Stan A. Huber Consultants, Inc.
Health Physics and Radiation Safety Services

200 North Cedar Road – New Lenox, Illinois 60451-1751 – (800) 383-0468 or (815) 485-6161 – FAX (815) 485-4433 – Email sahci@sahci.com – Home Page www.sahci.com

November 9, 2019

Paul Muszynski
Electric Conduit Construction
816 Hicks Drive
Elburn, IL 60119

RE: Thorium Monitoring 500-579 E. Grand Ave.
CDOT Permit #1160752

Dear Mr. Muszynski:

Stan A. Huber Consultants, Inc (SAHCI) was hired by your firm to provide radiation monitoring during the excavation and installation of a fiber optic and power conduit at 500-579 E. Grand Avenue in Chicago, Illinois. The monitoring was performed by Mark Dewald, SAHCI Health Physicist, on October 8, 2019 through October 24, 2019.

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 last calibrated on October 18, 2019. The US Environmental Protection Agency (USEPA) action level of 7.1 picocuries per gram (pCi/g) total thorium for this instrument is 6,179 counts per minute (cpm).

The background count rate for this location was measured as 1,452 cpm (average).

Soil Gamma Scans

Gamma surface scans were performed using the Ludlum Model 2221 Scaler / Ratemeter described above. Survey data was collected by entering the excavation trench and recording the highest count rate for the floor and walls to a maximum excavation depth of 4.5 feet below ground surface. Any material excavated below 3 feet in depth was surveyed in the excavator bucket, rather than in the excavation.

The maximum gamma count rate for each lift was recorded on the attached Radiation Survey Form. The count rates in the excavation ranged from 1,300 cpm to 3,700 cpm. No count rates were found at any time that exceeded the threshold limit of 6,179 cpm.

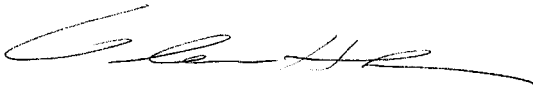
Additional Monitoring

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 Data

Stan A. Huber Consultants, Inc.

Location: Electric Conduit Construction - 500-591 E. Grand Ave.
Name: Mark Dewald
Date: 10/8/19, 10/10/19, 10/14/19, 10/15/19
Instrument ID: Ludlum Model 2221 Scaler/Ratemeter w/ Model 44-10 NaI Detector (w/ 6" Lead Shield)
7.1 pCi/g CPM: 6,319 CPM
BKG CPM: 1,919 CPM

Area 1

	Trench Segment ID (CPM)										
Depth	1	2	3	4	5	6	7	8	9	10	11
Surface	1800	1800	1900	2000	1800	1800	1900	1900	1800	1900	1900
-1.5'	1900	1700	1600	1700	2000	1700	2200	1500	1800	2200	2100
-3.0'	2200	2200	3300	2600	2600	2900	2000	2300	2600	2200	2500

	Trench Segment ID (CPM)										
Depth	12	13	14	15	16	17	18	19	20	21	22
Surface	1800	1700	1800	1700	1200	1100	2000	1000	1100	1300	1300
-1.5'	1400	1800	1800	1300	2200	1800	3100	1600	2000	2200	1600
-3.0'	1700	1800	2100	2000	2500	2300	3700	2400	2600	2800	2100

	Trench Segment ID (CPM)		
Depth	23	24	25
Surface	1800	1900	2600
-1.5'	1800	3100	3000
-3.0'	2800	3100	3600

Area 2

	Trench Segment ID (CPM)										
Depth	1	2	3	4	5	6	7	8	9	10	11
Surface	2000	2200	2600	2500	2700	2400	2200	2100	2000	2400	1400
-1.5'	2300	2600	2600	2800	2500	2700	2300	2500	2300	2800	2000
-3.0'	2900	3100	3200	3200	2800	3300	2800	3000	2800	3200	3200
-4.5'	3300	3100	3300	3600	3100	3200	3100	3300	3100	3400	3300

	Trench Segment ID (CPM)			
Depth	12	13	14	15
Surface	2100	2000	2400	2200
-1.5'	2200	2400	2400	2600
-3.0'	2600	2700	2800	2900
-4.5'	3200	3100	3000	3300

Radiation Survey Form Data

Stan A. Huber Consultants, Inc.

