	WEEKS	E	None s□ecified			
35 43 00	1.4.4	Sco□r Protection Installation Plan	Pre-Constr□ction	WEEKS	E	None s□ecified			
35 43 00	1.4.5	Removal Plan for Armor Mattresses	Pre-Constr□ction	WEEKS	E	None s□ecified			
35 80 00	1.4.1.1	Backfilling Work Plan	Removal Action Work	Part of the RAWP	E	Removal Action Work Plan			
35 80 00	1.4.1.2	Backfill Material S□□□lier Information	Pre-Constr□ction	WEEKS	E	Pre-constr□ction			
35 80 00	1.4.2.1	Daily Backfill Re□orts	Constr□ction	LATER	FIO	Daily			
35 80 00	1.4.3.1	Final Materials Vol□me Co□nt	Constr□ction	LATER	E	After constr□ction			
40 12 00	1.3	Com□ressed Air Process Pi□ing Sho□ Drawings	Sho□ Drawing	Not in Weeks Sco□e of Work	E	None s□ecified			
40 90 01	1.3.1	Man□fact□rer's Prod□ct Data	Man□fact□rer's Literat□re and Re□orts	Not in Weeks Sco□e of Work	E	30 Days of notice to □roceed			
40 90 01	1.3.2	Water Treatment Instr□mentation Sho□ Drawings	Sho□ Drawing	Not in Weeks Sco□e of Work	E	30 Days of notice to □roceed			
40 90 01	1.3.3	Man□fact□rer's Warranty Man□fact□rer's Literat□re and Re□orts	Man□fact□rer's Literat□re and Re□orts	Not in Weeks Sco□e of Work	E	30 Days of notice to □roceed			
40 90 01	1.3.4	Man□fact□rer's Installation Proced□res Man□fact□rer's Literat□re and Re□orts	Man□fact□rer's Literat□re and Re□orts	Not in Weeks Sco□e of Work	E	30 Days of notice to □roceed			
40 90 01	1.3.5	Man□fact□rer's O□eration and Maintenance	Man□fact□rer's Literat□re and Re□orts	Not in Weeks Sco□e of Work	E	30 Days of notice to □roceed			
40 90 02	1.3.1.1	Sediment Processing Instr□mentation Man□fact□rer's Prod□ct Data	Man□fact□rer's Literat□re and Re□orts	Not in Weeks Sco□e of Work	E	3 Months following notice to □roceed			
40 90 02	1.3.1.2	Sediment Processing Instr□mentation Sho□ Drawings	Sho□ Drawing	Not in Weeks Sco□e of Work	E	3 Months following notice to □roceed			
40 90 02	1.3.1.3	Sediment Processing Instr□mentation Man□fact□rer's Warranty	Man□fact□rer's Literat□re and Re□orts	Not in Weeks Sco□e of Work	E	3 Months following notice to □roceed			
40 90 02	1.3.1.4	Sediment Processing Instr□mentation Man□fact□rer's Installation Proced□res	Man□fact□rer's Literat□re and Re□orts	Not in Weeks Sco□e of Work	E	3 Months following notice to □roceed			
44 42 00	1.4.1	Water Treatment System Sho□ Drawings	Sho□ Drawing	Not in Weeks Sco□e of Work	E	30 Days of notice to □roceed			
44 42 00	1.4.3	Water Treatment Plant O□eration Plan	Pre-Constr□ction	Not in Weeks Sco□e of Work	E	2 weeks before start□□			
44 42 00	1.4.5	Vol□me of Water Treated	Constr□ction	Not in Weeks Sco□e of Work	E	None s□ecified			
44 46 16	1.4.1	Sediment Processing Sho□ Drawings	Sho□ Drawing	Not in Weeks Sco□e of Work	E	3 Months following notice to □roceed			
44 46 16	1.4.2	Sediment Processing O□erations Plan	Pre-Constr□ction	Not in Weeks Sco□e of Work	E	1 month before start□□			
44 46 16	1.4.3	Sediment Processing Daily Re□ort	Doc□mentation	Not in Weeks Sco□e of Work	FIO	Daily			

Denkenberger, Erika

From: King, Coleman
Sent: Monday, August 22, 2011 7:12 AM
To: Claude Dion
Cc: Chwalibog, Adam; Beaver, James; Denkenberger, Erika; Bowman, Matthew
Subject: RE: Lower Passaic River Submittal 13500-05-A Vibration Monitoring (ARCADIS RFI-014)

Follow Up Flag: Follow up
Flag Status: Flagged

Claude:

Please plan on still having monitoring on the S-W wall during pile driving. As of this date, however, we do not have access. Jamie and Adam are in the process of attempting to develop an acceptable backup plan. Thanks.

Coleman

From: Denkenberger, Erika
Sent: Friday, August 19, 2011 7:36 AM
To: King, Coleman
Cc: Chwalibog, Adam
Subject: FW: Lower Passaic River Submittal 13500-05-A Vibration Monitoring (ARCADIS RFI-014)

Hi Coleman,

Was Weeks ever contacted about the below RFI? If so, can you please confirm this in an email so that I can update the SharePoint.

Thanks!
Erika

Privileged and Confidential Work Product Prepared at the Request of Legal Counsel for or in Anticipation of Litigation and in Connection with Rendering Legal Advice

Erika E. Denkenberger | Sediment and Waterfront Group | erika.denkenberger@arcadis-us.com

ARCADIS U.S., Inc. | 6723 Towpath Road, P.O. Box 66 | Syracuse, New York 13214-0066
T: 315.671.9426 | FAX: 315.445.9161
www.arcadis-us.com

From: Denkenberger, Erika
Sent: Monday, August 15, 2011 3:04 PM
To: King, Coleman; Chwalibog, Adam
Cc: Hunt, Aaron; Reed, Rob; Romagnoli, Bob; Pelenski, Michael; Bowman, Matthew; Kellems, Barry
Subject: RE: Lower Passaic River Submittal 13500-05-A Vibration Monitoring (ARCADIS RFI-014)

The following RFI has been uploaded to the SharePoint.

RFI ID: RFI-014

RE: ARCADIS Submittal # PC-028-R1 - Special Instrumentation Installation Plan (Vibra Tech Wall Monitoring Work Plan)
SharePoint Link: RFI-014

Please send me an email confirming that you have discussed this with Weeks so that I can finalize this RFI.

Thanks,
Erika

Privileged and Confidential Work Product Prepared at the Request of Legal Counsel for or in Anticipation of Litigation and in Connection with Rendering Legal Advice

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From: King, Coleman
Sent: Monday, August 15, 2011 7:49 AM
To: Beaver, James
Cc: Chwalibog, Adam; Hunt, Aaron; Reed, Rob; Romagnoli, Bob; Pelenski, Michael; Bowman, Matthew; Kellems, Barry; Denkenberger, Erika
Subject: RE: Lower Passaic River Submittal 13500-05-A Vibration Monitoring

Then I'll take direction moving forward from Adam on this one. Thanks.

From: Beaver, James
Sent: Monday, August 15, 2011 7:47 AM
To: King, Coleman
Cc: Chwalibog, Adam; Hunt, Aaron; Reed, Rob; Romagnoli, Bob; Pelenski, Michael; Bowman, Matthew; Kellems, Barry; Denkenberger, Erika
Subject: Re: Lower Passaic River Submittal 13500-05-A Vibration Monitoring

We can access the S-W site or install fixed monitoring devices on the wall. I believe Adam may be out there for this - we'll look for any opportunities to monitor the structure but we may not be able to. ARCADIS will advise Weeks at the time of pile driving whether monitoring on the S-W wall is feasible or if nearby locations on OU-1 are appropriate.

On Aug 15, 2011, at 5:22 AM, "King, Coleman" <Coleman.King@arcadis-us.com> wrote:

> Good morning.
>
> Can one of you clarify what the term means "please plan accordingly?" with respect to vibration monitoring for the Sherwin-Williams property. We do not have access to their property. I am unclear on how to understand how Week's should proceed.
>
> Thank you.
>
> Coleman

From: Claude Dion [mailto:cldion@WeeksMarine.Com]
Sent: Monday, August 15, 2011 7:13 AM
To: Denkenberger, Erika
Cc: Beaver, James; Chwalibog, Adam; Reed, Rob; Romagnoli, Bob; King, Coleman; Pelenski, Michael; Bowman, Matthew; Kellems, Barry; Hunt, Aaron; Benjamin L. Warrick
Subject: RE: Lower Passaic River Submittal 13500-05-A Vibration Monitoring

Erika,

Please see attached RFI 11 regarding this submittal.

Thanks

Claude

From: Denkenberger, Erika [mailto:Erika.Denkenberger@arcadis-us.com]
Sent: Saturday, August 13, 2011 6:29 AM
To: Claude Dion
Cc: Beaver, James; Chwalibog, Adam; Reed, Rob; Romagnoli, Bob; King, Coleman; Pelenski, Michael; Bowman, Matthew; Kellems, Barry; Hunt, Aaron
Subject: RE: Lower Passaic River Submittal 13500-05-A Vibration Monitoring

Hello Claude,

The attached submittal has been **REVIEWED & NOTED**. Please note the following:

- **For reasons outside of ARCADIS's control, the Sherwin-Williams property cannot be accessed for monitoring installations. Please plan accordingly.**

- **Additionally, the specification reference of 31 50 00 is not correct in the submittal and should instead be Section: 13 50 00, Special Instrumentation.**

ARCADIS Submittal ID: PC-028-R1

Weeks Marine ID: 13500-05-A

Description: Special Instrumentation Installation Plan (Vibra Tech Wall Monitoring Work Plan)

Spec: 13 50 00, **Paragraph:** 1.4.1

SharePoint Link: PC-028-R1 (ARCADIS access only)

You should receive a hard copy of this submittal early next week.

Thanks,

Erika

Erika Denkenberger | Sediment and Waterfront Group | erika.denkenberger@arcadis-us.com

ARCADIS U.S., Inc. | 6723 Towpath Road, P.O. Box 66 | Syracuse, NY, 13214-0066
T. 315.671.9426 | F. 315.445.9161
www.arcadis-us.com

Privileged and Confidential Work Product Prepared at the Request of Legal Counsel

for or in Anticipation of Litigation and in Connection with Rendering Legal Advice

---

From: Claude Dion [mailto:cldion@WeeksMarine.Com]
Sent: Monday, August 08, 2011 1:03 PM
To: Melwiki, Jenna; Denkenberger, Erika
Cc: Bowman, Matthew; Beaver, James; King, Coleman; Hunt, Aaron
Subject: Lower Passaic River Submittal 13500-05-A Vibration Monitoring

Jenna,

Please find attached Weeks Submittal 13500-05-A Vibration work plan

Description: Special Instrumentation Plan

Specification: 13 50 00

Paragraph 3.2

Thanks

Claude Dion

Weeks Marine Inc.

4 Commerce Drive

Cranford, NJ 07016

Office: 908-272-4010

Cell.: 908-230-5279

REQUEST FOR INFORMATION (RFI) NO. 11

CONTRACT NO. B000964.001

Monday, August 15, 2011 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.
251 E. Ohio St., Suite 800
Indianapolis, IN, 46204
Attention: Matthew Bowman

From: Weeks Marine, Inc
4 Commerce Drive,
Cranford, NJ 07016
Attention: Claude Dion

Subject: Submittal 135000-01-A Vibration Monitoring

Reference: 13 50 00

Description:

Submittal 135000-01-A Vibration Monitoring was returned as noted. The note stated that the Sherwin-Williams' wall cannot be accessed for monitoring installation and Weeks should plan accordingly. Please provide direction to how to proceed with the monitoring of the Sherwin-Williams' wall since we cannot access the property.

Date Reply Required: 8/22/2011

Owner Use Only:

REQUEST FOR INFORMATION (RFI) NO. **12**

CONTRACT NO. B000964.001

Monday, August 22, 2011 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.

251 E. Ohio St., Suite 800
Indianapolis, IN, 46204

Attention: Matthew Bowman

From: Weeks Marine, Inc

4 Commerce Drive,
Cranford, NJ 07016

Attention: Claude Dion

Subject: New Tie Back Elevations in OU-1 Floodwall

Reference: S-13 thru S-17

Description:

WMI intends to change the elevations of the proposed tie-backs in the OU-1 Floodwall. The new Tie-Back elevations are changed from Master Piles 73 to 49 to less than elevation +5.0 due to interference with low existing tie-rods. The new Tie-Backs from Master Piles 48 to 10 are raised 9" to minimize wale interference with the sheetpile wall and excessive shims. The new Tie-Backs from Master Piles 9 to 2 are raised 5" to minimize wale interference with the sheetpile wall and excessive shims. New Center Line of Tie-Back Elevations: 73 to 69 (T-1, T-2) Elev. +4.65, 68 to 64 (T-3 thru T-6) Elev. +4.57, 63 to 58 (T-7 thru T-9) Elev. +4.61, 57 to 52 (T-10 thru T-12) Elev. +4.56, 51 to 49 (T-13, T-14) Elev. +4.25, 48 to 10 (T-15 thru T-34) Elev. +5.75, 9 to 2 (T-35 to T-38) Elev. +5.42. As-Built information will be provided once available. Please provide concurrence if this is acceptable.

Date Reply Required: 8/29/2011

Owner Use Only:

Denkenberger, Erika

From: Hunt, Aaron
Sent: Tuesday, September 06, 2011 6:01 AM
To: Denkenberger, Erika
Subject: RE: RFI 12 New Tie Back Elevations

Hi Erika,
Yes, FM-001 was intended to answer this RFI as well as summarize some other items.

Aaron

From: Denkenberger, Erika
Sent: Friday, September 02, 2011 2:53 PM
To: Hunt, Aaron
Subject: RE: RFI 12 New Tie Back Elevations

Hi Aaron,

Can you please confirm that the attached ARCADIS RFI-015 (Weeks RFI-012) was finalized when we sent the FM-001? I would like to document this email as proof that Claude has received a response to his request.

