



August 10, 2021

Angel Camacho
SET Environmental
450 Sumac Road
Wheeling, Illinois 60090

RE: Thorium Monitoring – City of Chicago Department of Water Management
CDOT Permit: 1562748 – 500-651 N. Rush St.

Dear Mr. Camacho:

Stan A. Huber Consultants, Inc (SAHCI) was hired by your firm to provide radiation monitoring during the excavation for installation of a water main and decommissioning of manholes at 500-651 N. Rush Street in Chicago, Illinois. The monitoring was performed by Brian Schmidt, SAHCI Health Physics Technician, from July 15, 2021, through July 30, 2021. All activities were conducted under the guidance of document *SET General Procedure for Thorium Monitoring*.

Instrumentation

Surface gamma scans were performed using a Ludlum Model 2221 Scaler / Ratemeter (serial no. 126497) with attached Ludlum Model 44-10 2"x2" NaI Detector (w/ 6" collimated lead shield). The instrument was calibrated on May 5, 2021. The US Environmental Protection Agency (USEPA) action level of 7.1 picocuries per gram (pCi/g) total thorium for this instrument is 6,383 counts per minute (cpm).

The average background count rate for these locations was measured at 1,715 cpm.

Soil Gamma Scans

Gamma surface scans were performed in the excavation using the Ludlum Model 2221 Scaler / Ratemeter detailed above. Survey data was collected by entering the excavation and recording the highest count rate for the floor and walls to a maximum excavation depth of 7 feet below ground surface. Material excavated below 4 feet was surveyed in the excavator bucket as it was removed. All asphalt, concrete, and soil were loaded directly into a truck for disposal.

The maximum gamma count rate for each lift was recorded on the attached Radiation Survey Form. The count rates in the excavations ranged from 1,500 cpm to 3,200 cpm. No count rates were found at any time that exceeded the threshold limit of 6,383 cpm.

Additional Monitoring

Since no count rates were identified above the 7.1 pCi/gram threshold limit, no additional soil sampling, air monitoring, or personnel monitoring were performed.

I will be providing a copy of this report to both the City of Chicago Department of Public Health and US Environmental Protection Agency, as required.

Thank you for your assistance with this project. If you have any questions or need additional information, please call me at (815) 485-6161.

Sincerely,
Stan A. Huber Consultants, Inc.