Location: Electric Conduit Construction - 500-591 E. Grand Ave.
Name: Mark Dewald
Date: 10/8/19, 10/10/19, 10/14/19, 10/15/19
Instrument ID: Ludlum Model 2221 Scaler/Ratemeter w/ Model 44-10 NaI Detector (w/ 6" Lead Shield)
7.1 pCi/g CPM: 6,319 CPM
BKG CPM: 1,919 CPM

Area 3

Depth	Trench Segment ID (CPM)		
	1	2	3
Surface	2000	1800	1600
-1.5'	2100	1600	1700
-3.0'	3400	2400	2100
-4.5'	3200	N/A	N/A

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Area 1

Radiation Survey Form

Location/ Project ID: 500-591 E Grand Ave, 500-515 N Streeter Dr

Date: 10/10/19, 10/14/19, 10/15/19 **Technician:** Mark Dewald

Inst Model: Ludlum 2221 **Serial No. :** 126497

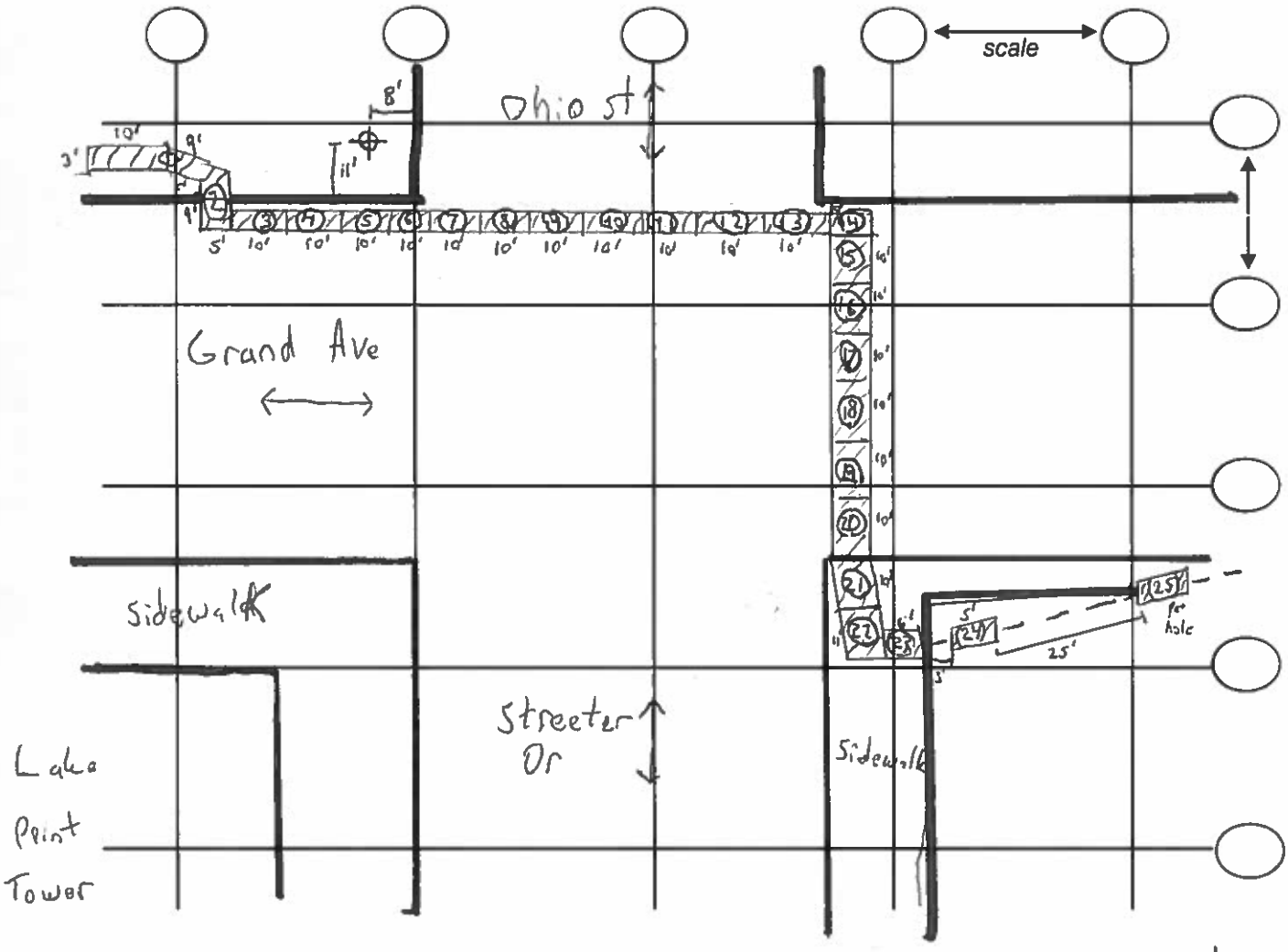
Probe Type: 1"x1" NaI / 2"x2" NaI (circled) **Lift Elevation:** 0-40"

