

RADON INVESTIGATION REPORT

**JOHN F. KENNEDY MIDDLE SCHOOL
500 BROADWAY
BETHPAGE, NEW YORK 11714**

**PREPARED FOR:
BETHPAGE UNION FREE SCHOOL DISTRICT
10 CHERRY AVENUE
BETHPAGE, NEW YORK 11714**

**JCB PROJECT #: 20-46059
APRIL 2020**

**J.C. BRODERICK & ASSOCIATES, INC.
Environmental Consulting & Testing**

**1775 Expressway Drive North
Hauppauge, New York 11788
631-584-5492 Fax: 631-584-3395**



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Section No. 1.0: Introduction

J.C. Broderick and Associates (JCB) was retained by the Bethpage Union Free School District (Bethpage) to perform an indoor air survey for radon gas as a result of identifying radium in the local groundwater by the Bethpage Water District and by JCB during our annual groundwater investigation at the Bethpage High School. The sampling protocol was performed essentially in accordance with the requirements of the United States Environmental Protection Agency (EPA) *Radon Measurement in Schools Revised Edition* (EPA 402-R-92-014), dated July 1993.

Section No. 2.0: Site Description and Location

The Subject Site is located at 500 Broadway Bethpage, New York 11714. The Subject Site is located on the east side of Broadway between Michael Court to the north and Gateway Street to the south. According to the United States Geological Survey (USGS) *Huntington, New York, 1992 7.5 Minute Series Topographical Map*, the Subject Site is situated at an approximate elevation of 112 feet (ft) above mean sea level. Groundwater is estimated at approximately 50 feet below surface grade (bsg). The location of the Subject Site is shown on the Site Location Map, Appendix-A Figure 1.

Section No. 3.0: Radon Sampling and Analysis

The detection of Radium 226 and 228 in the local groundwater prompted the sampling and analysis of Radon within the middle school building. On April 13, 2020, JCB set up short term Radon in Air test kits in nine (9) rooms and spaces within the basement of the middle school building that were in contact with the ground. The sampling devices were collected on April 17, 2020 after at least three days of exposure.

The following table summarizes the Radon samples submitted for laboratory analysis:

Table No. 1: Summary of Radon Samples Submitted for Laboratory Analysis					
Sample Device Number	Location	Sample Start Date	Sample End Date	Description of Sample	Analysis Method
418073	Basement Storage Rm 0004	04/13/20	04/17/20	Basement Storage Rm 0004	Radon in Air
418189	Basement Storage Rm 0005	04/13/20	04/17/20	Basement Storage Rm 0005	Radon in Air
419486	Basement Storage Rm 0005	04/13/20	04/17/20	Basement Storage Rm 0005 - Dup	Radon in Air
419508	Basement Storage Rm 0006	04/13/20	04/17/20	Basement Storage Rm 0006	Radon in Air
419491	Basement Storage Rm 0008	04/13/20	04/17/20	Basement Storage Rm 0008	Radon in Air
417949	Basement Storage Rm 0009	04/13/20	04/17/20	Basement Storage Rm 0009	Radon in Air
418179	Basement Storage Rm 0009	04/13/20	04/17/20	Basement Storage Rm 0009 - Blank	Radon in Air
418158	Basement Storage Rm 0010	04/13/20	04/17/20	Basement Storage Rm 0010	Radon in Air
418207	Basement Storage Rm 0012	04/13/20	04/17/20	Basement Storage Rm 0012	Radon in Air
418264	Basement Hallway 0016	04/13/20	04/17/20	Basement Hallway 0016	Radon in Air
417923	Basement Hallway 0016	04/13/20	04/17/20	Basement Hallway 0016 - Dup	Radon in Air
417968	Basement Hallway 0017	04/13/20	04/17/20	Basement Hallway 0017	Radon in Air
Notes: Rm = Room					

Section No. 4.0: Radon Laboratory Analytical Summary

The short-term Radon in Air sampling was performed by laboratory supplied test kits, assigned individual identification numbers and secured. Chain of Custody documents were prepared, and the samples were then delivered to an independent New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certified laboratory for analysis of Radon in Air.

