THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

REQUEST FOR INFORMATION

RELATED TO ALTERNATIVES TO DESIGN, CONSTRUCT, OPERATE, MAINTAIN AND FINANCE THE JFK INTERNATIONAL AIRPORT AVIATION FUELING FACILITY AND DISTRIBUTION SYSTEM PROJECT

RFI # 40354

DATE: December 12, 2014,

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INTRODUCTION

1.1 PURPOSE OF THIS REQUEST FOR INFORMATION

The Port Authority of New York and New Jersey (the "Authority") hereby invites interested parties to respond to this Request for Information ("RFI") regarding the potential for Qualifying Organizations, as defined below, to deliver a State-of-the-Art Aviation Fueling Facility and Distribution System at John F. Kennedy International Airport ("the Airport" or "JFK"), to provide operations and maintenance services for the fueling facility and distribution system, and to provide into-plane fueling services (the "Project").

The Authority is seeking the industry's perspective and feedback as to where it may add value to the Project in the:

- Operations and maintenance services for the fueling facility and distribution system and into-plane fueling services;
- Design and construction of the Project or its elements;
- Funding/financing of elements of the Project, including the use of alternative financing mechanisms; and
- Lowering the project costs (including soft costs) while minimizing life cycle operation and maintenance costs.

The Authority welcomes responses from entities that provide cost effective and high value services in the funding/financing, delivery of design, and construction and operation and maintenance services that will be part of the Project.

The primary goals of the Project are to:

- Identify and establish facility improvements that optimize fuel supply/logistics into JFK;
- Integrate existing and alternative systems for storage and distribution of fuel to aircraft;
- Develop systems that optimize operations and maintenance without sacrificing fuel quality; and
- Evaluate alternative supply options to ensure supply meets projected fuel needs.

This RFI is an inquiry only. No contract or agreement will be entered into as a result of this RFI. There are no guarantees made or implied by the Authority that the RFI will result in a public procurement process for performance of any of the services contemplated herein or hereby, nor that any subsequent procurement will follow the approach described herein.

1.2 SUBMISSION REQUIREMENTS

The Authority encourages entities that meet one or more of the following eligibility criteria ("Qualifying Organizations") to respond to this RFI:

A. Industry leaders with a record of accomplishment in the construction and the operation and maintenance of a fueling facility and distribution system of similar size, complexity, and scale, including, but not limited to, responsibility for operations, maintenance, and into-plane fueling services. Investors with a substantial development and investment record of accomplishment in fueling facility and distribution system projects exceeding $250 million in

project cost individually. Qualifying Organizations must demonstrate having provided an equity investment of at least $25 million.

B. Developers of that have provided superior levels of customer service at similar airport projects.

Respondents to this RFI may be required to demonstrate, to the satisfaction of the Authority, compliance with criteria stipulated therein.

Qualifying Organizations are required to comply with the page limits stipulated in Appendix A (Questionnaire) and to restrict their submittals to a short cover letter together with the information specifically requested on the questionnaire. Such organizations may be invited to participate in industry input meetings with the Authority's project team.

Organizations such as underwriters of airport bonds; providers of design, engineering, surveying, and architectural services; legal or financial advisors; and/or other providers of professional services do not meet the specific eligibility criteria for responding to this RFI. Such firms may participate in an RFI submission as part of a team that includes a Qualifying Organization.

Organizations that do not respond to this RFI will not be precluded from participating in a future procurement, if any, for the Project.

1.2.1 AGREEMENT ON TERMS OF DISCUSSION

Respondents shall submit a copy of the "Agreement on Terms of Discussion," signed by an authorized representative of the respondent. The Agreement is included as Appendix B and must be submitted without any alterations. If the respondent is a joint venture, an authorized representative of each party must sign said Agreement, or a copy thereof.

1.2.2 SUBMITTALS, QUESTIONS, AND COMMENTS

Respondents shall submit eight (8) hard copies and two (2) electronic copies of the requested information in a format that does not prevent the Authority from cutting and pasting content. Submissions shall be delivered in sufficient time so that the Authority receives them no later than 2:00 P.M. on January 28, 2015. Address submissions as follows:

RFI CUSTODIAN
The Port Authority of New York and New Jersey
Procurement Department
2 Montgomery Street, 3rd Floor
Jersey City, NJ 07302

The Respondent's firm name" and "**RFI Number 40354"** must be clearly indicated on the outside of the sealed package, and on the cover of your submission. Late submittals may not be considered.

Additional information regarding the Project or any questions concerning this RFI should be directed to Ms. Laurie E. Spencer at lspencer@panynj.gov. Neither Ms. Spencer nor any employee of the Authority is authorized to interpret the RFI or give additional information as to its requirements. Such interpretation or additional information will only be given by written addendum to this RFI.

1.3 PROJECT SUMMARY

The Authority's goal is to have a Qualifying Organization 1) cost-effectively develop a state-of-the-art fueling facility and distribution system at JFK that improves efficiency, reliability, and safety while maintaining fuel quality and flight operations, 2) provide operations and maintenance services of the fueling facility and distribution system and 3) provide into-plane fueling services.

The Authority's overarching objective is to deliver the Project efficiently and economically through an approach that:

- Integrates design, construction, and operational aspects as required to minimize construction timelines and life cycle costs, while extending usable life;
- Delivers the Project within budget and schedule by optimizing construction timelines, controlling soft costs; and
- Optimizes risk allocation among the parties involved in the Project.

2 THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

2.1 ORIGINS AND MANDATE

The Authority is a municipal corporate instrumentality and political subdivision of the States of New York and New Jersey, created and existing by virtue of the Compact of April 30, 1921, made by and between the two States, and thereafter consented to by the Congress of the United States.

The Compact created the Port District, which comprises an area of about 1,500 square miles in both States, centering around New York Harbor, and includes the Cities of New York and Yonkers in New York State, and the Cities of Newark, Jersey City, Bayonne, Hoboken, and Elizabeth in the State of New Jersey, and over 200 other municipalities, including all or part of 17 counties, in the two states. The Authority is mandated to provide transportation, terminal, and other facilities of commerce within the Port District, and, for such purposes, the States have from time to time authorized specific transportation and terminal facilities and facilities of commerce and economic development. The Compact has been amended and supplemented periodically by legislation adopted by the two States.

2.2 AUTHORITY GOVERNANCE

The Authority is governed by a Board of Commissioners comprised of 12 members, six from each state, appointed by the respective Governor thereof with the advice and consent of the respective State Senate. The actions the Commissioners take at Port Authority Board meetings are subject to gubernatorial review for a period of 10 business days and may be vetoed by the Governor of each State during such period.

2.3 AUTHORITY ORGANIZATION AND BUSINESS LINES

The Authority is organized around five lines of business: Aviation, PATH (Rail), Port Commerce, Tunnels-Bridges-Terminals, and the World Trade Center. Multi-modal transportation and economic development are at the core of these business areas.

These lines of business have their own dedicated staff and control approximately 30 Port Authority facilities that handle millions of customers annually as well as millions of tons of cargo via air, marine, rail, or truck. The Authority's focus is on maintaining and improving service levels so that the overall regional transportation network can operate as effectively as possible. The network moves passengers and goods within the region, and in and out of the region.

The five lines of business and the Executive Offices are supported by support staff functions including but not limited to: Engineering, Financial, Legal, Procurement, Public Safety, Real Estate and Development, and Technology.

2.4 AUTHORITY FINANCIAL OVERVIEW

The Authority raises the necessary funds for the improvement, construction, or acquisition of its facilities generally upon the basis of its own credit. The Authority has no power to levy taxes or assessments. Its bonds, notes, and other obligation(s) are not obligations of the two States or of either of them.

The revenues of the Authority are derived principally from the tolls, fares, landing and dockage fees, rentals, and other charges for the use of, and privileges at, certain of the Authority facilities. Some facilities operate at a deficit, do not generate surplus revenue, or are non-revenue producing to the Authority. The Authority reports its financial results on a consolidated basis. Full statements and appended notes for the year ended December 31, 2013 can be found at:

http://www.panynj.gov/corporate-information/pdf/financial-statement-2013.pdf

3 BACKGROUND

3.1 AUTHORITY AIRPORTS AND REGIONAL NETWORK

The Authority's Aviation Department is responsible for operating five airports within the Metropolitan NY/NJ region, including John F. Kennedy International Airport, Newark Liberty International Airport, La Guardia Airport, Stewart International Airport, and Teterboro Airport.

These five airports are nationally significant to mobility and commerce, linking the goods and people of the Metropolitan NY/NJ region with the nation and world.

3.2 THE AIRPORT

Opened on July 1, 1948, the Airport is located in the southeastern section of Queens County, New York City, on Jamaica Bay. The airport consists of approximately 4,956 acres, including 880 acres in the Central Terminal Area. The Central Terminal Area contains six individual airline passenger terminals surrounded by a dual ring of peripheral taxiways. Three hangars are used to provide aircraft maintenance and storage for aircraft parts and equipment. Five patron parking structures, twenty-two cargo buildings to accommodate the demand for cargo space, a

475-room hotel (currently closed), and a cogeneration facility integrating an installation for the generation of electrical energy with the airport's central heating, refrigeration plant and thermal distribution system, are also located on the airport. The four major runways now in use range in length from approximately 8,400 feet to 14,600 feet. On December 17, 2003, an automated light rail system linking the terminals in the Central Terminal Area with each other and with existing transit lines in Jamaica, Queens and Howard Beach, Queens, respectively, to provide exclusive airport access for passengers and others using the airport, became operational.

3.3 JFK FUEL DISTRIBUTION SYSTEM

The Bulk Fuel Farm (the "BFF") is approximately 47 acres in size and is located on the east side of the Airport adjacent to Bergen Basin. The Satellite Fuel Farm (the "SFF") is approximately 5.8 acres in size and is located on the west side of the Airport adjacent to the Van Wyck airport entrance.

The jet fuel tanks are filled via Buckeye Pipeline from Linden, New Jersey. The fuel from the Buckeye Pipeline is transported through aboveground and underground piping to the storage tanks in the BFF.

The SFF and BFF contain Underground Storage Tanks as well as Above Ground Storage Tanks. The SFF contains 40 Above Ground Storage Tanks with a shell capacity of 100,000 gallons. The BFF consists of 62 storage tanks with a maximum capacity of 500,000 gallons.

Throughout the BFF and SFF there are 91 filter vessels and 15 metering systems. The delivery rate from the receiving pipeline varies from a slow rate of 3,100 bbls/hr to a maximum rate of 5,200 bbls/hr.

The hydrant system was constructed in the 1960's and currently has 400 hydrants at the various terminals. The Port Authority is responsible for repairs to the hydrant system piping on non-airline leased property. The airlines are responsible for repairs to the hydrant system within their respective leaseholds. The system has a total capacity of approximately 2,000,000 gallons of jet fuel. Regular system pressure testing is performed on the entire fueling system to assure system integrity.

3.4 THE FUEL'S JOURNEY

Initially, fuel is purchased from an oil company or supplier by an airline's fuel purchasing agent. This "batch" is then moved from a refinery through various pipeline networks to the Buckeye pipeline in Linden, New Jersey. Upon receipt at the Linden facility, the fuel is stored in holding tanks until a time can be scheduled for its release and delivery to the Buckeye facility at the BFF. When finally scheduled for delivery, the fuel is filtered as it is released from its holding tanks and then transferred, via pipeline, through Staten Island, on to Long Island and finally received by Buckeye at JFK where it is filtered again. Several quality control tests are conducted on this batch before it is finally released to the Authority's independent contractor (the "Contractor").

When a batch meets established standards, the Contractor accepts the fuel and filters it again as it is transferred to the bulk storage tanks in the BFF. During this process, several additional quality

control tests are administered. Regardless of test results, the tanks receiving the current batch are held out of service until an independent lab has tested the samples. Once cleared by the lab, the fuel batch is then released to either tank trucks or redirected to the SFF for hydrant cart use on the Ramp.

Fuel that is dispensed at the fuel truck loading rack is filtered prior to entering the truck's product tank. Once filled, the tank truck is then sumped, which is a visual check for water and other contaminants. Provided the sump sample is "clear and bright", the truck is subsequently released for distribution on the terminal ramp or, most commonly, in the cargo areas of the Airport, which do not contain a hydrant system. As a final precaution, each tank truck is equipped with a filter/separator and a water monitor, which the fuel must pass through before finally entering the aircraft.

4 PROJECT SCOPE AND STATUS

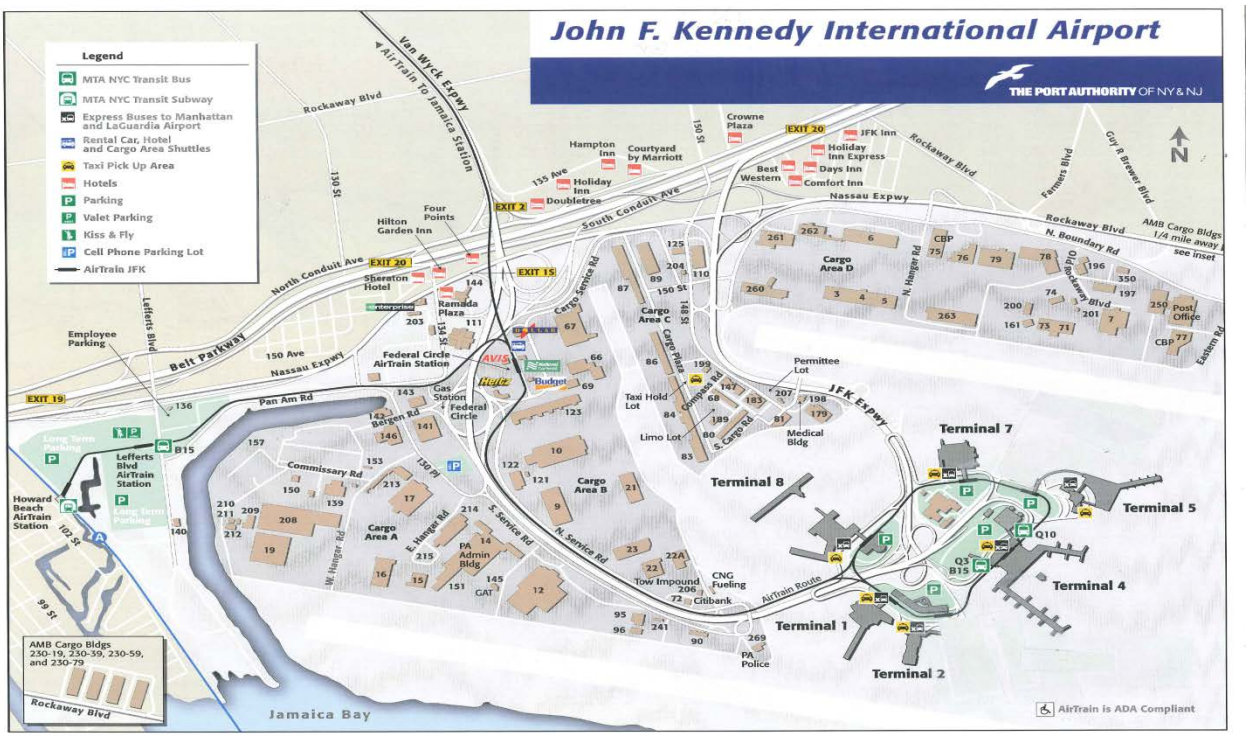
4.1 DESIGN CONCEPT AND COMPONENTS

A consultant was retained to develop a Fueling System Master Plan (the “Plan”) for JFK, including defining a “State-of-the-Art Fueling Facility”. A full copy of the Plan is attached as Appendix D and is entitled: 2012 JFK Aircraft Fueling System Master Plan, November 5, 2013. The Plan provides several alternatives. The Port Authority’s preferred alternative includes a complete State-of-the-Art solution providing the optimum technical improvements, including new tanks, hydrant, and alternative supply methods to achieve the most efficient system possible.

It should be noted that the preferred alternative is illustrative and that the Authority encourages comment regarding different approaches that align with this basic philosophy, provided that the mandatory requirements (as contained herein) are met. For reference purposes, the Airport Rules and Regulations issued by the Authority, August 4, 2009 are attached as Appendix G.

4.2 AIRPORT OVERVIEW

The map below shows an aerial view of the Airport, indicating the Airport’s buildings, parking facilities and integrated road network.



4.3 STUDY AREA AND PHYSICAL CONSTRAINTS

The Project study area is described in section 3.3 of this document.

A major portion of the infrastructure for aircraft fueling at JFK is more than 50 years old. As an older system, it operates employing an older technological model approach. The original concept for the fuel system handled multiple products and segregated vendors and users. Today there is a single product, Jet-A, under a single operator for bulk fuels, making the operational requirements burdensome and labor intensive. The systems are overly complex and antiquated.

4.4 ANTICIPATED PROJECT SCHEDULE

The Authority's preferred alternative is the State-of-the-Art solution and is estimated to take 5 to 7 years from design to completion.

The Authority is interested in feedback from the industry on how the construction schedule could be reduced while maintaining airport operations in order to complete the Project sooner.

5 DESIGN AND TECHNICAL CONSIDERATIONS

5.1 DESIGN PROGRESS AND FLEXIBILITIES

The 2012 JFK Aircraft Fueling System Master Plan (Appendix D) may be considered "illustrative." Other similar designs may be acceptable, provided they are consistent with Project goals, meet the mandatory requirements as described herein, meet other stakeholder requirements, permitting requirements, and other agreements necessitated during development of the Project. The Authority may consider alternative technical concepts and would welcome feedback from potential proposers on how such matters have been handled during other procurements to encourage innovation while maintaining transparency and fair competition.

The Authority places a high focus on sustainability and may specify recycling of certain materials/green construction methods or propose specific sustainability guidelines, provided they result in life cycle cost savings.

5.2 MANDATORY REQUIREMENTS

5.2.1 DEMOLITION OF EXISTING SATELLITE FUEL FARM

Demolition of the existing Satellite Fuel Farm will occur in phases throughout construction of the Project and will be included in the scope of work.

5.2.2 MINIMIZE THE FUELING FOOTPRINT

The fueling footprint at the Airport should be minimized by reducing the size of the Bulk Fuel Farm as practical.

5.3 PRELIMINARY PROJECT COST ESTIMATE

The Authority is relying on the Plan for the preliminary construction cost estimate for the State-of-the-Art Fueling Facility at a capital expense of $279 million.

Capital cost estimates include construction costs that were based on actual costs of construction for very similar facilities with adjustments for inflation and location. The cost estimates include allowance of 10% for engineering design, 10% for project management and a 25% contingency. These percentages were added to the estimated cost of construction. Additionally, the Authority is interested in minimizing all soft costs associated with the Project, and would welcome input from the industry on how this can be achieved.

6. COMMERCIAL AGREEMENTS

6.1 CURRENT AIRLINE AND NON-AIRLINE AGREEMENTS

By way of background, the Authority has entered into the following agreements with both airlines and non-airlines at JFK:

- Fuel Storage Privilege Permit – The Fuel Storage Privilege Permit provides the privilege to store aviation fuel in the Fuel Storage Facilities at JFK, establishes the cost recovery formula which determines the Fuel Storage Fee, and defines the Into-Plane Fee. This permit requires each Permittee to enter into a contract with the Port Authority's independent contractor for fuel storage and into-plane services.
- FBO Agreement- The Fixed Base Operations (FBO) agreement allows the Operator to provide Fixed Base Operation services for General Aviation Aircraft, using the General Aviation Terminal at JFK.

6.2 EXISTING OPERATIONS AND MAINTENANCE

The existing fuel storage facilities and distribution system are currently operated and maintained by an independent contractor designated by the Authority. The independent contractor is responsible for the operation and routine and preventive maintenance of the JFK bulk and satellite fuel storage facilities, including valve maintenance, truck loading rack maintenance, environmental programs, painting of storage tanks, repair of security fencing, filtration of in-

bound fuel, and testing services to ensure New York State licensing requirements for major fuel facilities are met.

6.3 EXISTING INTO-PLANE FUELING SERVICES

The existing into-plane fueling services are provided by the same independent contractor designated by the Authority. The independent contractor operates the Fuel Facilities, to receive and store aviation fuel of the Fuel Storage Permittees and to deliver the same into the tanks of aircraft at JFK, and to provide defueling service for aircraft on behalf of the Fuel Storage Permittees, and to furnish all required labor, supervision, materials, supplies, equipment and facilities.

7. PROJECT PLAN – PRELIMINARY OVERVIEW

7.1 POTENTIAL PROJECT IMPLEMENTATION – DESIGN AND CONSTRUCTION

Alternative delivery models have been successfully used to deliver major elements of other Authority projects. The Authority expects the Qualified Organization to be responsible for detailed design development, preparation of contract documents, and construction management of the Project, with the Authority in an oversight role to ensure adherence to contract specifications and plans.

8. CONDITIONS FOR THE SUBMISSION OF INFORMATION

8.1 INQUIRY ONLY – NO CONTRACT

This RFI is an inquiry only and no contract or agreement will be entered into as a result of this process.

Neither the Authority nor any other agency guarantees that the Project will advance to public procurement stage, or that the subsequent procurement, if any, will follow the approach described herein.

8.2 CHANGES TO THIS RFI

At any time, in its sole discretion, the Authority may, by written addenda to this RFI, modify, amend, cancel, and/or reissue this RFI. If an addendum is issued prior to the date Information is due, it will be made available on the following website:

http://www.panynj.gov/business-opportunities/bid-proposal-advertisements.html

If an addendum is issued after Information has been received, it may, at the Authority's discretion, be provided only to those proposers whose submittals may be impacted by such change/addendum.

8.3 INFORMATION PREPARATION COSTS

The Authority shall not be liable for any costs incurred by the respondent in the preparation, submittal, presentation, or revision of its Information, or in any other aspect of the respondent's pre-information submittal activity. No respondent is entitled to any compensation except under an agreement for performance of services signed by an authorized representative of the Authority and the respondent.

8.4 DISCLOSURE OF INFORMATION CONTENTS / USE OF IDEAS AND MATERIALS

Information submitted in response to this RFI is not generally considered confidential or proprietary. All information contained in the Information is subject to the "Agreement on Terms of Discussion" attached hereto as Appendix B.

8.5 OWNERSHIP OF SUBMITTED MATERIALS

All materials submitted in response to or in connection with this RFI shall become the property of the Authority.

8.6 REFERENCES

The Authority may consult any reference familiar with the respondent regarding its current or prior operations and projects, financial resources, reputation, performance, or other matters. Submission of Information shall constitute permission by the respondent for the Authority to make such inquiries and authorization to third parties to respond thereto.

8.7 RIGHTS OF THE AUTHORITY

The Authority reserves all its rights at law and equity with respect to this RFI including, but not limited to, the unqualified right, at any time and in its sole discretion, to change or modify this RFI, to reject any and all Information, to waive defects or irregularities in Information received, to seek clarification of Information, to request additional Information, to request any or all respondents to make a presentation, to undertake discussions and modifications with one or more respondents, who, at any time, subsequent to the deadline for submissions to this RFI, may express an interest in the subject matter hereof.

No respondent shall have any rights against the Authority arising from the contents of this RFI, the receipt of Information, or the incorporation in or rejection of Information contained in any response or in any other document. The Authority makes no representations, warranties, or guarantees that the information contained herein, or in any addenda hereto, is accurate, complete, or timely or that such information accurately represents the conditions that would be encountered during the performance of a subsequent contract, if any. The furnishing of such information by the Authority shall not create or be deemed to create any obligation or liability upon it for any reason whatsoever and each respondent, by submitting its Information, expressly agrees that it has not relied upon the foregoing information, and that it shall not hold the Authority liable or responsible therefore in any manner whatsoever.

8.8 NO PERSONAL LIABILITY

No Commissioner, officer, agent or employee of the Authority shall be charged personally with any liability by a respondent or another or held liable to a respondent or another under any term or provision of this RFI or any statements made herein or because of the submission or attempted submission of information or other response hereto or otherwise.

* * *

APPENDIX A – QUESTIONNAIRE

Respondents meeting the requirements set forth in this RFI are invited to return the following questionnaire together with a cover letter (not to exceed 2 pages). The page count for each individual section of the questionnaire is listed below. Respondents need not submit information for Sections II, III, or IV if one or two of these sections are not applicable or consistent to their expertise. Detailed corporate or team experience and capability, and/or general marketing material should not be included with your response. Follow the format below.

Section I. Eligibility and Experience: (All respondents) 5 page limit

A. Provide a concise description of the name and principal business of the organization that would participate in the Project or elements of the Project.

B. Provide examples of comparable aviation fueling system projects in which your firm has played a significant role in enhancing the value of the project. (Refer to the attached form in Appendix C).

Section II. Development and Construction: (If applicable) 5 page limit

The Authority is willing to consider different approaches to the delivery of the Project. Describe your preferred approach and how it would be beneficial for the Project. Explain:

A. What financial benefits would be available under your project delivery approach? Quantify potential cost savings and schedule reductions.

B. What benefit would this approach provide the Authority and the airlines?

C. How would this approach contribute towards minimizing soft costs?

D. Would a "design-build-operate-maintain-finance" ("DBOMF") or some variation thereof enhance the value of the Project or elements of the Project? If your approach involves a DBOMF, which Operation & Maintenance (O&M) activities do you believe should be included for your team to accept responsibility for the condition of the physical asset and to enable the most efficient and effective interfaces with the Authority?

E. What would you view as the optimal term of a DBOMF contract?

F. How would you approach the timing for the completion of the Project? Would the elements of the Project be completed simultaneously until completion or spread out over time in multiple stages?

G. How would you expect to be compensated for your participation in the Project?

   1. From what sources of revenue would you expect this to derive?
   2. Which specific financial risks would your organization assume, and what conditions would be necessary for their assumption?
   3. In your experience with previous projects, detail the assumption of financial risk by your organization.
   4. Are there any specific financial risks your organization would not assume?

Section III. Operations and Maintenance: (If applicable) 5 page limit

The Authority is interested in a proposed approach to the operation and maintenance of the new Aviation Fueling Facility and Distribution System. The Authority had a consultant prepare a manual documenting the utilities, equipment and components of the Operations and Maintenance Services for the BFF and transfer piping connecting the BFF and the SFF as well as detailing the proposed Contractor's responsibilities. Refer to Appendix E.

A. The existing fuel farm operations and maintenance agreement covers the maintenance of underground fuel transmission lines up to the edge of the airlines' Unit Terminal leaseholds. The airline lease holders are responsible for maintaining the portions of the fuel transmission lines and the fuel pits on their leaseholds. Do you think that this is an optimal approach or should the contractor be responsible for the entire length of the underground fuel transmission lines and fuel pits regardless of location?

B. In addition, the Authority is interested in a proposed approach for providing into-plane fueling services. The Authority prepared a manual documenting the utilities, equipment and components within the Into-Plane Operational Area, which is comprised of the SFF and the airside areas supporting the fueling of aircraft, as well detailing the proposed responsibilities of a contractor. Refer to Appendix F.

   The Authority currently has one into-plane fueling contractor. What number of into-plane fueling contractors do you view as optimal?

C. As mentioned, the Authority is considering a Public Private Partnership ("P3"), such as a DBOMF, for this project. If this approach is pursued, please comment on the following:

   1. Your recommendation as to the structure of the P3.
   2. The procedures you would recommend to be used to measure performance, including financial incentives and penalties.
   3. The process for establishing annual budgets.
   4. How the P3 would interact contractually and otherwise with the airlines and other stakeholders.
   5. As an operator of the Aviation Fueling Facility and Distribution System, how would you expect to receive compensation for your participation in the Project? From what sources of revenue would you expect this to derive?
   6. The Authority will charge an appropriate ground rent for this facility. What other forms of compensation would you pay the Authority?

Section IV. Financing: (If applicable) 5 page limit

The Authority is seeking information and feedback on sources of financing that may be available for the Project. For purposes of this question, please assume no Authority funds, including Consolidated Bond capacity or Authority reserves, are available to fund the Project.

A. Identify and provide your perspectives on the following:

1. What amount (or range of amounts) of equity investment, if any, do you suggest would be beneficial in developing a plan of finance for the new Aviation Fueling Facility and Distribution System and why? What form(s) would such equity investment take?
2. Based upon current market conditions, what rate of return (or range of returns) would be necessary for such Equity investment? What term would be required?
3. Detail any covenants that would be required to support the equity investment.
4. Detail any covenants or structural elements that would be necessary to achieve an investment grade rating.

B. In your experience with previous projects, detail the assumption of financial risk by your organization. Are there any specific financial risks your organization would not assume?

C. The Authority anticipates that any financing will end prior to the expiration, in 2050, of its lease with the City of New York. Indicate if this is acceptable and, if not, specify a suggested longer term and the reason for its necessity.

Section V. Other: (All respondents) 1 page limit

Provide any additional comments, concerns, or suggestions you wish to offer.

* * *

APPENDIX B - AGREEMENT ON TERMS OF DISCUSSION

The Authority's receipt or discussion of any information (including information contained in any proposal, vendor qualification, ideas, models, drawings, or other material communicated or exhibited by us or on our behalf) shall not impose any obligations whatsoever on the Authority or entitle us to any compensation therefor (except to the extent specifically provided in such written agreement, if any, as may be entered into between the Authority and us). Any such information given to the Authority before, with or after this Agreement on Terms of Discussion (this "Agreement"), either orally or in writing, is not given in confidence. Such information may be used, or disclosed to others, for any purpose at any time without obligation or compensation and without liability of any kind whatsoever. Any statement which is inconsistent with this Agreement, whether made as part of or in connection with this Agreement, shall be void and of no effect. This Agreement is not intended, however, to grant to the Authority rights to any matter that is the subject of valid existing or potential letters patent. The foregoing applies to any information, whether or not given at the invitation of the Authority.

Notwithstanding the above, and without assuming any legal obligation, the Authority will employ reasonable efforts, subject to the provisions of the Authority's Freedom of Information Policy and Procedure adopted by the Authority's Board of Commissioners on November 20, 2008, which may be found on the Authority website at *http://www.panynj.gov/AboutthePortAuthority/ContactInformation/foi_policy.html*, not to disclose to any competitor of the undersigned, information submitted which are trade secrets or is maintained for the regulation or supervision of commercial enterprise which, if disclosed, would cause substantial injury to the competitive position of the enterprise, and which information is identified by the respondent as proprietary, which may be disclosed by the undersigned to the Authority as part of or in connection with the submission of information.

_____

(Company)

_____

(Signature)

_____

(Title)

_____

(Date)

PLEASE SIGN ONLY THE ORIGINAL AND PHOTOCOPIES OF THIS PAGE.
DO NOT RETYPE.

APPENDIX C (page 1 of 3)

PROJECT EXPERIENCE FORM - AVIATION FUELING FACILITY AND DISTRIBUTION SYSTEM PROJECT TRACK RECORD - DEVELOPMENT & CONSTRUCTION FIRMS

COMPANY NAME: _____

PROJECT NAME & LOCATION (1)	PROJECT DESCRIPTION & SCOPE (2)	PROJECT COST (3),(4)	START DATES & PERCENT OF WORK COMPLETED AS OF DECEMBER 31, 2014	COMPANY'S ROLE & PARTICIPATION (5)	FINANCIAL COMMITMENT & OBLIGATIONS (3),(6)	FINANCIAL RETURN (7)	CONTACT INFORMATION FOR PROJECT'S PUBLIC SPONSOR/OWNER (8)

Guidelines:

The Authority is interested in the following:

(1) Only list projects involving new capital development of more than US$250 million closed within the past ten(10) years, in which company participated in the project development/bidding process.

(2) Attach to this form a maximum one-page narrative description for each project listed in this column.

(3) In United States Dollars (in thousands), (identify conversion rate from other currencies).

(4) Project Cost means the total design, planning, permitting, and construction cost of the project, excluding financing costs. Identify the company's contract cost and the percentage this comprised of the total cost.

(5) Provide Company's role and responsibilities in the development, construction, and/or ongoing management and operation of the aviation fueling facility and distribution system.

(6) Provide Company's funding commitments, if any, for the project. Also, identify financial obligations of company to provide completion financing or other funding.

(7) Identify the funding sources for the company's compensation, fees, and payments. Identify the fees (type and amount) which are fixed and which are variable (e.g., performance based fees) including the basis for determining fees. (8) Include name of contact person, address, active phone number, and e-mail address.

(8) Include name of contact person, address, active phone number, and e-mail address.

APPENDIX C (page 2 of 3)

PROJECT EXPERIENCE FORM -AVIATION FUELING FACILITY AND DISTRIBUTION SYSTEM PROJECT TRACK RECORD - OPERATION & MAINTENANCE FIRMS

COMPANY NAME: _____

PROJECT NAME & LOCATION (1)	PROJECT DESCRIPTION & SCOPE (2)	PROJECT COST (3),(4)	START & END DATES OF CONTRACT	COMPANY'S ROLE & PARTICIPATION (3), (5)	FINANCIAL COMMITMENT & OBLIGATIONS (6)	FINANCIAL RETURN (7)	CONTACT INFORMATION FOR PROJECT'S PUBLIC SECTOR SPONSOR/OWNER (8)

Guidelines: The Authority is interested in the following:

(1) Only list projects within the past ten (10) years in which the company provided full O&M services (i.e., do not include contracts for individual services) for an aviation fueling facility and distribution system.

(2) Attach to this form a maximum one-page narrative description for each project listed in this column.

(3) In United States Dollars (in thousands), (identify conversion rate from other currencies).

(4) Project cost means the annual O&M budget.

(5) Detail role of the company in the project development, if any, and in setting the budget, promoting efficiency, reducing life cycle costs, and enhancing customer service.

(6) Detail the company's financial commitment to meeting financial, service and other performance targets and how these targets are set.

(7) Specify how the company is compensated, including fixed and variable management and other fees.

(8) Include name of contact person, address, active phone number, and e-mail address.

APPENDIX C (page 3 of 3)

PROJECT NAME & LOCATION (1)	PROJECT DESCRIPTION & SCOPE (2)	PROJECT COST (3),(4)	START DATES & PERCENT OF WORK COMPLETED AS OF DECEMBER 31, 2014	COMPANY'S ROLE & PARTICIPATION (5)	FINANCIAL COMMITMENT & OBLIGATIONS (3),(6)	FINANCIAL RETURN (7)	CONTACT INFORMATION FOR PROJECT'S PUBLIC SPONSOR/OWNER (8)

The Authority is interested in the following

(1) Only list projects involving both new capital development and private financing of more than US$250 million closed within the past ten (10) years, in which the company was an original investor (i.e., do not list secondary market transactions) and participated in the project development/bidding process.

Guidelines:

The Authority is interested in the following:

(1) Only list projects involving both new capital development and private financing of more than US$250 million closed within the past ten (10) years, in which the company was an original investor (i.e., do not list secondary market transactions) and participated in the project development/bidding process.

(2) Attach to this form a maximum one-page narrative description for each project listed in this column.

(3) In United States Dollars (in thousands), (identify conversion rate from other currencies).

(4) Project cost means the total amount of the project financed; include subtotals listing the amounts funded by private finance and public finance or capital grants.

(5) Provide company's role and responsibilities in the development, construction, and/or ongoing management and operation of the aviation fueling facility and distribution system.

(6) Provide company's equity investment as a shareholder and other funding commitments. The equity investment may take the form of either (A) Shareholder's equity or (B) Shareholder subordinated debt. Also, identify financial obligations of company to provide completion financing or other funding.

(7) Identify the funding sources, priority of re-payment, and mechanisms for re-payment of the company's financial investments.

(8) Include name of contact person, address, active phone number, and e-mail address.

2012 JFK AIRCRAFT FUELING SYSTEM MASTER PLAN

POND

Architects ▪ Engineers ▪ Planners

WESPAC ENERGY GROUP | PWGC

JFK Fueling System Master Plan

Final Plan - Submitted 5 November 2013

Pond & Company

3500 Parkway Lane, Suite 600

Norcross, GA 30092

Project Manager: Dean Flessas

Project Number: 1120366

JFK Fueling System Master Plan

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JFK Fueling System Master Plan

Executive Summary

Pond & Company has been retained by the JFK Fuel Committee, the Port Authority of New York & New Jersey and Allied Aviation to develop a Fueling System Master Plan for JFK International Airport including defining a State of the Art Fueling Facility. The primary goals are to:

- Identify facility improvements that optimize fuel supply/logistics into JFK International Airport.
- Integrate existing and alternative systems for storage and distribution of fuel to aircraft.
- Develop systems to optimize operations and maintenance without sacrificing fuel quality.
- Evaluate alternative supply options to ensure supply meets projected fuel needs.

A key directive in the study is to cost effectively develop a State of the Art Fuel Facility at JFK that improves efficiency, reliability and safety while maintaining fuel quality and flight operations. The study included key areas of analysis:

- Existing Operations
- Historical Fuel Demand
- Projected Fuel Demand/Growth
- Anticipated Risks & Abatement Plans

From this analysis there are several key findings listed in order of urgency.

- The projected fuel demand will exceed the current supply capabilities during peak summer periods by the years 2016/2017.
- The current on-site storage capacity is not able to sustain the projected growth in fuel demand. By 2020, the days of on-site capacity will fall below 5 during peak season.
- The existing fuels infrastructure is overly complex resulting in operational costs well above the typical fuel facility that handles a similar volume (more than triple).
- The age of the system creates a higher than normal maintenance and repair cost on an annual basis (more than double that of ORD or LAX).
- The current system of supplying fuel to the Air Cargo ramps is inefficient and creates undue risk both from a safety and operational standpoint.

Supply Alternatives

Evaluation of supplemental fuel supply was added to the scope of this study in support of the original findings. Currently, JFK receives fuel exclusively through the Buckeye 601 Pipeline from Linden, NJ. There are five key options for supplemental supply into JFK:

- Increase capacity through the priority jet Buckeye 601 pipeline.
- Provide for parallel receipt from the Buckeye 602 multiproduct pipeline to LGA or JFK.
- Construct a new fuel receipt pier at JFK.
- Utilize an existing off-site pier (Inwood area) and construct a transfer pipeline into JFK.
- Utilize rail delivery into JFK.

Financial Analysis of Supply Alternatives

	Capital Expense	Total O&M	Delivery Costs	15 Years Present Value	c/gal
Buckeye Booster	20,700,000	93,928,924	2,877,519	43,145,002	0.377
Buckeye 602	12,700,000	3,214,688	2,877,519	9,678,418	0.068
Buckeye 602 LGA	5,000,000	2,571,750	2,877,519	4,879,023	0.037
Pier (8)	15,886,978	25,554,689	58,666,051	35,429,400	0.317
Pier (42.8)	51,335,200	25,554,689	58,666,051	58,080,302	0.468
Inwood Pipeline	25,000,000	671,759	83,110,239	39,740,103	0.351

Note:

1) The difference in the two Pier options is the cost of disposal of the initial dredged materials. For the purposes of this analysis $8 and $30 million were used from the Burns & McDonnell Barge Study, 2012

Each alternative was evaluated on technical, logistics and cost considerations. The lowest cost, technically acceptable approach is to provide for parallel receipts on the Buckeye 602 pipeline. This satisfies the projected demand through 2026. As a result, this approach was included in the various options for the Master Plan.

The use of off-site Inwood pier and pipeline is the second ranked solution, requiring a higher investment, but providing more flexibility long term to the airport. This approach avoids the risks associated with disposal of dredged materials and maintenance of a new pier facility at JFK.

Master Plan Alternatives

Several options were considered to meet the primary goals of the study. They consider incremental improvements to the supply shortfall, storage tank capacity and configuration and the method of distributing fuel to the hydrant systems. A complete State of the Art (SOTA) solution provides the optimum technical improvements toward achieving the stated goals.

SOTA: New tanks, hydrant and alternative supply methods to achieve the most efficient system possible.

Option A: New tanks and supply alternative, but utilizes much of the existing hydrant pipeline system.

Option B: Similar to Option A except upgrades the existing tanks instead of building new ones.

Option C: Maintains much of the existing systems but does eliminate the Satellite Tank Farm by upgrading existing systems over time to meet the goals.

Option D: This approach only completes the steps required to maintain regulatory compliance, adequate supply and on-site storage capacity, but otherwise maintains the current operation.

The financial analysis on the Master Plan Options was performed using the Buckeye 602 supply to LGA as the supply method. No allowance is made to add supply in 2026 in this calculation.

Financial Analysis Recap

	Capital Expense	Total O&M	15 Years (delayed) Present Value	c/gal
SOTA	276,300,000	237,947,312	167,450,088	1.757
Option A	238,200,000	302,616,333	169,052,525	1.791
Option B	210,500,000	353,056,219	169,147,439	1.821
Option C	222,300,000	364,685,842	166,616,030	1.822
Option D	59,089,244	524,982,083	177,368,957	1.720

Regardless of the approach selected for implementation by the stakeholders, key tasks must be implemented complete and operational by 2016. The recommended tasks for immediate action include:

- Negotiate with Buckeye to allow for parallel delivery of fuel through the 601 and 602 pipelines to JFK and LGA.
- Construction or reactivation of tanks to provide additional storage capacity at BFF. Reactivating the four out of service tanks will provide adequate storage through 2025.
- Modify the manifold piping at STF to streamline the product handling process, reducing the risk of tank overfill.

Engineer's Recommendations

- ***Implement the State of the Art solution utilizing the Buckeye 602 delivery to LGA solution as the short term supply upgrade. This solution maximizes the value of the investment and minimizes long term operating risks.***

- ***Reevaluate the fuel demand requirements every five years and implement a barge supply solution if the demand exceeds the capacity of the Buckeye dual pipeline supply. This evaluation should also include the on-site capacity and the potential need for additional storage.***

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JFK Fueling System Master Plan

1.0 Scope of Work and Objectives

Pond & Company has been retained by The JFK Fuel Committee and the Port Authority of New York & New Jersey (PANYNJ) to develop a Fueling System Master Plan for JFK International Airport. At the Planning Charrette with the Committee, PANYNJ and Allied Aviation the primary goals of the Plan were discussed and established as follows:

- Identify facility improvements that optimize fuel supply logistics into JFK International Airport.
- Integrate existing and alternative systems for storage and distribution of fuel to aircraft.
- Develop systems to optimize operations and maintenance without sacrificing fuel quality.

While these goals are broad in scope, they define key objectives in the plan development focusing on improving operational efficiency, reliability and safety resulting in a lower cost of operation in the long term.

A major portion of the infrastructure for aircraft fueling at JFK is more than 50 years old. As an older system, it operates employing an older technological model approach. The original concept for the fuel system handled multiple products with segregated vendors and users. Now there is a single product, Jet-A, under a single operator for bulk fuels, making the operational requirements burdensome and labor intensive. It is generally accepted by the airlines, the Port Authority and the operator that the systems are overly complex resulting in higher than average maintenance and operations costs.

Into-plane operations are currently performed by the same operator, however there are discussions that this may not always be the case in the future so any plan needs to account for into plane as a separate activity. The goal, however, is to reduce the reliance on truck fueling at the passenger terminals.

The following Plan outlines a series of interim steps that can be taken to improve the operational efficiency of the fuel supply as well as a “State-of-the-Art” fuel system concept that can be constructed in phases to prevent interruption of fueling operations. It also provides some discussion on delivery methods to expedite the development and implementation of the plan.

As a modification to the original scope of work, Pond was commissioned to evaluate various supply alternatives to satisfy the projected fuel demand into the future. The primary goals related to the supply are:

- Consider approaches to meet the anticipated demand based upon technical, logistical and cost parameters.
- Consider approaches that provide a second source of supply to allow for redundancy and competition in fuel supply solutions.

2.0 Existing Fuels Infrastructure

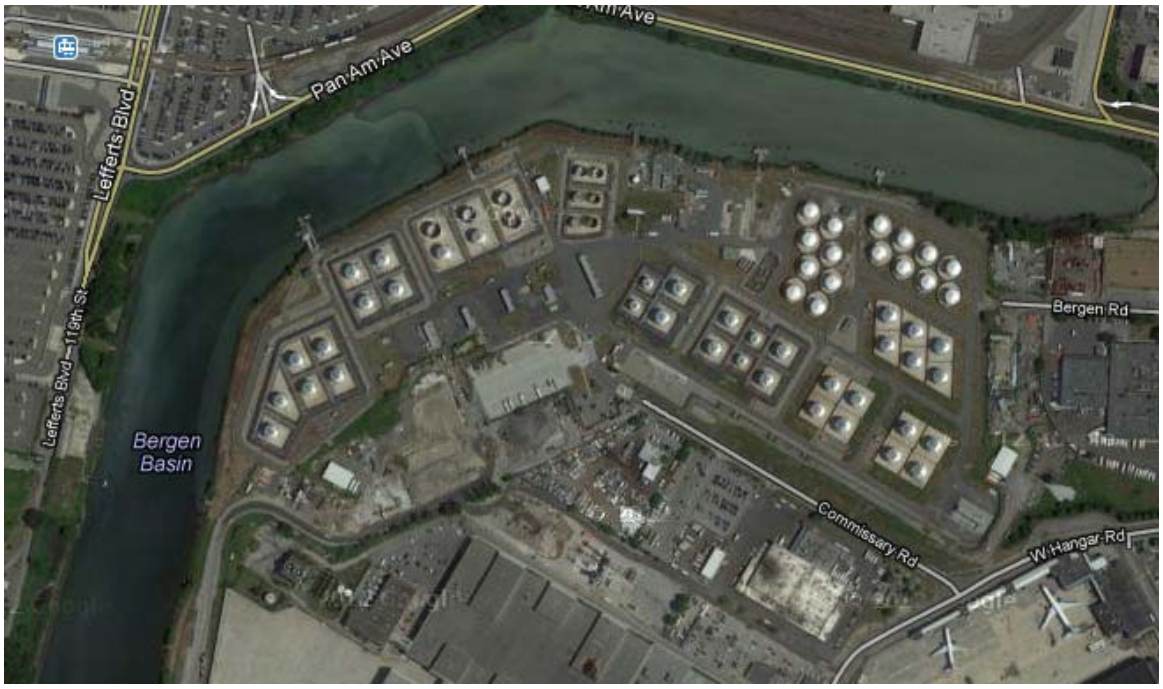
2.1 Existing Fuel Systems Configuration

The current fuel supply system at JFK includes a primary pipeline supply owned and operated by Buckeye Pipeline, into a bulk fuel storage facility located on the west end of the airport property. The Bulk Fuel Facility (BFF) also includes several inactive fuel piers that historically allowed receipt via barge in the Bergen Basin. Fuel receipts are filtered by Buckeye through a filter bank located on the airport property, then routed through one of four sets of filters that are operated as part of the BFF. The BFF filter systems were originally constructed to filter receipts from the individual piers (Piers A, B, 2 and 3). Each filter location is designed for a maximum flow rate of 3,500 gpm (5,000 bph).

The BFF consists of 62 storage tanks with a maximum capacity of 500,000 gallons (<12K bbls). The tanks within the facility are segregated into five categories as shown in Table 1. The tanks on the north end of the facility can be configured to feed either the north fillstand or the Satellite Tank Farm (STF). Piping from the south fillstand tanks to the transfer pumps is out of service and would require cleaning and testing to connect these tanks to the satellite transfer pumps.

Tank Supply Connection	Number of Tanks	Aggregate Capacity (Max)
South Truck Fillstand	6	3,041,000 gallons
North Truck Fillstand	6	2,818,600 gallons
Satellite Transfer Tanks	40	19,140,000 gallons
Waste/Slop Fuel Tanks	2	440,000 gallons
Out of Service Waste Tanks	4	860,000 gallons
Out of Service - Jet	4	2,134,000 gallons

TABLE 1



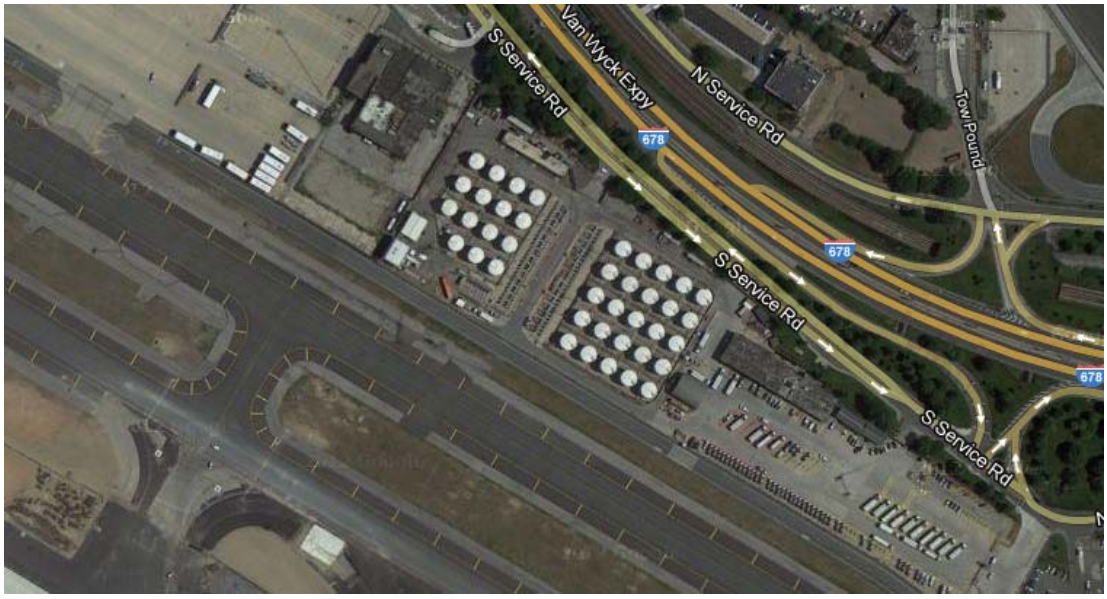
Bulk Fuel Facility (BFF)

The aggregate capacity shown is the “rated’ capacity of the tanks based upon shell dimensions. The useable capacity is less, allowing for tank bottoms and ullage above the high level alarm settings for each tank. On average, the useable volume of a tank in the size range listed is about 80% to 85% of the shell volume. The useable capacity of the BFF in Jet-A service is therefore just under 20 million gallons in 52 tanks.

The four out of service Jet tanks (24, 26, 27 & 28) were not upgraded when the project was completed to upgrade the other tanks around them. These tanks have been out of service for over 13 years. They are open top, external floating roof tanks with no geodesic domes. To place these tanks in service would likely require new bottoms, roofs, and coatings. The piping to and from the tanks has also been out of service and would require cleaning and testing prior to returning them to service.

Fuel is pumped from the BFF to the STF which is located closer to the terminals. There are eight operating transfer pumps with capacities ranging from 600 gpm to 1,000 gpm connected to six transfer pipelines that extend to the STF. Each pump is paired with a filter separator. The maximum transfer capacity is roughly 4,000 gpm to the STF. This rate is not easily maintained for long because of the small tank sizes at the STF.

The STF consists of 40 aboveground storage tanks, each with a shell capacity of 100,000 gallons (2.3K bbl). These tanks receive product from the transfer pipelines that originate in the BFF, which all connect to a receipt manifold allowing product to be directed to any of the 40 ASTs. The tanks are connected to a series of vertical turbine pumps that feed the various hydrant systems on the airside. The tanks are configured so that designated tanks feed specific groups of terminal hydrant pumps. For instance there are eight tanks configured to service the American Airlines hydrant system and five to the Jet Blue hydrant system.



Satellite Tank Farm (STF)

This configuration adds to the complexity of the fuel handling process needed to receive fuel at BFF and transfer to the correct tanks at the STF to meet the demand on the airside. With a maximum fuel transfer rate of 4,000 gpm between BFF and the STF, each tank is filled in less than 20 minutes.

The transfer of fuel from the STF to the airside utilizes a series of fifty-seven pumps with filter/ separators connected to twenty-seven pipes that extend to the hydrant systems around the various terminals. Several of these lines have recently been removed from service as terminals were demolished or hydrant systems removed from service either due to pit locations or pipe conditions. For instance, Terminal 6 no longer exists, so the hydrant transfer lines have been removed from service and the ends of the lines near the terminal building have been filled with grout to permanently close the pipe.

The fuel system controls vary from one area of the network to the next. Most of the fuel transfer operations are manual, with operators controlling valves and pumps to start and stop fuel, directing the product to the intended tank. Automatic tank gauging systems are scheduled to be installed under a recent contract issued by the PANYNJ. Today, all tank gauging is manual.

Existing Bulk Fuel Facility Power Distribution

There are three 750KVA, 4,160-480volt substations at the BFF. The three substations are served by two 4,160 volt feeders (412 and 431) routed underground from the Bergen Basin Substation No. 4. The two feeders are connected to a fused manual transfer switch which is connected, on the secondary side, to two motor control centers. The motor control centers feed fuel transfer pumps, motor operated valves (MOV's), control building loads and lighting panel. Each of the three substations has provisions to allow for connection of a portable engine generator set to allow for limited facility operation in the event of long term power outage. A 250KW portable generator set is parked on site. The existing connected load for the three bulk fuel substations is estimated at 1.5MVA, with maximum demand estimated at 1.1 MVA.

Existing Satellite Tank Farm Power Distribution

The STF is currently served by six 4,160V feeders (#302, 318, 334, 335, 337, & 352) from the Central Substation. The existing connected load at the STF is estimated at 8.7MVA, with maximum demand estimated between 4 and 5 MVA. The majority of this load is the hydrant pump systems.

Existing Fuel Storage Control System

Tank issue and fill at the BFF are primarily accomplished through manual operation of valves to combine or isolate groups of tanks. Many of the valves are motor actuated but are equipped for local operation only. Each tank is equipped with limit switch on the fill valve and low, high and high-high level switches. The limit and level switches are

connected to an indicator panel in Building 242. Each tank is also equipped with the manual tape type tank gauge. The tank high and high-high switches are also communicated to Buckeye Pipeline enclosure located outside building 242 and are transmitted via radio modem to Buckeye.

The STF operator has the ability to remotely control bulk fuel transfer pumps, but not the BFF tank MOV's. However, on the hydrant side, the STF operator does have the ability to remotely control the hydrant pumps and the receipt manifold MOV's.

Hydrant system controls vary by terminal. The newest systems are American Airlines (Terminal 8) and the newly expanded hydrant system for Delta at Terminal 4. These systems are solid state Programmable Logic Computer (PLC) controlled systems which monitor line pressure and demand to operate the hydrant pumps at Satellite. The other terminals operate on an older relay based control system which in many cases uses obsolete components making maintenance and repair difficult.

Existing EFSO System

There are separate Emergency Fuel Shut Off (EFSO) systems in each of the terminals. The existing terminal EFSO system consists of EFSO pushbuttons at the terminal gates. When any EFSO push-button is actuated, the terminal EFSO system sends the signal to shutdown the hydrant pumps in the STF. The terminal EFSO systems transmit EFSO signals over dedicated telephones through the central telephone office to the Control Building 241 at the STF. Upon receipt of the EFSO signal, the EFSO system shuts down the hydrant pumps feeding the terminal that transmitted the alarm. Fuel supply is disrupted for all gates at that terminal.

A recent project for Delta Air Lines replaced the existing EFSO system at Terminal 4 with new modern EFSO system. The project provided new EFSO stations at the gates, PLC based control panels, and new isolation valve pits. The new Terminal 4 EFSO allows for localized isolation of the fuel loops by closing isolation valves on each side of an activated EFSO station in lieu of shutting down fuel flow to the entire terminal.

Likewise, American Airlines also replaced their old EFSO system at Terminal 8 with a new EFSO system. The Terminal 8 system incorporates new EFSO stations at the gates, fire alarm based control panels, and new isolation valve pits. This system will now allow for localized isolation of the fuel loops by closing isolation valves on each side of an activated EFSO station in lieu of shutting down fuel flow to the entire terminal.

Existing Fire Protection

The existing fire protection systems at the BFF consists of Type II foam chambers mounted on the side of the fuel storage tanks. These foam chambers are supplied a foam solution from two centrally located concentrate pump houses. Each pump house can provide the concentrate to the In-Line Balance Pressure proportioning system (ILBP) serving a particular area. The foam pump houses are located one within the south area of the tank farm and the second within the north area of the tank farm. The tanks are grouped into zones in the BFF. In the event of a fire, the system is manually operated by first setting

valves to the correct zone, and then tank, followed by manual operation of the foam pump system at the foam pump house.

The BFF is also equipped with foam solution hydrants for fire fighter hose streams located throughout the complex. A separate water distribution system is utilized to provide fire water supply throughout the BFF. There is currently no fire protection system located at either truck fillstand.

The fire protection system at the STF is similar except there is a single foam pump system located in one end of the STF Operations Building (Building 241) that feeds foam chambers mounted on the side of each tank. The system is manually operated. In addition to the fire protection on the tanks, there is a separate FM-200 fire protection system to protect the control room and motor control center room in the Operations Building. This system is automated with heat/fire sensors installed in both of the rooms protected by the system.

2.2 Historical Fuel Use

As part of the study, a detailed analysis of the fuel demand was completed including evaluation of the delivery location (i.e. Terminal 1 versus Air Cargo Area C) as well as the delivery method (i.e. truck versus hydrant system). In addition, the fuel tickets were analyzed to identify peak demand periods on a monthly basis, supply versus demand on a daily basis, and peak supply to the hydrant system on a fifteen minute incremental basis. Each of these data sets are critical in evaluating the ability of the existing fuel system to meet the demands into the future and determining areas where efficiency can be improved in the fuel handling process.

During the study, the last eight years of fuel supply data were compiled to identify the fuel supplied to each terminal and cargo area via truck and hydrant on a monthly basis. This analysis is used in developing growth projections, but also identified trends in the data related to peak usage periods. Chart 1 illustrates the average monthly fuel issued at JFK. Chart 2 illustrates the growing fuel demand over the last eight years.

The peak in 2007 and 2008 was related to a period of time when the flight restrictions placed by FAA on the airport under the High Density Rule (circa 1968) expired. The airlines operating at JFK increased flight operations by 21% during the year 2007, resulting in significant delays at JFK and surrounding airports. The FAA stepped back in at the end of 2007 and negotiated new flight restrictions, limiting flight operations to 81 during peak hours. This restriction became effective during 2008 and eventually resulted in a reduction in fuel demand. This restriction of flight operations is still in place today and will likely remain for the near term future. (Federal Register, Vol. 73, Issue 13 pages 3510-3542)

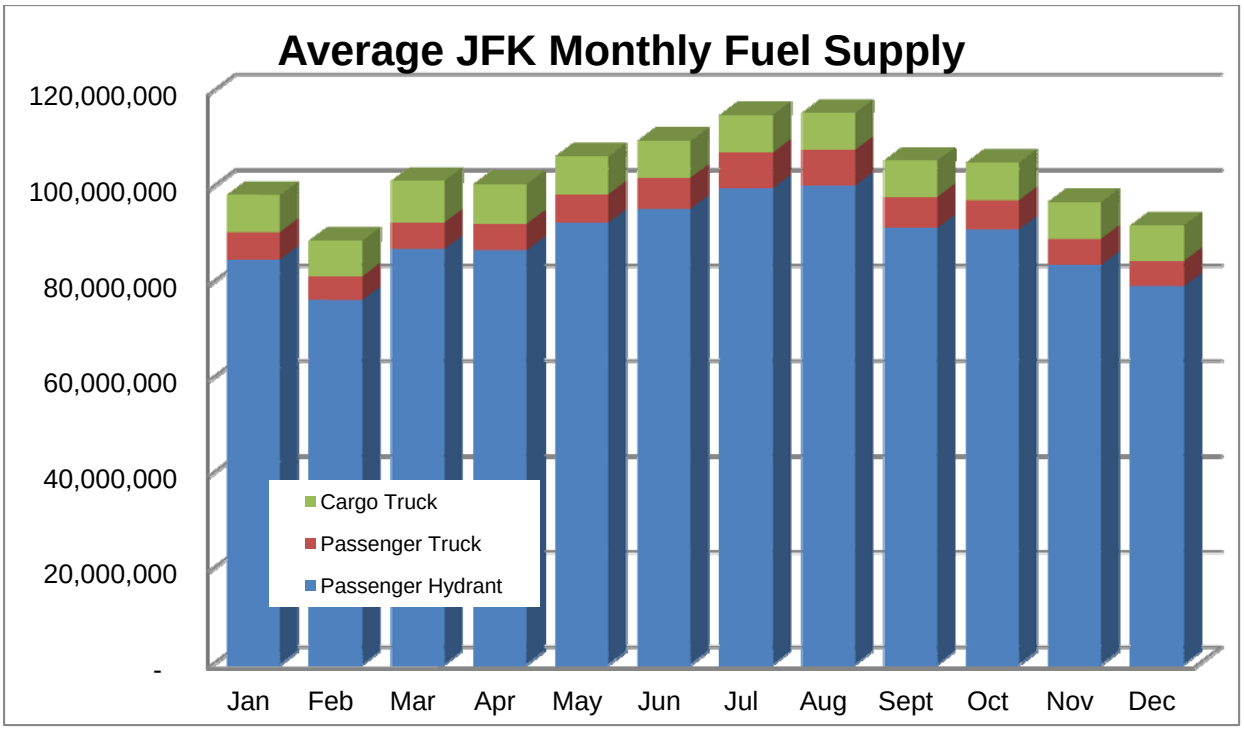


Chart 1

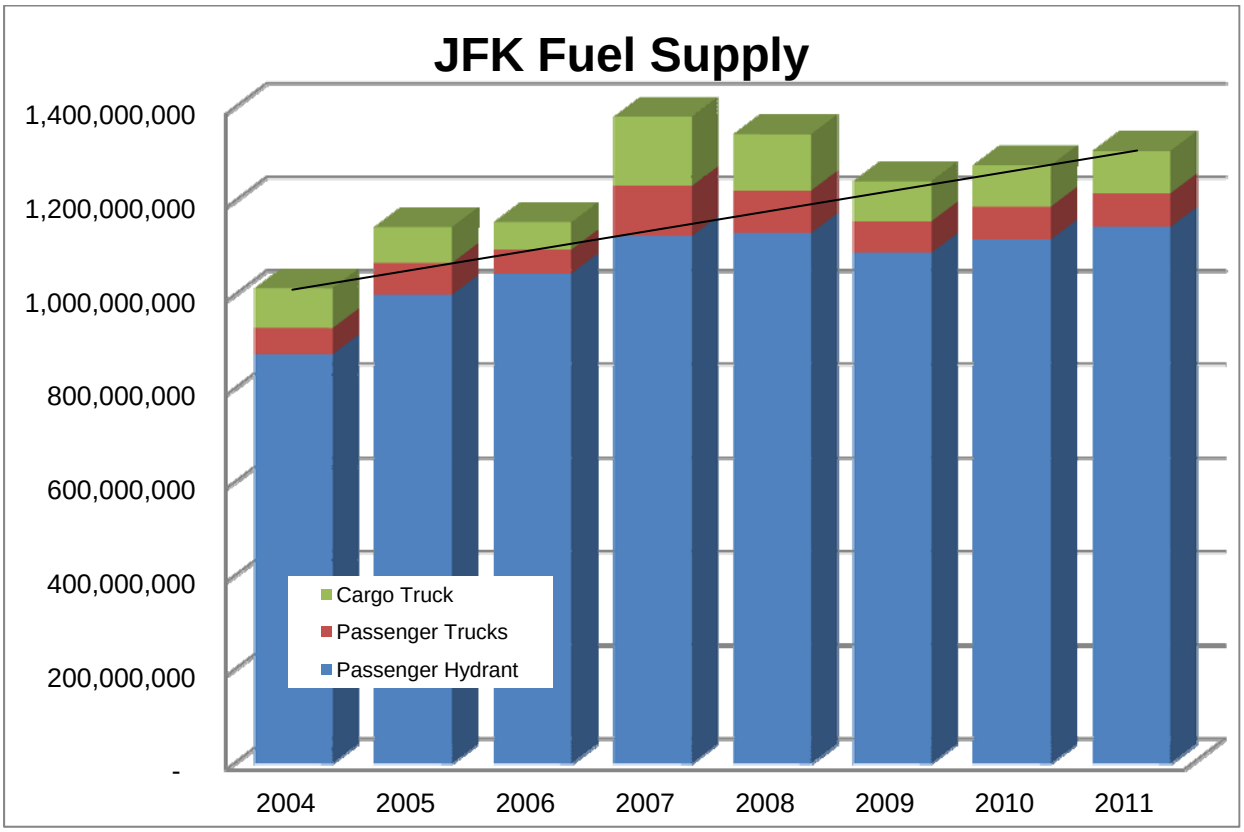


Chart 2

Key facts identified in the monthly fuel demand analysis:

- JFK issued over 1.3 billion gallons of fuel in 2011. Averaging roughly 3.6 million gallons of fuel per day.
- Air Cargo represents about 7.0% of the total fuel dispensed at JFK, all of this fuel is issued via truck.
- Roughly 12.5% of the total fuel issued at JFK is via tanker truck fueling to both passenger and cargo. This data is from the issue tickets, so the location of the truck fill operation was not documented.
- Peak fuel demand occurs in July and August consistently over the last eight years.
- The fuel demand has increased consistently over the last eight years at an average 2.4% (excluding 2007 and 2008 which were much higher).
- Using the current tank configuration, the lowest average inventory was approximately 4 days of fuel in on site storage. The daily fuel supply analysis yielded different results.

Key points to consider in the fuel handling process from the data analysis:

- On an <u>average</u> day, ten tanks are filled at BFF from Buckeye while ten tanks are emptied in transfers to the STF. Because of the settling time requirement, twenty tanks a day are either opened or closed by personnel manning the terminal and ten more are isolated for settling to comply with ATA 103 guidelines. This represents three quarters of the operating tankage at the BFF.
- On an average day all forty tanks are emptied and filled at least once at the STF to meet the fuel demand through the hydrant systems. When you analyze the actual tank configuration versus the average daily fuel issued at each terminal, several tanks are actually refilled more than once in a day. For example in July of 2011, Terminal 4 issued an average of almost 890,000 gallons of fuel, yet there are only nine tanks at the STF connected to the T4 pumps. Assuming a useable volume of 80,000 gallons per tank, three of the tanks were emptied, filled and emptied again in a single 24 hour period while six others were only emptied and refilled once.
- There is no automatic tank gauging system at either fuel facility. The movement of product through the STF is managed manually, relying exclusively on the high level alarm systems on the tanks to prevent overfill. The team of operators must remain vigilant to maintain product movement and inventories to satisfy the airside demand.
- The fuel does not remain in the tanks at the STF for any measureable time. The ATA 103 settling requirement is being provided at the BFF. There is no measurable settling taking place at the STF.

These findings become even more extreme when you consider the daily fuel demand analysis.

In the daily fuel demand analysis, the months of June, July and August 2011 and 2012 were considered. Receipts from the Buckeye Pipeline system were logged as were the total fuel issued via truck and hydrant system on a daily basis. In addition, the closing inventory at the end of each calendar day was recorded by Allied.

Buckeye Pipeline has two pipelines that have connections at the airport. The 601 line is "Priority Jet" and serves both JFK and LaGuardia (LGA) airports. The 602 line is a multiproduct pipeline that serves the gasoline and diesel demand at several terminals in the NYC area. The 602 line is treated as an emergency backup pipeline with no Jet-A deliveries scheduled at this time. According to Buckeye, the 601 line has a maximum rated capacity of 120,000 barrels (5,040,000 gallons) per day, which at a 5,000 barrel per hour delivery rate equates to about 23 hours of daily operation. The current supply process feeds LGA approximately 635,000 gallons per day by diverting some of the flow from the 601 to the tank farm there. When delivering to LGA, the flow at JFK is reduced.

When considering the peak period in 2011, the Buckeye receipts averaged 19 hours per day delivering to JFK. The maximum receipt in a day (according to receipt tickets) was just over 5.3 million gallons (which exceeds the maximum flow rate). This is likely due to receipts that overlapped the shift change. The same period in 2012 yielded an average run time of 19.6 hours per day in delivery to JFK, with an average daily delivery volume of 4.12 million gallons.

In 2011, the maximum fuel issued in a 24 hour period was 4,280,000 gallons while the daily average for the period was just over 4,000,000 gallons. This peak issue rate is 18% higher than the 3,600,000 gallons daily average for the year. In 2012, the peak volumes increased with a maximum daily issue of 4,409,000 gallons and an average over the three month period of 4,105,000 gallons per day. Given the high volume of fuel issued on a daily basis during this period, managing pipeline receipts and inventory are critical activities. The current operating procedure places this responsibility on Buckeye. Each day, inventory is reported to Buckeye and they establish the amount of fuel to deliver to the airport.

Tracking the "Overs and Shorts" for the peak period supported that the supply was generally able to maintain inventory levels over the past two years. There was an event in 2012 where supply was interrupted, resulting in a significant drop in inventory at JFK. The pipeline was damaged by a third party contractor digging near the line resulting in a breach. The line was removed from service for two days to allow emergency repairs to be completed. This event dropped the on-site inventory to a level of three days. Chart 3 illustrates the three peak months in 2012.

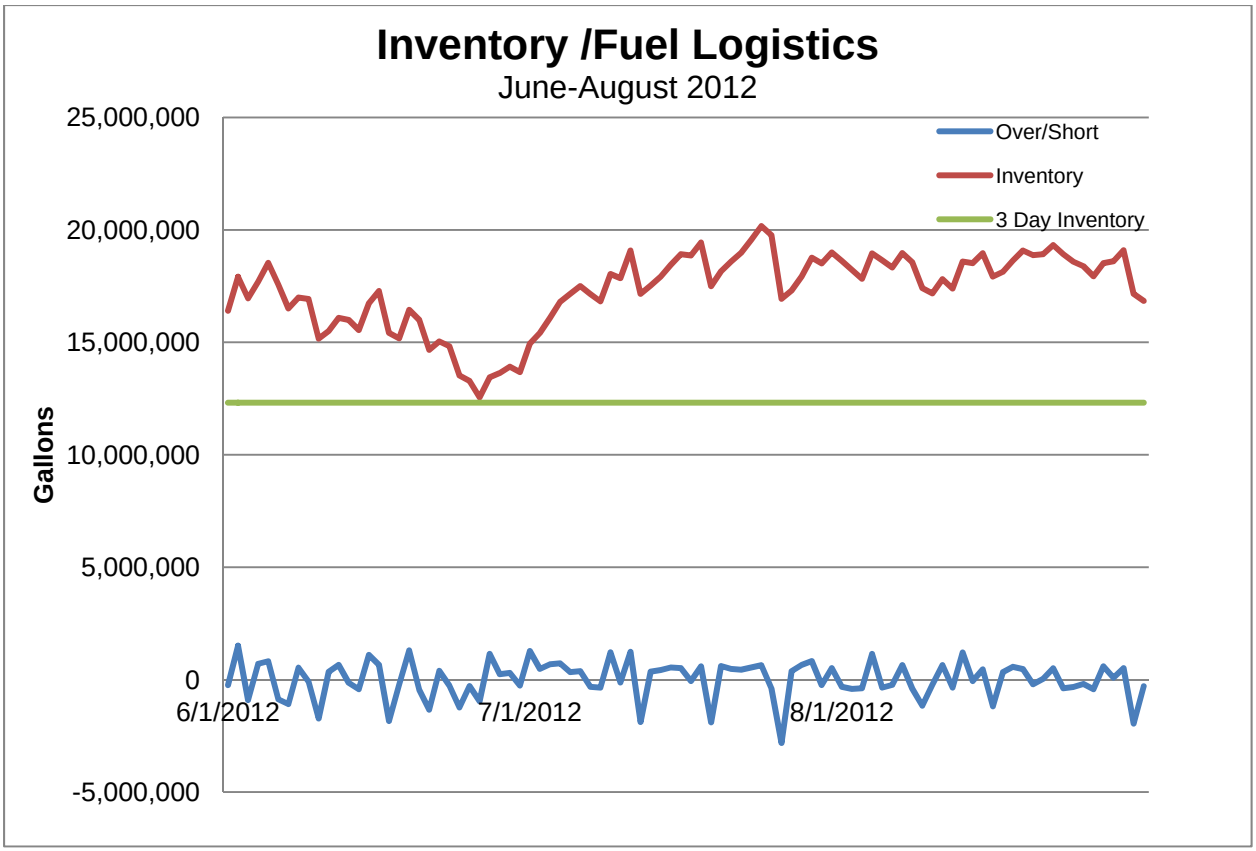


Chart 3

Key findings from the daily fuel reports during the peak period include:

- Over the past several years, the supply has been able to keep up with demand during peak periods. The 2012 data illustrates how easily the balance can be lost.
- Review of peak monthly demands over the last eight years indicated that 2012 has the highest monthly demand. The increased demand in 2007 and 2008 was more evenly distributed across the entire year.
- Considering daily flow during peak periods, the daily inventory levels dropped to three days on site. This is generally accepted as a minimum level of inventory to allow for handling and mandated settling times. (Two days is the absolute minimum.)
- The average receipt during the peak months is 4,118,000 gallons which, when combined with the daily average usage at LGA is slightly above the stated maximum delivery available from Buckeye.
- Because the peak period is two to three months long, the supply and demand values from this period should be used in defining the requirements for on airport storage and dispensing systems.

When considering the daily volumes issued during peak periods, the operational complexities are magnified.

- Daily tank turnover in the BFF increases to thirteen tanks being filled by the inbound fuel, twelve being emptied in fuel issue to Satellite and at least twelve in settling phase. This represents thirty seven of the fifty two active tanks at the BFF.
- The peak period of hydrant system supply results in the turnover of forty-eight tanks at Satellite, meaning all tanks are filled and emptied at least once and eight are filled and emptied twice in a 24 hour period. The analysis at the daily level does not take into consideration that most of the hydrant system fueling takes place during daylight hours.
- The shortage noted in June of 2012 is a clear example of how critical scheduling of deliveries to JFK is. After the inventory dropped to the three day level, it took two weeks to get the inventory back to more typical inventory levels. In addition, if the inventory had fallen below the three day limit, then waivers would have been required for less than optimum settling time per ATA 103.

Hydrant Flow Requirements

To estimate peak demand of the existing hydrant system, three different days (Aug 6, 2010; Aug 12, 2011; Jun 21, 2012) during the peak fueling months were selected and analyzed. Given the complexity of the hydrant systems, three different methods were used to estimate the peak flow. The fueling data was taken from fuel truck tickets provided by Allied Aviation for the three selected days. The truck tickets provided the time on, time off, the volume of fuel and the aircraft type. From this data, the fuel volumes were broken down in 15 minute increments based on the truck time off or when the truck was disconnected from the aircraft to estimate the amount of fuel supplied at one time. Also, the corresponding number of aircraft was recorded during the 15 minute interval. The first of the three methods assumed that the volume of fuel was delivered at a gpm rate equivalent to the total volume divided by the 15 minute interval. The second and third methods looked at the number of aircraft being fueled over the 15 minute window and looked at an average of 450 gpm per aircraft and an average of 600 gpm per aircraft for comparison.

Overall the fuel demand throughout the day was mostly consistent between the methods used however in some instances the rate per flight resulted in a higher peak demand than the volume per 15 minute interval and vice versa. From this data over the three days analyzed, one day (August 12, 2011 as shown in Chart 4) peaked at approximately 10,000 gpm three times during the day while the other two days peaked at over 9,000 gpm using the fuel volume method. In Chart 4, there was also a peak of 11,400 gpm based on the aircraft method (e.g.19 aircraft fueling at 600 gpm each). In comparison of the peak demand in the 2000 Aircraft Fueling System Master Plan which utilized 15 minute windows for fuel volumes and 15 minute fuel rates, the peak demand was estimated to be about 13,500 gpm. With our analysis showing the lower peak demand from 2000, it is suspected the decrease is due to the reduction in slot capacity which requires fewer aircraft to be fueled simultaneously due to the fewer flight departures allowed per hour. However, to provide some contingency with our estimate, we will assume 25% above the 10,000 gpm estimate and assume current demand is approximately 12,500 gpm.

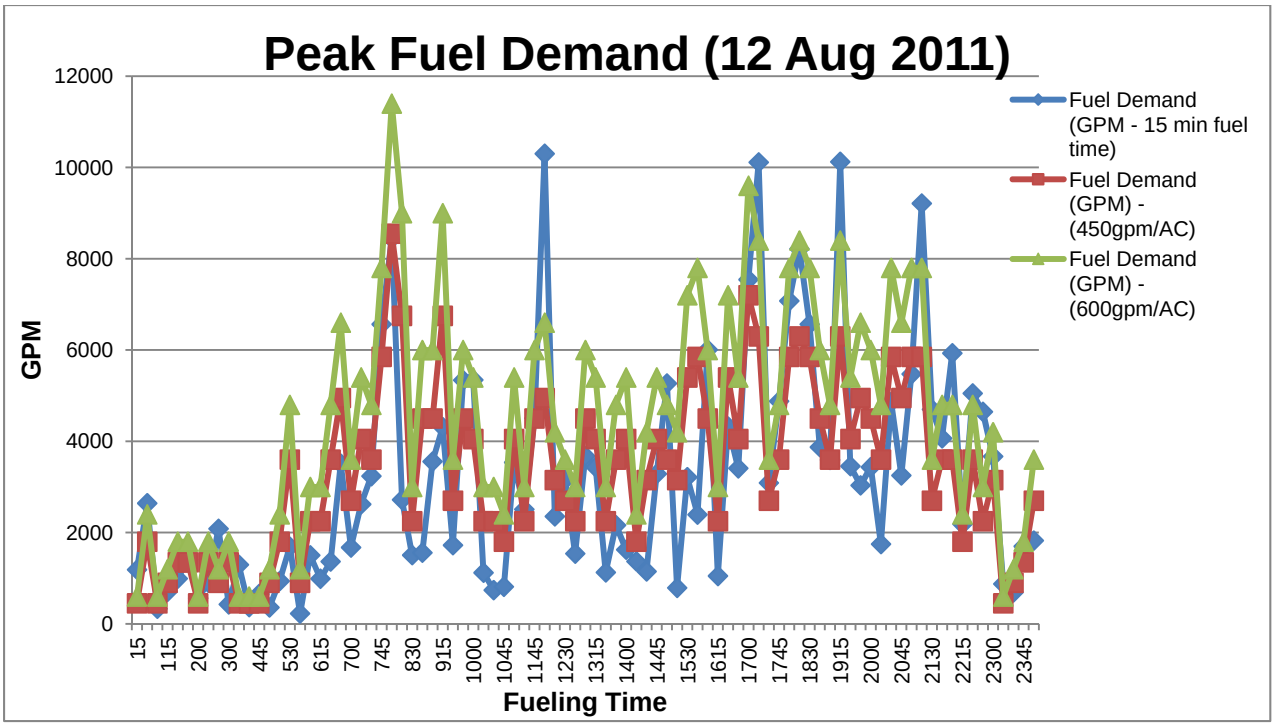


Chart 4

2.4 Operations & Maintenance

As part of the analysis, the current operational structure was reviewed with Allied Aviation. Since improving efficiency is a primary goal in the study, understanding the current procedures and costs was important. The previous description of the fuel flow through the BFF and the STF has illustrated the complexity that the operator faces due to the configuration of the tanks and pipelines. Current operations and maintenance manpower requirements for the JFK BFF and the STF fuel facilities include the following:

Bulk Fuel Facility (BFF)

- Fifty six ASTs store approximately 27 million gallons (MG) of Jet A fuel.
- Twenty 550-gallon ASTs empty and temporarily out of service.
- Two 500-gallon ASTs store heating oil.
- Two 210,000-gallon ASTs and four 230,000-gallon ASTs store waste fuel.
- Six 5,000-gallon ASTs and three 2,000-gallon ASTs store sump fuel.
- One 10,000-gallon UST (mounded) stores bio-diesel.
- One 10,000-gallon UST (mounded) stores aviation gasoline (avgas).
- Six 5,000-gallon USTs store sump fuel.

Satellite Tank Farm (STF)

- Forty ASTs store approximately 4 MG of Jet A fuel.
- One 3,000-gallon AST stores sump fuel.
- One 2,000-gallon AST stores recovery fuel.
- One 4,000-gallon and one 6,000-gallon UST store petroleum contact water.
- Two 6,000-gallon ASTs stores sump fuel.

Manpower Requirements

- 1 General Manager @ 50%
- 1 Purchasing Manager @ 40%
- 1 Administrative @ 75%
- 1 Fuel Facility Manager
- 1 QC Manager
- 1 Hydrant System Manager
- 1 Accounting Manager
- 6 Tank Farm Supervisors
- 4 Satellite Supervisors
- 2 Shop Supervisors
- 1 Payroll Clerk
- 20 Utility Men
- 26 Tank Men
- 6 mechanics

A total of roughly 71 people are employed in maintaining and operating the fuel facilities. This list is exclusive of the into plane operators and truck drivers.

To convert the operating requirements into dollars the annual budget for the fuel system operations was reviewed. The payroll for 2012 is just under $6.5 million which is driven by the complexity of the fuel handling process. Maintenance materials and parts were $1.112 million which is driven mainly by the aging infrastructure including obsolete pumps, valves, swivels, etc. Given the original installation date of the systems, many components are well beyond the original design life. Annual power requirement was $1.155 million, which is high due to the large number of pumps and the inefficiency of the motors due to the age of the equipment. Each of these categories can be reduced through more efficient facilities and operating conditions. The second largest operating expense is $3.9 million which is sent to the New York DEC in Storage Tank Fees which is tied to the amount of fuel that passes through the facility. This is one cost that will not change with facility improvements. The total 2012 operating budget for the fuel facilities is $13.954 million.

In addition to the annual operations and maintenance expenses, there are periodic costs that impact the operation of the fuel facilities. New York State Department of Environmental Conservation (NYSDEC) mandates inspection and testing requirements for fuel storage facilities. The two largest cost components are tank inspections and testing of underground piping systems. The tanks are required to be cleaned and inspected in accordance with API 653 every ten years unless the tank has been upgraded to include undertank secondary containment. Given the number of active tanks at JFK, at least ten tanks are inspected each year. The average cost to clean and inspect a tank is $50,000, which is typically contracted by the PANYNJ independent of Allied's O&M costs referenced above. This is an annualized cost of $500,000 plus repairs.

The testing for the underground piping is required under NYSDEC on a five year interval. The first and most recent time this testing was performed was in 2012. The direct contract for the testing effort was $1.265 million for the BFF and transfer lines to the STF. The hydrant lines from the STF to the isolation valve pits at the terminals was an additional $348,000. Each airline is responsible for the testing around the terminals. This does not include the costs associated with Allied supporting the testing agent.

The incremental cost on an annualized basis for the testing and inspections is $800,000. This is in addition to the $14 million in annual operations and maintenance cost charged by Allied. These costs do not include any into plane costs (i.e. trucks, labor or maintenance).

An analysis was performed reviewing the airline consortium budgets for Boston, Chicago, Honolulu and Los Angeles to a combination of the budgets presented for Allied and the PANYNJ for JFK. The budgets were reviewed to ensure the comparison was of equal scope by removing large repair projects from the budget totals. The results demonstrate the additional costs currently being incurred due to the age and complexity of the fuel systems at JFK.

	BOS	ORD	HFFC	LAX	JFK (AA + PA)
Salaries and Wages	1,376,302	3,239,180	2,817,023	2,460,200	9,626,072
Direct Expenses	1,211,899	2,192,053	2,345,968	1,104,100	5,285,367
Indirect Expenses	955,398	978,826	526,065	1,081,800	1,762,287
Management Fee	174,251	196,968	175,272	230,400	728,618
	3,717,850	6,607,027	5,864,328	4,876,500	17,402,343
TOTAL GALLONS	343,000,000	443,000,000	485,000,000	1,549,794,500	1,352,000,000

Key findings from this analysis:

- The direct labor costs at JFK are three times higher than any other airport compared in the analysis. This includes LAX which handles more fuel per year than JFK.
- The repair and maintenance costs as a subset to Direct Expenses at JFK are in excess of $1.1 million, which is double that of LAX ($520,000) and almost double ORD ($681,600). BOS and HNL are under $300,000.
- The overall costs associated with the operation of the fuel facility are triple that of any other airport evaluated in the study.

2.5 Fueling Truck Utilization

While most of our focus was on the fueling infrastructure, the costs associated with the truck fueling operations must also be considered. The only truck fillstands are located at the BFF. "Officially" all trucks are to be filled at the designated fillstands. Since the distance from these fillstands to the aircraft to be fueled is significant, this operation is very inefficient. In addition, drivers must cross active taxiways and runway approaches which is a safety hazard.

The fuel demand analysis indicated that over 90 million gallons of fuel was issued by truck in the three main cargo areas. Almost 55 million gallons was issued in the Cargo B & C area. To help meet this demand, several trucks are filled during off peak hours and parked on the ramp in Cargo C & D and allowed to wait for evening hours when the demand rises. Another 71 million gallons of fuel was issued by truck in the passenger ramp areas (most of that was in the Terminal 2, 3 & 4 area). The long term plan is to demolish Terminals 2 & 3 and create hardstand parking in these areas. There are plans to provide some of the parking positions with hydrant fueling capability. This may result in a short term increase in truck fueling but should reduce the demand over time.

Evaluation of the truck travel times was performed in addition to a review of truck utilization. During the site investigations, the drive time from BFF to Cargo D was measured. In addition, drivers were interviewed discussing drive time. The drive time from BFF to Cargo can be in excess of one hour travel time.

Two peak days were evaluated as part of the utilization study. Similar to the hydrant peak demand analysis, fuel issue tickets were used to identify start and stop times for when the truck was being filled as well as when it was issuing fuel. Using peak days, the demand ranged from 1 truck in service to a maximum of 22 trucks in use at one time. Other studies referenced in conversations listed the maximum trucks in use at one time as 24. The truck usage was split about half to Cargo and half to Terminals 2, 3, & 4. There are reportedly over 50 fueling trucks on site.

There is some truck filling from the hydrant system to minimize truck travel times. The locations used are remote from aircraft, but this practice is not recommended. The operation requires the driver to be ever vigilant to ensure the truck is not overfilled. Since the daily tickets did not identify where the truck was filled, the actual impact of travel time could not be quantified. Relocation of safe truck fillstands in the areas where the demand is highest will greatly increase operational efficiency, while reducing wear and tear on the vehicles and fuel consumption.

ALLIED AVIATION

CARGO B
CARGO C
BFF
CARGO D
CARGO A
DRIVING ROUTE TO CARGO D
STF
Belt Pkwy
Nassau Expy
Pan Am Ave
Jamaica Water Pollution Control Plant
Budget JFK Airport Rent A Car
Van Wyck Expy
JFK Expressway
Rockaway Blvd
Springfield Gardens
Brookville
Brookville Park
Boundary Rd
Terminal 6 JFK
Terminal 8 JFK
Bergen Basin
Hawtree Basin
Hamilton Beach
Howard Beach
Cross Bay Blvd
Thurston Basin
Head of Bay
Inwood
135th Ave
147th Ave
N Conduit Ave
High Sch

3.0 Projected Fuel Demand

3.1 Overall Fuel Demand

As part of the project scope, the team was tasked with projecting the fuel demand into the future. In an effort to accomplish this, each carrier was interviewed in addition to extensive discussions with the PANYNJ. The analysis was performed by looking at three key areas of input: historical fuel usage and growth, data from verbal interviews with major carriers operating at JFK and projections and analysis from the PANYNJ.

At the beginning of the plan development, interviews with the air carriers led us to expect relatively small changes in fuel usage over the last several years and into the future. Much of this was driven by the FAA limit on flights into and out of the NYC area. As a result, each carrier said that there were no plans to significantly change the number of flights into JFK.

As we began to review the historical data, we found evidence of a steady growth in the fuel demand. The 2007 and 2008 years were an anomaly in the fuel demand with higher than expected passenger fuel usage and much higher cargo issues due to the short term lifting of a flight cap. Taking these years out as exceptions, the average fuel demand increased at an average 2.4% over the eight year period.

Repeating the interviews with the carriers identified a steady change in the type of aircraft used at JFK. There has been a decrease of smaller commuter type aircraft to larger narrow body and wide body aircraft. In addition, there has been a strategic shift by some carriers to more international flights, requiring larger fuel uplift per flight than before. Each of these factors impacts the growth in fuel demand. Discussions indicated that there will be a continued shift to larger aircraft by many carriers. However as this shift continues, the newer aircraft will be more fuel efficient, potentially resulting in slower growth in demand.

The initial growth projections developed by the team and shared with the committee and PANYNJ showed a flat 2% growth over the near term, slightly lower than the previous average growth of 2.4%.

The PANYNJ took this information and performed additional analysis to incorporate their data on passenger forecasts, aircraft movement, fleet mix and aircraft weight. The PANYNJ report projected growth for passenger flights and cargo flights as separate values. The PANYNJ report projected a higher rate of growth in fuel for cargo operations than in passenger flights. This parallels the information obtained for our interviews. The PANYNJ report is included as an appendix to this study. The overall growth in fuel demand ranged from 1.69% to 2.09% over the next twenty years.

For the purpose of this study, the growth in fuel demand will follow the PANYNJ report with exception to the 2012 year, where a reduction was projected. Actual data through the first part of 2012 does show some small increase as opposed to a reduction in fuel demand as projected by the PANYNJ. This also will result in a slower growth in 2013. The overall cumulative fuel demand will grow between 45% and 55% over the next twenty years.

The projected growth impacts two parts of the Master Plan: fuel supply capabilities and fuel storage capacity. In short can the pipeline supply keep up with the demand during peak periods and if not, is there adequate tank storage to build up inventories on site to compensate for supply shortages over the course of the peak period.

During the peak period of June through August of 2012, the average daily demand was roughly 4.1 million gallons. The stated maximum supply from Buckeye is 5.04 million gallons per day, however this also includes supply to LGA. Reportedly LGA takes on average 735,000 gallons per day to maintain just over a three day inventory. Supply into JFK averaged 4.2 million gallons per day during the peak period, which when combined with the deliveries to LGA slightly exceed the stated maximum flow rate. In short, the current demand and supply balance is close.

As growth is projected in the demand, the balance is tipped in 2016, where the average demand exceeds the supply capacity of the Buckeye Pipeline. This shortfall can be managed by building up inventory ahead of the season to make up for the shortage in supply, however that approach can only provide temporary relief.

	2012	2013	2014	2015	2016	2017	2018
Growth	ACTUAL	2.78%	2.00%	1.62%	2.09%	1.87%	1.67%
Average	4,105,514	4,146,569	4,229,500	4,298,018	4,387,847	4,469,899	4,544,547
Maximum	4,409,824	4,453,922	4,543,001	4,616,597	4,713,084	4,801,219	4,881,399
Max Supply	4,340,000	4,340,000	4,340,000	4,340,000	4,340,000	4,340,000	4,340,000
over/short	234,486	193,431	110,500	41,982	**-47,847**	**-129,899**	**-204,547**

3.2 Hydrant Flow Growth

In addition to the overall fuel demand, the peak hydrant supply was analyzed. Growth in the fuel supply at the airport impacts any plans for the pumping systems that feed the hydrant system. Because of the slot limitation, the growth in peak momentary supply may not grow at the same rate as the overall fuel demand. However, in the recommendations listed later in this plan, a new truck fillstand would be constructed that is fed from the hydrant system. This would shift an even larger demand to the hydrant pumps over time.

Current hydrant system pump capacity and hydrant line capacities from the STF are summarized in Table 2 of the Report. Based on the total capacity of the existing STF hydrant pumps (approx. 56,000 gpm), the existing system is adequate to meet the future projected hydrant demand of 20,000 gpm. However, due to the segregation of pumping systems by Terminals, individual terminal growth should be considered for each system unless the systems were manifolded to take advantage of the overall pumping capacity.

For example, Terminal 8 is supplied by either the T-403 or T-408 system. The T-403 system can pump 5000 gpm while the T-408 can pump 5600 gpm. If growth of Terminal 8 exceeds this maximum pumping capacity, then consideration should be made to modify the manifolds or increase pumping capacity for that system to meet future demand requirements of Terminal 8.

Table 2 - Satellite Hydrant Pumping System						
System	**Pipe Sizes**	**Terminal Served**	**Airline Served**	**Pump Capacity (GPM)**	**Line Capacity (GPM)**	**Comments**
T-401-1,2,3	14", 12", 10"	6	N/A	6000	7300	No longer in service;
T-402-1,2,3	14", 14", 14"	5	Jet Blue	7200	9000	Possible to manifold 3 discharge lines
T-403-1,2,3	16", 12", 12"	8	American	5000	9000	Exist Manifold; no changes
T-404-1,2,3,4	14", 14", 14",14"	4/IAT	Delta	9600	12000	Exist Manifold; no changes
T-405-1,2,3	14", 12", 10"	3	Delta	5600	7300	Will be inactive when T3 is demolished
T-406-1,2,3	12", 12", 10"	1	Multiple	5600	6800	Possible to manifold 3 discharge lines with System 407 (T2)
T-407-1,2,3	12", 12", 10"	2	Delta	6000	6800	Possible to manifold 3 discharge lines with System 406 (T1)
T-408-1,2,3	12", 12", 12"	8	American	5600	7500	Exist Manifold; no changes
T-409-1	16"	7	BA/UAL	2400	4000	No changes
T-409-2,3	12",10"	7	Multiple	3600	4300	No changes

For determining the size of the hydrant pumping capacity and distribution piping system to meet both existing and future peak demand, the State of the Art system will be designed for an ultimate buildout of 20,000 gpm. This is based upon the current peak supply and applying a twenty year cumulative growth of 45% to 55%. This can be accomplished in phases starting with a lower pump rate, with accommodation for future pump connections.

Therefore, any changes or expansions to the hydrant supply should be designed for initial pumping capacity of 16,000 gpm. Assuming 1200 gpm hydrant pumps, 14 pumps will be required with two additional pumps provided for redundancy. As other growth factors require additional pumping capacity, space should be provided for an additional (4) 1,200 gpm pumps to meet those needs as well as provide some redundancy.

4.0 Analysis for Master Plan

4.1 Anticipated Risks

Supply Risk

The fuel supply is a single source, Buckeye Pipeline. While this source has proven reliable over the years, the risk of interruption is real. Buckeye maintains roughly 500,000 barrels of jet fuel storage at the Linden, New Jersey Terminal. This fuel is held as inventory for several airports including Newark (EWR), LaGuardia (LGA), and JFK. The Linden Terminal is connected to JFK via the 601 “Priority Jet” and 602 multi-product pipelines.

The supply agreement with Buckeye allows them to schedule the deliveries between JFK and LGA to maintain acceptable inventories at both airports. The pipeline operated at an average of 19 hours per day during the peak season in 2012, feeding JFK. The pipeline also feeds LaGuardia (LGA) approximately 735,000 gallons per day. Buckeye has reported a maximum delivery capacity of 120,000 barrels (5,040,000 gallons) per day.

Considering the projections in the previous section, the anticipated fuel demand (during peak months) will exceed the supply capacity of the 601 pipeline in the next five years. Without an increase in supply, supplemental supply on either the 602 line or another alternative means will be required. In the event of an unscheduled outage this shortfall will become even more of a factor, requiring airlines to adjust flight schedules, tanker fuel or restrict flight operations.

There have been a few interruptions in the supply over the past several years. Most of the events were weather related and also impacted airport operations, so there was not an emergency fuel supply situation. In 2011, Hurricane Irene interrupted the fuel supply, however the outage was anticipated, allowing the onsite tankage to be filled to capacity in advance of the pipeline shut down. Recent events including Superstorm Sandy, also affected fuel supply, but the demand was also curtailed by the event minimizing the impact on inventory levels. The most significant impact was the outage of power at Linden, which prevented fuel from being issued through the pipeline.

In June 2012, there was an event where the pipeline was damaged by a third party at a location between Linden and the airport. The damage caused a breach in the pipeline requiring the line to be taken out of service temporarily while repairs were made. The line was never drained, but flow was stopped for approximately two days. This fell during the peak demand period resulting in a decrease in the on-site inventory to approximately three days storage. It was stated that some deliveries were made on the 602 line during this period because the receipts did not stop completely.

In addition to the unscheduled outages, US DOT pipeline regulations require an integrity assessment on hazardous liquids pipelines on a five year interval. Historically, the 601 pipeline was evaluated using a hydrostatic test. This requires the line be out of service for two days every five years. Fortunately, this can be scheduled to take place during off-peak season to allow the inventory to be increased prior to the outage. However, with the projected growth in fuel demand, even a two day scheduled outage will create a shortfall at the airport.

The projected growth in fuel demand elevates this risk. In 2012, the demand was low enough that supply could be increased above normal levels to make up for the unscheduled outage on the line. It took almost a month of near maximum capacity operation on the pipeline to bring inventory back to the normal level. As demand increases, the capacity will not be there to compensate for the event. The projected growth in demand will exceed supply by 2016.

A supply study was added to the scope of this plan and is included in the next section of this report. Various alternative supply solutions were considered and compared to increase the supply into JFK and provide redundancy in the supply chain.

Environmental Risk

There are always environmental risks when operating a fuel facility. The State of New York has enacted regulations addressing some of the risks associated with aboveground fuel tanks including requirement for secondary containment. The PANYNJ has executed several contracts over the years including current activity to upgrade the containment systems around the storage tanks in an effort to maintain compliance with the regulations.

The NYSDEC regulations require undertank secondary containment in addition to containment dikes. The regulations allow for older tanks to remain with single bottoms, however when any significant repairs are completed, they should be upgraded. The tanks at JFK are a mixture of single and double bottom, with roughly 38 tanks at the BFF having been upgraded to include double bottoms to provide undertank containment. This said, still a large percentage of the tanks are single bottom, which presents a risk of a release that can go undetected. The tanks are inspected on a 10 year cycle and corrosion protection is maintained to mitigate this risk.

The largest risk associated with the tank storage is the risk of overfilling a tank. This is highest at the STF where the tanks are constantly being filled and emptied to maintain fuel supply to the hydrant system. While high level alarms are installed on each tank, the constant product movement and reliance on manual valves to direct fuel flow increase the risk of overfilling a tank. In the event of an overfill, the tank dikes should contain the release, minimizing the environmental damage. However, because the tanks share containment, a large spill would restrict access into the tank farm area. This would impact hydrant operations on at least one hydrant system.

The higher risk at JFK resides in the buried pipelines. The large number of lines, combined with the age of the system makes it virtually impossible to detect a small breach in a pipe. The piping is not designed to be easily tested using any of the current leak detection technologies. There have been projects in the past to perform tests on the lines which show the piping to be leak free, however the effort was expensive and time consuming. A small leak in one or more lines could result in a large quantity of fuel being released into the environment, possibly impacting Jamaica Bay and the nearby bird sanctuary.

The current NYSDEC regulations require the underground piping be tested every five years. The lines were not designed to be tested, so a significant effort is required to perform the tests. In 2012, the lines were tested for approximately $1.5 million (excluding the additional effort

required by Allied to support the operation). The primary reason for these tests is to detect small breaches in the line as described above.

United States Environmental Protection Agency (USEPA) has proposed regulations that may affect the hydrant system at JFK. The current regulations defer any requirements on hydrant systems, however the proposed change will lift the deferral. The new rules would apply only to hydrant systems where the volume of liquid held in underground piping was equal to or greater than 10% of the total capacity of the system. JFK is on the borderline of falling under the proposed rules. The impact is that the underground piping would transition to an annual tightness test as opposed to a five year interval as required under NYSDEC, increasing the pipeline testing expenses by roughly $1.2 million per year.

Anticipated Environmental Impacts

The fuel system modification project area will include demolition and construction activities within some areas known to have petroleum spills which had impacted both soils and groundwater. More specifically one of the two areas is within the area of the BFF, and the other is within the STF. These spills are currently being remediated. The petroleum spills are monitored by the PANYNJ and the status of the remediation of the spills are reported quarterly to the NYSDEC.

The spill within the STF was assigned a NYSDEC Spill No. 0850166. According to remedial activity progress reports provided by the PANYNJ, since 1978, the PANYNJ has implemented a comprehensive program of containment, stabilization, and removal of the product plume beneath the site. This effort should only be affected during the demolition of the STF.

The spill within the BFF was assigned NYSDEC Spill No. 9106609. To assist in remedial operations the spill was organized into four Areas of Concern (AOC's). Approval for closure of AOC's 1 and 4 was received by the PANYNJ on February 22nd 1994. Currently, remedial activities are being performed on AOC's 2 and 3. PANYNJ progress reports show reductions of product thickness and areal extent since the initiation of remediation activities. The planned construction of new tanks and systems will take place within the affected areas. Some allowance has been included for work with contaminated soils.

It is anticipated that as the remedial activities at the BFF and the STF progress that the remaining open AOC's will be remediated and receive approval for closure by the NYSDEC within the next few years by the PANYNJ unrelated to the implementation of this plan.

Operational Risk

The second major risk factor that impacts the fueling operations is related to the age and complexity of the systems. Key components within the fuel facility have been upgraded over the years, but not on a system wide basis. For instance, the EFSO controls for the American and Delta fueling systems have been updated to utilize a digital programmable logic controller (PLC) system for the hydrant systems, whereas the other systems are still operated by older analog/relay based control systems. In some cases the controls are obsolete and support contractors are forced to develop alternate replacement parts to keep the systems running.

The fact that many of the operating systems have redundant pumps, filters and valves allows back-up systems to be used to avoid unscheduled outages or delays in fuel delivery. In addition, the use of fueling trucks in place of the hydrants can be employed to avoid impact to flight operations. These factors do provide some security, but as the systems continue to age and pressure is applied to reduce the truck and driver fleet, the back-up systems may not be adequate.

Being able to maintain consistent operations requires an ongoing maintenance and repair effort. The budget for repair parts is over $1.1 million in 2012, plus labor. This continuous work effort places a drain on the operating budget for the facility. A detailed analysis of the various components was not performed as part of this study, however an example of systems reaching the end of the useful life is the number of tanks that are permanently out of service at the BFF due to excessive repair costs to return them to service.

The other operational risk is related to the fueling trucks used for cargo areas B, C & D. The current fuel distribution system includes two truck fillstands located at the BFF. The travel time from the BFF to Cargo C or D is nearly one hour, and the safety risks associated with driving a fuel truck in and around flightlines and taxiways is significant. If there was an accident during transit, it could directly impact flight operations.

4.2 Optimal Fuel Storage On Site

The current maximum fuel storage capacity at JFK is lower than optimum for an airport of this size and importance. Historically when reporting on site capacity, the shell capacity of all tanks at the BFF and the STF was included to yield numbers in excess of up to seven days on site. Several tanks however are no longer in service and the actual useable capacity of the tank is less than the shell capacity. Based upon the average fuel usage during the 2012 peak season, the total useable capacity on site is roughly 23,200,000 gallons. This equates to just over 5.5 days of storage capacity on site.

When considering the optimum storage capacity on an airport site, there are several factors to consider. The IATA Guidance of Airport Fuel Storage Capacity provides insight into the critical factors in establishing the correct inventory. Key factors include: anticipated growth in demand, reliability and capacity of the supply, fluctuations in airport operations that impact fuel usage, fuel quality assurance and regulatory impacts.

DEMAND: The previous section of this report outlined the anticipated fuel growth and seasonal fluctuations in fuel demand. As stated before, the peak demand requirements should be used in establishing the appropriate storage capacity on site. The three month period of June through August has been the peak demand cycle for many years. Being able to build up inventory in advance of this period will help accommodate shortages when demand exceeds supply for short periods of time.

SUPPLY: The fuel supply is a single source, Buckeye Pipeline. While this source has proven reliable over the years, the risk of interruption is real. The operational risks associated with the pipeline supply were discussed in detail in the previous section. This is the most significant

impact to establishing the appropriate storage capacity on site. Even a small interruption can impact flight operations.

STOCK MANAGEMENT: Currently the inventory is reported to Buckeye and deliveries are scheduled by Buckeye operators. The seasonal variations are somewhat predictable and the remote inventory held in Linden helps provide a buffer. During this past year, the airlines have asked to be kept informed on daily inventory levels, providing an additional level of oversight to stock management. As demand grows, stock management will become more sensitive.

QUALITY ASSURANCE: The current operation relies upon Buckeye to evaluate product quality prior to delivery at the airport. The jet fuel is stored in tanks dedicated to jet storage at Linden and is typically shipped via the dedicated jet 601 line. As a result the likelihood of contamination in the transfer to the airport is minimal. In addition, the fuel is filtered as it arrives at JFK both by Buckeye and in the BFF. Testing is performed by Allied Aviation to verify fuel quality.

If alternative supply systems are put in place, for instance through the 602 line, additional levels of quality assurance will be required, including the ability to isolate a delivery in the event it is rejected. The current operation has very little capacity for this type of action. The need to isolate delivery batches is much more of a concern when receiving off a multi-product pipeline.

REGULATORY REQUIREMENTS: There are no regulatory requirements related to the total capacity of fuel on site. ATA 103 is the only document that guides the airport inventory in the requirement for settling time after receipt. Typically a 24 hour window is required for each tank after a receipt. Operationally this mandates an absolute minimum of two days on site capacity, however this requirement is interpreted as requiring three days on site.

The New York Department of Environmental Conservation has regulations applicable to all aboveground fuel storage tanks in New York. These rules establish environmental protective measures including secondary containment, overfill protection, corrosion protection, etc. The budgets used in the following sections of this report include all of the systems components required by state and federal regulations. As referenced in the Operations and Maintenance section of this study, these rules mandate tank inspection and tightness testing of the piping.

The New York City Fire Code also includes requirements related to aboveground fuel storage tanks. Specifically, tanks storing combustible liquids (like jet fuel) can be no larger than 6 million gallons, nor taller than 48 feet and each individual tank must be provided with secondary containment with a capacity equal to 110% of the capacity of the tank. There are also additional requirements with regard to fire protection, tank spacing and access for firefighting equipment.

When considering the fire code requirements related to spacing and containment, the final area of concern arises – available land area. Land for development at JFK is extremely limited. Any changes in capacity must include increasing the gallons per acre ratio.

Recommended Capacity & Upgrades

The IATA document provided insight into the total amount of fuel that should be stored on site. In addition, the team gathered information on other airports of a similar size and fuel demand. Finally, the team interviewed individual airlines to gather their opinions and internal criteria as it applied. The following table shows data collected related to other airports.

Table 3 – Airport Fuel Storage Comparison

Airport	Total On-Airport Storage Capacity (BBL)	Total Practical Useable Storage (BBL)	No. of Tanks	Max Size of Tanks (BBL)	Avg Daily Fuel Demand (BBL/Day)	Total Days Storage	Practical Days Storage	Fuel Receipt Source
JFK	524,000	349,333	102	12,400	87,000	6.0	4.0	2 Pipelines (1 dedicated; 1 multiproduct used for backup)
ATL	783,000	522,000	24	50,000	65,000	12.0	8.0	2 independent pipelines (CPC, PPL - dedicated Jet A)
LAX	624,000	416,000	15	60,000	100,000	6.2	4.2	4 independent pipelines; 3 barge positions
ORD	562,000	374,667	8	67,000	62,000	9.1	6.0	3 pipelines
EWR	390,000	260,000	27	48,000	48,000	8.1	5.4	1 Buckeye Pipeline

The recommendation is that a minimum of five days on site capacity should be the goal of any expansion or upgrade to the JFK fuel infrastructure. If there is no alternative supply added in the supply situation, the on site storage capacity should be increased to seven days. The current capacity is below this level, and as demand grows the shortfall will become larger. Additional storage therefore is needed. Given the analysis of fuel demand during peak periods, and the projected growth, the increase in storage should begin immediately.

5.0 System Upgrades and Improvements

In the analysis performed to develop the Master Plan several options were considered. The options must be measured against their ability to mitigate the risks outlined in the previous section as well as their ability to reduce current and future operational expenses. The options considered ranged from minor improvements to the development of an entirely new State of the Art facility. The alternatives focus on four general areas of improvement: Supply, Storage, Hydrant Pump Operations and Hydrant Pipelines. The supply investigation was expanded as an amendment to the base study to provide a more comprehensive review of the expended supply options.

5.1 Alternative/Supplemental Supply

Buckeye Pipeline Expand Capacity

One option that has been on the table for a number of years is to increase the flow rate on the 601 line. Buckeye has made several improvements at Linden to maximize the flow, including recently upgrading the pump motors with variable frequency drives. This recent project increased the flow to a maximum of 120,000 barrels per day capacity. A key limiting factor on going beyond this level is a restriction on pipeline pressure by the NYC Fire Department of 1,000 psi in the segment on Staten Island. The current operating conditions are just below that limit. As a result, to increase flow, a booster pump station is needed at a location beyond Staten Island.

In 2011, Buckeye Pipeline presented a proposal to increase the maximum flow rate through the 601 pipeline by constructing a midpoint booster pump station. The pump station would be constructed at the Bay Ridge Rail Yard in Brooklyn, at about the halfway point between Linden and JFK. This option would increase the maximum flow rate through the pipeline from 5,000 bph to 7,000 bph. This increase would provide a maximum daily delivery to JFK of over 6 million gallons which satisfies the projected average daily demand through 2030.

The Brooklyn Booster Station would be located on property leased from the Port Authority of New York and New Jersey. The pipeline would be routed to a new pump station, including two new pumps to increase the flow rate. The two pumps would be 100% redundant to each other to allow planned and unplanned outages and controlled remotely from the Buckeye Pipeline Control Center. The tie in would include a bypass connection to allow for the pipeline to be inspected using in-line inspection tools as a single run from Linden to JFK allowing the line to remain "piggable". The construction would be phased to minimize the time required for the line to be out of service for the tie in.

In 2011, Argus was retained to evaluate the BFF to determine the upgrades needed to receive fuel at the higher rate. The report stated that the current filtration was capable of handling the higher flow rate if the flow is split between multiple filtration banks. A more detailed hydraulic analysis was recommended, which would be appropriate if the existing infrastructure is maintained as part of the Master Plan. Any alternative that upgrades inbound filtration, tank manifolds and storage can be adapted to handle the higher flow rate as part of the design.

With this option, virtually all of the capital investment is carried by Buckeye he operations and maintenance costs are similarly under the control of Buckeye. These costs would be passed on as an increase to the current tariff on fuel transfer from Linden to JFK.

The 2011 proposal outlined rough order of magnitude costs for the construction of the pump station along with projected annual operating expenses. The capital costs were not detailed, but were projected at $50 million. The annual expenses for leased land, power, operations, etc. were projected at $4 million per year. The Buckeye proposal projected the costs at $0.26/bbl for capital costs and an additional $0.11/bbl for operating expenses. The per barrel cost were based upon a 100,000 barrel per day minimum supply commitment.

The Pond Team developed rough order of magnitude costs for a concept pump station in order to validate the proposed costs from Buckeye. Some costs are not easily verified; however the exercise resulted in capital costs of $20.721 million and operating expenses of roughly $1 million. The operating expense allowance used in the economic analysis also includes roughly $1million per year in land lease fees and $2million in ad valorem taxes identified in the 2011 Buckeye proposal and no other information was available to discount these costs.

There is a project funded by the New York State Energy Research & Development Authority to evaluate the existing pipeline supply infrastructure feeding New York City. The study is part of the post Hurricane Sandy effort to improve the overall reliability of the infrastructure that supplies key resources including fuel, into NYC. Other investigations by this group have already identified that the lack of electrical power at Linden and local service stations was a critical factor in the shortages. The pipeline study is a high level overview which will include discussion related to both the 601 and 602 pipelines and includes a description of the booster pump station proposed by Buckeye to increase flow through the existing lines. It is unlikely that any action related to a booster pump station will occur as a result of this investigation.

This option offers the advantage that there is minimal effort required in the implementation by the airport. All of the upgrade effort takes place off site, yet yields an increase in supply capacity that satisfies the long term demand projections. However, the costs are not directly controllable by the PA or airlines. If the State acts to perform the upgrade, it is unknown how the costs will be allocated.

- Satisfies projected demand through 2030
- Requires minimal upgrades at JFK BFF
- Does not resolve the single source of supply risk

Buckeye Pipeline Parallel Delivery

A second option that was evaluated with Buckeye Pipeline was the possibility of receiving peak deliveries on the 602 multi-product pipeline. All prior reports and general conversations stated that the line is ”full”. Conversations with Buckeye in August 2013, however, yielded that there is available capacity on the line during the three months when JFK has peak demand. June through August is off-peak for the fuel oil market. During this period, the 602 line can carry between 15,000 and 20,000 bbls per day of Jet-A. The incremental supply will satisfy the projected demand through 2026.

A discussion with Buckeye confirmed that Jet Fuel can and has been delivered using this pipeline in the past. However, when this pipeline was used, it was in lieu of the 601. Discussions with Buckeye indicate that in order to issue jet fuel simultaneously on both lines will require some modifications at Linden. The manifold piping would have to be adjusted and a new booster pump and pre-filter may need to be added to ensure the flow rates are maintained on fuel deliveries to JFK and Newark (EWR).

Using a multi-product pipeline adds complexity and risk to the receipt process regardless of the availability of time on the line. When receiving on a multi-product pipeline there is a greater risk of cross contamination of the product. Scheduling the receipt is important to cut into the flow at the correct time in the transfer. Typically the interface between two products, called transmix, is a waste product that has to be collected and often trucked to a facility that reprocesses the fuel. Often tankage is required to capture the transmix, however the procedure at JFK pushes the transmix farther along the line for capture at one of the Inwood terminals east of the airport on the 602 pipeline.

Because of the risk of cross contamination, the product flow must be kept isolated to ensure the entire batch delivery is within the ASTM D-1655 specification for Jet-A. The current filtration system operated by Buckeye at the BFF only allows for a single stream of fuel and does not have adequate capacity for simultaneous receipts. To allow for parallel delivery into JFK a second filtration bank and metering system is required.

For the purposes of establishing the cost of this option, the construction of a second filtration bank at BFF, operated by Buckeye was estimated. A very rough order of magnitude value was also developed for the worst case scenario for the modifications at Linden. The construction would most likely be performed by Buckeye and the incremental costs added to the tariff, similar to the previous option. The rough order of magnitude cost for the new filtration and metering at JFK is $7.7 million and up to $4.5 million is budgeted for the work at Linden.

The projected operations and maintenance costs are minimal since the facility is currently staffed to operate 24/7. The supplemental deliveries are only anticipated during peak months and can be managed by the existing staff. Handling the additional transmix is an operational cost, however it would be managed by Buckeye along with the other transmix volumes already being processed. The maintenance expenses are mainly related to filter element replacement and minor maintenance.

The current piping configuration at BFF allows for streams to be split off of the Buckeye manifold to different tanks. There are minor modifications required to ensure the two streams remain isolated. Once completed, the flow from the 602 line can easily be isolated and tested before incorporation into the operating inventory of the airport.

Maintaining a segregated delivery is easily accomplished with the current tank configuration. However this becomes more difficult if the bulk tanks are replaced with fewer larger tanks at BFF. Some consideration may be justified to constructing a smaller tank (roughly 30,000 barrels in capacity) to act as a receipt tank for parallel deliveries during peak season.

This option offers several advantages including minimal capital expense, most of which is carried by Buckeye. Like the previous option, the costs are not controllable by the PANYNJ or airlines. There is a risk that the "available space" on the 602 line may decrease over time preventing Buckeye from using the line for jet fuel. Obtaining a commitment on behalf of Buckeye should be part of any negotiation for the development of this option.

- Satisfies projected demand through 2026 (assuming 20,000 bbls per day)
- Requires minimal upgrades at JFK BFF
- Does carry risk that the supply capacity will decrease over time
- Does not fully resolve the single source of supply risk, but at least provides a second supply point from the same source

Buckeye 602 delivery to LaGuardia

Consideration was given to delivery of fuel to LaGuardia (LGA) through the Buckeye 602 pipeline. The pipeline does not currently connect to LGA, but rather terminates at a group of terminals in Brooklyn. The concept would focus on meeting the peak demand by reducing the daily cut out of the 601 pipeline that is directed to LGA. This would eliminate the need to expand the filtration systems at JFK.

The current piping configuration does not allow fuel from the 602 line to flow into the 601 extension that continues from Brooklyn to LGA. Either the manifold would have to be modified or a short term agreement reached with an independent terminal to receive the jet fuel and truck it the balance of the distance. Trucking would only be an option as a supplement to the daily requirements at LGA, and could not replace the pipeline delivery. While LGA can receive fuel by truck, the volume (700,000 gals/16,666 bbls per day) is well beyond what can realistically be delivered by truck.

The best approach would be to modify the manifold and controls to allow product to divert from the 602 into Brooklyn and switch to the 601 extension into LGA. Additional transmix would be generated at a terminal in the Brooklyn area. Given that the pipeline is a multiproduct line today, the infrastructure exists to handle this requirement within the current Buckeye operating infrastructure.

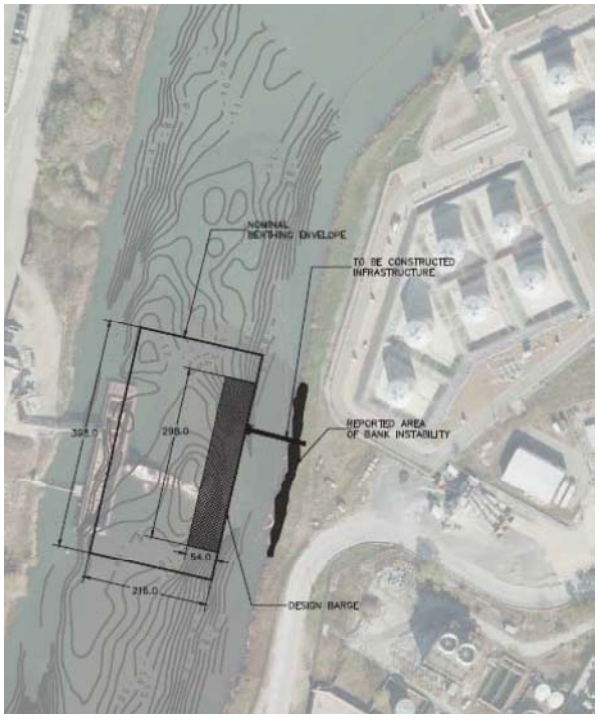
For cost comparison purposes, the same modifications will be required at Lindaen as described for the parallel delivery into JFK. The minimal modifications to the manifold and controls in Brooklyn are estimated at $500K.

Making the 601 pipeline dedicated to JFK during peak periods will satisfy the fuel demand requirements until 2025. The risk is similar to the previous discussion related to the assumption that the open capacity on the 602 pipeline will exist into the future.

- Satisfies projected demand through 2025 (assuming 16,666 bbls/day additional to JFK)
- Requires no upgrades at JFK BFF
- Does carry risk that the supply capacity will decrease over time
- Does not address the single source of supply risk

New Barge Receipt

Burns & McDonnell prepared a study on a possible Barge Fuel Supply and Off-loading Study in 2012. The report was reviewed as part of the development of this Master Plan. The study considered several options for the receipt of jet fuel via barge as well as various options for handling the fuel within the BFF once received. There were four options for barge receipt considered in the report including construction of a new pier and reconstruction of three other existing pier systems in or adjacent to the airport. The final recommendation was to construct a new pier on the south end of the existing BFF facility in the Bergen Basin. The new pier would be designed to accept barges up to 300' x 60' x 12.5' draft. (Requiring a 15' depth of water at the pier).



The study also considered modifications to the tank farm to receive the fuel into dedicated storage. This was driven primarily by the interpretation of quality control requirements. Procedures can be implemented to avoid this requirement including certification of the fuel prior to off-loading. This practice is common in places where fuel is received via barge. The fuel would be sampled and certified when the barge arrives at the pier. This eliminates the need to segregate the shipment from the pipeline receipts, however it does affect the length of time the barge is moored.

The quality control and barge receipt process followed by ASIG in Honolulu, Hawaii is a solid model. The fuel is sampled when the barge arrives and is tested by both ASIG and an independent third party lab. The full sixteen point ASTM D-1655 test protocol is performed, requiring no more than half a day to complete. The longest duration test is the JFTOT/thermal oxidation test. Once the fuel is certified, then it can be offloaded directly into inventory at Sand Island. Given the short distance of the transfers in NYC, samples can be collected at the loading pier for the certification tests and a spot check at the delivery point as a means to expedite the process.

The study also considered barge use as a component of the evaluation in determining the number of receipts possible. The study discussed spot use as well as short term charter as dedicated use of barges for Jet. Either option requires a fuel oil barge to be cleaned to convert to Jet use to avoid contamination of the fuel. Economics therefore dictate that once converted, the barge should remain in jet service as long as possible to spread the cleaning costs. Discussions with companies operating in NY Harbor indicate barge availability is not a concern. Similar to the availability on the 602 pipeline, the peak period for the airport is off peak for fuel oil. Barges typically used for fuel oil can be cleaned and used for transport of Jet fuel.

Based solely on time required to offload at JFK, two barge receipts per day per pier is possible. The typical flow rate from a barge mounted pumping system is about 3,000 to 4,000 gpm. With connect and disconnect time and sampling it takes roughly eight hours to offload a 30,000 barrel shipment plus QC time. The manpower requirement to man the barge pier during transfers is a minimum of two people that must be on hand full time during the transfer. In Hawaii they often utilize three. At least one person must be trained and certified as the person in “responsible charge” as defined in US Coast Guard regulations.

The pier can be viewed as either a peak supply, supplementing the pipeline capacity, or a back-up replacement of the pipeline supply. As a peak supply supplement, barge receipts can be scheduled beginning every three days (2016 to 2021), shifting to every other day (2021 to 2024) and finally daily to meet the growing demand out to the 2031 projections.

To replace the pipeline supply, an average of four barges per day would be required to meet the current demand, increasing to five barges per day in 2025. A double pier would be required as a minimum for this scenario given the time required to offload a barge discussed above.

The rough order of magnitude costs provided in the Barge Study for the single and double pier concepts are $7 and $15 million respectively. This is the capital cost for the pier, including permitting and a minor allowance for the dredging. The permitting allowance used was $320,000. The costs associated with disposal of the dredged material were not included in this budget.

In Pond’s analysis of the costs, the largest variable unaccounted for is the testing and disposal cost of the dredged materials. The disposal costs described in the Burns & McDonnell study ranged from $3 million to $30 million depending upon the contamination levels in the sediment. P.W. Grosser updated this evaluation and projected costs up to $54 million based upon a larger dredged area. Scaling the dredged area down the worst case on dredging and disposal is $42.8 million. A complete NYSDEC sediment sampling plan would be required as part of the initial design effort to evaluate the materials prior to dredging. The complete sampling and analysis of the sediment in the area to likely be dredged is estimated between $300K and $500K. An abbreviated sampling could be performed to screen the sediment and help determine the impact of disposal costs for as little as $40,000.

The Barge Study describes in detail the implications of the dredging to allow access to either a new pier or one of the existing piers in Bergen Basin. It also states that there is a requirement for NYC DEP to maintain the Bergen Basin channel as part of the operating requirements for the New York City owned Jamaica Water Pollution Control Plant. At the time of the Barge Study and during P.W. Grosser’s investigation (Appendix F), the dredging was part of a Long Term Control Plan, that was not finalized and no firm schedules were in place to complete the effort.

The navigability of Jamaica Bay beyond Bergen Basin should be further evaluated, as should the commitment to keep the Jamaica Bay channel maintained to a depth of 15 feet. Hurricane Sandy (2012) modified many previously navigable waterways. P.W. Grosser’s report included a high level review of this concern and could not totally discount any impact, however there are ongoing efforts to ensure safe passage for marine vessels in Jamaica Bay.

Other costs that must be considered is the investment in spill response equipment. For barge transfers, a small boat, oil boom, boom reel, skimmer and vacuum truck would be required to satisfy US Coast Guard requirements. The initial investment would be approximately $750,000.

Operational expenses to manage a barge receipt are mostly labor costs. A minimum of two persons are required to manage a transfer. The lead must be trained and certified under US Coast Guard rules to understand the requirements for safety and spill response. The two people will be on the dock for the duration of the transfer. The budgeted cost is $3,000 to $5,000 per delivery.

The maintenance costs associated with the pier include minor routine maintenance, the cost of maintenance of the boat and boom materials, hose replacement and corrosion prevention measures. These costs will be relatively low in the early years since the facility would be new. Estimated annual expenses would be less than $100,000.

The other incremental maintenance cost would be maintenance dredging around the pier. The navigation channels would be dredged by others, but near the pier is the responsibility of the pier owner. As with the dredging during construction, the sediment disposal would be a factor in the cost. Discussions with the operators at nearby piers yielded maintenance dredging have not been required on a regular interval. The cost for this effort is estimated at $3,000,000 per event including disposal allowance. For the purposes of this study, a five year cycle is assumed for maintenance dredging.

In the cost considerations, the other cost that must be included is the cost of the barge transfer versus the pipeline transfer. Since it is difficult to capture the complete cost of receiving fuel, at a minimum a comparison of the transportation costs must be considered at least. The current published tariff on Buckeye Pipeline is $0.6385 per barrel. A comparable rate for the barge transfer from the Linden, NJ area to JFK would be anywhere from $0.64 to $1.20 per barrel.

Recapping the cost, capital costs for the construction of a new single barge pier is estimated at $7 million plus allowance for sediment disposal of at least another $3 million but possibly up to $42.8 million. If used as a peak supply solution, the delivery, operations and maintenance expenses are estimated at $1.545 million per year or roughly $1.75 per barrel (4.1 cents per gallon delivered).

The barge delivery is an effective supplement to the pipeline. This provides three key benefits:

- Supplemental supply for future years when the demand exceeds the pipeline capacity
- Emergency supply alternative when the pipeline has an unscheduled outage
- Competition in supply arrangements for price negotiations

Inwood Independent Terminal Alternative

There are three fuel terminals in Inwood, east of JFK, each with existing barge receipt capabilities. They are all fed by the Buckeye 602 pipeline, but utilize the barge piers to either supplement the pipeline or to deliver products not available by pipeline like ethanol. Two of these facilities are owned and operated by independent terminal companies that focus on

leased storage type operations storing gasoline, diesel and fuel oil. All outgoing product is via truck.

There are two options on how to utilize the Inwood terminals: 1) lease tank storage and utilize trucks to transfer fuel or 2) install a pipeline from the pier directly to JFK's tank farm. Leased tank storage is a challenge since the terminals are currently leased at capacity. The similar thought of off peak season for fuel oil, may allow some room for negotiation, however the agreement would have to include cleaning the tanks at the beginning of each season. There are other terminals farther away that have barge access and truck lanes with available tank capacity, however the trucking cost would increase.

Trucking fuel into JFK offers several limitations. First, there is no operational truck off-load capacity at JFK. Second, the number of trucks needed to fill in the gap to overcome the shortfall grows rapidly. In the first year of the projected shortfall, the number of trucks may only be six per day, but that increases to 17 and 26 over the next couple of years. The logistics of bringing 26 trucks a day into JFK requires effort, and an investment in infrastructure for the receipt. The rough budget estimate for a four position truck offload area at BFF is $6.5 million.

The second approach utilizes a pipeline to transfer to JFK instead of trucks. This is a better long term solution however the capital expense is higher. This option does not require tanks at the remote terminal, but would require a booster pump to help with the transfer through the pipeline. The pipeline would extend across the channel and onto JFK property, where it would likely parallel the 602 pipeline into the BFF. The investment for the pipeline and booster pump station would be on the order of magnitude of $25 million.

There is a possibility that the 602 pipeline could also be used in reverse in lieu of installing a new pipeline. This would require more infrastructure improvements including a transmix tank at the airport. This would also require a tariff negotiation with Buckeye on the use of their asset.

For the leased pier time option, it is assumed that the barge offload would be managed by terminal personnel in order to comply with their spill response and safety plans. The majority of the maintenance costs would be covered by the lease fees, primarily leaving maintenance on the booster pumps and pipeline as the only direct expense. Global Industries provided a budgetary cost for the pier time of $0.50 per barrel.

This option provides all of the benefits of a new dedicated pier at JFK, including the possibility of multiple berths. It also places the maintenance expense of maintenance and dredging on a third party.

- Supplemental supply for future years when the demand exceeds the pipeline capacity
- Emergency supply alternative when the pipeline has an unscheduled outage
- Competition in supply arrangements for price negotiations
- Dredging and pier operations are handled by others.

Rail Delivery

The possibility was investigated for rail delivery of jet fuel to or near JFK. Although various initiatives have been undertaken in recent years to increase overall rail freight to New York City and Long Island, none have benefited connecting rail near the airport. Although current rail exists just west of the airport, it is used for passenger trains and it also runs below ground at various points northward from the airport. It was conveyed in a discussion with Global Industries in Inwood that they had looked into rail as a possibility for ethanol a couple of years ago. They were unsuccessful in developing this option due to opposition from local residents and local government based on the risks associated with transporting fuel into that area.

Due to the recent opposition, logistics, and potential costs of additional rail infrastructure if it could be implemented, we do not see it as a potential option for JFK at this time.

Financial Analysis of Supply Alternatives

	Capital Expense	Total O&M	Delivery Costs
Buckeye Booster	20,700,000	93,928,924	2,877,519
Buckeye 602	12,700,000	3,214,688	2,877,519
Buckeye 602 LGA	5,000,000	2,571,750	2,877,519
Pier (8)	15,886,978	25,554,689	58,666,051
Pier (42.8)	51,335,200	25,554,689	58,666,051
Inwood Pipeline	25,000,000	671,759	83,110,239

Present Value Analysis

	15 Years		20 Years	
	Present Value	**c/gal**	**Present Value**	**c/gal**
Buckeye Booster	43,145,002	0.377	41,557,851	0.379
Buckeye 602	9,678,418	0.068	8,742,996	0.070
Buckeye 602 LGA	4,879,023	0.037	4,495,653	0.038
Pier (8)	35,429,400	0.317	34,211,282	0.319
Pier (42.8)	58,080,302	0.462	54,144,229	0.468
Inwood Pipeline	39,740,103	0.351	37,823,254	0.354

Note:

1) The difference in the two Pier options is the cost of disposal of the initial dredged materials. For the purposes of this analysis $8 and $42.8 million were used from the Burns & McDonnell Barge Study, 2012 and the updated dredging analysis by P.W. Grosser (Appendix F)

5.3 Storage Alternatives

Repair Existing Out of Service Tanks at the BFF

One option considered is to repair the out of service tanks at the BFF and to upgrade the piping and controls to be able to utilize more automation in the current operation. There are ten tanks at the BFF that are out of service as of the date of this report. Tanks 35 and 72 were considered active for the volume calculations in the first section of the document because they are under contract to be repaired and returned to service.

Four tanks (21, 22, 31 and 32) are small tanks (220,000 gallons each) that are categorized as waste/slop tanks. These tanks are not connected to the jet fuel piping systems at all and are not currently suitable for storage of jet fuel. They are open top, external floating roof tanks which take on water each time it rains or snows. The tank internal coatings are non-existent or in poor condition and the tank bottoms have not been inspected. Because of the small size of the tanks, the cost to connect the tanks to the system and recommission the tanks is not justifiable, further they are too small to be effective as hydrant supply tanks. At most they could be used to fuel trucks.