Shielded (circled) / Not Shielded

Background 1629 **cpm** **Action Level:** 6319 **cpm**

6,319 cpm before 10/18/19
6,179 cpm after re-calibration.
GAH

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.



⊕ → background
▨ → excavated area
– – → directed boring

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Area 2

Radiation Survey Form

Location/ Project ID: 500-591 E Grand Ave, 500-515 N Streeter Dr

Date: 10/14/19 **Technician:** Mark Oewald

Inst Model: Ludlum 2221 **Serial No. :** 126497

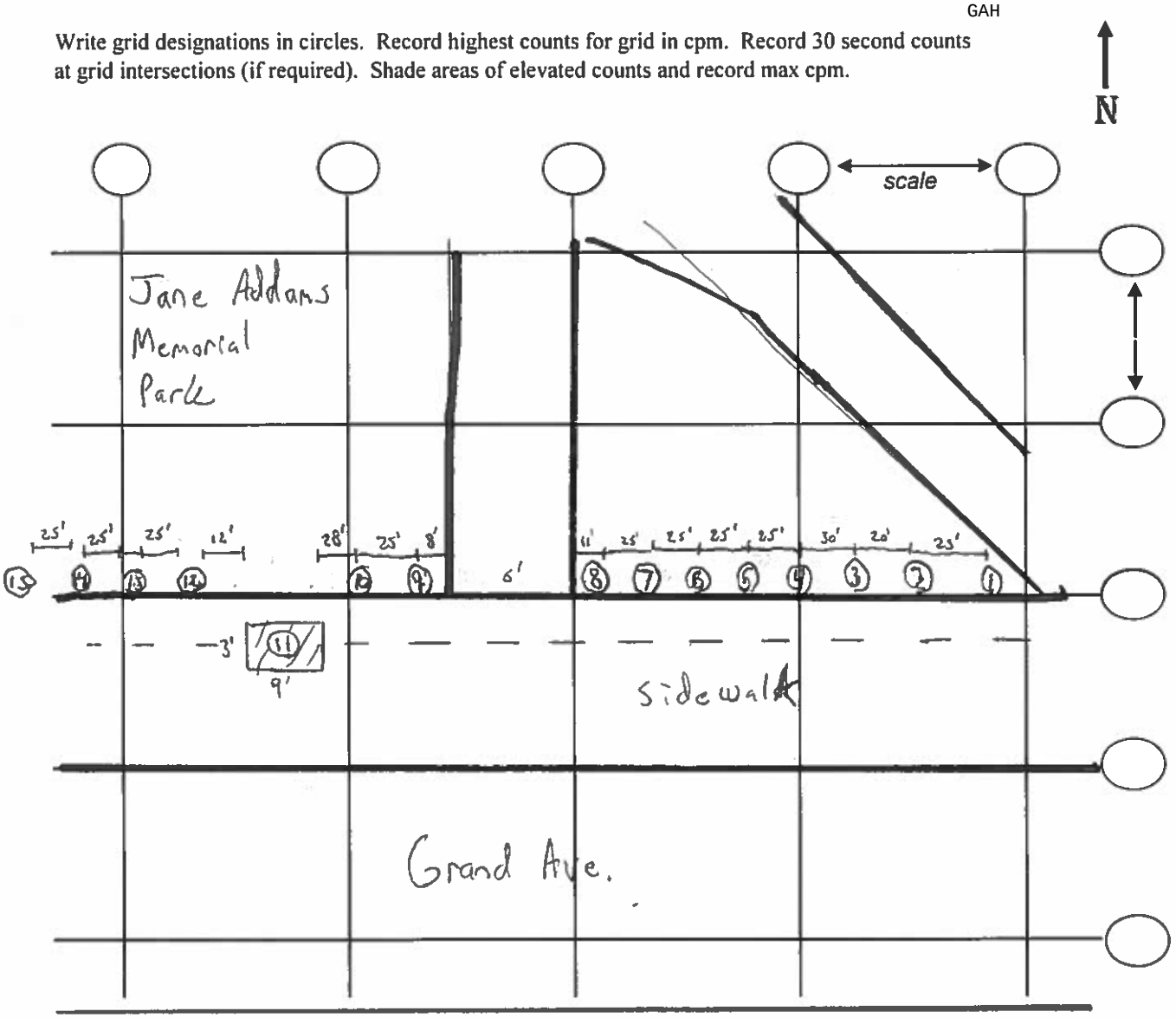
Probe Type: 1"x1" NaI / 2"x2" NaI (2"x2" NaI circled)
Shielded / Not Shielded (Shielded circled)

