THE PORT AUTHORITY OF NY & NJ

PROCUREMENT DEPARTMENT
2 MONTGOMERY STREET, 3RD FL.
JERSEY CITY, NJ 07302

7/11/2014

ADDENDUM # 4

To prospective Responder for RFI # 37799 entitled, "Request for Information for the Replacement, Rehabilitation or Redesign and the Operation and Maintenance of the Cogeneration Plant and Related Infrastructure at John F. Kennedy International Airport"

Revised due date 7/22/14, no later than 2:00 PM
(Originally due on 6/26/2014, no later than 2:00 PM)

I. BIDDER'S QUESTIONS AND ANSWERS

The following information is available in response to questions submitted by prospective Bidders. The responses should not be deemed to answer all questions, which have been submitted by Bidders to the Port Authority. It addresses only those questions, which the Port Authority has deemed to require additional information and/or clarification. The fact that information has not been supplied with respect to any questions asked by a Bidders does not mean or imply, nor should it be deemed to mean or imply, any meaning, construction, or implication with respect to the terms.

The Port Authority makes no representations, warranties or guarantees that the information contained herein is accurate, complete or timely or that such information accurately represents the conditions that would be encountered during the performance of the Contract. The furnishing of such information by the Port Authority shall not create or be deemed to create any obligation or liability upon it for any reason whatsoever and each Bidder, by submitting its Bid, expressly agrees that it has not relied upon the foregoing information, and that it shall not hold the Port Authority liable or responsible therefore in any manner whatsoever. Accordingly, nothing contained herein and no representation, statement or promise, of the Port Authority, its Commissioners, officers, agents, representatives, or employees, oral or in writing, shall impair or limit the effect of the warranties of the Bidder required by this Bid or Contract and the Bidder agrees that it shall not hold the Port Authority liable or responsible therefore in any manner whatsoever.

Q1. Is the requirement for cooling and heating capacity of JFK airport expected to remain constant for the foreseeable future, or should the potential rework of the infrastructure be engineered to accommodate a specified increase in capacity (built-in expansion capability)?

A1. Required cooling and heating capacity of JFK airport will increase over time in conjunction with increases in terminal space. Total capacity requirements cannot be specified at this time; however, built-in expansion capable of supporting heating and cooling loads for about two million square feet should be considered.

Q2. Is there a listing of existing cogeneration facility, CHRP facility, TDS or Chilled water distribution equipment that is already known to be obsolete, in need of replacement or not expected to remain serviceable for an additional 20 years?
A2. No such listing exists at this time. As a general measure due to age of equipment and current corrective maintenance procedures, a full condition assessment of the plant structure, equipment, as well as the TDS is required at this time.

Q3. Are there any limitations on the length of time the grounds that the TDS and/or chilled water system piping run through can be excavated (making the area partially impassable) or any limitations on the extent of the grounds the TDS and or chilled water system runs through can be excavated at any given time (affecting airport operations)?
A3. Yes. Careful consideration and planning will be required to phase in replacement of the TDS if deemed necessary. The piping traverses the CTA area consisting of multiple structures, roadways, pedestrian access areas, and vehicular traffic. Excavation cannot be performed until proper maintenance of traffic and safety measures are in place as approved by The Port Authority. Site specifics and ongoing construction in each area will determine limitations and construction scheduling.

Q4. Are there any periods each year when the medium temperature water system and/or the chilled water system are not required to be in operation and could be made available for rework or replacement without impacting airport operations? Specify periods.
A4. While several terminals take hot and chilled water year round, as a general answer, airport "traffic" is generally lower (with exception for holidays and school breaks) during the spring shoulder season. To a lesser extent, there is a small window in the fall before the heating season.

Q5. Section 2.1 of the RFI states (last sentence of the first paragraph) that there are redundant electric chillers. Would you specify the capacity of the redundant electric chillers relative to total peak chilling needs and confirm they are separate from the absorption and centrifugal chillers that make up the primary water chilling system?
A5. Due to current load requirements, no redundant chillers exist at this time.

