

A Freedom of Information request has been submitted.

Request date: 04/18/2016

Requested by: Victoria Bruno

Business: 9143456799

Address: 297 Knollwood Rd, Suite # 333
White Plains, NY, Zip: 10607

Contact: Phone: 9143456799
Email: victoria@kingscapitalgroup.com

Records seeking: All Documents for the LaGuardia Airport - Emergency Storm Drainage Water / Sewer - Pipelines - Project and All Bid Documents submitted for the LaGuardia Airport - Emergency Storm Drainage Water / Sewer - Pipelines - Project.

Bid due date for the LaGuardia Airport - Emergency Storm Drainage Water / Sewer - Pipelines - Project was Thursday, February 18, 2016.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
PUBLIC RECORD ACCESS FORM

PRA 16855

Action by (print / type name):

William Shalewitz

, Freedom of Information Administrator

Signature:



Date:

07/05/2016

On behalf of the Secretary of the Port Authority, as Records Access Officer and Custodian of Government Records of the Port Authority.

- The requested records are being made available.
- Any responsive records that may exist are currently in storage or archived, and a diligent search is being conducted. The Port Authority will respond by:
- A diligent search has been conducted, and no records responsive to your request have been located.
- The requested records that have been located are not being made available, as they are exempt from disclosure for the following specific reasons:

- Some requested records that have been located are being made available. The remainder are exempt from disclosure for the following specific reasons:

Personal privacy and security.

- The request does not reasonably describe or identify specific records; therefore, the Port Authority is unable to search for and locate responsive records. Please consider submitting a new request that describes or identifies the specific records requested with particularity and detail.
- Other:

Material responsive to your request can be found on the Port Authority's website at <http://corpinfo.panynj.gov/documents/16855-C/>

This form is promulgated by the Port Authority pursuant to the Port Authority Public Records Access Policy and is intended to be construed consistent with the New York Freedom of Information Law and the New Jersey Open Public Records Act. It is intended to facilitate requests for Port Authority public records and does not constitute legal advice.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
TWO MONTGOMERY STREET - 1st FLOOR
JERSEY CITY, NJ 07302

January 22, 2016

ADDENDUM NO. 1

**TO PROSPECTIVE BIDDERS ON CONTRACT LGA-774.133B – LAGUARDIA AIRPORT
– EMERGENCY STORM DRAINAGE OUTFALLS**

The following changes are hereby made in the Contract Documents for the subject Contract.

This communication should be physically annexed to back cover of the book and initialled by each bidder before submitting his bid.

In case any bidder fails to conform to these instructions, his Proposal will nevertheless be construed as though this communication had been so physically annexed and initialled.

CHANGES IN THE CONTRACT BOOKLET

- Page 14- Make the following changes to clause 11. QUESTIONS BY BIDDERS:
- A. In the first and second lines, delete " Susie Tom, at (212) 435-4653 or email at stom@panynj.gov" and substitute therefor "Sharon Allen, at (212) 435-4649 or email at sallen@panynj.gov".
 - B. In the fourth line, delete "Susie Tom" and substitute therefor "Sharon Allen".

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

James Starace, P.E.
Chief Engineer/Director

INITIALLED BY THE BIDDER:

C.K. Cyrus Kazeraui
Rostauri Construction.

02-18-16P02:58 RCVD

**THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
TWO MONTGOMERY STREET - 1st FLOOR
JERSEY CITY, NJ 07302**

January 29, 2016

ADDENDUM NO. 2

**TO PROSPECTIVE BIDDERS ON CONTRACT LGA-774.133B – LAGUARDIA AIRPORT –
EMERGENCY STORM DRAINAGE OUTFALLS**

The following changes are hereby made in the Contract Documents for the subject Contract.

This communication should be physically annexed to back cover of the book and initialled by each bidder before submitting his bid.

In case any bidder fails to conform to these instructions, his Proposal will nevertheless be construed as though this communication had been so physically annexed and initialled.

CHANGES IN THE CONTRACT BOOKLET

Page 1- In the second line of the first paragraph, change the day and date for receipt of proposals to "Thursday, February 11, 2016".

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

James Starace, P.E.
Chief Engineer/Director

INITIALLED BY THE BIDDER:

C.K. Cyrus Kazerani
Restani Construction

**THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
TWO MONTGOMERY STREET - 1st FLOOR
JERSEY CITY, NJ 07302**

February 10, 2016

ADDENDUM NO. 3

**TO PROSPECTIVE BIDDERS ON CONTRACT LGA-774.133B – LAGUARDIA AIRPORT –
EMERGENCY STORM DRAINAGE OUTFALLS**

The following changes are hereby made in the Contract Documents for the subject Contract.

This communication should be physically annexed to back cover of the book and initialled by each bidder before submitting his bid.

In case any bidder fails to conform to these instructions, his Proposal will nevertheless be construed as though this communication had been so physically annexed and initialled.

CHANGES IN THE CONTRACT BOOKLET

Page 1- In the second line of the first paragraph, change the date for receipt of proposals to "February 18, 2016".

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

James Starace, P.E.
Chief Engineer/Director

INITIALLED BY THE BIDDER:

C.K. Cyrus Kazerani
Restani Construction

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
TWO MONTGOMERY STREET - 1st FLOOR
JERSEY CITY, NJ 07302

February 12, 2016

ADDENDUM NO. 4

TO PROSPECTIVE BIDDERS ON CONTRACT LGA-774.133B – LAGUARDIA AIRPORT –
EMERGENCY STORM DRAINAGE OUTFALLS

The following changes are hereby made in the Contract Documents for the subject Contract.

This communication should be physically annexed to back cover of the book and initialled by each bidder before submitting his bid.

In case any bidder fails to conform to these instructions, his Proposal will nevertheless be construed as though this communication had been so physically annexed and initialled.

CHANGES IN THE CONTRACT BOOKLET

- Page ii - Make the following changes:
- A. In the title of CHAPTER II delete "ADJUSTMENTS" and substitute therefor "COMPENSATION".
 - B. Delete "25. ADJUSTMENTS OF LUMP SUM.....37
26. COMPENSATION FOR EXTRA WORK.....37"
and substitute therefor the following:
 - "25. UNIT PRICES AND LUMP SUM.....37
25A. ADJUSTMENTS OF LUMP SUM.....37C
26. COMPENSATION FOR EXTRA WORK.....37C"
- Page 4 - In D. make the following changes:
- A. In the first line delete "Lump Sum" and substitute therefor "prices".
 - B. In the second line delete "'General Agreement'. The amount" and substitute therefor "'Unit Prices and Lump Sum'. The amounts".
 - C. Following the second sentence insert the following: "The unit prices must be extended and totaled. The Estimated Total for Classified Work and the Lump Sum must be entered in the recapitulation and totaled."
- Pages 22 - Delete the entire pages and physically attach in their places new pages 22 and 23 which
and 23 are attached hereto and made a part hereof.
- Page 30 - In clause 19. entitled "DEFINITIONS" make the following changes:
- A. Immediately after the sixth paragraph insert the following:

""Classified Work" shall mean the items of Work set forth in the Schedule of Unit Prices and shall include any Work hereafter required which is of the same general character as that set forth in any of said items. In determining what is of the same general character, there shall be taken into consideration the provisions for measurement for payment appearing in said clause entitled "Unit Prices and Lump Sum", which provisions shall form a part of the items in said Schedules of Unit Prices.

"Unclassified Work" shall mean Work other than Classified Work."

B. In the second line of the seventh paragraph, following the text ""Extra Work Orders"" insert ", other than Classified Work,".

C. Immediately after the seventh paragraph insert the following:

""Estimated Total for Classified Work" shall mean the result obtained by applying the prices quoted by the Contractor in the Schedule of Unit Prices to the estimated quantities given therein and totaling the results, whether or not such results are correctly shown in the Contractor's Proposal.

"Lump Sum" shall mean the Lump Sum for Unclassified Work quoted by the Contractor in the clause hereof entitled "Unit Prices and Lump Sum".

"Estimated Total Contract Price" shall mean the result obtained by adding together the Estimated Total for Classified Work and the Lump Sum, whether or not such result is correctly shown in the Contractor's Proposal."

Page 31 - Delete the fourteenth paragraph in its entirety without substitution therefor.

Page 32 - In clause 20. entitled "GENERAL AGREEMENT" delete the second paragraph in its entirety and substitute therefor the following:

"The Authority agrees to pay to the Contractor and the Contractor agrees to accept from the Authority, in full consideration for the performance by the Contractor of his duties and obligations under this Contract and the whole thereof, a compensation consisting of the following amounts and such amounts only, subject only to the express provisions of this Contract specifically setting forth actual, defined additions to or deductions from such compensation.

A. An amount based upon the Classified Work performed, computed at the rates quoted in the Schedule of Unit Prices, said Classified Work to be measured and said amount to be computed in the manner provided in the clause hereof entitled "Unit Prices and Lump Sum"; and

B. The amount of the Lump Sum quoted in the clause hereof entitled "Unit Prices and Lump Sum".

This Contract is one entire contract for the accomplishment of the results and the doing of the things above specified and is not separable. Similarly, the Contractor's compensation is one entire compensation for entire performance on his part."

Page 35 - In the clause 24. entitled "PERFORMANCE AND PAYMENT BOND" make the following changes:

A. In the fifth line of the first paragraph delete "Lump Sum" and substitute therefor "Estimated Total Contract Price".

B. In the first line of A., delete "Lump Sum" and substitute therefor "Estimated Total Contract Price".

Pages 37 - Delete these pages in their entireties and substitute therefor new pages 37 through 37D
and 38 (5 pages) which are attached hereto and made a part hereof.

Pages 42 - In clause 29, entitled "MONTHLY ADVANCES" make the following changes:
and 43

A. Delete the text of A. and B. in their entireties and substitute therefor:

"A. The approximate amount of Classified Work performed by the Contractor up to that time and a sum determined from such Work in accordance with the units of measurement and unit prices specified in the Schedule of Unit Prices.

B. The approximate amount of Unclassified Work (other than Extra Work) performed by the Contractor up to that time and a sum bearing the same proportion to the Lump Sum as the Unclassified Work performed (other than Extra Work) bears to the total amount of such Work performed and to be performed (other than Extra Work), and

C. The increases, if any, in the Contractor's compensation for which provision is specifically made elsewhere in this Contract."

Page 43 - In the third line of the first paragraph, following "subparagraph A" insert "and B".

Page 176 - Make the following changes:

A. Delete the text of 2.01 C.1 in its entirety and substitute therefor "Not used."

B. Delete the text of 2.01 C.2 in its entirety and substitute therefor "Not used."

C. Delete the text of 2.01 C.3 in its entirety and substitute therefor "Furnish material from sources off site."

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

James Starace, P.E.
Chief Engineer/Director

INITIALED BY THE BIDDER:

C.K. Cyrus Kazorani
Restani Construction

**THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
TWO MONTGOMERY STREET - 1st FLOOR
JERSEY CITY, NJ 07302**

February 16, 2016

ADDENDUM NO. 5

**TO PROSPECTIVE BIDDERS ON CONTRACT LGA-774.133B – LAGUARDIA AIRPORT –
EMERGENCY STORM DRAINAGE OUTFALLS**

The following changes are hereby made in the Contract Documents for the subject Contract.

This communication should be physically annexed to back cover of the book and initialled by each bidder before submitting his bid.

In case any bidder fails to conform to these instructions, his Proposal will nevertheless be construed as though this communication had been so physically annexed and initialled.

CHANGES TO THE CONTRACT DRAWINGS

Dwg. G004 - In General Notes 14, following E insert “F. TRANSPORTATION AND DISPOSAL OFF-SITE OR TREATMENT, TESTING AND DISCHARGE ON-SITE OF CONTAMINATED EFFLUENT FROM DEWATERING OPERATIONS.”

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

James Starace, P.E.
Chief Engineer/Director

INITIALLED BY THE BIDDER:

C.K. Cyrus Kazraani
Restauri Construction

**THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
TWO MONTGOMERY STREET, 1st FLOOR
JERSEY CITY, NJ 07302**

February 12, 2016

NOTICE TO BIDDERS

**TO PROSPECTIVE BIDDERS ON CONTRACT LGA-774.133B – LAGUARDIA
AIRPORT – EMERGENCY STORM DRAINAGE OUTFALLS**

Attached herewith is the Analysis of Bid, which has been revised. Substitute therefor the Analysis of Bid which is attached hereto and destroy that which is in your possession. Place it in the back of the Contract Booklet and submit a completed Analysis of Bid with your proposal, in accordance with the section of the Contract Booklet entitled PAPERS ACCOMPANYING PROPOSALS.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

James Starace, P.E.
Chief Engineer/Director

02-18-16P02:57 RCVD

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACT LGA 774.133B

CONTRACTOR Restani Construction Corp.

DATE 2/18/2016

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
1	Civil				
2	Excavation	620	CY	90.-	55,800.-
3	Haul Excavated Soil to Stockpile	620	CY	30.-	18,600.-
4	Clean Fill	595	CY	80.-	47,600.-
5	Furnish, Install and Remove Temporary AOA Fence with 24' Access Gate	300	LF	335.-	100,500.-
6	Remove Existing AOA Fence	60	LF	70.-	4,200.-
7	Furnish and Install AOA Fence	60	LF	250.-	15,000.-
8	Asphalt Conc. (Mix 3 PG 64-22) top course	16	TONS	200.-	3,200.-
9	Tack Coat	4	GAL SY	6.-	24.-
10	DGABC	37	CY	125.-	4,625.-
11	Existing Storm Drain Removal/Abandon	80	LF	100.-	8,000.-
(Continue to next page)					

(1) Separate and list all items or operations of work included in your estimate in accordance with Specifications.

When listing subcontracts, the prime contractor will have each subcontractor complete an analysis of bid form.

(2) Unit of measure, i.e., SF, CY, Bbls, Pcs, Ea., etc.

3. Include all charges, such as moving on site, removal, rental, etc.

4. In case of conflict between information hereon (whether supplied by the Authority or the bidder) and the terms or prices contained or inserted in the Contract Booklet or Contract Drawings, said Booklet and Drawings shall control.

5. The Analysis of Bid is not part of the contract. No information hereon (whether supplied by the Authority or the bidder) and no information deduced from information hereon, including quantities of materials or work, shall be deemed to vary, alter or modify and provision of the Contract, including provisions therein as to compensation and performance. The unit prices contained hereon serve the sole purpose of informing Port Authority as to components of the bidder's price quoted in the Contract. The items of materials or work contained hereon shall not be deemed to be an exhaustive list of the items of materials or work required by the Contract Drawings and Specifications in their present form.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACT LGA 774.133B

CONTRACTOR Restani Construction Corp

DATE 2/18/16

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
12	Connection to existing Structure	2	EA	2,000.-	4,000.-
13	18" RCP	80	LF	300.-	24,000.-
14	24" Storm Drain-DIP	365	LF	400.-	146,000.-
15	36" Storm Drain-DIP	40	LF	600.-	24,000.-
16	Catch Basin	1	EA	12,000.-	12,000.-
17	Aircraft Manhole	2	EA	14,000.-	28,000.- ^{C.K.}
18	Manhole - Type 2	2	EA	10,000.-	20,000.-
19	24" Gate Valve	2	EA	45,000.-	90,000.-
20	Gate Valve Concrete Chamber	2	EA	25,000.-	50,000.- ^{C.K.}
21	36"x24" DIP Reducer	1	EA	5,000.-	5,000.-
22	24" Check Valve	1	EA	25,000.-	25,000.-
23	36" Check Valve	1	EA	50,000.-	50,000.-
24	Remove Abandoned Electrical Manhole, Remove Concrete Pad, Restore Riprap, Riprap Outlet Protection	1	LS	10,000.-	10,000.-
25	Landscaping	1	LS	15,000.-	15,000.-
26	Structural -Concrete Headwall	13	CY	2,700.-	35,100.-
27	Geotechnical	 	 	 	
28	AZ18-700 Sheeting at EM01	1,300.-	SF	70.-	91,000.-
29	AZ18-700 Sheeting at EM02	5,510	SF	70.-	385,700.-
30	Temporary Platform at EM01	1	LS	159,000.-	159,000.-

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACT LGA 774.133B

CONTRACTOR Restani Construction Corp.

DATE 2/18/16

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
31	Temporary Platform at EM02	1	LS	550,000.-	550,000.-
32	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM01	1	LS	200,000.-	200,000.-
33	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM02	1	LS	366,000.-	366,000.-
34	Dewatering	20	DAY	3,600.-	72,000.-
35	Environmental	 	 	 	
36	Turbidity Curtain	325	LF	100.-	32,500.-
37	Sediment Bags	2	EA	150.-	300.-
38	Silt Fencing	600	LF	19.-	11,400.-
39	Stabilized Vehicle Tracking Pad, Catch Basin Inlet Filters	1	LS	12,000.-	12,000.-
40	Frac Tank Rental, Frac Tank Delivery and Pickup	1	LS	30,000.-	30,000.-
41	Total Lump Sum (Unclassified)		LS		\$2,705,549.- C.K.

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned¹³ RESTANI CONSTRUCTION CORP.
A CORPORATION ORGANIZED UNDER THE LAWS OF THE STATE OF NEW YORK
42-04 BERRIAN BLVD. - ASTORIA, NEW YORK 11105

as principal(s); and¹⁴

ARCH INSURANCE COMPANY

THREE PARKWAY, SUITE 1500 - PHILADELPHIA, PENNSYLVANIA 19102

as surety are hereby held and firmly bound unto The Port Authority of New York and New Jersey (herein called the "Authority") in the penal sum of Four Hundred Thousand Dollars (\$400,000), for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed this 5TH day of FEBRUARY, 2016

The condition of the above obligation is such that whereas the above named principal(s) has submitted to the Authority a certain Proposal, bound herewith and hereby made a part hereof, to perform the obligations of the Contractor under a contract in writing, known as Contract LGA-774.133B, "LaGuardia Airport - Emergency Storm Drainage Outfalls", now therefore:

- A. If said Proposal shall not be accepted, or
- B. If said Proposal shall be accepted and the Authority does not require the principal(s) to furnish a Performance and Payment Bond, or
- C. If said Proposal shall be accepted and the Authority requires the principal(s) to furnish a Performance and Payment Bond and either the principal(s) furnishes a Performance and Payment Bond satisfactory to the Authority in accordance with the requirements of said Proposal or the Authority does not terminate the Contract as provided therein on account of the failure to furnish such a bond,

Then, this obligation shall be void, otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

¹³ Insert bidder's name. If a corporation, give the state of incorporation using the phrase "a corporation organized under the laws of the _____".
If a partnership, give full names of partners, using also the phrase, "co-partners doing business under the firm name of _____".
If an individual using a trade name, give individual name, using also the phrase, "an individual doing business under the trade name of _____".
If a joint venture, give the information required above for each participant in the joint venture.

¹⁴ Insert name of surety.

The surety, for value received, hereby stipulates and agrees that the obligations of said surety and its bond shall be in no way impaired or affected by any extensions of the times within which the Authority may receive or accept such Proposal or within which the principal(s) may furnish a Performance and Payment Bond or by any waiver by the Authority of any of the requirements of said Proposal; and said surety does hereby waive notice of any such extensions or waivers.

IN WITNESS WHEREOF, the principal(s) and surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

RESTANI CONSTRUCTION CORP.

Principal¹⁵

(Seal)

By¹⁶



ARCH INSURANCE COMPANY

Surety

(Seal)

By¹⁷


DENNIS M. O'BRIEN - ATTORNEY-IN-FACT

¹⁵ If bidder is a joint venture, insert signature and information required as appropriate for one participant of the joint venture on this page and attach and complete an additional sheet in the same form as appears on this page for each other participant as required.

¹⁶ If bond is signed by an officer or agent, give title; if signed by a corporation, affix corporate seal.

¹⁷ If bond is signed by an officer or agent, give title; if signed by a corporation, affix corporate seal.

ACKNOWLEDGMENT¹⁸

ACKNOWLEDGMENT OF BIDDER, IF A CORPORATION

State of New York

SS:

County of Queens

On this 18 day of February, 2016 before me personally came and appeared Salvatore Restivo to me known, who, being by me duly sworn, did depose and say that he resides at _____, that he is the President of Restauri Construction Corp., the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is the seal of MICHAEL GALDERONE; that it was so affixed by order of the directors of said corporation; and that he signed this name in the order.

(Notary Seal)

MICHAEL GALDERONE
Notary Public, State of New York
No. 01CA6203919
Qualified in Suffolk County
Commission Expires April 13, 2017

Michael Galderone
(Notary Signature)

ACKNOWLEDGMENT OF BIDDER, IF A PARTNERSHIP

State of _____

SS:

County of _____

On this _____ day of _____, 20____, before me personally came and appeared _____, to me known and known to me to be one of the members of the firm of _____, described in and who executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(Notary Seal)

(Notary Signature)

ACKNOWLEDGMENT OF BIDDER, IF AN INDIVIDUAL

State of _____

SS:

County of _____

On this _____ day of _____, 20____, before me personally came and appeared _____ to me known and known to me to be the person described in and who executed the foregoing instrument and he acknowledged to me that he executed the same.

(Notary Seal)

(Notary Signature)

AFFIX ACKNOWLEDGMENT AND JUSTIFICATION OF SURETY

¹⁸ If bidder is a joint venture, insert signature as appropriate for one participant of the joint venture on this page and attach and complete an additional Acknowledgment sheet in the same form as appears on this page for each other participant as required.

ARCH INSURANCE COMPANY
STATEMENT OF FINANCIAL CONDITION
DECEMBER 31, 2014

Assets

Cash in Banks	\$ 127,486,649
Bonds owned	2,003,424,640
Stocks	441,536,973
Premiums in course of collection	318,366,265
Accrued interest and other assets	<u>310,044,748</u>
 Total Assets	 <u><u>\$ 3,200,859,275</u></u>

Liabilities

Reserve for losses and adjustment expenses	\$ 1,356,487,805
Reserve for unearned premiums	347,898,150
Ceded reinsurance premiums payable	168,613,930
Amounts withheld or retained by company for account of others	199,971,426
Reserve for taxes, expenses and other liabilities	<u>349,520,028</u>
 Total Liabilities	 2,422,491,339
 Surplus as regards policyholders	 <u>778,367,936</u>
 Total Surplus and Liabilities	 <u><u>\$ 3,200,859,275</u></u>

By: 
 Senior Vice President, Chief
 Financial Officer and Treasurer

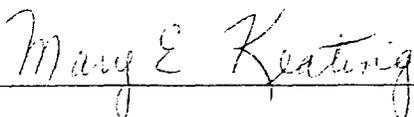
Attest: 
 Senior Vice President,
 General Counsel and Secretary

State of New Jersey)
) SS
 County of Hudson)

Thomas James Ahern, Senior Vice President, Chief Financial Officer and Treasurer and Patrick Kenneth Nails, Senior Vice President, General Counsel and Secretary being duly sworn, of ARCH INSURANCE COMPANY, Missouri; and that the foregoing is a true and correct statement of financial condition of said company, as of December 31, 2014.

Subscribed and sworn to before me, this 10th day of March, 2015

Notary Public



MARY E. KEATING
 NOTARY PUBLIC OF NEW JERSEY
 ID # 2449626
 My Commission Expires 8/28/2016

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON BLUE BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated. Not valid for Mortgage, Note, Loan, Letter of Credit, Bank Deposit, Currency Rate, Interest Rate or Residential Value Guarantees.

POWER OF ATTORNEY

Know All Persons By These Presents

That the Arch Insurance Company, a corporation organized and existing under the laws of the State of Missouri, having its principal administrative office in Jersey City, New Jersey (hereinafter referred to as the "Company") does hereby appoint:

Benedict J. Tockarszewsky, Dennis M. O'Brien, Dominick Scotto, Dorothy J. Scotto, Lisa M. Marrazzo, Raymond C. Carman, Theresa A. Lanfranco and William D. Haas of White Plains, NY (EACH)

its true and lawful Attorney(s)in-Fact, to make, execute, seal, and deliver from the date of issuance of this power for and on its behalf as surety, and as its act and deed:

Any and all bonds, undertakings, recognizances and other surety obligations, in the penal sum not exceeding Ninety Million Dollars (\$90,000,000.00).

This authority does not permit the same obligation to be split into two or more bonds In order to bring each such bond within the dollar limit of authority as set forth herein.

The execution of such bonds, undertakings, recognizances and other surety obligations in pursuance of these presents shall be as binding upon the said Company as fully and amply to all intents and purposes, as if the same had been duly executed and acknowledged by its regularly elected officers at its principal administrative office in Jersey City, New Jersey.

This Power of Attorney is executed by authority of resolutions adopted by unanimous consent of the Board of Directors of the Company on September 15, 2011, true and accurate copies of which are hereinafter set forth and are hereby certified to by the undersigned Secretary as being in full force and effect:

"VOTED, That the Chairman of the Board, the President, or the Executive Vice President, or any Senior Vice President, of the Surety Business Division, or their appointees designated in writing and filed with the Secretary, or the Secretary shall have the power and authority to appoint agents and attorneys-in-fact, and to authorize them subject to the limitations set forth in their respective powers of attorney, to execute on behalf of the Company, and attach the seal of the Company thereto, bonds, undertakings, recognizances and other surety obligations obligatory in the nature thereof, and any such officers of the Company may appoint agents for acceptance of process.

This Power of Attorney is signed, sealed and certified by facsimile under and by authority of the following resolution adopted by the unanimous consent of the Board of Directors of the Company on September 15, 2011:

VOTED, That the signature of the Chairman of the Board, the President, or the Executive Vice President, or any Senior Vice President, of the Surety Business Division, or their appointees designated in writing and filed with the Secretary, and the signature of the Secretary, the seal of the Company, and certifications by the Secretary, may be affixed by facsimile on any power of attorney or bond executed pursuant to the resolution adopted by the Board of Directors on September 15, 2011, and any such power so executed, sealed and certified with respect to any bond or undertaking to which it is attached, shall continue to be valid and binding upon the Company.

02-18-16P02:56 RCVD

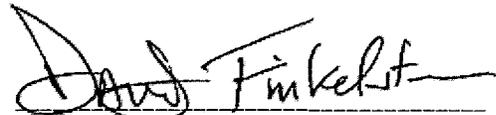
In Testimony Whereof, the Company has caused this instrument to be signed and its corporate seal to be affixed by their authorized officers, this 18th day of September, 2014.

Attested and Certified

Arch Insurance Company


Patrick K. Nails, Secretary

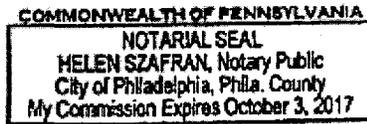


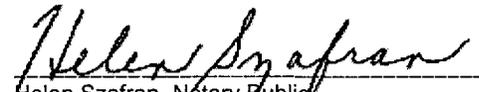

David M. Finkelstein, Executive Vice President

STATE OF PENNSYLVANIA SS

COUNTY OF PHILADELPHIA SS

I, Helen Szafran, a Notary Public, do hereby certify that Patrick K. Nails and David M. Finkelstein personally known to me to be the same persons whose names are respectively as Secretary and Executive Vice President of the Arch Insurance Company, a Corporation organized and existing under the laws of the State of Missouri, subscribed to the foregoing instrument, appeared before me this day in person and severally acknowledged that they being thereunto duly authorized signed, sealed with the corporate seal and delivered the said instrument as the free and voluntary act of said corporation and as their own free and voluntary acts for the uses and purposes therein set forth.

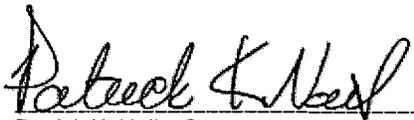



Helen Szafran, Notary Public
My commission expires 10/03/2017

CERTIFICATION

I, Patrick K. Nails, Secretary of the Arch Insurance Company, do hereby certify that the attached Power of Attorney dated September 18, 2014 on behalf of the person(s) as listed above is a true and correct copy and that the same has been in full force and effect since the date thereof and is in full force and effect on the date of this certificate; and I do further certify that the said David M. Finkelstein, who executed the Power of Attorney as Executive Vice President, was on the date of execution of the attached Power of Attorney the duly elected Executive Vice President of the Arch Insurance Company.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the Arch Insurance Company on this 5th day of February, 2016.


Patrick K. Nails, Secretary

This Power of Attorney limits the acts of those named therein to the bonds and undertakings specifically named therein and they have no authority to bind the Company except in the manner and to the extent herein stated.

PLEASE SEND ALL CLAIM INQUIRIES RELATING TO THIS BOND TO THE FOLLOWING ADDRESS:

Arch Insurance – Surety Division
3 Parkway, Suite 1500
Philadelphia, PA 19102



02-18-16P02:56 RCVD

8000021435 AC 115095 PAUL J. SEBASTIANO, INC. 600-01/26/2016
Tot. Val 0.00
Collective REF: 0000044886 LGA-774 133B Emergency Storm Drainage 91300
D LGA1 02/18/2016 1.00 PU
Net Value 0.00

2,849,549.00

8000021436 AC 115095 PAUL J. SEBASTIANO, INC. 600-01/26/2016
Tot. Val 0.00
Collective REF: 0000044886 LGA-774 133B Emergency Storm Drainage 91300
D LGA1 02/18/2016 1.00 PU
Net Value 0.00

4,675,000.00

8000021437 AC 115095 PAUL J. SEBASTIANO, INC. 600-01/26/2016
Tot. Val 0.00
Collective REF: 0000044886 LGA-774 133B Emergency Storm Drainage 91300
D LGA1 02/18/2016 1.00 PU
Net Value 0.00

3,942,000.00

8000021438 AC 115095 BEAVER CONCRETE CONSTRUCTION 600-01/26/2016
Tot. Val 0.00
Collective REF: 0000044886 LGA-774 133B Emergency Storm Drainage 91300
D LGA1 02/18/2016 1.00 PU
Net Value 0.00

3,389,000.00

8000021439 AC 115095 PAUL J. SEBASTIANO, INC. 600-01/26/2016
Tot. Val 0.00
Collective REF: 0000044886 LGA-774 133B Emergency Storm Drainage 91300
D LGA1 02/18/2016 1.00 PU
Net Value 0.00

3,291,455.00

8000021440 AC 115095 PRIMER CONSTRUCTION CORP. 600-01/26/2016
Tot. Val 0.00
Collective REF: 0000044886 LGA-774 133B Emergency Storm Drainage 91300
D LGA1 02/18/2016 1.00 PU
Net Value 0.00

3,823,000.00

8000021441 AC 115095 C & M BARTH MOVING, INC. 600-01/26/2016
Tot. Val 0.00
Collective REF: 0000044886 LGA-774 133B Emergency Storm Drainage 91300
D LGA1 02/18/2016 1.00 PU
Net Value 0.00

6,113,800.00

8000021442 AC 115095 PRIMER CONSTRUCTION CORP. 600-01/26/2016
Tot. Val 0.00
Collective REF: 0000044886 LGA-774 133B Emergency Storm Drainage 91300
D LGA1 02/18/2016 1.00 PU
Net Value 0.00

5,995,440.00

8000021443 AC 115095 PRIMER CONSTRUCTION CORP. 600-01/26/2016
Tot. Val 0.00
Collective REF: 0000044886 LGA-774 133B Emergency Storm Drainage 91300
D LGA1 02/18/2016 1.00 PU
Net Value 0.00

3,338,957.00

D LGA1 02/18/2016 1.00 PU
Net Value 0.00

8000021498 AC 103557 S.A. INDUSTRIES, INC. 600 02/01/2016
Net Val 0.00
Collective RFO 0000044886
00010 LGA-774 133B Emergency Storm Drainage 91300
D LGA1 02/18/2016 1.00 PU
Net Value 0.00

5,564,700.00

8000021493 AC 164851 J-TRUCK LLC 600 02/04/2016
Net Val 0.00
Collective RFO 0000044886
00010 LGA-774 133B Emergency Storm Drainage 91300
D LGA1 02/18/2016 1.00 PU
Net Value 0.00

4,222,804.00

8000021516 AC 150207 HALMAR INTERNATIONAL, LLC 600 02/12/2016
Net Val 0.00
Collective RFO 0000044886
00010 LGA-774 133B Emergency Storm Drainage 91300
D LGA1 02/18/2016 1.00 PU
Net Value 0.00

3,167,185.00

Procurement Department

PROPOSAL/BID NUMBER:

LGA-774-133B - 44886

DATE: 2/18/16

DESCRIPTION:

LGA Garcia Airport - Emergency Storm Drainage Outfalls

IN ATTENDANCE

REPRESENTATIVE

COMPANY

Audiel Guzman
Chris Heiss

Paul J. Scoviano, inc
Primer Construction

JASON TONNE

G3M EARTH MOVING INC.

Donato Titto

Beaver Concret Const. Co.

CRISTIAN TEJADA

C.A.C. INDUSTRIES INC.

Eliect Pertuz

RESTANI CONSTRUCTION INC

WILLIAM LYONS

JTRACK LLC

Angelo CARMAA

TULLY

Michael Kobbe

Halmar International

[Signature]

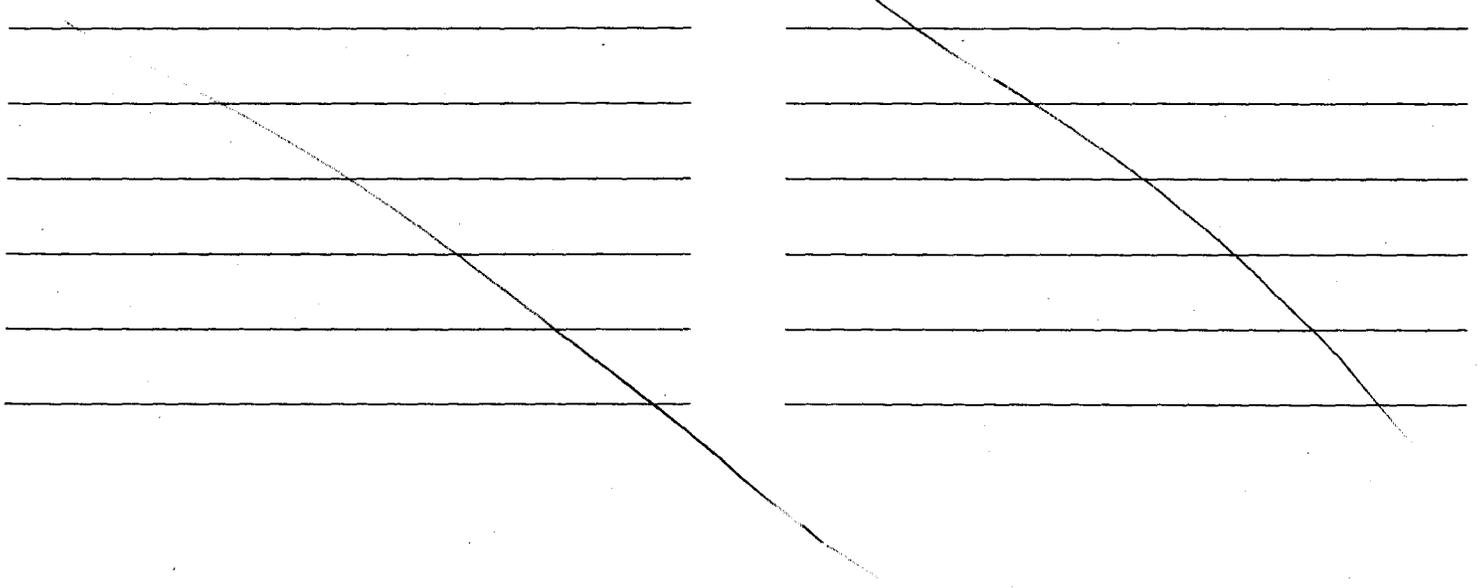
PA

Sharon [Signature]

PA - Procurement

[Signature]

PA



THE PORT AUTHORITY OF NY & NJ

CA02774133
FEMA

J.D.

LAGUARDIA AIRPORT

EMERGENCY STORM DRAINAGE OUTFALLS

CONTRACT LGA-774.133B

FEBRUARY 2016

**This proposal is not complete unless bidder's
Signature appears on page 24**

THE PORT AUTHORITY OF NY & NJ

COMMISSIONERS

John J. Degnan, Chairman
Richard H. Bagger
Steven M. Cohen
Michael D. Fascitelli
Hamilton E. James
George R. Laufenberg

Scott H. Rechler, Vice-Chairman
Kenneth Lipper
Jeffrey H. Lynford
Raymond M. Pocino
William Schuber
David S. Steiner

EXECUTIVE STAFF

Patrick J. Foye, Executive Director
Stephanie E. Dawson, Acting Chief Operating Officer
The Honorable Richard J. Holwell, Interim General Counsel
Michael Massiah, Chief of Capital Planning, Execution and Asset Management
Elizabeth McCarthy, Chief Financial Officer
James Starace, Chief Engineer/Director
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Michael Nestor, Inspector General
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Rail Transit Department

Thomas Bosco, Director,
Aviation Department

Molly Campbell, Director,
Port Commerce Department

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02073	CUTTING, PATCHING AND REMOVAL
02221	EXCAVATION, BACKFILLING AND FILLING
02272	SOIL EROSION AND SEDIMENT CONTROL
02274	GEOTEXTILES
02366	STEEL SHEET PILING
02392	ZINC-RICH EPOXY/COAL TAR EPOXY COATING SYSTEM FOR STEEL PILING

<u>Section</u>	<u>Title</u>
02720	MANHOLES AND DRAINAGE STRUCTURES
02722	STORM DRAINAGE SYSTEM (INFILTRATION/EXFILTRATION TESTING NOT REQUIRED)
02920	SOIL TESTING
02930	SEEDING (NEW YORK)
02936	HYDRAULICALLY APPLIED EROSION CONTROL: HIGH PERFORMANCE FLEXIBLE GROWTH MEDIUM
02960	ADDING COMPOST

DIVISION 3 - CONCRETE

03100	CONCRETE FORMWORK
03200	CONCRETE REINFORCEMENT
03301	PORTLAND CEMENT CONCRETE, LONG FORM
03602	GROUTING (NON-METALLIC)

Appendix 1 - Permits

Prevailing Rate Schedule NY

Notification of M/WBE On-line Directory and Forms

Schedule A (PA 3749 and PA 3749A)

Schedule B (PA 3750b)

Schedule C (PA 3751B)

Schedule D (Statement of Payments to M/W/DBE Subcontractors/Lessors/Suppliers)

M/W/DBE Payment Request Certification Form

M/W/DBE Subcontractor Approval Request

Analysis of Bid

ADVERTISEMENT

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

Sealed proposals for the following contract will be received by The Port Authority of New York and New Jersey in the office of the Chief Procurement Officer, Attn: Bid Custodian, 4 World Trade Center, 150 Greenwich Street, 21st Floor, New York, NY 10007, until 2:30 PM on the date indicated where the proposals will then be publicly opened and read in the Bid Room.

Contract documents may be seen at the Contract Desk on the 1st Floor, 2 Montgomery Street, Jersey City, NJ and may be obtained upon receipt of a non-refundable payment of \$100.00 per set. If contract documents are not immediately available, prospective bidders are encouraged to pre-order the contract documents by sending the payment of \$100.00 per set in advance. The contract documents will be shipped by overnight delivery at no additional cost as soon as they become available. Only company checks or money orders payable to the order of The Port Authority of New York and New Jersey will be accepted. If checks or money orders for documents are mailed, address them to The Port Authority of New York and New Jersey, Contract Desk, 1st Floor, 2 Montgomery Street, Jersey City, NJ 07302. For availability of contract documents, go to <http://www.panynj.gov/business-opportunities/bid-proposal-advertisements.html?tabnum=3>. Questions by prospective bidders concerning the contract should be directed only to the person whose name and phone number is listed.

A VALID PHOTO ID IS REQUIRED TO GAIN ACCESS INTO EITHER BUILDING.

Contract LGA-774.133B – LaGuardia Airport – Emergency Storm Drainage Outfalls. Estimate Range: \$1M-\$5M. Bids Due: Friday, February 5, 2016. The work under this contract consists generally of excavation and installation of underground storm drainage piping, penetrating through the perimeter dike wall into the Flushing Bay, valves, concrete outflow, rip-rap protection, sheet piling and related work at the West end and East end of the Air Operations Area and the vicinity thereof at LaGuardia Airport, Queens, New York. This project may be Federally funded in whole or in part. Accordingly, all bidders and the successful Contractor will be required to comply with any and all required applicable federal provisions and requirements contained in this solicitation and resulting contract. For questions, call Susie Tom at (212) 435-4653; email – stom@panynj.gov.

MONDAY, January 11, 2016

INFORMATION FOR BIDDERS

1. FORM AND SUBMISSION OF PROPOSALS

The Port Authority of New York and New Jersey, hereinafter called "the Authority", invites Proposals in the annexed form. Proposals will be received until 2:30 P.M. on Friday, February 5, 2016 in the office of the Chief Procurement Officer, Attn: Bid Custodian, 4 World Trade Center, 150 Greenwich Street, 21st Floor, New York, NY 10007 at which time they will be opened and publicly read in the Bid Room. Each Proposal must be contained in the envelope furnished by the Authority, which shall be sealed and conspicuously endorsed with the bidder's name and the number of this Contract in the space provided. This Contract booklet shall not be unstapled or taken apart.

- A. Proposals will be accepted via the United States Postal Service, United Parcel Service (UPS)¹ or hand delivery addressed as follows:

The Port Authority of NY & NJ
Procurement Department
Attn: Bid Custodian
4 World Trade Center
150 Greenwich Street, 21st Floor
New York, NY 10007.

There is extensive security at the World Trade Center (WTC) site. A valid government-issued photo ID is required to enter 4 WTC. All packages and envelopes are subject to security screening.

There is no parking available at 4 WTC/150 Greenwich Street, and parking in the surrounding area is extremely limited.

The Port Authority assumes no responsibility for delays, including, but not limited to, delays caused by any delivery services, building access procedures, or security requirements.

The Proposal must be submitted upon the blank form bound herewith and must give all information required.² The Proposal must be signed and the acknowledgment taken on the appropriate form following the Proposal.

No effort is made to emphasize any particular provision of the Contract, but bidders must familiarize themselves with every provision and its effect.

¹ Silverstein Properties, the property manager of 4 WTC, has a vendor approval process for firms wishing to make deliveries. Presently, UPS is the only express delivery vendor with approved recurring delivery times. UPS makes deliveries to 4 WTC around 9:30 AM each day. Please plan accordingly. As additional express carriers may be approved by Silverstein Properties and scheduled for recurring delivery times with the Vehicle Security Center (VSC), this information may be updated.

² While two or more copies of this booklet may be furnished to each prospective bidder, only one should be submitted. The extra copies are for the bidders use.

This Contract is to be funded in whole or in part by the United States Department of Homeland Security, Federal Emergency Management Agency (FEMA). As a result, the Contractor (and his subcontractors) agrees to comply with the applicable FEMA requirements, special grant conditions and all other federal, state and local laws that are or may become applicable to this Contract. The current FEMA Requirements are set forth in Chapter VII of the Form of Contract entitled "Federal Emergency Management Agency Requirements".

2. PAPERS ACCOMPANYING PROPOSALS

Each Proposal must be accompanied by the following papers, which, unless otherwise indicated, should be enclosed with the Proposal:

- A. If the bidder be a corporation, a statement of the names and residences of its officers, which should be included on the page following the Proposal.

If the bidder be a partnership, a statement of the names and residences of its members, indicating which are general and which are special partners, which should be included on the page following the Proposal.

If the bidder be an individual, a statement of his residence, which should be included on the page following the Proposal.

- B. Either the Bid Bond bound herewith, duly executed by the bidder as principal and by one or more surety companies duly authorized to carry on the business of suretyship in the state(s) in which the construction site is located, whose names appear on the current list of the Treasury Department of the United States as acceptable as sureties upon federal contracts; or, in lieu of a Bid Bond;

A certified check, payable to the order of The Port Authority of New York and New Jersey, in the same amount appearing in the Bid Bond form, which check shall be placed in an envelope marked "Bid Security" and enclosed with the Proposal.

C.

- 1.) Certified financial statements, including applicable notes, reflecting the bidder's assets, liabilities, net worth, revenues, expenses, profit or loss and cash flow for the most recent calendar year or the bidder's most recent fiscal year.

- 2.) Where such certified financial statements are not available, then either reviewed or compiled statements from an independent accountant setting forth the information described in Paragraph 1, above.

- 3.) Where neither certified financial statements nor financial statements from an independent accountant are available, then financial statements containing the information described in Paragraph 1, above, prepared directly by the bidder. However, such financial statements must be accompanied by a signed copy of the bidder's most recent Federal income tax return and a statement in writing, signed by a duly authorized representative of the bidder, that such statements accurately reflect the current financial condition of the bidder.

Where statements submitted pursuant to either Paragraph 1 or 2, above, show the position of the bidder as of a date more than forty-five (45) days prior to the date on which Proposals are opened, the bidder shall also submit a statement in writing signed by a duly authorized representative of the bidder, that the present financial condition of the bidder is at least as good as that shown on the statements submitted.

- 4.) A statement of work which the bidder has on hand, including any work on which a bid has been submitted, containing a description of the work, the dollar value, the location by city and state, the current percentage of completion and the expected date for completion.

- 5.) Fill in below the name and address of the bidder's chief banking representative handling the bidder's account.

Banking Institution: _____

Address: _____

Bank Representative: _____

Telephone Number: _____

- 6.) Fill in below the bidder's Federal Employer Identification Number (i.e., the number assigned to firms by the Federal Government for tax purposes); the bidder's Dun and Bradstreet number, if any; the name of any other credit service to which the bidder has furnished information and the number, if any, assigned by such service to the bidder's account.

Federal Employer Identification No.

Dun and Bradstreet No.

Other Credit Service

Account No.

- D. The Form of Contract bound herewith, with the bidder's Lump Sum inserted in the clause thereof entitled "General Agreement". The amount must be given both in figures and in writing and, in case of discrepancy, the writing shall control. One copy of each addendum, if any, issued during the bidding period shall be initialled and attached to the Proposal, but any Proposal submitted without such addendum initialled and attached will nevertheless be construed as though such addendum had been initialled and attached.
- E. The bidder's analysis of bid filled in on the form furnished herewith. The Contractor will be required to furnish a more detailed analysis of bid at a later date in accordance with the requirements of the Section of Division 1 of the Specifications referring to the Analysis of Bid.
- F. A Certification Regarding Lobbying Pursuant to 31 U.S.C. 1352 and a Certification regarding Debarment, Suspension Ineligibility and Voluntary Exclusion – Lower Tier Covered Transactions, attached herewith at the end of Chapter VII of the Form of Contract entitled "Federal Emergency Management Agency Requirements".

3. QUALIFICATION INFORMATION

At any time after the opening of Proposals, the Chief Engineer may give oral or written notice to one or more bidders to attend a pre-award meeting and to furnish the Authority with information relating to his qualifications to perform the Work, including the following, which information shall be furnished within seven (7) days thereafter:

- A. The bidders MWBE Participation Plan and Affirmation Statement submitted on the form annexed hereto as Schedule A (see the clause hereof entitled "Minority and Women's Business Enterprises Program") and a detailed list of the plant and equipment which the bidder proposes to use, indicating which portions it already possesses.
- B. Detailed information relating to work which the bidder has completed for others, including personal and corporate references, sufficient to the Authority to determine the bidder's responsibility, experience and capacity to perform the Work. If required by the Chief Engineer, the foregoing information shall include information to demonstrate to the satisfaction of the Chief Engineer that the bidder has within the past five years been a contractor on at least one contract of the same general type, extent and complexity as the contract on which the Proposal has been submitted, and completed the work skillfully, in a satisfactory manner and on time.
- C. Information to supplement a) data shown in the financial statements and the statement of work on hand required to be submitted with the Proposal; and b) any statement submitted under the clauses hereof entitled "Certification of No Investigation (Criminal or Civil Anti-Trust), Indictment, Conviction, Suspension, Debarment, Disqualification, Prequalification Denial or Termination, etc, Disclosure of Other Required Information", "Certification of Participation in a State-Registered Apprenticeship Program" or "Non-Collusive Bidding and Code of Ethics Certification; Certification of No Solicitation Based on Commission, Percentage, Brokerage, Contingent Fee or Other Fee".
- D. Moreover, in the event that the bidder's performance on a past Port Authority or PATH contract or contracts has been rated less than satisfactory, the Chief Engineer may give oral or written notice to the bidder to furnish information demonstrating to the satisfaction of the Chief Engineer that, notwithstanding such rating, such performance was, in fact, satisfactory, or that the circumstances which gave rise to such unsatisfactory rating have changed or will not apply to performance of the Contract, and that such performance will be satisfactory.
- E. If the bidder has performed a contract for the States of New York or New Jersey, or any governmental entity within such States and has filed a questionnaire or other document required to be submitted in order for the bidder to qualify to perform the contract, the bidder may be requested by the Chief Engineer to submit the most recent completed questionnaire or other such document, or if the most recent completed questionnaire or other such document is not available, to submit a written statement indicating the approximate date of the contract and the name of the governmental entity which awarded them the contract.
- F. Any additional information relevant to the bidder's Proposal including information to supplement the bidder's initial analysis of bid.

- G. The bidder shall submit a complete Background Qualification Questionnaire (BQQ), required for himself and all subcontractors and vendors known to the bidder at the time of submission of Proposals, who will be providing services under this Contract. This document and instructions for submitting the completed BQQ to the Authority's Office of Inspector General can be obtained at the Authority's website through the following link:

http://www.panynj.gov/wtcprogress/pdf/PANYNJ_OIG_WTC_BQQP.zip

In the event that any of the foregoing is requested and is not furnished within seven days thereafter or within such additional time as the Chief Engineer, in his sole discretion, may allow, the Authority may not be in a position to determine whether the bidder is qualified, whether the bidder understands the requirements of the contract or whether the bid is responsive and may, in its sole discretion, reject the bidder's Proposal.

The giving of such notice to the bidder in connection with any of the foregoing lists, statement or information shall not be construed as an acceptance of his Proposal. However, the Authority reserves the right in its sole and absolute discretion, to accept the Proposal of a bidder despite the fact that said bidder has not submitted any information, list or statement required pursuant to this Section within the above-stated time period.

4. ACCEPTANCE OR REJECTION OF PROPOSAL

Within ninety (90) days after the opening of the Proposals, the Authority will accept one of the Proposals, if it accepts any. The acceptance of a Proposal will be only by mailing to or delivering at the office designated in the Proposal a notice in writing specifically indicating acceptance signed by an authorized representative on behalf of the Authority who is at present the Authority's Chief Procurement Officer. No other act of the Authority, its Commissioners, officers, agents, or employees shall constitute acceptance of a Proposal. Such notice will state whether or not the Authority elects to require the bidder to furnish a Performance and Payment Bond. Rejection of a Proposal will be only by either (a) a notice in writing specifically stating that the Proposal is rejected, signed by an authorized representative on behalf of the Authority who is at present the Authority's Chief Procurement Officer and mailed to or delivered at the office designated in the Proposal or (b) omission of the Authority to accept a Proposal within ninety (90) days after the opening of Proposals; and no other act of the Authority, its Commissioners, officers, agents or employees shall constitute rejection of a Proposal, including any counter offer or other act of the Authority, its Commissioners, officers, agents or employees.

The Authority reserves the unqualified right, in its sole and absolute discretion, to reject all Proposals or to accept that Proposal if any, which in its judgment will under all the circumstances best serve the public interest and to waive defects in any Proposal.

In the event that a successful bidder defaults upon the Contract by failing to furnish a satisfactory Performance and Payment Bond, if required, and the Authority terminates the Contract, the Authority reserves the option to accept the Proposal of any other bidder within ninety (90) days after the opening of Proposals, in which case such acceptance shall have the same effect as to such other bidder as though he were the originally successful bidder.

5. RETURN OF CERTIFIED CHECKS

Within ten (10) days after the opening of the Proposals the Authority will return all certified checks deposited by bidders, except those deposited by three bidders to be selected by the Authority, which will be returned within three days after one Proposal is accepted by the Authority; or if a Performance and Payment Bond is required, within three days after a satisfactory Performance and Payment Bond is furnished to the Authority; or if all Proposals are rejected, not later than three days after such rejection. The return of a bidder's check shall not, however, be deemed to be a rejection of his Proposal.

6. WEBSITE POSTINGS OF CONTRACT DOCUMENTS

Recipients of Contract documents marked Confidential (Privileged) may not post them or any of them to a website except in accordance with the Authority's prior written approval, which may require a written non-disclosure agreement.

Recipients of Contract documents not marked Confidential (Privileged) may not post them or any of them to a website unless the website (1) is non-public, (2) is password protected and (3) is accessible only to the recipient's prospective subcontractors and suppliers. Recipient's prospective subcontractors and suppliers shall also be deemed recipients and shall be required to conform to the terms of this numbered clause. Recipients shall be deemed to include both bidders and those who do not submit bids.

No later than 180 days after the date of receipt of Proposals, all recipients shall remove all Contract documents from their websites.

7. DISPOSAL OF CONTRACT DOCUMENTS

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 1st Floor, 2 Montgomery Street, Jersey City, NJ 07302 or the office of the Chief Procurement Officer, 4 World Trade Center, 150 Greenwich Street, 21st Floor, New York, NY 10007.

8. AVAILABLE DOCUMENTS

Certain documents, specified below, are available for reference and examination by bidders by contacting Gary Greer at (201) 395-3509, 2 Montgomery Street, 1st Floor, Jersey City, NJ 07302 during regular business hours. These documents were not prepared for the purpose of providing information for bidders upon the present Contract but they were prepared for other purposes, such as for other contracts or for design purposes for this or other contracts, and they do not form a part of this Contract. The Authority makes no representation or guarantee as to, and shall not be responsible for their accuracy, completeness or pertinence, and, in addition, shall not be responsible for the conclusions to be drawn there from. They are made available to the bidders merely for the purpose of providing them with such information as is in the possession of the Authority, whether or not such information may be accurate, complete or pertinent or of any value to the bidders. Questions concerning the content of the documents shall be submitted in accordance with the clause entitled "Questions By Bidders".

Said documents are as follows:

- * A. Drawings which bear the general title "The Port Authority of NY & NJ – LGA-Emergency Storm Drainage Outfalls", dated 9/5/2014, separately numbered and entitled as follows:

LGA-SL-358	PROJECT SITE MAP, BORING LOCATION PLAN, GENERAL NOTES, LEGEND, ABBREVIATIONS & SYMBOLS, SOIL CLASSIFICATIONS
LGA-SL-359	PRESENTATION OF BORINGS
LGA-SL-360	PRESENTATION OF BORINGS

- B. Soil samples, field logs, and laboratory classifications, for each boring presented on the drawings listed in Item "A" above.

The samples recovered in the borings described in Item "A" above may be viewed (or inspected) at the Port Authority Technical Center, 241 Erie Street Jersey City, NJ during regular business hours. Call Robert Gill at (201) 216-2970 or Mazen Oudeh at (201) 216-2959 to make arrangements.

- C. Document which bears the general title "THE PORT AUTHORITY OF NY & NJ – BORING INSPECTION MANUAL", dated 2/17/2009 (84 pages).

* NOTE: For the Bidder's convenience, these documents will be transmitted with the Contract Drawings.

9. MINORITY AND WOMEN'S BUSINESS ENTERPRISES PROGRAM (MBE/WBE)

The Authority has a long-standing practice of making its contract opportunities available to as many firms as possible and has taken affirmative steps to encourage Minority Business Enterprises (MBEs) and Women's Business Enterprises (WBEs) to seek business opportunities with it.

"Minority Business Enterprise" or "MBE" means a business entity which is at least 51 percent owned by one or more members of one or more minority groups, or, in the case of a publicly held corporation, at least 51 percent of the stock of which is owned by one or more members of one or more minority groups, and whose management and daily business operations are controlled by one or more such individuals who are citizens or permanent resident aliens.

"Women-owned Business Enterprise" or "WBE" means a business which is at least 51 percent owned by one or more women, or, in the case of a publicly held corporation, 51 percent of the stock of which is owned by one or more women, and whose management and daily business operations are controlled by one or more women who are citizens or permanent resident aliens.

"Minority group" means any of the following racial or ethnic groups:

- A. Black persons having origins in any of the black African racial groups not of Hispanic origin;
- B. Hispanic persons of Puerto Rican, Mexican, Dominican, Cuban, Central, or South American culture or origin, regardless of race;
- C. Asian and Pacific Islander persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent or the Pacific Islands;
- D. Native American or Alaskan native persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification.

To ensure meaningful participation of MBEs and WBEs on this Contract, the Authority has set a combined good faith goal of 17 percent for firms owned and controlled by minorities and firms owned and controlled by women in all subcontracting opportunities. In the event that this Contract is awarded to an Authority certified MBE or WBE firm, such firm, as the prime contractor, is also held to this requirement with respect to subcontracting opportunities.

In the event that any portion of the Work is subcontracted in accordance with the clause of the Form of Contract entitled "Assignments and Subcontracts", the Contractor shall use and document every good faith effort to meet the above goals for MBE and WBE participation in the Work. The identified low bidder, at the time of submission of its MWBE Participation Plan and Affirmation Statement (annexed hereto as Schedule A), seven (7) days after identification of its bid as the low bid, must utilize firms already certified by the Authority and listed in the Directory.

The Authority has compiled and made available on-line an MBE/WBE Directory which specifies the firms the Authority has determined to be (1) MBEs/WBEs and (2) experienced in performing work in the trades and contract dollar ranges indicated in the Directory. The Authority makes no representation as to the financial responsibility of such firms or their ability to perform Work required under any particular Contract. Subject to the following paragraph, only MBEs/WBEs listed in the Directory will count toward the required MBE/WBE participation. (Eligible MBE/WBE firms are listed on the following Authority website: <http://www.panynj.gov/business-opportunities/supplier-diversity.html>)

Once approved, the MWBE Participation Plan and Affirmation Statement submitted by the bidder and incorporated into the Contract, upon acceptance of the Contractor's Proposal, may be modified only with the written approval of the Authority's Office of Business Diversity and Civil Rights (OBDCR).

In the event that, prior to acceptance of the Contractor's Proposal and following review of the MWBE Participation Plan and Affirmation Statement submitted by the bidder pursuant to the clause hereof entitled "Qualification Information", the Authority determines that the bidder has not made a good faith effort to meet the MBE/ WBE participation goals set forth above, the Authority may advise the bidder that it is not responsive and may reject the bidder's Proposal.

Such good faith efforts shall include at least the following:

- A. Attendance at pre-bid meetings, if any;
- B. Utilization of the Authority's Directory of certified MBE/WBEs available on-line (see Notification of MBE/WBE On-line Directory and Forms annexed hereto);
- C. Active and affirmative solicitation of bids for subcontracts from MBE/WBEs;
- D. Advertisement in general circulation media, trade association publications and minority-focused media for a reasonable period before bids or Proposals are due;
- E. Dividing the work to be subcontracted into smaller portions or encouraging the formation of joint ventures, partnerships or similar arrangements among subcontractors in order to increase the likelihood of achieving the MBE/WBE goals;;
- F. Providing a sufficient supply of Contract Drawings and Specifications of prospective work to MBE/WBEs and providing appropriate materials to each in sufficient time to review; and
- G. Utilizing the services of available minority and women's community organizations; contractor's groups; local, State and Federal business assistance/development offices and other organizations that provide assistance to MBE/WBEs.

Subsequent to acceptance of the Contractor's Proposal, the Contractor shall use and document every good faith effort to comply with his MWBE Participation Plan and Affirmation Statement. Participation percentages shall be monitored throughout the performance of this Contract. Such good faith efforts shall include at least the following:

- A. Ensuring that progress payments are made in a timely fashion in accordance with the requirements of this Contract;

- B. Not requiring bonds from and/or providing bonds and insurance for subcontractors where appropriate;
- C. Soliciting specific recommendations on methods for enhancing MBE/WBE participation from Authority staff responsible for such participation; and
- D. Nominating subcontractors for participation in business assistance programs sponsored by the Authority or the Regional Alliance of Small Contractors such as the Loaned Executive Assistance Program (L.E.A.P.).

Subsequent to acceptance of the Contractor's Proposal, the Contractor shall also provide the Authority, at its request, with a trade breakdown schedule showing when the Contractor's MBE/WBE subcontractors are scheduled to perform. The Contractor shall also submit to the Engineer, on a monthly basis, the Statement of Subcontractor's Payments annexed hereto as Schedule D.

If, during the performance of the Contract, the Contractor fails to demonstrate good faith in carrying out his MWBE Participation Plan and in permitting his MBE/WBE subcontractors to perform, then, upon receipt of a future proposal or proposals from the Contractor, the Authority may advise the Contractor that he is not a responsible bidder and may reject such proposal(s).

Following approval by the Engineer under the clause entitled "Assignments and Subcontracts" of one or more subcontractors who are either MBEs or WBEs and listed in the MBE/WBE Directory, the Authority may, at its sole option, provide to said approved MBE/WBEs, without charge, whatever appropriate consultant services may be available under the L.E.A.P. program; provided, however, that such consultant services will only be furnished pursuant to a request in writing from the Director, Office of Business Diversity and Civil Rights of the Port Authority of New York and New Jersey, 2 Montgomery Street , 2nd Floor, Jersey City, NJ 07302.

Such services will be discontinued following a written request from the Contractor to the Director, Office of Business Diversity and Civil Rights of the Port Authority of New York and New Jersey, to discontinue them.

The L.E.A.P. services include advising firms on scheduling, purchasing, planning and other aspects of construction to mitigate business or management problems which could negatively impact on their performance. These services do not include engineering or legal advice. The determination as to whether or not to follow the advice given lies solely with the MBE/WBE subcontractor. Prior to being accepted as a participant in the L.E.A.P. program, the MBE/WBE subcontractor will be required to release the Authority and the individuals furnishing consultant advice of all liability and responsibility in connection therewith.

MBE/WBE Conditions of Participation:

MBE/WBE participation will be counted toward meeting the MBE/WBE Contract goal, subject to all of the following conditions:

- A. **Commercially Useful Function:** An MBE/WBE is considered to perform a commercially useful function when it is responsible for the execution of a distinct element of work on a contract and carries out its responsibilities by actually performing, managing and supervising the work involved in accordance with normal industry practice. Regardless of whether an arrangement between the Contractor and the MBE/WBE represents standard industry practice, if the arrangement erodes the ownership, control or independence of the MBE/WBE or in any other way does not meet the commercially useful function requirement, that firm shall not be included in determining whether the MBE/WBE goal is met and shall not be included in MBE/WBE reports. If this occurs with respect to a firm identified as an MBE/WBE, the Contractor shall receive no credit toward the MBE/WBE goal and may be required to backfill the participation. An MBE/WBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction or contract through which funds are passed in order to obtain the appearance of MBE/WBE participation. An MBE/WBE may rebut a determination by the Authority that the MBE/WBE is not performing a commercially useful function to the Authority.
- B. **Work Force:** The MBE/WBE must employ a work force (including administrative and clerical staff) separate and apart from that employed by the Contractor, their affiliates and other subcontractors performing Work on the Contract. This does not preclude the employment by the MBE/WBE of an individual that has been previously employed by another firm involved in the Contract, provided that the individual was independently recruited by the MBE/WBE in accordance with customary industry practice. The routine transfer of work crews from another employer to the MBE/WBE shall not be allowed.
- C. **Supervision:** All Work performed by the MBE/WBE must be controlled and supervised by the MBE/WBE without duplication of supervisory personnel from the Contractor, their affiliates and other subcontractors performing Work on the Contract. This does not preclude routine communication between the supervisory personnel of the MBE/WBE and other supervisors necessary to coordinate the Work.
- D. **Equipment:** MBE/WBE subcontractors may supplement their equipment by renting or leasing additional equipment in accordance with customary industry practice. If the MBE/WBE obtains equipment from the Contractor, their affiliates and other subcontractors performing Work on the Contract, the MBE/WBE shall provide documentation to the Authority demonstrating that similar equipment and terms could not be obtained at a lower cost from other customary sources of equipment. The required documentation shall include copies of the rental or leasing agreements, and the names, addresses and terms quoted by other sources of equipment.

Counting MBE/WBE Participation:

The value of the Work performed by an MBE/WBE, with its own equipment, with its own forces, and under its own supervision will be counted toward the goal, provided the utilization is a commercially useful function. The Contractor, even if himself an MBE/WBE, shall still provide opportunities for participation by other MBE/WBEs. Work performed by MBE/WBEs will be counted as set forth below. If the Authority determines that some or all of the MBE/WBE's work does not constitute a commercially useful function, only the portion of the work considered to be a commercially useful function will receive credit and be counted toward the goal.

- A. Subcontractors: 100 percent of the value of the Work to be performed by an MBE/WBE subcontractor will be counted toward the MBE/WBE goal. The value of such Work includes the cost of materials and supplies purchased by the MBE/WBE, except the cost of supplies or equipment leased from the Contractor, their affiliates and other subcontractors performing Work on the Contract will not be counted. When a MBE/WBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted toward MBE/WBE goals only if the MBE/WBE's subcontractor is itself a MBE/WBE. Work that a MBE/WBE subcontracts to a non-MBE/WBE firm does not count toward MBE/WBE goals.
- B. Manufacturers/Fabricators: 100 percent of the expenditure to an MBE/WBE manufacturer or fabricator will be counted towards the MBE/WBE goal.
- C. Material Suppliers: 60 percent of the expenditure to an MBE/WBE material supplier will be counted toward the MBE/WBE goal. Packagers, brokers, manufacturer's representatives, or other persons who arrange or expedite transactions are not material suppliers within the meaning of this paragraph.
- D. Brokers/Manufacturer's Representatives: 100 percent of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees for transportation charges for the delivery of materials or supplies provided by an MBE/WBE broker/manufacturer's representative will be counted toward the MBE/WBE goal, provided they are determined by the Authority to be reasonable and not excessive as compared with fees customarily allowed for similar services. The cost of the materials and supplies themselves will not be counted.
- E. Services: 100 percent of fees or commissions charged by an MBE/WBE for providing a bona fide service, such as professional, technical, consultant or managerial services, or for providing bonds or insurance specifically required for the performance of the Work will be counted toward the MBE/WBE goal, provided the fee is reasonable and not excessive as compared with fees customarily allowed for similar services.

- F. **Trucking Operations:** If using an MBE/WBE firm for trucking operations, the MBE/WBE trucking firm of record is the firm that is listed on the MWBE Participation Plan and Affirmation Statement. The MBE/WBE trucking firm shall own and operate at least one registered, insured and fully operational truck used for the performance of the Work and shall be responsible for the management and supervision of the entire trucking operation on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting the MBE/WBE goal. The MBE/WBE trucking firm of record shall control the day-to-day MBE/WBE trucking operations for performance of the Work, and shall be responsible for (1) negotiating and executing rental/leasing agreements; (2) hiring and terminating the work force; (3) coordinating the daily trucking needs with the Contractor; and (4) scheduling and dispatching trucks.
- 1.) **MBE/WBE Owned/Leased Trucks:** 100 percent of the value of the trucking operations the MBE/WBE provides for the performance of the Work using trucks it owns and trucks that are registered, insured and operated by the MBE/WBE using drivers it employs, will be counted toward the MBE/WBE goal.
 - 2.) **MBE/WBE Leased Trucks:** The MBE/WBE may lease trucks from another MBE/WBE, including an owner/operator who is certified as a MBE/WBE. 100 percent of the value of the trucking operations that the lessee MBE/WBE provides will be counted toward the MBE/WBE goal.
 - 3.) **Non-MBE/WBE Trucks:** The MBE/WBE may lease trucks from non-MBE/WBE firms, and owner-operators. The value of these trucking services will be counted toward the MBE/WBE goal up to the value of services performed by the MBE/WBE trucks used on the Contract. MBE/WBE participation can be counted for the value of the services of non-MBE/WBE trucks that exceed the value of the services performed by MBE/WBE trucks only in the amount of the fee or commission a MBE/WBE receives as a result of the lease agreement.
- E. **Joint Venture:** Joint ventures between MBE/WBEs and non-MBE/WBEs will be counted toward the MBE/WBE goal in proportion to the total dollar value of the Contract equal to the distinct, clearly defined portion of the Work of the Contract that the MBE/WBE performs with its own forces. The joint venture agreement is subject to approval by OBDCR and a copy of which is to be furnished by the bidder to be awarded the Contract before acceptance of the Contractor's Proposal (together with the MWBE Participation Plan and Affiliation Statement).

Nothing herein shall be deemed to supersede or to otherwise modify the clause of the Form of Contract entitled "Assignments and Subcontracts".

10. INSPECTION OF SITE

Each bidder or his authorized representative must make proper arrangements with the Resident Engineer at the construction site before inspecting the construction site. To make such arrangements call John Arrabito, at (718) 533-4264 or email at jarrabit@panynj.gov.

11. QUESTIONS BY BIDDERS

Questions by prospective bidders concerning the Contract may be addressed to Susie Tom, at (212) 435-4653 or email at stom@panynj.gov, who however is authorized only to direct the attention of prospective bidders to various portions of the Contract so that they may read and interpret such portions for themselves. Neither Susie Tom nor any other employee or representative of the Authority is authorized to give interpretations of any portion of the Contract or to give information as to the requirements of the Contract in addition to that contained in the Contract. Interpretations of the Contract or additional information as to its requirements, where necessary, shall be communicated to bidders only by written addendum issued over the name of the Chief Engineer, which addendum shall be considered part of this Contract. Accordingly, nothing contained herein and no representation, statement or promise, oral or in writing, of the Authority, its Commissioners, officers, agents, representatives or employees shall impair or limit the effect of the warranties of the Contractor contained in the clause of the Form of Contract entitled "Contractor's Warranties" or elsewhere in this Contract. The provisions of this clause shall apply to questions addressed by prospective bidders both before and after their receipt of Contract Documents.

12. PREVAILING RATE OF WAGE CERTIFICATION

The bidders' attention is directed specifically to the clause of the Form of Contract entitled "Prevailing Rate of Wage" and to the fact that the Authority requires a certification in writing from the successful bidder, in such form as may be required pursuant to such clause, that he has paid and caused his subcontractors to pay at least the prevailing rate of wage and supplements required by such clause. This certification is required prior to his receipt of any payment from the Authority hereunder as provided in the clauses of the Form of Contract entitled "Monthly Advances" and "Final Payment" or at any other time.

13. CERTIFICATION OF NO INVESTIGATION (CRIMINAL OR CIVIL ANTI-TRUST), INDICTMENT, CONVICTION, SUSPENSION, DEBARMENT, DISQUALIFICATION, PREQUALIFICATION DENIAL OR TERMINATION, ETC; DISCLOSURE OF OTHER REQUIRED INFORMATION

By bidding on this Contract, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, that the bidder and each parent and/or affiliate of the bidder has not (a) been indicted or convicted in any jurisdiction; (b) been suspended, debarred, found not responsible or otherwise disqualified from entering into any contract with any governmental agency or been denied a government contract for failure to meet prequalification standards; (c) had a contract terminated by any governmental agency for breach of contract or for any cause related directly or indirectly to an indictment or conviction; (d) changed its name and/or Employer Identification Number (taxpayer identification number) following its having been indicted, convicted, suspended, debarred or otherwise disqualified, or had a contract terminated as more fully provided in (a), (b) and (c) above; (e) ever used a name, trade name or abbreviated name, or an Employer Identification Number different from those inserted in the Proposal; (f) been denied a contract by any governmental agency for failure to provide the required security, including bid, payment or performance bonds or any alternative security deemed acceptable by the agency letting the contract; (g) failed to file any required tax returns or failed to pay any applicable federal, state or local taxes; (h) had a lien imposed upon its property based on taxes owed and fines and penalties assessed by any agency of the federal, state or local government; (i) had any sanction imposed as a result of a judicial or administrative proceeding related to fraud, extortion, bribery, bid rigging, embezzlement, misrepresentation or anti-trust regardless of the dollar amount of the sanctions or the date of their imposition; (j) been, and is not currently, the subject of a criminal investigation by any federal, state or local prosecuting or investigative agency and/or a civil anti-trust investigation by any federal, state or local prosecuting or investigative agency, including an inspector general of a governmental agency or public authority; (k) had any business or professional license suspended or revoked or, within the five years prior to the opening of Proposals, had any sanction imposed in excess of fifty thousand dollars (\$50,000) as a result of a judicial or administrative proceeding with respect to any license held or with respect to any violation of a federal, state or local environmental law, rule or regulation; and (l) shared space, staff or equipment with any business entity.

The foregoing certification as to "(a)" through "(l)" shall be deemed to have been made by the bidder as follows: if the bidder is a corporation, such certification shall be deemed to have been made not only with respect to the bidder itself, but also with respect to each director and officer, as well as, to the best of the certifier's knowledge and belief, each stockholder with an ownership interest in excess of 10%; if the bidder is a partnership, such certification shall be deemed to have been made not only with respect to the bidder itself, but also with respect to each partner. Moreover, the foregoing certification, if made by a corporate bidder, shall be deemed to have been authorized by the Board of Directors of the bidder, and such authorization shall be deemed to include the signing and submission of the Proposal and the inclusion therein of such certification as the act and deed of the corporation.

In any case where the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the signed Proposal a signed statement which sets forth in detail the reasons therefor. If the bidder is uncertain as to whether it can make the foregoing certification, it shall so indicate in a signed statement furnished with its Proposal, setting forth an explanation for its uncertainty.

Notwithstanding that the certification may be an accurate representation of the bidder's status with respect to the enumerated circumstances provided for in this clause as requiring disclosure at the time that the Proposal is submitted, the bidder agrees to immediately notify the Authority in writing of any change in circumstances during the period of irrevocability, or any extension thereof.

The foregoing certification or signed statement shall be deemed to have been made by the bidder with full knowledge that it would become a part of the records of the Authority and that the Authority will rely on its truth and accuracy in awarding this Contract. In the event that the Authority determines at any time prior or subsequent to the award of the Contract that the bidder has falsely certified as to any material item in the foregoing certification; willfully or fraudulently submitted any signed statement pursuant to this clause which is false in any material respect; or has not completely and accurately represented its status with respect to the circumstances provided for in this clause as requiring disclosure, the Authority may determine that the bidder is not a responsible bidder with respect to its Proposal on this Contract or with respect to future proposals and may, in addition to exercising any other rights or remedies available to it, exercise any of the rights or remedies set forth in the clause of the Form of Contract entitled "Rights and Remedies of Authority". In addition, bidders are advised that knowingly providing a false certification or statement pursuant hereto may be the basis for prosecution for offering a false instrument for filing (see e.g., New York Penal Law, Section 175.30 et seq.). Bidders are also advised that the inability to make such certification will not in and of itself disqualify a bidder, and that in each instance the Authority will evaluate the reasons therefor provided by the bidder. '

Under certain circumstances the bidder may be required as a condition of this Contract award to enter into a Monitoring Agreement under which it will be required to take certain specified actions, including compensating an independent Monitor to be selected by the Port Authority. Said Monitor shall be charged with, among other things, auditing the actions of the bidder to determine whether its business practices and relationships indicate a level of integrity sufficient to permit it to continue business with the Port Authority.

As used in this clause, the following terms shall mean:

Affiliate - Two or more firms are affiliates if a parent owns more than fifty percent of the voting stock of each of the firms, or a common shareholder or group of shareholders owns more than fifty percent of the voting stock of each of the firms, or if the firms have a common proprietor or general partner.

Agency or Governmental Agency - Any federal, state, city or other local agency, including departments, offices, quasi-public agencies, public authorities and corporations, boards of education and higher education, public development corporations, local development corporations and others.

Employer Identification Number - The tax identification number assigned to firms by the Federal government for tax purposes.

Investigation - Any inquiries made by any federal, state or local criminal prosecuting and/or investigative law enforcement agency, including an inspector general of a governmental agency or public authority, and any inquiries concerning civil anti-trust investigations made by any federal, state or local governmental agency. Except for inquiries concerning civil anti-trust investigations, the term does not include inquiries made by any civil government agency concerning compliance with any regulation, the nature of which does not carry criminal penalties, nor does it include any background investigations for employment, or federal, state and local inquiries into tax returns.

Officer - Any individual who serves as chief executive officer, chief financial officer, or chief operating officer of the bidder by whatever titles known.

Parent - An individual, partnership, joint venture or corporation which owns more than 50% of the voting stock of the bidder.

Space Sharing - Space shall be considered to be shared when any part of the floor space utilized by the submitting business at any of its sites is also utilized on a regular or intermittent basis for any purpose by any other business or not-for-profit organization, and where there is no lease or sublease in effect between the submitting business and any other business or not-for-profit organization that is sharing space with the submitting business.

Staff Sharing - Staff shall be considered to be shared when any individual provides the services of an employee, whether paid or unpaid, to the bidder and also, on either a regular or irregular basis, provides the services of an employee, paid or unpaid, to one or more other business(es) and/or not-for-profit organization(s), if such services are provided during any part of the same hours the individual is providing services to the bidder or if such services are provided on an alternating or interchangeable basis between the bidder and the other business(es) or not-for-profit organization(s). "The services of an employee" should be understood to include services of any type or level, including managerial or supervisory. This type of sharing may include, but is not limited to, individuals who provide the following services: telephone answering, receptionist, delivery, custodial, and driving.

Equipment Sharing - Equipment shall be considered to be shared whenever the bidder shares the ownership and/or the use of any equipment with any other business or not-for-profit organization. Such equipment may include, but is not limited to, telephones or telephone systems, photocopiers, computers, motor vehicles, and construction equipment. Equipment shall not be considered to be shared under the following two circumstances: when, although the equipment is owned by another business or not-for-profit organization, the bidder has entered into a formal lease for the use of the equipment and exercises exclusive use of the equipment; or when the bidder owns equipment that it has formally leased to another business or not-for-profit organization, and for the duration of such lease the bidder has relinquished all right to the use of such leased equipment.

**14. NON-COLLUSIVE BIDDING AND CODE OF ETHICS CERTIFICATION;
CERTIFICATION OF NO SOLICITATION BASED ON COMMISSION, PERCENTAGE,
BROKERAGE, CONTINGENT FEE OR OTHER FEE**

By bidding on this Contract, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, that: (a) the prices in its Proposal have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor; (b) the prices quoted in its Proposal have not been and will not be knowingly disclosed, directly or indirectly, by the bidder prior to the official opening of such Proposal to any other bidder or to any competitor; (c) no attempt has been made and none will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a Proposal for the purpose of restricting competition; (d) this organization has not made any offers or agreements, or given or agreed to give anything of value (see definition of "anything of value" appearing in the clause of the Form of Contract entitled "No Gifts, Gratuities, Offers of Employment, etc.") or taken any other action with respect to any Authority employee or former employee or immediate family member of either which would constitute a breach of ethical standards under the Code of Ethics and Financial Disclosure dated as of March 11, 2014, or as may be revised (a copy of which is available upon request to the individual named in the clause hereof entitled "Questions by Bidders"), nor does this organization have any knowledge of any act on the part of an Authority employee or former Authority employee relating either directly or indirectly to this organization which constitutes a breach of the ethical standards set forth in said Code; (e) no person or selling agency, other than a bona fide employee or bona fide established commercial or selling agency maintained by the bidder for the purpose of securing business, has been employed or retained by the bidder to solicit or secure this Contract on the understanding that a commission, percentage, brokerage, contingent or other fee would be paid to such person or selling agency; (f) the bidder has not offered, promised or given, demanded or accepted, any undue advantage, directly or indirectly, to or from a public official or employee, political candidate, party or party official, or any private sector employee (including a person who directs or works for a private sector enterprise in any capacity), in order to obtain, retain, or direct business or to secure any other improper advantage in connection with this Contract; (g) no person or organization has been retained, employed or designated on behalf of the bidder to impact any Authority determination with respect to (i) the solicitation, evaluation or award of this Contract, or (ii) the preparation of specifications or request for submissions in connection with this Contract.

The foregoing certification as to "(a)", "(b)", "(c)", "(d)", "(e)", "(f)" and "(g)" shall be deemed to have been made by the bidder as follows: if the bidder is a corporation, such certification shall be deemed to have been made not only with respect to the bidder itself, but also with respect to each parent, affiliate, director and officer of the bidder, as well as, to the best of the certifier's knowledge and belief, each stockholder of the bidder with an ownership interest in excess of 10%; if the bidder is a partnership, such certification shall be deemed to have been made not only with respect to the bidder itself, but also with respect to each partner. Moreover, the foregoing certification, if made by a corporate bidder, shall be deemed to have been authorized by the Board of Directors of the bidder, and such authorization shall be deemed to include the signing and submission of the Proposal and the inclusion therein of such certification as the act and deed of the corporation.

In any case where the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the signed Proposal a signed statement which sets forth in detail the reasons therefor. If the bidder is uncertain as to whether it can make the foregoing certification, it shall so indicate in a signed statement furnished with its Proposal, setting forth in such statement the reasons for its uncertainty. With respect to the foregoing certification in subparagraph (g) of this numbered clause, if the bidder cannot make the certification, it shall provide, in writing, with the signed Proposal: (i) a list of the name(s), address(es), telephone number(s), and place(s) of principal employment of each such individual or organization; and (ii) a statement as to whether such individual or organization has a "financial interest" in this Contract, as described in the Procurement Disclosure policy of the Authority (a copy of which is available upon request to the Chief Procurement Officer of the Authority). Such disclosure is to be updated, as necessary, up to the time of award of this Contract. As a result of such disclosure, the Port Authority shall take appropriate action up to and including a finding of non-responsibility.

Failure to make the required disclosures shall lead to administrative actions up to and including a finding of non-responsiveness or non-responsibility.

Notwithstanding that the bidder may be able to make the foregoing certification at the time the Proposal is submitted, the bidder shall immediately notify the Authority in writing during the period of irrevocability of Proposals and the term of the Contract, if the bidder is awarded the Contract, of any change of circumstances which might under this clause make it unable to make the foregoing certification, might render any portion of the certification previously made invalid, or require disclosure. The foregoing certification or signed statement shall be deemed to have been made by the bidder with full knowledge that it would become a part of the records of the Authority and that the Authority will rely on its truth and accuracy in awarding this Contract. In the event that the Authority should determine at any time prior or subsequent to the award of this Contract that the bidder has falsely certified as to any material item in the foregoing certification, has failed to immediately notify the Authority of any change in circumstances which might make it unable to make the foregoing certifications, might render any portion of the certifications previously made invalid or require disclosure, or has willfully or fraudulently furnished a signed statement which is false in any material respect, or has not fully and accurately represented any circumstance with respect to any item in the foregoing certifications required to be disclosed, the Authority may determine that the bidder is not a responsible bidder with respect to its Proposal on this Contract or with respect to future proposals on Authority contracts and may, in addition to exercising any other rights or remedies it may have, exercise any of the rights or remedies set forth in the clause of the Form of Contract entitled "Rights and Remedies of Authority".

In addition, bidders are advised that knowingly providing a false certification or statement pursuant hereto may be the basis for prosecution for offering a false instrument for filing (see e.g., New York Penal Law, Section 175.30 et seq.). Bidders are also advised that the inability to make such certification will not in and of itself disqualify a bidder, and that in each instance the Authority will evaluate the reasons therefor provided by the bidder.

Under certain circumstances the bidder may be required as a condition of this Contract award to enter into a Monitoring Agreement under which it will be required to take certain specified actions, including compensating an independent Monitor to be selected by the Port Authority said Monitor to be charged with, among other things, auditing the actions of the bidder to determine whether its business practices and relationships indicate a level of integrity sufficient to permit it to continue business with the Port Authority.

15. BIDDER ELIGIBILITY FOR AWARD OF CONTRACTS - DETERMINATIONS BY AN AGENCY OF THE STATE OF NEW YORK OR NEW JERSEY CONCERNING ELIGIBILITY TO RECEIVE PUBLIC CONTRACTS

Bidders are advised that the Authority has adopted a policy to the effect that in awarding its contracts it will honor any determination by an agency of the State of New York or New Jersey that a bidder is not eligible to bid on or be awarded public contracts because the bidder has been determined to have engaged in illegal or dishonest conduct or to have violated prevailing rate of wage legislation.

The policy permits a bidder whose ineligibility has been so determined by an agency of the State of New York or New Jersey to submit a Proposal on a Port Authority contract and then to establish that it is eligible to be awarded the contract on which it has submitted a Proposal because (i) the state agency determination relied upon does not apply to the bidder, or (ii) the state agency determination relied upon was made without affording the bidder the notice and hearing to which the bidder was entitled by the requirements of due process of law, or (iii) the state agency determination was clearly erroneous or (iv) the state agency determination relied upon was not based on a finding of conduct demonstrating a lack of integrity or a violation of a prevailing rate of wage law.

The full text of the resolution adopting the policy may be found in the Minutes of the Authority's Board of Commissioners meeting of September 9, 1993.

16. BIDDER RESPONSIBILITY, SUSPENSION OF WORK AND TERMINATION

During the term of this Contract, the successful bidder shall at all times during the Contract term remain responsible. The successful bidder agrees, if requested by the Authority to present evidence of his continuing legal authority to do business in the States of New Jersey or New York, integrity, experience, ability, prior performance, and organizational and financial capacity.

The Authority, in its sole discretion, reserves the right to suspend any or all activities under this Contract, at any time, when it discovers information that calls into question the responsibility of the successful bidder. In the event of such suspension, the successful bidder will be given written notice outlining the particulars of such suspension. Upon issuance of such notice, the successful bidder must comply with the terms of the suspension order. Contract activity may resume at such time as the Authority issues a written notice authorizing a resumption of performance under the Contract.

Upon written notice to the successful bidder, and an opportunity to be heard with appropriate Authority officials or staff, the Contract may be terminated by the Authority at the successful bidder's expense where the successful bidder is determined by the Authority to be non-responsible. In such event, the Authority or its designee may complete the contractual requirements in any manner he or she may deem advisable and pursue available legal or equitable remedies for breach, including recovery of costs from the successful bidder associated with such termination.

17. THE EDWARD J. MALLOY CONSTRUCTION INITIATIVE FOR CONSTRUCTION SKILLS - APPRENTICESHIP PROGRAM

The Authority is a participant in the Edward J. Malloy Construction Initiative for Construction Skills (formerly known as Construction Skills 2000), a cooperative program among New York City schools, unions and public agencies. The Edward J. Malloy Construction Initiative for Construction Skills creates career opportunities in the construction industry for high school graduates by providing a systematic pathway into union-sponsored, skilled trade apprenticeship programs. The Authority encourages contractors and their subcontractors to maximize the use of apprentices under the applicable collective bargaining agreements or as contained in the applicable program approved by the New York State Department of Labor. The Contractor's plan for utilizing apprentices will be discussed at the pre-construction meeting.

Each subcontractor proposed for approval under the Contract whose total amount of subcontracts under this Contract is greater than \$1 million and each bidder (except as set forth in the certification below) will be required to certify as to their participation in a New York State - registered apprenticeship program.

18. CERTIFICATION OF PARTICIPATION IN A STATE-REGISTERED APPRENTICESHIP PROGRAM

By bidding on this Contract, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, that the bidder participates in an apprenticeship program registered by the New York State Department of Labor. Participation in such an apprenticeship program shall mean that the bidder either (a) is a signatory to a collective bargaining agreement with a labor organization which sponsors an apprenticeship program registered with the New York State Department of Labor or (b) individually sponsors an apprenticeship program registered by the New York State Department of Labor and, in the case of both (a) and (b) above, such apprenticeship program shall be in the trade(s) in which Work is to be performed. This clause shall not apply to bidders who will perform all Work at the construction site through the use of subcontractors.

The foregoing certification, if made by a corporate bidder, shall be deemed to have been authorized by the Board of Directors of the bidder, and such authorization shall be deemed to include the signing and submission of the bid and the inclusion therein of such certification as the act and deed of the corporation.

In any case where the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the signed bid a signed statement which sets forth in detail the reasons therefor. If the bidder is uncertain as to whether it can make the foregoing certification, it shall so indicate in a signed statement furnished with its bid, setting forth an explanation for its uncertainty.

Notwithstanding that the certification may be an accurate representation of the bidder's status with respect to the enumerated circumstances provided for in this clause as requiring disclosure at the time that the bid is submitted, the bidder agrees to immediately notify the Authority in writing of any change in circumstances during the period of irrevocability, or any extension thereof.

The foregoing certification or signed statement shall be deemed to have been made by the bidder with full knowledge that it would become a part of the records of the Authority and that the Authority will rely on its truth and accuracy in awarding this Contract. In the event that the Authority determines at any time prior or subsequent to the award of the Contract that the bidder has falsely certified as to any material item in the foregoing certification; willfully or fraudulently submitted any signed statement pursuant to this clause which is false in any material respect; or has not completely and accurately represented its status with respect to the circumstances provided for in this clause as requiring disclosure, the Authority may determine that the bidder is not a responsible bidder with respect to its bid on this Contract or with respect to future bids and may, in addition to exercising any other rights or remedies available to it, exercise any of the rights or remedies set forth in the clause of the Form of Contract entitled "Rights and Remedies of Authority". In addition, bidders are advised that knowingly providing a false certification or statement pursuant hereto may be the basis for prosecution for offering a false instrument for filing (see, e.g., New York Penal Law, Section 175.30 et seq.).

PROPOSAL

To The Port Authority of New York and New Jersey:

The undersigned³

(hereinafter called "the Contractor") hereby offers to perform all the obligations and to assume all the duties and liabilities of the Contractor provided for in the annexed Contract, at the price inserted by the undersigned in the clause of the Form of Contract entitled "General Agreement".

This offer shall be irrevocable for ninety (90) days after the date on which The Port Authority of New York and New Jersey opens this Proposal.

To induce the acceptance of this Proposal, the undersigned hereby makes each and every certification, statement, assurance, representation and warranty made by the Contractor in said Contract. Moreover as a condition to receipt and consideration by the Authority of the Proposal whether or not it is accepted, the undersigned agrees that all information of any nature whatsoever, regardless of the form of the communication, received from the undersigned (including its officers, agents, or employees) by the Authority, its Commissioners, officers, agents or employees, and notwithstanding any statement therein to the contrary, has not been given in confidence and may be used or disclosed by or on behalf of the Authority without liability of any kind except as may arise under letters patent of the undersigned, if any.

³ Insert bidder's name at the top of the page. After the bidder's name, insert one of the following phrases:
If a corporation, give state of incorporation, using the phrase, "a corporation organized under the laws of the State of _____."
If a partnership, give full names of partners, using also the phrase, "co-partners doing business under the firm name of _____."
If an individual using a trade name, give individual name, using also the phrase, "an individual doing business under the trade name of _____."
If a joint venture, give the information required above for each participant in the joint venture.

Unless expressly stated otherwise, the Information for Bidders, all papers required by it and submitted in connection herewith at any time, said Form of Contract, and all papers made part of the Contract by the terms of the Form of Contract are made part of this Proposal.

The undersigned hereby designates the following as the bidders office⁴:

The telephone number of the bidder is:

The fax number of the bidder is:

The E-Mail address of the bidder is:

⁴ Insert office address.

SIGNATURE AND CERTIFICATE OF AUTHORITY⁵

Dated, _____, 20

(Signature of individual or name of corporation or partnership)

(Signature of agent, partner or corporate officer)

By^{6 7} _____

(Acknowledgment of signature to be taken on proper form on following page(s))

CERTIFICATE OF AUTHORITY, IF BIDDER IS A CORPORATION

I, the undersigned, as Secretary of the corporation submitting the foregoing Proposal, hereby certify that under and pursuant to the by-laws and resolutions of said corporation, each officer who has signed said Proposal on behalf of the corporation is fully and completely authorized so to do.

(Corporate Seal)

⁵ If bidder is a joint venture, insert signatures as appropriate for one participant of the joint venture on this page and attach and complete an additional signature sheet in the same form as appears on this page for each other participant as required.

⁶ If Proposal is signed by an officer or agent, give title.

⁷ NOTE: The foregoing signature shall be deemed to have been provided with full knowledge that the foregoing Proposal, the accompanying Contract booklet, as well as any certification, statement, assurance, representation, warranty, schedule or other document submitted by the bidder with the Proposal will become a part of the records of the Authority and that the Authority will rely in awarding the Contract on the truth and accuracy of such Proposal and each such certification, statement, assurance, representation, warranty and schedule made therein by the Contractor. Knowingly submitting a false statement in connection with any of the foregoing may be the basis for prosecution for offering a false instrument for filing (see, e.g., N.Y. Penal Law, Section 175.30 et seq.).

ACKNOWLEDGMENT⁸

ACKNOWLEDGMENT OF BIDDER, IF A CORPORATION

State of _____

SS:

County of _____

On this _____ day of _____, 20____, before me personally came and appeared _____, to me known, who, being by me duly sworn, did depose and say that he resides at _____, that he is the _____ of _____, the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation; and that he signed his name thereto by like order.

(Notary Seal)

(Notary Signature)

ACKNOWLEDGMENT OF BIDDER, IF A PARTNERSHIP

State of _____

SS:

County of _____

On this _____ day of _____, 20____, before me personally came and appeared _____, to me known and known to me to be one of the members of the firm of _____, described in and who executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(Notary Seal)

(Notary Signature)

ACKNOWLEDGMENT OF BIDDER, IF AN INDIVIDUAL

State of _____

SS:

County of _____

On this _____ day of _____, 20____, before me personally came and appeared _____ to me known and known to me to be the person described in and who executed the foregoing instrument and he acknowledged to me that he executed the same.

(Notary Seal)

(Notary Signature)

⁸ If bidder is a joint venture, insert signature as appropriate for one participant of the joint venture on this page and attach and complete an additional Acknowledgment sheet in the same form as appears on this page for each other participant as required.

STATEMENT ACCOMPANYING PROPOSAL⁹

Names and Residences of Officers, If Bidder is a Corporation

Name	Title	Residence ¹⁰
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Names and Residences of Partners, If Bidder is a Partnership

Name	General or Limited Partner	Residence ¹¹
------	----------------------------	-------------------------

Bidder's Residence, If an Individual¹²

⁹ If bidder is a joint venture, insert signature as appropriate for one participant of the joint venture on this page and attach and complete an additional Statement Accompanying Proposal sheet in the same form as appears on this page for each other participant as required.

¹⁰ Give Street and Number of Residence. Do not give business address.

¹¹ Give Street and Number of Residence. Do not give business address.

¹² Give Street and Number of Residence. Do not give business address.

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned¹³

as principal(s); and¹⁴

as surety are hereby held and firmly bound unto The Port Authority of New York and New Jersey (herein called the "Authority") in the penal sum of Four Hundred Thousand Dollars (\$400,000), for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed this _____ day of _____, 20

The condition of the above obligation is such that whereas the above named principal(s) has submitted to the Authority a certain Proposal, bound herewith and hereby made a part hereof, to perform the obligations of the Contractor under a contract in writing, known as Contract LGA-774.133B, "LaGuardia Airport - Emergency Storm Drainage Outfalls", now therefore:

- A. If said Proposal shall not be accepted, or
- B. If said Proposal shall be accepted and the Authority does not require the principal(s) to furnish a Performance and Payment Bond, or
- C. If said Proposal shall be accepted and the Authority requires the principal(s) to furnish a Performance and Payment Bond and either the principal(s) furnishes a Performance and Payment Bond satisfactory to the Authority in accordance with the requirements of said Proposal or the Authority does not terminate the Contract as provided therein on account of the failure to furnish such a bond,

Then, this obligation shall be void, otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

¹³ Insert bidder's name. If a corporation, give the state of incorporation using the phrase "a corporation organized under the laws of the _____".

If a partnership, give full names of partners, using also the phrase, "co-partners doing business under the firm name of _____".

If an individual using a trade name, give individual name, using also the phrase, "an individual doing business under the trade name of _____".

If a joint venture, give the information required above for each participant in the joint venture.

¹⁴ Insert name of surety.

The surety, for value received, hereby stipulates and agrees that the obligations of said surety and its bond shall be in no way impaired or affected by any extensions of the times within which the Authority may receive or accept such Proposal or within which the principal(s) may furnish a Performance and Payment Bond or by any waiver by the Authority of any of the requirements of said Proposal; and said surety does hereby waive notice of any such extensions or waivers.

IN WITNESS WHEREOF, the principal(s) and surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

(Seal)

Principal ¹⁵

By¹⁶ _____

Surety

(Seal)

By¹⁷ _____

¹⁵ If bidder is a joint venture, insert signature and information required as appropriate for one participant of the joint venture on this page and attach and complete an additional sheet in the same form as appears on this page for each other participant as required.

¹⁶ If bond is signed by an officer or agent, give title; if signed by a corporation, affix corporate seal.

¹⁷ If bond is signed by an officer or agent, give title; if signed by a corporation, affix corporate seal.

ACKNOWLEDGMENT¹⁸

ACKNOWLEDGMENT OF BIDDER, IF A CORPORATION

State of _____

SS:

County of _____

On this _____ day of _____, 20____, before me personally came and appeared _____, to me known, who, being by me duly sworn, did depose and say that he resides at _____, that he is the _____ of _____, the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation; and that he signed his name thereto by like order.

(Notary Seal)

(Notary Signature)

ACKNOWLEDGMENT OF BIDDER, IF A PARTNERSHIP

State of _____

SS:

County of _____

On this _____ day of _____, 20____, before me personally came and appeared _____, to me known and known to me to be one of the members of the firm of _____, described in and who executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(Notary Seal)

(Notary Signature)

ACKNOWLEDGMENT OF BIDDER, IF AN INDIVIDUAL

State of _____

SS:

County of _____

On this _____ day of _____, 20____, before me personally came and appeared _____ to me known and known to me to be the person described in and who executed the foregoing instrument and he acknowledged to me that he executed the same.

(Notary Seal)

(Notary Signature)

AFFIX ACKNOWLEDGMENT AND JUSTIFICATION OF SURETY

¹⁸ If bidder is a joint venture, insert signature as appropriate for one participant of the joint venture on this page and attach and complete an additional Acknowledgment sheet in the same form as appears on this page for each other participant as required.

FORM OF CONTRACT

CHAPTER I

GENERAL PROVISIONS

19. DEFINITIONS

To avoid undue repetition, the following terms whenever they occur in this Form of Contract or any of the other papers forming a part of the Contract shall be construed as follows:

"Contract" shall mean, in addition to this Form of Contract, the Information for Bidders, the Proposal, the Authority's acceptance, the Specifications and the Contract Drawings (including written addenda issued over the name of the Chief Engineer), all of which are made part hereof as though herein set forth in full. The Contract as so defined shall constitute the complete and exclusive statement of the terms of the agreement between the parties and the Contract may not be explained or supplemented by course of dealing, usage of trade or course of performance.

The term "days" or "calendar days" in reference to a period of time shall mean consecutive calendar days, Saturdays, Sundays and holidays, included.

The term "construction site" or words of similar import shall mean the West end and East end of the Air Operations Area and the vicinity thereof at LaGuardia Airport, Queens, New York.

"Work" shall mean all structures, equipment, plant, labor, materials (including materials and equipment, if any, furnished by the Authority) and other facilities and all other things necessary or proper for or incidental to performing excavation and installation of underground storm drainage piping, penetrating through the perimeter dike wall into the Flushing Bay, valves, concrete outflow, rip-rap protection, sheet piling and related Work at the West end and East end of the Air Operations Area and the vicinity thereof at LaGuardia Airport, Queens, New York and "performance of Work" and words of similar import shall mean the furnishing of such facilities and the doing of such things.

"Work required by the Contract Drawings and Specifications in their present form" or words of similar import shall include all Work required by the Specifications in their present form (whether or not shown upon the Contract Drawings), all Work shown upon the Contract Drawings in their present form (whether or not mentioned in the Specifications), and all Work involved in or incidental to the accomplishment of the results intended by the Specifications and Contract Drawings in their present form (whether or not mentioned therein or shown thereon).

"Extra Work" shall mean Work required by the Chief Engineer, Chief of Construction, Engineer of Construction or Engineer pursuant to the clause hereof entitled "Extra Work Orders" which is in addition to that required by the Contract Drawings and Specifications in their present form.

"Contract Drawings" shall mean the Contract Drawings designated in the clause of the Specifications entitled "Contract Drawings" and, except as used in the phrase "Contract Drawings in their present form", shall include any future alterations and revisions of said drawings.

"Shop Drawings" shall mean all drawings, diagrams, illustrations, schedules, including supporting data, which are specifically prepared for this Contract and submitted by the Contractor pursuant to the requirements of the Specifications or the Engineer to illustrate some portion of the Work. The terms "shop drawings", "placing drawings" and "working drawings" are used interchangeably in this Contract.

"Catalog Cuts" shall mean all standard drawings, diagrams, illustrations, brochures, schedules, performance charts and instructions submitted by the Contractor pursuant to the requirements of the Specifications or the Engineer to illustrate some portion of the Work.

"Chief Procurement Officer" shall mean the Chief Procurement Officer of the Authority for the time being, or her successor in duties, acting either personally or through her duly authorized representatives acting within the scope of the particular authority vested in them.

"Chief Engineer" shall mean the Chief Engineer of the Authority for the time being, or his successor in duties, acting personally.

"Director" shall mean the Director of Aviation of the Authority for the time being, or his successor in duties for the purpose of this Contract, acting personally or through his authorized representative for the purpose of this Contract, who is at present the Authority's Director of Aviation Operations.

"Engineer" shall mean the Chief Engineer, acting either personally or through his duly authorized representatives acting within the scope of the particular authority vested in them.

"Chief of Construction" shall mean the Chief of Construction of the Authority for the time being, or his successor in duties, acting personally.

"Engineer of Construction" shall mean the designated Engineer of Construction for the facility at which the Work is being performed or his successor in duties, acting personally.

"Inspector" shall mean any representative of the Engineer designated by him as Inspector and acting within the scope of the particular authority vested in him.

The term "permanent construction" shall include all construction, installation, structures, equipment and materials (including materials and equipment, if any, furnished by the Authority) to be constructed, installed or left by the Contractor at or about the construction site (or elsewhere in the possession of the Authority) after the completion of the Work (whether or not they are yet delivered or installed), even though they are subsequently to be removed by others. The terms, "permanent installation", "permanent structure", "permanent materials", and words of similar import shall have the same meaning as the term "permanent construction".

"Subcontractor" shall mean anyone who performs Work (other than or in addition to the furnishing of materials, plant or equipment) at or about the construction site, directly or indirectly for or in behalf of the Contractor (and whether or not in privity of contract with the Contractor), but shall not include any person who furnished merely his own personal labor or his own personal services or who performs Work which consists only of the operation of construction equipment of which he is the lessor.

"Materialman" shall mean anyone who furnishes materials, plant or equipment to the Contractor or any subcontractor for use at or about the construction site in the performance of Work.

"Materialman" or "subcontractor", however, shall exclude the Contractor or any subsidiary or parent of the Contractor or any person, firm or corporation which has a substantial interest in the Contractor or in which the Contractor or the parent or the subsidiary of the Contractor, or an officer or principal of the Contractor or of the parent or the subsidiary of the Contractor has a substantial interest, provided, however, that for the purpose of the clause hereof entitled "Assignments and Subcontracts" the exclusion in this paragraph shall not apply to anyone but the Contractor himself.

"Workingman" or "workman" shall mean any employee of the Contractor or of a subcontractor who performs personal labor or personal services at the construction site.

"Lump Sum" shall mean the amount stipulated in the clause hereof entitled "General Agreement".

"Notice" shall mean a written notice.

Whenever they refer to the Work or its performance, "directed", "required", "permitted", "ordered", "designated", "prescribed" and words of similar import shall mean directed, required permitted, ordered, designated or prescribed by the Engineer; and "approved", "acceptable", "satisfactory" and words of similar import shall mean approved by or acceptable or satisfactory to the Engineer; and "necessary", "reasonable", "proper", "correct" and words of similar import shall mean necessary, reasonable, proper or correct in the judgment of the Engineer.

Whenever "including", "such as" or words of similar import are used, the specific things thereafter enumerated shall not limit the generality of the things preceding such words.

20. GENERAL AGREEMENT

The Contractor agrees to perform excavation and installation of underground storm drainage piping, penetrating through the perimeter dike wall into the Flushing Bay, valves, concrete outflow, rip-rap protection, sheet piling and related Work at the West end and East end of the Air Operations Area and the vicinity thereof at LaGuardia Airport, Queens, New York and to furnish all structures, equipment, plant, labor, materials and other facilities and to do all other things necessary or proper therefor or incidental thereto, all in strict accordance with the Contract Drawings and Specifications and any future changes therein; and the Contractor further agrees to assume and perform all other duties and obligations imposed upon him by this Contract.

The Authority agrees to pay to the Contractor and the Contractor agrees to accept from the Authority, in full consideration for the performance by the Contractor of his duties and obligations under this Contract and the whole thereof, a compensation of:

_____ Dollars
_____ Cents
(\$ _____)¹⁹

(throughout this Contract called the "Lump Sum"), and such compensation only, subject only to the express provisions of this Contract specifically setting forth actual, defined additions to or deductions from such compensation.

The enumeration in this Form of Contract and in the Specifications of particular things to be furnished or done at the Contractor's expense, or without cost or expense to the Authority, or without additional compensation to the Contractor shall not be deemed to imply that only things of a nature similar to those enumerated shall be so furnished and done; but the Contractor shall perform all Work as required without other compensation than that specifically provided, whatsoever changes may be made in the Contract Drawings and Specifications, whatsoever Work may be required in addition to that required by the Contract Drawings and Specifications in their present form, and whatsoever obstacles or unforeseen conditions may arise or be encountered.

¹⁹ For sales tax exemptions, see clause entitled "Exemption from New York State and New York City Sales Taxes".

21. AUTHORITY ACCESS TO RECORDS

The Authority shall have access during normal business hours to all records and documents of the Contractor relating to any amounts for which the Contractor has been compensated, or claims he should be compensated, by the Authority by payment determined on any basis other than by payment of a lump sum or unit price amount agreed upon in writing by the Contractor and the Authority; provided, however, such access shall extend to certified payroll records as described in the clause of the Form of Contract entitled "Prevailing Rate of Wage" regardless of the method by which the Contractor is compensated under this Contract. The Contractor shall obtain for the Authority similar access to similar records and documents of subcontractors. Such access shall be given or obtained both before and within a period of three years after Final Payment to the Contractor; provided, however, that if within the aforesaid three year period the Authority has notified the Contractor in writing of a pending claim by the Authority under or in connection with this Contract to which any of the aforesaid records and documents of the Contractor or of his subcontractors relate either directly or indirectly, then the period of such right of access shall be extended to the expiration of 6 years from the date of Final Payment with respect to the records and documents involved.

Upon request of the Authority, the Contractor shall furnish or provide access to the federal Form I-9 (Employment Eligibility Verification) for each individual performing Work under this Contract, including both citizens and non-citizens.

No provision in this Contract giving the Authority a right of access to records and documents is intended to impair or affect any right of access to records and documents which the Authority would have in the absence of such provision.

The Authority (including its Inspector General), FEMA, the Department of Homeland Security (including its Inspector General), the Comptroller General of the United States, or any of their duly authorized representatives, shall have access to any books, documents, papers and records of the Contractor which are pertinent to the Contract for the purpose of making audit, examination, excerpts and transcripts.

22. RENTAL OF CONSTRUCTION EQUIPMENT

The rental of construction equipment shall be subject to all applicable New York sales and use taxes notwithstanding the Authority's status as an Exempt Organization in New York, as such term is defined in section eleven hundred sixteen of the New York State Sales and Compensating Use Tax Act.

The Contractor shall indemnify the Authority against any claim of any kind whatsoever made against the Authority by a lessor of construction equipment and the Contractor assumes the risk of all claims against him by any lessor of construction equipment, including in both cases, claims in connection with a subcontractor.

23. EXEMPTION FROM NEW YORK STATE AND NEW YORK CITY SALES TAXES

The attention of the Contractor and his subcontractors and materialmen, if any, is directed to the New York State and New York City tax laws, as they apply to the Work of this Contract, and the New York State Department of Taxation and Finance (herein called the "Department") Form ST-120.1, Contractor Exempt Purchase Certificate, available on the Department's website: www.tax.ny.gov/forms/.

Subdivision (a) of section eleven hundred fifteen of the New York State Sales and Compensating Use Tax Act (herein called the "Act") provides contractors with an exemption from sales and compensating use taxes (herein called "Sales Tax") for, among other things:

(15) Tangible personal property sold to a contractor, subcontractor or repairman for use in erecting a structure or building of an organization described in subdivision (a) of section eleven hundred sixteen, or adding to, altering or improving real property, property or land of such an organization, as the terms real property, property or land are defined in the real property tax law; provided, however, no exemption shall exist under this paragraph unless such tangible personal property is to become an integral component part of such structure, building or real property."

The Authority is an exempt organization of the type described in subdivision (a) of section eleven hundred sixteen of the Act.

In view of the foregoing, the Contractor should not include in his price(s) any amounts for Sales Tax on such tangible personal property (herein called "Exempt Purchases"). The Contractor shall execute and provide his vendors with a properly completed Form ST-120.1 when effectuating such Exempt Purchases.

As provided in the clause hereof entitled "Rental of Construction Equipment", the Contractor's rental of equipment and the Contractor's purchases of tangible personal property that does not become an integral component part of the permanent construction are, in all cases, subject to Sales Tax.

If (i) any claim is made against the Contractor by the State of New York or City of New York for such Sales Tax on Exempt Purchases, or (ii) any claim is made against the Contractor by a materialman or a subcontractor on account of a claim against such materialman or subcontractor by the State of New York or City of New York for such Sales Tax on Exempt Purchases, then the Authority will reimburse the Contractor in an amount equal to the amount of such tax required to be paid in accordance with the Act, provided that:

- 1.) the Contractor's liability for such Sales Tax is caused solely by a finding by the Department that the Authority is not an Exempt Organization of the type described in subdivision (a) of section eleven hundred sixteen of the Act; and
- 2.) the Contractor, or the Contractor and any such subcontractor, as the case may be, have complied with such rules and regulations as may have been promulgated relating to the claiming of the exemption from such Sales Tax and have furnished to vendors all the forms and certificates required by the applicable laws, rules and regulations in connection therewith; and
- 3.) the Authority is afforded the opportunity before any payment of tax is made, to contest said claim in the manner and to the extent that the Authority may choose and to settle or satisfy said claim and such attorney as the Authority may designate is authorized to act for the purpose of contesting, settling and satisfying said claim; and

- 4.) the Contractor, or the Contractor and any such subcontractor, as the case may be, give immediate notice to the Authority of any such claim, cooperate with the Authority and its designated attorney in contesting said claim and furnish promptly to the Authority and said attorney all information and documents necessary or convenient for contesting said claim, said information and documents to be preserved for six years after the date of Final Payment or longer if such a claim is pending or threatened at the end of such six years.

If the Authority elects to contest any such claim, it will bear the expense of such contest.

24. PERFORMANCE AND PAYMENT BOND

If the Authority shall in its sole discretion so elect at the time of accepting the Contractor's Proposal, the Contractor shall furnish a bond for the faithful performance of all obligations imposed upon him by the Contract and also for the payment of all lawful claims of subcontractors, materialmen and workmen arising out of the performance of the Contract. Such bond shall be in the form bound herewith entitled, "Performance and Payment Bond", shall be in a penal sum equal to the Lump Sum and such bond shall be signed by one or more sureties²⁰ satisfactory to the Authority. The bond may be executed on a separate copy of such form not physically attached to this Contract booklet. In any case, both the form of bond bound herewith and any unattached executed copy thereof shall form a part of this Form of Contract as though herein set forth in full.

At any time after the opening of Proposals, the Authority may give notice to one or more bidders to advise the Authority as to the names of their proposed sureties. Within forty-eight hours thereafter each bidder so notified shall so advise the Authority. The giving of such notice to a bidder shall not be construed as an acceptance of his Proposal, and omission to give such notice shall not be construed as an election by the Authority not to require a bond.

If the Authority elects to require the Contractor to furnish a bond, he shall deliver such bond to the Authority within seven days after receipt by him of the acceptance of his Proposal, and the sureties thereon shall be as proposed by him, provided, that if the Authority has theretofore given notice to him that his proposed sureties or any of them are not satisfactory, the bond shall be executed by other sureties satisfactory to the Authority.

The Authority shall give notice to the Contractor within ten (10) days after receipt of the Performance and Payment Bond as to whether or not such bond is satisfactory.

In the event of a default by the Contractor in his obligation to furnish a satisfactory bond within seven (7) days after he received an acceptance of his Proposal, such default shall entitle the Authority in its discretion to terminate this Contract at any time within forty-five (45) days after the acceptance of the Proposal, without any liability on the part of the Authority. Inasmuch as the damages to the Authority resulting from a termination by it upon the failure of the Contractor to furnish a satisfactory bond will include items whose accurate amount will be difficult or impossible to compute, such damages shall be liquidated in the sum of the following amounts:

- A. The excess, if any, of the Lump Sum in the Proposal finally accepted over that in the Proposal of the Contractor; and

²⁰ Sureties must be corporations (commonly known as "surety companies"), authorized to do business as sureties in the state(s) in which the construction site is located, whose names appear on the current list of the Treasury Department of the United States in effect at the time of submission of the Performance and Payment Bond to the Authority as acceptable as sureties to the Treasury Department. In addition, the aggregate underwriting limitations on any one risk as set forth in the aforementioned list of the Treasury Department of the sureties shall equal or exceed the penal sum of the Performance and Payment Bond.

- B. The expense of such new advertisement of the Contract, if any, as may be deemed necessary by the Authority; and
- C. The sum of \$500 for each day after the receipt by the Contractor of the acceptance of his Proposal that the performance of the Contract is not commenced by reason of the failure of the Contractor to furnish the required bond.

In the recovery of the damages above specified, the Authority may proceed against the sum represented by the certified check deposited with it or against the Bid Bond and take such other action as it may deem best in the public interest.

If the Contractor furnishes a bond in accordance with the requirements of the Authority under this numbered clause, the Authority shall reimburse the Contractor for the net amount actually paid by him to the surety or sureties as the premium on such bond. The Contractor shall deliver to the Engineer receipts from the surety or sureties evidencing such payment and the amount thereof. Within fifteen days after receipt of such evidence satisfactory to the Engineer, the Authority shall pay to the Contractor by electronic funds transfer the amount provided in this numbered clause.

If at any time the Authority shall be or become dissatisfied with any surety or sureties then upon any bond furnished in accordance with the requirements of the Authority, or if for any other reason such bond shall cease to be adequate security to the Authority, the Contractor shall, within five days after notice from the Authority so to do, substitute a new bond in such form and sum and signed by such other sureties as may be necessary in the opinion of the Authority to constitute adequate security.

CHAPTER II

ADJUSTMENTS AND PAYMENTS

25. ADJUSTMENTS OF LUMP SUM

If any Work required by the Contract Drawings and Specifications in their present form shall be countermanded or reduced, the Engineer shall have full authority on behalf of both parties to make such adjustment by way of reduction in the Lump Sum as he may in his sole discretion deem equitable and reasonable, and in making such adjustment, no allowance to the Contractor shall be made for anticipated profits.

The Chief Engineer shall have authority to agree in writing with the Contractor for adjustments by way of reduction in the Lump Sum in lieu of those for which provision is heretofore made in this numbered clause.

26. COMPENSATION FOR EXTRA WORK

Extra Work shall be proposed, priced, negotiated, and issued as follows:

The Chief Engineer will issue, in writing, a Request for Quotation (RFQ) to the Contractor for cost and schedule impacts of the Extra Work to be performed. The Contractor shall submit an Extra Work proposal, within 15 days of receipt of the RFQ or as otherwise specified by the Engineer, the total proposed cost of the Extra Work, detailed in accordance with the cost breakdown specified herein, together with any associated proposed revision to the Contract schedule. If the Contractor fails to submit an Extra Work proposal within the specified time, or if in the sole opinion of the Engineer, such Extra Work proposal submitted by the Contractor is not representative of the Extra Work to be performed, or for any other reason, the Engineer may nevertheless direct the Contractor to proceed with such Extra Work in writing. Failure to perform such Extra Work when directed by the Engineer, even in the absence of agreement as to price, schedule impact, payment terms, or other issues, may be grounds for default.

Subcontractors costs in the Extra Work proposals shall be detailed in the same cost breakdown specified herein, except that the first tier subcontractor shall not be allowed any overhead or profit on any of the lower tier sub-subcontractor Work.

The Chief Engineer shall have authority to agree in writing with the Contractor on behalf of the Authority upon lump sum proposal or other compensation for Extra Work in lieu of the compensation for which provision is hereinafter made in this numbered clause.