Lift Elevation: 0-40"

Background 1268 **cpm** **Action Level:** 6319 **cpm**

6,319 cpm before 10/18/19
6,179 cpm after re-calibration.
GAH

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.



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Stan A. Huber Consultants, Inc.

Area 3

Radiation Survey Form

Location/ Project ID: 500-591 E Grand Ave , 500-515 N Streeter Dr

Date: 10/8/19, 10/14/19 **Technician:** Mark Oswald

Inst Model: Ludlum 2221 **Serial No. :** 126497

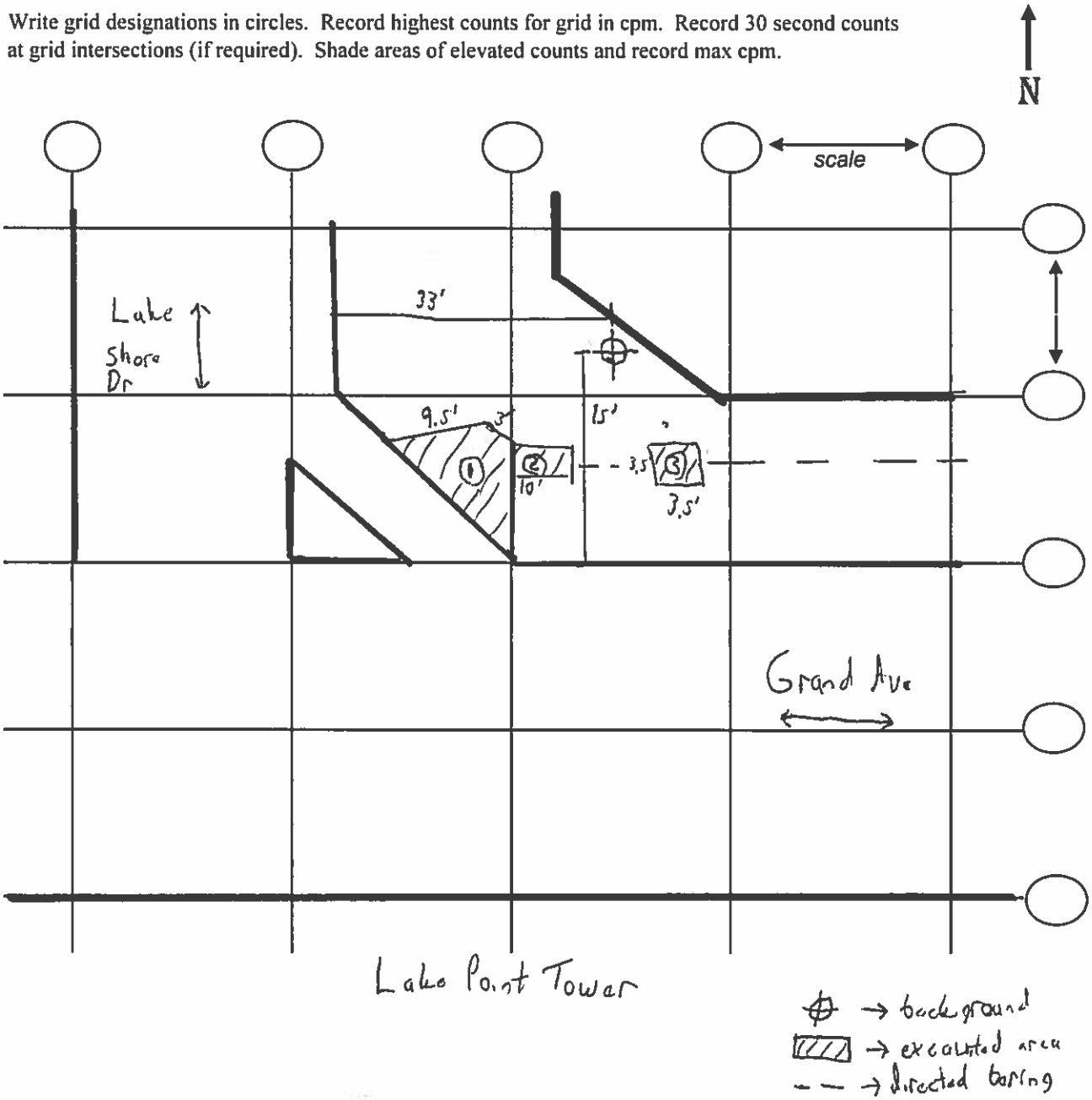
Probe Type: 1"x1" NaI (2"x2" NaI) **Lift Elevation:** 0-56"

