



Structural Special Inspections Report

Canal Zero

Portland, Maine
October 6, 2017

Report Prepared by:

Structural Engineer of Record
Becker Structural Engineers, Inc.
75 York Street
Portland, ME 04101
207. 879. 1838

Structural Special Inspections Report

Canal Zero

Portland, Maine

October 6, 2017

Statement Prepared By:

Structural Engineer of Record

Becker Structural Engineers, Inc.

75 York Street

Portland, Maine 04101

207. 879. 1838

Owner

East Brown Cow Management, Inc.

100 Commercial Street, Suite 306

Portland, Maine 04101

207. 773. 7422

Architect of Record

Canal 5 Studio

One Canal Plaza, Suite 888

Portland, Maine 04101

207. 553. 2115

General Contractor

Consigli Construction Co.

15 Franklin Street

Portland, Maine 04101

207. 773. 3000



Canal Zero

Portland, Maine
October 6, 2017

Table of Contents

	<u>PAGE</u>
<u>Exhibit A – Statement of Special Inspections</u>	1
Statement of Structural Special Inspections	2
List of Agents	3
Special Inspector/Agent Final Reports	4
Qualifications of Inspectors and Technicians	8
<u>Exhibit B – Observations and Testing Reports</u>	9
Division 3 – Cast-in-Place Structural Concrete and Foundations	10
Division 3 – Post-Tensioned Structural Concrete	56
Division 31 – Soils, Fills & Foundation Subgrades	100
<u>Exhibit C – Quality Assurance for Wind and Seismic Resistance</u>	111



Special Inspections – Exhibit A

Statement of Special Inspections
List of Agents
Special Inspector/Agent Final Reports
Qualifications of Inspectors and Technicians



Project: Canal Zero
Date Prepared: 10/6/17

Structural Statement of Special Inspections

Project: *Canal Zero*

Location: *Portland, ME*

Owner: *East Brown Cow Management, Inc.*

This *Statement of Special Inspections* encompass the following discipline: **Structural**

This *Statement of Special Inspections* is submitted as a condition for permit issuance in accordance with the Special Inspection and Structural Testing requirements of the Building Code. It includes a schedule of Special Inspection services applicable to this project as well as the name of the Structural Special Inspection Coordinator (SSIC) and the identity of other approved agencies to be retained for conducting these inspections and tests.

The Structural Special Inspection Coordinator shall keep records of all Structural inspections and shall furnish inspection reports to the Building Code Official (BCO) and the Structural Registered Design Professional in Responsible Charge (SRDP). Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Structural Registered Design Professional in Responsible Charge. The Special Inspection program does not relieve the Contractor of his or her responsibilities.

Interim reports shall be submitted to the Building Official and the Structural Registered Design Professional in Responsible Charge at an interval determined by the SSIC and the BCO.

A *Final Report of Special Inspections* documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted to the BCO prior to issuance of a Certificate of Use and Occupancy.

Job site safety and means and methods of construction are solely the responsibility of the Contractor.

Interim Report Frequency: *Upon request of Building Official* _____ or per attached schedule.

Prepared by:

Christopher G. Williams, P.E., S.E.

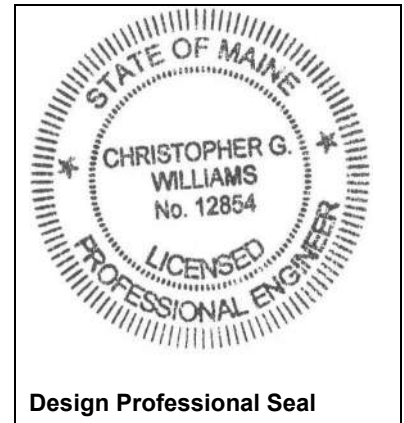
(type or print name of the Structural Registered Design Professional in Responsible Charge)



Signature

10/6/17

Date



Owner's Authorization:

Building Code Official's Acceptance:

Signature

Date

Signature

Date

Structural Statement of Special Inspections (Continued)

List of Agents

Project: *Canal Zero*

Location: *Portland, ME*

Owner: *East Brown Cow Management, Inc.*

This Statement of Special Inspections encompass the following discipline: **Structural**

(Note: Statement of Special Inspections for other disciplines may be included under a separate cover)

This Statement of Special Inspections / Quality Assurance Plan includes the following building systems:

- Soils and Foundations
- Cast-in-Place Concrete
- Precast Concrete System
- Structural Masonry Systems
- Structural Steel
- Wood Construction
- Special Cases

Special Inspection Agencies	Firm	Address, Telephone, e-mail
1. STRUCTURAL Special Inspections Coordinator (SSIC)	<i>Becker Structural Engineers, Inc.</i>	<i>75 York Street Portland, ME 04101 (207)879-1838</i>
2. Special Inspector (SI 1)	<i>Becker Structural Engineers, Inc.</i>	<i>75 York Street Portland, ME 04101 (207)879-1838</i>
3. Special Inspector (SI 2)	<i>S.W. Cole Engineering, Inc.</i>	<i>286 Portland Road Gray, ME 04039 (207)657-2866</i>
4. Testing Agency (TA 1)	<i>S.W. Cole Engineering, Inc.</i>	<i>286 Portland Road Gray, ME 04039 (207)657-2866</i>
5. Testing Agency (TA 2) (Post-Tensioning Installer and Inspector)	<i>S.W. Cole Engineering, Inc.</i>	<i>286 Portland Road Gray, ME 04039 (207)657-2866</i>
6. Other (O1)		

Note: The inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.

Project: Canal Zero
Date Prepared: 10/6/17

Structural Statement of Special Inspections (Continued)

Final Report of Special Inspections (SSIC/SI 1)

[To be completed by the Structural Special Inspections Coordinator (SSIC/SI 1). Note that all Agent's Final Reports must be received prior to issuance.]

Project: *Canal Zero*
Location: *Portland, ME*
Owner: *East Brown Cow Management, Inc.*
Owner's Address: *100 Commercial Street, Ste. 306*
Portland, ME 04101

Architect of Record: *Timothy Hart* *Canal 5 Studio*
(name) *(firm)*

Structural Registered Design
Professional in Responsible Charge: *Christopher G. Williams, P.E., S.E.* *Becker Structural Engineers, Inc.*
(name) *(firm)*

To the best of my information, knowledge and belief, the Special Inspections required for this project, and itemized in the *Statement of Special Inspections* submitted for permit, have been performed and all discovered discrepancies have been reported and resolved.

Interim reports submitted prior to this final report form a basis for and are to be considered an integral part of this final report.

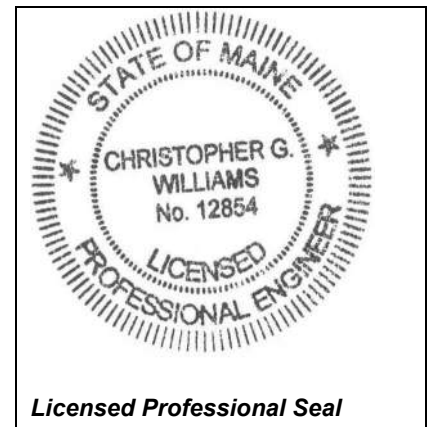
Respectfully submitted,
Structural Special Inspection Coordinator

Christopher G. Williams, P.E., S.E.
(Type or print name)

Becker Structural Engineers, Inc.
(Firm Name)



Signature 10/6/17
Date



Project: Canal Zero
Date Prepared: 9/19/16

Structural Statement of Special Inspections (Continued)

Special Inspector's/Agent's Final Report

Project: *Canal Zero*
Special Inspector or Agent: Evan M. Walker S. W. Cole Engineering, Inc.
(name) *(firm)*
Designation: SI2

To the best of my information, knowledge and belief, the Special Inspections or testing required for this project, and designated for this Inspector/Agent in the *Statement of Special Inspections* submitted for permit, have been performed and all discovered discrepancies have been reported and resolved.

Interim reports submitted prior to this final report form a basis for and are to be considered an integral part of this final report.

Respectfully submitted,
Special Inspector or Agent:

Evan M. Walker

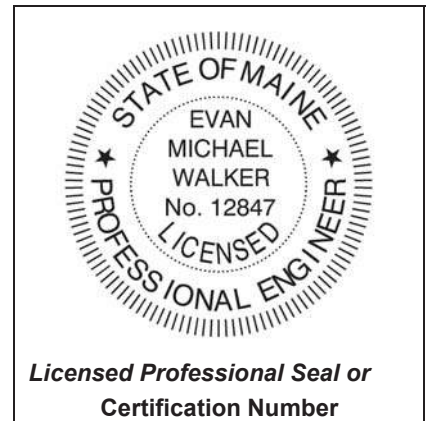
(Type or print name)

E M Walker

Signature

10/10/17

Date



Project: Canal Zero
Date Prepared: 9/19/16

Structural Statement of Special Inspections (Continued)

Special Inspector's/Agent's Final Report

Project: *Canal Zero*
Special Inspector or Agent: Roger E. Domingo S.W. Cole Engineering, Inc.
(name) *(firm)*
Designation: **TA1**

To the best of my information, knowledge and belief, the Special Inspections or testing required for this project, and designated for this Inspector/Agent in the *Statement of Special Inspections* submitted for permit, have been performed and all discovered discrepancies have been reported and resolved.

This report is in regards to all testing agency items listed in the schedule of special inspections, other than post-tensioned concrete.

Interim reports submitted prior to this final report form a basis for and are to be considered an integral part of this final report.

Respectfully submitted,
Special Inspector or Agent:

Roger E. Domingo

(Type or print name)



10/10/17

Signature

Date

SEAL NOT REQUIRED
FOR TESTING AGENCY

***Licensed Professional Seal or
Certification Number***

Project: Canal Zero
Date Prepared: 9/19/16

Structural Statement of Special Inspections (Continued)

Special Inspector's/Agent's Final Report

Project: *Canal Zero*
Special Inspector or Agent: Roger E. Domingo S.W. Cole Engineering, Inc.
(name) *(firm)*
Designation: **TA2**

To the best of my information, knowledge and belief, the Special Inspections or testing required for this project, and designated for this Inspector/Agent in the *Statement of Special Inspections* submitted for permit, have been performed and all discovered discrepancies have been reported and resolved.

This report is in regards to testing agency items listed for the post-tensioned concrete.

Interim reports submitted prior to this final report form a basis for and are to be considered an integral part of this final report.

Respectfully submitted,
Special Inspector or Agent:

Roger E. Domingo
(Type or print name)


Signature _____ Date 10/10/17

SEAL NOT REQUIRED
FOR TESTING AGENCY

***Licensed Professional Seal or
Certification Number***

Structural Schedule of Special Inspections

Qualifications of Inspectors and Testing Technicians

The qualifications of all personnel performing Special Inspection and testing activities are subject to the approval of the Building Official. The credentials of all Inspectors and testing technicians shall be provided to the Special Inspector for their records. *NOTE VERIFICATION THAT QUALIFIED INDIVIDUALS ARE AVAILABLE TO PERFORM STIPULATED TESTING AND/OR INSPECTION SHOULD BE PROVIDED PRIOR TO SUBMITTING STATEMENT. AGENT QUALIFICATIONS IN SCHEDULE ARE SUGGESTIONS ONLY; FINAL QUALIFICATIONS ARE SUBJECT TO THE DISCRETION OF THE REGISTERED DESIGN PROFESSIONAL PREPARING THE SCHEDULE.*

Key for Minimum Qualifications of Inspection Agents:

When the Registered Design Professional in Responsible Charge or Special Inspector of Record deems it appropriate that the individual performing a stipulated test or inspection have a specific certification, license or experience as indicated below, such requirement shall be listed below and shall be clearly identified within the schedule under the Agent Qualification Designation.

PE/SE	Structural Engineer – a licensed SE or PE specializing in the design of building structures
PE/GE	Geotechnical Engineer – a licensed PE specializing in soil mechanics and foundations
EIT	Engineer-In-Training – a graduate engineer who has passed the Fundamentals of Engineering examination

Experienced Testing Technician

ETT	Experienced Testing Technician – An Experienced Testing Technician with a minimum 5 years experience with the stipulated test or inspection
-----	---

American Concrete Institute (ACI) Certification

ACI-CFTT	Concrete Field Testing Technician – Grade 1
ACI-CCI	Concrete Construction Inspector
ACI-LTT	Laboratory Testing Technician – Grade 1&2
ACI-STT	Strength Testing Technician

American Welding Society (AWS) Certification

AWS-CWI	Certified Welding Inspector
AWS/AISC-SSI	Certified Structural Steel Inspector

American Society of Non-Destructive Testing (ASNT) Certification

ASNT	Non-Destructive Testing Technician – Level II or III.
------	---

International Code Council (ICC) Certification

ICC-SMSI	Structural Masonry Special Inspector
ICC-SWSI	Structural Steel and Welding Special Inspector
ICC-SFSI	Spray-Applied Fireproofing Special Inspector
ICC-PCSI	Prestressed Concrete Special Inspector
ICC-RCSI	Reinforced Concrete Special Inspector

National Institute for Certification in Engineering Technologies (NICET)

NICET-CT	Concrete Technician – Levels I, II, III & IV
NICET-ST	Soils Technician - Levels I, II, III & IV
NICET-GET	Geotechnical Engineering Technician - Levels I, II, III & IV

Other

Special Inspections – Exhibit B

Schedule of Structural Inspections by Division
Inspector/Agent Observation and Testing Reports



Exhibit B

Division 3 – Cast-in-Place Structural Concrete and Foundations



Structural Schedule of Special Inspections

CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION	REQD	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
	Y/N					
IBC Section 1704.4						
1. Inspection of reinforcing steel, including prestressing tendons, and placement	Y	P	ACI 318: 3.5, 7.1-7.7	SII	PE/SE or EIT	<i>Yes</i>
2. Inspection of reinforcing steel welding in accordance with Table 1704.3, Item 5B	N	-	Not applicable. Welding of Reinf Not Allowed	-	-	
3. Inspect bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased or where strength design is used.	Y	C	IBC 1911.5	SII	PE/SE or EIT	<i>Yes</i>
4. Inspection of anchors installed in hardened concrete.	Y	P	IBC 1212.1	SII	PE/SE or EIT	<i>Yes</i>
5. Verifying use of required design mix	Y	P	ACI 318: Ch 4, 5.2-5.4	TA1	ACI-CFTT or ACI-STT	<i>Yes</i>
6. At time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests and determine the temperature of the concrete.	Y	C	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	TA1	ACI-CFTT or ACI-STT	<i>Yes</i>
7. Inspection of concrete and shotcrete placement for proper application techniques	N	C	ACI 318: 5.9, 5.10	TA1	ACI-CFTT or ACI-STT	
8. Inspection for maintenance of specified curing temperature and techniques	Y	P	ACI 318: 5.11-5.13	SII	PE/SE or EIT	<i>Yes</i>
9. Inspection of Prestressed Concrete						
a. Application of prestressing force.	Y	C	ACI 318: 18.20	TA2	PE/SE or EIT	<i>Yes</i>
b. Grouting of bonded prestressing tendons in seismic force resisting system	N	C	ACI 318: 18.18.4	TA1	ACI-CFTT or ACI-STT	
10. Erection of precast concrete members.	N	P	ACI 318: Ch 16	SII	PE/SE or EIT	
11. Verification of in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs.	Y	P	ACI 318: 6.2	TA1	ACI-CFTT or ACI-STT	<i>Yes</i>
12. Inspect formwork for shape, location and dimensions of the concrete member being formed.	Y	P	Limitations apply. See below	SII	PE/SE or EIT	<i>Yes</i>

Limitations of item 12: Special inspection includes periodic review of formwork shape, general location, and formwork dimensions that can be readily measured with conventional tape measure. Verification of building layout, building location, foundation extents, column grids, and foundation elevations is excluded.

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT

Cast in Place Concrete

Date:	May 2, 2017
Time:	10:30 am
Temp:	55 degrees
Weather:	Cloudy

Observation Location: Observed the top of existing site wall vertical extensions on the west stairs.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	I requested some vertical bars added, refer to notes below
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Notes:

All reinforcement observed was in conformance with the structural drawings, except as noted below:

At one of the new wall corners, vertical bars were missing. This was brought to the attention of the GC, and the bars were added while I was on site.

Signed: Christopher G. Williams, P.E., S.E.

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT

Cast in Place Concrete

Date:	May 9, 2017
Time:	2:30 pm
Temp:	55 degrees
Weather:	Sunny

Observation Location: Observed the main building pier footings near WP-3 and WP-4 (refer to drawing S1.1). Also observed the cheek wall reinforcement for the west stair walls.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Uneven ledge bearing at pier footing near WP-4. Refer to attached photo and notes below.
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Notes:

All reinforcement observed was in conformance with the structural drawings, except as noted below:

At the footing near WP-4, a sharp drop in the ledge was observed of approximately 3 feet (refer to photo 1). The drop is very steep, and then flattens out immediately. The majority of the footing bears on flat ledge, with only a small horizontal projection that encounters the sloped portion. Therefore, potential lateral forces from the uneven bearing surface will be small, and can be adequately resisted by vertical rebar pins.