The four out of service jet tanks (24, 26, 27 and 28) are larger (531,000 gallons each) and do have piping that could be cleaned and tested for use in transferring jet fuel. The tanks similarly are open top and would require upgrade to include geodesic domes, roof drains, new tank bottoms with secondary containment, internal and external coatings and valve repair/modifications before they could be returned to service.

A rough order of magnitude for the repairs is $750K to $1 million per tank. The incremental increase in useable capacity (1.8 million gallons) would compensate for removing the STF from service if a new hydrant pump system is installed as part of an upgrade plan, but overall is less than one half a day of capacity.

Upgrade/Automate Tanks at the BFF

Other upgrades that can be considered for maintaining the BFF tanks “as is” include installation of automated valves, tank gauging systems and upgrading the central control center. These tasks would be recommended under a plan that constructed a new hydrant pump pad at the BFF, without adding new tanks. The largest component of the upgrades would be controls since several of the valves already have actuators in place, but they are local control only (i.e a man still has to go to the tank and push a button to open or close the valve). Automating the tank controls would improve the operational efficiency of the BFF and reduce the environmental risks marginally.

As part of the upgrade plan for the tanks, you must also consider long term compliance. Out of the 52 tanks at the BFF, only 38 tanks have bottoms upgraded to include undertank secondary containment and cathodic protection. The tanks have been upgraded over time as they are removed from service for inspections. The rough order of magnitude cost to perform these upgrades over time is $15 to $20 million depending upon the other repairs that are needed. This action only reduces the environmental risks.

If a new Hydrant Pump System Option is included other upgrades would be required at the BFF to increase the suction header size to suit the higher flow rates out of the tanks. A 2001 preliminary design report by Burns & McDonnell recommended that only the 10,000 bbl tanks be connected to the new hydrant pump system. This recommendation was driven by the flow rates expected from the hydrant systems and how fast the tanks could be drawn down in peak periods. A total of 52 tanks were deemed appropriate for the hydrant system. Each of these tanks would also require upgrade of the suction piping between the tanks and the hydrant pump inlet manifold. The rough order of magnitude pricing to complete the upgrades as recommended in the 2001 report would be $40 million. This approach reduces the useable capacity of storage for the hydrant system to roughly 4 days of storage accessible to the hydrant pumps.

Upgrading the existing BFF tanks does mitigate environmental risk and can provide some reduction in the operational expenses, however the reduction in operational costs would be minimal at best and the ongoing costs of inspection and testing would remain near $500,000 per year.

New Tank Options

When considering new tanks, two questions arise: how large and how many. The two questions are addressed separately.

Optimum Tank Size

The second aspect of tank capacity is the optimum tank size. This analysis must consider the daily fuel handling operations, the available land area for construction and the capital cost of construction. The final component in the analysis is consideration of batch sizes in delivery using methods where contamination is a valid risk.

When considering daily operations, fewer tanks opened and closed in a day results in decreased operating costs and manpower requirements. It is recommended that targeting two operating tanks in a day at peak periods is optimum. Given a current supply the smallest tank that should be considered is 50,000 barrels (2.1 million gallons). When factoring in peak demand and projected growth the second tank size considered is 80,000 barrels (3.36 million gallons). These tank sizes were selected based on industry standard sizes related to constructability, and both are below the maximum allowable tank size for New York City.

In order to comply with the NYC Fire Code, each tank will require independent secondary containment. Review of best practices to provide containment using the smallest land area results in the recommendation to provide containment using a steel ring, approximately 16 feet high. This configuration is used at the existing BFF and at other tank locations within the NYC area. A higher ring could be used, but access for maintenance and operations personnel could be more difficult. Several tank configurations were developed to compare the land area utilization. The 80,000 barrel tank offers more total fuel per acre of land used.

When considering the capital cost of construction, several factors impact the cost. First, the soils in the area are poor for bearing loads, requiring pile supported concrete cap foundation for the tanks. The outer containment ring requires less, but will still need a significant footing to support the ring. Included in each tank cost, is fire protection, low, high and high-high level alarms, automatic tank gauging systems and motor operated valves with communication to the central control room. The incremental cost of the larger tank is offset by the reduced number of tanks to achieve the desired on-site capacity when completely built out.

The only factor that favors smaller tanks is the batch size for alternate supplies. Two alternative supplemental supply solutions have been discussed: incremental supply from the Buckeye 602 line and a new barge receipt capability. The typical barge delivery would be 30,000 barrels per barge. The risk of cross contamination is real, but can be managed in one of two ways: certify the fuel before offloading from the barge or segregate the barge receipt and certify the fuel in a tank. Certification on the barge has a lower impact on the operation of the tank farm, allowing the inbound fuel to be comingled with receipts from the pipeline. Certification in a tank requires segregated receipt filtration and optimally a tank sized to only hold a single barge delivery.

If the supplemental supply is via the 602, multi-product pipeline, similar concerns exist compared to a barge receipt with certification in the tank. The batch size however is unknown, and in line certification could be achieved. The risk of contaminating a tank full of fuel is higher in this scenario than the other alternatives considered to increase supply into JFK.

The recommended tank configuration and size to minimize operating costs and provide adequate on site inventory is a series of 80,000 barrel tanks. This concept is the basis for the

State of the Art concept, but also applies to incremental improvements and upgrades to the tank storage at JFK.

Addition and/or Replacement of Tanks

As part of the analysis, two approaches to new tanks were considered: addition of tanks to simply increase capacity and as part of the State of the Art facility, replacement of the existing tanks with fewer, larger tanks.

Incremental capacity at the BFF is required to provide the recommended capacity of fuel stored on site regardless of the final plan. Some of the upgrade options either remove existing tanks from use totally or at least restrict their use. For instance, using the existing BFF tanks to supply a new hydrant pump system reduces the useable storage on site to roughly 4 days at the current average demand levels.

New tanks can be added at two locations without affecting the current operations. There is undeveloped land on the southeast side of the BFF large enough to accept two new 80,000 bbl tanks (see SK-203). These tanks would utilize some of the existing piping to receive fuel from the pipeline and to issue fuel to either the current transfer pumps or a new hydrant pump system. The incremental storage would be just under one day of capacity.

The second location would require demolition of the four out of service tanks (24, 26, 27 and 28) along with the two active tanks in that area (23 and 25). Two 80,000 bbl tanks could then be constructed in this area and connected to existing piping. The incremental increase in capacity would be only slightly more than upgrading the out of service tanks to active status. The primary benefit would be the reduction of the number of tanks from six to two.

The construction of two new tanks, piping and controls is $32.6 million at either location. The additional cost for the demolition of the six smaller tanks at the second location is estimated at $ 1.1 million.

Replace with New Tanks

The total replacement of all tanks with new is the most extreme solution. It considers the phased construction and demolition of tanks to construct new larger tanks to streamline the operational requirements. This option results in a final configuration of 9 new 80,000 bbl tanks to satisfy the on site capacity requirements at today's demand with room for two or more additional tanks (see SK-209). This solution is optimum for improving operational and environmental risks and satisfies the capacity concerns both now and in the future. This approach is more fully described in the State of the Art facility description.

5.4 Hydrant System Alternatives

STF Suction Manifolds

The concept is to install new suction manifolds to tie-in all suction lines at the STF. There are currently 40 tanks that feed 10 different pumping systems. Of these 10 pumping systems Terminal 6 is currently out of service and Terminal 3 is planned to be taken out of service in the

near future. The tank supply to each pumping system varies from a single tank supplying a single pump system to up to 7 tanks supplying one or more pumping systems.

There are currently four (4) suction manifolds that exist to allow additional tanks to supply to additional pumping systems. It is recommended that these four manifolds become fully tied together to maximize the flexibility of any tank supply to any pumping system. This could be done by installing a common suction header between manifolds utilizing existing flanges at the four manifolds currently in place. Additional valves would also be required in the manifold piping to segregate and isolate segments as needed for maintenance and operations.

The primary benefit is to simplify the operations of handling fuel between the BFF and the hydrant valves. It is possible that as this is implemented that several of the tanks at the STF could be removed from service.

This alternative only provides a minimal improvement in operational efficiency. It does not address any of the other risks or operational concerns. The only benefit would be as an interim step while other upgrades or improvements are being developed and implemented.

STF Discharge Manifolds

One alternative considered is to install new discharge manifolds with new pump PLC controls at the STF and provide EFSO valves at the terminal side similar to the Delta and American systems. Table 2 provides descriptions of each hydrant pumping system at the STF as shown on SK-301 and SK-302.

Three systems (two American and one Delta) have been upgraded with discharge manifolds and PLC controls to operate pumps more efficiently. The two American systems (T-408 and T-403) serve Terminal 8. Only one of the two American system manifolds can operate at a time providing redundancy between the two systems. The Delta system manifold (T-404) serves Terminal 4/IAT.

The T401 system fed Terminal 6 and is not in service. However a new remote truck fillstand is recommended near Cargo Area B and would be fed from the T401 system.

Installing manifolds across the discharge headers for the T-406 and T-407 systems (Terminals 1 and 2) and the T-402 system will provide for a more efficient use of pumps and filtration at STF. Part of the task would include upgrading the controls for these pumps to further automate the pumping systems and EFSO for the terminals served by these pump systems.

This option optimizes pump usage, but the cost to upgrade the pump controls, EFSO and other systems is substantial. The implementation really does little to reduce the fuel handling logistics, nor does it provide any return on the investment. As a result this option is not recommended.

New Hydrant Pump Stand at the BFF

A key alternative in improving operational efficiency and environmental risks is to construct a new hydrant pump system at the BFF. This was a primary recommendation in the 2000 JFK Fueling System Master Plan developed by Argus Consulting. The approach allows most or all

of the STF to be removed from service and allows for the installation of fewer more efficient pumps to be used to serve all terminal facilities.

A new hydrant pump pad (See SK-207) at the BFF facility would replace the 58 hydrant pumps at SFF. Based on the existing peak demand of approximately 12,500 gpm and projected future peak demand of 20,000 gpm, the proposed hydrant system would include space for up to 18 hydrant pumps at 1,200 gpm each or a total capacity of 21,600 gpm. Initially, the construction could include as few as 14 pumps to meet the current and short term demand.

The proposed hydrant pump pad will be configured such that the pumps are split into two banks as shown on SK-210 to allow protection of half of the pumps in the event of a fire or other potential disaster. Although this does not provide one hundred percent backup, half of the system could potentially be in service to supply fuel to the hydrant system at a reduced rate.

As stated in the tank alternatives, construction of a new hydrant supply system at the BFF would require upgrades to the tank piping network to satisfy the higher flow rates. The cost associated with these piping modifications is included in the tank alternatives. Supply of the fuel to the hydrant systems at each concourse can be accomplished in two approaches: construction of a master manifold at the STF or construction of a supply loop around the airport.

The budgeted cost of the new hydrant pump system and transfer pipelines is $43.8 million. This includes allowance for a new control building to be constructed to house a central control center for the tanks and hydrant systems. This budget does not include any piping beyond the outlet of the pump pad.

New Hydrant Loop

To distribute the fuel to the terminals, a new transfer loop can be constructed around the entire airport with connection points at each terminal facility. In many cases the new loop would connect to existing isolation vaults. The piping would begin as two (2) 24” transmission lines from the new hydrant pump pad to the airfield. Each 24” line has a capacity to handle approximately 10,000 gpm at 8 ft per second or 20,000 gpm total for both lines. The two lines will run together from the BFF to the terminals as shown in SK-102. From a point near Terminal 8, the lines will manifold within a fuel vault and be installed around the perimeter of the terminals forming a loop. Concrete fuel vaults will be installed with isolation valves along the loop to provide isolation between segments of the fuel piping. In addition, concrete fuel vaults will be installed with isolation valves and control valves at each terminal prior to tie-in to the existing hydrant piping. This will allow for additional isolation and will also control the pressure as the fuel enters into each terminal hydrant system. This will maintain the optimal pressure required on the terminal hydrant piping to reduce pressure surges within the existing piping system. It will also allow each terminal to be isolated from the rest of the main 24” loop piping.

This approach offers the optimum in redundancy, efficiency and environmental risk. The disadvantage is that it requires extensive construction on and around the airfield. Coordination is required to minimize impact on flight operations and safety. The new loop could be constructed while the existing hydrant system continues to operate, with minimal outages at each terminal to complete the connections.

The total budget for the hydrant loop construction is $70.1 million. The construction would likely take two years to complete because of the limitations on work hours and access on the airside.

Satellite Master Manifold

This concept was the primary recommendation in the 2000 Master Plan and was further developed by Burns & McDonnell in a separate project in 2001 in a concept level design package for the PANYNJ. The concept design identified the requirement to upgrade the suction manifolds at the BFF in order to adequately supply the new pump systems. The concept also replaced the transfer lines between the BFF and the STF to three 24" diameter pipelines and recommended several other electrical and controls upgrades.

The new Master Manifold would receive fuel from the new hydrant pumps at the BFF and distribute it to the existing hydrant supply lines from the STF to the terminals. The manifold would include new EFSO shut off valves and pressure regulating systems to allow interface to both the older antiquated systems as well as the newer PLC based systems installed by American and Delta over the past few years.

For the purpose of this study, portions of the concept design were adjusted to meet the new information on fuel demand and projected growth. As a result of lower growth projections there is no justification for a third 24" transfer line from the new hydrant pump station. The projected hydrant flow requirements through 2032 are satisfied with two 24" pipelines. The costs have been adjusted to compensate for this change.

The advantage of this approach is that it limits construction to the existing STF facility. Phasing would be critical to allow for construction and tie in while keeping as much of the old system in operation as possible. The disadvantage is it requires the continued use of a large number of old, small diameter pipelines to transfer the fuel to the terminals. While the operational benefits of a new hydrant supply are achieved, the environmental risks are still high.

The budgeted construction cost for the transfer pipelines and the manifold is roughly $32 million.

GENERAL NOTE

The Options Matrix in the last section of this report recaps the options and the costs outlined in this section of the report in different configurations. The State of the Art solution combines the "optimum" options from the analysis performed with regard to mitigating the risks discussed and improving operational efficiency at the airport.

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6.0 State of the Art Concept

The scope of work was directed at the development of a “State of the Art” (SOTA) concept fuel facility for JFK International Airport. The focus as directed in the RFP and the Charrette was to focus more on a replacement and upgrade to the existing fuel handling systems. Given the condition, configuration and operational limitations of the existing facilities, any significant improvement requires large scale changes to the systems.

The following sections describe the final configuration of the facility followed by a discussion on phasing. It is understood that the approach may need to be implemented in stages with hold points pending additional growth or funding. The discussion will include possible tasks that can be pushed to a “future” phase including a matrix to prioritize the process.

6.1 General Requirements

General Configuration

The new facility must simplify the operations and fuel handling and provide adequate storage capacity for future growth. The SOTA facility includes the following key components:

- Consolidated receipt filtration with connections for alternate supply
- Truck loading area near Cargo B & C
- At least nine new 80,000 barrel storage tanks at the BFF
- New central hydrant pump system at the BFF
- Automated controls and SCADA system for centralized command
- New hydrant supply loop
- Upgraded EFSO and Fire Protection systems
- Elimination of the Satellite Tank Farm

Three green tanks are optional if a goal of seven days on-site inventory is established

Bulk Fuels General Layout

The proposed configuration will cover roughly half of the land area presently occupied by the BFF. The STF would be demolished. The truck maintenance and GSE fueling located at Building 90 have not been considered as part of this plan.

New Pipeline Receipt Filter Pad

Demolish Tanks 21, 22, 29 & 30 (which are presently out of service) and install a new inbound filtration system in the area adjacent to the Buckeye Pipeline receipt area. The new pad should include pipeline connections that allow for receipt either from the Buckeye filters, from the Buckeye bypass line or from a new alternative supply system. Optimally, the piping could be configured to allow for parallel receipts from two sources simultaneously. (See SK-203 and SK-211).

The new filtration can be constructed and connected to the existing fuel system. From the BFF receipt manifold, there are 19 lines that feed the four receipt filter locations around the BFF. Each filter station is piped to a particular group of tanks. Ideally the facility would like to have the flexibility to receive fuel through a central filtration and into any tank at the BFF. This can be accomplished with the central filter pad and bypassing the four remote filtration systems.

Based on the existing flow rate of 5,000 bbl per hour (3,500 gpm), a new filtration pad would consist of four filter vessel trains consisting of pre-filters, clay treaters, and filter separators. The recommended rate of each filter vessel train is 1,250 gpm or 3,750 gpm total. A fourth filter vessel train is recommended for redundancy and a filter by-pass line is also included.

Advantages:

a. Consolidates 8 Filter Stations into one location
b. Reduces number of filter vessels
c. Provides better filter utilization and efficiency
d. Utilizes existing piping to tanks
e. Designed for redundancy and expansion
f. Provides for new connections to alternative fuel supply

New Truck Loading Facility

A new truck loading facility should be constructed in the Cargo B area of the airport. Refueler trucks serve Cargo Areas A, B, C, and D and the passenger aircraft at the terminal and are filled at one of the fillstands at the BFF. As discussed previously, the truck route is long and inefficient. In addition, the current route requires the refueler vehicles to exit the BFF onto a licensed vehicle road for approximately 2,100 feet before re-entering the AOA and back on to the non licensed vehicle road (NLVR). .

Typically refueler vehicles are staged in one of two locations after filling at the BFF until dispatched to load aircraft. One staging area is located in Cargo Area C and one staging area is located in Cargo Area D. As seen in Sketch SK-102, a central location for a new truck loading facility was identified near Cargo Area B.

After review of the fuel demand at Cargo, it is recommended that 4 truck loading positions be installed near Cargo Area B. The new truck loading facility will initially be supplied from a new

10” line as shown on SK-102 that will be connected to one of the three Terminal 6 transfer lines which are currently out of service. A new fuel vault (FV-10) will be installed near the tie-in point for an isolation valve. The pumps and controls at the STF will be configured to operate based on the truck loading requirements of the facility. The 10” line can supply approximately 1,800 gpm total to the truck positions.

As the new State of the Art facility is developed, the truck loading facility would be supplied directly from the new hydrant system transmission lines as described below under the state of the art facility section.

A new refueler fillstand would provide immediate benefit to the airport fueling operations due to the amount of time saved in transit time between the BFF and Cargo areas. Also, the refueler fillstands will reduce the need for truck loading at the BFF allowing these fillstands to be removed and free up space for other use.

Advantages:

a. Reduces transit time between the BFF and Cargo Areas
b. Safer Operation
c. Reduces operational costs
d. Consolidate all tanks to Transfer System
e. Eliminates Refueler Racks at the BFF to free up space for other use

Review of historical truck fueling, a second refueler fillstand was considered near Terminal 2/3. The truck utilization identified 8 to 12 trucks being employed in fueling operations in this area. There is not enough information available at this time to identify the future demand or possible location for a fillstand. As Terminal 4 is completed, it is assumed that virtually all fueling will be from the hydrant system. The plans for development of the Terminal 3 area after demolition of the buildings are also vague with regard to fueling requirements. As these questions are answered, the possibility of adding a fillstand in this area should be considered.

Proposed Fuel Tanks

The SOTA facility will consist of at least nine new 80,000 barrel aboveground storage tanks. The site plan allows for up to four additional tanks to be added as demand increases. Based upon the construction phasing outlined in this document, the new systems would be complete around 2020. With the projected growth, the nine tanks would provide approximately six days of capacity on site in 2020 and would equal five days capacity based upon the projected fuel demand in 2032. There is room for an additional three tanks within the area defined for the SOTA facility, and possibly a fourth nearby if the demand continues to rise.

As new tanks are constructed, each will be equipped with water draw off system, automatic tank gauging, level switches, and motor operated valves, stairway lighting, grounding and cathodic protection. Level switches will be independent of the automatic tank gauging system and will include high-high, high, low and low-low level switches. All tank level switches would be connected to provide alarm notification on the operator workstations. High and high-high level alarms will be communicated to Buckeye Pipeline control system.

Each fuel tank will be equipped with tank level gauge with level and temperature probes connecting to the SCADA system to allow inventory management from the central control room.

The phased demolition of existing tanks and construction of new tanks can be performed in four phases. The first phase can commence immediately as the land area proposed for construction is undeveloped. By adding these tanks, it allows the capacity of fuel stored on site to be increased to create a buffer for shortages in supply. The increased capacity allows demolition of active tanks for expansion, without dropping below minimum storage capacity during construction.

Proposed Civil/Site Configuration and Requirements

Access drives surrounding the proposed tanks would be constructed to provide vehicle access to each tank for both operations and emergency access. Roads would be designed to accommodate the largest emergency vehicles serving the facility. Tank and facility construction would be phased through a series of demolition and construction projects that will transition the existing road network to the new road network. At all phases of construction, new tanks will be accessible by new or existing roads. No tanks shall be operational until road demolition and construction is complete.

Along with providing emergency access for fire protection, several fire hydrants would be placed adjacent to the access roads. At these locations, fire hydrants would be located a significant enough distance from the tanks to allow for safe operation in an emergency. Water service would be provided to each hydrant by connecting to the existing water distribution system at the facility. Approximately 3,000 linear feet of new water line will need to be installed to provide adequate water supply coverage of the new fuel facility. There is an additional 5,000 linear feet of water line that may be reused, or replaced based on age of the system. The age and condition of the existing water supply lines will need to be determined.

Each tank containment area will be constructed with a manual drain inlet equipped with a lockable post indicator valve outside of the containment area. The new drains will tie into the existing storm drain system at the facility to allow for release of storm water after inspection.

Proposed Security Systems

A CCTV system will be provided at the new fuel facility. The CCTV system will include pole mounted cameras to provide coverage for the entire tank farm, and dedicated cameras for specific areas to include entry gates, load racks, hydrant pump pads, and active barge piers. The CCTV cameras will be connected into the fiber optic communications link to allow monitoring of cameras from the control room and remote monitoring if desired.

Access control system will be provided at the new fuel facility. Card readers will be provided at personnel entry gates, fuel truck airfield access gates, control room and maintenance/administration building.

Proposed Fire Alarm

A fire alarm system will be installed in the new control building. The fire alarm system will include manual pull stations, flow switches, tamper switches, horn/strobes and smoke detectors. Manual pull stations will also be provided at select locations throughout the fuel facility site and connected to the fire alarm panel in the maintenance/administration building.

Proposed Fire Protection

Protection systems for the new BFF tanks will consist of foam chambers located along the side of the storage tanks. Foam chambers will be supplied by a foam-water solution line fed from two separate foam concentrate tanks and In-Line Balance Pressure Proportioning Systems (ILBPS). These pumps will provide a foam-water solution that is operated manually and transported throughout the complex via foam-water solution piping which will serve foam chambers and house houses. Municipal water supply will provide the water pressure for the foam-water solution. Foam systems will be operated manually via control valves and pump start up.

6.2 New Hydrant Pump Pad and Operations Building

New Hydrant Pump Pad

A new hydrant pump pad (See SK-207) is recommended at the BFF facility to replace the 58 hydrant pumps at STF. The proposed hydrant system would include allowance for 18 hydrant pumps at 1,200 gpm each or a total capacity of 21,600 gpm, however only 14 pumps are required to meet the short term needs. As described previously the proposed hydrant pump pad will be configured as shown on SK-210 to allow protection of half of the pumps in the event of a fire or other potential disaster.

Parallel with the construction of the new hydrant pump pad a new operations building would be constructed to house the central control room. The new fuel supply system will utilize a state of the art SCADA system to allow for individual tank inventory to be monitored, tank valves to be opened and closed, and hydrant pumps started and stopped from a control station. As new tanks, pumps and EFSO systems come online, they would be connected to the control room.

Proposed Power Distribution

In addition to the construction of the new pumps and control room, the power supply to the BFF will require upgrade. As the proposed hydrant pumping is constructed at the BFF, the connected electrical load at bulk is estimated at 5.5MVA, with maximum demand estimated at 4.5MVA, which exceeds the current supply capabilities. These estimates do not include the Buckeye Pipeline transformer load. Because of the critical nature of the load, it is recommended to have feeders from two substations to ensure high reliability for fuel issue into aircraft.

The new fuel farm will be fed from two sources: Van Wyck Substation and Bergen Basin Substation. Four 4,160kV feeders will be extended out of the two substations. One Van Wyck and one Bergen Basin feeder will be extended to a new double ended unit substation at the BFF. The switchgear main breakers and tie breaker will be equipped with automatic transfer scheme to maintain service if one 4,160 volt feeder experiences an outage.

For emergency supply redundancy, permanent standby generator(s) will be connected to secondary side of the substation. The back-up power will be sized to allow the hydrant systems to operate with no outside power supply.

Proposed Fuel Control System

The fuel control system will be configured to provide automated operation of the new fuel facility. The control system will provide redundancy for automated operation and will also allow for full manual operation of the system in the event of control system failure.

The proposed fuel control system will include two computer workstations for monitoring and control of the fuel system. The system will be configured to allow additional computer workstations to monitor the fuel system operation but not allow control of fuel system operations. The computer workstations will be equipped with software package to allow the operator to monitor and control the fuel system operation. The work stations will be programmed to display multiple graphic screens to include operational, alarm, fuel inventory, maintenance, system as-built data, and fueling equipment maintenance data.

The control system can also be configured to allow for remote monitoring of the fuel system and also to allow remote access for control system vendor to modify/update control system functions should failure or problem occur.

Two master programmable logic controllers (PLC's) will be provided in each of the two fueling control panel (FCP). A primary PLC will operate the system and the standby PLC will be connected in hot standby mode, to allow transfer of control should the primary PLC fail. Each FCP will control pumping on its respective pump pad. The FCP's will be connected to a fiber optic communications link to allow the two pump pads to operate in parallel. The fiber optic communications link will also provide connections to remote input/output (I/O) cabinets to allow consolidation of inputs and outputs at remote areas and transmission over fiber optic cable.

Proposed EFSO System

As terminals are upgraded, it is anticipated that their associated EFSO systems will be upgraded in similar manner to terminals 4 and 8, which will improve EFSO functionally by limiting the extent of shutdown to the area affected. None of the Master Plan options include any EFSO upgrades at the terminal buildings, only connections to the existing systems.

The existing dedicated EFSO telephone lines between each terminal and the STF would need to remain in service until the STF is removed. Connection via fiber optic or modem communication to the new control room will be required as the hydrant pump station is put online. A second option is to use VSAT (satellite communications) located at each terminal and feeding back to the control room at the BFF. As the new hydrant loop is installed around the perimeter of the terminals, it will be necessary to install isolation valves on all taps of the loop that feed the terminal hydrants.

New Fuel Transmission Lines

In order to supply fuel in the most efficient manner to the existing hydrant system, the recommendation is to install a new hydrant loop around the airport. This approach provides redundancy while also providing the ability to isolate sections of the line for testing and inspection. Integrity testing required by the NYSDEC can be provided by a mobile test unit with test connections installed permanently on the piping. The costs associated with maintaining compliance would be significantly reduced.

As this task is completed, the STF would no longer be required and could be disconnected from the fuel system. A later phase of the project addresses this change.

6.3 Operations and Maintenance

The operation of a new "State of the Art" fuel facility can be safely and economically accomplished with a minimal staff due the high level of automation incorporated into the system. The concept includes a central control room equipped with redundant supervisory control and data acquisition (SCADA) computers which will monitor and control incoming pipeline deliveries, filtration operations, hydrant pump stations, emergency fuel shut-off, back-up power generation and Oil/Water separators with a click of the mouse. In addition, alarms and automatic shut-downs will be programmed into the system to alert the operator to abnormal operations or emergencies. Inventory control can also be simplified by uploading daily incoming pipeline deliveries to the facility and outbound deliveries to the airport hydrant system to a web based inventory management system. This allows each airline the ability to easily monitor and control their respective inventories from virtually any location.

Redundant control systems with back-up power supply will minimize the risk of outage due to control system failure; however, the system will include a manual override option. When the automated control system is placed in manual, the operator will be able to manually open and close valves, stop and start pumps, and other tasks as necessary to continue basic operations to the airport.

Based upon other similar automated operations the staffing required to operate the fuel facility will be much lower than the current staffing. One example that demonstrates this level of automation at an airport fuel facility operation is the FedEx fuel supply system at the Memphis International Airport where a staff of less than ten full time personnel operates and maintains the facility. Projected staffing levels at JFK could be as basic as shown below for 24/7 coverage:

1 Fuel Facility Manager	1 Lead Operator	1 Inventory Clerk/Administration
6 Operators	3 Technicians - Electrical / Mechanical / Control	

This level of staffing shall be responsible for the operation and maintenance of the new fuel facility, the 24-inch hydrant delivery pipeline and each individual airport terminal tie-in. Operation and maintenance of each terminal's hydrant system (including fuel loops, isolation valves and hydrant pits) is assumed to be the responsibility of the airline associated with that terminal. This staff reduction could easily reduce the annual labor expense by 60% or more.

The annual maintenance at a new “State of the Art” fuel facility is expected to be significantly reduced from costs incurred with the current operating infrastructure. This is due to the improved reliability of new equipment and the shear reduction in the number of pieces of equipment required. As a result, it is expected that all the preventative maintenance tasks will be conducted by the in-house staff. Major repairs would be expected to be completed by third party contractors / vendors. In this way, the extra labor costs are only incurred when required. The current Maintenance Materials and Equipment budget could be cut to one tenth of the present spending levels.

The routine tank maintenance on new tanks should be very insignificant for a period of at least ten years. After that time, more extensive touch-up painting could be expected. Major tank repairs would not be expected for approximately 30 years. Therefore, the tank maintenance budget for the first thirty years will be comprised primarily with tank cleaning and inspection as mandated by ATA and local regulations. The current PA practice is to inspect every ten years, which exceeds the regulatory requirements when the tank is fully compliant with the undertank secondary containment requirements. Long term the inspection cycle could be extended. Even without changing the cycle, the annual costs will be reduced to one tenth the current expense.

Finally, the electric power requirement for the new systems will be a fraction of the existing demand. This is driven by a combination of reducing the number of pumps and by using newer high efficiency motors. In addition, other energy efficient measures would be implemented including LED lighting, etc. The overall power demand should be reduced by at least 70%.

While not directly linked to the system efficiency, the new fuel facility will occupy a much smaller footprint. The anticipated land area returned to PANYNJ for redevelopment is between 35 and 40 acres. Aside from the benefit to the PANYNJ, this should also result in a net reduction in lease expense to the fuel facility.

6.4 Demolish Unused Tanks and Fuel System

Once the new hydrant pumping facility at the BFF is complete and operational, it is recommended that the STF and associated piping, pumps and equipment are demolished and the site cleared for other development. The existing Operations building may remain as a facility for into-plane operations or the entire facility turned over to the PANYNJ for redevelopment.

Long Term Demo

The demolition of the decommissioned facilities is not included in the primary budgets for the various options as this work may fall under future projects or programs funded by others to redevelop the land no longer required by the Fuel Facility. These values do not include any allowance for remediation of contamination of the existing soils.

6.5 General Milestone Schedule for State of the Art Facility

Years 2013-2014

- Design/Permit State of the Art Facility

Year 2014

- Demolish out of service tanks and refueler racks at the BFF
- Construct remote refueler fillstand near Cargo Area B

Year 2015

- Construct (2) 80,000 bbl tanks and tie into existing receipt lines and transfer system
- Construct new receipt filtration pad
- Begin construction of new 24” transmission lines and concrete vaults

Year 2016

- Demolish (6) 500,000 gallon tanks and refueler racks at the BFF
- Construct (4) 80,000 bbl tanks and tie into existing receipt lines and transfer system
- Continue construction of new 24” transmission lines and concrete vaults

Year 2017

- Continue construction of new 24” transmission lines and concrete vaults
- Construct New Alternative Supply System (Barge or Pipeline)

Year 2018

- Demolish (6) tanks at the BFF
- Construct (3) 80,000 bbl tanks and tie into new hydrant pump pad
- Construct new hydrant pump pad
- Construct new operations and control building
- Construct (3) 80,000 bbl tanks and tie into new hydrant pump pad
- Construct new receipt piping from receipt filtration pad
- Complete construction of new 24” transmission lines and concrete vaults
- Tie-in and commission new hydrant pumping system

Year 2019 and beyond

- Demolish Satellite Tanks and Fuel System
- Demolish Remaining Tanks at the BFF
- Install additional 80,000 bbl tanks (if required to meet days storage)

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7.0 Implementation Options

7.1 Options Matrix

The following matrix outlines the various combinations of solutions available at JFK to achieve the desired goals in the Master Plan Study. The options range from a minimal approach maintaining much of the existing infrastructure to the implementation of the State of the Art solution. The solutions are divided into three major areas: supply, tanks and hydrant pumping system. The various alternatives consider combinations of these options.

Task	Capital Budget Value (million $)	Interim Only	State of the Art	Option A	Option B	Option C	Option D
General							
Manifold Suction at STF	1.2						
Construct Receipt Filtration	5.2						
Construct Truck Fillstand/Cargo B	8.5						
Supply Solutions							
Buckeye Booster Station	21.0						
Buckeye 602 Receipt @ JFK	12.2						
Buckeye 602 to LGA	5.0						
Construct New Barge Facility[2]	15.9						
Inwood Terminal/Truck	6.5						
Inwood Terminal/Pipeline	25.0						
Tanks							
Repair 4 OOS Tanks at BFF	5.0						
Add two 80,000bbl ASTs at BFF	32.6					2025	2025
Add four 80,000bbl ASTs at BFF	62.2						
Add three 80,000bbl ASTs at BFF	48.9						
Upgrade Tanks at BFF	55.0						
Hydrant							
Construct Hydrant Pump System and Operations Center	43.8						
Construct Hydrant Supply Loop	70.1						
Modify Suction Systems at BFF[1]	28.4						
Construct Transfer Pipelines STF	12.0						
Construct Master Manifold at STF[1]	20.0						
TOTAL CAPITAL BUDGET		**16.3**	**276.3**	**238.2**	**210.5**	**222.3**	**59.1**

Notes:

1) Values developed from Barge Fuel Supply and Off-Loading Study, Burns & McDonnell, February 2012. Includes allowance of $8million for sediment disposal.
2) Two tanks added in 2025 to satisfy five days on site storage capacity requirement.
3) Values developed from Aviation Fueling Master Plan - Stage 1 Design, Burns & McDonnell, August 2001, with escalation and other adjustments applied.

Economic Analysis

For each option, the economic impact was evaluated considering the construction cost, interest on a bond and the impact on operation and maintenance costs. The following key factors were used in the analysis:

Interest Rate for Bonds: 3%
Discount Rate: 15%
Term for note: both 15 and 20 years were considered

The present value calculations for the 20 year note were based upon payments beginning in year one. The present value calculations for the 15 year option were based upon the note payments beginning at the completion of the construction activity (five years delayed).

Current Operations and Maintenance Costs (provided by Allied Aviation and PANYNJ)

Labor	6,500,000
Maintenance	1,112,000
Power	1,115,000
Tank Inspections	500,000 (10 tanks per year)
Pipeline Testing	1,500,000 (every five years)
Other General	1,327,000
NYSDEC Fees	3,900,000

Other costs included in the analysis for maintaining the current system included projected capital budgets from the PANYNJ. Most of the capital improvement costs were included in the various options where they applied. For instance upgrade of single bottom tanks to include undertank secondary containment (NYSDEC requirement) is only included in the options where the existing tanks will be maintained long term.

Each option was evaluated for the potential savings in the various Operations and Maintenance category. The present value calculations were performed yielding an annual cost per year over the new twenty years. These values are presented as a total present value (summing the 20 years of annual costs) and in an average cost per gallon (based upon the PANYNJ projected fuel demand over the next twenty years).

Cost Estimating Notes

Capital cost estimates for the various options outlined herein are based upon review of actual costs of construction for very similar facilities at the Memphis International Airport with adjustments for inflation, location factors. New budget estimates were developed for all major engineered equipment (pump pads, filtration systems, etc.); tank foundations and structures; and transfer pipelines.

The cost estimates specifically include allowance of 10% for engineering design, 10% for project management and a 25% contingency. These percentages were added to the estimated cost of construction.

There was no recent geotechnical data for the BFF available during the study. The values used therefore were “worst case” scenario for the construction of the tank foundations assuming very poor soil conditions. Piles and a concrete cap foundation were assumed for each tank, which

increases the cost of the tank from a typical ring foundation by 75%. There is a distinct possibility this cost can be reduced during the design phase when a complete soil analysis would be performed.

Capital costs shown in the matrix and used in the present value calculations were adjusted to account for the period in which the work will be performed. For instance, the cost to construct two new 80,000 barrel tanks beginning immediately is $32.6 million. However, in some options this task does not occur until 2025, so the cost was adjusted assuming 3% inflation per year resulting in a capital cost in 2025 of roughly $47.9 million.

The modifications to the Buckeye Pipeline systems are estimated based upon best engineering practices by the Pond Team. We have also included allowances for operational costs and G&A overhead in any pipeline supply option. Any improvements will most likely be carried out by Buckeye and paid for in increased tariffs. Comparison of Buckeye estimates for the Brooklyn Booster Pump Station to ours indicates that costs developed by Buckeye may be higher than those included in this report. The values used should be useful in negotiating any new fees or tariffs.

Recommended Interim Steps

The Interim Steps outline immediate steps that can be taken to provide an incremental improvement in the operations, increase the on-site storage capacity and address the fuel supply risks. These actions do not solve the long term shortfalls and risks described in this study, but they essentially buy time to allow decisions to be made on the long term actions. These actions also allow some steps to be delayed to future years.

Supply: Construct additional filtration and modify the manifold piping to allow for parallel deliveries on the 601 and 602 pipelines to JFK and LGA respectively. This approach provides adequate supply through 2026, but does not remove the risks associated with a single source of supply. (Estimated $5.0 million)

Tanks: Repair the four out of service tanks at BFF to provide an incremental increase of roughly 2 million gallons in capacity. This increase in capacity ensures a five day inventory through 2025. (Estimated $5 million)

Hydrant: Manifold the suction piping at STF to simplify the daily operations of the hydrant system allowing the active hydrant pumps to pull from any operating tank or group of tanks. (Estimated $1.2 million)

The capital cost of this effort is estimated at $13.9 million, however some of that effort would likely be paid for by Buckeye instead of the airport. No significant savings are anticipated in the operational and maintenance costs from implementing these interim steps.

No present value calculations were performed for the interim steps because they do not provide a complete solution to the long term needs of the airport.

State of the Art Concept

The complete State of the Art concept budget is based upon implementation of the recommendations included in this report as a single project. This plan provides the optimum technical solution to all of the risks and operational concerns highlighted in the study. If work commences immediately in the design of the package, the work can be completed by the end of 2018.

Supply: This approach takes a two phase approach to solving the supply concern; first, upgrade to allow for parallel receipts from Buckeye and second, monitor demand growth and supply capacity on a five year interval to determine the need to develop a means to receive fuel via barge as a future option to meet long term needs.

Tanks: This option optimizes the tank storage by constructing all new tanks, reducing the total number of tanks and ensuring they meet the latest standards on automation and controls. This improves efficiency and reduces risk.

Hydrant: The SOTA is a completely new hydrant loop feeding all terminals and truck loading requirements. The new loop would allow for easy testing to comply with state and federal regulatory requirements.

Operations and Maintenance: This approach yields the greatest savings in operations and maintenance costs over the long term. The projected savings from implementation are projected as follows:

Labor	85% savings
Maintenance	85% savings
Power	70% savings
Tank Inspections	90% savings
Pipeline Testing	75% savings
Other General	3% escalation for inflation
NYSDEC Fees	3% escalation for inflation

The financial values for comparison are:

Present value (15 years)	$ 167,450,088
Average cost per gallon (15 years)	$ 0.01757
Present value (20 years)	$ 223,754,874
Average cost per gallon (20 years)	$ 0.01882

Advantages:

- Solves the supply risk short term with long term options
- Provides for adequate on site capacity with ability to expand
- Maximum reduction of operating expense
- Almost all new equipment decreases operational risks
- Will meet all existing and proposed regulatory requirements
- Returns the maximum land area back the PANYNJ for redevelopment

Disadvantages:

- Cost of construction

Option A

Option A is similar to the State of the Art except it includes construction of the satellite master manifold as opposed to the construction of a new hydrant loop. The approach provides some cost relief, but maintains a presence at the STF for the new manifold system. The approach still also relies heavily on the existing hydrant transfer pipelines to distribute fuel to the terminals. As a result the approach sees some of the operational improvements, but does not fully capture the reduction in environmental risks provided by the State of the Art solution.

Supply: This approach takes the same two phase approach to solving the supply concern; first, upgrade to allow for parallel receipts from Buckeye followed by monitoring for the need to develop an additional supply option in the future.

Tanks: This option optimizes the tank storage by constructing all new tanks, reducing the total number of tanks and ensuring they meet the latest standards on automation and controls. This improves efficiency and reduces risk.

Hydrant: This option installs new centralized hydrant pumps at BFF and new transfer pipelines to a master manifold at STF. The approach uses the existing hydrant distribution piping from STF to transfer the fuel to the terminals.

Operations and Maintenance: This approach yields the significant savings in operations and maintenance costs over the long term due to updating the tanks and automation, however the distribution system is still complex. The projected savings from implementation are projected as follows:

Labor	50% savings
Maintenance	70% savings
Power	50% savings
Tank Inspections	90% savings
Pipeline Testing	40% savings
Other General	3% escalation for inflation
NYSDEC Fees	3% escalation for inflation

The financial values for comparison are:

Present value (15 years)	$ 169,052,525
Average cost per gallon (15 years)	$ 0.01791
Present value (20 years)	$ 217,593,241
Average cost per gallon (20 years)	$ 0.01899

Advantages:

- Solves the supply risk with an alternative supply
- Provides for adequate on site capacity with ability to expand
- Provides a measurable reduction in operating expense
- Returns the some land area back the PANYNJ for redevelopment

Disadvantages:

- Cost of construction
- Still relies on old piping under airfield pavement
- Testing for hydrant transfer lines will still be difficult

Option B

This option is similar to Option A except it upgrades the tanks at the BFF instead of replacing them. The approach relies even more heavily on the existing infrastructure. While some of the piping is replaced at the BFF, the majority of the underground piping will be older vintage which complicates testing and increases environmental risk over other options. In addition, the savings on tank inspection and testing is not realized.

Supply: This approach takes the same two phase approach to solving the supply concern; first, upgrade to allow for parallel receipts from Buckeye followed by monitoring for the need to develop an additional supply option in the future.

Tanks: This option upgrades the existing tanks as opposed to replacing them. Two new tanks are constructed to satisfy the on-site capacity concern. Much of the piping within BFF is upgrades to handle the anticipated flow rates and much of the terminal automation is installed.

Hydrant: This option installs new centralized hydrant pumps at BFF and new transfer pipelines to a master manifold at STF. The approach uses the existing hydrant distribution piping from STF to transfer the fuel to the terminals.

Operations and Maintenance: This approach yields the some savings in operations and maintenance costs over the long term due to automation, however the distribution system is still complex. The projected savings from implementation are projected as follows:

Labor	25% savings
Maintenance	30% savings
Power	50% savings
Tank Inspections	15% savings
Pipeline Testing	40% savings
Other General	3% escalation for inflation
NYSDEC Fees	3% escalation for inflation

The financial values for comparison are:

Present value (15 years)	$ 169,147,439
Average cost per gallon (15 years)	$ 0.01821
Present value (20 years)	$ 212,043,412
Average cost per gallon (20 years)	$ 0.01916

Advantages:

- Solves the supply risk with an alternative supply
- Provides for adequate on site capacity but leaves limited ability to expand
- Some new equipment (i.e. hydrant pumps) decreases operational risks
- Provides some terminal automation, but will require a larger staff to operate

Disadvantages:

- Cost of construction is still high
- Still relies on old piping under airfield pavement and at the BFF
- Testing for underground transfer lines will still be difficult
- High annual costs for ongoing tank and piping inspections
- Returns the limited land area back the PANYNJ for redevelopment

Option C

The tasks included in this option focus on solving critical concerns using the existing infrastructure. To lower the budget, there are some costs associated with the tank upgrades at the BFF that could be delayed or postponed to a future date including environmental upgrades related to tank bottoms.

Supply: This approach takes the same two phase approach to solving the supply concern; first, upgrade to allow for parallel receipts from Buckeye followed by monitoring for the need to develop an additional supply option in the future.

Tanks: This option does minimal upgrades to the existing tanks as opposed to replacing them. No new tanks are constructed to satisfy the short term on-site capacity concern, however the four out of service tanks are upgraded and returned to service to increase the on-site capacity. Much of the piping within BFF is upgrades to handle the anticipated flow rates and some of the terminal automation is installed. The option as presented includes construction of two new tanks in 2025 in order to satisfy on site capacity to 2032 and beyond.

Hydrant: This option installs new centralized hydrant pumps at BFF and new transfer pipelines to a master manifold at STF. The approach uses the existing hydrant distribution piping from STF to transfer the fuel to the terminals.

Operations and Maintenance: This approach yields the some savings in operations and maintenance costs over the long term due to automation, however the distribution system is still complex. The projected savings from implementation are projected as follows:

Labor	25% savings
Maintenance	25% savings
Power	30% savings
Tank Inspections	15% savings
Pipeline Testing	20% savings
Other General	3% escalation for inflation
NYSDEC Fees	3% escalation for inflation

If you add the task of constructing two additional tanks in 2025 to satisfy the on-site capacity requirements the financial values change. To compare complete solutions this is necessary.

Present value (15 years)	$ 166,616,030
Average cost per gallon (15 years)	$ 0.01822
Present value (20 years)	$ 201,226,195
Average cost per gallon (20 years)	$ 0.01881

Advantages:

- Solves the supply risk with an alternative supply
- Some new equipment (i.e. hydrant pumps) decreases operational risks and power costs
- Provides some terminal automation, but will require a larger staff to operate

Disadvantages:

- Still relies on old piping under airfield pavement and at the BFF
- High annual costs for ongoing tank and piping inspections
- Returns limited land area back the PANYNJ for redevelopment

Option D

This final option is to maintain the existing systems and operational procedures as they exist today. The only tasks included are those required to maintain adequate inventory on site and meet the fuel demand requirements. This approach could be considered maintaining the "Status Quo" for the current fuel operations.

Supply: This approach takes the same two phase approach to solving the supply concern; first, upgrade to allow for parallel receipts from Buckeye followed by monitoring for the need to develop an additional supply option in the future.

Tanks: This option only does the required upgrades to the existing tanks to maintain compliance. 14 single bottom tanks at BFF will be upgraded to include double bottoms. The four out of service tanks are upgraded and returned to service to increase the on-site capacity immediately and two additional tanks are added in 2025 to maintain the on-site capacity.

Hydrant: No changes are made to the current operations beyond modification of the manifolds at STF to allow the hydrant pumps to pull from any tank.

Operations and Maintenance: This approach yields the no savings in operations and maintenance costs over the long term. The projected savings from implementation are projected as follows:

Labor	0% savings
Maintenance	0% savings
Power	0% savings
Tank Inspections	0% savings
Pipeline Testing	0% savings
Other General	3% escalation for inflation
NYSDEC Fees	3% escalation for inflation

The financial values for comparison are:

Present value (15 years)	$ 177,368,957
Average cost per gallon (15 years)	$ 0.01720
Present value (20 years)	$ 178,719,815
Average cost per gallon (20 years)	$ 0.01704

Advantages:

- Minimal capital investment required in the short term

Disadvantages:

- Relies on old infrastructure resulting in a high risk of pipeline failure impacting operations and environmental contamination
- Testing for underground transfer lines will still be difficult and expensive
- High annual costs for ongoing operations and maintenance

8.0 Engineer's Recommendation

8.1 Supply Solution

The lowest cost, technically acceptable supply solution is to utilize the Buckeye 602 pipeline for parallel delivery to LGA along with maximizing usage of the 601 pipeline to JFK. This approach requires the lowest capital investment and provides adequate fuel supply to meet demand through 2025. The improvements consist of modifications to the Buckeye Brooklyn Manifold and the piping within the Linden terminal. These improvements would most likely be completed by Buckeye and paid for via a tariff on fuel delivered with a minimum annual commitment of fuel delivered. They also can be completed quickly to avoid any fuel supply shortfall. This effort needs to be completed no later than June of 2016.

This solution does not meet the long term demand, however the projected growth during peak period may not follow the overall demand growth. In 2007 and 2008 the overall demand at the airport was much higher, but did not increase the demand in the peak periods significantly. The growth in demand, especially during peak periods, is should be monitored on a five year interval to determine if additional steps are needed to meet demand.

8.2 Fueling System Master Plan

The optimum solution for the overall Fueling System Master Plan is to implement the State of the Art solution. This one option provides the safest and lowest risk solution to the risks associated with jet fuel movement within the airport. The option provides the following key components:

- Nine new aboveground tanks capable of storing in excess of five days on site capacity.
- New hydrant pumps and transfer pipelines fully compliant with current and anticipated environmental regulations.
- New inbound filtration capable of receiving from two sources of supply.
- Improved supply for truck fueling operations in the Air Cargo areas.
- Automated operations with redundant central control to reduce manpower requirements but also improve response time in the event of an emergency.

Financially this option does require a higher capital investment, however the long term savings in operations and maintenance activity result in a 15 year Present Value calculation lower than the other options when comparing "complete solutions". While not as low on the 20 year Present Value analysis, the incremental increase of less than 12% is justified in the improved reliability and significant reduction in environmental risk.

Further when considering the cost per gallon over the period, the trend is downward with the State of the Art Option, while the "Status Quo" option continues to rise.

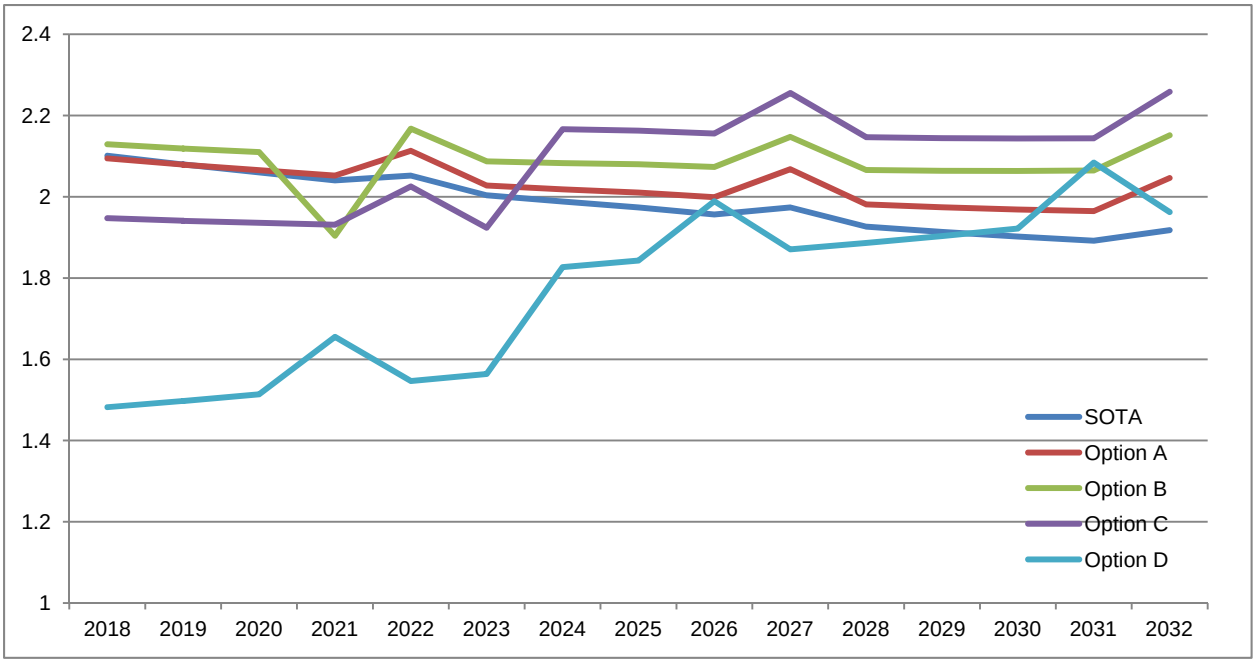
This option can be executed in a phased approach so that airport operations are not affected during construction. The complete solution can be executed in as little as five years.

Finally this option provides the most flexibility in execution methods. A totally new system would simplify negotiations related to future liability should the ownership of the tank farm change from being the PANYNJ responsibility to either an Airline Consortium or a private owner/operator as described in the Public Private Partnership portion of this report.

Financial Analysis Recap

	Capital Expense	Total O&M	15 Years (delayed) Present Value	c/gal
SOTA	276,300,000	237,947,312	167,450,088	1.757
Option A	238,200,000	302,616,333	169,052,525	1.791
Option B	210,500,000	353,056,219	169,147,439	1.821
Option C	222,300,000	364,685,842	166,616,030	1.822
Option D	59,089,244	524,982,083	177,368,957	1.720

Cost per gallon (PV 15 year deferred)



8.3 Delivery Methods (P3)

There are several options for the JFK Fuel Master Plan to be implemented. The implementation of the JFK Fuel Master Plan is ideally setup for a Public, Private, Partnership (P3) arrangement. The most compelling reasons for the PANYNJ and the airline committee to consider such an option are:

- Allows the project to get started immediately and the cost of labor and materials will not be any less expensive tomorrow.
- It establishes a platform whereby the stakeholders have an opportunity for input to work in a collaborative fashion on a transition plan to replace the existing infrastructure without interference with daily operations.
- O&M cost savings are immediate upon the commissioning of the new system.
- The project is "Fast-Tracked" which provides assurance that proactive steps are taken to ensure jet fuel supply will not be impacted by an aged fuel farm.
- Compels the stakeholders of PANYNJ, airlines, and Allied to come together to formulate a plan on the type of facility and the timing of construction.

There are a number of documents available that describe differing P3 structures. Each scenario has its own unique characteristics which would have to be further explored by the JFK Airline Committee and PANYNJ if they chose to go forward on this type of financing. Three common scenarios and how they would impact the JFK fuel facility are outlined below.

Design-Build (DB)

Using the DB model, the PANYNJ would own the facility, and P3 Partner would take all the risk to design and build the fuel farm for a fixed price.

Design-Bid-Build (DBB)

The DBB model allows the P3 Partner to work in a collaborative fashion with the stakeholders to maximize the best value from the bidding process.

Build-Own-Operate-Transfer (BOOT)

The P3 Partner finances, designs, and builds a facility to the specifications set forth by PANYNJ and the Airline Committee. The P3 Partner can operate and maintain or outsource these duties to an approved fuel farm operator. A charge per unit and/or per month is negotiated up front, and the P3 Partner takes all construction risk. The asset is owned for a defined period, and at the end of the period, the ownership is transferred to the JFK Airline Committee or the PANYNJ. This is a common approach used by large FBO chains that finance large FBO projects. The PANYNJ is using a similar scenario to fund the Goethals Bridge Replacement program. A consortium of Kiewit Corporation and Macquarie Limited has structured a P3 for the finance and construction of the bridge. The $1.5B project for the replacement bridge between New Jersey and Staten Island, NY is expected to take five years. WesPac Energy developed a similar P3 arrangement to finance, construct, own and operate facilities at Memphis International Airport. These facilities are state of the art and a good example of how airports and airlines can benefit from a low cost, fast-tracked project.

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Appendix A

Acronyms used in Report

AST	Aboveground Storage Tank
ATA	Air Transport Association (now Airlines 4 America)
AOC	Area of Concern
bbl	barrel (42 gallons)
BFF	Bulk Fuel Facility
bph	barrels per hour
CCTV	Closed Circuit Television
EFSO	Emergency Fuel Shut Off
EWR	Newark International Airport
FCP	Fuel Control Panel
gpm	gallons per minute
IATA	International Air Transport Association
ILBPS	In-Line Balance Pressure Proportioning Systems
JFK	John F Kennedy International Airport
KVA	KilliVolt Amp (1,000 Volt Amps)
JAL	Japan Air Lines
LGA	LaGuardia Airport
MOV	Motor Operated Valve
MVA	MegaVolt Amp (1,000,000 Volt Amps)
NYSDEC	New York State Department of Environmental Conservation
PANYNJ	Port Authority of New York & New Jersey
PLC	Programmable Logic Controller
P3	Public Private Partnership
SCADA	Supervisory Control And Data Acquisition
STF	Satellite Tank Farm
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank

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Appendix B

JFK Fuel Consumption Forecast by PANYNJ

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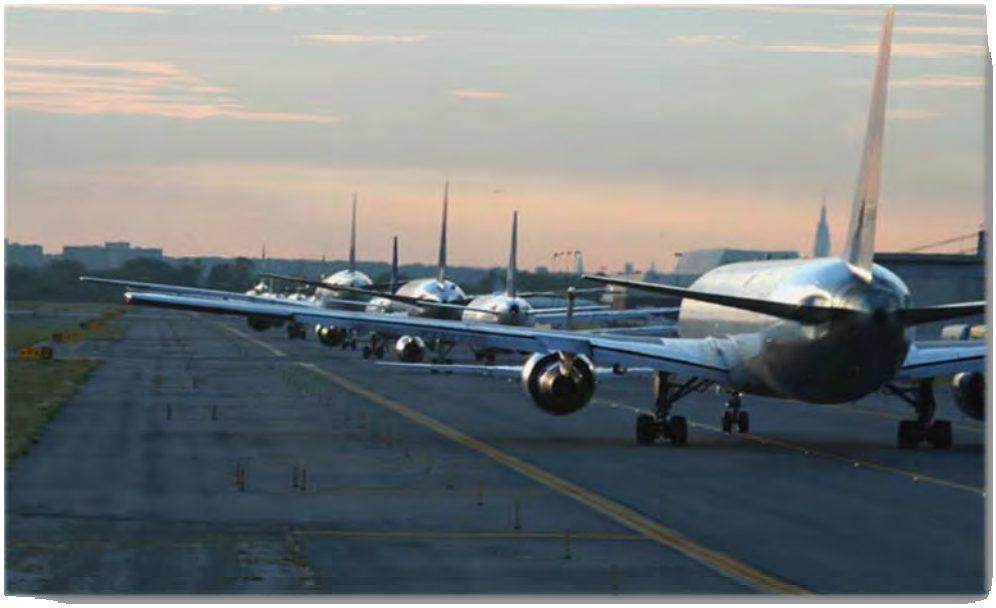
JOHN F. KENNEDY INTERNATIONAL AIRPORT

FUEL CONSUMPTION FORECAST



Prepared by:

Jojo Quayson and Ye Wang

Aviation Department

The Port Authority of New York and New Jersey

September 18, 2012

THE PORT AUTHORITY OF NY & NJ

JFK Fuel Forecast Methodology and Assumptions

The fuel forecast used separate models for the passenger and cargo fleets. Each involved five major steps.

Step 1: Passenger Forecast Model/Cargo Forecast Model

Step 1 provides system-wide forecasts for the three core airports from 2013 through 2032 using an econometric regression model that derives expected volumes of passengers and cargo from key factors that describe the regional, national or worldwide economy. Separate models are used for international and domestic demand. This model produces unconstrained forecasts that do not consider the capacity constraints of the three core airports. Airport-specific service oriented assumption were used to derive JFK's passenger and cargo forecast from the aggregate models.

Step 2: Aircraft Movement Model

Total passengers and cargo tonnage derived in Step 1 are critical inputs in the movement forecast. The movement forecast answers the question, "How many flights does it take to transport a given number of passengers or cargo?" The aggregate number of flights required to carry a given number of passengers depends on three critical elements: total passengers, average seats per flight, and the load factor (percent of seats occupied per flight). This relationship implies that various combinations of load factors, average aircraft size and operations could be used to accommodate a given number of passengers. Because seats per plane are an integral component of flight activity, the fleet forecast is performed in combination with the development of the average seat assumptions.

Step 3: Fleet Mix Forecast

For the current year and the next year, schedules published by carriers in the Official Airline Guide (OAG) are used to determine the number flights per aircraft type and the average seats per flight. The number of flights per aircraft type for the years afterward are determined by carriers' order books, the age of aircraft operated by the top five carriers at each airport, announcements made by significant carriers, airport-specific development, and industry trends.

Step 4: Aircraft Weight Forecast

The fleet mix forecast in step four is a critical input in estimating the weight forecast. The number of flights by aircraft type is multiplied by the takeoff weight of each aircraft to obtain the weight forecast.

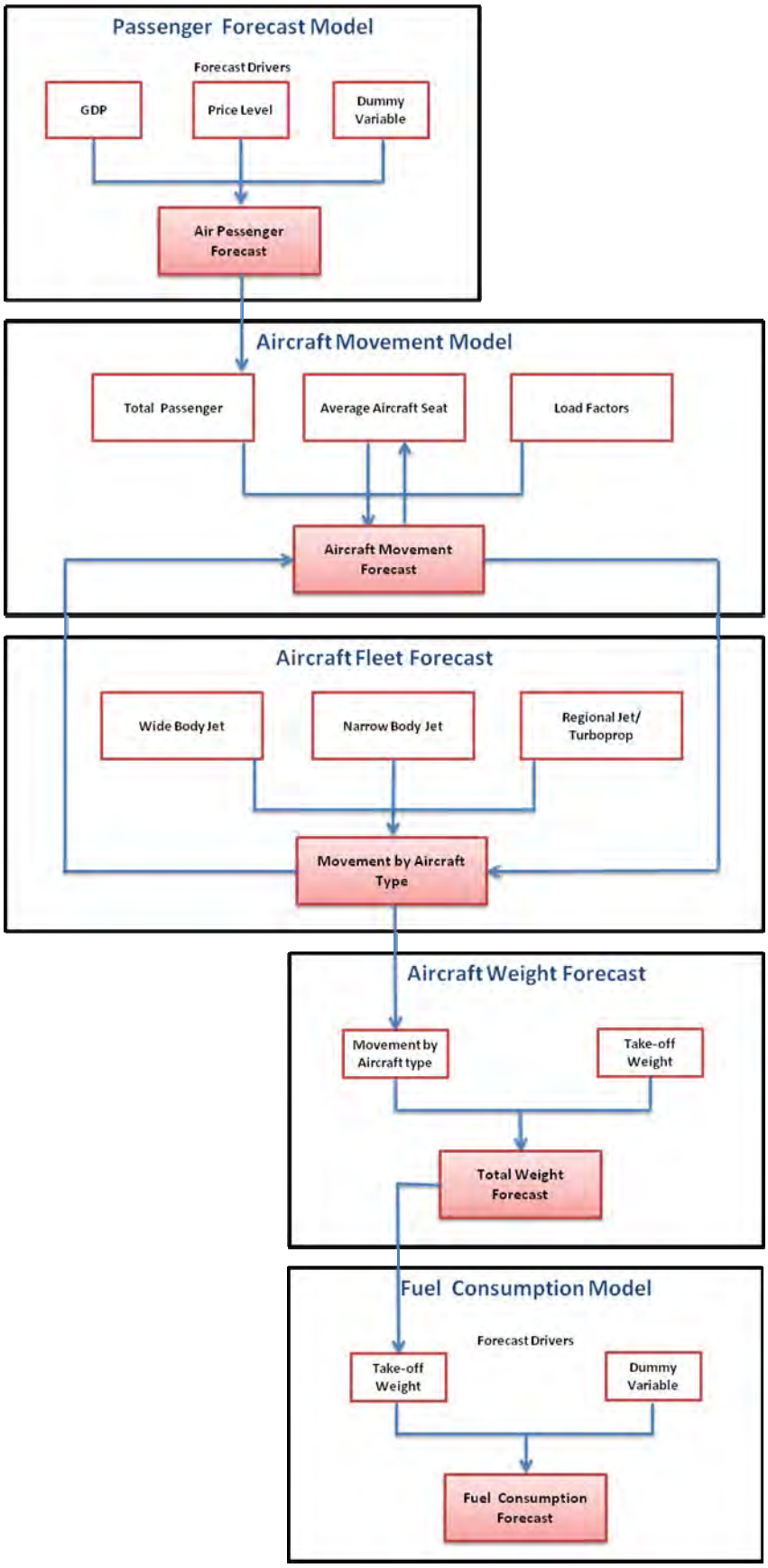
Step 5: The Fuel Consumption Model

An econometric model was developed to estimate the future fuel consumption. Separate models were developed for passenger and cargo fleets. The model assumes that the primary determinant of fuel consumption is the aircraft weight variable. Note that the aircraft weight is defined as the

number of flights of each aircraft type multiplied by the take-off weight of each aircraft. Fuel consumption and aircraft weights are highly correlated. On the passenger side, the fuel-weight correlation coefficient is 0.89. On the cargo side, the correlation coefficient between cargo growth rates and fuel growth rates is 0.87. The models transform the original data into logarithm specifications and regressed total fuel consumption on aircraft weights and dummy variables. The dummy variables were included to capture structural changes.

For the passenger fleet, fuel consumption between 2011 and 2032 is expected to grow at an average annual rate of 1.7 percent to reach 1.7 billion gallons by 2032. Cargo fuel consumption is expected to reach 135.3 million gallons by 2032. This represents an average annual growth of 1.3 percent between 2011 and 2032.

Fuel Consumption Methodology (Passenger)



Step 1

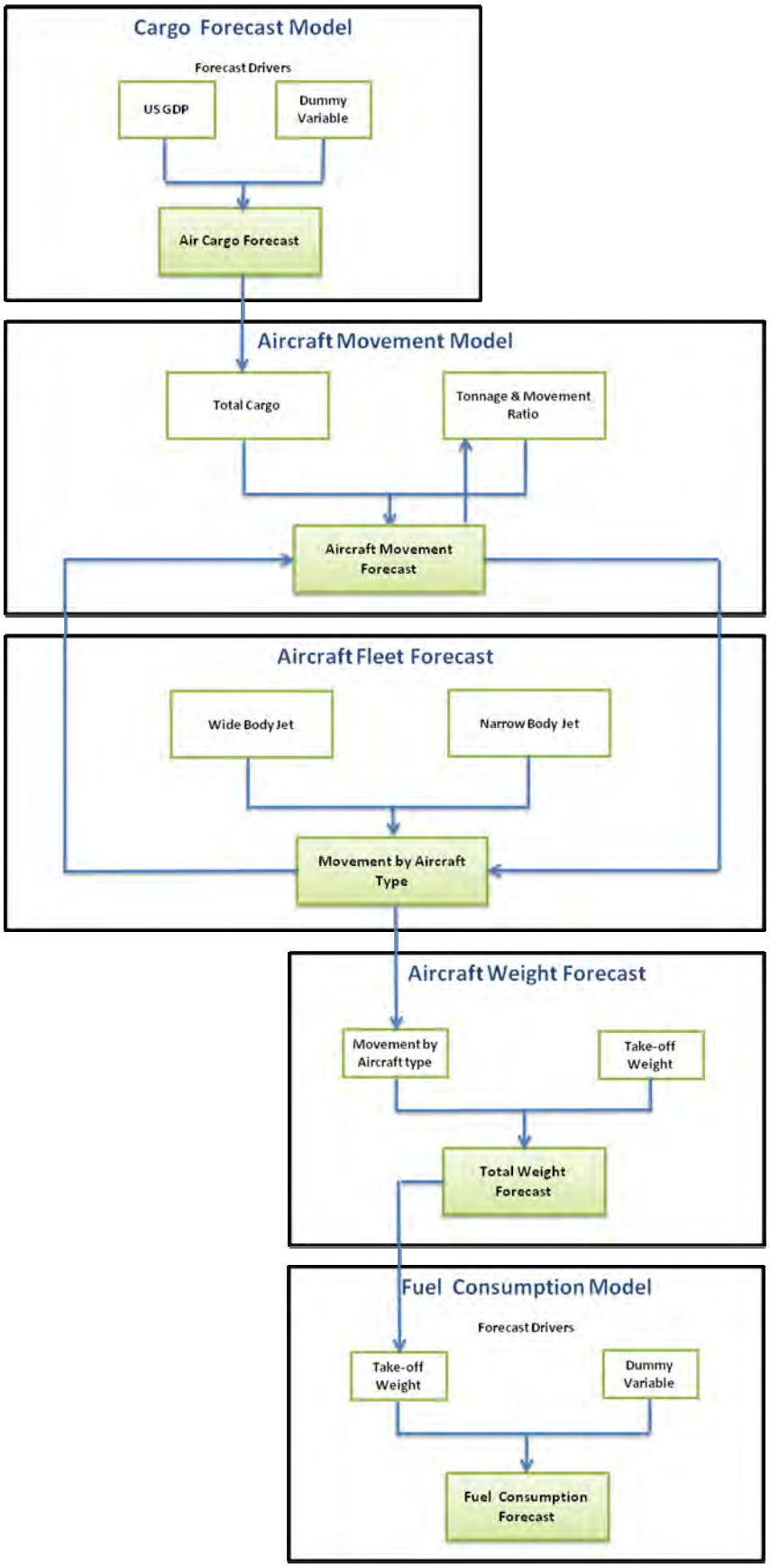
Step 2

Step 3

Step 4

Step 5

Fuel Consumption Methodology (Cargo)



Step 1

Step 2

Step 3

Step 4

Step 5

KENNEDY INTERNATIONAL AIRPORT
LONG-RANGE FUEL FORECAST
PASSENGER FLEET
2012-2032

	YEAR	PASSENGER FLEET FUEL CONSUMPTION	ANNUAL GROWTH RATE
History	2004	1,027,994,056	
	2005	1,069,721,749	4.06%
	2006	1,132,625,508	5.88%
	2007	1,234,127,219	8.96%
	2008	1,225,494,681	-0.70%
	2009	1,158,919,086	-5.43%
	2010	1,189,886,379	2.67%
	2011	1,218,352,114	2.39%
Forecast	2012	1,228,668,550	0.85%
	2013	1,263,866,262	2.86%
	2014	1,290,139,582	2.08%
	2015	1,311,196,867	1.63%
	2016	1,339,182,689	2.13%
	2017	1,364,693,597	1.90%
	2018	1,386,503,120	1.60%
	2019	1,410,757,678	1.75%
	2020	1,434,484,314	1.68%
	2021	1,458,855,290	1.70%
	2022	1,483,815,115	1.71%
	2023	1,508,661,550	1.67%
	2024	1,532,410,647	1.57%
	2025	1,556,093,947	1.55%
	2026	1,582,962,780	1.73%
	2027	1,609,191,344	1.66%
	2028	1,635,146,837	1.61%
	2029	1,660,930,069	1.58%
	2030	1,686,308,684	1.53%
	2031	1,710,723,873	1.45%
	2032	1,734,945,809	1.42%
	2011-2032	1.70%	

Average Annual Growth Rate	
2005-2010	2.15%
2010-2015	1.96%
2015-2020	1.81%
2020-2025	1.64%
2025-2030	1.62%

KENNEDY INTERNATIONAL AIRPORT
LONG-RANGE FUEL FORECAST
CARGO FLEET
2012-2032

	YEAR	CARGO FLEET FUEL CONSUMPTION	ANNUAL GROWTH RATE
History	2004	173,224,776	
	2005	159,087,701	-8.16%
	2006	143,254,536	-9.95%
	2007	150,114,286	4.79%
	2008	122,184,255	-18.61%
	2009	85,220,910	-30.25%
	2010	101,351,309	18.93%
	2011	102,675,297	1.31%
EST	2012	88,865,691	-13.45%
Forecast	2013	90,282,976	1.59%
	2014	91,683,603	1.55%
	2015	93,062,246	1.50%
	2016	94,416,628	1.46%
	2017	95,745,858	1.41%
	2018	98,283,631	2.65%
	2019	100,779,812	2.54%
	2020	103,234,544	2.44%
	2021	105,799,125	2.48%
	2022	108,320,813	2.38%
	2023	110,799,877	2.29%
	2024	113,236,601	2.20%
	2025	115,631,284	2.11%
	2026	118,465,939	2.45%
	2027	121,253,009	2.35%
	2028	123,992,804	2.26%
	2029	126,685,651	2.17%
	2030	129,331,888	2.09%
	2031	132,337,657	2.32%
	2032	135,292,285	2.23%
	2011-2032	1.32%	

Average Annual Growth Rate	
2005-2010	-8.62%
2010-2015	-1.69%
2015-2020	2.10%
2020-2025	2.29%
2025-2030	2.26%

KENNEDY INTERNATIONAL AIRPORT
LONG-RANGE FUEL FORECAST
2012-2032

	YEAR	PASSENGER FLEET FUEL CONSUMPTION	ANNUAL GROWTH RATE	CARGO FLEET FUEL CONSUMPTION	ANNUAL GROWTH RATE	TOTAL FUEL CONSUMPTION	ANNUAL GROWTH RATE
History	2004	1,027,994,056		173,224,776		1,201,218,832	
	2005	1,069,721,749	4.06%	159,087,701	-8.16%	1,228,809,450	2.30%
	2006	1,132,625,508	5.88%	143,254,536	-9.95%	1,275,880,044	3.83%
	2007	1,234,127,219	8.96%	150,114,286	4.79%	1,384,241,505	8.49%
	2008	1,225,494,681	-0.70%	122,184,255	-18.61%	1,347,678,936	-2.64%
	2009	1,158,919,086	-5.43%	85,220,910	-30.25%	1,244,139,996	-7.68%
	2010	1,189,886,379	2.67%	101,351,309	18.93%	1,291,237,688	3.79%
	2011	1,218,352,114	2.39%	102,675,297	1.31%	1,321,027,411	2.31%
FORECAST	2012	1,228,668,550	0.85%	88,865,691	-13.45%	1,317,534,241	-0.26%
	2013	1,263,866,262	2.86%	90,282,976	1.59%	1,354,149,238	2.78%
	2014	1,290,139,582	2.08%	91,683,603	1.55%	1,381,823,184	2.04%
	2015	1,311,196,867	1.63%	93,062,246	1.50%	1,404,259,113	1.62%
	2016	1,339,182,689	2.13%	94,416,628	1.46%	1,433,599,317	2.09%
	2017	1,364,693,597	1.90%	95,745,858	1.41%	1,460,439,455	1.87%
	2018	1,386,503,120	1.60%	98,283,631	2.65%	1,484,786,751	1.67%
	2019	1,410,757,678	1.75%	100,779,812	2.54%	1,511,537,490	1.80%
	2020	1,434,484,314	1.68%	103,234,544	2.44%	1,537,718,859	1.73%
	2021	1,458,855,290	1.70%	105,799,125	2.48%	1,564,654,415	1.75%
	2022	1,483,815,115	1.71%	108,320,813	2.38%	1,592,135,929	1.76%
	2023	1,508,661,550	1.67%	110,799,877	2.29%	1,619,461,427	1.72%
	2024	1,532,410,647	1.57%	113,236,601	2.20%	1,645,647,248	1.62%
	2025	1,556,093,947	1.55%	115,631,284	2.11%	1,671,725,231	1.58%
	2026	1,582,962,780	1.73%	118,465,939	2.45%	1,701,428,719	1.78%
	2027	1,609,191,344	1.66%	121,253,009	2.35%	1,730,444,353	1.71%
	2028	1,635,146,837	1.61%	123,992,804	2.26%	1,759,139,641	1.66%
	2029	1,660,930,069	1.58%	126,685,651	2.17%	1,787,615,720	1.62%
	2030	1,686,308,684	1.53%	129,331,888	2.09%	1,815,640,572	1.57%
	2031	1,710,723,873	1.45%	132,337,657	2.32%	1,843,061,530	1.51%
	2032	1,734,945,809	1.42%	135,292,285	2.23%	1,870,238,093	1.47%
	2011-2032	1.70%		1.32%		1.67%	

Average Annual Growth Rate			
2005-2010	2.15%	-8.62%	1.00%
2010-2015	1.96%	-1.69%	1.69%
2015-2020	1.81%	2.10%	1.83%
2020-2025	1.64%	2.29%	1.69%
2025-2030	1.62%	2.26%	1.67%

MONTHLY PASSENGER FUEL CONSUMPTION FORECAST

YEAR	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2004	**1,027,994,056**	80,747,711	72,571,175	82,560,572	82,213,746	87,671,287	90,768,665	95,542,451	96,125,337	87,298,330	86,636,980	79,492,670	86,365,132
2005	**1,069,721,749**	84,025,372	75,516,938	85,911,820	85,550,915	91,229,986	94,453,090	99,420,651	100,027,197	90,841,889	90,153,694	82,719,387	89,870,812
2006	**1,132,625,508**	88,966,387	79,957,625	90,963,765	90,581,638	96,594,660	100,007,295	105,266,968	105,909,181	96,183,742	95,455,079	87,583,605	95,155,561
2007	**1,234,127,219**	96,939,226	87,123,132	99,115,602	98,699,229	105,251,117	108,969,579	114,700,605	115,400,371	104,803,374	104,009,410	95,432,524	103,683,051
2008	**1,225,494,681**	96,261,150	86,513,719	98,422,303	98,008,843	104,514,900	108,207,353	113,898,291	114,593,162	104,070,289	103,281,879	94,764,988	102,957,803
2009	**1,158,919,086**	91,031,716	81,813,819	93,075,463	92,684,465	98,837,078	102,328,936	107,710,711	108,367,833	98,416,620	97,671,041	89,616,834	97,364,571
2010	**1,189,886,379**	93,464,160	83,999,953	95,562,518	95,161,072	101,478,087	105,063,251	110,588,832	111,263,513	101,046,395	100,280,893	92,011,471	99,966,234
2011	**1,218,352,114**	95,700,110	86,009,490	97,848,667	97,437,617	103,905,755	107,576,687	113,234,456	113,925,277	103,463,735	102,679,920	94,212,668	102,357,733
2012	**1,228,668,550**	96,510,454	86,737,778	98,677,203	98,262,673	104,785,580	108,487,596	114,193,272	114,889,943	104,339,818	103,549,366	95,010,416	103,224,451
2013	**1,263,866,262**	99,275,192	89,222,558	101,504,013	101,077,607	107,787,377	111,595,444	117,464,571	118,181,200	107,328,844	106,515,748	97,732,183	106,181,525
2014	**1,290,139,582**	101,338,930	91,077,321	103,614,084	103,178,814	110,028,066	113,915,296	119,906,431	120,637,957	109,560,002	108,730,003	99,763,845	108,388,832
2015	**1,311,196,867**	102,992,955	92,563,859	105,305,243	104,862,869	111,823,913	115,774,588	121,863,509	122,606,975	111,348,209	110,504,663	101,392,162	110,157,924
2016	**1,339,182,689**	105,191,208	94,539,516	107,552,849	107,101,033	114,210,651	118,245,649	124,464,530	125,223,864	113,724,794	112,863,244	103,556,248	112,509,104
2017	**1,364,693,597**	107,195,060	96,340,457	109,601,689	109,141,265	116,386,319	120,498,182	126,835,531	127,609,330	115,891,207	115,013,244	105,528,954	114,652,358
2018	**1,386,503,120**	108,908,172	97,880,099	111,353,262	110,885,480	118,246,319	122,423,895	128,862,522	129,648,687	117,743,294	116,851,301	107,215,440	116,484,647
2019	**1,410,757,678**	110,813,338	99,592,348	113,301,201	112,825,237	120,314,841	124,565,497	131,116,757	131,916,675	119,803,017	118,895,420	109,090,995	118,522,352
2020	**1,434,484,314**	112,677,038	101,267,328	115,206,742	114,722,773	122,338,340	126,660,485	133,321,926	134,135,298	121,817,908	120,895,046	110,925,727	120,515,704
2021	**1,458,855,290**	114,591,349	102,987,796	117,164,031	116,671,840	124,416,791	128,812,366	135,586,981	136,414,171	123,887,516	122,948,976	112,810,285	122,563,189
2022	**1,483,815,115**	116,551,913	104,749,833	119,168,612	118,668,000	126,545,461	131,016,241	137,906,764	138,748,106	126,007,131	125,052,533	114,740,377	124,660,145
2023	**1,508,661,550**	118,503,571	106,503,866	121,164,087	120,655,091	128,664,460	133,210,103	140,216,008	141,071,439	128,117,116	127,146,533	116,661,700	126,747,575
2024	**1,532,410,647**	120,369,035	108,180,432	123,071,431	122,554,424	130,689,875	135,307,074	142,423,265	143,292,162	130,133,914	129,148,053	118,498,169	128,742,814
2025	**1,556,093,947**	122,229,330	109,852,353	124,973,492	124,448,494	132,709,678	137,398,236	144,624,407	145,506,732	132,145,125	131,144,027	120,329,550	130,732,526
2026	**1,582,962,780**	124,339,845	111,749,156	127,131,390	126,597,327	135,001,155	139,770,670	147,121,614	148,019,174	134,426,854	133,408,470	122,407,262	132,989,864
2027	**1,609,191,344**	126,400,067	113,600,760	129,237,866	128,694,954	137,238,028	142,086,570	149,559,314	150,471,746	136,654,211	135,618,954	124,435,463	135,193,411
2028	**1,635,146,837**	128,438,840	115,433,086	131,322,412	130,770,743	139,451,612	144,378,359	151,971,635	152,898,784	138,858,379	137,806,423	126,442,548	137,374,017
2029	**1,660,930,069**	130,464,082	117,253,252	133,393,122	132,832,755	141,650,505	146,654,938	154,367,945	155,309,714	141,047,918	139,979,375	128,436,312	139,540,150
2030	**1,686,308,684**	132,457,542	119,044,854	135,431,338	134,862,407	143,814,891	148,895,790	156,726,651	157,682,810	143,203,096	142,118,226	130,398,789	141,672,290
2031	**1,710,723,873**	134,375,326	120,768,442	137,392,178	136,815,010	145,897,112	151,051,575	158,995,815	159,965,817	145,276,460	144,175,882	132,286,765	143,723,490
2032	**1,734,945,809**	136,277,931	122,478,388	139,337,497	138,752,158	147,962,852	153,190,296	161,247,018	162,230,754	147,333,412	146,217,251	134,159,798	145,758,454

MONTHLY CARGO FUEL CONSUMPTION FORECAST

YEAR	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2004	**173,224,776**	13,816,639	13,295,849	15,188,901	14,678,864	14,392,898	13,977,849	14,161,825	14,313,538	14,619,983	15,277,107	15,077,588	14,423,734
2005	**159,087,701**	12,689,047	12,210,760	13,949,318	13,480,905	13,218,277	12,837,101	13,006,062	13,145,394	13,426,829	14,030,324	13,847,088	13,246,596
2006	**143,254,536**	11,426,173	10,995,487	12,561,015	12,139,221	11,902,731	11,559,491	11,711,637	11,837,102	12,090,527	12,633,960	12,468,960	11,928,232
2007	**150,114,286**	11,973,316	11,522,006	13,162,500	12,720,508	12,472,694	12,113,018	12,272,449	12,403,922	12,669,483	13,238,938	13,066,037	12,499,416
2008	**122,184,255**	9,745,579	9,378,240	10,713,506	10,353,750	10,152,044	9,859,289	9,989,056	10,096,067	10,312,219	10,775,721	10,634,990	10,173,794
2009	**85,220,910**	6,797,334	6,541,122	7,472,441	7,221,520	7,080,834	6,876,643	6,967,154	7,041,791	7,192,552	7,515,836	7,417,679	7,096,004
2010	**101,351,309**	8,083,916	7,779,209	8,886,806	8,588,391	8,421,076	8,178,237	8,285,879	8,374,644	8,553,941	8,938,414	8,821,678	8,439,118
2011	**102,675,297**	8,189,519	7,880,832	9,002,898	8,700,584	8,531,084	8,285,072	8,394,120	8,484,045	8,665,684	9,055,180	8,936,919	8,549,361
2012	**88,865,691**	7,088,046	6,820,877	7,792,028	7,530,374	7,383,672	7,170,748	7,265,129	7,342,959	7,500,168	7,837,278	7,734,923	7,399,490
2013	**90,282,976**	7,201,091	6,929,660	7,916,300	7,650,473	7,501,431	7,285,112	7,380,998	7,460,069	7,619,785	7,962,271	7,858,284	7,517,502
2014	**91,683,603**	7,312,807	7,037,165	8,039,111	7,769,161	7,617,806	7,398,131	7,495,505	7,575,803	7,737,997	8,085,796	7,980,196	7,634,127
2015	**93,062,246**	7,422,769	7,142,983	8,159,995	7,885,985	7,732,355	7,509,376	7,608,214	7,689,720	7,854,353	8,207,382	8,100,193	7,748,921
2016	**94,416,628**	7,530,796	7,246,938	8,278,751	8,000,754	7,844,888	7,618,664	7,718,941	7,801,632	7,968,661	8,326,828	8,218,080	7,861,695
2017	**95,745,858**	7,636,817	7,348,963	8,395,303	8,113,392	7,955,331	7,725,922	7,827,610	7,911,466	8,080,847	8,444,056	8,333,777	7,972,374
2018	**98,283,631**	7,839,234	7,543,750	8,617,823	8,328,439	8,166,189	7,930,700	8,035,084	8,121,162	8,295,032	8,667,868	8,554,666	8,183,684
2019	**100,779,812**	8,038,332	7,735,344	8,836,696	8,539,963	8,373,592	8,132,122	8,239,157	8,327,421	8,505,707	8,888,012	8,771,935	8,391,531
2020	**103,234,544**	8,234,125	7,923,757	9,051,934	8,747,974	8,577,551	8,330,199	8,439,841	8,530,255	8,712,884	9,104,501	8,985,596	8,595,927
2021	**105,799,125**	8,438,679	8,120,601	9,276,805	8,965,294	8,790,636	8,537,140	8,649,506	8,742,166	8,929,331	9,330,678	9,208,819	8,809,470
2022	**108,320,813**	8,639,813	8,314,153	9,497,915	9,178,979	9,000,158	8,740,620	8,855,664	8,950,533	9,142,159	9,553,071	9,428,308	9,019,440
2023	**110,799,877**	8,837,546	8,504,433	9,715,287	9,389,051	9,206,139	8,940,661	9,058,337	9,155,378	9,351,389	9,771,706	9,644,087	9,225,862
2024	**113,236,601**	9,031,902	8,691,463	9,928,947	9,595,537	9,408,601	9,137,285	9,257,549	9,356,724	9,557,046	9,986,606	9,856,181	9,428,758
2025	**115,631,284**	9,222,906	8,875,267	10,138,920	9,798,459	9,607,571	9,330,516	9,453,324	9,554,596	9,759,155	10,197,799	10,064,616	9,628,154
2026	**118,465,939**	9,449,001	9,092,841	10,387,472	10,038,665	9,843,097	9,559,250	9,685,069	9,788,823	9,998,397	10,447,794	10,311,346	9,864,184
2027	**121,253,009**	9,671,302	9,306,762	10,631,851	10,274,838	10,074,669	9,784,145	9,912,923	10,019,118	10,233,622	10,693,593	10,553,934	10,096,253
2028	**123,992,804**	9,889,832	9,517,055	10,872,085	10,507,005	10,302,313	10,005,224	10,136,912	10,245,507	10,464,858	10,935,222	10,792,408	10,324,384
2029	**126,685,651**	10,104,617	9,723,744	11,108,202	10,735,193	10,526,056	10,222,515	10,357,063	10,468,017	10,692,132	11,172,710	11,026,795	10,548,607
2030	**129,331,888**	10,315,684	9,926,855	11,340,233	10,959,432	10,745,926	10,436,045	10,573,404	10,686,675	10,915,471	11,406,088	11,257,125	10,768,948
2031	**132,337,657**	10,555,428	10,157,563	11,603,788	11,214,138	10,995,670	10,678,587	10,819,138	10,935,041	11,169,155	11,671,174	11,518,749	11,019,227
2032	**135,292,285**	10,791,093	10,384,345	11,862,859	11,464,509	11,241,164	10,917,001	11,060,691	11,179,182	11,418,522	11,931,750	11,775,921	11,265,247

Appendix C

JFK System Drawings and Sketches

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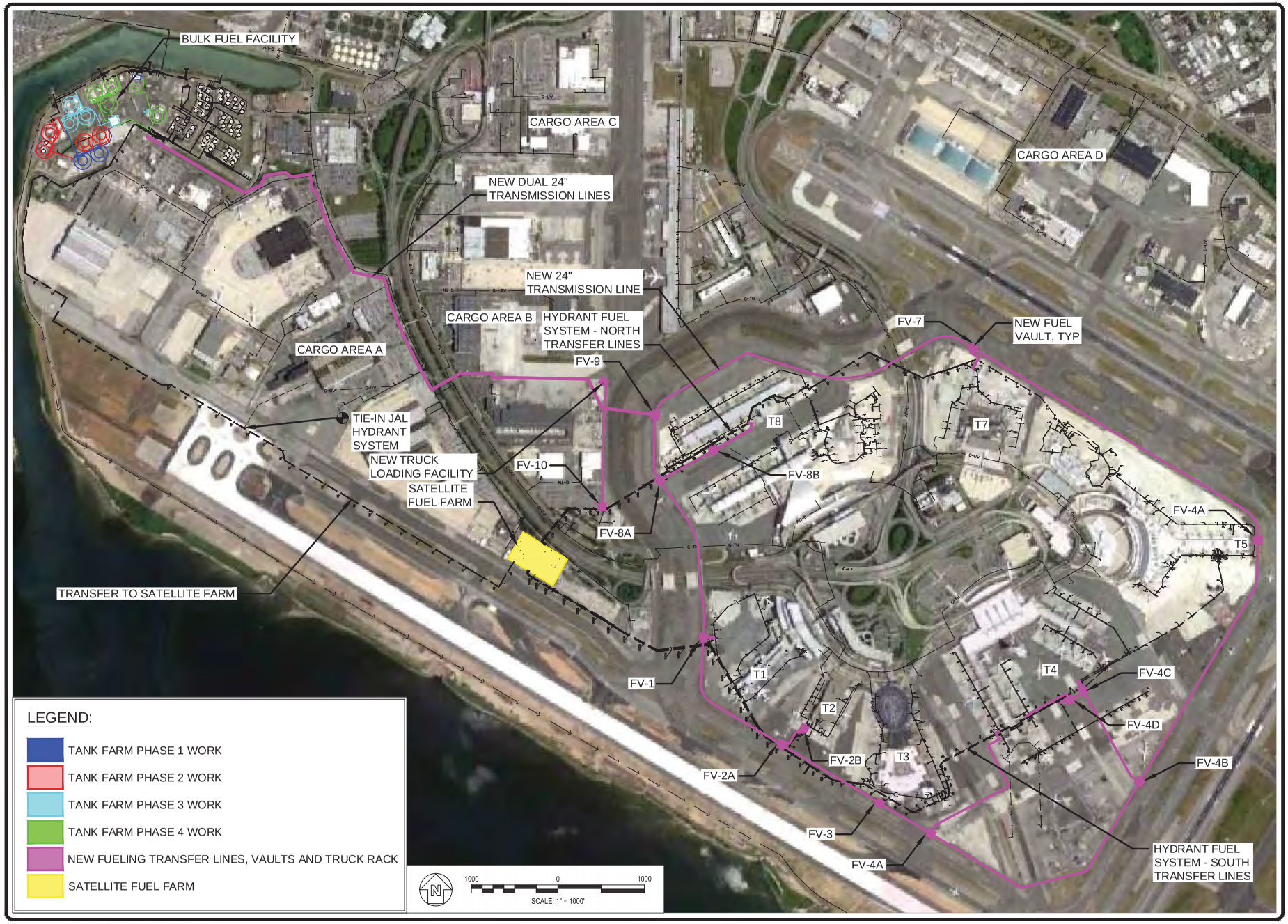
JFK FUEL SYSTEM MASTER PLAN
JFK INTERNATIONAL AIRPORT

OVERALL AREA PLAN - EXISTING

DATE: 11/08/2012

PROJECT NO: 1120366

SK-101



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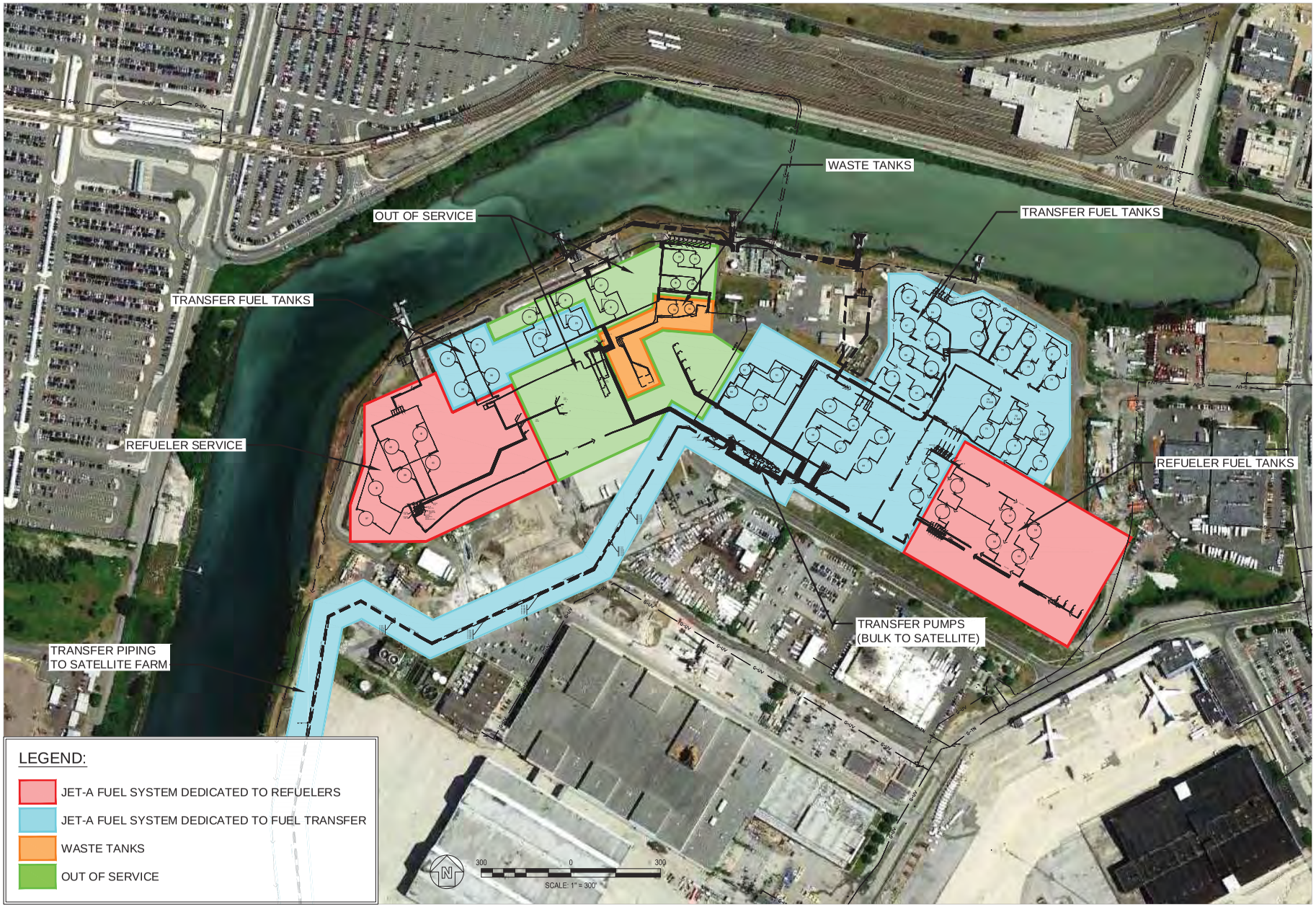
OVERALL AREA PLAN - PROPOSED

DATE: 11/08/2012

PROJECT NO: 1120366

SK-102



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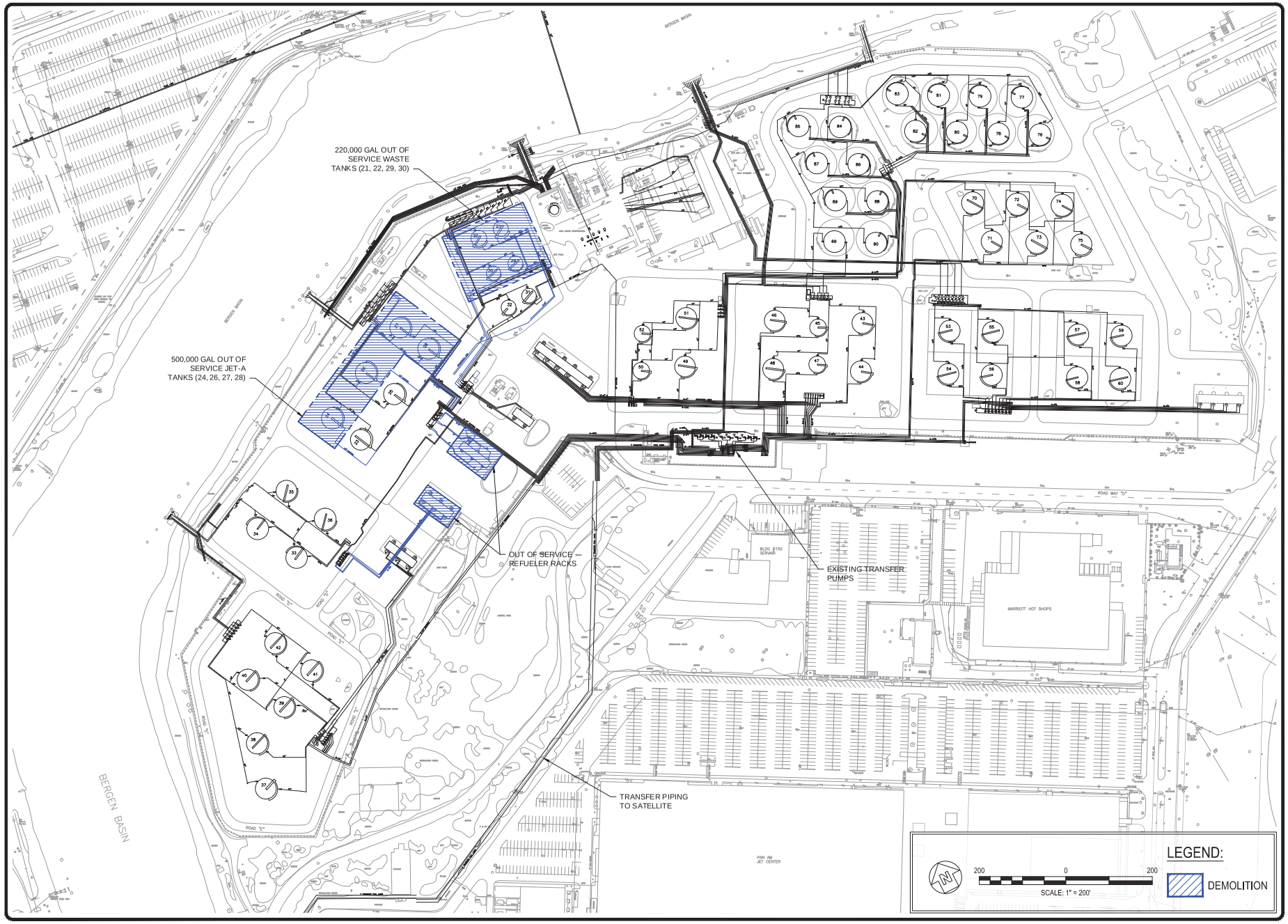
JFK FUEL SYSTEM MASTER PLAN
JFK INTERNATIONAL AIRPORT

BULK STORAGE AREA PLAN - EXISTING

DATE: 11/08/2012

PROJECT NO: 1120366

SK-201



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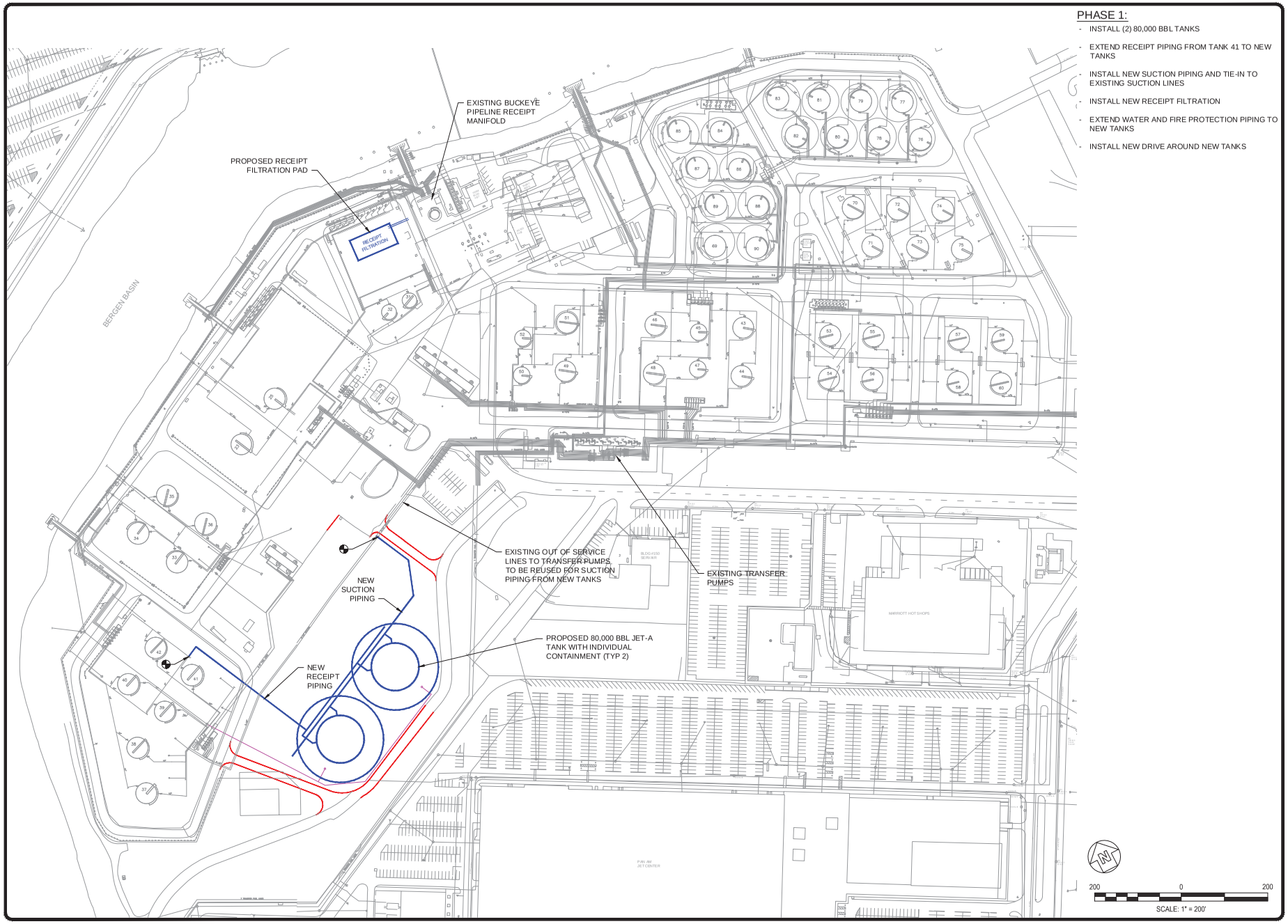
JFK FUEL SYSTEM MASTER PLAN
JFK INTERNATIONAL AIRPORT

PROPOSED PHASE 1 DEMOLITION

DATE: 11/08/2012

PROJECT NO: 1120366

SK-202



PHASE 1:

- INSTALL (2) 80,000 BBL TANKS
- EXTEND RECEIPT PIPING FROM TANK 41 TO NEW TANKS
- INSTALL NEW SUCTION PIPING AND TIE-IN TO EXISTING SUCTION LINES
- INSTALL NEW RECEIPT FILTRATION
- EXTEND WATER AND FIRE PROTECTION PIPING TO NEW TANKS
- INSTALL NEW DRIVE AROUND NEW TANKS

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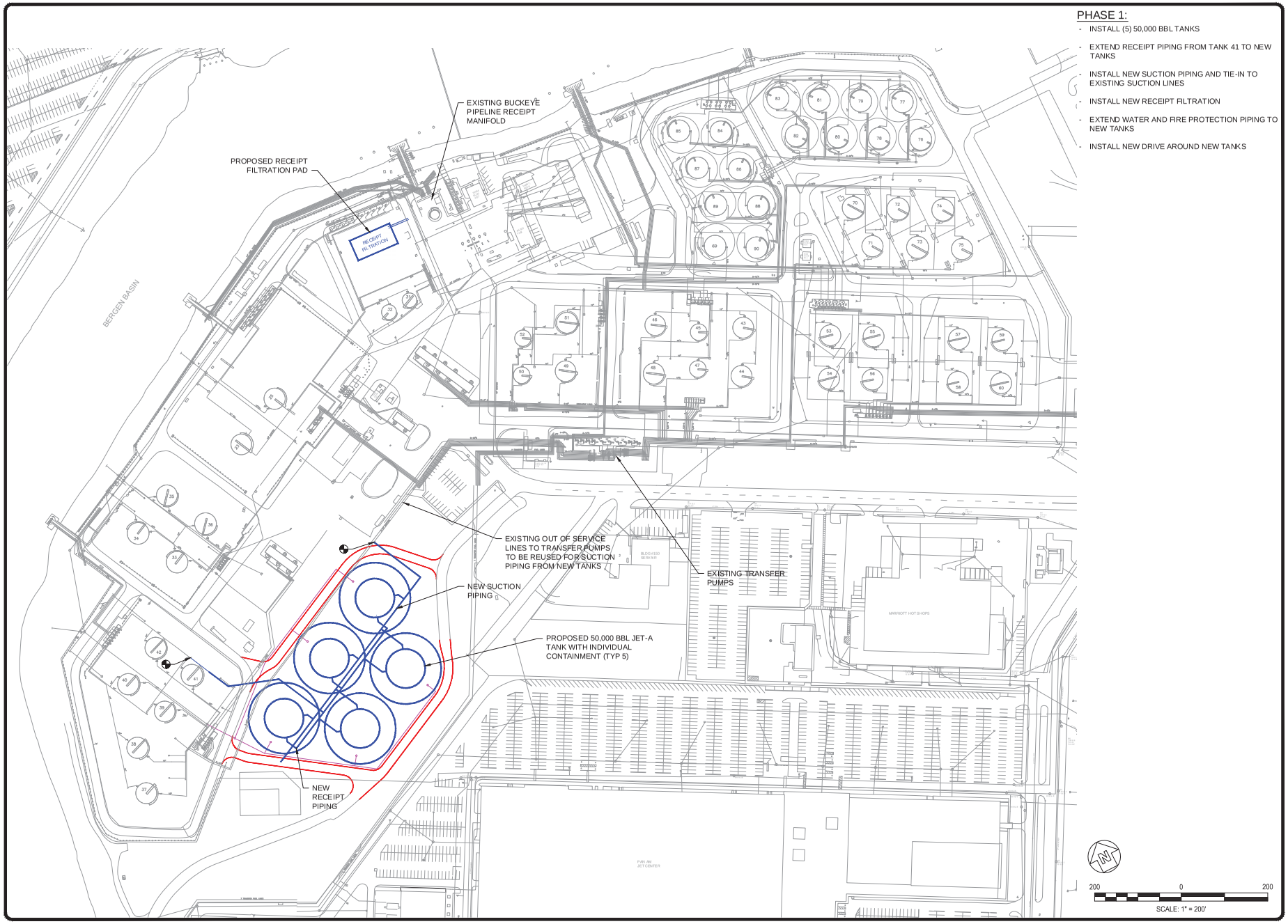
JFK INTERNATIONAL AIRPORT

PROPOSED PHASE 1 CONSTRUCTION

DATE: 11/08/2012

PROJECT NO: 1120366

SK-203



PHASE 1:

- INSTALL (5) 50,000 BBL TANKS
- EXTEND RECEIPT PIPING FROM TANK 41 TO NEW TANKS
- INSTALL NEW SUCTION PIPING AND TIE-IN TO EXISTING SUCTION LINES
- INSTALL NEW RECEIPT FILTRATION
- EXTEND WATER AND FIRE PROTECTION PIPING TO NEW TANKS
- INSTALL NEW DRIVE AROUND NEW TANKS

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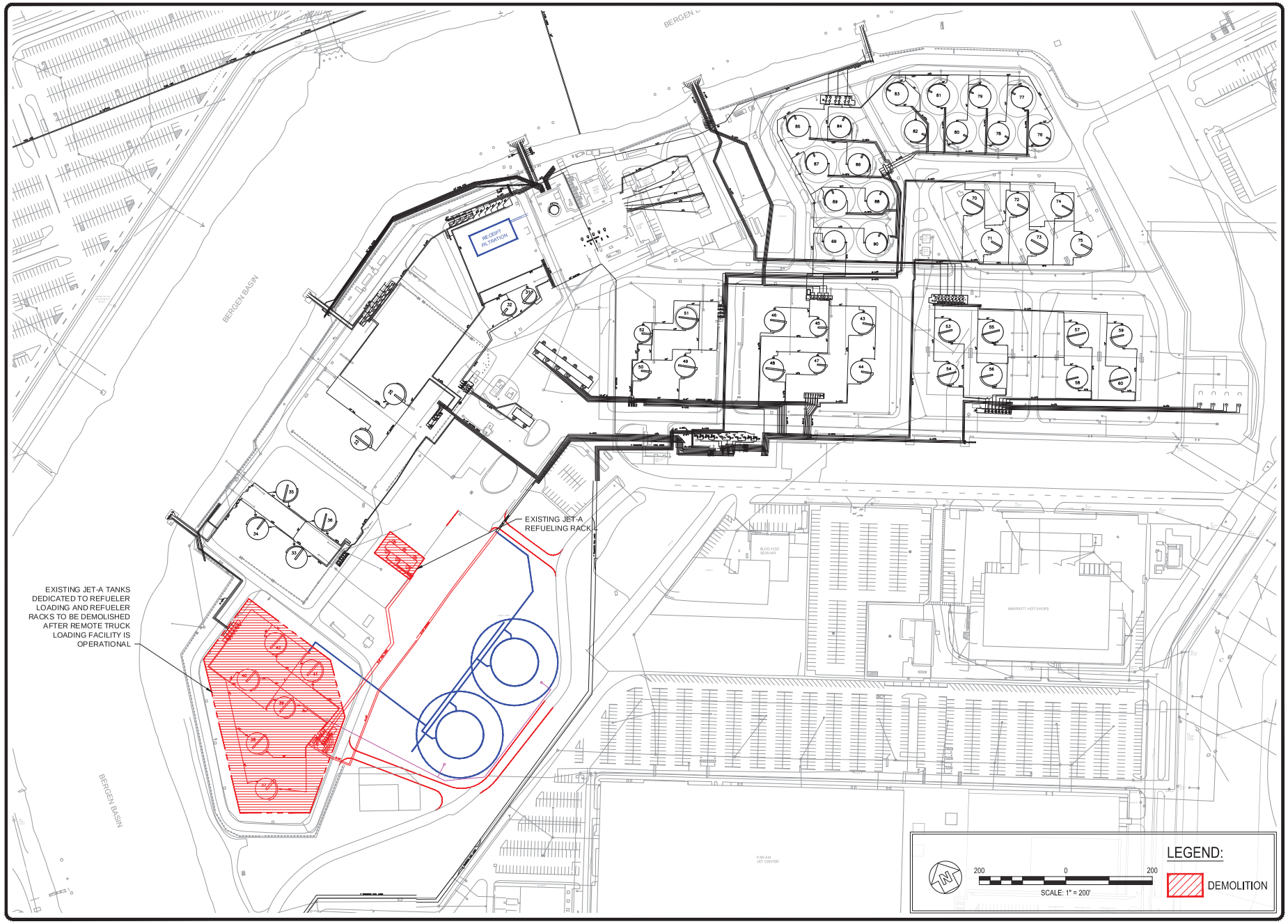
PROPOSED PHASE 1 CONSTRUCTION - OPTION A

DATE: 11/08/2012

PROJECT NO: 1120366

SK-203A



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JFK INTERNATIONAL AIRPORT

PROPOSED PHASE 2 DEMOLITION

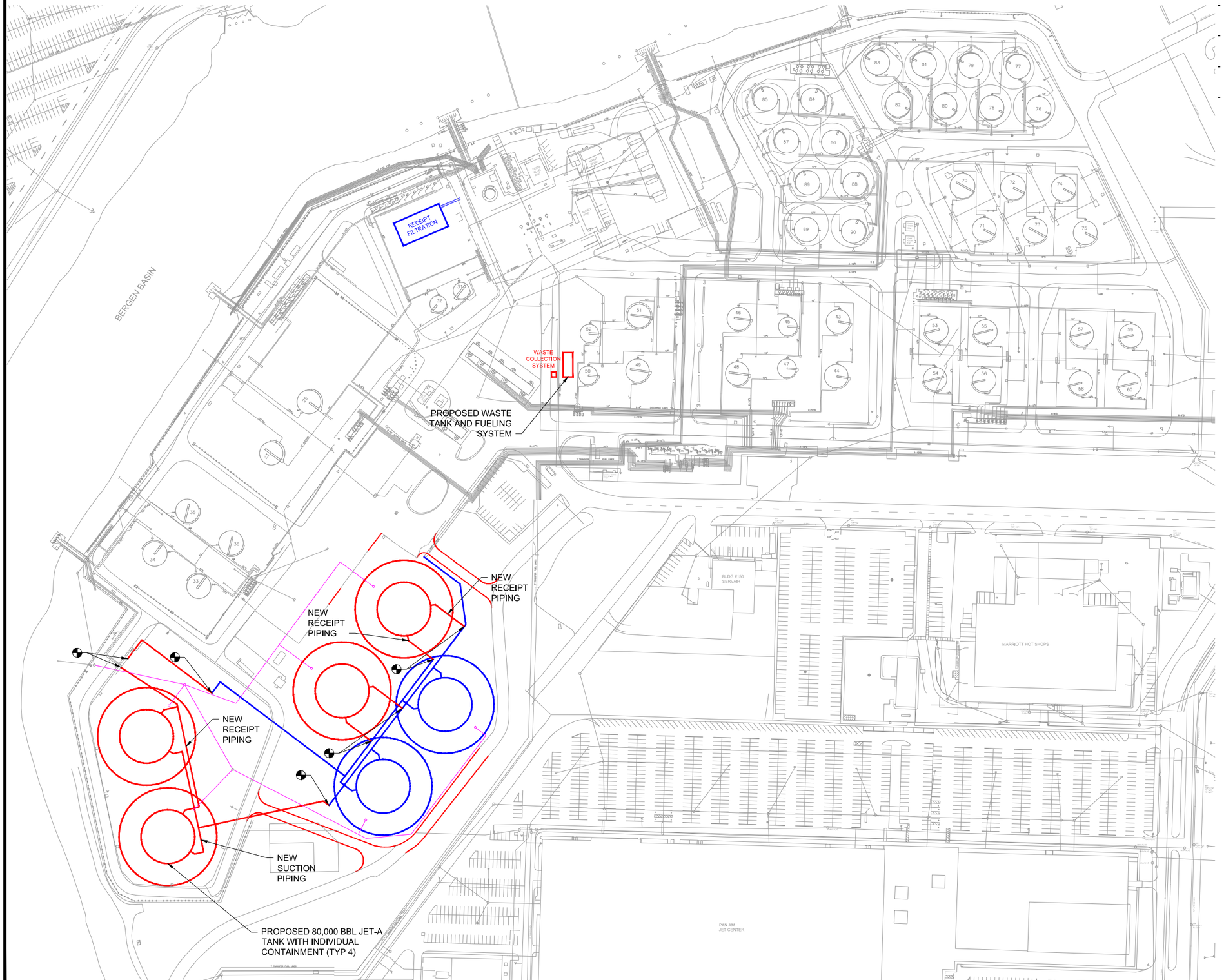
DATE: 11/08/2012

PROJECT NO: 1120366

SK-204

PHASE 2:

- INSTALL (4) 80,000 BBL TANKS
- INSTALL NEW SUCTION PIPING AND TIE-IN TO EXISTING SUCTION LINES
- INSTALL NEW RECEIPT PIPING AND TIE-IN TO EXISTING RECEIPT LINE
- EXTEND WATER AND FIRE PROTECTION PIPING TO NEW TANKS
- INSTALL NEW WASTE TANK AND LOADING SYSTEM



200 0 200

SCALE: 1" = 200'

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JFK FUEL SYSTEM MASTER PLAN
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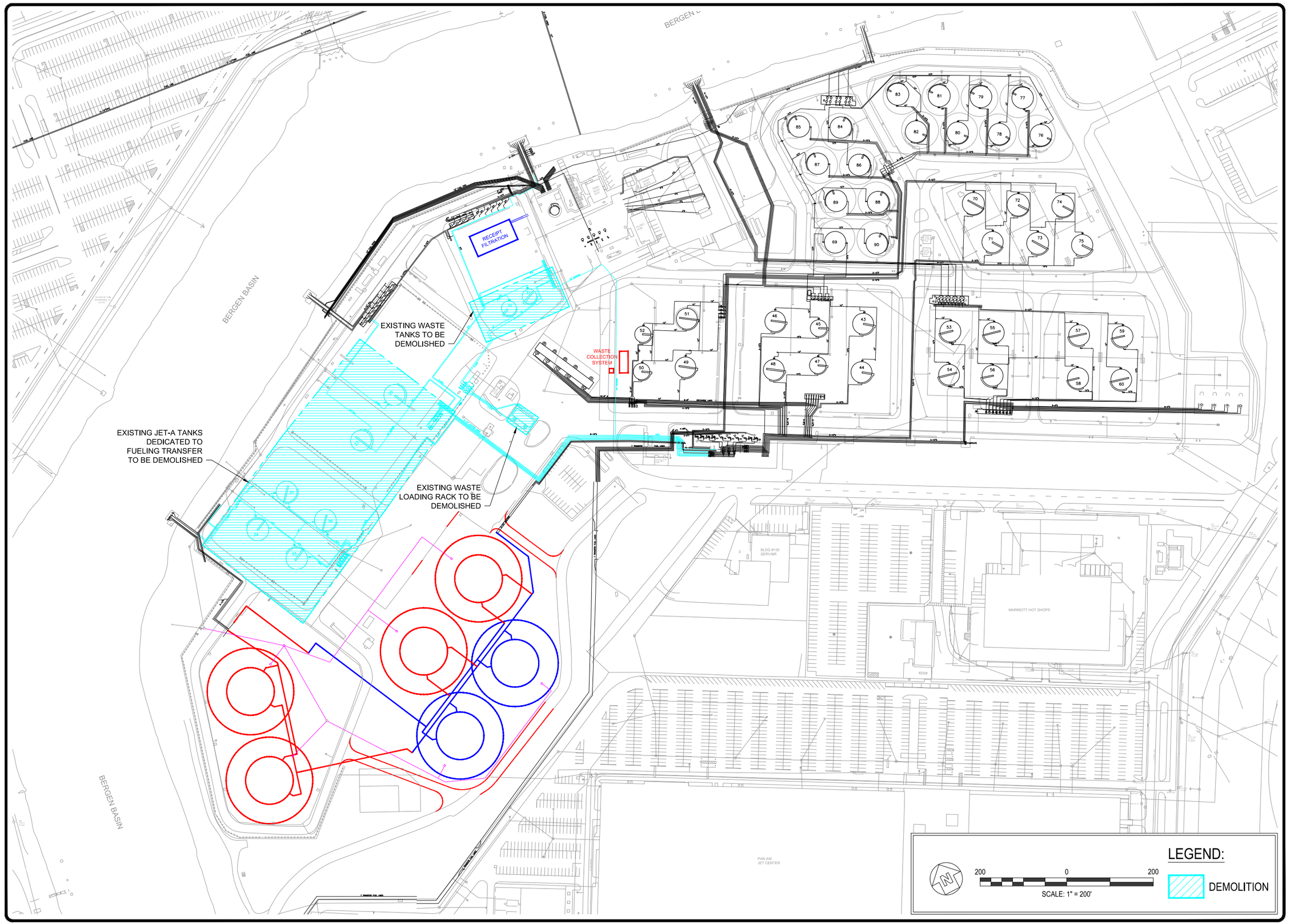
PROPOSED PHASE 2 CONSTRUCTION

DATE: 05/02/2013

PROJECT NO: 1120366

SK-205



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JFK FUEL SYSTEM MASTER PLAN
JFK INTERNATIONAL AIRPORT

PROPOSED PHASE 3 DEMOLITION

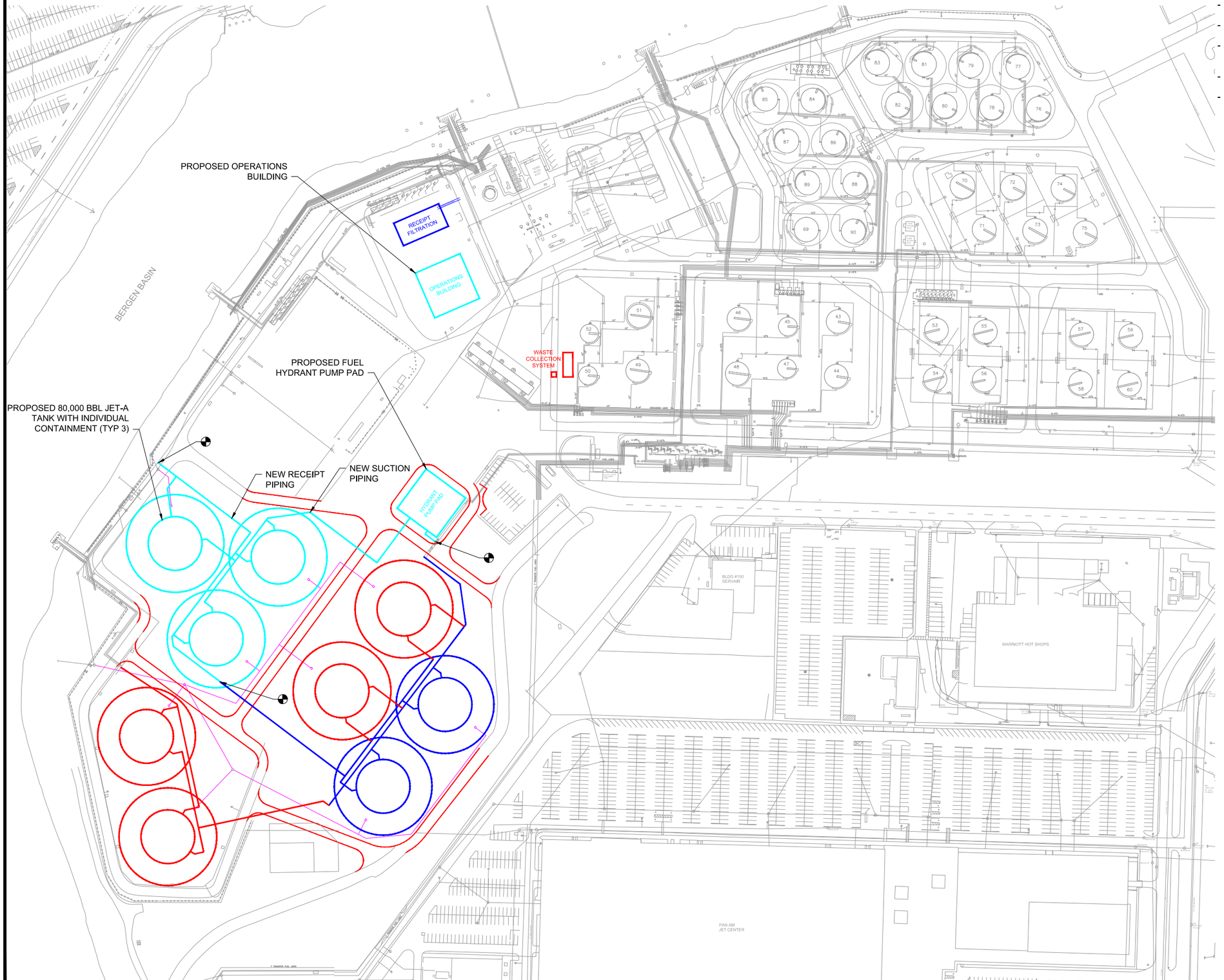
DATE: 05/02/2013

PROJECT NO: 1120366

SK-206

PHASE 3:

- INSTALL (3) 80,000 BBL TANKS
- INSTALL NEW HYDRANT PUMP PAD
- INSTALL NEW SUCTION AND RECEIPT PIPING
- INSTALL NEW WATER AND FIRE PROTECTION PIPING
- INSTALL NEW DRIVE AROUND TANKS
- INSTALL NEW OPERATIONS BUILDING



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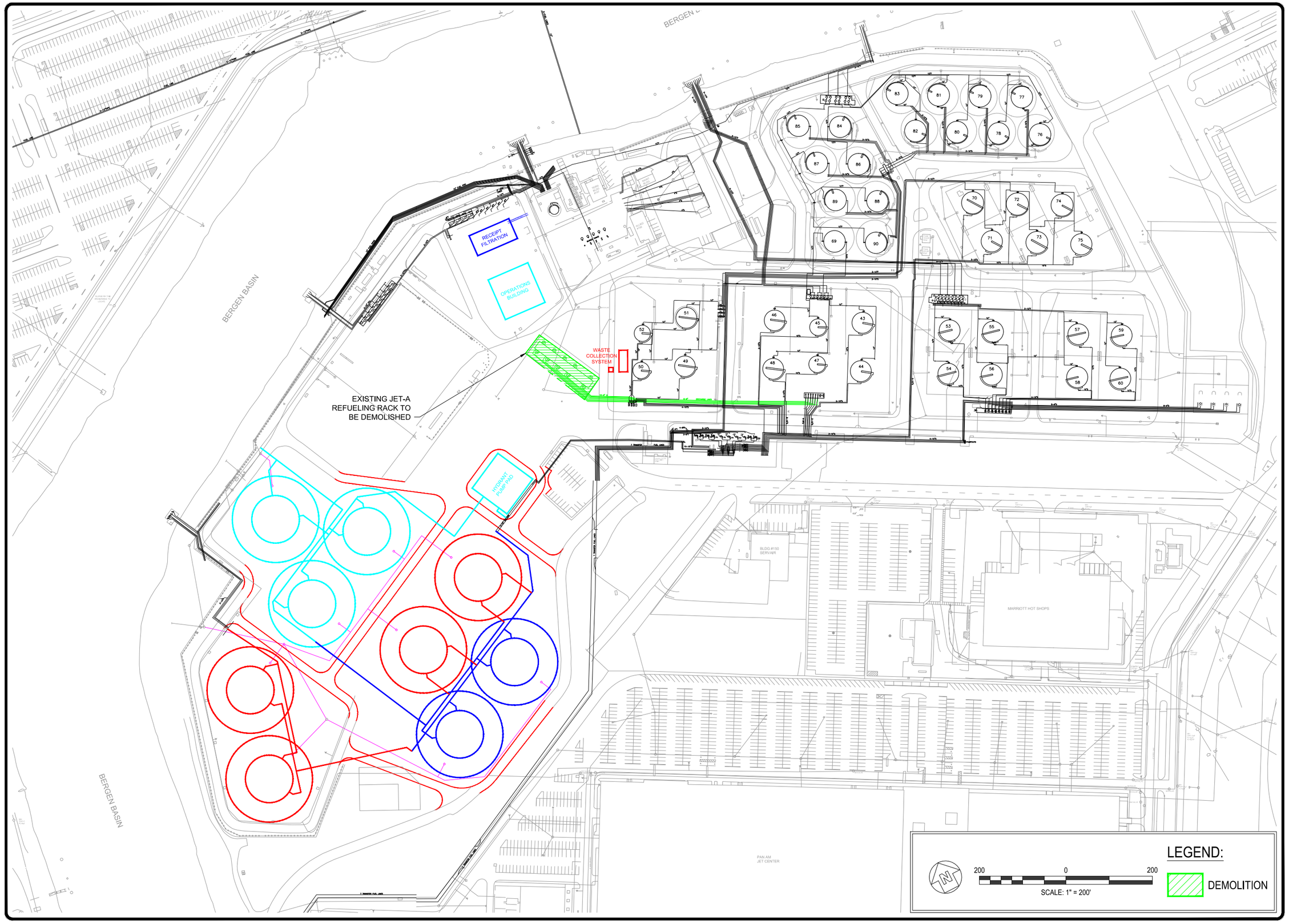
PROPOSED PHASE 3 CONSTRUCTION

DATE: 05/02/2013

PROJECT NO: 1120366

SK-207



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PROPOSED PHASE 4 DEMOLITION

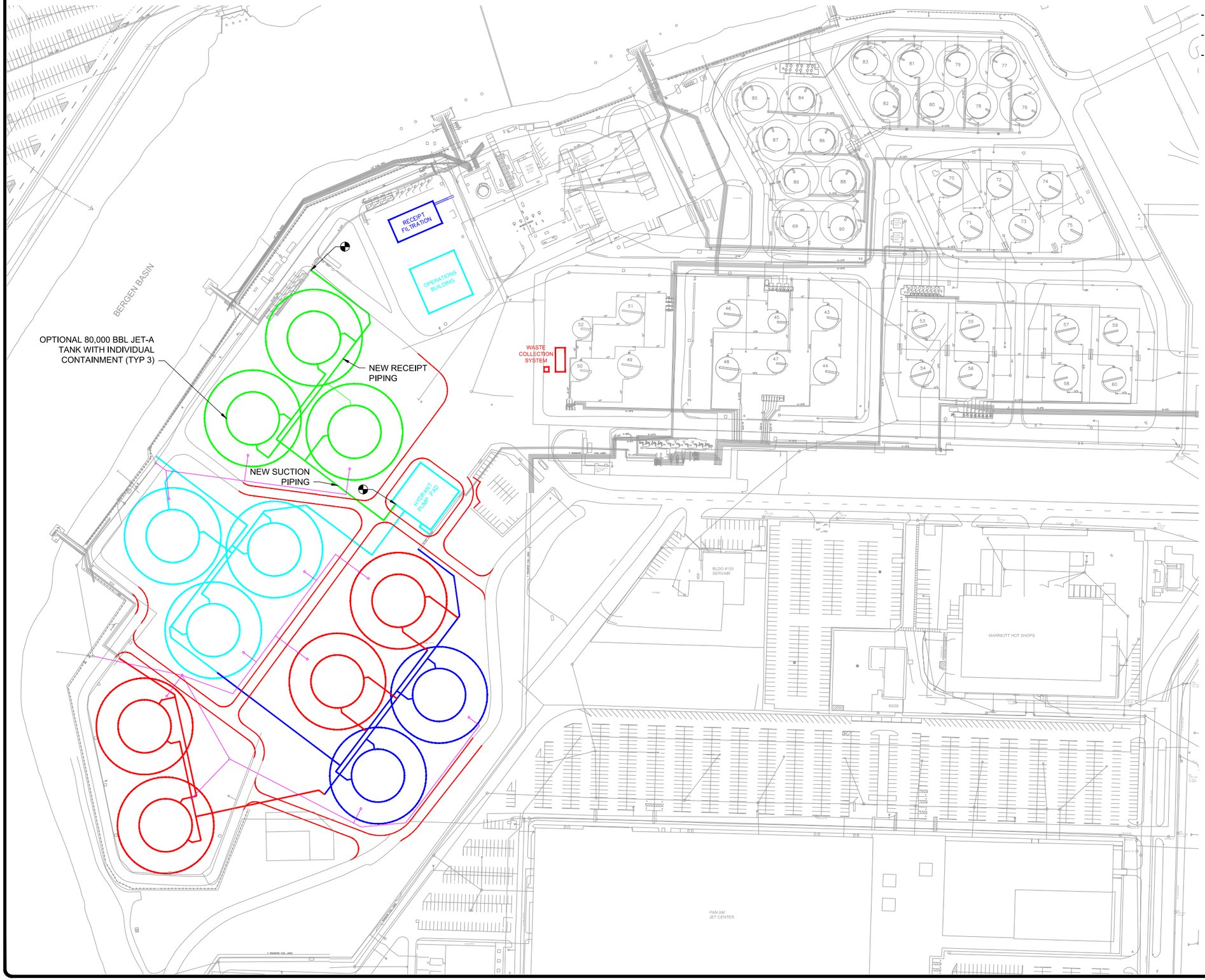
DATE: 05/02/2013

PROJECT NO: 1120366

SK-208

PHASE 4:

- INSTALL NEW WATER AND FIRE PROTECTION PIPING
- INSTALL NEW DRIVE AROUND FACILITY
- INSTALL (3) 80,000 BBL TANKS (OPTIONAL)
- INSTALL NEW SUCTION AND RECEIPT PIPING (OPTIONAL)



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PROPOSED PHASE 4 CONSTRUCTION

DATE: 05/02/2013

PROJECT NO: 1120366

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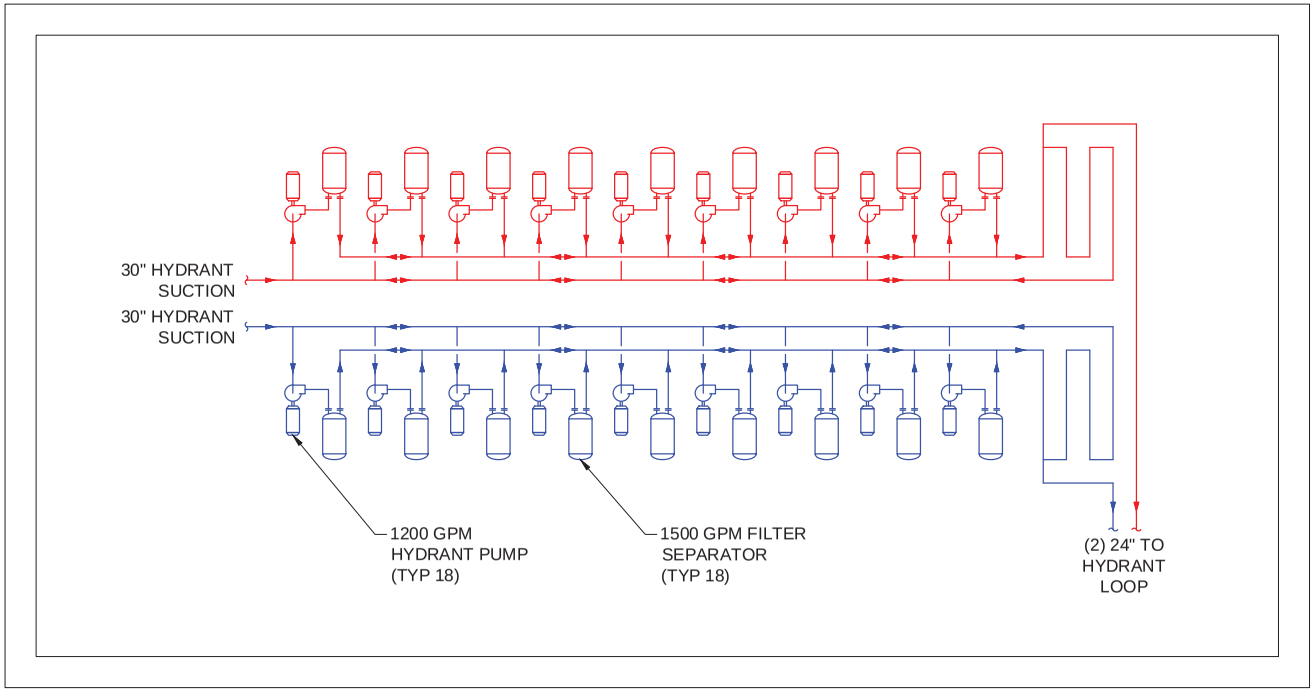

HYDRANT PUMP PAD

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PROPOSED HYDRANT PUMP PAD

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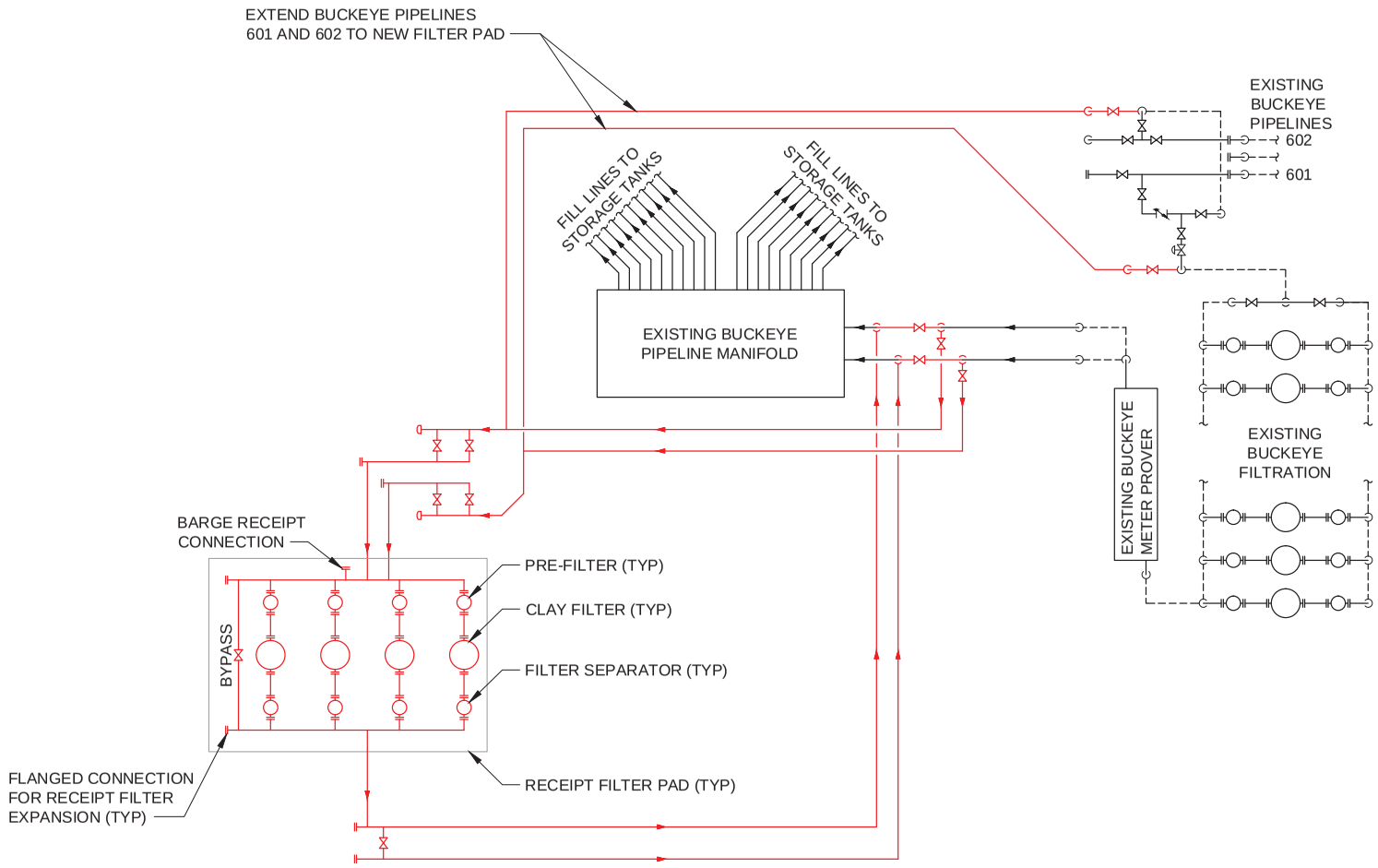
PROJECT NO: 1120366

SK-210



LEGEND:

- EXISTING FUEL PIPING SYSTEM
- NEW PRIMARY RECEIPT FILTRATION

PIPELINE RECEIPT FILTER PAD

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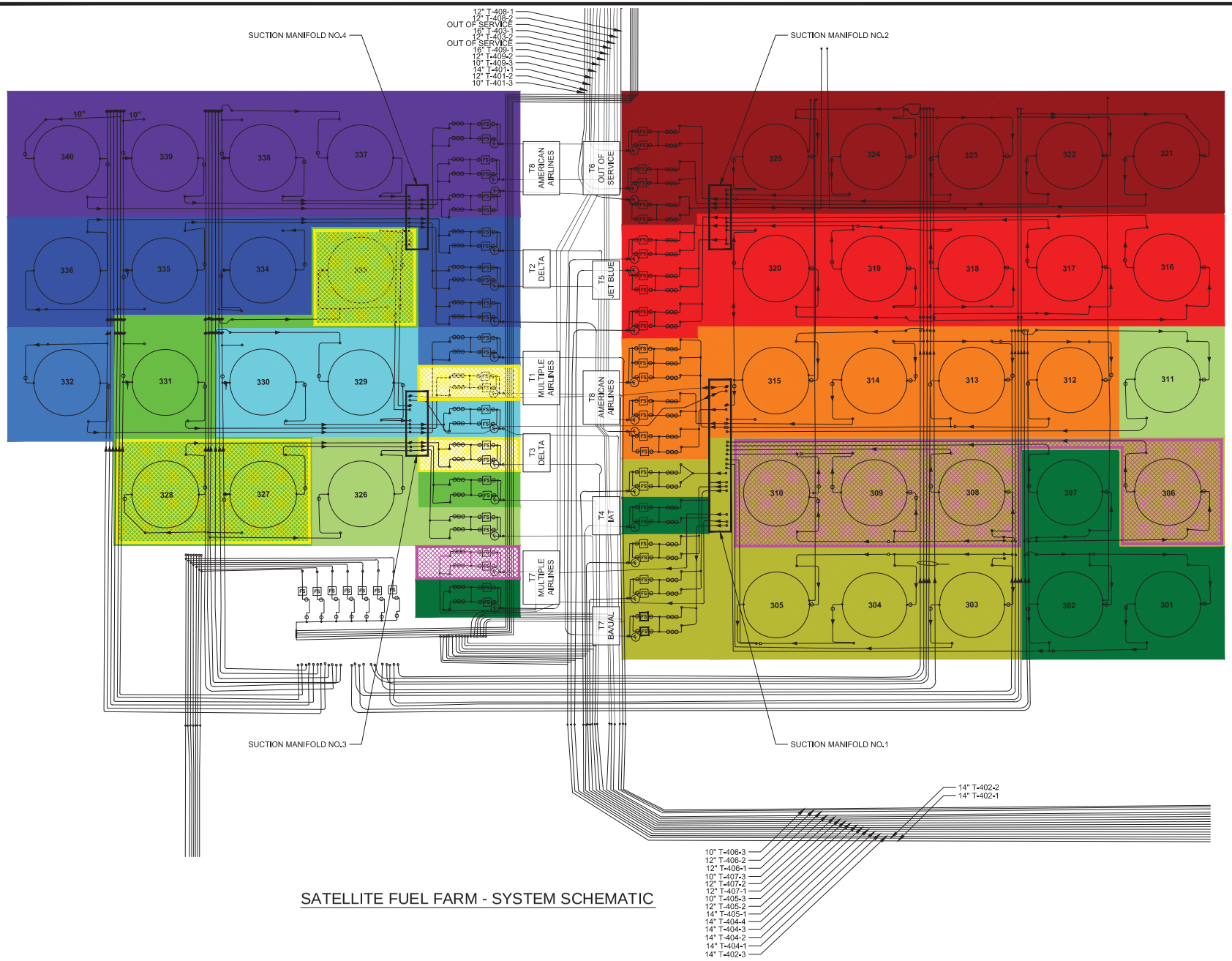
JFK INTERNATIONAL AIRPORT

PROPOSED PIPELINE RECEIPT FILTER PAD

DATE: 11/08/2012

PROJECT NO: 1120366

SK-211



SATELLITE FUEL FARM - SYSTEM SCHEMATIC

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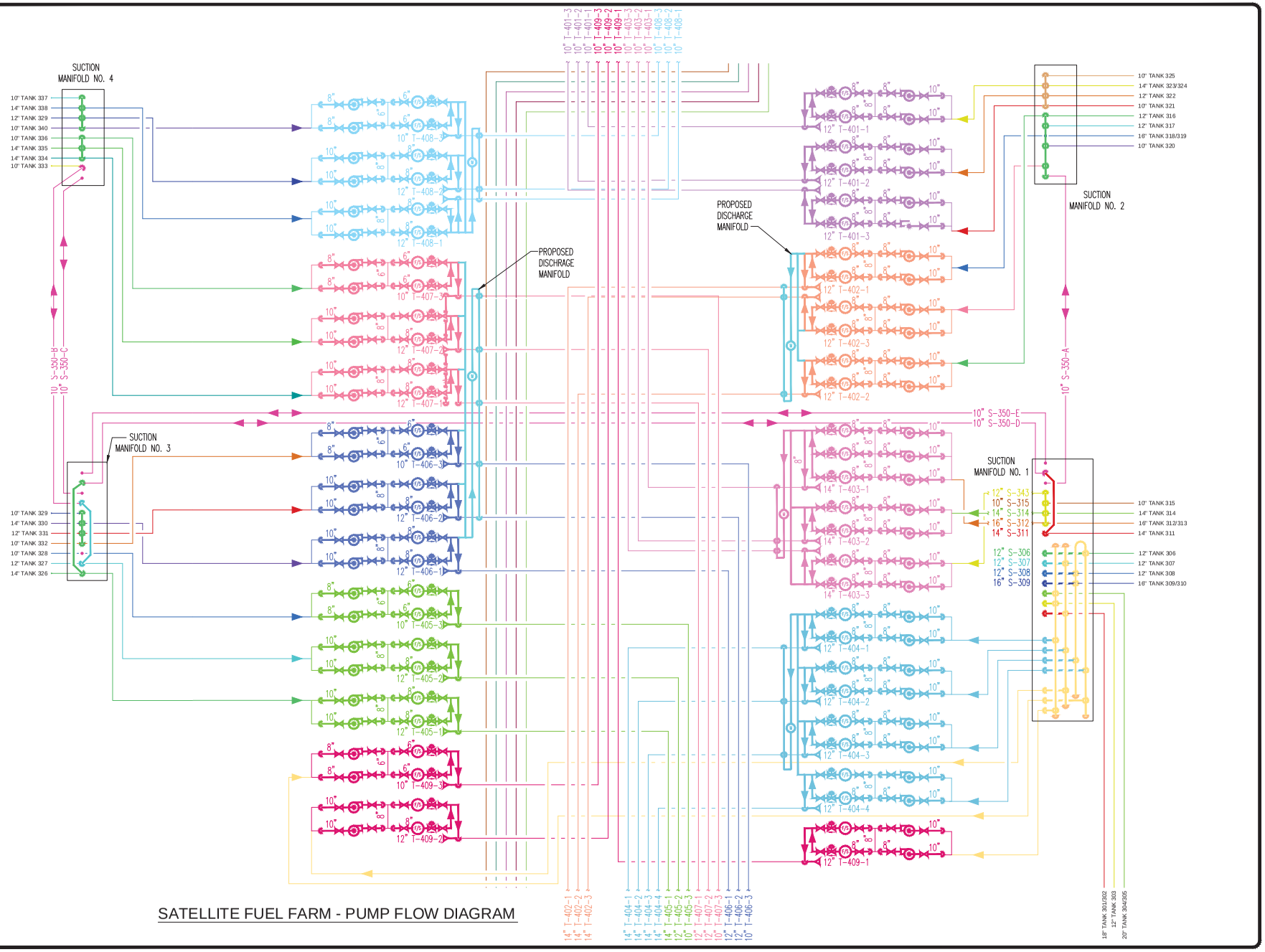
SATELLITE FUEL FARM - SCHEMATIC - EXISTING

DATE: 11/08/2012

PROJECT NO: 1120366

SK-301



SATELLITE FUEL FARM - PUMP FLOW DIAGRAM

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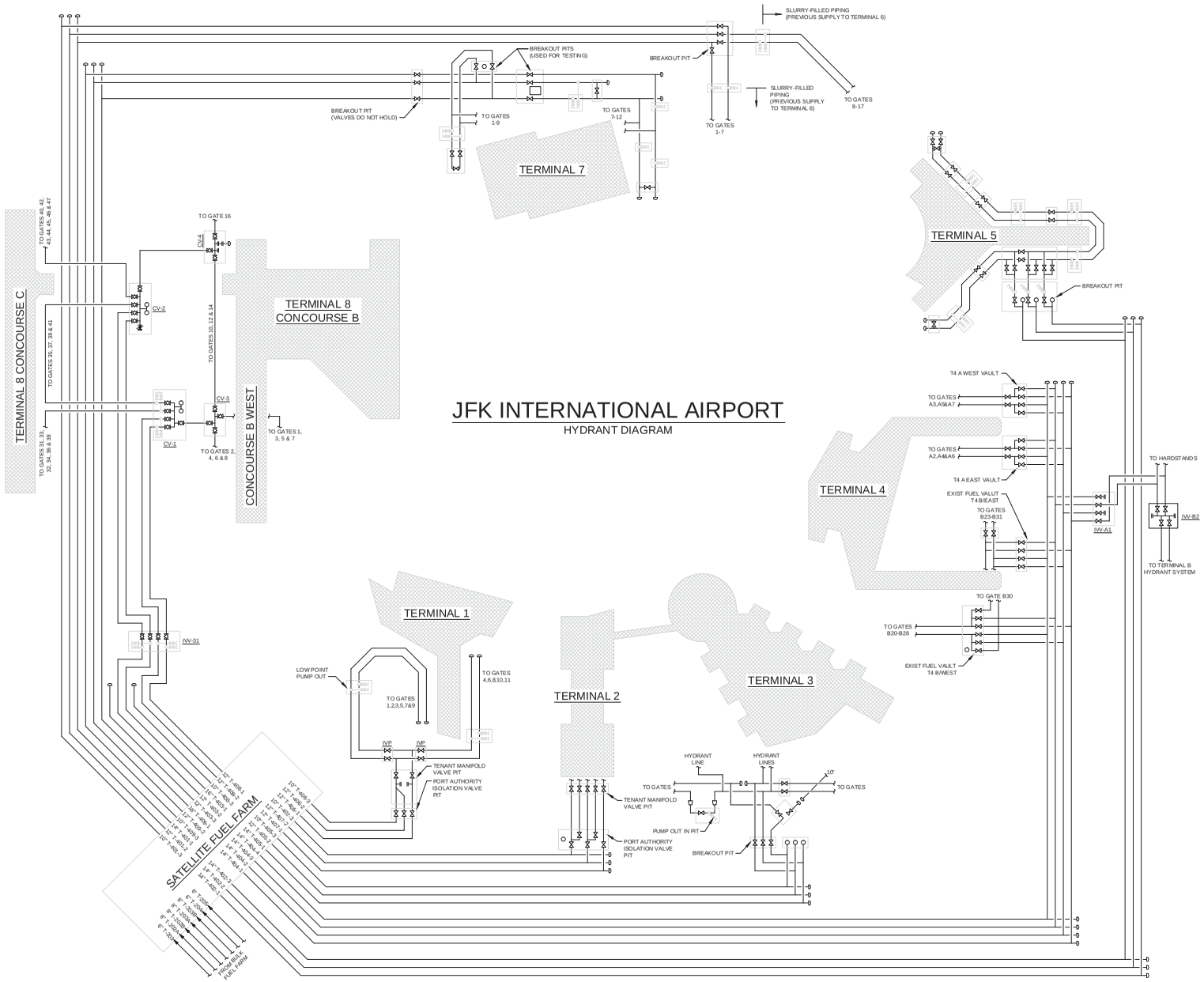
JFK FUEL SYSTEM MASTER PLAN
JFK INTERNATIONAL AIRPORT

SATELLITE FUEL FARM - PUMP FLOW DIAGRAM

DATE: 11/08/2012

PROJECT NO: 1120366

SK-302



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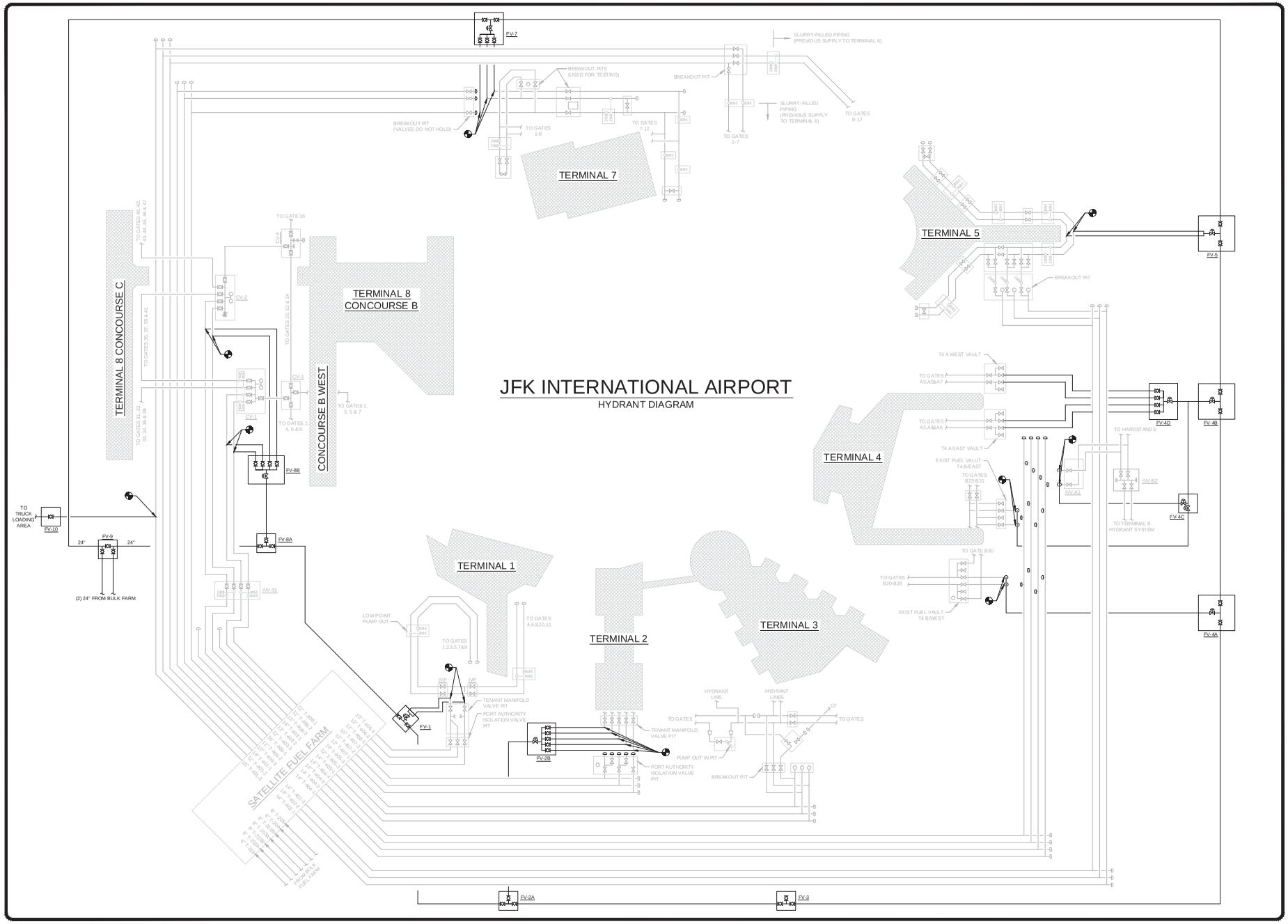
JFK FUEL SYSTEM MASTER PLAN
JFK INTERNATIONAL AIRPORT

EXISTING HYDRANT FLOW DIAGRAM

DATE: 11/08/2012

PROJECT NO: 1120366

SK-401



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JFK FUEL SYSTEM MASTER PLAN
JFK INTERNATIONAL AIRPORT

PROPOSED HYDRANT FLOW DIAGRAM

DATE: 11/08/2012

PROJECT NO: 1120366

SK-402

Appendix D

Present Value Financial Analysis Tables

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Projected Operating, Maintenance & Repair Costs

2012 Budget	
6,500,000	Labor
1,112,000	Maintenance
1,115,000	Power
3,900,000	NYDEC
1,327,000	Other
13,954,000	Total
Periodic Testing	
500,000	per year API653
	(10 tanks per yr @ $50K)
1,500,000	5 years Pipeline Test
	last performed in 2011
Assumptions	
3%	Inflation Rate
Notes:	
- Pipeline Testing is not spread across	
multiple years, but accepted as one time	
charges everyu five years as incurred.	
Tank Upgrades/Repairs (14 tanks at BFF)	
5,000,000	Five per year (2013 - 16)
Miscellaneous major repairs/upgrade	
3,000,000	average

SOTA when complete	
15%	Labor
15%	Maintenance
30%	Power
10%	API 653
25%	Pipeline Test
Option A when complete	
50%	Labor
30%	Maintenance
50%	Power
10%	API 653
60%	Pipeline Test
Option B when complete	
75%	Labor
70%	Maintenance
50%	Power
85%	API 653
60%	Pipeline Test
Option C when complete	
75%	Labor
75%	Maintenance
70%	Power
85%	API 653
80%	Pipeline Test

	SOTA	Option A	Option B	Option C	Option D
2012	14,454,000	14,454,000	14,454,000	14,454,000	17,454,000
2013	14,887,620	14,887,620	14,887,620	14,887,620	23,127,620
2014	15,334,249	15,334,249	15,334,249	15,334,249	23,821,449
2015	15,794,276	15,794,276	15,794,276	15,794,276	24,536,092
2016	17,956,368	17,956,368	14,364,756	15,015,976	21,332,894
2017	7,828,926	10,918,159	13,752,352	14,075,326	20,233,970
2018	8,063,793	11,245,704	14,164,923	14,497,586	20,840,989
2019	8,305,707	11,583,075	14,589,871	14,932,514	21,466,218
2020	8,554,878	11,930,567	11,930,567	15,380,489	22,110,205
2021	9,300,815	13,462,780	16,652,690	17,407,631	24,730,671
2022	9,075,870	12,657,139	15,942,746	16,317,161	23,456,716
2023	9,348,147	13,036,853	16,421,028	16,806,676	24,160,418
2024	9,628,591	13,427,959	16,913,659	17,310,876	24,885,231
2025	9,917,449	13,830,797	17,421,069	17,830,202	25,631,787
2026	10,782,193	15,607,052	19,305,031	20,180,216	28,669,626
2027	10,521,421	14,673,093	18,482,012	18,916,061	27,192,763
2028	10,837,064	15,113,286	19,036,472	19,483,543	28,008,546
2029	11,162,176	15,566,684	19,607,566	20,068,050	28,848,803
2030	11,497,041	16,033,685	20,195,793	20,670,091	29,714,267
2031	12,499,517	18,092,851	22,379,822	23,394,401	33,235,954
2032	12,197,211	17,010,136	21,425,717	21,928,900	31,523,865
20 year Total	237,947,312	302,616,333	353,056,219	364,685,842	524,982,083

Present Value Analysis

JFK Fueling System Master Plan

State of the Art Concept

No.	Year	Amortized Capital Costs	Annual O&M Costs	Total Annual Costs	Present Value of Annual Costs	Annual Fuel Demand	Annual Cost per gallon (cents)
1	2013	$18,571,700	$14,454,000	$33,025,700	$33,025,700	1,354,149,238	2.439
2	2014	$18,571,700	$14,887,620	$33,459,320	$29,095,061	1,381,823,184	2.421
3	2015	$18,571,700	$15,334,249	$33,905,949	$25,637,768	1,404,259,113	2.415
4	2016	$18,571,700	$15,794,276	$34,365,976	$22,596,187	1,433,599,317	2.397
5	2017	$18,571,700	$17,956,368	$36,528,068	$20,885,041	1,460,439,455	2.501
6	2018	$18,571,700	$7,828,926	$26,400,626	$13,125,777	1,484,786,751	1.778
7	2019	$18,571,700	$8,063,793	$26,635,493	$11,515,259	1,511,537,490	1.762
8	2020	$18,571,700	$8,305,707	$26,877,407	$10,104,213	1,537,718,859	1.748
9	2021	$18,571,700	$8,554,878	$27,126,578	$8,867,727	1,564,654,415	1.734
10	2022	$18,571,700	$9,300,815	$27,872,515	$7,923,108	1,592,135,929	1.751
11	2023	$18,571,700	$9,075,870	$27,647,570	$6,834,057	1,619,461,427	1.707
12	2024	$18,571,700	$9,348,147	$27,919,847	$6,001,182	1,645,647,248	1.697
13	2025	$18,571,700	$9,628,591	$28,200,291	$5,270,836	1,671,725,231	1.687
14	2026	$18,571,700	$9,917,449	$28,489,149	$4,630,283	1,701,428,719	1.674
15	2027	$18,571,700	$10,782,193	$29,353,893	$4,148,546	1,730,444,353	1.696
16	2028	$18,571,700	$10,521,421	$29,093,121	$3,575,384	1,759,139,641	1.654
17	2029	$18,571,700	$10,837,064	$29,408,764	$3,142,761	1,787,615,720	1.645
18	2030	$18,571,700	$11,162,176	$29,733,876	$2,763,047	1,815,640,572	1.638
19	2031	$18,571,700	$11,497,041	$30,068,741	$2,429,708	1,843,061,530	1.631
20	2032	$18,571,700	$12,499,517	$31,071,217	$2,183,229	1,870,238,093	1.661
			Present Value of Annual Cost =		$223,754,874		

Assumptions:

Average c/gal 1.882

Capital Cost	$	276,300,000
Interest Rate (amort)	3.00%	
Term	20	
Remaining Value	$	-
Escalation	3%	
Discount rate (PV)	15.00%	

Present Value Analysis

JFK Fueling System Master Plan

Option A

No.	Year	Amortized Capital Costs	Annual O&M Costs	Total Annual Costs	Present Value of Annual Costs	Annual Fuel Demand	Annual Cost per gallon (cents)
1	2013	$16,010,782	$14,454,000	$30,464,782	$30,464,782	1,354,149,238	2.250
2	2014	$16,010,782	$14,887,620	$30,898,402	$26,868,175	1,381,823,184	2.236
3	2015	$16,010,782	$15,334,249	$31,345,030	$23,701,346	1,404,259,113	2.232
4	2016	$16,010,782	$15,794,276	$31,805,058	$20,912,342	1,433,599,317	2.219
5	2017	$16,010,782	$17,956,368	$33,967,149	$19,420,828	1,460,439,455	2.326
6	2018	$16,010,782	$10,918,159	$26,928,941	$13,388,443	1,484,786,751	1.814
7	2019	$16,010,782	$11,245,704	$27,256,485	$11,783,731	1,511,537,490	1.803
8	2020	$16,010,782	$11,583,075	$27,593,857	$10,373,553	1,537,718,859	1.794
9	2021	$16,010,782	$11,930,567	$27,941,349	$9,134,077	1,564,654,415	1.786
10	2022	$16,010,782	$13,462,780	$29,473,562	$8,378,226	1,592,135,929	1.851
11	2023	$16,010,782	$12,657,139	$28,667,920	$7,086,271	1,619,461,427	1.770
12	2024	$16,010,782	$13,036,853	$29,047,635	$6,243,592	1,645,647,248	1.765
13	2025	$16,010,782	$13,427,959	$29,438,740	$5,502,311	1,671,725,231	1.761
14	2026	$16,010,782	$13,830,797	$29,841,579	$4,850,091	1,701,428,719	1.754
15	2027	$16,010,782	$15,607,052	$31,617,834	$4,468,506	1,730,444,353	1.827
16	2028	$16,010,782	$14,673,093	$30,683,874	$3,770,879	1,759,139,641	1.744
17	2029	$16,010,782	$15,113,286	$31,124,067	$3,326,066	1,787,615,720	1.741
18	2030	$16,010,782	$15,566,684	$31,577,466	$2,934,364	1,815,640,572	1.739
19	2031	$16,010,782	$16,033,685	$32,044,466	$2,589,357	1,843,061,530	1.739
20	2032	$16,010,782	$18,092,851	$34,103,632	$2,396,303	1,870,238,093	1.823
			Present Value of Annual Cost =		$217,593,241		
						Average c/gal	1.899

Assumptions:

Capital Cost	$	238,200,000
Interest Rate (amort)	3.00%	
Term	20	
Remaining Value	$	-
Escalation	3%	
Discount rate	15.00%	

Present Value Analysis

JFK Fueling System Master Plan

Option B

No.	Year	Amortized Capital Costs	Annual O&M Costs	Total Annual Costs	Present Value of Annual Costs	Annual Fuel Demand	Annual Cost per gallon (cents)
1	2013	$14,148,906	$14,454,000	$28,602,906	$28,602,906	1,354,149,238	2.112
2	2014	$14,148,906	$14,887,620	$29,036,526	$25,249,153	1,381,823,184	2.101
3	2015	$14,148,906	$15,334,249	$29,483,155	$22,293,501	1,404,259,113	2.100
4	2016	$14,148,906	$15,794,276	$29,943,183	$19,688,129	1,433,599,317	2.089
5	2017	$14,148,906	$14,364,756	$28,513,663	$16,302,779	1,460,439,455	1.952
6	2018	$14,148,906	$13,752,352	$27,901,259	$13,871,857	1,484,786,751	1.879
7	2019	$14,148,906	$14,164,923	$28,313,829	$12,240,850	1,511,537,490	1.873
8	2020	$14,148,906	$14,589,871	$28,738,777	$10,803,971	1,537,718,859	1.869
9	2021	$14,148,906	$11,930,567	$26,079,474	$8,525,426	1,564,654,415	1.667
10	2022	$14,148,906	$16,652,690	$30,801,596	$8,755,736	1,592,135,929	1.935
11	2023	$14,148,906	$15,942,746	$30,091,652	$7,438,196	1,619,461,427	1.858
12	2024	$14,148,906	$16,421,028	$30,569,934	$6,570,800	1,645,647,248	1.858
13	2025	$14,148,906	$16,913,659	$31,062,565	$5,805,816	1,671,725,231	1.858
14	2026	$14,148,906	$17,421,069	$31,569,975	$5,131,004	1,701,428,719	1.855
15	2027	$14,148,906	$19,305,031	$33,453,938	$4,728,000	1,730,444,353	1.933
16	2028	$14,148,906	$18,482,012	$32,630,918	$4,010,160	1,759,139,641	1.855
17	2029	$14,148,906	$19,036,472	$33,185,378	$3,546,348	1,787,615,720	1.856
18	2030	$14,148,906	$19,607,566	$33,756,473	$3,136,850	1,815,640,572	1.859
19	2031	$14,148,906	$20,195,793	$34,344,700	$2,775,228	1,843,061,530	1.863
20	2032	$14,148,906	$22,379,822	$36,528,729	$2,566,703	1,870,238,093	1.953
			Present Value of Annual Cost =		$212,043,412		
						Average c/gal	1.916

Assumptions:

Capital Cost	$	210,500,000
Interest Rate (amort)	3.00%	
Term	20	
Remaining Value	$	-
Escalation	3%	
Discount rate	15.00%	

Present Value Analysis

JFK Fueling System Master Plan

Option C

No.	Year	Amortized Capital Costs	Annual O&M Costs	Total Annual Costs	Present Value of Annual Costs	Annual Fuel Demand	Annual Cost per gallon (cents)
1	2013	$11,724,154	$14,454,000	$26,178,154	$26,178,154	1,354,149,238	1.933
2	2014	$11,724,154	$14,887,620	$26,611,774	$23,140,673	1,381,823,184	1.926
3	2015	$11,724,154	$15,334,249	$27,058,402	$20,460,039	1,404,259,113	1.927
4	2016	$11,724,154	$15,794,276	$27,518,430	$18,093,814	1,433,599,317	1.920
5	2017	$11,724,154	$15,015,976	$26,740,129	$15,288,756	1,460,439,455	1.831
6	2018	$11,724,154	$14,075,326	$25,799,480	$12,826,901	1,484,786,751	1.738
7	2019	$11,724,154	$14,497,586	$26,221,740	$11,336,382	1,511,537,490	1.735
8	2020	$11,724,154	$14,932,514	$26,656,667	$10,021,229	1,537,718,859	1.734
9	2021	$11,724,154	$15,380,489	$27,104,643	$8,860,556	1,564,654,415	1.732
10	2022	$11,724,154	$17,407,631	$29,131,785	$8,281,071	1,592,135,929	1.830
11	2023	$11,724,154	$16,317,161	$28,041,314	$6,931,384	1,619,461,427	1.732
12	2024	$14,942,052	$16,806,676	$31,748,727	$6,824,174	1,645,647,248	1.929
13	2025	$14,942,052	$17,310,876	$32,252,928	$6,028,303	1,671,725,231	1.929
14	2026	$14,942,052	$17,830,202	$32,772,254	$5,326,407	1,701,428,719	1.926
15	2027	$14,942,052	$20,180,216	$35,122,268	$4,963,783	1,730,444,353	2.030
16	2028	$14,942,052	$18,916,061	$33,858,113	$4,160,975	1,759,139,641	1.925
17	2029	$14,942,052	$19,483,543	$34,425,595	$3,678,883	1,787,615,720	1.926
18	2030	$14,942,052	$20,068,050	$35,010,101	$3,253,345	1,815,640,572	1.928
19	2031	$14,942,052	$20,670,091	$35,612,143	$2,877,643	1,843,061,530	1.932
20	2032	$14,942,052	$23,394,401	$38,336,453	$2,693,723	1,870,238,093	2.050
			Present Value of Annual Cost =		$201,226,195		
						Average c/gal	1.881

Assumptions:

Capital Cost	$	174,425,801	First round of development
Capital Cost		47,874,199	add storage is 2023
Interest Rate (amort)	3.00%		
Term	20		
Remaining Value	$	-	
Escalation	3%		
Discount rate	15.00%		

Present Value Analysis

JFK Fueling System Master Plan

Option D

No.	Year	Amortized Capital Costs	Annual O&M Costs	Total Annual Costs	Present Value of Annual Costs	Annual Fuel Demand	Annual Cost per gallon (cents)
1	2013	$753,827	$23,127,620	$23,881,447	$23,881,447	1,354,149,238	1.764
2	2014	$753,827	$23,821,449	$24,575,276	$21,369,805	1,381,823,184	1.778
3	2015	$753,827	$24,536,092	$25,289,919	$19,122,812	1,404,259,113	1.801
4	2016	$753,827	$21,332,894	$22,086,721	$14,522,378	1,433,599,317	1.541
5	2017	$753,827	$20,233,970	$20,987,797	$11,999,841	1,460,439,455	1.437
6	2018	$753,827	$20,840,989	$21,594,816	$10,736,440	1,484,786,751	1.454
7	2019	$753,827	$21,466,218	$22,220,046	$9,606,339	1,511,537,490	1.470
8	2020	$753,827	$22,110,205	$22,864,032	$8,595,437	1,537,718,859	1.487
9	2021	$753,827	$24,730,671	$25,484,498	$8,330,928	1,564,654,415	1.629
10	2022	$753,827	$23,456,716	$24,210,544	$6,882,148	1,592,135,929	1.521
11	2023	$753,827	$24,160,418	$24,914,245	$6,158,420	1,619,461,427	1.538
12	2024	$3,971,725	$24,885,231	$28,856,956	$6,202,607	1,645,647,248	1.754
13	2025	$3,971,725	$25,631,787	$29,603,513	$5,533,108	1,671,725,231	1.771
14	2026	$3,971,725	$28,669,626	$32,641,351	$5,305,132	1,701,428,719	1.918
15	2027	$3,971,725	$27,192,763	$31,164,489	$4,404,435	1,730,444,353	1.801
16	2028	$3,971,725	$28,008,546	$31,980,272	$3,930,199	1,759,139,641	1.818
17	2029	$3,971,725	$28,848,803	$32,820,528	$3,507,358	1,787,615,720	1.836
18	2030	$3,971,725	$29,714,267	$33,685,992	$3,130,301	1,815,640,572	1.855
19	2031	$3,971,725	$33,235,954	$37,207,679	$3,006,571	1,843,061,530	2.019
20	2032	$3,971,725	$31,523,865	$35,495,591	$2,494,109	1,870,238,093	1.898
			Present Value of Annual Cost =		$178,719,815		
						Average c/gal	1.704

Assumptions:

Capital Cost	$	11,215,045	
Capital Cost		47,874,199	add storage is 2025
Interest Rate (amort)	3.00%		
Term	20		
Remaining Value	$	-	
Escalation	3%		
Discount rate	15.00%		

Present Value Analysis

JFK Fueling System Master Plan

State of the Art Concept

No.	Year	Amortized Capital Costs	Annual O&M Costs	Total Annual Costs	Present Value of Annual Costs	Annual Fuel Demand	Annual Cost per gallon (cents)
1	2013		$14,454,000	$14,454,000	$14,454,000	1,354,149,238	1.067
2	2014		$14,887,620	$14,887,620	$12,945,757	1,381,823,184	1.077
3	2015		$15,334,249	$15,334,249	$11,594,895	1,404,259,113	1.092
4	2016		$15,794,276	$15,794,276	$10,384,993	1,433,599,317	1.102
5	2017		$17,956,368	$17,956,368	$10,266,611	1,460,439,455	1.230
6	2018	$23,144,706	$7,828,926	$30,973,632	$15,399,369	1,484,786,751	2.086
7	2019	$23,144,706	$8,063,793	$31,208,500	$13,492,296	1,511,537,490	2.065
8	2020	$23,144,706	$8,305,707	$31,450,413	$11,823,375	1,537,718,859	2.045
9	2021	$23,144,706	$8,554,878	$31,699,585	$10,362,650	1,564,654,415	2.026
10	2022	$23,144,706	$9,300,815	$32,445,521	$9,223,042	1,592,135,929	2.038
11	2023	$23,144,706	$9,075,870	$32,220,577	$7,964,434	1,619,461,427	1.990
12	2024	$23,144,706	$9,348,147	$32,492,853	$6,984,118	1,645,647,248	1.974
13	2025	$23,144,706	$9,628,591	$32,773,297	$6,125,564	1,671,725,231	1.960
14	2026	$23,144,706	$9,917,449	$33,062,155	$5,373,524	1,701,428,719	1.943
15	2027	$23,144,706	$10,782,193	$33,926,900	$4,794,843	1,730,444,353	1.961
16	2028	$23,144,706	$10,521,421	$33,666,128	$4,137,381	1,759,139,641	1.914
17	2029	$23,144,706	$10,837,064	$33,981,770	$3,631,454	1,787,615,720	1.901
18	2030	$23,144,706	$11,162,176	$34,306,882	$3,187,997	1,815,640,572	1.890
19	2031	$23,144,706	$11,497,041	$34,641,747	$2,799,231	1,843,061,530	1.880
20	2032	$23,144,706	$12,499,517	$35,644,223	$2,504,553	1,870,238,093	1.906
			Present Value of Annual Cost =		$167,450,088		
						Average c/gal	1.757

Assumptions:

Capital Cost	$	276,300,000
Interest Rate (amort)	3.00%	
Term	15	
Remaining Value	$	-
Escalation	3%	
Discount rate (PV)	15.00%	

Present Value Analysis

JFK Fueling System Master Plan

Option A

No.	Year	Amortized Capital Costs	Annual O&M Costs	Total Annual Costs	Present Value of Annual Costs	Annual Fuel Demand	Annual Cost per gallon (cents)
1	2013		$14,454,000	$14,454,000	$14,454,000	1,354,149,238	1.067
2	2014		$14,887,620	$14,887,620	$12,945,757	1,381,823,184	1.077
3	2015		$15,334,249	$15,334,249	$11,594,895	1,404,259,113	1.092
4	2016		$15,794,276	$15,794,276	$10,384,993	1,433,599,317	1.102
5	2017		$17,956,368	$17,956,368	$10,266,611	1,460,439,455	1.230
6	2018	$19,953,199	$10,918,159	$30,871,359	$15,348,521	1,484,786,751	2.079
7	2019	$19,953,199	$11,245,704	$31,198,903	$13,488,147	1,511,537,490	2.064
8	2020	$19,953,199	$11,583,075	$31,536,275	$11,855,654	1,537,718,859	2.051
9	2021	$19,953,199	$11,930,567	$31,883,767	$10,422,860	1,564,654,415	2.038
10	2022	$19,953,199	$13,462,780	$33,415,980	$9,498,907	1,592,135,929	2.099
11	2023	$19,953,199	$12,657,139	$32,610,338	$8,060,777	1,619,461,427	2.014
12	2024	$19,953,199	$13,036,853	$32,990,052	$7,090,988	1,645,647,248	2.005
13	2025	$19,953,199	$13,427,959	$33,381,158	$6,239,177	1,671,725,231	1.997
14	2026	$19,953,199	$13,830,797	$33,783,997	$5,490,844	1,701,428,719	1.986
15	2027	$19,953,199	$15,607,052	$35,560,252	$5,025,683	1,730,444,353	2.055
16	2028	$19,953,199	$14,673,093	$34,626,292	$4,255,380	1,759,139,641	1.968
17	2029	$19,953,199	$15,113,286	$35,066,485	$3,747,372	1,787,615,720	1.962
18	2030	$19,953,199	$15,566,684	$35,519,884	$3,300,717	1,815,640,572	1.956
19	2031	$19,953,199	$16,033,685	$35,986,884	$2,907,924	1,843,061,530	1.953
20	2032	$19,953,199	$18,092,851	$38,046,050	$2,673,318	1,870,238,093	2.034
			Present Value of Annual Cost =		$169,052,525		
						Average c/gal	1.791

Assumptions:

Capital Cost	$	238,200,000
Interest Rate (amort)	3.00%	
Term	15	
Remaining Value	$	-
Escalation	3%	
Discount rate	15.00%	

Present Value Analysis

JFK Fueling System Master Plan

Option B

No.	Year	Amortized Capital Costs	Annual O&M Costs	Total Annual Costs	Present Value of Annual Costs	Annual Fuel Demand	Annual Cost per gallon (cents)
1	2013		$14,454,000	$14,454,000	$14,454,000	1,354,149,238	1.067
2	2014		$14,887,620	$14,887,620	$12,945,757	1,381,823,184	1.077
3	2015		$15,334,249	$15,334,249	$11,594,895	1,404,259,113	1.092
4	2016		$15,794,276	$15,794,276	$10,384,993	1,433,599,317	1.102
5	2017		$14,364,756	$14,364,756	$8,213,096	1,460,439,455	0.984
6	2018	$17,632,865	$13,752,352	$31,385,218	$15,604,000	1,484,786,751	2.114
7	2019	$17,632,865	$14,164,923	$31,797,788	$13,747,061	1,511,537,490	2.104
8	2020	$17,632,865	$14,589,871	$32,222,736	$12,113,720	1,537,718,859	2.095
9	2021	$17,632,865	$11,930,567	$29,563,432	$9,664,339	1,564,654,415	1.889
10	2022	$17,632,865	$16,652,690	$34,285,555	$9,746,095	1,592,135,929	2.153
11	2023	$17,632,865	$15,942,746	$33,575,611	$8,299,377	1,619,461,427	2.073
12	2024	$17,632,865	$16,421,028	$34,053,893	$7,319,654	1,645,647,248	2.069
13	2025	$17,632,865	$16,913,659	$34,546,524	$6,456,992	1,671,725,231	2.067
14	2026	$17,632,865	$17,421,069	$35,053,934	$5,697,244	1,701,428,719	2.060
15	2027	$17,632,865	$19,305,031	$36,937,897	$5,220,383	1,730,444,353	2.135
16	2028	$17,632,865	$18,482,012	$36,114,877	$4,438,319	1,759,139,641	2.053
17	2029	$17,632,865	$19,036,472	$36,669,337	$3,918,660	1,787,615,720	2.051
18	2030	$17,632,865	$19,607,566	$37,240,431	$3,460,600	1,815,640,572	2.051
19	2031	$17,632,865	$20,195,793	$37,828,658	$3,056,749	1,843,061,530	2.052
20	2032	$17,632,865	$22,379,822	$40,012,688	$2,811,504	1,870,238,093	2.139
			Present Value of Annual Cost =		$169,147,439		
						Average c/gal	1.821

Assumptions:

Capital Cost	$	210,500,000
Interest Rate (amort)	3.00%	
Term	15	
Remaining Value	$	-
Escalation	3%	
Discount rate	15.00%	

Present Value Analysis

JFK Fueling System Master Plan

Option C

No.	Year	Amortized Capital Costs	Annual O&M Costs	Total Annual Costs	Present Value of Annual Costs	Annual Fuel Demand	Annual Cost per gallon (cents)
1	2013		$14,454,000	$14,454,000	$14,454,000	1,354,149,238	1.067
2	2014		$14,887,620	$14,887,620	$12,945,757	1,381,823,184	1.077
3	2015		$15,334,249	$15,334,249	$11,594,895	1,404,259,113	1.092
4	2016		$15,794,276	$15,794,276	$10,384,993	1,433,599,317	1.102
5	2017		$15,015,976	$15,015,976	$8,585,433	1,460,439,455	1.028
6	2018	$14,611,053	$14,075,326	$28,686,379	$14,262,200	1,484,786,751	1.932
7	2019	$14,611,053	$14,497,586	$29,108,639	$12,584,468	1,511,537,490	1.926
8	2020	$14,611,053	$14,932,514	$29,543,566	$11,106,521	1,537,718,859	1.921
9	2021	$14,611,053	$15,380,489	$29,991,542	$9,804,288	1,564,654,415	1.917
10	2022	$14,611,053	$17,407,631	$32,018,684	$9,101,708	1,592,135,929	2.011
11	2023	$14,611,053	$16,317,161	$30,928,214	$7,644,981	1,619,461,427	1.910
12	2024	$18,621,311	$16,806,676	$35,427,986	$7,615,006	1,645,647,248	2.153
13	2025	$18,621,311	$17,310,876	$35,932,187	$6,715,983	1,671,725,231	2.149
14	2026	$18,621,311	$17,830,202	$36,451,513	$5,924,390	1,701,428,719	2.142
15	2027	$18,621,311	$20,180,216	$38,801,527	$5,483,768	1,730,444,353	2.242
16	2028	$18,621,311	$18,916,061	$37,537,372	$4,613,136	1,759,139,641	2.134
17	2029	$18,621,311	$19,483,543	$38,104,854	$4,072,066	1,787,615,720	2.132
18	2030	$18,621,311	$20,068,050	$38,689,360	$3,595,243	1,815,640,572	2.131
19	2031	$18,621,311	$20,670,091	$39,291,402	$3,174,946	1,843,061,530	2.132
20	2032	$18,621,311	$23,394,401	$42,015,712	$2,952,247	1,870,238,093	2.247
			Present Value of Annual Cost =		$166,616,030		
						Average c/gal	1.822

Assumptions:

Capital Cost	$	174,425,801	
Capital Cost		47,874,199	add storage is 2023
Interest Rate (amort)	3.00%		
Term	15		
Remaining Value	$	-	
Escalation	3%		
Discount rate	15.00%		

Present Value Analysis

JFK Fueling System Master Plan

Option D

No.	Year	Amortized Capital Costs	Annual O&M Costs	Total Annual Costs	Present Value of Annual Costs	Annual Fuel Demand	Annual Cost per gallon (cents)
1	2013		$23,127,620	$23,127,620	$23,127,620	1,354,149,238	1.708
2	2014		$23,821,449	$23,821,449	$20,714,303	1,381,823,184	1.724
3	2015		$24,536,092	$24,536,092	$18,552,811	1,404,259,113	1.747
4	2016		$21,332,894	$21,332,894	$14,026,724	1,433,599,317	1.488
5	2017		$20,233,970	$20,233,970	$11,568,838	1,460,439,455	1.385
6	2018	$939,446	$20,840,989	$21,780,435	$10,828,725	1,484,786,751	1.467
7	2019	$939,446	$21,466,218	$22,405,664	$9,686,587	1,511,537,490	1.482
8	2020	$939,446	$22,110,205	$23,049,651	$8,665,218	1,537,718,859	1.499
9	2021	$939,446	$24,730,671	$25,670,117	$8,391,607	1,564,654,415	1.641
10	2022	$939,446	$23,456,716	$24,396,162	$6,934,912	1,592,135,929	1.532
11	2023	$939,446	$24,160,418	$25,099,864	$6,204,302	1,619,461,427	1.550
12	2024	$4,949,704	$24,885,231	$29,834,934	$6,412,817	1,645,647,248	1.813
13	2025	$4,949,704	$25,631,787	$30,581,491	$5,715,899	1,671,725,231	1.829
14	2026	$4,949,704	$28,669,626	$33,619,330	$5,464,081	1,701,428,719	1.976
15	2027	$4,949,704	$27,192,763	$32,142,467	$4,542,652	1,730,444,353	1.857
16	2028	$4,949,704	$28,008,546	$32,958,250	$4,050,387	1,759,139,641	1.874
17	2029	$4,949,704	$28,848,803	$33,798,506	$3,611,870	1,787,615,720	1.891
18	2030	$4,949,704	$29,714,267	$34,663,971	$3,221,180	1,815,640,572	1.909
19	2031	$4,949,704	$33,235,954	$38,185,658	$3,085,597	1,843,061,530	2.072
20	2032	$4,949,704	$31,523,865	$36,473,569	$2,562,827	1,870,238,093	1.950
			Present Value of Annual Cost =		$177,368,957		
						Average c/gal	1.720

Assumptions:

Capital Cost	$	11,215,045	
Capital Cost		47,874,199	add storage is 2025
Interest Rate (amort)	3.00%		
Term	15		
Remaining Value	$	-	
Escalation	3%		
Discount rate	15.00%		

Present Value Analysis

JFK Fueling System Master Plan

Buckeye Booster pump

No.	Year	Amortized Capital Costs	Annual O&M Costs	Delivery Costs	Total Annual Costs	Present Value of Annual Costs	Annual Fuel Demand	Annual Cost per gallon (cents)
1	2013	$1,391,365			$1,391,365	$1,391,365	1,354,149,238	0.103
2	2014	$1,391,365			$1,391,365	$1,242,290	1,381,823,184	0.101
3	2015	$1,391,365			$1,391,365	$1,109,188	1,404,259,113	0.099
4	2016	$1,391,365	$4,316,272	$132,229	$5,839,866	$4,156,701	1,433,599,317	0.407
5	2017	$1,391,365	$4,445,760	$136,196	$5,973,321	$3,796,154	1,460,439,455	0.409
6	2018	$1,391,365	$4,579,133	$140,282	$6,110,780	$3,467,421	1,484,786,751	0.412
7	2019	$1,391,365	$4,716,507	$144,491	$6,252,362	$3,167,641	1,511,537,490	0.414
8	2020	$1,391,365	$4,858,002	$148,825	$6,398,192	$2,894,217	1,537,718,859	0.416
9	2021	$1,391,365	$5,003,742	$153,290	$6,548,397	$2,644,788	1,564,654,415	0.419
10	2022	$1,391,365	$5,153,854	$157,889	$6,703,108	$2,417,208	1,592,135,929	0.421
11	2023	$1,391,365	$5,308,470	$162,625	$6,862,460	$2,209,529	1,619,461,427	0.424
12	2024	$1,391,365	$5,467,724	$167,504	$7,026,593	$2,019,978	1,645,647,248	0.427
13	2025	$1,391,365	$5,631,756	$172,529	$7,195,650	$1,846,944	1,671,725,231	0.430
14	2026	$1,391,365	$5,800,708	$177,705	$7,369,778	$1,688,963	1,701,428,719	0.433
15	2027	$1,391,365	$5,974,729	$183,036	$7,549,131	$1,544,702	1,730,444,353	0.436
16	2028	$1,391,365	$6,153,971	$188,527	$7,733,864	$1,412,948	1,759,139,641	0.440
17	2029	$1,391,365	$6,338,590	$194,183	$7,924,139	$1,292,599	1,787,615,720	0.443
18	2030	$1,391,365	$6,528,748	$200,009	$8,120,122	$1,182,650	1,815,640,572	0.447
19	2031	$1,391,365	$6,724,611	$206,009	$8,321,985	$1,082,187	1,843,061,530	0.452
20	2032	$1,391,365	$6,926,349	$212,189	$8,529,903	$990,380	1,870,238,093	0.456
			Present Value of Annual Cost =			$41,557,851		

Assumptions:

0.379

Capital Cost	$	20,700,000
Interest Rate (amort)	3.00%	
Term	20	
Remaining Value	$	-
Escalation	3%	
Discount rate (PV)	12.00%	

Present Value Analysis

JFK Fueling System Master Plan

Buckeye 602 o tJFK

No.	Year	Amortized Capital Costs	Annual O&M Costs	Delivery Costs	Total Annual Costs	Present Value of Annual Costs	Annual Fuel Demand	Annual Cost per gallon (cents)
1	2013	$820,032			$820,032	$820,032	1,354,149,238	0.061
2	2014	$820,032			$820,032	$732,171	1,381,823,184	0.059
3	2015	$820,032			$820,032	$653,724	1,404,259,113	0.058
4	2016	$820,032	$147,723	$132,229	$1,099,984	$782,947	1,433,599,317	0.077
5	2017	$820,032	$152,155	$136,196	$1,108,383	$704,397	1,460,439,455	0.076
6	2018	$820,032	$156,719	$140,282	$1,117,033	$633,835	1,484,786,751	0.075
7	2019	$820,032	$161,421	$144,491	$1,125,943	$570,438	1,511,537,490	0.074
8	2020	$820,032	$166,264	$148,825	$1,135,120	$513,471	1,537,718,859	0.074
9	2021	$820,032	$171,251	$153,290	$1,144,573	$462,274	1,564,654,415	0.073
10	2022	$820,032	$176,389	$157,889	$1,154,309	$416,256	1,592,135,929	0.073
11	2023	$820,032	$181,681	$162,625	$1,164,338	$374,886	1,619,461,427	0.072
12	2024	$820,032	$187,131	$167,504	$1,174,667	$337,689	1,645,647,248	0.071
13	2025	$820,032	$192,745	$172,529	$1,185,306	$304,239	1,671,725,231	0.071
14	2026	$820,032	$198,527	$177,705	$1,196,264	$274,153	1,701,428,719	0.070
15	2027	$820,032	$204,483	$183,036	$1,207,551	$247,089	1,730,444,353	0.070
16	2028	$820,032	$210,618	$188,527	$1,219,177	$222,739	1,759,139,641	0.069
17	2029	$820,032	$216,936	$194,183	$1,231,151	$200,827	1,787,615,720	0.069
18	2030	$820,032	$223,444	$200,009	$1,243,485	$181,106	1,815,640,572	0.068
19	2031	$820,032	$230,148	$206,009	$1,256,188	$163,354	1,843,061,530	0.068
20	2032	$820,032	$237,052	$212,189	$1,269,273	$147,371	1,870,238,093	0.068
			Present Value of Annual Cost =			$8,742,996		

Assumptions: 0.070

Capital Cost	$	12,200,000
Interest Rate (amort)	3.00%	
Term	20	
Remaining Value	$	-
Escalation	3%	
Discount rate (PV)	12.00%	

Present Value Analysis

JFK Fueling System Master Plan

Buckeye 602 to LGA

No.	Year	Amortized Capital Costs	Annual O&M Costs	Delivery Costs	Total Annual Costs	Present Value of Annual Costs	Annual Fuel Demand	Annual Cost per gallon (cents)
1	2013	$336,079			$336,079	$336,079	1,354,149,238	0.025
2	2014	$336,079			$336,079	$300,070	1,381,823,184	0.024
3	2015	$336,079			$336,079	$267,920	1,404,259,113	0.024
4	2016	$336,079	$118,178	$132,229	$586,486	$417,449	1,433,599,317	0.041
5	2017	$336,079	$121,724	$136,196	$593,998	$377,497	1,460,439,455	0.041
6	2018	$336,079	$125,375	$140,282	$601,736	$341,441	1,484,786,751	0.041
7	2019	$336,079	$129,137	$144,491	$609,706	$308,896	1,511,537,490	0.040
8	2020	$336,079	$133,011	$148,825	$617,915	$279,513	1,537,718,859	0.040
9	2021	$336,079	$137,001	$153,290	$626,370	$252,980	1,564,654,415	0.040
10	2022	$336,079	$141,111	$157,889	$635,078	$229,016	1,592,135,929	0.040
11	2023	$336,079	$145,345	$162,625	$644,048	$207,366	1,619,461,427	0.040
12	2024	$336,079	$149,705	$167,504	$653,288	$187,805	1,645,647,248	0.040
13	2025	$336,079	$154,196	$172,529	$662,804	$170,125	1,671,725,231	0.040
14	2026	$336,079	$158,822	$177,705	$672,606	$154,144	1,701,428,719	0.040
15	2027	$336,079	$163,587	$183,036	$682,701	$139,694	1,730,444,353	0.039
16	2028	$336,079	$168,494	$188,527	$693,100	$126,627	1,759,139,641	0.039
17	2029	$336,079	$173,549	$194,183	$703,811	$114,807	1,787,615,720	0.039
18	2030	$336,079	$178,755	$200,009	$714,843	$104,113	1,815,640,572	0.039
19	2031	$336,079	$184,118	$206,009	$726,206	$94,435	1,843,061,530	0.039
20	2032	$336,079	$189,642	$212,189	$737,909	$85,676	1,870,238,093	0.039
			Present Value of Annual Cost =			$4,495,653		

Assumptions: 0.038

Capital Cost	$	5,000,000
Interest Rate (amort)	3.00%	
Term	20	
Remaining Value	$	-
Escalation	3%	
Discount rate (PV)	12.00%	

Present Value Analysis

JFK Fueling System Master Plan

New Pier

No.	Year	Amortized Capital Costs	Annual O&M Costs	Delivery Costs	Total Annual Costs	Present Value of Annual Costs	Annual Fuel Delivered	Annual Cost per gallon (cents)
1	2013	$1,067,854	$465,000	$1,112,400	$2,645,254	$2,645,254	1,354,149,238	0.195
2	2014	$1,067,854	$478,950	$1,145,772	$2,692,576	$2,404,086	1,381,823,184	0.195
3	2015	$1,067,854	$493,319	$1,180,145	$2,741,318	$2,185,362	1,404,259,113	0.195
4	2016	$1,067,854	$508,118	$1,215,550	$2,791,522	$1,986,950	1,433,599,317	0.195
5	2017	$1,067,854	$523,362	$1,252,016	$2,843,232	$1,806,925	1,460,439,455	0.195
6	2018	$1,067,854	$3,539,062	$1,289,576	$5,896,493	$3,345,829	1,484,786,751	0.397
7	2019	$1,067,854	$555,234	$1,328,264	$2,951,353	$1,495,247	1,511,537,490	0.195
8	2020	$1,067,854	$571,891	$1,368,112	$3,007,857	$1,360,602	1,537,718,859	0.196
9	2021	$1,067,854	$696,724	$2,113,733	$3,878,311	$1,566,385	1,564,654,415	0.248
10	2022	$1,067,854	$717,625	$2,177,145	$3,962,624	$1,428,962	1,592,135,929	0.249
11	2023	$1,067,854	$3,739,154	$2,242,459	$7,049,467	$2,269,740	1,619,461,427	0.435
12	2024	$1,067,854	$761,329	$2,309,733	$4,138,916	$1,189,839	1,645,647,248	0.252
13	2025	$1,067,854	$784,168	$2,379,025	$4,231,048	$1,086,005	1,671,725,231	0.253
14	2026	$1,067,854	$1,138,114	$4,900,791	$7,106,759	$1,628,686	1,701,428,719	0.418
15	2027	$1,067,854	$1,172,257	$5,047,814	$7,287,926	$1,491,254	1,730,444,353	0.421
16	2028	$1,067,854	$4,207,425	$5,199,249	$10,474,528	$1,913,657	1,759,139,641	0.595
17	2029	$1,067,854	$1,243,647	$5,355,226	$7,666,728	$1,250,609	1,787,615,720	0.429
18	2030	$1,067,854	$1,280,957	$5,515,883	$7,864,694	$1,145,448	1,815,640,572	0.433
19	2031	$1,067,854	$1,319,386	$5,681,360	$8,068,600	$1,049,237	1,843,061,530	0.438
20	2032	$1,067,854	$1,358,967	$5,851,800	$8,278,622	$961,204	1,870,238,093	0.443
			Present Value of Annual Cost =			$34,211,282		

Assumptions: 0.319

Capital Cost	$	15,886,978
Interest Rate (amort)	3.00%	
Term	20	
Remaining Value	$	-
Escalation	3%	
Discount rate (PV)	12.00%	

Present Value Analysis

JFK Fueling System Master Plan

New Pier with worst case dredging

No.	Year	Amortized Capital Costs	Annual O&M Costs	Delivery Costs	Total Annual Costs	Present Value of Annual Costs	Annual Fuel Delivered	Annual Cost per gallon (cents)
1	2013	$3,450,532	$465,000	$1,112,400	$5,027,932	$5,027,932	1,354,149,238	0.371
2	2014	$3,450,532	$478,950	$1,145,772	$5,075,254	$4,531,477	1,381,823,184	0.367
3	2015	$3,450,532	$493,319	$1,180,145	$5,123,995	$4,084,818	1,404,259,113	0.365
4	2016	$3,450,532	$508,118	$1,215,550	$5,174,199	$3,682,893	1,433,599,317	0.361
5	2017	$3,450,532	$523,362	$1,252,016	$5,225,909	$3,321,160	1,460,439,455	0.358
6	2018	$3,450,532	$3,539,062	$1,289,576	$8,279,171	$4,697,824	1,484,786,751	0.558
7	2019	$3,450,532	$555,234	$1,328,264	$5,334,030	$2,702,386	1,511,537,490	0.353
8	2020	$3,450,532	$571,891	$1,368,112	$5,390,535	$2,438,404	1,537,718,859	0.351
9	2021	$3,450,532	$696,724	$2,113,733	$6,260,988	$2,528,708	1,564,654,415	0.400
10	2022	$3,450,532	$717,625	$2,177,145	$6,345,302	$2,288,179	1,592,135,929	0.399
11	2023	$3,450,532	$3,739,154	$2,242,459	$9,432,145	$3,036,898	1,619,461,427	0.582
12	2024	$3,450,532	$761,329	$2,309,733	$6,521,593	$1,874,802	1,645,647,248	0.396
13	2025	$3,450,532	$784,168	$2,379,025	$6,613,725	$1,697,578	1,671,725,231	0.396
14	2026	$3,450,532	$1,138,114	$4,900,791	$9,489,436	$2,174,734	1,701,428,719	0.558
15	2027	$3,450,532	$1,172,257	$5,047,814	$9,670,603	$1,978,797	1,730,444,353	0.559
16	2028	$3,450,532	$4,207,425	$5,199,249	$12,857,205	$2,348,963	1,759,139,641	0.731
17	2029	$3,450,532	$1,243,647	$5,355,226	$10,049,406	$1,639,276	1,787,615,720	0.562
18	2030	$3,450,532	$1,280,957	$5,515,883	$10,247,372	$1,492,472	1,815,640,572	0.564
19	2031	$3,450,532	$1,319,386	$5,681,360	$10,451,277	$1,359,080	1,843,061,530	0.567
20	2032	$3,450,532	$1,358,967	$5,851,800	$10,661,299	$1,237,849	1,870,238,093	0.570
			Present Value of Annual Cost =			$54,144,229		

Assumptions:

0.468

Capital Cost	$	51,335,200
Interest Rate (amort)	3.00%	
Term	20	
Remaining Value	$	-
Escalation	3%	
Discount rate (PV)	12.00%	

Present Value Analysis

JFK Fueling System Master Plan

Inwood Pier

No.	Year	Amortized Capital Costs	Annual O&M Costs	Delivery Costs	Total Annual Costs	Present Value of Annual Costs	Annual Fuel Delivered	Annual Cost per gallon (cents)
1	2013	$1,680,393	$25,000	$1,575,900	$3,281,293	$3,281,293	1,354,149,238	0.242
2	2014	$1,680,393	$25,750	$1,623,177	$3,329,320	$2,972,607	1,381,823,184	0.241
3	2015	$1,680,393	$26,523	$1,671,872	$3,378,787	$2,693,549	1,404,259,113	0.241
4	2016	$1,680,393	$27,318	$1,722,028	$3,429,739	$2,441,221	1,433,599,317	0.239
5	2017	$1,680,393	$28,138	$1,773,689	$3,482,220	$2,213,014	1,460,439,455	0.238
6	2018	$1,680,393	$28,982	$1,826,900	$3,536,275	$2,006,577	1,484,786,751	0.238
7	2019	$1,680,393	$29,851	$1,881,707	$3,591,951	$1,819,794	1,511,537,490	0.238
8	2020	$1,680,393	$30,747	$1,938,158	$3,649,298	$1,650,757	1,537,718,859	0.237
9	2021	$1,680,393	$31,669	$2,994,454	$4,706,516	$1,900,883	1,564,654,415	0.301
10	2022	$1,680,393	$32,619	$3,084,288	$4,797,300	$1,729,955	1,592,135,929	0.301
11	2023	$1,680,393	$33,598	$3,176,817	$4,890,807	$1,574,709	1,619,461,427	0.302
12	2024	$1,680,393	$34,606	$3,272,121	$4,987,120	$1,433,678	1,645,647,248	0.303
13	2025	$1,680,393	$35,644	$3,370,285	$5,086,322	$1,305,532	1,671,725,231	0.304
14	2026	$1,680,393	$36,713	$6,942,787	$8,659,893	$1,984,624	1,701,428,719	0.509
15	2027	$1,680,393	$37,815	$7,151,070	$8,869,278	$1,814,830	1,730,444,353	0.513
16	2028	$1,680,393	$38,949	$7,365,603	$9,084,944	$1,659,785	1,759,139,641	0.516
17	2029	$1,680,393	$40,118	$7,586,571	$9,307,081	$1,518,187	1,787,615,720	0.521
18	2030	$1,680,393	$41,321	$7,814,168	$9,535,882	$1,388,847	1,815,640,572	0.525
19	2031	$1,680,393	$42,561	$8,048,593	$9,771,546	$1,270,688	1,843,061,530	0.530
20	2032	$1,680,393	$43,838	$8,290,051	$10,014,281	$1,162,726	1,870,238,093	0.535
			Present Value of Annual Cost =			$37,823,254		

Assumptions:

0.354

Capital Cost	$	25,000,000
Interest Rate (amort)	3.00%	
Term	20	
Remaining Value	$	-
Escalation	3%	
Discount rate (PV)	12.00%	

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Appendix E

Anticipated Permitting Requirements

As part of the development of this plan, the permitting and code compliance tasks were identified as a preliminary task list for planning purposes. This list is preliminary and should be validated as a task with any design effort. The selected options will impact the permit requirements as well.

Federal Agencies
US Army Corps of Engineers
- Section 404 Clean Water Act Permit
- Section 10 Rivers and Harbors Act Permit

State Agencies
NYSDEC
- Aboveground Storage Tank Regulations
- Excavation and Fill in Navigable Waters
- Docks, Moorings or Platforms
- 401 Water Quality Certification
- Tidal Wetlands Permit
- Coastal Erosion Management

New York State Office of General Services - State Owned Land
- Under Water – Docks, Moorings or Platform Permits

New York State Department of State – Coastal Consistency Concurrence
New York State Environmental Quality Review Act (SEQRA)
Port Authority of New York & New Jersey

City Agencies
- New York City Fire Marshall – NCY Fire Flammable and Combustible Liquids Code
- New York City Mayor's Office of Environmental Coordination (MOEC) City Environmental Quality Review (CEQR) Program

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Appendix F

Updated Dredging Analysis

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JFK International Airport
Barge Fuel Supply Feasibility Summary

DRAFT

Prepared for:

Pond & Company

Prepared by:

P.W. Grosser Consulting, Inc.
630 Johnson Avenue, Suite 7
Bohemia, New York 11716
(631) 589-6353

SEPTEMBER 25, 2013

Barge Fuel Supply Feasibility Summary

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LIST OF ACRONYMS

Acronym	Definition
basin	Bergen Basin
Barge Fuel Supply Study	JFK International Airport, Barge Fuel Supply and Off-Loading Study prepared by Burns & McDonnell, Apex, Moffatt & Nichol (Feb. 2012)
BUD	NYSDEC Beneficial Use Determination
CEQR	New York City Environmental Quality Review
CSO	Combined Sewer Overflow
CY	Cubic Yards
Feasibility Summary	JFK International Airport, Barge Fuel Supply Feasibility Summary prepared by PWGC
FOIL	Freedom of Information Law
ft	Feet
HARS	Historic Area Remediation Site – Marine Disposal Site
JFK	John F. Kennedy International Airport
MLW	Mean Low Water
NYCDEP	New York City Department of Environmental Protection
NYNJPA	Port Authority of New York and New Jersey
NYSDEC	New York State Department of Environmental Conservation
Pond	Pond & Company
PWGC	P.W. Grosser Consulting, Inc.
SEQRA	New York State Environmental Quality Review Act
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
UUSCO	Unrestricted Use Soil Cleanup Objective
VOCs	Volatile Organic Compounds
WWPCP	Jamaica Bay Waste Water Pollution Control Plant

Barge Fuel Supply Feasibility Summary

1.0 SITE BACKGROUND

P.W. Grosser Consulting, Inc. (PWGC) on behalf of Pond & Company (Pond) has prepared this Barge Fuel Supply Feasibility Summary (Feasibility Summary) to document the environmental permitting requirements, recent effects from Hurricane Sandy, and the estimated cost related to dredging Bergen Basin (basin) on the west side of John F. Kennedy International Airport (JFK) for the purpose of accessing the marine basin for regular scheduled fuel delivery service. This Feasibility Summary is meant to update/modify details provided in a February 2012 JFK International Airport, Barge Fuel Supply and Off-Loading Study prepared by Burns & McDonnell, Apex, Moffatt & Nichol (Barge Fuel Supply Study).

The JFK fuel facility currently receives fuel via the Buckeye pipeline but historically utilized barge fuel delivery service via Bergen Basin. In order to evaluate future fuel delivery options, PWGC was tasked with evaluating the permitting requirements and potential costs associated with dredging Bergen Basin to allow for future access via barge.

1.1 Site Location and Current Usage

The Site consists of Bergen Basin located on the west side of JFK and flows to the south into adjoining Jamaica Bay (see **Figure 1**). Bergen Basin is bounded to the west by a large parcel of vacant parkland. The mouth of the basin is located approximately 0.25 miles east from the corner of 1st Street and 104th Street, Queens NY, and approximately 1,500 feet (ft) from the Jamaica wastewater pollution control plant. The basin is approximately 7,400 ft in length, averages 400 ft in width and is 6 acres in size (see **Figure 2**).

1.2 Barge Fuel Supply Study

PWGC reviewed the February 2012 Barge Fuel Supply Study for preparation of this Feasibility Summary. Although Barge Fuel Study discusses additional fuel delivery options and the status of piers and onshore fueling facilities, PWGC focused on proposed dredging activities and their associated requirements, challenges and cost estimates. Usage of the piers, docks, onshore piping, valves, pumps and tanks fields was not part of this Feasibility Summary and therefore is not discussed in the following sections. For the purpose of this Feasibility Summary, PWGC focused on the following significant details from the Barge Fuel Supply Study, which would likely represent a worst case scenario as far as volume of sediments to be removed, possible hazardous classification of some of the sediments, and possible costs associated with permitting, sediment dredging, staging and disposal. It is likely that each of the alternatives presented would require similar permitting requirements, challenges and dredging and disposal unit cost ranges.

DRAFT

The significant findings of the Barge Fuel Supply Study which would influence the worst case dredging scenario include:

- Reconstruction of Tank Farm Pier 2 – Dredging to this point presents a considerable cost due to the volume of material involved and a considerable risk of finding unsuitable material during the dredging process.
- Fuel by barge was still being delivered to Bergen Basin fuel Piers "1" & "A" into the mid to late 1980s.
- All of the existing pier berths are in shallow water and would require dredging of significant volumes of material to provide a -15 ft mean low water (MLW) depth.
- As of limited bathymetric surveys conducted in 2008 and again in 2012, the MLW depth ranges from 8 to 17 ft. A navigation channel of approximately 15 ft below MLW was approximately 160 ft wide in the direct vicinity of the study area.
- Hydrographic surveys performed in 1981 supplement the newer 2012 bathymetric data and reveal that a majority of the basin adjacent to the tank farm fuel piers, outside the 2012 bathymetric survey area, had a depth of less than 15 ft below MLW.
- It appears that the depth of navigation channels within Jamaica Bay beyond Bergen Basin is limited to 15 ft below MLW. Since barges need to navigate through a 15 foot channel in Jamaica Bay, the maximum depth the basin would be dredged is assumed to be 15 ft below MLW.
- The maximum barge draft depth at low tide would be 12.5 ft within the 15 foot deep channel, although it could be increased for deliveries at high tide. There is an approximate 5 foot difference between low and high tides elevations at the basin.
- Records indicate the basin was previous dredged in 1987. No evidence of dredging activities since 1987 could be found.
- With minimal usage in the last decade and more, the basin has accumulated silt, especially upstream of Pier 3.
- Various permits would be required from multiple regulatory agencies prior to implementation of the marine and/or upland activities. Permit requirements are further discussed in **Section 2.0**.
- The past New York State Department of Environmental Conservation (NYSDEC) dredging permit No. 20-86-0173 allowed dredging of a 7,000 ft long, 200 ft wide channel to a depth of -13 ft MLW with an allowable two ft overdregdge. This permit expired December 31, 1988. Use of an "environmental bucket" was a special condition of the dredging activities.
- There has been a much higher level of regulatory involvement and public scrutiny of dredging and disposal of potentially contaminated sediments since the 1980s.
- During a 1999 review of the sediment to be dredged, it was assumed that special handling and disposal would be required and the material would require transportation to a landfill, potentially

located in Virginia. The report indicates that dredge spoils could not likely be disposed of in an ocean disposal site, which had been a normal option through the 1980s.

- As the owner of the upstream wastewater treatment plant, it is possible that New York City Department of Environmental Protection (NYCDEP) is required to perform maintence dredging for the Bergen Basin. It is recommended that discussions be held with NYCDEP as soon as possible when moving forward with barge fueling plans.
- The primary source of incoming sediments to Bergen Basin leading to "silting up" conditions as well as storm water from outflows is the NYCDEP Jamaica Waste Water Pollution Control Plant WWPCP.
- The significant cost drivers for a dredging option are the volume of sediments requiring dredging and the chemical/physical nature of the sediments requiring disposal.
- A NYSDEC compliant sediment sampling plan and analysis program, needed to support the permit application process, of the proposed dredged areas is appropriate once a facility location option has been selected.
- The three reasonable potential disposal options included;
    - Disposal in the nearby Historic Area Remediation Site (HARS) as part of a NYSDEC Beneficial Use Determination (BUD) program.
    - Disposal as non-hazardous regulated waste in a permitted landfill or other appropriately licensed facility. This option would likely require nearby staging for dewatering prior to transportation.
    - Disposal as hazardous waste an appropriately licensed facility.
- Based upon available information, it appears that NYCDEP is planning on conducting a dredging program within Bergen Basin to address sediment mounding from the NYCDEP combined sewer overflows (CSOs). It is unknown if the permitting process has begun for this effort. Further discussions with NYCDEP are warranted to understand timing and extent of their proposed dredging.
- Shoreline stabilization appears to be needed in portions of the shoreline.
- The most aggressive dredging alternative proposed, Option 4, Reconstruct tank farm pier 2, recommends that an additional bathymetric survey be conducted to support the preparation of a more accurate cost estimate. This dredge alternative 1 option, preliminary estimates 94,000 CY of sediments would be required to be dredged from the channel and berthing space to allow the design barge flexibility during all tidal conditions.
- Although the allowable dredging technique/method (hydraulic vs. mechanical) could not yet be determined, a condition of the previous NYSDEC permit stated all dredging must be conducted by clamshell dredge utilizing a watertight bucket with edges that seal when the bucket is closed. The top of the bucket must be covered so that the dredged material is totally enclosed within the bucket.

1.3 Additional Available Data

In addition to a review of the Barge Fuel Supply Study, PWGC also contacted numerous regulatory agencies including; United States Environmental Protection Agency (USEPA), NYSDEC, NYCDEP, and the Port Authority of New York and New Jersey (NYNJPA) and conducted internet searches related to Bergen Basin. In addition, aerial photographs of the area were reviewed and dredging contractors were contacted to confirm dredging cost estimates. The pertinent information that was received is summarized in the following sections and included in **Appendix A.**

Freedom of Information Law (FOIL) Document Requests

- USEPA – USEPA was contacted and replied that they had no records related to Bergen Basin.
- NYSDEC – PWGC obtained more than 33 files related to Bergen Basin, although no information related to the bathymetric studies, past or existing permits or sediment quality were included. The provided documents were limited to reports and photos associated with historic petroleum spills at the JFK fueling facility.
- NYCDEP - NYCDEP was contacted and no files have yet been received.
- NYNJPA – NYNJPA was contacted several files were provided. The files included past bathymetry surveys, previously expired NYSDEC dredging permits. More recent bathymetric surveys were included in the 2012 Barge Fuel Supply Study.

Internet Search Results

PWGC conducted internet searches to determine if additional pertinent environmental information related to Bergen Basin and/or Jamaica Bay was available. The pertinent search summaries are included below:

- March 2009 USACE Draft Hudson-Raritan Estuary Comprehensive Restoration Plan –
    - *"The shoreline of the eastern side of the site along Bergen Basin is an unvegetated, mud flat. A bulkhead forms the point where the upland juts out into Grassy Bay. On the east side of the bulkhead, a boat landing is present. On the south side of the site, concrete rip-rap has been placed along the south facing shoreline in front of the water tower. Beyond the tower and further west, the shoreline is characterized by large patches of low marsh, small patches of open sand beach, and a series of three, small, open water embayments cut into the uplands. Near the NYCTA rail line, the shoreline has been riprapped. The portion of the site to the west of the rail line has a similar shoreline. Offshore of this site is an extensive sand flat with a depth of one foot below MLLW."*
    - *S*iltation at mouth of creek has lead to restricted tidal flow and poor water and sediment quality in the basin. According to a NYSDEC Impaired/Delisted Waters Not Included on

the 2012 Section 303(d) List, August 2012, parameters of concern include pathogens, floatables, nitrogen, oxygen demand and CSOs as the primary pollutants.

Aerial Photograph Results

PWGC reviewed aerial photographs of Bergen Basin between 2010 and 2013. Based upon a review of the photographs, no significant changes to the coastal shoreline and no marine shoaling could be visually observed.

1.4 Proposed/Assumed Scope of Work

Based upon a the findings of the Barge Fuel Supply Study, review of additional available data and discussions with the project team, the following significant assumption were made in an effort to further detail environmental concerns and challenges, environmental permits and costs estimates of moving forward with evaluating dredging alternatives for Bergen Basin.

- Reconstruction of tank farm pier 2, dredge alternative 2, consisting of dredging of the berth and channel to -15 MLW will be completed. This option and alternative was assumed since it will require dredging of the largest volume of sediments over the largest area and therefore the permitting requirements will be more restrictive than the other options. The technical challenges associated with the option are greater than the other options, the sediment waste characterization sampling requirements will be the most in depth, and the dredging and disposal costs will be greatest.
- This option assumes 94,000 CY of sediments would be dredged from the berthing area and the channel respectively to allow for barge access with full flexibility in berthing during all tidal conditions. These volumes are based upon limited January 2012 bathymetric survey of a portion of Bergen Basin and assume a maintained channel a width of 151 ft., length of approximately 6,000 ft. (from just east of Pier 2 the mouth of Jamaica Bay).
- All dredging must be conducted by clamshell dredge utilizing a watertight bucket with edges that seal when the bucket is closed. The top of the bucket must be covered so that the dredged material is totally enclosed within the bucket. This condition for utilizing an environmental bucket was required by the previous NYSDEC dredging permit for the site.
- Evaluation of the existing fuel piers, docks and loading and unloading areas is not included as part of this evaluation, but is was reported in the Barge Fuel Supply Study that the five historic fuel piers are considered obsolete and considerable work and modifications to the fuels piers will be needed to utilize these structures for future loading/unloading activities.

1.5 Recent Impacts from Hurricane Sandy

In an effort to evaluate significant impacts to the navigability of Bergen Basin and Jamaica Bay that may impact navigation, PWGC reviewed the following sources:

NYSDEC Files Related to Bergen Basin

PWGC, through a freedom of information request, obtained NYSDEC files related to Bergen Basin. Although more than 33 files were obtained, no information related to the depth, past or existing permits or sediment quality were included. The available documents were limited to reports and photos associated with historic petroleum spills at the JFK fueling facility. No information related to navigation concerns/issues from the 2012 Hurricane Sandy was identified from this source.

U.S. Department of Homeland Security/ United States Coast Guard Local Notice to Mariners, District 1

The Local Notice to Mariners for District 1, prepared by U.S. Department of Homeland Security/ United States Coast Guard is a weekly notice that provides important matters affecting navigational safety including changes in channels and aids to navigation. The Local Notice to Mariners is available through the following website:

http://www.navcen.uscg.gov/?pageName=lnmDistrict&region=1

PWGC reviewed the Local Notice to Mariners for District 1, for the fourth quarter of 2012 and August 2013 for navigation concerns related to Bergen Basin and Jamaica Bay. The following applicable general warnings about Bergen Basin or Jamaica Bay were printed:

> **07 November 2012**
> SEACOAST - NY - SOUTH COAST OF LONG ISLAND RANGE STRUCTURES-Revised-9/12/2012
> Mariners are advised to use caution when navigating all inlets on the South Coast of Long Island. Severe winds, tides, flooding and currents from Hurricane Sandy may have caused floating aids to navigation to become extinguished, off-station or missing. The Inlets may also have new shoal areas that are not marked by aids to navigation. Mariners are urged to report any discrepancies or areas of shoaling to the U. S. Coast Guard.
>
> **18 September 2013**
> Sandy repair work is being done at East Rockaway to Rockaway Inlet to Jamaica Bay until approximately 1 October 2013. A submerged pipeline is being laid from

the vicinity of East Rockaway Inlet Lighted Buoy 5 (LLNR 31530) to the beach. The pipeline will be removed on or about 15 September 2013. Dredging is being done from East Rockaway Inlet Buoy 3 (LLNR 31520) and East Rockaway Inlet Buoy 7 (LLNR 31540). The work is being done 7 days a week, 24 hours a day. On scene is the dredge C. R. McCASKILL, attendant plant & tugs, that are monitoring VHF-FM channels 13 & 16. All equipment on scene will be lit during night operations. Mariners are advised to proceed with extreme caution and transit the area at their slowest safe speed to create minimum wake after passing arrangements have been made.

NEW YORK – JAMAICA BAY AND ROCKAWAY INLET – NORTH CHANNEL – FRESH CREEK – Bridge Replacement - Replacement of the Shore Parkway Bridge across Fresh Creek at mile 0.4 is in progress. Barges are operating in and out of the navigable channel during construction. A minimum of 15ft horizontal clearance will be free of obstruction at all times. Mariners can contact the contractor via marine radio VHF-FM 13/16 to have work equipment moved out of the channel. This project is scheduled to be completed by December 31, 2013. Mariners are advised to plan ahead and proceed with extreme caution. Chart 12350 LNM 38/13(CGD1)

NEW YORK – JAMAICA BAY AND ROCKAWAY INLET – PAERDEGAT BASIN – Bridge Replacement - Replacement of the Shore Parkway Bridge across Paerdegat Basin at mile 0.2 is in progress. A minimum of 50ft horizontal clearance and 27ft vertical clearance in MHW will be available through the navigation channel. Barges are operating in and out of the navigable channel during construction. Mariners can contact the contractor via marine radio VHF-FM 13/16 to have work equipment moved out of the channel. This project is scheduled to be completed by December 31, 2013. Mariners are advised to plan ahead and transit the area with extreme caution.

M Chart 12350 LNM 38/13 (CGD1)

Based upon these reports, some Hurricane Sandy repair and restoration work is being completed in and around Jamaica Bay at the East Rockaway and Rockaway Inlets and additional bridge repair work is being conducted at Shore Parkway bridges at North Channel and Paerdegat Basin. It does not appear that the repair work will continue for much longer and this will not likely affect barge activity to Bergen Basin in the future.

USACE

First Interim Report, Disaster Relief Appropriations Act, 2013, USACE, March 11, 2013

No information related to navigation concerns/issues in Bergen Basin or Jamaica Bay from the 2012 Hurricane Sandy were identified from this source.

FACT SHEET- Jamaica Bay Marsh Islands, Brooklyn, NY (August 2013)

No information related to navigation concerns/issues in Bergen Basin or Jamaica Bay from the 2012 Hurricane Sandy were identified from this source, although it does detail the USACE past efforts to restore salt marshes in Jamaica Bay with dredged sediment. USACE should be contacted to determine if the proposed dredged material from Bergen Basin may be beneficially utilized with similar type projects.

http://www.nan.usace.army.mil/Media/FactSheets/FactSheetArticleView/tabid/11241/Article/10268/fact-sheet-jamaica-bay-marsh-islands-brooklyn-ny.aspx

FACT SHEET-JAMAICA BAY, NY (August 2013)

No information related to navigation concerns/issues in Bergen Basin or Jamaica Bay from the 2012 Hurricane Sandy were identified from this source, although it does detail the USACE feasibility review of restoring portions of the ecosystem of Jamaica Bay by regrading shorelines, revegetating grasslands, creating and/or restoring additional estuarine, wetland and upland habitats, and improving circulation and flushing. USACE should be contacted to determine if the proposed dredging from Bergen Basin may be beneficially to the future restoration plans for the area.

http://www.nan.usace.army.mil/Media/FactSheets/FactSheetArticleView/tabid/11241/Article/8107/fact-sheet-jamaica-bay-ny.aspx

Aerial Images

Aerial images of the mouth of Bergen Basin were reviewed to determine if any significant shoreline changes or shoaling could be observed. No significant changes to the coast line and/or visible shoaling could be noted when comparing aerial photos from June 23, 2013 and November 23, 2013 (see **Figure 3**).

2.0 PERMITS AND REGULATORY REQUIREMENTS

Based upon review of the Barge Fuel Supply Study, available data, the assumptions for the proposed scope of work, and review of applicable regulations, the following permits will likely be required prior to starting field activities:

1. Federal
    a. USACE
        i. Section 404 Clean Water Act Permit
        ii. Section 10 Rivers and Harbors Act Permit
2. New York State
    a. NYSDEC
        i. Excavation and Fill in Navigable Waters
        ii. Docks, Moorings or Platforms
        iii. 401 Water Quality Certification
        iv. Tidal Wetlands Permit
        v. Coastal Erosion Management
    b. New York State Office of General Services - State Owned Land Under Water – Docks, Moorings or Platform Permits
    c. New York State Department of State – Coastal Consistency Concurrence
    d. NYNJPA
    e. New York State Environmental Quality Review Act (SEQRA)
3. New York City
    a. New York City Mayor's Office of Environmental Coordination (MOEC) City Environmental Quality Review (CEQR) Program

A New York State environmental quality review and New York City environmental quality review will likely be triggered because of the silting and possible contaminant impact likely caused to the Basin by the NYCDEP WWPCP and CSOs. Since a government agency is involved in the work, or reviewing permit applications, it is likely that the lead review agency will determine that the proposed dredging is considered a "Type II Action" which will end the environmental quality review. If the scope is determined a "Type I Action" additional State and City review and document preparation may be required, but this is unlikely based upon the SEQRA guidelines.

Although an existing NYSDEC Protection of Waters Permit - # 20-86-0173 allowed for some dredging activities, it expired December 3, 1988. It is extremely unlikely that this permit will be renewed because of the change of proposed scope, new regulations regarding dredging and sediment disposal activities and the age of the previous permit. New permits will be required for these activities.

Due to the number of regulatory agencies involved and the types of permits being requested, 12 to 24 months should be allotted to coordinate with regulators, submit permit applications, allow for the environmental quality review, and expect permit approvals. Additional information, including sediment quality and revised bathymetric surveys will be required prior to submitting permit applications.

3.0 ENVIRONMENTAL CONCERNS AND CHALLENGES

Based upon a review of the available data and assumptions outlined above, the following significant environmental concerns and challenges are likely to be encountered as the project proceeds.

Coordination with NYCDEP

The Jamaica Bay Waste Water Treatment Plant, located at the head of Bergen Basin, has been documented as a source of sediment and contamination into the basin. Although the NYCDEP has plans for dredging portions of the basin, the schedule and scope of work is unknown. It is assumed that sediments removed and uncovered as part allowing fuel barge access, may be impacted with contaminants from the NYCDEP WWPCP and CSOs that enter the basin. As such, NYCDEP may have liability associated with the proposed dredging activities. In addition, if hazardous sediments are observed, additional engineering controls, such as capping sediments with certified clean material, may be required as part of any approved permit.

Formal coordination with NYCDEP to address these concerns should begin as soon as possible, as failure to agree upon initial and maintence dredging and sediment disposal responsibilities and cost may have significant affects on the schedule of permitting and implementation of any dredging alternative.

Permitting

Numerous regulatory agencies and government agencies will be involved in the permitting process. In addition, waste characterization analytical data and additional bathymetric surveys will be needed to confirm cost estimates and therefore confirm the proposed scope of activities prior to preparing the permits.

Formal coordination with NYCDEP to address these concerns should begin as soon as possible, as failure to agree upon initial and maintence dredging and sediment disposal responsibilities and cost may have significant affects on the schedule of permitting and implementation of any dredging alternative.

Sediment Quality and Disposal/Reuse Options

Pending collect, analysis and review of additional sediment samples, the physical and chemical quality of the sediments to be dredged can be determined. Sediment sampling and analysis should be completed as per NYSDEC Technical & Operational Guidance Series 5.1.9 (Nov. 2004) and USACE Evaluation of Dredged Materials Proposed for Ocean Disposal Testing Manual (Feb. 1991).

As stated, the volume and the classification of the material to be dredged will have the most significant affect on the ultimate scope of work which will affect coordination with NYCDEP regarding responsibilities, schedule to complete the dredging, permitting requirements, sediment staging if

appropriate, ultimate sediment disposal/reuse options, and the potential need for capping of remaining sediments.

Pier Restoration and Upland Upgrades

Although not a component of this Feasibility Summary, in order to rebuilding the piers, if needed, the impacts to the aquatic environment would have to be mitigated for by possibly creating similar habitat on a site nearby. The over the water footprint of the structure will likely need to be offset, as will the dredge footprint, as it impacts the intertidal and shallow water habitats. In addition, pier and onshore upgrades to the fuel distribution/delivery system may affect permitting and schedule of the dredging scope of work.

Regulators should be provided with detailed information regarding the proposed pier renovations and onshore upgrades as early as possible to minimize the potential for project review and approval delays.

Dredging Techniques/Methodology

If not conditionally required by the dredging permit, decisions regarding the dredging methodology (hydraulic or mechanical) will need to be made. Hydraulic dredging is often quicker and cheaper but is not often utilized during environmental questionable projects and it requires a nearby upland sediment staging/dewatering site to deposit dredged materials. Mechanical dredging or environmental bucket dredging is slower and usually more expensive. This methodology generally reduces the potential for spreading impacted sediments and the dredged materials can be loaded directly to a barge for transportation to a staging area or the ultimate disposal/reuse site.

Environmental monitoring is recommended with either dredging methodology to document site conditions and evaluate the methodology as a means to reduce the potential for spreading impacted sediments. It is very likely that a nearby staging area will be required for the temporary disposition of sediments for either method. Locations for staging areas should be evaluated as early as possible to

Public/Community Participation

The potential for solicited and unsolicited public and community participation should be evaluated early on in the planning phase of the project. Failure to secure stakeholder buy-in on large scale environmental remediation projects could result in implementation delays and shut down following vocal community concerns. It is recommended that a Community Participation Plan be prepared to document outreach efforts, community meetings, notifications, etc., that will serve to educate and involve the project stakeholders including the local community residences and neighboring public.

4.0 ESTIMATED COST RANGES

The following estimated cost estimate was developed using the 2012 Barge Fuel Supply Study, correspondence with dredging contractors who service the NYC metropolitan area, correspondence with analytical laboratories, and PWGC experience with preparing permits and coordinating remedial efforts with multiple regulatory agencies.

As previously discussed, the main cost driver for the proposed project is directly related to the volume of sediments to be dredged and the classification of the sediments that will determine the disposal or reuse options available. Until a full bathymetric survey and sufficient sediment samples are collected and analyzed from the proposed areas to be dredged, the cost estimate for the dredging activities will have an enormous range. This range is due to the fact that the volumes of sediments are unknown and handling, staging, transportation and disposal fee for the sediments will vary greatly depending if the material can be beneficially reused locally or if the sediments will require temporary staging, dewatering, stabilization, distant transportation by barge, truck or rail as a hazardous waste. The assumptions detailed in **Section 1.4** were utilized to come up with the cost ranges listed below.

The cost estimates for the various dredging tasks range from $4.3 to $54.2 million dollars for the assumed scope of work. A brief breakdown of the tasks to be completed along with the estimated cost ranges are detailed in the columns below.

Task	Low Range Cost	High Range Cost
Bathymetric Survey – A complete bathymetric survey of the entire area to be dredged.	$10,000	$40,000
Sediment Sampling and Analysis - In accordance with NYSDEC and USEPA guidelines.	$300,000	$480,000
Permit Application Preparation – Permit application preparation, limited coordination with regulatory agencies	$40,000	$160,000
Coordination of Sediment Disposal Options	$15,000	$80,000
Contractor Procurement Coordination	$20,000	$140,000
Dredging Costs – Mobilization, sediment removal, local handling and limited staging management	$2,370,000	$5,670,000
Transportation and Disposal Fees	$1,410,000	$43,300,000
Engineering Oversight – Monitoring and Inspection Services	$141,000	$4,330,000
Dredging Activity Subtotal	$4,306,000	$54,200,000

<u>Potential alternatives for significant cost savings</u>

The largest cost drivers for this project are directly related to the volume of sediments to be dredged and the handling, transportation and disposal/reuse fees associated with the sediments, based upon their classification.

The volume of sediments to be removed will be the ultimate factor of the fueling alternative chosen by the project team. For estimating purposes, it was assumed that the worst case scenario, largest volume of sediments would need to be removed from the site. If the volume of sediments to be dredged is reduced based upon the barge delivery option chosen, the cost associated cost for dredging activities will decrease.

The staging, transportation, and disposal/reuse fee represents a more flexible alternative to find significant cost savings. The cost per ton of sediments to be transported and disposed of or reused ranges from $10 to $300 per ton. This wide range of cost estimates is driven by limited local disposal facilities for non-hazardous regulated and hazardous waste disposal options. It is likely that the non-hazardous regulated sediments would be shipped to facilities in New Jersey or Virginia while hazardous sediments may have to be shipped to a facility outside Buffalo, NY or Quebec, Canada for disposal. The best opportunity for significant cost savings for the overall project is to adequately characterize and delineate the sediments in-situ so that more expensive hazardous sediments to handle and dispose of can be “surgically” separated from the much less expensive sediments. If this can be accomplished, a majority of the sediments can be potentially classified for local reuse at the HARS or similar NYSDEC approved BUD facilities. This may include salt marsh restoration projects, beach and dune replenishment projects in southwest Brooklyn as part of the post Hurricane Sandy resiliency plan. Local beneficial reuse of the dredged materials represents a significant cost savings over the other disposal options and should be further evaluated with New York City and New York State agencies, as well as the USACE, as early as possible to look for cost savings and sustainable options. In addition, the impact from the NYCDEP WWPCP and CSOs should be evaluated to determine responsibilities related to planning, dredging, disposal and potential capping costs as NYC may be partially liable for some of the remedial activity.

5.0 CONCLUSIONS AND RECOMMENDATIONS

PWGC has prepared this Feasibility Summary to document the environmental permitting requirements, recent effects from Hurricane Sandy, and the estimated cost related to dredging Bergen Basin for the purpose of accessing the marine basin by barge for regular scheduled fuel delivery service to JFK. Evaluations of other fuel delivery options, including repair and restoration of fuel delivery piers and onshore fuel distribution systems is being performed by others. Significant findings of the Feasibility Summary as well as key recommendations are summarized below.

Bergen Basin is approximately 7,400 ft in length, averages 400 ft in width and is 6 acres in size. As of limited bathymetric surveys conducted in 2008 and 2012, the MLW depth ranges from 8 to 17 ft, although it gets shallower toward the northeast end of the basin, which was not recently surveyed. A navigation

channel of approximately 15 ft below MLW was approximately 160 ft wide in the direct vicinity of the study area. Fuel by barge was still being delivered to Bergen Basin fuel Piers "1" & "A" into the mid to late 1980s. In order to continue delivering fuel by barge, restoration of piers, fuel delivery systems and dredging of the channel and berthing areas would have to be completed to provide a -15 ft. MLW depth. Records indicate the basin was previous dredged in 1987. No evidence of dredging activities since 1987 could be found.

Various federal, New York State, New York City permits and environmental quality reviews would be required from multiple regulatory agencies prior to implementation any dredging activities. Based upon the site location and historic references, it is assumed that some of the sediments to be dredged will require special handling and disposal and may not be able to deposit at a nearby Ocean disposal site. In addition, a NYCDEP WWPCP and CSOs are located upstream and may have contributed to the silting up of the basin and possible sediment contamination.

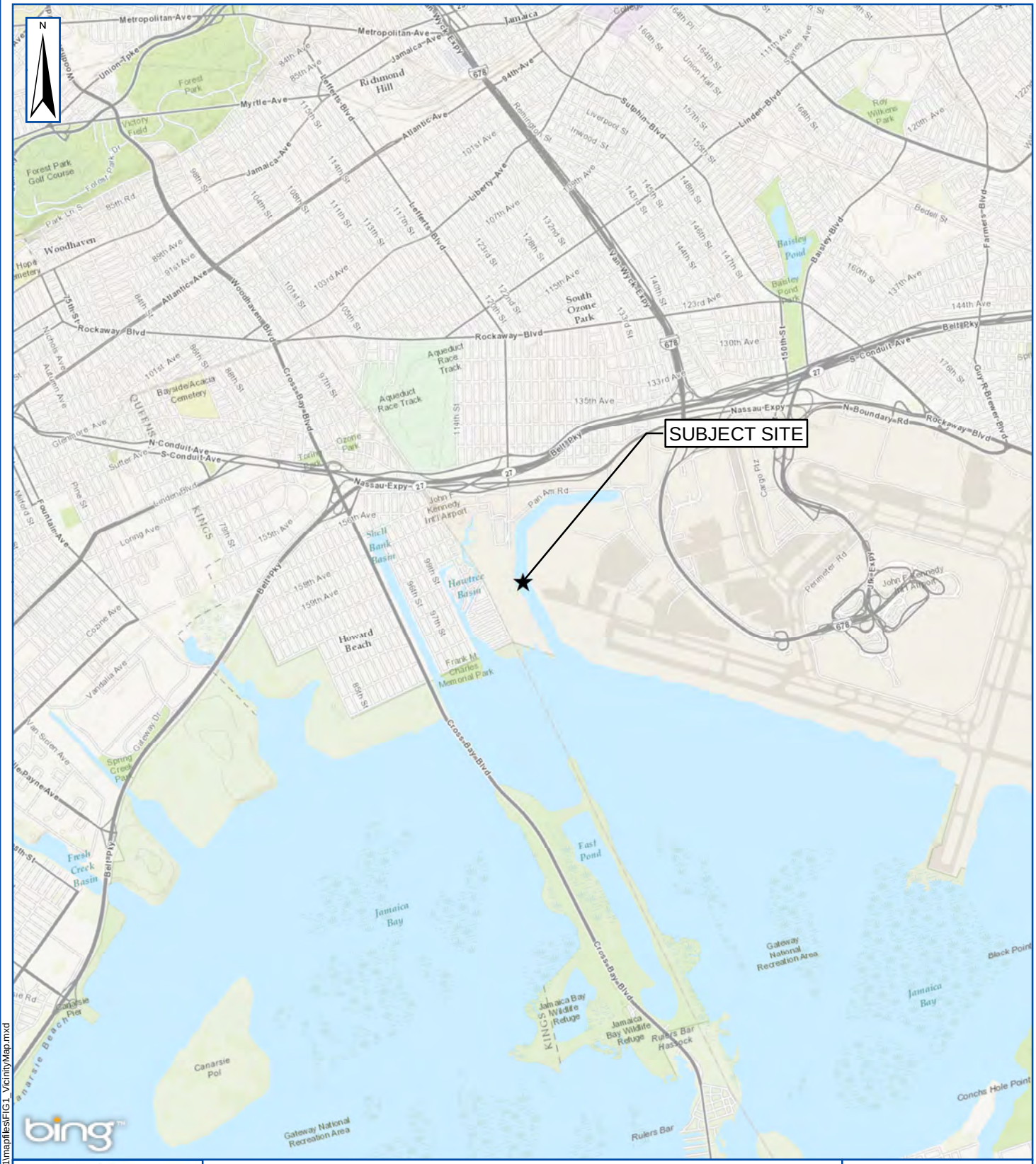
The most aggressive dredging alternative that has been evaluated includes dredging approximately 94,000 CY of sediments. The actual volume and physical and chemical quality of the sediments still needs to be confirmed although the cost ranges for these activities can range from $4.3 to $54.2 million.

Although some immediate notices regarding impaired navigation of waterways were located, no significant long-term shoreline changes or shoaling in Bergen Basin and the Jamaica Bay channel has been reported following the October 2012 hurricane Sandy that would affect the delivery of barges to the basin.

Based upon these findings, PWGC recommends the following actions be implemented as the dredging option is continued to be evaluated.

1. Begin formal correspondence with NYCDEP regarding the proposed scope of work and the potential for sharing some costs related to potential impact from the WWPCP and CSOs.
2. Begin formal correspondence with NYSDEC, USACE, NYCDEP and other agencies regarding the proposed scope of work and start efforts to identify beneficial local uses for the sediments to be dredged, along with acceptable dredging methodologies.
3. Complete an additional bathymetric survey of all areas of Bergen Basin that may possible be dredged.
4. Prepare and implement a thorough sediment sampling plan, in compliance with NYSDEC and USACE. A limited sampling screening of the sediments may assist in providing more accurate disposal cost estimates.
5. Continue to evaluate alternative fueling options and fueling pier repair options so that the dredging scope of work can be better defined.
6. Prepare and implement a Citizen Participation Plan.

FIGURES



SUBJECT SITE VICINITY

BERGEN BASIN
JFK INTERNATIONAL AIRPORT
JAMAICA, NEW YORK

Miles
0 ½ 1 1½ 2

PWGC
Strategic Environmental and Engineering Solutions
P.W. GROSSER CONSULTING, INC.
630 Johnson Avenue. • Suite 7
Bohemia • NY • 11716-2618
Phone: (631) 589-6353 • Fax: (631) 589-8705
E-mail: INFO@PWGROSSER.COM

Project:	PON1301
Date:	9/23/2013
Designed by:	BB
Drawn by:	BB
Approved by:	KA
Figure No:	1

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PWGC
Strategic Environmental and Engineering Solutions
P.W. GROSSER CONSULTING, INC.
630 Johnson Avenue. • Suite 7
Bohemia • NY • 11716-2618
Phone: (631) 589-6353 • Fax: (631) 589-8705
E-mail: INFO@PWGROSSER.COM

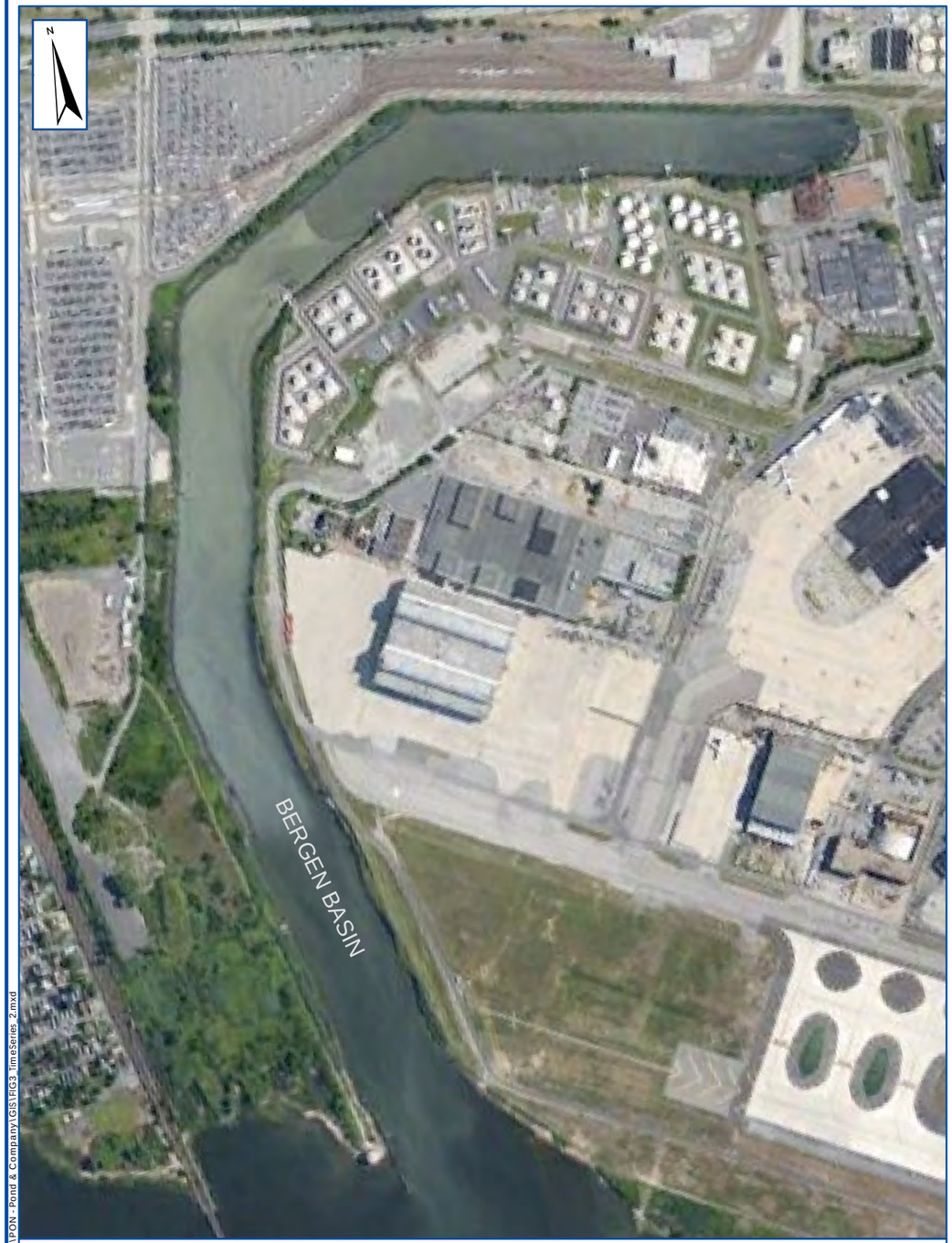
SITE PLAN

BERGEN BASIN
JFK INTERNATIONAL AIRPORT
JAMAICA, NEW YORK

0 0.1 0.2 0.3 0.4 0.5 Miles

Project:	PON1301
Date:	9/24/2013
Designed by:	KA
Drawn by:	BB
Approved by:	KA
Figure No:	2

Document Path: Z:\GIS\Projects\M-R\PON\1301\mapfiles\FIG2_SitePlan.mxd



PRE-HURRICANE SANDY
IMAGERY DATE - 6/23/2013

0 0.1 0.2 0.3 0.4 0.5 Miles

POST-HURRICANE SANDY
IMAGERY DATE - 11/23/2013

0 0.1 0.2 0.3 0.4 0.5 Miles

PWGC
Strategic Environmental and Engineering Solutions
P.W. GROSSER CONSULTING, INC.
630 Johnson Avenue. • Suite 7
Bohemia • NY • 11716-2618
Phone: (631) 589-6353 • Fax: (631) 589-8705
E-mail: INFO@PWGROSSER.COM

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DRAWING PREPARED FOR:

REVISION	DATE	INITIAL	COMMENTS

DRAWING INFORMATION:

Project:	PON1301	Designed by:	BB
Date:	9/24/2013	Drawn by:	BB
Scale:	AS SHOWN	Approved by:	KA

BERGEN BASIN BARGE FUEL SUPPLY-
FEASIBILITY STUDY
HURRICANE SANDY -
COASTLINE COMPARISON

JFK INTERNATIONAL AIRPORT
JAMAICA, NEW YORK

FIGURE NO:
3

SHEET:

Document Path: J:\Projects\MRYPON - Pond & Company\GIS\FIG3_ImeSeries_2.mxd

APPENDIX A

ENVIRONMENTAL REPORTS AND AVAILBLE DATA

POND

3500 Parkway Lane
Suite 600
Atlanta, GA 30092

P 678.336.7740
F 678.336.7744

www.pondco.com

JOHN F. KENNEDY INTERNATIONAL AIRPORT
Jamaica, New York

ATTACHMENT A DOCUMENTATION
Request For Proposal for Fueling System Operations and Maintenance Services
JOHN F. KENNEDY INTERNATIONAL AIRPORT
JAMAICA, NEW YORK

Final Submission

Submitted to:

Design Division, Engineering Department
Two Gateway Center
Newark, New Jersey 07102

Attention: Angela Altieri

Submitted By:

Hatch Mott MacDonald

corrpro
An Aegion Company

July 8, 2014

ATTACHMENT A

Request for Proposal for Fueling System Operations and Maintenance Services
John F. Kennedy International Airport

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SECTION 1

Technical Description of the Facility

1.1 GENERAL

This attachment documents the utilities, equipment and components of the Operations and Maintenance Services for the Bulk Fuel Farm (BFF) and transfer piping connecting the BFF and the Satellite Fuel Farm (SFF) as well as detailing the Contractor's responsibilities related to these in addition to the responsibilities already documented elsewhere in this request for proposal (RFP) document. The drawings and tabulation of facility assets contained within this Attachment are based on physical assessment surveys conducted and best information available at the time of the issuance of this RFP.

1.2 REFERENCE DOCUMENTS

Contractor shall comply with the requirements of the latest editions of the following Reference Documents:

a. Air Transport Association (ATA) 103, Standard for Jet Fuel Quality Control at Airports
b. NACE International SP0169-2013 (formerly RP0169), Control of External Corrosion on Underground or Submerged Metallic Piping Systems
c. NACE International RP0193-2001, External Cathodic Protection of On-Grade Carbon Steel Storage Tank Bottoms
d. NACE International SP0285-2011 (formerly RP0285), Corrosion Control of Underground Storage Tank Systems by Cathodic Protection
e. NACE International SP0286-2007 (formerly RP0286), Electrical Isolation of Cathodically Protected Pipelines
f. New York State Department of Environmental Conservation (NYSDEC) 6 NYCRR Parts 612-614
g. NYSDEC DER-17, Guidelines for Inspecting and Certifying Secondary Containment Systems of Aboveground Petroleum Storage Tanks at Major oil Storage Facilities
h. National Fire Protection Association (NFPA) 10, Portable Fire Extinguishers
i. NFPA 11, Standard for Low, Medium and High-Expansion Foam
j. NFPA 30, Flammable and Combustible Liquid Code
k. NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages
l. NFPA 70, National Electrical Code
m. NFPA 407, Standard for Aircraft Fuel Servicing
n. NFPA 704, Standard System for the Identification of the Hazards of Materials for Emergency Response
o. Federal Aviation Regulation Part 139, Certification of Airports
p. American Petroleum Institute (API) RP 1110, Pressure Testing of Steel Pipelines for the Transportation of Gas, Petroleum Gas, Hazardous Liquids, Highly Volatile Liquids or Carbon Dioxide
q. 40 CFR 70, State Operating Permit Programs
r. 40 CFR 112, Oil Pollution Prevention

Contractor shall provide to the Authority, for approval, a submittal register of all documents, records, testing, etc. that are required based upon the requirements contained within the above listed Reference Documents and those Responsibilities of the Contractor detailed in Section 1.5, with the following information clearly indicated:

a. Tasks grouped and numbered for each individual document indicated.
b. Detailed description of task.
c. Paragraph cross-reference within the document.

d. Frequency of the task.
e. Copy of standard checklist/forms used to document the requirements of the task.

Copies of all completed checklists, documentation, photographs, etc. required to be prepared in accordance with the above shall be submitted to the Authority within two weeks after completion of the task indicated within the approved submittal register.

1.3 DESCRIPTION OF OPERATIONS AND MAINTENANCE BOUNDARIES

a. Operations and Maintenance (O&M) operational area consists of the 2,043,750 SF area at the BFF that extends: East-West between Bergen Basin and the perimeter fence behind Buildings 142 and 146 and North-South between Bergen Basin and the perimeter fence along Commissary Road.
b. O&M operational area also consists of the operation and maintenance of the seven transfer fuel pipelines, including all high and low point pits and listening posts, extending from within the BFF into the SFF as indicated on drawing G001.

1.4 DESCRIPTION OF OPERATIONS AND MAINTENANCE ASSETS

a. Physical features that lie within and originate within the confines of the O&M operational areas including but not limited to:
    1) All utilities (drainage, foam system, communications, electrical, water, sanitary, sump system)
    2) Manholes
    3) Catch basins
    4) Outdoor foam cabinets with hose, valve and nozzle
    5) Lighting poles and fixtures
    6) Power panels, transformers and switchgear
    7) Facility guard post, attendant booth and facility access security
    8) Fire hydrants
    9) Buried valves and post indicator valves
    10) Landscaping
    11) Buildings and all features within
    12) Hardscape features (pavements, curbing, perimeter fencing, etc.)
    13) Aboveground fuel storage tank and connected systems for fuel oil #2
    14) Aboveground and underground fuel storage tanks and connected systems for sump fuel
    15) Parking positions for 30 refueler vehicles and 34 personnel motor vehicles
    16) Fuel dispensing station consisting of AvGas and diesel underground storage tanks, underground fuel and vent pipes, emergency fuel shutdown system and dual hose fueling dispensers protected by a fixed dry chemical fire suppression system.
    17) Three aqueous Film Forming Foam (AFFF) pumphouses of concrete masonry unit construction housing a single wall plastic aboveground storage tank, water backflow prevention device, foam pump and valves, foam system control panel and other building related supporting equipment.
b. Underground fill, withdrawal and interconnecting jet fuel piping within the boundaries of BFF.
    1) Single wall steel pipes wrapped in asbestos and tar corrosion protective wrapping and further protected from corrosion by an impressed current cathodic protection system.
    2) Most pipelines are active, contain either off-spec (sump) or Jet A fuel and were positively tested tight by an EPA certified testing method in 2011. In order to meet NYSDEC compliance requirements, EPA tightness testing for these pipelines by an independent

Contractor must occur within 5 years of the previous test period and at 5 year intervals thereafter.

c. Seven (7) transfer jet fuel pipelines from the BFF to the SFF including low point drains and high point vents and their respective vaults/pits along the pipeline routing.
   1) Single wall steel pipes wrapped in asbestos and tar corrosion protective wrapping and further protected from corrosion by an impressed current cathodic protection system.
   2) All fuel pipelines are active, contain Jet A fuel and were positively tested tight by an EPA certified testing method in 2011. In order to meet NYSDEC compliance requirements, EPA tightness testing for these pipelines by an independent Contractor must occur within 5 years of the previous test period and at 5 year intervals thereafter.

d. Sixty two (62) single wall steel vertical field erected fuel storage tanks:
   1) Tanks constructed under six design-build contracts spanning the years between 1951 and 1968
   2) Both single and double wall steel bottoms installed over several different types of foundations
   3) Tank roof systems of differing types: aluminum dome, fixed steel plate or open top
   4) Internal steel floating roof with perimeter scissor type floating seal
   5) Mechanical tape level gauge with limit switches
   6) Internal floating suction with external floating suction indicator
   7) Flat, Cone-up or Cone down pitched floor with center sump
   8) Fixed vertical or internal rolling ladder
   9) Underfloor sacrificial anode or impressed current cathodic protection system
   10) Sump drainage visual system
   11) Independent high level alarm
   12) Aboveground suction and withdrawal single wall piping with high point vents and isolation valving

e. Underground interconnecting piping, inclusive of all low point drains and high point vents, consisting of single wall steel pipes wrapped in asbestos and tar corrosion protective wrapping and further protected from corrosion by an impressed current cathodic protection system.
f. Six (6) sump drainage systems connected to the sumping and drainage systems for the fuel storage tanks, filter separator stations and truck loading racks. The system consists of aboveground and underground piping, heat tracing systems, six (6) underground single wall steel collection tanks and six (6) aboveground single wall steel transfer tanks.
g. Water treatment system consisting of two scavenger oil recovery (SOR) systems, two pumping stations, underground gravity and force main piping, underground sludge holding tank, and water treatment building. The system is used to collect and treat stormwater runoff from the spill containment areas for the fuel storage tanks, refueler and vacuum truck unloading areas, fuel truck loading racks and general roadway drainage.
h. Four (4) pipeline receiving stations with steel overhead canopy, manual equipment hoist and vertical prefilters and filter separators.
i. Vertical turbine fuel pumps for transferring fuel between the BFF and SFF.
j. Electrical switchgear, transformers, panelboards and disconnect switches.
k. Cathodic protection rectifiers, test stations and deep bed anodes for protection of underground piping and aboveground vertical storage tank floors.

1.5 RESPONSIBILITIES OF THE CONTRACTOR

In addition to providing the manpower, equipment and support services for operating the fuel farm as outlined in the other sections of this Contract, the Contractor shall be responsible for the following:

a. Performing all of the operational tasks, maintenance, inspections, permits and checklists as required by the documents included in the Reference Documents section listed previously and performing of such in accordance with manufacturer's instructions as they relate to the assets documented within this RFP.
b. Maintenance and operation of all utilities that lie within and originate within the confines of the O&M operational area. For utilities that originate within the Contractor's area and extend beyond the limits, the Contractor shall be responsible for the utility lines from within the O&M operational area up to the next manhole, catch basin or utility structure located outside of the Contractor's area of responsibility. Utilities that strictly pass through the O&M operational area without having a structure or device located within the area are <u>not</u> the responsibility of the Contractor.
c. Maintenance and operation of the Authority's transfer fuel pipelines up to the inlet of the filter separators located in the transfer pipelines receiving area within the SFF including all low point drains and high point vents, their respective vaults/pits and all listening posts.
d. Assist the Authority and Authority hired Contractors in the tightness testing of the fuel pipelines. Assistance shall include but not be limited to: meeting with Authority hired Contractors to establish testing schedules based on actual airport fueling activities, allowing access to O&M maintained services such as electric for temporary power/lighting and bathroom facilities.
e. Assist the Authority with all required facility inspections including, but not limited to, Federal Aviation Administration (FAA), NYSDEC, tenant airlines, Authority personnel and their respective Contractors, etc.
f. Provide the total net volume of Jet fuel and AvGas (in tenths of a gallon) dispensed for all fuel truck fueling activities and tabulate the tank fuel liquid levels for all Jet fuel and AvGas fuel tanks at the start and end of each day on a daily basis to both the Authority and the Into-Plane Fueling Services Contractor for use in reconciling the inventory of Jet fuel and AvGas as required by regulatory agencies.
g. Assist the Authority in providing information, documents and/or for the preparation of all Authority prepared permits including, but not limited to, Major Oil Storage Facility (MOSF), State Pollutant Discharge Elimination System (SPDES) and Title V Air Permits.
h. Prepare and update at least every three years, a Spill Prevention, Control and Countermeasure (SPCC) Plan for the facility. Initial SPCC plan must be prepared and submitted to the Authority for review within three months of the notice of Contract Award.
i. Perform all evaluations as required by NYSDEC DER-17 once every five years. The report must be prepared and submitted to the Authority. Any recommended repairs contained within the report shall be executed by the Contractor under this Contract.
j. Perform all routine inspections, maintenance, renewal of permits, assistance with regulatory compliance inspections for all registered underground and aboveground petroleum and chemical storage tanks.
k. Collect and dispose of fuel laden water removed from high point and low point pits in accordance with all Federal, State, local and Authority requirements.
l. Engage the services of a qualified subcontractor to perform API 653 out-of-service tank inspections for all 62 aboveground fuel storage tanks based on the schedule provided within the inventory documents. Inspections shall be completed and provided to the Authority prior to December 31st of the indicated year. Any recommended repairs contained within the report shall be executed prior to returning the tank to service. Repairs shall be conducted by a qualified subcontractor having a minimum of 3 years of experience in such work. Work related to preparing the tank for entry including, but not limited to, emptying, vapor-freeing and cleaning of tank shall be the responsibility of the Contractor.

m. Jet A fuel storage tanks (including stairs, railings, tank roof, etc.), equipment and piping shall be painted in accordance with the schedule provided within the inventory documents. Painting shall be completed prior to December 31st of the indicated year. The schedule for the painting of aboveground piping shall be in accordance with the painting schedule of the fuel tank or filter separator immediately adjacent. Nameplates and non-metallic surfaces shall not be painted. Upon completion of painting activities, Contractor shall provide labeling to match that of the existing prior to painting as well as the following:

1) Tanks: Label each tank with the tank number on four quadrants and at a height clearly visible from the outside of the containment dike.

   Stencil the working and design capacity adjacent to the mechanical level gauge.

   Apply API 704 warning labels to the exterior of the tank shell adjacent to bottom of tank stairs.

2) Piping: Furnish and install flow arrows at every 60 linear feet of piping and at pipe bends.

   Stencil the words “inlet” or “outlet” in the appropriate locations after the tank flanges.

   Furnish and install product identification labels along straight pipe runs.

   Stencil the pipe identification number prior to all aboveground/underground pipe transitions and blind flanges.

n. BFF underground interconnecting piping, inclusive of all low point drains and high point vents, consisting of single wall steel pipes wrapped in asbestos and tar corrosion protective wrapping and further protected from corrosion by an impressed current cathodic protection system.
o. Sump drainage system which is connected to the sumping systems for the fuel storage tanks and filter separators. The system consists of aboveground and underground piping, heat tracing systems, six (6) 5,000 gallon underground single wall steel holding tanks, six (6) 5,000 gallon single wall steel transfer tanks with two (2) having filtration and pumping systems allowing for the transfer of reclaimed jet fuel to be placed back into bulk storage.
p. Water treatment system consisting of two (2) scavenger oil recovery (SOR) systems, two (2) pumping stations, underground gravity and force main piping, underground sludge holding tank and water treatment building. The system is used to collect and treat stormwater runoff from the spill containment areas serving the fuel storage tanks, roadway areas and a transfer pump station.
q. Fuel truck loading racks and equipment including supporting fuel pumps and filter separators.
r. Electrical switchgear, emergency generators, transformers, panelboards, disconnect switches.
s. Cathodic protection rectifiers, test stations and deep bed anodes for protection of underground piping and aboveground Jet A tank floors. Work under this task shall include:

1) Monthly Physical Inspection and Activities:
   a) Check each rectifier and any obvious signs of overheating, current surges or lightning strikes.
   b) Check each air-cooled rectifier each. Unit shall be deenergized and the rectifier plates and other components shall be checked for excessive heat.
   c) All mechanical connections located on the rectifier panel shall be checked for tightness and evidence of arcing.

d) Check the oil level and condition of the oil in oil-cooled rectifier units.
e) After completing all the above rectifier checks, re-energize the recheck the current and voltage outputs.
f) Record DC outputs (current and voltage) of each rectifier unit, using both internal panel meters and portable digital high impedance voltmeter.

2) Quarterly Activities:
   a) Record current output of all deep anodes.
   b) Conduct potential surveys for all test stations.
   c) Check insulting flanges as required based on the results of the potential surveys.

3) Annual Activities:
   a) Conduct current interrupted potential readings for all test stations.