If such lump sum agreement on compensation is not made, the Contractor shall be issued a Notice to Proceed (NTP) that includes a Not to Exceed (NTE) value and a fixed fee for the overhead and profit as further described below. A lump sum agreement may be negotiated up to the time that 85% of the total dollar value of the NTE is expended. Where no lump sum agreement has been reached on compensation, the Contractor's compensation shall be increased by the following amounts and such amounts only:

- 1.) For Extra Work consisting of performance of construction work at the construction site, an amount determined as follows:

- a. In the case of Extra Work performed by the Contractor personally, an amount equal to the direct cost in money of the labor and materials required for such Extra Work, plus a fixed dollar amount, as determined by the Engineer, not to exceed the amount that is equal to fifteen per cent (15%) of the Engineer's final estimate of the direct cost in money for labor and materials as required for such Extra Work, plus such rental for equipment (other than small tools) required for such Extra Work as the Engineer deems reasonable.
- b. In the case of Extra Work performed by a subcontractor, an amount equal to the direct cost in money of the labor and materials required for such Extra Work, plus a fixed dollar amount, as determined by the Engineer, not to exceed the amount that is equal to fifteen per cent (15%) of the Engineer's final estimate of the direct cost in money for labor and materials for such Work, plus such rental for equipment (other than small tools) required for such Extra Work as the Engineer deems reasonable, plus a fixed dollar amount, as determined by the Engineer, not to exceed the amount that is equal to five per cent (5%) of the sum of the foregoing costs, percentage of cost, and rental. In no case shall the amount of the aggregate markup for the Contractor and all of his subcontractors at every tier exceed the dollar amount that is equal to fifteen per cent (15%) of the direct cost of the Extra Work.

As used in this numbered clause (and in this clause only):

"Refuse Container Services" means the delivery, removal and emptying of refuse containers as required during the performance of Extra Work subject to approval by the Engineer.

"Labor" means foremen, surveyors, laborers, mechanics and other employees below the rank of superintendent, exclusive of timekeepers, directly employed at the construction site, whether employed by the Contractor or by the subcontractors, subject to the Engineer's authority to determine what employees of any category are "required for Extra Work" and as to the portion of their time allotted to Extra Work; and "cost of labor" means the wages actually paid to and received by such employees; however, all wages actually paid that are in excess of the prevailing wages in the performance of Extra Work shall be subject, on each occasion, to the initial and continuing approval of the Engineer in advance of the performance of such Extra Work; plus a proper proportion of (a) vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligation upon the basis of such wages, and (b) taxes actually paid by the employer pursuant to law upon the basis of such wages. "Employees" as used above means only the employees of one employer. Contractor shall obtain Authority approval for compensation at rates higher than those required by law prior to the start of the Extra Work.

"Materials" means temporary and consumable materials as well as permanent materials; and "cost of materials" means the price (including taxes actually paid by the Contractor pursuant to law upon the basis of such materials) for which such materials are sold for cash by the manufacturers or producers thereof, or by regular dealers therein, whether or not such materials are purchased directly from the manufacturer, producer or dealer (or if the Contractor is the manufacturer or producer thereof, the reasonable cost to the Contractor of the manufacture and production), plus the reasonable cost of delivering such materials to the construction site in the event that the price paid to the manufacturer, producer or dealer does not include delivery and in case of temporary materials, less their salvage value, if any.

"Work day" in reference to an item of equipment means a day other than a Saturday, Sunday or legal holiday except that if the particular item of equipment is actually utilized at the construction site by the Contractor or subcontractors under this or any other Contract with the Authority on a Saturday, Sunday or legal holiday said day shall be deemed a work day.

The rental for equipment, whether owned by the Contractor or subcontractors or rented from others and notwithstanding the actual price of any rental or actual costs associated with such equipment, shall be computed by the Engineer on the basis of the following:

- A.
 - 1.) Hourly rental for those items of equipment listed in the "Rental Rate Blue Book" published by Machinery Information Division, K-III Directory Corporation, 1735 Technology Drive, Suite 410, San Jose, California 95110, (hereinafter called "the Blue Book"), shall be 100% of the applicable rates as listed in said book, reduced to an hourly basis (see formula below) except that such applicable rates shall be reduced by 50% for all hours of rental payable hereunder in excess of 8 hours each day. The edition of this publication to be used shall be the one in effect on the date of the actual rental of the equipment. The "Estimated Operating Cost per Hour" as set forth for such item of equipment in the Blue Book shall be added to the hourly rental for each hour that such equipment is actually engaged in performing Extra Work. No amount for operating cost will be allowed during periods when such equipment is not actually engaged in performing Extra Work (i.e., standby rental time). None of the provisions of the Blue Book shall be deemed referred to or included in this Contract except as specifically set forth in this Section.
 - 2.) If no listing of rental rate and/or hourly operating cost for the item of equipment is in the Blue Book, the Engineer shall determine the reasonable rate of rental and/or hourly operating cost of the particular item of equipment by such other means as he finds appropriate.
 - 3.) In the event the Contractor is directed by the Engineer to immediately perform Extra Work within 24 hours of the direction to proceed, the Engineer shall determine the reasonable rate of rental and/all hourly operating cost of the items of equipment necessary to perform such Extra Work by such means as he finds appropriate. However, if the equipment is owned by the Contractor or owned by a subsidiary of the Contractor, the Blue Book rates will apply as set forth in this clause.
- B. When utilizing the rental rates appearing in the Blue Book, the Engineer shall determine the applicable rate and the hourly rental determined therefrom by applying the following criteria:
 - 1.) The rate to be applied for an item of equipment used on a particular Extra Work order shall be the monthly rates from the foregoing publication.

The pro rata portion which one hour bears to the applicable rate shall be determined in accordance with the following formula:

Hourly rate based on monthly rental.	1/176 of monthly rental from Blue Book
--------------------------------------	--

- 2.) The rental rate shall be multiplied by the applicable regional adjustment factor shown for such item of equipment in the Blue Book. The adjustment factor shall not apply to the hourly operating cost.

- 3.) If the Engineer should determine that the nature or size of the equipment used by the Contractor in connection with Extra Work is larger or more elaborate, as the case may be, than the size or nature of the minimum equipment determined by the Engineer to be suitable for the Extra Work, the reasonable rental will not be based upon the equipment used by the Contractor but will be based on the smallest or least elaborate equipment determined by the Engineer to have been suitable for the performance of the Extra Work.
- C. In the case of equipment utilized only for Extra Work: (a) in addition to amounts determined as provided in subparagraphs A and B above, there will be added to the rental as computed above the taxes on the rental actually paid by the Contractor or subcontractor and the reasonable cost of transporting such equipment to and from the construction site, including applicable tolls, and (b) notwithstanding the number of hours during which such equipment is utilized, the minimum rental therefor will be for a period of eight hours.

In computing the Contractor's compensation insofar as it is based upon Extra Work, and notwithstanding any provision to the contrary appearing in the Blue Book, no consideration shall be given to any items of cost or expense not expressly set forth above, it being expressly agreed that the costs and percentage additions hereinbefore provided cover items of cost and expense to the Contractor of any type whatsoever, including administration, overhead, taxes (other than those enumerated above), clean-up, consumables including gas and oil, drafting (including printing or other reproduction), coordination, field measurements, maintenance, repairs, insurance, profit to the Contractor and small tools.

Whenever any Extra Work is performed (whether by the Contractor directly or through a subcontractor), the Contractor shall, at the end of each day, submit to the Engineer (a) daily time slips in such form as set forth below, showing the name and number of each workman employed on such Work and the number of hours which he is employed thereon, (b) a memorandum showing the wages to be paid to each workman, the state and federal taxes based on such wages, and vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligation upon the basis of such wages, (c) a memorandum showing the amount and character of the materials furnished for such Work, from whom they were purchased and the amount to be paid therefor, and (d) a memorandum of equipment used in the performance of such Work, listing the actual hours of operation for each piece of equipment, together with the rental and operating cost claimed therefor. Template forms for the daily time slips will be provided to the Contractor prior to the commencement of Work. The Contractor shall complete the forms on 8½" x 14" ledger paper, individually and sequentially numbered, for all Work performed by the Contractor and any subcontractors. Submit the completed form with the Contractor's original signature to the Engineer each day for verification by the Engineer. Upon verification, the Engineer will sign the form and provide the Contractor with a copy of the signed form. A duplicate copy of the signed form shall be submitted to the Engineer with the Contractor's billing documentation and accompanied by such memoranda as described in (b), (c) and (d) above.

Such memoranda and time slips are for the purpose of enabling the Engineer to determine the amounts to be paid by the Authority under this numbered clause; and accordingly, they shall constitute a condition precedent to such payment and the failure of the Contractor or his subcontractors to furnish them with respect to any Work shall constitute a conclusive and binding determination on his part that such Work is not Extra Work and shall constitute a waiver by the Contractor of claims for payment for such Work. The Contractor's compensation for Extra Work shall be subject to audit review by the Authority. The Engineer will notify the Contractor that an audit review will be conducted no later than 90 days from the date of such notification. The Engineer will also provide the Contractor with an estimated duration of the audit. During the audit review, the Contractor shall provide records to substantiate the memorandum and time slips submitted to the Engineer. Failure to provide such Contractor or subcontractor records may result in a reduction or total denial of material, equipment and labor costs for Extra Work. Upon completion of the audit review, the Contractor will be provided with the audit findings of the Authority. If the Contractor disagrees in whole or in part with the audit findings, the Contractor shall notify the Authority of such disagreement in writing within 30 days of receipt of said audit findings or the Authority will deem the audit findings to be final and acceptable to the Contractor. In the event that the Chief Engineer and the Contractor shall agree in writing upon a lump sum or other compensation for Extra Work in lieu of compensation as provided in the fifth paragraph of this clause, the daily time slips and memoranda required by this paragraph shall not be required subsequent to the date on which such agreement has been reached.

27. COMPENSATION FOR PREMIUM TIME

Where the Engineer directs that the Contractor perform Work at times other than those elsewhere specified in the Contract, and the Contractor directly or through a subcontractor is obligated by the provisions of its applicable collective bargaining agreement to pay premium time rates for such Work then, the Contractor, in accordance with the procedures outlined in the clause hereof entitled "Compensation for Extra Work", shall submit a proposal for compensation for the cost differential between regular time rates and premium time rates at an amount equal to the total of the following:

- A. For premium time rates paid by the Contractor to his own forces, an amount equal to the premium time portion of the salaries and wages which the employer is required to pay and actually pays to its employees pursuant to the terms of his applicable collective bargaining agreement for the overtime period or periods described above, plus a proper proportion, if any, computed upon the basis of premium time salaries and wages of (1) taxes actually paid by the employer pursuant to law, (2) vacation allowances, other fringe benefits and union dues and assessments which the employer actually pays pursuant to contractual obligations, and (3) increased premiums paid by the Contractor personally, specifically allocable to the insurance required by this Contract, plus an amount not to exceed five per cent (5%) of such premium portion.
- B. For premium time rates paid by a subcontractor, an amount equal to the premium time portion of the salaries and wages which the employer is required to pay and actually pays to his employees pursuant to the terms of his applicable collective bargaining agreement for the overtime period or periods described above, plus a proper proportion, if any, computed upon the basis of premium time salaries and wages of (1) taxes actually paid by the employer pursuant to law, (2) vacation allowances, other fringe benefits and union dues and assessments which the employer actually pays pursuant to contractual obligations, and (3) increased premiums paid by a subcontractor, specifically allocable to the insurance required by this Contract, plus an amount not to exceed five per cent (5%) of such premium portion, plus an amount not to exceed two per cent (2%) of the foregoing cost.

All additions to the Contractor's compensation provided for in this numbered clause require the prior written approval of the Engineer and are conditioned on the Contractor's verifiable by the Authority payment of such amounts to his subcontractor.

The additions to the Contractor's compensation provided in this clause shall not apply where the Engineer directs the Contractor to perform Work at times other than those specified elsewhere in the Contract and also determines that such Work is required to mitigate previous delays in the Contractor's performance of Work.

28. COMPENSATION FOR EMERGENCY DELAYS

If the Contractor is specifically directed by the Engineer to suspend his operations as stipulated in the Section of Division 1 of the Specifications entitled "Airport Operations and Conditions" or if the Contractor is specifically directed not to start his operations at a time when operations are permitted to start as stipulated in such Section, and if solely because of such suspension or direction not to start any of the Contractor's or subcontractor's employees or equipment then engaged in or about to start such Work are necessarily kept idle at the construction site, during the hours when they would otherwise be engaged in the performance of the Work, then the Contractor's compensation shall be increased by an amount equal to the salaries and wages in amounts approved by the Engineer which the employer is required to pay and actually pays to such employees for the period or periods of such idleness, plus a proper proportion of (a) taxes actually paid by the employer pursuant to law upon the basis of such salaries and wages, and (b) vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligations upon the basis of such salaries and wages, and in addition thereto such rental as the engineer deems reasonable for such equipment during the period or periods of such idleness. The rental for idle equipment shall be computed by the Engineer in accordance with the provisions of the clause of the Form of Contract entitled "Idle Salaried Men and Equipment".

In the event that the Contractor deems that any payment should be made pursuant to this numbered clause, he shall give prompt written notice to the Engineer stating the reasons why he believes such payments should be made and shall moreover, furnish to the Engineer at the end of each day, a memorandum showing the name, payroll title, salary rate and employer of each of the workingmen, and description, owner and claimed rental rate for each item of equipment claimed to have been kept idle. Said notice and memorandum are for the purpose of enabling the Engineer to verify the Contractor's claim at the time. Accordingly, notwithstanding any other provisions hereof, the failure of the Contractor to furnish such notice and memorandum shall constitute a conclusive binding determination on his part that he is not entitled to compensation as provided herein and shall constitute a waiver by the Contractor of all claims for such payment, such notice and memorandum being conditions precedent to payment under this numbered clause.

29. MONTHLY ADVANCES

On or about the first day of each month, the Engineer shall (upon receipt from the Contractor of such information as he may require, including a certification in writing, in such form as may be required pursuant to the clause hereunder entitled "Prevailing Rate of Wage", that he has paid and caused his subcontractors to pay at least the prevailing rate of wage and supplements required by such clause) estimate and certify to the Authority the approximate amount of Work performed and compensation earned by the Contractor up to that time showing separately:

- A. The amount of Work (other than Extra Work) performed by the Contractor up to that time and a sum bearing the same proportion to the Lump Sum as the Work performed (other than Extra Work) bears to the Work performed and to be performed (other than Extra Work).

- B. The increases, if any, in the Contractor's compensation for which provision is specifically made elsewhere in this Contract.

As an aid to the Contractor and to facilitate his performance, the Authority shall, within fifteen days after the receipt of each such monthly certificate, advance to the Contractor by electronic funds transfer the sums so certified, minus, however, five per cent (5%) of the sum certified pursuant to subparagraph A of this numbered clause, and minus all prior advances and payments to the Contractor or for his account.

Within seven days of receipt of any sum attributable to Work performed by a subcontractor or materialman or within such later period as is provided in the subcontract or purchase agreement, the Contractor shall advance to the subcontractor or materialman said sum, less such amount, if any, as the Contractor is authorized to retain under the subcontract or purchase agreement.

Notwithstanding the above, the Authority shall have the right, at its sole discretion, to directly pay the subcontractors and material suppliers who perform Work for or furnish materials to the Contractor in connection with the Work of this Contract.

Prior to certifying any amount for payment hereunder, the Engineer may require that the Contractor submit a certification accurately and fully setting forth the total amount due and payable to each subcontractor and supplier for Work performed or materials provided by such subcontractor or supplier in connection with the Work of this Contract. Prior to certifying for payment any amount payable to the Contractor for Work performed or materials provided in connection with the Work of the Contract by an M/WBE subcontractor or supplier, the Engineer may require that the M/WBE subcontractor or supplier submit a certification of its payment status and work history related to the Contract. Any payment made by the Authority directly to a subcontractor or supplier pursuant to the provisions of this numbered clause shall be made in reliance upon such certification and all such payments shall be considered as advances to the Contractor of the compensation payable hereunder. No such payment shall relieve the Contractor of any of its obligations hereunder.

Furthermore, within fifteen (15) days of the Contractor's receipt of the Authority acceptance of the Contractor's Proposal, the Contractor shall submit to the Engineer a listing of all subcontract and material supply agreements entered into by the Contractor for the performance of Work required by this Contract. Such listing shall include the names and addresses of each such subcontractor and supplier and the amounts payable under each such agreement. As and when any modifications are made to such agreements or any additional subcontracts or supply agreements are entered into, the Contractor shall inform the Engineer of such and shall indicate the amounts payable thereunder.

Nothing contained herein shall be deemed to create any additional rights in such subcontractors or suppliers or to alter the rights of the Authority as such are set forth in the clause hereof entitled "Withholding of Payments".

30. RELEASE OF MONIES PREVIOUSLY WITHHELD FROM MONTHLY ADVANCES UPON RENDITION OF A CERTIFICATE OF SUBSTANTIAL COMPLETION

After the rendition of the Certificate of Substantial Completion and with the approval of the Engineer, an amount up to 80% of the total amount of monies withheld from the Contractor's monthly advances in accordance with the preceding clause may be released to the Contractor. If, in the Engineer's judgment, no monies, or less than 80% of the total amount of monies withheld should be released it will be based on, but not limited to, the estimated value of the remaining Work, unresolved claims by subcontractors, the estimate of possible audit adjustments and an assessment of the risks to the Authority in making such a release of monies. This clause does not create a right to such a release of monies or to any specific percentage release, all of which shall remain purely the discretionary decision of the Engineer.

Prior to the release of any amount withheld from the Contractor's monthly advances by the Authority, the Contractor shall submit to the Engineer a certification of all unresolved requests for additional compensation including all items in dispute and potential claims which the Contractor had actual knowledge of or by reasonable inspection and inquiry should have known of, to the date of the certification. Any such items not made known to the Authority by inclusion in the certification of additional compensation requests submitted by the Contractor will be deemed to have been released by the Contractor. Notwithstanding the above provisions, before making any release of monies the Engineer may require the Contractor to submit further information for the Engineer's review and analysis, and shall require the Contractor to execute a separate written release of claims as described above in a form acceptable to the Authority.

Nothing contained herein shall be deemed to alter or diminish the rights of the Authority as such are set forth in the clauses hereof entitled "Withholding of Payments", "Final Payment", "Monthly Advances" or under any other clause of this Contract relating to compensation to the Contractor, any release of monies hereunder being purely at the discretion of the Engineer.

31. FINAL PAYMENT

After the rendition of the Certificate of Final Completion and upon receipt from the Contractor of such information as may be required, the Engineer shall certify in writing to the Authority and to the Contractor the total compensation earned by the Contractor.

If so required, the Contractor shall thereupon (i) certify to the Authority in writing, in such form as may be required pursuant to the clause hereunder entitled "Prevailing Rate of Wage", that he has paid and caused his subcontractors to pay at least the prevailing rate of wage and supplements required by such clause and (ii) furnish to the Authority a detailed sworn statement of all claims, just and unjust, of subcontractors, materialmen and other third persons then outstanding and which he has reason to believe may thereafter be made on account of the Work.

Within thirty days after issuance of such certificate of total compensation earned (or within thirty days after receipt of the documents provided for in the immediately preceding paragraph, if required), the Authority shall pay to the Contractor by electronic funds transfer the amount stated in said certificate, less all other payments and advances whatsoever to or for the account of the Contractor. All prior estimates and payments shall be subject to correction in this payment, which is throughout this Contract called the Final Payment.

The acceptance by the Contractor, or by anyone claiming by or through him, of Final Payment shall be and shall operate as a release to the Authority of all claims and of all liability to the Contractor for all things done or furnished in connection with the Contract and for every act and neglect of the Authority and others relating to or arising out of the Contract, including claims arising out of breach of contract and claims based on claims of third persons, excepting only his claims for reimbursement for certain sales taxes as hereinbefore provided. No payment, however, final or otherwise, shall operate to release the Contractor or his sureties from any obligations in connection with this Contract or the Performance and Payment Bond.

The Contractor's agreement as provided in the immediately preceding paragraph above shall be deemed to be based upon the consideration forming part of this Contract as a whole and not to be gratuitous; but in any event even if deemed gratuitous and without consideration, such agreement as provided in the immediately preceding paragraph above shall nevertheless be effective. Such release shall include all claims, whether or not in litigation and even though still under consideration by the Authority or the Engineer. Such release shall be effective notwithstanding any purported reservation of right by the Contractor to preserve such claim. The acceptance of any payment designated as "Final Payment" or bearing any similar designation shall be conclusively presumed to demonstrate the intent of the Contractor that such payment was intended to be accepted as final, with the consequences provided in this numbered clause, notwithstanding any purported reservation of rights.

The Contractor agrees that he shall not be entitled to, and hereby waives any right he might otherwise have to, and shall not seek any judgment whether under this Contract or otherwise for any such Final Payment or for an amount equivalent thereto or based thereon, or for any part thereof, if such judgment would have the effect of varying, setting aside, disregarding or making inapplicable the terms of this numbered clause or have the effect in any way of entitling the Contractor to accept such Final Payment or an amount equivalent thereto or based thereon or any part thereof other than in the same fashion as a voluntary acceptance of a Final Payment subject to all the terms of this Contract including this numbered clause, unless and until the Contractor should obtain a judgment on any claim arising out of or in connection with this Contract (including a claim based on breach of contract) for an amount not included in said Final Payment. In any case in which interest is allowable on the amount of the Final Payment, such interest shall be at the rate of 6% per annum for the period, if any, in which such interest is due.

32. WITHHOLDING OF PAYMENTS

If (1) the Contractor fails to perform any of his obligations under this Contract or any other agreement between the Authority and the Contractor (including his obligation to the Authority to pay any claim lawfully made against him by any materialman, subcontractor or workman or other person which arises out of or in connection with the performance of this Contract or any other agreement with the Authority) or (2) any claim (just or unjust) which arises out of or in connection with this Contract or any other agreement between the Authority and the Contractor is made against the Authority or (3) any subcontractor under this Contract or any other agreement between the Authority and the Contractor fails to pay any claims lawfully made against him by any materialman, subcontractor, workman or other third person which arises out of or in connection with this Contract or any other agreement between the Authority and the Contractor or if in the opinion of the Chief Engineer any of the aforesaid contingencies is likely to arise, then the Authority shall have the right, in its discretion, to withhold out of any payment (final or otherwise and even though such payment has already been certified as due) such sums as the Chief Engineer may deem ample to protect it against delay or loss or to assure the payment of just claims of third persons, and to apply such sums in such manner as the Chief Engineer may deem proper to secure such protection or satisfy such claims. All sums so applied shall be deducted from the Contractor's compensation. Omission by the Authority to withhold out of any payment, final or otherwise, a sum for any of the above contingencies, even though such contingency has occurred at the time of such payment, shall not be deemed to indicate that the Authority does not intend to exercise its right with respect to such contingency. Neither the above provisions for rights of the Authority to withhold and apply monies nor any exercise or attempted exercise of, or omission to exercise, such rights by the Authority shall create any obligation of any kind to such materialmen, subcontractors, workmen or other third persons.

Until actual payment to the Contractor, his right to any amount to be paid under this Contract (even though such amount has already been certified as due) shall be subordinate to the rights of the Authority under this numbered clause.

In the event that wages and/or supplements have been paid in an amount less than as required by this Contract, the Authority shall also have the right to withhold from the Contractor out of any payment, final or otherwise, on this, or any other open contract that the Contractor has with the Authority, so much as may be necessary to pay to laborers, mechanics, architects, draftsmen, engineers and technical workers, and others employed on the Work, the difference between the sums such persons should have received as wages and/or supplements and the amounts they actually received, and to pay such sums over to such persons. All such payments shall be deemed to be payments for the Contractor's account. In addition, the Contractor shall be required to pay to the Authority an amount equal to the Authority's cost of any investigation conducted by or on behalf of the Authority, that discovers a failure to pay wages and/or supplements as required by this Contract by the Contractor or its subcontractors, the cost of such investigation to be determined by the Chief Engineer personally. If the Contractor fails or refuses to pay for the cost of any such investigation after demand by the Authority, the Authority may deduct from any amount payable to the Contractor by the Authority, under the Contract or under any other open contract between the Contractor and the Authority, an amount equal to the cost of such investigation.

If, however, the payment of any amount due to the Contractor shall be improperly delayed by the fault of the Authority, the Authority shall pay the Contractor interest thereon at the rate of six percent (6%) per annum for the period of delay, it being agreed that such interest shall be in lieu of and in liquidation of any damages to the Contractor because of such delay.

CHAPTER III

PROVISIONS RELATING TO TIME

33. TIME FOR COMPLETION AND DAMAGES FOR DELAY

The Contractor shall complete the performance of all Work under this Contract within 730 calendar days after receipt by him of the acceptance of his Proposal.

The Contractor shall not commence the performance of the Work until the later of the following dates:

- A. If a Performance and Payment Bond is required, the date of receipt by him of notice from the Authority that the Performance and Payment Bond furnished by him is satisfactory;
- B. The date of receipt by him of notice from the Authority that the insurance procured by him in accordance with the clause hereof entitled "Insurance Procured by Contractor" is satisfactory, as evidenced by the certificate(s) furnished in accordance with said clause.

The time for completion shall not be extended on account of the time required to furnish the documents referred to in subparagraphs A and B above, but the Authority shall give notice to the Contractor within ten days after receipt of the Performance and Payment Bond or certificate of insurance as to whether or not such bond or insurance is satisfactory.

The Contractor's obligations for the performance and completion of the Work within the time or times provided for in this Contract are of the essence of this Contract. The Contractor guarantees that he can and will complete the performance of the Work within the time hereinbefore stipulated or within the time as extended in accordance with the clause hereof entitled "Extensions of Time". Inasmuch as the damage and loss to the Authority which will result from delay in completing the performance of the Work within the time herein stipulated will include items of loss whose amount will be incapable or very difficult of accurate estimation, the damages to the Authority for each calendar day by which the Contractor does not complete performance of the Work within the time or times above stipulated or within such time or times as extended in accordance with the clause hereof entitled "Extensions of Time", shall be liquidated in the sum of Five Hundred Dollars (\$500) per calendar day.

34. EXTENSIONS OF TIME

The time above provided for completion of any part of the Contract shall be extended (subject, however, to the provisions of this numbered clause) only if in the opinion of the Engineer the Contractor is necessarily delayed in completing such part by such time solely and directly by a cause which meets all the following conditions:

- A. Such cause is beyond the Contractor's control and arises without his fault;
- B. Such cause comes into existence after the opening of Proposals on this Contract and neither was nor could have been anticipated by investigation before such opening.

Variations in temperature and precipitation shall be conclusively deemed to have been anticipated before opening of such Proposals on this Contract except to the extent that the actual monthly average temperature varies from a temperature which is 10 per cent (10%) above or below the monthly normal temperature and except to the extent that the actual number of days of precipitation (of 0.1 inch or more) per month exceeds a number equal to two plus the normal number of days of precipitation per month.

In any case, the variations in temperature and precipitation described in the immediately preceding sentence will be cause for an extension of time only if occurring between the actual time of commencement of the Work at the construction site and the time for completion stipulated in the clause hereof entitled "Time for Completion and Damages for Delay" (or such time as extended as provided for herein). In the case of portions of months the number of days will be pro-rated by the Engineer. Temperature and precipitation shall be as recorded by the U. S. Weather Bureau in its publications, including that entitled "Local Climatological Data with Comparative Data", which is applicable to the area in which the Work is to be performed, and in the case of precipitation, the normal number of days of precipitation (of 0.1 inch or more) per month as abstracted from the aforementioned publications are as follows:

Month	Normal number of days per month on which precipitation exceeds 0.1 inch
January	7
February	7
March	8
April	7
May	6
June	6
July	5
August	7
September	6
October	6
November	7
December	7

In any event, even though a cause of delay meets all the above conditions, an extension shall be granted only to the extent that (i) the performance of the Work is actually and necessarily delayed and (ii) the effect of such cause cannot be anticipated and avoided or mitigated by the exercise of all reasonable precautions, efforts and measures (including planning, scheduling and rescheduling), whether before or after the occurrence of the cause of delay, and an extension shall not be granted for a cause of delay which would not have affected the performance of the Contract were it not for the fault of the Contractor or for other delay for which the Contractor is not entitled to an extension of time.

Any reference herein to the Contractor shall be deemed to include subcontractors and materialmen, whether or not in privity of contract with the Contractor, and employees and others performing any part of the Contract and all the foregoing shall be considered as agents of the Contractor.

The period of any extension of time shall be that necessary to make up the time actually lost, subject to the provisions of this numbered clause, and shall be only for the portion of the Contract actually delayed. The Engineer may defer all or part of his decision on an extension and any extension may be rescinded or shortened if it subsequently is found that the delays can be overcome or reduced by the exercise of reasonable precautions, efforts and measures.

As a condition precedent to an extension of time, the Contractor shall give written notice to the Engineer within 48 hours after the time when he knows or should know of any cause which might under any circumstances result in delay for which he claims or may claim an extension of time (including those causes which the Authority is responsible for or has knowledge of), specifically stating that an extension is or may be claimed, identifying such cause and describing, as fully as practicable at the time, the nature and expected duration of the delay and its effect on the various portions of the Contract. Since the possible necessity for an extension of time may materially alter the scheduling, plans and other actions of the Authority, and since, with sufficient opportunity, the Authority might if it so elects attempt to mitigate the effect of a delay for which an extension of time might be claimed, and since merely oral notice may cause disputes as to the existence or substance thereof, the giving of written notice as above required shall be of the essence of the Contractor's obligations and failure of the Contractor to give written notice as above required shall be a conclusive waiver of an extension of time.

It shall in all cases be presumed that no extension, or further extension, of time is due unless the Contractor shall affirmatively demonstrate to the satisfaction of the Engineer that it is. To this end the Contractor shall maintain adequate records supporting any claim for an extension of time, and in the absence of such records, the foregoing presumption shall be deemed conclusive.

35. IDLE SALARIED MEN AND EQUIPMENT

If any salaried men or equipment of the Contractor or any subcontractor are necessarily kept continuously idle and wholly unoccupied at the construction site for a full day on each of two or more full days on which they would be engaged in the performance of the Work but for causes due solely to acts or omissions of the Authority or the Engineer occurring after the opening of Proposals on this Contract, and if such idleness is not due to any cause within the control of the Contractor or of any of his subcontractors or materialmen or his or their employees, then the Authority shall pay to the Contractor and the Contractor shall accept (in addition to any sums otherwise payable under this Contract, and in full satisfaction of and in liquidation of all claims for damages because of such act or omission of the Authority or the Engineer) an amount equal to that which the employer actually pays such salaried employees during such full days of idleness, plus a proper proportion of vacation allowances and union dues and assessments actually paid by the employer pursuant to contractual obligations on the basis of such salaries, and a proper proportion of the taxes actually paid by the employer pursuant to law upon the basis of such salaries and plus such rental for such idle equipment as the Engineer deems reasonable. The rental for idle equipment shall be computed by the Engineer in accordance with the provisions of the clause of the Form of Contract entitled "Compensation for Extra Work"; provided, however, that the amount not to exceed five per cent (5%) of the rental to be paid in accordance with said clause in the case of equipment utilized by subcontractors shall not be payable in connection with such idle equipment; and provided further that the provisions of subparagraph C of said clause shall not be applicable to such idle equipment.

The Contractor shall give written notice to the Engineer before the end of the second of the above mentioned 2 or more full days (whether or not the Authority is aware of the existence of any circumstances which might constitute a basis for payment under this numbered clause), specifically stating that salaried men or equipment have been kept idle under circumstances which might result in payment under this numbered clause; and he shall furnish with such notice, for all the days that have occurred, and shall in addition furnish at the end of each additional day of the above mentioned 2 or more full days, (a) a memorandum showing the name, payroll title, salary rate and employer of each of the salaried men claimed to have been kept idle at the construction site, and taxes based upon their salaries and the holiday and vacation allowances and union dues and assessments which the employer must actually pay pursuant to contractual obligations based on their salaries, and (b) a memorandum of the equipment claimed to be kept idle, together with the amount claimed as rental therefor. Said notice and memoranda are for the purpose of enabling the Engineer to verify the Contractor's claim at the time, and of enabling him to take such steps as may be necessary to remedy the conditions upon which the claim is based. The furnishing of such notice and memoranda shall be a condition precedent to payment under this numbered clause, so that the day on which notice is given shall be counted as not later than the second of the above mentioned 2 or more full days and no subsequent day shall be counted for which the above memoranda are not furnished at the end of such day.

36. DELAYS TO CONTRACTOR

As between the Contractor and the Authority, the Contractor assumes the risk of all suspensions of or delays in performance of the Contract, regardless of the length thereof, arising from all causes whatsoever, whether or not relating to this Contract, including wrongful acts or omissions of the Authority, its officers, agents, employees and contractors, except only to the extent, if any, that compensation or an extension of time may be due as expressly provided for elsewhere in this Contract for such suspension or delays and except to the extent, if any, that compensation may be agreed to by the Chief Engineer in writing pursuant to the clause hereof entitled "Compensation for Extra Work" for impact costs incurred by the Contractor in connection with the performance of Extra Work. Subject only to such exceptions, the Contractor shall bear the burden of all costs, expenses and liabilities which he may incur in connection with such suspensions or delays, and all such suspensions, delays, costs, expenses and liabilities of any nature whatsoever, whether or not provided for in this Contract, shall conclusively be deemed to have been within the contemplation of the parties.

Notwithstanding any provisions of this Contract, whether relating to time of performance or otherwise, the Authority makes no representation or guaranty as to when the construction site or any part thereof will be available for the performance of the Contract or as to whether conditions at the construction site will be such as to permit the Contract to be performed thereon without interruption or by any particular sequence or method or as to whether the performance of the Contract can be completed by the time required under this Contract or by any other time.

Wherever in connection with this Contract it is required, expressly or otherwise, that the Authority shall perform any act relating to the Contract, including making available or furnishing any real property, materials, or other things, no guaranty is made by the Authority as to the time of such performance and the delay of the Authority in fulfilling such requirement shall not result in liability of any kind on the part of the Authority except only to the extent, if any, that an extension of time or compensation may be due as expressly provided for elsewhere in this Contract.

37. CANCELLATION FOR DELAY

If the performance of the Contract or any portion of it shall, in the opinion of the Chief Engineer, be materially delayed, whether or not through the fault of the Contractor, by any cause which affects the Contractor's ability to perform the Contract without affecting to the same degree the Authority's own ability to perform it, either directly or through others, the Authority shall have the right at any time during the existence of such delay to cancel this Contract as to any portion not yet performed, without prejudice to the rights, liabilities and obligations of the parties under this Contract arising out of portions already performed, provided, however, that such right of cancellation shall not exist if the delay be due to any wrongful act or omission of the Authority. In the event of such cancellation, no allowance shall be made for anticipated profits.

CHAPTER IV

CONDUCT OF CONTRACT

38. AUTHORITY OF DIRECTOR

If at any time it shall be, from the viewpoint of the Authority, impracticable or undesirable in the judgment of the Director to proceed with or continue the performance of the Contract or any part thereof, whether or not for reasons beyond the control of the Authority, he shall have authority to suspend performance of any part or all of the Contract until such time as he may deem it practicable or desirable to proceed. Moreover, if at any time it shall be, from the viewpoint of the Authority impracticable or undesirable in the judgment of the Director to proceed with or continue the performance of the Contract or any part thereof whether or not for reasons beyond the control of the Authority, he shall have authority to cancel this Contract as to any or all portions not yet performed and as to any materials not yet installed even though delivered. Such cancellation shall be without prejudice to the rights and obligations of the parties arising out of portions already performed, but no allowance shall be made for anticipated profits.

39. AUTHORITY OF CHIEF ENGINEER

Inasmuch as the public interest requires that the project to which this Contract relates shall be performed in the manner which the Authority, acting through the Chief Engineer, deems best, the Chief Engineer shall have absolute authority to determine what is or is not necessary or proper for or incidental to the portion thereof specified in the clause hereof entitled "General Agreement" and the Contract Drawings and Specifications shall be deemed merely his present determination on this point. In the exercise of this authority, he shall have power to alter the Contract Drawings and Specifications; to require the performance of Work not required by them in their present form, even though of a totally different character from that now required; and to vary, increase and diminish the character, quantity and quality of, or to countermand, any Work now or hereafter required. Such variation, increase, diminution or countermanding need not be based on necessity but may be based on convenience.

To resolve all disputes and to prevent litigation the parties to this Contract authorize the Chief Engineer to decide all questions of any nature whatsoever arising out of, under, or in connection with, or in any way related to or on account of, this Contract (including claims in the nature of breach of Contract or fraud or misrepresentation before or subsequent to acceptance of the Contractor's Proposal and claims of a type which are barred by the provisions of this Contract) and his decision shall be conclusive, final and binding on the parties. His decision may be based on such assistance as he may find desirable. The effect of his decision shall not be impaired or waived by any negotiations or settlement offers in connection with the question decided, whether or not he participated therein himself, or by any prior decision of the Engineer or others, which prior decisions shall be deemed subject to review, or by any termination or cancellation of this Contract provided, however, that notwithstanding the decision reached by the Chief Engineer in a review of determinations by the Chief of Construction or Engineer of Construction or Engineer that a particular item of Work is not Extra Work the Contractor shall be compensated therefor as provided in written orders of the Chief of Construction or Engineer of Construction or Engineer expressly and unmistakably indicating his intention to treat Work described therein as Extra Work issued in accordance with the provisions of the clause hereof entitled "Extra Work Orders" for amounts not in excess of \$250,000.

All such questions shall be submitted in writing by the Contractor to the Chief Engineer for his decision, together with all evidence and other pertinent information in regard to such questions, in order that a fair and impartial decision may be made. In any action against the Authority relating to any such question the Contractor must allege in his complaint and prove such submission, which shall be a condition precedent to any such action. No evidence or information shall be introduced or relied upon in such an action that has not been so presented to the Chief Engineer.

This numbered clause shall be governed by and construed in accordance with the law of the State of New York, without giving effect to its choice of law provisions.

40. AUTHORITY AND DUTIES OF ENGINEER

In the performance of the Contract, the Contractor shall conform to all orders, directions and requirements of the Engineer and shall perform the Contract to the satisfaction of the Engineer at such times and places, by such methods and in such manner and sequence as he may require, and the Contract shall at all stages be subject to his inspection. The Engineer shall determine the amount, quality, acceptability and fitness of all parts of the Work and shall interpret Contract Drawings, Specifications and any orders for Extra Work. The Contractor shall employ no equipment, materials, methods or men to which the Engineer objects, and shall remove no materials, equipment or other facilities from the construction site without permission. Upon request, the Engineer shall confirm in writing any oral order, direction, requirements or determination.

The Contractor is requested to orally advise the Engineer of questions as they arise. Although such advice will not substitute for the written notice and information for which requirements are set forth elsewhere herein, it is anticipated that it will facilitate prompt decisions on the part of the Engineer and others.

The enumeration herein or in the Specifications of particular instances in which the opinion, judgment, discretion or determination of the Engineer shall control or in which the Contract shall be performed to his satisfaction or subject to his inspection, shall not imply that only the matters of a nature similar to those enumerated shall be so governed and performed, but without exception the entire Contract shall be so governed and so performed.

41. NOTICE REQUIREMENTS

No claim against the Authority shall be made or asserted in any action or proceeding at law or in equity, and the Contractor shall not be entitled to allowance of such claim, unless the Contractor shall have complied with all requirements relating to the giving of written notice of the information with respect to such claim as provided in this numbered clause. The failure of the Contractor to give such written notice and information as to any claim shall be conclusively deemed to be a waiver by the Contractor of such claim, such written notice and information being conditions precedent to such claim. As used herein "claim" shall include any claim arising out of, under, or in connection with, or in any way related to or on account of, this Contract (including claims in the nature of breach of Contract or fraud or misrepresentation before or subsequent to acceptance of the Contractor's Proposal and claims of a type which are barred by the provisions of this Contract) for damages, payment or compensation of any nature or for extension of any time for performance of any part of this Contract.

The requirements as to the giving of written notice and information with respect to claims shall be as follows:

- A. In the case of any claims for Extra Work, extension of time for completion, idle salaried men and equipment, or any other matter for which requirements are set forth elsewhere in this Contract as to notice and information, such requirements shall apply.

- B. In the case of all other types of claim, notice shall have been given to the Engineer, personally, as soon as practicable, and in any case, within 48 hours, after occurrence of the act, omission, or other circumstance upon which the claim is or will be based, stating as fully as practicable at the time all information relating thereto. Such information shall be supplemented with any further information as soon as practicable after it becomes or should become known to the Contractor, including daily records showing all costs which the Contractor may be incurring or all other circumstances which will affect any claim to be made, which records shall be submitted to the Engineer, personally.

The above requirements for notices and information are for the purpose of enabling the Authority to avoid waste of public funds by affording it promptly the opportunity to cancel or revise any order, change its plans, mitigate or remedy the effects of circumstances giving rise to a claim or take such other action as may seem desirable and to verify any claimed expense or circumstances as they occur, and the requirements herein for such notice and information are essential to this Contract and are in addition to any notice required by statute with respect to suits against the Authority.

The above referred to notices and information are required whether or not the Authority is aware of the existence of any circumstances which might constitute a basis for a claim and whether or not the Authority has indicated it will consider a claim.

No act, omission, or statement of any kind shall be regarded as a waiver of any of the provisions of this numbered clause or may be relied upon as such waiver except only either a written statement signed by the Executive Director of the Authority or a resolution of the Commissioners of the Authority expressly stating that a waiver is intended as to any particular provision of this numbered clause, and more particularly no discussion, negotiations, consideration, correspondence, or requests for information with respect to a claim by any Commissioner, officer, employee or agent of the Authority shall be construed as a waiver of any provision of this numbered clause or as authority or apparent authority to effect such a waiver.

Since merely oral notice or information may cause disputes as to the existence or substance thereof, and since notice, even if written, to other than the Authority representative above designated to receive it may not be sufficient to come to the attention of the representative of the Authority with the knowledge and responsibility of dealing with the situation only notice and information complying with the express provisions of this numbered clause shall be deemed to fulfill the Contractor's obligation under this Contract.

42. EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this Contract, the Contractor agrees as follows:

- A. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, sex, color or national origin, and will take affirmative action to insure that they are afforded equal employment opportunities without discrimination because of race, creed, sex, color or national origin. Such action shall be taken with reference, but not be limited to: recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff or termination, rates of pay or other forms of compensation, and selection for training or retraining, including apprenticeship and on-the-job training.

- B. The Contractor shall send to each labor union or representative of workers with which he has or is bound by a collective bargaining or other agreement or understanding, a notice, to be provided by the State Commission for Human Rights, advising such labor union or representative of the Contractor's agreement under A. through H. of this numbered clause (hereinafter called "non-discrimination requirements"). If the Contractor was directed to do so by the Authority as part of the bid or negotiation of this Contract, the Contractor shall request such labor union or representative to furnish him with a written statement that such labor union or representative will not discriminate because of race, creed, sex, color or national origin and that such labor union or representative either will affirmatively cooperate, within the limits of its legal and contractual authority, in the implementation of the policy and provisions of these non-discrimination requirements or that it consents and agrees that recruitment, employment, and the terms and conditions of employment under this Contract, shall be in accordance with the purposes and provisions of these non-discrimination requirements. If such labor union or representative fails or refuses to comply with such a request that it furnish such a statement, the Contractor shall promptly notify the State Commission for Human Rights of such failure or refusal.
- C. The Contractor shall post and keep posted in conspicuous places, available to employees and applicants for employment, notices to be provided by the State Commission for Human Rights setting forth the substance of the provisions of A. and B. herein and such provisions of the State's laws against discrimination as the State Commission for Human Rights shall determine.
- D. The Contractor shall state, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, that all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, sex, color or national origin.
- E. The Contractor shall comply with the provisions of Sections 291-299 of the Executive Law and the Civil Rights Law, shall furnish all information and reports deemed necessary by the State Commission for Human Rights under these non-discrimination requirements and such sections of the Executive Law, and shall permit access to his books, records and accounts by the State Commission for Human Rights, the Attorney General and the Industrial Commissioner for the purposes of investigation to ascertain compliance with these non-discrimination requirements and such sections of the Executive Law and Civil Rights Law.
- F. This Contract may be forthwith canceled, terminated or suspended, in whole or in part, by the Authority upon the basis of a finding made by the State Commission for Human Rights that the Contractor has not complied with these non-discrimination requirements, and the Contractor may be declared ineligible for future contracts made by or on behalf of the State, the Authority or other public authority or agency of the State, until he has satisfied the State Commission for Human Rights that he has established and is carrying out a program in conformity with the provisions of these non-discrimination requirements. Such finding shall be made by the State Commission for Human Rights after conciliation efforts by the Commission have failed to achieve compliance with these non-discrimination requirements and after a verified complaint has been filed with the Commission, notice thereof has been given to the Contractor by the Commission and an opportunity has been afforded him to be heard publicly before the State Commissioner of Human Rights or his designee. Such sanctions may be imposed and remedies invoked independently of or in addition to sanctions and remedies otherwise provided by law.

- G. The Contractor shall include the provisions of A. through F. above in every subcontract or purchase order in such a manner that such provisions will be binding upon each subcontractor or vendor as to operations to be performed within the State of New York. The Contractor shall take such action in enforcing such provisions of such subcontract or purchase order as the Authority may direct, including sanctions or remedies for non-compliance. If the Contractor becomes involved in or is threatened with litigation with a subcontractor or vendor as a result of such direction by the Authority, the Contractor shall promptly so notify the General Counsel to the Authority, requesting him to intervene and protect the interests of the Authority.
- H. The provisions of this numbered clause which refer to the State Commission for Human Rights, the Attorney General and the Industrial Commissioner are inserted in this Contract for the benefit of such parties, as well as for the benefit of the Authority, and said Commission, Commissioner and the Attorney General shall have a direct right of action against the Contractor to effectuate the intent of this clause.

43. AFFIRMATIVE ACTION REQUIREMENTS - EQUAL EMPLOYMENT OPPORTUNITY

The Contractor shall comply with the provisions set forth hereinafter. These provisions are modeled on the conditions for bidding on federal government contracts adopted by the Office of Federal Contract Compliance in 1978.

The Contractor and each subcontractor must fully comply with the clause entitled "Equal Employment Opportunity" and the requirements in this numbered clause. The Contractor commits himself to the goals for minority and female utilization set forth below and all other requirements, terms and conditions of this numbered clause by submitting a properly signed Proposal.

The Contractor shall appoint a company executive to assume the responsibility for the implementation of the requirements, terms and conditions of this numbered clause.

- A. The goals for minority and female participation, expressed in percentage terms, for the Contractor's workforce at the construction site under this Contract are as follows:

Minority, except laborers	30%
Minority, laborers	40%
Female, except laborers	6.9%
Female, laborers	6.9%

These goals are applicable to all construction Work performed at the construction site under the Contract.

The Contractor's compliance with this numbered clause shall be based on his implementation of the clause entitled "Equal Employment Opportunity", and specific affirmative action obligations required herein of minority and female employment and training must be substantially uniform throughout the length of the Contract and in each trade. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the Contract. Compliance with the goals will be measured against the total work hours performed.

B.

- 1.) The Contractor shall provide written notification to the Director, Office of Business Diversity and Civil Rights of the Port Authority of New York and New Jersey, within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under this Contract. The notification shall list the name, address and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated start and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.
- 2.) The Contractor shall submit a Workforce Projection Schedule, which shall be correlated to the progress schedule, within thirty days after acceptance of the Contractor's Proposal, for the approval of the Engineer. The Contractor shall maintain and periodically update it at intervals as required by the Engineer. The Workforce Projection Schedule shall include the time period in which each trade shall be utilized, the average number of workers required per trade on a weekly basis, the peak period for each trade, and the number of workers required per trade for the peak period on a weekly basis.

C.

- 1.) As used in this numbered clause:
 - a. "Director" means Director, Office of Business Diversity and Civil Rights of the Authority;
 - b. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U. S. Treasury Department Form 941;
 - c. "Minority" includes:
 - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (ii) Hispanic persons of Puerto Rican, Mexican, Dominican, Cuban, Central or South American culture or origin, regardless of race;
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
- 2.) Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the Work involving any construction trade, he shall physically include in each subcontract in excess of \$10,000 such provisions as are necessary for the Contractor to achieve the aggregate goals set forth above.

- 3.) The Contractor shall implement the specific affirmative action standards provided in 6.) a. through p. hereof. The goals set forth above are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in the total workforce at the construction site under the Contract including employees of the Contractor and the subcontractors. The Contractor is expected to make substantially uniform progress toward his goals in each craft during the period specified. These goals may be achieved through utilization of journeyworkers and apprentices. In the event they are not achieved through the utilization of journeyworkers, the maximum number of apprentices provided for in the applicable collective bargaining agreement may be utilized to achieve said goals.
- 4.) Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations hereunder.
- 5.) In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
- 6.) The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these provisions shall be based upon his effort to achieve maximum results from his actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
 - a. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or his unions have employment opportunities available, and maintain a record of the organizations' responses.
 - b. Develop maximum job opportunities for apprentices appropriate to the conditions of the Work and subject to the applicable collective bargaining agreement, in conjunction with training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 6.) a. above.
 - c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

- d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet his obligations.
- e. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting his EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review, at least annually, the company's EEO policy and affirmative action obligations hereunder with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct his recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth.
- k. Tests and other selection requirements shall comply with 41 CFR Part 60-3.

- l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
 - m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations hereunder are being carried out.
 - n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
 - o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
 - p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
- 7.) Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (6.) a. through p.). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of his obligations under 6.) a. through p. hereof provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet his individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's non-compliance.
- 8.) Goals for minorities and for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation hereof if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved his goals for women generally, the Contractor may be in violation hereof if a specific minority group of women is under-utilized).
- 9.) The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.
- 10.) The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

- 11.) The Contractor shall carry out such sanctions and penalties for violation of this clause and of the clause entitled "Equal Employment Opportunity", including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered by the Authority. Any Contractor who fails to carry out such sanctions and penalties shall be in violation hereof.
- 12.) The Contractor, in fulfilling his obligations hereunder shall implement specific affirmative action steps, at least as extensive as those standards prescribed in 6.) hereof so as to achieve maximum results from his efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of these provisions, the Authority shall proceed accordingly.
- 13.) The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports, including the Monthly Employment Utilization Report, relating to the provisions hereof as may be required and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
- 14.) Nothing herein provided shall be construed as a limitation upon the application of any laws which establish standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

44. AFFIRMATIVE ACTION PROGRAMS

The Contractor assures that he will undertake an affirmative action program as required by 14 CFR Part 152, Subpart E, to insure that no person shall on the grounds of race, creed, color, national origin, or sex be excluded from participating in any employment activities covered in 14 CFR Part 152, Subpart E. The Contractor assures that no person shall be excluded on these grounds from participating in or receiving the services or benefits of any program or activity covered by this subpart. The Contractor assures that he will require that his covered suborganizations provide assurances to the Contractor that they similarly will undertake affirmative action programs and that they will require assurances from their suborganizations, as required by 14 CFR Part 152, Subpart E, to the same effect.

45. PREVAILING RATE OF WAGE

The Contractor shall pay or provide (and shall cause all subcontractors to pay or provide) to his or their workmen, laborers and mechanics (who are employed by him or them to work on an hourly or daily basis at any trade or occupation at or about the construction site) at least the prevailing rate of wage and supplements for others engaged in the same trade or occupation at the time and in the locality in which the Work is being performed as determined by the Engineer.

For purposes of this Contract, the Engineer has determined that the prevailing rates of wage and supplements are those established by the Commissioner of Labor of the State of New York for the locality and for the period of time in which the Work is performed. The currently prevailing rates of wage and supplements are set forth in the Prevailing Rate Schedule annexed hereto and made a part hereof. These rates are subject to annual adjustment effective July 1st of each year and a Prevailing Rate Schedule reflecting all adjustments will be available for the Contractor's inspection on or about July 15th of each year on the 1st Floor, 2 Montgomery Street, Jersey City, New Jersey 07302 during regular business hours.

The provisions of this numbered clause are inserted in this Contract for the benefit of such workmen, laborers and mechanics as well as for the benefit of the Authority; and if the Contractor or any subcontractor shall pay or provide any such workman, laborer or mechanic less than the rates of wages and supplements above described, such workman, laborer or mechanic shall have a direct right of action against the Contractor or such subcontractor for the difference between the wages and supplements actually paid or provided and those to which he is entitled under this clause. If such workman, laborer or mechanic is employed by any subcontractor whose subcontract does not contain a provision substantially similar to the provisions of this clause (requiring the payment or provision of at least the above minimum, and providing for a cause of action in the event of the subcontractor's failure to pay or provide such wages and supplements) such workman, laborer or mechanic shall have a direct right of action against the Contractor. The Authority shall not be a necessary party to any action brought by any workman, laborer or mechanic to obtain a money judgment against the Contractor or any subcontractor pursuant to this numbered clause.

Nothing herein contained shall be construed to prevent the Contractor or any subcontractor from paying higher rates of wages or providing higher supplements than the minimum hereinbefore prescribed; and nothing herein contained shall be construed to constitute a representation or guarantee that the Contractor or any subcontractor can obtain workmen, laborers and mechanics for the minimum herein before prescribed. All wages actually paid that are in excess of the prevailing wages in the performance of Extra Work, shall be subject, on each occasion, to the initial and continuing approval of the Engineer in advance of the performance of such Extra Work.

The Contractor shall post at the Work site, in a place that is prominent, accessible and visible to all employees of the Contractor and his subcontractors during the daily time period that the Contractor and/or subcontractor performs Work at the site, the appropriate prevailing wage and supplement schedules. The Contractor must inform all employees, including those of his subcontractors, that they may obtain a copy of the prevailing wage and supplement schedule from the Contractor.

The Contractor and every subcontractor shall make and maintain weekly payroll records during the course of the Work and for the period set forth in the clause hereof entitled "Authority Access to Records" for all employees employed in the Work. Such records shall contain the name, address and last four digits of the social security number of each such employee (Contractors and subcontractors must maintain the full social security number of each employee and shall provide them upon request to the Port Authority Inspector General), the employee's correct payroll classification, rate of pay and supplements, daily and weekly number of hours worked, deductions made and actual wages and supplements paid. The Contractor shall submit these weekly payroll records to the Authority (on forms furnished by the Authority) of all his payroll records and those of each of his subcontractors as the Authority may require with the Contractor's monthly Payment Application, together with an affidavit by the Contractor and by each subcontractor to the effect that such payroll records are correct and complete, the wage and supplement rates contained therein are not less than those required by the provisions of this Contract, and the classifications set forth for each employee conform with the Work performed. Such copies and summaries and the original payroll records shall be available for inspection by the Authority (including its Inspector General), and the Contractor and his subcontractors shall permit such representatives to interview employees during Work hours at the construction site.

The Contractor shall prepare a daily report on the Authority form entitled *Contractor Daily Sign-In Sheet*, copies of which can be obtained from the Engineer. The *Contractor Daily Sign-In Sheet* shall be completed as follows:

- 1.) At the beginning of each workday the Contractor shall:
 - a. fill in the top of the *Contractor Daily Sign-In Sheet*, including the location, date, contractor/subcontractor name and contract number;
 - b. ensure that each employee, including those of subcontractors, has printed and signed his or her name and indicated his or her work classifications, the last four digits of his or her social security number, and his or her starting time;
- 2.) At the end of each workday, the Contractor shall:
 - a. ensure that each employee, including those of subcontractors, has signed out and indicated his or her ending time;
 - b. sign the Certification Statement at the bottom of the form to indicate that the information contained in the *Contractor Daily Sign-In Sheet* is true and accurate; and
 - c. submit the original completed form to the Engineer's representative.

In an area of his office at the site of the Work which is accessible to his employees, the Contractor shall display such printed material as may be provided by the Engineer setting forth information for the employees of the Contractor and his subcontractors concerning the wage and supplemental benefit requirements set forth in this numbered clause. The Contractor shall also cause each of his subcontractors to display such material in a similarly accessible place in any office which the subcontractor maintains at the site of the Work.

The Contractor's failure to comply with any provision of this numbered clause shall be deemed a substantial breach of this Contract.

46. EXTRA WORK ORDERS

No Extra Work of a cost in excess of \$250,000 shall be performed except pursuant to written orders of the Chief Engineer expressly and unmistakably indicating his intention to treat the Work described therein as Extra Work; and, no Extra Work of a cost of \$250,000 or less shall be performed except pursuant to written orders of the Chief Engineer, Chief of Construction, Engineer of Construction or Engineer expressly and unmistakably indicating his intention to treat the Work described therein as Extra Work.

In the absence of such an order signed by the Chief Engineer in the case of Extra Work of a cost in excess of \$250,000 and by the Chief Engineer or Chief of Construction or Engineer of Construction or Engineer in the case of Extra Work of a cost of \$250,000 or less, if the Engineer shall direct, order or require any Work, whether orally or in writing, which the Contractor deems to be Extra Work, the Contractor shall nevertheless comply therewith, but shall within twenty-four (24) hours give written notice thereof to the Chief Engineer and the Engineer, stating why he deems it to be Extra Work, and shall moreover furnish to the Engineer time slips and memoranda as required by the clause hereof entitled "Compensation for Extra Work". Said notice, time slips and memoranda are for the purpose of affording to the Chief Engineer an opportunity to verify the Contractor's claim at the time and (if he desires so to do) to cancel promptly such order, direction or requirement of the Engineer, of affording to the Engineer an opportunity of keeping an accurate record of the materials, labor and other items involved, and generally of affording to the Authority an opportunity to take such action as it may deem desirable in light of the Contractor's claims. Accordingly, the failure of the Contractor to serve such notice or to furnish such time slips and memoranda shall be deemed to be a conclusive and binding determination on his part that the direction, order or requirement of the Engineer does not involve the performance of Extra Work, and shall be deemed to be a waiver by the Contractor of all claims for additional compensation or damages by reason thereof, such written notice, time slips and memoranda being a condition precedent to such claims.

47. PERFORMANCE OF EXTRA WORK

The provisions of this Form of Contract relating generally to Work and its performance shall apply without exception to any Extra Work required and to the performance thereof. Moreover, the provisions of the Specifications relating generally to the Work and its performance shall also apply to any Extra Work required and to the performance thereof, except to the extent that a written order in connection with any particular item of Extra Work may expressly provide otherwise.

48. TITLE TO MATERIALS

All materials to become part of the permanent construction shall be and become the property of the Authority upon delivery at the construction site or upon being especially adapted for use in or as a part of the permanent construction, whichever may first occur, subject however to the Contractor's assumption of risk under the clause hereof entitled "Risks Assumed by the Contractor", subparagraph A.

The Contractor shall promptly furnish to the Authority such bills of sale and other instruments as may be required by it, properly executed, acknowledged and delivered, assuring to it title to such materials, free of encumbrances and shall mark or otherwise identify all such materials as the property of the Authority.

49. ASSIGNMENTS AND SUBCONTRACTS

Any assignment or other transfer by the Contractor of this Contract or any part hereof or of any of his rights hereunder or of any monies due or to become due hereunder and any delegation of any of his duties hereunder without the express consent in writing of the Authority shall be void and of no effect as to the Authority, provided, however, that the Contractor may subcontract portions of the Work to such persons as the Engineer may, from time to time, expressly approve in writing. For each individual, partnership or corporation proposed by the Contractor as a subcontractor, the Contractor shall submit to the Authority a certification or, if a certification cannot be made, a statement by such person, partnership or corporation to the same effect as the certification or statement required from the Contractor pursuant to the clauses of the "Information For Bidders" entitled "Certification of No Investigation (Criminal or Civil Anti-Trust), Indictment, Conviction, Suspension, Debarment, Disqualification, Prequalification Denial or Termination, Etc; Disclosure of Other Required Information", "Non-Collusive Bidding and Code of Ethics Certification; Certification of No Solicitation Based on Commission, Percentage, Brokerage, Contingent Fee or Other Fee" and "Certification of Participation in a State-Registered Apprenticeship Program". The Certification of Participation in a State-Registered Apprenticeship Program shall only be applicable to each subcontractor whose total amount of subcontract under this Contract is greater than \$1 million. All further subcontracting by any subcontractor shall also be subject to such approval of the Engineer. Approval of a subcontractor may be conditioned on (among other things) the furnishing, without expense to the Authority, of a surety bond guaranteeing payment by the subcontractor of claims of materialmen, subcontractors, workmen and other third persons arising out of the subcontractor's performance of any part of the Work. Approval of a subcontractor may be rescinded for, among other things, failure of the Contractor to furnish the subcontractor's certificate of insurance, as required by the Form of Contract clause entitled "Insurance Procured by Contractor", within the time set forth in said clause.

No consent to any assignment or other transfer, and no approval of any subcontractor, shall under any circumstances operate to relieve the Contractor of any of his obligations; no subcontract, no approval of any subcontractor and no act or omission of the Authority or the Engineer shall create any rights in favor of such subcontractor and against the Authority; and as between the Authority and the Contractor, all assignees, subcontractors, and other transferees shall for all purposes be deemed to be agents of the Contractor. Moreover, all subcontracts and all approvals of subcontractors shall be and, regardless of their form, shall be deemed to be conditioned upon performance by the subcontractor in accordance with this Contract; and if any subcontractor shall fail to perform the Contract to the satisfaction of the Engineer, the Engineer shall have the absolute right to rescind his approval forthwith and to require the performance of the Contract by the Contractor personally or through other approved subcontractors.

50. CLAIMS OF THIRD PERSONS

The Contractor undertakes to pay all claims lawfully made against him by subcontractors, materialmen and workmen, and all claims lawfully made against him by other third persons arising out of or in connection with or because of the performance of this Contract and to cause all subcontractors to pay all such claims lawfully made against them.

51. CERTIFICATES OF PARTIAL COMPLETION

If at any time prior to the rendition of the Certificate of Final Completion, any portion of the permanent construction has been satisfactorily completed, and if in the judgment of the Engineer such portion of the permanent construction is not necessary for the operations of the Contractor but will be immediately useful to and is needed by the Authority for other purposes, the Engineer may render to the Authority and to the Contractor a certificate in writing to that effect (herein called a Certificate of Partial Completion), and thereupon or at any time thereafter the Authority may take over and use the portion of the permanent construction described in such Certificate and exclude the Contractor therefrom.

The rendition of a Certificate of Partial Completion shall not be construed to constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates in the event that he has failed to complete the same in accordance with the terms of this Contract. Moreover, the acceptance of a Certificate of Partial Completion by the Authority shall not operate to release the Contractor or his sureties from any obligations under or upon this Contract or the Performance and Payment Bond.

52. CERTIFICATE OF SUBSTANTIAL COMPLETION

Prior to the rendition of the Certificate of Final Completion, the Engineer may deem the entire Work to be substantially completed when, in the judgment of the Engineer, the permanent construction has been satisfactorily completed to the point where the Work is fit for its intended purpose and use. The Engineer may, if such a determination of substantial completion is made and at such time, render to the Authority and to the Contractor a certificate in writing to that effect (herein called the Certificate of Substantial Completion), and thereupon or at any time thereafter the Authority may take over and use the permanent construction described in such Certificate and exclude the Contractor therefrom. Whether to make a determination of a substantial completion as to any portion of the Work, and whether to render such a Certificate, shall be the discretionary determination of the Engineer based upon an examination and appraisal of the completed Work, and no right to such a determination or certification is established in the Contractor by this provision.

The rendition of such Certificate of Substantial Completion shall not relieve the Contractor of his obligation hereunder to complete the Work of this Contract nor shall it be construed to constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates in the event that he has failed to complete the same in accordance with the terms of this Contract. Moreover, the acceptance of a Certificate of Substantial Completion by the Authority shall not operate to release the Contractor or his sureties from any obligations under or upon this Contract or the Performance and Payment Bond.

When the Contractor is of the opinion that the Work is substantially complete as described above, the Contractor may submit to the Engineer a written request that the Engineer inspect the Work so as to determine, in the Engineer's sole opinion, whether substantial completion has been achieved. The Contractor's written request shall list the specific items of Work that are incomplete. Upon such a request, the Engineer will respond within 30 days with a Certificate of Substantial Completion or provide a written explanation of the reasons why the Work is not substantially complete including a list of open items necessary to achieve substantial completion. Nothing contained herein shall be deemed to preclude the Engineer from making a determination of substantial completion in the absence of a request therefor by the Contractor.

53. CERTIFICATE OF FINAL COMPLETION

After the satisfactory completion of all Work whatsoever required and the making of such tests and inspections as may be necessary or desirable, the Engineer shall render to the Authority and to the Contractor a certificate in writing (herein called the Certificate of Final Completion) certifying that in his opinion all Work under this Contract including Extra Work, has been completed in accordance with the Contract Drawings and Specifications and the requirements of the Engineer, and certifying the date as of which it was so completed.

The rendition of the Certificate of Final Completion shall not be construed to constitute an extension of the Contractor's time for performance in the event that he has failed to complete the Work in accordance with the terms of this Contract. Moreover, the acceptance of the Certificate of Final Completion by the Authority shall not operate to release the Contractor or his sureties from any obligations under or upon this Contract or the Performance and Payment Bond.

54. NO GIFTS, GRATUITIES, OFFERS OF EMPLOYMENT, ETC.

During the term of this Contract, the Contractor shall not offer, give or agree to give anything of value either to an Authority employee, agent, job shopper, consultant, construction manager or other person or firm representing the Authority, or to a member of the immediate family (i.e., a spouse, child, parent, brother or sister) of any of the foregoing, in connection with the performance by such employee, agent, job shopper, consultant, construction manager or other person or firm representing the Authority of duties involving transactions with the Contractor on behalf of the Authority, whether or not such duties are related to this Contract or any other Authority contract or matter. Any such conduct shall be deemed a material breach of this Contract.

As used herein "anything of value" shall include but not be limited to any (a) favors, such as meals, entertainment, transportation (other than that contemplated by the Contract or any other Authority contract), etc., which might tend to obligate the Authority employee to the Contractor, and (b) gift, gratuity, money, goods, equipment, services, lodging, discounts not available to the general public, offers or promises of employment, loans or the cancellation thereof, preferential treatment or business opportunity. Such term shall not include compensation contemplated by this Contract or any other Authority contract.

Where used in this clause, the term "Authority" shall be deemed to include all subsidiaries of the Authority.

The Contractor shall ensure that no gratuities of any kind or nature whatsoever shall be solicited or accepted by him and by his personnel for any reason whatsoever from the passengers, tenants, customers or other persons using the Facility and shall so instruct his personnel.

In the event that the Contractor becomes aware of the occurrence of any conduct that is prohibited by this numbered clause entitled "No Gifts, Gratuities, Offers of Employment, Etc.", he shall report such occurrence to the Port Authority's Office of Inspector General within three (3) business days of obtaining such knowledge. (See <http://www.panynj.gov/inspector-general> for information about how to report information to the Office of Inspector General.) Failing to report such conduct shall be considered a material breach of this Contract.

In addition, during the term of this Contract, the Contractor shall not make an offer of employment or use confidential information in a manner proscribed by the Code of Ethics and Financial Disclosure dated as of March 11, 2014, or as may be revised (a copy of which is available upon request to the Office of the Secretary of the Authority).

The Contractor shall include the provisions of this clause in each subcontract entered into under this Contract.

CHAPTER V

WARRANTIES MADE AND LIABILITY ASSUMED BY THE CONTRACTOR

55. CONTRACTOR'S WARRANTIES

The Contractor represents and warrants:

- A. That he is financially solvent, that he is experienced in and competent to perform the type of services contemplated by this Contract, that the facts stated or shown in any papers submitted or referred to in connection with his Proposal are true, and, if the Contractor be a corporation, that it is authorized to perform this Contract;
- B. That he has carefully examined and analyzed the provisions and requirements of this Contract and inspected the construction site, that from his own investigations he has satisfied himself as to the nature of all things needed for the performance of this Contract, the general and local conditions and all other matters which in any way affect this Contract or its performance, and that the time available to him for such examination, analysis, inspection and investigations was adequate;
- C. That the Contract is feasible of performance in accordance with all its provisions and requirements and that he can and will perform it in strict accordance with such provisions and requirements;
- D. That no Commissioner, officer, agent or employee of the Authority is personally interested directly or indirectly in this Contract or the compensation to be paid hereunder; and
- E. That, except only for those representations, statements or promises expressly contained in this Contract, no representation, statement or promise, oral or in writing, of any kind whatsoever by the Authority, its Commissioners, officers, agents, employees or consultants has induced the Contractor to enter into this Contract or has been relied upon by the Contractor, including any with reference to: (1) the meaning, correctness, suitability, or completeness of any provisions or requirements of this Contract; (2) the nature, existence or location of materials, structures, obstructions, utilities or conditions, surface or subsurface, which may be encountered at the construction site; (3) the nature, quantity, quality or size of the materials, equipment, labor and other facilities needed for the performance of this Contract; (4) the general or local conditions which may in any way affect this Contract or its performance; (5) the price of the Contract; or (6) any other matters, whether similar to or different from those referred to in (1) through (5) immediately above, affecting or having any connection with this Contract, the bidding thereon, any discussions thereof, the performance thereof or those employed therein or connected or concerned therewith.

Moreover, the Contractor accepts the conditions at the construction site as they may eventually be found to exist and warrants and represents that he can and will perform the Contract under such conditions and that all materials, equipment, labor and other facilities required because of any unforeseen conditions (physical or otherwise) shall be wholly at his own cost and expense, unless specifically provided for elsewhere in this Contract.

Nothing in the Contract Drawings or Specifications or any other part of the Contract is intended as or shall constitute a representation by the Authority as to the feasibility of performance of this Contract or any part thereof. Moreover, the Authority does not warrant or represent either by issuance of the Contract Drawings and Specifications or by any provision of this Contract as to time for performance or completion or otherwise that the Contract may be performed or completed by the times required herein or by any other times.

The Contractor further represents and warrants that he was given ample opportunity and time and by means of this paragraph was requested by the Authority to review thoroughly all documents forming this Contract prior to opening of Proposals on this Contract in order that he might request inclusion in this Contract of any statement, representation, promise or provision which he desired or on which he wished to place reliance; that he did so review said documents, that either every such statement, representation, promise or provision has been included in this Contract or else, if omitted, that he expressly relinquishes the benefit of any such omitted statement, representation, promise or provision and is willing to perform this Contract without claiming reliance thereon or making any other claim on account of such omission.

The Contractor further recognizes that the provisions of this numbered clause (though not only such provisions) are essential to the Authority's consent to enter into this Contract and that without such provisions, the Authority would not have entered into this Contract.

56. RISKS ASSUMED BY THE CONTRACTOR

The Contractor assumes the following distinct and several risks, whether they arise from acts or omissions (whether negligent or not) of the Contractor, of the Authority, or of third persons, or from any other cause, and whether such risks are within or beyond the control of the Contractor, excepting only risks which arise solely from affirmative acts done by the Authority subsequent to the opening of Proposals on this Contract with actual and wilful intent to cause the loss, damage and injuries described in subparagraphs A through C below:

- A. The risk of loss or damage to the permanent construction prior to the rendition of the Certificate of Final Completion (other than loss or damage to the portions of the permanent construction with respect to which Certificates of Partial Completion have been issued), and the Contractor shall forthwith repair, replace and make good any such loss or damage to the permanent construction without cost to the Authority;
- B. The risk of claims, fines or penalties, just or unjust, made by third persons or assessed by courts or governmental agencies or entities against the Contractor or the Authority on account of injuries (including wrongful death), loss, damage or liability of any kind whatsoever arising or alleged to arise out of or in connection with the performance of the Work (whether or not actually caused by or resulting from the performance of the Work) or out of or in connection with the Contractor's operations or presence at or in the vicinity of the construction site or Authority premises, including claims against the Contractor or the Authority for the payment of workers' compensation, whether such claims, fines or penalties are made or assessed and whether such injuries, damage, loss and liability are sustained at any time both before and after the rendition of the Certificate of Final Completion;
- C. The risk of loss or damage to any property of the Contractor, and of claims made against the Contractor or the Authority for loss or damage to any property of subcontractors, materialmen, workmen and others performing the Work, occurring at any time prior to completion of removal of such property from the construction site or Authority premises or the vicinity thereof.

The Contractor shall indemnify the Authority against all claims described in subparagraphs B and C above and for all expense incurred by it in the defense, settlement or satisfaction thereof, including expenses of attorneys, except where indemnity would be precluded by New York State General Obligations Law, Section 5-322.1 or by other applicable law. If so directed, the Contractor shall defend against any claim described in subparagraphs B and C above, in which event he shall not without obtaining express advance permission from the General Counsel of the Authority raise any defense involving in any way jurisdiction of the tribunal, immunity of the Authority, governmental nature of the Authority or the provisions of any statutes respecting suits against the Authority. Unless a claim is one which the Contractor is not required to indemnify against as described in the first sentence of this paragraph, such defense shall be at the Contractor's cost.

The provisions of this numbered clause shall also be for the benefit of the Commissioners, officers, agents and employees of the Authority, so that they shall have all the rights which they would have under this numbered clause if they were named at each place above at which the Authority is named, including a direct right of action against the Contractor to enforce the foregoing indemnity, except, however, that the Authority by action of its Board of Commissioners may at any time in its sole discretion and without liability on its part cancel the benefit conferred on any of them by this numbered clause, whether or not the occasion for invoking such benefit has already arisen at the time of such cancellation.

Neither the issuance of a Certificate of Completion nor the making of Final Payment shall release the Contractor from his obligations under this numbered clause. Moreover, neither the enumeration in this numbered clause nor the enumeration elsewhere in this Contract of particular risks assumed by the Contractor or of particular claims for which he is responsible shall be deemed (a) to limit the effect of the provisions of this numbered clause or of any other clause of this Contract relating to such risks or claims, (b) to imply that he assumes or is responsible for risks or claims only of the type enumerated in this numbered clause or in any other clause of this Contract, or (c) to limit the risks which he would assume or the claims for which he would be responsible in the absence of such enumerations.

Inasmuch as the Authority has agreed to indemnify the City of New York against claims of the types described in subparagraph B above made against said city, the Contractor's obligation under subparagraph B above shall include claims by said city against the Authority for such indemnification, including those arising from acts or omissions (whether negligent or not) of said city.

57. NO THIRD PARTY RIGHTS

Nothing contained in this Contract is intended for the benefit of third persons, except to the extent that the Contract specifically provides otherwise by use of the words "benefit" or "direct right of action".

58. INSURANCE PROCURED BY THE AUTHORITY

In order to reduce the cost of this Contract, the Authority will procure and will maintain in force and pay the premiums on:

- A. A policy of public liability (Comprehensive - Commercial General Liability, including Contractual) insurance on which the Contractor and the subcontractors will be insureds issued by an insurance company satisfactory to the Authority, with current coverage limits of \$50 million per occurrence for bodily injury and property damage liability.

- B. A policy of workers' compensation and employer's liability insurance fulfilling the Contractor's and the subcontractor's obligations under the applicable State Workers' Compensation Law for those employees of the Contractor and the subcontractors employed pursuant to this Contract in operations conducted at the site of the Work hereunder. Coverage under this policy may, as appropriate, include one or more of the following endorsements:
- 1.) Longshore and Harbor Workers' Compensation Act Coverage Endorsement. (Applies when performing work on or around navigable waters).
 - 2.) Maritime Coverage Endorsement (Applies to masters or members of the crews of vessels, if vessels are used).
 - 3.) Federal Employer's Liability Act Coverage Endorsement. (May apply to railroad related Work).

Determination in any instance as to the appropriateness of the included coverage described in B.1, 2 and 3 above will be made based upon information to be provided by the Contractor relating to the mode of performance of Work to be done under the Contract.

The policy described in B above will not provide coverage for any workers' compensation for the Contractor and/or subcontractors who perform any asbestos work. In such cases, the Contractor or subcontractors shall procure and maintain, at their own expense, the workers' compensation insurance in accordance with the requirements of law in the state(s) where the Work will take place, including employer's liability insurance (in limits of not less than \$1 million per occurrence).

Should the Contractor and/or subcontractors be required to procure the workers' compensation insurance, within ten days after the acceptance of his Proposal the Contractor shall deliver to the General Manager, Risk Financing, The Port Authority of NY & NJ, Treasury Department, 150 Greenwich Street, 19th Floor, Four World Trade Center, New York, NY 10007 (Attn: Contract Insurance Review), an original certificate, stating the Contract number, from the insurer. A duplicate certificate evidencing the above insurance shall also be delivered to the Engineer. With regard to insurance required to be procured by a subcontractor, the Contractor shall deliver the certificate described above at least ten days before the subcontractor commences Work.

The requirements for insurance procured by the Contractor or subcontractors shall not in any way be construed as a limitation on the nature or extent of the obligations of the Contractor or subcontractors.

- C. A policy of builder's risk insurance, covering the improvements or other Work to be effectuated by the Contractor and the subcontractors, with coverage limits of \$50 million per occurrence for all locations combined (subject to a \$50 million annual aggregate for flood and earthquake damage and a limit of \$10 million per occurrence for damage to off-site storage and property in-transit). The deductible is \$10,000 per occurrence for all losses except those caused by flood and earthquake, where a \$50,000 deductible per occurrence with respect to flood, and a \$25,000 deductible per occurrence with respect to earthquake are in effect. The policy form contains various exclusions, including but not limited to the following property exclusions: automobiles; aircraft; and Contractor's and subcontractors' machinery, tools, and equipment and property of a similar nature, including forms, shoring, scaffolding, temporary structures, rental property/equipment and similar property, not intended to become a permanent part of a building or structure. The Contractor and the subcontractors must refer to the policy form to determine all properties and perils included and excluded and to determine their rights and responsibilities as insureds under the policy form. The Contractor and the subcontractors are responsible for payment for all losses within the deductibles and losses not covered by the builder's risk policies.

The current policies described in A, B and C of this numbered clause are available for examination by appointment in the office of the General Manager, Risk Financing, The Port Authority of NY & NJ, Treasury Department, 150 Greenwich Street, 19th Floor, Four World Trade Center, New York, NY 10007. The policies under A above are subject to certain liability coverage exclusions, which include, but are not limited to, exclusions from liability from claims arising from pollution and exposure to asbestos.

The Contractor and subcontractors shall comply with all obligations of the insured under or in connection with all of the policies described in A, B and C above.

The Authority shall have the right at any time and from time to time at its option to procure insurance substituting in whole or in part for any or all of the policies described in A, B and C above or to require that the Contractor and the subcontractors themselves obtain insurance substituting in whole or part for that above referred to, provided always, however, that the Contractor and the subcontractors shall be afforded coverage as stipulated by the Authority and the Authority shall either pay the premiums on such substitute insurance or reimburse the Contractor and the subcontractors therefor.

Neither the procurement of the above insurance or any substitute insurance nor the extent of the coverage or the limits of liability thereunder shall be construed to be a limitation on the nature or extent of the Contractor's obligations, or to relieve the Contractor of any such obligations, and the procurement of the above insurance is only for the purpose of reducing the cost of the Contract without constituting any representation by the Authority as to the adequacy of the insurance to protect the Contractor against the obligations imposed on the Contractor by law (except the applicable State Workers' Compensation Law) or by this or any other contract.

Notwithstanding any provision of this clause, however, no subcontractor shall be or have the right to be covered under the policies of insurance above referred to until the subcontractor has been expressly approved in writing by the Engineer, as required under this Contract, and such approval may be withheld, among other reasons, until execution by the subcontractor of agreements affirming his obligations provided in this clause with respect to the above insurance.

The provisions of this numbered clause are not intended to create any rights for the Contractor other than rights which may be available to the Contractor under said policies themselves, whatever such rights may be. Moreover, the Authority makes no representation or guaranty, either by the provisions of this numbered clause or otherwise, as to the effect of or the coverage under said policies, and no employee or agent of the Authority is authorized to make any such representation or guaranty, either by the provisions of this numbered clause or otherwise, as to the effect of or the coverage under said policies, and no employee or agent of the Authority is authorized to make any such representation or guaranty or to offer any interpretation of or information on said policies. The Contractor warrants and represents that he has examined and is familiar with the above stated coverages and that in submitting his Proposal he has relied solely on his own interpretation thereof and not on any representations or statements, oral or written, of the Authority, its Commissioners, officers, agents, employees, consultants or contractors.

All negotiations and adjustments with any insurer concerning payment for any loss, the risk of which is borne by the Contractor under this Contract, shall be the responsibility of and shall be conducted by the Contractor unless the applicable policy provides otherwise. The Contractor shall, however, inform the Engineer of the progress of all such negotiations and notify the Engineer sufficiently in advance of all meetings thereon so that the Engineer or designated representatives may attend said negotiations if they so desire.

The Authority shall be entitled to all returned premiums, dividends and credits which may become payable at any time for any reason whatsoever in connection with the aforementioned insurance. The Contractor hereby assigns to the Authority all such returned premiums, dividends and credits and the subcontractors shall be deemed to have assigned to the Authority all such returned premiums, dividends and credits by becoming subcontractors under this Contract. The Contractor shall execute and cause the subcontractors to execute any instrument necessary or convenient to evidence the Authority's right to such returned premiums, dividends and credits.

Notwithstanding any payment by the Authority of any insurance premiums, the Authority shall not be deemed the employer of any employees hired by the Contractor or any subcontractor covered by such insurance nor shall it be liable for any of the obligations of such employer.

The Contractor and the subcontractors shall cooperate to the fullest extent with the Authority in all matters relating to the aforementioned insurance and shall comply with all requirements of all insurance policies procured by the Authority. They shall also at their own expense furnish the Engineer or a duly authorized representative with copies of all payrolls, correspondence, papers, records and other things necessary or convenient for dealing with or defending against any claims and for procuring or administering the aforementioned insurance including furnishing the name of any of their employees, officers, or agents whose presence or testimony is necessary or convenient in any negotiations or proceedings involving such insurance.

59. INSURANCE PROCURED BY CONTRACTOR

The Contractor, and all subcontractors, shall maintain and pay the premiums on the policy or policies of insurance for coverage(s) as hereinafter described, which shall cover their operations hereunder, shall be effective throughout the effective period of this Contract, and shall afford coverage(s) in not less than the amounts set forth below:

- A. Commercial Automobile Liability Insurance: covering "any" vehicles on the broadest commercially available form:
 - 1.) Vehicles operating in the Air Operations Area without an authorized escort require a Combined single limit for bodily injury and property damage liability – \$25 million per each accident.
 - 2.) Vehicles operating in the Air Operations Area with an authorized escort require a Combined single limit for bodily injury and property damage liability - \$5 million per each accident.
 - 3.) Vehicles operating outside of the Air Operations Area require a Combined single limit for bodily injury and property damage liability - \$2 million per each accident.

In addition, the liability policy(ies) shall name the Port Authority of New York and New Jersey, its related entities, their commissioners, directors, officers, partners, employees, agents and the City of New York as additional insureds. The liability policy(ies) and the certificate(s) of insurance shall contain separation of insured conditions and severability of interests clauses for all policies. These insurance requirements shall be in effect for the duration of the Contract and include any warrantee/guarantee period and any maintenance period. An act or omission of one of the insureds shall not reduce or void coverage to the other insureds. Furthermore, the Contractor's insurance shall be primary insurance as respects to the above additional insureds. Any insurance or self-insurance maintained by the above additional insureds shall not contribute to any loss or claim.

The certificate(s) of insurance and liability policy(ies) must contain the following endorsement for the above liability coverages:

"The insurer(s) shall not, without obtaining the express advance written permission from the General Counsel of the Authority, raise any defense involving in any way the jurisdiction of the Tribunal over the person of the Authority, the immunity of the Authority, its Commissioners, officers, agents or employees, the governmental nature of the Authority or the provisions of any statutes respecting suits against the Authority".

The Contractor shall deliver certified copies of the policy(ies) described above or certificate(s) of insurance evidencing the existence thereof to the Engineer at the location where the Work will be performed, within ten (10) days after the acceptance of his Proposal. Such policy(ies) or certificate(s) shall state the Contract number and shall contain a valid provision or endorsement that the policy(ies) may not be canceled, terminated, changed or modified without giving thirty (30) days written advance notice thereof to the Authority.

Certified copies of all renewal policies or certificates evidencing their existence shall be delivered to the Engineer at the location where the Work will be performed at least ten (10) days prior to the expiration date of each expiring policy. If at any time any of the certificates or policies shall be or become unsatisfactory to the Authority as to form or substance, or if the carrier issuing any such certificate or policy shall be or become unsatisfactory to the Authority, the Contractor shall promptly obtain a new and satisfactory certificate and policy. Upon request of the General Manager, Risk Financing, the Contractor shall furnish the Authority with a certified copy of each policy stated above.

The requirements for insurance procured by the Contractor shall not in any way be construed as a limitation on the nature or extent of the contractual obligations assumed by the Contractor under this Contract. The insurance requirements are not a representation by the Authority as to the adequacy of the insurance to protect the Contractor against the obligations imposed on him by law or by this or any other contract.

CHAPTER VI

RIGHTS AND REMEDIES

60. RIGHTS AND REMEDIES OF AUTHORITY

The Authority shall have the following rights in the event the Chief Engineer shall deem the Contractor guilty of a breach of any term whatsoever of this Contract:

- A. The right to take over and complete the Work or any part thereof as agent for and at the expense of the Contractor, either directly or through other contractors.
- B. The right to cancel this Contract as to any or all of the Work yet to be performed.
- C. The right to specific performance, an injunction or any other appropriate equitable remedy.
- D. The right to money damages.

For the purpose of this Contract, breach shall include but not be limited to the Contractor's failure to procure insurance satisfactory to the Authority within the time limit specified in the Clause hereof entitled "Insurance Procured by Contractor" and the following, whether or not the time has yet arrived for performance of an obligation under this Contract: a statement by the Contractor to any representative of the Authority indicating that he cannot or will not perform any one or more of his obligations under this Contract; any act or omission of the Contractor or any other occurrence which makes it improbable at the time that he will be able to perform any one or more of his obligations under this Contract; any suspension of or failure to proceed with any part of the Work by the Contractor which makes it improbable at the time that he will be able to perform any one or more of his obligations under this Contract; any false certification at any time by the Contractor as to any material item certified pursuant to the clauses of the Information For Bidders entitled "Certification of No Investigation (Criminal or Civil Anti-Trust), Indictment, Conviction, Suspension, Debarment, Disqualification, Prequalification Denial or Termination, Etc; Disclosure of Other Required Information", "Non-Collusive Bidding and Code of Ethics Certification; Certification of No Solicitation Based on Commission, Percentage, Brokerage, Contingent Fee or Other Fee", and "Certification of Participation in a State-Registered Apprenticeship Program", any false certification at any time by the Contractor or a subcontractor pursuant to the clause "Prevailing Rate of Wage Certification" set forth in the Information for Bidders, or the willful or fraudulent submission of any signed statement pursuant to such clauses which is false in any material respect; or the Contractor's incomplete or inaccurate representation of its status with respect to the circumstances provided for in such clauses.

The enumeration in this numbered clause or elsewhere in this Contract of specific rights and remedies of the Authority shall not be deemed to limit any other rights or remedies which the Authority would have in the absence of such enumeration; and no exercise by the Authority of any right or remedy shall operate as a waiver of any other of its rights or remedies not inconsistent therewith or to estop it from exercising such other rights or remedies.

61. RIGHTS AND REMEDIES OF CONTRACTOR

Inasmuch as the Contractor can be adequately compensated by money damages for any breach of this Contract which may be committed by the Authority, the Contractor expressly agrees that no default, act or omission of the Authority shall constitute a material breach of this Contract, entitling him to cancel or rescind it or (unless the Engineer shall so direct) to suspend or abandon performance.

62. PERFORMANCE OF WORK AS AGENT FOR CONTRACTOR

In the exercise of its right to take over and complete Work as agent for the Contractor, for which provision is made in the clause hereof entitled "Rights and Remedies of Authority", the Authority shall have the right to take possession of and use or permit the use of any and all plant, materials, equipment and other facilities provided by the Contractor for the purpose of the Work and the Contractor shall not remove any of the same from the site of the Work without express permission. Unless expressly directed to discontinue the performance of all Work, the Contractor shall continue to perform the remainder thereof in such manner as in no way will hinder or interfere with the portions taken over by the Authority.

In the certificate of total compensation earned, for which provision is made in the clause hereof entitled "Final Payment", the Engineer will separately state the amount of Work performed by the Authority as agent for the Contractor, credit to the Authority the cost thereof, and credit to the Contractor the compensation earned thereby; and the difference between them shall be payable by the Contractor to the Authority, or vice versa as the case may be. If such difference is in its favor, the Authority may deduct it from any moneys due the Contractor, and if such moneys be insufficient, the balance thereof shall be payable to it on demand; if in the Contractor's favor, it shall constitute part of the Final Payment.

The exercise by the Authority of its right to take over the Work shall not release the Contractor or his sureties from any of his or their obligations or liabilities under this Contract or the Performance and Payment Bond.

63. NO ESTOPPEL OR WAIVER

The Authority shall not be precluded or estopped by any acceptance, certificate or payment, final or otherwise, issued or made under this Contract or otherwise issued or made by it, the Engineer, or any officer, agent or employee of the Authority, from showing at any time the true amount and character of Work performed, or from showing that any such acceptance, certificate or payment is incorrect or was improperly issued or made; and the Authority shall not be precluded or estopped, notwithstanding any such acceptance, certificate or payment, from recovering from the Contractor any damages which it may sustain by reason of any failure on his part to comply strictly with this Contract, and any moneys which may be paid to him or for his account in excess of those to which he is lawfully entitled.

Neither the acceptance of the Work or any part thereof, nor any payment therefor, nor any order or certificate issued under this Contract or otherwise issued by the Authority, the Engineer, or any officer, agent or employee of the Authority, nor any permission or direction to continue with the performance of Work, nor any performance by the Authority of any of the Contractor's duties or obligations, nor any aid lent to the Contractor by the Authority in his performance of such duties or obligations, nor any other thing done or omitted to be done by the Authority, its Commissioners, officers, agents or employees shall be deemed to be a waiver of any provision of this Contract or of any rights or remedies to which the Authority may be entitled because of any breach thereof, excepting only a resolution of its Commissioners, providing expressly for such waiver. No cancellation, rescission or annulment hereof, in whole or as to any part of the Work, because of any breach hereof, shall be deemed a waiver of any money damages to which the Authority may be entitled because of such breach. Moreover, no waiver by the Authority of any breach of this Contract shall be deemed to be a waiver of any other or any subsequent breach.

CHAPTER VII
FEDERAL EMERGENCY MANAGEMENT AGENCY REQUIREMENTS

64. DEFINITIONS

To avoid undue repetition, the following terms, as used within these "FEDERAL EMERGENCY MANAGEMENT REQUIREMENTS," shall be construed as follows:

"Agreement" means "Contract".

"Simplified Acquisition Threshold" means the dollar amount below which a non-Federal entity may purchase property or services using small purchase methods. The Simplified Acquisition Threshold is set by the Federal Acquisition Regulation at 48 CFR Subpart 2.1 (Definitions) and in accordance with 41 U.S.C. 1908.

65. INCORPORATION OF FEDERAL EMERGENCY MANAGEMENT AGENCY TERMS

This Agreement is anticipated to be partially funded by the Federal Emergency Management Agency ("FEMA").

Anything to the contrary herein notwithstanding, all FEMA-mandated terms contained within this Chapter shall be deemed to control in the event of a conflict with other provisions contained in this Contract. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any Authority requests that would cause the Authority to be in violation of the FEMA terms and conditions.

All federal laws and regulations applicable to the receipt of FEMA grants, including, but not limited to those remedies set forth in Title 44 of the Code of Federal Regulations, Part 13 ("44 C.F.R. 13") shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein. If any provision of this Contract shall be such as to effect non-compliance with any FEMA requirement, such provision shall not be deemed to form part hereof, but the balance of this Contract shall remain in full force and effect.

66. FEDERAL CHANGES

The Contractor shall at all times comply with all applicable FEMA regulations, policies, procedures and directives, as they may be amended or promulgated from time to time during the term of this Contract. Contractor's failure to so comply shall constitute a material breach of this Contract. The most recent Federal laws, regulations, policies, and administrative practices apply to this Contract at any particular time, unless FEMA issues a written determination otherwise. All standards or limits are minimum requirements, unless modified by the FEMA.

67. NO FEDERAL GOVERNMENT OBLIGATIONS TO THIRD PARTIES

The Authority and the Contractor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this Contract and shall not be subject to any obligations or liabilities to the Authority, Contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.

The Contractor agrees to include the above clause in each subcontract. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

68. ORGANIZATIONAL CONFLICT OF INTEREST

- A. This Contract may give rise to a potential for an organizational conflict of interest. An organizational conflict of interest exists when the nature of the work to be performed under the contract may, without some form of restriction on future activities, result in an unfair competitive advantage to the Contractor.
- 1.) The Contractor shall have access to confidential and/or sensitive Authority information in the course of contract performance. Additionally, the Contractor may be provided access to proprietary information obtained from other contracted entities during contract performance. The Contractor agrees to protect all such information from disclosure unless so authorized, in writing, by the Authority and to refrain from using such information for any purpose other than that for which it was furnished.
 - 2.) To the extent that the Contractor either (a) uses confidential and/or sensitive Authority information or proprietary information obtained from other Authority contractors to develop any form of document, report, or plan that is determined by the Authority to be the basis, in whole or in part, of any subsequent solicitation issued by the Authority or (b) develops written specifications that are used in any subsequent solicitation issued by the Authority, the Contractor agrees that he shall not be eligible to compete for such subsequent solicitation(s) as a prime or principal contractor or as part of any teaming arrangement unless the Authority provides, in writing, a specific waiver of this restriction. The duration of any restriction imposed under this subparagraph shall not exceed the length of the initial performance period of any subsequently awarded contract for which the Contractor was ineligible to compete.
- B. The Contractor, by submitting his Proposal, agrees to the above stated conditions and terms and further agrees to perform all duties under the Contract and, in doing so, not to enter into contractual agreements with Authority prime contractors and first-tier subcontractors in such a way as to create an organizational conflict of interest.
- C. If the Authority determines that the Contractor has violated any term of this numbered clause, the Authority may take any appropriate action available under the law or regulations to obtain redress to include, but not be limited to, requiring the Contractor to terminate any affiliation or contractual arrangement with an Authority prime contractor or first-tier subcontractor at no cost to the Authority; determining the Contractor ineligible to compete for or be awarded any subsequent or "follow-on" contracts that may be based upon the Contractor's actions under this Contract or violations of this numbered clause, or terminating this Contract, in whole or in part.

69. CERTIFICATION - DEBARMENT AND SUSPENSION

This Contract is a covered transaction for purposes of 2 C.F.R. Parts 180 and 3000. As such, the Contractor is required to verify that none of the Contractor, his principals, as defined at 2 C.F.R. 180.995, or affiliates, as defined at 2 C.F.R. 180.905, are excluded or disqualified as defined at 2 C.F.R. 180.935 and 180.940.

The Contractor is required to comply with 2 C.F.R. 180, Subpart C and must include the requirement to comply with 2 C.F.R. 180, Subpart C in any lower tier covered transaction it enters into.

By signing and submitting his Proposal, the Contractor certifies as follows:

The certification in this clause is a material representation of fact relied upon by the Port Authority of New York and New Jersey. If it is later determined that the Contractor knowingly rendered an erroneous certification, in addition to remedies available to the Port Authority of New York and New Jersey, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The Contractor agrees to comply with the requirements of 2 C.F.R. 180, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The Contractor further agrees to include a provision requiring such compliance in his lower tier covered transactions.

- A. Each potential contractor, for major third party contracts, is required to complete a certification entitled "Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion" for himself and his principals and requires each subcontractor or supplier (for subcontracts and supplier agreements expected to equal or exceed \$25,000) to complete a certification entitled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tiered Covered Transactions" for himself and his principals. Copies of the required Certification forms and accompanying instructions are set forth at the end of this Chapter.
- B. In the event that the Contractor has certified prior to award that he is not proposed for debarment, debarred, suspended, or voluntarily excluded from covered transactions by any Federal Department or agency and such certification is found to be false, this Contract may be canceled, terminated or suspended by the Authority and the Contractor will be liable for any and all damages incurred by the Authority because of such cancellation, termination or suspension because of such false certification.
- C. The Contractor shall obtain certifications from all known potential subcontractors and suppliers (for which payments are expected to equal or exceed \$25,000) and submit such certifications to the address set forth in E. below.
- D. Prior to the award of any subcontracts or supplier agreements expected to equal or exceed \$25,000, regardless of tier, any prospective subcontractor or supplier who has not previously submitted a certification for this Contract must execute and submit to the Contractor a certification in the form set forth at the end of this Chapter which will be deemed a part of the resulting subcontract and supplier agreement.
- E. The originals of any Certifications or correspondence relating hereto shall be sent by the Contractor to the Chief Procurement Officer, 4 World Trade Center, 150 Greenwich Street, 21st Floor, New York, NY 10007.
- F. The Contractor shall not knowingly enter into any subcontracts or supplier agreements with a person that is proposed for debarment, debarred, suspended, declared ineligible or voluntarily excluded from covered transactions.
- G. The Contractor and his subcontractors or suppliers required to file the certification have a continuing duty to disclose, and shall provide immediate written notice to the Authority if, at any time, he learns that his certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

70. CERTIFICATION - LOBBYING RESTRICTIONS – CONTRACTS EXCEEDING \$100,000

A. Definitions as used in this numbered clause:

- 1.) "Agency," as defined in 5 U.S.C. 552(f), includes Federal executive departments and agencies as well as independent regulatory commissions and Government corporations, as defined in 31 U.S.C. 9101(1). As used in the Certification set forth at the end of this Chapter, it also includes any other public agency.
- 2.) "Covered Federal action" means any of the following Federal actions:
 - a. The awarding of any Federal contract;
 - b. The making of any Federal grant;
 - c. The making of any Federal loan;
 - d. The entering into of any cooperative agreement; and
 - e. The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement. As used in the above referenced Certification, it includes the award of the contract with which it is associated.
- 3.) "Indian tribe" and "tribal organization" have the meaning provided in Section 4 of the Indian Self Determination and Education Assistance Act (25 U.S.C. 450B). Alaskan natives are included under the definitions of Indian tribes in that Act.
- 4.) "Influencing or attempting to influence" means making, with the intent to influence, any communication to or appearance before an officer or employees of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any covered Federal action.
- 5.) "Local government" means a unit of government in a State and, if chartered, established, or otherwise recognized by a State for the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a council of governments, a sponsor group representative organization, and any other instrumentality of a local government. It also includes a bi-state agency.
- 6.) "Officer or employee of an agency" includes the following individuals who are employed by an agency:
 - a. An individual who is appointed to a position in the Government under title 5, United States Code, including a position under a temporary appointment;
 - b. A member of the uniformed services as defined in Section 101(3), Title 37, United States Code;
- 7.) A special government employee as defined in Section 202, Title 18, United States Code;
 - a. An individual who is a member of a Federal advisory committee, as defined by the Federal Advisory Committee Act, Title 5, United States Code Appendix 2; and
 - b. An employee of a bi-state agency.
- 8.) "Person" means an individual, corporation, company, association, authority, firm, partnership, society, State, and local government, regardless of whether such entity is operated for profit or not for profit. This term excludes an Indian tribe, tribal organization, or any other Indian Organization with respect to expenditures specifically permitted by other Federal law.

- 9.) "Reasonable Compensation" means, with respect to a regularly employed officer or employee of any person, compensation that is consistent with the normal compensation for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal Government.
- 10.) "Reasonable Payment" means, with respect to professional and other technical services, a payment in an amount that is consistent with the amount normally paid for such services in the private sector.
- 11.) "Recipient" includes all contractors and subcontractors at any tier in connection with a Federal Contract. The term excludes an Indian Tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.
- 12.) "Regularly Employed" means, with respect to an officer or employee of a person requesting or receiving a Federal Contract, an officer or employee who is employed by such person for at least one hundred and thirty (130) working days within one (1) year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract. An officer or employee who is employed by such person for less than one hundred and thirty (130) working days within one (1) year immediately preceding the date of the submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for one hundred and thirty (130) working days.
- 13.) "State" means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, a territory or possession of the United States, an agency or instrumentality of a State, and a multi-state, regional, or interstate entity having governmental duties and powers.

B. Prohibition

- 1.) Section 1352 of Title 31, United States Code provides in part that no appropriated funds may be expended by the recipient of a Federal contract, grant, loan, or cooperative agreement to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement. For the purposes of the Certification included herein at the end of this Chapter, it includes the award of the associated contract.
- 2.) The prohibition does not apply as follows:
 - a. Agency and legislative liaison by own employees.
 - (i) The prohibition on the use of appropriated funds, in B.1.) above, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a Federal contract or the contract associated with the certification if the payment is for agency and legislative liaison activities not directly related to a covered Federal Action.
 - (ii) For purposes of B.2.) a. (i) above, providing any information specifically requested by an agency or Congress is allowable at any time.

- (iii) For purposes of B.2.) a. (i) above, the following agency and legislative liaison activities are allowable at any time only where they are not related to specific solicitation for any covered Federal action.
 - (a.) Discussing with an agency (including individual demonstrations) the qualities and characteristics of the person's products or services, conditions or terms of sales and service capabilities; and,
 - (b.) Technical discussions and other activities regarding the application or adaptation of the person's products or services for an agency's use.
 - (iv) For purposes of B.2.) a. (i) above, the following agency and legislative liaison activities are allowable only where they are prior to formal solicitation of any covered Federal action:
 - (a.) Providing any information not specifically requested but necessary for an agency to make an informed decision about initiation of a covered Federal action;
 - (b.) Technical discussions regarding the preparation of an unsolicited proposal prior to its official submission; and
 - (c.) Capability presentations by persons seeking awards from an agency pursuant to the provisions of the Small Business Act, as amended by Public Law 95-507 and other subsequent amendments.
 - (v) Only those activities expressly authorized by B.2.) a. above are allowable under B.2.) a.
- b. Professional and Technical Services by Own Employees
- (i) The prohibition on the use of appropriated funds, in B. above, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a Federal contract or an extension, continuation, renewal, amendment, or modification of a Federal contract or the contract associated with the certification if payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that contract or for meeting requirements imposed by or pursuant to law as a condition for receiving that contract.
 - (ii) For purposes of B.2.) b. (i) above, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this Section unless they provided advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this Section because the lawyer is not providing professional legal services. Similarly,

communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this Section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

- (iii) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation, or reasonably expected to be required by law or regulation, and any other requirements in the actual award documents.
- (iv) Only those services expressly authorized by B.2.) b. above are allowable under B.2.) b.

c. Reporting for Own Employees

No reporting is required with respect to payments of reasonable compensation made to regularly employed officers or employees of a person.

d. Professional and Technical Services by Other than Own Employees

- (i) The prohibition on the use of appropriated funds, in B. 1.) above, does not apply in the case of any reasonable payment to a person, other than an officer or employee of a person requesting or receiving a covered Federal action, if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal contract or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal contract.
- (ii) For purposes of B.2.) d. (i) above, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this clause unless they provided advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this clause because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this clause since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

- (iii) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation, or reasonably expected to be required by law or regulation, and any other requirements in the actual award documents.
- (iv) Persons other than officers or employees of a person requesting or receiving a covered Federal action include consultants and trade associations.
- (v) Only those services expressly authorized by B.2.) d. above are allowable under B.2.) d.

C. Disclosure

- 1.) Each person who requests or receives from the Authority a Contract with Federal assistance shall file with the Authority a certification entitled "Certification Regarding Lobbying Pursuant to 31 U.S.C. 1352," as set forth in the form at the end of this Chapter, that the person has not made, and will not make, any payment prohibited by B. of this clause. Each person who requests or receives from the Authority a Contract with Federal assistance shall file with the Authority a disclosure form entitled "Disclosure of Lobbying Activities Pursuant to 31 U.S.C. 1352" (Standard Form-LLL), as set forth in the form at the end of this Chapter, if such person has made or has agreed to make any payment using non-appropriated funds (to include profits from any covered Federal action), which would be prohibited under B. of this clause if paid for with appropriated funds.
- 2.) Each person shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed by such person under C. 1) above. An event that materially affects the accuracy of the information reported includes:
 - a. A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or
 - b. A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or
 - c. A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.
- 3.) Any person who requests or receives from a person referred to in C.1) above a subcontract exceeding \$100,000 at any tier under a Federal contract shall file a certification, and a disclosure form, if required, to the next tier above.
- 4.) All disclosure forms, but not certifications, shall be forwarded from tier to tier until received by the person referred to in C.1) above. That person shall forward all disclosure forms to the Chief Procurement Officer, 4 World Trade Center, 150 Greenwich Street, 21st Floor, New York, NY 10007.

D. Agreement

- 1.) In accepting any contract resulting from this solicitation, the person submitting the offer agrees not to make any payment prohibited by this numbered clause.

E. Penalties

- 1.) Any person who makes an expenditure prohibited under A. of this clause shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure.

- 2.) Any person who fails to file or amend the disclosure form to be filed or amended if required by the clause, shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.
- 3.) The Contractor may rely without liability on the representations made by his subcontractors in the certification and disclosure form.

F. Cost Allowability

Nothing in this clause is to be interpreted to make allowable or reasonable any costs which would be unallowable or unreasonable in accordance with Part 31 of the Federal Acquisition Regulation. Conversely, costs made specifically unallowable by the requirements in this clause will not be made allowable under any of the provisions of Part 31 of the Federal Acquisition Regulation.

71. ACCESS TO RECORDS AND REPORTS

Pursuant to 44 C.F.R. 13.42 and 2 C.F.R. 215.53, the Contractor agrees to provide the Authority, the FEMA Administrator, the Comptroller General of the United States or any of their authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to this Contract for the purposes of making audits, examinations, excerpts and transcriptions. The Contractor also agrees to provide the FEMA Administrator or his authorized representatives access to the Contractor's records and construction sites pertaining to the project.

The Contractor agrees to provide the Authority, FEMA Administrator, the Comptroller General of the United States or any of their duly authorized representatives with access to any books, documents, papers and record of the Contractor, which are directly pertinent to this Contract for the purposes of making audits, examinations, excerpts and transcriptions.

The Contractor shall make available records related to the Contract to the Authority, the FEMA Administrator and the Comptroller General or any authorized officer or employee of any of them for the purposes of conducting an audit and inspection.

The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

The Contractor agrees to maintain all books, records, accounts and reports required under this Contract for a period of not less than three (3) years after final payment is made by the Authority and all other pending matters are closed, except in the event of litigation or settlement of claims arising from the performance of this Contract, in which case the Contractor agrees to maintain same until the Authority, the FEMA Administrator, the Comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims or exceptions related thereto.

The requirements herein are independent of the clause entitled "Authority Access to Records".

72. CIVIL RIGHTS

- A. Nondiscrimination - In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, and section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, or disability. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FEMA may issue.

- B. Equal Employment Opportunity - The following equal employment opportunity requirements may apply to the underlying contract and subsequent subcontracts:
- 1.) Race, Color, Creed, National Origin, Sex – (Construction contracts awarded in excess of \$10,000) - In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Department of Homeland Security (DHS) regulations 6 C.F.R. § 21 and 44 C.F.R. § 7, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 et seq., (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Contract. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, or age. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, the Contractor agrees to comply with any implementing requirements FEMA may issue.
 - 2.) Age - In accordance with Section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. § 623, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FEMA may issue.
 - 3.) Disabilities - In accordance with Section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FEMA may issue.
- C. The Contractor also agrees to include these requirements in each subcontract related to this project, modified only if necessary to identify the affected parties.

73. DAVIS-BACON AND COPELAND ANTI-KICKBACK ACTS – CONTRACTS EXCEEDING \$2000

The Davis-Bacon and Copeland Acts are codified at 40 U.S.C 3141, *et seq.* (as supplemented by Department of Labor Regulations (29 C.F.R Part 5)) and 18 U.S.C 874. The Acts apply to grantee construction contracts and subcontracts that "at least partly are financed by a loan or grant from the Federal Government." 40 U.S.C 3145(a), 29 C.F.R. 5.2(h), 44 C.F.R. 13.36(i)(5). The Acts apply to any construction contract over \$2,000. 40 U.S.C 3142(a), 29 C.F.R. 5.5(a). 'Construction,' for purposes of the Acts, includes "actual construction, alteration and/or repair, including painting and decorating." 29 C.F.R. 5.5(a). The requirements of both Acts are incorporated into a single clause (*see* 29 C.F.R. 3.11) enumerated at 29 C.F.R. 5.5(a) and reproduced below and are applicable if this Contract is a construction contract (as delineated above) over \$2000, or over \$2500 if this Contract involves the employment of mechanics or laborers.

A. Minimum Wages

- 1.) All laborers and mechanics employed or working upon the site of the Work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 C.F.R. Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which, if applicable, is attached hereto and made a part hereof (the attachment is the most current determination), regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Determinations may change during the term of the Contract, and the wages and fringe benefits required by the most recent determination of the Secretary of Labor are those to be used.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of A.4.) below; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of Work actually performed, without regard to skill, except as provided in 29 C.F.R. Part 5.5(a)(4). Laborers or mechanics performing Work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, that the employer's payroll records accurately set forth the time spent in each classification in which Work is performed. The wage determination (including any additional classifications and wage rates conformed under A. 2.) below) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and his subcontractors at the site of the Work in a prominent and accessible place where it can be easily seen by the workers.

- 2.)
- a. The Engineer shall be the designated "contracting officer" for this Contract and shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the Contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:
- (i) Except with respect to helpers as defined as 29 C.F.R. 5.2(n)(4), the Work to be performed by the classification requested is not performed by a classification in the wage determination;
 - (ii) The classification is utilized in the area by the construction industry;
 - (iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and
 - (iv) With respect to helpers as defined in 29 C.F.R. 5.2(n)(4), such a classification prevails in the area in which the Work is performed.

- b. If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
 - c. In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
 - d. The wage rate (including fringe benefits where appropriate) determined pursuant to A. 2.) b. or c. above, shall be paid to all workers performing Work in the classification under this Contract from the first day on which Work is performed in the classification.
- 3.) Whenever the minimum wage rate prescribed in the Contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
 - 4.) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

B. Withholding

The Authority shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this Contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the Contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the Work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the Contract), all or part of the wages required by the Contract, the Authority may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause

the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

C. Payrolls and Basic Records

- 1.) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the Work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the Work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the Contract). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 C.F.R. 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.
- 2.)
 - a. The Contractor shall submit weekly for each week in which any Contract Work is performed a copy of all payrolls to the Authority for transmission to the Federal Emergency Management Agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under Section 5.5(a)(3)(i) of Regulations, 29 C.F.R. Part 5. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, DC 20402. The Contractor shall ensure the submission of copies of payrolls by all subcontractors.
 - b. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his agent who pays or supervises the payment of the persons employed under the Contract and shall certify the following:
 - (i) That the payroll for the payroll period contains the information required to be maintained under Section 5.5(a)(3)(i) of Regulations, 29 C.F.R. Part 5 and that such information is correct and complete;
 - (ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the Contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 C.F.R. Part 3;

- (iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the Contract.
 - c. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by C.2.) b. above.
 - d. The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.
- 3.) The Contractor or subcontractor shall make the records required under C.1.) above available for inspection, copying, or transcription by authorized representatives of the Federal Emergency Management Agency or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 C.F.R. 5.12.

D. Apprentices and Trainees

- 1.) Apprentices - Apprentices will be permitted to work at less than the predetermined rate for the Work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of Work actually performed. In addition, any apprentice performing Work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the Work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If

the Administrator of the Wage and Hour Division of the U.S. Department of Labor determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the Work performed until an acceptable program is approved.

- 2.) Trainees - Except as provided in 29 C.F.R. 5.16, trainees will not be permitted to work at less than the predetermined rate for the Work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of Work actually performed. In addition, any trainee performing Work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the Work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the Work performed until an acceptable program is approved.
- 3.) Equal employment opportunity - The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 C.F.R. Part 30.

E. Compliance with Copeland Act Requirements

The Contractor shall comply with the requirements of 29 C.F.R. Part 3, which are incorporated by reference in this Contract.

F. Subcontracts

The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 C.F.R. 5.5(a)(1) through (10) and such other clauses as the Federal Emergency Management Agency may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 C.F.R. 5.5.

G. Contract Termination: Debarment

A breach of the contract clauses in 29 C.F.R. 5.5 may be grounds for termination of the Contract, and for debarment as a contractor and a subcontractor as provided in 29 C.F.R. 5.12.

H. Compliance with Davis-Bacon and Related Act Requirements

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 C.F.R. Parts 1, 3, and 5 are herein incorporated by reference in this Contract.

I. Disputes Concerning Labor Standards

Disputes arising out of the labor standards provisions of this Contract shall not be subject to the general disputes clause of this Contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 C.F.R. Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

J. Certification of Eligibility

- 1.) By entering into this Contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 C.F.R. 5.12(a)(1).
- 2.) No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 C.F.R. 5.12(a)(1).
- 3.) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

74. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The Contractor shall comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by Department of Labor regulations (29 C.F.R Part 5). The Contract Work Hours and Safety Standards Act applies to certain grantee contracts and subcontracts under 40 U.S.C 3701(b)(1)(B)(iii) and (b)(2), 44 C.F.R. 13.36(i)(6) for prime contracts for construction, and non-construction projects that employ "laborers or mechanics on a public work."

A. Overtime Requirements

No Contractor or subcontractor contracting for any part of the Contract Work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any work week in which he or she is employed on such Work to work in excess of forty hours in such work week unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such work week.

B. Violation; liability for unpaid wages; liquidated damages

In the event of any violation of the requirements set forth in A. above, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the requirements set forth in A. above, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard work week of forty hours without payment of the overtime wages as set forth in A. above.

C. Withholding for unpaid wages and liquidated damages

The Authority shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of Work performed by the Contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as set forth in B. above.

D. Subcontracts

The Contractor or subcontractor shall insert in any subcontracts the requirements set forth in A. through D. of this numbered clause and also a clause requiring the subcontractors to include these requirements in any lower tier subcontracts. The Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the requirements set forth in A. through D. of this numbered clause.

75. ENERGY CONSERVATION

The Contractor agrees to comply with the mandatory energy efficiency standards and policies within the applicable State energy conservation plans issued in compliance with the Energy Policy and Conservation Act, 42 U.S.C. §6321 et seq. The Contractor also agrees to ensure that all Work performed under this Contract including Work performed by a subcontractor is in compliance with the requirements of this numbered clause.

76. CLEAN WATER REQUIREMENTS – CONTRACTS EXCEEDING THE SIMPLIFIED ACQUISITION THRESHOLD

- A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C §1251 et seq.
- B. The Contractor agrees to report each violation to the Authority and understands and agrees that the Authority will, in turn, report each violation as required to assure notification to FEMA and the appropriate EPA Regional Office.
- C. The Contractor also agrees to include the requirements of this numbered clause in all subcontracts exceeding the Simplified Acquisition Threshold issued pursuant to this Contract.

77. CLEAN AIR REQUIREMENTS – CONTRACTS EXCEEDING THE SIMPLIFIED ACQUISITION THRESHOLD

- A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C §7401 et seq.
- B. The Contractor agrees to report each violation to the Authority and understands and agrees that the Authority will, in turn, report each violation as required to assure notification to FEMA and the appropriate EPA Regional Office.
- C. The Contractor also agrees to include the requirements of this numbered clause in all subcontracts exceeding the Simplified Acquisition Threshold issued pursuant to this Contract.

78. FLY AMERICA

The Federal Government will not participate in the costs of international air transportation of any persons involved in or property acquired for this Contract unless that air transportation is provided by U.S.-flag air carriers to the extent service by U.S.-flag air carriers is available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974, as amended, 49 U.S.C. § 40118, and with U.S. GSA regulations, "Use of United States Flag Air Carriers," 41 C.F.R. §§ 301-10.131 through 301-10.143.

79. PREFERENCE FOR RECYCLED PRODUCTS

The Contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 C.F.R. Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 C.F.R. Part 247.

80. PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS

- A. The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § 3801 et seq. and U.S. DHS regulations, "Program Fraud Civil Remedies," 6 C.F.R. Part 13, apply to its actions pertaining to this project. The Contractor certifies or affirms the truthfulness and accuracy of any statement he has made, he makes, he may make, or causes to be made, pertaining to the Contract or project. In addition to other penalties that may be applicable, the Contractor further acknowledges that if he makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.
- B. The Contractor also acknowledges that if he makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under this Contract, financed in whole or in part with Federal assistance, the Federal Government reserves the right to impose the penalties of 18 U.S.C. § 1001 in addition to any other remedies available under law on the Contractor, to the extent the Federal Government deems appropriate.
- C. The Contractor agrees to include A. and B. above in each subcontract related to this Contract. It is further agreed that A. and B. above shall not be modified, except to identify the subcontractor who will be subject to the provisions.

81. ADA ACCESS REQUIREMENTS

Facilities must comply with 42 U.S.C. Sections 12101 *et seq.*

82. TERMINATION FOR CAUSE OR CONVENIENCE – CONTRACTS EXCEEDING \$10,000

Notwithstanding anything to the contrary elsewhere within this Contract, the Authority may terminate this Contract, in whole or in part, at any time by written notice to the Contractor for cause or when it is in the Authority's best interest, pursuant to 44 C.F.R. 13.36 (i)(2). In the event of termination for convenience, the Contractor shall be paid his costs, including contract close-out costs, as so provided for in the Contract, on Work performed up to the time of termination for convenience.

83. CHANGES TO THE CONTRACT

The Authority reserves the right to make changes to this Contract that are within the general scope of this Contract. Any such changes shall be subject to the Form of Contract clause entitled "Compensation for Extra Work".

84. FEDERAL ACCOUNTING PRINCIPLES

All costs under this Contract are subject to audit pursuant to Federal cost principles set forth in 2 CFR Part 225 (or as may be revised).

85. REPORTING

The Contractor shall comply with the FEMA requirements and regulations pertaining to reporting, particularly those contained in 44 CFR Parts 13.40 and 13.41.

86. PATENTS

The Contractor agrees, pursuant to 44 C.F.R. 13.36 (i)(8), that all rights to inventions and/or discoveries that arise or are developed, in the course of or under this Contract, shall belong to the Authority and be disposed of in accordance with the Authority policy. The Authority, at its own discretion, may file for patents in connection with all rights to any such inventions and/or discoveries.

87. COPYRIGHTS

The Contractor agrees, pursuant to 44 C.F.R. 13.36 (i)(9), that if this Contract results in any copyrightable material or inventions, in accordance with 44 C.F.R. 13.34, FEMA reserves a royalty-free, nonexclusive, and irrevocable license to reproduce, publish, or otherwise use, for Federal Government purposes: (1) the copyright in any work developed under a grant or contract; and (2) any rights of copyright to which a grantee or a contractor purchases ownership with grant support.

88. BUY AMERICAN REQUIREMENTS

The Contractor shall comply with the Buy American Act (41 U.S.C. 10a et seq.).

CERTIFICATION REGARDING LOBBYING PURSUANT TO 31 U.S.C. 1352

The undersigned

(name of authorized officer)

certifies, to the best of my knowledge and belief, that:

- No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL, "Disclosure of Lobbying, Activities" in accordance with its instructions.
- The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by, 31, U.S. C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Note: Pursuant to 31 U.S.C § 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.

The Contractor certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801, et seq., apply to this certification and disclosure, if any.

Executed this day _____ of _____, 20____

By: _____

Signature of Authorized Official

Official Name and Title of Authorized Official

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. Section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a followup report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitations for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Included prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, State and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action.
(b) Enter the full names of the individual(s) performing services, and include full address if different from 10(a). Enter Last Name, First Name, and Middle Initial (MI).
11. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION - LOWER TIER COVERED TRANSACTIONS

1. The prospective lower tier participant,

_____, certifies by submission of this bid or proposal, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

3. The prospective lower tier participant shall provide immediate written notice to the Authority (and the Contractor, if applicable) if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

Executed this day _____ of _____, 20_____.

BY SIGNATURE OF AUTHORIZED OFFICIAL

NAME AND TITLE OF AUTHORIZED OFFICIAL

INSTRUCTIONS FOR COMPLETION OF CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION -LOWER TIER COVERED TRANSACTIONS

1. By signing and submitting this Proposal, the prospective lower tier participant is providing the signed certification set out on the previous page.
2. This certification is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the Authority may pursue available remedies, including suspension and/or debarment.
3. The prospective lower tier participant shall provide immediate written notice to the Authority if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [2 C.F.R. Part 3000]. The Proposer may contact the Procurement Representative for assistance in obtaining a copy of those regulations.
5. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by the Authority.
6. The prospective lower tier participant further agrees by submitting this proposal that it will include the "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List issued by U.S. General Service Administration.
8. Nothing contained in the foregoing shall be construed to require establishment of system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
9. Except for transactions authorized under sub-paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, the Authority may pursue available remedies including suspension and/or debarment.

CHAPTER VIII

MISCELLANEOUS

89. SUBMISSION TO JURISDICTION

The Contractor hereby irrevocably submits himself to the jurisdiction of the Courts of the State of New York and to the jurisdiction of the Courts of the State of New Jersey in regard to any controversy arising out of, connected with, or in any way concerning the Proposal or this Contract. The Contractor agrees that service of process on the Contractor in relation to such jurisdiction may be made, at the option of the Authority, either by registered or certified mail addressed to the applicable office as provided for in the clause hereof entitled "Service of Notices on the Contractor", by registered or certified mail addressed to any office actually maintained by the Contractor or by actual personal delivery to the Contractor if the Contractor be an individual, to any partner if the Contractor be a partnership or to an officer, director or managing or general agent if the Contractor be a corporation.

Such service shall be deemed to be sufficient when jurisdiction would not lie because of the lack of basis to serve process in the manner otherwise provided by law. In any case, however, process may be served as stated above whether or not it might otherwise have been served in a different manner.

90. PROVISIONS OF LAW DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included therein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the Contract shall forthwith be physically amended to make such insertion.

91. INVALID CLAUSES

If any provision of this Contract shall be such as to destroy its mutuality or to render it invalid or illegal, then, if it shall not appear to have been so material that without it the Contract would not have been made by the parties, it shall not be deemed to form part thereof but the balance of the Contract shall remain in full force and effect.

92. NON-LIABILITY OF THE AUTHORITY REPRESENTATIVES

Neither the Commissioners of the Authority nor any officer, agent, or employee thereof shall be charged personally by the Contractor with any liability or held liable to him under any term or provision of this Contract, or because of its execution or attempted execution, or because of any breach hereof.

93. SERVICE OF NOTICES ON THE CONTRACTOR

Whenever provision is made in this Contract for the giving of any notice to the Contractor, its deposit in any post office or post office box, enclosed in a postpaid wrapper addressed to the Contractor at his office, or its delivery to his office, shall be sufficient service thereof as of the date of such deposit or delivery, except to the extent, if any, otherwise provided in the clause entitled "Submission to Jurisdiction". Until further notice to the Authority the Contractor's office will be that stated in his Proposal. Notices may also be served personally upon the Contractor; or if a corporation, upon any officer, director, or managing or general agent; or if a partnership upon any partner.

94. MODIFICATION OF CONTRACT

No change in or modification, termination or discharge of this Contract, in any form whatsoever, shall be valid or enforceable unless it is in writing and signed by the party to be charged therewith or his duly authorized representative, provided, however, that any change in or modification, termination or discharge of this Contract expressly provided for in this Contract shall be effective as so provided.

The authority of any person to order Extra Work or to alter the Contract Drawings and Specifications does not include the power to cancel, modify or waive any provision of the Form of Contract, and no officer or other representative of the Authority shall have the power so to do unless and until hereafter so authorized by or pursuant to a resolution of the Commissioners of the Authority or by or pursuant to a resolution of their appropriate Committee.

95. PUBLIC RELEASE OF INFORMATION

The Contractor and all his subcontractors shall not issue or permit to be issued any press release, advertisement, or literature of any kind, which refers to the Authority or the services performed in connection with this Contract, without first obtaining the written approval of the Chief Engineer. Such approval may be withheld if for any reason the Chief Engineer believes that the publication of such information would be harmful to the public interest or is in any way undesirable. This provision shall survive termination or expiration of this Contract.

PERFORMANCE AND PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS that we, the undersigned²¹ Contractor and surety company (or companies), as principal and surety (or sureties), respectively,

Contractor

Surety

²¹ Insert names of the Contractor and surety company (or companies) in the appropriate columns. If space is insufficient add rider.

If the Contractor is a corporation, give the state of incorporation, using also the phrase "a corporation organized under the laws of _____".

If the Contractor is a partnership, give full names of partners, using the phrase "co-partners doing business under the firm name of _____".

If the Contractor is an individual using a trade name, give individual name, using also the phrase "an individual doing business under the trade name of _____".

are hereby held and firmly bound unto The Port Authority of New York and New Jersey (herein called the "Authority") in the penal sum of _____ Dollars and _____ Cents (\$ _____), for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, representatives, executors, administrators, successors and assigns. Each surety, however, if there is more than one, shall be jointly and severally liable for said penal sum.

Signed this _____ day of _____ 20

The condition of the above obligation is that

WHEREAS, the above named principal has entered into a Contract in writing with the Authority, a copy of which is hereby made a part of this bond as though herein set forth in full and which is designated Contract LGA-774.133B - "LaGuardia Airport - Emergency Storm Drainage Outfalls", and

WHEREAS, the Authority has required this bond for the faithful performance of all obligations imposed by said Contract and also for the payment of all lawful claims of subcontractors, materialmen and workmen arising out of the performance of said Contract;

NOW, if the said principal shall well and faithfully do and perform the things agreed by him to be done and performed according to the terms and true intent and meaning of said Contract and if all lawful claims of subcontractors, materialmen and workmen arising out of the performance of said Contract are paid, then this obligation shall be void, otherwise the same shall remain in full force and effect; it being expressly understood and agreed that, provided the sureties shall comply with the provisions hereof, the aggregate liability of all sureties for any and all claims hereunder shall in no event exceed the penal amount of this obligation as hereinbefore stated.

This undertaking is for the benefit of the Authority and all subcontractors, materialmen and workmen having lawful claims arising out of the performance of said Contract, and all such subcontractors, materialmen and workmen (as well as the Authority itself) shall have a direct right of action upon this bond; but the rights and equities of such subcontractors, materialmen and workmen shall be subject and subordinate to those of the Authority.

The sureties, for value received, hereby stipulate and agree that the obligations of said sureties and their bond shall be in no way impaired or affected by any extensions of time, modification, omission, addition or change in or to the said Contract or the construction to be performed thereunder, or by any supervision or inspection or omission to supervise or inspect the construction, or by any payment thereunder before the time required therein, or by any waiver of any provision or condition thereof (whether precedent or subsequent), or by any assignment, subletting or other transfer thereof or of any part thereof or of any construction to be performed or any moneys due or to become due thereunder; and said sureties do hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby expressly stipulate and agree that any and all things done and omitted to be done by and in relation to assignees, subcontractors and other transferees shall have the same effect as to said sureties as though done by or in relation to said principal.

The sureties shall give the General Counsel of the Authority the following notices:

- A. Written notice of an intent to pay any claim of a subcontractor, materialman or workman hereunder;
- B. Written notice within five days of the institution of an action by a subcontractor, materialman or workman hereunder.

The sureties shall not pay the claim of any subcontractor, materialman or workman hereunder until the expiration of thirty days after receipt by said General Counsel of notice under either subparagraph A or B above, describing the claim to be paid.

IN WITNESS WHEREOF, the principal and the sureties have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

(Seal)

Principal
By ²² _____

Surety
By ²³ _____

APPROVED AS TO ACCEPTABILITY OF SURETIES:

Credit Manager
_____ 20

²² If bond is signed by an officer or agent, give title; if signed by a corporation, affix corporate seal.

²³ Add signatures of additional sureties, if any.

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of _____

SS:

County of _____

On this _____ day of _____, 20____, before me personally came and appeared _____, to me known, who being by me duly sworn, did depose and say that he resides at _____; that he is the _____ of _____ the corporation described in and _____ which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he signed his name thereto by like order.

(Notary Seal)

(Notary Signature)

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____

SS:

County of _____

On this _____ day of _____, 20____, before me personally came and appeared _____, to me known, and known to me to be one of the members of the firm of _____ described in and who executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(Notary Seal)

(Notary Signature)

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of _____

SS:

County of _____

On this _____ day of _____, 20____, before me personally came and appeared _____, to me known and known to me to be the person described in and who executed the foregoing instrument and he acknowledged to me that he executed the same.

(Notary Seal)

(Notary Signature)

AFFIX ACKNOWLEDGMENT AND JUSTIFICATION OF SURETY

SPECIFICATIONS

DIVISION 1

GENERAL PROVISIONS

96. CONSTRUCTION REQUIRED BY THE SPECIFICATIONS

These Specifications relate generally to performing excavation and installation of underground storm drainage piping, penetrating through the perimeter dike wall into the Flushing Bay, valves, concrete outflow, rip-rap protection, sheet piling and related Work at the West end and East end of the Air Operations Area and the vicinity thereof at LaGuardia Airport, Queens, New York.

These Specifications require the doing of all things necessary or proper for or incidental to the matter referred to in the immediately preceding paragraph, as shown on the Contract Drawings in their present form. In addition, all things shown on the Contract Drawings even though not expressly mentioned in these Specifications, all things mentioned in these Specifications even though not shown on the Contract Drawings, and all things not specified either on the Contract Drawings, or in the Specifications but involved in carrying out their intent and in the complete and proper execution of the matter referred to in the immediately preceding paragraph are required by these Specifications; and the Contractor shall perform the same as though they were specifically delineated, described and mentioned.

In case of a conflict between a requirement of the Contract Drawings and a requirement in Division 1 of the Specifications, the requirement of Division 1 shall control. In case of a conflict between a requirement contained in other Divisions of the Specifications and a requirement of the Contract Drawings, the requirement of the Contract Drawings shall control.

Some Sections of the Specifications make cross references to construction specified in other Sections of the Specifications, including cross references intended to avoid duplication by the bidders in quoting prices and to point out some of the necessity for coordination. Such cross references are not intended to be complete or all inclusive, and the Contractor shall ascertain for himself both the nature and the extent of all construction which may be related to that under each Section of the Specifications whether or not expressly referred to.

Some Sections of the Specifications contain a general description of the construction under such Sections. Such description is merely a very general one and is not intended to outline the construction required by the Specifications and Contract Drawings. Accordingly, such description shall be construed as in aid of and supplemental to, but in no case limiting, impairing or decreasing, the requirements elsewhere set forth with respect to the construction to be performed.

The Contractor's compensation for all construction whatsoever referred to in the Specifications and Contract Drawings in their present form, even though the need for certain items of such construction may be contingent upon future occurrences or determinations or upon other circumstances, shall be deemed to be included in the price(s) quoted by the Contractor in the Form of Contract unless the Specifications or Contract Drawings expressly state that compensation in addition to such price shall be payable for such items of construction. The express statement in some cases to the effect that certain construction shall be without additional cost to the Authority shall not impair the application of this paragraph in other cases.

The distribution of various parts of the construction among the Divisions and Sections of the Specifications or among the Contract Drawings is not intended as a representation of the most effective or logical method of organizing, scheduling, or subcontracting the construction, and the Contractor shall ascertain for himself how to do so unless otherwise expressly prescribed in this Contract.

In all cases the provisions of the second paragraph of this numbered Section shall control.

97. AVAILABLE PROPERTY

Subject to the conditions elsewhere stated herein, those areas to be occupied by the permanent construction will be made available to the Contractor upon the commencement of his first operations at the construction site, together with an area shown on Contract Drawing No. G004 and designated "Area Available For Contractor's Use".

Any additional property which the Contractor desires for his operations shall be obtained by him at his own expense.

The Contractor will be permitted to use only so much of the aforesaid areas as is necessary for the performance of the Contract, and he must at all times so conduct his operations as not to encroach upon or block the portions used by others. The Engineer may at any time make joint or exclusive assignments of particular portions thereof, either to the Contractor or to others, and may take over and use for other purposes any portions which, in the opinion of Engineer, are not required for the performance of the Contract.

The Contractor shall daily clean up the areas made available to him so that they are free at all times of refuse, rubbish, scrap material or debris.

98. CONSTRUCTION SITE SECURITY REQUIREMENTS

The Port Authority of New York and New Jersey operates facilities and systems at which terrorism or other criminal acts may have a significant impact on life safety and key infrastructures. The Authority reserves the right to impose multiple layers of security requirements on the performance of the Work of the Contract, including on the Contractor, subcontractors and materialmen, depending upon the level of security required, as determined by the Authority. The Contractor shall comply, and shall ensure that his subcontractors and materialmen comply, with the following security requirements:

A. Identity Checks, Background Screening and Issuance of Photo Identification Cards

No person will be permitted on or about the construction site without a Facility Photo ID issued by the Authority. Facility Photo IDs are required for employees of the Contractor, subcontractors and materialmen. All employees of the Contractor, subcontractors and materialmen shall wear Facility Photo IDs in a conspicuous and clearly visible position whenever they are working at the construction site.

As part of the requirement for the issuance of Facility Photo IDs, the Contractor shall perform background checks through the Secure Worker Access Consortium (SWAC) and obtain SWAC ID cards with a "HIGH" SWAC approval level for all workmen and materialmen on this Contract. Information on the SWAC process, including office locations and hours of operation, is available on the following website:
<http://www.secureworker.com/>.

The Contractor shall coordinate with the Engineer at least 5 business days in advance to obtain Facility Photo IDs. The SWAC ID card, a state issued driver's license and an additional form of identification shall be presented by each workman and materialman in order to be issued a Facility Photo ID by the Authority. Facility Photo IDs will be issued at no cost to the Contractor.

The Contractor shall ensure that all workmen and materialmen renew their SWAC ID and Facility Photo ID prior to the respective ID cards' expiration dates. Any workman or materialman with an expired SWAC ID or expired Facility Photo ID shall not be permitted access to the construction site.

B. Construction Site Access Control

- 1.) The Authority may provide for construction site access control, inspection and monitoring by security guards retained by the Authority. However, this provision shall not relieve the Contractor of his responsibility to secure equipment and Work at the construction site at his own expense.
- 2.) At the beginning of each work period or work shift, the Contractor shall furnish to the security guards, if any, or to the Engineer a memorandum showing for that work period or work shift:
 - a. The name and company affiliation of each employee of the Contractor or of a subcontractor who is expected to enter the construction site and,
 - b. The name of each firm expected to deliver materials, service equipment or perform other services and a description of such materials or services.

C. High Security Areas

- 1.) If Work under this Contract is required in high security areas, as may be designated as such by the Authority, the Contractor shall comply with certain security procedures while performing Work in such areas. The security procedures may require that the Contractor, subcontractors or materialmen performing Work in such areas be escorted to and from these areas by security personnel designated by the Authority. Further, the Contractor, subcontractors or materialmen may be required to be monitored by security personnel designated by the Authority while performing Work in certain high security areas.
- 2.) Prior to the start of Work at the construction site, the Contractor will be provided with a description of the high security areas from the Authority, which will be in effect on the date that Work commences. The description of high security areas may be changed at any time by the Authority during the duration of this Contract. The Contractor shall notify the Authority no less than twenty-four hours prior to the performance of any Work in a high security area. The Contractor shall conform to the security procedures as may be established by the Authority and the escorting and monitoring of workmen and materialmen hereunder.

The Authority may impose, increase, and/or upgrade security requirements for the Contractor, subcontractors and materialmen during the duration of this Contract to address changing security conditions and/or new governmental regulations. The Contractor will be compensated for changes to the security requirements as directed by the Engineer in accordance with the clause of the Form of Contract entitled "Compensation for Extra Work".

99. OPERATIONS OF OTHERS

During the time that the Contractor is performing the Contract, other persons will be engaged in other operations on or about the construction site including other contractors performing work adjacent to this contract site and routine facility operations and maintenance, all of which shall remain uninterrupted.

The Contractor shall so plan and conduct his operations as to work in harmony with others engaged at the construction site and not to delay, endanger or interfere with the operations of others (whether or not specifically mentioned above), all to the best interests of the Authority and the public and as may be directed by the Engineer.

100. LABOR ACTIONS

Whenever any labor strike, slowdown, work stoppage, picketing or other labor action which might interfere with the performance of the Contract, or of other Authority or PATH contracts or the operation of any Authority or PATH facility occurs at the construction site or at any other Authority or PATH facility as a result of the Contractor's (or its subcontractor's) utilization of particular means, methods or manpower to perform the Work required by the Contract, the Contractor shall pursue all remedies which are appropriate and available to him to avoid such interference.

101. CONTRACTOR'S MEETINGS

The Contractor shall conduct job progress and coordination meetings with subcontractors in his field office every two weeks, or as frequently as job conditions require or the Engineer may request. The Engineer shall be notified and, at his option, may attend these meetings. The Contractor shall prepare and distribute minutes to the Engineer and the subcontractors within forty-eight (48) hours of the day following the meetings.

The Contractor shall attend separate job progress and coordination meetings with the Engineer every two weeks, or at times otherwise requested by the Engineer.

102. CONTRACT DRAWINGS

The Contract Drawings which accompany and form a part of these Specifications bear the general title "The Port Authority of NY & NJ - LaGuardia Airport - Emergency Storm Drainage Outfalls - Contract LGA-774.133B" and are separately numbered and entitled as follows:

G001	TITLE SHEET	General
G002	LOCATION MAP	General
G003	AREA OF WORK AND PLAN REFERENCE	General
G004	GENERAL NOTES AND INDEX OF DRAWINGS	General
C001	CIVIL NOTES, LEGEND AND ABBREVIATIONS	Civil
C002	UTILITY PLAN -1-	Civil
C003	UTILITY PLAN -2-	Civil
C004	OUTFALL EM01 PROFILE	Civil
C005	OUTFALL EM02 PROFILE	Civil
C006	DETAILS -1-	Civil
C007	DETAILS -2-	Civil
C008	DETAILS -3-	Civil
C009	DETAILS -4-	Civil
C010	DETAILS -5-	Civil
C011	DETAILS -6-	Civil
GT001	EXCAVATION, SPECIAL INSPECTION, STEEL SHEET PILING, OUTFALL CONSTRUCTION, & MICROTUNNELING NOTES	Geotechnical
GT002	PLAN, PROFILE, SECTIONS 1 AND 2, STEEL SHEET PILING AT OUTFALL EM01	Geotechnical

GT003	PLAN, PROFILE, SECTIONS 1 AND 2, STEEL SHEET PILING AT OUTFALL EM02	Geotechnical
S001	OUTFALL EM01 AND EM02 PLAN, SECTION AND NOTES	Structural
N001	SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS	Environmental
N002	ENVIRONMENTAL SOIL AND GROUNDWATER MANAGEMENT NOTES	Environmental

The Contract Drawings do not show all of the details of the Work and are intended only to illustrate the character and extent of the Work to be performed. Accordingly, they may be supplemented during the performance of the Work by the Engineer or by the Contractor subject to the approval of the Engineer, to the extent necessary to further illustrate the Work.

An indication on the Contract Drawings of the existence, nature or location of any utilities, structures, obstructions, conditions or materials does not constitute a representation as to the conclusions to be drawn therefrom nor a representation that no others exist in addition to those shown, even in the same location; nor does the absence of any indication on said drawings of the existence, nature or location of any utilities, structures, obstructions, conditions or materials constitute a representation that none exist.

After the Contract has been executed, the Contractor will be furnished six (6) copies of the Specifications and Contract Drawings without charge.

103. SHOP DRAWINGS, CATALOG CUTS AND SAMPLES

The Contractor shall specifically prepare for this Contract all Shop Drawings which may be required in addition to the Contract Drawings or in addition to any other drawings which the Engineer may issue in supplementing the Contract Drawings.

The specific requirements elsewhere set forth in the Specifications for furnishing Shop Drawings, Catalog Cuts and samples for any particular portion of the Contract shall not limit the obligation of the Contractor to furnish Shop Drawings, Catalog Cuts and samples for any other portion when so required by the Engineer.

The Contractor shall submit a general "Submittal Schedule" for the Engineer's review and approval listing the planned transmittal date and estimated number in each specification section category of Shop Drawings, Catalog Cuts, pages of calculations and samples within 30 days after receipt by the Contractor of the acceptance of the Proposal. A more detailed schedule shall be submitted no less than 30 calendar days prior to the actual date of any submittal.

After checking and verifying all field measurements and after complying with applicable procedures specified hereunder, the Contractor shall submit to the Engineer for review and approval, in accordance with the approved schedule of Shop Drawing submissions, or for other action if so indicated by the Engineer, six copies, unless otherwise requested, of all Shop Drawings which will bear a specific written indication that the Contractor has reviewed the submission for conformance to the requirements of the Contract Drawings and Specifications.

The Authority uses Oracle Primavera Contract Management (formerly known as Expedition) software to track the status of Submittals provided by the Contractor. In order to facilitate this electronic tracking, the Contractor shall use the transmittal form that is provided at the pre-construction meeting, and shall forward it to the Engineer via a MAPI compliant e-mail system (e.g., Microsoft Outlook, CC mail, Lotus notes, etc.).

The Contractor's transmittals of Submittal data shall fully comply with the numbering and naming conventions and other procedures that will be provided by the Engineer to the Contractor at the pre-construction meeting.

All submissions shall contain specific reference to the contract drawing and technical specification section to which they apply, as indicated below or as otherwise identified, as the Engineer may require. In general, submissions shall specifically reference Contract Drawing numbers or Specification section numbers for which the item pertains. The data shown on the Shop Drawings shall be complete with respect to quantities, dimensions, conformance to the specified performance and design criteria, materials, test results and similar information to enable the Engineer to review the submittal as required.

The Contractor shall also submit six copies to the Engineer for review and approval pursuant to the approved submittal schedule, of all Catalog Cuts and samples for conformance to the requirements of the Contract Drawings and Specifications. All Catalog Cuts and samples shall have been reviewed by the Contractor and shall be accompanied by a specific written indication that the Contractor has reviewed the submittal for conformance with the Contract Drawings and Specifications and shall be identified clearly as to material, supplier, manufacturer's procedures and pertinent data such as catalog numbers and the use for which intended.

Before submission of each Shop Drawing, Catalog Cut and sample, the Contractor shall have determined and verified all quantities, dimensions, conformance to the specified performance and design criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed and coordinated each Shop Drawing or Catalog Cut with other Shop Drawings and Catalog Cuts and with other requirements of the Work.

At the time of each submission, the Contractor shall give the Engineer specific written notice of each variation in any Shop Drawing, Catalog Cut and sample from the requirements of the Contract Drawings or Specifications and, in addition, shall cause a specific notation of each such variation to be made on each submittal to the Engineer, for review and approval of each such variation.

The Engineer's review and approval of Shop Drawings, Catalog Cuts or samples shall not relieve the Contractor from responsibility for any variation from the requirements of the Contract Drawings or Specifications unless the Contractor has in writing called the Engineer's attention to each such variation at the time of submission as required hereunder and the Chief Engineer has given written approval of each by an express specific written notation thereof incorporated in or accompanying the Shop Drawing, Catalog Cut or sample approval. Approval of Shop Drawings, Catalog Cuts and samples which are inconsistent with the requirements of the Contract Drawings and Specifications shall not be deemed to waive or change such requirements or to relieve the Contractor of his obligations to perform such requirements unless the Chief Engineer shall expressly and specifically state that he is waiving or changing such requirements, as stated above.

Where a Shop Drawing, Catalog Cut or sample is required no related Work shall be performed prior to the Engineer's review and approval of the submission.

The format for Shop Drawings prepared by the Contractor shall be as follows: Standard "D" size drawings with outside cut line dimensions of 22 inches by 34 inches and showing in detail all dimensions and description of materials. Two borders shall be drawn. The first shall be drawn one-half inch from the outside edges (top, bottom, left and right). The second shall be drawn inward to the drawing, one-half inch from the top, bottom and right border lines and one and one-half inch from the left border line. The inside borders on these drawings shall be 20 inches by 31 inches. A title block shall be shown on the right side of the drawing adjacent to the inside border identifying the Contractor's Name, Contract Title, Contract Number, cross-referenced Contract drawing number, Specification reference number and related paragraph and applicable signatures. These drawings shall be arranged in systematic order and numbered consecutively.

Upon receipt of the submittal, the Engineer will review the Shop Drawing, Catalog Cut or sample for conformance to the design information and materials shown on the Contract Drawings and contained in the Specifications. Approval by the Engineer shall not constitute a complete review or approval of the means, methods, techniques, sequences or procedures of construction, except where a specific means, method, technique, sequence or procedure of construction is specifically delineated in or required by the Contract Drawings or Specifications, and the approval shall not constitute a review and approval in regard to safety precautions or programs incident thereto. The review and approval of a separate item will not in itself indicate approval of the assembly in which the item functions. Any design shown on the Shop Drawings and prepared by the Contractor, his subcontractors, their detailers, or their professional engineers is the complete responsibility of the Contractor.

Within the number of working days hereinafter specified after receipt of the Shop Drawing prints, the Engineer shall approve or not approve the same or require corrections or additions to be made thereon. When a shop drawing is not approved or if additions or corrections are required, the Engineer shall return within this period one of the six copies submitted and the Contractor shall make the revisions, corrections or additions shown thereon to be made. The Contractor shall resubmit six prints showing the drawing corrected as required. The Contractor shall direct specific attention in writing to revisions other than the corrections called for by the Engineer on the previous submittal. Each drawing shall be corrected as required until the approval of the Engineer is obtained. After each resubmission, the Engineer shall have the number of working days hereinafter specified in which to approve revisions or corrections.

The number of working days within which the Engineer will advise the Contractor as to whether the Shop Drawings are approved, not approved, or require corrections or additions to be made thereto shall be as follows, except that 20 working days shall be required for the Engineer to review shop drawings submitted with design calculations.

No. of Dwgs. Submitted Within 5 Consecutive Working Days for Each Discipline(*)	No. of Working Days for Engineer to Review Shop Drawings
Up to 50	10
51 to 75	15
More than 75	20
* Disciplines shall be defined as follows: Structural, Architectural, Civil, Geotechnical, Mechanical, Electrical, Traffic and Environmental.	

Failure of the Contractor to provide 30 calendar days advance notice to the Engineer of any submittal shall result in a five (5) working day extension of the number of working days stated in the chart above. In no event shall an extension of the Engineer's review time provided for in this section relieve the Contractor from its duty to meet all contractual Milestone dates.

After approval has been given to any Shop Drawing or Catalog Cut no change will be permitted thereon unless approved in writing by the Engineer.

Before final payment for the Work is made, the Contractor shall submit to the Engineer only those previously approved or approved as noted Shop Drawings, which have been revised by field changes.

The Contractor shall mark-up the approved and approved as noted Shop Drawings directing specific attention to revisions reflecting the permanent construction as actually made. In accordance with the requirements specified in this numbered Section, the Contractor shall submit one original print of these drawings, marked "FINAL SHOP DRAWING – NOT FOR REVIEW", dated, and signed by the Contractor to the Engineer for verification. By signature, the Contractor is verifying that the drawing reflects the as-constructed condition.

All drawings, data, calculations and other papers of any type whatsoever, whether in the form of writing, figures or delineations, which are prepared in connection with this Contract and submitted to the Authority shall become the property of the Authority. The Authority shall have the non-exclusive right to use or permit the use of all such drawings, data and other papers and any ideas or methods represented thereby for any purpose and at any time without additional compensation. No such papers shall be deemed to have been given in confidence. Any statement or legend to the contrary in connection with such drawings, data or other papers and in conflict with the provisions of this paragraph shall be void and of no effect.

104. SUBSTITUTION

Where a proprietary item or make is specified or mentioned herein or called for or mentioned on the Contract Drawings and the phrases "similar and equal to" or "approved equal" are used in connection therewith, the utilization of any other item or make will be deemed a substitution. Substitution for the proprietary item or make specifically named may be made only in accordance with the Section hereof entitled "Workmanship and Materials" and in accordance with the following.

Whenever materials or equipment are specified or described in the Contract Drawings or Specifications by using the name of a proprietary item or the name of a particular supplier, the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of another supplier or manufacturer may be accepted by the Engineer if sufficient information and proof is submitted by the Contractor to permit the Engineer to determine that the material or equipment proposed is equivalent or equal to that named and the Engineer approves the substitution. The procedure for review by the Engineer will include the following. Requests for review of substitute items of material and equipment will not be accepted by the Engineer from anyone other than the Contractor. If the Contractor wishes to furnish or use a substitute item of material or equipment, the Contractor shall make a timely written application to the Engineer for approval thereof, certifying that the proposed substitution will perform at least the identical functions and achieve at least the identical results called for by the specified product and otherwise be equal to the specified product with regard to, but not limited to, durability, maintenance, strength, energy costs and record of proven performance. The application shall state that the evaluation and approval of the proposed substitution shall not delay the Contractor's completion of the Work as required by the Contract, whether or not approval of the substitution will require a change in the construction and, in no event will the Contractor be granted an extension of time for completion of any portion of the Work for reasons related directly or indirectly to the evaluation of the proposed substitution or to the proposed substitution itself. Any variations of the proposed substitution from that specified shall be identified in the application, and maintenance, repair and replacement services for the substitution shall be indicated. The Engineer may require the Contractor to furnish at the Contractor's expense additional laboratory test data concerning the proposed substitution.

Such submission to the Engineer shall be made only by including the requested substitution in the list of materials required to be submitted to the Engineer in accordance with the Section hereof entitled "Inspections and Rejections" within forty-five calendar days after the receipt of the acceptance of the Contractor's Proposal. After the approval of said list, no substitutions will be permitted, except that a brand or make named in the Specifications may be submitted for approval in lieu of a brand or make on said list. Any such submission shall not imply, or impose on the Engineer, any obligation whatsoever to discuss, disclose or justify the reasons for his opinion, approval, acceptance or rejection.

The Engineer shall be the sole judge of as to whether a proposed substitution will be approved, and no substitution shall be ordered or utilized without the Engineer's prior written approval. The Engineer may require Contractor to furnish at Contractor's expense a special performance guarantee or other assurance with respect to any approved substitution. Furthermore, the approval of any substitute proprietary item or make shall not in any way entitle the Contractor to additional compensation therefor.

Notwithstanding such approval, however, the Contractor assumes the risk that such approved substitute item or make is not equal to that shown or specified and if at any time the substitution shall appear not to be so equal he shall replace the substitution with that originally shown on the Contract Drawings or called for in the Specifications at his own cost and reimburse the Authority for any loss occurring on account of the substitution failing to be equal, notwithstanding that it had been previously approved for use by the Engineer.

The construction called for by the Contract Drawings and Specifications may be adapted for a particular proprietary item or make of material or equipment. Therefore, if any construction not required by the Contract Drawings or Specifications in their present form is necessary or desirable because of the use of substitute item or make of material or equipment (even though such other item or make is approved by the Engineer), such construction shall be furnished or performed by the Contractor at his expense and subject to the approval of the Engineer.

105. WORKMANSHIP AND MATERIALS

Workmanship and materials shall in every respect be free from defects of any kind and shall be in accordance with the best modern practice and whenever the Contract Drawings, Specifications or directions of the Engineer admit of a doubt as to what is permissible or fail to note the quality of any construction the interpretation which calls for the best quality is to be followed. Workmanship shall conform to applicable Specifications, manufacturer's instructions and recommendations for installation of products for the applications shown on the Contract Drawings, all of which shall be subject to the provisions of the Section of Division 1 GENERAL PROVISIONS entitled "Inspections and Rejections".

Materials and Equipment incorporated into the Work shall be new except as may be otherwise herein specifically required, and shall comply with make, size, type and quality specified, or as specifically approved in writing by the Chief Engineer in accordance with the Section of Division 1 GENERAL PROVISIONS entitled "Substitution".

Reference to standards of any society, institution, association, or governmental authority in the Specifications or on the Contract Drawings, whether specific or by implication, shall mean for such standards which are part of the building code in effect for Work of this Contract, the edition date published in such code; and such references which are not part of the building code, shall mean the latest edition date in effect at the time of opening of Proposals upon the present Contract unless specifically stated otherwise.

In addition, various paragraphs of these Specifications may contain references to certain standard or tentative specifications or requirements of various organizations. Unless otherwise stated, these references are to be construed as referring to the specifications and requirements in effect on the date set for opening Proposals upon the present Contract.

If required by the Engineer, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment to be employed by the Contractor in performing the Work. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the approved instructions of the applicable supplier except as otherwise provided in the Contract Drawings or Specifications.

In case of a discrepancy between a description or requirement in the Contract Drawings and Specifications for any material or equipment and a catalog number or other designation for the same material or equipment (even though stated to be acceptable), the description or requirements shall control.

All inventions, ideas, designs and methods contained in the Specifications and Contract Drawings in which the Authority has or may acquire patent, copyright or other property rights are hereby expressly reserved for the exclusive use of the Authority. The Specifications and Contract Drawings contain confidential information which is disclosed only to enable this Contract to be performed. Said Specifications and Drawings must not be used for any purpose detrimental to the interest of the Authority and must not be produced or copied in whole or in part or used for furnishing information to others without the written consent of the Authority, provided, however, that the Contractor may, when the performance of the Contract so requires, furnish said information to others for the purpose of engaging or informing subcontractors and materialmen.

If, in accordance with this Contract, the Contractor furnishes research, development or consultative services in connection with the performance of the Contract and if in the course of such research, development or consultation patentable subject matter is produced by the Contractor, its officers, agents, employees, subcontractors or materialmen, the Authority shall have, without cost or expense to it, an irrevocable, non-exclusive, royalty-free license to make, have made, and use, either itself or by anyone on its behalf, such subject matter in connection with any activity now or hereafter engaged in or permitted by the Authority. Promptly upon request by the Authority, the Contractor shall furnish or obtain from the appropriate person a form of license satisfactory to the Authority, but as between the Contractor and the Authority the license herein provided for shall nevertheless arise for the benefit of the Authority immediately upon the production of said subject matter and shall not await formal exemplification in a written license agreement as provided for above. Such license may be transferred by the Authority to its successors, immediate or otherwise, in the operation or ownership of any real or personal property now or hereafter owned or operated by the Authority, but such license shall not be otherwise transferable.

The right to use all material, software, firmware, compositions of matter, manufactures, apparatus, appliances, processes of manufacture or types of construction required in connection with this Contract and to which a patent, copyright or other intellectual property right applies or may apply shall be obtained by the Contractor without separate or additional compensation whether the same is patented, copyrighted or otherwise protected as an intellectual property right before, during or after the performance of the Contract.

The Contractor shall indemnify the Authority against and save it harmless from all loss and expense incurred in the defense, settlement or satisfaction of any claims in the nature of patent, copyright or other intellectual property right infringement arising out of or in connection with the Authority use, in accordance with the preceding two paragraphs of this numbered Section, of such subject matter or material, software, firmware, compositions of matter, manufactures, apparatus, appliances, processes of manufacture or types of construction to which a patent, copyright or other intellectual property right applies or may apply. If requested by the Authority and if notified promptly in writing of any such claim, the Contractor shall conduct all negotiations with respect to and defend such claim without expense to the Authority. If the Authority be enjoined from using any of the facilities which form the subject matter of this Contract and as to which the Contractor is to indemnify the Authority against patent, copyright or other intellectual property right claims, the Authority may, at its option and without thereby limiting any other right it may have hereunder or at law or in equity, require the Contractor to supply, temporarily or permanently, facilities not subject to such injunction and not infringing any patent, copyright or other intellectual property right or to remove all such facilities and refund the cost thereof to the Authority or to take such steps as may be necessary to ensure compliance by the Authority with such injunction, all to the satisfaction of the Authority and all without cost or expense to the Authority.

106. INSPECTIONS AND REJECTIONS

All Work and all construction, processes of manufacture and methods of construction involved in or related to the performance of the Work shall be at all times and places subject to the inspection of the Engineer, acting personally or through his Inspectors, and the enumeration in these Specifications of particular portions of such Work, construction, processes of manufacture or methods of construction which will or may be inspected by the Engineer or such Inspectors shall not be deemed to imply that only such Work, construction, processes of manufacture and methods of construction will or may be so inspected. The Engineer shall be the judge of the quality and suitability of the Work, construction, processes of manufacture and methods of construction for the purposes for which they are used or to be used. Should they fail to meet his approval they shall be forthwith reconstructed, made good, replaced or corrected, as the case may be, by the Contractor at his own expense. Rejected material shall be removed immediately from the site. The fact that the Inspectors have approved the materials and workmanship shall not relieve the Contractor from his obligation to supply other material and workmanship when so ordered by the Engineer.

The Contractor, at his own expense, shall furnish such facilities and give such assistance for inspection as the Engineer may direct. In the case of materials required by the Specifications to be inspected in the factory or plant, and in the case of any other items which the Engineer may designate, the Contractor shall secure for the Engineer and his Inspectors free access to all parts of such factories or plants and shall furnish to the Engineer three copies of purchase orders, two copies of mill shipping statements and four copies of shipping statements. Moreover, in the case of such materials to be factory or plant inspected, the Contractor shall give at least ten days' notice to the Engineer of his intention to commence the manufacture or preparation of such materials.

Other than the materials and equipment specifically required to be inspected at the manufacturer's factory or plant, all materials will be inspected at the construction site and any portions thereof which are rejected by the Engineer shall be immediately removed from the construction site by the Contractor and shall be replaced with new materials by the Contractor at his own expense.

In the case of materials to be inspected at the construction site, the Contractor shall submit a list of all such materials in triplicate to the Engineer for his approval prior to ordering same. The list shall be submitted within forty-five calendar days after receipt of the notice of acceptance and shall contain the following information:

- A. Classification of submittal in accordance with the following:
 - Class I - A submittal for record of an expressly specified item.
 - Class II - A submittal of an item which conforms to an express generic specification or a submittal which is deemed by the Contractor to be identical to an expressly specified item.
 - Class III - A submittal which is deemed by the Contractor to be functionally equivalent but not identical to a specified item.
- B. In the case of Class II and Class III, the Contractor shall supply adequate information to the Engineer to enable the Engineer to compare the specified item and the proposed substitution. Information shall include, but need not be limited to, technical specifications, Catalog Cuts, drawings, references to existing installations and test data, or any other data required by the Engineer.
- C. In the case of fabricated materials for which Shop Drawings are to be prepared, a brief description of the material and the statement "see Shop Drawings".
- D. In the case of materials or equipment listed in manufacturer's catalogs, the list shall contain the vendor's name, the manufacturer's name, brand name, style designation, catalog number and, where the Specifications require catalog cuts, the statement "see catalog cut".
- E. In the case of materials or equipment for which Shop Drawings are not to be prepared, and which are not listed in any catalog, the list shall contain a complete description of the material or equipment, which shall be in sufficient detail to describe completely the materials or equipment and quality therefor.

The Engineer shall advise the Contractor whether said list is approved or requires corrections or additions within the number of working days indicated in the chart below:

Type of Submittal	No. of Working Days for Engineer to Approve/Disapprove Items
Class I Material submittals	10
Portland Cement mix designs that require confirmation of the 28-day properties	35
Changes in asphalt mix designs that need to be confirmed with a batch mix at the plant	35
Class II Material submittals	20
Class III Material submittals	30

Failure of the Contractor to provide 30 calendar days advance notice to the Engineer of any submittal shall result in a five (5) working day extension of the number of days stated in the chart above. In no event shall an extension of the Engineer's review time provided for in this section relieve the Contractor from its duty to meet all contractual Milestone dates.

Within ten working days after receipt of said list, the Engineer shall notify the Contractor of which items are approved and which disapproved. Within two working days thereafter, the Contractor shall resubmit a new list covering those items which were disapproved. After each such re-submission the Engineer shall have a similar period of ten days in which to approve or disapprove.

Should materials or equipment be delivered to the construction site without having been placed on the aforementioned list and approved, it shall be immediately removed from the construction site by the Contractor at his own expense.

107. MANUFACTURERS' CERTIFICATION

Where materials and equipment are required by these Specifications to conform to certain standard or tentative specifications or requirements of any organizations, including American Society for Testing and Materials, American National Standards Institute, Association Rules for Grading Lumber, Federal Specifications, National Electrical Manufacturers Association, American Association of State Highway and Transportation Officials, American Water Works Association and the International Municipal Signal Association, the Contractor shall furnish to the Engineer the manufacturer's written certification that each of the materials or equipment conforms to the foregoing standard or tentative specifications. The certification shall be delivered to the Engineer prior to installation of the materials to which it refers. Such certifications shall not be binding or conclusive on the Authority and may be rejected at any time by the Engineer if incorrect, improper or otherwise unsatisfactory in his opinion.

108. NO RELEASE OF CONTRACTOR

Any provision of this Contract for testing, inspection or approval, and any actual testing, inspection or approval, of any materials, workmanship, plant, equipment, drawings, program, methods of procedure, or of any other thing done or furnished or proposed by the Contractor to be done or furnished in connection with the Contract is for the benefit of the Authority not the Contractor. Any approval of such things shall be construed merely to mean that at that time the Engineer knows of no good reason for objecting thereto. No such provision for testing or inspection, no omission of testing or inspection, and no such approval shall release the Contractor from his full responsibility for the accurate and complete performance of the Contract in accordance with the Contract Drawings and Specifications or from any duty, obligation or liability imposed upon him by the Contract or from responsibility for injuries to persons or damage to property.

109. ERRORS AND DISCREPANCIES

If, in the performance of the Contract, the Contractor discovers any errors or omissions in the Contract Drawings or Specifications, or in the marks, lines and elevations furnished by the Authority in the construction undertaken and executed by him, he shall immediately notify the Engineer and the Engineer shall promptly verify the same.

If with the knowledge of such error or omission and prior to the correction thereof, the Contractor proceeds with any construction affected thereby, he shall do so at his own risk and the construction so done shall not be considered as construction done under and in performance of this Contract unless and until approved and accepted.

110. DIFFERING SUBSURFACE CONDITIONS

If during the performance of Work, the Contractor becomes aware of any unanticipated subsurface conditions or has cause to suspect the presence of such condition, then the Contractor shall immediately notify the Engineer, or designee thereof verbally, to be followed immediately by written notification. The Contractor shall specify the nature, location, and impact on the Work of such conditions. The Contractor shall immediately stop Work in and secure the area against injury to persons or damage to property pending further instructions from the Engineer.

The Contractor shall then conduct all necessary investigations and testing of the subsurface conditions as directed by the Engineer to identify the character and extent of the unanticipated subsurface conditions and/or to satisfy applicable Federal, State and local laws, codes and ordinances and regulations and shall notify the Engineer accordingly. The investigation program shall be submitted to the Engineer for review and approval.

In the event the Contractor discovers such subsurface conditions during the performance of the Work and (i) special handling of such condition is necessary and required for the performance of the Work as determined by the Engineer; (ii) such special handling cannot be avoided or mitigated by the exercise of reasonable measures by the Contractor; and (iii) the Contractor actually incurs increased costs caused by such condition that could not have been reasonably anticipated from the Contract Drawings, Reference Drawings and Specifications and inspection of the construction site; then in such event, as approved by the Engineer, the Contractor shall, notwithstanding any provision in this Contract to the contrary, be compensated for such costs for special handling, including the necessary investigations and testing of subsurface conditions, in accordance with the provisions of the Form of Contract clause entitled "Compensation For Extra Work".

111. ACCIDENTS AND FIRST AID PROVISIONS

The Contractor shall promptly report in writing to the Engineer and to the Authority Manager, Claims Administration all accidents whatsoever arising out of or in connection with the performance of the Contract, whether on or adjacent to the construction site, which result in death, injuries or property damage, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damage is caused, the accident shall be reported immediately by telephone to both of the said representatives of the Authority.

The Contractor shall provide at the construction site such equipment and medical facilities as are necessary to supply first aid service, in case of accident, to any who may be injured in the progress of the Contract. He shall have standing arrangements for the removal and hospital treatment of any person who may be injured while engaged in the performance of the Contract.

If any claim is made by any third person against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the fact in writing to the aforementioned representatives of the Authority, giving full details of the claim.

112. SAFETY PROVISIONS

In the performance of the Contract, the Contractor shall exercise every precaution to prevent injury to workers and the public or damage to property.

He shall, at his own expense, provide temporary structures, place such watchmen, design and erect such barricades, fences and railings, give such warnings, display such lights, signals and signs, exercise such precaution against fire, adopt and enforce such rules and regulations, and take such other precautions as may be necessary, desirable or proper, or as may be directed.

The Contractor shall employ for Work of the Contract a competent person conforming to the requirements of the Code of Federal Regulations 29 CFR 1926.32(f) who shall be designated by the Contractor as authorized to perform the duties required by 29 CFR 1926 et seq. as applicable for Work of this Contract.

Obtain and submit to the Engineer one copy of material safety data sheet (MSDS) conforming to the requirements of 29 CFR 1910.1200(g) for each hazardous chemical utilized for permanent and consumable materials employed for Work of this Contract.

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss, including but not limited to:

- A. All employees on the Work, the public, and other persons and entities who may be affected thereby;
- B. All the Work, materials and equipment to be incorporated therein, whether in storage on or off the site; and
- C. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and underground facilities not designated for removal, relocation or replacement in the course of construction.

The Contractor's duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed and the Contractor has removed all workers, material and equipment from the construction site, or the issuance of the Certificate of Final Completion, whichever shall occur last.

Until fire protection needs are supplied by permanent facilities under this Contract, install and maintain temporary fire protection facilities. Comply with requirements of National Fire Protection Association NFPA 10 "Standard for Portable Fire Extinguishers" and NFPA 241 "Standard for Safeguarding Construction, Alteration and Demolition Operations".

The Contractor shall employ only such men as are physically fit and are free from contagious or communicable diseases.

The Contractor shall use only machinery and equipment adapted to operate with the least possible noise, and shall so conduct his operations that annoyance to occupants of nearby property and the general public will be reduced to a minimum.

The bringing of intoxicating substances onto the construction site and the use or consumption of intoxicating substances at the construction site are prohibited. It shall be the responsibility of the Contractor to insure that all employees of the Contractor and of all subcontractors, materialmen and any other persons under contract to or under the control of the Contractor shall comply with the provisions of this paragraph.

The Contractor shall daily clean up all refuse, rubbish, scrap materials and debris caused by his operations, to the end that at all times the construction site shall present a neat, orderly and workmanlike appearance. Before the Certificate of Final Completion of Work will be issued, the Contractor shall remove all surplus materials, falsework, temporary fences and other temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from his operations and shall put the construction site in a neat, orderly condition.

In the event the Contractor encounters at the construction site, material reasonably believed to be asbestos, polychlorinated biphenyl (PCB) or any other hazardous material not shown on the Contract Drawings or mentioned in the Specifications, the Contractor shall immediately stop Work in the area affected and report the condition in writing to the Engineer. Work in the affected area shall not thereafter be resumed by the Contractor except upon the issuance of a written order to that effect from the Engineer.

Within 15 days of the acceptance of his Proposal, the Contractor shall submit to the Engineer for review, the Contractor's Site Safety Program, which shall be specific for the construction site and include a description of the Work to be performed, a hazard assessment of the Work to be performed and the means by which such hazards shall be mitigated. The Contractor's Site Safety Program shall comply with all applicable federal, state, municipal and local and departmental laws and shall include, among other things, the designation by the Contractor of a qualified individual to administer such Site Safety Program.

113. RECYCLING OF CONSTRUCTION DEBRIS MATERIAL

The Contractor shall remove from Authority property all construction debris, demolition debris and other debris material generated from the performance of the Work of this Contract unless the material is deemed acceptable by the Engineer for on-site re-use or recycling in accordance with the technical requirements of this Contract and remains at the Work site. The Contractor shall transport to recycling facilities or re-use and recycle on-site for this Contract, as applicable, no less than 75% by weight of the following types of designated debris material, to the extent arising from the Work of this Contract:

Asphalt Concrete

Portland Cement Concrete

Steel

Excess Unrestricted Soil

During the process of removal of all such designated debris material from Authority property, the Contractor shall submit to the Engineer on a monthly basis a Designated Debris Material Assessment Summary indicating the actual types and quantities by weight of the designated debris material removed for this Contract up to that point in time. In addition, the Designated Debris Material Assessment Summary shall also include types and quantities by weight of designated debris material actually re-used or recycled on-site in this Contract or, if shown on the Contract Drawings, are stockpiled for future use by the Authority. The Designated Debris Material Assessment Summary shall be accompanied by written verification from recycling and landfill destinations identifying the originating Work site, quantity of material delivered and type of debris material for all designated debris material removed from the Work site.

Within 15 days of the acceptance of his Proposal, the Contractor shall submit to the Engineer for review the Contractor's Designated Debris Material Assessment Plan indicating the anticipated types and anticipated quantities by weight and the intended destinations for all such designated debris material to be removed from the Work site. The Designated Debris Material Assessment Plan shall also indicate anticipated types and anticipated quantities by weight of all such designated debris material to remain at the Work site for re-use or recycling in this Contract as applicable.

All removals shall be completed promptly upon the completion of construction under this Contract.

114. DIESEL-POWERED EQUIPMENT

- A. The Contractor and its subcontractors shall minimize all air-borne pollutants generated by diesel-powered equipment and vehicles at all times during the performance of this Contract in accordance with this numbered Section. The requirements herein apply to all land-based and barge-mounted diesel-powered construction equipment. Marine propulsion engines, marine auxiliary engines, and dredges used in construction activity are exempt from these requirements.
- B. No diesel-powered equipment shall be brought on the construction site without meeting the following requirements unless a waiver has been granted as specified in D. below. In addition, all such equipment and engines shall comply with all Federal, state and local regulations applicable to exhaust emission controls and safety.
 - 1.) **Ultra Low Sulfur Diesel (ULSD) Fuel**
All diesel-powered equipment to be used in the performance of the Work of this Contract shall use ULSD fuel with an average sulfur content of no more than 15 parts per million (ppm). This requirement applies to on-road and non-road diesel engines. The Engineer may collect samples of the ULSD fuel directly from the fuel tanks of the diesel-powered equipment used on the construction site in order to verify that sulfur concentrations do not exceed 15 ppm. Diesel-powered equipment not using ULSD shall be removed from the construction site or shall immediately comply with the ULSD fuel requirements in this Section as directed by the Engineer and at no additional cost to the Authority.

2.) Emissions Control Devices – Best Available Technology (BAT)

All non-road diesel-powered equipment with a rated horsepower of 50 horse power (hp) or greater and active on the construction site for any portion of a 24-hour workday for more than 20 total consecutive and non-consecutive days shall be retrofitted with Emissions Control Devices (Devices) utilizing the best available technology (BAT). The Devices shall consist of Diesel Particulate Filters (DPFs) or other measures with equivalent particulate matter (PM) removal efficiency, wherever the implementation of such a Device is feasible in the opinion of the Engineer. For non-road diesel-powered equipment rated between 50 hp and 75 hp, Diesel Oxidation Catalysts (DOCs) may be used in place of DPFs.

Both active and passive filter regeneration mechanisms shall be considered for DPFs. In cases where DPFs are not feasible for safety considerations, mechanical reasons, or where the technology would not function properly, the Contractor shall submit a request for a waiver to the Engineer for review and approval prior to the use of such diesel-powered equipment. If the Engineer grants a waiver under these circumstances, then the Contractor shall retrofit the diesel-powered equipment with Flow Through Filters (FTF) if feasible in the opinion of the Engineer. DOCs shall be used in place of DPFs or FTFs unless it is proven to the Engineer by the Contractor that the application of this type of technology is also technically infeasible.

The use of diesel-powered engines greater than 50 hp without tailpipe reduction measures will be permitted pursuant to the Engineer's approval of a written request for a waiver submitted by the Contractor in accordance with D. below.

The use of Devices shall be targeted primarily toward the reduction of PM and secondarily to the reduction of nitrogen oxides (NOX), and shall in no event result in an increase in the emissions of either pollutant. The Devices of best available technology shall be defined as those that are contained in the U.S. Environmental Protection Agency (EPA) Verified Retrofit Technology List, the list of California Air Resources Board (CARB), Verifications, Europe's Verified Technology List (VERT), or as otherwise approved by the Engineer to provide the maximal level of pollutant reductions intended by this Section. For more information, refer to the following websites:

U.S. Environmental Protection Agency Verified Technology List:

<http://www.epa.gov/otaq/retrofit/nonroad-list.htm>

California Air Resources Board Verified Technology List:

<http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm>

Europe's Verified Technology List:

http://www.akpf.org/pub/vert_filterliste.pdf

3.) Diesel Construction Equipment Age Requirements

To facilitate the application of verified Emission Control Devices, as well as provide lower baseline emissions, Tier 0 engines shall not be used in the performance of this Contract unless they have been upgraded to Tier 1 and then retrofitted with best available technology devices. As determined by the Engineer, exceptions will be made only for specific engines that are not readily upgraded to Tier 1, and where the Work of this Contract cannot reasonably be performed using alternative engines that comply with this Section. In such cases, the Contractor shall submit a written request for a waiver to the Engineer for review and approval prior to bringing such equipment onto the construction site.

4.) Diesel Engine Idling Policy

The idling time of non-road and on-road vehicles shall be limited to three (3) consecutive minutes as determined by the Engineer with the following exceptions:

- a. An on-road or non-road vehicle is forced to remain motionless because of traffic conditions or mechanical difficulties over which the operator has no control, or is in queue when engaged in an active operation with other equipment.
- b. It is necessary to operate defrosting, heating, or cooling equipment to ensure the safety or health of the driver or passengers.
- c. To ensure the safe and proper operation of auxiliary equipment that is located in or on the vehicle, to accomplish the intended use of the vehicle or equipment, but only to the extent so necessary (for example - cranes and concrete mixers).
- d. To bring the vehicle to the manufacturer's recommended operating temperature, but only to the extent so necessary.
- e. The outdoor ambient temperature is below twenty (20) degrees Fahrenheit.
- f. A vehicle is being actively worked on for repairs or maintenance and engine idling is necessary to effectuate such repairs or maintenance.

5.) Electrification

Where electric power is distributed to and available throughout a construction site, electrically powered equipment shall be preferred over diesel-powered versions of that equipment.

C. Submittals

The Contractor shall submit to the Engineer for review and approval an inventory list for all non-road diesel equipment and engines, and verified Emissions Control Devices. No Work shall commence utilizing diesel-powered non-road equipment rated at 50 hp or greater until the Contractor submits a comprehensive and complete inventory list inclusive of all such equipment, including the specifics of each as detailed below, and same is approved by the Engineer.

- 1.) The inventory list shall be provided in an electronic format (e.g., Microsoft Word, Access or Excel), and shall include the following:
 - a. Contract number and title.
 - b. Owner of equipment's name, address, telephone number and contact person familiar with the operation and maintenance of the equipment and the emission control technologies; whether owner is the Contractor, subcontractor or rental firm.
 - c. Dates that equipment is anticipated to arrive at and depart from the site.
 - d. Number, type, make, year of manufacture, manufacturer and serial number.
 - e. Engine type, tier level, make, horsepower rating, year of manufacture, and serial number.
 - f. Approximate fuel consumption rate per shift.
 - g. Anticipated function, duration of use, and days and hours of operation.
 - h. Retrofit type, make, model, manufacturer, installation date, EPA, VERT or CARB verification number or supporting documentation related to emission control devices.

- i. Previous acceptance or waivers granted by the Authority, or the City of New York, or the Metropolitan Transportation Authority, or another public agency that issued a waiver under the same or substantially the same standards.

2.) On-Going Equipment Updates

Whenever a new or additional piece of diesel-powered non-road equipment is required to complete the Work of this Contract, the Contractor shall submit to the Engineer an update of the equipment inventory list. These updates shall include the actual dates the equipment arrives and departs from the site.

D. Waivers

The Contractor shall submit a written request for a waiver to the Engineer for review and approval prior to bringing equipment that does not conform to the above requirements onto the construction site. The Contractor shall demonstrate due diligence by providing written documentation of efforts to comply with this Section. For waivers based upon the unavailability of retrofit devices for certain equipment, the Contractor will generally be required to provide written documentation from more than one vendor or supplier of retrofit devices to satisfy this requirement. Waiver requests related to the use of DPFs shall take into consideration actively regenerating filters for equipment with low temperature profiles that typically preclude the application of passively regenerating filtration systems.

Equipment retrofitted with an approved device in connection with another construction contract of the Authority, or the City of New York, or the Metropolitan Transportation Authority is exempt from further retrofitting for three (3) years from the date the retrofit was approved, even if new BAT retrofit devices are available. The Contractor shall submit to the Engineer documentation of approval of a retrofit device by the Authority, or the City of New York, or the Metropolitan Transportation Authority, or another public agency that issued a waiver under the same or substantially the same standards for the equipment in question. In addition, if the Authority, or the City of New York, or the Metropolitan Transportation Authority, another public agency that issued a waiver under the same or substantially the same standards previously waived a requirement contained in this Section for a particular piece of equipment, that equipment shall be exempt from the requirement for three (3) years from the date the initial waiver was granted.

- 1.) In responding to waiver requests, the following conditions will be taken into consideration with applicable documentation:
 - a. A BAT retrofit device would pose a safety hazard or impair operator visibility; or
 - b. A BAT retrofit device would void the engine warranty; or
 - c. A BAT retrofit device cannot be used for mechanical reasons; or
 - d. A BAT retrofit device or the engine would not function properly if the BAT retrofit device were installed; or
 - e. A Tier 0 engine is not readily upgraded to Tier 1, and where the task cannot be reasonably accomplished using alternative engines that do comply with this Section; or
 - f. The furnishing and installation of a BAT retrofit is more than 30 percent of the fair market value of the construction equipment; or

- g. The Authority, or the City of New York, or the Metropolitan Transportation Authority, or another public agency that issued a waiver under the same or substantially the same standards previously approved a BAT retrofit device for the equipment in question. Such approval is valid for three years from the date it was issued; or
 - h. The Authority, or the City of New York, or the Metropolitan Transportation Authority, or another public agency that issued a waiver under the same or substantially the same standards previously granted a waiver for the equipment in question. Such waiver is valid for three years from the date it was issued.
- In addition, the Engineer may, in his or her discretion, grant a waiver based upon excessive costs to satisfy the requirements of this Section, undue burden on the Contractor, marginal benefits, or other relevant factors, provided adequate supporting documentation is submitted by the Contractor.

2.) Waiver requests shall include the following:

- a. Name of contractor applying for the waiver.
- b. Contract number and title.
- c. Owner of equipment's name, address, telephone number and contact person familiar with the operation and maintenance of the equipment and the emission control technologies, whether owner is the Contractor, subcontractor or rental firm.
- d. Number, type, make, year of manufacture, manufacturer and serial number.
- e. Engine type, make, horsepower rating, year of manufacture, and serial number.
- f. Approximate fuel consumption rate per shift.
- g. Anticipated function, duration of use, and days and hours of operation.
- h. Technical explanation of safety hazard, mechanical constraint, warranty, limited availability, or functionality issues cited as basis for waiver.
- i. Written documentation from retrofit device manufacturers, engine manufacturers, or rental companies, as appropriate, supporting the stated reasons for the waiver; for waivers based upon the unavailability of a retrofit device for specified equipment, the Contractor shall provide documents from more than one supplier.
- j. If applicable, documentation of previous BAT retrofit approvals granted by the Authority, or the City of New York, or the Metropolitan Transportation Authority, or another public agency that issued a waiver under the same or substantially the same standards for the equipment in question.
- k. If applicable, documentation of previous waivers granted by the Authority, or the City of New York, or the Metropolitan Transportation Authority, or another public agency that issued a waiver under the same or substantially the same standards for the equipment in question.

3.) Review of Waiver Application

The Engineer will make a determination whether to approve the Waiver Request no later than 10 days after its receipt.

115. DAILY PROGRESS, EQUIPMENT AND LABOR REPORTS

The Contractor shall furnish to the Engineer at the end of each day Work is performed at the construction site, a memorandum showing for that day (a) the construction performed, (b) the type of equipment used identifying each piece of equipment as owned by the Contractor or rented from others; (c) a statement of any unusual happening that occurred, and (d) the names and number of workers in each trade classification that were employed. Such memorandum shall not be deemed to be a substitute for the notices, time slips, memoranda or other data required under the clauses of the Form of Contract relating to compensation for Extra Work.

116. LAWS AND ORDINANCES

In order to effectuate the policy of the Authority, the Contractor shall comply with all provisions of federal, state, municipal, local and departmental laws, ordinances, rules, regulations and orders which would affect the Contract and the performance thereof and those engaged therein if said Contract were being performed for a private corporation, except where stricter requirements are contained in the Specifications or Contract Drawings, in which event the latter requirements shall apply. However, the Contractor shall not apply for any permits, licenses or variances in the name of or on behalf of the Authority, but shall do so in his own name where required by law, regulation or order or by the immediately preceding sentence. Nor shall the Contractor apply for any variance in his own name without first obtaining the approval of the Authority.

The Contractor shall verify that employees performing Work under this Contract in the United States are legally present in the United States and authorized to work by means of the federally required I-9 program.

The Authority has applied/will apply for the following permit(s) in connection with this Contract in its own name:

- A. Department of the Army New York District, Corps of Engineers, Authorization Under Department of Army Nationwide General Permit Number 7 Outfall Structures and Associated Intake Structures.
- B. New York State Department of State Coastal Zone Management General Concurrence.
- C. New York State Department of Environmental Conservation (NYSDEC), Tidal Wetlands, Protection of Waters and Water Quality Certification permit.

The Contractor shall comply with all provisions of the said permit(s)²⁴ with the following exceptions listed below to the New York State Department of Environmental Conservation (NYSDEC) permit:

Paragraph 1. through 4. will be performed by the Authority.

- 1. NYSDEC Natural Resource Permit Condition 5. Pre-Construction Photographs.
- 2. NYSDEC Natural Resource Permit Condition 6. Post-Construction Photographs.
- 3. NYSDEC Natural Resource Permit Condition 11. Plant Monitoring.
- 4. NYSDEC Natural Resource Permit Condition 12. Plant Survival.

²⁴ Actual permits attached hereto and made a part hereof in Appendix 1.

117. U.S. COAST GUARD SECURITY REQUIREMENTS

The Contractor is advised that in conjunction with Port Security Provisions for the Port of New York and New Jersey a 25-yard security or exclusionary area has been established by the United States Coast Guard around all bridges, piers and other facilities on the waterfront in the Greater New York/New Jersey area. No person or vessel may enter these security areas without the approval of the Coast Guard Captain of the Port and Vessel Traffic Service Activities New York as well as the Commander, First Coast Guard District Bridge Branch.

All requests to enter into these security zones shall be made in writing to Captain of the Port of New York not less than 30 days prior to the intended date of entry into the zone. Requests must be submitted to the U.S. Coast Guard Waterways Oversight Branch at Commanding Officer, U.S. Coast Guard Activities New York (WOB), 212 Coast Guard Drive, Staten Island, NY 10305; (718) 354-4193 or 4355 and must contain a complete list of all personnel that will enter into the security zones, complete vessel information and, if appropriate, a copy of Coast Guard Bridge Branch construction approval.

The following information is required:

- A. Employee's name, social security number and date of birth.
- B. Contractor's supervisor name and telephone number.
- C. Name, type, size of barge/vessel/boat.
- D. Contract start and end dates, working hours and days.

After background checks of all personnel have been completed, Coast Guard Captain of the Port will issue a letter specifying personnel and vessels authorized to enter the security zone.

After initial written approval for entry has been received, the Contractor shall notify the Coast Guard (Vessel Traffic Service 718-354-4088) daily prior to entering and upon securing for the day or leaving the site.

If additional, or changes in existing personnel, are required said information identified above shall be transmitted as above, as early as possible, but not less than 96 hours in advance of the expected change.

Failure to comply with the above Security Zone Requirements and Conditions is punishable under Federal Law by arrest, prosecution, and or civil penalties.

118. SIGNS

No advertisement or sign, other than the name and address of the Contractor, will be permitted on any fences, temporary structures or elsewhere on the construction site and such advertisement will be permitted only upon the condition that it is first approved by the Engineer. In any event, the advertisement shall not exceed six feet by eight feet in overall dimensions.

119. CONTRACTOR'S FIELD OFFICE AND REPRESENTATIVE

At a readily accessible point on or near the construction site, the Contractor shall maintain a field office provided with a telephone.

During the performance of any Work at the construction site, the Contractor shall have a representative thereat who shall be authorized by the Contractor to receive and put into effect promptly all orders, directions and instructions from the Engineer. The Contractor's representative shall be provided, at all times, with a conformed copy of this Contract and a set of the Contract Drawings.

Orders and directions may be given orally by the Engineer and shall be received and promptly obeyed by the Contractor or his representative or any superintendent, foreman or other employee of the Contractor who may have charge of the particular part of the Work in relation to which the orders or directions are given. A confirmation in writing of such orders or directions will be given by the Engineer when so requested by the Contractor.

120. SURVEYS

The Engineer will establish a bench mark and a base line at or adjacent to the location of the Contractor's operations. The Contractor shall perform all surveys which may be required for the performance of the Contract. He shall carefully preserve any base line and bench mark which may be established by the Engineer.

The Contractor shall, in addition, furnish to the Engineer, without additional compensation therefor, any or all information and data regarding points, lines, grades, elevations and other survey information established by the Contractor during the performance of the Contract.

Surveys and measurements of quantities for purposes of computing Contractor's compensation shall be made by the Contractor as directed by and in the presence of, or jointly with, the Engineer, at the Engineer's option. Computations of quantities for payment shall be made by the Contractor and shall be subject to the approval of the Engineer.

121. TEMPORARY STRUCTURES

Unless otherwise provided in this Contract, the Contractor shall determine the need for and shall design, furnish and construct all barricades, fences, staging, falsework, formwork, shoring, scaffolding and other temporary structures required in the performance of the Contract, whether or not of the type enumerated in the Specifications or on the Contract Drawings, including those which would be required by law or regulation if this Contract were being performed for a private corporation. All such temporary structures shall be of adequate strength for the purposes for which they are constructed and shall be provided with graphics, warning signs and warning lights as required to inform personnel and the public of the hazards being protected against, and the Contractor shall maintain them in satisfactory condition. The design and drawings for such structures shall be prepared by the Contractor utilizing a professional engineer licensed in the state where the structure will be constructed, and when requested by the Engineer they shall be submitted for his review before being used.

The Contractor shall ensure that each temporary structure is inspected by the professional engineer who designed the temporary structure prior to initial use and submit a schedule of periodic inspections to be performed by such professional engineer to the Engineer for review. The number of periodic inspections of temporary structures to be performed by the professional engineer shall be the minimum required by law or regulation if this Contract were being performed for a private corporation. The Contractor shall also submit a signed and sealed statement of inspection from the professional engineer performing the inspection of the temporary structure, including a statement of fitness for use for the intended purpose of the temporary structure, to the Engineer for review.

Neither such review, however, nor any requirements of the Engineer, the Specifications or the Contract Drawings shall relieve the Contractor of his responsibility for the design, construction and use of the temporary structures or from any obligations and risks imposed on him under this Contract, and any such approval or requirements shall be deemed merely to relate to minimum standards and not to indicate that the temporary structures are adequate or that they meet the Contractor's obligations under this Contract.

Temporary structures shall be painted with an approved dark color paint and shall be repainted whenever necessary during the period that the Contract is being performed. Upon completion of all Work under this Contract, the temporary structures shall be removed from the construction site.

122. PERMIT AND REQUIREMENTS FOR WELDING

Prior to the commencement of any cutting or welding operations at the construction site, the Contractor shall notify the Engineer and obtain an Authority cutting and welding permit. The Authority will issue this permit without payment of a fee, and application forms may be obtained from any Resident Engineer of the Authority, at his office at the facility. Unless otherwise approved by the Engineer, all cutting and welding operations shall be performed in accordance with the conditions which form a part of said permit. The permit application must be filled out and submitted in duplicate to the Engineer at least forty-eight hours prior to commencing welding or cutting operations at the construction site.

123. FINAL INSPECTION

When, in the opinion of the Contractor, the construction is completed and ready for final inspection, he shall so notify the Engineer in writing and the Engineer will give said construction (including any portions with respect to which Certificates of Partial Completion have been issued) a minute and thorough inspection. Before any Certificate of Final Completion will be issued, any defects or omissions noted on this inspection must be corrected by the Contractor.

124. WARRANTIES

The Specifications may provide for certain warranties of portions of the permanent construction. These warranties are intended for the greater assurance of the Authority and not as a substitute for rights which the Authority might otherwise have. Although such warranties shall be enforceable as provided, neither any requirement of this Contract with respect to warranties by the Contractor nor any guarantee or warranty given to the Contractor or the Authority by any manufacturer shall be deemed to be a limitation upon any rights which the Authority would have, either expressed or implied, in the absence of such guarantees or warranties.

125. UTILITY DATA COLLECTION

In order to assist the Authority with the collection of as-built utility data, notify the Engineer within 48 hours prior to the covering of all underground structures, piping, conduit, cable or duct banks.

Do not build-in, backfill, fill over, around, or in any way cover underground structures, piping, conduit, cable or duct banks until given notice to proceed by the Engineer.

Nothing contained herein shall relieve the Contractor from performing the Work in accordance with the Contract Drawings and Specifications nor release the Contractor from any obligations under or upon this Contract.

126. REQUIREMENTS FOR CRANES AND DERRICKS

During the performance of Work at the construction site, the use by the Contractor or his subcontractors of power operated cranes and derricks for hoisting and/or rigging purposes; or for construction, alteration, demolition, excavation and maintenance purposes, including highways or sewers; or for the installation of piles; or for the hoisting or lowering of any article on the outside of any building or structure shall be subject to the approval of the Engineer in accordance with this Section.

A. Determinations will be made in writing by the Engineer on whether cranes and other such equipment meeting certain criteria shall be exempt from all or part of the requirements herein. Such determinations shall in no way relieve the Contractor from conformance with all applicable requirements of this Section and governing codes including the possession of a valid operator's license (NCCCO- National Commission for the Certification of Crane Operators license) subject to verification by the Engineer.

- 1.) The following equipment will be considered for full exemption, which means exempt from B., C., D., E., F., G. and H. below:
 - a. Excavating or earth-moving equipment, except cranes used with clamshells.
 - b. Augurs, churn-drills, and other drilling equipment not used for the hoisting of any objects.
 - c. Mobile cranes, including jibs and any other extensions to the boom, exceeding 50 feet but not exceeding 135 feet in length, and with a manufacturer's rated capacity of 3 tons or less used exclusively as a man-basket.
 - d. Hoisting machines permanently mounted on the bed of material delivery trucks that are used exclusively for the loading and unloading of such trucks, provided that the length of boom does not exceed the length of the truck bed by more than 5 feet, and any material transported thereon shall not be raised more than 2 feet in the unloading process.
 - e. Cranes and derricks with a manufacturer's rated capacity of less than 1 ton.
 - f. Mechanics trucks with a hoisting device used in activities associated with the maintenance and repair of construction related equipment.
 - g. Articulating boom cranes that do not have an integral hoisting mechanism and that are used exclusively for the loading and unloading of trucks or trailers, provided that the length of boom does not exceed 135 feet, and that any material transported thereon shall not be raised more than 100 feet in the unloading process.
- 2.) The following equipment will be considered for Partial Exemption – I, which means exempt from B.4.), C.2.), C.4.) and D. below:
 - a. Cranes with less than 160 feet combined boom/jib length to be used for a period not exceeding 24 hours, operated entirely within Authority property and at a location at least one boom/jib length away from all Authority property.
 - b. Service cranes and clamshells with a boom length of 110 feet or less, to be operated entirely within Authority property and at a location that does not require the moving of any load over a roadway or sidewalk.
 - c. Pile drivers or clamshells operated entirely within Authority property with a soil bearing pressure not exceeding 500 pounds per square foot.
 - d. Mobile cranes, including jibs and any other extensions to the boom, not exceeding 50 feet in length and with a manufacturer's rated capacity of 3 tons or less.

- 3.) The following equipment will be considered for Partial Exemption – II, which means exempt from B., C. 2.), C. 3.), C. 4.), D., F., and G. below:
 - a. Articulating/knuckle boom cranes used to hold, support or stabilize material to facilitate construction activity.
 - b. Cranes with a manufacturer's rated capacity of 1 ton or more.
- B. For each crane or derrick not considered fully exempt by the Engineer, submit the following forms to the Engineer prior to delivery of the crane or derrick to the construction site: (see F. below for all forms)
 - 1.)
 - a. For Work performed in New York City: A copy of a current and valid Form CD-2, entitled "Crane/Derrick/Mobile Work Platform – Approval and Operation Application/Certificate", Revised 08/15/05, as issued by the New York City Department of Buildings - Cranes & Derricks Division, hereinafter called "NYCDOB-C&D". Form CD-2 shall bear the approval stamp of NYCDOB-C&D as a "Temporary Certificate of Approval/Temporary Certificate of Operation," and shall include an expiration date, a legible CD Number, and an authorized signature from a representative of NYCDOB-C&D. In the event that such approved Form CD-2 is not available, the Contractor shall ensure that the owner of the crane or derrick files a Form CD-2 directly with NYCDOB-C&D. Submit to the Engineer proof of the filing, a copy of the completed Form CD-2, and an "acceptable to operate" inspection report issued by NYCDOB-C&D.
 - b. For Work performed outside of New York City: A copy of a current and valid Form NYCDOB CD-2 or a crane inspection report including the items listed in E. 5.) below. The crane inspection shall be performed by an inspector meeting the following requirements:
 - (i) Five years experience in the hoist and rigging industry
 - (ii) Nationally certified as inspector for mobile, tower, rigging and safety
 - (iii) Manufacturers' specific training on crane equipment
 - 2.)
 - a. For Work performed in New York City: A fully executed Form CD-11, entitled "Equipment Owner Identification Form", Revised 12/03, as issued by NYCDOB-C&D.
 - b. For Work performed outside of New York City: A fully executed Form NYCDOB CD-11 or statement of ownership on letterhead from the crane owner.
 - 3.) For Work performed in New York City: A fully executed Form CD-16, Statement of Notification to Community Boards.
 - 4.)
 - a. For Work performed in New York City: A fully executed Form CD-4, entitled "Crane/Derrick/Mobile Work Platform – On-Site Inspection Application/Certificate", Revised 12/03, as issued by NYCDOB-C&D. Form CD-4 shall be accompanied by drawings and calculations, all signed and sealed by a Professional Engineer licensed in the state of New York. The drawings and calculations shall clearly indicate the following:
 - (i) Location of each crane or derrick.

- (ii) All pertinent features of the site.
 - (iii) Supporting platforms and structures.
 - (iv) Swing and reach of each crane or derrick.
 - (v) Calculations showing an acceptable factor of safety for overturning for any loading condition.
 - (vi) If either prestressed or non-prestressed soil or rock anchors are required to provide an acceptable factor of safety for overturning:
 - (a.) The calculations shall include the design for the tie-downs prepared.
 - (b.) The drawings shall include the installation and testing requirements for the tie-downs.
 - (c.) The testing of the tie-downs shall be witnessed by the Professional Engineer that prepared the tie-down design. At the completion of the testing, submit a tie-down load test report verifying the capacity of the tie-downs.
 - (vii) Calculations showing that the maximum bearing pressure for the crane under any loading condition is less than the allowable bearing pressure for the soil.
 - (viii) Calculations showing that the maximum bearing pressure for the crane under any loading condition does not overstress any subsurface utility, structure, or retaining wall.
- b. For Work performed outside New York City: A fully executed Form NYCDOB CD-4 or a letter signed and sealed by a Professional Engineer licensed in the state where the Work is being performed explaining intent of crane use, designating crane safety coordinator and equipment user and stating that equipment will not be used unless an on-site inspection is performed; such letter shall be accompanied by drawings and calculations as specified in (i) through (viii) above, all signed and sealed by a Professional Engineer licensed in the state where the Work is being performed.
- 5.) If the crane or derrick location is within two hundred feet (200') of an NYC subway line or facility, approval from New York City Transit ("NYCTA") is required prior to the placement, assembly, or erection of the crane or derrick. In such cases, a Certificate of On-Site Inspection cannot be issued without NYCTA written approval.
- Upon the review and acceptance in writing by the Engineer of all of the above submissions, the crane or derrick will be permitted to enter the construction site. Coordinate all such deliveries with the Engineer.
- C. Upon delivery to the construction site for cranes or derricks considered for Full Exemption or Partial Exemption – I or Partial Exemption – II by the Engineer, submit the following to the Engineer in accordance with A. above. For all other cranes or derricks, submit all of the following to the Engineer:
- 1.) Names, classifications, and license numbers of each crane or derrick operator and the master, tower, or climber crane rigger.

- 2.) For cranes or derricks to be operated solely on Authority property:
 - a. For Work performed in New York City: Form CD-8, entitled "Technical Report – Statement of Responsibility", Revised 12/03, as issued by the NYCDOB-C&D. Form CD-8 shall be completed in its entirety with the exception of Box #5B, and signed and sealed by a Professional Engineer licensed in the state of New York in Box #5A.
 - b. For Work performed outside of New York City: Form NYCDOB CD-8 or a letter from a Professional Engineer licensed in the state where the Work is being performed stating responsibility for the design of the foundation.

Upon review and acceptance by the Engineer of all submitted drawings and associated documentation specified above, the Contractor will be permitted to place and/or assemble the crane or derrick at the construction site, with the exception of tower or climber cranes. For tower or climber cranes, additional submittals and inspections shall be required as specified in 4.) below.

- 3.) For cranes or derricks to be operated on other than Authority property:
 - a. For Work performed in New York City: File all forms, drawings and associated documentation directly with NYCDOB-C&D. Upon the submission to the Engineer of a current and valid "Certificate of On-Site Inspection" as issued by NYCDOB-C&D, will the Contractor be permitted to assemble or erect the crane or derrick at the construction site.
 - b. For Work performed outside New York City: File directly with the local municipality and submit proof of such municipality approval to the Engineer prior to erecting the crane or derrick at the construction site.
- 4.) For tower or climber cranes, in addition to the documentation in B. and C. above, submit the following to the Engineer:
 - a.
 - (i) For Work performed in New York City: A fully executed Form CD-7, entitled "Notification of Erecting or Dismantling of Climber or Tower Crane", Revised 07/07. Form CD-7 shall be accompanied by a copy of the license of each master or tower rigger designated to supervise the erection of the crane and all associated documentation required to ensure compliance with the manufacturer's recommendations. Form CD-7 shall also be accompanied by signed and sealed drawings by a Professional Engineer licensed in the state of New York for the erection, jumping, climbing and dismantling of the tower or climber crane. Documentation and drawings shall include the following:
 - (a.) Serial number identification of equipment to be used for all rigging and lifting operations including all machines to be used for erection or dismantling.
 - (b.) Detailed listing of assemblies and components required for erection and dismantling of rigging and lifting equipment, including but not limited to lifting frame, climbing hydraulic cylinders, upper basket, lower basket, outriggers, communication system, tie-downs, dogs, horn, lights and weathervane.

- (c.) Location of rigging and lifting equipment, assist cranes, sidewalk sheds, surrounding buildings, protection for their roofs and pick-up points, loads, and radius of swing of all loads. In addition, submit to the Engineer the safe load from the crane manufacturer's approved load radius chart for lift radius.
 - (d.) Weight list certified by the crane manufacturer listing all assemblies and components to be lifted. All components shall be clearly marked with their weight painted on the assembly, or stamped on metal tags attached to the assembly. In lieu of an equipment manufacturer's certification, submit documentation signed and sealed by a Professional Engineer licensed in the state of New York certifying the weight list and indicating how such weights were determined.
 - (e.) Locations of the centers of gravity for all asymmetrical components.
 - (f.) Sequence of operation detailing erection, jumping, climbing and dismantling, along with the rigging materials to be used in such operations.
 - (g.) Written certification by a Professional Engineer licensed in the state of New York that all safety devices on each crane to be used in the erection, jumping, climbing and dismantling operations have been calibrated in accordance with the crane manufacturer's recommendations.
 - (h.) Names, license numbers (as applicable) and contact information for each licensed rigger, rigger foreman, site safety manager, crane safety coordinator and entity performing the erection, jumping, climbing, and/or dismantling Work.
 - (i.) Load test procedure signed and sealed by a Professional Engineer licensed in the state of New York identifying the weights to be used and the load moment and line pull testing to be conducted in accordance with b. below.
 - (ii) For Work performed outside New York City: A fully executed Form NYCDOB CD-7 or a letter from a Professional Engineer licensed in the state where the Work is being performed documenting the date of the erection/jump/lowering or dismantling of a climber or tower crane. Such letter shall include rigger's information and equipment user stating responsibility and conforming to manufacturer's procedures and be accompanied by documentation and drawings listed in (a.) through (i.) above.
- b. A load test shall be conducted on each tower or climbing crane by a Professional Engineer licensed in the state where the Work is being performed in accordance with the load test procedure submitted under (i.) above. Upon completion of the load test and determination that the results are satisfactory, submit to the Engineer the signed and sealed report certifying acceptance of the results by the Professional Engineer licensed in the state where the Work is being performed.
- c.
- (i) For Work performed in New York City: A fully executed Form CD-12, entitled "Designation of Safety Coordinator" Revised 12/03, as issued by NYCDOB-C&D.

- (ii) For Work performed outside New York City: A fully executed Form NYCDOB CD-12 or a letter designating the name of the Designated Safety Coordinator for the crane and stating responsibility for the control of pedestrian and vehicular traffic in the hoisting area.
- d. A signed and sealed report documenting the results of the field inspection of the crane in the "unassembled state (for cranes delivered in the unassembled state)" performed by a Professional Engineer licensed in the state of where the Work is being performed and certifying that all crane parts are in satisfactory condition, and acceptable for assembly and erection.
- e.
 - (i) For Work performed in New York City: A copy of the Safety Coordination Meeting Log as stipulated in Section BC 3319 entitled "Cranes and Derricks" of the Building Code for the City of New York (BCCNY) (3319.8.2 through 3319.8.8, and 3319.10.2). Conduct the safety coordination meeting within the week prior to the erection, jumping, climbing, or dismantling of a tower or climber crane in accordance with BCCNY and notify the Engineer one week prior to the meeting.
 - (ii) For Work performed outside New York City: Conduct a safety coordination meeting within the week prior to the erection, jumping, climbing, or dismantling of a tower or climber crane, notify the Engineer one week prior to the meeting and submit a copy of the safety coordination meeting log along with the rigging crews' licenses.

Upon review and acceptance by the Engineer of all documentation in B. and C. above, the Contractor will be permitted to erect the tower or climber crane at the construction site.

- D. Prior to the use and/or operation of each crane or derrick, including tower or climber cranes, at the construction site when the crane or derrick will be operated solely on Authority property, complete the following:
 - 1.)
 - a. For Work performed in New York City: Performance of a field inspection of the crane or derrick in the "assembled state" by a Professional Engineer licensed in the state of New York in accordance with BCCNY Reference Standard RS 19-2 including the verification, inspection, and certification of the following:
 - (i) That the crane or derrick has a current and valid Form CD-2 as issued by NYCDOB-C&D for the configuration to be used at the construction site.
 - (ii) That the support, dunnage, configuration and location of the crane or derrick have been constructed and positioned in accordance with the drawings and calculations submitted to the Engineer with Form CD-4.
 - (iii) That the crane or derrick is in working order and there is no visible damage including, but not limited to, the following items:
 - (a.) Bent or missing lacings
 - (b.) Pins are properly installed and have no visible fatigue
 - (c.) Maladjustment of control mechanisms interfering with proper operation
 - (d.) Excessive wear of control mechanisms components and contamination by lubricants or other foreign matter

- (e.) Malfunction of operational aids
- (f.) Hydraulic hoses
- (g.) Deformation, chemical damage, cracks and wear of hooks and latches
- (h.) Rope reeving for compliance with crane manufacturer's specifications
- (i.) Malfunction and excessive deterioration of electrical apparatus and accumulation of dirt and moisture
- (j.) Hydraulic system for proper oil level
- (k.) Tires for recommended inflation pressure

Upon the completion of the field inspection and the determination that the crane or derrick is sound and has been assembled and positioned in accordance with the drawings and calculations submitted to the Engineer with Forms CD-4 and CD-7, submit to the Engineer both a signed and sealed inspection report certifying conformance by the Professional Engineer licensed in the state of New York and a fully executed Form CD-8, signed and sealed in Box #5B.

- b. For Work performed outside New York City: A Professional Engineer licensed in the state where the Work is being performed shall perform a field inspection of the crane or derrick in the "assembled state" including the verification, inspection, and certification of the following:
 - (i) That the crane or derrick has a current and valid inspection report in accordance with B. 1.) above.
 - (ii) That the support, dunnage, configuration and location of the crane or derrick have been constructed and positioned in accordance with the drawings and calculations submitted with the letter outlining the intended use of the crane.
 - (iii) That the crane or derrick is in working order and there is no visible damage including, but not limited to, the items listed in D. 1. a. (iii) above.
 - (iv) Submit a letter to the Engineer stating that the Professional Engineer licensed in the state where the Work is being performed has completed the foundation inspection, the foundation conforms to the approved drawings and there are no hazardous conditions.
- 2.) For tower or climber cranes, in addition to the above, perform the following:
- a. For performance of Work in New York City: Procure the services of a land surveyor licensed in the state of New York to perform a plumbness survey, a licensed testing laboratory to perform anchor bolt pull-out testing, and a licensed rigger to certify compliance with the manufacturers bolt torque values connecting sections. Submit to the Engineer a fully executed Form CD-6, entitled "Crane / Derrick and Work Platform – Plumbness and Torque Notification/Anchor Bolt Pull Out Test" Revised 12/03, as issued by NYCDOB-C&D.
 - b. For performance of Work outside New York City: Submit to the Engineer a fully executed Form NYCDOB CD-6 or procure the services of a land surveyor licensed in the state where the Work is being performed to perform a plumbness survey, a licensed testing laboratory to perform anchor bolt pull-out testing, and a licensed rigger to certify compliance with the manufacturers bolt torque values connecting sections.

Upon the review and acceptance by the Engineer of all documents required above, the Contractor will be permitted to use and operate the crane or derrick at the construction site.

- E. Requirements for inspection and operation of cranes at the construction site:
- 1.) Monthly inspections and reports shall be performed, prepared and signed by a competent person as defined in Federal Register Part II, Department of Labor, Occupational Safety and Health Administration, 29 CFR Part 1926 Cranes and Derricks in Construction; Final Rule (OSHA), and a copy of each inspection report shall be store in the crane cab for three months.
 - 2.) Pre-lift meetings shall be held as outlined in Federal Register Part II, Department of Labor, Occupational Safety and Health Administration, 29 CFR Part 1926 Cranes and Derricks in Construction; Final Rule (OSHA). Submit pre-lift meeting minutes to the Engineer.
 - 3.) No crane or derrick operator shall start an operation when the wind speed exceeds 30 miles per hour or the wind speed is forecast to reach 30 miles per hour before the operation can be completed. Tower cranes shall not be raised to new operating levels when the wind speed exceeds 20 miles per hour.
 - 4.) All mobile cranes over 110 feet, all tower cranes and all gantry cranes operated at the construction site shall be equipped with a load data recorder for crane lifts.
 - 5.) Inspections of cranes shall include the following:
 - a. Historical information and maintenance
 - b. Mainframe member
 - c. Upper power plant smoke
 - d. Upper rotating structure
 - (i) Turntable
 - (ii) Pumps/motors/valves/lines/tubes
 - (iii) Ring gear/pinion gear/rollers
 - (iv) Main hoist and rope
 - (v) Auxiliary hoist and rope
 - (vi) Boom hoist and rope
 - (vii) Luffing boom hoist and rope
 - e. Lattice boom
 - f. Telescoping boom
 - g. Wire rope/Block/Ball
 - h. General
 - (i) Metals
 - (ii) Covers/guard
 - (iii) Lights
 - (iv) Housekeeping

- (v) Safety/warning decals and labels
 - (vi) Hand signal chart
 - (vii) Paint condition/corrosion control
- i. Driver cab
 - (i) Cab grab rails/steps
 - (ii) Cab glass
 - (iii) Windshield wipers
 - (iv) Cab doors/restraints
 - (v) Mirrors
 - (vi) Fire extinguisher
 - (vii) Seats/restraints
 - (viii) Seat belt
 - (ix) Parking brake
 - (x) Air pressure
 - (xi) Controls identification
 - (xii) Instruments/gauges
 - (xiii) Electrical switches/functions
 - (xiv) Horn
 - (xv) Lights
 - (xvi) Steering
 - (xvii) Engine clutch
 - (xviii) Accelerator
 - (xix) Brake
 - j. Carrier power plant lower guards exhaust/insulators
 - (i) Belt/hoses
 - (ii) Rotation
 - k. Carrier
 - (i) Transmission
 - (ii) Drive line
 - (iii) Tire/air pressure/wheels
 - (iv) Main frame members
 - (v) Hydraulic hoses/tubing/fitting
 - (vi) Hydraulic fluid levels
 - (vii) Anti skid surface
 - (viii) Front bumper counterweight

- (ix) Back up alarm
- l. Outrigger boxes/beams
 - (i) Outrigger cylinders/floats/pads
 - (ii) Hydraulic hoses/tubes/fittings
 - (iii) Holding valve
 - (iv) Position locks
 - (v) Warning signs
 - (vi) Blocking/cribbing
- m. Crawler assembly
 - (i) Car body/side frames
 - (ii) Chain/condition adjustment
 - (iii) Sprockets/idlers/rollers
 - (iv) Track pad/pins
 - (v) Travel locks
 - (vi) Steering clutches
- n. Operator cab and station
- o. Load chart-secure/visible from operator
- p. Safety devices/operational aids
 - (i) Warning decals
 - (ii) Boom angle indicator
 - (iii) Main drum rotation indicator
 - (iv) Auxiliary drum rotation indicator
 - (v) Load moment indicator
 - (vi) Load weight indicator
 - (vii) Radius indicator
 - (viii) Crane level indicator
 - (ix) Anti-two block device
 - (x) Two block warning device
 - (xi) Boom hoist shut off
 - (xii) Boom hoist ratchet and pawl
 - (xiii) Tower Crane - lower hoist limit device
 - (xiv) Tower Crane - trolley limit device
 - (xv) Tower Crane -wind velocity device
 - (xvi) Tower Crane - weathervaning
 - (xvii) Tower Crane - aircraft strobe light

- q. Power plant upper
 - (i) Performance/exhaust system guards and insulators
 - (ii) Belts/hoses
 - (iii) Guard cover/rotating and reciprocating parts
- r. Rotating upper structure
 - (i) Turntable/ bearing/rollers/roller path
 - (ii) Ring gear/pinion gear
 - (iii) Hydraulic pumps/pressure
 - (iv) Electric wiring
 - (v) Main hoist clutches/ brakes
 - (vi) Main hoist wrapping on the drum/ min. rope wraps
 - (vii) Auxiliary hoist clutches/ brakes
 - (viii) Auxiliary hoist wrapping on the drum/ min. rope wraps
 - (ix) Boom hoist clutches/ brakes
 - (x) Boom hoist wrapping on the drum/ min. rope wraps
 - (xi) Swing system/assembly
 - (xii) Hydraulic motor/valve/line
 - (xiii) Drums/flanges
 - (xiv) Clutch/brake protection
 - (xv) Torque converter
 - (xvi) Anti skid surface
 - (xvii) Steps/handholds/platforms
 - (xviii) Access to cab
 - (xix) Air system - compressor/line
 - (xx) Counterweight frame and mounting/warning signs
 - (xxi) Electrocutation warning signs
- s. Boom support system
 - (i) Gantry/mast
 - (ii) Boom stops
 - (iii) Inner bail
 - (iv) Outer bail/equalizer
 - (v) Sheaves
 - (vi) Boom hoist reeving
- t. Lattice boom
 - (i) Boom section identification

- (ii) Boom section sequence
 - (iii) Boom section alignment
 - (iv) Warning decals
 - (v) Spreader bar
 - (vi) Sheaves
 - (vii) Hoist line dead end
 - (viii) Wire rope retainer
 - (ix) Boom foot pins/keepers
 - (x) Boom head section
 - (xi) Auxiliary boom head
 - (xii) Lattice member
 - (xiii) Cord member
 - (xiv) End connections/pins
- u. Lattice jib
- (i) Positive stops
 - (ii) Sheaves
 - (iii) Wire rope retainer
 - (iv) Lattice member
 - (v) Cord member
 - (vi) End connections/pin
 - (vii) Tower crane - jib section / insert identification
 - (viii) Tower crane - jib foot pins/keepers
 - (ix) Tower crane - jib head/heel sections
 - (x) Tower crane -auxiliary head/heel sections
- v. Telescopic boom
- (i) Lift cylinders
 - (ii) Telescoping cylinders
 - (iii) Hydraulic hoses/tubing fittings
 - (iv) Holding devices
 - (v) Boom section alignment
 - (vi) Wear pads
 - (vii) Equal extensions
 - (viii) Sheaves
 - (ix) Structure/welds
 - (x) Boom hinge pin

- (xi) Boom head section
 - (xii) Wire rope retainer
 - w. Solid jib extension manual sections
 - (i) Alignment
 - (ii) Locking devices
 - (iii) Structure/welds
 - x. Wire rope
 - (i) Boom hoist-size/construction/damage/lubricant
 - (ii) Main hoist-size/construction/damage/lubricant
 - (iii) Auxiliary hoist-size/construction/damage/lubricant
 - (iv) Jib pendants-size/construction/damage/lubricant
 - (v) Boom pendants-size/construction/damage/lubricant
 - y. Ball and hook
 - (i) Main weight/capacity/sheaves/safety latches/wear twist and throat/bearing and swivel
 - (ii) Wedge socket end fitting/Non-destructive testing
 - (iii) Auxiliary weight/capacity/sheaves/safety latches/wear twist and throat/bearing and swivel
 - (iv) Wedge socket end fitting/Non-destructive testing
 - (v) Boom pieces list and length
 - (vi) Jib pieces list and length
 - z. Tower crane-ties and supports
 - (i) Slab tie-in
 - (ii) Collars/wedges/tie-ins/attachments
 - (iii) Tie-in bolts
 - (iv) Structural base
- F. If the inspection date expires while the crane or derrick is in use at the construction site on Authority property, the Contractor shall ensure that the owner of the crane or derrick files all renewals and/or extensions. Submit proof of the filing along with a copy of the completed inspection to the Engineer. Upon receipt of any such renewals or extensions, submit copies to the Engineer.
- G. The estimated review time for all crane and derrick submissions to the Engineer is five (5) business days. If the Contractor has not received any reply by the fourth day of the review, contact the Engineer.

- H. If any governing agency issues a letter of deficiency to the Authority or stop work order to the Contractor while the crane or derrick is on Authority property, the Contractor shall cooperate fully with all governing agencies to ensure that all acceptable corrective actions will be taken immediately. Keep the Engineer advised during the performance of all remedial Work.
- I. If any governing agency issues a cease use order for a crane, that crane is prohibited from use on Authority property.

127. TEMPORARY UTILITY SERVICES

Operate and maintain temporary services and facilities in a safe and efficient manner. Modify as required throughout progress of the Contract, and remove from Authority property when no longer required, or replaced by the use of completed permanent facilities as approved by the Engineer.

Make arrangements for securing, and pay all costs for heat, light, power, water, and other services which may be required for the performance of the Contract.

128. TEMPORARY SANITARY FACILITIES

Make arrangements for securing and pay all costs for temporary toilets, wash facilities and drinking water including toilet tissue, paper towels, paper cups and similar disposable materials for use by the Contractor, subcontractors, materialmen or other persons over whom the Contractor has control. Comply with regulations and health codes, which would be applicable if the Authority were a private corporation, for the type, number, location, operation and maintenance of fixtures and facilities. Install facilities where directed by the Engineer, and remove from Authority property when no longer required.

129. PROGRESS SCHEDULE

A. Schedule Requirements

- 1.) The Contractor shall, at his own expense, prepare, maintain and update detailed electronic progress schedules for the Engineer's review and approval. All submittals required herein shall be in the form and content stipulated in this Section. Each progress schedule shall bear the signature of the Contractor's authorized representative. The progress schedules/graphics required by this Contract shall be produced using the latest version of Oracle – Primavera P6 scheduling software.
- 2.) The schedule shall be prepared by a scheduler who is an employee of the Contractor with 3 (three) years minimum experience in the development and updating of Critical Path Method schedule networks for projects of a complexity comparable to this Contract, or by an outside entity with similar experience specializing in project controls. The Contractor's senior management personnel shall actively participate in the development and updating of the schedule.

- 3.) Progress schedules shall be sufficiently detailed to accurately depict all the Work and milestones (including acquisition of any required permits, design progress, procurement of subcontractors, key submittals and approvals, materials procurement and construction activities performed by the Contractor and his subcontractors) and shall graphically represent the logical sequence and duration of activities, all in accordance with the requirements of the Contract. The information provided in progress schedules shall also include, but not be limited to, the interdependencies between the Contractors' Activities and all other Activities required for the successful completion of the Contract, e.g., those to be performed by utility companies or by other entities. All Milestone dates specified in the Contract shall be represented in the schedule by Milestone activities that are logically interrelated to the Work that must be accomplished in order to achieve the Milestone.
- 4.) All activities, except the Contract Start Milestone and Contract Completion Milestone shall be linked to predecessor(s) and successor(s).
- 5.) The Contractor's schedule shall incorporate the Activity Code Structure shown in Attachment A, and such other coding as may be required by the Engineer.
- 6.) The Contractor shall load construction activities with budget information and shall identify the cost to perform Work for each construction and management activity. The sum of the costs assigned to all activities shall be equal to the Contract value. No activity costs shall be assigned to the preparation and review of submittals and materials fabrication or procurement.
- 7.) To assist the Contractor in preparing its progress schedule, a sample Network Diagram is shown in Figure 1. The sample is intended merely as an example of a format for the Contractor's guidance. The types of data shown are the types of data expected to be shown on the Contractor's Network Diagram. However, the information presented in the sample Network Diagram shall not be misinterpreted as either representing a plan for the Contractor's Network Diagram or a depiction of the level of detail which will be required in such diagram.
- 8.) The submittal of Progress Schedules under this Section shall not be deemed to be a substitute for the reporting requirements of the Section of Division 1 entitled "Daily Progress, Equipment and Labor Reports".

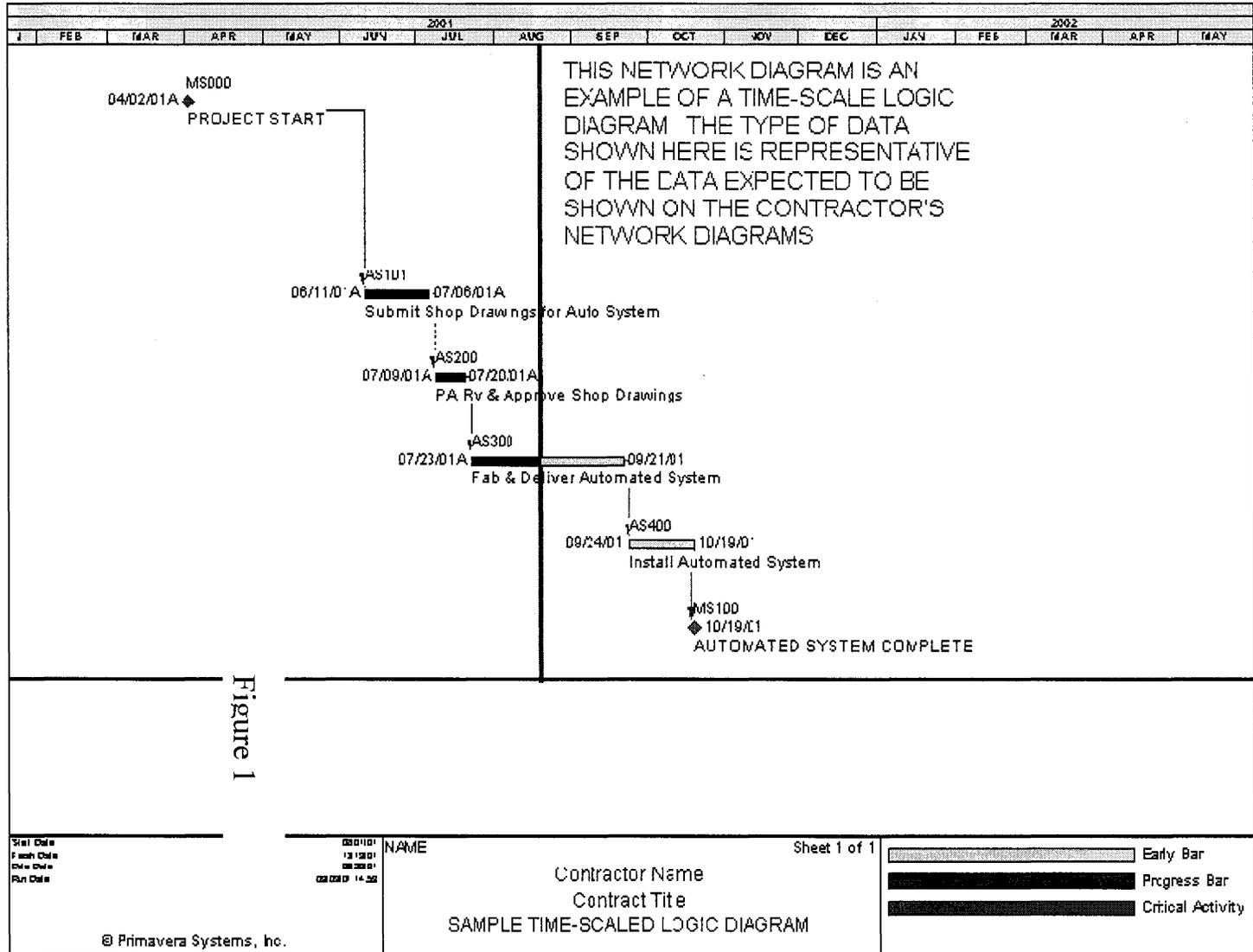


Figure 1

B. Schedule Terminology

Schedule terminology used in this Contract shall have the meaning described below:

- 1.) Activity: A discrete item of Work with a Duration that can be clearly defined; a synonym for task. Unless otherwise permitted in writing by the Engineer, an activity's duration shall be not more than 14 calendar days or 10 working days except for non-construction activities, such as procurement cycles, material delivery, soil consolidation, etc. Each activity (task) description shall clearly identify the Work to be performed. No two or more activities in the schedule shall have exactly the same description.
- 2.) Activity Codes: Activity Codes allow each activity to be grouped into specific classifications such as area, responsibility, phase, system, or location. The codes consist of specific values and descriptive titles that are entered into the data dictionary of the scheduling software. Activities shall be assigned specific Activity Codes as appropriate.
- 3.) Alternative Solutions: Analyses of various options for dealing with encountered or anticipated Contract problems. Alternative solutions shall be developed to assist in determining the best method(s) of preventing or correcting any impediments to the progress of the Work. Alternative Solutions analysis shall indicate impacts on scheduling and resources.
- 4.) Analysis Report: A report that displays the impacts of all variances reported in the Current Progress Schedule. The Analysis Report focuses attention on the impacts of variances between planned and actual performance, so as to support an assessment of such impacts. The Analysis Report shall include Alternative Solutions.
- 5.) Bar Chart: A schedule display designed to complement the Network Diagram. The Bar Chart is a traditional Gantt chart to which the Early Start Dates, Early Finish Dates, Late Start Dates, Late Finish Dates and Critical Path have been added.
- 6.) Calendar: A calendar defines when Work on an activity can occur (i.e. Mon – Fri for a standard Work week). Activities shall be assigned to a calendar that represents the planned Work days. The calendar shall incorporate the Authority holidays listed below. The use of multiple calendars will be permitted.

New Year's Day
Martin Luther King, Jr. Day
Presidents' Day
Memorial Day
Independence Day
Labor Day

Columbus Day
Veterans Day
Thanksgiving Day
Day After Thanksgiving
Christmas Day

- 7.) Constraint: A constraint is a restriction imposed on the start or finish of an activity or the Contract. An example of the use of constraints is the imposition of a "finish no later than" constraint²⁵ on the Contract Completion Milestone that is equal to the Contract completion date. This constraint facilitates the identification of activities that control or do not support the completion date. Constraints shall be limited to start and finish constraints on milestone activities that represent critical Contract dates, unless otherwise approved by the Engineer in writing.
- 8.) Critical Path: The longest path through the network in estimated total elapsed time from the start of the first Activity through the completion of the last Activity. The Critical Path consists of a series of Activities which must be completed on their scheduled completion dates in order for the Contract to be completed on schedule.
- 9.) Current Progress Schedule: The most recent progress schedule which has been approved by the Engineer. The Original Baseline Schedule shall be referred to as "Revision 0". Each time a different Current Progress Schedule is accepted by the Engineer, the revision number shall be increased by 1 and the old schedule shall be electronically archived so as to permit an audit trail.
- 10.) Duration: The estimated and/or actual length of time required to fully perform a specific Activity. The Duration for construction activities shall be expressed in Work days.
- 11.) Early Finish Date: The date upon which an Activity can be completed if it is begun on the Early Start Date.
- 12.) Early Start Date: The earliest date upon which an Activity can begin.
- 13.) Hammock: A hammock activity summarizing the early and late dates of a set of activities is used for reporting durations of groups of important activities. An activity shall be designated as a hammock by selecting Hammock as the activity type in the Primavera activity form.
- 14.) Lag: The interval between the completion of a Predecessor Activity and the start of a Successor Activity. For example, ten days of positive Lag will cause the Successor Activity to begin ten days after the Predecessor Activity has been completed. Negative Lag will cause the Activities to overlap. The amount of Lag between each Activity shall be clearly represented on the Network Diagram.
- 15.) Late Finish Date: The latest date by which an Activity shall be completed if the succeeding Activity is to be started on schedule.
- 16.) Late Start Date: The latest date by which an Activity shall be started to allow completion by the Late Finish Date.
- 17.) Milestone: A significant point in the performance of the Work. A milestone has no Duration, and represents the start of a portion of the Work or the completion of a portion of the Work. A milestone may also represent either the beginning or the completion of a task or action being performed by entities other than the Contractor (e.g., obtaining a permit, notification to proceed with certain Work, etc.).

²⁵

A late finish or "finish no later than" constraint limits the latest time an activity can complete

- 18.) Negative Float: The amount of time that the planned completion date of an Activity is later than its required (Late Finish) date. An Activity with Negative Float must be completed ahead of schedule if the Work is to be completed on time. Negative Float usually indicates the need for corrective and/or preventive action to complete the Work on schedule.
- 19.) Network Diagram: A logic diagram prepared according to the Precedence Diagram Method, which displays each Activity required for the performance of the Contract in the sequence in which it is to be performed with appropriate logic ties between activities displayed.
- 20.) Original Baseline Schedule: The detailed progress schedule first approved by the Engineer as specified herein. All performance of Work will be measured against the Original Baseline Schedule.
- 21.) Precedence Diagram Method (PDM): A particular type of graphic representation of all Activities and Constraints. The Activities are represented by nodes; the Constraints are represented by lines between nodes. A sample PDM Network Diagram is shown in Figure 1 of this Section.
- 22.) Predecessor Activity: The partial or full completion of an Activity which is a prerequisite to commencement of another Activity.
- 23.) Relationship: A logic tie between two activities representing restrictions on the start or completion of the subsequent activity. Relationships may cause either positive or negative lag. The four basic types of relationships are finish to start, start to start, finish to finish and start to finish.
- 24.) Successor Activity: An Activity which cannot be started or completed without the prior partial or full completion of a Predecessor Activity.
- 25.) Total Float: The amount of time by which an Activity or series of Activities may be delayed without affecting the date of completion of the Work. Total Float is not for exclusive use or benefit of either the Contractor or the Authority but shall be used for the benefit of the Work in such manner as the Engineer may in his discretion decide. Use of float suppression and manipulation techniques, such as preferential sequencing, lag logic restraints, inflated activity duration and/or constrained dates, other than as may be required by the Contract, shall be cause for rejection of the Original Baseline Schedule and any subsequent schedule revisions and updates.

C. Schedule Submittal, Review and Approval Process

- 1.) Baseline Schedule
 - a. Within forty five (45) calendar days of the acceptance of the Contractor's Proposal, the Contractor shall submit a proposed Baseline Schedule containing the Contractor's projected plan and schedule to complete all Work required by the Contract within the time(s) for completion required by the Contract. A schedule showing time(s) for completion later than those required by the Contract will not be accepted.
 - b. The Engineer will review the Baseline Schedule and return it to the Contractor with comments, or accept it as the Original Baseline Schedule, within fifteen (15) calendar days. The Contractor shall participate in any meetings called to resolve issues with the schedule.

- c. If it is not accepted, the Contractor shall revise the Baseline Schedule in accordance with the Engineer's comments and resubmit it for the Engineer's approval within fifteen (15) calendar days of the receipt by the Contractor of the Engineer's comments. Until such time as acceptance of the Baseline Schedule by the Engineer, the Contractor shall continue to resubmit the Baseline Schedule as directed by the Engineer within the same time frame and in the same format as the initial resubmission.
- d. After the approval of the Original Baseline Schedule, no changes shall be made therein without the written approval of the Engineer. No other act or omission on the part of the Engineer shall be deemed to constitute such approval. The Contractor shall not be entitled to any damages by reason of the failure of the Engineer to give timely approval or comments on any progress schedule submitted hereunder.

2.) Progress Schedule Updates

- a. The Contractor shall submit to the Engineer not less frequently than once a month, on a date specified by the Engineer, an updated Current Progress Schedule. The Engineer may require that the Contractor also include scheduling updates with his monthly payment request. Schedule updates shall status the actual performance and progress of the Work and depict any changes. Schedule updates where early start or early finish of any activity is positioned on the data line but not actualized will not be approved.
- b. If directed by the Engineer, within seven (7) calendar days after receipt by the Engineer of an updated progress schedule, the Contractor shall meet with the Engineer for the purpose of reviewing and obtaining the Engineer's approval of it.
- c. The Engineer may require the Contractor to furnish a revised update which shall include any other information he may request to assist him in evaluating the Contractor's progress, including but not limited to manpower loading charts and equipment schedules; "what-if" analysis performed in a copy of the current progress schedule, etc.
- d. In the event that the Engineer requests the Contractor to revise the updated schedule submitted, and/or to submit such additional information, the Contractor shall make the requested revisions and/or submit the updated schedule to the Engineer for approval along with the additional information requested within seven (7) calendar days of the Engineer's request.

D. Schedule Reporting Requirements

- 1.) The Original Baseline Schedule submittal shall include the following:
 - a. One PDF printout file and one Primavera file submitted electronically.
 - b. Six copies of the following output reports:
 - (i) A Schedule narrative in writing that provides a general description of the Contractor's approach to meeting the Contract goals and the Critical Path.
 - (ii) Explanation for any constrained dates.

- (iii) A time-scale logic diagram in PDM format containing all activities displaying Activity ID, Activity Description, Calendar, original and remaining durations, percent complete, Early Dates and Total Float, and sorted by:
 - (a.) Early Start, Total Float
 - (b.) Total Float, Early Start (Critical Path report)
 - c. Supporting data showing all activities with their associated cost, budgets or estimates.
 - d. The Contractor shall electronically archive all accepted schedules.
 - 2.) In addition to the reports required for the Baseline Schedule submittal, all Progress Schedule Update Reports shall include the following:
 - a. A narrative comparing the current Dates to the respective Milestone Dates, describing the physical progress during the current report period, explaining plans for continuing the Work during the next report period and describing and explaining changes in crewing and construction equipment. The narrative shall also explain changes in Activity durations, logic ties and Activity Values and the reason why the changes were made.
 - b. Whenever there is any delay or negative float prediction in the schedule, the Contractor shall submit an alternative solutions report that describes the delay, explains when it started and finished or is expected to finish and the basis for those dates and lists the affected schedule activities by activity ID, and he shall present reasons for the delay. Any revisions to durations or the logical sequence of Activities made to reflect these delays shall be explained. The report shall include proposed schedule recovery efforts such as multiple shifts or overtime to mitigate any potential delay to the overall Contract completion date, or request an extension of time, as appropriate.
 - c. Critical Path Analysis.
 - d. An Analysis Report indicating Activities and/or Milestones which are behind schedule by at least 30 calendar days (commonly evidenced by Negative Float).
 - e. A report that compares the Current Progress Schedule update with the Original Baseline Schedule and prior month's accepted schedule update and lists all changes made to the schedule.
- E. General Schedule Provisions
- 1.) Should the Contractor fail to comply with any provision of this Section, the Engineer shall have the right in his discretion to withhold out of any payment (final or otherwise and even though such payment has already been certified as due) such sums as he deems necessary or desirable, all as more fully provided in the clause of the Form of Contract entitled "Withholding of Payments".

- 2.) Neither the acceptance, review or approval of any progress schedule or other data submitted by the Contractor pursuant to this Section, nor any other action on the part of the Engineer under this Section shall in any way be deemed to be a representation by the Engineer that the Contractor may or will be permitted to follow a particular schedule or sequence of operations or that by following any such schedule or sequence he may or will complete the Work by the time(s) required by the Contract or by any other time(s). Nor shall the approval of any progress schedule or other such data relieve the Contractor of his obligation to complete the Contract by the time(s) required in the Contract, even though the schedule may be inconsistent with such completion.
- 3.) Any approval under this Section shall be construed merely to mean that the Engineer knew of no good reason at that time to object thereto. No acceptance, review or approval or any other action under this Section shall limit, affect or impair the Contractor's obligation to perform all Work by time(s) required by the Contract and in accordance with all other provisions of the Contract.
- 4.) The performance of the Work by the time(s) required in the Contract, after taking into account extensions to which the Contractor may be entitled under the clause of the Form of Contract entitled "Extensions of Time", may require the Contractor to perform the Work using overtime labor, additional shifts or additional plant and equipment and/or other measures at no additional cost to the Authority. The Contractor shall anticipate, avoid and mitigate the effects of all delays.
- 5.) The Engineer shall have the right at any time when in his judgment the Work is not proceeding in accordance with the approved progress schedule or at any time when it is likely that the Work might not be completed by the time(s) required in the Form of Contract even though the Contractor is proceeding in accordance with the approved progress schedule, to order the Contractor without additional compensation to employ additional shifts to increase the number of men employed, to use additional plant or equipment, or to take such other steps as may be necessary or required to assure the completion within the time(s) shown in the accepted schedule.
- 6.) No action on the part of the Contractor pursuant to this Section shall be construed as a request by him for an extension of the time(s) for completion required by the Contract. A request for an extension of time shall be deemed made only if it complies with the requirements of the clause of the Form of Contract entitled "Extensions of Time". No extension of the time(s) for completion shall be inferred because of any action, omission to act, or statement on behalf of the Engineer pursuant to this Section. Extension of time, if any, shall be granted only pursuant to the clause of the Form of Contract entitled "Extensions of Time".
- 7.) The Contractor acknowledges and agrees that he is not entitled to an extension of time for impacts that do not extend the contractual end date of the Contract.

ATTACHMENT A

MANDATORY ACTIVITY CODE STRUCTURE

- 1.) Responsibility (Authority, Contractor)
- 8.) Area (building, floor or area)
- 9.) Trade/CSI code (concrete, steel, etc as required)
- 10.) Location (3rd Fl, etc)
- 11.) Phase of Work, if applicable
- 12.) Change Order work, if applicable
- 13.) Other, as required by the Engineer

PRIMAVERA PROJECT PLANNER

Date 01/02/0 -----ACTIVITY CODES DICTIONARY----- Page 1

NAME - Project Title

CODE	VALUE	TITLE	SEQUENCE
------	-------	-------	----------

Activity Codes:

RESP Responsibility

AE	Architect/Engineer		
C	Contractor		
O	Port Authority		

AREA Area

G	General Area		1
CTL	Air Traffic Control Tower		2

MILE Milestone

CSI Trade/CSI Code

03000	Concrete		
04000	Masonry		
07000	Thermal & Moisture Protection		
15000	Mechanical		
16000	Electrical		

LOCN Location

PHAS Phase

D	Design		1
P	Procurement		2
C	Construction		3

CO Change Order Wor

OTH As Req'd by Engr

130. ANALYSIS OF BID

Within fifteen calendar days after acceptance of the Proposal, the Contractor shall prepare a detailed analysis of bid on forms furnished by the Authority with all of the spaces filled in without exception, and containing such information as the Engineer may require for each of the items enumerated in such form.

131. AIRPORT OPERATIONS AND CONDITIONS

A. General:

- 1.) Place "Water" identification signs on all water vehicles or water tanks, which are to be used for the transportation or storage of water during the course of the Work at the airport.
- 2.) At least 7 days but not more than 10 days prior to performing excavation, call 1-800-272-4480 and provide the information required for excavation(s) in New York and call 1-800-272-1000 and provide the information required for excavation(s) in New Jersey.
- 3.) Do not place temporary structures or store materials or equipment required in the performance of the Work within any of the buildings on the airport without specific prior approval of the Engineer.
- 4.) Do not store petroleum or combustible products, or any other flammable materials, within any buildings or in any part of the airport except as designated by the Engineer.
- 5.) Do not burn or bury debris of any type on Authority property, or wash waste materials down sewers or into waterways.
- 6.) Maintain haul routes in a satisfactory condition, and repair damage to such routes, resulting from the Contractor's operations. Unless otherwise approved by the Engineer, clean haul routes each work period and remove earth or other materials, which fall or are otherwise placed on such routes during the performance of Work.
- 7.) Do not park vehicles on any grass or unauthorized area. Free parking of vehicles in any of the airport parking lots will not be permitted.
- 8.) Protect against damaging existing lights, pavement, curbs and other fixed items that are to remain. Such items, which are damaged, either directly or indirectly, by the Contractor during the performance of the Contract, whether negligently or not, shall be restored to the condition that existed prior to such damage.
- 9.) Take all precautions necessary for protection of persons, traffic and property during dust or fragment generating operations, concrete mixing or placing, or other operations which may stain, soil or damage property or injure persons.
- 10.) Provide sound suppression devices on gasoline and diesel powered construction equipment and pneumatic tools as required to maintain noise exposures below the limits specified in the Code of Federal Regulations (CFR) 29 CFR 1926 U.S. Occupational Health and Safety Administration (OSHA). Maintain such sound suppression devices in proper operating condition throughout the time of their use, and adjust and repair as required to maintain noise within exposure levels stipulated in 29 CFR 1926.52, Table D-2.

- 11.) Remove on an on-going basis, and before the end of each work period, all paving materials left in the grass shoulder areas, in manholes, catch basins or handholes as a result of the cleaning of the Contractor's equipment.
 - 12.) Food or food related debris shall not to be left on or disposed of on the construction site.
 - 13.) Equipment, vehicles and materials, not being utilized in the current work period shall be removed and stored in the area designated by the Engineer for such purpose, or if there is no such area designated then such items shall be removed from the airport.
- B. Construction Site Conditions at Air Operations Areas:
- 1.) "Air Operations Area" (AOA) means that portion of the airport designed and used for landing, takeoff, parking or surface maneuvering of aircraft, as well as the Restricted Service Roads (RSR).
 - 2.) During the time that the Contractor is performing the Work, the Air Operations Areas will remain in use by aircraft. To the extent feasible and convenient in the opinion of the Engineer, and to the extent permitted by the Federal Aviation Administration (FAA), the use by aircraft of aprons, runways and taxiways adjacent to areas where the Contractor is working will be so scheduled as to reduce disturbance to the Contractor's operations. However, during these periods aircraft may be taxiing through and around the construction areas. In order to minimize conflicts between aircraft operations and construction operations, the Contractor shall proceed with performance of the Work in a safe manner and in accordance with the requirements hereinafter stipulated, at all times coordinating operations with the Engineer, however no representation or guarantee is made that the disturbance can or will be reduced. Also, it is anticipated but not guaranteed that certain aprons, runways, taxiways, and taxilanes will be shut down to aircraft operations for limited periods at the times required by the Contractor. In any event, however, aircraft operations shall always have priority over any and all of the Contractor's operations.
 - 3.) Should the Contractor be specifically directed to suspend operations or be directed as hereinafter described, and if solely because of such direction the Contractor is necessarily kept idle at the construction site, the Contractor will be compensated as stipulated in the provisions of the Contract concerning compensation for emergency delays.
 - a. Should aprons, runways, taxiways or taxilanes be required for the use of aircraft and should the Engineer solely deem the Contractor to be too close to the portion used by aircraft, the Contractor may be directed to suspend operations, remove personnel, plant, equipment and materials to a safe distance and stand by until the aprons, runways, taxiways or taxilanes are no longer required for use by aircraft, at which time the Contractor shall immediately resume operations in the vacated areas when so directed by the Engineer.
 - 4.) The Contractor, subcontractors, materialmen, deliveryman or other persons over whom the Contractor has control shall not enter upon or allow any plant or material to be located upon any part of the Air Operations Areas without specific prior approval of the Engineer.

- 5.) The Contractor, employees of the Contractor, subcontractors, materialmen and all other persons over whom the Contractor has control shall comply with the following:
 - a. Clearly display on their person an identification tag indicating their name and company before entry upon any Air Operations Area. The Contractor shall provide tags and holders for such identification. The Contractor is advised that security requirements are subject to change and will be addressed further in the pre-construction meeting.
 - b. Do not enter upon any Air Operations Area unless accompanied by a representative of the Authority designated by the Engineer to escort the Contractor and equipment to and from the point or points of operation within the limits of such areas, and do not traverse back and forth between points within such areas unless accompanied by said Authority representative.
 - c. Do not enter or remain upon or allow any plant or materials to be brought or to remain upon any part of the Air Operations Areas if in the opinion of the Engineer they would create a hazard to aircraft or airport operations.
 - d. Smoking is not permitted in the Air Operations Area.
- 6.) No two adjacent taxiways shall be closed at the same time unless otherwise directed by the Engineer.
- 7.) Materials tracked onto movement areas shall be removed continuously during each work period.
 - a. "Movement Areas" means areas within the AOA comprised of the runways, taxiways and other areas of the airport that are used for taxiing or hover taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and aircraft parking area. The Air Traffic Control Tower or Ground Control typically controls these areas.
- 8.) At the end of each work period, remove plant, materials, equipment and any other obstructions away from the work area to a non-AOA site as designated by the Engineer.
- 9.) Information on Visual Flight Rules (VFR) or Instrument Flight Rules (IFR) weather conditions or Category II operations at the airport is available to the Contractor at the Operations Supervisor's Office of the airport. Category II operations only apply at EWR and JFK.

At the following Air Operations Area locations, conform to the following requirements:

- a. Approach to Runways: When a runway is active, keep obstructions due to Work below or outside the VFR and IFR approach surfaces.
 - (i) "Obstruction" shall be defined as any obstacle exceeding the obstruction standards specified by 14 CFR Part 77, subpart C.
- b. Adjacent to Runways:
 - (i) When a runway is active, no construction activities shall be permitted within 250-feet from the runway centerline. Place barricades in accordance with the Section herein entitled "Barricades."

- (ii) During VFR weather conditions, obstruction mark all construction equipment, material, or debris penetrating a surface originating along a line 250-feet from the runway centerline at runway elevation, and extending upward and away from the runway at a slope of one foot vertically for every seven feet horizontally, in accordance with the paragraph herein entitled "Obstruction Marking and Lighting". In addition, all penetrations above runway elevation between 200-feet and 250-feet from the runway centerline shall be obstruction lighted with omni-directional lenses.
- (iii) During IFR weather conditions; in addition to obstruction marking, provide obstruction lights on fixed obstructions, construction equipment, materials, or debris penetrating a surface originating along a line 500-feet from the runway centerline at runway elevations, and extending upward and away from the runway at a slope of one foot vertically for every seven feet horizontally. For such lighting, provide, locate and operate in accordance with the paragraph herein entitled "Obstruction Marking and Lighting". In addition, all penetrations above runway elevation between 250-feet and 500-feet from the runway centerline shall be obstruction lighted with omni-directional lenses.
- (iv) When Category II landing operations are being conducted on runways during IFR weather conditions, as defined by Federal Aviation Administration United States Terminal Procedures, no construction operations, equipment, materials or debris shall be within the Category II Touchdown Area, the Missed Approach Area and Transitional Surfaces as hereinafter defined.
 - (a.) "Touchdown Area" means an area longitudinally centered on the runway centerline, extending from a point 200-feet in advance of the runway approach threshold (normal or displaced) for a distance of 3,200-feet in the direction of landing, and having a total width of 1,000-feet.
 - i. "Threshold" is defined as the beginning of that portion of the runway available for landing. In some instances, the landing threshold may be displaced.
 - ii. "Displaced Threshold" is the portion of pavement behind a threshold that may be available for takeoffs in either direction or landing from the opposite direction.
 - (b.) "Missed Approach Area" means an area, which begins at the end of the touchdown area at the height of the runway and extends upward at a slope of one foot vertically for each 40-feet horizontally. In plan view, it has the same width as the touchdown area at the point of beginning with the width increasing uniformly to 3,100-feet at 6,000-feet from the point of beginning.
 - (c.) "Transitional Surfaces" means surfaces sloped at 7:1 extending outward and upward from the edges of the touchdown area or the missed approach area to a height of 150-feet above the elevation of the runway centerline or the end of the Touchdown Area.
- (v) Perform Work so that when the runway is being made available for aircraft operations, the maximum grade difference in any paved surface within the Safety Area shall not exceed 1 inch on runway surface and 3 inches within any part of the Safety Area.

- (a.) "Runway Safety Area" means surfaces within 250-feet measured from and parallel to the centerline of the runway, and extending 1,000-feet beyond and parallel to the end of the runway. It is a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway, in accordance with AC 150/5300-13.
- (vi) On active runways, open excavations, debris, construction equipment, personnel or materials are not permitted within the Safety Area.
 - (a.) "Open Excavation" means any trench in unpaved areas exceeding 6" in width or 3" in depth; and in paved areas, a drop of 3" or greater within a 6" horizontal measure.
 - (vii) Do not permit material capable of being dislodged by aircraft blast within 250-feet from the runway centerline. Remove or stabilize such loose materials in this area as approved by the Engineer.
- c. Adjacent to Taxiways (T/W) or Taxilanes (T/L):
 - (i) Neither construction activity nor personnel are permitted within the Object Free Area (OFA),
 - (a.) "Object Free Area" means an area on the ground centered on the runway, taxiway, or taxilane centerline provided to enhance safety of aircraft operations by having the area free of objects except for those objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes.
 - (ii) Perform Work within the specified limits shown in Table I below only when the taxiway/taxilane is closed to air operations.
 - (iii) Open excavations as close as the edge of the taxiway are permitted provided they are delineated by placing obstruction marked and lighted collapsible barricades, in accordance with "Barricades" hereof, along the edge of the taxiway.
 - (iv) Do not permit loose material capable of being dislodged by aircraft blast and becoming a hazard within the Taxiway Safety Area (TSA), shown in Table 1 when the T/W or T/L is active. Remove or stabilize such loose materials in this area as approved by the Engineer.
 - (a.) "Taxiway Safety Area" means a surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway.

(v) Waste and loose material shall not be placed in active movement areas.

Table 1					
	TEB	LGA	EWR	SWF	JFK
T/W OFA	186 feet	259-feet	320-feet	320-feet	386-feet
(From centerline)	(93 feet)	(129.5-feet)	(160-feet)	(160-feet)	(193-feet)
T SA	118 feet	171-feet	214-feet	214-feet	262-feet
(From centerline)	(59 feet)	(85.5-feet)	(107-feet)	(107-feet)	(131-feet)
T/L OFA	162 feet	225-feet	276-feet	276-feet	334-feet
(From centerline)	(81 feet)	(112.5-feet)	(138-feet)	(138-feet)	(167-feet)

C. Construction Site Conditions Outside Airport Operations Areas:

- 1.) During the time the Contractor is performing the Work, it may at times be necessary because of emergency or abnormal traffic conditions to suspend the Contractor's operations, or to postpone the time at which traffic lanes, parking or other areas become available for performance of Work. Should the Contractor be specifically directed to suspend operations in traffic lanes, parking or other areas, and remove personnel, and obstructing plant, equipment and materials from such lanes or areas, or should such lanes or areas not be available by the times specified, and if solely because of such suspension of operations or late availability of traffic lanes, parking, or other areas the Contractor is necessarily kept idle at the construction site, the Contractor will be compensated as stipulated in the provisions of the Contract concerning compensation for emergency delays.
- 2.) Limit the maximum height of construction equipment to 25-feet unless otherwise shown on the Contract Drawings or expressly approved by the Engineer, obstruction light in accordance with the paragraph herein entitled "Obstruction Marking and Lighting" and obstruction mark and light that portion of equipment which exceeds 25-feet in height in accordance with FAA Advisory Circular 70/7460-1K Current Revision.
- 3.) Perform such duties as the Engineer may direct and as may be necessary in the opinion of the Engineer for the rerouting of traffic in the performance of the Work.
- 4.) Restrict smoking to areas designated by the Engineer for this purpose.

D. Obstruction Marking and Lighting:

- 1.) Material, temporary construction and facilities for obstruction marking and lighting constitute temporary facilities that are and shall remain the property of the Contractor unless otherwise shown on the Contract Drawings or specifically directed by the Engineer to be turned over to the Authority.
 - 2.) Provide new materials, or undamaged previously used materials in serviceable condition conforming to the requirements specified herein.
 - 3.) In Air Operations Areas or airport areas where obstructions occur within navigable airspace provide obstruction lights, Model UF-60-7-75A-PE-BI as manufactured by Julian A. McDermott Corp., Ridgewood, N.Y., or approved equal.
 - a. Unless otherwise shown on the Contract Drawings, mount an obstruction light on the highest point of construction equipment or obstruction.
 - b. Ensure that obstruction lights are maintained in proper operating condition throughout Work of this Contract, and operate at night seven (7) days a week and during IFR weather conditions.
 - (i) "Night" means the time between the end of evening civil twilight, and the beginning of morning civil twilight, as published in the American Air Almanac, converted to local time.
- E. Paving and Surfacing in Air Operations Areas:
- 1.) Paving and Surfacing in Air Operations Areas are designed to meet stringent requirements for aircraft operations. Exercise extreme care in machine and hand placing material to achieve the finished elevations shown on the Contract Drawings within the tolerances specified elsewhere herein.
 - 2.) When applying tack coat, sealcoat, or pavement marking paint near or around edge lights and any in-pavement lights, provide temporary covers to protect glass fixtures. Remove covers prior to resuming air operations.
 - 3.) Deactivate and adjust elevation of all existing edge lights and all in-pavement lights prior to paving operations in any given area and reactivate them prior to resuming air operations.
 - 4.) Prior to reactivating a runway or a taxiway, any portion of a raised manhole, catch basin hand hole, edge light, or subsurface structure, located within 250 feet of a runway centerline or within the Taxiway Safety Area (TSA) shown in Table 1, protruding by more than three inches shall be ramped in accordance with details shown on the Contract Drawings or, if not shown, as directed by the Engineer.
 - 5.) In areas that are to be opened to aircraft prior to completion of paving top course, ramp all lifts which exceed a maximum of one inch in depth. Ramp in accordance with details shown on the Contract Drawings or, if not shown, as directed by the Engineer. When paving operations are resumed, cut and trim ramp to expose unsealed or granular surface for a depth of one inch, paint the edge of the lift with a thin coat of hot asphalt cement and place fresh asphalt against the edge of the lift and compact.
 - 6.) Remove sand and other debris from the taxiway, runway, apron, taxilanes, and restricted service road surfaces crossing air traffic lanes. Completely sweep with a power driven sweeper and flush with water on an ongoing basis so that such surfaces are ready for use by aircraft as required.

F. Night Illumination of Paving and Surfacing Operations:

- 1.) Paving and surfacing operations conducted at Night shall, in addition to the requirements of the paragraph entitled "Obstruction Marking and Lighting" hereof, conform to the following requirements:
 - a. In Air Operations Areas, locate and shield night illumination to prevent interference with air traffic control or impairment of safe aeronautical operations.
 - b. Outside Air Operations Areas, locate and shield night illumination to prevent interference with motorists and pedestrians or impairment of traffic and pedestrian movement.
- 2.) Illumination of Area of Work: Provide and operate portable floodlight units similar and equal to "Maxi-Lite 695" as manufactured by Allmand Brothers Inc., Holdredge, NE.
- 3.) Equipment Illumination: Provide and operate electric beam lights with a capacity of not less than 3,000 watts affixed to paving machines, rollers, distribution trucks and other vehicles to provide not less than twenty foot candles of illumination on the following horizontal surfaces:
 - a. During operation of paving machines, an area 12-feet by 12-feet immediately behind the machine;
 - b. During operation of rolling equipment, an area 12-feet wide by 30-feet long immediately in front of and behind the machine; and
 - c. During application of tack coat, an area 12-feet by 12-feet on the area being coated.

G. Existing Airport Lights in Air Operations Areas:

- 1.) Various types of lights are installed in the areas in which the Work is to be performed. Prior to the commencement of operations, note the exact number and location of lights in such areas and provide adequate protection therefor. Any light fixture which is damaged by the Contractor, whether negligently or not, during the performance of the Work shall be repaired or replaced in an approved manner before the end of each work period. Should the Contractor not repair or replace any such damaged lights by the end of each work period, the Authority will undertake such restoration and the cost thereof, as determined by the Engineer, will be deducted from the Contractor's compensation hereunder. The number and locations of lights shown on the Contract Drawings are approximate only and the Authority does not guarantee their accuracy.

H. Subsurface Structures:

- 1.) Attention is called to the fact that some of the manholes, chambers or other subsurface structures, in which Work is to be performed under this Contract, contain energized high and low voltage cables, and that various insects, snakes, spiders and rodents may be present.

- 2.) Apply to the Engineer in writing at least 24-hours in advance of the time of: a. entry into existing manholes, handholes, or other subsurface structure or, b. interruption or disruption of utility services. Perform interruptions of electrical services, and entry into subsurface structures in accordance with the provisions of the Section hereof entitled "PERMIT AND REQUIREMENTS FOR ELECTRICAL DISTRIBUTION WORK". Service shall not be cut off on existing installations until all operations have been completed except for connections or reconnections to power source of wiring to be installed under this Contract. Notice to the Engineer shall specifically state which utilities will be affected and the time and the duration of such interruption. Keep all such interruptions to a minimum. No interruption of utility services shall be made without approval of the Engineer whose decision in all cases shall be final.
 - 3.) Test each subsurface structure for combustible, toxic or otherwise harmful, gases or vapors in accordance with NFPA No. 328 "Recommended Practice for the Control of Flammable and Combustible Liquids and Gases in Manholes, Sewers and Similar Underground Structures" before permitting personnel to enter. If such gases or vapors are detected, ventilate the subsurface structure until the gases have dissipated to an acceptable level as determined by the OSHA Air Quality regulations prior to entry.
 - 4.) Manholes and other subsurface structures in which Work is to be performed under this Contract may contain water. Remove water encountered in such locations and keep the floors of such locations free of standing water at all times workers are in such locations.
 - 5.) Verify the exact locations of underground utilities and subsurface structures in the field, and assume all risks of whatever nature, if any, as to the locations of such utilities and structures.
- I. No requirement of or omission to require any precautions under this Contract shall be deemed to limit or impair any responsibility or obligation assumed by the Contractor under or in connection with this Contract and the Contractor shall at all times maintain adequate protection to safeguard the public and all persons engaged in the Work and shall take such precautions as will accomplish such end, without undue interference with the public or the operations of the Authority.

132. PERMIT AND REQUIREMENTS FOR ELECTRICAL DISTRIBUTION WORK

- A. Notify the Engineer at least 24 hours prior to the commencement of operations at the construction site which in any way may affect existing electrical circuits or require entry into any electrical manhole at the airport, and obtain from the Engineer, Authority Form PA 2497A entitled, "Electrical Work Permit". Execute such form in triplicate each morning prior to commencement of Work on existing electrical circuits or entry into manholes. The Authority will issue this form to the Contractor without payment of a fee.

- B. Allow sufficient time for loads to be transferred to other circuits from the circuits upon which Work is to be performed and for lock out of circuits which are within existing load centers. Comply with other requirements contained on the back of the "Electrical Work Permit" insofar as they are applicable to the Work to be performed under this Contract. In any event, reconnect and place back in operation electrical circuits activating parking field, roadway, runway operations, apron and taxiway lights prior to the close of operations on each day, and in any event before sunset of each day. Overtime operations or premium time required to be paid by the Contractor for or in connection with this numbered Section shall be borne by the Contractor without separate or additional compensation therefor.

133. AIRPORT CONSTRUCTION SAFETY REQUIREMENTS

A. General Safety Requirements:

- 1.) The Contractor shall adhere to all safety precautions described in the current edition of the U. S. Department, Federal Aviation Administration Advisory Circular AC 150/5370-2, current edition, Operational Safety on Airports During Construction. The Contractor is to strictly conduct all activities as not to violate safety standards contained in said Advisory Circular.
- 2.) Throughout the construction period, the following safety and operational practices shall be followed:
 - a. Operational safety shall be a standing agenda item during work progress meetings throughout the duration of the Contract.
 - b. The Contractor shall perform onsite inspections of the construction site throughout the duration of the Contract, with immediate remedy of any safety deficiencies.
 - c. The Contractor, employees of the Contractor, subcontractors, materialmen or any other support workers over whom the Contractor has control, who are required to enter the Aircraft Operations Area will be required to wear a reflective safety vest, day or night.
 - d. Construction that is within the safety area of an active runway, taxiway, or apron must be performed when the runway, taxiway, or apron is closed or use-restricted and initiated only with prior permission from the Engineer.
 - e. The Engineer may order the Contractor to suspend operations and move personnel, equipment, and materials to a safe location at any time he deems it necessary.

B. Maintenance of Construction Site:

- 1.) Inspect all construction and storage areas as often as necessary to be aware of conditions.
- 2.) Promptly take all actions necessary to prevent or remedy any unsafe or potentially unsafe conditions as soon as they are discovered.
- 3.) Provide continuous clean-up operations including a mechanical sweeper for all haul operations or other related traffic to and from the construction site.

- 4.) The Contractor, at the direction of the Engineer, may be required to provide and maintain an emergency response route through the work area, for Airport Emergency Vehicles. Construction vehicles accessing this road will give way to emergency vehicles at all times. Parking or staging of any construction equipment or stockpiling of materials blocking the road or access to the road will not be permitted.
- C. Approach Clearance to Runways:
- 1.) Runway thresholds must provide an unobstructed approach surface over equipment and materials. (Refer to Contract Drawings for construction clearance surfaces.)
 - 2.) Ensure all personnel, materials, and/or equipment are clear of the applicable runway end slope criteria (Refer to Contract Drawings for construction clearance surfaces.)
- D. Runway and Taxiway Safety Area (RSA and TSA):
- 1.) Limit construction to outside of the approved RSA and TSA, as defined elsewhere in this section—unless the runway is closed or restricted to aircraft operations, requiring a lesser standard RSA that is equal to the RSA available during construction.
 - 2.) Procedures for Protecting Runway Edges:
 - a. Limit construction to no closer than 250 feet from the runway centerline—unless the runway is closed to aircraft operations.
 - b. Personnel, material, and/or equipment shall not penetrate the Obstacle Free Zone (OFZ) as defined in the U. S. Department, Federal Aviation Administration Advisory Circular AC 150/5300-13, current edition, Airport Design, Paragraph 306, "Obstacle Free Zone"
 - (i) "Obstacle Free Zone" means the airspace below 150 feet above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, except for frangible visual Navaids that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing or taking off from the runway and for missed approaches.
 - 3.) Procedures for Protecting Runway Ends:
 - a. Maintain the RSA as it existed before construction activity—unless the runway is closed to aircraft operations.
 - b. Prevent personnel, material, and/or equipment, from penetrating the OFZ.
- E. Closed Runways:
- 1.) For work that necessitates the closure of a runway or runways, the Contractor shall furnish and install and subsequently remove or relocate a lighted "X" as per FAA Advisory Circular 150/5345-55 "Lighted Visual Aid to Indicate Temporary Runway Closure", at each end of the closed runway on or near each of the runway designation numbers as directed by the Engineer. The Contractor shall be responsible for the storage, mobilization, and demobilization of the lighted "X's" for each runway closure period and they remain the property of the Contractor unless otherwise noted on the Contract Drawings.
 - 2.) The lighted "X's" shall be the Sweepster Lighted Runway Closure Marker Model LXD06, or approved equal conforming to NTSB Safety Recommendation A-03-05 and 06.
- F. Barricades

- 1.) Use barricades to indicate construction locations in non-movement areas, which no part of an aircraft may enter. Barricades may be of different shapes and made from various materials, including railroad ties, sawhorses, jersey barriers, or barrels and shall be marked with diagonal, alternating orange and white stripes. During reduced visibility or night hours, supplement the barricades with red lights, flashing or steady burning, meeting the luminance requirements of the State Highway Department.
 - a. "Non-movement areas" are areas within the AOA not controlled by the Air Traffic Control Tower or Ground Control. These areas are typically aircraft ramp and parking areas as well as vehicular service roads.
 - 2.) Indicate construction locations in movement areas in which aircraft may enter with orange traffic cones, red lights (either flashing or steady burning), and collapsible barricades marked with diagonal, alternating orange and white stripes. All barricades, temporary markers, and other objects left in the safety area associated with the open runway, taxiway, and taxi lanes must be as low as possible to the ground, of low mass and easily collapsible upon contact with an aircraft or any of its components. The barricade shall be properly weighted or attached to the surface to prevent displacement by prop wash, jet blast, wing vortex or other surface wind currents. If affixed to the surface, they must be frangible at grade level or as low as possible, not to exceed 3-inches in height. Barricades shall be Neubert Aero Corp., Model NAC-PC2410 or Model NAC-PC9642, Multi-Barrier Safety Barricade Corp., Model AR-10X96, YODOCK APC or an approved equal.
 - 3.) Barricades shall be spaced no greater than 10 feet apart.
- G. Temporary Lighting and Markings
- 1.) The Contractor will be required to provide and maintain temporary pavement markings, remove existing markings and remove temporary markings, all in accordance with the Contract Drawings and Specifications.
- H. Airport Air Operations Area Access and Control
- 1.) The Contractor, staff, employees, subcontractors, delivery and haul operators, or anyone required to enter the Air Operations Area related to the Contract Work, shall produce valid government issued photo identification.
 - 2.) The Contractor shall supply daily lists of all workers as well as list of all planned or anticipated deliveries. All vehicle operators must have, in their possession and produce on request, a valid drivers license.
 - 3.) Individual Contractor Identification is required for each worker. Identification badges are to be displayed on their outermost garment at all times. The Contractor Identification Badge shall be a minimum of 2" x 2" in size and include the following:
 - a. Minimum 1" x 1" current color photo of the individual
 - b. Laminated
 - c. Company name (and/or subcontractor where applicable)
 - d. Person's name
 - e. Unique badge number
 - f. Expiration date in accordance with the Contract
- I. Vehicle Operation Marking and Control

- 1.) All Contractor vehicles (including equipment, subcontractors, delivery vehicles, etc.) that must enter the Air Operations Area for the required Work of the Contract, must be escorted and properly identified. To operate during daylight hours, construction equipment must have a 3' x 3' orange and white "Airfield Vehicle" identification flag (ANNIN & Co. NYL-GLO #319733 or approved equivalent) or flashing beacon. Any vehicle operating on the movement areas during hours of darkness or reduced visibility must be equipped with a flashing amber beacon light. In addition, vehicles must display permanently affixed company identification media acceptable to the Authority.
- 2.) Neither the Contractor nor any construction support personnel will be permitted access to the AOA or work site in a private or personal vehicle. There is no employee parking on the Air Operations Areas.
- 3.) At Air Operations Areas provide obstruction marking flags equipped with approved stiffeners as follows:
 - a. For Marking of Equipment, Material and Debris: 3-feet by 3-feet colored orange and white in a checkerboard pattern, mounted on a staff of not less than 8-feet in length. Maintain flag in a vertical position at all times and display on each fixed obstruction, truck or other piece of equipment, and at each separate group of workers and material or debris stack.

J. Navigational Aids

- 1.) The Contractor shall not conduct any construction activity within navigational aid critical areas or affect the visual signal, transmitted signal or power supply of any navigational aid. Navigational aid restricted areas affected by the area of work are depicted on Contract Drawings. Work in these restricted areas is subject to availability based on runway configuration and weather conditions at the time, and may be cancelled by the Engineer without advance warning based on the aforementioned conditions. If the Contractor is specifically directed by the Engineer to suspend his operations in these areas, the Contractor will be compensated as stipulated in the provisions of the Contract concerning compensation for emergency delays.
- 2.) Navigational aids include instrument landing system components and very high-frequency omni-directional range, airport surveillance radar.
- 3.) Do not operate ultrasonic, X-ray, radio-type transmitter, magnetic or similar electromagnetic devices, which affect or may affect the operation of airport navigational aids, unless the Engineer has granted specific prior approval for their operation or use.

K. Limitations on Construction

- 1.) The Contractor shall obtain Authority permits for open-flame welding or torch cutting operations and electrical power shut-downs prior to start of the Work.
- 2.) All site storage of supplies and equipment requires approval by the Engineer. All site storage must be in containers and must have company name and 24 hour contact telephone number clearly displayed.

L. Radio Communications

- 1.) The Contractor is not required to have two-way radio communications with the Engineer.

- 2.) The Contractor is prohibited from having any communications, including two-way radio, with the Airport Air Traffic Control Tower. All movements within the AOA shall be escorted by the Facility Staff.

134. HOURS OF WORK

A. Hours of Work

- 1.) Subject to all requirements stated elsewhere herein, the Work shall be performed in accordance with the following restricted hours of Work:
 - a. Perform Sheet Pile and Pile Driving Work using drop-hammer operations by Pump House #4 (East End of LaGuardia Airport) only between the hours of 8:00 AM and 7:00 PM, during the Runway 13-31 Extended Weekend Single Runway Closures.
 - b. Perform Work for Sheet Pile and Pile Driving Work using drop-hammer operations by Pump House #6 (West End of LaGuardia Airport) between the hours of 8:00 AM and 7:00 PM each day, 7 days per week, provided the pile driving equipment is below the V.F.R. and I.F.R. construction clearance surfaces. Otherwise the Work shall be performed only between the hours of 8:00 AM and 7:00 PM, during the Runway 13-31 Extended Weekend Single Runway Closures.
 - c. Perform other Work requiring equipment above V.F.R. and I.F.R. construction clearance surfaces only between the hours of 12:01 AM and 6:00 AM each day Monday through Friday and during the Runway 13-31 Extended Weekend Single Runway Closure.
 - d. Runway 13-31 Extended Weekend Single Runway Closures shall mean the continuous closure of Runway 13-31 for a maximum of 30 hours commencing at 12:01 AM on Saturday and ending at 6:00 AM on Sunday.
 - e. Perform Work not covered by A.1.a. through A.1.d. above between the hours of 7:00 AM and 3:00 PM each day, Monday through Friday.
- 2.) The Contractor shall submit to the Engineer, at least one week in advance, his scheduled hours of Work for each week.
- 3.) Do not perform Work at the construction site outside of these time periods or on a Federal legal holiday or a holiday of the State(s) in which the Work is being performed, unless otherwise permitted by the Engineer.
- 4.) Because of the arrivals and departures of aircraft, the Authority makes no representation as to the periods of time when conditions at or near the runways or elsewhere at the airport will be such as to permit the Work to be performed without interruption, or as to when any work can be performed or completed. Arrivals and departures of aircraft are under the control of the FAA Control Tower operator and emergencies and operating conditions may necessitate sudden changes, both in airport operations and in the operations of the Contractor.

DIVISION 2

SECTION 02073

CUTTING, PATCHING AND REMOVAL

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for cutting, patching and removal of existing construction.

1.02 QUALITY ASSURANCE

- A. Cutting, patching and removal shall be performed by workers skilled in the specific trades involved.
- B. Site Conditions
 - 1. Except for portions shown to be relocated or retained by the Authority, remove and transport off Authority property all portions of the existing construction shown on the Contract Drawings to be removed in accordance with Division 1 clause entitled "Recycling of Construction Debris Material".
 - 2. All construction debris shall become the Contractor's property.
 - 3. Prior to start of Work, make an inspection accompanied by the Engineer to determine physical condition of adjacent construction that is to remain.

1.03 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MATERIALS

All materials required for patching shall be new. Patching materials shall match in every respect adjacent portions of the existing construction unless otherwise shown on the Contract Drawings.

PART 3. EXECUTION

3.01 PROTECTION

- A. Protect existing adjacent surfaces to remain and finished surfaces at all times and repair or replace, if damaged, at no cost to the Authority and to the satisfaction of the Engineer.

- B. Protect all existing and new construction including utilities, finishes and equipment from water, damage, weakening or other disturbance.

3.02 CUTTING, PATCHING AND REMOVAL

- A. Perform all cutting, patching and removal as shown on the Contract Drawings. Work shall be performed in accordance with the approved methods using approved materials.
- B. Do not cut or remove more than is necessary to accommodate the new construction or alteration.
- C. Maintain the integrity of all construction at all times.
- D. Do not allow removed materials and debris to accumulate at the construction site; remove them at the end of each work period or daily. All areas adjacent to, and leading to and from the site shall be kept free of removed materials and debris.
- E. Do not burn, bury, or dispose of in storm drains, wetlands or waterways on Authority property debris of any type.
- F. Dispose of debris resulting from removal operations in accordance with all local laws and regulations that would apply if the Authority were a private corporation.

END OF SECTION

SECTION 02073

CUTTING, PATCHING AND REMOVAL

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

Construction and Installation Procedures

02073G01 Submit to the Engineer plans, methods, equipment and procedures as applicable for cutting, patching and removal.

END OF APPENDIX "A"

DIVISION 2**SECTION 02221****EXCAVATION, BACKFILLING AND FILLING****PART 1. GENERAL**

1.01 SUMMARY

- A. This Section specifies requirements for excavation, backfilling and filling.
- B. Definitions
1. As used herein, excavation shall mean the removal of existing pavement, concrete foundations and all materials other than bedrock (ledge rock) encountered within the limits of excavation that are not specified to be removed under Division 2 Section entitled "CUTTING, PATCHING AND REMOVAL".
 2. As used herein, backfilling shall mean the filling of excavations made for construction purposes and shall extend only to existing grades or design grades, whichever are lower.
 3. As used herein, filling shall mean the placement of fill material in conformance with requirements of this Section at or above existing grade or design grade, whichever is lower.
 4. As used herein, suitable shall mean material conforming to the gradation, compaction, and environmental requirements of this Section.

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

American Society for Testing and Materials (ASTM International)

ASTM C 88	Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
ASTM C 117	Test Method for Materials Finer than 75 μm (No. 200) Sieve in Mineral Aggregates by Washing.
ASTM C 131	Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
ASTM C 136	Test Method for Sieve Analysis of Fine and Coarse Aggregates.
ASTM D 422	Standard Test Method for Particle-Size Analysis of Soils.
ASTM D 1556	Standard Test Method for Density of Soil in Place by the Sand-Cone Method.
ASTM C 1557	Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft ³ or 2,700 kN-m/m ³).

ASTM D 2167	Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
ASTM D 2922	Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
ASTM D 3017	Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
ASTM D 4318	Standard Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils.

New Jersey Interagency Engineering Committee (NJIEC)

Standard Soil Aggregate Gradations.

1.03 QUALITY ASSURANCE

- A. Where sheet piling or sheeting is required or is shown on the Contract Drawings, shop drawings and calculations shall be prepared, signed and sealed by a Professional Engineer, licensed in the State in which the work will be performed, who has a minimum of five years experience in the design of soil retaining structures.

1.04 SITE CONDITIONS

- A. Protect excavations as follows:
1. Prevent water from entering excavated areas and, if it does, remove it immediately to maintain a dry condition at all times.
 2. Dispose of water in a manner not to cause injury to the public health or damage to public or private property.
 3. If water enters excavated areas and weakens or disturbs underlying soil, remove the weakened or disturbed soil and replace it in conformance with 3.02 A.5.
 4. Where shown on the Contract Drawings or where required for protection of adjacent utilities or structures or where required for performance of the Work, secure the sides of excavations against movement as follows:
 - a. Install sheet piling or sheeting held in place by waling and bracing members. Top of sheeting shall extend at least six inches above ground or as otherwise shown on the Contract Drawings.
 - b. Do not excavate below the bottom of sheet piling or sheeting except as necessary to install sheeting.
 - c. Fill voids behind sheeting immediately with material conforming to I-12 designation defined in 2.01 A or with other material as otherwise approved by the Engineer.
 - d. Comply with all other requirements of the Specifications that may impose additional or stricter requirements.
 5. For excavations extending to a depth of 5 feet or more, and where sheeting is not required to conform with 1.04 A.4 above, excavate slopes to a safe angle of repose, or protect trench excavations by use of a portable trench shield.
 6. Restore all areas impacted by excavation to their original condition, matching pavement types and sections to meet original pavement grades.

- B. Do not traverse paved areas with tracked vehicles or equipment, such as carry-all scrapers, which may damage such pavement unless protected to the satisfaction of the Engineer.
- C. Do not place fill or backfill on frozen subgrade.
- D. Do not perform rolling or other compaction at any time when the ground water level is above a plane two feet below the surface to be compacted. When the ground water level is above such plane, lower it by approved methods and maintain it below such level prior to and during the compaction operations.
- E. Protect from damage trees and other vegetation that are to remain in place.

1.05 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MATERIALS

A. Fill

1. Unless otherwise shown on the Contract Drawings, fill shall consist of clean sand and gravel containing no organic matter, conforming to the following NJIEC "Standard Soil Aggregate Gradations", except that in lieu of the standard gradation given below, up to 10 percent passing the No. 200 sieve will be acceptable as I-12:

<u>Sieve Sizes</u>	<u>Total Percent Passing by Weight</u>		
	<u>NJIEC Designation</u>		
	<u>I-7</u>	<u>I-10</u>	<u>I-12</u>
4 inch		100	100
2 inch		80-100	
1 inch	100		
3/4 inch		60-100	70-100
1/2 inch	80-100		
No. 4		40-100	
No. 8	35-100		
No. 16	25-90	20-70	
No. 50	5-50	5-40	0-75
No. 100	0-8	0-30	
No. 200	0-2	0-20	0-5

2. The clean sand and gravel shall not contain more than 0.1% of Wood; 4% of Brick, Mica Schist, or other friable material; or 10% of asphalt concrete. The total of all of these components shall be less than 10%. The Contractor shall submit to the Engineer a "Certificate of Clean Fill" for all imported fill materials.

3. Comply with fill designations shown on the Contract Drawings and place designated fill in the locations shown.

B. Backfill

1. Unless otherwise shown on the Contract Drawings, material shall conform to the requirements for I-12 designation.

C. Sources

1. When fill and backfill material are furnished by the Authority, refer to the Contract Drawings for the location of the existing stockpile, the NJIEC Designation (if applicable), and the estimated quantity of available material. Samples of Authority-furnished material will not be required for testing.
2. Unless otherwise approved by the Engineer, material excavated at the construction site shall be used only for backfill and shall be used to the extent that it conforms to the requirements specified in 2.01 A and as noted on Contract Drawings. Submit samples for testing by the Engineer for verification of conformance with the requirements of this Section.
3. If sufficient quantities of suitable material are unavailable from sources described in 2.01 C.1 and C.2 above, furnish material from sources off site, as directed by the Engineer. The Contractor will be compensated for the cost of furnishing only (excluding cost of placing and compacting the fill and backfill) such fill or backfill material from sources off site at the "Net Cost" thereof.

D. Recycled Concrete Aggregate

Recycled Concrete Aggregate (RCA) conforming to the requirements given below and to the gradations specified in 2.01 A.1 may be used as fill or backfill.

1. The RCA shall consist of at least 90 percent, by weight, Portland cement concrete, with the following materials making up the remaining 10 percent:
 - a. Wood: 0.1 percent, maximum.
 - b. Brick, Mica schist, or other friable material: 4 percent, maximum.
 - c. Asphalt Concrete: 10 percent, maximum.
2. Virgin aggregate may be added to meet the 90 percent minimum concrete requirement.
3. The percentage of asphalt concrete and other deleterious material shall be determined by weighing that material retained on the No. 4 sieve, and dividing by the total weight of RCA material retained on the No. 4 sieve.
4. Soundness of Aggregates

Loss limitation shall not be more than 10 percent loss by weight, using sodium sulfate for 5-cycle test period, or not more than 15 percent loss by weight, using magnesium sulfate for a 5-cycle test period as determined by ASTM C 88.

5. Resistance to Degradation

Percentage loss between the original weight and the final weight of the test sample shall not exceed 45 percent as determined by ASTM C 131.

6. RCA, if used, shall be from permitted or State registered Construction and Demolition Debris Processing Facilities (C&DDPF). Obtain and submit a copy of the permit or registration to the Engineer.
 - a. In New York, the source of the RCA shall be C&DDPF conforming to 6 NYSRR Part 360-16: Construction and Demolition Debris Processing Facilities.
 - b. In New Jersey, the source of the RCA shall be a Class B C&DDPF conforming to NJAC - Title 7: Environmental Protection; Chapter 26A: Recycling Rules.

E. Environmental Compliance

1. Fill material brought on site must meet residential use criteria for the State in which it is used. Sample and analyze all fill material brought on site, according to the following criteria, to characterize potential contaminants and to demonstrate all contaminants are below the State's residential use clean up criteria or remediation standard thresholds.
 - a. Up to 1,000 cubic yards, collect a minimum of two grab samples.
 - b. Greater than 1,000 cubic yards up to 10,000 cubic yards, collect a minimum of one grab sample for every 500 cubic yards.
 - c. For volumes greater than 10,000 cubic yards, follow the sampling frequency specified above and collect one grab sample per each additional 1,000 cubic yards.
 - d. Analyze all samples for all parameters included in the State's residential use clean up criteria or remediation standards.
 - e. Each firm and laboratory performing the sampling and analysis shall be certified and/or licensed to perform such work in the State the fill material will be used.
2. Submit to the Engineer for approval three copies of a Clean Fill Certification Report signed by a Professional Engineer licensed in the State in which the fill material will be used. The report shall include the following:
 - a. Quantity of fill material for use and certification that it meets the residential use criteria.
 - b. Location information for each facility supplying the fill material, including State, County, Municipality, address, and Block and Lot numbers.
 - c. A copy of the current State permit for each facility supplying fill material that indicates the material produced will meet residential use criteria and a contact name, title and phone number for the facility representative responsible for permit compliance.
 - d. Name, contact information, and copies of certifications and/or licenses for each entity performing the sampling and laboratory analysis. Include a signed statement by an officer of each laboratory certifying that all sampling and analysis was performed by licensed or certified personnel and in accordance with applicable State regulations, manuals, and guidance documents.
 - e. A sampling plan for the samples collected, including a sample location drawing, and a completed chain of custody for the samples.

- f. A summary data table, in Excel spreadsheet format, of sample analytical results compared to State residential use clean up criteria or remediation standards. The table shall present for each sample the parameters analyzed, analytical method, sample date, sample identification number, results, reporting detection limits, and units.
 - g. A copy of the complete laboratory report in PDF format on "read only" disc signed and sealed by the responsible individual of the laboratory completing the analyses.
 - h. A signed statement from the Professional Engineer certifying that this report, to the best of their knowledge, is accurate and is representative of the fill material specified herein, and that the fill material does not exceed the residential use clean up criteria or remediation standard thresholds for the State in which it will be used.
- 3. At the Engineer's discretion, the Engineer will perform quality assurance testing of fill material brought to the site to confirm compliance with the specified requirements. Remove and replace, at no additional cost to the Authority, fill material determined by the Engineer to be not in compliance.
 - 4. The allowance of a small percentage of asphalt concrete in fill and RCA materials shall not be construed as a contradiction to the above requirements. If the composition of the asphalt concrete is such that the limits given in the residential use criteria for the State in which it is used are exceeded, submit material from an alternate source.

PART 3. EXECUTION

3.01 PREPARATION

A. Clearing and Grubbing

Remove trees, clear and grub areas to be excavated or in which construction is to be performed, as follows:

- 1. Remove trees, stumps, all roots larger than 2 inches in diameter, and all matted root systems.
- 2. Remove all topsoil, debris, organic matter and any other objectionable material not suitable for use as backfill or fill or for support of structures or pavements.
- 3. Backfill all holes and other low spots resulting from clearing and grubbing with material conforming to 2.01 B or 2.01 D before proceeding with compaction of fill as specified in 3.03 or with other construction in the area.

3.02 EXCAVATION

A. General

- 1. Excavation shall consist of the removal of materials as defined in 1.01 B.1, and the removed materials shall be segregated by material type (e.g., sand fill, miscellaneous fill, sand, gravel, clay) and stockpiled at the location shown on the Contract Drawings.

2. When excavation of bedrock (ledge rock) is shown on the Contract Drawings, refer to Division 2 Section entitled "ROCK EXCAVATION" for removal requirements.
 3. Excavate to elevations required for installation of permanent construction in such manner as not to disturb the subgrade below such elevations.
 4. Where existing foundations or other existing construction are encountered which may cause hard spots, remove them to a minimum of two feet below subgrade for pavement or structures and backfill with material conforming to 2.01 B or 2.01 D.
 5. Should the bottom of excavation be weakened or disturbed or carried below required depth:
 - a. Under Footings: Compact bottom as specified in 3.03 below and replace over-excavation with the same concrete as that specified for the footing or foundation.
 - b. Locations other than Under Footings: Compact bottom as approved by the Engineer and refill with material conforming to 2.01 B or 2.01 D.
 6. Perform excavation around and adjacent to existing structures, pipes and conduits which are to remain in place, without damage to or movement of existing construction. Use hand excavation to locate and expose near-surface structures, pipes and conduits. When excavation is to be performed under such structures, pipes and conduits, support them in a manner as approved by the Engineer to ensure uninterrupted operation of the supported items.
- B. Dewatering
1. Where excavations are to extend below the water table, prior to placement of any permanent construction or filling or backfilling any excavated area, lower the water table in such an area to two feet below the elevation of the required subgrade and maintain this condition until the construction or pavement is placed thereon.
 2. Dewater in a manner to prevent the loss of ground due to the migration of soil fines into the dewatering system.
- C. Trenching for Utilities
1. Shape bottom of trench to uniform invert section.
 2. When excavating in soft soils which may be subject to lateral movement or bottom heave, conform to requirements shown on the Contract Drawings.
- D. Disposal of Excavated Material
1. All debris and all material either unsuitable for or in excess of that required for backfill or fill, shall be reused, recycled or disposed of away from the construction site in accordance with Division 1 Section entitled "Recycling of Construction Debris Material".
- E. Restrictions
1. Do not place backfill until the Engineer has inspected and approved the Work and has indicated where backfill may be placed.
 2. Leave all pipe joints exposed until all tests, required by other Sections of the Specifications on such pipe, have been performed.

3. Remove all temporary structures, sheet piles, sheeting, bracing and forms and all organic materials and debris of every nature, taking care, upon the removal of sheet piling, sheeting and temporary supports, not to cause movement of adjacent ground or structures or create the danger of a slide.

3.03 PLACEMENT AND COMPACTION

A. Equipment

1. Steel vibratory rollers shall have provision for regulation of vibration frequency. Submit and obtain Engineer approval of the type and size of compaction, placing and spreading equipment to be used before the start of any compaction efforts.
2. Unless otherwise shown on the Contract Drawings, pneumatic-tired rollers shall have minimum weight of 20 tons and a tire pressure of between 60 and 150 psi. For aircraft pavements, the minimum roller weight shall be 50 tons.
3. When mechanical tampers are used, submit and obtain Engineer approval of the type and size of tamper before compaction efforts begin.

B. Subgrade, Excavated and Existing Surfaces

Compaction of subgrade, excavated and existing surfaces shall consist of a proofrolling operation performed as follows, unless otherwise shown on the Contract Drawings that proofrolling is not required:

1. Compact surface with a minimum of six passes of an approved vibratory steel roller operated at a speed not to exceed three miles per hour and at the optimum operating frequency recommended by the manufacturer. Overlap passes of roller a minimum of six inches.
2. In areas where surface consists of a fine grained soil, compact with a minimum of six passes of an approved pneumatic-tired roller. Overlap passes of roller a minimum of six inches.
3. In areas where use of a roller is impractical, compact surface while at or near optimum moisture content with mechanical tampers.
4. If, in the sole determination of the Engineer, the proofrolling produces noticeable weaving of the surface, excavation of unsuitable material and replacement with backfill may be required below subgrade, within the limits and to the depth as directed by the Engineer. The Contractor will be compensated for any such excavation of unsuitable material below the elevation of subgrade or under footing and subsequent backfilling at the "Net Cost" thereof.

C. Backfill and Fill

1. Moisture content of backfill and fill material shall be within a range of plus or minus two percent of optimum, as determined by Procedure C of ASTM D 1557.
2. Backfill and fill shall be compacted to achieve a density of 95 percent of the maximum density as determined by Procedure C of ASTM D 1557, except where alternate density requirements are approved by the Engineer or shown on the Contract Drawings.

3. Backfill conforming with I-12 gradation, and fill conforming with I-7 and I-12 gradation, shall be placed in 14-inch, loose layers. In areas where a 14-inch layer over existing material is not adequate to support the construction equipment, increase thickness of first lift as approved by the Engineer.
4. When shown on the Contract Drawings, backfill and fill, conforming to I-10 gradation, shall be placed in 12-inch, loose layers.
5. In areas adjacent to structures and utilities as shown on the Contract Drawings, compaction equipment shall be restricted as shown on the Contract Drawings.
6. In areas where use of a roller is impractical, place fill in maximum 8-inch, loose layers and compact with approved mechanical tampers to the specified density. In pipe trenches, each layer of backfill shall be not more than 8 inches in thickness before compaction. Place backfill on both sides of the pipe, simultaneously.
7. The surface of filled or backfilled areas, which are to receive pavement or on which a structure is to be placed, shall be within plus or minus 1/2 inch of the elevations shown on the Contract Drawings and shall be free of depressions or projections greater than 1/2 inch when tested with a 16-foot straight edge.
8. The surface of filled areas at other locations shall be within plus or minus one inch of elevations shown on the Contract Drawings unless a closer tolerance is necessary to meet requirements of other Sections of the Specifications or meet requirements shown on the Contract Drawings.

3.04 QUALITY CONTROL

A. Field Inspection and Testing - General

1. The Engineer will test delivered field samples of material submitted from each source, for conformance with 2.01. Gradation will be determined in accordance with ASTM C 117, C 136 and D 422 and maximum density will be determined in accordance with Procedure C of ASTM D 1557. If deemed appropriate by the Engineer, Atterberg Limits will be determined on fine-grained soils in accordance with ASTM D 4318.
 - a. Notify the Engineer when backfill and fill material are on site at least seven days prior to placement to allow sufficient time for testing.
 - b. If the Engineer's maximum density will be used for QC testing, the Contractor must first obtain this laboratory value from the Engineer prior to placement.
2. If the sample from a source is approved, upon the Engineer's request, conduct the Engineer to that source. Additional samples will be selected and tested by the Engineer.
3. The Engineer will notify the Contractor of approval of material source within seven days after receiving samples. Approval of a source of backfill or fill material will be subject to material continuing to meet the requirements of 2.01.
4. Do not deliver any material until the Engineer has reviewed and approved material supplier and source submittal. Delivered material must receive on-site approval prior to use.
5. The Engineer will check conformance to elevations shown on the Contract Drawings and required tolerance for surface straightness.

6. Provide labor and equipment to take samples as directed and to assist the Engineer in other tests.

B. Testing Requirements for Fill and Backfill

Testing will include control tests by the Engineer, quality control testing by the Contractor, and quality assurance testing by the Engineer. Testing frequencies are dependent on the type of fill or backfill, the nature and size of the installation, and the structural significance of the installation. The minimum frequency of testing shall be as shown on the Contract Drawings.

1. Control Tests

- a. Fill and backfill material field samples will be tested in the laboratory by the Engineer at the frequency shown on the Contract Drawings. These control tests consist of determining maximum density and optimum water content by Procedure C of ASTM D 1557, and gradation by ASTM C117, C136, and D 422. When deemed appropriate by the Engineer, Atterberg Limits will be determined on fine-grained soils in accordance with ASTM D 4318.

2. Quality Control Testing by the Contractor

- a. Implement and maintain quality control plans and procedures that ensure all fill and backfill materials and completed construction conform to this Section. The Engineer shall be permitted access to the Contractor's plant, equipment and field operations at all times for checking compliance with the approved quality control procedures. Provide labor and equipment to take samples as directed and assist the Engineer in other tests. Repair all areas from which samples are taken to meet all requirements of this Section.
- b. Perform quality control consisting of in-place density testing to determine densities achieved after compaction efforts. The frequency of testing shall be as shown on the Contract Drawings.
- c. The quality control plan shall include as a minimum:
 - (1) Assignment of quality control responsibility to specifically-named individuals.
 - (2) Outline of sampling location procedures and in-place density testing methodologies and frequencies.
 - (3) Performance of regularly scheduled inspections of the material source in the case of RCA.
 - (4) Provisions for the prompt implementation of control and corrective measures.
 - (5) Provisions for liaison with the Engineer at all times.
 - (6) Performance of necessary quality control tests, including use of a nuclear gauge.
 - (7) Description of equipment type, calibration and maintenance; operator identity and qualifications.

- d. For RCA, quality control procedures shall include, in addition to that required under 3.04 B.2.b, performing the following tests on dedicated stockpiles being produced for use under this Contract:
- (1) Gradation tests (ASTM C 117 and C 136) shall be performed at least once per day.
 - (2) Composition tests shall be a continuous visual inspection and shall include removal of any objectionable material to ensure compliance with 2.01 B.
 - (3) Soundness of Aggregates (ASTM C 88) and Resistance to Degradation (ASTM C 131) shall be performed a minimum of once every two weeks, unless otherwise directed by the Engineer.

The size of the stockpiles shall be as shown on the Contract Drawings.

3. Quality Assurance Testing

- a. Quality Assurance testing to verify field densities will be performed by the Engineer after compaction operations, at the frequencies shown on the Contract Drawings. Test methods may be either sand-cone (ASTM D 1556), rubber balloon (ASTM D 2167), or nuclear device (ASTM D 2922), with moisture content for nuclear method determined by ASTM D 3017. Tests will measure the density of the layer immediately below each compacted layer and the density of the uppermost or final layer.
- b. Quality Assurance testing will also include periodic sampling and testing of backfill and fill materials to verify continued conformance with the requirements of 2.01 and to verify the value of maximum density used as the control value, as per 3.04 B.3.d.
- c. When performing Quality Assurance testing, the Engineer will determine the density of compacted fill or backfill by in-place density tests or from undisturbed samples cut from the compacted fill or backfill as required. Notify the Engineer 72 hours prior to start of filling or backfilling to allow the Engineer time to make provisions for such testing.
- d. To evaluate whether material has been compacted to specified density the Engineer will compare results of in-place density tests with results of control tests on material of the same designation using Procedure C of ASTM D 1557.
- e. If fill or backfill have not been sufficiently compacted as determined by in-place density tests, the Contractor shall continue compaction effort and shall adjust the moisture content as necessary until the specified compaction is obtained, at no additional cost to the Authority.

END OF SECTION

SECTION 02221

EXCAVATION, BACKFILLING AND FILLING

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

Shop Drawings

02221A01 Where sheet piling or sheeting is required or is shown on the Contract Drawings, submit detailed shop drawings and design calculations of the sheeting and bracing system to the Engineer for review. Submit such drawings and calculations three weeks prior to commencement of such excavation.

Product Data

02221D01 Submit to the Chief of Materials Engineering, Materials Engineering Unit, Port Authority Technical Center, 241 Erie Street, Jersey City, N.J. 07310-1397, material suppliers and sources for each designation of fill or backfill used under this Contract. Include, at a minimum, the Contract location, title and number; designation of intended material use; and source and supplier of material. Submit such information at least three weeks prior to delivery of material to the site.

02221D02 Submit a description and complete specification of the compaction equipment in accordance with 3.03 A.

Certificates

02221E01 Submit three copies of a "Clean Fill Certification Report" and a "Certificate of Clean Fill" for all imported fill materials.

Quality Assurance-Quality Control

02221L01 Submit a Quality Control Plan for review and approval by the Engineer in accordance with 3.04 B.2.

END OF APPENDIX "A"

DIVISION 2

SECTION 02272

SOIL EROSION AND SEDIMENT CONTROL

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for the construction and maintenance of various, temporary soil erosion and sediment control measures, including relocation as required for staged construction.

1.02 REFERENCES

American Society for Testing and Materials (ASTM) ASTM C 33 Specification for Concrete Aggregates

1.03 REQUIREMENTS

A. Environmental Requirements

1. Apply dust retardants other than water only when wind velocity is less than 5 mph and drift hazard is negligible.
2. Conform to "Seeding Calendar Limitations" of the Section entitled "SEEDING".
3. Use Dust Retardant or other approved methods for temporary surface stabilization of short duration where establishing grass by seeding is not practical.

B. Construction Requirements

1. The Contractor shall employ soil erosion and sedimentation control measures during the duration of the contract to control erosion and minimize the sedimentation of water courses on the construction site.
2. The Contract Drawings do not include borrow pits or storage areas that the Contractor utilizes or establishes outside of the site in order to perform the Work. If the land disturbance for this Work is five thousand square feet (5,000 SF) or greater, the Contractor shall provide the Engineer with documentation that a soil erosion and sediment control plan has been approved for this Work by the appropriate Soil Conservation District of the New Jersey Department of Environmental Protection.
3. The Contractor shall incorporate all permanent pollution control features into the project at the earliest practicable time. Temporary soil erosion and sediment control measures shall be coordinated with the permanent pollution control features and with the construction of pavement, drainage facilities such as pipes, culverts, headwalls, channels, ditches, etc., to the maximum extent practical to assure economical, effective and continuous erosion control throughout the duration of the Contract, as outlined in the approved progress schedule.

4. Prior to all grubbing operations, soil erosion and sediment control measures shall be installed. When unstabilized areas caused by site development, grading, or other earth disturbing activities exist beyond 14 calendar days, the areas disturbed shall be seeded and mulched. These requirements pertain to perimeter controls, berms, dams, swales, ditches and slopes. Upon completion of the grading or construction, disturbed areas shall be permanently stabilized in accordance with the Contract Drawings within 7 calendar days.
5. When excavation or embankment construction reaches the finished subgrade, those areas on which paving is to be placed are exempt from the above stabilization requirements. Roadways and haul roads actively being used for daily conveyance of equipment as well as areas between temporary berms, except median areas, are also exempt unless otherwise shown on the Contract Drawings.
6. Streams shall be protected from soil erosion and sediment. Streams being diverted shall be protected through the use of silt fences. Temporary diversion channels shall be lined with geotextile and temporary riprap.
7. The turbid discharge from dewatering construction activities shall be contained in a dewatering basin in order to control sediment and provide filtration of water prior to it being released into adjacent streams or other watercourses.
8. Soil being stockpiled shall be placed in well-drained areas no closer than 50 feet from streams, wetlands, floodplains and other watercourses, unless otherwise directed by the Engineer. The stockpiles shall be seeded and mulched in accordance with the Contract Drawings. Temporary soil erosion and sediment controls shall be provided around the stockpiles until such time as vegetation is established on the piles.
9. Temporary soil erosion and sediment control measures shall be used to correct conditions that develop during construction.
10. In the event that temporary soil erosion and sediment control measures are required due to the Contractor's failure, for any reason, to install or maintain soil erosion and sediment controls, either as part of the work or as directed by the Engineer, such Work shall be performed by the Contractor at no additional cost to the Authority.
11. If the Contractor is not in compliance with soil erosion and sediment control provisions, corrective actions shall be taken immediately. The Engineer may suspend the Work, wholly or in part, until such time as the Contractor is fully in compliance. All corrective and remedial work required to bring the Contractor into compliance shall be performed at no additional cost to the Authority.
12. Temporary soil erosion and sediment control measures shall be removed when necessary to allow for the installation of permanent control features or as permanent controls become functional. Before issuance of a Certificate of Final Completion, all items used for temporary soil erosion and sediment control shall be removed unless otherwise shown on the Contract Drawings.

1.04 QUALITY ASSURANCE

A. Progress Schedule

1. The Contractor shall prepare a progress schedule for the Engineer's approval in accordance with Division 1 of the Specifications.

2. The progress schedule shall clearly outline the intended maintenance of traffic, the locations where temporary and permanent soil erosion and sediment control measures shall be installed, and such other information as required. The progress schedule shall give special consideration to sensitive areas such as wetlands, waterways, etc. Appropriate staging and seasonal constraints shall be used to maximize the effectiveness of the soil erosion and sediment controls. The progress schedule shall also indicate when Work is restricted in these sensitive areas as outlined in permits issued by regulatory agencies.

B. Soil Erosion and Sediment Control Manager

1. The Contractor shall assign to the project a supervisory-level employee to serve in the capacity of Soil Erosion and Sediment Control Manager. This employee shall be thoroughly experienced in all aspects of soil erosion and sediment control and construction. The Contractor shall submit the name and experience of this employee to the Engineer for approval at least 10 working days prior to commencing any Work on the project. Replacement of the Soil Erosion and Sediment Control Manager during the Contract shall be made only after approval of a written request for such replacement.
2. The Soil Erosion and Sediment Control Manager shall implement approved soil erosion and sediment control schedules and methods of operations. He shall coordinate his operations with the Engineer and shall oversee and supervise all aspects of soil erosion and sediment control work for the project.

He will attend all soil erosion and sediment control meetings during the Contract.

1.05 SUBMITTALS

See Appendix "A" for submittal requirements.

1.06 DELIVERY, HANDLING AND STORAGE

Protect materials against damage prior to installation.

1.07 SPARE MATERIALS

During construction, the Contractor shall have on hand sufficient spare materials and appurtenances as are necessary to repair damage to permanent and temporary installations.

PART 2. PRODUCTS

2.01 MATERIALS

- A. Geotextiles shall conform to the Section entitled "Geotextiles". Unless otherwise shown on the Contract Drawings, geotextiles shall have a maximum Apparent Opening Size of 0.6 mm. and minimum permeability of 1×10^{-3} cm/sec.
 1. Silt Fences and Inlet Filter Sediment Control shall be "Self Supported".
 2. Geotextiles for other Soil Erosion and Sedimentation Control items shall be "Erosion Control - Class A".

- B. Wood stakes, posts and boards shall be solid, reasonably knot-free lumber conforming to the nominal size specified on the Contract Drawings.
- C. Hay bales shall consist of timothy , red top or native grasses securely bound with wire or baling twine. The twine shall be an ultra-violet light stabilized polypropylene which has a knot strength of 170 pounds and straight break strength of 300 pounds.
- D. Rip rap shall be broken stone (argillite, calcite, dolomite, gneiss, granite, quartzite, traprock). Unless otherwise shown on the Contract Drawings, riprap shall have a designated median stone (D50) size in the range of 6 to 9 inches maximum dimension, weighing not more than 150 pounds, with at least 90% weighing more than 25 pounds but not more than 40% exceeding 100 pounds, having the following characteristics:

<u>Characteristic</u>	<u>Max. %</u>
Weathered decomposed stone	5
Other than that classification approved	5
Absorption in cold water	1.8
Sodium sulfate soundness, loss by weight	10

- E. Coarse aggregate shall be broken stone or washed crushed gravel meeting the specification for rip rap except for size and weight requirements. Size and gradation shall be as shown on the Contract Drawings.
- F. Welded wire fabric shall conform to AASHTO M55 flat sheets or rolls.
- G. Pipe for temporary slope drains shall be minimum 8-inch diameter of type shown on the Contract Drawings.
- H. Seed and mulch shall be as specified in the Section entitled "SEEDING".
- I. Topsoil Stabilization Matting.

Topsoil stabilization matting shall be one of the following:

- 1. Excelsior mat shall be wood excelsior, 48 ± 1 inch in width and weighing 0.8 pounds per square yard, ± 5 percent. The excelsior material shall be covered with a netting to facilitate handling and to increase strength and shall be biodegradable.
 - 2. Jute mat shall be cloth of a uniform plain weave of undyed and unbleached single jute yarn, 48 ± 1 inch width and weighing an average of 1.2 pounds per linear yard of cloth with a tolerance of ± 5 percent, with approximately seventy-eight warp ends per width of cloth and forty-one weft ends per linear yard of cloth. The yarn shall be of a loosely twisted construction having an average twist of not less than 1.6 turns per inch and shall not vary in thickness by more than one half its normal diameter.
- J. Dust Retardant
 - 1. "Coherex" as manufactured by Golden Bear Division of the Witco Corporation, Chandler, AZ 85244.
 - 2. "Soil-Sement" as manufactured by Midwest Industrial Supply, Inc., Canton, OH 44711.
 - 3. "Soil Seal Concentrate" as manufactured by Soil Seal Corporation, Los Angeles, CA 90017.

4. Or approved equal.
- K. Calcium Chloride shall be Grade 2, in the form of loose dry granules or flakes, and shall be fine enough to feed through commonly used spreaders at the specified rates.

2.02 CONSTRUCTION FEATURES

A. Silt Fence

1. Silt fence shall consist of geotextile whose width shall be at least 3 feet to provide for a 2-foot high fence after 1 foot of fabric is buried in the existing soil. Heavy-duty silt fence shall consist of geotextile whose width shall be at least 4 feet to provide for a 3 foot high fence after 1 foot of fabric is buried in the existing soil. Sections of fabric shall be joined in such a manner that, when in operation, the sections work effectively as a continuous fence. Fence posts shall be installed at a slight angle toward the anticipated runoff source.
2. Heavy-duty silt fence shall include a welded wire mesh backing for the geotextile. This welded steel wire mesh shall be galvanized and contain 4 inch square openings. The geotextile shall be secured to the welded wire mesh.

B. Haybale Check Dams with Temporary Stone Outlets

1. Haybales shall be embedded 4 inches into the ground and anchored in place with 2 wood stakes per bale. The temporary stone outlets, consisting of riprap stones conforming to the requirements for temporary riprap, shall be placed in the center of each flow line. Coarse aggregate, conforming to ASTM C-33 size No. 2, shall be placed immediately upgrade of each stone outlet.
2. The riprap stones and coarse aggregate shall be placed on geotextile, and shall be embedded into the ground. When sections of geotextile need to be joined, the sections shall be overlapped a minimum of 18 inches in the direction of flow.

C. Temporary Stone Check Dams

1. Temporary stone check dams shall be constructed in ditches to reduce flow velocity.
2. The check dams shall consist of riprap stones conforming to the requirements for temporary riprap. Coarse aggregate, conforming to ASTM C-33 size No. 2, shall be placed immediately upgrade of each check dam.
3. The riprap stones and coarse aggregate shall be placed on geotextile and shall be embedded in the ground. When sections of geotextile need to be joined, the sections shall be overlapped a minimum of 18 inches in the direction of flow.

D. Temporary Slope Drains

1. Temporary slope drains shall be installed on embankment slopes to intercept surface runoff where concentrated runoff will cause excessive erosion of the slope.
2. The drain pipe shall be staked to the slope or secured with riprap stones to prevent movement or displacement. A flared end section shall be attached at each end of the pipe and elbows shall be installed as required to conform with the existing changes in slopes.

3. A temporary earth berm and haybales shall be constructed at the top of slope in the vicinity of the slope drain to intercept runoff and channel the runoff to the slope drain. The haybales shall be embedded 4 inches into the ground and anchored in place with 2 wood stakes per bale.
4. Riprap stones, conforming to the requirements for temporary riprap, shall be placed loosely at both ends of the pipe to prevent scour. The riprap stones shall be placed on geotextile which, at the top of slope, shall be draped over the earth berm. When sections of geotextile fabric need to be joined, the sections shall be overlapped a minimum of 18 inches in the direction of flow.

E. Inlet Filters

1. For existing inlet structures, geotextile shall be placed under the grates, over the curb pieces and extend a minimum of 6 inches beyond. Coarse aggregate, size No. 8, shall be placed behind each curb piece and on the geotextile to secure the in place.
2. Openings required in new inlet walls to provide for temporary drainage shall be covered with welded wire mesh, geotextile and coarse aggregate, size No. 8.
3. Inlet filters, consisting of welded steel wire mesh and geotextile shall be installed to control sedimentation at new inlet drainage structures. Inlet filters of geotextile alone shall be installed to control sedimentation at existing inlet drainage structures.
4. For new inlet structures, welded steel wire mesh shall be molded around the inlet frames and grates, or inlet structures, and extend a minimum of 6 inches down each side of the new structures. Geotextile shall then be secured to the welded wire mesh. Coarse aggregate, size No. 8, shall be placed against the inlet structures to hold the inlet filter in place.
5. Inlet filters shall be removed before scheduled paving operations begin.

F. Inlet Protection (Haybale Barrier)

1. Inlet protection (haybale barrier) shall consist of haybales that completely encircle inlet drainage structures. The perimeter length of the haybale barrier shall be at least four times the perimeter length of the inlet structure. Haybales shall not encroach into the traveled way.
2. Haybales placed around inlet structures within earthen areas shall be embedded 4 inches into the ground and anchored in place with 2 wood stakes per bale. Haybales placed around inlet structures within pavement areas shall be placed on top of the pavement, tied together to prevent movement and shall not be anchored in place.

G. Inlet Sediment Traps

1. Inlet sediment traps, consisting of silt fence and temporary stone inlets, shall be constructed to control sedimentation at existing and proposed inlet drainage structures.
2. The silt fence shall consist of geotextile whose width shall be at least 3 feet to provide for a 2-foot high fence after 1 foot of geotextile is buried in the existing soil. Sections of geotextile shall be joined in such a manner that, when in operation, the sections work effectively as a continuous fence. The silt fence shall be installed around the drainage structure and into the stone inlets. Fence posts shall be installed at a slight angle toward the anticipated flow.

3. The temporary stone inlets, consisting of coarse aggregate, conforming to ASTM C-33 size No. 2, shall be placed in each flow line upgrade of the inlet structure. The coarse aggregate shall be placed on geotextile that shall be buried in the soil. When sections of geotextile need to be joined, the sections shall be overlapped a minimum of 18 inches in the direction of flow.

H. Floating Turbidity Barriers

1. Floating turbidity barriers, consisting of 10-mil. thick polyethylene plastic sheets suspended from floats, shall be installed in streams or other watercourses to intercept silt coming from drainage pipes or that caused by construction operations within waterways.
2. Barriers shall be located 50 feet from the point of discharge of drainage pipes or from the area of construction operations affecting waterways. The barriers shall extend across the entire waterway or radially from the shoreline.

I. Temporary Stone Outlet Sediment Traps

1. Temporary, stone outlet sediment traps, consisting of temporary basins and riprap spillways, shall be constructed within existing, proposed and temporary ditches.
2. The spillways shall consist of riprap stones conforming to the requirements for temporary riprap. Coarse aggregate, conforming to ASTM C-33 size No. 2, shall be placed immediately upgrade of the spillways.
3. The riprap stones and coarse aggregate shall be placed on geotextile that shall be buried in the soil. When sections of geotextile need to be joined, the sections shall be overlapped a minimum of 18 inches in the direction of flow.

J. Dewatering Basin

1. Dewatering basins shall be constructed within the Site and outside any undisturbed wetland area, and areas not affected by roadway construction, as a dewatering containment measure in order to control sediment and provide filtration of water.
2. The dewatering basins shall be sized by the Contractor to entirely contain the expected discharge of water and sediment based on the flow rate of the pump to be used and the volume of water present within the area to be dewatered. The material to be used to form the basin is at the discretion of the Contractor. The outfall of the basin shall be such that the water exiting the basin does not cause erosion to, or scouring of, the area onto which the water is being discharged.

PART 3. EXECUTION

3.01 PREPARATION

- A. Clearing and grubbing operations shall be so scheduled and performed that grading, mulching, seeding and other permanent pollution control features can follow immediately thereafter according to the approved progress schedule. Should seasonal limitations make such coordination unattainable, additional temporary soil erosion and sediment control measures shall be performed between successive construction stages, as directed.

- B. The amount of surface area of erodible earth material exposed at one time by clearing and grubbing, excavation, borrow or fill operations, without stabilization, shall not exceed 750,000 square feet for clearing and grubbing operations, or 750,000 square feet for grading operations without prior approval. The Engineer may increase or decrease these amounts commensurate with the Contractor's ability to keep the construction on the approved progress schedule.
- C. Obtain the Engineer's approval before starting any operations that would require seeding for stabilization when seeding is restricted by the calendar limitations of the Section entitled "SEEDING". Approval will be based on the Contractor's alternate method for stabilizing disturbed areas when seeding is not reasonable due to seasonal constraints. The alternate method shall be approved by the Engineer before implementation and may include use of the Dust Retardant or other methods.

3.02 INSTALLATION

A. Embankment Areas

- 1. Side ditches shall be excavated and stabilized, and perimeter soil erosion and sediment controls installed, before beginning all earth work. Stabilization for the ditches and swales shall consist of seed, mulch, topsoil stabilization matting or temporary riprap, as required to prevent erosion.
- 2. Embankment greater than 25 feet in height shall be stabilized in stages of equal increments not to exceed 15 feet. Each stage shall be either temporarily seeded and mulched, or permanently stabilized, before proceeding with the next stage. At the completion of the final stage of embankment placement, the entire slope, if not previously done, shall be permanently stabilized.
- 3. At the end of each workday, temporary stabilized earth berms and slope drains shall be constructed along the top edges of the embankment to intercept surface runoff.

B. Excavation Areas

- 1. Ditches to be used in a cut section, and side and outlet ditches, shall be excavated and stabilized, and perimeter soil erosion and sediment controls installed, before beginning all earthwork. Stabilization for the ditches shall consist of seed, mulch, topsoil stabilization matting or temporary riprap, as required to prevent erosion.
- 2. Slopes greater than 25 feet in height shall be excavated and stabilized in stages of equal increments not to exceed 15 feet. Each stage shall be permanently stabilized before proceeding with the next stage, in accordance with the time limitations specified herein.

C. Dust Control

- 1. Employ construction methods and means that keep flying dust to a minimum. Provide for the laying of water or other dust control materials on the project and on roads, streets and other areas immediately adjacent to the project limits, and wherever traffic or buildings that are occupied or in use are affected by such dust caused by his hauling or other construction operations. The materials and methods used for dust control shall be as specified herein or as directed by the Engineer.

2. Apply Dust Retardant in accordance with the manufacturer's written instructions. Reapply as often as required. Calcium chloride shall not be used in any areas to be seeded or landscaped.
3. Calcium chloride may only be used on pavement subgrades subject to the approval of the Engineer. Care shall be exercised when using calcium chloride on steep slopes to prevent the calcium chloride from washing into streams or accumulating around plants or in landscape areas. Calcium chloride shall not be applied in solution. Apply calcium chloride at a rate of approximately 1.5 pounds per square yard.

D. Dirt Control

1. The Contractor shall provide for prompt removal from existing roadways of all dirt and other materials that have been spilled, washed, tracked or otherwise deposited thereon by his hauling and other operations, whenever the accumulation is sufficient to cause the formation of mud, interfere with drainage, damage pavements or create a traffic hazard.
2. In order to minimize tracking of dirt and other materials onto existing roadways, a stabilized construction driveway shall be constructed at locations where vehicles exit a work site. The construction driveway shall consist of a layer of broken stone, which shall be a minimum 4 inches thick and 100 feet long where practical, and of sufficient width to serve the intended purpose. The broken stone shall be 2 1/2 - inch nominal size conforming to ASTM C-33 size No. 2. The driveway shall be maintained by top dressing with additional stone, as directed, and shall be removed when no longer required.

E. Seeding

Temporary and permanent seeding shall be in accordance with the Section entitled "SEEDING".

3.03 SOIL EROSION AND SEDIMENT CONTROL MAINTENANCE

- A. Soil erosion and sediment control measures shall be maintained during the Contract even when the Work is suspended. Controls shall be inspected immediately after each rain, and any required corrective work shall immediately be performed. Riprap stones, coarse aggregate, silt fence, or haybales damaged due to washouts or siltation shall be replaced.
- B. Sediment traps and basins shall be cleaned out when they are 50 percent filled. Silt fences, stone outlet structures, dams, and haybales shall have sediment removed when the sediment reaches 50 percent of the height of the soil erosion and sediment control measure. Sediment removed shall be disposed of in accordance with the Contract Drawings.

END OF SECTION

SECTION 02272

SOIL EROSION AND SEDIMENT CONTROL

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

Manufacturer Test Reports

- 02272F01 Submit to the Manager, Materials Engineering Division, Port Authority Technical Center, 241 Erie Street, Jersey City, New Jersey 07302-1397, certified test data the following:
- a. Riprap
 - b. Coarse Aggregates

Qualifications

- 02272K01 Submit name and applicable experience of Soil Erosion and Sediment Control Manager in accordance with Section 1.04 B.

END OF APPENDIX "A"

DIVISION 2
SECTION 02274
GEOTEXTILES

PART 1. GENERAL

1.01 SUMMARY

- A. This Section specifies the requirements for geotextiles made of long-chain synthetic polymers for the following applications:
1. Subsurface Drainage
 2. Permanent Erosion Control
 3. Stabilization
 4. Separation of Dissimilar Materials

1.02 REFERENCES

The following is a list of the publications referenced in this Section:

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M288 Standard Specification for Geotextile Specification for Highway Applications

American Society of Testing and Materials (ASTM)

ASTM D 4354 Standard Practice of Sampling of Geosynthetics for Testing

ASTM D 4759 Standard Practice for Determining the Specification Conformance of Geosynthetics

ASTM D 4873 Guide for Identification, Storage, and Handling of Geotextiles

1.03 DESIGN AND PERFORMANCE REQUIREMENTS

Unless otherwise shown on the Contract Drawings, the geotextile shall conform to the applicable requirements of AASHTO M288.

1.04 DELIVERY, HANDLING AND STORAGE

- A. Label, ship and store the geotextile in accordance with ASTM D 4873.
- B. The product label shall clearly show the Manufacturer's name, product number and name, and unique roll number.
- C. With each roll delivered to the construction site, furnish the Manufacturer's written certification stating that the geotextile complies with the requirements of this Section.

- D. Wrap each geotextile roll with a material that will protect the geotextile from damage due to shipment, water, sunlight, and contaminants.

1.05 QUALITY ASSURANCE

- A. The Engineer will visually inspect the geotextile when delivered to the construction site. Remove and replace geotextile that is damaged or geotextile that does not meet the requirements of this Section at no additional cost to the Authority.
- B. Engineer's Sampling and Testing
 - 1. Using random samples obtained from the geotextile delivered to the construction site, the Engineer may elect to perform testing to verify that the geotextile conforms to the physical requirements of this Section. Testing will be performed in accordance with ASTM D 4759.
 - 2. The Engineer will determine the lot sizes and number for testing in accordance with Procedure C of ASTM D 4354 with a minimum of three tests per lot.

1.06 SUBMITTALS

For submittal requirements, see Appendix "A".

PART 2. PRODUCTS

2.01 MANUFACTURERS

Geotextile for the applications as specified in Paragraph 2.02 B. shall be as manufactured by Propex Incorporated of Chattanooga, TN, TenCate Geosynthetics of Pendergrass, GA or approved equal.

2.02 MATERIALS

- A. General
 - 1. Fibers used for the manufacture of geotextiles, and the threads used in joining geotextiles by sewing (if necessary), shall comply with the physical requirements of AASHTO M288.
 - 2. The geosynthetic property values in AASHTO M288 are minimum average roll values (MARV) as determined in accordance with ASTM D 4759. Use of multiple layers of a geotextile to achieve MARV will not be accepted.
- B. For the following geotextile applications comply with the physical requirements of Table 1 in AASHTO M288 unless otherwise shown on the Contract Drawings. The elongation, permittivity and apparent opening size requirements shall be as shown on the Contract Drawings.
 - 1. Subsurface Drainage Geotextile: "Class 2"
 - 2. Permanent Erosion Control Geotextile: "Class 1 or 2"
 - 3. Stabilization Geotextile: "Class 1" with a permittivity greater than 0.1 per second.
 - 4. Separation of Dissimilar Materials Geotextile: "Class 1"

PART 3. EXECUTION

3.01 PREPARATION

- A. Ensure that the surface on which the geotextile will be installed is smooth and level and does not have depressions or projections greater than three inches, including ruts that may result from construction equipment. In areas requiring a pavement, perform proofrolling in accordance with the requirements of Section 02221, entitled "EXCAVATION, BACKFILLING AND FILLING".

3.02 INSTALLATION

A. General

- 1. Install the geotextile as shown on the Contract Drawings and the minimum requirements specified herein.
- 2. As approved by the Engineer remove and replace geotextile that becomes damaged during installation at no additional cost to the Authority.

B. Subsurface Drainage Installations

- 1. Loosely place the geotextile in the excavated trench avoiding wrinkles or folds. Ensure that the geotextile is placed against the bottom and sides of the excavated trench. Overlap successive sheets of the geotextile a minimum of 12 inches, with the upstream sheet overlapping the downstream sheet.
- 2. If the geotextile is damaged during installation, remove the damaged geotextile or place a geotextile patch over the damaged area. The patch shall extend a minimum of 12 inches beyond the damaged area.
- 3. Immediately following placement of the geotextile, place the drainage aggregate and subdrain pipe as shown on the Contract Drawings.
- 4. After placing the drainage aggregate and subdrain pipe, overlap the geotextile a minimum of 12 inches and place additional drainage aggregate or suitable backfill material over the geotextile.
- 5. After completing the installation of the geotextile, drainage aggregate and subdrain pipe, continue to backfill and compact the trench in accordance with the requirements of Section 02221, entitled "EXCAVATION, BACKFILLING AND FILLING".

C. Permanent Erosion Control, Separation of Dissimilar Materials and Stabilization Installations

- 1. Unroll and place the geotextile on the prepared surface such that it is flat and tight with no folds. Do not over stretch the geotextile such that placement of overlying materials will tear the geotextile. Ensure that the geotextile is unrolled and placed in the proper orientation.
- 2. In the case of a sloped surface, and unless otherwise shown on the Contract Drawings, anchor the terminal ends of the geotextile at the top and toe or bottom of slopes with a sufficient number of 10 or 12 inch long nails, or alternatively staples.

3. Unless otherwise shown on the Contract Drawings, overlap successive sheets of the geotextile a minimum of 18 inches in both the transverse and parallel directions. In the case of a sloped surface, the overlap shall be upslope over downslope. Secure all overlaps with a sufficient number of 10 or 12 inch long nails, or alternatively staples, as required to maintain the overlap.
4. In the case of a sloped surface, place the armor stone, riprap or aggregate base course onto the geotextile beginning at the bottom or toe of slope and proceed upslope. Limit the height from which the armor stone, riprap or aggregate base course is dropped onto the geotextile to one foot.
5. For underwater applications, place the first layer of armor stone, riprap or aggregate base course immediately after the geotextile is installed.
6. On curves and angles, fold or cut the geotextile to conform to the curve or angle. The fold or overlap shall be shingled in the direction of construction and secured in place by 10 or 12 inch long nails, or alternatively staples.

3.03 PROTECTION

- A. Once the protective covering from the geotextile roll is removed, ensure that the geotextile is not exposed to the atmosphere for more than fourteen days.
- B. Equipment having rubber tires may operate on the surface of the geotextile provided that the underlying material or subgrade is of sufficient strength. Do not operate equipment having tracks on the surface of the geotextile.
- C. Use lightweight construction vehicles for placement of the first lift of the aggregate base course or other material as shown on the Contract Drawings. Limit rutting to 3 inches.
- D. Avoid turning on the geotextile and subsequently on first lift of the aggregate base course or other material as shown on the Contract Drawings. As necessary, construct turnouts to facilitate construction and allow construction vehicles to exit.

END OF SECTION

SECTION 02274

GEOTEXTILES

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

Samples

02274C01 When required on the Contract Drawings, submit manufacturer's representative samples of the fabric to the Engineer of Materials, Engineering Materials Laboratory, Port Authority Technical Center, 241 Erie Street, Jersey City, NJ 07310-1397. The type, quantity and purpose of such samples shall be as shown on the Contract Drawings.

Certificates

02274E01 Submit manufacturer's certificates of compliance with all requirements for materials specified in this Section.

Quality Assurance-Quality Control

02274L01 Submit fabric manufacturer's Quality Control (QC) plan for the production process. The plan shall specify the specific testing proposed to verify the physical and chemical properties required by this specification and the frequency of tests, including suggested lot sizes and number of tests per lot.

END OF APPENDIX "A"

DIVISION 2

SECTION 02366

STEEL SHEET PILING

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for steel sheet piling for permanent construction, such as retaining walls, bulkheads and cellular cofferdams.

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

American Society for Nondestructive Testing, Inc. (ASNT)

ASNT SNT-TC-1A Recommended Practice No. SNT-TC-1A.

American Society for Testing and Materials (ASTM)

ASTM A 36 Specification for Carbon Structural Steel.
 ASTM A 153 Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 ASTM A 307 Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
 ASTM A 328 Specification for Steel Sheet Piling.
 ASTM A 563 Specification for Carbon and Alloy Steel Nuts.
 ASTM F 844 Specification for Washers, Steel, Plain (Flat), Unhardened for General Use.

American Welding Society (AWS)

AWS D1.1 Structural Welding Code – Steel.
 AWS D1.5 Bridge Welding Code.
 AWS QC1 Certification of Welding Inspectors.

1.03 DESIGN AND PERFORMANCE REQUIREMENTS

A. Job Conditions

1. Sequence of construction, including any required excavation, filling or backfilling, shall conform to the requirements shown on the Contract Drawings.
2. When concrete is less than 7 days old, do not drive sheet piles closer to the concrete than the distance computed by the formula below:

$$D = 1/7 \sqrt{E}$$

Where: E = Energy of pile hammer (in foot pounds)
 D = Distance (in feet)

3. Do not install sheet piling until the Engineer has approved the method of installation and the sequence of driving.
4. Protect existing structures, including overhead and buried utility lines.

B. Alignment and Tolerances

1. After installation, the slope of the steel sheet piles shall not deviate from the vertical by more than one percent, unless otherwise shown on the Contract Drawings.
2. Piles at cut-off elevation shall not deviate laterally from required location by more than the tolerance shown on the Contract Drawings.

1.04 QUALITY ASSURANCE

A. Welding and Splicing

1. Comply with applicable provisions of AWS D1.1 and AWS D1.5.
2. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

B. The Authority will perform Quality Assurance testing to ensure quality workmanship. Notify the Engineer in writing 15 days prior to the start of fabrication and provide a detailed schedule for the duration of fabrication. The schedule shall include, at a minimum, the start and end dates for ordering material, cutting material, fabricating material and shipping material. If the schedule changes, submit a revised schedule.

C. Supply equipment and personnel, at no additional cost to the Authority, to assist in moving members as necessary for adequate access by the Authority for Quality Assurance inspections and testing.

D. Fabrication performed without prior approval of the following items will not be accepted. Ensure that a copy of all signed approvals, including the following supporting documentation, is in the possession of the fabrication shop prior to the commencement of fabrication and is made available to the Engineer's Quality Assurance inspector at all times.

1. Shop Drawings.
2. Welding Procedure Specifications (WPS).
3. Procedure Qualification records (if applicable).
4. Welder qualifications.
5. Mill test reports.
6. Names and qualifications of Quality Control personnel, including an AWS Certified Welding Inspector (CWI) who meets AWS QC1 standards, and of nondestructive testing personnel who meet ASNT SNT-TC-1A Level II qualifications.

1.05 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MATERIALS

A. Steel Sheet Piling

ASTM A 328, unless otherwise shown on the Contract Drawings. Required steel sheet pile section shall be as shown on the Contract Drawings.

B. Steel Wale and Plates: ASTM A 36, unless otherwise shown on the Contract Drawings.

C. Bolts, Nuts and Washers

1. Bolts: ASTM A 307, Grade A.
2. Nuts: ASTM A 563, Grade A, heavy hex style, except nuts under 1-1/2 inches may be provided in hex style.
3. Washers: ASTM F 844.
4. Bolts, nuts and washers shall be hot-dip galvanized to a minimum 2 oz. per square foot, in accordance with ASTM A 153, unless otherwise shown on the Contract Drawings.

2.02 SHOP PAINTING

A. Coating Steel Piles

1. For coating requirements for Construction on land, see Contract Drawings and the Division 2 Section entitled, "Protective Coating for Steel Piling".
2. For coating requirements for Marine Construction, see Contract Drawings and the Division 2 Section entitled, "Zinc-Rich Epoxy/Coal Tar Epoxy Coating System for Steel Piling".

PART 3. EXECUTION

3.01 INSTALLATION

A. Pile Driving Equipment

1. Use an approved driving head designed to properly fit a pair of piles. Avoid damage to the top of the piles during driving.
2. Use an approved impact or vibratory pile hammer of sufficient size to drive the sheet piles to the tip elevation(s) shown on the Contract Drawings without causing stresses due to driving in excess of 90 percent of the yield strength (Fy) of the pile material.

B. Welding and Splicing

1. Perform welding in accordance with requirements of AWS D1.1 for buildings and other structures or AWS D1.5 for bridges.
2. Reinforce pile tips if and as shown on the Contract Drawings.
3. Splicing of sheet piles will not be permitted, except where shown on the Contract Drawings or directed by the Engineer.

4. Have all welds visually inspected by an AWS Certified Welding Inspector (CWI).
 5. Nondestructively test all full penetration welds for 100 percent of the weld length by radiographic or ultrasonic methods, as approved by the Engineer.
 6. Coordinate the Work and timely notify the Engineer to ensure that all testing and inspection procedures required by the Engineer are properly provided.
- C. Pile Driving
1. Use an approved guide frame or template to set sheet piles in proper position and alignment and to provide adequate lateral support to maintain vertical alignment during driving. Where field conditions require, use two levels of guide wales to maintain vertical alignment during driving.
 2. Properly set and "shake out" steel sheet piles prior to driving. Place a pair of sheets within their interlocks; then lower them as far as possible. If the sheets bind or hang up in their interlocks before bearing on the ground, pick up adjacent sheets in pairs and shake out as required, until the sheets ride smoothly within their interlocks and simultaneously bear on the ground. For cellular cofferdams, assemble the entire cell prior to driving.
 3. Top of sheet pile shall be normal to the driving force.
 4. Drive sheet piles to the tip elevation(s) shown on the Contract Drawings. Drive each pair of sheet piles not more than 5 feet ahead of adjacent sections.
 5. Drive sheet piles in such a manner as to prevent piles from leaning in the direction of driving and to provide a continuous closure of sheet piles, where closure is required. Where possible, drive sheet piling with the ball end leading. If an open socket is leading, provide a bolt or similar object in the bottom of the interlock to keep interlock free of soil material.
 6. At the completion of the driving operation on a pile, verify that the pile is undamaged, free of defects and in compliance with the requirements of this Section.
 7. Cut piles off at cut-off elevation as shown on the Contract Drawings as soon as practical after driving.
 8. No jetting will be permitted without specific approval of the Engineer.
- D. Corrections of Deficiencies
1. Notify the Engineer immediately in writing of the failure of any sheet pile to meet any requirement of this Section. Such written notification shall include all information required for the evaluation of remedial measures.
 2. Perform remedial work at no additional cost to the Authority and in accordance with both the applicable Unit Price provisions, if any, and the modified design and details, if any, all as approved by the Engineer, except for sheet piles which do not comply with the requirements of this Section due to encountering during driving any underground obstruction consisting of a boulder or piece of manufactured or construction material as shown by the Contractor, and as determined by the Engineer on the basis of all field information.

END OF SECTION

SECTION 02366

STEEL SHEET PILING

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

Shop Drawings

02366A01 Steel sheet piling shop drawings.

Product Data

02366D01 A complete description of the hammer and driving equipment including caps and guides;

Certificates

02366E01 Certifications and qualifications for AWS Certified Welding Inspector (CWI) meeting AWS QC1 standards, nondestructive testing personnel qualified to ASNT SNT-TC-1A Level II requirements and their respective employers. Include samples of inspection and testing forms to be used for the Work of this Contract.

Manufacturer Test Reports

02366F01 Certified mill test reports for steel sheet piles;

Construction and Installation Procedures

02366G01 Welding Procedure Specifications (WPS).

02366G02 Proposed method of installation for sheet piling, including the sequence of driving.

02366G03 Details of any proposed jetting operation, including provisions for control, treatment and disposal of runoff water, if required to advance piles.

Qualifications

02366K01 Verification of welder qualifications;

Inspection Reports

02366O01 Welding inspection and test results within five calendar days.

Information

02366S01 Notification, in writing, 15 days prior to commencing fabrication of steel sheet piling.

END OF APPENDIX "A"

DIVISION 2**SECTION 02392****ZINC-RICH EPOXY/COAL TAR EPOXY COATING SYSTEM
FOR STEEL PILING****PART 1. GENERAL****1.01 SUMMARY**

This Section specifies requirements for shop application of protective coating on steel piling.

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

	<u>American Society for Testing and Materials (ASTM)</u>
ASTM D 3359	Test Methods for Measuring Adhesion by Tape Test.
ASTM D 4414	Standard Practice for Measurement of Wet Film Thickness by Notch Gages.
ASTM D 4417	Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel.
ASTM D 4541	Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.
ASTM D 4285	Test Method for Indicating Oil or Water in Compressed Air.
	<u>U.S. Army Corps of Engineers (USACE)</u>
	Paint Specification C-200A.
	Guide Spec. UFGS-099702 (April 2006).
	<u>U.S. Department of Defense (DOD)</u>
MIL-DTL-24441/19B	Paint, Epoxy-Polyamide, Zinc Primer Formula 159, Type III.
	<u>The Society for Protective Coatings (SSPC)</u>
SSPC-Paint 16	Coat Tar Epoxy Polyamide Black (or Dark Red) Coating.
SSPC-SP 1	Solvent Cleaning.
SSPC-SP 3	Power Tool Cleaning.
SSPC-SP 10	Near-White Blast Cleaning.
SSPC-SP 11	Power Tool Cleaning to Bare Metal.
SSPC-PA 1	Shop, Field, and Maintenance Painting of Steel.
SSPC-PA 2	Measurement of Dry Coating Thickness with Magnetic Gages.
SSPC-QP 3	Standard Procedure for Evaluating Qualifications of Shop Painting Applicators.

1.03 QUALITY ASSURANCE

A. Coating System Compatibility

The coating system, including all primers and undercoats, shall be produced by the manufacturer of the topcoat.

B. Coating of Steel Piling - Shop Requirements

Shop coating of steel piling shall be done by firms that have a current SSPC-QP 3 certification and are approved by the Engineer.

C. Quality Control (QC)

1. Verify that the entity performing coating of steel piling has a written quality control program. The program shall contain, but not be limited to, the following:
 - a. The qualifications of QC staff, including training records and experience.
 - b. The authority of QC staff and reporting lines in the firm's organization chart.
 - c. Standards and specifications used by QC staff for inspection purposes.
 - d. Inspection reports and other records documenting compliance with this Specification and with Engineer's requirements.
 - e. List of inspection equipment and calibration procedures used by QC staff.
 - f. Procedure for QC staff to advise the shop foreman, in writing, of non-conforming work.
2. Contractor's Responsibility
 - a. The Contractor is responsible for Quality Control, which entails the daily inspection of all coating. The Quality Control Program shall ensure that coating systems are applied according to the coating manufacturer's technical data sheets subject to approval by the Engineer for surface preparation, ambient conditions, application parameters, curing and film thickness.
 - b. The Engineer will perform Quality Assurance inspections to verify that the Contractor's Quality Control program is being followed.
3. Schedule and Engineer Approval
 - a. Submit a schedule for surface preparation and coating at least 30 days prior to beginning Work.
 - b. At least 10 days prior to coating, notify the Engineer.

1.04 DELIVERY, STORAGE, AND HANDLING

Store coating materials not in actual use in tightly covered containers at a minimum ambient temperature of 45 deg F and a maximum ambient temperature of 90 deg F in a well-ventilated area. Maintain containers used in storage of coatings in a clean condition, free of foreign materials and residue.

1.05 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 ABRASIVES

- A. Abrasives shall be dry and free of oil, grease, corrosion producing chemicals and other deleterious contaminants. Do not use silica sand.
- B. Abrasives shall be shaped and sized to produce a sharp, angular profile height of 2-3 mils, unless the requirements of the coating manufacturer are more restrictive. In this case, comply with profile requirements specified by the coating manufacturer.

2.02 COATINGS

The coating system shall consist of one coat of zinc-rich epoxy primer meeting the requirements of MIL-DTL-24441/19B and two coats of coal tar epoxy meeting the requirements of SSPC-Paint 16 with Type 1 pitch (USACE Formula C-200A).

- A. Zinc-Rich Epoxy Primers
 - 1. Carbozinc 859, manufactured by Carboline Co., St. Louis, MO.
 - 2. MIL-DTL-2441C (SH), Type III Epoxy Polyamide Zinc Rich Primer manufactured by Sherwin-Williams Co., Cleveland, OH.
- B. Coal Tar Epoxies
 - 1. Bitumastic 300 M, manufactured by Carboline Co., St. Louis, MO.
 - 2. TarGuard Coal Tar Epoxy, manufactured by Sherwin-Williams Co., Cleveland, OH.
- C. Touch-up coatings for repair of coating defects and damage shall be as recommended by the coating manufacturer and approved by the Engineer.

PART 3. EXECUTION

3.01 SURFACE PREPARATION

- A. Weld Spatter, Sharp Edges and Holes
 - 1. Remove slag, flux deposits, weld spatter and surface irregularities such as slivers, tears, fins and hackles; follow AWS guidelines. Grind any resulting burrs smooth, including burrs around holes. Do not remove any weld material that will weaken weld strength.
 - 2. Prior to preparation, break sharp edges such as those created by flame cutting and shearing. Do not break rolled edges of angles, channels and wide flange beams without the Engineer's approval.

B. Compressed Air Cleanliness

1. Compressed air shall be free from moisture and oil contamination.
2. Use the white blotter test in accordance with ASTM D 4285 to verify the cleanliness of the compressed air. Conduct the test at the start of each shift for each compressor system.
3. If testing indicates contamination, soiling or discoloration visible on the paper, change filters, clean traps, add moisture separators or filters, or make adjustments as necessary to achieve clean, dry air. Reinspect surfaces prepared or coated since the last satisfactory test and reblast such surfaces at no additional cost to the Authority.

C. Prior to dry abrasive blast cleaning, remove all visible oil, grease, soil, drawing and cutting compounds and other soluble contaminants from bare steel in accordance with SSPC-SP 1.

D. Abrasive Blasting

1. Perform abrasive blasting in accordance with SSPC-SP 10 using a production line shot and grit blast machine or by air blast. Maintain the abrasive work mix such that the final surface profile is within the required range. Use SSPC-VIS 1 to evaluate the degree of cleaning.
2. Furnish expendable or recyclable abrasives that are dry and free of oil, grease, and corrosion producing or other deleterious contaminants. Check the abrasive daily (or more frequently if required) for oil, grease or dirt contamination with the vial test. This test consists of adding a sample of abrasive from the inside of the blast machine to a sealable vial filled with deionized water. The vial is shaken for one minute and allowed to settle for five minutes. If any oil or grease is floating on top of the water, then the abrasive is contaminated. If the water becomes cloudy, then it contains dirt. Do not use contaminated or dirty abrasives to blast steel surfaces.
3. Do not conduct surface preparation when the surface temperature is less than 5 deg F above the dew point.
4. The steel surface profile shall be 2-3 mils. Measure the surface profile of each pile at three locations, paying special attention to areas that may have been shielded during blasting. Measure the surface profile using Testex replica tape in accordance with ASTM D 4417. Retain the impressed tapes and file with the Quality Control inspection records.

3.02 MIXING AND HANDLING

- A. Do not use coating materials that have exceeded their shelf life.
- B. When required by the coating manufacturer, warm coatings stored at less than 50 deg F to above 50 deg F prior to mixing.
- C. Mix coatings in accordance with the requirements of the coating manufacturer using mechanical equipment such as a jiffy mixer.
- D. Mix only complete kits of multi-component materials. Mixing of partial kits is not allowed.

- E. Do not use two-component materials beyond the pot life established by the coating manufacturer's technical data sheets.

3.03 COATING APPLICATION

A. General

1. Apply the coatings in accordance with the requirements of this Section and SSPC-PA 1.
2. Apply zinc-rich epoxy primer 19B in accordance with the manufacturer's directions in two, half-lapped spray coats to an average dry film thickness of a minimum of 3.0 mils. The thickness at any point shall be not less than 2.5 mils or greater than 8 mils for the primer. After a minimum drying period of 6 hours and no more than 96 hours, apply the first coat of coal tar epoxy. Apply the coal tar epoxy in two separate coats, wet on dry, to provide a minimum thickness at any point of 16 mils for the completed system. The elapsed time between application of the first and second coats of coal tar epoxy shall be not less than the manufacturer's minimum recoat times. If the zinc-rich epoxy coating has been applied in the shop or otherwise has been permitted to cure for longer than 96 hours, abrade it and recoat with an additional thin tack coat of the zinc-rich epoxy, which in turn shall be overcoated within 96 hours with the first coat of coal tar epoxy. Attain the specified film thicknesses in any event and apply any additional coats needed to attain specified thickness at no additional cost to the Authority.

B. Quality of Surface Preparation and Time Restrictions Prior to Coating

1. Verify that the surface exhibits the specified degree of cleaning immediately prior to coating. Reclean deficient areas. Do not apply coating unless the prepared surface is inspected and approved by the Engineer.
1. Apply the first coat within 12 hours of cleaning to bare metal. If the bare substrate is allowed to remain uncoated for more than 12 hours or if rerusting is evident, reclean the surface prior to coating.

C. Surface Cleanliness Prior to Coating and Between Coats

1. Do not perform coating application in areas where dust is being generated.
2. Thoroughly clean the surface of each coat prior to the application of the next coat to remove spent abrasive, dirt, dust, cement spatter and other deleterious materials. Pay particular attention to the removal of detrimental residue from surfaces such as corners and pockets. Clean the surfaces by vacuuming or blowing with compressed air.
3. If grease or oil has become deposited on the bare steel or on the surface of any of the applied coats, remove by solvent cleaning in accordance with SSPC-SP 1 prior to the application of the next coat. Use a solvent that is acceptable to the coating manufacturer.

D. Ambient Conditions During Coating Application

1. Apply coatings under the following conditions unless the requirements of the coating manufacturer are more restrictive:
 - a. Surface and Air Temperatures: Between 50 deg F and 100 deg F.

- b. Relative Humidity: Less than 90 percent.
 - c. Dew Point: Surface temperature at least 5 deg F above the dew point temperature of the surrounding air.
2. Remove and replace any coating that is exposed to unacceptable conditions (e.g., rain or dew) prior to adequate curing.
- E. Coating Thickness
- Apply materials to establish dry film thickness values in accordance with the requirements of this Section. Monitor coating application rate by use of wet film thickness gage in accordance with ASTM D 4414. Measure dry film thickness in accordance with SSPC-PA 2.
- 1. Give special attention to ensure that surfaces such as edges, corners, crevices, welds and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 - 2. Apply additional coating to areas of insufficient thickness. Use care during application to assure that repairs blend in with the surrounding surfaces.
 - 3. Remove excessive coating thickness and reapply the affected coats(s), unless directed otherwise by the Engineer.
- F. Performance Requirements
- 1. The cured coating shall be of uniform gloss and thickness and shall be free of blisters, pinholes, fisheyes, sags, runs and any other irregularities.
 - 2. The dry film thickness of the coating system shall be measured in accordance with SSPC-PA 2 and shall be a minimum of 16 mils at any point.
 - 3. Test for continuity of coating with a holiday tester of 100 volts or less. Repair all holidays detected and retest to confirm repair. Use a high voltage holiday detector if coating system thickness exceeds 20 mils.
 - 4. All coats of the system shall be well adhered to each other and to the substrate. At Engineer's request conduct adhesion tests in accordance with ASTM D 3359 or ASTM D 4541 and repair all test areas. The acceptance criteria for the testing will be established by the Engineer. Remove all defective coating and reblast and recoat such areas in accordance with the requirements of this Section.
 - 5. Maintain quality control records on the results of inspections and submit results to the Engineer as stipulated in Appendix "A".
- G. Repair of Damaged and Unacceptable Coatings Before and After Pile Driving
- 1. Surface Preparation of Localized Areas
 - a. Repair localized damage, corrosion and unacceptable coatings.
 - b. Prepare the surface by cleaning in accordance with SSPC-SP 1 followed by SSPC-SP 3. Use a solvent that is acceptable to the coating manufacturer.
 - c. For previously blast-cleaned steel: If the damage exposes the substrate, remove all loose material and prepare the steel in accordance with SSPC-SP 11.

2. Repair of Extensive Areas
 - a. Repair extensive areas of damage or unacceptable coating by methods acceptable to the Engineer, based on the nature of the defect.
 - b. For previously blast-cleaned steel, blast surface back to original requirements. Use extreme care to avoid overblast damage to the surrounding coating.
3. Feathering of Repair Areas
 - a. Feather the existing coatings surrounding each repair location. Feather for a distance of 1 to 2 inches to achieve a smooth, tapered transition into the coating.
 - b. Verify that the edges of coating around the periphery of the repair areas are tight and intact by probing with a putty knife in accordance with the requirements of SSPC-SP 3. Roughen the existing coating in the feathered area to assure proper adhesion of the repair coats.

H. Coating Application in Repair Areas

1. When the bare substrate is exposed in the repair area, reapply all coats of the system to the specified thickness.
1. When the damage does not extend to the bare substrate, reapply only the affected coats.
2. Maintain the thickness of the system in overlap areas within the specified total thickness tolerances.
3. For field touch-up after pile driving, use touch-up coatings as recommended by the coating manufacturer and approved by the Engineer.

3.04 PROTECTION

Ensure that coated items are not shipped until cured. Protect all fully coated and cured items from handling and shipping damages using padded slings, dunnage, separators and tie-downs.

END OF SECTION

SECTION 02392

ZINC-RICH EPOXY/COAL TAR EPOXY COATING SYSTEM FOR STEEL PILING

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

Product Data

- 02392D01 For specific products listed in 2.02 A, B and C, submit the following for each product
- Manufacturer's printed Technical Data Sheets.
 - Material Safety Data Sheets (MSDS).
 - Manufacturer's printed product label and application instructions.

Certificates

- 02392E01 Submit the paint shop's current SSPC-QP 3 certification.

Construction and Installation Procedures

- 02392G01 Written procedures for conducting the Work of this Section including but not limited to the preparation of surfaces, abrasive "work mix" analysis; coating mixing, application and repair; recoat times and cleaning between coats; and specific details for the preparation and coating of welds.

Quality Assurance-Quality Control

- 02392L01 Inspection organization chart including lines of authority and the experience, training and qualifications of quality control personnel.
- 02392L02 Written inspection procedures for all phases of the Work, including the frequency of inspections that will be performed and the handling of non-conforming Work.

Inspection Reports

- 02392O02 Submit one copy of the actual daily inspection reports to the Engineer each seven calendar days.

END OF APPENDIX "A"

DIVISION 2**SECTION 02720****MANHOLES AND DRAINAGE STRUCTURES****PART 1. GENERAL**

1.01 SUMMARY

- A. This Section specifies requirements for precast and cast-in-place concrete manholes and drainage structures.
- B. Definition of terms shall be in accordance with ASTM C 822.

1.02 REFERENCES

- A. The following is a listing of the publications referenced in this Section:

American Concrete Institute (ACI)

ACI 318 Building Code Requirements for Structural Concrete and Commentary.

American Society for Testing and Materials (ASTM)

ASTM A 48 Specification for Gray Iron Castings.
 ASTM A 536 Specification for Ductile Iron Castings.
 ASTM B26 Specification for Aluminum-Alloy Sand Castings.
 ASTM C 39 Test Method for Compressive Strength of Cylindrical Concrete Specimens.
 ASTM C 55 Specification for Concrete Building Brick.
 ASTM C 117 Test Method for Materials Finer than 75 μ m (No. 200) Sieve in Mineral Aggregates by Washing.
 ASTM C 136 Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 ASTM C 150 Specification for Portland Cement.
 ASTM C 1329 Specification for Mortar Cement.
 ASTM C 443 Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
 ASTM C 497 Test Methods for Concrete Pipe, Manhole Sections, or Tile.
 ASTM C 822 Terminology Relating to Concrete Pipe and Related Products.
 ASTM C 891 Practice for Installation of Underground Precast Concrete Utility Structures.
 ASTM C 913 Specification for Precast Concrete Water and Wastewater Structures.

ASTM C 923	Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals.
ASTM C 990	Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.

1.03 ENVIRONMENTAL REQUIREMENTS

Cold and hot weather requirements shall conform to the applicable requirements of Section 03301 entitled "PORTLAND CEMENT CONCRETE, LONG FORM" except that in a precast plant the ambient temperature may be below 40 degrees F providing that forms and product are preheated and heat cured and protected. Temperature recording devices shall be used.

1.04 DESIGN AND PERFORMANCE REQUIREMENTS

- A. As approved by the Engineer, the Contractor may substitute cast-in-place concrete manholes and drainage structures which conform in size and strength to the precast concrete structures shown on the Contract Drawings and as specified in this Section. As approved by the Engineer, the Contractor may also substitute precast concrete structures which conform in size and strength to the cast-in-place concrete structures shown on the Contract Drawings and as specified in this Section. Equivalent strength of substituted structures shall be based on structural design of reinforced concrete as outlined in ACI 318.
- B. Design of lifting devices for precast structures shall conform to ASTM C 913.
- C. Design of joints for precast concrete structures shall conform to ASTM C 913. Unless otherwise shown on the Contract Drawings, joints shall be designed for leakage not to exceed 0.025 gallons per hour per foot of joint at 3 feet of head.

1.05 QUALITY ASSURANCE

- A. Workmen shall be experienced and skilled in the fabrication and installation of precast and cast-in-place concrete manholes and drainage structures.
- B. Precast concrete manholes and drainage structures, including castings, will be visually inspected by the Engineer when delivered to the construction site. Damaged material or material not meeting the requirements of this Section shall be removed from the construction site and replaced, at no additional cost to the Authority.
- C. Precast concrete manholes and drainage structures may be inspected by the Engineer at the place of manufacture.
- D. Where manholes and drainage structures are cast-in-place, do not place concrete until the Engineer has inspected the formwork and verified that the dimensions and concrete reinforcing are in accordance with details shown on the Contract Drawings, on approved shop drawings and as specified in this Section.

- E. Conform to the applicable requirements for quality assurance of Section 03301 entitled "PORTLAND CEMENT CONCRETE, LONG FORM" except that, if the concrete is precast, the producer shall maintain a fully equipped testing lab and employ a Quality Control Technician to perform Quality Control Tests. Unless otherwise shown on the Contract Drawings, Quality Control Tests for precast concrete shall consist of compression tests on a minimum of two cylinders for each day's production tested in accordance with ASTM C 39 for cylinders or ASTM C 497 for drilled cores. Acceptance shall be based on the requirements of ACI 318.
- F. Tolerances of dimensions, squareness, joint surfaces, reinforcement location, and thickness of slabs and walls for precast structures shall conform to ASTM C 913.
- G. Castings shall be of uniform quality, free from sand holes, shrinkage cracks and other defects. Surface of the castings shall be free from burnt-on sand and shall be smooth. Bearing surfaces between grates or covers and frames shall be cast or machined with such precision that continuous, full and uniform bearing is provided throughout the perimeter area of contact. The bearing contact with the frame shall be non-rocking when in place and under the influence of traffic or other loads. Pairs of machined castings shall be match marked to facilitate subsequent identification at installation.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Comply with precast concrete manufacturer's instructions for unloading, storing and moving precast manholes and drainage structures.
- B. Care shall be taken when storing precast concrete manholes and drainage structures to prevent damage to Authority or other public or private property, and any property so damaged shall be repaired at no additional cost to the Authority.
- C. Each precast concrete structure shall be clearly marked by indentation or waterproof paint to indicate the date of manufacture, manufacturer and identifying symbols and/or numbers shown on the Contract Drawings to indicate its intended use.

1.07 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MANUFACTURERS

For each of the specified materials, manufacturer shall be one of the following, or approved equal:

- A. Manhole and Drainage Structure Frames, Covers and Grates
Frames, cover and grates shall be as shown on the Contract Drawings.
- B. Resilient Connectors
 1. NPC Inc., Milford, NH 03055.
 2. Press-Seal Gasket Corporation, Fort Wayne, IN 46804.

3. A-Lok Products Inc., Tullytown, PA 19007.

2.02 MATERIALS

A. Concrete

1. Concrete including concrete mixes shall be Category VI with a minimum 28-day compressive strength of 5000 psi for precast and 4000 psi for cast-in-place concrete manholes and drainage structures in accordance with the applicable requirements of Section 03301 entitled "PORTLAND CEMENT CONCRETE, LONG FORM".

B. Joints

1. Unless otherwise shown on the Contract Drawings, joints shall not be permitted in manholes and drainage structures.
2. Joints between precast sections, which occur four feet or more below finished grade, shall be sealed with rubber gaskets conforming to ASTM C 443 or a preformed flexible plastic gasket as specified in 2.02 B.3.
3. Where a preformed flexible plastic gasket is shown on the Contract Drawings, joints between precast sections shall be sealed with a preformed flexible plastic gasket conforming to ASTM C 990, except that gasket size, lengths, quantity of primer and packing material shall be in accordance with the manufacturer's recommendation. Preformed flexible plastic gaskets shall be one of the following, or approved equal:
 - a. "Ram-Nek", as manufactured by Henry Co., El Segundo, CA.
 - b. "CONSEAL CS-102", as manufactured by the Concrete Sealants, Inc, New Carlisle, OH.
 - c. "PRO-STIK", as manufactured by Press-Seal Gasket Corporation, Fort Wayne, IN.

C. Steel Reinforcement

1. Steel reinforcement shall conform to Section 03200 entitled "CONCRETE REINFORCEMENT".
2. There shall be a continuity of reinforcement at all corners of the structure.

D. Silt Buckets

1. Cast aluminum silt bucket shall be furnished and installed for all sanitary sewer manhole structures shown on the Contract Drawings and shall be fabricated of aluminum Alloy 319, conforming to ASTM B 26.

E. Frames, Grates and Covers

1. Frames shall be of the type shown on the Contract Drawings and shall be fabricated of Class 35B cast iron, conforming to ASTM A 48.
2. Covers and grates shall be of the types and materials shown on the Contract Drawings. Where cast iron is shown, manhole covers and drainage grates shall be fabricated of Class 35B cast iron, conforming to ASTM A 48. Where ductile iron is shown, manhole covers and drainage grates shall be fabricated of Grade 65-45-12, or Grade 80-55-06 ductile iron and castings, conforming to ASTM A 536 and shall bear the letters "D.I." in a clearly visible manner on the upper surface.

3. Frames, covers or grates of other materials shall be as shown on the Contract Drawings.
4. Each casting shall be identified by the name of the producing foundry, origin and date of manufacture, ASTM designation number and class of cast or ductile iron.

F. Masonry Collar for Frame

1. Concrete Building Brick: ASTM C 55.
2. Mortar Cement
ASTM C 1329, Type M.

G. Crushed Stone Bedding

Crushed limestone, gneiss, trap rock or recycled Portland cement concrete aggregate conforming to ASTM C 33, size number 67. Recycled concrete aggregate shall contain not less than 90 percent crushed Portland cement concrete and shall be in accordance with the requirements of the Section 02231 entitled "AGGREGATE BASE COURSE".

H. Connection Between Structure and Pipe

1. Unless otherwise shown on the Contract Drawings, the opening between the wall of the structure and the wall of the pipe shall be sealed with mortar cement conforming to ASTM C 1329, Type M or a resilient connector.
2. Resilient connector shall conform to ASTM C 923. If resilient connector is not integrally cast into the wall of the structure, provide cast or cored opening of the size specified by manufacturer of the resilient connector.

2.03 FABRICATION

Manufacture of precast concrete structures shall conform to ASTM C 913.

PART 3. EXECUTION

3.01 PREPARATION

- A. Ensure proper orientation of the structure to accommodate pipes.
- B. Immediately prior to placement in the excavation, precast concrete structures shall be inspected in the presence of the Engineer to verify that they are internally clean and free of damage. Damaged units shall be removed from the construction site and replaced, at no additional cost to the Authority. Subject to the approval of the Engineer, damaged precast concrete structures may be repaired in a manner that ensures that the structure will conform to the requirements of this Section and its intended use. Acceptance of repaired units is at the sole discretion of the Engineer.

3.02 INSTALLATION

A. Excavation and Backfill

1. Excavate for manhole or drainage structure in accordance with Section 02221 entitled "EXCAVATION, BACKFILLING AND FILLING" in the location and to depth shown on the Contract Drawings. Provide clearance around the sidewalls of the structure as required for construction.
2. If ground water is encountered, prevent accumulation of water in excavations by methods approved by the Engineer. Manhole or drainage structure shall be placed in a dry trench.
3. Where the possibility exists of a watertight structure becoming buoyant in a flooded excavation, take necessary steps to avoid flotation of the structure.

B. Support and Backfilling

1. Manhole or drainage structure shall be supported at proper grade and alignment on crushed stone bedding or other support system, as shown on the Contract Drawings.
2. Backfill excavation for manhole or drainage structure in accordance with Section 02221 entitled "EXCAVATION, BACKFILLING AND FILLING".

C. Installation of Precast Concrete Structure

1. To ensure safety, precast concrete structures shall be lifted only at the lifting points so designated by the manufacturer.
2. When lowering manhole or drainage structure into the excavation and joining pipe to the structure, take precautions to ensure that the interior of the pipes and structure remains clean.
3. Set precast concrete structure so that it is fully bearing on crushed stone bedding, compacted in accordance with Section 02221 entitled "EXCAVATION, BACKFILLING AND FILLING" or set on other support system as shown on the Contract Drawings.
4. For multiple section structures, lower and set the base section before placing additional sections. Ensure joint integrity by removing all foreign materials from joint surfaces and verify that sealing materials are placed properly. Avoid misalignment by using guide devices affixed to the lower section or as otherwise approved by the Engineer. Joint seal material may be installed at the manufacturer's plant prior to delivering to construction site.
5. Verify that manholes and drainage structures installed satisfy required alignment and grade.
6. Remove knockout or core the structure for pipe so as not to create an opening in excess of that required. Fill resultant annular space with mortar cement or with a resilient connector installed in accordance with manufacturer's instructions.
7. Cut pipe to finish flush with interior of structure.
8. Shape inverts through manhole as shown on the Contract Drawings.

D. Installation of Cast-In-Place Concrete Structure

1. Prepare crushed stone bedding or other support system shown on the Contract Drawings, to receive the base slab as specified for precast structures in 3.02 C.3.
2. Erect forms in accordance with Section 03100 entitled "CONCRETE FORMWORK" and ensure that forms are braced against all movement.
3. Furnish and install reinforcing steel in accordance with the details shown on the Contract Drawings and in accordance with Section 03200 entitled "CONCRETE REINFORCEMENT".
4. After formwork and reinforcing steel are inspected and approved by the Engineer, place and cure concrete in accordance with Section 03301 entitled "PORTLAND CEMENT CONCRETE, LONG FORM".
5. Complete installation in accordance with 3.02 C above.

E. Installation of Frame and Cover or Grate

1. Set frame using mortar cement and masonry as shown on the Contract Drawings. Radially laid concrete brick shall have 1/4-inch thick vertical joints at inside perimeter. Lay all concrete brick in a full bed of mortar cement and completely fill all joints. Where more than one course of concrete brick is required, stagger vertical joints.
2. Set frame and cover two inches above finished grade for manhole structure located in unpaved area. Otherwise, set frame and cover flush with finished grade.
3. Set frame and grate flush with finished grade for all catch basins or drainage inlets, unless otherwise shown on the Contract Drawings.
4. Manhole, inlet and catch basin frames, grates, and covers shall be fitted together and match-marked to avoid rocking of covers and grates. All castings shall be set firm and snug and shall not rattle.

3.03 VERTICAL ADJUSTMENT OF EXISTING STRUCTURES

- A. Where shown on the Contract Drawings, adjust the elevation of existing manhole or drainage structure to finished grade.
- B. Existing frame and grate or cover shall be carefully removed, cleaned of all mortar fragments to the satisfaction of the Engineer and set to the finished grade in accordance with 3.02 E.
- C. When removal of an existing reinforced concrete wall is required, the concrete shall be removed so as not to damage the existing reinforcing bars. The bars shall be cleaned of all concrete to the satisfaction of the Engineer and bent into the new concrete top slab or spliced to vertical reinforcement, as shown on the Contract Drawings.
- D. Bond new concrete to existing concrete in accordance with requirements specified in Section 03301 entitled "PORTLAND CEMENT CONCRETE, LONG FORM".

3.04 FIELD TESTS

Field tests will be used by the Engineer to evaluate and approve cast-in-place concrete in accordance with Section 03301 entitled "PORTLAND CEMENT CONCRETE, LONG FORM".

3.05 PROTECTION

Protection and curing of concrete shall be in accordance with Section 03301 entitled "PORTLAND CEMENT CONCRETE, LONG FORM".

END OF SECTION

SECTION 02720

MANHOLES AND DRAINAGE STRUCTURES

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

Shop Drawings

02720A01 Shop drawings of precast concrete manholes and drainage structures and of concrete reinforcement for cast-in-place concrete manholes and drainage structures, if used;

Catalog Cuts

02720B01 Catalog cuts of frames, grates and covers.

02720B02 Catalog cuts of gaskets for joints in precast concrete manholes and drainage structures, including manufacturer's installation instructions.

02720B03 Catalog cuts of resilient connectors.

Certificates

02720E01 Submit certificate from gasket manufacturer certifying that the gaskets comply with the specified requirements and that the gaskets are compatible with the type of joint used.

Manufacturer Test Reports

02720F01 Submit to the Chief of Materials Engineering, Materials Engineering Unit, Port Authority Technical Center, 241 Erie Street, Jersey City, New Jersey 07310-1397, certified test data covering gradation and composition of the crushed stone for bedding proposed for use.

1. Do not deliver material to the construction site from any source until the Engineer has approved the material from that source.

Construction and Installation Procedures

02720G01 Submit plans, methods, equipment and procedures as applicable for:

1. Prevention of accumulation of groundwater as specified in 3.02.
2. Methods other than guide devices to avoid misalignment of joints during installation of precast concrete structures as specified in 3.02.
3. Methods to prevent flotation of watertight structures as specified in 3.02.
4. Installation of resilient connectors as specified in 3.02 C.6.

Calculations

02720H01 Submit design calculations prepared by a Professional Engineer, licensed in the State where the Work is being performed:

1. For substitute designs of manholes and drainage structures, submit calculations which verify that the substituted design is equivalent to the design shown on the Contract

Drawings.

END OF APPENDIX "A"

DIVISION 2**SECTION 02722****STORM DRAINAGE SYSTEM****(INFILTRATION/EXFILTRATION TESTING NOT REQUIRED)****PART 1. GENERAL**

1.01 SUMMARY

- A. This Section specifies requirements for exterior storm drainage systems not requiring infiltration/ exfiltration testing.
- B. Definition of terms relating to Reinforced Concrete Pipe and Plastic Pipe shall be in accordance with ASTM C 822 and ASTM D 883 respectively.

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

American Society for Testing and Materials (ASTM)

ASTM A 746	Ductile Iron Gravity Sewer Pipe
ASTM C 76	Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
ASTM C 117	Test Method for Material Finer Than .075mm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C 136	Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C 150	Portland Cement
ASTM C 443	Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets
ASTM C 507	Reinforced Concrete Elliptical Culvert Storm Drain and Sewer Pipe
ASTM C 655	Reinforced Concrete D-Load Culvert, Storm Drain, and Sewer Pipe
ASTM C 822	Terminology Relating to Concrete Pipe and Related Products
ASTM D 883	Standard Terminology relating to Plastics
ASTM D 2321	Standard Practice for Underground Installation of Thermoplastic Pipe for Sewer and Other Gravity-Flow Applications
ASTM D 3212	Standard Specification for Joints for Drain and sewer Plastic Pipes Using flexible Elastometric Seals
ASTM F 2306	12 to 60 in. Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity Flow Storm Sewer and Subsurface Drainage application

American Water Works Association (AWWA)

AWWA C 104	Cement- Mortar Lining for Ductile-Iron Pipe Fittings for Water
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AWWA C 105	Polyethylene Encasement for Ductile-Iron Piping for Water and Other Liquids
AWWA C 110	Ductile-Iron Fittings, 3 Inch Through 48 Inch, for Water and Other Liquids
AWWA C 111	Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings

1.03 QUALITY ASSURANCE

- A. Any entity performing the Work of this Section shall have at least three years of installation experience on projects with piping systems of types and sizes similar to that required under this Contract.
- B. Pipe will be visually inspected by the Engineer when delivered to the construction site. Damaged material or material not meeting the requirements of this Section shall be removed from the construction site and replaced at no additional cost to the Authority.
- C. Pipe may be inspected at the place of manufacture by the Engineer.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Comply with manufacturer's instructions for unloading, storing and moving pipe.
- B. Care shall be taken when storing pipe and appurtenances so as not to damage Authority or other public or private property, and any property so damaged shall be repaired at the Contractor's expense.

1.05 SUBMITTALS

For Submittals, see Appendix "A".

PART 2. PRODUCTS

2.01 MATERIALS

Use any of the pipe systems specified below unless otherwise shown on the Contract Drawings.

- A. Reinforced Concrete Pipe
 - 1. ASTM C 76, Class V, Wall B or Wall C for Circular Reinforced Concrete Pipe, ASTM C 507, Class HE-IV for Horizontal Elliptical Pipe and Class VE-VI for Vertical Elliptical Pipe, unless otherwise shown on the Contract Drawings. Use ASTM C 150, Type II Portland cement. Pipe joints shall be tongue and groove or bell and spigot, and shall be sealed with a continuous gasket. Lifting holes in pipe will not be permitted.

2. Pipe joints shall be sealed with rubber gaskets. Design of joints and physical requirements for rubber gaskets shall conform to ASTM C 443. Rubber gaskets shall be the following types of rubber gaskets, manufactured by Hamilton Kent Manufacturing Co., Toronto, Ontario or approved equal:
 - a. "Tylox Type C" for straight tongue and groove pipe
 - b. "Tylox Superseal " for offset pipe
 - c. "Tylox Type 0" for recessed pipe
- B. Ductile Iron Pipe
1. ASTM A 746, minimum wall thickness Class 50 unless otherwise shown on the Contract Drawings, with push-on joints, and cement mortar lining, which shall be twice the standard thickness in AWWA C 104.
 2. Joints shall be sealed with continuous ring rubber gaskets conforming to AWWA C 111.
 3. Polyethylene Encasement for Ductile Iron Sewer Pipe: AWWA C 105, Class C polyethylene, 8-mil thickness.
- C. Corrugated Polyethylene Pipe
1. ASTM F 2306, high density Polyethylene pipe, joints shall be bell and spigot and sealed with a continuous gasket.
 2. Pipe joints shall be sealed with continuous ring rubber gaskets and conforming to ASTM F 477 and meet the requirements of ASTM D 3212.
- C. Crushed Stone for Pipe Bedding
- Crushed limestone, gneiss, trap rock or recycled Portland cement concrete aggregate conforming to ASTM C 33, size number 67. Recycled concrete aggregate shall contain not less than 90 percent crushed Portland cement concrete and shall be in accordance with the requirements of the Section 02231 entitled "AGGREGATE BASE COURSE".

PART 3. EXECUTION

3.01 EXAMINATION

Where the storm drain is to cross existing utilities, the Contractor shall verify their elevation and horizontal location through excavation of the test pits shown on the Contract Drawings.

3.02 INSTALLATION

A. Excavation

1. Excavate pipe trench in accordance with Section 02221 entitled "EXCAVATION, BACKFILLING AND FILLING" in the location and to the depth shown on the Contract Drawings.

2. In the course of excavation, should the trench or subtrench width exceed the outside diameter of pipe plus two feet for nominal diameters up to 18 inches or outside diameter plus three feet for nominal diameters in excess of 18 inches, the Engineer may require remedial measures to reduce the load on the pipe such as the use of concrete cradle or concrete arch bedding, or reinforced concrete encasement. Or the Engineer may require the Contractor to substitute a stronger pipe capable of withstanding the increased load such as ASTM C 655 or ASTM A 746. A subtrench is defined as a trench excavated for pipe placement within a wider trench.
 3. If ground water is encountered, prevent accumulation of water in trench by methods approved by the Engineer. Pipe shall be laid in a dry trench.
- B. Pipe Support and Backfilling
1. Where concrete cradles are shown on the Contract Drawings, support the pipe at proper alignment and grade, place concrete (as specified in the Section 03301 entitled "PORTLAND CEMENT CONCRETE") to dimensions shown and vibrate same. Concrete, when cured, shall support the full length of pipe.
 2. Where crushed stone bedding is shown on the Contract Drawings, place and compact crushed stone bedding material in the bottom of the trench to provide a firm but slightly yielding surface and to an elevation such that pipe laid on same will be at the proper grade and alignment. Make suitable excavations for the pipe bells, where applicable so that the bottom reaction and support are confined to the pipe barrel. After installation of pipe on the compacted layer, place and compact additional bedding material in small lifts to the dimensions shown.
 3. a. Reinforced Concrete Pipe and Ductile Iron Pipe
Continue backfilling of the trench from the pipe support limits reached in 3.02 B.1 and 2 above in accordance with the Section entitled "EXCAVATION, BACKFILLING AND FILLING".
 - b. Corrugated Polyethylene Pipe
Place pipe embedment and backfilled in accordance with ASTM D 2321.
- C. Polyethylene Encasement for Ductile Iron Pipe
1. Install polyethylene encasement on all ductile iron pipes using one of the installation methods described in AWWA C 105.
 2. Pipe surface shall be totally cleaned prior to installation of the polyethylene encasement. During installation, care shall be exercised to prevent soil or bedding material from becoming trapped between the pipe and the polyethylene encasement.
 3. The polyethylene film shall be fitted to the contour of the pipe to effect a snug, but not tight, encasement with the minimum space between the polyethylene and the pipe. Sufficient slack shall be provided in contouring to prevent stretching the polyethylene where it bridges irregular surfaces, such as bell-spigot interfaces, or fittings, and to prevent damage to the polyethylene due to backfilling operations.
 4. Overlaps and ends shall be secured with adhesive tape, string or plastic tie straps to hold the polyethylene encasement in place until backfilling operations are complete.
- D. Pipe Installation

1. Immediately prior to placement in the trench, all pipe shall be inspected in the presence of the Engineer to verify that it is internally clean and free of damage. Damaged units shall be removed from the construction site and replaced to the satisfaction of the Engineer, at no additional cost to the Authority.
2. When lowering pipe into the trench and joining the units, take precautions to ensure that the interior of the pipeline remains clean.
3. Lay pipe true to line and grade, with uniform bearing under the full length of its barrel, without break from structure to structure, and with bell or grooved end facing upgrade. Adjustments to line and grade shall be made by scraping away or adding bedding material under the pipe.
4. Prior to start of construction, the method for control of alignment and grade shall be submitted for approval. The method shall be a laser system or gradeboard setup to establish a reference grade and alignment control directly above or within the pipe. Use of other equipment may be substituted if, in the opinion of the Engineer, the alternate system produces equivalent accuracy.
5. Make up pipe joints in accordance with the manufacturer's instructions and taking extreme care that joints are clean and free of foreign materials. Support pipe free of the bedding during the joining process to avoid disturbing the subgrade.
6. In large diameter sewers with compression-type pipe joints, or where considerable force will be required to insert the spigot fully into the bell, come-alongs and winches or other equipment may be rigged to provide the necessary force. Inserts shall be used to prevent the sewer pipe from being thrust completely home prior to checking gasket location. After the gasket is checked, the inserts shall be removed and the joint completed.
7. Close all openings in the pipeline with watertight plugs when pipelaying is stopped at the conclusion of the work period or if work is interrupted for any reason.
8. Install polyethylene encasement prior to backfilling ductile iron pipe.

3.03 PROTECTION

- A. Care shall be taken not to damage or displace installed pipes and joints during construction of pipe supports, backfilling and other operations.
- B. Where pipe is damaged or displaced, take remedial measures as directed by the Engineer including but not limited to relaying pipe or replacing the pipe and/or testing of joints. All such remedial measures shall be performed at no additional cost to the Authority.

END OF SECTION

DIVISION 2

SECTION 02722

STORM DRAINAGE SYSTEM -

(INFILTRATION/EXFILTRATION TESTING NOT REQUIRED)

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

Catalog Cuts

02722B01 A. Submit catalog cuts of gaskets for pipejoints including manufacturer's installation instructions.

Certificates

02722E01 B. Submit certificate from gasket manufacturer certifying that the proposed gaskets comply with the specified requirements and that the gaskets are compatible with the type of pipe joint used.
C. Submit certificate from the pipe manufacturer certifying that such pipe complies with the requirements specified in this Section.
D. Submit certificate from the polyethylene film manufacturer that such polyethylene film complies with the requirements specified in this Section.

Manufacturer Test Reports

02722F01 E. Submit to the Manager, Materials, Engineering Division, Port Authority Technical Center, 241 Erie Street, Jersey City, New Jersey 07310 1397, certified test data covering gradation and composition of the crushed stone for pipe bedding proposed for use, together with one 75 pound representative sample of the material.
1. Submit the sample in a clean, sturdy container or bag which shall not permit loss of any of the material.
2. Clearly label the container or bag of the sample with: Contract location, title and number; the name of the material supplied; and location of the source.
3. The Engineer will approve or disapprove the proposed material within 21 days after receipt of the sample.
4. Do not deliver material to the construction site from any source until the Engineer has approved the material from that source.

Construction and Installation Procedures

02722G01 F. Submit plans, methods, equipment and procedures as applicable for:
1. Prevention of accumulation of groundwater specified in 3.02.
2. Alternate method of line and grade control specified in 3.02.

END OF APPENDIX "A"

DIVISION 2
SECTION 02920
SOIL TESTING

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for subgrade preparation and the testing of on-site fill material prior to seeding and/or planting operations.

1.02 DESIGN AND PERFORMANCE REQUIREMENTS

- A. As a guide to determine local weather predictions use the National and Local Forecast, Hurricane, Radar and Report website at <http://www.weather.com> as published by the Weather Channel.
- B. Soil Testing Procedures shall be as per "Recommended Soil Testing Procedures For The Northeastern United States, Current Edition, Northeastern Regional Publication No. 493 as provided by the Agricultural Experiment Stations of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont and West Virginia.

1.03 ENVIRONMENTAL REQUIREMENTS

- A. Obtain soil samples only during the following weather conditions:
 - 1. There shall be no frost in the ground and the soil temperature shall be above 32 degrees F.
 - 2. There shall be no form of precipitation falling or forecast to fall within the next two hours. Following a period of precipitation, resume operations only after the soil has drained.

1.04 QUALITY ASSURANCE

- A. Qualifications
 - 1. Verify that the laboratory performing the soil testing of this Section is a certified testing laboratory such as the Rutgers Soil Testing Laboratory, Rutgers Cooperative Research & Extension, New Jersey Agricultural Experiment Station, Milltown, NJ 08850 or an approved equal in either the States of New Jersey or New York, that it has experience in soil testing for soil properties important for plant and turf management and that is capable of performing a "Technical Topsoil Evaluation" as specified in 2.01 and in accordance with Appendix B of this Section.
- B. Test Requirements

1. Prior to seeding and/or planting, submit a representative sample of on-site soil material for analysis to a certified independent laboratory to ensure conformance to requirements specified in 2.01.
 2. Provide the number of soil samples to the testing laboratory in accordance with 1.04 B3. No substitutions for testing parameters will be permitted.
 3. Take samples only in the presence of the Engineer and at sites ready for planting operations to commence.
 4. Provide a minimum of two (2) test samples representative of the range of existing soil found within areas to receive seed.
 5. Allow a minimum of 2 weeks for processing soil analysis at the testing laboratory.
 6. Identify the type of "crop" to be grown as "Lawn" with each test sample requisition sent to the testing laboratory in order to obtain recommendations for nutrient and pH adjustments.
- C. Do not commence seeding and/or planting until the Engineer has approved in writing the certified results of the soil analysis and recommendations from the approved soil testing laboratory for the representative samples and approved a report from the Contractor verifying that the Contractor has reviewed the soil analysis and will comply with the recommendations.

1.05 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MATERIALS

- A. Soil Testing conforming to the following:
1. Soil to be tested shall be of uniform quality, free from hard clods, stiff clay, hard pan, sods, partially disintegrated stone, lime, cement, ashes, slag, concrete, tar residues, tarred paper, boards, chips, sticks, glass or any other undesirable material.
 2. Provide a soil nutrient analysis providing the percentage Nitrogen (N), Phosphorus (P) and Potassium (K) in pounds per Acre.
 3. Provide soil micronutrient analysis providing the percentage of Zinc, Copper, Manganese, Boron and Iron, in parts per million.
 4. Provide a soil analysis for organic matter as determined by loss on ignition of moisture-free samples.
 5. Provide soil pH range.
 6. Provide soluble salts in micromhos per centimeter.
 7. Soil shall be graded as follows:

PASSING	RETAINED ON	PERCENTAGE
1" screen		100%
1" screen	2 mm (No. 10) Sieve	%*

*The portion retained shall be no larger than 3/8" in size and composed of homogeneous clods and/or stones.

8. Provide a mechanical analysis of the portion of soil passing the 2 mm sieve, based on the mechanical analysis of the soil as determined by the Bouyoucous Hydrometer method, and shall consist of the following, based on dry (air-dried only) weight of sample:
 - a. Sand min% - max%, inclusive;
 - b. Silt min% - max%, inclusive;
 - c. Clay min% - max%, inclusive.
9. Provide recommendations for pH adjustment, fertilization and micronutrients.

PART 3. EXECUTION

3.01 PREPARATION

A. Soil Sample(s) Taken From Areas of Changed Grades

Verify that areas of changed grades shown on the Contract Drawing have a smooth, uniform surface and finish grade elevations (excepting the addition of soil amendments) have been established.

1. Obtain grab samples for the minimum of test samples representative of the range of existing soil found within the each, separate area of existing soils to receive seed.
2. Grab sample shall be made up of a two-pound sample, each.
3. Remove stones over two inches in any dimension, roots, rubbish and other extraneous materials from the sample.
4. Implement all soil recommendations received from the soil testing laboratory.
5. Do not commence with any planting or soil related activities prior to receipt of written acceptance of the soil sample analysis and recommendations, by the Engineer as per 1.04 and 2.01.

B. Soil Sample(s) Taken From Unaltered Areas

Verify that subgrade areas shown on the Contract Drawings are unaltered or undisturbed by excavation, grading or stripping operations as follows:

1. Follow steps listed in 3.01 A., 1-4 above.

C. Soil Sample Results

1. Submit all soil sample analyses listed in 2.01 above.

END OF SECTION

SECTION 02920

SOIL TESTING

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

Samples

02920C01 Submit the locations of grab samples of soil (as many as required), the individual results of the soil analyses, and the amendment recommendations to the Engineer in accordance with 1.04 and 2.01.

Product Data

02920D01 Submit in accordance with the requirements of "Inspections and Rejections" of Division 1 - GENERAL PROVISIONS a complete "Product List", listing the product to be used under this Section, to the Engineer.

Certificates

02920E01 Submit to the Engineer certification required by 1.04 A & B.

Qualifications

02920K01 Submit qualifications of the entity performing the laboratory testing of this Section to the Engineer in accordance with 1.04 A. Include the name, address and telephone number of the testing laboratory performing the Work of this Section.

Information

02920S01 Submit laboratory analyses of soil and the results of the "Technical Topsoil Evaluation" to the Engineer, in accordance with 1.04, 2.01 and Appendix B.

END OF APPENDIX "A"

SECTION 02920

SOIL TESTING

APPENDIX "B"

The following is a sample testing form to be used by the Contractor:

Material: Soil

Specification: Section 02920 – “Technical Topsoil Evaluation”

Crop: Lawn

Source of Sample:

Contract or P.O.#:

Quality Characteristics:	Spec.		
Visual Examination:	No hard clods, etc.		
Nutrients: Inorganic Nitrogen-Nitrate (ppm)			
Nutrients: Inorganic Nitrogen-Ammonium (ppm)			
Total Kjeldahl Nitrogen (%)			
Nutrients: P (pounds/acre)			
Nutrients: K (pounds/acre)			
Micro Nutrients: Zinc (ppm)			
Micro Nutrients: Copper (ppm)			
Micro Nutrients: Manganese (ppm)			
Micro Nutrients: Boron (ppm)			
Micro Nutrients: Iron (ppm)			
Organic Matter: (Loss of Ignition)	Min. % Max. %		
Soluble Salts: - Micromhos/Cm - PPM	Max. Max.		
pH:			
Mechanical Analysis: Passing - 1"	100%		
Passing - 1" Retain 2 mm (#10)	Max. % The portion retained shall be no larger than 3/8" in size and shall be composed of homogeneous clods and/or stones		
Passing 2mm (#10) Retain Pan	Min. %		
Bouyoucous Hydrometer Test of Material:			
Passing 2 mm (#10) Percent - Sand	min%-max%		

Percent – Silt	min%-max%		
Percent – Clay	min%-max%		

END OF APPENDIX "B"

DIVISION 2

SECTION 02930

SEEDING (NEW YORK)

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for endophyte seed and dust retardant at airports.

1.02 DEFINITIONS

- A. The term "Blue Tag Certified" refers to the original certification tag, blue in color, which certifies that the seed was produced in Oregon, of the latest crop, bearing the lot number that matches the lot number on the Oregon State University Seed Laboratory Report of Seed Analysis.

1.03 DESIGN AND PERFORMANCE REQUIREMENTS

- A. Use product-testing methods adopted and published by the Association of Official Analytical Chemists, 1111 19th Street Suite 210, Arlington, VA 22209.
- B. As a guide to determine local weather predictions, use the National and Local Forecast, Hurricane, Radar and Report website at <http://www.weather.com> as published by the Weather Channel.
- C. Seed and installation practices shall comply with Federal Aviation Administration (FAA) Advisory Circular 150/5200-33B, Hazardous Wildlife Attractants On Or Near Airports, August 28, 2007.
- D. Pest control for turfgrass shall be in accordance with the "2009 Pest Management Guidelines for Commercial Turfgrass", published by Cornell University, Ithaca, NY. This publication is available from The Resource Center, Cornell University, Ithaca, NY 14853. Telephone (607) 255-9946.
- E. Grass seed shall have attached thereto or in a conspicuous place on the exterior of the container a plainly printed label in the English language, in legible type specifying:
 - 1. All endophyte seed lots shall be Blue Tag Certified, produced in Oregon, of the latest crop and shall be seed harvested within the calendar year seeding operations are to occur. The state of origin shall be Oregon, no exceptions.
 - 2. Submit a copy of the Oregon State University Seed Laboratory Report of Seed Analysis bearing the lot number matching all the bags of seed delivered to the Work site.

3. Submit the name of Seed Company located in Oregon, along with the Blue Tag Certified seed variety, date of harvest and proof of storage in cold and dry conditions of the seed delivered to the Work site.
4. Submit the name and address of the person who labeled said seed, or who sells or offers the seed for sale to the Contractor if the seed being delivered to the Work site is not directly supplied to the Contractor from the originating seed company from Oregon.
5. Submit certification and the date seed was shipped, from 4 above, identifying that the seed delivered to the Work site shall have been shipped directly from Oregon and never stored anywhere else except the production facility in Oregon.
6. Submit the commonly accepted name of the kind or kind and variety, or both, of each agricultural seed component in excess of 5.0% of the whole and the percentage by weight of pure seed of each.
7. Percentage by weight of all weed seeds. Maximum weed seed content shall not exceed 1% by weight.
8. Lot number or other lot identification.
9. The percentage of germination, exclusive of hard seed; hard seed, if present, and the calendar month and year that the germination test was completed. If a single test date is used, it shall be that of the oldest tested component.
10. All delivered endophyte seed shall be fresh seed, having a proof of harvest date, and delivered to the Work site for immediate application. Seed delivered to the Work site for immediate application exceeding two months from the date it left storage in Oregon shall not be accepted. (See 1-5 above)
11. Any bag of seed without a blue tag and corresponding Oregon State University Seed Laboratory Report of Seed Analysis bearing the lot number matching all the bags of seed delivered to the Work site will be rejected by the Engineer and the Contractor shall immediately remove it from the Work site and replace with seed that complies with this Specification.
12. The percentage of endophyte level shall meet or exceed the level specified herein. Any test results as per 1.05 B. 5 of the bags of seed with a seed label indicating that the percentage level of endophyte is less than specified will be rejected by the Engineer and the Contractor shall immediately remove it from the Work site and replace it with seed that complies with this Specification.

F. Fertilizer application for turfgrass shall be as per all federal, state and local regulations.

1.04 ENVIRONMENTAL REQUIREMENTS

A. Perform operations only during the following weather conditions:

1. There shall be no frost in the ground and the soil temperature at each planting area shall be above 32 degrees F.
2. There shall be no form of precipitation falling or forecast to fall within the next two hours. Following a period of precipitation, resume operations only after the soil has drained.

3. Apply chemicals only when wind velocity is below 5 mph, drift hazard is negligible, the air temperature is above 40 degrees F and below 70 degrees F.
4. Do not perform any product application if precipitation has fallen within two hours prior to the planned application time or forecasted during the next 12-hour period.

B. Seeding Calendar Limitations

Seed as per Appendix "B" of this Section.

1.05 QUALITY ASSURANCE

A. Qualifications

1. Verify that the entity and its workers performing the Work of this Section are experienced in seeding and have been engaged in work of a complexity similar to that required under this Section for a period of at least three years.
2. Verify that the entity performing pesticide applications has a valid license as a commercial applicator from the state in which the Work is being performed.
3. Verify that the entity performing the Work has a Brillion Turfmaker II Seeder to install the seed for this Work. Hydroseeding will not be permitted to be used.
4. Verify that the entity performing the Work has a Hydromulcher with a "mechanical agitator paddle" as manufactured by one of the following: Bowie, Finn, Kincaide or Turfmaker. A hydromulcher that uses "jet agitation" will not be permitted to be used. See Section 02936 – Hydraulically-Applied Erosion Control – High Performance Flexible Growth Medium.

B. General Requirements for Operations and Products

1. After delivery to the construction site, allow the Engineer, at his discretion, to take for analysis representative samples of any item listed in PART 2 - PRODUCTS.
2. Seed
 - a. Submit all the information specified in 1.03 E 1 -12 to the Engineer for review and approval prior to delivery to the Work site.
 - b. Do not furnish or plant the following turfgrasses under any circumstance:
 - Winter Wheat
 - Tall Fescue Grass with less than 90% Endophyte levels.
 - Tall Fescue Grass without Endophyte
 - Kentucky Blue Grass
 - Buffalo Grass
 - Bent Grass
 - Bermuda Grass
 - Fine Fescue Grass
 - Annual Rye Grass
 - Perennial Rye Grass with less than 90% Endophyte levels
 - Perennial Rye Grass without Endophyte
 - Native Grasses

3. Fertilizer

- a. The application of fertilizer containing a maximum of 0.67% phosphorus is not restricted in New York. Fertilizer containing more than 0.67% phosphorus can only be used if a new lawn is being established or if a soil testing indicates that it is necessary.
- b. Do not apply fertilizer applications between December 1 and April 1 or any time when the ground is frozen.
- c. Do not apply fertilizer during or just before a heavy rainfall or onto an impervious surface.
- d. Apply only a fertilizer with a Water Insoluble Nitrogen (WIN) and other clearly marked sources of Slow Release Nitrogen equal to or greater than specified herein under PART 2 – PRODUCTS.
- e. Apply fertilizer only at rate specified herein under PART 3 – EXECUTION or as recommended in the analysis issued by the New Jersey Agricultural Experiment Station at Rutgers, the State University, whichever provision recommends the least amounts of N, P & K.
- f. Do not apply fertilizer within 20 feet of any surface water except: where there is a vegetative buffer of at least 10 feet; or where the fertilizer is applied by a device with a spreader guard, deflector shield or drop spreader at least three feet from surface water.
- g. Prior to application of any fertilizer containing phosphorous, submit the results from the “Technical Topsoil Evaluation” from the Rutgers Soil Testing Laboratory as specified in Section 02920 – Soil Testing of the soil to be fertilized to determine the need for phosphorous. Apply only the amount of phosphorous recommended in the analysis issued by the New Jersey Agricultural Experiment Station at Rutgers, the State University.
- h. Submit to the Engineer for his review and approval the fertilizer label including the chemical trade name, the full chemical analysis (N, P, K, WIN & other slow release % for N) and application rate.

4. Pesticide

- a. Select specific pesticide(s) to act on identified pest and use the manufacturer's recommended formula, application rate and safety instructions at all times.
- b. Prepare and maintain all records that are or may be required by Federal, State or Local laws. Submit copies of these records to the Engineer within 5 days when so requested.
- c. Not less than forty-eight hours prior to a proposed spray operation, submit to the Engineer for his review and approval a tabulated list indicating the target to be treated, the chemical trade name and quantity of mix being prepared.

5. Testing for Endophytes

- a. Submit the test result for “Seed Immunoblot Assay Testing”. No later than two months prior to delivery of endophyte seed to the Work site, submit a sample of seed for testing in accordance with Appendix “B” and submit the results to the Engineer prior to delivery. Submit a minimum of one (1) pint of seed per every twenty (20) bags of seed delivered to the Work site.

- b. Submit the test results for "Seed Grow-out Testing". No later than two months prior to delivery of endophyte seed to the Work site, submit a sample of seed for testing in accordance with Appendix "B" and submit the results to the Engineer prior to delivery. Submit a minimum of one hundred (100) seeds per every twenty (20) bags of seed delivered to the Work site.
 - c. Submit the test results for "Tiller Testing". No later than two months after on-site germination, submit tiller samples for testing in accordance with Appendix "B" and submit the results to the Engineer. Submit a minimum of fifty (50) tillers per every one (1) Acre of seeded area.
6. Soil Testing
- a. Submit to the Engineer the "Technical Topsoil Evaluation" from the Rutgers Soil Testing Laboratory as specified in Section 02920 – Soil Testing. "Technical Topsoil Evaluation" lab request shall specify the crop to be grown as lawn.
 - b. Perform nutrient controls and pH adjustments as recommended in the "Technical Topsoil Evaluation" for establishing lawn. Nutrient and pH control adjustments shall be performed at no additional cost to the Authority.
 - c. The Contractor shall utilize the recommendations and information provided from the "Technical Topsoil Evaluation" to perform the appropriate nutrient and pH control adjustments.
- C. Reseeding
- 1. Replace unsatisfactory seeded areas for a period of six months from the date of rendition of the Certificate of Final Completion. Reseed all areas, at no additional cost to the Authority, that:
 - a. are dead
 - b. have weed and/or pest infestations
 - c. have not provided 85% vegetative coverage as per Appendix "B"
 - d. <90% endophyte viability proved by tiller testing performed on seed grow-outs and/or germinated seed at the construction site.
 - 2. Perform replacement of unsatisfactory seeded areas with products and by operations that comply with all requirements of this Specification, and on such date(s) as ordered by the Engineer.
- D. Application of Dust Retardant
- 1. Apply dust retardant on all unsatisfactory seeded areas and/or areas where soil is exposed, but cannot be seeded because the calendar seeding date limits have expired, all in accordance with 3.02 C.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver all products in the manufacturer's unopened containers bearing the trade name, manufacturer's name, weight and analysis.
- B. Store products away from moisture and extreme temperatures and in such a manner that their effectiveness will not be impaired.

1.07 SUBMITTALS

See Appendix "A" for submittals requirements.

PART 2. PRODUCTS

2.01 MATERIALS

A. Nutrient Controls

1. Fertilizer

Granular - 20-0-8, slow release fertilizer conforming to the following or approved equal:

a. Commercial fertilizer 20-0-8, dust-free, homogenous, granular fertilizer as follows:

Guaranteed analysis shall be

20% Nitrogen,

8.2% Ammoniacal Nitrogen

6.0% W.I.N. (water-insoluble nitrogen)*

1.2% Urea Nitrogen

4.6% Water Soluble Nitrogen*

(*10.6% slowly available Nitrogen from Methylene Ureas)

8% Potash (K₂O)

1.0 % Iron (Fe) (0.1% water soluble Iron)

2. Soil pH adjustment

a. Aqua-pHix

A blend of chelated, buffered acid, spray applied to alkaline soil to reduce high pH soils as manufactured by Profile Products, LLC, Buffalo Grove, IL 60089.

Aqua-pHix is available from the following suppliers:

- (1) Pinelands Nursery, Columbus, NJ 08022
- (2) All Pro Horticulture, Copiague, NY
- (3) ACF Environmental, Brookfield, CT 06804
- (4) Merritt Seed Company, Syracuse NY
- (5) Pennington Seed, Laurel, MD 20723

b. Elemental Sulfur

Guaranteed analysis shall be

0% Nitrogen

0% Phosphorus

0% Potassium

90% Sulfur

B. Turf Seed

1. Turf seed shall be the latest crop, clean, pure and free of noxious weed seed, of the variety and mix in accordance with Appendix "B" and to 1.03 E. 1- 12 and 1.05 B. 5.
2. Turf seed shall have a demonstrated cultivar performance, which includes Lateral Spread Technology (LS), high levels of rhizome expression, high density, insect resistance, greater than 90% viable endophyte and superior stress tolerance.

C. Dust Retardant

1. "Coherex" as manufactured by Golden Bear Division of the Witco Corporation, Chandler, AZ 85244
2. "Soil-Sement" as manufactured by Midwest Industrial Supply, Inc., Canton, OH 44711
3. "Soil Seal Concentrate" as manufactured by Soil Seal Corporation, Los Angeles, CA 90017
4. Or approved equal.

D. High Performance Flexible Growth Medium

1. See Section 02936 – Hydraulically-Applied Erosion Control: High Performance Flexible Growth Medium

PART 3. EXECUTION

3.01 PREPARATION

A. Areas of Changed Grades

Verify that areas of changed grades, which are to be seeded as shown on the Contract Drawings, are in conformance with the grading plans and have a smooth, uniform surface. Rototill to a minimum six (6) inch depth. Remove stones over two inches in any dimension, roots, rubbish and other extraneous materials. Limit preparation to areas, which will be seeded promptly after preparation.

B. Sustainable Measures

Remove all debris resulting from the soil preparation operations promptly. Thoroughly clean the Work area to the satisfaction of the Engineer. Remove and transport off Authority property all debris materials resulting from the soil preparation operation in accordance with Division 1 clause entitled "Recycling of Construction Debris Materials".

C. Formulation, Application and Equipment

1. Use the manufacturers recommended formula, application rate and safety instructions at all times.
2. Mix and agitate products and use equipment according to the manufacturer's directions. Mix and agitate only in an area designated by the Engineer.
3. Dispose of spilled materials and surplus products away from Authority property.

D. Erosion Control and Sedimentation Measures

Apply erosion and sediment control measures at all times as required by this Contract and the governing regulatory agencies.

3.02 INSTALLATION

A. Seeding Operations

1. Apply 2-inches of Compost as per Section 02960 – Adding Compost.
2. Apply a liquid form of “Soil pH adjustment” such as Aqua pHix per the results of Section 02920 – Soil Testing of the existing soil and as per the manufacturer’s instructions, to all areas to be seeded if PH adjustments are required in accordance with Section 02920 – Soil Testing.
3. Apply 20-0-8 fertilizer, uniformly by machine at the rate of 1 pound of Nitrogen per 1000 square feet or per the results of Section 02920 – Soil Testing of the existing soil and as per the manufacturer’s instructions worked lightly into the top six inches of soil, to all areas to be seeded if nutrient adjustments are required in accordance with Section 02920 – Soil Testing.
4. Sow grass seed at the rate provided in Appendix B “Permanent Seeding” of this Section and cover in such manner that a uniform stand would result.
5. Seed the area uniformly in two passes using a Brillion Turfmaker II Seeder and in uniform rows that cross each other at an angle of 30 degrees. Apply seed at designated seeding rates for both passes as per Appendix B “Permanent Seeding”.
6. For areas too small for the use of a Brillion Turfmaker II Seeder, apply seed at the designated seeding rates per 1000 square feet with a broadcast spreader.
7. Hydroseeding will not be permitted.

B. Mulching Seeded Areas

1. See Section 02936 – Hydraulically Applied Erosion Control: High Performance Flexible Growth Medium

C. Application of Dust Retardant

1. Apply dust retardant on all completed areas that have not been seeded and/or where seed germination is less than 50% after 3 weeks from date seed was sown and when the calendar seeding date limits (See Appendix “B”) have expired and seeding can no longer be performed or as approved by the Engineer.
2. Apply dust retardant with an approved pressurized sprayer with a rating of 40-60 PSI.
3. Do not apply dust retardant if precipitation is forecast within 24-hours after application.
4. Apply dust retardant as many times as necessary to control stormwater and wind erosion, all at no additional cost to the Authority.

D. Care of Seeded Areas

As per Appendix "B" of this Section, provide "Full" Care conforming to the following:

1. Full Care

Upon completion of seeding operations, maintain seeded area(s) in accordance with Appendix "B" for Permanent Seeding of this Section.

END OF SECTION

SECTION 02930

SEEDING

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

Product Data

- 02930D01 Submit for approval to the Engineer the seed requirements in accordance with 1.03 E, 1 – 12.
- 02930D02 Submit for approval by the Engineer, the fertilizer requirements in accordance with 1.05 B. 3. g. & h.
- 02930D03 Submit the total number of bags of seed, applied at the minimum rate of 10 pounds per 1000 SF furnished and installed at the construction site in accordance with the amount of square feet of area prepared by the Contractor for seed.

Certificates

- 02930E01 Submit evidence of a valid pesticide applicator's license.
- 02930E02 Submit to the Engineer the Oregon State University Seed Laboratory Report of Seed Analysis bearing the Lot number matching all the bags of seed delivered to the Work Site.
- 02930E03 Submit to the Engineer the test results for Endophyte level analysis as specified in 1.05 B. 5 of this Section.
- 02930E04 Submit to the Engineer the test results for "Technical Topsoil Evaluation" as specified in Section 02920 and 1.05 B. 6. of this Section.
- 02930E05 Submit to the Engineer the recommendations for the nutrient and pH controls in the "Technical Topsoil Evaluation" as specified in Section 02920 for "Crop – Lawn".

Manufacturer Test Reports

- 02930F01 Submit to the Engineer one copy of U.S. Department of Labor Material Safety Data Sheets (MSDS) and product labels for all hazardous chemicals utilized during the Work of this Section.

Qualifications

- 02930K01 Submit qualifications of the entity and its workers performing the Work of this Section to the Engineer in accordance with 1.05 A. Include names of clients, telephone numbers, and contract amounts for work performed in the last three years and experience records of workers performing the Work of this Section.

02930K02 Submit a list of contracts or similar scope including contracts using similar construction methods, products and equipment. Provide Client Name, date of completion, number of acres seeded, Construction Cost, Contact Name and Phone Number.

Information
02930S01

Submit for approval by the Engineer, that the entity performing the seeding has a Brillion Turfmaker II Seeder and a hydromulcher in accordance with 1.05 A. 3-4 and verify that it will used for this Contract.

END OF APPENDIX "A"

SECTION 02930

SEEDING

APPENDIX "B"

A. SEED MIX

Permanent Seeding

1. Seed Mixture shall have originated in Oregon and be as distributed by F M Brown Seed, Sinking Spring, PA 19608 (800) 345-3344, Jonathan Green, Farmingdale, NJ, (732) 938-7007, All Pro Horticulture, Inc. ,721 Main Street, Farmingdale, NY 11735, (631) 789-6680, Pennington Seed, 9327 US RTE 1, Laurel, MD 20723 or approved equal and as follows:

Kind of Seed	% Mix:	% Min. Purity:	% Min. Germ:	% Min. Endophyte Infection:
Firecracker LS or Spider LS Tall Fescue	100	99	95	>90

2. Seeding rate shall be 10 pounds per 1000 square feet.
3. Seeding shall be performed only during the following periods:
Fall planting only - August 16 - October 15 (latest crop, fresh seed, seed harvested within the calendar year seeding operations are to occur, subject to proper storage and testing results)
4. Provide full care upon completion of seeding until issuance of Certificate of Final Completion. Full care shall include irrigation when bi-weekly rainfall does not exceed one (1) inch of rainfall per week at the construction site, at no additional cost to the Authority.
5. Successful seeding shall be defined by the following:
 - a. 85% survival of the specified turfgrass at the end of the Full care period as determined solely by the Engineer.
 - b. Endophyte test results for tillers that meet the minimum % endophyte viability levels as specified on the "blue tag certified" label and matching Oregon State University Seed Laboratory Report Seed Analysis when submitted to the Engineer.

TESTING LABS/CONTACTS

- 1.) Oregon State University Seed Laboratory
3291 SW Campus Way
Corvallis, OR 97331-3801
Contact: Dr. Adriel Garay, Lab Manager
e-mail: adriel.garay@oregonstate.edu
Website: www.seedlab.oscs.oregonstate.edu
Tele: (541)-737-4464
Fax: (541)-737-2126
Endophyte Tests offered:
 - Seed Testing: Immunoblot assay*
Lab requires one-pint seed sample
 - Seed Grow-out/Plant Tissue Endophyte Analysis*
 - Plant Tissue: Grass Tillers Endophyte Analysis*

- 2.) Plant Diagnostic Lab
New Jersey Agricultural Experiment Station
Rutgers University
P.O. Box 550
Milltown, NJ 08850-0550
Contact: Richard Buckley
Tele: (732)-932-9140
Website: www.njaes.rutgers.edu/services
Endophyte Tests offered:
 - Seed Testing: Endophyte Screening*
Lab requires one pint of seed for testing.
 - Plant Tissue: Grass Tiller Endophyte Analysis Test *
Lab requires minimum of 50 tillers for tissue testing.

* Verify Fees/Sampling Procedures with Lab

END OF APPENDIX "B"

DIVISION 2

SECTION 02936

HYDRAULICALLY-APPLIED EROSION CONTROL: HIGH PERFORMANCE FLEXIBLE GROWTH MEDIUM

PART 1. GENERAL

1.01 SUMMARY

This Section refers to requirements for the application of high performance flexible growth medium (HP-FGM) at airports.

1.02 DEFINITIONS

- A. The term "High Performance-Flexible Growth Medium (HP-FGM)" specifies a hydraulically-applied 100% biodegradable, 100% recycled, thermally processed (within a pressure vessel) wood fibers, crimped, interlocking biodegradable fibers, and performance enhancing additives. The HP-FGM is phytosanitized, free from plastic netting, requires no curing period and upon application forms an intimate bond with the soil surface to create a continuous, porous, absorbent and flexible erosion resistant blanket that allows for rapid germination plant growth.

1.03 DESIGN AND PERFORMANCE REQUIREMENTS

- A. As a guide to determine local weather predictions, use the National and Local Forecast, Hurricane, Radar and Report website at <http://www.weather.com> as published by the Weather Channel.

- B. Property: Test Method: Req. Value (English)

Physical

Mass Per Unit Area	ASTM D6566'	12 oz/yd ² minimum
Thickness	ASTM D6525'	0.22 inch minimum
Wet Bond Strength	ASTM D6818'	9 lb/ft
Ground Cover	ASTM D6567'	99% minimum
Water Holding Capacity	ASTM D7367	1700% minimum
Material Color	Observed	Green

Performance

Cover Factor(6 in/hr)	ECTC Test Method No.2	0.01 max.
% Effectiveness	ECTC Test Method No.2	99% min.

Shear Stress	ECTC Test Method No.2	1 lb/ft2
Cure time	Observed	0 – 2 hours
Vegetation Establ.	ASTM D7322'	800% min.

Environmental

Functional Longevity	ASTM D5338	Up to 18 months
Biodegradability	ASTM D5338	100% minimum

1. ASTM test methods developed for Rolled Erosion Control Products and have been modified to accommodate Hydraulically-Applied Erosion Control Products.
2. Cover Factor is calculated as soil loss ratio of treated surface versus an untreated control surface.
3. % Effectiveness = One minus Cover Factor multiplies by 100%.

1.04 ENVIRONMENTAL REQUIREMENTS

A. Perform operations only during the following weather conditions:

1. There shall be no frost in the ground and the soil temperature at each planting area shall be above 32 degrees F.
2. There shall be no form of precipitation falling or forecast to fall within the next two hours. Following a period of precipitation, resume operations only after the soil has drained.
3. Apply chemicals only when wind velocity is below 5 mph, drift hazard is negligible, the air temperature is above 40 degrees F and below 70 degrees F.
4. Do not perform any product application if precipitation has fallen within two hours prior to the planned application time or is forecast during the next 12-hour period.

1.05 QUALITY ASSURANCE

A. Qualifications

1. Verify that the entity and its workers performing the Work of this Section are experienced in applying HP-FGM and have been engaged in work of a complexity similar to that required under this Section for a period of at least three years.
2. Verify that the entity performing the Work has a Hydromulcher with a “mechanical agitator paddle” as manufactured by one of the following: Aqua Mulcher, Bowie, Finn, Kincaide or Turfmaker. A hydromulcher that uses “jet agitation” will not be permitted to be used.

B. General Requirements for Operations and Products

1. After delivery to the construction site, allow the Engineer, at his discretion, to take for analysis representative samples of any item listed in PART 2 - PRODUCTS.
2. Submit certification from the manufacturer of HP-FGM that the installation meets or exceeds the required product preparation and application rates.
3. Submit the total number of bags of HP-FGM, applied at the minimum rate of 4500lbs per Acres furnished and installed at the construction site in accordance with the amount of square feet of area prepared by the Contractor for seed.

4. Submit one copy of the U. S. Department of Labor Material Safety Data Shets (MSDS) and product labels for HP-FGM.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver all products in the manufacturer's unopened containers bearing the trade name, manufacturer's name, weight and analysis.
- B. Store products away from moisture and extreme temperatures and in such a manner that their effectiveness will not be impaired.

1.07 SUBMITTALS

See Appendix "A" for submittals requirements.

PART 2. PRODUCTS

2.01 MATERIALS

A. Flexible Growth Medium

1. "High Performance-Flexible Growth Medium" (HP-FGM) as manufactured by Profile Products, LLC. Buffalo Grove, IL 60089.

Or approved equal conforming to the following:

Clean, uniform, nontoxic, and free of seeds, fungi, and other plant pathogens;

Thermally-processed in such a manner as to contain no growth or germination inhibiting factors.

Interlocking crimped polyester fibers combined with wood fiber and crosslinked tackifier having the following physical properties:

Moisture Content	12% +3
Wood Fiber	80% ± 3%
Locking Fibers	5.0% +1
Crosslinked Tackifier	10% +1
Water Holding Capacity	1700% Min
Organic Material	95% Min
pH	4.8 +2

2. HP - FGM is available from the following suppliers:
 - a. Pinelands Nursery, 232 Island Avenue, Columbus, NJ 08022
 - b. All Pro Horticulture, 55 Motor Avenue, Farmingdale, NY 11735
 - c. ACF Environmental, 48 Old Grays Brook Rd., Brookfield, CT 06804
 - d. AH Harris & Sons, 17 Commercial Drive, Albany, NY 12205
 - e. Pennington Seed, 9327 US RTE 1, Laurel, MD 20723

PART 3. EXECUTION

3.01 PREPARATION

A. Areas of Changed Grades

Verify that areas of changed grades, which are to be seeded as shown on the Contract Drawings, are in conformance with the grading plans and have a smooth, uniform surface. Apply HP-FGM to geotechnically stable slopes that have been designed and constructed to divert runoff away from the face of the slope. Do not proceed with installation until satisfactory conditions are established. Limit preparation to areas, which will be seeded promptly after preparation.

B. Sustainable Measures

Remove all debris resulting from the soil preparation operations promptly. Thoroughly clean the Work area to the satisfaction of the Engineer. Remove and transport off Authority property all debris materials resulting from the soil preparation operation in accordance with Division 1 clause entitled "Recycling of Construction Debris Materials".

C. Formulation, Application and Equipment

1. Use the manufacturers recommended formula, application rate and safety instructions at all times.
2. Mix and agitate products and use equipment according to the manufacturer's directions. Mix and agitate only in an area designated by the Engineer.
3. Dispose of spilled materials and surplus products away from Authority property.

D. Erosion Control and Sedimentation Measures

Apply erosion and sediment control measures at all times as required by this Contract and the governing regulatory agencies.

3.02 INSTALLATION

A. Seeding Operations

1. See Section 02930 – Seeding.

B. Hydraulically-Applied Erosion Control of HP-FGM of Seeded Areas

1. Strictly comply with manufacturer's installation instructions and recommendations. Use approved mechanically agitated, hydraulic mulching machines with a fan-type nozzle (50-degree tip).
 - a. Fill tank to middle of agitator or tank about 1/3 full of water. Turn on pump to wet or purge lines. Begin agitating. Keep adding water slowly while adding the HP-FGM at a steady rate.
 - b. Mix at a rate of 50 lbs of HP-FGM per 125 gallons of water. Verify with the equipment manufacturer the optimum mixing rates for the HP-FGM.
 - c. All HP-FGM should be added once the tank is approximately ¾ full.

- d. Thoroughly agitate and mix slurry for at least 10 minutes after adding the last of the HP-FGM to fully activate all the bonding additives and to attain proper viscosity.
 - e. Turn off recirculation valve to minimize potential for air entrainment within the slurry.
2. Apply HP-FGM uniformly in successive layers, from two or more directions, to accomplish 100% coverage of the soil surface at following rates:
 - a. Minimum application shall be 4,500 lbs/Acre.
 3. Do not over-spray the hydromulch onto runways, taxiways, roadway, sidewalks, signs, fences, gravel swales or any structure or surface feature. Any over-spray found anywhere except where seed is required, shall be thoroughly cleaned and repaired, all at no additional cost to the Authority.

END OF SECTION

SECTION 02936

HYDRAULICALLY-APPLIED EROSION CONTROL:

HIGH PERFORMANCE FLEXIBLE GROWTH MEDIUM

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

Certificates

02936E01 Submit a letter of certification from the manufacturer of High Performance Flexible Growth Medium that the installation of this Contract meets or exceeds the required product preparation and application rates.

Manufacturer Test Reports

02936F01 Submit to the Engineer one copy of U.S. Department of Labor Material Safety Data Sheets (MSDS) and product labels for all hazardous chemicals utilized during the Work of this Section.

Qualifications

02936K01 Submit qualifications of the entity and its workers performing the Work of this Section to the Engineer in accordance with 1.05 A. Include names of clients, telephone numbers, and contract amounts for work performed in the last three years and experience records of workers performing the Work of this Section.

02936K02 Submit a list of contracts or similar scope including contracts using similar construction methods, products and equipment. Provide Client Name, date of completion, number of acres seeded, Construction Cost, Contact Name and Phone Number.

Information

02936S01 Submit for approval by the Engineer, that the entity performing the seeding has a hydromulcher with a "mechanical agitator paddle" as manufactured by one of the following: Aqua Mulcher, Bowie, Finn, Kincaide or Turfmaker.in accordance with 1.05 A. 2 and verify that it will used for this Contract.

02936S02 Submit the total number of bags of HP-FGM, applied at the minimum rate 4500lbs per Acre furnished and installed at the construction site in accordance with the amount of square feet of area prepared by the Contractor for seed.

END OF APPENDIX "A"

DIVISION 2

SECTION 02960

ADDING COMPOST

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for amending soil with compost prior to seeding and/or landscaping.

1.02 DESIGN AND PERFORMANCE REQUIREMENTS

- A. Use product testing methods adopted and published by the Association of Official Analytical Chemists, 1111 19th Street Suite 210, Arlington, VA 22209.
- B. As a guide to determine local weather predictions, use the National and Local Forecast, Hurricane, Radar and Report website at <http://www.weather.com> as published by the Weather Channel.
- C. Use testing methods for 'Assessing Compost Quality' as provided by the Rutgers Soil Testing Laboratory, Rutgers New Jersey Agricultural Experiment Station, New Brunswick, NJ 08901.

1.03 ENVIRONMENTAL REQUIREMENTS

- A. Perform operations only during the following weather conditions:
 - 1. There shall be no frost in the ground and the topsoil temperature shall be above 32 degrees F.
 - 2. There shall be no form of precipitation falling or forecast to fall within the next two hours. Following a period of precipitation, resume operations only after the soil has drained.

1.04 QUALITY ASSURANCE

- A. Verify that the entity and its workers performing the Work of this Section are experienced in landscaping and have been engaged in work of a complexity similar to that required under this Section for a period of at least three years. Include names of clients, telephone numbers, and contract amounts for work performed in the last three years and experience records of workers performing the Work of this Section.
- B. Test Requirements

1. Submit a representative sample of compost material for analysis to a certified independent laboratory to ensure conformance to requirements specified in 2.01 prior to delivery and at the commencement of each 100 cubic yards of compost delivered to the construction site. No substitutions for testing parameters will be permitted.
 2. Take on-site samples only in the presence of the Engineer and at sites ready for operations to commence.
 3. Test Soluble salts in Compost utilizing the Saturated Paste Extract method.
- C. General Requirements for Operations and Products
1. Products listed in PART 2 - PRODUCTS shall be approved in writing by the Engineer prior to delivery to the construction site.
 2. Prior to delivery of compost to the construction site, submit to the Engineer the following:
 - a. The location of the source of compost and the name and address of the supplier.
 - b. A certified analysis of the compost that it meets the requirements of this Section. Any analysis of which the date of testing by the certified independent laboratory is in excess of one month prior to the actual date of delivery to the construction site will not be accepted.
 - c. A ¼ pound sample to the Chief of Materials Engineering.
 - d. In the event that the sample/analysis does not conform to the specified requirements, submit additional samples/analyses until the results do conform to this Section, all at no additional cost to the Authority.
 3. After delivery to the construction site, the Engineer may, at his discretion, take for analysis representative samples of any item listed in PART 2 - PRODUCTS.
 4. At the commencement of each 100 cubic yards of compost delivered to the construction site, the Engineer may, at his discretion, take a sample of compost for analysis to determine if the product is in conformance to this Section.
 5. In the event that the analysis of the compost sample is not consistent with the requirements specified in 2.01, remove the delivered compost from the construction site and replace it with material that does conform, all at no additional cost to the Authority.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Do not deliver bulk compost to the construction site until the Engineer has approved in writing that the product meets requirements of this Section.
- B. Deliver all products in the manufacturer's unopened containers bearing the trade name, manufacturer's name, weight and analysis.
- C. Store products away from moisture and extreme temperatures and in such a manner that their effectiveness will not be impaired.

1.06 SUBMITTALS

- A. See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MATERIALS

- A. Compost

- 1. Compost shall be derived from leaves and or biosolids, free of viable weed seeds and contain material of a generally humus nature. The product shall not contain any materials toxic to plant growth or produce objectionable odors. Compost shall meet EPA Exceptional Quality Standards and all State Environmental Agency requirements. Variations in the following specified physical properties are not acceptable. Compost shall conform to the following:

<u>Parameters:</u>	<u>Allowable Range:</u>	<u>Test Method:</u>
Moisture Content		Wet Basis
% water	35% - 60%	
% solids	65% - 40%	
pH	5.7 - 7.7	Saturated Media Extract (SME)
Soluble Salt Level		
SME	<5.0 mmhos/cm (ds/m)	Saturated Media Extract
1:5 dilution	<1.5 mmhos/cm (ds/m)	1:5 dilution
Inorganic Nitrogen		
ppm nitrate-N	50 -200 ppm	SME
ppm ammonium-N	6 - 18 ppm	SME
Organic Matter Content	30% - 60%	
Organic Carbon Content	20% - 25%	
Total Kjeldahl	1.0% - 2.5%	
Carbon-to-Nitrogen Ratio	15 - 30:1	
Maturity Index	6 - 8	Solvita Test

*See Appendix "B" for allowable compost application rates based upon soluble salts levels.

PART 3. EXECUTION

3.01 PREPARATION

- A. Areas of Changed Grades

- 1. Areas of changed grades shown on the Contract Drawings that have a smooth, uniform surface, where compost is to be spread:

- a. Rototill existing soil to a depth of not less than six inches to produce a homogeneous mixture of fine texture, free of clods, stones, roots and other extraneous materials. Remove and dispose of such materials away from Authority property.
- b. Rake and drag soil surface to remove high areas and fill depressions.
- c. Limit preparation to areas that will receive compost immediately following preparation.

B. Unaltered Areas

Prepare areas shown on the Contract Drawings as unaltered or undisturbed by excavation, grading or stripping operations as follows:

- 1. Remove existing vegetation and turf. Dispose of vegetative matter away from Authority property.
- 2. Rototill to a depth of not less than six inches to produce a homogeneous mixture of fine texture, free of clods, stones, roots and other extraneous materials. Remove and dispose of such materials away from Authority property.
- 3. Rake and drag to remove high areas and fill depressions.
- 4. Limit preparation to areas that will receive compost immediately after preparation.

C. Sustainable Measures

Remove all debris resulting from the soil preparation operations promptly. Thoroughly clean the Work area to the satisfaction of the Engineer. Remove and transport off Authority property all debris materials resulting from the soil preparation operation in accordance with Division 1 clause entitled "Recycling of Construction Debris Material".

3.02 INSTALLATION

A. Formulation, Application, and Equipment - General

- 1. Use the manufacturer's recommended formula, application rate and safety instructions at all times.
- 2. Mix and agitate products and use equipment according to the manufacturer's directions. Mix and agitate only in an area designated by the Engineer.
- 3. Dispose of spilled materials and surplus products away from Authority property.

B. Apply a minimum of 2" of compost evenly over area and uniformly incorporate (rototill) into the soil to a minimum depth of six inches.

C. Commence seeding and/or landscaping applications immediately after incorporating compost.

END OF SECTION

SECTION 02960

ADDING COMPOST

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

Samples

02960C01 Submit a 1/4-pound representative sample of compost (as many as required) to the Chief of Materials Engineering, and the location of the source of the compost and test results to the Engineer.

Certificates

02960E01 Submit a representative sample of compost material for analysis to a certified independent laboratory to ensure conformance to requirements specified in 2.01 prior to delivery and at the commencement of each 100 cubic yards of compost delivered to the construction site. No substitutions for testing parameters will be permitted.

Qualifications

02960K01 Submit qualifications of the entity and its workers performing the Work of this Section to the Engineer in accordance with 1.04 A. Include names of clients, telephone numbers, and contract amounts for work performed in the last three years and experience records of workers performing the Work of this Section.

END OF APPENDIX "A"

SECTION 02960

ADDING COMPOST

APPENDIX "B"

COMPOST – SOLUBLE SALTS LEVELS

Use the following table to determine the maximum allowable ECe(dS/m of saturation extract) of compost at the desired application rate:

Desired Use Rate		Salinity (ECe) of On-Site Soil		
Cubic Yards Amendment per 1000 Sq. Ft. for incorporation to 6" depth	Volume Percentage of Amendment	3 dS/m	2 dS/m	1 dS/m
		Maximum ECe of Compost		
1	5	14	28	42
2	11	7	14	21
3	16	5	9.5	14
4	22	3.5	7	10.5
5	27	3	5.5	8.5
6	32	2.5	4.5	7

Example: If Specification calls for 6 cubic yards compost per 1000/sq. ft. to be incorporated into the top 6" depth, and site soil has an ECe of 2.0. In order to avoid exceeding an ECe of 4 in the final blend, compost ECe should be less than 4.5 dS/m.

END OF APPENDIX "B"

DIVISION 3
SECTION 03100
CONCRETE FORMWORK

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for cast-in-place concrete formwork.

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

American Concrete Institute (ACI)

ACI 347	Guide to Formwork for Concrete
ACI 117	Standard Specifications for Tolerances for Concrete Construction and Materials
ACI 318	Building Code Requirements for Reinforced Concrete

American Society for Testing and Materials (ASTM)

ASTM D 1751	Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-Extruding and Resilient Bituminous Types)
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National Forest Products Association (NFPA)

National Design Specifications for Wood Construction

West Coast Lumber Inspection Bureau

American Plywood Association (APA)

Douglas Fir Plywood Association (DFPA)

1.03 DESIGN AND PERFORMANCE REQUIREMENTS

- A. Design calculations shall be prepared by a Professional Engineer licensed in the State where the Work is to be performed. Design calculations shall be made available to the Engineer to facilitate inspection.
- B. For wood products furnished for the Work of this Section, the Contractor shall comply with the applicable provisions of "National Design Specifications for Wood Construction" of the National Forest Products Association (NFPA).
- C. For all other products furnished for the Work of this section, the contractor shall comply with the reference standards of the local building code.

D. Shop Drawings

1. All formwork and shoring shop drawings shall be signed and sealed by a Professional Engineer licensed in the State where the Work is to be performed. Shop drawings shall be made available to the Engineer to facilitate inspection.
2. Shop drawings shall indicate:
 - a. Pertinent dimensions, openings, methods of construction, types of connections, materials, joint arrangement and details, ties and shores, location of framing, studding and bracing, and temporary supports;
 - b. Means of leakage prevention for concrete exposed to view in the finished construction;
 - c. Sequence and timing of erection and stripping, assumed compressive strength at time of stripping, height of lift and height of drop during placement;
 - d. Vertical, horizontal and special loads in accordance with "Loads" of ACI 347 (Section 2.2) and camber diagrams, if applicable;
 - e. Notes to formwork erector showing size and location of conduits and pipes embedded in concrete according to ACI 318 (Section 6.3).

1.04 SUBMITTALS

For Submittals - see Appendix "A".

PART 2. PRODUCTS

2.01 MATERIALS

A. Earth Forms

Use only for footings where shown on the Contract Drawings.

B. Lumber Forms

Use for edge forms and unexposed finish concrete. Boards shall be 6 inches or 8 inches in width, shiplapped or tongue and groove, "Standard" Grade Douglas Fir, conforming to the "Standard Grading and Dressing Rules No. 17", of the West Coast Lumber Inspection Bureau. Boards shall be four sides surfaced.

C. Plywood Forms

Use for exposed finish concrete. Forms shall conform to U.S. Product Standard PA 1-66. Each panel shall carry the grade trademark of the American Plywood Association along with the Douglas Fir Plywood Association (DFPA) Quality stamp and shall be full size (4-foot x 8-foot) panels.

1. Plywood for surfaces to receive membrane waterproofing shall be a minimum of 5/8 inch thick and shall be "B-B Plyform Class 1 Exterior" grade.
2. Plywood where "Smooth Finish" is required, as shown on the Contract Drawings, shall be "HD Overlay Plyform Class 1 Exterior" grade, a minimum of 3/4 inch thick.

D. Prefabricated Forms

Prefabricated forms shall be as listed below and where shown on the Contract Drawings:

1. Pan Type Void Forms

Removable steel or reinforced plastic of sizes and profiles required to produce completed Work shown.

2. Tubular Column Type

Metal, fiberglass-reinforced plastic, or spirally wound laminated fiber materials; inside surface treated with release agent; of sizes required to produce completed Work shown.

E. Steel Forms

Sheet steel, suitably reinforced and designed for the particular use shown on the Contract Drawings.

F. Form Liners

Smooth, durable, grainless and non-staining hardboard, unless otherwise shown on the Contract Drawings.

G. Framing, Studding, and Bracing

Stud or No. 3 Structural Light Framing grade.

H. Form Ties and Spreaders

Standard, non-corrosive metal form clamp assembly, of type acting as spreaders and leaving no metal within 1 inch of concrete face. No wire ties, wood spreaders or through bolts will be permitted.

I. Form Anchors and Hangers

Anchors and hangers used for exposed concrete shall not leave exposed metal at surface. Hangers supporting forms from structural steel shall be symmetrically arranged on supporting members to minimize twisting or rotation of member. Penetration of structural steel members will not be permitted.

J. Form Coating Agent

Provide one of the following unless otherwise shown on the Contract Drawings:

1. "Arcal-80"; Arcal Chemical Corporation
2. "Synthex"; Industrial Synthetics Company
3. "Nox-Crete Form Coating"; Nox-Crete Company

K. Vapor Retarder

Where shown on the Contract Drawings, 8 mil thick poly-ethylene sheet.

- L. Bituminous Joint Filler: ASTM D 1751.

PART 3. EXECUTION

3.01 PREPARATION

- A. Earth Forms

Trench earth forms neatly and accurately and at least 2 inches wider than footing widths shown on the Contract Drawings, unless otherwise indicated. Construct wood edge strips at top of each side of trench to secure reinforcing and prevent trench from sloughing. Form sides of footings where earth sloughs. Earth forms shall be tamped firm and cleaned of all debris and loose material before depositing concrete.

- B. Formwork – General

Sloped surfaces steeper than 1.5 horizontal to 1 vertical should be provided with a top form to hold the shape of the concrete during placement, unless it can be demonstrated to the engineer that top forms can be omitted. Construct forms to the correct shape and dimensions, mortar tight, of sufficient strength, and so braced and tied together that the movement of men, equipment, materials or the placing and vibrating of the concrete shall not throw them out of line or position. Forms shall be strong enough to maintain their shape under all imposed loads. Camber where necessary to assure level finished soffits unless otherwise shown on the Contract Drawings. Carefully verify the horizontal and vertical positions of forms and correct all inaccuracies to the satisfaction of the Engineer before placing concrete in any form. Complete all wedging and bracing before placing concrete.

- C. Forms for "Smooth Finish" Concrete

Use steel, plywood or lined board forms. Plywood and form liners shall be clean, smooth, uniform in size and free from damaged edges and holes. Form lining shall have close-fitting square joints between separate sheets and shall not be sprung into place. Sheets of form liners and plywood shall be full size wherever possible and joints shall be taped to prevent protrusions in concrete. Use special care in forming and stripping wood forms to protect corners and edges. All horizontal joints shall be level and continuous. Wood forms shall be kept wet at all times until stripping.

- D. Forms for Surfaces to Receive Membrane Waterproofing

Use plywood or steel forms. After erection of forms, tape form joints to prevent protrusions in concrete.

E. Framing, Studding and Bracing

Space studs at 16 inches on center maximum for boards and 12 inches on center maximum for plywood. Framing, bracing, centering and supporting members shall be of ample size and strength to carry safely, without deflection, all dead and live loads to which forms may be subjected, and shall be spaced sufficiently close to prevent any bulging or sagging of forms. Soffits of all beam forms shall be constructed of material a minimum of two inches thick. Concrete out of line, level or plumb will be cause for rejection by the Engineer of the whole Work affected. Distribute bracing loads over base area on which bracing is erected. When placed on ground, protect against undermining, settlement or accidental impact.

3.02 INSTALLATION

A. Tolerances

Formwork shall be constructed so that concrete surfaces shall be within construction tolerances specified in "Standard Specifications for Tolerance for Concrete Construction and Materials" of ACI 117. Tolerances not met will be corrected to the satisfaction of the Engineer at no additional cost to the Authority.

B. Chamfered Corners

As shown on the Contract Drawings, provide moldings in forms for all chamfering required. Moldings shall be 45-degree right triangles in profile, of size required, milled from wood free from visible defects.

C. Forms Ties

Form ties shall be of sufficient strength and used in sufficient quantities to prevent spreading of the forms. Place ties at least one inch away from the finished surface of the concrete. Leave inner rods in concrete when forms are stripped. Space all form ties to be equidistant, and symmetrical and lined up both vertically and horizontally unless otherwise shown on the Contract Drawings.

D. Cleanouts and Access Panels

Provide removable cleanout sections or access panels at the bottoms of all forms to permit inspection and effective cleaning of loose dirt, debris, and waste material. Clean all forms and surfaces against which concrete is to be placed of all chips, sawdust, and other debris and thoroughly blow out with compressed air just before concrete is placed.

E. Arrangement

Arrange formwork to allow proper erection sequence and to permit form removal without damage to concrete.

F. Construction Joints

Provide a surfaced pouring strip where construction joints intersect exposed surfaces to provide a straight line at joints. Just prior to subsequent concrete placement, remove strip and tighten forms to conceal shrinkage. Construction joints shall show no overlapping of concrete and shall, as closely as possible, present the same appearance as butted plywood joints. Joints in a continuous line shall be straight, true, and sharp.

G. Embedded Items

Make provisions for pipes, sleeves, anchors, inserts, reglets, anchor slots, nailers, waterstops and other features. No wood or uncoated aluminum shall be embedded in concrete. Obtain any required information pertaining to embedded items to be furnished for the Work specified in other Sections. Securely anchor all embedded items in correct location and alignment prior to placing concrete. Conduits and pipes, including those made of coated aluminum, must meet the requirements of ACI 318 (Section 6.3). Approved coatings for aluminum shall be as follows unless otherwise shown on the Contract Drawings:

1. Conlux

Primer - Bond Plex 46 or 66 (water borne urethane)
Topcoat - Epolon Multi-Mil 39 (epoxy polyamide)

2. Sherwin Williams

Topcoat - Heavy Duty Epoxy B67/B60B3 (epoxy polyamide)
Note: self-priming

3. Benjamin Moore

Primer - Epoxy Rust Inhibitive Primer (epoxy polyamide)
Topcoat - Epoxy Enamel (epoxy polyamide)

H. Openings for Items Passing Through Concrete

Frame openings in concrete where shown on the Contract Drawings. Establish exact locations, sizes, and other conditions required for openings and attachment of Work specified under other Sections. Coordinate all Work of this nature in order that there shall be no unnecessary cutting and patching of concrete. Perform any cutting and repairing of concrete required as a result of failure to provide for such openings at no additional cost to the Authority.

I. Screeds

Set screeds and establish levels for tops of concrete slabs and levels for finish on slabs. Slope slabs to drain where required or as shown on the Contract Drawings. Before depositing concrete, remove all debris from the space to be occupied by the concrete and thoroughly wet all forms. Remove freestanding water.

J. Screed Supports

For concrete over waterproof membranes and vapor barrier membranes, use screed supports of a cradle, pad or base type which shall not puncture the membrane. Staking through the membrane will not be permitted.

K. Shores and Falsework

Provide shores and falsework of adequate strength to protect persons and adjacent structures. Falsework and supports shall be adequate in size and strength to resist the loads imposed upon them without deformation, deflection, or settlement. All members must be straight and true without twists or bends. Use wedges in pairs or jacks where required to bring forms, shoring, or falsework for beams, girders, slabs, and other parts of the structure to the necessary elevations and uniform bearing before placing concrete. Do not use single wedges. Vertical and lateral loads shall be carried to ground by the formwork system or by bracing. Where shores rest on ground, provide adequate mud sills or other bases. Construct forms to permit their removal without disturbing the original shoring. Ensure that there is no movement of shores, braces or other supports during placement of concrete.

L. Reuse and Coating of Forms

Thoroughly clean forms and reapply form coating before each reuse. For exposed Work, do not reuse any form which cannot be reconditioned to "like new" condition. Discard forms considered unsatisfactory by the Engineer. Apply form coating to all forms in accordance with the manufacturer's specifications, except where "Scored Finish" is required as shown on the Contract Drawings. Do not coat forms for concrete that is to receive a "Scored Finish". Apply form coatings before placing reinforcing steel.

M. Inspection

Notify the Engineer after placement of reinforcing steel in the forms, but prior to placing any concrete, so that his inspection may be made.

3.03 REMOVAL OF FORMS AND SHORES

A. The forms and supporting shoring shall not be removed until the members have acquired sufficient strength to support their weight and the loads superimposed thereon safely and until the time and sequence of removal have been approved by the Engineer. Formwork shall be removed without damage to the concrete, in a sequence that does not allow the members to be subject to impact or loading eccentricities. Any repair required as a result of damage to the concrete shall be made to the satisfaction of the Engineer at no additional cost to the Authority.

B. Except when otherwise approved by the Engineer, or when minimum attained concrete strengths are specified on the Contract Drawings, forms shall be left in place for not less than the total number of days as specified in ACI 347.

END OF SECTION

SECTION 03100

CONCRETE FORMWORK

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

Shop Drawings

03100A01 Formwork and shoring shop drawings for areas accessible to the public and/or concrete exposed to view in the finished construction shall be submitted to the Engineer (as indicated in Section 1.03 D) at least 21 days prior to ordering any material or constructing any formwork.

END OF APPENDIX "A"

DIVISION 3**SECTION 03200****CONCRETE REINFORCEMENT****PART 1. GENERAL**

1.01 SUMMARY

This Section specifies requirements for furnishing and installing concrete reinforcement.

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M32	Steel Wire, Plain, for Concrete Reinforcement
AASHTO M55	Steel Welded Wire, Fabric, Plain, for Concrete Reinforcement
AASHTO M221	Welded Deformed Steel Wire Fabric for Concrete Reinforcement
AASHTO M31	Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
AASHTO M284	Epoxy-Coated Reinforcing Steel Bars

American Concrete Institute (ACI)

ACI 315	Details and Detailing of Concrete Reinforcement
ACI 318	Building Code Requirements for Reinforced Concrete

American Society for Testing and Materials (ASTM)

ASTM A 82	Steel Wire, Plain, for Concrete Reinforcement
ASTM A 184	Fabricated Deformed Steel Bar Mats for Concrete Reinforcement
ASTM A 185	Steel Welded Wire, Fabric, Plain, for Concrete Reinforcement
ASTM A 497	Welded Deformed Steel Wire Fabric for Concrete Reinforcement
ASTM A 615	Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
ASTM A 767	Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement
ASTM A 775	Epoxy-Coated Reinforcing Steel Bars

American Welding Society (AWS)

AWS D 1.4	Structural Welding Code - Reinforcing Steel
	<u>Concrete Reinforcing Steel Institute (CRSI)</u>
	Manual of Standard Practice Placing Reinforcing Bars

1.03 BRIDGE WORK

For Work of this Section involving bridges, the Contractor shall comply with the applicable provisions of "Standard Specifications for Highway Bridges" of the American Association of State Highway and Transportation Officials (AASHTO). Materials shall be in accordance with AASHTO designations where shown after the ASTM designation in parenthesis. Where not shown, comply with ASTM Designation.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver concrete reinforcement in bundles marked with metal tags indicating size, length and mark number.
- B. Store and handle materials to prevent corrosion, damage to coating or contamination that could impair bond.

1.05 SUBMITTALS

For submittals see Appendix "A".

PART 2. PRODUCTS

2.01 MATERIALS

- A. Reinforcing Bars: ASTM A 615 (AASHTO M31), deformed, Grade 60, unless otherwise shown on the Contract Drawings.

Coated bars where shown on the Contract Drawings shall comply with the following:

- 1. Galvanized Reinforcing Bars
ASTM A 767, Class-I hot-dip galvanized, after fabrication and bending.

Repair sheared and cut ends and damaged coating with a zinc-rich formulation conforming to ASTM A 767 in accordance with the material manufacturers' recommendations.
- 2. Epoxy-coated Reinforcing Bars: ASTM A 775 (AASHTO M284)

Repair sheared and cut ends and damaged coating with an epoxy patching material conforming to ASTM A 775 (AASHTO M284) in accordance with the patching material manufacturers recommendations.

- B. Welded Wire Fabric

Types shall be as shown on the Contract Drawings and shall comply with the following:

- 1. Plain, ASTM A 185 (AASHTO M55), flat sheets for size W5 and larger and coiled rolls for sizes below W5.
- 2. Deformed, ASTM A 497 (AASHTO M221), flat sheets for sizes D5 and larger and coiled rolls for sizes below D5.

C. Fabricated Steel Bar Mats

Fabricated steel bar mats shall be in accordance with ASTM A 184, when shown on the Contract Drawings, and as follows:

1. Bar grade, size and spacing as shown on the Contract Drawings.
2. Welded connections, unless otherwise shown on the Contract Drawings.

D. Steel Wire

Steel wire shall comply with ASTM A 82 (AASHTO M32), plain finish, unless otherwise shown on the Contract Drawings.

2.02 ACCESSORIES

A. Tie Wire

Provide minimum 16-gage, annealed type. Provide nylon, plastic or epoxy-coated wire for use with epoxy-coated and galvanized reinforcing bars, if any.

B. Supports for Reinforcement

Provide bolsters, chairs, spacers, and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use galvanized steel wire bar type supports complying with CRSI standards and as follows:

1. For supporting epoxy-coated reinforcing bars, use plastic coated supports, or supports fabricated from or coated with a dielectric material.
2. For slabs-on-grade, use supports with horizontal plate runners.
3. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, use supports with plastic capped legs (CRSI, Class 1).
4. Where architectural concrete is shown on the Contract Drawings, use plastic side form spacers.

2.03 FABRICATION

A. Fabricate concrete reinforcement as shown on the Contract Drawings and on approved shop drawings, in accordance with ACI 315 "Tolerances".

B. Bend all concrete reinforcement cold. Heating of bars or wire fabric is prohibited.

C. Where welding of concrete reinforcement is shown on the Contract Drawings, weld in accordance with AWS D1.4.

PART 3. EXECUTION

3.01 INSTALLATION

A. Place concrete reinforcement as shown on the Contract Drawings and on approved shop drawings. Where not shown on the Contract Drawings, comply with CRSI "Placing Reinforcing Bars".

- B. Clean concrete reinforcement of loose rust, mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.
- C. Accurately position, support and secure concrete reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support concrete reinforcement by chairs, runners, bolsters, spacers, and hangers in accordance with CRSI Manual of Standard Practice". Do not interfere with placement of embedded items.
- D. When a vapor barrier is shown on the Contract Drawings, do not cut or puncture during concrete reinforcement placement.
- E. Place concrete reinforcement to obtain covers shown on the Contract Drawings for concrete protection, or in accordance with ACI 318 "Concrete Protection for Reinforcement", if not shown on the Contract Drawings. Arrange, space and securely tie bars and bar supports to hold concrete reinforcement in position during concrete placement operations. Set ties so ends are directed into concrete, not toward exposed concrete surfaces.
- F. Install welded wire fabric in lengths as long as practical. Lap adjoining pieces at least one full mesh and lace splices with wire, but in no case shall lap be less than requirements of ACI 318 "Splices of Welded Deformed Wire Fabric in Tension" or "Splices of Welded Plain Wire Fabric in Tension". Offset end laps in adjacent widths to prevent continuous laps in either direction.
- G. After concrete placement, do not field bend partially embedded concrete reinforcement except as shown on the Contract Drawings.
- H. Repair damaged bars and welds, if any, in accordance with 2.01A.

END OF SECTION

SECTION 03200

CONCRETE REINFORCEMENT

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

Shop Drawings

03200A01 Detailed indicating placement, cover, splice locations, lap lengths, mechanical splice hardware, grade, bar size, length, mark number, bending schedule, bending diagram, weld designations, type of coating, material used to repair coating, and types of chairs, spacers, hangers and tie wire for all concrete reinforcement.

Catalog Cuts

03200B01 Catalog cuts for chair, spacers, hangers

Samples

03200C01 Mechanical Splice Hardware

Certificates

03200E01 Certification from the applicator of epoxy that the epoxy-coated reinforcing bars meet the requirements of ASTM A 775 (AASHTO M284).

Manufacturer Test Reports

03200F01 Certified mill test reports for all concrete reinforcement.

END OF APPENDIX "A"

DIVISION 3**SECTION 03301****PORTLAND CEMENT CONCRETE, LONG FORM****PART 1. GENERAL****1.01 SUMMARY**

This Section and its appendices specify requirements for Portland Cement Concrete mix proportions, materials used in concrete mixes, placing, finishing (except for pavements), curing, control joints, and result property requirements of the in-place concrete, and the evaluation of these properties through Quality Acceptance testing performed by the Authority for determining Adjustments to Contract Compensation. The Specifications herein establish minimum standards for concrete construction. This does not relieve the Contractor from following more stringent standards to achieve the quality acceptance limits for applicable performance parameters and their respective Percent Within Limit (PWL) measurements.

1.02 REFERENCES

The following is a listing of the publications, standards and codes referenced in this Section, of which the latest edition shall govern:

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO HB	Standard Specifications for Highway Bridges.
AASHTO M182	Burlap Cloth Made From Jute or Kenaf.
AASHTO T 26	Standard Method of Test for Quality of Water to Be Used in Concrete.
AASHTO T 277	Electrical Indication of Concrete's Ability to Resist Chloride.
AASHTO T 318	Water Content of Freshly Mixed Concrete Using Microwave Oven Drying.

American Concrete Institute (ACI)

ACI 207	Mass Concrete.
ACI 211	Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete.
ACI 213	Guide for Structural Lightweight-Aggregate Concrete.
ACI 222R	Protection of Metals in Concrete Against Corrosion.
ACI 301	Specifications for Structural Concrete for Buildings.
ACI 302.1R	Guide for Concrete Floor and Slab Construction.
ACI 303.1	Specification for Cast in Place Architectural Concrete.
ACI 304R	Guide for Measuring, Mixing, Transporting, and Placing Concrete. Chapter 8: Concrete Placed Under Water.
ACI 305R	Hot Weather Concreting.
ACI 306R	Cold Weather Concreting.

ACI 308	Standard Practice for Curing Concrete.
ACI 309R	Guide for Consolidation of Concrete.
ACI 318	Building Code Requirements for Structural Concrete.
ACI 548.4	Standard Specification for Latex-Modified Concrete (LMC) Overlays.
	<u>ASTM International (ASTM)</u>
ASTM C 31	Practice for Making and Curing Concrete Test Specimens in the Field.
ASTM C 33	Specification for Concrete Aggregates.
ASTM C 39	Test Method for Compressive Strength of Cylindrical Concrete Specimens.
ASTM C 42	Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
ASTM C 78	Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading).
ASTM C 88	Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
ASTM C 94	Specification for Ready-Mixed Concrete.
ASTM C 114	Test Methods for Chemical Analysis of Hydraulic Cement.
ASTM C 131	Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
ASTM C 136	Test Method for Sieve Analysis of Fine and Coarse Aggregates.
ASTM C 138	Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete.
ASTM C 143	Test Method for Slump of Hydraulic-Cement Concrete.
ASTM C 150	Specification for Portland Cement.
ASTM C 156	Test Method for Water Retention by Liquid Membrane-Forming Curing Compounds for Concrete.
ASTM C 157	Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete.
ASTM C 171	Specification for Sheet Materials for Curing Concrete.
ASTM C 172	Practice for Sampling Freshly Mixed Concrete.
ASTM C 173	Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
ASTM C 174	Test Method for Measuring Thickness of Concrete Elements Using Drilled Concrete Cores.
ASTM C 191	Test Methods for Time of Setting of Hydraulic Cement by Vicat Needle.
ASTM C 227	Test Method for Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar Method).
ASTM C 231	Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
ASTM C 260	Specification for Air-Entraining Admixtures for Concrete.
ASTM C 289	Test Method for Potential Alkali-Silica Reactivity of Aggregates (Chemical Method).

ASTM C 309	Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
ASTM C 311	Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete.
ASTM C 330	Specification for Lightweight Aggregates for Structural Concrete.
ASTM C 494	Specification for Chemical Admixtures for Concrete.
ASTM C 535	Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
ASTM C 566	Test Method for Total Evaporable Moisture Content of Aggregate by Drying.
ASTM C 567	Test Method for Determining Density of Structural Lightweight Concrete.
ASTM C 618	Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
ASTM C 979	Specification for Pigments for Integrally Colored Concrete.
ASTM C 989	Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars.
ASTM C 1064	Test Method for Temperature of Freshly Mixed Hydraulic Cement Concrete.
ASTM C 1116	Specification for Fiber-Reinforced Concrete.
ASTM C 1152	Test Method for Acid-Soluble Chloride in Mortar and Concrete.
ASTM C 1218	Test Method for Water-Soluble Chloride in Mortar and Concrete.
ASTM C 1240	Specification for Silica Fume Used in Cementitious Mixtures.
ASTM C 1260	Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method).
ASTM C 1399	Test Method for Obtaining Average Residual-Strength of Fiber-Reinforced Concrete.
ASTM C 1583	Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials By Direct Tension (Pull-Off Method).
ASTM C 1611	Slump Flow of Self-Consolidating Concrete.
ASTM D 1751	Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
ASTM D 1752	Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction.
ASTM D 3665	Practice for Random Sampling of Construction Materials.
ASTM D 4580	Practice for Measuring Delaminations in Concrete Bridge Decks by Sounding.
ASTM D 4791	Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.
ASTM D 4833	Test Method for Index Puncture Resistance of Geomembranes, and Related Products.
ASTM D 5199	Test Method for Measuring the Nominal Thickness of Geosynthetics.

ASTM E 965 Test Method for Measuring Pavement Macrotexture Depth Using a Volumetric Technique.

ASTM E 1347 Test Method for Color and Color-Difference Measurement by Tristimulus (Filter) Colorimetry.

Federal Aviation Administration (FAA) Advisory Circular (AC)

FAA AC 150/5370, Item P-501-6 Standards for Specifying Construction of Airports - Portland Cement Concrete Pavement - Contractor Quality Control Program.

Federal Specifications

SS-S-1401 Sealants, Joint, Non-Jet-Fuel-Resistant, Hot-Applied, for Portland Cement and Asphalt Concrete Pavements.

New Jersey Department of Transportation (NJDOT)

Standard Specifications for Road and Bridge Construction 2007.

US Army Corps of Engineers (USACE)

Handbook of Concrete and Cement.

1.03 ENVIRONMENTAL REQUIREMENTS

A. Cold Weather Requirements

1. Cold weather concrete construction shall conform to ACI 306R.
2. Submit a Cold Weather Concrete Construction Plan, and have it approved prior to concrete placements when the ambient temperature falls below 50 deg F. This Plan shall conform to ACI 306R and shall include, but not be limited, to the demonstration of how the in situ concrete temperature will be maintained at 50 deg F and monitored, or at temperatures specified in ACI 306R, Table 3.1, whichever is more stringent. In addition, demonstrate that the specified concrete properties can be achieved within the time requirements specified while maintaining a minimum curing temperature of 50 deg F.
3. Do not mix or place concrete when the ambient temperature is below 35 deg F, or when conditions indicate that the temperature will fall below 35 deg F within 72 hours, unless the areas to receive fresh concrete are insulated or enclosed, and maintain the concrete temperature at 50 deg F or in accordance with Table 3.1 in ACI 306.
4. Reinforcement, forms and soils with which concrete will be in contact shall not be frozen and must be maintained completely frost-free. If required, apply heat to raise their temperature to a minimum of 35 deg F. The use of chemicals to eliminate frost will not be permitted.

B. Hot Weather Requirements

1. Hot weather concrete construction shall conform to ACI 305R.

2. Submit a Hot Weather Concrete Construction Plan and have it approved prior to concrete placements when the ambient temperature exceeds 80 deg F. This Plan shall conform to ACI 305R and shall include but not be limited to the demonstration of how the concrete temperature during batching and mixing will be kept below 90 deg F, how the concrete will be protected from rapid evaporation of surface moisture, the proper use of water reducing retarders with re-dosing charts and procedures and curing procedures.
3. Do not place concrete for pavements, overlays, bridge decks or ramps when the ambient temperature exceeds 85 deg F; schedule Work so that concrete can be placed during the coolest part of the day. Do not place concrete for structural decks, slabs or pavements when the rate of concrete surface evaporation exceeds 0.15 lbs/ft²/hr, as defined in ACI 305R, Figure 2.1.5. If ambient conditions exceed this limit, demonstrate through the use of windscreens, fogging or other suitable means that the concrete evaporation rate is less than 0.15 lbs/ft²/hr.
4. If the concrete temperature reaches 92 deg F as measured at the construction site in accordance with ASTM C 1064, it will be rejected.

1.04 QUALITY CONTROL

A. General

1. Maintain a level of Quality Control sufficient to consistently achieve the end result performance properties specified herein. In addition:
 - a. Submit the approved mix proportions including an automated, time-date stamp on each delivery ticket indicating the batch weights of all batching constituents.
 - b. Ensure that all plant mixing equipment and trucks are calibrated and approved by either the New Jersey or New York State Department of Transportation. Documentation of such conformance shall be available to the Engineer at all times.
 - c. Ensure that all personnel performing concrete testing are certified ACI Grade I Concrete Laboratory Testing Technicians or Concrete Field Testing Technicians, as appropriate.
 - d. Ensure that the independent testing laboratory employed to perform field and laboratory testing is AASHTO Materials Reference Laboratory (AMRL) and Cement and Concrete Reference Laboratory (CCRL) certified.
 - e. When placing aeronautical pavement concrete, the quality control plan shall conform to the provisions of the Federal Aviation Administration Advisory Circular 150/5730-10D- Rigid Pavement Items P-501 Contractor Quality Control Program.

B. Quality Control Plan: Submit a Quality Control Plan a minimum of 14 days prior to the pre-concrete construction meeting described in 1.06. Do not start production before the Quality Control Plan has been approved by the Engineer. The Quality Control Plan shall include the following:

1. Quality Control Organization

- a. A chart showing all Quality Control personnel and a description of how these personnel interact and communicate with and report to other management or field construction personnel. Include names, company name and each person's function, telephone number and fax number.
- b. The quality control organization chart shall include a Program Administrator who shall ensure that all QC procedures are followed and enforced and who shall have a minimum of 5 years experience on projects of size and scope comparable to the Work of the Contract. The Program Administrator shall be a full-time employee of the Contractor or a consultant engaged by the Contractor. Additional qualifications shall include at least one of the following:
 - (1) Professional Engineer, Engineer-In-Training, Bachelor of Science in Civil Engineering, Civil Engineering Technology or five years experience with airport and/or highway concrete construction.
 - (2) Completed New Jersey ACI Chapter's "Concrete Construction Technology" course with 5 years of concrete construction experience.
 - (3) Qualified as ACI Concrete Transportation Construction Inspector or possessing Concrete Construction Special Inspector certification with 5 years of concrete construction experience.

2. Intended project progress schedule for each mix and application, including quantities and a submittal schedule.

3. Quality Control Testing Plan, including a list of testing standards and the frequency at which each test is to be performed.

- a. Include gradation and moisture content testing for fine and coarse aggregates in accordance with ASTM C 136 and ASTM C 566, respectively. Perform both tests (1) prior to production, (2) every 3 hours during production or every 100 cubic yards of concrete produced (whichever is longer in time) and (3) when aggregates are used from a new stockpile that has not been tested for gradation or moisture content.

4. Documentation of Quality Control activities, including the location where recorded test results and other information such as mill test certificates for all cementitious material will be stored, which shall be made available to the Engineer at any time upon request.

5. Procedures for corrective action when QA and/or QC test results do not conform to the requirements of the Contract.

1.05 TRIAL BATCHING AND TEST POUR VERIFICATIONS

A. Trial Batching

1. The Engineer may prepare and test trial batches as specified herein and in accordance with ACI 318, Section 5.3. At the Engineer's request, submit representative samples of all materials in sufficient quantities to the Port Authority Materials Engineering Unit. In the event of a conflict between tests performed by the Engineer and tests performed by or for the Contractor, all tests performed by the Engineer shall control.
2. The Engineer may perform the following tests to verify trial batches submitted by the Contractor: compressive strength, flexural strength, permeability by the Coulomb test, air content, unit weight, water content of freshly mixed concrete using the microwave oven drying test, shrinkage, chloride ion concentration, corrosion inhibitor concentration, bond strength, slump, time of set, gradation of fine and coarse aggregates, and the fineness modulus of the fine aggregate.

B. Test Pours

1. Unless otherwise noted on the Contract Drawings, perform a test pour a minimum of 14 calendar days prior to production pouring in order to demonstrate and verify proper workability, finishability, setting characteristics, consolidation and curing procedures and to confirm that specified physical properties are attained for the approved mix proportions. For tremie concrete applications, construct a mock-up to verify acceptable consolidation and that the specified compressive strength is achieved by testing three in-place cores taken from the test placement at locations designated by the Engineer. In addition, for architectural cast in place concrete, construct a full-scale mock-up in accordance with 2.03 C.3. If in the sole opinion of the Engineer the test pour is acceptable, follow the procedures established during the test pour during production.
2. Test Pour Size: For flatwork, the minimum test pour size shall be a length of 100 feet for the entire thickness of the pavement and width of the screed planned to be used. For all other concrete construction, the test pour size shall be full-size for the cross sectional area, including the location of all steel reinforcement. However, at the option of the Engineer, the length of the member may be reduced from its design size, provided it is adequate to demonstrate workability, finishability, setting characteristics, consolidation, finish and curing procedures, as determined solely by the Engineer. Perform all test pours using the same personnel, equipment, procedures and materials that will be used for full production.
3. The test section will be considered acceptable if, in the sole opinion of the Engineer, it meets the specifications for surface preparation, batching, mixing, placement, consolidation, curing, finish and applicable performance properties of the concrete. In addition, for architectural concrete, color and texture will be considered acceptable according to the sole opinion of the Engineer.
4. In the event that the Engineer deems the test section unsatisfactory, remove the test section and repeat the test at no additional cost to the Authority.
5. The test pour location will be determined by the Engineer at the pre-concrete construction meeting, and will be located close to, if not within, the Area of Work, unless otherwise noted on the Contract Drawings.

1.06 PRE-CONCRETE CONSTRUCTION MEETING

- A. A pre concrete placement meeting will be conducted at the construction site by the Engineer a minimum of 20 days prior to the first pour to review the Contractor's submitted mix proportions, hot and cold weather concreting plans (as applicable), curing procedures plan and test pour and to discuss the methods and procedures to achieve the specified concrete quality. Notify the Engineer and send a pre-concrete meeting agenda to all attendees a minimum of 15 days prior to the scheduled date of the meeting indicating review subjects. At no additional cost to the Authority make arrangements for the Contractor's superintendent and a qualified representative from each segment of the concrete operations to be present, including, but not limited to the following:
1. Concrete supplier.
 2. Laboratory representative responsible for the concrete proportion mix and Quality Control.
 3. Contractor's Program Administrator for Quality Control.
 4. Concrete subcontractor.
 5. Admixtures and curing membrane suppliers.
 6. Concrete pumping subcontractor.
 7. Mobile mixer subcontractor.
 8. Precast concrete fabricator and installer.
 9. Joint sawing subcontractor.
 10. The Engineer.
- B. Record, type, and print meeting minutes and distribute them to all attendees of the meeting within 5 days of the date of the meeting.
- C. Do not schedule the pre-concrete construction meeting until all of the following have been submitted and approved, as applicable to the Work of the Contract:
1. Mix Proportions.
 2. Admixture dosage charts showing the effects of concrete temperatures from 50 deg F to 90 deg F.
 3. Sample panels (12" x 12" x 2" for architectural concrete).
 4. Hot and Cold Weather Concrete Construction Plans.
 5. Independent testing laboratory AASHTO and CCRL Accreditation Certification.
 6. ACI Grade I certifications for concrete testing personnel.
 7. Placement methods and procedures, including surface preparation.
 8. Pumping Procedure Plan.
 9. Curing Procedure Plan.
 10. Joint Location Plan and Timing of Cuts.
 11. Quality Control Plan.
 12. Procedure for Curing Field Concrete Specimens.

1.07 SUBMITTALS

- A. See Appendix "A" for submittal requirements.
- B. Do not deliver any concrete to the construction site until all approvals have been obtained.

PART 2. PRODUCTS

2.01 MANUFACTURERS AND SOURCES OF SUPPLY

- A. Use no cement, fly ash, slag, silica fume, metakaolin or fine or coarse aggregates that have not been approved by either the New Jersey or New York State Department of Transportation.

2.02 MATERIALS

- A. Cement: Conforming to ASTM C 150, Type I and II, and Type III where early strength gain is required, or others specified on the Contract Drawings.
- B. Very High Early Strength Cement: Defined as cement used to produce concrete with the compressive strength shown on the Contract Drawings within 12 hours or less and conforming to the following:
 - 1. The compressive strength shall be greater than or equal to the specified strength at the curing time specified on the Contract Drawings, when tested in accordance with ASTM C 39. During cold weather concrete construction, demonstrate that the specified compressive strength can be obtained at a curing temperature of 50 deg F.
 - 2. Absolute drying shrinkage less than or equal to 0.04% at 28 days for the mix proportions containing the Very High Early Strength Cement in accordance with ASTM C 157 modified (Air Drying Method), where the initial comparator reading shall be taken at 3 hours after the addition of the mixing water to the dry materials in the mix.
 - 3. Setting time, determined in accordance with ASTM C 191, shall be sufficient to provide adequate workability, meet the specified strength requirement, and allow enough time in the field to finish and begin curing the concrete for its intended use.
 - 4. The Very High Early Strength Cement shall meet the properties in 2.02 B.1, 2.02 B.2 and 2.02 B.3, for each Lot of cement not to exceed every 50,000 pounds. Submit certification from an independent testing laboratory employed by the Contractor and approved by the Engineer that the cement meets these properties.
- C. Silica Fume: Shall conform to ASTM C 1240 and the following:
 - 1. Silicon Dioxide Content: 85 % minimum.
 - 2. Loss On Ignition: 6% maximum.
 - 3. Surface Area: (nitrogen absorption): 15 m²g. minimum.
 - 4. Crystallinity: Non-crystalline within limits of detection by XRD.
 - 5. Oversize Foreign Materials (in fume): 5% maximum on 45-micron sieve (wet).

- D. Metakaolin: Conforming to ASTM C 618, Class N. Use one of the following products, or approved equal:
1. "MetaMax", as manufactured by BASF Cleveland, Ohio.
 2. "PowerPozz", as manufactured by Advanced Cement Technologies, LLC, Blaine, Washington.
- E. Fly Ash: Conforming to ASTM C 311 and ASTM C 618, Class F except the maximum loss on ignition shall be less than 4%.
- F. Slag: Conforming to ASTM C 989, Grade 100 or 120.
- G. Fine Aggregate: Conforming to ASTM C 33, ASTM C 227, ASTM C 289 and ASTM C 131 with a maximum percentage of wear of 30%.
- H. Coarse Aggregate (Normal Weight Concrete): Conforming to ASTM C 33, ASTM C 227, ASTM C 289, ASTM C 535 with a maximum percentage of wear of 40%, and ASTM C 88 with a magnesium sulfate loss of not more than 12% for a five-cycle test period. Use trap rock or gneiss for all pavement wearing surfaces. The aggregate in any size group shall not contain more than 8% by weight of flat or elongated pieces, as tested in accordance with ASTM D 4791. A flat or elongated piece is one having a ratio between the maximum and minimum dimensions of a circumscribing rectangular prism exceeding 5 to 1. In accordance with ACI 318, Section 3.3.2, the nominal maximum size of coarse aggregate shall be not larger than: (1) one-fifth the narrowest dimension between sides of forms, (2) one-third the depth of slabs, or (3) three-quarters the minimum clear spacing between individual reinforcing bars or wires, bundles of bars, or prestressing tendons or ducts. The nominal maximum size of coarse aggregate used shall be the largest size aggregate that conforms to ACI 318, Section 3.3.2, unless otherwise noted herein or shown on the Contract Drawings.
1. For full depth pavement concrete unless otherwise shown on the Contract Drawings the combined aggregate volume shall be a minimum of 70 percent. The combined gradation of the fine and coarse aggregate shall conform to the following, when tested in accordance with ASTM C 136:

Sieve Size % Passing	For Pavement 10 Inches or Greater in Thickness		For Pavement Less Than 10 Inches in Thickness	
	Min.	Max.	Min.	Max.
2-1/2"	100			
2"	90	98	100	
1-1/2"	76	88	89	98
1"	67	79	74	86
3/4"	65	77	64	76
3/8"	48	60	48	60
No. 4	30	42	30	42
No. 8	27	37	27	37
No. 16	20	30	20	30
No. 30	16	22	16	22
No. 50	4	10	4	10

No. 100	0	4	0	4
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2. Pile Jackets: As a minimum, the mix proportion shall contain an ASTM C 33 Size No. 8 coarse aggregate. The ratio of coarse aggregate to fine aggregate by volume shall be not less than one to one.
 3. Pipe Piles: Reduce the amount of coarse aggregate to minimize segregation. The volume of coarse aggregate shall not exceed 9.0 cubic feet per cubic yard of concrete. The maximum size coarse aggregate shall be ASTM C 33 Size No. 8.
 4. Minimum Volume of Coarse Aggregate: All mixes shall contain a minimum of 39% coarse aggregate by volume, with the exception of 1) applications specified in Part 2.02 H.2-3, 2) Performance Category VI applications, 3) bridge decks and 4) mixes containing ASTM C 33 Size No. 8 aggregate. Bridge deck concrete mixes shall contain a minimum of 41% coarse aggregate and total minimum aggregate volume of 67%. Mixes containing only ASTM C 33 Size No. 8 stone not covered in 2.02 H.2-4 shall contain a minimum of 36% coarse aggregate by volume. These minimum requirements apply to all methods of placement, including pump mixes.
 5. When requested by the Engineer, supply independent laboratory test results in accordance with ASTM C 1260 indicating the potential alkali reactivity of the aggregates and cementitious materials proposed for use. Expansion at 16 days shall be less than 0.10%.
- I. Coarse Aggregate (Lightweight Concrete)
1. Expanded clay or shale produced by the rotary kiln process conforming to ASTM C 330 shall be graded in accordance with the requirements for 3/4" to No. 4 sieve sizes shown in Table I of that specification.
 2. The oven dry unit weight of plant-tested, lightweight aggregate shall vary not more than +/- 3.0 pounds from the unit weight (pounds per cubic foot) determined from the sample quantity submitted in accordance with 1.05 A.1.
- J. Water: Conforming to AASHTO T 26. Clean and potable for both mixing and curing concrete.
- K. Formulated Latex Modifier: Latex modifier shall be modifier "A/NA", as manufactured by Dow Chemical, Midland, Michigan. Add latex emulsion at a rate of 3.5 gallons per 94 lbs. of cementitious material in the concrete mix.
- L. Air Entraining Agent: Conforming to ASTM C 260.
- M. Admixtures: All admixtures shall conform to ASTM C 494. They shall contain not more than 0.05% chloride ions, and shall be used in accordance with the manufacturer's recommendations. Submit dosage charts, including the effects of concrete temperatures from 50 deg F to 90 deg F, to the Engineer. All admixtures shall be manufactured by one of the following:
1. Euclid Chemical Company.
 2. W.R. Grace & Company.
 3. BASF Technologies.
 4. Sika Corporation.

- N. Polycarboxylate High Range Water Reducer: For use when self-consolidating concrete is desired and approved by the Engineer. Conforming to ASTM C 494, Type F or Type G. Dosage rate shall be as recommended by the manufacturer to produce a spread of the concrete mixture measuring between 21 and 27 inches in diameter without segregation when released from a slump cone in accordance with ASTM C 1611. Use one of the following products, no substitutions:
1. "Plastol 5000" or "Plastol 341", as manufactured by The Euclid Chemical Company.
 2. "ADVA Flow 530" or "ADVA Flow 540", as manufactured by W.R. Grace & Company.
 3. "Glenium 3030 NS" or "Glenium 3200 HES", as manufactured by BASF Technologies.
 4. "Sikament 686" or "Viscocrete 2100", as manufactured by Sika Corporation.
- O. Corrosion Inhibitors
1. Corrosion inhibitor shall be one of the following:
 - a. For cast in place or precast:
 - (1) "DCI-S", as manufactured by W.R. Grace & Company.
 - (2) "Eucon CIA", as manufactured by Euclid Chemical Company.
 - (3) An approved equal.
 - b. For precast applications only:
 - (1) "Sika CNI", as manufactured by Sika Corporation.
 - (2) "Rheocrete CNI", as manufactured by BASF Technologies.
 - (3) "DCI", as manufactured by W.R. Grace & Company.
 2. The concentration of calcium nitrite shall be 30% +/- 2% by weight of solids per gallon.
 3. The Engineer will sample the corrosion inhibitor for testing to verify the calcium nitrite solids content. The amount of calcium nitrite in fresh concrete may also be tested at any time, to verify if the proper quantity of the corrosion inhibitor is being batched in the mix.
 4. Corrosion inhibitor admixtures shall not accelerate the setting time of the concrete mixture. Use a retarder and/or other admixtures to ensure that acceleration of setting time does not occur, while maintaining the applicable performance criteria, as stipulated in 2.04. Submit procedures for the placement of concrete mixes containing a corrosion inhibitor when a retarder is required for the range of concrete temperatures from 50 deg F to 90 deg F.
- P. Viscosity Modifying and/or Self-Consolidating Admixtures: May be required for tremie concrete applications at the rate recommended by the manufacturer. Test concrete in accordance with CRD-C6189A US Army Corps of Engineers "Handbook of Concrete and Cement". Maximum percentage of washout weight loss shall not exceed 5% after three standard test drops in water.
- Q. Pigments: Conforming to ASTM C 979.

R. Curing Materials

1. Liquid Membrane Forming Curing Compound conforming to the following:
 - a. Curing membrane shall be resin based and shall have a minimum of 25 % active solids content in accordance with test method ASTM D 2369.
 - b. For horizontal exterior pavement applications, curing membranes are restricted to ASTM C 309 Type 2, Class B materials. ASTM C 309 Type 1-D, Class B membranes are acceptable for other exterior applications. ASTM C 309 Type 1, Class B membranes are acceptable for interior applications only.
 - c. Membranes shall comply with the latest volatile organic compound (VOC) requirements for the states of both New York and New Jersey. Submit certification of compliance to the Engineer upon request.
 - d. The membrane shall restrict the loss of water to not more than 0.40 kilograms per square meter in 72 hours at a coverage rate of 300 square feet per gallon per coat for Type I curing compounds, and 200 square feet per gallon per coat for Type 2 curing compounds when tested in accordance with ASTM C 156.
2. Burlap: Conforming to AASHTO M 182, Class 3, weighing approximately 9 oz./sq. yd. dry.
3. Sheet Material: Conforming to ASTM C 171.
 - a. Shall be White Burlap Polyethylene Sheet.
4. Cotton Mats: conforming to ASTM D 5199 with a minimum thickness of 40 mils, ASTM C 156 with a maximum water loss of 0.0065 oz./in.², ASTM D 4833 with a minimum puncture strength of 70 pounds and ASTM E 1347 with a minimum reflectance of 75%. The following cotton mats may be used in lieu of burlap for wet curing operations:
 - a. "Transguard 4000", as manufactured by Reef Industries, Inc., Houston, Texas, or
 - b. An approved equal conforming to the requirements specified in 2.02 R.4.

S. Evaporation Retardant: This material shall be used to retain moisture in the concrete during finishing operations. Use one of the following:

1. "Euco-Bar", as manufactured by Euclid Chemical Company.
2. "E-Con", as manufactured by L&M Construction Chemicals, Inc.
3. "Confilm", as manufactured by BASF Technologies.
4. "SikaFilm", as manufactured by Sika Corporation.
5. "Aquafilm", as manufactured by Conspec Marketing & Manufacturing Company, Inc.

T. Fiber Reinforcement:

1. Polypropylene Micro Fibers
 - a. Use one of the following products, subject to compliance with the Contract requirements:
 - (1) "Fiberstrand", as manufactured by Euclid Chemical Company.
 - (2) "Fibermesh", as manufactured by Fibermesh, Inc.

- (3) "Forta", as manufactured by Forta Corporation.
- (4) "Grace Fibers" or "Grace Microfibers", as manufactured by W.R. Grace & Company.
- (5) "Durafiber", as manufactured by Industrial Systems, Ltd.
- (6) Or an approved equal.

b. Additional requirements:

- (1) Collated fibrillated materials: Dosage rate shall be a minimum of 1.5 lb./cu. yd.
- (2) Multifilament fibers: Dosage rate shall be a minimum of 1 lb./cu. yd. The minimum length shall be 0.75 inches.
- (3) Conformance with ASTM C 1116, designation Type III, 4.1.3.
- (4) Conformance with a minimum plastic shrinkage crack reduction of 70 percent when tested in accordance with ICBO ES, Appendix B (7-92).
- (5) Use of fibers shall not change the water requirements of the mix.
- (6) Conform to the manufacturer's recommendations for the quantity of fiber, which shall be not less than the minimum requirements of 2.02 T.1.b.1 and 2.02 T.1.b.2.
- (7) Arrange for the fiber manufacturer to provide the services of a qualified representative at the pre-concrete construction meeting and for the first two days of fibrous concrete placement production.

2. Structural Polypropylene/Polyethylene Macro Fibers

a. Use one of the following products, subject to compliance with the Contract requirements:

- (1) "Tuf-Strand SF", as manufactured by Euclid Chemical Company.
- (2) "Strux 90/40", as manufactured by W.R. Grace & Company.
- (3) Or approved equal.

b. Additional requirements:

- (1) Dosage rate shall be a minimum of 4.0 lb./cu. yd. Higher dosages may be noted on Contract Drawings.
- (2) The minimum length shall be 1.50 inches.
- (3) Fiber shall have an Aspect Ratio of 50 to 90.
- (4) Conformance with ASTM C 1116, designation Type III, 4.1.3.
- (5) The structural macro fiber concrete shall have an average residual strength of 200 psi when tested in accordance with ASTM C 1399.
- (6) Use of fibers shall not change the water requirements of the mix.
- (7) Conform to the manufacturer's recommendations for the quantity of fiber, which shall be not less than the minimum requirements of 2.02 T.2.b.1.

- (8) Arrange for the fiber manufacturer to provide the services of a qualified representative at the pre-concrete construction meeting and for the first two days of fibrous concrete placement production.

U. Expansion Joints (except for Bridge Decks) and Contraction Joints (except for pavements)

1. Vinyl plastic water stops shall be of types and sizes shown on the Contract Drawings and conforming to Corps of Engineers "Specifications for Polyvinylchloride Waterstop" (Designation: CRD-C 572-60, latest revision).
2. Premoulded expansion joint filler, when shown on the Contract Drawings:
 - a. Cork type shall be ASTM D 1752, Type II.
 - b. Bituminous type shall be ASTM D 1751.
3. Joint Sealant when shown on Contract Drawings: Federal Specification SS-S-1401, latest revision.

2.03 MIX PROPORTIONS

- A. Develop mixes in accordance with the latest editions of ACI 211, ACI 301 and ACI 318 to achieve the proportion performance criteria in accordance with the Contract Documents, with a degree of excess as determined by Chapter 5 of ACI 318, and meet all of the applicable performance criteria as specified in the Contract Drawings and Specifications. In addition, all concrete placed underwater shall conform to ACI 304R, Chapter 8, and lightweight aggregate concrete shall conform to ACI 213. Submit an underwater concrete placement procedure that is in conformance with ACI 304R, Chapter 8. Prior to concrete construction and after approval of all materials to be used in the concrete, submit a mix proportion showing that all performance criteria have been met. Mix proportions submitted shall be based upon laboratory trial mix test results and/or mixes successfully used within the two years preceding the date of the submittal of the mix for the Work of this Section. The independent testing laboratory used to develop the mix proportions and to perform testing shall have AMRL and CCRL Accreditation for all test methods required to be performed and to develop the required mix. Submit proof of certification to the Engineer prior to the start of development of the mix proportions and testing. The mix proportions shall include copies of test reports, including test dates, and a complete list of materials, including type, brand and source. The trial mix design performed in the testing laboratory shall use the same materials, cement, pozzolans, aggregates and admixtures that will be used at the proposed batch plant. Show fineness modulus, gradations and absorptions of aggregates. If any of the approved mix constituents change in source, properties or proportion, submit a new mix. The mix proportions shall also conform to the following:
1. Substitute either fly ash, slag or both. The minimum total supplemental cementitious material (including fly ash, slag, silica fume and/or metakaolin) is 30% by weight of cement. The maximum rates of substitution shall be 30% for fly ash and 70% for slag, unless otherwise approved by the Engineer.
 2. For concrete placed underwater, the minimum cementitious material content shall be 650 pounds per cubic yard of concrete.

3. Compute water to cement ratio using the weight of cementitious material that is equal to the total weight of cement plus fly ash, slag, metakaolin and silica fume. Any admixtures which increase the water to cement ratio by 0.01 or greater shall be accounted for in the mix proportion to meet the specified water to cement ratio.
4. For Category I - V concrete applications, the mix water to cement ratio shall not exceed 0.40 and the absolute drying shrinkage shall not exceed 0.0% in accordance with ASTM C 157, modified to start measuring at 24 hours after demolding. Specimens will be made at the water to cement ratio and slump represented in the approved mix proportion. Continue to dry cure specimens for 28 days or 56 days at which time shrinkage will be determined. Do not wet cure shrinkage specimens after demolding. In addition for Categories III and IV, the maximum accelerated Coulomb count at 28 days shall be $\leq 1,000$ with the exception of concrete placed in a marine environment which will be tested after 28 days of curing at 73 deg F. For mixes containing Type F fly ash the compressive strength shall be tested at 56 days.
5. When High Range Water Reducer is added to the concrete mix at the construction site it shall be delivered in a tank fixed to the truck that discharges directly into the mixing drum, or it may be added to the drum from a calibrated dispensing unit. A calibrated dispensing unit shall be defined as a manufactured dispenser with clear volume indications marked on the outside of the unit. It shall be available at all times during the concrete placement for re-dosing purposes. Submit a re-dosing chart showing the dosages necessary to increase the slump, in inches per cubic yard of concrete remaining in the drum, over the range of concrete temperatures from 50 deg F to 90 deg F. If re-dosing occurs, the re-dosing chart shall be used, but under no circumstances shall the total dosage exceed the maximum dosage recommended by the manufacturer. The truck shall mix the load for a minimum of an additional 5 minutes prior to releasing the load.
6. The percentage of air in the mix shall fall within the range of the Lower Quality Limit (LQL) and the Upper Quality Limit (UQL) as outlined in the table shown in 2.04 A.6 entitled "Air Content Target Range for Freshly Mixed Concrete". Air content shall be determined by testing in accordance with ASTM C 231 for normal and heavyweight concrete mixes and ASTM C 173 for porous, lightweight aggregate.
7. Make adjustments to the weight of coarse, lightweight aggregate in accordance with the following:
 - a. Design lightweight concrete mix proportions such that the equilibrium unit weight does not exceed 115 pounds per cubic foot, unless otherwise specified. Equilibrium unit weight is defined as the constant mass after drying at 230 +/- 9 deg. F plus 3 pounds per cubic foot. Adjust the proportion of lightweight aggregate to compensate for the difference between the wet unit weight determined in 3.05 B.5 and the dry unit weight of the material submitted in accordance with 1.05 A.1 and the approved mix proportions.
 - b. For lightweight aggregate mixes, advise the batch plant 72 hours prior to pouring in order to saturate the aggregate. Presoak lightweight coarse aggregate a minimum of 72 hours prior to mixing of concrete. The lightweight aggregate shall reach an absorbed moisture content not less than the manufacturer's written recommendations or the concrete will be rejected.

- B. Where Latex Modified Concrete is specified in the Contract Drawings or Specifications, conform to ACI 548.4. The mix maximum water to cement ratio shall not exceed 0.37. The minimum volume of coarse aggregate shall be not less than 7.6 cubic feet (absolute volume) per cubic yard.
- C. Architectural Concrete

Concrete that will be permanently exposed to view and which therefore requires special care in selection of concrete ingredients including color, forming, placing, consolidating and finishing to obtain the desired architectural appearance is designated as "Architectural Concrete".

1. A minimum of 35 days prior to construction of a mock-up, submit mix proportions and two sample panels (a minimum of 12" x 12" x 2") for each mix to the Engineer for approval. The materials used for the sample panels shall be from the same sources of material supply for all constituents in the approved mix. When requested by the Engineer, submit samples of all constituents for trial batching to the Port Authority Materials Engineering Unit to verify that the physical property requirements are met. Obtain approval for both sample panels for color and texture, as well as for the mix proportions for physical properties prior to constructing a mock-up.
2. Pigments, in conformance with ASTM C 979, shall be used when matching the color of existing concrete or when a specific color of concrete is required by the Engineer.
3. Construct mock-up only after the Engineer has approved both the mix proportions for physical properties and the sample panels for color and texture. For cast in place concrete, a mock-up in accordance with ACI 303.1 Section 1.6 Quality Assurance will be required for approval by the Engineer. For walls, a mock-up shall include all details that will be encountered in a typical day's pour. The mock-up may be constructed at the construction site as part of the permanent Work at the sole risk of the Contractor. If the Engineer rejects the mock-up, it shall be removed and recast at the sole expense of the Contractor. For precast architectural concrete, the mock-up shall consist of a full member selected in advance by the Engineer. Keep the approved mock-up at the precast concrete production facility for the Engineer to compare with the production units for acceptance or rejection. Acceptance or rejection shall be determined solely by the Engineer.
4. Construct mock-ups only with all of the actual constituents of the approved mix proportions. Do not proceed with production until the mix proportions, sample panels, full-scale mock-up and shop drawings have been approved by the Engineer. Once production begins, do not change suppliers or sources of supply for any of the constituents in the approved mix for the duration of the Contract.
5. In addition to the mix proportions and sample panels, submit the following for approval: forms, form liners and form oil or release agents.
6. Architectural Concrete shall conform to the Quality Assurance performance criteria specified in 4.01 B, Table 2 for the appropriate placement application and the associated Quality Acceptance Limits specified in 2.04.
7. Noticeable differences in color and/or texture of the finished product, as determined solely by the Engineer, shall be corrected by means and materials approved by the Engineer.

2.04 QUALITY ACCEPTANCE LIMITS

- A. Develop mixes to meet the following performance criteria Quality Acceptance Limits in accordance with the relevant application properties specified in 4.01 B., Table 2, unless otherwise noted on the Contract Drawings:
1. Compressive Strength (ASTM C 39): The Lower Quality Limit, LQL, shall be the specified mix compressive strength at 28 days and 56 days when mixes contain Type F fly ash, unless otherwise noted on the Contract Drawings.
 2. Flexural Strength (ASTM C 78): The Lower Quality Limit, LQL, shall be 700 psi at 28 days, unless otherwise noted on the Contract Drawings.
 3. Permeability (AASHTO T 277): The Upper Quality Limit, UQL, for concrete placed in a marine environment shall be 1700 Coulombs for mixes not containing a corrosion inhibitor and 2200 Coulombs for mixes that do contain a corrosion inhibitor. Performance testing shall be performed at 28 days. For all other applications the accelerated method specified in section 3.05 B.7 shall apply and the UQL shall be 1000 coulombs.
 4. Bond Strength (ASTM C 1583): The Lower Quality Limit, LQL, shall be 150 psi at 28 days.
 5. Water Content (AASHTO T 318): The Upper Quality Limit, UQL, for water content shall be the submitted and approved water to cementitious ratio plus 0.03.
 6. Air Content (ASTM C 138, ASTM C 173 or ASTM C 231): Both the Lower Quality Limit, LQL, and the Upper Quality Limit, UQL, shall be as specified in the table below:

AIR CONTENT TARGET RANGE FOR FRESHLY MIXED CONCRETE

MAXIMUM SIZE AGGREGATE (SIZE #)	AIR CONTENT	
	LQL	UQL
2" or above (# 467 and above)	4.0%	7.0%
1-1/2" (# 57)	4.5%	7.50%
1" (# 67)	5.0%	8.0%
1/2" (# 8)	6.0%	9.0%
3/8"	6.5%	9.50%
Latex modified concrete	6.5%	

Note: For a specified compressive strength greater than 5000 psi, the LQL and UQL for air content, as indicated above, shall both be reduced by 1.0%.

For all concrete applications not exposed to freeze-thaw cycling or chlorides, no air entrainment is required.

7. Chloride Ion Concentration by Weight of Cementitious Material (ASTM C 1152, ASTM C 1218, ASTM C 114, ACI 222R): The acid soluble chloride ions by weight of cementitious material in the concrete mix shall be less than or equal to 0.10% for reinforced concrete and 0.08% for prestressed concrete, as per ACI 222R. The water soluble chloride ions by weight of cementitious material in the concrete mix shall be less than or equal to 0.08% for reinforced concrete and 0.06% for prestressed concrete, as per ACI 222R.

8. Pavement Thickness: The Lower Quality Limit, LQL, for pavement thickness shall be 97.0% of the thickness shown on the Contract Drawings.
 9. Delaminations: The total surface area tested for any given Lot of concrete shall indicate less than 5.00% delaminated area when tested using the chain drag in accordance with ASTM D 4580.
- B. For concrete bridge decks where riding surface tolerances are required, as shown on the Contract Drawings, the following requirements shall be met:
1. Surface smoothness deviations shall not exceed 1/4 inch in 16 feet.
 2. Vertical deviation from the grade shown on the Contract Drawings shall not exceed plus or minus 0.04 foot at any point.
- C. For mass concrete as defined in ACI 207 or as specified on Contract Drawings the temperature at the core of the in situ concrete shall not exceed 158 deg F nor shall the maximum difference in temperature between the core and the surface of the structure exceed 35 deg F at any time. The drop in temperature in the first 24 hours after the end of protection shall not exceed the limits of ACI 306R Table 3.1.
- D. Unless otherwise specified on the Contract Drawings, the above specified Quality Acceptance Limits will be used to calculate Adjustments to Contract Compensation in accordance with Part 4 of this Section.

PART 3. EXECUTION

3.01 SURFACE PREPARATION

- A. Bonded Overlays on Bridge Decks and Horizontal Patching Applications
1. Bond strength tests will be performed by the Engineer in accordance with ASTM C 1583, using 4-inch by 4-inch steel plates, to determine the adequacy of the surface preparation. A minimum average bond strength of 200 psi shall be attained, with no single test value less than 180 psi. If time does not permit the above test to be performed, as determined solely by the Engineer, the Engineer will measure the macrotexture depth in accordance with ASTM E 965. A minimum of four tests will be performed and the average macrotexture depth shall be a minimum of 0.06 inches. Prior to the placement of any overlay or patching material, obtain the Engineer's approval of the surface preparation.
 2. The Engineer will sound the concrete surface to identify areas of unsound or deteriorated concrete. Areas so identified shall be removed to the limits and depths as ordered by the Engineer. Perform abrasive blasting of all exposed reinforcing steel that is to remain in place.
- B. Construction Joints (except for pavements)
1. Number, locations and details shall be as shown on the approved shop drawings.
 2. Planes of joints shall be normal to direction of pressure and shall include suitable keys and dowels.
 3. Locate joints at points of minimum shear, unless otherwise shown on approved shop drawings or directed by the Engineer.

4. Avoid lips and other irregularities between adjoining sections of concrete. Secure forms tightly against previously placed concrete.
- C. Expansion and Contraction Joints (except for pavements)
1. After curing concrete, clean grooves or saw cuts to receive joint sealant by scrubbing with a mechanical wire brush to loosen dirt and other foreign matter and blowing out loose matter with compressed air.
 2. Install joint sealant to finish flush with concrete surface, except where otherwise shown on the Contract Drawings.
- D. Preparation for Placing Concrete (except for pavements)
1. Straighten bent dowels, whether placed under this Contract or by others, using tools approved by the Engineer. Do not apply heat to dowels.
 2. Clean all dowels and all steel, that will be embedded in concrete, of all loose rust, scale, paint, grease and other objectionable materials.
 3. Examine coated reinforcement for integrity of coating. Repair all damaged areas in accordance with the requirements of Specification Section 03200 entitled "Concrete Reinforcement". Make the repair crew available at the time of examination.
 4. Check all formwork locking devices to ensure that they are in place and properly secured.
 5. Do not place concrete for piles, footings, pile caps or slabs supported on pile caps or piles until the pile survey has been completed and additional reinforcing steel, if necessary, has been added as directed by the Engineer.
 6. For preparation of surfaces to receive concrete, conform to the Contract Drawings for all procedures, equipment limitations and requirements to be performed prior to placing concrete.
 7. Do not place concrete for slabs-on-grade, grade beams or footings until the subgrade has been inspected and approved by the Engineer, and until any base course or fill has been properly compacted in accordance with the Contract requirements.
 8. Provide vent holes (1/4 inch diameter, minimum) edge angles or embedded plates at joints where vibrating alone will not ensure elimination of voids. Locate such holes at high points and with uniform spacing along joints for escape of air during concreting operations. Evidence of voids adjacent to embedments will be cause for rejection of work. Submit all vent holes and procedures for placement of concrete at joints with the shop drawings for review and approval.
 9. Make provisions for the concrete to pass through the reinforcing steel without segregating during placement.
- E. For preparations for placing concrete pavements, see Section 02510 entitled "PLACEMENT OF PORTLAND CEMENT CONCRETE PAVING".

3.02 BATCHING AND MIXING CONCRETE

- A. Measurement of Proportions
1. All concrete batching shall be in conformance with ASTM C 94 and ACI 304R.

2. For Very High Early Strength Concrete requiring 2000 psi or greater in 6 hours or less time, the method of batching will be restricted to a calibrated mobile mixer, or to a transit mixer that is loaded at the construction site with bulk bags of the Very High Early Strength Cement. Bulk bags shall contain sufficient Very High Early Strength Cement by weight to batch for a minimum of 3 cubic yards of concrete.

B. Mixing Concrete

1. Arrange for transit mix trucks to be inspected and approved annually by either the New Jersey or New York State Departments of Transportation.
 - a. Mixers shall be equipped with a metal plate attached by the manufacturer, indicating the volume of mixed concrete the equipment is intended to produce. The quantities of materials transported and the volume of mixed concrete produced shall not exceed the mixer's rated capacity. In locations where the rate of depositing is slow, the Engineer may restrict the volume of concrete that may be mixed in a mixer to a volume less than the manufacturer's rated capacity of the mixer.
 - b. Immediately repair or withdraw from use any mixer which is determined to be mechanically unsatisfactory.
2. If truck mixers are used, keep available a sufficient number to ensure continuous delivery of the concrete at the rate required for the proper handling, placing, finishing and curing of the concrete. If a plant at the construction site is used, it shall be of sufficient capacity to meet such requirements.
 - a. Mixers shall be of the revolving-drum type, with drums suitably mounted and fitted with adequate blades capable of discharging the mixture without segregation. All truck mixers shall be equipped with an accurate, operable counter to measure the number of drum revolutions and an accurate, working water site gage or manometer to measure the volume of water introduced into the drum. Truck mixers without an accurately operating counter or water site gage shall be immediately withdrawn from use.
3. The Engineer may permit one re-tempering of the concrete subject to the following:
 - a. When the measured water content in the batch is less than the water in the approved mix proportion.
 - b. The redosage of high range water reducer shall conform to the Engineer-approved redosage chart and shall not exceed the manufacturer's recommended limitation, nor shall it retard the initial set of the concrete by more than 30 minutes.
 - c. When air content is below the lower quality limit specified in 2.04 A.6.
4. The Engineer may reject concrete in the following instances:
 - a. Concrete has not been placed within 90 minutes from the time the cement had first contact with water.
5. The Engineer will reject concrete subject to the following:
 - a. Concrete that has partially hardened or has attained its initial set prior to placement.
 - b. Concrete temperature reaches 92 deg F. and workability has been lost.

- c. The mix appears to be segregated.
6. Construction Site Mixing: Measure mix components in accordance with tolerances given in ASTM C 94. Weigh all non-liquid components and measure all liquid components immediately prior to batching. Use a calibrated flask with clear indication markings for ounces, pints, etc. when measuring liquid components. Measures without calibrated clear indication markings will not be permitted. Mix concrete materials in an approved drum-type batch machine mixer.
- a. For a mixer capacity of 1 cubic yard or less, continue mixing a minimum of 3 minutes, but not more than 5 minutes after ingredients are in the mixer and before any portion of the batch is released.
 - b. For a mixer capacity of greater than 1 cubic yard, increase the mixing time by 1 minute for each additional 1 cubic yard.
 - c. Provide a batch ticket to the Engineer for each batch discharged and used in the Work, indicating the Contract number and title, date, time, mix type, mixing time, quantity of each constituent, volume of concrete and amount of water added. Record a location of the deposit in the structure that can be easily identified.
- C. Mobile Mixers: When application requires the use of a mobile mixer, it shall meet the following criteria:
- 1. Proportioning and Mixing Equipment
 - a. Mixer shall be a self-contained, self-propelled, continuous mixing type capable of carrying sufficient unmixed dry cement, aggregates, water and admixtures to produce not less than 6 cubic yards of concrete. Maintain a calibrated back-up unit at the construction site ready for use.
 - b. Mixer shall be capable of positive measurement of cement being introduced into the mix. A recording meter, visible at all times and equipped with a ticket printout, shall indicate this quantity.
 - c. Mixer shall provide positive control of the flow of water and admixtures. Water flow shall be indicated by flow meter and shall be readily adjustable to accommodate minor variations in aggregate moisture.
 - d. Mixer shall be capable of being calibrated to automatically proportion and blend all components of indicated composition on continuous or intermittent basis as required by the finishing operation, and shall discharge mixed material through a chute directly in front of the finishing machine. Notify the Engineer a minimum of 48 hours prior to calibration of the mobile mixers. Before approving the calibration of the mobile mixer, the Engineer will witness the calibration of the mobile mixer. However, the Contractor is responsible for testing the mix produced. Allow the Engineer to test the concrete mix at any time.

- e. Calibrate mixer to accurately proportion the specified mix. Certification of calibration by an Engineer approved testing agency will be accepted as evidence of this accuracy, provided such certification attests the yield to be true within the following tolerances (by weight):

Coarse Aggregate	+/- 2%
Fine Aggregate	+/- 2%
Cement	+/- 1%
Water	+/- 1%
Admixtures	+/- 3%
Latex	+/- 1%

- f. Mix in accordance with the specified requirements for the equipment used. The concrete, as discharged from the mixer, shall be such that finishing operations can proceed at a steady pace with final finishing completed before the formation of the plastic surface film.
- g. Repair mixers not functioning in a manner the Engineer considers acceptable. If repair is not practical, remove the mobile mixer from the construction site and replace it with one which functions properly.
- h. Prior to production, test the moisture content of the fine aggregate and coarse aggregate. Adjust the water gage setting only in the presence of the Engineer, to produce the approved mix water to cement ratio. Test the moisture content of the fine aggregate and coarse aggregate every 3 hours during production, or when the mobile mixer is loaded with aggregates from a stockpile different from the one for which moisture content tests were performed, whichever occurs first. Make adjustments in the presence of the Engineer. For Latex Modified Concrete, the maximum permissible moisture content of fine aggregate and coarse aggregate shall be 6.0% and 3.0%, respectively, as determined in accordance with ASTM C 566. If these limits are exceeded, stop concreting operations until drier aggregates are obtained. Allow the Engineer to view and copy all records for moisture content testing at any time.

3.03 PLACEMENT FIELD REQUIREMENTS

- A. During all concrete placements at the construction site, the Contractor shall have an individual in a supervisory capacity present with a valid ACI Concrete Construction Special Inspector certification.

- B. Prior to any construction site delivery of concrete, furnish, deliver and maintain insulated curing boxes of sufficient size and strength to contain all the specimens (cylinders and beams) made by the Engineer in any two (2) consecutive Work periods. Such boxes shall be equipped to regulate the temperature in the range of 60 deg F to 80 deg F or 68 deg F to 78 deg F when the design compressive strength is 6000 psi or greater, and to provide the moisture to maintain the curing conditions specified in ASTM C 31. During hot weather when the temperature is greater than 80 deg F, maintain the temperature of concrete flexural beam specimens in the required range by immersing them in a water bath. Cover the water bath to prevent direct sunlight from raising the water temperature. Completely remove and replace the water in the bath every day. Locate the boxes where directed by the Engineer. Protect boxes from vibration and other disturbances during specimen curing.
- C. Keep this Specification and the following ACI publications available at all times at the construction site:
1. ACI 301.
 2. ACI 302.1R.
 3. ACI 305R.
 4. ACI 306R.
 5. ACI 308.
 6. ACI 309R.
 7. ACI 318.
- D. Ensure that the concrete supplier keeps this Specification and the following ACI publications available at all times at the batching location:
1. ACI 211.
 2. ACI 213.
 3. ACI 304R.
- E. Bonding New Concrete to Existing Concrete
- Where new concrete will be placed against existing concrete surfaces:
1. Surface to receive concrete shall be soaked and kept wet with water for one (1) hour prior to placement of material. Puddles of standing water shall be removed immediately prior to placement.
 2. A thin layer of material from the leading edge of the concrete being placed shall be broomed into the wetted surface. Care shall be exercised to ensure that all vertical as well as horizontal surfaces receive a thorough, even coating and that the rate of progress is controlled so that the broomed material does not dry before being covered with additional material as required for final grade.
- F. Placing Concrete (except for pavements)
1. Place concrete only in the presence of the Engineer and by methods approved by him.
 2. For concrete cast against earth or an approved compacted subgrade, and for concrete overlays, place concrete against surfaces in a saturated surface dry condition.

3. Prior to placing concrete, remove all standing water or puddles.
4. Do not place concrete on or next to frozen surfaces.
5. Transfer concrete from mixer to place of deposit as rapidly as practical to prevent formation of cold joints.
6. Use equipment and methods for placing which permit rapid placement of concrete of the required consistency and which preclude segregation.
7. The method and equipment used to transfer concrete from mixer to forms will be subject to prior approval by the Engineer. Do not use any pipes, chutes or other equipment made of aluminum.
8. Subject to the foregoing requirements, convey concrete by approved conveyors, pipes, chutes or spouts to a point not more than five feet horizontally or vertically from its final position, unless otherwise approved by the Engineer.
9. Concrete for fill in steel reinforced pipe piles, steel shells or caissons shall be deposited using a rigid hopper and an elephant trunk. The hopper and elephant trunk shall be set above the top of piles, steel shells or caissons to permit the escape of air as the concrete is placed. Elephant trunks shall be removed in sections while filling piles, steel shells or caissons from bottom of reinforcing cage to top of piles, steel shells or caissons. Elephant trunks shall extend a minimum distance of 10 feet below top of pile, steel shell or caisson or to bottom of reinforcing cage, whichever is greater. The top 15 feet of the concrete poured from the top shall be vibrated or rodded. No cold joints will be permitted during concreting operations, unless otherwise noted on the Contract Drawings.
10. Except where otherwise approved by the Engineer, consolidate concrete by internal mechanical vibration subject to the following:
 - a. Type, number and method of application of vibrators will be subject to prior approval by the Engineer.
 - b. Apply vibrators at points not more than 30 inches apart for time intervals of approximately 10 seconds.
 - c. Do not use vibrators to move concrete horizontally.
 - d. In locations where spading is approved in lieu of mechanical vibration, spade coarse aggregate away from the forms and into the plastic mass; rod concrete around embedded materials and into corners and spaces to be filled and use only approved equipment.
 - e. In locations where epoxy coated reinforcement is being used, use rubber tipped or rubber sleeved vibrators.
11. Prevent formation of laitance and accumulation of excessive water on surface of concrete as it is deposited. Remove any accumulated bleed water by approved means before placing other concrete.
12. Place concrete so as to require as little rehandling as possible. Place and spread concrete using an approved mechanical spreading device that prevents segregation of the materials. Place continuously between contraction joints. Perform necessary hand spreading with shovels, not rakes.

13. Deposit concrete as near to joints as possible without disturbing them but do not discharge onto a joint assembly unless placement is centered above the joint assembly.
 14. Thoroughly consolidate concrete against and along the faces of all forms and previously placed concrete and along the full length and on both sides of all joint assemblies by means of vibrators inserted in the concrete. Do not permit vibrators to come in contact with a joint assembly, base course or a side form. In no case shall the vibrators be used to move the concrete.
 15. Screed and float concrete for riding surfaces as it is placed and use an approved evaporation retardant or fog spray.
- G. Concrete Placing and Finishing Equipment for Bridge Decks
1. For slab or overlays 8 inches or more thick use internal vibrators. Internal vibrators shall be gang-mounted and supplemented with manual vibrators subject to the following:
 - a. Use manual, hand-held vibrators adjacent to joint assemblies and similar locations where gang-mounted vibrators are not practical.
 - b. Check all vibrators prior to the start of Work and periodically during construction progress to verify that they are working properly.
 2. For slab or overlays less than 8 inches thick, vibrating surface pans or screeds will be allowed.
 3. Manual tools such as bull floats, trowels, brooms and other similar hand tools are acceptable.
- H. For placement and finishing of pavements, see Section 02510 entitled "PLACEMENT OF PORTLAND CEMENT CONCRETE PAVING".
- I. Consolidation and Finishing
1. Bridge Decks and Bonded Overlays
 - a. Machine finishing shall conform to NJDOT Standard Specifications for Road and Bridge Construction 2007 Subsection 1005.02, .03 and .04 unless otherwise specified on Contract Drawings.
 - b. Finishing at and adjacent to joints shall conform to NJDOT Standard Specifications for Road and Bridge Construction 2007 Subsection 405.03.02 Item D.1.c
 - c. Hand finishing methods will not be permitted, except under the following conditions: (1) in the event of breakdown of the mechanical equipment, hand methods may be used to finish the concrete already deposited on the grade; (2) in areas of narrow widths or of irregular dimensions where operation of the mechanical equipment is impractical. Concrete, as soon as placed, shall be struck off and screeded using an approved portable screed. Use a second screed for striking off the bottom layer of concrete when reinforcement is used.

The screed for the surface shall be at least 2 feet longer than the maximum width of the slab to be struck off. It shall be of approved design, sufficiently rigid to retain its shape, and shall be constructed either of metal (not aluminum) or of other suitable material covered with metal. Consolidation shall be achieved by the use of suitable vibrators.

- d. After the concrete has been struck off and consolidated, it shall be further smoothed and trued by means of a longitudinal float using one of the following methods:
- (1) Long-handled floats shall be not less than 12 feet in length and 6 inches in width, stiffened to prevent flexibility and warping. The float shall be operated from foot bridges spanning but not touching the concrete or from the edge of the pavement. Floating shall pass gradually from one side of the bridge deck to the other. Forward movement along the centerline of the pavement shall be in successive advances of not more than one-half the length of the float. Any excess water or laitance in excess of 1/8-inch thick shall be removed and wasted.
 - (2) The Contractor may use a machine composed of a cutting and smoothing float(s), suspended from and guided by a rigid frame and constantly in contact with, the side forms or underlying surface. If necessary, long-handled floats having blades not less than 5 feet in length and 6 inches in width may be used to smooth and fill in open-textured areas in the pavement. When the crown of the bridge deck will not permit the use of the mechanical float, the surface shall be floated transversely by means of a long-handled float. Care shall be taken not to work the crown out of the pavement during the operation. After floating, any excess water and laitance in excess of 1/8-inch thick shall be removed and wasted. Successive drags shall be lapped one-half the length of the blade.
- e. While the concrete is still in a workable condition, test it for trueness with a Contractor-furnished 16-foot straightedge swung from handles 3 feet (1 m) longer than one-half the width of the slab. The straightedge shall be held in contact with the surface in successive positions parallel to the centerline and the whole area gone over from one side of the slab to the other, as necessary. Advance in successive stages of not more than one-half the length of the straightedge. Any excess water and laitance in excess of 1/8-inch thick shall be removed from the surface of the bridge deck and wasted. Any depressions shall be immediately filled with freshly mixed concrete, struck off, consolidated and refinished. High areas shall be cut down and refinished. Special attention shall be given to ensure that the surface across joints meets the smoothness requirements set forth in 2.04 B. Straightedge testing and surface corrections shall continue until the entire surface is free from observable departures from the straightedge and until the slab conforms to the required grade and cross section. The use of long-handled wood floats shall be confined to a minimum; they may be used only in emergencies and in areas not accessible to finishing equipment. Test the surface across the joints with a 16-foot straightedge as the joints are finished and correct any irregularities in excess of 1/4 inch before the concrete has hardened.

2. Specified concrete finishes, as shown on the Contract Drawings, shall be in accordance with the following requirements:
- a. "Smooth Finish": A surface of concrete obtained by the use of special forms as specified in Division 3 Section entitled "Concrete Formwork". Remove all fins and other irregularities in the exposed surfaces of concrete by rubbing the irregularities with a carborundum brick and clean fresh water. Any mortar patches shall be rubbed with a carborundum brick as above specified.
 - b. "Scored Finish": A surface of concrete obtained by roughening in an approved manner or by etching with sharp-pointed steel tools to key or otherwise improve the mechanical bond of the surface. Such scoring shall roughen at least 90 % percent of the area so scored.
 - c. "Float Finish": A surface of concrete obtained by the use of a wood float. Apply float finish to horizontal surfaces immediately after screeding and before initial setting has begun.
 - d. "Trowel Finish": A surface of concrete obtained by the use of a steel trowel, after screeding and floating the surface of the concrete to produce a dense, smooth, even surface suitable for painting or the application of floor covering. The troweling shall not take place until the surfaces have set sufficiently to sustain knee boards without damage. Troweling shall eliminate all irregularities and leave the concrete surface with a smooth, hard finish, free from marks and blemishes to the satisfaction of the Engineer. Do not use a steel trowel on air entrained concrete mixes.
 - e. "Traction Finish": A monolithic layer of abrasive concrete having a minimum thickness of 3/4 inch and which shall be "Emericrete SH", as manufactured by the Sika Corporation, or approved equal. Prepare the base and install the monolithic finish in accordance with the recommendations of the manufacturer of the abrasive concrete. The surface shall be given a wood float finish. The sides and edges of pavement slabs shall be rounded with an approved edging tool to the minimum radius obtainable in the sole opinion of the Engineer.
 - f. "Burlap Finish": A surface of concrete obtained by the use of a burlap drag, after screeding and floating the surface of the concrete. Drag the burlap in one direction in a straight line before initial setting has begun and in such a manner that the full width of the slab being finished is dragged in one operation. Prepare the surface prior to dragging by working from a bridge that does not come in contact with the fresh concrete at any point. The use of any burlap that causes irregularities or grooves greater than 1/16 inch in depth in the concrete surface will not be permitted. Rinse or wash burlap as often as is necessary to prevent the presence of hardened particles and consequent scarring of the concrete.
 - g. Stair treads and platforms of steel stairs shall be filled with mortar mixed in the proportions of one part Portland cement to three parts of fine aggregate, mixed with water to a satisfactory consistency. Coat the surface of the mortar with three pounds of aluminum oxide crystals per square yard of surface, uniformly applied, and trowel the surface to a smooth hard finish. Aluminum oxide crystals shall be grade AL203 crystals ranging from No. 12 to No. 30 in size and shall contain not more than six percent of iron or other impurities.

- h. "Broom Finish" shall be subject to the following:
 - (1) Finish the concrete when the water sheen has practically disappeared. Use push broom or floor brush type, not less than 18 inches wide and made of good quality bass or bassine fibers not more than 4-1/2 inches long and with handles longer than half the width of the slab.
 - (2) Use an adequate number of brooms to keep up with other operations. Achieve proper finish prior to initial set of the concrete.
 - (3) Wash and thoroughly dry brooms at frequent intervals and remove worn or damaged brooms from the construction site.
 - (4) Draw broom across previously finished surface from the centerline to each edge of the slab with a slight overlap of strokes.
 - (5) Corrugations made in surface shall be uniform, approximately 1/16 inch in depth, and not more than 1/8 inch in depth.
 - (6) Complete brooming before concrete reaches a condition that would result in the surface becoming torn or unduly roughened and before initial set of concrete.
 - (7) Immediately following brooming, carefully finish the edges of slab along sides and at joints with an approved edging tool to form a smooth rounded surface of required radius and subject to the following:
 - (a.) Where corners or edges of slabs have crumbled and at any areas which have leaked sufficient mortar to make proper finishing difficult, remove loose fragments and soupy mortar, fill solidly with a mixture of correct proportions and consistency and finish.
 - (b.) Edges shall be smooth, true to line and free of unnecessary tool marks.
- i. "Saw Cut Grooved Surface" for deck slabs and overlays shall conform to the requirements of the NJDOT Standard Specifications, Division 500 Subsection 507.03.02, Item L.
- j. Concrete Curbs and Sidewalks
 - (1) Give sidewalks a "Float Finish", tool edges and joints for a width of 2 inches and round corners to a radius of 1/4 inch with an approved edging tool.
 - (2) Install expansion joints at not more than 20-foot intervals in sidewalks with matching joints in curbs. Use 1/4-inch bituminous joint filler.
 - (3) Score sidewalks in squares as approved by the Engineer.

J. Pump Concrete

- 1. Grout used to prime the pump line shall not be included in the placement. Dispose of the grout at the end of the pump line off Authority property. Do not begin placement until concrete is visible at the end of the pump line.
- 2. Allow no water to enter the pump hopper at any time during placement operations.
- 3. Submit written procedures for pumping to the Engineer for approval. The procedures shall contain, but shall not be limited to, pumping scheme, pump description, line diameter, line length and the number of turns and line offsets.

K. Silica Fume Concrete and Fibrous Concrete

1. Arrange for qualified technical representatives from the silica fume and the fiber suppliers, who are experienced in the batching and placement of silica fume and fibrous concrete, to be present for the pre-concrete construction meeting, all test pours and the first two production pours.

- L. Fog spray forms, steel reinforcement and subgrade with potable water immediately prior to the placement of fresh concrete. Maintain uniform moisture of the subgrade without standing water, soft spots or dry areas.

3.04 CURING

- A. Carefully cure all concrete. Submit a curing procedure plan for approval by the Engineer prior to placing any fresh concrete. Perform curing in accordance with ACI 308 and the following specifications. Commence curing procedures immediately after fresh concrete has been placed.

1. Provide suitable means, such as insulating blankets or heated enclosures, for maintaining a concrete temperature of at least 50 deg F after placement. At the end of this period, remove protection in such a manner that the drop in temperature of any portion of concrete is gradual and does not exceed the following within the first 24 hours after removal of protection, in accordance with ACI 306R, Table 3.1: 50 deg F for applications with a minimum dimension less than 12 inches; 40 deg F for applications with a minimum dimension between 12 and 36 inches; 30 deg F for applications with a minimum dimension between 36 and 72 inches; and 20 deg F for applications with a minimum dimension greater than 72 inches.
2. Allow all concrete to attain 3,500 psi compressive strength before exposure to freeze-thaw cycles.
3. Choice of curing material and method shall be as approved by the Engineer.

B. Wet Curing

1. All pavement concrete and structural slabs: Immediately after screeding of the concrete and when there is no free water on the concrete surface, apply 2 coats of curing membrane, or commence the operation of a fog spraying system to keep moisture in the atmosphere surrounding the concrete until all concrete finishing has been completed. Do not direct fogging at the fresh concrete and do not permit ponding of water on the fresh concrete surface. After final set, commence wet curing for 7 days.
2. Perform wet curing for the following concrete applications: overlays, deck slabs, ramps, any concrete mixes containing silica fume, Very High Early Strength Cement and formulated latex modifier.

3. Immediately after finishing concrete, cover the surfaces with wet burlap or cotton mats which have been presoaked for a minimum of 24 hours in potable water, so that no marring of the surface occurs. Keep the burlap or cotton mats continuously moist, 24 hours per day, through the use of a fog spraying system or soaker hoses arranged at the high points of the concrete pour. Burlap, which shall consist of two or more layers, or cotton mats shall overlap a minimum of one foot, and shall be at least one foot longer than necessary to cover the entire width and edges of the pavement lane. The burlap or cotton mats shall be weighted down to prevent displacement.
 - a. Inspect sheet material before reuse. Repair all holes and tears with cemented patches, subject to approval by the Engineer.
4. Wet curing procedures may be stopped only (1) when the ambient temperature is expected to fall below 35 deg F within 24 hours, (2) when placing concrete for slabs directly adjacent to the fog spraying system or soaker hoses or (3) when concrete is to receive traffic.
 - a. When the ambient temperature at the surface of placement is 35 deg F and falling, wet curing will not be permitted; instead, apply a liquid membrane forming curing compound in accordance with 2.02 R and 3.04 C.1.a.
 - b. When wet curing is temporarily interrupted for an adjacent placement, remove all standing water in areas to receive fresh concrete prior to placement. Occasionally spray a fine mist of water over the wet curing areas. Do not puddle water on the surface of the fresh concrete. When the fresh concrete is finished and covered with burlap or cotton mats, reassemble the continuous fog spraying system or soaker hoses and continue wet curing immediately.
 - c. Areas in which the concrete will be exposed to traffic shall be wet cured for as long as possible. Wet curing may stop only when there is just enough time to apply a liquid membrane forming curing compound over the entire area prior to reopening it to traffic. In this case, apply the liquid membrane forming curing compound when the surface has no standing water or puddles on the surface, but is in a damp condition.
5. Wet cure for 7 days, or until 75% of the design compressive strength is obtained, whichever is longer, when determined by strength tests performed on sample cylinders cast in the field and cured in the same manner as the concrete.
6. Immediately after wet curing procedures are completed, apply a liquid membrane forming curing compound in accordance with 2.02 R and 3.04 C.1.a.
7. Contain water within the area of work.
8. For latex modified concrete, wet cure for a maximum of 48 hours, unless otherwise directed by the Engineer.

C. Liquid Membrane Forming Curing Compounds and Sheet Materials for Curing

1. Immediately after placing or finishing and when there is no free water on the concrete surface, commence the curing process of concrete not covered by forms from loss of moisture. Use one of the curing materials listed in 2.02 R, which may be supplemented by initially using an evaporation retardant listed in 2.02 S, as long as wet curing is not required, subject to the following:
 - a. Apply white pigmented liquid membrane forming curing compound as soon as surface moisture has evaporated by approved pressure spraying or distributing equipment in two uniform full applications perpendicular to each other as recommended by the manufacturer. Allow the first coat to become tacky before applying the second coat. Each application shall be the full quantity recommended by the manufacturer. The entire surface shall be white after the second application.
 - (1) Recoat areas subjected to heavy rainfall within 3 hours after rain.
 - (2) Follow manufacturer's recommendations for agitation during application and warming where necessary during cold weather. Do not use liquid membrane forming curing compound where the surface being cured is to receive a finish that will be bonded to the concrete surface or where a floor hardener is to be applied, unless a certification of compatibility and a minimum five-year performance record is submitted in advance to the Engineer for approval.
 - (3) The Engineer will check for uniformity through random sampling and testing. Testing may include determination of membrane infrared spectrum, pH, specific gravity and solids content.
2. Removal of Forms

Removal of forms shall be subject to the following:

- a. Remove forms in accordance with the requirements of Specification Section 03100 entitled "Concrete Formwork" or Section 02510 entitled "Placement of Portland Cement Concrete Paving".
- b. After removal of forms, patch areas of concrete which in the opinion of the Engineer show excessive honeycomb by cutting out defective areas, keying and refilling them with a mortar of cement and sand in the same proportions as those in the approved concrete mix design and sufficient water to provide a workable mix.
- c. Immediately after forms are removed, apply curing compound on the concrete and cure in accordance with 3.04 C.

- d. Immediately after removal of forms, holes and voids in the surfaces of concrete, resulting from bolts and ties, shall be wetted and filled with a mortar containing cement and fine aggregate in the same proportions as in the approved concrete mix design, and utilizing cement which shall produce mortar of the same color as the concrete. Exposed mortar surfaces shall then be finished smooth and even with a wood float, except that those surfaces exposed to view in the finished structure shall be finished with a steel trowel to match adjacent surfaces. All fins and other surface irregularities shall be removed promptly by chipping, grinding or other methods approved by the Engineer to give a uniform finish. Where no specific surface finish for formed concrete surfaces is indicated on the Contract Drawings, no further finishing will be required.
- e. Drop in concrete surface temperature over the first 24 hours shall be controlled in accordance with ACI 306.

3.05 QUALITY ASSURANCE TESTING, SAMPLING AND INSPECTIONS

- A. The Engineer will perform Quality Assurance testing during mixing and placing of concrete on samples taken from the end of the pump line or at the point of discharge in accordance with ASTM C 172. The Engineer will take samples of concrete from each Lot during a single Work period based on random sampling procedures contained in ASTM D 3665. A Lot of concrete is defined as the production of a single Work period. For each Sublot, the Engineer will cast cylinders in accordance with ASTM C 31 when testing for compressive strength, as well as 4" x 8" cylinders when permeability is being tested and beams when flexural strength is being tested. The cylinders and beams will be tested in accordance with ASTM C 39 and ASTM C 78, respectively, for each Sublot to determine the compressive strength and flexural strength at the time requirements specified.

TABLE 1
LOTS AND SUBLOTS

Daily Placement Quantity (Cubic Yards)	<u>Number of Lots</u>	<u>Number of Sublots</u>
Less than 50	Note 1	Notes 1 and 3
50 – 100	1	3 equally divided
101 – 450	1	4 equally divided
Greater than 450	1	Note 2

Table 1 Notes:

1. If one Work period's placement of a given concrete mix is less than 50 cubic yards, it will not constitute a Lot. It will be added either to the previous or the next Work period's Lot, whichever is closer in time, or until a minimum of 3 Sublots are completed constituting a Lot.
2. For concrete placements of 450 cubic yards or greater, a Sublot will be deemed to be one fourth of a Lot of concrete, or 150 cubic yards of concrete, whichever is less. For larger pours the Engineer may increase the number of cubic yards that constitute a Sublot.
3. If the total concrete quantity under the Contract for any type of mix is less than 50 cubic yards, it will constitute one Lot and will be divided into a minimum of 3 Sublots, regardless of the placement schedule.

- B. Quality Assurance Testing Standards and Frequency of Testing: Some or all of the following procedures will be used by the Engineer to approve the concrete mix proportions and evaluate the in-place concrete for Adjustments to Contract Compensation:
1. Compressive Strength: In accordance with ASTM C 31 and ACI 318 Part 3, Chapter 5, Item 5.6, entitled "Evaluation and Acceptance of Concrete", except that the Engineer will take samples on a random basis. Latex Modified Concrete samples will be wet cured by the Engineer for 1 day and dry cured for 27 days. All cylinders will be tested in accordance with ASTM C 39.
 2. Flexural Strength: From each Sublot sample, cast beams in accordance with ASTM C 31. The Engineer will test the beams in accordance with ASTM C 78 and will calculate the average of two test specimens at the flexural strength time requirement. The average of the two test specimen result values for each Sublot will be considered the Sublot flexural strength value.
 3. Slump Test: Performed by the Engineer at the point of delivery during the time of placement in accordance with ASTM C 143 or ASTM C 1611 when self-consolidating concrete is used. For Latex Modified Concrete, the Engineer will perform slump tests 5 minutes after sampling from the mixer.
 4. Air Content Test: Performed during the placement in accordance with ASTM C 138, ASTM C 173 or ASTM C 231. The Engineer will perform one test for each Sublot, which will be considered the Sublot air content test value.
 - a. When results for either two consecutive tests or three tests in one lot or one day's production indicate that the air content is outside the Quality Limits specified in 2.04 A.6 by +1.0 or -0.50% do not place the next load until it has first been tested and satisfactory test results have been obtained. If the air content for the next load is outside the Quality Limits specified in 2.04 A.6, it will be rejected. The Engineer will test subsequent loads until the air content is found to be within the specified limits of 2.04 A.6.
 5. Unit Weight: The Engineer will determine the plastic unit weight of concrete (taken at the same frequency as specified in 3.05 B.4 according to ASTM C 138). For lightweight concrete, the plastic unit weight shall not exceed the approved mix proportion wet unit weight by 3.0 pounds per cubic foot.
 6. Water Content Test: The Engineer will test for water content during the placement using a Microwave Drying Oven, in accordance with AASHTO T 318. He may adjust drying times depending on the mix constituents to achieve a constant dry weight. Once the water content has been determined, it will be divided by the cementitious content in the mix design to determine the water to cement ratio. When the maximum aggregate size exceeds 1-1/2 inches, the Engineer will obtain a sample of approximately 5000 grams. This sample will be split and the Engineer will perform two separate analyses. The weighted average of the two separate analyses will be considered the Sublot water content value. Likewise, the Engineer will compute the subplot water cement ratio as given above.

- a. When results for either two consecutive tests or three tests in one lot or one day's production indicate that the water content exceeds the limits given in 2.03 A.4 by 0.10, do not place the next load until it has first been tested and satisfactory test results have been obtained. If the water content for this load is greater than the Upper Limit given in 2.04 A.5, it will be rejected. The Engineer will test subsequent loads until the water content is found to be within the limit given in 2.04 A.5.
7. Coulomb Test: For each Sublot, the Engineer will cast two (2) 4" x 8" cylinder specimens. The Engineer will cut 2-inch thick samples from the center of each cylinder for testing. The average of the two test specimen values for each Sublot will be considered the Sublot Coulomb test value.

Concrete placed in a marine environment shall be tested after 28 days of standard curing at 73 deg. F per AASHTO T 277. The Upper Quality Limit, UQL, shall be 1700 Coulombs for mixes without a corrosion inhibitor and 2200 Coulombs for mixes containing a corrosion inhibitor.

For Latex Modified Concrete applications, samples will be wet cured for 1 day and dry cured for 27 days.

All other applications accelerated testing shall be performed by wet curing for seven days at 73 deg. F and then increasing the curing temperature to 100 deg. F for an addition twenty-one days and then following the procedures of AASHTO T 277. The Upper Quality Limit, UQL, shall be 1000 Coulombs in all cases.
8. Bond Strength: The bond strength between overlay concrete and parent concrete will be evaluated in accordance with ASTM C 1583. For each Sublot, the Engineer will perform three tests. Three 4-inch diameter cores will be cut 1/2 inch into the parent concrete to isolate the overlay concrete. The average of the three test result values for the Sublot will be considered the Sublot bond strength test value. The locations for each test will be randomly determined by the Engineer.
9. Chloride Ion Concentration by Weight of Cement: The Engineer may perform testing for both the acid soluble and water soluble chloride ion concentrations by weight of cementitious material, which will be evaluated as follows. Powder samples from 28-day concrete cylinders, cast from the concrete mix delivered to the construction site, will be tested to assess both the acid soluble and water soluble chloride ion concentrations by weight of cementitious material. Samples will be obtained using a rotary hammer drill from the mid-height of a minimum of two Sublot specimens from each Lot. The sample will be obtained from the inner three inches of the cylinder specimen, and must be a minimum of 40 grams in weight. The acid soluble and water soluble chloride ion concentrations by weight of cementitious material will be determined by the Materials Engineering Unit in accordance with preparatory standards ASTM C 1152 and ASTM C 1218, respectively, followed by ASTM C 114 (silver nitrate titration) for both the acid soluble and water soluble chloride ion analysis.

10. Pavement Thickness: The Engineer will perform acoustical testing using Impact Echo instrumentation to determine the pavement thickness. Areas indicating pavement thickness below the requirements shown on the Contract Drawings will be cored for verification. The cores will be measured in accordance with ASTM C 174. The average of three test result values for the Sublot will be considered the Sublot test value.
 11. Where specified the Engineer will place Remote Temperature Sensing Devices in the in situ concrete to record maximum core temperature and maximum drop of temperature for 24 hours after protection has been removed.
 12. Test Cores for Tremie Concrete
 - a. The Engineer will drill test cores for every 100 cubic yards of concrete placed in mass pours, such as tremie seal, or one core for every 1000 square feet of surface of thin pours, such as bulkheads or wall facings. Cores will be obtained in accordance with ASTM C 42 and will be drilled full depth (or thickness) through the pour horizontally or vertically as applicable.
 - b. Recovery of less than 95 percent will be considered to indicate defective concrete requiring corrective action by the Contractor.
 - c. If the cores reveal voids, honeycombing, seams or other defects, the concrete will be subject to rejection for non-uniformity. Additional cores may be obtained by the Engineer for further investigation. The number and location of cores will be determined by the Engineer. All additional cores will be taken at the sole expense of the Contractor.
 - d. Fill all test core holes by pressure grouting from the bottom upward, or from the inside out, as the case may be.
 - e. Clean out and fill all voids, honeycombing, seams and other defects by pressure grouting with cement or sand-cement to the Engineer's satisfaction. At the Engineer's request and at the sole expense of the Contractor, drill additional cores to verify grouting.
- C. In accordance with the Section of Division 1 entitled "Inspections and Rejections", provide labor and means for obtaining all samples required for trial batches and field testing performed by the Engineer. At no additional cost to the Authority, furnish and deliver the following when requested by the Engineer:
1. Provide a representative sample, in the quantity requested by the Engineer, of all cement, fly ash, slag, metakaolin, silica fume, fine and coarse aggregate, admixtures, corrosion inhibitor, latex, fibers, pigment, evaporation retardant and liquid membrane forming curing compound during any day of production the Engineer requests a sample. Take such samples in the presence of the Engineer at the point of storage used for the Work of this Contract. For cement, fly ash, slag, metakaolin and silica fume samples, only use a sampling port on the silo, or drop material in a loader bucket between loads, or take samples from the boot using a "Sample Thief" during loading. Notify the Engineer of aggregates being loaded at their source of supply at least 48 hours in advance of each loading.
 2. Provide the cement, fly ash, slag, silica fume or metakaolin manufacturer's Mill Test Certificate and Bill of Lading, if such documents are requested by the Engineer.
 3. Allow the Engineer to sample any mix proportion constituents at any time.

- D. The Engineer may direct an inspection of the Contractor's concrete plant or precast concrete fabricator to observe operations and review the Quality Control procedures being implemented. Notify the Engineer, in writing, a minimum of 15 days prior to the commencement of production and submit a schedule and Quality Control Plan for all production for the Work of the Contract.
- E. Precast Concrete: Obtain from the fabricator and submit to the Engineer a set of approved shop drawings for the Work of the Contract. Fabrication without approved shop drawings will not be permitted. Clearly mark all precast units with identification numbers for each unit. The Engineer will provide a manifest ticket to be attached to the driver's shipping ticket listing the approved unit identification numbers. Any units shipped to the construction site that are not approved or are not listed on the manifest will not be permitted to be unloaded at the construction site. Shipments not accompanied by a manifest upon delivery will not be permitted to be unloaded at the construction site. Arrange for the Precast fabricator to supply a microwave oven and scale meeting the latest edition of AASHTO T 318
- F. For concrete where riding surface tolerances are required, other than aeronautical pavements, as indicated on the Contract Drawings, the following requirements shall be met:
1. The Engineer will test the entire surface of the hardened concrete with a rolling straight edge for conformance to the smoothness requirements. Surface smoothness deviations must not exceed 1/4 inch in 16 feet. Tests will be made in both the longitudinal and transverse direction of the slab and shall span joints. Correct any deficiencies as specified in 4.01 H and at no additional cost to the Authority.
 2. The Engineer will survey the slab surface for vertical deviation from grade. Vertical deviation from the grade shown on the Contract Drawings must not exceed plus or minus 0.04 foot at any point.
 3. The Engineer will determine finished grade by running levels at intervals of 25 feet longitudinally and transversely. Correct all deficiencies as specified in 4.01 H and at no additional cost to the Authority.
- G. Specified concrete finishes, as shown on the Contract Drawings, must conform to the requirements set forth in 3.03 H.2. Correct all deficiencies as specified in 4.01 I and at no additional cost to the Authority.

PART 4. ADJUSTMENTS TO CONTRACT COMPENSATION

4.01 GENERAL

- A. Unless otherwise shown on the Contract Drawings, acceptance of material will be based on the method of estimating Percentage of Lot Within Specification Limits (PWL), where the PWL will be determined in accordance with this Section. All Sublot test result values for a Lot, as defined in 3.05 A, Table 1, will be analyzed statistically to determine the total estimated Percent of the Lot that is Within specification Limits, as shown in 4.01 B. The PWL is computed using the Lot sample Average value, \bar{X} , as defined in 4.01 D.3 and the Lot sample standard deviation, S_N , as defined in 4.01 D.4, for the specified number of Sublots, n, and for the specification Quality Acceptance Limits, as defined in 2.04 A, where LQL represents the Lower Quality Limit, and UQL represents the Upper Quality Limit, as they apply to each particular acceptance parameter. From these values, the respective Quality Index(ices), Q_L for Lower Quality Index and/or Q_U for Upper Quality Index, is computed in accordance with 4.01 D.5 and 4.01 D.6. Then the PWL for the Lot for the specified number of Sublots, n, is determined from Table 4, "Percent of Lot Within Limits (PWL) (Standard Deviation Method)". The Adjustment to Contract Compensation for each Lot is then calculated using the formulas specified in 4.01 F.
- B. Depending on the application, concrete will be tested for the properties shown below. The PWL of each Lot for each parameter will be determined as specified in 4.01 D. Payments will be based on the concrete application for a Lot and the criteria defined below.

<u>Performance Parameters</u>	<u>Minimum PWL</u>
Flexural Strength	95
Compressive Strength	95
Permeability	90
Bond Strength	80
Water to Cement Ratio	80
Air Content	70*
Pavement Thickness	90
Chloride Content	100**

*denotes that in addition to the minimum PWL, the air content will also be evaluated for the average of test results for a given Lot of concrete as per 3.05 B.4 and 4.01 J.

**denotes that the chloride content (acid soluble and watersoluble) will be analyzed only for the average of test results for any given Lot of concrete, as per 3.05 B.9 and 4.01 G.1.b.

Table 2 defines the Quality Acceptance performance criteria to be evaluated for Adjustments to Contract Compensation for a given concrete application. In addition, all concrete shall conform to the requirements of 4.01 G. Any deficiencies found to exist as specified in 4.01 G will govern and the Contractor shall either:

1. Remove and replace the concrete in that particular Lot at no cost to the Authority, or
2. Accept a deduction of 50% of the Base Price per cubic yard, as indicated on the Contract Drawings, for that particular Lot of concrete.

**TABLE 2
PERFORMANCE CRITERIA PARAMETERS**

Category/ Application	Water/Cement Ratio (W/C)	% Air	Permeability	Bond Strength	Compressive Strength	Flexural Strength	Pavement Thickness
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Category I - Full Depth Pavements & Unbonded Overlays

	I	I	---	---	---	P	
LQL:	---	*	---	---	---	700 psi	97%
UQL:	****	*	---	---	---	---	---

Category II - Bonded Pavement Overlays

	I	I	---	P	I	---	---
LQL:	---	*	---	150 psi	***	---	---
UQL:	****	*	---	---	---	---	---

Category III - Elevated Structural Overlays

	I	I	I	P	I	---	---
LQL:	---	*	---	150 psi	***	---	---
UQL:	****	*	**	---	---	---	---

Category IV - Structural (exposed to freeze-thaw and/or sulfates, in addition to chlorides or a marine environment)

	I	I	P	---	I	---	---
LQL:	---	*	---	---	***	---	---
UQL:	****	*	**	---	---	---	---

Category V - Structural (exposed to freeze/thaw and/or sulfates only; no exposure to chlorides or a marine environment)

	I	I	---	---	P	---	---
LQL:	---	*	---	---	***	---	---
UQL:	****	*	---	---	---	---	---

Category VI - Standard Structural (not exposed to freeze-thaw cycles) Unless noted on Contract Drawing incentive adjustments to Contract compensation shall not apply. However Part 4.01 G shall apply.

	---	---	---	---	P	---	---
LQL:	---	---	---	---	***	---	---
UQL:	---	---	---	---	---	---	---

* - Refer to 2.04 A.6.

** - Marine environment 1700 Coulomb counts for mixes without a corrosion inhibitor and 2200 Coulomb counts for mixes with a corrosion inhibitor. For accelerated method 1000 Coulomb

*** - The specified compressive strength as defined on the Contract Drawings.

**** The submitted and approved mix proportion water cement ratio plus .03

P - Used to Calculate Pay Factor per cubic yard. It denotes the concrete property that will be used to calculate payment for a given concrete application. No incentive payments will be made if the performance criteria parameters labeled 'I' for a given application have a PWL less than specified in 4.01 B.

I - Used to Calculate Incentive only when the Pay Factor for the parameter labeled 'P' is greater than 0.00.

C. Full Depth Pavement and Unbonded Overlay (Category I) Final Pay Factor: The Pay Factor for Pavement Thickness will govern only when the Pay Factor for Pavement Thickness is less than the Pay Factor for Flexural Strength, with the exception of when the Pay Factor for Pavement Thickness is 0.00.

D. Method of Estimating Percentage of Material Within Limits (PWL)

1. Locate sampling positions on the Lot by use of random sampling procedures specified in 3.05 A.
2. Take a test sample and make the test specimens on the test sample in accordance with 3.05 A.
3. Determine the Lot sample Average value, \bar{X} , by calculating the average of all Sublot test values.
4. Find the Lot sample standard deviation, S_N , by using the following formula:

$$S_N = \sqrt{\frac{d_1^2 + d_2^2 + d_3^2 + \dots + d_n^2}{n - 1}}$$

Where:

S_N = standard deviation of the Sublot test values

d_1, d_2, \dots = deviation from the individual Sublot test values

X_1, X_2, \dots from the Average value, \bar{X} , that is,

$$d_1 = (X_1 - \bar{X}), d_2 = (X_2 - \bar{X}), \dots, d_n = (X_n - \bar{X})$$

n = number of Sublots

5. Find the Lower Quality Index, Q_L , by subtracting the Lower Quality Limit, LQL, from the Average value, \bar{X} , and dividing the result by S_N .

$$Q_L = \frac{\bar{X} - LQL}{S_N}$$

6. Find the Upper Quality Index, Q_U , by subtracting the Average value, \bar{X} , from the Upper Quality Limit, UQL, and dividing the result by S_N .

$$Q_U = \frac{UQL - \bar{X}}{S_N}$$

7. The percentage of material above lower tolerance limit, P_L , and the percentage of material below upper tolerance limit, P_U , will be found by referring to Table 4, "Percent of Lot Within Tolerance Limit (PWL) (Standard Deviation Method)". Locate Q_L and/or Q_U in the column appropriate to the total number of Sublots, n , and reading the number under the column heading "PWL".

8. For concrete properties with only an Upper Quality Limit (ratio of water to cementitious material, permeability), PWL equals P_U . For concrete properties with a Lower Quality Limit (bond strength, compressive strength, flexural strength, pavement thickness), PWL equals P_L . For concrete properties with both Upper and Lower Quality Limits (air content), first calculate of the Upper Quality Index, Q_U , and the Lower Quality Index, Q_L , by using the Upper Quality Limit, UQL, and the Lower Quality Limit, LQL, respectively, as stipulated in 2.03 A.6. Then determine PWL using the following formula:

$$PWL = (P_U + P_L) - 100$$

- E. Pay Factors for each Lot will be computed in accordance with the formulas contained in 4.01 F, Table 3 entitled, "Adjustments to Contract Compensation", by entering the PWL value and performing the calculation indicated for the appropriate PWL range to determine the Pay Factor.
- F. Adjustments to Contract Compensation shall be calculated as follows:

TABLE 3

ADJUSTMENTS TO CONTRACT COMPENSATION PER CUBIC YARD

<u>Percent Within Limits (PWL)</u>	<u>Compressive Strength Pay Factor</u>
98 - 100	0.02 (PWL-100) +0.06
95 - 97	0.0
55 - 94	(PWL-95)/100
0 - 54	-0.50
<u>Percent Within Limits (PWL)</u>	<u>Permeability & Bond Strength Pay Factor</u>
91 - 100	0.006 (PWL - 90)
80 - 90	0.0
55 - 79	(2PWL-159)/100
0 - 54	-0.50
<u>Percent Within Limits (PWL)</u>	<u>Flexural Strength Pay Factor</u>
95 - 100	(PWL-95/100)+.01
55 - 94	(PWL-95)/100
0 - 54	-0.50
<u>Percent Within Limits (PWL)</u>	<u>Pavement Thickness Pay Factor</u>
90 - 100	0.00
55 - 89	(PWL-90)/100
0 - 54	-0.50

Pay Factors are multiplied by the Base Price per cubic yard established in the table below, unless otherwise indicated on the Contract Drawings. The result is the amount to be added or deducted from the compensation for that particular Lot of concrete.

<u>Category</u>	<u>Base Prices for Adjustments to Contract Compensation</u> <u>Per Cubic Yd</u>
I	\$100
II	\$90
III	\$130
IV	\$130
IV	\$110 when silica fume or metakaolin are not included
V	\$90
VI	\$80

G. Correction or Cost Adjustments for Deficiencies

1. Remove and Replace Concrete: Remove and replace concrete in a manner approved by the Engineer and at no additional cost to the Authority if any of the following deficiencies exist, unless the Engineer elects to accept the concrete, at which time the Contractor will be compensated at 50% of the Base Price per cubic yard, regardless of the Pay Factors calculated in 4.01 F, Table 3:
 - a. Percent Within Limits (PWL) for compressive strength, flexural strength, permeability, bond strength or pavement thickness is below 55.
 - b. The average acid soluble chloride ions by weight of cementitious material test results for any given Lot of concrete exceed the limit of 0.10% (reinforced concrete) or 0.08% (prestressed concrete) weight of chloride ions by weight of cementitious material, in accordance with ASTM C 1152 and ASTM C 114, and the average water soluble chloride ions by weight of cementitious material test results for any given Lot of concrete exceed the limit of 0.08% (reinforced concrete) or 0.06% (prestressed concrete) weight of chloride ions by weight of cementitious material, in accordance with ASTM C 1218 and ASTM C 114. The Soxhlet test referenced in ACI 222R will not be considered for chloride evaluations.
 - c. For all concrete applications, the cylinder compressive strength shall conform to the following:
 - (1) The calculated average of any three consecutive compressive strength tests shall be equal to or shall exceed the specified compressive strength.
 - (2) No individual compressive strength test result shall be below the specified compressive strength by more than 500 psi. When the required strength is 5000 psi or less, or by more than 0.10 of the specified strength when greater than 5000 psi is required.
 - (3) If either or both of the requirements specified in 4.01 G.1.c.1 and 4.01 G.1.c.2 are not met, investigate the in-place compressive strength in accordance with ACI 318-02, Section 5.6.5, at no additional cost to the Authority. If the compressive strength test results of the in-place concrete fail to meet either or both of the requirements specified in 4.01 G.1.c.1 and 4.01 G.1.c.2, the concrete will be considered deficient, and 4.01 G.1 will apply.

- d. Concrete slabs or structures that exhibit any cracks prior to opening to vehicular/aircraft operations or loading will be subject to the actions specified in 4.01 G.1. If the concrete is accepted by the Engineer, seal cracks in a manner approved by the Engineer, and at no additional cost to the Authority.
 - e. Delamination Testing: The Engineer will check all concrete overlays using the chain drag method in accordance with ASTM D 4580. If more than 5.00% of the total surface area of the Lot is found to be delaminated, remove these areas and replace them at no additional cost to the Authority. The determination by the Engineer as to the existence of delaminations shall be final and binding.
 - f. Slabs showing high or low spots exceeding 1/2 inch when tested in accordance with 3.05 F.2.
- H. Diamond Grinding and Partial Depth Removal
- 1. Cured riding surfaces, except pavements, that do not meet the smoothness or finished grade requirements set forth in 2.04 B shall be corrected, to obtain the specified smoothness deviation, as follows:
 - a. High spots between 1/4 inch and 1/2 inch and surfaces that exceed the finished grade requirements shall be identified and ground with diamond grinding equipment.
 - b. Low spots between 1/4 inch and 1/2 inch and surfaces that are below the finished grade requirements shall be corrected by partial depth removal of the entire slab to 1 inch below rebars by hydrodemolition, or by hydromilling and constructing an overlay in conformance with this Specification.
 - 2. The diamond grinding equipment shall be as approved by the Engineer and shall have a grinding head at least 36-inches wide.
 - 3. Where grinding is required, grind the entire width of the riding surface by the length of defective area. In the sole opinion of the Engineer, if the deficiencies are closely spaced and grinding individual areas will adversely affect ride, grind the entire surface.
 - 4. Dispose of slurry produced from grinding operations off Authority property.
 - 5. Perform diamond grinding, partial depth removal and construction of an overlay, if required to correct deficiencies, at no additional cost to the Authority.
- I. If concrete finishes do not meet the requirements set forth for the specified finishes, refinish the hardened concrete as directed by the Engineer, at no additional cost to the Authority.
- J. If the average air content for a Lot exceeds either the LQL or the UQL by more than 1% (with the exception of concrete not exposed to freeze/thaw cycles) 10% of the Base Price per cubic yard will be deducted from the compensation for that particular Lot of concrete.
- K. If the core temperature of the in situ concrete exceeds 160 deg F, the Engineer will evaluate concrete quality using cores taken from the concrete in question. The cores will be tested in accordance with ASTM C 42 and their compressive strength results will be used to calculate the PWL for payment adjustments.

TABLE 4
PERCENT OF LOT WITHIN TOLERANCE LIMIT (PWL)
(STANDARD DEVIATION METHOD)

Positive Values of Quality Index (QI)
(n = Number of Sublots in the Lot)

<u>PWL</u>	<u>n=3</u>	<u>n=4</u>	<u>n=5</u>	<u>n=6</u>	<u>n=7</u>	<u>n=8</u>
99	1.1541	1.4700	1.6714	1.8008	1.8888	1.9520
98	1.1524	1.4400	1.6016	1.6982	1.7612	1.8053
97	1.1496	1.4100	1.5427	1.6181	1.6661	1.6993
96	1.1456	1.3800	1.4897	1.5497	1.5871	1.6127
95	1.1405	1.3500	1.4407	1.4887	1.5181	1.5381
94	1.1342	1.3200	1.3946	1.4329	1.4561	1.4716
93	1.1269	1.2900	1.3508	1.3810	1.3991	1.4112
92	1.1184	1.2600	1.3088	1.3323	1.3461	1.3554
91	1.1089	1.2300	1.2683	1.2860	1.2964	1.3032
90	1.0982	1.2000	1.2290	1.2419	1.2492	1.2541
89	1.0864	1.1700	1.1909	1.1995	1.2043	1.2075
88	1.0736	1.1400	1.1537	1.1587	1.1613	1.1630
87	1.0597	1.1100	1.1173	1.1191	1.1199	1.1204
86	1.0448	1.0800	1.0817	1.0808	1.0800	1.0794
85	1.0288	1.0500	1.0467	1.0435	1.0413	1.0399
84	1.0119	1.0200	1.0124	1.0071	1.0037	1.0015
83	.9939	.9900	.9785	.9715	.9672	.9643
82	.9749	.9600	.9452	.9367	.9325	.9281
81	.9550	.9300	.9123	.9025	.8966	.8928
80	.9342	.9000	.8799	.8690	.8625	.8583
79	.9124	.8700	.8478	.8360	.8291	.8245
78	.8897	.8400	.8160	.8036	.7962	.7915
77	.8662	.8100	.7846	.7716	.7640	.7590
76	.8417	.7800	.7535	.7401	.7322	.7271
75	.8165	.7500	.7226	.7089	.7009	.6958
74	.7904	.7200	.6921	.6781	.6701	.6649
73	.7636	.6900	.6617	.6477	.6396	.6344
72	.7360	.6600	.6316	.6176	.6095	.6044
71	.7077	.6300	.6016	.5878	.5798	.5747
70	.6787	.6000	.5719	.5583	.5504	.5454
69	.6490	.5700	.5423	.5290	.5213	.5164
68	.6187	.5400	.5129	.4999	.4924	.4877
67	.5878	.5100	.4836	.4710	.4638	.4592
66	.5563	.4800	.4545	.4424	.4354	.4310
65	.5242	.4500	.4255	.4139	.4073	.4031
64	.4916	.4200	.3967	.3856	.3793	.3753
63	.4586	.3900	.3679	.3575	.3515	.3477
62	.4251	.3600	.3392	.3295	.3239	.3203

61	.3911	.3300	.3107	.3016	.2964	.2931
60	.3568	.3000	.2822	.2738	.2691	.2660
59	.3222	.2700	.2537	.2461	.2418	.2391
58	.2872	.2400	.2254	.2186	.2147	.2122
57	.2519	.2100	.1971	.1911	.1877	.1855
56	.2164	.1800	.1688	.1636	.1613	.1592
55	.1806	.1500	.1408	.1363	.1338	.1322
54	.1447	.1200	.1125	.1090	.1070	.1057

END OF SECTION

SECTION 03301

PORTLAND CEMENT CONCRETE, LONG FORM

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

Shop Drawings

03301A01 Shop Drawings of forms and test pour details at least 15 calendar days before the test. Proposed number, location and details of contraction, control, expansion and construction joints at least 15 days prior to concrete placement.

Catalog Cuts

03301B01 At least 35 calendar days prior to concrete placement, the following:
Name and address of proposed concrete supplier, type of plant, documentation of State Certification for plant and ready mix trucks, AASHTO Accreditation certification for the independent testing laboratory and certification for an on-site individual in a supervisory capacity from one of the programs specified in 3.03 A.

Samples

03301C01 For architectural concrete, provide two (2) sample panels (12" x 12" x 2" minimum size) for each mix for approval of color and texture. Provide catalog cuts for forms, form liners, and form oil or release agents.

Product Data

03301D01 Concrete Mix Proportions:
Appendix "B" "Concrete Materials and Mix Proportion Data" at least 35 calendar days prior to concrete placement in accordance with 2.03 A of the Specification. To substantiate the mix proportions, submit all data and field results in accordance with 2.03 A.

Certificates

03301E01 At least 35 calendar days prior to concrete placement, the following:
b. Upon request material certifications, source, brand name and test results (where required) of cement, fine and coarse aggregate, fly ash, slag, silica fume, metakaolin and concrete admixtures following guidelines of Appendix "B". In addition, arrange for an independent testing laboratory to verify that Very High Early Strength Cement meets compressive strength, absolute drying shrinkage and setting time requirements specified in 2.02 B at the testing frequency specified therein.

Manufacturer Test Reports

03301F01 At least 35 calendar days prior to concrete placement, the following:
Test data and field use history for corrosion inhibitor admixtures (when specified on the Contract Drawings) as per 2.02.O.4.:

1. Manufacturer's test method to determine the concentration of the active component of the inhibitor.
2. Procedures for the production of concrete mixes containing a corrosion inhibitor for the range of concrete temperatures from 50°F to 90°F and a procedure for the placement of concrete when a retarder is being used.

END OF APPENDIX "A"

SECTION 03301

PORTLAND CEMENT CONCRETE, LONG FORM

APPENDIX "B"

CONCRETE MATERIALS AND MIX PROPORTION DATA

- A. Materials: (Source / Brand/ Specific Gravity / % Solids):
1. Cement: Type.....Source/Brand.....
 2. Sand: Fineness Modulus.....Source.....
 3. Stone: Size.....Class.....Source.....
 4. Fly Ash: Type.....Source.....
 5. Slag: Grade.....Source.....
 6. Microsilica (Silica Fume): Source/Brand.....
 7. Metakaolin: Source/Brand.....
 8. Admixtures
 - Air Entraining Agent.....
 - Non-Chloride Accelerator.....
 - Retarder.....
 - Water Reducer.....
 - Water Reducer - Retarder.....
 - High Range Water Reducer.....
 - High Range Water Reducer - Retarder.....
 - Polycarboxylate High Range Water Reducer
 - Anti-Washout Admixture.....
 - Corrosion Inhibitor.....
 - Latex.....
 - Pigment.....

B. Mix Proportions

1. Proposed method of placement:.....Tremie/Mobile
.....Mixer/Transit Mixer/Portable Mixer/
Pumping/Tube Diameter:.....
2. Proportion of Ingredients:
Cement.....lbs./cu. yd.
Fly Ash.....lbs./cu. yd.
Slag.....lbs./cu. yd.
Silica Fume.....lbs./cu. yd.
Metakaolin.....lbs./cu. yd.
Pigment.....lbs./cu. yd.
Stone.....lbs./cu. yd.
Sand.....lbs./cu. yd.
Water.....lbs./cu. yd.....gallons
Air Entraining Agent:.....ounces/cu. yd.
Admixtures (specify type and amount):
.....at.....ounces/cu. yd.
.....at.....ounces/cu. yd.
.....at.....ounces/cu. yd.
.....at.....ounces/cu. yd.
3. Mix Properties:
Compressive Strength: $f_c =$psi at.....days/hours
Flexural Strength:.....psi at.....days/hours
Permeability at 28 days:.....Coulombs
Slump:.....inches
Water to Cementitious Ratio:.....
Air Entrainment:.....%
Sand/Stone Ratio:
Combined aggregate gradation chart (% retained on each sieve)
Unit Weight:.....lbs./cu. ft.

C. Conformance with ACI 318

Attach a report on mix proportion and test/statistical data documenting conformance with ACI 318, Chapter 5, or ACI 304R, Chapter 8, as they apply to the Work of the Contract.

D. Concrete Supplier/Batch Plant

1. Name:.....
2. Address:.....
3. Contact Name:.....
4. Telephone number/Fax number/E-mail address:.....
5. Quality Control technician(s):.....
 Name(s):.....
 Telephone number(s):.....

END OF APPENDIX "B"

DIVISION 3

SECTION 03602

GROUTING (NON-METALLIC)

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for non-metallic, non-shrink, cement-based grouting.

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

American Society for Testing and Materials (ASTM)

- ASTM C 109 Test Method for Compressive Strength of Hydraulic Cement Mortars
- ASTM C 191 Test Method for Time of Setting of Hydraulic Cement by Vicat Needle
- ASTM C 827 Test Method for Early Volume Change of Cementitious Mixtures

1.03 JOB CONDITIONS

Do not mix or place grout when the ambient temperature is below 40 degrees F or conditions indicate that the ambient temperature will fall below 40 degrees F within 72 hours, unless the areas to be grouted are enclosed and heated in an approved manner or otherwise approved by the Engineer.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver grout in the manufacturer's sealed original bags or containers bearing the manufacturer's name and product identification, in a manner to prevent damage by breakage, water or moisture.
- B. Store all material on platforms and cover as necessary to protect it from water and moisture.
- C. Deliver, protect and handle all tools and equipment in a manner to prevent damage that may make them defective for the purpose for which they are intended.

1.05 SUBMITTALS

See Appendix "A" for Submittal Requirements.

PART 2. PRODUCTS

2.01 MATERIALS

- A. Grout shall be one of the following:
 - 1. "Masterflow 713" - manufactured by Master Builders
 - 2. "Five Star Grout" - manufactured By U.S. Grout Corporation
 - 3. "Euco N-S Grout" - manufactured by Euclid Chemical Co.
- B. Grout shall be premeasured and prepacked by the manufacturer, requiring only addition of potable water for mixing.

PART 3. EXECUTION

3.01 PREPARATION

Areas to be grouted as shown on the Contract Drawings shall be cleaned of all foreign materials, to the satisfaction of the Engineer.

3.02 MIXING AND PLACING

- A. Use only the crew trained by the manufacturer's representative.
- B. Mix and place the grout in accordance with manufacturer's methods approved by the Engineer.
- C. Placement shall be continuous to avoid cold joints and voids. Grout shall be rodded or spaded to prevent the formation of air pockets.

3.03 FIELD TESTS

- A. The Engineer may take and test samples of the grout being placed in accordance with ASTM C 109, C 191 and C 827.
- B. In the event that tests of the grout placed reveal any failure to meet requirements of this Section, the Engineer will require removal and replacement of all portions of grout from the batch from which the sample was taken and the discontinuance of grouting until the Contractor has demonstrated to the satisfaction of the Engineer that the causes for failure have been corrected.

END OF SECTION

SECTION 03602

GROUTING (NON-METALLIC)

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

Samples

03602C01 Submit to the Manager, Materials Engineering Division, Port Authority Technical Center, 241 Erie Street, Jersey City, NJ 07310-1397, a sample of the grout material for approval.

Construction and Installation Procedures

03602G01 Submit manufacturer's instructions and methods for handling, storage, mixing and placing of the grout, for approval.

END OF APPENDIX "A"

Appendix 1

PERMITS



DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK, NEW YORK 10278-0090

REGULATORY BRANCH

DEC 01 2014

SUBJECT: Permit Application File Number NAN-2014-01264-ESW by the Port Authority of New York and New Jersey for Outfall Installation and Discharge of Riprap for Scour Protection in Flushing Bay and the East River at LaGuardia Airport in Flushing, the Borough of Queens, Queens County, New York

1. PERMITTEE:

The Port Authority of NY & NJ
Attn: Marc Helman
2 Gateway Center, 14th Floor
Newark, New Jersey 07102
(973) 565-7564

2. On October 24, 2014, the New York District of the U.S. Army Corps of Engineers received a request for Department of the Army authorization to construct two emergency floodwater drainage outfalls with associated concrete head walls, wing walls, apron and riprap discharge for scour protection in the East River and Flushing Bay. The western outfall will be 24 inches in diameter with a headwall and wing wall that will extend five feet waterward with associated discharge of approximately 5.1 cubic yards of riprap for the 93 square-foot apron. The 36 inch-diameter eastern outfall will consist of a headwall and wing wall extending seven feet waterward with associated discharge of approximately 7.4 cubic yards of riprap for the 200 square-foot apron. Approximately 400 cubic yards of sediment will be excavated over an area of 240 square feet associated with the construction of the spillway for the eastern outfall. The project is located at LaGuardia Airport in Flushing, the Borough of Queens, Queens County, New York.

3. The specific applicant-provided details are as shown on the attached dated permit drawings.

4. This determination covers only the work described in the submitted material. Any major changes in the project may require additional authorizations from the New York District of the U.S. Army Corps of Engineers.

5. Based on the information submitted to this office and accomplishment of any required notification in accordance with the applicable federal requirements, our review of the subject work indicates that an individual Department of the Army permit is not required. It appears that the activities within the jurisdiction of this office could be accomplished under Department of the Army Nationwide General Permit Number 7 OUTFALL STRUCTURES AND ASSOCIATED INTAKE STRUCTURES in accordance with Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) and Section 404 of the Clean Water Act (33 USC 1344, as amended). The nationwide permits are prescribed at Reissuance of Nationwide Permits in the Federal Register dated February 21, 2012 (77 FR 10184). The subject work may be performed without further authorization from this office provided it complies with Number 7 OUTFALL STRUCTURES AND ASSOCIATED INTAKE STRUCTURES; New York District regional conditions; the following work-

REGULATORY BRANCH

SUBJECT: Permit Application File Number NAN-2014-01264-ESW by the Port Authority of New York and New Jersey for Outfall Installation and Discharge of Riprap for Scour Protection in Flushing Bay and the East River at LaGuardia Airport in Flushing, the Borough of Queens, Queens County, New York

DEC 01 2014

- 2 -

specific Special Conditions listed below; and any applicable regional conditions added by the State of New York.

6. Other than the work-specific Special Conditions listed below, the 2012 nationwide general permits in the State of New York, including their final regional conditions, water quality certifications, and coastal zone concurrence statements are available at: http://www.nan.usace.army.mil/Portals/37/docs/regulatory/geninfo/natp/NWP_PN_30MA_Y12.pdf

If you require a specific paper copy, please contact our Regulator-of-the-Day at 917-790-8511 to request one be mailed to you. Please be sure to have the above eighteen-character file number readily available when you call.

7. Work-specific Special Conditions:

(A) The permittee, and their agents, shall take actions to prevent construction materials, including debris, from entering any waterway to become drift or pollution hazards.

(B) The permittee shall contact the appropriate state and local government officials to ensure that the subject work is performed in compliance with their requirements.

(C) The permittee shall sign and submit the attached compliance certification form to this office within 30 days of the completion of the regulated activity authorized by this permit and any mitigation work required by Special Condition.

(D) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

8. Please note that this nationwide general permit (NWGP) verification is based on a preliminary jurisdictional determination (JD). A preliminary jurisdictional determination (JD) is not appealable. If you wish, prior to commencement of the authorized work you may request an approved jurisdictional determination (JD), which may be appealed, by contacting the New York District, US Army Corps of Engineers for further instructions. To assist you in this decision and address any questions you may have on the differences between preliminary and approved jurisdictional determinations, please review US Army Corps of Engineers Regulatory Guidance Letter Number 08-02, which can be found at:

<http://www.usace.army.mil/Portals/2/docs/civilworks/RGLS/rgl08-02.pdf>

SUBJECT: Permit Application File Number NAN-2014-01264-ESW by the Port Authority of New York and New Jersey for Outfall Installation and Discharge of Riprap for Scour Protection in Flushing Bay and the East River at LaGuardia Airport in Flushing, the Borough of Queens, Queens County, New York

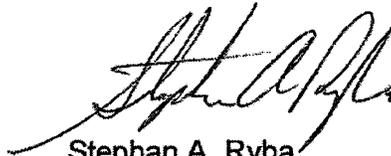
- 3 -

9. This verification is valid until March 17, 2017, unless the nationwide general permits are modified, reissued, or revoked before then. This verification will remain valid until March 17, 2017, if the subject work activity complies with the terms of any subsequent modifications of the nationwide general permits. If the nationwide general permits are suspended, revoked, or modified in such a way that the subject activity would no longer comply with the terms and conditions of a nationwide general permit, and the proposed work activity has commenced, or is under contract to commence, the permittee will have twelve (12) months from the date of such permit action to complete the regulated work.

10. In order for us to better serve you and others, please complete our Customer Service Survey located at:

<http://www.nan.usace.army.mil/Missions/Regulatory/CustomerSurvey.aspx>

11. Any inquires should be directed to our Regulator-of-the-Day at 917-790-8511. Please be sure to have the above eighteen-character file number readily available when you call.



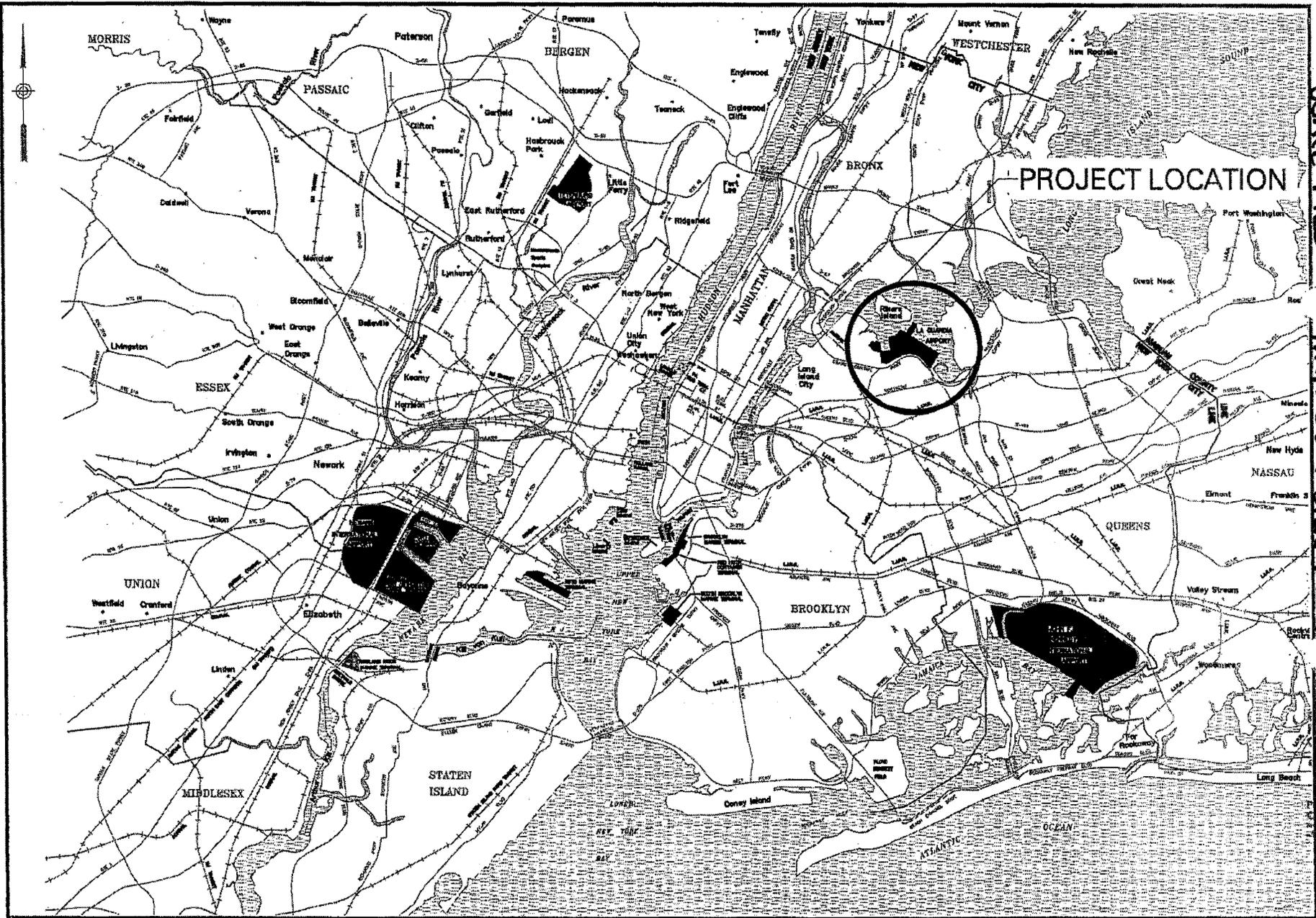
Stephan A. Ryba
Chief, Eastern Section

Enclosures (2)

1. Dated Permit Drawings
2. Completion Form

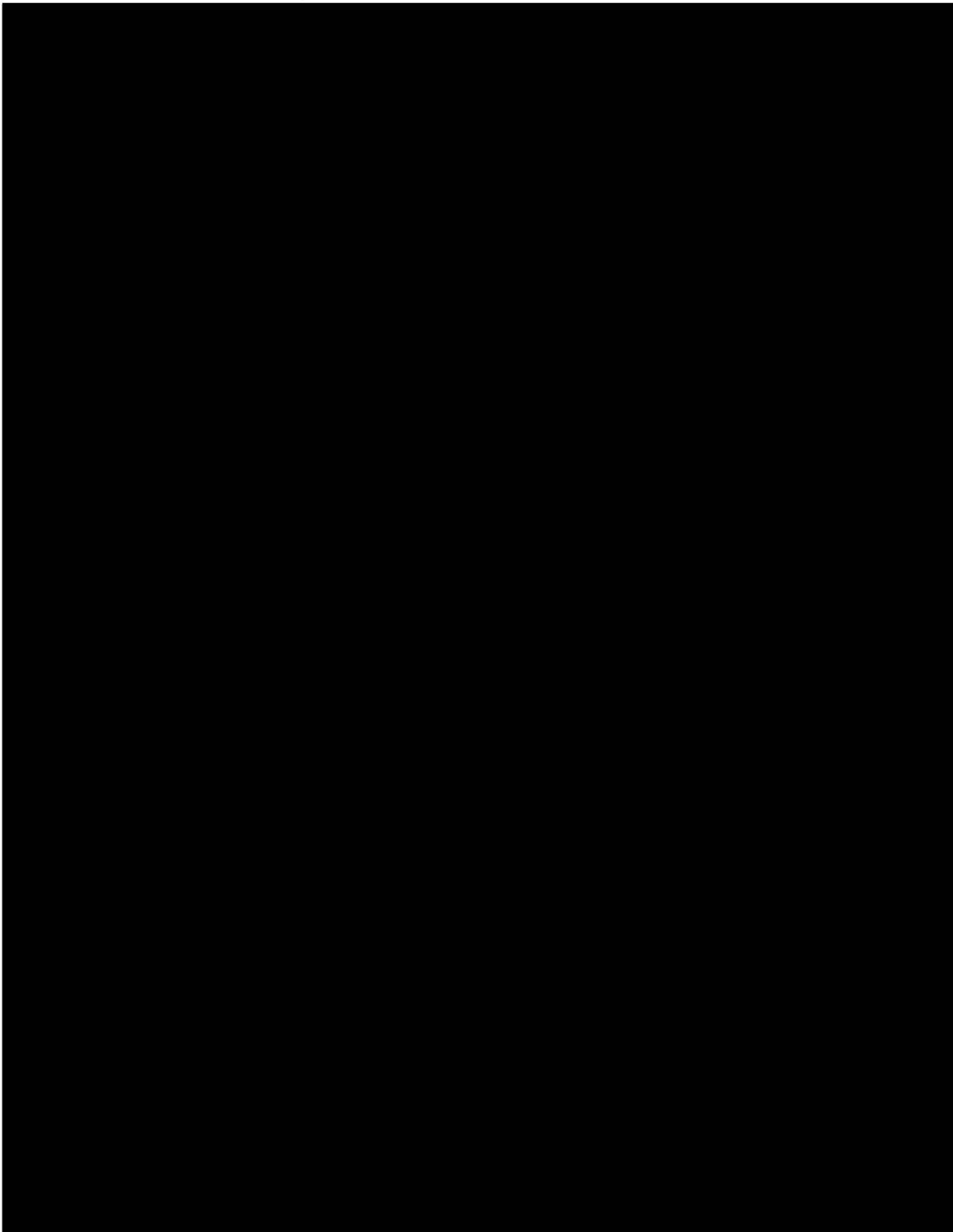
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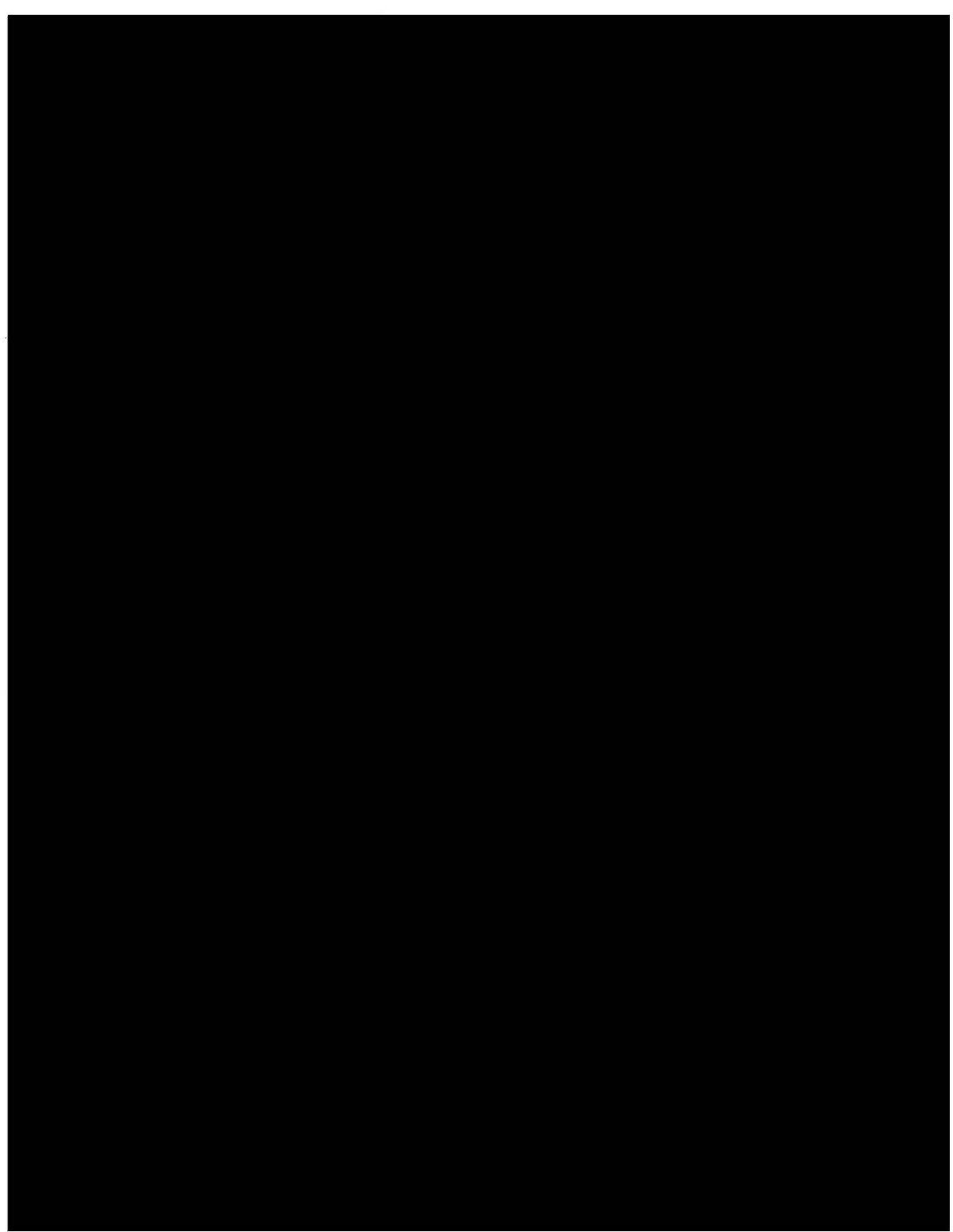
DEC 9 2014

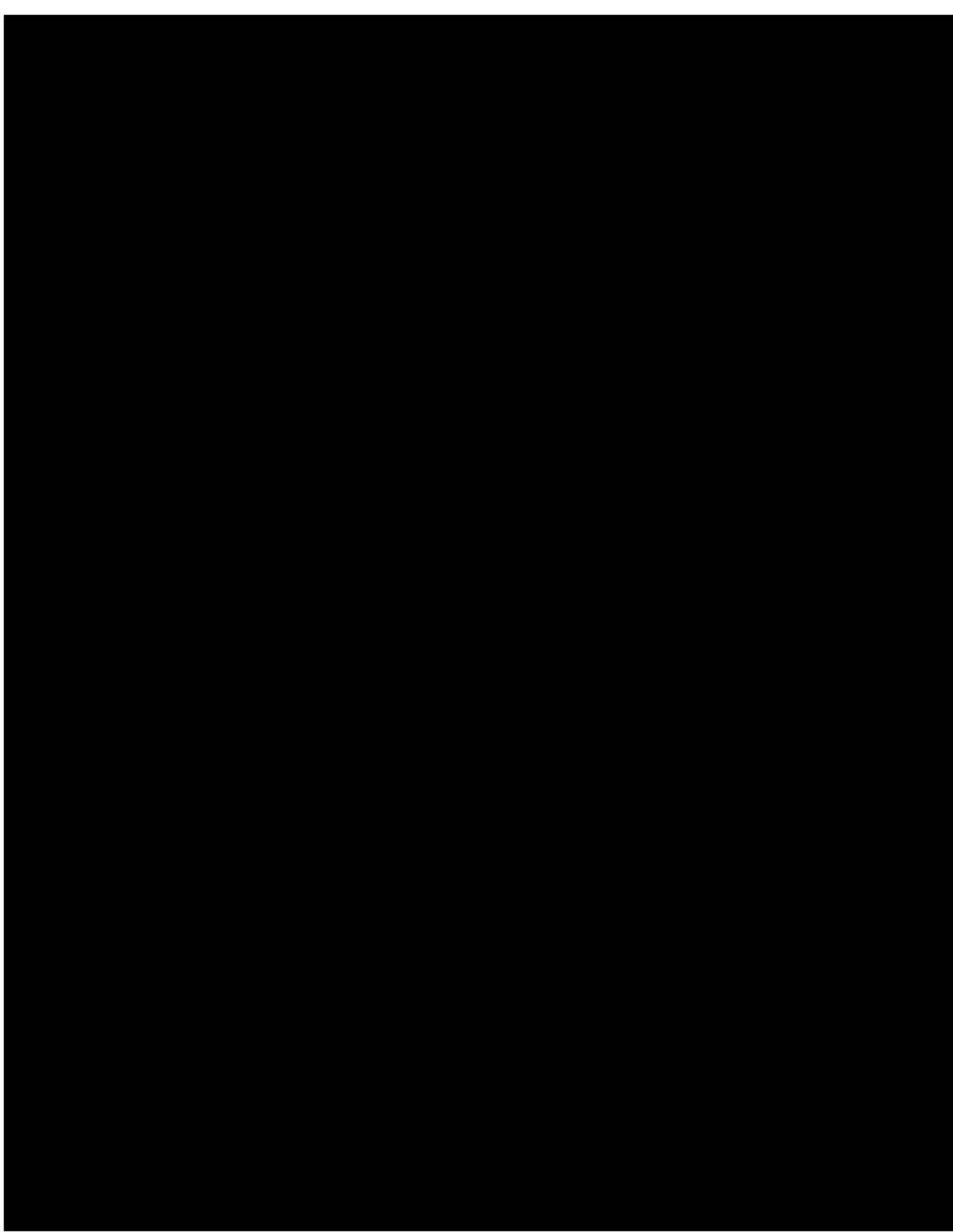


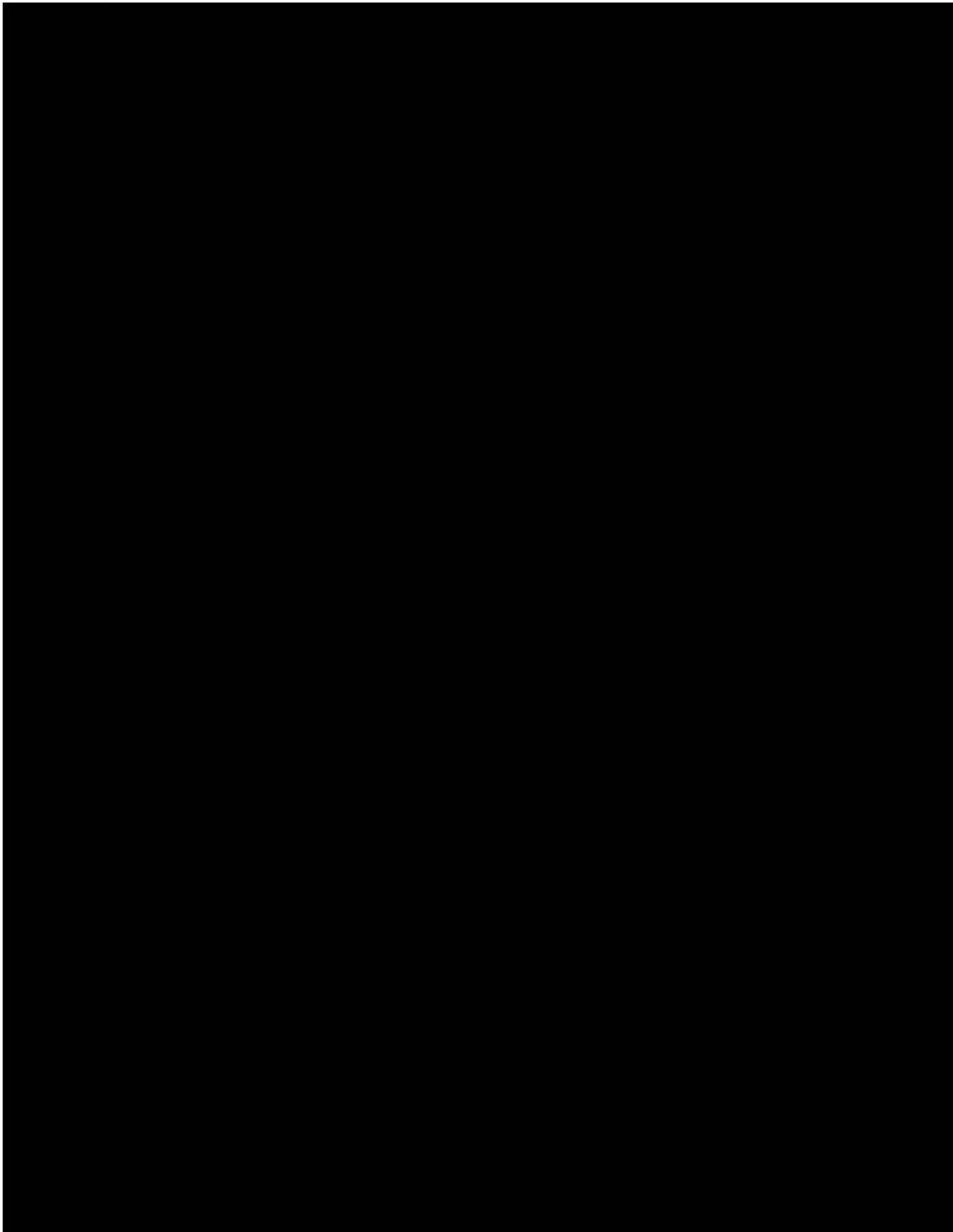
332

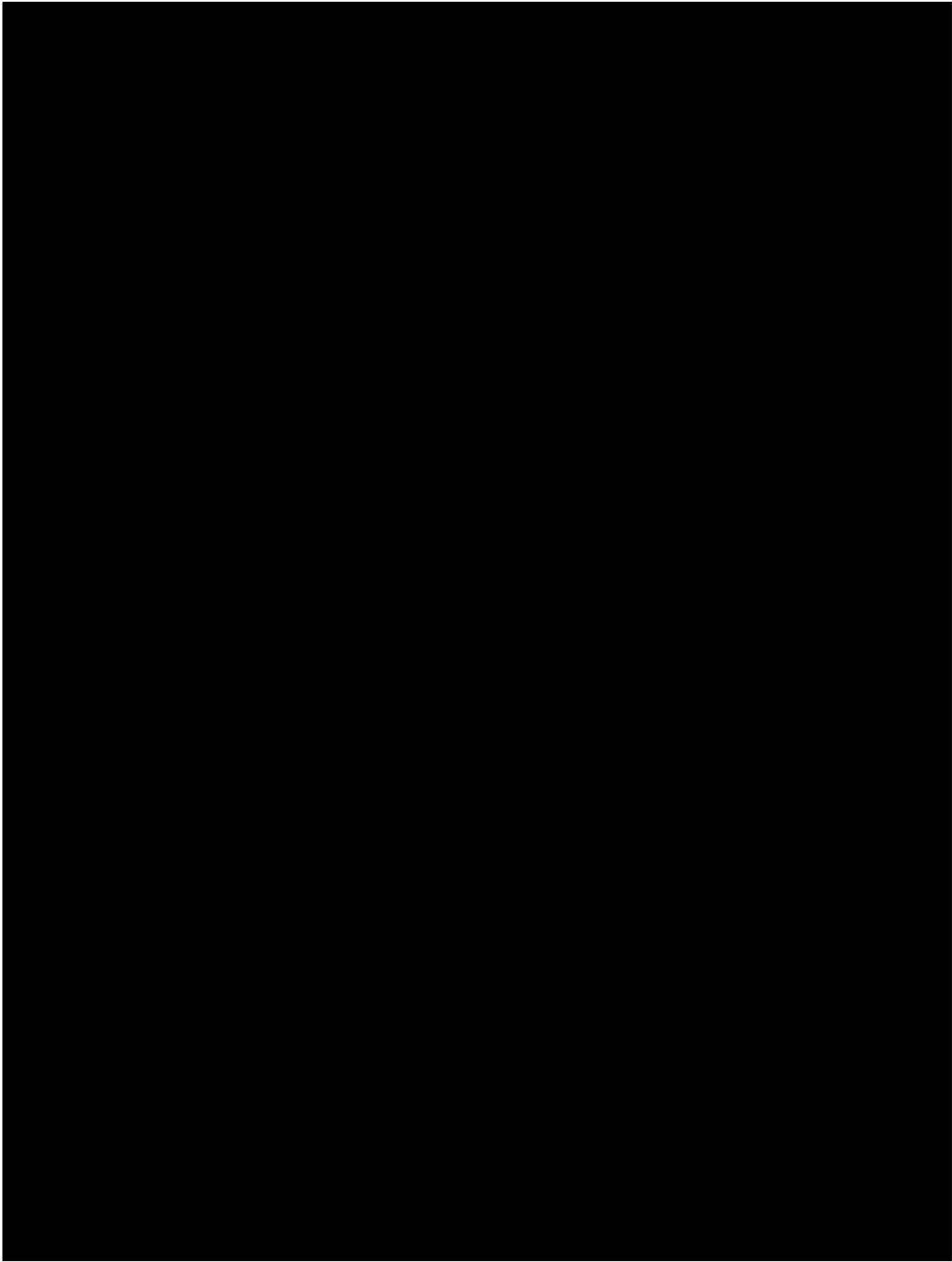
THE PORT AUTHORITY OF NY & NJ	LAGUARDIA AIRPORT	Project Title	Contract Number	Drawing Title	DATE	Grading Number
		EMERGENCY STORM DRAINAGE OUTFALL	GA-774.133	LOCATION MAP	08-29-2014	SK01

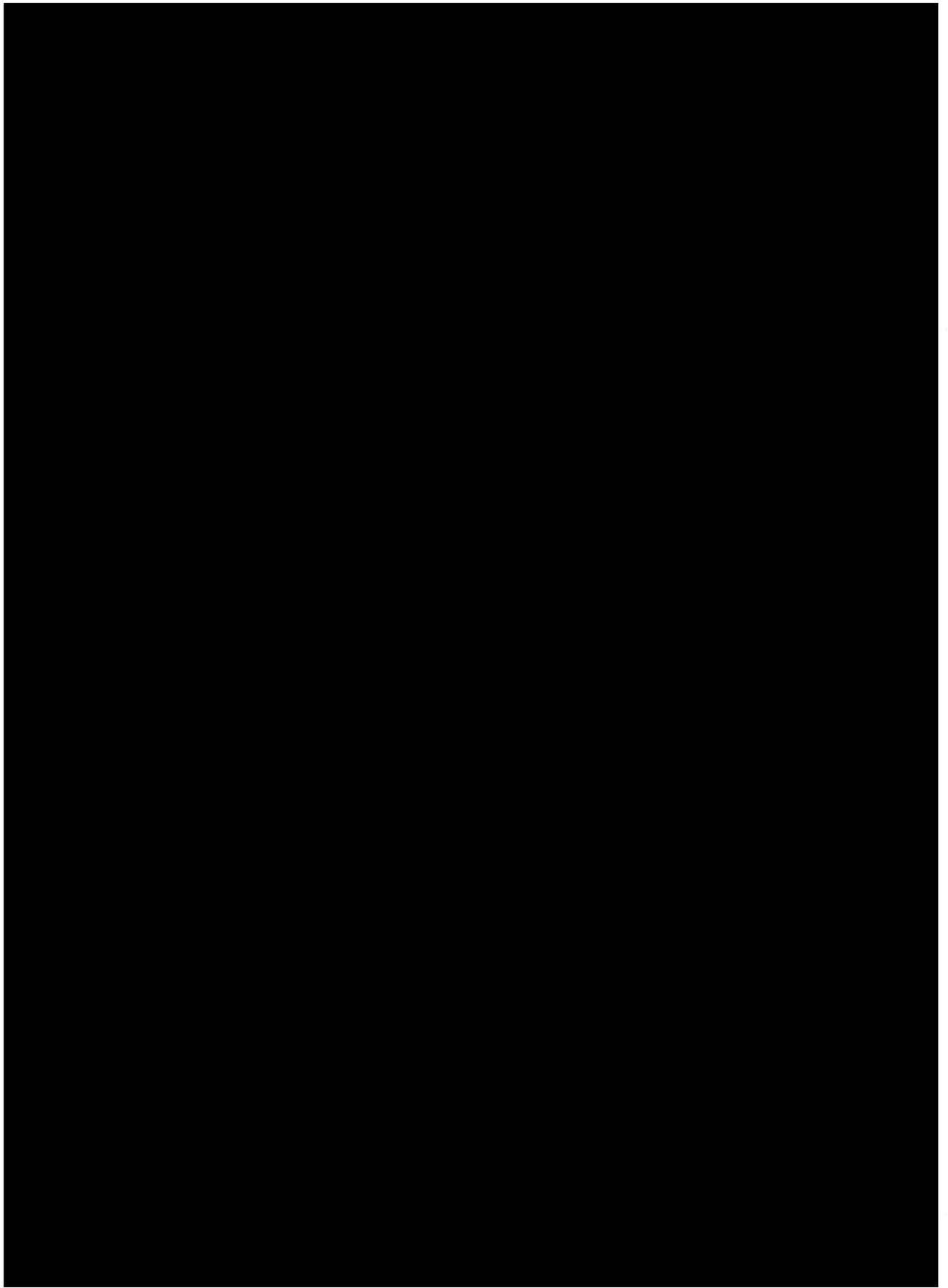












NATIONWIDE GENERAL PERMIT
COMPLIANCE CERTIFICATION
AND REPORT FORM

Permit File Number: NAN-2014-01264-ESW

Permittee: The Port Authority of New York and New Jersey

Location: LaGuardia Airport, Borough of Queens, Queens County, New York

Date Permit Letter Issued: DEC 01 2014

Within 30 days of the completion of the activity authorized by this nationwide general permit and any mitigation required in the verification letter, please sign this certification and return it to the address at the bottom of this form.

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with the permit's terms and conditions you are subject to permit suspension, modification or revocation.

I hereby certify that the work authorized by the above referenced nationwide general permit has been completed in accordance with the terms and conditions of said permit, and required mitigation was completed in accordance with the permit conditions.

Signature of Permittee

Date

FOLD THIS FORM INTO THIRDS, WITH THE BOTTOM THIRD FACING OUTWARD.
TAPE IT TOGETHER AND MAIL TO THE ADDRESS BELOW OR FAX (212) 264-4260.

PLACE
STAMP
HERE

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT CORPS OF ENGINEERS
JACOB K. JAVITS FEDERAL BUILDING
ATTN: CENAN-OP-RE
NEW YORK, NEW YORK 10278-0090



STATE OF NEW YORK
DEPARTMENT OF STATE
ONE COMMERCE PLAZA
99 WASHINGTON AVENUE
ALBANY, NY 12231-0001

ANDREW M. CUOMO
GOVERNOR

CESAR A. PERALES
SECRETARY OF STATE

October 31, 2014

Marc Helman, Supervisor
The Port Authority of NY and NJ
Permits and Governmental Approvals
Two Gateway Center
Newark, New Jersey 07101

RE: F-2014-0730
U.S. Army Corps of Engineers/New York District Permit
Application - Port Authority of NY & NJ - LaGuardia
Airport - Installation of two emergency storm water outfalls.
East River, Flushing Bay, City of New York, Queens County
General Concurrence

Dear Helman:

The Department of State received your Federal Consistency Assessment Form and consistency certification and supporting information for this proposal on October 24, 2014.

The Department of State has determined that this proposal meets the Department's general consistency concurrence criteria. Therefore, further review of the proposed activity by the Department of State, and the Department's concurrence with an individual consistency certification for the proposed activity, are not required.

This General Concurrence is without prejudice to and does not obviate the need to obtain all other applicable licenses, permits, other forms of authorization or approval that may be required pursuant to existing State statutes. Specifically, it appears that you may require authorization from the New York State Department of Environmental Conservation (DEC). Please contact the DEC region 2 office to determine if their authorization is required.

When communicating with us regarding this matter, please contact us at (518) 474-6000 and refer to our file #F-2014-0730.

Sincerely,

Jeffrey Zappieri
Supervisor, Consistency Review Unit
Office of Planning and Development

cc: COE/New York District – Stephan Ryba
DEC/Region 2 – John Cryan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Permits, Region 2
47-40 21st Street, Long Island City, NY 11101
P: (718) 482-4997 | F: (718) 482-4975
www.dec.ny.gov

March 26, 2015

Marc Helman
Engineering Department
Port Authority of NY and NJ
4 World Trade Center, 150 Greenwich St
New York, NY 10006

Re: NYSDEC Permit No. 2-6301-00001/00033
LaGuardia Airport – Emergency Outfall Installation
Queens, NY
ECL Article 25 – Tidal Wetlands
ECL Article 15 – Protection of Waters
6NYCRR Part 608 – Water Quality Certification
NOTICE OF PERMIT ISSUANCE

Dear Mr. Helman

Enclosed is your permit. Please read it carefully. You are required to comply with all conditions of the permit.

Please note that Natural Resources Condition 4 of the permit requires submittal of the attached "Notice of Intent to Commence Work" at least 5 days prior to start of the permitted activity.

If you have any technical questions please contact Matthew James of the Bureau of Marine Resources at (718) 482-6464. If you have any administrative questions please contact me at (718) 482-4997.

Sincerely,

Victoria Lawrence

Victoria Lawrence
Environmental Analyst





PERMIT
Under the Environmental Conservation Law (ECL)

Permittee and Facility Information

Permit Issued To:
PORT AUTHORITY OF NEW YORK & NEW JERSEY
225 PARK AVE S
NEW YORK, NY 10003
(212) 435-7000

Facility:
LAGUARDIA AIRPORT
GRAND CENTRL PKWY
QUEENS, NY

Facility Location: in QUEENS COUNTY **Village:** Queens
Facility Principal Reference Point: NYTM-E: 595.17 NYTM-N: 4514.441
Latitude: 40°46'31.6" Longitude: 73°52'20.0"

Project Location: LaGuardia Airport
Authorized Activity: Construct two emergency outfalls.

Permit Authorizations

Tidal Wetlands - Under Article 25

Permit ID 2-6301-00001/00033

New Permit

Effective Date: 3/26/2015

Expiration Date: 12/31/2020

Water Quality Certification - Under Section 401 - Clean Water Act

Permit ID 2-6301-00001/00034

New Permit

Effective Date: 3/26/2015

Expiration Date: 12/31/2020

Excavation & Fill in Navigable Waters - Under Article 15, Title 5

Permit ID 2-6301-00001/00035

New Permit

Effective Date: 3/26/2015

Expiration Date: 12/31/2020

NYSDEC Approval

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, and all conditions included as part of this permit.

Permit Administrator: TAMARA A GRECO, Deputy Regional Permit Administrator
Address: NYSDEC REGION 2 HEADQUARTERS
47-40 21ST ST
LONG ISLAND CITY, NY 11101 -5407

Authorized Signature: Tamara A Greco Date 03/26/2015



Permit Components

NATURAL RESOURCE PERMIT CONDITIONS

WATER QUALITY CERTIFICATION SPECIFIC CONDITION

GENERAL CONDITIONS, APPLY TO ALL AUTHORIZED PERMITS

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

**NATURAL RESOURCE PERMIT CONDITIONS - Apply to the Following
Permits: TIDAL WETLANDS; WATER QUALITY CERTIFICATION;
EXCAVATION & FILL IN NAVIGABLE WATERS**

1. **Conformance With Plans** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans were prepared by as per Natural Resource Condition No 2.
2. **Conformance with Plans - Addenda** In addition to plans referenced in the Condition titled "Conformance with Plans," the activities authorized by this permit must be in strict conformance with the following approved plans and/or submissions made as part of the permit application:
 - a. Project plans prepared by The Port Authority of NY & NJ, titled "Emergency Storm Drainage Outfall,"
 1. Sheets SK01, SK02, SK06 and SK07, dated August 29, 2014, and received by NYSDEC on October 24, 2014;
 2. Sheets SK03 Revised, SK04 Revised, and SK05 Revised, dated August 29, 2014, and received by NYSDEC on December 12, 2014;
 3. Sheet SK08, dated April 25, 2014, and received by NYSDEC on December 12, 2014;
 4. Sheets SK09 and SK10, dated August 4, 2014; and
 5. Sheet SK11, dated August 8, 2014, and received by NYSDEC on December 12, 2014.
 - b. Letter detailing restoration of tidal wetlands, addressed from Marc Helman of The Port Authority of NY & NJ, addressed to Matthew James of NYSDEC, dated February 4, 2015 and received by NYSDEC on February 5, 2015.
3. **Post Permit Sign** The permit sign enclosed with this permit shall be posted in a conspicuous location on the worksite and adequately protected from the weather.
4. **Notice of Intent to Commence Work** At least five (5) days prior to the start of work, Permittee must complete and submit the attached Notice of Intent to Commence Work form to the NYSDEC Natural Resources, 47-40 21st Street, Long Island City, New York 11101 (Attention: Natural Resources Supervisor).
5. **Pre-construction Photographs** At least thirty (30) days prior to start of work, pre-construction photographs of the work area must be submitted to the NYSDEC Natural Resources, 47-40 21st Street,



Long Island City, New York 11101 (Attention: Natural Resources Supervisor). These photographs must be of such size, detail, and sharpness and taken in such sequence that the photographs clearly and completely depict, to NYSDEC's reasonable satisfaction, the area to be disturbed by construction.

6. Post-construction Photographs Within thirty (30) days of completion of work, post-construction photographs of the work area must be submitted to the NYSDEC Natural Resources, 47-40 21st Street, Long Island City, New York 11101 (Attention: Natural Resources Supervisor). These photographs must be of such size, detail, and sharpness and taken in such sequence that the photographs clearly and completely depict, to NYSDEC's reasonable satisfaction, the area to be disturbed by construction.

7. Best Management Practices Best management practices will be employed to prevent the loss of construction materials, debris and sediments from entering the wetlands or waterways. Such practices may include, but are not limited to construction fencing, staked hay bales, silt fencing, floating platforms, netting, and containment booms.

8. Stabilize Disturbed Areas All areas of soil disturbance resulting from this project shall be stabilized immediately following project completion or prior to permit expiration, whichever comes first. The approved methodologies are as follows:

- a. Stabilization of the entire disturbed area with appropriate vegetation (grasses, etc.).
- b. Stabilized as per specifications identified on approved plans.
- c. Temporarily stabilized with straw mulch or jute matting or other similar natural fiber matting within 1 week of final grading. Temporary stabilization shall be maintained until a mature vegetative cover is established.

9. Site Grading All graded areas must match smoothly the elevation and contours of the adjacent undisturbed land.

10. Contain Stockpile and Disturbed Areas All disturbed areas where soil will be temporarily exposed or stockpiled for longer than one week shall be contained by a continuous line of staked hay bales/silt curtain (or other department-approved method) placed on the seaward side between the fill and wetland or protected buffer area. Tarps are authorized to supplement these approved methods.

11. Plant Monitoring All plants, as shown on drawings referenced in Natural Resources Permit Condition 2, must be monitored for survival for a minimum of three growing seasons. If mortality or bare areas occur dead plants are to be replaced. The Permittee must notify NYSDEC Natural Resources, 47-40 21st Street, Long Island City, New York 11101 (Attention: Natural Resources Supervisor) at the conclusion of each growing season as to the condition of plants and the actions taken in the planting area.

12. Plant Survival Permittee must ensure a minimum of 85% survival of plants shown on drawings referenced in Natural Resources Permit Condition 2 by the end of three growing seasons. If this goal is not met, the applicant must reevaluate planting plan in order to meet the goal of this condition and submit plans for approval to: NYSDEC Natural Resources, 47-40 21st Street, Long Island City, New York 11101 (Attention: Natural Resources Supervisor).



- 13. Demolition and Construction Debris** Should any demolition or construction debris fall into the waterway or enter the tidal wetlands, it must be removed immediately.
- 14. Disposal of Demolition and Construction Debris** All demolition and construction debris must be properly disposed of at a licensed facility.
- 15. Concrete and Leachate Must Not Be Discharged** During construction, concrete or leachate will not escape or be discharged, nor will washings from transit mix trucks, mixers, or other devices enter tidal wetlands and or protected buffer areas.
- 16. Wood Preservatives** A. Pressure treated wood used for construction of in-water structures must have been treated with a preservative and must have undergone a treatment process approved (stamped or otherwise marked as certified) by the American Wood Preservative Association.
- B. Wood treated with Pentachlorophenol (PCP) must not be used in wetlands or surface waters.
- C. The use of creosote treated wood is prohibited both in the water and in the upland areas.
- D. Chromated Copper Arsenate (CCA) pressure treated wood must be clean and free of CCA surface deposits. Wood with surface deposits must be washed for at least 5 minutes under running water prior to use. (Note the following condition for the handling of wash water.)
- E. Any wood debris such as sawdust or wash water must not enter any water body, including wetlands, or protected buffer areas.
- 17. Clean Fill Material Only** All fill will consist of clean sand, gravel, or soil. The use of material such as asphalt, slag, fly-ash, recycled concrete aggregate (RCA), broken concrete, or demolition debris is strictly prohibited.
- 18. No Equipment below Apparent MHW** Equipment operation below apparent high water is strictly prohibited.
- 19. Precautions Against Contamination of Waters** All necessary precautions shall be taken to preclude contamination of any wetland or waterway by suspended solids, sediments, fuels, solvents, lubricants, epoxy coatings, paints, concrete, leachate or any other environmentally deleterious materials associated with the project.
- 20. No Interference With Navigation** There shall be no unreasonable interference with navigation by the work herein authorized.
- 21. Prior Approval of Changes** If the Permittee desires to make any changes in construction techniques, species to be planted, the site plan, any mitigation plan, scheduling or staging of construction, or any other aspect of this project, the Permittee shall submit a written request to the Regional Permit Administrator to make such proposed changes and shall not make such changes unless authorized in writing by the Department.
- 22. Failure to Meet Permit Conditions** Failure of the permittee to meet all the conditions of this permit is a violation of this permit and grounds for an order to immediately cease the permitted activity at the project site.



WATER QUALITY CERTIFICATION SPECIFIC CONDITIONS

1. Water Quality Certification The NYS Department of Environmental Conservation hereby certifies that the subject project will not contravene effluent limitations or other limitations or standards under Sections 301, 302, 303, 306 and 307 of the Clean Water Act of 1977 (PL 95-217) provided that all of the conditions listed herein are met.

GENERAL CONDITIONS - Apply to ALL Authorized Permits:

1. Facility Inspection by The Department The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71- 0301 and SAPA 401(3).

The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

2. Relationship of this Permit to Other Department Orders and Determinations Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

3. Applications For Permit Renewals, Modifications or Transfers The permittee must submit a separate written application to the Department for permit renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing. Submission of applications for permit renewal, modification or transfer are to be submitted to:

Regional Permit Administrator
NYSDEC REGION 2 HEADQUARTERS
47-40 21ST ST
LONG ISLAND CITY, NY 11101 -5407

4. Submission of Renewal Application The permittee must submit a renewal application at least 30 days before permit expiration for the following permit authorizations: Excavation & Fill in Navigable Waters, Tidal Wetlands, Water Quality Certification.

5. Permit Modifications, Suspensions and Revocations by the Department The Department reserves the right to exercise all available authority to modify, suspend or revoke this permit. The grounds for modification, suspension or revocation include:



- a. materially false or inaccurate statements in the permit application or supporting papers;
- b. failure by the permittee to comply with any terms or conditions of the permit;
- c. exceeding the scope of the project as described in the permit application;
- d. newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;
- e. noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

6. **Permit Transfer** Permits are transferrable unless specifically prohibited by statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification

The permittee, excepting state or federal agencies, expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees, and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the permittee's undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under Article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit

The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits

The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights

This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the



permit.

NOTICE OF INTENT TO COMMENCE WORK

Date: _____

**NYSDEC Natural Resources
Attn. Natural Resources Supervisor
N.Y.S.D.E.C Region 2 Office
47-40 21st Street
Long Island City, N.Y. 11101**

Re: **NYSDEC Permit No. 2-6301-00001/00033
LaGuardia Airport – Emergency Outfall Installation
Queens, NY**

Dear NYSDEC Natural Resources Supervisor:

In accordance with Natural Resource Condition 4 of the referenced permit, I hereby serve notice to commence work on _____, 20____.

This is also to certify that, having read this entire permit, I am fully aware of and understand the general and natural resource conditions therein, and agree to comply with all such conditions further understand that prior to undertaking any modification to the subject work, I must seek and receive written approval of the NYSDEC Regional Permit Administrator.

Signature of Permittee

Signature of Contractor

Name of Permittee (please print)

Name of Contractor (please print)

Street Address of Contractor

City, State, & Zip Code of Contractor

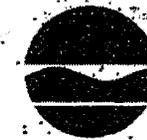
Telephone Number of Contractor

WARNING

The permittee and his contractor (if any) are required to follow all permit conditions. Violations of the permit may lead to legal action, including the imposition of substantial monetary fines and corrective work.

cc: Environmental Permits

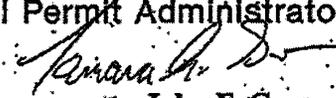
New York State
Department of Environmental Conservation

 **NOTICE** 

The Department of Environmental Conservation (DEC) has issued permit(s) pursuant to the Environmental Conservation Law for work being conducted at this site. For further information regarding the nature and extent of work approved and any Departmental conditions on it, contact the Regional Permit Administrator listed below. Please refer to the permit number shown when contacting the DEC.

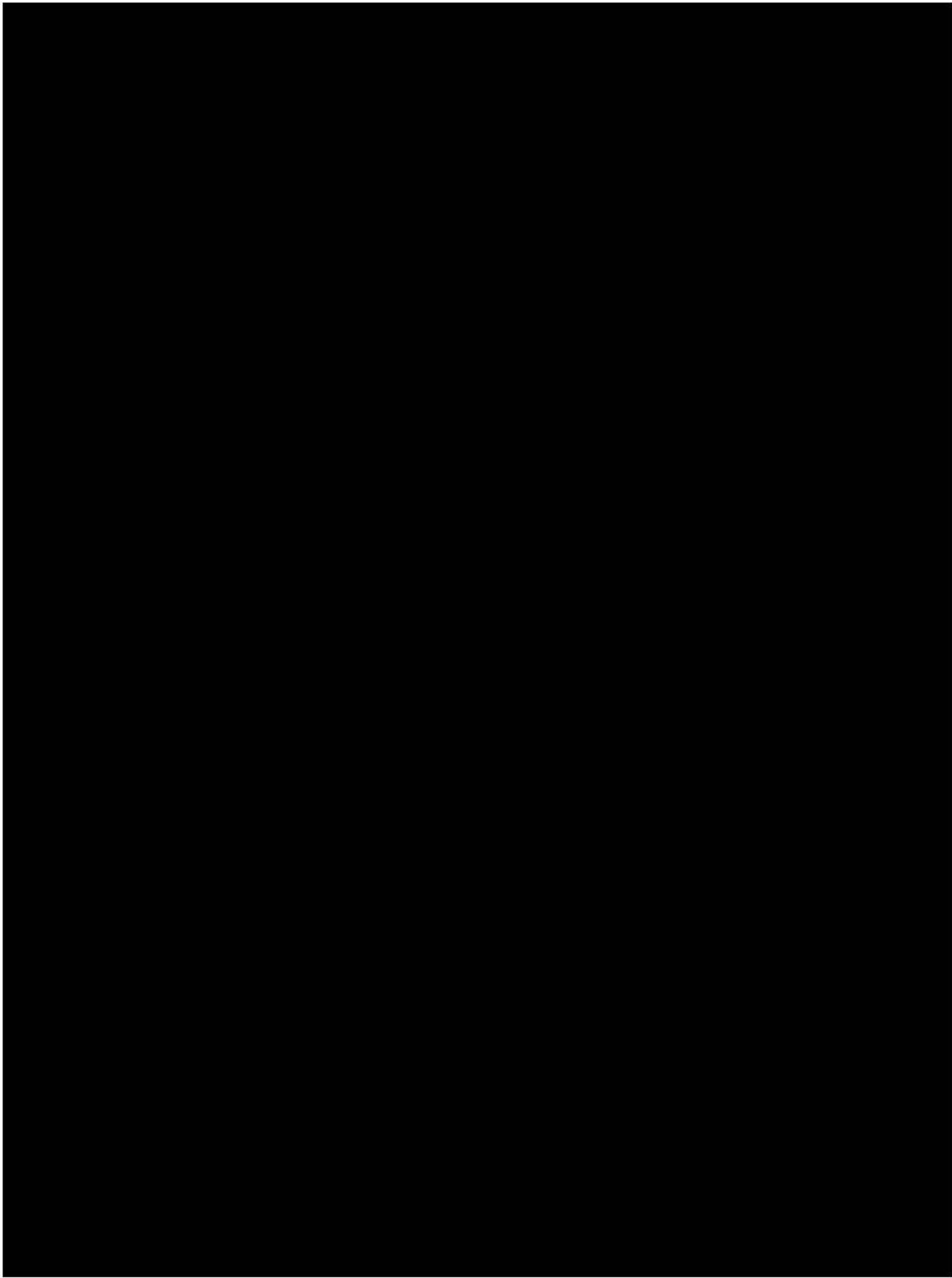
Permit Number 2-6301-00001/00033
Expiration Date 12/31/2020

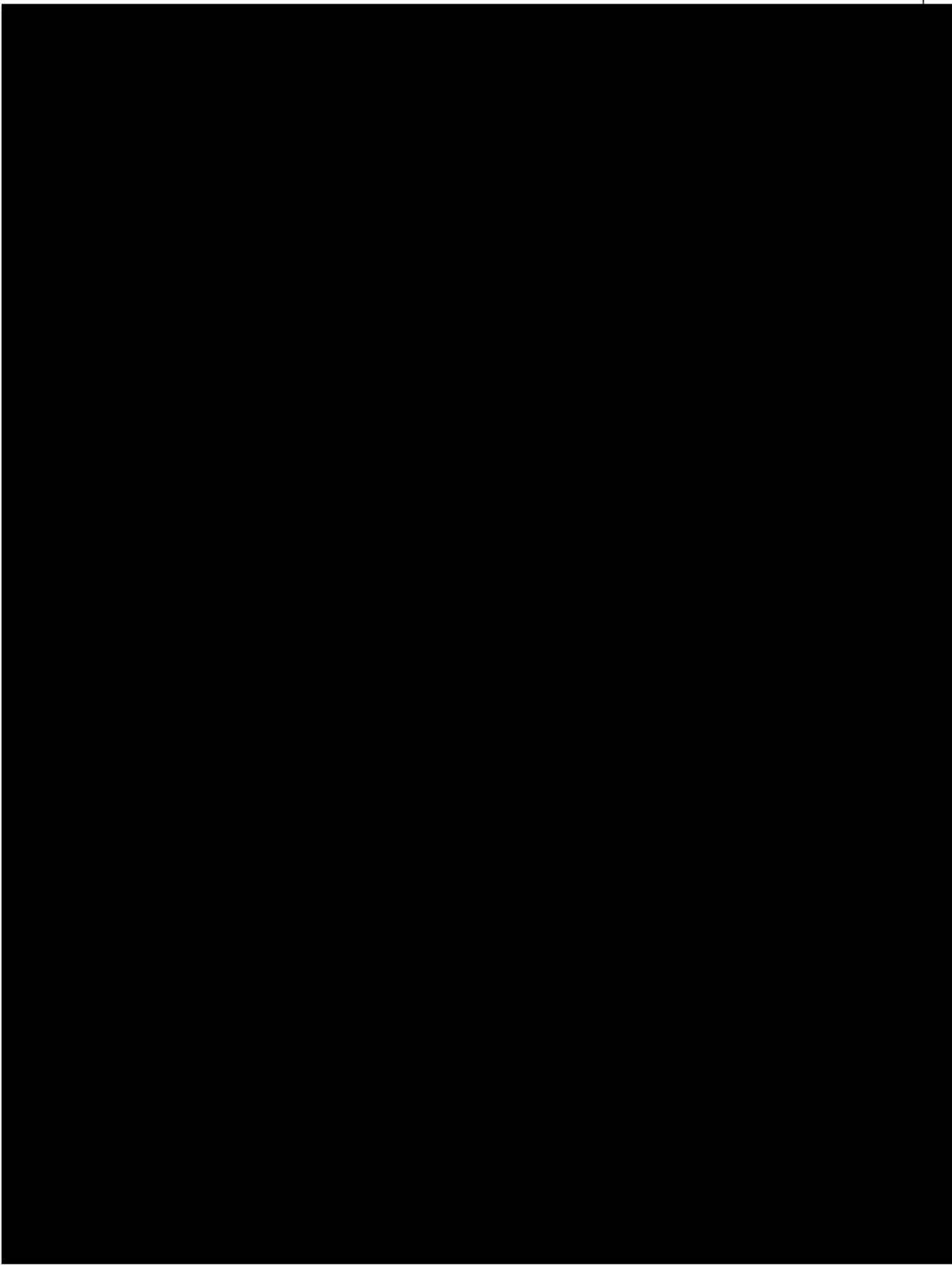
Regional Permit Administrator

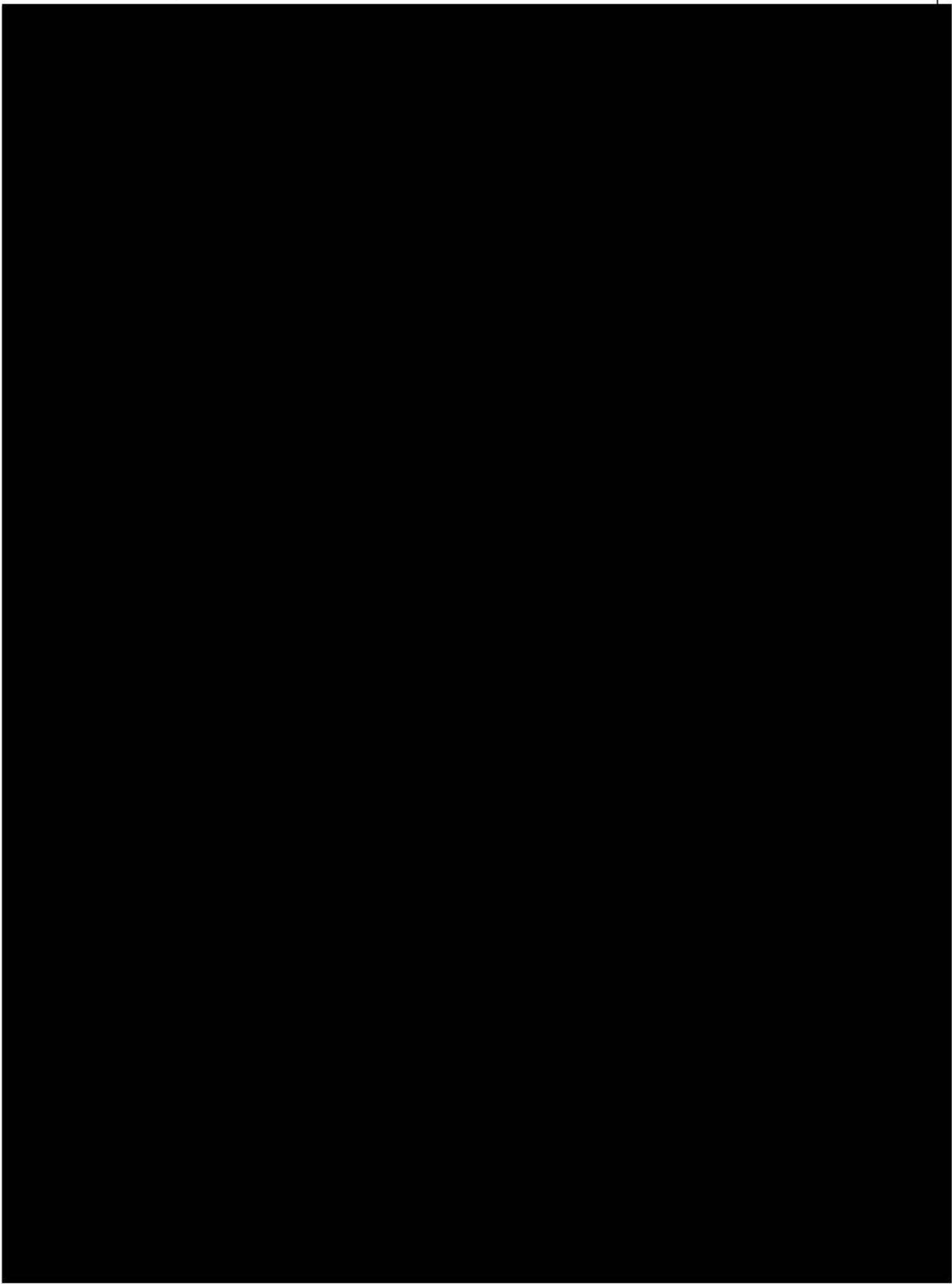


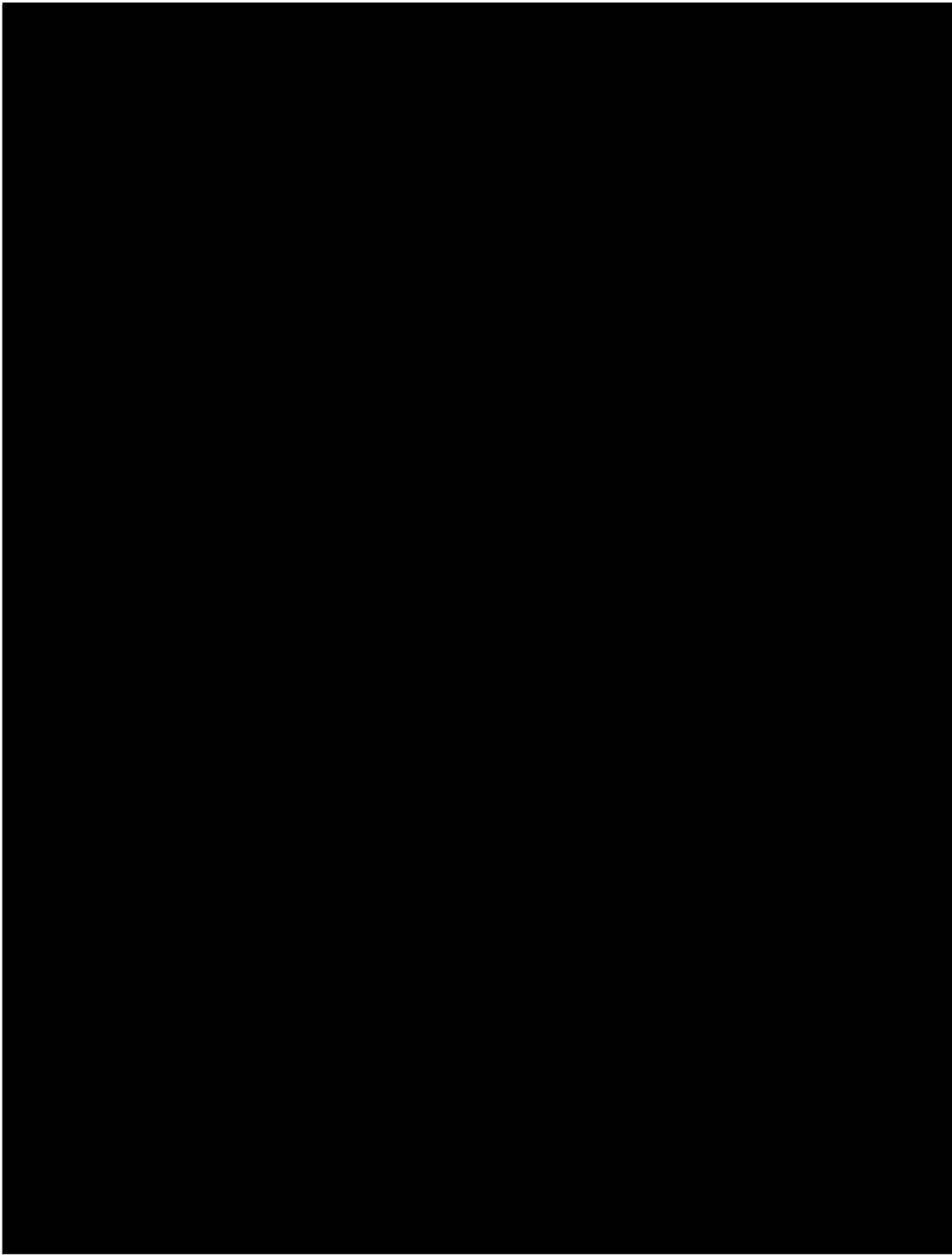
For John F. Cryan
47-40 21st Street
LIC, NY 11101
(718) 482-4997

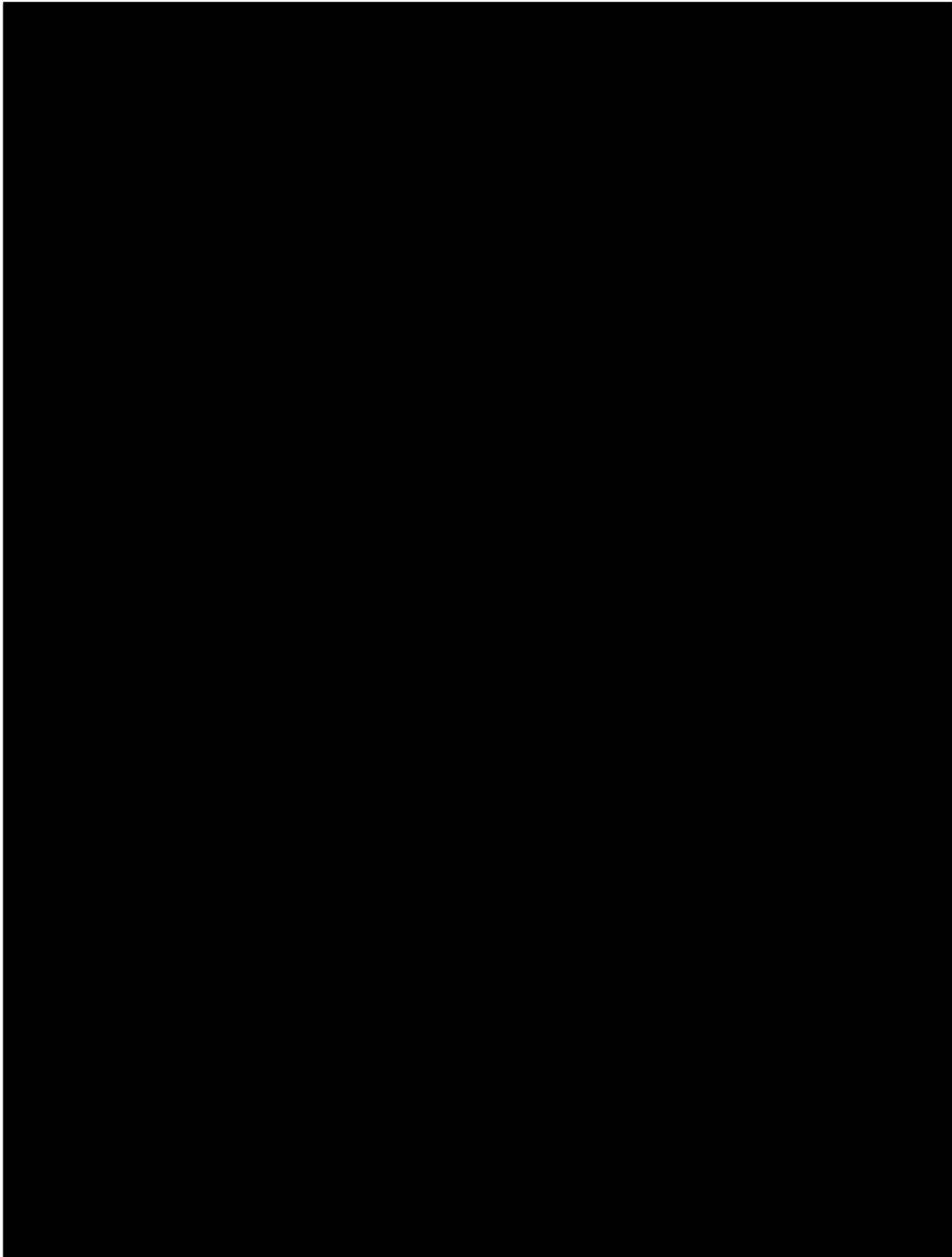
NOTE: This notice is NOT a permit

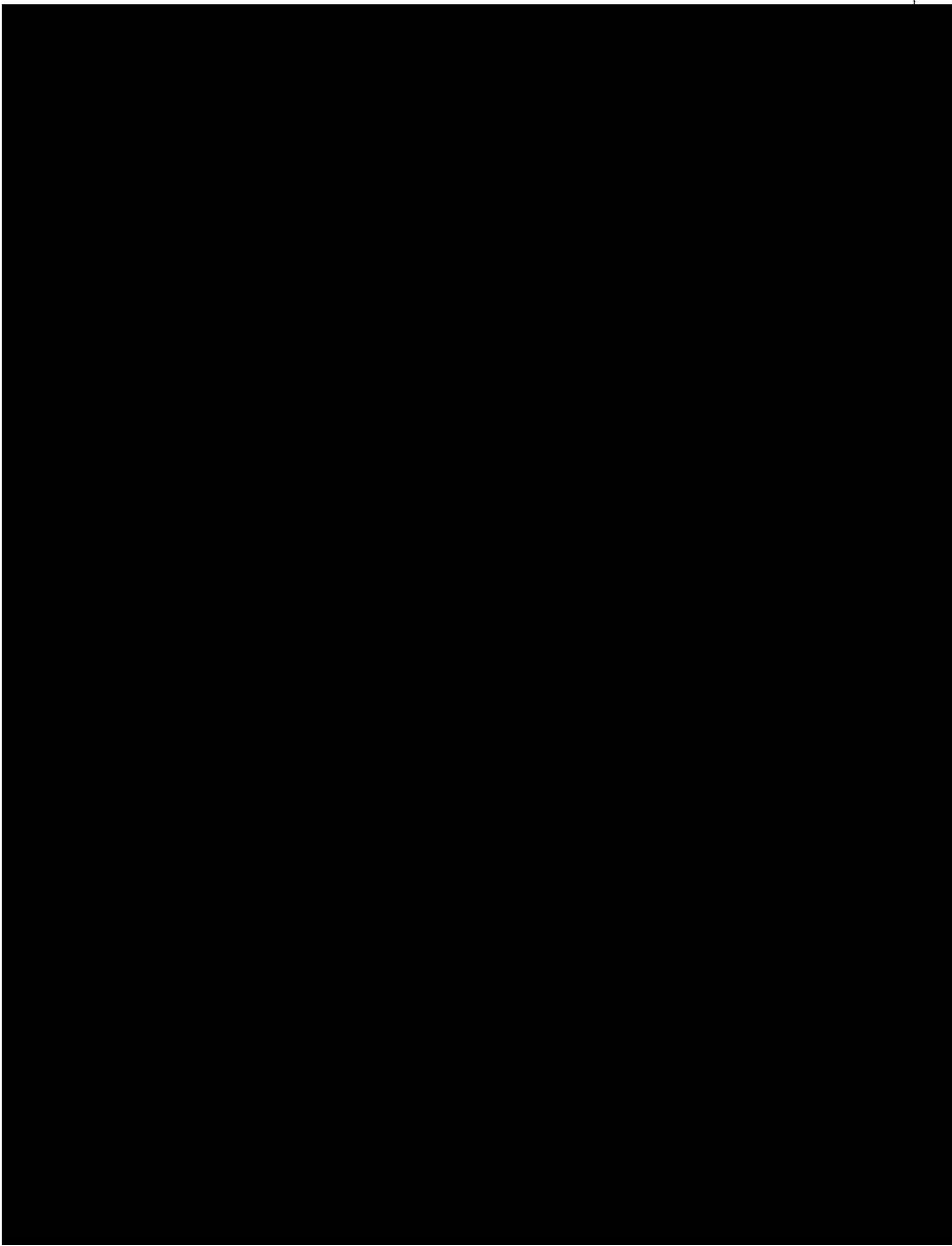


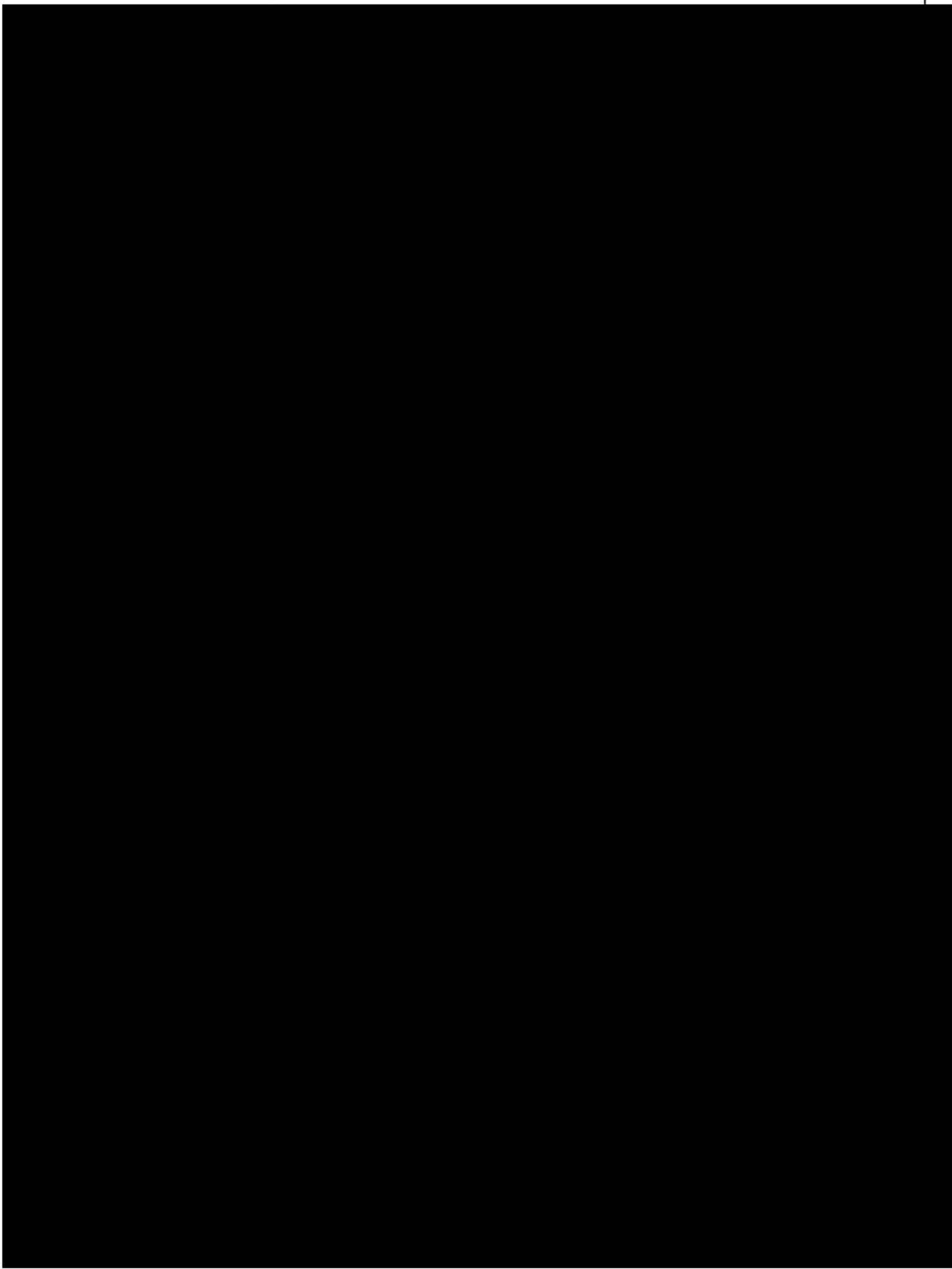












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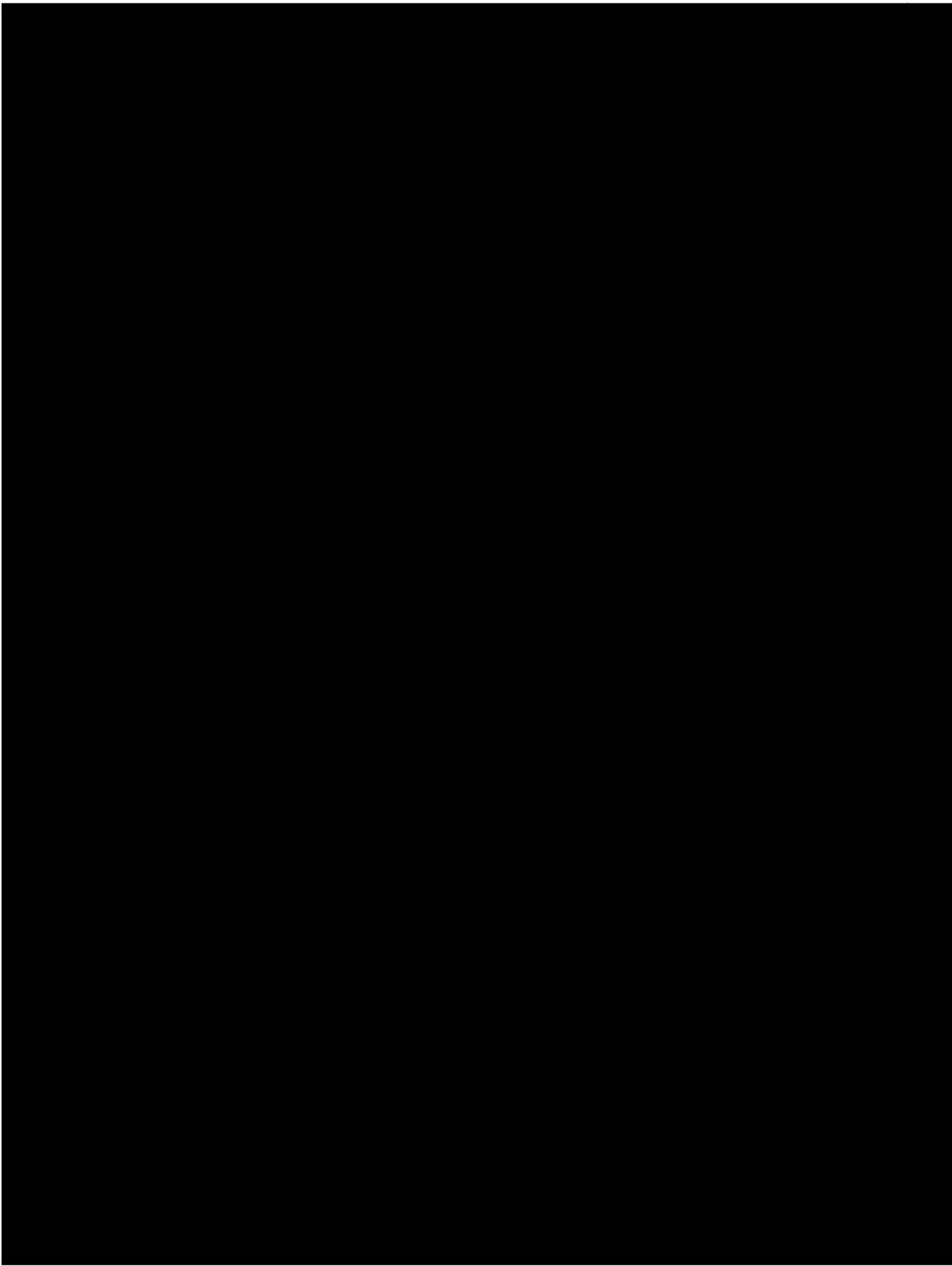
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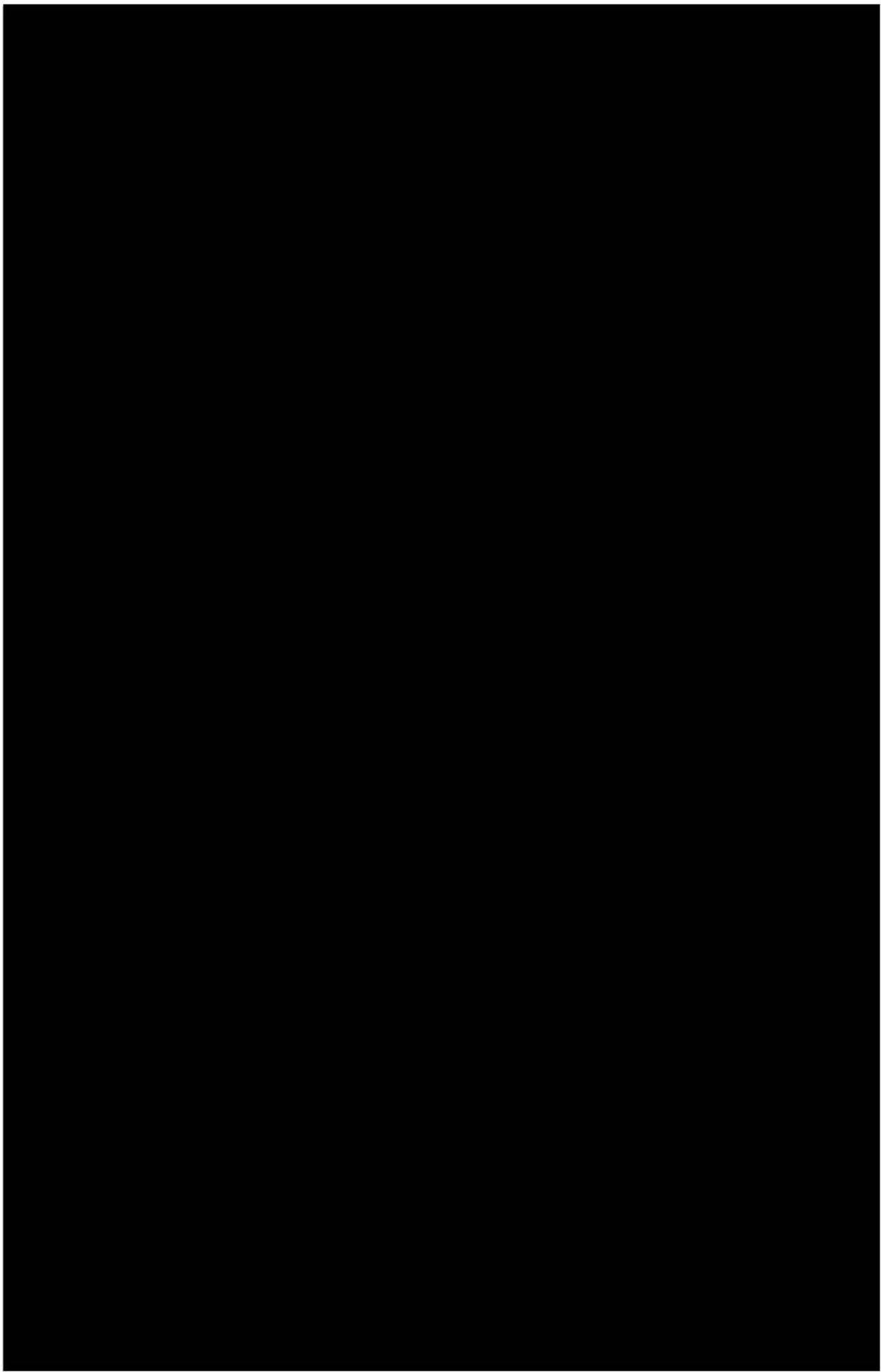
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UPS OVERNIGHT AND E-MAIL

February 4, 2015

Mr. Matthew James
New York State Department of Environmental Conservation
Marine Habitat Protection Section
47-40 21st Street
Long Island City, NY 11101-5401

**SUBJECT: PERMIT APPLICATION NO. 2-6301-00001/00033 – LGA EMERGENCY
STORMWATER OUTFALLS PROJECT
RESPONSE TO E-MAIL & FOLLOW-UP TELEPHONE CONVERSATION**

Dear Mr. James:

This is with respect to your e-mail of December 29, 2014 (copy attached) and our telephone conversation of January 5, 2014 concerning aspects of the permit application for Emergency Outfall construction at LaGuardia Airport (LGA) located in the East River/Flushing Bay at Flushing, Borough of Queens, Queens County, NY. In your e-mail and in our telephone conversation, two issues were raised: 1) the need and ways of providing mitigation for tidal wetland impacts and 2) the restoration of areas impacted by the proposed work.

With respect to the latter concern, we discussed a more detailed plan for restoration of tidal wetland vegetation that might be damaged during construction. The focus was on Outfall EM01 on the western end of the airport as photos of the site for construction of Outfall EM02 indicate that there is no tidal wetland vegetation in the area. However, the same procedures will be followed for restoration of both areas, particularly where the temporary pile-supported platforms necessary for construction will be removed.

The Port Authority will, as previously indicated in our December 10, 2014 letter to the Division of Environmental Permits, take preconstruction photos of both construction sites to guide restoration efforts. In addition to these photos, a detailed topographic survey, including elevations of *Spartina alterniflora*, of the sites will be taken at low tide. The elevation information will guide post-construction regrading to restore the preconstruction elevations, including elevations for *Spartina alterniflora* replanting.

Replacement *Spartina alterniflora* plants will be planted in-position of original plants to the extent possible. If in-position planting is not possible, the vegetation will be replanted as close to the original location as possible. The area of replanting will be approximately 15% greater than that of any impacted vegetation to help ensure that 100% restoration is achieved. The replanted area will be "goose fenced" for safety and to protect the plants from avian species. The Port Authority will monitor the sites to ensure that restoration to previous conditions is achieved.

Engineering Department
4 World Trade Center, 150 Greenwich Street
New York, NY 10006

With respect to the issue of mitigation, in your e-mail you suggested that the mitigation project for the LaGuardia Airport Deck Extension Project be expanded to include mitigation for the proposed Emergency Outfalls. As noted in your e-mail the area that would be filled by this proposed outfall project is quite small.

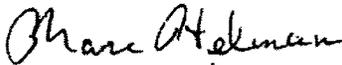
You are correct that the impact areas is quite small. Only 335 square feet (ft²) or 0.008 acres of tidal wetlands area would be filled as a result of the project. The impacts would consist of:

- 92 ft² - riprap splash pad: Outfall EM01
- 200 ft² - riprap splash pad: Outfall EM02
- 19 ft² - Outfall EM01 head wall and wing walls
- 24 ft² - Outfall EM02 head wall and wing walls

The mitigation for the deck extension project involves high and low marsh restoration of 6.22 acres, 1.36 acres of wetland preservation, as well as preservation and restoration of scrub/shrub, grass/shrub, and forest area. This will mitigate for 4.62 acres of shading impact and 0.03 acres of fill. The Port Authority believes that the 0.008 acres of fill impacts that would result from the Emergency Outfalls Project can be subsumed within the Deck Extension Project mitigation without increase the scope of the mitigation.

Should you need additional information, please contact Ms. Thzaira Charles by e-mail at tcharles@panynj.gov or telephone at (212) 435 – 6109. Alternatively, you may contact the undersigned by e-mail at mhelman@panynj.gov or by telephone at (212) 435 – 6112.

Yours truly,



Marc Helman
Supervisor, Permits & Government Approvals
Environmental Engineering Unit

Attachments: NYSDEC E-mail dated 29 December 2014

cc: Victoria Lawrence, NYSDEC Environmental Permits (E-mail only)

Introduction to the Prevailing Rate Schedule

Information About Prevailing Rate Schedule

This information is provided to assist you in the interpretation of particular requirements for each classification of worker contained in the attached Schedule of Prevailing Rates.

Classification

It is the duty of the Commissioner of Labor to make the proper classification of workers taking into account whether the work is heavy and highway, building, sewer and water, tunnel work, or residential, and to make a determination of wages and supplements to be paid or provided. It is the responsibility of the public work contractor to use the proper rate. If there is a question on the proper classification to be used, please call the district office located nearest the project. District office locations and phone numbers are listed below.

Prevailing Wage Schedules are issued separately for "General Construction Projects" and "Residential Construction Projects" on a county-by-county basis.

General Construction Rates apply to projects such as: Buildings, Heavy & Highway, and Tunnel and Water & Sewer rates.

Residential Construction Rates generally apply to construction, reconstruction, repair, alteration, or demolition of one family, two family, row housing, or rental type units intended for residential use.

Some rates listed in the Residential Construction Rate Schedule have a very limited applicability listed along with the rate. Rates for occupations or locations not shown on the residential schedule must be obtained from the General Construction Rate Schedule. Please contact the local Bureau of Public Work office before using Residential Rate Schedules, to ensure that the project meets the required criteria.

Paid Holidays

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

Overtime

At a minimum, all work performed on a public work project in excess of eight hours in any one day or more than five days in any workweek is overtime. However, the specific overtime requirements for each trade or occupation on a public work project may differ. Specific overtime requirements for each trade or occupation are contained in the prevailing rate schedules.

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays.

The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Supplemental Benefits

Particular attention should be given to the supplemental benefit requirements. In most cases the payment or provision of supplements is for each hour worked (noted in the schedule as 'Per hour worked'). Some classifications require the payment or provision of supplements for each hour paid (noted in the schedule as 'Per hour paid'), which require supplements to be paid or provided at a premium rate for premium hours worked. Some classifications may also require the payment or provision of supplements for paid holidays on which no work is performed.

Effective Dates

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. The rate listed is valid until the next effective rate change or until the new annual determination which takes effect on July 1 of each year. All contractors and subcontractors are required to pay the current prevailing rates of wages and supplements. If you have any questions please contact the Bureau of Public Work or visit the New York State Department of Labor website (www.labor.state.ny.us) for current wage rate information.

Apprentice Training Ratios

The following are the allowable ratios of registered Apprentices to Journey-workers.

For example, the ratio 1:1,1:3 indicates the allowable initial ratio is one Apprentice to one Journeyworker. The Journeyworker must be in place on the project before an Apprentice is allowed. Then three additional Journeyworkers are needed before a second Apprentice is allowed. The last ratio repeats indefinitely. Therefore, three more Journeyworkers must be present before a third Apprentice can be hired, and so on.

Please call Apprentice Training Central Office at (518) 457-6820 if you have any questions.

Title (Trade)	Ratio
Boilermaker (Construction)	1:1,1:4
Boilermaker (Shop)	1:1,1:3
Carpenter (Bldg.,H&H, Pile Driver/Dockbuilder)	1:1,1:4
Carpenter (Residential)	1:1,1:3

Electrical (Outside) Lineman	1:1,1:2
Electrician (Inside)	1:1,1:3
Elevator/Escalator Construction & Modernizer	1:1,1:2
Glazier	1:1,1:3
Insulation & Asbestos Worker	1:1,1:3
Iron Worker	1:1,1:4
Laborer	1:1,1:3
Mason	1:1,1:4
Millwright	1:1,1:4
Op Engineer	1:1,1:5
Painter	1:1,1:3
Plumber & Steamfitter	1:1,1:3
Roofer	1:1,1:2
Sheet Metal Worker	1:1,1:3
Sprinkler Fitter	1:1,1:2

If you have any questions concerning the attached schedule or would like additional information, please contact the nearest BUREAU of PUBLIC WORK District Office or write to:

New York State Department of Labor
Bureau of Public Work
State Office Campus, Bldg. 12
Albany, NY 12240

District Office Locations:	Telephone #	FAX #
Bureau of Public Work - Albany	518-457-2744	518-485-0240
Bureau of Public Work - Binghamton	607-721-8005	607-721-8004
Bureau of Public Work - Buffalo	716-847-7159	716-847-7650
Bureau of Public Work - Garden City	516-228-3915	516-794-3518
Bureau of Public Work - Newburgh	845-568-5287	845-568-5332
Bureau of Public Work - New York City	212-932-2419	212-775-3579
Bureau of Public Work - Patchogue	631-687-4882	631-687-4902
Bureau of Public Work - Rochester	585-258-4505	585-258-4708
Bureau of Public Work - Syracuse	315-428-4056	315-428-4671
Bureau of Public Work - Utica	315-793-2314	315-793-2514
Bureau of Public Work - White Plains	914-997-9507	914-997-9523
Bureau of Public Work - Central Office	518-457-5589	518-485-1870

Queens County General Construction

Asbestos Worker 12/01/2015

JOB DESCRIPTION Asbestos Worker **DISTRICT 4**

ENTIRE COUNTIES
 Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour:	07/01/2015	08/01/2015 Additional
Asbestos Worker Removal & Abatement Only*	\$ 45.00	\$ 0.50/Hr

NOTE: *On Mechanical Systems that are NOT to be SCRAPPED.

SUPPLEMENTAL BENEFITS
 Per Hour:

Asbestos Worker Removal & Abatement Only	\$ 7.20
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OVERTIME PAY
 See (B, B2, *E, J) on OVERTIME PAGE
 Hours worked on Saturdays are paid at time and one half only if forty hours have been worked during the week.

HOLIDAY
 Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8) on HOLIDAY PAGE

REGISTERED APPRENTICES
 Apprentice Removal & Abatement Only:
 1000 hour terms at the following percentage of Journeyman's rates.

1st	2nd	3rd	4th
78%	80%	83%	89%

SUPPLEMENTAL BENEFIT
 Per Hour:

Apprentice Removal & Abatement	\$ 7.20
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4-12a - Removal Only

Boilermaker 12/01/2015

JOB DESCRIPTION Boilermaker **DISTRICT 4**

ENTIRE COUNTIES
 Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES

Per Hour:	07/01/2015
Boilermaker	\$ 51.56
Repairs & Renovations	\$ 51.56

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2015
Boilermaker	32% of hourly
Repairs & Renovations	Wage Paid + \$25.19

NOTE: "Hourly Wage Paid" shall include any and all premium(s) pay.

Repairs & Renovation Includes replacement of parts and repairs & renovation of existing unit.

OVERTIME PAY
 OVERTIME PAY
 See (D, O) on OVERTIME PAGE
HOLIDAY

Paid: See (8, 16, 23, 24) on HOLIDAY PAGE
 Overtime: See (5, 6, 11, 12, 15, 25) on HOLIDAY PAGE
 NOTE: *Employee must work in pay week to receive Holiday Pay.
 **Boilermaker gets 4 times the hourly wage rate for working on Labor Day.
 ***Repairs & Renovation see (B,E,Q) on HOLIDAY PAGE

HOLIDAY

REGISTERED APPRENTICES

Wage per hour:
 (1/2) Year Terms at the following percentage of Boilermaker's Wage

1st	2nd	3rd	4th	5th	6th	7th	8th
65%	65%	70%	75%	80%	85%	90%	95%

Supplemental Benefits Per Hour:

Apprentice(s)	07/01/2015 32% of Hourly Wage Paid Plus Amount Below
1st Term	\$ 19.27
2nd Term	20.11
3rd Term	20.95
4th Term	21.80
5th Term	22.65
6th Term	23.49
7th Term	24.33

NOTE: "Hourly Wage Paid" shall include any and all premium(s)

4-5

Carpenter **12/01/2015**

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per hour: 07/01/2015

Piledriver	\$ 50.50
Dockbuilder	\$ 50.50

SUPPLEMENTAL BENEFITS

Per hour paid:

Journeyworker	\$ 47.03
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OVERTIME PAY

See (B, E2, O) on OVERTIME PAGE

HOLIDAY

Paid: See (18,19)on HOLIDAY PAGE.

Paid: for 1st & 2nd yr.
 Apprentices See (5,6,11,13,16,18,19,25)

Overtime: See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour

(1) year terms:

1st	2nd	3rd	4th
\$20.20	\$25.25	\$32.83	\$40.40

Supplemental benefits per hour:

Apprentices	\$ 31.90
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Carpenter **12/01/2015**

JOB DESCRIPTION Carpenter **DISTRICT 8**

ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

PARTIAL COUNTIES

Orange: The area lying on Southern side of Orange County demarcated by a line drawn from the Bear Mountain Bridge continuing east to the Bear Mountain Circle, continue North on 9W to the town of Cornwall where County Road 107 (also known as Quaker Rd) crosses under 9W, then east on County Road 107 to Route 32, then north on Route 32 to Orrs Mills Rd, then west on Orrs Mills Rd to Route 94, continue west and south on Route 94 to the Town of Chester, to the intersection of Kings Highway, continue south on Kings Highway to Bellvale Rd, west on Bellvale Rd to Bellvale Lakes Rd, then south on Bellvale Lakes Rd to Kain Rd, southeast on Kain Rd to Route 17A, then north and southeast along Route 17A to Route 210, then follow Route 210 to NJ Border.

WAGES

Per hour: 07/01/2015

Carpet/Resilient

Floor Coverer \$ 49.88

INCLUDES HANDLING & INSTALLATION OF ARTIFICIAL TURF AND SIMILAR TURF INDOORS/OUTDOORS.

SUPPLEMENTAL BENEFITS

Per hour paid:

Floor Coverer \$ 44.07

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (18, 19) on HOLIDAY PAGE.

Paid: for 1st & 2nd yr.

Apprentices See (5,6,11,13,16,18,19,25)

Overtime: See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wage per hour is Percentage of Journeyworkers Wage

(1) year terms:

1st.	2nd.	3rd.	4th.
\$19.95	\$24.94	\$32.42	\$39.90

Supplemental benefits per hour:

\$ 30.22

8-2287

Carpenter **12/01/2015**

JOB DESCRIPTION Carpenter **DISTRICT 8**

ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per Hour: 07/01/2015

Marine Construction:

Marine Diver \$ 61.30

Marine Tender 43.45

SUPPLEMENTAL BENEFITS

Per Hour Paid:

Journeyman \$ 46.09

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (18, 19) on HOLIDAY PAGE
Overtime: See (5, 6, 10, 11, 13, 16, 18, 19) on HOLIDAY PAGE

8-1456MC

Carpenter

12/01/2015

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per hour: 07/01/2015

Building
Millwright \$ 48.44
+ Additional
\$ 2.40

SUPPLEMENTAL BENEFITS

Per hour paid:

Millwright \$ 50.49

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (18,19)* on HOLIDAY PAGE.

Overtime See (5,6,8,11,13,18,19,25) on HOLIDAY PAGE.

* must show up to work

REGISTERED APPRENTICES

Wages per hour is Percentage of Journeyworkers wage:

(1) year terms:

1st.	2nd.	3rd.	4th.
\$26.64	\$31.49	\$36.33	\$46.02

Supplemental benefits per hour paid:

(1) year terms:

1st.	2nd.	3rd.	4th.
\$32.81	\$36.15	\$40.63	\$46.21

8-740.1

Carpenter

12/01/2015

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per Hour: 07/01/2015

Timberman \$ 45.60

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2015
\$ 47.05

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (18,19) on HOLIDAY PAGE.

Paid: for 1st & 2nd yr.
 Apprentices See (5,6,11,13,16,18,19,25)

Overtime: See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour:

(1) year terms:

1st	2nd	3rd	4th
\$18.24	\$22.80	\$29.64	\$36.48

Supplemental benefits per hour:

\$ 31.92

8-1556 Tm

Carpenter

12/01/2015

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Westchester

PARTIAL COUNTIES

Orange: South of but including the following, Waterloo Mills, Slate Hill, New Hampton, Goshen, Blooming Grove, Mountainville, east to the Hudson River.

Putnam: South of but including the following, Cold Spring, TompkinsCorner, Mahopac, Croton Falls, east to Connecticut border.

Suffolk: West of Port Jefferson and Patchogue Road to Route 112 to the Atlantic Ocean.

WAGES

Per hour: 07/01/2015 10/17/2015

Core Drilling:

Driller \$ 36.82 + Additional \$ 2.21

Driller Helper \$ 29.44 + Additional \$ 1.94

Additional Helpers: One (1) year increments. This is not an apprenticeship for Driller:

Helper 1st year	\$ 20.61
Helper 2nd year	23.55
Helper 3rd year	26.50
Helper 4th year	29.44

Note: Hazardous Waste Pay Differential:

For Level C, an additional 10% above wage rate per hour

For Level B, an additional 10% above wage rate per hour

For Level A, an additional 10% above wage rate per hour

Note: When required to work on water: an additional \$ 0.50 per hour.

SUPPLEMENTAL BENEFITS

Per hour paid: 07/01/2015 10/17/2015

Driller and All Helpers \$ 22.79 \$ 22.79

OVERTIME PAY

OVERTIME: See (B,E,K*,P,R**) on OVERTIME PAGE.

HOLIDAY

Paid: See (5,6) on HOLIDAY PAGE.

Overtime: * See (5,6) on HOLIDAY PAGE.

** See (8,10,11,13) on HOLIDAY PAGE.

8-1536-CoreDriller

Carpenter

12/01/2015

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, New York, Putnam, Queens, Richmond

PARTIAL COUNTIES

Nassau: That portion of the county that lies west of Seaford Creek and south of the Southern State Parkway.

WAGES

Per hour: 07/01/2015

Show Exhibit/

Carpenter \$ 50.50

SUPPLEMENTAL BENEFITS

Per hour paid:

Show Exhibit/

Carpenter \$ 46.26

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (18,19) on HOLIDAY PAGE.

Paid:for 1st & 2nd yr.

Apprentices See (5,6,11,13,16,18,19,25)

Overtime: See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour is Percentage of Journeyworkers Wage

(1) year terms:

1st.	2nd.	3rd.	4th.
\$20.20	\$25.25	\$32.83	\$40.40

Supplemental benefits per hour:

Apprentices \$ 31.52

8-EXHIB

Carpenter - Building

12/01/2015

JOB DESCRIPTION Carpenter - Building

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

PARTIAL COUNTIES

Nassau: Work performed south of the Southern State Parkway and west of the Seaford Creek.

WAGES

Per hour: 07/01/2015 07/01/2016

Building:

Carpenter \$ 50.50 Additional \$ 2.40

SUPPLEMENTAL BENEFITS

Per hour paid:

Building:

Carpenter \$ 45.85

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (18,19) on HOLIDAY PAGE.

Paid: for 1st & 2nd yr.

Apprentices See (5,6,11,13,16,18,19,25)

Overtime: See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wage per hour:

(1) year terms:

	1st	2nd	3rd	4th
Building	\$ 20.20	\$ 25.25	\$ 32.83	\$ 40.40

Supplemental benefits per hour for all Apprentices:

Building \$ 31.11

8-NYC Bldg.

Carpenter - Heavy&Highway

12/01/2015

JOB DESCRIPTION Carpenter - Heavy&Highway

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 07/01/2015

Heavy&Highway Carpenter \$ 50.50

SUPPLEMENTAL BENEFITS

Per hour paid:

Heavy & H/way Carpenter \$ 47.03

OVERTIME PAY

See (B, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (18, 19) on HOLIDAY PAGE

Paid : for 1st & 2nd yr

Apprentices See(5,6,11,13,16,18,19,25)

Overtime: See(5,6,11,13,16,18,19,25) on holiday Page

REGISTERED APPRENTICES

Wage per hour:

(1) year terms:

	1st	2nd	3rd	4th
Heavy & Highway	\$20.20	\$25.25	\$32.83	\$40.40

Supplemental Benefits:

Per Hour paid

All Apprentices \$31.90

8-NYC H/H

Electrician

12/01/2015

JOB DESCRIPTION Electrician

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond, Westchester

WAGES

Per hour Paid: 07/01/2015 03/09/2016

Service Technician \$ 31.40 \$ 32.00

Service and Maintenance on Alarm and Security Systems.

Maintenance, repair and /or replacement of defective (or damaged) equipment on, but not limited to, Burglar - Fire - Security - CCTV - Card Access - Life Safety Systems and associated devices. (Whether by service contract of T&M by customer request.)

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker: \$ 14.76 \$ 15.47

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

9-3H

Electrician

12/01/2015

JOB DESCRIPTION Electrician

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 07/01/2015

Electrician

H - Telephone \$ 27.50

Maintenance and Jobbing-Electrical work of limited duration and scope, consisting of repairs and/or replacement of electrical and teledata equipment.

- Includes all work necessary to retrofit, service, maintain and repair all kinds of lighting fixtures and local lighting controls and washing and cleaning of foregoing fixtures.

SUPPLEMENTAL BENEFITS

Journeyworker \$ 20.82
22.54*

* Applies to overtime hours

OVERTIME PAY

See (B, H) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

9-3m

Electrician

12/01/2015

JOB DESCRIPTION Electrician

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 07/01/2015

Tree Trimmer \$ 27.88

Ground Person \$ 18.43

Applies to line clearance, tree work, and right-of-way preparation on all new or existing overhead, electrical, telephone, and CATV lines.

SUPPLEMENTAL BENEFITS

Per hour paid:

Tree Trimmer \$ 10.44

Ground Person \$ 6.90

OVERTIME PAY

See (B, *H, Q) on OVERTIME PAGE

*Worked performed on Sundays & Holidys outside of 7.00am - 4.00pm shall be paid at double time, in addition to the holiday pay if applicable.

HOLIDAY

HOLIDAY:

Paid: See (5,6,10,11,15,16,26) on HOLIDAY PAGE.

(An additional floating holiday after four years' service)

Overtime: See (5,6,10,11,15,16,26) on HOLIDAY PAGE.

9-3T

Electrician

12/01/2015

JOB DESCRIPTION Electrician

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per Hour: 07/01/2015

Electrician and Audio/Sound \$54.00

SUPPLEMENTAL BENEFITS

Per Hour:

Journey Worker \$50.03
 53.41*

Journey Worker

Temporary Light/Power \$24.39
 27.27*

* Applies when premium wages are paid.

Temporary Light and Power benefit rate applies for three or less workers.

Reduce benefit rate by 6.2% for any employee who has accumulated wages of \$113,700 for the same employer.

OVERTIME PAY

See (A, H) on OVERTIME PAGE

See (B) for Temporary Light and Power

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages Per Hour:

One (1) year terms - Apprentices registered before 05/10/2007.

07/01/2015
 Fifth term/MIJ:
 1-18 mos \$ 26.80

One (1) year terms - Apprentices registered after 05/10/2007.

07/01/2015
 First term:
 0-6 mos. \$ 13.00
 7-12 mos. 14.00
 Second term:
 0-6 mos. \$ 15.00
 7-12 mos. \$ 16.00
 Third term:
 0-6 mos. \$ 17.00
 7-12 mos. 18.00
 Fourth term:
 0-6 mos. \$ 19.00
 7-12 mos. 21.00
 Fifth term/MIJ:
 0-12 mos. \$ 23.00
 13-18 mos. 23.00

Supplemental Benefits per hour:

One (1) year terms - Apprentices registered prior to 05/10/2007.

Fifth term/MIJ:

07/01/2015
 1-18 mos \$ 20.47
 22.15

One (1) year terms - Apprentices registered after 05/10/2007:

07/01/2015

Term:	Regular	Overtime
First Term:		
0-6 mos.	\$11.61	\$12.47
7-12 mos.	12.12	13.05
Second Term:		
0-6 mos.	\$12.63	\$13.62
7-12 mos.	13.14	14.19
Third Term:		
0-6 mos.	\$13.65	\$14.77
7-12 mos.	14.16	15.34
Fourth Term:		
0-6 mos.	\$14.67	\$15.92
7-12 mos.	15.68	17.07
Fifth Term/MIJ:		
1-12 mos.	\$18.56	\$20.00
13-18 mos		

9-3

Electrician **12/01/2015**

JOB DESCRIPTION Electrician

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:

07/01/2015

Electro Pole Electrician	\$ 54.00
Electro Pole Foundation Inst.	\$ 40.93
Electro Pole Maintainer	\$ 35.05

SUPPLEMENTAL BENEFITS

Per Hour:

07/01/2015

Electro Pole Electrician	\$ 51.86
	55.25*
Electro Pole Foundation Inst.	39.46
	42.02*
Electro Pole Maintainer	35.51
	37.71*

* Applies when premium wages are paid

Note: Reduce benefit rate by 6.2% for any employee who has accumulated wages in \$113,700 for the same employer.

OVERTIME PAY

See (A, *B, **E4, F, K) on OVERTIME PAGE

HOLIDAY

Paid:

See (1) on HOLIDAY PAGE

Overtime:

See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

9-3J

Electrician Lineman **12/01/2015**

JOB DESCRIPTION Electrician Lineman

DISTRICT 4

ENTIRE COUNTIES

Nassau, Queens, Suffolk

WAGES

For Utility Distribution & Transmission Line Construction:

Per Hour:

07/01/2015

Lineman/Splicer	\$ 50.76
Material Man	44.16
Heavy Equip. Operator	40.61
Groundman	30.46
Flagman	22.84

For Natural Gasline Construction:

Per Hour:	07/01/2015	06/01/2016
Journeyman U.G.Mech.	\$ 42.69	\$ 44.08

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30R; and there must be a dispensation of hours in place on the project. If the PW30R is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per Hour:
 Utility Distribution & Transmission Line Construction:

07/01/2015

All Classifications	31% of Hourly Wage Paid + \$ 11.36
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NOTE: "Hourly Wage Paid" shall include any and all premium(s) pay

Natural Gasline Construction:

Per Hour:	07/01/2015	06/01/2016
Journeyman U.G.Mech.	25% of Hourly Wage Paid + \$11.16	26% of Hourly Wage Paid + \$11.96

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE
 OVERTIME for Natural Gas Mechanic:(B,G,P)

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5; 6, 8, 16, 23, 25, 26) on HOLIDAY PAGE
 Same as Above for natural Gas Mechanic.

REGISTERED APPRENTICES

1000 hour Terms at the following Percentage of Journeyman's Wage.
 (Lineman Only)

1st	2nd	3rd	4th	5th	6th	7th
60%	65%	70%	75%	80%	85%	90%

SUPPLEMENTAL BENEFIT: 07/01/2015

All Terms	31% of Hourly Wage Paid + \$11.36
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4-1049 Line/Gas

Elevator Constructor **12/01/2015**

JOB DESCRIPTION Elevator Constructor

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

PARTIAL COUNTIES

Rockland: Entire County except for the Township of Stony Point
 Westchester: Entire County except for the Townships of Bedford, Lewisboro, Cortland, Mt. Kisco, North Salem, Pound Ridge, Somers and Yorktown.

WAGES

Per hour:

	07/01/2015	03/17/2016
Elevator Constructor	\$ 59.55	\$ 60.96
Modernization & Service/Repair	46.92	47.91

SUPPLEMENTAL BENEFITS

Per Hour:

Elevator Constructor	\$ 35.17	\$ 36.86
Modernization & Service/Repair	34.21	35.87

OVERTIME PAY

Constructor. See (D, M, T) on OVERTIME PAGE.

Modern./Service See (B, F, S) on OVERTIME PAGE.

HOLIDAY

Paid: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

WAGES PER HOUR:

*Note: 1st Term is based on Average wage of Constructor & Modernization.
 Terms 2 thru 4 Based on Journeyman's wage of classification Working in.

1 YEAR TERMS:

1st Term* 50%	2nd Term 55%	3rd Term 65%	4th Term 75%
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SUPPLEMENTAL BENEFITS

Elevator Constructor		
1st Term	\$ 28.93	\$ 30.44
2nd Term	29.73	31.27
3rd Term	30.94	32.51
4th Term	32.15	33.75

Modernization & Service/Repair

1st Term	\$ 28.85	\$ 30.37
2nd Term	29.21	30.73
3rd Term	30.32	31.87
4th Term	31.43	33.02

4-1

Glazier **12/01/2015**

JOB DESCRIPTION Glazier

DISTRICT 8

ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES

Per hour:	07/01/2015	11/01/2015	05/01/2016
Glazier	\$ 52.20*	\$ 52.80*	+Additional \$ 1.50
Scaffolding	\$ 53.20*	\$ 53.80*	+Additional \$ 1.50

Scaffolding includes swing scaffold, mechanical equipment, scissor jacks, man lifts, booms & buckets 24' or more, but not pipe scaffolding.

Repair & Maintenance \$ 27.30*

Repair & Maintenance- All repair & maintenance work on a particular building, whenever performed, where the total cumulative contract value is under \$121,550

*Additional \$.05 per hour for all regular hours worked

SUPPLEMENTAL BENEFITS

Per hour paid:	07/01/2015	11/01/2015
Journeyworker	\$ 28.04	\$ 28.29
Repair & Maintenance	16.14	16.14

OVERTIME PAY

OVERTIME: Premium is applied to the respective base wage only.
 See (C*,D* E2, O) on OVERTIME PAGE.

* If an optional 8th hour is required to complete the entire project, the same shall be paid at the regular rate of pay. If a 9th hour is worked, then both hours or more (8th & 9th or more) will be paid at double time rate of pay.

For Repair & Maintenance see (B,B2, F, P) on overtime page.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (4, 6, 16, 25) on HOLIDAY PAGE
 Paid for the Repair & Maintenance (5, 6, 16 & 25)

REGISTERED APPRENTICES

Wage per hour:
 (1) year terms at the following wage rates:

	07/01/2015	11/01/2015
1st term	\$ 17.70	\$ 17.95
2nd term	25.85	26.20
3rd term	31.19	31.54
4th term	41.71	42.14

Supplemental Benefits:

(Per hour worked)

1st term	\$ 13.84	\$ 13.99
2nd term	19.10	19.26
3rd term	20.97	21.13
4th term	24.32	24.57

8-1281 (DC9 NYC)

Insulator - Heat & Frost **12/01/2015**

JOB DESCRIPTION Insulator - Heat & Frost **DISTRICT 4**

ENTIRE COUNTIES
 Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour:	07/01/2015	12/28/2015
Insulators	\$ 63.66	Additional
Heat & Frost		\$0.90/Hr

SUPPLEMENTAL BENEFITS

Per Hour:

Insulators	\$ 31.51
Heat & Frost	

OVERTIME PAY
 See (A, D, O, V) on OVERTIME PAGE

HOLIDAY
 Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES
 Wages:

1 year terms at the following percentage of Jourymans Wage.

1st	2nd	3rd	4th
40%	60%	70%	80%

Supplemental Benefits per hour:

Apprentice Insulator(s)			
1st	2nd	3rd	4th
\$12.60	\$18.91	\$22.06	\$25.21

4-12

Ironworker **12/01/2015**

JOB DESCRIPTION Ironworker **DISTRICT 9**

ENTIRE COUNTIES
 Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES
 Per Hour: 07/01/2015 01/01/2016

IRONWORKER:
 Ironworker Rigger \$ 56.09 An Additional \$ 1.36
 Ironworker Stone Derrickman \$ 56.09 \$ 1.36

SUPPLEMENTAL BENEFITS
 Ironworker: \$ 38.37

OVERTIME PAY
 See (B, D1, *E, Q, **V) on OVERTIME PAGE
 *Time and one-half shall be paid for all work on Saturday up to eight (8) hours and double time shall be paid for all work thereafter.
 ** Benefits same premium as wages on Holidays only

HOLIDAY
 Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 25) on HOLIDAY PAGE
 *Work stops at schedule lunch break with full day's pay.

REGISTERED APPRENTICES
 Wage per hour:

1/2 year terms at the following hourly wage rate:

	1st	2nd	3rd	4th	5th	6th
07/01/2015	\$28.05	\$28.05	\$39.26	\$44.87	\$50.48	\$50.48

Supplemental benefits:
 Per hour paid: \$19.19 \$19.19 \$28.78 \$28.78 \$28.78 \$28.78

9-197D/R

Ironworker **12/01/2015**

JOB DESCRIPTION Ironworker **DISTRICT 4**

ENTIRE COUNTIES
 Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES
 Per hour: 07/01/2015 01/01/2016

Ornamental \$ 43.20 \$ 1.25/Hr
 Chain Link Fence 43.20 Additional
 Guide Rail Installation 43.20

SUPPLEMENTAL BENEFITS
 Per hour paid:

Journeyworker: \$ 48.16

OVERTIME PAY

OVERTIME: See (A*,D1,E**,Q,V) on OVERTIME PAGE.

*Time and one-half shall be paid for all work in excess of seven (7) hours at the end of a work day to a maximum of two (2) hours on any regular work day (8th & 9th hours of work) and double time shall be paid for all work thereafter.

**Time and one-half shall be paid for all work on Saturday up to seven (7) hours and double time shall be paid for all work thereafter.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

1st term represents first 1-10 months, thereafter (1/2) year terms at the following percentage of Journeyman's wage.

1st	2nd	3rd	4th	5th
50%	55%	60%	70%	80%

Supplemental Benefits per hour paid:

1st Term	\$ 36.97
2nd Term	38.10
3rd Term	39.22
4th Term	41.46
5th Term	43.69

4-580-Or

Ironworker 12/01/2015

JOB DESCRIPTION Ironworker

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

PER HOUR:

07/01/2015

Ironworker:

Structural \$ 48.75

Bridges

Machinery

SUPPLEMENTAL BENEFITS

PER HOUR:

Journeyman \$ 67.83

OVERTIME PAY

See (B*,E**,Q,V) on OVERTIME PAGE.

* Time and one-half shall be paid for all work in excess of (8) eight hours at the end of a work day to a maximum of two hours on any regular work day (the ninth (9th) and tenth (10th) hours of work) and double time shall be paid for all work thereafter.

** Time and one-half shall be paid for all work on Saturday up to eight (8) hours and double time shall be paid for all work thereafter.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 18, 19) on HOLIDAY PAGE

REGISTERED APPRENTICES

WAGES PER HOUR:

6 month terms at the following rate:

1st	\$ 25.48
2nd	26.08
3rd - 6th	26.68

Supplemental Benefits

PER HOUR:

All Terms 47.32

4-40/361-Str

Ironworker **12/01/2015**

JOB DESCRIPTION Ironworker **DISTRICT 4**

ENTIRE COUNTIES
 Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

PARTIAL COUNTIES
 Rockland: Southern section - south of Convent Road and east of Blue Hills Road.

WAGES
 Per hour: 07/01/2015

Reinforcing &
 Metal Lathing \$ 53.63

SUPPLEMENTAL BENEFITS
 Per hour paid:
 Reinforcing &
 Metal Lathing \$ 31.95

OVERTIME PAY
 See (B, B1, Q) on OVERTIME PAGE

HOLIDAY
 Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 13, 18, 19, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
 (1) year terms at the following wage rates:
 Wages Per Hour:

1st term	2nd term	3rd term
\$ 23.01	\$ 28.11	\$ 33.21

SUPPLEMENTAL BENIFITS
 Per Hour:

1st term	2nd term	3rd term
\$ 18.18	\$ 18.18	\$ 18.18

4-46Reinf

Laborer **12/01/2015**

JOB DESCRIPTION Laborer **DISTRICT 9**

ENTIRE COUNTIES
 Bronx, Kings, New York, Queens, Richmond

WAGES
 Per hour: 07/01/2015

Laborer/Excavation:
 **Asbestos and Lead Abatement &
 Removal, Hazardous Waste Removal
 (including soil) \$ 40.50
 Basic 40.50
 Flagman 40.50
 Pipelayer 40.50
 *Tree Work, *Landscape 40.50

*Includes trimming, cutting, planting and/or removal of trees.
 ** Applies to Heavy & Highway projects

SUPPLEMENTAL BENEFITS
 Per hour paid:
 Journeyworker \$ 36.63

OVERTIME PAY
 See (B, E, Q) on OVERTIME PAGE
 ++ Except for Independence Day, holidays which fall on a Saturday will not be observed on the preceding Friday. When an observed holiday falls on a Saturday, work done shall be paid at double time.

HOLIDAY

Paid: See (2, 20) on HOLIDAY PAGE
 Overtime: See (5, 6, 11, 13) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage per hour:

1000 hour terms at the following hourly wage rate.

		07/01/2015
1st	0-1000	\$ 19.93
2nd	1001-2000	\$ 23.91
3rd	2001-3000	\$ 29.89
4th	3001-4000	\$ 35.87

Supplemental Benefits per hour paid:

All Apprentices \$ 34.88

9-731Ex

Laborer

12/01/2015

JOB DESCRIPTION Laborer

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:

GROUP 14: Blasters.

GROUP 16: Tunnel workers *

* (including Miners, Drill Runners, Iron Men, Maintenance Men, Conveyor Men, Safety Miners, Riggers, Block Layers, Cement Finishers, Rod Men, Caulkers, Powder Carriers, Miners' Helpers, Chuck Tenders, Track Men, Nippers, Brake Men, Derail Men, Form Men, Bottom Bell, Top Bell or Signal men, Form Workers, Movers, Concrete Workers, Shaft Men, Tunnel Laborers and Caulkers' Helpers).

GROUP 17**: All others including: Powder Watchmen, Top Laborers and Changehouse Attendants.

Wages: (per hour) 07/01/2015

Laborer (Tunnel)-FREE AIR:

Group 14	\$ 62.12
Group 16	\$ 59.44
Group 17**	\$ 54.92

Small Bore Micro

Tunnel Machines 80% of rates above

For Repairs on Existing

Water Tunnels 90% of rates above

For Repairs of Sewer &

Drainage Tunnels 85% of rates above

For Repair & Maintenance

of all Subway & 80% of rates above

Vehicular Tunnels

**An additional \$3.00 per day when using an air spade, jack hammer or pavement breaker.

Note: For jobs bid before July 1, 2010 employer shall pay \$6.00 per day for each one half (1/2) mile or fraction starting from a point 500 feet from the shaft. For all jobs bid after July 1, 2010, said premium shall be \$10.00 per day.

SUPPLEMENTAL BENEFITS

Per hour paid:

GROUP 14	\$ 41.82**
	\$ 41.50*
GROUP 16	\$ 40.05**
	\$ 39.73*
GROUP 17	\$ 37.07**

	\$ 36.75*
Small Bore Micro Tunnel Machines	80% of rates above
For Repairs on Existing Water Tunnels	90% of rates above
For Repairs of Sewer & Drainage Tunnels	85% of rates above
For Repair & Maintenance of all Subway & Vehicular Tunnels	80% of rates above

* For projects bid prior to 07/01/2014

OVERTIME PAY

OVERTIME: For Laborer (Free Air) See (D, M, R*) on OVERTIME PAGE.
 For Repair Categories See (B, F, R*) on OVERTIME PAGE.
 & Micro Tunneling
 * Straight time first 8 hours, double time after 8 hours.

HOLIDAY

Paid: See (5, 6, 9, 11, 12, 15, 16, 25) on HOLIDAY PAGE
 Overtime: See (5, 6, 9, 11, 12, 15, 16, 25) on HOLIDAY PAGE
 Good Friday may be exchanged for one of the holidays listed.

9-147Tn/Free

Laborer **12/01/2015**

JOB DESCRIPTION Laborer **DISTRICT 9**

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 07/01/2015

Laborer:

Laborer-Concrete (including flag person) \$ 41.48

SUPPLEMENTAL BENEFITS

Per Hour Worked \$ 26.17

OVERTIME PAY

OVERTIME: See (A,E,Q) on OVERTIME PAGE attached.
 See (B,E,Q,) for work below street level to top of foundation.

For Work done on Saturdays add an additional \$2.75 per hour to Supp. Benefits.
 For work done on Sundays & Holidays add an additional \$5.50 per hour to Supp. Benefits.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 13, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:
 Terms at the following percentage of Journeyworkers wage.

Term:	1st	2nd	3rd
Hours:	0-500	501-2000	2001-4000
	50%	65%	80%

Supplemental Benefits:
 (Per Hour Worked)

0-500 hrs	501-1000 hrs	1001-2000 hrs	2001-4000 hrs
\$15.29+ \$2.75*	\$15.29+ \$3.58*	\$20.67+ \$3.58*	\$20.67+ \$4.40*

*This amount subject to same premium as wages
 NB Journeyman rate applies after 4000 hours

Laborer - Building

12/01/2015

JOB DESCRIPTION Laborer - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:	07/01/2015	01/01/2016
		An Additional
Skilled Demolition Laborer:	\$ 37.52	\$ 0.75
General Demolition Laborer:	\$ 26.40*	\$ 0.55

*General Demolition Laborer performs manual work and work incidental to demolition, such as loading and carting of debris from work site to an area where it can be loaded into trucks for removal. Also performs clean-up of the site when demolition is complete.

NOTE: Total Demolition Only: Demolition shall be the complete demolition (wrecking) or dismantling of entire buildings or structures. Also may include the removal of all or any portion of a roof in which structural change is to occur. Structural change is defined as the removal of structural slabs, steel members, concrete members and penetration through the structural slab.

SUPPLEMENTAL BENEFITS

	07/01/2015
Per hour paid:	
Journeyworker:	

Skilled Demolition Laborer:	\$ 24.86
General Demolition Laborer:	\$ 18.38

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 13, 15, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage per hour:

(1) year terms at the following wage.

	1st	2nd	3rd	4th
	22.17	23.32	24.97	27.53

Supplemental Benefits per hour paid:

\$ 16.33

9-79/95

Laborer - Building

12/01/2015

JOB DESCRIPTION Laborer - Building

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:	07/01/2015
Laborer/Asbestos, Lead and Hazardous Material Abatement	\$ 36.00

SUPPLEMENTAL BENEFITS

Per Hour:

Laborer	\$15.95
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OVERTIME PAY

See (B, H) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8) on HOLIDAY PAGE

REGISTERED APPRENTICES

1000 hour terms at the following:

Per Hour:	07/01/2015
1st term	\$27.96
2nd Term	\$28.66
3rd Term	\$29.72
4th Term	\$31.84

SUPPLEMENTAL BENEFIT

Per Hour:

ALL TERMS \$15.95

4-NYDC(78)

Laborer - Building 12/01/2015

JOB DESCRIPTION Laborer - Building **DISTRICT 9**

ENTIRE COUNTIES
 Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 07/01/2015 01/01/2016

Building:
 Plasterer Tender and
 Spray Fireproofing. \$ 38.67** An additional \$ 0.95

** To calculate premium wage, subtract \$2.00 from hourly wage

SUPPLEMENTAL BENEFITS

Per hour paid:
 Journeyworker \$ 26.02

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage per hour:

1000 hours terms at the following wage.

	1st	2nd	3rd	4th
07/01/2014	\$22.39*	23.54*	25.29*	27.95*

* Before calculating premium wage deduct \$1.00

Supplemental Benefits per hour paid:

Apprentices: 1st and 2nd terms \$ 17.44
 3rd and 4th terms \$ 17.49

9-30 (79)

Laborer - Building 12/01/2015

JOB DESCRIPTION Laborer - Building **DISTRICT 9**

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:	07/01/2015	01/01/2016
Basic Laborer and Mason Tender	\$ 38.67	An additional \$ 0.95

SUPPLEMENTAL BENEFITS

Per hour paid:	07/01/2015
Basic Laborer and Mason Tender	\$ 26.02

OVERTIME PAY

See (B, B2, E, E2, I, R) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 25) on HOLIDAY PAGE
 (Easter is paid at Time and One-half if worked)

REGISTERED APPRENTICES

Wage per hour:

1000 hour terms at the following wage rate:

Term:	1st	2nd	3rd	4th
Basic Laborer and Mason Tender	\$ 22.39	\$ 23.54	\$ 25.29	\$ 27.95

Supplemental Benefits per hour paid:

Apprentices:	1st and 2nd terms \$ 17.44
	3rd and 4th terms \$ 17.49

9-MTDC(79)

Laborer - Building

12/01/2015

JOB DESCRIPTION Laborer - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:	07/01/2015	01/01/2016
Skilled Interior Demolition Laborer:	\$ 36.46	An Additional \$ 0.75
General Interior Demolition Laborer:	\$ 25.65*	\$ 0.75

*General Demolition Laborer performs manual work and work incidental to demolition, such as loading and carting of debris from work site to an area where it can be loaded into trucks for removal. Also performs clean-up of the site when demolition is complete.

SUPPLEMENTAL BENEFITS

Per Hour paid:

Skilled Interior Demolition Laborer:	\$ 21.13
General Interior Demolition Laborer:	\$ 15.45

OVERTIME PAY

See (B, B2, E, E2, R) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage Per Hour:

1000 hour terms at the following wage rate:

1st	2nd	3rd	4th
\$ 22.64	\$ 23.74	\$ 25.33	\$ 27.83

Supplemental Benefits per Hour paid:

All Apprentices \$ 16.24

9-MTDC (79-ID)

Laborer - Concrete & Asphalt Paving

12/01/2015

JOB DESCRIPTION Laborer - Concrete & Asphalt Paving

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Group 1: Slurry Seal Coater, Maintenance Safety Surface, Small Equipment Operator, Small Power Tool Operator, Play Equipment Installer, Landscape Planting & Maintenance, Temporary Fence Installer & Repairs, Laborer.

Group 2: Shoveler, Small Equipment Operator on Asphalt work.

Per hour: 07/01/2015

Concrete Formsetter	\$ 45.45
Asphalt Screedman / Micro Paver	45.45
Asphalt Raker	44.85
Group 1	40.98
Group 2	41.56

SUPPLEMENTAL BENEFITS

Per hour paid: 07/01/2015

Journeyman \$ 36.92

OVERTIME PAY

See (B, *E, **Q) on OVERTIME PAGE

* Saturday premium rate applies from 7:00 am on Saturday to 6:59 am Sunday

** Sunday premium rate applies from Sunday 7:00 am to Monday 6:59 am.

HOLIDAY

Paid: See (5, 20) on HOLIDAY PAGE

HOLIDAY:

Paid: See (5,20)* on HOLIDAY PAGE.

Holiday:

Overtime: See (21,22)** on HOLIDAY PAGE.

See (13)*** on holiday page.

* Holiday pay -at the single time pay rate-shall be prorated based on 25% of a day's wages and benefits for each day worked.

**If an employee works on any of these unpaid holidays, employee will receive the single rate plus 25%.

*** Unpaid if not worked,if worked shall receive single time rate plus one day's pay for the holiday.

REGISTERED APPRENTICES

Wage per hour:

2000 hours term at the following percent of Journeyman Laborer Group 1 rate.

1st term	2nd term
1-2000	2001-4000
\$ 27.05	\$ 28.69

Supplemental Benefits per hour paid:

2000 hours term at the following percent of Journeyman Laborer Group 1 rate.

1st term	2nd term
1-2000	2001-4000

\$ 17.12

\$ 17.12

9-1010H/H

Laborer - Trac Drill

12/01/2015

JOB DESCRIPTION Laborer - Trac Drill

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per Hour Paid: 07/01/2015

Hydraulic Trac Drill	\$ 51.10
Hydraulic Trac Drill Chuck Tender	44.10
Air Trac, Wagon, Quarry Bar	50.31
Power Tool (Chipper & Jackhammer)	49.27
Chuck Tender & Nipper	43.35
Blaster	55.74
Blaster Hydraulic	56.56
Powder Carrier	45.38
Magazine Keeper	29.53

SUPPLEMENTAL BENEFITS

Per Hour Paid: 07/01/2015

All Classifications \$ 26.94 plus \$5.50*

* This portion subject to same premium as overtime wages

OVERTIME PAY

Magazine Keeper See (B2,H) on OVERTIME PAGE.

ALL OTHERS SEE (D,E,Q) on OVERTIME PAGE.

HOLIDAY

HOLIDAY:

Paid: See (5,6,11,13) on HOLIDAY PAGE.
 For Magazine Keepers See (1) on HOLIDAY PAGE

Overtime: See (5,6,11,13) on HOLIDAY PAGE.

9-29

Laborer - Tunnel

12/01/2015

JOB DESCRIPTION Laborer - Tunnel

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

GROUP 6: Tunnel Workers* * (including Miners, Drill Runners, Iron Men, Maintenance Men, Inside Muck Lock Tender, Pumpmen, Electricians, Cement Finishers, Rod Men, Caulkers, Carpenters, Hydraulic Men, Shield Drivers, Monorail Operators, Motor Men, Conveyor Men, Safety Miners, Powder Carriers, Pan Men, Riggers, Miner's Helpers, Chuck Tenders, Track Men, Nippers, Brake Men, Form Workers, Concrete Workers, Tunnel Laborers, Caulker's Helpers), Hose Men, Grout Men, Gravel Men, Derail Men and Cable Men.

GROUP 7: Top Nipper

GROUP 8,9: Outside Man Lock Tender, Outside Muck Lock Tender, Shaft Men, Gauge Tender and Signal Men.

GROUP 10: Powder Watchmen, Top Laborers and Changehouse Attendants.

WAGES: (per hour)

07/01/2015

Laborer(Compressed Air):

GROUP 6	\$ 62.83
GROUP 7	\$ 61.68
GROUP 8,9	\$ 60.56

GROUP 10 \$ 52.98

Note: For jobs bid before July 1, 2010 employer shall pay \$6.00 per day for each one half (1/2) mile or fraction starting from a point 500 feet from the shaft. For all jobs bid after July 1, 2010, said premium shall be \$10. per day.

SUPPLEMENTAL BENEFITS

SUPPLEMENTAL BENEFITS:

per hour:

GROUP 6 \$ 42.09**
 GROUP 7 \$ 41.35**
 \$ 41.28*
 GROUP 8,9 \$ 40.57**
 \$ 40.50
 GROUP 10 \$ 38.80**
 \$ 38.73*

* For bids prior to 07/01/2014

OVERTIME PAY

See (D, M, *R) on OVERTIME PAGE

NOTE: Time and one-half to be paid for all overtime repair-maintenance work on existing equipment and facilities.

* Straight time first 8 hours, double time after 8 hours.

HOLIDAY

Paid: See (5, 6, 9, 11, 12, 15, 16, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 9, 11, 12, 15, 16, 25) on HOLIDAY PAGE

Good Friday may be exchanged for one of the holidays listed.

9-147Tnl/Comp Air

Mason 12/01/2015

JOB DESCRIPTION Mason

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour: 07/01/2015

Brick/Blocklayer \$ 54.81

SUPPLEMENTAL BENEFITS

Per Hour:

Brick/Block Layer \$ 23.23

OVERTIME PAY

See (A, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(800 hour) Terms at the following Percentage of Journeyworkers Wage:

1st	2nd	3rd	4th	5th
50%	60%	70%	80%	90%

Supplemental Benefits per hour:

All Apprentices \$ 15.95

4-1Brk

Mason - Building 12/01/2015

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Building:

	07/01/2015	01/01/2016
Wages per hour:		An Additional
Mosaic & Terrazzo Mechanic	\$ 50.71	\$ 1.15
Mosaic & Terrazzo Finisher	\$ 49.10	\$ 1.15

SUPPLEMENTAL BENEFITS

Journeyworker:
 Per hour:

Mosaic & Terrazzo Mechanic	\$ 32.36
Mosaic & Terrazzo Finisher	\$ 32.35

OVERTIME PAY

See (A, *E, Q) on OVERTIME PAGE
 Double the rate after 10 hours on Saturday

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

Easter Sunday is an observed holiday. Holidays falling on a Saturday will be observed on that Saturday. Holidays falling on a Sunday will be celebrated on the Monday.

REGISTERED APPRENTICES

Wages per hour:
 (750 Hour) terms at the following wage rate.

1st	2nd	3rd	4th	5th	6th	7th	8th
\$25.35	27.87	30.42	32.94	35.49	38.02	43.08	48.16

Supplemental benefits per hour:

16.19	17.81	19.42	21.05	22.66	24.28	27.52	30.75
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9-7/3

Mason - Building

12/01/2015

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:	07/01/2015	12/07/2015	06/06/2016
Tile Setters	\$ 54.31	An additional \$ 1.30	An additional \$1.30

SUPPLEMENTAL BENEFITS

Per Hour:

Tile Setter	\$ 24.35*
	plus \$ 7.05

* This portion of benefit is subject to the same premium as shown for overtime wages.

OVERTIME PAY

See (*E, Q, V) on OVERTIME PAGE

* Work beyond 10 hours on Saturday shall be paid at double the hourly wage rate.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage per hour:

Tile Setters:

(750 hr)terms at the following wage rate:

Term:	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
1st									

1-750	751-1500	1501-2250	2251-3000	3001-3750	3751-4500	4501-5250	5251-6000	6001-6750	6750-7500
\$27.45	\$30.71	\$34.96	\$39.98	\$41.99	\$44.96	\$46.70	\$50.45	\$52.61	\$53.58

Supplemental Benefits per hour:

1st term	\$ 14.70* plus \$0.72	6th term	\$ 17.85* plus \$1.51
2nd term	\$ 15.70* plus \$0.76	7th term	\$ 16.10* plus \$5.81
3rd term	\$ 15.70* plus \$0.80	8th term	\$ 16.60* plus \$5.85
4th term	\$ 16.60* plus \$1.17	9th term	\$ 18.35* plus \$6.22
5th term	\$ 16.85* plus \$1.19	10th term	\$ 21.62* plus \$6.27

* This portion of the benefit is subject to same premium as overtime wages.

9-7/52

Mason - Building **12/01/2015**

JOB DESCRIPTION Mason - Building **DISTRICT 9**

ENTIRE COUNTIES
 Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES
 Per hour: 07/01/2015 01/01/2016

Building-Marble Restoration: An Additional

Marble, Stone & Terrazzo Polisher, etc \$ 39.50 \$ 0.75

SUPPLEMENTAL BENEFITS

Per Hour Paid:
 Journeyworker:

Building-Marble Restoration:
 Marble, Stone & Polisher \$ 23.88

OVERTIME PAY
 See (B, *E, Q, V) on OVERTIME PAGE
 *ON SATURDAYS, 8TH HOUR AND SUCCESSIVE HOURS PAID AT DOUBLE HOURLY RATE.

HOLIDAY
 Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 15, 25) on HOLIDAY PAGE
 1ST TERM APPRENTICE GETS PAID FOR ALL OBSERVED HOLIDAYS.

REGISTERED APPRENTICES

WAGES per hour:
 (900 hour)terms at the following wages:

	1st 0-900	2nd 901-1800	3rd 1801-2700	4th over 2700
07/01/2015	\$ 27.48	\$ 31.40	\$35.33	\$ 39.25

Supplemental Benefits Per Hour:
 07/01/2015

	1st 0-900	2nd 901-1800	3rd 1801-2700	4th over 2700
07/01/2015	\$ 21.49	\$ 22.12	\$ 22.75	\$ 23.38

9-7/24-MP

Mason - Building **12/01/2015**

JOB DESCRIPTION Mason - Building **DISTRICT 9**

ENTIRE COUNTIES
 Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES
 Wages: 07/01/2015 01/01/2016

Marble Cutters & Setters \$ 56.53 \$ 56.89

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyworker \$ 31.17 \$ 32.06

OVERTIME PAY

See (B, E, Q, V) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage Per Hour:

750 hour terms at the following wage.

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
1-750	751-1500	1501-2250	2251-3000	3001-3750	3751-4500	4501-5250	5251-6000	6001-6751	6751-7500
\$22.61	\$25.44	\$28.27	\$31.09	\$33.92	\$36.74	\$39.57	\$42.40	\$48.05	\$53.70

Supplemental Benefits per hour paid at the following term:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$22.87	\$23.55	\$24.26	\$24.95	\$25.63	\$26.32	\$27.03	\$27.72	\$29.09	\$30.48

9-7/4

Mason - Building **12/01/2015**

JOB DESCRIPTION Mason - Building **DISTRICT 9**

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 07/01/2015 12/07/2015 06/06/2016

Building: An additional An additional
 Tile Finisher \$ 41.98 \$0.97 \$0.97

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyworker \$ 21.50*
 plus \$6.90

* This portion of benefits subject to the same premium as overtime wages

OVERTIME PAY

See (A, *E, Q) on OVERTIME PAGE

*Double time rate after 10 hours on Saturdays

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

9-7/88-tf

Mason - Building **12/01/2015**

JOB DESCRIPTION Mason - Building **DISTRICT 9**

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour: 07/01/2015 01/01/2016

Marble, Stone, etc.

Maintenance Finishers: \$ 21.57 \$ 21.76

Note 1: An additional \$2.00 per hour for time spent grinding floor using "60 grit" and below.

Note 2: Flaming equipment operator shall be paid an additional \$25.00 per day.

SUPPLEMENTAL BENEFITS

Per Hour:

Marble, Stone, etc
 Maintenance Finishers: \$ 12.20 \$ 12.41

OVERTIME PAY

See (B, *E, Q, V) on OVERTIME PAGE

*Double hourly rate after 8 hours on Saturday

HOLIDAY

Paid: See (5, 6, 8, 11, 15, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 11, 15, 25) on HOLIDAY PAGE

1st term apprentice gets paid for all observed holidays.

REGISTERED APPRENTICES

WAGES per hour:

(750 hour)terms at the 07/01/2015
 following percentage
 of journeyman's wage
 rate:

1st term	0-750	70%
2nd term	750-1500	74%
3rd term	1501-2250	78%
4th term	2251-3000	82%
5th term	3001-3750	88%
6th term	3751-4500	96%

Supplemental Benefits:

Per hour paid

1st term	\$ 11.92
2nd term	11.93
3rd term	11.94
4th term	11.95
5th term	11.96
6th term	11.98

9-7/24M-MF

Mason - Building / Heavy&Highway

12/01/2015

JOB DESCRIPTION Mason - Building / Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour:	07/01/2015	01/01/2016
Marble-Finisher	\$ 45.08	An Additional \$ 0.90

SUPPLEMENTAL BENEFITS

Journeyworker:

per hour paid

Marble- Finisher \$ 30.41

OVERTIME PAY

See (B, E, Q, V) on OVERTIME PAGE

HOLIDAY

Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

* Work beyond 8 hours on a Saturday shall be paid at double the rate.

** When an observed holiday falls on a Sunday, it will be observed the next day.

9-7/20-MF

Mason - Building / Heavy&Highway

12/01/2015

JOB DESCRIPTION Mason - Building / Heavy&Highway

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour: 07/01/2015

Cement Mason \$ 45.88

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Friday. Any make-up day must be paid at the premium rate.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30R; and there must be a dispensation of hours in place on the project. If the PW30R is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per Hour:

Cement Mason \$ 32.80

OVERTIME PAY

See (*B1, E2, **Q, ***V) on OVERTIME PAGE

* Applies to 9th and 10th hours on Saturday

** "Holidays" only for Building Construction

*** Additional \$10.18 to be added to all Time and a Half hours paid

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 11, 13, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following Percentage of Journeyworkers Wage.

1st Term	50%
2nd Term	60%
3rd Term	70%

Supplement Benefits per hour paid:

1st Term	\$ 16.40
2nd Term	19.68
3rd Term	25.99

4-780

Mason - Building / Heavy&Highway

12/01/2015

JOB DESCRIPTION Mason - Building / Heavy&Highway

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

WAGES

NOTE: Shall include but not limited to Precast concrete slabs (London Walks)
Marble and Granite pavers 2'x 2' or larger.

Per Hour: 07/01/2015

Stone Setter \$59.14

Stone Tender \$41.11

SUPPLEMENTAL BENEFITS

Per Hour:

Stone Setter	\$ 28.10
Stone Tender	18.37

OVERTIME PAY

See (*C, **E, Q) on OVERTIME PAGE

* On weekdays the eighth (8th) and ninth (9th) hours are time and one-half all work thereafter is paid at double the hourly rate.

** The first nine (9) hours on Saturday is paid at time and one-half all work thereafter is paid at double the hourly rate.

HOLIDAY

Paid: See (*18) on HOLIDAY PAGE
 Overtime: See (5, 6, 10) on HOLIDAY PAGE
 Paid: *Must work First 1/2.

REGISTERED APPRENTICES

Per Hour:

Stone Setter(800 hour) terms at the following Percentage of
 Stone Setters wage rate per hour:

1st	2nd	3rd	4th	5th	6th
50%	60%	70%	80%	90%	100%

Supplemental Benefits:

All Apprentices \$18.31

4-1Stn

Mason - Heavy&Highway

12/01/2015

JOB DESCRIPTION Mason - Heavy&Highway

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour: 07/01/2015

Pointer, Caulkers & Cleaners \$ 47.41

SUPPLEMENTAL BENEFITS

Per Hour:

Pointer, Cleaners & Caulkers \$ 24.60

OVERTIME PAY

See (B, E2, H) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

One (1) year terms at the following wage rates.

1st	2nd	3rd	4th
\$ 25.01	\$ 27.25	\$ 32.24	\$ 38.66

Apprentices Supplemental Benefits:

(per hour paid) \$ 4.75 \$ 9.70 \$ 12.45 \$ 12.45

4-1PCC

Operating Engineer - Building

12/01/2015

JOB DESCRIPTION Operating Engineer - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Putnam, Queens, Richmond, Westchester

PARTIAL COUNTIES

Dutchess: that part of Dutchess County lying south of the North City Line of the City of Poughkeepsie.

WAGES

NOTE:Construction surveying

Party chief--One who directs a survey party

Instrument Man--One who runs the instrument and assists Party Chief.

Rodman--One who holds the rod and assists the Survey Crew

Wages:(Per Hour)	07/01/2015	07/01/2016 An Additional
Building Construction:		
Party Chief	\$ 66.52	\$ 2.64
Instrument Man	\$ 52.95	\$ 2.25
Rodman	\$ 36.24	\$ 1.78
Steel Erection:		
Party Chief	\$ 67.76	\$ 2.52
Instrument Man	\$ 54.07	\$ 2.16
Rodman	\$ 38.11	\$ 1.73
Heavy Construction-NYC counties only: (Foundation, Excavation.)		
Party Chief	\$ 72.18	\$ 2.80
Instument man	\$ 54.57	\$ 2.30
Rodman	\$ 46.74	\$ 2.08
SUPPLEMENTAL BENEFITS		
Per Hour:	07/01/2015	
Steel Erection Only	\$ 19.80* + 6.65	
All Other Classifications	\$ 20.05* + 6.65	

* This portion subject to same premium as wages

OVERTIME PAY

See (A, B, E, Q) on OVERTIME PAGE

Code "A" applies to Building Construction and has double the rate after 7 hours on Saturdays.

Code "B" applies to Heavy Construction and Steel Erection and had double the rate after 8 hours on Saturdays.

HOLIDAY

Paid: See (5, 6, 8, 11, 12, 15, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 11, 12, 25) on HOLIDAY PAGE

9-15Db

Operating Engineer - Building, Maintenance, Steel Erection & Heavy Construction **12/01/2015**

JOB DESCRIPTION Operating Engineer - Building, Maintenance, Steel Erection & Heavy Construction **DISTRICT 9**

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

STEEL ERECTION:

Group 1: Derrick, travelers, tower, crawler tower & climbing cranes

Group 2: Oiler (Truck Crane)

Group 3: Oiler (Crawler Crane)

BUILDING CONSTRUCTION:

Group 1: Installing, repairing, maintaining, dismantling of all equipment including Steel cutting & bending machines, mechanical heaters, mine hoists, climbing cranes, tower cranes, Linden Peine, Lorain, Liebherr, Mannes and machines of a similar nature; Well Point system, Deep Well pumps, Concrete mixers with loading devices, Concrete plants, motor generators (When used for temporary power and lights) (Driving maintenance trucks and mounted-welded machines)-All Pumps(excluding River Cofferdam Pumps and Well Point Pumps), Motorized Concrete Buggies(When three or more are on jobsite), Skid-Steer and similar machines

Group 2: Maintenance of: Pumps, Generators, Mixers, Heaters

Group 3: Oilers of all gasoline, electric, deisel or air operated Gradalls; Concrete Pumps, Overhead Cranes in Power Houses, Assist in oiling, greasing and repairing of all machines, including: Driving Truck Cranes, Driving and operating Fuel and Grease Trucks, Cherry Pickers(Hydraulic Cranes) over 70,000 GVW and machines of a similar nature

Group 4: Oiler on Crawler Cranes, Backhoes, Trenching Machines, Gunite Machines, Compressors(3 or more in battery)

Group 5: Maintenance on Radiant Mechanical Heaters

HEAVY CONSTRUCTION (Excavation, Foundations, etc)

Group 1: Maintenance of: Generators, Light Towers

Group 2: Maintenance of: Pumps, Mixers including mudsucking

Group 3: Base Mounted Tower Cranes

Group 4: Installing, repairing, maintaining, dismantling(of all equipment including Steel cutting & Bending machines, Fusion Coupling Machines, Vermeer Trenching machines, on-site crushing plant, mechanical heaters(1 through 7), Mine hoists, Tower Cranes, Linden Peine, Lorrain, Lebherr, Mannes or machines of a similar nature, Wellpoints)-Driving maintenance trucks and truck mounted welding machines, burning, welding-operating of accumulator for shield-driven tunnels, in addition to the performance of other duties: Handling, installation, jointing, coupling of all permanent steel and plastic pipe. RIDE UPON MOLES-tunnel boring machines-MICRO TUNNELING SYSTEMS, All temporary pipefitting; When three or more motorized concrete buggies(Ride type) are utilized on the jobsite they shall be serviced, maintained and repaired by the maintenance engineer. The Operating Engineer on autogrades(C.M.I.) is to be assisted by the maintenance engineer who shall in addition perform other duties.

WAGES:

Per hour: 07/01/2015 07/01/2016

Steel Erection: An additional

Group 1	\$ 65.97	\$ 2.52
Group 2	62.15	2.42
Group 3	48.84	2.06

Building Construction:

Group 1	\$ 63.08	\$ 2.58
Group 2	50.42	2.22
Group 3	60.28	2.50
Group 4	46.41	2.11
Group 5	40.91	1.95

Heavy Construction:

Group 1	\$ 47.24	\$ 2.13
Group 2	48.31	2.16
Group 3	87.74	3.28
Group 4	68.31	2.73

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2015
All Classifications	\$ 21.25* plus \$6.90

* This portion of benefits subject to same premium as wages.

OVERTIME PAY

See (D, O) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 7, 11, 16) on HOLIDAY PAGE
 Overtime: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages Per Hour:

(1) year terms at the following wage rates:

Apprentices:	1st	2nd	3rd	4th.
07/01/2015	\$29.80	\$35.80	\$38.76	\$41.72

Supplemental Benefits:

Per Hour:

All Apprentices: \$ 9.50* Plus 6.90

* This portion of benefits subject to same premium as wages.

9-15Ab

Operating Engineer - Building / Heavy&Highway **12/01/2015**

JOB DESCRIPTION Operating Engineer - Building / Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

EQUIPMENT COVERED: Jet-Rodder/Vacuum Truck, Flusher, Sewer Rodder, Stetco Hoist and similar, Sewer Winch/Tugger Hoist and similar, Vacall/Vactor, Closed Circuit Television Inspection Equipment, Chemical Grouting Equipment and similar, John Beame, Meyers and similar.

Per Hour:	07/01/2015	07/01/2016
Maintenance Engineer (Sewer Systems)	\$ 68.31	An Additional \$ 2.73

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2015

Journeyman \$ 21.25*
plus \$ 6.90

*This porion of benefits subject to same premium as wages.

OVERTIME PAY

See (D, O) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 7, 11, 16) on HOLIDAY PAGE
 Overtime: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

REGISTERED APPRENTICES

Per Hour:

(1) year terms at the following wage rates:

1st	2nd	3rd	4th
\$29.80	\$35.80	\$38.76	\$41.72

Supplemental Benefits:

Per Hour:

All Apprentices: \$ 9.50*plus an
additional \$ 6.90

* This portion of benefits subject to the same premium as overtime wages

9-15Sewer

Operating Engineer - Building & Steel Erection **12/01/2015**

JOB DESCRIPTION Operating Engineer - Building & Steel Erection

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per Hour: 07/01/2015

STEEL ERECTION:

Three Drum Derricks	\$ 83.85
Cranes,Two Drum Derricks, Hydraulic Cranes & Fork Lifts, Boom Trucks	\$ 80.82
Compressors, Welding Machines, Bridge Inspection Machines, Moog and machines of a similar nature)	\$ 50.54
Compressors(Not combined with welding machines)	

\$ 48.43

BUILDING CONSTRUCTION:

Cranes, Stone Derrick, Boom Trucks, Hydraulic Cranes \$ 80.36

Double Drum \$ 76.21

4 Pole Hoists and Single Drum Hoists \$ 73.82

Fork Lifts,Plaster(Platform Machine)Plaster Bucket, Concrete Pumps and all other equipment used for hoisting \$ 67.72

House Cars and Rack & Pinion \$ 59.99

*House Cars (New Projects) \$ 49.15

Erecting and dismantling Cranes \$ 74.54

Compressors, Welding Machines(Cutting Concrete-Tank Work), Paint Spraying, Sand Blasting, Pumps(With the exclusion of concrete pumps), House Car (Settlement basis only), All Engines irrespective of power(Power-Vac)used to drive auxiliary equipment Air, Hydraulic,etc.,Boilers, Jacking System \$ 52.30

*APPLIES TO PROJECTS STARTED AFTER 07/01/2011.

APPLICABLE TO ALL CATEGORIES:

CRANES: Crawler Or Truck

	In Addition To Above Crane Rates
100' to 149' Boom	\$ 1.75/hr
150' to 249' "	2.00/hr
250' to 349' "	2.25/hr
350' to 450' "	2.75/hr
Tower Crane	2.00/hr

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2015

All Operator Classes \$ 20.20* plus \$ 5.70

* This portion of the benefits is subject to the same premium as shown for overtime wages.

OVERTIME PAY

See (*C, **D, O) on OVERTIME PAGE
 *Applies to Building Construction category
 **Applies to Steel Erection

HOLIDAY

Paid: See (5, 6, 7, 8, 11, 12, 16) on HOLIDAY PAGE
 Overtime: See (5, 6, 7, 8, 11, 12, 16) on HOLIDAY PAGE

Codes 8 and 12 apply ONLY to Steel Erection
 Code 16 applies ONLY to Building Construction

REGISTERED APPRENTICES

Wage Per Hour:

Apprentices (1) year terms at the following rates:

1st	2nd	3rd
\$35.79	\$43.13	\$50.47

Supplemental Benefits Per Hour:

Straight Time \$ 9.95*
 plus \$ 5.70

* This portion of benefits subject to the same premium as shown for overtime wages.

9-14 B&S

Operating Engineer - Heavy Construction 1

12/01/2015

JOB DESCRIPTION Operating Engineer - Heavy Construction 1
ENTIRE COUNTIES

DISTRICT 9

Bronx, Kings, New York, Queens, Richmond

WAGES

(For Groups 23 - 28, see Operating Engineer - Heavy Construction 2)

Group 1: Tower Crane/Climbing Crane

Group 2: Backhoes (Including all track and rubber tire backhoes over 37,000 lbs), Power Shovels, Steel Erection:Hydraulic Clam Shells,Moles and machines of a similar nature

Group 3: Mine Hoists, Cranes, etc, used as Mine Hoists

Group 4: Gradalls, Keystones, Cranes (With digging buckets), Bridge Cranes, Trenching Machines, Vermeer Cutter and machines of a similar nature

Group 5: Pile Drivers and Rigs (Employing Dock-Builders Foreman), Derrick Boats, Tunnel Shovels,

Group 6: All Drills and machines of a similar nature

Group 7: Back-Filling Machines and Cranes, Mucking Machines, Dual Drum Pavers

Group 8: Mixers (Concrete with loading attachment), Concrete Pavers, Cableways, Land Derricks, Power House (Low pressure units)

Group 9: Concrete Pumps, Concrete Plant, Stone Crushers, Double Drum Hoists, Power Houses (Other than above)

Group 10: Concrete Mixer

Group 11: Elevators

Group 12: Concrete Breaking Machines, Single Drum Hoists, Load Masters, Locomotives and Dinkies (Over 10 tons), Hydraulic Crane-Second Engineer

Group 13: On-Site Concrete Plant Engineers, On-Site Asphalt Plant Engineer and Vibratory Console

Group 14: Barrier Mover, Barrier Transport and machines of a similar nature

Group 15: Compressors (Portable, 3 or more), Truck Compressor (Engineer Driver), Tugger Machines, Well Point Pumps, Chum Drill

Group 16: Boilers(High pressure),Compressors, Pumps(River Cofferdam) and Welding Machines(except where arc is operated by another Operating Engineer) Push Button Machines, All Engines,irrespective of power(Power Pac) used to drive auxiliary equipment, Air, Hydraulic, etc.

Group 17: Utility-Horizontal Boring Rig

Group 18: Utility Compressors

Group 19: Paving-Asphalt Spreader, Autogrades (C.M.I.), Roto-Mill

Group 20: Paving-Asphalt Roller

Group 21 Paving-Asphalt Plant

Group 22: Roller (non paving, all sizes)

WAGES:(per hour) 07/01/2015

Group 1	\$ 96.54
Group 2	80.74
Group 3	83.12
Group 4	81.29
Group 5	79.81
Group 6	76.87
Group 7	78.20
Group 8	76.14
Group 9	74.64
Group 10	71.65
Group 11	67.34
Group 12	68.70

Group 13	69.19
Group 14	62.70
Group 15	53.73
Group 16	50.36
Group 17	72.71
Group 18	50.08
Group 19	76.14
Group 20	74.32
Group 21	63.85
Group 22	74.32

Cranes: Crawler or Truck

100' to 149'	\$0.50 per hour additional to above Crane Rates
150' to 249'	\$0.75 per hour additional to above Crane Rates
250' to 349'	\$1.00 per hour additional to above crane Rates
350' to 450'	\$1.50 per hour additional to above crane Rates

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2015
Groups 1-22	
Regular Time	\$ 20.20* plus \$ 5.70

* This portion of benefits subject to the same premium as shown for wages.

OVERTIME PAY

See (D, O) on OVERTIME PAGE

HOLIDAY

Paid:	See (5, 6, 7, 11, 16) on HOLIDAY PAGE
Overtime:	See (5, 6, 7, 11, 16) on HOLIDAY PAGE

REGISTERED APPRENTICES

Per Hour:
 (1) year terms at the following wage rates:

	1st	2nd	3rd
Groups 1-22	\$35.79	\$43.13	\$50.47

Supplemental Benefits:

Per Hour:	
Groups 1-22	
Regular Time	\$ 9.95* plus \$ 5.70

* This portion of benefits is subject to the SAME PREMIUM as shown for overtime wages

9-14 HC

Operating Engineer - Heavy Construction 2

12/01/2015

JOB DESCRIPTION Operating Engineer - Heavy Construction 2

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

(For Groups 1 - 22, see Operating Engineer - Heavy Construction 1)

Group 23: Cherry Picker (Over 20 tons), Loader (Over 6 yards)

Group 24: Backhoes and Loaders (Up to 37,000lbs), Bulldozers, Scrapers, Turn-A-Pulls, Tugger Hoists, Tractors, Hysters, Roostabout Cranes, Conveyers, Balast Regulators (Ride On), Track Removal Machine or similar, Motor Graders, Locomotives (10 tons and under),Curb & Gutter Pavers and machines of a similar nature

Group 25:Post Hole Digger,Ditch Winch, Road Finishing Machines, Rollers (5 tons and under, Dual Purpose Trucks,Forklifts, Dempsey Dumpsters, Fireman

Group 26: Oiler (Gradalls, Concrete Pumps, Cold Planers Grader)

Group 27: Oiler (Crawler Cranes, Backhoes, Trenching Machines, Compressors (3 or more in battery)

Group 28:Steam Equipment Operator (Water rigs, steam shovels, power boilers, derrick boats)

WAGES:(per hour)	07/01/2015
Group 23	\$70.51
Group 24	68.60
Group 25	65.40
Group 26	62.22
Group 27	44.99
Group 28	65.40

Cranes: Crawler or Truck
 100' to 149' \$0.50 per hour additional to above Crane Rates
 150' to 249' \$0.75 per hour additional to above Crane Rates
 250' to 349' \$1.00 per hour additional to above crane Rates
 350' to 450' \$1.50 per hour additional to above crane Rates

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2015
Groups 23-28	
Regular Time	\$ 21.25* plus \$6.90

* This portion of benefits subject to the same premium as shown for wages.

OVERTIME PAY

See (D, O) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 7, 11, 16) on HOLIDAY PAGE
 Overtime: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

REGISTERED APPRENTICES

Per Hour:
 (1) year terms at the following wage rates:

	1st	2nd	3rd	4th
Groups 23-28	\$29.80	\$35.80	\$38.76	\$41.72

Supplemental Benefits:
 Per Hour:
 Groups 23-28

Regular Time	\$ 9.50* plus \$ 6.90
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* This portion of benefits is subject to the SAME PREMIUM as shown for overtime wages

9-15 HC

Operating Engineer - Marine Construction

12/01/2015

JOB DESCRIPTION Operating Engineer - Marine Construction

DISTRICT 4

ENTIRE COUNTIES

Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

Per Hour:	
DREDGING OPERATIONS	07/01/2015
CLASS A	
Operator, Leverman,	\$ 35.63
Lead Dredgeman	
CLASS A1	To conform to Operating Engineer
Dozer,Front Loader	Prevailing Wage in locality where work
Operator	is being performed including benefits.
CLASS B	
Spider/Spill Barge Operator,	\$ 30.81
Tug Operator(over1000hp),	
OperatorII, Fill Placer,	

Derrick Operator, Engineer,
 Chief Mate, Electrician,
 Chief Welder,
 Maintenance Engineer

Certified Welder, \$ 29.01
 Boat Operator(licensed)

CLASS C \$ 28.22
 Drag Barge Operator,
 Steward, Mate,
 Assistant Fill Placer,

Welder (please add)\$ 0.06

Boat Operator \$ 27.30

CLASS D \$ 22.68
 Shoreman, Deckhand,
 Rodman, Scowman, Cook,
 Messman, Porter/Janitor

Oiler(please add)\$ 0.09

SUPPLEMENTAL BENEFITS

Per Hour:

THE FOLLOWING SUPPLEMENTAL BENEFITS APPLY TO ALL CATEGORIES

All Classes A & B 07/01/2015
 \$ 9.99 plus 8%
 of straight time
 wage, Overtime hours
 add \$ 0.63

All Class C \$ 9.69 plus 8%
 of straight time
 wage, Overtime hours
 add \$ 0.48

All Class D \$ 9.39 plus 8%
 of straight time
 wage, Overtime hours
 add \$ 0.33

OVERTIME PAY

See (B, F, R) on OVERTIME PAGE

HOLIDAY

Paid:

See (1) on HOLIDAY PAGE

Overtime:

See (5, 6, 8, 15, 26) on HOLIDAY PAGE

4-25a-MarConst

Operating Engineer - Survey Crew - Consulting Engineer 12/01/2015

JOB DESCRIPTION Operating Engineer - Survey Crew - Consulting Engineer

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, Westchester

PARTIAL COUNTIES

Dutchess: That part in Dutchess County lying South of the North City line of Poughkeepsie.

WAGES

Feasibility and preliminary design surveying, any line and grade surveying for inspection or supervision of construction.

Per hour:	07/01/2015	07/01/2016
Survey Classifications		An Additional
Party Chief	\$ 37.04	\$ 2.24
Instrument Man	30.59	1.98
Rodman	26.52	1.82

SUPPLEMENTAL BENEFITS

Per Hour:

All Crew Members: \$ 19.10

OVERTIME PAY

OVERTIME:.... See (B, E*, Q, V) ON OVERTIME PAGE.

*Doubletime paid on the 9th hour on Saturday.

HOLIDAY

Paid: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

Overtime: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

9-15dconsult

Painter 12/01/2015

JOB DESCRIPTION Painter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour: 07/01/2015

Brush \$ 43.75

Abatement/Removal of lead based or lead containing paint on materials to be repainted. 43.75

Spray & Scaffold 46.75

Fire Escape 46.75

Decorator 46.75

Paperhanger/Wall Coverer 41.08

SUPPLEMENTAL BENEFITS

Per hour worked: 07/01/2015

Paperhanger \$ 29.33

All others 20.97

Premium* 23.47*

*Applies only to "All others" category, not paperhanger journeyman.

OVERTIME PAY

See (A, H) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Indentured after 5/31/93 (1) year terms at the following wage rate.
 (per hour)

07/01/2015

Appr 1st term... \$ 16.55

Appr 2nd term... 21.66

Appr 3rd term... 26.24

Appr 4th term... 35.02

Supplemental benefits:

(per Hour worked)

Appr 1st term... \$ 10.23

Appr 2nd term... 12.92

Appr 3rd term... 15.20

Appr 4th term... 19.70

8-NYDC9-B/S

Painter 12/01/2015

JOB DESCRIPTION Painter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

PARTIAL COUNTIES

Nassau: Atlantic Beach, Ceaderhurst, East Rockaway, Hewlett, Hewlett Bay, Hewlett Neck, Hewlett Park, Inwood, Lawrence, Lido Beach, Long Beach, parts of Lynbrook, parts of Oceanside, parts of Valley Stream, and Woodmere. Starting on South side of Sunrise Hwy in Valley Stream running east to Windsor and Rockaway Ave, Rockville is the boundary line up to Lawson Blvd, turning right going west all the above territory. Starting at Union Turnpike & Lakeville Rd going north to northern Blvd. the west side of Lakeville Rd to Northern Blvd. At Northern Blvd doing east the district north of Northern Blvd to Port Washington Blvd. West of Port Washington Blvd to St. Francis Hospital then north of first traffic light to Port Washington & Sands Point, Manor Haven, & Harbour Acres.

WAGES

Per hour:	07/01/2015	12/30/2015	06/29/2016
Drywall Taper	\$ 50.48	\$ 50.98	\$ 51.48

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2015	12/30/2015	06/29/2016
Journeyworker:	\$ 18.97	\$ 18.97	\$ 18.97

OVERTIME PAY

See (A, H) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (4, 6, 8, 11, 18, 19, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage per hour:

12 months' terms (year consists of 1500 hours).

	07/01/2015	12/30/2015	06/29/2016
1st year	\$ 20.19	\$ 20.39	\$ 20.59
2nd year	\$ 30.29	\$ 30.59	\$ 30.89
3rd year	\$ 40.38	\$ 40.78	\$ 41.18

Supplemental Benefits per hour worked:

One (1) year term at the following dollar amount:

1st term	\$ 10.25	\$ 10.25	\$ 10.25
2nd term	\$ 16.43	\$ 16.43	\$ 16.43
3rd term	\$ 19.25	\$ 19.25	\$ 19.25

8-NYC9-1974-DWT

Painter - Bridge & Structural Steel

12/01/2015

JOB DESCRIPTION Painter - Bridge & Structural Steel

DISTRICT 8

ENTIRE COUNTIES

Albany, Bronx, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Kings, Montgomery, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

WAGES

Per Hour Worked:

STEEL:

Bridge Painting:	07/01/2015	10/01/2015
From May 1st to Nov. 15th -	\$ 48.00 + 5.63*	\$ 49.00 + 6.13*
From Nov. 16th to April 30th -	\$ 48.00 + 5.63*	\$ 49.00 + 6.13*

*Not subject to overtime and limited to first 40 hours

NOTE: All premium wages are to be calculated on \$48.00 or \$49.00 per hour only.

EXCEPTION: During the period of May 1st to November 15th, for the first and last week of employment on the project, and for the weeks of Memorial Day, Independence Day and Labor Day, this rate shall be paid for the actual number of hours worked.

Power Tool/Spray is an additional \$6.00 per hour above hourly rate, whether straight time or overtime

NOTE: Generally, for Bridge Painting Contracts, ALL WORKERS on and off the bridge (including Flagmen) are to be paid Painter's Rate; the contract must be ONLY for Bridge Painting.

SUPPLEMENTAL BENEFITS

Per Hour Worked:

Journeyworker:	07/01/2015	10/01/2015
From May 1st to Nov. 15th -		
Hourly Rate up to 40 hours	\$ 28.95	\$ 29.95
Hourly Rate after 40 hours	7.50	7.50
From Nov. 16th to April 30th -		
Hourly Rate up to 50 hours	28.95	29.70
Hourly Rate after 50 hours	7.50	7.50

EXCEPTION: During the period of May 1st to November 15th, for the first and last week of employment on the project, and for the weeks of Memorial Day, Independence Day and Labor Day, this rate shall be paid for the actual number of hours worked.

OVERTIME PAY

See (A, F, R) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (4, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

(Wage per hour Worked):

Apprentices: (1) year terms	07/01/2015	10/01/2015
1st 90 days	\$ 21.45	\$ 22.05
1st year after 90 days	21.45	22.05
2nd year	32.18	33.08
3rd year	42.90	44.10

Supplemental Benefits per hour worked:	07/01/2015	10/01/2015
1st 90 days	\$ 8.83	\$ 9.23
1st year after 90 days	11.58	11.98
2nd year	17.37	17.97
3rd year	23.16	23.96

8-DC-9/806/155-BrSS

Painter - Line Striping **12/01/2015**

JOB DESCRIPTION Painter - Line Striping

DISTRICT 8

ENTIRE COUNTIES

Albany, Bronx, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Kings, Montgomery, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

WAGES

Per hour:

Painter (Striping-Highway):	07/01/2015
Striping-Machine Operator*	\$ 27.11
Linerman Thermoplastic	\$ 32.37

Note: * Includes but is not limited to: Positioning of cones and directing of traffic using hand held devices. Excludes the Driver/Operator of equipment used in the maintenance and protection of traffic safety

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work Schedule,' as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30R; and there must be a dispensation of hours in place on the project. If the PW30R is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour paid: 07/01/2015
 Journeyworker:

Striping-Machine operator \$ 14.18
 Linerman Thermoplastic \$ 14.55

OVERTIME PAY

See (B, E, E2, F, S) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 20) on HOLIDAY PAGE
 Overtime: See (5, 8, 11, 12, 15, 16, 17, 20, 21, 22) on HOLIDAY PAGE

8-1456-LS

Painter - Metal Polisher

12/01/2015

JOB DESCRIPTION Painter - Metal Polisher

DISTRICT 8

ENTIRE COUNTIES

Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

	07/01/2015	06/01/2016	06/01/2017
Metal Polisher	\$ 28.07	\$ 28.88	\$ 29.73
Metal Polisher**	29.02	29.83	30.68
Metal Polisher***	31.57	32.38	33.23

**Note: Applies on New Construction & complete renovation

*** Note: Applies when working on scaffolds over 34 feet.

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2015	06/01/2016	06/01/2017
Journeyworker:			
All classification	\$ 9.12	\$ 9.26	\$ 9.41

OVERTIME PAY

See (B, E, E2, P, T) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE
 Overtime: See (5, 6, 9, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

One (1) year term at the following wage rates:

	07/01/2015	06/01/2016
1st year	\$ 11.75	\$ 11.75
2nd year	13.00	13.00
3rd year	15.75	15.75

Supplemental benefits:

Per hour paid:

1st year	\$ 6.26	\$6.26
2nd year	6.37	6.37
3rd year	6.51	6.51

8-8A/28A-MP

Plasterer

12/01/2015

JOB DESCRIPTION Plasterer

DISTRICT 9

ENTIRE COUNTIES

Kings, Nassau, Queens, Suffolk

PARTIAL COUNTIES

New York: Includes work in all islands in New York City, except Manhattan

WAGES

Per hour:

07/01/2015

Building:

Plasterer/Traditional

\$ 35.53

SUPPLEMENTAL BENEFITS

Per hour worked:

Journeyworker

\$ 21.80

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid:

See (1) on HOLIDAY PAGE

Overtime:

See (5, 6, 8, 11, 13, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages:

(per hour)

(1) year terms at the following % of Journeyworkers wage rate:

First year:

1st 6 months 40%

2nd 6 months 45%

Second year:

1st 6 months 55%

2nd 6 months 60%

Third year:

1st 6 months 70%

2nd 6 months 75%

Supplemental Benefits:

(per hour paid):

6 month terms:

1st six months \$ 8.37

2nd six months \$ 9.35

3rd six months \$ 11.35

4th six months \$ 12.33

5th six months \$ 14.33

6th six months \$ 15.33

9-262-Z1

Plumber

12/01/2015

JOB DESCRIPTION Plumber

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour worked:

07/01/2015

10/01/2015

01/01/2016

04/01/2016

Additional

Additional

Additional

Plumber \$ 65.55

\$ 1.30

Temporary

Service** 52.22

\$ 1.04

Repairs

&Maintenance*** 39.55

\$ 0.75

\$ 1.00

** Temporary Service- Includes Maintenance of cooling & heating apparatus, maintenance work on pneumatic systems during the construction period, and work on temporary heat. All hours paid at straight time, including holidays.

***THERE ARE NO HELPERS UNDER THIS CLASSIFICATION; WHEN USING APPRENTICES, MUST FOLLOW RATIO FOR PLUMBERS

***Repair & Maintenance work is any repair and/or replacement of present plumbing system that does not change existing roughing or water supply lines.

On tower work, bridges, elevated highway, or buildings, where pipe is being installed, fifty (50) or more feet vertically in a free drop from its base,an additional \$1.00 per hour.

SHIFT WORK:

Shift work,when directly specified in public agency or authority contract documents, and continues for a period of not less than ten (10) consecutive work days. A shift shall consist of seven(7) hours with one-half (1/2) hour for lunch after the first four (4) hours of each shift. A premium of thirty percent (30%) for wages and supplemental benefits on shift work performed Monday through Friday on the 4 P.M.and midnight shifts.

For shift work performed on weekends the shift premium shall be fifty percent (50%) of wages and supplemental benefits.

For shift work performed on holidays designated below, double time wages and supplemental benefits shall be paid. Also noted that the normal workday Monday through Friday 8:00 A.M. to 3:00 P.M. is not considered shift work, and therefore not subject to shift premium.

SUPPLEMENTAL BENEFITS

Per hour worked:

07/01/2015

Plumber \$ 28.10

Temporary Service 22.00

Repair & Maintenance 13.31

OVERTIME PAY

Plumber See (C, O, V) on OVERTIME PAGE.

Repairs & Maintenance See (B, H) on OVERTIME PAGE.

When calculating premium pay, subtract \$ 0.33 from regular hourly wage rate for Plumber Classification and Repairs & Maintenance, subtract \$ 0.31 from regular hourly wage for Temporary Service.

HOLIDAY

Plumber Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE.

Repairs & Maintenance Paid: See (1) on HOLIDAY PAGE.

Overtime: See (5, 6, 25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour:

(1/2) year terms at the following wage:

1st&2nd	3rd&4th	5th&6th	7th&8th	9th	10th
\$ 14.28	\$ 24.15	\$ 26.25	\$ 29.10	\$ 30.50	\$ 42.57

Supplemental Benefits per hour paid:

(1/2) year term at the following dollar amount:

1st	2nd	3rd-10th
\$.43	\$ 2.68	\$ 12.48

Note: The Repairs & Maintenance Category has NO Apprentices.

Roofer 12/01/2015

JOB DESCRIPTION Roofer

DISTRICT 9

ENTIRE COUNTIES

Bronx, Dutchess, Kings, New York, Orange, Putnam, Queens, Richmond, Rockland, Sullivan, Ulster, Westchester

WAGES

Per Hour: 07/01/2015
 Roofer/Waterproofer \$ 42.20

Note: Abatement/Removal of Asbestos containing roofs and roofing material is classified as Roofer.

SUPPLEMENTAL BENEFITS

Journeyworker \$ 28.93

OVERTIME PAY

See (B, H) on OVERTIME PAGE

Note: An observed holiday that falls on a Sunday will be observed the following Monday.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following percentage of Journeyworkers hourly wage.

1st	2nd	3rd	4th
35%	50%	60%	75%

Supplements per hour paid at the following rates:

1st	2nd	3rd	4th
\$ 2.70	\$ 14.76	\$ 17.59	\$ 21.85

9-8R

Sheetmetal Worker 12/01/2015

JOB DESCRIPTION Sheetmetal Worker

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per Hour: 07/01/2015
 Sign Erector \$ 45.60

NOTE: Structurally Supported Overhead Highway Signs(See STRUCTAL IRON WORKER CLASS)

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2015
 Sign Erector \$ 40.25

OVERTIME PAY

See (A, F, S) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 10, 11, 12, 16, 25) on HOLIDAY PAGE
 Overtime: See (5, 6, 10, 11, 12, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Per Hour:
 6 month Terms at the following percentage of Sign Erectors wage rate:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
35%	40%	45%	50%	55%	60%	65%	70%	75%	80%

SUPPLEMENTAL BENEFITS

Per Hour:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$11.08	\$12.55	\$14.04	\$15.51	\$21.93	\$23.86	\$26.46	\$28.45	\$30.42	\$32.40

4-137-SE

Sheetmetal Worker 12/01/2015

JOB DESCRIPTION Sheetmetal Worker

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour: 07/01/2015 08/01/2015

Sheetmetal Worker	\$ 50.91	\$ 51.85
Temporary Operation or Maintenance of Fans	41.52	42.46

SUPPLEMENTAL BENEFITS

Per Hour:

Sheetmetal Worker	\$ 42.60	\$ 43.54
Maintenance Worker	42.60	43.54

OVERTIME PAY

See (A, E, E2, Q, V) on OVERTIME PAGE

For Maintenance See Codes B,E, Q & V

HOLIDAY

Paid:

See (1) on HOLIDAY PAGE

Overtime:

See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Per Hour:Wages

Six(6) Month Terms As Follows:

1st Term	\$ 17.83	\$ 18.19
2nd Term	17.83	18.19
3rd Term	22.91	23.36
4th Term	22.91	23.36
5th Term	28.00	28.54
6th Term	30.55	28.54
7th Term	35.64	36.32
8th Term	38.18	38.90
9th Term	40.73	41.49

Per Hour: Supplemental Benefits

1st Term	\$ 15.76	\$ 15.98
2nd Term	15.76	15.98
3rd Term	21.80	22.13
4th Term	21.80	22.13
5th Term	25.58	26.03
6th Term	27.49	26.03
7th Term	31.27	31.87
8th Term	33.17	33.85
9th Term	35.07	35.79

4-28

Steamfitter

12/01/2015

JOB DESCRIPTION Steamfitter

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour: 07/01/2015

AC Service/Heat Service Steamfitter Maintenance	\$ 39.25
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Refrigeration, A/C, Oil Burner and Stoker Service and Repair.

Refrigeration Compressor installation up to 5hp (combined).

Air Condition / Heating Compressor installation up to 10hp (combined).

SUPPLEMENTAL BENEFITS

Per Hour

AC Service/Heat Service \$ 10.75
 Steamfitter Maintenance

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 11, 15, 25, 26) on HOLIDAY PAGE

4-638B-StmFtrRef

Steamfitter **12/01/2015**

JOB DESCRIPTION Steamfitter

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour: 07/01/2015

Steam/Sprinkler \$ 61.06
 Fitter

Temporary \$ 46.42
 Heat & AC

NOTE: Add 30% to Hourly Wage for "Contracting Agency" Mandated Off Shift Work.

SUPPLEMENTAL BENEFITS

Per Hour:

Steam/Sprinkler \$ 47.27
 Fitter

Temporary \$ 38.78
 Heat & AC

OVERTIME PAY

See (C, *D, O, V) on OVERTIME PAGE

(*D) On all HVAC and Mechanical contracts that do not exceed \$15,000,000. and on all fire protection/sprinklet contracts that do not exceed \$1,500,000.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

1 year Terms at the Following:

WAGES per hour:

1st Term	2nd Term	3rd Term	4th Term	5th Term
\$ 24.46	\$ 30.56	\$ 39.71	\$ 48.86	\$ 51.91

SUPPLEMENTAL BENEFIT

Per Hour:

1st Term	2nd Term	3rd Term	4th Term	5th Term
\$ 19.30	\$ 23.92	\$ 30.81	\$ 37.72	\$ 40.02

4-638A-StmSpFtr

Teamster - Heavy Construction **12/01/2015**

JOB DESCRIPTION Teamster - Heavy Construction

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per Hour:

Dump Trucks/Drivers (Debris Removal, Street Level and below)

07/01/2015

Dump Trucks	\$ 39.525
Tractor Trailers	\$ 39.495
Euclid/Turnapull	\$ 40.06

SUPPLEMENTAL BENEFITS

Per Hour:

Dump Trucks	
Up to 40 Hours Worked	\$ 41.5925
Over 40 Hours Worked	\$ 14.90

ALL OTHERS

Up to 40 Hours Worked	\$ 43.3525
Over 40 Hours Worked	\$ 16.65

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

Note: Employees receive 2 hours of Holiday Pay for each day worked in holiday week (not to exceed 8 hours)

4-282

Welder

12/01/2015

JOB DESCRIPTION Welder

DISTRICT 1

ENTIRE COUNTIES

Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

Per hour 07/01/2015

Welder: To be paid the same rate of the mechanic performing the work.*

*EXCEPTION: If a specific welder certification is required, then the 'Certified Welder' rate in that trade tag will be paid.

OVERTIME PAY

HOLIDAY

1-As Per Trade

Overtime Codes

Following is an explanation of the code(s) listed in the OVERTIME section of each classification contained in the attached schedule. Additional requirements may also be listed in the HOLIDAY section.

NOTE: Supplemental Benefits are 'Per hour worked' (for each hour worked) unless otherwise noted

- (AA) Time and one half of the hourly rate after 7 and one half hours per day
- (A) Time and one half of the hourly rate after 7 hours per day
- (B) Time and one half of the hourly rate after 8 hours per day
- (B1) Time and one half of the hourly rate for the 9th & 10th hours week days and the 1st 8 hours on Saturday.
Double the hourly rate for all additional hours
- (B2) Time and one half of the hourly rate after 40 hours per week
- (C) Double the hourly rate after 7 hours per day
- (C1) Double the hourly rate after 7 and one half hours per day
- (D) Double the hourly rate after 8 hours per day
- (D1) Double the hourly rate after 9 hours per day
- (E) Time and one half of the hourly rate on Saturday
- (E1) Time and one half 1st 4 hours on Saturday; Double the hourly rate all additional Saturday hours
- (E2) Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
- (E3) Between November 1st and March 3rd Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather, provided a given employee has worked between 16 and 32 hours that week
- (E4) Saturday and Sunday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
- (E5) Double time after 8 hours on Saturdays
- (F) Time and one half of the hourly rate on Saturday and Sunday
- (G) Time and one half of the hourly rate on Saturday and Holidays
- (H) Time and one half of the hourly rate on Saturday, Sunday, and Holidays
- (I) Time and one half of the hourly rate on Sunday
- (J) Time and one half of the hourly rate on Sunday and Holidays
- (K) Time and one half of the hourly rate on Holidays
- (L) Double the hourly rate on Saturday
- (M) Double the hourly rate on Saturday and Sunday
- (N) Double the hourly rate on Saturday and Holidays
- (O) Double the hourly rate on Saturday, Sunday, and Holidays
- (P) Double the hourly rate on Sunday
- (Q) Double the hourly rate on Sunday and Holidays
- (R) Double the hourly rate on Holidays
- (S) Two and one half times the hourly rate for Holidays, if worked

- (S1) Two and one half times the hourly rate the first 8 hours on Sunday or Holidays One and one half times the hourly rate all additional hours.
- (T) Triple the hourly rate for Holidays, if worked
- (U) Four times the hourly rate for Holidays, if worked
- (V) Including benefits at SAME PREMIUM as shown for overtime
- (W) Time and one half for benefits on all overtime hours.

Holiday Codes

PAID Holidays:

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

OVERTIME Holiday Pay:

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays. The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Following is an explanation of the code(s) listed in the HOLIDAY section of each classification contained in the attached schedule. The Holidays as listed below are to be paid at the wage rates at which the employee is normally classified.

- (1) None
- (2) Labor Day
- (3) Memorial Day and Labor Day
- (4) Memorial Day and July 4th
- (5) Memorial Day, July 4th, and Labor Day
- (6) New Year's, Thanksgiving, and Christmas
- (7) Lincoln's Birthday, Washington's Birthday, and Veterans Day
- (8) Good Friday
- (9) Lincoln's Birthday
- (10) Washington's Birthday
- (11) Columbus Day
- (12) Election Day
- (13) Presidential Election Day
- (14) 1/2 Day on Presidential Election Day
- (15) Veterans Day
- (16) Day after Thanksgiving
- (17) July 4th
- (18) 1/2 Day before Christmas
- (19) 1/2 Day before New Years
- (20) Thanksgiving
- (21) New Year's Day
- (22) Christmas
- (23) Day before Christmas
- (24) Day before New Year's
- (25) Presidents' Day
- (26) Martin Luther King, Jr. Day
- (27) Memorial Day

**NOTIFICATION
OF
MINORITY BUSINESS ENTERPRISES
AND
WOMEN-OWNED BUSINESS ENTERPRISES
ON-LINE DIRECTORY
AND
FORMS**

The Port Authority has a long-standing practice of making its contracts available to as many firms as possible and has taken affirmative steps to encourage Minority Business Enterprises (MBEs) and Women-owned Business Enterprises (WBEs) to seek business opportunities with it. The Port Authority's on-line Directory of Qualified MBE/WBEs lists the firms that are registered to assist Contractors in meeting and exceeding their Good Faith Goals.

The MBE/WBE Directory specifies the firms the Authority has determined to be (1) MBEs/WBEs and (2) experienced in performing work in the trades and contract dollar ranges indicated.

Contractors are provided with an interactive directory and the ability to view and print a current listing of M/WBE contractors. Information may be selected and sorted according to categories, state, dollar range and type (MBE, WBE, DBE, and SBE).

To view the directory, type in www.panynj.gov/business-opportunities/mwsbe-search.cfm. For further information about MWBE Qualified Vendors, contact the Office of Business Diversity and Civil Rights Hotline at Certification Help - (212) 435-7888.

MWBE PARTICIPATION PLAN AND AFFIRMATION STATEMENT

PA 3749 / 01-15

Instructions: Submit one MWBE PARTICIPATION PLAN AND AFFIRMATION STATEMENT form for each MWBE firm used on this Contract.

CONTRACT NUMBER AND TITLE: _____

BIDDER:

Name of Firm: _____

Address: _____ Telephone: _____

Email Address: _____

MWBE:

Name of Firm: _____

Address: _____ Telephone: _____

Description of work to be performed by MWBE: _____

Calculation (supply only): _____

The Bidder is committed to utilizing the above-named MWBE for the work described above. The estimated dollar value of this work is \$ _____ or _____% of the total contract amount of \$ _____. The anticipated start date is _____ and the anticipated completion date is _____

AFFIRMATION

The above-named MWBE affirms that it will perform the portion of the Contract for the estimated dollar value as stated above.

By: _____ Date: _____

Signature of Principal or Officer of MWBE and Name and Title

I _____ (print name), an officer of _____ (company name), certify that I have read the PA 3749 MWBE Participation Plan and Affirmation Statement and the information contained in it is true. I fully understand that any false statement within this submittal may prevent the company and/or the undersigned from being found to be responsible bidders/proposers in connection with future agreements. In addition, any false statement within this submittal may subject the company and/or the undersigned to criminal charges in the state and federal courts of New York and New Jersey.

Signature _____ Title _____ Date _____

Please Note: Only 60% of the expenditure to a MWBE material supplier will be counted toward the MWBE goal. Please show calculation above. Example: \$100,000 x 60% = \$60,000 estimated MWBE dollar value of work. Plan cannot be accepted without calculation.

Officer must have ACKNOWLEDGEMENT BY NOTARY PUBLIC completed on the reverse side.

ACKNOWLEDGEMENT BY NOTARY PUBLIC

MWBE PARTICIPATION PLAN AND AFFIRMATION STATEMENT (reverse)

ACKNOWLEDGEMENT
of

STATE OF _____)

S.S.:

COUNTY OF _____)

On this _____ day of _____, before me personally came and appeared _____ to be known, who being by me duly sworn, did depose and say that he/she resides at _____, that he/she is the _____ of _____ company, that the seal affixed to said Certification is such corporate seal, that it was so affixed by order of the directors of said corporation, and that he/she signed his/her name thereto by like order.

(Notary's Seal or Stamp)

Notary Public
My commission expires:

MODIFIED MWBE PARTICIPATION PLAN AND AFFIRMATION STATEMENT PA 3749A / 01-15

Instructions: Submit one Modified MWBE PARTICIPATION PLAN AND AFFIRMATION STATEMENT form for each MWBE firm used on this Contract.

CONTRACT NUMBER AND TITLE: _____

BIDDER:
Name of Firm: _____

Address: _____ Telephone: _____

Email Address: _____

MWBE:
Name of Firm: _____

Address: _____ Telephone: _____

Description of work to be performed by MWBE: _____

Calculation (supply only): _____

The Bidder is committed to utilizing the above-named MWBE for the work described above. The estimated dollar value of this work is \$ _____
or
_____ % of the total contract amount of \$ _____. The anticipated start date is _____ and the anticipated completion date is _____

AFFIRMATION

The above-named MWBE affirms that it will perform the portion of the Contract for the estimated dollar value as stated above.

By: _____ Date: _____
Signature of Principal or Officer of MWBE and Name and Title

If the Bidder does not receive award of the Contract, any and all representations in this MWBE Participation Plan and Affirmation Statement shall be null and void.

I _____ (print name), an officer of _____ (company name), certify that I have read the PA 3749A MWBE Participation Plan and Affirmation Statement and the information contained in it is true. I fully understand that any false statement within this submittal may prevent the company and/or the undersigned from being found to be responsible bidders/proposers in connection with future agreements. In addition, any false statement within this submittal may subject the company and/or the undersigned to criminal charges in the state and federal courts of New York and New Jersey.

Signature _____ Title _____ Date _____

Please Note: Only 60% of the expenditure to a MWBE material supplier will be counted toward the MWBE goal. Please show calculation above. Example: \$100,000 x 60% = \$60,000 estimated MWBE dollar value of work. Plan cannot be accepted without calculation.

Officer must have ACKNOWLEDGEMENT BY NOTARY PUBLIC completed on the reverse side.

Schedule A

420

ACKNOWLEDGEMENT BY NOTARY PUBLIC

MODIFIED MWBE PARTICIPATION PLAN AND AFFIRMATION STATEMENT (reverse)

ACKNOWLEDGEMENT
of

STATE OF _____)

S.S.:

COUNTY OF _____)

On this _____ day of _____, before me personally came and appeared _____ to be known, who being by me duly sworn, did depose and say that he/she resides at _____, that he/she is the _____ of _____ company, that the seal affixed to said Certification is such corporate seal, that it was so affixed by order of the directors of said corporation, and that he/she signed his/her name thereto by like order.

(Notary's Seal or Stamp)

Notary Public
My commission expires:

THE PORT AUTHORITY OF NY & NJ

MBE/WBE REGULAR DEALER VERIFICATION FORM

PA 3750b / 01-15

(To be completed by MBE/WBE firm and signed by Prime Contractor)

Contract Number:	Telephone # of Prime				
Prime Contractor:					
MBE/WBE Firm:					
Provide a brief description of the material(s) your firm will be supplying and the Prime is requesting be credited as a regular dealer (including item numbers and estimated quantities when possible).					
If either question is marked 'No', then the Prime cannot receive regular dealer credit for the services provided by the MBE/WBE firm. Instead, the maximum credit that could be received would be the fee or commission the MBE/WBE firm receives for its services. Before executing this form, read the attached 'Guide for Counting MBE/WBE Suppliers' which includes the official question and answer issued by the United States Department of Transportation.					
1. Does your firm "regularly" engage in the purchase and sale or lease, to the general public in the usual course of its business, of product(s) of the general character which will be involved in this contract and for which MBE/WBE credit is being sought?	<table style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 0 10px;">Yes</td> <td style="padding: 0 10px;">No</td> </tr> <tr> <td style="text-align: center;"><input type="radio"/></td> <td style="text-align: center;"><input type="radio"/></td> </tr> </table>	Yes	No	<input type="radio"/>	<input type="radio"/>
Yes	No				
<input type="radio"/>	<input type="radio"/>				
2. Is the role your firm will play on this specific contract consistent with the regular sale or lease of the product(s) in question, as distinct from a role better understood as that of a broker, packager, manufacturer's representative, or other person who arranges or expedites a transaction?	<table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;"><input type="radio"/></td> <td style="text-align: center;"><input type="radio"/></td> </tr> </table>	<input type="radio"/>	<input type="radio"/>		
<input type="radio"/>	<input type="radio"/>				
Authorized Representative of MBE/WBE Firm					
The undersigned individual hereby verifies that he/she is authorized to make this verification on behalf of the MBE/WBE firm, that the MBE/WBE firm "regularly" engages in the purchase and sale or lease of the items listed herein and is not otherwise a packager, broker, manufacturer's representative, or other person who arranges or expedites transactions, that the answers and information provided herein are true and correct to the best of her/his knowledge, information and belief and any false statement made in this verification may be the basis for prosecution for offering a false instrument for filing (see e.g., New York Penal Law, Section 175.30 et. Seq.).					
_____ Signature of Principal or Officer	_____ Date				
_____ Print Name and Title	_____ Phone Number				
Authorized Representative of Prime Contractor					
The undersigned individual hereby verifies that he/she is authorized to make this verification on behalf of the prime contractor, that, to the best of his/her knowledge, information and belief the MBE/WBE firm 'regularly' engages in the purchase and sale or lease of the items listed herein and is not otherwise a packager, broker, manufacturers' representative, or other person who arranges or expedites transactions.					
I, Signature of Principal or Officer _____	Date _____				
_____ an officer of _____					
Print Name and Title	Company				
certify that I have read the MBE/WBE Regular Dealer Verification Form and the information contained in it is true. I fully understand that any false statement within this submittal may prevent the company and/or the undersigned from being found to be responsible bidders/proposers in connection with future agreements. In addition, any false statement within this submittal may subject the company and/or the undersigned to criminal charges in the state and federal courts of New York and New Jersey.					
Officer must have ACKNOWLEDGEMENT BY NOTARY PUBLIC completed on the reverse side.					

ACKNOWLEDGMENT BY NOTARY PUBLIC

MBE/WBE REGULAR DEALER VERIFICATION FORM (reverse)

ACKNOWLEDGEMENT

of

STATE OF _____)

S.S.:

COUNTY OF _____)

On this _____ day of _____, before me personally came and appeared _____ to be known, who being by me duly sworn, did depose and say that he/she resides at _____, that he/she is the _____ of _____ company, that the seal affixed to said Certification is such corporate seal, that it was so affixed by order of the directors of said corporation, and that he/she signed his/her name thereto by like order.

(Notary's Seal or Stamp)

Notary Public
My commission expires:

GUIDE FOR COUNTING MBE/WBE SUPPLIERS

- The official question and answer (Q & A) issued by the United States Department of Transportation on December 9, 2011 as institutional guidance based on 49 C.F.R. § 26.55 relative to regular dealers poses two questions that must both be answered 'yes' in order for the MBE/WBE firm to receive regular dealer credit equivalent to 60 percent of the value for materials supplied on federally-assisted transportation projects.
- Following is the official Q & A in italics:

First, does the firm "regularly" engage in the purchase and sale or lease, to the general public in the usual course of its business, of products of the general character involved in the contract and for which MBE/WBE credit is sought?

 - *Answering this question involves attention to the activities of the business over time, both within and outside the context of the MBE/WBE program.*
 - *The distinction to be drawn is between the regular sale or lease of the products in question and merely occasional or ad hoc involvement with them.*
 - *In answering this question, the Port Authority of NY and NJ will not insist that every single item the MBE/WBE firm supplies be physically present in the firm's store, warehouse, etc. before it is sold to a contractor. However, the establishment in which the firm keeps items it sells to the general public should be more than a token location.*
 - *For example, a mere showroom, the existence of a hard-copy or on-line catalog, or the presence of small amounts of material that make questionable the ability of the firm to effectively supply quantities typically needed on a contract, are generally not sufficient to demonstrate that a firm regularly deals in the items.*

Second, is the role the firm plays on the specific contract in question consistent with the regular sale or lease of the products in question, as distinct from a role better understood as that of a broker, packager, manufacturer's representative, or other person who arranges or expedites a transaction?

 - *For example, a firm that regularly stocks and sells Product X may, on a particular contract, simply communicate a prime contractor's order for Product Y to the manufacturer, acting in a transaction expeditor capacity.*
 - *This means that a firm that acts as a regular dealer on one contract does not necessarily act as a regular dealer on other contracts. For example, a firm that acts as a regular dealer on Contract #1 may act simply as a "transaction expeditor" or "broker" on Contract #2. It would receive MBE/WBE credit for 60 percent of the value of the goods supplied on Contract #1 while only receiving MBE/WBE credit for its fee or commission on Contract #2.*
 - *In some circumstances, items are "drop-shipped" directly from a manufacturer's facility to a job site, never being in the physical possession of or transported by a supplier. In many such cases, the supplier's role may involve nothing more than contacting the manufacturer and placing a job-specific order for an item that the manufacturer then causes to be transported to the job site.*
 - *In such a situation, the supplier's role may often be better described as that of a "broker" or "transaction expeditor" (see 49 C.F.R. § 26.55(e)(2)(ii)(C)) than as a "regular dealer." In such a case, MBE/WBE credit is limited to the fee or commission the firm receives for its services. If the firm does not provide any commercially useful function (i.e., it is simply inserted as an extra participant in a transaction), then no MBE/WBE credit can be counted.*
- The Port Authority of NY and NJ propose that primes submit the two questions to MBE/WBEs in writing. If the MBE/WBE firm answers 'yes' to both questions, then the written documentation would be taken into account in the Port Authority of NY and NJ's good faith effort determination in accordance with Section 26.53 of the federal MBE/WBE regulation set forth in Title 49 Code of Federal Regulations Part 26.
- If it were later determined that the MBE/WBE misrepresented itself or erroneously concluded that it was acting as a regular dealer, the Port Authority of NY and NJ would strongly consider this documentation in evaluating the actions of the prime and in determining whether the prime exercised reasonable due diligence by obtaining a written regular dealer confirmation from the MBE/WBE even though it later turned out to be false.
- Participation would still have to be revised, but the Port Authority of NY and NJ will fully consider the written documentation in its good faith effort review.
- The Port Authority of NY and NJ reserves the right to address any misrepresentation by the MBE/WBE firm or the prime consistent with the "Bidders Certification Statement" and other requirements and procedures for determinations of whether a contractor has acted responsibly.

INSTRUCTIONS:

A LOW BIDDER THAT SUBMITS A MWBE PARTICIPATION PLAN THAT INCLUDES AMOUNT(S) FOR TRUCKING MUST COMPLETE THIS FORM TO SHOW HOW THE COMMITMENT AMOUNT WAS ESTIMATED. THIS FORM IS TO BE ATTACHED TO THE REQUIRED "MWBE PARTICIPATION PLAN AND AFFIRMATION STATEMENT (PA3749)".

PRIME CONTRACTORS UTILIZING MWBE FIRMS WITH A "TRUCKING" CLASSIFICATION TO MEET MWBE CONTRACT GOALS MUST BE AWARE THAT CERTAIN CONDITIONS MUST BE MET BY THE MWBE TRUCKING FIRM IN ORDER TO BE CONSIDERED COMMERCIALY USEFUL. THESE CONDITIONS DIRECTLY AFFECT HOW MUCH PARTICIPATION CREDIT WILL BE COUNTED TOWARD THE GOAL.

Use the following factors in determining whether a MWBE trucking company is performing a commercially useful function:

- The MWBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting MWBE goals.
- The MWBE must itself own and operate at least one fully licensed, insured and operational truck used on the contract.
- The MWBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates, using drivers it employs.
- The MWBE may lease trucks from another MWBE firm, including an owner-operator who is certified as a MWBE. The MWBE who leases trucks from another MWBE receives credit for the total value of the transportation services the lessee MWBE provides on the contract.
- The MWBE may also lease trucks from non-MWBE firms and owner-operators. The MWBE can count the value of these trucking services up to the value of services performed by the MWBE trucks used on the contract. MWBE participation can be counted for the value of services of non-MWBE trucks that exceed the value of services performed by MWBE trucks only in the amount of the fee or commission a MWBE receives as a result of the lease arrangement.
- A lease must indicate that the MWBE has exclusive use of and control over the truck for the period of the subcontract. This does not preclude the leased truck from working for others during the term of the lease with the consent of the MWBE, so long as the lease gives the MWBE absolute priority for use of the leased truck

FILL OUT THE INFORMATION ON PAGE 2 FOR EACH MWBE TRUCKING FIRM UTILIZED.

MAKE ADDITIONAL COPIES FOR EACH MWBE TRUCKING FIRM USED ON THE CONTRACT.

ACKNOWLEDGEMENT BY NOTARY PUBLIC

PRE-AWARD MWBE TRUCKING COMMITMENT INFORMATION (reverse)

ACKNOWLEDGEMENT

of

STATE OF _____)

S.S.:

COUNTY OF _____)

On this _____ day of _____, before me personally came and appeared _____ to be known, who being by me duly sworn, did depose and say that he/she resides at _____, that he/she is the _____ of _____ company, that the seal affixed to said Certification is such corporate seal, that it was so affixed by order of the directors of said corporation, and that he/she signed his/her name thereto by like order.

(Notary's Seal or Stamp)

Notary Public

My commission expires:

STATEMENT OF PAYMENTS FORM (REVERSE SIDE)

(name of officer)

(Name of Company)

I _____, an officer of _____

certify that I have read the Statement of Payment Form on the reverse side and the information contained in it is true. I fully understand that any false statement within this submittal may prevent the company and/or the undersigned from being found to be responsible bidders/proposers in connection with future agreements. In addition, any false statement within this submittal may subject the company and/or the undersigned to criminal charges in the state and federal courts of New York and New Jersey.

Signature of Officer _____

Date _____

Title of Officer _____

ACKNOWLEDGEMENT
of

STATE OF _____)

S.S:

COUNTY OF _____)

On this _____ day of _____, before me personally came and appeared _____ to be known, who being by me duly sworn, did depose and say that he/she resides at _____, that he/she is the _____ of _____ company, that the seal affixed to said Certification is such corporate seal, that it was so affixed by order of the directors of said corporation, and that he/she signed his/her name thereto by like order.

(Notary's Seal or Stamp)

(Notary's Signature) _____

Schedule D

M/W/DBE Payment Request Certification Form
(Must be attached to all M/W/DBE invoices)

Contract No. _____ Contract Title _____

General Contractor _____

M/W/DBE Subcontractor Name _____

Address _____

Subcontract amount (original amount) \$ _____

Subcontract amount (as amended) \$ _____

Payments received to date \$ _____ as of _____

This invoice \$ _____

Period covered for this invoice (reporting period) From _____ To _____

Did your company possess the necessary skills, equipment and facilities necessary to perform a commercially useful function consistent with the trade or business for which your company was hired for the reporting period? If No, explain fully. Y N

Did your company utilize any equipment, employees or former employees of the prime/sub contractor(s) or affiliates thereof on this contract during the reporting period? If Yes, explain fully. Y N

Does your company or any of its officers/owners have a financial or personal relationship with the company or any of its officers/owners for which you are a subcontractor for on this contract? If Yes, explain fully. Y N

Did your company subcontract any of its work during the reporting period? If Yes, explain fully. Y N

Subcontractor Officer must complete the Certification on the reverse side

M/W/DBE Payment Request Certification Form (reverse)

(Must be attached to all M/W/DBE invoices)

I _____ (print name), an officer of _____
(company name), certify that I have read the Certification on the reverse side and the information
contained in it is true. I fully understand that any false statement within this submittal may prevent the
company and/or the undersigned from being found to be responsible bidders/proposers in connection
with future agreements. In addition, any false statement within this submittal may subject the company
and/or the undersigned to criminal charges in the state and federal courts of New York and New Jersey.

Signature _____ Title _____ Date _____

ACKNOWLEDGMENT
of

STATE OF _____)

S.S.:

COUNTY OF _____)

On this _____ day of _____, before me personally came and
appeared _____ to be known, who being by me duly sworn, did depose and say
that he/she resides at _____, that he/she is the
_____ of _____ company, that the seal affixed
to said Certification is such corporate seal, that it was so affixed by order of the directors of said
corporation, and that he/she signed his/her name thereto by like order.

(Notary's Seal or Stamp)

(Notary Signature)

M/W/DBE SUBCONTRACTOR APPROVAL REQUEST

PA2327/01-15

- 1 NO PERFORMANCE AND PAYMENT BOND IS REQUIRED TO BE PROVIDED BY THE GENERAL CONTRACTOR
- 2 A PERFORMANCE AND PAYMENT BOND IS REQUIRED TO BE PROVIDED BY THE GENERAL CONTRACTOR
- 3 PARTICIPATION IN NEW YORK STATE APPRENTICESHIP PROGRAM IS REQUIRED (FOR N.Y. SUBCONTRACTS OVER \$1 MILLION)
- 4 PARTICIPATION IN U.S. DEPT OF LABOR APPRENTICESHIP PROGRAM IS REQUIRED (FOR N.J. SUBCONTRACTS OVER \$1 MILLION)

Contract No: _____

Part One: (To be completed by General Contractor)

Prime Contractor Name _____ Telephone No. _____
 Address _____ Contact Person _____
 Contract Title _____ Facility _____

Request Approval of:

Subcontractor's Name _____
 Address _____
 Telephone No _____ Contact Person _____
 Email Address _____
 Fed Tax ID _____
 Type of Work _____

Amount of Sub-Contract	
Materials \$	_____
Labor \$	_____
Total \$	_____
Estimated Start Date	Actual Start Date

Has the Subcontractor performed work under a Port Authority contract? Yes No

Part Two: (To be completed by General Contractor)

Subcontractor References : PA Contract No's or 3 References, Include Names, Telephone Numbers, Owner Representatives and Estimated value of Work Performed

Signature of Prime Contractor's Officer _____ Print Name _____ Title _____ Date _____

- 1) Does the proposed M/W/DBE subcontractor possess the necessary skills, equipment and facilities necessary to perform a commercially useful function consistent with their trade or business on this contract? If No, explain fully Yes No
- 2) Does The Contractor or any of its principals / officers have a financial or personal relationship with any of the principals / officers of the proposed M/W/DBE subcontractor and is the contractor aware of any similar relationships between any of the subcontractors on this project and the M/W/DBE? If yes, please explain fully. Yes No

I _____ (name of officer), an officer of _____ (name of Contractor),
 certify that I have read the above statement and the information contained in it is true. I fully understand that any false statement within this submittal may prevent the company and/or the undersigned from being found to be responsible bidders/proposers in connection with future agreements. In addition, any false statement within this submittal may subject the company and/or the undersigned to criminal charges in the state and federal courts of New York and New Jersey.

Signature of Officer _____ Title Of Officer _____ Date _____

ACKNOWLEDGEMENT of

STATE OF _____)
 S.S:
 COUNTY OF _____)

On this _____ day of _____, before me personally came and appeared _____ to be known, who being by me duly sworn, did depose and say that he/she resides at _____, that he/she is the _____ of _____ company, that the seal affixed to said Certification is such corporate seal, that it was so affixed by order of the directors of said corporation, and that he/she signed his/her name thereto by like order

(Notary's Seal or Stamp)

(Notary's Signature) _____

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACTOR _____

CONTRACT LGA 774.133B

DATE _____

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
1	Civil	 	 	 	
2	Excavation		CY		
3	Haul Excavated Soil to Stockpile		CY		
4	Clean Fill		CY		
5	Furnish, Install and Remove Temporary AOA Fence with 24' Access Gate		LF		
6	Remove Existing AOA Fence		LF		
7	Furnish and Install AOA Fence		LF		
8	Asphalt Conc. (Mix 3 PG 64-22) top course		TONS		
9	Tack Coat		SY		
10	DGABC		CY		
11	Existing Storm Drain Removal/Abandon		LF		
	(Continue to next page)				

(1) Separate and list all items or operations of work included in your estimate in accordance with Specifications.

When listing subcontracts, the prime contractor will have each subcontractor complete an analysis of bid form.

(2) Unit of measure, i.e., SF, CY, Bbls, Pcs, Ea., etc.

3. Include all charges, such as moving on site, removal, rental, etc.

4. In case of conflict between information hereon (whether supplied by the Authority or the bidder) and the terms or prices contained or inserted in the Contract Booklet or Contract Drawings, said Booklet and Drawings shall control.

5. The Analysis of Bid is not part of the contract. No information hereon (whether supplied by the Authority or the bidder) and no information deduced from information hereon, including quantities of materials or work, shall be deemed to vary, alter or modify and provision of the Contract, including provisions therein as to compensation and performance. The unit prices contained hereon serve the sole purpose of informing Port Authority as to components of the bidder's price quoted in the Contract. The items of materials or work contained hereon shall not be deemed to be an exhaustive list of the items of materials or work required by the Contract Drawings and Specifications in their present form.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACTOR _____

CONTRACT LGA 774.133B

DATE _____

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
12	Connection to existing Structure		EA		
13	18" RCP		LF		
14	24" Storm Drain-DIP		LF		
15	36" Storm Drain-DIP		LF		
16	Catch Basin		EA		
17	Aircraft Manhole		EA		
18	Manhole - Type 2		EA		
19	24" Gate Valve		EA		
20	Gate Valve Concrete Chamber		EA		
21	36"x24" DIP Reducer		EA		
22	24" Check Valve		EA		
23	36" Check Valve		EA		
24	Remove Abandoned Electrical Manhole, Remove Concrete Pad, Restore Riprap, Riprap Outlet Protection		LS		
25	Landscaping		LS		
26	Structural -Concrete Headwall		CY		
27	Geotechnical	 	 	 	
28	AZ18-700 Sheeting at EM01		SF		
29	AZ18-700 Sheeting at EM02		SF		
30	Temporary Platform at EM01		LS		

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACTOR _____

CONTRACT LGA 774.133B

DATE _____

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
31	Temporary Platform at EM02		LS		
32	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM01		LS		
33	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM02		LS		
34	Dewatering		DAY		
35	Environmental	 	 	 	
36	Turbidity Curtain		LF		
37	Sediment Bags		EA		
38	Silt Fencing		LF		
39	Stabilized Vehicle Tracking Pad, Catch Basin Inlet Filters		LS		
40	Frac Tank Rental, Frac Tank Delivery and Pickup		LS		
41	Testing, Transport and Disposal of Excavated Soil Off-Site		TONS		
42	Total Lump Sum		LS		

LGA 774.133B

C.A.C. Industries, Inc.

I. SCHEDULE OF UNIT PRICES FOR CLASSIFIED WORK				
Item No.	Estimated Quantities	Items of Classified Work With Unit Prices Written	Figures	
			Unit Prices	Amounts ¹
1	2,400 TON	OFF-SITE DISPOSAL OF EXCAVATED SOIL; PER TON: <u>ONE HUNDRED AND FIFTY</u> DOLLARS <u>ZERO</u> CENTS	\$150.00	\$360,000
ESTIMATED TOTAL FOR CLASSIFIED WORK ²				

02-18-16P03:45 RCVD

¹ The amount for each item shall be computed by multiplying the estimated quantity of that item by the unit price for the item.

² The Estimated Total For Classified Work shall be computed by totaling the amounts inserted in the "Amounts" column.

C. A. C. Industries, Inc.

II. LUMP SUM FOR UNCLASSIFIED WORK	
Writing	Figures
FIVE MILLION TWO HUNDRED AND FOUR THOUSAND SEVEN HUNDREDDollars ZEROCents	\$ 5,204,700.00

III. RECAPITULATION	
	Figures
ESTIMATED TOTAL FOR CLASSIFIED WORK.....	\$ 360,000.00
LUMP SUM FOR UNCLASSIFIED WORK.....	\$ 5,204,700.00
ESTIMATED TOTAL CONTRACT PRICE:	³ \$ 5,564,700.00

The following provisions are applicable to the Schedule of Unit Prices for Classified Work. The quantity for payment described in the following provisions shall be the quantity of Classified Work furnished, installed, performed and/or placed in accordance with the Specifications, as shown on the Contract Drawings and where ordered by the Engineer.

No quantity of work will be included under more than one item of Classified Work.

02-18-16P03:45 RCVD

³ The Estimated Total Contract Price shall be computed by adding the Estimated Total for Classified Work to the Lump Sum for Unclassified Work.

LCA 774.133B

Tully Construction Co., Inc.

I. SCHEDULE OF UNIT PRICES FOR CLASSIFIED WORK				
Item No.	Estimated Quantities	Items of Classified Work With Unit Prices Written	Figures	
			Unit Prices	Amounts ¹
1	2,400 TON	OFF-SITE DISPOSAL OF EXCAVATED SOIL, PER TON. <u>Eighty</u> — DOLLARS <u>200</u> CENTS	80.00	192,000 ⁰⁰
ESTIMATED TOTAL FOR CLASSIFIED WORK ²				

The amount for each item shall be computed by multiplying the estimated quantity of that item by the unit price for the item.

The Estimated Total For Classified Work shall be computed by totaling the amounts inserted in the "Amounts" column.

Tully Construction Co., Inc.

II. LUMP SUM FOR UNCLASSIFIED WORK

Writing	Figures
<p>(P) SEVEN</p> <p>THREE MILLION THREE HUNDRED FIFTY THOUSANDDollars</p> <p>ZEROCents</p>	<p>3,750,000⁰⁰</p>

III. RECAPITULATION

	Figures
ESTIMATED TOTAL FOR CLASSIFIED WORK.....	192,000 ⁰⁰
LUMP SUM FOR UNCLASSIFIED WORK.....	3,750,000 ¹⁰⁰
ESTIMATED TOTAL CONTRACT PRICE:	³ 3,942,000.00

The following provisions are applicable to the Schedule of Unit Prices for Classified Work. The quantity for payment described in the following provisions shall be the quantity of Classified Work furnished, installed, performed and/or placed in accordance with the Specifications, as shown on the Contract Drawings and where ordered by the Engineer.

No quantity of work will be included under more than one item of Classified Work.

³ The Estimated Total Contract Price shall be computed by adding the Estimated Total for Classified Work to the Lump Sum for Unclassified Work.

LGA 774.133B

J- TRACK LLC

I. SCHEDULE OF UNIT PRICES FOR CLASSIFIED WORK				
Item No.	Estimated Quantities	Items of Classified Work With Unit Prices Written	Figures	
			Unit Prices	Amounts ¹
1	2,400 TON	OFF-SITE DISPOSAL OF EXCAVATED SOIL, PER TON. One Hundred + Twenty Five DOLLARS Zero CENTS	125.00	300,000.00
ESTIMATED TOTAL FOR CLASSIFIED WORK ² \$ 300,000.00				

¹ The amount for each item shall be computed by multiplying the estimated quantity of that item by the unit price for the item.

² The Estimated Total For Classified Work shall be computed by totaling the amounts inserted in the "Amounts" column.

J- TRACK LLC

II. LUMP SUM FOR UNCLASSIFIED WORK	
Writing	Figures
Three Million, Nine Hundred & Twenty Two Thousand, Eight Hundred & Four Zero	3,922,804.00
	Dollars
	Cents

III. RECAPITULATION	
	Figures
ESTIMATED TOTAL FOR CLASSIFIED WORK.....	300,000.00
LUMP SUM FOR UNCLASSIFIED WORK.....	3,922,804.00
ESTIMATED TOTAL CONTRACT PRICE:	³ 4,222,804.00

The following provisions are applicable to the Schedule of Unit Prices for Classified Work. The quantity for payment described in the following provisions shall be the quantity of Classified Work furnished, installed, performed and/or placed in accordance with the Specifications, as shown on the Contract Drawings and where ordered by the Engineer.

No quantity of work will be included under more than one item of Classified Work.

³ The Estimated Total Contract Price shall be computed by adding the Estimated Total for Classified Work to the Lump Sum for Unclassified Work.

LCA 744-133B

Mugrose Construction, Inc.

I. SCHEDULE OF UNIT PRICES FOR CLASSIFIED WORK				
Item No.	Estimated Quantities	Items of Classified Work With Unit Prices Written	Figures	
			Unit Prices	Amounts ¹
1	2,400 TON	OFF-SITE DISPOSAL OF EXCAVATED SOIL, PER TON. <u>One Hundred Fifty</u> DOLLARS <u>Zero</u> CENTS	150.00	360,000.00
ESTIMATED TOTAL FOR CLASSIFIED WORK ²				360,000.00

¹ The amount for each item shall be computed by multiplying the estimated quantity of that item by the unit price for the item.

² The Estimated Total For Classified Work shall be computed by totaling the amounts inserted in the "Amounts" column.

Mugrose Const. Inc.

II. LUMP SUM FOR UNCLASSIFIED WORK	
Writing	Figures
..... Four Million Three Hundred Fifteen Thousand	4,315,000.00
.....Dollars	
.....Zero.....Cents	

III. RECAPITULATION	
	Figures
ESTIMATED TOTAL FOR CLASSIFIED WORK.....	360,000.00
LUMP SUM FOR UNCLASSIFIED WORK... ..	4,315,000.00
ESTIMATED TOTAL CONTRACT PRICE:	³ 4,675,000.00

The following provisions are applicable to the Schedule of Unit Prices for Classified Work. The quantity for payment described in the following provisions shall be the quantity of Classified Work furnished, installed, performed and/or placed in accordance with the Specifications, as shown on the Contract Drawings and where ordered by the Engineer.

No quantity of work will be included under more than one item of Classified Work.

³ The Estimated Total Contract Price shall be computed by adding the Estimated Total for Classified Work to the Lump Sum for Unclassified Work.

LCA 744.133B

HALMAR International, LLC

1. SCHEDULE OF UNIT PRICES FOR CLASSIFIED WORK				
Item No.	Estimated Quantities	Items of Classified Work With Unit Prices Written	Figures	
			Unit Prices	Amounts ¹
1	2,400 TON	OFF-SITE DISPOSAL OF EXCAVATED SOIL, PER TON. <u>Sixty</u> DOLLARS <u>zero</u> CENTS	\$60.00	\$144,000.00
ESTIMATED TOTAL FOR CLASSIFIED WORK ²				

¹ The amount for each item shall be computed by multiplying the estimated quantity of that item by the unit price for the item.

² The Estimated Total For Classified Work shall be computed by totaling the amounts inserted in the "Amounts" column.

HALMAR International, LLC

II. LUMP SUM FOR UNCLASSIFIED WORK	
Writing	Figures
Three Million Twenty Three Thousand One Hundred Eighty FiveDollars ZeroCents	3,023,185.00

III. RECAPITULATION	
	Figures
ESTIMATED TOTAL FOR CLASSIFIED WORK.....	\$144,000.00
LUMP SUM FOR UNCLASSIFIED WORK... ..	\$ 3,023,185.00
ESTIMATED TOTAL CONTRACT PRICE:	³ \$3,167,185.00

The following provisions are applicable to the Schedule of Unit Prices for Classified Work. The quantity for payment described in the following provisions shall be the quantity of Classified Work furnished, installed, performed and/or placed in accordance with the Specifications, as shown on the Contract Drawings and where ordered by the Engineer.

No quantity of work will be included under more than one item of Classified Work.

³ The Estimated Total Contract Price shall be computed by adding the Estimated Total for Classified Work to the Lump Sum for Unclassified Work.

* Note - Cost are located in various Items
for multiple unit #'s based on where they were
priced in our Estimating Software

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

LaGuardia Airport - Emergency Storm Drainage

PROJECT

Outfalls

CONTRACT

LGA 774.133B

CONTRACTOR

Halmar International, LLC

DATE

2/17/16

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
1	Civil				
2	Excavation (Test Pits & Soil Testing)	1	CYLS	\$70,000.00	\$70,000.00
3	Haul Excavated Soil to Stockpile	1,200	CY	\$31.67	\$38,000.00
4	Clean Fill	500	CY	\$12.00	\$6,000.00
5	Furnish, Install and Remove Temporary AOA Fence with 24' Access Gate	330	LF	\$260.00	\$85,800.00
6	Remove Existing AOA Fence	65	LF	\$110.00	\$7,150.00
7	Furnish and Install AOA Fence	65	LF	\$370.00	\$24,050.00
8	Asphalt Conc. (Mix 3 PG 64-22) top course	85	TONS	\$420.00	\$35,700.00
9	Tack Coat	251	SY	\$10.00	\$2,510.00
10	DGABC Cost Carried under other item	0	CY	0	\$ 0.00
11	Existing Storm Drain Removal/Abandon	80	LF	\$60.00	\$4,800.00
	(Continue to next page)				

(1) Separate and list all items or operations of work included in your estimate in accordance with Specifications.

When listing subcontracts, the prime contractor will have each subcontractor complete an analysis of bid form.

(2) Unit of measure, i.e., SF, CY, Bbls, Pcs, Ea., etc.

3. Include all charges, such as moving on site, removal, rental, etc.

4. In case of conflict between information hereon (whether supplied by the Authority or the bidder) and the terms or prices contained or inserted in the Contract Booklet or Contract Drawings, said Booklet and Drawings shall control.

5. The Analysis of Bid is not part of the contract. No information hereon (whether supplied by the Authority or the bidder) and no information deduced from information hereon, including quantities of materials or work, shall be deemed to vary, alter or modify and provision of the Contract, including provisions therein as to compensation and performance. The unit prices contained hereon serve the sole purpose of informing Port Authority as to components of the bidder's price quoted in the Contract. The items of materials or work contained hereon shall not be deemed to be an exhaustive list of the items of materials or work required by the Contract Drawings and Specifications in their present form.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACTOR Halmar International, LLC

CONTRACT LGA 774.133B

DATE 2/17/16

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
12	Connection to existing Structure	4	EA	\$750.00	\$3,000.00
13	18" RCP	80	LF	\$1,035.00	\$2,800 \$82,800.00
14	24" Storm Drain-DIP	375	LF	\$1,225.00	\$4,375 \$459,375.00
15	36" Storm Drain-DIP	50	LF	\$1,170.00	\$16,500 \$58,500.00
16	Catch Basin	1	EA	\$6,000.00	\$6,000.00
17	Aircraft Manhole	2	EA	\$7,000.00	\$14,000.00
18	Manhole - Type 2	2	EA	\$5,500.00	\$11,000.00
19	24" Gate Valve	2	EA	\$38,000.00	\$76,000.00
20	Gate Valve Concrete Chamber	2	EA	\$10,000.00	\$20,000.00
21	36"x24" DIP Reducer	1	EA	\$3,500.00	\$3,500.00
22	24" Check Valve	1	EA	\$13,000.00	\$13,000.00
23	36" Check Valve	1	EA	\$20,000.00	\$20,000.00
24	Remove Abandoned Electrical Manhole, Remove Concrete Pad, Restore Riprap, Riprap Outlet Protection	1	LS	\$25,000.00	\$25,000.00
25	Landscaping	1	LS	\$14,000.00	\$14,000.00
26	Structural -Concrete Headwall	20	CY	\$4,000.00	\$80,000.00
27	Geotechnical				
28	AZ18-700 Sheeting at EM01	1,600	SF	\$309.38	\$495,000.00
29	AZ18-700 Sheeting at EM02	5,500	SF	\$240.91	\$1,325,000.00
30	Temporary Platform at EM01	1	LS	0	\$ 0.00

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls
CONTRACTOR Halmar International, LLC

CONTRACT LGA 774.133B
DATE 2/17/16

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
31	Temporary Platform at EM02	1	LS	0	\$ 0.00
32	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM01 *Cost Included in Shooting	1	LS	0	\$ 0.00
33	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM02 *Cost Included in Shooting	1	LS	0	\$ 0.00
34	Dewatering	40	DAY	\$187.50	\$7,500.00
35	Environmental				
36	Turbidity Curtain	250	LF	\$56.00	\$14,000.00
37	Sediment Bags	12	EA	\$208.33	\$2,500.00
38	Silt Fencing	250	LF	\$14.00	\$3,500.00
39	Stabilized Vehicle Tracking Pad, Catch Basin Inlet Filters	1	LS	\$10,000.00	\$10,000.00
40	Frac Tank Rental, Frac Tank Delivery and Pickup	1	LS	\$5,500.00	\$5,500.00
41	Total Lump Sum (Unclassified)	1	LS		\$3,167,185.00

02-18-16 03:05 RCVD

02-18-16 03:05 RCVD

LGA 774.133B

Primer Construction Corp

I. SCHEDULE OF UNIT PRICES FOR CLASSIFIED WORK				
Item No.	Estimated Quantities	Items of Classified Work With Unit Prices Written	Figures	
			Unit Prices	Amounts ¹
1	2,400 TON	OFF-SITE DISPOSAL OF EXCAVATED SOIL, PER TON. <u>One hundred</u> DOLLARS <u>00</u> CENTS	100	240,000
ESTIMATED TOTAL FOR CLASSIFIED WORK ²				

02-18-16P03:21 RCVD

¹ The amount for each item shall be computed by multiplying the estimated quantity of that item by the unit price for the item.

² The Estimated Total For Classified Work shall be computed by totaling the amounts inserted in the "Amounts" column.

Primer Constr. Corp

II. LUMP SUM FOR UNCLASSIFIED WORK	
Writing	Figures
Three million five hundred eighty three thousandDollars 00Cents	3,583,000

III. RECAPITULATION	
	Figures
ESTIMATED TOTAL FOR CLASSIFIED WORK.....	240,000.
LUMP SUM FOR UNCLASSIFIED WORK... ..	3,583,000.
ESTIMATED TOTAL CONTRACT PRICE:	³ 3,823,000.

The following provisions are applicable to the Schedule of Unit Prices for Classified Work. The quantity for payment described in the following provisions shall be the quantity of Classified Work furnished, installed, performed and/or placed in accordance with the Specifications, as shown on the Contract Drawings and where ordered by the Engineer.

No quantity of work will be included under more than one item of Classified Work.

02-18-16P03:21 RCVD

³ The Estimated Total Contract Price shall be computed by adding the Estimated Total for Classified Work to the Lump Sum for Unclassified Work.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

LaGuardia Airport - Emergency Storm Drainage

PROJECT

Outfalls

CONTRACT

LGA 774.133B

CONTRACTOR Primer Construction Corp.

DATE

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
1	Civil				
2	Excavation	800	CY	100	80,000
3	Haul Excavated Soil to Stockpile	800	CY	10	8,000
4	Clean Fill	400	CY	75	30,000
5	Furnish, Install and Remove Temporary AOA Fence with 24' Access Gate	50	LF	200	10,000
6	Remove Existing AOA Fence	60	LF	80	4,800
7	Furnish and Install AOA Fence	390	LF	278.6	108,654
8	Asphalt Conc. (Mix 3 PG 64-22) top course	105	TONS	140	14,700
9	Tack Coat	500	SY	30	15,000
10	DGABC	100	CY	80	8,000
11	Existing Storm Drain Removal/Abandon	80	LF	50	4,000
(Continue to next page)					

(1) Separate and list all items or operations of work included in your estimate in accordance with Specifications.

When listing subcontracts, the prime contractor will have each subcontractor complete an analysis of bid form.

(2) Unit of measure, i.e., SF, CY, Bbls, Pcs, Ea., etc.

3. Include all charges, such as moving on site, removal, rental, etc.

4. In case of conflict between information hereon (whether supplied by the Authority or the bidder) and the terms or prices contained or inserted in the Contract Booklet or Contract Drawings, said Booklet and Drawings shall control.

5. The Analysis of Bid is not part of the contract. No information hereon (whether supplied by the Authority or the bidder) and no information deduced from information hereon, including quantities of materials or work, shall be deemed to vary, alter or modify and provision of the Contract, including provisions therein as to compensation and performance. The unit prices contained hereon serve the sole purpose of informing Port Authority as to components of the bidder's price quoted in the Contract. The items of materials or work contained hereon shall not be deemed to be an exhaustive list of the items of materials or work required by the Contract Drawings and Specifications in their present form.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

LaGuardia Airport - Emergency Storm Drainage

PROJECT

Outfalls

CONTRACT

LGA 774.133B

CONTRACTOR

Primer Construction Corp.

DATE

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
12	Connection to existing Structure	3	EA	5,000	15,000
13	18" RCP	80	LF	750	60,000
14	24" Storm Drain-DIP	240	LF	800	192,000
15	36" Storm Drain-DIP	252	LF	1,000	252,000
16	Catch Basin	1	EA	20,000	20,000
17	Aircraft Manhole	1	EA	40,000	40,000
18	Manhole - Type 2	1	EA	15,000	15,000
19	24" Gate Valve	1	EA	45,000	45,000
20	Gate Valve Concrete Chamber	2	EA	10,000	20,000
21	36"x24" DIP Reducer	1	EA	10,000	10,000
22	24" Check Valve	1	EA	15,000	15,000
23	36" Check Valve	1	EA	20,000	20,000
24	Remove Abandoned Electrical Manhole, Remove Concrete Pad, Restore Riprap, Riprap Outlet Protection	1	LS	50,000	50,000
25	Landscaping	1	LS	19,994	19,994
26	Structural -Concrete Headwall	250	CY	5,000	1,250,000
27	Geotechnical				
28	AZ18-700 Sheeting at EM01	1300	SF	GP 87.53	113,786
29	AZ18-700 Sheeting at EM02	5500	SF	GP 81.78	449,786
30	Temporary Platform at EM01	1	LS	50,000	50,000

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACT LGA 774.133B

CONTRACTOR Primer Construction Corp.

DATE _____

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
31	Temporary Platform at EM02	1	LS	50,000	50,000
32	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM01	1	LS	100,000	100,000
33	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM02	1	LS	400,000	400,000
34	Dewatering	276	DAY	30	8,280
35	Environmental	 	 	 	
36	Turbidity Curtain	1000	LF	50	50,000
37	Sediment Bags	20	EA	500	10,000
38	Silt Fencing	10	LF	400	4,000
39	Stabilized Vehicle Tracking Pad, Catch Basin Inlet Filters	1	LS	20,000	20,000
40	Frac Tank Rental, Frac Tank Delivery and Pickup	1	LS	20,000	20,000
41	Total Lump Sum (Unclassified)		LS		3,583,000

LGA 774.133B

Beaver Concrete Constr. Co. Inc

I. SCHEDULE OF UNIT PRICES FOR CLASSIFIED WORK				
Item No.	Estimated Quantities	Items of Classified Work With Unit Prices Written	Figures	
			Unit Prices	Amounts ¹
1	2,400 TON	OFF-SITE DISPOSAL OF EXCAVATED SOIL, PER TON. <u>Forty</u> DOLLARS <u>zero</u> CENTS	\$40.00	\$96,000.00
ESTIMATED TOTAL FOR CLASSIFIED WORK ²				\$96,000.00

¹ The amount for each item shall be computed by multiplying the estimated quantity of that item by the unit price for the item.

² The Estimated Total For Classified Work shall be computed by totaling the amounts inserted in the "Amounts" column.

Beaver Concrete Constr. Co. Inc.

II. LUMP SUM FOR UNCLASSIFIED WORK	
Writing	Figures
3 Million Two Hundred Ninety Three Thousand Dollars	\$ 3,293,000. ⁰⁰
Zero	Cents

III. RECAPITULATION	
	Figures
ESTIMATED TOTAL FOR CLASSIFIED WORK.....	\$ 96,000. ⁰⁰
LUMP SUM FOR UNCLASSIFIED WORK... ..	\$ 3,293,000. ⁰⁰
ESTIMATED TOTAL CONTRACT PRICE:	³ \$ 3,389,000. ⁰⁰

The following provisions are applicable to the Schedule of Unit Prices for Classified Work. The quantity for payment described in the following provisions shall be the quantity of Classified Work furnished, installed, performed and/or placed in accordance with the Specifications, as shown on the Contract Drawings and where ordered by the Engineer.

No quantity of work will be included under more than one item of Classified Work.

³ The Estimated Total Contract Price shall be computed by adding the Estimated Total for Classified Work to the Lump Sum for Unclassified Work.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACTOR BEAVER CONCRETE CONSTRUCTION Co., INC

CONTRACT LGA 774.133B

DATE 2/18/16

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
1	Civil				
2	Excavation	1	CYLS	\$ 200,000.00	\$ 200,000.00
3	Haul Excavated Soil to Stockpile	1	CYLS	\$ 50,000.00	\$ 50,000.00
4	Clean Fill	1	CYLS	\$ 100,000.00	\$ 100,000.00
5	Furnish, Install and Remove Temporary AOA Fence with 24' Access Gate	1	LFLS	\$ 100,000.00	\$ 100,000.00
6	Remove Existing AOA Fence	1	LFLS	\$ 10,000.00	\$ 10,000.00
7	Furnish and Install AOA Fence	1	LFLS	\$ 30,000.00	\$ 30,000.00
8	Asphalt Conc. (Mix 3 PG 64-22) top course	1	TONSLS	\$ 50,000.00	\$ 50,000.00
9	Tack Coat	1	CYLS	\$ 10,000.00	\$ 10,000.00
10	DGABC	1	CYLS	\$ 10,000.00	\$ 10,000.00
11	Existing Storm Drain Removal/Abandon	1	LFLS	\$ 10,000.00	\$ 10,000.00
	(Continue to next page)				

- (1) Separate and list all items or operations of work included in your estimate in accordance with Specifications.
When listing subcontracts, the prime contractor will have each subcontractor complete an analysis of bid form.
- (2) Unit of measure, i.e., SF, CY, Bbls, Pcs, Ea., etc.
3. Include all charges, such as moving on site, removal, rental, etc.
4. In case of conflict between information hereon (whether supplied by the Authority or the bidder) and the terms or prices contained or inserted in the Contract Booklet or Contract Drawings, said Booklet and Drawings shall control.
5. The Analysis of Bid is not part of the contract. No information hereon (whether supplied by the Authority or the bidder) and no information deduced from information hereon, including quantities of materials or work, shall be deemed to vary, alter or modify and provision of the Contract, including provisions therein as to compensation and performance. The unit prices contained hereon serve the sole purpose of informing Port Authority as to components of the bidder's price quoted in the Contract. The items of materials or work contained hereon shall not be deemed to be an exhaustive list of the items of materials or work required by the Contract Drawings and Specifications in their present form.

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THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage

CONTRACT

LGA 774.133B

CONTRACTOR BEAVER CONCRETE CONSTRUCTION Co. INC.

DATE

2/18/16

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
12	Connection to existing Structure	1	EALS	\$ 5,000.00	\$ 5,000.00
13	18" RCP	1	NFLS	\$ 30,000.00	\$ 30,000.00
14	24" Storm Drain-DIP	1	NFLS	\$ 200,000.00	\$ 200,000.00
15	36" Storm Drain-DIP	1	NFLS	\$ 40,000.00	\$ 40,000.00
16	Catch Basin	1	EALS	\$ 30,000.00	\$ 30,000.00
17	Aircraft Manhole	1	EALS	\$ 50,000.00	\$ 50,000.00
18	Manhole - Type 2	1	EALS	\$ 50,000.00	\$ 50,000.00
19	24" Gate Valve	1	EALS	\$ 120,000.00	\$ 120,000.00
20	Gate Valve Concrete Chamber	1	EALS	\$ 50,000.00	\$ 50,000.00
21	36"x24" DIP Reducer	1	EALS	\$ 5,000.00	\$ 5,000.00
22	24" Check Valve	1	EALS	\$ 25,000.00	\$ 25,000.00
23	36" Check Valve	1	EALS	\$ 30,000.00	\$ 30,000.00
24	Remove Abandoned Electrical Manhole, Remove Concrete Pad, Restore Riprap, Riprap Outlet Protection	1	LS	\$ 40,000.00	\$ 40,000.00
25	Landscaping	1	LS	\$ 20,000.00	\$ 20,000.00
26	Structural -Concrete Headwall	1	SYLS	\$ 60,000.00	\$ 60,000.00
27	Geotechnical	1	SYLS	\$ 60,000.00	\$ 60,000.00
28	AZ18-700 Sheeting at EM01	1	SFLS	\$ 200,000.00	\$ 200,000.00
29	AZ18-700 Sheeting at EM02	1	SFLS	\$ 400,000.00	\$ 400,000.00
30	Temporary Platform at EM01	1	LS	\$ 300,000.00	\$ 300,000.00

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THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACTOR BEAUF CONCRETE CONSTRUCTION Co., INC.

CONTRACT LGA 774.133B

DATE 2/18/16

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
31	Temporary Platform at EM02	1	LS	\$500,000. ⁰⁰	\$500,000. ⁰⁰
32	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM01	1	LS	\$150,000. ⁰⁰	\$150,000. ⁰⁰
33	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM02	1	LS	\$150,000. ⁰⁰	\$150,000. ⁰⁰
34	Dewatering	1	DAYS	\$150,000. ⁰⁰	\$150,000. ⁰⁰
35	Environmental	1	LS	\$150,000.⁰⁰	\$150,000.⁰⁰
36	Turbidity Curtain	1	FLS	\$40,000. ⁰⁰	\$40,000. ⁰⁰
37	Sediment Bags	1	BALS	\$3,000. ⁰⁰	\$3,000. ⁰⁰
38	Silt Fencing	1	FLS	\$25,000. ⁰⁰	\$25,000. ⁰⁰
39	Stabilized Vehicle Tracking Pad, Catch Basin Inlet Filters	1	LS	\$25,000. ⁰⁰	\$25,000. ⁰⁰
40	Frac Tank Rental, Frac Tank Delivery and Pickup	1	LS	\$25,000. ⁰⁰	\$25,000. ⁰⁰
41	Total Lump Sum (Unclassified)		LS	\$3,293,000. ⁰⁰	\$3,293,000. ⁰⁰

02-18-16P03:14 RCVD

LGA 774.133B

G & M Earth Moving, Inc.

I. SCHEDULE OF UNIT PRICES FOR CLASSIFIED WORK				
Item No.	Estimated Quantities	Items of Classified Work With Unit Prices Written	Figures	
			Unit Prices	Amounts ¹
1	2,400 TON	OFF-SITE DISPOSAL OF EXCAVATED SOIL, PER TON: <u>SEVENTY SEVEN DOLLARS</u> <u>ZERO CENTS</u>	77.00	184,800
ESTIMATED TOTAL FOR CLASSIFIED WORK ²				

¹ The amount for each item shall be computed by multiplying the estimated quantity of that item by the unit price for the item.

² The Estimated Total For Classified Work shall be computed by totaling the amounts inserted in the "Amounts" column.

G + M Earth Moving, Inc

II. LUMP SUM FOR UNCLASSIFIED WORK	
Writing	Figures
FIVE MILLION NINE HUNDRED TWENTY NINE THOUSANDDollars ZEROCents	5,929,000. ⁰⁰

III. RECAPITULATION	
	Figures
ESTIMATED TOTAL FOR CLASSIFIED WORK.....	184,800. ⁰⁰
LUMP SUM FOR UNCLASSIFIED WORK.....	5,929,000. ⁰⁰
ESTIMATED TOTAL CONTRACT PRICE:	³ 6,113,800. ⁰⁰

The following provisions are applicable to the Schedule of Unit Prices for Classified Work. The quantity for payment described in the following provisions shall be the quantity of Classified Work furnished, installed, performed and/or placed in accordance with the Specifications, as shown on the Contract Drawings and where ordered by the Engineer.

No quantity of work will be included under more than one item of Classified Work.

³ The Estimated Total Contract Price shall be computed by adding the Estimated Total for Classified Work to the Lump Sum for Unclassified Work.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACT LGA 774.133B

CONTRACTOR G. M. Earth Moving, Inc.

DATE 2-18-16

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
1	Civil	2100	CY	750	1,575,000
2	Excavation	2100	CY	750	1,575,000
3	Haul Excavated Soil to Stockpile	2100	CY	30	63,000
4	Clean Fill	2100	CY	30	63,000
5	Furnish, Install and Remove Temporary AOA Fence with 24' Access Gate	345	LF	75	25,875
6	Remove Existing AOA Fence	80	LF	75	6,000
7	Furnish and Install AOA Fence	110 80	LF	100	8,000
8	Asphalt Conc. (Mix 3 PG 64-22) top course	110	TONS	200	22,000
9	Tack Coat	330	SY	5	1,650
10	DGABC	85	CY	30	2,550
11	Existing Storm Drain Removal/Abandon	90	LF	100	9,000
(Continue to next page)					

(1) Separate and list all items or operations of work included in your estimate in accordance with Specifications.

When listing subcontracts, the prime contractor will have each subcontractor complete an analysis of bid form.

(2) Unit of measure, i.e., SF, CY, Bbls, Pcs, Ea., etc.

3. Include all charges, such as moving on site, removal, rental, etc.

4. In case of conflict between information hereon (whether supplied by the Authority or the bidder) and the terms or prices contained or inserted in the Contract Booklet or Contract Drawings, said Booklet and Drawings shall control.

5. The Analysis of Bid is not part of the contract. No information hereon (whether supplied by the Authority or the bidder) and no information deduced from information hereon, including quantities of materials or work, shall be deemed to vary, alter or modify and provision of the Contract, including provisions therein as to compensation and performance. The unit prices contained hereon serve the sole purpose of informing Port Authority as to components of the bidder's price quoted in the Contract. The items of materials or work contained hereon shall not be deemed to be an exhaustive list of the items of materials or work required by the Contract Drawings and Specifications in their present form.

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THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

LaGuardia Airport - Emergency Storm Drainage

PROJECT

Outfalls

CONTRACT

LGA 774.133B

CONTRACTOR

GEM Earth Moving, Inc.

DATE

2-18-16

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
12	Connection to existing Structure	3	EA	1000	3000
13	18" RCP	90	LF	80	7200
14	24" Storm Drain-DIP	410	LF	80	32,800
15	36" Storm Drain-DIP	50	LF	100	5,000
16	Catch Basin	1	EA	10,000	10,000
17	Aircraft Manhole	2	EA	20,000	40,000
18	Manhole - Type 2	2	EA	10,000	20,000
19	24" Gate Valve	2	EA	20,000	40,000
20	Gate Valve Concrete Chamber	2	EA	20,000	40,000
21	36"x24" DIP Reducer	1	EA	10,000	10,000
22	24" Check Valve	1	EA	8,000	8,000
23	36" Check Valve	2	EA	12,000	12,000
24	Remove Abandoned Electrical Manhole, Remove Concrete Pad, Restore Riprap, Riprap Outlet Protection	1	LS	25,000	25,000
25	Landscaping	1	LS	9,800	9,800
26	Structural -Concrete Headwall	40	CY	2000	80,000
27	Geotechnical	 	 	 	
28	AZ18-700 Sheeting at EM01	2000	SF	28.01	56,020
29	AZ18-700 Sheeting at EM02	5000	SF	32.21	161,050
30	Temporary Platform at EM01	1	LS	805,237	805,237

02-18-16P03:29 RCVD

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACTOR G & M Earth Moving, Inc.

CONTRACT LGA 774.133B

DATE 2-18-16

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
31	Temporary Platform at EM02	1	LS	1,750,000	1,750,000
32	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM01	1	LS	225,300	225,300
33	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM02	1	LS	175,000	175,000
34	Dewatering	44	DAY	13,750	605,000
35	Environmental	 	 	 	
36	Turbidity Curtain	200	LF	10	2,000
37	Sediment Bags	10	EA	250	2,500
38	Silt Fencing	400	LF	10	4,000
39	Stabilized Vehicle Tracking Pad, Catch Basin Inlet Filters	1	LS	4018	4,018
40	Frac Tank Rental, Frac Tank Delivery and Pickup	1	LS	20,000	20,000
41	Total Lump Sum (Unclassified)		LS		5,929,000

02-18-16P03:29 RCVD

LGA 774.133B

Restani Construction Corp

I. SCHEDULE OF UNIT PRICES FOR CLASSIFIED WORK				
Item No.	Estimated Quantities	Items of Classified Work With Unit Prices Written	Figures	
			Unit Prices	Amounts ¹
1	2,400 TON	OFF-SITE DISPOSAL OF EXCAVATED SOIL, PER TON. — Sixty — DOLLARS — No — CENTS	60.-	\$ 144,000.-
ESTIMATED TOTAL FOR CLASSIFIED WORK ² \$ 144,000.-				

¹ The amount for each item shall be computed by multiplying the estimated quantity of that item by the unit price for the item.

² The Estimated Total For Classified Work shall be computed by totaling the amounts inserted in the "Amounts" column.

Restani Construction Corp

II. LUMP SUM FOR UNCLASSIFIED WORK	
Writing	Figures
Two million Seven hundred five thousand five hundred and forty nineDollars ————— No —————Cents	\$ 2,705,549.—

III. RECAPITULATION	
	Figures
ESTIMATED TOTAL FOR CLASSIFIED WORK.....	\$ 144,000.—
LUMP SUM FOR UNCLASSIFIED WORK.....	\$ 2,705,549.—
ESTIMATED TOTAL CONTRACT PRICE:	³ 2,849,549.—

The following provisions are applicable to the Schedule of Unit Prices for Classified Work. The quantity for payment described in the following provisions shall be the quantity of Classified Work furnished, installed, performed and/or placed in accordance with the Specifications, as shown on the Contract Drawings and where ordered by the Engineer.

No quantity of work will be included under more than one item of Classified Work.

³ The Estimated Total Contract Price shall be computed by adding the Estimated Total for Classified Work to the Lump Sum for Unclassified Work.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACT LGA 774.133B

CONTRACTOR Restani Construction Corp.

DATE 2/18/2016

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
1	Civil				
2	Excavation	620	CY	90.-	55,800.-
3	Haul Excavated Soil to Stockpile	620	CY	30.-	18,600.-
4	Clean Fill	595	CY	80.-	47,600.-
5	Furnish, Install and Remove Temporary AOA Fence with 24' Access Gate	300	LF	335.-	100,500.-
6	Remove Existing AOA Fence	60	LF	70.-	4,200.-
7	Furnish and Install AOA Fence	60	LF	250.-	15,000.-
8	Asphalt Conc. (Mix 3 PG 64-22) top course	16	TONS	200.-	3,200.-
9	Tack Coat	4	GAL SY	6.-	24.-
10	DGABC	37	CY	125.-	4,625.-
11	Existing Storm Drain Removal/Abandon	80	LF	100.-	8,000.-
(Continue to next page)					

(1) Separate and list all items or operations of work included in your estimate in accordance with Specifications.

When listing subcontracts, the prime contractor will have each subcontractor complete an analysis of bid form.

(2) Unit of measure, i.e., SF, CY, Bbls, Pcs, Ea., etc.

3. Include all charges, such as moving on site, removal, rental, etc.

4. In case of conflict between information hereon (whether supplied by the Authority or the bidder) and the terms or prices contained or inserted in the Contract Booklet or Contract Drawings, said Booklet and Drawings shall control.

5. The Analysis of Bid is not part of the contract. No information hereon (whether supplied by the Authority or the bidder) and no information deduced from information hereon, including quantities of materials or work, shall be deemed to vary, alter or modify and provision of the Contract, including provisions therein as to compensation and performance. The unit prices contained hereon serve the sole purpose of informing Port Authority as to components of the bidder's price quoted in the Contract. The items of materials or work contained hereon shall not be deemed to be an exhaustive list of the items of materials or work required by the Contract Drawings and Specifications in their present form.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

LaGuardia Airport - Emergency Storm Drainage

PROJECT

Outfalls

CONTRACT

LGA 774.133B

CONTRACTOR

Restani Construction Corp

DATE

2/18/16

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
12	Connection to existing Structure	2	EA	2,000.-	4,000.-
13	18" RCP	80	LF	300.-	24,000.-
14	24" Storm Drain-DIP	365	LF	400.-	146,000.-
15	36" Storm Drain-DIP	40	LF	600.-	24,000.-
16	Catch Basin	1	EA	12,000.-	12,000.-
17	Aircraft Manhole	2	EA	14,000.-	28,000.- ^{c.k}
18	Manhole - Type 2	2	EA	10,000.-	20,000.-
19	24" Gate Valve	2	EA	45,000.-	90,000.-
20	Gate Valve Concrete Chamber	2	EA	25,000.-	50,000.- ^{c.k}
21	36"x24" DIP Reducer	1	EA	5,000.-	5,000.-
22	24" Check Valve	1	EA	25,000.-	25,000.-
23	36" Check Valve	1	EA	50,000.-	50,000.-
24	Remove Abandoned Electrical Manhole, Remove Concrete Pad, Restore Riprap, Riprap Outlet Protection	1	LS	10,000.-	10,000.-
25	Landscaping	1	LS	15,000.-	15,000.-
26	Structural -Concrete Headwall	13	CY	2,700.-	35,100.-
27	Geotechnical	 	 	 	
28	AZ18-700 Sheeting at EM01	1,300.-	SF	70.-	91,000.-
29	AZ18-700 Sheeting at EM02	5,510	SF	70.-	385,700.-
30	Temporary Platform at EM01	1	LS	159,000.-	159,000.-

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACTOR Restani Construction Corp.

CONTRACT LGA 774.133B

DATE 2/18/16

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
31	Temporary Platform at EM02	1	LS	550,000.-	550,000.-
32	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM01	1	LS	200,000.-	200,000.-
33	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM02	1	LS	366,000.-	366,000.-
34	Dewatering	20	DAY	3,600.-	72,000.-
35	Environmental	 	 	 	
36	Turbidity Curtain	325	LF	100.-	32,500.-
37	Sediment Bags	2	EA	150.-	300.-
38	Silt Fencing	600	LF	19.-	11,400.-
39	Stabilized Vehicle Tracking Pad, Catch Basin Inlet Filters	1	LS	12,000.-	12,000.-
40	Frac Tank Rental, Frac Tank Delivery and Pickup	1	LS	30,000.-	30,000.-
41	Total Lump Sum (Unclassified)		LS		2,705,549.- C.K.

LCA 774.133B

Triumph Const. Corp

I. SCHEDULE OF UNIT PRICES FOR CLASSIFIED WORK				
Item No.	Estimated Quantities	Items of Classified Work With Unit Prices Written	Figures	
			Unit Prices	Amounts ¹
1	2,400 TON	OFF-SITE DISPOSAL OF EXCAVATED SOIL, PER TON. <u>Eighty</u> DOLLARS <u>zero</u> CENTS	80. ⁰⁰	192,000
ESTIMATED TOTAL FOR CLASSIFIED WORK ²				

¹ The amount for each item shall be computed by multiplying the estimated quantity of that item by the unit price for the item.

² The Estimated Total For Classified Work shall be computed by totaling the amounts inserted in the "Amounts" column.

Triumph Const. Corp

II. LUMP SUM FOR UNCLASSIFIED WORK	
Writing	Figures
Five Million, Eight hundred Three Thousand Four hundred forty.....Dollars	5,803,440. ⁰⁰
Zero.....Cents	

III. RECAPITULATION	
	Figures
ESTIMATED TOTAL FOR CLASSIFIED WORK.....	192,000
LUMP SUM FOR UNCLASSIFIED WORK.....	5,803,440
ESTIMATED TOTAL CONTRACT PRICE:	³ 5,995,440

The following provisions are applicable to the Schedule of Unit Prices for Classified Work. The quantity for payment described in the following provisions shall be the quantity of Classified Work furnished, installed, performed and/or placed in accordance with the Specifications, as shown on the Contract Drawings and where ordered by the Engineer.

No quantity of work will be included under more than one item of Classified Work.

³ The Estimated Total Contract Price shall be computed by adding the Estimated Total for Classified Work to the Lump Sum for Unclassified Work.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACT LGA 774.133B

CONTRACTOR Triumph Const. Corp

DATE

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
1	Civil				
2	Excavation	1855	CY	215	398,825
3	Haul Excavated Soil to Stockpile	1855	CY	75	139,125
4	Clean Fill	1700	CY	45	76,500
5	Furnish, Install and Remove Temporary AOA Fence with 24' Access Gate	330	LF	225	74,250
6	Remove Existing AOA Fence	48	LF	100	4,800
7	Furnish and Install AOA Fence	48	LF	300	14,400
8	Asphalt Conc. (Mix 3 PG 64-22) top course	145	TONS	400	58,000
9	Tack Coat	75	SY	10	750
10	DGABC	90	CY	150	13,500
11	Existing Storm Drain Removal/Abandon	80	LF	360	28,800
	(Continue to next page)	① ②	EA	800	72,000

(1) Separate and list all items or operations of work included in your estimate in accordance with Specifications.

When listing subcontracts, the prime contractor will have each subcontractor complete an analysis of bid form.

(2) Unit of measure, i.e., SF, CY, Bbls, Pcs, Ea., etc.

3. Include all charges, such as moving on site, removal, rental, etc.

4. In case of conflict between information hereon (whether supplied by the Authority or the bidder) and the terms or prices contained or inserted in the Contract Booklet or Contract Drawings, said Booklet and Drawings shall control.

5. The Analysis of Bid is not part of the contract. No information hereon (whether supplied by the Authority or the bidder) and no information deduced from information hereon, including quantities of materials or work, shall be deemed to vary, alter or modify and provision of the Contract, including provisions therein as to compensation and performance. The unit prices contained hereon serve the sole purpose of informing Port Authority as to components of the bidder's price quoted in the Contract. The items of materials or work contained hereon shall not be deemed to be an exhaustive list of the items of materials or work required by the Contract Drawings and Specifications in their present form.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACT

LGA 774.133B

CONTRACTOR Triumph Const. Corp

DATE

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
12	Connection to existing Structure	2	EA	8000	16,000
13	18" RCP	80	LF	600	48,000
14	24" Storm Drain-DIP	240	LF	900	216,000
15	36" Storm Drain-DIP	252	LF	1,750	441,000
16	Catch Basin	1	EA	15,000	15,000
17	Aircraft Manhole	2	EA	32,000	64,000
18	Manhole - Type 2	2	EA	23,000	46,000
19	24" Gate Valve	2	EA	50,000	100,000
20	Gate Valve Concrete Chamber	2	EA	30,000	60,000
21	36"x24" DIP Reducer	2	EA	10,000	20,000
22	24" Check Valve	1	EA	21,000	21,000
23	36" Check Valve	1	EA	35,000	35,000
24	Remove Abandoned Electrical Manhole, Remove Concrete Pad, Restore Riprap, Riprap Outlet Protection	1	LS	130,000	130,000
25	Landscaping	1	LS	30,000	30,000
26	Structural -Concrete Headwall	19	CY	8,000	152,000
27	Geotechnical	 	 	 	
28	AZ18-700 Sheeting at EM01	1,370	SF	175	239,750
29	AZ18-700 Sheeting at EM02	5,712	SF	145	828,240
30	Temporary Platform at EM01	1	LS	690,000	690,000

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACTOR Triumph Const. Corp

CONTRACT LGA 774.133B

DATE _____

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
31	Temporary Platform at EM02	1	LS	995,000	995,000
32	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM01	1	LS	40,000	40,000
33	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM02	1	LS	50,000	50,000
34	Dewatering	45	DAY	10,000	450,000
35	Environmental				
36	Turbidity Curtain	350	LF	350	122,500
37	Sediment Bags	2	EA	20,000	40,000
38	Silt Fencing	1,400	LF	25	35,000
39	Stabilized Vehicle Tracking Pad, Catch Basin Inlet Filters	1	LS	75,000	75,000
40	Frac Tank Rental, Frac Tank Delivery and Pickup	1	LS	35,000	35,000
41	Total Lump Sum (Unclassified)	2,400	LS	80	192,000

LGA 774.133B

Paul J. Scavano, Inc

I. SCHEDULE OF UNIT PRICES FOR CLASSIFIED WORK				
Item No.	Estimated Quantities	Items of Classified Work With Unit Prices Written	Figures	
			Unit Prices	Amounts ¹
1	2,400 TON	OFF-SITE DISPOSAL OF EXCAVATED SOIL, PER TON. <u>SIXTY</u> — DOLLARS <u>zero</u> — CENTS	60. ⁰⁰	144,000. ⁰⁰
ESTIMATED TOTAL FOR CLASSIFIED WORK ²				

¹ The amount for each item shall be computed by multiplying the estimated quantity of that item by the unit price for the item.

² The Estimated Total For Classified Work shall be computed by totaling the amounts inserted in the "Amounts" column.

Paul J. Scariand, Inc.

II. LUMP SUM FOR UNCLASSIFIED WORK	
Writing	Figures
THREE MILLION ONE HUNDRED FORTY SEVEN THOUSAND FOUR HUNDRED FIFTY FIVE ————— Dollars Zero Cents	3,147,455. ⁰⁰

III. RECAPITULATION	
	Figures
ESTIMATED TOTAL FOR CLASSIFIED WORK.....	144,000. ⁰⁰
LUMP SUM FOR UNCLASSIFIED WORK.....	3,147,455. ⁰⁰
ESTIMATED TOTAL CONTRACT PRICE:	³ 3,291,455. ⁰⁰

The following provisions are applicable to the Schedule of Unit Prices for Classified Work. The quantity for payment described in the following provisions shall be the quantity of Classified Work furnished, installed, performed and/or placed in accordance with the Specifications, as shown on the Contract Drawings and where ordered by the Engineer.

No quantity of work will be included under more than one item of Classified Work.

³ The Estimated Total Contract Price shall be computed by adding the Estimated Total for Classified Work to the Lump Sum for Unclassified Work.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACTOR PAUL J. SCARIANO INC

CONTRACT LGA 774.133B
DATE 2/18/16

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
1	Civil				
2	Excavation	1067	CY	250. ^v	266,750. ^v
3	Haul Excavated Soil to Stockpile	660	CY	80. ^v	52,800. ^v
4	Clean Fill	330	CY	100. ^v	33,000. ^v
5	Furnish, Install and Remove Temporary AOA Fence with 24' Access Gate	232	LF	400. ^v	92,800. ^v
6	Remove Existing AOA Fence	60	LF	110. ^v	6,600. ^v
7	Furnish and Install AOA Fence	323	LF	280. ^v	90,440. ^v
8	Asphalt Conc. (Mix 3 PG 64-22) top course	176	TONS	250. ^v	44,000. ^v
9	Tack Coat	257	SY	5. ^v	1285. ^v
10	DGABC	205	CY	140. ^v	28,700. ^v
11	Existing Storm Drain Removal/Abandon	70	LF	100. ^v	7,000. ^v
	(Continue to next page)				

(1) Separate and list all items or operations of work included in your estimate in accordance with Specifications.

When listing subcontracts, the prime contractor will have each subcontractor complete an analysis of bid form.

(2) Unit of measure, i.e., SF, CY, Bbbs, Pcs, Ea., etc.

3. Include all charges, such as moving on site, removal, rental, etc.

4. In case of conflict between information hereon (whether supplied by the Authority or the bidder) and the terms or prices contained or inserted in the Contract Booklet or Contract Drawings, said Booklet and Drawings shall control.

5. The Analysis of Bid is not part of the contract. No information hereon (whether supplied by the Authority or the bidder) and no information deduced from information hereon, including quantities of materials or work, shall be deemed to vary, alter or modify and provision of the Contract, including provisions therein as to compensation and performance. The unit prices contained hereon serve the sole purpose of informing Port Authority as to components of the bidder's price quoted in the Contract. The items of materials or work contained hereon shall not be deemed to be an exhaustive list of the items of materials or work required by the Contract Drawings and Specifications in their present form.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls
CONTRACTOR PAUL J. SCARFANO Inc

CONTRACT LGA 774.133B
DATE 2-18-16

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
12	Connection to existing Structure	2	EA	3,000. ⁰⁰	6,000. ⁰⁰
13	18" RCP	96	LF	480. ⁰⁰	46,080. ⁰⁰
14	24" Storm Drain-DIP	260	LF	700. ⁰⁰	182,000. ⁰⁰
15	36" Storm Drain-DIP	260	LF	950. ⁰⁰	247,000. ⁰⁰
16	Catch Basin	1	EA	7,000. ⁰⁰	7,000. ⁰⁰
17	Aircraft Manhole	1	EA	13,000. ⁰⁰	13,000. ⁰⁰
18	Manhole - Type 2	2	EA	10,000. ⁰⁰	20,000. ⁰⁰
19	24" Gate Valve	2	EA	24,000. ⁰⁰	48,000. ⁰⁰
20	Gate Valve Concrete Chamber	2	EA	12,000. ⁰⁰	24,000. ⁰⁰
21	36"x24" DIP Reducer	2	EA	9,000. ⁰⁰	18,000. ⁰⁰
22	24" Check Valve	1	EA	14,000. ⁰⁰	14,000. ⁰⁰
23	36" Check Valve	1	EA	19,000. ⁰⁰	19,000. ⁰⁰
24	Remove Abandoned Electrical Manhole, Remove Concrete Pad, Restore Riprap, Riprap Outlet Protection	1	LS	10,000. ⁰⁰	10,000. ⁰⁰
25	Landscaping	1	LS	10,000. ⁰⁰	10,000. ⁰⁰
26	Structural -Concrete Headwall	26	CY	3,000. ⁰⁰	78,000. ⁰⁰
27	Geotechnical				
28	AZ18-700 Sheeting at EM01	500	SF	130. ⁰⁰	104,000. ⁰⁰
29	AZ18-700 Sheeting at EM02	5,500	SF	125. ⁰⁰	687,500. ⁰⁰
30	Temporary Platform at EM01	1	LS	70,000. ⁰⁰	70,000. ⁰⁰

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls

CONTRACT

LGA 774.133B

CONTRACTOR PAUL J. SCARANO INC

DATE

2-18-16

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
31	Temporary Platform at EM02	1	LS	200,000. ⁰	200,000. ⁰
32	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM01	1	LS	88,000. ⁰	88,000. ⁰
33	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM02	1	LS	90,000. ⁰	90,000. ⁰
34	Dewatering	20	DAY	14,000. ⁰	280,000. ⁰
35	Environmental				
36	Turbidity Curtain	400	LF	120. ⁰	48,000. ⁰
37	Sediment Bags	100	EA	120. ⁰	12,000. ⁰
38	Silt Fencing	200	LF	10. ⁰	2,000. ⁰
39	Stabilized Vehicle Tracking Pad, Catch Basin Inlet Filters	1	LS	13,500. ⁰	13,500. ⁰
40	Frac Tank Rental, Frac Tank Delivery and Pickup	1	LS	38,000. ⁰	38,000. ⁰
41	Total Lump Sum (Unclassified)		LS		3,147,455. ⁰

LCA 774.133B

Delaney Assoc. LP

I. SCHEDULE OF UNIT PRICES FOR CLASSIFIED WORK				
Item No.	Estimated Quantities	Items of Classified Work With Unit Prices Written	Figures	
			Unit Prices	Amounts ¹
1	2,400 TON	OFF-SITE DISPOSAL OF EXCAVATED SOIL, PER TON. <i>One hundred twelve</i> DOLLARS <i>8⁰⁰/xx</i> CENTS	112.00	268,800-
ESTIMATED TOTAL FOR CLASSIFIED WORK ²				* 268,800-

¹ The amount for each item shall be computed by multiplying the estimated quantity of that item by the unit price for the item.

² The Estimated Total For Classified Work shall be computed by totaling the amounts inserted in the "Amounts" column.

Delaney Assoc - LP

II. LUMP SUM FOR UNCLASSIFIED WORK	
Writing	Figures
<i>Three million seventy thousand</i> <i>one hundred fifty seven</i> Dollars <i>00/100</i> Cents	3,070,157-

III. RECAPITULATION	
	Figures
ESTIMATED TOTAL FOR CLASSIFIED WORK.....	² 268,800-
LUMP SUM FOR UNCLASSIFIED WORK.....	3,070,157-
ESTIMATED TOTAL CONTRACT PRICE:	³ 3,338,957-

The following provisions are applicable to the Schedule of Unit Prices for Classified Work. The quantity for payment described in the following provisions shall be the quantity of Classified Work furnished, installed, performed and/or placed in accordance with the Specifications, as shown on the Contract Drawings and where ordered by the Engineer.

No quantity of work will be included under more than one item of Classified Work.

³ The Estimated Total Contract Price shall be computed by adding the Estimated Total for Classified Work to the Lump Sum for Unclassified Work.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage

CONTRACTOR Outfalls
JOLANEY ASSOCIATES, LP

CONTRACT LGA 774.133B

DATE _____

Unit No.	Descriptions ⁽¹⁾	Quantity	Unit ⁽²⁾	Unit Price	Amount
1	Civil				
2	Excavation	535	CY	200-	107,000-
3	Haul Excavated Soil to Stockpile	535	CY	65-	34,775-
4	Clean Fill	535	CY	150-	80,250-
5	Furnish, Install and Remove Temporary AOA Fence with 24' Access Gate	326	LF	212-	69,112-
6	Remove Existing AOA Fence	70	LF	300-	21,000-
7	Furnish and Install AOA Fence	70	LF	300-	21,000-
8	Asphalt Conc. (Mix 3 PG 64-22) top course	125-	TONS	215-	26,875-
9	Tack Coat	370	SY	38-	14,060-
10	DGABC	70	CY	222-	15,540-
11	Existing Storm Drain Removal/Abandon	90	LF	147-	13,230-
(Continue to next page)					

(1) Separate and list all items or operations of work included in your estimate in accordance with Specifications.

When listing subcontracts, the prime contractor will have each subcontractor complete an analysis of bid form.

(2) Unit of measure, i.e., SF, CY, Bbls, Pcs, Ea., etc.

3. Include all charges, such as moving on site, removal, rental, etc.

4. In case of conflict between information hereon (whether supplied by the Authority or the bidder) and the terms or prices contained or inserted in the Contract Booklet or Contract Drawings, said Booklet and Drawings shall control.

5. The Analysis of Bid is not part of the contract. No information hereon (whether supplied by the Authority or the bidder) and no information deduced from information hereon, including quantities of materials or work, shall be deemed to vary, alter or modify and provision of the Contract, including provisions therein as to compensation and performance. The unit prices contained hereon serve the sole purpose of informing Port Authority as to components of the bidder's price quoted in the Contract. The items of materials or work contained hereon shall not be deemed to be an exhaustive list of the items of materials or work required by the Contract Drawings and Specifications in their present form.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

PROJECT LaGuardia Airport - Emergency Storm Drainage
Outfalls
CONTRACTOR DeLaney Associates, LP

CONTRACT LGA 774.133B
DATE _____

Unit No.	Descriptions	Quantity	Unit ⁽²⁾	Unit Price	Amount
12	Connection to existing Structure	3	EA	1200-	3,600-
13	18" RCP	80	LF	170-	13,600-
14	24" Storm Drain-DIP	385	LF	420-	161,700-
15	36" Storm Drain-DIP	50	LF	465-	23,250-
16	Catch Basin	1	EA	10,000-	10,000-
17	Aircraft Manhole	2	EA	10,800-	21,600-
18	Manhole - Type 2	2	EA	9,500-	19,000-
19	24" Gate Valve	2	EA	51,000-	102,000-
20	Gate Valve Concrete Chamber	2	EA	14,600-	29,200-
21	36"x24" DIP Reducer	1	EA	11,000-	11,000-
22	24" Check Valve	1	EA	12,700-	12,700-
23	36" Check Valve	1	EA	16,525-	16,525-
24	Remove Abandoned Electrical Manhole, Remove Concrete Pad, Restore Riprap, Riprap Outlet Protection	1	LS	69,000-	69,000-
25	Landscaping	1	LS	19,000-	19,000-
26	Structural -Concrete Headwall	20	CY	3,350-	67,000-
27	Geotechnical				
28	AZ18-700 Sheeting at EM01	1680	SF	26-	44,080-
29	AZ18-700 Sheeting at EM02	6425	SF	60-	385,500-
30	Temporary Platform at EM01	1	LS	400,000-	400,000-

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ANALYSIS OF BID

THIS IS NOT PART OF THE CONTRACT

LaGuardia Airport - Emergency Storm Drainage

PROJECT

Outfalls

CONTRACT

LGA 774.133B

CONTRACTOR

Deaney Associates LP

DATE

Unit No.	Descriptions	Quantity	Unit ⁽²⁾	Unit Price	Amount
31	Temporary Platform at EM02	1	LS	800,000-	800,000-
32	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM01	1	LS	13,000-	13,000-
33	Support of Excavation System (SOE) and/or Microtunnelling for Outfall EM02	1	LS	13,000-	13,000-
34	Dewatering	24	DAY	13,000-	312,000-
35	Environmental	 	 	 	
36	Turbidity Curtain	220	LF	120	26,400-
37	Sediment Bags	200	EA	50	10,000-
38	Silt Fencing	200	LF	45-	9,000-
39	Stabilized Vehicle Tracking Pad, Catch Basin Inlet Filters	1	LS	15,000-	15,000-
40	Frac Tank Rental, Frac Tank Delivery and Pickup	1	LS	10,000-	10,000-
41	Total Lump Sum (Unclassified)		LS		3,070,157-

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CHAPTER II

COMPENSATION AND PAYMENTS

25. UNIT PRICES AND LUMP SUM

The following Schedule of Unit Prices for Classified Work does not constitute an outline of the Work required by the Contract Drawings and Specifications in their present form, but is merely a list of all the items of Classified Work to be used in computing the Contractor's compensation insofar as it is based upon Classified Work, together with the rates at which such compensation will be computed. In the case of each item of Classified Work, the Work performed will be measured and the Contractor's compensation will be computed as hereinafter provided in this numbered clause. In case of discrepancy between the prices quoted in writing and those quoted in figures, the writing shall control.

The Estimated Total Contract Price is solely for the purpose of fixing the amount of security to be maintained by the Contractor for the faithful performance of the Work. Prior to the signature of the Contract by the parties, it was for the purpose of facilitating the comparison of Proposals and of computing damages in the event of a default by the successful bidder in the agreement created by the acceptance of his Proposal. The estimated quantities are given solely as a basis for the computation of the Estimated Total Contract Price. The Authority makes no representation as to what the actual quantities will be and shall not be held responsible even though the estimated quantities are not even approximately correct. Insofar as the Contractor's compensation is based upon Classified Work, it will be computed from the actual quantities of Work performed, whether greater or less than the estimated quantities.

I. SCHEDULE OF UNIT PRICES FOR CLASSIFIED WORK				
Item No.	Estimated Quantities	Items of Classified Work With Unit Prices Written	Figures	
			Unit Prices	Amounts ¹
1	2,400 TON	OFF-SITE DISPOSAL OF EXCAVATED SOIL, PER TON. <u>— Sixty —</u> DOLLARS <u>— No —</u> CENTS	60.-	\$ 144,000.-
ESTIMATED TOTAL FOR CLASSIFIED WORK ²			\$ 144,000.-	

¹ The amount for each item shall be computed by multiplying the estimated quantity of that item by the unit price for the item.

² The Estimated Total For Classified Work shall be computed by totaling the amounts inserted in the "Amounts" column.

II. LUMP SUM FOR UNCLASSIFIED WORK	
Writing	Figures
Two million Seven hundred five thousand five hundred and forty nineDollars ————— No ————— Cents	\$ 2,705,549.-

III. RECAPITULATION	
	Figures
ESTIMATED TOTAL FOR CLASSIFIED WORK.....	\$ 144,000.-
LUMP SUM FOR UNCLASSIFIED WORK.....	\$ 2,705,549.-
ESTIMATED TOTAL CONTRACT PRICE:	³ 2,849,549.-

The following provisions are applicable to the Schedule of Unit Prices for Classified Work. The quantity for payment described in the following provisions shall be the quantity of Classified Work furnished, installed, performed and/or placed in accordance with the Specifications, as shown on the Contract Drawings and where ordered by the Engineer.

No quantity of work will be included under more than one item of Classified Work.

³ The Estimated Total Contract Price shall be computed by adding the Estimated Total for Classified to the Lump Sum for Unclassified Work.

In the case of Item No. 1 (Off-Site Disposal of Excavated Soil), the quantity for payment shall be the actual number of tons (2,000 lbs) of excavated soil disposed of off-site at an approved disposal facility. The quantity for payment shall be based on the certified automated printouts at the approved disposal facility, or at the option of the Engineer, certified scale weight of excavated soil in trucks, weighed on approved scales. In case of conflict between the printout weight and the scale weight, the scale weight shall control.

25A. ADJUSTMENTS OF LUMP SUM

If any Unclassified Work required by the Contract Drawings and Specifications in their present form shall be countermanded or reduced, the Engineer shall have full authority on behalf of both parties to make such adjustment by way of reduction in the Lump Sum as he may in his sole discretion deem equitable and reasonable, and in making such adjustment, no allowance to the Contractor shall be made for anticipated profits.

The Chief Engineer shall have authority to agree in writing with the Contractor for adjustments by way of reduction in the Lump Sum in lieu of those for which provision is heretofore made in this numbered clause.

26. COMPENSATION FOR EXTRA WORK

The Chief Engineer shall have authority to agree in writing with the Contractor on behalf of the Authority upon lump sum or other compensation for Extra Work in lieu of the compensation for which provision is hereinafter made in this numbered clause.

If such agreement on compensation is not made, and Extra Work be performed, the Contractor's compensation shall be increased by the following amounts and such amounts only:

- 1.) For Extra Work consisting of refuse container services, an amount equal to the actual cost in money of the labor and materials required for the provision of such services, plus a fixed amount not to exceed seven per cent (7%) of such cost.
- 2.) For Extra Work consisting of performance of construction work at the construction site, an amount determined as follows:
 - a. In the case of Extra Work performed by the Contractor personally, an amount equal to the direct cost in money of the labor and materials required for such Extra Work, plus a fixed dollar amount, as determined by the Engineer, not to exceed the amount that is equal to twenty per cent (20%) of the Engineer's final estimate of the direct cost in money for labor and materials as required for such Extra Work, plus such rental for equipment (other than small tools) required for such Extra Work as the Engineer deems reasonable.
 - b. In the case of Extra Work performed by a subcontractor, an amount equal to the direct cost in money of the labor and materials required for such Extra Work, plus a fixed dollar amount, as determined by the Engineer, not to exceed the amount that is equal to twenty per cent (20%) of the Engineer's final estimate of the direct cost in money for labor and materials for such work, plus such rental for equipment (other than small tools) required for such Extra Work as the Engineer deems reasonable, plus a fixed dollar amount, as determined by the Engineer, not to exceed the amount that is equal to seven per cent (7%) of the sum of the foregoing costs, percentage of cost, and rental. In no case shall the amount of the aggregate markup for the Contractor and all of his subcontractors at every tier exceed the dollar amount that is equal to 20% of the direct cost of the Extra Work.

As used in this numbered clause (and in this clause only):

"Refuse Container Services" means the delivery, removal and emptying of refuse containers as required during the performance of Extra Work subject to approval by the Engineer.

"Labor" means foremen, surveyors, laborers, mechanics and other employees below the rank of superintendent, exclusive of timekeepers, directly employed at the construction site, whether employed by the Contractor or by the subcontractors, subject to the Engineer's authority to determine what employees of any category are "required for Extra Work" and as to the portion of their time allotted to Extra Work; and "cost of labor" means the wages actually paid to and received by such employees; however, all wages actually paid that are in excess of the prevailing wages in the performance of Extra Work shall be subject, on each occasion, to the initial and continuing approval of the Engineer in advance of the performance of such Extra Work; plus a proper proportion of (a) vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligation upon the basis of such wages, and (b) taxes actually paid by the employer pursuant to law upon the basis of such wages. At the Contractor's option, the amount of ten per cent (10%) will be applied to all wages actually paid to cover all labor costs including (a) and (b) above, but excluding paid holidays. The Contractor shall notify the Engineer whether or not the ten per cent (10%) option will be chosen prior to the initial performance of any Extra Work. Such selection shall also apply to all subcontractors and shall remain in effect for the duration of the Contract. "Employees" as used above means only the employees of one employer.

For whichever option is selected, in accordance with the clause of the Form of Contract entitled "Prevailing Rate of Wage", the Contractor and all subcontractors shall maintain complete and detailed payroll records, and such records shall be made available for inspection by the Authority.

"Materials" means temporary and consumable materials as well as permanent materials; and "cost of materials" means the price (including taxes actually paid by the Contractor pursuant to law upon the basis of such materials) for which such materials are sold for cash by the manufacturers or producers thereof, or by regular dealers therein, whether or not such materials are purchased directly from the manufacturer, producer or dealer (or if the Contractor is the manufacturer or producer thereof, the reasonable cost to the Contractor of the manufacture and production), plus the reasonable cost of delivering such materials to the construction site in the event that the price paid to the manufacturer, producer or dealer does not include delivery and in case of temporary materials, less their salvage value, if any.

"Work day" in reference to an item of equipment means a day other than a Saturday, Sunday or legal holiday except that if the particular item of equipment is actually utilized at the construction site by the Contractor or subcontractors under this or any other Contract with the Authority on a Saturday, Sunday or legal holiday said day shall be deemed a work day.

NYC Economic Development Corp.	Rogers Mavel Architects, PLLC.	Holly Ulises Sr. Project Manager [REDACTED]	New York Stock Exchange – Security and Streetscape	July 01, 2007	\$6,524,623.59	100%	December 2009
The Port Authority of NY & NJ	The Port Authority of NY & NJ	Armando Martinez Resident Engineer 718-244-3885	JFK-184.016 Rehab of CTA Roadways	March 09, 2010	\$3,127,988.00	66%	November 2011
NYC Economic Development Corp.			Linden Place Phase 2 Const.	December 12, 2012	\$7,645,333.50	85%	December 12, 2014
The Port Authority of NY & NJ	The Port Authority of NY & NJ	Emanuel Ciminiello Resident Engineer 718-244-3533	JFK-184.016M CTA Landscape Maintenance	May 01, 2011	\$150,000.00	0%	April 30, 2012
NYC Dept. of Parks and Recreation	Abel Bainnson Butz, LLP Landscape Architects	Rodgers, Patrick Resident Engineer [REDACTED]	Chelsea Park M011-109M Reconstruction of Ball Field & Synthetic Turf	April 12, 2010	\$1,940,430.00	42%	June 9, 2011
State of New York Dept. of Transportation	State of New York Dept. of Transportation	Bruce Ogurek Director of Construction [REDACTED]	Milling & Resurfacing Various Locations D261807	May 11, 2012	\$21,147,734.00	75%	March 18, 2014
State of New York Dept. of Transportation	State of New York Dept. of Transportation	Bruce Ogurek Director of Construction [REDACTED]	Milling & Resurfacing Various Locations D262162	May 24, 2015	\$12,233,135.20	75%	June 2015
NYC Dept. of Parks and Recreation	Stantec	Andrew Letterese Director of Bronx Construction [REDACTED]	X101-107M Construction of The Hutchinson River Greenway	September, 2011	\$2,139,621.58	75%	July, 2013
New York City Department of Transportation	Hardesty and Hanover	Paul Mortenson, Resident Engineer [REDACTED]	Reconstruction of Leif Ericson Drive Bridge	October, 2013	\$6,670,000.00	75%	October, 2015

RESTANI CONSTRUCTION CORP
 WORK ON HAND
 AS OF JANUARY 31, 2016

CONTRACT DESCRIPTION	CONTRACT PRICE	PERCENT COMPLETE
NYSDOT - PAVEMENT MAINTENANCE	16,904,088	88%
NYSDOT - CROSS BRONX EXPRESSWAY	15,492,198	92%
NYSDOT - LEIF ERICSON DRIVE BRIDGE	7,031,286	88%
TBTA - VERRAZANO-NARROWS BRIDGE	56,280,490	88%
NYCDDC - GRINDING ASPHALT HW2CR15A (BKLYN & SI)	24,261,865	59%
NYCDDC - MILLING ASPHALT HW2CR13A (BKLYN & SI)	15,549,750	86%
TBTA WIDE ROAD REPAIRS	34,383,000	18%
NYSDOT - PAVEMENT MAINTENANCE - BRONX	20,070,070	75%
NYC PARKS - COLUMBUS PARK	8,579,480	45%
TBTA HENRY HUDSON BRIDGE	8,657,996	55%
NYCDDC - NEW RIKERS ISLAND FACILITY	13,051,565	3%
NYCDDC - TILLARY STREET	16,390,668	2%
NYCDDC - RECONSTRUCTION ON RIVERSIDE DRIVE	9,762,311	1%
STATEN ISLAND MALL - SITE, UTILITIES & PAVING WORK	15,742,271	10%
PORT AUTHORITY OF NY & NJ - LGA 774.234	2,999,293	3%
	265,156,331	