APPENDIX F

STERLING, DECEMBER 18, 2013, ORANGE COUNTY LANDFILL - CHEECHUNK CANAL / LANDFILL STABILITY AND SEEP EVALUATION

STERLING
Sterling Environmental Engineering, P.C.

December 18, 2013

Mr. Bradford Shaw, P.E.
NYS Department of Environmental Conservation
RCRA Permitting Section
Division of Environmental Remediation
Remedial Bureau E, 12th Floor
625 Broadway
Albany, New York 12233-7017

Subject: Orange County Landfill
Cheechunk Canal/Landfill Seep Evaluation
STERLING File #2010-15 (Task 312)

Dear Mr. Shaw,

In accordance with the schedule provided by Peter Hammond's September 20, 2013 letter, Sterling Environmental Engineering, P.C. (STERLING) provides this work plan to determine if the seeps are impacted by the Landfill and if so, propose mitigation strategies.

In accordance with your letter of November 25, 2013, evaluation of the stability of the slope between the most recent canal slope failure and the closed Orange County Landfill can be deferred.

Seep Evaluation:

STERLING proposes to install approximately nine (9) temporary piezometers (small diameter groundwater observation wells) between the Landfill and the seeps near the canal bank failure in order to understand the subsurface hydrology between the limit of waste and the seeps (see Figure 1, attached).

The piezometers will be installed using a track-mounted geoprobe to a depth sufficient to straddle the groundwater surface at each location (estimated to be less than 20 feet). At each location, soil samples will be collected on a continuous basis from ground surface to termination depth using the geoprobe soil sampler. Upon completion of sampling, each borehole will be converted into a 1-¼ inch diameter standpipe piezometer by installing machine slotted PVC well screen and riser. We expect the piezometer installations can be completed in two (2) days depending on depths and conditions encountered at each borehole.

The elevation of the top of the piezometer casings (measuring points) will be measured with an engineer's level from the measuring point of nearby monitoring well MW-3B to allow for direct comparison of groundwater level measurements routinely collected at the Landfill. The apparent elevations of the canal bank seeps downgradient from the piezometers, as well as the water level of the canal, will be determined in the same manner.

Following installation, groundwater in each observation well between the Landfill and the seeps will be sampled for 6 NYCRR Part 360 field parameters (Conductivity, Temperature, pH and Eh). STERLING

may additionally recommend that groundwater samples be obtained from one or more of the piezometers and analyzed for leachate indicator parameters. Static groundwater levels will be periodically measured, with additional readings as directed by STERLING. County personnel can be trained to assist with periodic readings, if necessary.

Borehole logs, sampling results, and periodic measurements of groundwater levels will be evaluated to determine the nature of the seep. STERLING will provide a final report providing an opinion as to the impact of the Landfill on the seep, along with mitigation strategies based upon the findings or recommendations for additional investigatory work if necessary.

The investigative work described above can be performed within six (6) weeks of NYSDEC's approval of the Work Plan, weather permitting. Based upon the results of the investigation, the proposed design of a mitigation system will be provided to the NYSDEC which will likely consist of a recovery well (or wells) or collection trench with a sump. Such can be installed following NYSDEC approval of the design.

Please contact me should you have any questions or require additional clarification.

Very truly yours,

STERLING ENVIRONMENTAL ENGINEERING, P.C.

Mark P. Millspaugh, P.E.
President
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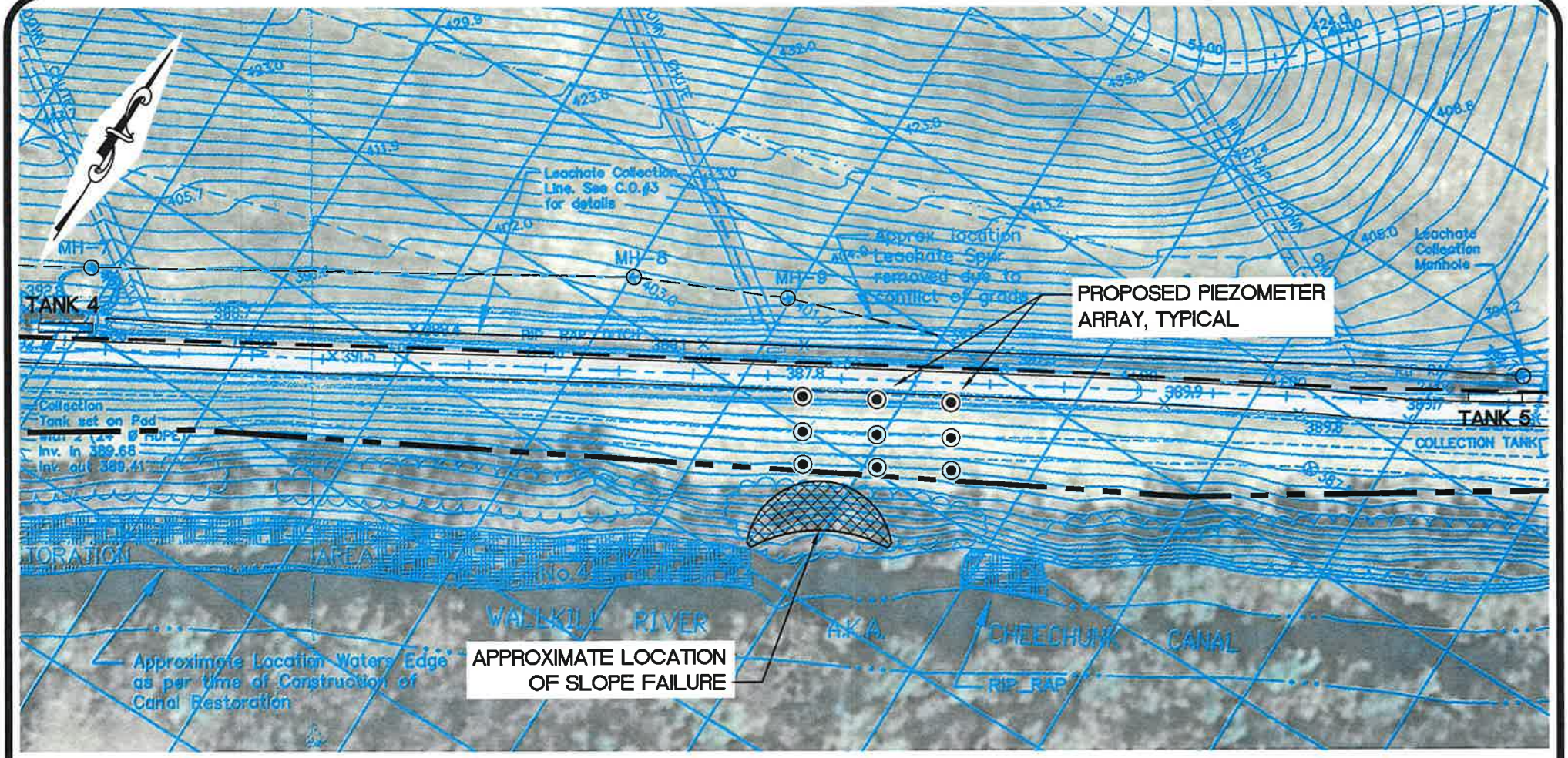
MPM/bc
Email/First Class Mail
Attachment (Figure 1)

cc: Peter S. Hammond, Orange County
Joseph F. Mahoney Esq.

2010-15\Correspondence\NYSDEC Geotechnical Evaluation_ltr_121813.doc



LEGEND:

- PROPERTY BOUNDARY
- LIMIT OF WASTE
- PROPOSED PIEZOMETER

0 50 100 200

(IN FEET)
1 inch = 100 ft.

MAP REFERENCES:

1. PROPERTY BOUNDARY AND LIMIT OF WASTE FROM DRAWINGS ENTITLED "OVERALL PLAN AND RESTRICTED PARCEL," BY THOMAS J. BARRY, DATED FEBRUARY 14, 2013.
2. AERIAL PHOTOGRAPH FROM NEW YORK STATEWIDE DIGITAL ORTHOIMAGERY PROGRAM, PHOTOGRAPHY CIRCA 2010.

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SITE PLAN
ORANGE CO. DEPT. OF PUBLIC WORKS
ORANGE CO. LANDFILL

TOWN OF GOSHEN — ORANGE CO., N.Y.

PROJ. No.:	2010-15	DATE:	10/4/13	SCALE:	1" = 100'	DWG. NO.	2010-15013	FIGURE	1