As a means to stabilize the footing in the event lateral forces are encountered, we requested that the GC install (4) #5 pins into the ledge at the upper flat portion. Pins are

to be drilled and epoxied to a depth of 12" into the ledge. The GC provided photos of the completed pin installation (refer to photo 2).

Signed: Christopher G. Williams, P.E., S.E.



Photo 1: Steep Drop in Ledge Profile at Footing Near WP-4



Photo 2: Vertical Pins Added to Stabilize Footing on Uneven Ledge

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT

Cast in Place Concrete

Date:	May 16, 2017
Time:	11:00 am
Temp:	65 degrees
Weather:	Sunny

Observation Location: Observed the main building pier footing at the center of the structure. Also observed the foundation wall reinforcement for the western-most wall extensions at the west plaza stairs.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bearing on weathered bedrock, acceptable by geotechnical engineering, see notes below.
Additional Items	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ductbank through western stair wall extension, see notes below.

Notes:

All reinforcement observed was in conformance with the structural drawings, except as noted below:

The center pier footing will bear on weathered bedrock instead of sound bedrock. The GC reached the maximum excavation depth their equipment would allow at around 17.0' below grade, at which point they were still removing loose bedrock. We provided the geotechnical engineer with pressures on the soils from this pier, which are approximately 3000 psf. This is far less than at the typical perimeter piers which experience pressures of up to 12000 psf. After observing the bearing condition and running an analysis with the applied pressures, the geotechnical engineer deemed it acceptable to bear this one footing on the weathered ledge.

An existing ductbank was uncovered that runs through the western wall extensions at the plaza stairs. The utility company allowed the GC to encapsulate the ductbank in the foundation wall. This was acceptable structurally, provided the opening was reinforced with diagonals. The diagonals were in place in only one of the two walls to be placed. After reviewing this condition with the GC, the diagonal bars were added while we were on site.

Signed: Christopher G. Williams, P.E., S.E.

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT

Cast in Place Concrete

Date:	May 18, 2017
Time:	10:00 am
Temp:	85 degrees
Weather:	Sunny

Observation Location: Observed the footing and pier reinforcement for the footing at WP-4 (refer to S1.1). Also observed an existing ductbank that interferes with the cheek wall installation at the west plaza stairs.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ductbank intereferes with cheek wall installation at planter wall at western stairs, see notes below.
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Notes:

All reinforcement observed was in conformance with the structural drawings, except as noted below:

There is an existing ductbank that runs into the existing building Canal 2. The ductbank runs over top of the existing site wall footing, and thus will interfere with the cheek wall installation. We will provide the GC with a detail to support the cheek wall above the ductbank, and will inspect this work during a future visit to the site.

Signed: Christopher G. Williams, P.E., S.E.

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT

Cast in Place Concrete

Date:	May 23, 2017
Time:	10:30 am
Temp:	55 degrees
Weather:	Sunny

Observation Location: Preplacement review of footing at WP-1, start of wall shelf reinforcing at existing walls

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Notes:

At the time of my visit the footing at WP1 was ready for placement. Excavation for the new planter wall was ongoing, and drilling of dowels for new masonry bearing shelves at existing walls had commenced. All condition appeared to conform with drawings.

Signed: Ethan A. Rhile, P.E.



Photo 1: Preplacement view of footing.

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT

Cast in Place Concrete

Date:	May 25, 2017
Time:	11:00am
Temp:	Low 50's
Weather:	Cloudy

Observation Location: Preplacement review of footing at WP-6, shelf reinforcing at existing retaining walls, new planter wall reinforcing, round pier at WP-1

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Notes:

At the time of my visit, footing at WP-6 was not yet ready for placement. I observed reinforcing mat that was prepared to be set in the forms and form preparation. Contractor sent photos of final set up.

Requested that contractor add top horizontal reinforcing at masonry shelf at existing wall as none was present. Contractor sent photos of installed reinforcing.

Reinforcing for new site planter wall was installed backwards. Placement of this wall was cancelled, and reinforcing and forms will be reset.

Only two ties were installed at the top of the concrete pier at WP-1 and the drawings indicated 3 should be installed. Contractor sent follow-up photos of pier.

Signed: Ethan A. Rhile, P.E.

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT

Cast in Place Concrete

Date:	May 30, 2017
Time:	10:00 am
Temp:	55 degrees
Weather:	Cloudy

Observation Location: Observed the footing and pier reinforcement for the footing at WP-2 (refer to S1.1). Also observed the new planter retaining wall footing reinforcement at the west stairs.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Footing dropped to fall below existing ductbank, see notes below
Additional Items	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Wash out of portion of grade below footing at slope, see notes below

Notes:

All reinforcement observed was in conformance with the structural drawings, except as noted below:

There is an existing ductbank that runs into the existing building Canal 2. The footing is required to be dropped so that it runs beneath the ductbank. I observed that this work had been done adequately.

Some standing water was observed in the footing formwork. The GC was asked to remove the water, which was done while I was on site.

The footing steps up about 6 feet in elevation as it moves to the east. At this sloped/stepped portion, some of the grade washed out during rains over the weekend (see attached photos). These photos were sent to S.W. Cole for review while I was on site. S.W. Cole confirmed that the condition was not detrimental to the footing bearing, and the voids created by the washout could be filled with additional concrete. No further corrective action was required.

Signed: Christopher G. Williams, P.E., S.E.



Photo 1: Washed out Grading Below Footing

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT

Cast in Place Concrete

Date:	June 1, 2017
Time:	10:00 am
Temp:	60 degrees
Weather:	Sunny

Observation Location: Observed the new planter retaining wall reinforcement at the west stairs.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Notes:

All reinforcement observed was in conformance with the structural drawings, except as noted below:

The GC was directed to add slash bars to each corner of a bondout for data lines. Also, there is a control joint in the granite veneer, and an aligning control joint in each side of foundation wall was provided. The GC was directed to cut the horizontal bars on the stair side of the wall so that the bars are discontinuous, which matches the typical control joint detail on the structural drawings. This will allow the wall to crack within the extents of the control joint on the exposed-to-view side of the wall.

Signed: Christopher G. Williams, P.E., S.E.

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT

Cast in Place Concrete

Date:	June 15, 2017
Time:	3:30 pm
Temp:	70 degrees
Weather:	Sunny

Observation Location: Observed the building mat slab reinforcement.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bar priority reversed on grade beams, see notes below.
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Notes:

All reinforcement observed was in conformance with the structural drawings, except as noted below:

At the center pier support, the (4) of the (6) embedded dowels into the mat slab from the pier had been damaged during construction. The GC was made aware of this condition. New dowels were added to replace the damaged ones, and the original dowels were allowed to remain in place (refer to photos 1 and 2).

On drawing S1.1, the horizontal bars in the grade beams between WP-3 and WP-4 and between WP-1 and WP-6 are indicated to have top and bottom priority. This means that the horizontal bars in these beams shall be located as close to the top and bottom of beam as possible. I observed that the bar priority was actually reversed on site, and the priority was given to the other grade beams. The result is a decrease in bending

strength of the beams that are intended to have more strength. After performing an analysis of the as-built condition, we determined that the beams still had adequate capacity for the applied loads. No further corrective action will be required by the GC.

Signed: Christopher G. Williams, P.E., S.E.



Photo 1: Damaged dowels at pier



Photo 2: Four replaced dowels at pier



Photo 3: Grade beam horizontal bars with reversed priority (grade beam on right side should have top-most bars instead of grade beam on the left side)

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT

Cast in Place Concrete

Date:	June 21, 2017
Time:	11:00 am
Temp:	75 degrees
Weather:	Sunny

Observation Location: For the three curved structural walls, I observed the below grade curbplacements up to FFE.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Notes:

All reinforcement observed was in conformance with the structural drawings, except as noted below:

Vertical reinforcement in the curb was placed at 24" O.C., which matches the structural drawings. However, the walls above grade are shown in the drawings with 12" O.C. spacing. It was determined that the drawings are incorrect, and the vertical bars should be placed at 12" O.C. in both the curb and the wall above grade. The GC was made aware of this and began adding the bars while I was on site. Photos we sent later to confirm verticals were correctly placed.

Signed: Christopher G. Williams, P.E., S.E.

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT

Cast in Place Concrete

Date:	June 26, 2017
Time:	3:00 pm
Temp:	70 degrees
Weather:	Cloudy

Observation Location: Observed the wall reinforcement in the south wall.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Notes:

All reinforcement observed was in conformance with the structural drawings.

Signed: Christopher G. Williams, P.E., S.E.

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT

Cast in Place Concrete

Date:	July 5, 2017
Time:	11:30am
Temp:	80's; Hot
Weather:	Cloudy

Observation Location: Stair riser reinforcing between planters; End shear wall of building structure.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Notes:

At the time of my visit, the stair reinforcing was mostly installed with some minor work being performed by the tying crew; I also re-reviewed the in place shear wall reinforcing to see if it had been secured prior to the upcoming placement. I took no exception to the in-place reinforcing.

Signed: Ethan A. Rhile, P.E.

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT

Cast in Place Concrete

Date:	July 13, 2017
Time:	8:00 am
Temp:	60 degrees
Weather:	Cloudy

Observation Location: Observed the wall reinforcement in the north wall.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Wall dowels not correctly installed; refer to notes below
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Notes:

All reinforcement observed was in conformance with the structural drawings, except as noted below:

The top of this wall represents one of the dead ends of the post-tensioned (PT) roof beams. When the PT tendons are stressed, the slab will compress. To allow for the compression and alleviate any stresses that might be transferred to the wall, the dowels at the top of the wall are required to be set into hollow sleeves. The sleeves will then be filled with grout after the stressing is complete.

To fit the dowels in the sleeves, the dowels need to be moved to the center of the wall (per photo 1, they're shown at the exterior face). The GC indicated they would remove the vertical dowels, and then drill and epoxy new dowels once all of the PT tendons are

installed. This is acceptable and will avoid conflicts with the install. We will observe this work during a future site visit.

Signed: Christopher G. Williams, P.E., S.E.



Photo 1: Vertical Dowels in the Wrong Position for Sleeve Install in Slab

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT

Cast in Place Concrete

Date:	July 19, 2017
Time:	9:00 am
Temp:	75 degrees
Weather:	Sunny

Observation Location: Observed the east full-height wall reinforcement, as well as curb wall reinforcement on the west side of the building between the north and south walls.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Notes:

All reinforcement observed was in conformance with the structural drawings, except as noted below:

At the time of my visit, the GC had begun installation of the vertical control joint in the east wall. A preliminary sketch had been circulated for coordination of the control joint, but was not considered final. The GC had cut horizontal reinforcement at both faces of the wall on each side of the joint, which matched the preliminary sketch. However, after issuing the sketch, BSE elected to only have the reinforcement at the exterior face cut. The GC agreed to install additional horizontal bars at the interior face lapped with the existing to provided the continuous interior reinforcement.

I also discussed the concrete bond out in the wall at the control joint. Because the control joint itself will only be 3/8" deep for aesthetics, we need to create a continuous

vertical void in the wall to ensure that the concrete is weakened at the joint. Otherwise, future cracks could occur at locations beyond the control joint. It was decided to use a piece of composite trim board (Azek) to form the bondout. A formal sketch incorporating the correct horizontal bar cutting and the Azek bond out will be issued in the near future.

Signed: Christopher G. Williams, P.E., S.E.



**Photo 1: Vertical Control Joint w/ Horizontal Bars
Cut at Both Wall Faces**

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT
Cast in Place Concrete

Date:	July 25, 2017
Time:	2:00 pm
Temp:	75 degrees
Weather:	Sunny

Observation Location: Observed the remaining curb wall placements between each of the full height building walls.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Notes:

All reinforcement observed was in conformance with the structural drawings.

Signed: Christopher G. Williams, P.E., S.E.

CONCRETE STRENGTH RESULTS

Project Canal Zero Design Strength 3,500 psi
 WO # 3790.90

TEST NO.	Date of Placement	7 Day	28 Day		28 Day Ave	Cum Ave	Mov 3 Ave	Status
		A	B	C				
1	917-1	5/2/2017	3,490	4,670	4,740	4705	4,705	
2	917-2	5/10/2017	3,340	4,820	4,880	4850	4,778	
3	917-3	5/12/2017	3,650	5,220	4,970	5095	4,883	4,883 PASS
4	917-5	5/16/2017	3,150	4,310	4,590	4450	4,775	4,798 PASS
5	917-6	5/18/2017	3,240	4,600	4,560	4580	4,736	4,708 PASS
6	917-7	5/19/2017	3,240	4,830	4,470	4650	4,722	4,560 PASS
7	917-8	5/23/2017	4,210	4,960	5,000	4980	4,759	4,737 PASS
8	917-9	5/25/2017	3,240	4,510	4,850	4680	4,749	4,770 PASS
9	917-10	5/30/2017	3,890	5,360	5,390	5375	4,818	5,012 PASS
10	917-11	6/20/2017	2,820	4,250		4250	4,762	4,768 PASS
11	917-13	6/19/2017	3,290	4,110	3,990	4050	4,697	4,558 PASS
12	917-14	6/19/2017	3,200	4,070	3,960	4015	4,640	4,105 PASS
13	917-15	6/21/2017	3,990	4,950	5,100	5025	4,670	4,363 PASS
14	917-24	7/19/2017	4,010	5,180	5,270	5225	4,709	4,755 PASS
15	917-26	7/26/2017	3,020	3,980	4,020	4000	4,662	4,750 PASS
16	917-27	8/10/2017	3,140	4,180	4,500	4340	4,642	4,522 PASS
17	917-31	8/18/2017	3,030	4,050	4,130	4090	4,609	4,143 PASS

ACI 5.6.3.3

"Strength level of an individual class of concrete shall be considered satisfactory if both of the following requirements are met:"

- (a) *Average of any three consecutive strength tests equal or exceed f_c*
- (b) *No individual strength test (average of two cylinders) falls below f_c by more than 500 psi.*

CONCRETE STRENGTH RESULTS

Project Canal Zero Design Strength 4,500 psi
 WO # 3790.90

TEST NO.	Date of Placement	7 Day	28 Day		28 Day Ave	Cum Ave	Mov 3 Ave	Status
		A	B	C				
1	917-19	7/5/2017	4,100	5,640	5,540	5590	5,590	
2	917-21	7/6/2017	4,110	5,140	4,900	5020	5,020	
3	917-22	7/12/2017	4,050	5,070	5,000	5035	5,035	5,215 PASS

ACI 5.6.3.3

"Strength level of an individual class of concrete shall be considered satisfactory if both of the following requirements are met:"

- (a) *Average of any three consecutive strength tests equal or exceed f_c*
- (b) *No individual strength test (average of two cylinders) falls below f_c by more than 500 psi.*

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General Contractor: Consigli Construction

Concrete Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 5/2/2017 **Time Cast:** **Date Received:** 5/3/2017

Placement Location: WEST STAIR STEM WALLS

Placement Method: PUMP

Placement Vol. (yd³): 14

Cylinders Made By: JOSHUA MOORE

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) 46.4 **Maximum (°F)** 61.7

DELIVERY INFORMATION

Admixtures: AE / MRWR

TEST RESULTS

Slump (in) (C-143): 6

Load Number: 1 **Batch** 10:32

Air Content (%) (C-231) 7.2

Mixer Number 156

Air Temp (°F): 50

Ticket Number 213036 **Arrive** 11:04

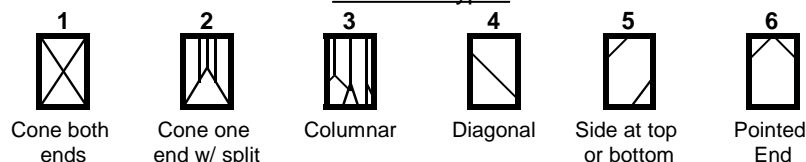
Conc. Temp (°F) (C-1064): 60

Cubic Yards: 7

Design (psi): 3500 **Depart** 11:38

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-1A	8.15	4.01	12.65	5/9/2017	Lab	7	4	44.2	3490
917-1B	8.10	4.01	12.60	5/30/2017	Lab	28	4	58.8	4670
917-1C	8.15	4.01	12.63	5/30/2017	Lab	28	5	59.8	4740
917-1D	8.10			Hold	Lab				

Fracture Types



Remarks:

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:

General Contractor: Consigli Construction

Concrete Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 5/10/2017 **Time Cast:** 10:45 **Date Received:** 5/11/2017

Placement Location: EXTERIOR WALLS FOR STAIRWELL

Placement Method: PUMP

Placement Vol. (yd³): 20

Cylinders Made By: PETER PHELAN

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) NT **Maximum (°F)** NT

DELIVERY INFORMATION

Admixtures: MRWR

TEST RESULTS

Slump (in) (C-143): 5

Load Number: 1 **Batch:** 9:39

Air Content (%) (C-231): 7.5

Mixer Number: 148

Air Temp (°F): 51

Ticket Number: 290356 **Arrive:** 10:10

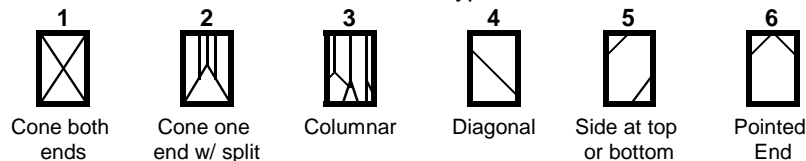
Conc. Temp (°F) (C-1064): 65

Cubic Yards: 8.5

Design (psi): 3500 **Depart:** 11:15

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-2A	8.15	4.00	12.57	5/17/2017	Lab	7	5	42.0	3340
917-2B	8.15	4.01	12.63	6/7/2017	Lab	28	4	60.8	4820
917-2C	8.20	4.01	12.63	6/7/2017	Lab	28	4	61.6	4880
917-2D	8.15			Hold	Lab				

Fracture Types



Robert E. Downing

Remarks:

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General
Contractor: Consigli Construction

Concrete
Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 5/12/2017 **Time Cast:** **Date Received:** 5/15/2017

Placement Location: BUILDING CASING, PIERS: WP3, WP4

Placement Method: TRUCK CHUTE

Placement Vol. (yd³): 7

Cylinders Made By: JOSHUA MOORE

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F)	NT	Maximum (°F)	NT
---------------------	----	---------------------	----

DELIVERY INFORMATION

Admixtures: AE /MRWR

TEST RESULTS

Slump (in) (C-143): 5 1/2

Load Number: 1	Batch
	10:22

Air Content (%) (C-231) 7.5

Mixer Number 150

Air Temp (°F): 51

Ticket Number 213375	Arrive
	11:02

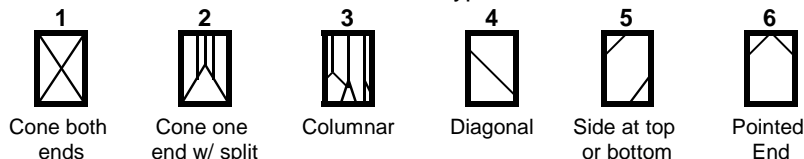
Conc. Temp (°F) (C-1064): 65

Cubic Yards: 7

Depart
Design (psi): 3500

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-3A	8.25	4.02	12.67	5/19/2017	Lab	7	5	46.2	3650
917-3B	8.25	4.01	12.65	6/9/2017	Lab	28	5	66.0	5220
917-3C	8.25	4.01	12.64	6/9/2017	Lab	28	4	62.8	4970
917-3D	8.25			Hold	Lab				

Fracture Types




Remarks:

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General Contractor: Consigli Construction

Concrete Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 5/16/2017 **Time Cast:** 1:30 **Date Received:** 5/17/2017

Placement Location: WEST STAIR CHAIR AND EXTENSION WALLS

Placement Method: PUMP

Placement Vol. (yd³): 160

Cylinders Made By: NATHANIEL MCARTHUR

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F)	NT	Maximum (°F)	NT
--------------	----	--------------	----

DELIVERY INFORMATION

Admixtures: AIR / MRWR

TEST RESULTS

Slump (in) (C-143): 4.5

Load Number: 1	Batch
	12:07

Air Content (%) (C-231) 8

Mixer Number 143

Air Temp (°F): 65

Ticket Number 213474	Arrive
	12:50

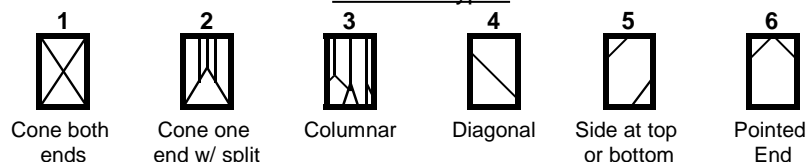
Conc. Temp (°F) (C-1064): 71

Cubic Yards: 80

Design (psi): 3500	Depart
	1:25

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-5A	8.10	4.01	12.62	5/23/2017	Lab	7	5	39.8	3150
917-5B	8.10	4.01	12.63	6/13/2017	Lab	28	5	54.4	4310
917-5C	8.10	4.01	12.60	6/13/2017	Lab	28	5	57.8	4590
917-5D	8.10			Hold	Lab				

Fracture Types




Remarks:

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:

General

Contractor: Consigli Construction

Concrete

Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 5/18/2017 **Time Cast:** 11:15 **Date Received:** 5/19/2017

Placement Location: PIER FOOTING / PIER

Placement Method: DIRECT DISCHARGE

Placement Vol. (yd³): 8

Cylinders Made By: PETER PHELAN

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) NT **Maximum (°F)** NT

DELIVERY INFORMATION

Admixtures: MRWR

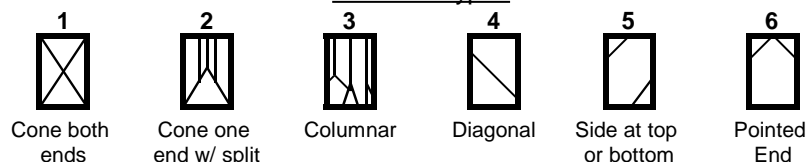
TEST RESULTS

Slump (in) (C-143): 4
Air Content (%) (C-231) 6.3
Air Temp (°F): 88
Conc. Temp (°F) (C-1064): 81

Load Number: 1 **Batch** 10:12
Mixer Number 148
Ticket Number 331446 **Arrive**
Cubic Yards: 8 **Depart**
Design (psi): 3500

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-6A	8.30	4.00	12.58	5/25/2017	Lab	7	4	40.8	3240
917-6B	8.30	4.01	12.62	6/15/2017	Lab	28	4	58.0	4600
917-6C	8.30	4.02	12.68	6/15/2017	Lab	28	4	57.8	4560
917-6D	8.30			Hold	Lab				

Fracture Types




Remarks:

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General
Contractor: Consigli Construction

Concrete
Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 5/19/2017 **Time Cast:** 11:30 **Date Received:** 5/22/2017

Placement Location: NEW CONCRETE CHEEK WALL AND PIER

Placement Method: DIRECT DISCHARGE

Placement Vol. (yd³): 8

Cylinders Made By: PETER PHELAN

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) 60 **Maximum (°F)** 86

DELIVERY INFORMATION

Admixtures: MRWR

TEST RESULTS

Slump (in) (C-143): 3 1/2

Load Number: 155

Batch
Air Content (%) (C-231) 5.8

Mixer Number 331484

10:25

Air Temp (°F): 75

Ticket Number 8

Arrive

10:55

Conc. Temp (°F) (C-1064): 76

Cubic Yards: 8

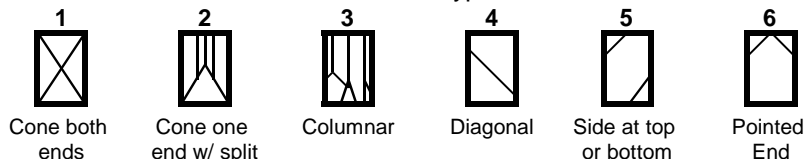
Depart

11:45

Design (psi): 3500

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-7A	8.30	4.01	12.65	5/26/2017	Lab	7	4	41.0	3240
917-7B	8.30	4.01	12.63	6/16/2017	Lab	28	4	61.0	4830
917-7C	8.30	4.02	12.66	6/16/2017	Lab	28	5	56.6	4470
917-7D	8.30			Hold	Lab				

Fracture Types




Remarks:

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General
Contractor: Consigli Construction

Concrete
Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 5/23/2017 **Time Cast:** 11:50 **Date Received:** 5/24/2017

Placement Location: PIER FOOTING W.P. -4

Placement Method: DIRECT DISCHARGE

Placement Vol. (yd³): 6

Cylinders Made By: CHARLES CROMWELL

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) 56 **Maximum (°F)** 71

DELIVERY INFORMATION

Admixtures: MRWR

TEST RESULTS

Slump (in) (C-143): 5 1/2

Load Number: 1 **Batch** 10:15

Air Content (%) (C-231) 6.8

Mixer Number 159

Air Temp (°F): 68

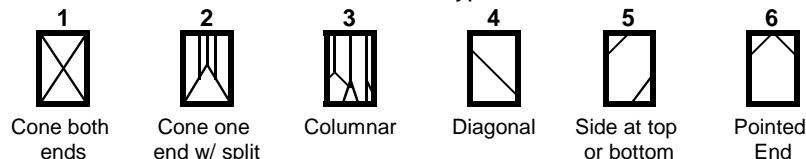
Ticket Number 331078 **Arrive** 11:05

Conc. Temp (°F) (C-1064): 75

Cubic Yards: 6 **Depart** 11:36
Design (psi): 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-8A	8.35	4.01	12.60	5/30/2017	Lab	7	5	53.0	4210
917-8B	8.30	4.02	12.66	6/20/2017	Lab	28	4	62.8	4960
917-8C	8.35	4.01	12.63	6/20/2017	Lab	28	4	63.2	5000
917-8D	8.35			Hold	Lab				

Fracture Types




Remarks:

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General Contractor: Consigli Construction

Concrete Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 5/25/2017 **Time Cast:** 1:30 **Date Received:** 5/26/2017

Placement Location: WEST STAIR CHEEK WALLS

Placement Method: PUMP

Placement Vol. (yd³): 16

Cylinders Made By: AIDAN BOYCE

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) 56 **Maximum (°F)** 71

DELIVERY INFORMATION

Admixtures: MASTER AIR / AE 200 / MASTER GLENIUM

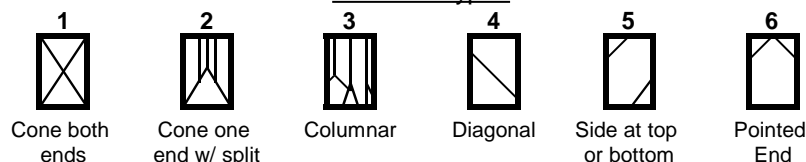
TEST RESULTS

Slump (in) (C-143): 5
Air Content (%) (C-231) 7 **Air WR:** 6.6
Air Temp (°F): 54
Conc. Temp (°F) (C-1064): 67

Load Number: 1 **Batch** 12:24
Mixer Number 83
Ticket Number 213848 **Arrive** 1:10
Cubic Yards: 8 **Depart** 1:40
Design (psi): 3500

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-9A	8.15	4.01	12.60	6/1/2017	Lab	7	5	40.8	3240
917-9B	8.15	4.00	12.59	6/22/2017	Lab	28	5	56.8	4510
917-9C	8.15	4.00	12.54	6/22/2017	Lab	28	4	60.8	4850
917-9D	8.15			Hold	Lab				

Fracture Types




Remarks:

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General Contractor: Consigli Construction

Concrete Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 5/30/2017 **Time Cast:** **Date Received:** 5/31/2017

Placement Location: CAISSON : W-2 WEST STAIR RETAINING WALL FOOTING

Placement Method: PUMP

Placement Vol. (yd³): 20

Cylinders Made By: JOSHUA MOORE

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) 54 **Maximum (°F)** 62

DELIVERY INFORMATION

Admixtures: AE /MRWR

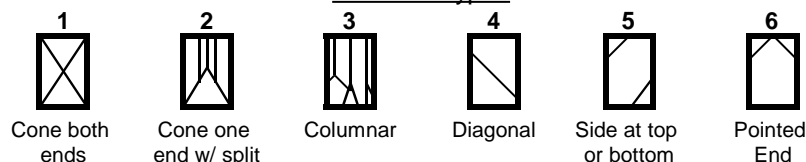
TEST RESULTS

Slump (in) (C-143): 4
Air Content (%) (C-231) 5
Air Temp (°F): 50
Conc. Temp (°F) (C-1064): 68

Load Number: 1 **Batch** 11:01
Mixer Number 150
Ticket Number 213904 **Arrive** 11:41
Cubic Yards: 10 **Depart** 12:01
Design (psi): 3500

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-10A	8.30	4.01	12.60	6/6/2017	Lab	7	5	49.0	3890
917-10B	8.30	4.01	12.62	6/27/2017	Lab	28	5	67.6	5360
917-10C	8.30	4.01	12.62	6/27/2017	Lab	28	5	68.0	5390
917-10D	8.30			Hold	Lab				

Fracture Types




Remarks:

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General Contractor: Consigli Construction

Concrete Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 6/2/2017 **Time Cast:** **Date Received:** 6/5/2017

Placement Location: WEST STAIR RETAINING WALL

Placement Method: PUMP

Placement Vol. (yd³): 27

Cylinders Made By: JOSHUA MOORE

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) 54 **Maximum (°F)** 62

DELIVERY INFORMATION

Admixtures: AE /MRWR

TEST RESULTS

Slump (in) (C-143): 6 1/2

Load Number: 1 **Batch** 1:13

Air Content (%) (C-231) 7.5

Mixer Number 150

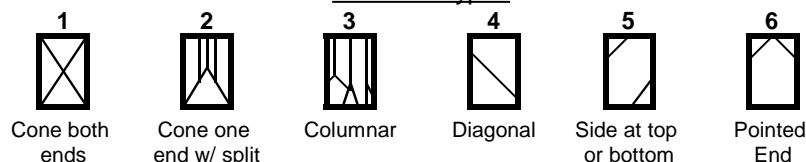
Air Temp (°F):
Ticket Number 214786 **Arrive** 1:48

Conc. Temp (°F) (C-1064): 68

Cubic Yards: 9 **Depart** 2:06
Design (psi): 3500

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-11A	8.05	4.00	12.59	6/5/2017	Lab	3	5	24.8	1970
917-11B	8.05	4.01	12.64	6/9/2017	Lab	7	5	35.6	2820
917-11C	8.05	4.01	12.60	6/30/2017	Lab	28	5	53.6	4250
917-11D	8.05			Hold	Lab				

Fracture Types




Remarks:

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:

General

Contractor: Consigli Construction

Concrete

Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 6/19/2017 **Time Cast:** 10:07 **Date Received:** 6/20/2017

Placement Location: SLAB / GRADE BEAMS

Placement Method: PUMP

Placement Vol. (yd³): 120

Cylinders Made By: JOSHUA MOORE

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) 67 **Maximum (°F)** 81

DELIVERY INFORMATION

Admixtures: AE / MRWR / R100 (1ST 4 LOADS)

TEST RESULTS

Slump (in) (C-143): 5

Load Number: 3 **Batch** 8:38

Air Content (%) (C-231) 5

Mixer Number 144

Air Temp (°F): 80

Ticket Number 214610 **Arrive** 9:50

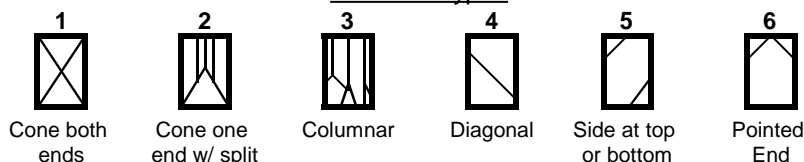
Conc. Temp (°F) (C-1064): 79

Cubic Yards: 10

Design (psi): 3500 **Depart** 10:02

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-13A	8.30	4.00	12.59	6/26/2017	Lab	7	5	41.4	3290
917-13B	8.30	4.20	13.87	7/17/2017	Lab	28	5	57.0	4110
917-13C	8.30	4.21	13.89	7/17/2017	Lab	28	4	55.4	3990
917-13D	8.30			8/14/2017	Lab	56			

Fracture Types




Remarks:

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General
Contractor: Consigli Construction

Concrete
Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 6/19/2017 **Time Cast:** 11:48 **Date Received:** 6/20/2017

Placement Location: SLAB / GRADE BEAMS

Placement Method: PUMP

Placement Vol. (yd³): 120

Cylinders Made By: JOSHUA MOORE

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) 67 **Maximum (°F)** 81

DELIVERY INFORMATION

Admixtures: AE / MRWR / R100 (1ST 4 LOADS)

TEST RESULTS

Slump (in) (C-143): 5 1/2

Load Number: 8 **Batch**
10:16

Air Content (%) (C-231) 5

Mixer Number 85

Air Temp (°F): 80

Ticket Number 214619 **Arrive**
11:18

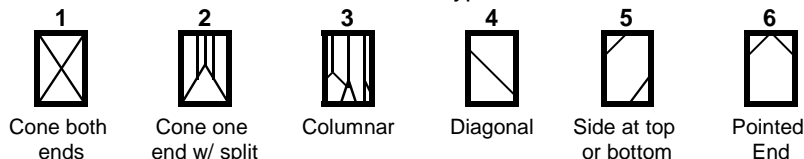
Conc. Temp (°F) (C-1064): 81

Cubic Yards: 10

Design (psi): 3500 **Depart**
11:44

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-14A	8.25	4.01	12.62	6/26/2017	Lab	7	5	40.4	3200
917-14B	8.25	4.20	13.84	7/17/2017	Lab	28	5	56.4	4070
917-14C	8.25	4.20	13.84	7/17/2017	Lab	28	5	54.8	3960
917-14D	8.25			8/14/2017	Lab	56			

Fracture Types




Remarks:

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General
Contractor: Consigli Construction

Concrete
Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 6/21/2017 **Time Cast:** **Date Received:** 6/22/2017

