Invoice

Moffatt & Nichol

3780 Kilroy Airport Way, Suite 750

Long Beach, CA 90806
Phone: 562-590-6500

February 12, 2015
Project No: 6664-02

Invoice No: 000000708839

Robert Law

K&L Representing the Cooperating Parties Group

186 Center Street, Suite 290

Clinton, NJ 08809

Project 6664-02 Lower Passaic River/Newark Bay Modeling

Professional Services from December 28, 2014 to January 31, 2015

LPR/NB Modeling Program TOM8

Task 01 Coordination and Meetings

Professional Personnel

	Hours	Rate	Amount	
Senior Engineer/Scientist				
Canizares, Rafael	5.00	195.00	975.00	
Engineer/Scientist II				
Mathew, Rooni	3.00	172.00	516.00	
Totals	8.00		1,491.00	
Total Labor				**1,491.00**
		Total this Task		**$1,491.00**

Task 02 Data Analysis and Monitoring

Professional Personnel

	Hours	Rate	Amount	
Senior Engineer/Scientist				
Canizares, Rafael	8.00	195.00	1,560.00	
Staff Engineer/Scientist				
Manian, Dinesh	32.00	119.00	3,808.00	
Totals	40.00		5,368.00	
Total Labor				**5,368.00**
		Total this Task		**$5,368.00**

Task 04 LPR/NB Hydrodynamic Model

Professional Personnel

	Hours	Rate	Amount	
Senior Engineer/Scientist				
Canizares, Rafael	14.00	195.00	2,730.00	
Engineer/Scientist II				
Mathew, Rooni	6.50	172.00	1,118.00	
Staff Engineer/Scientist				
Manian, Dinesh	44.00	119.00	5,236.00	
Totals	64.50		9,084.00	
Total Labor				**9,084.00**
		Total this Task		**$9,084.00**

Task 05 LPR/NB Sediment Transport Model

Professional Personnel

	Hours	Rate	Amount	
Engineer/Scientist II				
Mathew, Rooni	55.50	172.00	9,546.00	
Totals	55.50		9,546.00	
Total Labor				**9,546.00**
			Total this Task	**$9,546.00**

Task 07 LPR/NB Contaminant Fate & Transport Mdel

Professional Personnel

	Hours	Rate	Amount	
Engineer/Scientist II				
Mathew, Rooni	40.00	172.00	6,880.00	
Totals	40.00		6,880.00	
Total Labor				**6,880.00**
			Total this Task	**$6,880.00**
			Total this Phase	**$32,369.00**

Reimbursable Expenses

Postage & Delivery				
1/9/2015	Federal Express Corp	INV 288244976 TID	13.64	
1/9/2015	Federal Express Corp	INV 288244976 TID	13.64	
1/12/2015	Federal Express Corp	INV 289027319 TID	13.64	
	Total Reimbursables		**40.92**	**40.92**
			Total Reimbursable Expenses	**$40.92**
			Total this Invoice	**$32,409.92**

ACH Payment Remittance Information
Bank Account Name: Moffatt & Nichol
Bank Number: 4159349729
Routing: 121000248

Billing Backup

Thursday, February 12, 2015

12:32:09 PM

Moffatt & Nichol

Invoice 000000708839 Dated 2/12/2015

Project 6664-02 Lower Passaic River/Newark Bay Modeling

LPR/NB Modeling Program TOM8

Task 01 Coordination and Meetings

Professional Personnel

			Hours	Rate	Amount	
Senior Engineer/Scientist						
1548	Canizares, Rafael	1/7/2015	2.00	195.00	390.00	
1548	Canizares, Rafael	1/19/2015	2.00	195.00	390.00	
1548	Canizares, Rafael	1/22/2015	1.00	195.00	195.00	
Engineer/Scientist II						
2219	Mathew, Rooni	1/6/2015	1.00	172.00	172.00	
2219	Mathew, Rooni	1/7/2015	2.00	172.00	344.00	
Totals			8.00		1,491.00	
Total Labor						**1,491.00**

Total this Task **$1,491.00**

Task 02 Data Analysis and Monitoring

Professional Personnel

			Hours	Rate	Amount	
Senior Engineer/Scientist						
1548	Canizares, Rafael	1/15/2015	4.00	195.00	780.00	
1548	Canizares, Rafael	1/16/2015	4.00	195.00	780.00	
Staff Engineer/Scientist						
2301	Manian, Dinesh	12/31/2014	8.00	119.00	952.00	
2301	Manian, Dinesh	1/2/2015	8.00	119.00	952.00	
2301	Manian, Dinesh	1/8/2015	8.00	119.00	952.00	
2301	Manian, Dinesh	1/9/2015	8.00	119.00	952.00	
Totals			40.00		5,368.00	
Total Labor						**5,368.00**