EMSL Analytical Inc. (EMSL) of Cinnaminson, New Jersey provided laboratory analytical services. Copies of EMSL's NYSDOH certifications are available upon request.

The laboratory analytical results for the Radon in Air samples were reviewed and compared to the United States Environmental Protection Agency (EPA) recommended action level of 4 pCi/L as reported in *Radon Measurement in Schools Revised Edition* (EPA 402-R-92-014), dated July 1993.

The following table summarized the Radon in Air analytical results:

Table No. 2: Summary of Radon Samples Analysis Results – April 17, 2020		
Sample Device Number	Location	Radon Activity pCi/L
418073	Basement Storage Rm 0004	1.1
418189	Basement Storage Rm 0005	1.3
419486	Basement Storage Rm 0005 – Dup	0.8
419508	Basement Storage Rm 0006	0.6
419491	Basement Storage Rm 0008	0.6
417949	Basement Storage Rm 0009	1.2
418179	Basement Storage Rm 0009 – Blank	-0.2
418158	Basement Storage Rm 0010	0.1
418207	Basement Storage Rm 0012	1.0
418264	Basement Hallway 0016	1.5
417923	Basement Hallway 0016 - Dup	1.1
417968	Basement Hallway 0017	1.0

The laboratory analysis results from the Radon in Air samples and duplicates submitted did not reveal any elevated concentrations of Radon exceeding 4.0 pCi/L, the referenced guidance value established by the EPA.

Section No. 5.0: Quality Assurance and Quality Control (QA/QC) Procedures

To ensure that measurement results are reliable, JCB performed unexposed control detectors (blanks) side-by-side with the sampling device at each sampling location.

The field sampling team-maintained Radon sampling chain of custody records used to track samples from sampling point to analysis which summarized the following:

- Sample identification;
- Test Kit ID number;
- Device ID number;
- Sampling beginning date and time;
- Sampling ending date and time;
- Temperature, °F;
- Humidity, %;

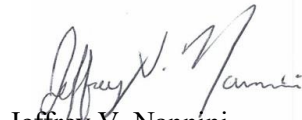
Section No. 6.0: Conclusions and Recommendations

Based upon the sampling results reported, the USEPA decision matrix does not recommend any mitigation for Radon.

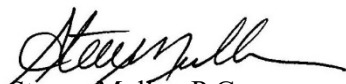
Due to the detection of Radium 226 and 228 in the local groundwater, JCB does recommend that continued monitoring for Radon in Air within the school building be performed to confirm the effectiveness of the isolation barrier.

Sincerely,

J.C. Broderick & Associates, Inc.



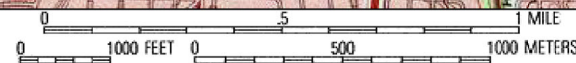
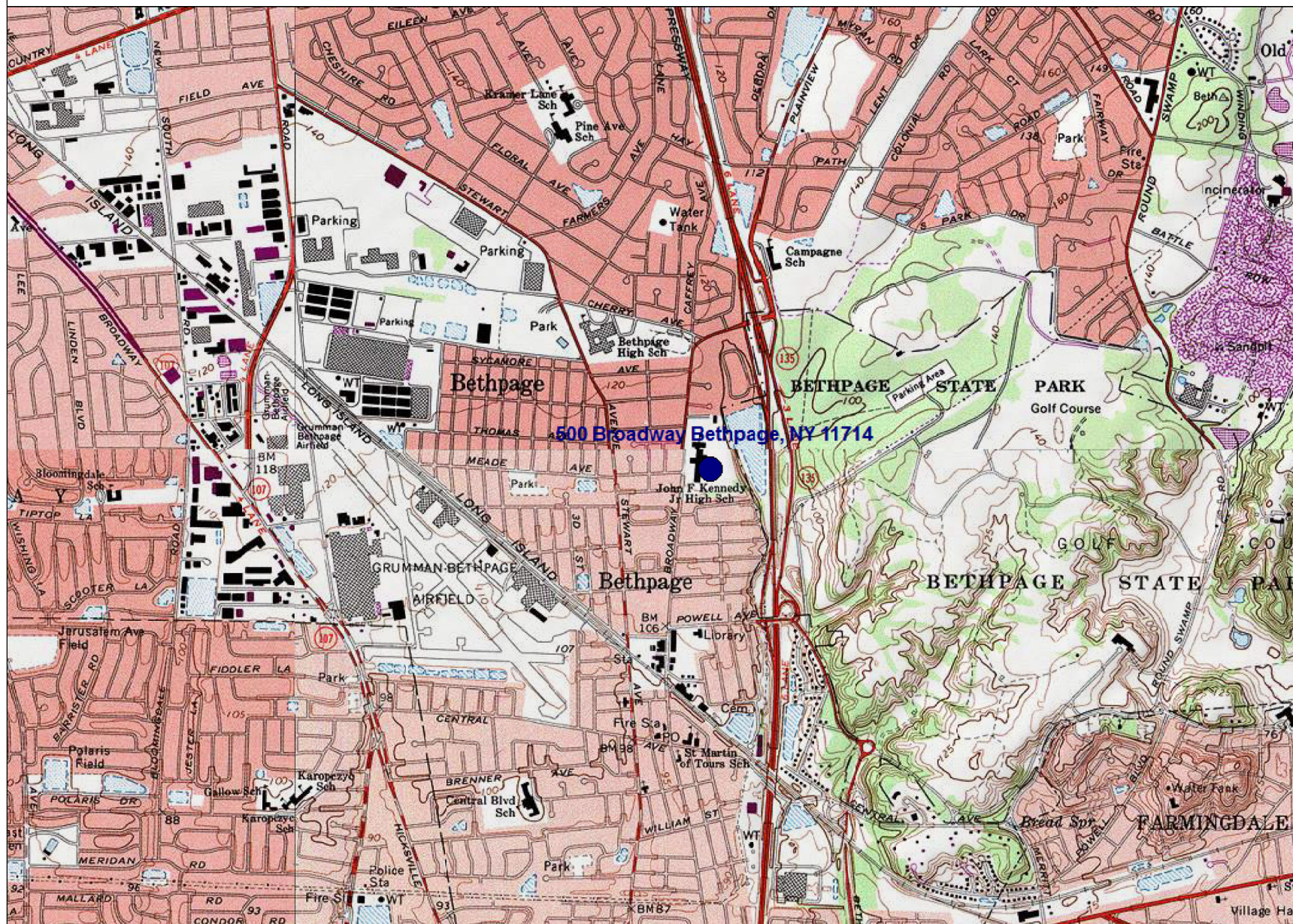
Jeffrey V. Nannini
Environmental Scientist



Steven Muller, P.G.
Project Manager

Appendix A

Figures



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

JCB LEGEND

● SUBJECT SITE



J.C. BRODERICK

& Associates
Environmental Consulting and
Testing

1775 Express Drive North
Hauppauge, NY 11788
Phone: (631).584.5492
Fax: (631).584.3395

Notes:

John F. Kennedy
Middle School
500 Broadway
Bethpage, NY 11714

Drawing Title

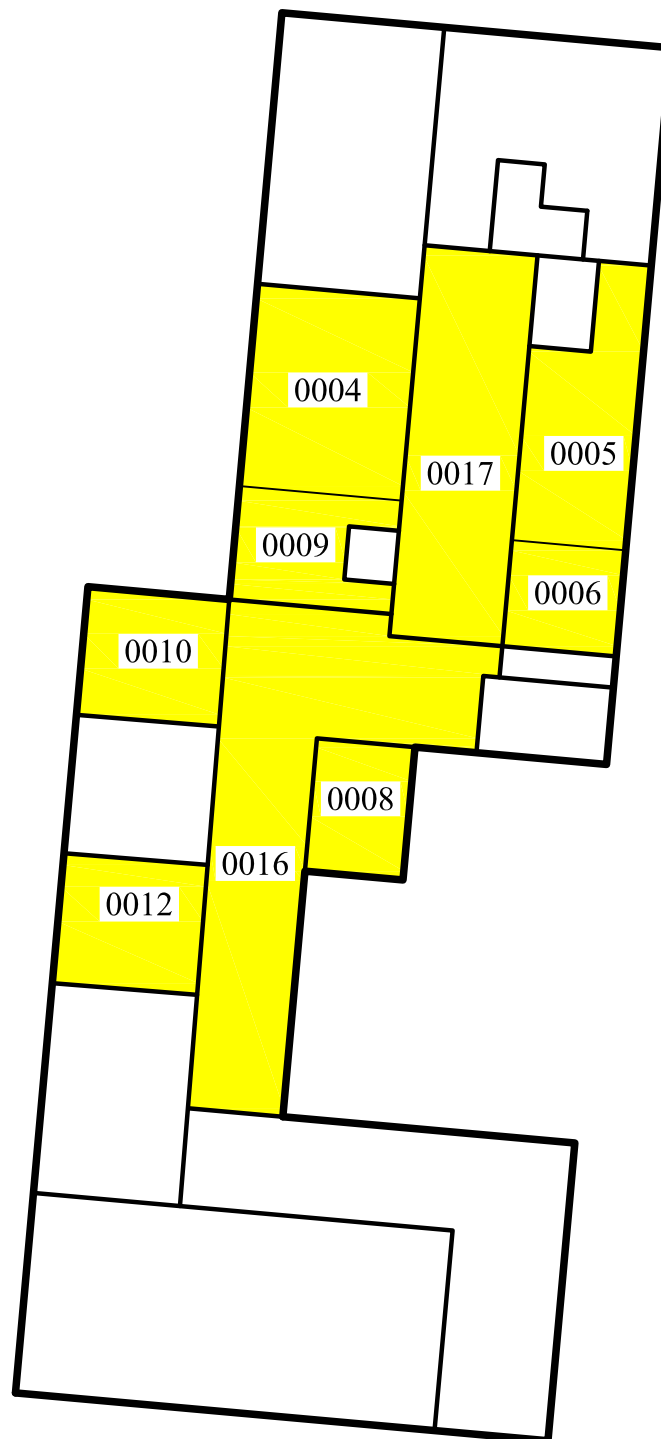
Figure No. 1
Site Location Map

Scale	Project No.	Date
As Noted	20-46059	4-17-2020

Drawn By	Checked By	Page No.
J.V.N.	S.W.M.	1 of 2

Drawing No.

1



JCB LEGEND
 ■ RADON SAMPLE LOCATION



J.C. BRODERICK
 & Associates
 Environmental Consulting and
 Testing
 1775 Express Drive North
 Hauppauge, New York 11788
 Phone: (631).584.5492
 Fax: (631).584.3395

Notes:

 John F. Kennedy
 Middle School
 500 Broadway
 Bethpage, NY 11714

Drawing Title

 Figure No. 2

 Basement
 Radon
 Sampling
 Locations

Scale N.T.S.	Project No. 20-46059	Date 04-17-2020
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Drawn By J.V.N.	Checked By S.W.M.	Page No. 2 of 2
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Drawing No.

 2

Appendix B

Field Photograph Logs

**Radon Sampling Location
Middle School Basement Hallway**



Field Photograph Log

Radon Investigation Report

**John F. Kennedy Middle School
500 Broadway
Bethpage, New York 11714**

Photo No. 01

JCB#: 20-46059

**Radon Sampling Location
Middle School Basement Storage Room**



Field Photograph Log

Radon Investigation Report

**John F. Kennedy Middle School
500 Broadway
Bethpage, New York 11714**

Photo No. 02

JCB#: 20-46059

**Radon Sampling Location
Middle School Basement Storage Room**



Field Photograph Log

Radon Investigation Report

**John F. Kennedy Middle School
500 Broadway
Bethpage, New York 11714**

Photo No. 03

JCB#: 20-46059

**Radon Sampling Location
Middle School Basement Office**



Field Photograph Log

Radon Investigation Report

**John F. Kennedy Middle School
500 Broadway
Bethpage, New York 11714**

Photo No. 04

JCB#: 20-46059

Appendix C

Laboratory Analysis Reports

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (800) 220-3675 / (856) 786-0327

