REHABILITATION OF WELL NO. 5

WITHIN THE

CITY OF BEVERLY HILLS, CALIFORNIA

BID ADDENDUM NO. 1

July 6, 2017

ADDENDUM No. 1 for the above referenced project hereby modifies the Technical Specifications, as follows:

Addendum Item 1.1 Change to Technical Specifications

Specifications Sections 10020 "BRUSHING", 10025 "REMOVE FILL", 10035 "CHLORINE CHEMICALWELL TREATMENT" have been revised and should be replaced by the Revised Specifications Sections in Attachment No. 1

Addendum Item 1.2 Addition to Technical Specifications

Addition of Specifications Section 10030 "ACID CHEMICAL WELL TREATMENT" in Attachment No. 2 to the Technical Specifications

ATTACHMENT NO. 1

REVISED SECTION 10020

BRUSHING

PART 1 - GENERAL

A. Scope

The Contractor will clean the entire length of the well casing below the static water level (170 feet) by brushing after chlorine is introduced into the well. The Contractor is advised that 12.25-inch diameter casing extends from the top of casing (9.1 feet below ground level) to the bottom of the sand cellar at depth 643 feet. Approximately 470 feet of casing will be brushed.

B. Payment

Payment shall be made at the hourly price bid for time spent brushing the well. No payment will be made for setting up equipment, assembling the brush, changing the brush or lowering the brush into the well. No payment shall be made to replace the brush to insure the proper brush diameter and that the brush fits tightly in the well.

PART 2 - EXECUTION

The Contractor shall introduce and disperse 10 gallons of sodium hypochlorite (30% active chlorine) throughout the well below the static water level. The Contractor then shall provide a new, heavy duty nylon-brush that fit tightly inside the 12.25-inch casing. The nylon-brush will be 10-feet long with a central section of pipe approximately 6 to 8-inches smaller in diameter than the well casing. The brush will be fitted with a swivel at the top to improve cleaning action. Brushing will be performed by using short strokes (1 to 2 feet) with a cable tool rig or pump rig. Brushing will continue for approximately 5 minutes for each 10-foot long interval of casing or screen for a total of 4 hours. Brushing should be accomplished with experienced personnel and care should be taken to not damage the well. Any fluids and debris removed from the well will be temporarily contained to allow the field geologist to observe and sample the material. Discharge on the site will not be allowed to reach the storm drain or otherwise cause a nuisance or unacceptable discharge.

END OF SECTION

REVISED SECTION 10025

REMOVE FILL

PART 1 - GENERAL

A. Scope

Following brushing, the Contractor shall air lift all fill material collected at the bottom of the well and purge the well. Approximately 30 feet of fill should be anticipated.

B. Payment

Payment shall be made at the lump sum price bid.

PART 2 - EXECUTION

The Contractor shall remove the fill by air-lifting and purge the well for 6 to 8 hours. Use of a large diameter, heavy scow will not be permitted. Fluids and debris will be temporarily contained to allow the field geologist to observe and sample the material. Fluid and debris discharged on site shall not be allowed to reach the drain inlet or otherwise cause a nuisance or unacceptable discharge. Clear fluid meeting NPDES discharge limits and free of chlorine will be discharged to the onsite drain inlet upon approval of the Owner's Representative.

END OF SECTION

REVISED SECTION 10035

CHLORINE CHEMICAL WELL TREATMENT

PART 1 - GENERAL

A. Description

Following acid chemical treatment, the well should be treated using a pH-adjusted chlorination treatment of 350 ppm chlorine dose in a pH range of 6.5 to 7.0. The volume of the disinfection solution should be equivalent to 3 times the standing well volume of 2,600 gallons, or 8,000 gallons. This work will consist of introducing sodium hypochlorite and NW-410 chlorine enhancer into the well adjacent to the blank casing and screen intervals through a double swab. Swabbing will force the chemical through the well screen into the filter pack and formation.

B. Related Work Specified Elsewhere

1. Solids and Liquid Waste Disposal per NPDES permit (Section 01410)
2. Safety Plan (Section 01329) submitted one week prior to start of acid treatment.

C. Measurement and Payment

1. Payment for chlorine chemical well treatment shall be made at the lump sum price bid.
2. Work shall include chemical dispersal by jetting, double swabbing and removal by air-lifting.

PART 2 MATERIALS

A. Mix and introduce sodium hypochlorite (12 percent available chlorine) and NW-410 chlorine enhancer into the well at a dose of 3 gallons of chlorine and 5.5 gallons of NW-410 per 1,000 gallons of well treatment volume. A total of 25 gallons of 12 percent sodium hypochlorite and 45 gallons of NW-410 shall be used.

PART 3 - EXECUTION

A. Notify the City 48 hours prior to the start of chlorine treatment.

B. Contractor shall maintain a record of chemical volumes, mixing, chemical concentrations, and chlorine testing/monitoring in the well. A copy of the field record shall be submitted to the City.

C. The disinfection solution should be blended above ground as follows: fill mixing tank with potable water, add NW-410 and blend thoroughly, check pH (5.5 to 6.0), add liquid chlorine and mix, and verify pH and chlorine concentration. The chemical mixture shall be introduced into the well through a 10-foot long double swab suspended on a drop pipe, beginning at the top of the well. Disperse the disinfection solution evenly throughout the well with the double swab and lightly agitate throughout the well column. Following agitation, check the chlorine residual within the well to ensure sufficient strength is present. If the chlorine residual has diminished below 150 ppm, add additional sodium hypochlorite to raise it to that level.

D. A small volume of chlorine solution will be placed down the sounding tube and flushed with potable water. The disinfecting agent shall be left in the well overnight (minimum 12 hours).

E. After the minimum contact time (12 hours) and at the direction of the geologist, the chemical should be removed from the well by double-swab and air-lifting. The perforated double swab shall not exceed 10-feet in length between two tight fitting rubber swabs (12.3-inch diameter). Begin evacuation of the well by swabbing and airlifting from the bottom, working upwards, until a minor residual (<50 ppm) is present and all debris has been evacuated from the well, as identified by visible turbidity. Swabbing and airlifting shall continue for 8 to 12 hours. The discharge shall be contained in settling tanks to allow the removal of sediment (settleable and suspended) and dechlorination with sodium thiosulfate, prior to discharge in accordance with the owner's NPDES Permit. At no time will the chemicals be neutralized in the well. Swabbing and air-lifting will be directed by the geologist and is estimated to require 12 hours to remove the chlorine. Air-lifting equipment shall be capable of a minimum of 250 gpm.

END OF SECTION

ATTACHMENT NO. 2

SECTION 10030

ACID CHEMICAL WELL TREATMENT

PART 1 - GENERAL

A. Description

This work will consist of one acid treatment, introducing NSF approved food grade 75% phosphoric acid NW-120 (H_3PO_4) and acid enhancer NW-310 into the well adjacent to the casing and screen intervals by pumping through a drop pipe supporting a double swab. Swabbing action will dislodge scale and bacterial fouling and force the chemical through the well screen into the filter pack and formation. Following contact time, the acid will be removed by double swab and airlifting.

B. Related Work Specified Elsewhere

3. Solids and Liquid Waste Disposal, NPDES Permit (Section 01410)
4. Safety Plan (Section 01329) submitted one week prior to start of acid treatment.

C. Measurement and Payment

3. Payment for chemical well treatment shall be made at the lump sum price bid.
4. Work shall include chemical dispersal by swabbing and removal by air-lifting.

PART 2 - MATERIALS

A. Mix NSF approved, food grade, 75 percent NW-120 liquid phosphoric acid with acid enhancer NW-310. Approximately 4.4 batches of chemical, each consisting of 930 gallons of water, 45 gallons of NW-120 acid, and 25 gallons of NW-310, should be mixed to create a 1,000-gallon batch. Total chemical required for treatment of the well is 200 gallons of phosphoric acid and 112 gallons of NW-310.

PART 3 - EXECUTION

A. Notify the City 48 hours prior to the start of acid treatment.

B. Contractor shall maintain a record of chemical volumes, mixing, chemical concentrations, and pH testing/monitoring in the well. A copy of the field record shall be submitted to the City.

C. Beginning above the top screen, introduce each batch into the well through a drop pipe supporting a 10-foot long perforated double swab tool of approximately 12.3-inch diameter. After the chemical is placed in the drop pipe, an appropriate volume of potable water shall be used to flush the pipe and introduce the chemical in to the well screen. After the chemical is displaced into the well screen, each interval shall be swabbed for a minimum of 20 minutes to evenly distribute the solution through the well column. Lower the swab to the next interval (not to exceed 20 feet) and place the next small batch. Following placement of the final batch, swab each interval from bottom to top. Allow the solution to remain in the well for 12 hours.

D. Monitor the pH of the downhole solution and maintain at 3.0 or lower during the entire treatment process.

E. Approximately 12 hours after placing the acid, the well should be thoroughly agitated by swabbing for an additional 4 to 6 hours.

F. After the minimum contact time (12 hours) and agitation, at the direction of the geologist, the chemical should be removed from the well by double-swab and air-lifting. The perforated double swab shall not exceed 10-feet in length between two tight-fitting rubber swabs. The discharge fluids must be contained and the chemical neutralized before disposal. At no time will the chemicals be neutralized in the well. Swabbing and air-lifting will be directed by the geologist and is estimated to require 8 to 10 hours. Air-lifting equipment shall be capable of a minimum of 250 gpm. Air lift the well until the pH has returned to normal (7.0 or greater), visible turbidity is zero, and the well discharge is clear. Collect and neutralize the evacuated fluid with soda ash above ground, and discharge according to the owner's NPDES Permit (copy attached)

END OF SECTION