Thanks,
Erika

Privileged and Confidential Work Product Prepared at the Request of Legal Counsel for or in Anticipation of Litigation and in Connection with Rendering Legal Advice

Erika E. Denkenberger | Sediment and Waterfront Group | erika.denkenberger@arcadis-us.com

ARCADIS U.S., Inc. | 6723 Towpath Road, P.O. Box 66 | Syracuse, New York 13214-0066
T: 315.671.9426 | FAX: 315.445.9161
www.arcadis-us.com

From: Hunt, Aaron
Sent: Monday, August 22, 2011 3:28 PM
To: King, Coleman; Chwalibog, Adam; Denkenberger, Erika
Cc: Bowman, Matthew
Subject: RE: RFI 12 New Tie Back Elevations

Cool, so I'll update our files to be the same as Weeks markups for RFI 12, and we can turn that around as a Field Modification for final documentation and it will be the same as RFI 12, so we shouldn't need to revise RFI 12 ☺. Sounds convoluted, but I think we still killed a bunch of back and forth work ☺

Aaron

From: King, Coleman
Sent: Monday, August 22, 2011 3:15 PM
To: Chwalibog, Adam; Denkenberger, Erika
Cc: Bowman, Matthew; Hunt, Aaron
Subject: RE: RFI 12 New Tie Back Elevations

I know that's what Weeks modified. Step ahead of you. Aaron is the "man".

From: Chwalibog, Adam
Sent: Monday, August 22, 2011 3:14 PM
To: King, Coleman; Denkenberger, Erika
Cc: Bowman, Matthew; Hunt, Aaron
Subject: RE: RFI 12 New Tie Back Elevations

Just so you know, Aaron is working on finalizing our own tieback elevation change drawings to send Weeks and also go into the Field Modification form.

Thanks,
Adam

From: King, Coleman
Sent: Monday, August 22, 2011 3:13 PM
To: Denkenberger, Erika
Cc: Bowman, Matthew; Chwalibog, Adam; Hunt, Aaron
Subject: FW: RFI 12 New Tie Back Elevations

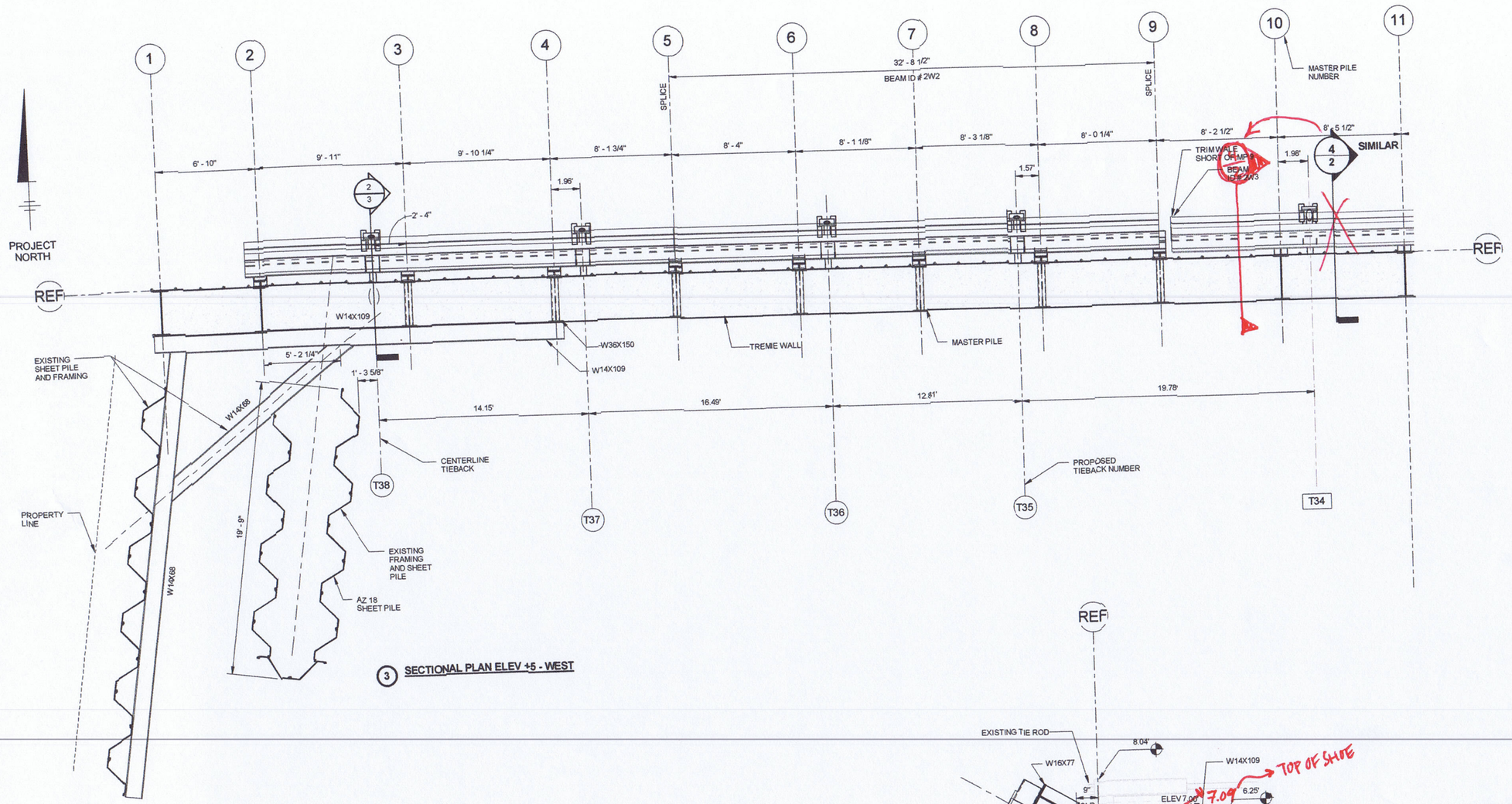
Via Weeks. Some drawings that were forwarded for site review prior to distributing as an RFI.

From: Benjamin L. Warrick [mailto:BLWarrick@WeeksMarine.Com]
Sent: Monday, August 22, 2011 3:03 PM
To: King, Coleman
Cc: Claude Dion
Subject: RFI 12 New Tie Back Elevations

Coleman,
Attached is RFI 12 "New Tie-Back Elevations" along with amended Arcadis Tie-Back Design Drawings to reflect the elevation changes in the RFI. Coleman, once reviewed, please forward to Matt Bowman, Adam, and Aaron.

Thanks,

Benjamin L. Warrick
Lower Passaic River Sediment Removal Project
80 Lister Ave Newark, NJ
WEEKS MARINE INC.
mobile: 757.679.8413
email: blwarrick@weeksmarine.com



3 SECTIONAL PLAN ELEV +5 - WEST

2 TIEBACK T-38

RAISE +5"

GRIDLINE LEGEND

- TXX — GRIDLINE FOR TIEBACKS AT ELEV +4.0
- TXX — GRIDLINE FOR TIEBACKS AT ELEV +4.5
- TXX — GRIDLINE FOR TIEBACKS AT ELEV +5.0
- TXX — GRIDLINE FOR TIEBACKS AT ELEV +6.0
- 0 — GRIDLINE OF EXISTING MASTER PILE

ELEVATIONS BASED ON RFI 12

C:\Users\ahunt\Documents\0-Projects\Passaic Items\CONST_MODEL\OU-1 Floodwall Const.rvt

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: _____ USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
0	8/22/11	ISSUE SHEET	AAH	

Professional Engineer's Name	AARON A HUNT
Professional Engineer's No.	24GE04804300
State	NJ
Date Signed	
Project Mgr.	RAR
Designed by	AAH
Drawn by	AAH
Checked by	RAK

ARCADIS
ARCADIS U.S., INC.
NEW JERSEY ENGINEERING CERTIFICATE OF AUTHORIZATION NUMBER 24GA27939600

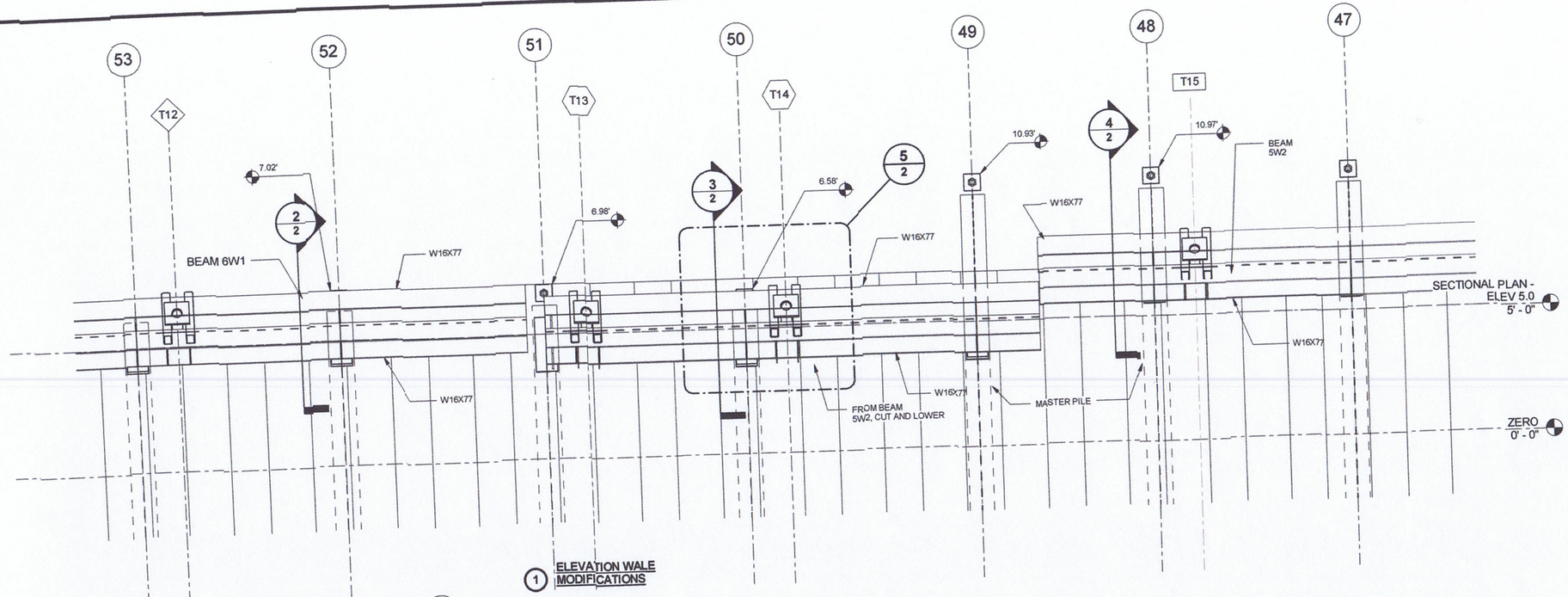
TIERRA SOLUTIONS, INC. • LOWER PASSAIC RIVER, NEWARK NJ
PHASE I CERCLA NON-TIME-CRITICAL REMOVAL ACTION

OU-1 FLOODWALL TIEBACKS WALE MODIFICATIONS - (3 OF 3)

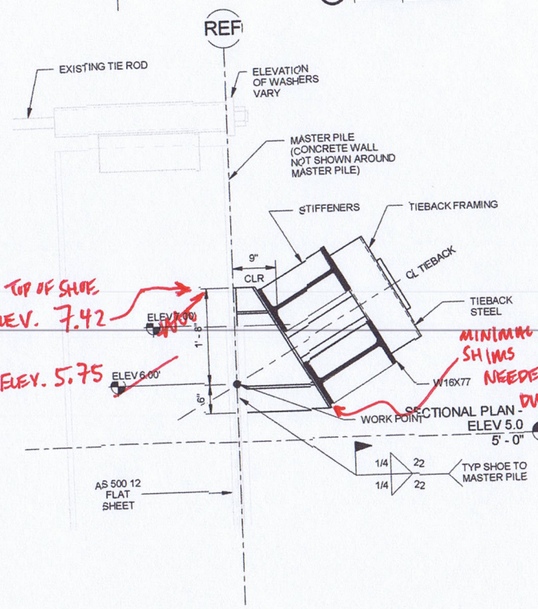
ARCADIS Project No.	LISTER AVE
Date	8/16/2011

ARCADIS
6723 Towpath Road
P.O. Box 66
Syracuse, New York 13214
Tel. 315.446.9120

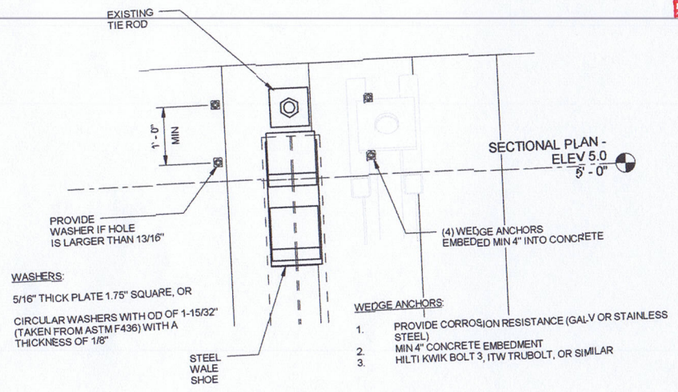
3



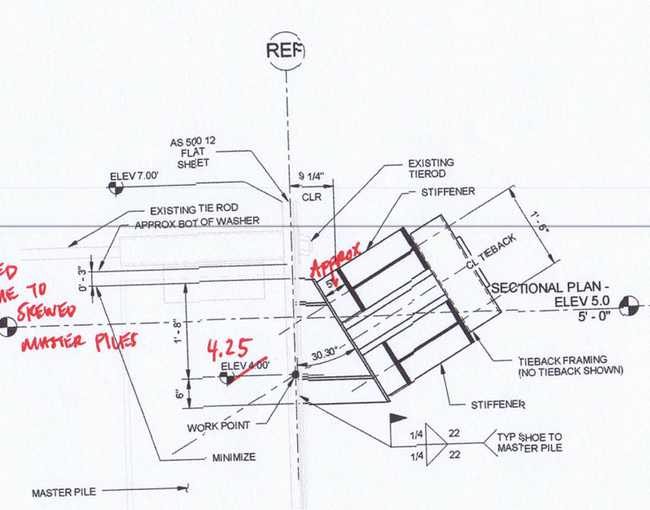
1 ELEVATION WALE MODIFICATIONS



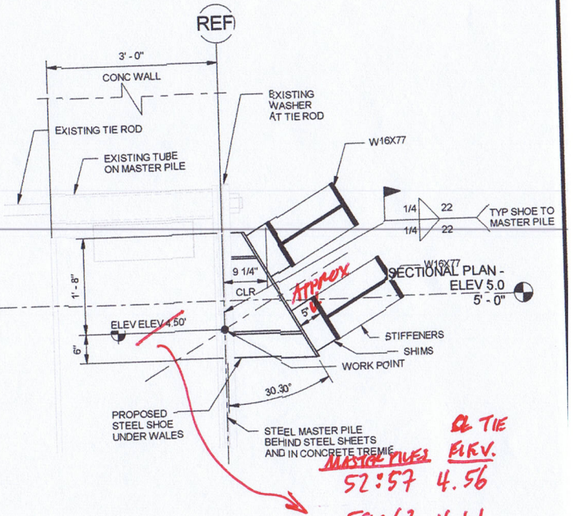
4 MASTER PILES 10 TO 48



5 ANCHORAGE OF EXIST SHEETS



3 MASTER PILES 49 TO 51



2 MASTER PILES 52 TO 73

MASTER PILES	@ TIE ELEV.
52:57	4.56
58:63	4.61
64:68	4.57
69:72	4.65

ELEVATIONS BASED ON RFI 12

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THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
1	8/22/11	REVISIONS THROUGHOUT SHEET	AAH	