Q6. Please provide the specifications for the fuels currently being used in the cogeneration facility (gas and liquid).
A6. See attached Exhibit 'A' from Atlantic Analytical Laboratory.

Q7. Please provide nameplate data (make, model, design conditions and special capabilities) for current:
- combustion turbines
- steam turbines
- generators

- heat recovery steam generators
- absorption chillers
- centrifugal chillers
- electric chillers
- cooling towers

A7. See attached Exhibit ‘B’ and Exhibit ‘C’ documents for nameplate data.

Q8. Please provide the steam turbine design point inlet, extraction and exhaust steam conditions.
A8. See attached Exhibit ‘C’ document for equipment specifications.

Q9. Please provide information on the current source of facility make-up water for evaluating options. Advise the average cost for make-up water within the airport operations (in 2013 figures). Are there concerns regarding increased water consumption with increased growth?
A9. Make-up water is supplied by NYCDEP. Water rates can be obtained directly from NYC Water Board. Alternative options for supplying makeup water should be considered.

Q10. Will any facility contracts with ConEd, NYPA, fuel suppliers, water suppliers, chemical suppliers, long-term vendors or special requirements of airport tenants or other / customers (which impact the cogeneration or CHRP, TDS and /or chilled water operations) extend beyond January 31, 2020?
A10. No contracts extend beyond 2020 at this time.

Q11. In order to evaluate construction schedule urgency, what is the cost to the Port Authority (per day, week or month), should the cogeneration plant be down for an extended period to repair or replace major equipment? This is with the understanding that medium temperature water and chilled water would still be made available for the TDS & chilled water systems via another energy source.
A11. Currently, the KIAC plant supplies power to the grid only; it does not directly feed JFK Airport. As such, the scenario described would not result in power disruption to JFK. Thermal supply, however, must remain operational at all times.

Q12. Please provide a general arrangement and plot plan drawing of the cogeneration facility and CHRP area.
A12. See attached Exhibit ‘D’ document for general arrangement drawings.

Q13. Please provide steam and water balance documents for the cogeneration and CHRP systems currently installed for evaluation of improvement opportunities.
A13. This information is proprietary to Calpine and cannot be shared at this time.

Q14. For planning purposes, please provide a diagram (marked up plot plan if necessary) showing the locations of the TDS and chilled water underground loop and lateral piping traversing through the airport areas and under roadways.

A14. See attached Exhibit 'E' document for general routing of the TDS and chilled water piping.

Q15. Are the water supply and return pipes direct buried under the roadways or are they in sleeves or tunnels?
A15. The majority of TDS piping is direct buried with the exceptions of a few areas that are sleeved.

Q16. Please provide current plant automation system architecture diagram with respective panel layouts and point list for evaluation.
A16. This information is proprietary to Calpine and cannot be shared at this time.

Q17. Who owns the existing CHP plant at JFK? Is it Calpine, the Port Authority or a joint venture?
A17. The Plant consists of a natural gas-fired, combined-cycle cogeneration power plant (excluding the installed generating units), a central heating and refrigeration plant, and a thermal distribution system serving JFK's central terminal area. The physical plants that comprise the Plant are owned by the Port Authority and leased to a Partnership known as KIAC Partners, a New York general partnership between the Aviation Funding Corporation and Calpine KIA, Inc. Note: Two installed gas turbine generator units are owned by the Partnership.

Q18. What will the ownership structure be at the end of the contract in 2020?
A18. The ownership structure at the end of the contract in 2020 will be determined at the Port Authority's discretion. The Port Authority may elect to maintain the existing structure (see answer above) or assign Plant ownership to a new entity.

Q19. Is a copy of the existing Calpine contract available at this time?
A19. No.

Q20. Can you provide annual operational characteristics of the plant including total generation, efficiency, availability/ reliability, and any other key performance indicators that are of concern to the Port Authority?
A20. Specific data related to efficiency, availability and key performance indicators are generally proprietary and confidential in nature. This facility is critical to the operation of the airport. As with any critical facility, the expectations for the future of KIAC include key performance indicators such as resiliency, reliability, and efficiency.

