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June 1, 2016

Mr. Mike Jasek
Project Manager, Lakefront Trail Improvement
F.H. Paschen
5515 N. East River Road
Chicago, IL 60656

RE: Radiological Survey Results – 14th Letter Report
Navy Pier Flyover / Lakefront Trail Improvement
AECOM Project No. 60318016

Dear Mr. Jasek:

Pursuant to requirements of the United States Environmental Protection Agency (USEPA) and conditions specified in permits issued by the City of Chicago Department of Public Health (CDPH), radiation monitoring is required to be performed for the above referenced project when construction activities will disturb fill soil that has not been previously screened for thorium. AECOM Technical Services, Inc. (AECOM) has been contracted to provide the required radiation surveillance and reporting.

The last progress report (dated February 24, 2016) provided notification that screening activities would be conducted intermittently given that excavation activities requiring monitoring are occurring infrequently (i.e., construction activities are focusing on above grade structures). Discussed below are the construction related excavation screening activities performed between February 24, 2016 and June 1, 2016.

Lake Shore Drive and Grand Ave. \ E. Illinois Ave.

AECOM conducted radiological survey for the soil excavation activities conducted to install street light foundations at the northeast junctions of Lake Shore Drive (LSD) and East Grand Ave and the northwest junction of LSD and E. Illinois St., Chicago, Illinois. Additional, electrical trench excavation activities occurred near the southeast junctions of LSD and E. Illinois St. extending to the southwest for approximately 115 feet. The surveying was completed on March 22 and 23, 2016. The street light foundation excavations were approximately 3 to 5-feet in length and width, to a depth of 3-feet and 7-feet below ground surface (bgs). The additional electrical trench excavation included an excavation of 10-feet long by 10-feet wide to a depth of 3-feet bgs and an adjoining trench approximately 115-feet long, 2-feet wide, to a depth of 18 to 25-inches (refer to attached sketch).

The gamma survey did not indicate that the fill soils were above the removal action level established by the USEPA for the Streeterville area of Chicago. The USEPA removal action level for Chicago's Streeterville area is 7.1 picocuries per gram (pCi/g) total radium (Ra-226 + Ra-228). Gamma radiation count measurements for the irrigation trench were made using Ludlum Model 2221 survey meter and an unshielded 2 x 2 inch Nal probe (Model 44-10). For the instrument used on March 22 and 23, 2016 the gamma count threshold indicative of the 7.1 pCi/g removal action level was 17,015 counts per minute (cpm) unshielded and 6,684 cpm shielded (S/N: 172039).

The field gamma measurements within the excavation, and of the spoil, during the excavation process did not exceed the instrument threshold previously stated and unshielded readings ranged from a minimum of 4,600 cpm to a maximum of 14,200 cpm unshielded and shielded readings ranged from a minimum of 1,800 cpm to 2,680 cpm. Based on field observations there was no indication of the presence of radiologically-contaminated material and/or an exceedance of the USEPA removal action level of 7.1 pCi/g total radium. A copy of a field sketch documenting the area where work was performed is included as an attachment.

Lake Shore Drive Off-Ramp and River Walk

Surveying was performed on the soil excavated, east of (refer to the attached sketch) Lake Shore Drive Off-ramp (onto E. Illinois Ave.) and north of the adjacent River Walk, required to address trench excavation for electrical line connections. The radiological survey was conducted on March 28, 2016. The excavation included two perpendicular excavations, east-to-west trench was approximately 18-feet long, 6-feet wide, to a depth of 4.5-feet bgs, and the perpendicular north-to-south trench was approximately 13-feet long, 3-feet wide, to a depth of 3-feet bgs.

The monitoring results did not indicate that the fill soils were above the removal action level established by the USEPA for the Streeterville area of Chicago (7.1 picocuries pCi/g) total radium. Gamma radiation count measurements for the foundation excavation were recorded using Ludlum Models 2221 survey meter (S/N: 172039) and an unshielded 2 x 2 inch NaI probe (Model 44-10). For the instrument used, the gamma count threshold indicative of the 7.1 pCi/g removal action level was 17,015 counts per minute (cpm) unshielded.

The field gamma measurements within the excavation, and of the spoil, during the excavation process did not exceed the instrument threshold previously stated and ranged from a minimum of 6,100 cpm to a maximum of 12,900 cpm unshielded. Based on field observations there was no indication of the presence of radiologically-contaminated material and/or an exceedance of the USEPA removal action level of 7.1 pCi/g total radium. A copy of a field sketch documenting the area where work was performed is included as an attachment.

Central Sprinkler Water Line

AECOM conducted radiological survey for the soil excavation activities conducted to address a water line connection south of E. Illinois Ave. and west of N. Streeter Dr., Chicago, Illinois. The surveying was completed on April 4, 5, 6, and 7, 2016. The excavation was approximately 135-feet long, 4-feet wide, to a depth of 5 to 7-feet deep bgs.

The monitoring results did not indicate that the fill soils were above the removal action level established by the USEPA for the Streeterville area of Chicago (7.1 picocuries pCi/g) total radium. Gamma radiation count measurements for the foundation excavation were recorded using Ludlum Models 2221 survey meter (S/N: 172039) and an unshielded 2 x 2 inch NaI probe (Model 44-10). For the instrument used, the gamma count threshold indicative of the 7.1 pCi/g removal action level was 17,015 counts per minute (cpm) unshielded.

The field gamma measurements within the excavation, and of the spoil, during the excavation process did not exceed the instrument threshold previously stated and ranged from a minimum of 4,200 cpm to a maximum of 10,500 cpm unshielded. Based on field observations there was no indication of the presence of radiologically-contaminated material and/or an exceedance of the USEPA removal action level of 7.1 pCi/g total radium. A copy of a field sketch documenting the area where work was performed is included as an attachment.

Asphalt Removal

Radiological survey was conducted for soil excavation activities to address asphalt removal north of E. Grand Ave. and east of LSD on-ramp., and an additional area south of E. Illinois St. and west of N. Streeter Dr., Chicago, Illinois. The surveying was completed on April 5, 6, and 11, 2016. Asphalt removal, northeast of the intersection of E. Grand St. and LSD northbound on-ramp, was approximately 200-feet long and 20 to 40-feet wide. Asphalt removal south of E. Illinois St. was approximately 460-feet long and 16-feet wide (refer to attached sketch). The asphalt removal conducted did not included vertical excavations other than the removal of asphalt itself.

The monitoring results did not indicate that the fill soils were above the removal action level established by the USEPA for the Streeterville area of Chicago (7.1 picocuries pCi/g) total radium. Gamma radiation count measurements for the foundation excavation were recorded using Ludlum Models 2221 survey meter (S/N: 172039) and an unshielded 2 x 2 inch Nal probe (Model 44-10). For the instrument used, the gamma count threshold indicative of the 7.1 pCi/g removal action level was 17,015 cpm, unshielded.

The field gamma measurements within the excavation, and of the spoil, during the excavation process did not exceed the instrument threshold previously stated and ranged from a minimum of 4,200 cpm to a maximum of 9,500 cpm unshielded. Based on field observations there was no indication of the presence of radiologically-contaminated material and/or an exceedance of the USEPA removal action level of 7.1 pCi/g total radium. A copy of a field sketch documenting the area where work was performed is included as an attachment.

Please contact us with any questions you have regarding this letter or the reported results.

Regards,

Andrew Kozak
Staff Geologist

Steven C. Kornder, Ph.D.
Senior Project Geochemist

cc: Michael Herbert, F.H. Paschen

Attachments: Sketches

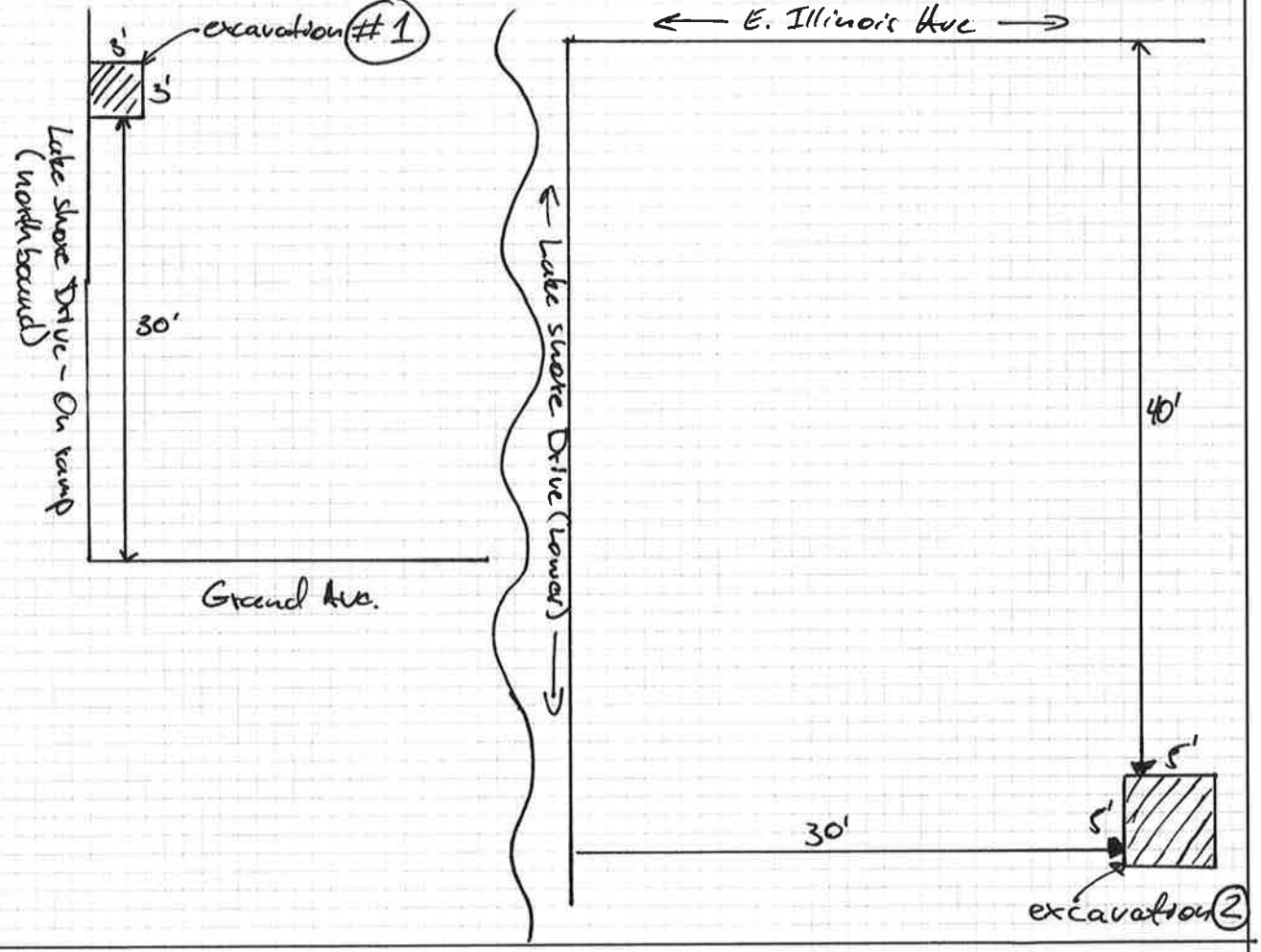
LIGHTE FOUNDATION EXCAVATION SKETCHES

AECOM

JOB TITLE Flyover - Lake Shore Drive & Grand Ave. / E. Illinois Ave.
JOB NO. 60318016 CALCULATION NO.
ORIGINATOR Andrew Kozak DATE 3/22/16
REVIEWER Steve Korander DATE 4/22/16
SCALE SHEET NO. 1 OF 2

Equipment

Ludlum 2221 S/N: 172059
Probe 2x2 NaI S/N: 174496
unshielded: 17,015 cpm
shielded: 6,684 cpm
background: 2,200 cpm (shielded)



Readings Area #1

Depth	CPM
surface	2,000 - 2,400
1'-2'	2,000 - 2,400
2'-4'	1,800 - 2,400
4-7'	2,100 - 2,600

Readings Area #2

Depth	CPM
surface	4,000 - 4,600
12"	4,600 - 6,500
30"	5,100 - 5,900

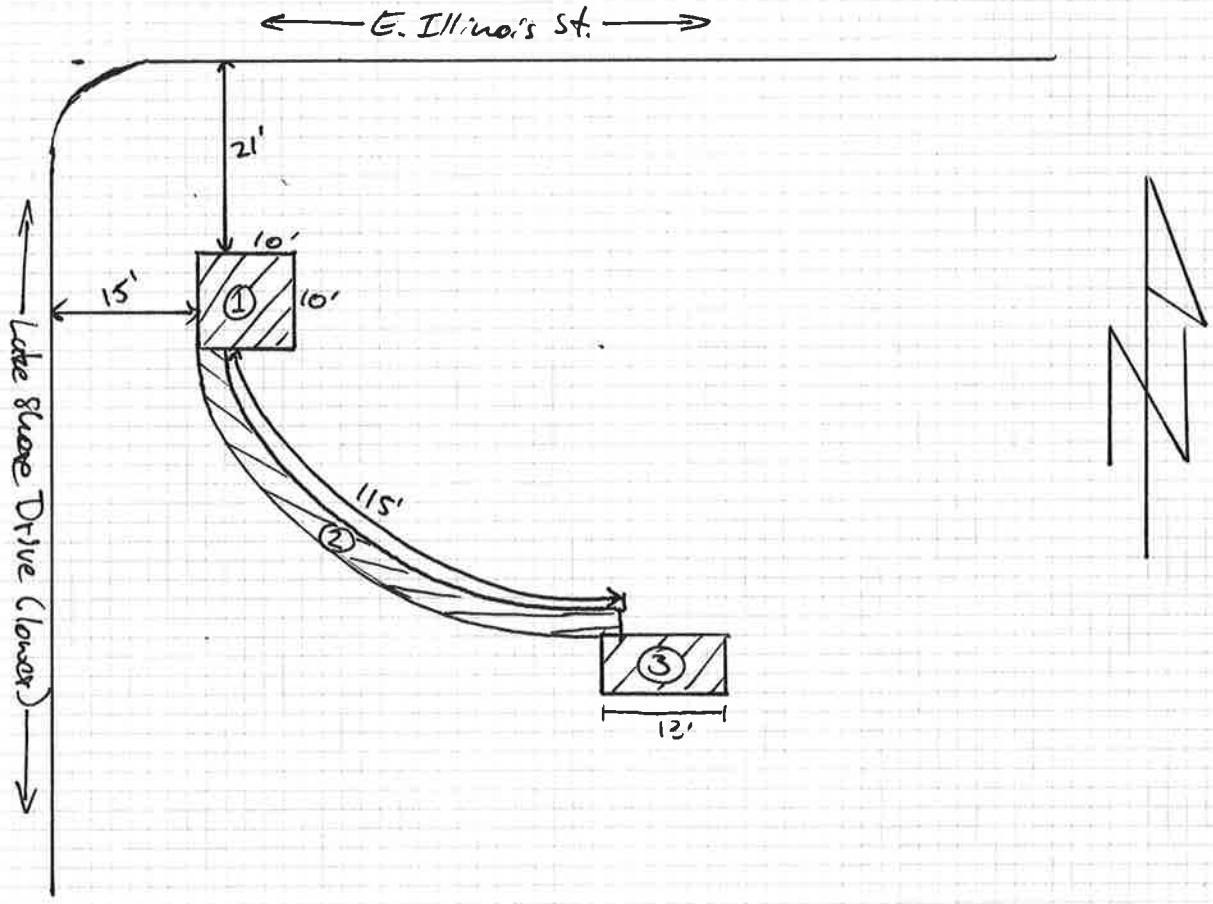
Grid: 10x10 = 1"

AECOM

JOB TITLE Flyover – Lake Shore Drive & Grand Ave. \ E. Illinois Ave.
JOB NO. 60318016 CALCULATION NO. —
ORIGINATOR Andrew Kozak DATE 3/23/16
REVIEWER Steve Komdev DATE 4/22/16
SCALE — SHEET NO. 2 OF 2

Survey Equipment

Ludlum 2221 S/N: 172059
Probe 2x2 NaI S/N: 174496
unshielded: 17,015 cpm
shielded: 6,694 cpm
background: 7,800 cpm



Readings

①

Depth	CPM
0-33" (spoil)	5,000 - 6,000

②

surface	4,600 - 6,200
18"-36"	5,200 - 8,000

③

Depth	CPM
0-12" (spoil)	6,000 - 7,700
12"-24"	8,000 - 14,200

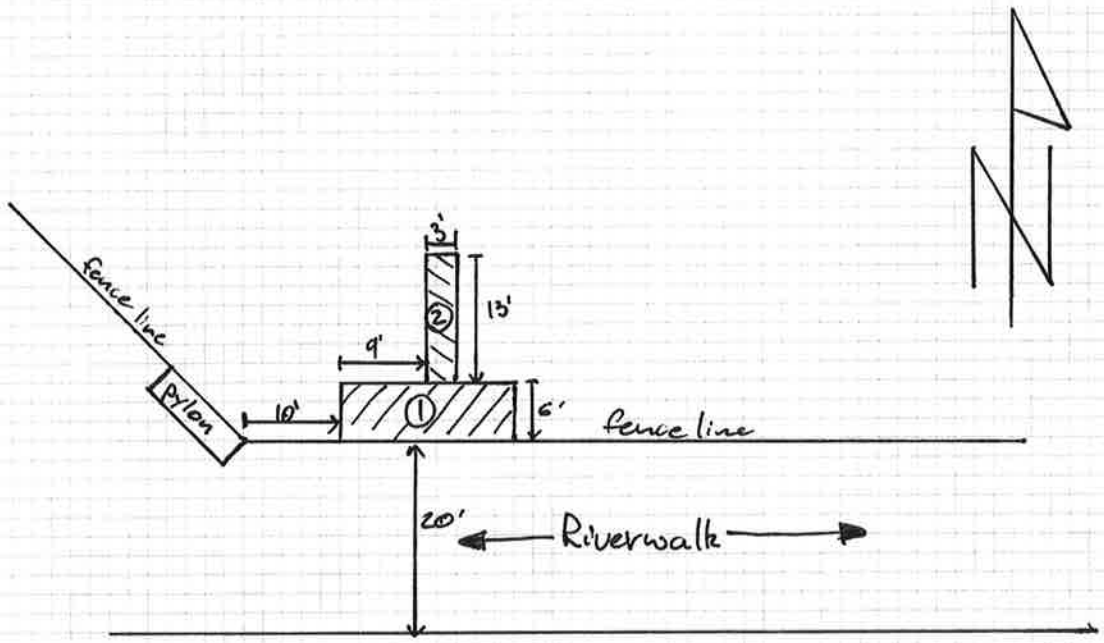
Grid: 10x10 = 1"

ELECTRICAL TRENCH EXCAVATION SKETCH

AECOM

JOB TITLE Flyover - Lakeshore Drive Off-ramp & River Walk
JOB NO. 60318016 CALCULATION NO. —
ORIGINATOR Andrew Kozak DATE 3/28/16
REVIEWER Steve Korander DATE 4/22/16
SCALE — SHEET NO. 1 OF 1

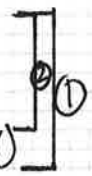
Survey Equipment
Ludlum 2221 S/N: 172039
Probe NaI22 S/N: 174496
unshielded: 17,015 cpm
shielded: 6,684 cpm
background: 7,100 cpm



Ogden Slip

Readings

Depth	CPM
Surface	6,100 - 7,300
18"	7,100 - 11,300
36"	9,200 - 12,400
4' - 4.5' (clay)	7,000 - 8,000 (shielded)



Grid: 10x10 = 1"

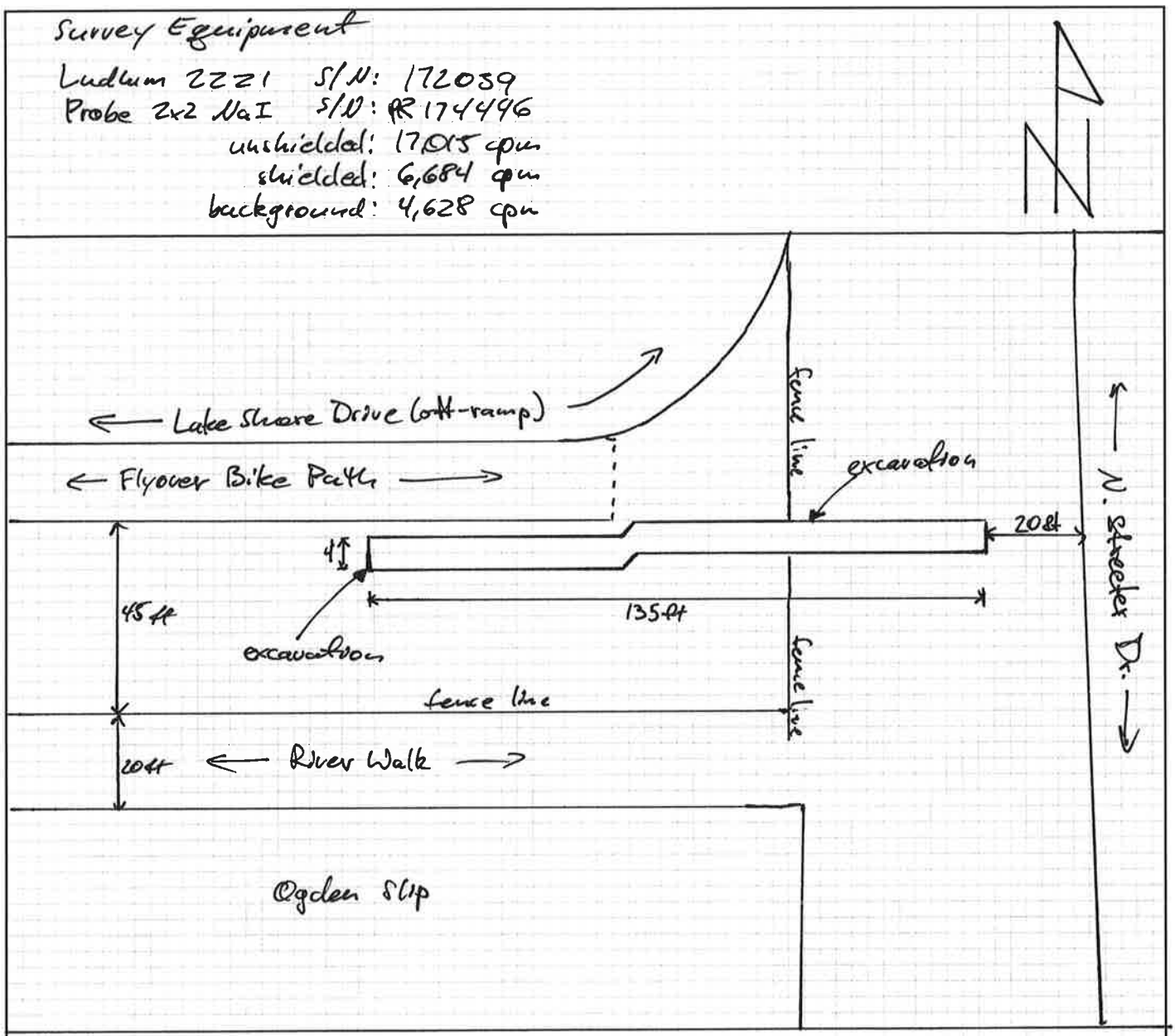
WATER LINE SKETCH

AECOM

JOB TITLE Flyover - Central Sprinkler
JOB NO. 60318016 CALCULATION NO. ———
ORIGINATOR Andrew Kozak DATE 4/4, 4/5, 4/6, 4/7
REVIEWER Steve Korndor DATE 4/22/16
SCALE ——— SHEET NO. 1 OF 1

Survey Equipment

Ludlum 2221 S/N: 172039
Probe 2x2 NaI S/N: PR174496
unshielded: 17,015 cpm
shielded: 6,684 cpm
background: 4,628 cpm



Readings

Depth	CPM
1'-3'	4,500 - 10,500
3'-7.5'	4,500 - 7,800
Spoil	4,200 - 10,500

Grid: 10x10 = 1"

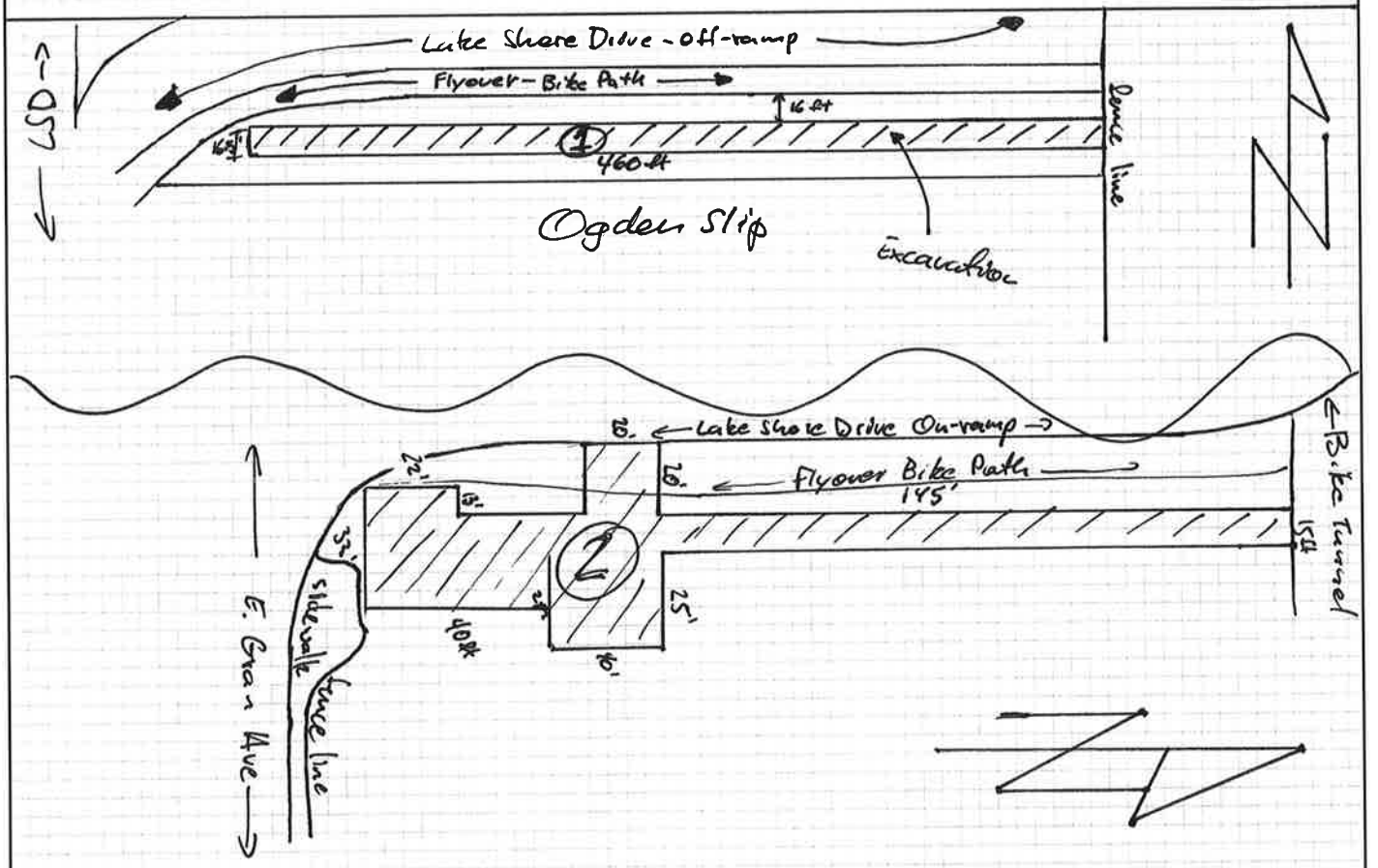
ASPHALT REMOVAL SKETCH

AECOM

JOB TITLE Flyover – Asphalt Removal
JOB NO. 60318016 CALCULATION NO. ———
ORIGINATOR Andrew Kozak DATE 4/5, 4/6, 4/11
REVIEWER Steve Kornder DATE 4/22/16
SCALE ——— SHEET NO. 1 OF 1

Survey Equipment

Ludlum 2221 S/N: 172039
Probe 2x2 NaI S/N: PR174496
unshielded: 17,015 cpm
shielded: 6,684 cpm
background: 3,950 cpm



Readings

(1)

Depth	CPM
0-6" (Asphalt Removed)	4900 - 8200

(2)

0-6" (Asphalt Removed)	4,200 - 9,500

Grid: 10x10 = 1"