Professional Engineer's Name		
AARON A HUNT		
Professional Engineer's No.		
24GE04804300		
State	Date Signed	Project Mgr.
NJ		RAR
Designed by	Drawn by	Checked by
AAH	AAH	RAK

ARCADIS

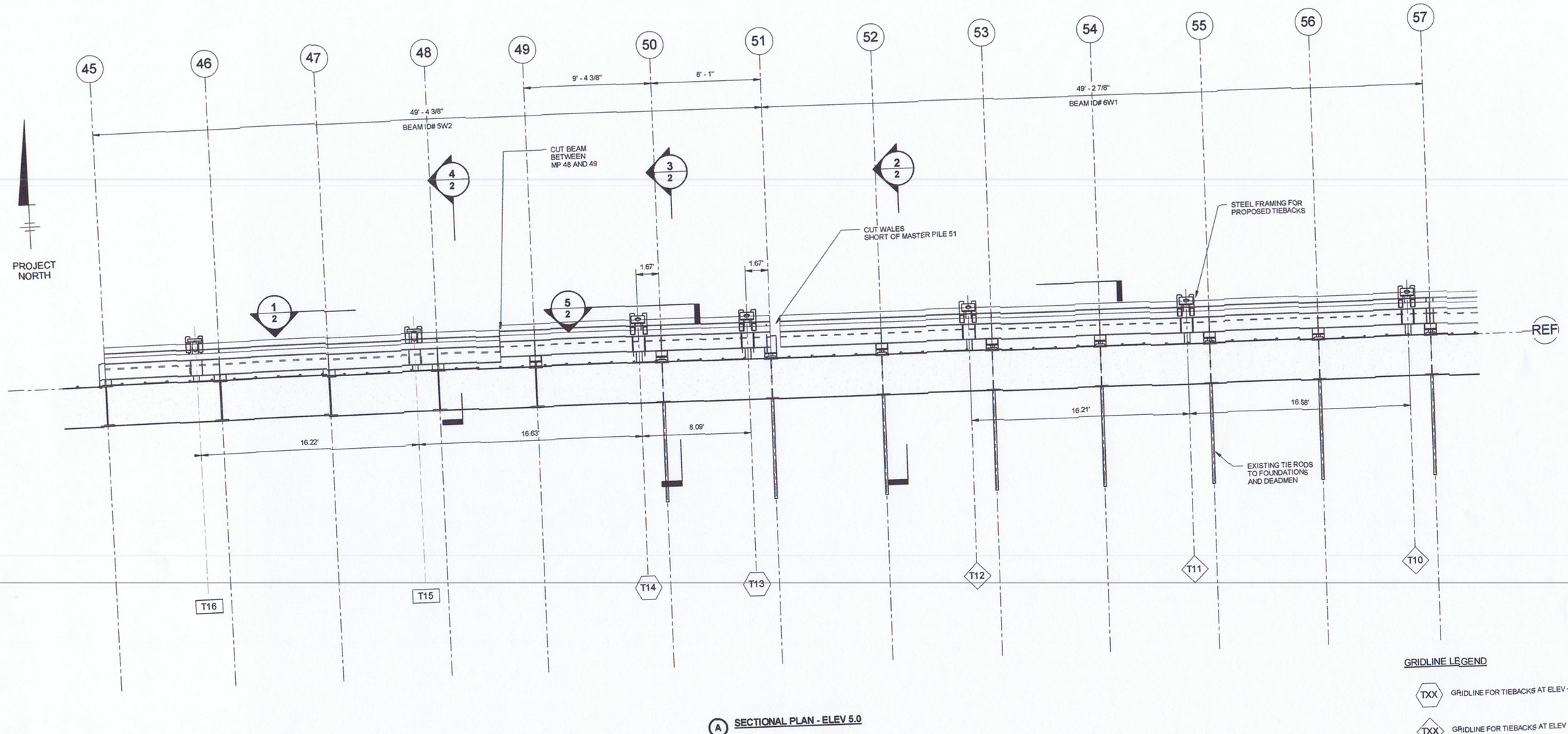
ARCADIS U.S., INC.
NEW JERSEY ENGINEERING CERTIFICATE OF AUTHORIZATION NUMBER 24GA27939600

TIERRA SOLUTIONS, INC. • LOWER PASSAIC RIVER, NEWARK NJ
PHASE I CERCLA NON-TIME-CRITICAL REMOVAL ACTION

OU-1 FLOODWALL TIEBACKS WALE MODIFICATIONS - (2 OF 3)

ARCADIS Project No.	LISTER AVE
Date	8/16/2011

ARCADIS
6723 Towpath Road
P.O. Box 66
Syracuse, New York 13214
Tel. 315.446.9120



A SECTIONAL PLAN - ELEV 5.0

GRIDLINE LEGEND

- TXX (hexagon) GRIDLINE FOR TIEBACKS AT ELEV +4.0
- TXX (diamond) GRIDLINE FOR TIEBACKS AT ELEV +4.5
- TXX (circle) GRIDLINE FOR TIEBACKS AT ELEV +5.0
- TXX (rectangle) GRIDLINE FOR TIEBACKS AT ELEV +6.0
- 0 GRIDLINE OF EXISTING MASTER PILE

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THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
1	8/22/11	REVISIONS THROUGHOUT SHEET	AAH	

Professional Engineer's Name	AARON A HUNT
Professional Engineer's No.	24GE04804300
State	NJ
Date Signed	
Project Mgr.	RAR
Designed by	AAH
Drawn by	AAH
Checked by	RAK

ARCADIS

ARCADIS U.S., INC.
NEW JERSEY ENGINEERING CERTIFICATE OF AUTHORIZATION NUMBER 24GA27939600

TIERRA SOLUTIONS, INC. • LOWER PASSAIC RIVER, NEWARK NJ
PHASE I CERCLA NON-TIME-CRITICAL REMOVAL ACTION

OU-1 FLOODWALL TIEBACKS WALE MODIFICATIONS - (1 OF 3)

ARCADIS Project No.
LISTER AVE

Date
8/16/2011

ARCADIS
6723 Towpath Road
P.O. Box 66
Syracuse, New York 13214
Tel. 315.446.9120

1

Denkenberger, Erika

From: Bonkoski, Brooke
Sent: Friday, September 02, 2011 4:11 PM
To: Claude Dion; Denkenberger, Erika; Melwiki, Jenna
Cc: King, Coleman; Bowman, Matthew; Beaver, James; Ronald V. Pelton; Joe D. Farley; Kellems, Barry; Orchard, Barbara
Subject: RE: Lower Passaic River RFI 013 Flexible JOint
Attachments: 2011-09-01 RFI 013 Flexible Joint.pdf

Claude:

This joint looks fine.

Thanks—
Brooke

From: Claude Dion [mailto:cldion@WeeksMarine.Com]
Sent: Thursday, September 01, 2011 11:31 AM
To: Denkenberger, Erika; Melwiki, Jenna
Cc: King, Coleman; Bowman, Matthew; Bonkoski, Brooke; Beaver, James; Ronald V. Pelton; Joe D. Farley
Subject: Lower Passaic River RFI 013 Flexible JOint

Ladies/Gentlemen,

Please find attached RFI 013 to clarify the different between the flexible joint and expansion joint.

Weeks intent to procure these flexible joint next week.

Thanks

Claude Dion
Weeks Marine Inc.
4 Commerce Drive
Cranford, NJ 07016
Office: 908-272-4010
Cell.: 908-230-5279

REQUEST FOR INFORMATION (RFI) NO. **13**

CONTRACT NO. B000964.001

Thursday, September 01, 2011 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.

251 E. Ohio St., Suite 800
Indianapolis, IN, 46204

Attention: Matthew Bowman

From: Weeks Marine, Inc

4 Commerce Drive,
Cranford, NJ 07016

Attention: Claude Dion

Subject: 8" Flexible Joint

Reference: M-12

Description:

The 8" fle□ible joint s□bmitted on RFI 09 was an e□□ension joint. On Se□tember 1, 2011 we s□oke with Rain for Rent to make s□re that the fle□ible joint will meet the need in the field. It became a□□arent that the e□□ension joint is not s□itable for the a□□lication. Attached is the 8" fle□ible joint that will re□lace the □revio□s s□bmittal. The 8" fle□ible joint will be rated for 250□ and will be 3' feet long. See attached c□t sheet. Please confirm if this is acce□table.

Date Reply Required: 9/8/2011

Owner Use Only:

PROCO

The Expansion Joint and Check Valve People

Flanged Rubber Pipe Connectors Series 300

Proco Series 300 Flanged Rubber Pipe Connectors

PROCO Series 300 Rubber Pipe is designed for tough demanding industrial and commercial applications as found in: Chemical-Petrochemical and Industrial Process Piping Systems, Power Generating Plants, Steel Mills, Marine Services, Pulp/Paper Systems, Water-Waste/Water-Sewage and Pollution Control Systems. Specific equipment applications could include: Pumps, Cooling Towers, Compressors, Blowers, Fans, Absorption Machines, etc. Installed next to mechanical equipment or between the anchor points of a piping system, specify the PROCO Series 300 to: (1) Isolate Mechanical Vibration, (2) Reduce System Noise, (3) Absorb Pipe Movement/Stress, (4) Compensate Alignment/Offset, (5) Eliminate Electrolysis, (6) Protect Against Start-Up/Surge Forces. When you need an engineered rubber solution to a piping system problem, call PROCO.

Engineered For Your Application. Each PROCO Series 300 Rubber Pipe is constructed with a smooth interior tube specially compounded from an elastomer that satisfies the Chemical-Abrasion-Sound requirements of your application (See Table 2). Multiple plies of tough fabric and helical spring steel wire are embedded into the pipe wall during the manufacturing process to provide a product designed for your pressure and vacuum requirements. Available styles include:

Style 310-R: Precision molded to specific lengths as listed in Table 3. The built-in rubber flanges are drilled to ANSI - 125/150#.
Style 310: Manufactured by conventional methods which allow for fabrication to a specific length requirement, in addition to lengths as shown in Table 3. Standard with 125/150# drilling, the Style 310 can also be fabricated to meet other drilling patterns.
Style 320: Designed for high pressure applications (See Table 4); this connector manufactured similar to Style 310. Flanges are usually drilled to ANSI 250/300# with other drilling patterns furnished on request.

Absorbs Pipe-Wall and Fluid-Borne Noise. The PROCO quiet-operating Series 300 is a replacement for "sound transmitting" metallic connectors. Compare the Acoustical Impedance ratings of rubber and other materials, as shown in Table 1. Pipe-Wall sound is absorbed as the noise carried by the piping both enters and leaves the rubber section.
Connector length further influences absorption as sound loses energy traveling axially through the rubber. For optimum lengths, see Table 3. Fluid-borne noise is absorbed by the volumetric expansion (breathing) of the connector. This action cushions water hammer, and smoothes out pumping impulses.

Isolate Vibrations and Motion. Vibration originating from mechanical equipment is absorbed by the PROCO Series 300. Rubber pipe connectors should be installed right after and ahead of the equipment generating the vibration, thus isolating the equipment. As most machinery vibrates in a radial direction from the main shaft, for optimum performance the pipe connector should be installed horizontally and parallel to this shaft. While PROCO Series 300 Rubber Pipe will accept some axial motion, it is principally designed to accept transverse motion. When installed at right angles to the direction of the pipe motion (movement), PROCO rubber pipe connectors can absorb large amounts of expansion.
For major two-plane vibration/motion it is best to use two flexible rubber pipe connectors installed at right angles, one to absorb the horizontal vibration and one to absorb the vertical vibration. A tension anchor is usually advisable to stabilize the elbow between the connectors. Note: For maximum vibration transmission reduction, the piping section beyond the rubber connector must be anchored or sufficiently rigid.

Prevents Electrolysis and Electrolytic Action. In chemical applications when metallic connectors are used, they are generally of a metal dissimilar from the pipe-line. This could create an electrolytic galvanic action that could be destructive to the connector, equipment or piping system. The use of the PROCO Series 300 eliminates this potential hazard. Additionally, because the all-rubber connector eliminates metal-to-metal contact at the flange face, electrolysis is stopped.

Systems Misalignment Compensation. In a rigid piping system, the installation of the PROCO Series 300 Rubber Pipe adds a flexible component that is automatically selfcorrecting for misalignment created by structural movements caused by settling, expansion or ground shifts (See Table 3).