Q21. Could you provide a qualitative description of the chief issues with the existing plant (if any) that are of concern to the Port Authority? What historically has caused any unplanned plant outages if any?
A21. Age and continued operation warrant a full condition assessment of the plant at this time. The expectation is the majority of equipment is outdated and has reached the end of its useful life. Through recent weather events such as Hurricane Irene and Sandy, the plant continued operation.

Q22. Could you provide a qualitative description of the chief concerns with the distribution system throughout the Airport?

A22. Age and continued operation warrant a full condition assessment of the TDS at this time. The piping system is a thin-walled, pre-stressed, engineered solution. Over time, soil conditions, localized repairs comprising the pre-stressed system, and water infiltration through insulating jacketing have contributed to piping failures through the TDS.

This communication should be initialed by you and annexed to your Bid upon submission.

In case any Bidder fails to conform to these instructions, its Bid will nevertheless be construed as though this communication had been so physically annexed and initialed.

THE PORT AUTHORITY OF NY & NJ
Kathy Leslie Whelan
ASSISTANT DIRECTOR
Commodities & Services Division

BIDDER'S FIRM NAME: _____

INITIALED: _____

DATE: _____

QUESTIONS CONCERNING THIS ADDENDUM MAY BE ADDRESSED TO Mr. Richard A. Grehl, WHO CAN BE REACHED AT (201) 395-3441 or at rgrehl@panynj.gov.

ATLANTIC ANALYTICAL LABORATORY

Fuel Oil Analysis Report

KIAC Partners
Bldg #48
JFK Airport
Jamaica, NY 11430
Attn: Wayne Goonan
718-995-0538 (Fax 718-995-6028)

AAL Number: 2379
Received On: 01/12/01
Report Date: 01/23/01
P.O. Number: B01-0009

Fuel Type/Supplier: Ogden Fuel Oil
Comments: 4 fuel samples received.

Date Taken	Sample Identification	Nitrogen[1] % w/w	Sulfur[2] % w/w
12/31/00	F2307469	--	0.017
12/29/00	F2355913	--	0.011
01/02/01	F2307473	--	0.018
01/04/01	F2356710	--	0.018

Note 1: Total Nitrogen by ASTM D 5291, D.L. = 0.05 % w/w, [by ASTM D-4294, D.L. = 0.0005 % w/w], {by ASTM D 3228, D.L. = 0.015 % w/w} **Note 2:** Total Sulfur by ASTM D 4951, D.L. = 0.0010 % w/w, [by ASTM D 4294, D.L. = 0.0010 % w/w].

D.L. = report detection limit. **nd** = indicates the concentration is less than the report detection limit. -- = test not performed. % = parts per hundred (percent). **ppm** = parts per million. **w/w** = weight analyte/weight sample format. **v/v** = volume analyte/volume sample format. **L.T.** = less than the concentration indicated. **[result]** indicates use of the method or units listed within brackets. **Unit Conversions:** 1 ppm w/w = 1 μg/g = 0.0001% w/w

Comments:

Reviewed By,

Richard Frisch

Attachments:-none

ATLANTIC ANALYTICAL LABORATORY, INC.
P.O. BOX 220 • SALEM INDUSTRIAL PARK • BUILDING #4 • WHITEHOUSE, N.J. 08888
PHONE 908-534-5600 • FAX 908-534-2017

Atlantic
Analytical
Laboratory

Natural Gas Analysis Report

Calpine Corporation
JFK Energy Center
JFK Airport, Bldg #49
Jamaica, NY 11430
Phone: (718) 995-0535 Fax: (718) 6028
Attn: Wayne Goonan
Email: wgoonan@calpine.com

AAL Number: 29767
Received On: 20 Sept 13
Report Date: 25 Sept 13
PO Number: KN001-2000002175

Sample ID.: Natural Gas
Sample ID.: Received in 1 - 500 cc AAL cylinder # 0955
Comments: 1 sample received.