Total this Task **$5,368.00**

Task 04 LPR/NB Hydrodynamic Model

Professional Personnel

			Hours	Rate	Amount
Senior Engineer/Scientist					
1548	Canizares, Rafael	1/20/2015	3.00	195.00	585.00
1548	Canizares, Rafael	1/21/2015	1.00	195.00	195.00
1548	Canizares, Rafael	1/22/2015	2.00	195.00	390.00
1548	Canizares, Rafael	1/23/2015	2.00	195.00	390.00
1548	Canizares, Rafael	1/27/2015	2.00	195.00	390.00

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1548	Canizares, Rafael	1/28/2015	2.00	195.00	390.00	
1548	Canizares, Rafael	1/29/2015	1.00	195.00	195.00	
1548	Canizares, Rafael	1/30/2015	1.00	195.00	195.00	
Engineer/Scientist II						
2219	Mathew, Rooni	1/19/2015	3.00	172.00	516.00	
2219	Mathew, Rooni	1/20/2015	2.50	172.00	430.00	
2219	Mathew, Rooni	1/21/2015	.50	172.00	86.00	
2219	Mathew, Rooni	1/22/2015	.50	172.00	86.00	
Staff Engineer/Scientist						
2301	Manian, Dinesh	12/29/2014	8.00	119.00	952.00	
2301	Manian, Dinesh	12/30/2014	8.00	119.00	952.00	
2301	Manian, Dinesh	1/5/2015	8.00	119.00	952.00	
2301	Manian, Dinesh	1/6/2015	8.00	119.00	952.00	
2301	Manian, Dinesh	1/7/2015	8.00	119.00	952.00	
2301	Manian, Dinesh	1/19/2015	4.00	119.00	476.00	
Totals			64.50		9,084.00	
Total Labor						**9,084.00**
				Total this Task		**$9,084.00**

Task 05 LPR/NB Sediment Transport Model

Professional Personnel

			Hours	**Rate**	**Amount**	
Engineer/Scientist II						
2219	Mathew, Rooni	12/29/2014	5.00	172.00	860.00	
2219	Mathew, Rooni	12/31/2014	5.00	172.00	860.00	
2219	Mathew, Rooni	1/5/2015	5.00	172.00	860.00	
2219	Mathew, Rooni	1/6/2015	1.00	172.00	172.00	
2219	Mathew, Rooni	1/8/2015	3.00	172.00	516.00	
2219	Mathew, Rooni	1/9/2015	3.00	172.00	516.00	
2219	Mathew, Rooni	1/12/2015	1.00	172.00	172.00	
2219	Mathew, Rooni	1/15/2015	4.00	172.00	688.00	
2219	Mathew, Rooni	1/16/2015	4.00	172.00	688.00	
2219	Mathew, Rooni	1/19/2015	3.00	172.00	516.00	
2219	Mathew, Rooni	1/20/2015	1.00	172.00	172.00	
2219	Mathew, Rooni	1/21/2015	5.50	172.00	946.00	
2219	Mathew, Rooni	1/22/2015	7.50	172.00	1,290.00	
2219	Mathew, Rooni	1/26/2015	4.00	172.00	688.00	
2219	Mathew, Rooni	1/27/2015	3.50	172.00	602.00	
Totals			55.50		9,546.00	
Total Labor						**9,546.00**
				Total this Task		**$9,546.00**

Task 07 LPR/NB Contaminant Fate & Transport Mdel

Professional Personnel

			Hours	**Rate**	**Amount**
Engineer/Scientist II					
2219	Mathew, Rooni	12/29/2014	3.00	172.00	516.00
2219	Mathew, Rooni	12/31/2014	1.00	172.00	172.00
2219	Mathew, Rooni	1/5/2015	3.00	172.00	516.00
2219	Mathew, Rooni	1/6/2015	3.00	172.00	516.00
2219	Mathew, Rooni	1/8/2015	2.00	172.00	344.00
2219	Mathew, Rooni	1/9/2015	2.00	172.00	344.00
2219	Mathew, Rooni	1/19/2015	2.00	172.00	344.00
2219	Mathew, Rooni	1/20/2015	3.50	172.00	602.00

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Project	6664-02	Lower Passaic River/Newark Bay Modeling			Invoice	0000007088
2219	Mathew, Rooni	1/26/2015	4.00	172.00	688.00	
2219	Mathew, Rooni	1/27/2015	4.50	172.00	774.00	
2219	Mathew, Rooni	1/28/2015	5.50	172.00	946.00	
2219	Mathew, Rooni	1/29/2015	2.00	172.00	344.00	
2219	Mathew, Rooni	1/30/2015	4.50	172.00	774.00	
Totals			40.00		6,880.00	
Total Labor						**6,880.00**
					Total this Task	**$6,880.00**
					Total this Phase	**$32,369.00**