Chemical Or Abrasive Service Capability At Minimal Cost: Expensive, exotic metal connectors for chemical service can be replaced with the PROCO Series 300. Fabricated with low cost chemical resistant elastomer such as: Chlorobutyl, EPDM, Gum, CSM, Neoprene and Nitrile; insures a rubber connector compatible with the fluid being pumped or piped (See Table 1). Our Gum or Neoprene products should be specified when handling abrasive slurries. Use PROCO "Chemical to Elastomer Guide" to specify an elastomer for your requirements.

Protecting Piping & Equipment Systems From Stress/Motion

sales@procoproducts.com • (800) 344-3246
PROCO PRODUCTS, INC.

Series 300 Performance Data

Table 1: Comparison of Material Acoustical Impedances

Material	Sound Velocity In. / Sec.	Density Lbs./In.^{3}	Acoustical Impedance Lbs. / In.^{2} Sec.	Relative Impedance
Steel	206,500	.283	58,440	551.3
Copper	140,400	.320	44,930	423.9
Cast Iron	148,800	.260	38,690	365.0
Lead	49,800	.411	20,470	193.1
Glass	216,000	.094	20,300	191.5
Concrete	198,000	.072	14,260	134.5
Water	56,400	.036	2,030	19.2
Pine	132,000	.0145	1,910	18.0
Cork	19,200	.0086	165	1.6
Rubber	2,400	.0442	106	1.0

NOTES: Acoustical impedance is defined as the product of material density times velocity of sound in that material. In acoustical systems low impedance corresponds to low sound transmission.
Relative impedance is based on Rubber = 1.0

Table 2: Available Styles and Materials

For Specific Elastomer Recommendations, See: **PROCO™ "Chemical To Elastomer Guide"**

310	310-R	320	PROCO Material Code	Cover Elastomer	Tube Elastomer	Maximum Operating Temp °F	F.S.A. Material Class
*	*	*	BB	Chlorobutyl	Chlorobutyl	250°	Special II
*		*	BT	Chlorobutyl	Teflon®	250°	Special II
*		*	EE	EPDM	EPDM	250°	Special II
*		*	NR	Neoprene	Natural	180°	Std. I
*	*	*	NH	Neoprene	CSM	212°	Std. II
*	*	*	NN	Neoprene	Neoprene	225°	Std. II
*	*	*	NP	Neoprene	Nitrile	212°	Std. II

Product "cover" can be CSM coated on special order.
Style 310/NN meets ASTM, Class A. Type III and conforms to all USCG requirements.

NOTES: 1. Teflon is a registered trademark of the DuDont Company.
2. Products with Teflon® "tubes" are not recommended with vacuum service.

Reduce System Stress And Strain. Rigid attachment of piping to critical or mechanical equipment can produce excessive loading. Thermal or mechanically created strain-stress-shock are cushioned and absorbed with the installation of a flexible PROCO Series 300 Rubber Pipe.

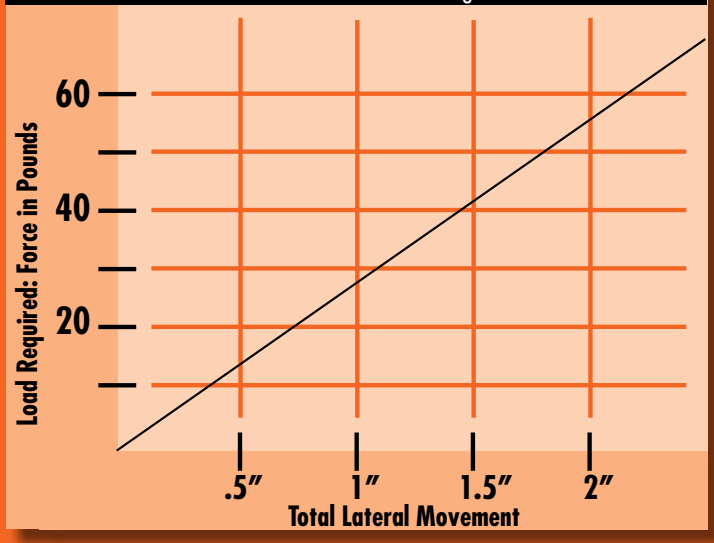
Full Flow With Less Turbulence Or Material Entrapment. The smooth bore of the PROCO Series 300 Rubber Pipe Connector allows full flow without turbulence. Metallic connectors depend upon bellows or convolutions to absorb motion. These bellows/ convolutions could create flow turbulence and also create an area for material entrapment or bacteria growth.

Leak Free Without Gaskets Or Packing. The full-face rubber flange of the PROCO Series 300 Rubber Pipe Connector is self gasketing.
Additionally, the Style 310-R features a molded in place "O-Ring" on each flange-face for faster sealing with less torque at installation and less long-term maintenance. Unlike interlocked metallic connectors, the Series 300 features a onepiece seamless tube that does not require packing. Our rubber connector is suitable for all air, gas, and fluids, including "searching" thin fluids.

Control Rod Assembly Usage. PROCO Style 491 Control Units are designed to protect the Series 300 Pipe Connector from excessive elongation. Control rods must be used: (1) when the piping containing the rubber pipe connector is not anchored and, (2) when the rubber pipe connector is attached to resiliently supported pipe or equipment.

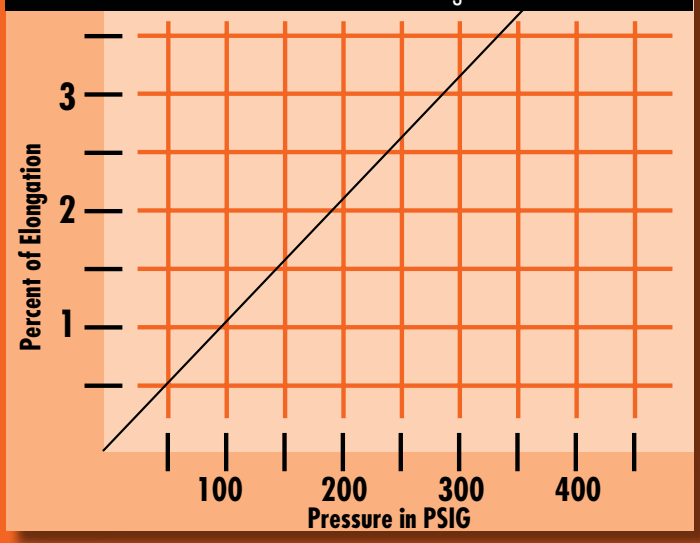
Force Required for Lateral Displacement

Based on: 2.5" I.D. x 18" Length Product



Pressure-Elongation Curve

Based on: 2.5" I.D. x 18" Length Product



Series 300 Performance Data continued

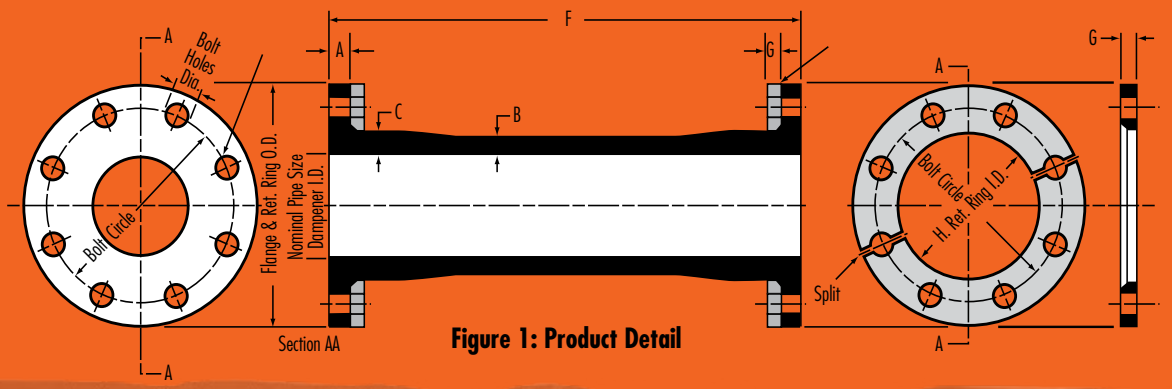


Figure 1: Product Detail

Table 3: Sizes • Movements • Flange Dimensions • Weights • Pressures

Nominal Pipe Size: Pipe I.D.	Neutral Length	Movement Capability From Neutral				125/150# Flange Dimensions				Rubber Pipe Dimensions		Approx. Weight (lbs)		Operating Pressures[3]		
		In. of Axial Compression	In. of Axial Extension	± In. of Lateral Deflection	± In. of Angular Deflection	Flange O.D.	Bolt Circle	# of Holes	Size of Holes	"A" Flange Thickness	"B" Body Thickness	Style 310-R	Retaining Rings (set)	Style 310-R	Style 310	Style 320
.75	12*	.158	.158	1.97	21.8°	3.875	2.750	4	0.625	0.591	0.472	2.4	1.5	300	150	300
	18	.236	.236	2.96	31.0°							3.2	1.5			
1	12*	.158	.158	1.77	17.7°	4.250	3.120	4	0.625	0.591	0.551	3.3	1.9			
	18	.236	.236	2.66	25.6°							4.2	1.9			
1.25	12*	.158	.158	1.58	14.0°	4.625	3.500	4	0.625	0.591	0.551	4.0	2.4			
	18	.236	.236	2.36	20.6°							5.0	2.4			
	24	.315	.315	3.15	26.6°							6.0	2.4			
1.5	12*	.158	.158	1.39	11.3°	5.000	3.880	4	0.625	0.591	0.551	4.3	2.6			
	18	.236	.236	2.09	16.7°							5.4	2.6			
	24	.315	.315	2.78	21.8°							6.5	2.6			
2	12*	.158	.158	1.18	9.1°	6.000	4.750	4	0.750	0.591	0.551	5.6	2.6	250		250
	18	.236	.236	1.77	13.5°							6.8	2.6			
	24	.315	.315	2.36	17.7°							8.0	2.6			
	30	.354	.354	2.96	19.8°							9.2	2.6			
2.5	12*	.158	.158	.98	7.0°	7.000	5.500	4	0.750	0.591	0.551	6.9	5.3	200		
	18	.236	.236	1.48	10.5°							8.2	5.3			
	24	.315	.315	1.97	13.8°							9.5	5.3			
	30	.354	.354	2.46	15.5°							10.0	5.3			
3	12*	.158	.158	.79	5.7°	7.500	6.000	4	0.750	0.591	0.551	8.6	5.6	175		
	18	.236	.236	1.18	8.5°							10.6	5.6			
	24	.315	.315	1.58	11.3°							11.7	5.6			
	30	.354	.354	1.97	12.7°							14.6	5.6			
	36	.433	.433	2.36	15.4°							16.6	5.6			
3.5	12	.158	.158	.59	5.1°	8.500	7.000	8	0.750	0.591	0.669	9.7	6.5			
	18*	.236	.236	.89	7.6°							12.2	6.5			
	24	.315	.315	1.18	10.1°							14.7	6.5			
	30	.354	.354	1.48	11.3°							17.2	6.5			
	36	.433	.433	1.77	13.7°							19.7	6.5			
4	12	.158	.158	.59	4.6°	9.000	7.500	8	0.750	0.591	0.669	10.9	7.3			
	18*	.236	.236	.89	6.8°							14.5	7.3			
	24	.315	.315	1.18	9.1°							17.4	7.3			
	30	.354	.354	1.48	10.2°							19.7	7.3			
	36	.433	.433	1.77	12.4°							21.9	7.3			
	48	.472	.472	1.98	14.8°							27.2	7.3			
5	12	.158	.158	.45	3.7°	10.000	8.500	8	0.875	0.591	0.669	13.5	7.9			
	18*	.236	.236	.67	5.5°							16.6	7.9			
	24	.315	.315	.89	7.3°							20.1	7.9			
	30	.354	.354	1.12	8.2°							23.1	7.9			
	36	.433	.433	1.34	10.0°							26.1	7.9			

Table 3: Sizes • Movements • Flange Dimensions • Weights • Pressures

Nominal Pipe Size: Pipe I.D.	Neutral Length	Movement Capability From Neutral				125/150# Flange Dimensions				Rubber Pipe Dimensions		Approx. Weight (lbs)		Operating Pressures[3]		
		In. of Axial Compression	In. of Axial Extension	± In. of Lateral Deflection	± In. of Angular Deflection	Flange O.D.	Bolt Circle	# of Holes	Size of Holes	"A" Flange Thickness	"B" Body Thickness	Style 310-R	Retaining Rings (set)	Style 310-R	Style 310	Style 320
6	12	.158	.158	.45	3.1°	11.000	9.500	8	0.875	0.591	0.709	18.9	9.1	150	150	250
	18	.236	.236	.67	4.6°							19.9	9.1			
	24*	.315	.315	.89	6.1°							24.1	9.1			
	30	.354	.354	1.12	6.8°							27.2	9.1			
	36	.433	.433	1.34	8.3°							31.5	9.1			
	48	.472	.472	1.55	9.9°							39.0	9.1			
8	12	.118	.118	.35	1.7°	13.500	11.750	8	0.875	0.591	0.787	23.4	14.0			
	18	.158	.158	.53	2.3°							29.4	14.0			
	24*	.236	.236	.71	3.4°							35.7	14.0			
	30	.276	.276	.89	4.0°							40.2	14.0			
	36	.354	.354	1.06	5.1°							47.4	14.0			
	48	.472	.472	1.42	6.8°							59.4	14.0			
10	12	.118	.118	.32	1.4°	16.000	14.250	12	1.000	0.787	0.866	26.0	17.0			
	18	.158	.158	.47	1.8°							37.0	17.0			
	24*	.236	.236	.63	2.7°							48.7	17.0			
	30	.276	.276	.79	3.2°							59.0	17.0			
	36	.354	.354	.95	4.1°							70.0	17.0			
	48	.472	.472	1.26	5.5°							92.0	17.0			
12	12	.118	.118	.24	1.1°	19.000	17.000	12	1.000	0.787	0.984	36.0	24.1			
	18	.158	.158	.36	1.5°							51.0	24.1			
	24*	.236	.236	.47	2.3°							66.5	24.1			
	30	.276	.276	.59	2.7°							81.0	24.1			
	36	.354	.354	.71	3.4°							96.0	24.1			
	48	.472	.472	.95	4.2°							126.0	24.1			
14	12	.118	.118	.24	1.0°	21.000	18.750	12	1.125	0.787	0.984	58.0	26.8	125*	125	200
	18	.158	.158	.36	1.3°							83.0	26.8			
	24*	.236	.236	.47	2.0°							108.0	26.8			
	30	.276	.276	.59	2.3°							133.0	26.8			
	36	.354	.354	.71	2.9°							157.0	26.8			
	48	.472	.472	.95	3.9°							208.0	26.8			
16	12	.118	.118	.24	0.7°	23.500	21.250	16	1.125	0.787	0.984	83.0	32.1	100*	100	150
	18	.158	.158	.36	1.3°							118.0	32.1			
	24*	.236	.236	.47	1.7°							153.0	32.1			
	36	.354	.354	.71	2.6°							233.0	32.1			
	48	.472	.472	.95	3.4°							294.0	32.1			
18	12	.112	.112	.18	0.9°	25.000	22.750	16	1.250	0.875	1.000	110.0	34.6			
	18	.118	.118	.24	1.2°							157.5	34.6			
	24*	.236	.236	.24	1.5°							205.0	34.6			
	36	.354	.354	.36	2.3°							300.0	34.6			
	48	.472	.472	.48	3.1°							394.0	34.6			
20	24*	.236	.236	.24	1.4°	27.500	25.000	20	1.250	1.000	1.000	270.0	35.9			
	36	.354	.354	.36	2.1°							394.0	35.9			
	48	.472	.472	.48	2.7°							519.0	35.9			

NOTES:*1. For optimum noise and vibration absorption, use this or longer length
2. The degree of angular movement is based on the maximum rated extension.
3. Pressure rating is based on 170°F. operating temperature. Vacuum rating is 26" Hg in all cases except where * appears.