Sample Date: 18 Sept 13
Sample Time: --

Composition (Normalized, % v/v)

Non-Hydrocarbon Gases	Result	DL
Hydrogen:	--	0.05
Nitrogen:	0.56	0.01
Oxygen:	--	0.01
Argon:	--	0.05
Carbon Monoxide:	--	0.05
Carbon Dioxide:	0.23	0.05
Water:	--	0.001

Hydrocarbons	Result	DL
Methane:	91.12	0.001
Ethylene:	nd	0.001
Ethane:	7.201	0.001
Propylene:	nd	0.001
Propane:	0.669	0.001
Isobutane:	0.059	0.001
n-Butane:	0.095	0.001
Butenes:	nd	0.001
Isopentane:	0.024	0.001
n-Pentane:	0.018	0.001
Pentenes:	nd	0.001
Hexanes +:	0.021	0.001

	ppm v/v	DL	ppm w/w	DL	Grains/100ft^3	DL
Total Sulfur (as H_2S):	1.9	0.5	4.0	1.0	0.117	0.030

Comments: Total Sulfur determined by ASTM D5504

Atlantic Analytical Laboratory, LLC
Mailing address: PO Box 220 • Whitehouse, NJ 08888
Shipping address: 291 Rte 22 East • Salem Industrial Park – Building #4 • Whitehouse, NJ 08888
Phone (908) 534-5600 • Fax (908) 534-2017 • www.AtlanticAnalytical.com

PJLA Testing
Accreditation # 59415

ID: Calpine- JFK Airport

AAL Number: 29767

Elemental Composition (Normalized, % w/w)

Element		Result
Carbon Content (% C, w/w):	----------	74.8
Hydrogen Content (% H, w/w):	----------	23.8
Oxygen Content (% O, w/w):	----------	0.42
Nitrogen Content (% N, w/w):	----------	0.90

Heat of Combustion & Physical Properties (by ASTM D 3588-91)

I. @ ASTM Base Conditions; 14.696 psia, 60°F, dry gas format		Result
Net Heat of Combustion	(Lower Heating Value, Btu/ft^3):	967
Gross Heat of Combustion	(Higher Heating Value, Btu/ft^3):	1,072
Gross Heat of Combustion	(Water Saturated Gas Format, Btu/ft^3):	1,054
Net Heat of Combustion	(Lower Heating Value, Btu/lb):	21,017
Gross Heat of Combustion	(Higher Heating Value, Btu/lb):	23,287
Density (lb/ft^3):		0.0461
Specific Gravity (vs. dry/normal air):		0.6034
Compressibility Factor (z):		0.9976

II. @ ASME Base Conditions; 14.73 psia, 60°F, dry gas format		Result
Net Heat of Combustion	(Lower Heating Value, Btu/ft^3):	970
Gross Heat of Combustion	(Higher Heating Value, Btu/ft^3):	1,075
Gross Heat of Combustion	(Water Saturated Gas Format, Btu/ft^3):	1,056
Net Heat of Combustion	(Lower Heating Value, Btu/lb):	21,017
Gross Heat of Combustion	(Higher Heating Value, Btu/lb):	23,287

NOTES: DL = instrumental detection limit for the reported analyte. nd = indicates the concentration is less than the accompanying report detection limit. -- = test not performed. % = parts per hundred (percent). ppm = parts per million. w/w = weight analyte/weight sample v/v = volume analyte/volume sample (equivalent to mole fraction for normalized, ideal gas mixtures). **Conversions:** 0.0001% = 1 ppm = 1,000 ppb.

Comments:

Reviewed By,

Richard F. Frisch

Attachments: None.
Addendum: Chromatograms and Notebook data on file.