Reimbursable Expenses

Postage & Delivery

AP	000000212312	1/9/2015	Federal Express Corp / INV 288244976 TID	13.64	
AP	000000212316	1/9/2015	Federal Express Corp / INV 288244976 TID	13.64	
AP	000000212556	1/12/2015	Federal Express Corp / INV 289027319 TID	13.64	
		Total Reimbursables		**40.92**	**40.92**
			Total Reimbursable Expenses		**$40.92**
			Total this Project		**$32,409.92**
			Total this Report		**$32,409.92**

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MOFFATT & NICHOL

104 West 40th Street
14th floor
New York, NY 10018

(212) 768-7454
Fax (212) 768-7936

Detailed Description of work done by M&N personnel associated to the LPR/NB Modeling Program Task Order Memoranda 8 - Scope of Work for the period 12/28/2014 to 01/31/2015 M&N Project No. 6664

Hydrodynamics Principal Investigator - Rafael Cañizares.

Task 1 – Project Management	• Internal coordination with Deltares and M&N • Calls and Coordination with Project Coordinator • Coordination with Project Coordinator and AQEA including calls for modeling update • Internal discussion on simulations to be carried.
Task 2 – Data Analysis	• Report development and review Bathymetric Analysis write up
Task 4 – LPR/NB Hydrodynamic Modeling	• Hydrodynamic model report – review developments of HD model report by Dinesh Manian

Rooni Mathew.

Task 1 – Project Management	• Summarize EPA ST model comments and response to comments RTC status, including questions to March 2014 presentation • Call-in to TC meeting
Task 4 – LPR/NB Hydrodynamic Modeling	• Restart FS runs after building power-down, hard-disk space management • Launch hot-started Alt4 run • Debug/restart crashed FS runs
Task 5 – LPR/NB Sediment Transport Modeling	• Review FS run progress, develop ST model report outline • Process/review FS ST test runs, devel. response to EPA com ments, devel ST report outline • Process/review FS ST runs, develop analysis for responses to EPA ST memo comments, • Review longterm infill run performance, revise Dundee Dam boundary conditions for historical loads • Debug/restart crashed variable D50 sens • Develop response to comments for EPA comments on ST model • Review/reproduce DD OBS binning procedure previously

	done, develop ST model report • Develop ST final report, review FS runs performance with annual bathy change maps • Debug/restart crashed FS runs • Review/QA-QC FS and FS sensitivity runs results • Debug/restart Alt 4 run for native cap in target remedy cells, Alt 3 sensitivity with bed resetting for incorrect bathy
Task 7 – LPR/NB Contaminate Fate and Transport Modeling	• Review FS CFT runs performance, launch Alt2 AOC/CFT • Review FS run progress • Process/review FS CFT test runs, correct Alt2 remediation inputs • Progress call with AQEA, process/review FS CFT test runs • Process/review FS CFT test runs, debug CFT run crashes/ins tabilities • Conference call with AQEA to discuss CFT results, review ST/CFT performance, respond to AQEA requests • Respond to AQEA questions, launch FS AOC/CFT runs • Revise runscripts for latest AQEA input/run setups, launch AOC/CFT FS runs, debug AOC and CFT crashes • Post-process FS runs outputs for AQEA • Respond to AQEA questions, debug Alt2 run • Debug/restart Alt 2/3 no sand cap sensitivity AOC stability issues, run w smaller timesteps, respond to AQEA questions, develop. FS text • Respond to AQEA questions, review Alt 3 sensitivity AOC stability issue • Respond to AQEA questions, develop FS write-up, post-process output for AQEA, review Alt 3 sensitivity AOC crash

Dinesh Manian

Task 2 – Data Analysis	• HD modeling report addendum: model validation with PWCM and CWCM data • HD modeling report addendum: bathymetry update • Processing long-term elevation change time-series in latest calibration and projection runs • Long-term elevation change time-series; Comparison of change in bed composition in model with data
Task 4 – LPR/NB Hydrodynamic Modeling	• HD modeling report addendum: high-resolution model • HD modeling report addendum: high-resolution model and RM10.9 model desc • HD modeling report: ETM analysis using new model result • HD modeling report : Model-data comparisons with PWCM data

	• HD modeling report : Model-data comparisons with PWCM data • HD model validation

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Tracking ID Details

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Tracking ID Summary

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Billing Information

Tracking ID no.	772356975815
Invoice no.	2-890-27319
Account no.	1903-9632-0
Ship date	12/22/2014
Invoice date	12/26/2014
Due date	01/10/2015
Tracking ID Balance due	**$0.00**
Status	Closed

View Invoice History
View signature proof of delivery

Messages

FedEx has audited this shipment for correct packag Read More..
Distance Based Pricing, Zone 2
The Earned Discount for this ship date has been ca Read More..
Fuel Surcharge - FedEx has applied a fuel surcharg Read More..
Minimum Billable Weight was applied.

Transaction Details

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Sender Information

Deborah Bashkoff
Moffatt & Nichol
104 West 40th Street
NEW YORK NY 10018
US

Recipient Information

Wen Ku
Anchor QEA, LLC
123 TICE BLVD
WOODCLIFF LAKE NJ 07677
US

Shipment Details

Ship date	12/22/2014
Payment type	Shipper
Service type	FedEx Priority Overnight
Zone	02
Package type	FedEx Box
Actual weight	1.00 lbs
Rated weight	2.00 lbs
Pieces	1
Meter No.	5026004
Declared value	$0.00

Charges

Transportation Charge	24.75
Fuel Surcharge	0.77
Weekday Delivery	0.00
Discount	-11.14
Earned Discount	-0.74
Total charges	**$13.64**

Original Reference

Customer reference no.	6664-02 K, xy
Department no.	
Reference #2	
Reference #3	

Updated Reference Edit

Customer reference no.
Department no.
Reference #2
Reference #3

Proof of Delivery

Delivery date	12/23/2014 11:31
Service area code	A2
Signed by	N.GLASER

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Cost Allocation Reference Edit

Cost allocation
Shipment Notes

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Tracking ID Summary

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Billing Information

Tracking ID no.	772172851805
Invoice no.	2-882-44976
Account no.	1903-9632-0
Ship date	12/10/2014
Invoice date	12/19/2014
Due date	01/03/2015
Tracking ID Balance due	**$0.00**
Status	Closed

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Messages

FedEx has audited this shipment for correct packag Read More..
Distance Based Pricing, Zone 2
The Earned Discount for this ship date has been ca Read More..
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Minimum Billable Weight was applied.

Transaction Details

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104 West 40th Street
NEW YORK NY 10018
US

Recipient Information

Wen Ku
Anchor QEA, LLC
123 TICE BLVD
WOODCLIFF LAKE NJ 07677
US

Shipment Details

Ship date	12/10/2014
Payment type	Shipper
Service type	FedEx Priority Overnight
Zone	02
Package type	FedEx Box
Actual weight	1.00 lbs
Rated weight	2.00 lbs
Pieces	1
Meter no.	5026004
Declared value	$0.00

Charges

Transportation Charge	24.75
Fuel Surcharge	0.77
Weekday Delivery	0.00
Discount	-11.14
Earned Discount	-0.74
Total charges	**$13.64**

Original Reference

Customer reference no.	6664-02 K, xy
Department no.	
Reference #2	
Reference #3	

Updated Reference Edit

Customer reference no.
Department no.
Reference #2
Reference #3

Proof of Delivery

Delivery date	12/11/2014 10:25
Service area code	A2
Signed by	N.GLASER

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Cost Allocation Reference Edit

Cost allocation
Shipment Notes

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Tracking ID Details

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Tracking ID Summary

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Billing Information

Tracking ID no.	772240616210
Invoice no.	2-882-44976
Account no.	1903-9632-0
Ship date	12/15/2014
Invoice date	12/19/2014
Due date	01/03/2015
Tracking ID Balance due	**$0.00**
Status	Closed

View Invoice History
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Messages

Distance Based Pricing, Zone 2
The Earned Discount for this ship date has been ca Read More..
Fuel Surcharge - FedEx has applied a fuel surcharg Read More..

Transaction Details

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Sender Information

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104 West 40th Street
NEW YORK NY 10018
US

Recipient Information

Wen Ku
Anchor QEA, LLC
123 TICE BLVD
WOODCLIFF LAKE NJ 07677
US

Shipment Details

Ship date	12/15/2014
Payment type	Shipper
Service type	FedEx Priority Overnight
Zone	02
Package type	FedEx Box
Weight	2.00 lbs
Pieces	1
Meter no.	5026004
Declared value	$0.00

Charges

Transportation Charge	24.75
Fuel Surcharge	0.77
Weekday Delivery	0.00
Discount	-11.14
Earned Discount	-0.74
Total charges	**$13.64**

Original Reference

Customer reference no.	6664-02 K, xy
Department no.	
Reference #2	
Reference #3	

Updated Reference Edit

Customer reference no.
Department no.
Reference #2
Reference #3

Proof of Delivery

Delivery date	12/16/2014 10:24
Service area code	A2
Signed by	N.GLASER

View Signature Proof of Delivery

Cost Allocation Reference Edit

Cost allocation
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