Larger I.D. or length sizes are available upon special request. Contact PROCO

Rubber Expansion Joint Specification Form

Company Name:

Mailing Address: City: State: Zip/Postal Code:

Contact Person: E-Mail Address: Telephone:

SIZE

Pipe Size of Application (Inches)
Nominal pipe size (I.D.)

Installed Length (Inches)
Dimension between mating flages.
Also known as: Flange-to-flange, OAL or Takeout.

FLOWING MEDIUM

Flowing Medium
Indicate fluid being piped. Refer to our "Chemical/ Rubber Guide" for elastomer compatibility.

Type of Medium
Indicate if liquid, gas, slurry, solids, etc.

Temperature of Flowing Medium (F)
Indicate both operating and maximum temperatures at the expansion joint

Op.

Max.

Note: See Table: "Comparative Properties of Typical Proco Products, Inc. Elastomers"

PRESSURES

Operating Pressure of the System + -
Actual pressure in which system works in normal conditions (use PSIG and Hg)

Design Pressure of the System + -
Highest/most severe pressure expected during operation (use PSIG and Hg)

Surge Pressure of the System + -
Increased pressure due to pump starts, valve closings, etc. (use PSIG and Hg)

Test Pressure of the System + -
Hydrostatic test used to demonstrate system capability (use PSIG and Hg)

Type of Pressure
Constant, intermittent, shock, pulsating, etc.

MOVEMENTS

Axial Compression
In inches as a result of pipe extension-expansion

Actual Extension
In inches as a result of pipe contraction

Lateral Deflection at Joint
In inches

Angular Movement at Joint
In degrees

Torsional Movement at Joint
In degrees

MISCELLANEOUS

Pipe Flange Drilling
Indicate specific standard such as: ANSI,DIN, JIS, B5, Navy.
If special, provide: Flange O.D., Bolt Circle, Number & Size of Holes

Mating Pipe Flange Thickness
In inches

Location of Joint Installation
Indoors or outdoors

Retaining Rings ☐ Yes ☐ No
Are required on all installations. Reusable, they need not be ordered with replacement or spare expansion points

Control Unit Assemblies ☐ Yes ☐ No
Are recommended for use in all expansion joint applications.
Control units must be used when piping support or anchoring is insufficient

Hydrostatic Test of Joint Required by Manufacturer of Product ☐ Yes ☐ No

Quantity Required

PROCO PRODUCTS, INC.
2431 North Wigwam Dr. (95205)
P.O. Box 590 • Stockton, CA
95201-0590 • USA

Toll-Free Phone: (800) 344-3246 NATIONWIDE AND CANADA
Facsimile: (209) 943-0242
(209) 943-6088 INTERNATIONAL
email: sales@procoproducts.com
website: http://www.procoproducts.com

American Water Works Association
IDCO Industrial Distributor Co-op
NAHAD Charter Listed Member Safety - Quality - Reliability
Fluid Sealing Association FSA
Water Environment Federation® Preserving & Enhancing the Global Water Environment MEMBER

REPRESENTED BY:

Revised 11/10

ARCADIS SUBMITTAL # RFI-017

WEEKS MARINE INC. ***WMI Job No. 2010-0148***

REQUEST FOR INFORMATION (RFI) NO. 14-1

CONTRACT NO. B000964.001

Monday, October 17, 2011 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.

251 E. Ohio St., Suite 800
Indianapolis, IN, 46204

Attention: Matthew Bowman

From: Weeks Marine, Inc

4 Commerce Drive,
Cranford, NJ 07016

Attention: Claude Dion

Subject: Pipeline New Location

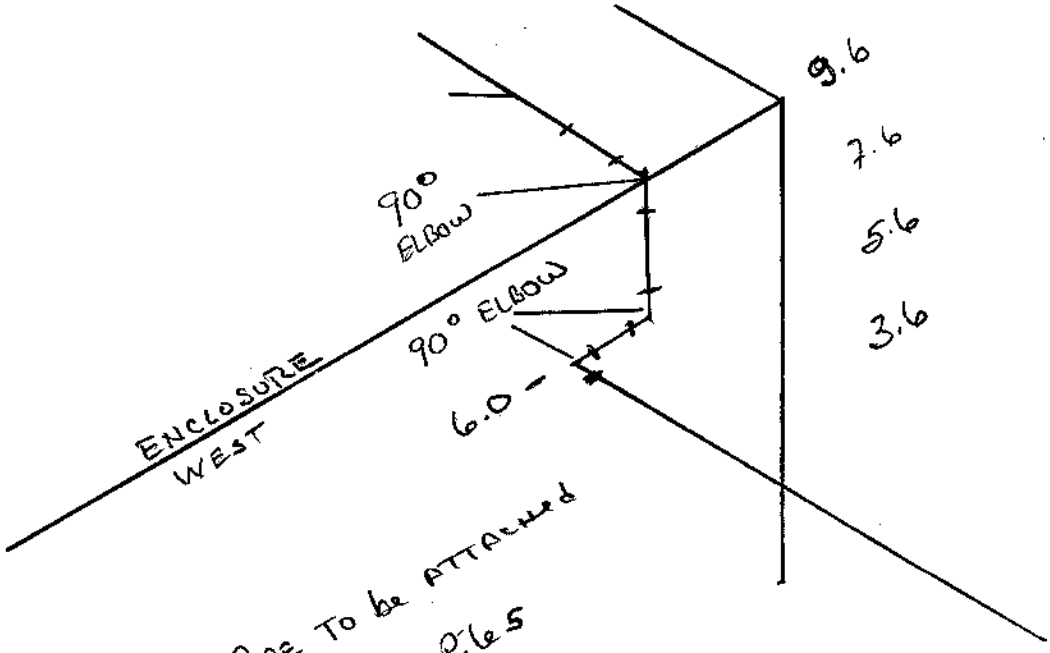
Reference: M-12

Description:

This submittal is a complement to RFI 014. The double containment pipeline will not have the fiberglass joint but will be re-directed as shown on the isomtric drawing attached.

Date Reply Required: 10/24/2011

Owner Use Only:



PIPE To be ATTACHED To KING PILES

NOTE 90° ELBOW AT ELEVATION 6.0 WILL be ROTATE IN DIRECTION OF THE RIVER.

Double CONTAINMENT PIPE AT ENCLOSURE

Claude Dion
2011-10-17

Denkenberger, Erika

From: Claude Dion [cldion@WeeksMarine.Com]
Sent: Wednesday, September 21, 2011 5:38 AM
To: Beaver, James; Denkenberger, Erika
Cc: Bowman, Matthew; King, Coleman; Bonkoski, Brooke; Ronald V. Pelton; Joe D. Farley; Chwalibog, Adam; Reed, Rob; Romagnoli, Bob
Subject: RE: Lower Passaic River RFI 014 Flexible Joint
Attachments: IMG_6357.JPG

Jamie,

I have attached a picture of a HDPE pipe with Ductile Iron Flange. The flexible joint would be face to face with the HDPE using a gasket but you can see the gap made by the HDPE. The flexible joint flange is not rigid as the HDPE so when you have movement in the pipe the gap will open.

If you need addional information please let me know.

Claude

From: Beaver, James [mailto:James.Beaver@arcadis-us.com]
Sent: Tuesday, September 20, 2011 4:38 PM
To: Claude Dion; Denkenberger, Erika
Cc: Bowman, Matthew; King, Coleman; Bonkoski, Brooke; Ronald V. Pelton; Joe D. Farley; Chwalibog, Adam; Reed, Rob; Romagnoli, Bob
Subject: RE: Lower Passaic River RFI 014 Flexible Joint

Claude,

I'll follow-up with a few folks internally and get back to you as soon as possible.

Thanks,
-Jamie

From: Claude Dion [mailto:cldion@WeeksMarine.Com]
Sent: Tuesday, September 20, 2011 1:35 PM
To: Beaver, James; Denkenberger, Erika
Cc: Bowman, Matthew; King, Coleman; Bonkoski, Brooke; Ronald V. Pelton; Joe D. Farley; Chwalibog, Adam; Reed, Rob; Romagnoli, Bob
Subject: RE: Lower Passaic River RFI 014 Flexible Joint

Jamie,

I have talked with 3 suppliers and they can't get the watertight flexible joint.

Claude

From: Beaver, James [mailto:James.Beaver@arcadis-us.com]
Sent: Tuesday, September 20, 2011 2:05 PM
To: Claude Dion; Denkenberger, Erika
Cc: Bowman, Matthew; King, Coleman; Bonkoski, Brooke; Ronald V. Pelton; Joe D. Farley; Chwalibog, Adam; Reed, Rob; Romagnoli, Bob
Subject: RE: Lower Passaic River RFI 014 Flexible Joint

Claude,

Please provide a recommended alternate to the flexible joint.

Let's discuss further if there are questions.

Thanks,
-Jamie

James (Jamie) Beaver, P.E. | Principal Engineer | james.beaver@arcadis-us.com

ARCADIS U.S., Inc. | 111 SW Columbia St., Suite 725 | Portland, OR 97201
T. 503.220.8201 | M. 971.409.2478 | F. 503.220.8209
www.arcadis-us.com

From: Claude Dion [mailto:cldion@WeeksMarine.Com]
Sent: Tuesday, September 20, 2011 9:52 AM
To: Denkenberger, Erika
Cc: Bowman, Matthew; King, Coleman; Bonkoski, Brooke; Ronald V. Pelton; Joe D. Farley; Beaver, James; Chwalibog, Adam; Reed, Rob; Romagnoli, Bob
Subject: RE: Lower Passaic River RFI 014 Flexible Joint

Ladies, Gentlemen,

Please provide which type of flexible joint meeting the drawings, specifications, and RAWP requirements. Our supplier has mentioned that no flexible joint is adequate for the application.

Please provide the info as soon as possible.

Thanks

Claude Dion

From: Denkenberger, Erika [mailto:Erika.Denkenberger@arcadis-us.com]
Sent: Tuesday, September 20, 2011 11:47 AM
To: Claude Dion
Cc: Bowman, Matthew; King, Coleman; Bonkoski, Brooke; Ronald V. Pelton; Joe D. Farley; Beaver, James; Chwalibog, Adam; Reed, Rob; Romagnoli, Bob
Subject: RE: Lower Passaic River RFI 014 Flexible Joint

Hi Claude,

Please find the attached response for RFI 014 (ARCADIS RFI# 017)attached.

Thanks,
Erika

Erika E. Denkenberger | Sediment and Waterfront Group | erika.denkenberger@arcadis-us.com

ARCADIS U.S., Inc. | 6723 Towpath Road, P.O. Box 66 | Syracuse, New York 13214-0066
T: 315.671.9426 | FAX: 315.445.9161
www.arcadis-us.com

ARCADIS, Imagine the result

From: Claude Dion [mailto:cldion@WeeksMarine.Com]
Sent: Thursday, September 15, 2011 11:46 AM
To: Denkenberger, Erika; Melwiki, Jenna
Cc: Bowman, Matthew; King, Coleman; Bonkoski, Brooke; Ronald V. Pelton; Joe D. Farley
Subject: Lower Passaic River RFI 014 Flexible Joint

Erika,

Please forward this RFI to the person involved in the pipeline installation.

If you have any questions please call.

Regards,

Claude Dion
Weeks Marine Inc.
4 Commerce Drive
Cranford, NJ 07016
Office: 908-272-4010
Cell.: 908-230-5279

ARCADIS SUBMITTAL # RFI-017

RFI number: 014

September 20, 2011

RFI Response

Engineer's Response:

The previously submitted flexible joint can be eliminated and replaced with a flexible joint meeting the drawings, specifications, and RAWP requirements.

REQUEST FOR INFORMATION (RFI) NO. **14**

CONTRACT NO. B000964.001

Thursday, September 15, 2011 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.

251 E. Ohio St., Suite 800
Indianapolis, IN, 46204

Attention: Matthew Bowman

From: Weeks Marine, Inc

4 Commerce Drive,
Cranford, NJ 07016

Attention: Claude Dion

Subject: 8" Flexible Joint

Reference: M-12

Description:

Weeks was in the □rocess to order the fle□ible joint for the □roject when Weeks bro□ght □□ □□estions regarding the fle□ibility and water tight seal between the HDPE □i□e and the fle□ible joint. The man□fact□rer of the HDPE □i□e and fle□ible joint com□leted their analysis of the system and did not recommended to □se fle□joint (e□□ansion joint) or fle□ible joint with the HDPE □i□e.