Placement Location: MAT SLAB CURB

Placement Method: TRUCK CHUTE

Placement Vol. (yd³): 5

Cylinders Made By: JOSHUA MOORE

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F)	NT	Maximum (°F)	NT
---------------------	----	---------------------	----

DELIVERY INFORMATION

Admixtures: AE / MRWR

TEST RESULTS

Slump (in) (C-143): 6 1/2

Load Number: 1	Batch
	2:54

Air Content (%) (C-231) 5.8

Mixer Number 148

Air Temp (°F): 80

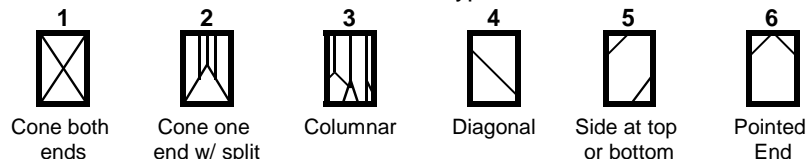
Ticket Number 214742	Arrive
	3:30

Conc. Temp (°F) (C-1064): 81

Cubic Yards: 5	Depart
Design (psi): 3500	4:08

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-15A	8.25	4.01	12.63	6/28/2017	Lab	7	4	50.4	3990
917-15B	8.25	4.01	12.60	7/19/2017	Lab	28	5	62.4	4950
917-15C	8.25	4.00	12.56	7/19/2017	Lab	28	4	64.0	5100
917-15D	8.25			Hold	Lab				

Fracture Types




Remarks:

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General
Contractor: Consigli Construction

Concrete
Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 7/5/2017 **Time Cast:** 1:30 **Date Received:** 7/6/2017

Placement Location: STAIRS

Placement Method: PUMP

Placement Vol. (yd³): 21

Cylinders Made By: ADAM CARR

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F)	NT	Maximum (°F)	NT	
---------------------	----	---------------------	----	--

DELIVERY INFORMATION

Admixtures: AAA MTA / MASTER GLENIUM / MASTER SET R100 / 1X FULL DOSE

TEST RESULTS

Slump (in) (C-143): 4 1/4

Load Number: 1	Batch
	12:22

Air Content (%) (C-231) 5.5

Mixer Number 156

Air Temp (°F): 84

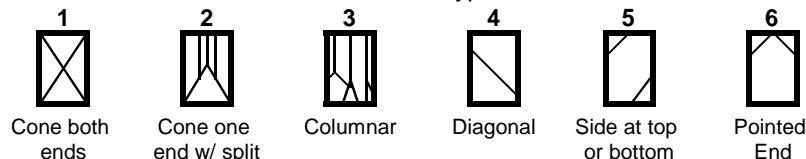
Ticket Number 215090	Arrive
	12:55

Conc. Temp (°F) (C-1064): 80

Cubic Yards: 10.5	Depart
Design (psi): 4500	1:40

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-19A	8.30	4.02	12.67	7/12/2017	Lab	7	4	52.0	4110
917-19B	8.30	4.01	12.65	8/2/2017	Lab	28	4	71.4	5640
917-19C	8.30	4.01	12.60	8/2/2017	Lab	28	4	69.8	5540
917-19D	8.30			Hold	Lab				

Fracture Types




Remarks:

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General Contractor: Consigli Construction

Concrete Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 7/6/2017 **Time Cast:** 10:12 **Date Received:** 7/7/2017

Placement Location: WEST STAIR TOP LEVEL FOUNDATION

Placement Method: PUMP

Placement Vol. (yd³): 6

Cylinders Made By: AIDAN BOYCE

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F)	NT	Maximum (°F)	NT	
---------------------	----	---------------------	----	--

DELIVERY INFORMATION

Admixtures: MASTER AIR AE200 / MASTER SET R100 / MASTER GLENIUM

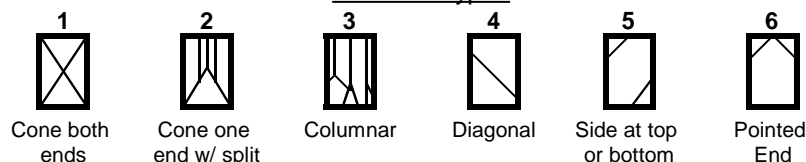
TEST RESULTS

Slump (in) (C-143):	6
Air Content (%) (C-231)	7.6
Air Temp (°F):	76
Conc. Temp (°F) (C-1064):	78

Load Number: 1	Batch
Mixer Number 108	8:54
Ticket Number 215123	Arrive
Cubic Yards: 6	9:30
Design (psi): 4500	Depart
	10:25

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-21A	8.10	4.00	12.56	7/13/2017	Lab	7	5	51.6	4110
917-21B	8.10	4.01	12.60	8/3/2017	Lab	28	5	64.8	5140
917-21C	8.10	4.01	12.63	8/3/2017	Lab	28	5	61.8	4900
917-21D	8.10			Hold	Lab				

Fracture Types




Remarks:

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General Contractor: Consigli Construction

Concrete Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 7/12/2017 **Time Cast:** 2:25 **Date Received:** 7/13/2017

Placement Location: STAIRS AND BENCH FOUNDATIONS

Placement Method: PUMP

Placement Vol. (yd³): 14

Cylinders Made By: AIDAN BOYCE

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F)	NT	Maximum (°F)	NT	
--------------	----	--------------	----	--

DELIVERY INFORMATION

Admixtures: MASTERSET R100 / MASTER AIR AE200 / MASTER GLENIUM

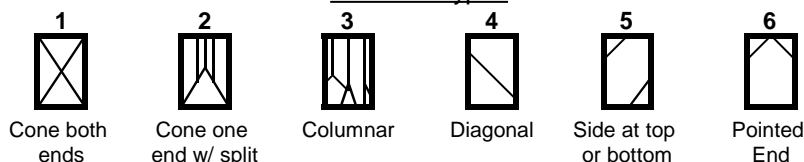
TEST RESULTS

Slump (in) (C-143):	5		
Air Content (%) (C-231)	6.6	Air WR:	6.3
Air Temp (°F):	81		
Conc. Temp (°F) (C-1064):	81		

Load Number: 1		Batch
Mixer Number 143		1:14
Ticket Number 215348		Arrive
Cubic Yards: 7		1:50
Design (psi): 5000		Depart
		2:30

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-22A	8.20	4.00	12.55	7/19/2017	Lab	7	5	50.8	4050
917-22B	8.20	3.99	12.51	8/9/2017	Lab	28	4	63.4	5070
917-22C	8.20	4.01	12.60	8/9/2017	Lab	28	4	63.0	5000
917-22D	8.20			Hold	Lab				

Fracture Types



Remarks:

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General
Contractor: Consigli Construction

Concrete
Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 7/19/2017 **Time Cast:** 1:50

Date Received: 7/20/2017

Placement Location: LARGE BUILDING STEM WALL

Placement Method: TAILGATE

Placement Vol. (yd³): 6

Cylinders Made By: AIDAN BOYCE

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F)	NT	Maximum (°F)	NT
---------------------	----	---------------------	----

DELIVERY INFORMATION

Admixtures: MASTER AIR AE200 / MASTER GLENIUM / MASTERSET R100

TEST RESULTS

Slump (in) (C-143): 5

Load Number: 1	Batch
	12:53

Air Content (%) (C-231) 4.5

Mixer Number 143

Air Temp (°F): 80

Ticket Number 215550	Arrive
	1:28

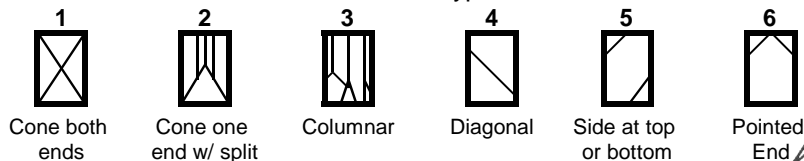
Conc. Temp (°F) (C-1064): 84

Cubic Yards: 6	Depart
-----------------------	---------------

Design (psi): 3500

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-24A	8.35	4.02	12.67	7/26/2017	Lab	7	4	50.8	4010
917-24B	8.35	4.01	12.62	8/16/2017	Lab	28	5	65.4	5180
917-24C	8.35	4.01	12.60	8/16/2017	Lab	28	5	66.4	5270
917-24D	8.35			Hold	Lab				

Fracture Types



Remarks:

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General Contractor: Consigli Construction

Concrete Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 7/26/2017 **Time Cast:** 8:00 **Date Received:** 7/27/2017

Placement Location: TWO SMALL STEM WALLS

Placement Method: TAILGATE

Placement Vol. (yd³): 7

Cylinders Made By: CHARLES CROMWELL

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F)	NT	Maximum (°F)	NT
---------------------	----	---------------------	----

DELIVERY INFORMATION

Admixtures: MASTER AIR / MASTER GLENIUM

TEST RESULTS

Slump (in) (C-143): 5 1/2

Load Number: 2	Batch: 7:04
-----------------------	--------------------

Air Content (%) (C-231) 5.5

Mixer Number 96

Air Temp (°F): 65

Ticket Number 333550	Arrive: 7:44
-----------------------------	---------------------

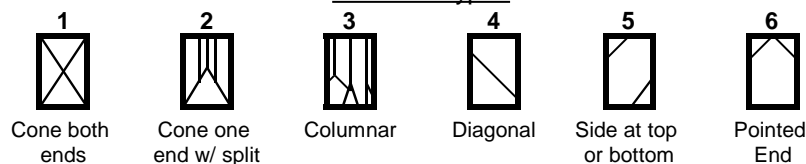
Conc. Temp (°F) (C-1064): 72

Cubic Yards: 7

Design (psi): 3500	Depart: 8:25
---------------------------	---------------------

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-26A	8.30	4.01	12.65	8/2/2017	Lab	7	4	38.2	3020
917-26B	8.30	4.00	12.55	8/23/2017	Lab	28	4	50.0	3980
917-26C	8.30	4.00	12.58	8/23/2017	Lab	28	5	50.6	4020
917-26D	8.30			Hold	Lab				

Fracture Types



Remarks:

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General Contractor: Consigli Construction

Concrete Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 8/10/2017 **Time Cast:** **Date Received:** 8/11/2017

Placement Location: EAST STAIRS, JIG WALL

Placement Method: PUMP

Placement Vol. (yd³): 8

Cylinders Made By: JOSHUA MOORE

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F)	NT	Maximum (°F)	NT
--------------	----	--------------	----

DELIVERY INFORMATION

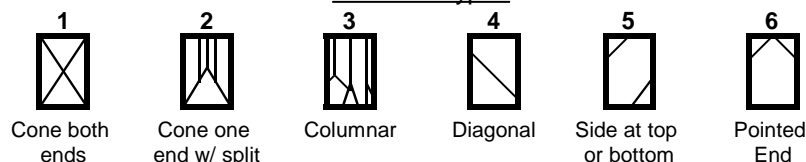
Admixtures: AE / MRWR

TEST RESULTS

Slump (in) (C-143): 5	Load Number: 1	Batch
Air Content (%) (C-231) 6.8	Mixer Number 83	
Air Temp (°F): 80	Ticket Number	Arrive 11:24
Conc. Temp (°F) (C-1064): 79	Cubic Yards: 8	Depart
	Design (psi): 3500	

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-27A	8.20	4.00	12.55	8/17/2017	Lab	7	5	39.4	3140
917-27B	8.20	3.99	12.53	9/7/2017	Lab	28	4	52.4	4180
917-27C	8.20	4.00	12.53	9/7/2017	Lab	28	5	56.4	4500
917-27D	8.20			Hold	Lab				

Fracture Types



Remarks:



Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General
Contractor: Consigli Construction

Concrete
Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 8/18/2017 **Time Cast:** 11:00 **Date Received:** 8/22/2017

Placement Location: EAST STAIR RETAINING WALL

Placement Method: PUMP

Placement Vol. (yd³): 20

Cylinders Made By: CHARLES CROMWELL

Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures
Minimum (°F) 78 **Maximum (°F)** 91

DELIVERY INFORMATION

Admixtures: MASTER AIR / MASTER GLENIUM

TEST RESULTS

Slump (in) (C-143): 5 1/2

Load Number: 1 **Batch** 9:56

Air Content (%) (C-231) 7

Mixer Number: 148

Air Temp (°F): 70

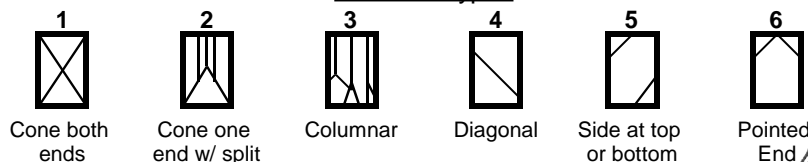
Ticket Number 335683 **Arrive** 10:32

Conc. Temp (°F) (C-1064): 72

Cubic Yards: 10 **Depart** 11:02
Design (psi): 3500

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-31A	8.15	4.00	12.55	8/25/2017	Lab	7	3	38.0	3030
917-31B	8.20	4.01	12.63	9/15/2017	Lab	28	5	51.2	4050
917-31C	8.20	4.01	12.64	9/15/2017	Lab	28	5	52.2	4130
917-31D	8.20			Hold	Lab				

Fracture Types



Remarks:

Exhibit B

Division 3 – Post-Tensioned Structural Concrete



Structural Schedule of Special Inspections

CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION	REQD	EXTENT:	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
	Y/N	CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE				
IBC Section 1704.4						
1. Inspection of reinforcing steel, including prestressing tendons, and placement	Y	P	ACI 318: 3.5, 7.1-7.7	SII	PE/SE or EIT	Yes
2. Inspection of reinforcing steel welding in accordance with Table 1704.3, Item 5B	N	-	Not applicable. Welding of Reinf Not Allowed	-	-	
3. Inspect bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased or where strength design is used.	Y	C	IBC 1911.5	SII	PE/SE or EIT	Yes
4. Inspection of anchors installed in hardened concrete.	Y	P	IBC 1212.1	SII	PE/SE or EIT	Yes
5. Verifying use of required design mix	Y	P	ACI 318: Ch 4, 5.2-5.4	TA1	ACI-CFTT or ACI-STT	Yes
6. At time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests and determine the temperature of the concrete.	Y	C	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	TA1	ACI-CFTT or ACI-STT	Yes
7. Inspection of concrete and shotcrete placement for proper application techniques	N	C	ACI 318: 5.9, 5.10	TA1	ACI-CFTT or ACI-STT	
8. Inspection for maintenance of specified curing temperature and techniques	Y	P	ACI 318: 5.11-5.13	SII	PE/SE or EIT	Yes
9. Inspection of Prestressed Concrete						
a. Application of prestressing force.	Y	C	ACI 318: 18.20	TA2	PE/SE or EIT	Yes
b. Grouting of bonded prestressing tendons in seismic force resisting system	N	C	ACI 318: 18.18.4	TA1	ACI-CFTT or ACI-STT	
10. Erection of precast concrete members.	N	P	ACI 318: Ch 16	SII	PE/SE or EIT	
11. Verification of in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs.	Y	P	ACI 318: 6.2	TA1	ACI-CFTT or ACI-STT	Yes
12. Inspect formwork for shape, location and dimensions of the concrete member being formed.	Y	P	Limitations apply. See below	SII	PE/SE or EIT	Yes

Limitations of item 12: Special inspection includes periodic review of formwork shape, general location, and formwork dimensions that can be readily measured with conventional tape measure. Verification of building layout, building location, foundation extents, column grids, and foundation elevations is excluded.

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT

Cast in Place Concrete

Date:	August 7, 2017
Time:	1:00 pm
Temp:	80 degrees
Weather:	Sunny

Observation Location: Observed the roof slab reinforcement. At the time of my visit, the bottom mat of reinforcement was in place. The majority of the mild reinforcement, post-tensioning tendons and stirrups were in place for the three main beams. Void formers for the slab and top reinforcement will be installed in the near future.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bottom bars in some locations not properly embedded into beam, see notes below.
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PT tendons not laid to final profile, see notes below
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Notes:

All reinforcement observed was in conformance with the structural drawings, except as noted below:

There are three layers of reinforcement in the bottom mat. At each beam, one of these layers is required to embed into the interior face of the beam a minimum of 6". There were approximately 5 locations where the bottom bars did not extend into the beams (see photo 1). These locations were indicated to the GC, and we indicated that the GC shall install 30" long lapped rebar extensions with 6" embed into the beam. Photos were provided by the GC of the repaired condition (see photo 2) which are acceptable.

All post-tensioning tendons were laid into the beams at the correct locations. However, since reinforcing construction was on going, the final profile of the tendons has not been set. Thus, the continuous curved profile shown on the drawings is not represented by the actual condition at this time (the tendons "wave" up and down, see photo 3). The GC indicated that the tendons will be set to the correct elevation prior to the final placement. We will inspect this work during a future visit to the site.

Signed: Christopher G. Williams, P.E., S.E.



Photo 1 – Bottom Reinforcement Not Extended into Beam



Photo 2 – Lapped Bars Added to Extended into Beam



Photo 3 – PT tendons in beams not yet laid to correct profile

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT

Cast in Place Concrete

Date:	August 10, 2017
Time:	8:00 am
Temp:	70 degrees
Weather:	Sunny

Observation Location: Observed the roof slab reinforcement. At the time of my visit, the bottom mat of slab reinforcement, all of the beam reinforcement, and all of the void formers were installed. The top mat of slab reinforcement was in the process of being installed.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inadequate spacing between the void formers, see notes below
Embed/Anchors	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hairpins at one end of PT beam 1 not straight vertical, see notes below
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	One group of PT tendons in Beam 1 not straight, see notes below
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Notes:

All reinforcement observed was in conformance with the structural drawings, except as noted below:

In PT beam 1, there are (6) groups of PT tendon bundles. One of the bundles was observed to be slightly "kinked" at one end (see photo 1). The crooked profile can create lateral forces in the beams not accounted for in the design. The GC was made aware of this condition and will straighten the tendon bundle. We will visit the site again prior to placement to inspect this condition.

In the same beam, at one end the hairpins were not aligned straight vertical (see photo 2). The hairpins provide reinforcement to transfer the PT force to the beam. The GC was made aware of the conditions and will straighten the hairpins. We will inspect this work prior to the roof placement.

Many of the void formers were found with little to no clear space between them. The design clearance between each void former is approximately 2". The GC indicated that they would walk the entire slab prior to placement and position each void former with the proper clear spacing. We will inspect this during a future visit.

Signed: Christopher G. Williams, P.E., S.E.



Photo 1 – “Kinked” Tendon Bundle at the end of Beam 1



Photo 2 – Hairpins not aligned straight vertical at end of Beam 1

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT
Cast in Place Concrete

Date:	August 11, 2017
Time:	11:15 am
Temp:	75 degrees
Weather:	Sunny

Observation Location: Observed the remaining punch list items for the roof slab identified in concrete report dated 8/10/17.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Spacing between void formers adequate, see notes below.
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hairpins correctly straightened, see notes below.
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PT tendons in beam 1 straightened, see notes below
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Notes:

Refer to concrete report dated 8/10/17 for all punch list items:

During the previous visit, in PT beam 1, one of the PT tendon bundles was observed to be slightly "kinked" at one end. I observed that the bundle of tendons had been correctly straightened (see photo 1). No further corrective action is required.

In the same beam, I observed during the previous visit that some of the hairpins in Beam 1 were not aligned straight vertical. The GC had correctly straightened the tendons at the time of my visit (see photo 2). No further corrective action is required.

During the previous visit, many of the void formers were found with little to no clear space between them. The GC had repositioned all of the voids with the correct spacing (see photo 3). No further corrective action is required.

Signed: Christopher G. Williams, P.E., S.E.



Photo 1 – Straightened Tendons in Beam 1



Photo 2 – Hairpins Straightened to Vertical



Photo 3 – Void formers positioned with the correct spacing

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT

Cast in Place Concrete

Date:	August 21, 2017
Time:	11:30am & 1:00pm
Temp:	85 degrees
Weather:	Sunny

Observation Location: Visited the site to observe the progress of post-tensioning the three beams at the roof slab.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(2) PT strands broken during stressing, see notes below.
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Notes:

I visited the site twice during the first day of tensioning for the roof beams (8/21). Jack Burgess, Associate from Becker accompanied me during the second visit. Roger Domingo from S.W. Cole was on site during both visits to observe and verify elongations of all the strands.

At the time of my first visit, one of the perimeter temperature & shrinkage control strands had broken during stressing (bottom strands along the western edge between WP-1 and WP-2, refer to photo 1 and drawing S1.2). Consigli reported that concrete had seeped into the anchor, presumably between the interior side of the anchor where it attaches to the tendon sheath (refer to photo 2). The cause was most likely due to inadequate sealing of the sheath to the anchor. The concrete inside the anchor prevented the wedges from setting straight, and the off-kilter wedges caused a side

stress on the tendon, causing the break. Upon further observations, concrete was found in several, but not all, of the anchors. Consigli was given direction to continue jacking strands only where concrete was not present in the anchor. I left the job site to review possible options for jacking the other tendons.

At the time of my second visit, Consigli reported that approximately 10 more strands have been successfully stressed, but that a second strand had been broken. This time, it was one of the beam tendons for PT Beam 1 (refer to photo 3). The cause of this break was believed to be poor access for the jack, due to congestion of strands, rebar and concrete in this area. Poor positioning of the jack caused the ram to mistakenly impact the face of the concrete, causing a spall. The spall knocked the jack off-kilter, breaking the strand.

After reviewing these conditions with Consigli, Consigli's PT subcontractor, and S.W. Cole, the following course of actions were taken:

1. Jacking of PT beams was suspended immediately.
2. The PT contractor suggested installing steel barrels at the ends of the anchors where concrete had seeped in. This would allow the wedges to set into the new barrel instead of the concrete-filled anchor. We agreed with this approach.
3. It was observed that the barrels would also provide a stand-off distance for the jack from the face of building. The barrels are approximately 2" long. It was decided that the barrels shall be used at ALL tendons going forward to help avoid interferences with the surrounding concrete.
4. At locations where concrete surfaces or reinforcement could potentially interfere with the jack access, the concrete and reinforcement were partially removed. The removed concrete will be replaced during the closure pour placement. The removed reinforcement will be drilled & epoxied back in place at a later date.
5. PT stressing will commence the following morning (8/22).

Signed: Christopher G. Williams, P.E., S.E.



Photo 1: Broken perimeter temperature strand



Photo 3: Broken strand at PT Beam 1



Photo 2: Concrete observed inside anchor where wedges are to be seated

Project:	Canal Zero
Location:	Portland, ME
Becker Job No:	3709.90

OBSERVATION REPORT

Cast in Place Concrete

Date:	August 22, 2017
Time:	9:00 am
Temp:	70 degrees
Weather:	Sunny

Observation Location: Visited the site to observe the progress of post-tensioning the three beams at the roof slab.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Broken perimeter strand determined to be acceptable.
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Broken beam strand requires further engineering evaluation.

Notes:

I visited the site during the second day of tensioning for the roof beams (8/22). Roger Domingo from S.W. Cole was on site to observe and verify elongations of all the strands.

As indicated in the report from 8/21, barrels are to be installed at the anchors for the remaining strands. Consigli reported that the barrels were onsite and ready for use (an example of some of the barrels installed is shown in photo 1). PT stressing had just commenced upon my arrival. I left the site around 9:30am, with direction to have Consigli notify me if any issues arose with the stressing. Consigli confirmed later in the day that all remaining strands had been successfully tensioned.

Consigli's PT subcontractor reviewed the condition of the broken strands and determined them unsuitable for re-tensioning. We will now begin the process of evaluating the roof beam capacity without the broken strand. The perimeter strand that broke was determined to not affect the performance of the roof slab.

Signed: Christopher G. Williams, P.E., S.E.



Photo 1: Barrels installed at the anchors of the PT strands

CONCRETE STRENGTH RESULTS

Project Canal Zero Design Strength 6,000 psi
 WO # 3790.90

TEST NO.	Date of Placement	7 Day		28 Day		28 Day Ave	Cum Ave	Mov 3 Ave	Status
		A	B	C					
1	917-20	7/6/2017	5,350	6,340	6,360	6350	6,350		
2	917-23	7/17/2017	5,590	7,010	6,890	6950	6,650		
3	917-25	7/24/2017	4,380	5,900	5,600	5750	6,350	6,350	PASS
4	917-28	8/14/2017	4,610	5,440	5,780	5610	6,165	6,103	PASS
5	917-29	8/14/2017	4,800	5,820	5,680	5750	6,082	5,703	FAILS
6	917-33	8/31/2017	6,060	6,550	6,490	6520	6,155	5,960	FAILS

Refer to email
 correspondence
 on next sheet

ACI 5.6.3.3

"Strength level of an individual class of concrete shall be considered satisfactory if both of the following requirements are met:"

- (a) *Average of any three consecutive strength tests equal or exceed f_c*
- (b) *No individual strength test (average of two cylinders) falls below f_c by more than 500 psi.*

Chris Williams

From: Swett, Michael <mswett@consigli.com>
Sent: Tuesday, October 17, 2017 10:23 AM
To: Chris Williams; Timothy Hart (thart@canal5studio.com)
Cc: Kirby, Travis; Thormann, Curtis; Todd Neal; tsoley@eastbrowncow.com; Todd Dominski
Subject: RE: Canal Zero - Roof Slab
Attachments: Head Dimension of CW As-Built.pdf

Chris,

We inspected and documented the head clearance condition at each glazing panel along the PT Beam 1 opening. The attached sketch shows the clear space between the top of the glass and the head of the lag bolts that hold the upper glazing channel in place. As you can see the clearance is less than 7/8" at all locations except the two end panels.

Unless directed otherwise, we will proceed with lowering all glazing panels in this opening so that the head clearance is at least 1", including the two end panels, for consistency. We will plan to make these adjustments in the next week, so that the glass will be completed and re-caulked prior to EBC's reception on 10/30. Please let me know if you have any questions.

Thanks,

Mike

From: Chris Williams [mailto:cwilliams@beckerstructural.com]
Sent: Monday, October 16, 2017 4:37 PM
To: Swett, Michael <mswett@consigli.com>; Timothy Hart (thart@canal5studio.com) <thart@canal5studio.com>
Cc: Kirby, Travis <TKirby@consigli.com>; Thormann, Curtis <CThormann@consigli.com>; Todd Neal <todd@beckerstructural.com>; tsoley@eastbrowncow.com; Todd Dominski <tdominski@eastbrowncow.com>
Subject: Canal Zero - Roof Slab

Mike/Tim,

The attached reports are the 56 day break results for the roof slab. There has been no improvement to the strength of the slab over the past 28 days. To me, it is safe to assume that the roof slab will not reach the designated 6,000 psi mark, and there is no need to perform any future testing. I've reviewed the slab and beam design, and below is my understanding of the discussions to date:

1. Based on the reports, we can conclude that the slab will achieve a final strength of 5,600 psi. The original design strength was to be 6,000 psi, resulting in an approximate 7% reduction.
2. The concrete compressive strength will not reduce the strength or stress cracking capacities below the required limits.
3. Deflections will be increased since the overall concrete stiffness is reduced due to the lower compressive strength. The original maximum post-construction deflection was 3/4". At the longest beam, PT Beam 1, the deflections are now predicted to be 0.78" maximum, approximately 4% beyond the previous design.

The excess deflections were reported to the design team and owners last week. At this time, Consigli had already installed the glazing along the PT Beam 1 elevation, and was beginning on glazing around PT Beams 2 and 3. Consigli reported to BSE that the available gap in the deflection track along the PT Beam 1 elevation is between 5/8" and 3/4". At beams 2 and 3, since Consigli was aware of the deflection increases from the lower strength concrete, the gap was increased to 1" or more during installation.

In summary, our opinion is that, at a minimum, the soft joint should be modified to allow for the newly predicted deflection of 0.78", which is slightly larger than the original 3/4" deflection. A soft joint of inadequate thickness can cause the slab to apply vertical load on the glazing that it is not designed for. Consigli is going to begin the process of verifying the available gap at each glazing panel. If the gap is noted to be less than 7/8", Consigli will lower the glazing panel to provide more clearance of up to 1". If the gap is noted to be greater than or equal to 7/8", no adjustment is required. Consigli will increase the available clearance at the top track by removing the base sealants, and replacing the curtain wall base shims for thinner ones.

If you have any questions, please feel free to contact me. Thanks.

Christopher G. Williams, P.E., S.E.

Senior Engineer

Becker Structural Engineers, Inc.

direct 207.879.1838 x116

beckerstructural.com

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:

General

Contractor: Consigli Construction

Concrete

Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 7/6/2017 **Time Cast:** 7:40

Date Received: 7/7/2017

Placement Location: SOUTH 14' WALL

Placement Method: PUMP

Placement Vol. (yd³): 10

Cylinders Made By: AIDAN BOYCE

Aggregate Size (in): 3/8

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) NT **Maximum (°F)** NT

DELIVERY INFORMATION

Admixtures: MASTER LITE SRA20 /
 MASTER SET / DELVO /
 MASTER AIR AE 200 / MASTER
 GLENIUM

TEST RESULTS

Slump (in) (C-143): 28 1/2

Load Number: 1 **Batch**
6:14

Air Content (%) (C-231) 8.5

Mixer Number 108

Air Temp (°F): 65

Ticket Number 215105 **Arrive**
7:15

Conc. Temp (°F) (C-1064): 77

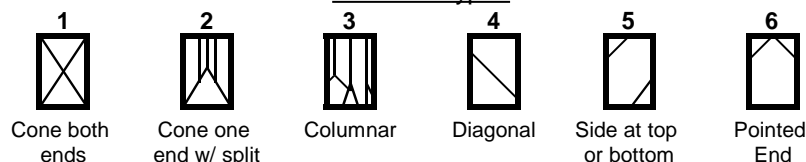
Cubic Yards: 10

Design (psi): 6000

Depart
7:41

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-20A	8.00	4.01	12.60	7/13/2017	Lab	7	5	67.4	5350
917-20B	8.00	4.01	12.62	8/3/2017	Lab	28	4	80.0	6340
917-20C	8.00	4.00	12.59	8/3/2017	Lab	28	4	80.0	6360
917-20D	8.00			Hold	Lab				

Fracture Types




Remarks: SELF CONSOLIDATING CONCRETE

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General Contractor: Consigli Construction

Concrete Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 7/17/2017 **Time Cast:** 8:00 **Date Received:** 7/18/2017

Placement Location: NORTH 14' WALL SECTION

Placement Method: PUMP

Placement Vol. (yd³): 10

Cylinders Made By: NATHANIEL MCARTHUR

Aggregate Size (in): 3/8

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) 66 **Maximum (°F)** 90

DELIVERY INFORMATION

Admixtures: AIR / SUPER / DELVO / MASTERLIFE SRA35

TEST RESULTS

Slump (in) (C-143): 30

Load Number: 1 **Batch:** 6:21

Air Content (%) (C-231) 7.8

Mixer Number: 156

Air Temp (°F): 67

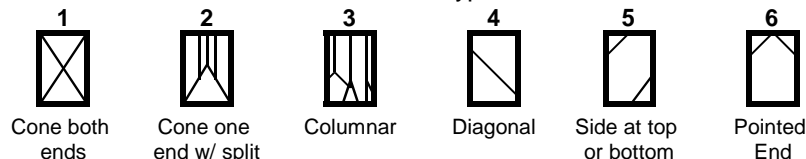
Ticket Number: 215447 **Arrive:** 7:10

Conc. Temp (°F) (C-1064): 78

Cubic Yards: 10 **Depart:** 8:00
Design (psi): 6000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-23A	7.90	4.01	12.60	7/24/2017	Lab	7	4	70.4	5590
917-23B	7.90	4.01	12.64	8/14/2017	Lab	28	5	88.6	7010
917-23C	7.90	4.01	12.61	8/14/2017	Lab	28	4	88.0	6980
917-23D	7.90			Hold	Lab				

Fracture Types



Remarks: SELF CONSOLIDATING CONCRETE

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General
Contractor: Consigli Construction

Concrete
Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 7/24/2017 **Time Cast:** 8:00 **Date Received:** 7/25/2017

Placement Location: 22' BUILDING WALL

Placement Method: PUMP

Placement Vol. (yd³): 15

Cylinders Made By: AIDAN BOYCE

Aggregate Size (in): 3/8

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) 64 **Maximum (°F)** 70

DELIVERY INFORMATION

Admixtures: MASTER AIR AE200 / MASTER SET DELVO / MASTER GLENIUM / MASTER LIFE SRA35

TEST RESULTS

Slump (in) (C-143): 30

Load Number: 2 **Batch:** 6:56

Air Content (%) (C-231) 7

Mixer Number: 155

Air Temp (°F): 64

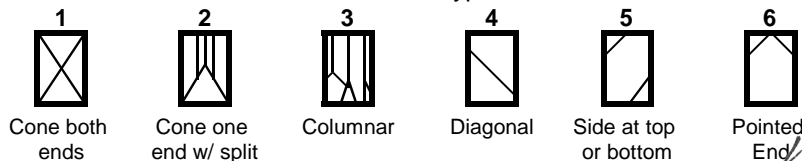
Ticket Number: 215661 **Arrive:** 7:30

Conc. Temp (°F) (C-1064): 76

Cubic Yards: 7.5 **Depart:** 8:20
Design (psi): 6000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-25A	8.20	4.01	12.60	7/31/2017	Lab	7	5	55.2	4380
917-25B	8.20	4.01	12.62	8/21/2017	Lab	28	4	74.4	5900
917-25C	8.20	4.01	12.62	8/21/2017	Lab	28	4	70.6	5600
917-25D	8.20			9/18/2017	Lab	56			

Fracture Types



Remarks: SELF CONSOLIDATING CONCRETE

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General Contractor: Consigli Construction

Concrete Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 8/14/2017 **Time Cast:** 5:50 **Date Received:** 8/16/2017