SECTION 2

Tabulation of Facility Assets

SECTION 2.1

Transfer Pipelines Underground Fuel Line Information

Transfer Pipelines Underground Fuel Line Information

Pipe Designation	Pipe Inner Dia. (in)	Pipe Size (in)	Length (ft)	Segment Volume (gal)	No. of Low Point Pits #	No. of High Point Pits
T-201	6.06	6	9990	14,967	10	9
T-202A	7.976	8	9975	25,889	10	9
T-202B	7.976	8	9963	25,858	10	9
T-203A	7.976	8	9946	25,814	10	9
T-203B	7.976	8	9932	25,777	10	9
T-204	6.06	6	9907	14,843	10	9
T-205	6.06	6	9883	0 *	10	9

* - This pipeline is currently filled with nitrogen

- The first and last low points are located within on of the fuel farms and are not contained within a pit

SECTION 2.2

Bulk Fuel Farm Inventory List

BULK FUEL FARM INVENTORY LIST

Surface Features		
Item	**Approximate Quantity**	**Unit**
Grass	450,000	SQ FT
Concrete Pavement	83,000	SQ FT
Gravel	549,000	SQ FT
Asphalt Pavement	348,000	SQ FT
Epoxy Sealed Concrete	29,000	SQ FT
Epoxy Sealed Asphalt	2,500	SQ FT
Concrete Curbing	29,800	FT
Chain Link Fencing with Barbed Wire	6,300	FT
Chain Link Fencing with Barbed Wire and Privacy Screening	2,300	FT
Chain Link Fencing wih Barbed Wire and Privacy Slating	300	FT
Steel Guard Rail	2,000	FT
Swing Gates	(2) 25'-0" x 5'-0" Single Leaf Gates	EA

BULK FUEL FARM INVENTORY LIST

Storm Drainage System		
Quantity	**Equipment Name**	**Description**
59	Manholes	
110	Catch Basins	Outside containment moat
56	Catch Basins	Inside containment moat
4	Type A PIV Valves	M&H
44	Type B PIV Valves	Clow Kennedy 2945A
3	Type C PIV Valves	A.P. Smith
3	Type D PIV Valves	Fairbanks
2	Type E PIV Valves	Kennedy

BULK FUEL FARM INVENTORY LIST

East SOR Storm Drainage System Pumphouse		
Number	**Equipment Name**	**Comments**
1	Pump	Gorman-Rupp Super T Series MOD #: T4A60S-B SERIAL #: 1503634
1	Explosion Proof Pump Motor	WEG model # 01018XT3E215T
1	Explosion Proof Heat Tracing System	Digitrace # AMC1A Thermostat
1	PLC Panel within Explosion Proof Enclosure	Allen Bradley Power Flex 40
2	Explosion Proof Safety Disconnect Switches	Square D - # FA-060-X (Pump Control and Heater)
1	Explosion Proof Heater	CHROMALOX CAT#: CVEP-A-1.6-B-443-32-44 CONTROL CIRCUIT: P/N#: 003-302883-077
2	Explosion Proof Light Fixtures	Hubbell CAT#: KLH-070S8-G-P2-10 GUARD - CAT #: KL-1 OPTICAL - CAT #: KL-G
1	Explosion Proof Snap Switch (Lights)	Crouse-Hinds CAT#: EDS2129
1	Ceiling Mounted Exhaust Fan	
1	Explosion Proof Manual Starter (Fan)	Square D TYPE FR1 SERIES BJD CLASS 2510

BULK FUEL FARM INVENTORY LIST

West SOR Storm Drainage System Pumphouse

Number	Equipment Name	Comments
1	Pump	Gorman-Rupp Super T Series MOD #: T4A60S-B SERIAL #: 1503634
1	Explosion Proof Pump Motor	WEG model # 01018XT3E215T
1	Explosion Proof Heat Tracing System	Digitrace # AMC1A Thermostat
1	PLC Panel within Explosion Proof Enclosure	Allen Bradley Power Flex 40
2	Explosion Proof Safety Disconnect Switches	Square D - # FA-060-X (Pump Control and Heater)
1	Explosion Proof Heater	CHROMALOX CAT#: CVEP-A-1.6-B-443-32-44 CONTROL CIRCUIT: P/N#: 003-302883-077
2	Explosion Proof Light Fixtures	Hubbell CAT#: KLH-070S8-G-P2-10 GUARD - CAT #: KL-1 OPTICAL - CAT #: KL-G
1	Explosion Proof Snap Switch (Lights)	Crouse-Hinds CAT#: EDS2129
1	Ceiling Mounted Exhaust Fan	
1	Explosion Proof Manual Starter (Fan)	Square D TYPE FR1 SERIES BJD CLASS 2510

BULK FUEL FARM INVENTORY LIST

Storm Drainage System Reclaim Tanks					
Tank Identifier	**Located**	**Size (gallons)**	**Type**	**Contents**	**Details**
220-A	Adjacent to West SOR	1,000	AST	Waste Oil	Single wall steel tank with steel secondary containment dike, high level float, no level gauge and no high level alarm
207-A	Adjacent to East SOR	2,000	AST	Waste Oil	Single wall steel tank with concrete secondary containment dike, high level float, no level gauge and no high level alarm
208-A	Adjacent to West SOR	2,000	AST	Waste Oil	Single wall steel tank with concrete secondary containment dike, high level float, no level gauge and no high level alarm

BULK FUEL FARM INVENTORY LIST

Water System		
Quantity	**Equipment**	**Comments**
7	Low Pressure Fire Hydrants	
42	Low Pressure Underground Valves	
1	Low Pressure Manhole	
28	High Pressure Fire Hydrants	3 Hydrants are 16" diameter
72	High Pressure Underground Valves	
4	High Pressure Manholes	

BULK FUEL FARM INVENTORY LIST

Aqueous Fire Fighting Foam System

Foam Cabinets

Quantity	Type of Cabinet (Designation according to equipment inside)	Comments
3	A	Rockwood Foam Nozzle ABC 2 1/2" Valve Fire Hose
7	B	National Aero Foam Nozzle ABC 2 1/2" Valve Fire Hose
9	C	National Aero Foam Nozzle A 2 1/2" Valve Fire Hose
1	D	National Foam JS-10 Nozzle A 2 1/2" Valve Fire Hose
1	E	Rockwood Foam Nozzle A 2 1/2" Valve Fire Hose
17	F	National Aero Foam Nozzle Jenkins 2 1/2" Valve Fire Hose
3	G	Rockwood Foam Nozzle Jenkins 2 1/2" Valve Fire Hose
2	H	National Aero Foam Nozzle 90 deg. no name valve Fire Hose
1	I	UFS 1575 Foam Nozzle Fire Hose
1	J	National Foam JS-10 Nozzle Fire Hose
1	K	National Foam JS-10 Nozzle ABC 2 1/2" Valve Fire Hose
1	L	National Foam JS-10 Nozzle Jenkins 2 1/2" Valve Fire Hose
3	M	National Aero Foam Nozzle Allenco 2 1/2" Valve Fire Hose
2	N	National Foam JS-10 Nozzle Allenco 2 1/2" Valve Fire Hose

BULK FUEL FARM INVENTORY LIST

Aqueous Fire Fighting Foam System		
Foam Caninets		
Quantity	**Type of Cabinet (Designation according to equipment inside)**	**Comments**
1	O	ABC Nozzle Allenco 2 1/2" Valve Fire Hose
1	P	National Aero Foam Nozzle Powhattan 2 1/2" Valve Fire Hose
6	Q	National Foam JS-10 Nozzle Victaulic 2 1/2" Valve Powhattan 2 1/2" Valve
10	R	National Aero Foam Nozzle Wallworth Valve Fire Hose
1	S	No Nozzle
2	T	Rusted Shut
1	U	No Nozzle Jenkins valve Fire Hose
1	V	UFS 2520 Foam Nozzle Jenkins Valve Fire Hose

BULK FUEL FARM INVENTORY LIST

Aqueous Fire Fighting Foam System

System Underground Valves

Type	Quantity	Comments
A	7	Kennedy Co., PIV
B	1	NIPIAJ, PIV
C	54	AP Smith, PIV
D	38	Isolation valves with valve box at surface

Foam Chambers

Type	Quantity	Comments
Tank Mounted	62	National foam chamber with 2" gate valve shutoff (normally open)

BULK FUEL FARM INVENTORY LIST

Foam Pumphouse 1		
Quantity	**Equipment Name**	**Comments**
5	Light Fixtures	Fluorescent
1	Emergency Light	Encore
2	Thermostats	Honeywell
1	Floor Trench	8'-4" X 1'-2"
2	5 Kw Heaters	TPI Corp. Mod.#: P3PUH07CA1DT
4	Exterior Lights	With photo cell
1	Containment Palet	With (4) 50 Gal. foam drums
1	500 Gal. Foam Tank	Polyprocessing Co.
1	National Foam Skid	Model# BP3/60/460
4	Electrical Switches	
2	Electrical Switch Plugs	Double Plugs
1	Fire Alarm Box	F-21

BULK FUEL FARM INVENTORY LIST

Foam Pumphouse 2		
Quantity	**Equipment Name**	**Comments**
2	Heaters	TPI Corp. Mod.#: P3PUH07CA1DT
1	Emergency Light	Encore
2	Thermostats	Honeywell
1	500 Gal. Foam Tank	Polyprocessing Co.
5	Gate Valves	(2) 3" Clow (3) 3" Nipco
2	Check Valves	3" Clow Kennedy
10	Light Fixtures	Fluorescent (20) Bulbs
1	Pressure Regulating Valve	
4	Diaphram Valves	
1	National Foam Skid	Model# BP3/60/460
1	Locker	
1	Containment Palet	With (4) 50 Gal. foam drums
1	Floor Drain	
1	Pump	Blackmer Serial#: S02515-X Mod.#: 41K-4-2-A-1
1	Motor	Baldor Industrial Cat.#: M3311T
1	Reduced Pressure Back Flow Preventer	Zurn Wilkins Serial#: 37019
2	Exterior Lights	

BULK FUEL FARM INVENTORY LIST

Foam Pumphouse 3 and 4		
Quantity	**Equipment Name**	**Comments**
2	Containment Palet	With (8) 50 Gal. foam drums
1	500 Gal. foam tank	Polyprocessing CO.
1	National Foam Skid	Model# BP3/60/460
2	5 Kw Heaters	TPI Corp. Mod.#: P3PUH07CA1DT
5	Light Fixtures	Fluorescent
1	Emergency Light	Encore
2	Thermostats	Honeywell
2	Exterior Lights	
1	Receptacle	Siemens
1	Heater	Siemens
1	Light	Siemens

BULK FUEL FARM INVENTORY LIST

Fuel Storage Tank System

Equipment	Comments
Diesel UST Tank 924	Design: 10,000 Gal. Working: 8,500 Gal. Double wall fiberglass coated steel tank with steel aboveground piping. Veeder-root leak detection and level monitoring system.

Equipment	Comments
PD Meter With Air Eliminator	Liquid Controls with Veeder-root ticket printer
Gate Valves	(7) 3"
Check Valves	(2) 3"
Motor	Reliance 3 HP 1730 RPM
Pump	Blackmer GX3E with HPA helical reducer - ratio 5.06
Offload Hose	3" Hose with dry disconnect coupler
Deadman	Pneumatic control connected to filter separator control valve
Fire Extinguisher	1 (portable)
Emergency Fuel Shut-off	(1) at pump (1) at diesel dispenser
Deadman	Scully
Fire Supression System	(3) Tanks of ATD 75 by Pyrochem over head foam nozzles
Diesel Fuel Dispenser	Gasboy Single hose with hose retriever, swivel, breakaway, spin-on filter and fuel management unit

BULK FUEL FARM INVENTORY LIST

Fuel Storage Tank System

Equipment	Comments
AVGAS UST Tank 925	Design: 10,000 Gal. Working: 8,500 Gal. Double wall fiberglass coated steel tank with steel aboveground piping. Veeder-root leak detection and level monitoring system.

Equipment	Comments
PD Meter with Air Eliminator	Liquid Controls with Veeder-Root ticket printer
Filter Separator	Velcon Horizontal 250 GPM 150 PSI Gammon Gauge
Gate Valves	(7) 3"
Check Valves	(3) 3"
Ball Valve	(1) 3"
Motor	Reliance 5 HP 1730 RPM
Pump	Blackmer GX3E with HPA helical reducer - ratio 5.06
Loader Arm	OPW-ES "A" Frame hose loader
Deadman	Pneumatic control connected to filter separator control valve
Fire Extinguisher	1 (portable)
Emergency Fuel Shut-off	1
Fire Supression System	(3) Tanks of ATD 75 by Pyrochem over head foam nozzles

BULK FUEL FARM INVENTORY LIST

Fuel Storage Tank System	
Building 158 Fuel Oil Tank #10A	
Equipment	**Comments**
Fuel Oil Tank	Design capacity: 275 Gal. Working capacity: 221 Gal.
	Aboveground steel tank with steel secondary containment enclosure
	Atmospheric vent
	Fill with spill box with overflow to containment enclosure
	Scully level gauge
	Insulated steel supply and return piping

BULK FUEL FARM INVENTORY LIST

Fuel Storage Tank System	
Fuel Oil Tank #11A near Buckeye	
Equipment	**Comments**
Fuel Oil Tank	Aboveground double wall steel storage tank Lube Cube Design Capacity: 500 Gal. Working Capacity: 440 Gal. Mod.#: 798328
	Fillbox
	Atmospheric vent
	Scully level gauge
	Insulated steel supply and return piping

BULK FUEL FARM INVENTORY LIST

Aboveground Piping Supports	
Quantity	**Pipe Support Type**
441	Fuel Piping - Concrete Support
172	Fuel Piping - Metal Support (Hanging, Adjustable Saddle, Fixed Saddle)
185	Foam System - "T" Angle Steel Support on Concrete Base

BULK FUEL FARM INVENTORY LIST

Fuel Truck Rack Pump Station, Racks 11-16

Equipment	Comments
Ball Valves	(6) 4"
Pumps	None
Motors	None

Fuel Truck Rack Pump Station, Racks 21-26

Equipment	Comments
Gate Valves	(4) 4" (4) 6"
Pumps	(2) Gorman Rupp
Motors	(2) Marathon Electric Mod.# RS5-A32B
High Point Valves	6
Low Point Valves	6

Fuel Truck Rack Pump Station, Racks 27-32

Equipment	Comments
Filters	(6) Velcon Model#: HC5-C-456-236 645 gpm. 150 psi
Pump Motors	(6) Continental Electric 1760 rpm, 220/440V, 3ø, 60 Hz 600 gpm, 150 psi

Fuel Truck Rack Pump Station, Racks 33-36

Equipment	Comments
Gate Valves	10
Check Valves	3
Pumps	3 Pumps
Motors	3 Motors

BULK FUEL FARM INVENTORY LIST

Fuel Truck Rack Pump Station, Racks 37-42

Equipment	Comments
Gate Valves	2
Pumps	(6) Name plate painted over, information not available
Motors	(6) Name plate painted over, information not available
Flow Switch	1

Fuel Truck Rack Pump Station, Racks 43-50

Equipment	Comments
Pumps	7 Pumps (Pump #44 out of service, pump is missing) Pumps #45-50 manifolded in groups of 2 on the suction side
Motors	6 Motors (Pump #43 is missing a motor) Pump #44 out of service, motor is missing
Pressure Gauges	6
DBB Valves	14 Wedgeplug valves
Control Valve	7 Steam flow type
HPVs	5
LPDs	11
Joints	4- Barco ball type swivel joints (Model 0127270)

Booster Pump Station

Equipment	Comments
Pumps	3- Pumps by Johnston 1200 GPM; TDH= 107 FT; S.G=0.85 Serial # (GA-2906, GA-2907, GA-2908)
Motors	3- GE motors 40 HP, 230/460 V, 60 CYCLES, 3 PH Model# SK6257XK36A
Gate Valves	6- Gate valves (3 Stockham and 3 Grove)
DBB Valves	3- 8" Wedgeplug valves
Check Valves	3- FWI swing check valves
HPVs	3

BULK FUEL FARM INVENTORY LIST

Barge Pier A

Equipment	Comments
Plug Valves	(30) 6" Plug and check valves
Butterfly Valves	6
Check Swing Valves	2
High Points	(2) with check valves

Barge Pier B

Equipment	Comments
Plug Valves	(9) Wedge plug
Check Valves	9
Fire Hoses	(1) No nozzle Allen Co.
Warning Lights	4
Fixtures	1
Control Panels	1
Pipe Supports	(8) Wooden pipe supports

Barge Pier 1

Equipment	Comments
Check Valves	(19) 6" (Typ. For Piers 2 and 3)
Plug Valves	(18) 6"
Gate Valves	(1) 6"

Barge Pier 2

Equipment	Comments
Check Valves	(12) 6" Frank Wheatly
Plug Valves	(12) No handle
High Point Valves	(4) Open threaded holes

BULK FUEL FARM INVENTORY LIST

Barge Pier 3	
Equipment	**Comments**
Check Valves	(9) 6"
High Point Valves	(3) Plugged
Plug Valves	(9) 6" No handle
Tank	500 Gallon water tank Watts Industries Pump Mod.#: VC2T Hose run down to dock

BULK FUEL FARM INVENTORY LIST

Truck Loading Racks 11-16 (TYP.)		
Quantity	**Equipment**	**Comments**
10	PD Meters	Missing register
10	Gate Valves	
39	Fixtures	Pendant Type
10	Surge Suppressors	10 Gallon

Truck Loading Racks 17-20 (Typ.)		
Quantity	**Equipment**	**Comments**
4	Emergency	
	Filter Separators	
14	Fixtures	
1	Gate Valve	
1	215 Gal. Tank	
1	Meter	
1	Loading Arm	
1	Tank	155 Gal. AST

Truck Loading Racks 21-26 (Typ.)		
Quantity	**Equipment**	**Comments**
4	Gate Valves	
2	Surge Suppressors	10 Gallon with fusible link butterfly valve
1	Tank	155 Gallon AST
22	Fixtures	Pendant Type
1	Fire Extinguisher	
2	Hydrant Valves	
Control House		
2	Steel Doors	With panic bar
2	Fixtures	Exterior
17	Light Fixtures	Explosion proof Hazardgard (1) Fixture out of service
4	Amber warning lights	225 XST Electray Co.

BULK FUEL FARM INVENTORY LIST

Truck Loading Racks 27-32 (TYP.)		
Quantity	**Equipment**	**Comments**
6	Control Valves	Cla-val
6	Fuel Meters	PD Meter with ticket printer
6	Check Valves	
6	Surge Suppressors	10 Gallon with fusible link butterfly valve
6	Gate Valves	
6	Pressure Reliefs	With check valve
6	Hoses	3" with D-1 nozzle
6	Groundings	Reel, mounted to column
6	Deadmans	
6	Emergency Stops	
6	Fire Extinguishers	Portable fire extinguishers

BULK FUEL FARM INVENTORY LIST

Transfer Pump Station		
Quantity	**Equipment**	**Comments**
10	Motors	General Electric (Mod.#: 5K6266XF16A, Mod.#: 5K326656418) For pumps (201-A, 201-B, 202-B, 204-A, 204-B, 205-A AND 205-B) General Electric (Mod.#: 5X6252XN504A) For pump 203-B
10	Pumps	Mod.#: 12-GL-STG, 12-GL-6-STG SER#: 708804 For pumps (201-A, 201-B, 204-A, 204-B, 205-A AND 205-B) Ser.#: 732 58-1-1 for pump (202-A) Ser.#: 1RL-12GL-3-STG for pump (203-A, 203-B)
	Gate Valves	(6) 16" (10) 10" (8) 8" (8) 8" MOTORZIED GATE VALVES LIMITORQUE SER#: ER 27655 MOD#: F6-44-7926
10	Control Valves	6" Cla-val
20	Gauges	
10	Emergency Stops	
1	Fire Equipment	Portable Fire Extinguisher

BULK FUEL FARM INVENTORY LIST

Inbound Filter Stations

Pier A Filter Station

Quantity	Equipment	Comments
2	Pre-filters	Velcon Model#: 18-M-314 API 1581 Edition: 11 Class: B 3500 gpm. 150 psi
2	Filters	Velcon Model#: VCS-C-2756-1444 API 1581 Edition: 11 Class: B 3500 gpm, 150 psi
1	Fire Extinguisher	Portable
2	Cranes	Weight Watcher: 1 Ton Rated
2	Pendulum Lamps	Explosion Proof
4	PRVs	1" Taylor 150 psig
4	Air Eliminators	Armstrong
2	DP Gauges	Gammon
	Inspection Date	August 2013

Pier B Filter Station

Quantity	Equipment	Comments
2	Pre-filters	Velcon Model#: 18-M-314 API 1581 Edition: 11 Class: B 3500 gpm. 150 psi
2	Filters	Velcon Model#: VCS-C-2756-1444
1	Fire Extinguisher	Portable
1	Crane	SVED: 1 Ton Rated
3	Pendulum Lamps	Explosion Proof
4	PRVs	1" Taylor 150 psig
4	Air Eliminators	Armstrong
2	DP Gauges	Gammon
	Inspection Date	February 2013

BULK FUEL FARM INVENTORY LIST

Inbound Filter Stations

Pier 2 Filter Station

Quantity	Equipment	Comments
2	Pre-filters	Velcon Model#: FO-656-PLFM2M API 1581 Edition: 11 Class: B 3500 gpm. 150 psi
2	Filters	Velcon Model#: W5256150PA API 1581 Edition: 11 Class: B 3500 gpm, 150 psi
1	Fire Extinguisher	Portable
1	Crane	Shawbox: 1 Ton Rated
3	Pendulum Lamps	Explosion Proof
4	PRVs	1" Taylor 150 psig
4	Air Eliminators	Armstrong
2	DP Gauges	Gammon
	Inspection Date	August 2013

Pier 3 Filter Station

Quantity	Equipment	Comments
2	Pre-filters	Velcon Model#: FO-656-PLFM2M API 1581 Edition: 11 Class: B 3500 gpm. 150 psi
2	Filters	Velcon Model#: W5256150PA API 1581 Edition: 11 Class: B 3500 gpm, 150 psi
1	Fire Extinguisher	Portable
2	Cranes	Shawbox: 1 Ton Rated
2	Pendulum Lamps	Explosion Proof
4	PRVs	1" Taylor 150 psig
4	Air Eliminators	Armstrong
2	DP Gauges	Gammon
	Inspection Date	August 2013

BULK FUEL FARM INVENTORY LIST

Transfer Fuel Pipeline Information						
Pipe Designation	**Pipe Inner Dia. (in)**	**Pipe Size (in)**	**Length (ft)**	**Segment Volume (gal)**	**No. of Low Point Pits [1]**	**No. of High Point Pits**
T-201	6.06	6	9,990	14,967	10	9
T-202A	7.976	8	9,975	25,889	10	9
T-202B	7.976	8	9,963	25,858	10	9
T-203A	7.976	8	9,946	25,814	10	9
T-203B	7.976	8	9,932	25,777	10	9
T-204	6.06	6	9,907	14,843	10	9
T-205	6.06	6	9,883	0 [2]	10	9

[1] - The first and last low point pits are located in the fuel farms and are not contained within a pit

[2] - This pipeline is currently abandoned and filled with nitrogen

BULK FUEL FARM INVENTORY LIST

Vertical Fuel Storage Tank Information

Tank	Year Built	Design Capacity (gals)	Working Capacity (gals)	Double Bottom	Fixed Roof	Cathodic Protection	Tank Foundation Type	Fuel Containment Moat Wall Type	Pressure Relief to AST	Year for API 653 Inspection[1]	Year for Painting of Tank and Connected Piping[1]
21	1951	211,387	190,386	No	No	Yes	Gravel	Geomembrane over earth	No	2012	2014
22	1951	211,387	190,386	No	No	Yes	Gravel	Geomembrane over earth	No	2014	2014
23	1952	504,000	458,074	Yes	Yes	Yes	Gravel	Geomembrane over earth	Yes	2020	2016
24	1951	504,000	OOS	No	No	Yes	Gravel	Geomembrane over earth	No	2020	2015
25	1951	507,000	462,052	Yes	Yes	Yes	Gravel	Geomembrane over earth	No	2021	2016
26	1951	507,000	OOS	No	No	Yes	Gravel	Geomembrane over earth	No	2020	2016
27	1952	507,000	OOS	No	No	Yes	Gravel	Geomembrane over earth	No	2020	2017
28	1952	534,949	OOS	No	No	Yes	Gravel	Geomembrane over earth	No	2020	2015
29	1951	220,793	201,001	No	No	Yes	Gravel	Geomembrane over earth	No	2021	2014
30	1951	220,793	201,001	No	No	Yes	Gravel	Geomembrane over earth	No	2021	2014
31	1951	220,793	201,001	No	No	Yes	Gravel	Geomembrane over earth	No	2020	2014
32	1951	220,793	201,001	No	No	Yes	Gravel	Geomembrane over earth	No	2021	2014
33	1958	522,367	457,308	No	Yes	Yes	Pile Supported Slab	Geomembrane over earth	Yes	2021	2017
34	1958	522,000	OOS	No	Yes	Yes	Pile Supported Slab	Geomembrane over earth	Yes	2021	2015
35	1958	522,000	OOS	No	Yes	Yes	Pile Supported Slab	Geomembrane over earth	No	2021	2015
36	1958	522,000	457,308	No	Yes	Yes	Pile Supported Slab	Geomembrane over earth	Yes	2021	2015
37	1959	494,000	453,255	Yes	Yes	Yes	Gravel	Geomembrane over earth	Yes	2021	2014
38	1959	515,000	456,667	Yes	Yes	Yes	Gravel	Geomembrane over earth	No	2019	2014
39	1959	495,730	459,593	Yes	Yes	Yes	Gravel	Geomembrane over earth	Yes	2019	2015
40	1959	495,152	462,331	Yes	Yes	Yes	Gravel	Geomembrane over earth	Yes	2019	2015
41	1959	488,000	449,059	Yes	Yes	Yes	Gravel	Geomembrane over earth	Yes	2015	2016
42	1959	482,000	447,093	Yes	Yes	Yes	Gravel	Geomembrane over earth	Yes	2016	2016
43	1959	515,000	456,265	Yes	Yes	Yes	Pile Supported Slab	Geomembrane over earth	Yes	2010	2014
44	1959	517,000	459,141	Yes	Yes	Yes	Pile Supported Slab	Geomembrane over earth	Yes	2010	2016
45	1959	246,000	211,133	Yes	Yes	Yes	Pile Supported Slab	Geomembrane over earth	No	2020	2014
46	1959	500,000	455,824	Yes	Yes	Yes	Pile Supported Slab	Geomembrane over earth	Yes	2021	2017
47	1959	246,000	211,364	Yes	Yes	Yes	Pile Supported Slab	Geomembrane over earth	No	2020	2016
48	1959	502,000	454,764	Yes	Yes	Yes	Pile Supported Slab	Geomembrane over earth	Yes	2021	2017

BULK FUEL FARM INVENTORY LIST

Vertical Fuel Storage Tank Information

Tank	Year Built	Design Capacity (gals)	Working Capacity (gals)	Double Bottom	Fixed Roof	Cathodic Protection	Tank Foundation Type	Fuel Containment Moat Wall Type	Pressure Relief to AST	Year for API 653 Inspection[1]	Year for Painting of Tank and Connected Piping[1]
49	1959	504,000	457,041	Yes	Yes	Yes	Pile Supported Slab	Geomembrane over earth	Yes	2021	2017
50	1959	246,285	209,591	Yes	Yes	Yes	Pile Supported Slab	Geomembrane over earth	No	2020	2015
51	1959	519,661	460,967	Yes	Yes	Yes	Pile Supported Slab	Geomembrane over earth	No	2010	2015
52	1959	246,995	209,622	Yes	Yes	Yes	Pile Supported Slab	Geomembrane over earth	No	2010	2015
53	1962	465,000	421,851	Yes	Yes	Yes	Pile Supported Slab	Concrete	No	2021	2017
54	1962	469,000	414,823	Yes	Yes	Yes	Pile Supported Slab	Concrete	No	2021	2017
55	1962	465,000	420,223	Yes	Yes	Yes	Pile Supported Slab	Concrete	Yes	2021	2017
56	1962	458,503	421,287	Yes	Yes	Yes	Pile Supported Slab	Concrete	Yes	2019	2014
57	1962	457,000	418,966	Yes	Yes	Yes	Pile Supported Slab	Concrete	Yes	2015	2016
58	1962	467,000	419,529	Yes	Yes	Yes	Pile Supported Slab	Concrete	No	2020	2016
59	1962	456,000	419,021	Yes	Yes	Yes	Pile Supported Slab	Concrete	Yes	2016	2017
60	1962	475,000	422,156	Yes	Yes	Yes	Pile Supported Slab	Concrete	Yes	2018	2014
69	1968	503,022	476,599	No	Yes	Yes	Pile Supported Slab	Steel	No	2015	2017
70	1965	497,037	445,468	No	Yes	Yes	Pile Supported Slab	Concrete	Yes	2018	2015
71	1965	496,690	445,144	No	Yes	Yes	Pile Supported Slab	Concrete	Yes	2020	2015
72	1965	499,615	OOS	Yes	Yes	Yes	Pile Supported Slab	Concrete	No	2021	2014
73	1965	498,240	444,447	No	Yes	Yes	Pile Supported Slab	Concrete	Yes	2017	2016
74	1965	502,491	446,194	No	Yes	Yes	Pile Supported Slab	Concrete	Yes	2019	2016
75	1965	500,065	443,739	No	Yes	Yes	Pile Supported Slab	Concrete	Yes	2017	2016
76	1968	503,022	476,599	No	Yes	Yes	Pile Supported Slab	Steel	Yes	2019	2017
77	1968	503,022	476,599	No	Yes	Yes	Pile Supported Slab	Steel	No	2021	2017
78	1968	503,022	OOS	No	Yes	Yes	Pile Supported Slab	Steel	Yes	2021	2018
79	1968	503,022	OOS	No	Yes	Yes	Pile Supported Slab	Steel	No	2023	2018
80	1968	503,022	OOS	No	Yes	Yes	Pile Supported Slab	Steel	No	2015	2018
81	1968	503,022	OOS	No	Yes	Yes	Pile Supported Slab	Steel	No	2022	2018
82	1968	503,022	OOS	No	Yes	Yes	Pile Supported Slab	Steel	No	2023	2018
83	1968	503,022	OOS	No	Yes	Yes	Pile Supported Slab	Steel	No	2015	2018
84	1968	503,022	OOS	No	Yes	Yes	Pile Supported Slab	Steel	No	2020	2018
85	1968	503,022	OOS	No	Yes	Yes	Pile Supported Slab	Steel	No	2015	2018
86	1968	503,022	OOS	No	Yes	Yes	Pile Supported Slab	Steel	No	2022	2018
87	1968	503,022	OOS	No	Yes	Yes	Pile Supported Slab	Steel	No	2023	2018
88	1968	503,022	OOS	No	Yes	Yes	Pile Supported Slab	Steel	No	2014	2018
89	1968	503,022	OOS	No	Yes	Yes	Pile Supported Slab	Steel	No	2022	2018
90	1968	503,022	OOS	No	Yes	Yes	Pile Supported Slab	Steel	No	2016	2018

BULK FUEL FARM INVENTORY LIST

Sump Drainage System Information

Line Identifier	Tanks Connected	Pipe Length (ft)			Pipe Volume (gals)	Catch Basins		Sump Drains		Butterfly Valves [1]	Post Indicator Valves [2]		Clean Outs	Systems Served
		3"	4"	6"		Covered	Uncovered	Covered	Uncovered		A	B		
System 1	TT201, Holding Tank No. 1 UST	0	1,578	1,361	3,029	0	1	0	22	0	2	20	11	Tanks 69, 70-90
System 2	TT202, Holding Tank No. 2 UST	0	1,221	471	1,489	0	2	8	0	0	4	4	6	Tanks 53-60 and Truck Loading Racks 43-50
System 3	TT203, Holding Tank No. 3 UST	90	1,692	598	2,016	0	0	10	0	9	1	0	7	Tanks 43-52 and High Point Vent at Transfer Pumps
System 4	TT204, Holding Tank No. 4 UST	394	2,081	453	2,169	0	3	1	5	0	2	4	4	Tanks 21, 22, 29-32 and Truck Loading Racks 17-20, 21-26, 27-32, 33-42
System 5	TT205, Holding Tank No. 5 UST	0	822	725	1,602	0	1	1	9	2	4	4	4	Tanks 23-28, 33-36
System 6	TT206, Holding Tank No. 6 UST	0	649	532	1,205	0	2	0	6	0	0	6	4	Tanks 37-42

[1] - Manufactured by Muessco

[2] - A: Manufactured by Mueller
B: Manufactured by Clow Kennedy, Model 2945A

BULK FUEL FARM INVENTORY LIST

SUMP DRAINAGE SYSTEM HOLDING TANKS

Tank Identifier	Located	Size (gallons)	Type	Contents	Details
Holding Tank No. 1	Adjacent to Tank 70	5,000	UST	Waste Oil	Single wall steel tank with sacrificial anode system, no leak detection, level monitoring or tightness testing; built in 1980
Holding Tank No. 2	Adjacent to Tank 58	5,000	UST	Waste Oil	Single wall steel tank with sacrificial anode system, no leak detection, level monitoring or tightness testing; built in 1980
Holding Tank No. 3	Adjacent to Tank 51	5,000	UST	Waste Oil	Single wall steel tank with sacrificial anode system, no leak detection, level monitoring or tightness testing; built in 1980
Holding Tank No. 4	Adjacent to Tank 28	5,000	UST	Waste Oil	Single wall steel tank with sacrificial anode system, no leak detection, level monitoring or tightness testing; built in 1980
Holding Tank No. 5	Adjacent to Tank 23	5,000	UST	Waste Oil	Single wall steel tank with sacrificial anode system, no leak detection, level monitoring or tightness testing; built in 1980
Holding Tank No. 6	Adjacent to Tank 40	5,000	UST	Waste Oil	Single wall steel tank with sacrificial anode system, no leak detection, level monitoring or tightness testing; built in 1980

All holding tanks, except for No. 4, have a submersible pump (by Deming Pump Co.) transferring the liquid automatically to an adjacent transfer (TT) aboveground storage tank.

BULK FUEL FARM INVENTORY LIST

SUMP DRAINAGE SYSTEM TRANSFER TANKS

Tank Identifier	Located	Size (gallons)	Type	Contents	Details
TT201	Adjacent to Tank 70	5,000	AST	Waste Oil	Single wall steel tank with steel containment dike, clock gauge, non-functional high level alarm and no internal heater
TT202	Adjacent to Tank 58	5,000	AST	Waste Oil	Single wall steel tank with steel containment dike, clock gauge, non-functional high level alarm and no internal heater
TT203	Adjacent to Tank 51	5,000	AST	Waste Oil	Single wall steel tank with steel containment dike, clock gauge, non-functional high level alarm and no internal heater
TT204	Adjacent to Tank 28	5,000	AST	Waste Oil	Single wall steel tank with steel containment dike, clock gauge, non-functional high level alarm and no internal heater
TT205	Adjacent to Tank 23	5,000	AST	Waste Oil	Single wall steel tank with steel containment dike, clock gauge, non-functional high level alarm and no internal heater
TT206	Adjacent to Tank 40	5,000	AST	Waste Oil	Single wall steel tank with steel containment dike, clock gauge, non-functional high level alarm and no internal heater

BULK FUEL FARM INVENTORY LIST

Sump Drainage Fuel Reclamation System		
Adjacent to TT202		
Quantity	**Equipment**	**Comments**
5	Tees	
1	Check Valve	200 WOG MU
1	Wafer Valve	Jamesbury Sphere-Wafer Valve
1	Velcon Filter	MOD#: HV16331S0X4
4	Pressure Switchs	Barksdale pressure switches
1	Trap Valve	
1	Pump	GORMAN RUPP MOD#: 03L31B
1	Control Valve	CLA-VAL 3100G
1	Ball Valve	
1	Solenoid Valve	3" SNAP-TITE

Adjacent to TT203		
Quantity	**Equipment**	**Comments**
5	Tees	
3	Check Valves	200 WOG MU
1	Sump Box	
1	Velcon Filter	MOD#: HV1633150X3 (3) Element #: 1-63385TB (1) Element #: SO-436C
2	Pressure Switches	Barksdale pressure switches
1	Butterfly Valve	
1	Pump	GORMAN RUPP MOD#: 1290229
1	Motor	Leeson Electric Motors Mod#: 8B-184TTGS4002AN-L
1	Control Valve	CAL VAL 3100G
4	Ball Valves	
1	Solenoid Valve	Snap-tite VGA 12469

BULK FUEL FARM INVENTORY LIST

Storm Water Treatment Building (Building 277)

Quantity	Equipment Name	Description
1	Air Eliminator	Bisco Environmental Reliance Electric Motor ID: 39825375-001 L 001 LL 1 Gate valve
2	Quincy Air Compressors	Mod.: RBQU370L or 0370 S/N: G211920 Serial: G211920 JC Baldor motor Super-E Mod.: EM3710T
1	Thickener	Kofta Tank (2) LMI Milton Roy linear actuator Model#: E741-36 Serial: 0405853946-1 (2) Lesson exp.-proof reels Model#: ACC07EC201 (1) Internal electronic reel Model#: XRU58-32 415820102 (2) Reliance-sxt motor N/A (See first item on this sheet) (1) Emerson motor Cat.: Y3S1BCR-P Model#: 20053144-100 (1) Peerless pump N/A
2	Oil Outlet Tanks	(2) AFL Industries tanks AFL: 94159 Equip.: VTC-200A Patent: 433333835 (1) Sandspiper pump Serial#: 1673983 S15B1AWANS000

BULK FUEL FARM INVENTORY LIST

Storm Water Treatment Building (Building 277)		
Quantity	**Equipment Name**	**Description**
1	Processed Water	(2) US Electric motors ID: 688623/Y01X3040114 (2) Deming pumps DC-339000 A1-7/17 (4) Processed water tanks 3.5'X4'X3'
1	Polyethlyene Holding Tanks	Chemtaner 1000 Gallon AST
2	Dyna Sand Filters	Parkson Mod.#: 38 Sq. Ft. Serial#: DSF 2396 894
1	Air Compressor	Hankson SPX compressor HPR series Non cycling refrig. air driers
1	Justrite Flamable Liquid Cabinet	
1	Spill Containment	
1	Mixer	Abandoned 10' tank

ELECTRICAL		
Quantity	**Equipment Name**	**Description**
23	Pendulum Lights	Hubbel
4	Heaters	Chromalox
1	Pendulum Lights	White warning light
2	Fire Extinguishers	Amerex
2	Warning Speakers	
2	Light Alarms	Mod.#: 2EC100/4510
1	Air Compressor Tank	6'X2.5' o.d.
1	Exhaust Fan	2'X2' Louver
3	Exit Signs	
1	Ladder	18' High
1	Platform	8'X4'

BULK FUEL FARM INVENTORY LIST

Storm Water Treatment Building (Building 277)

ELECTRICAL (Cont.)

Quantity	Equipment Name	Description
1	Refrigerator	Fischer Scientific explosion proof

FITTINGS

Type	Quantity
Gate Valve	3
Check Valve	6
Ball Valve (PVC)	15
Thermo Plastic	2
Limitorque	1

BULK FUEL FARM INVENTORY LIST

ELECTRICAL EQUIPMENT

KEY NOTE	ITEM	MANUFACTURER	MODEL: CATALOG No:	ELECTRICAL DATA:	COMMENTS	QUANTITY
			ELECTRICAL RACKS			
1	**SR RACK 403**					
	MAIN DISCONNECT SWITCH	CROUSE-HINDS	CAT# EBMBL-S178-S198V-S146	600A TRIP	EXPLOSION PROOF	1
	PUMP DISCONNECT SWITCH	CROUSE-HINDS	CAT# EBMC2FD-FTPS100-J8-S178-S198V-S146-S786-WP50-HMCP36-W6413-S781	480VAC, 50A TRIP MAX HP: 25HP AT 480V	EXPLOSION PROOF	8
	TOWER LIGHTS CONTACTOR SWITCH	CROUSE-HINDS	CAT# EBMS1FB-C-FTPS100-RR3-S178-S198V-S146-S786	480VAC, MAX HP: 10HP AT 480V	EXPLOSION PROOF	1
	LIGHT RACK SWITCH	CROUSE-HINDS	CAT# EBMS2FB-C-F-RR3-S178-S198V-S146-S786-W6213-S781	240VAC, MAX HP:15HP AT 240V	EXPLOSION PROOF	1
	EMERGENCY FUEL SHUTDOWN RESET	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	ON/PUSH BUTTON IN EXPLOSION PROOF ENCLOSURE	1
	EXPLOSION PROOF JUNCTION BOX	NOT AVAILABLE	VARIES	NOT AVAILABLE	EXPLOSION PROOF	4
	DOWN LIGHTING	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
	RELAY BOX	NOT AVAILABLE	NOT AVAILABLE	RB-2	EXPLOSION PROOF	1
	EXPLOSION PROOF PANEL (LIGHTING)	CROUSE-HINDS	NOT AVAILABLE	8 CIRCUITS	EXPLOSION PROOF	1
	EXPLOSION PROOF PANEL (POWER)	CROUSE-HINDS	NOT AVAILABLE	4 CIRCUITS	EXPLOSION PROOF	2
	LIGHTING PANEL MAIN BREAKER	CROUSE-HINDS	CAT# EBMBA-8178-S146-WT50	50A TRIP	EXPLOSION PROOF	1
	RECEPTACLE WITH GFCI	CROUSE-HINDS	CAT# GFS-1	120VAC, 20A, 60HZ	EXPLOSION PROOF	1
	HAZARDOUS LOCATION CIRCUIT BREAKER	KILLARK	XECE-304A3	MAX: 480VAC 250VDC 30A TRIP, 3PH	EXPLOSION PROOF	1
	HAZARDOUS LOCATION CIRCUIT BREAKER	SQUARE D	FA-060-X	MAX: 600VAC 250VDC MAX: 60A	EXPLOSION PROOF	1
	ENCLOSED CIRCUIT BREAKER	WESTINGHOUSE	X-FB-050	480VAC	EXPLOSION PROOF	1
	PANELS	CURLEE		480V/3PH	EXPLOSION PROOF	
		CROUSE-HINDS		480V/3PH	EXPLOSION PROOF	4
		CUTLER HAMMER			NEMA 4X	1
	DISCONNECTS	CROUSE-HINDS	SERIAL# EBMBA-S178 CAT# FD3060	480V/3PH	EXPLOSION PROOF	4
		EPL SERIES	CAT# EPLC330-10313	225A, 208V/3PH	EXPLOSION PROOF	2
		APPLETON	NOT AVAILABLE	100A DISCONNECT	EXPLOSION PROOF	1
	TRANSFORMERS	CROUSE-HINDS	CAT: EBMBM-S146-DR0295205	480V-15KVA	EXPLOSION PROOF	2
		OLSUN		480V-3KVA	EXPLOSION PROOF IN RACK 36B	
		OLSUN	MODEL: HZT45NC-6	45KVA, 480-208/120V	NEMA 4X IN PEIR 2 FILTER STATION	
		CROUSE-HINDS	NOT AVAILABLE	15KVA	EXPLOSION PROOF	1
2	**SR RACK 403A**					

BULK FUEL FARM INVENTORY LIST

ELECTRICAL EQUIPMENT

KEY NOTE	ITEM	MANUFACTURER	MODEL: CATALOG No:	ELECTRICAL DATA:	COMMENTS	QUANTITY
	MAIN DISCONNECT SWITCH	CROUSE-HINDS	CAT# EBMBB-S178-S198V-S146-WN100 EDH34	100A TRIP	EXPLOSION PROOF	1
	MAIN BREAKERS	CROUSE-HINDS	CAT# EBMBA-S178-S198V-S146-WT20 EDH34	20A TRIP	EXPLOSION PROOF	1
		CROUSE-HINDS	CAT# EBMBA-S178-S198V-S146-WT50 EDH34	50A TRIP	EXPLOSION PROOF	3
	TRANSFORMER	CROUSE-HINDS	EBMBM-DRO295207	15KVA	EXPLOSION PROOF	2
	EXPLOSION PROOF JUNCTION BOX	NOT AVAILABLE	VARIES	NOT AVAILABLE	EXPLOSION PROOF	2
	DOWN LIGHTING	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
	EXPLOSION PROOF PANEL (LIGHTING)	CROUSE-HINDS	EDP SERIES	8 CIRCUITS	EXPLOSION PROOF	2
	EXPLOSION PROOF PANEL (LIGHTING)	CROUSE-HINDS	EDP SERIES	4 CIRCUITS	EXPLOSION PROOF	2
	EXPLOSION PROOF PANEL (LIGHTING)	CROUSE-HINDS	EDP SERIES	6 CIRCUITS	EXPLOSION PROOF	2
	RECEPTACLE WITH GFCI	CROUSE-HINDS	CAT# GFS-1	120VAC, 20A, 60HZ	EXPLOSION PROOF	1
3	**SR RACK 402**					
	MAIN DISCONNECT SWITCH	CROUSE-HINDS	CAT# EBMBB-S178-S198V-S146-WN100 EDH34	100A TRIP	EXPLOSION PROOF	1
	EXPLOSION PROOF JUNCTION BOX	NOT AVAILABLE	VARIES	NOT AVAILABLE	EXPLOSION PROOF	1
	EXPLOSION PROOF RELAY BOX	NOT AVAILABLE	VARIES	NOT AVAILABLE	EXPLOSION PROOF	2
	DOWN LIGHTING	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
	EXPLOSION PROOF PANEL (LIGHTING)	CROUSE-HINDS	EDP SERIES	6 CIRCUITS	EXPLOSION PROOF	2
	RECEPTACLE WITH GFCI	CROUSE-HINDS	CAT# GFS-1	120VAC, 20A, 60HZ	EXPLOSION PROOF	1
	CIRCUIT BREAKERS	CROUSE-HINDS	EBMBA-S178-S189V-S146 WT50 EDH34	480VAC 50A TRIP	EXPLOSION PROOF	1
		CROUSE-HINDS	EBMBB-S178-S189V-S146 WN100 EDH34	480VAC 100A TRIP	EXPLOSION PROOF	1
	TRANSFORMER	CROUSE-HINDS	EBMBM-S178--S198-V S146	15KVA	EXPLOSION PROOF	1
	FLOOD LIGHTING CONTACTOR SWITCH	CROUSE-HINDS	CAT# EBMC1FB-C-FTPS100-RR3-S178-S198V-S146-S786-WT30EDH34-W6413-S781-DRO295225	480VAC, MAX HP: 10HP AT 480V	EXPLOSION PROOF	1
4	**SR RACK 401**					
	MAIN DISCONNECT SWITCH	CROUSE-HINDS	CAT# EBMBB-S178-S198V-S146-WN400 KD36-DR029521	400A TRIP	EXPLOSION PROOF	1
	EXPLOSION PROOF JUNCTION BOX	NOT AVAILABLE	VARIES	NOT AVAILABLE	EXPLOSION PROOF	1
	EXPLOSION PROOF RELAY BOX	NOT AVAILABLE	VARIES	NOT AVAILABLE	EXPLOSION PROOF	2
	DOWN LIGHTING	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
	EXPLOSION PROOF PANEL (LIGHTING)	CROUSE-HINDS	EDP SERIES	5 CIRCUITS	EXPLOSION PROOF	1
	EXPLOSION PROOF PANEL (LIGHTING)	CROUSE-HINDS	EDP SERIES	10 CIRCUITS	EXPLOSION PROOF	1
	RECEPTACLE WITH GFCI	CROUSE-HINDS	CAT# GFS-1	120VAC, 20A, 60HZ	EXPLOSION PROOF	1

BULK FUEL FARM INVENTORY LIST

ELECTRICAL EQUIPMENT

KEY NOTE	ITEM	MANUFACTURER	MODEL: CATALOG No:	ELECTRICAL DATA:	COMMENTS	QUANTITY
	CIRCUIT BREAKERS	CROUSE-HINDS	EBMBA-S178-S189V-S146 WT30 EDH34	480VAC 30A TRIP	EXPLOSION PROOF	1
		CROUSE-HINDS	EBMBA-S178-S189V-S146 WT50 EDH34	480VAC 50A TRIP	EXPLOSION PROOF	1
		CROUSE-HINDS	EBMBB-S178-S189V-S146 WN100 EDH34	480VAC 100A TRIP	EXPLOSION PROOF	1
		SQUARE D	FAL TYPE	MAX: 600VAC 250VDC MAX: 100A	EXPLOSION PROOF	1
	TRANSFORMER	CROUSE-HINDS	EBMBM-S178--S198-V S146	15KVA	EXPLOSION PROOF	1
	TOWER LIGHTS CONTACTOR SWITCH	CROUSE-HINDS	CAT# EBMC1FB-C-FTPS100-RR3-S178-S198V-S146-S786-W6413-S781-DRO295214	480VAC, MAX HP: 10HP AT 480V	EXPLOSION PROOF	1
5	**SR RACK 206**					
	MAIN DISCONNECT SWITCH	CROUSE-HINDS	CAT# EBMBH-S178-S198V-S146	250A TRIP	EXPLOSION PROOF	1
	PUMP DISCONNECT SWITCH	CROUSE-HINDS	CAT# EBMC2FD-FTPS100-J8-S178-S198V-S146-S786-WP50HMCP36-W6413-S781	480VAC, 50A TRIP MAX HP: 25HP AT 480V	EXPLOSION PROOF	6
	TOWER LIGHTS CONTACTOR SWITCH	CROUSE-HINDS	CAT# EBMS1FB-C-FTPS100-RR3-S178-S198V-S146-S786-W6413-S781-DRO295228	480VAC, MAX HP: 10HP AT 480V	EXPLOSION PROOF	1
	LIGHT RACK SWITCH	CROUSE-HINDS	CAT# EBMS2FB-C-RR3-S178-S198V-S146 S786-W6213-S781-DRO295227	240VAC, MAX HP:15HP AT 240V	EXPLOSION PROOF	1
	EMERGENCY FUEL SHUTDOWN RESET	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	ON/PUSH BUTTON IN EXPLOSION PROOF ENCLOSURE	1
	EXPLOSION PROOF JUNCTION BOX	NOT AVAILABLE	VARIES	NOT AVAILABLE	EXPLOSION PROOF	2
	DOWN LIGHTING	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
	RELAY BOX	NOT AVAILABLE	NOT AVAILABLE	RB-2	EXPLOSION PROOF	1
	EXPLOSION PROOF PANEL (SOR)	CROUSE-HINDS	CAT# ESPB408 20	8 CIRCUITS	EXPLOSION PROOF	1
	EXPLOSION PROOF PANEL (LIGHTING)	CROUSE-HINDS	CAT# EDP2509-715-200-1101-50	10 CIRCUITS	EXPLOSION PROOF	1
	EXPLOSION PROOF PANEL (POWER)	CROUSE-HINDS	CAT# EDP 1104-320-150-SE 11059	4 CIRCUITS	EXPLOSION PROOF	2
	LIGHTING PANEL MAIN BREAKER	CROUSE-HINDS	CAT# EBMBA-S178-S146-WT50EHD34	50A TRIP	EXPLOSION PROOF	1
	RECEPTACLE WITH GFCI	CROUSE-HINDS	CAT# GFS-1	120VAC, 20A, 60HZ	EXPLOSION PROOF	1
	TRANSFORMER	CROUSE-HINDS	EBMBM-S146-DR0295205	15KVA	EXPLOSION PROOF	1
	HAZARDOUS LOCATION CIRCUIT BREAKER	CURLEE	CAT# EAB-N13230	MAX: 480V 30A TRIP, 3PH	EXPLOSION PROOF	1
	HAZARDOUS LOCATION CIRCUIT BREAKER	SQUARE D	CAT# FA-060-X	MAX: 600VAC 250VDC MAX: 60A	EXPLOSION PROOF	2
	ENCLOSED CIRCUIT BREAKER	WESTINGHOUSE	X-FB-050	480VAC	EXPLOSION PROOF	1

BULK FUEL FARM INVENTORY LIST

ELECTRICAL EQUIPMENT

KEY NOTE	ITEM	MANUFACTURER	MODEL: CATALOG No:	ELECTRICAL DATA:	COMMENTS	QUANTITY
6	**SR RACK 205**					
	MAIN DISCONNECT SWITCH	CROUSE-HINDS	CAT# EBMBB-S178-S198V-S146-WN100 EHD32	100A TRIP	EXPLOSION PROOF	1
	EXPLOSION PROOF JUNCTION BOX	NOT AVAILABLE	VARIES	NOT AVAILABLE	EXPLOSION PROOF	1
	DOWN LIGHTING	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
	EXPLOSION PROOF PANEL (LIGHTING)	CROUSE-HINDS	CAT# EDP2509-715-200-1101-50	10 CIRCUITS	EXPLOSION PROOF	1
	EXPLOSION PROOF PANEL (POWER)	CROUSE-HINDS	CAT# EDP 1104-320-150-SE 11059	8 CIRCUITS	EXPLOSION PROOF	1
		CROUSE-HINDS	CAT# EDP 1104-320-150-SE 11059	5 CIRCUITS	EXPLOSION PROOF	1
	RECEPTACLE WITH GFCI	CROUSE-HINDS	CAT# GFS-1	120VAC, 20A, 60HZ	EXPLOSION PROOF	1
	TRANSFORMER	CROUSE-HINDS	EBMBM-S146-DR0295205	15KVA	EXPLOSION PROOF	1
7	**SR RACK 204**					
	MAIN DISCONNECT SWITCH	CROUSE-HINDS	CAT# EBMBB-S178-S198V-S146-WN150 FD36	150A TRIP	EXPLOSION PROOF	1
	POLICE DOCK DISCONNECT SWITCH	APPLETON	CAT# AEBB13460C	50A 480V	EXPLOSION PROOF	1
	EXPLOSION PROOF RELAY BOX	NOT AVAILABLE	VARIES	NOT AVAILABLE	EXPLOSION PROOF	1
	EXPLOSION PROOF JUNCTION BOX	NOT AVAILABLE	VARIES	NOT AVAILABLE	EXPLOSION PROOF	1
	TOWER LIGHTS CONTACTOR SWITCH	CROUSE-HINDS	CAT# EBMS1FA-C-RR3-S178-S198V-S146 S786-W6213-S781-DRO295239		EXPLOSION PROOF	1
	DOWN LIGHTING	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
	EXPLOSION PROOF PANEL (LIGHTING)	CROUSE-HINDS	NOT AVAILABLE	4 CIRCUITS 125A	EXPLOSION PROOF	1
		CROUSE-HINDS	NOT AVAILABLE	8 CIRCUITS 125A	EXPLOSION PROOF	1
	RECEPTACLE WITH GFCI	CROUSE-HINDS	CAT# GFS-1	120VAC, 20A, 60HZ	EXPLOSION PROOF	1
8	**SR RACK 201**					
	MAIN DISCONNECT SWITCH	CROUSE-HINDS	CAT# EBMBB-S178-S198V-S146-WN300 FD36	300A TRIP	EXPLOSION PROOF	1
	EXPLOSION PROOF RELAY BOX	NOT AVAILABLE	VARIES	NOT AVAILABLE	EXPLOSION PROOF	1
	TOWER LIGHTS CONTACTOR SWITCH	CROUSE-HINDS	CAT# EBMC2FD-C-RR3-S178-S198V-S146 S786-MT60FDP36-W6213-S781-DRO295244		EXPLOSION PROOF	1
	FEEDS PANEL 17-20	CROUSE-HINDS	CAT# EBMC2FD-C-RR3-S178-S198V-S146 S786-MT60FDP36-W6213-S781-DRO295244		EXPLOSION PROOF	1
	FUEL SHUTOFF	NOT AVAILABLE	NOT AVAILABLE		EXPLOSION PROOF	1
	PUMP DISCONNECT SWITCH	CROUSE-HINDS	CAT# EBMC2FH-S178-S198V-S146-S786-MT60FDP36-W6213-S781-DR0295244	NOT AVAILABLE	EXPLOSION PROOF	4
	DOWN LIGHTING	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
	EXPLOSION PROOF PANEL (LIGHTING)	CROUSE-HINDS	NOT AVAILABLE	6 CIRCUITS	EXPLOSION PROOF	1

BULK FUEL FARM INVENTORY LIST

ELECTRICAL EQUIPMENT

KEY NOTE	ITEM	MANUFACTURER	MODEL: CATALOG No:	ELECTRICAL DATA:	COMMENTS	QUANTITY
	RECEPTACLE WITH GFCI	CROUSE-HINDS	CAT# GFS-1	120VAC, 20A, 60HZ	EXPLOSION PROOF	1
9	**SR RACK 103**					
	MAIN DISCONNECT SWITCH	CROUSE-HINDS	CAT# EBMBL-S178-S198V-S146-WN600 LA36	600A TRIP	EXPLOSION PROOF	1
	MAIN BREAKER	CROUSE-HINDS	CAT# EBMBA-S146-S178-S198V-WT15FD36	15A TRIP	EXPLOSION PROOF	1
	TRANSFORMER	CROUSE-HINDS	EBMBM S146-DRO295258	5KVA	EXPLOSION PROOF	1
	MAIN BREAKER	CROUSE-HINDS	CAT# EBMBA-S178-S198V-S146-WT50FD36	50A TRIP	EXPLOSION PROOF	1
	FEEDER BREAKER	CROUSE-HINDS	CAT# EBMBA-S146-S198V-S178-WT30FD36	30A TRIP	EXPLOSION PROOF	1
	PUMP CONTROLLER	CROUSE-HINDS	EBMC3FH-FTPS100-J8-S178-S198V-S146-S786-WP70HMCP36-W6413-S781	BOOSTER PUMPS 51-53	EXPLOSION PROOF	3
	FLOOD LIGHTING CONTACTOR SWITCH	CROUSE-HINDS	CAT# EBMC1FB-C-FTPS100-RR3-S178-S198V-S146-S786-WT30FT36-W6413-S781-DRO295252		EXPLOSION PROOF	1
	DOWN LIGHTING	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
	EXPLOSION PROOF PANEL (LIGHTING)	CROUSE-HINDS	EDP SERIES	10 CIRCUITS	EXPLOSION PROOF	1
	RECEPTACLE WITH GFCI	CROUSE-HINDS	CAT# GFS-1	120VAC, 20A, 60HZ	EXPLOSION PROOF	1
	EXPLOSION PROOF RELAY BOX	NOT AVAILABLE	VARIES	NOT AVAILABLE	EXPLOSION PROOF	1
10	**SR RACK 103A**					
	MAIN BREAKER	CROUSE-HINDS	CAT# EBMBB-S178-S198V-S146-WT60FD36	60A TRIP	EXPLOSION PROOF	1
	TRANSFORMER	CROUSE-HINDS	EBMBM S146-DRO295258	15KVA	EXPLOSION PROOF	1
	MAIN DISCONNECT SWITCH	CROUSE-HINDS	CAT# EBMBB-S178-S198V-S146-WN100 EHD34	100A TRIP	EXPLOSION PROOF	1
	TOWER LIGHTS CONTACTOR SWITCH	CROUSE-HINDS	CAT# EBMC2FD-C-RR3-S178-S198V-S146 S786-MT60FDP36-W6213-S781-DRO295244		EXPLOSION PROOF	1
	DOWN LIGHTING	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
	EXPLOSION PROOF PANEL (LIGHTING)	CURLEE	CLPN022C36M1-100	21 CIRCUITS 60A	EXPLOSION PROOF	1
	EXPLOSION PROOF PANEL (MOV)	CURLEE	CPPN014C24M1 100	8 CIRCUITS 100A	EXPLOSION PROOF	1
	RECEPTACLE WITH GFCI	CROUSE-HINDS	CAT# GFS-1	120VAC, 20A, 60HZ	EXPLOSION PROOF	1
11	**SR RACK 36B**					
	MOV PANELBOARD	CROUSE-HINDS	EPL SERIES	10 CIRCUITS	EXPLOSION PROOF	1
	DISCONNECT SWITCH	GENERAL ELECTRIC	HEAVY DUTY SAFETY SWITCH	30A TRIP	EXPLOSION PROOF	1
	MAIN DISCONNECT SWITCH	CROUSE-HINDS	CAT# EBMBH-S146-S178-S198V	70A TRIP	EXPLOSION PROOF	1
	PUMP STARTER	CROUSE-HINDS	EMBC SERIES	15A TRIP	EXPLOSION PROOF DIESEL & 100OLL	2
	SPARE CIRCUIT BREAKER	CROUSE-HINDS	EBMC FB S189V DR0297212	NOT AVAILABLE	EXPLOSION PROOF	2

BULK FUEL FARM INVENTORY LIST

ELECTRICAL EQUIPMENT

KEY NOTE	ITEM	MANUFACTURER	MODEL: CATALOG No:	ELECTRICAL DATA:	COMMENTS	QUANTITY
	MOV CIRCUIT BREAKER	CROUSE-HINDS	EBMC FB S189V DR0297212	NOT AVAILABLE	EXPLOSION PROOF	1
	EXPLOSION PROOF RELAY BOX	NOT AVAILABLE	VARIES	NOT AVAILABLE	EXPLOSION PROOF	2
	DOWN LIGHTING	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
	EXPLOSION PROOF PANEL (LIGHTING)	CROUSE-HINDS	EDP SERIES	12 CIRCUITS 480/277V 3PH	EXPLOSION PROOF	1
	EXPLOSION PROOF PANEL (POWER)	CROUSE-HINDS	EDP SERIES	12 CIRCUITS 208/120V 3PH	EXPLOSION PROOF	1
	TRANSFORMER	CROUSE-HINDS	EBMBM-S178--S198-V S146	3KVA 480-208Y/120V	EXPLOSION PROOF	1
	FLOOD LIGHTING CONTACTOR SWITCH	CROUSE-HINDS	CAT# EBMC1FB-C-FTPS100-RR3-S178-S198V-S146-S786-WT30EDH34-W6413-S781-DRO295225	480VAC, MAX HP: 10HP AT 480V	EXPLOSION PROOF	1
12	**SR RACK 36C**					
	MAIN BREAKER	CURLEE	CAT# ECB-N13610-NP-M-2BD	100A TRIP	EXPLOSION PROOF	1
	BUS BOX	CURLEE	CAT# JBEW-18428-NP-H-Z-Q-2BD	NOT AVAILABLE	EXPLOSION PROOF	1
	TRANSFORMER FEEDER BREAKER	CURLEE	CAT# EAB-N13615-NP-M-2BD	15A 600V	EXPLOSION PROOF	1
	BREAKER	CURLEE	CAT# EAB-11615-NP-M-2BD	15A 600V	EXPLOSION PROOF	1
	SWITCHRACK BREAKER	CURLEE	CAT# EAB-N13650-NP-M-2BD	50A 600V	EXPLOSION PROOF	1
	PANELBOARD	CURLEE	CAT# EPB-MB1-123-2BD-NP	30A 208/120V 8 CIRCUITS	EXPLOSION PROOF	1
	TRANSFORMER	CURLEE	CAT# JBEW-182416-NP-M-2BD-H-Q	9KVA 480-208/120V	EXPLOSION PROOF	4
	DOWN LIGHTING	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
13	**UNNAMED RACK 1 (NEAR TANK 27)**					
	MAIN DISCONNECT SWITCH	CROUSE-HINDS	EBM SERIES		EXPLOSION PROOF	1
	TRANSFORMER	OLSUN ELECTRICS CORPORATION	DRY TYPE TRANSFORMER CLASS AA	45KVA 3PH		
	TANK MONITOR PANEL	CROUSE-HINDS	CAT# 1271		EXPLOSION PROOF	1
	POWER PANEL	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
	DISCONNECT	SQUARE D	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
	LIGHT RACK SWITCH	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
	DOWN LIGHTING	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
	TRANSFORMER	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
	DISCONNECT	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	7
	PUMP CONTROL	MCGRAW EDISON	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
14	**UNNAMED RACK 2 (NEAR WEST SOR)**					
	MAIN DISCONNECT SWITCH	CROUSE-HINDS	EBM SERIES	NOT AVAILABLE	EXPLOSION PROOF	1
	TRANSFORMER	CROUSE-HINDS	EPM091875S	15KVA	EXPLOSION PROOF	1

BULK FUEL FARM INVENTORY LIST

ELECTRICAL EQUIPMENT

KEY NOTE	ITEM	MANUFACTURER	MODEL: CATALOG No:	ELECTRICAL DATA:	COMMENTS	QUANTITY
	SOR MONITOR PANEL	NOT AVAILABLE	NOT AVAILABLE	CROUSE-HINDS HORN	EXPLOSION PROOF	1
	LIGHTING PANEL	NOT AVAILABLE	NOT AVAILABLE	6 CIRCUITS	EXPLOSION PROOF	1
	JUNCTION BOX	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
	PUMP CONTROL	CURLEE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
	DISCONNECT	APPLETON	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
		CROUSE-HINDS	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
15	**UNNAMED RACK 3 (NEAR REFUELER PARKING)**					
	PANEL	CUTLER HAMMER	NOT AVAILABLE	NOT AVAILABLE		2
	BOX	CUTLER HAMMER	NOT AVAILABLE	NOT AVAILABLE		2
	METER	CUTLER HAMMER	NOT AVAILABLE	NOT AVAILABLE		1
	SWITCH	CUTLER HAMMER	NOT AVAILABLE	NOT AVAILABLE		1
	DUPLEX PUMP PANELS	CULLEN ASSOCIATES	NOT AVAILABLE	NOT AVAILABLE		2
	DUPLEX RECEPTACLES	CULLEN ASSOCIATES	NOT AVAILABLE	NOT AVAILABLE		3
16	**UNNAMED RACK 4 (NEAR PIER A)**					
	COMBINATION MOTOR STARTER	PYLE-NATIONAL	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	7
	PUMP CONTROL	MCGRAW EDISON	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
	ALARM RESET PANEL	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
	POWER PANEL	NOT AVAILABLE	NOT AVAILABLE	4 CIRCUITS	EXPLOSION PROOF	1
	CIRCUIT BREAKER	SQUARE D	FA 050 X	50A TRIP	EXPLOSION PROOF	1
		PYLE-NATIONAL	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
	LIGHT RACK SWITCH	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
	DOWN LIGHTING	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
	MAIN BREAKER	CURLEE	CAT# ECB-N13610-NP-M-2BD	100A TRIP	EXPLOSION PROOF	1
17	**UNNAMED RACK 4 (NEAR PIER A FILTER STATION)**					
	TRANSFORMER	CROUSE-HINDS	EPC SERIES	15KVA	EXPLOSION PROOF	1
	COMBINATION MOTOR STARTER	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
	LIGHTING PANEL	NOT AVAILABLE	NOT AVAILABLE	6 CIRCUITS	EXPLOSION PROOF	1
	CIRCUIT BREAKER	CROUSE-HINDS	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
		APPLETON	EB1	15A TRIP	EXPLOSION PROOF	1
	CIRCUIT BREAKER	APPLETON	EB1EH3W30	MAX VOLTS 480	EXPLOSION PROOF	1
	ALARM RESET PANEL WITH HORN	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
	JUNCTION BOX	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
	ALARM RESET PANEL WITH HORN	KILLARK	EXB-12188 N34	NOT AVAILABLE	EXPLOSION PROOF	1
	JUNCTION BOX	KILLARK	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
	CIRCUIT BREAKER	KILLARK	XECE-154A3	15A TRIP	EXPLOSION PROOF	1

BULK FUEL FARM INVENTORY LIST

ELECTRICAL EQUIPMENT

KEY NOTE	ITEM	MANUFACTURER	MODEL: CATALOG No:	ELECTRICAL DATA:	COMMENTS	QUANTITY
	SUMP PUMP CONTROLLER	NOT AVAILABLE	NOT AVAILABLE	480 VOLT	EXPLOSION PROOF	
	DOWN LIGHTING	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
18	**PUMPS 27-32 RACK (NEAR TANK 50)**					
	POWER PANEL	RUSSEL & STOLL	NOT AVAILABLE	150A 120/208	EXPLOSION PROOF	1
	TRANSFORMER	NOT AVAILABLE	NOT AVAILABLE	10KVA	EXPLOSION PROOF	1
	DISCONNECT	RUSSEL & STOLL	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	8
	DOWN LIGHTING	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
	JUNCTION BOX	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	5
	LIGHT RACK SWITCH	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
19	**PUMPS 33-38 RACK (NEAR TANK 47)**					
	POWER PANEL	RUSSEL & STOLL	NOT AVAILABLE	7 DISCONNECTS	EXPLOSION PROOF	1
	TRANSFORMER	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
	DISCONNECT	RUSSEL & STOLL	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	10
	DOWN LIGHTING	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2
	JUNCTION BOX	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	4
	LIGHT RACK SWITCH	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	1
	FILTER STATIONS					
20	**PIER A FILTER STATION**					
	DOWN LIGHTING				EXPLOSION PROOF	3
	F/S HEATER STATUS PANEL	AKRON	CAT# CXJ12188 H2 N4	SIRENA ALARM, WHITE WARNING LIGHT	EXPLOSION PROOF	
	JUNCTION BOX	AKRON	CAT# EX1684		EXPLOSION PROOF	
	RECEPTACLE	APPLETON	N2D75-2023		EXPLOSION PROOF	
	1 TON CRANE	SVED	NOT AVAILABLE	NOT AVAILABLE		2
	DISCONNECT SWITCH	CROUSE-HINDS	M2		EXPLOSION PROOF	
21	**PIER B FILTER STATION**					
	DOWN LIGHTING				EXPLOSION PROOF	2
	F/S HEATER STATUS PANEL	KILLARK	CAT# EXP-182410 N34	VIBRATONE ALARM, RED WARNING LIGHT	EXPLOSION PROOF	
	JUNCTION BOX	KILLARK	CAT# EXB-10106 N34		EXPLOSION PROOF	
	RECEPTACLE WITH GFCI	CROUSE-HINDS	CAT# GFS-1	120VAC, 20A, 60HZ	EXPLOSION PROOF	1
	1 TON CRANE	ADALET SHAW BOX	NOT AVAILABLE	NOT AVAILABLE		2
	DISCONNECT SWITCH	CROUSE-HINDS	M2		EXPLOSION PROOF	
22	**PIER 2 FILTER STATION**					
	DOWN LIGHTING				EXPLOSION PROOF	3
	F/S HEATER STATUS PANEL	AKRON	CAT# CXJ12188 H2 N4	SIRENA ALARM, WHITE WARNING LIGHT	EXPLOSION PROOF	

BULK FUEL FARM INVENTORY LIST

ELECTRICAL EQUIPMENT

KEY NOTE	ITEM	MANUFACTURER	MODEL: CATALOG No:	ELECTRICAL DATA:	COMMENTS	QUANTITY
	JUNCTION BOX	AKRON	CAT# EX1684		EXPLOSION PROOF	
	RECEPTACLE WITH GFCI	CROUSE-HINDS	CAT# GFS-1	120VAC, 20A, 60HZ	EXPLOSION PROOF	1
	RECEPTACLE	APPLETON	N2D75-2023		EXPLOSION PROOF	
	1 TON CRANE	ADALET SHAW BOX	NOT AVAILABLE	NOT AVAILABLE		2
	DISCONNECT SWITCH	CROUSE-HINDS	M2		EXPLOSION PROOF	
	F/S POWER PANEL	CROUSE-HINDS	EPL SERIES	26 CIRCUITS	EXPLOSION PROOF	
	MOV POWER PANEL	CROUSE-HINDS	EPL SERIES	10 CIRCUITS	EXPLOSION PROOF	
23	**PIER 3 FILTER STATION**					
	DOWN LIGHTING				EXPLOSION PROOF	2
	F/S HEATER STATUS PANEL	AKRON	CAT# CXJ12188 H2 N4	SIRENA ALARM, WHITE WARNING LIGHT	EXPLOSION PROOF	
	JUNCTION BOX	AKRON	CAT# EX1684		EXPLOSION PROOF	
	RECEPTACLE	APPLETON	N2D75-2023		EXPLOSION PROOF	
	1 TON CRANE	ADALET SHAW BOX	NOT AVAILABLE	NOT AVAILABLE		2
	DISCONNECT SWITCH	CROUSE-HINDS	M2		EXPLOSION PROOF	
	MOV POWER PANEL	APPLETON	EPB-MB1-303-7151-2201-7153	10 CIRCUITS	EXPLOSION PROOF	
			CONTROL PANELS			
24	**OOS ORS CONTROLS**					
	PUMP CONTROLS	ORS	PID NO: 2031001	115V, 1/3HP, 1PH	EXPLOSION PROOF	
	RECEPTACLES	CROUSE-HINDES			EXPLOSION PROOF	2
25	**TT-201**					
	UST PUMP MOTOR	U.S. ELECTRICAL MOTORS		3HP 3PH	EXPLOSION PROOF	
	UST PUMP CONTROL	CUTLER HAMMER			EXPLOSION PROOF	
	RECLAIM PUMP CONTROL PANEL	KILLARK	SPM25756	EDWARDS GS ALARM	EXPLOSION PROOF	
	TEST/RESET PANEL	PNEUMERCATOR	LC1001			
26	**TT-202**					
	UST PUMP MOTOR	U.S. ELECTRICAL MOTORS		3HP 3PH	EXPLOSION PROOF	
	AST PUMP MOTOR	EMERSON	X5E1B	5HP 3PH	EXPLOSION PROOF	
	RECLAIM BREAKER PANEL	APPLETON	APPNC14C18M1-102	15 CIRCUITS 100A	EXPLOSION PROOF	
	HEATER STATUS PANEL	AKRON	CAT# CXJ18308 H2 N1 N4 N4 18N6	ALARM, TOMAR RED WARNING LIGHT	EXPLOSION PROOF	
	RECLAIM PUMP CONTROL PANEL	KILLARK	SPM25756		EXPLOSION PROOF	
	F/S SUMP PROBE	WARRICK CONTROLS	3E1C	AKRON EX1684 JUNCTION BOX	EXPLOSION PROOF	
27	**TT-203**					
	UST PUMP MOTOR	U.S. ELECTRICAL MOTORS		3HP 3PH	EXPLOSION PROOF	
	AST PUMP MOTOR	LEESON	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	

BULK FUEL FARM INVENTORY LIST

ELECTRICAL EQUIPMENT

KEY NOTE	ITEM	MANUFACTURER	MODEL: CATALOG No:	ELECTRICAL DATA:	COMMENTS	QUANTITY
	RECLAIM BREAKER PANEL	NOT AVAILABLE	NOT AVAILABLE	8 CIRCUITS	EXPLOSION PROOF	
	HEATER STATUS PANEL	AKRON	CAT# CXJ18308 H2 N1 N4 N4 18N6	ALARM, TOMAR RED WARNING LIGHT	EXPLOSION PROOF	
	RECLAIM PUMP CONTROL PANEL	KILLARK	SPM25756		EXPLOSION PROOF	
	TEST/RESET PANEL	PNEUMERCATOR	LC1001			
	UST PUMP CONTROL	CUTLER HAMMER			EXPLOSION PROOF	
28	**TT-204**					
	UST PUMP MOTOR	U.S. ELECTRICAL MOTORS		3HP 3PH	EXPLOSION PROOF	
	UST PUMP CONTROL	CUTLER HAMMER			EXPLOSION PROOF	
	RECLAIM PUMP CONTROL PANEL	KILLARK	SPM25756	EDWARDS GS ALARM	EXPLOSION PROOF	
	TEST/RESET PANEL	PNEUMERCATOR	LC1001			
29	**TT-205**					
	UST PUMP MOTOR	U.S. ELECTRICAL MOTORS		3HP 3PH	EXPLOSION PROOF	
	UST PUMP CONTROL	CUTLER HAMMER			EXPLOSION PROOF	
	RECLAIM PUMP CONTROL PANEL	KILLARK	SPM25756	EDWARDS GS ALARM	EXPLOSION PROOF	
	TEST/RESET PANEL	PNEUMERCATOR	LC1001			
30	**TT-206**					
	UST PUMP MOTOR	U.S. ELECTRICAL MOTORS		3HP 3PH	EXPLOSION PROOF	
	UST PUMP CONTROL	CUTLER HAMMER			EXPLOSION PROOF	
	RECLAIM PUMP CONTROL PANEL	KILLARK	SPM25756	EDWARDS GS ALARM	EXPLOSION PROOF	
	TEST/RESET PANEL	PNEUMERCATOR	LC1001			
31	**DIESEL FUELING STATION**					
	EFSO	APPLETON	N1DC75-J1U1	WITH HORN	EXPLOSION PROOF	1
	DEADMAN CONTROL	NOT AVAILABLE			EXPLOSION PROOF	1
	PUMP RUNNING LIGHT (ORANGE)				EXPLOSION PROOF	1
	PUMP MOTOR	RELIANCE	X184T	5HP	EXPLOSION PROOF	1
	SNAP SWITCH	CROUSE-HINDES				1
	DIESEL DISPENSER	GASBOY	NOT AVAILABLE			1
	REMOTE EFSO	NOT AVAILABLE	NOT AVAILABLE	RED WARNING LIGHT		1
32	**100LL GAS STATION**					
	EFSO	NOT AVAILABLE	NOT AVAILABLE		EXPLOSION PROOF	1
	DEADMAN CONTROL	NOT AVAILABLE			EXPLOSION PROOF	1
	PUMP START/STOP	KILLARK	XCS-0B13 U		EXPLOSION PROOF	1
	PUMP MOTOR	RELIANCE	X184T	5HP	EXPLOSION PROOF	1
	SNAP SWITCH	CROUSE-HINDES				1
	REMOTE EFSO	NOT AVAILABLE	NOT AVAILABLE	WARNING LIGHT, FIRE PULL STATION		1

BULK FUEL FARM INVENTORY LIST

ELECTRICAL EQUIPMENT

KEY NOTE	ITEM	MANUFACTURER	MODEL: CATALOG No:	ELECTRICAL DATA:	COMMENTS	QUANTITY
	TANK GAUGING SYSTEM					
33	VAREC TRANSMITTER	VAREC	MODEL No: N2900B04822FM			8
34	SHAND & JURS					54
35	**4160V SUB-STATIONS**					
	TRANSFORMER	MAY & CHRISTE GMBH	PLATE NO. 4299.71.073/64 SERIAL: 20602	750KVA, 4160V-480/277V, 3PH		
		FEDERAL PACIFIC	SERIAL: 22961-002	80KVA, 480V-208/120V		
		GENERAL ELECTRIC	CAT: 9T23B3874G03	75KVA, 480V-208/120V		
	SWITCH GEAR	KINNEY	SERIAL: BH-41545-90 SO. NO. 84372	1600A, 480/277V, 3PH	8 BUCKETS	
	ELECTRIC HEATER	DAYTON ELECTRIC	MODEL: 2E639B	208V, 3PH		
	DIGITAL METER					
	LIGHTING				TOTAL OF 3 RECESSED (INDOORS)	
					TOTAL OF 2 WALL PACKS (OUTDOORS, EXPLOSION PROOF)	
	RESET PUSH BUTTON				TOTAL OF 2	
	SAFTY SWITCH				FOR FOAM PUMP HOUSE	
			TRUCK LOADING RACKS			
36	**LOADING RACKS 43-50 (4 ISLANDS)**					
	EXPLOSION PROOF PANEL (LIGHTING)	CROUSE HINDS	EDP 2906-15-3M50-INV-DRO294913	7 CIRCUITS 50A	EXPLOSION PROOF	
	EFSO					1 PER ISLAND
	PENDANT LIGHT	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	22
	PUMP RUNNING LIGHT (ORANGE)	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2 PER ISLAND
	GROUND WIRES	NOT AVAILABLE				2 PER ISLAND
	SUMP HEATER CURCUIT BREAKER	WESTINGHOUSE	XFB050	50A	EXPLOSION PROOF	2/3 PER ISLAND 10 TOTAL
	SUMP HEATER	NOT AVAILABLE	NOT AVAILABLE			2 PER ISLAND
	PUMP START/STOP	CROUSE HINDS	EWC3201 J1		EXPLOSION PROOF	2 PER ISLAND
	HEAT DETECTORS	NOT AVAILABLE				2 PER ISLAND
	SPEAKER	ATLAS SOUNDOLIER	MLE-1			
	TEST BUTTON	ALLEN BRADLEY	800H-1HVX7			
37	**LOADING RACKS 33-42 (5 ISLANDS)**					
	EXPLOSION PROOF PANEL (LIGHTING)	CROUSE HINDS	EDP 2906-15-3M50-INV-DRO294913	7 CIRCUITS 50A	EXPLOSION PROOF	
	EFSO					1 PER ISLAND
	PENDANT LIGHT	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	16
	PUMP RUNNING LIGHT (YELLOW)	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2 PER ISLAND
	EXPLOSION PROOF PANEL	RUSSELL & STOLL	XB2-13	2 CURCUITS 240VAC	EXPLOSION PROOF	2 PER ISLAND
	PUMP START/STOP	NOT AVAILABLE				2 PER ISLAND
38	**LOADING RACKS 27-32 (3 ISLANDS)**					
	EXPLOSION PROOF PANEL (LIGHTING)	CROUSE HINDS	EDP 2906-15-3M50-INV-DRO294913	7 CIRCUITS 50A	EXPLOSION PROOF	
	EFSO					1 PER ISLAND
	PENDANT LIGHT	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	16

BULK FUEL FARM INVENTORY LIST

ELECTRICAL EQUIPMENT

KEY NOTE	ITEM	MANUFACTURER	MODEL: CATALOG No:	ELECTRICAL DATA:	COMMENTS	QUANTITY
	PUMP RUNNING LIGHT (ORANGE)	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2 PER ISLAND
	GROUND REEL	NOT AVAILABLE				2 PER ISLAND
	DEADMAN CONTROL	NOT AVAILABLE				4 PER ISLAND
	PUMP START/STOP	APPLETON				2 PER ISLAND
	HEAT DETECTORS	NOT AVAILABLE				2 PER ISLAND
39	**LOADING RACKS 21-26 (3 ISLANDS)**					
	EXPLOSION PROOF PANEL	RUSSELL & STOLL CO.	5APCXL-400	OOS	EXPLOSION PROOF	
	EFSO					1 PER ISLAND
	PENDANT LIGHT	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	22
	PUMP RUNNING LIGHT (YELLOW)	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2 PER ISLAND
	PUMP START/STOP	NOT AVAILABLE	NOT AVAILABLE		EXPLOSION PROOF	2 PER ISLAND
	RECEPTACLE	NOT AVAILABLE	NOT AVAILABLE		EXPLOSION PROOF	4
	PUMP MOTOR	MARATHON ELECTRIC	5M 256T TGP8026AB L	20HP 3PH	EXPLOSION PROOF	2
	PUMP DISCONNECT SWITCH	CROUSE HINDS	EBMBD FD	NOT AVAILABLE	EXPLOSION PROOF	2
	AVIATION FUEL RETURN PUMP PANEL	KILLARK	EXB-12248 N34		EXPLOSION PROOF (2) START/STOP (1) EFSO	
40	**LOADING RACKS 17-20 (2 ISLANDS)**					
	EXPLOSION PROOF PANEL (LIGHTING)	CROUSE HINDS	EDP 2906-15-3M50-INV-DRO294913	7 CIRCUITS 50A	EXPLOSION PROOF	
	EFSO					1 PER ISLAND
	PENDANT LIGHT	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	14
	PUMP RUNNING LIGHT (ORANGE)	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	EXPLOSION PROOF	2 PER ISLAND
	GROUND WIRES	NOT AVAILABLE				2 PER ISLAND
	PUMP START/STOP	APPLETON				2 PER ISLAND
	HEAT DETECTORS	NOT AVAILABLE				2 PER ISLAND
	HEAT TRACE CPNTROLLER	DIGITRACE	910		EXPLOSION PROOF	
	F/S SUMP HEATER					
	RECEPTACLE	APPLETON			EXPLOSION PROOF	
	MOTOR STARTER	KILLARK	B7021		EXPLOSION PROOF	
	FLUID INJECTION SYSTEM	ENRAF	86-01100		MINIPAK 3000	
	PUMP INJECTOR MOTOR	MARATHON ELECTRIC	NOT AVAILABLE	NOT AVAILABLE		
41	**BUILDING 242 (INTERIOR)**					
	TANK MONITORING PANELS	RUSSELL & STOLL			LEVEL ALARMS	5
	CONTROL SWITCHBOARD	GALLAGHER				3
	EMERGENCY EXIT LIGHT					
	TRANSFORMER	CUTLER HAMMER	CAT: V48M28F15CU	15KVA 480V-208Y/120V		
	MCC-1	CUTLER HAMMER FREEDOM 2100 MCC	SERIAL: PNY01234 IT009-FVC	600A, 480V	26 CABINETS	
	MCC-2					
	MOV FAILURE RELAY PANEL	RUSSELL INC.	SERIAL: NEW YORK C-1422			

BULK FUEL FARM INVENTORY LIST

ELECTRICAL EQUIPMENT

KEY NOTE	ITEM	MANUFACTURER	MODEL: CATALOG No:	ELECTRICAL DATA:	COMMENTS	QUANTITY
	PANEL AC-DC RECTIEFIER #1	AMERICAN RECTIFIER CO.				
42	**EXTERIOR LIGHT FIXTURES**					
	LIGHTING POLE WITH 2 CIRCULAR FIXTURES			277V	MOUNTED WITH SAFETY DISCONNECT	7
	LIGHTING POLE WITH 3 CIRCULAR FIXTURES			277V	MOUNTED WITH SAFETY DISCONNECT	3
	LIGHTING POLE WITH 4 CIRCULAR FIXTURES			277V/208V	MOUNTED WITH SAFETY DISCONNECT	11
	LIGHTING POLE WITH 5 CIRCULAR FIXTURES			277V	MOUNTED WITH SAFETY DISCONNECT	7
	LIGHTING POLE WITH 2 RECTANGULAR FIXTURES			277V/208V	MOUNTED WITH SAFETY DISCONNECT	20
	LIGHTING POLE WITH 3 RECTANGULAR FIXTURES			277V	MOUNTED WITH SAFETY DISCONNECT	21
	LIGHTING POLE WITH 4 RECTANGULAR FIXTURES			277V	MOUNTED WITH SAFETY DISCONNECT	5
	LIGHTING POLE WITH 5 RECTANGULAR FIXTURES			277V/208V	MOUNTED WITH SAFETY DISCONNECT	3
	WARNING LIGHTING (RED)					11
	DOWN LIGHTING FIXTURE					76
	LIGHT FIXTURE SURFACE MOUTED					58
	TRAFFIC LIGHT FIXTURE					4
43	**INVENTORY GUARD BOOTH**					
	FLOOD LIGHTS					4
	TRANSFORMER	NOT AVAILABLE	NOT AVAILABLE			
	DISCONNECT SWITCH	CUTLER HAMMER	NOT AVAILABLE	100A	NEMA 4X	
	FLUORESCENT LIGHTING	NOT AVAILABLE	NOT AVAILABLE			
	EMERGENCY LIGHTS	NOT AVAILABLE	NOT AVAILABLE			
	INVENTORY LOG COMPUTER	NOT AVAILABLE	NOT AVAILABLE			
	EXHAUST FAN	NOT AVAILABLE	NOT AVAILABLE			
44	**ABANDONED GUARD BOOTH**					
	PANEL	SQUARE D		9 CIRCUITS 100A		
	FLOOD LIGHTS					2
	EXHAUST FAN	NOT AVAILABLE	NOT AVAILABLE			
	TRANSFORMER	NOT AVAILABLE	NOT AVAILABLE			
	RECEPTACLE	NOT AVAILABLE	NOT AVAILABLE			
45	**FILTER ELEMENT TESTING BUILDING**					
	PANEL	EXD SERIES	CAT: EXDC318-02370-12120-3M100	100A, 480V,3PH	TRUCK LOADING RACK 23	3

BULK FUEL FARM INVENTORY LIST

ELECTRICAL EQUIPMENT						
KEY NOTE	*ITEM*	*MANUFACTURER*	*MODEL: CATALOG No:*	*ELECTRICAL DATA:*	*COMMENTS*	*QUANTITY*
	JUNCTION BOX	EXD SERIES	CAT: EPLB318-18120-3M100-1	100A, 208Y/120V, 3PH	TRUCK LOADING RACK 23	
	RECESSED LIGHT FIXTURES			EXPLOSION PROOF 2-LAMP	TRUCK LOADING RACK 23	2
	TRANSMITTER				TRUCK LOADING RACK 23	
46	**ENTRY SECURITY POINT**					
	LIGHT FIXTURE SURFACE MOUTED					4
	PANEL					1
	TRANSFORMER					1
	DISCONNECT SWITCH					1
	TRAFFIC LIGHTS					4
	JUNCTION BOX					1
	DELTA BARRIER					1
47	**TANK ALARM**					
	INDEPENDENT HIGH LEVEL ALARM	TRANSDATA CORPORATION	MODEL 6761			62

BULK FUEL FARM INVENTORY LIST

CATHODIC PROTECTION SYSTEM

KEY NOTE	ITEM		MANUFACTURER	MODEL: CATALOG No:	ELECTRICAL DATA:	COMMENTS	QUANTITY
	CATHODIC PROTECTION: RECTIFIER AREA						
50		CP RECT. 1	UNIVERSAL RECTIFIERS INC.	MODEL:OAB-XP SERIAL:921954	VAC:230/460V VDC:24V, DC AMPS: 65	EXPLOSION PROOF	1
		CP RMU 1	ADALET	CAT:XJF141404N4		EXPLOSION PROOF	1
		CP RECT. JB 1	HUBBELL-KILLARK	CAT: EXB-16166-N34		EXPLOSION PROOF	1
		CP JBOX	ADALET	CAT: XCE183610N4		EXPLOSION PROOF	1
		CP CONTROLS/CP RECT. 1N	CORRPRO	SERIAL:C-000620	AC INPUT: 480V, 1.88A DC OUTPUT: 6 CKTS EACH AT 18V, 4A	EXPLOSION PROOF	1
51		CP RECT. 2	UNIVERSAL RECTIFIERS INC.	MODEL:OAB-XP SERIAL:921956	VAC:115/230V VDC:24V, DC AMPS: 60	EXPLOSION PROOF	1
		CP RMU 2	ADALET	CAT:XJF141404N4		EXPLOSION PROOF	1
		CP RECT. JB 2	HUBBELL-KILLARK	CAT: EXB-16166-N34		EXPLOSION PROOF	1
		CP JBOX	ADALET	CAT: XCE183610N4		EXPLOSION PROOF	1
							1
52		CP RECT. 3	UNIVERSAL RECTIFIERS INC.	MODEL:OAB-XP SERIAL:921957	VAC:115/230V VDC:24V, DC AMPS: 60	EXPLOSION PROOF	1
		CP RMU 3	ADALET	CAT:XJF141404N4		EXPLOSION PROOF	1
		CP RECT. JB 3	HUBBELL-KILLARK	CAT: EXB-16166-N34		EXPLOSION PROOF	1
		CP JBOX	ADALET	CAT: XCE183610N4		EXPLOSION PROOF	1
		CP CONTROLS/CP RECT. 3N	CORRPRO	SERIAL:C-000621	AC INPUT: 115V, 2.6A DC OUTPUT: 2 CKTS EACH AT 18V, 4A	EXPLOSION PROOF	1
53		CP RECT. 4	UNIVERSAL RECTIFIERS INC.	MODEL:OAB-XP SERIAL:921958	VAC:115/230V VDC:24V, DC AMPS: 60	EXPLOSION PROOF	1
		CP RMU 4	ADALET	CAT:XJF141404N4		EXPLOSION PROOF	1
		CP RECT. JB 4	HUBBELL-KILLARK	CAT: EXB-16166-N34		EXPLOSION PROOF	1
		CP JBOX	ADALET	CAT: XCE183610N4		EXPLOSION PROOF	1
54		CP RECT. 5	UNIVERSAL RECTIFIERS INC.	MODEL:OAB-XP SERIAL:921959	VAC:115/230V VDC:24V, DC AMPS: 60	EXPLOSION PROOF	1
		CP RMU 5	ADALET	CAT:XJF141404N4		EXPLOSION PROOF	1
		CP RECT. JB 5	HUBBELL-KILLARK	CAT: EXB-16166-N34		EXPLOSION PROOF	1
		CP JBOX	ADALET	CAT: XCE183610N4		EXPLOSION PROOF	1
		CP CONTROLS/CP RECT. 5N	CORRPRO	SERIAL:C-000616	AC INPUT: 115V, 5.2A DC OUTPUT: 4 CKTS EACH AT 18V, 4A	EXPLOSION PROOF	1
55		CP RECT. 6	UNIVERSAL RECTIFIERS INC.	MODEL:OAB-XP SERIAL:921960	VAC:115/230V VDC:24V, DC AMPS: 60	EXPLOSION PROOF	1
		CP RMU 6	ADALET	CAT:XJF141404N4		EXPLOSION PROOF	1
		CP RECT. JB 6	HUBBELL-KILLARK	CAT: EXB-16166-N34		EXPLOSION PROOF	1
		CP JBOX	ADALET	CAT: XCE183610N4		EXPLOSION PROOF	1

BULK FUEL FARM INVENTORY LIST

CATHODIC PROTECTION SYSTEM

KEY NOTE	ITEM		MANUFACTURER	MODEL: CATALOG No:	ELECTRICAL DATA:	COMMENTS	QUANTITY
		CP CONTROLS/CP RECT. 6N	CORRPRO	SERIAL:C-000619	AC INPUT: 115V, 7.8A DC OUTPUT: 6 CKTS EACH AT 18V, 4A	EXPLOSION PROOF	1
56		CP RECT. 7	UNIVERSAL RECTIFIERS INC.	MODEL:OAB-XP SERIAL:921961	VAC:115/230V VDC:24V, DC AMPS: 60	EXPLOSION PROOF	1
		CP RMU 7	ADALET	CAT:XJF141404N4		EXPLOSION PROOF	1
		CP RECT. JB 7	HUBBELL-KILLARK	CAT: EXB-16166-N34		EXPLOSION PROOF	1
		CP JBOX	ADALET	CAT: XCE183610N4		EXPLOSION PROOF	1
57		CP RECT. 8	UNIVERSAL RECTIFIERS INC.	MODEL:OAB-XP SERIAL:921962	VAC:115/230V VDC:24V, DC AMPS: 60	EXPLOSION PROOF	1
		CP RMU 8	ADALET	CAT:XJF141404N4		EXPLOSION PROOF	1
		CP RECT. JB 8	HUBBELL-KILLARK	CAT: EXB-16166-N34		EXPLOSION PROOF	1
		CP JBOX	ADALET	CAT: XCE183610N4		EXPLOSION PROOF	1
		CP CONTROLS/CP RECT. 8N	CORRPRO	SERIAL:C-000617	AC INPUT: 115V, 5.2A DC OUTPUT: 4 CKTS EACH AT 18V, 4A	EXPLOSION PROOF	1
58		CP RECT. 9	UNIVERSAL RECTIFIERS INC.	MODEL:OAB-XP SERIAL:921963	VAC:115/230V VDC:24V, DC AMPS: 60	EXPLOSION PROOF	1
		CP RMU 9	ADALET	CAT:XJF141404N4		EXPLOSION PROOF	1
		CP RECT. JB 9	HUBBELL-KILLARK	CAT: EXB-16166-N34		EXPLOSION PROOF	1
		CP JBOX	ADALET	CAT: XCE183610N4		EXPLOSION PROOF	1
59		CP RECT. 10	UNIVERSAL RECTIFIERS INC.	MODEL:OAB-XP SERIAL:921955	VAC:460/230V VDC:24V, DC AMPS: 65	EXPLOSION PROOF	1
		CP RMU 10	ADALET	CAT:XJF141404N4		EXPLOSION PROOF	1
		CP RECT. JB 10	HUBBELL-KILLARK	CAT: EXB-16166-N34		EXPLOSION PROOF	1
		CP JBOX	ADALET	CAT: XCE183610N4		EXPLOSION PROOF	1
		CP CONTROLS/CP RECT. 10N	CORRPRO	SERIAL:C-000618	AC INPUT: 480V, 1.25A DC OUTPUT: 4 CKTS EACH AT 18V, 4A	EXPLOSION PROOF	1
		EXPLOSION PROOF CIRCUIT BREAKER	HUBBELL-KILLARK	CAT:XECE-6A	VAC MAX: 600V VDC MAX: 250V AMP MAX: 40A	EXPLOSION PROOF	1
60		CP RECT. 11	UNIVERSAL RECTIFIERS INC.	MODEL:OAB-XP SERIAL:921953	VAC:115/230V VDC:80V, DC AMPS: 12	EXPLOSION PROOF	1
		CP RMU 11	ADALET	CAT:XJF141404		EXPLOSION PROOF	1
		CP RECT. JB 11	HUBBELL-KILLARK	CAT: EXB-16166-N34		EXPLOSION PROOF	1
		CP JBOX	ADALET	CAT: XCE183610N4		EXPLOSION PROOF	1
		RMU-RST	ADALET	SERIAL:XJFF141404N 4		EXPLOSION PROOF	1
		RECTIFIER JBOX	HUBBELL-KILLARK	CAT: EX8-166-N34 SERIAL: 3231		EXPLOSION PROOF	1
		TRANSFORMER	CROUSE-HINDS ®	CAT: EJ886 SA DR1294817	0.5KVA XMER	EXPLOSION PROOF	1

BULK FUEL FARM INVENTORY LIST

CATHODIC PROTECTION SYSTEM							
KEY NOTE	***ITEM***		***MANUFACTURER***	***MODEL: CATALOG No:***	***ELECTRICAL DATA:***	***COMMENTS***	***QUANTITY***
		JBOX: 480VAC	ADALET	CAT: XCE183610N4	-	EXPLOSION PROOF	1
61		**CATHODIC PROTECTION DEEP BED ANODE**					20
62		**TEST STATIONS**					20

BULK FUEL FARM INVENTORY LIST

COMMUNICATONS SYSTEM

KEY NOTE	*ITEM*	*MANUFACTURER*	*MODEL: CATALOG No:*	*ELECTRICAL DATA:*	*COMMENTS*	*QUANTITY*
100	**FOAM PUMP HOUSE**					
	TELE SWITCHBOARD	GALLAGHER				
	FIRE ALARM PULL STATION					
	FIRE ALARM DONG					
101	**BUILDING 242**					
	DATA PANEL	VAREC/DYNEL	SERIAL: 9333B	120V		3
	GENERATOR			400A, 4160V	NEAR BUILDING 242	1
102	**FUEL METERING**					
	METER REGISTER	VEEDER-ROOT	MODEL: B789001-001			
103	**SATELITE OFFICE**					
	TRANSMITTER				TRUCK LOADING RACK 23	1
104	**MISCELLANEOUS**					
	FIRE ALARM PULL STATION	SIEMENS				21
105	**MAIN ENTRY POINT**					
	COMMUNICATION ENCLOSURE	DELTA	MODEL: 2075/FM 2888E-HP4			
	PANEL	KOOLTRONIC				2
	FIRE ALARM PULL STATIONS					
	GENERAL ALARM					
	LOUD SPEAKER					
106	**BUILDING 158**					
	FIRE ALARM CONTROL PANEL	SIEMENS-MXL	MEA# 287-91-E			2
107	**PULL BOXES/PANELS**					
	TELEPHONE PULL BOX					
108	**OFFICE TRAILER EXTERIOR**					
	EPSO					
	GENERAL ALARM					
	LOUD SPEAKER					

SECTION 2.3

Cathodic Protection Rectifiers Inventory List

JFK INTERNATIONAL AIRPORT
BULK FUEL FARM PIPING AND SINGLE BOTTOM TANKS
CATHODIC PROTECTION RECTIFIERS

RECTIFIER NO. BFF-1	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Universal / Oil Cooled
SERIAL NUMBER	921954
DC OUTPUT	24 Volts, 65 Amps
AC INPUT	230 / 460 Volts
SHUNT	50mV=75A
TYPE OF GROUNDBED	Two (2) Deep Well Configuration

RECTIFIER NO. BFF-2	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Universal / Oil Cooled
SERIAL NUMBER	921956
DC OUTPUT	24 Volts, 60 Amps
AC INPUT	115 / 230 Volts
SHUNT	50mV=75A
TYPE OF GROUNDBED	Two (2) Deep Well Configuration

RECTIFIER NO. BFF-3	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Universal / Oil Cooled
SERIAL NUMBER	921957
DC OUTPUT	24 Volts, 60 Amps
AC INPUT	115 / 230 Volts
SHUNT	50mV=75A
TYPE OF GROUNDBED	Two (2) Deep Well Configuration

RECTIFIER NO. BFF-4	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Universal / Oil Cooled
SERIAL NUMBER	921958
DC OUTPUT	24 Volts, 60 Amps
AC INPUT	115 / 230 Volts
SHUNT	50mV=75A
TYPE OF GROUNDBED	Two (2) Deep Well Configuration

RECTIFIER NO. BFF-5	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Universal / Oil Cooled
SERIAL NUMBER	921959
DC OUTPUT	24 Volts, 60 Amps
AC INPUT	115 / 230 Volts
SHUNT	50mV=75A
TYPE OF GROUNDBED	Two (2) Deep Well Configuration

RECTIFIER NO. BFF-6	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Universal / Oil Cooled
SERIAL NUMBER	921960
DC OUTPUT	24 Volts, 60 Amps
AC INPUT	115 / 230 Volts
DATE GROUNDBED INSTALLED	
TYPE OF GROUNDBED	Two (2) Deep Well Configuration

JFK INTERNATIONAL AIRPORT
BULK FUEL FARM PIPING AND SINGLE BOTTOM TANKS
CATHODIC PROTECTION RECTIFIERS

RECTIFIER NO. BFF-7	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Universal / Oil Cooled
SERIAL NUMBER	921961
DC OUTPUT	24 Volts, 60 Amps
AC INPUT	115 / 230 Volts
SHUNT	50mV=75A
TYPE OF GROUNDBED	Two (2) Deep Well Configuration

RECTIFIER NO. BFF-8	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Universal / Oil Cooled
SERIAL NUMBER	921962
DC OUTPUT	24 Volts, 60 Amps
AC INPUT	115 / 230 Volts
SHUNT	50mV=75A
TYPE OF GROUNDBED	Two (2) Deep Well Configuration

RECTIFIER NO. BFF-9	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Universal / Oil Cooled
SERIAL NUMBER	921963
DC OUTPUT	24 Volts, 60 Amps
AC INPUT	115 / 230 Volts
SHUNT	50mV=75A
TYPE OF GROUNDBED	Two (2) Deep Well Configuration

RECTIFIER NO. BFF-10	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Universal / Oil Cooled
SERIAL NUMBER	921955
DC OUTPUT	24 Volts, 65 Amps
AC INPUT	230 / 460 Volts
SHUNT	50mV=75A
TYPE OF GROUNDBED	Two (2) Deep Well Configuration

JFK INTERNATIONAL AIRPORT
BULK FUEL FARM DOUBLE BOTTOM TANKS
CATHODIC PROTECTION RECTIFIERS

RECTFIER BFF-1N - SIX CIRCUITS

RECTIFIER NO. BFF-1N Circuit 1 - Tank 37	BULK FUEL FARM
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000620
DC OUTPUT	18(6) Volts, 4(6) Amps
AC INPUT	480 Volts, 1.88 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-1N Circuit 2 - Tank 38	BULK FUEL FARM
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000620
DC OUTPUT	18(6) Volts, 4(6) Amps
AC INPUT	480 Volts, 1.88 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-1N Circuit 3 - Tank 39	BULK FUEL FARM
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000620
DC OUTPUT	18(6) Volts, 4(6) Amps
AC INPUT	480 Volts, 1.88 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-1N Circuit 4 - Tank 40	BULK FUEL FARM
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000620
DC OUTPUT	18(6) Volts, 4(6) Amps
AC INPUT	480 Volts, 1.88 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-1N Circuit 5 - Tank 41	BULK FUEL FARM
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000620
DC OUTPUT	18(6) Volts, 4(6) Amps
AC INPUT	480 Volts, 1.88 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-1N Circuit 6 - Tank 42	BULK FUEL FARM
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000620
DC OUTPUT	18(6) Volts, 4(6) Amps
AC INPUT	480 Volts, 1.88 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTFIER BFF-3N - TWO CIRCUITS

RECTIFIER NO. BFF-3N Circuit 1 - Tank 23	BULK FUEL FARM
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000621
DC OUTPUT	18(2) Volts, 4(2) Amps
AC INPUT	115 Volts, 2.6 Amps
SHUNT	100mv / 10 Amps

JFK INTERNATIONAL AIRPORT
BULK FUEL FARM DOUBLE BOTTOM TANKS
CATHODIC PROTECTION RECTIFIERS

TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-3N Circuit 2 - Tank 25	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000621
DC OUTPUT	18(2) Volts, 4(2) Amps
AC INPUT	115 Volts, 2.6 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTFIER BFF-5N - FOUR CIRCUITS

RECTIFIER NO. BFF-5N Circuit 1 - Tank 49	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000616
DC OUTPUT	18(4) Volts, 4(4) Amps
AC INPUT	115 Volts, 5.2 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-5N Circuit 2 - Tank 50	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000616
DC OUTPUT	18(4) Volts, 4(4) Amps
AC INPUT	115 Volts, 5.2 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-5N Circuit 3 - Tank 51	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000616
DC OUTPUT	18(4) Volts, 4(4) Amps
AC INPUT	115 Volts, 5.2 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-5N Circuit 4 - Tank 52	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000616
DC OUTPUT	18(4) Volts, 4(4) Amps
AC INPUT	115 Volts, 5.2 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTFIER BFF-6N - SIX CIRCUITS

RECTIFIER NO. BFF-6N Circuit 1 - Tank 43	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000619
DC OUTPUT	18(6) Volts, 4(6) Amps
AC INPUT	115 Volts, 7.8 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-6N Circuit 2 - Tank 44	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000619
DC OUTPUT	18(6) Volts, 4(6) Amps

JFK INTERNATIONAL AIRPORT
BULK FUEL FARM DOUBLE BOTTOM TANKS
CATHODIC PROTECTION RECTIFIERS

AC INPUT	115 Volts, 7.8 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-6N Circuit 3 - Tank 45	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000619
DC OUTPUT	18(6) Volts, 4(6) Amps
AC INPUT	115 Volts, 7.8 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-6N Circuit 4 - Tank 46	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000619
DC OUTPUT	18(6) Volts, 4(6) Amps
AC INPUT	115 Volts, 7.8 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-6N Circuit 5 - Tank 47	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000619
DC OUTPUT	18(6) Volts, 4(6) Amps
AC INPUT	115 Volts, 7.8 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-6N Circuit 6 - Tank 48	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000619
DC OUTPUT	18(6) Volts, 4(6) Amps
AC INPUT	115 Volts, 7.8 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTFIER BFF-8N - FOUR CIRCUITS

RECTIFIER NO. BFF-8N Circuit 1 - Tank 53	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000617
DC OUTPUT	18(4) Volts, 4(4) Amps
AC INPUT	115 Volts, 5.2 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-8N Circuit 2 - Tank 54	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000617
DC OUTPUT	18(4) Volts, 4(4) Amps
AC INPUT	115 Volts, 5.2 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-8N Circuit 3 - Tank 55	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000617

JFK INTERNATIONAL AIRPORT
BULK FUEL FARM DOUBLE BOTTOM TANKS
CATHODIC PROTECTION RECTIFIERS

DC OUTPUT	18(4) Volts, 4(4) Amps
AC INPUT	115 Volts, 5.2 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-8N Circuit 4 - Tank 56	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000617
DC OUTPUT	18(4) Volts, 4(4) Amps
AC INPUT	115 Volts, 5.2 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTFIER BFF-10N - FOUR CIRCUITS

RECTIFIER NO. BFF-10N Circuit 1 - Tank 57	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000618
DC OUTPUT	18(4) Volts, 4(4) Amps
AC INPUT	480 Volts, 1.25 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-10N Circuit 2 - Tank 58	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000618
DC OUTPUT	18(4) Volts, 4(4) Amps
AC INPUT	480 Volts, 1.25 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-10N Circuit 3 - Tank 59	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000618
DC OUTPUT	18(4) Volts, 4(4) Amps
AC INPUT	480 Volts, 1.25 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

RECTIFIER NO. BFF-10N Circuit 4 - Tank 60	**BULK FUEL FARM**
MANUFACTURER/UNIT TYPE	Corrpro / Oil Cooled / Constant Current
SERIAL NUMBER	C-000618
DC OUTPUT	18(4) Volts, 4(4) Amps
AC INPUT	480 Volts, 1.25 Amps
SHUNT	100mv / 10 Amps
TYPE OF GROUNDBED	Multiple Loops of MMO Wire Anode

SECTION 2.4

Building Inventory List

BUILDING INVENTORY LIST

Fuel Operator's Office Trailer

Room	Equipment Name	Construction
General/ Exterior	Building	Job site office trailer on a concrete pad
General/ Exterior	Exterior walls	Sheet metal walls, painted
General/ Exterior	Deck	Wood framed decking and railing with composite floor decking
General/ Exterior	Roof	Built up roof over the office trailer Shingled wooden roof over deck area
General/ Exterior	Doors	4- Hollow sheet metal doors with wire reinforced window
General/ Exterior	Windows	8- Aluminum frame windows slide left with mosquito netting
General/ Exterior	Electrical Equipment	1- Cisco internet antena
General/ Exterior	Fire Equipment	1- Deck mounted fire extinguisher
General/ Exterior	Mechanical Equipment	1- Wall mount Heating and Ventilation unit by ARL Model, 000022
General	Layout	3- Offices 1- Common room 1- Bathroom
General/ Interior	Walls	Wood paneling walls
General/ Interior	Floor	Vinyl tile floor
General/ Interior	Doors	4- Hollow wood panel doors
General/ Interior	Ceiling	Plastic panels, painted
Office #1	Electrical Equipment	1- Single phase power panel 1- Hydro saver panel 1- Pump off panel, Panalarm 1- Fuel recovery panel 1- Alarm panel
Office #1	Lighting	2- Two bulb fluorescent lights
Office #2	Electrical Equipment	1- Tank level alarm and leak detection panel
Office #2	Heating	1- Electric baseboard heater 1- Analog thermostat temperature controller

BUILDING INVENTORY LIST

Fuel Operator's Office Trailer

Room	Equipment Name	Construction
Office #2	Lighting	1- Two bulb fluorescent light 1- Three bulb fluorescent light
Office #2	Fire Equipment	1- Wall mounted fire extinguisher
Common Room	Miscellaneous	1- AED Box 1- Time punch palm scan machine
Common Room	Fire Equipment	1- Wall mounted fire extinguisher
Common Room	Lighting	4- Two bulb fluorescent lights 1- Two bulb emergency light
Bathroom	Fixtures	1- Toilet 1- Sink
Bathroom	Lighting	1- Two bulb fluorescent light
Bathroom	Mechanical Equipment	1- Exhaust fan
Office #3	Electrical Equipment	1- Alarm anunciator panel
Office #3	Lighting	2- Two bulb fluorescent lights
Office #3	Heating	1- Electric baseboard heater

BUILDING INVENTORY LIST

Locker Room

Room	Equipment Name	Construction
General/ Exterior	Building	Domed sheet metal building over a concrete slab
General/ Exterior	Exterior walls and roof	Corrugated sheet metal wall, painted
General/ Exterior	Doors	2- Hollow steel doors with wire reinforced window
General/ Exterior	Windows	5-Slide up windows
General/ Exterior	Mechanical Equipment	1- Rectangular double wall 440 gal. fuel oil tank
General	Layout	1-Bathroom 1- Locker Room 1- Mechanical Room
Mechanical Room	Doors	1- Hollow steel door
Mechanical Room	Floor	Uncoated concrete floor
Mechanical Room	Walls	Plywood walls, painted
Mechanical Room	Lighting	1- two bulb fluorescent light
Mechanical Room	Electrical	1- Circuit breaker panel 208Y/12 3 phase 4 wire
Mechanical Room	Mechanical Equipment	1- Fuel oil forced air heater (Lennox, Model 016Q4/5-155, 125,000 BTU) 1- 12" exhaust fan 1- 40 gal. hot water heater A.O. Smith, Model EES 40 917
Mechanical Room	Fire Equipment	1- Fire extinguisher
Bathroom	Floor	Ceramic tile floor
Bathroom	Walls	Plywood walls, painted
Bathroom	Fixtures	1- Multi spray stainless steel sink 2- Toilets 2- Urinals 1- Shower 1- Wall mounted emergency eye wash
Bathroom	Ventilation	1-8" Exhaust fan
Bathroom	Lighting	3- Fluorescent lights 1- two bulb emergency light with illuminated exit sign
Locker Room	Floor	Vinyl tile floor
Locker Room	Walls	Plywood walls, painted

BUILDING INVENTORY LIST

Locker Room		
Room	**Equipment Name**	**Construction**
Locker Room	Miscellaneous	49- Single tier lockers 40-Double tier lockers
Locker Room	Heating and cooling	1- Analog thermostat controller for central heat 1- Window mounted AC unit by Friedrich
Locker Room	Lighting	6- two bulb fluorescent lights 1- two bulb emergency light 1- Illuminated exit sign
Locker Room	Doors	2- Hollow steel doors

BUILDING INVENTORY LIST

Building 158		
Room	**Equipment Name**	**Construction**
General/ Exterior	Building	CMU building built on a concrete slab
General/ Exterior	Exterior walls	CMU painted walls
General/ Exterior	Roof	2"x6" decking with built up roof
General/ Exterior	Doors	3- Hollow steel doors with reinforced glass windows 3- electric roll up garage doors
General/ Exterior	Windows	4- Steel Frame fixed windows 1- Slide up window
General/ Exterior	Lighting	2- Metal Halide Lights
General/ Exterior	Fire Equipment	1- Wall mounted fire extinguisher 1- Audible alarm
General/ Exterior	Mechanical Equipment	1- Double wall 221 gal. fuel oil tank, #10A 1- Wall mounted AC unit 1- Window moounted AC unit
General	Layout	1- Fire control room 1-Dispatch/ Break Room Garage Fire Extinguisher Room
Fire Control Room	Walls	Wood paneling walls
Fire Control Room	Floor	Coated concrete floor
Fire Control Room	Doors	1- Hollow wood panel door
Fire Control Room	Lighting	2- Four bulb fluorescent lights 1- Two bulb emergency light 1- Illuminated exit sign
Fire Control Room	Electrical Equipment	Communications panel
Fire Control Room	Fire Equipment	1- Fire control panel 1- Strobe light 1- Emergency fire switch 1- Smoke detector
Dispatch Room	Floor	Coated concrete floor
Dispatch Room	Walls	Wood paneling walls

BUILDING INVENTORY LIST

Building 158		
Room	**Equipment Name**	**Construction**
Dispatch Room	Lighting	4- Four bulb fluorescent lights 1- Two bulb emergency light 1- Illuminated exit sign
Dispatch Room	Mechanical Equipment	1- Wall mounted AC unit 1- Exhaust fan 1- Analog thermostat controller
Dispatch Room	Ceiling	Sheetrock ceiling, painted
Garage	Walls	CMU walls, painted
Garage	Floor	Uncoated concrete floor
Garage	Mechanical Equipment	1- Fuel oil furnace (Model LG14-225; 284,000 BTU) Becket burner, Model SF
Garage	Lighting	3- Metal halide lights 5- Four bulb fluorescent lights 1- Two bulb emergency light
Fire Extinguisher room	Room Construction	Corrugated sheet metal addition to the CMU building
Fire Extinguisher room	Interior Walls	Insulated walls with plywood over
Fire Extinguisher room	Floor	Coated concrete floor
Fire Extinguisher room	Electrical Equipment	1- Main power panel 208/120 V 5- Breaker panels
Fire Extinguisher room	Lighting	6- Two bulb fluorescent light fixtures
Fire	Miscellaneous	1- Portable emergency eyewash

BUILDING INVENTORY LIST

Building 159

Room	Equipment Name	Construction
General/ Exterior	Building	Pre fabricated sheet metal building on a concrete slab
General/ Exterior	Exterior walls	Painted sheet metal
General/ Exterior	Roof	Corrugated sheet metal roof with 4 aluminum gutters
General/ Exterior	Doors	1- Hollow steel door. 1- Aluminum framed glass panel door .
General/ Exterior	Windows	7- Aluminum frame slide up windows with insect screen. 2- Aluminum frame slide left windows with insect screen. 1- Aluminum Frame fixed window next to main entrance
General/ Exterior	HVAC Equipment	1- AC unit Carrier, Model 38BQ008550 1- 3'-0"x3'-0" Exhaust vent 2- 1'-0"x1'-0" Louver vents
General/ Interior	Layout	2-Bathrooms 1-Kitchenette 1-Mechanical room 1- Common work space 4- Offices 1- Server Room
General/ Interior	Floor	Ceramic Tile Floor
General/ Interior	Walls	Sheet rock walls, painted
General/ Interior	Ceiling	Accoustical drop ceiling
General/ Interior	HVAC Equipment	Forced air heating
Men's Room	Door	1- Hollow steel door
Men's Room	Utilities	2- Urinals 2- Toilets 2- Sinks
Men's Room	Lighting	1- Four bulb fluorescent light mounted in ceiling 1- One bulb fluorescent light mounted on wall above sinks
Kitchenet	Doors	1- Hollow steel door
Kitchenet	Lighting	1- Two bulb emergency light
Woman's Room	Door	1- Hollow steel door

BUILDING INVENTORY LIST

Building 159

Room	Equipment Name	Construction
Woman's Room	Utilities	2- Toilets 2- Sinks
Woman's Room	Lighting	1- Four bulb fluorescent light mounted in ceiling 1- One bulb fluorescent light mounted on wall above sinks
Mechanical Room	Ceiling	None
Mechanical Room	Lighting	1- Two Bulb Fluorescent Light
Mechanical Room	Electrical Equipment	1- Main Breaker panel 208/120 V single phase 1- Fire alarm disconnect panel 1- Server room Panel 1- Square D switch 1- Exhaust Fan Breaker 1- Pneumecator Panel Communications connection board and switches
Mechanical Room	Mechanical Equipment	1- Carrier Heating Unit 1- 50 Gal. hot water heater by A.O. Smith
Common Work Space	Lighting	11- Four bulb fluorescent lights 1- Two bulb emergency lights 1- Illuminated exit sign
Common Work Space	Electrical Equipment	1- Digital thermostat temperature controller
Common Work Space	Fire Suppression	1- Fire alarm panel 2- Wall mounted fire extinguishers 1- Fire alarm switch
Common Work Space	Miscellaneous	1- Emergency oxygen unit
Office #1	Doors	1- Hollow metal doors with glass window 1- Sliding glass door into serve room
Office #1	Window	1- Fixed glass window
Office #1	Heating	Electric baseboard heater additional to the forced air system
Office #1	Lighting	1- Four bulb fluorescent light
Server Room	Doors	1- Hollow metal doors with glass window
Server Room	Lighting	2- Four bulb fluorescent lights
Server Room	Cooling	1- Window mounted ac unit by Friedrich
Server Room	Electrical Equipment	1- Server rack 2- Wireless routers
Office #2	Doors	1- Aluminum door with glass window
Office #2	Walls	Sheet metal walls with glass panels

BUILDING INVENTORY LIST

Building 159		
Room	**Equipment Name**	**Construction**
Office #2	Fire Suppression	1- Wall mounted fire extinguisher
Office #2	Lighting	2- Four bulb fluorescent lights
Office #3	Doors	1- Hollow metal doors with glass window
Office #3	Lighting	3- Four bulb fluorescent lights
Office #4	Doors	1- Hollow metal doors with glass window
Office #4	Walls	Wood grain wall paneling
Office #4	Heating	Electric baseboard heater additional to the forced air system
Office #4	Lighting	4- Four bulb fluorescent lights

BUILDING INVENTORY LIST

Building 242

Room	Equipment Name	Construction
General/ Exterior	Building	CMU building on a concrete pad
General/ Exterior	Exterior walls	Brick face wall overlay
General/ Exterior	Roof	Built up roof with roof drain
General/ Exterior	Doors	1- Hollow sheet metal door with wire reinforced window 1- Double Hollow sheet metal door with wire reinforced window
General/ Exterior	Windows	2- Fixed frame windows above doors 2- 3 Tier split windows fixed steel frame windows
General/ Exterior	Lighting	1- Metal Halide light 1- Single bulb light both lights operate on a photocell
General/ Exterior	Fire Equipment	1- Emergency strobe light 1- Loud Speaker 1- Fire alarm pull box
General	Layout	Switch Room Main Breaker Room
Switch Room	Walls	CMU walls, painted
Switch Room	Floor	Coated concrete floor
Switch Room	Lighting	6- Three bulb fluorescent lights
Switch Room	Heating/Cooling	2- Electric radiant heaters 1- Wall mounted AC unit by Friedrich 1- Analog thermostat temperature controller
Switch Room	Electric Equipment	1- Transformer (Cutler Hammer 408 primary, 208Y/120V secondary, 15 KVA)
Switch Room	Fire Equipment	1- Wall mounted fire extinguisher
Breaker Room	Walls	CMU walls, painted
Breaker Room	Floor	Coated concrete floor
Breaker Room	Lighting	9- Two bulb fluorescent lights 1- Two bulb emergency light
Breaker Room	Doors	1- Hollow sheet metal door with wire reinforced window
Breaker Room	Fire Equipment	1- Wall mounted fire extinguisher
Breaker Room	Electric Equipment	1- Communications panel 2- Rectifiers, American Rectifier
Breaker Room	Heating/Cooling	2- Electric radiant heaters 1- Window mounted AC unit by Friedrich 1- Analog thermostat temperature controller

BUILDING INVENTORY LIST

BUILDING 277

Room	Equipment Name	Construction
General/ Exterior	Building	Prefabricated sheet metal insulated Wall Building and roof on a concrete slab
General/ Exterior	Exterior walls	Corrugated sheet metal painted
General/ Exterior	Doors	2- Hollow Steel Insulated Door 1- Electric garage roll up doors
General/ Exterior	Protection	2- 10" Concrete Filled Steel Pipe Bollards Steel round pipe guard rail on roof
General/ Exterior	Lighting	3- Explosion proof lights with photocell
General/ Exterior	Electrical Equipment	1- Emergency shut off
General/ Exterior	Fire Equipment	1- Siamese fire truck connections 1- Fire alarm pull box 1- Fire alarm panel
General/ Exterior	Ventilation	1- Small 3'-0" Square Fan 2- 3'-0" square gravity louver vents 1- 2'-0" diameter exhaust vent
General/ Exterior	Miscellaneous	1- Exhaust Chimney 3- Vent pipes 4- Leaders and gutters 1- Double wall waste oil tank 1000 gal (208A)
General/ Interior	Floors	Uncoated Concrete Floors with drainage grate in the center of building
General/ Interior	Walls	Exposed beam uninsulated metal walls
General/ Interior	Heating	4- Electric unit Heaters with analog temperature thermostat controller attached 1- Main thermostat controller
General/ Interior	Ceiling	None
General/ Interior	Lighting	24- Pendant explosion proof lights 1- emergency strobe light 2- two bulb emergency lights
General/ Interior	Fire Equipment	3- Wall Mounted Fire Extinguishers 2- Fire Alarms by exits 2- Strobe Lights 2- Emergency alarm sirens 2- Smoke Detectors Water sprinkler system 2- Double check backflow preventer

BUILDING INVENTORY LIST

BUILDING 277		
Room	**Equipment Name**	**Construction**
General/ Interior	Electrical Equipment	1- Fire alarm main disconnect 1- PPTFB breaker panel 1- Main breaker panel 1- LVTF main circuit breaker 1- TER Box 2- Combination motor starter switches
General/ Interior	Miscellaneous	1- Emergency eyewash with shower combo 3- reflective exit signs 1- Stainless steel industrial sink 1- 1/4 Ton crane

BUILDING INVENTORY LIST

Substation #1		
Room	**Equipment Name**	**Construction**
General/ Exterior	Structure	Sheet metal building on a concrete slab
General/ Exterior	Lighting	2- Explosion proof light on with photocell
General/ Exterior	Ventilation	3- Exhaust vents
General/ Exterior	Doors	4- Hollow Steel Doors 1- Half size double steel doors

BUILDING INVENTORY LIST

Substation #2		
Room	**Equipment Name**	**Construction**
General/ Exterior	Structure	Sheet metal building on a concrete slab
General/ Exterior	Lighting	2- Explosion proof lights on with photocell
General/ Exterior	Ventilation	3- Exhaust vents
General/ Exterior	Doors	4- Hollow Steel Doors 1- Half size double steel doors

BUILDING INVENTORY LIST

Foam Pump House 1		
Room	**Equipment Name**	**Construction**
General/ Exterior	Building	CMU built on concrete slab
General/ Exterior	Exterior walls	Brick face overlay
General/ Exterior	Roof	Concrete roof with built up roof and roof drain
General/ Exterior	Doors	1- Hollow steel door with wire reinforced window above. 1- Double hollow steel door with wire reinforced window above.
General/ Exterior	Lighting	1- Explosion proof light fixtures 1- Metal halide light 1- Photocell for all outdoor lights.
General/ Exterior	Fire Equipment	2- Fire Department Foam System Connections 2- Fire alarm pull boxes 1- Fire connection for testing
General/ Interior	Floor	Coated Concrete Floor
General/ Interior	Walls	CMU walls, unpainted
General/ Interior	Lighting	5- two bulb fluorescent lights 1- two bulb emergency light
General/ Interior	Electrical	2- main switches (Heaters and Lights)
General/ Interior	Heating Equipment	2- Electric unit heaters 2- Analog thermostat controllers one per heater
General/ Interior	Fire Equipment	1- Double chek back flow preventer 1- Foam pump system 1- 550 gal. foam concetrate polyurethane tank 1- Room temperature alarm thermostat
General/ Interior	Miscellaneous	2- Gravity louver vents

BUILDING INVENTORY LIST

Foam Pump House 2		
Room	**Equipment Name**	**Construction**
General/ Exterior	Building	CMU built on concrete slab
General/ Exterior	Exterior walls	Brick face overlay
General/ Exterior	Roof	Concrete roof with built up roof and roof drain
General/ Exterior	Doors	1- Hollow steel door 1- Double hollow steel door
General/ Exterior	Windows	1- Slide up steel frame window with fence type security bars
General/ Exterior	Lighting	1- Explosion proof light fixtures 1- Metal halide light 1- Photocell for all outdoor lights.
General/ Exterior	Fire Equipment	1- Fire hydrant 2- Fire Department Foam System Connections 2- Fire alarm switches 1- Fire connection for testing
General/ Interior	Floor	Coated Concrete Floor
General/ Interior	Walls	CMU walls, unpainted
General/ Interior	Lighting	5- two bulb fluorescent lights 1- two bulb emergency light
General/ Interior	Electrical	2- main switches (Heaters and Lights)
General/ Interior	Heating Equipment	2- Electric unit heaters 2- Analog thermostat controllers one per heater
General/ Interior	Fire Equipment	1- Double check back flow preventer 1- Foam pump system 1- 550 gal. foam concetrate polyurethane tank 1- Room temperature alarm thermostat

BUILDING INVENTORY LIST

Foam Pump House 3/4		
Room	**Equipment Name**	**Construction**
General/ Exterior	Building	CMU built on concrete slab
General/ Exterior	Exterior walls	Brick face overlay
General/ Exterior	Roof	Built up roof w/ roof drain
General/ Exterior	Doors	2- Hollow steel doors. 2- Double hollow steel doors .
General/ Exterior	Windows	5- Wire reinforced glass window above steel door. (four 12"x32" and one 6"x64") 2- Steel frame slide up windows 8 split glass panels
General/ Exterior	Lighting	3- Explosion proof light fixtures (two with filament bulb, one fluprescent bulb) 1- Rectangular metal halide light 1- Photocell for all outdoor lights.
General/ Exterior	Fire Equipment	2- Fire Department Foam System Connections 2- Fire alarm switches 2- Fire alarm bells 1- Fire connection for testing
General/ Interior	Floor	Coated Concrete Floor
General/ Interior	Walls	CMU walls, unpainted
General/ Interior	Ceiling	Concrete, uncoated
General/ Interior	Lighting	10- two bulb fluorescent lights 2- two bulbs emergency lights
General/ Interior	Electrical	3- main switches (Receptacles, Heaters and Lights) 1- Gallagher communications box
General/ Interior	Heating Equipment	3- Unit Heater: T.P.I Corporation Model P3PUH07CA1DT 3- Analog thermostat controllers one per heater
General/ Interior	Fire Equipment	1- Back flow preventer by Zurn Wilkins 1- Foam pump system by National Foam 1- 550 gal. foam concetrate polyurethane tank 1- Thermostat (Freeze stat)
General/ Interior	Miscellaneous	Floor drain with grate 9' Long x 1' Wide

BUILDING INVENTORY LIST

Pier A Filter Station		
Room	**Equipment Name**	**Construction**
General	Structure	Canopy framing is constructed of painted square tubing columns on a concrete pad and Painted i-beam cross beams.
General	Roof	Galvanized C-Chanel Framing with corrugated sheel metal painted roof.
General	Lighting	2- Explosion proof lights with fluorescent bulbs with photocell mounted on roof for Canopy. 2- Explosion proof lights with fluorescent bulbs for electric equipment enclosure
General	Fire Equipment	1- Fire Extinguisher 1- Strobe light 1- Fire alarm
General	Floor	Concreted, coated
General	Catwalk	Galvanized I-beam construction with galvanized grated floor. Galvanized steel pipe handrails with kickplate
General	Equipment	2- 1 Ton side by side cranes by Shaw-Box Model. 0102531612100
General	Electrical Equipment	1- Transformer 15KVA 2- Breaker Panels Explsion proof 1- Main Disconnect 1- Switch Panel 1- Main Breaker

BUILDING INVENTORY LIST

Pier B Filter Station		
Room	**Equipment Name**	**Construction**
General	Structure	Canopy framing is constructed of galvanized square tubing colums for the up rights on a concrete pad and galvanized I-beam cross beams.
General	Roof	Galvanized C-Chanel Framing with corrugated sheel metal painted roof.
General	Lighting	2- Explosion proof lights with fluorescent bulbs with photocell mounted on roof for Canopy. 2- Explosion proof lights with fluorescent bulbs for electric equipment enclosure
General	Fire Equipment	1- Fire Extinguisher 1- Strobe light 1- Fire alarm
General	Floor	Concreted, coated
General	Catwalk	Galvanized I-beam construction with galvanized grated floor. Galvanized steel pipe handrails with kick plate.
General	Equipment	1- 1 Ton Crane by Sveda Cranes with Shaw-Box lift system
General	Electrical Equipment	1- Transformer 15KVA 2- Breaker Panels Explsion proof 1- Main Disconnect 1- Switch Panel 1- Main Breaker
General	Electrical Equipment Enclosure	Unistrut painted construction with a fiberglass corugated paneling roof

BUILDING INVENTORY LIST

Pier 2 Filter Station		
Room	**Equipment Name**	**Construction**
General	Structure	Canopy framing is constructed of painted square tubing columns on a concrete pad and Painted I-beam cross beams.
General	Roof	Painted C-Chanel Framing with corrugated sheel metal painted roof.
General	Lighting	2- Explosion proof lights with fluorescent bulbs with photocell mounted on roof for Canopy. 2- Explosion proof lights with fluorescent bulbs for electric equipment enclosure
General	Fire Equipment	1- Fire Extinguisher 1- Strobe light 1- Fire alarm
General	Floor	Concreted, coated
General	Catwalk	Galvanized I-beam construction with galvanized grated floor. Galvanized steel pipe handrails with kickplate
General	Equipment	2- 1 Ton side by side cranes by Shaw-Box Model. 0102531612100
General	Electrical Equipment	1- Transformer 15KVA 2- Breaker Panels Explsion proof 1- Main Disconnect 1- Switch Panel 1- Main Breaker

BUILDING INVENTORY LIST

Pier 3 Filter Station		
Room	**Equipment Name**	**Construction**
General	Structure	Canopy framing is constructed of painted square tubing columns on a concrete pad and Painted I-beam cross beams.
General	Roof	Galvanized C-Chanel Framing with corrugated sheel metal painted roof.
General	Lighting	2- Explosion proof lights with fluorescent bulbs with photocell mounted on roof for Canopy. 2- Explosion proof lights with fluorescent bulbs for electric equipment enclosure
General	Fire Equipment	1- Fire Extinguisher 1- Strobe light 1- Fire alarm
General	Floor	Concreted, coated
General	Catwalk	Galvanized I-beam construction with galvanized grated floor. Galvanized steel pipe handrails with kickplate
General	Equipment	2- 1 Ton side by side cranes by Shaw-Box Model. 0102531612100
General	Electrical Equipment	1- Transformer 15KVA 2- Breaker Panels Explsion proof 1- Main Disconnect 1- Switch Panel 1- Main Breaker

BUILDING INVENTORY LIST

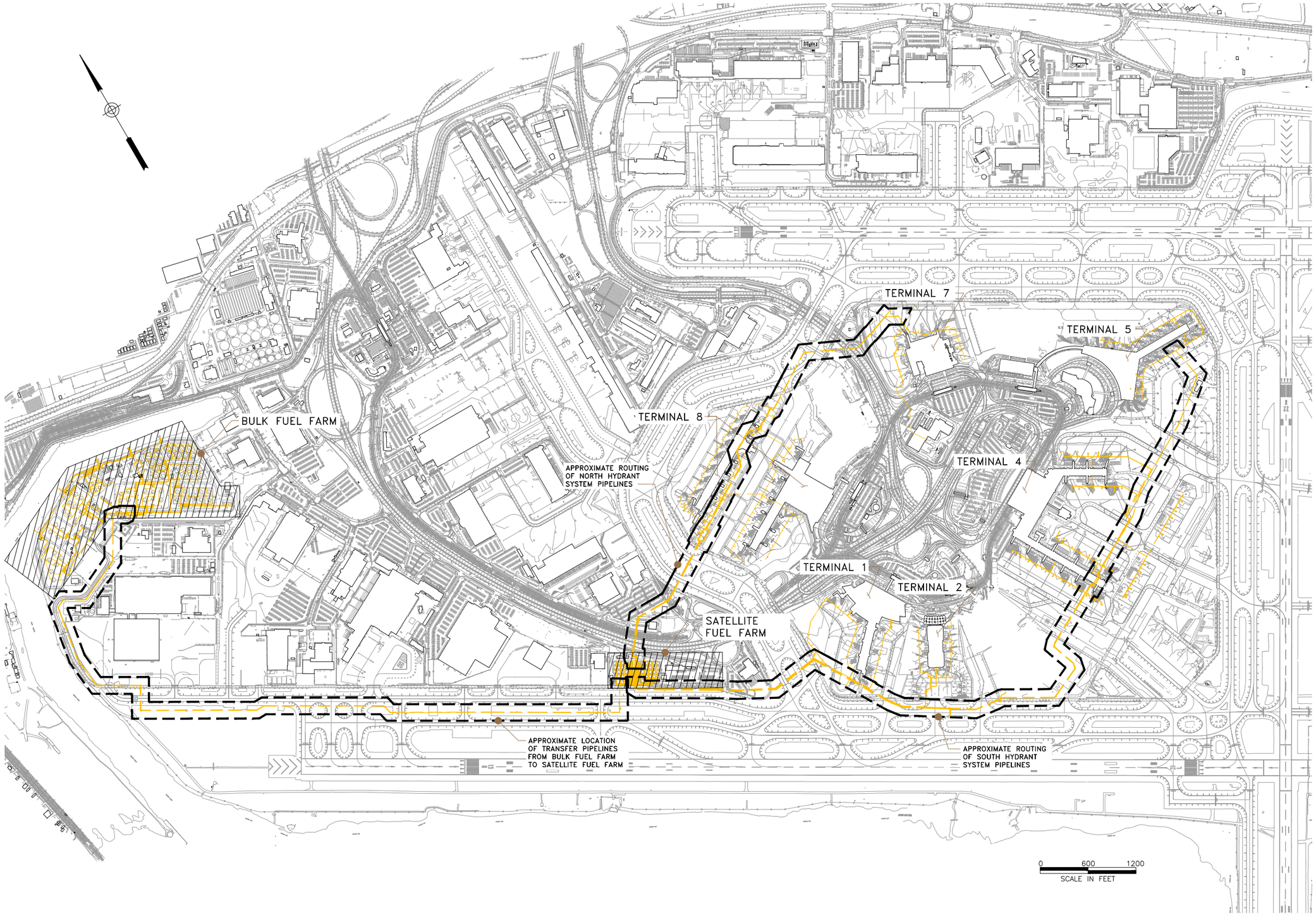
East SOR Building		
Room	**Equipment Name**	**Construction**
General/ Exterior	Building	Prefab Sheet metal insulated Wall Building and roof on a concrete slab
General/ Exterior	Exterior walls	Corrugated Sheet Metal Painted
General/ Exterior	Doors	1- Double Hollow Steel Insulated Door
General/ Exterior	Floors	Uncoated Concrete Floors
General/ Interior	Heating	Electric Radiant Heat
General/ Interior	Lighting	2- Explosion Proof Metal Halide Light
General/ Interior	Electrical Equipment	2- Main Switches (pump and Heater)
General/ Interior	Miscellaneous	1- Manual louver
General/ Interior	Mechanical Equipement	1- Ceiling Mounted Exhaust Vent 1- Pump

BUILDING INVENTORY LIST

West SOR Building		
Room	**Equipment Name**	**Construction**
General/ Exterior	Building	Prefab Sheet metal insulated Wall Building and roof on a concrete slab
General/ Exterior	Exterior walls	Corrugated Sheet Metal Painted
General/ Exterior	Doors	1- Double Hollow Steel Insulated Door
General/ Exterior	Floors	Uncoated Concrete Floors
General/ Interior	Heating	Electric Radiant Heat
General/ Interior	Lighting	2- Explosion Proof Metal Halide Light
General/ Interior	Electrical Equipment	2- Main Switches (pump and Heater)
General/ Interior	Miscellaneous	1- Manual louver
General/ Interior	Mechanical Equipement	1- Ceiling Mounted Exhaust Vent 1- Pump

SECTION 3

Existing Utility and Asset Drawings and Schematic Diagrams



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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title

FUELING SYSTEM OPERATIONS AND MAINTENANCE SERVICES

AIRPORT FUEL SYSTEM SITE PLAN

This drawing subject to conditions in contract. All inventions, ideas, designs and methods herein are reserved to Port Authority and may not be used without its written consent.
All recipients of Contract documents, including bidders and those who do not bid and their prospective subcontractors and suppliers who may receive all or a part of the Contract documents or copies thereof, shall make every effort to ensure the secure and appropriate disposal of the Contract documents to prevent further disclosure of the information contained in the documents. Secure and appropriate disposal includes methods of document destruction such as shredding or arrangements with refuse handlers that ensure that third persons will not have access to the documents' contents either before, during, or after disposal. Documents may also be returned for disposal purposes to the Contract Desk on the 3rd Floor, 3 Gateway Center, Newark NJ 07102 or the office of the Director of Procurement, One Madison Avenue, 7th Floor, New York NY 10010.
It is a violation of law for any person to alter a document in any way, unless acting under the direction of a licensed professional engineer or registered architect. If this document bearing the seal of an engineer/architect is altered, the altering engineer/architect shall affix to the document their seal and the notation "altered by" followed by their signature and the date of such alteration, and a specific description of the alteration.

J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

Date 04/21/2014

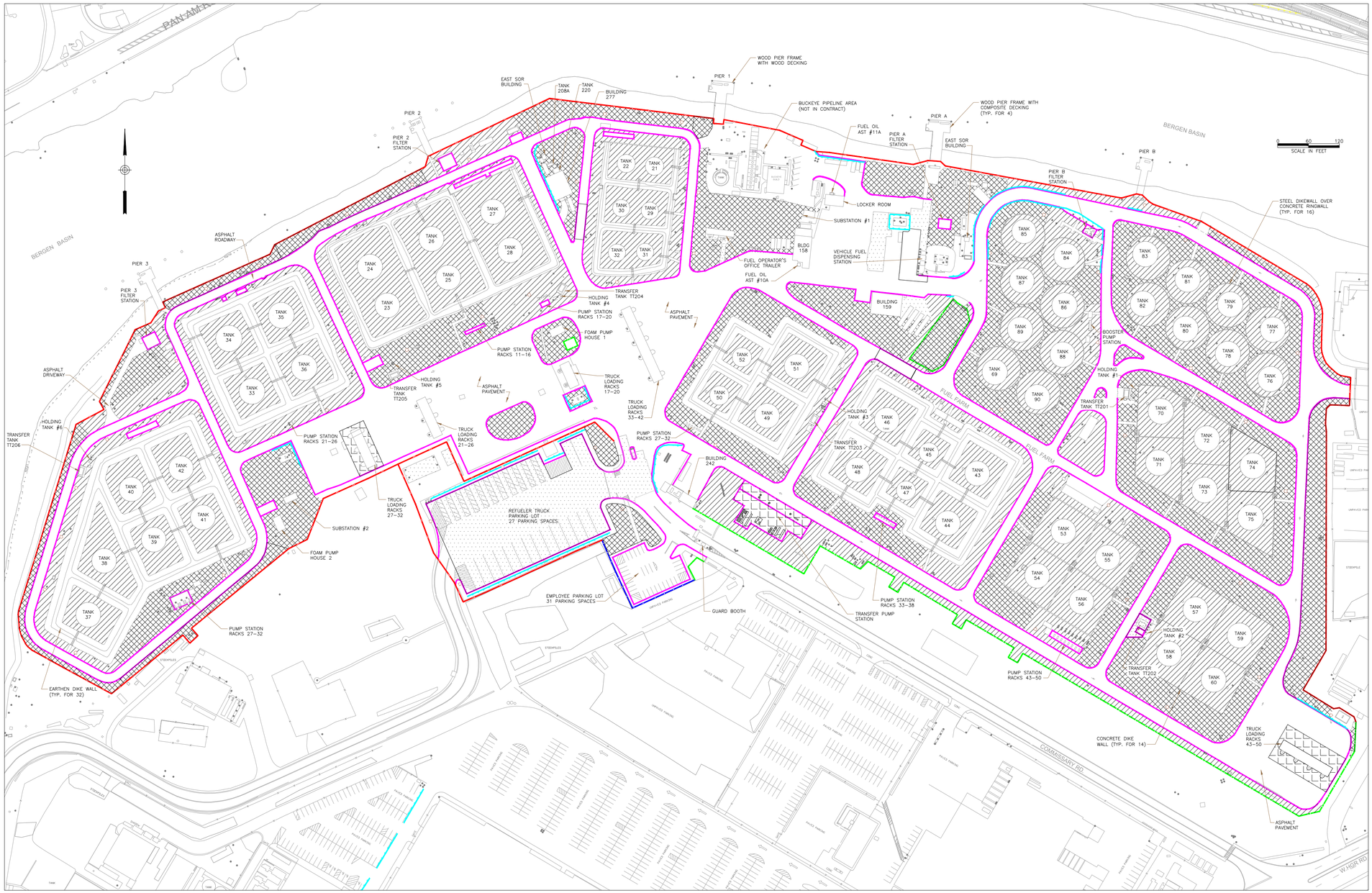
Contract Number

Drawing Number **G001**

PID#

LEGEND:

- 7'-7" HIGH CHAINLINK FENCE W/ 3 BANDS OF BARBED WIRE AND PRIVACY SCREENING.
- 7'-7" HIGH CHAINLINK FENCE W/ 3 BANDS OF BARBED WIRE.
- 7'-7" HIGH CHAINLINK FENCE W/ 3 BANDS OF BARBED WIRE AND PRIVACY SLATING.
- CONCRETE CURBING
- STEEL GUARDRAIL
- GRAVEL SURFACING
- GRASS SURFACING
- EPOXY COATED CONCRETE CONTAINMENT
- CONCRETE SURFACING



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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title

FUELING SYSTEM OPERATIONS AND MAINTENANCE SERVICES

SURFACE FEATURES TYPE IDENTIFICATION PLAN

This drawing subject to restrictions in contract. All inventions, ideas, designs and methods herein are reserved to Port Authority and may not be used without its written consent. Port Authority reserves the right to make copies of Contract Documents for its use and to provide to other prospective subcontractors and suppliers who may receive all or a part of the Contract Documents or copies thereof, shall make every effort to ensure the secure and appropriate disposal/destruction of Contract Documents and any other Port Authority information contained in the documents. Secure and appropriate disposal/destruction methods of document destruction such as shredding or arrangements with refuse handlers that ensure the secure destruction of documents. Upon completion of the Contract, shredding or other disposal. Documents may also be returned for disposal/purposes to the Contracts Desk on the 3rd Floor, 3 Gateway Center, Newark NJ 07102 or the office of the Director of Procurement, Two Montgomery Street, 3rd Flor, Jersey City, NJ 07302.
It is a violation of law for any person to alter a document in any way, unless acting under the direction of a licensed professional engineer, architect, land surveyor or landscape architect. Having the seal of an engineer/architect is altered, the altering engineer/architect shall affix to the document their seal and the notation "altered by" followed by their signature and the date of such alteration, and a specific description of the alteration.

Designed by	J.RECCO
Drawn by	A.VROEGINDEWEY
Checked by	K.CHOW
Date	04/21/2014
Contract Number	
Drawing Number	BFF-001

PE#

Sheet 3 of 17

THE PORT AUTHORITY
OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

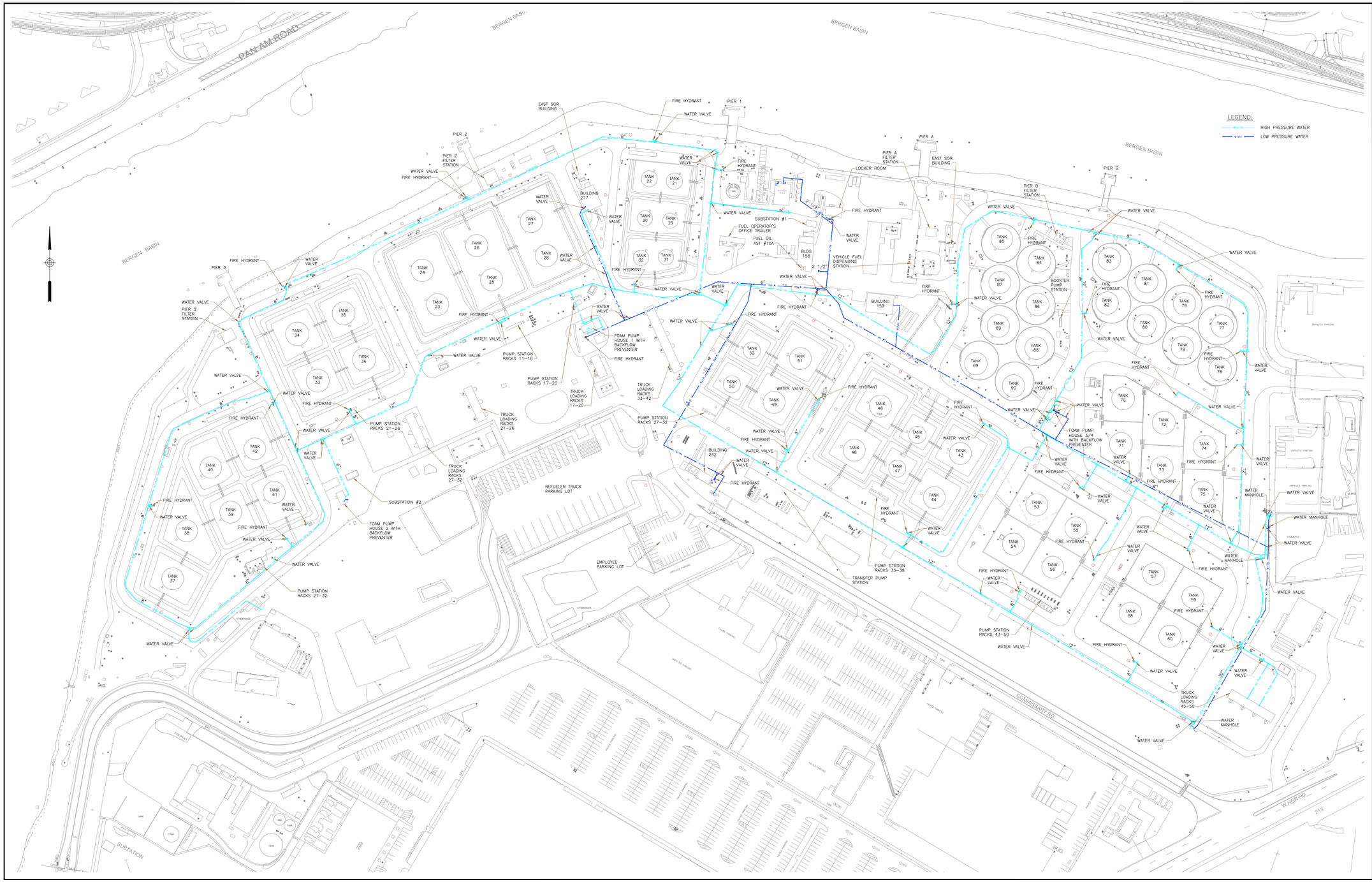
MECHANICAL

Title
FUELING SYSTEM OPERATIONS AND MAINTENANCE SERVICES

STORM DRAINAGE SYSTEM PLAN

This drawing subject to conditions in contract, all inventions, ideas, designs and methods herein are reserved to Port Authority and may not be used without its written consent. All recipients of Contract documents, including bidders and those who do not bid and their subcontractors and suppliers, are responsible for safeguarding the Contract documents and any copies thereof. **Shall** make every effort to ensure the secure and appropriate disposal of the Contract documents to prevent further disclosure of the information contained therein. Port Authority may require a written certification of such disposal or other document disposition such as shredding, or arrangements with refuse handlers that ensure that third persons **will** not have access to the documents' contents either before, during, or after the disposal process. Contract documents may be viewed at the Port Authority Vendor Desk on the 3rd Floor, 3 Gateway Center, Newark NJ 07102 or the office of the Director of Procurement, Two Montgomery Street, 3rd Floor, Jersey City, NJ 07302.
It is a violation of law for any person, unless they are acting under the direction of a licensed professional engineer or registered architect, to alter this document bearing the seal of an engineer/architect is altered, the altering engineer/architect **shall** affix to the document their seal and the notation "altered by" followed by their signature and the date of such alteration, and a specific description of the alteration.

Designed by	J.RECCO
Drawn by	A.VROEGINDEWEY
Checked by	K.CHOW
Date	04/21/2014
Contract Number	
Drawing Number	BFF-002
	PID#



Sheet 4 of 17

THE PORT AUTHORITY
OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING SYSTEM OPERATIONS AND MAINTENANCE SERVICES

WATER SYSTEM PLAN

This drawing subject to conditions in contract, all inventions, ideas, designs and methods herein are reserved to Port Authority and may not be used without its written consent. Port Authority of NY & NJ Contract Documents are provided to Contractor, its subcontractors and other prospective subcontractors and suppliers who may require all or part of the Contract Documents or copies thereof, shall make every effort to ensure the secure and appropriate disposal and destruction of Contract Documents and any other Port Authority information contained in the documents. Secure and appropriate disposal includes methods of document destruction such as shredding or arrangements with refuse handlers that ensure that the documents are not available to the general public in unsecured trash. Upon completion of Port Authority Contract Documents may also be returned for disposal purposes to the Contracts Desk on the 3rd Floor, 3 Gateway Center, Newark NJ 07102 or the office of the Director of Procurement, Two Montgomery Street, 3rd Floor, Jersey City, NJ 07302.
It is a violation of law for any person to alter a document in any way, unless acting under the direction of a licensed professional engineer. If this document is altered, the altering engineer(s)/architect shall affix to the document their seal and the notation "altered by" followed by their signature and the date of such alteration, and a specific description of the alteration.

Designed by	J.RECCO
Drawn by	R.LOPEZ
Checked by	K.CHOW
Date	04/21/2014
Contract Number	
Drawing Number	BFF-003

PID#

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title

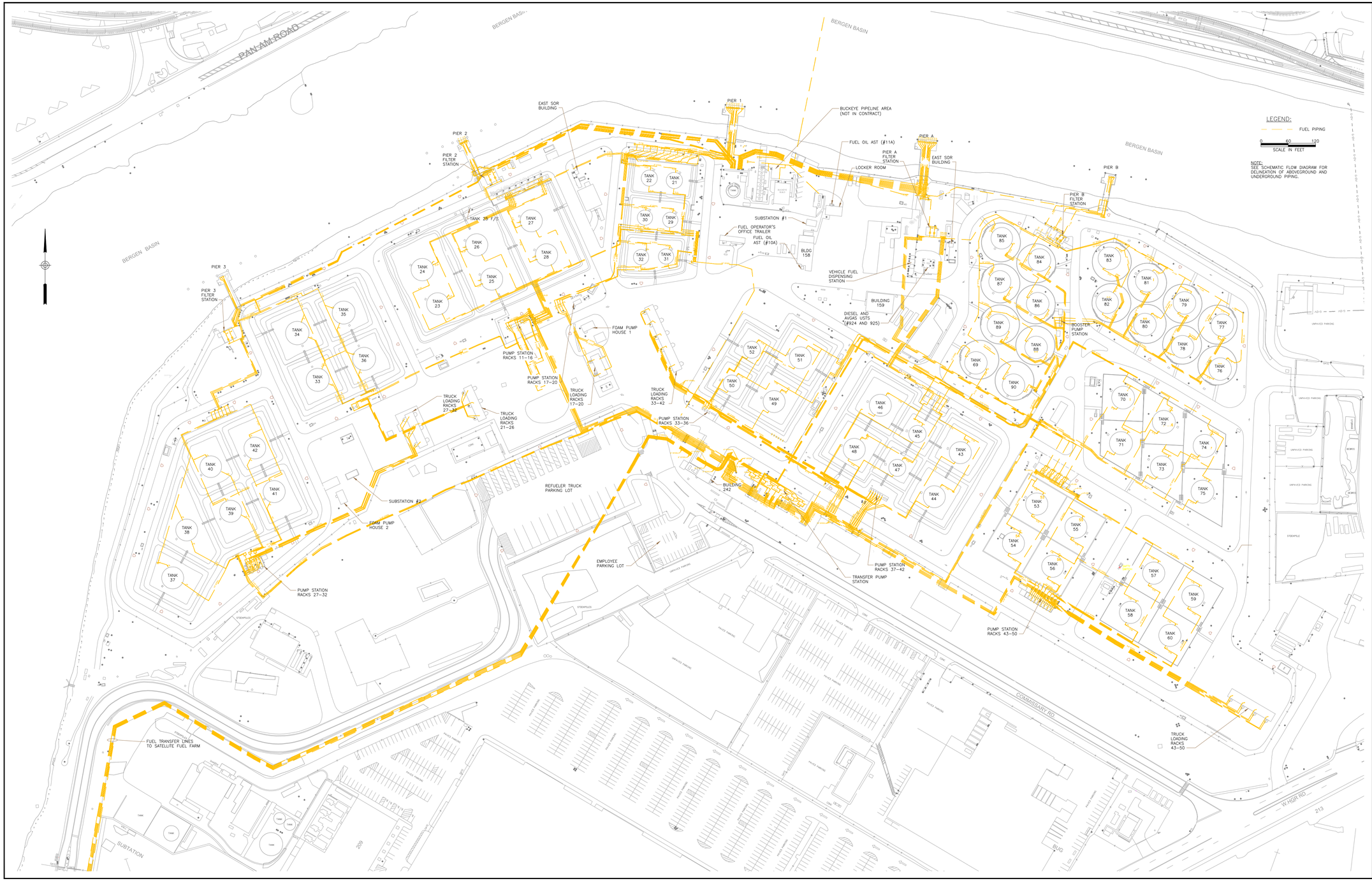
FUELING SYSTEM OPERATIONS AND MAINTENANCE SERVICES

AQUEOUS FIRE FIGHTING FOAM SYSTEM PLAN

This drawing subject to revisions in contract. All inventions, ideas, designs and methods shown are reserved to Port Authority and may not be used without its written consent. All recipients of Contract documents, including bidders and those who do not bid and their subcontractors and suppliers, are responsible for safeguarding the Contract documents or copies thereof. It is their duty to make every effort to ensure the secure and appropriate disposal of the Contract documents to prevent further disclosure of the information contained in the documents. Secure and appropriate disposal includes methods of document destruction such as shredding or arrangements with refuse handlers that ensure the Contract documents are not available to unauthorized persons. Contract documents or other disposal Documents may also be returned for disposal purposes to the Contract Desk on the 3rd Floor, 3 Gateway Center, Newark NJ 07102 or the office of the Director of Contracts, 4 World Trade Center, New York, NY 10048.
It is a violation of law for any person to alter a document in any way, unless acting under the direction of a licensed professional engineer or registered architect. If this document is altered, the alterer shall affix to the document the alterer's seal and shall add the following to the document: the word "altered" followed by the alterer's name, the date of such alteration, and a specific description of the alteration.

Designed by	J.RECCO
Drawn by	D.ALMEDA
Checked by	K.CHOW
Date	04/21/2014
Contract Number	
Drawing Number	BFF-004

PID#



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THE PORT AUTHORITY
OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING SYSTEM OPERATIONS AND MAINTENANCE SERVICES

FUEL SYSTEM PLAN AT BULK FUEL FARM

This drawing subject to restrictions in contract. All inventions, ideas, designs and methods herein are reserved to Port Authority and may not be used without its written consent. All recipients of Contract documents, including bidders and those who do not bid and their prospective subcontractors and suppliers who may receive all or a part of the Contract documents or copies thereof, shall make every effort to ensure the secure and appropriate handling and disposition of Contract documents and information and data contained in the documents. Secure and appropriate disposal includes methods of document destruction such as shredding or arrangements with refuse handlers that ensure that documents are not made available to the general public in whole or in part. Shredding or other disposal Documents may also be returned for disposal purposes to the Contract Desk on the 3rd Floor, 3 Gateway Center, Newark NJ 07102 or the office of the Director of Contracts at the Port Authority, 225 Park Ave. South, NY, NY 10003.
It is a violation of law for any person to alter a document in any way, unless acting under the direction of a licensed professional engineer or registered architect. If this document, bearing the seal of an engineer/architect, is altered, the altering engineer/architect shall affix to the document their seal and the notation "altered by" followed by their signature and the date of such alteration, and a specific description of the alteration.

Designed by	JJRECCO
Drawn by	A.VROEGINDEWEY
Checked by	K.CHOW
Date	04/21/2014
Contract Number	
Drawing Number	BFF-005

PE#

LEGEND:

- FIRE ALARM PULL STATION
- EMERGENCY STOP PUSHBUTTON
- LIGHT POLE
- HORN
- GENERAL ALARM
- SPEAKER
- COMMUNICATION MANHOLE

LEGEND CONTINUED:

- KEYNOTE
- TELEPHONE POLE

LINE TYPES:

C-TN — COMMUNICATION CONDUIT

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

ELECTRICAL

Title

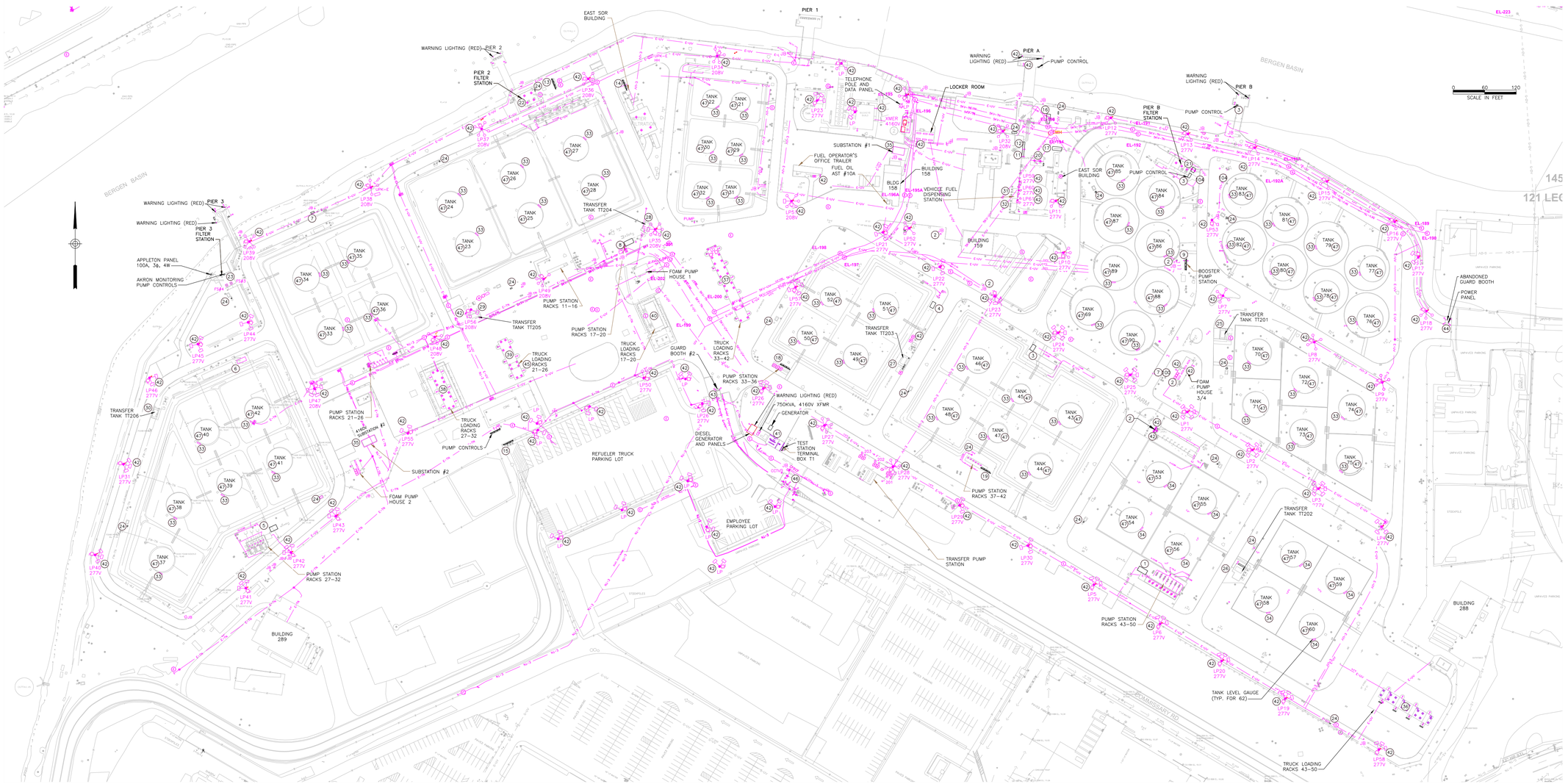
FUELING SYSTEM OPERATIONS AND MAINTENANCE SERVICES

COMMUNICATIONS SYSTEM PLAN

This drawing subject to conditions in contract. All exercises, ideas, designs and methods herein are reserved to Port Authority and may not be used without its written consent. All recipients of Contract documents, including bidders and those who do not bid and their agents, are responsible for safeguarding Contract documents. Any use of Contract documents or copies thereof, shall make every effort to ensure the secure and appropriate disposal of the Contract documents to prevent further disclosure of the information contained therein. Such effort shall include, at a minimum, the performance of a secure document destruction such as shredding or arrangements with refuse handlers that ensure that third persons will not have access to the documents contrite other before, during, or after the disposal process. Report any violations of this notice to the Director of Procurement, One on the 3rd Floor, 3 Gateway Center, Newark NJ 07102 or the office of the Director of Procurement, Two Montgomery Street, 3rd Floor, Jersey City, NJ 07302.
It is a violation of law for any person to alter a document in any way, unless acting under the direction of a licensed professional engineer or registered architect. If this document is altered, the alterer shall affix to the document the phrase "altered by" followed by their signature and the date of such alteration, and a specific description of the alteration.

Designed by	C.CIFUENTES
Drawn by	B.PERGOLA
Checked by	K.CHOW
Date	04/21/2014
Contract Number	
Drawing Number	BFF-006

PE#



LEGEND:

- DISCONNECT SWITCH
- TANK GAUGING SYSTEM
- LIGHT POLE
- JUNCTION BOX
- CIRCULAR LIGHT POLE FIXTURE
- RECTANGULAR LIGHT POLE FIXTURE
- SPEAKER
- MOTOR
- TRANSFORMER
- MOUNTED LIGHT FIXTURE
- RED EMERGENCY WARNING LIGHT FIXTURE
- 1'X4' LIGHT FIXTURE
- TRAFFIC LIGHT
- ELECTRICAL MANHOLE

LEGEND CONTINUED:

- (1) KEYNOTE

LINE TYPES:

- E-TN, E-TN
- E-UV, E-UV
- SKV-UV, SKV-UV

} ELECTRICAL CONDUITS

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THE PORT AUTHORITY OF NY&NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

ELECTRICAL

Title

FUELING SYSTEM OPERATIONS AND MAINTENANCE SERVICES

ELECTRICAL SYSTEM PLAN

This drawing subject to modifications in contract. All inventions, ideas, designs and methods herein are reserved to Port Authority and may not be used without its written consent.
All recipients of Contract documents, including bidders and those who do not bid and their subcontractors and suppliers, are responsible for safeguarding the Contract documents or copies thereof. **Shall** make every effort to ensure the secure and appropriate disposal of the Contract documents to prevent further disclosure of the information contained therein. Such effort **shall** include, but not be limited to, requiring proper document destruction such as shredding or arrangements with refuse handlers that ensure that third persons **will** not have access to the documents' contents either before, during, or after disposal. Documents may also be returned for disposal purposes to the Contract Desk on the 3rd Floor, 3 Gateway Center, Newark NJ 07102 or the office of the Director of Contracts, 4 World Trade Center, New York, NY 10048 - Attn: Mail Stop 1.
It is a violation of law for any person to alter a document in any way, unless acting under the direction of a licensed professional engineer or registered architect. If this document is altered, the alteration shall be identified by the seal of the licensed professional engineer who is the document their seal and the notation "altered by" followed by their signature and the date of such alteration, and a specific description of the alteration.

Designed by	C.CIFUENTES
Drawn by	B.PERGOLA
Checked by	K.CHOW
Date	04/21/2014
Contract Number	
Drawing Number	BFF-007

PE#

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

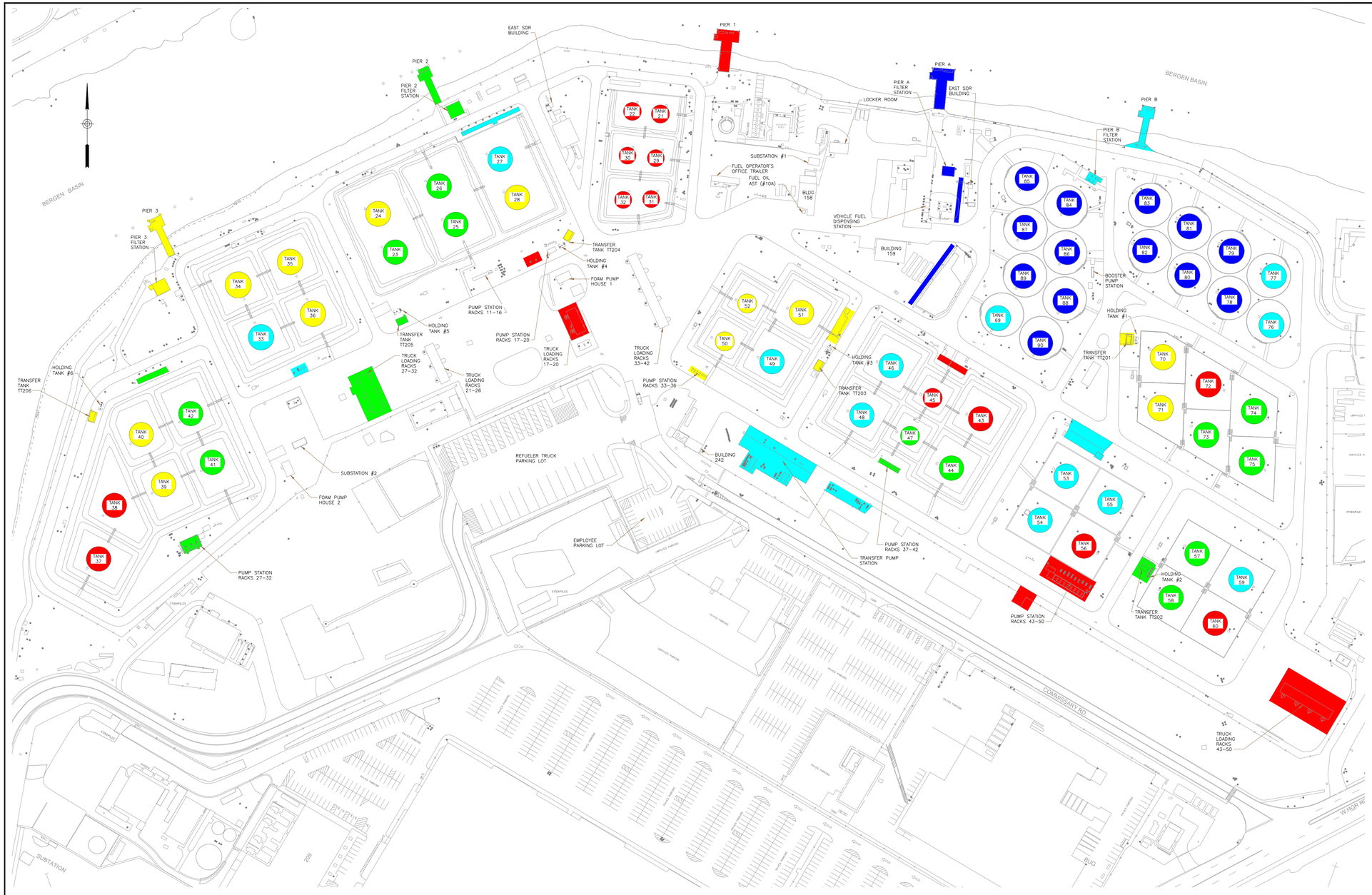
Title
FUELING SYSTEM OPERATIONS AND MAINTENANCE SERVICES

SUMP DRAINAGE SYSTEM PLAN

This drawing subject to revisions in contract, all inventions, ideas, designs and methods contained herein are property of Port Authority and may not be used without prior written consent. All recipients of Contract documents, including bidders and those who do not bid and their prospective subcontractors and suppliers who may receive all or a part of the Contract documents or copies thereof, shall make every effort to ensure the secure and appropriate disposal/destruction of Contract documents and any information or data contained in the documents. Secure and appropriate disposal includes methods of document destruction such as shredding or arrangements with refuse handlers that ensure that documents are not made available to the general public in intact form. Alternatively, or after disposal, Documents may also be returned for disposal/ destroyed to the Contract Desk on the 3rd Floor, 3 Gateway Center, Newark NJ 07102 or the office of the Director of Contracts, Port Authority, 225 Park Avenue South, NY, NY 10003.
It is a violation of law for any person to alter a document in any way, unless acting under the direction of a licensed professional engineer or registered architect. If this document, bearing the seal of an engineer/architect is altered, the altering engineer/architect shall affix to the document their seal and the notation "altered by" followed by their signature and the date of such alteration, and a specific description of the alteration.

Designed by	JJRECCO
Drawn by	RLLOPEZ
Checked by	K.CHOW
Date	04/21/2014
Contract Number	
Drawing Number	BFF-008

PE#



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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title

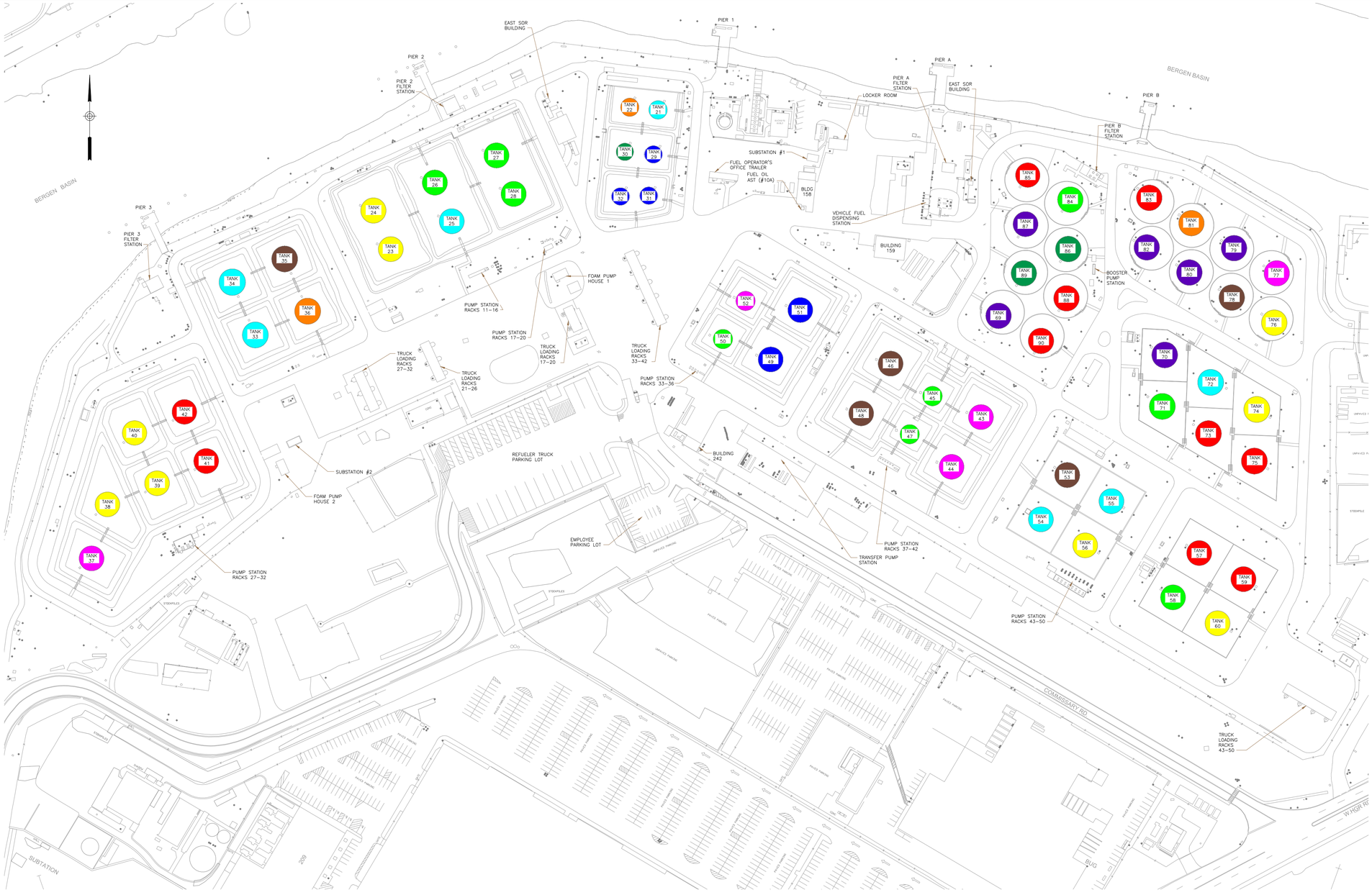
FUELING SYSTEM OPERATIONS AND MAINTENANCE SERVICES

FUELING SYSTEM PAINTING SCHEDULE DIAGRAM

This drawing subject to revisions in contract, all inventions, ideas, designs and methods shown are property of Port Authority and may not be used without prior written consent. All recipients of Contract documents, including bidders and those who do not bid and their prospective subcontractors and suppliers who may receive all or a part of the Contract documents or copies thereof, shall make every effort to ensure the secure and appropriate disposal of Contract documents and any other Port Authority documents or information contained in the documents. Secure and appropriate disposal includes methods of document destruction such as shredding or arrangements with refuse handlers that ensure that documents are not available to the public or to unauthorized persons. Bidding or other disposal Documents may also be returned for disposal purposes to the Contract Desk on the 3rd Floor 3 Gateway Center, Newark NJ 07102 or the office of the Director of Contracts, Port Authority, 225 Park Avenue South, NY, NY 10003.
It is a violation of law for any person to alter a document in any way, unless acting under the direction of a licensed professional engineer or registered architect. If this document bearing the seal of an engineer/architect is altered, the altering engineer/architect shall affix to the document their seal and the notation "altered by" followed by their signature and the date of such alteration, and a specific description of the alteration.

Designed by	J.RECCO
Drawn by	A.VROEGINDEWEY
Checked by	K.CHOW
Date	04/21/2014
Contract Number	
Drawing Number	BFF-009

PE#



TANK INSPECTION BY YEAR LEGEND:

- 2014 –
- 2015 –
- 2016 –
- 2017 –
- 2018 –
- 2019 –
- 2020 –
- 2021 –
- 2022 –
- 2023 –

0 60 120
SCALE IN FEET

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title

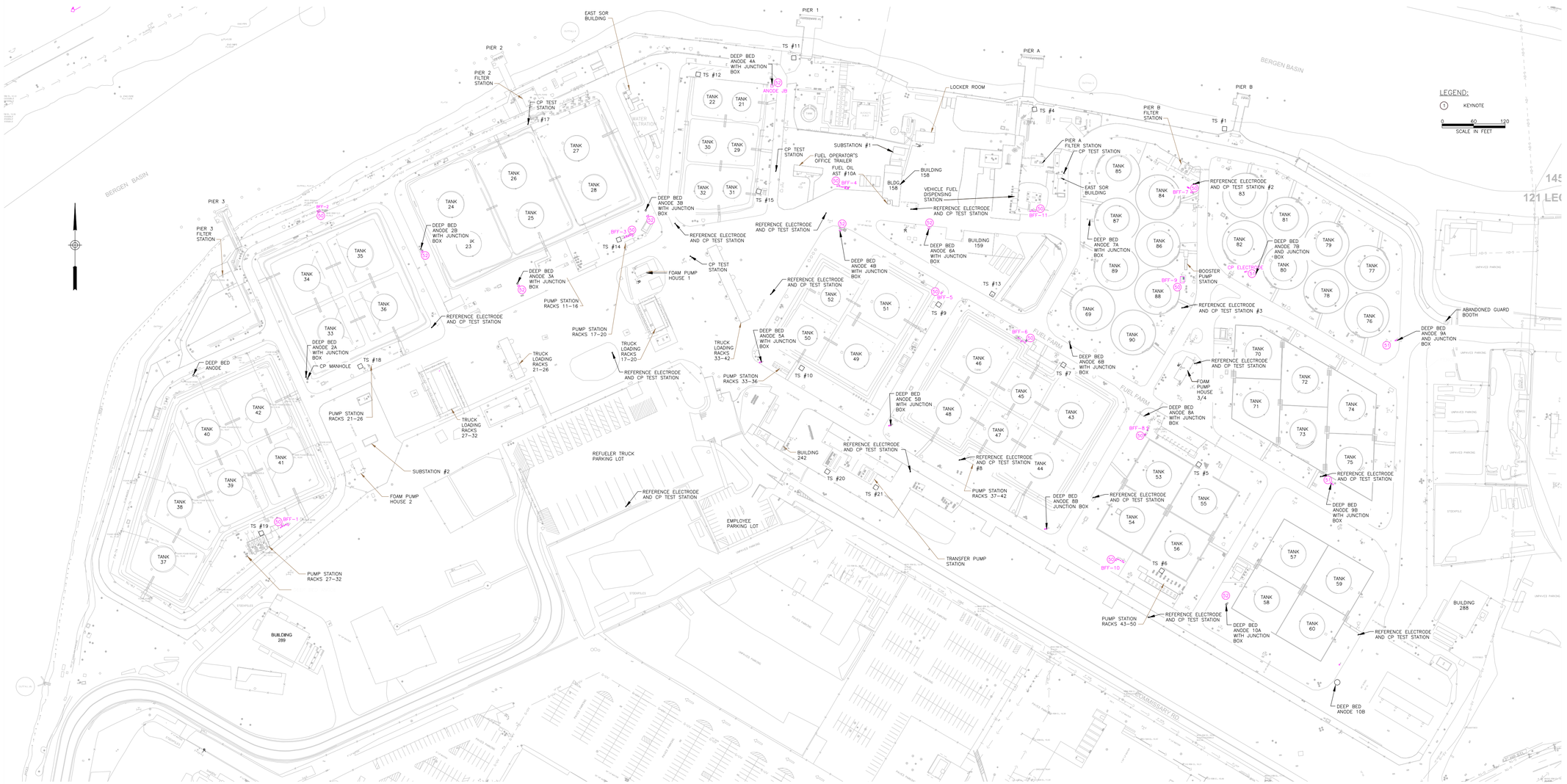
FUELING SYSTEM OPERATIONS AND MAINTENANCE SERVICES

API 653 TANK INSPECTION SCHEDULE DIAGRAM

This drawing subject to conditions in contract. All inventions, ideas, designs and methods contained herein are the property of The Port Authority of New York & New Jersey. All recipients of Contract documents, including bidders and those who do not bid and their prospective subcontractors and suppliers who may receive all or a part of the Contract documents or copies thereof, shall make every effort to assure the secure and appropriate disposal of the Contract documents to prevent further disclosure of the information contained therein. Such effort shall include, at a minimum, the shredding of paper document destruction (such as shredding) or arrangements with refuse handlers that ensure that third persons will not have access to the documents' contents either before, during, or after disposal. Copies of the Contract documents may be purchased from the Cashier's Desk on the 3rd Floor, 3 Gateway Center, Newark NJ 07102 or the office of the Director of Procurement, Two Montgomery Street, 3rd Floor, Jersey City, NJ 07302.
Unless this document bearing the seal of an engineer/architect is altered, the altering engineer/architect shall affix to the document their seal and the notation "altered by" followed by their signature and the date of such alteration, and a specific description of the alteration.

Designed by	J.RECCO
Drawn by	A.VROEGINDEWEY
Checked by	K.CHOW
Date	04/21/2014
Contract Number	
Drawing Number	BFF-010

PID#



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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

ELECTRICAL

Title

FUELING SYSTEM OPERATIONS AND MAINTENANCE SERVICES

CATHODIC PROTECTION PLAN

This drawing subject to conditions in contract. All exercises, ideas, designs and methods herein are reserved to Port Authority and may not be used without its written consent. All recipients of Contract documents, including bidders and those who do not bid and their prospective subcontractors and suppliers who may receive all or a part of the Contract documents or copies thereof, shall make every effort to ensure the secure and appropriate handling and disposition of Contract documents and information and data contained in the documents. Secure and appropriate disposal includes methods of document destruction such as shredding or arrangements with refuse handlers that assure that documents will not be recovered from the refuse stream for purposes of theft or other disposal. Documents may also be returned for disposal purposes to the Contract Desk on the 54 Floor, 3 Gateway Center, Newark NJ 07102 in the office of the Director of Procurement, Port Authority of NY & NJ, Attn: Contract Desk.
It is a violation of law for any person to alter a document in any way, unless acting under the direction of a licensed professional engineer or registered architect. If this document bearing the seal of an engineer/architect is altered, the altering engineer/architect shall affix to the document their seal and the notation "altered by" followed by their signature and the date of such alteration, and a specific description of the alteration.

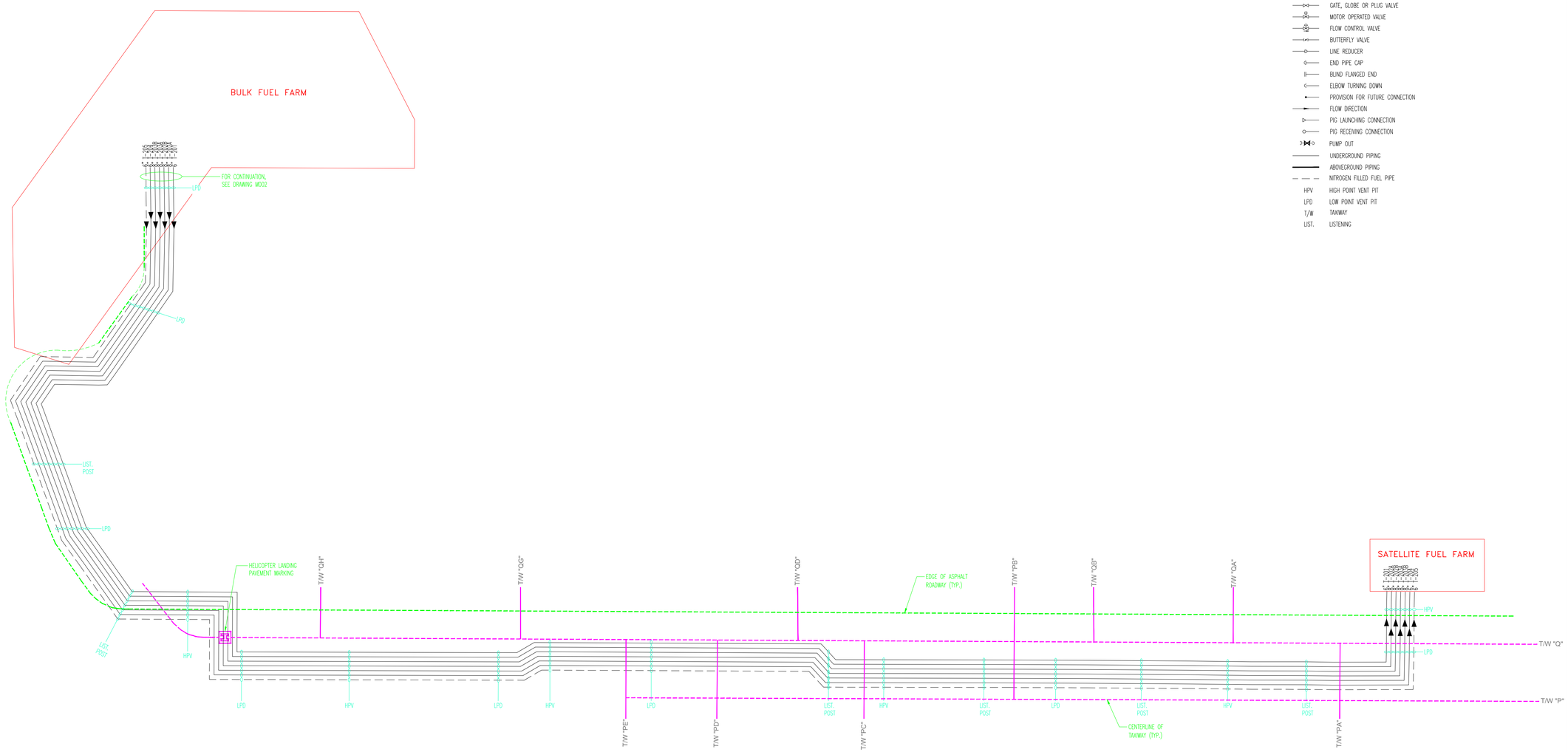
Designed by	C.CIFUENTES
Drawn by	B.PERGOLA
Checked by	K.CHOW
Date	04/21/2014
Contract Number	
Drawing Number	BFF-011

PE#

THE PORT AUTHORITY OF NY & NJ

LEGEND AND ABBREVIATIONS

FA	FILTER SEPARATOR
PF	PREFILTER
S	STRAINER
	FUEL METER
P	FUEL PUMP
	GATE, GLOBE OR PLUG VALVE
	MOTOR OPERATED VALVE
	FLOW CONTROL VALVE
	BUTTERFLY VALVE
	LINE REDUCER
	END PIPE CAP
	BLIND FLANGED END
	ELBOW TURNING DOWN
	PROVISION FOR FUTURE CONNECTION
	FLOW DIRECTION
	PIG LAUNCHING CONNECTION
	PIG RECEIVING CONNECTION
	PUMP OUT
	UNDERGROUND PIPING
	ABOVEGROUND PIPING
	NITROGEN FILLED FUEL PIPE
HPV	HIGH POINT VENT PIT
LPD	LOW POINT VENT PIT
T/W	TAXIWAY
LIST.	LISTENING



TRANSFER PIPING SCHEMATIC FLOW DIAGRAM

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title:
FUELING SYSTEM OPERATIONS AND MAINTENANCE SERVICES

TRANSFER PIPING SCHEMATIC FLOW DIAGRAM

This drawing subject to conditions in contract. All inventions, ideas, designs and methods herein are reserved to Port Authority and may not be used without its written consent. Port Authority Contractors and Consultants, and their subcontractors and suppliers and other prospective subcontractors and suppliers who may receive dll or a part of the Contract documents or copies thereof, shall make every effort to ensure the secure and appropriate disposal of the Contract documents to prevent further disclosure of the information contained in the documents. Secure and appropriate disposal includes methods of destruction or return to the Contracting Department. Contractors are responsible to ensure that third persons will not have access to the documents' contents either before, during or after disposal. Documents may also be returned for disposal purposes to the Contract Manager, Port Authority of New York and New Jersey, Attn: Director, Office of the Director of Procurement, Two Montgomery Street, 3rd Floor, Jersey City, NJ 07302.
It is a violation of law for any person to alter a document in any way, unless acting under the direction of a licensed professional engineer. If an item bearing the seal of an engineer is altered, the altering engineer/architect shall affix to the document their seal and the notation "altered by" followed by their signature and the date of such alteration, and a specific description of the alteration.

Designed by	J.RECCO
Drawn by	D.ALMEIDA
Checked by	K.CHOW
Date	04/21/2014
Contract Number	
Drawing Number	M001

PID#

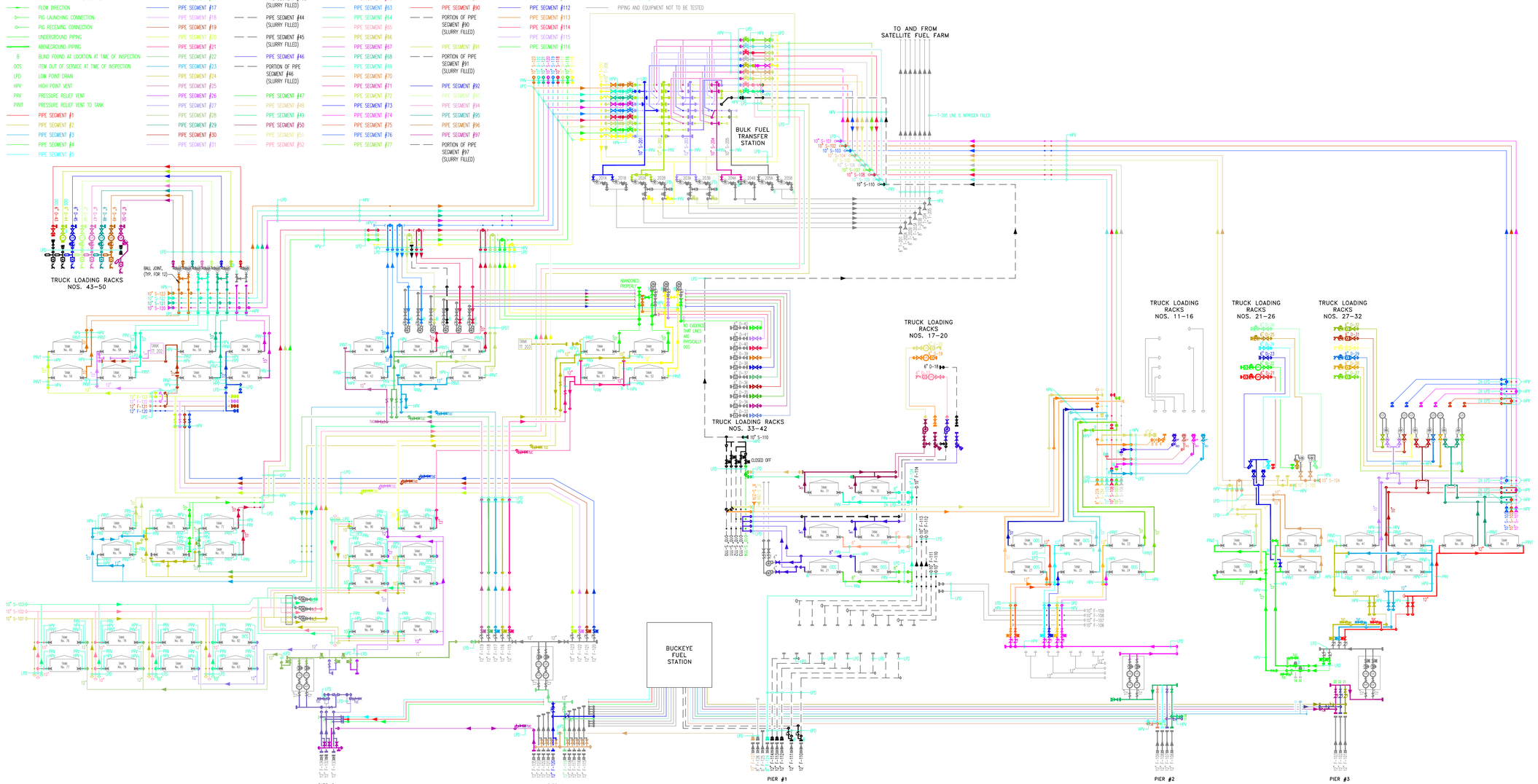
LEGEND AND ABBREVIATIONS

- FILTER SEPARATOR
- PREFILTER
- STRAINER
- FUEL METER
- FUEL PUMP
- GATE, GLOBE OR PLUG VALVE
- MOTOR OPERATED VALVE
- FLOW CONTROL VALVE
- BUTTERFLY VALVE
- LINE REDUCER
- END PIPE CAP
- BLIND FLANGED END
- ELBOW TURNING DOWN
- PROVISION FOR FUTURE CONNECTION
- FLOW DIRECTION
- PIG LAUNCHING CONNECTION
- PIG RECEIVING CONNECTION
- UNDERGROUND PIPING
- ABOVEGROUND PIPING

B	BLIND FOUND AT LOCATION AT TIME OF INSPECTION
OOS	ITEM OUT OF SERVICE AT TIME OF INSPECTION
LPD	LOW POINT DRAIN
HPV	HIGH POINT VENT
PRV	PRESSURE RELIEF VENT
PRVT	PRESSURE RELIEF VENT TO TANK

PIPE SEGMENT #1, PIPE SEGMENT #2, PIPE SEGMENT #3, PIPE SEGMENT #4, PIPE SEGMENT #5, PIPE SEGMENT #6, PIPE SEGMENT #7, PIPE SEGMENT #8, PIPE SEGMENT #9, PIPE SEGMENT #10, PIPE SEGMENT #11 (SLURRY FILLED), PIPE SEGMENT #12 (SLURRY FILLED), PIPE SEGMENT #13 (SLURRY FILLED), PIPE SEGMENT #14, PIPE SEGMENT #15, PIPE SEGMENT #16, PIPE SEGMENT #17, PIPE SEGMENT #18, PIPE SEGMENT #19, PIPE SEGMENT #20, PIPE SEGMENT #21, PIPE SEGMENT #22, PIPE SEGMENT #23, PIPE SEGMENT #24, PIPE SEGMENT #25, PIPE SEGMENT #26, PIPE SEGMENT #27, PIPE SEGMENT #28, PIPE SEGMENT #29, PIPE SEGMENT #30, PIPE SEGMENT #31, PIPE SEGMENT #32, PIPE SEGMENT #33, PIPE SEGMENT #34, PIPE SEGMENT #35, PIPE SEGMENT #36, PIPE SEGMENT #37, PIPE SEGMENT #38, PIPE SEGMENT #39, PIPE SEGMENT #40, PIPE SEGMENT #41, PIPE SEGMENT #42 (SLURRY FILLED), PIPE SEGMENT #43A, PIPE SEGMENT #43B (SLURRY FILLED), PIPE SEGMENT #44 (SLURRY FILLED), PIPE SEGMENT #45 (SLURRY FILLED), PIPE SEGMENT #46, PORTION OF PIPE SEGMENT #46 (SLURRY FILLED), PIPE SEGMENT #47, PIPE SEGMENT #48, PIPE SEGMENT #49, PIPE SEGMENT #50, PIPE SEGMENT #51, PIPE SEGMENT #52, PIPE SEGMENT #53, PIPE SEGMENT #54, PIPE SEGMENT #55, PIPE SEGMENT #56, PIPE SEGMENT #57 (SLURRY FILLED), PIPE SEGMENT #58, PIPE SEGMENT #59, PIPE SEGMENT #60, PIPE SEGMENT #61, PORTION OF PIPE SEGMENT #61 (SLURRY FILLED), PIPE SEGMENT #62, PIPE SEGMENT #63, PIPE SEGMENT #64, PIPE SEGMENT #65, PIPE SEGMENT #66, PIPE SEGMENT #67, PIPE SEGMENT #68, PIPE SEGMENT #69, PIPE SEGMENT #70, PIPE SEGMENT #71, PIPE SEGMENT #72, PIPE SEGMENT #73, PIPE SEGMENT #74, PIPE SEGMENT #75, PIPE SEGMENT #76, PIPE SEGMENT #77, PIPE SEGMENT #78, PIPE SEGMENT #79, PIPE SEGMENT #80, PIPE SEGMENT #81, PIPE SEGMENT #82, PIPE SEGMENT #83, PIPE SEGMENT #84, PIPE SEGMENT #85, PIPE SEGMENT #86, PIPE SEGMENT #87 (SLURRY FILLED), PIPE SEGMENT #88 (SLURRY FILLED), PIPE SEGMENT #89, PIPE SEGMENT #90, PORTION OF PIPE SEGMENT #90 (SLURRY FILLED), PIPE SEGMENT #91, PORTION OF PIPE SEGMENT #91 (SLURRY FILLED), PIPE SEGMENT #92, PIPE SEGMENT #93, PIPE SEGMENT #94, PIPE SEGMENT #95, PIPE SEGMENT #96, PIPE SEGMENT #97, PORTION OF PIPE SEGMENT #97 (SLURRY FILLED), PIPE SEGMENT #98, PIPE SEGMENT #99, PIPE SEGMENT #100, PIPE SEGMENT #101, PIPE SEGMENT #102, PIPE SEGMENT #103, PIPE SEGMENT #104, PIPE SEGMENT #105, PIPE SEGMENT #106, PIPE SEGMENT #107, PIPE SEGMENT #108, PIPE SEGMENT #109, PIPE SEGMENT #110, PIPE SEGMENT #111, PIPE SEGMENT #112, PIPE SEGMENT #113, PIPE SEGMENT #114, PIPE SEGMENT #115, PIPE SEGMENT #116, PIPE SEGMENT #117 (SLURRY FILLED), PIPE SEGMENT #118, PIPE SEGMENT #119, PIPE SEGMENT #120, PIPE SEGMENT #121, PIPE SEGMENT #122, PIPE SEGMENT #123, PIPE SEGMENT #124 (SLURRY FILLED), PIPE SEGMENT #125 (SLURRY FILLED), PIPE SEGMENT #126, PIPE SEGMENT #127

PIPING AND EQUIPMENT NOT TO BE TESTED



BULK FUEL FARM – JET FUEL DISTRIBUTION SYSTEM
NO SCALE

Sheet 14 of 17

THE PORT AUTHORITY OF NY&NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING SYSTEM OPERATIONS AND MAINTENANCE SERVICES

BULK FUEL FARM SCHEMATIC FLOW DIAGRAM

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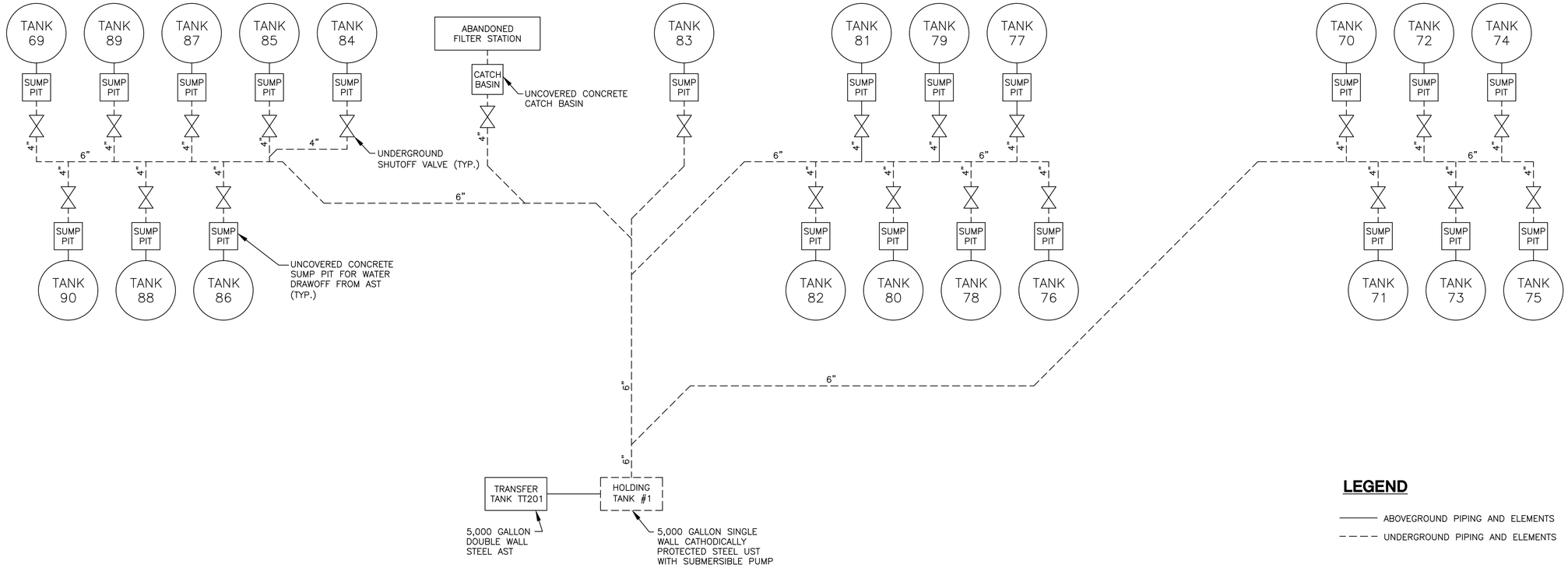
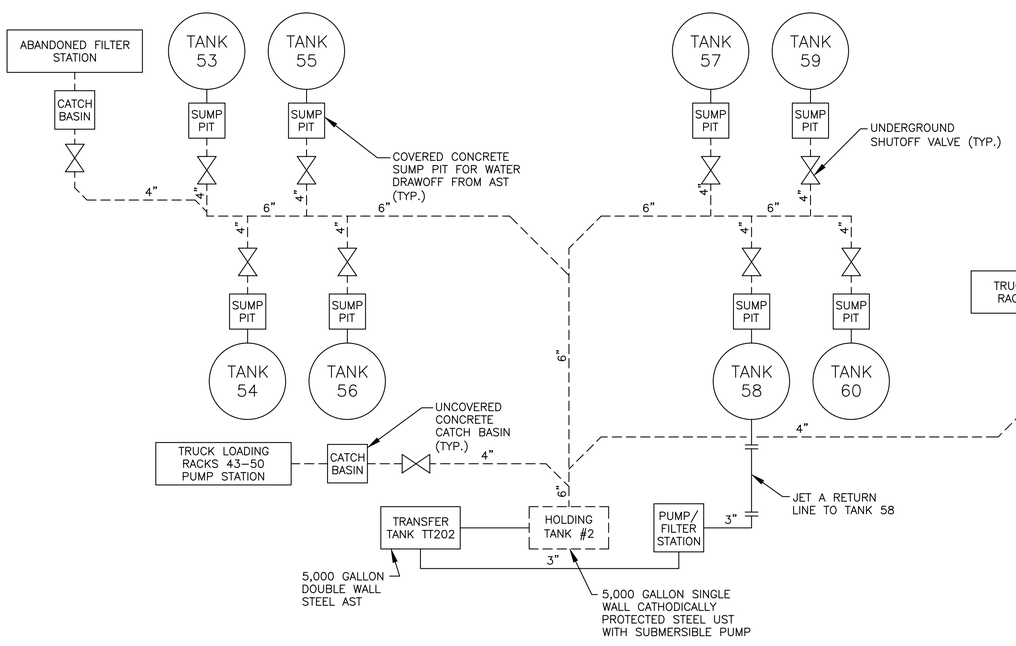
Designed by	J.RECCO
Drawn by	R.LOPEZ
Checked by	K.CHOW
Date	04/21/2014
Contract Number	
Drawing Number	M002

PIDII



SUMP DRAINAGE SYSTEM #1 FLOW SCHEMATIC



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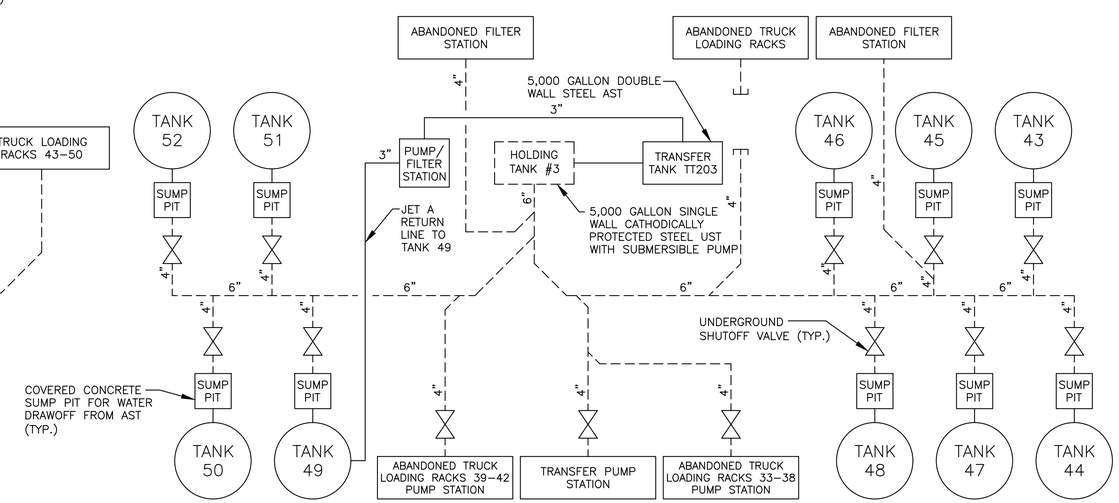

SUMP DRAINAGE SYSTEM #3 FLOW SCHEMATIC

Sheet 15 of 17

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ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title

FUELING SYSTEM OPERATIONS AND MAINTENANCE SERVICES

SUMP DRAINAGE SYSTEM FLOW SCHEMATIC (1 OF 2)

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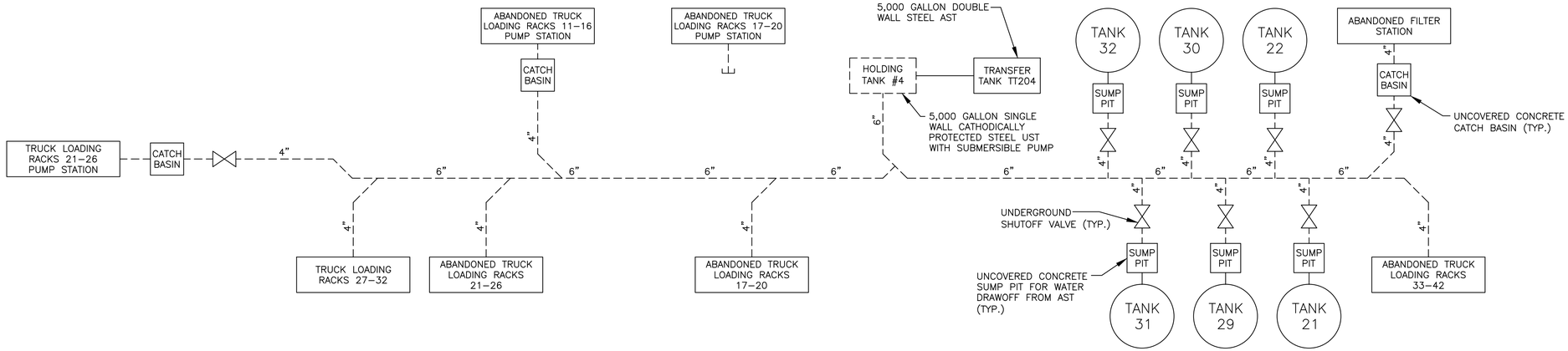
J.RECCO	R.LOPEZ	K.CHOW
Designed by	Drawn by	Checked by

Date 04/21/2014

Contract Number

Drawing Number **M003**

PID#



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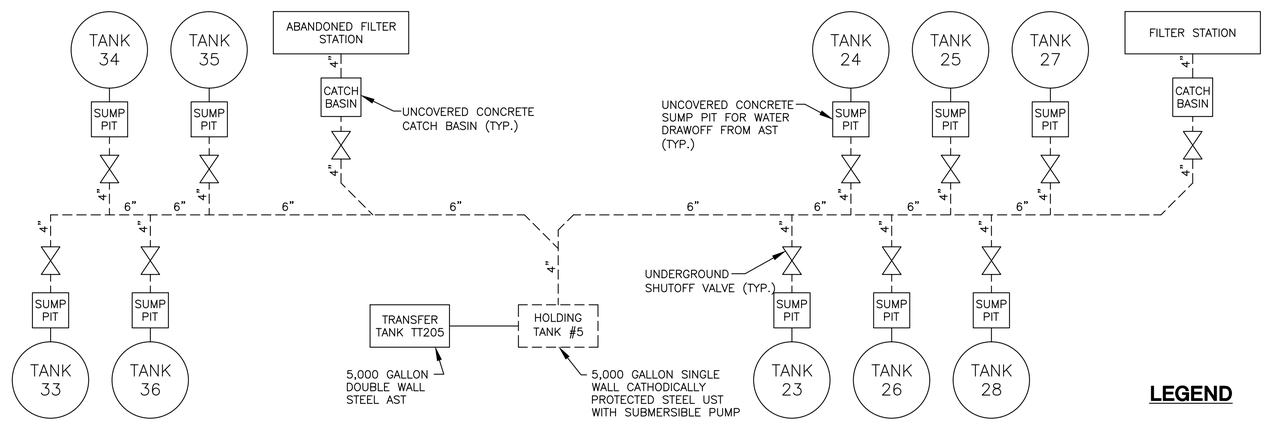
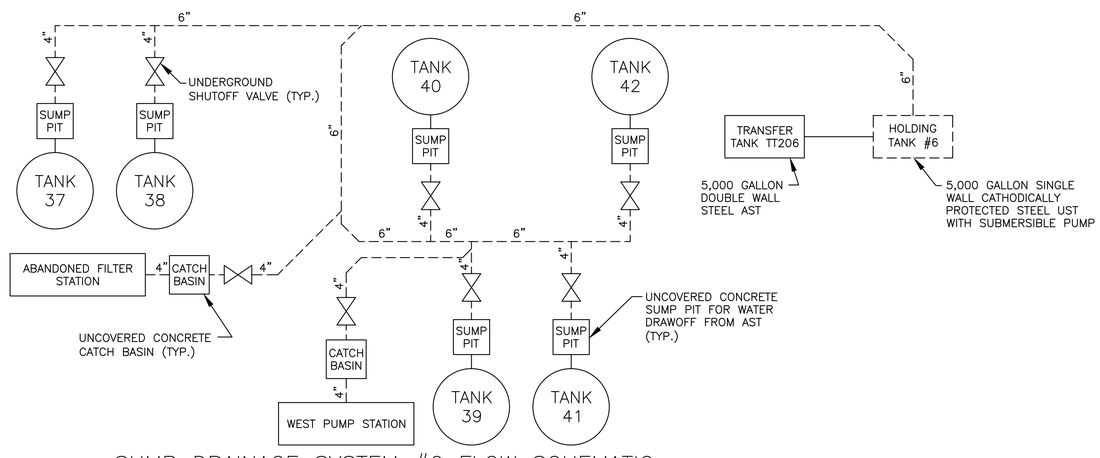


SUMP DRAINAGE SYSTEM #5 FLOW SCHEMATIC

LEGEND

ABOVEGROUND PIPING AND ELEMENTS

UNDERGROUND PIPING AND ELEMENTS



SUMP DRAINAGE SYSTEM #6 FLOW SCHEMATIC

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ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

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FUELING SYSTEM OPERATIONS AND MAINTENANCE SERVICES

SUMP DRAINAGE SYSTEM FLOW SCHEMATIC (2 OF 2)

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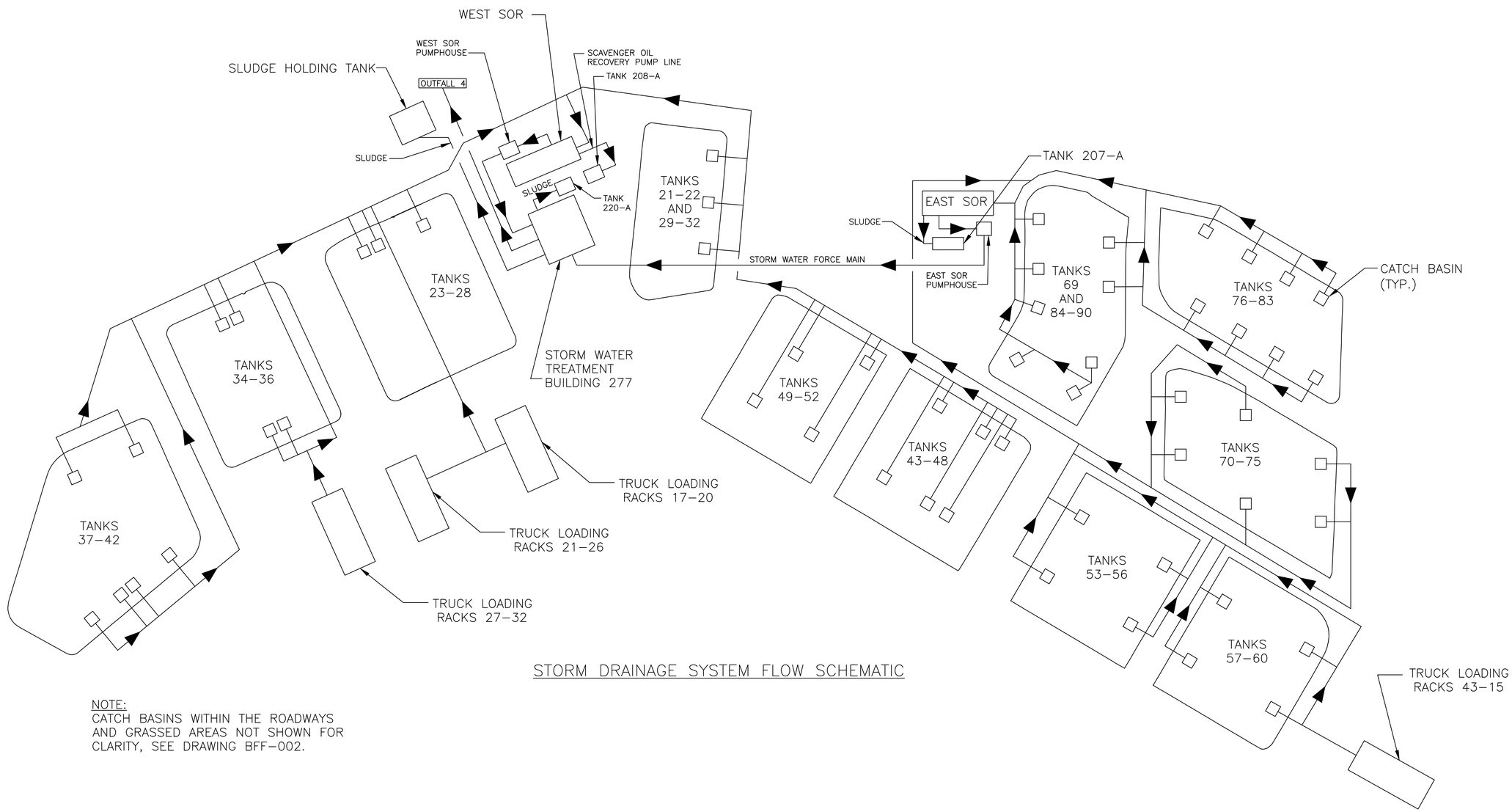
J.RECCO	R.LOPEZ	K.CHOW
Designed by	Drawn by	Checked by

Date 04/21/2014

Contract Number

Drawing Number **M004**

PID#



STORM DRAINAGE SYSTEM FLOW SCHEMATIC

NOTE:
CATCH BASINS WITHIN THE ROADWAYS AND GRASSED AREAS NOT SHOWN FOR CLARITY, SEE DRAWING BFF–002.

Sheet 17 of 17

THE PORT AUTHORITY
OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING SYSTEM OPERATIONS AND MAINTENANCE SERVICES

STORM DRAINAGE SYSTEM FLOW SCHEMATIC

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J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

Date 04/21/2014

Contract Number

Drawing Number **M005**

PID#

JOHN F. KENNEDY INTERNATIONAL AIRPORT
Jamaica, New York

ATTACHMENT A DOCUMENTATION
Request For Proposal for Into-Plane Fueling Operations at
JOHN F. KENNEDY INTERNATIONAL AIRPORT
JAMAICA, NEW YORK

Final Submission

Submitted to:

Design Division, Engineering Department
Two Gateway Center
Newark, New Jersey 07102

Attention: Angela Altieri

Submitted By:

Hatch Mott MacDonald

corrpro
An Aegion Company

June 24, 2014

ATTACHMENT A

Request for Proposal for Into-Plane Fueling Operations at
John F. Kennedy International Airport

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SECTION 1

Technical Description of the Facility

1.1 GENERAL

This attachment documents the utilities, equipment and components within the Into-Plane Operational Area, which is comprised of the Satellite Fuel Farm (SFF) and the airside areas supporting the fueling of aircraft. This attachment also details the Contractor's responsibilities related to the above mentioned areas in addition to the responsibilities already documented elsewhere in this request for proposal (RFP) document. The drawings and tabulation of facility assets contained within this Attachment are based on physical assessment surveys conducted and the best record information available at the time of issuance of this RFP.

1.2 REFERENCE DOCUMENTS

Contractor shall comply with the requirements of the latest editions of the following Reference Documents:

a. Air Transport Association (ATA) 103, Standard for Jet Fuel Quality Control at Airports
b. NACE International SP0169-2013 (formerly RP0169), Control of External Corrosion on Underground or Submerged Metallic Piping Systems
c. NACE International RP0193-2001, External Cathodic Protection of On-Grade Carbon Steel Storage Tank Bottoms
d. NACE International SP0285-2011 (formerly RP0285), Corrosion Control of Underground Storage Tank Systems by Cathodic Protection
e. NACE International SP0286-2007 (formerly RP0286), Electrical Isolation of Cathodically Protected Pipelines
f. New York State Department of Environmental Conservation (NYSDEC) 6 NYCRR Parts 595-599 and 612-614
g. NYSDEC DER-17, Guidelines for Inspecting and Certifying Secondary Containment Systems of Aboveground Petroleum Storage Tanks at Major oil Storage Facilities
h. National Fire Protection Association (NFPA) 10, Portable Fire Extinguishers
i. NFPA 11, Standard for Low, Medium and High-Expansion Foam
j. NFPA 30, Flammable and Combustible Liquid Code
k. NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages
l. NFPA 70, National Electrical Code
m. NFPA 407, Standard for Aircraft Fuel Servicing
n. NFPA 704, Standard System for the Identification of the Hazards of Materials for Emergency Response
o. Federal Aviation Regulation Part 139, Certification of Airports
p. American Petroleum Institute (API) RP 1110, Pressure Testing of Steel Pipelines for the Transportation of Gas, Petroleum Gas, Hazardous Liquids, Highly Volatile Liquids or Carbon Dioxide
q. 40 CFR 70, State Operating Permit Programs
r. 40 CFR 112, Oil Pollution Prevention

Contractor shall provide to the Authority, for approval, a submittal register of all documents, records, testing, etc. that are required based upon the requirements contained within above Reference Documents and indicated in Section 1.5, with the following information clearly indicated:

a. Tasks grouped and numbered for each individual Reference Document indicated.
b. Detailed description of each task.

c. Paragraph cross-reference within the Reference Document.
d. Frequency of the task.
e. Copy of standard checklist/forms used to document the requirements of the task.

Copies of all completed checklists, documentation, photographs, etc. required to be prepared in accordance with the above shall be submitted to the Authority within two weeks after completion of the task indicated within the approved submittal register.

1.3 DESCRIPTION OF INTO-PLANE BOUNDARIES

a. Into-Plane Landside Operations Area consists of a 394,000 SF area that extends: East-West between the security guard booth adjacent to Gate Post Oscar and the perimeter fence adjacent to Building 96. North-South between the perimeter fence parallel to the South Service Road and the perimeter fence adjacent to Taxiway Q.
b. Into-Plane Airside Operations Area also consists of the operation and maintenance of the twenty eight hydrant fuel pipelines, including all high and low point pits and listening posts, extending from within the SFF to the breakout pits at each terminal as well as the fuel hydrant pits for all six active airport terminals (1, 2, 4, 5, 7 and 8).

1.4 DESCRIPTION OF INTO-PLANE ASSETS

a. Vehicles purchased as part of this RFP.
b. Physical features that lie and originate within the confines of the Into-Plane Landside Operations area, including, but not limited to:
    1) All utilities (drainage, foam system, communications, electrical, water, sanitary, sump system)
    2) Manholes
    3) Catch basins
    4) Outdoor foam cabinets with hose, valve and nozzle
    5) Lighting poles and fixtures
    6) Power panels, transformers and switchgear
    7) Fire hydrants
    8) Buried valves and valves with post indicators
    9) Landscaping
    10) Hardscape features (pavements, curbing, perimeter fencing, etc.)
    11) Aboveground fuel storage tanks and connected systems for motor oil, fuel oil #2 and waste oil
    12) Underground fuel storage tanks and connected systems for fuel oil #2
    13) Parking positions for 26 refueler vehicles, 50 hydrant hose trucks and 58 personnal motor vehicles adjacent to Building 90.
    14) Vehicle fuel dispensing station consisting of gasoline and diesel underground storage tanks, underground fuel and vent lines, emergency fuel shutdown system and dual hose fueling dispensers protected by a fixed dry chemical fire suppression system.
c. Aqueous Film Forming Foam (AFFF) pumphouse (Building 91) of concrete masonry unit construction housing four 275 gallon single wall steel aboveground storage tanks, water backflow prevention device, foam pump and valves, foam system control panel, interconnecting piping and other building related support equipment.

d. AFFF pumping system within Building 241 consisting of one 500 gallon single wall polyethylene vertical aboveground storage tank, water backflow prevention device, foam pump and valves, foam system control panel, interconnecting piping and other support equipment.
e. Twenty eight hydrant fuel pipelines (sizes and lengths are documented within the tabulation of facility assets) extending from the discharge side of the filter separator control valve for all systems except 403 and 408 (which will be from the discharge side of the plug valve prior to the pig launcher) within the SFF and ending at, but not including, the shutoff valves located within the airlines terminal breakout pits. Low point drains and high point vents and their respective vaults/pits along the pipeline routing are also to be included.
    1) Single wall steel pipes wrapped in asbestos and tar corrosion protective wrapping and further protected from corrosion by an impressed current cathodic protection system.
    2) There are a total of 28 pipelines: three pipelines each for Terminals 1, 2, 3, 5, 6 and 7, four pipelines for Terminal 4 and six pipelines for Terminal 8. 12 pipelines comprise the North Hydrant System serving Terminals 6, 7 and 8 and 16 pipelines comprise the South Hydrant System serving Terminals 1, 2, 3, 4 and 5.
    3) All hydrant fuel pipelines are active, contain Jet A fuel and were positively tested tight by an EPA certified testing method in 2011. EPA tightness testing for these pipelines by an independent Contractor will occur within 5 years of the previous test period.
f. Forty single wall steel vertical fuel storage tanks:
    1) Tanks constructed in 1963
    2) Single wall steel bottom installed over pile supported foundation
    3) Internal steel pan floating roof with perimeter scissor type floating seal
    4) Mechanical tape level gauge with remote transmitter and limit switches
    5) Internal floating suction with external floating suction indicator
    6) Cone down pitched floor with center sump
    7) Fixed fabric roof
    8) Internal rolling ladder
    9) Underfloor sacrificial anode cathodic protection system
    10) Sump drainage visual system
    11) Independent high level alarm
    12) Aboveground suction and withdrawal single wall piping with high point vents and isolation valving
g. SFF underground interconnecting piping, inclusive of all low point drains and high point vents, consisting of single wall steel pipes wrapped in asbestos and tar corrosion protective wrapping and further protected from corrosion by an impressed current cathodic protection system.
h. Sump drainage system which is connected to the sumping systems for the fuel storage tanks and filter separators. The system consists of aboveground and underground piping, heat tracing systems, eleven single wall steel collection and transfer tanks, two 6,000 gallon single wall vertical process tanks with filtration and pumping systems and an 6,000 gallon underground single wall steel sump collection tank.
i. Water treatment system consisting of two scavenger oil recovery (SOR) systems, two pumping stations, underground gravity and force main piping, underground sludge holding tank, water treatment building and independent air stripper building. The system is used to collect and treat stormwater runoff from the spill containment areas for the fuel storage tanks, refueler parking areas and a transfer pipelines receiving station.
j. Hydrant fueling vertical turbine pumps and vertical filter separators.
k. Transfer pipeline receiving station vertical filter separators.
l. Automatic tank level transmitter and alarm system including remote terminal unit (RTU) and dedicated computer with custom graphic display screens. System is tied into a programmable logic controller (PLC) located in the control room of Building 241.

m. Automated pump control system operated by field pressure switches for Terminals 1, 2, 5 and 7 and controlled by PLC systems for Terminals 4 and 8.
n. Electrical switchgear, transformers, panelboards, disconnect switches.
o. Cathodic protection rectifiers, test stations and deep bed anodes for protection of underground piping and aboveground Jet A tank floors.
p. Purchase and maintenance of operation of a minimum of eight Jet A/sump fuel vacuum trucks to support Contractor's activities. An individual sump truck shall be dedicated for operations for each of the active terminal buildings, the SFF and the activities at the airside low and high point drain/vent pits. The size of the trucks shall be determined by the Contractor.

1.5 RESPONSIBILITIES OF THE CONTRACTOR

In addition to providing the manpower, equipment and support services for operating the fuel farm, fueling aircraft and as outlined in the other sections of this Contract, the Contractor shall be responsible for the following:

a. Performing all of the operational tasks, maintenance, inspections, permits and checklists as required by the documents identified in the Reference Documents section listed previously and performing of such in accordance with manufacturer's instructions as they relate to the assets documented within this RFP.
b. Maintenance and operation of all utilities that lie within and originate within the confines of the Into-Plane Landside Operations Area. For utilities that originate within the Contractor's Area of Responsibility and extend beyond the limits, the Contractor shall be responsible for the utility lines from within the Into-Plane Landside Operations Area up to the next manhole, catch basin or utility structure located outside of the Contractor's area of Responsibility. Utilities that strictly pass through the Into-Plane Landside Operations Area without having a structure (i.e. manhole) or device (i.e. valve) located within the area are <u>not</u> the responsibility of the Contractor.
c. Maintenance and operation of all vehicles purchased as part of this RFP.
d. Maintenance and operation of the Authority's hydrant fuel pipelines up to the shutoff valves located within the Airline terminal breakout pits including the low point drains and high point vents and their respective vaults/pits.
e. Assist the Authority and Authority hired Contractors in the testing of the underground fuel pipelines. Assistance shall include, but not be limited to: meeting with Authority hired Contractors to establish testing schedules based on actual airport fueling activities, allowing access to Into-Plane areas and maintaining services such as electric for temporary power/lighting and bathroom facilities.
f. Assist the Authority and Authority hired Contractors in the testing of emergency fuel shutdown systems at the aircraft terminals.
g. Assist the Authority with all required facility inspections including, but not limited to, Federal Aviation Administration (FAA), NYSDEC, tenant airlines, Authority personnel and their respective Contractors, etc.
h. Tabulate all aircraft fueling activities, provide the total net volume of Jet fuel and AvGas (in tenths of a gallon) dispensed and tabulate the tank fuel liquid levels for all Jet A fuel tanks at the start and end of each day on a daily basis and provide to both the Authority and the Operations and Maintenance Fueling Services Contractor for use in reconciling the inventory of jet fuel and AvGas operations as required by regulatory agencies.
i. Assist the Authority in providing information, documents and/or for the preparation of all Authority prepared permits including, but not limited to, Major Oil Storage Facility (MOSF), State Pollutant Discharge Elimination System (SPDES) and Title V Air Permit.

j. Prepare and update at least every three years a Spill Prevention, Control and Countermeasure (SPCC) Plan for the facility. Initial SPCC plan must be prepared and submitted to the Authority for review within three months of the notice to proceed.
k. Perform all evaluations as required by NYSDEC DER-17 once every five years. The report must be prepared and submitted to the Authority. Any recommended repairs contained within the report shall be executed by the Contractor under this Contract.
l. Perform all routine inspections, maintenance, renewal of permits, assistance with regulatory compliance inspections for all registered underground and aboveground petroleum and chemical storage tanks.
m. Collect and dispose of fuel laden water removed from hydrant fuel pits, Authority high point and low point pits in accordance with all Federal, State, local and Authority requirements.
n. Inspect and repair all pipe entry boots/seals for all hydrant fuel pits, high point and low point pits and breakout/isolation pits annually. A report must be submitted to the Authority which documents the completion of this task along with pictures of the before and after conditions for each repair performed.
o. Engage the services of a qualified subcontractor to perform API 653 out-of-service tank inspections for all 40 aboveground fuel storage tanks based on the schedule provided within the inventory documents. Inspections shall be completed and provided to the Authority prior to December 31st of the indicated year. Any recommended repairs contained within the report shall be executed prior to returning the tank to service. Repairs shall be conducted by a qualified subcontractor having a minimum of 3 years of experience in such work. Work related to preparing the tank for entry including, but not limited to: emptying, vapor-freeing and cleaning of task shall be the responsibility of the Contractor.
p. Jet A fuel storage tanks (including stairs, railings, tank roof, etc.), equipment and piping shall be painted in accordance with the schedule provided within the inventory documents. Painting shall be completed prior to December 31st of the indicated year. The schedule for the painting of aboveground piping shall be in accordance with the fuel tank or filter separator immediately adjacent. Nameplates and non-metallic surfaces shall not be painted. Upon completion of painting activities, Contractor shall provide labeling to match that of the existing conditions prior to painting as well as the following:

1) Tanks: Label each tank with the tank number on four quadrants and at a height clearly visible from the outside of the containment dike.

   Stencil the working and design capacity adjacent to the mechanical level gauge.

   Apply API 704 warning labels to the exterior of the tank shell adjacent to bottom of tank stairs.

2) Piping: Furnish and install flow arrows at every 60 linear feet of piping and at pipe bends.

   Stencil the words “inlet” or “outlet” in the appropriate locations after the tank flanges.

   Furnish and install product identification labels along straight pipe runs.

   Stencil the pipe identification number prior to all aboveground/underground pipe transitions and blind flanges.

q. Calibrate fuel meters on refueler vehicles, as required, using the 1,000 gallon certified calibration tank. Calibrate fuel meters on hydrant hose trucks, as required, using the checkout stations located adjacent to the calibration tank.
r. Operate and maintain all equipment and systems associated with the storm water treatment system as required and in addition perform:

    1) Emptying of underground sludge holding tank and aboveground oil recovery tanks as required
    2) Cleaning of Strategic Oil Recovery (SOR), sludge holding, oil recovery and oil/water separator tanks once every five years

s. Conduct testing of all emergency systems as required including, but not limited to:

    1) Tank independent high level alarms
    2) Fill line control valve solenoids
    3) Emergency fuel shutdown systems
    4) AFFF system including foam chamber and hose cabinets
    5) FM-200 fire suppression system
    6) Vehicle fuel dispensing station dry chemical fire suppression system

t. Coordinate and schedule these activities with the Authority.

SECTION 2

Tabulation of Facility Assets

SECTION 2.1

Inventory of Vehicles to be Purchased From the Authority

INVENTORY OF VEHICLES TO BE PURCHASED FROM THE AUTHORITY

Vehicle	Year	Make	Model	Description
15101	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15102	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15103	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15104	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15105	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15106	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15107	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15108	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15109	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15110	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15111	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15112	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15113	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15114	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15115	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15116	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15117	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15118	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15119	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15120	2002	Freightliner	Condor90	10kGal Aircraft Refueling Tanker
15400	1998	Peterbilt	320	5kGal Aircraft Refueling Tanker
15401	1998	Peterbilt	320	5kGal Aircraft Refueling Tanker
15402	1998	Peterbilt	320	5kGal Aircraft Refueling Tanker
15403	1998	Peterbilt	320	5kGal Aircraft Refueling Tanker
15404	1998	Peterbilt	320	5kGal Aircraft Refueling Tanker
15901	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #901
15902	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #902
15903	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #903
15904	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #904
15905	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #905
15906	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #906
15907	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #907
15908	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #908
15909	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #909
15910	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #910
15911	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #911
15912	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #912
15913	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #913
15914	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #914
15915	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #915
15916	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #916
15917	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #917
15918	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #918
15919	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #919
15920	2009	Crane Carrier	Le2-88	10kGal Aircraft Refueling Tanker #920
98600	1998	Mitsubishi	FE-SP	Hydrant Cart
98601	1998	Mitsubishi	FE-SP	Hydrant Cart
98602	1998	Mitsubishi	FE-SP	Hydrant Cart
98603	1998	Mitsubishi	FE-SP	Hydrant Cart
98604	1998	Mitsubishi	FE-SP	Hydrant Cart

INVENTORY OF VEHICLES TO BE PURCHASED FROM THE AUTHORITY

Vehicle	Year	Make	Model	Description
98605	1998	Mitsubishi	FE-SP	Hydrant Cart
98606	1998	Mitsubishi	FE-SP	Hydrant Cart
98607	1998	Mitsubishi	FE-SP	Hydrant Cart
98608	1998	Mitsubishi	FE-SP	Hydrant Cart
98609	1998	Mitsubishi	FE-SP	Hydrant Cart
98610	1998	Mitsubishi	FE-SP	Hydrant Cart
98611	1998	Mitsubishi	FE-SP	Hydrant Cart
98612	1998	Mitsubishi	FE-SP	Hydrant Cart
98613	1998	Mitsubishi	FE-SP	Hydrant Cart
98614	1998	Mitsubishi	FE-SP	Hydrant Cart
98615	1998	Mitsubishi	FE-SP	Hydrant Cart
98616	1998	Mitsubishi	FE-SP	Hydrant Cart
98617	1998	Mitsubishi	FE-SP	Hydrant Cart
98618	1998	Mitsubishi	FE-SP	Hydrant Cart
98619	1998	Mitsubishi	FE-SP	Hydrant Cart
98620	1998	Mitsubishi	FE-SP	Hydrant Cart
98621	1998	Mitsubishi	FE-SP	Hydrant Cart
98622	1998	Mitsubishi	FE-SP	Hydrant Cart
98623	1998	Mitsubishi	FE-SP	Hydrant Cart
98624	1998	Mitsubishi	FE-SP	Hydrant Cart
98625	1998	Mitsubishi	FE-SP	Hydrant Cart
98626	1998	Mitsubishi	FE-SP	Hydrant Cart
98627	1998	Mitsubishi	FE-SP	Hydrant Cart
98628	1998	Mitsubishi	FE-SP	Hydrant Cart
98629	1998	Mitsubishi	FE-SP	Hydrant Cart
98630	1998	Mitsubishi	FE-SP	Hydrant Cart
98631	1998	Mitsubishi	FE-SP	Hydrant Cart
98632	1998	Mitsubishi	FE-SP	Hydrant Cart
98633	1998	Mitsubishi	FE-SP	Hydrant Cart
98634	1998	Mitsubishi	FE-SP	Hydrant Cart
98635	1998	Mitsubishi	FE-SP	Hydrant Cart
98636	1998	Mitsubishi	FE-SP	Hydrant Cart
98637	1998	Mitsubishi	FE-SP	Hydrant Cart
98638	1998	Mitsubishi	FE-SP	Hydrant Cart
98639	1998	Mitsubishi	FE-SP	Hydrant Cart
98640	1998	Mitsubishi	FE-SP	Hydrant Cart
98641	1998	Mitsubishi	FE-SP	Hydrant Cart
98642	1998	Mitsubishi	FE-SP	Hydrant Cart
98643	1998	Mitsubishi	FE-SP	Hydrant Cart
98644	1999	Mitsubishi	FE-SP	Hydrant Cart
98645	1999	Mitsubishi	FE-SP	Hydrant Cart
98646	1999	Mitsubishi	FE-SP	Hydrant Cart
98647	1999	Mitsubishi	FE-SP	Hydrant Cart
98648	1999	Mitsubishi	FE-SP	Hydrant Cart
98649	1999	Mitsubishi	FE-SP	Hydrant Cart
98650	1999	Mitsubishi	FE-SP	Hydrant Cart
98651	1999	Mitsubishi	FE-SP	Hydrant Cart
98652	1999	Mitsubishi	FE-SP	
98653	1999	Mitsubishi	FE-SP	Hydrant Cart
98654	1999	Mitsubishi	FE-SP	Hydrant Cart

INVENTORY OF VEHICLES TO BE PURCHASED FROM THE AUTHORITY

Vehicle	Year	Make	Model	Description
98655	1999	Mitsubishi	FE-SP	Hydrant Cart
98656	1999	Mitsubishi	FE-SP	Hydrant Cart
98657	1999	Mitsubishi	FE-SP	Hydrant Cart
98658	1999	Mitsubishi	FE-SP	Hydrant Cart
98659	1999	Mitsubishi	FE-SP	Hydrant Cart
98660	1999	Mitsubishi	FE-SP	Hydrant Cart
98661	1999	Mitsubishi	FE-SP	Hydrant Cart
98662	1999	Mitsubishi	FE-SP	Hydrant Cart
98663	1999	Mitsubishi	FE-SP	Hydrant Cart
98664	1999	Mitsubishi	FE-SP	Hydrant Cart
98665	1999	Mitsubishi	FE-SP	Hydrant Cart
98666	1999	Mitsubishi	FE-SP	Hydrant Cart
98667	1999	Mitsubishi	FE-SP	Hydrant Cart
98668	1999	Mitsubishi	FE-SP	Hydrant Cart
98669	1999	Mitsubishi	FE-SP	Hydrant Cart
98670	1999	Mitsubishi	FE-SP	Hydrant Cart
98671	1999	Mitsubishi	FE-SP	Hydrant Cart
98672	1999	Mitsubishi	FE-SP	Hydrant Cart
98673	1999	Mitsubishi	FE-SP	Hydrant Cart
98674	1999	Mitsubishi	FE-SP	Hydrant Cart
98675	1999	Mitsubishi	FE-SP	Hydrant Cart
98676	1999	Mitsubishi	FE-SP	Hydrant Cart
98677	1999	Mitsubishi	FE-SP	Hydrant Cart
98678	1999	Mitsubishi	FE-SP	Hydrant Cart
98679	1999	Mitsubishi	FE-SP	Hydrant Cart
98680	1999	Mitsubishi	FE-SP	Hydrant Cart
98681	1999	Mitsubishi	FE-SP	Hydrant Cart
98682	1999	Mitsubishi	FE-SP	Hydrant Cart
98683	1999	Mitsubishi	FE-SP	Hydrant Cart
98684	1999	Mitsubishi	FE-SP	Hydrant Cart
98685	1999	Mitsubishi	FE-SP	Hydrant Cart
98686	1999	Mitsubishi	FE-SP	Hydrant Cart
98687	1999	Mitsubishi	FE-SP	Hydrant Cart
98688	1999	Mitsubishi	FE-SP	Hydrant Cart
98689	1999	Mitsubishi	FE-SP	Hydrant Cart
98690	1999	Mitsubishi	FE-SP	Hydrant Cart
98691	1999	Mitsubishi	FE-SP	Hydrant Cart
98692	1999	Mitsubishi	FE-SP	Hydrant Cart
98693	1999	Mitsubishi	FE-SP	Hydrant Cart
98694	1999	Mitsubishi	FE-SP	Hydrant Cart
98695	1999	Mitsubishi	FE-SP	Hydrant Cart
98696	1999	Mitsubishi	FE-SP	Hydrant Cart
98697	1999	Mitsubishi	FE-SP	Hydrant Cart
98698	1999	Mitsubishi	FE-SP	Hydrant Cart
98699	1999	Mitsubishi	FE-SP	Hydrant Cart

SECTION 2.2

Into-Plane Inventory List

INTO-PLANE INVENTORY LIST

Surface Features		
Item	**Appoximate Quantity**	**UNIT**
Grass	5600	SQ FT
Concrete Pavement	199500	SQ FT
Gravel	20200	SQ FT
Asphalt Pavement	65000	SQ FT
Epoxy Sealed Concrete	30600	SQ FT
CMU Wall with Barbed Wire	1110	FT
Concrete Curbing	3000	FT
Chain Link Fencing with Barbed Wire	1000	FT
Steel Guard Rail	890	FT
Sliding Gates	(2) 42'-0" wide	EA
Metal Vertical Security Turnstiles	2 with Hirsch Electronics magnetic card reader and security lock on landside side of turnstyle	EA

INTO-PLANE INVENTORY LIST

Storm Drainage System		
Number	**Equipment Name**	**Description**
4	PIV	KENNEDY
6	Catch Basin	
27	Manholes	

INTO-PLANE INVENTORY LIST

East SOR Storm Drainage System Pumphouse		
Number	**Equipment Name**	**Comments**
1	Pump	Megator Serial # 2150 Mod # L300
1	Explosion Proof Pump Motor	Class 1 Group D-UL Marathon Electric Model # TJ02561P057
1	Explosion Proof Heat Tracing System	Digitrace # AMC1A Thermostat
1	Crouse Hinds Panel	1 Phase, 2 Wire, 122/40 Model # D2PB1706
1	PLC Panel within Explosion Proof Enclosure	Allen Bradley # Power Felx 40
2	Explosion Proof Safety Disconnect Switch	Square D - # FA-060-X (Pump Control and Heater)
1	Explosion Proof Heater	Chromalox -P/N# 003-302883-077- -CAT# CVEP-A-8-3-43-32-44- 3 Phase , 480 V, 1600 W, 1.92 A
2	Explosion Proof Light Fixtures	Hubbell CAT#: KLH-070S8-G-P2-10 GUARD - CAT#: KL-1 OPTICAL - CAT#: KL-G MTG COVER - KLH-P2
1	Explosion Proof Light Switch	Hubbell
1	Wall Mounted Exhaust Fan	
1	Explosion Proof Manual Starter (Fan)	Square D TYPE FR1 SERIES BJD CLASS 2510

INTO-PLANE INVENTORY LIST

West SOR Storm Drainage System Pumphouse		
Number	**Equipment Name**	**Comments**
1	Pump	Gorman-Rupp Super T Series MOD #: T4A60S-B SERIAL #: 1503634
1	Explosion Proof Pump Motor	WEG model # 01018XT3E215T
1	Explosion Proof Heat Tracing System	Digitrace # AMC1A Thermostat
1	PLC Panel within Explosion Proof Enclosure	Allen Bradley Power Felx 40
2	Explosion Proof Safety Disconnect Switch	Square D - # FA-060-X (Pump Control and Heater)
1	Explosion Proof Heater	CHROMALOX CAT#: CVEP-A-1.6-B-443-32-44 CONTROL CIRCUIT: P/N#: 003-302883-077
2	Explosion Proof Light Fixtures	Hubbell CAT#: KLH-070S8-G-P2-10 GUARD - CAT #: KL-1 OPTICAL - CAT #: KL-G MTG COVER - KLH-P2
1	Explosion Proof Snap Switch (Lights)	Crouse-Hinds CAT#: EDS2129
1	Ceiling Mounted Exhaust Fan	
1	Explosion Proof Manual Starter (Fan)	Square D TYPE FR1 SERIES BJD CLASS 2510

INTO-PLANE INVENTORY LIST

WATER SYSTEM		
Equipment	**Quantity**	**Comment**
Fire Hydrant	11	
Underground Valve	23	
Manhole	2	
Sprinkler system with Backflow Preventer	11	Dry type located outside of Building 241

INTO-PLANE INVENTORY LIST

Aqueous Fire Fighting Foam System

System Underground Valves

Type	Number	Comments
A	22	A.P. Smith
B	7	Kennedy Valve 1959-1958 Post Indicator
C	1	Stockholm G951A Post Indicator
D	3	Underground foam valve with box
E	2	Underground Foam Valve within pit with GNY cover

Foam Chambers

Type	Number	Comments
Tank Mounted	40	National Foam Chamber with 4" ball valve shutoff (normally open)
Wall Mounted	23	National Foam Chamber with 4" ball valve shutoff (normally open)

Foam Cabinets

Type	Number	Comments
A	6	Rockwood FFF 2-1/2" Nozzle
B	7	National Foam - Model# JS-10B (NPSH) 100 gpm @ 100 psi (inspected 12/12/2004) Line Proportioner - HLP - 9 Cabinet Model # 6030 Hose Potter-Roemer With Air Eliminator

INTO-PLANE INVENTORY LIST

Foam Pump House (Building 91)		
Number	**Equipment Name**	**Comments**
1	Pump	Worthington Serial #: DP1248
1	Motor	Worthington B54A 25HP 3 Phase
2	Overhead Lamps	Work-o-Lite fluorescent light fixture (2) bulbs
1	Electric Heater	Berko Cat #: UH-5 5KW
1	Fire Alarm Control Panel	Federal Signal Corporation FSF304R
4	275 gallon single wall steel horizontal Foam Tank	Working cap. 250 gallon, visuallLevel gauge, atmospheric vent and spill box
1	Backflow Preventor	Reliable Deluge Valve model B
2	Water Gate Valve with Limit Switches	(1) Mueller (1) Kennedy System Sensor, Model #OSY-2
2	Check Valve	Grinnell
2	Water Gate Valve without Limit Switches	Kennedy
1	Steel Door	
2	Windows	

INTO-PLANE INVENTORY LIST

Foam Pump Room (Building 241)		
Number	**Equipment Name**	**Comments**
1	Pump	Blackmer model # FFNP15A
1	Motor	Baldor Cat # M3311T
6	Overhead Lamps	Fluorescent light fixture (2) bulbs
1	Thermostat	Honeywell
2	Electric Heater	T.P.I Corporation model # P3PUH07CA1DT 7.5KW
1	Pump Controller	National Foam in Type 2 Enclosure
1	500 gallon single wall steel horizontal Foam Tank	Polyprocessing TANKID-001
4	Water Gate Valve	(2) Clow (2) NIBCO
1	Double Check Backflow Preventer	Zurn Wilkins
4	FM-200 Fire Suppression Tanks	Fike (2) 60 lb. (2) 375 lb.
4	Check Valves	FM-200 System KF Valves (2) 1" (2) 3"

INTO-PLANE INVENTORY LIST

Fuel Storage Tank Systems		
Type	**Number**	**Comments**
A	Gasoline UST	Design Cap: 6000 Gal Working Cap: 5400 Gal Double Wall Fiberglass with double wall fiberglass piping and submersible fuel pump,
B	Diesel UST	Design Cap: 12000 Gal Working Cap: 10800 Gal Double Wall Fiberglass with double wall fiberglass piping and submersible fuel pump, Veeder-Root leak detection and level monitoring system
C	Fuel Oil USTs # 001A & 002A	Design Cap: 4000 Gal Working Cap: 3600 Gal Double Wall Fiberglass with double wall fiberglass piping and Veeder-Root leak detection and level monitoring system
D	Motor Oil AST Tank # 926	Design Cap: 1000 Gal Working Cap: 900 Gal Visual Level Gauge Lube Cube - Containment Solutions - Double wall steel tank Tow Emergency Vents
E	Used/Waste Oil AST Tank # 003	Design Cap: 1000 Gal Working Cap: 800 Gal Pneumercator Leak/Level Gauge # LC1SANCL Single wall steel tank within steel rain-protection dike
F	Fuel Oil AST # 12	Dunn Industries Design Cap: 1000 Gal Working Cap: 800 Gal Single wall steel tank within steel rain-protection dike

INTO-PLANE INVENTORY LIST

Vehicle Fuel Dispensing Station (Typical for Diesel and Gasoline Stations)	
Equipment Name	**Comments**
Diesel/Gasoline Dispenser	GasBoy Atlas twin hose, high hose retriever, deadman control; one dispenser for each
(3) Fire Suppression Canisters	Pyro-Chem ATD-75 B/C Rated
(1) Portable Fire Extinguisher	Adjacent to unleaded gasoline dispenser, on wheels
(1) Truck Nozzle	OPW 2" Dry Disconnect

INTO-PLANE INVENTORY LIST

Communications System		
Number	**Equipment Name**	**Comments**
40	Mechanical Tank Level Gauge	Varec model 2500 with Varec model 2900 transmitter
6	Manholes	
1	Remote Terminal Unit	Varec model 8130 with Varec model 8203 Dual RS-485/Modbus Interface
1	Leak and Level Panel	Veeder-Root TLS 350 for vechicle fuel dispensing and fuel oil systems
1	Leak and Level Panel	Omntec Model #242 for motor oil AST
2	High Level Alarm	Veeder-Root Model # 790091-001 Overall Alarm with diesel and unleaded gasoline tanks model # 790095-001 alarm acknowledgement switcher
1	Fuel Island Fire Suppression Pull Station	Fire Lite by Honeywell
1	Emergency Fuel/Shutdown Switch	
1	Fire Pull Box	

INTO-PLANE INVENTORY LIST

KEY NOTE	ITEM	MANUFACTURER	MODEL: CATALOG No:	ELECTRICAL DATA:	COMMENTS	
1	**BONDING TEST STATION "BTS-1"; "BTS-2"**					
	BONDING TEST STATION - 1,2		CAT: XJF183610H4		EXPLOSION PROOF	TOTAL OF 2
2	**CP#1-CP#5**				CATHODIC PROTECTION	TOTAL OF 5
	RECTIFIER RST	UNIVERSAL RECTIFIERS INC.	MODEL:OMXI SERIAL:993315	VAC:460/230V, 3PH VDC:60V	EXPLOSION PROOF	AC AMPS:18.6/8.9 DC AMPS: 100
	RMU-RST				EXPLOSION PROOF	
	RECTIFIER JBOX				EXPLOSION PROOF	
	TRANSFORMER	CROUSE-HINDS ®	CAT: EJ886 SA DR1294817	0.5KVA XMER	EXPLOSION PROOF	
	TELEPHONE JBOX	-	-	-	EXPLOSION PROOF	
	JBOX: 480VAC	-	-	-	EXPLOSION PROOF	
3	**SWITCH GEAR**					
	SWITCHGEAR	-	-	4160V	GREEN ENCLOSURE	4 CABINETS
	TRANSFORMER	-	-	-	GREEN ENCLOSURE	
	PANEL	-	-	-	GREEN ENCLOSURE	
	PANEL "TOWER LIGHT CONTACTOR"	-	-	-	GREEN ENCLOSURE	
4	**EJECTOR SYSTEM CONTROL BUILDING**					
	DISCONNECT SWITCH	ITE ENCLOSED SWITCH	CAT# NF352	60A, 600VAC		
	TRANSFORMER	SQUARE D	STYLE #: 32749-17212-022 CAT#: 15T3H	15KVA, 480-208/120V		
	PANEL	SQUARE D	NQOD424L100-E2	100A, 208/120V, 3PH		
	PANEL	SQUARE D	NEHP-30435-1-E1	125A, 480/277V, 3PH		
	MOTOR	TOSHIBA: 3PH,		3 PHASE		
	EPSO	-	-	-		
	LIGHT			3 T5 BULB, CEILING HUNG		
5	**CALIBRATION BUILDING**					
	RADIO BOX	MOTOROLA				
	MONITORING PANEL	BISCO ENVIRONMENTAL	SERIAL#: 12396		WWW.BISCOENV.COM	
6	**PULL BOX**					
	PULL BOX	ADALET	CAT#XCE-121306-N4		NEXT TO TANK 337,323	TOTAL OF 5 EXPLOSION PROOF
7	**RACK #5,6,10,11,12,13**					
	PANEL	RUSSELL & STOLL CO.	CAT#SP-SPL-DPL-T	150A, 208/120V, 3PH 9 CIRCUITS	NEXT TO TANK 320,337,326	EXPLOSION PROOF
	PULL BOX				EXPLOSION PROOF	TOTAL OF 2
8	**RACK #14, 15**					NEXT TO TANK 323,310
	POWER PANEL				EXPLOSION PROOF	TOTAL OF 2
	TRANSFORMER				EXPLOSION PROOF	
	PULL BOX				EXPLOSION PROOF	TOTAL OF 2
9	**RACK #17 "FROM MCC 10"**					NEXT TO TANK 328
	PANEL	RUSSELL & STOLL CO. INC.	CAT: D-11443T	230A, 440/277, 3PH	EXPLOSION PROOF	TOTAL OF 6

INTO-PLANE INVENTORY LIST

KEY NOTE	ITEM	MANUFACTURER	MODEL: CATALOG No:	ELECTRICAL DATA:	COMMENTS	
	PANEL "RTU1"				EXPLOSION PROOF	
	PULL BOX				EXPLOSION PROOF	TOTAL OF 2
10	**LIGHT POLE**					
	LIGHTING POLE WITH 2 FIXTURES				MOUNTED WITH SAFETY DISCONNECT	TOTAL OF 5
	LIGHTING POLE WITH 4 FIXTURES				MOUNTED WITH SAFETY DISCONNECT	TOTAL OF 1
	LIGHTING POLE WITH 5 FIXTURES				MOUNTED WITH SAFETY DISCONNECT	TOTAL OF 3
	LIGHTING POLE WITH 7 FIXTURES				MOUNTED WITH SAFETY DISCONNECT	TOTAL OF 3
	OBSTRUCTION LIGHTING				MOUNTED WITH SAFETY DISCONNECT	TOTAL OF 3
11	**PUMP CONTROLS**					
	PUMP CONTROLS "WFTP 1" TO "WFTP 9"	HUBBELL - KILLARK PUMP CONTROLS	CAT. SPM25755 SERIAL: 2895			TOTAL OF 9 EXPLOSION PROOF
	PUMP CONTROL AUDIBLE SIGNAL		EDWARDS GS CAT. 878EX-G5		HORN	TOTAL OF 9 EXPLOSION PROOF
	PUMP CONTROL "GS2"				NEXT TO TANK 311	EXPLOSION PROOF
	PUMP CONTROL "GS3"				NEXT TO TANK 328	EXPLOSION PROOF
	PUMP CONTROL "FTP"				NEXT TO TANK 328	EXPLOSION PROOF
	PUMP CONTROL "FTTP"				NEXT TO TANK 306	EXPLOSION PROOF
	PUMP CONTROL				NEXT TO BLDG 290,287	TOTAL OF 5 EXPLOSION PROOF
12	**VAREC TANK GAUGING SYSTEM**					
	VAREC TRANSMITTER		MODEL No: N2900B04822FM SERIAL: 35377			TOTAL OF 40
13	**RSMU RT1**				NEXT TO TANK 301,302	
	PANEL "RMU RS1"					EXPLOSION PROOF
	RECTIFIER "RS1"	UNIVERSAL RECTIFIERS INC.	MODEL:OMXI SERIAL:993319	VAC:460/230V, 3PH VDC:60V	AC AMPS:10/4.7 DC AMPS: 40	EXPLOSION PROOF
	ANODE JBOX "RS1"	-	-	-	-	EXPLOSION PROOF
	ANODE JBOX - NEGATIVE RETURN	-	-	-	-	EXPLOSION PROOF
	RECTIFIER JBOX	-	-	-	-	EXPLOSION PROOF
	TELEPHONE JBOX	-	-	-	-	EXPLOSION PROOF
	TRANSFORMER	-	-	0.5KVA XMER	-	EXPLOSION PROOF
	JBOX: 480VAC	-	-	-	-	EXPLOSION PROOF
	PANEL "TS1"	ADALET	CAT: XJF183610N4		BONDING TEST STATION PIT ENCLOSURE	EXPLOSION PROOF
14	**BUILDING 241 (EXTERIOR)**					
	SWITCHGEAR	S&C ELECTRIC CO.	CAT:CDA-821330	4160V SWITCH GEAR MAIN BUS: 1200A 37500A RMS	5 CABINETS	TOTAL OF 1
	SWITCHGEAR	S&C ELECTRIC CO.	CAT:CDA-821340	4160V SWITCH GEAR MAIN BUS: 1200A 37500A RMS	6 CABINETS	TOTAL OF 2

INTO-PLANE INVENTORY LIST

KEY NOTE	ITEM	MANUFACTURER	MODEL: CATALOG No:	ELECTRICAL DATA:	COMMENTS	
	SWITCHGEAR	S&C ELECTRIC CO.	CAT:CDA-821340	4160V SWITCH GEAR MAIN BUS: 1200A 37500A RMS	3 CABINETS	TOTAL OF 2
	TRANSFORMER	SQUARE D POWER CAST	SERIAL: 856028-F1	1000 KVA, 4160-480/277		
	TRANSFORMER	HAINAN JIPAN ELECTRIC CO. LTD	SERIAL: 1210015811	1000 KVA, 4160-480/277		
	PANEL "DISTRIBUTION PANEL"			480V	CATHODIC PROTECTION DIST. PANEL	
	PULL BOX			480V	CATHODIC PROTECTION JBOX	
	LIGHT FIXTURE			COMPACT FLUORESCENT	BEHIND SWITCH GEAR	TOTAL OF 20
	LIGHT FIXTURES			HPS	WALL MOUNTED	TOTAL OF 7
	LIGHT FIXTURES			HPS	FLOOD LIGHTS (CIRCULAR)	TOTAL OF 4
	HORN					TOTAL OF 2
	PULL STATION W/ SPEAKER STROBE					
	DISCONNECT SWITCH	GENERAL ELECTRIC		600VAC, 3P, 10A		TOTAL OF 2
15	**BUILDING 241 (ELECTRICAL EQUIPMENT ROOM)**					
	ATS	EATON				
	DISCONNECT SWITCH	GENERAL ELECTRIC		CIRCUIT BREAKER: 225A	ENCLOSED CIRCUIT BREAKER	
	DISCONNECT SWITCH	SIEMENS	-	100A, 600VAC	NORMAL FEEDER / MCC8	
	DISCONNECT SWITCH "HI POT"	CUTLER HAMMER	-	100A, 600VAC	OFF POSITION	WITH AN EMERGENCY GENERATOR RECEPTACLE
	DISCONNECT SWITCH "FOAM PUMP"	SIEMENS	-	100A, 600VAC	FED FROM: MCC9	
	ELECTRIC METER	DELTA	CAT: 4CT-3CEH	480/277V	WATER TREATMENT BUILDING, BUILD No. 290 ELECTRIC METER	
	ELECTRIC METER	MURRAY	-			
	ELECTRIC METER	ATLANTIC METER SUPPLY NYC 92 658 083	ITRON SENTINEL			TOTAL OF 8
	FIRE ALARM CUT OUT ENCLOSURE BOX				FUSED DISC. BLDG: 290	
	FM 200 - DIGITAL COMMUNICATOR, ENCLOSURE BOX				FUSE CUTOUT	
	FM 200 - ENCLOSURE BOX				SYSTEM FUSE CUTOUT	
	LIGHT FIXTURES				1X4 CEILING HUNG	TOTAL OF 50
	LIGHT FIXTURES				1X4 RECESSED	TOTAL OF 50
	SWITCH GEAR "MCC 1" (4160V)	CUTLER HAMMER	CAT: TFFE1CE ORDER No: PODNY1200-001 REF 98-NY200S2R	45KVA, 4160V, 600A	5 CABINETS	TOTAL OF 1
	SWITCH GEAR "MCC 2" - "MCC 6" (4160V)	CUTLER HAMMER	CAT: TFFE1CE ORDER No: PODNY1200-001 REF 98-NY200S2R	45KVA, 4160V, 600A	6 CABINETS	TOTAL OF 4
	SWITCH GEAR "MCC 7" (480V)	CUTLER HAMMER	ORDER No: PNY01234 CAT: IT.10A - FVC	45KVA, 480V, 1600A	25 CABINETS	TOTAL OF 1
	SWITCH GEAR "MCC 8" (480V)	CUTLER HAMMER	ORDER No: PNY01234 CAT: IT.10A - FVC	45KVA, 480V, 1600A	19 CABINETS	TOTAL OF 1
	SWITCH GEAR "MCC 9" (480V)	CUTLER HAMMER	ORDER No: PNY01234 CAT: IT.10A - FVC	45KVA, 480V, 1600A	26 CABINETS	TOTAL OF 1

INTO-PLANE INVENTORY LIST

KEY NOTE	*ITEM*	*MANUFACTURER*	*MODEL: CATALOG No:*	*ELECTRICAL DATA:*	*COMMENTS*	
	SWITCH GEAR "MCC 10" (480V)	CUTLER HAMMER	ORDER No: PNY01234 CAT: IT.10A - FVC	45KVA, 480V, 600A	24 CABINETS	TOTAL OF 1
	PANEL	EATON	MODEL: PRL1A	100A, 208/120V MCB: 100A		
	PANEL "LIGHTING PANEL"	GALLAGHER SWITCH BOARD CORP.	ORDER No: 1394.85	150A, 208/120V, 3PH, MCB: 150A		
	PANEL "AA"	EATON	CAT: PRL1A	100A, 120/240V, 1PH MCB: 80A	AMERICAN AIRLINES POWER PANEL	
	PANEL "INSTRUMENT PANEL"	GALLAGHER SWITCH BOARD CORP.	ORDER No: 1394.65	90A, 208/120V, 3PH, MCB: 90A		
	PLC	DAL 403 SYSTEM				
	PLC	DAL 404 SYSTEM				
	PLC	RUSSELL & STOLL CO. INC. NY			(NEXT TO METERS)	
	TRANSFER SWITCH	CUTLER HAMMER				
	TRANSFER SWITCH "CPS PANEL"	ASCO CO.				
	TRANSFORMER	GENERAL ELECTRIC	MODEL: 9T25Y4283	45KVA, 4160V-208/120V		
	TRANSFORMER	GENERAL ELECTRIC	MODEL: 9121A9195	25KVA, 480-208/120V	EMERGENCY SOURCE FEED FROM MCC-9	
	TRANSFORMER	EATON	CAT: V48D28B30CUEE	30KVA, 480-208/120V		
	TRANSFORMER	EATON	CAT: S48D11S15N	15KVA, 480-120/240V	AMERICAN AIRLINES	
	FUEL STORAGE & DISTRIBUTION SYSTEM				LOCATED ON TELEPHONE BOARD PANEL	TONE GENERATOR TERMINAL BOX
	INCOMING FIBER				LOCATED ON TELEPHONE BOARD PANEL	
	CISCO ROUTER				LOCATED ON TELEPHONE BOARD PANEL	
	CISCO SWITCH				LOCATED ON TELEPHONE BOARD PANEL	
16	**BUILDING 241 (OPERATOR ROOM)**					
	120VDC POWER SUPPLY	-	-			
	EMERGENCY EXIT LIGHTS					TOTAL OF 4
	EPSO					TOTAL OF 5
	FA DONG					
	FA PANEL	-	-			
	FA PANEL	SYSTEM 3	-	-		
	FA PANEL	FIKE	-	-		
	FA PANEL "FOAM GENERATOR SYSTEM "	EDWARDS SYSTEM TECHNOLOGY				
	MONITORING PANEL	GENERAL ELECTRIC	-	-		
	MONITORING PANEL	-	-			
	MONITORING PANEL WITH EPSO	-	-	-		
	PLC	-	-			
	SMOKE DETECTOR					TOTAL OF 6
	STROBE ALARMS					