Atlantic Analytical Laboratory, LLC
Mailing address: PO Box 220 • Whitehouse, NJ 08888
Shipping address: 291 Rte 22 East • Salem Industrial Park – Building #4 • Whitehouse, NJ 08888
Phone (908) 534-5600 • Fax (908) 534-2017 • www.AtlanticAnalytical.com

PJLA Testing Accreditation # 59416

1000 TR CENTRIFUGAL CHILLER (CH-2183 A/B/C/D)

MFG:	YORK APPLIED SYSTEMS
MODEL:	YT-CODEPAK CHILLERS
CAPACITY:	1000 RT
REFRIGERANT:	R-11
CHILLED WATER TEMP IN:	54 F
CHILLED WATER TEMP OUT:	44 F

Exhibit B - 1000 Ton Centrifugal Chiller

- local
- remote program
- service

Manual operation of the oil pump along with compressor loading and unloading is provided through separate keys in the service section of the keypad.

1400 TR ABSORPTION CHILLER (CH-2182 A/B/C/E/F)

MFG:	YORK INTERNATIONAL
MODEL:	YPC-ST-22GL
CAPACITY:	1400 RT
CHILLED WATER TEMP IN:	54 F
CHILLED WATER TEMP OUT:	44 F
CHILLED WATER FLOW:	3360 GPM
CONDENSER WATER TEMP IN:	85 F
CONDENSER WATER TEMP OUT:	95 F
CONDENSER WATER FLOW:	6700 GPM
STEAM PRESS IN:	115 PSIG
MAX STEAM TEMP:	363 F
STEAM CONSUMPT:	13,860 LBS/HR
POWER:	480V/60HZ/3
SOLUTION:	LITHIUM BROMIDE PLUS WATER SOLUTION 23,100 LBS REFRIGERANT 3300 LBS LITHIUM BROMIDE SOLUTION 53% INHIBITOR 7.3 LBS LiNO3 ADDITIVES 0.9 LBS (BT)

Exhibit B - 1400 Ton Absorption Chiller

of the equipment to determine whether it is a 30 F, or some lower condensing temperature reduction that a specific machine, and the conditions under which it operates, can tolerate before there is liquid stack-up at the inlet of the refrigerant level control valve.

6000 TR CENTRIFUGAL CHILLER (CH-2184)

MFG:	CARRIER
MODEL:	17DA75
CAPACITY:	6000 RT
REFRIGERANT:	R-22
CHILLED WATER TEMP IN:	57 F
CHILLED WATER TEMP OUT:	42 F
CHILLED WATER FLOW:	9600 GPM
CONDENSER WATER TEMP IN:	85 F
CONDENSER WATER TEMP OUT:	94.3 F
CONDENSER WATER FLOW:	18000 GPM
MOTOR:	5000 HP
SPEED:	1800 RPM
POWER:	4160V/60HZ/3

5500 TR CENTRIFUGAL CHILLERS (CH-2181 A/B)

MFG:	CARRIER
MODEL:	_____
TYPE:	SINGLE STAGE
CAPACITY:	5500 TR
REFRIGERANT:	R-22
CHILLED WATER TEMP IN:	57 F
CHILLED WATER TEMP OUT:	42 F
CHILLED WATER FLOW:	9600 GPM
CONDENSER WATER TEMP IN:	85 F
CONDENSER WATER TEMP OUT:	95 F
CONDENSER WATER FLOW:	_____ GPM
MOTOR:	5000 HP
SPEED:	1800 RPM
POWER:	4160V/60HZ/3

The CHRP includes one 6000 ton and two 5500 ton centrifugal

BAC-Pritchard, Inc.

REVIEWED	
REVIEWED AS NOTED	✓
REMISE AND RESUBMIT	
CHECKED BY	LA
DATE	1-30-92

REVIEW IS ONLY FOR GENERAL CONFORMITY TO THE CONTRACT DRAWINGS AND SPECIFICATIONS, AND SHALL NOT RELIEVE THE CONTRACTOR OF HIS ENTIRE RESPONSIBILITY UNDER THE CONTRACT INCLUDING, AMONG OTHER THINGS, DIMENSIONS TO BE CONFIRMED AND CORRELATED AT THE JOB SITE, AND INFORMATION THAT PERTAINS TO THE FABRICATION PROCESSES OR TO TECHNIQUES OF CONSTRUCTION.

PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
1 PENN PLAZA
NEW YORK, N.Y. 10119

RECEIVED
JAN 29 1992
PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC.

SUBMITTAL

January 24, 1992

Revision I

TO: KIAC Partners
166 Montague St.
Brooklyn, NY 11201

ATTN: Mr. Thomas Brummer

PROJECT: JFK International Airport
CHRP Cooling Tower Upgrade

KIAC Letter of Intent Dated 12-4-91
BAC-Pritchard Job No.: RS4321

ENGINEER: Parsons Brinckerhoff Quade & Douglas, Inc.
New York, NY

EQUIPMENT: Existing Fluor Products Co. and Lilie-Hoffmann Cooling Tower Co. cooling towers. The cooling tower is mechanically induced draft, counterflow type consisting of thirteen cells. The guaranteed performance conditions are 100,000 USGPM of water from 100.0 degrees F. HWT to 85.0 degrees F. CWT at 78.0 degrees F. entering wet bulb temperature with 150.0 fan brake horsepower per cell.

Submitted By,
BAC-Pritchard, Inc.

Jeff Padrta
Repair Sales Engineer
(703) 777-3630

Exhibit B - Cooling Tower

SEC

SPECIF

2.1 INTRODUCTION.

This section lists the general descriptions, capacities, and capabilities for the LM6000 Gas Turbine Generator sets. Refer to Appendix B for the specifications. Refer to Appendix C for the Stewart & Stevenson (S&S) factory test report.

2.2 LM6000 GAS TURBINE ENGINE.

Significant engine data are as follows:

a. Gas Generator

   (1) Model: General Electric (G.E.) LM6000PA-NDW

   (2) Serial No.: See test report for unit.

b. Approximate Engine Weight: 13,270 lb (6019 kg)

c. Operating Speed, Low-Pressure Rotor: 3600 rpm

d. Operating Speed, High-Pressure Rotor: 10,200 rpm

e. Nominal Lube Oil Supply Pressure: 27–68 psig (186–489 kPag)

f. Nominal Scavenge Oil Pressure: 20–80 psig (138–552 kPag)

g. Start System: Hydraulic, Variable Speed

2.3 AC GENERATOR.

Significant generator data are as follows:

a. G.E. LM6000, Totally Enclosed, Water-to-Air Cooled (TEWAC)

b. Serial No.: See test report for unit.

c. Power Factor: 0.8

d. Voltage: 13.8 kV

e. Frequency: 60 Hz @ 3600 rpm; 3-phase, wye

f. Coupling: Zurn, Model DB-411553

HRSG #1, HRSG #2

MFG: DELTAK CORPORATION
MODEL: DINO 4530

NOTE: DATA PRESENTED IS BASED ON DESIGN CONDITIONS OF 54EF AMBIENT, NATURAL GAS FUEL AND AN UNFIRED CONDITION.

HP STEAM

FLOW RATE: 87900 LBS/HR
OUTLET PRESS: 685 PSIG
OUTLET TEMP: 750EF

IP STEAM

FLOW RATE: 24500 LBS/HR
OUTLET PRESS: 85 PSIG
OUTLET TEMP: 418EF

LP STEAM

FLOW RATE: 14178 LBS/HR

OUTLET PRESS:	25 PSIG
OUTLET TEMP:	273EF

Section 1 — Description

GENERAL TURBINE INFORMATION

CUSTOMER: KIAC PARTNERS COMBINED CYCLE COGEN PLANT

SITE: JOHN F. KENNEDY INTERNATIONAL AIRPORT NEW YORK, NY

TURBINE NO: 155343

TURBINE TYPE: LAND BASED TURBINE-GENERATOR (Direct Drive)

TURBINE M.L.: DEX1434155343 **GENERATOR S. N.:** 316X906

RATED OUTPUT: 26,341KW **RATED SPEED:** 3600 RPM

GOVERNING SYSTEM: MARK V SIMPLEX TURBINE CONTROL SYSTEM

STEAM CONDITIONS:

INLET PRESSURE/TEMPERATURE ..... 660 PSIG/740°F

HP EXTRACTION PRESSURE ..... 150 PSIG

LP ADM/EXTR PRESSURE ..... 60 PSIG

EXHAUST PRESSURE ..... 2.5″ HgA

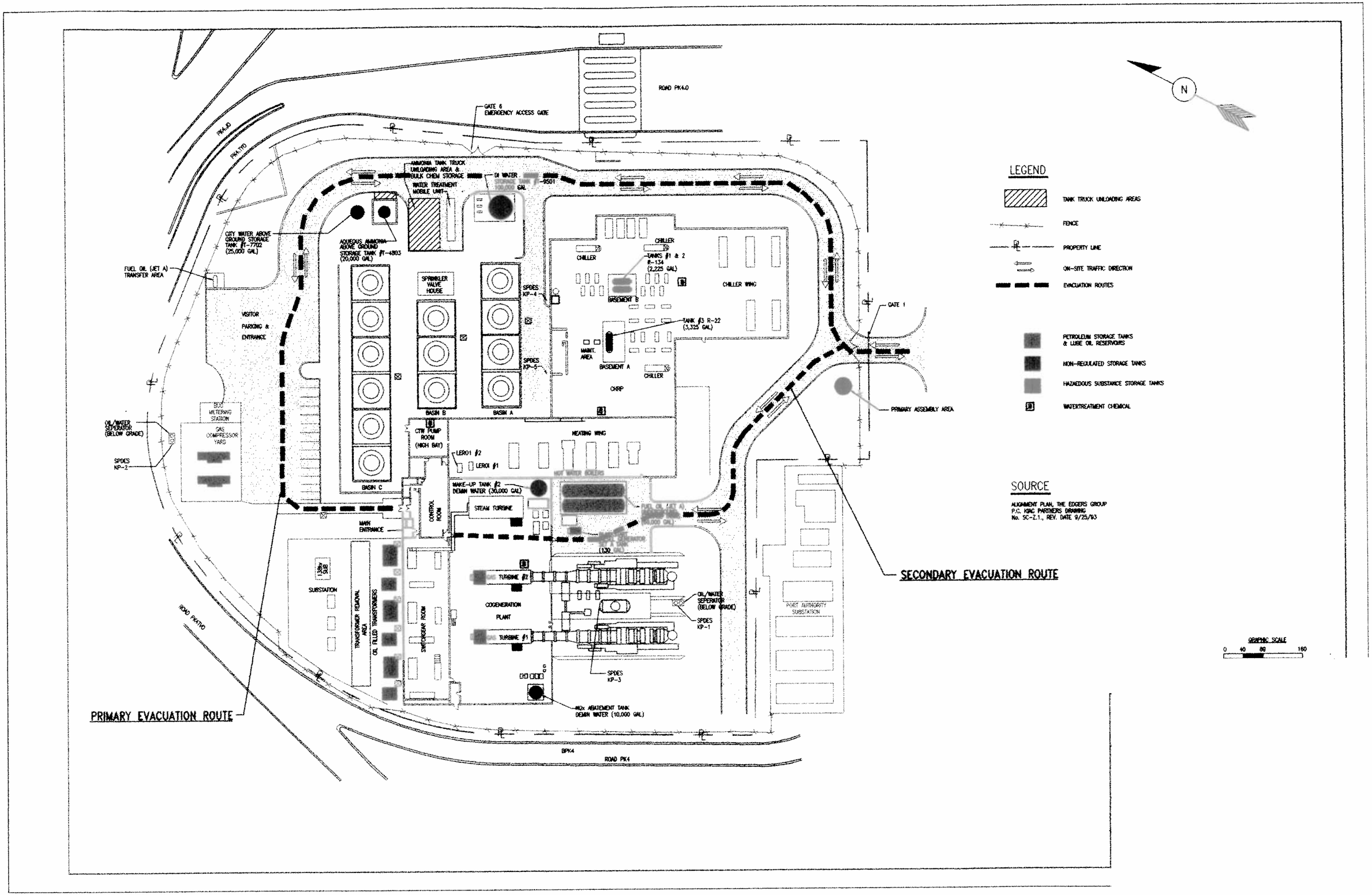

Exhibit D - General arrangement

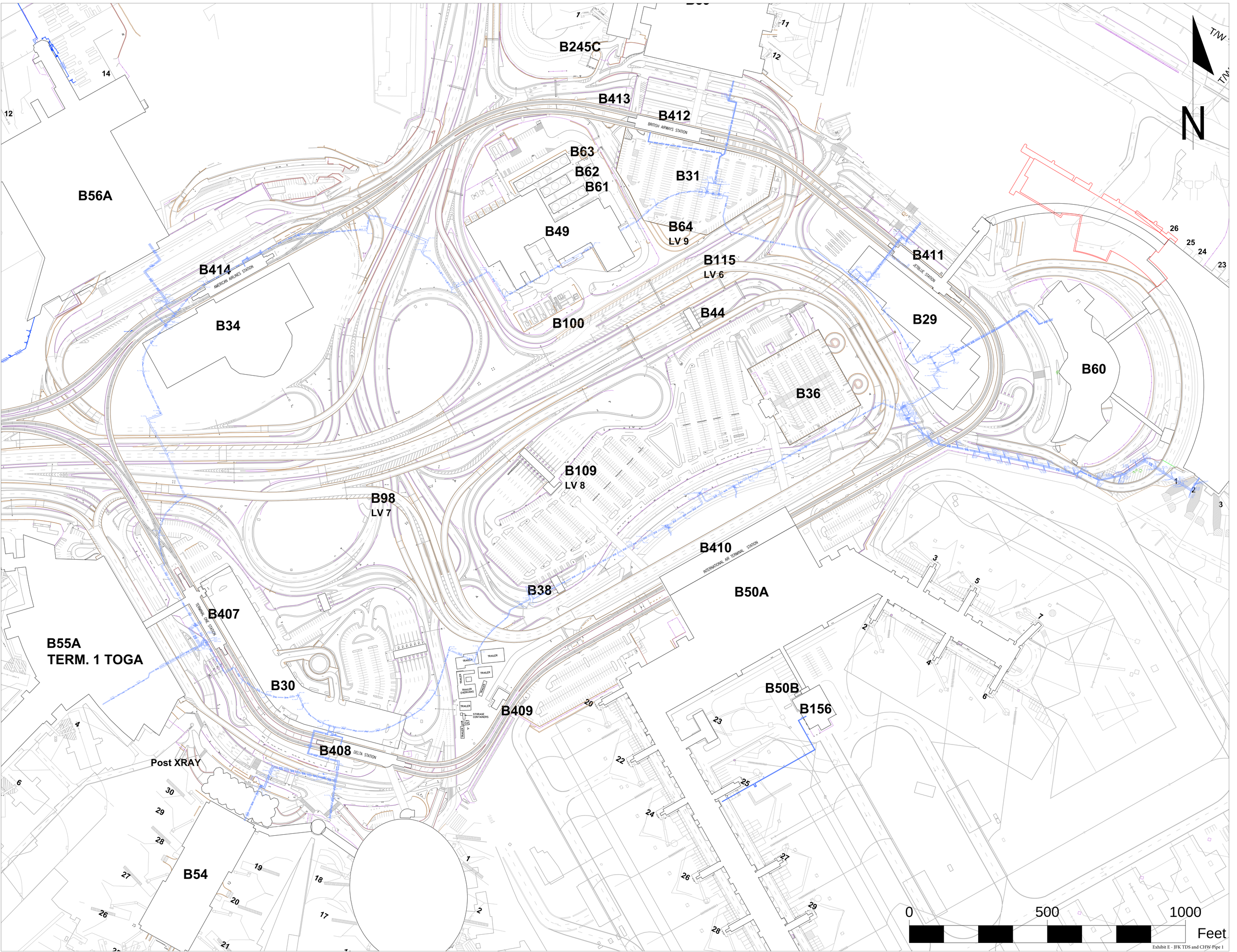

Exhibit E - JFK TDS and CHW Pipe 1