Placement Location: ROOFTOP SLAB

Placement Method: PUMP

Placement Vol. (yd³): 90

Cylinders Made By: AIDAN BOYCE

Aggregate Size (in): 3/8

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) 68 **Maximum (°F)** 81

DELIVERY INFORMATION

Admixtures: MASTER AIR AE200 /
 MASTERSET DELVO /
 MASTER GLENIUM / MASTER
 LIFE SRA35

TEST RESULTS

Slump (in) (C-143): 28

Load Number: 4 **Batch** 4:47

Air Content (%) (C-231) 7.7

Mixer Number 83

Air Temp (°F): 60

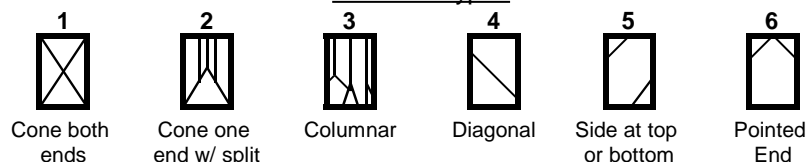
Ticket Number 216349 **Arrive** 5:30

Conc. Temp (°F) (C-1064): 72

Cubic Yards: 10 **Depart** 5:45
Design (psi): 6000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-28A	7.75	4.01	12.60	8/18/2017	Lab	4	5	52.6	4170
917-28B	7.95	4.01	12.63	8/21/2017	Lab	7	4	58.2	4610
917-28C	7.85	3.99	12.50	9/11/2017	Lab	28	4	68.0	5440
917-28D	7.85	4.00	12.57	9/11/2017	Lab	28	5	72.6	5780
917-28E	7.95	4.01	12.60	10/9/2017	Lab	56	4	69.0	5480

Fracture Types



Remarks: SELF CONSOLIDATING CONCRETE

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General Contractor: Consigli Construction

Concrete Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 8/14/2017 **Time Cast:** 7:20 **Date Received:** 8/16/2017

Placement Location: ROOFTOP SLAB

Placement Method: PUMP

Placement Vol. (yd³): 90

Cylinders Made By: AIDAN BOYCE

Aggregate Size (in): 3/8

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) 68 **Maximum (°F)** 81

DELIVERY INFORMATION

Admixtures: MASTER AIR AE200 /
 MASTERSET DELVO /
 MASTER GLENIUM / MASTER
 LIFE SRA35

TEST RESULTS

Slump (in) (C-143): 27 1/2

Load Number: 9 **Batch:** 6:07

Air Content (%) (C-231) 7.5

Mixer Number: 144

Air Temp (°F): 62

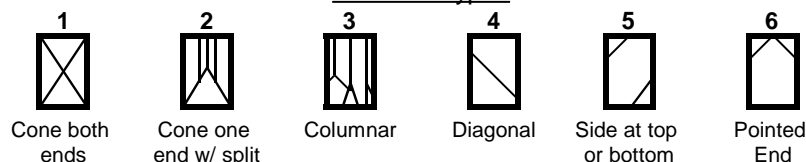
Ticket Number: 216355 **Arrive:** 6:55

Conc. Temp (°F) (C-1064): 75

Cubic Yards: 10 **Depart:** 7:20
Design (psi): 6000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-29A	8.00	4.00	12.58	8/18/2017	Lab	4	5	52.4	4170
917-29B	8.00	4.00	12.58	8/21/2017	Lab	7	4	60.4	4800
917-29C	7.95	4.00	12.59	9/11/2017	Lab	28	4	73.2	5820
917-29D	7.95	4.00	12.58	9/11/2017	Lab	28	4	71.4	5680
917-29E	7.95	4.01	12.60	10/9/2017	Lab	56	4	73.4	5830

Fracture Types



Remarks: SELF CONSOLIDATING CONCRETE



Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: Portland ME - Canal Plaza - Construction Materials Testing Services

Project Number: 15-1382.1

Client: Canal Plaza 1, LLC

Client Contract Number:
General Contractor: Consigli Construction

Concrete Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 8/31/2017 **Time Cast:** 7:23 **Date Received:** 9/1/2017

Placement Location: INFILLS FOR PRETENSION TABLES

Placement Method: PUMP

Placement Vol. (yd³): 5

Cylinders Made By: AIDAN BOYCE

Aggregate Size (in): 3/8

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) 52 **Maximum (°F)** 75

DELIVERY INFORMATION

Admixtures: MASTER AIR AE200 /
 MASTERSET DELVO /
 MASTER GLENIUM /
 MASTERLIFE SRA35

TEST RESULTS

Slump (in) (C-143): 29

Load Number: 1 **Batch:** 6:16

Air Content (%) (C-231) 8

Mixer Number: 150

Air Temp (°F): 62

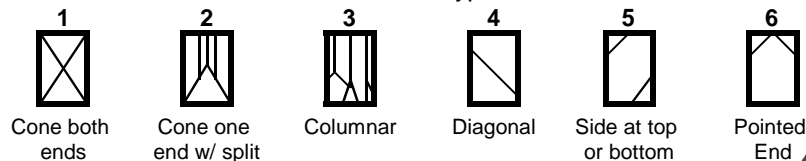
Ticket Number: 216965 **Arrive:** 7:00

Conc. Temp (°F) (C-1064): 69

Cubic Yards: 5 **Depart:** 7:20
Design (psi): 6000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) ²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
917-33A	8.10	4.00	12.58	9/7/2017	Lab	7	5	76.2	6060
917-33B	8.10	4.00	12.55	9/28/2017	Lab	28	5	82.2	6550
917-33C	8.10	4.01	12.60	9/28/2017	Lab	28	5	81.8	6490
917-33D	8.10			Hold	Lab				

Fracture Types



Remarks: SELF CONSOLIDATING CONCRETE

PT Beam 1							
Total Quantity of Strands per Beam			24	lbs (after losses)			
Required PT Force per Strand			37917	lbs (after losses)			
PT Designer Applied Force per Strand			40640	lbs (after losses)			
Bundle	Tendon	Design Force (lb)	Design Elongation (in)	Actual Elongation (in)	Differential (in)	% Pull	Actual Force (lb)
1	A	40640	3 1/2	3 3/8	- 1/8	96.4%	39189
	B	40640	3 1/2	3 1/2	0	100.0%	40640
	C	40640	3 1/2	3 1/2	0	100.0%	40640
	D	40640	3 1/2	3 1/2	0	100.0%	40640
2	A	40640	3 5/8	3 5/8	0	100.0%	40640
	B	40640	3 5/8	3 5/8	0	100.0%	40640
	C	40640	3 5/8	3 5/8	0	100.0%	40640
	D	40640	3 5/8	3 5/8	0	100.0%	40640
3	A	40640	3 3/4	3 5/8	- 1/8	96.7%	39285
	B	40640	3 3/4	3 3/4	0	100.0%	40640
	C	40640	3 3/4	3 5/8	- 1/8	96.7%	39285
	D	40640	3 3/4	0	Strand Broke	0.0%	0
4	A	40640	3 7/8	3 3/4	- 1/8	96.8%	39329
	B	40640	3 7/8	3 3/4	- 1/8	96.8%	39329
	C	40640	3 7/8	3 7/8	0	100.0%	40640
	D	40640	3 7/8	3 7/8	0	100.0%	40640
5	A	40640	3 7/8	3 3/4	- 1/8	96.8%	39329
	B	40640	3 7/8	3 7/8	0	100.0%	40640
	C	40640	3 7/8	3 3/4	- 1/8	96.8%	39329
	D	40640	3 7/8	3 3/4	- 1/8	96.8%	39329
6	A	40640	4	3 7/8	- 1/8	96.9%	39370
	B	40640	4	3 7/8	- 1/8	96.9%	39370
	C	40640	4	4	0	100.0%	40640
	D	40640	4	4	0	100.0%	40640
Total Applied Tension (lb)							921500
Design Tension (lb)							910000

See attached email following elongation report summaries addressing the broken strands.

PT Beam 2

Total Quantity of Strands per Beam		16	lbs (after losses)				
Required PT Force per Strand		37188	lbs (after losses)				
PT Designer Applied Force per Strand		40220	lbs (after losses)				
Bundle	Tendon	Design	Design	Actual	Differential (in)	% Pull	Actual
		Force (lb)	Elongation (in)	Elongation (in)			Force (lb)
7	A	40220	2 5/8	2 5/8	0	100.0%	40220
	B	40220	2 5/8	2 5/8	0	100.0%	40220
	C	40220	2 5/8	2 5/8	0	100.0%	40220
	D	40220	2 5/8	2 5/8	0	100.0%	40220
8	A	40220	2 3/4	2 3/4	0	100.0%	40220
	B	40220	2 3/4	2 3/4	0	100.0%	40220
	C	40220	2 3/4	2 3/4	0	100.0%	40220
	D	40220	2 3/4	2 7/8	1/8	100.0%	40220
9	A	40220	2 7/8	2 7/8	0	100.0%	40220
	B	40220	2 7/8	2 7/8	0	100.0%	40220
	C	40220	2 7/8	3	1/8	100.0%	40220
	D	40220	2 7/8	2 7/8	0	100.0%	40220
10	A	40220	3	3 1/8	1/8	100.0%	40220
	B	40220	3	3	0	100.0%	40220
	C	40220	3	3	0	100.0%	40220
	D	40220	3	3	0	100.0%	40220
Total Applied Tension (lb)							643500
Design Tension (lb)							595000

PT Beam 3

Total Quantity of Strands per Beam		12	lbs (after losses)				
Required PT Force per Strand		37500	lbs (after losses)				
PT Designer Applied Force per Strand		40280	lbs (after losses)				
Bundle	Tendon	Design	Design	Actual	Differential (in)	% Pull	Actual
		Force (lb)	Elongation (in)	Elongation (in)			Force (lb)
11	A	40280	2 7/8	2 3/4	- 1/8	95.7%	38529
	B	40280	2 7/8	2 3/4	- 1/8	95.7%	38529
	C	40280	2 7/8	2 3/4	- 1/8	95.7%	38529
	D	40280	2 7/8	2 7/8	0	100.0%	40280
12	A	40280	2 3/4	2 3/4	0	100.0%	40280
	B	40280	2 3/4	2 3/4	0	100.0%	40280
	C	40280	2 3/4	2 3/4	0	100.0%	40280
	D	40280	2 3/4	2 3/4	0	100.0%	40280
13	A	40280	2 5/8	2 1/2	- 1/8	95.2%	38362
	B	40280	2 5/8	2 1/2	- 1/8	95.2%	38362
	C	40280	2 5/8	2 5/8	0	100.0%	40280
	D	40280	2 5/8	2 5/8	0	100.0%	40280
Total Applied Tension (lb)							474300
Design Tension (lb)							450000

Chris Williams

From: Chris Williams
Sent: Monday, August 28, 2017 3:34 PM
To: Timothy Hart (thart@canal5studio.com); 'Todd Dominski'
Cc: 'tsoley@eastbrowncow.com'; 'Kirby, Travis'; 'Denine Leeman'; Todd Neal; 'Patrick Costin'; 'Roger Domingo'; Paul Becker; Curtis Thormann (CThormann@consigli.com); Michael Swett (mswett@consigli.com)
Subject: RE: Canal Zero Post-Tensioning
Attachments: img002.pdf; Final Jacking Forces - PT Beam 1.pdf

All,

On Friday, Consigli provided BSE with the post-tensioning design calculations performed by DSI (PT engineer). The structural drawings indicate that in Beam 1, a final effective tension of 910,000 pounds (lbs) is to be achieved. For 24 strands, this works out to 37,900 lbs per strand.

Per the submitted calculations, DSI required a design final tension of 40,600 lbs per strand, which is approximately 7% higher than 37,900 lbs required by the structural drawings. I believe the reason for the over-tension is to provide some field tolerance during the jacking process. The notes on the PT shop drawings indicate that the actual tension, which is measured by how much the strand elongates during jacking, can vary by 7% and be within accepted tolerance. These notes on the shop drawings are consistent with the over-tension shown in DSI's calculations.

Attached are the elongation reports taken by S.W. Cole, as well as a summary spreadsheet for strands. The spreadsheet calculates the actual tension in each strand based on the elongation that was actually measured. You will notice that most strands were jacked to 100% elongation (40,600 lbs), while several others were jacked up to 97% elongation (less than 40,600 lbs, but still within tolerance). The spreadsheet also accounts for the broken strand by assigning a value of 0 lbs to this particular strand. At the end, all of the final forces are summed to equal 920,600 lbs, which exceeds the 910,000 lbs required by the structural drawings.

In summary, due to the fact that DSI accounted for field tolerance and over-tensioned all of the strands, we have successfully exceeded the required minimum of amount of tension in Beam 1, even with the broken strand. As a result, Beam 1 meets the requirements of the design, and no further corrective action will be required.

If you have any questions, please let me know. Thanks.

Christopher G. Williams, P.E., S.E.
Senior Engineer
Becker Structural Engineers, Inc.

From: Chris Williams
Sent: Tuesday, August 22, 2017 2:37 PM
To: Timothy Hart (thart@canal5studio.com); Todd Dominski
Cc: tsoley@eastbrowncow.com; Kirby, Travis; Denine Leeman; Todd Neal; Patrick Costin; Roger Domingo; Paul Becker; Curtis Thormann (CThormann@consigli.com); Michael Swett (mswett@consigli.com)
Subject: Canal Zero Post-Tensioning

All,

By now, I'm assuming you've heard of some of the difficulties that arose during the post-tensioning at Canal Zero yesterday morning. In case you haven't, two strands were broken during the first few hours of post-tensioning. I'm happy to say that after several on site meetings between Becker, S.W Cole, Consigli and their PT subcontractors, all of

the remaining strands have been successfully tensioned. Below is an itemized description of our observations over the past two days:

1. The first strand that broke was one of the perimeter slab temperature & shrinkage control strands (not one of the main structural beam strands). The second strand that broke was one of the strands for PT Beam 1, the longest of the three beams.
2. There were two causes for the breaks (a typical PT anchor setup is attached for your reference):
 - a. The tendon sheathes are attached to the anchors and then sealed together. Some of these seals failed, allowing the viscous self-consolidating concrete to seep into the anchors and set up where the wedges are installed. The concrete did not allow the wedges to set straight, and the crooked wedges induced side stresses into the strand, causing the break.
 - b. There are a lot of strands in Beam 1 (24 total), which led to a lot of congestion and restricted access for the jack. During stressing, the jack mistakenly came into contact with the concrete, causing the concrete to spall. The spall sent the jack off-kilter, snapping the strand in Beam 1.
3. To fix the above issues in item 2, steel barrels were installed in each of the strand anchors (product cut sheet attached). The barrels are about 1 3/4" long, which sets the jack away from the face of the concrete and avoids the issue noted in item 2b. In addition, the wedges are now set into the barrel instead of the anchor that's been partially filled with concrete, eliminating the concern in item 2a.
4. Since the first strand that broke is not a beam strand, we will not attempt to repair it. There is still one remaining perimeter strand in this area that will provide adequate compression along the perimeter of the slab and help control cracking.
5. Consigli is working with the PT subcontractor to attempt to partially re-tension the broken strand in beam 1. If the strand can be partially tensioned, it is likely no further evaluation of the beam capacity will be required. If it cannot be tensioned, BSE will perform a more in-depth analysis to assess the lost capacity of the beam.
6. Consigli provided test/observation reports from S.W. Cole for verification of the tensioning. All strands were tensioned within tolerance. Consigli has been given the green light to begin cutting strands.
7. For now, beam 1 has enough capacity with the remaining 23 strands to support the self-weight of the slab. Once all the strands are cut, Consigli will begin the process of removing the slab shoring.

I realize this is a lot of information, all of which may be somewhat confusing. I'm available to answer any questions you may have by phone or email.

Thanks.

Christopher G. Williams, P.E., S.E.

Senior Engineer

Becker Structural Engineers, Inc.

direct 207.879.1838 x116

beckerstructural.com

POST TENSIONING
FIELD RECORD

DYWIDAG SYSTEMS INTERNATIONAL, USA, INC.



Customer Name:	Project Name: ZERO CANAL PLAZA	Contract Number:
Area: ROOF LEVEL	Drawing Number: PLOB	Strand Size: 0.6
Overstressed Gauge Pressure: 6000	Jack Ram Travel: 8" Inches	
Jack Number: 2014-040	Ram Area: 7.8 Sq.In.	