Attached yo□ will find e-mail from the man□fact□rer (ISCO) who does not recommend the □se of fle□joint (e□□ansion Joint) and fle□ible joint □revio□sly s□bmitted. Also, ISCO has □rovided the bend radi□s for the □i□e □□rchase.

Please confirm that the fle□ible joint on the HDPE □i□e will be eliminated.

Date Reply Required: 9/22/2011

Owner Use Only:

C□□□d□ D□□□

□r□□ □	Jared Meckler □JMECKLER□ rainforrent.com□
S□□□□	Wednesday, Se□tember 14, 2011 8:52 PM
T□□	Cla□de Dion
S□□□□□□□	FW: D/C BEND RADIUS □ Fle□Joint Fittings

Cla□de

This is the email that I was sent in reference to the fle□joint and also the bend radi□s of the □i□e yo□ have on order. If yo□ need any other info from me □lease let me know.

Thank yo□

Jared Meckler
Sales Re□resentative
Rain For Rent
856-457-0062
jmeckler□ rainforrent.com

From: Anthony Miller [mailto:Anthony.Miller@isco-pipe.com]
Sent: Wednesday, September 14, 2011 3:07 PM
To: Jared Meckler
Subject: D/C BEND RADIUS + Flex Joint Fittings

We do not recommend using either flex joint that I quoted. The first one (expansion joint) will not hold the pressure and the second one will not seal properly to HDPE and is more rigid than the pipe so the pipe would bend before the fitting. I apologize for figuring that out after I quoted you.

The bend radius for D/C pipe (pipe only) is 50 times the OD of the Containment pipe. So, for the pipe you are order, it would be (50 x 12.75")/12 in/ft = 53.125' minimum bend radius.

A□□□□□□ M□□□r
Territory Service Manager
ISCO I□d□□□r□□□□LLC
Office: 800-345-4726 e□t 6628
E-mail: anthony.miller□ isco-□i□e.com
www.isco-□i□e.com
ISCO - Total Piping Solutions

Denkenberger, Erika

From: Denkenberger, Erika
Sent: Friday, October 21, 2011 4:26 PM
To: Claude Dion
Cc: King, Coleman; Bowman, Matthew; Allison Malangone; Ronald V. Pelton; Beaver, James; Chwalibog, Adam
Subject: RE: Lower Passaic River RFI 15 Link Seal
Attachments: RFI-018.pdf

Hi Claude,

ARCADIS has reviewed and is good with the use of the Adeka Ultra Seal as an alternative to a Link Seal.

Thanks,
Erika

Privileged and Confidential Work Product Prepared at the Request of Legal Counsel for or in Anticipation of Litigation and in Connection with Rendering Legal Advice

Erika E. Denkenberger | Sediment and Waterfront Group | erika.denkenberger@arcadis-us.com

ARCADIS U.S., Inc. | 6723 Towpath Road, P.O. Box 66 | Syracuse, New York 13214-0066
T: 315.671.9426 | FAX: 315.445.9161
www.arcadis-us.com

From: Claude Dion [mailto:cldion@WeeksMarine.Com]
Sent: Thursday, September 29, 2011 4:31 PM
To: Denkenberger, Erika; Melwiki, Jenna
Cc: King, Coleman; Bowman, Matthew; Allison Malangone; Ronald V. Pelton
Subject: Lower Passaic River RFI 15 Link Seal

Ladies,

Please process the attached RFI for the link seal. An answer by next week will be appreciated.

Regards,

Claude Dion
Weeks Marine Inc.
4 Commerce Drive
Cranford, NJ 07016
Office: 908-272-4010
Cell.: 908-230-5279

ARCADIS SUBMITTAL # RFI-018

WEEKS MARINE INC. ***WMI Job No. 2010-0148***

REQUEST FOR INFORMATION (RFI) NO. **1**

CONTRACT NO. B000964.001

Thursday, September 29, 2011 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.

251 E. Ohio St., Suite 800
Indianapolis, IN, 46204

Attention: Matthew Bowman

From: Weeks Marine, Inc

4 Commerce Drive,
Cranford, NJ 07016

Attention: Claude Dion

Subject: Link-Seal

Reference: Drawing S-17 Detail 4

Description:

Nicholson is □ro□osing to □se Adeka Ultra Seal as an alternative to a link-seal. See attached c□t sheet.

Date Reply Required: 10/7/2011

Owner Use Only:

ADEKA ULTRA SEAL MC-2010MN

OCM, Inc.

Sales Information: (847) 955-9700
Technical Information: (800) 999-3959
Contact Local Representative:

PRODUCT DESCRIPTION:		
SIZE: 20mm X 10mm - 0.78" X 0.39"		
PACKAGING INFORMATION: 82 feet/case: 17.4 lbs/case		
Hardness	A30 (JIS K 6253)	(ASTM D2240)
Tensile Strength (MPa	0.9 (JIS K 6251)	(ASTM D412)
Elongation (%)	560 % (JIS K 6251)	(ASTM D412)
Volume % Change :	120 % (In House)	
Vulcanization	No	
Specific Gravity	1.18 (JIS K 6350)	(ASTM D792)
(Tested by press sheet of MC compound)		

NSF Certified for potable water

*** Property measurements are representative and are not considered as standard values.**

GENERAL DESCRIPTION

MC-2010MN is a chemically modified natural rubber product. This patented process chemically bonds a hydrophilic agent to the rubber. This permits the seal to undergo controlled expansion when exposed to moisture. This expansion capability provides a "double locking" water-stop. One from rubber's natural resilience and one from expansion.

Expansion occurs in three dimensions: width, height, and length. MC-2010MN has a unique stainless steel wire mesh embedded within the material. The wire mesh eliminates unnecessary expansion in the length and width dimensions. When fastened to concrete, the wire mesh prevents "winding" action and directs the expansion.

MC-2010MN has excellent durability and resistance to chemical contaminants. It can perform in a wide range of solutions such as sea water or cement water. The material does not contain any toxic substance or heavy metals and is environmentally safe. **MC-2010MN IS NSF 61 CERTIFIED.**

BASIC USE

Used in general below grade concrete joint work where water intrusion must be prevented. MC-2010MN is designed to replace conventional waterstop. It is also used for piping penetrations where pipe diameter exceeds 24".

NOTE: MC-2010MN must be placed between two rows of rebar. The required concrete coverage varies from 4.0" ~ 5.0" depending on concrete strength. For example, if concrete psi is 4260 or greater the required concrete coverage is 4.0". If the concrete psi is 2550 or less, the required coverage is 5.0".
For complete coverage information see MC Coverage Data Sheet or call 800.999.3959.

MINIMUM WALL HEIGHT IS 6.5 FEET

INSTALLATION

ALL METHODS OF INSTALLATION REQUIRE A MINIMUM OF 4.0" ~ 5.0" COVERAGE SEE NOTE

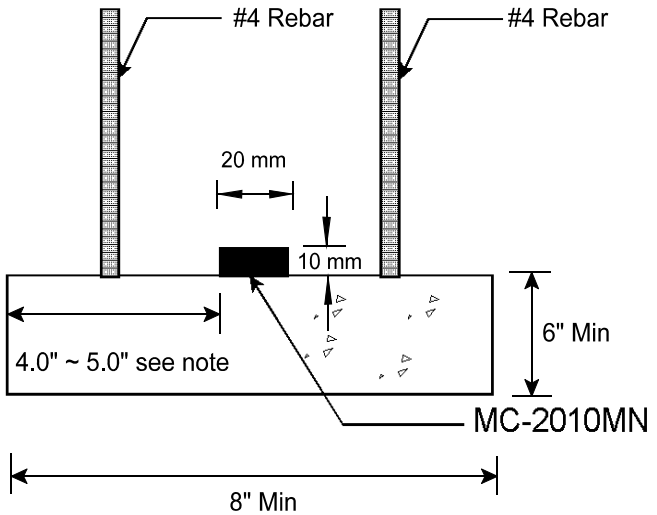
METHOD 1: (Attaching waterstop to smooth concrete)

1. Surface of the concrete must be clean, dry and free from any loose debris.
2. Paint both concrete and MC-2010MN with appropriate adhesive (3M-2141, Bostik 1142, Scotch Grip 1357 or equal). Allow adhesive to become tacky (approximately 15 minutes) - firmly press MC-2010MN onto adhesive. Place a nail or screw every 10" ~ 12" (approximately).
3. Place concrete without displacing or disturbing the position of the waterstop.

METHOD 2: (Attaching waterstop to rough concrete)

1. Surface of the concrete must be clean and free from any loose debris or standing water.
2. Apply small bead of Adeka Ultra Seal P-201. Use enough P-201 to fill any void between MC-2010MN and the concrete surface)
3. Firmly press MC-2010MN into the P-201 while it is still in the paste state. Place a nail or screw every 10" ~ 12" (approximately).
4. Use a wet tool or gloved finger to remove any excess P-201.
3. Place concrete without displacing or disturbing the position of the waterstop.

.



ADEKA ULTRA SEAL MC-2010MN

General Installation Procedures

Waterstop wall/slab joint

Place a small bead of Adeka Ultra Seal P-201 on any rough or scarred area prior to attaching MC-2010MN.

Attach MC-2010MN to the concrete by one of the following methods:

1. Attach with nails or concrete screws placed every 10" ~ 12" (approximately). If the concrete is rough, apply P-201 prior to attaching MC-2010MN.

Smooth, clean and dry concrete:

2. Use a fast setting rubber adhesive Example - 3M-2141, Bostik 1142M to fasten MC-2010MN to concrete. Follow adhesive manufacturers recommendation.

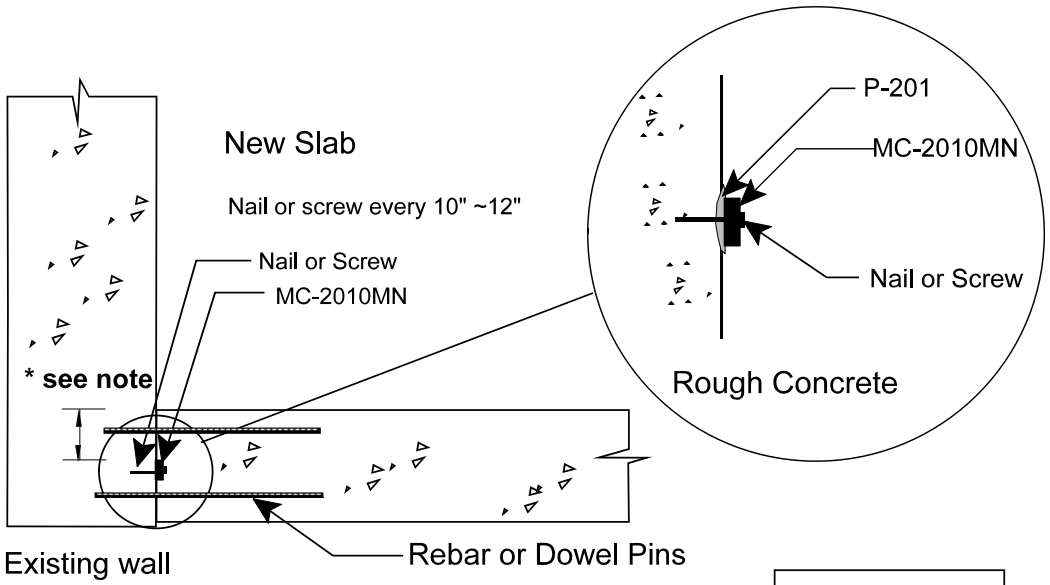
3. Use Adeka Ultra Seal P-201on rough concrete. P-201 can be used on vertical or overhead rough concrete when fastened with screws or nails.

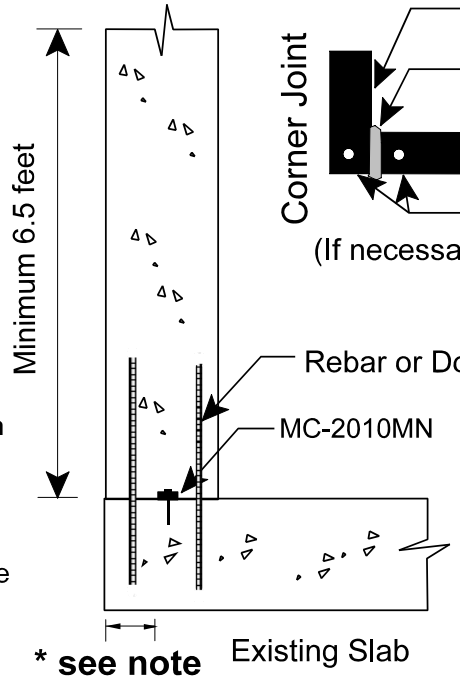
Site conditions may warrant the use of a combination of attachment methods. Use P-201 on all corner joints and parallel splices.

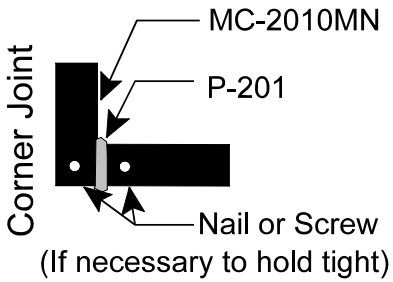
Keep MC-2010MN taut and flat against the concrete during the attaching process. Do not allow any gap between the concrete and the MC-2010MN.