<http://www.EMSL.com>cinnaminsonradonlab@emsl.com

EMSL Order: 382003569

CustomerID: JCBR50

CustomerPO:

ProjectID:

Attn: **Steven Muller**
J.C. Broderick & Associates
1775 Expressway Drive North, Suite 1
Hauppauge, NY 11788

Phone: (631) 584-5492
 Fax:
 Received: 04/20/20 10:42 AM
 Analysis Date: 4/21/2020
 Collected: 4/13/2020

Project: **JFK MS / 20-46059 / 500 Broadway**

Test **JFK MS / 20-46059**
 Site: **500 Broadway**
Bethpage, NY 11714

Test Report: Radon in Air Test Results

Liquid Scintillation ID	Location	Radon Activity (pCi/L)	Start	Stop	Temperature F	Humidity %	Sample Type
418073 382003569-0001	Basement / Room 0004	1.1	4/13/2020 8:30:00 AM	4/17/2020 8:36:00 AM	70	32	Customer
Sample Notes: Radon device exposed >96 hours							
418189 382003569-0002	Basement / Room 0005	1.3	4/13/2020 8:33:00 AM	4/17/2020 8:34:00 AM	70	36	Customer
Sample Notes: Radon device exposed >96 hours							
419486 382003569-0003	Basement / Room 0005	0.8	4/13/2020 8:33:00 AM	4/17/2020 8:34:00 AM	70	36	Duplicate
Sample Notes: Duplicate's Customer Sample:382003569-0002 Radon device exposed >96 hours					Duplicate RPD = 47.6%		
419508 382003569-0004	Basement / Room 0006	0.6	4/13/2020 8:34:00 AM	4/17/2020 8:32:00 AM	69	35	Customer
Sample Notes:							
419491 382003569-0005	Basement / Room 0008	0.6	4/13/2020 8:35:00 AM	4/17/2020 8:26:00 AM	68	24	Customer
Sample Notes:							
417949 382003569-0006	Basement / Room 0009	1.2	4/13/2020 8:38:00 AM	4/17/2020 8:27:00 AM	69	33	Customer
Sample Notes:							
418179 382003569-0007	Basement / Room 0009	-0.2	4/13/2020 8:38:00 AM	4/17/2020 8:27:00 AM	69	33	Blank
Sample Notes:							
418158 382003569-0008	Basement / Room 0010	0.1	4/13/2020 8:40:00 AM	4/17/2020 8:28:00 AM	67	20	Customer
Sample Notes:							
418207 382003569-0009	Basement / Room 0012	1	4/13/2020 8:42:00 AM	4/17/2020 8:31:00 AM	66	33	Customer
Sample Notes:							
418264 382003569-0010	Basement / Room 0016	1.5	4/13/2020 8:44:00 AM	4/17/2020 8:30:00 AM	67	34	Customer
Sample Notes:							

Please visit www.radontestinglab.com

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (800) 220-3675 / (856) 786-0327

<http://www.EMSL.com>cinnaminsonradonlab@emsl.com

EMSL Order: 382003569
CustomerID: JCBR50
CustomerPO:
ProjectID:

Test Report: Radon in Air Test Results

Liquid Scintillation ID	Location	Radon Activity (pCi/L)	Start	Stop	Temperature F	Humidity %	Sample Type
417923 382003569-0011	Basement / Room 0016	1.1	4/13/2020 8:44:00 AM	4/17/2020 8:30:00 AM	67	34	Duplicate
Sample Notes: Duplicate's Customer Sample:382003569-0010							Duplicate RPD = 30.8%
417968 382003569-0012	Basement / Room 0017	1	4/13/2020 8:45:00 AM	4/17/2020 8:25:00 AM	68	35	Customer
Sample Notes:							

Report Notes

The United States Environmental Protection Agency (EPA) has established a radon action level of 4.0pCi/L. EPA recommends mitigation of a structure if the confirmed radon level is equal to or greater than 4.0pCi/L.

The radon tests were performed using liquid scintillation radon detectors and counted on a liquid scintillation counter following EPA Method # 402-R-92-004 testing protocol for Radon in Air testing. EPA recommends retesting every two years.

Please contact EMSL Analytical, Inc. or your State Health Department for further information.

All procedures used for generating this report are in complete accordance with the current EPA protocols for the analysis of Radon in Air.

Analyst(s)

Kevin Schwartz (12)

Dominic Gehret, Radiochemistry Laboratory Manager, 10872

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder. The test results meets all NELAC requirements unless otherwise specified.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ FL RB2034/R2687,IL RNL2008202,IN RTL00935,IA RNLAB10005,KS KS-LB-0005/KS-MS-0482,ME SPC202,MN RL-0005,NE 474/RMB-1083,NJ 03036/MEB92525/MES13910,NY 10872,OH RL39,OK D9952,PA 2573/3393/68-00367,RI RMB-108/RI00179,WV RL000220,NRSB-ARL6006,NRPP

Initial report from 04/21/2020 12:29:33

Fedex 7957 8058 9130

M4 2D



EMSL ANALYTICAL, INC.

CHAIN OF CUSTODY RADON LABORATORY SERVICES (COMMERCIAL USE)

 EMSL Job #: 382003569
 2020 APR 20 A 3:42

 EMSL ANALYTICAL, INC.
 200 ROUTE 130 NORTH
 CINNAMINSON, NJ 08077
 PHONE: 800-220-3675
 www.emsl.com

Company Information:

 EMSL
 Acct #: JCB R50

Company Name: JCBROODNICK & ASSOC

Contact: S. MILLER

Address: 1775 EXPRESSWAY DR - N

City: HAUPPAUGE

State: N.Y. Zip: 11788

Phone: 631-584-5492 Fax: 631-584-3395

Email: Smiller@JCBROODNICK.COM

Technician Certification #:

Tech Name: STEVEN MILLER

Tech Signature:

Project/Site Information:

*Required

Project Name: JFK MS

Project # / PO: 20-46059

*Address: 500 BROADWAY

*City: BEMPAGE *State: NY *Zip: 11714

*Building type? ☐ Residential ☐ Non-Residential☒ School ☐ Other:*Building foundation type? ☒ Basement ☐ Crawlspace☒ Slab on Grade ☐ Other:

Special Notes / Instructions:

*Turnaround Time (TAT) Options

☐ 1 Day☐ 2 Day☐ 3 Day☒ 4 Day

Disclaimer: In no event shall EMSL be liable for indirect, special, consequential, or incidental damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages arising out of or in connection with EMSL's services there under or the delivery, use, reliance upon or interpretation of test results by client or third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereafter.

(S) Sample (B) Blank (D) Duplicate	Device Number	Location	Room #	Exposure Period Beginning Date		Exposure Period Ending Date		Temp, °F	Humidity, %
				Date	Time	Date	Time		
(S) Sample	418073	BASMENT	0004	4/13/20	8:30	4/17/20	8:36	70	32
S	418189	BASMENT	0005	4/13/20	8:33	4/17/20	8:34	70	36
D	419486	BASMENT	0006	4/13/20	8:34	4/17/20	8:32	69	35
S	419508	BASMENT	0008	4/13/20	8:35	4/17/20	8:26	68	24
S	417949	BASMENT	0009	4/13/20	8:38	4/17/20	8:27	69	33
B	418179	BASMENT	0010	4/13/20	8:40	4/17/20	8:28	67	20
S	418158	BASMENT	0012	4/13/20	8:42	4/17/20	8:31	66	33

Relinquished by (Sign):

Date: 4/17/20 Time: 10:00

Page of

Received by EMSL (Sign):

Date: Time:

EMSL Job #: 382003569

EMSL ANALYTICAL, INC.

Relinquished by (Sign) _____

Page of _____

Time: