S.W.COLE ENGINEERING, INC. • Geotechnical Engineering • Field & Lab Testing • Scientific & Environmental Consulting

CONSTRUCTION OBSERVATION REPORT

Project: Cumberland County Civic Center Renovations
Client: Cumberland County Recreation Center
Client's Rep.: Carl Cooke / Frontline Construction

SWCE Project No.: 12-0034.1
Date: 6-17-13
Weather: Mixed, 50s-60s

Work in Progress: Shaw Brothers (Shaw): Excavation and subgrade preparation for proposed footings in Quad B.

Work Performed by SWCE: Observation and documentation of footing subgrades.

General Observations, Discussions, Etc: In coordination with Cianbro, we made a site visit to observe footing subgrade conditions. At the time of our visit, Shaw had just finished cleaning sound bedrock surface at BA/B1; sound bedrock had been exposed at BB/BX and BC/B2 also, but at these two locations, final surface cleaning was pending. For subgrade preparation, Shaw is exposing rock with a large excavator after which compressed air is being used for final cleaning. General techniques observed appear appropriate for the conditions encountered and the final prepared condition at BA/B1 was in general accordance with our expectations based on the geotechnical investigation.

In addition to the three pier footing areas noted above, Shaw had prepared portions of the strip footings in this same general area. Preparations for strip footings consisted of 6-inches of ¾-inch crushed stone overlying native soils. We spoke with Shaw (Mickey) and Cianbro (Brett) and indicated that based on "note 2" of the Foundations, Backfill and Drainage section on S0.01 and typical detail "F24" on S3.01, Cianbro should request clarification WBRC regarding bearing conditions for strip footings.

On Site: 10:30 – 11:30
Attachments: Photos

SWCE Rep.: K. Gimpel
Rev. by: TJB

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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

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CONSTRUCTION OBSERVATION REPORT

Project: Cumberland County Civic Center Renovations
Client: Cumberland County Recreation Center
Client's Rep.: Carl Cooke/Frontline Construction

SWCE Project No.: 12-0034.1
Date: 7-2-13 and 7-3-13
Weather: Showers, 60 - 70

Work in Progress: Shaw Brothers (Shaw): Excavation and subgrade preparation for proposed footings in Quads C and D. N. S. Giles: Placement of lean concrete on prepared footing subgrades.

Work Performed by SWCE: Observation and documentation of footing subgrades.

General Observations, Discussions, Etc: In coordination with Cianbro, we made a site visit to observe footing subgrade conditions in current work areas.

On 7-2-13, Shaw worked in Quad D at DA/D2, xK/D2 and at the wall footing for the masonry load bearing wall approximately located between X2.2 and the elevator corner. At these locations, loose weathered rock was removed with a large excavator (Caterpillar 320CL) after which hand shovels and high pressure air was used to clean the exposed sound surface. Slight seepage was present at all three locations, so Shaw maintained a sump/pump operation until the concrete placement was started; residual water was pushed out with concrete.

On 7-3-13, Shaw worked in Quad C at CB.8/C5.3 and CA/C6. Both of these locations are in close proximity to existing piers and no weathered rock was noted likely because of preparations that took place during original foundation work (a vertical rock face was encountered at the west edge of CA/C6). The mass excavation work had been completed prior to our arrival and while on site we observed final preparations which were performed with mini excavator (John Deere 27C). A portion of subgrade at CA/C6 consisted of a relic mud mat extending from pier on x15-line. Heavy seepage from rock fractures as well as from overlying granular soils was encountered at both locations. The seepage was significant enough that the rock surface could not be made completely visible, so soundness and acceptability of bottom conditions was determined by probing through the last few inches of water. Shaw maintained a sump/pump until the concrete placement started and Giles displaced residual water with continuous discharge of concrete. At both CB.8/C5.3 and CA/C6 vertical reinforcing for the proposed piers was installed down to top of rock as required by RFI #410.

Subgrade preparations observed at the locations described above were consistent with our general recommendations.

On Site: 7:25 – 10:00 (7-2-13)
8:30 – 11:30 (7-3-13)

SWCE Rep.: K. Gimpel
Rev. by: TJB

Attachments: Photos

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7-2-2013

7-2-2013

7-3-2013

7-3-2013

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CONSTRUCTION OBSERVATION REPORT

Project: Cumberland County Civic Center Renovations
Client: Cumberland County Recreation Center
Client's Rep.: Carl Cooke/Frontline Construction

SWCE Project No.: 12-0034.1
Date: 7-8-13
Weather: Clear, 80s

Work in Progress: Shaw Brothers (Shaw): Excavation and subgrade preparation for proposed footings in Quads D.