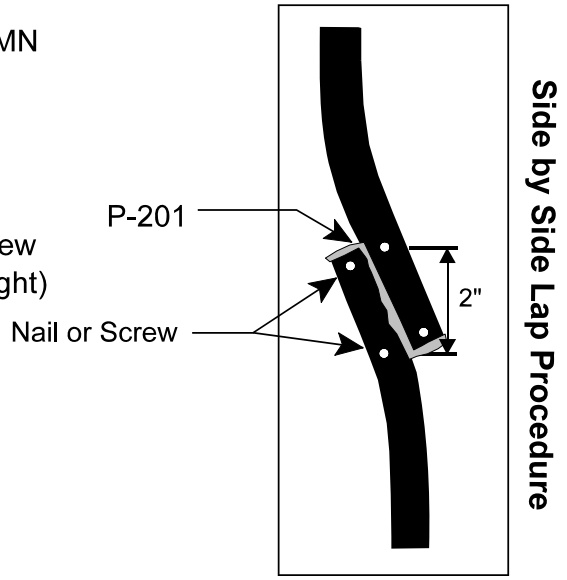
*** NOTE**: MC-2010MN must be placed between two rows of rebar. The required concrete coverage varies from 4" ~ 5" depending on concrete strength.

For complete coverage information see reverse side or see MC Coverage Chart at www.adeka.com









Denkenberger, Erika

From: Chwalibog, Adam
Sent: Wednesday, November 30, 2011 10:53 AM
To: Denkenberger, Erika
Cc: Reed, Rob; Beaver, James
Subject: RE: ARCADIS RFI 019 - Interferences along the Sherwin-Williams wall

RFI-019 went away. There was no interference.

From: Denkenberger, Erika
Sent: Wednesday, November 30, 2011 10:52 AM
To: Chwalibog, Adam
Cc: Reed, Rob; Beaver, James
Subject: RE: ARCADIS RFI 019 - Interferences along the Sherwin-Williams wall

Adam,

Is ARCADIS RFI-019 still being "tabled", per Matt's request (please see Jamie's email below)?

Thanks,
Erika

From: Beaver, James
Sent: Friday, October 21, 2011 2:28 PM
To: Denkenberger, Erika
Cc: Chwalibog, Adam; Reed, Rob
Subject: RE: ARCADIS RFI 019 - Interferences along the Sherwin-Williams wall

Erika, for RFI-018, this can be "REVIEWED". RFI-019 is being placed on hold – the discussions took place to allow the work to proceed related to this RFI, but Matt indicated this RFI should be tabled for now.

From: Denkenberger, Erika
Sent: Monday, October 17, 2011 4:05 PM
To: Beaver, James
Cc: Chwalibog, Adam
Subject: ARCADIS RFI 019 - Interferences along the Sherwin-Williams wall

The following RFI sent by Weeks has been uploaded to the SharePoint.

ARCADIS RFI ID: RFI-019
Weeks RFI No: RFI-016
RE: Interferences along the Sherwin-Williams wall
SharePoint Link: **RFI-019**

In addition, can you please tell me who would be the TM responsible for the following RFI sent by Weeks:

ARCADIS RFI ID: RFI-018
Weeks RFI No: RFI-015
RE: Link Seal
SharePoint Link: **RFI-018**

Thanks,
Erika

Privileged and Confidential Work Product Prepared at the Request of Legal Counsel for or in Anticipation of Litigation and in Connection with Rendering Legal Advice

Erika E. Denkenberger | Sediment and Waterfront Group | erika.denkenberger@arcadis-us.com

ARCADIS U.S., Inc. | 6723 Towpath Road, P.O. Box 66 | Syracuse, New York 13214-0066
T: 315.671.9426 | FAX: 315.445.9161
www.arcadis-us.com

ARCADIS SUBMITTAL # RFI-019

WEEKS MARINE INC. ***WMI Job No. 2010-0148***

REQUEST FOR INFORMATION (RFI) NO. 1

CONTRACT NO. B000964.001

Monday, October 17, 2011 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.

251 E. Ohio St., Suite 800
Indianapolis, IN, 46204

Attention: Matthew Bowman

From: Weeks Marine, Inc

4 Commerce Drive,
Cranford, NJ 07016

Attention: Claude Dion

Subject: Sherwin-Williams Existing Handrails

Reference: N/A

Description:

The Sherwin-Williams wall has e□isting handrail □osts at several area and trees. Weeks will have to c□t the □osts and trees to the sheet □ile elevation to allow the instalaltion of the driving tem□late. Weeks will re-install the □osts after the king/sheet □iles wall is driving. Work will be □erform this week. Please confirm is this acce□table.

Date Reply Required: 10/19/2011

Owner Use Only:

From: Beaver, James
Sent: Wednesday, November 09, 2011 9:50 AM
To: Chwalibog, Adam; Hunt, Aaron
Cc: Bowman, Matthew; King, Coleman
Subject: RE: ARCADIS RFI 020 - Sheet Pile between P-21 and P-22

I'd be willing to go with this as long we drive it back to where we were or deeper.

Good idea for the solution.

From: Chwalibog, Adam
Sent: Wednesday, November 09, 2011 8:40 AM
To: Beaver, James; Hunt, Aaron
Cc: Bowman, Matthew; King, Coleman
Subject: RE: ARCADIS RFI 020 - Sheet Pile between P-21 and P-22
Importance: High

Here is an idea we thought of:

Cut several feet off the top of the pile, weld it to the bottom, so it is offset 1 sheet thickness. Drive that so the welded piece slides adjacent to the bottom pile overlapping the seam. Apply sealant generously to the welded piece. So we would have steel overlap with sealant. Should be similar to an interlock joint. Can we agree to this?

From: Beaver, James
Sent: Wednesday, November 09, 2011 9:10 AM
To: Chwalibog, Adam; Hunt, Aaron
Cc: Bowman, Matthew; King, Coleman
Subject: RE: ARCADIS RFI 020 - Sheet Pile between P-21 and P-22

Did you get to see the tip of the pile? What does that look like?

I agree with the second attempt. Is there something that can be done to the bottom of the sheet to help it grab the other rather than wedge in? Weld a flat plate the width of the pile(?)… weld a few C-shaped pieces of steel… 3 or 4 inch pipe cut in half(?).

From: Chwalibog, Adam
Sent: Wednesday, November 09, 2011 8:05 AM
To: Chwalibog, Adam; Hunt, Aaron; Beaver, James
Cc: Bowman, Matthew; King, Coleman
Subject: RE: ARCADIS RFI 020 - Sheet Pile between P-21 and P-22

Two additional things:

- We are going to attempt a second driving of this pile to see if we can get any additional embedment; and
- Just wanted to be clear about this pile location, that it adjacent to the S-W wall, which is about 8" back behind this sheet. If the location makes a difference (i.e. not out in the middle of the river).

Adam

From: Chwalibog, Adam
Sent: Wednesday, November 09, 2011 8:21 AM
To: Hunt, Aaron; Beaver, James
Cc: Bowman, Matthew; King, Coleman
Subject: RE: ARCADIS RFI 020 - Sheet Pile between P-21 and P-22
Importance: High

FYI, I know Claude said 11/11 for response…..but they would like a response now since they are moving away from this area. The measurements from Weeks for that pile are:

- -11' is the bottom of the pile; and
- -0.4' is the mudline, meaning that the dredge in this area is -12.4'.

Also, just a thought. If the piles are getting bound up in the interlocks, does that mean it's a good bet the piles are very close together and that seam maybe isn't a deal breaker?

From: Hunt, Aaron
Sent: Tuesday, November 08, 2011 3:03 PM
To: Chwalibog, Adam; Beaver, James
Cc: Bowman, Matthew; King, Coleman
Subject: RE: ARCADIS RFI 020 - Sheet Pile between P-21 and P-22

I don't see it as a structural issue so much. The concern I'd have is just a seam opening up and allowing something out.

Aaron

From: Chwalibog, Adam
Sent: Tuesday, November 08, 2011 3:00 PM
To: Hunt, Aaron; Beaver, James
Cc: Bowman, Matthew; King, Coleman
Subject: RE: ARCADIS RFI 020 - Sheet Pile between P-21 and P-22

The bottom of the top pile is at elevation ~-12.4'. The mudline is ~ elevation 0, so our approximate dredge line here is elevation -12. We are confirming mudline and top of sheet this afternoon. So we look to be right at or below or dredge line.

From: Hunt, Aaron
Sent: Tuesday, November 08, 2011 2:57 PM
To: Chwalibog, Adam; Beaver, James
Cc: Bowman, Matthew
Subject: RE: ARCADIS RFI 020 - Sheet Pile between P-21 and P-22

That's 6 feet above the dredge line isn't it? I would think we'd want the tip of the new sheet down 1 foot below that so we don't have anything go under the sheet? Will driving harder make another sheet fall too?

From: Chwalibog, Adam
Sent: Tuesday, November 08, 2011 2:53 PM
To: Beaver, James; Hunt, Aaron
Cc: Bowman, Matthew
Subject: RE: ARCADIS RFI 020 - Sheet Pile between P-21 and P-22

I discussed this option with Claude a little while ago. Several issues we identified for discussion/clarification:

1. Would we want a impact or vibratory hammer? Impact hammer would need to be barged up, not sure how effective a vibratory hammer would be.
2. How to you seat the pile on the existing sheet pile? The pile would tend to want to slide off if using vibration or likely even impact; and
3. Would we be concerned with damaging a monopole?

From: Beaver, James
Sent: Tuesday, November 08, 2011 2:48 PM
To: Chwalibog, Adam; Hunt, Aaron
Cc: Bowman, Matthew
Subject: FW: ARCADIS RFI 020 - Sheet Pile between P-21 and P-22
Importance: High

I'd like to discuss other options than calling this good. As I mentioned I think we could remove the single sheet, use a monopile to drive it down, then redrive the single sheet… I'm thinking the new sheet is wedging into the interlock with the other sheet instead of driving it. I'd like us to consider some other options… please let me know.

I suppose we could make it Weeks responsibility to deal with any leakage owing to this unsealed joint and address it by contingency during dredging if we find something problematic is occurring because of this, but that's not something I think we should offer up yet. This condition shouldn't create significant issues, but being asked to accept an out-of-spec pile that has happened because of a lapse in attention from Weeks is very troubling to me.

PRIVILEGED AND CONFIDENTIAL WORK PRODUCT PREPARED AT THE REQUEST OF LEGAL COUNSEL FOR OR IN ANTICIPATION OF LITIGATION AND IN CONNECTION WITH RENDERING LEGAL ADVICE

James (Jamie) Beaver, P.E. | Principal Engineer | james.beaver@arcadis-us.com

PLEASE NOTE NEW CONTACT INFORMATION:

ARCADIS U.S., Inc. | 8725 Rosehill Road, Suite 350 | Lenexa, KS 66215
T. 913.492.0900, Ext. 24 | M. 971.409.2478 | F. 913.492.0902
www.arcadis-us.com

From: Denkenberger, Erika
Sent: Tuesday, November 08, 2011 1:29 PM
To: Beaver, James
Cc: Chwalibog, Adam; Reed, Rob
Subject: ARCADIS RFI 020 - Sheet Pile between P-21 and P-22
Importance: High

The following RFI sent by Weeks has been uploaded to the SharePoint.

ARCADIS RFI ID: RFI-020
Weeks RFI No: RFI-017
RE: Sheet Pile between P-21 and P-22
SharePoint Link: **RFI-020**

Please note that Claude has requested a response by this Friday, 11/11/2011.

Thanks,
Erika

Privileged and Confidential Work Product Prepared at the Request of Legal Counsel for or in Anticipation of Litigation and in Connection with Rendering Legal Advice

Erika E. Denkenberger | Sediment and Waterfront Group | erika.denkenberger@arcadis-us.com

ARCADIS U.S., Inc. | 6723 Towpath Road, P.O. Box 66 | Syracuse, New York 13214-0066
T: 315.671.9426 | FAX: 315.445.9161
www.arcadis-us.com

ARCADIS SUBMITTAL # RFI-020

WEEKS MARINE INC. ***WMI Job No. 2010-0148***

REQUEST FOR INFORMATION (RFI) NO. 17

CONTRACT NO. B000964.001

Tuesday, November 08, 2011 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.

251 E. Ohio St., Suite 800
Indianapolis, IN, 46204

Attention: Matthew Bowman

From: Weeks Marine, Inc

4 Commerce Drive,
Cranford, NJ 07016

Attention: Claude Dion

Subject: Sheet Pile between P-21 and P-22

Reference: N/A

Description:

During driving king pile P-22 the adjacent sheet pile (single sheet) along the Sherwin-Williams wall fell the below mud line. Weeks has driven a new sheet pile above the single sheet but could not go lower than elevation -12.4. The two (2) sheet piles are butted on top of each other. The vibratory hammer has begun jumping which indicates that the sheet piles will not go further down. Please confirm that this is acceptable and Weeks can cut the sheet pile at elevation 9.6.

Date Reply Required: 11/11/2011

Owner Use Only:

ARCADIS RFI# 021

RFI number: 023,

December 7, 2011

RFI Response

Engineer's Response:

The proposed solutions for both pump sets (P-100A/B and P-200A/B) should read that the level transmitters should control the VFD for the pumps. The level control can be established to control the speed of the pumps, such that a low level will slow the pumps down and a high level will increase the pump speed.

ARCADIS SUBMITTAL #RFI-021

42 Longwater Drive, Norwell, MA 02061
(781) 385-9813
Lis.Justin@cleanharbors.com
www.cleanharbors.com

Project Submittal

Project Name: Lower Passaic River Phase I Sediment Removal Action

December, 6th 2011

Engineer: Rob Romagnoli, (QCA) Engineer of Record (ARCADIS) **Address:** 6723 Towpath Road, Syracuse, NY 13214

Subcontractor: **Address:**

Manufacturer: **Address:**

Supplier: **Address:**

Submittal: RFI-023-R1 **Specification/Drawing Reference:** M-15, E-3, 5 & Specs 40 90 01

Transmittal Record	Attention	Sent	Received	Due	Quantity	Received
Contractor to Engineer	Rob Romagnoli (QCA) Scott Murphy (TM)	12/6/2011		12/12/11	1	
Engineer to Contractor	Justin Lis					

Review Action Code: 1. Reviewed/No exception taken 2. Make corrections noted 3. Revise as noted and resubmit
4. Incomplete submittal, resubmit 5. Rejected. Resubmit as specified

1	2	3	4	5

Drawing/Item	Dated	Description
1	12/6/11	Clean Harbors' Request For Information for Pump Control Input Information for (P-100A/B,
-	-	P-200A/B) for water treatment system to be installed at the UPF water treatment site.

COMMENTS:

Clean Harbors requests information and clarification regarding Pump Control Input for (P-100A/B, P-200A/B) pumps.

Authorized Reviewer: Justin Lis Date: 12/16/11

Notations do not authorize changes to contract sum or time. If you are authorized to proceed with the work identified in this submittal, it is assumed that no change in the contract amount or completion date is required. If a change in the work affecting your contract amount or completion is involved, notify the CM immediately.

"People and Technology Protecting and Restoring America's Environment"

P-100A/B & P-200A/B Speed Control Inputs -

P-100A/B Issue:

Clean Harbors has determined the use of the influent flow meter (FIT 101) only will be insufficient to control the speed of the P-100A/B pumps. A second flow meter would need to be installed on the discharge side of the P-100A/B pumps to provide pump controls.

P-100A/B Proposed Solution:

Clean Harbors suggests utilizing the level transmitter in the EQ tanks (LT-100A) to control the P-100A/B pumps. A set point would have to be established for the P-100'S to maintain a desired tank level.

200A/B Issue:

Clean Harbors has determined that the use of flow meters (FIT 101 & FIT 102) to control the speed of the P-200A/B pumps with the size of the surge tank (T-300) will result in the P-200's starting up and shutting down more often than desired.

P-200A/B Proposed Solution:

Clean Harbors suggests utilizing the level transmitter in the surge tank (LT-300A) to control the P-200A/B pumps. A set point would have to be established for the P-200'S to maintain a desired tank level.

ARCADIS Submittal # RFI-022

March 16, 2012
ARCADIS RFI-022 Response

From: Bonkoski, Brooke
Sent: Friday, March 16, 2012 12:55 PM
To: Claude Dion
Cc: Melwiki, Jenna; Reed, Rob; Beaver, James; Shatt, Ryan; Dunn, Shannon; Bowman, Matthew
Subject: RE: Lower Passaic River RFI 018

Claude—

We've reviewed the RFI, and determined that Weeks can place the Clinton Quarry grit from 12 ft bss to 0 ft bss as backfill.

Please note, we need to conduct additional chemical testing on the material, per the CQAP. Please coordinate with Ryan Shatt to arrange the timing of the tests. I'm assuming we want to test it before we purchase it. Based on the results last time, there shouldn't be any problem with it, but better to be safe than have a pile of unusable material on site.

Thanks—
Brooke

From: Claude Dion [mailto:cldion@WeeksMarine.Com]
Sent: Tuesday, March 13, 2012 11:15 AM
To: Melwiki, Jenna
Subject: FW: Lower Passaic River RFI 018

From: Claude Dion
Sent: Tuesday, March 13, 2012 11:34 AM
To: Jennings, William; 'Erika.Denkenberger@arcadis-us.com'
Cc: King, Coleman; 'Bowman, Matthew'
Subject: Lower Passaic River RFI 018

Ladies,

Please proceed this RFI 018.

Thanks

Claude Dion

REQUEST FOR INFORMATION (RFI) NO. 1

CONTRACT NO. B000964.001

Tuesday, March 13, 2012 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.
251 E. Ohio St., Suite 800
Indianapolis, IN, 46204
Attention: Matthew Bowman

From: Weeks Marine, Inc
4 Commerce Drive,
Cranford, NJ 07016
Attention: Claude Dion

Subject: Backfill Material

Reference: 35 80 00 Parapraph 1.4.1.2

Description:

Weeks would like to have the option to place Grit from elevation -12.0 to 0.0 instead of using sand and grit as shown in the contract document.

Date Reply Required: 3/20/2012

Owner Use Only:

ARCADIS SUBMITTAL # RFI-023

WEEKS MARINE INC. ***WMI Job No. 2010-0148***

Processed as ARCADIS Submittal #CD-070-R1

REQUEST FOR INFORMATION (RFI) NO. □1□

CONTRACT NO. B000964.001

Friday, August 31, 2012 ***Project Name: Lower Passaic River Phase I***

To: Arcadis U.S. Inc.

251 E. Ohio St., Suite 800
Indianapolis, IN, 46204

Attention: Matthew Bowman

From: Weeks Marine, Inc

4 Commerce Drive,
Cranford, NJ 07016

Attention: Claude Dion

Subject: Fence Restoration at OU-1 Floodwall

Reference: N/A

Description:

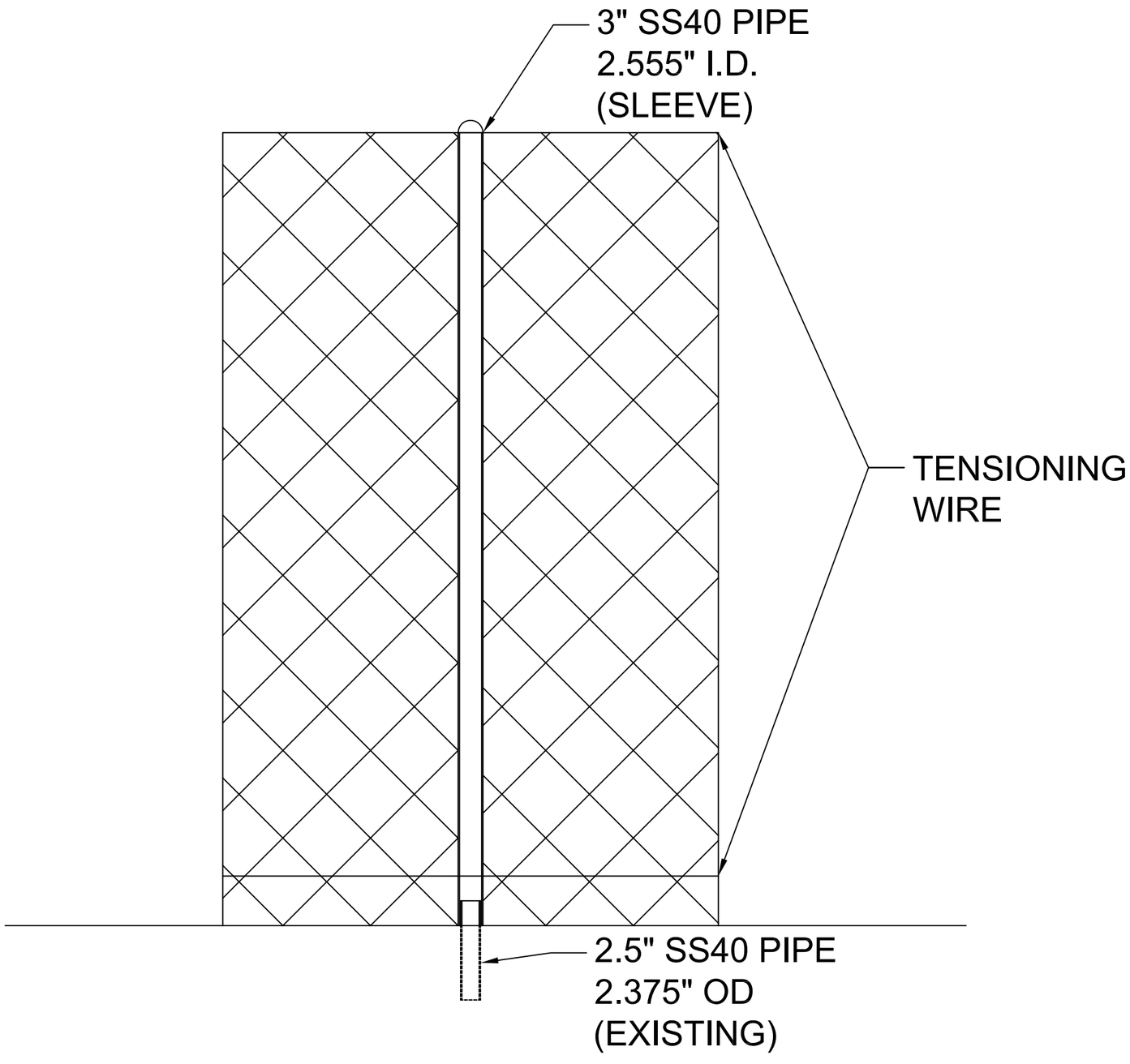
The re-installation of a□□ro□imately 610□linear of e□isting eight foot high galvani□ed chain link fence will be □erformed as follow:

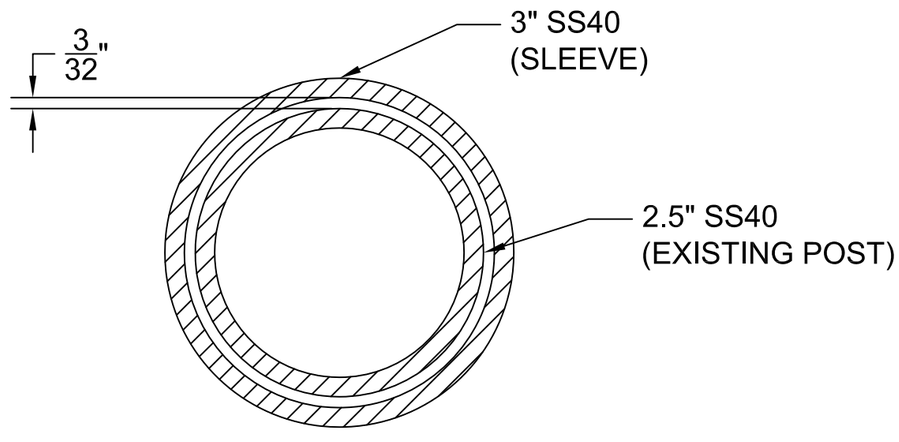
-New 3□fence □osts will be sleeved over the e□isting 2 □ □fence □osts st□b.
-At 2 locations a steel □late 8□□8□will be anchored to hold the 3□fence □osts.
-Tension wire will be installed at the to□and the bottom, which will hold all the 3□□ost in □lace and straight.

See attached re-installation drawing.

Date Reply Required: 9/7/2012

Owner Use Only:





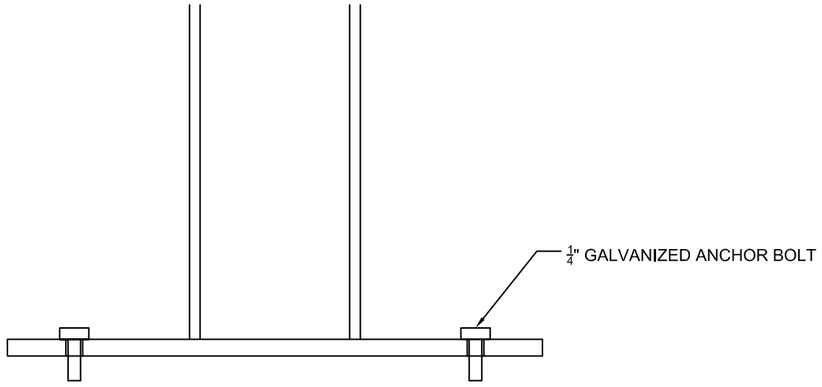
REV. #	DATE	REVISION	BY

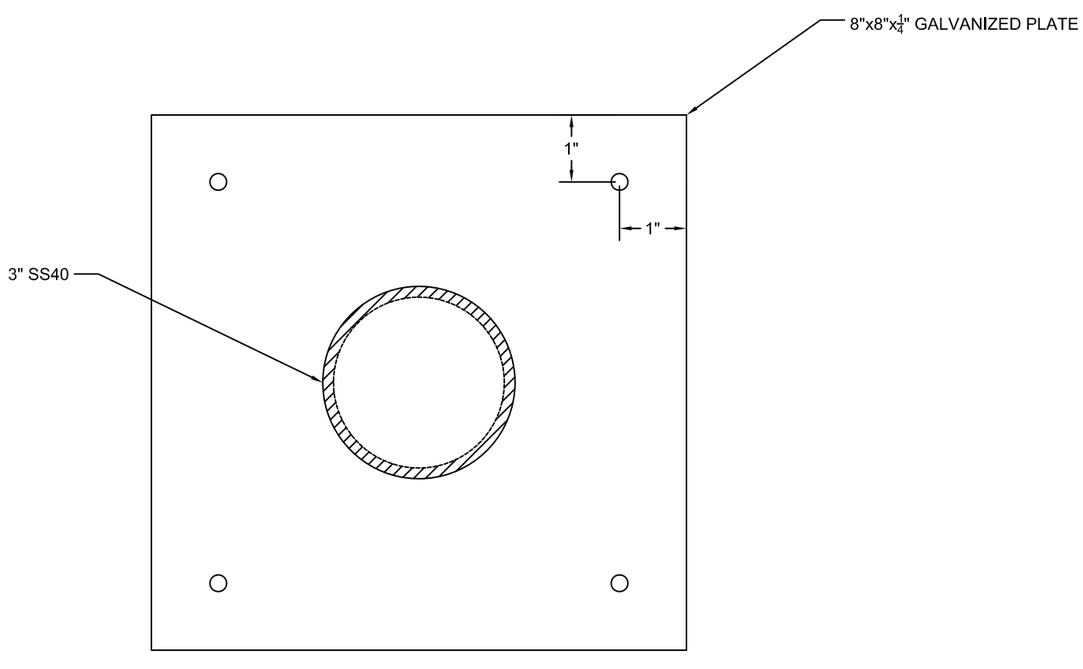
DWG. No. | REFERENCE DRAWINGS

WEEKS MARINE, INC.
(908) 272-4010

LOWER PASSAIC
FENCE RESTORATION

DRAWN BY: TGI	SCALE:	DWG. SIZE FORMAT: 11x17
CHECKED BY:	DATE: 08/31/12	
APPROVED BY:	SHEET 1 OF 2	REF:
DWG. NO.		





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				WEEKS MARINE, INC. (908) 272-4010	
				LOWER PASSAIC FENCE RESTORATION	
				DRAWN BY: TGI	SCALE:
				CHECKED BY:	DATE: 08/31/12
				APPROVED BY:	SHEET 2 OF 2
REV. #	DATE	REVISION	BY	DWG. NO.	

DWG. SIZE FORMAT: 11x17

REF: