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KUBRICKY CONSTRUCTION CORP.
A PROUD MEMBER OF THE J.A. COLLINS™ COMPANIES

Rutland City BRF 3000 (2014036)
SUBMITTAL 17.1

Issued 12/24/
Respond by 01/09/

To

Timothy Pockette, PE

Topic	Drilled Shaft Installation Plan - Revised
Status	For Approval
Spec section	900.640
Received from submitter	12/23/14
Sent to approver	12/24/14

From

Harper T Callahan

Signed by Harp Callah Date 12/24/14

Proceed as Indicated _____ Date _____
Owner Authorized Representative

BUFFALO DRILLING COMPANY
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December 22th, 2014

Attn: Volker Burkowski
Kubricky Construction Corp.

Project: Replacement of River Street Bridge
North River Street
Rutland, Vermont

Addressing Direct Comments ON
0b Rutland City Bridge - Caisson Construction Submittal

Summary

1) **Was 120" analyzed?** – No, BDC did no separate analysis beyond the assumption that the ten foot diameter sleeve and concrete was only adding increased, differing and improved soil structure for a 15 foot zone around the rebar cage. - **No Changes**
2) **Top of Bedrock -** the owner of BDC, a professional geotechnical engineer, reads the soil structure starting about 42 feet below grade as a weathered bedrock type soils with competent bedrock found at the 120 foot depth noted in B-201. - "like soils" added after weathered bedrock.

B) Keeping the Hole Open

1) **Sealing 10 ft. casing around 8 ft.** – the 2 to 3 foot deep zone around the lower 8'-10' pipe intersection will be filled as the concrete is poured and displaces any trapped slurry - **No Changes**
2) **Slurry Manufacturer must –** BDC is not 100% on this comment but - added the name and phone number of the Cetco representative and BDC has scheduled them for a slurry start up site appearance if and when slurry is to be used
3) **Cetco and BDC trained personal** – see item 2 above for Cetco rep and BDC trained personal have their ADSC and Cetco training notes" added to Item "7 Jobs, Operators, and Crew"

C) Sequencing of Shaft Construction

1) **Sonic Log Testing to be Performed by the Engineer** – All references to Sonic Log Testing by Barron & Associates, P.C. have been removed in favor of the engineer.
2) **Concrete Will be Placed using Freefall –** changed from "freefall" to tremie pour techniques

D) Sequencing of Shaft Construction

1) **This is to be performed by the engineer** – see C-1 above

J) Concrete Placement

1) **Specifications Require Placement by Tremie** – see C-2 above
2) **"Three to Five" under J-1**– Changed to "minimum five"
3) **"10 to 12" under J-2**– Changed to "minimum 12

K) Concrete Mix and Modified Tremie Mix

1) Mix #??? – Deleted "Mix #???" because there is no Mix # for this Vermont Specified Design at Carrara Concrete.

Addressing Direct Comment ON
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L) How will this Work? Note on drawing 0e Temporary & Permanent Casing Graphic

1) **Added Note 1** –

ANSWER:

1* this pipe is proposed to be 10' in diameter to accommodate the triple sleeve that will occur with the top and bottom 8' diameter permanent casings - We have also specced 9' diameter permanent casing, though a bit tight for overlapping pipe, it should work.

M) The Sahft is 96" Diameter how will smaller diameter casing be beneficial?

2) **Corrected typos** – changed casing diameters to proper dimensions, revised client name and company, and corrected job site location. Also added spec on permanent casing.

Thanks,
Don

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December 22nd, 2014

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Project: Replacement of River Street Bridge
North River Street
Rutland, Vermont

Addressing Direct Comments ON Rutland City BRF 3000 (16) Drilled Shaft Submittal

77. (a) Submittals

a. A list, description, and capacities of proposed equipment and procedures for drilled shaft installation, **included in original submittal with narrative beginning on page one of the 0b Rutland City Bridge Caisson Construction Submittal – Rev 1 beginning with the summary and concluding with lists of equipment at the end of said 0b submittal narrative while drill rig capacities are noted in the attached 1a Jinta SD20E Spec Sheet.**

b. including drawings showing consecutive steps of drilled shaft installation and drawings with measurements showing that the proposed equipment can perform the specified work. **See added Drawings 0g, 0h, and 0i. Drawing 0g details the installation of the 12' foot temporary casing with marks noted for clearance distances from drill rig tracks to the Kelly Bar centerline for drilling at grade elevations at and 5 feet above grade. The same distances are noted for the 9 or 10 foot permanent casing in Drawing 0h and Drawing 0i depicting the 8 foot permanent casing.**

c. Included in the drawings shall be sketches that show the areas that are planned to be used for staging, **see newly attached Drawing 0f Drill and Pour Staging Locations which places general locations for the placement of tanks, crane, pump, and tooling. All these prospective locations will most likely be adjusted and modified by field personnel.**

d. layout drawings showing the proposed sequence of drilled shaft installation, and **Only one shaft to sequence**

e. detailed drawings of all over-water equipment for drilled shaft installation. **No over water equipment involved, all equipment is land based and will be drilling on the edge of the creek with a stone buildup around the temporary 12 foot diameter casing for 360 degree access around the shaft.**

f. The information shall describe the type of equipment to be used, including drill rig, cranes, drilling tools, final cleaning equipment, de-sanding equipment, slurry pumps, bailing buckets, sampling equipment, tremies or concrete pumps, and casing, including casing dimensions, material and splice details, etc. **These items are all noted in the original and in revision 1 of 0b Rutland City Bridge Caisson Construction Submittal along with Attachments 1a, 4a, b, cc & d, 6d, 8, 9e, 10, and 12 b through h.**

g. As appropriate, the narrative shall describe equipment suitability to the anticipated site and subsurface conditions. The narrative shall include a project history of the drilling equipment on shafts of equal or greater size in similar subsurface conditions. **These items are noted in the project history in Attachment 7. These Items can also be discussed in the predrilling conference.**

h. Provide a detailed description of procedures for temporary and permanent casing installation and removal as applicable. **See narrative B Keeping the Hole Open in 0b Rutland City Bridge Caisson Construction Submittal for casing installation and see Attachment 8 for Temporary Casing Removal.**

(5) Methods of removal and disposal of contaminated concrete. **Contaminated concrete will be removed using an muck bucket and disposal will be by *KCC.***

(7) a. Details of concrete batching and/or delivery to the site, **Carrara Concrete will be delivering to the site in their VTDOT approved trucks, the submitted VT Class SCC concrete mix which will be batching from their VTDOT approved plant which is 3.3 to 5 miles and about 10 minutes from the Rutland site.**

b. how concrete acceptance samples will be collected**, – to be answered by the testing agency for the GC/State**

c. proposed location for concrete acceptance testing, and **at the location where the concrete is to be placed into the pump – can be clarified by the testing agency for the GC/State**

d. concrete placement including proposed operational procedures for concrete pump or tremie. Include **Carrara Concrete will be supplying the concrete pump, as noted in the submittal, and the concrete will be placed in the disbursement hopper of that pump and then pumped to the bottom of the shaft via a 4 or 5 inch diameter tremie pipe.**

e. details of initial placement, **as stated in the original submittal, a 4 or 5 inch diameter tremie pipe, through the use of the crane or drill rig winch line, will be lowered to the bottom of the shaft and concrete will be pumped through that pipe.**

f. raising the tremie pipe(s)during placement, and **as stated in the original submittal, the tremie pipe will maintain a minimum 5 feet of concrete cover as it is raised up with either the crane or drill rig winch line.**

g. overfilling of the shaft concrete, the **the concrete will be over poured at the top of the 120 or 108 " diameter permanent casing to allow for cleaning of the top of the concrete before the placement of the 96" diameter permanent culvert casing.**

h. method to accurately monitor the volume of concrete being placed at all times during the pump/pour– **Batch tickets delivered to the site will be collected and added to the previously collected tickets and a running total of concrete will be maintained by BDC ground personal as well as the pump operator <u>who has a volume counter built into the pump itself</u>.**

i. provisions to prepare the completed shaft top at its final shaft top elevation.

j. Spec sheet on the Concrete Pump to be used **– Already supplied by Carrara Concrete and was and is included as Item 9e in previous and present revised submittal.**

(9) a. The name and current phone number of the slurry manufacturer's technical representative assigned to the project. **Darlene Torkarsky 847.345.3271**

b. The name(s) of the Contractor's personnel assigned to the project trained by the slurry manufacturer's technical representative in the proper use of the slurry. **Don Morris 2010 ADSC Slurry School – Worked with Cetco Products for 15 Years – Mark Bruning**

c. The submittal shall include a signed training certification letter from the slurry manufacturer for each individual, including the date of training. **2010 ADSC Slurry School – Worked with Cetco Products for 15 Years**

(10) a. Detailed procedures for mixing, using, maintaining, and disposing of the slurry shall be provided. **See submittal Attachments items 6a, 6b, and 6c.**

b. A detailed mix design (including all additives and their specific purpose in the slurry mix), and **See submittal Attachments 6a and 6b**

c. a discussion of its suitability to the anticipated subsurface geotechnical conditions, shall also be provided for the proposed slurry. **Attachment 6b**

(11) a. The submittal shall include a detailed plan for quality control of the selected slurry, including **Cetco has outlined a slurry plan in Attachment 6b with further quality control discussions in Attachment 6a.**

b. tests to be performed, **Attachment 6d details the Slurry testing kit which allows for testing of water Ph, Sand Content, Marsh Funnel Viscosity, and Mud Balance.**

c. test methods to be used, and **Test methods are outlined in Attachment 6a starting at the bottom of page 3**

d. minimum and/or maximum property requirements which must be met to ensure that the slurry functions as intended, considering the anticipated subsurface conditions and shaft construction methods, in accordance with the slurry manufacturer's recommendations and these Specifications. (Slurry testing schedule i.e. 4 sets of tests in first 8 hours, 1 set every 4 hours afterward) **BDC plans on following the outline provided by Cetco but adjuncting it with the engineer's recommendation of 4 test in the first 8 hours and 1 every 4 hours thereafter.**

(12) If slurry is to be used, an alternate procedure to be used which will secure the shaft in the event of slurry loss or loss of slurry stabilization properties. **Slurry loss or declining stabilization properties would require an initial attempt to introduce new slurry to replace the destabilized slurry or mix in chemical slurry enhancers such as Stone or Sand Stop. If these attempts fail to resolve the problem BDC would have to continue to extend the casing to bypass the zone that was creating the problem with the potential to end up, in a worst case scenario, with full length permanent casing.**

(13) Description of the type of feet to be used to support the reinforcing steel cage in the drilled shaft. **Provided by KCC**

(17) Method for reinsertion of tremie pipe, if required. **To re-insert pumper tremie pipe the pipe must cleaned of concrete and re-inserted just above the top of the pour with a new foam ball inserted in the pipe. Concrete will then be pumped on top of the pour until the tremie pipe is full of concrete and the foam ball has been discharged. The tremie pipe can then be re-inserted a minimum of 5 feet into the existing pour and pumping can continue. A metal plate or wood plug can be substituted for the foam ball if required and it would be attached to the end of the tremie pipe via wire or duct tape.**

Thanks,
Don
Donald E. Bartle Jr.
Buffalo Drilling Company, Inc.