Work Performed by SWCE: Observation and documentation of footing subgrades.

General Observations, Discussions, Etc: Cianbro coordinated with us to provide subgrade observations in Quad D at wall footings DC/D4-D2.6 and D2.6/DC-xK and column footing D3/xK. Exposed subgrades consisted of sound intact bedrock that had been cleaned with high pressure air to remove loose rock and soil. Preparation of foundation bearing surfaces appeared consistent with the construction documents.

On Site: 13:30 – 14:00
Attachments: Photo

SWCE Rep.: TJB
Rev. by: TJB

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CONSTRUCTION OBSERVATION REPORT

Project: Cumberland County Civic Center Renovations
Client: Cumberland County Recreation Center
Client's Rep.: Carl Cooke/Frontline Construction

SWCE Project No.: 12-0034.1
Date: 7-11-13
Weather: Overcast, 65-75

Work in Progress: Shaw Brothers (Shaw): Excavation and subgrade preparation for proposed footings in Quads C.

Work Performed by SWCE: Observation and documentation of footing subgrades.

General Observations, Discussions, Etc: In coordination with Cianbro, we made a site visit to observe footing subgrade conditions underlying the proposed Quad C elevator base slab.

Shaw continues to prepare subgrades by first removing the overburden soils and loose, weathered zone of rock with an excavator (Caterpillar 320CL) after which the residual material is blown off with high pressure air. A sump/pump operation is then maintained as needed until concrete is placed. Preparation of foundation bearing surfaces appeared consistent with the construction documents.

On Site: 13:30 – 14:00
Attachments: Photo

SWCE Rep.: K. Gimpel
Rev. by: TJB

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CONSTRUCTION OBSERVATION REPORT

Project: Cumberland County Civic Center Renovations
Client: Cumberland County Recreation Center
Client's Rep.: Carl Cooke/Frontline Construction

SWCE Project No.: 12-0034.1
Date: 7-15-13
Weather: Sunny, 90

Work in Progress: Shaw Brothers (Shaw): Excavation and subgrade preparation for proposed footings in Quads C.

Work Performed by SWCE: Observation and documentation of footing subgrades.

General Observations, Discussions, Etc: Cianbro coordinated with us to provide subgrade observations for Quad C footings while on site for Quad D reinforcing and concrete.

While on site, we observed subgrade conditions at the escalator pit, CB/C2.8, CC/C2.3 and CC/C1. The first three locations were prepared as described in previous field reports with an excavator, high pressure air and a sump/pump operation. CC/C1 was situated such that Shaw did not feel that personal could safely access the bottom of the hole to perform final cleaning. At this location, we observed Shaw use the excavator with a smooth edged bucket aggressively scrap the rock surface until it was leveled out with a sufficiently cleaned rock surface exposed. All excavations appeared to be appropriately sized provided layout is accurate; we discussed layout procedures with Shaw and understand that Shaw is providing layout and that Giles is confirming. Preparation of foundation bearing surfaces appeared consistent with the construction documents.

On Site: On site for Quad D rebar and concrete
Attachments: Photo

SWCE Rep.: K. Gimpel
Rev. by: TJB

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SAFETY FIRST

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CONSTRUCTION OBSERVATION REPORT

Project: Cumberland County Civic Center Renovations
SWCE Project No.: 12-0034.1
Client: Cumberland County Recreation Center
Date: 8-15-13
Client's Rep.: Carl Cooke/Frontline Construction
Weather: Sunny, 80

Work in Progress: Shaw Brothers (Shaw): Excavation and subgrade preparation for proposed footings in Quads D.

Work Performed by SWCE: Observation and documentation of footing subgrades.

General Observations, Discussions, Etc: While on site for a scheduled concrete placement, Shaw Brothers requested that we observe prepared subgrade conditions for Quad D footings at X1, D1 and X2.2 on DZ-line. The exposed subgrade surfaces consisted of sound intact bedrock at all three locations. Some rock removal had been performed with a hydraulic hammer to achieve proposed bottom of footing elevation after which all loose material was removed using hand equipment. No free water was present in the current work area. Based on our conversations with Shaw Brothers (John), we understand the ¾-inch crushed stone required under abutting strip footings will be held back from the prepared column footings such that the lean concrete will be oversized approximately 1:1 below the designed footing. The observed subgrade conditions appeared consistent with the project requirements.

On Site: See Concrete Construction Observation Report (dated 8-15-13)
SWCE Rep.: K. Gimpel
Attachments: Photos
Rev. by: RED

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CONSTRUCTION OBSERVATION REPORT

Project: Cumberland County Civic Center Renovations
Client: Cumberland County Recreation Center
Client's Rep.: Carl Cooke/Frontline Construction

SWCE Project No.: 12-0034.1
Date: 8-19-13
Weather: Sunny, 80s.

Work in Progress: Shaw Brothers (Shaw): Excavation and subgrade preparation for proposed footings in Quad B.

Work Performed by SWCE: Observation and documentation of footing subgrades.

General Observations, Discussions, Etc: As requested by Shaw Brothers we made a site visit to observe subgrade conditions for Quad B footings at CD and CE on C1-line. The exposed subgrade surfaces consisted of sound intact bedrock at both locations. Minor seepage was present, but not significant enough to require dewatering. The excavation had been performed with a smooth edged bucket and all loose or weathered rock appeared to have been removed. We understand from conversations with Shaw Brothers, that excavations are laterally oversized at approximately a 1:1 ratio below bottom of proposed footing elevation. The observed subgrade conditions appeared consistent with the project requirements in today's work area.

On Site: 1:15 – 2:00
Attachments: Photos

SWCE Rep.: K. Gimpel
Rev. by: RED

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CONSTRUCTION OBSERVATION REPORT

Project: Cumberland County Civic Center Renovations
Client: Cumberland County Recreation Center
Client's Rep.: Carl Cooke/Frontline Construction

SWCE Project No.: 12-0034.1
Date: 8-21-13
Weather: Sunny, 80s.

Work in Progress: Shaw Brothers (Shaw): Excavation and subgrade preparation for proposed footings in the mechanical level of Quad C.

Work Performed by SWCE: Observation and documentation of footing subgrades.

General Observations, Discussions, Etc: In coordination with Shaw, we made observations of subgrade conditions for Quad C footings at CA/C6 and CE/C4 while on site performing in-situ soils density testing and inspection of reinforcing steel. Both footing locations are located within the mechanical level of the existing to remain structure. At CE/C4 (in the old elevator shaft), Shaw used a vacuum truck to remove granular soils within a 5-foot square area hand picking the cobbles and loose fractured rock as needed. At CA/C6, the excavation was performed completely by hand exposing sound rock in an area approximately 4-feet square. At both locations, the exposed subgrade surfaces consisted of sound intact bedrock with minor seepage present. Neither of today's work areas required lateral over-sizing because the reinforcing steel was extended down to within inches of the exposed sound rock surface at CE/C4 and to rock at CA/C6. Structural concrete at about a 7-inch slump was tremied up to the bottom of existing slab in both areas to avoid the need for backfill material. The observed subgrade conditions appeared consistent with the project requirements.

On Site: 8:00 – 5:30 (soil densities and rebar inspection)
Attachments: Photos

SWCE Rep.: K. Gimpel
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SHAW BROTHERS
SB
CONSTRUCTION

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CONSTRUCTION OBSERVATION REPORT

Project: Cumberland County Civic Center Renovations
Client: Cumberland County Recreation Center
Client's Rep.: Carl Cooke/Frontline Construction

SWCE Project No.: 12-0034.1
Date: 9-12 and 9-16-13
Weather: 9-12-13 rain showers
9-16-13 mostly sunny

Work in Progress: Shaw Brothers (Shaw): Excavation and subgrade preparation for proposed footings in the event level in Quad D.

Work Performed by SWCE: Observation and documentation of footing subgrades.

General Observations, Discussions, Etc: In coordination with Shaw, we made observations of subgrade conditions for Quad D footings at the masonry wall on D2.6-line and footings at: DA/x8, DA/D6, xK/D4, xK/D5.1 and xK/D6 on 9/12/13 and at footings: DA/D4, DA/x7 and DA/D5 on 9/16/13. Subgrade observations were made while on site performing inspections associated with reinforcing steel, masonry and concrete work. Conditions and respective preparations varied with respect to depth and degree of seepage, but at all locations competent rock was exposed. Shaw Brothers performed general excavation with a Caterpillar 320CL equipped with a smooth edged bucket and where the exposed rock surface was uneven performed hand work to clean up, as needed. In the deeper excavations where safe man-access was not practical, more aggressive excavation was performed to level out the rock surface so the final cleaning could be performed by machine. At several locations (most notability D4 and x7 on DA-line) the rock initially encountered was weathered and easily removed during excavation; at these locations, the prepared subgrade surface ultimately ended up being approximately 7-feet below proposed bottom of footing. We recommended to Shaw Brothers (Mickey) that excavations be laterally oversized a minimum of ½:1 below proposed bottom of footing at all locations. Shaw Brothers checked measurements and oversized as recommended. Seepage was negligible at all current work areas with the exception of xK/D5.1 where seepage encountered was heavy. Shaw Brothers dewatered until concrete was placed and concrete was tremied to rock surface to displace the residual water. At all above referenced locations, the observed subgrade conditions appeared consistent with the project requirements.