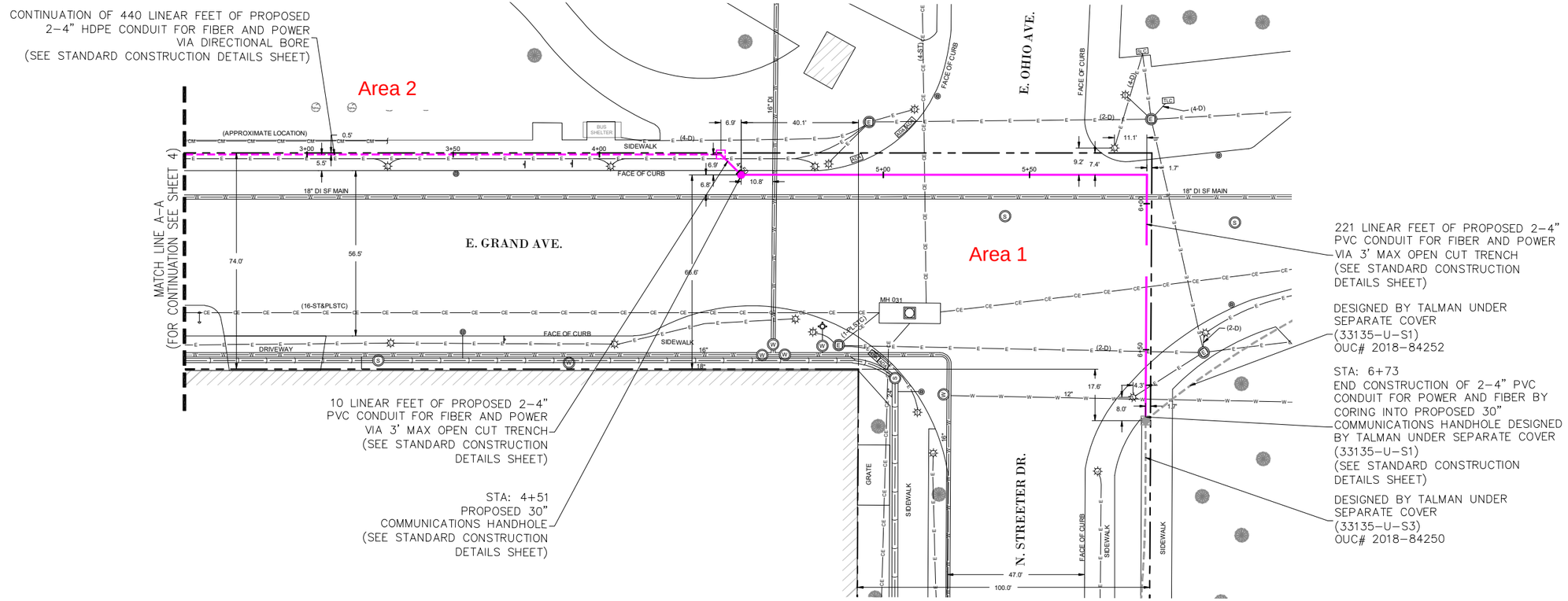
(Shielded) / Not Shielded

Background 1458 **cpm** **Action Level:** 6319 **cpm**

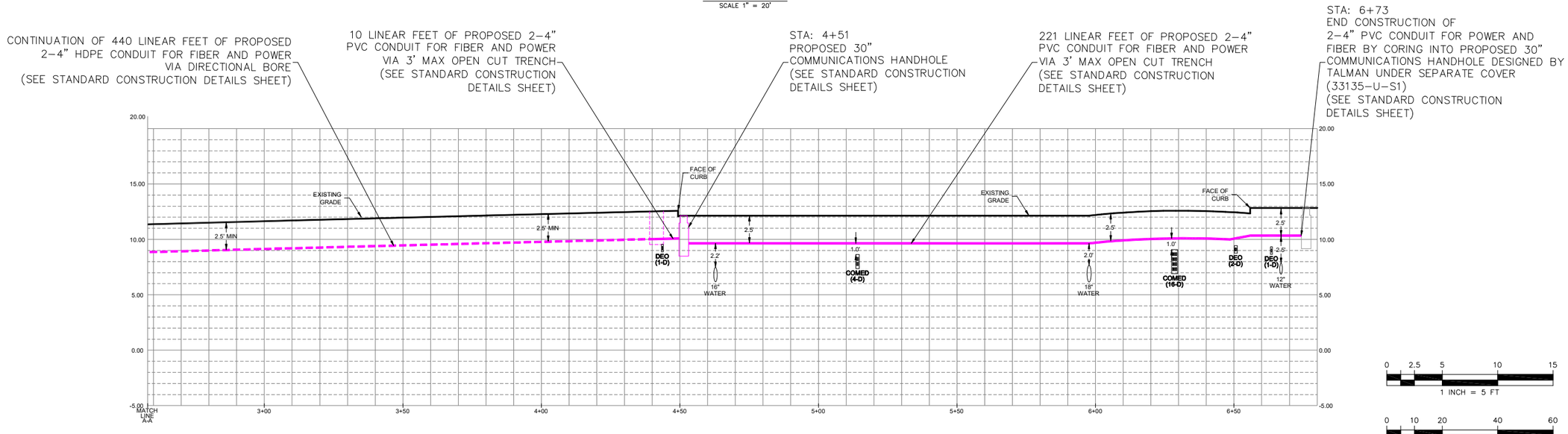
6,319 cpm before 10/18/19
6,179 cpm after re-calibration.
GAH

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.





PLAN VIEW
SCALE 1" = 20'



PROFILE VIEW
SCALE 1" = 5' VERTICAL
SCALE 1" = 20' HORIZONTAL

0 2.5 5 10 15
1 INCH = 5 FT

0 10 20 40 60
1 INCH = 20 FT

USE EXTREME CAUTION WHEN EXCAVATING / DIGGING NEAR EXISTING UTILITIES.

PROPOSED BORE PIT LOCATION CONTRACTOR TO DETERMINE EXACT LOCATION IN FIELD

N

OWNER

DEVELOPER
sunesys

ENGINEER
TALMAN CONSULTANTS

CONTRACTOR

NOTES
CROWN CASTLE USE ONLY:
SUPER POLY ID: 2
HUB ID: CH20756E
NODE ID: CHPH33137
DEO WO#: 11717041

SHEET TITLE
PROJECT PLAN AND PROFILE VIEW

FILE NAME/SEGMENT ID
33137-U-S1

JOB TITLE
FIBER OPTIC AND POWER CONDUIT INSTALLATION
E. GRAND AVE. &
N. LAKE SHORE DR.
JURISDICTION:
CHICAGO, ILLINOIS

PROJECT MANAGER
SAM CLEARY

CREATED	CHECKED	APPROVED
DY	SC	JDN
DATE CREATED	PAPER SIZE	SCALE
08/25/18	22" X 34"	AS SHOWN

PROJECT NUMBER	OUC NUMBER
DASC CRC-18-1001	2018-84253

REVISIONS

REV.	DATE	DESCRIPTION	BY
1	09/07/18	FOR OUC REVIEW	JR
2	10/17/18	REV PER DIM	JR
3			
4			
5			
6			
7			
8			
9			
10			

SHEET: UG-02 5 OF 10

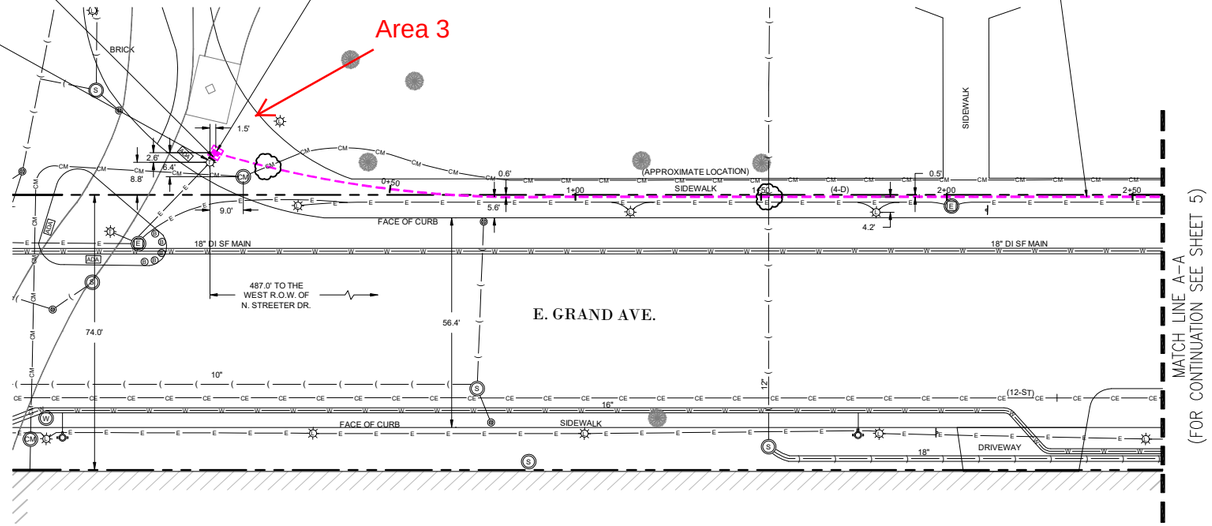
DRAWINGS PLOTTED FULL SCALE ON 22X34 SHEETS
DRAWINGS PLOTTED HALF SCALE ON 11X17 SHEETS

2 LINEAR FEET OF PROPOSED 2–1.25" PVC CONDUIT FOR FIBER AND POWER VIA 3' MAX OPEN CUT TRENCH (SEE STANDARD CONSTRUCTION DETAILS SHEET)

STA: 0+00
BEGIN CONSTRUCTION BY REMOVING EXISTING TRAFFIC POLE AND FOUNDATION. REPLACE WITH NEW POLE (CDOT DEO SPECIFICATION #808) AND NEW 9' FOUNDATION (DEO SPECIFICATION #818) (SEE STANDARD CONSTRUCTION DETAILS SHEET)

PROPOSED QUAZITE BOX (SEE STANDARD CONSTRUCTION DETAILS SHEET)

440 LINEAR FEET OF PROPOSED 2–4" HDPE CONDUIT FOR FIBER AND POWER VIA DIRECTIONAL BORE (SEE STANDARD CONSTRUCTION DETAILS SHEET)



PLAN VIEW
SCALE 1" = 20'

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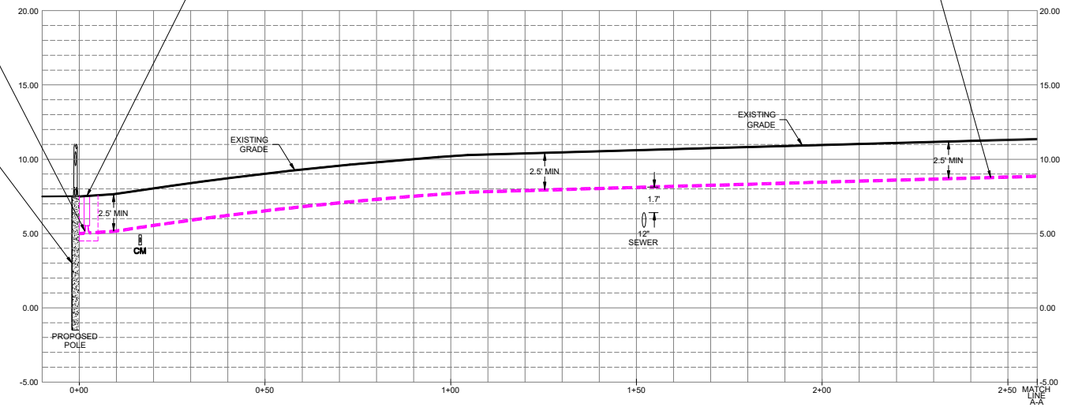

PROFILE VIEW
SCALE 1" = 5' VERTICAL
SCALE 1" = 20' HORIZONTAL

USE EXTREME CAUTION WHEN EXCAVATING / DIGGING NEAR EXISTING UTILITIES.

PROPOSED BORE PIT LOCATION CONTRACTOR TO DETERMINE EXACT LOCATION IN FIELD

CONTRACTOR TO TEST HOLE AND VERIFY EXISTING UTILITY LOCATION & DEPTH WHEN BORING CONSTRUCTION METHOD IS BEING PERFORMED.

0 2.5 5 10 15
1 INCH = 5 FT

0 10 20 40 60
1 INCH = 20 FT

N

OWNER

DEVELOPER
sunesys

ENGINEER
TALMAN CONSULTANTS

CONTRACTOR

NOTES
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SUPER POLY ID: 2
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8			
9			
10			

SHEET: UG-01 4 OF 10

DRAWINGS PLOTTED FULL SCALE ON 22X34 SHEETS
DRAWINGS PLOTTED HALF SCALE ON 11X17 SHEETS