INTO-PLANE INVENTORY LIST

KEY NOTE	*ITEM*	*MANUFACTURER*	*MODEL: CATALOG No:*	*ELECTRICAL DATA:*	*COMMENTS*	
	SURGE SUPPRESSOR MONITORING PANEL	-	-			TOTAL OF 4
	TRANSPONDER	SPE	NO: 241-1			
	END OF BUILDING 241					
	MISC.					
17	PANEL	CURLEE MANUFACTURER	CAT: EHB1-EPB-3420	100A, 480/277V, 3PH	NEXT TO TANK 326,310	TOTAL OF 2 EXPLOSION PROOF
	PANEL	GS OX/GEDNEY	CAT: 7M130D MODEL: GN#44975	100A, 480/277V, 3PH	NEXT TO TANK 311	TOTAL OF 1 EXPLOSION PROOF
	REMOTE HIGH LEVEL ALARM	HUBBELL KILLARK			NEXT TO TANK 333	TOTAL OF 2
	EPSO					
	HORN				NEXT TO TANK 325	TOTAL OF 2
18	**MOTORS WITH EPSO**					
	MOTOR WITH EPSO	PEEKLESS ELECTRIC DIVISION	1/3HP	220/440V, 3PH		TOTAL OF 17 TOTAL OF 17
	MOTOR WITH EPSO		125HP	440V, 3PH		TOTAL OF 28 TOTAL OF 28
	MOTOR WITH EPSO		200HP	440V, 3PH		TOTAL OF 28 TOTAL OF 28
20-100	**PURPOSELY LEFT BLANK**					
	INTERPLANE AREA					
101	**BUILDING**					
	LIGHTING 1X4			FLUORESCENT FIXTURE	1X4 ENCLOSED AND GASKETED	
	LIGHT FIXTURE HIGH BAY			METAL HALIDE FIXTURE		TOTAL OF 6
	PANEL					
	FLOOD LIGHTS				WALL MOUNTED	TOTAL OF 13
	CCTV					
102	**BUILDING 90**					
	FLOOD LIGHTS				WALL MOUNTED	TOTAL OF 17
	SPEAKER				WALL MOUNTED	TOTAL OF 8
	ALARM WITH RESET/TEST				WALL MOUNTED	
	CCTV				ROOF	TOTAL OF 4
	VEEDER ROOT TLS 350				INSIDE IN BUILDING	
	HIGH LEVEL ALARM "MOTOR OIL TANK"	OMTEC CAT#ELP21LU6				
	PUMP CONTROL	FIRETROL, INC. CAT: LL-0291	PUMP CONTROLLER		LOCATED OUTSIDE NORTH OF BUILD 90	
103	**BUILDING 91**					
	DISCONNECT SWITCH	VACU-BREAK CAT: NF-351	600VAC,30A			TOTAL OF 3
	FIRE ALARM CONTROL PANEL	FEDERAL SIGNAL CO. CAT: FSF304R				
	FA PULL STATION	DELUGE SYSTEM MFRD BY: THE RELIABLE				
104	**OUT SIDE OF MOBILE TRAILERS**					
	LIGHT FIXTURE			COMPACT FLUORESCENT		TOTAL OF 3

INTO-PLANE INVENTORY LIST

KEY NOTE	*ITEM*	*MANUFACTURER*	*MODEL:* *CATALOG No:*	*ELECTRICAL DATA:*	*COMMENTS*	
	TRANSFORMER				ABANDONED	
	RED WARNING LIGHT				ABANDONED	
	DISCONNECT SWITCH	SIEMENS CAT:NFR324	200A, 240VAC			TOTAL OF 2
	MONITORING PANEL				GASOLINE PUMP DISPENSING SYSTEM PANEL	
	FA PULL STATION					
105	**DISPENSING AREA**					
	REMOTE ALARM / ACKNOWLEDGE TEST				GAS TANK 923 DIESEL TANK 922	TOTAL OF 2
	CODE TRANSMITTER PANEL					
	GASOLINE DISPENSER					
	DIESEL DISPENSER					
	REMOTE ALARM					
	LIGHT FIXTURE				WALL MOUNTED OUTSIDE OF TURNSTILE	
106	**GUARD BOOTH (ABANDONED)**					
	FLOOD LIGHT					
	ALARM SURVEILLANCE					
	CCTV					
	TRAFFIC LIGHT					
	SENSORS					
	AMBER LIGHT					
	INTERCOM					
	GATE CONTROLS					
107	**LIGHT POLE**					
	LED LIGHT POLE WITH 5 FIXTURES			METAL HALIDE		
	LIGHT POLE					TOTAL OF 5
	RED WARNING LIGHTS, & CCTV					

INTO-PLANE INVENTORY LIST

Sump Drainage System Reclaim Tank Equipment

Truck Offloading Enclosure

Number	Equipment	Comments
1	Offloading Pump	Gormann Rupp O-Series Discharge to TT 221
1	Explosion Proof Pump Motor	2 hp @ 3500 RPM
1	Explosion Proof Soleniod Valve	3" Appleton
9	Ball Valves	(4) 1" (5) 2"
1	Check Valve	
1	Explosion Proof Control Panel	Killark

WFTP 1

Number	Equipment	Comments
1	Single Wall AST	32 Gallon
2	Explosion Proof Pump/Motor	Federal Pump Corp Unit No. VCL-2040 Discharge to TT 221 (1) Line Heat Traced
2	Explosion Proof Float Switch	Square D
1	Explosion Proof Control Panel	Killark
1	Signalling Horn	Edwards
1	Explosion Proof Submersible Heater	Indeeco

INTO-PLANE INVENTORY LIST

WFTP 2		
Number	**Equipment**	**Comments**
1	Single Wall AST	32 Gallon
2	Explosion Proof Pump/Motor	Federal Pump Corp Unit No. VCL-2040 Discharge to TT 221 (1) Line Heat Traced
2	Explosion Proof Float Switch	Square D
1	Explosion Proof Control Panel	Killark
1	Signalling Horn	Edwards
1	Explosion Proof Heat Tracing System	Digitrace # AMC1A Thermostat

WFTP 3		
Number	**Equipment**	**Comments**
1	Single Wall AST	32 Gallon
2	Explosion Proof Pump/Motor	Federal Pump Corp Unit No. VCL-2040 Single Discharge to WFTP 6 Heat Traced
2	Explosion Proof Float Switch	Square D
1	Explosion Proof Control Panel	Killark
1	Signalling Horn	Edwards

WFTP 4		
Number	**Equipment**	**Comments**
1	Single Wall AST	32 Gallon
2	Explosion Proof Pump/Motor	Federal Pump Corp Unit No. VCL-2040 Single Discharge to WFTP 6 Heat Traced
2	Explosion Proof Float Switch	Square D
1	Explosion Proof Control Panel	Killark
1	Signalling Horn	Edwards
1	Explosion Proof Submersible Heater	Appleton

INTO-PLANE INVENTORY LIST

WFTP 5		
Number	**Equipment**	**Comments**
1	Single Wall AST	32 Gallon
2	Explosion Proof Pump/Motor	Federal Pump Corp Unit No. VCL-2040 Single Discharge to WFTP 6 Heat Traced
2	Explosion Proof Float Switch	Square D
1	Explosion Proof Control Panel	Killark
1	Signalling Horn	Edwards

WFTP 3, 4 and 5 Heat Tracing Panel		
Number	**Equipment**	**Comments**
1	Explosion Proof Control Panel	Killark
1	Explosion Proof Heat Tracing System	Digitrace # AMC1A Thermostat

WFTP 6		
Number	**Equipment**	**Comments**
1	Single Wall AST	122 Gallon
2	Explosion Proof Pump/Motor	Federal Pump Corp Unit No. VCL-2040 Discharge to TT 210 (1) Line Heat Traced
2	Explosion Proof Float Switch	Square D
1	Explosion Proof Control Panel	Killark
1	Signalling Horn	Edwards
1	Explosion Proof Heat Tracing System	Digitrace # AMC1A Thermostat

INTO-PLANE INVENTORY LIST

WFTP 7		
Number	**Equipment**	**Comments**
1	Single Wall AST	32 Gallon
2	Explosion Proof Pump/Motor	Federal Pump Corp Unit No. VCL-2040 Discharge to 211A Heat Traced
2	Explosion Proof Float Switch	Square D
1	Explosion Proof Control Panel	Killark
1	Signalling Horn	Edwards
1	Explosion Proof Heat Tracing System	Digitrace # AMC1A Thermostat

TT 221 Area Equipment		
Number	**Equipment**	**Comments**
1	Single Wall AST within Secondary Containment Dike	Design Capacity: 3000 Working Capacity: 2700
1	Tank TT 221 Single Wall AST	Design Capacity: 6000 gal. Working Capacity: 5400 gal.
2	Tank TT221 Pumps	Gormann-Rupp O-Series Suction From TT 221
2	Explosion Proof Tank TT221 Motors	(1) US Electric 2 hp (1) Removed
2	Sump Separator Pumps	Mr. Pump inc. Suction from TT 221 Suction Heat Traced
2	Explosion Proof Sump Separator Motors	(1) Baldor 3/4 hp (1) Leeson 3/4 hp
1	Sump Separator	Gammon
2	Explosion Proof Control Panel	Killark
1	Explosion Proof Heat Tracing System	Digitrace # AMC1A Thermostat
3	Explosion Proof Soleniod Valve	3" Appleton
13	Ball Valves	Apollo (8) 1.5" (5) 3"
2	Check Valve	3" Nibco
4	Small Filter Housings	Velcon on Discharge Line

INTO-PLANE INVENTORY LIST

TT 210 Area Equipment		
Number	**Equipment**	**Comments**
1	Tank TT 210 Single Wall AST	Design Capacity: 6000 gal. Working Capacity: 5400 gal.
2	Tank TT 210 Pumps	Gormann Rupp O-Series Suction From TT 210
2	Explosion Proof Tank TT 210 Motors	US Electric 2 hp
2	Sump Separator Pumps	Mr. Pump inc. Suction from TT 210 Suction Heat Traced
2	Explosion Proof Sump Separator Motors	Baldor 3/4 hp
1	Sump Separator	Gammon
2	Explosion Proof Control Panel	Killark
1	Explosion Proof Heat Tracing System	Digitrace # AMC1A Thermostat
3	Explosion Proof Soleniod Valve	3" Appleton
13	Ball Valves	Apollo (8) 1.5" (5) 3"
2	Check Valve	3" Nibco
4	Small Filter Housings	Velcon on Discharge Line

INTO-PLANE INVENTORY LIST

Tank A		
Number	**Equipment**	**Comments**
1	Single Wall AST	92 Gallon
2	Pump	Weil Pump Co. Single Discharge to WFTP 2
2	Motor	General Electric 1/2 hp
2	Explosion Proof Float Switch	Square D
1	Explosion Proof Control Panel	Killark

Tank B		
Number	**Equipment**	**Comments**
1	Single Wall AST	92 Gallon
2	Pump	Weil Pump Co. Single Discharge to WFTP 1
1	Motor	General Electric 1/2 hp
1	Motor	Lesson 1/2 hp
2	Explosion Proof Float Switch	Square D
1	Explosion Proof Control Panel	Killark

Tank C		
Number	**Equipment**	**Comments**
1	Single Wall AST	92 Gallon
2	Pump	Weil Pump Co. Single Discharge to WFTP 6
2	Motor	General Electric 1/2 hp
2	Explosion Proof Float Switch	Square D
1	Explosion Proof Control Panel	Killark

INTO-PLANE INVENTORY LIST

Tank D		
Number	**Equipment**	**Comments**
1	Single Wall AST	92 Gallon
2	Pump	Weil Pump Co. Single Discharge to WFTP 4
2	Motor	General Electric 1/2 hp
2	Explosion Proof Float Switch	Square D
1	Explosion Proof Control Panel	Killark

INTO-PLANE INVENTORY LIST

Sump Drainage System Reclaim Tanks and Equipment					
Tank Identifier	**Located**	**Size (Gallons)**	**Type**	**Contents**	**Details**
TT 210	Adjacent to Tank 328	6000	AST	Waste Fuel	Single wall steel AST within concrete containment dike; connected downstream to WFTP #6 and upstream to filtration unit and Tanks 327 & 328
211A	Adjacent to Transfer Pipelines Receiving Stations	3000	AST	Waste Fuel	Single wall steel AST within concrete containment dike, high level alarm, visual level gauge; connected downstream to WFTP# 7
TT 221	Adjacent to Tank 311	6000	AST	Waste Fuel	Single wall steel AST within concrete containment dike, connected downstream to WFTP #1, WFTP #2 and truck unloading area and upstream to filtration unit and Tanks 306 & 311
915	Adjacent to Tank 221A	4000	UST	Waste Fuel	Single wall steel UST, appears to be out-of-service since fill line is capped but tank is not filled
916	Adjacent to Tank 221A	6000	UST	Waste Fuel	Single wall steel UST, no level indicator, no cathodic protection, no high level alarm; connected to Tank 221A

INTO-PLANE INVENTORY LIST

SUMP DRAINAGE SYSTEM INFORMATION

System	Tanks and Equipment Connected	Pipe Length (ft)			Volume (gals)	Ball Valves	Solenoid Valves	Freeze-proof Valves	Victaulic Couplings	Status	End Points
		1 1/2"	2"	3"							
1	311, 312, 313, 314, 315	47	48	219	98	10	0	5	145	Active	Water drawoff at ASTs to WFTP #1, manifolded with two other systems prior to
	316, 317, 318, 319, 320, filter separators for hydrant systems 401-1 401-2, 401-3, 402-1, 402-2, 402-3 and 403-1, Tank B and WFTP #1	47	48	596	242	28	2	5	331	Active	Water drawoff from filter separators manifolded to water drawoff at ASTs and then to WFTP #1, manifolded with two other systems prior to WFTP #1
	321, 322, 323, 324, 325	47	48	223	99	10	0	5	155	Active	Water drawoff at ASTs to WFTP #1, manifolded with two other systems prior to
2	301, 302, 303, 304, 305	47	48	281	121	10	0	5	146	Active	Water drawoff at ASTs to WFTP #2, manifolded with other system prior to WFTP
	306, 307, 308, 309, 310, filter separators for hydrant systems 403-2, 403-3, 404-1, 404-2, 404-3, 404-4 and 409-1, Tank A and WFTP #2	47	48	468	193	28	2	5	309	Active	Water drawoff from filter separators manifolded to water drawoff at ASTs and then to WFTP #2, manifolded with other system prior to WFTP #2; pumped from WFTP #2 to WFTP #6
3	337, 338, 339, 340 and WFTP #3	38	220	191	116	10	1	4	116	Active	Water drawoff at ASTs to WFTP #3; pumped from WFTP #3 to WFTP #6
4	333, 334, 335, 336, filter separators for hydrant systems 406-2, 406-3, 407-1, 407-2, 407-3, 408-1, 408-2 and 408-3 and Tank D and WFTP #4	38	154	445	202	28	2	4	329	Active	Water drawoff from filter separators manifolded to water drawoff at ASTs and then to WFTP #4

INTO-PLANE INVENTORY LIST

SUMP DRAINAGE SYSTEM INFORMATION

System	Tanks and Equipment Connected	Pipe Length (ft)			Volume (gals)	Ball Valves	Solenoid Valves	Freeze-proof Valves	Victaulic Couplings	Status	End Points
		1 1/2"	2"	3"							
5	329, 330, 331, 332 and WFTP #5	38	142	164	92	10	1	4	110	Active	Water drawoff at ASTs to WFTP #5; pumped from WFTP #2 to WFTP #6
6	326, 327, 328, filter separators for hydrant systems 405-1, 405-2, 405-3, 406-1, 409-2 and 409-3, Tank C and WFTP #6	38	48	379	158	23	2	3	275	Active	Water drawoff from filter separators (Tank C) manifolded to water drawoff at ASTs and then to WFTP #6
7	211-A (S-3) and WFTP #7	0	0	144	55	16	1	0	63	Active	Water drawoff from filter separators on transfer piping to WFTP #7

INTO-PLANE INVENTORY LIST

STORM WATER TREATMENT BULDING, 287		
QUANTITY	**Equipment Name**	**Discription**
1	AIR ELIMINATOR	BISCO ENVIRONMENTAL RELIANCE ELECTRIC MOTOR ID: 39825375-001 L 001 LL 1 GATE VALVE
2	QUINCY AIR COMPRESSOR	MOD: RBQU370L OR 0370 S/N: G211920 SERIAL: G211920 JC BALDOR MOTOR SUPER-E MOD: EM3710T
1	THICKENER	KOFTA TANK (2) LMI MILTON ROY LINEAR ACTUATOR MOD: E741-36 SERIAL: 0405853946-1 (2) LESSON EXP-PROOF REELS MOD: ACC07EC201 (1) INTERNAL ELECTRONICS REEL MOD: XRU58-32 415820102 (2) RELIANCE-SXT MOTOR N/A (SEE ITEM NUMBER 1) (1) EMERSON MOTOR CAT: Y3S1BCR-P MOD: 20053144-100 (1) PEERLESS PUMP N/A
2	OIL OUTLET TANKS	(2) AFL INDUSTRIES TANKS AFL: 94159 EQUIP: VTC-200A PATENT: 433333835 (1) SAND PIPER PUMP SERIAL1673983 S15B1AWANS000

INTO-PLANE INVENTORY LIST

1	PROCESSED WATER	(2) US ELECTRIC MOTOR ID: 688623/Y01X3040114 (2) DEMING PUMPS DC-339000 A1-7/17 (4) PROCESSED WATER TANKS 3.5'X4'X3'
1	POLYETHLYENE HOLDING TANK	CHEMTANER 1000 GALLON AST

WATER TREATMENT BULDING, 287

Quantity	Equipment Name	Description
2	DYNA SAND FILTER	PARKSON MOD: 38 SQ FT SERIAL: DSF 2396 894
1	AIR COMPRESSOR	HANKSON SPX COMP HPR SERIES NON CYCLING REFRIG AIR DRIERS
1	JUSTRITE FLAMMABLE LQUID CABINET	
1	MIXER	ABANDONED 10' TANK

ELECTRICAL

Quantity	Equipment Name	Description
23	PENDULUM LIGHTS	HUBBELL CAT: KLH-0738-G-P2-10
4	HEATERS	CHROMALOX
1	PENDULUM LIGHT	WHITE WARNING LIGHT
2	FIRE EXTINGUISHER	AMEREX
2	WARNING SPEAKERS	
2	LIGHT ALARMS	MOD: 2EC100/4510
1	AIR COMPRESSOR TANK	6'X2.5' OD
1	EXHAUST FAN	2'X2' LOUVER
3	EXIT SIGNS	
1	LADDER	18' HIGH
1	PLATFORM WITH RAIL	8'X4' 3.5' HIGH
1	REFRIGERATOR	FISHER SCIENTIFIC EXP-PROOF

INTO-PLANE INVENTORY LIST

FITTINGS

INTO-PLANE INVENTORY LIST

ValveType	Quantity
GATE	3
CHECK	6
BALL (PVC)	15
THERMO PLASTIC BALL VALVE	2
LIMITORQUE MOTOR ACTUATED	1

Air Stripper Building (Adjacent to 287)

Equipment	Description
Bisco Air Stripper	Shallow Tray low Profile air Stripper
Weg Pump Motor American Fan Company	7.5 Hp 3 Phase 3500 RPM
2 Explosion Proof Lights	Appleton
Explosion Proof Light Switch	Appleton
16" Dayton Exhaust Fan	Mod# 4C546F
4 Adalet Explosion Proof Discounnect Switches	Used for Fan,Heater, CAT, Pump and blower
Explosion Proof Automatic Thermostat	White-Rodgers
Electric Thermostat	Columbus
Low Air Pressure Switch	Dwyer
Pressure Gauge	Magnehelic
2 Water valves (Plastic)	Ashai
Water Pump	Emerson 3 Hp
Electric Heater	
Blue Warning Light	Exterior

INTO-PLANE INVENTORY LIST

Storm Water Storage Tanks					
Tank Identifier	**Located**	**Size (Gallons)**	**Type**	**Contents**	**Details**
209A	Adjacent to Building 287	2000	AST	Waste Fuel	Single wall steel AST within steel containment dike, high level pump cutoff, visual level gauge; connected upstream to savenger pump within sludge tank
220B	Adjacent to Building 287	2000	AST	Waste Fuel	Single wall steel AST within steel containment dike Raychem, heat trace system on piping, visual level gauge; connected upstream to savenger pump within sludge tank
226	Adjacent to West SOR Pumphouse	2000	AST	Waste Fuel	Single wall steel AST within steel containment dike, high level pump cutoff, visual level gauge; connected upstream to savenger pump within sludge tank
-	Adjacent to Building 287	1000	AST	Sludge	Single wall vertical polyethylene AST within steel containment dike, connected upstream to Building 287

INTO-PLANE INVENTORY LIST

Hydrant Fuel System Filter Separators - Pump Station East Side				
F/S #	**Vessel Manufacturer and Model**	**Flow Rate**	**Cartridge Model and Quantity**	**Comments**
401-1A	Warner Lewis Company Model No. VFCS-2473-32F6-WH	1440 gpm	First Stage: I-43685-TN (32) Second Stage: SO-530-PLN (19)	Serial No. 29045, Working Pressure: 275 psi
401-1B	Warner Lewis Company Model No. VFCS-2473-32F6-WH	1440 gpm	First Stage: I-43685-TN (32) Second Stage: SO-530-PLN (19)	Serial No. 29046, Working Pressure: 275 psi
401-2A	Warner Lewis Company Model No. VFCS-1776-24F6-WH	1080 gpm	First Stage: I-43685-TN (24) Second Stage: SO-530-PLN (14)	Serial No. 29076, Working Pressure: 275 psi
401-2B	Warner Lewis Company Model No. VFCS-1776-24F6-WH	1080 gpm	First Stage: I-43685-TN (24) Second Stage: SO-530-PLN (14)	Serial No. 29077, Working Pressure: 275 psi
401-3A	Warner Lewis Company Model No. VFCS-1273-16F6-WH	720 gpm	First Stage: I-43685-TN (16) Second Stage: SO-530-PLN (10)	Serial No. 29090, Working Pressure: 275 psi
401-3B	Warner Lewis Company Model No. VFCS-1273-16F6-WH	720 gpm	First Stage: I-43685-TN (16) Second Stage: SO-530-PLN (10)	Serial No. 29091, Working Pressure: 275 psi
402-1A	Warner Lewis Company Model No. VFCS-2473-32F6-WH	1440 gpm	First Stage: I-43685-TN (32) Second Stage: SO-530-PLN (19)	Serial No. 29047, Working Pressure: 275 psi
402-1B	Warner Lewis Company Model No. VFCS-2473-32F6-WH	1440 gpm	First Stage: I-43685-TN (32) Second Stage: SO-530-PLN (19)	Serial No. 29048, Working Pressure: 275 psi
402-3A	Warner Lewis Company Model No. VFCS-2473-32F6-WH	1440 gpm	First Stage: I-43685-TN (32) Second Stage: SO-530-PLN (19)	Serial No. 38588, Working Pressure: 275 psi
402-3B	Warner Lewis Company Model No. VFCS-2473-32F6-WH	1440 gpm	First Stage: I-43685-TN (32) Second Stage: SO-530-PLN (19)	Serial No. 38589, Working Pressure: 275 psi
402-2A	Warner Lewis Company Model No. VFCS-2473-32F6-WH	1440 gpm	First Stage: I-43685-TN (32) Second Stage: SO-530-PLN (19)	Serial No. 39386, Working Pressure: 275 psi
402-2B	Warner Lewis Company Model No. VFCS-2473-32F6-WH	1440 gpm	First Stage: I-43685-TN (32) Second Stage: SO-530-PLN (19)	Serial No. 39387, Working Pressure: 275 psi
403-1A	Warner Lewis Company Model No. VFCS-2073-28F6-WH	1200 gpm	First Stage: I-43685-TN (28) Second Stage: SO-530-PLN (16)	Serial No. 29073, Working Pressure: 275 psi
403-1B	Warner Lewis Company Model No. VFCS-2073-28F6-WH	1200 gpm	First Stage: I-43685-TN (28) Second Stage: SO-530-PLN (16)	Serial No. 29073, Working Pressure: 275 psi
403-1C	Warner Lewis Company Model No. VFCS-2073-28F6-WH	1200 gpm	First Stage: I-43685-TN (28) Second Stage: SO-530-PLN (16)	Serial No. 29073, Working Pressure: 275 psi
403-2A	Warner Lewis Company Model No. VFCS-2073-28F6-WH	1200 gpm	First Stage: I-43685-TN (28) Second Stage: SO-530-PLN (16)	Serial No. 29073, Working Pressure: 275 psi
403-2B	Warner Lewis Company Model No. VFCS-2073-28F6-WH	1200 gpm	First Stage: I-43685-TN (28) Second Stage: SO-530-PLN (16)	Serial No. 29073, Working Pressure: 275 psi
403-3A	Warner Lewis Company	-	-	Serial No. 29075, Working Pressure: 275 psi
403-3B	Warner Lewis Company	-	-	Nameplate Information Not Visible
404-1B	Velcon Filters Inc Model No. VV3656275X3	1440 gpm	Coalescer: I-656C5TB (11) Separator: S0-644PV5 (5)	Serial No. 127276-3, Design Pressure: 275 psi
404-2A	Velcon Filters Inc Model No. VV3656275X3	1440 gpm	Coalescer: I-656C5TB (11) Separator: S0-644PV5 (5)	Serial No. 127276-2, Design Pressure: 275 psi
404-2B	Velcon Filters Inc Model No. VV3656275X3	1440 gpm	Coalescer: I-656C5TB (11) Separator: S0-644PV5 (5)	Serial No. 127276-1, Design Pressure: 275 psi
404-3A	Velcon Filters Inc Model No. VV3656275X3	1440 gpm	Coalescer: I-656C5TB (11) Separator: S0-644PV5 (5)	Serial No. 103812-1, Design Pressure: 275 psi
404-3B	Velcon Filters Inc Model No. VV3656275X3	1440 gpm	Coalescer: I-656C5TB (11) Separator: S0-644PV5 (5)	Serial No. 103812-2, Design Pressure: 275 psi
404-4A	Velcon Filters Inc Model No. VV3656275X3	1440 gpm	Coalescer: I-656C5TB (11) Separator: S0-644PV5 (5)	Serial No. 103813-4, Design Pressure: 275 psi
404-4B	Velcon Filters Inc Model No. VV3656275X3	1440 gpm	Coalescer: I-656C5TB (11) Separator: S0-644PV5 (5)	Serial No. 103813-3, Design Pressure: 275 psi
409-1A	Velcon Filters Inc Model No. VV3656275X3	1440 gpm	Coalescer: I-656C5TB (11) Separator: S0-644PV5 (5)	Serial No. 103813-2, Design Pressure: 275 psi
409-1B	Velcon Filters Inc Model No. VV3656275X3	1440 gpm	Coalescer: I-656C5TB (11) Separator: S0-644PV5 (5)	Serial No. 103813-1, Design Pressure: 275 psi
Note: All filter separators have an automatic air eliminator, thermal relief valve, sump heater and manual sump system				

INTO-PLANE INVENTORY LIST

Hydrant Fuel System Vertical Turbine Pumps - Pump Station East Side				
F/S #	Pump Manufacturer and Model	Pump Speed and HP	Pump Motor Manufacturer and Model	Comments
401-1A	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
401-1B	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
401-2A	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
401-2B	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
401-3A	Bryon Jackson Model No. 12GL-8-STG	1770 RPM 125 HP	General Electric Model No. 5K6285XF21A	125 HP, 60 cycles, 3Ø, 440 V, 150 FL Amps, 1775 FL Speed
401-3B	Bryon Jackson Model No. 12GL-8-STG	1770 RPM 125 HP	General Electric Model No. 5K6285XF21A	125 HP, 60 cycles, 3Ø, 440 V, 150 FL Amps, 1775 FL Speed
402-1A	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
402-1B	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
402-3A	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
402-3B	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
402-2A	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
402-2B	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
403-1A	Nameplate Information Not Visible	-	General Electric Model No. 5K6286XF10A	150 HP, 60 cycles, 3Ø, 440 V, 178 FL Amps, 1775 FL Speed
403-1B	Nameplate Information Not Visible	-	General Electric Model No. 5K6286XF10A	150 HP, 60 cycles, 3Ø, 440 V, 178 FL Amps, 1775 FL Speed
403-1C	Nameplate Information Not Visible	-	General Electric Model No. 5K6286XF10A	150 HP, 60 cycles, 3Ø, 440 V, 178 FL Amps, 1775 FL Speed
403-2A	Nameplate Information Not Visible	-	General Electric Model No. 5K6286XF10A	150 HP, 60 cycles, 3Ø, 440 V, 178 FL Amps, 1775 FL Speed
403-2B	Nameplate Information Not Visible	-	General Electric Model No. 5K6286XF10A	150 HP, 60 cycles, 3Ø, 440 V, 178 FL Amps, 1775 FL Speed
403-3A	-	-	-	Pump Removed
403-3B	-	-	-	Pump Removed
404-1A	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
404-1B	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
404-2A	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
404-2B	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
404-3A	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
404-3B	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
404-4A	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
404-4B	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
409-1A	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
409-1B	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed

INTO-PLANE INVENTORY LIST

Hydrant Fuel System Filter/Separators - Pump Station West Side				
F/S #	**Vessel Manufacturer and Model**	**Flow Rate**	**Cartridge Model and Quantity**	**Comments**
408-3B	Warner Lewis Company Model # VFCS-1273-16F6-WH	720 gpm	First Stage: I-43685-TN (16) Second Stage: SO-530-PLN (10)	Serial No. 29099, Working Pressure: 275 psi
408-3A	Warner Lewis Company Model # VFCS-1273-16F6-WH	720 gpm	First Stage: I-43685-TN (16) Second Stage: SO-530-PLN (10)	Serial No. 29098, Working Pressure: 275 psi
408-2B	Warner Lewis Company Model # VFCS-1776-24F6-WH	1080 gpm	First Stage: I-43685-TN (24) Second Stage: SO-530-PLN (14)	Serial No. 29085, Working Pressure: 275 psi
408-2A	Warner Lewis Company Model # VFCS-1776-24F6-WH	1080 gpm	First Stage: I-43685-TN (24) Second Stage: SO-530-PLN (14)	Serial No. 29084, Working Pressure: 275 psi
408-1B	Warner Lewis Company Model # VFCS-2473-32F6-WH	1440 gpm	First Stage: I-43685-TN (32) Second Stage: SO-530-PLN (19)	Serial No. 29069, Working Pressure: 275 psi
408-1A	Warner Lewis Company Model # VFCS-2473-32F6-WH	1440 gpm	First Stage: I-43685-TN (32) Second Stage: SO-530-PLN (19)	Serial No. 29068, Working Pressure: 275 psi
407-3B	Warner Lewis Company Model # VFCS-1273-16F6-WH	720 gpm	First Stage: I-43685-TN (16) Second Stage: SO-530-PLN (10)	Serial No. 29097, Working Pressure: 275 psi
407-3A	Warner Lewis Company Model # VFCS-1273-16F6-WH	720 gpm	First Stage: I-43685-TN (16) Second Stage: SO-530-PLN (10)	Serial No. 29096, Working Pressure: 275 psi
407-2B	Warner Lewis Company Model # VFCS-2473-32F6-WH	1440 gpm	First Stage: I-43685-TN (32) Second Stage: SO-530-PLN (19)	Serial No. 29065, Working Pressure: 275 psi
407-2A	Warner Lewis Company Model # VFCS-2473-32F6-WH	1440 gpm	First Stage: I-43685-TN (32) Second Stage: SO-530-PLN (19)	Serial No. 29064, Working Pressure: 275 psi
407-1B	Warner Lewis Company Model # VFCS-2473-32F6-WH	1440 gpm	First Stage: I-43685-TN (32) Second Stage: SO-530-PLN (19)	Serial No. 29067, Working Pressure: 275 psi
407-1A	Warner Lewis Company Model # VFCS-2473-32F6-WH	1440 gpm	First Stage: I-43685-TN (32) Second Stage: SO-530-PLN (19)	Serial No. 29066, Working Pressure: 275 psi
406-3B	Warner Lewis Company Model # VFCS-1273-16F6-WH	720 gpm	First Stage: I-43685-TN (16) Second Stage: SO-530-PLN (10)	Serial No. 29095, Working Pressure: 275 psi
406-3A	Warner Lewis Company Model # VFCS-1273-16F6-WH	720 gpm	First Stage: I-43685-TN (16) Second Stage: SO-530-PLN (10)	Serial No. 29094, Working Pressure: 275 psi
406-2B	Warner Lewis Company Model # VFCS-1776-24F6-WH	1080 gpm	First Stage: I-43685-TN (24) Second Stage: SO-530-PLN (14)	Serial No. 29083, Working Pressure: 275 psi
406-2A	Warner Lewis Company Model # VFCS-1776-24F6-WH	1080 gpm	First Stage: I-43685-TN (24) Second Stage: SO-530-PLN (14)	Serial No. 29082, Working Pressure: 275 psi
406-1B	Warner Lewis Company Model # VFCS-2473-32F6-WH	1440 gpm	First Stage: I-43685-TN (32) Second Stage: SO-530-PLN (19)	Serial No. 29063, Working Pressure: 275 psi
406-1A	Warner Lewis Company Model # VFCS-2473-32F6-WH	1440 gpm	First Stage: I-43685-TN (32) Second Stage: SO-530-PLN (19)	Serial No. 29062, Working Pressure: 275 psi
405-3B	Warner Lewis Company Model # VFCS-1273-16F6-WH	720 gpm	First Stage: I-43685-TN (16) Second Stage: SO-530-PLN (10)	Serial No. 29093, Working Pressure: 275 psi
405-2B	Warner Lewis Company Model # VFCS-1776-24F6-WH	1080 gpm	First Stage: I-43685-TN (24) Second Stage: SO-530-PLN (14)	Serial No. 29081, Working Pressure: 275 psi
405-2A	Warner Lewis Company Model # VFCS-1776-24F6-WH	1080 gpm	First Stage: I-43685-TN (24) Second Stage: SO-530-PLN (14)	Serial No. 29080, Working Pressure: 275 psi
405-1B	Warner Lewis Company Model # VFCS-2473-32F6-WH	1440 gpm	First Stage: I-43685-TN (32) Second Stage: SO-530-PLN (19)	Serial No. 29061, Working Pressure: 275 psi
405-1A	Warner Lewis Company Model # VFCS-2473-32F6-WH	1440 gpm	First Stage: I-43685-TN (32) Second Stage: SO-530-PLN (19)	Serial No. 29060, Working Pressure: 275 psi
409-3B	Warner Lewis Company Model # VFCS-1273-16F6-WH	720 gpm	First Stage: I-43685-TN (16) Second Stage: SO-530-PLN (10)	Serial No. 29101, Working Pressure: 275 psi
409-3A	Warner Lewis Company Model # VFCS-1273-16F6-WH	720 gpm	First Stage: I-43685-TN (16) Second Stage: SO-530-PLN (10)	Serial No. 29100, Working Pressure: 275 psi
409-2B	Velcon Filters Inc Model # VV3656275X3	1440 gpm	Coalescer: I-656C5TB (11) Separator: S0-644PV5 (5)	Serial No. 127276-6, Design Pressure: 275 psi
409-2A	Velcon Filters Inc Model # VV3656275X3	1440 gpm	Coalescer: I-656C5TB (11) Separator: S0-644PV5 (5)	Serial No. 127276-5, Design Pressure: 275 psi
Note: All filter separators meet API 5th edition andhave an automatic air eliminator, thermal relief valve, sump heater and manual sump system				

INTO-PLANE INVENTORY LIST

Hydrant Fuel System Vertical Turbine Pumps - Pump Station West Side				
F/S #	Pump Manufacturer and Model	Pump Speed and HP	Pump Motor Manufacturer and Model	Comments
408-3B	Bryon Jackson Model No. 12GL-8-STG	1770 RPM 125 HP	General Electric Model No. 5K6277XF21A	100 HP, 60 cycles, 3Ø, 440 V, 124 FL Amps, 1775 FL Speed
408-3A	Bryon Jackson Model No. 12GL-8-STG	1770 RPM 125 HP	General Electric Model No. 5K6277XF21A	100 HP, 60 cycles, 3Ø, 440 V, 124 FL Amps, 1775 FL Speed
408-2B	Bryon Jackson Model No. 12GL-8-STG	1770 RPM 125 HP	General Electric Model No. 5K6277XF21A	100 HP, 60 cycles, 3Ø, 440 V, 124 FL Amps, 1775 FL Speed
408-2A	Bryon Jackson Model No. 12GL-8-STG	1770 RPM 125 HP	General Electric Model No. 5K6277XF21A	100 HP, 60 cycles, 3Ø, 440 V, 124 FL Amps, 1775 FL Speed
408-1B	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
408-1A	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
407-3B	Bryon Jackson Model No. 12GL-8-STG	1770 RPM 125 HP	General Electric Model No. 5K6277XF21A	100 HP, 60 cycles, 3Ø, 440 V, 124 FL Amps, 1775 FL Speed
407-3A	Bryon Jackson Model No. 12GL-8-STG	1770 RPM 125 HP	General Electric Model No. 5K6277XF21A	100 HP, 60 cycles, 3Ø, 440 V, 124 FL Amps, 1775 FL Speed
407-2B	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
407-2A	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
407-1B	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
407-1A	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
406-3B	Bryon Jackson Model No. 12GL-8-STG	1770 RPM 125 HP	General Electric Model No. 5K6277XF21A	100 HP, 60 cycles, 3Ø, 440 V, 124 FL Amps, 1775 FL Speed
406-3A	Bryon Jackson Model No. 12GL-8-STG	1770 RPM 125 HP	General Electric Model No. 5K6277XF21A	100 HP, 60 cycles, 3Ø, 440 V, 124 FL Amps, 1775 FL Speed
406-2B	Nameplate Information Not Visible	-	General Electric Model No. 5K6286XF10A	150 HP, 60 cycles, 3Ø, 440 V, 178 FL Amps, 1775 FL Speed
406-2A	Nameplate Information Not Visible	-	General Electric Model No. 5K6286XF10A	150 HP, 60 cycles, 3Ø, 440 V, 178 FL Amps, 1775 FL Speed
406-1B	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
406-1A	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
405-3B	Bryon Jackson Model No. 12GL-8-STG	1770 RPM 125 HP	General Electric Model No. 5K6277XF21A	100 HP, 60 cycles, 3Ø, 440 V, 124 FL Amps, 1775 FL Speed
405-3A	Bryon Jackson Model No. 12GL-8-STG	1770 RPM 125 HP	General Electric Model No. 5K6277XF21A	100 HP, 60 cycles, 3Ø, 440 V, 124 FL Amps, 1775 FL Speed
405-2B	Nameplate Information Not Visible	-	General Electric Model No. 5K6286XF10A	150 HP, 60 cycles, 3Ø, 440 V, 178 FL Amps, 1775 FL Speed
405-2A	Nameplate Information Not Visible	-	General Electric Model No. 5K6286XF10A	150 HP, 60 cycles, 3Ø, 440 V, 178 FL Amps, 1775 FL Speed
405-1B	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
405-1A	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
409-3B	Bryon Jackson Model No. 12GL-8-STG	1770 RPM 125 HP	General Electric Model No. 5K6285XF21A	125 HP, 60 cycles, 3Ø, 440 V, 150 FL Amps, 1775 FL Speed
409-3A	Bryon Jackson Model No. 12GL-8-STG	1770 RPM 125 HP	General Electric Model No. 5K6285XF21A	125 HP, 60 cycles, 3Ø, 440 V, 150 FL Amps, 1775 FL Speed
409-2B	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
409-2A	Bryon Jackson Model No. 14GM-6-STG	1750 RPM 200 HP	General Electric Model No. 5K6326XF26A	200 HP, 60 cycles, 3Ø, 4000 V, 26.2 FL Amps, 1785 FL Speed
Note: All filter separators meet API 5th edition andhave an automatic air eliminator, thermal relief valve, sump heater and manual sump system				

INTO-PLANE INVENTORY LIST

Transfer Pipelines Receiving Area Filter Separators				
F/S #	**Vessel Manufacturer and Model**	**Flow Rate**	**Cartridge Model and Quantity**	**Comments**
201	Velcon Filters Inc Model No. VV2856275BX	800 gpm	First Stage: I-656C5-TB (7) Second Stage: S0-644PV5 (3)	Serial No. 84450-1, Working Pressure: 275 psi
202-A	Velcon Filters Inc Model No. VV2856275BX	800 gpm	First Stage: I-656C5-TB (7) Second Stage: S0-644PV5 (3)	Serial No. 77167-1, Working Pressure: 275 psi
202-B	Velcon Filters Inc Model No. VV2856275BX	800 gpm	First Stage: I-656C5-TB (7) Second Stage: S0-644PV5 (3)	Serial No. 77167-2, Working Pressure: 275 psi
203-A	Velcon Filters Inc Model No. VV2856275BX	800 gpm	First Stage: I-656C5-TB (7) Second Stage: S0-644PV5 (3)	Serial No. 77166-2, Working Pressure: 275 psi
203-B	Velcon Filters Inc Model No. VV2856275BX	800 gpm	First Stage: I-656C5-TB (7) Second Stage: S0-644PV5 (3)	Serial No. 77166-1, Working Pressure: 275 psi
204	Velcon Filters Inc Model No. VV2856275BX	800 gpm	First Stage: I-656C5-TB (7) Second Stage: S0-644PV5 (3)	Serial No. 84450-2, Working Pressure: 275 psi
205	Velcon Filters Inc Model No. VV2856275BX	800 gpm	First Stage: I-656C5-TB (7) Second Stage: S0-644PV5 (3)	Serial No. 84450-3, Working Pressure: 275 psi

Note: All filter separators meet API 5th edition andhave an automatic air eliminator, thermal relief valve, sump heater and manual sump system

INTO-PLANE INVENTORY LIST

Calibration and Meter Proving Equipment

Calibration Tank

Number	Equipment	Comments
1	Calibration Tank	1000 Gallon High and High-High Level Gauge
1	Proving Pump	Explosion Proof No Information Available
1	Pump Motor	Explosion Proof No Information Available
3	3" Hoses	With (3) Dry Disconnect Couplers
6	Butterfly Valves	
1	Check Valve	
1	Loader Arm	Top Loader
1	Safety Disconnect Switch	Square D Explosion Proof
1	Junction Box	Square D Explosion Proof
1	Pump Start/Stop Switch	Explosion Proof

Hydrant Cart Proving Area

Number	Equipment	Comments
2	Hydrant Control Valves	Parker
4	Pressure Gauge	Wika -30 to 150 psi
1	Differential Pressure Gauge	Gammon

INTO-PLANE INVENTORY LIST

Vertical Fuel Storage Tank Information												
Tank	Fuel Farm	Year Built	Design Capacity (gals)	Working Capacity (gals)	Double Bottom	Fabric Roof	Cathodic Protection	Foundation Type	Dike Wall and Floor Type	Pressure Relief to AST	Year for API 653 Inspection[1]	Year for Painting of Tank and Connected Piping
301	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2021	2017
302	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2017	2015
303	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2021	2015
304	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2023	2016
305	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2017	2017
306	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2017	2016
307	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2018	2016
308	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2021	2016
309	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2022	2018
310	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2018	2017
311	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2018	2017
312	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2022	2018
313	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2018	2015
314	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2022	2018
315	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2018	2018
316	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2021	2016
317	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2015	2016
318	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2021	2015
319	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2021	2014
320	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2018	2017
321	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2019	2014
322	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2019	2014
323	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2019	2016
324	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2019	2018
325	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2019	2016
326	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2022	2014
327	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2023	2014
328	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2023	2015
329	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2023	2018
330	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2022	2015
331	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2022	2015
332	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2019	2014
333	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2020	2014
334	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2023	2014
335	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2022	2018
336	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2020	2017
337	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2020	2015
338	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2020	2017
339	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2020	2017
340	SFF	1963	105,000	89,000	No	Yes	Yes	Pile Supported Slab	Concrete	No	2020	2018

1 - Prior to Decemer 31st of indicated year

INTO-PLANE INVENTORY LIST

Terminal Served	Hydrant Fuel System Pipeline Information								
	North or South System	Pipe Designation	Pipe Inner Dia. (in)	Pipe Size (in)	Length (ft)	Segment Volume (gal)	No. of Low Point Pits [1]	No. of High Point Pits	No. of Hydrant Pits [2]
6	North	T-401-1	13.25	14	7336	51,887	8	7	0
	North	T-401-2	12	12	7357	43,078	8	7	
	North	T-401-3	10.02	10	7365	30,485	8	7	
5	South	T-402-1	13.25	14	11009	77,333	8	8	58
	South	T-402-2	13.25	14	10997	77,037	8	8	
	South	T-402-3	13.25	14	10967	77,124	8	8	
8	North	T-403-1	15.25	16	4189	16,053	2	2	66
	North	T-403-2	12	12	4209	9,389	2	2	
	North	T-403-3	10.02	10	4221	9,389	2	2	
4	South	T-404-1	13.25	14	7890	58,688	7	6	113
	South	T-404-2	13.25	14	7869	58,477	7	6	
	South	T-404-3	13.25	14	7847	58,266	7	6	
	South	T-404-4	13.25	14	7825	58,053	7	6	
3	South	T-405-1	12	12	4589	36,020	4	4	0
	South	T-405-2	12	12	4589	36,020	4	4	
	South	T-405-3	10.02	10	4622	21,123	4	4	
1	South	T-406-1	12	12	2715	15,101	2	2	48
	South	T-406-2	12	12	2734	15,182	2	2	
	South	T-406-3	10.02	10	2753	10,754	2	2	
2	South	T-407-1	12	12	4589	25,990	3	3	0
	South	T-407-2	12	12	4589	25,990	3	3	
	South	T-407-3	10.02	10	4622	18,420	3	3	
8	North	T-408-1	12	12	3007	12,145	3	3	66
	North	T-408-2	12	12	3004	12,102	3	3	
	North	T-408-3	10.02	10	2972	12,102	3	3	
7	North	T-409-1	15.25	16	6286	57,309	8	7	49
	North	T-409-2	12	12	6262	37,282	8	7	
	North	T-409-3	10.02	10	6276	25,469	8	7	

[1] - The first low point for the North Hydrant System is located in the SFF and is not contained within a pit

[2] - Terminal's hydrant system is out of service or have been removed

SECTION 2.3

Cathodic Protection Rectifiers Inventory List

JFK INTERNATIONAL AIRPORT
BULK AND TERMINAL FUEL TRANSFER LINES
CATHODIC PROTECTION RECTIFIERS

RECTIFIER NO. RT-1	**Satellite Fuel Farm**
MANUFACTURER/UNIT TYPE	Universal / Model OMXI
SERIAL NUMBER	983800
DC OUTPUT	80 Volts, 40 Amps
AC INPUT	230/460 Volts, 10.1/4.7 Amps
SHUNT	50mV = 50Amps
TYPE OF GROUNDBED	Deep Anode Groundbed

RECTIFIER NO. RN-1	**Building 206 (Impound Yard)**
MANUFACTURER/UNIT TYPE	Universal / Model OMXI
SERIAL NUMBER	983799
DC OUTPUT	80 Volts, 40 Amps
AC INPUT	230/460 Volts, 10.1/4.7 Amps
SHUNT	50mV = 50Amps
TYPE OF GROUNDBED	Deep Anode Groundbed

RECTIFIER NO. RN-2	**150th Street**
MANUFACTURER/UNIT TYPE	Universal / Model OEXI
SERIAL NUMBER	074655
DC OUTPUT	40 Volts, 40 Amps
AC INPUT	460 Volts, 2.5 Amps
SHUNT	50mV = 50Amps
TYPE OF GROUNDBED	Deep Anode Groundbed

RECTIFIER NO. RS-1	**Satellite Fuel Farm**
MANUFACTURER/UNIT TYPE	Universal / Model OMXI
SERIAL NUMBER	993319
DC OUTPUT	80 Volts, 40 Amps
AC INPUT	230/460 Volts, 10.1/4.7 Amps
SHUNT	50mV = 50Amps
TYPE OF GROUNDBED	Deep Anode Groundbed

RECTIFIER NO. RS-2	**Building. 269 (PA Police Station)**
MANUFACTURER/UNIT TYPE	Universal / Model OMXI
SERIAL NUMBER	983801
DC OUTPUT	80 Volts, 40 Amps
AC INPUT	230/460 Volts, 10.1/4.7 Amps
SHUNT	50mV = 50Amps
TYPE OF GROUNDBED	Deep Anode Groundbed

RECTIFIER NO. RS-3	**Switch House One**
MANUFACTURER/UNIT TYPE	Universal / Model OMXI
SERIAL NUMBER	983802
DC OUTPUT	80 Volts, 40 Amps
AC INPUT	230/460 Volts, 10.1/4.7 Amps
SHUNT	50mV = 50Amps
TYPE OF GROUNDBED	Deep Anode Groundbed

JFK INTERNATIONAL AIRPORT
SATELLITE TANK FARM PIPING AND TANKS
CATHODIC PROTECTION RECTIFIERS

RECTIFIER NO. RST-1	**Satellite Fuel Farm**
MANUFACTURER/UNIT TYPE	Universal / Model OMXI
SERIAL NUMBER	993315
DC OUTPUT	60 Volts, 100 Amps
AC INPUT	230/460 Volts, 18.8/8.9 Amps
SHUNT	50mV = 100Amps
TYPE OF GROUNDBED	HDD Linear Anode (MMO Wire)

RECTIFIER NO. RST-2	**Satellite Fuel Farm**
MANUFACTURER/UNIT TYPE	Universal / Model OMXI
SERIAL NUMBER	993317
DC OUTPUT	60 Volts, 100 Amps
AC INPUT	230/460 Volts, 18.8/8.9 Amps
SHUNT	50mV = 100Amps
TYPE OF GROUNDBED	HDD Linear Anode (MMO Wire)

RECTIFIER NO. RST-3	**Satellite Fuel Farm**
MANUFACTURER/UNIT TYPE	Universal / Model OMXI
SERIAL NUMBER	993314
DC OUTPUT	60 Volts, 100 Amps
AC INPUT	230/460 Volts, 18.8/8.9 Amps
SHUNT	50mV = 100Amps
TYPE OF GROUNDBED	HDD Linear Anode (MMO Wire)

RECTIFIER NO. RST-4	**Satellite Fuel Farm**
MANUFACTURER/UNIT TYPE	Universal / Model OMXI
SERIAL NUMBER	993316
DC OUTPUT	60 Volts, 100 Amps
AC INPUT	230/460 Volts, 18.8/8.9 Amps
SHUNT	50mV = 100Amps
TYPE OF GROUNDBED	HDD Linear Anode (MMO Wire)

RECTIFIER NO. RST-5	**Satellite Fuel Farm**
MANUFACTURER/UNIT TYPE	Universal / Model OMXI
SERIAL NUMBER	993318
DC OUTPUT	60 Volts, 100 Amps
AC INPUT	230/460 Volts, 18.8/8.9 Amps
SHUNT	50mV = 100Amps
TYPE OF GROUNDBED	HDD Linear Anode (MMO Wire)

SECTION 2.4

Building Inventory List

BUILDING INVENTORY LIST

Pre-Fabricated Office Trailers		
Room	**Equipment Name**	**Construction**
General/ Exterior	Building	Pre Fabricated office building
General/ Exterior	Exterior walls	Composite walls w/ insulation Vynil Outer Wall Covering
General/ Exterior	Trailers roof	Built Up Roof
General/ Exterior	Adjoining Walkway Roof	2"x4" construction with plywood decking and a shingle roof overlay
General/ Exterior	Adjoining Walkway Flooring	2"x4" Platform with composite decking.
General/ Exterior	Adjoining Walkway Lighting	1- wall mounted dusk to dawn outdoor metal halide light
General/ Exterior	Office Trailer access stairs	Metal Framing Construction stairs and steel tube handrails with composite decking
General/ Exterior	Heating/ cooling	Eubank wall mounted V&H series wall mounted units -2 per trailer
General/ Interior	Flooring	Vinyl Floor Tile
General/ Interior	Ceiling	Accoustical Tile Drop Ceiling
General/ Interior	Lighting	2'x4' Fluorescent tube lights (26 fixtures total, 4 bulbs per fixture) 2- emergency illuminated exit signs 2- two bulb emergency lights
General/ Interior	Walls	Composite insulated vinyl walls
Trailer #1/ Exterior	Windows	7- 37"x46" double hung slide up window
Trailer #1/ Exterior	Doors	2- hollow metal doors with a small square wire reinforced glass window
Trailer #1/ Interior	Room Layout	1-Bathroom 1- closet 2-offices 1- storage room 1-conference/ learning /meeting room
Trailer #1/ Interior	Interior window	1- Fixed wire reinforced glass window
Trailer #1/ Interior	Doors	4- hollow metal doors with wire reinforced glass window 1-hollow metal solid door for the bathroom
Trailer #1/ Bathroom	Fixtures	1-Toilet w/ water tank attached 1-sink 1- mirror w/ medicine cabinet attached
Trailer #1/ Bathroom	Lighting	1- 2'x2' fluorescent tube light
Trailer #1/ Storage room	Equipment	Wireless router and communicatins wiring. Projector controls
Trailer #2/ Exterior	Windows	11- 21"x46" double hung slide up window 1- 56"x36" stationary window
Trailer #2/ Exterior	Doors	2- Masonite 9 Lite Internal Grille Primed Smooth Fiberglass Entry Door with No Brickmold
Trailer #2/ Interior	Doors	5- French doors painted 1- french double door painted 1-hollow metal solid door for the bathroom
Trailer #2/ Interior	Room Layout	1-bathroom 1- closet 5-offices 1-kitchenet

BUILDING INVENTORY LIST

Pre-Fabricated Office Trailers		
Room	**Equipment Name**	**Construction**
Trailer #2/ Bathroom	Fixtures	1-Toilet w/ water tank attached 1-sink 1- mirror w/ medicine cabinet attached
Trailer #2/ Kitchenet	Fixtures	Stainless steel single bowl kitchen sink

BUILDING INVENTORY LIST

BUILDING 90		
Room	**Equipment Name**	**Construction**
General/ Exterior	Building	CMU wall construction over a concrete floor slab
General/ Exterior	Exterior walls	Brick finished facia
General/ Exterior	Roof	Low slope roof w/ roof drains and built up roofing
General/ Exterior	Doors	12- hollow metal doors painted with small wire reinforeced glass window 7- electrical roll up garage doors
General/ Exterior	Windows	55- single hung pop out windows 21- big panel glass windows with bottom pop out smaller window
General/ Interior	Fire Surpression	Water Based Sprinkler system
General/ Interior	Doors	27 interior doors (some are aluminum frame with glass insert/ others are wooden solid doors)
Roof	Roof mounted equiment- AC condensors	5- luxaire units
Roof	Roof mounted equiment- Heating Units	2- Lennox Roof mounted units (1- Model No.- CHA16-150-1Y 1-Model No. CHA16-653-7Y)
Roof	Roof mounted Equipment	5- 36" Exhaust Fans 2- 24" Exhaust Fans 1- Vehicle Exhaust Extractor
Dispatch Room	Walls	Sheet rock walls, painted
Dispatch Room	Ceiling	Accoustical Drop Ceiling
Dispatch Room	Lighting	6- 24"x24" fluorescent lights
Dispatch Room	Floor	Ceramic Tile Floor
Dispatch Room	Raised Platform	2"x4" construction with a partition wall with plywood over lay for floor and partition. Partition is painted and floor has a vinyl tile overlay
Room next to dispatch room	Floor	Ceramic Tile Floor
Room next to dispatch room	Lighting	2- 24"x24" fluorescent lights
Room next to dispatch room	Ceiling	Accoustical Drop Ceiling
Room next to dispatch room	Walls	Sheet rock walls, painted
Room next to dispatch room	Fixtures	Wall mounted counter top with over head cabinets
Hallway	Floor	Ceramic Tile Floor
Hallway	Lighting	2- 24"x48" fluorescent lights 1- 2 bulb emergency light
Hallway	Ceiling	Accoustical Drop Ceiling
Hallway	Walls	Sheet rock walls, painted
Print area/closet	Floor	Ceramic Tile Floor

BUILDING INVENTORY LIST

BUILDING 90		
Room	**Equipment Name**	**Construction**
Print area/closet	Lighting	1- 24"x24" fluorescent light
Print area/closet	Ceiling	Accoustical Drop Ceiling
Print area/closet	Walls	Sheet rock walls, painted
Print area/closet	Doors	2- Hollow core sliding wood doors
Print area/closet	Miscellaneous	1- overhead storage partition with a coat hanger rod
Conference Room	Floor	Tile Floor
Conference Room	Lighting	4- 24"x48" fluorescent lights
Conference Room	Ceiling	Accoustical Drop Ceiling
Conference Room	Walls	Sheet rock walls, painted
Conference Room	Miscellaneous	1- wall mounted mechacanical electronic thermostat
Office #1	Floor	Tile Floor
Office #1	Lighting	2- 24"x48" fluorescent lights
Office #1	Ceiling	Accoustical Drop Ceiling
Office #1	Walls	Sheet rock walls painted
Office #1	Miscellaneous	First aid box, AED box,wall mounted cabinets, communications panel
Maintenance Director office	Floor	Ceramic Tile Floor
Maintenance Director office	Lighting	2- 24"x48" fluorescent lights
Maintenance Director office	Ceiling	Accoustical Drop Ceiling
Maintenance Director office	Walls	Sheet rock walls, painted
Maintenance Director office	Heating/cooling	Standalone baseboard electric radiant heater. Room temperature digital controller for roof mounted unit.
OPS Manager Office	Floor	Ceramic Tile Floor
OPS Manager Office	Lighting	3- 24"x48" fluorescent lights
OPS Manager Office	Ceiling	Accoustical Drop Ceiling
OPS Manager Office	Walls	Sheet rock walls painted
OPS Manager Office	Heating/cooling	Standalone baseboard electric radiant heater. Room temperature digital controller for roof mounted unit.
Main Area	Floor	Ceramic Tile Floor

BUILDING INVENTORY LIST

BUILDING 90		
Room	**Equipment Name**	**Construction**
Main Area	Lighting	5- 24"x48" fluorescent lights 2- 24"x24" fluorescent lights 1- emergency illuminated exit sign 1- 2 bulb emegency light
Main Area	Ceiling	Accoustical Drop Ceiling
Main Area	Walls	Sheet rock walls, painted
Main Area	Window	Internal fixed panel window
Main Area	Heating/cooling	Digital thermostat controller for roof mounted unit.
Main Area	Miscellaneous	1 storage closet
Office Men's Room	Lighting	1- 24"x48" fluorescent light
Office Men's Room	Ceiling	Accoustical Drop Ceiling
Office Men's Room	Walls	Ceramic Tile
Office Men's Room	Floor	Ceramic Non Slip type tile
Office Men's Room	Fixtures	1- Toilet 1- Sink 1- Urinal 1- mirror
Office Men's Room	Electrical	3 power panels: 1- 277/480 Volt Panel 1- 120/208v 3PH panel fromTransformer #4 1- panel for electric deicing and snow melting equip.
Office Women's Room	Lighting	1- 24"x48" fluorescent light 1- over head mirror fluorescent light
Office Women's Room	Ceiling	Cork type panel ceiling
Office Women's Room	Walls/Floor	Ceramic Tile
Office Women's Room	Fixtures	1- Toilet 1- Sink 1- mirror with cabinet
General Manager Office	Lighting	6- over head mirror flourescent light 2-small ceiling spot lights
General Manager Office	Ceiling	Accoustical Drop Ceiling
General Manager Office	Walls	Sheet rock walls with wall paper backing
General Manager Office	Floors	Ceramic Tile Floor
General Manager Office	Equipment	Baseboard heaters Wall mounted digital electronic thermostat
General Manager Office	Miscellaneous	Closet with double sliding door

BUILDING INVENTORY LIST

BUILDING 90		
Room	**Equipment Name**	**Construction**
Employee Break Room	Lighting	10 - 24"x48" fluorescent lights 1- Emergency illuminated Exit Light 2- Two bulb Emergency lights
Employee Break Room	Ceiling	Accoustical Drop Ceiling w/ 24"x48" panels
Employee Break Room	Walls	CMU walls painted
Employee Break Room	Floors	Vynil floor tile
Employee Break Room	Windows	37" square sliding window
Employee Break Room	Wall mounted Fixtures	1- Analog Temperature Controller 1- Digital Temperature Controller 1- Pay Phone 1- Domed wall mounted camera 1- Speaker 1- Communications Panel 1- Palm scanning Clocking Machine
Employee Break Room	Fire Surpression	1- Fire Extinguisher
Employee Break Room	Miscellaneous	5- bench wood framed tables
Lady's Locker Room	Floors	Vinyl tile floor
Lady's Locker Room	Walls	CMU walls painted
Lady's Locker Room	Ceiling	None
Lady's Locker Room	Lighting	1- two bulb fluorescent light 1- single bulb fluorescent light
Lady's Locker Room	Fixtures	1- Shower 1- Toilet 1- Sink 1- Wall mounted mirror
Lady's Locker Room	Miscellaneous	8- Small Lockers 6- Large Lockers
Men's Locker Bathroom	Walls/Floor	Ceramic wall and floor tile
Men's Locker Bathroom	Lighting	4- 24"x48" fluorescent lights
Men's Locker Bathroom	Fixtures	3- Toilets 3- Urinals 1- Shower 1- Emergency Eye Wash Station 2- Sinks w/ 3 faucets 2- Wall Mounted Mirrors
Men's Locker Bathroom	Ceiling	Accoustical Drop Ceiling
Men's Locker Room	Floors	Uncoated Concrete Floor
Men's Locker Room	Walls	CMU walls painted
Men's Locker Room	Ceiling	None

BUILDING INVENTORY LIST

BUILDING 90		
Room	**Equipment Name**	**Construction**
Men's Locker Room	Lighting	23- Metal Hallide Lights (18 burnt glazed glass dome) 4- Two bulb emergency lights 1- Emergency illuminated exit sign
Men's Locker Room	Miscellaneous	347- Large Lockers 320- Small Lockers
Maintenance Garage	Floors	Coated concrete floor
Maintenance Garage	Walls	CMU walls painted
Maintenance Garage	Lighting	34- Ceiling Mounted Metal Halide Lights 7- Wall Mounted Metal Halide Lights 4- Two Bulb Emergency Lights 4- Emergency illuminated exit signs 9- 2 bulb fluorescent lights
Maintenance Garage	Ceiling	None
Maintenance Garage	Electrical Equipment	9- Domed Cameras 1- Omnitec Tank Panel for automatic transmission fluid tank (High Level Alarm/ Leak monitoring) 1- Pneumecator Tank Panel For Waste Oil Tank Outside (High Level Alarm/ Leak Monitoring
Maintenance Garage	Mechanical Equipment	9- Drop down Hose Reels mounted in the ceiling 2- Mid-size Hydraulic drive on lifts, 4 post, 2 metal halide lights and winch system by State Wide 1- 225 Gallon Double wall square automatic transmission fluid Tank w/ pneumatic pump 2- Polyurethane Antifreeze tanks 1- Compressed Air Dryer Unit 1- wall mounted Waste oil fill box w/ pneumatic pump to tranfer fluid to exterior AST
Maintenance Garage	Fire Surpression	Ceiling mounted Sprinkler System 6- Wall Mounted Fire Extinguishers
Maintenance Garage	Doors	3- Barn Style Sliding Doors
Maintenance Garage	Heating	Forced Air 2- Space heaters
Lube Room	Floors	Uncoated concrete floor
Lube Room	Walls	CMU walls, painted
Lube Room	Lighting	4- two bulb fluorescent light fixtures with long bulbs 1- Exit Illuminated Sign
Lube Room	Ceiling	None
Lube Room	Heating	1- Unit Heater
Lube Room	Mechanical Equipment	1-Parts Wash Table 1- Grease drum with pneumatic pump 1- 55 gal gear oil drum w/ pneumatic pump 1- 55 gal synthetic motor oil drum w/ hand pump
Lube Room	Fire Surpression	1- Wall mounted fire extinquisher
Entrance Office	Floors	Vinyl Tile Floor
Entrance Office	Walls	Sheet rock walls, painted
Entrance Office	Lighting	6- 24" x 48" Fluorescent Lights
Entrance Office	Ceiling	Accoustical drop ceiling

BUILDING INVENTORY LIST

BUILDING 90		
Room	**Equipment Name**	**Construction**
Entrance Office	Window	1- 45"x35" Sliding Window
Entrance Office	Fixtures	1- Domed Camera
Entrance Office	Miscellaneous	2- Closets Double solid wood doors
Parts Inventory Room	Floors	1st Floor- worn out coated concrete floor 2nd Floor- Expanded steel floor with rubber mat
Parts Inventory Room	Walls	CMU walls, painted
Parts Inventory Room	Lighting	29- fluorescent light fixtures 1- Two Bulb Emergency Light
Parts Inventory Room	Ceiling	2nd floor- None
Parts Inventory Room	Electrical Equipment	2- domed cameras 1- 110 Volt Power Panel 1- A/C Condenser Power panel 1- Tower for Computer in Garage area 1- Communications panel 1- Analog A/C thermostat Controller 1- Router and communications Box on 2nd floor
Service record Room	Floors	2"x4" wood platform with vinyl tile covering
Service record Room	Walls	Sheetrock painted walls
Service record Room	Lighting	6- 24"x48" Fluorescent Lights 1- Spot focal light
Service record Room	Ceiling	Accoustical drop ceiling
Service record Room	Electrical Equipment	1- Veeder Root Panel tied to all the underground tanks and waste oil tank.
Service record Room	Heating	Baseboard Heat
Welding Room	Floors	Coated concrete floor
Welding Room	Walls	CMU walls, painted
Welding Room	Lighting	2- Fluorescent Lights
Welding Room	Ceiling	Sheetrock painted ceiling
Welding Room	Electrical Equipment	1- Window Mounted Exhaust Fan 1- 3 Phase Main Disconnect Switch For Welder 1- 3 Phase Circuit Breaker For Welder 1- Welder machine
Front Boiler Room	Walls	CMU walls, painted
Front Boiler Room	Floors	Concrete uncoated floors
Front Boiler Room	Lighting	1- two bulb fluorescent Light
Front Boiler Room	Ceiling	None

BUILDING INVENTORY LIST

BUILDING 90		
Room	**Equipment Name**	**Construction**
Front Boiler Room	Electrical Equipment	5- Transformers (30 KVA, 3-phase 480V primary, 208Y/120 Secondary) 2- Power panels (277/480v 3ph, 120/208v 3ph) 15- Main Switches 1- Over Head Exhaust Fan
Front Boiler Room	Mechanical Equipment	4- Fuel oil Forced air heating units (Powrmatic model n. CA-30) 1- 55 Gal. Hot Water Heater 1- Fuel oil boiler tank 1- Water Meter
Front Boiler Room	Fire Surpression	Sprinkler system with RPZ, backflow preventer control panels and main valves for building. 1- Wall mounted fire extinguisher
Rear Boiler Room	Floors	Concrete uncoated floors
Rear Boiler Room	Walls	Shared Garage Wall- Brick Face painted Outer Perimeter Wall- CMU unpainted
Rear Boiler Room	Lighting	2- two bulb fluorescent lights
Rear Boiler Room	Ceiling	Bare exposed beam, piping and duct
Rear Boiler Room	Electrical Equipment	6- Electrical main switches for mechanical equipment
Rear Boiler Room	Mechanical Equipment	2- air compressors (Ingersoll Rank Model No. 242-5c1, Sullair Model No. ES-6) 1- Heating oil Heater (Powrmatic Model No. CA-50) 1- Peerless oil Boiler 1- Karcher Power Wash system Model No. 109-0760.0, 3000 PSI 3.5 GPM 2- 3' dia. x 5' Height polyurethane detergent tanks for power wash system
Rear Boiler Room	Fire Surpression	1- Wall mounted fire extinguisher
Pump Room	Floors	Coated concrete floor
Pump Room	Walls	CMU painted walls
Pump Room	Lighting	4- two bulb fluorescent lights (2 medium length, 2 large length)
Pump Room	Ceiling	None
Pump Room	Heating	1- Unit Heater with routed air ducting
Pump Room	Electrical Equipment	2- Power Panels 1- Main Switch for Battery Charging Room 1- Siren 1- Domed security camera
Pump Room	Mechanical Equipment	1- Parts Wash Table
Pump Room	Doors	1- Double Hollow Steel Doors with small wire reinforced glass window
Battery Charging Room	Floors	Concrete Floors with Rubber Matting
Battery Charging Room	Walls	CMU painted walls
Battery Charging Room	Ceiling	None

BUILDING INVENTORY LIST

BUILDING 90		
Room	**Equipment Name**	**Construction**
Battery Charging Room	Charging Station	Wooden frame and base construction with steel rails running along the back side of the station with a positive and negative lead rail. 3 charging units (Associated Model No. 6066)
Battery Charging Room	Heating/ Ventilation	1- Unit Heater 1- Thermostat controller 1- Exhaust Unit w/ Hood
Battery Charging Room	Lighting	4 - Two bulb ceiling mounted light fixtures (w/ long bulbs)
Battery Charging Room	Fire Surpression	1- Wall mounted Fire Extinguisher

BUILDING INVENTORY LIST

BUILDING 91 (Foam House)		
Room	**Equipment Name**	**Construction**
General/ Exterior	Building	CMU wall construction over a concrete floor slab
General/ Exterior	Exterior walls	Brick finished facia
General/ Exterior	Roof	Low slope aggregate surfaced built up roof w/ roof drain
General/ Exterior	Doors	1- 52"x 87" Hollow Steel Door
General/ Exterior	Windows	2- 45"x49" 1/3 split Steel Frame Windows
General/ Interior	Fire Surpression	Fire Alarm Control Panel 1- Fire Extinguisher 1- Smoke Alarm
General/ Interior	Lighting	2- single bulb fluorescent light fixtures
General/ Interior	Mechanical Equipment	4- 250 Gallon Double wall Foam Tanks 1- Pump (Worthington 440V)
General/ Interior	Heating	1- Unit Heater 1- Electric Coil heater
General/ Interior	Electrical Equipment	5-Main Switches

BUILDING INVENTORY LIST

BUILDING B (Maintenance Building)		
Room	**Equipment Name**	**Construction**
General/ Exterior	Building	Metal Arch building built over concrete floor slab
General/ Exterior	Exterior walls	Metal Finish
General/ Exterior	Doors	3- Electric roll up garage doors 1- Hollow Steel Door
General/ Exterior	Floors	Uncoated concrete floors
General/ Interior	Fire Surpression Equipment	Fire Alarm Control Panel 1- Fire Emergency switch 1- Back Flow preventer 4- Wall Mounted Fire Extinguishers Water Sprinkler system
General/ Interior	Lighting	7- Two bulb fluorescent light fixtures 8- Ceiling Mounted Metal Halide Lights
General/ Interior	Mechanical Equipment	1- Compresser Air Dryer Unit 3- Exhaust Extraction Units
General/ Interior	Heating	Heating oil Forced Air System 1- Analog Thermostat Controller
General/ Interior	Miscellaneous	1- Portable Emergency Eye Wash 6- Concrete Filled Pipe Bollards Raised storage platform, half steal beam construction with expanded steel decking, other half 4"x4" framing with plywood decking
General/ Interior	Electrical Equipment	5-Main Switches 1- Power Panel Single Phase 4- Domed Cameras

BUILDING INVENTORY LIST

BUILDING C (East SOR Building)		
Room	**Equipment Name**	**Construction**
General/ Exterior	Building	Prefab Sheet metal insulated Wall Building and roof on a over a concrete slab
General/ Exterior	Exterior walls	Corrugated sheet metal painted
General/ Exterior	Doors	1- Double hollow steel insulated door
General/ Exterior	Floors	Uncoated concrete floors
General/ Interior	Heating	Floor electric radiant heat
General/ Interior	Lighting	2- Explosion Proof Metal Halide Light
General/ Interior	Electrical Equipment	2- Main Switches (pump and Heater)
General/ Interior	Miscellaneous	1- Manual Bulding shutter Vent
General/ Interior	Mechanical Equipement	1- Wall Mounted Exhaust Vent 1- Pump

BUILDING INVENTORY LIST

BUILDING 241		
Room	**Equipment Name**	**Construction**
General/ Exterior	Building	CMU wall construction over a concrete floor slab
General/ Exterior	Exterior walls	Brick finished facia
General/ Exterior	Roof	Low slope roof w/ roof drains and built up roofing
General/ Exterior	Doors	4- double hollow steel Doors 3- Hollow Steel Doors
General/ Exterior	Windows	8- Windows 5- Windows Above Doors
General	Fire Surpression	Sprinkler system water type mounted to exterior wall. FM-200 type within control room. 6- Wall Mounted Extinguishers
General/ Interior	Doors	3 interior doors (hollow steel metal doors with wire reinforced glass window)
Transformer Room	Floor	Coated Concrete Floors
Transformer Room	Walls	CMU painted Walls
Transformer Room	Lighting	28- two bulb fluorescent light fixtures 2- two bulb emergency lights
Transformer Room	Ceiling	Exposed Ceiling
Transformer Room	Electrical Equipment	1- Wall mounted analog thermostat 1- Fire Alarm Panel 1- Communications Board 1- Fire Alarm Strobe 7- Power Consumption Meters
Transformer Room	Fire Surpression	4- Wall mounted fire extinguishers Sprinkler System
Transformer Room	Heating/ Ventilation	10- wall mounted radiator heaters 1- Wall mounted Thermostat 3- Wall Mounted Vents
Transformer Room	Miscellaneous	2- Emergency Exit Signs
Control Room	Walls	CMU walls painted
Control Room	Floor	Raised metal floor
Control Room	Ceiling	Accoustical Drop Ceiling
Control Room	Lighting	39- Fluorescent Lights 1- two bulb emergency light 3- Fire Strobe Lights
Control Room	Electrical Equipment	3- Fire alarm panels 2- Smoke Detectors
Control Room	Heating/ Cooling	8- Wall Mounted radiant heaters 2- Window Mounted AC units
Control Room	Fire Surpression	2- Wall Mounted Extinguishers
Foam Room	Walls	Painted CMU walls
Foam Room	Floor	Coated concrete floor
Foam Room	Ceiling	None
Foam Room	Lighting	6- Two bulb fluorescent Lights 1- Two Bulb emergency light
Foam Room	Heating	2- Unit Heaters 2- Wall mounted radiant heaters 1- Wall Mounted Thermostat controller

BUILDING INVENTORY LIST

BUILDING 241		
Room	**Equipment Name**	**Construction**
Foam Room	Emergency Equipment	1- emergency eye wash 1- Self contained breathing apparatus
Foam Room	Mechanical Equipment	1- 7 Gallon hot water heater
Bathroom	Walls	CMU Painted Walls with sheet rock up to half way
Bathroom	Floor	Ceramic tile floor
Bathroom	Ceiling	Accoustical Drop Ceiling
Bathroom	Lighting	1- Fluorescent light
Bathroom	Heating/ Ventilation	1- Wall mounted analog thermostat 1- Wall mounted Radiant Heater 1- Window mounted exhaust fan 12" diameter
Bathroom	Fixtures	1- Sink w/ Cabinet 1- Toilet

BUILDING INVENTORY LIST

BUILDING D (Pre-Fabricated Office Trailer)		
Room	**Equipment Name**	**Construction**
General/ Exterior	Building	Pre Fabricated office building
General/ Exterior	Exterior walls	Insulated Sheet Metal Walls
General/ Exterior	Trailers roof	Built Up Roof
General/ Exterior	Office Trailer access stairs	Metal Framing Construction stairs with expanded metal decking
General/ Exterior	Windows	10- Double Hung Windows with expanded steel outer framing protection
General	Heating/Cooling	3- Wall Mounted AC units Baseboard Heating 3- Wall Mounted Thermostat Controllers (two analog, one digital)
General/ Interior	Layout	3- Rooms 1- Pantry 1- Closet
General/ Interior	Lighting	4- 2 Bulb fluorescent light Fixtures 2- 2 Bulb Emergency lights with emergency exit illuminated sign
General/ Interior	Floors	Vinyl Tile Floor
General/ Interior	Walls/ Ceiling	Vinyl Sheet
General/ Interior	Electrical Equipment	1- 120V Power panel
General/ Interior	Fire Surpression	3- Wall Mounted Fire Extinguishers
General/ Interior	Doors	5- Hollow wood panel doors

BUILDING INVENTORY LIST

BUILDING E (West SOR Building)		
Room	**Equipment Name**	**Construction**
General/ Exterior	Building	Prefab Sheet metal insulated Wall Building and roof on a concrete slab
General/ Exterior	Exterior walls	Corrugated Sheet Metal Painted
General/ Exterior	Doors	1- Double Hollow Steel Insulated Door
General/ Exterior	Floors	Uncoated Concrete Floors
General/ Interior	Heating	Floor Electric Radiant Heat
General/ Interior	Lighting	2- Explosion Proof Metal Halide Light
General/ Interior	Electrical Equipment	2- Main Switches (pump and Heater)
General/ Interior	Miscellaneous	1- Manual Bulding shutter wall vent
General/ Interior	Mechanical Equipement	1- Wall Mounted Exhaust Vent 1- Pump

BUILDING INVENTORY LIST

BUILDING F		
Room	**Equipment Name**	**Construction**
General/ Exterior	Building	Prefab Sheet metal insulated Wall Building and roof on a concrete slab
General/ Exterior	Exterior walls	Corrugated sheet metal painted
General/ Exterior	Doors	1- Double Hollow Steel Insulated Door
General/ Exterior	Window	1- Split Slide Window
General/ Exterior	Floors	Uncoated concrete floors
General/ Interior	Heating/ Ventilation	1- Unit Heater 1- Wall Mounted Exhaust Fan Vent 1- Wall Mounted Louver Vent
General/ Interior	Lighting	2- three bulb fluorescent Lights
General/ Interior	Electrical Equipment	2- Wall Panels (208Y/120v) 1- Transformer (15 KVA, Primary 480v, secondary 208y/120v) 2- Ejector system Panels
General/ Interior	Mechanical Equipement	1- Sullair Compressor model no. ES8-25XF ACAC 1- Sullair air Dryer

BUILDING INVENTORY LIST

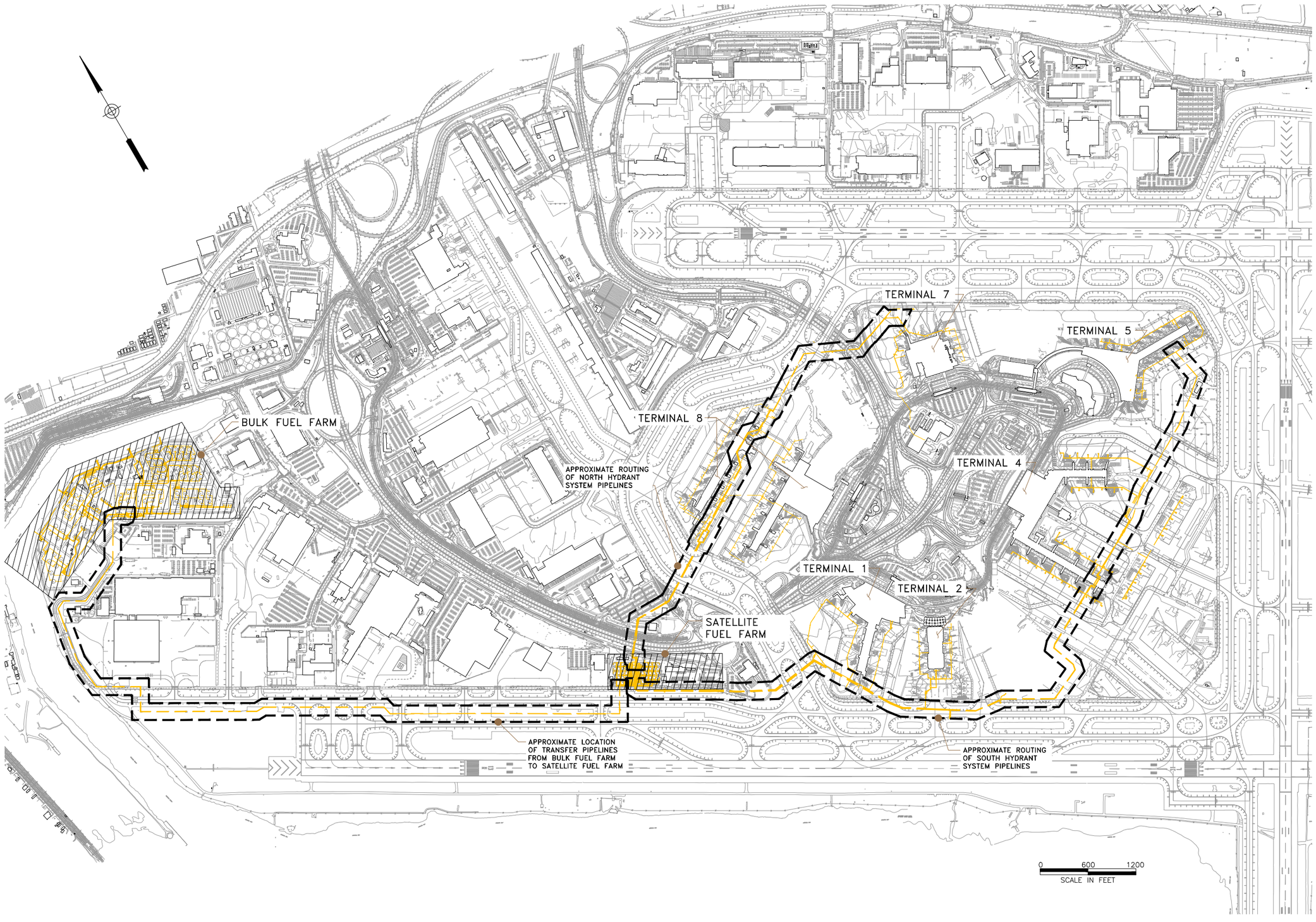
BUILDING G (Calibration Building)		
Room	**Equipment Name**	**Construction**
General/ Exterior	Ceiling	Precast Concrete Ceiling, build up roof
General/ Exterior	Exterior walls	CMU painted walls
General/ Exterior	Doors	1- Hollow Steel Insulated Door
General/ Exterior	Window	3- Wire Reinforced split panel wire reinforced double hung window
General/ Exterior	Floors	Uncoated concrete floors
General/ Interior	Heating/ Ventilation	1- Singer Unit Heater 1- Wall Mounted Electric Heater 1- wall mounted exhausrt fan with gravity louver
General/ Interior	Lighting	1- 2 Bulb fluorescent Light
General/ Interior	Fire Surpression	1- Fire Extinguisher
General/ Interior	Miscellaneous	3- Lockers 1- Overhead Beam for a Crane System

BUILDING INVENTORY LIST

BUILDING 290		
Room	**Equipment Name**	**Construction**
General/ Exterior	Building	Prefabricated sheet metal insulated Wall Building and roof on a concrete slab
General/ Exterior	Exterior walls	Corrugated sheet metal painted
General/ Exterior	Doors	2- Hollow Steel Insulated Door 2- Electric garage roll up doors
General/ Exterior	Protection	9- 10" Concrete Filled Steel Pipe Bollards
General/ Exterior	Lighting	6- Metal Halide Lights w/ Solar Sensors
General/ Exterior	Electrical Equipment	1-480v Conctrol panel T-301 (Back) 1- SFF Remediation System Emergency Shut-off Panet (Back) 1- 480v SFF VFD Control Panel (Front) 1- SFF Remediation System Emergency Shut-off Panet (Front) 1- Transfer VFD Pump Panel
General/ Exterior	Fire Equipment	2- Fire Truck Connections 2- Fire Alarms
General/ Exterior	Ventilation	2- Big 3'-0" Square gravity louver vents (Back) 1- Small 1'-0" Square Exhaust Vent with gravity louver (Front)
General/ Exterior	Miscellaneous	1- Exhaust Chimney 2- 2" Hose Reels w/ Hose
General/ Interior	Floors	Uncoated Concrete Floors
General/ Interior	Heating	3- Unit Heaters
General/ Interior	Ceiling	None
General/ Interior	Lighting	8- Metal Halide Lights 4- Two bulb Emergency Lights 2- Emergency exit illuminated signs
General/ Interior	Fire Equipment	3- Wall Mounted Fire Extinguishers 2- Fire Alarms by exits 2- Strobe Lights 2- Emergency alarms 6- Smoke Detectors Sprinkler system Backflow preventer
General/ Interior	Electrical Equipment	1- 208/120V 3 phase 150 distribution panel 1- 208/120v main circuit breaker panel

SECTION 3

Existing Utility and Asset Drawings and Schematic Diagrams



Sheet 1 of 25

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No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title

FUELING INTO-PLANE SERVICES

AIRPORT FUEL SYSTEM SITE PLAN

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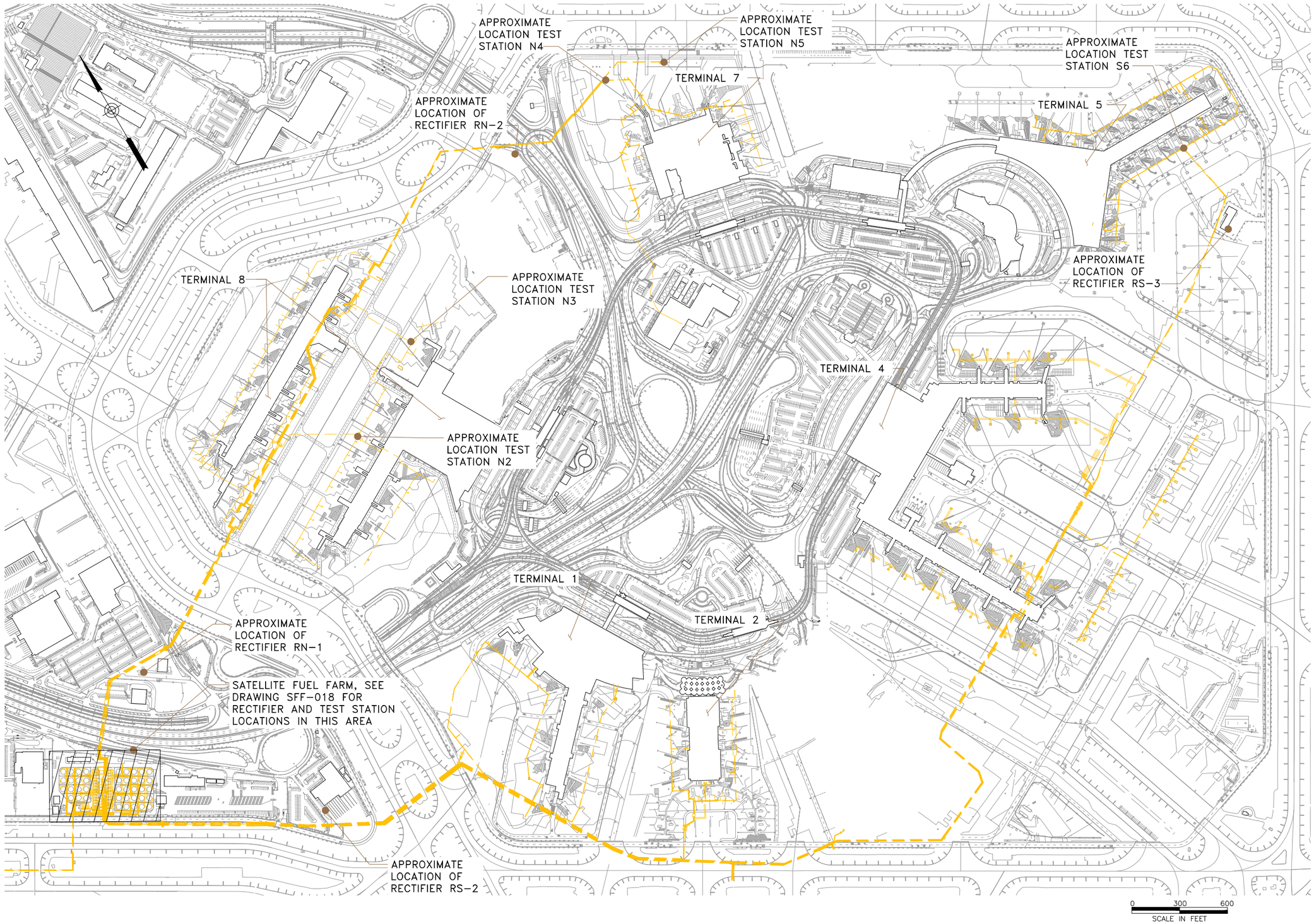
J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

Date 10/28/2013

Contract Number

Drawing Number **G001**

PID# XXXXXXXX



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No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title

FUELING INTO-PLANE SERVICES

AIRPORT AIRSIDE CATHODIC PROTECTION SITE PLAN

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Date 06/24/2014

Contract Number

Drawing Number **G002**

PID# XXXXXXXX

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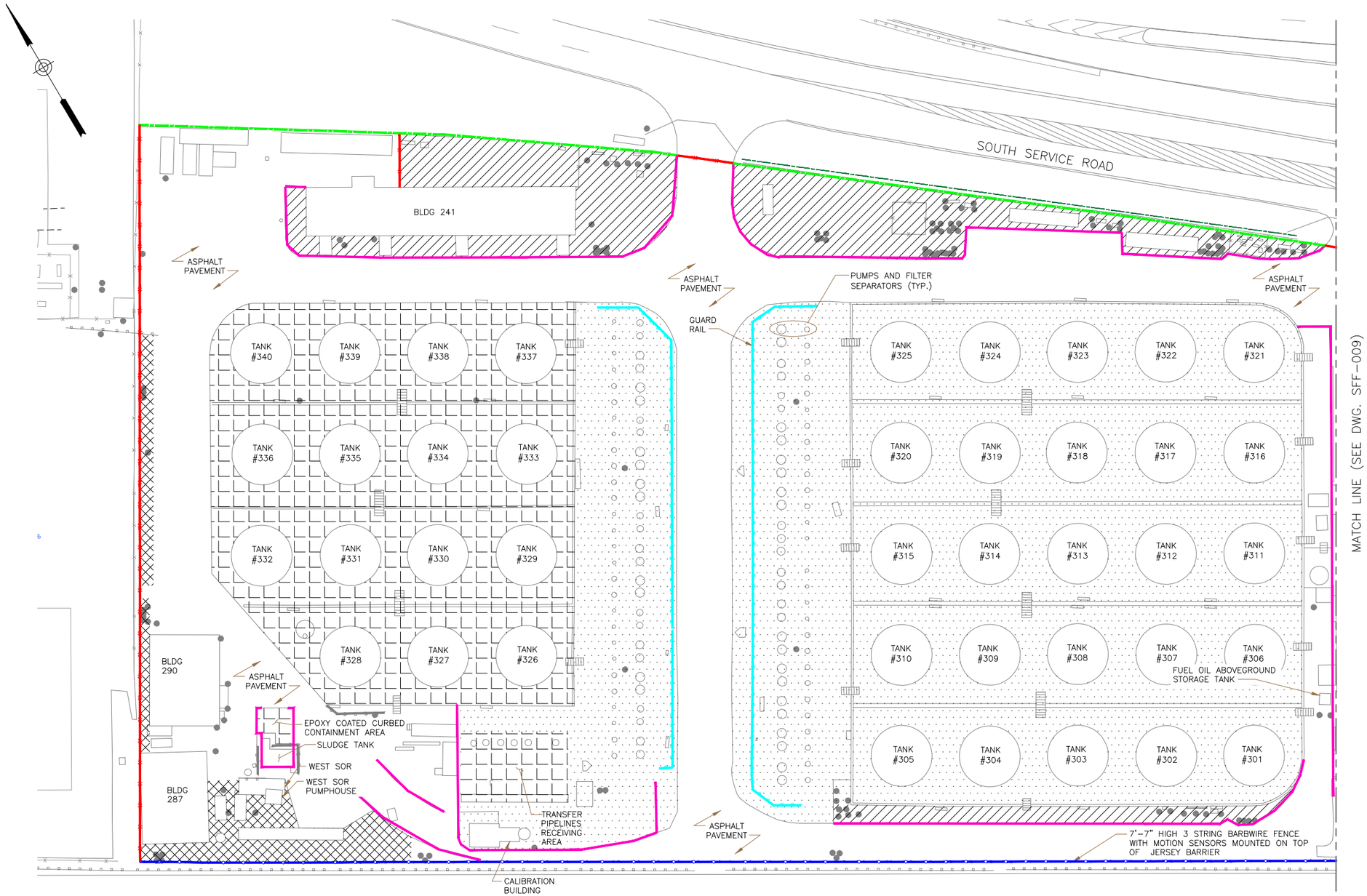

LEGEND:

- 6'-7" HIGH CMU WALL W/ 3 BANDS OF BARBED WIRE.
- 7'-7" HIGH CHAINLINK FENCE W/ 3 BANDS OF BARBED WIRE.
- 7'-7" HIGH CHAINLINK FENCE W/ 3 BANDS OF BARBED WIRE EMBEDDED IN JERSEY BARRIERS AND FITTED WITH MOTION SENSORS
- CONCRETE CURBING
- STEEL GUARDRAIL
- GRAVEL SURFACING
- GRASS SURFACING
- EPOXY COATED CONCRETE CONTAINMENT
- CONCRETE SURFACING

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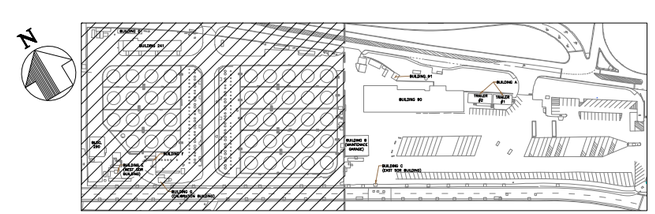

KEYPLAN
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No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING INTO-PLANE SERVICES

SURFACE TYPE IDENTIFICATION PLAN (1 OF 2)

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J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

Date 06/24/2014

Contract Number

Drawing Number SFF-001

PID# XXXXXXXX

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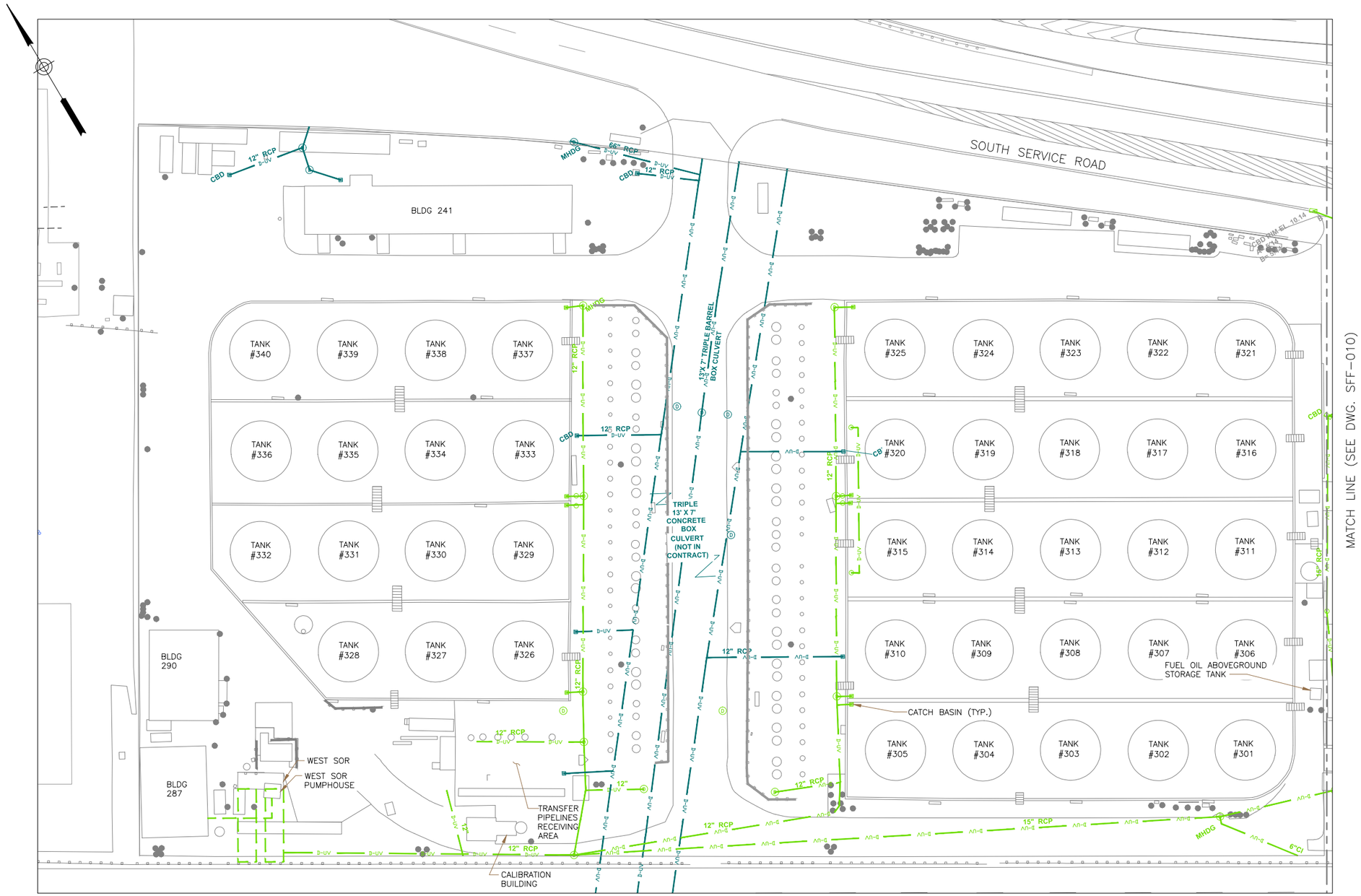

LEGEND:

- D-UV — STORM WATER PIPING CONNECTED TO TREATMENT SYSTEM
- D-UV — STORM WATER PIPING NOT CONNECTED TO TREATMENT SYSTEM

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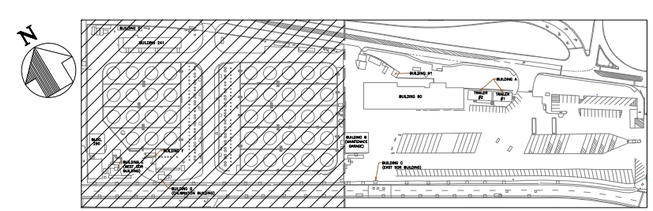
SCALE IN FEET



KEYPLAN
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No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING INTO-PLANE SERVICES

STORM DRAINAGE SYSTEM PLAN (1 OF 2)

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J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

Date 06/24/2014

Contract Number

Drawing Number SFF-002

PID# XXXXXXXX

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SPRINKLER SYSTEM WITH BACKFLOW PREVENTER
FIRE HYDRANT
WATER VALVE
BLDG 241
SOUTH SERVICE ROAD
6" CI
3" HP WATER
12" CI
12" HP WATER
TANK #340
TANK #339
TANK #338
TANK #337
TANK #336
TANK #335
TANK #334
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TANK #306
TANK #305
TANK #304
TANK #303
TANK #302
TANK #301
FUEL OIL ABOVEGROUND STORAGE TANK
WATER MANHOLE
BLDG 290
BLDG 287
WEST SOR
WEST SOR PUMPHOUSE
3" LP WATER
TRANSFER PIPELINES RECEIVING AREA
CALIBRATION BUILDING
VALVE LP241-1
VALVE L40-A
VALVE HP 241-8
VALVE HP 241-2
VALVE HP 241-10
36" STEEL
MATCH LINE (SEE DWG. SFF-011)

LEGEND:
HPV-UV — HIGH PRESSURE WATER
V-UV — LOW PRESSURE WATER

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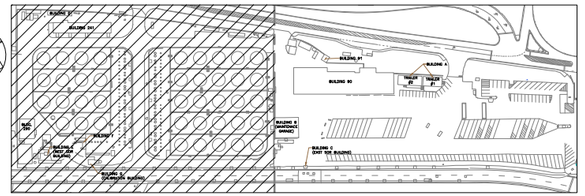
SCALE IN FEET



KEYPLAN
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No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING INTO-PLANE SERVICES

WATER SYSTEM PLAN (1 OF 2)

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J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

Date 06/24/2014

Contract Number

Drawing Number SFF-003

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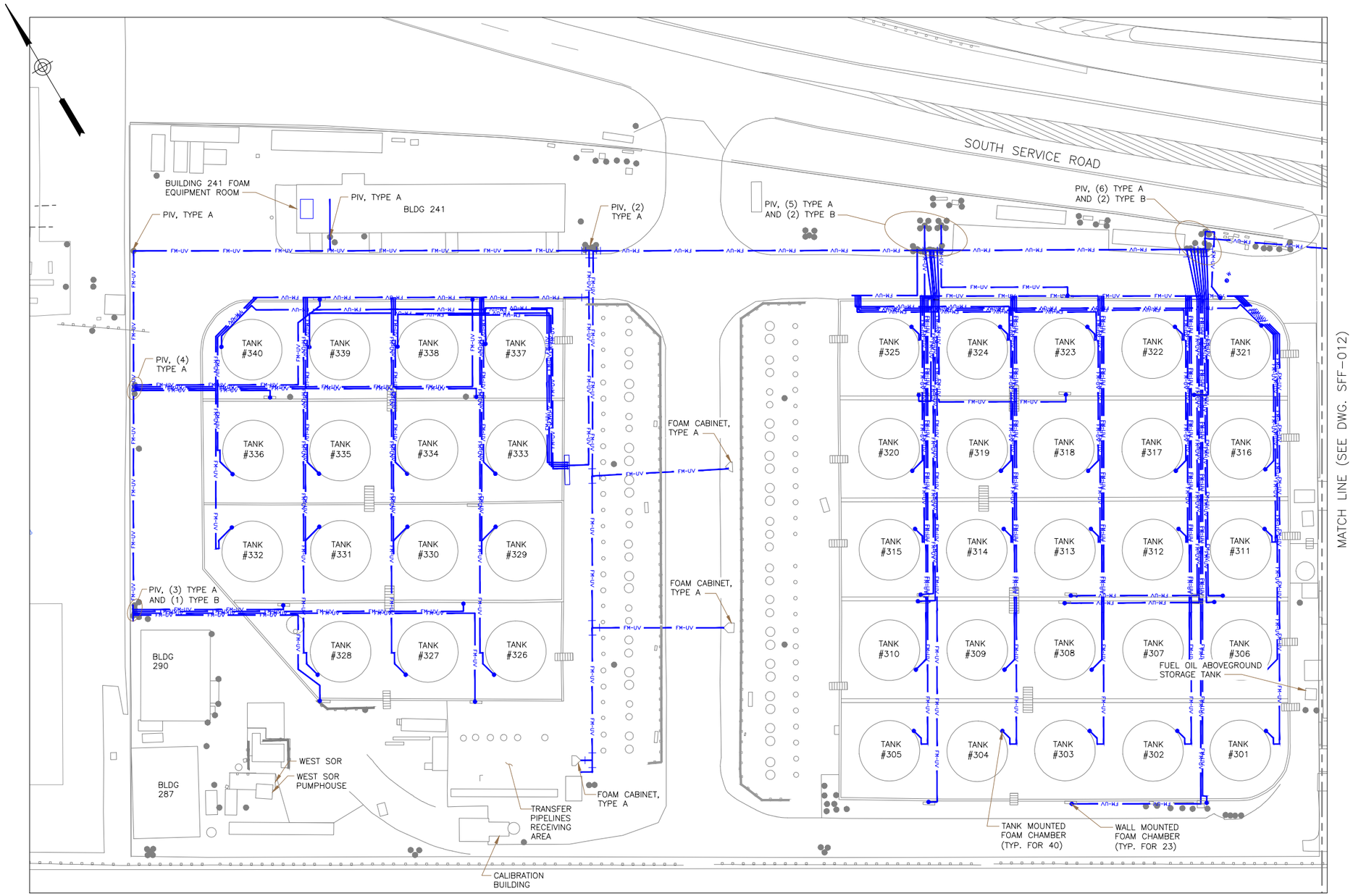
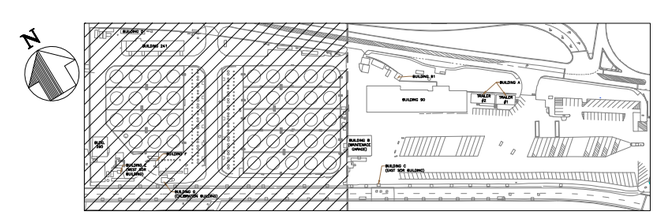


LEGEND:

FM-UV — FOAM PIPING

NOTE:
ALL FOAM PIPING WITHIN THE CONCRETE CONTAINMENT AREA IS ABOVEGROUND AND SUPPORTED BY STEEL MEMBER SUPPORTS

0 30 60
SCALE IN FEET



KEYPLAN
NOT TO SCALE

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING INTO-PLANE SERVICES

AQUEOUS FIRE FIGHTING FOAM SYSTEM PLAN (1 OF 2)

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J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

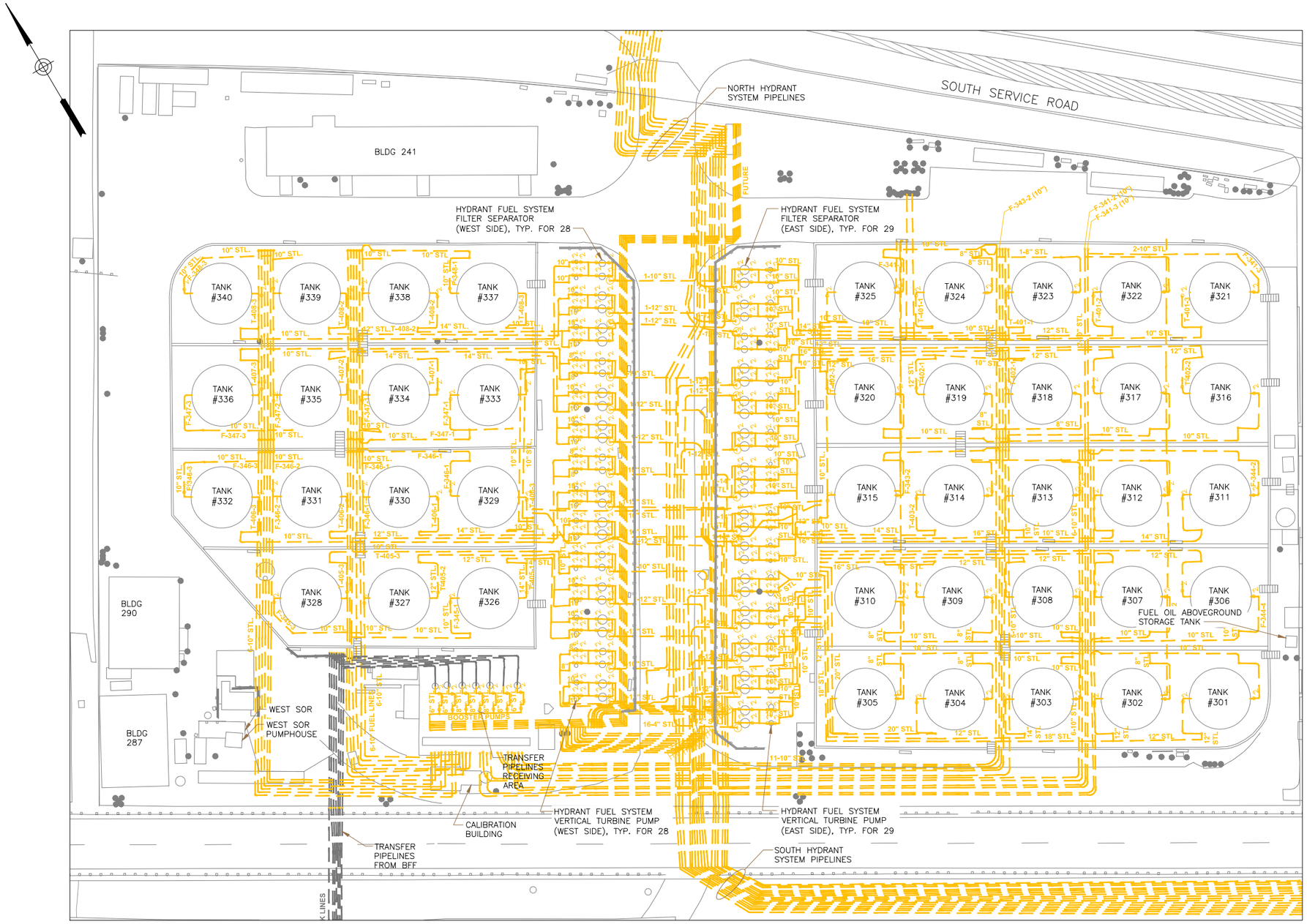
Date 06/24/2014

Contract Number

Drawing Number SFF-004

PID# XXXXXXXX

THE PORT AUTHORITY OF NY & NJ

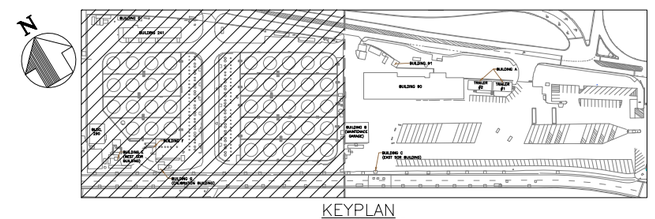


LEGEND:

FUEL PIPING

NOTES:
1. SEE SCHEMATIC FLOW DIAGRAM FOR DELINEATION OF ABOVEGROUND AND UNDERGROUND PIPING.
2. ALL ABOVEGROUND PIPING IS SUPPORTED BY STEEL MEMBER SUPPORTS

0 30 60
SCALE IN FEET



KEYPLAN
NOT TO SCALE

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING INTO-PLANE SERVICES

FUELING SYSTEM PLAN

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J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

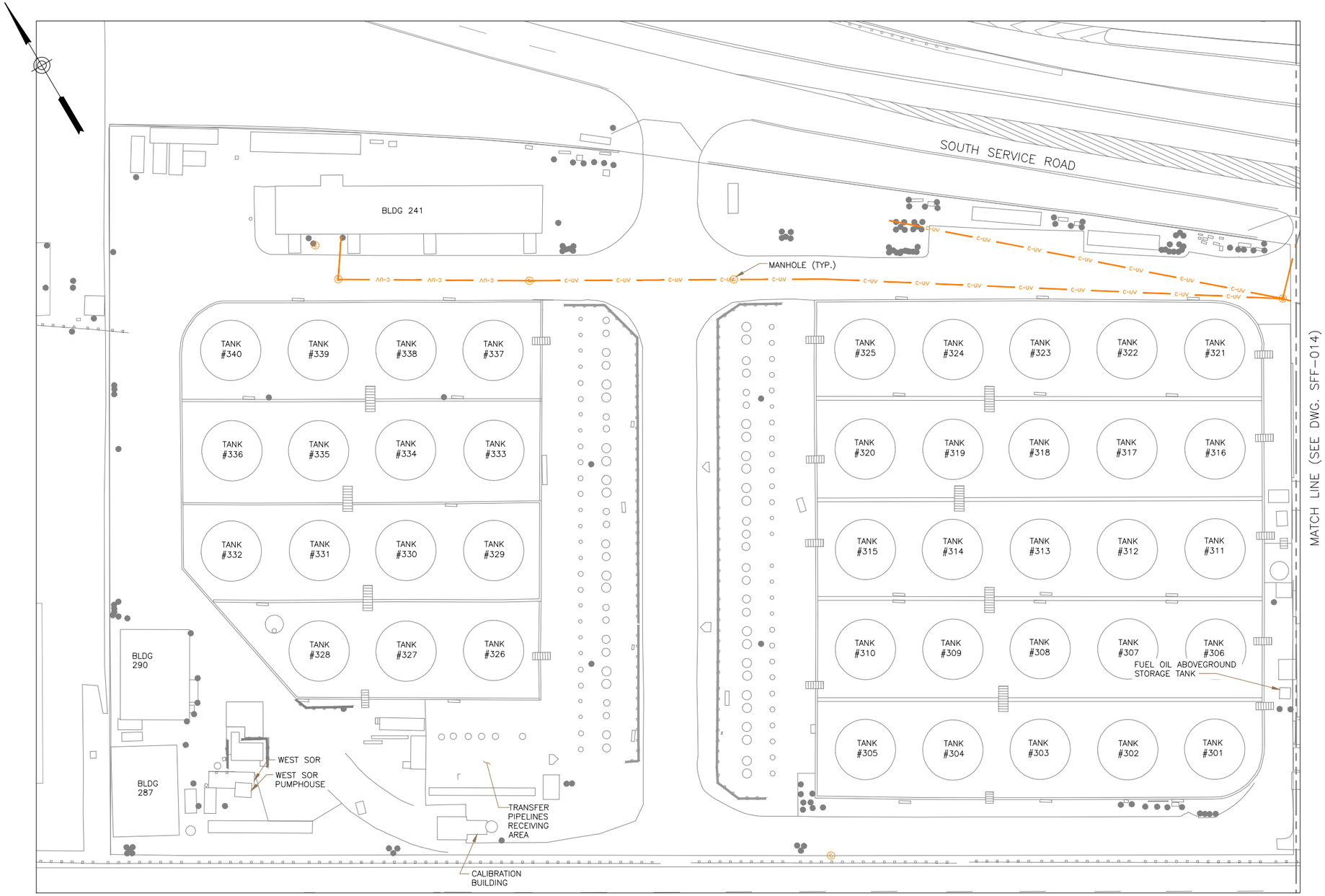
Date 06/24/2014

Contract Number

Drawing Number SFF-005

PID# XXXXXXXX

THE PORT AUTHORITY OF NY & NJ



LEGEND:

C-UV — COMMUNICATIONS CONDUIT

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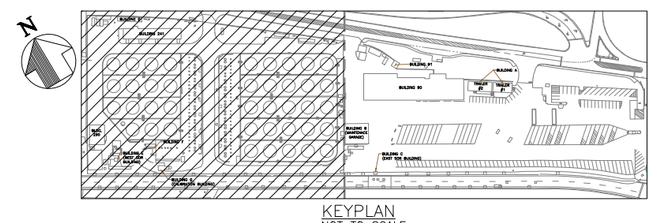
SCALE IN FEET



KEYPLAN
NOT TO SCALE

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING INTO-PLANE SERVICES

COMMUNICATIONS SYSTEM PLAN (1 OF 2)

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J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

Date 06/24/2014

Contract Number

Drawing Number SFF-006

PID# XXXXXXXX

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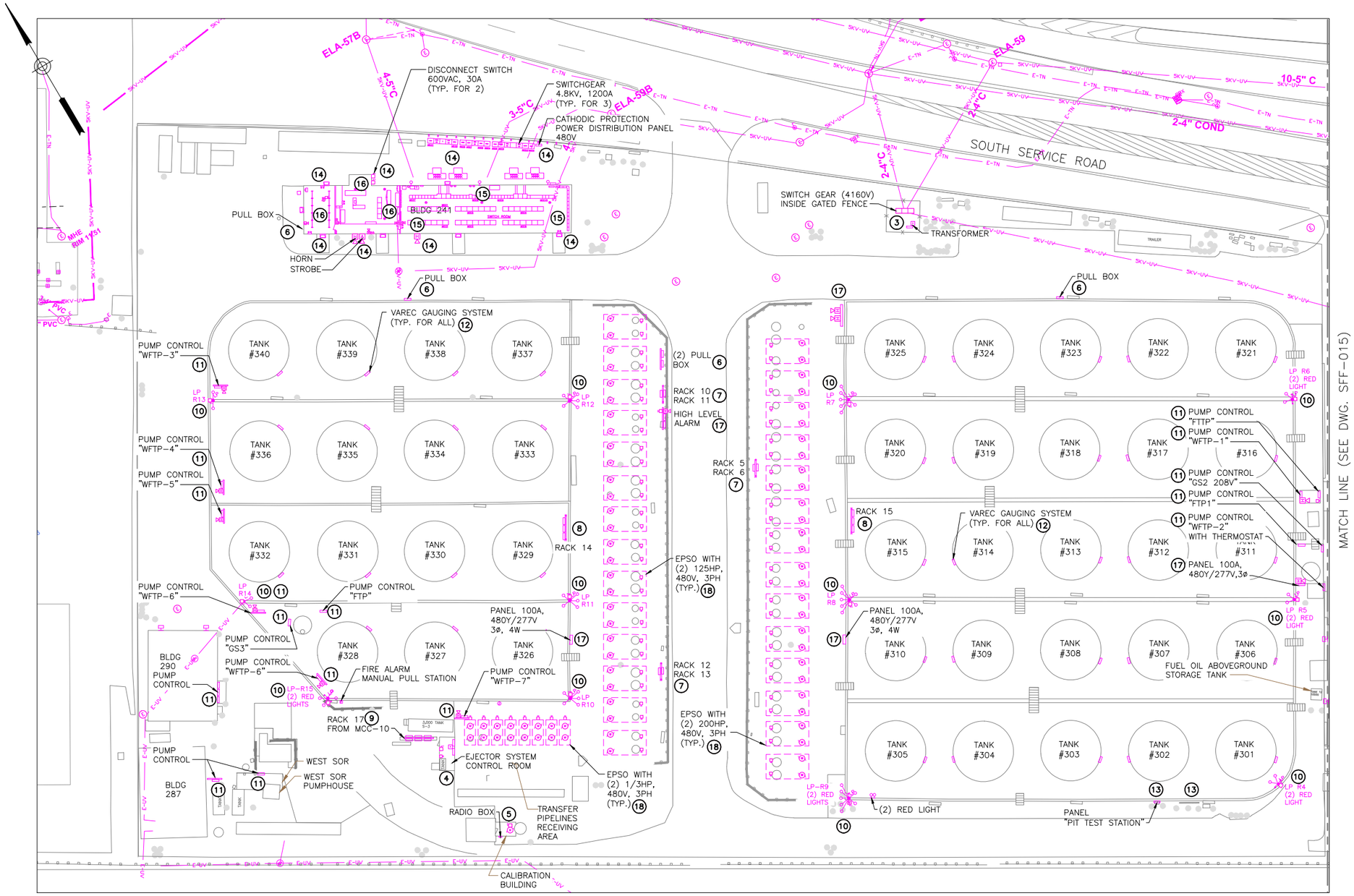
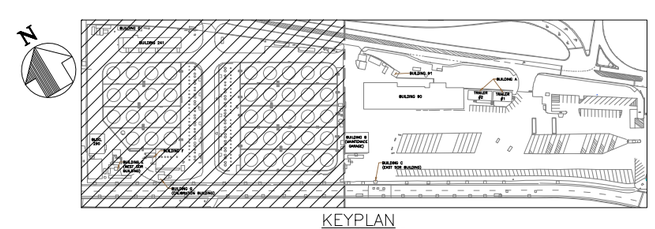


LEGEND:

- FLOOD LIGHT
- ALARM
- SPEAKER
- ACKNOWLEDGMENT/TEST
- TRANSFORMER
- DISCONNECT SWITCH
- (17) KEYNOTE, SEE ELECTRICAL SYSTEM INVENTORY LIST
- JUNCTION BOX
- WARNING LIGHT
- WALL MOUNTED LIGHT
- CIRCULAR LIGHT
- LIGHT POLE
- E-UV ELECTRICAL CONDUIT

0 30 60
SCALE IN FEET



KEYPLAN
NOT TO SCALE

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING INTO-PLANE SERVICES

ELECTRICAL SITE PLAN (1 OF 2)

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DES	DRN	CHK
Designed by	Drawn by	Checked by

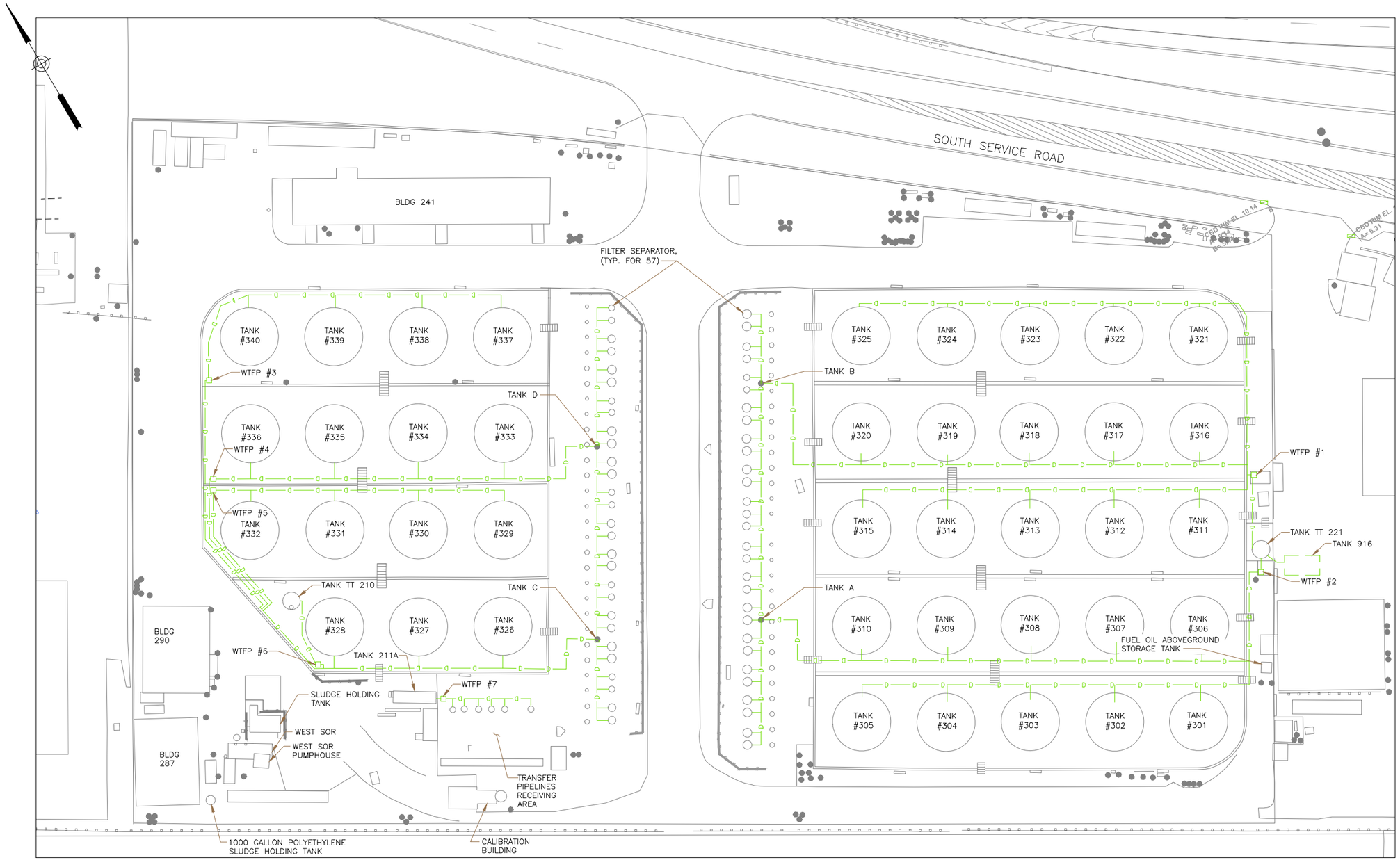
Date 06/24/2014

Contract Number

Drawing Number SFF-007

PID# XXXXXXXX

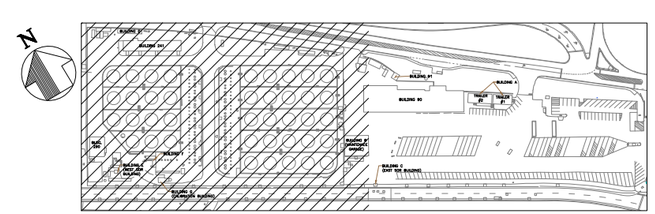
THE PORT AUTHORITY OF NY & NJ



LEGEND:

SUMP DRAINAGE PIPING

0 30 60
SCALE IN FEET



KEYPLAN
NOT TO SCALE

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING INTO-PLANE SERVICES

SUMP DRAINAGE SYSTEM PLAN

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J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

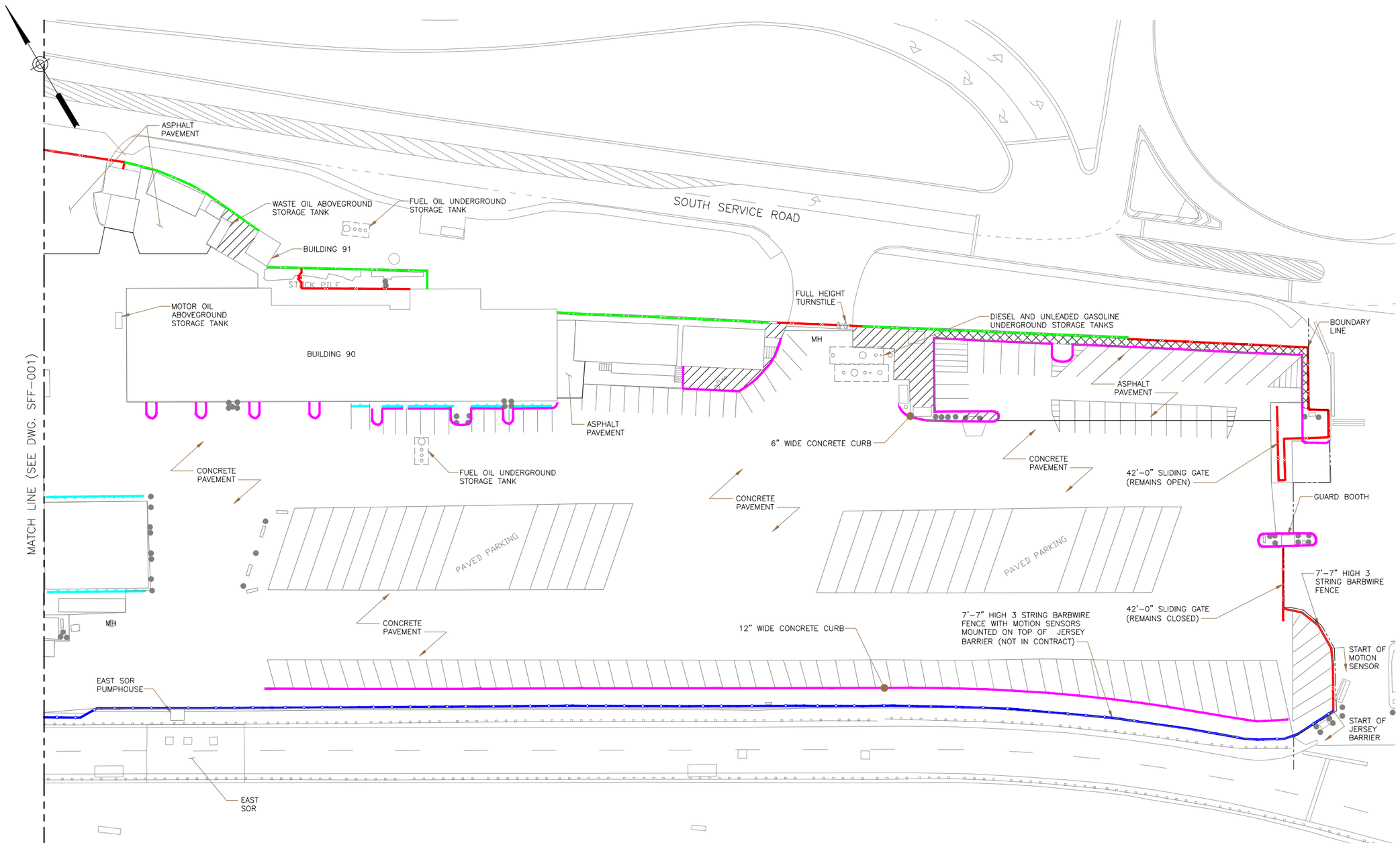
Date 06/24/2014

Contract Number

Drawing Number SFF-008

PID# XXXXXXXX

THE PORT AUTHORITY OF NY & NJ

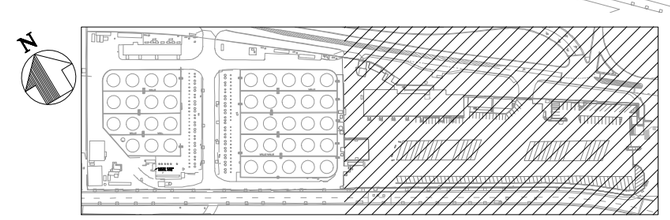


NOTE:
PAVEMENT STRIPPING SHOWN DOES NOT MATCH EXISTING, CONTRACTOR SHALL FIELD VERIFY.

LEGEND:

- 6'-7" HIGH CMU WALL W/ 3 BANDS OF BARBED WIRE.
- 7'-7" HIGH CHAINLINK FENCE W/ 3 BANDS OF BARBED WIRE.
- 7'-7" HIGH CHAINLINK FENCE W/ 3 BANDS OF BARBED WIRE EMBEDDED IN JERSEY BARRIERS AND FITTED WITH MOTION SENSORS (NOT IN CONTRACT)
- CONCRETE CURBING
- STEEL GUARDRAIL
- GRAVEL SURFACING
- GRASS SURFACING

0 30 60
SCALE IN FEET



KEYPLAN
NOT TO SCALE

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING INTO-PLANE SERVICES

SURFACE FEATURES IDENTIFICATION PLAN (2 OF 2)

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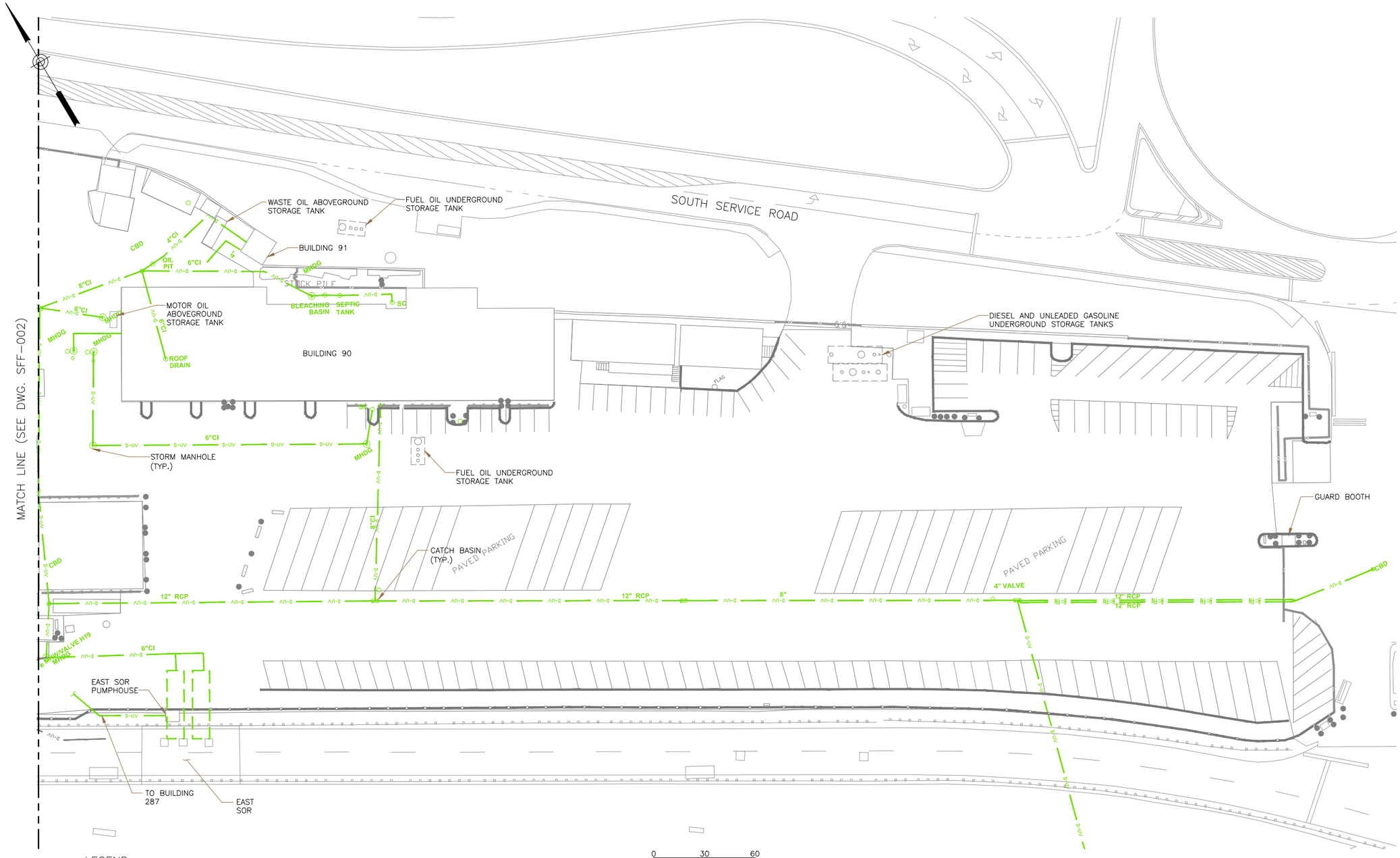
J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

Date 06/24/2014

Contract Number

Drawing Number SFF-009

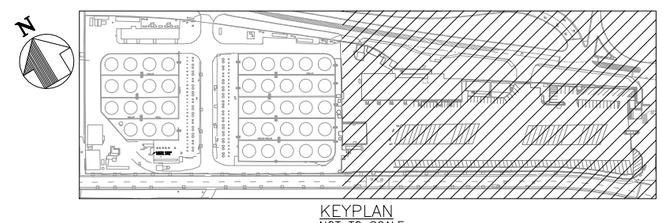
PID# XXXXXXXX



LEGEND:

D-UV — STORM WATER PIPING CONNECTED TO TREATMENT SYSTEM

0 30 60
SCALE IN FEET



KEYPLAN
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Sheet 12 of 25

THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING INTO-PLANE SERVICES

STORM DRAINAGE SYSTEM PLAN (2 OF 2)

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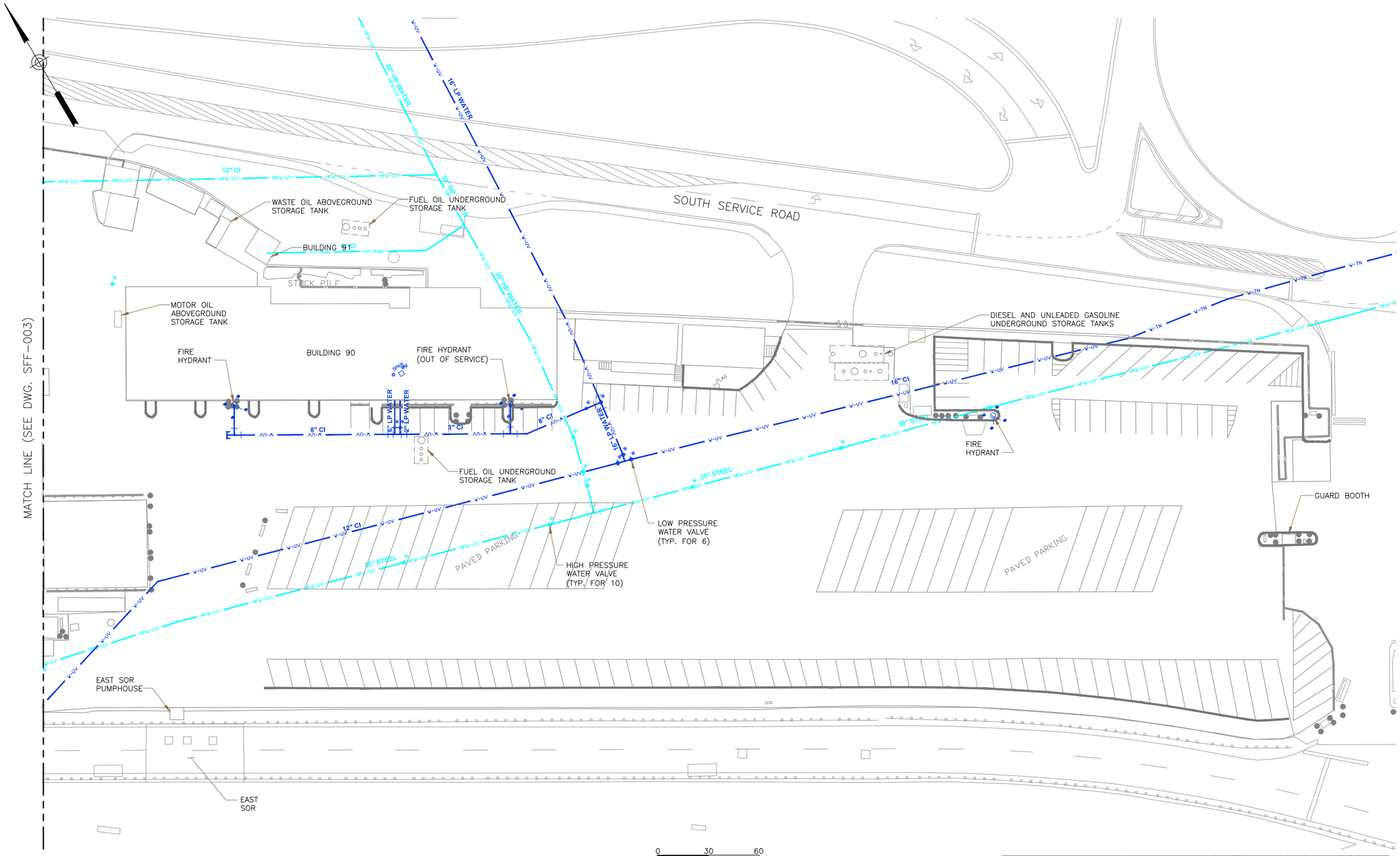
J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

Date 06/24/2014

Contract Number

Drawing Number SFF-010

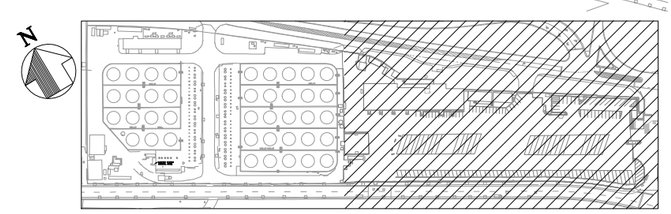
PID# XXXXXXXX



LEGEND:

HPV-UV — HIGH PRESSURE WATER

V-UV — LOW PRESSURE WATER



KEYPLAN
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Sheet 13 of 25

THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title

FUELING INTO-PLANE SERVICES

WATER SYSTEM PLAN (2 OF 2)

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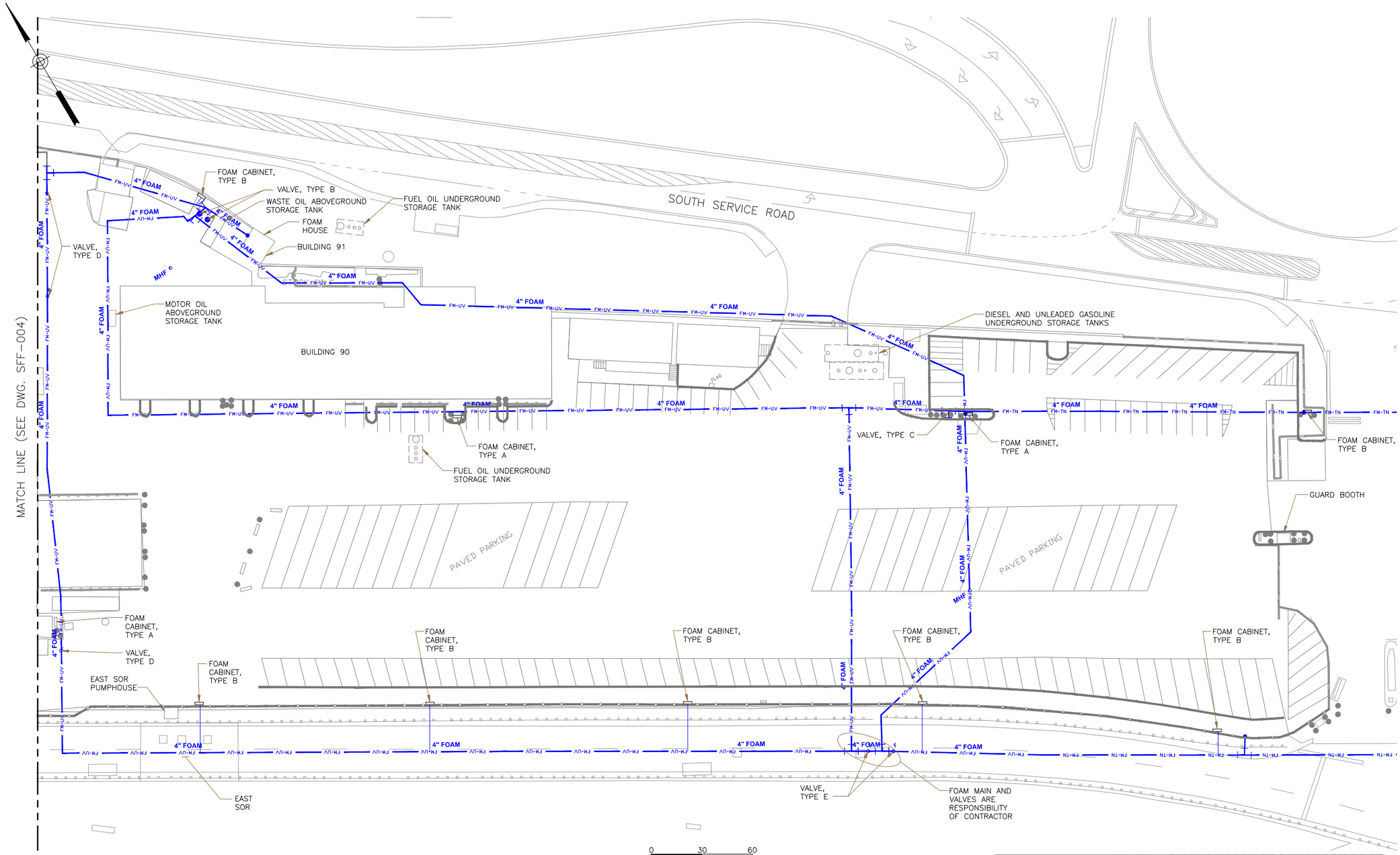
J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

Date 06/24/2014

Contract Number

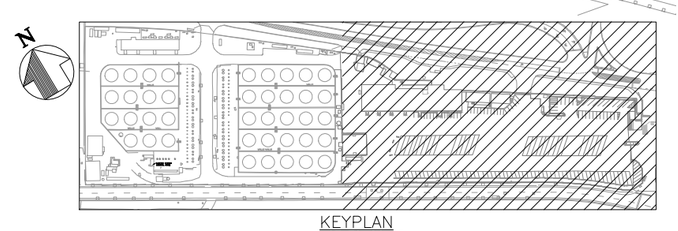
Drawing Number SFF-011

PID# XXXXXXXX



LEGEND:

FM-UV — FOAM PIPING



KEYPLAN
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Sheet 14 of 25

THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING INTO-PLANE SERVICES

AQUEOUS FIRE FIGHTING FOAM SYSTEM PLAN (2 OF 2)

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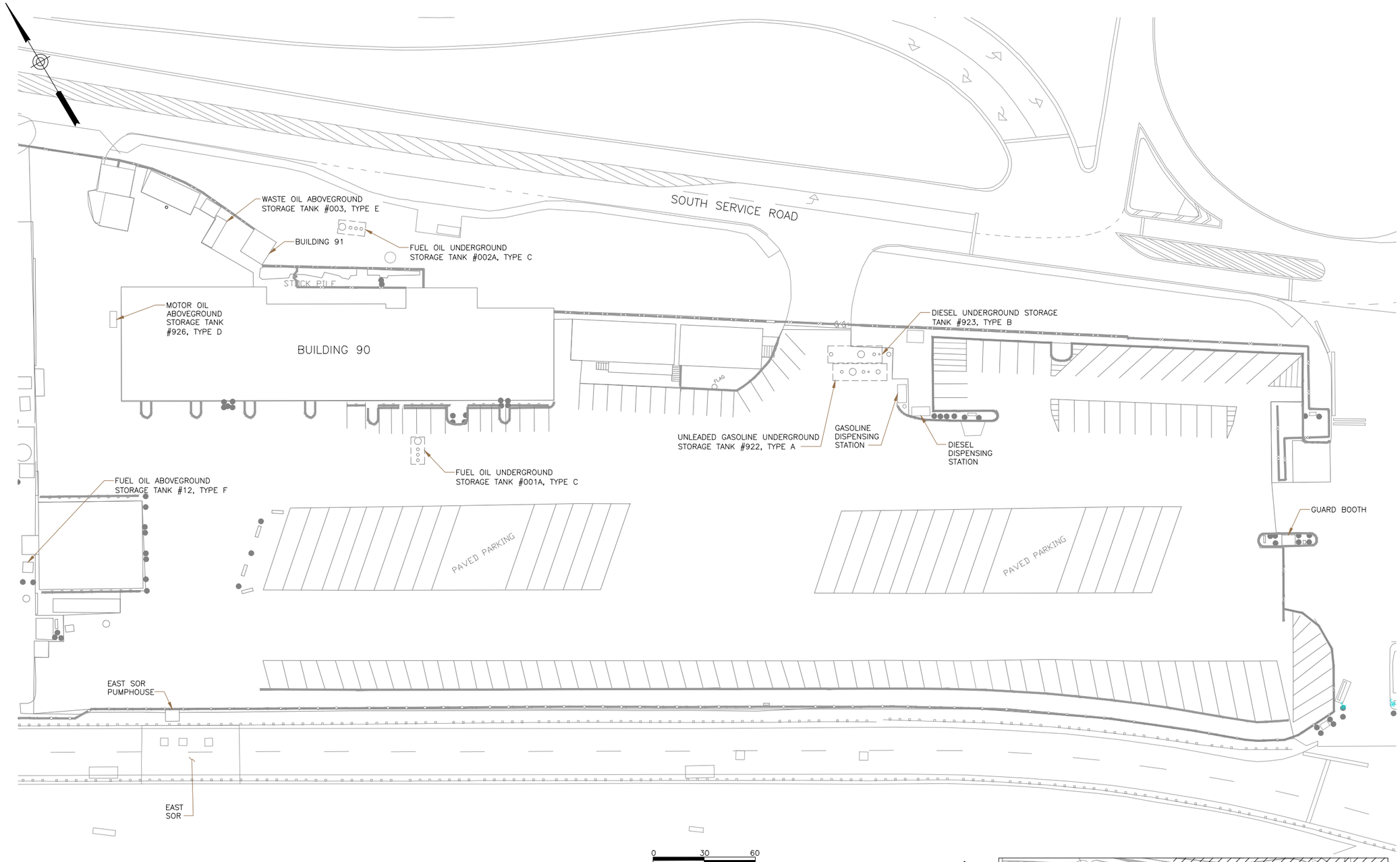
J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

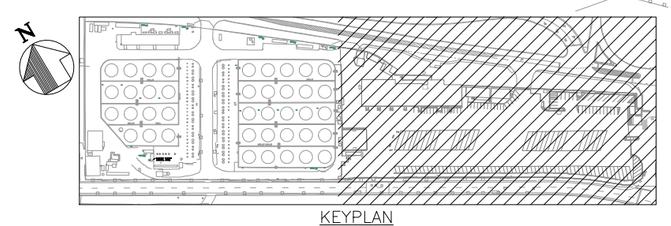
Date 06/24/2014

Contract Number

Drawing Number SFF-012

PID# XXXXXXXX





KEYPLAN
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Sheet 15 of 25

THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING INTO-PLANE SERVICES

FUEL STORAGE TANK PLAN

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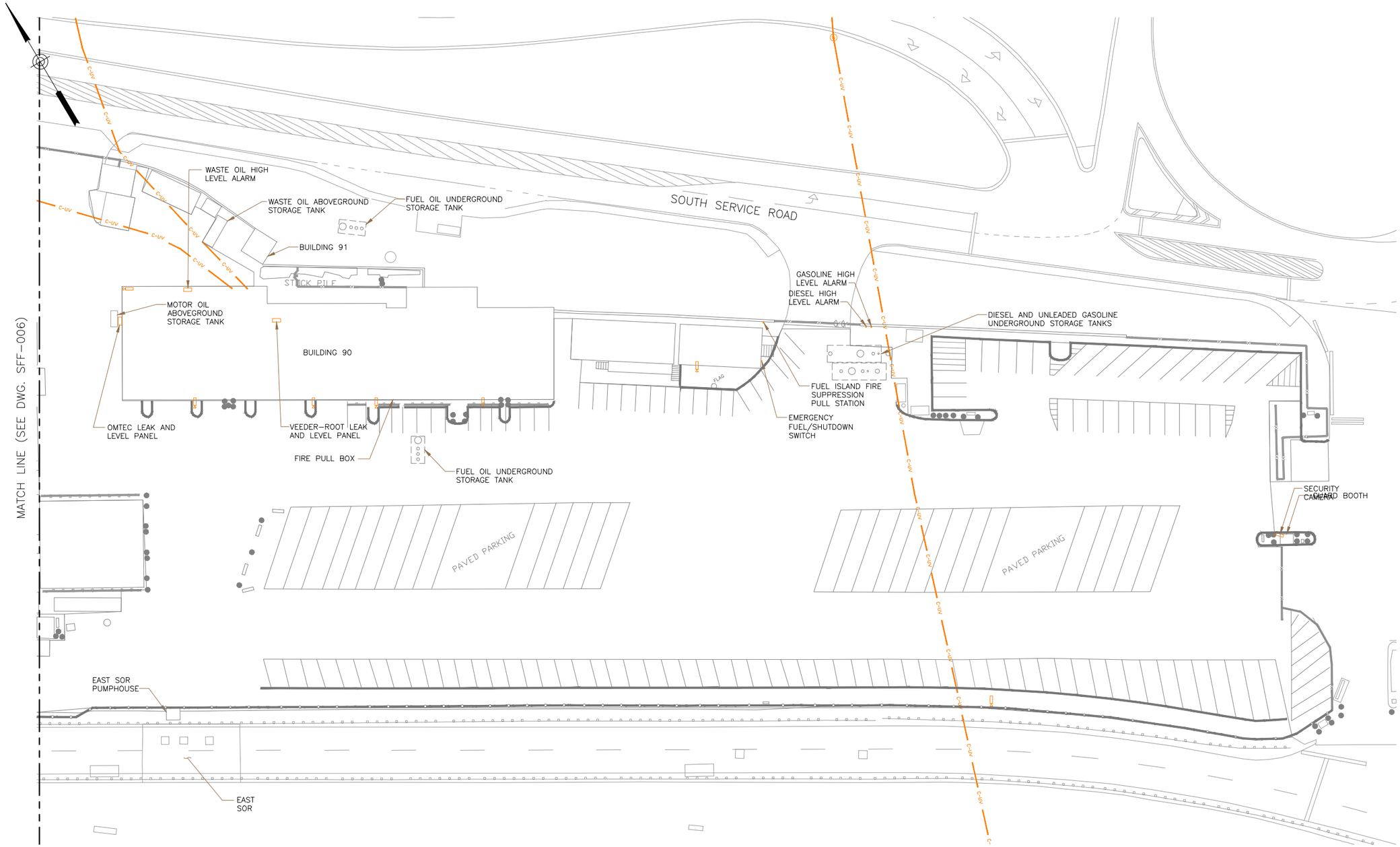
J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

Date 06/24/2014

Contract Number

Drawing Number **SFF-013**

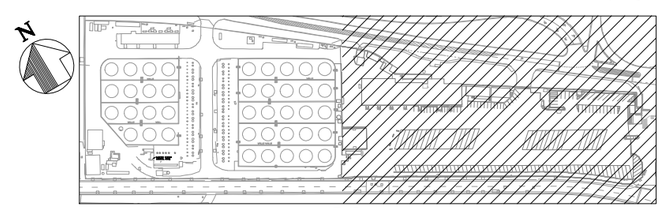
PID# XXXXXXXX



LEGEND:

C-UV — COMMUNICATIONS CONDUIT

CLOSED CIRCUIT TELEVISION CAMERA



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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title

FUELING INTO-PLANE SERVICES

COMMUNICATIONS SYSTEM PLAN (2 OF 2)

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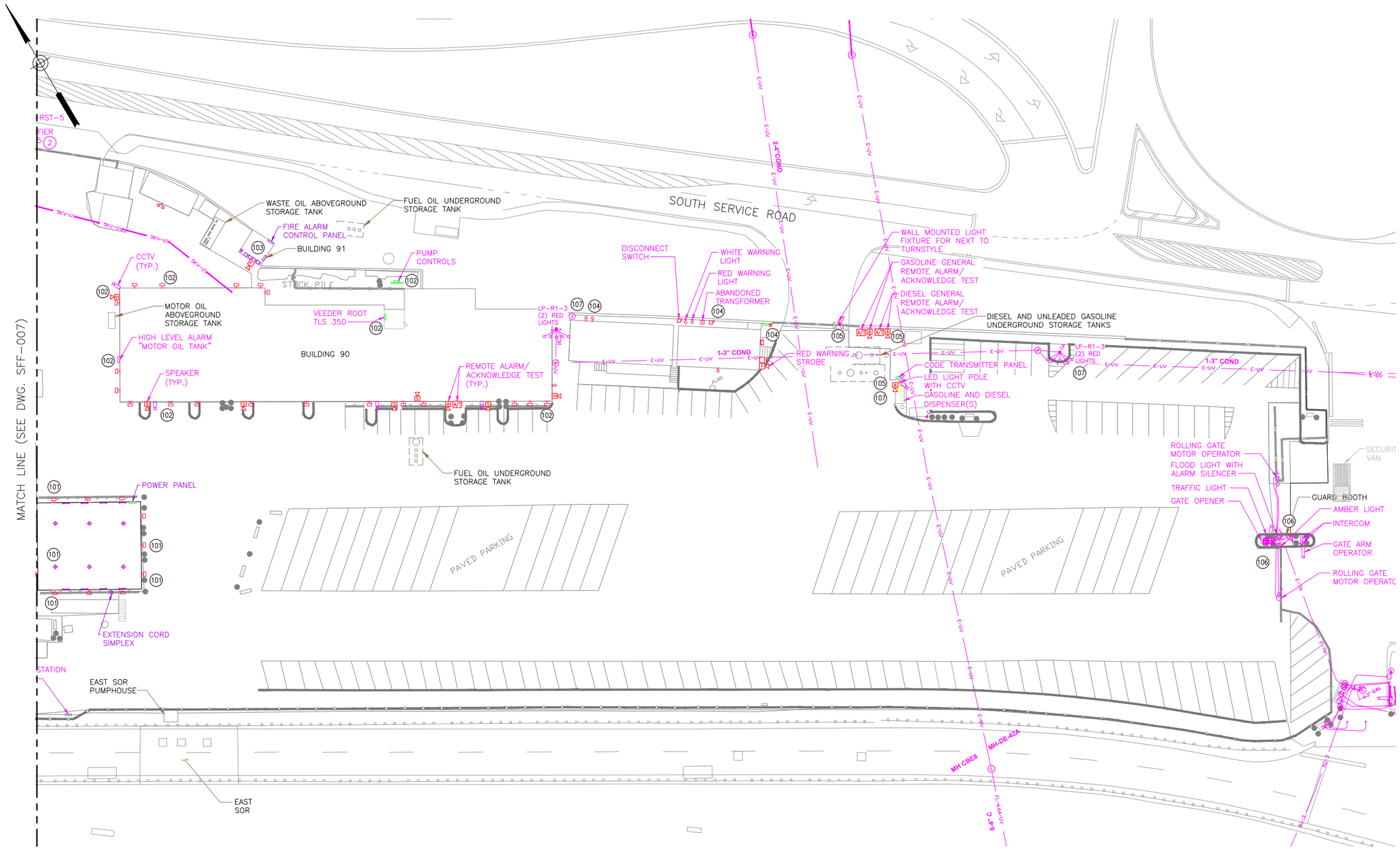
J.RECCO	AVROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

Date 06/24/2014

Contract Number

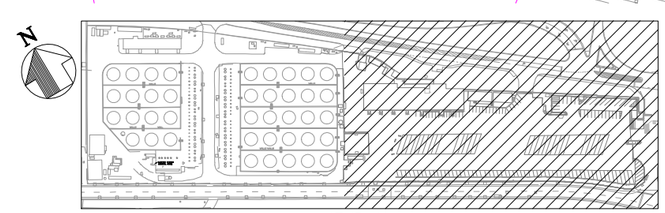
Drawing Number SFF-014

PID# XXXXXXXX



LEGEND:

	FLOOD LIGHT		JUNCTION BOX
	ALARM		WARNING LIGHT
	SPEAKER		WALL MOUNTED LIGHT
	ACKNOWLEDGMENT/TEST		CIRCULAR LIGHT
	TRANSFORMER		LIGHT POLE
	DISCONNECT SWITCH	E-UV	ELECTRICAL CONDUIT
17	KEYNOTE, SEE ELECTRICAL SYSTEM INVENTORY LIST		



KEYPLAN
NOT TO SCALE

Sheet 17 of 25

THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING INTO-PLANE SERVICES

ELECTRICAL SYSTEM PLAN

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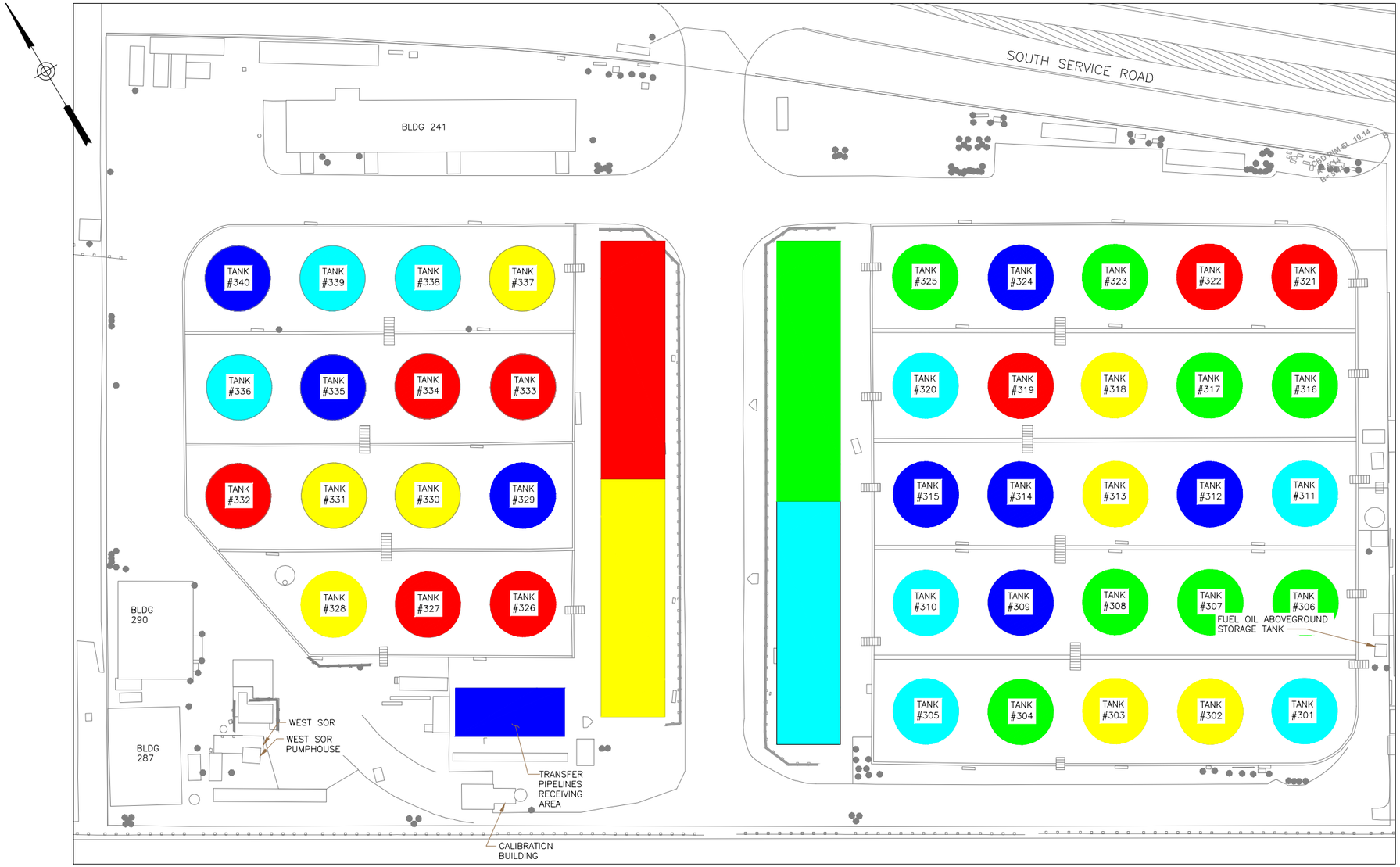
Designed by	Drawn by	Checked by
Date	06/24/2014	
Contract Number		

Drawing Number SFF-015

PID# XXXXXXXX

THE PORT AUTHORITY OF NY & NJ



PAINTING BY YEAR LEGEND:

- 2014 –
- 2015 –
- 2016 –
- 2017 –
- 2018 –

NOTES:

1. THE SCHEDULE FOR THE PAINTING OF ABOVEGROUND PIPING SHALL BE IN ACCORDANCE WITH THE FUEL TANK OR FILTER SEPARATOR IMMEDIATELY ADJACENT.
2. NAMEPLATES AND NON–METALLIC SURFACES SHALL NOT BE PAINTED.
3. UPON COMPLETION OF PAINTING ACTIVITIES, CONTRACTOR SHALL PROVIDE LABELING AS SPECIFIED IN ATTACHMENT A

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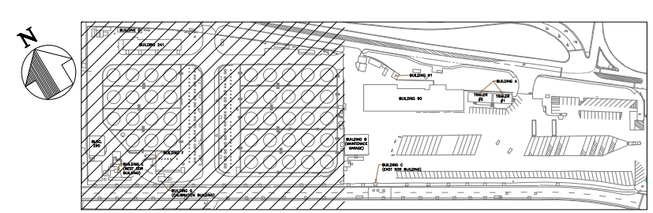
SCALE IN FEET



KEYPLAN
NOT TO SCALE

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING INTO-PLANE SERVICES

FUELING SYSTEM PAINTING DIAGRAM

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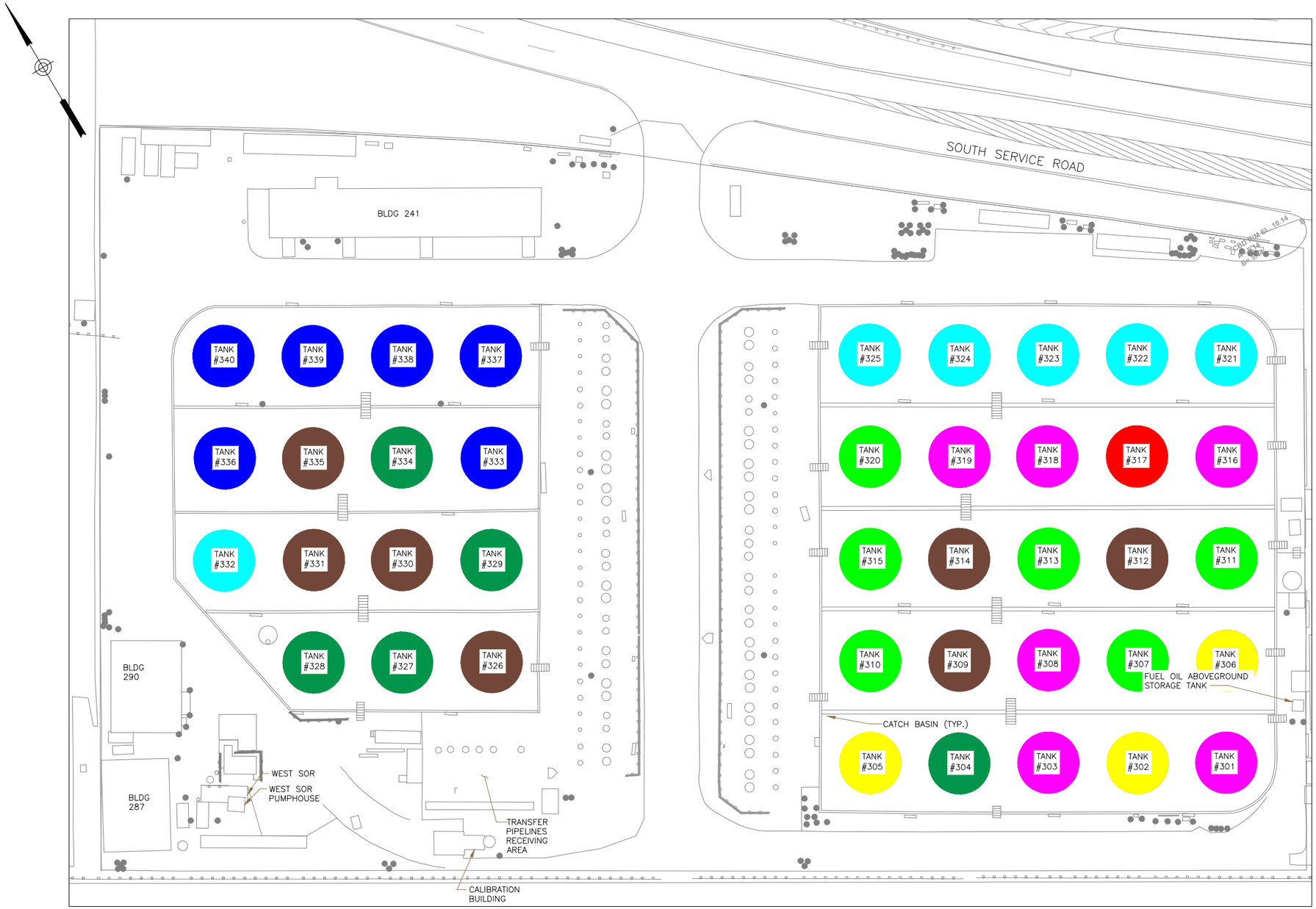
J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

Date 06/24/2014

Contract Number

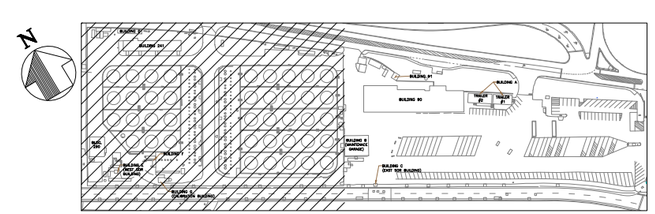
Drawing Number SFF-016

PID# XXXXXXXX



TANK INSPECTION BY YEAR LEGEND:

- 2015 –
- 2017 –
- 2018 –
- 2019 –
- 2020 –
- 2021 –
- 2022 –
- 2023 –



KEYPLAN
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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING INTO-PLANE SERVICES

API 653 TANK INSPECTION DIAGRAM

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J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

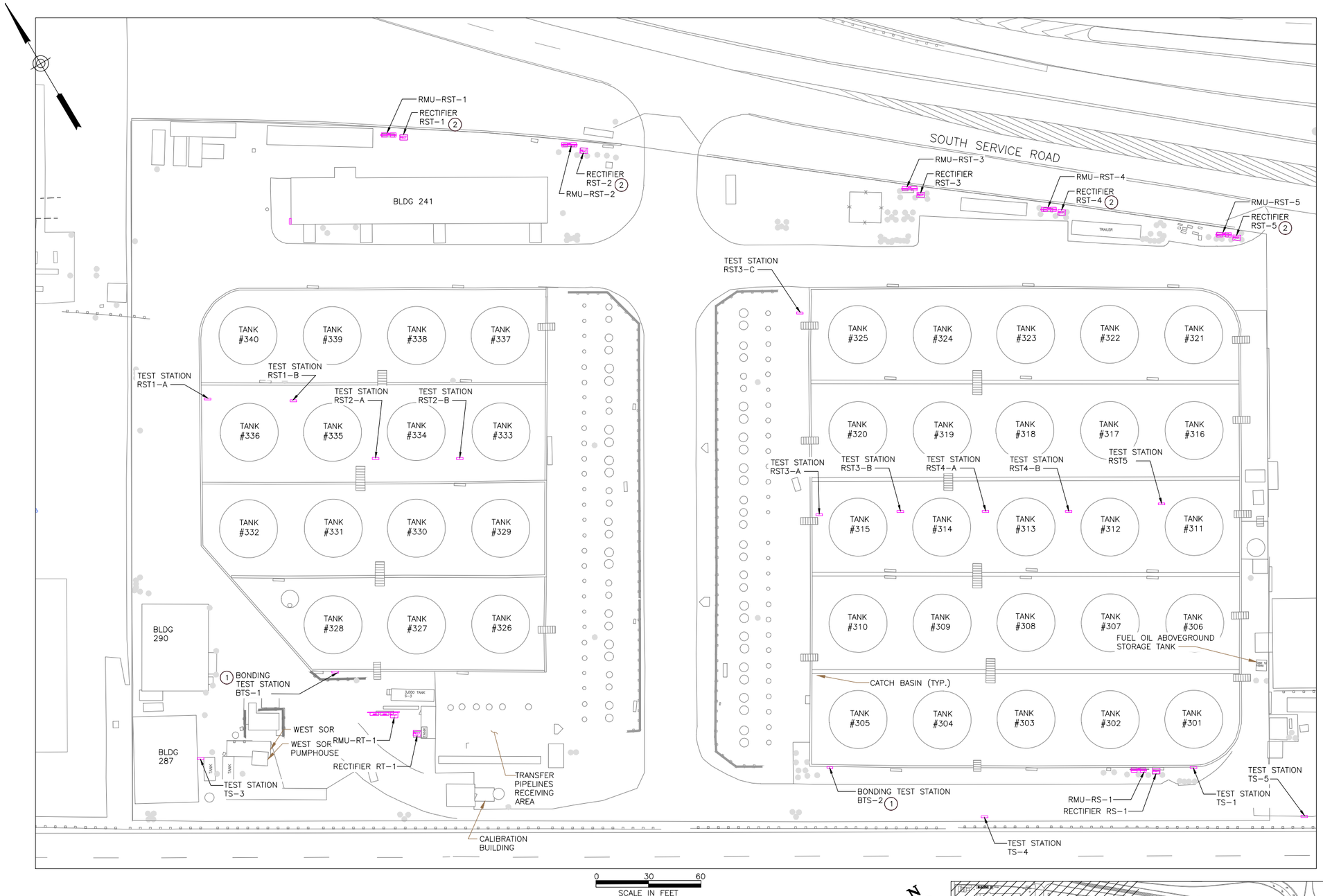
Date 06/24/2014

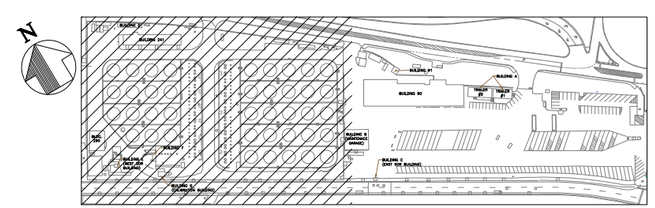
Contract Number

Drawing Number SFF-017

PID# XXXXXXXX

THE PORT AUTHORITY OF NY & NJ





KEYPLAN
NOT TO SCALE

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title

FUELING INTO-PLANE SERVICES

CATHODIC PROTECTION PLAN

This drawing subject to conditions in contract. All inventions, ideas, designs and methods herein are reserved to Port Authority and may not be used without its written consent.
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DES	DRN	CHK
Designed by	Drawn by	Checked by

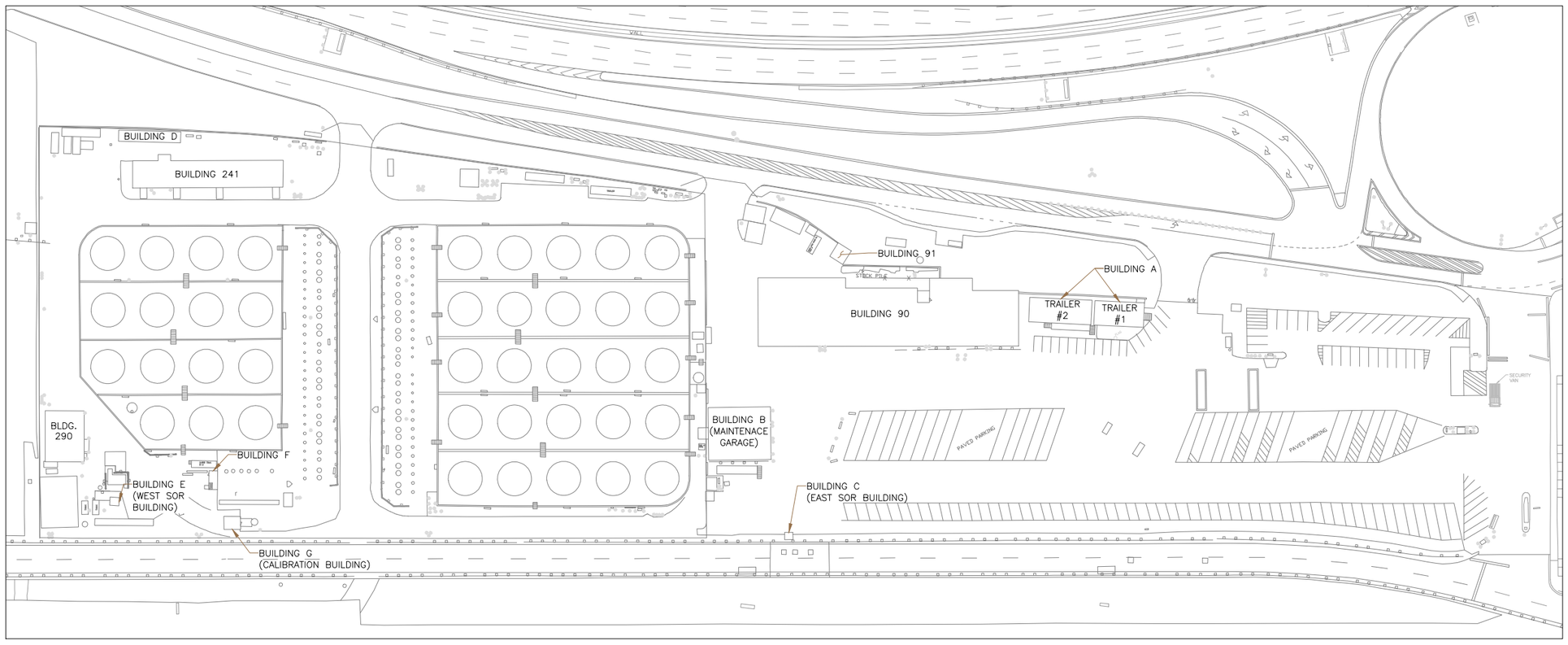
Date 06/24/2014

Contract Number

Drawing Number SFF-018

PID# XXXXXXXX

THE PORT AUTHORITY OF NY & NJ



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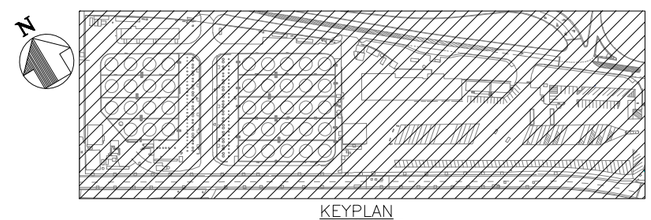
SCALE IN FEET



KEYPLAN
NOT TO SCALE

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING INTO-PLANE SERVICES

BUILDING INVENTORY LOCATION KEY PLAN

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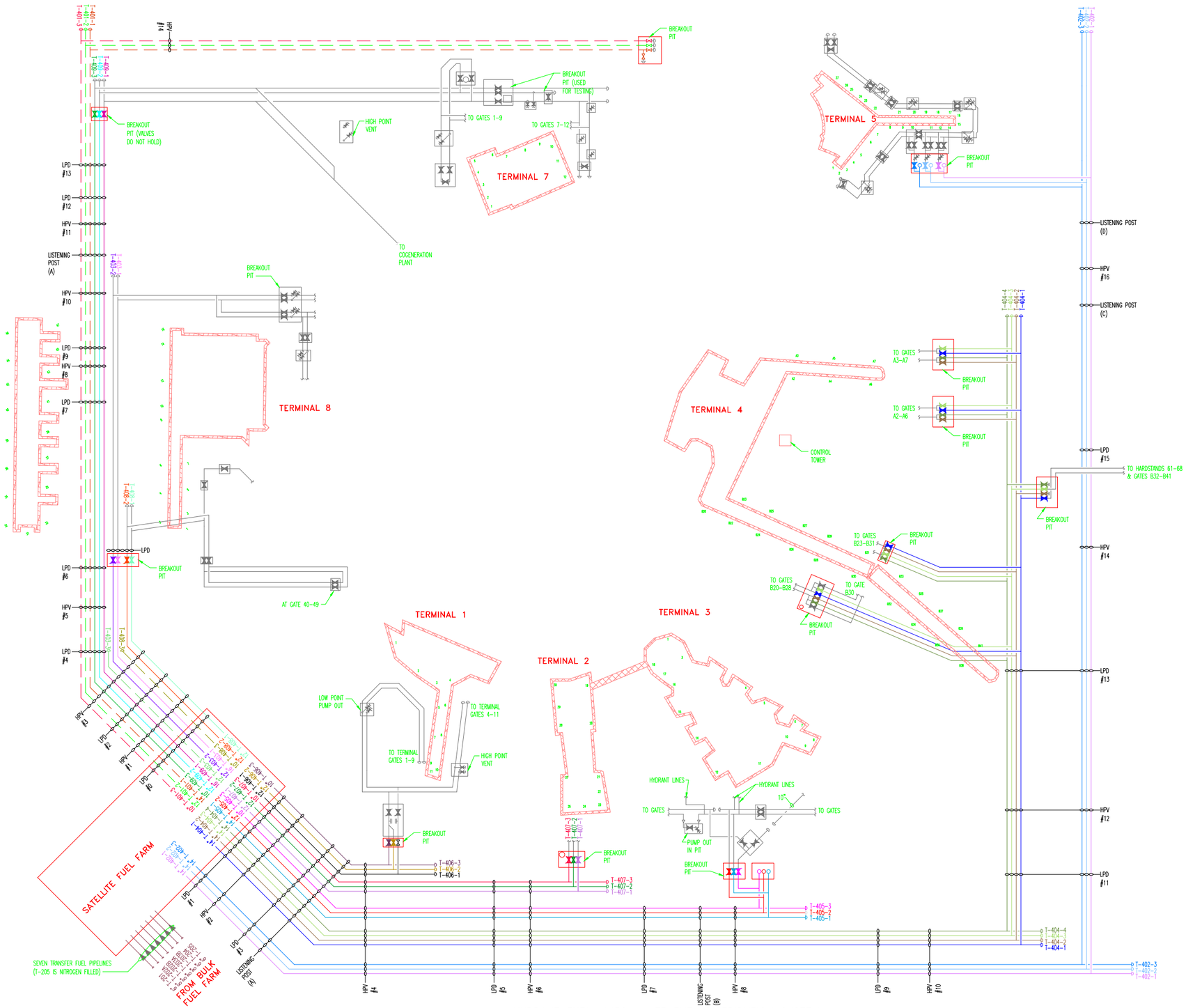
DES	DRN	CHK
Designed by	Drawn by	Checked by

Date 06/24/2014

Contract Number

Drawing Number SFF-019

PID# XXXXXXXX



HYDRANT FUEL LINES – JET FUEL DISTRIBUTION SYSTEM

NO SCALE

LEGEND

- FILTER SEPARATOR
- PREFILTER
- STRAINER
- FUEL METER
- FUEL PUMP
- GATE, GLOBE OR PLUG VALVE
- MOTOR OPERATED VALVE
- FLOW CONTROL VALVE
- BUTTERFLY VALVE
- LINE REDUCER
- END PIPE CAP
- BLIND FLANGED END
- ELBOW TURNING DOWN
- PROVISION FOR FUTURE CONNECTION
- FLOW DIRECTION
- PIG LAUNCHING CONNECTION
- PIG RECEIVING CONNECTION
- UNDERGROUND PIPING
- ABOVEGROUND PIPING
- PUMP OUT
- PIPE SEGMENT T-401-1 ABANDONED
- PIPE SEGMENT T-401-2 ABANDONED
- PIPE SEGMENT T-401-3 ABANDONED
- PIPE SEGMENT T-402-1
- PIPE SEGMENT T-402-2
- PIPE SEGMENT T-402-3
- PIPE SEGMENT T-403-1
- PIPE SEGMENT T-403-2
- PIPE SEGMENT T-403-3 (NITROGEN FILLED)
- PIPE SEGMENT T-404-1
- PIPE SEGMENT T-404-2
- PIPE SEGMENT T-404-3
- PIPE SEGMENT T-404-4
- PIPE SEGMENT T-405-1
- PIPE SEGMENT T-405-2
- PIPE SEGMENT T-405-3
- PIPE SEGMENT T-406-1
- PIPE SEGMENT T-406-2
- PIPE SEGMENT T-406-3
- PIPE SEGMENT T-407-1
- PIPE SEGMENT T-407-2
- PIPE SEGMENT T-407-3
- PIPE SEGMENT T-408-1
- PIPE SEGMENT T-408-2
- PIPE SEGMENT T-408-3 (NITROGEN FILLED)
- PIPE SEGMENT T-409-1
- PIPE SEGMENT T-409-2
- PIPE SEGMENT T-409-3
- FUEL TRANSFER PIPELINE
- TENANT SYSTEMS

ABBREVIATIONS

LPD	LOW POINT DRAIN
HPV	HIGH POINT VENT

THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title

FUELING INTO-PLANE SERVICES

HYDRANT FUEL PIPELINES JET FUEL DISTRIBUTION SCHEMATIC FLOW DIAGRAM

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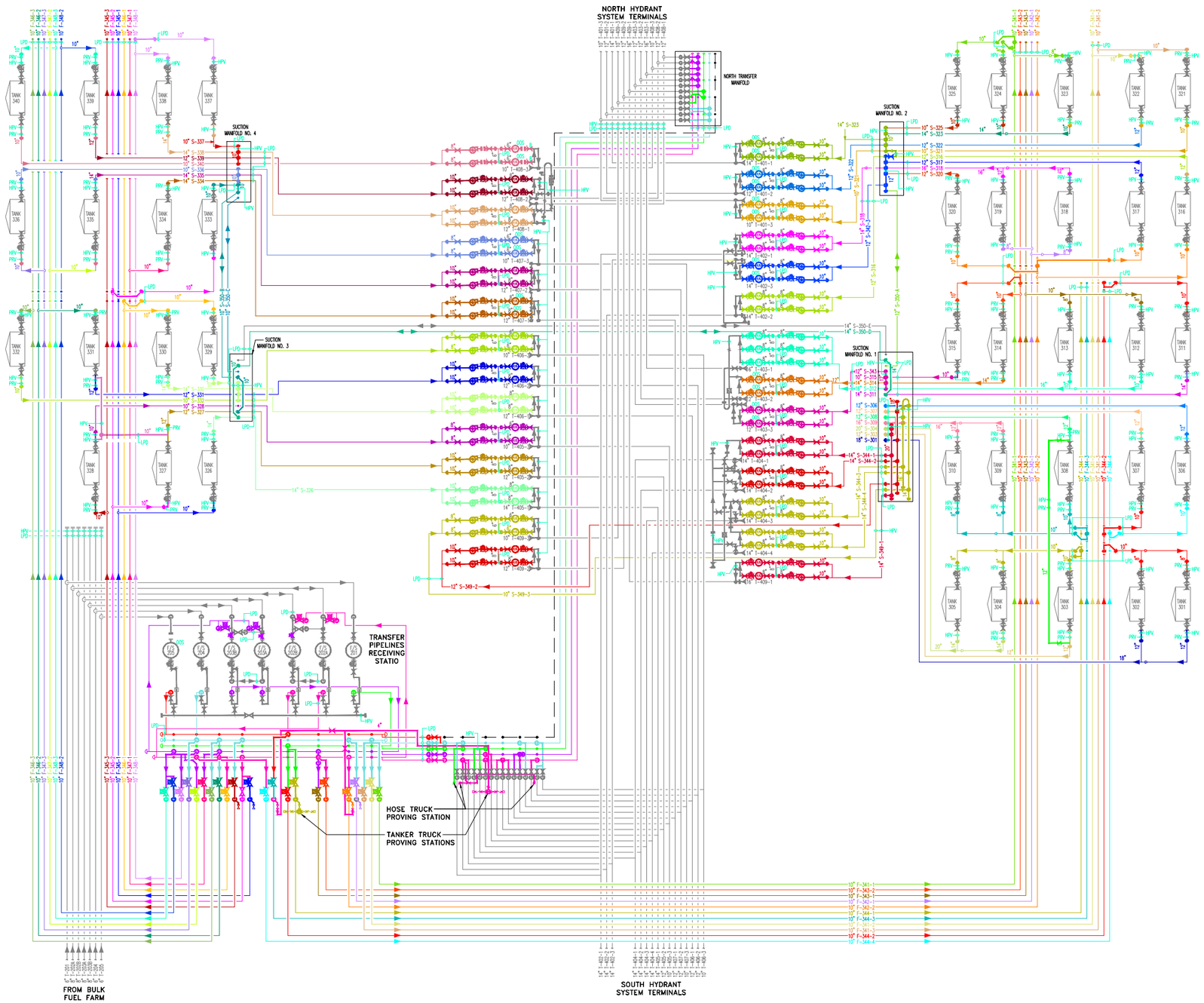
J.RECCO	D.ALMEIDA	K.CHOW
Designed by	Drawn by	Checked by

Date 06/24/2014

Contract Number

Drawing Number M001

PID# XXXXXXXX



SATELLITE FUEL FARM – JET FUEL DISTRIBUTION SYSTEM
NO SCALE

LEGEND

- FILTER SEPARATOR
- PREFILTER
- STRAINER
- FUEL METER
- FUEL PUMP
- GATE, GLOBE OR PLUG VALVE
- MOTOR OPERATED VALVE
- FLOW CONTROL VALVE
- LINE REDUCER
- END PIPE CAP
- BLIND FLANGED END
- ELBOW TURNING DOWN
- PROVISION FOR FUTURE CONNECTION
- FLOW DIRECTION
- PIG LAUNCHING CONNECTION
- PIG RECEIVING CONNECTION
- UNDERGROUND PIPING
- ABOVEGROUND PIPING
- B — BLIND FOUND AT LOCATION AT TIME OF INSPECTION
- OOS — ITEM OUT OF SERVICE AT TIME OF INSPECTION
- HPV — HIGH POINT VENT
- LPD — LOW POINT DRAIN
- PRV — PRESSURE RELIEF VALVE
- PIPE SEGMENT #1
- PIPE SEGMENT #2
- PIPE SEGMENT #3
- PIPE SEGMENT #4
- PIPE SEGMENT #5
- PIPE SEGMENT #6
- PIPE SEGMENT #7
- PIPE SEGMENT #8
- PIPE SEGMENT #9
- PIPE SEGMENT #10
- PIPE SEGMENT #11
- PIPE SEGMENT #12
- PORTION OF PIPE SEGMENT #12 (SLURRY FILLED)
- PIPE SEGMENT #13
- PIPE SEGMENT #14
- PIPE SEGMENT #15
- PIPE SEGMENT #16
- PIPE SEGMENT #17
- PIPE SEGMENT #18
- PIPE SEGMENT #19
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- PIPE SEGMENT #67
- PIPE SEGMENT #68
- PIPE SEGMENT #69
- PIPE SEGMENT #70
- PIPE SEGMENT #71
- PIPE SEGMENT #72
- PIPING AND EQUIPMENT NOT TO BE TESTED
- SLURRY-FILLED ABANDONED PIPING

Sheet 23 of 25

THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title
FUELING INTO-PLANE SERVICES

SATELLITE FUEL FARM SCHEMATIC FLOW DIAGRAM

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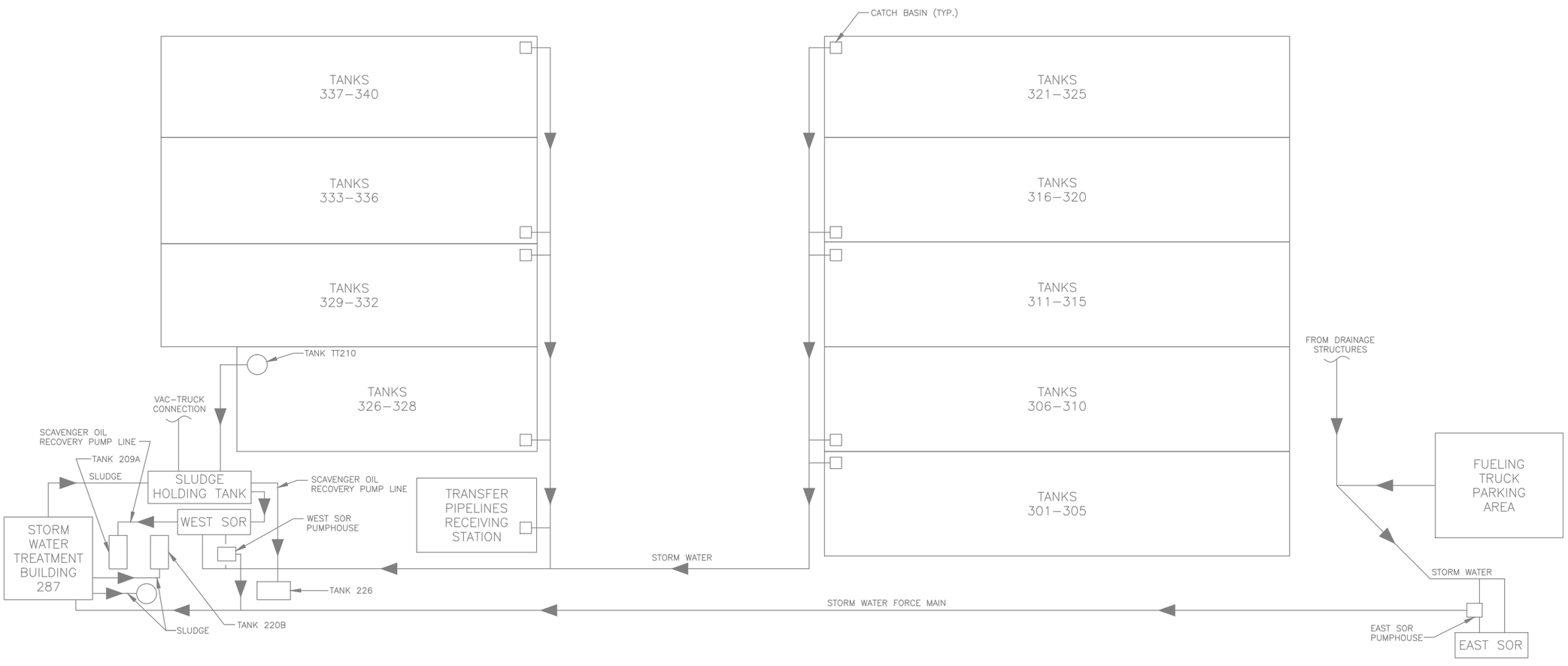
J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

Date 06/24/2014

Contract Number

Drawing Number M002

PID# XXXXXXXX



STORM WATER SYSTEM FLOW SCHEMATIC

Sheet 24 of 25

THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title

FUELING INTO-PLANE SERVICES

STORM WATER SYSTEM FLOW SCHEMATIC

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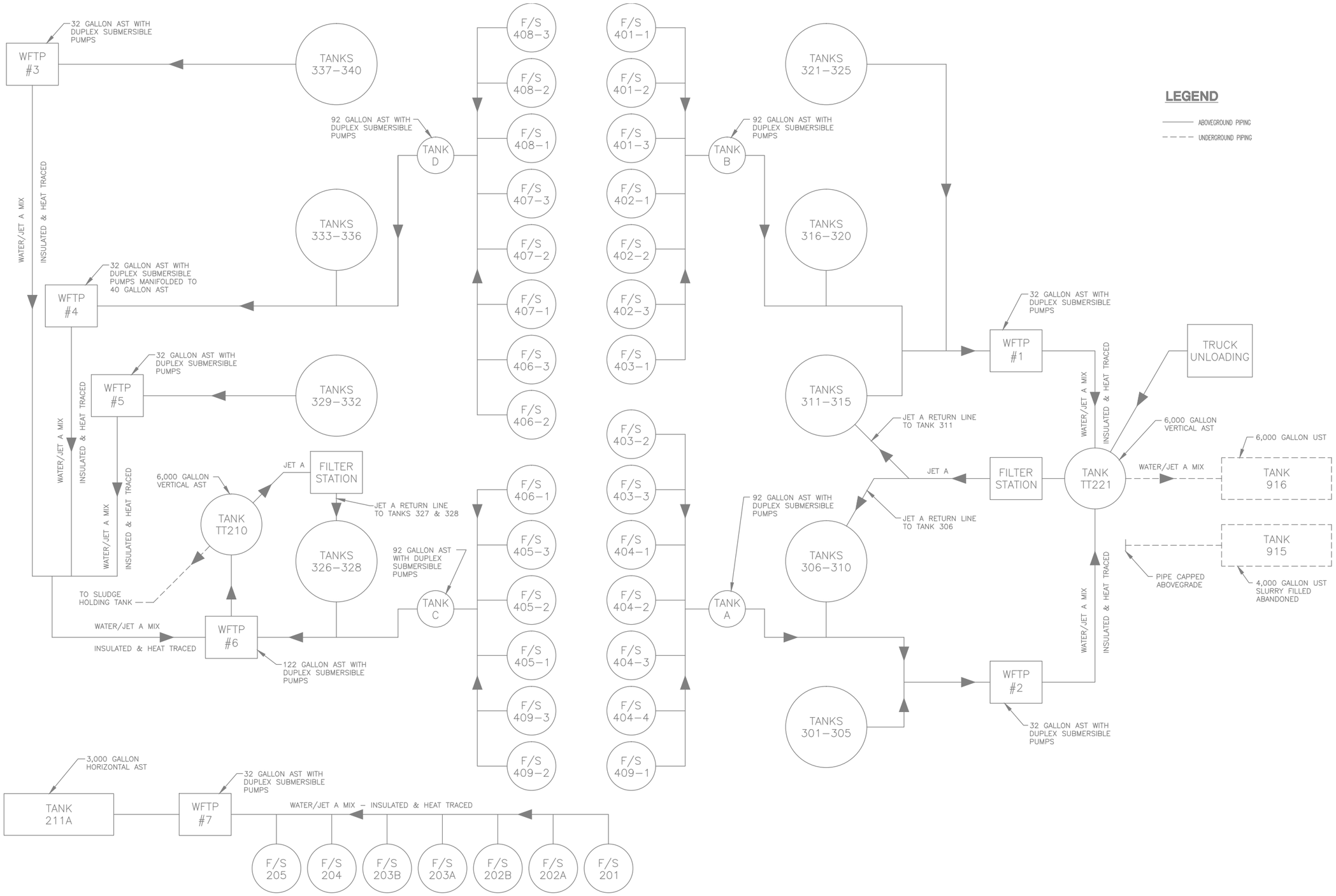
Designed by	Drawn by	Checked by
J.RECCO	A.VROEGINDEWEY	K.CHOW

Date 06/24/2014

Contract Number

Drawing Number M003

PID# XXXXXXXX



WATER DRAWOFF SYSTEM FLOW SCHEMATIC

Sheet 25 of 25

THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOHN F. KENNEDY INTERNATIONAL AIRPORT

MECHANICAL

Title

FUELING INTO-PLANE SERVICES

SUMP DRAINAGE SYSTEM FLOW SCHEMATIC

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J.RECCO	A.VROEGINDEWEY	K.CHOW
Designed by	Drawn by	Checked by

Date 06/24/2014

Contract Number

Drawing Number M004

PID# XXXXXXXX

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

AIRPORT RULES AND REGULATIONS

Issued by:

The Port Authority of NY & NJ
Aviation Department

Issue Date: August 4, 2009

FOREWORD

Commensurate with the management of the airports coming under the jurisdiction of the Port Authority of New York and New Jersey, the Air Terminal Rules and Regulations as set forth herein have been adopted in the interest of safe, efficient, and environmentally sensitive operation, and apply to John F. Kennedy International, LaGuardia, Newark Liberty International, Stewart International and Teterboro Airports.

The Managers of these airports are authorized to act for the undersigned in connection with all Port Authority rules and regulations.

William R. DeCota
Director of Aviation

PORT AUTHORITY AIR TERMINALS

John F. Kennedy International Airport
Jamaica, New York 11430
Telephone: (718) 244-4444

LaGuardia Airport
Flushing, New York 11371
Telephone: (718) 533-3700

Newark Liberty International Airport
Newark, New Jersey 07114
Telephone: (973) 961-6007

Stewart International Airport
New Windsor, NY 12553
Telephone: (877) 793-0703

Teterboro Airport
Teterboro, New Jersey
Telephone: (201) 288-1775

An electronic version of this document is available at: www.panynj.gov.

General Manager Office addresses:

John F. Kennedy International Airport
General Manager's Office
Building 14, 2nd Floor
or
Operations Office, Building 145
Jamaica, NY 11430

Stewart International Airport
General Manager's Office
1180 First Street
New Windsor, NY 12553

LaGuardia Airport
General Manager's Office
Hangar 7C
or
Operations Office
Central Terminal Building
Flushing, New York 11371

Teterboro Airport
Office of the Manager
90 Moonachie Avenue
Teterboro, New Jersey 07608
or
Operations Department
111 Industrial Avenue
Teterboro, New Jersey 07608

Newark Liberty International Airport
Conrad Road, Building #1
Building One
Newark, NJ 07114
or
Conrad Road, Building #1
Building One
Newark, NJ 07114

Copies of maps showing the air terminal highways at LaGuardia, John F. Kennedy International, Newark Liberty International and Stewart International Airports are available upon request at the above locations, and are on file with the Secretary of the Port Authority.

Airport bulletins may be issued by the Managers as necessary to amend these Rules & Regulations.

Issued August 4, 2009, pursuant to Article IX of the by-laws of The Port Authority's of New York and New Jersey adopted at a meeting of the Board of Commissioners held on July 26, 2007, and amended at a meeting of that body on May 22, 2008.

Page Revision Log

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GENERAL

I. GENERAL CONDITIONS

This Chapter establishes certain conditions relating to the use of Port Authority Air Terminals and highways.

A. USE OF AIR TERMINAL HIGHWAYS

Air Terminal highways may be used as a means of ingress and egress by vehicles to, from and between the streets and highways outside Air Terminals with which such highways connect and the various buildings and land area at the Air Terminal abutting upon such highways; and sidewalks along such highways (and other portions of such highways when designated for that purpose) may be used by pedestrians as a means of ingress and egress to, from and between various portions of the Air Terminal.

B. USE OF AIR TERMINALS

1. Use of any area or portion of an Air Terminal in a manner contrary to law or a manner contrary to the Airport Rules and Regulations may result in a withdrawal of permission to enter or remain in such air terminal by the Port Authority.
2. Nothing herein contained shall be construed to limit the use of any area or portion of any air terminal by officers or employees of the Port Authority, or by Port Authority contractors, or to prevent any Police Officer, Fire Officer or other public officer or employee from entering upon any part of the air terminal when properly required so to do in the performance of his official duties.
3. The Port Authority may prohibit any conduct that violates any requirement for, or condition of, the receipt of federal grant in aid funds, the approval of the imposition of Passenger Facility Charges, or any other governmental program in which the Port Authority participates to obtain funds for use at an Airport.

AIRPORT SECURITY

II. AIRPORT SECURITY

A. ADHERENCE TO SECURITY REGULATIONS & PROCEDURES

All persons entering an Air Terminal shall comply with all applicable security regulations and procedures as established by the Port Authority pursuant to 49 CFR, Chapter XII, Parts 1540 and 1542, as amended, with the exception of Teterboro Airport, at which security regulations established separately by the Teterboro Airport Manager are applicable.

B. MANAGER'S RIGHT TO RESCIND ACCESS

The Manager shall have the right to rescind permission for the use of any access control device and confiscate any Airport ID previously given to any individual for any lawful reason, including but not limited to violations of airport security and violations of Airport Rules and Regulations.

C. VALID IDENTIFICATION & ESCORT REQUIREMENTS

No person may enter or be in the Airport Operations Area (AOA) or Security Identification Display Area (SIDA) unless he or she is:

1. Displaying a valid Airport ID indicating that he or she has unescorted access privileges; or,
2. in the case of a location subject to an Exclusive Area Agreement, which allows the use of an Air Carrier ID for limited access to the AOA or SIDA, displaying a valid approved Air Carrier ID; or,
3. in the case of aircraft crewmembers, dressed in the full uniform of his/her company, displaying a photo ID issued by an authorizing airline; or,
4. in the case of an FAA Aviation Safety Inspector conducting his/her assigned duties, displaying an FAA Form 8000-39 with photograph; or,
5. under the escort of an individual not employed by the same company as the person being escorted who has a valid Airport Operator Identification Card indicating that he or she has unescorted access privileges and privileges to escort others.

D. FLIGHT CREWS

1. Flight crew members may, when wearing a valid ID as noted herein, dressed in the full uniform of his/her company, and when performing the duties of their flight crew assignment, have unescorted access to certain areas of the AOA or SIDA only:

   a. To travel directly from the terminal building to the aircraft to which they are assigned and/or,

   b. to perform necessary assigned flight checks on an aircraft, but only while remaining within 25 feet of that aircraft; and,

   c. no unnecessary diversions are made when traveling as described in a. and b. above.

2. If any flight crewmember requires access to the AOA or SIDA for reasons other than those stated herein, or if it is impossible for a flight crewmember to follow the regulations as stated herein, an escort is required.

E. DISPLAYING VALID IDENTIFICATION

While in the AOA or SIDA, individuals who are not under escort must display the approved ID in full view, above waist level, on their outermost garment. Such approved ID must be presented upon demand in response to a challenge made pursuant to paragraph H below.

F. AIRPORT IDENTIFICATION (ID) RESPONSIBILITIES

1. Caring for Airport ID

   It is the responsibility of the individual to whom an Airport ID is issued to secure and care for that card. An expired, mutilated, defaced, misused and invalidated identification card will be confiscated and/or suspended and/or revoked.

2. Reporting the Misuse of Airport ID

   It is the responsibility of every individual to whom an Airport ID has been issued to report any one displaying an expired, mutilated, defaced, or otherwise invalid Airport ID to the Port Authority Police without unreasonable delay.

G. ESCORT PROCEDURES

1. Escorting People

   The required procedure for escorting people on the AOA or SIDA is to accompany and supervise any individual who does not have unescorted access authority in a manner sufficient to take action should the individual engage in activities other than those for which the escorted access is granted. While under escort, the person being escorted must continuously be within the line of sight of the person performing the escort. Escorting of people will be conducted for business purposes only.

2. Escorting Vehicles

   Vehicles without PANYNJ plates, and drivers who do not have an Airport ID with driver privileges, must be escorted while on the AOA by an individual who:

   (i) possesses a valid Airport ID with driver and escort privileges, and

   (ii) uses a vehicle that is in full compliance with these Rules and Regulations.

      a. The operator of an escorting vehicle shall remain in close proximity to an escorted vehicle until the escorted vehicle leaves the AOA.

H. RESPONSIBILITY TO CHALLENGE

It is the responsibility of every individual issued an Airport ID that allows unescorted access to the AOA or SIDA:

1. To challenge the authority or purpose of a person without proper escort who attempts to enter the AOA or SIDA and who is not displaying a valid Airport ID that allows that person access to the area, and to prevent him or her from entering the AOA or SIDA if that individual does not offer valid Airport ID, or to report the incident to the Port Authority Police as soon as possible while attempting to keep the individual within view; and,
2. To challenge the authority or purpose of a person who is in the AOA or SIDA and who is not displaying a valid Airport ID that allows access to the area, and escort him or her from the AOA or SIDA if that individual does not offer a valid Airport ID, or to immediately report the incident to the Port Authority Police as soon as possible while attempting to keep the individual within view.

I. FIREARMS, EXPLOSIVES, MUNITIONS & PYROTECHNICS

No person shall carry any firearms, explosives, munitions, or pyrotechnics into the SIDA or AOA except:

1. Persons authorized to do so by an Airport ID with the appropriate privileges issued by the Port Authority Security ID Office; or,
2. Persons under escort by Port Authority Police; or,
3. Persons authorized by the Manager to use firearms, explosives, munitions, and pyrotechnics for animal control activity at the Air Terminal or in the AOA.

J. EMPLOYMENT OF SECURITY SERVICES

Any one who employs any person, company or corporation for the purpose of providing security services at an air terminal shall notify the Manager of the nature of such services. Such person must also furnish the name, business address, and telephone number of such person, company or corporation to the Manager together with a copy of the license or other government authorization of such person, company, or corporation as may be required to perform such service in the city and state in which the Airport is located.

K. VEHICLES & DRIVERS

All vehicles operating on the AOA, except those vehicles under escort according to the procedures required by these Rules & Regulations, must display valid Port Authority issued Vehicle Identification tags (PANYNJ plates) and must be operated by an individual who is authorized to drive on the AOA. AOA driver privileges will not be granted unless the applicant possesses a valid state driver's license from their state of residence, and has successfully passed the Port Authority approved airport specific Airfield Driver Training Course.

L. OTHER SECURITY PROCEDURES

Employees will adhere to all other security procedures issued by the Transportation Security Administration, Airport Manager, and all security procedures and obligations, as

applicable and outlined in the Airport Security Program, Exclusive Area Agreements, Guard Post Instructions and Building Security Plans. Applicable security procedures and obligations are available on a need to know basis in the Manager's Office. The following items may not be allowed into the sterile area: Knives of any kind, including steak knives and pocketknives. Rounded blade butter knives and plastic knives are permitted for use by restaurant employees and patrons. Cutting instruments of every kind including carpet knives, box cutters and other folding or retractable blades, regardless of blade length or composition, even those less than four inches, whether metallic or non-metallic.

PERSONAL CONDUCT

III. PERSONAL CONDUCT

A. USE OF PREMISES MAY BE DENIED OR WITHDRAWN

Permission to use Airport land, terminals, buildings, structures, parking lots, on-airport buses or rail systems may be denied to or withdrawn from persons who violate Port Authority Rules and Regulations, applicable laws, ordinances or regulations of other government bodies or for such other reason as may be permitted by law.

B. CLOSED & RESTRICTED AREAS

1. Closed Areas - No person except a person assigned to duty therein shall enter without permission any area of the Airport posted as a closed area or otherwise identified as closed by the Airport Manager.
2. Restricted Areas - No person shall enter without authorization any area of the Airport posted as a restricted area or otherwise identified by the Airport Manager as a restricted area unless such person complies with such restriction.

C. ENDANGERING PERSONS OR PROPERTY

No person in or upon any Airport shall do or omit to do any act if the doing or omission thereof unreasonably endangers persons or property.

D. PROPER USE OF TRAFFIC AREAS

No person shall travel on any portion of an Airport except upon the roads, walks or places provided for the particular class of traffic, nor occupy the roads or walks in such manner as to prevent their proper use.

E. USE OF LAND, STRUCTURES, MACHINERY, EQUIPMENT & ELECTRONICS

1. Only duly authorized persons shall operate or in any way tamper with any Airport machinery, equipment, or electronics.
2. Passenger elevators and escalators may not be used to carry freight.

F. PORTABLE FIRE EXTINGUISHERS

Portable fire extinguisher equipment shall be inspected in conformity with the National Fire Protection Association's regulations. Tags showing the date of the last such inspection shall be left attached to each unit.

G. DEFACING, DAMAGING, ETC., TERMINAL OR PROPERTY

No, person shall deface, mark, break, or otherwise damage any part of an Airport, or any property therein.

H. ABANDONMENT OF PROPERTY

No person shall intentionally abandon any property at an Airport or in any location therein.

I. GARBAGE DISPOSAL & REMOVAL

1. Each person is responsible for the garbage he/she generates and any other garbage in the vicinity of his/her operating area.
2. No person shall place, discharge, or deposit in any manner, offal, garbage, debris, or any refuse in or upon any Public Area, Air Operations Area, or Fuel Storage Area, except at such places as the Port Authority may from time to time prescribe, and unless all containers for such materials are kept covered, and unless such material can be prevented from leaking, dripping, or otherwise escaping, and unless such material is transported in covered vehicles.
3. Any deposit of offal, garbage, debris or refuse in unauthorized locations must be cleaned up immediately in an effective manner.
4. Garbage containers located outdoors shall have lids that are secured so that the containers' contents are not accessible by animals.

J. FOREIGN OBJECT DEBRIS (F.O.D.)

1. Each airport employee shall be responsible for the proper disposal of FOD on ramps, apron areas, and the AOA. FOD shall be properly disposed of in containers that prohibit the introduction of the FOD onto ramps, apron areas, and the AOA.
2. It is the responsibility of each lessee or other occupant of ramp and apron areas to place suitable containers labeled "Foreign Object Debris" at every gate, remote aircraft parking area, cargo, and maintenance facilities.
3. Containers labeled "Foreign Object Debris" shall be used only for the disposal of FOD.

K. LOST ARTICLES

Any person finding lost articles at an Airport shall turn them over to a Port Authority Police Officer or to the office of the Manager without unreasonable delay. Articles unclaimed by the owner will be turned over to the finders thereof, as provided by applicable law. Articles unclaimed by the owner and found by Port Authority employees shall be disposed of pursuant to applicable law and such general Port Authority rules and operating procedures as are established for the disposition of such property.

L. ANIMALS

1. No person shall knowingly bring an animal to an Airport except

a. an assistance animal, such as a “seeing-eye” dog,

b. an animal properly confined for shipment or transport,

c. an animal properly confined for boarding or medical care at an authorized veterinary facility (JFK only),

d. an animal confined in an interior area not accessible to the general public,

e. law enforcement canines, or

f. canines or raptors used for animal hazard management by authorized airport staff or their designated representatives.

2. No person shall enter any public building, arcade, observation platform, Public Area of an Air Terminal, or On-Airport Bus or Rail System with any animal except

   a. an assistance animal, such as a “seeing-eye” dog,

   b. an animal properly confined for shipment or transport,

   c. an animal properly confined for boarding or medical care at an authorized veterinary facility (JFK only), or

   d. law enforcement canines.

3. No person shall provide food or water to any animal at an Airport, other than an animal described in Paragraphs 1(a)-(f).

4. No person shall abandon an animal or release an unattended animal at an Airport.

M. SMOKING & OPEN FLAMES

1. No person shall smoke or carry a lighted cigar, cigarette, pipe, match or any open flame in or upon any Fuel Storage Area, Public Landing Area, Public Ramp or Apron Area, Public Passenger Ramp and Apron Area, Public Cargo Ramp and Apron Area or Public Aircraft Parking and Storage Area, open deck, gallery or balcony contiguous to and overlooking any such area.

2. Without limitation to Paragraph 1, no person shall smoke or carry a lighted cigar, cigarette, pipe, match or any open flame in or upon the following areas:

   (a) indoor areas open to the public including, but not limited to, ticketing and boarding areas, ground transportation systems (including, but not limited to, indoor and outdoor areas open to the public in monorail cars and stations), elevators, waiting areas, baggage claim areas, bars, restaurants or other food service establishments (including , but not limited to, the outdoor areas of restaurants or other food service establishments, except as provided herein), retail stores, elevators, rest rooms, chapels and meditation rooms, and medical facilities;

   (b) vehicles open to the public, including, but not limited to, limousines, buses, vans, and taxis;

   (c) child care facilities;

   (d) educational facilities;

(e) indoor areas of commercial establishments used for the purpose of carrying on any trade, vocation or charitable activity not otherwise specified; and,

(f) indoor areas places of employment of one or more persons not otherwise specified.

3. Without limitation to Paragraph 1, and notwithstanding Paragraph 2, a person may smoke tobacco, subject to such terms and conditions as the owner or operator of the relevant location may establish, in:

   (a) a hotel or motel room rented to one or more guests, provided that in Newark Liberty International Airport and Teterboro Airport the person having control of the motel or hotel shall not permit smoking in more than 20 percent of its guest rooms;

   (b) any outdoor dining area of a restaurant or food service establishment with no roof or other ceiling enclosure, provided that such outdoor dining area is a single contiguous area designated for smoking that constitutes no more than twenty-five percent of the outdoor seating capacity of such restaurant or food service establishment, that is at least three feet away from the outdoor area of such restaurant or food service establishment not designated for smoking, and is clearly designated with written signage as a smoking area; and,

   (c) a private automobile.

4. The owner or operator of the relevant location having control of a facility or location subject to Paragraphs 2 and 3 (a)-(b) in which smoking is prohibited shall post a conspicuous sign at every entrance prohibiting smoking therein. The owner or operator of the relevant location of a facility or location subject to Paragraphs 2 and 3 (a)-(b) in which smoking is prohibited in some locations and permitted in some locations shall post conspicuous signs identifying smoking and non-smoking areas, as appropriate.

5. Without limitation to Paragraphs 1-4, no person shall smoke or carry a lighted cigar, cigarette, pipe, match or any open flame in or upon any area which the Manager has, in the exercise of discretion, designated as a non-smoking area.

6. Without limitation to Paragraphs 1-5, no person shall smoke or carry a lighted cigar, cigarette, pipe, match or any open flame in any area in which the owner or operator of the relevant location has posted a sign prohibiting smoking.

N. ALCOHOLIC BEVERAGES

No person shall drink, or carry an open container of, any alcoholic beverage in any public area of the Air Terminal other than an area in which alcoholic beverages are served for on-premises consumption pursuant to permission granted by the Port Authority or by a lessee or a permittee of the Port Authority.

O. BATHING, SHOWERING, ETC.

No person shall bathe or shower, or launder or change clothes, or remain undressed, in or at any public sink, washroom, or restroom, or in any other area of an Air Terminal, that is not designated as a bathing or showering facility.

P. SPITTING, ETC.

No person shall spit, urinate or defecate on any part of the Airport, On-Airport Bus or Airport Rail Transportation System other than in a urinal or toilet intended for that purpose.

BAGGAGE HANDLING

IV. BAGGAGE HANDLING

A. BAGGAGE HANDLING SERVICES

1. All baggage dollies or baggage containers shall have operating side curtains which shall be closed or secured when the dollies contains baggage in transit or stored during inactive periods.
2. Employees engaged in handling baggage shall not place baggage in the cab of tow vehicles, or in any other vehicle, under any circumstances.
3. Employees engaged in handling baggage are prohibited from carrying personal belongings including, but not limited to, handbags, tote bags, lunch bags, radios or cameras, while in the AOA.
4. Employees engaged in handling baggage shall not leave baggage at a receiving center unless the center is open and in use, and proper arrangements have been made to receive baggage at such center.
5. Each airline must post a conspicuous sign at its interline baggage receiving center, indicating the hours during which baggage can be received.

B. USE OF BAGGAGE CARTS

1. Use of baggage carts is restricted to use by or for ticketed airport passengers only.
2. No person shall tamper with any baggage cart rental device.
3. Using baggage carts to assist passengers for a fee or gratuity, or to solicit a fee or gratuity, for services similar to the service provided by airport skycaps or baggage handlers, is strictly prohibited.
4. Baggage carts are not allowed on escalators.
5. Baggage carts are not allowed to be used by children under the age of 13.
6. Baggage carts are not allowed to be taken out of an Airport or Airport Rail Transportation System.
7. Airport employees and tenants are not allowed to keep baggage carts for personal use or for any use in connection with a business, such as to transport materials.
8. No person other than duly authorized baggage cart concessionaires shall dispense or rent baggage carts unused baggage carts.

GROUND TRANSPORTATION

V. GROUND TRANSPORTATION

A. TAXI DISPATCH SERVICE

No person shall interfere with the taxi dispatch service operated by persons employed by, or employed pursuant to a contract with, the Port Authority, or the duties of personnel associated with the taxi dispatch service.

B. SOLICITATION OF GROUND TRANSPORTATION SERVICES IS PROHIBITED

1. No person shall, within an Air Terminal, solicit another person's use of ground transportation services.
2. No person shall operate a vehicle within an Air Terminal for the purpose of soliciting another person to use ground transportation services, or to attract ground transportation passengers.

C. LOCATIONS FOR LOADING & UNLOADING GROUND TRANSPORTATION SERVICES PASSENGERS

No vehicle providing ground transportation services shall load or unload passengers within an Air Terminal at any place other than that designated for that purpose.

D. PRE-ARRANGEMENT REQUIRED FOR PROVIDING GROUND TRANSPORTATION SERVICES

1. Except as provided herein, ground transportation services shall be provided at an Air Terminal only pursuant to specific pre-arrangement.
2. Ground transportation services may be provided at an Air Terminal without specific pre-arrangement by the operator of a vehicle licensed to carry passengers for hire in response to hails from prospective passengers on public streets of the municipality whose boundaries include the location within an Air Terminal at which the vehicle is located. A vehicle licensed by the NYC Taxi & Limousine Commission as a "taxicab" pursuant to the rules of the Commission is a vehicle so licensed with respect to Air Terminal locations within the City of New York.
3. Ground transportation service "is provided pursuant to specific pre-arrangement" to a passenger arriving at an Air Terminal by aircraft only when the owner or operator, or the employee of the owner or operator, of a ground transportation service vehicle displays, at such location for that activity as may be designated for that ground transportation service provider, an announcement card listing:

   a. the name of the ground transportation provider who dispatched the vehicle pursuant to pre-arrangement;

   b. the name of the person for whom pre-arrangement for ground transportation was made; and

c. the name of the airline and flight number of the flight on which the passenger arrived.

However, if pre-arrangement was made through the use of counter facilities operated by a person employed by, or employed pursuant to a permit or contract with the Port Authority, then the announcement card may list items a and b and only the name of the airline of the flight on which the passenger arrived.

E. AIRPORT RAIL TRANSPORTATION SYSTEM (AIRTRAIN)

1. Airport Rail Transportation System passengers must exit the system at a route terminus or upon completion of one entire route circuit, as is applicable.
2. It is prohibited for any person to interfere with the operation or schedule of Airport Rail Transportation System vehicles.

F. SCHEDULED SERVICE

No provision in this chapter is intended to prohibit vehicles making stops pursuant to a fixed schedule and operating pursuant to permission granted by a government regulatory agency with appropriate jurisdiction, from stopping to receive passengers at locations specifically designated for that purpose, whether or not pre-arrangement has been made to provide ground transportation services to passengers of such vehicles.

G. COURTESY VEHICLES

No provision in this chapter is intended to prohibit the operator of a vehicle from providing ground transportation services only to the place of business of a provider of another service, such as lodging, vehicle rental, or vehicle parking, to patrons of such other service, whether or not pre-arrangement has been made to provide ground transportation services to such place of business, subject to such conditions as the Airport Manager may impose on such operator and/or provider of such service.

H. ON-AIRPORT BUS SERVICE

1. On-Airport Bus Service passengers must exit the system at a route terminus or upon completion of one entire route circuit, as is applicable.
2. It is prohibited for any person to interfere with the operation or schedule of On-Airport Bus service vehicles.

VEHICLE OPERATING REQUIREMENTS

VI. AIRPORT VEHICLE OPERATING REQUIREMENTS

A. VEHICLE TYPES

All vehicles are classified into six general types as follows:

Type 1: Highway vehicles used exclusively in public areas and operate with federal or state license plates. (Examples: light-, medium-, & heavy-duty trucks, buses, and trailers.)

Type 2: Highway vehicles used within the AOA and in public areas and operate with federal or state and PANYNJ license plates. (Examples: light-, medium-, & heavy-duty trucks, buses, & trailers.)

Type 3: Highway vehicles used exclusively within the AOA and operate with PANYNJ license plates only. (Examples include light-, medium-, & heavy-duty trucks, & trailers.)

Type 4: Vehicles used within the AOA and in public areas and operate with a PANYNJ license plate only, as authorized by the General Manager. These vehicles are of a specialized design and perform unique operational functions at an Air Terminal. (Examples include aircraft tow vehicles, baggage cart vehicles, aircraft refuelers, aircraft cargo loading equipment, ground power units, auxiliary power units, Airport emergency response equipment, snow blowers, etc.)

Type 5: Off-highway, construction, and materials handling vehicles used within the AOA or public areas and operate with state, PANYNJ, or no license plates**.** (Examples include backhoes, loaders, cranes, excavators, paving equipment, compressors, etc.)

Type 6: Stationary equipment permanently installed within the AOA and in public areas and not required to operate with any license plates. (Examples include backup and emergency generators, fire pumps, etc.)

B. REQUIREMENTS FOR VEHICLES OPERATING IN PUBLIC AREAS

Vehicles operating in public areas or on roads outside the AOA (including crossing any public area or road outside the AOA) within the Airport's boundaries shall be operated in accordance with the following minimum requirements:

1. Driver's License
   All vehicles shall be operated in accordance with the applicable laws and regulations of the jurisdiction(s) in which the Airport is located. The driver or operator shall also have such license(s), certification(s), permit(s), endorsement(s), or qualifying instruments as required by such laws and regulations.

2. Vehicle Insurance

   (a) Be operated in accordance with the requirements stipulated by the vehicle manufacturer, and when stricter operating requirements are required by these Rules & Regulations or specific instructions provided by the Airport Manager for

specific vehicles, the vehicle(s) shall be operated in accordance with the stricter requirements.

(b) Drivers and operators shall only drive and operate the vehicles from the driver or operator seat and passengers shall only be transported in the vehicle passenger seat(s).

3. Vehicle Operations

(a) Owners of Type 1 vehicles operating in public areas or on non-AOA roads shall provide the proper insurance or maintain financial security as required by the law of the state in which the vehicle is registered.

(b) All Type 2, 3, 4 and 5 vehicles shall only be permitted to operate in a public area or on a non-AOA road if the owner is in compliance with the requirements of 3(a) and Section "C" of this Chapter.

4. Vehicle Registration & Inspection

(a) All Type 1 Vehicles operating in public areas or on public roads outside the AOA shall be properly registered in accordance with the law of the state in which the airport is located, and shall be inspected in accordance with the provisions of the law of the state in which the vehicle is registered.

(b) All Type 2, 3, and 4 vehicles shall only be permitted to operate in a public area or on a non-AOA road if in compliance with the vehicle registration and inspection requirements of 3(a) and Section "C" of this Chapter.

5. Following Lawful Direction

All vehicles shall at all times comply with any lawful order, signal or direction of any authorized Port Authority representative. Where vehicular traffic is controlled by traffic lights, signs, mechanical or electrical signals or pavement markings, such lights, signs, signals and markings shall be obeyed unless an authorized Port Authority representative directs otherwise.

6. Careless or Negligent Operation of Vehicles

No vehicle shall be operated in a manner which creates an unreasonable risk of harm to persons or property, or while the driver thereof is under the influence of any substance that impairs, impedes, or otherwise affects the ability of the driver to safely operate the vehicle, or if such vehicle is so constructed, equipped or loaded as to create an unreasonable risk of harm to persons or property.

No person shall operate a motor vehicle at a Port Authority Airport while using a mobile telephone to engage in a call while such vehicle is in motion. An operator of a motor vehicle who holds a mobile telephone to, or in the immediate proximity, of his or her ear while such vehicle is in motion is presumed to be engaging in a call. The operator of a motor vehicle may use a handheld mobile telephone if:

(a) The operator has reason to fear for his/her life or safety, or believes that a criminal act may be perpetrated against him/herself or another person.

(b) The operator is using this device to report to appropriate authorities: a fire, traffic crash, serious road hazard; medical or hazardous material emergency; or another motorist who is driving in a reckless, careless or otherwise unsafe manner or who appears to be driving under the influence of alcohol and/or drugs.

7. Vehicle Modifications

   Vehicle modifications that eliminate, or interfere with, compliance with federal or state safety requirements are prohibited.

8. Right to Inspect

   All vehicles are subject to immediate inspection by a duly authorized Port Authority representative.

9. Violations

   Violations of vehicle operating procedures as specified in these Rules & Regulations or a violation of the Ground Vehicle Specifications may result in revocation of permission for a vehicle to operate at the Airport.

10. Vehicle Condition

    All vehicles shall be properly equipped and maintained in a safe operating condition, and must meet the requirements established by the state where the Airport is located, Federal 49 CFR, and the Ground Vehicle Specifications, as is applicable.

11. Stickers

    Vehicles shall not have any stickers, posters, signs, or objects on the windshield and/or rear windows of a vehicle other than those required by, or specifically authorized by, the law or regulation of a government body.

12. Seating & Seatbelts

    Drivers, operators, and passengers shall use installed seatbelts or other restraint systems. Seatbelts and other restraint systems shall not be disabled or removed and shall be maintained in good working order.

13. Yield to Pedestrians

    All vehicles shall yield to pedestrians in front of all buildings, in roadways, and in pedestrian crosswalks.

14. Driving Restrictions & Speed Limits

    Vehicles shall not be driven or operated in excess of posted speed limits.

15. Parking, Standing or Stopping Vehicles

    (a) No person shall park a vehicle or permit a vehicle to remain stopped within the Airport except in such areas and for such periods of time as may be prescribed by the Manager.

    (b) No person shall park or permit a vehicle to remain stopped contrary to authorized signs, pavement markings or other traffic control devices.

    (c) No person shall stop or park a vehicle:

        i. on any shoulder if the vehicle is not disabled
        ii. in front of a driveway
        iii. within a bus stop safety zone or taxicab zone, unless the vehicle is authorized to use such areas
        iv. on any roadway

v. within 15 feet of fire hydrant
vi. within 10 feet of an AOA perimeter security fence

16. Payment of Parking Fees & Charges

No person shall park a vehicle within any public vehicular parking area except upon the payment of such parking fees and charges as are prescribed by the Port Authority.

17. Vehicles in Possession of the Port Authority

A vehicle which has been placed in the lawful possession of the Port Authority because it was illegally parked, or for non-payment of fees, or for any other reason, and in respect of which any fee or charge, including towing and storage charges, are due, may be detained by the Airport Manager until said fees or charges have been paid. Such fees may be paid under protest, and a claim may be asserted for refund pursuant to applicable law.

18. Vehicular Collisions

Any vehicular collisions that occur at the Airport shall be reported without unreasonable delay to the Port Authority Police. When any vehicle with a PANYNJ plate is involved in a collision, the vehicle may continue to operate after following the procedures listed in the section entitled "Vehicle Collisions" as stipulated in Subpart "C". The driver of any vehicle involved in a collision with another vehicle or pedestrian on any area of the Airport which results in any injury or death to any person or damage to any property shall immediately stop the vehicle at the scene of the collision. The driver of the vehicle involved in a collision shall give his name and address, and display his/her operator's license, and the vehicle's registration and proof of insurance or financial security documents to the driver of the other vehicle, or if none, the person injured, or to the police officer at the scene of the collision. The operator of such vehicle shall make such report(s) of such accident required by the law and regulations of the state in which such collision occurred.

19 Disabled & Abandoned Vehicles

The Airport Manager has the authority to remove from any area of an Airport any vehicle that is disabled, abandoned, or parked in violation of these Rules & Regulations, or which presents an operational or security problem, to any other area of the Airport. The owner of a vehicle which has been removed because of abandonment or violations of these Rules & Regulations shall be held liable for the reasonable cost of the removal and storage of the vehicle.

20. Limitation of Trailered Vehicles

Tractor/semi-trailers may operate with double or triple trailers only when designed and equipped with the proper system(s) required to operate with multiple trailers. Baggage handling tow vehicle may tow a maximum of four (4) baggage trailers. Baggage tow vehicles may tow trailers only if the trailers are affixed in weight order with the heaviest trailer located the closest to the tow vehicle, and if no trailer exceeds a laden weight of 3,000 pounds. All other tow vehicles shall only operate with a maximum of one trailer. All full trailers shall not exceed a speed limit of 15 MPH on a straight road.

21. Omnibus-Trailer Configurations

    Buses shall not have a full-trailer type design.

22. Operator's View

    The front window of a vehicle shall not be blocked by an extended superstructure or payload that obstructs the operator's view in any direction. The vehicle shall also have a rear and/or side view mirrors that provide the operator with a view toward the rear/sides of the vehicle.

23. Oversize & Overweight Vehicles

    (a) No oversized or overweight vehicles (vehicles that exceed the state width, length, height, or weight limit) may enter or be operated on any area of an Airport without prior notice to the Port Authority Police setting forth specific oversize and overweight information, and the vehicle shall proceed only pursuant to specific instructions provided by the Police. The Police may grant permission to proceed either with or without Police assistance, and issue other specific instructions. The oversized or overweight vehicle may be required to have escort vehicles as listed below, provided by the owner/operator.

    (b) Oversized and overweight vehicles required to be escorted shall be escorted by a lead vehicle and trailing vehicle. The lead vehicle shall have an operating yellow flashing light on the roof, and it shall be positioned not more than 40 feet in front of the oversized vehicle. The lead vehicle shall guide the oversized vehicle, warn on-coming vehicles and direct other traffic around the oversized/overweight vehicle's exposed limits. The trailing vehicle shall have an operating yellow flashing light on the roof, and it shall be positioned not more than 40 feet behind the oversized vehicle and coordinate its efforts with the lead vehicle to escort the oversized vehicle.

    (c) Fire fighting, emergency response, aircraft refueling, snow removal vehicles, and other special purpose vehicles approved by the Airport Manager are exempt from the requirements of this section; however, these vehicles shall operate in accordance with the requirements and limitations prescribed by the Airport Manager. Aircraft service vehicles that are required to operate on or cross roadways outside the AOA, are exempt from the requirements of this section; however, such vehicle shall operate in accordance with the requirements and limitations prescribed by the Airport Manager.

24. Vehicle Security Requirements

    Refer to Chapter II entitled "Airport Security."

C. REQUIREMENTS FOR VEHICLES OPERATING WITHIN THE AOA

Vehicles operating in the AOA shall be operated in accordance with the following minimum requirements:

1. Driver's License & Training

(a) The driver must be properly licensed and have all required endorsement(s) to operate such vehicle on a state or municipal highway of the state in which the Airport is located.

(b) The driver must be fully trained in the operation of the vehicle for all of its functions, types of uses, and procedures to follow in the event of emergency

(c) The driver must successfully complete Port Authority Airfield Driver Training and meet all requirements for Airport Security as specified under the chapter entitled "Airport Security."

2. Vehicle Operation

(a) All vehicles shall be operated in accordance with the requirements stipulated by the vehicle manufacturer, and when stricter operating requirements are required by these Rules & Regulations or specific instructions provided by the Airport Manager for specific vehicles, the vehicle(s) shall be operated in accordance with the stricter requirements.

(b) Drivers and operators shall only drive and operate vehicles from the driver or operator seat and passengers shall only be transported in the vehicle passenger seat(s).

3. Vehicle Insurance

Owners of Type 2, 3, 4 & 5 vehicles operating either in a public area or roadway or in the AOA shall provide insurance or maintain financial security as required by the Port Authority. The Port Authority shall inform applicants for operating permits of such requirements, and each applicant for an operating permit shall submit a current valid certificate of insurance or other documents required by the Port Authority as proof of compliance, with the initial Port Authority application. The document must be found satisfactory by the Port Authority prior to the processing of the vehicle registration application and issuance of PANYNJ plates. The applicant shall at all times maintain on file with the Port Authority a currently valid and satisfactory certificate of insurance or other acceptable proof of financial security for all vehicles operating with PANYNJ plates.

4. Vehicle Registration & Inspection

Type 2, 3, & 4 vehicles operating on the non-AOA roads or in public areas or in the AOA shall be properly registered, inspected, and approved by the Port Authority, and be equipped with PANYNJ plates with a valid inspection identification sticker. Type 2, 3, and 4 vehicles may operate on non-AOA roads within the Airport boundaries to the extent specifically authorized and permitted by the Manager. The limitation may be restricted to specific roads, designated areas, or specific parking locations. All vehicles shall be approved, registered, issued PANYNJ plates and inspection identification stickers, and have periodic inspections by the Port Authority as follows:

(a) A registration application form provided by the Port Authority shall be submitted for each vehicle.

(b) Each registration application form shall be submitted with a current valid certificate of insurance, or other document establishing financial security, or have

a current valid certificate of insurance, or other document establishing financial security on file with the Port Authority, meeting the requirements listed in the previous paragraph entitled "Vehicle Insurance.

(c) All vehicles approved by the Port Authority for operation on the AOA shall be furnished with an initial registration certificate, a PANYNJ plate, and an inspection identification sticker.

(d) The company operating the vehicle shall properly install the PANYNJ plates with the inspection sticker on the designated vehicle. The PANYNJ plates and inspection sticker shall be displayed on the vehicle in the manner designated by the Manager. The operating company shall also keep on file on the Airport the initial registration and insurance certificate.

(e) All motorized vehicles, except aircraft fuel servicing vehicles and all other vehicles that handle or transport fuel products, shall be inspected every 12 months.

(f) Each non-motorized vehicle shall be inspected once every 12 months, unless otherwise permitted.

(g) Each aircraft fuel servicing vehicle, and each vehicle that handles or transports fuel products, shall be inspected once every 6 months.

5. Following Lawful Direction

   All vehicles shall comply with any lawful order, signal or direction of any authorized Port Authority representative. Where vehicular traffic is controlled by traffic lights, signs, mechanical or electrical signals or pavement markings, such lights, signs, signals and markings shall be obeyed unless an authorized Port Authority representative directs otherwise.

6. Careless or Negligent Operation of Vehicles

   No vehicle shall be operated in a manner which creates an unreasonable risk of harm to persons or property, or while the driver thereof is under the influence of any substance that impairs, impedes, or otherwise affects the ability of the driver to safely operate the vehicle, or if such vehicle is so constructed, equipped or loaded as to create an unreasonable risk of harm to persons or property.

7. Vehicle Modifications

   Vehicle modifications that eliminate or interfere with compliance with federal or state safety requirements are prohibited.

8. Right to Inspect

   All vehicles are subject to immediate inspection by a duly authorized Port Authority representative.

9. Violations

   Violations of vehicle operating procedures as specified in these Rules & Regulations or a violation of the Ground Vehicle Specifications may result in revocation of permission for a vehicle to operate at the Airport.

10. Vehicle Condition

All vehicles shall be properly equipped and maintained in a safe operating condition, and must meet the requirements established by the state where the Airport is located, Federal 49 CFR, and the Ground Vehicle Specifications.

11. Stickers

    Vehicles shall not have any stickers, posters, signs, or objects on the windshield and/or rear windows of a vehicle other than those required by, or specifically authorized by, the law or regulation of a government authority.

12. Seating & Seatbelts

    Drivers, operators, and passengers shall use installed seatbelts or other restraint systems. Seatbelts and other restraint systems shall not be disabled or removed and shall be maintained in good working order.

13. Yield to Aircraft

    Vehicles shall yield and give the right of way to all aircraft in motion.

14. Restricted Operation on Runways, Taxiways, & Landing Areas

    Non-Port Authority vehicles are prohibited from operating on any runway, taxiway and safety area unless under escort by the Port Authority or FAA maintenance. All vehicles shall obtain permission from the Control Tower before entering or operating on any runway, taxiway, or landing area. All vehicles operating in these areas shall have an operating two-way radio turned "on" and tuned to the ground control frequency, and shall have an operating rotating amber light located at the highest structure of the vehicle turned "on" between the hours of sunset and sunrise and during periods of rain, snow, fog, and other conditions resulting in low visibility. All vehicle drivers shall follow all directions provided by the FAA controller.

15. Driving Restrictions & Speed Limits

    While on the AOA, vehicles shall only be driven or operated on Restricted Vehicle Service Roads. Except for Port Authority vehicles, vehicles shall not be driven or operated in excess of 20 MPH while on the AOA.

16. Operation of Vehicles on Ramps & Apron Areas

    No vehicle shall be operated within 30 feet of any aircraft passenger entrance door or passenger pathway when the ramp or apron areas are being used to load or discharge passengers. Speed limit in these areas is 10 MPH.

17. Parking, Standing, or Stopping Vehicles

    No person shall park a vehicle or permit the vehicle to remain stopped on roads in the AOA, except in such areas and for such periods of time as may be prescribed or permitted by the Manager.

    (a) No person shall stop or park a vehicle contrary to restrictions posted on authorized signs, or in any of the following areas:

        i. in front of a driveway
        ii. within a bus stop safety zone or taxicab zone, except vehicles authorized to use such areas
        iii. no parking or stopping areas

iv. on any roadway
v. on any shoulder if the vehicle is not disabled
vi. within 15 feet of a fire hydrant
vii. within 10 feet of an AOA perimeter security fence
viii. within any restricted or marked areas

18. Vehicles in Possession of the Port Authority

A vehicle which has been placed in the lawful possession of the Port Authority because it was illegally parked, or for non-payment of fees, or for any other reason, and in respect of which any fee or charge, including towing and storage charges, are due, may be detained by the Airport Manager until said fees have been paid. Such payment may be made under protest and a claim for refund may be made pursuant to applicable law.

19. Vehicle Collisions

Any vehicle collisions that occur at the Airport shall be reported without unreasonable delay to the Port Authority Police. When any vehicle with a PANYNJ plate is involved in an accident, the vehicle must be inspected by the Port Authority Motor Vehicle Inspector before returning to service. The driver of any vehicle involved in a collision with another vehicle or a pedestrian on any area of the Airport which results in any injury or death to any person or damage to any property shall immediately stop the vehicle at the scene of the collision, and report the collision to the Port Authority Police. The driver of the vehicle involved in an accident shall give his name and address, and display his or her operator's license and the vehicle's registration and, proof of insurance or financial security documents to the driver of the other vehicle or if none, the person injured, or to a police officer at the scene of the collision. The operator of such vehicle shall make such report(s) of such collision as required by the law and regulations of the state in which such collision occurred.

20. Disabled & Abandoned Vehicles

The Airport Manager has the authority to remove from any area of an Airport any vehicle that is disabled, abandoned, or parked in violation of these Rules & Regulations, or which presents an operational or security problem, to any other area of the Airport. The owner of a vehicle which has been removed because of abandonment or violations of these Rules & Regulations shall be held liable for the reasonable cost of the removal and storage of the vehicle.

21. Limitation of Trailered Vehicles

Tractor/semi-trailers may operate with double or triple trailers only when properly designed and equipped with the proper system(s) required to operate with multiple trailers. Baggage handling tow vehicle may only have a maximum of four (4) baggage trailers, with the heaviest trailers located the closest to the tow vehicle, and no trailer shall exceed a laden weight of 3,000 pounds and an overall trailer length of sixty (60) feet. All other tow vehicles shall only operate with a maximum of one trailer. All full trailers shall not exceed a speed limit of 15 MPH on a straight road.

22. Omnibus-Trailer Configurations

Buses shall not have a full-trailer type design.

23. Operator's View

The front window of the vehicle shall not be blocked by an extended superstructure or payload that obstructs the operator's view in any direction. The vehicle shall also have a rear and/or side view mirrors that provide the operator with a view toward the rear/sides of the vehicle.

24. Oversize & Overweight Vehicles

(a) No oversized or overweight vehicles (vehicles that exceed the state width, length, height, or weight limit) may enter or be operated on any area of an Airport without prior notice to the Port Authority Police, setting forth specific oversize and overweight information. Such vehicles shall proceed only pursuant to instructions provided by the Police. The Police may grant permission to proceed either with or without their assistance, and issue other specific instructions. The oversized or overweight vehicle may be required to have escort vehicles as set forth below, provided by the owner/operator. The Airport Manager, when issuing PANYNJ plates to operate specialized vehicles for AOA operations, may exempt such vehicles from escort requirements. Permission to operate specialized equipment under such exemption shall be limited to operation in the AOA only, and limited by any other restrictions issued at the time the PANYNJ plates are issued.

i. When oversized and overweight vehicles are required to be escorted, they shall be escorted by a lead vehicle and trailing vehicle. The lead vehicle shall have an operating yellow flashing light on the roof, and it shall be positioned not more than 40 feet in front of the oversized vehicle. The lead vehicle shall guide the oversized vehicle, warn on-coming vehicles and direct other traffic around the oversized/overweight vehicle's exposed limits. The trailing vehicle shall have an operating yellow flashing light on the roof, and it shall be positioned not more than 40 feet behind the oversized vehicle and coordinate its efforts with the lead vehicle to escort the oversized vehicle.

ii. Fire fighting, emergency response, aircraft refueling, snow removal vehicles, and other special purpose vehicles approved by the Airport Manager are exempt from the requirement of this section; however, these vehicles shall operate in accordance with the requirements and limitations prescribed by the Airport Manger. Aircraft service vehicles that are required to operate on or cross roadways outside the AOA, are exempt from the requirements of this section; however, such vehicle shall operate in accordance with the requirements and limitations prescribed by the Airport Manager.

25. Vehicle Security Requirements

Refer to Chapter II entitled "Airport Security."

D. REQUIREMENTS FOR VEHICLES OPERATING IN PUBLIC AREAS AND WITHIN THE AOA

All such vehicles shall comply with all requirements found in both Subparts "B" and "C" of this chapter.

E. REQUIREMENTS FOR ALTERNATIVE FUELED VEHICLES & EQUIPMENT

1. Alternative Fueled Vehicles and Equipment shall be in full compliance with the appropriate NFPA standards. All Alternative Fueled Vehicles & Equipment can only be operated with the authorization and within the guidelines, limitations, and constraints set by the Airport Manager.
2. Alternative Fueled Vehicles that travel upon or cross any non-AOA roads or areas shall comply with the regulations and laws applicable to the jurisdiction in which the Airport is located.
3. LPG, LNG, & CNG Vehicles

   The operating, fueling, fuel storage and handling, repairing, and other activities affecting LPG, LNG and CNG shall comply with applicable NFPA standards and the state and local laws and regulations of the jurisdiction(s) in which the Airport is located. These vehicles and equipment shall also comply with the following:

   (a) Fuel cylinders and containers, vehicle or equipment fueling and repairs, and signs and placards shall be in compliance with the requirements stipulated in the Ground Vehicle Specifications.

   (b) Garaging of vehicles and the repair facilities shall comply with NFPA and all other applicable standards. All garages used for the storage and/or servicing of vehicles shall be equipped with explosion-proof equipment.

   (c) The tenant and/or owner of the vehicle shall provide evidence that the operator is certified to drive the vehicle according to laws and regulations of the United States and the state and municipality in which the airport is located.

   (d) Signs shall be placed on each vehicle in one inch high letters indicating that it is a vehicle or equipment fueled by LPG, LNG, or CNG.

   (e) Vehicles and equipment with LPG or LNG systems used for refrigeration or for the warming of foods shall comply with the applicable NPFA standards.

   (f) Alternative fueled vehicles shall park only in areas specifically designated by the Manger for that purpose.

   (g) Vehicles fueled by LPG or LNG shall not enter buildings, structures, tunnels, ramps, and rooms adjacent to terminal buildings or enclosed or underground parking facilities.

F. STATIONARY EQUIPMENT

Permanent and temporary stationary equipment designated as Type 6 equipment, whether located inside or outside the AOA, shall not be installed or operated without the approval of the Manager. All stationary equipment shall be in compliance with the requirements set forth in the Ground Vehicle Specifications.

G. SPECIAL AIRPORT OPERATING PROCEDURES

1. Newark Liberty International Airport - Oversize & Overweight Vehicles
   Oversized and overweight vehicles, including loaders and supertugs, shall not be operated on the RVSR behind Terminals A, B, & C.
2. LaGuardia Airport - AOA Speed Limits
   The speed limit on the Inner Vehicle Service Road and ramp/apron areas is 10 MPH.

FUELING OPERATIONS

VII. FUELING OPERATIONS

A. DESIGN & CONSTRUCTION OF VEHICLES USED IN FUELING OPERATIONS

The design and construction of all Vehicles and equipment used for fueling operations within the AOA must comply with Port Authority requirements as contained in these Rules and Regulations and in the Port Authority Ground Vehicle Specifications, which are set forth in an appendix to these Rules & Regulations, as well as to all applicable requirements of other government bodies.

B. OPERATION OF AIRCRAFT ENGINES DURING FUELING

1. Aircraft fueling is prohibited while the engine of the aircraft being fueled is running or being heated, with the following exceptions:
2. Rotorcraft powered by a turbine jet engine utilizing only jet fuel that is loaded into the rotorcraft via fueling ports located below the engine(s), may be fueled while the engine(s) is running provided that no passengers are on board, an appropriately licensed pilot knowledgeable with respect to fueling procedures under such conditions is at the controls of the rotorcraft, and the fueling is performed by ground personnel who are knowledgeable with respect to fueling procedures under such conditions.
3. Onboard auxiliary power units may be operated during fueling operations. In an emergency resulting from the failure of an onboard auxiliary unit on a jet aircraft and in the absence of suitable ground support equipment, a jet engine mounted at the rear of the aircraft or on the wing on the side opposite from the fueling point may be operated during fueling to provide power, provided that the operation follows procedures approved by the Airport Manager.

C. BONDING

1. Prior to making any fueling connection to the aircraft, the fueling equipment shall be bonded to the aircraft by use of a cable, thus providing a conductive path to equalize potential between the fueling equipment and aircraft. The bond shall be maintained until fueling connections have been removed, thus permitting the reuniting of separated charges that could be generated during the fueling operation.
2. In addition to the above, when fueling overwing, the nozzle shall be bonded with a nozzle bond cable having a clip or plug to a metallic component of the aircraft that is metallically connected to the filler port. The bond connection shall be made before the filler cap is removed. If there is no plug receptacle or means for attaching a clip, the operator shall touch the filler cap with the nozzle spout before removing the cap so as to equalize the potential between the nozzle and the filler port. The spout shall be kept in contact with the filler neck until the fueling is completed.
3. When a Hydrant Servicer Vehicle or Hydrant Service Cart is used for fueling, the hydrant coupler shall be connected to the hydrant system prior to bonding the fuel

equipment to the aircraft. Bonding and fueling connections shall be disconnected in the reverse order of connection.

4. When an Aircraft Refueling Tanker Vehicle is used for fueling, the vehicle will be bonded to the aircraft prior to making the connection to the aircraft fueling point. Bonding and fueling connections shall be disconnected in the reverse order of connection.

D. LIGHTNING PRECAUTIONS

Fuel servicing operations shall be suspended when lightning flashes are observed in the immediate vicinity of the airport.

E. PORTABLE FIRE EXTINGUISHERS

During fueling operations, UL listed dry chemical fire extinguishers shall be available on aircraft servicing ramps or aprons, as follows:

1. Each Aircraft Refueling Tanker Vehicle shall have two UL listed extinguishers, each having a rating of 20B, one mounted on each side of the vehicle.
2. Each Hydrant Service Vehicle shall have two UL listed extinguishers having a rating of at least 20B mounted in a position readily accessible by the attendant.
3. Where open hose discharge capacity of the aircraft fueling system or equipment is more than 200 gallons per minute, at least one UL listed wheeled extinguisher having a rating of not less than 80b and a minimum capacity of 125 lbs. of agent shall be provided.

F. OPERATION OF RADIO TRANSMITTERS AND GROUND SURVEILLANCE RADAR DURING FUELING

1. During fuel handling in connection with any aircraft, no person shall operate any radio transmitter or receiver in such aircraft, or switch electrical appliances on or off in such aircraft, nor shall any person do any act or use any material which is likely to cause a spark within fifty (50) feet of such aircraft. The use of non-electrically powered mechanic hand tools is permitted in the performance of routine and non-routine maintenance on the aircraft. Aircraft components may be removed or installed. If such components are powered by the aircraft electrical system, electrical power must be removed from the component circuit before removal or installation. Once component installation is completed, functional test or BITE check of system can be completed with electrical power to circuit restored. This does not include radar which can be tested but must not be placed in full operation so as to transmit or radiate.
2. Surveillance radar equipment in aircraft shall not be operated within 300 ft. of any fueling, servicing, or other operation in which flammable liquids, vapors, or mist may be present.

G. AIRCRAFT OCCUPANCY DURING FUELING

During fuel handling in connection with any aircraft no passenger shall be permitted to remain in such aircraft or to enter or depart from such aircraft unless a qualified attendant is at each door that is in use for this purpose, and unless means of safe emergency egress is in position in the event that such device is required for the safe and rapid debarkation of the passengers.

H. PREVENTION AND CONTROL OF SPILLS

1. Fuel servicing equipment shall be maintained in safe operating condition. Leaking or malfunctioning equipment shall be removed from service.
2. Persons engaged in aircraft fuel handling shall exercise care to prevent overflow of fuel.
3. The delivery of fuel shall at all times be under the control of the vehicle attendant through the use of approved flow-controlling devices operated by the attendant, designed to shut off automatically upon release of hand or foot pressure. Latching of, or fastening devices on, the control units is prohibited.
4. In the event of fuel spillage during aircraft fueling, the aircraft's engines may not be started until the area has been cleaned in an effective manner, in conformance with all applicable environmental, health and safety laws and permission to start engines has been granted by the Airport Manager
5. If a fuel spill is over 10 ft. in any direction or over 50 sq. ft. in area, or spilled fuel continues to flow, or is otherwise a hazard to persons or property, the Port Authority Police shall be notified. In addition, the spill shall be investigated by the tenant, permittee, or lessee of the property on which the spill occurred, and the refueling operator, to determine the cause, whether emergency and notification procedures were properly carried out, and what corrective measures are required to prevent such a spill from recurring.
6. No aircraft may be fueled unless all onboard gauges and devices whose purpose is to monitor fueling to enable the detection of, or to prevent, the overfilling of tanks are in proper working order. The operation of valves that negates system overfill devices or disabling of such devices and equipment is expressly prohibited. The operator must immediately take measures to prevent fuel from entering area storm drains to prevent fuel from entering the airport storm water drainage system when fueling or conducting a maintenance activity. In the event of a fuel spill, the operator must make required spill notifications to the State Special Hotline and any other enforcement agencies required to receive such notification.
7. No more than one Aircraft Refueling Tanker Vehicle shall be permitted to be connected to the same aircraft fueling manifold unless means are provided to prevent fuel from flowing back into a tank vehicle because of differences in pumping pressure.

I. EMERGENCY FUEL SHUTOFF SYSTEMS

Hydrant fueling systems must be designed with a means for quickly and completely shutting off the flow of fuel in the event of an emergency.

1. The emergency fuel shutoff system shall include shutoff stations located outside of probable spill areas and near the route that would normally be used to leave the spill area or to reach fire extinguishers provided for the protection of the area.
2. At least one emergency shutoff control station shall be conveniently accessible to each fueling position.
3. The emergency fuel shutoff system shall be designed so that operation of a station will shut off fuel flow to all hydrants that have a common exposure.
4. Each emergency fuel shutoff station shall be placarded "**EMERGENCY FUEL SHUTOFF**" in letters at least 2 in. high. Method of operation shall be indicated by an arrow or by the word "**PUSH**" or "**PULL**", as appropriate. Lettering shall be of a color sharply contrasting with its background for visibility (high visibility orange letters on a white background are desirable). Placards shall be weather resistant, shall be located at least 7 ft. above grade and positioned so they can be readily seen from a distance of at least 25 ft.

J. AVIATION FUEL STORAGE

All operators of an aircraft at Port Authority Air Terminals who receive, and all persons who supply, aviation fuel shall use the aviation fuel storage area and delivery facilities designated by the Port Authority for such use. If and for any period during which these facilities are not available, the operators may make other arrangements with their suppliers of aviation fuel for deliveries thereof to their aircraft, provided that such other arrangement shall be subject to the approval of the Port Authority from the standpoint of safety, environmental compliance, traffic control and similar matters.

K. TRANSFER OF FUEL BETWEEN VEHICLES

The transfer of any fuel from one Aircraft Refueling Tanker Vehicle to another is prohibited within the boundaries of an air terminal without the permission of the Airport Manager.

L. REFUELING AUTOMOTIVE VEHICLES & EQUIPMENT

Automotive and ramp equipment other than Refueling Service Vehicles and Tank Vehicles shall be refueled by authorized fuel service contractors authorized by the Port Authority only at prescribed refueling stations and from dispensing systems at the air terminal, all as approved by the Airport Manager. Refueling Service Vehicles and Tank. Vehicles may also be refueled from airport Mobile Refueling Stations at times and locations designated by the Airport Manager.

M. FUELING VEHICLE EQUIPMENT & MAINTENANCE

1. All fueling vehicles operating in the aeronautical areas at Air Terminal shall be properly equipped and maintained and must meet the requirements established by the Port Authority. All Fuel Dispensing Vehicles shall carry a copy of the approved route map showing the routing for that vehicle to and from the refueling stations, the aviation fuel storage and delivery facilities, and the vehicle storage and maintenance base.

N. SMOKING IN THE VICINITY OF FUELING VEHICLES

Smoking by any person on or within fifty (50) feet of a tank vehicle or refueling service vehicle is prohibited.

O. PARKING RESTRICTIONS

No Aircraft Refueling Tank Vehicle shall be parked within fifty feet of a building or hangar, other than a refueling service shop, or within ten feet of any other refueling tank vehicle.

P. ATTENDANTS

1. The driver, operator or attendant of any Tank Vehicle, during the routine fuel servicing of an aircraft at terminal gates, terminal hardstands, or at any stand or gate at a cargo facility, shall be in attendance with the vehicle at all times, and shall have, under his control, the delivery of fuel through the use of approved fueling control devices designed to shut-off automatically at the outlet. Under these controlled conditions, a single driver or operator may perform the complete servicing of any aircraft, provided the distance between the automatic shut-off device and the mechanism it controls shall not exceed 50 feet.
2. Any other fuel servicing not consistent with the above parameters, such as high overwing fueling, fueling from a remote ladder or remote stand in excess of six (6) feet in height, or in a position more than 50 feet from the tank vehicle, will require additional personnel on the ground, familiar with the operation, to provide a fire watch.

Q. FIRE WATCH

A fire watch shall not serve more than two (2) vehicles or two (2) aircraft under fuel servicing simultaneously and must be within 75 feet of any surveillance.

R. POSITIONING OF VEHICLES

Aircraft Fuel Servicing vehicles shall be positioned so that a path of egress from the aircraft for fuel servicing vehicles shall be maintained.

S. PARKING BRAKES

Parking brakes shall be set on fuel servicing vehicles before operators leave the vehicle cab. After leaving the cab, the first action to be taken by a fuel service vehicle operator shall be to place chocks, of appropriate size and geometry, forward and aft of the drive wheels to prevent the vehicle from moving in either direction. The last action prior to entering the cab of the vehicle for departure shall be removal of such chocks.

T. LIMITATIONS ON THE NUMBER OF FUELING VEHICLES PER AIRCRAFT WING

Not more than one Aircraft Refueling Tanker Vehicle shall be positioned to refuel each wing of an aircraft and not more than two refuelers shall be positioned to serve the same aircraft. When high capacity aircraft are refueled, additional refuelers shall not be parked or positioned within 100 feet from the aircraft served and then only in areas approved by the Airport Manager.

U. DEFUELING

The requirements applicable to fueling of an aircraft shall apply to the transfer of fuel from an aircraft to a Tank Vehicle through a hose. In addition, each operator shall establish procedures to prevent the overfilling of the Tank Vehicle, which is a special hazard during defueling.

V. LOADING OF CARGO TANKS

During the filling of the fuel cargo tank, no compartment shall be completely filled or filled higher than the “FULL” marker and the driver-operator or the attendant shall be present at the vehicle at all times. The fuel Tank Vehicle, the tank truck filling rack, and the flammable liquid discharge piping shall all be grounded to a point of zero electrical potential.

1. When top loading, the attendant shall continuously monitor the cargo tank level to prevent overfilling.
2. When bottom loading, the attendant shall perform the precheck on each compartment shortly after flow has started to ensure that the automatic high-level shutoff system is functioning properly.

W. PARKING & POSITIONING OF FUELING VEHICLES

1. When parked, Aircraft Refueling Tank Vehicles shall be positioned for immediate drive away or towing, and a clear space of not less than ten feet shall be maintained between any parked refueling tank vehicle and any similar or other parked or moving vehicle.
2. In addition to the foregoing, where five or more vehicles are parked, there shall be chemical wheel-type fire extinguishers with a rating of 80B or greater and a minimum of 120 lbs. of agent positioned so one or more units will be located no more than 100 feet from any vehicle.

3. In areas where five or more refueling tank vehicles are parked, signs shall be posted in all directions, legible from 100 feet reading "DANGER - AIRCRAFT FUEL - NO SMOKING - NO OPEN FIRE OR LIGHTS". Tank vehicles and Refueling Service Vehicles shall not be parked in public areas, except as designated by the Airport Manager.

X. VEHICLE MOTORS

The motor of an Aircraft Refueling Tank Vehicle shall not be run during the filling of the cargo tank, while making or breaking fuel filling connections, or during repairs to the fuel handling system. The propulsion motor for refueling service vehicles shall not be run during the fuel transfer and while making and breaking hose connections.

Y. AUTOMOTIVE FUEL DISPENSING VEHICLES

1. Automotive Fuel Dispensing Vehicles shall not be located within 50 feet of any structure other tank vehicles or aircraft while refueling operations are in progress.
2. Automotive Fuel Dispensing Vehicles shall not dispense fuel except at such times and at such Automotive Refueling Stations as approved by the Manager and, in no event, shall refueling operations take place if other tank vehicles or aircraft are within 50 feet of such refueling operation.
3. Mobile Refueling Stations and Automotive Fuel Dispensing Vehicles shall not dispense fuel unless properly grounded.
4. The Manager shall have the authority to deny the use of the Air Terminal Highways and other roadways to any vehicle that is defined as being "over-width".
5. Automotive Fuel Dispensing Vehicles shall carry a sufficient quantity of absorbent material, approved by the Airport Manager, to contain accidental fuel spills.
6. The manager may permit Automotive Fuel Dispensing Vehicles to dispense fuel at locations other than Automotive Refueling Stations. Fuel may not be dispensed from an Automotive Fuel Dispensing Vehicle pursuant to such permission unless the site is equipped with a ground rod, suitable barricades, and a 150 pound wheeled fire extinguisher. Other protective requirements and restrictions may be prescribed by the Manager in granting such permission.

AIRCRAFT OPERATIONS

VIII. AIRCRAFT OPERATIONS

A. RESPECT FOR RIGHTS & SAFETY OF OTHERS

No Aircraft shall be operated at an Air Terminal in a manner which creates an unreasonable risk of harm to persons or property, or while the pilot, or other persons aboard controlling any part of the operation thereof, is under the influence of intoxicating liquor, or any narcotic or habit-forming drug, or any substance which impairs, impedes, or otherwise affects the ability of such person(s) to safely operate the Aircraft, or while such Aircraft is so constructed, equipped or loaded as to create an unreasonable risk of harm to persons or property.

B. FOLLOWING DIRECTIVES, SIGNAGE, LIGHTS, ETC.

The pilot or other person aboard engaged in the operation of any Aircraft (except when subject to the direction or control, for ground movement purposes, of the Federal Aviation Administration or other Federal agency) being operated at any Air Terminal must at all times comply with any lawful order, signal or direction of an authorized representative of the Port Authority. When operation of such aircraft is controlled by lights, signs, mechanical or electrical signals or pavement markings, such lights, signs, signals and markings, shall be obeyed unless an authorized representative of the Port Authority directs otherwise.

C. NON-PAYMENT OF CHARGES

The Airport Duty Manager shall have the authority to detain any Aircraft for non-payment of charges due to the Port Authority.

D. RIGHT OF DENIAL

The Manager shall have authority to deny the use of an Air Terminal to any Aircraft or pilot violating Port Authority or Federal regulations, whether at such Air Terminal or elsewhere.

E. REPORTING ACCIDENTS

The operator of any Aircraft involved in any accident causing personal injury or property damage at an Air Terminal shall report said accident promptly to the Manager ~~,~~ and/or the Port Authority police.

F. DISPOSAL OF AIRCRAFT

The pilot or operator thereof shall be responsible for the prompt disposal of Aircraft wrecked or disabled at an Air Terminal and parts of such Aircraft as directed by the Manager; in the event of his failure to comply with such directions such wrecked or

disabled Aircraft and parts may be removed by the Port Authority at the operator's expense and without liability for damage which may result in the course of such removal.

G. EMERGENCIES

When informed of an emergency by FAA, Port Authority or other party, all Aircraft shall clear active runways and shall hold their positions unless otherwise directed by the Air Traffic Control Tower.

H. TAMPERING WITH AIRCRAFT

No person shall interfere or tamper with any Aircraft at an Air Terminal, or start the engine of such Aircraft without the operator's consent.

I. CONSENT TO ENTER AIRCRAFT

No person shall enter an Aircraft without the consent of the person in charge thereof.

J. ENPLANING & DEPLANING

Passengers shall not be permitted to enplane or deplane except in the presence of authorized personnel.

K. AIRCRAFT LOADING & UNLOADING

No Aircraft may be loaded or unloaded without permission except in designated areas and all passengers must be channeled through established routes to and from the Aircraft. When the Manager shall determine that aircraft is not compatible with boarding and de-boarding operations making use of aircraft loading bridges affixed to terminal building gates, such aircraft shall be ground boarded and de-boarded in areas designated by and pursuant to procedures established by the Manager.

L. AIRCRAFT MAINTENANCE

All repairs of aircraft beyond common ramp service, including cleaning of, or otherwise maintaining aircraft, shall be accomplished only in areas designated for that purpose by the Manager.

M. PERMISSION TO OPERATE

No aircraft may operate at any Airport without prior approval of the Airport Manager. No aircraft shall cross an air terminal highway or a non-AOA highway at an Air Terminal under its own power, or under tow, without permission.

N. REMOVAL OF SPILLS

Any spillage or dripping of gasoline, oil, grease, or any other material which may be unsightly or detrimental to the pavement in any area at an Air Terminal shall be removed immediately by suitable procedures in a manner satisfactory to the Manager. The responsibility for the immediate removal of such gasoline, oil, grease, or other material shall be assumed by the operator of the equipment causing the same. Spills that enter, or have the potential to enter, the environment (i.e., soil or water) must be reported to the State agency, and to all other governmental agencies, with environmental oversight, in accordance with State regulations, and all other applicable laws and regulations.

O. AIRCRAFT RAMP & APRON SCRUBBING

All Aircraft ramp and apron scrubbing shall be accomplished through the use of approved vacuum-type scrubbers and the wastewater picked up from the ramps shall be disposed of in a triturator or any approved designated opening to the sanitary sewer system. Scrubbing schedules, based on Aircraft ramp and apron activity and type of operation, shall be approved by and filed with the Manager.

P. AIRCRAFT DEICING – GLYCOL BASED DEICERS

Best Management Practices should be used to minimize the excessive use of glycol. Proper technique should be used when de-icing aircraft to ensure that only the amount of chemical needed to complete the job is applied. To the extent possible, other de-icing and anti-icing techniques should be utilized to minimize the use of ethylene glycol. These techniques are described in detail in FAA Advisory Circular number 20-117. Efforts must be made to collect overspray from ramp areas if feasible. Collected material should be disposed of or recycled. Quantities of deicer used (inclusive of quantities disposed of or recycled) must be reported to the Port Authority on a monthly basis.

Q. HEATING OF ENGINES

The heating of engines at an air terminal shall be done only by the use of steam, hot water, hot air or approved electric heaters.

R. USE OF GATE POSITIONS

No aircraft may use a gate position without prior permission from the Manager. Air terminals shall report gate activity to the Port Authority in such manner as shall be prescribed by the Manager.

S. COMPLIANCE WITH AIR TERMINAL RESTRICTIONS

Before commencing operations at any Port Authority airport, the aircraft operator shall give assurances when required by the Director of Aviation that the operator will comply with applicable operational, safety, and other restrictions, including (but not limited to) maximum gross take-off weight and maximum allowable wing span. Information on these restrictions can be obtained from the Office of the Director of Aviation, The Port

Authority of New York and New Jersey, Aviation Department, 225 Park Avenue South – 9th Floor, New York, N.Y. 10003.

T. LANDING & TAKING OFF

1. The Port Authority may prohibit aircraft landing and taking off at any time when, and under any circumstances under which the Manager deems such landings and takeoffs are likely to endanger persons or property, except for emergency landings.
2. No person shall navigate any aircraft, land aircraft upon, fly aircraft from, or conduct any aircraft operations on or from an Air Terminal otherwise than in conformity with then current Federal Aviation Administration and National Transportation Safety Board rules and regulations.
3. No aircraft, or helicopter, may land or take-off at an air terminal without prior permission unless it is equipped with a functioning radio capable of direct two-way communication with the Air Traffic Control Tower on all appropriate frequencies, except in case of emergency.
4. No motorless aircraft may land or take off at a Port Authority Air Terminal without permission of the Manager.
5. No ultralight aircraft may land or take off at a Port Authority Air Terminal without permission of the Manager.
6. Jet-assisted takeoffs shall not be made at an air terminal without obtaining permission of the Manager and notifying the Air Traffic Control Tower in advance.
7. No aircraft shall land, take-off or taxi at an Air Terminal with a student pilot at the controls.
8. No person shall practice aircraft landings or takeoffs at an Air Terminal without permission of the Manager.
9. No aircraft shall use any part of the public landing areas considered temporarily unsafe for landing or taking-off, or which is not available for any cause. The boundaries of such areas will be marked with orange flags by day and red lights by night, and notice thereof will be given to the Air Traffic Control Tower by the Port Authority.
10. Aircraft landing at an Air Terminal shall make the landing runway or touchdown area available to others by leaving such location as promptly as possible.
11. No Aircraft having an actual gross weight (including passengers, cargo, fuel, equipment, etc.) in excess of maximum gross weight for such Aircraft authorized by the Director of Aviation shall land, take off, or taxi at an Air Terminal without Permission of the Manager.

U. STARTING, TAXIING, TOWING & PARKING

1. Aircraft shall not be positioned, started or taxied so that propeller slipstream, jet engine exhaust blast or rotor down-wash may cause injury to persons, or damage to property, or where it may generate turbulence across taxiways, runways, vehicle

service roads, or heliport areas, so as to endanger the safety of operations on an Air Terminal. If it is impossible to taxi Aircraft without compliance with the above, then the engine or engines must be shut off and the Aircraft towed.

2. Except for helicopters, no person shall start an Aircraft engine at an Air Terminal unless there is a qualified attendant standing by outside the Aircraft with a twenty pound or larger dry chemical fire extinguisher, or unless the engines are equipped with their own fire control system. With regard to helicopters, the engine starting procedure shall be in a manner acceptable to the Manager.
3. No Aircraft shall be started, run or taxied at an Air Terminal unless a certificated pilot certificated to operate that particular type of Aircraft or a certificated A and P mechanic qualified to start, run or taxi that particular type of Aircraft is attending the controls.
4. No aircraft engine shall be started unless the main landing wheels are chocked and the brakes of the aircraft fixed and locked, unless alternate procedures approved by the Manager are followed.
5. No helicopters shall be started, run, or taxied at an Air Terminal unless a certificated helicopter pilot certificated to operate that particular type of helicopter is attending the controls, or, if the Manager has given his or her approval, a certificated A and P mechanic is attending the controls.
6. All aircraft which are being taxied, towed or otherwise moved at an Air Terminal shall be under full control and shall move or be moved at a reasonable speed.
7. Whenever any aircraft is being taxied, towed or otherwise moved on the public landing area, public ramp and apron area, public passenger ramp and apron area, or public cargo ramp and apron area, there shall be a person attending the controls of the aircraft who shall monitor by radio the transmitting frequency in use by the Control Tower or who, if necessary, will cause that frequency to be monitored by another person in the aircraft at the time. In the event of radio equipment failure, the Control Tower may use an Aldis Lamp for communication.
8. No person shall park an aircraft or leave the same standing on a public landing area, public ramp and apron area, public passenger ramp and apron area, public cargo ramp and apron area, public aircraft parking and storage area, or operational area at an air terminal except at such places as may be prescribed or permitted by the Manager. When in public storage areas, those aircraft for which tie-down fittings are provided shall be required to make proper use thereof.
9. When parked, helicopters shall have rotor braking devices and/or tiedowns applied to the rotor blades.
10. Upon direction from the Manager, the operator of any Aircraft parked or stored at an Air Terminal shall move said aircraft from the place where it is parked or stored to any other designated place. If the operator refuses to comply with such direction, the Port Authority may tow said Aircraft to such designated place at the operator's expense, and without liability for damage which may result in the course of such moving.
11. No Aircraft shall be taxied into or out of a hangar under its own power.

12. Every Aircraft parked on a Public Ramp or Apron Area, Public Passenger Ramp or Apron Area, or Public Cargo Ramp and Apron Area shall have its running lights turned on during the hours between sunset and sunrise, except in certain areas designated by the Manager, or in areas which are illuminated during these hours.
13. All Aircraft being taxied, towed or otherwise moved at an Air Terminal shall proceed with running lights on during the hours between sunset and sunrise.
14. No person shall maneuver an Aircraft, park, or leave the same standing on a ramp or apron area in such a way that any portion of said Aircraft will protrude beyond the ramp or apron limits, unless previously authorized.
15. It is required that one wing walker, preferably two be positioned on the ground, located at the outward tip of each wing, to monitor the clearance of each wing as the aircraft enters and exits the ramp.
16. LaGuardia Airport is to be utilized for nonstop domestic flights and international flights pre-cleared by the Federal Inspection Services only to and from points that are located within 1,500 statute miles of LaGuardia Airport, and to and from Denver,CO. The foregoing limitation does not apply to flight operations conducted on Saturdays or to general aviation operations conducted at the Marine Air Terminal.

V. FOREIGN MILITARY & STATE AIRCRAFT

1. Due to the high volume of traffic at Port Authority Airports, foreign military and state aircraft are required to depart within two hours of arrival.
2. Overnight parking of foreign military and state aircraft at Port Authority Airports is strictly prohibited.

W. RUNUPS

No jet or turboprop aircraft engine shall be run-up except in areas authorized by the Manager. Aircraft engines shall be started and warmed up on an Air Terminal only in places designated for such purposes by the Manager. Maintenance running of jet engines to check cockpit instrumentation shall not be performed at the Public Passenger Ramp and Apron Area, but in an area designated by the Manager. Details for nighttime maintenance runups can be obtained from the Manager’s office.

AIRCRAFT NOISE RESTRICTIONS

IX. AIRCRAFT NOISE RESTRICTIONS

A. GENERAL RESTRICTIONS

In accordance with the Airport Noise and Capacity Act of 1990 (ANCA), airplanes with certificated weights greater than 75,000 pounds must conform to Stage III noise limits at Port Authority Airports. Stage III noise limits are defined in Federal Aviation Regulations (FAR) Part 36 noise level classifications. In addition, airplanes that are type certificated after January 1, 2006 must meet Stage IV noise limits as defined in Federal Aviation Regulation (FAR) Part 36 noise level classifications.

B. DEPARTURE NOISE LIMITS

Noise produced by a departing aircraft shall not exceed 112 PNdB (perceived noise level in decibels) as measured by noise monitors located in the community nearest to the runway of departure under the flight path of the departing aircraft.

At John F. Kennedy International Airport, an aircraft operator is assessed a monetary charge of $250.00 for each aircraft departure that violates this rule.

AIR CARGO OPERATING REQUIREMENTS

X. AIR CARGO OPERATING REQUIREMENTS

A. DESIGNATION OF AIR CARGO SECURITY OFFICIAL

Each Air Cargo Operator shall designate either a security officer or another management official to handle cargo security responsibilities, and each such operator shall notify the Port Authority Police at the Air Terminal of such designation.

B. EMPLOYEE IDENTIFICATION & OUTER WEAR

1. Each Air Cargo Employee shall be issued an identification card bearing the employee's picture. The identification card must be displayed on the outermost garment, above the waist, while the employee is in the Air Cargo Handling Area. See Chapter II entitled “Airport Security” for additional information.
2. Each ramp Service/Cargo Operator shall issue to each of its employees a reflective vest-type garment. The garment must be color-coded as designated by the Port Authority to distinguish the individual Operator or Service Company, and must show the Operator's or Service Company's name or logo in three-inch block lettering on the front and rear of the garment. It must also provide for the secure attachment of an identification card that will be used to hold the numbered Port Authority identification card and appropriate company identification cards or documents. This garment must be worn externally by all employees engaged in cargo movement activity whether on a ramp or within the confines of a secure area of the cargo facility.

C. DESIGNATION OF YELLOW LINE

The Air Cargo Handling Area is restricted to Air Cargo Employees and those who shall be escorted by an Air Cargo Operator authorized employee. The Air Cargo Operator shall establish a barrier or paint a yellow line in the Air Cargo Handling Area, (which must not appear to be a taxiway line) beyond which no one shall be permitted, unless escorted by an Air Cargo Operator's authorized employee.

D. EMPLOYEE & OTHER PRIVATE VEHICLES

Vehicles of Air Cargo Employees and other private vehicles shall not be permitted in theAir Cargo Handling Area. Air Cargo Operators shall designate other areas in which such vehicles may park and shall notify the Port Authority Police at the Air Terminal of such designation. Trucks shall not be parked in parking areas designated for employee or other private vehicle parking. The designation of parking areas will not be required if the Air Cargo Operator obtains the written concurrence of the Manager.

E. POSTING OF AIR CARGO SAFETY & SECURITY RULES & REGULATIONS

These Air Cargo Safety and Security Rules and Regulations must be conspicuously posted within the Air Cargo Handling Area by the Air Cargo Operator.

F. MISSING ITEMS VALUED AT $1000 OR MORE, VALUABLE OR VULNERABLE CARGO

Any missing item of cargo valued by the Air Cargo Operator at $1000 or more, which after the Air Cargo Operator's investigation is determined to be lost or stolen, must be reported by the Air Cargo Operator to the Port Authority Police at the Airport immediately. Any loss or theft of valuable or vulnerable cargo must be reported to the Port Authority Police at the Air Terminal Airport immediately.

G. POLICE ESCORT

Air Cargo Operators by timely notice shall request an escort from the Port Authority Police at the Air Terminal for ground transportation between points on the Air Terminal for the following:

1. Valuable cargo valued at $25,000 or more
2. Vulnerable cargo valued at $25,000 or more

In addition, Air Cargo Operators are encouraged to request a Police escort for vulnerable cargo valued at less than $25,000. Air Cargo Operators need not request a Police escort for valuable cargo shipments transported via armored vehicle.

H. HOURS OF OPERATION

Each Air Cargo Operator shall designate the normal hours of operation of its enclosed portion of the Air Cargo Handling Area, and shall notify the Port Authority Police at the Airport of such designation.

I. VALUABLE CARGO STORAGE AREA

Each Air Cargo Operator shall designate a Valuable Cargo storage area with limited access, and shall notify the Port Authority Police at the Airport or the Manager,or his representative, of such designation. Such designation will not be required if the Air Cargo Operator obtains the written concurrence of the Manager. A log shall be maintained by the Air Cargo Operator for this area, to record by date and time whenever a Valuable Cargo item is stored or removed from the area, and the person storing or removing the same. The log shall include airway bill numbers of the items entered into the Valuable Cargo area. Where an item is not identifiable by an airway bill number, a description of the item and the consignee's address must be noted. The log shall record the number of pieces, the date, time in and out, and signatures of persons entering the Valuable Cargo storage area.

J. SECURING EQUIPMENT & TRUCKS CONTAINING CARGO

Ground handling equipment and trucks containing cargo, if capable of being closed and locked, shall be closed and locked by the Air Cargo Operator when unattended. If not capable of being closed and locked, the cargo shall be covered and secured.

WORK PROCEDURE FIRE HAZARDS

XI. WORK PROCEDURE FIRE HAZARDS

A. REQUIRED PERMITS

1. Cutting & Welding Permit (PA2133)

   No person shall conduct any hot work on any part of an Air Terminal except in areas within leased premises specifically designated for such use by the Manager, without first obtaining a Cutting and Welding Permit from the Manager.

   No such permit will be issued for work:

   (a) within an aircraft hangar,

   (b) within a cargo building,

   (c) within any Fuel Storage Area, fuel truck parking or service area, or

   (d) upon any components or section of the hydrant fuel distribution system.

   <u>except</u> when such work is required for repair of the aforementioned areas, hangars, structures, or fuel systems.

2. Special Hot Work Permit (PA2847)

   A special hot work permit must also be obtained from the Manager for operations required:

   (a) in tank truck parking and service areas, and

   (b) in fuel storage areas whenever work is to be performed on components of the hydrant fuel distribution system.

B. OPEN FIRES

No person shall start any open fires of any type, including flare pots, torches or fires in containers formerly used for oil, paint, and similar materials on any part of an air terminal without permission of the Manager.

ENVIRONMENTAL PROTECTION

XII. ENVIRONMENTAL PROTECTION

A. COMPLIANCE WITH LAW & PORT AUTHORITY AGREEMENTS

Each person occupying or using any portion of an Air Terminal or conducting any business or trade at an Air Terminal shall implement and comply with all environmental requirements, programs and practices that any federal, state or local governmental agency, authority, department or board has required the Port Authority and its tenants or other occupants to implement at the Air Terminal or which pursuant to an agreement with any federal, state or local governmental agency, authority, department or board, the Port Authority has agreed to implement at the Air Terminal. These environmental requirements can be obtained from the Manager.

B. UREA

Urea shall not be used at an air terminal without the permission of the manager.

C. AIRPORT RECYCLING

Each person or tenant occupying or using any portion of an Air Terminal or conducting any business or trade at an Air Terminal shall comply with the Port Authority airport recycling policy. The policy can be obtained from the Manager.

HAZARDOUS MATERIALS

XIII. HAZARDOUS MATERIALS

A. HAZARDOUS, POISONOUS, EXPLOSIVE, DANGEROUS & RADIOACTIVE MATERIALS

No person shall, keep, store, handle, use, dispense, or transport at, in or upon an Air Terminal any material which is defined by Federal Regulation or the International Civil Aviation Organization as hazardous, poisonous, explosive, or radioactive at such time or place or in such manner or condition as to create an unreasonable risk of harm to persons or property. Such materials may not be kept, stored, handled, used, dispensed or transported at an Air Terminal without the prior permission of the Port Authority, and without complying with all applicable laws and regulations.

B. HAZARDOUS WASTE

Any person or entity that generates, stores, and/or transports hazardous waste (as defined by the Resource Conservation and Recovery Act, and Title 40, Code of Federal Regulations, Part 261, or any amendments thereto or successor legislation and regulations) shall do so in strict compliance with all local, State, and federal regulations, laws rules and requirements. Any waiver of such regulations or legal requirements or of any part thereof by an authorized government authority shall not constitute or be construed to constitute a waiver of these Rules or imply that the Port Authority has granted permission to keep, generate, store or transport hazardous waste in or upon an Air Terminal. The Port Authority shall be notified of, and provided copies of, pertinent local, State and federal permits required for storage and transport of hazardous waste.

C. WEAPONS OF WAR

No person shall, at any time, store, keep, handle, use or transport at, in or upon an Air Terminal any weapon of war employing atomic fission or radioactive force.

D. CIGARETTE LIGHTERS & LIGHTER FLUID

The sale and carriage of cigarette lighters with flammable liquid reservoirs (or other similar ignition devices), and containers of lighter fluid for the refilling of such lighters, is prohibited within Air Terminals.

CONDITIONS FOR USE OF PORT AUTHORITY OPERATED SPACES

XIV. CONDITIONS FOR USE OF PORT AUTHORITY OPERATED SPACES

A. EMERGENCIES

Unless a permit or grant of permission provides otherwise, the Manager may refuse the grant of any permission or permit, or suspend any permission or permit already granted, in the event of an emergency. An emergency is any condition which would create a dangerous condition or substantially interfere with airport operations (including pedestrian, vehicle, or rail traffic, aircraft movement, luggage or cargo movement, security procedure, government inspection, clean-up, repair, construction, or environmental clean-up or corrective actions, or government operations), such as a snowstorm, hurricane, flooding, aircraft or vehicular accident, power failure, or strike.

B. SLEEPING

Except with prior permission from the Manager, no person may sleep in any Air Terminal area or vehicle. In addition, no person may lie on any chair, bench, seat or sit down or lie on any floors, stairs or landings, or any place where such activity may be hazardous to such person or to others, or may interfere with the operation of the Air Terminal, pedestrian flow or comfort of Air Terminal users, tenants, or permittees.

C. SKATEBOARDING, ROLLER-SKATING, BICYCLE RIDING, ETC.

Skateboarding and roller-skating are prohibited within the Air Terminal. Except in locations designated by the Manager, and identified by posted signage, no person shall ride a scooter or any self-propelled vehicle or device on or through any part of the terminals, parking lots, escalators, moving sidewalks, elevators, staircases, on-airport buses or Rail Transportation Systems, except that Port Authority Police may use bicycles and electrically powered carts may be used by airlines for transportation of persons in Air Terminal building concourses.

D. NOISE

No person shall make or cause to be made, any sound louder than 80 decibels, measured at a one meter distance, unless such sound is produced by an emergency or warning device used in the manner and the circumstances for which it was designed. The operation of gasoline or diesel powered construction equipment, pneumatic tools, and other devices used in the conduct of construction, repair and maintenance activities pursuant to an agreement with or permit issued by the Port Authority shall not be subject to this rule, provided that such devices are authorized for use in accordance with the applicable provisions of such permit or contract.

E. SOUND REPRODUCTION DEVICES

No person shall operate or use any personal radio, television, phonograph, tape recorder or other sound reproduction device in a Port Authority operated area in such manner that the sound reproduction device is audible to another person.

F. PROHIBITED CONDUCT

(a) The intentional touching of any person without his or her consent.

(b) The performance of any ceremony, speech, song, carrying of any sign or placard, or other such activity which constitutes a danger to persons or property, or which interferes with the orderly formation and progression of waiting lines, or which interferes with any of the following: pedestrian and/or vehicular travel; the issuance of tickets or boarding passes or equivalent documents for air or ground transportation; luggage or cargo movement or handling; the entry to an exit from vehicles; security procedures; government inspection procedures; cleaning, maintenance, repair or construction operations.

(c) The intentional leaving of any brochure, flyer, or any other item intended for distribution unattended.

(d) The attachment of any placard, sign, circular or other written material, on any wall post, counter, billboard, or any other surface.

(e) The erection of any table, chair, mechanical device or other structure, except as provided in the chapter describing “Commercial Activity.”

(f) The use of a stick or pole to support any hand carried sign.

COMMERCIAL AND NON-COMMERCIAL ACTIVITY

XV. COMMERCIAL AND NON-COMMERCIAL ACTIVITY

A. COMMERCIAL ACTIVITY

Commercial activity at locations in Port Authority Air Terminals is subject to the following conditions and restrictions:

1. Compliance with Rules & Regulations
   Any permission granted by the Port Authority directly or indirectly, expressly or by implication, to any person or persons, to enter upon or use any air terminal or any part thereof (including aircraft operators, crew members and passengers, spectators, sightseers, pleasure and commercial vehicles, officers and employees of airlines, lessees and other persons occupying space at such air terminal, persons doing business with the Port Authority, its lessees, sub-lessees and permittees, and all other persons whatsoever whether or not of the type indicated), is conditioned upon compliance with the Port Authority Rules and Regulations.
2. Port Authority Consent
   No person shall carry on any commercial activity at any Air Terminal including, but not limited to, the sale of merchandise or services, without the consent of the Port Authority.
3. Vending Machines
   No vending machines for the sale of goods shall be permitted in the public areas of John F. Kennedy International, Newark Liberty International and LaGuardia Airports which are not occupied by a lessee, licensee or permittee. This prohibition shall not apply to vending machines in restrooms selling personal hygiene items.
4. Sightseeing Flights
   No person shall conduct sightseeing flights at any Air Terminal except under permit from the Port Authority. By sightseeing flights is meant flights on which passengers are carried for hire, and which originate and terminate at the same terminal with no intermediate stops other than emergency stops.
5. Storage of Cargo & Property without Permission
   No person shall use any area of an Air Terminal for storage of cargo or other property without permission of the Manger. If, notwithstanding the above prohibition, a person uses such areas for storage as aforesaid, without first obtaining such permission, then the Manager shall have authority to order the cargo or other property removed or to cause the same to be removed and stored at the expense of the owner or consignee thereof, without liability for damage thereto arising from or out of such removal or storage.
6. Parking & Storage of Aircraft without Permission
   Unless otherwise provided in a lease or other agreement, no person shall use any area of an Air Terminal (other than the public aircraft parking and storage areas), for parking and storage of aircraft without permission of the Manager. If, notwithstanding the above prohibition, a person uses such areas for parking or storage as aforesaid, without first obtaining such permission, then the Manager shall have authority to order the aircraft removed or to cause the same to be removed and stored

at the expense of the owner thereof, without liability for damage thereto arising from or out of such removal or storage.

7. Payment of Air terminal Fees & Charges
   No aircraft operator shall land or conduct an aircraft operation or use an Air Terminal except as otherwise provided by agreement with the Port Authority and except upon the payment of such fees and charges as may from time to time be prescribed or agreed to by the Port Authority. All charges due to the Port Authority for the use of Air Terminals shall be payable in cash unless, (a) credit arrangements satisfactory to the Port Authority have been made in advance, or (b) permission for payment by check has been granted by the Port Authority.

B. NON-COMMERCIAL ACTIVITY

Non-commercial activity at locations in Port Authority Air Terminals which are not occupied by a tenant, lessee, licensee or permittee is subject to the following conditions and restrictions:

1. Conduct Prohibited Inside Buildings & Structures

   The following conduct is prohibited within the interior areas of buildings or structures at an Air Terminal if conducted by a person to or with passers-by in a continuous or repetitive manner:

   (a) The distribution of any merchandise, including but not limited to jewelry, food stuffs, candles, flowers, badges and clothing.

   (b) The solicitation and receipt of funds.

   (c) The provision of any service.

   (d) The distribution of any raffle ticket or entry in a game of chance.

   (e) The conduct of a game of chance.

2. Conditions for Distribution of Literature

   The continuous or repetitive distribution of flyers, brochures, pamphlets, books or any other printed or written material is prohibited within the interior areas of buildings or structures at an Air Terminal which are controlled or operated by the Port Authority unless conducted pursuant to the following provisions of this rule:

   (a) No person may distribute literature on behalf of himself or herself, another individual or an organization, unless that person's name has been submitted in writing no less than 24 hours earlier to the Manager .

   (b) Each time a person enters a Port Authority controlled or operated Air Terminal to distribute literature pursuant to this rule, he or she must report his arrival to the manager, as set forth below. If a person's name has not been submitted to the manager pursuant to section 2(a), the person will not be permitted to distribute literature pursuant to this rule. Each time a person leaves a Port Authority airport terminal after distributing literature, he or she must report his departure to the Manager, as set forth below.

(i) At LaGuardia Airport, arrivals and departures must be reported in person at the Airport Operations Duty Manager's Office, located on the first floor of the Central Terminal Building. All individuals distributing literature shall sign in prior to beginning the distribution of literature and sign out upon completion.

(ii) Newark Liberty International Airport: Arrivals and departures must be reported by telephone to the Duty Manager of Terminal B at (973) 961-6995 prior to distributing literature, and upon completion.

(c) Each person distributing literature on behalf of an organization must display an identification badge that states the name of the organization represented. The badge shall be worn on the upper left breast of the outermost garment and be clearly visible.

(d) The distribution of literature pursuant to this rule is permitted only at the locations set forth in an appendix to these Rules and Regulations. Access to these locations will be granted on a first come, first served basis each day upon request. Locations containing time limitations are available only at the times set forth. No more than three representatives of a single organization or person are permitted to distribute literature at any one location at any one time.

(e) A table may be used in connection with the distribution of literature pursuant to this rule in the following manner only:

(i) Only one table may be used in each location, on a first-come, first-serve, basis.

(ii) At LaGuardia Airport, no table may be used that exceeds 52 inches in length or 30 inches in width.

(iii) At Newark Liberty International Airport, no table may be used other than a table supplied by the Port Authority. Such tables are available upon request on a first-come, first-serve, basis.

(f) The Manager may prohibit the distribution of literature otherwise permitted by this rule in the event of a snowstorm, aircraft accident, air traffic delay, power failure, transportation strike or other event or condition under which the distribution of literature in such space creates a danger to persons or property, interferes with the orderly formation and progression of waiting lines, or interferes with any of the following: pedestrian and/or vehicular travel; the issuance of tickets or boarding passes or equivalent documents for air or ground transportation; luggage or cargo movement or handling; the entry to and exit from vehicles; security procedures; government inspection procedures; cleaning, maintenance, repair or construction operations.

TETERBORO AIRPORT

XVI. TETERBORO AIRPORT

1.0 GENERAL

1.1 EXCLUSIONS

Scheduled operations are excluded from Teterboro Airport. For purposes of this section, “scheduled operation” means any common passenger-carrying operation for compensation or hire conducted by an air carrier or commercial operator as to which the certificate holder or its representative holds out to the public that the operation is provided between identified locations at set times announced by a timetable or schedule which is published in a newspaper, magazine, internet website or other advertising medium.

1.2 BREACH OF RULES

A violation of any rule or regulation shall constitute a “Breach of Rules”. The Airport Manager will cite breach of rules. The penalty for a breach of a specific rule shall be in accordance with policy and schedule of fines as defined by the airport manager.

1.3 CONDITIONS OF ACCESS

1.3.1 Any permission granted directly or indirectly by the Manager, expressly or by implication, to any person or persons, to enter upon or use the Air Terminal or any part thereof (including aircraft operators, crew members and passengers, spectators, sightseers, pleasure and commercial vehicles, officers and employees of lessees, and other persons occupying space at the Air Terminal, persons doing business with the Port Authority, its subcontractors and permittees, and all other persons whatsoever whether or not of the type indicated), is conditioned upon compliance with these rules and regulations.

1.3.2 No person shall use or occupy the AOA for any purpose whatsoever except a purpose pertaining to the servicing of tenants (an individual, company or organization having an executed agreement to occupy space at Teterboro Airport), concessionaires, airport users, or governmental agencies, or a purpose connected with a maintenance and operation of the Air Terminal, without approval of the Manager.

1.4 COMMERCIAL ACTIVITY

No person shall conduct any commercial activity at the Air Terminal without the consent of the Manager or without complying with the conditions imposed upon such activity by the Manager.

1.5 PARKING

Unless otherwise provided in a lease or other agreement, no person shall use any area of the Air Terminal (other than the public aircraft parking and storage areas), for parking and storage of Aircraft without permission of the Manager. When the Manager deems that such use will not interfere with the operation of the Air Terminal, and such permission is granted, the charge for such use shall be provided in the Schedule of Charges at the Air Terminal for the public aircraft parking and storage area there, this charge to apply from the time the aircraft is so parked or stored at the Air Terminal. If, notwithstanding the above prohibition, a person uses such areas for parking or storage as aforesaid, without first obtaining such permission, then the Manager shall have authority to order the aircraft removed or to cause the same to be removed and stored at the expense of the owner thereof, without liability for damage thereto arising from or out of such removal or storage. The above rate shall apply for the time said aircraft has been so parked or stored at the Air Terminal.

1.6 OPERATIONAL REQUIREMENTS

1.6.1 No person shall land or takeoff an aircraft on or from a public landing area, or use a public landing area, public ramp and apron area, public passenger ramp and apron area, public cargo ramp and apron area, or a public aircraft parking and storage area, except upon the payment of such fees and charges as may from time to time be prescribed, unless such person is entitled to use such area under a lease or other agreement with the Airport Operator or an enterprise authorized by the Airport Operator to grant permission to use any such area.

1.6.2 All persons Operating aircraft at the Air Terminal shall do so in compliance with Teterboro Airport's Noise Abatement Rules and Regulations.

1.6.3 The Manager's waiver of any rule, regulation contained in these Rules and Regulations for any person will not be deemed a waiver of such condition for any other person.

2.0 AIRCRAFT

2.1 GENERAL

2.1.1 The Airport Manager may prohibit Aircraft landing and taking off at any time when, and under any circumstances under which, the Manager deems landings and takeoffs are likely to endanger persons or property.

2.1.2 No person shall conduct an activity or navigate any aircraft, land aircraft upon, fly Aircraft from, or conduct any Aircraft operations or offer any service on or from the Air Terminal otherwise than in conformity with the current applicable U.S. Department of Transportation, Federal Aviation Administration and National Transportation Safety Board Regulations, applicable state and local laws, and these Rules and Regulations, and applicable airport grant assurances.

2.1.3 No Aircraft shall be operated during takeoff or landing or on the surface of a public landing area, public ramp and apron area, public passenger ramp and apron area, public cargo ramp and apron area or public aircraft parking and

storage area in a manner or at a speed which creates an unreasonable risk of harm to persons or property, or while the pilot, or other persons aboard controlling any part of the operation thereof, is under the influence of intoxicating liquor, or any narcotic, or habit-forming drug, or substance which impairs such person's ability to safely operate the Aircraft, or if such Aircraft is so constructed, equipped or loaded as to create an unreasonable risk of harm to persons or property.

2.1.4 The pilot or other person aboard engaged in the operation of any Aircraft (except when subject to the direction or control, for ground movement purposes, of the Federal Aviation Administration or other Federal agency) being operated on the surface of any operational area, public landing area, public ramp and apron area, public passenger ramp and apron area, public cargo ramp and apron area or public aircraft parking and storage area must at all times comply with any lawful order, signal or direction of an authorized representative of the Airport Operator. When operation of such Aircraft is controlled by lights, signs, mechanical or electrical signals or pavement markings, such lights, signs, signals and markings shall be obeyed unless an authorized representative of the Airport Operator directs otherwise.

2.1.5 No motorless Aircraft may land or takeoff at the Air Terminal without permission of the Manager.

2.1.6 No jet Aircraft may land or takeoff at the Air Terminal without permission of the Manager.

2.1.7 No aircraft having an actual gross weight over 100,000 pounds, including passengers, cargo, fuel, equipment, etc. shall land, takeoff or taxi at the Air Terminal without permission of the Manager.

2.1.8 The Manager shall have authority to deny the use of the Air Terminal to any person, pilot or aircraft violating the rules and regulations of the United States, Department of Transportation, the Federal Aviation Administration, the National Transportation Safety Board, applicable airport grant assurances, state and local laws and these Rules and Regulations.

2.1.9 When informed of an emergency by FAA, the Port Authority or other party, all Aircraft shall clear active runways and shall hold their positions unless otherwise directed by the Air Traffic Control Tower.

2.2 EQUIPMENT REQUIREMENTS

No aircraft may land or takeoff at the Air Terminal unless it is equipped with brakes and a functioning radio capable of direct two-way communication with the control tower, except in the case of an emergency landing.

2.3 TAXIING, TOWING AND STARTUP

2.3.1 No jet or turbo-prop aircraft shall be taxied at the Air Terminal where the exhaust blast may cause injury to persons or do damage to property. If it is

impossible to taxi such aircraft without compliance with the above, then the engine must be shut off and the aircraft towed to the desired destination.

2.3.2 No jet or turbo-prop aircraft engines shall be started while the aircraft is parked on the Air Terminal where exhaust blast may cause injury to persons or do damage to property.

2.3.3 Aircraft engines shall be started and warmed up on the Air Terminal only in places designated for such purposes by the Manager. No jet or turbo-prop aircraft engine shall be run-up except in areas authorized by the Manager

2.3.4 Aircraft shall not be positioned or taxied so that propeller slip-stream or jet engine exhaust is directed at spectators, personnel, hangars, shops, or other buildings in such a manner as to cause personal injury, property damage or the actuation of sprinkler systems or fire detection systems.

2.3.5 No person shall start an aircraft engine at the Air Terminal unless there is a twenty (20) pound or larger dry chemical fire extinguisher on site or unless the engine is equipped with its own fire control system.

2.3.6 No Aircraft engine shall be started or run at the Air Terminal unless a pilot certified to operate that particular type of aircraft or a certificated Airframe and Powerplant mechanic qualified to start and run the engines of that particular type of aircraft or a student in the course of training is attending the controls. Wheel blocks equipped with ropes or other approved devices for blocking an aircraft shall always be placed at the front and rear of each main landing wheel and the brakes of the aircraft shall be on and locked before the engine or engines are started, unless alternate procedures approved by the Manager are followed.

2.3.7 No aircraft shall be taxied at the Air Terminal unless a certificated pilot qualified to operate that particular type of aircraft, a student pilot in the course of training who has been certificated to operate that particular type of aircraft as the sole operator, or a certificated Airframe and Powerplant mechanic properly qualified to taxi that particular type of aircraft, is attending the controls. In the case of helicopters, only a certified helicopter pilot shall attend the controls.

2.3.8 No aircraft shall cross an airport roadway or a public highway at the Air Terminal under its own power without permission of the Manager.

2.3.9 No aircraft shall be taxied into or out of hangar under its own power.

2.3.10 No aircraft shall be taxied, towed or otherwise moved at the Air Terminal between sunset and sunrise without illuminated position/navigation lights or similar lighting acceptable to the Manager.

2.4 PASSENGER BOARDING

No passenger shall enter or exit a single engine aircraft (except helicopters) until the engine has been shut down. No passenger shall enter or exit an aircraft having more than one engine until the engine(s) on the side of the aircraft where entry or exit is made has/have been shut down.

2.5 TAKEOFFS AND LANDINGS

2.5.1 Jet-assisted takeoffs shall not be made at the Air Terminal without in advance, obtaining the Manager's permission and notifying the Control Tower.

2.5.2 Practice aircraft landings or takeoffs shall not be made at the Air Terminal without the permission of the Air Traffic Control Tower.

2.5.3 A student pilot shall not takeoff or land at the Air Terminal without the prior permission of the Air Traffic Control Tower.

2.5.4 No aircraft shall use any part of the public landing areas not available for any cause. The boundaries of such areas will be marked with traffic cones by day and amber construction lights by night, and notice thereof will be given to the Air Traffic Control Tower by the Manager.

2.5.5 Aircraft landing at the Air Terminal shall make the landing runway available to others by leaving the line of traffic as promptly as possible.

2.6 PARKING AND STORAGE

2.6.1 Every Aircraft parked on a public ramp or apron area, public passenger ramp or apron area, or public cargo ramp and apron area shall have its position/navigation lights, or similar lighting acceptable to the Manager, illuminated between sunset and sunrise, except in areas designated by the Manager.

2.6.2 No person shall park an Aircraft or leave the same standing on a public landing area, public ramp and apron area, public passenger ramp and apron area, public cargo ramp and apron area, public aircraft parking and storage area or operational area at the Air Terminal except at such places as may be prescribed by the Airport Operator. When in such an area, every aircraft shall be firmly tied to the ground by ropes and stakes, or method approved by the manager. The main landing wheels of every such aircraft shall be chocked with wheel blocks unless other procedures approved by the Manager are followed. Helicopters shall have braking devices and/or rotor mooring blocks applied to the rotor blades.

2.6.3 Upon direction from the Manager, the Operator of any Aircraft parked or stored at the Air Terminal shall move said aircraft from the place where it is parked or stored to any other designated place; if the operator refuses to comply with such direction, the Airport Operator may tow said aircraft to such designated place at the operator's expense, and without liability for damage which may result in the course of such moving.

2.7 AIRCRAFT DUMP VALVE TESTING

Aircraft dump valves shall be tested only in those areas designated for that purpose by the Manager.

2.8 AIRCRAFT ACCIDENTS/INCIDENTS

2.8.1 The pilot of any aircraft involved in any accident causing personal injury or property damage at the Air Terminal shall make a prompt and full report of said accident to the Manager, in addition to making any other reports required by law.

2.8.2 Subject to any instructions by the pertinent federal accident investigating authorities, the pilot or operator thereof shall be responsible for the prompt disposal of aircraft wrecked or disabled at the Air Terminal and parts of such aircraft, as directed by the Manager; in the event of the failure to comply with such directions or as necessitated by airport operations, such wrecked or disabled aircraft and parts may be removed by the Airport Operator at the operator's expense and without liability for damage which may result in the course of such removal.

2.9 TERMINAL FEES

2.9.1 All charges due for the use of the terminal shall be billed to the owner of the aircraft using the terminal unless payment is made to the Airport Operator at the time services are rendered.

2.9.2 The Manager may detain any aircraft for nonpayment of fees or charges owed to the Airport Operator.

3.0 SAFETY

3.1 GENERAL

No person in or upon the Air Terminal shall do or omit to do any act if the doing or omission thereof creates an unreasonable risk of harm to persons or property.

3.2 SMOKING

All regulations regarding smoking set forth elsewhere in the Airport Rules and Regulations are applicable to Teterboro Airport.

3.3 FIRE HAZARD

3.3.1 No person shall operate an oxy-acetylene torch, electric arc or similar flame or spark producing device on any part of the Air Terminal except in areas within leased premises designated for such use by the Manager, without first obtaining a Cutting and Welding Permit from the Manager. No such permit will be issued for such operations within an aircraft hangar or within any fuel storage area or fuel parking area, unless the work is required for the repair and maintenance of said hangars or areas.

3.3.2 No person shall start any open fires or any type, including flare pots, torches or fires in containers formerly used for oil, paint, or similar materials on any part of the Air Terminal without permission.

3.4 DE-ICING

Aircraft de-icing shall be performed in accordance with the Teterboro De-icing Program on file in the office of the Manager.

3.5 FIRE DETECTION/SUPPRESSION SYSTEMS

3.5.1 Fire extinguisher equipment at the Air Terminal shall not be tampered with at any time or used for any purpose other than fire fighting or fire prevention. All such equipment shall be inspected in conformity with the National Fire Protection Association regulations. Tags showing the date of the last such inspection shall be left attached to each unit.

3.5.2 Heater valves, sprinkler valves and devices, blower motors or any other Air Terminal machinery or equipment shall not be tampered with at any time. No person other than an authorized Airport Operator employee or designee may turn heaters in public areas on and off or operate any other airport equipment, except in leased areas. In leased areas, only employees or designees of the lessee or the Airport Operator may perform these functions.

4.0 FUEL HANDLING

4.1 FUEL HANDLING OF AIRCRAFT

4.1.1 Aircraft fueling and/or defueling is prohibited while the engine of the aircraft being serviced is running or is being heated. Fuel shall be delivered or drained through hose and connections approved by the Underwriter's Laboratories, Inc.

4.1.2 Aircraft fuel handling at the Air Terminal shall be conducted at least fifty (50) feet from any hangar or other building, except where the location of underground fuel tanks presently installed requires such fuel handling closer to existing buildings or hangars.

4.1.3 Each tenant who is authorized to dispense fuel at the Air Terminal shall designate fueling areas for the fueling of all ramp vehicles.

4.1.4 Each tenant and/or aircraft operator is required to notify airport operations in the event of a fuel spill. All tenants and aircraft operators are responsible for responding to and cleaning up spills on his/her property and from his/her aircraft.

4.1.5 During fuel handling operations in connection with any aircraft at the Air Terminal, at least two twenty (20) pound or larger dry chemical fire extinguishers shall be immediately available for use in connection therewith.

4.1.6 During fuel handling in connection with any aircraft, no person shall operate any radio transmitter or receiver in such aircraft, or switch electrical appliances on or off in such aircraft, nor shall any person do any act or use any material which is likely to cause a spark within fifty (50) feet of such aircraft.

4.1.7 As per NFPA 407 2-1.4, surveillance radar equipment in aircraft shall not be operated within 300 feet of any fueling, defueling, servicing, or other operations in which flammable liquids, vapors, or mist may be present. Weather-mapping radar equipment in aircraft shall not be operated when the aircraft in which it is mounted is undergoing fuel servicing.

4.1.8 During fuel handling in connection with aircraft, no passenger or passengers shall be permitted to remain in such aircraft unless at least one qualified person trained in emergency evacuation procedures is at the door and a passenger ramp is in position if the same is required for the safe and rapid debarkation of passengers. Only personnel engaged in the fuel handling, or in the maintenance and operation of the aircraft being fueled or defueled shall be within fifty feet of the fuel tanks of such aircraft during the fuel handling operations.

4.1.9 Persons engaged in aircraft fuel handling shall exercise care to prevent overflow of fuel.

4.1.10 No person shall start the engine or engines of any aircraft when there is gasoline or any type of fuel on the ground under the aircraft. In the event of the spillage of gasoline or any type of fuel, no person shall start an aircraft engine in the area in which the spillage occurred, even though the spillage may have been cleaned up, until the Airport Manager has granted permission for the starting of engines in the area.

4.1.11 Unless otherwise provided in a lease or other agreement, all operators of aircraft who receive, and all persons who supply, aviation fuel and lubricating oil at the Air Terminal, shall use only these aviation fuel storage and delivery facilities designated and approved by the Manager for such use.

4.2 BONDING

During all fuel handling operations in connection with any aircraft at the Air Terminal, the aircraft and the fuel dispensing or draining apparatus shall be bonded by wire to prevent the possibility of static ignition of volatile liquids.

4.3 FUELING OF OTHER VEHICLES

4.3.1 The transfer of bulk aircraft or commercial fuel from one vehicular tender into another is prohibited within the boundaries of the Air Terminal.

4.3.2 Automotive and ramp equipment shall be refueled only at refueling stations and from dispensing devices approved by the Manager for such use.

5.0 VEHICLES

5.1 GENERAL

5.1.1 All vehicular traffic on or upon a Public Vehicular Parking Area, AOA, fuel storage area, Public Landing Area, Public Ramp and Apron Area, Public Passenger Ramp and Apron Area, Public Cargo Ramp and Apron Area or Public Aircraft Parking and Storage Areas must at all times comply with any lawful order, signal or direction. When such traffic is controlled by traffic lights, signs, mechanical or electrical signals, or pavement markings, such lights, signs, signals and markings shall be obeyed.

5.1.2 No vehicle shall be operated in or upon a Public Vehicular Parking Area, AOA, fuel storage area, Public Landing Area, Public Ramp and Apron Area, Public Passenger Ramp and Apron Area, Public Cargo Ramp and Apron Area, or Public Aircraft Parking and Storage Area in a manner at a speed which creates an unreasonable risk of harm to persons or property, or while the driver thereof is under the influence of intoxicating liquor, or any narcotic or habit-forming drug or any substance which affect the ability of the driver to operate the vehicle safely or if such vehicle is so constructed, equipped or loaded as to create an unreasonable risk of harm to persons or property.

5.1.3 No motorized vehicle shall be operated in or upon a Public Vehicular Parking Area or roadway unless (1) the driver thereof is duly authorized to operate such vehicle in New Jersey, and (2) such vehicle is registered in accordance with the provisions of the law of New Jersey.

5.2 EQUIPMENT REQUIREMENTS

All equipment shall comply with Port Authority Rules & Regulations governing the use of such equipment on airport property as further described in the Ground Vehicle Specifications, attachment B.

5.3 VEHICLES ENTERING THE PUBLIC LANDING AREA

All vehicles operating on the public landing area shall obtain clearance from the control tower before entry thereon. Between the hours of sunrise and sunset, such vehicles shall have a radio receiver in operation, and shall display a yellow flashing beacon, or a checkered flag, not less than three feet square, of international orange and white, the checks being at least one square foot on each side; between the hours of sunset and sunrise, such vehicles shall have a radio receiver in operation and a yellow flashing beacon shall be displayed.

5.4 SPEED LIMITS

Vehicles at the Air Terminal shall be operated in strict compliance with speed limits as indicated by posted traffic signs. Except as indicated by such signs, no vehicle shall exceed the speed of fifteen (15) miles per hour; and no vehicle shall exceed (5) miles per hour within 50 feet of an aircraft or on the Public Ramp and Apron Area, Public

Passenger Ramp and Apron Area, Public Cargo Ramp and Apron Area, and Public Aircraft Parking or Storage Area.

5.5 TAXICABS/LIMOUSINES

The following vehicles are not permitted on the AOA without the permission of the Manager: Limousines, Taxis, Delivery Vehicles, Busses, Vans, Postal/Mail Package Delivery Vehicles and any other service/transportation vehicles which are not owned or operated by the tenant and used in the course of doing business. Personal vehicles are not permitted on the airside.

5.6 PARKING

5.6.1 No person shall park a vehicle or permit the same to remain halted on a public vehicular parking area, operational area, fuel storage area, public landing area, public ramp and apron area, public passenger ramp and apron area, public cargo ramp and apron area or public aircraft parking and storage area, except at such places and for such periods of time as may be prescribed or permitted by the Manager. No aircraft refueling vehicle shall be parked within 50 feet of a building or hangar other than a refueling service-shop or within 10 feet of any other aircraft refueling vehicle.

5.6.2 No person shall stop or park a vehicle:

(a) In front of a driveway
(b) Within a bus stop safety zone or taxicab zone, except vehicles authorized to use such areas.
(c) In other than leased or authorized areas for the purpose of washing, greasing or repairing a vehicle, except repairs necessitated by an emergency.
(d) On the roadway side of any stopped or parked vehicle (double parking).
(e) Within 15 feet of a fire hydrant.
(f) Other than in accordance with restrictions posted on authorized signs.

5.6.3 No person shall park a vehicle within any public vehicular parking area except upon the payment of such parking fees and charges as may from time to time be prescribed.

5.6.4 The Manager shall have authority to detain vehicles parked in Air Terminal vehicular parking areas for non-payment of parking charges. Such fees may be paid under protest and a claim may be asserted for refund pursuant to applicable law.

5.7 VEHICLE COLLISIONS

The driver of any vehicle involved in a collision on a public vehicular parking area, operational area, fuel storage area, public landing area, public ramp and apron area, public passenger ramp and apron area, public cargo ramp and apron area or public aircraft parking and storage area which results in injury or death to any person or

damage to any property shall immediately stop such vehicle at the scene of the accident, and give his/her name, address, and operator's license and vehicle registration number to the owner or operator of any damaged property, to any person injured, to the Manager, or to any police officer or witnesses of the injury. The operator of such vehicle shall make a report of such accident in accordance with the law of the State of New Jersey.

5.8 DRIVER TRAINING

Any and all persons who operate a vehicle(s) on any area of the Air Terminal may be required to successfully complete a driver training course as specified by the Manager.

6.0 MISCELLANEOUS

6.1 GENERAL

No person shall interfere or tamper with any aircraft at the Air Terminal, or start the engine of such aircraft without the operator's consent.

6.2 FOREIGN OBJECT DEBRIS (F.O.D.) CONTROL

Each tenant and aircraft operator shall maintain their respective ramp and facility in a clean and orderly manner. Each tenant shall control and prevent foreign object debris and ensure safety during all aspects of ramp operations.

6.3 RAMP ACCESS

6.3.1 No person shall travel on any portion of the Air Terminal except upon the roads, walks or places provided for the particular class of traffic; nor occupy the roads or walks in such manner as to hinder or obstruct their proper use.

6.3.2 No person shall enter any restricted area of the Air Terminal posted as being closed to the public without permission except persons assigned to duty therein who have been issued a Teterboro Airport Identification Badge, or are authorized representatives of the Port Authority or its designee. The Airport Manager reserves the right to determine who is required to obtain identification badges.

6.3.3 No person shall enter upon the Public Landing Area, Public Ramp and Apron Area, Public Passenger Ramp and Apron Area or the Public Cargo Ramp and Apron Area of the Air Terminal without permission except persons assigned to duty therein, authorized representatives of the Port Authority or the Airport Operator, or passengers and crews entering upon the public ramp and apron areas for purposes of embarkation or debarkation.

6.3.4 No person shall enter any Port Authority Operated Area, Public Landing Area, Public Ramp and Apron Area, Public Passenger Ramp and Apron Area, or Public Cargo Ramp and Apron Area of the Air Terminal with any animal except

a "seeing-eye" dog, or other service animal, or one properly confined for shipment. Animals may be permitted in other areas of the Air Terminal if on a leash or confined in such a manner as to be under control.

6.3.5 The following areas and portions of the Air Terminal operated by the Airport Operator shall be available for use for the following purposes; and such areas and portions of the Air Terminal may be used by members of the traveling public, by aircraft operators (and by officers and employees of aircraft operators), and by other persons, only for such purposes. The use of such areas and portions of the Air Terminal for any other purpose is forbidden; and any right, permit, license or permission, express or implied, to enter upon, pass through, or otherwise use any such areas or portions of the Air Terminal is subject to the conditions that they shall be used only for such purposes, and in the event any person shall use or attempt to use such areas or portions of the Air Terminal for any other purpose or purposes, or shall use the same for an authorized purpose but in a disorderly manner, then any right, permit, license or permission theretofore granted to persons to use such areas or portions of the Air Terminal for any purpose whatsoever shall forthwith cease and terminate without further action by the Airport Operator.

6.4 ENPLANING AND DEPLANING

Passengers shall not be permitted to enplane or deplane except in the presence of authorized personnel of the aircraft operator.

6.5 DEFACING, DAMAGING, ETC., TERMINAL OR PROPERTY

No, person shall deface, mark, break, or otherwise damage any part of an Airport, or any property therein.

6.6 NON-COMMERCIAL EXPRESSIVE ACTIVITY

6.6.1 No person shall engage in the continuous or repetitive distribution of flyers, brochures, pamphlets, books or any other printed or written material in any area of the Air Terminal other than the sidewalk adjacent to Moonachie Avenue.

6.6.2 Any person engaging in activity pursuant to Section 6.6.1 shall notify the Manager or his designee in person not less than 24 hours prior to the commencement of such activity.

6.6.3 No Person engaging in non-commercial expressive activity pursuant to Section 6.6.1.

(a) The intentional touching of any person without his or her consent.

(b) The performance of any ceremony, speech, song, carrying of any sign or placard, or other such activity which constitutes a danger to [persons or property, or which interferes with the use of the sidewalk or adjacent roadway or parking area, or cleaning, maintenance, repair or construction operations.

(c) The intentional leaving of any brochure, flyer, or any other item intended for distribution unattended.

6.7 AIRCRAFT MAINTENANCE AND CLEANING

Cleaning of or otherwise maintaining aircraft shall be accomplished only in areas designated for that purpose by the Manager.

6.8 CONSTRUCTION

All construction must be conducted in accordance with all applicable local, state and federal regulations and with the prior approval of the Manager.

7.0 TANK VEHICLES

7.1 REGISTRATION AND INSPECTION

7.1.1 No tank vehicle shall be used for transportation of flammable liquids within the Air Terminal unless registered, inspected and approved by the Airport Operator.

7.1.2 Every application for registration, inspection or reinspection of such tank vehicle shall be made upon forms prescribed and furnished by the Airport Operator accompanied by a detailed, authorized statement of the tank vehicle operator certifying compliance with the provision of these rules and regulations.

7.1.3 Vehicles shall be submitted for registration and inspection prior to their use upon the Air Terminal and shall be submitted for reinspection every six months thereafter.

7.1.4 The Manager reserves the right to inspect all Tank Vehicles operating on the Air Terminal, and to issue registration and inspection certificates therefore, quarterly. The Manager may also require display of such certificates on or in all tank vehicles.

7.2 OPERATION

VEHICLE MOTORS

Motors of tank vehicles shall not be run during cargo tank filling, making or breaking filling connections, or during fuel handling system repairs. The propulsion motor for refueling service vehicles shall not be run during fuel transfer or, making or breaking of hose connections.

8.0 PUBLIC LANDING AREA

8.1 SCHEDULE OF CHARGES FOR THE USE OF PUBLIC LANDING AREA

The operators of any aircraft using the public landing area at Teterboro Airport, except pursuant to the terms of a lease or other agreement with The Port Authority of NY& NJ or the Airport Operator, shall pay for such use at the rate(s) established by the Manager. The schedule of charges for Teterboro Airport is published as a separate document by The Port Authority NY&NJ.

8.2 FREE USE OF PUBLIC LANDING AREA

Notwithstanding the provisions of any Schedule of Charges heretofore adopted for the use of Teterboro Airport, no charge shall be made for the use of such Air Terminal by the following aircraft:

8.2.1 Aircraft owned, leased or chartered by the agencies of the following governmental entities:

a. The United States of America provided, however, that during any calendar month;

1) The total number of movements (counting each landing as a movement and each takeoff as a movement) of such government aircraft does not exceed 300. For each landing after the 300th movement, the standard landing fee will be charged, as stated in Section I. Public Landing Area Charges, and

2) The gross accumulative weight of such government aircraft (the total movements multiplied by gross certified weights of such aircraft) does not exceed five million pounds.

b. The State of New York and their agencies.

c. The State of New Jersey and their agencies.

d. States other than New York and New Jersey and their agencies with whom the Port Authority has entered into reciprocal fee-waiver agreements applicable to fees at Teterboro Airport.

e. Local governmental agencies within the Port District.

f. Any local governmental agency, when there is a reciprocal fee waiver agreement applicable to fees at Teterboro Airport between that agency and The Port Authority of New York and New Jersey.

8.2.2 Aircraft owned, leased or chartered by the Port Authority of New York and New Jersey.

8.2.3 Aircraft operated under orders of the Civil Air Patrol when engaged in the execution of official airport search and rescue missions or in officially ordered practice aircraft search and rescue missions.

9.0 NOISE ABATEMENT RULES AND REGULATIONS

9.1 PREFACE

Sections 9.1 - 9.7.2 of these Rules and Regulations predate the Airport Noise and Capacity Act of 1990 (ANCA)

9.1.1 FIRST VIOLATION-shall mean the first violation of the MNL-based noise standard by an individual aircraft.

9.1.2 MAXIMUM NOISE LEVEL-shall mean the maximum level of a noise event, measured in dB(A).

9.1.3 MNL-shall mean Maximum Noise Level.

9.1.4 OPERATIONS-shall mean operations by Stage Two Low Bypass Ratio airplanes.

9.1.5 PART 36 OF THE FEDERAL AVIATION REGULATIONS OR PART 36-shall mean 14 C.F.R., Part 36, including noise levels under Appendix C of that Part.

9.1.6 SECOND VIOLATION-shall mean the second violation of the MNL-based noise standard by an individual aircraft.

9.1.7 STAGE TWO, LOW BYPASS RATIO AIRPLANE-shall mean an airplane that complies with the noise levels prescribed in Sections C36.5(a)(2) of Appendix C of Part 36, or in Chapter 2 of Annex 16 (including use of applicable tradeoff provisions), and which is powered by jet engines with a bypass ratio of 3.0 or less.

9.1.8 STAGE TWO, LOW BYPASS OPERATIONS-shall mean operations by Stage Two, Low Bypass Ratio Airplanes.

9.1.9 STAGE THREE AIRPLANE-shall mean an airplane that complies with noise levels prescribed in Section C36.5(a)(3) of Appendix C of Parr 36, or in Chapter 2 of Annex 16 (including use of applicable tradeoff provisions), and which is powered by jet engines with a bypass ratio of 3.0 or less.

9.1.10 STAGE THREE OPERATIONS-shall mean operations by Stage Three Airplanes.

9.1.11 THIRD VIOLATION-shall mean the third violation of the MNL-based noise standard by an individual aircraft.

9.2 GENERAL

9.2.1 Aircraft operating at Teterboro Airport must abide by the applicable noise rules, as defined in the following paragraphs. Airport noise rules are based upon maximum noise lever (MNL) and Federal Aviation Regulations (FAR) Part 36 noise level classification.

a) No jet powered aircraft may operate at Teterboro Airport without prior approval of the Airport Manager.

b) No aircraft may operate at Teterboro Airport if such operations shall result in emitted noise above levels prescribed by the Airport Rules and Regulations.

c) No operations by subsonic Stage Two, low bypass, jet aircraft, exceeding 75,000 pounds maximum certified take-off gross weight (MTOGW), may be planned or scheduled at the airport between the hours of 12:00 midnight and 6:00 a.m.

d) Effective May 1, 2002, no operations of Stage I Aircraft will be permitted at anytime (24 hours) at Teterboro Airport.

9.3 APPROVAL TO OPERATE JET AIRCRAFT

9.3.1 In order to use Teterboro Airport, all operators of jet powered aircraft must complete and submit to the Airport Manager, a form entitled "*Request To Operate Jet Powered Aircraft Into Teterboro Airport*".

9.3.2 This form must be completed and submitted by the aircraft owner or operator either before the first operation by any jet powered aircraft or prior to the first departure by such aircraft. If the form has not been completed and submitted prior to the first arrival at Teterboro Airport, the Captain of the arriving aircraft shall contact the duty Airport Operations Supervisor to request a copy of the form.

9.3.3 Upon presentation of the "Request To Operate" form to the Captain, the Airport Operations Supervisor shall provide information to such persons regarding the Teterboro Airport noise regulations.

9.3.4 Approval must be obtained for each jet powered aircraft the owner or operator plans to operate at Teterboro Airport. Owners or operators may gain approval for more than one aircraft during initial contact with airport management.

9.3.5 Aircraft owners or operators shall advise Teterboro Airport management any time that they have sold, or are no longer in direct control of, an aircraft which has been approved by airport management under the process provided for in these Noise Abatement Rules and Regulations.

9.4 MAXIMUM NOISE LEVELS

9.4.1 NOISE LIMITS

Takeoffs will be permitted only if they are so planned and conducted that the MNL, as measured on the ground by the Airport Noise Monitoring System, will not exceed the following:

a) Runway 24:
Between the hours of 2200 and 0700 local times - 80 dB(A). At all other times - 90 dB(A).

b) All Other Runways:
Takeoffs from all other runways and helicopter routes originating at the Airport may not exceed 95 dB(A).

9.4.2 VIOLATIONS

a) Whenever an aircraft operation has resulted in emission of a sound level above the prescribed limit, the Airport Manager shall issue a noise violation notification. Such notification shall be mailed, via certified or registered mail, to the address given by the owner or operator on the "Request To Operate Jet Powered Aircraft Into Teterboro Airport" form, or to the registered owner/operator (in the case on non jet aircraft). Failure on the part of the aircraft operator to receive such notification shall not be cause for dismissal of the violation.

b) A record of First Violations and Second Violations shall be kept for two years (from the date of the violation). Upon the second anniversary of the First Violation or Second Violation, the record of that violation shall be expunged. If a record of a Second Violation exists when the record of a First Violation is expunged, the Second record of the Violation shall revert in status to a record of First Violation. Any downgraded violation record shall be expunged on the second anniversary of its original date of occurrence.

c) Aircraft that have three (3) recorded MNL violations shall not be permitted to operate at Teterboro Airport.

9.4.3 EXEMPTIONS

a) Upon prior approval of the Airport Manager, operators may conduct up to two flight tests on any one aircraft at Teterboro Airport. These tests may be conducted for the purpose of evaluating noise abatement procedures. Permission for such tests will not be granted if there is a record of a Second Violation for the aircraft involved.

b) If Runway 19 is officially closed, by NOTAM, the applicable MNL for Runway 24 shall be 95 dB(A).

c) If the cross-wind component existing at the time of an intended Runway 19 takeoff exceeds the maximum allowable cross-wind component as listed in the operator's handbook for the aircraft being used, the applicable MNL for Runway 24 shall be 95 dB(A).

d) Exemptions may be granted by the Airport Manager, in his or her discretion, in cases where, due to circumstances that could not have been foreseen prior to departure, noise abatement procedures were abandoned in order to assure safety of flight.

9.4.4 APPEALS

a) Operators may appeal the assessment of a MNL violation. Letters of appeal must be received by the Airport Manager within thirty (30) days of the date that the violation notification was received by the operator.

b) Letters of appeal should clearly state the specific ground upon which the appeal is based. Mitigating circumstances must be verifiable and documented.

c) Letters of appeal may be reviewed by the Teterboro Airport Noise Abatement Advisory Committee (TANAAC), in which case the Advisory Committee may, in its discretion provide comments on the appeal letter to the Airport Manager, within ninety (90) days of the receipt of the appeal letter. The Airport Manager, with or without the advice of TANAAC, shall render a decision concerning the appeal. The decision of the Airport Manager shall be final.

d) All violation records shall remain in effect until a decision on such appeal has been rendered by the Airport Manager. If the violation is overturned by the Airport Manager on appeal the record of violation shall immediately be expunged.

9.5 REMOTE NOISE MONITOR LOCATIONS

9.5.1 Remote Monitoring Site (RMS) locations are depicted on the Teterboro Airport Minimum Sound Tracks chart, available at the Airport Operations Office, 399 Industrial Avenue, Teterboro, NJ 07608, (201)288-1775.

9.5.2 FIXED RMS LOCATIONS ARE AS FOLLOWS:

RMS#1: Carlstadt - Corner of Berry Street and 7th Avenue, 1.9NM from the normal brake release point at Runway 24 threshold.

RMS #2: Hasbrouck Heights - Hamilton Avenue across the street from the Municipal Building, 0.7NM west of the west boundary of the airport.

RMS#3: Hackensack - Roof of the Hackensack Medical Center, 2.5NM from the normal brake release point at Runway 01 threshold.

RMS#4: Hackensack - Park Street, 300 feet North of Central Avenue, 1.8NM north of the northern boundary of the airport.

RMS#5: Bogota - In the yard of the Bogota High School, 2.8 NM from the normal brake release point at Runway 06 threshold.

RMS#6: Moonachie - Joseph Street, 0.4NM east of Runway 01/19.

9.6 STAGE TWO OPERATIONS

Noise Rule

No operations by subsonic Stage Two, Low Bypass jet aircraft, exceeding 75,000 pounds maximum certified take-off gross weight (MTOGW), may be planned or scheduled at the airport between the hours of 12:00 midnight and 6:00 a.m.

Operators that violate the 12:00 midnight to 6:00 a.m. restriction may lose all operating privileges at Teterboro Airport, in the discretion of the Airport Manager.

9.7 AIRCRAFT/ENGINE MAINTENANCE RUN-UPS

9.7.1 The procedure listed below shall be followed by all persons who engage in aircraft/engine maintenance run-ups.

a) Jet and turbine engine aircraft run-ups are prohibited on ramp areas. Piston powered aircraft, when positioned away from buildings and vehicles, may be conducted on ramp areas. Caution should be exercised in order to prevent undue noise and prop blast on airport tenant areas. Aircraft shall not be positioned so that propeller slip-stream or engine exhaust is directed at spectators, personnel, hangars, shops or other buildings in such a manner as might cause personal injury, property damage or the activation of sprinkler systems and/or fire detection systems.

b) Prior to conducting a maintenance run-up, including piston powered aircraft run-up on ramp areas, the operator shall provide the following information to Airport Operations, at 288-1775.

1. Operator name
2. Aircraft owner
3. Type of aircraft
4. Aircraft registration number
5. Whether aircraft will be escorted to run-up area
6. Total expected time of run-up operation
7. Engine power settings anticipated and approximate period of time at stated settings.
8. Reason for engine run-up
9. Run-up area requested

c) All maintenance run-ups shall be conducted between the hours of 8:00 a.m. and 8:00 p.m., Monday through Saturday, or between the hours of 12:00 p.m. and 6:00 p.m. on Sundays. In an emergency, the Airport Manager, in his or her discretion, may approve maintenance run-ups during other hours -- on a case-by-case basis. Run-up hours may be adjusted, at the discretion of the Airport Manager, if the noise impact on the local community so warrants.

d) All aircraft operators conducting a maintenance run-up must maintain a listening watch on the Teterboro Ground Control frequency (121.9 MHz), or alternate frequency assigned by Air Traffic Control if the aircraft is equipped with only one aeronautical communications radio. If the aircraft is equipped with dual aeronautical radios, listening watch shall be maintained on both Teterboro Ground Control and ARINC (130.575 MHz).

e) Although it is recognized that, under certain wind conditions, operators may favor aircraft headings other than the preferred headings, the Airport Manager reserves the right to reposition aircraft and/or terminate

maintenance run-ups. Preferred run-up areas and aircraft headings are as follows:

1) Taxiway Golf at east extension. Preferred headings are 010 degrees and 190 degrees.

2) Holding area adjacent to Taxiway Alpha (between Runways 19 and 24). Preferred location is as close to Runway 19 as possible on a heading of 190 degrees.

9.7.2 These regulations are set forth in order to provide maximum possible relief to residents of the communities surrounding Teterboro Airport. While the Airport Manager recognized the need for maintenance run-ups to ensure safety of flight, the Airport Manager asks all aircraft operators to carefully consider the impact of noise on our neighbors and plan run-up activities accordingly.

9.8 STAGE ONE OPERATIONS

Effective May 1, 2002, no operations of subsonic Stage I aircraft are permitted. For the purposes of this section, Stage I aircraft shall have the same meaning as the definition in Part 36 of the Federal Aviation Regulations.

STEWART INTERNATIONAL AIRPORT

XVII. STEWART INTERNATIONAL AIRPORT

1.0 GENERAL

1.1 CONDITIONS OF ACCESS

1.1.1 Use of any area or portion of an Air Terminal in a manner contrary to law or a manner contrary to the Airport Rules and Regulations may result in a withdrawal of permission to enter or remain in such air terminal by the Port Authority. *{Ref: PANYNJ R & R Chapter I, paragraph B1}*

1.1.2 Nothing herein contained shall be construed to limit the use of any area or portion of any air terminal by officers or employees of the Port Authority, or by Port Authority contractors, or to prevent any Police Officer, Fire Officer or other public officer or employee from entering upon any part of the air terminal when properly required so to do in the performance of his official duties. *{Ref: PANYNJ R & R Chapter I, paragraph B2}*

1.1.3 The Port Authority may prohibit any conduct that violates any requirement for, or condition of, the receipt of federal grant in aid funds, the approval of the imposition of Passenger Facility Charges, or any other governmental program in which the Port Authority participates to obtain funds for use at an Airport. *{Ref: PANYNJ R & R Chapter I, paragraph B3}*

1.1.4 Permission to use Airport land, terminals, buildings, structures, parking lots, on-airport buses or rail systems may be denied to or withdrawn from persons who violate Port Authority Rules and Regulations, applicable laws, ordinances or regulations of other government bodies or for such other reason as may be permitted by law. *{Ref: PANYNJ R & R Chapter III, paragraph A}*

1.2 COMMERCIAL ACTIVITY

Commercial activity at locations in Port Authority Air Terminals is subject to the following conditions and restrictions:

1.2.1 Compliance with Rules & Regulations

Any permission granted by the Port Authority directly or indirectly, expressly or by implication, to any person or persons, to enter upon or use any air terminal or any part thereof (including aircraft operators, crew members and passengers, spectators, sightseers, pleasure and commercial vehicles, officers and employees of airlines, lessees and other persons occupying space at such air terminal, persons doing business with the Port Authority, its lessees, sub-lessees and permittees, and all other persons whatsoever whether or not of the type indicated), is conditioned upon compliance with the Port Authority Rules and Regulations. *{Ref: PANYNJ R & R Chapter XV, paragraph A1}*

1.2.2 Port Authority Consent

No person shall carry on any commercial activity at any Air Terminal including, but not limited to, the sale of merchandise or services, without the consent of the Port Authority. *{Ref: PANYNJ R & R Chapter XV, paragraph A2}*

1.2.3 Vending Machines

No vending machines for the sale of goods shall be permitted in the public areas of Stewart International Airport that is not occupied by a lessee, licensee or permittee, unless permitted to do so by the General Manager, or the designee thereof. This prohibition shall not apply to vending machines in restrooms selling personal hygiene items. *{Ref: PANYNJ R & R Chapter XV, paragraph A3}*

1.2.4 Sightseeing Flights

No person shall conduct sightseeing flights at any Air Terminal except under permit from the Port Authority. By sightseeing flights is meant flights on which passengers are carried for hire, and which originate and terminate at the same terminal with no intermediate stops other than emergency stops. *{Ref: PANYNJ R & R Chapter XV, paragraph A4}*

1.2.5 Storage of Cargo & Property without Permission

No person shall use any area of an Air Terminal for storage of cargo or other property without permission of the General Manager, or the designee thereof. If, notwithstanding the above prohibition, a person uses such areas for storage as aforesaid, without first obtaining such permission, then the General Manager, or the designee thereof, shall have authority to order the cargo or other property removed or to cause the same to be removed and stored at the expense of the owner or consignee thereof, without liability for damage thereto arising from or out of such removal or storage. *{Ref: PANYNJ R & R Chapter XV, paragraph A5}*

1.3 PARKING *{Ref: PANYNJ R & R Chapter XV, paragraph A6}*

Unless otherwise provided in a lease or other agreement, no person shall use any area of an Air Terminal (other than the public aircraft parking and storage areas), for parking and storage of aircraft without permission of the General Manager, or the designee thereof. If, notwithstanding the above prohibition, a person uses such areas for parking or storage as aforesaid, without first obtaining such permission, then the General Manager, or the designee thereof, shall have authority to order the aircraft removed or to cause the same to be removed and stored at the expense of the owner thereof, without liability for damage thereto arising from or out of such removal or storage.

1.4 OPERATIONAL REQUIREMENTS

1.4.1 All persons Operating aircraft at the Airport shall do so in compliance with Stewart International Airport's noise abatement procedures.

1.4.2 The General Manager's, or the designee's thereof, waiver of any rule, regulation contained in these Rules and Regulations for any person will not be deemed a waiver of such condition for any other person.

2.0 AIRPORT SECURITY *{Ref: PANYNJ R & R Chapter II}*

2.1 ADHERENCE TO SECURITY REGULATIONS AND PROCEDURES

All persons entering an Air Terminal shall comply with all applicable security regulations and procedures. The Port Authority complies with or requires compliance with 49 CFR, Chapter XII, Parts 1540 and 1542, with the exception of Teterboro Airport established separately by the Teterboro Airport Manager. All amendments to the regulations listed above are to be complied with as requested by the Transportation Security Administration.

2.2 MANAGER'S RIGHT TO RESCIND ACCESS

The General Manager, or the designee thereof, shall have the right to rescind permission for the use of any access control device and confiscate any Airport ID previously given to any individual for any lawful reason, including but not limited to violations of airport security and violations of Airport Rules and Regulations.

2.3 VALID IDENTIFICATION AND ESCORT REQUIREMENTS

No person may enter or be in the Airport Operations Area (AOA) or Security Identification Display Area (SIDA) unless he or she is:

a. Displaying a valid Airport ID indicating that he or she has unescorted access privileges; or,
b. In the case of a location subject to an Exclusive Area Agreement, which allows the use of an Air Carrier ID for limited access to the AOA or SIDA, displaying a valid approved Air Carrier ID; or,
c. in the case of aircraft crewmembers, dressed in the full uniform of his/her company, displaying a photo ID issued by an authorizing airline; or,
d. in the case of an FAA Aviation Safety Inspector conducting his/her assigned duties, displaying an FAA Form 8000-39 with photograph; or,
e. under the escort of an individual not employed by the same company as the person being escorted who has a valid Airport Operator Identification Card indicating that he or she has unescorted access privileges and privileges to escort others.

2.4 FLIGHT CREWS

2.4.1 Flight crewmembers may, when wearing a valid ID as noted herein, dressed in the full uniform of his/her company, and when performing the duties of their flight crew assignment, have unescorted access to certain areas of the AOA or SIDA only:

a. To travel directly from the terminal building to the aircraft to which they are assigned and/or,

b. to perform necessary assigned flight checks on an aircraft, but only while remaining within 25 feet of that aircraft; and,

c. no unnecessary diversions are made when traveling as described in a. and b. above.

2.4.2 If any flight crewmember requires access to the AOA or SIDA for reasons other than those stated herein, or if it is impossible for a flight crewmember to follow the regulations as stated herein, an escort is required.

2.5 DISPLAYING VALID IDENTIFICATION

While in the AOA or SIDA, individuals who are not under escort must display the approved ID in full view, above waist level, on their outermost garment. Such approved ID must be presented upon demand in response to a challenge made pursuant to paragraph 2.8 below.

2.6 AIRPORT IDENTIFICATION (ID) RESPONSIBILITIES

2.6.1 Caring for Airport ID

It is the responsibility of the individual to whom an Airport ID is issued to secure and care for that card. An expired, mutilated, defaced, misused and invalidated identification card will be confiscated and/or suspended and/or revoked.

2.6.2 Reporting the Misuse of Airport ID

It is the responsibility of every individual to whom an Airport ID has been issued to report any one displaying an expired, mutilated, defaced, or otherwise invalid Airport ID to the SWF Airport Operations Office without unreasonable delay.

2.7 ESCORT PROCEDURES

2.7.1 Escorting People

The required procedure for escorting people on the AOA or SIDA is to accompany and supervise any individual who does not have unescorted access authority in a manner sufficient to take action should the individual engage in activities other than those for which the escorted access is granted. While under escort, the person being escorted must continuously be within the line of sight of the person performing the escort. Escorting of people will be conducted for business purposes only.

2.7.2 Escorting Vehicles

Vehicles without a valid SWF Ramp Permit, and drivers who do not have an Airport ID with driver privileges, must be escorted while on the AOA by an individual who:

(i) possesses a valid Airport ID with driver and escort privileges, and

(ii) uses a vehicle that is in full compliance with these Rules and Regulations.

(iii)The operator of an escorting vehicle shall remain in close proximity to an escorted vehicle until the escorted vehicle leaves the AOA.

2.8 RESPONSIBILITY TO CHALLENGE

It is the responsibility of every individual issued an Airport ID that allows unescorted access to the AOA or SIDA:

2.8.1 To challenge the authority or purpose of a person without proper escort who attempts to enter the AOA or SIDA and who is not displaying a valid Airport ID that allows that person access to the area, and to prevent him or her from entering the AOA or SIDA if that individual does not offer valid Airport ID, or to report the incident to the SWF Airport Operations Office as soon as possible while attempting to keep the individual within view; and,

2.8.2 To challenge the authority or purpose of a person who is in the AOA or SIDA and who is not displaying a valid Airport ID that allows access to the area, and escort him or her from the AOA or SIDA if that individual does not offer a valid Airport ID, or to immediately report the incident to the SWF Airport Operations Officeas soon as possible while attempting to keep the individual within view.

2.9 FIREARMS, EXPLOSIVES, MUNITIONS AND PYROTECHNICS

No person shall carry any firearms, explosives, munitions, or pyrotechnics into the SIDA or AOA except:

2.9.1 Persons authorized to do so by an Airport ID with the appropriate privileges issued by the SWF Airport Operations Office; or,

2.9.2 Persons under escort by SWF Airport Operations staff; or,

2.9.3 Persons authorized by the General Manager, or the designee thereof, to use firearms, explosives, munitions, and pyrotechnics for animal control activity at the Air Terminal or in the AOA.

2.10 EMPLOYMENT OF SECURITY SERVICES

Any one who employs any person, company or corporation for the purpose of providing security services at an air terminal shall notify the General Manager, or the designee thereof, of the nature of such services. Such person must also furnish the name, business address, and telephone number of such person, company or corporation to the General Manager, or the designee thereof, together with a copy of the license or other government authorization of such person, company, or corporation as may be required to perform such service in the city and state in which the Airport is located.

2.11 VEHICLES AND DRIVERS

All vehicles operating on the AOA, except those vehicles under escort according to the procedures required by these Rules & Regulations, must display a valid SWF Ramp Permit and must be operated by an individual who is authorized to drive on the AOA. AOA driver privileges will not be granted unless the applicant possesses a valid state driver’s license from their state of residence, and has successfully passed the Port Authority approved airport specific Airfield Driver Training Course.

2.12 OTHER SECURITY PROCEDURES

Employees will adhere to all other security procedures issued by the Transportation Security Administration, General Manager, or the designee thereof, and all security procedures and obligations, as applicable and outlined in the Airport Security Program, Exclusive Area Agreements, Guard Post Instructions and Building Security Plans. Applicable security procedures and obligations are available on a need to know basis in the General Manager's, or the designee's thereof, Office. The following items may not be allowed into the sterile area: Knives of any kind, including steak knives and pocketknives. Rounded blade butter knives and plastic knives are permitted for use by restaurant employees and patrons. Cutting instruments of every kind including carpet knives, box cutters and other folding or retractable blades, regardless of blade length or composition, even those less than four inches, whether metallic or non-metallic.

3.0 AIRCRAFT

3.1 GENERAL

3.1.1 No Aircraft shall be operated at an Air Terminal in a manner which creates an unreasonable risk of harm to persons or property, or while the pilot, or other persons aboard controlling any part of the operation thereof, is under the influence of intoxicating liquor, or any narcotic or habit-forming drug, or any substance which impairs, impedes, or otherwise affects the ability of such person(s) to safely operate the Aircraft, or while such Aircraft is so constructed, equipped or loaded as to create an unreasonable risk of harm to persons or property. *{Ref: PANYNJ R & R Chapter VIII, paragraph A}*

3.1.2 The pilot or other person aboard engaged in the operation of any Aircraft (except when subject to the direction or control, for ground movement purposes, of the Federal Aviation Administration or other Federal agency) being operated at any Air Terminal must at all times comply with any lawful order, signal or direction of an authorized representative of the Port Authority. When operation of such aircraft is controlled by lights, signs, mechanical or electrical signals or pavement markings, such lights, signs, signals and markings, shall be obeyed unless an authorized representative of the Port Authority directs otherwise. *{Ref: PANYNJ R & R Chapter VIII, paragraph B}*

3.1.3 The General Manager, or the designee thereof shall have authority to deny the use of an Air Terminal to any Aircraft or pilot violating Port Authority or Federal regulations, whether at such Air Terminal or elsewhere. *{Ref: PANYNJ R & R Chapter VIII, paragraph D}*

3.1.4 Operators shall obtain prior permission from the General Manager, or the designee thereof, before conducting the following activities at the Airport:

a. Motorless Aircraft – Gliders, sailplanes or any other certificated or non-certificated motorless aircraft shall not land upon, or take-off from the Airport without prior written permission of the Airport Operator.

b. Ultralight Vehicles – Ultralight vehicles shall not land upon, or take off from the Airport without prior permission of the Airport Operator.

c. Lighter-than-Air Aircraft – Airships, dirigibles, and other certificated lighter-than-air aircraft shall not land upon, moor or take-off from the Airport without prior written permission of the Airport Operator.

d. Banner or Glider Towing – No person shall tow banners, gliders, or any other device to or from the Airport without prior written permission of the Airport Operator.

e. Formation Landings or Take-Offs – No person shall land upon or depart from the Airport in a formation or two or more aircraft without prior written of the Airport Operator.

f. Parachute Drop – No person shall conduct a parachute drop on Airport property without prior written permission

3.1.5 When informed of an emergency by FAA, Port Authority or other party, all Aircraft shall clear active runways and shall hold their positions unless otherwise directed by the Air Traffic Control Tower. *{Ref: PANYNJ R & R Chapter VIII, paragraph G}*

3.2 TAXIING, TOWING AND STARTUP

3.2.1 Aircraft shall not be positioned, started or taxied so that propeller slipstream, jet engine exhaust blast or rotor down-wash may cause injury to persons, or damage to property, or where it may generate turbulence across taxiways, runways, vehicle service roads, or heliport areas, so as to endanger the safety of operations on an Air Terminal. If it is impossible to taxi Aircraft without compliance with the above, then the engine or engines must be shut off and the Aircraft towed. *{Ref: PANYNJ R & R Chapter VIII, paragraph U1}*

3.2.2 Except for helicopters, no person shall start an Aircraft engine at an Air Terminal unless there is a qualified attendant standing by outside the Aircraft with a twenty-pound or larger dry chemical fire extinguisher, or unless the engines are equipped with their own fire control system. With regard to helicopters, the engine starting procedure shall be in a manner acceptable to the General Manager, or the designee thereof. *{Ref: PANYNJ R & R Chapter VIII, paragraph U2}*

3.2.3 No Aircraft shall be started, run or taxied at an Air Terminal unless a certificated pilot certificated to operate that particular type of Aircraft or a certificated A and P mechanic qualified to start, run or taxi that particular type of Aircraft is attending the controls. *{Ref: PANYNJ R & R Chapter VIII, paragraph U3}*

3.2.4 No aircraft engine shall be started unless the main landing wheels are chocked and the brakes of the aircraft fixed and locked, unless alternate procedures approved by the General Manager, or the designee thereof, are followed. *{Ref: PANYNJ R & R Chapter VIII, paragraph U4}*

3.2.5 No helicopters shall be started, run, or taxied at an Air Terminal unless a certificated helicopter pilot certificated to operate that particular type of helicopter is attending the controls, or, if the General Manager, or the designee thereof, has given his or her approval, a certificated A and P mechanic is attending the controls. *{Ref: PANYNJ R & R Chapter VIII, paragraph U5}*

3.2.6 All aircraft which are being taxied, towed or otherwise moved at an Air Terminal shall be under full control and shall move or be moved at a reasonable speed. *{Ref: PANYNJ R & R Chapter VIII, paragraph U6}*

3.2.7 Whenever any aircraft is being taxied, towed or otherwise moved on the public landing area, public ramp and apron area, public passenger ramp and apron area, or public cargo ramp and apron area, there shall be a person attending the controls of the aircraft who shall monitor by radio the transmitting frequency in use by the Control Tower or who, if necessary, will cause that frequency to be monitored by another person in the aircraft at the time. In the event of radio equipment failure, the Control Tower may use an Aldis Lamp for communication. *{Ref: PANYNJ R & R Chapter VIII, paragraph U7}*

3.2.8 No Aircraft shall be taxied into or out of a hangar under its own power. *{Ref: PANYNJ R & R Chapter VIII, paragraph U11}*

3.2.9 All Aircraft being taxied, towed or otherwise moved at an Air Terminal shall proceed with running lights on during the hours between sunset and sunrise. *{Ref: PANYNJ R & R Chapter VIII, paragraph U13}*

3.2.10 No person shall maneuver an Aircraft, park, or leave the same standing on a ramp or apron area in such a way that any portion of said Aircraft will protrude beyond the ramp or apron limits, unless previously authorized. *{Ref: PANYNJ R & R Chapter VIII, paragraph U14}*

3.2.11 It is required that one wing walker, preferably two be positioned on the ground, located at the outward tip of each wing, to monitor the clearance of each wing as the aircraft enters and exits the ramp. *{Ref: PANYNJ R & R Chapter VIII, paragraph U15}*

3.3 ENPLANING AND DEPLANING

Passengers shall not be permitted to enplane or deplane except in the presence of authorized personnel. *{Ref: PANYNJ R & R Chapter VIII, paragraph J}*

3.4 PARKING AND STORAGE

3.4.1 No person shall park an aircraft or leave the same standing on a public landing area, public ramp and apron area, public passenger ramp and apron area, public cargo ramp and apron area, public aircraft parking and storage area, or operational area at an air terminal except at such places as may be prescribed or permitted by the General Manager, or the designee thereof. When in public storage areas, those aircraft for which tie-down fittings are provided shall be required to make proper use thereof. *{Ref: PANYNJ R & R Chapter VIII, paragraph U8}*

3.4.2 When parked, helicopters shall have rotor braking devices and/or tiedowns applied to the rotor blades. *{Ref: PANYNJ R & R Chapter VIII, paragraph U9}*

3.4.3 Upon direction from the General Manager, or the designee thereof, the operator of any Aircraft parked or stored at an Air Terminal shall move said aircraft from the place where it is parked or stored to any other designated place. If the operator refuses to comply with such direction, the Port Authority may tow said Aircraft to such designated place at the operator's expense, and without liability for damage which may result in the course of such moving. *{Ref: PANYNJ R & R Chapter VIII, paragraph U10}*

3.4.4 Every Aircraft parked on a Public Ramp or Apron Area, Public Passenger Ramp or Apron Area, or Public Cargo Ramp and Apron Area shall have its running lights turned on during the hours between sunset and sunrise, except in certain areas designated by the General Manager, or the designee thereof,, or in areas which are illuminated during these hours. *{Ref: PANYNJ R & R Chapter VIII, paragraph U12}*

3.5 AIRCRAFT DUMP VALVE TESTING

Aircraft dump valves shall be tested only in those areas designated for that purpose by the General Manager, or the designee thereof.

3.6 REPORTING ACCIDENTS

3.6.1 The operator of any Aircraft involved in any accident causing personal injury or property damage at an Air Terminal shall report said accident promptly to the General Manager, or the designee thereof, and/or the New York State Police. *{Ref: PANYNJ R & R Chapter VIII, paragraph E}*

3.6.2 The pilot or operator thereof shall be responsible for the prompt disposal of Aircraft wrecked or disabled at an Air Terminal and parts of such Aircraft as directed by the General Manager, or the designee thereof; in the event of his failure to comply with such directions such wrecked or disabled Aircraft and parts may be removed by the Port Authority at the operator's expense and without liability for damage which may result in the course of such removal. *{Ref: PANYNJ R & R Chapter VIII, paragraph F}*

3.7 AIRPORT FEES AND CHARGES

3.7.1 No aircraft operator shall land or conduct an aircraft operation or use an Air Terminal except as otherwise provided by agreement with the Port Authority and except upon the payment of such fees and charges as may from time to time be prescribed or agreed to by the Port Authority. All charges due to the Port Authority for the use of Air Terminals shall be payable in cash unless credit arrangements satisfactory to the Port Authority have been made in advance or permission has been secured for payment by check. *{Ref: PANYNJ R & R Chapter XV, paragraph A7}*

3.7.2 The Airport Duty Manager shall have the authority to detain any Aircraft for non-payment of charges due to the Port Authority. *{Ref: PANYNJ R & R Chapter VIII, paragraph C}*

3.8 AIRCRAFT NOISE RESTRICTIONS

In accordance with the Airport Noise and Capacity Act of 1990 (ANCA), airplanes with certificated weights greater than 75,000 pounds must conform to Stage III noise limits at Port Authority Airports. Stage III noise limits are defined in Federal Aviation Regulations (FAR) Part 36 noise level classifications. In addition, airplanes that are type certificated after January 1, 2006 must meet Stage IV noise limits as defined in Federal Aviation Regulation (FAR) Part 36 noise level classifications. *{Ref: PANYNJ R & R Chapter IX, paragraph A}*

4.0 SAFETY

4.1 ENDANGERING PERSONS OR PROPERTY

No person in or upon any Airport shall do or omit to do any act if the doing or omission thereof unreasonably endangers persons or property. *{Ref: PANYNJ R & R Chapter III, paragraph C}*

4.2 SMOKING

All regulations regarding smoking set forth elsewhere in the Airport Rules and Regulations are applicable to Stewart International Airport.

4.3 FIRE HAZARD

4.3.1 No person shall operate an oxy-acetylene torch, electric arc or similar flame or spark producing device on any part of the Airport except in areas within leased premises designated for such use by the General Manager, or designee, without first obtaining a Cutting and Welding Permit from the General Manager, or the designee thereof.

4.3.2 No person shall start any open fires or any type, including flare pots, torches or fires in containers formerly used for oil, paint, or similar materials on any part of the Airport without written permission of the General Manager, or the designee thereof.

4.4 DE-ICING AND ENVIRONMENTAL

4.4.1 De-icing must be performed in accordance with the SWF De-icing Program. The SWF De-icing Program is available for review by contacting the Airport Operations office.

4.4.2 All tenants and airport users must abide by all applicable Federal, State and Local regulations and orders with respect to hazardous material handling and spill reporting.

The Airport maintains an aggressive storm water sampling and monitoring plan as per the State Pollution Discharge Elimination System (SPDES) permit from the New York State Department of Environmental Conservation (NYSDEC). In particular, spills from, (but not limited too), petroleum products, and Propylene Glycol on the airport grounds can cause discharges into the waterways of New York, which could put the responsible party in violation of Federal, and State water quality laws. It is of upmost importance that not only every effort is made to prevent spills, but immediate reporting of spills to the NYSDEC, any other applicable governmental entity, and Airport Operations is mandatory. Each tenant or airport user is responsible for all cleanup costs of a spill they cause.

4.4.3 Tenants and airport users are responsible for costs and expenses of the Port Authority resulting from violations of laws, regulations and orders with respect to environmental protection and hazardous materials management, including, but not limited to, costs of remediation, disposal, civil penalties and fines.

An airport tenant or user shall obey any order of the General Manager, or the designee thereof, to halt any activity that violates any law, regulation or order with respect to environmental protection and hazardous materials management.

4.5 FIRE DETECTION/SUPPRESSION SYSTEMS

4.5.1 Fire extinguisher equipment at the Airport shall not be tampered with at any time or used for any purpose other than fire fighting or fire prevention. All such equipment shall be inspected in conformity with the National Fire Protection Association regulations. Tags showing the date of the last such inspection shall be left attached to each unit.

4.5.2 Heater valves, sprinkler valves and devices, blower motors or any other Airport machinery or equipment shall not be tampered with at any time. No person other than an authorized Airport Operator employee or designee may turn heaters in public areas on and off or operate any other airport equipment, except in leased areas. In leased areas, only employees or designees of the lessee or the Airport Operator may perform these functions.

5.0 FUEL HANDLING

5.1 FUEL HANDLING OF AIRCRAFT

5.1.1 Aircraft fueling and/or defueling is prohibited while the engine of the aircraft being serviced is running or is being heated. Fuel shall be delivered or drained through hose and connections approved by the Underwriter's Laboratories, Inc.

5.1.2 Aircraft fuel handling at the Airport shall be conducted at least fifty (50) feet from any hangar or other building, except where the location of underground

fuel tanks presently installed requires such fuel handling closer to existing buildings or hangars.

5.1.3 Each tenant who is authorized to dispense fuel at the Airport shall designate fueling areas for the fueling of all ramp vehicles.

5.1.4 Each tenant and/or aircraft operator is required to notify airport operations in the event of a fuel spill. All tenants and aircraft operators are responsible for responding to and cleaning up spills on his/her property and from his/her aircraft.

5.1.5 During fuel handling operations in connection with any aircraft at the Airport, at least two twenty (20) pound or larger dry chemical fire extinguishers shall be immediately available for use in connection therewith.

5.1.6 During fuel handling in connection with any aircraft, no person shall operate any radio transmitter or receiver in such aircraft, or switch electrical appliances on or off in such aircraft, nor shall any person do any act or use any material which is likely to cause a spark within fifty (50) feet of such aircraft.

5.1.7 As per NFPA 407, surveillance radar equipment in aircraft shall not be operated or ground tested in any area of the Airport wherein the directional beam of high intensity is within 300 feet, or the direction beam of low intensity radar (less than 1.0 KW output) is within 100 feet, of any fueling, defueling, servicing, or other operations in which flammable liquids, vapors, or mist may be present. Weather-mapping radar equipment in aircraft shall not be operated when the aircraft in which it is mounted is undergoing fuel servicing.

5.1.8 During fuel handling in connection with aircraft, no passenger or passengers shall be permitted to remain in such aircraft unless at least one qualified person trained in emergency evacuation procedures is at the door and a passenger ramp is in position if the same is required for the safe and rapid debarkation of passengers. Only personnel engaged in the fuel handling, or in the maintenance and operation of the aircraft being fueled or defueled shall be within fifty feet of the fuel tanks of such aircraft during the fuel handling operations.

5.1.9 Persons engaged in aircraft fuel handling shall exercise care to prevent overflow of fuel.

5.1.10 No person shall start the engine or engines of any aircraft when there is gasoline or any type of fuel on the ground under the aircraft. In the event of the spillage of gasoline or any type of fuel, no person shall start an aircraft engine in the area in which the spillage occurred, even though the spillage may have been cleaned up, until the General Manager, or the designee thereof, has granted permission for the starting of engines in the area.

5.1.11 Unless otherwise provided in a lease or other agreement, all operators of aircraft who receive, and all persons who supply, aviation fuel and lubricating oil at the Airport, shall use only these aviation fuel storage and delivery facilities designated and approved by the General Manager, or the designee thereof, for such use.

5.2 BONDING

During all fuel handling operations in connection with any aircraft at the Airport, the aircraft and the fuel dispensing or draining apparatus shall be bonded by wire to prevent the possibility of static ignition of volatile liquids.

5.3 FUELING OF OTHER VEHICLES

5.3.1 The transfer of bulk aircraft or commercial fuel from one vehicular tender into another is prohibited within the boundaries of the Airport.

5.3.2 Automotive and ramp equipment shall be refueled only at refueling stations and from dispensing devices approved by the General Manager, or the designee thereof, for such use. Automotive equipment shall be refueled at the Airport only at refueling stations and from dispensing devices approved by the Airport Operator.

6.0 VEHICLES

6.1 GENERAL

6.1.1 All vehicular traffic on or upon a Public Vehicular Parking Area, AOA, fuel storage area, Public Landing Area, Public Ramp and Apron Area, Public Passenger Ramp and Apron Area, Public Cargo Ramp and Apron Area or Public Aircraft Parking and Storage Areas must at all times comply with any lawful order, signal or direction. When such traffic is controlled by traffic lights, signs, mechanical or electrical signals, or pavement markings, such lights, signs, signals and markings shall be obeyed.

6.1.2 No vehicle shall be operated in or upon a Public Vehicular Parking Area, AOA, fuel storage area, Public Landing Area, Public Ramp and Apron Area, Public Passenger Ramp and Apron Area, Public Cargo Ramp and Apron Area, or Public Aircraft Parking and Storage Area in a manner at a speed which creates an unreasonable risk of harm to persons or property, or while the driver thereof is under the influence of intoxicating liquor, or any narcotic or habit-forming drug or any substance which affect the ability of the driver to operate the vehicle safely or if such vehicle is so constructed, equipped or loaded as to create an unreasonable risk of harm to persons or property.

6.1.3 No motorized vehicle shall be operated in or upon a Public Vehicular Parking Area or roadway unless (1) the driver thereof is duly authorized to operate such vehicle in New York, and (2) such vehicle is registered in accordance with the provisions of the law in the State of New York or the vehicle is of specific nature to the operation of the airport and is not intended for road use.

6.1.4 Aircraft service vehicles that are used only in the non-movement aircraft parking areas along need only be painted and marked so as to be easily distinguishable from equipment operated by other companies.

6.1.5 All vehicles entering the air operations area that are legal to operate must get a 'Ramp Authorized' permit for Airport Operations prior to entering the air operations area. The permit sticker must be attached to the vehicle on the driver's front bumper.

6.1.6 All vehicle operators in the air operations area must posses a valid SIDA badge with driving privileges.

6.1.7 Motorcycles, motorbikes, three-wheeled motor vehicles, and scooters are prohibited from operating in the air operations area, unless approved by the General Manger, or the designee thereof.

6.1.8 Operators to be Licensed and Vehicles to be Properly Equipped:

(a) No vehicle shall be operated in or upon the Airport unless the driver thereof is duly licensed to operate such vehicle on state highways or the vehicle is of specific nature to the operation of the Airport and is not intended for road use.

(b) No vehicle shall be operated in or upon the Airport unless it is in sound mechanical order, has adequate lights, horn and brakes and clear vision from the driver's position. In addition, trailers and semi-trailers will not be permitted unless they are equipped with reflectorized devices on all sides and unless they are equipped with proper brakes so that when disengaged from a towing vehicle, neither aircraft blast nor wind will cause them to become free rolling. Positive locking couplings shall be required for all towed equipment. Except for vehicles that are exclusively used in or upon the Airport and are permitted by written authorization of the Airport Operator, all vehicles shall meet New York State licensing and inspection requirements.

(c) Aircraft service vehicles that are used only in the Non-Movement aircraft parking areas along need only be painted and marked so as to be easily distinguishable from equipment operated by other companies.

(d) All vehicles entering the air operations area that are legal to operate on public roads must get a 'Ramp Authorized' permit for Airport Operations prior to entering the air operations area. The Permit sticker must be attached to the vehicle on the driver's side front bumper.

(e) To get a 'Ramp Authorization', the registration and current insurance documents must be presented with a copy to remain with Airport Operations.

6.2 EQUIPMENT REQUIREMENTS

All equipment shall comply with Port Authority Rules & Regulations governing the use of such equipment on airport property as further described in the Ground Vehicle Specifications, attachment B.

6.3 VEHICLES ENTERING THE PUBLIC LANDING AREA

Non-Port Authority vehicles are prohibited from operating on any runway, taxiway and safety area unless under escort by the Port Authority or FAA maintenance. All vehicles shall obtain permission from the Control Tower before entering or operating on the movement areas. All vehicles operating in these areas shall have an operating two-way radio turned "on" and tuned to the ground control frequency, and shall have an operating rotating amber light located at the highest structure of the vehicle turned "on" at all times. All vehicle drivers shall follow all directions provided by the FAA controller while in the movement areas. *{Ref: PANYNJ R & R Chapter VI, paragraph C14}*

6.4 SPEED LIMITS

Vehicles at the Airport shall be operated in strict compliance with speed limits as indicated by posted traffic signs. Except as indicated by such signs, no vehicle shall exceed the speed of fifteen (15) miles per hour; and no vehicle shall exceed (5) miles per hour within 50 feet of an aircraft or on the Public Ramp and Apron Area, Public Passenger Ramp and Apron Area, Public Cargo Ramp and Apron Area, and Public Aircraft Parking or Storage Area.

(a) No vehicle shall exceed the speed of fifteen (15) miles per hour on Fire Lanes. No vehicle shall exceed the speed of thirty-five (35) miles per hour on Taxiways.

Snow removal equipment and emergency response vehicles shall be exempt from these speed limits during snow removal operations and required emergency responses.

(b) "Airport Tenant Vehicles" Vehicles shall be painted in a manner approved by the Airport Operator. Vehicles must display a logo or sign, which identifies the organization that operates the vehicle. Vehicles must be equipped with an approved amber rotating or flashing beacon on the roof or uppermost point of the vehicle observable from 360 degrees. All vehicles operating in the runway and taxiway safety areas of the Airport shall be equipped or operated with a functioning two-way radio capable of communicating on the proper aeronautical frequencies and shall obtain a clearance from the Airport Air Traffic Control Tower before entry into the movement areas.

(c) "Airport Construction Vehicles" Construction vehicles used only in the construction area during daytime hours may use an approved high visibility checkerboard flag on the roof or uppermost point of the vehicle; or be equipped with an approved amber rotating or flashing beacon on the roof or uppermost point of the vehicle if the vehicle observable from 360 degrees may be used at any other time during the day. All vehicles operating in the runway and taxiway safety areas of the Airport shall be equipped or operated with a functioning two-way radio capable of communicating on the proper aeronautical frequencies and shall obtain a clearance from the Airport Air Traffic Control Tower before entry into the movement areas.

(d) Vehicles used on an irregular basis or not meeting the requirements of this section in or upon the Airport shall operate in 'Under Escort" conditions as dictated by Airport Operations and shall have in operation the flashing parking lights.

6.5 TAXICABS/LIMOUSINES

The following vehicles are not permitted on the AOA without the permission of the General Manager, or the designee thereof: Limousines, Taxis, Delivery Vehicles, Busses, Vans, Postal/Mail Package Delivery Vehicles, Personal Vehicles and any other service/transportation vehicles which are not owned or operated by the tenant and used in the course of doing business. Personal vehicles are not permitted by the tenant and used in the course of doing business.

6.6 PARKING, STANDING, OR STOPPING VEHICLES

6.6.1 No person shall park a vehicle or permit the vehicle to remain stopped on roads within the Airport or within the AOA, except in such areas and for such periods of time as may be prescribed or permitted by the General Manager, or the designee thereof. *{Ref: PANYNJ R & R Chapter VI, paragraph B15 & C17}*

6.6.2 No person shall stop or park a vehicle *{Ref: PANYNJ R & R Chapter VI, paragraph B15 & C17}*:

(a) in front of a driveway

(b) within a bus stop safety zone or taxicab zone, except vehicles authorized to use such areas

(c) no parking or stopping areas on any roadway

(d) on any shoulder if the vehicle is not disabled

(e) within 15 feet of a fire hydrant

(f) within 10 feet of an AOA perimeter security fence

(g) within any restricted or marked areas

6.6.3 No person shall park a vehicle within any public vehicular parking area except upon the payment of such parking fees and charges as are prescribed by the Port Authority. *{Ref: PANYNJ R & R Chapter VI, paragraph B16}*

6.6.4 A vehicle which has been placed in the lawful possession of the Port Authority because it was illegally parked, or for non-payment of fees, or for any other reason, and in respect of which any fee or charge, including towing and storage charges, are due, may be detained by the General Manager, or the designee thereof, until said fees or charges have been paid. Such fees may be paid under protest, and a claim may be asserted for refund pursuant to applicable law. *{Ref: PANYNJ R & R Chapter VI, paragraph B17}*

6.6.5 No vehicle shall load or unload passengers or cargo in or upon the Airport at any place other than those areas designated by the Airport Operator.

6.6.6 The General Manager, or the designee thereof, has the authority to remove from any area of an Airport any vehicle that is disabled, abandoned, or parked in violation of these Rules & Regulations, or which presents an operational or security problem, to any other area of the Airport. The owner of a vehicle that has been removed because of abandonment or violations of these Rules &

Regulations shall be held liable for the reasonable cost of the removal and storage of the vehicle. *{Ref: PANYNJ R & R Chapter VI, paragraph B19}*

6.7 VEHICLE COLLISIONS

The driver of any vehicle involved in a collision on a public vehicular parking area, operational area, fuel storage area, public landing area, public ramp and apron area, public passenger ramp and apron area, public cargo ramp and apron area or public aircraft parking and storage area which results in injury or death to any person or damage to any property shall:

(a) Immediately stop such vehicle at the scene of the collision; and

(b) Display his/her operator's license, the vehicle's registration certificate and proof of vehicle insurance to: the owner or operator of any damaged property or vehicle; any injured person; and to a police officer who arrives at the site of the collision; and

(c) Send a written report of a collision to the General Manager, or the designee thereof, describing the circumstances of the collision and the name(s), address(es), telephone number(s), vehicle registration number (s), operator license number(s) of any person(s) and vehicle(s) involved in the collision; and

(d) Send of file any report required by New York State law in addition to the reports required by this section.

6.8 DRIVER TRAINING

Any and all persons who operate a vehicle(s) on any area of the Airport shall abide by the following requirements *{Ref: PANYNJ R & R Chapter VI, paragraph C1}*:

(a) The driver must be properly licensed and have all required endorsement(s) to operate such vehicle on a state or municipal highway of the state in which the Airport is located.

(b) The driver must be fully trained in the operation of the vehicle for all of its functions, types of uses, and procedures to follow in the event of emergency

(c) The driver must successfully complete Port Authority Airfield Driver Training and meets all requirements for Airport Security as specified under the chapter entitled "Airport Security."

7.0 MISCELLANEOUS

7.1 TAMPERING WITH AIRCRAFT

No person shall interfere or tamper with any Aircraft at an Air Terminal, or start the engine of such Aircraft without the operator's consent. *{Ref: PANYNJ R & R Chapter VIII, paragraph H}*

7.2 FOREIGN OBJECT DEBRIS (F.O.D.) CONTROL *{Ref: PANYNJ R & R Chapter III, paragraph J}*

7.2.1 Each airport employee shall be responsible for the proper disposal of FOD on ramps, apron areas, and the AOA. FOD shall be properly disposed of in containers that prohibit the introduction of the FOD onto ramps, apron areas, and the AOA.

7.2.2 It is the responsibility of each lessee or other occupant of ramp and apron areas to place suitable containers labeled “Foreign Object Debris” at every gate, remote aircraft parking area, cargo, and maintenance facilities.

7.2.3 Containers labeled “Foreign Object Debris” shall be used only for the disposal of FOD.

7.3 RAMP ACCESS

7.3.1 No person shall travel on any portion of the Airport except upon the roads, walks or places provided for the particular class of traffic; nor occupy the roads or walks in such manner as to hinder or obstruct their proper use.

7.3.2 No person shall enter any restricted area of the Airport posted as being closed to the public without permission except persons assigned to duty therein who have been issued a Stewart International Airport Security Identification Display Area (SIDA) Badge, or are authorized representatives of the Port Authority or its designee. The General Manager, or the designee thereof, reserves the right to determine who is required to obtain identification badges.

7.3.3 No person shall enter upon the Public Landing Area, Public Ramp and Apron Area, Public Passenger Ramp and Apron Area or the Public Cargo Ramp and Apron Area of the Airport without permission except persons assigned to duty therein, authorized representatives of the Port Authority or the Airport Operator, or passengers and crews entering upon the public ramp and apron areas for purposes of embarkation or debarkation.

7.3.4 No person shall enter any Port Authority Operated Area, Public Landing Area, Public Ramp and Apron Area, Public Passenger Ramp and Apron Area, or Public Cargo Ramp and Apron Area of the Airport with any animal except a "seeing-eye" dog, or other service animal, or one properly confined for shipment.

7.4 DEFACING, DAMAGING, ETC., TERMINAL OR PROPERTY

No, person shall deface, mark, break, or otherwise damage any part of an Airport, or any property therein. *{Ref: PANYNJ R & R Chapter III, paragraph G}*

7.5 NON-COMMERCIAL EXPRESSIVE ACTIVITY *{Ref: PANYNJ R & R Chapter XV paragraph B}*

Non-commercial activity at the Airport which are not occupied by a tenant, lessee, licensee or permittee is subject to the following conditions and restrictions:

7.5.1 Conduct Prohibited Inside Buildings & Structures

The following conduct is prohibited within the interior areas of buildings or structures at an Air Terminal if conducted by a person to or with passers-by in a continuous or repetitive manner:

(a) The distribution of any merchandise, including but not limited to jewelry, food stuffs, candles, flowers, badges and clothing.

(b) The solicitation and receipt of funds.

(c) The provision of any service.

(d) The distribution of any raffle ticket or entry in a game of chance.

(e) The conduct of a game of chance.

7.5.2. Conditions for Distribution of Literature

The continuous or repetitive distribution of flyers, brochures, pamphlets, books or any other printed or written material is prohibited within the interior areas of buildings or structures at an Airport which are controlled or operated by the Port Authority unless conducted pursuant to the following provisions of this rule:

(a) No person may distribute literature on behalf of himself or herself, another individual or an organization, unless that person's name has been submitted in writing no less than 24 hours earlier to the General Manager, or the designee thereof.

(b) Each time a person enters a Port Authority controlled or operated Air Terminal to distribute literature pursuant to this rule, he or she must report his arrival to the manager, as set forth below. If a person's name has not been submitted to the manager pursuant to section 2(a), the person will not be permitted to distribute literature pursuant to this rule. Each time a person leaves a Port Authority airport terminal after distributing literature, he or she must report his departure to the General Manager, or the designee thereof, as set forth below.

(c) Each person distributing literature on behalf of an organization must display an identification badge that states the name of the organization represented. The badge shall be worn on the upper left breast of the outermost garment and be clearly visible.

(d) Continuous expressive activity is prohibited in, or within 10 feet of, any of the following: Doorway, entrance or exit; stairway or, entrance or exit landing thereof; sidewalk cut or crosswalk; elevator or entrance or exit thereof; escalator or landing, entrance or exit thereof; bus passenger waiting, loading or unloading area; taxicab passenger waiting, loading or unloading area.

(e) Continuous expressive activity is prohibited in, or within 10 feet of, any of the following: reclamation, construction or maintenance equipment or

activity; a barrier marking or surrounding an area containing reclamation, construction or maintenance equipment or activity.

(f) The General Manager, or the designee thereof, may prohibit the distribution of literature otherwise permitted by this rule in the event of a snowstorm, aircraft accident, air traffic delay, power failure, transportation strike or other event or condition under which the distribution of literature in such space creates a danger to persons or property, interferes with the orderly formation and progression of waiting lines, or interferes with any of the following: pedestrian and/or vehicular travel; the issuance of tickets or boarding passes or equivalent documents for air or ground transportation; luggage or cargo movement or handling; the entry to and exit from vehicles; security procedures; government inspection procedures; cleaning, maintenance, repair or construction operations.

7.6 AIRCRAFT MAINTENANCE AND CLEANING

Cleaning of or otherwise maintaining aircraft shall be accomplished only in areas designated for that purpose by the General Manager, or designee.

7.7 CONSTRUCTION

All construction must be conducted in accordance with all applicable local, state and federal regulations and with the prior approval of the General Manager, or the designee thereof.

7.8 GARBAGE OR OTHER REFUSE DISPOSAL RESTRICTED

No person shall place, discharge or deposit in any manner, garbage or any refuse in or upon any part of the Airport, except at such places and under such conditions as the Airport Operator from time to time may prescribe.

8.0 TANK VEHICLES

8.1 REGISTRATION AND INSPECTION

8.1.1 No tank vehicle shall be used for transportation of flammable liquids within the Airport unless registered, inspected and approved by the Airport Operator.

8.1.2 Every application for registration, inspection or re-inspection of such tank vehicle shall be made upon forms prescribed and furnished by the Airport Operator accompanied by a detailed, authorized statement of the tank vehicle operator certifying compliance with the provision of these rules and regulations.

8.1.3 Vehicles shall be submitted for registration and inspection prior to their use upon the Airport and shall be submitted for re-inspection every six months thereafter.

8.1.4 The General Manager, or the designee thereof, reserves the right to inspect all Tank Vehicles operating on the Airport, and to issue registration and inspection

certificates therefore, quarterly. The General Manager, or the designee thereof, may also require display of such certificates on or in all tank vehicles.

8.2 VEHICLE MOTORS

The motor of an Aircraft Refueling Tank Vehicle shall not be run during the filling of the cargo tank, while making or breaking fuel filling connections, or during repairs to the fuel handling system. The propulsion motor for refueling service vehicles shall not be run during the fuel transfer and while making and breaking hose connections. *{Ref: PANYNJ R & R Chapter VII, paragraph X}*

9.0 PUBLIC LANDING AREAS

9.1 SCHEDULE OF CHARGES FOR THE USE OF PUBLIC LANDING AREA

The operators of any aircraft using the public landing area at Stewart International Airport, except pursuant to the terms of a lease or other agreement with The Port Authority of New York and New Jersey or the Airport Operator, shall pay for such use at the rate(s) established by the General Manager, or the designee thereof. The schedule of charges for Stewart International Airport is published as a separate document by The Port Authority NY&NJ.

9.2 FREE USE OF PUBLIC LANDING AREA

Notwithstanding the provisions of any Schedule of Charges heretofore adopted for the use of Stewart International Airport, no charge shall be made for the use of such Airport by the following aircraft:

9.2.1 Aircraft owned, leased or chartered by the agencies of the following governmental entities:

(a) The United States of America provided

(b) The State of New York and their agencies.

(c) The State of New Jersey and their agencies.

(d) States other than New York and New Jersey and their agencies with whom the Port Authority has entered into reciprocal fee-waiver agreements applicable to fees at Stewart International Airport.

(e) Local governmental agencies within the Port District.

(f) Any local governmental agency, when there is a reciprocal fee waiver agreement applicable to fees at Stewart International Airport between that agency and The Port Authority of New York and New Jersey.

9.2.2 Aircraft owned, leased or chartered by the Port Authority of New York and New Jersey.

9.2.3 Aircraft operated under orders of the Civil Air Patrol when engaged in the execution of official airport search and rescue missions or in officially ordered practice aircraft search and rescue missions.

APPENDIX A - DEFINITIONS

DEFINITIONS

"AOA vehicles" shall mean specialized vehicles designed to support airport or aeronautical operations. Examples include baggage carts, tugs, aircraft fuel servicing vehicles, aircraft fueling hydrant service vehicles, snow blowers, aircraft rescue and fire fighting vehicles, aircraft baggage or cargo handling equipment.

"Aeronautical Area" or **"Aeronautical Operations area"** or **"Air Operations Area"** or **"AOA"** shall mean a portion of an airport designed and used for landing, taking off, or surface maneuvering of airplanes.

"Air Cargo Handling Area" shall mean those portions of an Airport designated and made available by the Port Authority for the reception, storage and distribution of air cargo or for the loading and unloading of air cargo from aircraft.

"Air Cargo Employee" shall mean a person employed by an Air Cargo Operator who performs duties in the Air Cargo Handling Area.

"Air Cargo Operator" shall mean any person who shall have a lease or other agreement with the Port Authority authorizing or consenting to the use of any portion of the Air Cargo Handling Area.

"Air Terminal Highway" shall mean those roadways at an Air Terminal designated as Air Terminal Highway by the Port Authority.

"Aircraft" shall mean any and all contrivances now or hereafter used for the navigation of flight in air or space, including but not limited to airplanes, airships, dirigibles, helicopters, gliders, amphibians and seaplanes.

"Aircraft Operation" shall mean departure or arrival of an aircraft at an Airport.

"Aircraft Operator" shall mean the owner of an aircraft or any person who has obtained such aircraft for the purpose of operation by himself or his own agents.

"Aircraft Refueling Tanker Vehicle" shall mean an aircraft refueling tank vehicle equipped with hose(s) and other necessary devices designed to transport flammable liquids and to supply fuel into an aircraft or to defuel an aircraft. An aircraft refueling tanker vehicle transports and dispenses jet fuel and includes any vehicle with an integral tank, full trailer tank, or tractor and semi-trailer tank combination. These vehicles only fuel aircraft and do not fuel vehicles or equipment.

"Airfield Driver Training Course" shall mean a course given by the Port Authority or its designee as a prerequisite to the granting of AOA driver privileges.

"Airport" or "Air Terminal" shall mean LaGuardia Airport, John F. Kennedy International Airport, Newark International Airport, Teterboro Airport, and Stewart International Airport.

"Airport Bus" shall mean a vehicle designed to carry more than ten persons including airport shuttle buses of all kinds, employee parking lot buses, inter-terminal buses, and public parking lot buses that provide transportation services to Airport users.

"Airport Rail Transportation System" shall mean the light rail system at JFK, the monorail system at EWR, and any other rail type system that operates on any Port Authority Air Terminal.

"Airport ID" shall mean the identification card issued by the Port Authority of NY & NJ Security ID Office.

"Alternative Fueled Vehicles and Equipment" shall mean vehicles or equipment that operate on one or more fuels classified by regulatory definition as alternative fuels by the Department of Energy, such as Compressed Natural Gas (CNG), Liquified Natural Gas (LNG), Liquefied Petroleum Gas (Propane or LPB), methanol, ethanol, hydrogen, and electric power.

"Automotive Fuel Dispensing Vehicle" or "Automotive Refueler" shall mean a hazardous material tank vehicle designed to carry gasoline, diesel fuel, aviation gasoline, fuel oil, or jet fuel from a central fueling site, bulk plant, fuel farm, fuel storage area, or other bulk fuel provider, and to transfer that fuel directly in to the fuel tanks of vehicles, stationary equipment, and stationary fuel tanks. Automotive Fuel Dispensing Vehicles may be Highway Vehicles or AOA Vehicles, Automotive Fuel Dispensing Vehicles do not dispense fuel into aircraft.

"Automotive Refueling Station" shall mean a permanent automotive refueling station that has a fuel dispensing system to supply fuel into vehicles.

"Baggage" shall mean trunks, bags, parcels and suitcases checked by the traveling public.

"Baggage-Handling Operator" shall mean any person providing baggage transportation or handling services pursuant to an agreement with, or the consent of, an aircraft operator pursuant to an agreement with, or the consent of the Port Authority.

"Commercial Activity" shall mean and include any and all activity conducted at or out of the Airport by any person, in which any product is exchanged or sold, or any service provided for monetary gain or exchange of goods or services.

"Engage in a call" shall mean talking into or listening on a hand-held mobile telephone, but shall not include holding a mobile telephone to activate, deactivate or initiate a function of such telephone.

"Escort" shall mean the process wherein an individual with a valid Airport Operator Identification Card and the appropriate escort privileges accompanies an individual who does not have access authority to areas restricted for security purposes.

"Escorting Vehicle" shall mean a vehicle authorized by the Port Authority to operate in an Air Operations Area, which is used to lead or follow a vehicle or group of vehicles not authorized to operate in the Air Operations Area.

"Exclusive Area Agreement" or "EAA" shall mean an agreement between the Port Authority and one or more air carriers or FAA approved party by which the air carrier(s) or FAA approved party assumes exclusive security responsibility for a clearly defined part of the airport, pursuant to applicable FAA regulations.

"Fixed Base Operator" shall mean a firm doing business at the Airport dedicated to the sale, storage and hangaring of aircraft, the sale of petroleum, oil and lubricants, the services of maintenance, repair and modification of aircraft, engines and ancillary equipment, the cleaning and provisioning of aircraft, and the provision of transient and related services pursuant to an agreement with the Port Authority.

"Flight Training" shall mean any use of an aircraft to increase or maintain pilot proficiency.

"Foreign Object Debris" or "FOD" shall mean any debris that could damage aircraft.

"Ground Transportation Services" shall mean providing transportation of a passenger by any vehicle, including a taxi cab, limousine, van or bus, in any business, trade or commercial transaction.

"Hardstand" shall mean a parking location for aircraft, which has been approved by the Manager and is physically remote from a terminal building. A terminal building is a building used for enplanement and deplanement of passengers either directly or by use of ground vehicles.

"Hazardous Material" or "Hazardous Waste" shall mean any hazardous material or hazardous waste as defined by Federal, State, and/or local laws, regulations, codes or other legal requirements.

"Highway Vehicle" shall mean a motorized or non-motorized vehicle designed to operate on improved or semi-improved road surfaces, licensed or registered for highway use by the owner/operator pursuant to State Law and conform to the size, weight, and other Federal and State regulations required for use as a vehicle on public streets and roads. Some examples are passenger cars, vans, trucks, buses and motorcycles, etc.

"Hot Work" shall mean any work involving burning, welding, or similar operations that is capable of initiating fires or explosions, including cutting, welding, thermit welding, brazing, soldering, grinding, thermal spraying, thawing pipe, and torch applied roofing.

"Hydrant Service Cart" shall mean an aircraft refueling trailer unit equipped with hose(s) and other necessary devices designed to supply fuel into an aircraft form the airport fuel hydrant system.

“Hydrant Service Vehicle” or “Hydrant Servicer” shall mean an aircraft refueling vehicle equipped with hose(s) and other necessary devices designed to supply fuel into an aircraft from the airport fuel hydrant system.

“Immediate proximity” shall mean that distance as permits the operator of a mobile telephone to hear telecommunications transmitted over such mobile telephone, but shall not require physical contact with such operator’s ear.

“Jet Aircraft” shall mean and include any and all aircraft which are not propeller-driven, and which accomplish motion entirely as a direct reaction to the thrust of any engine, including but not limited to engines which operate on turbine, ram, rocket or nuclear principles.

“Manager” shall mean the Port Authority General Manager, Manager or other Port Authority official in charge of an Airport, or his or her duly authorized representative.

“Mobile Refueling Station” shall mean a tank truck especially designed and equipped to carry and transfer automotive fuel from a fuel storage area to and into Automotive Refueler Vehicles and Tank Vehicles.

“Mobile Telephone” shall mean the device used by subscribers and other users of wireless telephone service to access such service.

“Movement Area” means the runways, taxiways, and other areas of an airport that are used for taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and aircraft parking areas.

“Non-Motorized Vehicle” or “Non-Motorized Equipment” shall mean a non-self-propelled vehicle or piece of equipment designed or used to transport persons or property on land, but excluding any equipment that runs on stationary rails, guideways, or tracks. Non-Motorized Vehicles and Non-Motorized Equipment do not have self-propelling power systems permanently or temporarily attached, but may be equipped with powered equipment. Examples include trailers, solar or battery powered arrow or message boards, baggage carts, aircraft ground power units, aircraft air power units, dollies, nitrogen carts, work stands, aircraft tow bars, etc.

“PANYNJ Plates” are special license plates issued by the Port Authority which permit vehicles to operate in the AOA for the airport(s) for which they are issued.

“Passenger cars” shall mean all motorized vehicles designed to be operated on public roadways, highways, and conform to the size, weight, and other Federal and State regulations for use as a vehicle on public streets and roads. Note: Sedans are not authorized for use on the AOA at any Port Authority Airport, nor will PANYNJ plates be issued for use on the AOA for security reasons. (Exceptions would be Federal, State and local Law Enforcement and Port Authority sedans only).

“PNdB” is a rating for single aircraft flyovers, expressed in decibels.

"Permission" shall mean permission granted by the Manager, unless otherwise specifically provided.

"Person" shall mean any individual, firm, partnership, corporation, association, or company (including any assignee, receiver, trustee or similar representative thereof) or the United States of America or any foreign government or any state or political subdivision thereof, or the United Nations.

"Port Authority" shall mean The Port Authority of New York and New Jersey.

"Port Authority Air Terminal Ground Vehicle Specifications" shall mean the Port Authority document entitled "Air Terminal Ground Vehicle Specifications" prepared by the Port Authority Central Automotive Division.

"Port Authority Airports" shall mean John F. Kennedy International Airport (JFK), Newark International Airport (EWR), LaGuardia Airport (LGA), Teterboro Airport (TEB), and Stewart International Airport (SWF).

"Port Authority Operated Areas" shall mean all areas of an Airport which are operated by the Port Authority, including real estate, structures, Airport Buses, Airport Rail Systems, and including all Public Areas.

"Port Authority Airport Rules and Regulations" shall mean these Rules and Regulations.

"Pre-arrangement" shall mean an agreement or reservation for ground transportation at an Air Terminal made by or on behalf of a ground transportation passenger: prior to the arrival of the passenger at the Air Terminal; or

- through the use of counter facilities operated by persons employed by, or employed pursuant to a permit or contract with, the Port Authority; or
- through telecommunications with the person or firm who dispatches the vehicle to provide ground transportation to a passenger in the absence of any solicitation of the passenger for such communications by the operator of the vehicle.

"Propeller Aircraft" shall mean and include all aircraft which accomplish motion by means of engine driven propeller(s).

"Public Aircraft Parking and Storage Areas" shall mean those portions of an Airport designated and made available temporarily or permanently by the Port Authority to the public for the parking or storage of aircraft. These areas may be used for the purpose of parking and storing aircraft, for the purpose of servicing aircraft with fuel and lubricants and other supplies for use thereon, and for the purpose of performing operations commonly known as "ramp services."

"Public Areas" shall mean all areas except the Air Operations Area, and areas occupied pursuant to a lease or other agreement providing for the area's exclusive use by one or more tenants

“Public Cargo Ramp and Apron Areas” shall mean those portions of an Airport designated and made available temporarily or permanently by the Port Authority to the public for the loading and unloading of cargo (but not passengers) onto and from aircraft. Allowable activities on these areas include:

1. loading and unloading cargo, mail and supplies to or from aircraft
2. servicing aircraft with fuel and lubricants
3. performing operations commonly known as "ramp services"
4. performing inspection, minor maintenance and other services upon or in connection with aircraft incidental to performing "ramp service,” and
5. parking mobile equipment used in connection with such operations.

“Public Landing Areas” shall mean those portions of an Airport, including runways, taxiways, and helipads, designated and made available temporarily or permanently by the Port Authority to the public for the movement and landing and taking-off of aircraft, and including areas between and adjacent to said runways and taxiways within the AOA. These areas may be used for the purpose of landing and taking-off of aircraft and for the purpose of the ground movement of aircraft.

“Public Passenger Ramp and Apron Areas” shall mean and include those portions of an Airport designated and made available temporarily or permanently by the Port Authority to the public for the loading or unloading of passengers onto and from aircraft (but not cargo except to the extent that cargo is loaded or unloaded on or from passenger aircraft). Allowable activities on these areas include:

1. loading and unloading passengers, baggage and supplies to or from aircraft
2. servicing aircraft with fuel and lubricants
3. performing operations commonly known as "ramp service"
4. performing inspection, minor maintenance and other services upon or in connection with aircraft, incidental to performing "ramp services,”
5. parking mobile equipment actively used in connection with such operations.

“Public Ramp and Apron Areas” shall mean and include those portions of an Air Terminal designated and made available temporarily or permanently by the Port Authority to the public for loading or unloading of both passengers and cargo on and from aircraft.). Allowable activities on these areas include:

1. loading and unloading passengers, baggage, cargo, mail and supplies to or from aircraft,
2. servicing aircraft with fuel and lubricants
3. performing the operations commonly known as "ramp services"
4. performing inspection, minor maintenance and other services upon or in connection with aircraft incidental to performing "ramp service", and
5. parking mobile equipment actively used in connection with such operations.

"Public Vehicular Parking Areas" shall mean those portions of an Airport designated and made available temporarily or permanently by the Port Authority to the public for the parking of vehicles. These areas may be used for the purpose of parking highway vehicles.

"Restricted Vehicle Service Road" or "RVSR" shall mean roadways designated and marked by the Port Authority within the AOA for use by Airport vehicles while driving or operating on the AOA.

"Safety Area" shall mean a defined area comprised of either a runway or taxiway and the surrounding surfaces that is prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot, or excursion from a runway or the unintentional departure from a taxiway.

"Security Identification Area" or "SIDA" shall mean any area identified by the Manager as requiring continuous display of an Airport Operator Identification Card, or an escort by a person authorized to provide escort in such areas.

"Vulnerable Cargo" shall mean those items, irrespective of intrinsic value, whose mishandling or misuse may endanger public safety. Sensitive cargo includes, but is not limited to, the following items:

1. Explosives
2. Firearms and other weapons
3. Narcotics and dangerous drugs
4. Medical supplies and biological items
5. Nuclear and radioactive materials
6. Corrosive materials

"Stage 3 Airplane" shall mean an airplane that complies with the noise levels prescribed in Sec. C36.5 (a)(3) of Appendix C of FAR Part 36.

"Stationary Equipment" shall mean a mechanical device that is primarily designed to operate at a fixed location where it may be permanently or temporarily installed. This equipment may be equipped with an internal or external combustion engine(s) or any other type of power system. Examples include emergency or standby generators, and emergency or standby fire pumps, etc.

"Tank Vehicle" or "Tanker" shall mean any vehicle used to transport and/or dispense any liquid product or material that is not classified as a hazardous material as defined by 49CFR172. A Tank Vehicle includes any vehicle with an integral tank, any tank full trailer, or any tractor and semi-trailer combination.

"Turboprop Aircraft" shall mean and include any and all aircraft that accomplish motion by means of a jet engine having a turbine driven propeller whose thrust may or may not be supplemented by that of hot exhaust gasses issuing in a jet from the engine itself.

"Valuable Cargo" shall mean a single cargo shipment valued at $25,000 or more containing commodities that are especially vulnerable to theft or loss. These commodities include but are not limited to, the following items:

- Art works
- Bills of exchange
- Bonds
- Computer Equipment
- Currency
- Electronic Devices
- Furs (finished)
- Gems, cut or uncut
- Gold bullion, coined, uncoined
- Jewelry (other than costume jewelry)
- Money
- Pearls
- Platinum
- Precious Metals
- Securities, negotiable
- Silver bullion, coined or uncoined
- Stamps, postage or revenue
- Stock certificates
- Watches and watch movements (excluding watch parts)

"Vehicle" shall mean a motorized or non-motorized contrivance designed or used to transport any person or property on land, excluding aircraft and any equipment that run on stationary rails, guideways, or tracks. Examples include automobiles, trucks, buses, motorcycles, cargo loaders, cargo dollies, baggage carts, trailers, fueling vehicles, hazmat vehicles, etc.