Glenn Huber, CHP
President

Radiation Survey Form

Location/ Project ID: DWM - RUSH ST. WATER MAIN DECOMMISSION & INSTALL - ROW
RADIOLOGICAL SOIL SURVEY

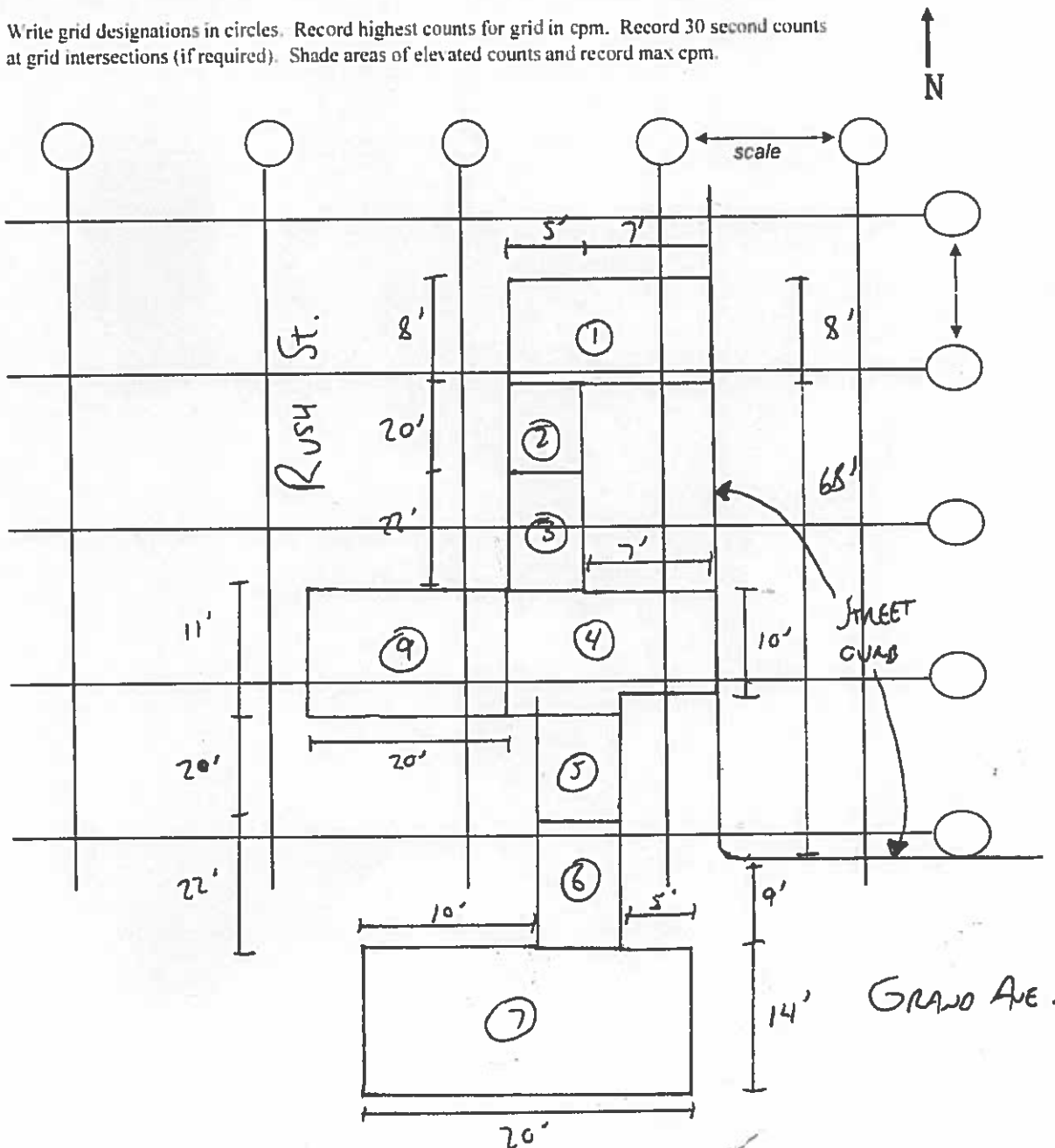
Date: 7/15-30/2021 Technician: BRIAN SCHMIDT

Inst Model: LUOLVM-2221 Serial No.: 126497

Probe Type: 1"x1" NaI / 2"x2" NaI
Shielded / Not Shielded Lift Elevation: 0-84"

Background 1715 cpm Action Level: 6983 cpm

Write grid designations in circles. Record highest counts for grid in cpm. Record 30 second counts at grid intersections (if required). Shade areas of elevated counts and record max cpm.



Radiation Survey Form

Location/ Project ID: DWM-Rush St. - WATER MAIN DECOMMISSION & INSTALL - ROW RADIOLOGICAL SOIL SURVEY

Date: 7/15-30/2021

Technician: BRIAN SCHMIOT

Inst Model: LUDLUM-221

Serial No.: 126497

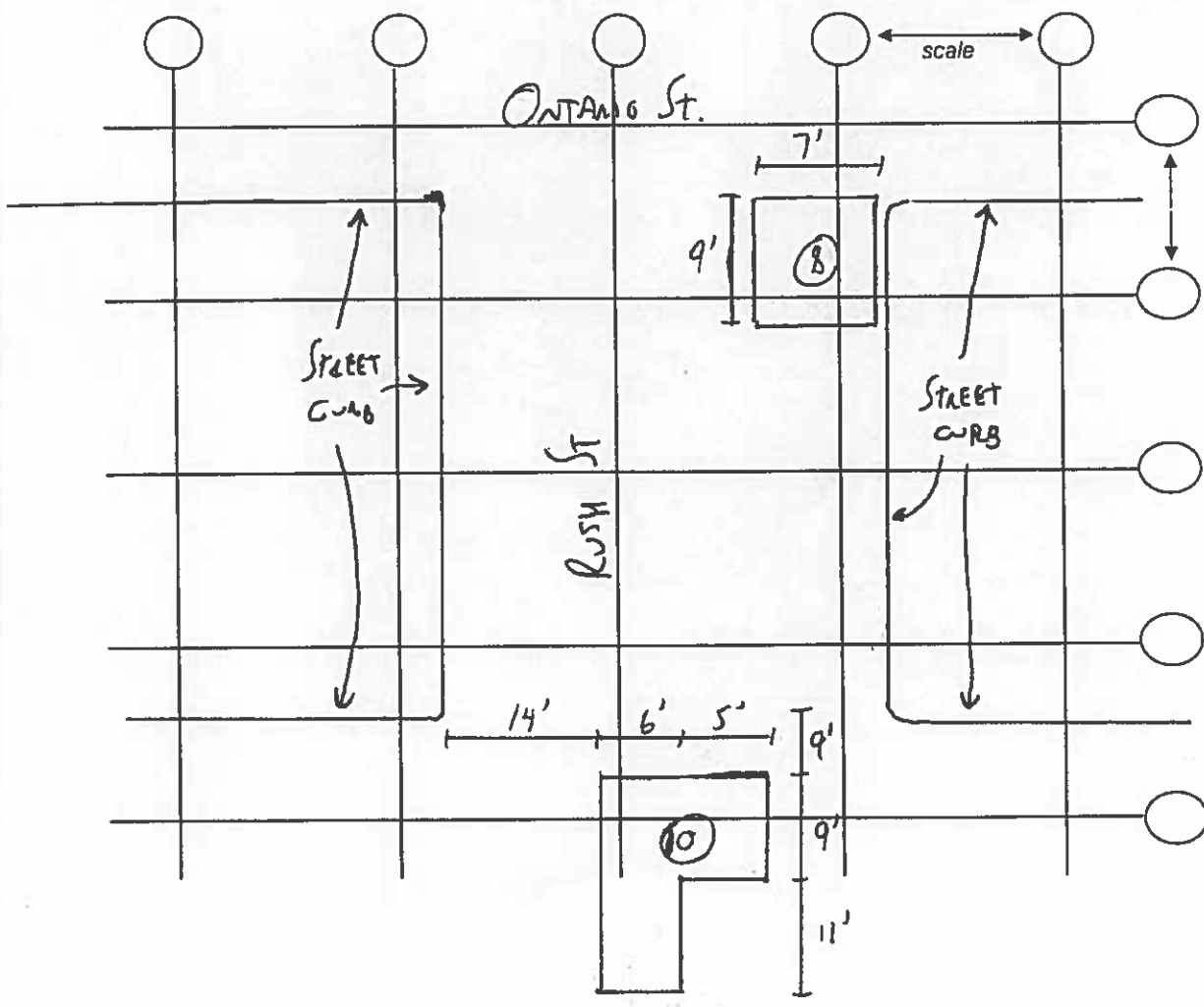
Probe Type: 1"x1" NaI / 2"x2" NaI
Shielded / Not Shielded

Lift Elevation: 0-84"

Background 1715 cpm

Action Level: 6383 cpm

Write grid designations in circles. Record highest counts for grid in cpm. Record 30 second counts at grid intersections (if required). Shade areas of elevated counts and record max cpm.





Radiation Survey Form

Location/ Project ID: DWM-RUSH ST. MANHOLE DECOMMISSION + ROW RADIOLOGICAL SOIL SURVEY

Date: 7/30/2021

Technician: BRIAN SCHMIDT

Inst Model: Walrus-221

Serial No.: 126497

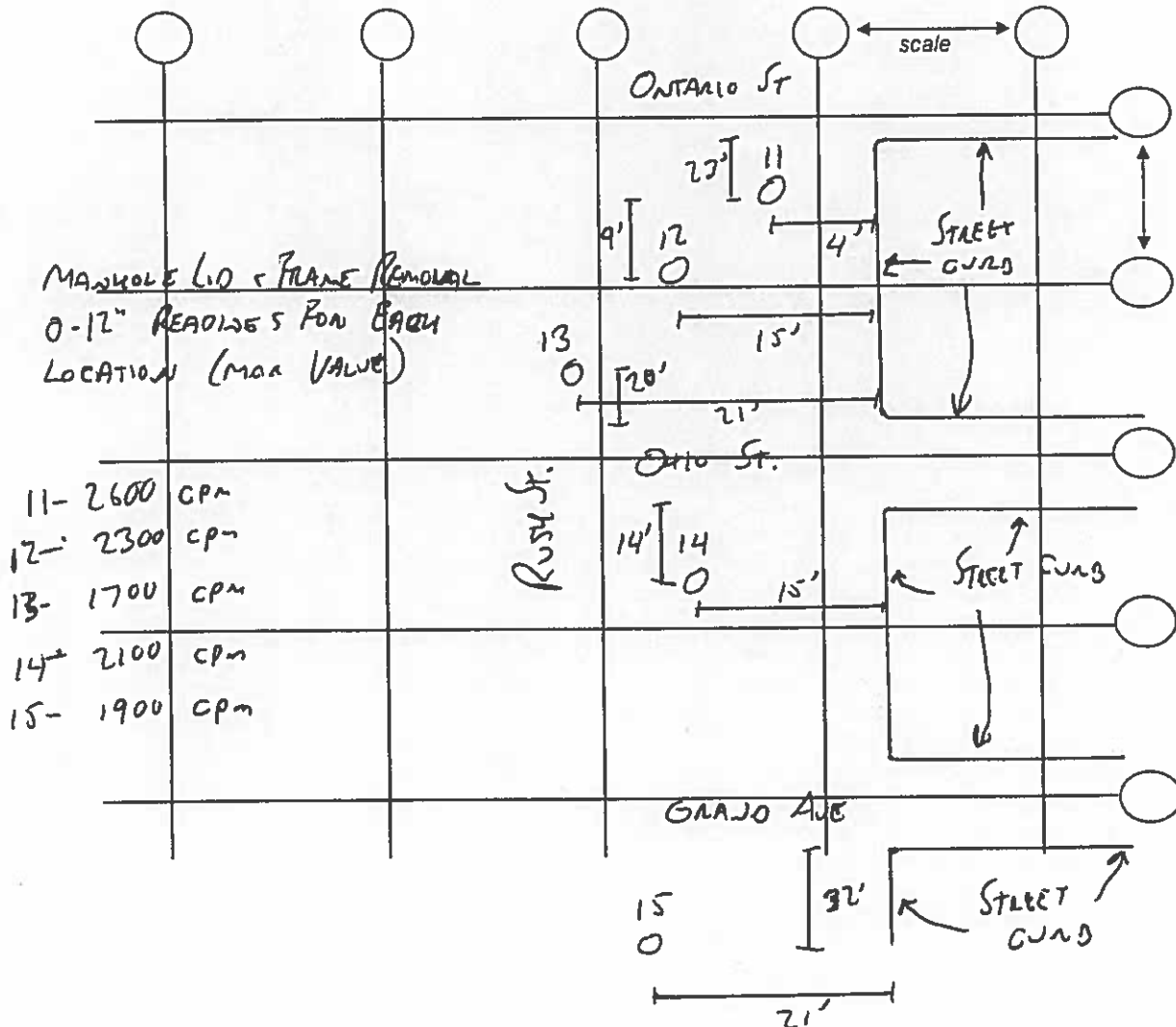
Probe Type: 1"x1" NaI / 2"x2" NaI
~~Shielded~~ / Not Shielded

Lift Elevation: 0-12"

Background 1715 cpm

Action Level: 6383 cpm

Write grid designations in circles. Record highest counts for grid in cpm. Record 30 second counts at grid intersections (if required). Shade areas of elevated counts and record max cpm.



Radiation Survey Form

Location/ Project ID: DWM-River St. - WATER MAIN DECOMMISSION & INSTALLATION - ROW
RADIOLOGICAL SOIL SURVEY

Date: 7/15-30/2021 Technician: BRIAN SCHMIOT

Inst Model: LUOLUM-2221 Serial No.: 126497

Probe Type: 1"x1" NaI / 2"x2" NaI Lift Elevation: 0-84"
Shielded / Not Shielded

Background 1715 cpm Action Level: 6383 cpm

Write grid designations in circles. Record highest counts for grid in cpm. Record 30 second counts at grid intersections (if required). Shade areas of elevated counts and record max cpm.



EXCAVATION ID	DEPTH	CPM	EXCAVATION ID	DEPTH	CPM	EXCAVATION ID	DEPTH	CPM
①	0-12"	1800	④	0-12"	1900	⑦	0-12"	1500
	12-30"	2200		12-30"	2400		12-30"	1800
	30-48"	2400		30-48"	2700		30-48"	2400
	48-66"	2200		48-66"	3100		48-66"	2600
	66-84"	2000		66-84"	2600		66-84"	2100
②	84-102"	2100	⑤	84-102"	2900	⑧	84-102"	2200
	0-12"	1500		0-12"	1600		0-12"	1600
	12-30"	2200		12-30"	2600		12-30"	1800
	30-48"	2500		30-48"	2900		30-48"	2200
	48-66"	2700		48-66"	2800		48-66"	2700
③	66-84"	2300	⑥	66-84"	2700	⑨	66-84"	2300
	84-102"	1900		84-102"	2200		84-102"	2000
	0-12"	1700		0-12"	1800		0-12"	1600
	12-30"	2900		12-30"	2300		12-30"	2100
	30-48"	2600		30-48"	2600		30-48"	2900
	48-66"	2400		48-66"	2600	⑩	48-66"	2600
	66-84"	2500		66-84"	3200		66-84"	2400
	84-102"	2200		84-102"	2900		84-102"	2100