It is our understanding that subgrade preparations where rock bearing is required are now complete for additions associated with the current phase of construction.

On Site: 9-12-13: 11:40 – 4:30 (rebar and concrete also)
9-16-13: 9:10 – 4:00 (rebar, concrete and masonry also)
Attachments: Photos

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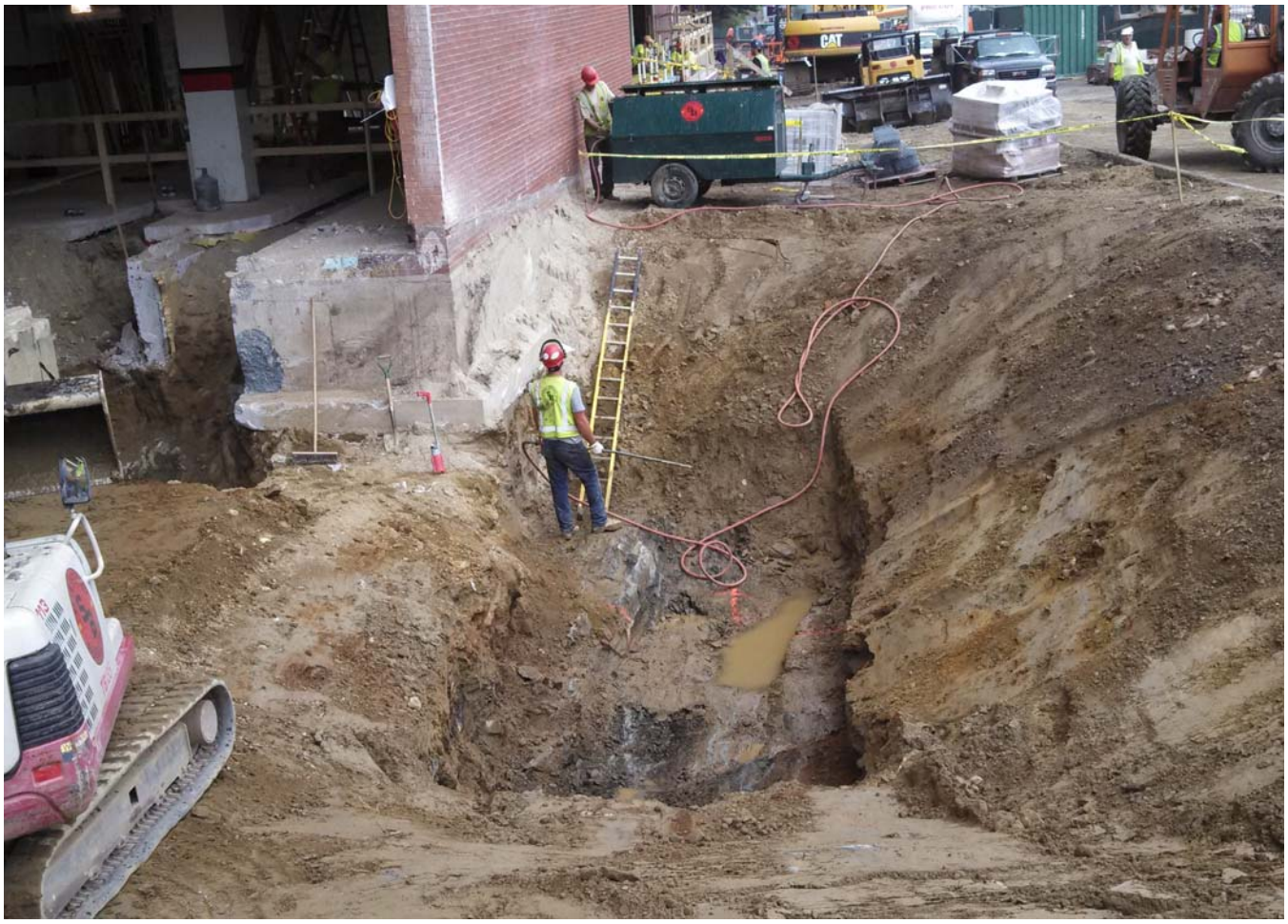
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