Location	Mark	Stressing Length	Type	Computed Total Elongation		Actual Elongation		
				Maximum	Minimum	1st	2nd	Total
1 ✓ T	1A	3 1/2	MF			3 3/4		
	B	"				3 1/2		
2 ✓ T	1C	"				3 1/2		
	D	"				3 1/2		
3 ✓ T	2A	3 5/8			3/2	3 5/8		
	B	"				3 5/8		
4 ✓ T	2C	"				3 5/8		
	D	"				3 5/8		
5 ✓ T	3A	3 3/4				3 5/4		
	B	"				3 3/4		
6 ✓ T	3C	"				3 5/8		
	D	"				3 5/8		
7 ✓ T	4A	3 7/8				3 7/8		
	B	"				3 3/4		
8 ✓ T	4C	"				3 7/8		
	D	"				3 7/8		
9 ✓ T	5A	3 7/8				3 3/4		
	B	"				3 7/8		
10 ✓ T	5C	"				3 7/8		
	D	"				3 7/8		
11 ✓ T	6A	4				3 1/8		
	B	"				3 7/8		
12 ✓ T	6C	"				4		
	D	"				4		

TYPE NOTE: MF denotes ONE end stressing MM denotes TWO end stressing	Computed By: RGD
Remarks:	Date: 8/
	Page 1 of 4 Pages



**CANAL ZERO
PORTLAND, MAINE
CONSIGLI CONSTRUCTION COMPANY INC.
03/09/2017**

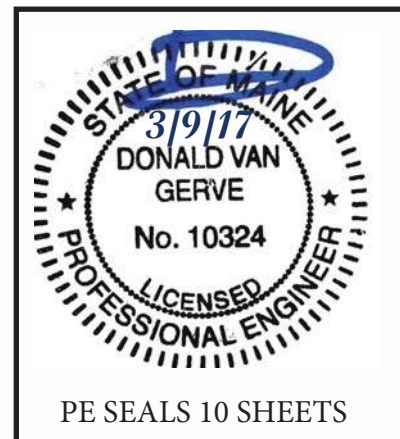
FRICTION LOSS CALCULATIONS

ROOF LEVEL

DYWIDAG SYSTEMS INTERNATIONAL USA, INC. does not assume any liability for the design of this structure. This Friction Loss Calculation is intended to provide only information and stressing data as applicable to meet plans and specifications.

Dywidag - Systems International, Inc.
320 Marmon Drive
Bolingbrook, IL 60440
Direct: (630) 972-4034
Fax: (630) 739-1405

Page 1 of 10



PE SEALS 10 SHEETS

 | ADAPT CORPORATION |
 | STRUCTURAL CONCRETE SOFTWARE SYSTEM |
1733 Woodside Road, Suite 220, Redwood City, California 94061

| ADAPT CORPORATION |
 | 1733 Woodside Road, Suite 220, Redwood City, CA 94061 USA |
 | Tel: (650) 306 2400, Fax: (650) 306 2401 |
E-mail: support@adaptsoft.com, Web site: www.adaptsoft.com

| ADAPT-FELT Standard 2014 |
 | ADAPT POST-TENSIONING STRESS LOSS & ELONGATION PROGRAM |
 | This program calculates the long-term and immediate stress losses in a post- |
 | tensioned tendon. It outputs the elongations at the stressing ends and the |
final stress profile along the tendon.

DATE: Mar 9, 2017 TIME: 09:59:30

PROJECT TITLE :
 Zero Canal Plaza

SPECIFIC TITLE :
 PT Beam - B1

LONG - TERM LOSS CALCULATIONS :

INPUT PARAMETERS :

Post-tensioning system	UNBONDED	
Type of strand	LOW LAX	
Ultimate strength of strand	270.00	ksi
Modulus of elasticity of strand	28600.00	ksi
Estimate of initial average compression	189.00	psi
Concrete strength at 28 days	6000.00	psi
Average weight of concrete	NORMAL	
Estimated age of concrete at stressing	3	days
Modulus of elasticity of concrete at stressing	3605.00	ksi
Modulus of elasticity of concrete at 28 days	4000.00	ksi
Estimate of average relative humidity	80.	%
Volume to surface ratio of member	10.50	in

CALCULATED VALUES :

Elastic shortening	0.750	ksi
Shrinkage	1.475	ksi
Creep	2.162	ksi
Relaxation	4.342	ksi

Total long-term stress losses	8.729	ksi

F R I C T I O N & E L O N G A T I O N C A L C U L A T I O N S :

INPUT PARAMETERS :

Coefficient of angular friction (meu).....	0.06000	/radian
Coefficient of wobble friction (K).....	0.00120	rad/ft
Ultimate strength of strand	270.00	ksi
Ratio of jacking stress to strand's ultimate strength	0.80	
Anchor set	0.25	inch
Cross-sectional area of strand	0.217	inch^2
Total Number of Strands per Tendon.....	1	
STRESSING	AT LEFT END	

Page # 2

Zero Canal Plaza - BM1

ADAPT-FELT 2014

LEGEND :

P = Tendon profile type defined as: 1=reversed parabola;
 2=partial/regular parabola; 3=harped; 4=general; 5=straight;
 6=extended reversed parabola; 7=cantilever down
 X1/L etc = horizontal distances to control points in geometry of the
 tendon divided by span length
 Stresses tabulated are after anchor set but before long-term losses.

TENDON ID, GEOMETRY AND STRESS PROFILE (Zero Canal Plaza - BM1)

SPAN	ft	P	LENGTH < TENDON HEIGHT in.>			Horizontal ratios			STRESS (ksi) -->		
			start	center	right	X1/L	X2/L	X3/L	start	center	right
-1----	2-----	3-----	4-----	5-----	6-----	7-----	8-----	9-----	10-----	11-----	12-
1	47.50	1	11.00	2.00	11.00	0.10	0.50	0.10	188.61	196.12	201.35

47.50 ft (total length of tendon)											

SUMMARY :

Average initial stress (after release).....	196.01	ksi
Long term stress losses	8.73	ksi
Final average stress	187.28	ksi
Final average force in tendon	40.64	k
Anchor set influence from left pull (202.31ksi;0.749) ..	45.12	ft
Elongation at left pull before anchor set	4.157	inch
Elongation at left pull after anchor set	3.907	inch
Total elongation after anchor set	3.907	inch
Ratio of total elongation to tendon length after anchor set	0.082	inch/ft
Jacking force	46.87	k

CRITICAL STRESS RATIOS :

At stressing 0.800; At anchorage 0.746; Max along tendon 0.749

ADAPT Structural Concrete Software

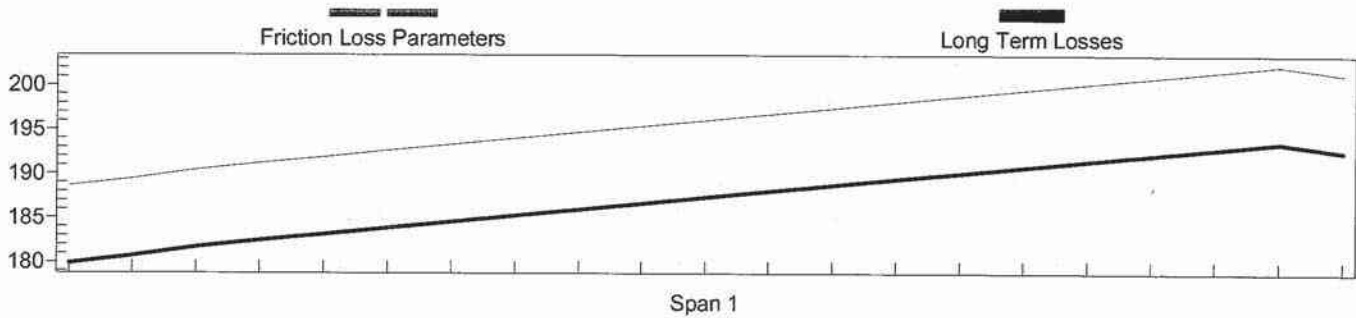
E-mail: support@adaptsoft.com, Web site: www.adaptsoft.com

ADAPT-FELT Ver. 2014

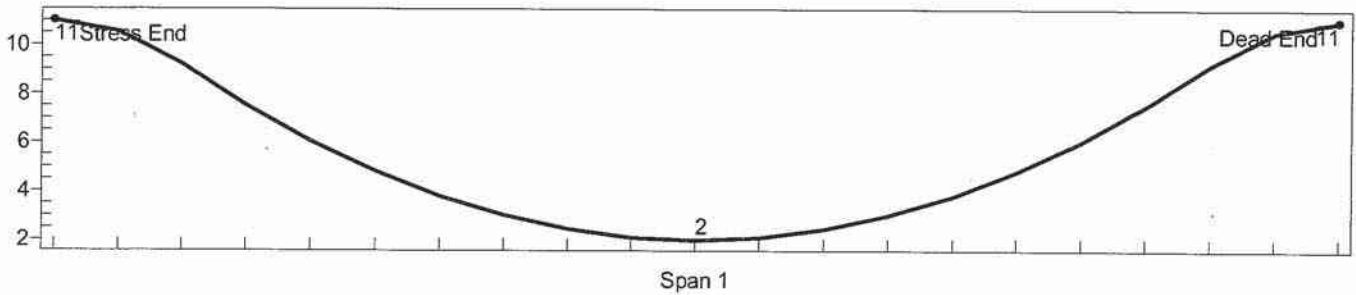
Date: 3/9/2017 Time: 10:01

1- PROJECT TITLE : Zero Canal Plaza
 1.1 SPECIFIC TITLE : PT Beam - B1
 1.2 FILE NAME : Zero Canal Plaza - BM1

2 - TENDON STRESSES [ksi]



3 - TENDON PROFILE [in]



4 - SUMMARY

Average initial stress (after release)	196.01	ksi
Long term stress losses	8.73	ksi
Final average stress	187.28	ksi
Final average force in tendon	40.64	k
Anchor set influence from left pull (202.31ksi;0.749) ..	45.12	ft
Elongation at left pull before anchor set	4.157	inch
Elongation at left pull after anchor set	3.907	inch
Total elongation after anchor set	3.907	inch
Ratio of total elongation to tendon length after anchor set	0.082	inch/ft
Jacking force	46.87	k

CRITICAL STRESS RATIOS :

At stressing 0.800; At anchorage 0.746; Max along tendon 0.749

5 - DESIGNER'S NOTES

 | ADAPT CORPORATION
 | STRUCTURAL CONCRETE SOFTWARE SYSTEM
1733 Woodside Road, Suite 220, Redwood City, California 94061

| ADAPT CORPORATION
 | 1733 Woodside Road, Suite 220, Redwood City, CA 94061 USA
 | Tel: (650) 306 2400, Fax: (650) 306 2401
E-mail: support@adaptsoft.com, Web site: www.adaptsoft.com

| ADAPT-FELT Standard 2014
 | ADAPT POST-TENSIONING STRESS LOSS & ELONGATION PROGRAM
 | This program calculates the long-term and immediate stress losses in a post-
 | tensioned tendon. It outputs the elongations at the stressing ends and the
final stress profile along the tendon.

DATE: Mar 9, 2017 TIME: 09:56:25

PROJECT TITLE :
 Zero Canal Plaza

SPECIFIC TITLE :
 PT Beam - B2

LONG - TERM LOSS CALCULATIONS :

INPUT PARAMETERS :

Post-tensioning system	UNBONDED	
Type of strand	LOW LAX	
Ultimate strength of strand	270.00	ksi
Modulus of elasticity of strand	28600.00	ksi
Estimate of initial average compression	132.00	psi
Concrete strength at 28 days	6000.00	psi
Average weight of concrete	NORMAL	
Estimated age of concrete at stressing	3	days
Modulus of elasticity of concrete at stressing	3605.00	ksi
Modulus of elasticity of concrete at 28 days	4000.00	ksi
Estimate of average relative humidity	80.	%
Volume to surface ratio of member	10.50	in

CALCULATED VALUES :

Elastic shortening	0.524	ksi
Shrinkage	1.475	ksi
Creep	1.510	ksi
Relaxation	4.131	ksi

Total long-term stress losses	7.640	ksi

F R I C T I O N & E L O N G A T I O N C A L C U L A T I O N S :

INPUT PARAMETERS :

Coefficient of angular friction (meu).....	0.06000	/radian
Coefficient of wobble friction (K).....	0.00120	rad/ft
Ultimate strength of strand	270.00	ksi
Ratio of jacking stress to strand's ultimate strength	0.80	
Anchor set	0.25	inch
Cross-sectional area of strand	0.217	inch^2
Total Number of Strands per Tendon.....	1	
STRESSING	AT LEFT END	

Page # 2

Zero Canal Plaza - BM2

ADAPT-FELT 2014

LEGEND :

P = Tendon profile type defined as: 1=reversed parabola;
 2=partial/regular parabola; 3=harped; 4=general; 5=straight;
 6=extended reversed parabola; 7=cantilever down
 X1/L etc = horizontal distances to control points in geometry of the
 tendon divided by span length
 Stresses tabulated are after anchor set but before long-term losses.

TENDON ID, GEOMETRY AND STRESS PROFILE (Zero Canal Plaza - BM2)

LENGTH		< TENDON HEIGHT in.>			Horizontal ratios			<- STRESS (ksi) -->			
SPAN	ft	P	start	center	right	X1/L	X2/L	X3/L	start	center	right
-1----	2-----	3-----	4-----	5-----	6-----	7-----	8-----	9-----	10-----	11-----	12-
1	36.00	1	11.00	2.00	11.00	0.10	0.50	0.10	186.52	193.04	199.23

36.00 ft (total length of tendon)

SUMMARY :

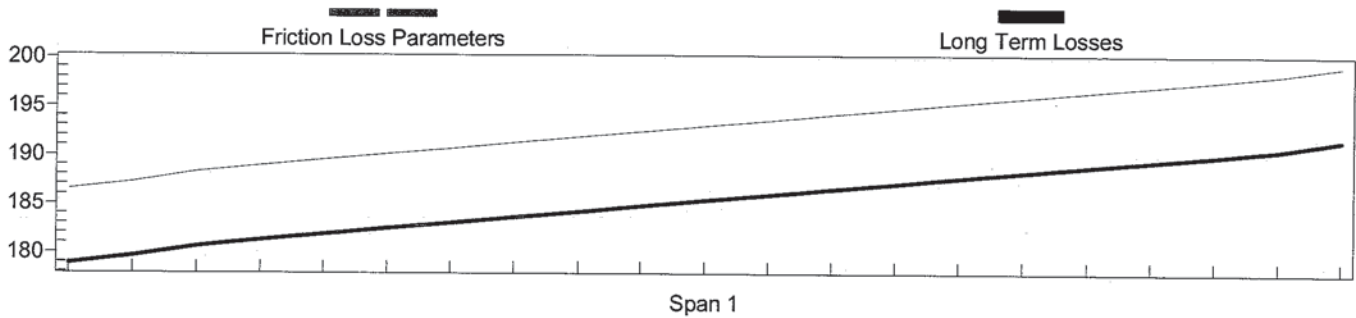
Average initial stress (after release).....	192.99	ksi
Long term stress losses	7.64	ksi
Final average stress	185.35	ksi
Final average force in tendon	40.22	k
Anchor set influence from left pull (199.23ksi;0.738) ..	36.00	ft
Elongation at left pull before anchor set	3.165	inch
Elongation at left pull after anchor set	2.915	inch
Total elongation after anchor set	2.915	inch
Ratio of total elongation to tendon length after anchor set	0.081	inch/ft
Jacking force	46.87	k

CRITICAL STRESS RATIOS :

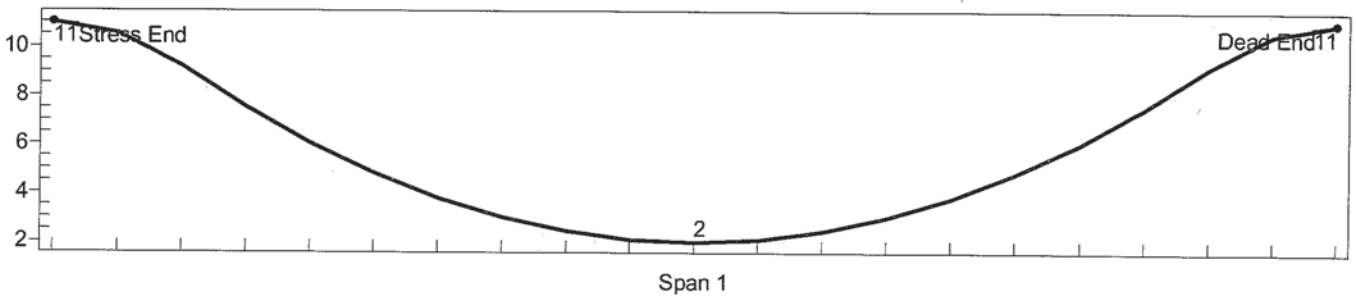
At stressing 0.800; At anchorage 0.738; Max along tendon 0.738

1- PROJECT TITLE : Zero Canal Plaza
 1.1 SPECIFIC TITLE : PT Beam - B2
 1.2 FILE NAME : Zero Canal Plaza - BM2

2 - TENDON STRESSES [ksi]



3 - TENDON PROFILE [in]



4 - SUMMARY

Average initial stress (after release).....	192.99	ksi
Long term stress losses	7.64	ksi
Final average stress	185.35	ksi
Final average force in tendon	40.22	k
Anchor set influence from left pull (199.23ksi;0.738) ..	36.00	ft
Elongation at left pull before anchor set	3.165	inch
Elongation at left pull after anchor set	2.915	inch
Total elongation after anchor set	2.915	inch
Ratio of total elongation to tendon length after anchor set	0.081	inch/ft
Jacking force	46.87	k

CRITICAL STRESS RATIOS :
 At stressing 0.800; At anchorage 0.738; Max along tendon 0.738

5 - DESIGNER'S NOTES

 | ADAPT CORPORATION
 | STRUCTURAL CONCRETE SOFTWARE SYSTEM
1733 Woodside Road, Suite 220, Redwood City, California 94061

ADAPT CORPORATION
 1733 Woodside Road, Suite 220, Redwood City, CA 94061 USA
 Tel: (650) 306 2400, Fax: (650) 306 2401
 E-mail: support@adaptsoft.com, Web site: www.adaptsoft.com

ADAPT-FELT Standard 2014
 ADAPT POST-TENSIONING STRESS LOSS & ELONGATION PROGRAM
 This program calculates the long-term and immediate stress losses in a post-tensioned tendon. It outputs the elongations at the stressing ends and the final stress profile along the tendon.

DATE: Mar 9, 2017 TIME: 09:58:50

PROJECT TITLE :
 Zero Canal Plaza

SPECIFIC TITLE :
 PT Beam - B3

LONG - TERM LOSS CALCULATIONS :

INPUT PARAMETERS :

Post-tensioning system	UNBONDED	
Type of strand	LOW LAX	
Ultimate strength of strand	270.00	ksi
Modulus of elasticity of strand	28600.00	ksi
Estimate of initial average compression	99.50	psi
Concrete strength at 28 days	6000.00	psi
Average weight of concrete	NORMAL	
Estimated age of concrete at stressing	3	days
Modulus of elasticity of concrete at stressing	3605.00	ksi
Modulus of elasticity of concrete at 28 days	4000.00	ksi
Estimate of average relative humidity	80.	%
Volume to surface ratio of member	10.50	in

CALCULATED VALUES :

Elastic shortening	0.395	ksi
Shrinkage	1.475	ksi
Creep	1.138	ksi
Relaxation	4.148	ksi

Total long-term stress losses	7.156	ksi

F R I C T I O N & E L O N G A T I O N C A L C U L A T I O N S :

INPUT PARAMETERS :

Coefficient of angular friction (meu).....	0.06000	/radian
Coefficient of wobble friction (K).....	0.00120	rad/ft
Ultimate strength of strand	270.00	ksi
Ratio of jacking stress to strand's ultimate strength	0.80	
Anchor set	0.25	inch
Cross-sectional area of strand	0.217	inch^2
Total Number of Strands per Tendon.....	1	
STRESSING	AT LEFT END	

Page # 2

Zero Canal Plaza - BM3

ADAPT-FELT 2014

LEGEND :

P = Tendon profile type defined as: 1=reversed parabola;
 2=partial/regular parabola; 3=harped; 4=general; 5=straight;
 6=extended reversed parabola; 7=cantilever down
 X1/L etc = horizontal distances to control points in geometry of the
 tendon divided by span length
 Stresses tabulated are after anchor set but before long-term losses.

TENDON ID, GEOMETRY AND STRESS PROFILE (Zero Canal Plaza - BM3)

SPAN	ft	P	< TENDON HEIGHT in.>			Horizontal ratios			<- STRESS (ksi) -->		
			start	center	right	X1/L	X2/L	X3/L	start	center	right
-1----	2-----	3-----	4-----	5-----	6-----	7-----	8-----	9-----	10-----	11-----	12-
1	35.50	1	11.00	2.00	11.00	0.10	0.50	0.10	186.36	192.84	199.00

35.50 ft (total length of tendon)											

SUMMARY :

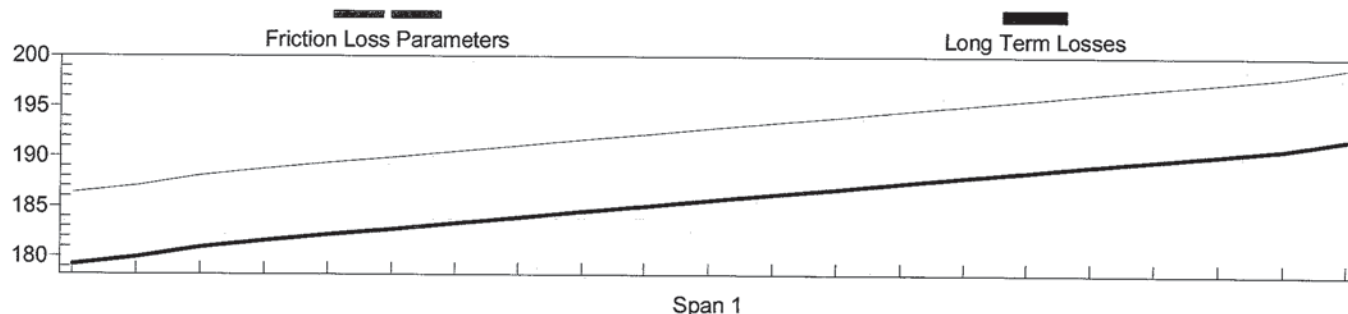
Average initial stress (after release).....	192.79	ksi
Long term stress losses	7.16	ksi
Final average stress	185.63	ksi
Final average force in tendon	40.28	k
Anchor set influence from left pull (199.00ksi;0.737) ..	35.50	ft
Elongation at left pull before anchor set	3.122	inch
Elongation at left pull after anchor set	2.872	inch
Total elongation after anchor set	2.872	inch
Ratio of total elongation to tendon length after anchor set	0.081	inch/ft
Jacking force	46.87	k

CRITICAL STRESS RATIOS :

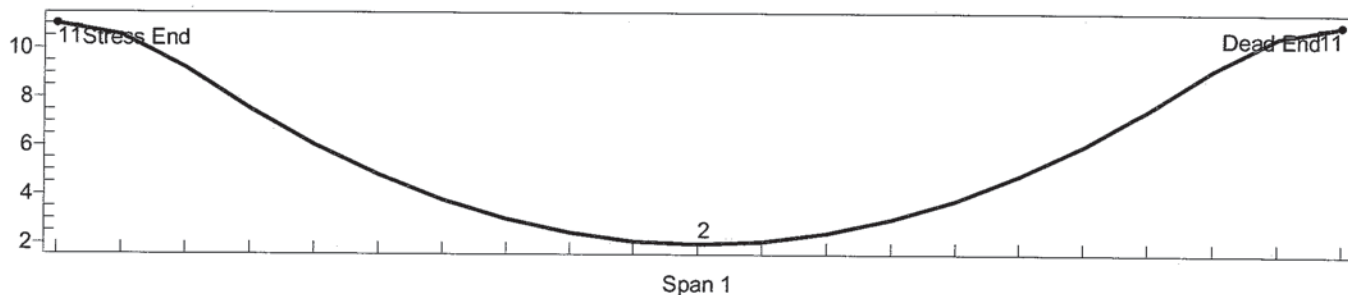
At stressing 0.800; At anchorage 0.737; Max along tendon 0.737

1- PROJECT TITLE : Zero Canal Plaza
 1.1 SPECIFIC TITLE : PT Beam - B3
 1.2 FILE NAME : Zero Canal Plaza - BM3

2 - TENDON STRESSES [ksi]



3 - TENDON PROFILE [in]



4 - SUMMARY

Average initial stress (after release).....	192.79	ksi
Long term stress losses	7.16	ksi
Final average stress	185.63	ksi
Final average force in tendon	40.28	k
Anchor set influence from left pull (199.00ksi;0.737) ..	35.50	ft
Elongation at left pull before anchor set	3.122	inch
Elongation at left pull after anchor set	2.872	inch
Total elongation after anchor set	2.872	inch
Ratio of total elongation to tendon length after anchor set	0.081	inch/ft
Jacking force	46.87	k

CRITICAL STRESS RATIOS :
 At stressing 0.800; At anchorage 0.737; Max along tendon 0.737

5 - DESIGNER'S NOTES

Exhibit B

Division 31 – Soils, Fills & Foundation Subgrades



Structural Schedule of Special Inspections SOILS & FOUNDATION CONSTRUCTION

VERIFICATION AND INSPECTION	REQD Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
IBC Section 1704.7, 1704.8, 1704.9						
1. Required Verification and Inspection of Soils:						
a. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	Y	P	IBC 1704.7	SI2	PE/GE, EIT or ETT	<i>Yes</i>
b. Verify excavations are extended to proper depth and have reached proper material.	Y	P	IBC 1704.7	SI2	PE/GE, EIT or ETT	<i>Yes</i>
c. Perform classification and testing of compacted fill materials.	Y	P	IBC 1704.7	TA1	PE/GE, EIT or ETT	<i>Yes</i>
d. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	Y	C	IBC 1704.7	TA1	PE/GE, EIT or ETT	<i>Yes</i>
e. Prior to placement of compacted fill, observe subgrade and verify that site has been prepared properly.	Y	P	IBC 1704.7	SI2	PE/GE, EIT or ETT	<i>Yes</i>
2. Required Verification and Inspection of Driven Deep Foundation Elements:						
a. Verify element materials, sizes and lengths comply with the requirements.	N	C	IBC 1704.8	TA1	PE/GE, EIT or ETT	
b. Determine capacities of test elements and conduct additional load tests, as required.	N	C	IBC 1704.8	SI2	PE/GE, EIT or ETT	
c. Observe driving operations and maintain complete and accurate records for each element.	N	C	IBC 1704.8	TA1	PE/GE, EIT or ETT	
d. Verify placement locations and plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and document any damage to foundation element.	N	C	IBC 1704.8	TA1	PE/GE, EIT or ETT	
3. Required Verification and Inspection of Cast-in-Place Deep Foundation Elements:						
a. Observe drilling operations and maintain complete and accurate records for each element.	N	C	IBC 1704.9	TA1	PE/GE, EIT or ETT	
b. Verify placement locations and plumbness, confirm element diameters, bell diameters (if applicable), lengths, embedment into bedrock (if applicable) and adequate end bearing strata capacity. Record concrete or grout volumes.	Y	C	IBC 1704.9	TA1	PE/GE, EIT or ETT	<i>Yes</i>

See Concrete, Masonry, and/or Steel Schedules for additional material inspections for deep foundation elements as applicable.



CONSTRUCTION OBSERVATION REPORT

Project: Proposed Canal Plaza Project – Portland, ME

Client: Canal Plaza 1 LLC

Client's Rep.: Denine Leeman

S.W. COLE Project No.: 15-1382.1

Date: Week 5/7/17

Work in Progress: Shaw Brothers (Shaw) excavating and preparing subgrade for building foundation piers. Consigli constructing building pier foundations.

Work Performed by S.W. COLE Rep.: Observation of exposed soil and bedrock conditions.

General Observations and Discussions: As requested by Consigli, we made site visits during the week of 5/7/17 as follows:

5/8/17, On-Site 10:30 – 11:30: We met with Curtis Thormann (Consigli superintendent) and Dave Doucette (Shaw supervisor). Shaw had excavated down to bedrock for the northern building pier using a CAT 330 with a toothed bucket. Some loose soil and debris remained at the subgrade surface. We recommended that the loose material be removed and the bedrock surface be broom cleaned. We observed the soils stockpiled from the pier excavation to consist of brown gravelly sand with some silt, with some bricks and concrete intermixed. We understand the project environmental consultant encountered contaminants in the on-site soils and therefore project planning includes reusing the on-site soils to backfill the piers in effort to reduce site export. We discussed that it would be difficult to obtain an accurate Proctor value and to perform field density testing on the soils and that we would perform general observation of compaction effort during our site visits.

5/9/17, On-Site 12:00 – 1:30: Shaw had continued to clean loose soil and debris from the bedrock subgrade at the northern building pier. We observed the bedrock subgrade to step down to the southeast and recommended that soft weathered bedrock be removed on the low side of the subgrade which Shaw acknowledged.

Additionally, Shaw had excavated to bedrock for the western building pier. The bedrock surface was relatively flat and level and had been broom cleaned.

5/10/17, On-Site 11:30 – 1:00: We observed Shaw and Consigli had hand shoveled the loose and weathered bedrock from the lower side of the stepped bedrock subgrade at the northern pier. Additionally, Consigli had drilled and pinned the pier rebar into the bedrock on the high side of the subgrade, as recommended by Becker Structural during their site visit.

5/11/17, On-Site 2:00 – 3:30: Shaw had excavated to bedrock for the central building pier. It appeared that the excavation had penetrated about 4 to 5 feet into loose weathered bedrock. The bedrock at the base of the excavation was weathered and easily rippable by the toothed bucket and we understand the excavator was at the limits of its reach. Based on discussion with Chris Williams at Becker Structural, we understand the central pier is relatively lightly loaded with an applied pressure of approximately 3 ksf. We recommended that Shaw remove the loose material from the weathered bedrock surface and then compact the subgrade with 3 to 5 passes of a large vibratory plate compactor to achieve the design bearing capacity.

GRAY, ME OFFICE

286 Portland Road, Gray, ME 04039, Tel (207) 657-2866, Fax (207) 657-2840, (E) infogray@swcole.com, (I) www.swcole.com

S.W. COLE was on-site at the request of our client to provide construction materials testing and to observe and document construction activities. The contractor has sole responsibility for schedule, site safety, methods, completeness and quality of the work.



S.W.COLE
ENGINEERING, INC.

• *Geotechnical Engineering* • *Field & Lab Testing* • *Scientific & Environmental Consulting*

Shaw had started to backfill the northern and western piers reusing the excavated on-site soils. The soils were being placed in approximate 12-inch lifts and compacted with 3 to 5 passes of a Wacker DPU 5545 (900 pound) vibratory plate compactor.

Time Onsite: As Noted
Attachments: Photographs
Sheet: 1 of 1

S.W.COLE Rep.: E. Walker
Rev. by: T. Boyce

GRAY, ME OFFICE

286 Portland Road, Gray, ME 04039, Tel (207) 657-2866, Fax (207) 657-2840, (E) infogray@swcole.com, (I) www.swcole.com

S.W. COLE was on-site at the request of our client to provide construction materials testing and to observe and document construction activities. The contractor has sole responsibility for schedule, site safety, methods, completeness and quality of the work.











CONSTRUCTION OBSERVATION REPORT

Project: Proposed Canal Plaza Project – Portland, ME

Client: Canal Plaza 1 LLC

Client's Rep.: Denine Leeman

S.W. COLE Project No.: 15-1382.1

Date: Week 5/14/17

Work in Progress: Shaw Brothers (Shaw) excavating and preparing subgrade for building foundation piers. Consigli constructing building pier foundations.

Work Performed by S.W. COLE Rep.: Observation of exposed soil and bedrock conditions.

General Observations and Discussions: As requested by Consigli, we made site visits during the week of 5/14/17 as follows:

5/16/17, On-Site 10:15 – 11:45: We made a site visit to make follow-up observations of the weathered bedrock subgrade at the central building pier. We observed loose material to have been removed from the subgrade. Consigli and Shaw reported that the subgrade had been compacted with a large vibratory plate compactor as we recommended on 5/11/17.

5/17/17, On-Site 2:45 – 3:30: Shaw had excavated to bedrock for the eastern building pier. Based on observation of the sidewalls, it appeared that about 2 to 3 feet of weathered bedrock had been penetrated before more sound bedrock was encountered. We recommended that loose soil and bedrock fragments be removed from the subgrade and that the bedrock surface be broom cleaned.

Time Onsite: As Noted

Attachments: Photographs

Sheet: 1 of 1

S.W. COLE Rep.: E. Walker

Rev. by: T. Boyce

GRAY, ME OFFICE

286 Portland Road, Gray, ME 04039, Tel (207) 657-2866, Fax (207) 657-2840, (E) infogray@swcole.com, (I) www.swcole.com

S.W. COLE was on-site at the request of our client to provide construction materials testing and to observe and document construction activities. The contractor has sole responsibility for schedule, site safety, methods, completeness and quality of the work.





Special Inspections – Exhibit C

Quality Assurance Checklist for Wind and Seismic



SEISMIC RESISTANCE CHECK LIST [IBC 1705.3]

Seismic Design Category B

<input type="checkbox"/> FOR SEISMIC DESIGN CATEGORY C OR HIGHER:	
Structural:	
<input type="checkbox"/> The seismic-force-resisting systems	
<input type="checkbox"/> Steel Braced Frames and associated connections/anchorage (Not required for SDC C, R=3) <input type="checkbox"/> Steel Moment Frames and associated connections (Not required for SDC C, R=3) <input type="checkbox"/> Shear walls: <input type="checkbox"/> CMU <input type="checkbox"/> Wood <input type="checkbox"/> Concrete <input type="checkbox"/> Diaphragms: <input type="checkbox"/> Floor <input type="checkbox"/> Roof <input type="checkbox"/> Other:	

WIND RESISTANCE CHECK LIST [IBC 1705.4]

Wind Exposure Category B

REQUIRED	NOT REQUIRED	NOT APPLICABLE	WIND RESISTANCE REQUIREMENTS
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	In wind exposure Category B, where the 3-second-gust basic wind speed is 120 miles per hour (mph) (52.8 m/sec) or greater.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	In wind exposure Categories C and D, where the 3-second-gust basic wind speed is 110 mph (49 m/sec) or greater.

End of Special Inspections Report

